FINAL

SWMU 54 MONITORED NATURAL ATTENUATION SAMPLING YEAR EIGHT REPORT

RADFORD ARMY AMMUNITION PLANT
RADFORD, VIRGINIA

Contract No.: W912DR-15-D-0022
Delivery Order No.: W912DR18F0492

Prepared For:

U.S. ARMY CORPS OF ENGINEERS
BALTIMORE DISTRICT
Baltimore, Maryland

and

RADFORD ARMY AMMUNITION PLANT
Radford, Virginia

Prepared By:

WESTON SOLUTIONS, INC.
2 Eaton Street, Suite 904
Hampton, VA 23669

January 2022

22P-0020

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W.O. 03886.552.500.1001

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ACRONYMS AND ABBREVIATIONS

ºC	degrees Celsius
µg/L	micrograms per liter
µS/cm	microSiemens per centimeter
2,4,6-TNT	2,4,6-trinitrotoluene
2,4-DNT	2,4-dinitrotoluene
2,6-DNT	2,6-dinitrotoluene
2ADNT	2-amino-4,6-dinitrotoluene
4ADNT	4-amino-2,6-dinitrotoluene
amsl	above mean sea level
bgs	below ground surface
C/N	carcinogenic/noncarcinogenic
CAS	Chemical Abstracts Service
CB&I	CB&I Environmental & Infrastructure, Inc.
CCV	continuing calibration verification
CMO	corrective measures objective
CMS	Corrective Measures Study
COC	chain-of-custody
COD	chemical oxygen demand
COI	chemical of interest
COPC	chemical of potential concern
DNT	dinitrotoluene
DNX	hexahydro-1,3-dinitroso-5-nitro-1,3,5-triazine
DO	dissolved oxygen
FD	field duplicate
ft	feet/foot
ft/day	feet per day
ft/ft	feet per foot
ft/year	feet per year
HHRA	human health risk assessment
HI	hazard index
HMX	high melting explosive
ICV	initial calibration verification
IDW	investigation-derived waste
IM	Interim Measure
IMWP	Interim Measures Work Plan
IT	IT Corporation
LCS	laboratory control sample
LCSD	laboratory control sample duplicate
LOD	limit of detection
LOQ	limit of quantitation
LTM	long-term monitoring
MCL	maximum contaminant level
MDL	method detection limit
mg/L	milligrams per liter

ACRONYMS AND ABBREVIATIONS (CONTINUED)

mL/min	milliliters per minute
MNA	monitored natural attenuation
MNX	hexahydro-1-nitroso-3,5-dinitro-1,3,5-triazine
MS	matrix spike
mS/cm	milliSiemens per centimeter
MSD	matrix spike duplicate
mV	millivolts
MWP	Master Work Plan
ND	not detected
NI	not identified
NG	nitroglycerin
ng/L	nanograms per liter
NT	not tested
NTU	Nephelometric turbidity unit
ORP	oxidation reduction potential
Parsons	Parsons Engineering Science, Inc.
PDS	post digestion spike
PETN	pentaerythritol tetranitrate
pH	potential of hydrogen
PID	photoionization detector
ppm	parts per million
PQL	practical quantitation limit
QA	quality assurance
QAPP	Quality Assurance Project Plan
QC	quality control
RCRA	Resource Conservation and Recovery Act
RDX	cyclotrimethylenetrinitramine
RFAAP	Radford Army Ammunition Plant
RFI	RCRA Facility Investigation
RG	remedial goal
RL	reporting limit
RPD	relative percent difference
RSL	regional screening level
Shaw	Shaw Environmental, Inc.
SL	screening level
SU	standard unit
SVOC	semi-volatile organic compound
SWMU	solid waste management unit
TAL	target analyte list
TCDD	tetrachlorodibenzodioxin
TCL	target compound list
TIC	total inorganic carbon
TNT	trinitrotoluene
TNX	hexahydro-1,3,5-trinitroso-1,3,5-triazine

ACRONYMS AND ABBREVIATIONS (CONTINUED)

TOC	total organic carbon
URS	URS Corporation
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
VI	Verification Investigation
WESTON®	Weston Solutions, Inc.

1. INTRODUCTION

Weston Solutions, Inc. (WESTON®) has been contracted by the United States Army Corps of Engineers (USACE), Baltimore District, to perform Long-Term Monitoring (LTM) and Monitored Natural Attenuation (MNA) at RAAP-014, Propellant Burning Ash Disposal Area, at Radford Army Ammunition Plant (RFAAP), Radford, VA. This report provides a description of the groundwater sampling activities completed and analysis of results from the twenty-ninth through thirty-second quarterly rounds conducted in 2019 (October) through 2020 (January, April, and July). Further, this report provides a summary of Year Eight of sampling consisting of those four sampling events.

This work was performed under Contract No. W912DR-15-D-0022, Delivery Order No. W912DR18F0492 in accordance with the *Radford Army Ammunition Plant, Radford, Virginia, Final Master Work Plan (MWP)* (URS Corporation [URS], 2003) and with Part II (D)(11-21) IM of the RFAAP Resource Conservation and Recovery Act (RCRA) Corrective Action Permit (U.S. Environmental Protection Agency [USEPA], 2000). In order to maintain consistency with previous LTM and MNA sampling events (i.e., through Year Seven), the LTM and MNA activities followed the technical approach, Sampling and Analysis Plan, and quality assurance/quality control (QA/QC) procedures documented in the *Final SWMU 54 MNA Interim Measures Work Plan (IMWP)* (Shaw Environmental, Inc. [Shaw], 2011a).

1.1 PURPOSE AND SCOPE

Soil interim measures (IMs) have been completed at Solid Waste Management Unit (SWMU) 54 to mitigate the threat of a contaminant release, migration, and/or exposure to the public and the environment. The IMs included site preparation, soil excavation, waste characterization and off-site disposal, confirmation sampling, and site restoration. Detailed information concerning the IMs are presented in the *Final SWMU 54 RCRA Facility Investigation (RFI) / Corrective Measures Study (CMS) Report* (URS, 2008).

The Corrective Measures Objectives (CMOs) and Remedial Goals (RGs) were developed and presented in the *Final SWMU 54 RFI/CMS Report* (URS, 2008). The site-specific CMOs for SWMU 54 Area A are to mitigate further leaching of explosives constituents from soil to

groundwater at levels that would potentially increase observed concentrations and adversely impact future beneficial use of groundwater, and to the extent practicable, a goal of restoring site groundwater to the most beneficial use. The site-specific CMOs for SWMU 54 Area B are to mitigate the potential hypothetical future risks that have been identified for exposure to soil under a future construction worker scenario; and to prevent leaching of contaminants of concern from soil to groundwater at levels that would potentially adversely impact future beneficial use of groundwater. The site-specific CMOs for Area A and B were met through the excavation and off-site disposal of contaminated soil, which was completed in 2010.

The objectives of the LTM and MNA program are to measure and track the reduction of the following compounds to levels below the RGs as defined in **Table 1-1**:

- 2,4,6-Trinitrotoluene (2,4,6-TNT).
- Dinitrotoluene (DNT)-mixture.
- Cyclotrimethylenetrinitramine (RDX).
- Perchlorate.

1.2 SITE DESCRIPTION AND BACKGROUND

SWMU 54 is situated in the northeastern section of RFAAP within the easternmost portion of the Horseshoe Area. The SWMU consists of two noncontiguous disposal areas, Area A and B. Area A is a triangular-shaped parcel located in the southeast section of SWMU 54 that covers approximately 0.58 acre. Area B is a somewhat round tract located in the northwestern section that covers approximately 1.09 acres. Both areas are open fields covered with grass and bordered to the east and north by the RFAAP installation security fence. The site is currently undeveloped. SWMU 54 was reportedly used as an ash disposal area in the late 1970s that received propellant ash from the Waste Propellant Burning Grounds. The location of SWMU 54 is provided in **Figure 1-1**. All figures are placed at the end of each report section.

Table 1-1 SWMU Groundwater Remedial Goals

Chemical of Interest	Groundwater RG (*) (mg/L)
2,4,6-TNT	0.00782
DNT Mixture	0.000932
RDX	0.0061
Perchlorate	0.0109

Notes:
*RGs were calculated using target risk 1E-5 for the lifetime resident and a target hazard of 1 for the adult and child resident (URS, 2008).
2,4,6-TNT = 2,4,6-trinitrotoluene
DNT = dinitrotoluene
mg/L = milligrams per liter
RDX= cyclotrimethylenetrinitramine
RG = remedial goal
SWMU = Solid Waste Management Unit

Legend

- SWMU 54 Boundary
- Other SWMU Boundary

Aerial Source:
ESRI Imagery Mapping Service, 2019

N

0 150 300 600 Feet

Prepared By:

Baltimore District

FIGURE 1-1
SWMU 54 SITE LOCATION MAP
RADFORD, VIRGINIA

File: Y:\Radford\MXD\SWMU\SWMU_54_Site_Location_Map.mxd, 10/6/2020 11:42:48 AM, johna

2. PHYSICAL CHARACTERISTICS

2.1 TOPOGRAPHY

SWMU 54 is situated on a gently sloping terrace that leads to the New River to the east. Elevations range from a high of approximately 1,716 feet (ft) above mean sea level (amsl) in the western section of the SWMU to approximately 1,696 ft amsl in the eastern section. East and outside the SWMU boundary, the elevation steepens precipitously as it reaches the New River (at approximately 1,676 ft amsl).

2.2 SURFACE WATER

The New River is situated approximately 150 ft east of SWMU 54, and a small stream is present on the southern boundary. Surface water runoff from the SWMU flows east and, possibly south, to the New River and possibly also south to the unnamed stream. SWMU 54 is located within the easternmost portion of the Horseshoe Area at RFAAP. As it currently stands, SWMU 54 is positioned within the New River 100-Year floodplain.

2.3 GEOLOGY

2.3.1 Regional Geology

SWMU 54 is located in the New River Valley, which crosses the Valley and Ridge Province approximately perpendicular to the regional strike of bedrock, and cross cuts Cambrian and Ordovician limestone or dolostone. Deep clay-rich residuum is prevalent in areas underlain by carbonate rocks. The valley is covered by river floodplain and terrace deposits; karst topography is dominant throughout the area. A more detailed description of the regional geology is presented in the RFAAP Final MWP (URS, 2003).

2.3.2 Site-Specific Geology

Characterization of the SWMU 54 subsurface lithology was conducted during the advancement of soil and monitoring well borings at the site. Based on the borehole logs, two geologic cross-sections were developed and are presented in **Figure 2-1** (plan view of the cross-sectional lines), **Figure 2-2** (cross section A-A'), and **Figure 2-3** (cross section B-B').

Soil and monitoring well borings ranged from 10 to 60 ft in depth. Depths to bedrock, which were reported to be measured directly at the monitoring well borings, ranged in elevation from approximately 1,716 ft amsl to 1,670 ft amsl. Based on the borehole logs, the determination was made that bedrock slopes to the east.

The site lithology consists of unconsolidated sediments comprised of alluvial deposits overlying a thin zone of saprolitic carbonate (i.e., weathered bedrock), which overlies the Cambrian-aged Elbrook Formation. The alluvial deposits consist primarily of silty sand overlying channel deposits of fine- to coarse-grained sand and gravel (river jack). These paleo-channel deposits rest directly on the saprolite, which reportedly reaches 2.5 ft in thickness. It was also reported that some areas of the SWMU contain fill material to depths of 9 to 10 ft below ground surface (bgs).

Depth to competent bedrock at the SWMU ranges from 17 to 24 ft bgs. This competent bedrock belongs to the Elbrook Formation, which is a thickly bedded, blue-gray dolostone interspersed with blue-gray to white limestone. Locally, the formation is described as interbedded green and maroon shale, yellowish-brown dolostone, and greenish- to grayish-brown limestone and dolostone.

A more detailed discussion of the geology and soil at RFAAP is presented in Sections 3.4 through 3.7 of the RFAAP MWP (URS, 2003) and in the Facility-Wide Background Study Report (IT Corporation [IT], 2001).

2.4 HYDROGEOLOGY

2.4.1 Regional Hydrogeology

Geologically, the Appalachian Plateaus and Valley and Ridge Province encompass two major tectonic domains: the southern Appalachian Basin and the southeastern part of the Eastern Interior Basin. The hydrogeologic framework is based on generalized stratigraphic succession, with indurated sedimentary rocks of the Paleozoic age forming predominant units.

Groundwater flow paths are typically short, commonly extending no more than several miles in their longest range. The largest groundwater supplies are produced from the carbonate rocks, especially where they are associated with thick regolith, an important storage reservoir throughout

the entire area. The regolith stores recharge that otherwise would be rapidly diverted to overland flow. In addition, this unit slowly releases water to underlying carbonate aquifers. Because of the widespread distribution of carbonate rocks and associated regolith, abundant precipitation in a humid climate, and relatively steep hydraulic gradients, this region (and locally) is one of the major karstlands in the eastern United States.

Groundwater supplies in the Valley and Ridge Province are generally of good quality when compared to surface water supplies (Parsons Engineering Science, Inc. [Parsons], 1996). However, due to extended contact with minerals, many groundwater supplies contain higher levels of dissolved solids than the streams into which they discharge. Because of sinkholes and underground caverns in karst aquifers, there is a high potential for groundwater to be impacted by direct infiltration of contaminated surface water.

2.4.2 Site-Specific Hydrogeology

Monitoring wells installed at SWMU 54 were screened in both the shallow (surficial aquifer) and shallow bedrock aquifers. Water levels were measured in the wells to calculate the groundwater flow direction at the SWMU. Groundwater contour maps have been prepared using water level data collected prior to each round of groundwater sampling. The maps for Year Eight of monitoring are presented in **Figures 4-2, 4-3, 4-4**, and **4-5**. Contour lines shown on the figures represent lines of equal elevation of the water table; consequently, groundwater flow direction is always perpendicular to the contour lines and feeds into the New River, which generally runs south-to-north course. Groundwater at the site tends to flow east and appears to discharge to the New River along the eastern side of the site. Groundwater elevations at SWMU 54 show little variation in the fall and winter, but decrease in elevation at from winter to spring by 5 ft, rebounding in the summer by 1 ft.

Legend

- Well
- Soil Sample Location
- Fence
- Cross Section
- SWMU 54 Boundary

Aerial Source:
Near Map Imagery, February 2020

N

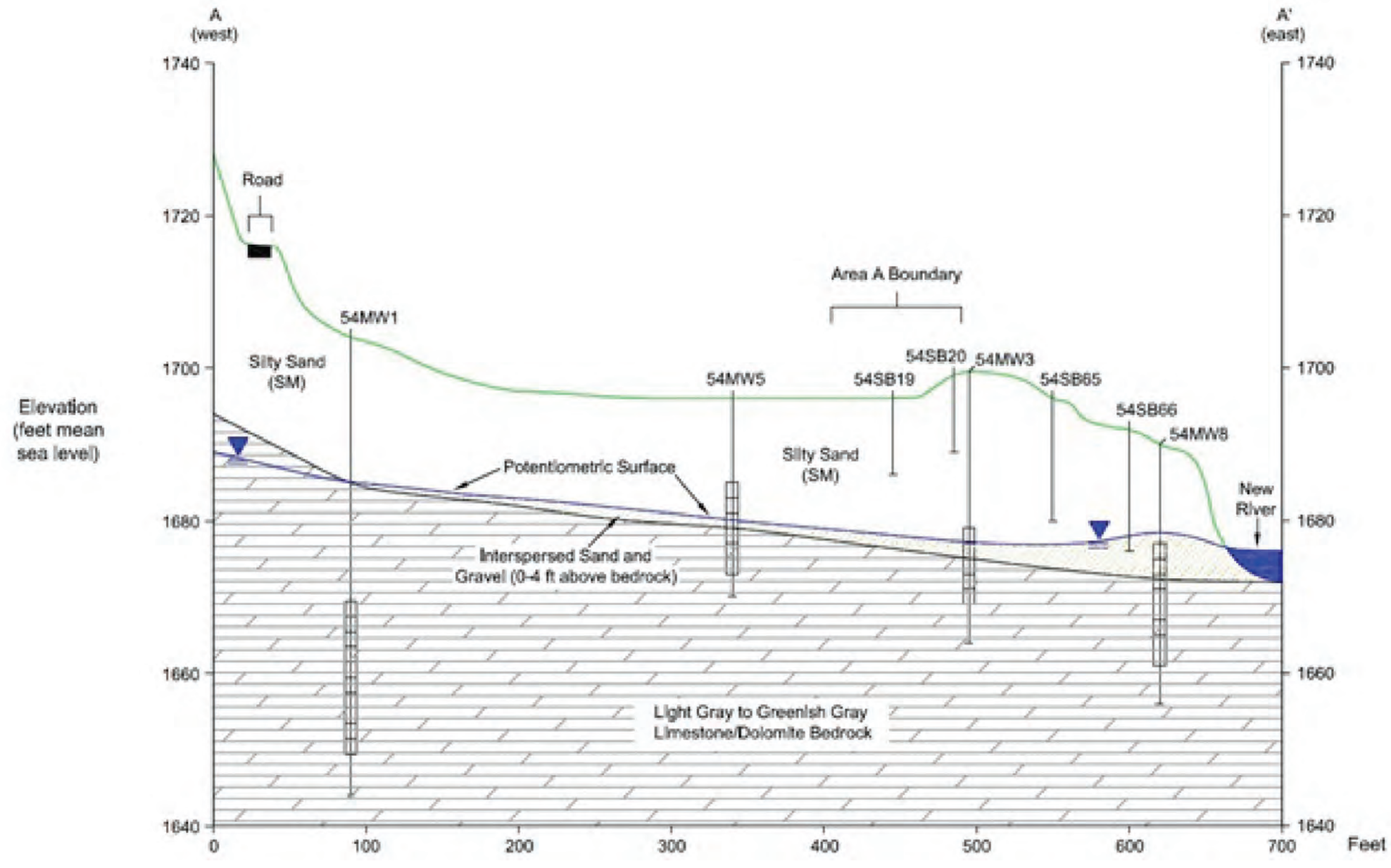
0 30 60 120 Feet

Prepared By:

Baltimore District

FIGURE 2-1
SWMU 54
CROSS SECTION
RADFORD, VIRGINIA

File: Y:\Radford\MXD\SWMU\SWMU54_Topography_Cross_Section.mxd, 2/26/2021 12:41:19 PM, johna



Legend

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FIGURE 2-2
SWMU 54
CROSS SECTION A-A'
RADFORD, VIRGINIA

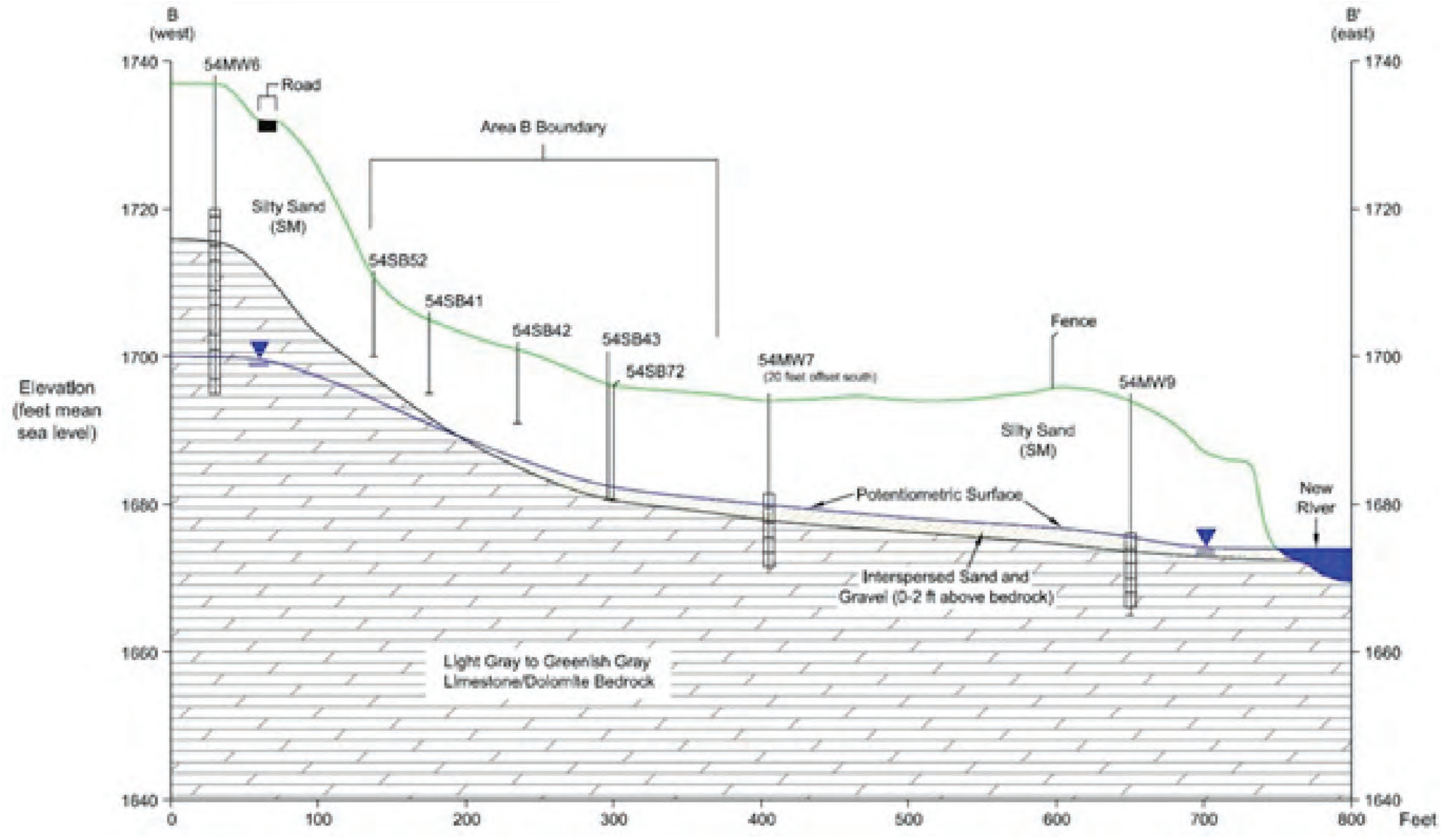

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FIGURE 2-3
SWMU 54
CROSS SECTION B-B'
RADFORD, VIRGINIA

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20P-0251

3. PREVIOUS INVESTIGATIONS

Four previous investigations have been conducted at this site prior to completion of an interim removal measure in 1999 by Parallax, Inc. Data obtained from previous site investigations prior to the IM were used to identify site boundaries and characteristics, and to identify chemicals of potential concern (COPCs). In 1992, the Environmental Photographic Interpretation Center provided aerial photographic analysis of SWMU 54, under the direction of the Environmental Protection Agency (USEPA). In addition, Dames & Moore conducted an RCRA Verification Investigation (VI) at the site to identify the ash disposal at Area A under authority of the 1984 Hazardous and Solid Waste Amendments in 1992. As a follow-up to the 1992 VI, Parsons completed an RFI in 1996, as part of a multiple site investigation to "define the extent of ash and the limits of soil contamination." In 1998, a Supplemental RFI/CMS was conducted to investigate a flat grassy area ringed by mature pine trees northwest of Area A. This area was defined as Area B within SWMU 54. The purpose of the supplemental RFI was to "characterize the nature and extent of contamination within SWMU 54." In 1999, Parallax, Inc. completed IMs at Area A and Area B of SWMU 54 consisting of excavation of selected "hot spot" areas of lead and explosives in soil.

In 2008, URS conducted an RFI/CMS investigating both Area A and Area B to confirm the effectiveness of the IM and to evaluate and assess current conditions at the sites and provide recommendations regarding potential corrective measure requirements at the sites. Direct push soil borings with chemical sampling were used to: characterize the nature and extent of constituents in soil at SWMU 54, identify the lateral and vertical extent of any waste material present, and characterize soil lithology and depth to groundwater and bedrock. Additionally, monitoring wells were installed at the site and groundwater samples were collected and analyzed. Details of these investigations are described in Section 3.0 (Field Investigation Program) of the Final SWMU 54 RFI/CMS Report (URS, 2008). A potentiometric map portraying the groundwater levels measured in 2007 is provided as **Figure 3-1**. Historical data listing Chemicals of Interest (COI) concentrations in the on-site groundwater, New River surface water and New River sediment pore water is provided in **Tables 3-1** through **3-6**.

The nature and extent assessment indicated that the main concern at the site is the fill material and grossly contaminated soil directly below the material. Areas A and B were evaluated separately

for the soil and groundwater nature and extent assessments, given the 200-ft separation between the areas, their topographic cross-gradient position, the lack of mobility of the chemicals in soil, and observed distributions of chemicals.

The main parameters of concern in Area A soil are lead, 2,4,6-TNT, DNT, RDX, amino DNTs, nitroglycerin (NG), heptachlor epoxide, and dioxins/furans. The main parameters of concern in groundwater at Area A are explosives and perchlorate. Concentrations of COIs 2,4,6-TNT, DNT, RDX, and perchlorate in groundwater have decreased since RFI monitoring began in 2003 and 2004. The lateral extent of explosives and perchlorate in groundwater extends from Area A eastward to the New River. Sampling of the groundwater/surface water interface (sediment pore water) and surface water of the New River did not indicate detectable impacts to sediment pore water or surface water from COPCs in groundwater.

Parameters of concern in Area B soils include lead, DNT, amino DNT, NG, RDX, dieldrin, Aroclor 1254, heptachlor epoxide, and dioxins/furans. No COIs were identified for Area B groundwater.

The Human Health Risk Assessment (HHRA) identified eight COIs at Area A (2,4,6-TNT, DNT, RDX, perchlorate, amino DNTs, NG, heptachlor epoxide, and 2,3,7,8-tetrachlorodibenzodioxin [TCDD]) and ten COIs at Area B (2,4,6-TNT, DNT, RDX, amino DNTs, NG, lead, Aroclor 1254, heptachlor epoxide, dieldrin, and 2,3,7,8-TCDD) under both an industrial and residential future-use scenario for total soil at SWMU 54. The HHRA determined that unacceptable risks to potential future residential and industrial receptors were associated with the COIs. As a result of the findings from the HHRA, it was concluded that, based on the levels detected in the soil hot spot areas, COIs could potentially leach from soil to groundwater at levels of concern, although groundwater impacts at levels of concern have not yet been identified at Area B. Because the RFI demonstrated that COI contamination is present at concentrations associated with unacceptable human health concerns, a CMS was performed to address the propellant ash material and grossly contaminated soil under the ash material at SWMU 54.

The alternatives evaluated were as follows:

- Alternative One: No Further Action.
- Alternative Two: Excavation of Soil at Area A and Area B, Off-Site Disposal, and MNA of Groundwater.
- Alternative Three: Excavation of Soil at Area A and Area B, Off-Site Disposal, and Enhanced In Situ Bioremediation of Groundwater.

These three alternatives were evaluated using the selection criteria of effectiveness, implementability, and cost. The site-specific CMO for SWMU 54 is to mitigate further leaching of explosives constituents from soil to groundwater at levels that would potentially increase observed concentrations and adversely impact future beneficial use of groundwater, and to eliminate the potential threats to human health and the environment that exist within materials found in SWMU 54. Observations from the SWMU 54 soil investigations indicate that the propellant ash consisted of a black, ashy material that was evident when encountered. Therefore, identification and removal of the propellant ash and grossly contaminated soil was partially based on visual observations during excavation, with analytical samples collected to confirm the observations.

Alternative Two, which entails excavation and off-site disposal as the primary remediation process, was found to achieve the CMO. Therefore, Alternative Two was selected as the final alternative for SWMU 54 because it is implementable and provides a greater level of protection to human health and the environment not provided by other alternatives. In addition, Alternative Two is the sole alternative that facilitates RGs without potential adverse effects to groundwater (i.e., degradation of secondary water quality parameters) from remedial implementation activities, which would occur with implementation of Alternative Three.

The CMOs and RGs were developed in the Final SWMU 54 RFI/CMS Report (URS, 2008). The following is a summary of the findings from that process.

The site-specific CMO for SWMU 54 Area A is to mitigate further leaching of explosives constituents from soil to groundwater at levels that would potentially increase observed concentrations and adversely impact future beneficial use of groundwater, and to the extent practicable, a goal of restoring site groundwater to the most beneficial use. The soil CMOs for

Area A have been met, and the purpose of this report is to implement the groundwater IMs to meet the CMOs for groundwater.

The site-specific CMO for SWMU 54 Area B is to mitigate the potential hypothetical future risks that have been identified for exposure to soil under a future construction worker scenario, and to prevent leaching of contaminants of concern from soil to groundwater at levels that would potentially adversely impact future beneficial use of groundwater. The site-specific CMOs have been met through the soil excavation and off-site disposal completed in 2010.

RGs for SWMU 54 soil were used at SWMU 54 to confirm that all COIs were removed from soil to levels that are safe for human health and the environment. Results from the soil remedial action at SWMU 54 can be found in the approved Final Interim Measures Completion Report for SWMU 54 (Shaw, 2011b). The groundwater RGs, included in **Table 1-1**, will be used to compare results from groundwater monitoring wells to assess the progress of the MNA process.

WESTON performed the LTM and MNA at SWMU 54 since October 2019 to the present, including the twenty-ninth through thirty-second quarterly sampling rounds, for Year Eight of sampling at RFAAP, discussed herein. Area B, although not monitored during Year Eight, is expected to have a groundwater flow velocity similar to Area A, as reported in the Year Three MNA Report (CB&I Environmental & Infrastructure, Inc [CB&I], 2014).

Table 3-1 2002 Area A Direct Push Groundwater Analytical Results with Remedial Goals

Sample ID Sample Date	CAS	C/N	RG	Units	54DPW1 12/11/2002		DL	RL	54DPW2 12/11/2002		MDL	RL	54DPW3 12/11/2002		MDL	RL	54GP77 10/13/2004		MDL	RL	54GP78 10/11/2004		MDL	RL	54GP78-DUP(DUP-1) 10/11/2004		MDL	RL	54GP79 10/11/2004		MDL	RL
					Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r		
Explosives																																
2,4,6-Trinitrotoluene	118-96-7	N	7.82	µg/L	<7.2	U,R,l	0.73	7.2	1.5	JB,B,z	0.33	3.3	<2.1	U,R,l	0.21	2.1	NT				NT				NT				NT			
DNT mixture*			0.932		ND				ND				ND				ND				ND				ND				ND			
RDX	121-82-4	C	6.1	µg/L	<7.2	U,R,l	1	7.2	<3.3	U,R,l	0.48	3.3	<2.1	U,R,l	0.31	2.1	NT				NT				NT				NT			
Perchlorate																																
Perchlorate	14797-73-0	N	10.9	µg/L	5.5		0.54	1	27.7		0.54	1	2		0.54	1	3.5		0.1	1	<1	U	0.1	1	<1	U	0.1	1	<1	U	0.1	1

Sample ID Sample Date	CAS	C/N	RG	Units	54GP80 10/13/2004		MDL	RL	54GP81 10/11/2004		MDL	RL	54GP82 10/11/2004		MDL	RL	54GP83 10/11/2004		MDL	RL	54GP84 10/13/2004		MDL	RL	54GP85 10/14/2004		MDL	RL	54GP86 10/13/2004		MDL	RL
					Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r		
Explosives																																
2,4,6-Trinitrotoluene	118-96-7	N	7.82	µg/L	NT				NT				NT				NT				NT				NT				NT			
DNT mixture*			0.932		ND				ND				ND				ND				ND				ND				ND			
RDX	121-82-4	C	6.1	µg/L	NT				NT				NT				NT				NT				NT				NT			
Perchlorate																																
Perchlorate	14797-73-0	N	10.9	µg/L	<1	U	0.1	1	1		0.1	1	<1	U	0.1	1	<1	U	0.1	1	<1	U	0.1	1	<1	U	0.1	1	<1	U	0.1	1

Sample ID Sample Date	CAS	C/N	RG	Units	54GP87 10/14/2004		MDL	RL	54GW56 8/18/2004		MDL	RL	54GW57 8/17/2004		MDL	RL	54GW58 8/24/2004		MDL	RL	54GW59 8/18/2004		MDL	RL	54GW59-DUP(DUP-3) 8/18/2004		MDL	RL	54GW60 8/24/2004		MDL	RL
					Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r		
Explosives																																
2,4,6-Trinitrotoluene	118-96-7	N	7.82	µg/L	NT				160		0.15	1.3	1.7	J,g	0.0749	0.65	15		0.0749	0.65	4.2	L,f	0.0749	0.65	11	J,g	0.0749	0.65	9.3		0.0749	0.65
DNT mixture*			0.932		ND				ND				ND	U			ND				ND				ND				ND			
RDX	121-82-4	C	6.1	µg/L	NT				35	J,g	0.164	0.65	0.69		0.164	0.65	3.7		0.164	0.65	1		0.164	0.65	1.7		0.164	0.65	0.8		0.164	0.65
Perchlorate																																
Perchlorate	14797-73-0	N	10.9	µg/L	<1	U	0.1	1	13.5		0.1	1	2		0.1	1	25.8		0.1	1	4		0.1	1	3.6		0.1	1	1.7		0.1	1

Sample ID Sample Date	CAS	C/N	RG	Units	54GW61 8/24/2004		MDL	RL	54GW62 8/23/2004		MDL	RL	54GW63 8/23/2004		MDL	RL	54GW64 8/23/2004		MDL	RL	54GW64-DUP(DUP-9) 8/23/2004		MDL	RL	54GW65 8/20/2004		MDL	RL	54GW66 8/20/2004		MDL	RL
					Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r		
Explosives																																
2,4,6-Trinitrotoluene	118-96-7	N	7.82	µg/L	74		0.0749	0.65	9		0.0749	0.65	<0.65	U	0.0749	0.65	0.82	J,g	0.0749	0.65	0.76	J,g	0.0749	0.65	3		0.0749	0.65	NT			
DNT mixture*			0.932		ND				ND				ND				ND				ND				ND				ND			
RDX	121-82-4	C	6.1	µg/L	<0.65	U	0.164	0.65	1.6		0.164	0.65	<0.65	U	0.164	0.65	0.75	J,g	0.164	0.65	0.73	J,g	0.164	0.65	0.7		0.164	0.65	NT			
Perchlorate																																
Perchlorate	14797-73-0	N	10.9	µg/L	3		0.1	1	5.3		0.1	1	<1	U	0.1	1	1.1		0.1	1	0.97	B	0.1	1	1.7		0.1	1	0.94	B,J,m	0.1	1

Table 3-1 2002 Area A Direct Push Groundwater Analytical Results with Remedial Goals (Continued)

Sample ID Sample Date	CAS	C/N	RG	Units	54GW66 8/23/2004		MDL	RL	54GW67 8/20/2004		MDL	RL	54GW67 8/23/2004		MDL	RL	54GW68 8/20/2004		MDL	RL	54GW69 8/20/2004		MDL	RL	54GW69 8/23/2004		MDL	RL	54GW70 8/20/2004		MDL	RL
					Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r		
Explosives																																
2,4,6-Trinitrotoluene	118-96-7	N	7.82	µg/L	<0.65	U	0.0749	0.65	NT				<0.65	U	0.0749	0.65	2.6	J,g	0.0749	0.65	NT				1.4		0.0749	0.65	<0.65	U	0.0749	0.65
DNT mixture*			0.932		ND				ND				ND				ND				ND				ND				ND			
RDX	121-82-4	C	6.1	µg/L	<0.65	U	0.164	0.65	NT				<0.65	U	0.164	0.65	<0.65	U	0.164	0.65	NT				0.51	J	0.164	0.65	<0.65	U	0.164	0.65
Perchlorate																																
Perchlorate	14797-73-0	N	10.9	µg/L	NT				0.59	B,J,m	0.1	1	NT				<1	U	0.1	1	0.65	B,J,m	0.1	1	NT				0.76	B	0.1	1

*DNT mixture is the combined results of 2,4-dinitrotoluene and 2,6-dinitrotoluene.

Notes:
< = less than
µg/L = micrograms per liter
CAS = Chemical Abstract Service
CMS = Corrective Measures Study
DNT = dinitrotoluene
ID = identifier
LQ = laboratory qualifier
MDL = method detection limit
NI = not identified
NT = not tested
ND = not detected
RBC = Risk-Based Concentration
RDX = cyclotrimethylenetrinitramine
RG = remedial goal
RFI = RCRA Facility Investigation
RL = reporting limit
SVOC = semi-volatile organic compound
SWMU = Solid Waste Management Unit
TAL = target analyte list
TCL = target compound list
TIC = total inorganic carbon
USEPA = U.S. Environmental Protection Agency
VQ = Validation Qualifier
r = reason code

C = Carcinogenic per USEPA RBC Table (October 2007)
N = Noncarcinogenic per USEPA RBC Table (October 2007)
[ ] =Exceeds RG
The corrective measures objectives (CMOs) and remedial goals (RGs) were developed and presented in the Final SWMU 54 RFI/CMS Report (URS, 2008).

Data Qualifiers:
B = Not detected substantially above the level reported in laboratory or field blanks.
E = Concentration exceeded the upper level of the calibration range of the instrument for that specific analysis. For TICs, compound not present in calibration standard, calculated using total peak areas ion chromatographs and response factor of 1.
J = Analyte present. Reported value may not be accurate or precise.
L = Analyte present. Reported value may be biased low. Actual value is expected to be higher.
N = Sample spike recovery is outside of control limits.
P = Greater than 40% difference for detected concentrations between the two GC or HPLC columns.
U = Not detected. The associated number indicates the approximate sample concentration necessary to be detected.
UJ = Not detected, quantitation limit may be inaccurate or imprecise.
UL = Not detected, quantitation limit is probably higher.
g = Dual column confirmation imprecision.
l =Laboratory Control Spike (LCS) recovery failure.
m = Matrix Spike/Matrix Spike Duplicate (MS/MSD) recovery failure.
o = Calibration blank contamination.
p = Preparation blank contamination.
s = Serial dilution failure.
w = Field and/or equipment blank contamination.
z = Method blank and/or storage blank contamination.

Table 3-2 2003-2004 Area A Groundwater Analytical Results with Remedial Goals

Sample ID Sample Date	CAS	C/N	RG	Units	54MW2 3/4/2003				54MW3 3/4/2003				54MW5 3/4/2003				54MW-8 12/21/2004				54MW-9 12/21/2004				54MW-10 12/21/2004				54MW10-DUP(DUP-1) 12/21/2004			
					Result	LQ, VQ, r	MDL	RL	Result	LQ, VQ, r	MDL	RL	Result	LQ, VQ, r	MDL	RL	Result	LQ, VQ, r	MDL	RL	Result	LQ, VQ, r	MDL	RL	Result	LQ, VQ, r	MDL	RL	Result	LQ, VQ, r	MDL	RL
Explosives																																
2,4,6-Trinitrotoluene	118-96-7	N	7.82	µg/L	<3.6	U	0.365	3.6	38		0.365	3.6	<4.2	U	0.43	4.2	<0.65	U	0.0749	0.65	<0.65	U	0.0749	0.65	62		0.15	1.3	65		0.15	1.3
DNT mix*			0.932	µg/L	ND				ND				ND				ND				ND				ND				ND			
RDX	121-82-4	C	6.1	µg/L	<3.6	U	0.526	3.6	32		0.526	3.6	<4.2	U	0.61	4.2	0.2	J,J,g	0.164	0.65	1.1	J,g	0.164	0.65	28		0.164	0.65	29		0.164	0.65
Perchlorate																																
Perchlorate	14797-73-0	N	10.90	µg/L	12		0.54	1	59.2		0.54	1	1.6		0.54	1	0.22	B	0.1	1	0.21	B	0.1	1	9.8		0.1	1	9.1		0.1	1
Field Parameters																																
Dissolved Oxygen	--	--	--	mg/L	6.97				5.18				2.88				0.25				2.56				1.25				1.25			
Oxidation Reduction Potential	--	--	--	mV	159.5				119.0				95.1				215				234				208				208			
pH	--	--	--	SU	6.37				6.65				7.00				7.20				7.53				7.06				7.06			
Specific Conductivity	--	--	--	mS	0.191				0.341				0.310				0.627				0.706				0.760				0.760			
Temperature	--	--	--	°C	16.24				15.97				12.91				13.6				13.2				13.8				13.8			
Turbidity	--	--	--	NTU	0.80				1.93				12.0				4.17				4.13				3.52				3.52			

*DNT mixture is the combined results of 2,4-dinitrotoluene and 2,6-dinitrotoluene.

Notes:
µg/L = micrograms per liter
°C = degrees Celsius
CAS = Chemical Abstracts Service
DNT = dinitrotoluene
ID = identifier
LQ = laboratory qualifier
MCL = maximum contaminant level
MDL = method detection limit
mV = millivolt
mS = milliSiemen
ND = not detected
NT = not tested
NTU = nephelometric turbidity unit
RG = remedial goal
RL = reporting limit
SU = standard units
SVOC = semi-volatile organic compound
TAL = target analyte list
TCL = target compound list
USEPA = U.S. Environmental Protection Agency
VQ = Validation Qualifier
r = reason code

C = Carcinogenic per USEPA RBC Table (October 2007)
N = Noncarcinogenic per USEPA RBC Table (October 2007)
=Exceeds RG

RBC = USEPA Region III Risk-Based Concentration
(RBC) values from the October 11, 2007, RBC Table and November 2020, Alternate RBC Table

Data Qualifiers:
B = Not detected substantially above the level reported in laboratory or field blanks.
E = Concentration exceeded the upper level of the calibration range of the instrument for that specific analysis. For TICs, compound not present in calibration standard, calculated using total peak areas ion chromatographs and response factor of 1.
J = Analyte present. Reported value may not be accurate or precise.
L = Analyte present. Reported value may be biased low. Actual value is expected to be higher.
N = Sample spike recovery is outside of control limits.
P = Greater than 40% difference for detected concentrations between the two GC or HPLC columns.
U = Not detected. The associated number indicates the approximate sample concentration necessary to be detected.
UJ = Not detected, quantitation limit may be inaccurate or imprecise.
UL = Not detected, quantitation limit is probably higher.
g = Dual column confirmation imprecision.
l = Laboratory Control Spike (LCS) recovery failure.
m = MS/MSD recovery failure.
o = Calibration blank contamination.
p = Preparation blank contamination.
s = Serial dilution failure.
w = Field and/or equipment blank contamination.
z = Method blank and/or storage blank contamination.

Table 3-3 2006-2007 Area A Quarterly Groundwater Monitoring Results with Remedial Goals

First Quarter – November/December 2006																															
Sample ID Sample Date	CAS	C/N	RG	54MW1 11/29/2006		MDL	RL	54MW2 11/29/2006		MDL	RL	54MW3 12/5/2006		MDL	RL	54MW5 11/29/2006		MDL	RL	54MW8 12/1/2006		MDL	RL	54MW9 12/1/2006		MDL	RL	54MW10 12/1/2006		MDL	RL
				Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r		
Explosives (µg/L)																															
2,4,6-Trinitrotoluene	118-96-7	N	7.82	<5	U	0.075	5	5.6		0.075	5	0.85	J	0.075	5	0.29	J	0.075	5	<5	U	0.075	5	<5	U	0.075	5	2.1	J	0.075	5
Dinitrotoluene Mixture	--	C	0.932	<5				<5				<5				<5				<5				<5				<5			
RDX	121-82-4	C	6.100	<5	U	0.16	5	<5	U	0.16	5	<5	U	0.16	5	<5	U	0.16	5	<5	U	0.16	5	<5	U	0.16	5	3.3	J	0.16	5
Perchlorate (µg/L)																															
Perchlorate	14797-73-0	N	10.90	<10	U	1.84	10	<10	U	1.84	10	<10	U	1.84	10	<10	U	1.84	10	<10	U	1.84	10	<10	U	1.84	10	<10	U	1.84	10
Field Parameters																															
Dissolved Oxygen (mg/L)	--	--	--	11.95				10.29				11.94				10.1				8.94				8.51				8.13			
Oxidation Reduction Potential (mV)	--	--	--	153				159				171				231				32				53				36			
pH (SU)	--	--	--	7.86				7.15				7.26				7.2				7.53				7.65				7.39			
Specific Conductivity (mS)	--	--	--	0.44				0.533				0.580				0.557				0.605				0.790				0.733			
Temperature (°C)	--	--	--	18.6				17.7				18.3				18.5				17.1				19.1				16.3			
Turbidity (NTU)	--	--	--	4.47				1.16				0.07				16.6				11.83				23.5				10.31			

Second Quarter – March 2007																															
Sample ID Sample Date	CAS	C/N	RG	54MW-1 3/28/2007		MDL	RL	54MW-2 3/28/2007		MDL	RL	54MW-3 3/28/2007		MDL	RL	54MW-5 3/28/2007		MDL	RL	54MW-8 3/27/2007		MDL	RL	54MW-9 3/27/2007		MDL	RL	54MW10 DUP AVG 3/27/2007		MDL	RL
				Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r		
Explosives (ug/L)																															
2,4,6-Trinitrotoluene	118-96-7	N	7.82	<5	U	0.1	5	0.25	J,J,d	0.1	5	<5	U	0.1	5	0.84	J,J,g	0.1	5	14		0.1	5	<5	U	0.1	5	6.018		0.1	5
Dinitrotoluene Mixture	--	C	0.932	<5				1.146				<5				<5				<5				<5				0.898			
RDX	121-82-4	C	6.100	<5	U	0.092	5	<5	U	0.092	5	<5	U	0.092	5	<5	U	0.092	5	8.1		0.092	5	<5	U	0.092	5	3.87		0.092	5
Perchlorate (ug/L)																															
Perchlorate	14797-73-0	N	10.90	<0.2	U	0.036	0.2	3.6		0.036	0.2	<0.2	U	0.036	0.2	0.52		0.036	0.2	0.26		0.036	0.2	0.24		0.036	0.2	2.9		0.036	0.2
Field Parameters																															
Dissolved Oxygen (mg/L)	--	--	--	8.06				7.75				6.12				8.38				6.68				6.51				8			
Oxidation Reduction Potential (mV)	--	--	--	-5				44				-11				53				-17				-10				11			
pH (SU)	--	--	--	7.63				6.45				6.94				6.51				7.05				7.18				6.88			
Specific Conductivity (mS)	--	--	--	0.199				0.183				0.311				0.167				0.267				0.960				0.334			
Temperature (°C)	--	--	--	13.44				15.8				15.22				12.73				13.92				14.43				15.95			
Turbidity (NTU)	--	--	--	1.82				0.37				2.13				1.22				13.96				7.71				3.64			

Table 3-3 2006-2007 Area A Quarterly Groundwater Monitoring Results with Remedial Goals (Continued)

Fourth Quarter – September 2007																													
Sample ID / Sample Date	CAS	C/N	RG	54MW-1 6/5/2007				54MW-2 6/5/2007				54MW-3 6/5/2007				54MW-5 6/5/2007				54MW-8 6/5/2007				54MW-9 6/5/2007				54MW-10 6/5/2007			
				Result	LQ, VQ, r	MDL	RL	Result	LQ, VQ, r	MDL	RL	Result	LQ, VQ, r	MDL	RL	Result	LQ, VQ, r	MDL	RL	Result	LQ, VQ, r	MDL	RL	Result	LQ, VQ, r	MDL	RL	Result	LQ, VQ, r	MDL	RL
Explosives (ug/L)																													
2,4,6-Trinitrotoluene	118-96-7	N	7.82	<5	U	0.1	5	3.9	J	0.1	5	1	J	0.1	5	0.49	J	0.1	5	<5	U	0.1	5	<5	U	0.1	5	2.4	J	0.1	5
Dinitrotoluene Mixture	--	C	0.932	ND				ND				ND				ND				ND				0.466				ND			
RDX	121-82-4	C	6.100	<5	U	0.092	5	<5	U	0.092	5	<5	U	0.092	5	<5	U	0.092	5	6.3		0.092	5	<5	U	0.092	5	1.6	J	0.092	5
Perchlorate (ug/L)																													
Perchlorate	14797-73-0	N	10.90	<0.2	U	0.08	0.2	2		0.08	0.2	0.88		0.08	0.2	0.58		0.08	0.2	0.7		0.08	0.2	0.23		0.08	0.2	0.37		0.08	0.2
Field Parameters																													
Dissolved Oxygen (mg/L)	--	--	--	7.57				8.46				5.06				8.44				8.82				5.21				7.35			
Oxidation Reduction Potential (mV)	--	--	--	297				268				109				236				285				94				187			
pH (SU)	--	--	--	7.33				6.78				6.2				6.24				6.9				6.25				6.87			
Specific Conductivity (mS)	--	--	--	0.192				0.225				0.003				0.163				0.245				0.003				0.353			
Temperature (°C)	--	--	--	13.58				13.48				15.66				21.68				13.4				15.44				14.51			
Turbidity (NTU)	--	--	--	0.48				0.29				0.36				0.67				0.06				1.67				**9.37**			

Fourth Quarter – September 2007																													
Sample ID / Sample Date	CAS	C/N	RG	54MW-1 9/19/2007				54MW-2 9/19/2007				54MW-3 9/19/2007				54MW-5 9/19/2007				54MW-8 9/18/2007				54MW-9 9/18/2007				54MW-10 9/18/2007			
				Result	LQ, VQ, r	MDL	RL	Result	LQ, VQ, r	MDL	RL	Result	LQ, VQ, r	MDL	RL	Result	LQ, VQ, r	MDL	RL	Result	LQ, VQ, r	MDL	RL	Result	LQ, VQ, r	MDL	RL	Result	LQ, VQ, r	MDL	RL
Explosives (ug/L)																													
2,4,6-Trinitrotoluene	118-96-7	N	7.82	<5	U	0.1	5	0.78	J	0.1	5	1.2	J	0.1	5	0.38	J,J,g	0.1	5	<5	U	0.1	5	<5	U	0.1	5	17		0.1	5
Dinitrotoluene Mixture	--	C	0.932	ND				ND				ND				ND				ND				ND				0.696			
RDX	121-82-4	C	6.100	<5	U	0.092	5	<5	U	0.092	5	<5	U	0.092	5	<5	U	0.092	5	<5	U	0.092	5	<5	U	0.092	5	8		0.092	5
Perchlorate (ug/L)																													
Perchlorate	14797-73-0	N	10.90	<0.2	U	0.08	0.2	0.57		0.08	0.2	0.31		0.08	0.2	0.34		0.08	0.2	0.37		0.08	0.2	<0.2	U	0.08	0.2	2.9		0.08	0.2
Field Parameters																													
Dissolved Oxygen (mg/L)	--	--	--	4.03				2.37				6.34				5.53				4.06				3.78				3.89			
Oxidation Reduction Potential (mV)	--	--	--	233				172				205				228				288				237				239			
pH (SU)	--	--	--	8.2				7.01				5.67				6.89				6.82				7.11				6.76			
Specific Conductivity (mS)	--	--	--	0.487				0.637				0.57				0.647				0.711				0.833				0.844			
Temperature (°C)	--	--	--	19.79				15.91				15.6				17.36				14.41				18.05				17.27			
Turbidity (NTU)	--	--	--	0.79				2.19				2.02				1.62				0.43				2.19				7.19			

Notes:
µg/L = micrograms per liter
ºC = degrees Celsius
CAS = Chemical Abstracts Service
ID = identifier
LQ = laboratory qualifier
MDL = method detection limit
mV = millivolt
mS = milliSiemen
ND = not detected
ng/L= nanograms per liter
NT = not tested
NTU = nephelometric turbidity unit
r = reason code
RG = remedial goal
RL = reporting limit
RPD = relative percent difference
SU = standard units
USEPA = U.S. Environmental Protection Agency
VQ = validation qualifier

C = Carcinogenic per USEPA RBC Table (October 2007)
N = Noncarcinogenic per USEPA RBC Table (October 2007)
=Exceeds RG

RBC = USEPA Region III Risk-Based Concentration (RBC) values from the October 11, 2007, RBC Table and October 11, 2007, Alternate RBC Table

Data Qualifiers:
J = Analyte present. Reported value may not be accurate or precise.
U = Not detected. The associated number indicates the approximate sample concentration necessary to be detected.
UJ = Not detected, quantitation limit may be inaccurate or imprecise.
c = calibration failure.
d = Matrix spike/matrix spike duplicate (MS/MSD) or laboratory control sample/laboratory control sample duplicate (LCS/LCSD) RPD imprecision.
g = Dual column confirmation imprecision.
l = LCS recovery failure.
m = MS/MSD recovery failure.

Table 3-4 2003 Area B Groundwater Analytical Results with Remedial Goals

Sample ID Sample Date	RG	Units	54MW4 3/4/2003		MDL	RL	54MW6 3/3/2003		MDL	RL	54MW7 3/4/2003		MDL	RL	54MW7-DUP (GW-DUP-1) 3/4/2003		MDL	RL
			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r		
Explosives																		
2,4,6-Trinitrotoluene	7.82	µg/L	<5.4	U	0.55	5.4	<4.2	U	0.43	4.2	<3.6	U	0.365	3.6	<4.8	U	0.487	4.8
DNT Mixture	0.932	µg/L	ND				ND				ND				ND			
RDX	6.1	µg/L	<5.4	U	0.79	5.4	<4.2	U	0.61	4.2	<3.6	U	0.526	3.6	<4.8	U	0.701	4.8
Perchlorate																		
Perchlorate	10.9	µg/L	<1	U	0.54	1	<1	U	0.54	1	<1	U	0.54	1	<1	U	0.54	1

Notes:
µg/L = micrograms per liter
°C = degrees Celsius
CAS = Chemical Abstracts Service
DNT = dinitrotoluene
LQ = laboratory qualifier
MDL = method detection limit
mV = millivolt
mS = milliSiemen
ND = not detected
NTU = nephelometric turbidity Unit
r = reason code
RL = reporting limit
RG = remedial goal
SU = standard units
USEPA = U.S. Environmental Protection Agency
VQ = validation qualifier

C = Carcinogenic per USEPA RBC Table (October 2007)
N = Noncarcinogenic per USEPA RBC Table (October 2007)
=Exceeds RG

Data Qualifiers:
B = Not detected substantially above the level reported in laboratory or field blanks.
E = Concentration exceeded the upper level of the calibration range of the instrument for that specific analysis. For TICs, compound not present in calibration standard, calculated using total peak areas ion chromatographs and response factor of 1.
K = Analyte present. Reported value may be biased high. Actual value is expected to be lower.
J = Analyte present. Reported value may not be accurate or precise.
L = Analyte present. Reported value may be biased low. Actual value is expected to be higher.
N = Sample spike recovery is outside of control limits.
U = Not detected. The associated number indicates the approximate sample concentration necessary to be detected.
UJ = Not detected, quantitation limit may be inaccurate or imprecise.
UL = Not detected, quantitation limit is probably higher.
g = Dual column confirmation imprecision.
l = LCS recovery failure.
m = MS/MSD recovery failure.
o = Calibration blank contamination.
p = Preparation blank contamination.
s = Serial dilution failure.
w = Field and/or equipment blank contamination.
z = Method blank and/or storage blank contamination.

Table 3-5 2006-2007 Area B Quarterly Groundwater Monitoring Results with Remedial Goals

First Quarter – November/December 2006															
Sample ID Sample Date	CAS	C/N	Adjusted Tapwater RBC	54MW4 11/30/2006		MDL	RL	54MW6 11/29/2006		MDL	RL	54MW7 12/5/2006		MDL	RL
				Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r		
Explosives (µg/L)															
2,4,6-Trinitrotoluene	118-96-7	N	7.82	<5	U	0.075	5	<5	U	0.075	5	<5	U	0.075	5
Dinitrotoluene Mixture	--	C	0.932	<5				<5				<5			
RDX	121-82-4	C	6.100	<5	U	0.16	5	<5	U	0.16	5	<5	U	0.16	5
Perchlorate (µg/L)															
Perchlorate	14797-73-0	N	10.90	<10	U	1.84	10	<10	U	1.84	10	<10	U	1.84	10
Field Parameters															
Dissolved Oxygen (mg/L)	--	--	--	9.9				11.63				10.46			
Oxidation Reduction Potential (mV)	--	--	--	-92				181				170			
pH (SU)	--	--	--	7.77				8				7.56			
Specific Conductivity (mS)	--	--	--	1.13				0.297				0.729			
Temperature (°C)	--	--	--	15				16.6				15.9			
Turbidity (NTU)	--	--	--	2.66				4.87				5.91			

Second Quarter – March 2007															
Sample ID Sample Date	CAS	C/N	RG	54MW-4 3/27/2007		MDL	RL	54MW-6 3/27/2007		MDL	RL	54MW-7 3/27/2007		MDL	RL
				Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r		
Explosives (µg/L)															
2,4,6-Trinitrotoluene	118-96-7	N	7.82	<5	U	0.1	5	<5	U	0.1	5	<5	U	0.1	5
Dinitrotoluene Mixture	--	C	0.932	<5				<5				<5			
RDX	121-82-4	C	6.100	<5	U	0.092	5	<5	U	0.092	5	<5	U	0.092	5
Perchlorate (µg/L)															
Perchlorate	14797-73-0	N	10.90	<0.2	U	0.036	0.2	<0.2	U	0.036	0.2	<0.2	U	0.036	0.2
Field Parameters															
Dissolved Oxygen (mg/L)	--	--	--	5.97				8.8				6			
Oxidation Reduction Potential (mV)	--	--	--	-95				135				-44			
pH (SU)	--	--	--	7.16				8.21				7			
Specific Conductivity (mS)	--	--	--	1.11				0.314				0.323			
Temperature (°C)	--	--	--	15.68				17.77				14.25			
Turbidity (NTU)	--	--	--	1.54				31.1				6.59			

Table 3-5 2006-2007 Area B Quarterly Groundwater Monitoring Results with Remedial Goals (Continued)

Third Quarter – June 2007															
Sample ID Sample Date				54MW4 DUP AVG 6/5/2007				54MW-6 6/5/2007				54MW-7 6/5/2007			
	CAS	C/N	RG	Result	LQ, VQ, r	MDL	RL	Result	LQ, VQ, r	MDL	RL	Result	LQ, VQ, r	MDL	RL
Explosives (µg/L)															
2,4,6-Trinitrotoluene	118-96-7	N	7.82	<5	U	0.1	5	<5	U	0.1	5	<5	U	0.1	5
Dinitrotoluene Mixture	--	C	0.932	<5				<5				<5			
RDX	121-82-4	C	6.100	<5	U	0.092	5	<5	U	0.092	5	<5	U	0.092	5
Perchlorate (µg/L)															
Perchlorate	14797-73-0	N	10.90	<0.2	U	0.08	0.2	<0.2	U	0.08	0.2	<0.2	U	0.08	0.2
Field Parameters															
Dissolved Oxygen (mg/L)	--	--	--	5.15				4.5				7.72			
Oxidation Reduction Potential (mV)	--	--	--	91				76				225			
pH (SU)	--	--	--	6.39				6.03				6.97			
Specific Conductivity (mS)	--	--	--	0.003				0.003				0.302			
Temperature (°C)	--	--	--	14.54				19.28				3.03			
Turbidity (NTU)	--	--	--	0.67				9.96				0.71			

Fourth Quarter – September 2007															
Sample ID Sample Date				54MW4 9/19/2007				54MW6 9/19/2007				54MW7 DUP AVG 9/19/2007			
	CAS	C/N	RG	Result	LQ, VQ, r	MDL	RL	Result	LQ, VQ, r	MDL	RL	Result	LQ, VQ, r	MDL	RL
Explosives (µg/L)															
2,4,6-Trinitrotoluene	118-96-7	N	7.82	<5	U	0.1	5	<5	U	0.1	5	<5	U	0.1	5
Dinitrotoluene Mixture	--	C	0.932	ND				ND				ND			
RDX	121-82-4	C	6.100	<5	U	0.092	5	<5	U	0.092	5	<5	U	0.092	5
Perchlorate (µg/L)															
Perchlorate	14797-73-0	N	10.90	<0.2	U	0.08	0.2	0.1	J	0.08	0.2	<0.2	U	0.08	0.2
Field Parameters															
Dissolved Oxygen (mg/L)	--	--	--	4.03				7.47				4.56			
Oxidation Reduction Potential (mV)	--	--	--	-1				236				266			
pH (SU)	--	--	--	7.91				8.13				6.97			
Specific Conductivity (mS)	--	--	--	1.1				0.267				0.766			
Temperature (°C)	--	--	--	16.08				16.69				16.83			
Turbidity (NTU)	--	--	--	0.43				4.37				0.39			

Notes:
µg/L = micrograms per liter
°C = degrees Celsius
CAS = Chemical Abstracts Service
ID = identifier
MDL = method detection limit
mV = millivolt
mS = milliSiemen
ND = not detected
ng/L = nanogram per liter
NTU = nephelometric turbidity unit
pH = potential of hydrogen
r = reason code
RDX = cyclotrimethylenetrinitramine
RL = reporting limit
SU = standard unit
LQ = laboratory qualifier
VQ = validation qualifier

Data Qualifiers:
J = Analyte present. Reported value may not be accurate or precise.
U = Not detected. The associated number indicates the approximate sample concentration necessary to be detected.
C = Carcinogenic per USEPA RBC Table (October 2007)
N = Noncarcinogenic per USEPA RBC Table (October 2007)
=Exceeds RG

Table 3-6 2006 New River Surface and Sediment Pore Water Sample Results with Remedial Goals

Surface Water

Sample ID / Sample Date	CAS	C/N	RG	NR-SW-1 11/30/2006				NR-SW-2 11/30/2006				NR-SW-3 11/30/2006				NR-SW-4 11/30/2006				NR-SW-5 11/30/2006				NR-SW-6 11/30/2006			
				Result	LQ, VQ, r	MDL	RL	Result	LQ, VQ, r	MDL	RL	Result	LQ, VQ, r	MDL	RL	Result	LQ, VQ, r	MDL	RL	Result	LQ, VQ, r	MDL	RL	Result	LQ, VQ, r	MDL	RL
Explosives (µg/L)																											
2,4,6-Trinitrotoluene	118-96-7	C	7.82	<5	U	0.075	5	<5	U	0.075	5	<5	U	0.075	5	<5	U	0.075	5	<5	U	0.075	5	<5	U	0.075	5
2,4-Dinitrotoluene	121-14-2	N		<5	U	0.12	5	<5	U	0.12	5	<5	U	0.12	5	<5	U	0.12	5	<5	U	0.12	5	<5	U	0.12	5
2,6-Dinitrotoluene	606-20-2	N		<5	U	0.27	5	<5	U	0.27	5	<5	U	0.27	5	<5	U	0.27	5	<5	U	0.27	5	<5	U	0.27	5
DNT mixture*			0.932	<5				<5				<5				<5				<5				<5			
RDX	121-82-4	C	6.100	<5	U	0.16	5	<5	U	0.16	5	<5	U	0.16	5	<5	U	0.16	5	<5	U	0.16	5	<5	U	0.16	5
Perchlorate (µg/L)																											
Perchlorate	14797-73-0	--	10.900	<10	U	1.84	10	<10	U	1.84	10	<10	U	1.84	10	<10	U	1.84	10	<10	U	1.84	10	<10	U	1.84	10
Field Parameters																											
Dissolved Oxygen (mg/L)	--	--	--	17.05				15.83				14.64				12.93				14.83				15.11			
Oxidation Reduction Potential (mV)	--	--	--	219				118				47				53				32				35			
pH (SU)	--	--	--	8.9				8.1				7.96				7.81				7.67				8.3			
Specific Conductivity (mS)	--	--	--	0.116				0.113				0.118				0.174				0.117				0.155			
Temperature (°C)	--	--	--	10.1				9.9				10.1				10.3				10.2				10.4			
Turbidity (NTU)	--	--	--	71.3				13.7				17.48				9.94				7.66				6.21			

Pore Water

Sample ID / Sample Date	CAS	C/N	RG	NR-PW-1 11/30/2006				NR-PW-2 11/30/2006				NR-PW-3 11/30/2006				NR-PW-4 11/30/2006				NR-PW-5 11/30/2006				NR-PW-6 11/30/2006			
				Result	LQ, VQ, r	MDL	RL	Result	LQ, VQ, r	MDL	RL	Result	LQ, VQ, r	MDL	RL	Result	LQ, VQ, r	MDL	RL	Result	LQ, VQ, r	MDL	RL	Result	LQ, VQ, r	MDL	RL
Explosives (µg/L)																											
2,4,6-Trinitrotoluene	118-96-7	C	7.82	<5	U	0.075	5	<5	U	0.075	5	<5	U	0.075	5	<5	U	0.075	5	<5	U	0.075	5	<5	U	0.075	5
2,4-Dinitrotoluene	121-14-2	N		<5	U	0.12	5	<5	U	0.12	5	<5	U	0.12	5	<5	U	0.12	5	<5	U	0.12	5	<5	U	0.12	5
2,6-Dinitrotoluene	606-20-2	N		<5	U	0.27	5	<5	U	0.27	5	<5	U	0.27	5	<5	U	0.27	5	<5	U	0.27	5	<5	U	0.27	5
DNT mixture*			0.932	<5				<5				<5				<5				<5				<5			
RDX	121-82-4	C	6.100	<5	U	0.16	5	<5	U	0.16	5	<5	U	0.16	5	<5	U	0.16	5	<5	U	0.16	5	<5	U	0.16	5
Perchlorate (µg/L)																											
Perchlorate	14797-73-0	--	10.900	<10	U	1.84	10	<10	U	1.84	10	<10	U	1.84	10	<10	U	1.84	10	<10	U	1.84	10	<10	U	1.84	10
Field Parameters																											
Dissolved Oxygen (mg/L)	--	--	--	10.38				10.46				12.2				9.35				10.82				11.34			
Oxidation Reduction Potential (mV)	--	--	--	-109				-174				20				-182				-44				-58			
pH (SU)	--	--	--	7.33				7.21				7.47				7.57				7.44				7.2			
Specific Conductivity (mS)	--	--	--	0.307				0.344				0.248				0.38				0.553				0.353			
Temperature (°C)	--	--	--	12.8				10.7				10.8				10.6				13.2				11.9			
Turbidity (NTU)	--	--	--	16.35				37.9				22.7				4.86				3.63				11.85			

Table 3-6 2006 New River Surface and Sediment Pore Water Sample Results with Remedial Goals (Continued)

Surface Water																						
Sample ID				NR-SW-7				NR-SW-8				NR-SW-8-DUP(DUP-4)				NR-SW-9				NR-SW-10			
Sample Date	CAS	C/N	RG	12/1/2006				12/1/2006				12/1/2006				12/1/2006				12/1/2006			
				Result	LQ, VQ, r	MDL	RL	Result	LQ, VQ, r	MDL	RL	Result	LQ, VQ, r	MDL	RL	Result	LQ, VQ, r	MDL	RL	Result	LQ, VQ, r	MDL	RL
Explosives (µg/L)																							
2,4,6-Trinitrotoluene	118-96-7	C	7.82	<5	U	0.075	5	<5	U	0.075	5	<5	U	0.075	5	<5	U	0.075	5	<5	U	0.075	5
2,4-Dinitrotoluene	121-14-2	N		<5	U	0.12	5	<5	U	0.12	5	<5	U	0.12	5	<5	U	0.12	5	<5	U	0.12	5
2,6-Dinitrotoluene	606-20-2	N		<5	U	0.27	5	<5	U	0.27	5	<5	U	0.27	5	<5	U	0.27	5	<5	U	0.27	5
DNT mixture*			0.932	<5				<5				<5				<5				<5			
RDX	121-82-4	C	6.100	<5	U	0.16	5	<5	U	0.16	5	<5	U	0.16	5	<5	U	0.16	5	<5	U	0.16	5
Perchlorate (µg/L)																							
Perchlorate	14797-73-0	--	10.900	<10	U	1.84	10	<10	U	1.84	10	<10	U	1.84	10	<10	U	1.84	10	<10	U	1.84	10
Field Parameters																							
Dissolved Oxygen (mg/L)	--	--	--	13.13				13.27				13.27				13.76				14.69			
Oxidation Reduction Potential (mV)	--	--	--	10				41				41				51				52			
pH (SU)	--	--	--	8.11				7.8				7.8				7.62				7.83			
Specific Conductivity (mS)	--	--	--	0.140				0.124				0.124				0.131				0.114			
Temperature (°C)	--	--	--	11.7				12.5				12.5				11.8				11			
Turbidity (NTU)	--	--	--	148				13.8				13.8				20.5				11.46			

Pore Water																							
Sample ID				NR-PW-6-DUP(DUP-3)				NR-PW-7				NR-PW-8				NR-PW-9				NR-PW-10			
Sample Date	CAS	C/N	RG	11/30/2006				12/1/2006				12/1/2006				12/1/2006				12/1/2006			
				Result	LQ, VQ, r	MDL	RL	Result	LQ, VQ, r	MDL	RL	Result	LQ, VQ, r	MDL	RL	Result	LQ, VQ, r	MDL	RL	Result	LQ, VQ, r	MDL	RL
Explosives (µg/L)																							
2,4,6-Trinitrotoluene	118-96-7	C	7.82	<5	U	0.075	5	<5	U	0.075	5	<5	U	0.075	5	<5	U	0.075	5	<5	U	0.075	5
2,4-Dinitrotoluene	121-14-2	N		<5	U	0.12	5	<5	U	0.12	5	<5	U	0.12	5	<5	U	0.12	5	<5	U	0.12	5
2,6-Dinitrotoluene	606-20-2	N		<5	U	0.27	5	<5	U	0.27	5	<5	U	0.27	5	<5	U	0.27	5	<5	U	0.27	5
DNT mixture*			0.932	<5				<5				<5				<5				<5			
RDX	121-82-4	C	6.100	<5	U	0.16	5	<5	U	0.16	5	<5	U	0.16	5	<5	U	0.16	5	<5	U	0.16	5
Perchlorate (µg/L)																							
Perchlorate	14797-73-0	--	10.900	<10	U	1.84	10	<10	U	1.84	10	<10	U	1.84	10	<10	U	1.84	10	<10	U	1.84	10
Field Parameters																							
Dissolved Oxygen (mg/L)	--	--	--	11.34				9.25				9.74				10.55				10.18			
Oxidation Reduction Potential (mV)	--	--	--	-58				-194				-173				-173				-157			
pH (SU)	--	--	--	7.2				7.54				7.36				7.23				7.47			
Specific Conductivity (mS)	--	--	--	0.353				0.517				0.660				0.533				0.479			
Temperature (°C)	--	--	--	11.9				13				12.9				13.2				13.1			
Turbidity (NTU)	--	--	--	11.85				3.72				5.6				15.87				1.66			

*DNT mixture is the combined results of 2,4-dinitrotoluene and 2,6-dinitrotoluene.

Notes:
µg/L = micrograms per liter
°C = degrees Celsius
CAS = Chemical Abstracts Service
DNT = dinitrotoluene
ID = identifier
MDL = method detection limit
mg/L = milligram per liter
mV = millivolt
mS = milliSiemen
NTU = nephelometric turbidity unit
r = reason code
RG = remedial goal
RL = reporting limit
RDX = cyclotrimethylenetrinitramine
SU = standard unit
USEPA = U.S. Environmental Protection Agency
LQ = laboratory qualifier
VQ = validation qualifier

C = Carcinogenic per USEPA RBC Table (October 2007)
N = Noncarcinogenic per USEPA RBC Table (October 2007)
=Exceeds RG

RBC = USEPA Region III Risk-Based Concentration (RBC) values from the October 11, 2007, RBC Table and October 11, 2007, Alternate RBC Table
BTAG = Biological Technical Assistance Group Water - BTAG Freshwater Screening Values, 2006a

Data Qualifiers:
J = Analyte present. Reported value may not be accurate or precise.
U = Not detected. The associated number indicates the approximate sample concentration necessary to be detected.

Legend

- Well (Current MNA Network)
- Well (Removed from Network After 9th Quarter)
- Groundwater Contour
- Inferred Groundwater Contour
- Groundwater Flow Direction
- Fence
- SWMU 54 Boundary

Aerial Source:
Near Map Imagery, February 2020

N

0 30 60 120 Feet

Prepared By:
Baltimore District

FIGURE 3-1
SWMU 54
JUNE 5, 2007 GROUNDWATER CONTOUR MAP
RADFORD, VIRGINIA

File: Y:\Radford\MXD\SWMU\SWMU54_2007_Groundwate_ Contour_Map.mxd, 10/6/2020 11:39:28 AM, johna

4. FIELD ACTIVITIES

The following sections provide a discussion of field activities conducted by WESTON in Year Eight of monitoring at SWMU 54.

Year Eight of groundwater monitoring consisted of four sampling events conducted in October 2019 (twenty-ninth quarter), February 2020 (thirtieth quarter), April 2020 (thirty-first quarter), and July 2020 (thirty-second quarter). Multiple wells were removed from the monitoring network after the ninth and tenth quarters and were not sampled during Year Eight. Monitoring wells that were included in Year Eight monitoring events comprised 54MW1, 54MW10, 54MW12, and 54MW13, which monitor Area A at SWMU 54, as consistent with the 11th through 28th quarterly events. Field activities were conducted in accordance with the *Final SWMU 54 MNA IMWP* (Shaw, 2011a). Copies of the groundwater sample forms, meter calibration records, and field notes are presented in **Appendix A-1, A-2,** and **A-3**, respectively. The monitoring wells were all in usable condition for the entire year of sampling.

4.1 TWENTY-NINTH QUARTER GROUNDWATER SAMPLING (OCTOBER 2019)

Groundwater elevation measurements and groundwater samples were collected from monitoring wells 54MW1, 54MW10, 54MW12, and 54MW13 during the twenty-ninth quarter event. The twenty-ninth quarter of groundwater sampling was conducted 14 October 2019. Groundwater elevation measurements were collected prior to sampling activities. A groundwater quality meter was calibrated at the beginning of each day, before groundwater sampling was initiated. The locations of monitoring wells sampled during this quarterly event are provided in **Figure 4-1**.

4.1.1 Groundwater Elevation Measurements

Water level elevations were collected during each Year Eight quarterly event from the four monitoring wells at SWMU 54 prior to the collection of groundwater samples. **Table 4-1** provides the measured depth-to-water levels (from the top of the casing) and groundwater elevations amsl collected on 14 October 2019. **Figure 4-2** presents a groundwater elevation contour map developed from the elevation data collected during this quarterly monitoring event. Groundwater contours were derived using Esri ArcGIS Desktop Spatial Analyst 10.7.1 software and creating a spline interpolated continuous surface based on limited groundwater data. The surface model was

executed using default values in most cases and forces to cover an area inclusive of all wells using the extent polygon to define the area of interest. Contour lines were then constructed from the output splined surface at 10-foot and 2-foot intervals, depending on the site, with zero base contour. The results of the automated processing were then reviewed by subject knowledge experts and manually adjusted to accurately represent ground conditions.

Estimated groundwater flow velocity for Area A was calculated based on parameters used in the SWMU 54 RFI/CMS Report (URS, 2008). The Area A flow path of approximately 538.4 ft had a groundwater elevation difference of 13.55 ft, resulting in a calculated hydraulic gradient of 0.025 feet per foot (ft/ft). Using an average K value for Area A of 4.86 feet per day (ft/day) and an estimated effective porosity of 0.20, the groundwater flow velocity for Area A is approximately 0.61 ft/day (223.22 feet per year [ft/year]).

Area B, although not monitored during Year Eight as mentioned in Section 3, is expected to have a groundwater flow velocity similar to Area A, as reported in the Year Three MNA Report (CB&I Environmental & Infrastructure, Inc [CB&I], 2014).

4.1.2 Groundwater Sampling

Groundwater samples were collected from the four monitoring wells on 14 October 2019 and analyzed for the analytical suites covering explosives, perchlorate, and RDX and its breakdown by-products hexahydro-1,3-dinitroso-5-nitro-1,3,5-triazine (DNX), hexahydro-1-nitroso-3,5-dinitro-1,3,5-triazine (MNX), and hexahydro-1,3,5-trinitroso-1,3,5-triazine (TNX). The breakdown by-products of RDX are considered MNA indicators. In addition, the following indicator parameters were collected: Total Organic Carbon (TOC), Total Inorganic Carbon (TIC), dissolved ferrous iron, dissolved manganese, chlorate, chloride, chlorite, nitrate, and sulfate. Water quality parameters collected during low flow sampling included pH, temperature, Specific Conductivity, dissolved oxygen (DO), oxidation-reduction potential (ORP), and turbidity. **Table 4-2** presents the suite of analytes collected for analysis during the twenty-ninth quarterly monitoring event. Groundwater sampling was accomplished without any issues.

Groundwater samples were collected via low-flow peristaltic pumps to obtain representative groundwater samples and to minimize investigation-derived waste (IDW) purge water. The following procedures were adhered to during all quarterly groundwater monitoring events:

1. A photoionization detector (PID) reading was taken upon removing the well cap to determine the presence of potentially hazardous levels of volatile gases. The PID readings were collected during the water elevation sweeps and again during sample collection. All PID readings were within acceptable levels.

2. During the water level sweep, depth-to-water and total depth measurements were recorded to determine the amount of water in the well casing and sand pack. Only approximate total well depths were measured during the quarterly events to confirm that the total depths were consistent with the data from the previous reports.

3. Groundwater samples were collected after all water level elevations had been recorded. The general practice was to lower the peristaltic pump tubing to a depth where the pump inlet was within the screened interval. Ample hydraulic head was maintained above the pump to ensure a sufficient water supply. The pump was connected to a Geocontrol PRO control unit, whereas the discharge tubing was connected to a YSI 556 water quality flow cell.

4. Monitoring wells were pumped at a rate of approximately 200 milliliters per minute (mL/min). Flow rate was determined by gauging the time it took to fill a 200-mL vial. Water quality parameters were recorded continuously including temperature, potential of hydrogen (pH), DO, ORP, turbidity, and Specific Conductivity. Turbidity was measured using a HACH 2100Q turbidity meter, whereas concentrations of dissolved ferrous iron and manganese were measured in the field using a Hach DR900 test kit via Methods 8146 and 8149, respectively.

Table 4-3 presents a summary of the final (stabilized) water quality readings for each well from the twenty-ninth quarter.

Based on the DO data collected during the twenty-ninth quarterly monitoring event, groundwater within Area A exhibits aerobic conditions (i.e., DO >1 part per million [ppm]). The DO levels ranged from a low of 14.8 milligrams per liter (mg/L) at monitoring well 54MW1 to a high of 77.0 mg/L at monitoring well 54MW14. ORP measurements ranged from a low of 32.0 millivolts (mV) in monitoring well 54MW10 to a high of 80.6 mV at monitoring well 54MW13. Measurements of pH ranged from a low of 6.99 standard units (SU) at monitoring well 54MW10 to a high of 7.33 SU at monitoring well 54MW1. Measurements of Specific Conductivity ranged from a low of 431 microSiemens per centimeter (µS/cm) at monitoring well 54MW1 to a high of 728 µS/cm at monitoring well 54MW10.

Prior to sampling, the flow cell was disconnected, and the groundwater flow rate was maintained during sample collection. Samples were collected, labeled, and packed in ice until shipment to the laboratory. Chain-of-custody (COC) forms were filled out and shipped with the samples. Copies of the COC forms are provided in **Appendix B-2** along with the raw analytical data packages.

4.1.3 Quality Control Samples

QC samples including duplicate and temperature blanks were collected during the twenty-ninth quarterly monitoring event.

One duplicate sample was collected during the twenty-ninth monitoring event (rate of 10 percent) at 54MW13 (duplicate as 54TM13) and analyzed for the same suite of compounds as the parent sample. Further, one matrix spike/matrix spike duplicate (MS/MSD [at a rate of 5 percent]) was collected at monitoring well 54MW13 (54MW13 MS/MSD) and analyzed for the same suite of compounds as the parent sample.

In previous sampling years, one equipment rinse blank was collected during each quarter. However, as only disposable equipment was utilized during the sampling, no equipment rinse blanks were warranted. One IDW purge water sample (54IDW) was collected and analyzed for pH, chemical oxygen demand (COD), and total metals for disposal of IDW purge water per the RFAAP SWMU 54 MNA IMWP. Results of the QA/QC samples are presented in the raw analytical data package provided in **Appendix B-2** and summarized in Section 5.7.

4.2 THIRTIETH QUARTER GROUNDWATER SAMPLING (JANUARY 2020)

Groundwater elevation measurements and groundwater samples were collected from monitoring wells 54MW1, 54MW10, 54MW12, and 54MW13 on 27 January 2020. Groundwater elevation measurements were collected prior to sampling activities. A groundwater quality meter was calibrated at the beginning of each day, before groundwater sampling was initiated. The locations of monitoring wells sampled during this quarterly event are provided in **Figure 4-1**.

4.2.1 Groundwater Elevation Measurements

Table 4-4 provides the measured depth-to-water levels (from the top of the casing) and groundwater elevations collected on 27 January 2020 during the thirtieth quarter monitoring event.

Figure 4-3 presents a groundwater elevation contour map developed from the elevation data collected during the quarter.

Estimated groundwater flow velocity for Area A was calculated based on parameters used in the SWMU 54 RFI/CMS Report (URS, 2008). The Area A flow path of approximately 538.4 ft had a groundwater elevation difference of approximately 15 ft, resulting in a calculated hydraulic gradient of 0.028 ft/ft. Using an average K value for Area A of 4.86 ft/day and an estimated effective porosity of 0.20, the groundwater flow velocity for Area A is approximately 0.66 ft/day (240.9 ft/year).

4.2.2 Groundwater Sampling

Groundwater samples were collected from monitoring wells 54MW1, 54MW10, 54MW12, and 54MW13 on 27 January 2020. The thirtieth quarter monitoring samples were tested for the same analytes as the twenty-ninth quarter, which are presented in **Table 4-2**. Groundwater sampling was accomplished without any issues.

Groundwater samples were collected applying the same method and approach used during the twenty-ninth quarterly monitoring event: specifically, via low-flow peristaltic pumps. Monitoring wells were pumped at a rate of approximately 200 mL/min. **Table 4-5** presents a summary of the final (stabilized) water quality readings for each well from the thirtieth quarter.

Based on the DO data collected during the thirtieth quarterly monitoring event, groundwater within Area A exhibit both aerobic and anaerobic conditions. The DO levels ranged from a low of 0.43 mg/L at monitoring well 54MW10 to a high of 7.2 mg/L at monitoring well 54MW12. ORP measurements ranged from a low of 95.3 mV at monitoring well 54MW1 to a high of 126.8 mV at monitoring well 54MW10. Measurements of pH ranged from a low of 6.51 SU at monitoring well 54MW12 to a high of 7.50 SU at monitoring well 54MW1. The pH levels were slightly less neutral than observed during the twenty-ninth quarterly monitoring event. Measurements of Specific Conductivity ranged from a low of 462 µS/cm in monitoring well 54MW1 to a high of 600 µS/cm observed at monitoring well 54MW13. Copies of the COC forms are provided in **Appendix B-2** along with the raw analytical data packages.

4.2.3 Quality Control Samples

QC samples including duplicate and temperature blanks were collected during the thirtieth monitoring event.

One duplicate sample was collected at 54MW13 (duplicate as 54TM13) and analyzed for the same suite of compounds as the parent sample.

In previous sampling years, one equipment rinse blank was collected during each quarter. However, as only disposable equipment was utilized during the sampling, no equipment rinse blanks were warranted. One IDW purge water sample (54IDW) was collected and analyzed for pH, COD, and total metals. Results of the QA/QC samples are presented in the raw analytical data package provided in **Appendix B-2**.

4.3 THIRTY-FIRST QUARTER GROUNDWATER SAMPLING (APRIL 2019)

Groundwater elevation measurements and groundwater samples were collected from monitoring wells 54MW1, 54MW10, 54MW12, and 54MW13 on 28 April 2020. Groundwater elevation measurements were collected prior to sampling activities. The locations of monitoring wells sampled during this quarterly event are provided in **Figure 4-1**.

4.3.1 Groundwater Elevation Measurements

Table 4-6 provides the measured depth-to-water levels (from the top of the casing) and groundwater elevations collected on 28 April 2020 during the thirty-first quarterly monitoring event. A groundwater quality meter was calibrated at the beginning of each day, before groundwater sampling was initiated. **Figure 4-4** presents a groundwater elevation contour map developed from the elevation data collected during the quarter.

Estimated groundwater flow velocity for Area A was calculated based on parameters used in the SWMU 54 RFI/CMS Report (URS, 2008). The Area A flow path of approximately 538.4 ft had a groundwater elevation difference of 11.88 ft, resulting in a calculated hydraulic gradient of 0.022 ft/ft. Using an average K value for Area A of 4.86 ft/day and an estimated effective porosity of 0.20, the groundwater flow velocity for Area A is approximately 0.54 ft/day (195.71 ft/year).

4.3.2 Groundwater Sampling

Groundwater samples were collected from monitoring wells 54MW1, 54MW10, 54MW12, and 54MW13 on 28 April 2020. The thirty-first quarter monitoring samples were tested for the same analytes as the previous two quarters, which are presented in **Table 4-2**. Groundwater sampling was accomplished without any issues.

Groundwater samples were collected applying the same method and approach used during the previous two quarterly monitoring events: specifically, via low-flow peristaltic pumps. Monitoring wells were pumped at a rate of approximately 200 mL/min.

Table 4-7 presents a summary of the final (stabilized) water quality readings for each well from the thirty-first quarter.

Based on the DO data collected during the thirty-first quarterly monitoring event, groundwater within Area A exhibited aerobic groundwater conditions. The DO levels ranged from a low of 4.46 mg/L at monitoring well 54MW1 to a high of 8.21 mg/L at monitoring well 54MW13. ORP measurements ranged from a low of 96.0 mV at monitoring well 54MW13 to a high of 127.8 mV at monitoring well 54MW12. Measurements of pH ranged from a low of 6.62 SU at monitoring well 54MW12 to a high of 7.65 SU at monitoring well 54MW1. Measurements of Specific Conductivity ranged from a low of 241.6 µS/cm in monitoring well 54MW13 to a high of 364.9 µS/cm observed at monitoring well 54MW10.

Copies of the COC forms are provided in **Appendix B-2** along with the raw analytical data packages.

4.3.3 Quality Control Samples

QC samples, including duplicate and temperature blanks were collected during the twenty-seventh monitoring event.

One duplicate sample was collected at 54MW13 (duplicate as 54TM13) and analyzed for the same suite of compounds as the parent sample. Further, one MS/MSD was collected at monitoring well 54MW12 (54MW12 MS/MSD) and analyzed for the same suite of compounds as the parent sample.

In previous sampling years, one equipment rinse blank was collected during each quarter. However, as only disposable equipment was utilized during the sampling, no equipment rinse blanks were warranted. One IDW purge water sample (54ADW01) was collected and analyzed for pH, COD, and total metals. Results of the QA/QC samples are presented in the raw analytical data package provided in **Appendix B-2**.

4.4 THIRTY-SECOND QUARTER GROUNDWATER SAMPLING (JULY 2020)

Groundwater elevation measurements and groundwater samples were collected from monitoring wells 54MW1, 54MW10, 54MW12, and 54MW13 on 21 July 2020. Groundwater elevation measurements were collected prior to sampling activities. The locations of monitoring wells sampled during this quarterly event are provided in **Figure 4-1**.

4.4.1 Groundwater Elevation Measurements

Table 4-8 provides the measured depth-to-water levels (from the top of the casing) and groundwater elevations collected on 21 July 2020 during the quarterly monitoring event. A groundwater quality meter was calibrated at the beginning of each day, before groundwater sampling was initiated. **Figure 4-5** presents a groundwater elevation contour map developed from the elevation data collected during the quarter.

Estimated groundwater flow velocity for Area A was calculated based on parameters used in the SWMU 54 RFI/CMS Report (URS, 2008). The Area A flow path of approximately 538.4 ft had a groundwater elevation difference of 13.98 ft, resulting in a calculated hydraulic gradient of 0.026 ft/ft. Using an average K value for Area A of 4.86 ft/day and an estimated effective porosity of 0.20, the groundwater flow velocity for Area A is approximately 0.631 ft/day (230.3 ft/year).

4.4.2 Groundwater Sampling

Groundwater samples were collected from monitoring wells 54MW1, 54MW10, 54MW12, and 54MW13 21 July 2020. The thirty-second quarter monitoring samples were tested for the same analytes as the previous three quarters, which are presented in **Table 4-2**. Groundwater sampling was accomplished without any issues.

Groundwater samples were collected applying the same method and approach used during the previous quarterly monitoring events: specifically, via low-flow peristaltic pumps. Monitoring wells were pumped at a rate of approximately 200 mL/min.

Table 4-9 presents a summary of the final (stabilized) water quality readings for each well from the thirty-second quarter.

Based on the DO data collected during the thirty-second quarterly monitoring event, groundwater within Area A indicated both aerobic and anaerobic groundwater conditions. The DO levels ranged from a low of 0.51 mg/L at monitoring well 54MW10 to a high of 6.65 mg/L at monitoring well 54MW13. ORP measurements ranged from a low of 39.8 mV at monitoring well 54MW10 to a high of 161.5 mV at monitoring well 54MW12. Measurements of pH ranged from a low of 6.51 SU at monitoring well 54MW10 to a high of 7.45 SU at monitoring well 54MW1. The pH levels were generally in agreement with measurements observed during the previous three quarterly monitoring events. Measurements of Specific Conductivity ranged from a low of 305.1 µS/cm in monitoring well 54MW13 to a high of 819.0 µS/cm observed at monitoring well 54MW10.

Copies of the COC forms are provided in **Appendix B-2** along with the raw analytical data packages.

4.4.3 Quality Control Samples

QC samples, including duplicate and temperature blanks were collected during the thirty-second quarterly monitoring event.

One duplicate sample was collected at 54MW13 (duplicate as 54TM13) and analyzed for the same suite of compounds as the parent sample. Further, one MS/MSD was collected at monitoring well 54MW12 (54MW12 MS/MSD) and analyzed for the same suite of compounds as the parent sample.

In previous sampling years, one equipment rinse blank was collected during each quarter. However, as only disposable equipment was utilized during the sampling, no equipment rinse blanks were warranted. One IDW purge water sample (54IDW) was collected and analyzed for pH, COD, and total metals. Results of the QA/QC samples are presented in the raw analytical data package provided in **Appendix B-2**.

Table 4-1 Twenty-Ninth Quarter Groundwater Elevations at SWMU 54

Sample ID	Screen Interval (ft bgs)	Screen Length (ft)	Total Depth (ft)	Water Level (ft BTOC)	Elevation (top of casing) (ft amsl)	Water Level (ft amsl)	PID Reading (ppm)
54MW1	34.8 - 54.8	20	56	20.64	1707.78	1687.14	0.0
54MW10	12 - 27	15	30	19.84	1691.10	1671.26	0.0
54MW12	20 - 30	10	32	28.56	1702.42	1673.86	0.0
54MW13	12 – 25	10	25	23.11	1698.90	1674.79	0.0

Notes:
Elevation data collected on 14 October 2019.
amsl = above mean sea level
bgs = below ground surface
BTOC = below top of casing
ft = feet
ID = identifier
PID = photoionization detector
ppm = parts per million
SWMU = Solid Waste Management Unit

Table 4-2 Year Eight Quarterly Monitoring Analytical Suite

Sample ID	Frequency	Explosives	Perchlorate	RDX MNA Parameters	MNA Indicator Parameters	Water Quality Parameters
54MW1	Quarterly	X	X	X	X	X
54MW10	Quarterly	X	X	X	X	X
54MW12	Quarterly	X	X	X	X	X
54MW13	Quarterly	X	X	X	X	X

Notes:
ID = identifier
MNA = monitored natural attenuation
RDX = cyclotrimethylenetrinitramine

Table 4-3 Twenty-Ninth Quarter Water Quality Parameters at SWMU 54

Sample ID	pH	Specific Conductivity (µS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	ORP (mV)	Temperature (°C)
54MW1	7.33	431	0.22	14.8	41.3	14.97
54MW10[1]	6.99	728	2.52	18.3	32.0	15.16
54MW12	7.00	601	3.06	48.6	80.6	14.95
54MW13	7.01	519	1.97	77.0	44.3	16.38

Notes:
Despite appropriate calibration, DO levels were significantly above the saturation value for unknown reasons and consequently are questionable.
[1] Well 54MW10 is located adjacent to the New River
°C = degrees Celsius
µS/cm = microsiemens per centimeter
DO = dissolved oxygen
ID = identifier
mg/L = milligrams per liter
mV = millivolts
NTU = nephelometric turbidity unit
ORP = oxidation reduction potential
pH = potential of hydrogen
SWMU = Solid Waste Management Unit

Table 4-4 Thirtieth Quarter Groundwater Elevations at SWMU 54

Sample ID	Screen Interval (ft bgs)	Screen Length (ft)	Total Depth (ft)	Water Level (ft BTOC)	Elevation (top of casing) (ft amsl)	Water Level (ft amsl)	PID Readings (ppm)
54MW1	34.8 - 54.8	20	57.4	18.73	1707.78	1689.05	PID = 0.0
54MW10	12 - 27	15	30.03	13.66	1691.10	1677.44	PID = 0.0
54MW12	20 - 30	10	33.85	23.68	1702.42	1678.74	PID = 0.0
54MW13	12 - 25	10	25.31	20.21	1698.90	1678.69	PID = 0.0

Notes:
Elevation data collected on 27 January 2020.
amsl = above mean sea level
bgs = below ground surface
BTOC = below top of casing
ft = feet
PID = photoionization detector
ppm = parts per million
SWMU = Solid Waste Management Unit

Table 4-5 Thirtieth Quarter Water Quality Parameters at SWMU 54

Sample ID	pH	Specific Conductivity (µS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	ORP (mV)	Temperature (°C)
54MW1	7.50	462	0.34	2.40	95.3	13.33
54MW10	6.87	508	0.43	0.43	126.8	12.60
54MW12	6.51	540	1.13	7.20	116.8	12.72
54MW13	6.93	600	1.86	6.54	108.7	12.48

Notes:
°C = degrees Celsius
µS/cm = microsiemens per centimeter
mg/L = milligrams per liter
mV = millivolts
NTU = nephelometric turbidity unit
ORP = oxidation reduction potential
pH = potential of hydrogen
SWMU = Solid Waste Management Unit

Table 4-6 Thirty-First Quarter Groundwater Elevations at SWMU 54

Sample ID	Screen Interval (ft bgs)	Screen Length (ft)	Total Depth (ft)	Water Level (ft BTOC)	Elevation (top of casing) (ft amsl)	Water Level (ft amsl)	PID Readings (ppm)
54MW1	34.8 - 54.8	20	56.0	15.8	1707.78	1691.98	PID = 0.0
54MW10	12 - 27	15	30.0	12.91	1691.10	1678.19	PID = 0.0
54MW12	20 - 30	10	32.8	22.00	1702.42	1680.42	PID = 0.0
54MW13	12 - 25	10	25.1	18.81	1698.90	1680.09	PID = 0.0

Notes:
Elevation data collected on 28 April 2020.
amsl = above mean sea level
bgs = below ground surface
BTOC = below top of casing
ft = feet
PID = photoionization detector
ppm= parts per million
SWMU = Solid Waste Management Unit

Table 4-7 Thirty-First Quarter Water Quality Parameters at SWMU 54

Sample ID	pH	Specific Conductivity (µS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	ORP (mV)	Temperature (°C)
54MW1	7.65	339.6	1.86	4.46	111.0	13.40
54MW10	6.83	364.9	35.68	5.28	112.6	11.90
54MW12	6.62	357.2	77.81	7.34	127.8	13.50
54MW13	6.68	241.6	50.12	8.21	96.0	12.00

Notes:
°C = degrees Celsius
µS/cm = microsiemens per centimeter
mg/L = milligrams per liter
mV = millivolts
NTU = Nephelometric turbidity unit
ORP = oxidation reduction potential
pH = potential of hydrogen
SWMU = Solid Waste Management Unit

Table 4-8 Thirty-Second Quarter Groundwater Elevations at SWMU 54

Sample ID	Screen Interval (ft bgs)	Screen Length (ft)	Total Depth (ft)	Water Level (ft BTOC)	Elevation (top of casing) (ft amsl)	Water Level (ft amsl)	PID Readings (ppm)
54MW1	34.8 - 54.8	20	57.5	16.3	1707.78	1691.48	PID = 0.0
54MW10	12 - 27	15	30.35	15.65	1691.10	1675.45	PID = 0.0
54MW12	20 - 30	10	33	23.5	1702.42	1678.92	PID = 0.0
54MW13	12 - 25	10	25.1	18.81	1698.90	1680.09	PID = 0.0

Notes:
Elevation data collected on 21 July 2020.
amsl = above mean sea level
bgs = below ground surface
BTOC = below top of casing
ft = feet
PID = photoionization detector
ppm= parts per million
SWMU = Solid Waste Management Unit

Table 4-9 Thirty-Second Quarter Water Quality Parameters at SWMU 54

Sample ID	pH	Specific Conductivity (µS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	ORP (mV)	Temperature (°C)
54MW1	7.45	719.5	0.30	0.90	99.8	16.80
54MW10	7.21	819.0	19.85	0.51	39.8	15.50
54MW12	6.51	431.2	67.92	5.87	161.5	17.00
54MW13	6.68	305.1	12.80	6.65	141.7	15.90

Notes:
°C = degrees Celsius
µS/cm = microsiemens per centimeter
mg/L = milligrams per liter
mV = millivolts
NTU = Nephelometric turbidity unit
ORP = oxidation reduction potential
pH = potential of hydrogen
SWMU = Solid Waste Management Unit

Legend

- Well (Current MNA Network)
- Well (Removed from Network After 9th Quarter)
- Fence
- SWMU 54 Boundary

Aerial Source:
Near Map Imagery, February 2020

N

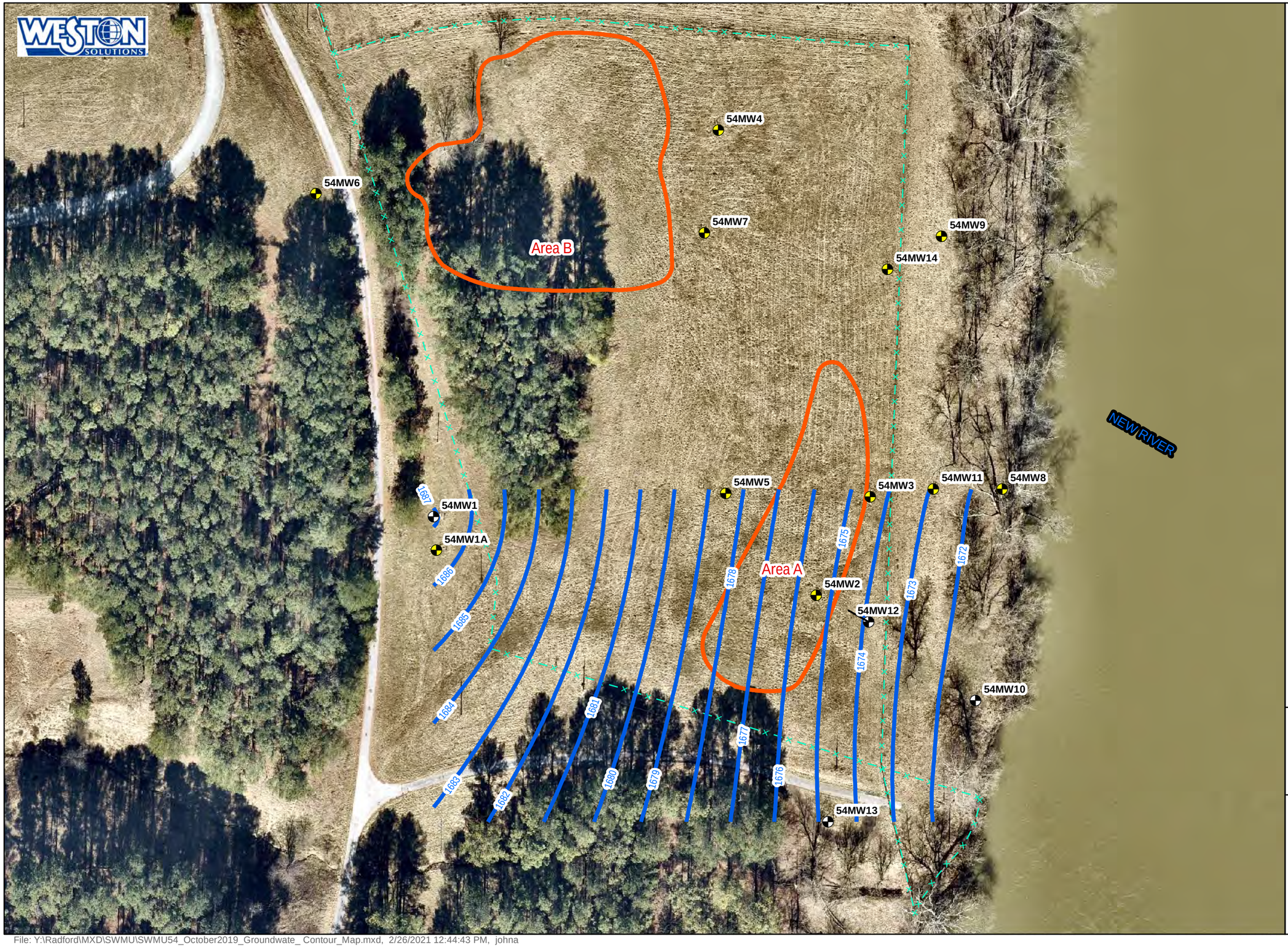
0 30 60 120 Feet

Prepared By:

Baltimore District

FIGURE 4-1
SWMU 54 MONITORING WELL SAMPLE LOCATIONS
RADFORD, VIRGINIA

File: Y:\Radford\MXD\SWMU\SWMU54_Monitoring_Well_Sample_Locations.mxd, 10/6/2020 11:37:53 AM, johna



Legend

- Well (Current MNA Network)
- Well (Removed from Network After 9th Quarter)
- Groundwater Contour
- Fence
- SWMU 54 Boundary

Note:
Contours are in feet above mean sea level (amsl).

Aerial Source:
Near Map Imagery, February 2020

N

0 30 60 120 Feet

Prepared By:

Baltimore District

FIGURE 4-2
SWMU 54 OCTOBER 2019
(29TH QUARTER)
GROUNDWATER CONTOUR MAP
RADFORD, VIRGINIA

File: Y:\Radford\MXD\SWMU\SWMU54_October2019_Groundwate_ Contour_Map.mxd, 2/26/2021 12:44:43 PM, johna

Legend

- Well (Current MNA Network)
- Well (Removed from Network After 9th Quarter)
- Groundwater Contour
- Fence
- SWMU 54 Boundary

Note:
Contours are in feet above mean sea level (amsl).

Aerial Source:
Near Map Imagery, February 2020

N

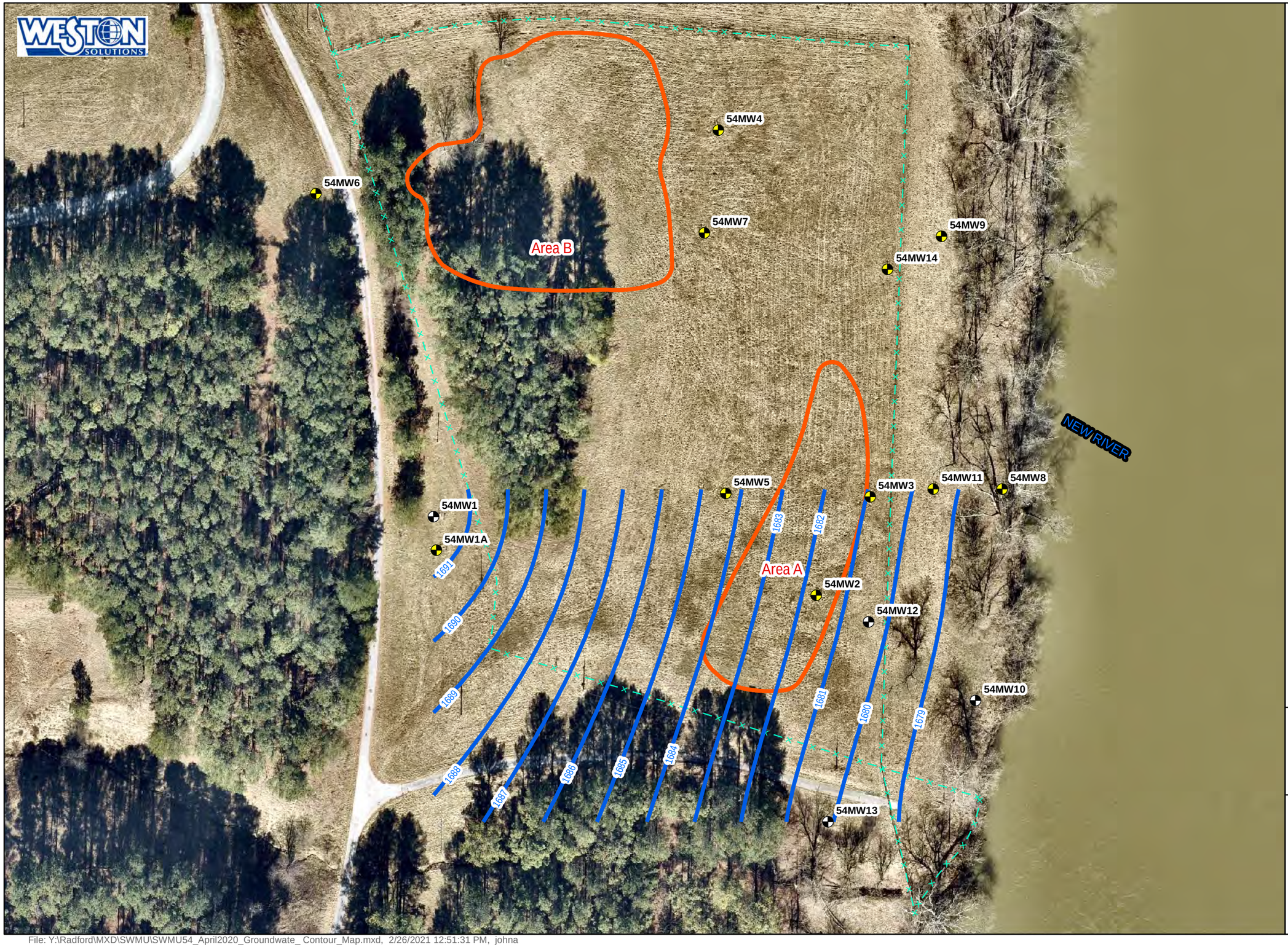
0 30 60 120 Feet

Prepared By:

Baltimore District

FIGURE 4-3
SWMU 54 JANUARY 2020
(30TH QUARTER)
GROUNDWATER CONTOUR MAP
RADFORD, VIRGINIA

File: Y:\Radford\MXD\SWMU\SWMU54_January2020_Groundwate_ Contour_Map.mxd, 2/26/2021 12:45:57 PM, johna



Legend

- Well (Current MNA Network)
- Well (Removed from Network After 9th Quarter)
- Groundwater Contour
- Fence
- SWMU 54 Boundary

Note:
Contours are in feet above mean sea level (amsl).

Aerial Source:
Near Map Imagery, February 2020

N

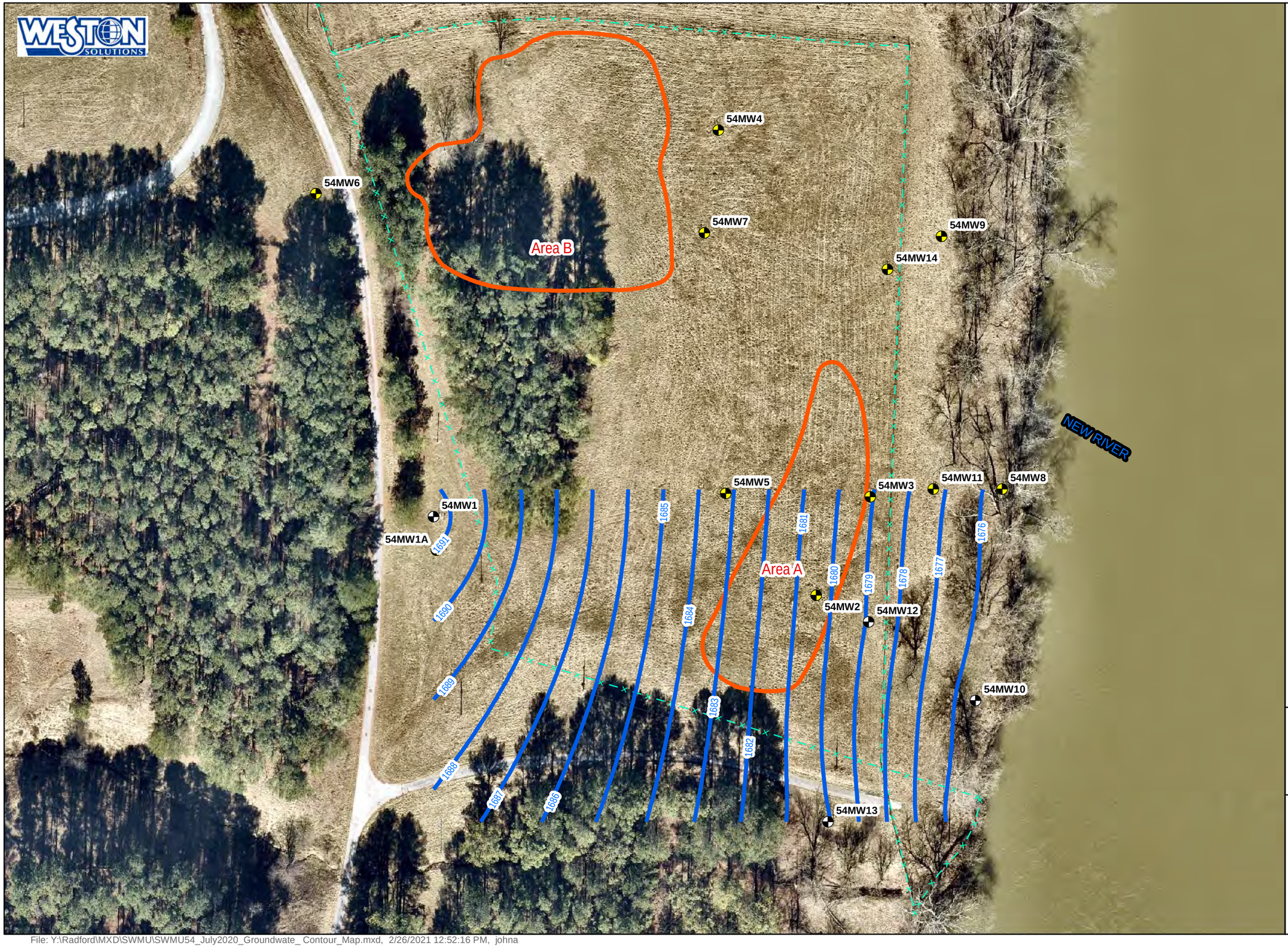
0 30 60 120 Feet

Prepared By:

Baltimore District

FIGURE 4-4
SWMU 54 APRIL 2020
(31ST QUARTER)
GROUNDWATER CONTOUR MAP
RADFORD, VIRGINIA

File: Y:\Radford\MXD\SWMU\SWMU54_April2020_Groundwate_ Contour_Map.mxd, 2/26/2021 12:51:31 PM, johna



Legend

- Well (Current MNA Network)
- Well (Removed from Network After 9th Quarter)
- Groundwater Contour
- Fence
- SWMU 54 Boundary

Note:
Contours are in feet above mean sea level (amsl).

Aerial Source:
Near Map Imagery, February 2020

N

0 30 60 120 Feet

Prepared By:

Baltimore District

FIGURE 4-5
SWMU 54 JULY 2020
(32ND QUARTER)
GROUNDWATER CONTOUR MAP
RADFORD, VIRGINIA

File: Y:\Radford\MXD\SWMU\SWMU54_July2020_Groundwate_ Contour_Map.mxd, 2/26/2021 12:52:16 PM, johna

5. CHEMICAL ANALYTICAL RESULTS

5.1 SELECTION OF COMPARISON CRITERIA

The analytical data collected during this investigation were compared to RGs selected in the Final SWMU 54 RFI/CMS Report (URS, 2008). For contaminants that have no RGs, the results are compared in the text to the current USEPA Regional Screening Levels (RSLs) for tapwater. Screening levels (SLs) are calculated values that are derived from theoretical risk scenarios. Compounds are grouped as carcinogens or noncarcinogens, and carcinogen SL values are the lower of values calculated to represent an increase of 10^{-6} in cancer risk and a Hazard Index (HI) of 0.1. In order to account for potential cumulative effects of exposure to noncarcinogenic compounds, values for noncarcinogens have been recalculated to an HI of 0.1. **Tables 5-1** through **5-10** present the analytical results and summaries of the twenty-ninth through thirty-second quarterly monitoring data, including number of results that exceed the RGs, frequency of detection, the minimum and maximum detected concentrations, and the location of the maximum concentration.

5.2 TWENTY-NINTH QUARTER GROUNDWATER RESULTS (OCTOBER 2019)

Four groundwater monitoring wells were sampled during this quarterly monitoring event including wells 54MW1, 54MW10, 54MW12, and 54MW13, with a duplicate sample collected from monitoring well 54MW13. Samples were submitted for explosives, perchlorate, RDX breakdown by-products (DNX, MNX and TNX), and MNA indicator parameter analyses. Detected constituents are summarized in **Table 5-1**, whereas the complete results are presented in **Table 5-2**. Sample locations are provided in **Figure 4-1**. The complete laboratory analytical reports are included in **Appendix B-2**.

Explosives

Four explosives were detected in groundwater samples including 2,4,6-TNT, 2-amino-4,6-dinitrotoluene (2ADNT), 4-amino-2,6-dinitrotoluene (4ADNT), and RDX. All four explosives were detected in monitoring wells 54MW10, 54MW12, and 54MW13, with the exception of RDX only being detected at monitoring well 54MW10. No explosives were detected at background monitoring well 54MW1.

The explosive 2,4,6-TNT was detected at monitoring well 54MW10 at a concentration of 4.0 micrograms per liter (µg/L); at monitoring well 54MW12 at a concentration of 10.1 µg/L; at monitoring well 54MW13 at a concentration of 12.5 µg/L, and 14.6 µg/L (field duplicate 54TM13). The concentrations of 2,4,6-TNT at monitoring wells 54MW12, and 54MW13 exceeded the RG of 7.82 µg/L.

The explosive 2ADNT was detected at monitoring well 54MW10 at a concentration of 0.99 µg/L; at monitoring well 54MW12 at a concentration of 3.8 µg/L; and at monitoring well 54MW13 at a concentration of 1.9 µg/L, and 1.2 µg/L (field duplicate 54TM13). An RG has not been established for 2ADNT. There is no USEPA maximum contaminant level (MCL) (USEPA, 2018); however, the tapwater regional screening level (RSL) for 2ADNT is 39 µg/L (USEPA, 2020).

The explosive 4ADNT was detected at monitoring well 54MW10 at estimated concentrations of 0.89 µg/L; at monitoring well 54MW12 at a concentration of 2.0 µg/L; at monitoring well 54MW13 at a concentration of 1.1 µg/L, and 1.7 µg/L (field duplicate 54TM13). An RG has not been established for 4ADNT. There is no USEPA MCL (USEPA, 2018); however, the tapwater RSL for 4ADNT is 39 µg/L (USEPA, 2019).

RDX was detected only at monitoring well 54MW10 at concentrations of 2.1 µg/L and 0.99 µg/L (field duplicate 54TM13). There were no detected concentrations that exceeded RG of 6.1 µg/L. No RDX breakdown by-products (DNX, MNX, and TNX) were detected at any of the monitoring wells during this quarterly monitoring event.

The monitoring wells with detected concentrations of explosives are typically the same wells with observed hits recorded during previous sampling rounds. The monitoring well location (54MW12) where 2,4,6-TNT exceeded the RG is provided in **Figure 5-1**.

Perchlorate

Perchlorate was detected in two groundwater samples collected from monitoring wells 54MW12 and 54MW13 during this quarterly monitoring event. Perchlorate was detected at monitoring well 54MW12 at a concentration of 0.53 µg/L and at monitoring well 54MW13 at a concentration of

0.56 µg/L, and 0.36 µg/L (field duplicate 54TM13). All four detections were well below the RG of 10.9 µg/L.

Miscellaneous Analytes

Groundwater samples were also analyzed for MNA indicators (TOC, TIC, dissolved ferrous iron, dissolved manganese, chlorate, chlorite, chloride, nitrate, and sulfate) for the purposes of evaluating the effectiveness of the MNA process.

Observed concentrations of TOC in the four monitoring wells ranged from a low of 0.0 mg/L (non-detect) (54MW13) to an estimated high of 0.69 mg/L (54MW12), whereas the concentrations of TIC ranged from a low of 61 mg/L (54MW1) to a high of 97 mg/L (54MW13). Dissolved ferrous iron concentrations ranged from a low of 0.0 mg/L (non-detect) (54MW10) to a high of 0.16 mg/L (54MW13). Dissolved manganese concentrations ranged from a low of 0.04 mg/L (54MW13) to a high of 0.24 mg/L (54MW1). Chloride concentrations ranged from an estimated low of 2.5 mg/L (54MW1) to an estimated high of 7.6 mg/L (54MW13). Detected concentrations of nitrate ranged from an estimated low of 0.0 mg/L (54MW1) to an estimated high of 0.58 mg/L (54MW12). Sulfate concentrations ranged from a low of 28.0 mg/L (54MW1) to a high of 140.0 mg/L (54MW10). The MNA indicator parameters chlorate and chlorite went undetected during this quarterly monitoring event. **Table 5-2** presents the MNA indicator parameters sample results. A more detailed discussion of the MNA results is provided in Section 6.

5.3 THIRTIETH QUARTER GROUNDWATER RESULTS (JANUARY 2020)

Four groundwater monitoring wells were sampled during the thirtieth quarterly monitoring event, including wells 54MW1, 54MW10, 54MW12, and 54MW13. A duplicate sample (54TM13) was collected from monitoring well 54MW13. Samples were submitted for explosives, perchlorate, RDX breakdown by-products (DNX, MNX and TNX), and MNA indicator parameter analyses. A summary of detected and non-detected constituents is summarized in **Table 5-3**, and the analytical results are presented in **Table 5-4**. Sample locations are provided in **Figure 4-1**. The complete laboratory analytical reports are included in **Appendix B-2.**

Explosives

Four explosives were detected in groundwater samples including 2,4,6-TNT, 2ADNT, 4ADNT, and RDX. The explosive RDX was detected at three monitoring wells 54MW10, 54MW12, and 54MW13 (including field duplicate 54TM13). 2,4,6-TNT, 2ADNT, and 4ADNT were also detected at monitoring wells 54MW10, 54MW12, and 54MW13 (field duplicate 54TM10). No explosives were detected in monitoring well 54MW1.

The explosive 2,4,6-TNT was detected at monitoring well 54MW10 at a concentration of 8.4 µg/L; 10.2 µg/L at monitoring well 54MW12; and at monitoring well 54MW13 at a concentration of 4.1 µg/L and 3.8 µg/L (field duplicate sample 54TM13). The concentration of 2,4,6-TNT at monitoring well 54MW10 and 54MW12 exceed the RG of 7.82 µg/L.

The explosive 2ADNT was detected in monitoring well 54MW10 at a concentration of 2.8 µg/L; at monitoring well 54MW12 at a concentration of 4.3 µg/L; at monitoring well 54MW13 at a concentration of 1.4 µg/L, and 1.1 µg/L (field duplicate sample 54TM13). An RG has not been established for 2ADNT. There is no USEPA maximum contaminant level (MCL) (USEPA, 2018); however, the tapwater regional screening level (RSL) for 2ADNT is 39 µg/L (USEPA, 2019).

The explosive 4ADNT was detected at monitoring well 54MW10 at a concentration of 2.3 µg/L; at monitoring well 54MW12 at a concentration of 2.2 µg/L; at monitoring well 54MW13 at a concentration of 1.1 µg/L, and 0.67 µg/L (field duplicate sample 54TM13). An RG has not been established for 4ADNT. There is no USEPA MCL (USEPA, 2018); however, the tapwater RSL for 4ADNT is 39 µg/L (USEPA, 2019).

The explosive RDX was detected at monitoring well 54MW10 at a concentration of 1.9 µg/L; at monitoring well 54MW12 at a concentration of 0.56 µg/L; and at monitoring well 54MW13 at a concentration of 0.55 µg/L, and 0.48 µg/L (field duplicate sample 54TM13). There were no detected concentrations that exceeded RG of 6.1 µg/L. No RDX breakdown by-products (DNX, MNX, and TNX) were detected at any of the monitoring wells during this quarterly monitoring event.

The monitoring wells with detected concentrations of explosives are typically the same wells with hits recorded during previous sampling rounds. The monitoring well location (54MW12) where 2,4,6-TNT, RDX, and DNT Mixture exceed the RGs is provided in **Figure 5-2**.

Perchlorate

Perchlorate was detected in three groundwater samples collected from monitoring wells 54MW10, 54MW12, and 54MW13, including field duplicate sample 54TM13. Perchlorate was detected at monitoring well 54MW10 at a concentration of 0.0.25 µg/L; at monitoring well 54MW12 at a concentration of 0.49 µg/L; and at monitoring well 54MW13, and including field duplicate sample 54TM13, at concentrations of 0.26 µg/L and 0.27 µg/L, respectively. All three detections are well below the RG of 10.9 µg/L.

Miscellaneous Analytes

Groundwater samples were also analyzed for MNA indicators (TOC, TIC, dissolved ferrous iron, dissolved manganese, chlorate, chlorite, chloride, nitrate, and sulfate) for the purposes of evaluating the effectiveness of the MNA process.

Observed concentrations of TOC in the four monitoring wells were all non-detect, whereas the concentrations of TIC ranged from a low of 56.0 mg/L (54MW13) to a high of 84.0 mg/L 54MW12. Dissolved ferrous iron concentrations ranged from a low of 0.04 mg/L (54MW1) to a high of 0.12 mg/L (54MW13 duplicate). Dissolved manganese concentrations ranged from a low of 0.05 mg/L (54MW10) to a high of 0.33 mg/L (54MW12). Chloride concentrations ranged from an estimated low of 2.5 mg/L (54MW1) to a high of 8.4 mg/L (54MW12). Detected concentrations of nitrate ranged from a low of 0.58 mg/L (54MW10) to a high of 0.76 mg/L (54MW12). Sulfate concentrations ranged from a low of 27.0 mg/L (54MW13 and field duplicate 54TW13) to a high of 59.0 mg/L (54MW10). The MNA indicator parameter of chlorate and chlorite went undetected during this quarterly monitoring event. **Table 5-4** presents the MNA indicator parameters sample results. A more detailed discussion of the MNA results is provided in Section 6.

5.4 THIRTY-FIRST QUARTER GROUNDWATER RESULTS (APRIL 2020)

Four groundwater monitoring wells were sampled during the thirty-first quarterly monitoring event, including wells 54MW1, 54MW10, 54MW12, and 54MW13. A duplicate sample (54TM13) was collected from monitoring well 54MW13. Samples were submitted for explosives, perchlorate, RDX breakdown by-products (DNX, MNX and TNX), and MNA indicator parameter analyses. Detected constituents are summarized in **Table 5-5**, whereas the complete analytical results are presented in **Table 5-6**. Sample locations are provided in **Figure 4-1**. The complete laboratory analytical reports are included in **Appendix B-2**.

Explosives

Four explosives were detected in groundwater samples including 2,4,6-TNT, 2ADNT, 4ADNT, and RDX. All four were detected in the three monitoring wells 54MW10, 54MW12, and 54MW13 (and field duplicate 54TM13). No explosives were detected in monitoring well 54MW1.

The explosive 2,4,6-TNT was detected at monitoring well 54MW10 at a concentration of 20.5 µg/L; at monitoring well 54MW12 at a concentration of 8.3 µg/L; and at monitoring well 54MW13 at a concentration of 5.5 µg/L and 4.1 µg/L (field duplicate, 54TM13). Only the concentrations of 2,4,6-TNT detected at monitoring wells 54MW10 and 54MW12 exceed the RG of 7.82 µg/L.

The explosive 2ADNT was detected at monitoring well 54MW10 at a concentration of 4.2 µg/L; at monitoring well 54MW12 at a concentration of 4.0 µg/L; and at monitoring well 54MW13 at 1.1 µg/L and 0.91 µg/L (field duplicate, 54TM13). An RG has not been established for 2ADNT. There is no USEPA MCL (USEPA, 2018); however, the Tapwater RSL for 2ADNT is 39 µg/L (USEPA, 2019).

The explosive 4ADNT was detected at monitoring well 54MW10 at an estimated concentration of 1.5 µg/L; at a concentration of 2.5 µg/L at monitoring well 54MW12; and at monitoring well 54MW13 at a concentration of 0.66 µg/L and 0.53 µg/L (field duplicate, 54TM13). An RG has not been established for 4ADNT. There is no USEPA MCL (USEPA, 2018); however, the Tapwater RSL for 4ADNT is 39 µg/L (USEPA, 2019).

RDX was detected at monitoring well 54MW10 at an estimated concentration of 5.1 µg/L; at monitoring well 54MW12 at an estimated concentration of 0.17 µg/L; and at monitoring well 54MW13 at a concentration of 1.5 µg/L and 1.1 µg/L (field duplicate, 54TM13). There were no concentrations of RDX that exceeded the RG of 6.1 µg/L. No RDX breakdown by-products (DNX, MNX, and TNX) were detected at any of the monitoring wells during this quarterly monitoring event.

The monitoring wells with detected concentrations of explosives are typically the same wells with hits recorded during previous sampling rounds. The monitoring well location (54MW12) where 2,4,6-TNT exceeds the RG is provided in **Figure 5-3**.

Perchlorate

Perchlorate was detected in four groundwater samples collected from monitoring wells 54MW10, 54MW12, and 54MW13. Perchlorate was detected at monitoring well 54MW10 at a concentration of 0.35 µg/L and 0.33 µg/L (field duplicate, 54TM10); at monitoring well 54MW12 at a concentration of 2.0 µg/L; and at monitoring well 54MW13 at a concentration of 0.47 µg/L. All four detections are below the RG of 10.9 µg/L.

Miscellaneous Analytes

Groundwater samples were also analyzed for MNA indicators (TOC, TIC, dissolved ferrous iron, dissolved manganese, chlorate, chlorite, chloride, nitrate, and sulfate) for the purposes of evaluating the effectiveness of the MNA process.

TOC was detected only in monitoring well 54MW1 at an estimated concentration of 0.99 µg/L, whereas the concentrations of TIC ranged from a low of 46.0 mg/L (54MW13 and field duplicate 54TM13) to a high of 73.0 mg/L (54MW12). Dissolved ferrous iron concentrations ranged from a low of 0.00 mg/L (54MW1) to a high of 0.10 mg/L (54MW12). Dissolved manganese concentrations ranged from a low of 0.021 mg/L (54MW1) to a high of 0.08 mg/L (54MW12). Chloride concentrations ranged from an estimated low of 2.6 mg/L (54MW1) to a high of 7.4 mg/L (54MW12). Detected concentrations of nitrate ranged from a low of 0.95 mg/L (54TW13) to a high of 1.1 mg/L (54MW10). Sulfate concentrations ranged from a low of 21.0 mg/L (54MW13

and field duplicate 54TM13) to a high of 52.0 mg/L (54MW10). The MNA indicator parameters chlorate and chlorite went undetected during this quarterly monitoring event. **Table 5-6** presents the MNA indicator parameters sample results. A more detailed discussion of the MNA results is provided in Section 6.

5.5 THIRTY-SECOND QUARTER GROUNDWATER RESULTS (JULY 2020)

Four groundwater monitoring wells were sampled during the thirty-second quarterly monitoring event, including wells 54MW1, 54MW10, 54MW12, and 54MW13. A duplicate sample (54TM13) was collected from monitoring well 54MW13. Samples were submitted for explosives, perchlorate, RDX breakdown by-products (DNX, MNX and TNX), and MNA indicator parameter analyses. Detected constituents are summarized in **Table 5-7**, whereas the complete analytical results are presented in **Table 5-8**. Sample locations are provided in **Figure 4-1**. The complete laboratory analytical reports are included in **Appendix B-2**.

Explosives

Four explosives were detected in groundwater samples including 2,4,6-TNT, 2ADNT, 4ADNT, and RDX. 2,4,6-TNT, 2ADNT, and 4ADNT were detected in monitoring wells 54MW12 and 54MW13, with RDX detected in 54MW13 only. No explosives were detected in monitoring well 54MW1 and 53MW10.

The explosive 2,4,6-TNT was detected at monitoring well 54MW12 at a concentration of 4.1 µg/L, and at monitoring well 54MW13 at a concentration of 8.3 µg/L and 9.5 µg/L (field duplicate 54TM13). The concentrations of 2,4,6-TNT detected at monitoring well 54MW13 and field duplicate 54TM13 exceed the RG of 7.82 µg/L.

The explosive 2ADNT was detected at monitoring well 54MW12 at a concentration of 3.6 µg/L, and at monitoring well 54MW13 at a concentration of 0.92 µg/L and 0.97 µg/L (field duplicate 54TM13). An RG has not been established for 2ADNT. There is no USEPA MCL (USEPA, 2018); however, the tapwater RSL for 2ADNT is 39 µg/L (USEPA, 2019).

The explosive 4ADNT was detected at monitoring well 54MW12 at an estimated concentration of 2.2 µg/L, and at monitoring well 54MW13 at an estimated concentration of 0.80 µg/L and

0.86 µg/L (field duplicate 54TM13). An RG has not been established for 4ADNT. There is no USEPA MCL (USEPA, 2018); however, the tapwater RSL for 4ADNT is 39 µg/L (USEPA, 2019).

RDX was detected at monitoring well 54MW13 at concentrations of 0.43 µg/L and 0.44 µg/L (field duplicate, 54TM13). The concentrations of RDX detected did not exceed the RG of 6.1 µg/L. No RDX breakdown by-products (DNX, MNX, and TNX) were detected at any of the monitoring wells during this quarterly monitoring event.

The monitoring wells with detected concentrations of explosives are typically the same wells with hits recorded during previous sampling rounds. The monitoring well locations where 2,4,6-TNT (54MW10, 54MW12, and 54MW13) exceeds the RG are provided in **Figure 5-4**.

Perchlorate

Perchlorate was detected in three groundwater samples collected from monitoring wells 54MW12 and 54MW13. Perchlorate was detected at monitoring well 54MW12 at a concentration of 0.75 µg/L, and at monitoring well 54MW13 at concentrations of 0.30 µg/L and 0.29 µg/L (field duplicate, 54TM13). All detections are below the RG of 10.9 µg/L.

Miscellaneous Analytes

Groundwater samples were also analyzed for MNA indicators (TOC, TIC, dissolved ferrous iron, dissolved manganese, chlorate, chlorite, chloride, nitrate, and sulfate) for the purposes of evaluating the effectiveness of the MNA process.

TOC went undetected in all four monitoring wells, whereas the concentrations of TIC ranged from a low of 3.0 mg/L (54MW10) to a high of 65.0 mg/L (54MW12). Dissolved ferrous iron concentrations ranged from a low of 0.07 mg/L (54MW10) to a high of 0.17 mg/L (54MW12). Dissolved manganese concentrations ranged from a low of 0.031 mg/L (54MW10) to a high of 0.10 mg/L (54MW12). Chloride concentrations ranged from an estimated low of 2.3 mg/L (54MW1) to a high of 5.6 mg/L (54MW13). Detected concentrations of nitrate ranged from an estimated low of 0.12 mg/L (54MW10 field duplicate 54TM10) to a high of 1.0 mg/L (54MW13 and field duplicate 54TW13). Sulfate concentrations ranged from a low of 15.0 mg/L (54MW10) to a high of 28.0 mg/L (54MW1). The MNA indicator parameters chlorate and chlorite went

undetected during this quarterly monitoring event. **Table 5-8** presents the MNA indicator parameters sample results. A more detailed discussion of the MNA results is provided in Section 6.

5.6 YEAR ONE THROUGH YEAR EIGHT SAMPLE RESULTS

Samples collected during the first two years were analyzed for explosives, perchlorate, and MNA indicators. The Year Two MNA Report (CB&I, 2013) recommended elimination of the wells with no COI exceedances for the first 2 years, based on criteria established in the MNA work plan. The ninth quarter of sampling occurred prior to regulatory approval of the MNA report, and the original parameters were included in that sampling event. After approval of the Year Two report, the sampling plan was modified to include RDX MNA indicators in the analytical suite and to reduce the sampling program from 14 monitoring wells to three wells with COI exceedances (54MW10, 12, and 13), and an upgradient well (54MW1) to monitor background conditions. There have been no further modifications to the sampling plan.

Multiple wells were removed from the monitoring network after the ninth and tenth quarters and therefore were not sampled during Years Three through Seven. Monitoring wells that were included in these yearly events included 54MW1, 54MW10, 54MW12, and 54MW13, which monitor Area A at SWMU 54. This section discusses the results from the first 8 years (32 quarters) of MNA sampling at these wells. Year Eight of sampling did not change from Years Three through Seven and included the analyses of explosives, perchlorate, RDX, RDX breakdown by-products (DNX, MNX and TNX), MNA indicator parameters, and water quality parameters.

5.6.1 Groundwater

Samples from the four monitoring wells within SWMU 54 were analyzed for explosives for thirty-two quarters of sampling. The trends in number of detections during this period are shown in **Figures 5-5** through **5-8** and are discussed in the paragraphs that follow.

5.6.1.1 Explosives

During the Year Three sampling round (quarters 10 through 12), thirteen explosives were detected in the samples including DNX, MNX, and TNX. The limit of quantitation (LOQ) for all explosives during quarters 10 through 12 was 0.2 µg/L. The number of explosives detected during Year Four of sampling decreased to five compounds. The explosives included 2,4,6-TNT, 2ADNT, 4ADNT,

RDX, and the RDX breakdown by-product DNX. The limit of detection (LOD) during quarters 13 through 15 for 2,4,6-TNT, 2ADNT, 4ADNT, and RDX was 0.3 µg/L. The LOQ during quarters 13 through 15 for 2,4,6-TNT was 1.0 µg/L and 0.5 µg/L for 2ADNT, 4ADNT, and RDX. The LOD of RDX breakdown products of DNX, MNX, and TNX during quarters 13 and 14 was 0.2 µg/L, 0.1 µg/L, and 0.2 µg/L, respectively. The LOQ of RDX breakdown products of DNX, MNX, and TNX during quarters 13 and 14 was 0.4 µg/L, 0.2 µg/L, and 0.4 µg/L, respectively. During quarter 15, the LOD and LOQ for all RDX breakdown products decreased to 0.1 µg/L and 0.2 µg/L, respectively.

During Year Five of sampling the number of detected analytes was reduced once more to four compounds including 2,4,6-TNT, 2ADNT, 4ADNT, and RDX. The LOD and LOQ for 2,4,6-TNT, 2ADNT, 4ADNT, RDX, and RDX breakdown products during quarters 17 through 20 was 0.1 µg/L and 0.2 µg/L, respectively. The explosive 2,4,6-TNT was detected at concentrations above the RGs at monitoring wells 54MW12 and 54MW13, whereas RDX was detected above the RGs only at monitoring well 54MW12. The explosive 2,4,6-TNT was detected above the RG at monitoring well 54MW12 during all four quarters (17-20) and at monitoring well 54MW13 during two sampling quarters (17 and 20), whereas RDX was detected above the RG only during the nineteenth quarter at monitoring well 54MW12. During Year Six of sampling the number of detected analytes remained at four compounds including 2,4,6-TNT, 2ADNT, 4ADNT, and RDX. The LOD and LOQ for 2,4,6-TNT, 2ADNT, 4ADNT, RDX, and RDX breakdown products during quarters 21 through 24 was 0.1 µg/L and 0.2 µg/L, respectively. The explosive 2,4,6-TNT was detected at concentrations above the RGs at monitoring wells 54MW10, 54MW12 and 54MW13, whereas RDX was detected above the RGs only at monitoring well 54MW12. The explosive 2,4,6-TNT was detected above the RG at monitoring well 54MW12 during all four quarters (21-24), at monitoring well 54MW10 during one sampling quarter (21), and at monitoring well 54MW13 during two sampling quarters (21 and 24). RDX was detected above the RG during all four quarters (21-24) at monitoring well 54MW12. During Year Seven of sampling the number of detected analytes expanded to five compounds including 2,4,6-TNT, 2ADNT, 4ADNT, RDX, 2,6-DNT (and DNT Mixture). The LOD and LOQ for 2,4,6-TNT, 2ADNT, 4ADNT, 2,6-DNT, RDX, and RDX breakdown products during quarters 25 through 27 were 0.1 µg/L and 0.2 µg/L, respectively. The LODs and LOQs were 0.094 µg/L and 0.19 µg/L, respectively in the

twenty-eighth quarter. The explosive 2,4,6-TNT was detected at concentrations above the RG at monitoring wells 54MW10, 54MW12 and 54MW13, whereas RDX was detected above the RG only at monitoring well 54MW12, and only in the twenty-sixth quarter. The explosive 2,4,6-TNT was detected above the RG at monitoring well 54MW12 during all four quarters (25-28), at monitoring well 54MW10 during one sampling quarter (28), and at monitoring well 54MW13 during one sampling quarter (28). RDX was detected above the RG during one quarter (26) at monitoring well 54MW12.

During Year Eight of sampling, the number of detected analytes decreased to four compounds including 2,4,6-TNT, 2ADNT, 4ADNT, and RDX. The LOD and LOQ for 2,4,6-TNT, 2ADNT, 4ADNT, and RDX during quarters 29 through 32 were 0.1 µg/L and 0.2 µg/L. The LODs and LOQs were 0.2 and 0.1 µg/L, respectively in the twenty-ninth quarter. The explosive 2,4,6-TNT was detected at concentrations above the RG at monitoring wells 54MW10 in the 30th and 31st quarters, whereas 2,4,6-TNT was detected at concentrations above the RG at 54MW12 and 54MW13 during the 29th through the 31st quarters. RDX and Perchlorate were not detected above the RG during any quarter. Explosives have gone undetected at monitoring well 54MW1 all 32 quarters (**Figure 5-5**). The explosive 2,4,6-TNT was detected at monitoring well 54MW10 above the RG during the tenth, eleventh, twelfth, sixteenth, twenty-first, twenty-eighth, and again during the twenty-ninth and thirtieth quarterly monitoring events (**Figure 5-6**). Monitoring well 54MW12 has had detectable concentrations of 2,4,6-TNT above the RG during all sampling events, with the exception of quarters six, seven, and sixteen. Quarter twenty-six recorded the highest concentrations of 2,4,6-TNT at 164 µg/L (**Figure 5-7**). The 2,4,6-TNT "spikes" at monitoring well 54MW12 appear fairly regularly not occurring in any particular season (**Figure 5-7**). 2,4,6-TNT concentrations at 54MW13 have typically been below the RG with the exception of the fifth, tenth, sixteenth, seventeenth, twentieth, twenty-first, twenty-fourth, twenty-eighth, twenty-ninth, and thirty-second quarterly monitoring events of sampling where it exceeds the RG. The detected concentration in the twenty-eighth quarter was the highest value recorded to date at this monitoring well at 15.5 µg/L (**Figure 5-8**). The 2,4,6-TNT "spikes" at monitoring well 54MW13 appear regularly occurring primarily in the summer season (**Figure 5-8**).

Concentrations of RDX exceed the RG in monitoring well 54MW10 during the fifth, tenth, twelfth, and sixteenth quarters (**Figure 5-6**). Monitoring well 54MW12 had detectable concentrations of RDX above the RG during seven of the first twelve quarters of sampling, and only one detection above the RG during Year Four (fourteenth quarter) and Year Five (nineteenth quarter) of sampling. During Year Six, however, there were two detections above the RG, once during the twenty-first quarter and once during the twenty-fourth quarter. During Year Seven there was one RDX detection above the RG (54MW12) in the twenty-sixth quarter. It appears that elevated concentrations of RDX at 54MW12 are cyclic with periods of lower concentrations in between (**Figure 5-7**). These elevated RDX concentrations are closely aligned with those of 2,4,6-TNT with no particular seasonal pattern being apparent. Historically, monitoring well 54MW13 has not had a detection of RDX above the RG through the first sixteen quarters of sampling. This trend continued during the Year Five through the Year Six monitoring events. Further, when compared to historical concentrations, the Year Eight RDX concentrations appear to increase, but remain under the RG (**Figure 5-8**).

The only detections of DNX at 54MW12 occurred during the tenth and twelfth quarters, when the breakdown by-product was also detected at monitoring wells 54MW10 and 54MW13. The concentrations of these compounds were low (less than 1 µg/L), but generally mirrored the RDX concentrations in the wells. Detection of the RDX daughter products in these wells with elevated RDX concentrations suggests degradation and natural attenuation of RDX is a viable, ongoing remedial process at the site. During the Year Five through Seven monitoring events, DNX was not detected during any of the sampling quarters.

Many of the intermediate and end-products of RDX degradation are relatively short-lived in the environment, and accumulation of these would not be expected. Studies on the fate and transport of explosives in the environment state that the nitroso intermediates of RDX (DNX, MNX, and TNX) have rarely been observed in the field at the few sites where analyses have been conducted for them (Brannon and Pennington, 2002). Many of these intermediates are observed only transiently due to their susceptibility to rapid mineralization, typically persisting only on the scale of several hours to several days. Significant observations of the final end-products are also not expected. Hydrazines, dimethylhydrazines, and methanol are not likely to accumulate in the environment, particularly at the low levels of concentration at which they would be produced as

end-products, because these compounds biodegrade very rapidly. Therefore, the observation of intermediate and end-products of RDX biodegradation (DNX, MNX, and TNX), even at low concentrations, would be considered strong presumptive evidence of active and ongoing degradation processes.

The 2,4,6-TNT degradation intermediaries 2ADNT and 4ADNT have been detected with regularity at monitoring wells 54MW10, 54MW12, and 54MW13, the exceptions being the following: the fourteenth quarter when 4ADNT went undetected in monitoring wells 54MW12 and 54MW13, the twentieth quarter when 4ADNT went undetected in monitoring well 54MW10, the twenty-first quarter when 2ADNT went undetected in monitoring well 54MW12, the twenty-second quarter when both 2ADNT and 4ADNT went undetected in monitoring well 54MW10, the twenty-third quarter when 2ADNT went undetected in monitoring well 54MW13 and 4ADNT went undetected in monitoring well 54MW12, and the twenty-fourth quarter when 4ADNT went undetected in monitoring wells 54MW10 and 54MW12. Additionally, 4ADNT went undetected in 54MW13 during the twenty-fifth quarter. 4ADNT was detected in monitoring wells 54MW10, 54MW12, and 54MW13 during the twenty-ninth through thirty-second quarters.

2,6-DNT was detected twice during the Year Seven monitoring event (twenty-sixth quarter). Monitoring well 54MW12 had a concentration of 3.6 µg/L and monitoring well 54MW13 had an estimated concentration of 0.91 µg/L. DNT mixture results are obtained by adding together the results of 2,4-DNT and 2,6-DNT. The RG of 0.932 µg/L for DNT mixture was exceeded at monitoring well 54MW12. 2,6-DNT was not detected during the Year Eight monitoring event.

Analysis of the historical and recent data for monitoring wells 54MW10, 54MW12, and 54MW13 shows a correlation in 2,4,6-TNT concentration spikes with increasing concentrations of both 2ADNT and 4ADNT, indicating a limited transformation process from 2,4,6-TNT (**Figures 5-9** through **5-12**, respectively). 2,4,6-TNT degradation leading to amino-DNTs is likely occurring at localized zones within the soil matrix where the conditions are more favorable.

5.6.1.2 Perchlorate

Site-wide perchlorate concentrations have typically been steady and below the RG with the exception of the concentrations detected at 54MW12 during the fourth and eighth quarters. These

spikes were reported as correlating with peaks in 2,4,6-TNT concentration. During Years Four and Five of monitoring, monitoring well 54MW12 continued to exhibit the highest concentrations, with the exception of the sixteenth quarter when the greatest values were detected at monitoring well 54MW10 (**Figures 5-5** through **5-8**). A summary of these results is provided in Section 6.

5.7 LABORATORY ANALYSIS, DATA VALIDATION, AND REPORTING

The RFAAP, VA LTM Year Eight sampling effort was collected quarterly in October 2019, January 2020, April 2020, and July 2020. Groundwater samples were collected in accordance with the Quality Assurance Project Plan (QAPP), revised August 2015. Documentation pertaining to COC and sample condition was filed in field and laboratory records. **Table 5-9** summarizes the samples and analyses of the RFAAP, VA LTM Year Eight sampling effort.

The samples were placed into coolers with ice at the time of collection. The COC forms were completed as the samples were packaged into coolers for transport. Trip blanks, temperature blanks, and ice were added as required. The coolers for the metals, pH, COD, anions, chlorate/chlorite, total inorganic carbon, and total organic carbon were shipped to CT Laboratories in Baraboo, Wisconsin; this laboratory then repacked samples for chlorate/chlorite as necessary and shipped to Eurofins Analytical in South Bend, Indiana (subcontractor laboratory). The coolers containing explosive and perchlorate samples were shipped to SGS Accutest in Orlando, Florida.

The analytical data were reviewed for consistency with the test methods as noted in **Table 5-10** and the Project QAPP (RFAAP, VA – LTM) to ensure that the data set met project data quality objectives and was usable for the purposes of the project. Validation was performed following the National Functional Guidelines for Inorganic Superfund Data Review (USEPA, 2014), National Functional Guidelines for Superfund Organic Methods Data Review (August 2014), and professional judgment. Any anomalies with regard to the requirements for precision, accuracy, representativeness, completeness, comparability, and sensitivity are discussed below and the data were flagged where appropriate. Analytical methods are shown in **Table 5-10**. Data Validation Reports are included as **Appendix B-2**.

Application of Data Flags

General data quality flagging conventions in **Table 5-11** were used to indicate quality control anomalies. Data were flagged, where appropriate, in accordance with the National Functional Guidelines and the project QAPP. A data quality summary is provided below.

Preservation, Temperature, and Hold Time

All sample preservation requirements were met. Most sample analyses were within holding time. Refer to **Table 5-12** for holding time exceedances.

5.7.1 Precision

Precision was measured from the relative percent difference (RPD) between the parent sample/field duplicate (FD), laboratory duplicates, laboratory control sample (LCS), the matrix spike and matrix spike duplicate (MS/MSD) pairs, and between two columns.

Field Duplicates

FDs were collected at a frequency of 10% of field samples. Most RPDs were within control limits. **Table 5-13** lists FD exceedances.

Laboratory Duplicates

Laboratory duplicate analysis was performed at a frequency of 10% of laboratory samples, for inorganic analyses. Most RPDs were within control limits. **Table 5-14** lists laboratory duplicate exceedances.

Matrix Spike/Matrix Spike Duplicate RPD

MS/MSD samples were analyzed at a frequency of 5% per preparatory batch. Most results were within control limits. **Table 5-15** lists MS/MSD RPD exceedances.

RPD Between Two Columns

Most results were within control limits. **Table 5-16** lists RPD between two columns exceedances.

5.7.2 Representativeness

The samples were collected from locations specified in the approved work plan. Representativeness of the data is considered acceptable.

5.7.3 Comparability

Comparability was acceptable. Standard analytical methods were used. Standard preparatory and analytical methods were applied to the samples across sampling events. In all cases, the DLs and LODs attained were below the specified LOQs. All target compounds detected below the LOQs flagged (J) by the laboratory, are considered estimated concentrations.

5.7.4 Completeness

Completeness was measured as the number of usable results versus the total number of results. The explosive results in one sample were rejected (unusable) due to extremely low MS/MSD percent recoveries (54MW12 for July 2020 sampling event). The data set completeness was calculated as 99%. The information fulfilled the data quality objectives of this investigation.

5.7.5 Accuracy

Accuracy was measured from laboratory QC sample percent recoveries including LCS, MS, MSD, Post Digestion Spike (PDS), serial dilutions, and surrogates. Accuracy was also evaluated by determining whether any deviations to method or laboratory requirements for internal standard, initial calibration verification (ICV), and continuing calibration verification (CCV) recoveries were noted in the case narrative(s).

Laboratory Control Sample/Matrix Spike/Matrix Spike Duplicate Recovery

One LCS was analyzed for each batch of 20 samples or fewer.

Most recoveries were within control limits. There were no LCS recovery exceedances.

MS/MSD analysis was performed at a frequency of 5% of field samples.

Most recoveries were within control limits. **Table 5-17** presents MS/MSD recoveries outside control limits. The data for the parent sample were flagged as indicated on the table. If no flag was indicated, the data were not flagged. Data were not flagged in cases where the parent sample concentration was greater than four times the spike concentration.

Only parent samples were qualified.

Post Digestion Spike (PDS) Recovery Exceedances

Most recoveries were within control limits. There were no PDS recovery exceedances.

Serial Dilution %D

Most % differences were within control limits. There were no serial dilution difference exceedances.

Surrogates

All surrogate recoveries were within control limits. There were no surrogates that exceeded acceptance criteria.

Internal Standards

There were no internal standards outside control limits.

Calibration Verification

Some calibration results were outside control limits. **Table 5-18** summarizes calibration exceedances.

5.7.6 Sensitivity

Sensitivity was measured by evaluating whether the Limit of Quantitation (LOQ) was less than the RGs. All LOQs were below the RGs.

Additionally, sensitivity was evaluated by determining whether method blank and trip blanks were less than the LOQ. Some analytes were detected in some blanks, leading to qualification of sample results.

Blanks (Calibration [Instrument], Method, and Trip)

Calibration blanks were analyzed throughout analytical runs.

One method blank was analyzed with every batch of 20 samples or fewer for each matrix.

Table 5-19 presents samples flagged for blank results. Sample results greater than two times the blank concentration were not qualified. Data quality and usability were not affected.

LOQs

LOQs, before adjustments for dilutions, were below the regulatory criteria noted in the project QAPP.

Data Usability Summary

In summary, all data were considered usable with the qualifications discussed above. Although three explosive results (DNX, TNX, and MNX) were rejected due to extremely low MS/MSD percent recoveries (**Table 5-17**), the completeness goals for the project were met and all sample data are usable as qualified for making project decisions and assessments. The data were considered of good quality for the project goals. Additionally, these rejects had no impact as the results were non-detect for these compounds.

Low LCS, MS/MSD (**Table 5-17**), and PDS % recoveries indicate that the associated results may be biased low for the associated samples.

High MS/MSD (**Table 5-17**) % recoveries indicate that the associated results may be biased high for the associated samples.

The RPD for field duplicate (**Table 5-13**), laboratory duplicate (**Table 5-14**), MS/MSD (**Table 5-15**), and between two columns (**Table 5-16**) exceedances indicate that the associated results were estimated or non-detected estimated for the associated samples.

The biases do not affect the overall conclusions.

This Data Quality Assessment was prepared by: Amy L. Hogan, Kevin C. Harmon, and Sandra Nacquin of Validata Chemical Services, Inc (Validata). Validata has provided data validation services since 1990 with completion of over 350 environmental chemistry data validation contracts for all business sectors including 35 USACE and 252 additional U.S. Department of Defense (DoD) contracts. Validata has been audited by the USEPA Quality Assurance Section and the U.S. Navy Environmental Project Management Group and was approved as a data validation service by both agencies. Data validation reports are presented in **Appendix B-1**.

Table 5-1 SWMU 54 Summary of Twenty-Ninth Quarter Groundwater Samples

Analyte	Units	RG	# of RG Exceedances	# of Detections	# of Samples[(1)]	Minimum Concentration	Maximum Concentration	Location of Maximum
Explosives								
1,3-Dinitrobenzene	µg/L	NA	NA	0	5	ND	ND	NA
2,4,6-Trinitrotoluene	µg/L	7.82	3	4	5	4	14.6	54TW13 (Field Duplicate 54MW13)
DNT Mixture*	µg/L	0.932	0	0	5	ND	ND	NA
2,4-Dinitrotoluene	µg/L	NA	NA	0	5	ND	ND	NA
2,6-Dinitrotoluene	µg/L	NA	NA	0	5	ND	ND	NA
2-Amino-4,6-dinitrotoluene	µg/L	NA	NA	4	5	ND	3.8	54MW12
2-Nitrotoluene	µg/L	NA	NA	0	5	ND	ND	NA
4-Amino-2,6-dinitrotoluene	µg/L	NA	NA	4	5	ND	2.0	54MW12
RDX	µg/L	6.1	0	4	5	ND	2.1	54MW10
DNX	µg/L	NA	NA	0	5	ND	ND	NA
MNX	µg/L	NA	NA	0	5	ND	ND	NA
TNX	µg/L	NA	NA	0	5	ND	ND	NA
Miscellaneous								
Perchlorate	µg/L	10.9	0	3	5	ND	0.55	54MW13
Chlorate	µg/L	NA	NA	0	5	ND	ND	NA
Chlorite	µg/L	NA	NA	0	5	ND	ND	NA
Chloride	mg/L	NA	NA	5	5	2.5	7.6	54MW13
Nitrate (as N)	mg/L	NA	NA	4	5	ND	0.58	54MW12
Sulfate	mg/L	NA	NA	5	5	28	140	54MW10
Total Inorganic Carbon	mg/L	NA	NA	5	5	61	97	54MW13
Total Organic Carbon	mg/L	NA	NA	3	5	ND	0.69	54MW12

Notes:
[(1)] One sample was a duplicate.
*DNT mixture is the combined results of 2,4-dinitrotoluene and 2,6-dinitrotoluene.
µg/L = micrograms per liter
DNT = dinitrotoluene
DNX = hexahydro-1,3-dinitroso-5-nitro-1,3,5-triazine
mg/L = milligrams per liter (parts per million)
MNX = hexahydro-1-nitroso-3,5- dinitro-1,3,5-triazine
NA = not applicable
ND = not detected
RDX = cyclotrimethylenetrinitramine
SWMU = Solid Waste Management Unit
TNX = hexhydro-1,3,5-trinitroso-1,3,5-triazine

Table 5-2 SWMU 54 Detected Analytes in Twenty-Ninth Quarter Groundwater Samples

Sample ID			54MW1					54MW10					54MW12				
Date Collected			10/14/2019					10/14/2019					10/14/2019				
Analyte	Units	Remedial Goals [1]	Result	Lab Q	Val Q	LOQ	LOD	Result	Lab Q	Val Q	LOQ	LOD	Result	Lab Q	Val Q	LOQ	LOD
Explosives																	
1,3-Dinitrobenzene	µg/L	NA	0.1	U		0.2	0.1	0.1	U		0.2	0.081	0.1	U		0.2	0.1
2,4,6-Trinitrotoluene	µg/L	7.82	0.1	U		0.2	0.1	4			0.2	0.081	**10.1**			0.2	0.1
DNT Mixture*	µg/L	0.932	0.2	U		0.2	0.1	0.2	U		0.2	0.081	0.2	U		0.2	0.1
2,4-Dinitrotoluene	µg/L	NA	0.1	U		0.2	0.1	0.1	U		0.2	0.081	0.1	U		0.2	0.1
2,6-Dinitrotoluene	µg/L	NA	0.1	U		0.2	0.1	0.1	U		0.2	0.081	0.1	U		0.2	0.1
2-Amino-4,6-dinitrotoluene	µg/L	NA	0.1	U		0.2	0.1	0.99			0.2	0.081	3.8			0.2	0.1
2-Nitrotoluene	µg/L	NA	0.1	U		0.2	0.1	0.1	U		0.2	0.081	0.1	U		0.2	0.1
4-Amino-2,6-dinitrotoluene	µg/L	NA	0.1	U		0.2	0.1	0.89			0.2	0.081	2			0.2	0.1
RDX	µg/L	6.1	0.1	U		0.2	0.1	2.1			0.2	0.081	0.1	U		0.2	0.1
DNX	µg/L	NA	0.1	U		0.2	0.1	0.1	U		0.2	0.081	0.1	U		0.2	0.1
MNX	µg/L	NA	0.1	U		0.2	0.1	0.1	U		0.2	0.081	0.1	U		0.2	0.1
TNX	µg/L	NA	0.1	U		0.2	0.1	0.1	U		0.2	0.081	0.1	U		0.2	0.1
Miscellaneous																	
Perchlorate	µg/L	10.9	0.1	U		0.2	0.1	0.1	U			0.05	0.53			0.2	0.1
Chlorate	µg/L	NA	10	U		10	0.1	10	U		10	8.2	10	U		10	0.1
Chlorite	µg/L	NA	10	U		10	0.1	10	U		10	7.7	10	U		10	0.1
Chloride	mg/L	NA	2.5	J		3	0.1	4.5		J	3	1	7.3		J	3	0.1
Nitrate (as N)	mg/L	NA	0.2	U		0.4	0.1	0.18	J	J	0.4	0.12	0.58		J	0.4	0.1
Sulfate	mg/L	NA	28			3	0.1	140			15	4	32			3	0.1
Total Inorganic Carbon	mg/L	NA	61			3	0.1	85			3	0.5	86			3	0.1
Total Organic Carbon	mg/L	NA	1.5	U		3	0.1	0.62	J		3	0.5	0.69	J		3	0.1
MNA																	
Dissolved Fe^{2+}	mg/L	NA	0.02					0.00					0.12				
Dissolved Mn	mg/L	NA	0.24					0.014					0.042				

Table 5-2 SWMU 54 Detected Analytes in Twenty-Ninth Quarter Groundwater Samples (Continued)

Sample ID			54MW13					54MW13 (Field Duplicate 54MW13)				
Date Collected			10/14/2019					10/14/2019				
Analyte	Units	Remedial Goals [1]	Result	Lab Q	Val Q	LOQ	LOD	Result	Lab Q	Val Q	LOQ	LOD
Explosives												
1,3-Dinitrobenzene	µg/L	NA	0.1	U		0.2	0.1	0.1	U		0.2	0.1
2,4,6-Trinitrotoluene	µg/L	7.82	**12.5**			0.2	0.1	**14.6**			0.2	0.1
DNT Mixture*	µg/L	0.932	0.2	U		0.2	0.1	0.2	U		0.2	0.1
2,4-Dinitrotoluene	µg/L	NA	0.1	U		0.2	0.1	0.1	U		0.2	0.1
2,6-Dinitrotoluene	µg/L	NA	0.1	U		0.2	0.1	0.1	U		0.2	0.1
2-Amino-4,6-dinitrotoluene	µg/L	NA	1.9			0.2	0.1	2.1			0.2	0.1
2-Nitrotoluene	µg/L	NA	0.1	U		0.2	0.1	0.1	U		0.2	0.1
4-Amino-2,6-dinitrotoluene	µg/L	NA	1.1			0.2	0.1	1.7			0.2	0.1
RDX	µg/L	6.1	0.1	U		0.2	0.1	0.1	U		0.2	0.1
DNX	µg/L	NA	0.1	U		0.2	0.1	0.1	U		0.2	0.1
MNX	µg/L	NA	0.1	U		0.2	0.1	0.1	U		0.2	0.1
TNX	µg/L	NA	0.1	U		0.2	0.1	0.1	U		0.2	0.1
Miscellaneous												
Perchlorate	µg/L	10.9	0.55			0.2	0.1	0.36			0.2	0.1
Chlorate	µg/L	NA	10	U		10	0.1	10	U		10	0.1
Chlorite	µg/L	NA	10	U		10	0.1	10	U		10	0.1
Chloride	mg/L	NA	7.6		J	3	0.1	7.4			3	0.1
Nitrate (as N)	mg/L	NA	0.52			0.4	0.1	0.52			0.4	0.1
Sulfate	mg/L	NA	33			3	0.1	33			3	0.1

Table 5-2 SWMU 54 Detected Analytes in Twenty-Ninth Quarter Groundwater Samples (Continued)

Sample ID			54MW13					54MW13 (Field Duplicate 54MW13)				
Date Collected			10/14/2019					10/14/2019				
Analyte	Units	Remedial Goals (1)	Result	Lab Q	Val Q	LOQ	LOD	Result	Lab Q	Val Q	LOQ	LOD
Total Inorganic Carbon	mg/L	NA	97			3	0.1	95			3	0.1
Total Organic Carbon	mg/L	NA	0.53	J		3	0.1	1.5	U		3	0.1
MNA												
Dissolved Fe^{2+}	mg/L	NA	0.16					0.14				
Dissolved Mn	mg/L	NA	0.04					0.032				

Notes:
(1) Remedial Goals developed in SWMU 54 RFI/CMS Report, Final Document (URS, 2008).
Exceedances denoted by bold font.
*DNT mixture is the combined results of 2,4-dinitrotoluene and 2,6-dinitrotoluene.
µg/L = micrograms per liter (parts per billion)

Data Qualifiers:
J = Estimated value.
M = Matrix Spike and/or Matrix Spike Duplicate recovery outside acceptance limits.
U = Analyte concentration was not above the detection level.

CMS = Corrective Measures Study
DNT = dinitrotoluene
DNX = hexahydro-1,3-dinitroso-5-nitro-1,3,5-triazine
FE^{2+} = dissolved ferrous iron
ID = identifier
Lab Q = Lab Data Qualifiers
LOD = limit of detection
LOQ = limit of quantitation
mg/L = milligrams per liter (parts per million)
MDL = Method Detection Limit
MNA = monitored natural attenuation
Mn =manganese
MNX = hexahydro-1-nitroso-3,5-dinitro-1,3,5-triazine
NA = not applicable; remedial goal not established for analyte at SWMU 54
ND = not detected
RDX = cyclotrimethylenetrinitramine
RFI = RCRA Facility Investigation
RL = reporting limit
SWMU = Solid Waste Management Unit
TNX = hexhydro-1,3,5-trinitroso-1,3,5-triazine
Val Q = Validation Data Qualifier

Table 5-3 SWMU 54 Summary of Thirtieth Quarter Groundwater Samples

	RG	# of RG Exceedances	# of Detections	# of Samples[1]	Minimum Concentration	Maximum Concentration	Location of Maximum
Explosives (µg/L)							
1,3-Dinitrobenzene	NA	NA	0	5	ND	ND	NA
2,4,6-Trinitrotoluene	7.82	2	4	5	ND	10.2	54MW12
DNT Mixture	0.932	0	0	5	ND	ND	NA
2,4-Dinitrotoluene	NA	NA	0	5	ND	ND	NA
2,6-Dinitrotoluene	NA	NA	0	5	ND	ND	NA
2-Amino-4,6-dinitrotoluene	NA	NA	4	5	ND	4.3	54MW12
2-Nitrotoluene	NA	NA	0	5	ND	ND	NA
4-Amino-2,6-dinitrotoluene	NA	NA	4	5	ND	2.3	54MW10
RDX	6.1	0	4	5	ND	1.9	54MW10
DNX	NA	NA	0	5	ND	ND	NA
MNX	NA	NA	0	5	ND	ND	NA
TNX	NA	NA	0	5	ND	ND	NA
Miscellaneous (µg/L)							
Perchlorate	10.9	0	4	5	0.27	0.49	54MW12
Chlorate	NA	NA	0	5	ND	ND	NA
Chlorite	NA	NA	0	5	ND	ND	NA
Chloride	NA	NA	5	5	2.2	8.4	54MW12
Nitrate (as N)	NA	NA	4	5	ND	0.76	54MW12
Sulfate	NA	NA	5	5	27	59	54MW10
Total Inorganic Carbon	NA	NA	5	5	56	84	54MW10
Total Organic Carbon	NA	NA	0	5	ND	ND	NA

Notes:
[1] One sample was a duplicate.
µg/L = micrograms per liter
DNT = dinitrotoluene
DNX = hexahydro-1,3-dinitroso-5-nitro-1,3,5-triazine
MNX = hexahydro-1-nitroso-3,5-dinitro-1,3,5-triazine
NA = not applicable
ND = not detected
RDX = cyclotrimethylenetrinitramine
SWMU = Solid Waste Management Unit
TNX = hexhydro-1,3,5-trinitroso-1,3,5-triazine

Table 5-4 SWMU 54 Detected Analytes in Thirtieth Quarter Groundwater Samples

Sample ID (Lab ID)			54MW1 (383234)					54MW10 (383230)					54MW12 (383233)				
Date Collected			1/27/2020					1/27/2020					1/27/2020				
Analyte	Units	Remedial Goals [1]	Result	Lab Q	Val Q	LOQ	LOD	Result	Lab Q	Val Q	LOQ	LOD	Result	Lab Q	Val Q	LOQ	LOD
Explosives																	
1,3-Dinitrobenzene	µg/L	NA	0.095	U		0.19	0.095	0.095	U		0.19	0.076	0.095	U		0.19	0.095
2,4,6-Trinitrotoluene	µg/L	7.82	0.095	U		0.19	0.095	**8.4**		J	0.19	0.076	0.095		J	0.19	0.095
DNT Mixture	µg/L	0.932	0.19	U		0.19	0.095	0.19	U		0.19	0.076	0.095	U		0.19	0.095
2,4-Dinitrotoluene	µg/L	NA	0.095	U		0.19	0.095	0.095	U		0.19	0.076	0.095	U		0.19	0.095
2,6-Dinitrotoluene	µg/L	NA	0.095	U		0.19	0.095	0.095	U		0.19	0.076	0.095	U		0.19	0.095
2-Amino-4,6-dinitrotoluene	µg/L	NA	0.095	U		0.19	0.095	2.8			0.19	0.076	0.095			0.19	0.095
2-Nitrotoluene	µg/L	NA	0.095	U		0.19	0.095	0.095	U		0.19	0.076	0.095	U		0.19	0.095
4-Amino-2,6-dinitrotoluene	µg/L	NA	0.095	U		0.19	0.095	2.3			0.19	0.076	0.095			0.19	0.095
RDX	µg/L	6.1	0.095	U		0.19	0.095	1.9		J	0.19	0.076	0.095		J	0.19	0.095
DNX	µg/L	NA	0.095	U		0.19	0.095	0.095	U		0.19	0.076	0.095	U		0.19	0.095
MNX	µg/L	NA	0.095	U		0.19	0.095	0.095	U		0.19	0.076	0.095	U		0.19	0.095
TNX	µg/L	NA	0.095	U		0.19	0.095	0.095	U		0.19	0.076	0.095	U		0.19	0.095
Miscellaneous																	
Perchlorate	µg/L	10.9	0.1	U		0.19	0.2	0.25			0.19	0.2	0.49			0.19	0.2
Chlorate	µg/L	NA	10	U		1	0.095	10	U		1	0.095	10	U		1	0.095
Chlorite	µg/L	NA	10	U		1	0.095	10	U		1	0.095	10	U		1	0.095
Chloride	mg/L	NA	2.5	J		0.3	0.095	6.4			0.3	0.095	8.4			0.3	0.095
Nitrate (as N)	mg/L	NA	0.2	U		0.4	0.095	0.58			0.4	0.095	0.76			0.4	0.095

Table 5-4 SWMU 54 Detected Analytes in Thirtieth Quarter Groundwater Samples (Continued)

Sample ID (Lab ID)			54MW1 (383234)					54MW10 (383230)					54MW12 (383233)				
Date Collected			1/27/2020					1/27/2020					1/27/2020				
Analyte	Units	Remedial Goals [1]	Result	Lab Q	Val Q	LOQ	LOD	Result	Lab Q	Val Q	LOQ	LOD	Result	Lab Q	Val Q	LOQ	LOD
Sulfate	mg/L	NA	29			0.3	0.095	59			0.3	0.095	29			0.3	0.095
Total Inorganic Carbon	mg/L	NA	56			0.3	0.095	59			0.3	0.095	84			0.3	0.095
Total Organic Carbon	mg/L	NA	1.5	U		0.3	0.095	1.5	U		0.3	0.095	1.5	U		0.3	0.095
MNA																	
Dissolved Fe^{2}+	mg/L	NA	0.04					0.06					0.07				
Dissolved Mn	mg/L	NA	0.01					0.05					0.33				

Table 5-4 SWMU 54 Detected Analytes in Thirtieth Quarter Groundwater Samples (Continued)

Sample ID (Lab ID)			54MW13 (383231)					54TW13 (383232) (Field Duplicate 54MW13)				
Date Collected			1/27/2020					1/27/2020				
Analyte	Units	Remedial Goals [1]	Result	Lab Q	Val Q	LOQ	LOD	Result	Lab Q	Val Q	LOQ	LOD
Explosives												
1,3-Dinitrobenzene	µg/L	NA	0.096	U		0.19	0.095	0.094	U		0.19	0.095
2,4,6-Trinitrotoluene	µg/L	7.82	4.1			0.19	0.095	3.8			0.19	0.095
DNT Mixture	µg/L	0.932	0.192	U		0.19	0.095	0.188	U	J	0.19	0.095
2,4-Dinitrotoluene	µg/L	NA	0.096	U		0.19	0.095	0.094	U		0.19	0.095
2,6-Dinitrotoluene	µg/L	NA	0.096	U		0.19	0.095	0.094	U	J	0.19	0.095
2-Amino-4,6-dinitrotoluene	µg/L	NA	1.4			0.19	0.095	1.1			0.19	0.095
2-Nitrotoluene	µg/L	NA	0.096	U		0.19	0.095	0.094	U		0.19	0.095
4-Amino-2,6-dinitrotoluene	µg/L	NA	1			0.19	0.095	0.67			0.19	0.095
RDX	µg/L	6.1	0.55			0.19	0.095	0.48			0.19	0.095
DNX	µg/L	NA	0.096	U		0.19	0.095	0.094	U		0.19	0.095
MNX	µg/L	NA	0.096	U		0.19	0.095	0.094	U		0.19	0.095
TNX	µg/L	NA	0.096	U		0.19	0.095	0.094	U		0.19	0.095
Miscellaneous												
Perchlorate	µg/L	10.9	0.26			0.19	0.2	0.27			0.19	0.2
Chlorate	µg/L	NA	10	U		1	0.095	10	U		1	0.095
Chlorite	µg/L	NA	10	U		1	0.095	10	U		1	0.095
Chloride	mg/L	NA	6.8			0.3	0.095	6.7			0.3	0.095
Nitrate (as N)	mg/L	NA	0.63			0.4	0.095	0.62			0.4	0.095
Sulfate	mg/L	NA	27			0.3	0.095	27			0.3	0.095
Total Inorganic Carbon	mg/L	NA	70			0.3	0.095	70			0.3	0.095
Total Organic Carbon	mg/L	NA	1.5	U		0.3	0.095	1.5	U		0.3	0.095

Table 5-4 SWMU 54 Detected Analytes in Thirtieth Quarter Groundwater Samples (Continued)

Sample ID (Lab ID)			54MW13 (383231)					54TW13 (383232) (Field Duplicate 54MW13)				
Date Collected			1/27/2020					1/27/2020				
Analyte	Units	Remedial Goals (1)	Result	Lab Q	Val Q	LOQ	LOD	Result	Lab Q	Val Q	LOQ	LOD
MNA												
Dissolved Fe^{2+}	mg/L	NA	0.10					0.12				
Dissolved Mn	mg/L	NA	0.10					0.092				

Notes:
(1) Remedial Goals developed in SWMU 54 RFI/CMS Report, Final Document (URS, 2008).
Exceedances denoted by **bold font.**
µg/L = micrograms per liter (parts per billion)
CMS = Corrective Measures Study
DNT = dinitrotoluene
Fe^{2+} = dissolved ferrous iron
ID = identifier
Lab Q = lab data qualifiers
LOD = limit of detection
LOQ = limit of quantitation
mg/L = milligrams per liter (parts per million)
MDL = method detection limit
Mn = manganese
MNA = monitored natural attenuation
MNX = hexahydro-1-nitroso-3,5-dinitro-1,3,5-triazine
NA = not applicable; remedial goal not established for analyte at SWMU 54
ND = not detected
RL = Reporting Limit
RDX = cyclotrimethylenetrinitramine
RFI = RCRA Facility Investigation
SWMU = Solid Waste Management Unit
TNX = hexhydro-1,3,5-trinitroso-1,3,5-triazine
Val Q = validation data qualifiers

Data Qualifiers:
B = Analyte detected in associated Method Blank.
J = Estimated value.
M = Matrix Spike and/or Matrix Spike Duplicate recovery outside acceptance limits.
P = Concentration of analyte differs more than 40% between primary and confirmation analysis.
U = Analyte concentration was not above the detection level.
Y = Replicate/Duplicate precision outside acceptance limits.

Table 5-5 SWMU 54 Summary of Thirty-First Quarter Groundwater Samples

Analyte	Units	RG	# of RG Exceedances	# of Detections	# of Samples [1]	Minimum Concentration	Maximum Concentration	Location of Maximum
Explosives								
1,3-Dinitrobenzene	µg/L	NA	NA	0	5	ND	ND	NA
2,4,6-Trinitrotoluene	µg/L	7.82	2	4	5	ND	20.5	54MW10
DNT Mixture*	µg/L	0.932	NA	0	5	ND	ND	NA
2,4-Dinitrotoluene	µg/L	NA	NA	0	5	ND	ND	NA
2,6-Dinitrotoluene	µg/L	NA	NA	0	5	ND	ND	NA
2-Amino-4,6-dinitrotoluene	µg/L	NA	NA	4	5	ND	4.2	54MW10
2-Nitrotoluene	µg/L	NA	NA	0	5	ND	ND	NA
4-Amino-2,6-dinitrotoluene	µg/L	NA	NA	4	5	ND	2.5	54MW12
RDX	µg/L	6.1	0	4	5	ND	5.1	54MW10
DNX	µg/L	NA	NA	0	5	ND	ND	NA
MNX	µg/L	NA	NA	0	5	ND	ND	NA
TNX	µg/L	NA	NA	0	5	ND	ND	NA
Miscellaneous								
Perchlorate	µg/L	10.9	0	4	5	ND	0.73	54MW12
Chlorate	µg/L	NA	NA	0	5	ND	ND	NA
Chlorite	µg/L	NA	NA	0	5	ND	ND	NA
Chloride	mg/L	NA	NA	5	5	2.6	7.4	54MW12
Nitrate (as N)	mg/L	NA	NA	4	5	ND	1.1	54MW10
Sulfate	mg/L	NA	NA	5	5	21	52	54MW10
Total Inorganic Carbon	mg/L	NA	NA	5	5	46	73	54MW12
Total Organic Carbon	mg/L	NA	NA	0	5	ND	ND	NA

Notes:
[1] One sample was a duplicate.
*DNT mixture is the combined results of 2,4-dinitrotoluene and 2,6-dinitrotoluene.
µg/L = micrograms per liter (parts per billion)
NA = not applicable
ND = not detected
DNT = dinitrotoluene
DNX = hexahydro-1,3-dinitroso-5-nitro-1,3,5-triazine
mg/L = milligrams per liter (parts per million)
MNX = hexahydro-1-nitroso-3,5-dinitro-1,3,5-triazine
RDX = cyclotrimethylenetrinitramine
SWMU = Solid Waste Management Unit
TNX = hexhydro-1,3,5-trinitroso-1,3,5-triazine

Table 5-6 SWMU 54 Detected Analytes in Thirty-First Quarter Groundwater Samples

Sample ID			54MW1					54MW10					54MW12				
Date Collected			4/28/2020					4/28/2020					4/28/2020				
Analyte	Units	Remedial Goals [1]	Result	Lab Q	Val Q	LOQ	LOD	Result	Lab Q	Val Q	LOQ	MDL	Result	Lab Q	Val Q	LOQ	LOD
Explosives																	
1,3-Dinitrobenzene	µg/L	NA	0.096	U		0.19	0.096	0.096	U		0.19	0.096	0.094	U		0.19	0.096
2,4,6-Trinitrotoluene	µg/L	7.82	0.096	U		0.19	0.096	**20.5**			0.19	0.096	**8.3**			0.19	0.096
DNT Mixture	µg/L	0.932	0.192	U		0.19	0.096	0.192	U		0.19	0.096	0.188	U		0.19	0.096
2,4-Dinitrotoluene	µg/L	NA	0.096	U		0.19	0.096	0.096	U		0.19	0.096	0.094	U		0.19	0.096
2,6-Dinitrotoluene	µg/L	NA	0.096	U		0.19	0.096	0.096	U		0.19	0.096	0.094	U		0.19	0.096
2-Amino-4,6-dinitrotoluene	µg/L	NA	0.096	U		0.19	0.096	4.2			0.19	0.096	4			0.19	0.096
2-Nitrotoluene	µg/L	NA	0.096	U		0.19	0.096	0.096	U		0.19	0.096	0.094	U		0.19	0.096
4-Amino-2,6-dinitrotoluene	µg/L	NA	0.096	U		0.19	0.096	1.5		J	0.19	0.096	2.5		J	0.19	0.096
RDX	µg/L	6.1	0.096	U		0.19	0.096	5.1		J	0.19	0.096	0.17	J	J	0.19	0.096
DNX	µg/L	NA	0.096	U		0.19	0.096	0.096	U		0.19	0.096	0.094	U		0.19	0.096
MNX	µg/L	NA	0.096	U		0.19	0.096	0.096	U		0.19	0.096	0.094	U		0.19	0.096
TNX	µg/L	NA	0.096	U	UJ	0.19	0.096	0.096	U	UJ	0.19	0.096	0.094	U	UJ	0.19	0.096
Miscellaneous																	
Perchlorate	µg/L	10.9	0.1	U		0.2	0.1	0.61				0.2	0.1			0.2	0.1
Chlorate	µg/L	NA	10	U		0.2	0.1	10	U		10	0.2	0.1	U		0.2	0.1
Chlorite	µg/L	NA	10	U		0.2	0.1	10	U		10	0.2	0.1	U		0.2	0.1
Chloride	mg/L	NA	2.6	J		0.2	0.1	5.5			3	0.2	0.1			0.2	0.1
Nitrate (as N)	mg/L	NA	0.2	U		0.2	0.1	1.1			0.4	0.2	0.1			0.2	0.1
Sulfate	mg/L	NA	28			0.2	0.1	52			3	0.2	0.1			0.2	0.1
Total Inorganic Carbon	mg/L	NA	56			0.2	0.1	63			3	0.2	85			0.2	0.1
Total Organic Carbon	mg/L	NA	1.5	U	U	0.2	0.1	0.99	J		3	0.2	0.1	U		0.2	0.1
MNA																	
Dissolved Fe^{2+}	mg/L	NA	0.00					0.02					0.10				
Dissolved Mn	mg/L	NA	0.021					0.07					0.08				

Table 5-6 SWMU 54 Detected Analytes in Thirty-First Quarter Groundwater Samples (Continued)

Sample ID			54MW13					54TW13 (Field Duplicate 54MW13)				
Date Collected			4/28/2020					4/28/2020				
Analyte	Units	Remedial Goals [1]	Result	Lab Q	Val Q	LOQ	LOD	Result	Lab Q	Val Q	LOQ	LOD
Explosives												
1,3-Dinitrobenzene	µg/L	NA	0.096	U		0.19	0.096	0.095	U		0.19	0.095
2,4,6-Trinitrotoluene	µg/L	7.82	5.5			0.19	0.096	4.1			0.19	0.095
DNT Mixture	µg/L	0.932	0.192	U		0.19	0.096	0.19	U		0.19	0.095
2,4-Dinitrotoluene	µg/L	NA	0.096	U		0.19	0.096	0.095	U		0.19	0.095
2,6-Dinitrotoluene	µg/L	NA	0.096	U		0.19	0.096	0.095	U		0.19	0.095
2-Amino-4,6-dinitrotoluene	µg/L	NA	1.1		J	0.19	0.096	0.91			0.19	0.095
2-Nitrotoluene	µg/L	NA	0.096	U		0.19	0.096	0.095	U		0.19	0.095
4-Amino-2,6-dinitrotoluene	µg/L	NA	0.66		J	0.19	0.096	0.53			0.19	0.095
RDX	µg/L	6.1	1.5			0.19	0.096	1.1		J	0.19	0.095
DNX	µg/L	NA	0.096	U		0.19	0.096	0.095	U		0.19	0.095
MNX	µg/L	NA	0.096	U		0.19	0.096	0.095	U		0.19	0.095
TNX	µg/L	NA	0.096	U	UJ	0.19	0.096	0.095	U	UJ	0.19	0.095
Miscellaneous												
Perchlorate	µg/L	10.9				0.2	0.1				0.2	0.1
Chlorate	µg/L	NA	0.34			0.2	0.1	0.34			0.2	0.1
Chlorite	µg/L	NA	10	U		0.2	0.1	10	U		0.2	0.1
Chloride	mg/L	NA	10	U		0.2	0.1	10	U		0.2	0.1
Nitrate (as N)	mg/L	NA	5.6			0.2	0.1	5.6			0.2	0.1
Sulfate	mg/L	NA	0.97		J	0.2	0.1	0.95			0.2	0.1
Total Inorganic Carbon	mg/L	NA	21			0.2	0.1	21			0.2	0.1
Total Organic Carbon	mg/L	NA	46			0.2	0.1	46			0.2	0.1

Table 5-6 SWMU 54 Detected Analytes in Thirty-First Quarter Groundwater Samples (Continued)

Sample ID			54MW13					54TW13 (Field Duplicate 54MW13)				
Date Collected			4/28/2020					4/28/2020				
Analyte	Units	Remedial Goals [1]	Result	Lab Q	Val Q	LOQ	LOD	Result	Lab Q	Val Q	LOQ	LOD
MNA												
Dissolved Fe^{2+}	mg/L	NA	0.02					0.01				
Dissolved Mn	mg/L	NA	0.05					0.06				

Notes:
[1] Remedial Goals developed in SWMU 54 RFI/CMS Report, Final Document (URS, 2008).
Exceedances denoted by bold font.
µg/L = micrograms per liter (parts per billion)
CMS = Corrective Measures Study
DNT = dinitrotoluene
DNX = hexahydro-1,3-dinitroso-5-nitro-1,3,5-triazine
Fe^{2+} = dissolved ferrous iron
ID = identifier
Lab Q = lab data qualifiers
LOD = limit of detection
LOQ = limit of quantitation
MDL = method detection limit
mg/L = milligrams per liter (parts per million)
Mn = manganese
MNA = monitored natural attenuation
MNX = hexahydro-1-nitroso-3,5-dinitro-1,3,5-triazine
NA = not applicable; remedial goal not established for analyte at SWMU 54
ND = not detected
RDX = cyclotrimethylenetrinitramine
RFI = RCRA Facility Investigation
RL = reporting limit
SWMU = Solid Waste Management Unit
TNX = hexhydro-1,3,5-trinitroso-1,3,5-triazine
Val Q = validation data qualifier

Data Qualifiers:
B = Analyte detected in associated Method Blank.
J = Estimated value.
M = Matrix Spike and/or Matrix Spike Duplicate recovery outside acceptance limits.
P = Concentration of analyte differs more than 40% between primary and confirmation analysis.
U = Analyte concentration was not above the detection level.
Y = Replicate/Duplicate precision outside acceptance limits.

Table 5-7 SWMU 54 Summary of Thirty-Second Quarter Groundwater Samples

Analyte	RG	# of RG Exceedances	# of Detections	# of Samples [1]	Minimum Concentration	Maximum Concentration	Location of Maximum
Explosives (µg/L)							
1,3-Dinitrobenzene	NA	NA	0	5	ND	ND	NA
2,4,6-Trinitrotoluene	7.82	4	4	5	13.6	18.6	54MW10
DNT Mixture*	0.932	0	0	5	ND	ND	NA
2,4-Dinitrotoluene	NA	NA	0	5	ND	ND	NA
2,6-Dinitrotoluene	NA	NA	0	5	ND	ND	NA
2-Amino-4,6-dinitrotoluene	NA	NA	4	5	1.3	4	54MW12
2-Nitrotoluene	NA	NA	0	5	ND	ND	NA
4-Amino-2,6-dinitrotoluene	NA	NA	4	5	1.9	2.8	54MW12
RDX	6.1	0	3	5	1.3	3.9	54MW10
DNX	NA	NA	0	5	ND	ND	NA
MNX	NA	NA	0	5	ND	ND	NA
TNX	NA	NA	0	5	ND	ND	NA
Miscellaneous							
Perchlorate	10.9	0	4	5	0.4	.61	54MW12
Chlorate	NA	NA	0	5	ND	ND	NA
Chlorite	NA	NA	0	5	ND	ND	NA
Chloride	NA	NA	5	5	2.3	7.1	54MW12
Nitrate (as N)	NA	NA	4	5	0.45	.84	54MW12
Sulfate	NA	NA	5	5	23	69	54MW10
Total Inorganic Carbon	NA	NA	5	5	60	77	54MW13
Total Organic Carbon	NA	NA	0	5	ND	ND	NA

Notes:
[1] One sample was a duplicate.
*DNT mixture is the combined results of 2,4-dinitrotoluene and 2,6-dinitrotoluene.
µg/L = micrograms per liter (parts per billion)
DNT = dinitrotoluene
DNX = hexahydro-1,3-dinitroso-5-nitro-1,3,5-triazine
MNX = hexahydro-1-nitroso-3,5-dinitro-1,3,5-triazine
NA = not applicable
ND = not detected
RDX = cyclotrimethylenetrinitramine
RG = remedial goal
SWMU = Solid Waste Management Unit
TNX = hexhydro-1,3,5-trinitroso-1,3,5-triazine

Table 5-8 SWMU 54 Detected Analytes in Thirty-Second Quarter Groundwater Samples

Sample ID			54MW1					54MW10					54TM10 (Field Duplicate 54MW10)				
Date Collected			7/21/2020					7/21/2020					7/21/2020				
Analyte	Units	Remedial Goals [1]	Result	Lab Q	Val Q	LOQ	LOD	Result	Lab Q	Val Q	LOQ	LOD	Result	Lab Q	Val Q	LOQ	LOD
Explosives																	
1,3-Dinitrobenzene	µg/L	NA	0.1	U		0.2	0.098	0.1	U		0.2	0.098	0.1	U		0.2	0.01
2,4,6-Trinitrotoluene	µg/L	7.82	0.1	U		0.2	0.098	0.1	U		0.2	0.098	4.1			0.2	0.01
DNT Mixture	µg/L	0.932	0.1	U		0.2	0.098	0.1	U		0.2	0.098	0.2	U		0.2	0.01
2,4-Dinitrotoluene	µg/L	NA	0.1	U		0.2	0.098	0.1	U		0.2	0.098	0.1	U		0.2	0.01
2,6-Dinitrotoluene	µg/L	NA	0.1	U		0.2	0.098	0.1	U		0.2	0.098	0.1	U		0.2	0.01
2-Amino-4,6-dinitrotoluene	µg/L	NA	0.1	U		0.2	0.098	0.1	U		0.2	0.098	3.6			0.2	0.01
2-Nitrotoluene	µg/L	NA	0.1	U	UJ	0.2	0.098	0.1	U	UJ	0.2	0.098	0.1	U	UJ	0.2	0.01
4-Amino-2,6-dinitrotoluene	µg/L	NA	0.1	U		0.2	0.098	0.1	U	J	0.2	0.098	2.2		J	0.2	0.01
RDX	µg/L	6.1	0.1	U		0.2	0.098	0.1	U		0.2	0.098	0.1	U		0.2	0.01
DNX	µg/L	NA	0.1	U		0.2	0.098	0.1	U		0.2	0.098	0.1	U		0.2	0.01
MNX	µg/L	NA	0.1	U		0.2	0.098	0.1	U		0.2	0.098	0.1	U		0.2	0.01
TNX	µg/L	NA	0.1	U		0.2	0.098	0.1	U		0.2	0.098	0.1	U		0.2	0.01
Miscellaneous																	
Perchlorate	µg/L	10.9	0.1	U		0.2	0.1	0.1	U		0.2	0.1	0.75			0.2	0.1
Chlorate	µg/L	NA	10	U		0.2	0.1	10	U		0.2	0.1	10	U		0.2	0.1
Chlorite	µg/L	NA	10	U		0.2	0.1	10	U		0.2	0.1	10	U		0.2	0.1
Chloride	mg/L	NA	2.3	J		0.2	0.1	3.6			0.2	0.1	4.9			0.2	0.1
Nitrate (as N)	mg/L	NA	0.12	J		0.2	0.1	0.2	U		0.2	0.1	1			0.2	0.1
Sulfate	mg/L	NA	28			0.2	0.1	15			0.2	0.1	22			0.2	0.1
Total Inorganic Carbon	mg/L	NA	63			0.2	0.1	63			0.2	0.1	65			0.2	0.1
Total Organic Carbon	mg/L	NA	1.5	U		0.2	0.1	3	U		0.2	0.1	1.5	U		0.2	0.1
MNA																	
Dissolved Fe^{2+}	mg/L	NA	0.09					0.07					0.17				
Dissolved Mn	mg/L	NA	0.04					0.031					0.10				

Table 5-8 SWMU 54 Detected Analytes in Thirty-Second Quarter Groundwater Samples (Continued)

Sample ID			54MW12					54MW13				
Date Collected			7/21/2020					7/21/2020				
Analyte	Units	Remedial Goals [1]	Result	Lab Q	Val Q	LOQ	LOD	Result	Lab Q	Val Q	LOQ	LOD
Explosives												
1,3-Dinitrobenzene	µg/L	NA	0.098	U		0.2	0.098	0.1	U		0.2	0.098
2,4,6-Trinitrotoluene	µg/L	7.82	**8.3**			0.2	0.098	**9.5**			0.2	0.098
DNT Mixture	µg/L	0.932	0.196	U		0.2	0.098	0.2	U		0.2	0.098
2,4-Dinitrotoluene	µg/L	NA	0.098	U		0.2	0.098	0.1	U		0.2	0.098
2,6-Dinitrotoluene	µg/L	NA	0.098	U		0.2	0.098	0.1	U		0.2	0.098
2-Amino-4,6-dinitrotoluene	µg/L	NA	0.92			0.2	0.098	0.97		J	0.2	0.098
2-Nitrotoluene	µg/L	NA	0.098	U		0.2	0.098	0.1	U	UJ	0.2	0.098
4-Amino-2,6-dinitrotoluene	µg/L	NA	0.8			0.2	0.098	0.86		J	0.2	0.098
RDX	µg/L	6.1	0.43			0.2	0.098	0.44			0.2	0.098
DNX	µg/L	NA	0.098	R		0.2	0.098	0.1	U		0.2	0.098
MNX	µg/L	NA	0.098	R		0.2	0.098	0.1	U		0.2	0.098
TNX	µg/L	NA	0.098	R		0.2	0.098	0.1	U		0.2	0.098
Miscellaneous												
Perchlorate	µg/L	10.9	0.3			0.2	0.1	0.29			0.2	0.1
Chlorate	µg/L	NA	10	U		0.2	0.1	10	U		0.2	0.1
Chlorite	µg/L	NA	10	U		0.2	0.1	10	U		0.2	0.1
Chloride	mg/L	NA	5.6			0.2	0.1	4.6			0.2	0.1
Nitrate (as N)	mg/L	NA	1			0.2	0.1	1			0.2	0.1
Sulfate	mg/L	NA	20			0.2	0.1	20		J	0.2	0.1
Total Inorganic Carbon	mg/L	NA	48			0.2	0.1	47			0.2	0.1
Total Organic Carbon	mg/L	NA	1.5	U		0.2	0.1	1.5	U		0.2	0.1
MNA												
Dissolved Fe^{2+}	mg/L	NA	0.07					0.06				
Dissolved Mn	mg/L	NA	0.037					0.033				

Notes:
[1] Remedial Goals developed in SWMU 54 RFI/CMS Report, Final Document (URS, 2008). Exceedances denoted by bold font.
µg/L = micrograms per liter (parts per billion)
CMS = Corrective Measures Study
DNT = dinitrotoluene
DNX = hexahydro-1,3-dinitroso-5-nitro-1,3,5-triazine
Fe^{2+} = dissolved ferrous iron
ID = identifier
Lab Q = lab data qualifiers
LOQ = limit of quantitation
LOD = limit of detection
MDL = method detection limit
mg/L = milligrams per liter (parts per million)
Mn = manganese
MNA = monitored natural attenuation
MNX = hexahydro-1-nitroso-3,5-dinitro-1,3,5-triazine
NA = not applicable; remedial goal not established for analyte at SWMU 54
ND = not detected
RDX = cyclotrimethylenetrinitramine
RFI = RCRA Facility Investigation
RL = reporting limit
SWMU = Solid Waste Management Unit
TNX = hexhydro-1,3,5-trinitroso-1,3,5-triazine
Val Q = validation data qualifiers

Data Qualifiers:
B = Analyte detected in associated Method Blank.
J = Estimated value.
M = Matrix Spike and/or Matrix Spike Duplicate recovery outside acceptance limits.
P = Concentration of analyte differs more than 40% between primary and confirmation analysis.
R = The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.
U = Analyte concentration was not above the detection level.
Y = Replicate/Duplicate precision outside acceptance limits.

Table 5-9 Summary of Samples and Analyses

Sampling Event	Data Packages	Matrix	Chloride Nitrate Sulfate	Explosives	Metals	TOC TIC	Chlorate Chlorite Perchlorate	COD pH
October 2019	149018	GW	X	X		X	X	
October 2019	148990	GW	X	X	X	X	X	X
January 2020	151023	GW	X	X		X	X	
January 2020	151051	GW	X	X	X	X	X	X
April 2020	152892	GW	X	X		X	X	
April 2020	152873 152924	GW	X	X	X	X	X	X
July 2020	154987	GW	X	X		X	X	
July 2020	154947 155037	GW	X	X	X	X	X	X

Notes:
COD = chemical oxygen demand
ID = identifier
pH = potential of hydrogen
TIC = total inorganic carbon
TOC = total organic carbon

Table 5-10 Analytical Methods

Analysis	Analytes	Method
Anions	Chloride Nitrate Sulfate	USEPA SW-846 Method 9056A
pH	pH	USEPA SW-846 Method 9040
Explosives	Numerous	USEPA SW-846 Method 8330B
Metals	Numerous	USEPA SW-846 Method 6010C USEPA SW-846 Method 7470A (Mercury)
TOC/TIC	TIC TOC	USEPA SW-846 Method 9060A
COD	COD	USEPA Method 410.4
Chlorate/Chlorite	Chlorate Chlorite	USEPA Method 300.1
Perchlorates	Perchlorates	USEPA SW-846 Method 6850

Notes:
COD = chemical oxygen demand
pH = potential of hydrogen
TIC = total inorganic carbon
TOC = total organic carbon
USEPA = U.S. Environmental Protection Agency

Table 5-11 Data Qualifiers

Qualifier	Description
R	Rejected: The result is rejected due to deficiencies in the analytical system or the inability to meet QC criteria.
M	Matrix effect: The concentration is estimated due to a matrix effect.
J	Estimated: The analyte was positively identified, but the quantitation is an estimate due to discrepancies in meeting certain analyte-specific QC criteria.
J+	Estimated: The analyte was positively identified, but the quantitation is an estimate, possibly biased high, due to discrepancies in meeting certain analyte-specific QC criteria.
J-	Estimated: The analyte was positively identified, but the quantitation is an estimate, possibly biased low, due to discrepancies in meeting certain analyte-specific QC criteria.
B	Blank. The analyte was detected in an associated blank.
U	Undetected: The analyte was analyzed for but not detected.
UJ	The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific QC criteria.

Table 5-12 Holding Time Exceedances

Sampling Event	Analysis	Analytes	Result	Samples	Qualifiers
October 2019	Nitrate	All compounds	Technical holding time	54MW1	R
January 2020	No Exceedances				
April 2020	No Exceedances				
July 2020	No Exceedances				

Notes:
R = Rejected

Table 5-13 Field Duplicate Precision Exceedances

Sampling Event/ Sample ID	Analyte	Flag	RPD
(October 2019)	No Exceedances		
(January 2019)	No Exceedances		
(April 2019) 54MW13 54TM13	HMX RDX 3,5-dinitroaniline 2-amino-4,6-dinitrotoluene 4-amino-2,6-dinitrotoluene 1,3,5-trinitrobenzene 2,4,6-trinitrobenzene	J	≥20
(July 2020) 54MW13 54TW13	HMX RDX 3,5-dinitroaniline 2-amino-4,6-dinitrotoluene 4-amino-2,6-dinitrotoluene 1,3,5-trinitrobenzene 2,4,6-trinitrobenzene	J	≥20

Notes:
≥ = greater than
J = estimated
UJ = not detected estimated
HMX = high melting explosive
RDX = cyclotrimethylenetrinitramine
RPD = relative percent difference

Table 5-14 Laboratory Duplicate Precision Exceedances

Sampling Event	Analyte	Flag	RPD
October 2019	No Exceedances		
January 2020	No Exceedances		
April 2020	Copper	J	≥7.0
July 2020	Zinc	J	≥10

Notes:
≥ = greater than
J = estimated
RDP = relative percent difference

Table 5-15 MS/MSD RPD Exceedances

Sampling Event/Sample ID	Analyte	Flag	RPD
(October 2019) 54MW12/Explosives	HMX 1,3,5-Trinitrobenzene	J	≥0
(January 2020)	No Exceedances		
(April 2020)	No Exceedances		
(July 2020) 54MW12/Metals	Aluminum Iron Vanadium	J	≥20

Notes:
≥ = greater than
J = estimated
HMX = high melting explosive
MS/MSD = matrix spike/matrix spike duplicate
RPD = relative percent difference

Table 5-16 RPD Between Two Columns Exceedances

Sampling Event/Sample ID	Analyte	Flag	RPD
(October 2019) 54MW13/Explosives 54TM13/Explosives 54MW10/Explosives	3,5-dinitroaniline 4-amino-2,6-dinitrotoluene RDX 3,5-dinitroaniline	J	≥40
(January 2020) 54MW13/Explosives 54TM13/Explosives 54MW10/Explosives	3,5-Dinitroaniline 2,6-Dinitrotoluene 3,5-dinitroaniline 70.5% 4-amino-2,6-dinitrotoluene	J	≥40
(April 2020)	No Exceedances		
(July 2020)	No Exceedances		

Notes:
≥ = greater than
J = estimated
RDX = cyclotrimethylenetrinitramine
RPD = relative percent difference

Table 5-17 MS/MSD Recovery Exceedances

Sampling Event/Sample ID	Analyte	Recovery	Parent Flag
(October 2019) 54MW12	PETN Sulfate	Low	UJ J
(October 2019) 54MW12	Perchlorate	High	J
(January 2020) 54MW12	Sulfate Perchlorate	Low	J
(April 2020) 54MW12	Perchlorate	Low	J
(April 2020) 54MW12	Chlorite	Low	UJ
(July 2020) IDW-54	Aluminum Iron Vanadium	High	J

Notes:
IDW = investigation-derived waste
J = estimated
MS/MSD = matrix spike/matrix spike duplicate
PETN = pentaerythritol tetranitrate
UJ = not detected estimated

Table 5-18 Calibration Exceedances

Sampling Event	Analysis	Analytes	Result	Samples	Qualifiers
October 2018	No Exceedances				
January 2020	Explosives	PETN	ICV High	54MW10 54MW12	UJ
April/May 2019	Explosives	1,3,5-Trinitrobenzene	CCV High	043019R1 54MW13 54MW10 54TW10 54MW12 54MW1	J/UJ
July 2020	No Exceedances				

Notes:
CCV = continuing calibration verification
ICV = initial calibration verification
J = estimated
PETN = pentaerythritol tetranitrate
UJ = not detected estimated

Table 5-19 Blank Flags

Sampling Event	Type of Blank	Method	Analyte	Samples Qualified	Flag
October 2019	No Flags				
January 2020	No Flags				
April 2020	Calibration	Metals	Selenium	54MW12	U
April 2020	Method	Metals	Selenium Copper	54MW12	U
July 2020	No Flags				

Notes:
U = not detected

Legend

- Well (Current MNA Network)
- Well (Removed from Network After 9th Quarter)
- Monitoring Well Location (Groundwater Sample Results> RGs)
- Fence
- SWMU 54 Boundary

Aerial Source:
Near Map Imagery, February 2020

N

0 30 60 120 Feet

Prepared By:
Baltimore District

FIGURE 5-1
SWMU 54 OCTOBER 2019
GROUNDWATER SAMPLE
RESULTS EXCEEDING RGS
RADFORD, VIRGINIA

File: Y:\Radford\MXD\SWMU\SWMU54_2019_ Groundwater_Sample_Results_Exce_RGs.mxd, 10/7/2020 2:50:45 PM, johna

Legend

- Well (Current MNA Network)
- Well (Removed from Network After 9th Quarter)
- Monitoring Well Location (Groundwater Sample Results> RGs)
- Fence
- SWMU 54 Boundary

Aerial Source:
Near Map Imagery, February 2020

N

0 30 60 120 Feet

Prepared By:

Baltimore District

FIGURE 5-2
SWMU 54 JANUARY 2020
GROUNDWATER SAMPLE
RESULTS EXCEEDING RGS
RADFORD, VIRGINIA

File: Y:\Radford\MXD\SWMU\SWMU54_jan2020_ Groundwater_Sample_Results_Exce_RGs.mxd, 10/7/2020 2:56:12 PM, johna

Legend

- Well (Current MNA Network)
- Well (Removed from Network After 9th Quarter)
- Monitoring Well Location (Groundwater Sample Results> RGs)
- Fence
- SWMU 54 Boundary

Aerial Source:
Near Map Imagery, February 2020

N

0 30 60 120 Feet

Prepared By:
Baltimore District

FIGURE 5-3
SWMU 54 APRIL 2020
GROUNDWATER SAMPLE
RESULTS EXCEEDING RGS
RADFORD, VIRGINIA

File: Y:\Radford\MXD\SWMU\SWMU54_APR2020_ Groundwater_Sample_Results_Exce_RGs.mxd, 10/7/2020 2:58:53 PM, johna

Legend

- Well (Current MNA Network)
- Well (Removed from Network After 9th Quarter)
- Monitoring Well Location (Groundwater Sample Results> RGs)
- Fence
- SWMU 54 Boundary

Aerial Source:
Near Map Imagery, February 2020

N

0 30 60 120 Feet

Prepared By:
Baltimore District

FIGURE 5-4
SWMU 54 JULY 2020
GROUNDWATER SAMPLE
RESULTS EXCEEDING RGS
RADFORD, VIRGINIA

File: Y:\Radford\MXD\SWMU\SWMU54_July2020_ Groundwater_Sample_Results_Exce_RGs.mxd, 10/7/2020 3:02:56 PM, johna

Figure 5-5 SWMU 54: 54MW1 Explosives Concentrations Q1 through Q32

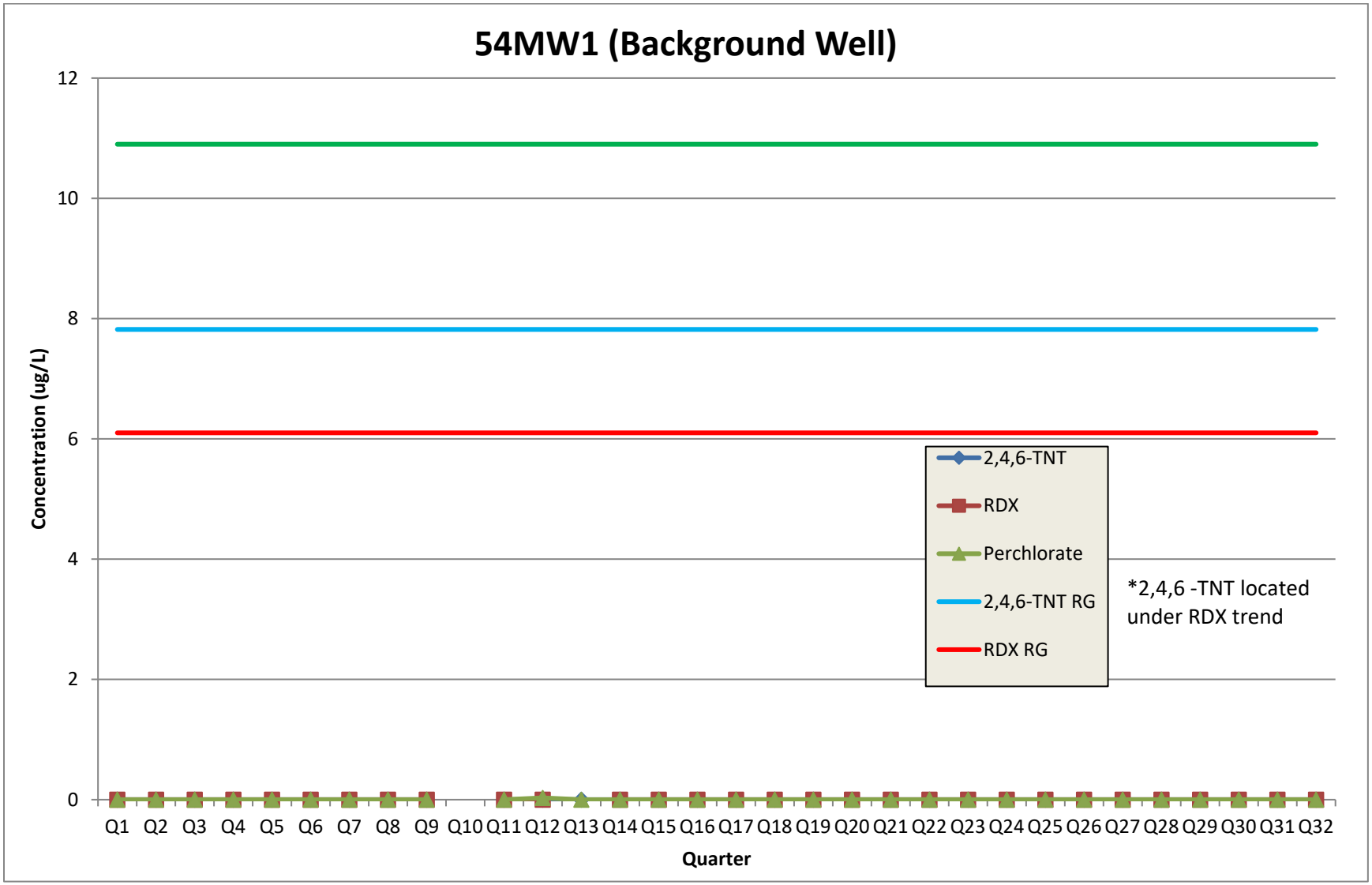


Figure 5-6 SWMU 54: 54MW10 Explosives Concentrations Q1 through Q32

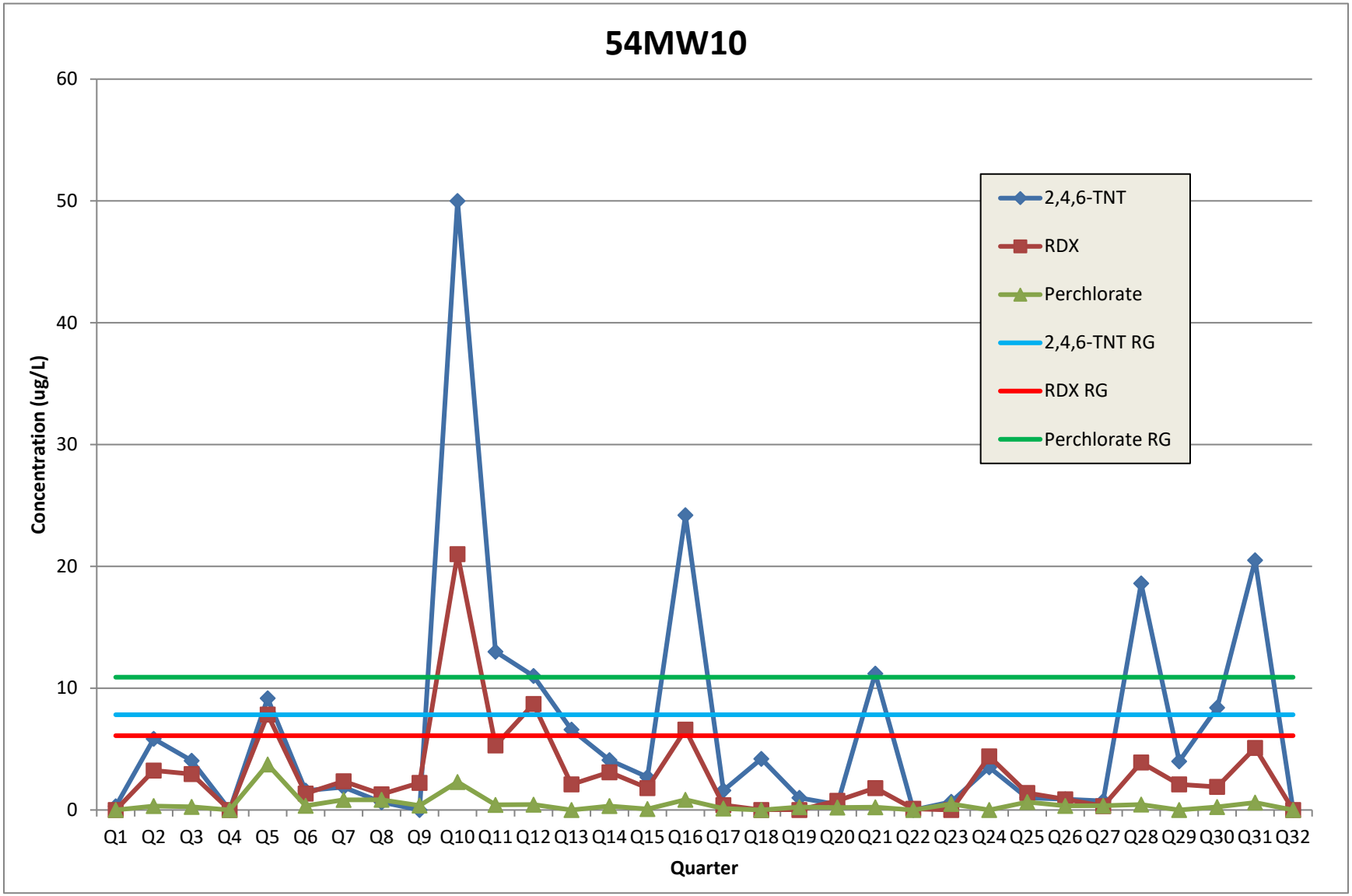


Figure 5-7 SWMU 54: 54MW12 Explosives Concentrations Q1 through Q32

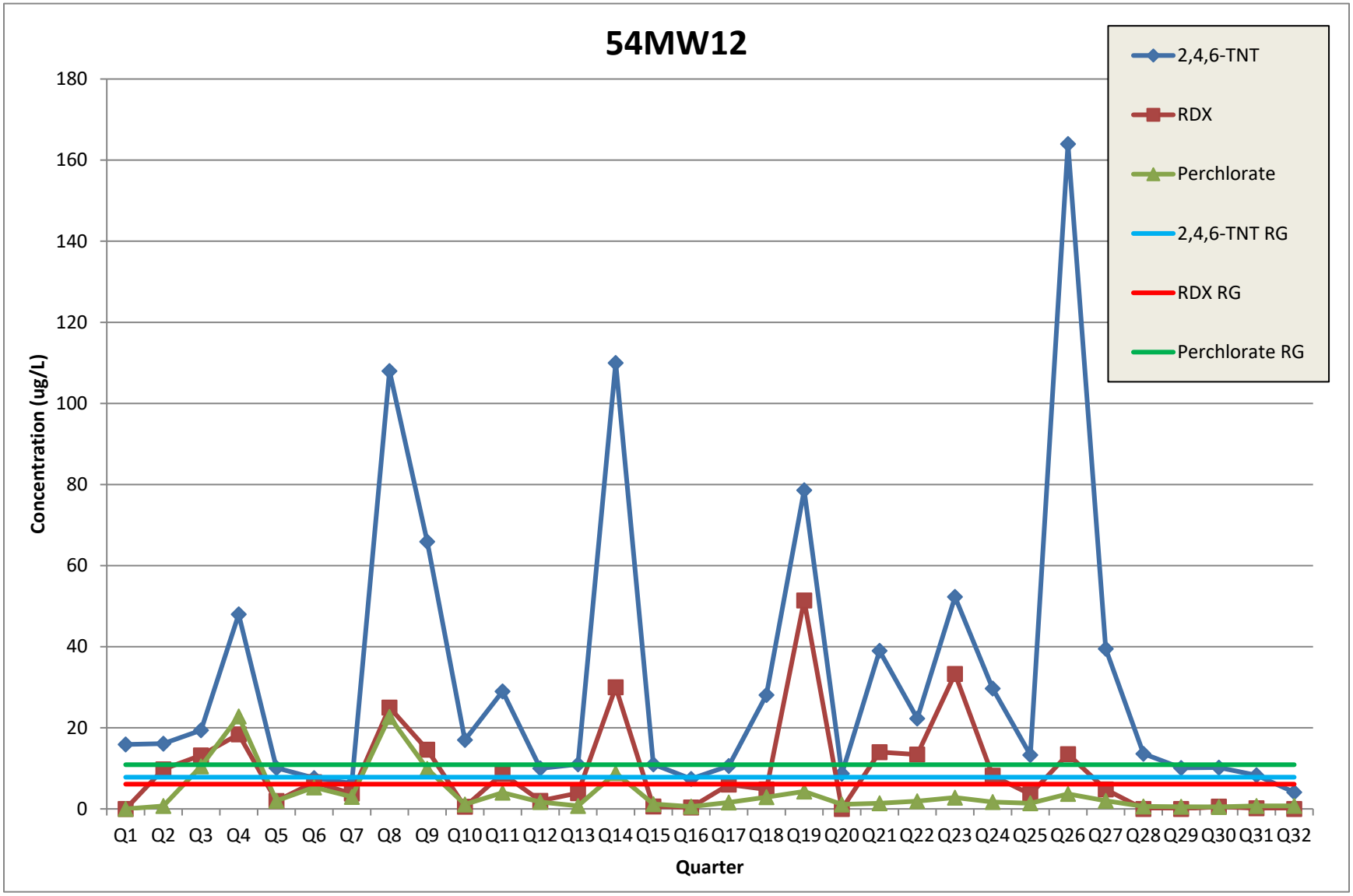


Figure 5-8 SWMU 54: 54MW13 Explosives Concentrations Q1 through Q32

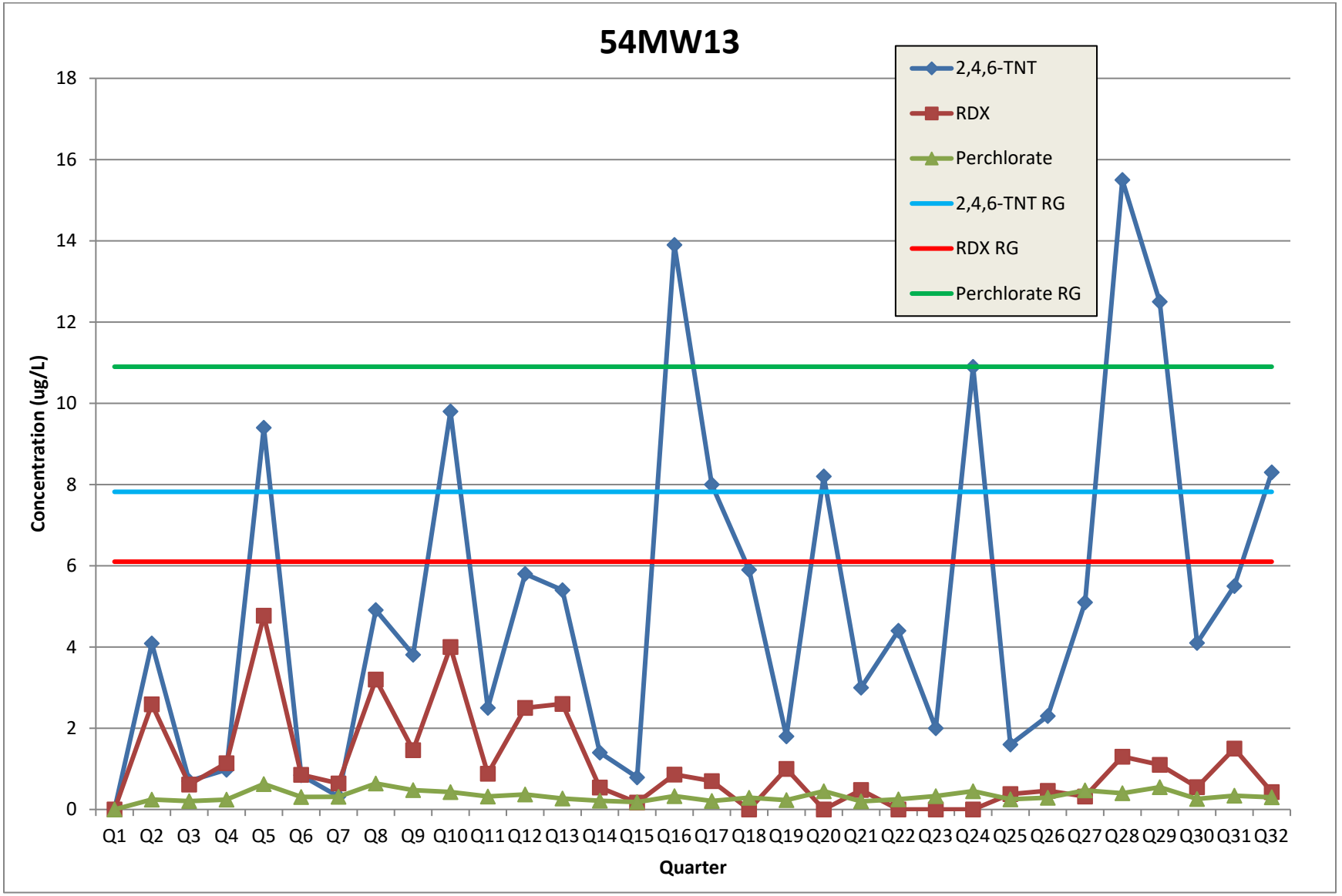


Figure 5-9 SWMU 54: 54MW1 2,4,6-TNT to Amino-DNT Correlation

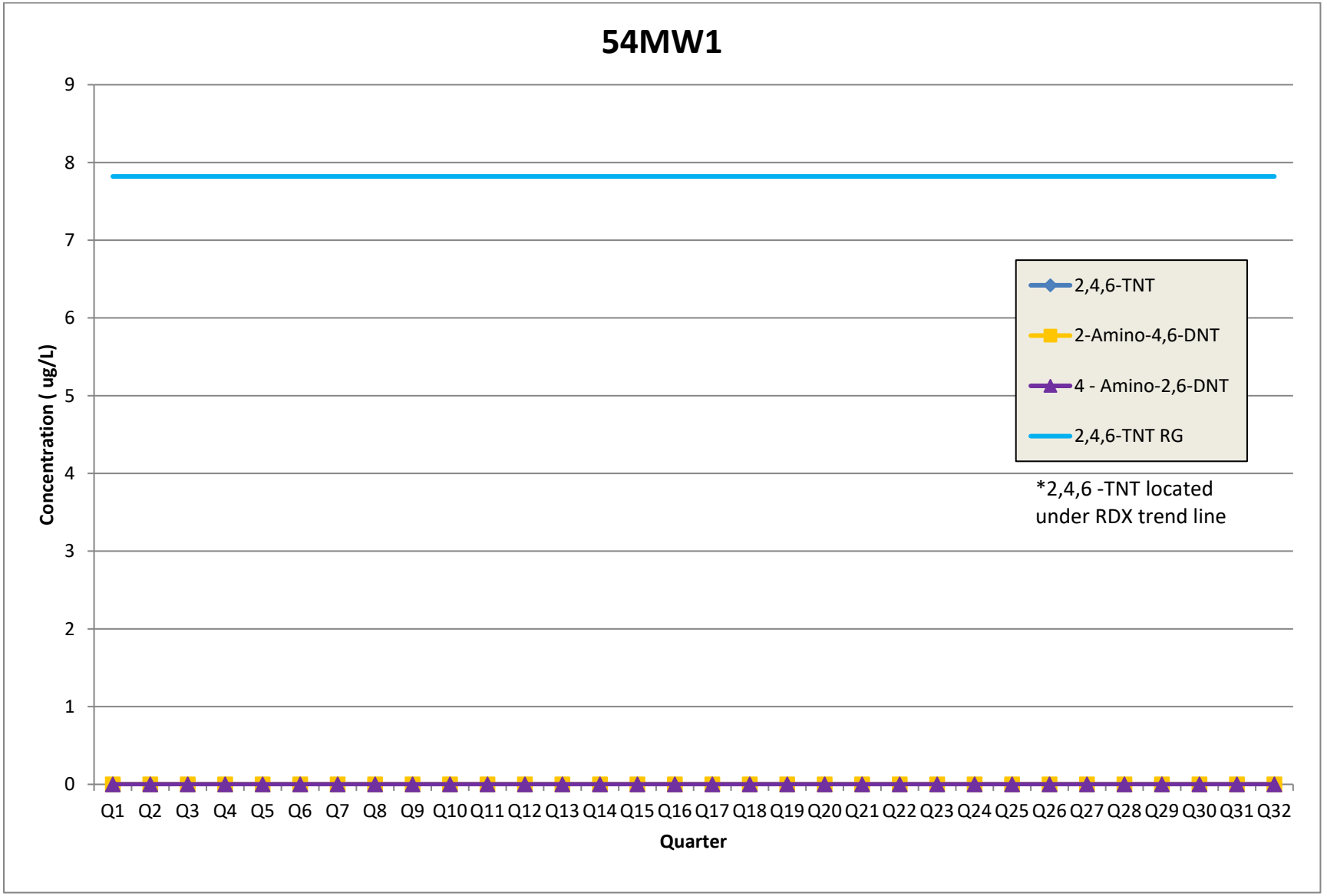


Figure 5-10 SWMU 54: 54MW10 2,4,6-TNT to Amino-DNT Correlation

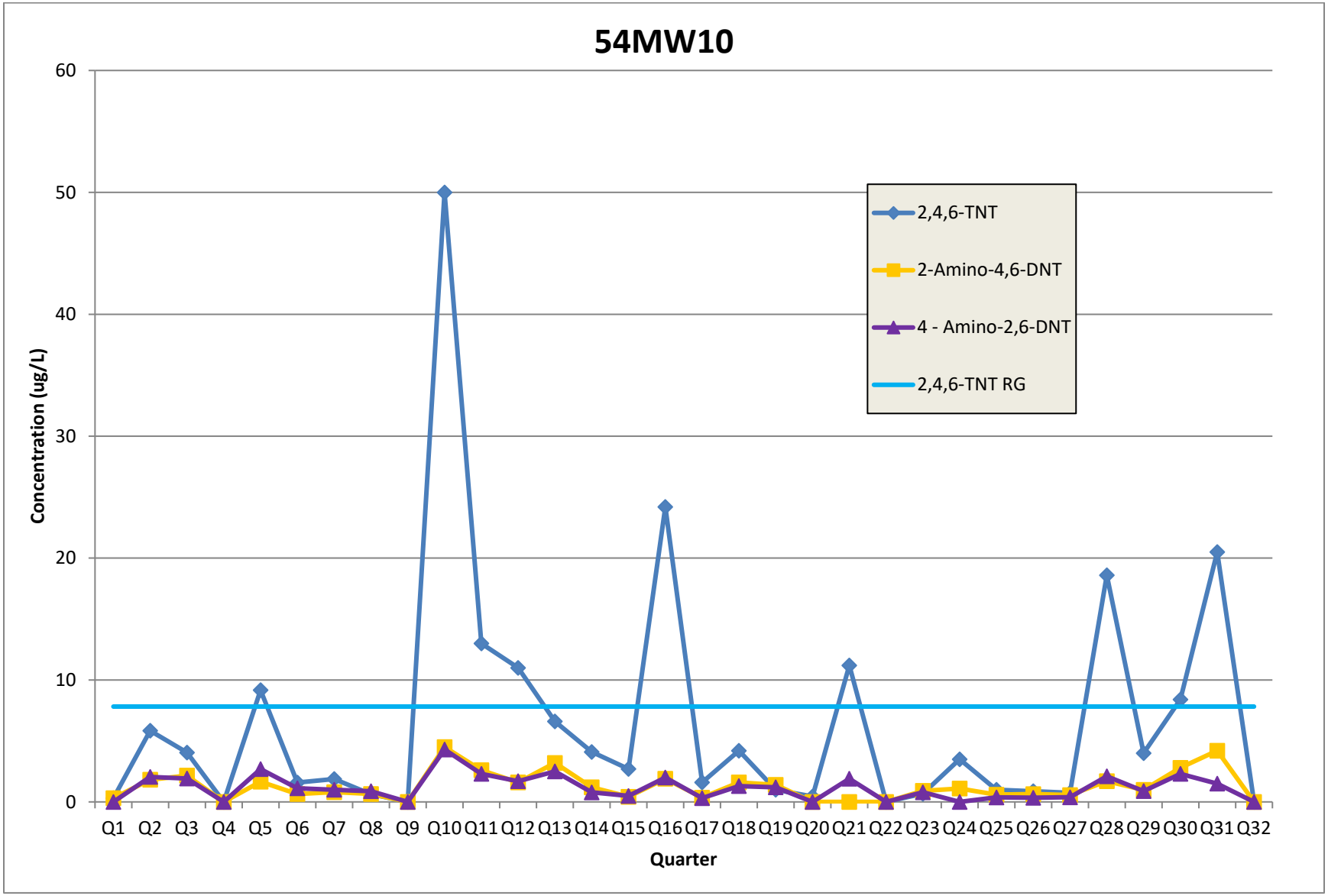


Figure 5-11 SWMU 54: 54MW12 2,4,6-TNT to Amino-DNT Correlation

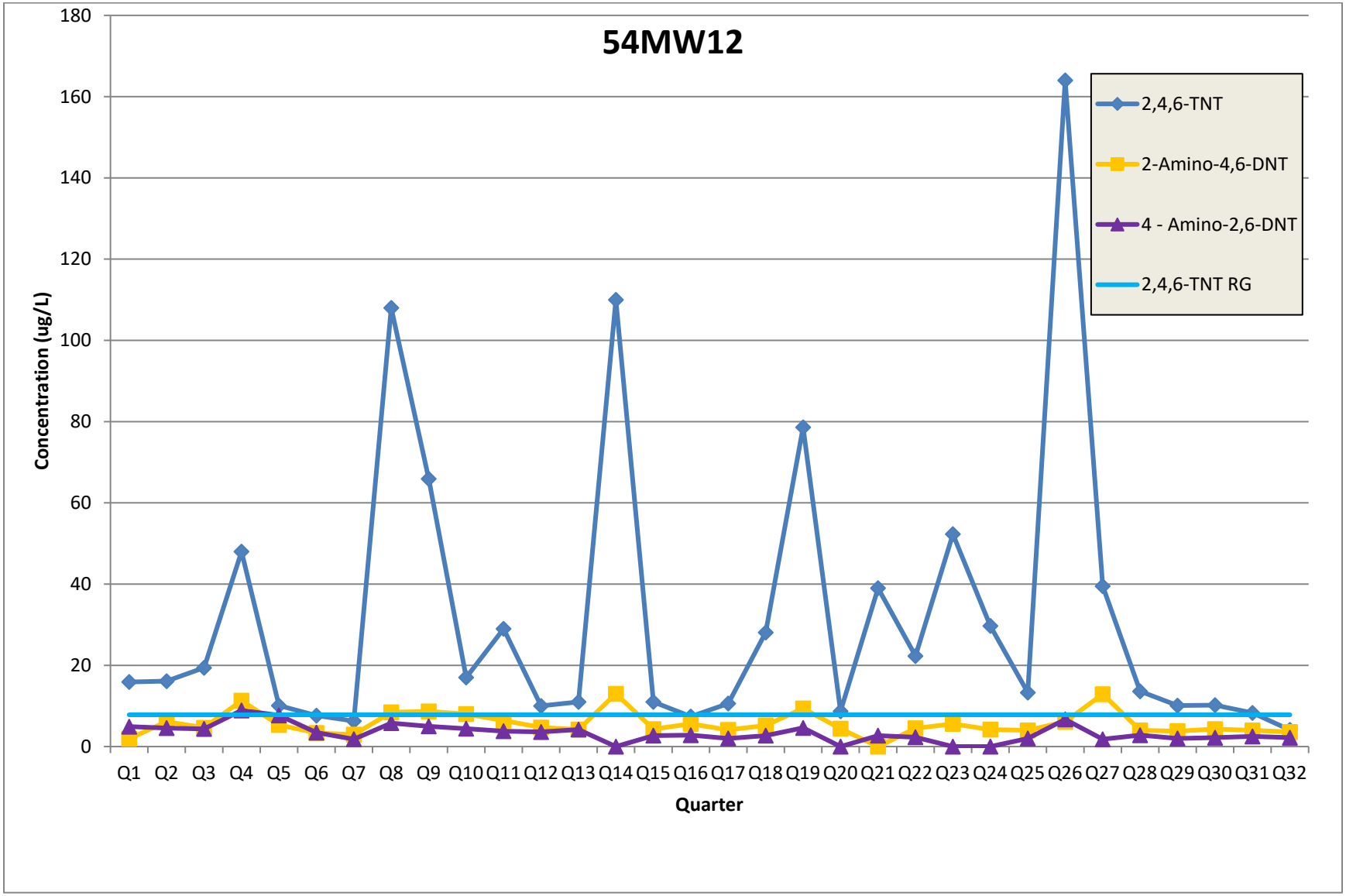
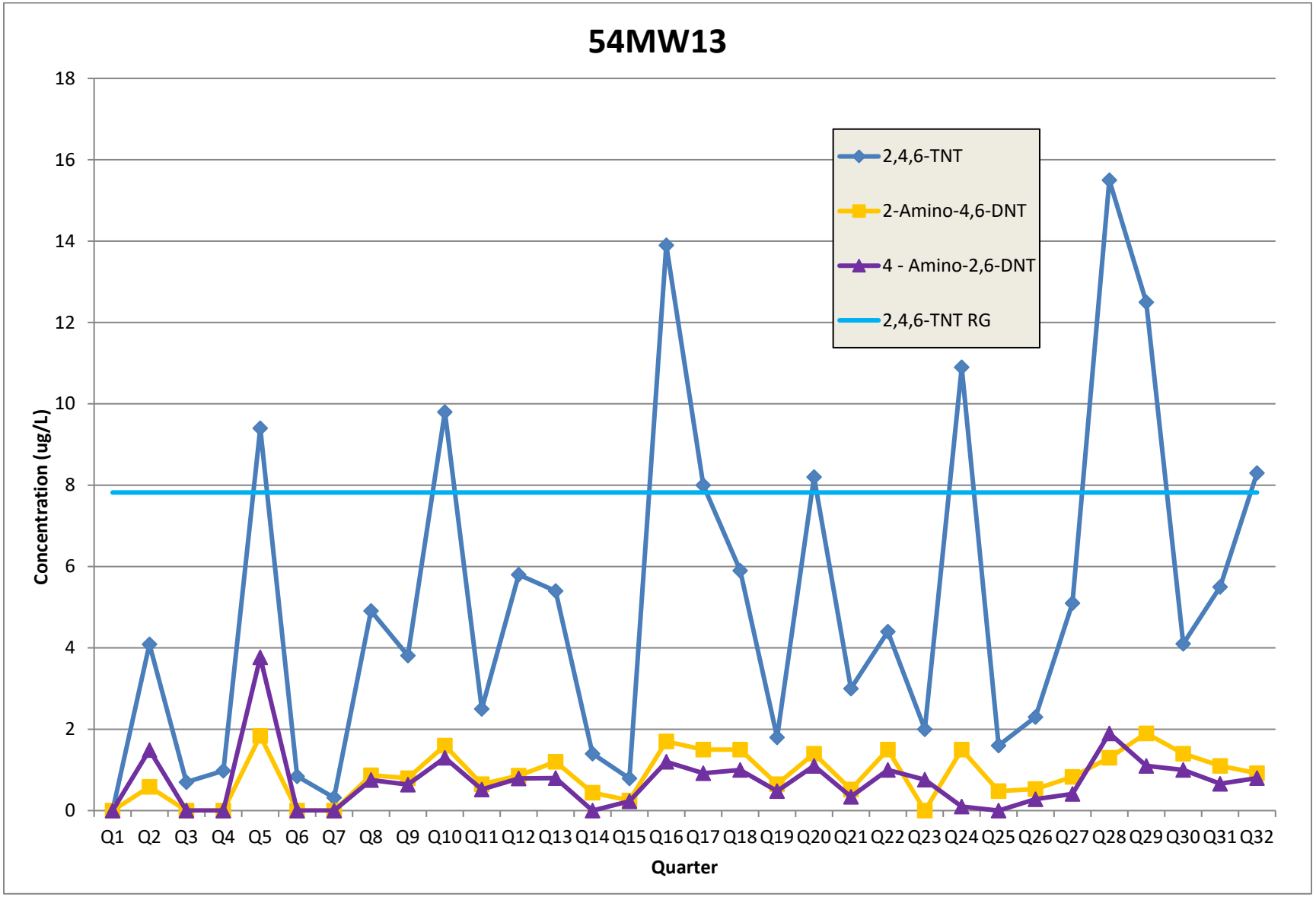


Figure 5-12 SWMU 54: 54MW13 2,4,6-TNT to Amino-DNT Correlation



6. MNA EVALUATION OF SWMU 54

MNA is a remedial approach in which physical, chemical, and biological processes occur under favorable conditions, without human interferences to reduce the mass, toxicity, volume, concentration, and mobility of contaminants in soil and groundwater. The physical, chemical, and biological processes include biodegradation, dispersion, dilution, sorption, volatilization, and chemical or biological stabilization (USEPA, 1998). Analytical results from multiple groundwater sampling events at SWMU 54 were evaluated for qualitative indications of natural attenuation processes that may reduce the concentrations of the contaminants of interest (TNT, RDX, and perchlorate [ClO_4]). The following sections present the results as they pertain to the lines of evidence used to demonstrate the potential for MNA.

6.1 FIRST LINE OF EVIDENCE: OCCURRENCE OF CONTAMINANT TRENDS

The first line of evidence consists of evaluating contaminant and daughter product concentrations for a downward trend in monitoring wells over time. SWMU 54 contains 14 wells (54MW1, 54MW2, 54MW3, 54MW4, 54MW5, 54MW6, 54MW7, 54MW8, 54MW9, 54MW10, 54MW11, 54MW12, 54MW13, and 54MW14), which targeted areas of potential nitroaromatic and perchlorate contamination. The target wells were reduced after the ninth and tenth quarters to 54MW1 (background), 54MW10, 54MW12, and 54MW13. Historical trends and the results of quarterly groundwater sampling are discussed below, and the data are provided in **Table 6-1**, and in **Figures 6-1** through **6-3. Table 6-1** also includes the sampling month and year for quarters 1 through 32.

2,4,6-TNT

2,4,6-TNT was detected above the RG of 7.82 µg/L in wells 54MW10, 54MW12, and 54MW13 during the Year Eight monitoring period. Seven detections, including a field duplicate, at these wells exceed the RG, including two at 54MW10 (quarters 30 and 31), three at 54MW12 (quarters 29, 30, and 31), and two at 54MW13 (quarters 29 and 32, which also included field duplicate 54TW13).

2,4,6-TNT concentrations have fluctuated in monitoring wells 54MW10, 54MW12, and 54MW13 during the thirty-two quarterly monitoring events. At monitoring well 54MW10, the 2,4,6-TNT

concentration went from undetected in quarter nine to the highest concentration recorded (50 µg/L in quarter 10) in this well during the 7 years of monitoring. The following five quarters of sampling (quarters 11–15) saw concentrations decline dramatically until a spike was observed during the sixteenth quarter. The concentration spike of 24.2 µg/L at 54MW10 exceeds the RG. Concentrations declined dramatically during quarters 17-20 of sampling, until quarter 21 when concentrations spiked to 11.2 µg/L. The following three quarters (quarters 22–24) levels again receded, reaching a low of 0.67 µg/L during the twenty-third quarter and slightly elevating to 3.5 µg/L during the twenty-fourth quarter. The first three quarters of Year Seven showed levels receding again, reaching a low of 0.74 µg/L during the twenty-seventh quarter and elevating to 18.6 µg/L in the twenty-eighth quarter, with two additional spikes in the thirtieth and thirty-first quarters at 8.4 µg/L and 20.5 µg/L, respectively.

Monitoring well 54MW12 experienced the highest detected concentration of 2,4,6-TNT during the Year Seven monitoring period when a concentration of 164 µg/L was detected during the twenty-sixth quarter. The concentrations detected in 54MW12 in the remaining quarters, including quarters 21–26, 27 and 28, were similar to historic concentrations and a decreasing trend has been noted in the Year Eight quarters 29 through 32.

Monitoring well 54MW13 experienced the three high detections of 2,4,6-TNT during the Year Five monitoring period when two detections (8 µg/L and 8.5 µg/L [field duplicate, 54TM13]) were observed during the seventeenth quarter, and one detection (8.2 µg/L) was observed during the twentieth quarter. The highest detection, however, happened during the Year Seven monitoring period when levels spiked to 15.5 µg/L during the twenty-eighth quarter. Year Eight detections spiked in the twenty-ninth and thirty-second quarters at 12.5 µg/L and 8.3 µg/L, respectively. During the interim quarters, the levels returned to levels similar to historic concentrations.

DNT Mixture

Previous reports noted that DNT was detected in the fourth, tenth, eleventh and twelfth quarters of sampling at monitoring wells 54MW10, 54MW12 and 54MW13, yet the combined concentrations of 2,4- DNT and 2,6-DNT did not exceed the RG of 0.932 µg/L. During Year Six, neither 2,4-DNT nor 2,6-DNT were detected in any wells. Therefore, the combined concentrations of 2,4-DNT and 2,6-DNT do not exceed the RG in any of the four wells sampled. However, during Year Seven,

2,6-DNT was detected in 54MW12 (3.6 µg/L) and 54MW13 (0.91 µg/L), therefore, the combined concentrations of 2,4-DNT and 2,6-DNT for these two wells did exceed the RG of 0.932 µg/L in the twenty-sixth quarter. This sole RG exceedance for DNT Mixture in the 7 years of monitoring coincides with a spike of 2,4,6-TNT in the well with the highest level of 2,4,6-TNT (54MW12). During Year Eight, levels returned to historic levels.

RDX

RDX concentrations fluctuated in monitoring wells 54MW10 and 54MW12 during the first sixteen quarterly sampling events. At monitoring well 54MW10, a sharp increase in RDX concentrations was observed from 2.23 µg/L in the ninth quarter to 21 µg/L in the tenth quarter. The tenth quarter concentration was the highest concentration reported in this well during the twenty-eight quarters of sampling. Concentrations decreased during the next ten quarters of sampling (quarters 11–20) in 54MW10; however, during the twelfth and sixteenth quarters, RDX concentrations exceeded the RG. Concentrations again decreased during the next four quarters of sampling (quarters 21–24) in 54MW10. Monitoring well 54MW12 had eight reported concentrations of RDX above the RG of 6.1 µg/L in the first sixteen quarters of sampling. During the Year Five monitoring period, concentrations continued to remain below the RG, with the exception of the nineteenth quarter, when concentrations spiked to 51.4 µg/L. This concentration is the highest concentration observed at this well during all thirty-two quarters of sampling. The concentration then fell below the detection limit of 0.1 µg/L in the twentieth quarter RDX was detected above the RG of 6.1 µg/L every quarter of the Year Seven monitoring period in one monitoring well (54MW12). During the Year Seven monitoring period, the RDX concentration rose above the RG at monitoring well 54MW12 during the twenty-sixth quarter (13.5 µg/L). However, during Year Eight, RDX was detected below the RG of 6.1 µg/L every quarter.

No RDX breakdown by-products (DNX, MNX, or TNX) were detected during the Year Eight monitoring period. Historically, RDX breakdown by-products have been observed in monitoring wells 54MW10, 54MW12 and 54MW13. These detections were observed in quarters ten through twelve. The highest total concentrations were observed in monitoring well 54MW10 during the tenth quarter when a spike in the RDX occurred. Thereafter, the RDX by-products concentrations steadily decreased. Similar correlations with RDX concentrations were observed in monitoring

well 54MW12 and 54MW13. The highest concentrations of DNX, MNX and TNX were identified in 54MW12 and 54MW13 during the eleventh and tenth quarters, respectively, which coincides with the highest RDX concentrations recorded in these wells during that time period. There was no DNX, MNX, or TNX detected in well 54MW12 during quarter 26, when the spike of RDX was observed.

Amino DNT

As 2,4,6-TNT is biologically degraded, the two daughter products 2ADNT and 4ADNT are formed. During the Year Eight monitoring period, the by-product 2ADNT was detected in monitoring wells 54MW10, 54MW12, and 54MW13 during all four quarters (quarters 29–32). During the Year Eight monitoring period, the by-product 4ADNT was detected in all three monitoring wells with the exception of 54MW10 during the thirty-second quarter. There is good correlation of 2ADNT and 4ADNT concentrations with 2,4,6-TNT concentrations; that is, as 2,4,6-TNT concentrations increase or decrease, a corresponding increase or decrease of 2ADNT and 4ADNT is observed. The increased presence of 2ADNT and 4ADNT along with the increasing concentrations of 2,4,6-TNT continue to suggest biological degradation of 2,4,6-TNT is occurring at these locations.

Perchlorate

Perchlorate concentrations at monitoring wells 54MW10, 54MW12 and 54MW13 continued to remain well below the RG of 10.9 µg/L during Year Eight of monitoring, and consistent with concentrations observed through the first 7 years of monitoring. Historically, monitoring well 54MW12 has had two detected concentrations above the RG: the first in the fourth quarter sampling event and again in the eighth quarter. Concentrations decreased during the Year Four monitoring event; this trend first was observed after the ninth quarterly sample event. However, one exception was observed during the fourteenth quarter when the concentration spiked to 8.85 µg/L. The fifteenth and sixteenth quarters saw a return to lower concentrations and a decreasing trend in perchlorate concentrations. During the Year Five monitoring, concentrations steadily rose through quarters seventeen to nineteen from 1.6 µg/L to 4.3 µg/L, though none of the concentrations are above the RG. The twentieth quarter saw a return to a lower concentration of 1.1 µg/L. During the Year Six monitoring, concentrations fluctuated from 1.4 µg/L (quarter 21) to

2.8 µg/L (quarter 23) and back down to 1.7 µg/L (quarter 24). Year Seven monitoring results mimicked those of Year Six in that observed concentrations ranged from 1.4 µg/L (quarter 25) to 3.7 µg/L (quarter 26) and back down once again to 2.0 µg/L (quarter 27) and to 0.61 µg/L (quarter 28). Monitoring well 54MW12 continued to have the highest observed concentrations of perchlorate at SWMU 54 during Year Seven of monitoring, but at concentrations below the RG.

Chloride, chlorate, and chlorite are daughter products of perchlorate degradation. At SWMU 54, chloride is present within the groundwater system, including monitoring well 54MW1 (background). Based on the chloride background concentrations through Year Three of monitoring, a determination could not be established that any measurable change exists due to perchlorate reduction. However, whereas chloride was detected at monitoring well 54MW1 during all of the Year Four monitoring events, the concentrations detected at wells 54MW10, 54MW12, and 54MW13 during the same period were all slightly higher than the concentrations in 54MW1. During the Year Five monitoring event, chloride was detected at monitoring well 54MW1 during quarters seventeen through nineteen but was not detected during quarter twenty. The concentrations detected at wells 54MW10, 54MW12, and 54MW13 from quarter seventeen through quarter nineteen were all slightly higher than the concentrations in 54MW1. During quarter twenty of the monitoring event, chloride was not detected in 54MW10, but it was detected in monitoring wells 54MW12 and 54MW13 at concentrations similar to previous sampling quarters. During the Year Six monitoring event, chloride was detected at all wells, including 54MW1 (background). While chloride was detected at monitoring well 54MW1 during all of the Year Six monitoring events, the concentrations detected at wells 54MW10, 54MW12, and 54MW13 during the same period were all slightly higher than the concentrations in 54MW1. Chlorate and chlorite were not detected during the Year Six monitoring period with the exception of a detection at monitoring well 54MW10 during quarter twenty-two (11 µg/L). Chlorate and chlorite went undetected in all of the monitoring wells during the Year Seven and Eight monitoring period. Chloride was detected in all monitoring wells all four quarters of Year Eight with the lowest concentrations observed in monitoring well 54MW1 (2.3 µg/L to 2.6 µg/L). Concentrations in the remaining three wells ranged from a low of 5.3 µg/L at 54MW13 (quarter 32) to a high of 7.4 µg/L (quarter 30). This may suggest that chlorate and chlorite have been exhausted in the system and only residual amounts of chloride are being produced as perchlorate concentrations diminish.

Statistical Trends

The time series plots (**Figures 5-7** and **5-8**) show a large degree of variability in 2,4,6-TNT concentrations in wells 54MW12 and 54MW13; therefore, Mann-Kendall tests were run for both monitoring wells using the USEPA software package ProUCL (USEPA, 2020). The results indicated no significant trend in 54MW12, but a slight increase at 54MW13 (**Appendix C**).

The contaminant concentrations for 2,4,6-TNT, RDX, and perchlorate for the three impacted wells were plotted together to assess a possible correlation between the spike timing among the three wells (**Figures 6-1** through **6-3**). None was apparent. There were, however, correlations in all three wells with regard to 2,4,6-TNT, RDX, and perchlorate spikes in that spikes in a given contaminant generally included spikes in the other two contaminants in each well. A notable trend in monitoring well 54MW13 shows that RDX concentrations waned starting in Year Four, whereas 2,4,6-TNT concentrations increased, but it appears that RDX concentrations may once again be spiking coincident with 2,4,6-TNT spikes as demonstrated in quarter 28 (**Figure 5-8**).

Contaminant concentrations for 2,4,6-TNT, RDX, and perchlorate were plotted against groundwater elevation to determine whether the large spike seen in monitoring wells 54MW10, 54MW12, and 54MW13 may be related to water level changes. **Figures 6-1**, **6-2**, and **6-3** demonstrate the correlation between the contaminant concentrations at all three wells and groundwater elevation. At monitoring well 54MW10, when groundwater elevation rises, contaminant concentrations appear to decrease. The data suggest a direct relationship between groundwater levels and 2,4,6-TNT, RDX, and perchlorate concentrations in that elevated concentrations of each are observed with elevated groundwater levels at monitoring well 54MW12. At monitoring well 54MW13, however, contaminant concentrations appear to rise on the backside of a groundwater elevation rise (note quarters 5, 10, 12, 16, 20, 24, and 29–32; **Figure 6-3**).

Additionally, Mann-Kendall tests were run for monitoring wells 54MW10, 54MW12, and 54MW13 to track the trend of perchlorate. The results indicated a decreasing trend for 54MW12, with no trend indicated in wells 54MW10 and 54MW13 for perchlorate (**Appendix C**).

First Line of Evidence: Results

While the 2,4,6-TNT concentrations have shown variability over time, the first line of evidence indicates that the presence of daughter products, 2ADNT and 4ADNT, suggest that natural attenuation via biological degradation of 2,4,6-TNT is occurring at SWMU 54. Overall decreasing trends in RDX and perchlorate suggest natural attenuation of RDX and perchlorate is occurring.

6.2 SECOND LINE OF EVIDENCE: GEOCHEMICAL CONDITIONS

Respiratory substrates are used preferentially during microbial metabolism based on the amount of energy that can be derived from each of them. Respiratory substrates are used in the following order:

$$O_2 > NO_3^- > Fe^{+3} > ClO_4 > SO_4^{-2} > CO_2$$

Geochemical data are available for all twenty-eight quarterly groundwater monitoring events at SWMU 54. Field parameters (DO, ORP, pH, temperature, and Specific Conductivity) have been collected since 2011 as part of the low-flow sampling procedures. Laboratory analyses for nitrate, sulfate, and TOC were conducted for all twenty-eight quarterly groundwater monitoring events at SWMU 54. These geochemical data are discussed regarding the potential for biodegradation in the groundwater at SWMU 54.

The microbial degradation of nitro-aromatic compounds primarily occurs under nitrate-reducing conditions, whereas perchlorate requires sulfate reducing groundwater conditions.

Dissolved Oxygen (DO)

The preferred terminal electron acceptor during aerobic microbial respiration is oxygen, and DO is measured to determine whether the groundwater is under aerobic or anaerobic conditions. Average DO values less than 1 mg/L, are supportive of anaerobic microbial activities. Further, DO values higher than 8 mg/L are considered biased high given their relative magnitude to oxygen solubility at field temperatures and are not included in this analysis.

DO concentrations during the first sixteen quarterly monitoring events (early 2011 to July 2016) ranged from 0.0 to 7.81 mg/L indicating both anaerobic and aerobic conditions were present at the

site. During the Year Eight monitoring period DO values ranged from 0.43 mg/L (54MW12) to 8.21 mg/L (54MW13). The DO measurements from October 2019 were deemed inaccurate (instrument inaccuracies) due to their concentrations above saturation levels. In wells where biological degradation products were observed (54MW10, 54MW12, and 54MW13), the DO concentrations indicate that, whereas anaerobic conditions are at times present, aerobic conditions appear to be favored (**Table 6-2**). TNT has been known to be reduced under a variety of conditions (aerobic and anaerobic); however, further reduction of TNT breakdown products, including 2ADNT and 4ADNT, and reduction of RDX and perchlorate is more favorable under anaerobic conditions (Spain, 1995).

The increase in concentrations of explosive constituents at 54MW12 during quarters twenty-nine through thirty-two, took place under aerobic conditions. Under aerobic conditions, biodegradation is not as effective in the reduction of explosives and perchlorates. As a result of the subsurface biochemistry, the decreased biological activity may have also led to an increase in the explosives and perchlorate concentrations during the Year Eight monitoring period. This trend was also noticed during the ninth, tenth, and fourteenth quarterly monitoring events.

Oxidation-Reduction Potential (ORP)

ORP values indicate the groundwater's reductive potential and are used to confirm the DO measurements in groundwater. ORP values less than +50 mV typically correspond to mildly reducing, anaerobic conditions, whereas ORP values less than -200 mV correspond to highly reducing, anaerobic conditions. As mentioned previously, TNT reduction can occur in aerobic systems, but the reduction of TNT breakdown products, RDX, and perchlorate are favored under anaerobic conditions (generally observed when ORP values are between –100 mV and 0 mV).

ORP concentrations during the first twelve quarterly sampling events (early 2011 to May 2014) ranged from –33 to 297 mV indicating both anaerobic and aerobic conditions were present at the site. However, it was reported that aerobic conditions appeared to be more prevalent (**Table 6-2**). Further, the Year Three ORP values and DO readings did not show a clear corresponding trend for samples taken at the same well and same sampling event. At monitoring wells with elevated

concentrations of TNT and RDX (54MW10, 54MW12 and 54MW13), it was suggested that ORP readings were in agreement with DO concentrations, indicating aerobic conditions.

The Year Four ORP readings ranged from –10.1 mV to 264 mV indicating that both anaerobic and aerobic conditions were present at SWMU 54. However, there was only one reading (at 54MW1 in quarter 16) indicating reducing conditions; as such, it would appear that aerobic conditions are more prevalent at the SWMU. The Year Four ORP trends were generally in agreement with Year Three.

The Year Five ORP readings ranged from 15.5 mV (54MW13) to 138.2 mV (54MW1) indicating aerobic conditions were present at SWMU 54. The data suggest that aerobic conditions are more prevalent at the SWMU. The Year Five ORP trends are generally in agreement with Year Four.

The Year Six ORP readings ranged from –19.9 mV (54MW10) to 204.7 mV (54MW12) indicating both anaerobic and aerobic conditions were present at SWMU 54.

The Year Seven ORP ranged from –34.5 mV (54MW1) to 238.7 mV (54MW12), once again indicating both anaerobic and aerobic conditions were present at SWMU 54. The data suggest that aerobic conditions continue to be more prevalent at the site.

ORP readings from Year Eight ranged from 32.8 mV (54MW10) to 161.5 mV (54MW12), indicating both aerobic conditions at minimum were present at SWMU 54. Year Eight data suggest that aerobic conditions continue to be more prevalent at the site.

pH

The pH for optimum microbial activity ranges from 6.06 to 7.59 SU (USEPA, 1998). Microbial activity may decrease at lower pH values. The first 6 years of pH data are within this optimal pH range (**Table 6-2**) and continued during Year Eight. In general, the pH environment at SWMU 54 is suitable for microbial activity.

Nitrate

Following oxygen, microorganisms preferentially use nitrate (NO_3^-) as a terminal electron acceptor. Diminished nitrate concentrations may indicate nitrate-reducing conditions, which

promote the degradation of nitroaromatics (including 2,4,6-TNT) forming breakdown by-products. It should be noted that elevated nitrate concentrations (>1 mg/L) will inhibit perchlorate reduction and additionally, any nitrate would preferentially be reduced to nitrite before TNT and RDX could be reduced. (Interstate Technology and Regulatory Council, 2008).

Nitrate concentrations during the first twenty sampling events were generally low (overall <1 mg/L) with concentrations ranging from non-detect to 4.8 mg/L, suggesting that perchlorate reduction is not inhibited (**Table 6-2**). This trend continued during the Year Six monitoring period where 13 of 16 nitrate concentration ranged from non-detect to 1.6 mg/L, Year Seven monitoring period where 11 of 16 nitrate concentrations ranged from non-detect to 2.5 mg/L, and Year Eight monitoring period where 12 of 16 nitrate concentrations ranged from non-detect to 1.1 mg/L.

Monitoring well 54MW12, where the highest and more persistent perchlorate concentrations have been identified, consistently had nitrate concentrations greater than 1 mg/L during the first sixteen quarters of monitoring, but during the Year Five monitoring period the nitrate concentrations were only greater than or equal to 1 mg/L during two sampling events (quarter seventeen and quarter nineteen). During the Year Six monitoring period, nitrate concentrations were consistently higher than 1 mg/L for quarters twenty-two through twenty-four. Only during the twenty-first quarter was the concentration below 1 mg/L. During the Year Seven monitoring period, nitrate concentrations were consistently higher than 1 mg/L for quarters twenty-five through twenty-seven. Only during the twenty-eighth quarter was the concentration below 1 mg/L. In contrast, the corresponding reduction of 2,4,6-TNT concentrations and accrual of 2ADNT and 4ADNT present suggest the biodegradation of TNT. During the Year Eight monitoring period, nitrate concentrations were only higher than 1 mg/L during quarter thirty.

Ferrous Iron

Ferric iron is reduced to soluble ferrous iron in the groundwater where iron- reducing bacteria have been active. An increase in ferrous iron concentrations is indicative of iron-reducing conditions. Biological reduction of TNT is favored in iron-reducing conditions and therefore, elevated concentrations of ferrous iron are an indicator of favorable groundwater conditions for TNT degradation. Ferrous iron concentrations for all wells during the 5 previous years of monitoring

have been less than 0.2 mg/L (non-detect) or equal to 0.2 mg/L indicating that iron-reducing conditions are not present at this time, or that the iron has been reduced previously. During the Year Six monitoring events, ferrous iron concentrations for all wells was less than 0.2 mg/L (non-detect) with the exception of monitoring well 54MW10 during quarter seventeen, when concentrations increased to 0.52 mg/L, and then decreased to 0.04 mg/L during quarter eighteen. During the Year Six monitoring events, ferrous iron concentrations for all wells was less than 0.2 mg/L with the exception of monitoring well 54MW13 during quarter twenty-two, when concentrations increased to 0.26 mg/L, and then decreased to 0.0 mg/L (non-detect) during quarter twenty-three. During the Year Seven monitoring events, ferrous iron concentrations for all wells were less than 0.2 mg/L with the exception of monitoring well 54MW12 during quarter twenty-seven, when concentrations increased to 0.21 mg/L, and then decreased to 0.14 mg/L during quarter twenty-eight. During the Year Eight monitoring events, ferrous iron concentrations for all wells were less than 0.20 mg/L.

Sulfate

Biological degradation of TNT breakdown products, 2ADNT and 4ADNT, RDX, and perchlorate actively occurs under sulfate-reducing conditions. Sulfate concentrations greater than 20 µg/L may cause competitive exclusion (USEPA, 2008). Sulfate concentrations were measured in the groundwater during each of the first twelve quarterly monitoring events and were found to generally be greater than 20 mg/L (ranging from 15.0 to 403 mg/L), indicating that biological degradation of 2ADNT and 4ADNT may be inhibited at SWMU 54 (**Table 6-2**). During Year Four of monitoring, sulfate concentrations were slightly lower (ranging from 19 to 93 mg/L), but again suggested inhibition of biological degradation of the 2,4,6-TNT by-products 2ADNT and 4ADNT. During Year Five of monitoring, sulfate concentrations were found to be greater than 20 mg/L (ranging from 28.0 to 150.0 mg/L), again indicating that biological degradation of 2ADNT and 4ADNT are inhibited at SWMU 54. During Year Six of monitoring, sulfate concentrations were again greater than 20 mg/L (ranging from 25.0 to 100.0 mg/L). During Year Seven of monitoring, sulfate concentrations were again greater than 20 mg/L (ranging from 23 mg/L to 69 mg/L) for all monitoring wells with the exception of 54MW13, where concentrations dropped to 16 mg/L and 15 mg/L (quarters 25 and 26, respectively). Year Eight sulfate concentrations were generally greater than 20 mg/L (ranging from 17 mg/L to 140 mg/L) for all monitoring wells, where

concentrations dropped to 17 mg/L in quarter 32. This indicates that biological degradation of 2ADNT and 4ADNT are inhibited at SWMU 54, but conditions clearly appear to be improving.

Total Organic Carbon (TOC)

Organic carbon is a required source of reduced carbon and energy needed to sustain microbial degradation of nitroaromatics and perchlorate. TOC concentrations greater than 20 mg/L are considered adequate to support microbial activity. For the majority of the first 3 years of monitoring, TOC concentrations were found to be considerably lower than what is considered adequate to support microbial activity. TOC concentrations during this time frame ranged from less than 0.50 (non-detect) to 7.47 mg/L (**Table 6-2**). However, measured TOC concentrations during the twelfth quarter exceeded 20 mg/L in monitoring wells 54MW1 (51.0 mg/L) and 54MW10 (63.0 mg/L). The Year Four, Five, Six, and Seven TOC results, however, again indicated low concentrations considered inadequate to support microbial activity. The range of TOC during the Year Four, Five, Six, and Seven monitoring periods ranged from 0.3 mg/L to 13 mg/L. This trend continued throughout the Year Eight monitoring events, with concentrations ranging from 0.53 mg/L to 0.99 mg/L.

Total Inorganic Carbon (TIC)

Inorganic carbon species include carbon dioxide, carbonic acid, and carbonate. The presence of TIC is a useful source of carbon needed to sustain microbial degradation. The oxidation of organic matter should lead to an increase of TIC in groundwater. TIC concentrations during this monitoring period ranged from 21 to 97 mg/L with only slight variations noted during each quarterly monitoring event as follows: 61 to 97 mg/L for October 2019, 56 to 84 mg/L for January 2020, 21 to 85 mg/L for April 2020, and 48 to 65 mg/L for July 2020 (**Table 6-2**). In addition, TIC concentrations have shown little variation over the last 3 years of monitoring, which is consistent with the general low variability of organic contaminant concentrations in groundwater samples over the same period.

Specific Conductivity

Figure 6-4 provides a time series plot of Specific Conductivity at all four wells. Specific Conductivity is the indirect measure of the presence of dissolved solids such as chloride, nitrate,

sulfate, and Fe, all degradation by-products. **Figures 6-5, 6-6,** and **6-7** provide time series plots of MNA indicators sulfate and nitrate alongside water quality parameters Fe and Mn at monitoring wells 54MW10, 54MW12, and 54MW13 for all 7 years. Additionally, **Figures 6-8**, **6-9**, and **6-10** provide time series plots of MNA indicator TOC alongside water quality parameters DO and ORP at monitoring wells 54MW10, 54MW12, and 54MW13 for all 7 years. Biodegradation of 2,4,6-TNT, RDX, and perchlorate and more dissolved inorganic ions (such as chlorides, nitrates, sulfates, and Fe) would create the electrical current witnessed in the Specific Conductivity readings.

Monitoring wells 54MW10, 54MW12, and 54MW13 all appear to have similar Specific Conductivity activity according to **Figure 6-4**. Additionally, **Figures 6-5**, **6-6**, and **6-7**, demonstrate that Fe and dissolved Mn have been reduced to concentrations at or very near zero at all three wells. Overall, there are sulfate reducing conditions at all three wells which is indicative of biodegradation of 2ADNT, 4ADNT, RDX and perchlorate. Nitrate concentrations at 54MW10 and 54MW13 have always been at or slightly above zero; however, nitrate concentrations increased to 1.1 mg/L at 54MW10 in the thirty-first quarters. Nitrate reducing conditions remain present at 54MW12.

Figures 6-8, **6-9**, and **6-10** demonstrate that ORP conditions at monitoring well 54MW10 support mildly anaerobic conditions; at monitoring wells 54MW12 and 54MW13, ORP is declining overall and beginning to support mildly reducing anaerobic conditions, although both of these wells saw increases in ORP in the thirty-first and thirty-second quarters. DO conditions at all three wells are aerobic. TOC conditions at 54MW10 fluctuate between inadequate and adequate conditions. Since quarter seventeen and continuing through quarter thirty-two, TOC concentrations have remained below 20 mg/L which is considered inadequate. Meanwhile, conditions at monitoring wells 54MW12 and 54MW13 have consistently been considered inadequate and have remained so since quarter one. TOC concentrations at 54MW12 and 54MW13 have ranged between <0.5 mg/L and 13 mg/L; considered inadequate for sustaining microbial degradation of nitroaromatics and perchlorate. Overall, the data suggest that MNA conditions are still favorable at all three wells.

Table 6-1 Analytical Results for Groundwater Performance Monitoring at SWMU 54

Parameter	RG	July 2011 (Q1)	Oct 2011 (Q2)	Jan 2012 (Q3)	Apr 2012 (Q4)	Aug 2012 (Q5)	Nov 2012 (Q6)	Feb 2013 (Q7)	May 2013 (Q8)	Aug 2013 (Q9)	Nov 2013 (Q10)	Feb 2014 (Q11)	May 2014 (Q12)	Sept 2015 (Q13)	Jan 2016 (Q14)	Apr 2016 (Q15)	July 2016 (Q16)	Oct 2016 (Q17)	Jan 2017 (Q18)	Apr 2017 (Q19)	July 2017 (Q20)	Oct 2017 (Q21)	Jan 2018 (Q22)	Apr 2018 (Q23)	July 2018 (Q24)	Oct 2018 (Q25)	Jan 2019 (Q26)	Apr 2019 (Q27)	July 2019 (Q28)	Oct 2019 (Q29)	Jan 2020 (Q30)	Apr 2020 (Q31)	July 2020 (Q32)
54MW1																																	
2,4,6-TNT	7.82	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RDX	6.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
DNT Mixture	0.932	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perchlorate	10.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
54MW2																																	
2,4,6-TNT	7.82	2.1	0.9	2.08	--	--	--	--	0.749	0.974	0.46	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDX	6.1	0.572	ND	ND	--	--	--	--	ND	ND	0.075	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
DNT Mixture	0.932	ND	ND	ND	--	--	--	--	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perchlorate	10.9	3.07	0.547	1.91	--	--	--	--	1.82	1	0.26	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
54MW3																																	
2,4,6-TNT	7.82	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDX	6.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
DNT Mixture	0.932	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perchlorate	10.9	0.53	0.18	ND	ND	0.405	0.303	0.309	0.59	0.446	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
54MW4																																	
2,4,6-TNT	**7.82**	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDX	6.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
DNT Mixture	0.932	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perchlorate	10.9	ND	ND	ND	ND	ND	0.141	ND	ND	ND	-	-	-	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
54MW5																																	
2,4,6-TNT	7.82	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDX	6.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
DNT Mixture	0.932	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perchlorate	10.9	0.311	0.393	0.313	0.301	0.42	0.28	0.255	0.309	0.389	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
54MW6																																	
2,4,6-TNT	7.82	ND	ND	ND	ND	ND	Dry	ND	ND	Dry	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDX	6.1	ND	ND	ND	ND	ND	Dry	ND	ND	Dry	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
DNT Mixture	0.932	ND	ND	ND	ND	ND	Dry	ND	ND	Dry	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perchlorate	10.9	ND	0.127	0.159	ND	0.175	Dry	0.16	0.171	Dry	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
54MW7																																	
2,4,6-TNT	7.82	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDX	6.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
DNT Mixture	0.932	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perchlorate	10.9	0.321	ND	ND	0.365	ND	0.103	0.162	0.103	0.37	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
54MW8																																	
2,4,6-TNT	7.82	0.928	0.433	ND	0.301	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDX	6.1	0.761	0.567	0.493	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
DNT Mixture	0.932	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perchlorate	10.9	ND	0.408	0.355	0.388	0.392	0.286	0.484	0.118	0.334	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
54MW9																																	
2,4,6-TNT	7.82	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDX	6.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
DNT Mixture	0.932	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perchlorate	10.9	ND	0.229	0.262	0.217	ND	ND	1.07	0.923	0.327	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 6-1 Analytical Results for Groundwater Performance Monitoring at SWMU 54 (Continued)

Parameter	RG	July 2011 (Q1)	Oct 2011 (Q2)	Jan 2012 (Q3)	Apr 2012 (Q4)	Aug 2012 (Q5)	Nov 2012 (Q6)	Feb 2013 (Q7)	May 2013 (Q8)	Aug 2013 (Q9)	Nov 2013 (Q10)	Feb 2014 (Q11)	May 2014 (Q12)	Sept 2015 (Q13)	Jan 2016 (Q14)	Apr 2016 (Q15)	July 2016 (Q16)	Oct 2016 (Q17)	Jan 2017 (Q18)	Apr 2017 (Q19)	July 2017 (Q20)	Oct 2017 (Q21)	Jan 2018 (Q22)	Apr 2018 (Q23)	July 2018 (Q24)	Oct 2018 (Q25)	Jan 2019 (Q26)	Apr 2019 (Q27)	July 2019 (Q28)	Oct 2019 (Q29)	Jan 2020 (Q30)	Apr 2020 (Q31)	July 2020 (Q32)
54MW10																																	
2,4,6-TNT	7.82	0.305	5.84	4.05	ND	**9.17**	1.59	1.88	0.637	ND	**50**	**13**	**11**	6.6	4.1	2.7	**24.2**	1.6	4.2	1	0.44	**11.2**	ND	0.67	3.5	1	0.88	0.74	18.6	4	**8.4**	**20.5**	ND
RDX	6.1	ND	3.24	2.95	ND	**7.84**	1.35	2.36	1.29	2.23	**21**	5.3	**8.7**	2.1	3.1	1.8	**6.6**	0.4	1.1	ND	0.76	1.8	0.1	ND	4.4	1.4	0.88	0.32	3.9	2.1	1.9	5.1	ND
DNT Mixture	0.932	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.2	0.068	0.13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perchlorate	10.9	ND	0.325	0.258	ND	3.74	0.344	0.832	0.835	0.365	2.3	0.42	0.44	ND	0.326	0.082	.84	0.12	0.1	0.24	0.2	0.23	ND	0.5	0.22	0.65	0.34	0.35	0.45	ND	0.25	0.61	ND
54MW11																																	
2,4,6-TNT	7.82	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDX	6.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
DNT Mixture	0.932	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perchlorate	10.9	ND	ND	0.239	ND	ND	ND	0.263	0.43	0.132	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
54MW12																																	
2,4,6-TNT	7.82	**15.9**	**16.1**	**19.4**	**48**	**10.1**	7.62	6.29	**108**	**65.9**	**17**	**29**	**10**	**11**	**110**	**11**	7.4	**10.6**	**28.1**	**78.6**	**8.7**	**39**	**22.3**	**52.3**	**29.7**	**13.3**	**164**	**39.5**	**13.6**	**10.1**	**10.2**	**8.3**	4.1
RDX	6.1	ND	**9.77**	**13.2**	**18.4**	1.95	**6.59**	3.79	**25**	**14.6**	0.54	**8.7**	2	3.9	**30**	0.62	.37	6	4.8	**51.4**	ND	**14**	**13.4**	**33.3**	**8.2**	3.6	**13.5**	4.8	ND	ND	0.56	0.17	ND
DNT Mixture	0.932	ND	ND	ND	0.381	ND	ND	ND	ND	ND	0.2	0.31	0.93	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**3.7**	ND	ND	ND	ND	ND	ND
Perchlorate	10.9	ND	0.726	10.5	**22.8**	2	5.31	2.98	**22.7**	9.88	1.1	4	1.7	0.737	8.85	1.2	.56	1.6	2.9	4.3	1.1	1.4	1.9	2.8	1.7	1.4	3.7	2	0.61	0.53	0.49	0.73	0.75
54MW13																																	
2,4,6-TNT	7.82	ND	4.09	0.699	0.979	**9.4**	0.843	0.318	4.91	3.81	**9.8**	2.5	5.8	5.4	1.4	0.79	**13.9**	**8**	5.9	1.8	**8.2**	3	4.4	2	**10.9**	1.6	2.3	5.1	**15.5**	**12.5**	4.1	**5.5**	**8.3**
RDX	6.1	ND	2.59	0.614	1.14	4.77	0.855	0.642	3.2	1.46	4	0.88	2.5	2.6	0.54	0.17	.86	0.7	ND	1	ND	0.48	ND	ND	ND	0.38	0.46	0.32	1.3	ND	0.55	1.5	0.43
DNT Mixture	0.932	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.11	ND	0.099	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1.01**	ND	ND	ND	ND	ND	ND
Perchlorate	10.9	ND	0.244	0.206	0.243	0.627	0.308	0.313	0.64	0.477	0.43	0.32	0.37	0.270	0.216	0.18	.33	0.21	0.29	0.23	0.45	0.2	0.25	0.33	0.45	0.25	0.29	0.47	0.4	0.55	0.26	0.34	0.30
54MW14																																	
2,4,6-TNT	7.82	0.928	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RDX	6.1	0.761	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
DNT Mixture	0.932	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perchlorate	10.9	ND	ND	0.215	0.181	0.214	0.24	ND	ND	0.195	0.456	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:
All units are µg/L.
Bolded data indicate exceedances of RGs.
2,4,6-TNT = 2,4,6-Trinitrotoluene
µg/L = micrograms per liter
DNT = dinitrotoluene
ND = not detected
RDX = cyclotrimethylenetrinitramine
RG = remedial goal
SWMU = Solid Waste Management Unit

Table 6-2 Water Quality Parameters for Groundwater for Performance Monitoring at SWMU 54

Well ID	54MW1	2	3	4	5	6	7	8	9	10	11	12	13	14
SWMU 54 First Quarter (July 2011) Water Quality Parameters														
pH	7.7	6.36	6.86	7.19	6.36	7.33	6.6	6.98	6.29	7.13	7.14	6.67	6.75	7.23
Specific Conductivity (mS/cm)	0.357	0.526	0.491	0.949	0.371	0.449	0.419	0.544	0.535	1.68	0.651	0.568	0.676	0.582
Turbidity (NTU)	5.6	0	1.5	1.9	3	0.2	0	4.6	6	89.8	62.6	100	94	16.9
Dissolved Oxygen (mg/L)	4.86	2.35	4.71	0	4.87	0.68	3.91	3.53	1.23	0.51	0	3.52	0.9	1.06
ORP (mV)	130	178	121	-18	178	110	170	134	198	67	96	152	29	73
Temperature (°C)	14.12	17.07	19.82	15.52	19.88	19.32	18.87	17.86	14.3	25.19	14.94	18.38	20.09	23.76
Dissolved Manganese	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.1	<0.05	0.2	<0.05	0.05	<0.05	0.65	<0.05
Dissolved Ferrous Iron (mg/L)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrate (mg/L)	25.2	1.09	0.967	0	0.613	0	0.119	0.639	0.233	0	0	2.79	0.439	0.242
Sulfate (mg/L)	27.1	39.8	23.6	329	15.1	27.4	61.5	40	62.2	167	93.6	38.1	38.8	33.6
TOC (mg/L)	3.9	3.51	7.26	2.51	6.14	1.95	3.17	6.05	5.1	1.61	5.97	2.64	2.55	6.73
SWMU 54 Second Quarter (October 2011) Water Quality Parameters														
pH	7.49	7.02	7.05	7.27	6.78	7.49	7.3	7.09	7.2	6.83	7.31	6.7	7.05	7.16
Specific Conductivity (mS/cm)	0.432	0.56	0.674	0.912	0.502	0.305	0.734	0.541	0.562	0.677	0.654	0.523	0.831	0.568
Turbidity (NTU)	164	167	160	81.1	231	107	155	104	79.9	236	685	69	--	157
Dissolved Oxygen (mg/L)	0	0	0	2.44	2.68	3.8	0.1	0.05	0.06	0	0	1.72	0.37	0
ORP (mV)	102	117	107	-15	143	122	66	151	146	82	-13	144	126	73
Temperature (°C)	18.04	14.77	14.16	14.32	15.48	13.18	18.01	14.94	14.75	14.75	13.73	14.81	14.63	14.93
Dissolved Manganese (mg/L)	<0.05	<0.05	0.1	0.05	0.1	0.05	0.4	0.05	0.2	0.15	0.3	<0.05	0.35	0.05
Dissolved Ferrous Iron (mg/L)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrate (mg/L)	0	0.394	0.357	0	0.568	0.167	0	0.514	0.184	0.388	0	2	0.21	0.202
Sulfate (mg/L)	27.1	27	44.4	210	17.4	7.06	216	39.9	46.9	96.7	119	31.8	90.2	34.1
TOC (mg/L)	3.9	3.2	3.22	1.38	1.88	2.68	1.31	7.47	6.78	6.98	3.22	4.71	3.31	4.64
SWMU 54 Third Quarter (January 2011) Water Quality Parameters														
pH	7.59	7.48	7.4	7.36	7.15	7.53	7.43	7.08	7.4	7.46	7.59	6.09	7.45	7.48
Specific Conductivity (mS/cm)	0.498	0.662	0.762	1.11	0.628	0.305	0.905	0.492	0.674	0.707	0.763	0.595	0.687	0.651
Turbidity (NTU)	8.9	15.3	19.2	55.6	32.1	72.4	26.8	66.7	36.8	1.1	6.8	---	226	0
Dissolved Oxygen (mg/L)	0	0	0	0	7.81	12.01	0	16.65	8.48	6.06	5.09	4.02	7.63	1.66
ORP (mV)	100	33	24	5	121	191	3	104	111	118	101	186	25	61
Temperature (°C)	13.2	13.91	13.26	13.04	13.58	11.93	12.73	9.72	9.65	11.16	11.4	12.86	11.53	12.91
Dissolved Manganese (mg/L)	<0.05	<0.05	0.1	0.05	0.1	0.05	0.4	0.05	0.2	0.15	0.3	<0.05	0.35	0.05
Dissolved Ferrous Iron (mg/L)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrate (mg/L)	0	0.609	0	0	0.578	0.158	0	0.401	0.174	0.572	0.158	1.94	0.237	0.241
Sulfate (mg/L)	26.3	28.2	73.7	480	20.3	4.55	249	41.5	62.5	72.7	93	37.6	53.9	32.2
TOC (mg/L)	2.1	1.8	2.39	1.16	1.42	1.94	2.38	1.66	2.78	1.66	6.71	5.09	6.63	1.68

Table 6-2 Water Quality Parameters for Groundwater Performance Monitoring at SWMU 54 (Continued)

Well ID	54MW1	2	3	4	5	6	7	8	9	10	11	12	13	14
SWMU 54 Fourth Quarter (April 2012) Water Quality Parameters														
pH	5.42	5.19	5.38	5.33	4.99	5.76	5.57	5.38	5.46	5.48	5.59	5.05	5.32	5.5
Specific Conductivity (mS/cm)	0.958	1.12	1.46	0.001	0.891	0.73	1.58	1.21	1.26	1.73	1.4	1.35	0.981	1.2
Turbidity (NTU)	2.5	4.4	2.4	125	70.1	318	38	3.4	65.3	30.8	94.7	37	312	36
Dissolved Oxygen (mg/L)	7.36	7.18	2.24	23.45	10.47	6.49	2.01	7.43	11.29	2.83	5.8	9.44	7.1	5.55
ORP (mV)	-30	236	225	180	168	132	162	134	145	61	36	267	116	149
Temperature (°C)	13.37	12.44	12.02	11.56	20.98	19.09	12.57	14.69	14.21	15.5	14.11	12.67	15.52	12.69
Dissolved Manganese (mg/L)	<0.05	<0.05	0.1	0.5	<0.05	0.05	0.4	0.05	0.2	0.1	0.3	<0.05	0.35	<0.05
Dissolved Ferrous Iron (mg/L)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrate (mg/L)	0	1.33	0	0	0.677	0.129	0.231	0.483	0.139	0	0	2.65	0.294	0.386
Sulfate (mg/L)	34.9	34.9	80	432	14	14.9	69.4	40.1	56	221	104	37.9	35.4	29.3
TOC (mg/L)	1.8	1.57	1.18	1.82	2.33	5.46	0.99	2.36	3.01	2.4	2.68	2.34	3.51	1.09
SWMU 54 Fifth Quarter (August 2012) Water Quality Parameters														
pH	7.08	6.94	6.71	7.05	6.71	7.47	7.03	6.87	6.84	6.71	7.06	6.61	6.97	7.05
Specific Conductivity (mS/cm)	0.395	0.722	0.644	0.968	0.58	0.363	0.817	0.599	0.752	0.693	0.715	0.665	0.697	0.625
Turbidity (NTU)	4.1	43	19	14	23	0	7.4	19	5.2	0.8	10.8	48	95	9.2
Dissolved Oxygen (mg/L)	5.34	0	0	0.23	3.96	4.84	0	2.78	0.56	0.4	0	0.33	1.75	0
ORP (mV)	212	65	209	-33	200	134	128	125	-10	47	-22	226	135	-13
Temperature (°C)	13.89	13.49	12.93	15.06	13.44	16.52	13.66	13.7	14.09	13.93	13.64	13.71	16.12	14.08
Dissolved Manganese (mg/L)	<0.05	<0.05	0.05	0.05	<0.05	0.05	0.05	0.05	0.2	0.05	0.05	<0.05	0.3	<0.05
Dissolved Ferrous Iron (mg/L)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrate (mg/L)	0.600	0.190	0.613	3.00	0.728	0.120	3.00	0.581	1.80	0.594	1.80	1.06	0.681	0.214
Sulfate (mg/L)	26.1	95.5	23.8	378	18.0	15.7	186	41.8	87.2	102	97.6	27.0	38.2	31.8
TOC (mg/L)	0.721	2.00	2.00	1.10	2.00	1.00	1.02	2.00	2.00	1.37	2.00	2.00	1.05	2.04
SWMU 54 Sixth Quarter (November 2012) Water Quality Parameters														
pH	7.63	7.21	6.97	7.03	6.99	Dry	7.31	7.23	7.23	7.29	7.28	7.6	5.72	7.3
Specific Conductivity (mS/cm)	0.443	0.62	0.561	1.01	0.612	Dry	0.826	0.628	0.784	0.779	0.698	0.635	0.918	0.6
Turbidity (NTU)	2.9	11.4	0.2	17	5.5	Dry	46	3.9	27.7	4.7	2.5	2.4	35	43
Dissolved Oxygen (mg/L)	1.44	0.86	4.09	1	1.01	Dry	0.56	2.71	1.14	0.38	1.1	0.26	0.95	0.45
ORP (mV)	148	141	145	72	167	Dry	59	101	-28	43	117	135	209	100
Temperature (°C)	10.03	13.43	12.22	11.27	11.21	Dry	10.83	11.98	11.35	13.61	12.95	13.99	12.26	10.61
Dissolved Manganese (mg/L)	0.05	0.05	0.05	0.05	0.05	Dry	0.05	0.05	0.2	0.05	0.05	0.1	0.3	0.05
Dissolved Ferrous Iron (mg/L)	<0.2	<0.2	<0.2	<0.2	<0.2	Dry	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrate (mg/L)	0.600	0.327	0.656	3.00	0.944	Dry	1.80	0.403	1.80	0.381	0.600	2.86	0.369	0.600
Sulfate (mg/L)	31.3	35.4	22.9	403	21.5	Dry	179	60.3	199	151	99.1	49.8	76.7	39.0
TOC (mg/L)	1.96	2.68	3.29	2.93	4.31	Dry	3.72	4.90	6.73	5.55	5.88	3.41	2.00	2.12

Table 6-2 Water Quality Parameters for Groundwater Performance Monitoring at SWMU 54 (Continued)

Well ID	54MW1	2	3	4	5	6	7	8	9	10	11	12	13	14
SWMU 54 Seventh Quarter (February 2013) Water Quality Parameters														
pH	7.85	6.89	6.76	7.52	6.56	7.08	7.4	7.03	7.04	6.69	7.09	6.36	6.96	7.45
Specific Conductivity (mS/cm)	0.465	0.682	0.504	1.01	0.417	0.293	0.474	0.498	0.487	0.542	0.687	0.464	0.37	0.619
Turbidity (NTU)	0	20	9	16	0	44.3	16	9.2	10.9	13.2	2	14.2	6.8	1.2
Dissolved Oxygen (mg/L)	0.71	1.43	6.97	0.53	9.19	9.28	2.83	5.36	8.28	2.97	0.58	1.27	8.39	0.47
ORP (mV)	-5	156	171	-56	168	72	12	168	194	125	169	168	158	56
Temperature (°C)	12.17	8.28	11.98	12.09	11.18	13.15	11.48	9.89	9.74	11.22	10.14	10.31	7.98	12.26
Dissolved Manganese (mg/L)	0.05	<0.05	0.1	0.05	<0.05	0.05	0.1	0.05	0.2	0.1	0.25	<0.05	0.2	<0.05
Dissolved Ferrous Iron (mg/L)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrate (mg/L)	0.600	0.315	0.423	3.00	0.636	0.209	0.205	0.336	0.510	0.477	0.346	1.95	0.501	0.600
Sulfate (mg/L)	27.1	36.8	25.3	340	15.5	4.29	34.2	44.6	117	70.1	120	35.8	23.1	41.1
TOC (mg/L)	1.19	0.916	1.07	1.35	1.00	1.50	0.791	1.00	2.09	1.14	1.88	1.21	0.683	1.46
SWMU 54 Eighth Quarter (May 2013) Water Quality Parameters														
pH	7.38	6.52	7.06	7.51	6.83	7.33	7.41	7.47	7.95	6.94	7.59	6.78	6.97	7.31
Specific Conductivity (mS/cm)	0.398	0.315	0.499	1.021	0.4	0.494	0.674	0.596	0.521	0.537	0.592	0.665	0.44	0.608
Turbidity (NTU)	1.2	0.2	1.4	6.2	8.9	7.1	0.5	1.6	5.2	1.4	0.3	3.8	0.2	6.4
Dissolved Oxygen (mg/L)	4.13	2.74	3.55	1.05	3.28	1.29	3.24	0.4	7.58	2.43	1.17	2.54	1.4	4.13
ORP (mV)	122	254.3	273.6	257.1	283.1	128.4	282.7	255.1	244.2	287.8	255.8	292.4	284	296.5
Temperature (°C)	13.43	12.22	13.31	11.73	12.2	13.48	12.74	13.32	11.12	12.89	12.42	13.28	12.84	13.42
Dissolved Manganese (mg/L)	<0.05	0.05	0.05	0.05	<0.05	<0.05	0.05	0.05	0.1	0.05	0.05	<0.05	0.15	0.05
Dissolved Ferrous Iron (mg/L)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrate (mg/L)	0.368	0.988	0.911	3.00	1.60	0.600	1.10	0.600	0.637	0.740	0.647	4.03	1.05	0.543
Sulfate (mg/L)	26.1	24.1	29.0	329	15.7	14.0	137	41.1	96.7	48.8	89.4	47.6	29.2	37.0
TOC (mg/L)	0.949	1.68	1.36	0.619	1.06	2.41	0.793	1.00	1.38	1.00	0.635	1.36	0.817	0.583
SWMU 54 Ninth Quarter (August 2013) Water Quality Parameters														
pH	7.82	6.91	6.75	6.96	6.28	Dry	6.71	6.95	7.12	6.48	7.04	6.36	6.57	6.84
Specific Conductivity (mS/cm)	0.452	0.592	0.617	0.937	0.333	Dry	0.478	0.559	0.419	0.496	0.637	0.491	0.351	0.554
Turbidity (NTU)	3	0	0	0	0	Dry	7.2	0	6.1	0	0	7.0	0	0
Dissolved Oxygen (mg/L)	0.136	0.8	1.69	0.39	6.28	Dry	2.4	0.67	2.36	0.86	4.65	2.85	6.57	0.52
ORP (mV)	223.2	84	96	-18	129	Dry	86	42	-13	35	68	91	146	50
Temperature (°C)	14.51	15.25	15.08	13.22	15.49	Dry	13.05	13.4	13.25	14.51	13.46	15.7	13.89	13.21
Dissolved Manganese (mg/L)	0.05	NM	<0.05	0.05	0.05	Dry	<0.05	<0.05	0.05	<0.05	0.05	0.05	0.15	0.05
Dissolved Ferrous Iron (mg/L)	<0.2	NM	<0.2	<0.2	<0.2	Dry	<0.2	<0.2	0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrate (mg/L)	<0.600	0.326	0.521	<0.600	0.849	Dry	<0.600	0.273	0.194	0.206	0.12	4.8	0.591	0.29
Sulfate (mg/L)	26.7	30.8	26.1	322	15.0	Dry	27.3	38.0	39.2	44.3	91.8	39.6	23.3	28.2
TOC (mg/L)	3.32	1.5	1.11	2.7	0.91	Dry	0.822	2.30	4.17	4.28	3.11	3.27	2.35	3.64

Table 6-2 Water Quality Parameters for Groundwater Performance Monitoring at SWMU 54 (Continued)

Well ID	54MW1	2	3	4	5	6	7	8	9	10	11	12	13	14
SWMU 54 Tenth Quarter (November 2013) Water Quality Parameters														
pH	--	7.45	--	--	--	--	--	--	--	6.89	--	NM	7.29	--
Specific Conductivity (mS/cm)	--	0.635	--	--	--	--	--	--	--	0.615	--	0.469	0.643	--
Turbidity (NTU)	--	0	--	--	--	--	--	--	--	0	--	4.6	0.4	--
Dissolved Oxygen (mg/L)	--	2.7	--	--	--	--	--	--	--	2.45	--	1.17	1.32	--
ORP (mV)	--	51	--	--	--	--	--	--	--	18	--	108	25	--
Temperature (°C)	--	14.09	--	--	--	--	--	--	--	15.25	--	14.96	15.96	--
Dissolved Manganese (mg/L)	--	<0.05	--	--	--	--	--	--	--	<0.05	--	0.05	0.05	--
Dissolved Ferrous Iron (mg/L)	--	<0.2	--	--	--	--	--	--	--	<0.2	--	<0.2	<0.2	--
Nitrate (mg/L)	--	0.25	--	--	--	--	--	--	--	0.670	--	1.1	0.45	--
Sulfate (mg/L)	--	29.0	--	--	--	--	--	--	--	57.0	--	26.0	39.0	--
TOC (mg/L)	--	2.5	--	--	--	--	--	--	--	0.68	--	0.5	<0.50	--
SWMU 54 Eleventh Quarter (February 2014) Water Quality Parameters														
pH	8.1	--	--	--	--	--	--	--	--	6.89	--	7.21	7.21	--
Specific Conductivity (mS/cm)	0.41	--	--	--	--	--	--	--	--	0.587	--	0.643	0.481	--
Turbidity (NTU)	0	--	--	--	--	--	--	--	--	0	--	3.8	14	--
Dissolved Oxygen (mg/L)	1.32	--	--	--	--	--	--	--	--	1.43	--	0.7	2.09	--
ORP (mV)	127	--	--	--	--	--	--	--	--	153	--	150	142	--
Temperature (°C)	12.34	--	--	--	--	--	--	--	--	13.2	--	14.11	12.04	--
Dissolved Manganese (mg/L)	<0.05	--	--	--	--	--	--	--	--	<0.05	--	<0.05	0.05	--
Dissolved Ferrous Iron (mg/L)	<0.2	--	--	--	--	--	--	--	--	0.2	--	0.2	<0.2	--
Nitrate (mg/L)	<0.025	--	--	--	--	--	--	--	--	0.470	--	3.1	0.44	--
Sulfate (mg/L)	30.00	--	--	--	--	--	--	--	--	89.0	--	36.0	31.0	--
TOC (mg/L)	1.00	--	--	--	--	--	--	--	--	0.53	--	1.00	<0.50	--
SWMU 54 Twelfth Quarter (May 2014) Water Quality Parameters														
pH	7.79	--	--	--	--	--	--	--	--	6.93	--	NM	NM	--
Specific Conductivity (mS/cm)	0.469	--	--	--	--	--	--	--	--	0.582	--	0.453	0.47	--
Turbidity (NTU)	3	--	--	--	--	--	--	--	--	3.8	--	10	9	--
Dissolved Oxygen (mg/L)	1.65	--	--	--	--	--	--	--	--	1.56	--	2.25	1.14	--
ORP (mV)	222.3	--	--	--	--	--	--	--	--	127.4	--	272.1	71.3	--
Temperature (°C)	16.61	--	--	--	--	--	--	--	--	12.81	--	14.61	16.57	--
Dissolved Manganese (mg/L)	0.05	--	--	--	--	--	--	--	--	0.1	--	0.1	0.05	--
Dissolved Ferrous Iron (mg/L)	0.2	--	--	--	--	--	--	--	--	<0.2	--	0.2	0.2	--
Nitrate (mg/L)	0.031	--	--	--	--	--	--	--	--	0.330	--	1.6	0.41	--
Sulfate (mg/L)	29.0	--	--	--	--	--	--	--	--	58.0	--	31.0	27.0	--
TOC (mg/L)	51.0	--	--	--	--	--	--	--	--	62.0	--	<0.50	<0.50	--

Table 6-2 Water Quality Parameters for Groundwater Performance Monitoring at SWMU 54 (Continued)

Well ID	54MW1	2	3	4	5	6	7	8	9	10	11	12	13	14
SWMU 54 Thirteenth Quarter (September 2015) Water Quality Parameters														
pH	6.7	--	--	--	--	--	--	--	--	6.8	--	5.4	6.69	--
Specific Conductivity (mS/cm)	0.471	--	--	--	--	--	--	--	--	329	--	0.557	0.529	--
Turbidity (NTU)	0.65	--	--	--	--	--	--	--	--	30.7	--	2.66	1.00	--
Dissolved Oxygen (mg/L)	0.75	--	--	--	--	--	--	--	--	8.2	--	6.0	6.53	--
ORP (mV)	180	--	--	--	--	--	--	--	--	71	--	264	198.0	--
Temperature (°C)	14.14	--	--	--	--	--	--	--	--	15.8	--	14.8	14.83	--
Dissolved Manganese (mg/L)	0.087	--	--	--	--	--	--	--	--	0.081	--	0.066	0.081	--
Dissolved Ferrous Iron (mg/L)	0	--	--	--	--	--	--	--	--	0.11	--	0.07	0.11	--
Nitrate (mg/L)	0.14	--	--	--	--	--	--	--	--	0.25	--	0.92	0.5	--
Sulfate (mg/L)	25	--	--	--	--	--	--	--	--	23	--	24	26	--
TOC (mg/L)	4.1	--	--	--	--	--	--	--	--	8.1	--	8.3	13	--
SWMU 54 Fourteenth Quarter (January 2016) Water Quality Parameters														
pH	7.60	--	--	--	--	--	--	--	--	6.16	--	6.79	7.01	--
Specific Conductivity (mS/cm)	2.8	--	--	--	--	--	--	--	--	0.54	--	589.5	324.0	--
Turbidity (NTU)	0.78	--	--	--	--	--	--	--	--	0.88	--	5.8	7.99	--
Dissolved Oxygen (mg/L)	9.89	--	--	--	--	--	--	--	--	6.70	--	8.6	8.74	--
ORP (mV)	76.2	--	--	--	--	--	--	--	--	89.3	--	92.4	73.2	--
Temperature (°C)	9.6	--	--	--	--	--	--	--	--	12.7	--	12.4	11.6	--
Dissolved Manganese (mg/L)	0.063	--	--	--	--	--	--	--	--	0.054	--	0.030	0.063	--
Dissolved Ferrous Iron (mg/L)	0	--	--	--	--	--	--	--	--	0.0	--	0.10	0.05	--
Nitrate (mg/L)	0.15	--	--	--	--	--	--	--	--	0.45	--	2.5	0.46	--
Sulfate (mg/L)	26	--	--	--	--	--	--	--	--	76	--	45	20	--
TOC (mg/L)	1.5	--	--	--	--	--	--	--	--	0.97	--	1.8	1.8	--
SWMU 54 Fifteenth Quarter (April 2016) Water Quality Parameters														
pH	7.61	--	--	--	--	--	--	--	--	6.71	--	6.44	6.77	--
Specific Conductivity (mS/cm)	440	--	--	--	--	--	--	--	--	602	--	353	229	--
Turbidity (NTU)	0.3	--	--	--	--	--	--	--	--	3.74	--	5.7	1.16	--
Dissolved Oxygen (mg/L)	4	--	--	--	--	--	--	--	--	0.61	--	5.8	6.86	--
ORP (mV)	51	--	--	--	--	--	--	--	--	73.5	--	93.4	76.8	--
Temperature (°C)	12.01	--	--	--	--	--	--	--	--	13.4	--	14.32	13.52	--
Dissolved Manganese (mg/L)	0.021	--	--	--	--	--	--	--	--	0.057	--	0.020	0.025	--
Dissolved Ferrous Iron (mg/L)	0.02	--	--	--	--	--	--	--	--	0.03	--	0.04	0.02	--
Nitrate (mg/L)	0.14	--	--	--	--	--	--	--	--	0.18	--	1.3	0.43	--
Sulfate (mg/L)	29	--	--	--	--	--	--	--	--	83	--	27	19	--
TOC (mg/L)	4.2	--	--	--	--	--	--	--	--	8.9	--	6.8	0.68	--

Table 6-2 Water Quality Parameters for Groundwater Performance Monitoring at SWMU 54 (Continued)

Well ID	54MW1	2	3	4	5	6	7	8	9	10	11	12	13	14
SWMU 54 Sixteenth Quarter (July 2016) Water Quality Parameters														
pH	6.82	--	--	--	--	--	--	--	--	7.39	--	6.32	7.27	--
Specific Conductivity (mS/cm)	619	--	--	--	--	--	--	--	--	775	--	499	473.0	--
Turbidity (NTU)	4.62	--	--	--	--	--	--	--	--	5.36	--	6.50	0.72	--
Dissolved Oxygen (mg/L)	3.14	--	--	--	--	--	--	--	--	0.37	--	4.60	2.09	--
ORP (mV)	-10.1	--	--	--	--	--	--	--	--	109	--	8.2	12.0	--
Temperature (°C)	16.56	--	--	--	--	--	--	--	--	13.79	--	14.33	15.2	--
Dissolved Manganese (mg/L)	0.062	--	--	--	--	--	--	--	--	0.048	--	0.033	0.031	--
Dissolved Ferrous Iron (mg/L)	0.14	--	--	--	--	--	--	--	--	0.02	--	0.02	0.00	--
Nitrate (mg/L)	0.15	--	--	--	--	--	--	--	--	0.47	--	0.81	0.60	--
Sulfate (mg/L)	29	--	--	--	--	--	--	--	--	93	--	25	36	--
TOC (mg/L)	0.92	--	--	--	--	--	--	--	--	0.58	--	1.2	0.78	--
SWMU 54 Seventeenth Quarter (October 2016) Water Quality Parameters														
pH	7.28	--	--	--	--	--	--	--	--	5.91	--	6.34	6.92	--
Specific Conductivity (mS/cm)	474	--	--	--	--	--	--	--	--	839	--	579	673	--
Turbidity (NTU)	0.14	--	--	--	--	--	--	--	--	3.22	--	3.02	9.98	--
Dissolved Oxygen (mg/L)	2.60	--	--	--	--	--	--	--	--	0.54	--	5.05	3.40	--
ORP (mV)	138.2	--	--	--	--	--	--	--	--	69.1	--	30.4	44.8	--
Temperature (°C)	14.48	--	--	--	--	--	--	--	--	14.63	--	15.55	13.10	--
Dissolved Manganese (mg/L)	0.049	--	--	--	--	--	--	--	--	0.003	--	0.038	0.061	--
Dissolved Ferrous Iron (mg/L)	0.05	--	--	--	--	--	--	--	--	0.52	--	0.00	0.08	--
Nitrate (mg/L)	0.15	--	--	--	--	--	--	--	--	0.26	--	1.2	0.49	--
Sulfate (mg/L)	30	--	--	--	--	--	--	--	--	150	--	41	38	--
TOC (mg/L)	1.5	--	--	--	--	--	--	--	--	0.55	--	0.99	1.5	--
SWMU 54 Eighteenth Quarter (January 2017) Water Quality Parameters														
pH	7.43	--	--	--	--	--	--	--	--	7.19	--	6.70	7.04	--
Specific Conductivity (mS/cm)	486.2	--	--	--	--	--	--	--	--	854	--	647.5	740	--
Turbidity (NTU)	0.28	--	--	--	--	--	--	--	--	1.39	--	1.04	8.20	--
Dissolved Oxygen (mg/L)	2.21	--	--	--	--	--	--	--	--	1.40	--	5.40	3.29	--
ORP (mV)	74.8	--	--	--	--	--	--	--	--	49	--	75	71	--
Temperature (°C)	12.8	--	--	--	--	--	--	--	--	12.5	--	11.8	11.7	--
Dissolved Manganese (mg/L)	0.036	--	--	--	--	--	--	--	--	0.069	--	0.040	0.060	--
Dissolved Ferrous Iron (mg/L)	0.00	--	--	--	--	--	--	--	--	0.04	--	0.00	0.03	--
Nitrate (mg/L)	0.15	--	--	--	--	--	--	--	--	0.38	--	0.94	0.48	--
Sulfate (mg/L)	31	--	--	--	--	--	--	--	--	110	--	38	42	--
TOC (mg/L)	0.56	--	--	--	--	--	--	--	--	1.5	--	1.4	1.5	--

Table 6-2 Water Quality Parameters for Groundwater Performance Monitoring at SWMU 54 (Continued)

Well ID	54MW1	2	3	4	5	6	7	8	9	10	11	12	13	14
SWMU 54 Nineteenth Quarter (April 2017) Water Quality Parameters														
pH	7.65	--	--	--	--	--	--	--	--	6.88	--	6.70	6.97	--
Specific Conductivity (mS/cm)	0.443	--	--	--	--	--	--	--	--	0.614	--	0.627	0.474	--
Turbidity (NTU)	0.25	--	--	--	--	--	--	--	--	0.71	--	1.92	14.2	--
Dissolved Oxygen (mg/L)	8.38	--	--	--	--	--	--	--	--	3.2	--	5.39	4.74	--
ORP (mV)	91.0	--	--	--	--	--	--	--	--	57.3	--	93.4	77.5	--
Temperature (°C)	13.1	--	--	--	--	--	--	--	--	13.80	--	13.1	14	--
Dissolved Manganese (mg/L)	0.049	--	--	--	--	--	--	--	--	0.039	--	0.036	0.067	--
Dissolved Ferrous Iron (mg/L)	0.00	--	--	--	--	--	--	--	--	0.04	--	0.02	0.14	--
Nitrate (mg/L)	0.15	--	--	--	--	--	--	--	--	0.3	--	1	0.44	--
Sulfate (mg/L)	33	--	--	--	--	--	--	--	--	65	--	47	30	--
TOC (mg/L)	3.3	--	--	--	--	--	--	--	--	6.9	--	6.7	4.4	--
SWMU 54 Twentieth Quarter (July 2017) Water Quality Parameters														
pH	7.43	--	--	--	--	--	--	--	--	7.00	--	6.63	7.00	--
Specific Conductivity (mS/cm)	468	--	--	--	--	--	--	--	--	740	--	505	600	--
Turbidity (NTU)	0.52	--	--	--	--	--	--	--	--	0.52	--	0.71	1.36	--
Dissolved Oxygen (mg/L)	0.69	--	--	--	--	--	--	--	--	0.83	--	0.11	0.01	--
ORP (mV)	116.5	--	--	--	--	--	--	--	--	24.1	--	85.5	15.5	--
Temperature (°C)	14.8	--	--	--	--	--	--	--	--	14.9	--	13.7	14.8	--
Dissolved Manganese (mg/L)	0.031	--	--	--	--	--	--	--	--	0.060	--	0.073	0.084	--
Dissolved Ferrous Iron (mg/L)	0.00	--	--	--	--	--	--	--	--	0.05	--	0.07	0.08	--
Nitrate (mg/L)	0.15	--	--	--	--	--	--	--	--	0.10	--	0.75	0.56	--
Sulfate (mg/L)	28	--	--	--	--	--	--	--	--	110	--	32	32	--
TOC (mg/L)	0.71	--	--	--	--	--	--	--	--	2.6	--	1.5	1.9	--
SWMU 54 Twenty-First Quarter (October 2017) Water Quality Parameters														
pH	7.23	--	--	--	--	--	--	--	--	6.71	--	6.49	6.68	--
Specific Conductivity (mS/cm)	468.6	--	--	--	--	--	--	--	--	462.3	--	577.5	537.5	--
Turbidity (NTU)	0.17	--	--	--	--	--	--	--	--	0.8	--	8.75	0.74	--
Dissolved Oxygen (mg/L)	7.98	--	--	--	--	--	--	--	--	8.60	--	6.43	5.71	--
ORP (mV)	63.6	--	--	--	--	--	--	--	--	45.6	--	97.4	88.3	--
Temperature (°C)	14.2	--	--	--	--	--	--	--	--	14.9	--	12.7	14.6	--
Dissolved Manganese (mg/L)	0.21	--	--	--	--	--	--	--	--	0.044	--	0.051	0.032	--
Dissolved Ferrous Iron (mg/L)	0.00	--	--	--	--	--	--	--	--	0.00	--	0.07	0.00	--
Nitrate (mg/L)	0.15	--	--	--	--	--	--	--	--	0.34	--	0.86	0.45	--
Sulfate (mg/L)	31	--	--	--	--	--	--	--	--	38	--	37	29	--
TOC (mg/L)	2.6	--	--	--	--	--	--	--	--	2.6	--	1.2	2.2	--

Table 6-2 Water Quality Parameters for Groundwater Performance Monitoring at SWMU 54 (Continued)

Well ID	54MW1	2	3	4	5	6	7	8	9	10	11	12	13	14
SWMU 54 Twenty-Second Quarter (January 2018) Water Quality Parameters														
pH	7.46	--	--	--	--	--	--	--	--	7.14	--	6.57	7.00	--
Specific Conductivity (mS/cm)	438.4	--	--	--	--	--	--	--	--	734	--	531.7	640.2	--
Turbidity (NTU)	0.32	--	--	--	--	--	--	--	--	0.92	--	2.17	7.34	--
Dissolved Oxygen (mg/L)	0.53	--	--	--	--	--	--	--	--	0.95	--	8.45	4.51	--
ORP (mV)	69	--	--	--	--	--	--	--	--	45.9	--	83.2	75.3	--
Temperature (°C)	13	--	--	--	--	--	--	--	--	12.5	--	10.4	12	--
Dissolved Manganese (mg/L)	0.038	--	--	--	--	--	--	--	--	0.000	--	0.000	0.064	--
Dissolved Ferrous Iron (mg/L)	0.02	--	--	--	--	--	--	--	--	0.00	--	0.00	0.26	--
Nitrate (mg/L)	0.15	--	--	--	--	--	--	--	--	0.15	--	1.4	0.33	--
Sulfate (mg/L)	25	--	--	--	--	--	--	--	--	98	--	46	34	--
TOC (mg/L)	6.5	--	--	--	--	--	--	--	--	3.7	--	13	10	--
SWMU 54 Twenty-Third Quarter (April 2018) Water Quality Parameters														
pH	7.59	--	--	--	--	--	--	--	--	6.87	--	6.68	6.76	--
Specific Conductivity (mS/cm)	441.6	--	--	--	--	--	--	--	--	553.7	--	584	520	--
Turbidity (NTU)	0.59	--	--	--	--	--	--	--	--	0.78	--	10.4	3.15	--
Dissolved Oxygen (mg/L)	5.28	--	--	--	--	--	--	--	--	4.37	--	6.5	6.18	--
ORP (mV)	63.8	--	--	--	--	--	--	--	--	50	--	204.7	73.5	--
Temperature (°C)	13.6	--	--	--	--	--	--	--	--	13.1	--	12.4	13.4	--
Dissolved Manganese (mg/L)	0.024	--	--	--	--	--	--	--	--	0.11	--	0.046	0.032	--
Dissolved Ferrous Iron (mg/L)	0.00	--	--	--	--	--	--	--	--	0.00	--	0.06	0.00	--
Nitrate (mg/L)	0.2	--	--	--	--	--	--	--	--	0.68	--	1.2	0.62	--
Sulfate (mg/L)	28	--	--	--	--	--	--	--	--	47	--	41	30	--
TOC (mg/L)	1.5	--	--	--	--	--	--	--	--	1.5	--	0.72	1.5	--
SWMU 54 Twenty-Fourth Quarter (July 2018) Water Quality Parameters														
pH	6.87	--	--	--	--	--	--	--	--	6.56	--	6.06	6.55	--
Specific Conductivity (mS/cm)	390.9	--	--	--	--	--	--	--	--	629	--	375.6	549	--
Turbidity (NTU)	0.3	--	--	--	--	--	--	--	--	0.89	--	39.5	2.03	--
Dissolved Oxygen (mg/L)	6.96	--	--	--	--	--	--	--	--	0.78	--	9.17	3.42	--
ORP (mV)	0.5	--	--	--	--	--	--	--	--	-19.9	--	2.9	0.7	--
Temperature (°C)	14	--	--	--	--	--	--	--	--	14.7	--	15.6	16	--
Dissolved Manganese (mg/L)	0.041	--	--	--	--	--	--	--	--	0.121	--	0.039	0.143	--
Dissolved Ferrous Iron (mg/L)	0.00	--	--	--	--	--	--	--	--	0.03	--	0.04	0.00	--
Nitrate (mg/L)	0.2	--	--	--	--	--	--	--	--	0.19	--	1.6	0.43	--
Sulfate (mg/L)	26	--	--	--	--	--	--	--	--	100	--	40	32	--
TOC (mg/L)	1.5	--	--	--	--	--	--	--	--	1.5	--	1.5	1.5	--

Table 6-2 Water Quality Parameters for Groundwater Performance Monitoring at SWMU 54 (Continued)

Well ID	54MW1	2	3	4	5	6	7	8	9	10	11	12	13	14
SWMU 54 Twenty-Fifth Quarter (October 2018) Water Quality Parameters														
pH	7.39	--	--	--	--	--	--	--	--	6.89	--	6.41	6.63	--
Specific Conductivity (mS/cm)	374.1	--	--	--	--	--	--	--	--	707	--	372.6	220	--
Turbidity (NTU)	0.34	--	--	--	--	--	--	--	--	0.56	--	28.90	10.90	--
Dissolved Oxygen (mg/L)	8.05	--	--	--	--	--	--	--	--	2.68	--	5.84	5.5	--
ORP (mV)	-34.5	--	--	--	--	--	--	--	--	71.7	--	118.5	110.4	--
Temperature (°C)	13.3	--	--	--	--	--	--	--	--	15.4	--	14.7	14.8	--
Dissolved Manganese (mg/L)	0.22	--	--	--	--	--	--	--	--	0.024	--	0.045	0.024	--
Dissolved Ferrous Iron (mg/L)	0.00	--	--	--	--	--	--	--	--	0.00	--	0.16	0.00	--
Nitrate (mg/L)	0.2	--	--	--	--	--	--	--	--	0.62	--	2	0.41	--
Sulfate (mg/L)	28	--	--	--	--	--	--	--	--	61	--	32	16	--
TOC (mg/L)	1.5	--	--	--	--	--	--	--	--	0.81	--	1	1.5	--
SWMU 54 Twenty-Sixth Quarter (February 2019) Water Quality Parameters														
pH	7.14	--	--	--	--	--	--	--	--	6.57	--	6.46	6.28	--
Specific Conductivity (mS/cm)	471.5	--	--	--	--	--	--	--	--	566.6	--	532.6	267.6	--
Turbidity (NTU)	0.32	--	--	--	--	--	--	--	--	0.26	--	6.2	8.99	--
Dissolved Oxygen (mg/L)	3.02	--	--	--	--	--	--	--	--	0.11	--	1.39	8.02	--
ORP (mV)	10.3	--	--	--	--	--	--	--	--	45.7	--	102.1	79.3	--
Temperature (°C)	13.7	--	--	--	--	--	--	--	--	13.5	--	13.2	13.1	--
Dissolved Manganese (mg/L)	0.029	--	--	--	--	--	--	--	--	0.04	--	0.046	0.045	--
Dissolved Ferrous Iron (mg/L)	0.02	--	--	--	--	--	--	--	--	0.05	--	0.06	0.14	--
Nitrate (mg/L)	0.2	--	--	--	--	--	--	--	--	1.1	--	2	0.48	--
Sulfate (mg/L)	25	--	--	--	--	--	--	--	--	31	--	43	15	--
TOC (mg/L)	1.5	--	--	--	--	--	--	--	--	0.72	--	2.3	1.5	--
SWMU 54 Twenty-Seventh Quarter (April 2019) Water Quality Parameters														
pH	7.33	--	--	--	--	--	--	--	--	6.52	--	5.8	6.34	--
Specific Conductivity (mS/cm)	372.8	--	--	--	--	--	--	--	--	402.4	--	324.6	270.4	--
Turbidity (NTU)	0.28	--	--	--	--	--	--	--	--	1.19	--	46.7	10.17	--
Dissolved Oxygen (mg/L)	8.4	--	--	--	--	--	--	--	--	4.32	--	6.77	5.9	--
ORP (mV)	62.1	--	--	--	--	--	--	--	--	89.7	--	118.3	116.6	--
Temperature (°C)	13.2	--	--	--	--	--	--	--	--	12.2	--	14.2	14.3	--
Dissolved Manganese (mg/L)	0.023	--	--	--	--	--	--	--	--	0.00	--	0.085	0.04	--
Dissolved Ferrous Iron (mg/L)	0.00	--	--	--	--	--	--	--	--	0.00	--	0.21	0.02	--
Nitrate (mg/L)	0.2	--	--	--	--	--	--	--	--	2	--	2.5	0.58	--
Sulfate (mg/L)	27	--	--	--	--	--	--	--	--	30	--	56	41	--
TOC (mg/L)	1.4	--	--	--	--	--	--	--	--	1.5	--	0.84	1.5	--

Table 6-2 Water Quality Parameters for Groundwater Performance Monitoring at SWMU 54 (Continued)

Well ID	54MW1	2	3	4	5	6	7	8	9	10	11	12	13	14
SWMU 54 Twenty-Eighth Quarter (July 2019) Water Quality Parameters														
pH	7.49	--	--	--	--	--	--	--	--	6.9	--	6.54	7.01	--
Specific Conductivity (mS/cm)	479.5	--	--	--	--	--	--	--	--	570.1	--	470.5	577	--
Turbidity (NTU)	0.21	--	--	--	--	--	--	--	--	1.71	--	2.58	1.82	--
Dissolved Oxygen (mg/L)	3.54	--	--	--	--	--	--	--	--	5.33	--	4.29	6.24	--
ORP (mV)	212.5	--	--	--	--	--	--	--	--	79	--	238.7	225.1	--
Temperature (°C)	14.7	--	--	--	--	--	--	--	--	15.3	--	15.2	18.1	--
Dissolved Manganese (mg/L)	0.035	--	--	--	--	--	--	--	--	0.026	--	0.04	0.038	--
Dissolved Ferrous Iron (mg/L)	0.07	--	--	--	--	--	--	--	--	1.71	--	2.58	1.82	--
Nitrate (mg/L)	0.2	--	--	--	--	--	--	--	--	0.46	--	0.84	0.5	--
Sulfate (mg/L)	26	--	--	--	--	--	--	--	--	65	--	23	31	--
TOC (mg/L)	1.5	--	--	--	--	--	--	--	--	1.5	--	1.5	1.5	--
SWMU 54 Twenty-Ninth Quarter (October 2019) Water Quality Parameters														
pH	7.33	--	--	--	--	--	--	--	--	6.99	--	7	7.01	--
Specific Conductivity (mS/cm)	431	--	--	--	--	--	--	--	--	728	--	601	519	--
Turbidity (NTU)	0.22	--	--	--	--	--	--	--	--	2.52	--	3.06	1.97	--
Dissolved Oxygen (mg/L)	14.8	--	--	--	--	--	--	--	--	18.3	--	48.6	77	--
ORP (mV)	41.3	--	--	--	--	--	--	--	--	32	--	80.6	44.3	--
Temperature (°C)	14.97	--	--	--	--	--	--	--	--	15.16	--	14.95	16.38	--
Dissolved Manganese (mg/L)	0.02	--	--	--	--	--	--	--	--	0.014	--	0.042	0.04	--
Dissolved Ferrous Iron (mg/L)	0.24	--	--	--	--	--	--	--	--	0	--	0.12	0.16	--
Nitrate (mg/L)	ND	--	--	--	--	--	--	--	--	0.18	--	0.58	0.52	--
Sulfate (mg/L)	28	--	--	--	--	--	--	--	--	140	--	32	33	--
TOC (mg/L)	ND	--	--	--	--	--	--	--	--	0.62	--	0.69	0.53	--
TIC (mg/L)	61	--	--	--	--	--	--	--	--	85	--	86	97	--
SWMU 54 Thirtieth Quarter (January 2020) Water Quality Parameters														
pH	7.5	--	--	--	--	--	--	--	--	6.87	--	6.51	6.93	--
Specific Conductivity (mS/cm)	462	--	--	--	--	--	--	--	--	508	--	540	600	--
Turbidity (NTU)	0.34	--	--	--	--	--	--	--	--	0.43	--	1.13	1.86	--
Dissolved Oxygen (mg/L)	2.4	--	--	--	--	--	--	--	--	0.43	--	7.2	6.54	--
ORP (mV)	95.3	--	--	--	--	--	--	--	--	126.8	--	116.8	108.7	--
Temperature (°C)	13.33	--	--	--	--	--	--	--	--	12.6	--	12.72	12.48	--
Dissolved Manganese (mg/L)	0.01	--	--	--	--	--	--	--	--	0.05	--	0.33	0.1	--
Dissolved Ferrous Iron (mg/L)	0.04	--	--	--	--	--	--	--	--	0.06	--	0.07	0.1	--
Nitrate (mg/L)	ND	--	--	--	--	--	--	--	--	0.58	--	0.76	0.63	--
Sulfate (mg/L)	29	--	--	--	--	--	--	--	--	59	--	29	27	--
TOC (mg/L)	ND	--	--	--	--	--	--	--	--	ND	--	ND	ND	--
TIC (mg/L)	56	--	--	--	--	--	--	--	--	59	--	84	70	--

Table 6-2 Water Quality Parameters for Groundwater Performance Monitoring at SWMU 54 (Continued)

Well ID	54MW1	2	3	4	5	6	7	8	9	10	11	12	13	14
SWMU 54 Thirty-First Quarter (April 2020) Water Quality Parameters														
pH	7.65	--	--	--	--	--	--	--	--	6.83	--	6.62	6.68	--
Specific Conductivity (mS/cm)	339.6	--	--	--	--	--	--	--	--	364.9	--	357.2	241.6	--
Turbidity (NTU)	1.86	--	--	--	--	--	--	--	--	35.68	--	77.81	50.12	--
Dissolved Oxygen (mg/L)	4.46	--	--	--	--	--	--	--	--	5.28	--	7.34	8.21	--
ORP (mV)	111	--	--	--	--	--	--	--	--	112.6	--	127.8	96	--
Temperature (°C)	13.4	--	--	--	--	--	--	--	--	11.9	--	13.5	12	--
Dissolved Manganese (mg/L)	0.021	--	--	--	--	--	--	--	--	0.07	--	0.08	0.05	--
Dissolved Ferrous Iron (mg/L)	0	--	--	--	--	--	--	--	--	0.02	--	0.1	0.02	--
Nitrate (mg/L)	ND	--	--	--	--	--	--	--	--	1.1	--	1	5.6	--
Sulfate (mg/L)	28	--	--	--	--	--	--	--	--	52	--	28	0.97	--
TOC (mg/L)	ND	--	--	--	--	--	--	--	--	0.99	--	ND	0.46	--
TIC (mg/L)	56	--	--	--	--	--	--	--	--	63	--	85	21	--
SWMU 54 Thirty-Second Quarter (July 2020) Water Quality Parameters														
pH	7.5	--	--	--	--	--	--	--	--	6.87	--	6.51	6.93	--
Specific Conductivity (mS/cm)	462	--	--	--	--	--	--	--	--	508	--	540	600	--
Turbidity (NTU)	0.34	--	--	--	--	--	--	--	--	0.43	--	1.13	1.86	--
Dissolved Oxygen (mg/L)	2.4	--	--	--	--	--	--	--	--	0.43	--	7.2	6.54	--
ORP (mV)	95.3	--	--	--	--	--	--	--	--	126.8	--	116.8	108.7	--
Temperature (°C)	13.33	--	--	--	--	--	--	--	--	12.6	--	12.72	12.48	--
Dissolved Manganese (mg/L)	0.04	--	--	--	--	--	--	--	--	0.31	--	0.1	0.037	--
Dissolved Ferrous Iron (mg/L)	0.09	--	--	--	--	--	--	--	--	0.07	--	0.017	0.07	--
Nitrate (mg/L)	0.12	--	--	--	--	--	--	--	--	ND	--	1	1	--
Sulfate (mg/L)	28	--	--	--	--	--	--	--	--	15	--	22	20	--
TOC (mg/L)	ND	--	--	--	--	--	--	--	--	ND	--	ND	ND	--
TIC (mg/L)	63	--	--	--	--	--	--	--	--	63	--	65	48	--

Notes:
-- = Wells eliminated from monitoring program
°C = degrees Celsius
< = less than
ID = identifier
mg/L = milligrams per liter
mS/cm = millisiemens per centimeter
mV = millivolt
NM = not measured
NTU = Nephelometric Turbidity Unit
ORP = oxidation reduction potential
pH = potential of hydrogen
SWMU = Solid Waste Management Unit
TIC = total inorganic carbon
TOC = total organic carbon

Figure 6-1 SWMU 54: 54MW10 Contaminant Concentration to Groundwater Elevation Correlation

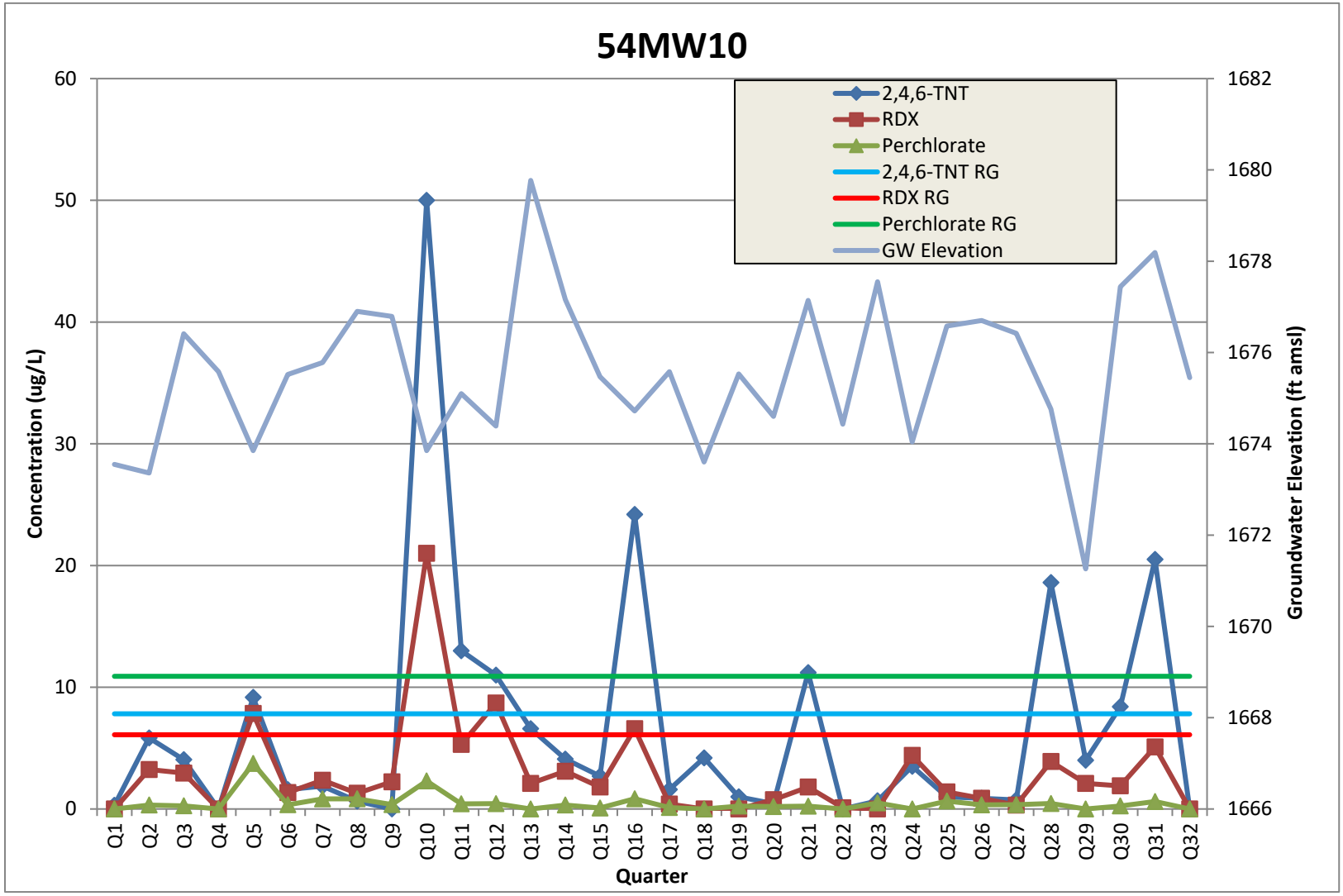


Figure 6-2 SWMU 54: 54MW12 Contaminant Concentration to Groundwater Elevation Correlation

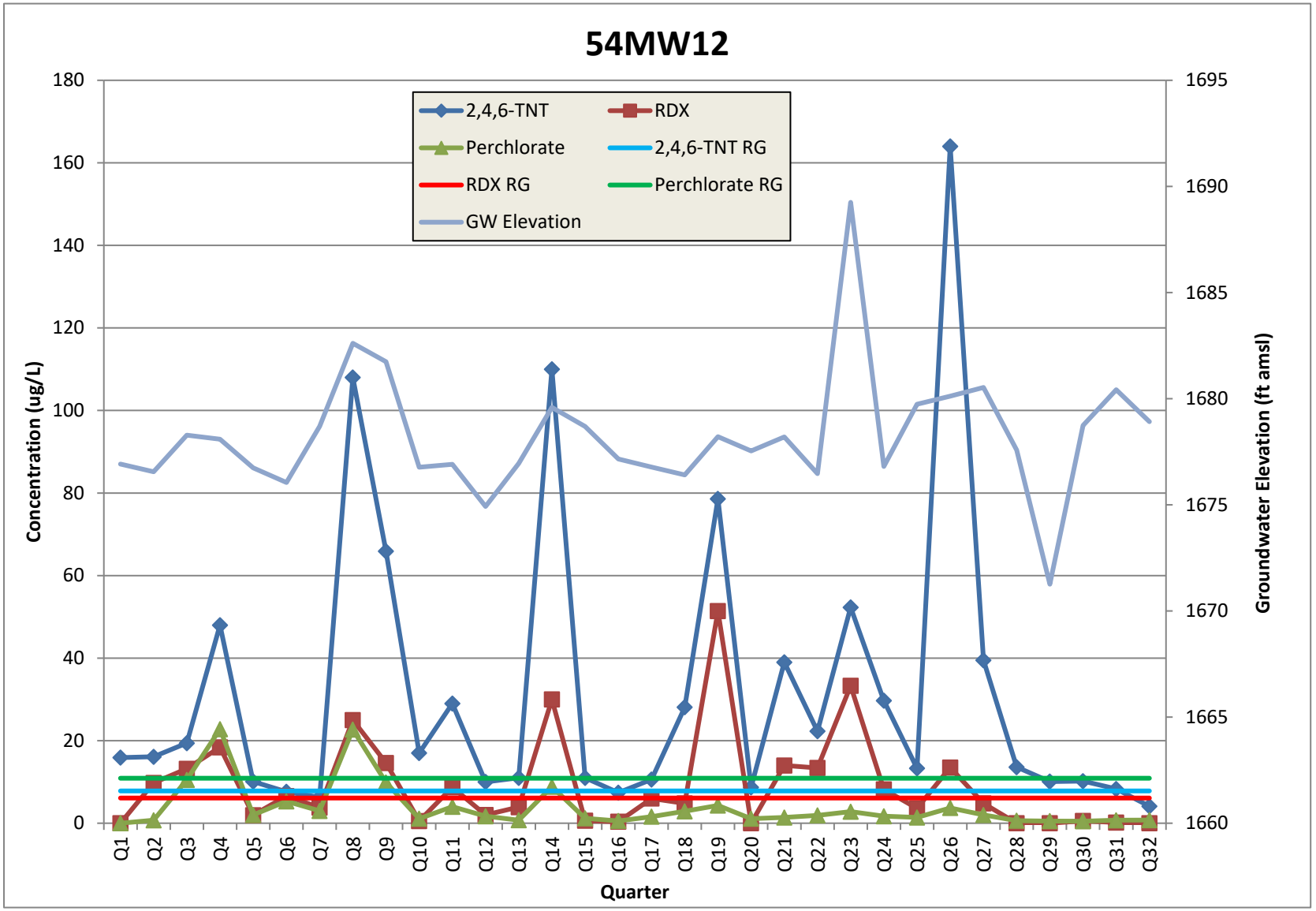


Figure 6-3 SWMU 54: 54MW13 Contaminant Concentration to Groundwater Elevation Correlation

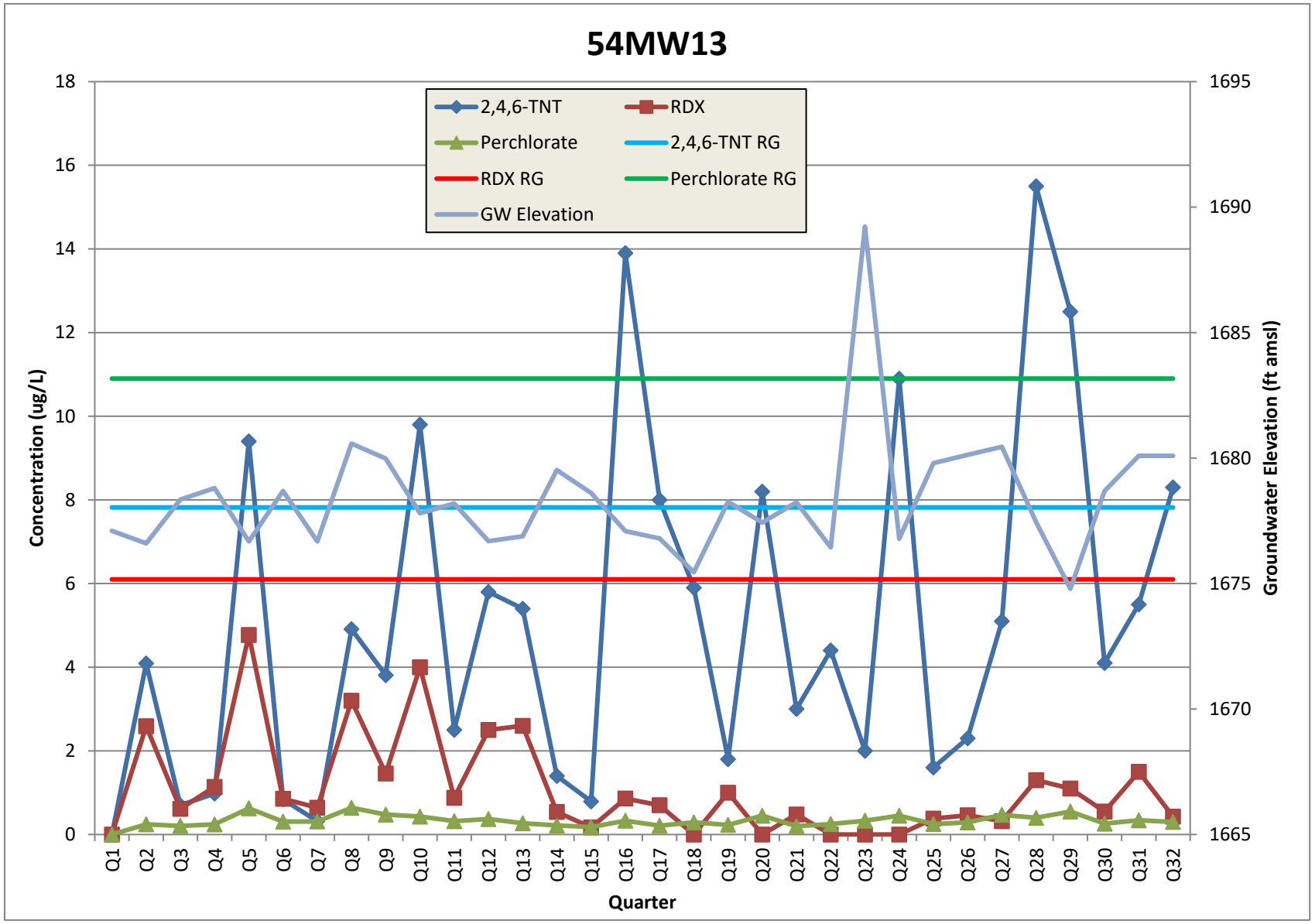
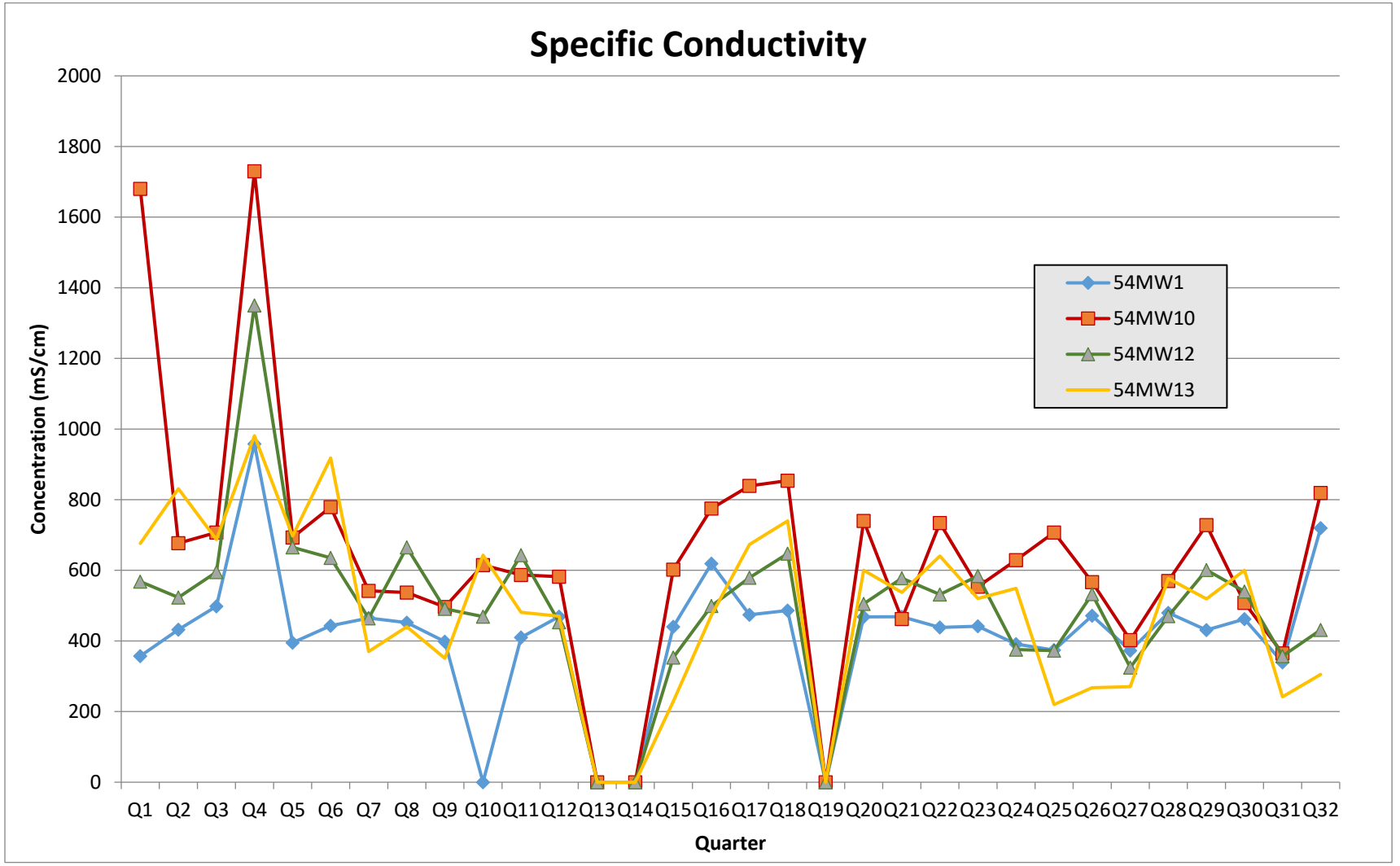


Figure 6-4 SWMU 54: Specific Conductivity



Notes:
1. Specific Conductivity was not measured at 54MW1 during Quarter 10.
2. Specific Conductivity readings for quarters 13, 14, and 19 for all four wells were not used due to possible unit entry error.

Figure 6-5 SWMU 54: 54MW10 Ferrous Iron, Dissolved Manganese, Nitrate, and Sulfate Concentrations

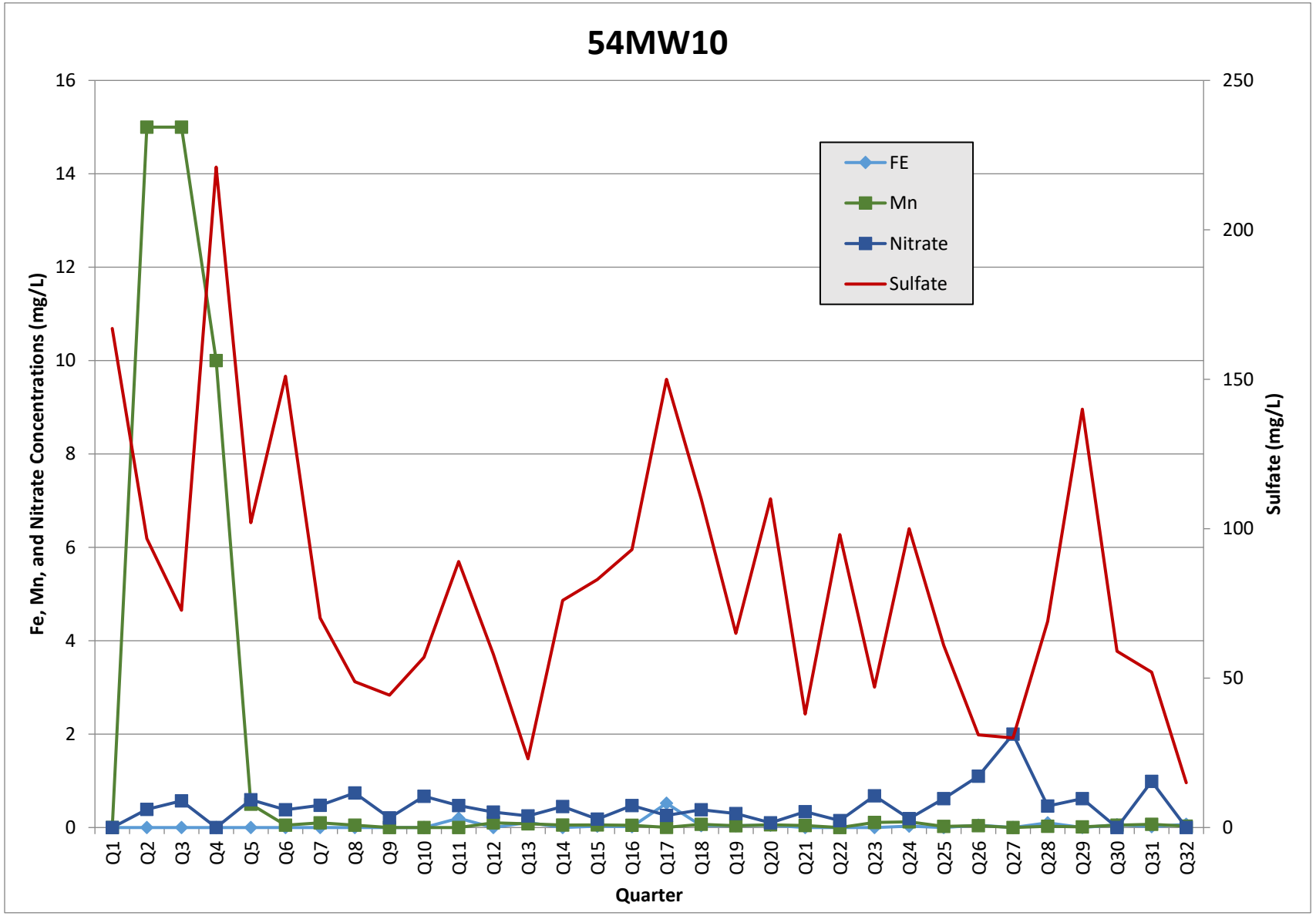


Figure 6-6 SWMU 54: 54MW12 Ferrous Iron, Dissolved Manganese, Nitrate, and Sulfate Concentrations

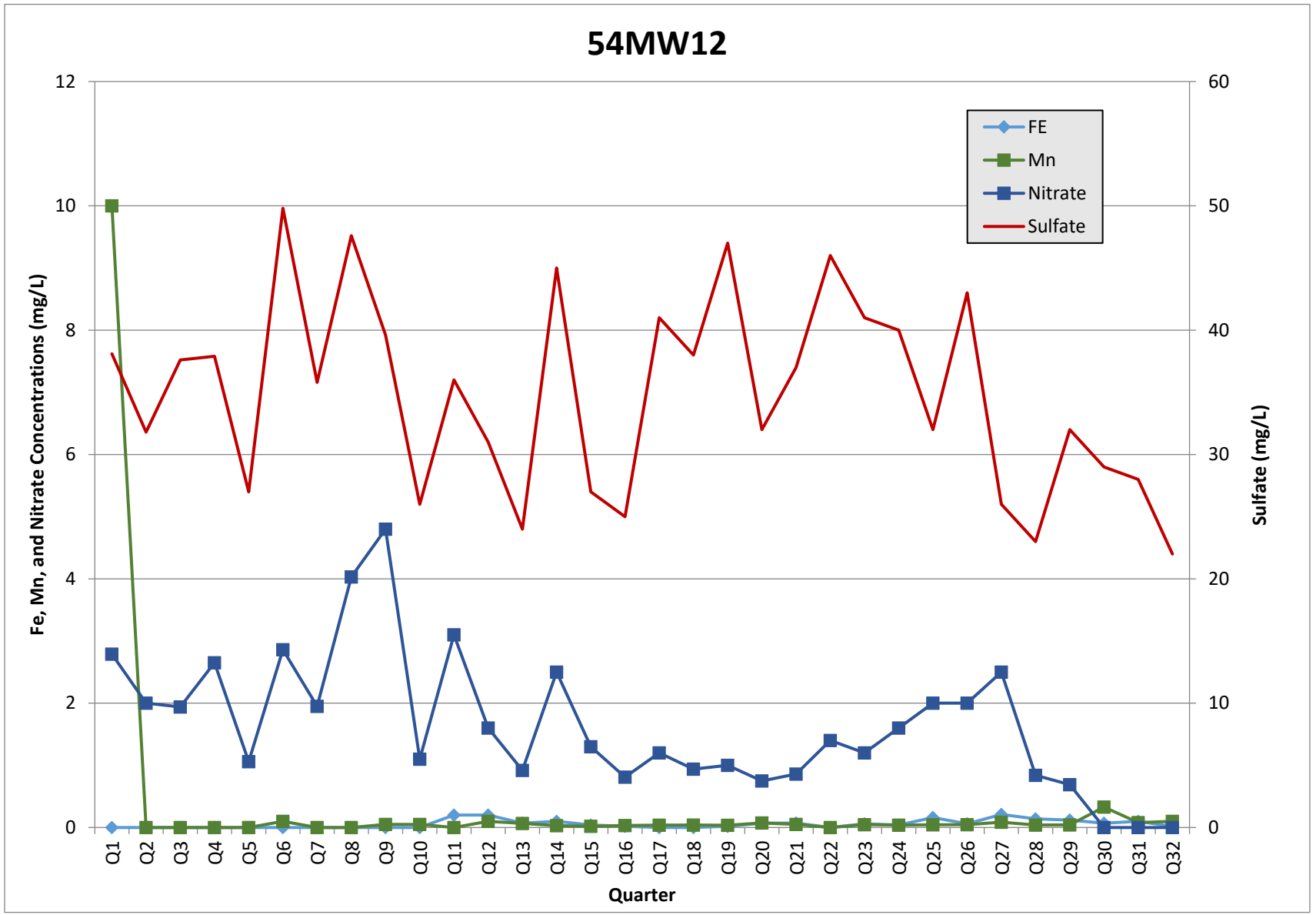


Figure 6-7 SWMU 54: 54MW13 Ferrous Iron, Dissolved Manganese, Nitrate, and Sulfate Concentrations

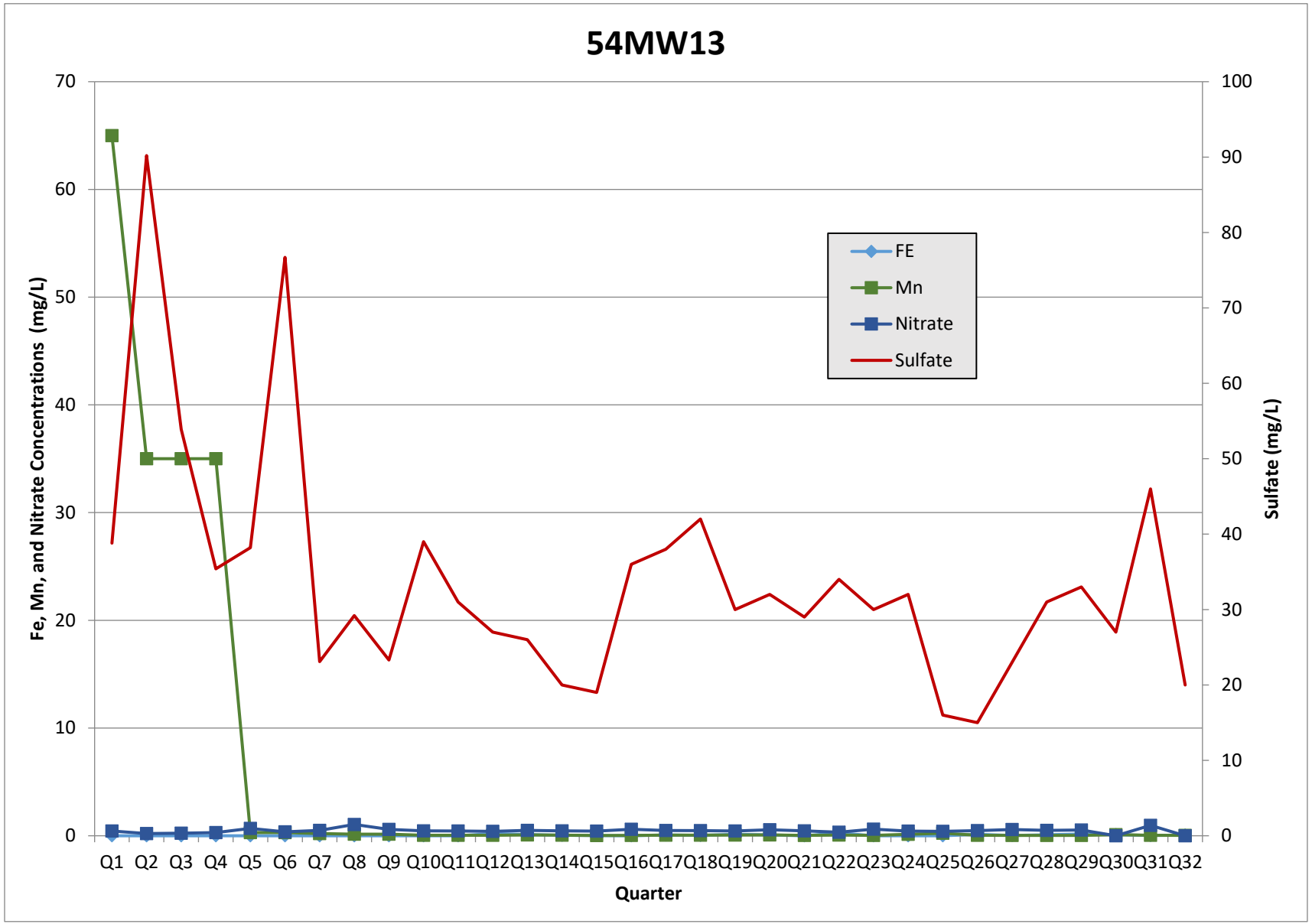


Figure 6-8 SWMU 54: 54MW10 TOC, DO, and ORP Concentrations

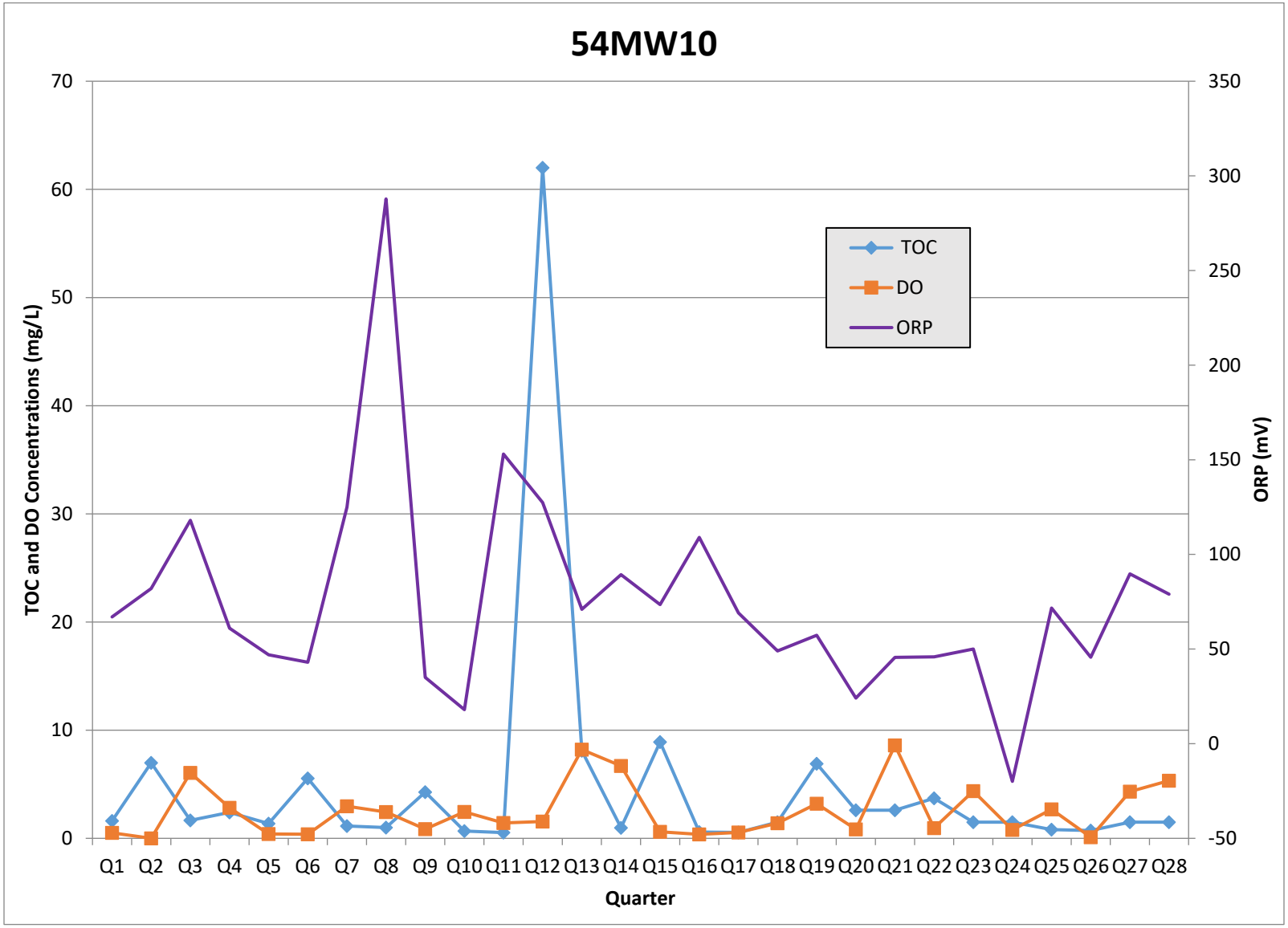


Figure 6-9 SWMU 54: 54MW12 TOC, DO, and ORP Concentrations

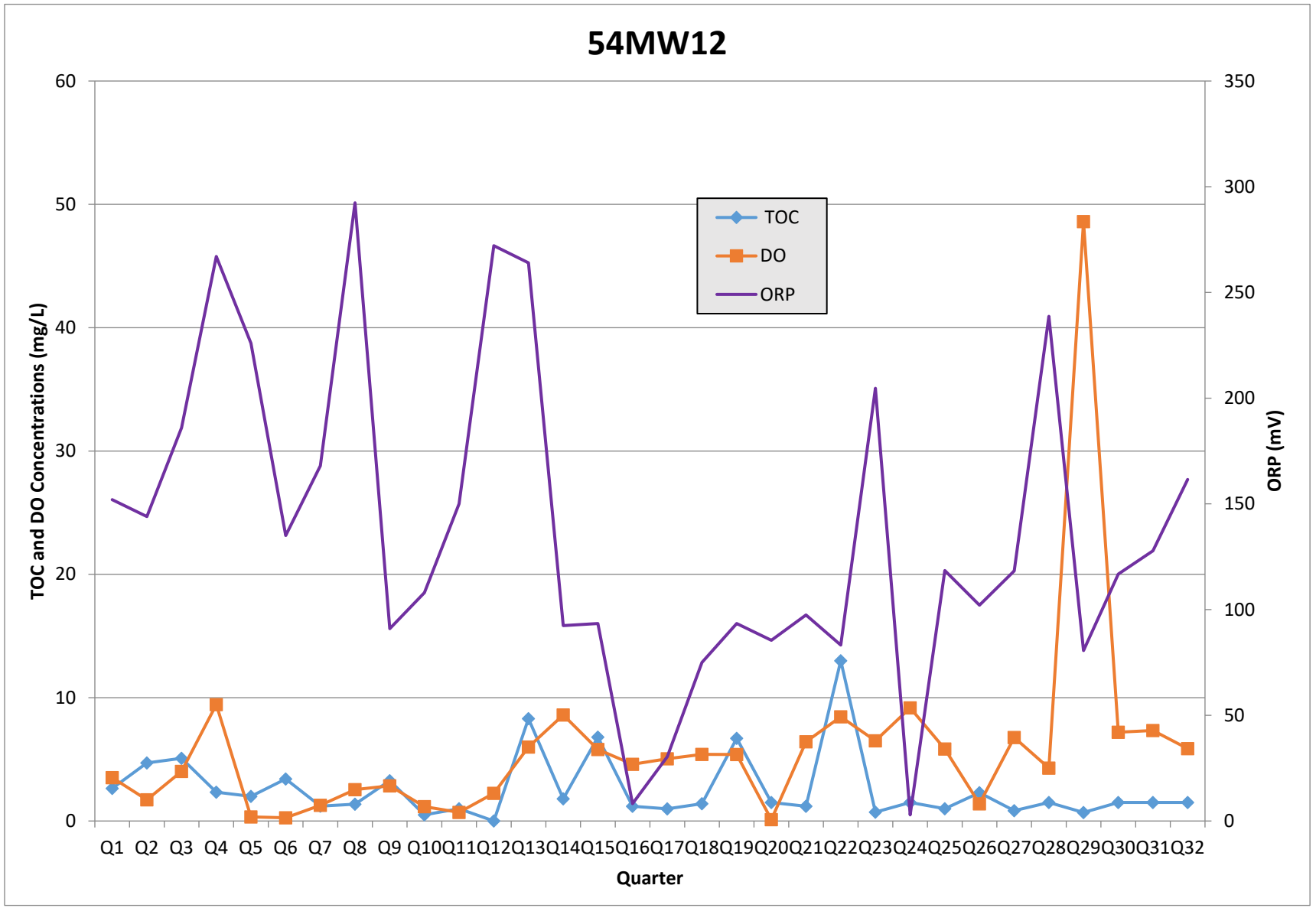
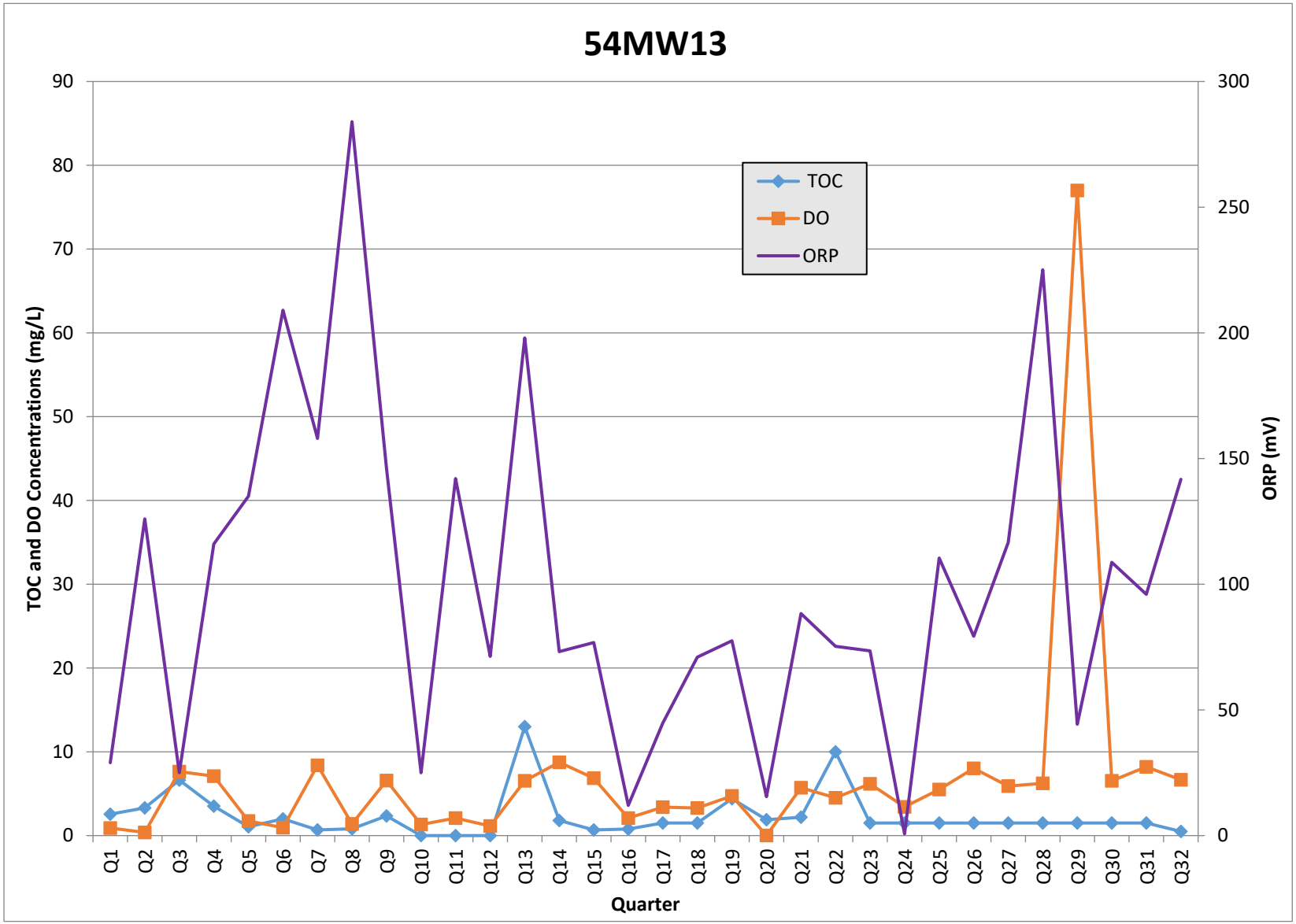


Figure 6-10 SWMU 54: 54MW13 TOC, DO, and ORP Concentrations



7. SUMMARY AND CONCLUSIONS

This report covers the first 8 years (thirty-two quarters) of monitoring of groundwater monitoring, herein Year Eight's data are discussed in detail. The first 7 years were described in previous annual reports. Fourteen groundwater monitoring wells were sampled on a quarterly basis for over 2 years (nine quarters) at SWMU 54. After the ninth and tenth quarters, the monitoring program was reduced to the three wells (54MW10, 54MW12, and 54MW13), which have had COI concentrations above RGs, and an upgradient well (54MW1). Sampling of the monitoring wells associated with Area B were also discontinued after the tenth quarter because no concentrations were detected above their RGs.

Samples collected during the first twelve quarters were analyzed for explosives, perchlorate, and MNA indicators. During quarters 10 through 32, samples were also analyzed for RDX breakdown products. Sample results were compared to RGs and evaluated to determine whether MNA is occurring at the SWMU. This report presents and summarizes the analytical results of the first 8 years (thirty-two quarters) of monitoring.

Based on contaminant concentrations and biological indicator parameters measured in groundwater at SWMU 54 during Year Eight, concentrations of 2,4,6-TNT and RDX remain above remedial goals (RG). MNA processes, however, are reducing the concentrations. These processes include biodegradation and, to a lesser extent, sorption, dilution, dispersion, and chemical stabilization. The data also suggest that the MNA processes are preventing downgradient plume expansion and decreasing nitroaromatic and perchlorate mass.

In summary, the following conclusions and recommendations are made regarding the potential for MNA in contaminated groundwater at SWMU 54:

- Presence of 2,4,6-TNT daughter products 2ADNT and 4ADNT is further evidence that biological degradation has occurred, which may be aiding in removing mass in the groundwater.
- Identification of RDX breakdown products DNX, MNX, and TNX indicates active degradation of RDX, although breakdown products were less prevalent during the Year Four monitoring period and not detected during the Year Five through Year Eight monitoring periods. RDX concentrations at monitoring wells 54MW10 and 54MW13 are consistently below the RG of 6.1 µg/L in the Year Eight monitoring period with no detections above the RG in any of the four quarters (29 to 32).

- All perchlorate concentrations in Years Three through Eight of monitoring are below the RG and showed a steady decline in concentrations during this 6-year period with the exception of monitoring well 54MW10.

Observed concentrations of DO (0.43 mg/L to 77.0 mg/L) and ORP (32.8 mV to 161.5 mV) during Year Eight indicate both aerobic and anaerobic conditions exist at SWMU 54. However, aerobic conditions were determined to be more prevalent. While TNT has been known to be degraded under a variety of conditions (aerobic and anaerobic), further degradation of 2ADNT, 4ADNT, and reduction of RDX and perchlorate is more favorable under anaerobic conditions (Spain, 1995). DO and ORP data suggest that well 54MW10 is still steadily approaching more favorable anaerobic conditions, and wells 54MW12 and 54MW13 are approaching more favorable anaerobic conditions, just not quite as steadily as 54MW10. It is also noted that there is a direct correlation between ORP values and 2,4,6-TNT and RDX concentrations at monitoring well 54MW12.

The source removal efforts at SWMU 54 appear to have been effective in significantly lowering the site-wide COIs in groundwater. This is evident by the fact that eleven of the fourteen monitoring well locations (54MW1 through 54MW9, 54MW11, and 54MW14) had observed concentrations below site selected RGs for eight consecutive quarters for 2,4,6-TNT, DNT mixture, RDX, and perchlorate. As recommended in the *Final SWMU 54 MNA IMWP* (Shaw, 2011a), and *SWMU 54 MNA Sampling Year Two Report* (CB&I, 2013) these wells were removed from the MNA sampling program after the ninth and tenth quarters.

Explosives concentrations through thirty-two quarters of groundwater monitoring indicate that limited biodegradation at well locations 54MW10, 54MW12, and 54MW13 (SWMU 54 Area A wells) is occurring. Based on the localized distribution of elevated constituents and the generally declining concentrations site-wide and the fact that groundwater is bounded within RFAAP by the New River and its use can be controlled by RFAAP, an active groundwater remedy at SWMU 54 does not appear necessary at this time. However, the twenty-third quarter of sample collection included the fourth most elevated concentrations of explosive COIs reported at monitoring well 54MW12, warranting continued monitoring. Further, the twenty-sixth quarter of sample collection included the highest concentration of 2,4,6-TNT at 54MW12 in all 32 quarters. The sharp increase in explosive concentrations at 54MW12 during the twenty-third and twenty-sixth quarters occurred under aerobic conditions. Biodegradation is not as effective under aerobic conditions to reduce

explosives and perchlorates concentrations. As a result of the subsurface biochemistry, the decreased biological activity may have led to an increase in the explosives and perchlorate concentrations during this period.

The direction and speed of groundwater flow is consistent across all reporting periods and the current network of groundwater monitoring wells is adequate for future groundwater monitoring events.

Based on the consistency of the data and the fact that quarterly monitoring has been conducted for a full 8 years, it is our recommendation that groundwater monitoring be reduced to a semiannual basis (October and April) at well locations 54MW10, 54MW12, and 54MW13. Semiannual monitoring would provide sufficient data for continued assessment of contaminant concentrations and MNA performance. In addition to monitoring wells 54MW10, 54MW12, and 54MW13, monitoring well 54MW1 will continue to be monitored as an upgradient well, despite meeting the criteria for being removed from the network.

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APPENDIX A-1
FIELD SAMPLING LOGS

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Radford AAP PROJECT # 03886.552.500 WELL ID 54MW1
LOCATION Radford VA

SAMPLING CREW Bounds/Taylor DATE: 14-Oct-19 SAMPLE TIME: 1510

PURGING DATA

REFERENCE POINT (CIRCLE): PVC Steel Casing PURGING DEVICE GeoTech Bladder Pump
TIC TOC
WELL COMPLETION (CIRCLE): Flush Stick-up

INITIAL DEPTH TO WATER 20.64 (FT) WELL DEPTH 56 (FT) Well Diameter 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	CUM. VOLUME PURGED (L)	TEMP (°C) **(3%)**	SP COND (uS/cm[c])[1] **(3%)**	pH (s.u) **(+/-0.1)**	ORP/Eh[2] (MV) **(+/-10)**	DO (mg/L) **(10%)**	Turb (NTU) **(10%)**	COMMENTS
1440	20.83	300	0	15.18	435	7.4	88	115.3	1.36	
1450	20.83	300	2	14.88	431	7.24	55.1	19.7	0.4	
1500	20.83	300	4	14.95	430	7.29	43.3	16.1	0.25	
1510	20.83	300	6	14.97	431	7.33	41.3	14.8	0.22	

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 14.97 (°C) ORP: 41.3 (MV) COMMENTS: 0.0 PID Reading
SPECIFIC CONDUCTANCE: 431 (uS/cm) DO: 14.8 (mg/L)
pH: 7.33 (S.U.) TURBIDITIY: 0.22 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: clear, no odor TOTAL DEPTH OF WELL: 56

WEATHER CONDITIONS: Sunny, 60s

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Radford AAP | PROJECT # 03886.552.500.2110 | WELL ID 54MW1
LOCATION Radford VA

SAMPLING CREW Bounds/Taylor | DATE: 27-Jan-20 | SAMPLE TIME: 1505

PURGING DATA

REFERENCE POINT (CIRCLE): PVC Steel Casing | PURGING DEVICE GeoTech Bladder Pump
TIC TOC
WELL COMPLETION (CIRCLE): Flush Stick-up

INITIAL DEPTH TO WATER 18.73 (FT) | WELL DEPTH 57.4 (FT) | Well Diameter 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	CUM. VOLUME PURGED (L)	TEMP (°C) **(3%)**	SP COND (uS/cm[c])[1] **(3%)**	pH (s.u) **(+/-0.1)**	ORP/Eh[2] (MV) **(+/-10)**	DO (mg/L) **(10%)**	Turb (NTU) **(10%)**	COMMENTS
1430	18.94	150	0	12.42	462	7.24	105.8	0.04	0.49	
1440	19.73	150	2	13.23	464	7.43	96.8	2.43	0.57	
1450	20.75	150	4	13.34	463	7.45	96.5	2.35	0.31	
1500	20.83	150	6	13.33	462	7.48	95.5	2.57	0.33	

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 13.33 (°C) | ORP: 95.3 (MV) | COMMENTS:
SPECIFIC CONDUCTANCE: 462 (uS/cm) | DO: 2.4 (mg/L)
pH: 7.5 (S.U.) | TURBIDITIY: 0.34 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: clear, no odor | TOTAL DEPTH OF WELL:

WEATHER CONDITIONS: 40s, partly cloudy

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Radford AAP | PROJECT # 03886.552.500 | WELL ID 54MW1
LOCATION Radford VA

SAMPLING CREW Bounds/Taylor | DATE: 28-Apr-20 | SAMPLE TIME: 1420

PURGING DATA

REFERENCE POINT (CIRCLE): PVC Steel Casing | PURGING DEVICE GeoTech Bladder Pump
TIC TOC
WELL COMPLETION (CIRCLE): Flush Stick-up

INITIAL DEPTH TO WATER 15.8 (FT) | WELL DEPTH 56 (FT) | Well Diameter 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	CUM. VOLUME PURGED (L)	TEMP (°C) **(3%)**	SP COND (uS/cm[c])[1] **(3%)**	pH (s.u) **(+/-0.1)**	ORP/Eh[2] (MV) **(+/-10)**	DO (mg/L) **(10%)**	Turb (NTU) **(10%)**	COMMENTS
1340	15.92	200	0	13.6	342.6	7.75	159.4	5.12	0.43	
1350	15.92	180	2	13.4	340.2	7.65	129.5	4.66	1.96	
1400	15.92	180	46	13.3	340.6	7.65	116.4	4.76	2.64	
1410	15.92	180	8	13.4	340.2	7.65	112.7	4.5	2.34	
1420	15.92	180	10	13.4	339.6	7.65	111	4.46	1.86	

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 13.4 (°C) | ORP: 111 (MV) | COMMENTS: 0.0 PID Reading
SPECIFIC CONDUCTANCE: 339.6 (uS/cm) | DO: 4.46 (mg/L)
pH: 7.65 (S.U.) | TURBIDITIY: 1.86 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: clear, no odor | TOTAL DEPTH OF WELL:

WEATHER CONDITIONS: 70s Mostly Sunny

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Radford AAP | PROJECT # 03886.552.500 | WELL ID 54MW1

LOCATION Radford VA

SAMPLING CREW Bounds/Ewald | DATE: 21-Jul-20 | SAMPLE TIME: 1400

PURGING DATA

REFERENCE POINT (CIRCLE): PVC Steel Casing | PURGING DEVICE GeoTech Bladder Pump

TIC TOC

WELL COMPLETION (CIRCLE): Flush Stick-up

INITIAL DEPTH TO WATER 16.3 (FT) | WELL DEPTH 57.5 (FT) | Well Diameter 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	CUM. VOLUME PURGED (L)	TEMP (°C) **(3%)**	SP COND (uS/cm[c])[1] **(3%)**	pH (s.u) **(+/-0.1)**	ORP/Eh[2] (MV) **(+/-10)**	DO (mg/L) **(10%)**	Turb (NTU) **(10%)**	COMMENTS
1310	16.6	200	0	17.7	406.4	7.86	100.7	1.24	0.6	
1320		200	2	18.4	719.2	7.74	102.8	1.05	1.06	
1330		200	4	17.2	719.3	7.62	102.2	0.98	0.57	
1340		200	6	16.9	719.6	7.52	101.1	0.94	1.15	
1350	19.25	200	8	16.8	719.5	7.45	99.8	0.9	0.3	

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 16.8 (°C) | ORP: 99.8 (MV) | COMMENTS: 0.0 PID Reading

SPECIFIC CONDUCTANCE: 719.5 (uS/cm) | DO: 0.9 (mg/L)

pH: 7.45 (S.U.) | TURBIDITIY: 0.3 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: clear, no odor | TOTAL DEPTH OF WELL: 57.5

WEATHER CONDITIONS: Cloudy/Rain, 90s

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Radford AAP | PROJECT # 03886.552.500 | WELL ID 54MW10

LOCATION Radford VA

SAMPLING CREW Bounds/Taylor | DATE: 14-Oct-19 | SAMPLE TIME: 1215

PURGING DATA

REFERENCE POINT (CIRCLE): PVC Steel Casing | PURGING DEVICE GeoTech Bladder Pump

TIC TOC

WELL COMPLETION (CIRCLE): Flush Stick-up

INITIAL DEPTH TO WATER 19.84 (FT) | WELL DEPTH 30 (FT) | Well Diameter 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	CUM. VOLUME PURGED (L)	TEMP (°C) **(3%)**	SP COND (uS/cm[c])[1] **(3%)**	pH (s.u) **(+/-0.1)**	ORP/Eh[2] (MV) **(+/-10)**	DO (mg/L) **(10%)**	Turb (NTU) **(10%)**	COMMENTS
1155	19.93	200	0	15.01	766	7.26	66.7	76	4.86	
1205	19.93	200	2	15.09	754	7.05	37.7	17	3.51	
1215	19.93	200	4	15.16	728	6.99	32	18.3	2.52	

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 15.16 (°C) | ORP: 32 (MV) | COMMENTS: 0.0 PID Reading

SPECIFIC CONDUCTANCE: 728 (uS/cm) | DO: 18.3 (mg/L)

pH: 6.99 (S.U.) | TURBIDITIY: 2.52 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: clear, no odor | TOTAL DEPTH OF WELL: 30

WEATHER CONDITIONS: Sunny, 60s

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Radford AAP | PROJECT # 03886.552.500.2110 | WELL ID 54MW10

LOCATION Radford VA

SAMPLING CREW Bounds/Taylor | DATE: 27-Jan-20 | SAMPLE TIME: 1035

PURGING DATA

REFERENCE POINT (CIRCLE): PVC Steel Casing | PURGING DEVICE GeoTech Bladder Pump

TIC TOC

WELL COMPLETION (CIRCLE): Flush Stick-up

INITIAL DEPTH TO WATER 13.66 (FT) | WELL DEPTH 30.03 (FT) | Well Diameter 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	CUM. VOLUME PURGED (L)	TEMP (°C) **(3%)**	SP COND (uS/cm[c])[1] **(3%)**	pH (s.u) **(+/-0.1)**	ORP/Eh[2] (MV) **(+/-10)**	DO (mg/L) **(10%)**	Turb (NTU) **(10%)**	COMMENTS
955	13.76	120	0	11.82	385	6.77	185.2	15.5	0.8	
1005	13.71	120	2	12.2	511	6.77	152	5.96	0.6	
1015	13.73	120	4	12.92	507	6.85	133.6	5.28	0.43	
1025	13.75	120	6	12.67	508	6.88	127.1	5.14	0.49	

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 12.6 (°C) | ORP: 126.8 (MV) | COMMENTS:

SPECIFIC CONDUCTANCE: 508 (uS/cm) | DO: 5.1 (mg/L)

pH: 6.87 (S.U.) | TURBIDITIY: 0.43 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: clear, no odor | TOTAL DEPTH OF WELL:

WEATHER CONDITIONS: 40s, partly cloudy

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Radford AAP | PROJECT # 03886.552.500 | WELL ID 54MW10
LOCATION Radford VA

SAMPLING CREW Bounds/Taylor | DATE: 28-Apr-20 | SAMPLE TIME: 1130

PURGING DATA

REFERENCE POINT (CIRCLE): PVC Steel Casing | PURGING DEVICE GeoTech Bladder Pump
TIC TOC
WELL COMPLETION (CIRCLE): Flush Stick-up

INITIAL DEPTH TO WATER 12.91 (FT) | WELL DEPTH 30 (FT) | Well Diameter 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	CUM. VOLUME PURGED (L)	TEMP (°C) **(3%)**	SP COND (uS/cm[c])[1] **(3%)**	pH (s.u) **(+/-0.1)**	ORP/Eh[2] (MV) **(+/-10)**	DO (mg/L) **(10%)**	Turb (NTU) **(10%)**	COMMENTS
1100	12.97	170	0	12.2	411.6	6.94	129.5	4.85	20.35	
1110	12.97	170	2	11.9	394.7	6.89	119.7	5	28.39	
1120	12.97	170	4	11.9	376.4	6.86	114.7	5.43	40.68	
1130	12.97	170	6	11.9	364.9	6.83	112.6	5.28	35.68	

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 11.9 (°C) | ORP: 112.6 (MV) | COMMENTS: 0.0 PID Reading
SPECIFIC CONDUCTANCE: 364.9 (uS/cm) | DO: 5.28 (mg/L)
pH: 6.83 (S.U.) | TURBIDITIY: 35.68 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: clear, no odor | TOTAL DEPTH OF WELL:

WEATHER CONDITIONS: 70s mostly sunny

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Radford AAP | PROJECT # 03886.552.500 | WELL ID 54MW10
LOCATION Radford VA

SAMPLING CREW Bounds/Ewald | DATE: 21-Jul-20 | SAMPLE TIME: 1230

PURGING DATA

REFERENCE POINT (CIRCLE): PVC Steel Casing | PURGING DEVICE GeoTech Bladder Pump
TIC TOC
WELL COMPLETION (CIRCLE): Flush Stick-up

INITIAL DEPTH TO WATER 15.65 (FT) | WELL DEPTH 30.35 (FT) | Well Diameter 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	CUM. VOLUME PURGED (L)	TEMP (°C) **(3%)**	SP COND (uS/cm[c])[1] **(3%)**	pH (s.u) **(+/-0.1)**	ORP/Eh[2] (MV) **(+/-10)**	DO (mg/L) **(10%)**	Turb (NTU) **(10%)**	COMMENTS
1200	15.75	200	0	15.9	860	12	98.1	1.46	15.97	
1210	15.7	200	2	15.3	873	7.33	80.2	0.8	13.74	
1220	15.7	200	4	15.8	824	7.23	59.5	0.55	13.24	
1230	15.8	200	6	15.5	819	7.21	39.9	0.51	19.85	

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 15.5 (°C) | ORP: 39.8 (MV) | COMMENTS: 0.0 PID Reading
SPECIFIC CONDUCTANCE: 819 (uS/cm) | DO: 0.51 (mg/L)
pH: 7.21 (S.U.) | TURBIDITIY: 19.85 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: clear, no odor | TOTAL DEPTH OF WELL: 30.35

WEATHER CONDITIONS: Sunny, 90s

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Radford AAP | PROJECT # 03886.552.500 | WELL ID 54MW12
LOCATION Radford VA

SAMPLING CREW Bounds/Taylor | DATE: 14-Oct-19 | SAMPLE TIME: 1325

PURGING DATA

REFERENCE POINT (CIRCLE): PVC Steel Casing | PURGING DEVICE GeoTech Bladder Pump
TIC TOC
WELL COMPLETION (CIRCLE): Flush Stick-up

INITIAL DEPTH TO WATER 28.56 (FT) | WELL DEPTH 32 (FT) | Well Diameter 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	CUM. VOLUME PURGED (L)	TEMP (°C) **(3%)**	SP COND (uS/cm[c])[1] **(3%)**	pH (s.u) **(+/-0.1)**	ORP/Eh[2] (MV) **(+/-10)**	DO (mg/L) **(10%)**	Turb (NTU) **(10%)**	COMMENTS
1255	28.62	300	0	14.62	641	7.15	89.9	68.2	11.5	
1305	28.62	300	2	15.64	586	6.95	63.1	34.3	11.6	
1315	28.62	300	4	16.91	532	7.05	46.9	41.8	4.68	
1325	28.62	300	6	16.38	519	7.01	44.3	77	1.97	

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 16.38 (°C) | ORP: 44.3 (MV) | COMMENTS: 0.0 PID Reading
SPECIFIC CONDUCTANCE: 519 (uS/cm) | DO: 77 (mg/L) | MS/MSD
pH: 7.01 (S.U.) | TURBIDITIY: 1.97 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: clear, no odor | TOTAL DEPTH OF WELL: 32

WEATHER CONDITIONS: Sunny, 60s

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Radford AAP | PROJECT # 03886.552.500.2110 | WELL ID 54MW12
LOCATION Radford VA

SAMPLING CREW Bounds/Taylor | DATE: 27-Jan-20 | SAMPLE TIME: 1330

PURGING DATA

REFERENCE POINT (CIRCLE): PVC Steel Casing | PURGING DEVICE GeoTech Bladder Pump
TIC TOC
WELL COMPLETION (CIRCLE): Flush Stick-up

INITIAL DEPTH TO WATER 23.68 (FT) | WELL DEPTH 33.85 (FT) | Well Diameter 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	CUM. VOLUME PURGED (L)	TEMP (°C) **(3%)**	SP COND (uS/cm[c])[1] **(3%)**	pH (s.u) **(+/-0.1)**	ORP/Eh[2] (MV) **(+/-10)**	DO (mg/L) **(10%)**	Turb (NTU) **(10%)**	COMMENTS
1300	23.72	150	0	12.16	547	6.9	113.7	8.75	2.65	
1310	23.7	150	2	12.82	550	6.65	111.5	7.1	3.43	
1320	23.7	150	4	12.85	546	6.6	114.4	7.09	1.76	
1330	23.69	150	6	12.73	543	6.58	116.8	7.16	1.1	

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 12.72 (°C) | ORP: 116.8 (MV) | COMMENTS:
SPECIFIC CONDUCTANCE: 540 (uS/cm) | DO: 7.2 (mg/L)
pH: 6.51 (S.U.) | TURBIDITIY: 1.13 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: clear, no odor | TOTAL DEPTH OF WELL:

WEATHER CONDITIONS: 40s, partly cloudy

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Radford AAP | PROJECT # 03886.552.500 | WELL ID 54MW12
LOCATION Radford VA

SAMPLING CREW Bounds/Taylor | DATE: 28-Apr-20 | SAMPLE TIME: 1245

PURGING DATA

REFERENCE POINT (CIRCLE): PVC Steel Casing | PURGING DEVICE GeoTech Bladder Pump
TIC TOC
WELL COMPLETION (CIRCLE): Flush Stick-up

INITIAL DEPTH TO WATER 22 (FT) | WELL DEPTH 32.8 (FT) | Well Diameter 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	CUM. VOLUME PURGED (L)	TEMP (°C) **(3%)**	SP COND (uS/cm[c])[1] **(3%)**	pH (s.u) **(+/-0.1)**	ORP/Eh[2] (MV) **(+/-10)**	DO (mg/L) **(10%)**	Turb (NTU) **(10%)**	COMMENTS
1155	22.07	180	0	12.6	296.4	6.81	109.9	8.09	2.68	
1205	22.07	180	2	12.6	357.4	6.63	117.5	8.38	16.22	
1215	22.07	180	4	12.6	357.3	6.63	120.4	8.05	37.21	
1225	22.07	180	6	12.7	359.6	6.62	122.9	7.85	107.38	
1235	22.07	180	8	13.1	362.7	6.62	124.3	7.41	98.31	
1245	22.07	180	10	13.5	357.2	6.62	127.8	7.34	77.81	

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 13.5 (°C) | ORP: 127.8 (MV) | COMMENTS: 0.0 PID Reading
SPECIFIC CONDUCTANCE: 357.2 (uS/cm) | DO: 7.34 (mg/L) | MS/MSD
pH: 6.62 (S.U.) | TURBIDITIY: 77.81 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: clear, no odor | TOTAL DEPTH OF WELL:

WEATHER CONDITIONS: 70s Mostly Sunny

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Radford AAP | PROJECT # 03886.552.500 | WELL ID 54MW12

LOCATION Radford VA

SAMPLING CREW Bounds/Ewald | DATE: 21-Jul-20 | SAMPLE TIME: 1050

PURGING DATA

REFERENCE POINT (CIRCLE): PVC Steel Casing | PURGING DEVICE GeoTech Bladder Pump

TIC TOC

WELL COMPLETION (CIRCLE): Flush Stick-up

INITIAL DEPTH TO WATER 23.5 (FT) | WELL DEPTH 33 (FT) | Well Diameter 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	CUM. VOLUME PURGED (L)	TEMP (°C) **(3%)**	SP COND (uS/cm[c])[1] **(3%)**	pH (s.u) **(+/-0.1)**	ORP/Eh[2] (MV) **(+/-10)**	DO (mg/L) **(10%)**	Turb (NTU) **(10%)**	COMMENTS
1020	23.52	200	0	17	642	7.84	151.1	1.75	295.3	
1030	23.52	200	2	17.3	644	7.04	154.2	1.49	43.69	
1040	23.52	200	4	16.9	496.7	6.71	155.9	4.86	55.29	
1050	23.52	200	6	17	431.2	6.51	161.5	5.87	67.92	

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 17 (°C) | ORP: 161.5 (MV) | COMMENTS: 0.0 PID Reading

SPECIFIC CONDUCTANCE: 431.2 (uS/cm) | DO: 5.87 (mg/L) | MS/MSD

pH: 6.51 (S.U.) | TURBIDITIY: 67.92 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: clear, no odor | TOTAL DEPTH OF WELL: 33

WEATHER CONDITIONS: Sunny, 90s

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Radford AAP | PROJECT # 03886.552.500 | WELL ID 54MW13
LOCATION Radford VA
SAMPLING CREW Bounds/Taylor | DATE: 14-Oct-19 | SAMPLE TIME: 1035

PURGING DATA

REFERENCE POINT (CIRCLE): PVC Steel Casing | PURGING DEVICE GeoTech Bladder Pump
TIC TOC
WELL COMPLETION (CIRCLE): Flush Stick-up

INITIAL DEPTH TO WATER 23.11 (FT) | WELL DEPTH 25 (FT) | Well Diameter 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	CUM. VOLUME PURGED (L)	TEMP (°C) **(3%)**	SP COND (uS/cm[c])[1] **(3%)**	pH (s.u) **(+/-0.1)**	ORP/Eh[2] (MV) **(+/-10)**	DO (mg/L) **(10%)**	Turb (NTU) **(10%)**	COMMENTS
955	23.29	200	0	13.86	654	7.21	198.6	177.6	19.5	
1005	23.29	200	2	13.85	630	7.03	125.8	72	5.41	
1015	23.29	200	4	13.96	615	6.9	100.5	59.1	15.3	
1025	23.29	200	6	14.3	603	6.98	84.4	51.7	8.06	
1025	23.29	200	8	14.95	601	7	80.6	48.6	3.06	

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 14.95 (°C) | ORP: 80.6 (MV) | COMMENTS: 0.0 PID Reading
SPECIFIC CONDUCTANCE: 601 (uS/cm) | DO: 48.6 (mg/L) | Duplicate (54TW13)
pH: 7 (S.U.) | TURBIDITIY: 3.06 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: clear, no odor | TOTAL DEPTH OF WELL: 25

WEATHER CONDITIONS: Sunny, 60s

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Radford AAP | PROJECT # 03886.552.500.2110 | WELL ID 54MW13
LOCATION Radford VA

SAMPLING CREW Bounds/Taylor | DATE: 27-Jan-20 | SAMPLE TIME: 1205

PURGING DATA

REFERENCE POINT (CIRCLE): PVC Steel Casing | PURGING DEVICE GeoTech Bladder Pump
TIC TOC
WELL COMPLETION (CIRCLE): Flush Stick-up

INITIAL DEPTH TO WATER 20.21 (FT) | WELL DEPTH 25.31 (FT) | Well Diameter 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	CUM. VOLUME PURGED (L)	TEMP (°C) **(3%)**	SP COND (uS/cm[c])[1] **(3%)**	pH (s.u) **(+/-0.1)**	ORP/Eh[2] (MV) **(+/-10)**	DO (mg/L) **(10%)**	Turb (NTU) **(10%)**	COMMENTS
1135	20.41	130	0	12.47	652	7.09	118.2	11.05	2.96	
1145	20.44	130	2	12.74	636	6.98	111.5	6.03	3.44	
1155	20.48	130	4	12.54	615	6.96	108.4	6.3	2.14	
1205	20.48	130	6	12.48	600	6.93	108.7	6.54	1.86	

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 12.48 (°C) | ORP: 108.7 (MV) | COMMENTS:
SPECIFIC CONDUCTANCE: 600 (uS/cm) | DO: 6.54 (mg/L)
pH: 6.93 (S.U.) | TURBIDITIY: 1.86 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: clear, no odor | TOTAL DEPTH OF WELL:

WEATHER CONDITIONS: 40s, partly cloudy

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Radford AAP | PROJECT # 03886.552.500 | WELL ID 54MW13
LOCATION Radford VA
SAMPLING CREW Bounds/Taylor | DATE: 28-Apr-20 | SAMPLE TIME: 1000

PURGING DATA

REFERENCE POINT (CIRCLE): PVC Steel Casing | PURGING DEVICE GeoTech Bladder Pump
TIC TOC
WELL COMPLETION (CIRCLE): Flush Stick-up

INITIAL DEPTH TO WATER 18.81 (FT) | WELL DEPTH 25.1 (FT) | Well Diameter 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	CUM. VOLUME PURGED (L)	TEMP (°C) **(3%)**	SP COND (uS/cm[c])[1] **(3%)**	pH (s.u) **(+/-0.1)**	ORP/Eh[2] (MV) **(+/-10)**	DO (mg/L) **(10%)**	Turb (NTU) **(10%)**	COMMENTS
920	18.89	180	0	12	223.6	7.73	113.6	8.7	13.51	
930	18.89	180	2	12	220.1	6.83	83.1	8.52	40.36	
940	18.71	180	4	12.1	233.6	6.7	89.4	8.29	52.09	
950	18.71	180	6	12.1	236.9	6.69	93.1	8.27	52.34	
1000	18.71	180	8	12	241.6	6.68	96	8.21	50.17	

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 12 (°C) | ORP: 96 (MV) | COMMENTS: 0.0 PID Reading
SPECIFIC CONDUCTANCE: 241.6 (uS/cm) | DO: 8.21 (mg/L) | Duplicate (54TW13)
pH: 6.68 (S.U.) | TURBIDITIY: 50.12 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: clear, no odor | TOTAL DEPTH OF WELL:

WEATHER CONDITIONS: 70s Mostly Sunny

WESTON LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME Radford AAP | PROJECT # 03886.552.500 | WELL ID 54MW13
LOCATION Radford VA

SAMPLING CREW Bounds/Ewald | DATE: 21-Jul-20 | SAMPLE TIME: 940

PURGING DATA

REFERENCE POINT (CIRCLE): PVC Steel Casing | PURGING DEVICE GeoTech Bladder Pump
TIC TOC
WELL COMPLETION (CIRCLE): Flush Stick-up

INITIAL DEPTH TO WATER 20.1 (FT) | WELL DEPTH 25.3 (FT) | Well Diameter 2"

CLOCK TIME (24 HR)	Water Depth Below MP (ft)	PURGE RATE (mL/min)	CUM. VOLUME PURGED (L)	TEMP (°C) **(3%)**	SP COND (uS/cm[c])[1] **(3%)**	pH (s.u) **(+/-0.1)**	ORP/Eh[2] (MV) **(+/-10)**	DO (mg/L) **(10%)**	Turb (NTU) **(10%)**	COMMENTS
910	20.2	200	0	14.5	648	7.76	128	2.38	144.5	
920	20.2	200	2	14.9	292.1	7.1	122.1	5.77	56.7	
930	20.2	200	4	14.3	285.3	6.7	133.2	7	76.65	
940	20.2	200	6	15.9	305.1	6.68	141.7	6.65	12.8	

1. uSiemens per cm (same as umhos/cm) at 25C
2. Oxidation reduction potential (stand in for Eh)

FINAL FIELD DATA

TEMPERATURE: 15.9 (°C) | ORP: 141.7 (MV) | COMMENTS: 0.0 PID Reading
SPECIFIC CONDUCTANCE: 305.1 (uS/cm) | DO: 6.65 (mg/L) | Duplicate (54TW13)
pH: 6.68 (S.U.) | TURBIDITIY: 12.8 (NTU)

ODOR AND PHYSICAL APPEARANCE OF SAMPLE: clear, no odor | TOTAL DEPTH OF WELL: 25.3

WEATHER CONDITIONS: Sunny, 90s

APPENDIX A-2
CALIBRATION FORMS

Bump Check/Cal Log 10/14

	10/14	15	15	17
PID				
O2	18.3 %	18.1	17.9	18.0
CO	49.7 ppm	49.3	49.8	49.8
LEL	50.1 %	49.8	50.1	49.9
H2S	10.1 ppm	9.97	10.03	10.03
VOC	101 ppm	99.63	99.74	99.83
YSI				
pH (4)	4.21	4.01	3.98	4.03
pH(7)	7.10	7.08	6.82	7.01
pH (10)	9.98	10.04	9.97	9.87
Cond	1007	998	1004	1003
Redox	207.6	208.3	211.2	209.6

Bump Check/Cal Log 1/26

	1/27	1/28	1/29	1/30
PID				
O2	17.4%	18.2	18.1	17.9
CO	50.7 ppm	50.3	50.6	50.4
LEL	48.9%	49.3	48.7	49.6
H2S	9.73 ppm	10.02	9.87	9.64
VOC	96.3 ppm	100.1	99.7	100.2
YSI				
pH (4)	3.87	3.94	4.12	3.88
pH(7)	6.92	6.82	6.94	6.97
pH (10)	9.73	9.82	9.91	9.14
Cond	1002	1006	999	998
Redox	219.2	222.4	220.6	219.4

Bump Check/Cal Log

	4/20	4/26	4/27	4/30
PID	4/27			
O2	17.9 %	18.1	18.0	18.0
CO	49.3 ppm	49.7	50.11	50.03
LEL	49.7 %	49.8	49.8	49.9
H2S	10.3 ppm	9.97	10.02	10.11
VOC	101 ppm	99.5	99.8	102
YSI				
pH (4)	3.96	3.97	3.89	3.92
pH(7)	7.01	6.98	6.98	7.03
pH (10)	10.03	10.00	9.82	9.93
Cond	993	997	1003	1001
Redox	209.7	205.6	202.3	205.7

Bump Check/Cal Log

	7/20	7/21	7/22	7/23
PID				
O2	17.9 %	18.1	17.9	18
CO	49.8 ppm	49.6	49.4	49.9
LEL	50.2 %	50.1	50.2	49.7
H2S	10.01 ppm	10.03	9.99	10.07
VOC	101 ppm	99.6	102	101
YSI				
pH (4)	4.01	4.07	4.03	4.14
pH(7)	7.06	7.06	7.12	7.09
pH (10)	10.13	10.00	10.11	9.97
Cond	99.8	100.1	100.1	100.7
Redox	182.6	183.4	182.6	184.9

Bump Check/Cal Log

	10/25	10/26	10/27	10/28	10/29
PID					
O2	17.9 %		17.0	18.1	17.8
CO	50 ppm		49.6	49.9	49.8
LEL	50%		50.1	49.7	50.1
H2S	97 ppm		10.02	9.93	10.02
VOC	96.7 ppm		99.6	101	103
YSI					
pH (4)	3.8		3.9	4.0	3.97
pH(7)	6.9		7.0	7.06	7.01
pH (10)	9.98		9.96	9.93	10.12
Cond	982		993	998	1003
Redox	204.3		207.4	209.2	209.7

Bump Check/Cal Log

	1/21	1/25	1/25	1/27	1/27	1/28	1/28
PID							
O2		18.1%	18.1	18.2	18.1	18.1	18.1
CO		49.6 ppm	50.02	50.10	50.11	50.11	50.11
LEL		50.2 %	50.1	50.2	50.3	50.3	50.3
H2S		10.03 ppm	10.12	10.07	10.07	10.07	10.07
VOC		107	106	107	104	104	104
YSI							
pH (4)		3.96	3.72	3.86	3.91	3.91	3.91
pH(7)		6.46	6.97	6.89	6.93	6.93	6.93
pH (10)		9.43	9.72	9.64	9.82	9.82	9.82
Cond		1034	1027	1001	1014	1014	1014
Redox		220.6	221.6	219.6	221.4	221.4	221.4

APPENDIX A-3
FIELD NOTES

Radford Army Ammuntion Mon. Oct. 14, 2019

- B. Bounds and P. Taylor check in at facility RAAP Visitors center.
P. Taylor acquires a visitor pass.
B. Bounds acquires a vehicle pass.
- Meet up with Jody Hawks and Melissa Lincoln with BAE to receive permits and coordinate efforts. Area Access and Hot Work Permits received.

0920 Arrive at Area 54.

0942 P. Taylor calibrates the Hanna HI 98703 Turbidimeter (REW22192).

Standard (NTU)	Reading (NTU)
0.1	0.15
15	15.0
100	100
750	752

0955 Begin purge of 54MW13.

1025 Collect groundwater sample 54MW13 and duplicate sample 54TW13.

1155 Begin purge of 54MW10.

Contacted Security to access 54MW10 through Perimeter Gate 19E. Security Dispatch 540-639-7289. Gate Key #11.

1215 Collect groundwater sample 54MW10.

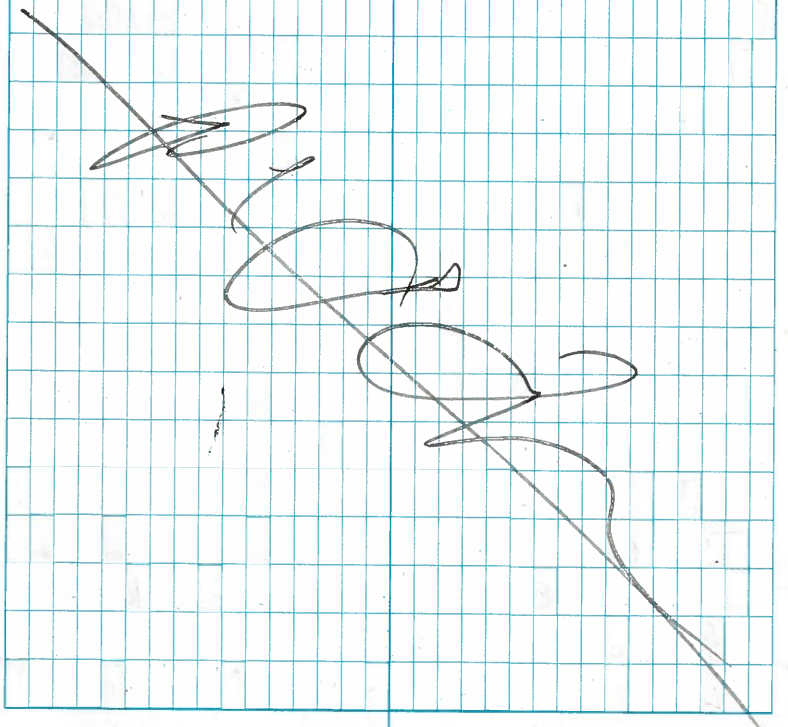
1255 Begin purge of 54MW12.

1325 Collect groundwater sample 54MW12 with MS/MSD.

1440 Begin purge of 54MW1.

1510 Collect groundwater sample 54MW1.

1600 Collect IDW water sample from purge water (consolidated). Sample ID: 54 IDW.



Rite in the Rain

Radford AAP Tues. Oct. 15, 2019

0739 B. Bounds and P. Taylor arrive at Radford AAP Burning Grounds. — Meet with Calvin regarding burn schedule and access to lower wells for Area 49. Burn scheduled for 0900, should be complete around 1100, will check back with burn at 1100.

0800 Begin gauging water levels for Area 49 wells.

0909 P. Taylor calibrates the Hanna HI 98703 Turbidimeter (RFW 22192).

Standard (NTU)	Reading (NTU)
0.1	0.20
15	15.1
100	99.8
750	751

0945 Begin purge of 48MW06 using a QED Micropurge Bladder Pump.

1025 Collect groundwater sample 48MW06.

1115 Begin water level gauging on lower side of site but break key in lock at first well (13MW5).

1155 Acquired spare key from M. Lincoln.

Radford AAP Tues. Oct. 15, 2019

Water Level Gauging

Well ID	Depth to Water (ft TOC)
48 MW06	66.09
48 MW1	108.52
48 MW2	124.04
48 MW3	96.50
49 MW01	115.39
49 MW02	92.95
50 MW02	115.27
13 MW2	22.06
13 MW3	15.58
13 MW4	17.67
49 MW04	21.29
48 MW07	Dry TD = 86.80
13 MW5	17.99
49 MW03	104.24
49 MW05	~~Dry 104.24~~ 20.42

1232 Complete water level gauging for SWMU 49.

1245 Start purge of 13MW2.

1305 Collect groundwater sample 13MW2 with MS/MSD.

1330 Start purge of 49MW04.

1350 Collect groundwater sample 49MW04.

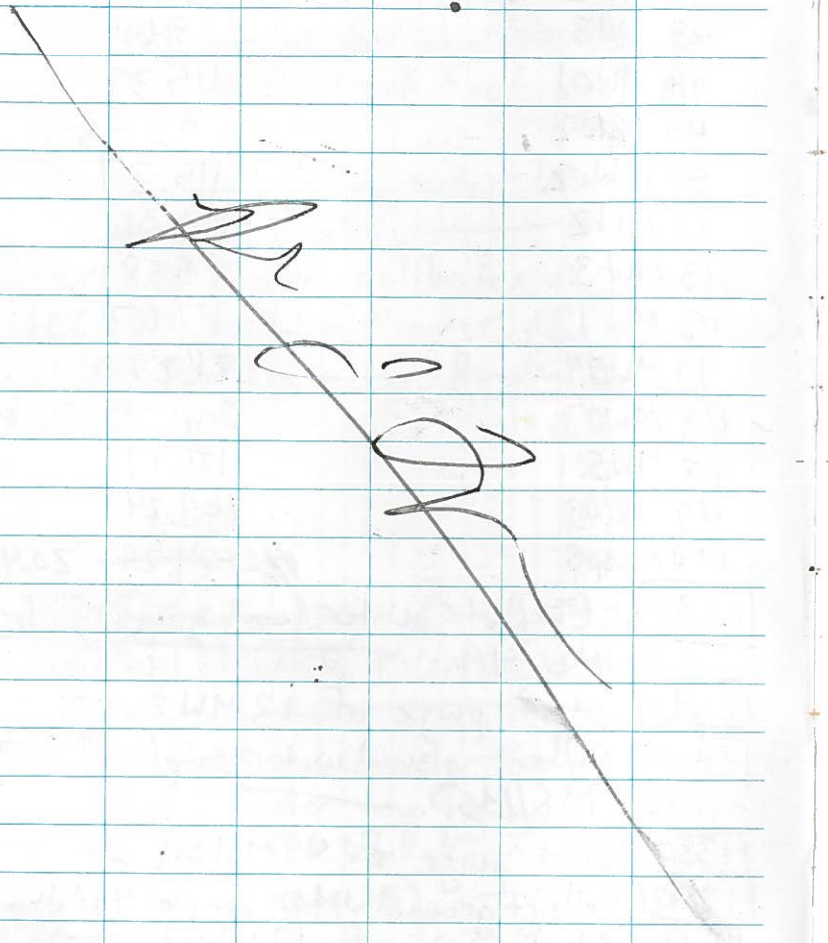
1410 Start purge of 13MW3.

Radford AAP Tues. Oct. 15, 2019

1440 Collect groundwater sample 13MW3 and duplicate groundwater sample 13TW3.

1500 Start purge of 13MW4.

1520 Collect groundwater sample 13MW4.



0753 P. Taylor calibrates the Hanna HI 98703 Turbidimeter (RFW22192).

Standard (NTU)	Reading (NTU)
0.1	0.18
15	14.7
100	98.3
750	747

0805 Attempted purge of 48MW2. No flow achieved with QED Bladder Pump. Troubleshooting. Swapped tubing. Managed to get water to the YSI flow cell but no further progress.

0950 ordered bailers (6) and twine to complete sampling of 48MW2.

1020 Collect equipment rinsate blank 149EQB-48MW2 from the freshly decontaminated QED bladder pump following decontamination. Sampled with distilled water decanted from bladder housing.

1150 Begin purge (after several adjustments) of 48MW3.

Radford AAP Wed. Oct. 16, 2019

1220 Collect groundwater sample 48MW3 and duplicate groundwater sample 48TW3.

1320 Begin purge of 49MW02.

1350 Collect ground water sample 49MW02.

- Attempted to purge 50MW02 without success 2-inch well with approx. 6 ft. water column. 115.27 DTW; ~121 ft. DTB.

1555 Begin purge of 48MW1.

Out of tubing.

1625 Collect groundwater sample 48MW1.

~~0943~~ ~~0830~~ DTC

0830 B. Bounds and P. Taylor depart hotel for Walmart. Purchase ice and pack samples from SWMU 59 for shipment.

0943 Return ship the PID to Western's Westchester, PA RES. Fedex Tracking #: 802793713710 Standard Overnight.

0947 shipped SWMU 59 samples via Fedex Priority Overnight under chain-of-custody to CT Laboratories in Baraboo, WI in three coolers.

Tracking #s:

- 7803 1914 1885
- 7803 1914 1896
- 7803 1914 1900.

1000 Pickup bladder pump tubing (500 ft.) and 4 poly bailers delivered by Fedex to Hampton Inn.

1017 Arrive at Radford AAP visitor's center and Contacted Lee Roope (540) 818-0808 for access to the ACD area for IDW water disposal.

1045 Emptied SWMU 49 purge water

Rite in the Rain

into a SWMU 48+49 designated poly drum at the ACD staging area.

1102 D. Taylor calibrates the Hanna HI 98703 Turbidimeter (RFW22192).

Standard (NTU)	Reading (NTU)
0.1	0.17
15	15.1
100	98.1
750	751

1120 Begin purge of 49MW01.

1200 Collect ground sample 49MW01.

1235 Begin purge of 50MW02.

1315 Collect groundwater sample 50MW02.

1400 Begin purge of 48MW2 using bladder pump at a rate of one cycle per minute (40:20).

1450 Collect groundwater sample 48MW2.

1527 Deposit remaining purge water and decon water from SWMU 49 in the SWMU 48/49 designated drum at the ACD Staging Area.

1530 Collect IDW water sample 49IDW from the SWMU 48/49 IDW drum.

1552 Depart Radford AAP dropping off

P. Taylor's badge at the Visitor's Center.

1726 Shipped SWMU 49 samples to CT Laboratories in Beaver, WI via Priority Overnight shipment on fedex under chain-of-custody. Also return shipped an empty cooler (Standard overnight).

- Return shipped the QED Bladder Pump to Pine Environmental Services in King of Prussia, PA. (Standard Overnight).

1728 Return shipped the turbidimeter, YSI water quality meter, and water level gauge to Weston's Exton, PA RES standard Overnight. Fedex Tracking #s:

- Samples to CT Lab: 780334830946
- Empty Cooler to CT Lab: 780334830957
- Bladder Pump to Pine: 780349757127
- Water Level Meter to RES: 802793714500
- Peristaltic Pump, YSI, Turbidimeter to RES: 802793714511

Rite in the Rain

RADFORD AAP 1/27/2020

0715 arrived onsite Got security Badge / Car pass

0800 Mtg w/ Jessica Lindsey at Burning Ground for PERMITS

0845 Got PERMITS discussed with Collin time to sample Burning Ground

0900 Proceed to Area 54

0930 Security let us into Area 19E to sample 54mw13

0945 Cal check of Equipment

0950 Began to purge of 54mw10

1035 sample 54mw10

1135 Collin starting purge of 54mw13 & 54Tmw13 (Duplicate)

1205 Sample of 54mw13 & 54Tmw13

1250 moved to 54mw12

1300 started purge of 54mw12

1350 sample 54mw12 ms/msd

1410 moved to 54mw1

1430 started purge of 54mw1

1505 sample of 54mw1

1520 sample of IDW 54

1606 Done sampling 15 Gal DCE used

1550 SAMPLE Processing

1700 Sample Drop off

MB

Radford AAP 1/28/2020

0700 Arrived onsite started Brief

0730 IDW disposal MT and PPE

0800 at 49mw07 set up of Bladder Pump

0830 Purge of 49mw07

0918 Sample of 49mw07

0930 Decon of Bladder pump

0945 at 49mw03 setup of Pump MAP says 49mw03 well has 49mw05 water on it.

1200 Issues with pump Collin said we could come to Burn area

1245 started Purge of 13mw8

1310 sample 13mw8

1330 moved to 13mw4 & started Purge

1355 sample 13mw4

1410 moved to 13mw3 & started Purge

1435 sample 13mw3 & 13Tmw3

1440 moved to 49mw04

1500 started Purge of 49mw04

1530 sample 49mw04

1600 Drop Purge water at ACE 10 Gal

1700 shipped samples to EDB

MB

Rite in the Rain.

1/29/20

0700 onsite safety Brief
0730 Cal check of equipment
0800 started at 48mw06
0830 purge started at 48mw06
0905 sample of 48mw06
0930 moved to 46mw01
Sue with pump water and tube
1030 moved to Burning Ground
1045 started Purge of 49mw05
1126 collect sample from 49mw05
1135 starting Purge of 48mw02
1210 Sampled 8mw2
1215 Headed to Hotel to get new Bladder Pump
1320 at 48mw03
1345 Purge started 48mw03
1420 Sample 48mw03 equipment Rinsate Blank 49EQ-48mw03
1500 moved to 49mw02
1515 started Purge of 49mw02
1540 Sample 49mw02
1545 ACN Area to Dump Purge water 10 Gal
1700 Samples Processed and to Fedex

1/30/20

0700 Period onsite safety Brief
0730 at 48mw1 Cal check
0830 started Purge of 48mw1
0915 Sample of 48mw1
0930 started at 49mw01
1000 Purge of 49mw01
1045 Sample 49mw01
1145 went to Hotel to pickup additional Hose and Lunch to Get oil in mckenna parked for all locks to be oiled
1230 at 50mw02
1320 started Purge 50mw02
1355 Sample 50mw02
430 Purge 48mw2
1505 Sample 48mw2
1555 Sample 48mw3 Dup
1615 ACN area to Gal

Rite in the Rain

Radford AAP Mon. 4/27/2020

0725 B. Bounds and P. Taylor depart hotel. Purchase ice.

0740 Arrive at Radford AAP Visitor's Center and acquire vehicle pass and temporary badge.

0820 Meet Andy at the burning grounds. Speak with Calvin about burn schedule. Will conduct sampling in burn area (SWMU 49) today. Meet with H&S to receive permits.

0917 P. Taylor calibrates the YSI Pro DSS Water Quality meter (RFW22561).

Parameter	Standard	Readings
DO	97.5%	97.6%
Sp. Cond.	1,000 uS/cm	1,000
pH 4	4.00	4.05 → 4.00
pH 7	7.00	7.10 → 7.06
pH 10	10.00	10.24 → 10.02
ORP	203 ~~246~~ mV	201.4 → 203.4

0939 Begin purge of well 13MW4.

1015 Collect groundwater sample 13MW4.

1053 Begin purge of well 13MW3.

1125 Collect groundwater sample 13MW3 and duplicate groundwater sample 13TW3.

Radford AAP Mon. April 27, 2020 17

1149 Begin purge of well 49MW04.

1230 Collect groundwater sample 49MW04.

1253 Begin purge of well 13MW2.

1325 Collect groundwater sample 13MW2 with triple volume for MS/MSD analysis.

~~1450~~

- Setup at well 48MW1. Found that we did not have any O-rings for the bladder pump. Ordered O-Rings and tubing from Pine Environmental for overnight delivery to the hotel in Blacksburg, VA.

1430 Deposited IDW purge water at the ACD Area after contacting Lee for access.

Water Level Gauging:

Well ID	Depth to Water (ft. TOC)
48MW1	98.71
13MW4	15.09
13MW3	13.42
49MW04	19.37
13MW2	20.14
48MW06	62.31
48MW2	~~96.9~~ 121.85
48MW3	96.96

Rite in the Rain.

Radford AAP — Tues. April 28, 2020

1340 Begin purge of well 54MW1.
1420 Collect groundwater sample 54MW1.
1438 Collect IDW purge water from all 4 SWMU 54 wells combined in one composite sample: 54 IDW.
1502 Delivered SWMU 54 purge water to the ACD staging area. Decant the water into designated 55-gallon drum.
1636 Deliver samples to Fedex in Christiansburg, VA for overnight shipment under chain-of-custody to CT Laboratories (1 cooler) in Berlin, WI and SGS North America (2 coolers) in Orlando, FL for analyses (SWMU-54 samples). Also deliver the peristaltic pump for overnight return shipment to Weston's RES in West Chester, PA.

Radford AAP — Wed. April 29, 2020

0810 W. Bounds and P. Taylor arrive at Radford AAP.
0831 P. Taylor calibrates the YSI ProDSS Water Quality Meter (RFW22561).

Parameter	Standard	Readings
DO	96.8%	98.8 → 96.8%
Sp. Cond.	1,000 µs/cm	1,001 → 1,000
pH 4	4.00	3.98 → 4.00
pH 7	7.00	7.01 → 7.05
pH 10	10.00	10.06 → 10.00
ORP	202.0 mV	208.1 → 202.3

0908 Begin purge of well 48MW06.
0940 Collect groundwater sample 48MW06.
0952 Following decontamination of the bladder pump, collect equipment rinsate blank ~~EQ01~~ 49EQ05-48MW06 by decanting distilled water from the pump into sample bottles.
1037 Begin purge of well 48MW1.
1110 Collect groundwater sample 48MW1.
1156 Begin purge of well 49MW01.
1245 Collect groundwater sample 49MW01.
1326 Begin purge of well 48MW2.
1410 Collect groundwater sample 48MW2.
1541 Deliver samples to Fedex.

Rite in the Rain

Radford AAP — Mon. April 27, 2020

Well ID	Depth to Water (ft. TOC)
49MW01	113.56
49MW02	92.35
50MW02	112.63
48MW07	42.07
13MW5	14.78
49MW03	95.73
49MW05	18.35

1530 Depart site.

1610 Purchase ice and supplies at Walmart. Pack samples for shipment to CT Laboratories in Baraboo, WI.

1700 Deliver samples to Fedex in Christiansburg for overnight delivery to CT Laboratory in Baraboo, WI.

Radford AAP — Tues. April 28, 2020

0800 D. Bounds and P. Taylor arrive at Radford AAP.

0847 P. Taylor calibrates the YSI Pro DSS Water Quality Meter (RFW22561).

Parameter	Standard	Reading
DO	97.9%	108.9 → 97.9 %
Sp. Cond.	1,000 uS/cm	998 → 1,000
pH 4	4.0	3.96 → 4.00
pH 7	7.0	6.96 → 7.00
pH 10	10.0	10.08 → 10.00
ORP	205.5 ~~240 mV~~	206.7 → 205.8

Note: No calibration fluids were provided. Fluids from a previous event were used. No turbidity calibration fluids were on hand. The conductance fluid was labeled with an expiration date of January 2020.

0920 Begin purge of well 54MW13.

1000 Collect groundwater sample 54MW13 and duplicate groundwater sample 54TW13.

1101 Begin purge of 54MW10.

1130 Collect groundwater sample 54MW10.

1153 Begin purge of well 54MW12

1245 Collect groundwater sample 54MW12 in triple volume for MS/MSD designation.

0835 P. Taylor calibrates the YSI ProDSS water Quality Meter (RFW 22561).

Parameters	Standard	Readings
~~DO%~~ DO%	96.0%	95.7 → 96.0
Sp. Cond.	1,000 uS/cm	998 → 1,000
pH 4	4.00	4.03 → 4.00
pH 7	7.00	6.99 → 7.00
pH 10	10.00	9.96 → 10.00
ORP	202.0	202.6 → 202.2

0914 Begin purge of well 50MW02.
0955 Collect groundwater sample 50MW02.
1033 Begin purge of well 48MW3.
- Todd with facility grounds maintenance cleared downed trees from the access road allowing access to well 49MW02.
1100 Collect groundwater sample 48MW3 and duplicate groundwater sample 48TW3.
1149 Begin purge of well 49MW02.
1250 Collect groundwater sample 49MW02.
1310 Arrive at SWMU 54 Gate 19E.
W. Bounds contacts site security for access to well 54MW10 through Gate 19E.
1350 Security arrives to open gate 19E.
1400 Collect chlorate/chlorite aliquot for groundwater sample 54MW10.

1420 Collect chlorate/chlorite aliquot ~~for~~ for groundwater sample 54MW12 including MS/MSD.
1440 Collect chlorate/chlorite aliquot for groundwater sample 54MW11.
1510 Dispose of SWMU 49 purge water at ACD Area in consolidated drum.
1515 Collect IDW purge water sample (Composite) from SWMU 49 purge water drum.
49IDW.
1646 Delivered samples to Fedex in Christiansburg, VA for overnight delivery to CT Laboratory in Baraboo, WI under chain-of-custody.
Also delivered rental equipment for overnight return shipment to Wesson's RES in Exton, PA.

Rite in the Rain

7/20/20 Radford AAP

0700 Left Hotel for site

0713 at Pass office

0830 Obtained permits

0900 Had to go to Lowes to Get Buckets

1030 back on site

1045 Cal of equipment

PID

CO 4 ppm

LEL 50%

O_2 14%

VOC 98.7

YSI Cal Good

1100 started Purge of 13MW4

1140 Sample 13MW4

1200 Purge of 13MW3

1230 ~~Sample of~~ 13MW3 13MW3

1250 Purge of 49MW04

1323 Sample of 49MW04

1350 Purge of 13MW02

1413 Sample 13MW02 MS/MSD

10/20/20

0730 arrived on site Got Keys Passes

0800 met Safety AT OBG TO GET PERMITS.

0830 Setup at 54MW13

0850 started Purge

940 Sample 54MW13 moved to 54MW10

1110 setup at 54 MW 10

1120 Purge started at 54MW10

1150 Sample 54MW10 moved TO 54MW12

1230 setup at 54 MW12

1255 Purge started 54MW12

1325 Sample 54MW12 moved to 54MW1

1400 Setup at 54MW1

1410 Purge started 54MW1

1440 Sample 54MW1 moved TO 48MW06

1500 Setup at ~~48MW06 couldn't~~

~~Get flow will Get water started -~~

~~pump on HOG~~ Dedicated Pump.

Purge water

1600 Process Samples

1700 Shipped Samples one for DAY

S

Rite in the Rain

10/27/20

0730 arrived onsite at 036
830 setup at 13mw4
840 start purge 13mw4
920 sample 13mw4 move to 49mw01
1025 setup at 49mw01
1040 start purge 49mw01
1120 sample 49mw01 move to 13mw3
930 setup 13mw3
940 Purge 13mw3
1010 Sample 13mw3 move to 49mw04
1025 setup 49mw04
1040 Purge 49mw04
1120 sample 49mw04 move to 13mw2
1130 setup 13mw2
1150 purge 13mw2
1230 sample 13mw2 moved to 46mw06 to sample couldn't Get purge started with Peri Pump will have to use Bladder to be sampled 10/28 full Gauging
1330 Pumped purge water
1430 processed Samples
1600 shipped samples

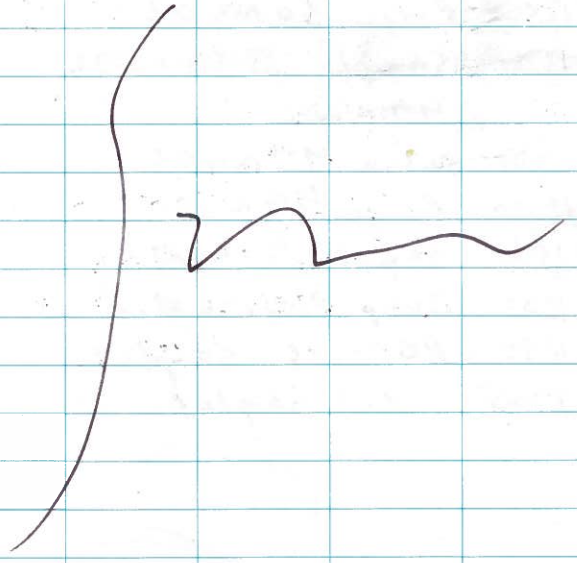
10/28/20

0730 arrived Onsite
0950 setup at 46mw06
805 Purge 46mw06
855 sample 46mw06 move to 46mw1
920 setup 46mw1
945 purge 46mw1
1025 sample 46mw1 move to 49mw01
1115 setup at 49mw01
1130 purge 49mw01
1210 sample 49mw01 move to 50mw02
1230 setup at 50mw02
1250 Purge 50mw02
1320 sample 50mw02 move to 49mw02
1400 setup 49mw02
1420 Purge 49mw02
1500 sample 49mw02
1600 Pump Purge water
1630 Process Samples
1700 Ship samples

Rite in the Rain

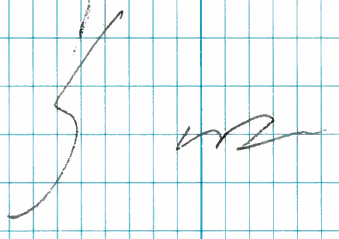
10/29/20

0730 arrived onsite
745 set-up 46 mw3
805 Purge 46 mw3
845 sample 46 mw3 now to 46mw2
910 setup 46 mw2
933 Purge 46 mw2
1015 Sample 46 mw2
1045 Dump Purge water
1200 process sample
1400 ship samples



11/25/21

0800 arrived possible
0835 at OBG for Permit (cell checks)
1000 Permit issued
1015 started sampling at OBG
1020 started 13mw5
1050 sample 13mw5
1100 started 13 mw4 Sin onsite
1150 sample 13 mw4
1200 started 13 mw3
1240 sample 13 mw3 Drip
1345 started 49mw02
* 1425 sample 49mw02 MSD/MS
1445 started 49mw05
1530 sample 49mw05
trip Blank full Bottle at Cooler
1600 Disposal of Purge water
1630 process samples
1730 ship samples Done fieldwork
1900 Fe/Mn Realized

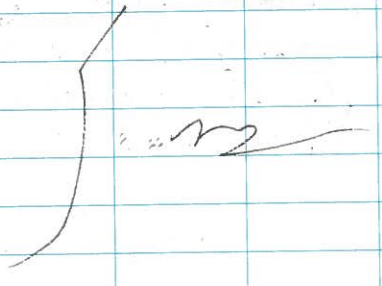


* 13mw2

Rite in the Rain.

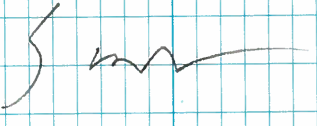
1/26/24

0800 arrive onsite prep 54
col check
0900 start sampling 54 mw13
1005 sample 54 mw13 DUP
collect secondary to get
to 54 mw10
1100 start sampling 54 mw10
1150 sample 54 mw10
1200 start 54 mw12
1300 sample 54 mw12 ms/msd
1445 start 54 mw1
1525 sample 54 mw1
1600 Disposal of purge water
1630 sample processing
1730 ship samples DOT field work
1900 FE/mn analysis



1/27/24

0745 arrive onsite
col check
0800 start sampling 48 mw07
0840 sample 49 mw07
0850 start sampling 48 mw06 S. in onsite
1035 sample 48 mw06
1045 start sampling 49 mw03
1130 sample 49 mw03
1140 start sampling 49 mw02 ? check first DUP
1240 sample 49 mw02
1255 start sampling 48 mw3
1345 sample 48 mw3 DUP
1400 start sampling mw02
1455 sample 48 mw02
1600 Rinsate Blank
Trip Blank
1630 took purge water for disposal
1900 Process samples
1800 ship samples DOT field work
1930 Fe/mn analysis



Rite in the Rain

1/24/24

1000 Arrival onsite Gate start
one to show
Cal check

1030 start 46 mw2 5:N onsite

1115 sampled 46 mw2

1430 start 49 mw01

1250 sampled 49 mw01

1330 start 46 mw1

1405 sampled 46 mw1

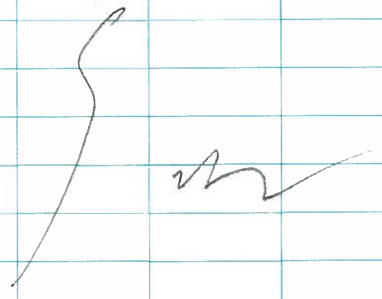
1500 Trip Blank

1530 Disposal of Purge water
sample Purge water

1600 Process samples

1700 Stopped samples
Done field work

1906 Fe Mn analysis



Rite in the Rain

APPENDIX B-1
DATA VALIDATION REPORTS

VALIDATA
Chemical Services, Inc.
(770) 232-0130
(770) 232-5082 (Fax)
2159 Wynnton Pointe, Duluth, GA 30097
www.datavalidator.com

DATA VALIDATION SUMMARY REPORT

COMPANY:	Weston Solutions, Inc.
SITE NAME:	Radford Army Ammunitions Plant
CONTRACTED LAB:	CT Laboratories LLC
QA/QC LEVEL:	EPA Stage 2B and 4
EPA SOW/METHODS:	EPA and SW-846 Methods
VALIDATION GUIDELINES:	*Radford Army Ammunitions Plant, Radford Virginia, SWMU 49 Monitored Natural Attenuation Groundwater Monitoring Work Plan, SWMU 54 Interim Measures Work Plan, QSM 5.1, SW 846 Methods, USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review,* 2017; *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*, 2017
SAMPLE MATRIX:	Water
TYPE OF ANALYSIS:	Total Metals, Total Mercury, Anions, Total Organic Carbon (TOC), Total Inorganic Carbon (TIC), Chemical Oxygen Demand (COD), pH
SDG NUMBER:	149014
SAMPLING DATES:	October 14, 2019

SAMPLES:

Client Sample #	Lab Sample #	Matrix	Total Metals*	Total Mercury
54IDW	343844	Water	X	X
54IDWRE	343844RE	Water	X	
54IDWMS	343844MS	Water	X	X
54IDWMSD	343844MSD	Water	X	X

Client Sample #	Lab Sample #	Matrix	Anions	TOC/ TIC
54MW13	343788	Water	X	X
54TW13	343836	Water	X	X
54MW10	343838	Water	X	X
54MW10DL	343838DL	Water	X	
54MW12	343840	Water	X	X
54MW1	343842	Water	X	X
54MW12MS**	343840MS	Water	X	X
54MW12MSD**	343840MSD	Water	X	X

Client Sample #	Lab Sample #	Matrix	COD	pH
54IDW	343844	Water	X	X
54IDWMD	343844MD	Water		X
54IDWMS	343844MS	Water	X	
54IDWMSD	343844MSD	Water	X	

*- analysis was for 22 analytes by Method 6010C.
** - MS / MSD for TOC only and not TIC
All fractions were validated at Stage 4, except Metals and Mercury, which were validated at Stage 2B.

Suffix Codes: DL = DILUTION, MS = MATRIX SPIKE, MSD = MATRIX SPIKE DUPLICATE, RA = REANALYSIS

DATA REVIEWERS: Amy L. Hogan, Kevin C. Harmon, Sandra Nacquin

DATA VALIDATION SUMMARY

CT Laboratories LLC – 149018 - Inorganics

TOTAL METALS and MERCURY

SUMMARY

I.) General:

The analyses for Total Metals were performed according to SW-846 Method 6010C and the analyses for Total Mercury were performed according to SW-846 Method 7470A.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualifications.

MAJOR ISSUES

There were no Major Issues for this fraction.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No data qualification was necessary.

II.) Calibration:

Initial Calibration:

All Initial Calibration criteria were met. No data qualification was necessary.

Continuing Calibration:

All Continuing Calibration criteria were met. No data qualification was necessary.

III.) LLCCV and CRDL:

All LLCCV and CRDL criteria were met. No data qualification was necessary

IV.) Blanks:

Method Blanks:

Selenium (3.18 ug/L) was detected in the associated method blank. Since the blank concentration was less than half the LOQ, no data qualification was necessary.

Calibration Blanks:

Antimony (3.76 ug/L), arsenic (8.20 ug/L) and selenium (4.97 ug/L) were detected in associated CCB for this SDG. Since the results for these analytes in the SDG sample were all non-detect, no data qualification was necessary.

V.) ICP Interference Check Sample Results:

All Interference Check Sample criteria were met. No data qualification was necessary.

VI.) ICP Serial Dilution Analysis:

Serial dilution analysis data was not required for this SDG. No data qualification was necessary.

VII.) Laboratory Control Samples (LCS):

All LCS Recovery criteria were met. No data qualification was necessary.

VIII.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS / MSD analyses were performed using sample 54IDW. All criteria were met. No data qualification was necessary.

IX.) Field Duplicates:

There were no field duplicate samples identified for this SDG. No data qualification was necessary.

X.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No data qualification was necessary.

ANIONS

SUMMARY

I.) General:

The analyses for Anions were performed according to SW-846 Method 9056A.

II.) Overall Assessment of Data:

The non-detect nitrate result for sample 54MW1 was rejected (R) based on holding time criteria.

All other laboratory data were acceptable with qualifications.

MAJOR ISSUES

I.) Holding Times:

The 99 to 103 hours between sample collection and analysis exceeded the 48-hour QC limit. Since the exceedances were greater than 2X the QC limit, the non-detect nitrate result for sample 54MW1 was rejected (R) and the positive results for the other SDG samples were qualified as biased low (L).

MINOR ISSUES

I.) Holding Times:

Please see the Major Issues section for this fraction of the SDG.

II.) Calibration:

Initial Calibration:

All Initial Calibration criteria were met. No data qualification was necessary.

Continuing Calibration:

All Continuing Calibration criteria were met. No data qualification was necessary.

III.) Blanks:

Method Blanks:

There were no detections in the associated method blank. No data qualification was necessary.

Calibration Blanks:

There were no detections in the associated calibration blanks. No data qualification was necessary.

IV.) Laboratory Control Samples (LCS):

All LCS Recovery criteria were met. No data qualification was necessary.

V.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS / MSD analyses were performed using sample 54MW12. The Percent Recoveries (%Rs) for sulfate (85%, 86%) were below the QC limits. The positive sulfate result for the parent sample was qualified as estimated (J).

VI.) Field Duplicates:

There were no field duplicate samples identified for this SDG. No data qualification was necessary.

VII.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No data qualification was necessary.

TOTAL ORGANIC CARBON and TOTAL INORGANIC CARBON

SUMMARY

I.) General:

The analyses for Total Organic Carbon (TOC) and Total Inorganic Carbon (TIC) were performed according to SW-846 Method 9060A.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualifications.

MAJOR ISSUES

There were no Major Issues for this fraction.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No data qualification was necessary.

II.) Calibration:

Initial Calibration:

All Initial Calibration criteria were met. No data qualification was necessary.

Continuing Calibration:

All Continuing Calibration criteria were met. No data qualification was necessary.

III.) Blanks:

Method Blanks:

There were no detections in the associated method blank. No data qualification was necessary.

Calibration Blanks:

There were no detections in the associated calibration blanks. No data qualification was necessary.

IV.) Laboratory Control Samples (LCS):

All LCS Recovery criteria were met. No data qualification was necessary.

V.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS / MSD analyses were performed using sample 54MW12 (TOC only). All criteria were met. No data qualification was necessary.

VI.) Field Duplicates:

There were no field duplicate samples identified for this SDG. No data qualification was necessary.

VII.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No data qualification was necessary.

CHEMICAL OXYGEN DEMAND (COD)

SUMMARY

I.) General:

The analyses for Chemical Oxygen Demand (COD) were performed according to EPA Method 410.4.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualifications.

MAJOR ISSUES

There were no Major Issues for this fraction.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No data qualification was necessary.

II.) Calibration:

Initial Calibration:

All Initial Calibration criteria were met. No data qualification was necessary.

Continuing Calibration:

All Continuing Calibration criteria were met. No data qualification was necessary.

III.) Blanks:

Method Blanks:

There were no detections in the associated method blank. No data qualification was necessary.

Calibration Blanks:

There were no detections in the associated calibration blanks. No data qualification was necessary.

IV.) Laboratory Control Samples (LCS):

All LCS Recovery criteria were met. No data qualification was necessary.

V.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS / MSD analyses were performed using sample 54IDW. The Percent Recoveries (%Rs) were 114% and 122%, which exceeded the QC limits. Since the parent sample result was non-detect, no data qualification was necessary.

VI.) Field Duplicates:

There were no field duplicate samples identified for this SDG. No data qualification was necessary.

VII.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No data qualification was necessary.

pH

SUMMARY

I.) General:

The analyses for pH were performed according to SW-846 Method 9040C.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualifications.

MAJOR ISSUES

There were no Major Issues for this fraction.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No data qualification was necessary.

II.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

III.) Blanks:

Blanks data were not required for this fraction of the SDG. No data qualification was necessary.

IV.) Laboratory Control Samples (LCS):

LCS data was not required for this fraction of the SDG. No data qualification was necessary.

V.) Matrix Duplicate (MD):

MD analysis was performed using sample 54IDW. All criteria were met. No data qualification was necessary.

VI.) Field Duplicates:

There were no field duplicate samples identified for this SDG. No data qualification was necessary.

VII.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No data qualification was necessary.

Appendix A
Qualified Form Is

CT LABORATORIES
delivering more than data from your environmental analyses

1

INORGANIC ANALYSIS DATA SHEET

Sample Description: **54MW13**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	149018
% Solids:		Lab Sample ID:	343788
Analytical Method:	EPA 9056A	Date Received:	10/18/2019
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	165651	Analysis Date/Time	10/18/2019 17:36
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
16887-00-6	Chloride	7.6		1.0	1.5	3.0	3.0
14797-55-8	Nitrate Nitrogen	0.52	H L	0.12	0.20	0.40	0.40
14808-79-8	Sulfate	33		0.80	1.5	3.0	3.0

12/23/19

CT LABORATORIES
delivering more than data from your environmental analyses

1

INORGANIC ANALYSIS DATA SHEET

Sample Description: **54TW13**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	149018
% Solids:		Lab Sample ID:	343836
Analytical Method:	EPA 9056A	Date Received:	10/18/2019
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	165651	Analysis Date/Time	10/18/2019 17:56
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
16887-00-6	Chloride	7.4		1.0	1.5	3.0	3.0
14797-55-8	Nitrate Nitrogen	0.52	HL	0.12	0.20	0.40	0.40
14808-79-8	Sulfate	33		0.80	1.5	3.0	3.0

12/23/19

CT LABORATORIES
delivering more than data from your environmental analyses

1

INORGANIC ANALYSIS DATA SHEET

Sample Description: **54MW10**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	149018
% Solids:		Lab Sample ID:	343838
Analytical Method:	EPA 9056A	Date Received:	10/18/2019
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	165651	Analysis Date/Time	10/18/2019 18:16
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
16887-00-6	Chloride	4.5		1.0	1.5	3.0	3.0
14797-55-8	Nitrate Nitrogen	0.18	J H L	0.12	0.20	0.40	0.40

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Sample Description

54MW12

INORGANIC ANALYSIS DATA SHEET

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	149018
% Solids:		Lab Sample ID:	343840
Analytical Method:	EPA 9056A	Date Received:	10/18/2019
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	165651	Analysis Date/Time	10/18/2019 18:36
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
16887-00-6	Chloride	7.3		1.0	1.5	3.0	3.0
14797-55-8	Nitrate Nitrogen	0.58	H L	0.12	0.20	0.40	0.40
14808-79-8	Sulfate	32	J	0.80	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description: **54MW1**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	149018
% Solids:		Lab Sample ID:	343842
Analytical Method:	EPA 9056A	Date Received:	10/18/2019
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	165651	Analysis Date/Time	10/18/2019 18:56
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
16887-00-6	Chloride	2.5	J	1.0	1.5	3.0	3.0
14797-55-8	Nitrate Nitrogen	0.20	U ~~H~~ R	0.12	0.20	0.40	0.40
14808-79-8	Sulfate	28		0.80	1.5	3.0	3.0

12/23/19

VALIDATA
Chemical Services, Inc.
(770) 232-0130
(770) 232-5082 (Fax)
2159 Wynnton Pointe, Duluth, GA 30097
www.datavalidator.com

DATA VALIDATION SUMMARY REPORT

COMPANY:	Weston Solutions, Inc.
SITE NAME:	Radford Army Ammunitions Plant
CONTRACTED LABS:	CT Laboratories LLC and Eurofins/ Test America
QA/QC LEVEL:	EPA Stage 2B and 4
EPA SOW/METHODS:	EPA and SW-846 Methods
VALIDATION GUIDELINES:	*Radford Army Ammunitions Plant, Radford Virginia, SWMU 49 Monitored Natural Attenuation Groundwater Monitoring Work Plan, SWMU 54 Interim Measures Work Plan, QSM 5.1, SW 846 Methods, USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review,* 2017; *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*, 2017
SAMPLE MATRIX:	Water
TYPE OF ANALYSIS:	Total Metals, Total Mercury, Anions, Total Organic Carbon (TOC), Total Inorganic Carbon (TIC), Chemical Oxygen Demand (COD), pH, Chlorate/Chlorite
SDG NUMBER:	151023
SAMPLING DATES:	January 27, 2020

SAMPLES:

Client Sample #	Lab Sample #	Matrix	Total Metals*	Total Mercury
54IDW	383235	Water	X	X
54IDWMS	383235MS	Water	X	X
54IDWMSD	383235MSD	Water	X	X

Client Sample #	Lab Sample #	Matrix	Anions	TOC/ TIC
54MW10	383230	Water	X	X
54MW13	383231	Water	X	X
54TW13	383232	Water	X	X
54MW12	383233	Water	X	X
54MW1	383234	Water	X	X
54MW12MS	383233MS	Water	X	X
54MW12MSD	383233MSD	Water	X	X

Client Sample #	Lab Sample #	Matrix	COD	pH
54IDW	383235	Water	X	X
54IDWMD	383235MD	Water		X
54IDWMS	383235MS	Water	X	
54IDWMSD	383235MSD	Water	X	

Client Sample #	Lab Sample #	Matrix	Chlorate/ Chlorite
54MW10	383230	Water	X
54MW13	383231	Water	X
54TW13	383232	Water	X
54MW12	383233	Water	X
54MW1	383234	Water	X
54MW12MS	383233MS	Water	X
54MW12MSD	383233MSD	Water	X

*- analysis was for 24 analytes by Method 6010C.
** - MS / MSD for TOC only and not TIC
All fractions were validated at Stage 4, except Metals and Mercury, which were validated at Stage 2B.

Suffix Codes: DL = DILUTION, MS = MATRIX SPIKE, MSD = MATRIX SPIKE DUPLICATE, RA = REANALYSIS

DATA REVIEWERS: Amy L. Hogan, Kevin C. Harmon, Sandra Nacquin

DATA VALIDATION SUMMARY

CT Laboratories LLC – 151023 - Inorganics

TOTAL METALS and MERCURY

SUMMARY

I.) General:

The analyses for Total Metals were performed according to SW-846 Method 6010C and the analyses for Total Mercury were performed according to SW-846 Method 7470A.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualifications.

MAJOR ISSUES

There were no Major Issues for this fraction.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No data qualification was necessary.

II.) Calibration:

Initial Calibration:

All Initial Calibration criteria were met. No data qualification was necessary.

Continuing Calibration:

All Continuing Calibration criteria were met. No data qualification was necessary.

III.) LLCCV and CRDL:

All LLCCV and CRDL criteria were met. No data qualification was necessary

IV.) Blanks:

Method Blanks:

Selenium (2.21 ug/L) and silver (0.830 ug/L) were detected in the associated method blank. Since the blank concentrations were less than half the LOQ, no data qualification was necessary.

Calibration Blanks:

Lead (1.73 ug/L, 1.57 ug/L) and selenium (4.27 ug/L) were detected in associated CCB for this SDG. Since the blank concentrations were less than half the LOQ, no data qualification was necessary.

V.) ICP Interference Check Sample Results:

All Interference Check Sample criteria were met. No data qualification was necessary.

VI.) ICP Serial Dilution Analysis:

Serial dilution analysis data was not required for this SDG. No data qualification was necessary.

VII.) Laboratory Control Samples (LCS):

All LCS Recovery criteria were met. No data qualification was necessary.

VIII.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS / MSD analyses were performed using sample 54IDW. All criteria were met. No data qualification was necessary.

IX.) Field Duplicates:

There were no field duplicate samples identified for this SDG. No data qualification was necessary.

X.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No data qualification was necessary.

ANIONS

SUMMARY

I.) General:

The analyses for Anions were performed according to SW-846 Method 9056A.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualifications.

MAJOR ISSUES

There were no Major Issues for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No data qualification was necessary.

II.) Calibration:

Initial Calibration:

All Initial Calibration criteria were met. No data qualification was necessary.

Continuing Calibration:

All Continuing Calibration criteria were met. No data qualification was necessary.

III.) Blanks:

Method Blanks:

There were no detections in the associated method blank. No data qualification was necessary.

Calibration Blanks:

There were no detections in the associated calibration blanks. No data qualification was necessary.

IV.) Laboratory Control Samples (LCS):

All LCS Recovery criteria were met. No data qualification was necessary.

V.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS / MSD analyses were performed using sample 54MW12. The Percent Recovery (%R) for sulfate (72%) was below the QC limits. The positive sulfate result for the parent sample was qualified as estimated (J).

VI.) Field Duplicates:

There were no field duplicate samples identified for this SDG. No data qualification was necessary.

VII.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No data qualification was necessary.

TOTAL ORGANIC CARBON and TOTAL INORGANIC CARBON

SUMMARY

I.) General:

The analyses for Total Organic Carbon (TOC) and Total Inorganic Carbon (TIC) were performed according to SW-846 Method 9060A.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualifications.

MAJOR ISSUES

There were no Major Issues for this fraction.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No data qualification was necessary.

II.) Calibration:

Initial Calibration:

All Initial Calibration criteria were met. No data qualification was necessary.

Continuing Calibration:

All Continuing Calibration criteria were met. No data qualification was necessary.

III.) Blanks:

Method Blanks:

There were no detections in the associated method blank. No data qualification was necessary.

Calibration Blanks:

There were no detections in the associated calibration blanks. No data qualification was necessary.

IV.) Laboratory Control Samples (LCS):

All LCS Recovery criteria were met. No data qualification was necessary.

V.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS / MSD analyses were performed using sample 54MW12 (TOC only). All criteria were met. No data qualification was necessary.

VI.) Field Duplicates:

There were no field duplicate samples identified for this SDG. No data qualification was necessary.

VII.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No data qualification was necessary.

CHEMICAL OXYGEN DEMAND (COD)

SUMMARY

I.) General:

The analyses for Chemical Oxygen Demand (COD) were performed according to EPA Method 410.4.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualifications.

MAJOR ISSUES

There were no Major Issues for this fraction.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No data qualification was necessary.

II.) Calibration:

Initial Calibration:

All Initial Calibration criteria were met. No data qualification was necessary.

Continuing Calibration:

All Continuing Calibration criteria were met. No data qualification was necessary.

III.) Blanks:

Method Blanks:

There were no detections in the associated method blank. No data qualification was necessary.

Calibration Blanks:

COD (11.1 mg/L) was detected in an associated CCB. Since the blank result was less than half the LOQ, no data qualification was necessary.

IV.) Laboratory Control Samples (LCS):

All LCS Recovery criteria were met. No data qualification was necessary.

V.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS / MSD analyses were performed using sample 54IDW. The Percent Recovery (%R) for the MSD (153%) exceeded the QC limits. The positive result for the parent sample was qualified as estimated (J).

VI.) Field Duplicates:

There were no field duplicate samples identified for this SDG. No data qualification was necessary.

VII.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No data qualification was necessary.

pH

SUMMARY

I.) General:

The analyses for pH were performed according to SW-846 Method 9040C.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualifications.

MAJOR ISSUES

There were no Major Issues for this fraction.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No data qualification was necessary.

II.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

III.) Blanks:

Blanks data were not required for this fraction of the SDG. No data qualification was necessary.

IV.) Laboratory Control Samples (LCS):

LCS data was not required for this fraction of the SDG. No data qualification was necessary.

V.) Matrix Duplicate (MD):

MD analysis was performed using sample 54IDW. All criteria were met. No data qualification was necessary.

VI.) Field Duplicates:

There were no field duplicate samples identified for this SDG. No data qualification was necessary.

VII.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No data qualification was necessary.

CHLORATE / CHLORITE

SUMMARY

I.) General:

The analyses for Chlorate / Chlorite were performed according to EPA Method 300.1.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualifications.

MAJOR ISSUES

There were no Major Issues for this fraction.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No data qualification was necessary.

II.) Calibration:

Initial Calibration:

All Initial Calibration criteria were met. No data qualification was necessary.

Continuing Calibration:

All Continuing Calibration criteria were met. No data qualification was necessary.

III.) Blanks:

Method Blanks:

There were no detections in the associated method blank. No data qualification was necessary.

Calibration Blanks:

There were no detections in the associated calibration blanks. No data qualification was necessary.

IV.) Laboratory Control Samples (LCS):

All LCS Recovery criteria were met. No data qualification was necessary.

V.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS / MSD analyses were performed using sample 54MW12. The Percent Recovery (%R) for chlorite (84%) was below the QC limits. The non-detect result for the parent sample was qualified as estimated (UJ).

VI.) Field Duplicates:

There were no field duplicate samples identified for this SDG. No data qualification was necessary.

VII.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No data qualification was necessary.

Appendix A
Qualified Form Is

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Sample Description

54MW10

INORGANIC ANALYSIS DATA SHEET

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix (soil/water):	GROUND WATER	SDG No.:	151023
% Solids:		Lab Sample ID:	383230
Analytical Method:	EPA 9060A	Date Received:	01/28/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	168547	Analysis Date/Time	02/03/2020 09:09
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL0373 I	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TIC	Total Inorganic Carbon	59		0.50	1.5	3.0	3.0

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Sample Description

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54MW10

INORGANIC ANALYSIS DATA SHEET

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix (soil/water):	GROUND WATER	SDG No.:	151023
% Solids:		Lab Sample ID:	383230
Analytical Method:	EPA 9056A	Date Received:	01/28/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	168460	Analysis Date/Time	01/28/2020 13:13
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
16887-00-6	Chloride	6.4		1.0	1.5	3.0	3.0
14797-55-8	Nitrate Nitrogen	0.58		0.12	0.20	0.40	0.40
14808-79-8	Sulfate	59		0.80	1.5	3.0	3.0

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Sample Description

54MW10

INORGANIC ANALYSIS DATA SHEET

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix (soil/water):	GROUND WATER	SDG No.:	151023
% Solids:		Lab Sample ID:	383230
Analytical Method:	EPA 9060A	Date Received:	01/28/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	168604	Analysis Date/Time	02/04/2020 16:24
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL0373	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TOC	Total Organic Carbon	1.5	U	0.50	1.5	3.0	3.0

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Sample Description

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INORGANIC ANALYSIS DATA SHEET

54MW13

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix (soil/water):	GROUND WATER	SDG No.:	151023
% Solids:		Lab Sample ID:	383231
Analytical Method:	EPA 9060A	Date Received:	01/28/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	168547	Analysis Date/Time	02/03/2020 09:23
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL0373 I	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TIC	Total Inorganic Carbon	70		0.50	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description: **54MW13**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix (soil/water):	GROUND WATER	SDG No.:	151023
% Solids:		Lab Sample ID:	383231
Analytical Method:	EPA 9056A	Date Received:	01/28/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	168460	Analysis Date/Time	01/28/2020 13:53
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
16887-00-6	Chloride	6.8		1.0	1.5	3.0	3.0
14797-55-8	Nitrate Nitrogen	0.63		0.12	0.20	0.40	0.40
14808-79-8	Sulfate	27		0.80	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description: **54MW13**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix (soil/water):	GROUND WATER	SDG No.:	151023
% Solids:		Lab Sample ID:	383231
Analytical Method:	EPA 9060A	Date Received:	01/28/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	168604	Analysis Date/Time	02/04/2020 16:39
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL0373	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TOC	Total Organic Carbon	1.5	U	0.50	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description: **54TW13**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix (soil/water):	GROUND WATER	SDG No.:	151023
% Solids:		Lab Sample ID:	383232
Analytical Method:	EPA 9060A	Date Received:	01/28/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	168547	Analysis Date/Time	02/03/2020 09:37
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL0373 I	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TIC	Total Inorganic Carbon	70		0.50	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description: **54TW13**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix (soil/water):	GROUND WATER	SDG No.:	151023
% Solids:		Lab Sample ID:	383232
Analytical Method:	EPA 9056A	Date Received:	01/28/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	168460	Analysis Date/Time	01/28/2020 14:13
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
16887-00-6	Chloride	6.7		1.0	1.5	3.0	3.0
14797-55-8	Nitrate Nitrogen	0.62		0.12	0.20	0.40	0.40
14808-79-8	Sulfate	27		0.80	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description: **54TW13**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix (soil/water):	GROUND WATER	SDG No.:	151023
% Solids:		Lab Sample ID:	383232
Analytical Method:	EPA 9060A	Date Received:	01/28/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	168604	Analysis Date/Time	02/04/2020 16:57
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL0373	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TOC	Total Organic Carbon	1.5	U	0.50	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description: **54MW12**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix (soil/water):	GROUND WATER	SDG No.:	151023
% Solids:		Lab Sample ID:	383233
Analytical Method:	EPA 9060A	Date Received:	01/28/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	168547	Analysis Date/Time	02/03/2020 09:52
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL0373 I	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TIC	Total Inorganic Carbon	84		0.50	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description: **54MW12**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix (soil/water):	GROUND WATER	SDG No.:	151023
% Solids:		Lab Sample ID:	383233
Analytical Method:	EPA 9056A	Date Received:	01/28/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	168460	Analysis Date/Time	01/28/2020 14:33
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers		DL	LOD	LOQ	RL
16887-00-6	Chloride	8.4			1.0	1.5	3.0	3.0
14797-55-8	Nitrate Nitrogen	0.76			0.12	0.20	0.40	0.40
14808-79-8	Sulfate	29	J	M	0.80	1.5	3.0	3.0

Acceptable 2/25/20

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW12

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix (soil/water):	GROUND WATER	SDG No.:	151023
% Solids:		Lab Sample ID:	383233
Analytical Method:	EPA 9060A	Date Received:	01/28/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	168604	Analysis Date/Time	02/04/2020 17:12
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL0373	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TOC	Total Organic Carbon	1.5	U	0.50	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description: **54MW1**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix (soil/water):	GROUND WATER	SDG No.:	151023
% Solids:		Lab Sample ID:	383234
Analytical Method:	EPA 9060A	Date Received:	01/28/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	168547	Analysis Date/Time	02/03/2020 10:06
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL0373 I	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TIC	Total Inorganic Carbon	56		0.50	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description: **54MW1**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix (soil/water):	GROUND WATER	SDG No.:	151023
% Solids:		Lab Sample ID:	383234
Analytical Method:	EPA 9056A	Date Received:	01/28/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	168460	Analysis Date/Time	01/28/2020 15:53
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
16887-00-6	Chloride	2.5	J	1.0	1.5	3.0	3.0
14797-55-8	Nitrate Nitrogen	0.20	J	0.12	0.20	0.40	0.40
14808-79-8	Sulfate	29		0.80	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW1

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix (soil/water):	GROUND WATER	SDG No.:	151023
% Solids:		Lab Sample ID:	383234
Analytical Method:	EPA 9060A	Date Received:	01/28/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	168604	Analysis Date/Time	02/04/2020 18:10
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL0373	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TOC	Total Organic Carbon	1.5	U	0.50	1.5	3.0	3.0

CT LABORATORIES
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1

INORGANIC ANALYSIS DATA SHEET

Sample Description: **54IDW**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix (soil/water):	GROUND WATER	SDG No.:	151023
% Solids:		Lab Sample ID:	383235
Analytical Method:	EPA 7470A	Date Received:	01/28/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	168893	Analysis Date/Time	02/20/2020 09:11
Analytical Prep Batch #:	75506	Prep. Date/Time:	02/17/2020 13:23
ICAL Calibration #:	02202020	Concentration Units:	ug/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
7439-97-6	Total Mercury	0.060	U	0.030	0.060	0.12	0.12

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1

INORGANIC ANALYSIS DATA SHEET

Sample Description: **54IDW**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix (soil/water):	GROUND WATER	SDG No.:	151023
% Solids:		Lab Sample ID:	383235
Analytical Method:	EPA 6010C	Date Received:	01/28/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	168516	Analysis Date/Time	01/31/2020 10:16
Analytical Prep Batch #:	75355	Prep. Date/Time:	01/29/2020 11:32
ICAL Calibration #:		Concentration Units:	ug/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
7440-09-7	Total Potassium	843		90	250	500	500
7440-23-5	Total Sodium	5500		100	300	600	600

CT LABORATORIES
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Sample Description

1

54IDW

INORGANIC ANALYSIS DATA SHEET

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix (soil/water):	GROUND WATER	SDG No.:	151023
% Solids:		Lab Sample ID:	383235
Analytical Method:	EPA 6010C	Date Received:	01/28/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	168515	Analysis Date/Time	02/03/2020 18:00
Analytical Prep Batch #:	75355	Prep. Date/Time:	01/29/2020 11:32
ICAL Calibration #:		Concentration Units:	ug/L

CAS #	Analyte	Concentration	Qualifiers		DL	LOD	LOQ	RL
7429-90-5	Total Aluminum	17.4	J		6.0	18	36	36
7440-36-0	Total Antimony	6.0	U		2.0	6.0	12	12
7440-38-2	Total Arsenic	12	U		4.0	12	24	24
7440-39-3	Total Barium	96.2			0.29	0.90	1.8	1.8
7440-41-7	Total Beryllium	0.11	J		0.10	0.30	0.60	0.60
7440-43-9	Total Cadmium	1.0	U		0.30	1.0	2.0	2.0
7440-70-2	Total Calcium	66400			17	50	100	100
7440-47-3	Total Chromium	2.4	J		0.60	2.0	4.0	4.0
7440-48-4	Total Cobalt	2.0	U		0.70	2.0	4.0	4.0
7440-50-8	Total Copper	2.3	J		1.2	3.5	7.0	7.0
7439-89-6	Total Iron	24.9	J		16	50	100	100
7439-92-1	Total Lead	1.6	J		1.4	2.0	4.0	4.0
7439-95-4	Total Magnesium	26100			6.0	20	40	40
7439-96-5	Total Manganese	2.5	J		0.70	2.0	4.0	4.0
7440-02-0	Total Nickel	3.0	U		1.0	3.0	6.0	6.0
7782-49-2	Total Selenium	6.5	U		2.2	6.5	13	13
7440-22-4	Total Silver	0.96	J	B	0.70	2.0	4.0	4.0
7440-28-0	Total Thallium	7.5	U		2.5	7.5	15	15
7440-62-2	Total Vanadium	2.5	U		0.80	2.5	5.0	5.0
7440-66-6	Total Zinc	7.9	J		1.6	5.0	10	10

CT LABORATORIES
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1

INORGANIC ANALYSIS DATA SHEET

Sample Description: **54IDW**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix (soil/water):	GROUND WATER	SDG No.:	151023
% Solids:		Lab Sample ID:	383235
Analytical Method:	EPA 410.4	Date Received:	01/28/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	168576	Analysis Date/Time	02/03/2020 08:12
Analytical Prep Batch #:	75381	Prep. Date/Time:	02/03/2020 08:16
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration		Qualifiers		DL	LOD	LOQ	RL
COD	COD	16	J	J	M,Y	15	35	75	75

Reed 2/20/20

CT LABORATORIES
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1

INORGANIC ANALYSIS DATA SHEET

Sample Description: **54IDW**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix (soil/water):	GROUND WATER	SDG No.:	151023
% Solids:		Lab Sample ID:	383235
Analytical Method:	EPA 9040C	Date Received:	01/28/2020
Dilution Factor:	1	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	168475	Analysis Date/Time	01/28/2020 13:30
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	S.U.

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
PH	pH	7.36					

Client Name: CT Laboratories

Report #: 477015

Sampling Point: 54MW10

PWS ID: Not Supplied

General Chemistry									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
14866-68-3	Chlorate	300.0	—	10	< 10	ug/L	---	01/31/20 16:06	4551866
14998-27-7	Chlorite	300.0	1000 *	10	< 10	ug/L	---	01/31/20 16:06	4551866

Sampling Point: 54MW13

PWS ID: Not Supplied

General Chemistry									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
14866-68-3	Chlorate	300.0	—	10	< 10	ug/L	---	01/31/20 16:34	4551867
14998-27-7	Chlorite	300.0	1000 *	10	< 10	ug/L	---	01/31/20 16:34	4551867

Sampling Point: 54TW13

PWS ID: Not Supplied

General Chemistry									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
14866-68-3	Chlorate	300.0	—	10	< 10	ug/L	---	01/31/20 17:02	4551868
14998-27-7	Chlorite	300.0	1000 *	10	< 10	ug/L	---	01/31/20 17:02	4551868

Sampling Point: 54MW12

PWS ID: Not Supplied

General Chemistry									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
14866-68-3	Chlorate	300.0	—	10	< 10	ug/L	---	02/04/20 18:00	4551869
14998-27-7	Chlorite	300.0	1000 *	10	< 10	LTJ ug/L	---	02/04/20 18:00	4551869

Sampling Point: 54MW1

PWS ID: Not Supplied

General Chemistry									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
14866-68-3	Chlorate	300.0	—	10	< 10	ug/L	---	01/31/20 17:58	4551870
14998-27-7	Chlorite	300.0	1000 *	10	< 10	ug/L	---	01/31/20 17:58	4551870

† EEA has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices.

Reg Limit Type:	MCL	SMCL	AL
Symbol:	*	^	!

Accept 2/25/20

VALIDATA
Chemical Services, Inc.
(770) 232-0130
(770) 232-5082 (Fax)
2159 Wynnton Pointe, Duluth, GA 30097
www.datavalidator.com

DATA VALIDATION SUMMARY REPORT

COMPANY:	Weston Solutions, Inc.
SITE NAME:	Radford Army Ammunitions Plant
CONTRACTED LABS:	CT Laboratories LLC and Eurofins Eaton Analytical
QA/QC LEVEL:	EPA Stage 2B and 4
EPA SOW/METHODS:	EPA and SW-846 Methods
VALIDATION GUIDELINES:	*Radford Army Ammunitions Plant, Radford Virginia, SWMU 49 Monitored Natural Attenuation Groundwater Monitoring Work Plan, SWMU 54 Interim Measures Work Plan, QSM 5.1, SW 846 Methods, USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review,* 2017; *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review,* 2017
SAMPLE MATRIX:	Water
TYPE OF ANALYSIS:	Total Metals, Total Mercury, Anions, Total Organic Carbon / Total Inorganic Carbon (TOC/TIC), Chemical Oxygen Demand (COD), pH, Chlorite
SDG NUMBER:	152892
SAMPLING DATES:	April 28-30, 2020

SAMPLES:

Client Sample #	Lab Sample #	Matrix	Total Metals**	Total Mercury
54IDW	413136	Water	X	X
54IDWRE	413136RE	Water	X	
54IDWMS	413136MS	Water	X	X
54IDWMSD	413136MSD	Water	X	X

Client Sample #	Lab Sample #	Matrix	Anions	TOC/TIC
54MW13	413129	Water	X	X
54TW13	413132	Water	X	X
54MW10	413133	Water	X	X
54MW12	413134	Water	X	X
54MW1	413135	Water	X	X

Client Sample #	Lab Sample #	Matrix	COD	pH
54IDW	413136	Water	X	X
54IDWMD	413136MD	Water		X
54IDWMS	413136MS	Water	X	
54IDWMSD	413136MSD	Water	X	

**- analysis was for 2 analytes by Method 6010C and 20 analytes by Method 602010C.
All fractions were validated at Stage 4, except Metals and Mercury, which were validated at Stage 2B.

Suffix Codes: DL = DILUTION, MS = MATRIX SPIKE, MSD = MATRIX SPIKE DUPLICATE, RA = REANALYSIS

DATA REVIEWERS: Amy L. Hogan, Kevin C. Harmon, Sandra Nacquin

DATA VALIDATION SUMMARY

CT Laboratories LLC – 152892 - Organics & Inorganics

TOTAL METALS and MERCURY

SUMMARY

I.) General:

The analyses for Total Metals were performed according to SW-846 Method 6010C and the analyses for Total Mercury were performed according to SW-846 Method 7470A.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualifications.

MAJOR ISSUES

There were no Major Issues for this fraction.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No data qualification was necessary.

II.) Calibration:

Initial Calibration:

All Initial Calibration criteria were met. No data qualification was necessary.

Continuing Calibration:

All Continuing Calibration criteria were met. No data qualification was necessary.

III.) LLCCV and CRDL:

All LLCCV and CRDL criteria were met. No data qualification was necessary

IV.) Blanks:

Method Blanks:

The following analytes were detected in the associated method blank:

copper	1.37 ug/L
selenium	5.19 ug/L

Since the blank results for copper were less than the LOQ, no data qualification was required for that analyte. The blank result for selenium was greater than the LOQ, so the sample result for selenium, which was less than the LOQ, was qualified as undetected (U) with the result being raised to the LOQ.

Calibration Blanks:

Selenium (4.28 ug/L) was detected in associated CCB for this SDG. The blank result for selenium was greater than the LOQ, so the sample result for selenium, which was less than the LOQ, was qualified as undetected (U) with the result being raised to the LOQ.

V.) ICP Interference Check Sample Results:

All Interference Check Sample criteria were met. No data qualification was necessary.

VI.) ICP Serial Dilution Analysis:

Serial dilution analysis was not required for this SDG. No data qualification was necessary.

VII.) Laboratory Control Samples (LCS):

All LCS Recovery criteria were met. No data qualification was necessary.

VIII.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS / MSD analyses were performed using sample 54IDW. All criteria were met. No data qualification was necessary.

IX.) Field Duplicates:

There were no field duplicate samples identified for this fraction of the SDG. No data qualification was necessary.

X.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No data qualification was necessary.

ANIONS

SUMMARY

I.) General:

The analyses for Anions were performed according to SW-846 Method 9056A.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualifications.

MAJOR ISSUES

There were no Major Issues for this fraction.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No data qualification was necessary.

II.) Calibration:

Initial Calibration:

All Initial Calibration criteria were met. No data qualification was necessary.

Continuing Calibration:

All Continuing Calibration criteria were met. No data qualification was necessary.

III.) Blanks:

Method Blanks:

There were no detections in the associated method blank. No data qualification was necessary.

Calibration Blanks:

There were no detections in the calibration blanks. No data qualification was necessary.

IV.) Laboratory Control Samples (LCS):

All LCS Recovery criteria were met. No data qualification was necessary.

V.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS / MSD analyses were performed using sample 54MW12. All criteria were met. No data qualification was necessary.

VI.) Field Duplicates:

One set of field duplicate samples (54MW13 / 54TW13) was identified for this SDG. The calculable Relative Percent Differences (RPDs) were 0% for chloride and sulfate and 21% for nitrate. All criteria were met. No data qualification was necessary.

VII.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No data qualification was necessary.

TOTAL ORGANIC CARBON / TOTAL INORGANIC CARBON

SUMMARY

I.) General:

The analyses for Total Organic Carbon (TOC) and Total Inorganic Carbon (TIC) were performed according to SW-846 Method 9060A.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualifications.

MAJOR ISSUES

There were no Major Issues for this fraction.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No data qualification was necessary.

II.) Calibration:

Initial Calibration:

All Initial Calibration criteria were met. No data qualification was necessary.

Continuing Calibration:

All Continuing Calibration criteria were met. No data qualification was necessary.

III.) Blanks:

Method Blanks:

There were no detections in the associated method blank. No data qualification was necessary.

Calibration Blanks:

There were no detections in the associated calibration blanks. No data qualification was necessary.

IV.) Laboratory Control Samples (LCS):

All LCS Recovery criteria were met. No data qualification was necessary.

V.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS / MSD analyses were performed using sample 54MW12. All criteria were met. No data qualification was necessary.

VI.) Field Duplicates:

One set of field duplicate samples (54MW13 / 54TW13) were identified for this SDG. The only calculable Relative Percent Difference (RPD) was 0% for TIC, which was within the QC limits. No data qualification was necessary.

VII.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No data qualification was necessary.

CHEMICAL OXYGEN DEMAND (COD)

SUMMARY

I.) General:

The analyses for Chemical Oxygen Demand (COD) were performed according to EPA Method 410.4.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualifications.

MAJOR ISSUES

There were no Major Issues for this fraction.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No data qualification was necessary.

II.) Calibration:

Initial Calibration:

All Initial Calibration criteria were met. No data qualification was necessary.

Continuing Calibration:

All Continuing Calibration criteria were met. No data qualification was necessary.

III.) Blanks:

Method Blanks:

There were no detections in the associated method blank. No data qualification was necessary.

Calibration Blanks:

COD (-9.2 ug/L) was reported in the ICB. Since the absolute value of the blank was less than ½ the LOQ, no data qualification was necessary.

IV.) Laboratory Control Samples (LCS):

All LCS Recovery criteria were met. No data qualification was necessary.

V.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS / MSD analyses were performed using sample 54IDW. The Percent Recoveries (%Rs) were 118% and 111%, which exceeded the QC limits. Since the parent sample result was non-detect, no data qualification was necessary.

VI.) Field Duplicates:

There were no field duplicate samples identified for this fraction of the SDG. No data qualification was necessary.

VII.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No data qualification was necessary.

pH

SUMMARY

I.) General:

The analyses for pH were performed according to SW-846 Method 9040C.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualifications.

MAJOR ISSUES

There were no Major Issues for this fraction.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No data qualification was necessary.

II.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

III.) Blanks:

Blanks data were not required for this fraction of the SDG. No data qualification was necessary.

IV.) Laboratory Control Samples (LCS):

LCS data was not required for this fraction of the SDG. No data qualification was necessary.

V.) Matrix Duplicate (MD):

MD analysis was performed using sample 54IDW. All criteria were met. No data qualification was necessary.

VI.) Field Duplicates:

There were no field duplicate samples identified for this SDG. No data qualification was necessary.

VII.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No data qualification was necessary.

CHLORITE

SUMMARY

I.) General:

The analyses for Chlorite were performed according to EPA Method 300.0.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualifications.

MAJOR ISSUES

There were no Major Issues for this fraction.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No data qualification was necessary.

II.) Calibration:

Initial Calibration:

All Initial Calibration criteria were met. No data qualification was necessary.

Continuing Calibration:

All Continuing Calibration criteria were met. No data qualification was necessary.

III.) Blanks:

Method Blanks:

There were no detections in the associated method blank. No data qualification was necessary.

Calibration Blanks:

There were no detections in the associated calibration blanks. No data qualification was necessary.

IV.) Laboratory Control Samples (LCS):

All LCS Recovery criteria were met. No data qualification was necessary.

V.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS / MSD analyses were performed using sample 54MW12. The Percent Recoveries (%Rs) were 84% and 85%, which were below the QC limits. The non-detect result for chlorite in the parent

sample was qualified as estimated (UJ).

VI.) Field Duplicates:

There were no field duplicate samples identified for this fraction of the SDG. No data qualification was necessary.

VII.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No data qualification was necessary.

CT LABORATORIES
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Sample Description: 54IDW

INORGANIC ANALYSIS DATA SHEET

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	152892
% Solids:		Lab Sample ID:	413136
Analytical Method:	EPA 6010C	Date Received:	04/29/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	170800	Analysis Date/Time	05/01/2020 23:28
Analytical Prep Batch #:	76254	Prep. Date/Time:	04/29/2020 11:26
ICAL Calibration #:		Concentration Units:	ug/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
7429-90-5	Total Aluminum	12.9	J	6.0	18	36	36
7440-36-0	Total Antimony	6.0	U	2.0	6.0	12	12
7440-38-2	Total Arsenic	12	U	4.0	12	24	24
7440-39-3	Total Barium	78.2		0.29	0.90	1.8	1.8
7440-41-7	Total Beryllium	0.30	U	0.10	0.30	0.60	0.60
7440-43-9	Total Cadmium	1.0	U	0.30	1.0	2.0	2.0
7440-70-2	Total Calcium	53200		17	50	100	100
7440-47-3	Total Chromium	4.9		0.60	2.0	4.0	4.0
7440-48-4	Total Cobalt	2.0	U	0.70	2.0	4.0	4.0
7440-50-8	Total Copper	2.4	J B	1.2	3.5	7.0	7.0
7439-89-6	Total Iron	25.0	J	16	50	100	100
7439-92-1	Total Lead	2.0	U	1.4	2.0	4.0	4.0
7439-95-4	Total Magnesium	20400		6.0	20	40	40
7439-96-5	Total Manganese	3.0	J	0.70	2.0	4.0	4.0
7440-02-0	Total Nickel	3.0	U	1.0	3.0	6.0	6.0
7782-49-2	Total Selenium	13 ~~3.9~~	J- ~~B~~ U	2.2	6.5	13	13
7440-22-4	Total Silver	2.0	U	0.70	2.0	4.0	4.0
7440-28-0	Total Thallium	7.5	U	2.5	7.5	15	15
7440-62-2	Total Vanadium	2.5	U	0.80	2.5	5.0	5.0
7440-66-6	Total Zinc	5.3	J	1.6	5.0	10	10

 Revert 6/22/20

Client Name: CT Laboratories

Report #: 484770

Sampling Point: 413129/54MW13

PWS ID: Not Supplied

General Chemistry									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
14866-68-3	Chlorate	300.0	---	10	< 10	ug/L	---	05/07/20 03:13	4619687
14998-27-7	Chlorite	300.0	1000 *	10	< 10	ug/L	---	05/07/20 03:13	4619687

Sampling Point: 413132/54TW13

PWS ID: Not Supplied

General Chemistry									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
14866-68-3	Chlorate	300.0	---	10	< 10	ug/L	---	05/07/20 03:40	4619688
14998-27-7	Chlorite	300.0	1000 *	10	< 10	ug/L	---	05/07/20 03:40	4619688

Sampling Point: 413932/54MW10

PWS ID: Not Supplied

General Chemistry									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
14866-68-3	Chlorate	300.0	---	10	< 10	ug/L	---	05/07/20 04:07	4619689
14998-27-7	Chlorite	300.0	1000 *	10	< 10	ug/L	---	05/07/20 04:07	4619689

Sampling Point: 413933/54MW12

PWS ID: Not Supplied

General Chemistry									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
14866-68-3	Chlorate	300.0	---	10	< 10	ug/L	---	05/07/20 04:34	4619690
14998-27-7	Chlorite	300.0	1000 *	10	< 10 UJ	ug/L	---	05/07/20 15:01	4619690

Sampling Point: 413934/54MW1

PWS ID: Not Supplied

General Chemistry									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
14866-68-3	Chlorate	300.0	---	10	< 10	ug/L	---	05/07/20 05:55	4619693
14998-27-7	Chlorite	300.0	1000 *	10	< 10	ug/L	---	05/07/20 05:55	4619693

† EEA has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices.

Reg Limit Type:	MCL	SMCL	AL
Symbol:	*	^	!

Leeg 6/22/20

VALIDATA
Chemical Services, Inc.
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DATA VALIDATION SUMMARY REPORT

COMPANY:	Weston Solutions, Inc.
SITE NAME:	Radford Army Ammunitions Plant
CONTRACTED LABS:	CT Laboratories LLC and Eurofins Test America
QA/QC LEVEL:	EPA Stage 2B and 4
EPA SOW/METHODS:	EPA and SW-846 Methods
VALIDATION GUIDELINES:	*Radford Army Ammunitions Plant, Radford Virginia, SWMU 49 Monitored Natural Attenuation Groundwater Monitoring Work Plan, SWMU 54 Interim Measures Work Plan, QSM 5.1, SW 846 Methods, USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review,* 2017; *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review,* 2017
SAMPLE MATRIX:	Water
TYPE OF ANALYSIS:	Total Metals, Total Mercury, Anions, Total Organic Carbon / Total Inorganic Carbon (TOC/TIC), Chemical Oxygen Demand (COD), pH, Chlorite
SDG NUMBER:	154987
SAMPLING DATES:	July 21, 2020

SAMPLES:

Client Sample #	Lab Sample #	Matrix	Total Metals**	Total Mercury
IDW-54	448843	Water	X	X
IDW-54MS	448843MS	Water	X	X
IDW-54MSD	448843MSD	Water	X	X

Client Sample #	Lab Sample #	Matrix	Anions	TOC/TIC
54MW13	448828	Water	X	X
54TW13	448839	Water	X	X
54MW10	448840	Water	X	X
54MW12	448841	Water	X	X
54MW1	448842	Water	X	X
54MW12MS	448841MS	Water	X	X
54MW12MSD	448841MSD	Water	X	X

Client Sample #	Lab Sample #	Matrix	COD	pH
54IDW	413136	Water	X	X
54IDWMD	413136MD	Water		X
54IDWMS	413136MS	Water	X	
54IDWMSD	413136MSD	Water	X	

Client Sample #	Lab Sample #	Matrix	Chlorite
54MW13	448828	Water	X
54TW13	448839	Water	X
54MW10	448840	Water	X
54MW12	448841	Water	X
54MW1	448842	Water	X
54MW12MS	448841MS	Water	X
54MW12MSD	448841MSD	Water	X

**- analysis was for 22 analytes by Method 602010C.
All fractions were validated at Stage 4, except Metals and Mercury, which were validated at Stage 2B.

Suffix Codes: DL = DILUTION, MS = MATRIX SPIKE, MSD = MATRIX SPIKE DUPLICATE, RA = REANALYSIS

DATA REVIEWERS: Amy L. Hogan, Kevin C. Harmon, Sandra Nacquin

DATA VALIDATION SUMMARY

CT Laboratories LLC – 154987 - Organics & Inorganics

TOTAL METALS and MERCURY

SUMMARY

I.) General:

The analyses for Total Metals were performed according to SW-846 Method 6010C and the analyses for Total Mercury were performed according to SW-846 Method 7470A.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualifications.

MAJOR ISSUES

There were no Major Issues for this fraction.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No data qualification was necessary.

II.) Calibration:

Initial Calibration:

All Initial Calibration criteria were met. No data qualification was necessary.

Continuing Calibration:

All Continuing Calibration criteria were met. No data qualification was necessary.

III.) LLCCV and CRDL:

All LLCCV and CRDL criteria were met. No data qualification was necessary

IV.) Blanks:

Method Blanks:

Arsenic (4.33 ug/L) was detected in the associated method blank. Since the blank concentration was less than the LOQ, no data qualification was required.

Calibration Blanks:

Selenium (4.13 ug/L) was detected in associated CCB for this SDG. Since the sample result for selenium was non-detect, no data qualification was necessary.

V.) ICP Interference Check Sample Results:

All Interference Check Sample criteria were met. No data qualification was necessary.

VI.) ICP Serial Dilution Analysis:

Serial dilution analysis was performed using sample IDW-54. All criteria were met. No data qualification was necessary.

VII.) Laboratory Control Samples (LCS):

All LCS Recovery criteria were met. No data qualification was necessary.

VIII.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS / MSD analyses were performed using sample IDW-54. The Percent Recoveries (%Rs) for aluminum (199%, 210%), iron (238%, 258%) and vanadium (87%, 86%) were outside the QC limits. It was also noted that the post spike %R for iron (127%) and the RPDs for aluminum (120%), iron (101%) and vanadium (52%) exceeded the QC limits. The positive results for these analytes in the sample were qualified as estimated (J).

IX.) Field Duplicates:

There were no field duplicate samples identified for this fraction of the SDG. No data qualification was necessary.

X.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No data qualification was necessary.

ANIONS

SUMMARY

I.) General:

The analyses for Anions were performed according to SW-846 Method 9056A.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualifications.

MAJOR ISSUES

There were no Major Issues for this fraction.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No data qualification was necessary.

II.) Calibration:

Initial Calibration:

All Initial Calibration criteria were met. No data qualification was necessary.

Continuing Calibration:

All Continuing Calibration criteria were met. No data qualification was necessary.

III.) Blanks:

Method Blanks:

There were no detections in the associated method blank. No data qualification was necessary.

Calibration Blanks:

There were no detections in the calibration blanks. No data qualification was necessary.

IV.) Laboratory Control Samples (LCS):

All LCS Recovery criteria were met. No data qualification was necessary.

V.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS / MSD analyses were performed using sample 54MW12. The Percent Recoveries (%Rs) for sulfate (81%, 81%) were below the QC limits. The positive sulfate result for the parent sample was qualified as estimated (J).

VI.) Field Duplicates:

One set of field duplicate samples (54MW13 / 54TW13) was identified for this SDG. The calculable Relative Percent Differences (RPDs) for chloride (2.1%), nitrate (0%) and sulfate (0%) were within the QC limits. No data qualification was necessary.

VII.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No data qualification was necessary.

TOTAL ORGANIC CARBON / TOTAL INORGANIC CARBON

SUMMARY

I.) General:

The analyses for Total Organic Carbon (TOC) and Total Inorganic Carbon (TIC) were performed according to SW-846 Method 9060A.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualifications.

MAJOR ISSUES

There were no Major Issues for this fraction.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No data qualification was necessary.

II.) Calibration:

Initial Calibration:

All Initial Calibration criteria were met. No data qualification was necessary.

Continuing Calibration:

All Continuing Calibration criteria were met. No data qualification was necessary.

III.) Blanks:

Method Blanks:

There were no detections in the associated method blank. No data qualification was necessary.

Calibration Blanks:

There were no detections in the associated calibration blanks. No data qualification was necessary.

IV.) Laboratory Control Samples (LCS):

All LCS Recovery criteria were met. No data qualification was necessary.

V.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS / MSD analyses were performed using sample 54MW12. All criteria were met. No data qualification was necessary.

VI.) Field Duplicates:

One set of field duplicate samples (54MW13 / 54TW13) were identified for this SDG. The only calculable Relative Percent Difference (RPD) was 2.1% for TIC, which was within the QC limits. No data qualification was necessary.

VII.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No data qualification was necessary.

CHEMICAL OXYGEN DEMAND (COD)

SUMMARY

I.) General:

The analyses for Chemical Oxygen Demand (COD) were performed according to EPA Method 410.4.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualifications.

MAJOR ISSUES

There were no Major Issues for this fraction.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No data qualification was necessary.

II.) Calibration:

Initial Calibration:

All Initial Calibration criteria were met. No data qualification was necessary.

Continuing Calibration:

All Continuing Calibration criteria were met. No data qualification was necessary.

III.) Blanks:

Method Blanks:

There were no detections in the associated method blank. No data qualification was necessary.

Calibration Blanks:

COD (10.2 ug/L) was reported in the ICB. Since the blank result was less than ½ the LOQ, no data qualification was necessary.

IV.) Laboratory Control Samples (LCS):

All LCS Recovery criteria were met. No data qualification was necessary.

V.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS / MSD analyses were performed using sample IDW-54. The Percent Recoveries (%Rs) were 116% and 114%, which exceeded the QC limits. Since the parent sample result was non-detect, no data qualification was necessary.

VI.) Field Duplicates:

There were no field duplicate samples identified for this fraction of the SDG. No data qualification was necessary.

VII.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No data qualification was necessary.

pH

SUMMARY

I.) General:

The analyses for pH were performed according to SW-846 Method 9040C.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualifications.

MAJOR ISSUES

There were no Major Issues for this fraction.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No data qualification was necessary.

II.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

III.) Blanks:

Blanks data were not required for this fraction of the SDG. No data qualification was necessary.

IV.) Laboratory Control Samples (LCS):

LCS data was not required for this fraction of the SDG. No data qualification was necessary.

V.) Matrix Duplicate (MD):

MD analysis was performed using sample IDW-54. All criteria were met. No data qualification was necessary.

VI.) Field Duplicates:

There were no field duplicate samples identified for this SDG. No data qualification was necessary.

VII.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No data qualification was necessary.

CHLORITE

SUMMARY

I.) General:

The analyses for Chlorite were performed according to EPA Method 300.0.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualifications.

MAJOR ISSUES

There were no Major Issues for this fraction.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No data qualification was necessary.

II.) Calibration:

Initial Calibration:

All Initial Calibration criteria were met. No data qualification was necessary.

Continuing Calibration:

All Continuing Calibration criteria were met. No data qualification was necessary.

III.) Blanks:

Method Blanks:

There were no detections in the associated method blank. No data qualification was necessary.

Calibration Blanks:

There were no detections in the associated calibration blanks. No data qualification was necessary.

IV.) Laboratory Control Samples (LCS):

All LCS Recovery criteria were met. No data qualification was necessary.

V.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS / MSD analyses were performed using sample 54MW12. All criteria were met. No data qualification was necessary.

VI.) Field Duplicates:

One set of field duplicate samples (54MW13 / 54TW13) were identified for this SDG. There was no calculable Relative Percent Difference (RPD). No data qualification was necessary.

VII.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No data qualification was necessary.

Appendix A
Qualified Form Is

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INORGANIC ANALYSIS DATA SHEET

Sample Description: **54MW13**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448828
Analytical Method:	EPA 9056A	Date Received:	07/22/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173371	Analysis Date/Time	07/22/2020 15:12
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
16887-00-6	Chloride	4.7		1.0	1.5	3.0	3.0
14797-55-8	Nitrate Nitrogen	1.0		0.12	0.20	0.40	0.40
14808-79-8	Sulfate	20		0.80	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description: **54MW13**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448828
Analytical Method:	EPA 9060A	Date Received:	07/22/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173668	Analysis Date/Time	07/31/2020 22:21
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL 0398 I	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TOC	Total Organic Carbon	1.5	U	0.50	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description: **54MW13**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448828
Analytical Method:	EPA 9060A	Date Received:	07/22/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173439	Analysis Date/Time	07/24/2020 10:04
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL 0398 I	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TIC	Total Inorganic Carbon	48		0.50	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54TW13

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448839
Analytical Method:	EPA 9056A	Date Received:	07/22/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173371	Analysis Date/Time	07/22/2020 15:30
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
16887-00-6	Chloride	4.6		1.0	1.5	3.0	3.0
14797-55-8	Nitrate Nitrogen	1.0		0.12	0.20	0.40	0.40
14808-79-8	Sulfate	20		0.80	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description: **54TW13**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448839
Analytical Method:	EPA 9060A	Date Received:	07/22/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173668	Analysis Date/Time	07/31/2020 22:36
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL 0398 I	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TOC	Total Organic Carbon	1.5	U	0.50	1.5	3.0	3.0

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Sample Description

54TW13

INORGANIC ANALYSIS DATA SHEET

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448839
Analytical Method:	EPA 9060A	Date Received:	07/22/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173439	Analysis Date/Time	07/24/2020 10:18
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL 0398 I	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TIC	Total Inorganic Carbon	47		0.50	1.5	3.0	3.0

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Sample Description: 54MW12

INORGANIC ANALYSIS DATA SHEET

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448840
Analytical Method:	EPA 9056A	Date Received:	07/22/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173371	Analysis Date/Time	07/22/2020 15:48
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
16887-00-6	Chloride	4.9		1.0	1.5	3.0	3.0
14797-55-8	Nitrate Nitrogen	1.0		0.12	0.20	0.40	0.40
14808-79-8	Sulfate	22	MJ	0.80	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description: **54MW12**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448840
Analytical Method:	EPA 9060A	Date Received:	07/22/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173668	Analysis Date/Time	07/31/2020 22:56
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL 0398 I	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TOC	Total Organic Carbon	1.5	U	0.50	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description: **54MW12**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448840
Analytical Method:	EPA 9060A	Date Received:	07/22/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173439	Analysis Date/Time	07/24/2020 10:33
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL 0398 I	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TIC	Total Inorganic Carbon	65		0.50	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description: **54MW10**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448841
Analytical Method:	EPA 9056A	Date Received:	07/22/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173371	Analysis Date/Time	07/22/2020 16:06
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
16887-00-6	Chloride	3.6		1.0	1.5	3.0	3.0
14797-55-8	Nitrate Nitrogen	0.20	U	0.12	0.20	0.40	0.40

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INORGANIC ANALYSIS DATA SHEET

Sample Description: **54MW10**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448841
Analytical Method:	EPA 9056A	Date Received:	07/22/2020
Dilution Factor:	5.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173371	Analysis Date/Time	07/23/2020 09:56
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
14808-79-8	Sulfate	180		4.0	7.5	15	15

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INORGANIC ANALYSIS DATA SHEET

Sample Description: **54MW10**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448841
Analytical Method:	EPA 9060A	Date Received:	07/22/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173668	Analysis Date/Time	08/01/2020 00:00
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL 0398 I	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TOC	Total Organic Carbon	1.5	U	0.50	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description: **54MW10**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448841
Analytical Method:	EPA 9060A	Date Received:	07/22/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173439	Analysis Date/Time	07/24/2020 10:48
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL 0398 I	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TIC	Total Inorganic Carbon	82		0.50	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW1

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448842
Analytical Method:	EPA 9056A	Date Received:	07/22/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173371	Analysis Date/Time	07/22/2020 16:25
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
16887-00-6	Chloride	2.3	J	1.0	1.5	3.0	3.0
14797-55-8	Nitrate Nitrogen	0.12	J	0.12	0.20	0.40	0.40
14808-79-8	Sulfate	28		0.80	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description: **54MW1**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448842
Analytical Method:	EPA 9060A	Date Received:	07/22/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173668	Analysis Date/Time	08/01/2020 00:19
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL 0398 I	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TOC	Total Organic Carbon	1.5	U	0.50	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description: **54MW1**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448842
Analytical Method:	EPA 9060A	Date Received:	07/22/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173439	Analysis Date/Time	07/24/2020 11:03
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL 0398 I	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TIC	Total Inorganic Carbon	63		0.50	1.5	3.0	3.0

Client Name: CT Laboratories

Report #: 492342

Sampling Point: 54MW13

PWS ID: Not Supplied

General Chemistry									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
14866-68-3	Chlorate	300.0	—	10	< 10	ug/L	---	07/28/20 02:56	4679783
14998-27-7	Chlorite	300.0	1000 *	10	< 10	ug/L	---	07/28/20 02:56	4679783

Sampling Point: 54TW13

PWS ID: Not Supplied

General Chemistry									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
14866-68-3	Chlorate	300.0	—	10	< 10	ug/L	---	07/28/20 03:25	4679784
14998-27-7	Chlorite	300.0	1000 *	10	< 10	ug/L	---	07/28/20 03:25	4679784

Sampling Point: 54MW12

PWS ID: Not Supplied

General Chemistry									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
14866-68-3	Chlorate	300.0	—	10	< 10	ug/L	---	07/28/20 03:54	4679785
14998-27-7	Chlorite	300.0	1000 *	10	< 10	ug/L	---	07/28/20 03:54	4679785

Sampling Point: 54MW10

PWS ID: Not Supplied

General Chemistry									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
14866-68-3	Chlorate	300.0	—	10	< 10	ug/L	---	07/28/20 05:20	4679788
14998-27-7	Chlorite	300.0	1000 *	10	< 10	ug/L	---	07/28/20 05:20	4679788

Sampling Point: 54MW1

PWS ID: Not Supplied

General Chemistry									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
14866-68-3	Chlorate	300.0	—	10	< 10	ug/L	---	07/28/20 05:49	4679789
14998-27-7	Chlorite	300.0	1000 *	10	< 10	ug/L	---	07/28/20 05:49	4679789

† EEA has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices.

Reg Limit Type:	MCL	SMCL	AL
Symbol:	*	^	!

CT LABORATORIES
delivering more than data from your environmental analyses

1

Sample Description

IDW-54

INORGANIC ANALYSIS DATA SHEET

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448843
Analytical Method:	EPA 6010C	Date Received:	07/22/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173412	Analysis Date/Time	07/24/2020 19:51
Analytical Prep Batch #:	77363	Prep. Date/Time:	07/22/2020 07:31
ICAL Calibration #:		Concentration Units:	ug/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
7429-90-5	Total Aluminum	146	J	6.0	18	36	36
7440-36-0	Total Antimony	6.0	U	2.0	6.0	12	12
7440-38-2	Total Arsenic	12	U	4.0	12	24	24
7440-39-3	Total Barium	70.2		0.29	0.90	1.8	1.8
7440-41-7	Total Beryllium	0.30	U	0.10	0.30	0.60	0.60
7440-43-9	Total Cadmium	1.0	U	0.30	1.0	2.0	2.0
7440-70-2	Total Calcium	64200		17	50	100	100
7440-47-3	Total Chromium	4.6		0.60	2.0	4.0	4.0
7440-48-4	Total Cobalt	2.0	U	0.70	2.0	4.0	4.0
7440-50-8	Total Copper	3.5	U	1.2	3.5	7.0	7.0
7439-89-6	Total Iron	267	~~M~~ J	16	50	100	100
7439-92-1	Total Lead	2.0	U	1.4	2.0	4.0	4.0
7439-95-4	Total Magnesium	27200		6.0	20	40	40
7439-96-5	Total Manganese	19.4		0.70	2.0	4.0	4.0
7440-02-0	Total Nickel	3.0	U	1.0	3.0	6.0	6.0
7782-49-2	Total Selenium	6.5	U	2.2	6.5	13	13
7440-22-4	Total Silver	2.0	U	0.70	2.0	4.0	4.0
7440-28-0	Total Thallium	7.5	U	2.5	7.5	15	15
7440-62-2	Total Vanadium	1.0	~~J~~ J	0.80	2.5	5.0	5.0
7440-66-6	Total Zinc	6.2	J	1.6	5.0	10	10

8/24/20

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INORGANIC ANALYSIS DATA SHEET

Sample Description: **IDW-54**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448843
Analytical Method:	EPA 6010C	Date Received:	07/22/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173413	Analysis Date/Time	07/27/2020 15:53
Analytical Prep Batch #:	77363	Prep. Date/Time:	07/22/2020 07:31
ICAL Calibration #:		Concentration Units:	ug/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
7440-09-7	Total Potassium	1120		90	250	500	500
7440-23-5	Total Sodium	4840		100	300	600	600

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INORGANIC ANALYSIS DATA SHEET

Sample Description: **IDW-54**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448843
Analytical Method:	EPA 7470A	Date Received:	07/22/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173576	Analysis Date/Time	07/29/2020 10:00
Analytical Prep Batch #:	77414	Prep. Date/Time:	07/28/2020 12:30
ICAL Calibration #:	07292020	Concentration Units:	ug/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
7439-97-6	Total Mercury	0.060	U	0.030	0.060	0.12	0.12

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1

INORGANIC ANALYSIS DATA SHEET

Sample Description: **IDW-54**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448843
Analytical Method:	EPA 410.4	Date Received:	07/22/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173688	Analysis Date/Time	07/31/2020 13:17
Analytical Prep Batch #:	77490	Prep. Date/Time:	07/31/2020 08:16
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers		DL	LOD	LOQ	RL
COD	COD	35	U	M	15	35	75	75

CT LABORATORIES
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1

INORGANIC ANALYSIS DATA SHEET

Sample Description: **IDW-54**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448843
Analytical Method:	EPA 9040C	Date Received:	07/22/2020
Dilution Factor:	1	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173373	Analysis Date/Time	07/22/2020 14:07
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	S.U.

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
PH	pH	7.37					

VALIDATA
Chemical Services, Inc.
(770) 232-0130
(770) 232-5082 (Fax)
2159 Wynnton Pointe, Duluth, GA 30097
www.datavalidator.com

DATA VALIDATION SUMMARY REPORT

COMPANY:	Weston Solutions, Inc.
SITE NAME:	Radford Army Ammunitions Plant
CONTRACTED LAB:	SGS Orlando, FL
QA/QC LEVEL:	EPA Stage 4
EPA SOW/METHODS:	EPA and SW-846 Methods
VALIDATION GUIDELINES:	*Radford Army Ammunitions Plant, Radford Virginia, SWMU 49 Monitored Natural Attenuation Groundwater Monitoring Work Plan, SWMU 54 Interim Measures Work Plan, QSM 5.1, SW 846 Methods, USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review,* 2017; *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*, 2017
SAMPLE MATRIX:	Water
TYPE OF ANALYSIS:	Explosives, Perchlorate
SDG NUMBER:	FA69146
SAMPLING DATES:	October 14, 2019

SAMPLES:

Client Sample #	Lab Sample #	Matrix	Explosives*	Perchlorate
54MW13	FA69146-1	Water	X	X
54TW13	FA69146-2	Water	X	X
54MW10	FA69146-3	Water	X	X
54MW12	FA69146-4	Water	X	X
54MW12MS	FA69146-4MS	Water	X	X
54MW12MSD	FA69146-4MSD	Water	X	X
54MW1	FA69146-5	Water	X	X

* All samples were reanalyzed by the lab for explosives. Since the reanalysis results were not reported on the Form Is, validation of the analyses was not performed.

Suffix Codes: DL = DILUTION, MS = MATRIX SPIKE, MSD = MATRIX SPIKE DUPLICATE, RA = REANALYSIS

DATA REVIEWERS: Amy L. Hogan, Kevin C. Harmon, Sandra Nacquin

DATA VALIDATION SUMMARY

SGS Orlando, FL – FA69146 - Organics

EXPLOSIVES

SUMMARY

I.) General:

The analyses for Explosives were performed according to SW 846 Method 8330.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualifications.

MAJOR ISSUES

There were no Major Issues for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No data qualification was necessary.

II.) Calibration:

Initial Calibration:

All Initial Calibration criteria were met. No data qualification was necessary.

Initial Calibration Verification (ICV):

All Initial Calibration Verification criteria were met. No data qualification was necessary.

Continuing Calibration:

The Percent Difference (%D) for the standards run on 10/23/19 at 12:33 on instrument G1315B was 16.4% for TNX, which exceeded the 15% QC limit. The results for this compound in the SDG samples, which were all non-detect, were qualified as estimated (UJ).

The Percent Difference (%D) for the standards run on 10/23/19 at 18:03 on instrument G1315B was 17.3% for TNX, which exceeded the 15% QC limit. The results for this compound in the SDG samples, which were all non-detect, were qualified as estimated (UJ).

III.) Blanks:

Method Blanks:

There were no detections in the associated method blank. No data qualification was necessary.

IV.) Surrogate Recoveries:

All Surrogate Recovery criteria were met.

V.) Laboratory Control Samples (LCS):

One LCS was analyzed for this fraction of the SDG. The Percent Recovery (%R) for PETN at 54% was below the QC limits. Data qualification based on LCS criteria alone was not required. No data qualification was necessary.

VI.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS/ MSD analyses were performed using sample 54MW12. The Percent Recoveries (%Rs) for PETN (54%, 54%) were below the QC limits. Taken in conjunction with the low LCS %R, the recoveries indicate the potential for a low bias. The results for this compound in the SDG samples, which consisted entirely of non-detects, were qualified as estimated (UJ).

VII.) Field Duplicates:

There were no field duplicate samples identified for this SDG. No data qualification was necessary.

VIII.) TCL Compound Identification:

The Column Relative Percent Difference (RPD) exceeded the 40% QC limit for the following compounds:

54MW13	3,5-dinitroaniline	125%
54TW13	4-amino-2,6-dinitrotoluene	42.9%
54MW10	RDX	32.5%
	3,5-dinitroaniline	43.1%

The positive compound results for the listed samples above were qualified as estimated (J).

IX.) Compound Quantitation and Reported Contract Required Quantitation Limits (CRQL):

All Compound Quantitation and Reported Contract Required Quantitation Limits (CRQL) criteria were met. No data qualification was necessary.

PERCHLORATE

SUMMARY

I.) General:

The analyses for Perchlorate were performed according to SW-846 Method 6350.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualifications.

MAJOR ISSUES

There were no Major Issues for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No data qualification was necessary.

II.) Calibration:

Initial Calibration:

All Initial Calibration criteria were met. No data qualification was necessary.

Initial Calibration Verification (ICV):

All Initial Calibration Verification criteria were met. No data qualification was necessary.

Continuing Calibration:

All Continuing Calibration criteria were met. No data qualification was necessary.

III.) Blanks:

There were no detections in the associated method blank. No data qualification was necessary.

IV.) Laboratory Control Samples (LCS):

One LCS was analyzed for this fraction of the SDG. All criteria were met. No data qualification was necessary.

V.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS/ MSD analyses were performed using sample 54MW12. The Percent Recovery (%R) for perchlorate (130%) exceeded the QC limit. The positive result for perchlorate in the parent sample was qualified as estimated (J).

VI.) Field Duplicates:

There were no field duplicate samples identified for this SDG. No data qualification was necessary.

VII.) Internal Standards Performance (ISTD):

All ISTD criteria were met. No data qualification was necessary.

VIII.) TCL Compound Identification:

All TCL Compound Identification criteria were met. No data qualification was necessary.

IX.) Compound Quantitation and Reported Contract Required Quantitation Limits (CRQL):

All Compound Quantitation and Reported Contract Required Quantitation Limits (CRQL) criteria were met. No data qualification was necessary.

Appendix A
Qualified Form Is

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW13		
Lab Sample ID:	FA69146-1	Date Sampled:	10/14/19
Matrix:	AQ - Ground Water	Date Received:	10/19/19
Method:	SW846 8330B SW846 3535A	Percent Solids:	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB066718.D	1	10/23/19 14:03	WH	10/21/19 09:00	OP77364	GBB1935
Run #2 [b]	BB066797.D	1	10/26/19 06:53	WH	10/24/19 07:30	OP77415	GBB1937
Run #3 [b]	GG617959.D	1	10/29/19 01:52	WH	10/24/19 07:30	OP77415	GGG2778

	Initial Volume	Final Volume
Run #1	1000 ml	10.0 ml
Run #2	980 ml	10.0 ml
Run #3	980 ml	10.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	7.7	0.20	0.10	0.080	ug/l	
121-82-4	RDX	0.10 U	0.20	0.10	0.080	ug/l	
	DNX	0.10 U	0.20	0.10	0.080	ug/l	
	MNX	0.10 U	0.20	0.10	0.080	ug/l	
	TNX	0.10 U UJ	0.20	0.10	0.080	ug/l	
618-87-1	3,5-Dinitroaniline [c]	0.67 J	0.20	0.10	0.080	ug/l	
99-65-0	1,3-Dinitrobenzene	0.10 U	0.20	0.10	0.080	ug/l	
606-20-2	2,6-Dinitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
121-14-2	2,4-Dinitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	1.9	0.20	0.10	0.080	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene	1.1	0.20	0.10	0.080	ug/l	
98-95-3	Nitrobenzene	0.10 U	0.20	0.10	0.097	ug/l	
88-72-2	o-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
99-08-1	m-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
99-99-0	p-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
479-45-8	Tetryl	0.10 U	0.20	0.10	0.080	ug/l	
99-35-4	1,3,5-Trinitrobenzene	22.2	0.20	0.10	0.099	ug/l	
118-96-7	2,4,6-Trinitrotoluene	12.5	0.20	0.10	0.080	ug/l	
55-63-0	Nitroglycerine	1.0 U	2.0	1.0	0.50	ug/l	
78-11-5	PETN [d]	1.0 U UJ	2.0	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
610-39-9	3,4-Dinitrotoluene	93%	108%	134%	70-136%

(a) All hits confirmed by reanalysis on a dissimilar column.
(b) Confirmation run.
(c) Primary and confirmation results differ by more than 40%.
(d) Associated BS recovery outside DOD QSM control limits. Confirmed ND by re-extraction and reanalysis.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54TW13		
Lab Sample ID:	FA69146-2	Date Sampled:	10/14/19
Matrix:	AQ - Ground Water	Date Received:	10/19/19
Method:	SW846 8330B SW846 3535A	Percent Solids:	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB066719.D	1	10/23/19 14:33	WH	10/21/19 09:00	OP77364	GBB1935
Run #2 [b]	BB066805.D	1	10/28/19 13:08	WH	10/24/19 07:30	OP77415	GBB1938
Run #3 [b]	GG617960.D	1	10/29/19 02:21	WH	10/24/19 07:30	OP77415	GGG2778

	Initial Volume	Final Volume
Run #1	1000 ml	10.0 ml
Run #2	990 ml	10.0 ml
Run #3	990 ml	10.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	8.5	0.20	0.10	0.080	ug/l	
121-82-4	RDX	0.10 U	0.20	0.10	0.080	ug/l	
	DNX	0.10 U	0.20	0.10	0.080	ug/l	
	MNX	0.10 U	0.20	0.10	0.080	ug/l	
	TNX	0.10 U UJ	0.20	0.10	0.080	ug/l	
618-87-1	3,5-Dinitroaniline	0.69	0.20	0.10	0.080	ug/l	
99-65-0	1,3-Dinitrobenzene	0.10 U	0.20	0.10	0.080	ug/l	
606-20-2	2,6-Dinitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
121-14-2	2,4-Dinitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	2.1	0.20	0.10	0.080	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene [c]	1.7 J	0.20	0.10	0.080	ug/l	
98-95-3	Nitrobenzene	0.10 U	0.20	0.10	0.097	ug/l	
88-72-2	o-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
99-08-1	m-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
99-99-0	p-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
479-45-8	Tetryl	0.10 U	0.20	0.10	0.080	ug/l	
99-35-4	1,3,5-Trinitrobenzene	25.6	0.20	0.10	0.099	ug/l	
118-96-7	2,4,6-Trinitrotoluene	14.6	0.20	0.10	0.080	ug/l	
55-63-0	Nitroglycerine	1.0 U	2.0	1.0	0.50	ug/l	
78-11-5	PETN [d]	1.0 U UJ	2.0	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
610-39-9	3,4-Dinitrotoluene	117%	95%	129%	70-136%

(a) All hits confirmed by reanalysis on a dissimilar column.
(b) Confirmation run.
(c) Primary and confirmation results differ by more than 40%.
(d) Associated BS recovery outside DOD QSM control limits. Confirmed ND by re-extraction and reanalysis.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW10		
Lab Sample ID:	FA69146-3	Date Sampled:	10/14/19
Matrix:	AQ - Ground Water	Date Received:	10/19/19
Method:	SW846 8330B SW846 3535A	Percent Solids:	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB066720.D	1	10/23/19 15:03	WH	10/21/19 09:00	OP77364	GBB1935
Run #2 [b]	BB066806.D	1	10/28/19 13:38	WH	10/24/19 07:30	OP77415	GBB1938
Run #3 [b]	GG617961.D	1	10/29/19 02:51	WH	10/24/19 07:30	OP77415	GGG2778

	Initial Volume	Final Volume
Run #1	990 ml	10.0 ml
Run #2	990 ml	10.0 ml
Run #3	990 ml	10.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	2.4	0.20	0.10	0.081	ug/l	
121-82-4	RDX [c]	2.1 J	0.20	0.10	0.081	ug/l	
	DNX	0.10 U	0.20	0.10	0.081	ug/l	
	MNX	0.10 U	0.20	0.10	0.081	ug/l	
	TNX	0.10 U U3	0.20	0.10	0.081	ug/l	
618-87-1	3,5-Dinitroaniline [c]	0.31 J	0.20	0.10	0.081	ug/l	
99-65-0	1,3-Dinitrobenzene	0.10 U	0.20	0.10	0.081	ug/l	
606-20-2	2,6-Dinitrotoluene	0.10 U	0.20	0.10	0.081	ug/l	
121-14-2	2,4-Dinitrotoluene	0.10 U	0.20	0.10	0.081	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	0.99	0.20	0.10	0.081	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene	0.89	0.20	0.10	0.081	ug/l	
98-95-3	Nitrobenzene	0.10 U	0.20	0.10	0.098	ug/l	
88-72-2	o-Nitrotoluene	0.10 U	0.20	0.10	0.081	ug/l	
99-08-1	m-Nitrotoluene	0.10 U	0.20	0.10	0.081	ug/l	
99-99-0	p-Nitrotoluene	0.10 U	0.20	0.10	0.081	ug/l	
479-45-8	Tetryl	0.10 U	0.20	0.10	0.081	ug/l	
99-35-4	1,3,5-Trinitrobenzene	0.77	0.20	0.10	0.10	ug/l	
118-96-7	2,4,6-Trinitrotoluene	4.0	0.20	0.10	0.081	ug/l	
55-63-0	Nitroglycerine	1.0 U	2.0	1.0	0.51	ug/l	
78-11-5	PETN [d]	1.0 U UCL	2.0	1.0	0.51	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
610-39-9	3,4-Dinitrotoluene	99%	99%	122%	70-136%

(a) All hits confirmed by reanalysis on a dissimilar column.
(b) Confirmation run.
(c) Primary and confirmation results differ by more than 40%.
(d) Associated BS recovery outside DOD QSM control limits. Confirmed ND by re-extraction and reanalysis.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW12		
Lab Sample ID:	FA69146-4	Date Sampled:	10/14/19
Matrix:	AQ - Ground Water	Date Received:	10/19/19
Method:	SW846 8330B SW846 3535A	Percent Solids:	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB066721.D	1	10/23/19 15:33	WH	10/21/19 09:00	OP77364	GBB1935
Run #2 [b]	BB066810.D	1	10/28/19 15:38	WH	10/24/19 07:30	OP77415	GBB1938
Run #3 [b]	GG617962.D	1	10/29/19 03:20	WH	10/24/19 07:30	OP77415	GGG2778

	Initial Volume	Final Volume
Run #1	1000 ml	10.0 ml
Run #2	1000 ml	10.0 ml
Run #3	1000 ml	10.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	16.6	0.20	0.10	0.080	ug/l	
121-82-4	RDX	0.10 U	0.20	0.10	0.080	ug/l	
	DNX	0.10 U	0.20	0.10	0.080	ug/l	
	MNX	0.10 U	0.20	0.10	0.080	ug/l	
	TNX	0.10 U	0.20	0.10	0.080	ug/l	
618-87-1	3,5-Dinitroaniline [c]	0.31	0.20	0.10	0.080	ug/l	
99-65-0	1,3-Dinitrobenzene	0.10 U	0.20	0.10	0.080	ug/l	
606-20-2	2,6-Dinitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
121-14-2	2,4-Dinitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	3.8	0.20	0.10	0.080	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene [c]	2.0	0.20	0.10	0.080	ug/l	
98-95-3	Nitrobenzene	0.10 U	0.20	0.10	0.097	ug/l	
88-72-2	o-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
99-08-1	m-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
99-99-0	p-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
479-45-8	Tetryl	0.10 U	0.20	0.10	0.080	ug/l	
99-35-4	1,3,5-Trinitrobenzene	17.4	0.20	0.10	0.099	ug/l	
118-96-7	2,4,6-Trinitrotoluene	10.1	0.20	0.10	0.080	ug/l	
55-63-0	Nitroglycerine	1.0 U	2.0	1.0	0.50	ug/l	
78-11-5	PETN [d]	1.0 U	2.0	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
610-39-9	3,4-Dinitrotoluene	102%	110%	127%	70-136%

(a) All hits confirmed by reanalysis on a dissimilar column.
(b) Confirmation run.
(c) Primary and confirmation results differ by more than 40%.
(d) Associated BS recovery outside DOD QSM control limits. Confirmed ND by re-extraction and reanalysis.

U = Not detected LOD = Limit of Detection
LOQ = Limit of Quantitation DL = Detection Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW1		
Lab Sample ID:	FA69146-5	Date Sampled:	10/14/19
Matrix:	AQ - Ground Water	Date Received:	10/19/19
Method:	SW846 8330B SW846 3535A	Percent Solids:	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BB066722.D	1	10/23/19 16:03	WH	10/21/19 09:00	OP77364	GBB1935
Run #2 [a]	BB066812.D	1	10/28/19 16:38	WH	10/24/19 07:30	OP77415	GBB1938

	Initial Volume	Final Volume
Run #1	980 ml	10.0 ml
Run #2	1000 ml	10.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	0.10 U	0.20	0.10	0.082	ug/l	
121-82-4	RDX	0.10 U	0.20	0.10	0.082	ug/l	
	DNX	0.10 U	0.20	0.10	0.082	ug/l	
	MNX	0.10 U	0.20	0.10	0.082	ug/l	
	TNX	0.10 U	0.20	0.10	0.082	ug/l	
618-87-1	3,5-Dinitroaniline	0.10 U	0.20	0.10	0.082	ug/l	
99-65-0	1,3-Dinitrobenzene	0.10 U	0.20	0.10	0.082	ug/l	
606-20-2	2,6-Dinitrotoluene	0.10 U	0.20	0.10	0.082	ug/l	
121-14-2	2,4-Dinitrotoluene	0.10 U	0.20	0.10	0.082	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	0.10 U	0.20	0.10	0.082	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene	0.10 U	0.20	0.10	0.082	ug/l	
98-95-3	Nitrobenzene	0.10 U	0.20	0.10	0.099	ug/l	
88-72-2	o-Nitrotoluene	0.10 U	0.20	0.10	0.082	ug/l	
99-08-1	m-Nitrotoluene	0.10 U	0.20	0.10	0.082	ug/l	
99-99-0	p-Nitrotoluene	0.10 U	0.20	0.10	0.082	ug/l	
479-45-8	Tetryl	0.10 U	0.20	0.10	0.082	ug/l	
99-35-4	1,3,5-Trinitrobenzene	0.10 U	0.20	0.10	0.10	ug/l	
118-96-7	2,4,6-Trinitrotoluene	0.10 U	0.20	0.10	0.082	ug/l	
55-63-0	Nitroglycerine	1.0 U	2.0	1.0	0.51	ug/l	
78-11-5	PETN [b]	1.0 U	2.0	1.0	0.51	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
610-39-9	3,4-Dinitrotoluene	100%	100%	70-136%

(a) Confirmation run.

(b) Associated BS recovery outside DOD QSM control limits. Confirmed ND by re-extraction and reanalysis.

U = Not detected LOD = Limit of Detection
LOQ = Limit of Quantitation DL = Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

10/23/19 SGS

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW12		
Lab Sample ID:	FA69146-4	Date Sampled:	10/14/19
Matrix:	AQ - Ground Water	Date Received:	10/19/19
Method:	SW846 6850 SW846 6850	Percent Solids:	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Q64991.D	1	10/24/19 14:46	NG	10/24/19 08:00	OP77429	SQ1467
Run #2							

	Initial Volume	Final Volume
Run #1	10.0 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
14797-73-0	Perchlorate	0.53 J	0.20	0.10	0.050	ug/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

12/23/19 SGS

VALIDATA
Chemical Services, Inc.
(770) 232-0130
(770) 232-5082 (Fax)
2159 Wynnton Pointe, Duluth, GA 30097
www.datavalidator.com

DATA VALIDATION SUMMARY REPORT

COMPANY:	Weston Solutions, Inc.
SITE NAME:	Radford Army Ammunitions Plant
CONTRACTED LAB:	SGS Orlando, FL
QA/QC LEVEL:	EPA Stage 4
EPA SOW/METHODS:	EPA and SW-846 Methods
VALIDATION GUIDELINES:	*Radford Army Ammunitions Plant, Radford Virginia, SWMU 49 Monitored Natural Attenuation Groundwater Monitoring Work Plan, SWMU 54 Interim Measures Work Plan, QSM 5.1, SW 846 Methods, USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review,* 2017; *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review,* 2017
SAMPLE MATRIX:	Water
TYPE OF ANALYSIS:	Explosives, Perchlorate
SDG NUMBER:	FA72036
SAMPLING DATES:	January 27, 2020

SAMPLES:

Client Sample #	Lab Sample #	Matrix	Explosives*	Perchlorate
54MW10	FA72036-1	Water	X	X
54MW13	FA72036-2	Water	X	X
54TW13	FA72036-3	Water	X	X
54MW12	FA72036-4	Water	X	X
54MW12MS	FA72036-4MS	Water	X	X
54MW12MSD	FA72036-4MSD	Water	X	X
54MW1	FA72036-5	Water	X	X

* All samples were reanalyzed by the lab for explosives. Since the reanalysis results were not reported on the Form Is, validation of the analyses was not performed.

Suffix Codes: DL = DILUTION, MS = MATRIX SPIKE, MSD = MATRIX SPIKE DUPLICATE, RA = REANALYSIS

DATA REVIEWERS: Amy L. Hogan, Kevin C. Harmon, Sandra Nacquin

DATA VALIDATION SUMMARY

SGS Orlando, FL – FA72036 - Organics

EXPLOSIVES

SUMMARY

I.) General:

The analyses for Explosives were performed according to SW 846 Method 8330.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualifications.

MAJOR ISSUES

There were no Major Issues for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No data qualification was necessary.

II.) Calibration:

Initial Calibration:

All Initial Calibration criteria were met. No data qualification was necessary.

Initial Calibration Verification (ICV):

The Percent Difference (%D) for the standards run on 1/21/20 at 18:18 on instrument G1315B on the secondary column was -138.5% for PETN, which exceeded the 20% QC limit. The results for this compound in all SDG samples, which consisted entirely of non-detects, were qualified as estimated (UJ).

Continuing Calibration:

The Percent Differences (%Ds) for the standards run on 2/3/20 at 12:19 on instrument G1315B were -21.9% for m-nitroaniline and -142.9% for PETN, which exceeded the 20% QC limit. The results for these compounds in associated samples 54MW10 and 54MW12, which were all non-detect, were qualified as estimated (UJ).

The Percent Difference (%D) for the standards run on 2/3/20 at 17:49 on instrument G1315B was -147.3% for PETN, which exceeded the 20% QC limit. The results for this compound in the SDG samples, which were all non-detect, were qualified as estimated (UJ).

The Percent Difference (%D) for the standards run on 2/3/20 at 22:48 on instrument G1315B was -142.6% for PETN, which exceeded the 20% QC limit. The results for this compound in the SDG samples, which were all non-detect, were qualified as estimated (UJ).

III.) Blanks:

Method Blanks:

There were no detections in the associated method blank. No data qualification was necessary.

IV.) Surrogate Recoveries:

All Surrogate Recovery criteria were met.

V.) Laboratory Control Samples (LCS):

One LCS was analyzed for this fraction of the SDG. The Percent Recovery (%R) for PETN at 234% exceeded below the QC limits. Data qualification based on LCS criteria alone was not required. No data qualification was necessary.

VI.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS/ MSD analyses were performed using sample 54MW12. The Percent Recoveries (%Rs) for 2,6-dinitrotoluene (234%) and PETN (218%, 210%) exceeded below the QC limits. Taken in conjunction with the high LCS %R, the recoveries for PETN indicate the potential for a high bias. Since the sample results for this compound were all non-detect, no data qualification was necessary.

VII.) Field Duplicates:

There were no field duplicate samples identified for this SDG. No data qualification was necessary.

VIII.) TCL Compound Identification:

The Column Relative Percent Difference (RPD) exceeded the 40% QC limit for the following compounds:

54MW10	3,5-dinitroaniline	70.5%
	4-amino-2,6-dinitrotoluene	62.9%
54MW13	3,5-dinitroaniline	93.2%
	4-amino-2,6-dinitrotoluene	74.0%
54TW13	3,5-dinitroaniline	97.1%
54MW12	3,5-dinitroaniline	104.6%
	4-amino-2,6-dinitrotoluene	58.8%

The positive compound results for the listed samples above were qualified as estimated (J).

IX.) Compound Quantitation and Reported Contract Required Quantitation Limits (CRQL):

All Compound Quantitation and Reported Contract Required Quantitation Limits (CRQL) criteria were met. No data qualification was necessary.

PERCHLORATE

SUMMARY

I.) General:

The analyses for Perchlorate were performed according to SW-846 Method 6350.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualifications.

MAJOR ISSUES

There were no Major Issues for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No data qualification was necessary.

II.) Calibration:

Initial Calibration:

All Initial Calibration criteria were met. No data qualification was necessary.

Initial Calibration Verification (ICV):

All Initial Calibration Verification criteria were met. No data qualification was necessary.

Continuing Calibration:

All Continuing Calibration criteria were met. No data qualification was necessary.

III.) Blanks:

There were no detections in the associated method blank. No data qualification was necessary.

IV.) Laboratory Control Samples (LCS):

One LCS was analyzed for this fraction of the SDG. All criteria were met. No data qualification was necessary.

V.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS/ MSD analyses were performed using sample 54MW12. The Percent Recoveries (%Rs) for perchlorate (55%, 55%) were below the QC limit. The positive result for perchlorate in the parent sample was qualified as estimated (J).

VI.) Field Duplicates:

There were no field duplicate samples identified for this SDG. No data qualification was necessary.

VII.) Internal Standards Performance (ISTD):

All ISTD criteria were met. No data qualification was necessary.

VIII.) TCL Compound Identification:

All TCL Compound Identification criteria were met. No data qualification was necessary.

IX.) Compound Quantitation and Reported Contract Required Quantitation Limits (CRQL):

All Compound Quantitation and Reported Contract Required Quantitation Limits (CRQL) criteria were met. No data qualification was necessary.

Appendix A
Qualified Form Is

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW10		
Lab Sample ID:	FA72036-1	Date Sampled:	01/27/20
Matrix:	AQ - Ground Water	Date Received:	01/28/20
Method:	SW846 6850 SW846 6850	Percent Solids:	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Q67313.D	1	02/02/20 17:48	NAF	02/02/20 11:00	OP78776	SQ1519
Run #2							

	Initial Volume	Final Volume
Run #1	10.0 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
14797-73-0	Perchlorate	0.25	0.20	0.10	0.050	ug/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW10		
Lab Sample ID:	FA72036-1	Date Sampled:	01/27/20
Matrix:	AQ - Ground Water	Date Received:	01/28/20
Method:	SW846 8330B SW846 3535A	Percent Solids:	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB067857.D	1	02/03/20 17:19	WH	01/31/20 09:00	OP78763	GBB1981
Run #2 [b]	GG618372.D	1	02/04/20 19:50	WH	01/31/20 09:00	OP78763	GGG2806

	Initial Volume	Final Volume
Run #1	1050 ml	10.0 ml
Run #2	1050 ml	10.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	5.5	0.19	0.095	0.076	ug/l	
121-82-4	RDX	1.9	0.19	0.095	0.076	ug/l	
	DNX	0.095 U	0.19	0.095	0.076	ug/l	
	MNX	0.095 U	0.19	0.095	0.076	ug/l	
	TNX	0.095 U	0.19	0.095	0.076	ug/l	
618-87-1	3,5-Dinitroaniline [c]	0.45	0.19	0.095	0.076	ug/l	J
99-65-0	1,3-Dinitrobenzene	0.095 U	0.19	0.095	0.076	ug/l	
606-20-2	2,6-Dinitrotoluene	0.095 U	0.19	0.095	0.076	ug/l	
121-14-2	2,4-Dinitrotoluene	0.095 U	0.19	0.095	0.076	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	2.8	0.19	0.095	0.076	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene [c]	2.3	0.19	0.095	0.076	ug/l	J
98-95-3	Nitrobenzene	0.095 U	0.19	0.095	0.092	ug/l	
88-72-2	o-Nitrotoluene	0.095 U	0.19	0.095	0.076	ug/l	
99-08-1	m-Nitrotoluene	0.095 U	0.19	0.095	0.076	ug/l	UJ
99-99-0	p-Nitrotoluene	0.095 U	0.19	0.095	0.076	ug/l	
479-45-8	Tetryl	0.095 U	0.19	0.095	0.076	ug/l	
99-35-4	1,3,5-Trinitrobenzene	3.8	0.19	0.095	0.094	ug/l	
118-96-7	2,4,6-Trinitrotoluene	8.4	0.19	0.095	0.076	ug/l	
55-63-0	Nitroglycerine	0.95 U	1.9	0.95	0.48	ug/l	
78-11-5	PETN [d]	0.95 U	1.9	0.95	0.48	ug/l	UJ

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
610-39-9	3,4-Dinitrotoluene	118%	132%	70-136%

(a) All hits confirmed by reanalysis on a dissimilar column.
(b) Confirmation run.
(c) Primary and confirmation results differ by more than 40%.
(d) Associated CCV outside of DoD control limits high, sample was ND.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

2/25/20 SGS

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW13		
Lab Sample ID:	FA72036-2	Date Sampled:	01/27/20
Matrix:	AQ - Ground Water	Date Received:	01/28/20
Method:	SW846 6850 SW846 6850	Percent Solids:	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Q67314.D	1	02/02/20 17:57	NAF	02/02/20 11:00	OP78776	SQ1519
Run #2							

	Initial Volume	Final Volume
Run #1	10.0 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
14797-73-0	Perchlorate	0.26	0.20	0.10	0.050	ug/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW13		
Lab Sample ID:	FA72036-2	Date Sampled:	01/27/20
Matrix:	AQ - Ground Water	Date Received:	01/28/20
Method:	SW846 8330B SW846 3535A	Percent Solids:	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB067860.D	1	02/03/20 18:48	WH	01/31/20 09:00	OP78763	GBB1981
Run #2 [b]	GG618373.D	1	02/04/20 20:19	WH	01/31/20 09:00	OP78763	GGG2806

	Initial Volume	Final Volume
Run #1	1040 ml	10.0 ml
Run #2	1040 ml	10.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	4.4	0.19	0.096	0.077	ug/l	
121-82-4	RDX	0.55	0.19	0.096	0.077	ug/l	
	DNX	0.096 U	0.19	0.096	0.077	ug/l	
	MNX	0.096 U	0.19	0.096	0.077	ug/l	
	TNX	0.096 U	0.19	0.096	0.077	ug/l	
618-87-1	3,5-Dinitroaniline [c]	0.51	0.19	0.096	0.077	ug/l	J
99-65-0	1,3-Dinitrobenzene	0.096 U	0.19	0.096	0.077	ug/l	
606-20-2	2,6-Dinitrotoluene	0.096 U	0.19	0.096	0.077	ug/l	
121-14-2	2,4-Dinitrotoluene	0.096 U	0.19	0.096	0.077	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	1.4	0.19	0.096	0.077	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene [c]	1.0	0.19	0.096	0.077	ug/l	J
98-95-3	Nitrobenzene	0.096 U	0.19	0.096	0.093	ug/l	
88-72-2	o-Nitrotoluene	0.096 U	0.19	0.096	0.077	ug/l	
99-08-1	m-Nitrotoluene	0.096 U	0.19	0.096	0.077	ug/l	
99-99-0	p-Nitrotoluene	0.096 U	0.19	0.096	0.077	ug/l	
479-45-8	Tetryl	0.096 U	0.19	0.096	0.077	ug/l	
99-35-4	1,3,5-Trinitrobenzene	7.2	0.19	0.096	0.095	ug/l	
118-96-7	2,4,6-Trinitrotoluene	4.1	0.19	0.096	0.077	ug/l	
55-63-0	Nitroglycerine	0.96 U	1.9	0.96	0.48	ug/l	
78-11-5	PETN [d]	0.96 UUJ	1.9	0.96	0.48	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
610-39-9	3,4-Dinitrotoluene	116%	128%	70-136%

(a) All hits confirmed by reanalysis on a dissimilar column.

(b) Confirmation run.

(c) Primary and confirmation results differ by more than 40%.

(d) Associated CCV outside of DoD control limits high, sample was ND.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value

LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54TW13		
Lab Sample ID:	FA72036-3	Date Sampled:	01/27/20
Matrix:	AQ - Ground Water	Date Received:	01/28/20
Method:	SW846 6850 SW846 6850	Percent Solids:	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Q67315.D	1	02/02/20 18:06	NAF	02/02/20 11:00	OP78776	SQ1519
Run #2							

	Initial Volume	Final Volume
Run #1	10.0 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
14797-73-0	Perchlorate	0.27	0.20	0.10	0.050	ug/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value

LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54TW13		
Lab Sample ID:	FA72036-3	Date Sampled:	01/27/20
Matrix:	AQ - Ground Water	Date Received:	01/28/20
Method:	SW846 8330B SW846 3535A	Percent Solids:	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB067861.D	1	02/03/20 19:18	WH	01/31/20 09:00	OP78763	GBB1981
Run #2 [b]	GG618384.D	1	02/05/20 11:37	WH	01/31/20 09:00	OP78763	GGG2807

	Initial Volume	Final Volume
Run #1	1060 ml	10.0 ml
Run #2	1060 ml	10.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	4.3	0.19	0.094	0.075	ug/l	
121-82-4	RDX	0.48	0.19	0.094	0.075	ug/l	
	DNX	0.094 U	0.19	0.094	0.075	ug/l	
	MNX	0.094 U	0.19	0.094	0.075	ug/l	
	TNX	0.094 U	0.19	0.094	0.075	ug/l	
618-87-1	3,5-Dinitroaniline [c]	0.45 J	0.19	0.094	0.075	ug/l	
99-65-0	1,3-Dinitrobenzene	0.094 U	0.19	0.094	0.075	ug/l	
606-20-2	2,6-Dinitrotoluene	0.094 U	0.19	0.094	0.075	ug/l	
121-14-2	2,4-Dinitrotoluene	0.094 U	0.19	0.094	0.075	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	1.1	0.19	0.094	0.075	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene	0.67	0.19	0.094	0.075	ug/l	
98-95-3	Nitrobenzene	0.094 U	0.19	0.094	0.092	ug/l	
88-72-2	o-Nitrotoluene	0.094 U	0.19	0.094	0.075	ug/l	
99-08-1	m-Nitrotoluene	0.094 U	0.19	0.094	0.075	ug/l	
99-99-0	p-Nitrotoluene	0.094 U	0.19	0.094	0.075	ug/l	
479-45-8	Tetryl	0.094 U	0.19	0.094	0.075	ug/l	
99-35-4	1,3,5-Trinitrobenzene	6.9	0.19	0.094	0.093	ug/l	
118-96-7	2,4,6-Trinitrotoluene	3.8	0.19	0.094	0.075	ug/l	
55-63-0	Nitroglycerine	0.94 U	1.9	0.94	0.47	ug/l	
78-11-5	PETN [d]	0.94 U UJ	1.9	0.94	0.47	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
610-39-9	3,4-Dinitrotoluene	113%	129%	70-136%

(a) All hits confirmed by reanalysis on a dissimilar column.
(b) Confirmation run.
(c) Primary and confirmation results differ by more than 40%.
(d) Associated CCV outside of DoD control limits high, sample was ND.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW12		
Lab Sample ID:	FA72036-4	Date Sampled:	01/27/20
Matrix:	AQ - Ground Water	Date Received:	01/28/20
Method:	SW846 6850 SW846 6850	Percent Solids:	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Q67316.D	1	02/02/20 18:16	NAF	02/02/20 11:00	OP78776	SQ1519
Run #2							

	Initial Volume	Final Volume
Run #1	10.0 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
14797-73-0	Perchlorate	0.49 J	0.20	0.10	0.050	ug/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value

LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW12		
Lab Sample ID:	FA72036-4	Date Sampled:	01/27/20
Matrix:	AQ - Ground Water	Date Received:	01/28/20
Method:	SW846 8330B SW846 3535A	Percent Solids:	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB067850.D	1	02/03/20 13:49	WH	01/31/20 09:00	OP78763	GBB1981
Run #2 [b]	GG618385.D	1	02/05/20 12:06	WH	01/31/20 09:00	OP78763	GGG2807

	Initial Volume	Final Volume
Run #1	1060 ml	10.0 ml
Run #2	1060 ml	10.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	13.1	0.19	0.094	0.075	ug/l	
121-82-4	RDX	0.56	0.19	0.094	0.075	ug/l	
	DNX	0.094 U	0.19	0.094	0.075	ug/l	
	MNX	0.094 U	0.19	0.094	0.075	ug/l	
	TNX	0.094 U	0.19	0.094	0.075	ug/l	
618-87-1	3,5-Dinitroaniline [c]	0.31	0.19	0.094	0.075	ug/l	J
99-65-0	1,3-Dinitrobenzene	0.094 U	0.19	0.094	0.075	ug/l	
606-20-2	2,6-Dinitrotoluene	0.094 U	0.19	0.094	0.075	ug/l	
121-14-2	2,4-Dinitrotoluene	0.094 U	0.19	0.094	0.075	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	4.3	0.19	0.094	0.075	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene [c]	2.2	0.19	0.094	0.075	ug/l	J
98-95-3	Nitrobenzene	0.094 U	0.19	0.094	0.092	ug/l	
88-72-2	o-Nitrotoluene	0.094 U	0.19	0.094	0.075	ug/l	
99-08-1	m-Nitrotoluene	0.094 U	0.19	0.094	0.075	ug/l	UJ
99-99-0	p-Nitrotoluene	0.094 U	0.19	0.094	0.075	ug/l	
479-45-8	Tetryl	0.094 U	0.19	0.094	0.075	ug/l	
99-35-4	1,3,5-Trinitrobenzene	17.3	0.19	0.094	0.093	ug/l	
118-96-7	2,4,6-Trinitrotoluene	10.2	0.19	0.094	0.075	ug/l	
55-63-0	Nitroglycerine	0.94 U	1.9	0.94	0.47	ug/l	
78-11-5	PETN [d]	0.94 U	1.9	0.94	0.47	ug/l	UJ

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
610-39-9	3,4-Dinitrotoluene	110%	129%	70-136%

(a) All hits confirmed by reanalysis on a dissimilar column.
(b) Confirmation run.
(c) Primary and confirmation results differ by more than 40%.
(d) Associated CCV outside of DoD control limits high, sample was ND.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

2/28/20 SGS

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW1		
Lab Sample ID:	FA72036-5	Date Sampled:	01/27/20
Matrix:	AQ - Ground Water	Date Received:	01/28/20
Method:	SW846 6850 SW846 6850	Percent Solids:	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Q67319.D	1	02/02/20 18:44	NAF	02/02/20 11:00	OP78776	SQ1519
Run #2							

	Initial Volume	Final Volume
Run #1	10.0 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
14797-73-0	Perchlorate	0.10 U	0.20	0.10	0.050	ug/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value

LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW1		
Lab Sample ID:	FA72036-5	Date Sampled:	01/27/20
Matrix:	AQ - Ground Water	Date Received:	01/28/20
Method:	SW846 8330B SW846 3535A	Percent Solids:	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BB067862.D	1	02/03/20 19:48	WH	01/31/20 09:00	OP78763	GBB1981
Run #2							

	Initial Volume	Final Volume
Run #1	1050 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	0.095 U	0.19	0.095	0.076	ug/l	
121-82-4	RDX	0.095 U	0.19	0.095	0.076	ug/l	
	DNX	0.095 U	0.19	0.095	0.076	ug/l	
	MNX	0.095 U	0.19	0.095	0.076	ug/l	
	TNX	0.095 U	0.19	0.095	0.076	ug/l	
618-87-1	3,5-Dinitroaniline	0.095 U	0.19	0.095	0.076	ug/l	
99-65-0	1,3-Dinitrobenzene	0.095 U	0.19	0.095	0.076	ug/l	
606-20-2	2,6-Dinitrotoluene	0.095 U	0.19	0.095	0.076	ug/l	
121-14-2	2,4-Dinitrotoluene	0.095 U	0.19	0.095	0.076	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	0.095 U	0.19	0.095	0.076	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene	0.095 U	0.19	0.095	0.076	ug/l	
98-95-3	Nitrobenzene	0.095 U	0.19	0.095	0.092	ug/l	
88-72-2	o-Nitrotoluene	0.095 U	0.19	0.095	0.076	ug/l	
99-08-1	m-Nitrotoluene	0.095 U	0.19	0.095	0.076	ug/l	
99-99-0	p-Nitrotoluene	0.095 U	0.19	0.095	0.076	ug/l	
479-45-8	Tetryl	0.095 U	0.19	0.095	0.076	ug/l	
99-35-4	1,3,5-Trinitrobenzene	0.095 U	0.19	0.095	0.094	ug/l	
118-96-7	2,4,6-Trinitrotoluene	0.095 U	0.19	0.095	0.076	ug/l	
55-63-0	Nitroglycerine	0.95 U	1.9	0.95	0.48	ug/l	
78-11-5	PETN [a]	0.95 U UJ	1.9	0.95	0.48	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
610-39-9	3,4-Dinitrotoluene	112%		70-136%

(a) Associated CCV outside of DoD control limits high, sample was ND.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

VALIDATA
Chemical Services, Inc.
(770) 232-0130
(770) 232-5082 (Fax)
2159 Wynnton Pointe, Duluth, GA 30097
www.datavalidator.com

DATA VALIDATION SUMMARY REPORT

COMPANY:	Weston Solutions, Inc.
SITE NAME:	Radford Army Ammunitions Plant
CONTRACTED LAB:	SGS Orlando, FL
QA/QC LEVEL:	EPA Stage 4
EPA SOW/METHODS:	EPA and SW-846 Methods
VALIDATION GUIDELINES:	*Radford Army Ammunitions Plant, Radford Virginia, SWMU 49 Monitored Natural Attenuation Groundwater Monitoring Work Plan, SWMU 54 Interim Measures Work Plan, QSM 5.1, SW 846 Methods, USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review,* 2017; *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review,* 2017
SAMPLE MATRIX:	Water
TYPE OF ANALYSIS:	Explosives, Perchlorate
SDG NUMBER:	FA74617
SAMPLING DATES:	April 28, 2020

SAMPLES:

Client Sample #	Lab Sample #	Matrix	Explosives*	Perchlorate
54MW13	FA74617-1	Water	X	X
54TW13	FA74617-2	Water	X	X
54MW10	FA74617-3	Water	X	X
54MW10DL	FA74617-3DL	Water	X	
54MW12	FA74617-4	Water	X	X
54MW12MS	FA74617-4MS	Water	X	X
54MW12MSD	FA74617-4MSD	Water	X	X
54MW1	FA74617-5	Water	X	X

* All samples were reanalyzed by the lab for explosives. Since the reanalysis results were not

reported on the Form Is, validation of the analyses was not performed.

Suffix Codes: DL = DILUTION, MS = MATRIX SPIKE, MSD = MATRIX SPIKE DUPLICATE, RA = REANALYSIS

DATA REVIEWERS: Amy L. Hogan, Kevin C. Harmon, Sandra Nacquin

DATA VALIDATION SUMMARY

SGS Orlando, FL – FA74617 - Organics

EXPLOSIVES

SUMMARY

I.) General:

The analyses for Explosives were performed according to SW 846 Method 8330.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualifications.

MAJOR ISSUES

There were no Major Issues for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No data qualification was necessary.

II.) Calibration:

Initial Calibration:

All Initial Calibration criteria were met. No data qualification was necessary.

Initial Calibration Verification (ICV):

All Initial Calibration Verification criteria were met. No data qualification was necessary.

Continuing Calibration:

The Percent Difference (%D) for the standards run on 5/4/20 at 21:52 on instrument G1315B was -20.2% for 2,6-dinitrotoluene, which exceeded the 20% QC limit. The results for this compound

in the SDG samples, which were all non-detect, were qualified as estimated (UJ).

The Percent Difference (%D) for the standards run on 5/5/20 at 12:13 on instrument G1315B was -29.13% for 2,6-dinitrotoluene, which exceeded the 20% QC limit. Since the compound was not the target compound for the associated sample analysis, no data qualification was necessary.

The Percent Difference (%D) for the standards run on 5/5/20 at 17:53 on instrument G1315B was -38.1% for 2,6-dinitrotoluene, which exceeded the 20% QC limit. Since the compound was not the target compound for the associated sample analysis, no data qualification was necessary.

III.) Blanks:

Method Blanks:

There were no detections in the associated method blank. No data qualification was necessary.

IV.) Surrogate Recoveries:

All Surrogate Recovery criteria were met.

V.) Laboratory Control Samples (LCS):

One LCS was analyzed for this fraction of the SDG. All criteria were met. No data qualification was necessary.

VI.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS/ MSD analyses were performed using sample 54MW12. The Percent Recoveries (%Rs) for 2,6-dinitrotoluene (144%, 145%) exceeded the QC limits. Since the parent sample result for this compound was non-detect, no data qualification was necessary.

VII.) Field Duplicates:

One set of field duplicate samples (54MW13 / 54TW13) was identified for this SDG. The calculable Relative Percent Differences (RPDs) were:

HMX	11%
RDX	30%
3,5-dinitroaniline	6%
2-amino-4,6-dinitrotoluene	19%
4-amino-2,4-dinitrotoluene	22%
1,3,5-trinitrobenzene	28%
2,4,6-trinitrotoluene	29%

All criteria were met. No data qualification was necessary.

VIII.) TCL Compound Identification:

The Column Relative Percent Difference (RPD) exceeded the 40% QC limit for the following compounds:

54MW13	3,5-dinitroaniline	106%
	4-amino-2,6-dinitrotoluene	56.3%
54TW13	3,5-dinitroaniline	98.4%
54MW10	3,5-dinitroaniline	79%
	2-amino-4,6-dinitrotoluene	75.4%
	4-amino-2,6-dinitrotoluene	45.9%
54MW12	3,5-dinitroaniline	145%
	4-amino-2,6-dinitrotoluene	50%

The positive compound results for the listed samples above were qualified as estimated (J).

IX.) Compound Quantitation and Reported Contract Required Quantitation Limits (CRQL):

The result for 2-amino-4,6-dinitroluene for the initial analysis for sample 54MW10 exceeded the linear calibration range. A 2X dilution analysis was performed for this sample with the calibration criteria met. Since the Form I is a composite of the results, no data qualification was necessary.

PERCHLORATE

SUMMARY

I.) General:

The analyses for Perchlorate were performed according to SW-846 Method 6350.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualifications.

MAJOR ISSUES

There were no Major Issues for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No data qualification was necessary.

II.) Calibration:

Initial Calibration:

All Initial Calibration criteria were met. No data qualification was necessary.

Initial Calibration Verification (ICV):

All Initial Calibration Verification criteria were met. No data qualification was necessary.

Continuing Calibration:

All Continuing Calibration criteria were met. No data qualification was necessary.

III.) Blanks:

There were no detections in the associated method blank. No data qualification was necessary.

IV.) Laboratory Control Samples (LCS):

One LCS was analyzed for this fraction of the SDG. All criteria were met. No data qualification was necessary.

V.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS/ MSD analyses were performed using sample 54MW12. The Percent Recoveries(%Rs) for perchlorate (70%, 60%) were below exceeded the QC limit. The positive result for perchlorate in the parent sample was qualified as estimated (J).

VI.) Field Duplicates:

One set of field duplicate samples (54MW13 / 54TW13) was identified for this SDG. The calculable Relative Percent Difference (RPD) of 0% was within the QC limit. No data qualification was necessary.

VII.) Internal Standards Performance (ISTD):

All ISTD criteria were met. No data qualification was necessary.

VIII.) TCL Compound Identification:

All TCL Compound Identification criteria were met. No data qualification was necessary.

IX.) Compound Quantitation and Reported Contract Required Quantitation Limits (CRQL):

All Compound Quantitation and Reported Contract Required Quantitation Limits (CRQL) criteria were met. No data qualification was necessary.

Appendix A
Qualified Form Is

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW13		
Lab Sample ID:	FA74617-1	Date Sampled:	04/28/20
Matrix:	AQ - Ground Water	Date Received:	04/29/20
Method:	SW846 8330B SW846 3535A	Percent Solids:	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	PP386868.D	1	05/04/20 17:14	WH	05/02/20 08:30	OP80038	GPP2268
Run #2 [b]	GG618849.D	1	05/06/20 15:29	WH	05/02/20 08:30	OP80038	GGG2834

	Initial Volume	Final Volume
Run #1	1040 ml	10.0 ml
Run #2	1040 ml	10.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	2.8	0.19	0.096	0.077	ug/l	
121-82-4	RDX	1.5	0.19	0.096	0.077	ug/l	
	DNX	0.096 U	0.19	0.096	0.077	ug/l	
	MNX	0.096 U	0.19	0.096	0.077	ug/l	
	TNX	0.096 U	0.19	0.096	0.077	ug/l	
618-87-1	3,5-Dinitroaniline [c]	0.34 J	0.19	0.096	0.077	ug/l	
99-65-0	1,3-Dinitrobenzene	0.096 U	0.19	0.096	0.077	ug/l	
606-20-2	2,6-Dinitrotoluene [d]	0.096 U	0.19	0.096	0.077	ug/l	
121-14-2	2,4-Dinitrotoluene	0.096 U	0.19	0.096	0.077	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	1.1	0.19	0.096	0.077	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene [c]	0.66 J	0.19	0.096	0.077	ug/l	
98-95-3	Nitrobenzene	0.096 U	0.19	0.096	0.093	ug/l	
88-72-2	o-Nitrotoluene	0.096 U	0.19	0.096	0.077	ug/l	
99-08-1	m-Nitrotoluene	0.096 U	0.19	0.096	0.077	ug/l	
99-99-0	p-Nitrotoluene	0.096 U	0.19	0.096	0.077	ug/l	
479-45-8	Tetryl	0.096 U	0.19	0.096	0.077	ug/l	
99-35-4	1,3,5-Trinitrobenzene	4.1	0.19	0.096	0.095	ug/l	
118-96-7	2,4,6-Trinitrotoluene	5.5	0.19	0.096	0.077	ug/l	
55-63-0	Nitroglycerine	0.96 U	1.9	0.96	0.48	ug/l	
78-11-5	PETN	0.96 U	1.9	0.96	0.48	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
610-39-9	3,4-Dinitrotoluene	107%	123%	70-136%

(a) All hits confirmed by reanalysis on a dissimilar column.
(b) Confirmation run.
(c) Primary and confirmation results differ by more than 40%.
(d) Associated CCV outside of DoD control limits high, sample was ND.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54TW13		
Lab Sample ID:	FA74617-2	Date Sampled:	04/28/20
Matrix:	AQ - Ground Water	Date Received:	04/29/20
Method:	SW846 8330B SW846 3535A	Percent Solids:	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	PP386869.D	1	05/04/20 17:45	WH	05/02/20 08:30	OP80038	GPP2268
Run #2 [b]	GG618850.D	1	05/06/20 15:58	WH	05/02/20 08:30	OP80038	GGG2834

	Initial Volume	Final Volume
Run #1	1050 ml	10.0 ml
Run #2	1050 ml	10.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	2.5	0.19	0.095	0.076	ug/l	
121-82-4	RDX	1.1	0.19	0.095	0.076	ug/l	
	DNX	0.095 U	0.19	0.095	0.076	ug/l	
	MNX	0.095 U	0.19	0.095	0.076	ug/l	
	TNX	0.095 U	0.19	0.095	0.076	ug/l	
618-87-1	3,5-Dinitroaniline [c]	0.32 J	0.19	0.095	0.076	ug/l	
99-65-0	1,3-Dinitrobenzene	0.095 U	0.19	0.095	0.076	ug/l	
606-20-2	2,6-Dinitrotoluene [d]	0.095 U	0.19	0.095	0.076	ug/l	
121-14-2	2,4-Dinitrotoluene	0.095 U	0.19	0.095	0.076	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	0.91	0.19	0.095	0.076	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene	0.53	0.19	0.095	0.076	ug/l	
98-95-3	Nitrobenzene	0.095 U	0.19	0.095	0.092	ug/l	
88-72-2	o-Nitrotoluene	0.095 U	0.19	0.095	0.076	ug/l	
99-08-1	m-Nitrotoluene	0.095 U	0.19	0.095	0.076	ug/l	
99-99-0	p-Nitrotoluene	0.095 U	0.19	0.095	0.076	ug/l	
479-45-8	Tetryl	0.095 U	0.19	0.095	0.076	ug/l	
99-35-4	1,3,5-Trinitrobenzene	3.1	0.19	0.095	0.094	ug/l	
118-96-7	2,4,6-Trinitrotoluene	4.1	0.19	0.095	0.076	ug/l	
55-63-0	Nitroglycerine	0.95 U	1.9	0.95	0.48	ug/l	
78-11-5	PETN	0.95 U	1.9	0.95	0.48	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
610-39-9	3,4-Dinitrotoluene	104%	125%	70-136%

(a) All hits confirmed by reanalysis on a dissimilar column.
(b) Confirmation run.
(c) Primary and confirmation results differ by more than 40%.
(d) Associated CCV outside of DoD control limits high, sample was ND.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW10		
Lab Sample ID:	FA74617-3	Date Sampled:	04/28/20
Matrix:	AQ - Ground Water	Date Received:	04/29/20
Method:	SW846 8330B SW846 3535A	Percent Solids:	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	PP386872.D	1	05/04/20 19:18	WH	05/02/20 08:30	OP80038	GPP2268
Run #2 [b]	GG618851.D	1	05/06/20 16:27	WH	05/02/20 08:30	OP80038	GGG2834
Run #3 [a]	PP386885.D	2	05/05/20 15:18	WH	05/02/20 08:30	OP80038	GPP2269
Run #4 [b]	GG618852.D	2	05/06/20 16:57	WH	05/02/20 08:30	OP80038	GGG2834

	Initial Volume	Final Volume
Run #1	1040 ml	10.0 ml
Run #2	1040 ml	10.0 ml
Run #3	1040 ml	10.0 ml
Run #4	1040 ml	10.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	5.1	0.19	0.096	0.077	ug/l	
121-82-4	RDX	5.1	0.19	0.096	0.077	ug/l	
	DNX	0.096 U	0.19	0.096	0.077	ug/l	
	MNX	0.096 U	0.19	0.096	0.077	ug/l	
	TNX	0.096 U	0.19	0.096	0.077	ug/l	
618-87-1	3,5-Dinitroaniline [c]	0.39	0.19	0.096	0.077	ug/l	J
99-65-0	1,3-Dinitrobenzene	0.096 U	0.19	0.096	0.077	ug/l	
606-20-2	2,6-Dinitrotoluene [d]	0.096 U	0.19	0.096	0.077	ug/l	U
121-14-2	2,4-Dinitrotoluene	0.096 U	0.19	0.096	0.077	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene [e]	4.2 [f]	0.38	0.19	0.15	ug/l	J
19406-51-0	4-amino-2,6-Dinitrotoluene [c]	1.5	0.19	0.096	0.077	ug/l	J
98-95-3	Nitrobenzene	0.096 U	0.19	0.096	0.093	ug/l	
88-72-2	o-Nitrotoluene	0.096 U	0.19	0.096	0.077	ug/l	
99-08-1	m-Nitrotoluene	0.096 U	0.19	0.096	0.077	ug/l	
99-99-0	p-Nitrotoluene	0.096 U	0.19	0.096	0.077	ug/l	
479-45-8	Tetryl	0.096 U	0.19	0.096	0.077	ug/l	
99-35-4	1,3,5-Trinitrobenzene	8.4	0.19	0.096	0.095	ug/l	
118-96-7	2,4,6-Trinitrotoluene	20.5	0.19	0.096	0.077	ug/l	
55-63-0	Nitroglycerine	0.96 U	1.9	0.96	0.48	ug/l	
78-11-5	PETN	0.96 U	1.9	0.96	0.48	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Run# 4	Limits
610-39-9	3,4-Dinitrotoluene	114%	123%	111%	124%	70-136%

(a) All hits confirmed by reanalysis on a dissimilar column.
(b) Confirmation run.
(c) Primary and confirmation results differ by more than 40%.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	54MW10		
Lab Sample ID:	FA74617-3	Date Sampled:	04/28/20
Matrix:	AQ - Ground Water	Date Received:	04/29/20
Method:	SW846 8330B SW846 3535A	Percent Solids:	n/a
Project:	Radford AAP; VA		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q

(d) Associated CCV outside of DoD control limits high, sample was ND.

(e) Primary and confirmation results differ by more than 40%. Dilution required due to high levels of TNT in the sample.

(f) Result is from Run# 3

U = Not detected LOD = Limit of Detection J = Indicates an estimated value

LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW12		
Lab Sample ID:	FA74617-4	Date Sampled:	04/28/20
Matrix:	AQ - Ground Water	Date Received:	04/29/20
Method:	SW846 6850 SW846 6850	Percent Solids:	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Q69822.D	1	04/30/20 20:47	MRE	04/30/20 13:00	OP80016	SQ1575
Run #2							

	Initial Volume	Final Volume
Run #1	10.0 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
14797-73-0	Perchlorate	0.73 J	0.20	0.10	0.050	ug/l	

U = Not detected LOD = Limit of Detection
LOQ = Limit of Quantitation DL = Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW12		
Lab Sample ID:	FA74617-4	Date Sampled:	04/28/20
Matrix:	AQ - Ground Water	Date Received:	04/29/20
Method:	SW846 8330B SW846 3535A	Percent Solids:	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	PP386873.D	1	05/04/20 19:49	WH	05/02/20 08:30	OP80038	GPP2268
Run #2 [b]	GG618853.D	1	05/06/20 17:26	WH	05/02/20 08:30	OP80038	GGG2834

	Initial Volume	Final Volume
Run #1	1060 ml	10.0 ml
Run #2	1060 ml	10.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	12.7	0.19	0.094	0.075	ug/l	
121-82-4	RDX	0.17	0.19	0.094	0.075	ug/l	J
	DNX	0.094 U	0.19	0.094	0.075	ug/l	
	MNX	0.094 U	0.19	0.094	0.075	ug/l	
	TNX	0.094 U	0.19	0.094	0.075	ug/l	
618-87-1	3,5-Dinitroaniline [c]	0.24 U	0.19	0.094	0.075	ug/l	
99-65-0	1,3-Dinitrobenzene	0.094 U	0.19	0.094	0.075	ug/l	
606-20-2	2,6-Dinitrotoluene [d]	0.094 U	0.19	0.094	0.075	ug/l	
121-14-2	2,4-Dinitrotoluene	0.094 U	0.19	0.094	0.075	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	4.0	0.19	0.094	0.075	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene [c]	2.5 J	0.19	0.094	0.075	ug/l	
98-95-3	Nitrobenzene	0.094 U	0.19	0.094	0.092	ug/l	
88-72-2	o-Nitrotoluene	0.094 U	0.19	0.094	0.075	ug/l	
99-08-1	m-Nitrotoluene	0.094 U	0.19	0.094	0.075	ug/l	
99-99-0	p-Nitrotoluene	0.094 U	0.19	0.094	0.075	ug/l	
479-45-8	Tetryl	0.094 U	0.19	0.094	0.075	ug/l	
99-35-4	1,3,5-Trinitrobenzene	9.5	0.19	0.094	0.093	ug/l	
118-96-7	2,4,6-Trinitrotoluene	8.3	0.19	0.094	0.075	ug/l	
55-63-0	Nitroglycerine	0.94 U	1.9	0.94	0.47	ug/l	
78-11-5	PETN	0.94 U	1.9	0.94	0.47	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
610-39-9	3,4-Dinitrotoluene	121%	124%	70-136%

(a) All hits confirmed by reanalysis on a dissimilar column.
(b) Confirmation run.
(c) Primary and confirmation results differ by more than 40%.
(d) Associated CCV outside of DoD control limits high, sample was ND.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW1		
Lab Sample ID:	FA74617-5	Date Sampled:	04/28/20
Matrix:	AQ - Ground Water	Date Received:	04/29/20
Method:	SW846 8330B SW846 3535A	Percent Solids:	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	PP386874.D	1	05/04/20 20:20	WH	05/02/20 08:30	OP80038	GPP2268
Run #2							

	Initial Volume	Final Volume
Run #1	1040 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	0.096 U	0.19	0.096	0.077	ug/l	
121-82-4	RDX	0.096 U	0.19	0.096	0.077	ug/l	
	DNX	0.096 U	0.19	0.096	0.077	ug/l	
	MNX	0.096 U	0.19	0.096	0.077	ug/l	
	TNX	0.096 U	0.19	0.096	0.077	ug/l	
618-87-1	3,5-Dinitroaniline	0.096 U	0.19	0.096	0.077	ug/l	
99-65-0	1,3-Dinitrobenzene	0.096 U	0.19	0.096	0.077	ug/l	
606-20-2	2,6-Dinitrotoluene [a]	0.096 U	0.19	0.096	0.077	ug/l	
121-14-2	2,4-Dinitrotoluene	0.096 U	0.19	0.096	0.077	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	0.096 U	0.19	0.096	0.077	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene	0.096 U	0.19	0.096	0.077	ug/l	
98-95-3	Nitrobenzene	0.096 U	0.19	0.096	0.093	ug/l	
88-72-2	o-Nitrotoluene	0.096 U	0.19	0.096	0.077	ug/l	
99-08-1	m-Nitrotoluene	0.096 U	0.19	0.096	0.077	ug/l	
99-99-0	p-Nitrotoluene	0.096 U	0.19	0.096	0.077	ug/l	
479-45-8	Tetryl	0.096 U	0.19	0.096	0.077	ug/l	
99-35-4	1,3,5-Trinitrobenzene	0.096 U	0.19	0.096	0.095	ug/l	
118-96-7	2,4,6-Trinitrotoluene	0.096 U	0.19	0.096	0.077	ug/l	
55-63-0	Nitroglycerine	0.96 U	1.9	0.96	0.48	ug/l	
78-11-5	PETN	0.96 U	1.9	0.96	0.48	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
610-39-9	3,4-Dinitrotoluene	103%		70-136%

(a) Associated CCV outside of DoD control limits high, sample was ND.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

VALIDATA
Chemical Services, Inc.
(770) 232-0130
(770) 232-5082 (Fax)
2159 Wynnton Pointe, Duluth, GA 30097
www.datavalidator.com

DATA VALIDATION SUMMARY REPORT

COMPANY:	Weston Solutions, Inc.
SITE NAME:	Radford Army Ammunitions Plant
CONTRACTED LAB:	SGS Orlando, FL
QA/QC LEVEL:	EPA Stage 4
EPA SOW/METHODS:	EPA and SW-846 Methods
VALIDATION GUIDELINES:	*Radford Army Ammunitions Plant, Radford Virginia, SWMU 49 Monitored Natural Attenuation Groundwater Monitoring Work Plan, SWMU 54 Interim Measures Work Plan, QSM 5.1, SW 846 Methods, USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review,* 2017; *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review,* 2017
SAMPLE MATRIX:	Water
TYPE OF ANALYSIS:	Explosives, Perchlorate
SDG NUMBER:	FA77052
SAMPLING DATES:	July 21, 2020

SAMPLES:

Client Sample #	Lab Sample #	Matrix	Explosives	Perchlorate
54MW13*	FA77052-1	Water	X	X
54TW13*	FA77052-2	Water	X	X
54MW12*	FA77052-3	Water	X	X
54MW12MS	FA77052-3MS	Water	X	X
54MW12MSD	FA77052-3MS	Water	X	X
54MW10	FA77052-4	Water	X	X
54MW1	FA77052-5	Water	X	X

* sample was reanalyzed by the lab for explosives. Since the reanalysis results were not reported on the Form Is, validation of the analyses was not performed.

Suffix Codes: DL = DILUTION, MS = MATRIX SPIKE, MSD = MATRIX SPIKE DUPLICATE, RA = REANALYSIS

DATA REVIEWERS: Amy L. Hogan, Kevin C. Harmon, Sandra Nacquin

DATA VALIDATION SUMMARY

SGS Orlando, FL – FA77052 - Organics

EXPLOSIVES

SUMMARY

I.) General:

The analyses for Explosives were performed according to SW 846 Method 8330.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualifications.

MAJOR ISSUES

There were no Major Issues for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No data qualification was necessary.

II.) Calibration:

Initial Calibration:

All Initial Calibration criteria were met. No data qualification was necessary.

Initial Calibration Verification (ICV):

All ICV criteria were met. No data qualification was necessary.

Continuing Calibration:

The Percent Differences (%Ds) for the standards run on 7/29/20 at 13:34 on instrument G1315B were TNX (-33.5%, -29.6%) and DNX (42.5%, 43.6%), which exceeded the 20% QC limit. Since the associated sample analyses were for lab confirmation purposes only, no data qualification was

necessary.

The Percent Differences (%Ds) for the standards run on 7/29/20 at 18:58 on instrument G1315B were DMX (40.2%, 37.4%) and 2,6-dinitrotoluene (23.3%), which exceeded the 20% QC limit. Since the associated sample analyses were for lab confirmation purposes only, no data qualification was necessary.

III.) Blanks:

Method Blanks:

There were no detections in the associated method blank. No data qualification was necessary.

IV.) Surrogate Recoveries:

All Surrogate Recovery criteria were met.

V.) Laboratory Control Samples (LCS):

One LCS was analyzed for this fraction of the SDG. All criteria were met. No data qualification was necessary.

VI.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS/ MSD analyses were performed using sample 54MW12. The Percent Recoveries (%Rs) for DNX (131%), o-nitrotoluene (74%) and 1,3,5-trinitrobenzene (74%) were outside the QC limits. Data qualification based on MS / MSD data alone was not required. No data qualification was necessary.

VII.) Field Duplicates:

One set of field duplicate samples (54MW13 / 54TW13) was identified for this SDG. The calculable Relative Percent Differences (RPDs) were:

HMX	0%
RDX	2.3%
3,5-dinitroaniline	5.9%
2-amino-4,6-dinitrotoluene	5.3%
4-amino-2,6-dinitrotoluene	7.2%
1,3,5-trinitrobenzene	12%
2,4,6-trinitrobenzene	13%

All criteria were met. No data qualification was necessary.

VIII.) TCL Compound Identification:

The Column Relative Percent Difference (RPD) exceeded the 40% QC limit for the following compounds:

54MW13	RDX	49.1%
	3,5-dinitroaniline	108%
	4-amino-2,6-dinitrotoluene	60.2%
54TW13	HMX	68.3%
	3,5-dinitroaniline	103%
	4-amino-2,6-dinitrotoluene	68.8%
54MW12	3,5-dinitroaniline	136%
	4-amino-2,6-dinitrotoluene	58.8%

The positive compound results for the listed samples above were qualified as estimated (J).

IX.) Compound Quantitation and Reported Contract Required Quantitation Limits (CRQL):

All Compound Quantitation and Reported Contract Required Quantitation Limits (CRQL) criteria were met. No data qualification was necessary.

PERCHLORATE

SUMMARY

I.) General:

The analyses for Perchlorate were performed according to SW-846 Method 6350.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualifications.

MAJOR ISSUES

There were no Major Issues for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No data qualification was necessary.

II.) Calibration:

Initial Calibration:

All Initial Calibration criteria were met. No data qualification was necessary.

Initial Calibration Verification (ICV):

All Initial Calibration Verification criteria were met. No data qualification was necessary.

Continuing Calibration:

All Continuing Calibration criteria were met. No data qualification was necessary.

III.) Blanks:

There were no detections in the associated method blank. No data qualification was necessary.

IV.) Laboratory Control Samples (LCS):

One LCS was analyzed for this fraction of the SDG. All criteria were met. No data qualification was necessary.

V.) Matrix Spike / Matrix Spike Duplicate (MS / MSD):

MS/ MSD analyses were performed using sample 54MW12. All criteria were met. No data qualification was necessary.

VI.) Field Duplicates:

One set of field duplicate samples (54MW13 / 54TW13) was identified for this SDG. The calculable Relative Percent Differences (RPDs) was 3.4%, which was within the QC limit. No data qualification was necessary.

VII.) Internal Standards Performance (ISTD):

All ISTD criteria were met. No data qualification was necessary.

VIII.) TCL Compound Identification:

All TCL Compound Identification criteria were met. No data qualification was necessary.

IX.) Compound Quantitation and Reported Contract Required Quantitation Limits (CRQL):

All Compound Quantitation and Reported Contract Required Quantitation Limits (CRQL) criteria were met. No data qualification was necessary.

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW13		
Lab Sample ID:	FA77052-1	Date Sampled:	07/21/20
Matrix:	AQ - Ground Water	Date Received:	07/22/20
Method:	SW846 8330B SW846 8330B	Percent Solids:	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB068457.D	1	07/27/20 21:21	WH	07/27/20 07:00	OP81252	GBB2008
Run #2 [b]	GG619139.D	1	07/29/20 14:33	WH	07/27/20 07:00	OP81252	GGG2858

	Initial Volume	Final Volume
Run #1	1020 ml	10.0 ml
Run #2	1020 ml	10.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	2.7	0.20	0.098	0.078	ug/l	
121-82-4	RDX [c]	0.43 J	0.20	0.098	0.078	ug/l	
	DNX	0.098 U	0.20	0.098	0.078	ug/l	
	MNX	0.098 U	0.20	0.098	0.078	ug/l	
	TNX	0.098 U	0.20	0.098	0.078	ug/l	
618-87-1	3,5-Dinitroaniline [c]	0.33 J	0.20	0.098	0.078	ug/l	
99-65-0	1,3-Dinitrobenzene	0.098 U	0.20	0.098	0.078	ug/l	
606-20-2	2,6-Dinitrotoluene	0.098 U	0.20	0.098	0.078	ug/l	
121-14-2	2,4-Dinitrotoluene	0.098 U	0.20	0.098	0.078	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	0.92	0.20	0.098	0.078	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene [c]	0.80 J	0.20	0.098	0.078	ug/l	
98-95-3	Nitrobenzene	0.098 U	0.20	0.098	0.095	ug/l	
88-72-2	o-Nitrotoluene	0.098 U	0.20	0.098	0.078	ug/l	
99-08-1	m-Nitrotoluene	0.098 U	0.20	0.098	0.078	ug/l	
99-99-0	p-Nitrotoluene	0.098 U	0.20	0.098	0.078	ug/l	
479-45-8	Tetryl	0.098 U	0.20	0.098	0.078	ug/l	
99-35-4	1,3,5-Trinitrobenzene	5.6	0.20	0.098	0.097	ug/l	
118-96-7	2,4,6-Trinitrotoluene	8.3	0.20	0.098	0.078	ug/l	
55-63-0	Nitroglycerine	0.98 U	2.0	0.98	0.49	ug/l	
78-11-5	PETN	0.98 U	2.0	0.98	0.49	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
610-39-9	3,4-Dinitrotoluene	118%	128%	70-136%

(a) All hits confirmed by reanalysis on a dissimilar column.
(b) Confirmation run.
(c) Primary and confirmation results differ by more than 40%.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54TW13		
Lab Sample ID:	FA77052-2	Date Sampled:	07/21/20
Matrix:	AQ - Ground Water	Date Received:	07/22/20
Method:	SW846 6850 SW846 6850	Percent Solids:	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Q71892.D	1	08/05/20 09:43	NC	08/04/20 12:00	OP81404	SQ1630
Run #2							

	Initial Volume	Final Volume
Run #1	10.0 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
14797-73-0	Perchlorate	0.29	0.20	0.10	0.050	ug/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value

LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54TW13		
Lab Sample ID:	FA77052-2	Date Sampled:	07/21/20
Matrix:	AQ - Ground Water	Date Received:	07/22/20
Method:	SW846 8330B SW846 8330B	Percent Solids:	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB068458.D	1	07/27/20 21:51	WH	07/27/20 07:00	OP81252	GBB2008
Run #2 [b]	GG619140.D	1	07/29/20 15:02	WH	07/27/20 07:00	OP81252	GGG2858

	Initial Volume	Final Volume
Run #1	1000 ml	10.0 ml
Run #2	1000 ml	10.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX [c]	2.7 J	0.20	0.10	0.080	ug/l	
121-82-4	RDX	0.44	0.20	0.10	0.080	ug/l	
	DNX	0.10 U	0.20	0.10	0.080	ug/l	
	MNX	0.10 U	0.20	0.10	0.080	ug/l	
	TNX	0.10 U	0.20	0.10	0.080	ug/l	
618-87-1	3,5-Dinitroaniline [c]	0.35 J	0.20	0.10	0.080	ug/l	
99-65-0	1,3-Dinitrobenzene	0.10 U	0.20	0.10	0.080	ug/l	
606-20-2	2,6-Dinitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
121-14-2	2,4-Dinitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	0.97	0.20	0.10	0.080	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene [c]	0.86 J	0.20	0.10	0.080	ug/l	
98-95-3	Nitrobenzene	0.10 U	0.20	0.10	0.097	ug/l	
88-72-2	o-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
99-08-1	m-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
99-99-0	p-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
479-45-8	Tetryl	0.10 U	0.20	0.10	0.080	ug/l	
99-35-4	1,3,5-Trinitrobenzene	6.3	0.20	0.10	0.099	ug/l	
118-96-7	2,4,6-Trinitrotoluene	9.5	0.20	0.10	0.080	ug/l	
55-63-0	Nitroglycerine	1.0 U	2.0	1.0	0.50	ug/l	
78-11-5	PETN	1.0 U	2.0	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
610-39-9	3,4-Dinitrotoluene	116%	126%	70-136%

(a) All hits confirmed by dual column analysis.
(b) Confirmation run.
(c) Primary and confirmation results differ by more than 40%.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW13		
Lab Sample ID:	FA77052-1	Date Sampled:	07/21/20
Matrix:	AQ - Ground Water	Date Received:	07/22/20
Method:	SW846 6850 SW846 6850	Percent Solids:	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Q71891.D	1	08/05/20 09:34	NC	08/04/20 12:00	OP81404	SQ1630
Run #2							

	Initial Volume	Final Volume
Run #1	10.0 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
14797-73-0	Perchlorate	0.30	0.20	0.10	0.050	ug/l	

U = Not detected LOD = Limit of Detection
LOQ = Limit of Quantitation DL = Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW12		
Lab Sample ID:	FA77052-3	Date Sampled:	07/21/20
Matrix:	AQ - Ground Water	Date Received:	07/22/20
Method:	SW846 8330B SW846 8330B	Percent Solids:	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB068459.D	1	07/27/20 22:21	WH	07/27/20 07:00	OP81252	GBB2008
Run #2 [b]	GG619141.D	1	07/29/20 15:32	WH	07/27/20 07:00	OP81252	GGG2858

	Initial Volume	Final Volume
Run #1	1000 ml	10.0 ml
Run #2	1000 ml	10.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	12.2	0.20	0.10	0.080	ug/l	
121-82-4	RDX	0.10 U	0.20	0.10	0.080	ug/l	
	DNX	0.10 U	0.20	0.10	0.080	ug/l	
	MNX	0.10 U	0.20	0.10	0.080	ug/l	
	TNX	0.10 U	0.20	0.10	0.080	ug/l	
618-87-1	3,5-Dinitroaniline [c]	0.23 J	0.20	0.10	0.080	ug/l	
99-65-0	1,3-Dinitrobenzene	0.10 U	0.20	0.10	0.080	ug/l	
606-20-2	2,6-Dinitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
121-14-2	2,4-Dinitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	3.6	0.20	0.10	0.080	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene [c]	2.2 J	0.20	0.10	0.080	ug/l	
98-95-3	Nitrobenzene	0.10 U	0.20	0.10	0.097	ug/l	
88-72-2	o-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
99-08-1	m-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
99-99-0	p-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
479-45-8	Tetryl	0.10 U	0.20	0.10	0.080	ug/l	
99-35-4	1,3,5-Trinitrobenzene	5.9	0.20	0.10	0.099	ug/l	
118-96-7	2,4,6-Trinitrotoluene	4.1	0.20	0.10	0.080	ug/l	
55-63-0	Nitroglycerine	1.0 U	2.0	1.0	0.50	ug/l	
78-11-5	PETN	1.0 U	2.0	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
610-39-9	3,4-Dinitrotoluene	106%	124%	70-136%

(a) All hits confirmed by dual column analysis.
(b) Confirmation run.
(c) Primary and confirmation results differ by more than 40%.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW12		
Lab Sample ID:	FA77052-3	Date Sampled:	07/21/20
Matrix:	AQ - Ground Water	Date Received:	07/22/20
Method:	SW846 6850 SW846 6850	Percent Solids:	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Q71893.D	1	08/05/20 09:52	NC	08/04/20 12:00	OP81404	SQ1630
Run #2							

	Initial Volume	Final Volume
Run #1	10.0 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
14797-73-0	Perchlorate	0.75	0.20	0.10	0.050	ug/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW10		
Lab Sample ID:	FA77052-4	Date Sampled:	07/21/20
Matrix:	AQ - Ground Water	Date Received:	07/22/20
Method:	SW846 8330B SW846 8330B	Percent Solids:	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BB068460.D	1	07/27/20 22:50	WH	07/27/20 07:00	OP81252	GBB2008
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	0.10 U	0.20	0.10	0.080	ug/l	
121-82-4	RDX	0.10 U	0.20	0.10	0.080	ug/l	
	DNX	0.10 U	0.20	0.10	0.080	ug/l	
	MNX	0.10 U	0.20	0.10	0.080	ug/l	
	TNX	0.10 U	0.20	0.10	0.080	ug/l	
618-87-1	3,5-Dinitroaniline	0.10 U	0.20	0.10	0.080	ug/l	
99-65-0	1,3-Dinitrobenzene	0.10 U	0.20	0.10	0.080	ug/l	
606-20-2	2,6-Dinitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
121-14-2	2,4-Dinitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
98-95-3	Nitrobenzene	0.10 U	0.20	0.10	0.097	ug/l	
88-72-2	o-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
99-08-1	m-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
99-99-0	p-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
479-45-8	Tetryl	0.10 U	0.20	0.10	0.080	ug/l	
99-35-4	1,3,5-Trinitrobenzene	0.10 U	0.20	0.10	0.099	ug/l	
118-96-7	2,4,6-Trinitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
55-63-0	Nitroglycerine	1.0 U	2.0	1.0	0.50	ug/l	
78-11-5	PETN	1.0 U	2.0	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
610-39-9	3,4-Dinitrotoluene	98%		70-136%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value

LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW10		
Lab Sample ID:	FA77052-4	Date Sampled:	07/21/20
Matrix:	AQ - Ground Water	Date Received:	07/22/20
Method:	SW846 6850 SW846 6850	Percent Solids:	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Q71896.D	1	08/05/20 10:19	NC	08/04/20 12:00	OP81404	SQ1630
Run #2							

	Initial Volume	Final Volume
Run #1	10.0 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
14797-73-0	Perchlorate	0.10 U	0.20	0.10	0.050	ug/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value

LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	54MW1		
Lab Sample ID:	FA77052-5	Date Sampled:	07/21/20
Matrix:	AQ - Ground Water	Date Received:	07/22/20
Method:	SW846 8330B SW846 8330B	Percent Solids:	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BB068461.D	1	07/27/20 23:20	WH	07/27/20 07:00	OP81252	GBB2008
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	0.10 U	0.20	0.10	0.080	ug/l	
121-82-4	RDX	0.10 U	0.20	0.10	0.080	ug/l	
	DNX	0.10 U	0.20	0.10	0.080	ug/l	
	MNX	0.10 U	0.20	0.10	0.080	ug/l	
	TNX	0.10 U	0.20	0.10	0.080	ug/l	
618-87-1	3,5-Dinitroaniline	0.10 U	0.20	0.10	0.080	ug/l	
99-65-0	1,3-Dinitrobenzene	0.10 U	0.20	0.10	0.080	ug/l	
606-20-2	2,6-Dinitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
121-14-2	2,4-Dinitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
98-95-3	Nitrobenzene	0.10 U	0.20	0.10	0.097	ug/l	
88-72-2	o-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
99-08-1	m-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
99-99-0	p-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
479-45-8	Tetryl	0.10 U	0.20	0.10	0.080	ug/l	
99-35-4	1,3,5-Trinitrobenzene	0.10 U	0.20	0.10	0.099	ug/l	
118-96-7	2,4,6-Trinitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
55-63-0	Nitroglycerine	1.0 U	2.0	1.0	0.50	ug/l	
78-11-5	PETN	1.0 U	2.0	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
610-39-9	3,4-Dinitrotoluene	103%		70-136%

U = Not detected LOD = Limit of Detection J = Indicates an estimated value

LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW1		
Lab Sample ID:	FA77052-5	Date Sampled:	07/21/20
Matrix:	AQ - Ground Water	Date Received:	07/22/20
Method:	SW846 6850 SW846 6850	Percent Solids:	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Q71897.D	1	08/05/20 10:28	NC	08/04/20 12:00	OP81404	SQ1630
Run #2							

	Initial Volume	Final Volume
Run #1	10.0 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
14797-73-0	Perchlorate	0.10 U	0.20	0.10	0.050	ug/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

APPENDIX B-2
LABORATORY ANALYTICAL REPORTS

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ANALYTICAL RESULTS FOR:

ANTHONY PACE
WESTON SOLUTIONS, INC.
2 EATON STREET
SUITE 603
HAMPTON, VA 23669

PROJECT SITE:	RFAAP SWMU-54; RADFORD, VA
DOD CONTRACT #:	
PROJECT #:	
SDG:	151023
PREPARED:	February 21, 2020
TOTAL # OF PAGES:	830

The data contained in the following report have been reviewed by the appropriate CT Laboratories' LLC staff members. In addition, CT Laboratories LLC certifies that to the best of our knowledge that the analyses reported herein are true, complete and correct within the limits of the methods employed and that they follow the applicable requirements as specified by the project plan, state-specific, NELAC or DOD QSM requirements. The estimated uncertainty of measurement is only available upon request. The reported results relate only to the tested samples. This report shall not be reproduced, except in full, without written approval of CT Laboratories LLC.

APPROVED BY: Brett Szymanski
PROJECT MANAGER

Certifications: IL (NELAP 200073), KS (NELAP E-10368), WI (157066030), DOD ELAP (A2LA 3806.01), VA (NELAP 4602038), MD (WI 00061), LA (NELAP ACC20160002), ISO17025 (A2LA 3806.01), GA EDP Stipulation (Accreditor: LA NELAP, ACC#: ACC20160002, Scope: Non-potable water solid and chemical materials, biological tissue, Effective: 12/10/2014, Expires: annually)

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Case Narrative

Client: Bering Sea Environmental
Project: RFAAP SWMU-54, Radford, VA
Sample Receipt Date: 01/28/2020
SDG #: 151023

Six water samples were received and analyzed for a variety of parameters, including: Metals, pH, COD, Anions, Chlorate/Chlorite, TIC, and TOC. The Chlorate/Chlorite analysis was subcontracted to Eurofins Eaton Analytical in South Bend, IN. The assigned sample ID number, date sampled, and date received are indicated in the attached Project Summary. The samples were received intact and at a temperature within method specified acceptance limits. A breakdown of sample receipt information can be found on the Sample Condition Report located in the last section of the data package and any exceptions are noted below. The analyses were performed following DOD QSM 5.1 requirements.

Manual integrations may have been performed on the data provided with this package. If manual integrations were performed, a Reason #(s) was included on the raw data that corresponds to the "Index Key for Manual Integration Rationale." The raw data includes a "Before" and "After" manual integration illustration. The manual integrations were initialed and dated by the analyst, as well as, by the person reviewing the data.

Sample Analysis and Quality Control

Metals Analysis:

The samples were analyzed using US EPA Methods 6010C (ICP) and 7470A (Hg). All samples were analyzed within the holding time. The following summaries of quality control procedures are included:

Initial and Continuing Calibration Verification
Blanks Summary
ICP Interference Check Data
Spike Sample Recovery
Duplicates Data
Laboratory Control Sample Data
Analysis Run Log

All analysis results met the method specified quality control criteria with the following exceptions:

ICP Metals (6010C) Water Analysis

Continuing Calibration Verification (CCV) standards were analyzed at two levels (CCV1 & CCV2) with potentially differing wavelengths. Data associated with CCV's were evaluated based on the concentration of the element in the samples and compared to the appropriate CCV level/wavelength.

Some samples may have been analyzed and/or reanalyzed diluted to obtain results for all target analytes within the calibration range of the instrument.

Analytical Run # 168515

Selenium and silver were detected in the Method Blank (MB) greater than the Method Detection Limit (MDL) but less than ½ the Reporting Limit (RL). The sample was reported and qualified with a "B" flag for silver because the MB silver result was greater than 1/10th of the sample result. The sample was reported and not qualified for selenium because the result was less than the MDL.

The Duplicate (DUP) for sample # 383235 was not applicable for aluminum, antimony, arsenic, beryllium, cadmium, chromium, cobalt, copper, iron, lead, manganese, nickel, selenium, silver, thallium, vanadium, and zinc because the parent sample results were less than five times the Limit of Quantitation (LOQ). A Matrix Spike Duplicate (MSD) was analyzed to demonstrate precision and was acceptable. The parent sample was reported and not qualified.

ICP Sodium & Potassium (6010C) Water Analysis

Analytical Run # 168516

The DUP for sample # 383235 was not applicable for potassium because the parent sample result was less than five times the LOQ. An MSD was analyzed to demonstrate precision and was acceptable. The parent sample was reported and not qualified.

CVAA Mercury (7470A) Water Analysis

Analytical Run # 168893

All analytical results for this run met the method/project specified quality control criteria.

Inorganic Analysis:

The samples were analyzed using US EPA Methods 9060A (TIC/TOC), 9040C (pH), 410.4 (COD) and 9056A (Anions). All samples were analyzed within the holding time unless noted below. The following summaries of quality control procedures are included:

Duplicate Analysis Data
Laboratory Control Spike Data
Method Blank Data
Initial Calibration Summary
Calibration Check Summary
Analysis Run Log
Prep Log

All analysis results met the method specified quality control criteria with the following exceptions:

Some samples may have been analyzed and/or reanalyzed diluted to obtain results for all target analytes within the calibration range of the instrument.

Anions (9056A) Water Analysis

Analytical Run # 168460

The Matrix Spike (MS) for sample # 383233 had a low recovery for sulfate. The parent sample result for this analyte was qualified with an "M" flag.

COD (410.4) Water Analysis

Analytical Run # 166330

The MSD for sample # 383235 had a high recovery. The parent sample result was qualified with an "M" flag. The Duplicate (DUP) and the MS/MSD for this sample exceeded Relative Percent Difference (RPD) limits. The parent sample result was qualified with a "Y" flag.

pH (9040C) Water Analysis

Analytical Run # 168475

All analytical results for this run met the method/project specified quality control criteria.

TIC (9060A) Water Analysis

Analytical Run # 168547

All analytical results for this run met the method/project specified quality control criteria.

TOC (9060A) Water Analysis

Analytical Run # 168604

All analytical results for this run met the method/project specified quality control criteria.

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Data Qualifiers

Code	Description
A	Analyte averaged calibration criteria within acceptable limits.
B	Analyte detected in associated Method Blank.
C	Toxicity present in BOD sample.
D	Diluted Out.
E	Safe, No Total Coliform detected.
F	Unsafe, Total Coliform detected, no E. Coli detected.
G	Unsafe, Total Coliform detected and E. Coli detected.
H	Holding time exceeded.
J	Estimated value.
L	Significant peaks were detected outside the chromatographic window.
M	Matrix spike and/or Matrix Spike Duplicate recovery outside acceptance limits.
N	Insufficient BOD oxygen depletion.
O	Complete BOD oxygen depletion.
P	Concentration of analyte differs more than 40% between primary and confirmation analysis.
Q	Laboratory Control Sample outside acceptance limits.
R	See Narrative at end of report.
S	Surrogate standard recovery outside acceptance limits due to apparent matrix effects.
T	Sample received with improper preservation or temperature.
U	Analyte concentration was not above the detection level.
V	Raised Quantitation or Reporting Limit due to limited sample amount or dilution for matrix background interference.
W	Sample amount received was below program minimum.
X	Analyte exceeded calibration range.
Y	Replicate/Duplicate precision outside acceptance limits.
Z	Calibration criteria exceeded.

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MANUAL INTEGRATION REASON CODES

CTLaboratories has identified four general cases with valid reasons supporting the use of manual integration techniques. These codes are used on chromatograms in this data package to document the reasons for manual integrations per CTLaboratories' SOP SS-10 current revision.

#1: **Data system failed to select the correct peak or missed the peak entirely.**
In some cases the chromatography system selects and integrates the "wrong peak". In this case the analyst must correct the selection and force the system to integrate the proper peak. In other instances the system may miss the peak completely. In this case the analyst manually integrated the peak

#2: **Data System Splits the Peak Incorrectly or Integrates a False Peak as a Rider Peak.**
This phenomenon is common at low concentrations where the signal to noise ratio is low. A single compound (peak) is incorrectly split into multiple peaks or integrated as a main peak with one or more rider peaks resulting in low or high area counts for the target compound.

#3: Improperly Integrated Isomers and/or coeluting compounds.
For when the system fails to distinguish coeluting compounds and or isomers. The integration areas and concentrations may be inaccurate, and they must be corrected by manual integration. Prime examples are compounds that are unresolved and integrated improperly when present at low concentrations in standards or samples.

#4: System Established Incorrect Baseline.
There are numerous situations in chromatography where the system establishes the baseline incorrectly. Some baseline errors will be obvious to the analyst and may be corrected via manual procedures.

#5: Miscellaneous.
Some situations involving integration errors may require in-depth review and technical judgment. These cases should be brought to the attention of the group supervisor. If the form of manual integration is not clearly covered by these four cases, then review and approval by the group supervisor or the *QA/QC* Supervisor will be required.

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1230 Lange Court • Baraboo, WI 53913 • 608-356-2760
www.ctlaboratories.com

Sample Delivery Group

151023

WESTON SOLUTIONS, INC.
ANTHONY PACE
2 EATON STREET
SUITE 603
HAMPTON, VA 23669

Project Name: RADFORD AAP SWMU 54
Project #:

	CT Sample #	Folder #	Client Sample #	Sample Description	Matrix	Date Sampled	Date Received
1	383230	151023		54MW10	GROUND WATER	01/27/2020	01/28/2020
2	383231	151023		54MW13	GROUND WATER	01/27/2020	01/28/2020
3	383232	151023		54TW13	GROUND WATER	01/27/2020	01/28/2020
4	383233	151023		54MW12	GROUND WATER	01/27/2020	01/28/2020
5	383234	151023		54MW1	GROUND WATER	01/27/2020	01/28/2020
6	383235	151023		54IDW	GROUND WATER	01/27/2020	01/28/2020

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www.ctlaboratories.com

QC Batch Cross Reference Summary

WESTON SOLUTIONS, INC.
ANTHONY PACE
2 EATON STREET
SUITE 603
HAMPTON, VA 23669

Project Name: RADFORD AAP SWMU 54
Project #:
Report Date: 02/21/2020
Date Received: 01/28/2020
SDG #: 151023

Inorganic Parameters

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
383235	pH	EPA 9040C	GROUND WATER		168475

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
383230	Carbon , Total Inorganic and Orga	EPA 9060A	GROUND WATER		168547
383231	Carbon , Total Inorganic and Orga	EPA 9060A	GROUND WATER		168547
383232	Carbon , Total Inorganic and Orga	EPA 9060A	GROUND WATER		168547
383233	Carbon , Total Inorganic and Orga	EPA 9060A	GROUND WATER		168547
383234	Carbon , Total Inorganic and Orga	EPA 9060A	GROUND WATER		168547

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
383235	COD QSM	EPA 410.4	GROUND WATER	75381	168576

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
383230	Anions QSM 5.0	EPA 9056A	GROUND WATER		168460
383231	Anions QSM 5.0	EPA 9056A	GROUND WATER		168460
383232	Anions QSM 5.0	EPA 9056A	GROUND WATER		168460
383233	Anions QSM 5.0	EPA 9056A	GROUND WATER		168460
383234	Anions QSM 5.0	EPA 9056A	GROUND WATER		168460

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
383230	Organic Carbon, Total QSM 5.0	EPA 9060A	GROUND WATER		168604
383231	Organic Carbon, Total QSM 5.0	EPA 9060A	GROUND WATER		168604
383232	Organic Carbon, Total QSM 5.0	EPA 9060A	GROUND WATER		168604
383233	Organic Carbon, Total QSM 5.0	EPA 9060A	GROUND WATER		168604
383234	Organic Carbon, Total QSM 5.0	EPA 9060A	GROUND WATER		168604

Metal Parameters

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Project Name: RADFORD AAP SWMU 54
Project #:
SDG #: 151023

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
383235	Potassium, Total QSM 5.0	EPA 6010C	GROUND WATER	75355	168516

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
383235	Sodium, Total QSM 5.0	EPA 6010C	GROUND WATER	75355	168516

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
383235	ICP Metals, Total QSM 5.0	EPA 6010C	GROUND WATER	75355	168515

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
383235	Mercury, Total QSM	EPA 7470A	GROUND WATER	75506	168893

METALS
CLP FORMS
DOCUMENTS

CT LABORATORIES
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1

INORGANIC ANALYSIS DATA SHEET

Sample Description

54IDW

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix (soil/water):	GROUND WATER	SDG No.:	151023
% Solids:		Lab Sample ID:	383235
Analytical Method:	EPA 7470A	Date Received:	01/28/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	168893	Analysis Date/Time	02/20/2020 09:11
Analytical Prep Batch #:	75506	Prep. Date/Time:	02/17/2020 13:23
ICAL Calibration #:	02202020	Concentration Units:	ug/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
7439-97-6	Total Mercury	0.060	U	0.030	0.060	0.12	0.12

CT LABORATORIES
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1

INORGANIC ANALYSIS DATA SHEET

Sample Description

54IDW

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix (soil/water):	GROUND WATER	SDG No.:	151023
% Solids:		Lab Sample ID:	383235
Analytical Method:	EPA 6010C	Date Received:	01/28/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	168516	Analysis Date/Time	01/31/2020 10:16
Analytical Prep Batch #:	75355	Prep. Date/Time:	01/29/2020 11:32
ICAL Calibration #:		Concentration Units:	ug/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
7440-09-7	Total Potassium	843		90	250	500	500
7440-23-5	Total Sodium	5500		100	300	600	600

CT LABORATORIES
delivering more than data from your environmental analyses

1

INORGANIC ANALYSIS DATA SHEET

Sample Description

54IDW

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix (soil/water):	GROUND WATER	SDG No.:	151023
% Solids:		Lab Sample ID:	383235
Analytical Method:	EPA 6010C	Date Received:	01/28/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	168515	Analysis Date/Time	02/03/2020 18:00
Analytical Prep Batch #:	75355	Prep. Date/Time:	01/29/2020 11:32
ICAL Calibration #:		Concentration Units:	ug/L

CAS #	Analyte	Concentration	Qualifiers		DL	LOD	LOQ	RL
7429-90-5	Total Aluminum	17.4	J		6.0	18	36	36
7440-36-0	Total Antimony	6.0	U		2.0	6.0	12	12
7440-38-2	Total Arsenic	12	U		4.0	12	24	24
7440-39-3	Total Barium	96.2			0.29	0.90	1.8	1.8
7440-41-7	Total Beryllium	0.11	J		0.10	0.30	0.60	0.60
7440-43-9	Total Cadmium	1.0	U		0.30	1.0	2.0	2.0
7440-70-2	Total Calcium	66400			17	50	100	100
7440-47-3	Total Chromium	2.4	J		0.60	2.0	4.0	4.0
7440-48-4	Total Cobalt	2.0	U		0.70	2.0	4.0	4.0
7440-50-8	Total Copper	2.3	J		1.2	3.5	7.0	7.0
7439-89-6	Total Iron	24.9	J		16	50	100	100
7439-92-1	Total Lead	1.6	J		1.4	2.0	4.0	4.0
7439-95-4	Total Magnesium	26100			6.0	20	40	40
7439-96-5	Total Manganese	2.5	J		0.70	2.0	4.0	4.0
7440-02-0	Total Nickel	3.0	U		1.0	3.0	6.0	6.0
7782-49-2	Total Selenium	6.5	U		2.2	6.5	13	13
7440-22-4	Total Silver	0.96	J	B	0.70	2.0	4.0	4.0
7440-28-0	Total Thallium	7.5	U		2.5	7.5	15	15
7440-62-2	Total Vanadium	2.5	U		0.80	2.5	5.0	5.0
7440-66-6	Total Zinc	7.9	J		1.6	5.0	10	10

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Sample No.

ICV

2A-1

INITIAL CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168893

Lab Sample ID: 389790

ICAL Calibration #: 02202020

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Mercury	2/20/20	08:57	3.00	3.03	101	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
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Sample No.

ICV

2A-1

INITIAL CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168516

Lab Sample ID: 384727

ICAL Calibration #:

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Potassium	1/31/20	09:45	100000	96000	96	90	110
Sodium	1/31/20	09:45	100000	97900	98	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
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Sample No.

LLQC

2A-1

LOWER LIMIT OF QUANTITATION CHECK (LLQC)

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168516 Lab Sample ID: 384728

ICAL Calibration #: Concentration Units:

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Potassium	1/31/20	09:47	3000	2980	99	80	120
Sodium	1/31/20	09:47	3000	3090	103	80	120

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
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Sample No.

ICV

2A-1

INITIAL CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168515

Lab Sample ID: 385345

ICAL Calibration #:

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Aluminum	2/3/20	14:42	12000	11500	96	90	110
Antimony	2/3/20	14:42	500.0	520.0	104	90	110
Arsenic	2/3/20	14:42	2000	2030	102	90	110
Barium	2/3/20	14:42	2000	2070	104	90	110
Beryllium	2/3/20	14:42	50.00	50.20	100	90	110
Cadmium	2/3/20	14:42	50.00	49.20	98	90	110
Calcium	2/3/20	14:42	10000	9930	99	90	110
Chromium	2/3/20	14:42	200.0	209.0	104	90	110
Cobalt	2/3/20	14:42	500.0	527.0	105	90	110
Copper	2/3/20	14:42	250.0	249.0	100	90	110
Iron	2/3/20	14:42	5000	5000	100	90	110
Lead	2/3/20	14:42	500.0	495.0	99	90	110
Magnesium	2/3/20	14:42	10000	9010	90	90	110
Manganese	2/3/20	14:42	500.0	503.0	101	90	110
Nickel	2/3/20	14:42	500.0	524.0	105	90	110
Selenium	2/3/20	14:42	2000	2110	106	90	110
Silver	2/3/20	14:42	50.00	48.10	96	90	110
Thallium	2/3/20	14:42	2000	1950	98	90	110
Vanadium	2/3/20	14:42	500.0	519.0	104	90	110
Zinc	2/3/20	14:42	500.0	508.0	102	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

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Sample No.

LLQC

2A-1

LOWER LIMIT OF QUANTITATION CHECK (LLQC)

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168515 Lab Sample ID: 385346

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Aluminum	2/3/20	14:54	1200	1160	97	80	120
Antimony	2/3/20	14:54	60.00	61.70	103	80	120
Arsenic	2/3/20	14:54	60.00	61.40	102	80	120
Barium	2/3/20	14:54	30.00	29.20	97	80	120
Beryllium	2/3/20	14:54	12.00	12.30	102	80	120
Cadmium	2/3/20	14:54	15.00	14.90	99	80	120
Calcium	2/3/20	14:54	1500	1530	102	80	120
Chromium	2/3/20	14:54	30.00	30.50	102	80	120
Cobalt	2/3/20	14:54	30.00	31.20	104	80	120
Copper	2/3/20	14:54	30.00	29.60	99	80	120
Iron	2/3/20	14:54	900.0	894.0	99	80	120
Lead	2/3/20	14:54	30.00	31.10	104	80	120
Magnesium	2/3/20	14:54	1500	1460	97	80	120
Manganese	2/3/20	14:54	30.00	30.00	100	80	120
Nickel	2/3/20	14:54	30.00	31.70	106	80	120
Selenium	2/3/20	14:54	60.00	64.50	108	80	120
Thallium	2/3/20	14:54	60.00	57.50	96	80	120
Vanadium	2/3/20	14:54	30.00	29.30	98	80	120
Zinc	2/3/20	14:54	30.00	30.80	103	80	120

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

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Sample No.

LLQC

2A-1

LOWER LIMIT OF QUANTITATION CHECK (LLQC)

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168515 Lab Sample ID: 385350

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Silver	2/3/20	15:39	10.00	9.91	99	80	120

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168516 Lab Sample ID: 384734

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Potassium	1/31/20	10:30	100000	105000	105	90	110
Sodium	1/31/20	10:30	100000	105000	105	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168516 Lab Sample ID: 384737

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Potassium	1/31/20	11:04	100000	105000	105	90	110
Sodium	1/31/20	11:04	100000	104000	104	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV High Level

2A-2

CONTINUING CALIBRATION VERIFICATION (LEVEL 1 - HIGH RANGE)

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168515 Lab Sample ID: 385351

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Aluminum	2/3/20	16:43	5000	4920	98	90	110
Antimony	2/3/20	16:43	5000	5100	102	90	110
Arsenic	2/3/20	16:43	5000	5080	102	90	110
Barium	2/3/20	16:43	5000	5010	100	90	110
Beryllium	2/3/20	16:43	500.0	494.0	99	90	110
Cadmium	2/3/20	16:43	500.0	491.0	98	90	110
Calcium	2/3/20	16:43	5000	5090	102	90	110
Chromium	2/3/20	16:43	5000	5080	102	90	110
Cobalt	2/3/20	16:43	5000	5080	102	90	110
Copper	2/3/20	16:43	5000	4800	96	90	110
Iron	2/3/20	16:43	5000	5060	101	90	110
Lead	2/3/20	16:43	5000	4870	97	90	110
Magnesium	2/3/20	16:43	5000	4600	92	90	110
Manganese	2/3/20	16:43	5000	5080	102	90	110
Nickel	2/3/20	16:43	5000	5130	103	90	110
Selenium	2/3/20	16:43	5000	5180	104	90	110
Thallium	2/3/20	16:43	5000	4670	93	90	110
Vanadium	2/3/20	16:43	5000	5110	102	90	110
Zinc	2/3/20	16:43	5000	5140	103	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

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Sample No.

CCV Low Level

2A-2

CONTINUING CALIBRATION VERIFICATION (LEVEL 2 - LOW RANGE)

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168515 Lab Sample ID: 385352

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Aluminum	2/3/20	16:49	500.0	527.0	105	90	110
Antimony	2/3/20	16:49	500.0	518.0	104	90	110
Arsenic	2/3/20	16:49	500.0	515.0	103	90	110
Barium	2/3/20	16:49	500.0	509.0	102	90	110
Beryllium	2/3/20	16:49	50.00	50.70	101	90	110
Cadmium	2/3/20	16:49	50.00	50.00	100	90	110
Calcium	2/3/20	16:49	500.0	535.0	107	90	110
Chromium	2/3/20	16:49	500.0	529.0	106	90	110
Cobalt	2/3/20	16:49	500.0	536.0	107	90	110
Copper	2/3/20	16:49	500.0	505.0	101	90	110
Iron	2/3/20	16:49	500.0	525.0	105	90	110
Lead	2/3/20	16:49	500.0	500.0	100	90	110
Magnesium	2/3/20	16:49	500.0	508.0	102	90	110
Manganese	2/3/20	16:49	500.0	527.0	105	90	110
Nickel	2/3/20	16:49	500.0	539.0	108	90	110
Selenium	2/3/20	16:49	500.0	505.0	101	90	110
Silver	2/3/20	16:49	50.00	47.60	95	90	110
Thallium	2/3/20	16:49	500.0	509.0	102	90	110
Vanadium	2/3/20	16:49	500.0	531.0	106	90	110
Zinc	2/3/20	16:49	500.0	513.0	103	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
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Sample No.

CCV High Level

2A-2

CONTINUING CALIBRATION VERIFICATION (LEVEL 1 - HIGH RANGE)

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168515 Lab Sample ID: 385354

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Aluminum	2/3/20	18:06	5000	4760	95	90	110
Antimony	2/3/20	18:06	5000	5120	102	90	110
Arsenic	2/3/20	18:06	5000	5110	102	90	110
Barium	2/3/20	18:06	5000	5090	102	90	110
Beryllium	2/3/20	18:06	500.0	491.0	98	90	110
Cadmium	2/3/20	18:06	500.0	495.0	99	90	110
Calcium	2/3/20	18:06	5000	5100	102	90	110
Chromium	2/3/20	18:06	5000	5140	103	90	110
Cobalt	2/3/20	18:06	5000	5140	103	90	110
Copper	2/3/20	18:06	5000	4840	97	90	110
Iron	2/3/20	18:06	5000	5020	100	90	110
Lead	2/3/20	18:06	5000	4900	98	90	110
Magnesium	2/3/20	18:06	5000	4680	94	90	110
Manganese	2/3/20	18:06	5000	5000	100	90	110
Nickel	2/3/20	18:06	5000	5160	103	90	110
Selenium	2/3/20	18:06	5000	5210	104	90	110
Thallium	2/3/20	18:06	5000	4710	94	90	110
Vanadium	2/3/20	18:06	5000	5030	101	90	110
Zinc	2/3/20	18:06	5000	5160	103	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
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Sample No.

CCV Low Level

2A-2

CONTINUING CALIBRATION VERIFICATION (LEVEL 2 - LOW RANGE)

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168515 Lab Sample ID: 385355

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Aluminum	2/3/20	18:13	500.0	536.0	107	90	110
Antimony	2/3/20	18:13	500.0	523.0	105	90	110
Arsenic	2/3/20	18:13	500.0	519.0	104	90	110
Barium	2/3/20	18:13	500.0	501.0	100	90	110
Beryllium	2/3/20	18:13	50.00	50.10	100	90	110
Cadmium	2/3/20	18:13	50.00	50.40	101	90	110
Calcium	2/3/20	18:13	500.0	528.0	106	90	110
Chromium	2/3/20	18:13	500.0	534.0	107	90	110
Cobalt	2/3/20	18:13	500.0	537.0	107	90	110
Copper	2/3/20	18:13	500.0	508.0	102	90	110
Iron	2/3/20	18:13	500.0	527.0	105	90	110
Lead	2/3/20	18:13	500.0	504.0	101	90	110
Magnesium	2/3/20	18:13	500.0	512.0	102	90	110
Manganese	2/3/20	18:13	500.0	523.0	105	90	110
Nickel	2/3/20	18:13	500.0	543.0	109	90	110
Selenium	2/3/20	18:13	500.0	510.0	102	90	110
Silver	2/3/20	18:13	50.00	47.30	95	90	110
Thallium	2/3/20	18:13	500.0	514.0	103	90	110
Vanadium	2/3/20	18:13	500.0	516.0	103	90	110
Zinc	2/3/20	18:13	500.0	514.0	103	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV High Level

2A-2

CONTINUING CALIBRATION VERIFICATION (LEVEL 1 - HIGH RANGE)

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168515 Lab Sample ID: 385359

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Aluminum	2/3/20	19:29	5000	4940	99	90	110
Antimony	2/3/20	19:29	5000	5130	103	90	110
Arsenic	2/3/20	19:29	5000	5090	102	90	110
Barium	2/3/20	19:29	5000	4830	97	90	110
Beryllium	2/3/20	19:29	500.0	481.0	96	90	110
Cadmium	2/3/20	19:29	500.0	513.0	103	90	110
Calcium	2/3/20	19:29	5000	5040	101	90	110
Chromium	2/3/20	19:29	5000	5130	103	90	110
Cobalt	2/3/20	19:29	5000	5000	100	90	110
Copper	2/3/20	19:29	5000	4810	96	90	110
Iron	2/3/20	19:29	5000	5090	102	90	110
Lead	2/3/20	19:29	5000	4850	97	90	110
Magnesium	2/3/20	19:29	5000	4540	91	90	110
Manganese	2/3/20	19:29	5000	5150	103	90	110
Nickel	2/3/20	19:29	5000	5120	102	90	110
Selenium	2/3/20	19:29	5000	5260	105	90	110
Thallium	2/3/20	19:29	5000	4760	95	90	110
Vanadium	2/3/20	19:29	5000	5020	100	90	110
Zinc	2/3/20	19:29	5000	5180	104	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV Low Level

2A-2

CONTINUING CALIBRATION VERIFICATION (LEVEL 2 - LOW RANGE)

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168515 Lab Sample ID: 385360

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Aluminum	2/3/20	19:36	500.0	539.0	108	90	110
Antimony	2/3/20	19:36	500.0	499.0	100	90	110
Arsenic	2/3/20	19:36	500.0	519.0	104	90	110
Barium	2/3/20	19:36	500.0	497.0	99	90	110
Beryllium	2/3/20	19:36	50.00	49.00	98	90	110
Cadmium	2/3/20	19:36	50.00	52.30	105	90	110
Calcium	2/3/20	19:36	500.0	515.0	103	90	110
Chromium	2/3/20	19:36	500.0	531.0	106	90	110
Cobalt	2/3/20	19:36	500.0	519.0	104	90	110
Copper	2/3/20	19:36	500.0	506.0	101	90	110
Iron	2/3/20	19:36	500.0	528.0	106	90	110
Lead	2/3/20	19:36	500.0	488.0	98	90	110
Magnesium	2/3/20	19:36	500.0	501.0	100	90	110
Manganese	2/3/20	19:36	500.0	533.0	107	90	110
Nickel	2/3/20	19:36	500.0	537.0	107	90	110
Selenium	2/3/20	19:36	500.0	510.0	102	90	110
Silver	2/3/20	19:36	50.00	47.70	95	90	110
Thallium	2/3/20	19:36	500.0	518.0	104	90	110
Vanadium	2/3/20	19:36	500.0	516.0	103	90	110
Zinc	2/3/20	19:36	500.0	515.0	103	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168893

Lab Sample ID: 389792

ICAL Calibration #: 02202020

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Mercury	2/20/20	09:25	3.00	2.88	96	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168893 Lab Sample ID: 389795

ICAL Calibration #: 02202020 Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Mercury	2/20/20 09:53	3.00	2.83	94	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

MRL

2B

MRL STANDARD CHECK

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168516 Lab Sample ID: 384730

ICAL Calibration #: Concentration Units:

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Potassium	1/31/20	09:53	1000	1010	101	70	130
Sodium	1/31/20	09:53	1000	1000	100	70	130

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

ICB

3-1

INITIAL CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168893

Lab Sample ID: 389791

Analytical Prep Batch # 0

Preparation Date/Time:

ICAL Calibration #: 02202020

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Mercury	02/20/2020 09:01	0	U	0.03	0.06

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

ICB

3-1

INITIAL CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168516

Lab Sample ID: 384729

Analytical Prep Batch # 0

Preparation Date/Time:

ICAL Calibration #:

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Potassium	01/31/2020 09:50	26.00	U	90	250
Sodium	01/31/2020 09:50	35.00	U	100	300

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

3-1

ICB

INITIAL CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168515 Lab Sample ID: 385347

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Aluminum	02/03/2020 15:00	0.206	U	6	18
Antimony	02/03/2020 15:00	0.477	U	2.0	6.0
Arsenic	02/03/2020 15:00	-2.79	U	4	12
Barium	02/03/2020 15:00	-0.176	U	0.29	0.90
Beryllium	02/03/2020 15:00	-0.0590	U	0.10	0.30
Cadmium	02/03/2020 15:00	-0.0590	U	0.3	1.0
Calcium	02/03/2020 15:00	-3.21	U	17	50
Chromium	02/03/2020 15:00	0.157	U	0.6	2.0
Cobalt	02/03/2020 15:00	0.0270	U	0.7	2.0
Copper	02/03/2020 15:00	-0.393	U	1.2	3.5
Iron	02/03/2020 15:00	-1.77	U	16	50
Lead	02/03/2020 15:00	0.0610	U	1.4	2.0
Magnesium	02/03/2020 15:00	-1.06	U	6	20
Manganese	02/03/2020 15:00	-0.680	U	0.7	2.0
Nickel	02/03/2020 15:00	-0.288	U	1.0	3.0
Selenium	02/03/2020 15:00	2.53		2.2	6.5
Silver	02/03/2020 15:00	0.601	U	0.7	2.0
Thallium	02/03/2020 15:00	1.95	U	2.5	7.5
Vanadium	02/03/2020 15:00	-2.11	U	0.8	2.5
Zinc	02/03/2020 15:00	-0.281	U	1.6	4.0

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168893 Lab Sample ID: 389793

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: 02202020 Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Mercury	02/20/2020 09:29	0	U	0.03	0.06

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168893

Lab Sample ID: 389796

Analytical Prep Batch # 0

Preparation Date/Time:

ICAL Calibration #: 02202020

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Mercury	02/20/2020 09:57	0	U	0.03	0.06

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

3-2

CONTINUING CALIBRATION BLANKS

CCB

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168516 Lab Sample ID: 384735

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Potassium	01/31/2020 10:33	75.00	U	90	250
Sodium	01/31/2020 10:33	60.00	U	100	300

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

3-2

CCB

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168516 Lab Sample ID: 384738

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Potassium	01/31/2020 11:07	73.00	U	90	250
Sodium	01/31/2020 11:07	76.00	U	100	300

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168515 Lab Sample ID: 385353

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Aluminum	02/03/2020 16:54	-0.0870	U	6	18
Antimony	02/03/2020 16:54	0.898	U	2.0	6.0
Arsenic	02/03/2020 16:54	-0.388	U	4	12
Barium	02/03/2020 16:54	-0.133	U	0.29	0.90
Beryllium	02/03/2020 16:54	0.0430	U	0.10	0.30
Cadmium	02/03/2020 16:54	-0.0290	U	0.3	1.0
Calcium	02/03/2020 16:54	-3.44	U	17	50
Chromium	02/03/2020 16:54	-0.0320	U	0.6	2.0
Cobalt	02/03/2020 16:54	-0.0340	U	0.7	2.0
Copper	02/03/2020 16:54	-0.815	U	1.2	3.5
Iron	02/03/2020 16:54	-1.43	U	16	50
Lead	02/03/2020 16:54	1.73		1.4	2.0
Magnesium	02/03/2020 16:54	-0.852	U	6	20
Manganese	02/03/2020 16:54	-0.672	U	0.7	2.0
Nickel	02/03/2020 16:54	0.121	U	1.0	3.0
Selenium	02/03/2020 16:54	4.27		2.2	6.5
Silver	02/03/2020 16:54	0.613	U	0.7	2.0
Thallium	02/03/2020 16:54	0.673	U	2.5	7.5
Vanadium	02/03/2020 16:54	-1.71	U	0.8	2.5
Zinc	02/03/2020 16:54	-0.141	U	1.6	5.0

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168515 Lab Sample ID: 385356

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Aluminum	02/03/2020 18:18	0.107	U	6	18
Antimony	02/03/2020 18:18	1.05	U	2.0	6.0
Arsenic	02/03/2020 18:18	-2.27	U	4	12
Barium	02/03/2020 18:18	-0.264	U	0.29	0.90
Beryllium	02/03/2020 18:18	0.0970	U	0.10	0.30
Cadmium	02/03/2020 18:18	-0.139	U	0.3	1.0
Calcium	02/03/2020 18:18	-3.25	U	17	50
Chromium	02/03/2020 18:18	-0.184	U	0.6	2.0
Cobalt	02/03/2020 18:18	0.103	U	0.7	2.0
Copper	02/03/2020 18:18	-0.924	U	1.2	3.5
Iron	02/03/2020 18:18	-1.87	U	16	50
Lead	02/03/2020 18:18	1.57		1.4	2.0
Magnesium	02/03/2020 18:18	-0.857	U	6	20
Manganese	02/03/2020 18:18	-0.613	U	0.7	2.0
Nickel	02/03/2020 18:18	-0.310	U	1.0	3.0
Selenium	02/03/2020 18:18	-0.0750	U	2.2	6.5
Silver	02/03/2020 18:18	0.526	U	0.7	2.0
Thallium	02/03/2020 18:18	1.20	U	2.5	7.5
Vanadium	02/03/2020 18:18	-1.74	U	0.8	2.5
Zinc	02/03/2020 18:18	-0.111	U	1.6	5.0

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168515 Lab Sample ID: 385361

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Aluminum	02/03/2020 19:41	-0.262	U	6	18
Antimony	02/03/2020 19:41	0.752	U	2.0	6.0
Arsenic	02/03/2020 19:41	-1.95	U	4	12
Barium	02/03/2020 19:41	-0.0440	U	0.29	0.90
Beryllium	02/03/2020 19:41	0.274		0.10	0.30
Cadmium	02/03/2020 19:41	-0.179	U	0.3	1.0
Calcium	02/03/2020 19:41	-3.14	U	17	50
Chromium	02/03/2020 19:41	-0.651	U	0.6	2.0
Cobalt	02/03/2020 19:41	0.129	U	0.7	2.0
Copper	02/03/2020 19:41	-1.01	U	1.2	3.5
Iron	02/03/2020 19:41	-1.92	U	16	50
Lead	02/03/2020 19:41	0.453	U	1.4	2.0
Magnesium	02/03/2020 19:41	-0.562	U	6	20
Manganese	02/03/2020 19:41	-0.655	U	0.7	2.0
Nickel	02/03/2020 19:41	0.107	U	1.0	3.0
Selenium	02/03/2020 19:41	1.92	U	2.2	6.5
Silver	02/03/2020 19:41	1.29		0.7	2.0
Thallium	02/03/2020 19:41	1.37	U	2.5	7.5
Vanadium	02/03/2020 19:41	-1.75	U	0.8	2.5
Zinc	02/03/2020 19:41	-0.148	U	1.6	5.0

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168893 Lab Sample ID: 388734

Analytical Prep Batch # 75506 Preparation Date/Time: 02/17/2020 13:23

ICAL Calibration #: 02202020 Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total Mercury	02/20/2020 09:09	-0.00200	U	0.03	0.06

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168515 Lab Sample ID: 383540

Analytical Prep Batch # 75355 Preparation Date/Time: 01/29/2020 11:32

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit	
Total Aluminum	02/03/2020 17:54	1.51	U	6	18	
Total Antimony	02/03/2020 17:54	-0.575	U	2.0	6.0	
Total Arsenic	02/03/2020 17:54	-1.92	U	4	12	
Total Barium	02/03/2020 17:54	-0.0750	U	0.29	0.90	
Total Beryllium	02/03/2020 17:54	0.0690	U	0.10	0.30	
Total Cadmium	02/03/2020 17:54	-0.194	U	0.3	1.0	
Total Calcium	02/03/2020 17:54	3.62	U	17	50	
Total Chromium	02/03/2020 17:54	-0.517	U	0.6	2.0	
Total Cobalt	02/03/2020 17:54	-0.0770	U	0.7	2.0	
Total Copper	02/03/2020 17:54	0.973	U	1.2	3.5	
Total Iron	02/03/2020 17:54	3.68	U	16	50	
Total Lead	02/03/2020 17:54	0.249	U	1.4	2.0	
Total Magnesium	02/03/2020 17:54	-0.394	U	6	20	
Total Manganese	02/03/2020 17:54	-0.131	U	0.7	2.0	
Total Nickel	02/03/2020 17:54	-0.143	U	1.0	3.0	
Total Selenium	02/03/2020 17:54	2.21		2.2	6.5	FAIL
Total Silver	02/03/2020 17:54	0.830		0.7	2.0	FAIL
Total Thallium	02/03/2020 17:54	-2.67	U	2.5	7.5	
Total Vanadium	02/03/2020 17:54	-1.95	U	0.8	2.5	
Total Zinc	02/03/2020 17:54	-0.0340	U	1.6	5.0	

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168516 Lab Sample ID: 383540

Analytical Prep Batch # 75355 Preparation Date/Time: 01/29/2020 11:32

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total Potassium	01/31/2020 10:13	30.00	U	90	250
Total Sodium	01/31/2020 10:13	53.00	U	100	300

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
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Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168516 Lab Sample ID: 383540

Analytical Prep Batch # 75355 Preparation Date/Time: 01/29/2020 11:32

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total Potassium	01/31/2020 10:13	30.00	U	90	250
Total Sodium	01/31/2020 10:13	53.00	U	100	300

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
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Sample No:

4-1

ICP INTERFERENCE CHECK SAMPLE (SOL. A)

ICSA

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
ICP ID Number: TJA 6000
SDG No.: 151023
ICS Source: SPEX

Analytical Run #: 168516
Lab Sample ID: 384731
Inorganics MRL Standard Source: SPEX, Ultra,Inorganic Ventures and Mallinkrodt
ICAL Calibration #:
Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R	Lower Limit (1)	Upper Limit (1)
Aluminum	01/31/2020 09:56	500000	450000	90	80	120
Calcium	01/31/2020 09:56	500000	457000	91	80	120
Iron	01/31/2020 09:56	500000	464000	93	80	120
Magnesium	01/31/2020 09:56	500000	461000	92	80	120
Potassium	01/31/2020 09:56	0	0		-170	170
Sodium	01/31/2020 09:56	0	0		-140	140

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No:

4-1

ICP INTERFERENCE CHECK SAMPLE (SOL. A)

ICSA

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
ICP ID Number: TJA 6000
SDG No.: 151023
ICS Source: SPEX

Analytical Run #: 168515
Lab Sample ID: 385348
Inorganics MRL Standard Source: SPEX, Ultra,Inorganic Ventures and Mallinkrodt
ICAL Calibration #:
Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R	Lower Limit (1)	Upper Limit (1)
Aluminum	02/03/2020 15:19	500000	488000	98	80	120
Antimony	02/03/2020 15:19	0	0.498		-10	10
Arsenic	02/03/2020 15:19	0	-0.194		-20	20
Barium	02/03/2020 15:19	0	-0.0140		-1.7	1.7
Beryllium	02/03/2020 15:19	0	0.488		-.7	.7
Cadmium	02/03/2020 15:19	0	-0.531		-1.3	1.3
Calcium	02/03/2020 15:19	500000	465000	93	80	120
Chromium	02/03/2020 15:19	0	1.10		-13	13
Cobalt	02/03/2020 15:19	0	1.14		-2	2
Copper	02/03/2020 15:19	0	1.17		-7	7
Iron	02/03/2020 15:19	500000	441000	88	80	120
Lead	02/03/2020 15:19	0	1.37		-4.7	4.7
Magnesium	02/03/2020 15:19	500000	500000	100	80	120
Manganese	02/03/2020 15:19	0	1.81		-7.3	7.3
Nickel	02/03/2020 15:19	0	-2.74		-7	7
Selenium	02/03/2020 15:19	0	-12.2		-13	13
Silver	02/03/2020 15:19	0	6.27		-7.3	7.3
Thallium	02/03/2020 15:19	0	2.96		-7.3	7.3
Vanadium	02/03/2020 15:19	20000	19700		16000	24000
Zinc	02/03/2020 15:19	0	-3.11		-20	20

CT LABORATORIES
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Sample No:

ICSAB

4-2

ICP INTERFERENCE CHECK SAMPLE (SOL. AB)

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
ICP ID Number: TJA 6000
SDG No.: 151023
ICS Source: SPEX, Ultra

Analytical Run #: 168516
Lab Sample ID: 384732
Inorganics MRL Standard Source: SPEX, Ultra,Inorganic Ventures and Mallinkrodt
ICAL Calibration #:
Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R	Lower Limit (1)	Upper Limit (1)
Aluminum	01/31/2020 09:59	500000	524000	105	80	120
Calcium	01/31/2020 09:59	500000	521000	104	80	120
Iron	01/31/2020 09:59	500000	531000	106	80	120
Magnesium	01/31/2020 09:59	500000	512000	102	80	120
Potassium	01/31/2020 09:59	100000	111000	111	80	120
Sodium	01/31/2020 09:59	100000	109000	109	80	120

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No:

ICSAB

4-2

ICP INTERFERENCE CHECK SAMPLE (SOL. AB)

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
ICP ID Number: TJA 6000
SDG No.: 151023
ICS Source: SPEX, Ultra

Analytical Run #: 168515
Lab Sample ID: 385349
Inorganics MRL Standard Source: SPEX, Ultra,Inorganic Ventures and Mallinkrodt
ICAL Calibration #:
Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R	Lower Limit (1)	Upper Limit (1)
Aluminum	02/03/2020 15:26	500000	503000	101	80	120
Antimony	02/03/2020 15:26	500.0	502.0	100	80	120
Arsenic	02/03/2020 15:26	500.0	527.0	105	80	120
Barium	02/03/2020 15:26	500.0	482.0	96	80	120
Beryllium	02/03/2020 15:26	500.0	485.0	97	80	120
Cadmium	02/03/2020 15:26	500.0	452.0	90	80	120
Calcium	02/03/2020 15:26	500000	480000	96	80	120
Chromium	02/03/2020 15:26	500.0	517.0	103	80	120
Cobalt	02/03/2020 15:26	500.0	438.0	88	80	120
Copper	02/03/2020 15:26	500.0	504.0	101	80	120
Iron	02/03/2020 15:26	500000	436000	87	80	120
Lead	02/03/2020 15:26	500.0	445.0	89	80	120
Magnesium	02/03/2020 15:26	500000	518000	104	80	120
Manganese	02/03/2020 15:26	500.0	410.0	82	80	120
Nickel	02/03/2020 15:26	500.0	465.0	93	80	120
Selenium	02/03/2020 15:26	500.0	470.0	94	80	120
Silver	02/03/2020 15:26	500.0	529.0	106	80	120
Thallium	02/03/2020 15:26	500.0	583.0	117	80	120
Vanadium	02/03/2020 15:26	500.0	538.0	108	80	120
Zinc	02/03/2020 15:26	500.0	489.0	98	80	120

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5A

SPIKE SAMPLE RECOVERY

Sample Description: **54IDW**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix:	LIQUID	SDG No.:	151023
% Solids for Sample:		Concentration Units:	ug/L
Sample No	388736	Parent Sample No.:	383235
Analytical Prep Batch #	75506	Analytical Preparation Date/Time:	02/17/2020 13:23
Analytical Run #:	168893	ICAL Calibration #:	02202020

Analysis Type: *Initial Analysis* Analysis Date: ----- 02/20/2020 Analysis Time: -------- 09:45

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Total Mercury	82-119	1.9		BDL	U	2.0	95		CV

BDL = analyte concentration was below detection limit

CT LABORATORIES
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5A

SPIKE SAMPLE RECOVERY

Sample Description: **54IDW**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix:	LIQUID	SDG No.:	151023
% Solids for Sample:		Concentration Units:	ug/L
Sample No	383543	Parent Sample No.:	383235
Analytical Prep Batch #	75355	Analytical Preparation Date/Time:	01/29/2020 11:32
Analytical Run #:	168515	ICAL Calibration #:	

Analysis Type: *Initial Analysis* Analysis Date: ----- 02/03/2020 Analysis Time: -------- 18:38

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Total Aluminum	86-115	822		17.4	J	800	101		P
Total Antimony	88-113	213		BDL	U	200	106		P
Total Arsenic	87-113	884		BDL	U	800	110		P
Total Barium	88-113	866		96.2		800	96		P
Total Beryllium	89-112	20.6		0.11	J	20.0	102		P
Total Cadmium	88-113	20.6		BDL	U	20.0	103		P
Total Calcium	87-113	267000		66400		200000	100		P
Total Chromium	90-113	89.5		2.4	J	80.0	109		P
Total Cobalt	89-114	210		BDL	U	200	105		P
Total Copper	86-114	113		2.3	J	100	111		P
Total Iron	87-115	448		24.9	J	400	106		P
Total Lead	86-113	191		1.6	J	200	95		P
Total Magnesium	85-113	131000		26100		100000	105		P
Total Manganese	90-114	200		2.5	J	200	99		P
Total Nickel	88-113	211		BDL	U	200	106		P
Total Selenium	83-114	836		BDL	U	800	104		P
Total Silver	84-115	19.7		0.96	J	20.0	94		P
Total Thallium	85-114	737		BDL	U	800	92		P
Total Vanadium	90-111	219		BDL	U	200	110		P
Total Zinc	87-115	221		7.9	J	200	107		P

BDL = analyte concentration was below detection limit

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5A

SPIKE SAMPLE RECOVERY

Sample Description: **54IDW**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix:	LIQUID	SDG No.:	151023
% Solids for Sample:		Concentration Units:	ug/L
Sample No	383543	Parent Sample No.:	383235
Analytical Prep Batch #	75355	Analytical Preparation Date/Time:	01/29/2020 11:32
Analytical Run #:	168516	ICAL Calibration #:	

Analysis Type: *Initial Analysis* Analysis Date: ----- 01/31/2020 Analysis Time: -------- 10:25

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Total Potassium	86-114	97700		843		100000	97		P
Total Sodium	87-115	101000		5500		100000	96		P

BDL = analyte concentration was below detection limit

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5B

POST DIGESTION SPIKE SAMPLE RECOVERY

Sample Description: **54IDW**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix:	LIQUID	SDG No.:	151023
% Solids for Sample:		Concentration Units:	ug/L
Sample No	384736	Parent Sample No.:	383235
Analytical Prep Batch #	0	Analytical Preparation Date/Time:	
Analytical Run #:	168516	ICAL Calibration #:	

Analysis Type: *Initial Analysis* Analysis Date: ----- 01/31/2020 Analysis Time: -------- 10:36

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Potassium	80-120.	99800		843		100000	99		P
Sodium	80-120.	107000		5500		100000	102		P

BDL = analyte concentration was below detection limit

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5C

SPIKE DUPLICATE SAMPLE RECOVERY

Sample Description: **54IDW**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix:	LIQUID	SDG No.:	151023
% Solids for Sample:		Concentration Units:	ug/L
Sample No	388737	Parent Sample No.:	388736
Analytical Prep Batch #	75506	Analytical Preparation Date/Time:	02/17/2020 13:23
Analytical Run #:	168893	ICAL Calibration #:	02202020

Analysis Type: *Initial Analysis* Analysis Date: ----- 02/20/2020 Analysis Time: -------- 09:47

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Total Mercury	82-119	2.0		BDL	U	2.0	100		CV

BDL = analyte concentration was below detection limit

CT LABORATORIES
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5C

SPIKE DUPLICATE SAMPLE RECOVERY

Sample Description: **54IDW**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix:	LIQUID	SDG No.:	151023
% Solids for Sample:		Concentration Units:	ug/L
Sample No	383544	Parent Sample No.:	383543
Analytical Prep Batch #	75355	Analytical Preparation Date/Time:	01/29/2020 11:32
Analytical Run #:	168515	ICAL Calibration #:	

Analysis Type: *Initial Analysis* Analysis Date: ----- 02/03/2020 Analysis Time: -------- 18:44

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Total Aluminum	86-115	814		17.4	J	800	100		P
Total Antimony	88-113	214		BDL	U	200	107		P
Total Arsenic	87-113	877		BDL	U	800	110		P
Total Barium	88-113	866		96.2		800	96		P
Total Beryllium	89-112	20.5		0.11	J	20.0	102		P
Total Cadmium	88-113	20.3		BDL	U	20.0	102		P
Total Calcium	87-113	267000		66400		200000	100		P
Total Chromium	90-113	89.5		2.4	J	80.0	109		P
Total Cobalt	89-114	210		BDL	U	200	105		P
Total Copper	86-114	111		2.3	J	100	109		P
Total Iron	87-115	438		24.9	J	400	103		P
Total Lead	86-113	192		1.6	J	200	95		P
Total Magnesium	85-113	131000		26100		100000	105		P
Total Manganese	90-114	198		2.5	J	200	98		P
Total Nickel	88-113	210		BDL	U	200	105		P
Total Selenium	83-114	829		BDL	U	800	104		P
Total Silver	84-115	20.3		0.96	J	20.0	97		P
Total Thallium	85-114	737		BDL	U	800	92		P
Total Vanadium	90-111	218		BDL	U	200	109		P
Total Zinc	87-115	221		7.9	J	200	107		P

BDL = analyte concentration was below detection limit

CT LABORATORIES
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5C

SPIKE DUPLICATE SAMPLE RECOVERY

Sample Description: **54IDW**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix:	LIQUID	SDG No.:	151023
% Solids for Sample:		Concentration Units:	ug/L
Sample No	383544	Parent Sample No.:	383543
Analytical Prep Batch #	75355	Analytical Preparation Date/Time:	01/29/2020 11:32
Analytical Run #:	168516	ICAL Calibration #:	

Analysis Type: *Initial Analysis* Analysis Date: ----- 01/31/2020 Analysis Time: -------- 10:27

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Total Potassium	86-114	99500		843		100000	99		P
Total Sodium	87-115	104000		5500		100000	98		P

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

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DUPLICATES

Sample Description

54IDW

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix: LIQUID
SDG No.: 151023
% Solid for Sample:
Concentration Units: ug/L
Analytical Prep Batch #: 1
Analytical Preparation Date/Time: 75355
Analytical Run #: 168515
ICAL Calibration #:
Sample #: 383542
Parent Sample #: 383235

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Original Parent Conc. (S)	C	Duplicate Conc. (D)	C	RPD	Q	M	
Total Aluminum	02/03/2020	18:31	20	17.4	J	20.7	J	17		P	
Total Antimony	02/03/2020	18:31	20	2.0	U	2.0	U	0		P	
Total Arsenic	02/03/2020	18:31	20	4.0	U	4.0	U	0		P	
Total Barium	02/03/2020	18:31	20	96.2		95.6		1		P	
Total Beryllium	02/03/2020	18:31	20	0.11	J	0.24	J	74		P	*FAIL*
Total Cadmium	02/03/2020	18:31	20	0.30	U	0.30	U	0		P	
Total Calcium	02/03/2020	18:31	20	66400		67100		1		P	
Total Chromium	02/03/2020	18:31	20	2.4	J	2.0	J	18		P	
Total Cobalt	02/03/2020	18:31	20	0.70	U	0.70	U	0		P	
Total Copper	02/03/2020	18:31	20	2.3	J	2.9	J	23		P	*FAIL*
Total Iron	02/03/2020	18:31	20	24.9	J	25.7	J	3		P	
Total Lead	02/03/2020	18:31	20	1.6	J	1.4	U	200		P	*FAIL*
Total Magnesium	02/03/2020	18:31	20	26100		26700		2		P	
Total Manganese	02/03/2020	18:31	20	2.5	J	2.2	J	13		P	
Total Nickel	02/03/2020	18:31	20	1.0	U	1.0	U	0		P	
Total Selenium	02/03/2020	18:31	20	2.2	U	2.2	U	0		P	
Total Silver	02/03/2020	18:31	20	0.96	J	1.3	J	30		P	*FAIL*
Total Thallium	02/03/2020	18:31	20	2.5	U	2.5	U	0		P	
Total Vanadium	02/03/2020	18:31	20	0.80	U	0.80	U	0		P	
Total Zinc	02/03/2020	18:31	20	7.9	J	8.3	J	5		P	

CT LABORATORIES
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DUPLICATES

Sample Description

54IDW

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix: LIQUID
SDG No.: 151023
% Solid for Sample:
Concentration Units: ug/L
Analytical Prep Batch # 1
Analytical Preparation Date/Time 75355
Analytical Run #: 168516
ICAL Calibration #:
Sample #: 383542
Parent Sample #: 383235

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Original Parent Conc. (S)	C	Duplicate Conc. (D)	C	RPD	Q	M
Total Potassium	01/31/2020	10:22	20	843		829		2		P
Total Sodium	01/31/2020	10:22	20	5500		5510		0		P

CT LABORATORIES
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6A

MATRIX SPIKE DUPLICATES

Sample Description: **54IDW**

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix: LIQUID
SDG No.: 151023
% Solid for Sample:
Concentration Units: ug/L
Analytical Prep Batch #: 75506
Analytical Preparation Date/Time: 02/17/2020 13:23
Analytical Run #: 168893
ICAL Calibration #: 02202020
Sample #: 388737
Parent Sample #: 388736

Analysis Type: *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Matrix Spik Parent Conc. (S)	C	Matrix Spike Duplicate Conc. (D)	C	RPD	Q	M
Total Mercury	02/20/2020	09:47	20	1.9		2.0		1		CV

CT LABORATORIES
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6A

MATRIX SPIKE DUPLICATES

Sample Description: **54IDW**

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix: LIQUID
SDG No.: 151023
% Solid for Sample:
Concentration Units: ug/L
Analytical Prep Batch #: 75355
Analytical Preparation Date/Time: 01/29/2020 11:32
Analytical Run #: 168515
ICAL Calibration #:
Sample #: 383544
Parent Sample #: 383543

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Matrix Spik Parent Conc. (S)	C	Matrix Spike Duplicate Conc. (D)	C	RPD	Q	M
Total Aluminum	02/03/2020	18:44	20	822		814		1		P
Total Antimony	02/03/2020	18:44	20	213		214		0		P
Total Arsenic	02/03/2020	18:44	20	884		877		1		P
Total Barium	02/03/2020	18:44	20	866		866		0		P
Total Beryllium	02/03/2020	18:44	20	20.6		20.5		0		P
Total Cadmium	02/03/2020	18:44	20	20.6		20.3		1		P
Total Calcium	02/03/2020	18:44	20	267000		267000		0		P
Total Chromium	02/03/2020	18:44	20	89.5		89.5		0		P
Total Cobalt	02/03/2020	18:44	20	210		210		0		P
Total Copper	02/03/2020	18:44	20	113		111		2		P
Total Iron	02/03/2020	18:44	20	448		438		2		P
Total Lead	02/03/2020	18:44	20	191		192		1		P
Total Magnesium	02/03/2020	18:44	20	131000		131000		0		P
Total Manganese	02/03/2020	18:44	20	200		198		1		P
Total Nickel	02/03/2020	18:44	20	211		210		0		P
Total Selenium	02/03/2020	18:44	20	836		829		1		P
Total Silver	02/03/2020	18:44	20	19.7		20.3		3		P
Total Thallium	02/03/2020	18:44	20	737		737		0		P
Total Vanadium	02/03/2020	18:44	20	219		218		0		P
Total Zinc	02/03/2020	18:44	20	221		221		0		P

CT LABORATORIES
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6A

MATRIX SPIKE DUPLICATES

Sample Description

54IDW

Lab Name: CT Laboratories | Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

Matrix: LIQUID | SDG No.: 151023

% Solid for Sample: | Concentration Units: ug/L

Analytical Prep Batch #: 75355 | Analytical Preparation Date/Time: 01/29/2020 11:32

Analytical Run #: 168516 | ICAL Calibration #:

Sample #: 383544 | Parent Sample #: 383543

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Matrix Spik Parent Conc. (S)	C	Matrix Spike Duplicate Conc. (D)	C	RPD	Q	M
Total Potassium	01/31/2020	10:27	20	97700		99500		2		P
Total Sodium	01/31/2020	10:27	20	101000		104000		3		P

CT LABORATORIES
delivering more than data from your environmental analyses

7-1

Sample No:

LABORATORY CONTROL SAMPLE - AQUEOUS

LCS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

LCS Source: SPEX and Ultra SDG No.: 151023

Concentration Units: ug/L

Analytical Run #: 168893 Sample No.:#: 388735

Analytical Prep Batch #: 75506 Preparation Date/Time: 02/17/2020 13:23

ICAL Calibration #: 02202020

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
Total Mercury	02/20/2020 09:05	82-119	2.06		2.00	103		CV

CT LABORATORIES
delivering more than data from your environmental analyses

7-1

Sample No:

LABORATORY CONTROL SAMPLE - AQUEOUS

LCS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

LCS Source: SPEX and Ultra SDG No.: 151023

Concentration Units: ug/L

Analytical Run #: 168515 Sample No.:#: 383541

Analytical Prep Batch #: 75355 Preparation Date/Time: 01/29/2020 11:32

ICAL Calibration #:

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
Total Aluminum	02/03/2020 17:47	86-115	784.0		800.0	98		P
Total Antimony	02/03/2020 17:47	88-113	215.0		200.0	108		P
Total Arsenic	02/03/2020 17:47	87-113	854.0		800.0	107		P
Total Barium	02/03/2020 17:47	88-113	780.0		800.0	98		P
Total Beryllium	02/03/2020 17:47	89-112	20.30		20.00	102		P
Total Cadmium	02/03/2020 17:47	88-113	19.80		20.00	99		P
Total Calcium	02/03/2020 17:47	87-113	198000		200000	99		P
Total Chromium	02/03/2020 17:47	90-113	85.90		80.00	107		P
Total Cobalt	02/03/2020 17:47	89-114	209.0		200.0	104		P
Total Copper	02/03/2020 17:47	86-114	110.0		100.0	110		P
Total Iron	02/03/2020 17:47	87-115	411.0		400.0	103		P
Total Lead	02/03/2020 17:47	86-113	194.0		200.0	97		P
Total Magnesium	02/03/2020 17:47	85-113	101000		100000	101		P
Total Manganese	02/03/2020 17:47	90-114	199.0		200.0	100		P
Total Nickel	02/03/2020 17:47	88-113	210.0		200.0	105		P
Total Selenium	02/03/2020 17:47	83-114	818.0		800.0	102		P
Total Silver	02/03/2020 17:47	84-115	19.50		20.00	98		P
Total Thallium	02/03/2020 17:47	85-114	733.0		800.0	92		P
Total Vanadium	02/03/2020 17:47	90-111	217.0		200.0	108		P
Total Zinc	02/03/2020 17:47	87-115	210.0		200.0	105		P

CT LABORATORIES
delivering more than data from your environmental analyses

7-1

Sample No:

LABORATORY CONTROL SAMPLE - AQUEOUS

LCS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

LCS Source: SPEX and Ultra SDG No.: 151023

Concentration Units: ug/L

Analytical Run #: 168516 Sample No.:#: 383541

Analytical Prep Batch #: 75355 Preparation Date/Time: 01/29/2020 11:32

ICAL Calibration #:

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
Total Potassium	01/31/2020 10:11	86-114	95600		100000	96		P
Total Sodium	01/31/2020 10:11	87-115	94400		100000	94		P

CT LABORATORIES
delivering more than data from your environmental analyses

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METHOD DETECTION LIMITS (ANNUALLY)

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Matrix: LIQUID

Analyte	Wavelength (nm)	Background	CRDL (ug/L)	MDL (ug/L)	M
Total Mercury	253.7			0.03	CV

CT LABORATORIES
delivering more than data from your environmental analyses

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METHOD DETECTION LIMITS (ANNUALLY)

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

ICP ID Number: TJA SDG No.: 151023

Matrix: LIQUID

Analyte	Wavelength (nm)	Background	CRDL (ug/L)	MDL (ug/L)	M
Total Aluminum	167.0			6	P
Total Antimony	217.5			2.0	P
Total Arsenic	193.7			4	P
Total Barium	455.4			0.29	P
Total Beryllium	313.041			0.10	P
Total Cadmium	226.502			0.3	P
Total Calcium	393.3			17	P
Total Chromium	267.716			0.6	P
Total Cobalt	228.616			0.7	P
Total Copper	327.3			1.2	P
Total Iron	259.9			16	P
Total Lead	220.35			1.4	P
Total Magnesium	279.5			6	P
Total Manganese	257.61			0.7	P
Total Nickel	231.604			1.0	P
Total Potassium	766.491			90	P
Total Selenium	196.02			2.2	P
Total Silver	328.068			0.7	P
Total Sodium	589.5			100	P
Total Thallium	190.864			2.5	P
Total Vanadium	292.402			0.8	P
Total Zinc	213.856			1.6	P

ICP INTERELEMENT CORRECTION FACTORS (ANNUAL)
ICP ID NUMBER: TA ICAP6000 / ICAP6500

Element, Wavelength and Order	Use?	# IECs	IEC	k1	k2	Calc-in-fit?
Ag 328.068 {103}	☒	2	Fe	0.000006	0.000000	No
			Ce	0.000000	0.000000	No
Ag 338.289 {100}	☒	1	Fe	0.000906	0.000000	No
Al 167.079 {501}	☒	None				
Al 308.215 {109}	☒	None				
Al 396.152 { 85}	☒	None				
As 193.759 {474}	☒	1	Al	0.001713	0.000000	No
As 197.262 {471}	☒	1	Al	-0.000113	0.000000	No
Ba 233.527 {445}	☒	3	Fe	-0.000038	0.000000	No
			V	0.000180	0.000000	No
			Al	0.000000	0.000000	No
Ba 455.403 { 74}	☒	1	Fe	0.000002	0.000000	No
Ba 493.409 { 68}	☒	1	Fe	0.000029	0.000000	No
Be 313.042 {108}	☒	1	Fe	0.000000	0.000000	No
Be 234.861 {144}	☒	1	Fe	-0.000016	0.000000	No
Ca 315.887 {107}	☒	None				
Ca 317.933 {106}	☒	None				
Ca 393.366 { 86}	☒	1	Cu	0.000000	0.000000	No
Ca 396.847 { 85}	☒	None				
Cd 226.502 {449}	☒	2	Fe	0.000090	0.000000	No
			Al	0.000000	0.000000	No
Cd 228.802 {147}	☒	None				
Co 228.616 {447}	☒	5	Fe	0.000009	0.000000	No
			Ti	0.003000	0.000000	No
			Ba	-0.001300	0.000000	No
			Ni	0.000040	0.000000	No
			Al	0.000001	0.000000	No
Co 238.892 {141}	☒	1	Fe	0.000188	0.000000	No
Cr 205.560 {464}	☒	1	Fe	-0.000004	0.000000	No
Cr 267.716 {126}	☒	1	Fe	-0.000014	0.000000	No
Cu 224.700 {450}	☒	5	Fe	0.000274	0.000000	No
			Mo	0.001320	0.000000	No
			Ni	-0.006000	0.000000	No
			Pb	0.003030	0.000000	No
			Al	0.000000	0.000000	No
Cu 324.754 {104}	☒	1	Fe	-0.000136	0.000000	No
Cu 327.396 {103}	☒	1	Fe	0.000069	0.000000	No
Fe 234.349 {144}	☒	None				
Fe 239.562 {140}	☒	None				
Fe 259.940 {129}	☒	None				
Mg 202.582 {466}	☒	None				
Mg 279.079 {121}	☒	None				
Mg 280.270 {120}	☒	None				
Mn 257.610 {131}	☒	1	Al	-0.000086	0.000000	No

ICP INTERELEMENT CORRECTION FACTORS (ANNUAL)
ICP ID NUMBER: TA ICAP6000 / ICAP6500

Element, Wavelength and Order	Use?	# IECs	IEC	k1	k2	Calc-in-fit?
Mn 259.373 {130}	☒	1	Mg	0.001339	0.000000	No
Mo 202.030 {466}	☒	1	Fe	-0.000011	0.000000	No
Mo 203.844 {465}	☒	1	Fe	-0.000020	0.000000	No
Mo 204.598 {464}	☒	1	Fe	0.000036	0.000000	No
Ni 221.647 {452}	☒	1	Ca	0.000021	0.000000	No
Ni 231.604 {445}	☒	3	Fe	0.000012	0.000000	No
			Co	0.000000	0.000000	No
			Mo	0.000000	0.000000	No
Pb 216.999 {455}	☒	2	Al	0.001241	0.000000	No
			Na	0.000000	0.000000	No
Pb 220.353 {453}	☒	3	Si	0.000000	0.000000	No
			Al	0.000001	0.000000	No
			Fe	0.000018	0.000000	No
Pb 220.353 {153}	☒	1	Al	-0.000040	0.000000	No
Sb 206.833 {463}	☒	1	Fe	0.000009	0.000000	No
Sb 217.581 {455}	☒	3	Fe	-0.000069	0.000000	No
			V	0.002070	0.000000	No
			Pb	-0.001040	0.000000	No
Se 196.090 {472}	☒	1	Fe	-0.000360	0.000000	No
Se 206.279 {463}	☒	1	Fe	0.001308	0.000000	No
Tl 190.856 {476}	☒	5	Fe	0.000024	0.000000	No
			Be	-0.000013	0.000000	No
			Ti	0.000050	0.000000	No
			Cr	0.000251	0.000000	No
			V	-0.003800	0.000000	No
Tl 190.856 {477}	☒	1	Fe	-0.000048	0.000000	No
V 290.882 {116}	☒	1	Fe	0.000073	0.000000	No
V 292.402 {115}	☒	3	Fe	0.000020	0.000000	No
			Cr	-0.000400	0.000000	No
			Al	0.000000	0.000000	No
Zn 202.548 {466}	☒	1	Fe	-0.000239	0.000000	No
Zn 206.200 {463}	☒	1	Fe	-0.000003	0.000000	No
Zn 213.856 {457}	☒	2	Fe	0.000167	0.000000	No
			Cu	0.007413	0.000000	No
Y 324.228 {104}*	☒	None				
Y 371.030 { 91}*	☒	None				
Y 224.306 {451}*	☒	None				
Na 588.995 { 57}	☒	1	Fe	0.000106	0.000000	No
Si 251.611 {134}	☒	2	Fe	-0.000105	0.000000	No
			Mo	0.005400	0.000000	No
Ti 323.452 {104}	☒	1	Fe	0.000036	0.000000	No
Ti 334.941 {101}	☒	1	Fe	0.000052	0.000000	No
Sr 407.771 { 83}	☒	1	Fe	0.000014	0.000000	No
Sr 421.552 { 80}	☒	1	Fe	0.000014	0.000000	No

ICP INTERELEMENT CORRECTION FACTORS (ANNUAL)
ICP ID NUMBER: TA ICAP6000 / ICAP6500

Element, Wavelength and Order	Use?	# IECs	IEC	k1	k2	Calc-in-fit?
Sn 189.989 {477}	☒	1	Fe	0.000013	0.000000	No
B 249.678 {135}	☒	2	Fe	0.000001	0.000000	No
			Co	0.003970	0.000000	No
B 249.773 {135}	☒	1	Fe	0.000357	0.000000	No
Li 670.784 { 50}	☒	1	Fe	0.000011	0.000000	No
K 766.490 { 44}	☒	1	Fe	0.000216	0.000000	No
P 213.618 {457}	☒	1	Fe	-0.000079	0.000000	No
S 182.034 {485}	☒	1	Mg	0.000100	0.000000	No
Hg 184.950 {482}	☒	1	Fe	0.000001	0.000000	No
Ce 404.076 { 83}	☒	1	Fe	0.000227	0.000000	No

ICP LINEAR RANGES (QUARTERLY)

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

ICP ID Number: TA SDG No.: 151023

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	M
Aluminum	15.00	1000000	P
Antimony	15.00	10000	P
Arsenic	15.00	10000	P
Barium	15.00	10000	P
Beryllium	15.00	1000	P
Boron	15.00	1000	P
Cadmium	15.00	1000	P
Calcium	15.00	1000000	P
Chromium	15.00	100000	P
Cobalt	15.00	10000	P
Copper	15.00	100000	P
Iron	15.00	1000000	P
Lead	15.00	100000	P
Lithium	15.00	10000	P
Magnesium	15.00	1000000	P
Manganese	15.00	100000	P
Molybdenum	15.00	10000	P
Nickel	15.00	10000	P
Potassium	15.00	200000	P
Selenium	15.00	10000	P
Silicon	15.00	1000	P
Silver	15.00	100	P
Sodium	15.00	200000	P
Strontium	15.00	10000	P
Thallium	15.00	10000	P
Tin	15.00	10000	P
Titanium	15.00	1000	P
Tungsten	15.00	10000	P
Vanadium	15.00	10000	P
Zinc	15.00	100000	P

CT LABORATORIES
delivering more than data from your environmental analyses

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PREPARATION LOG

Lab Name: CT Laboratories

Project: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

Method: EPA 3010A

SDG No.: 151023

Preparation Batch #: 75355

Preparation Date/Time: 01/29/2020 / 11:32

Lab Sample #	QC Type	Sample Description	Matrix	**Weight (g for solid/soil) or Volume (mL for liquid/aqueous)**
383235	Normal Sample	54IDW	GROUND WATER	50.0
383540	Method Blank		LIQUID	50.0
383541	Lab Control Spike		LIQUID	50.0
383542	Lab Duplicate	54IDW	GROUND WATER	50.0
383543	Matrix Spike	54IDW	GROUND WATER	50.0
383544	Matrix Spike Duplicate	54IDW	GROUND WATER	50.0

CT LABORATORIES
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PREPARATION LOG

Lab Name: CT Laboratories

Project: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

Method: EPA 7470A

SDG No.: 151023

Preparation Batch #: 75506

Preparation Date/Time: 02/17/2020 / 13:23

Lab Sample #	QC Type	Sample Description	Matrix	**Weight (g for solid/soil) or Volume (mL for liquid/aqueous)**
383235	Normal Sample	54IDW	GROUND WATER	25.0
388734	Method Blank		LIQUID	25.0
388735	Lab Control Spike		LIQUID	25.0
388736	Matrix Spike	54IDW	GROUND WATER	25.0
388737	Matrix Spike Duplicate	54IDW	GROUND WATER	25.0

CT LABORATORIES
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ANALYSIS RUN LOG

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

Lab Code: CTL

SDG No.: 151023

Instrument ID Number: CETAC

Method Number: CV

Start & End Date: 02/20/2020 to 02/20/2020

Analytical Run #: 168893

Sample Number	Analysis or QC Type	DF	Analysis Date/ Time	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Mo	Li	Ni	K	Se	Si	Ag	Na	Sr	Tl	Sn	W	V	Zn
389790	ICV	1.00	2/20 08:57																X													
389791	ICB	1.00	2/20 09:01																X													
388735	LCSW	1.00	2/20 09:05																X													
388734	MBW	1.00	2/20 09:09																X													
383235	Initial	1.00	2/20 09:11																X													
389792	CCV	1.00	2/20 09:25																X													
389793	CCB	1.00	2/20 09:29																X													
388736	MSW	1.00	2/20 09:45																X													
388737	MSDW	1.00	2/20 09:47																X													
389795	CCV	1.00	2/20 09:53																X													
389796	CCB	1.00	2/20 09:57																X													

CT LABORATORIES
delivering more than data from your environmental analyses

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ANALYSIS RUN LOG

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

Lab Code: CTL

SDG No.: 151023

Instrument ID Number: TJA

Method Number: P

Start & End Date: 02/03/2020 to 02/03/2020

Analytical Run #: 168515

Sample Number	Analysis or QC Type	DF	Analysis Date/ Time	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Mo	Li	Ni	K	Se	Si	Ag	Na	Sr	Tl	Sn	W	V	Zn
385345	ICV	1.00	2/03 14:42	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
385346	ICVLL	1.00	2/03 14:54	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X					X			X	X
385347	ICB	1.00	2/03 15:00	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
385348	ICSA	1.00	2/03 15:19	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
385349	ICSAB	1.00	2/03 15:26	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
385350	ICVLL	1.00	2/03 15:39																							X							
385351	CCV1	1.00	2/03 16:43	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X					X			X	X
385352	CCV2	1.00	2/03 16:49	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
385353	CCB	1.00	2/03 16:54	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
383541	LCSW	1.00	2/03 17:47	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
383540	MBW	1.00	2/03 17:54	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
383235	Initial	1.00	2/03 18:00	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
385354	CCV1	1.00	2/03 18:06	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X					X			X	X
385355	CCV2	1.00	2/03 18:13	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
385356	CCB	1.00	2/03 18:18	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
385357	L	5	2/03 18:25	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
383542	DUP	1.00	2/03 18:31	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
383543	MSW	1.00	2/03 18:38	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
383544	MSDW	1.00	2/03 18:44	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
385358	PDSW	1.00	2/03 18:51	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
385359	CCV1	1.00	2/03 19:29	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X					X			X	X
385360	CCV2	1.00	2/03 19:36	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
385361	CCB	1.00	2/03 19:41	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X

CT LABORATORIES
delivering more than data from your environmental analyses

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ANALYSIS RUN LOG

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

Lab Code: CTL
SDG No.: 151023

Instrument ID Number: TJA
Method Number: P

Start & End Date: 01/31/2020 to 01/31/2020
Analytical Run #: 168516

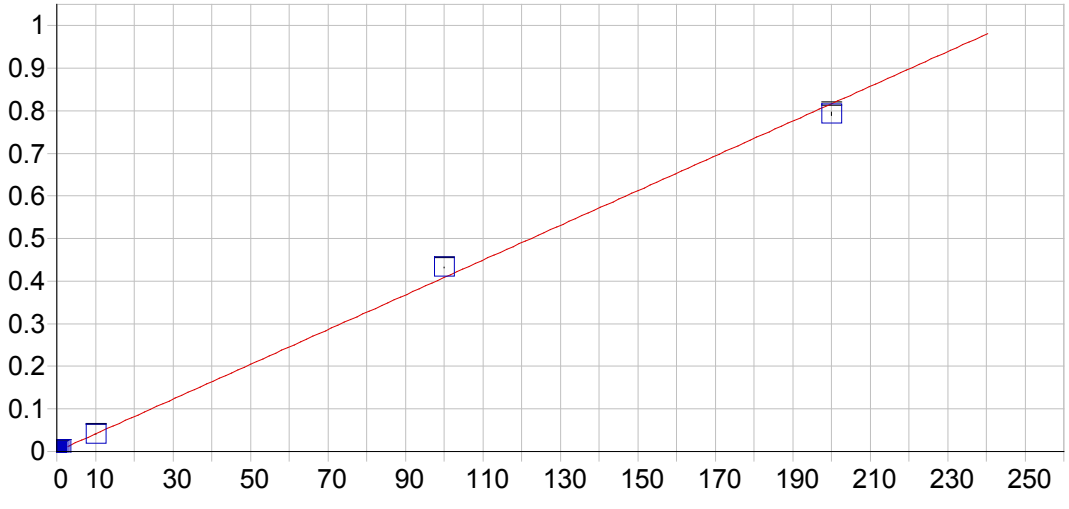
Sample Number	Analysis or QC Type	DF	Analysis Date/ Time	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Mo	Li	Ni	K	Se	Si	Ag	Na	Sr	Tl	Sn	W	V	Zn
384727	ICV	1.00	1/31 09:45																				X				X					
384728	ICVLL	1.00	1/31 09:47																				X				X					
384729	ICB	1.00	1/31 09:50																				X				X					
384730	MRL	1.00	1/31 09:53																				X				X					
384731	ICSA	1.00	1/31 09:56	X							X				X		X						X				X					
384732	ICSAB	1.00	1/31 09:59	X							X				X		X						X				X					
383541	LCSW	1.00	1/31 10:11																				X				X					
383540	MBW	1.00	1/31 10:13																				X				X					
383235	Initial	1.00	1/31 10:16																				X				X					
384733	L	5	1/31 10:19																				X				X					
383542	DUP	1.00	1/31 10:22																				X				X					
383543	MSW	1.00	1/31 10:25																				X				X					
383544	MSDW	1.00	1/31 10:27																				X				X					
384734	CCV	1.00	1/31 10:30																				X				X					
384735	CCB	1.00	1/31 10:33																				X				X					
384736	PDSW	1.00	1/31 10:36																				X				X					
384737	CCV	1.00	1/31 11:04																				X				X					
384738	CCB	1.00	1/31 11:07																				X				X					

METALS
RAW DATA
DOCUMENTS

	Element, Wavelength and Order	Date of Fit	Date of Cal.	Type of Fit	Weighting	A0	A1	A2	n (Exponent)	Correlation	Std Error of Est	Predicted MDL	Predicted MQL
	K 766.490 { 44}	01/31/2020 12:07:58	01/31/2020 09:41:57	Linear	1/Conc	0.000516	0.004080	0.000000	1.000000	0.999189	0.000079	0.026508	0.088360
	K 769.896 { 44}	01/31/2020 12:07:58	01/31/2020 09:41:57	Linear	1/Conc	0.000267	0.003878	0.000000	1.000000	0.999232	0.000073	0.037171	0.123902
	Na 330.237 {102}	01/31/2020 12:07:58	01/31/2020 09:41:57	Linear	1/Conc	0.000092	0.000100	0.000000	1.000000	0.999096	0.000011	0.707058	2.356860
	Na 589.592 { 57}	01/31/2020 12:07:58	01/31/2020 09:41:57	Curvili	1/Var	0.002933	0.037878	-0.000006	1.000000	0.999680	0.001529	0.005026	0.016752
	Y 320.332 {105}*	01/31/2020 12:07:58	01/31/2020 09:22:16	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-1.000000	-1.000000
	Y 360.073 { 94}	01/31/2020 12:07:58	01/31/2020 09:22:16	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-1.000000	-1.000000
	Al 308.215 {109}	01/31/2020 12:07:58	01/31/2020 09:45:05	Linear	1/Conc	0.001348	0.000013	0.000000	1.000000	1.000000	0.000000	-1.000000	-1.000000
	Al 396.152 { 85}	01/31/2020 12:07:58	01/31/2020 09:45:05	Linear	1/Conc	-0.000009	0.007506	0.000000	1.000000	1.000000	0.000000	0.009845	0.032817
	Mg 285.213 {118}	01/31/2020 12:07:58	01/31/2020 09:45:05	Linear	None	0.000099	0.051584	0.000000	1.000000	1.000000	0.000000	0.000915	0.003052
	Ca 317.933 {106}	01/31/2020 12:07:58	01/31/2020 09:45:05	Linear	None	0.021826	0.009034	0.000000	1.000000	1.000000	0.000000	0.004913	0.016377
	Fe 234.349 {144}	01/31/2020 12:07:58	01/31/2020 09:45:05	Linear	None	0.000112	0.002314	0.000000	1.000000	1.000000	0.000000	0.007436	0.024787

	Element, Wavelength and Order	Status	Reslope		QC Norm	
			Slope	Y-int	Slope factor	Offset
	K 766.490 { 44}	OK.	1.000000	0.000000	1	0
	K 769.896 { 44}	OK.	1.000000	0.000000	1	0
	Na 330.237 {102}	OK.	1.000000	0.000000	1	0
	Na 589.592 { 57}	OK.	1.000000	0.000000	1	0
	Y 320.332 {105}*	Warnin	1.000000	0.000000	1	0
	Y 360.073 { 94}	Warnin	1.000000	0.000000	1	0
	Al 308.215 {109}	OK.	1.000000	0.000000	1	0
	Al 396.152 { 85}	OK.	1.000000	0.000000	1	0
	Mg 285.213 {118}	OK.	1.000000	0.000000	1	0
	Ca 317.933 {106}	OK.	1.000000	0.000000	1	0
	Fe 234.349 {144}	OK.	1.000000	0.000000	1	0

Element, Wavelength and Order	Use?	# IECs	IEC	k1	k2	Calc-in-fit?
K 766.490 { 44}	☒	1	Fe	-0.001113	0.000000	No
K 769.896 { 44}	☒	1	Fe	0.000322	0.000000	No
Na 330.237 {102}	☒	1	Fe	-0.001817	0.000000	No
Na 589.592 { 57}	☒	1	Fe	0.000133	0.000000	No
Y 320.332 {105}*	☒	None				
Y 360.073 { 94}	☒	None				
Al 308.215 {109}	☒	1	Fe	0.000000	0.000000	No
Al 396.152 { 85}	☒	None				
Mg 285.213 {118}	☒	None				
Ca 317.933 {106}	☒	None				
Fe 234.349 {144}	☒	None				

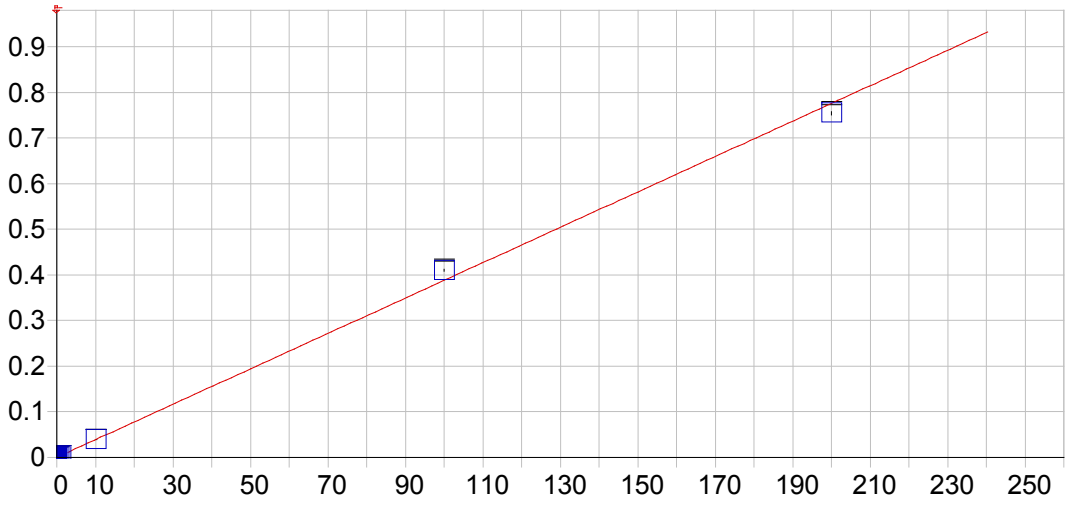


K 766.490 { 44}

Date of Fit:	01/31/2020 12:07:58	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000516	Re-Slope:	1.000000
A1 (Gain):	0.004080	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999189	Status:	OK.
Std Error of Est:	0.000079		
Predicted MDL:	0.026508		
Predicted MQL:	0.088360		

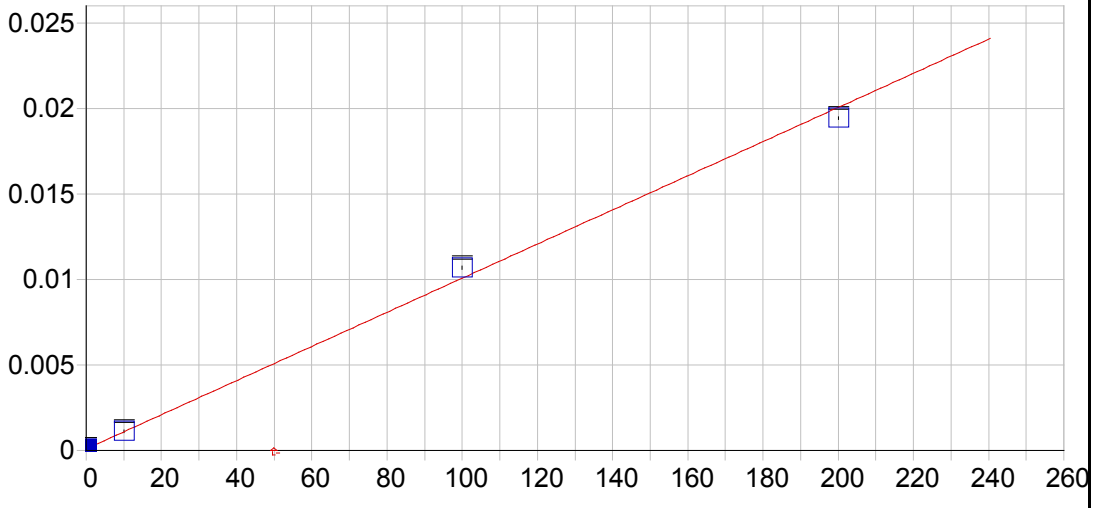
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	.00052	.000	1
CalibStd-1.0	1.0000	.99651	-.003	-.349	.00458	.000	1
CalibStd-10.	10.000	9.9526	-.047	-.474	.04113	.000	1
CalibStd-0.5	.50000	.48805	-.012	-2.39	.00251	.000	1
CalibStd-200	200.00	194.24	-5.76	-2.88	.79306	.004	1
CalibStd-100	100.00	105.82	5.82	5.82	.43231	.001	1



K 769.896 { 44}

Date of Fit:	01/31/2020 12:07:58	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000267		Re-Slope:	1.000000	
A1 (Gain):	0.003878		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.999232		Status:	OK.	
Std Error of Est:	0.000073				
Predicted MDL:	0.037171				
Predicted MQL:	0.123902				

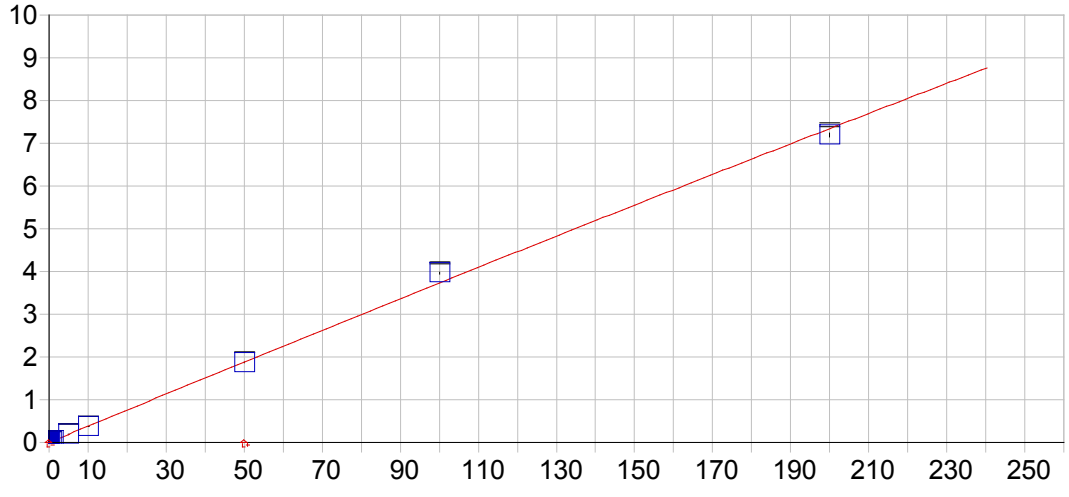
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00008	.000	.000	.00027	.000	1
CalibStd-1.0	1.0000	.94889	-.051	-5.11	.00395	.000	1
CalibStd-10.	10.000	9.9285	-.071	-.715	.03877	.000	1
CalibStd-0.5	.50000	.43900	-.061	-12.2	.00197	.000	1
CalibStd-200	200.00	194.53	-5.47	-2.73	.75467	.004	1
CalibStd-100	100.00	105.65	5.65	5.65	.40998	.002	1



Na 330.237 {102}

Date of Fit:	01/31/2020 12:07:58	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000092		Re-Slope:	1.000000	
A1 (Gain):	0.000100		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.999096		Status:	OK.	
Std Error of Est:	0.000011				
Predicted MDL:	0.707058				
Predicted MQL:	2.356860				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00041	-.000	.000	.00009	.000	1
CalibStd-200	200.00	193.82	-6.18	-3.09	.01944	.000	1
CalibStd-10.	10.000	10.108	.108	1.08	.00110	.000	1
CalibStd-100	100.00	106.07	6.07	6.07	.01068	.000	1

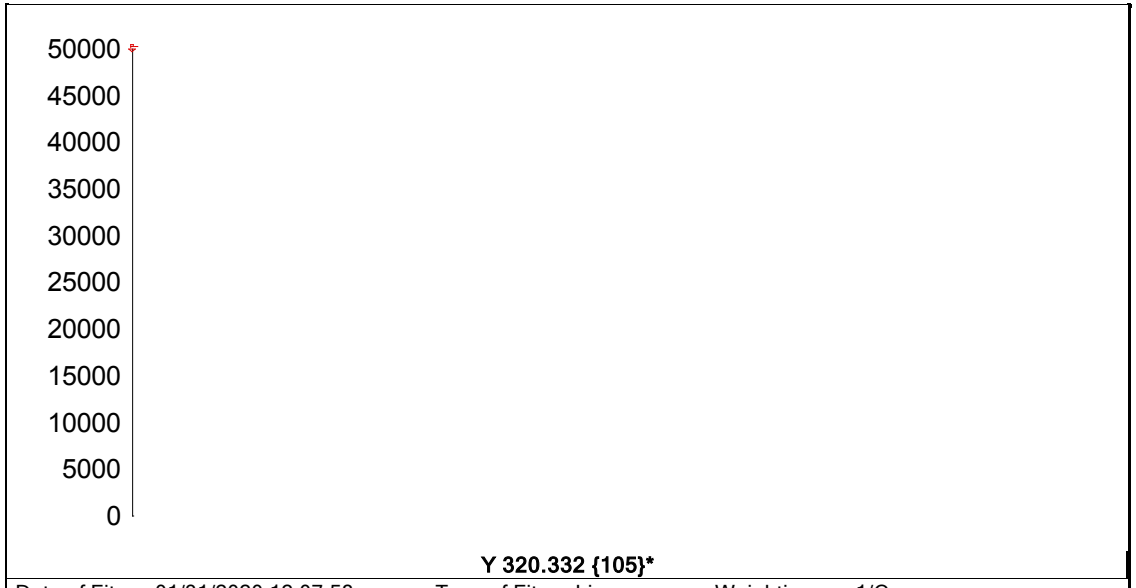


Na 589.592 { 57}

Date of Fit:	01/31/2020 12:07:58	Type of Fit:	Curvilinear	Weighting:	1/Var

A0 (Offset):	0.002933	Re-Slope:	1.000000
A1 (Gain):	0.037878	Y-int:	0.000000
A2 (Curvature):	-0.000006		
n (Exponent):	1.000000		
Correlation:	0.999680	Status:	OK.
Std Error of Est:	0.001529		
Predicted MDL:	0.005026		
Predicted MQL:	0.016752		

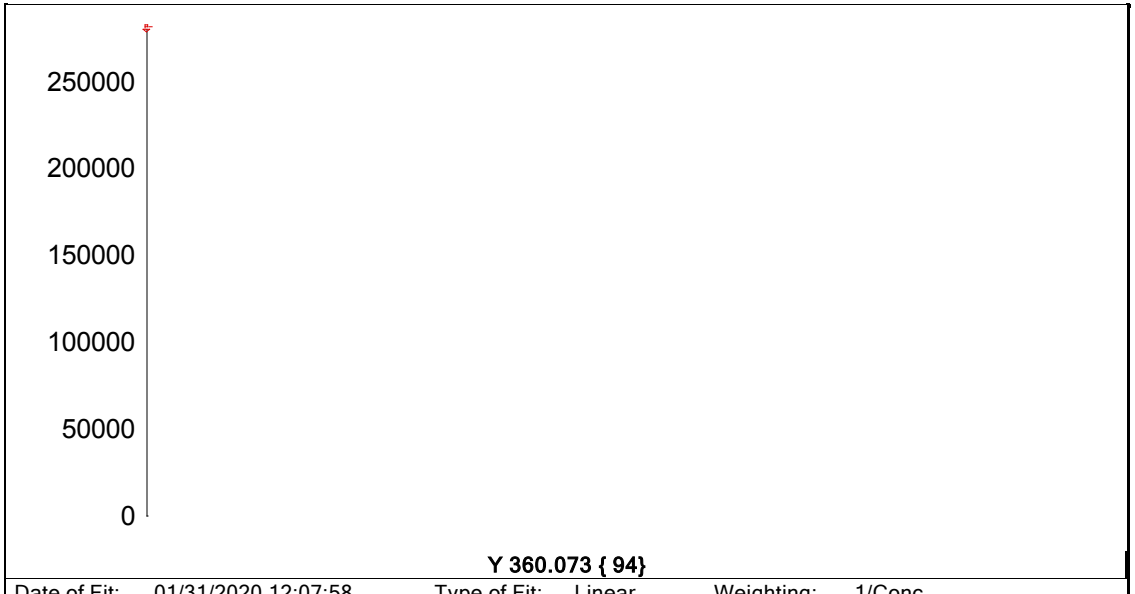
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.02692	-.027	.000	.00191	.000	1
CalibStd-0.5	.50000	.51267	.013	2.53	.02235	.000	1
CalibStd-1.0	1.0000	.99595	-.004	-.405	.04065	.000	1
CalibStd-5.0	5.0000	5.0124	.012	.249	.19265	.001	1
CalibStd-10.	10.000	9.9143	-.086	-.857	.37789	.002	1
CalibStd-50	50.000	49.639	-.361	-.721	1.8686	.006	1
CalibStd-100	100.00	106.42	6.42	6.42	3.9672	.025	1
CalibStd-200	200.00	195.86	-4.14	-2.07	7.1953	.045	1



Y 320.332 {105}*

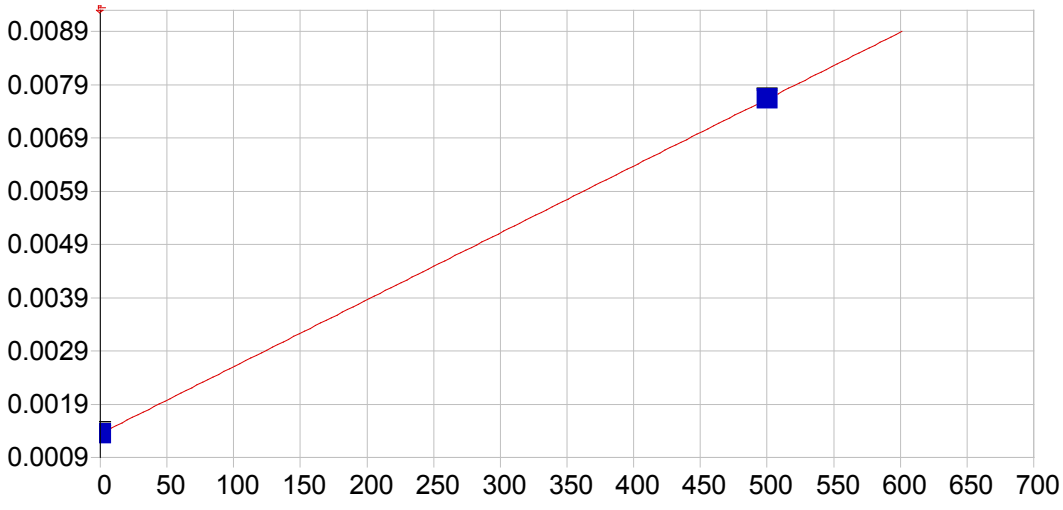
Date of Fit:	01/31/2020 12:07:58	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000000		Re-Slope:	1.000000	
A1 (Gain):	0.000000		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.000000		Status:	Warning	Zero Gain
Std Error of Est:	0.000000				
Predicted MDL:	n/a				
Predicted MQL:	n/a				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	38979.	200.	1



Date of Fit:	01/31/2020 12:07:58	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	0.000000		Re-Slope:	1.000000		
A1 (Gain):	0.000000		Y-int:	0.000000		
A2 (Curvature):	0.000000					
n (Exponent):	1.000000					
Correlation:	0.000000		Status:	Warning	Zero Gain	
Std Error of Est:	0.000000					
Predicted MDL:	n/a					
Predicted MQL:	n/a					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	259660.	3080.	1

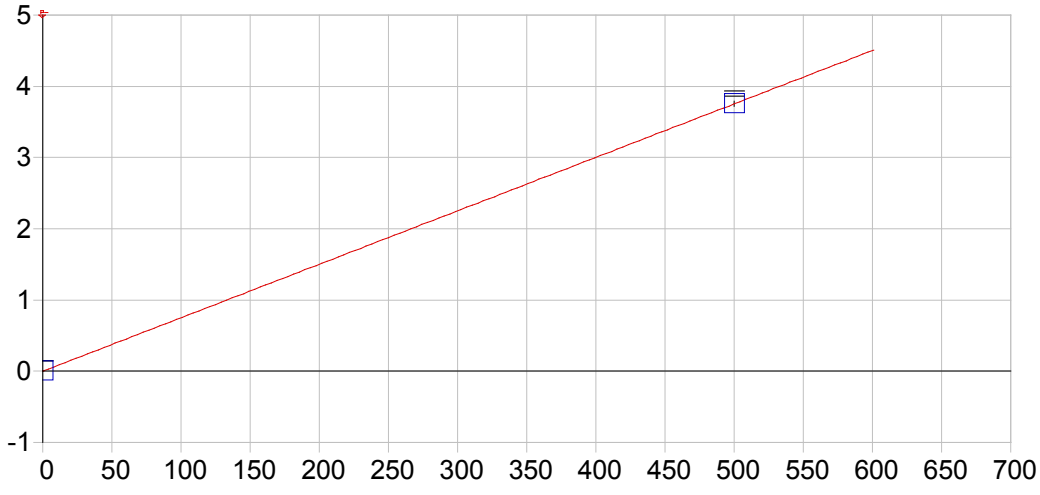


Al 308.215 {109}

Date of Fit:	01/31/2020 12:07:58	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001348	Re-Slope:	1.000000
A1 (Gain):	0.000013	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	n/a		
Predicted MQL:	n/a		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	.00135	.000	1
CalibStd-500	500.00	500.00	.000	.000	.00763	.000	1

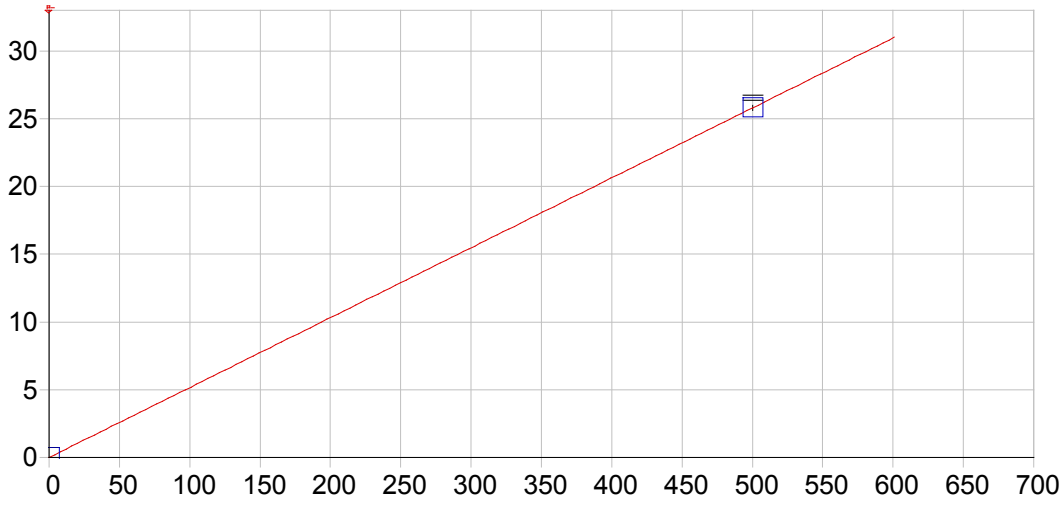


Al 396.152 { 85}

Date of Fit:	01/31/2020 12:07:58	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000009	Re-Slope:	1.000000
A1 (Gain):	0.007506	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	0.009845		
Predicted MQL:	0.032817		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	-.00001	.000	1
CalibStd-500	500.00	500.00	.000	.000	3.7530	.037	1

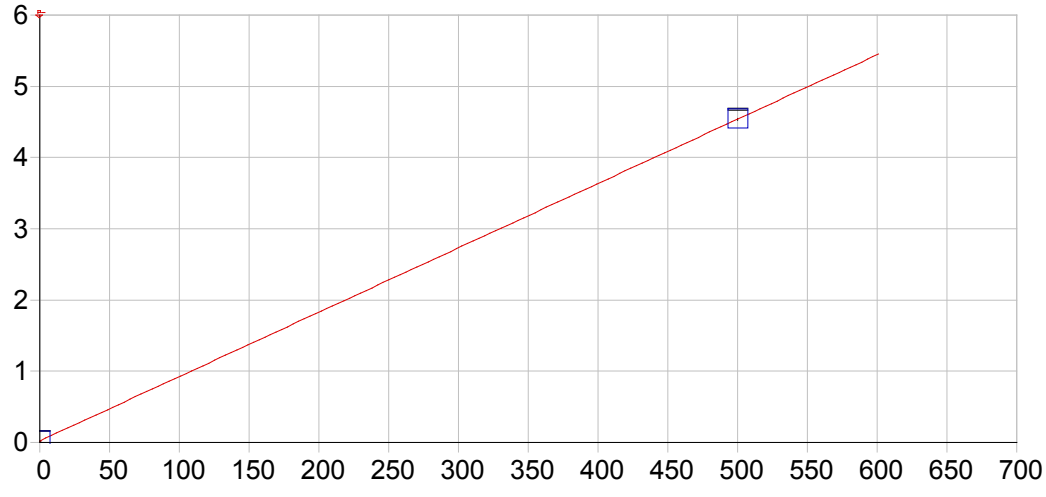


Mg 285.213 {118}

Date of Fit:	01/31/2020 12:07:58	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000099	Re-Slope:	1.000000
A1 (Gain):	0.051584	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	0.000915		
Predicted MQL:	0.003052		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	.00010	.000	1
CalibStd-500	500.00	500.00	.000	.000	25.792	.204	1

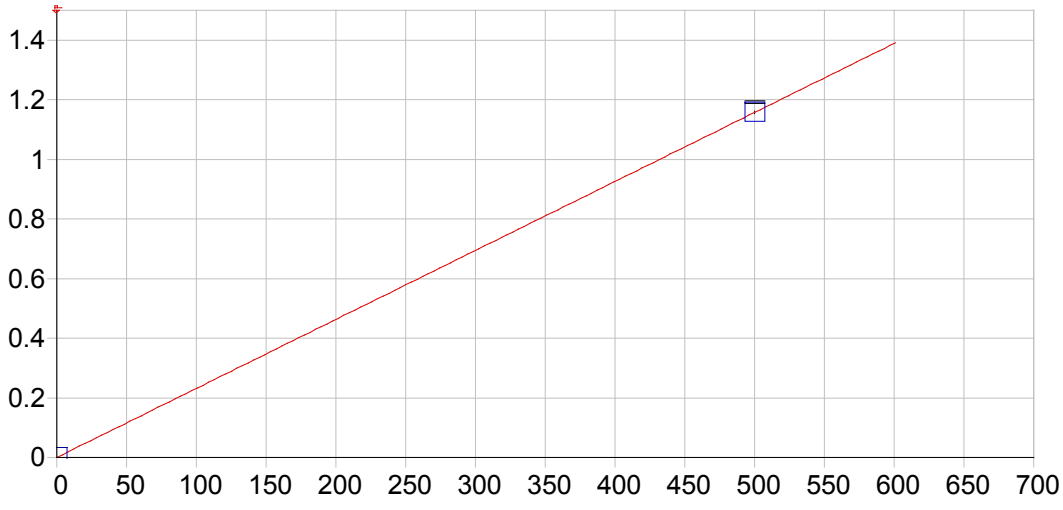


Ca 317.933 {106}

Date of Fit:	01/31/2020 12:07:58	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.021826	Re-Slope:	1.000000
A1 (Gain):	0.009034	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	0.004913		
Predicted MQL:	0.016377		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	.02183	.000	1
CalibStd-500	500.00	500.00	.000	.000	4.5387	.014	1



Fe 234.349 {144}

Date of Fit:	01/31/2020 12:07:58	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000112	Re-Slope:	1.000000
A1 (Gain):	0.002314	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	0.007436		
Predicted MQL:	0.024787		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	.00011	.000	1
CalibStd-500	500.00	500.00	.000	.000	1.1573	.004	1

Sample Name: Blank Acquired: 01/31/2020 09:19:18 Type: Cal
Method: Sodium and Potassium 1(v1227) Mode: IR Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.001**	**.000**	**.002**	**-.000**	**.000**	**.022**	**.000**
Stddev	.000	.000	.000	.000	.000	.000	.000
%RSD	23.6	60.5	24.8	950.	13.2	.921	14.8

Int. Std.	Y_3203
Units	Cts/S
Avg	**38979.**
Stddev	200.
%RSD	.51303

Sample Name: CalibStd-0.5 Acquired: 01/31/2020 09:22:19 Type: Cal
Method: Sodium and Potassium 1(v1227) Mode: IR Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895
Units	Cts/S	Cts/S
Avg	**.003**	**.022**
Stddev	.000	.000
%RSD	3.57	.867

Int. Std.	Y_3203
Units	Cts/S
Avg	**38790.**
Stddev	114.
%RSD	.29434

Sample Name: CalibStd-1.0 Acquired: 01/31/2020 09:25:09 Type: Cal
Method: Sodium and Potassium 1(v1227) Mode: IR Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895
Units	Cts/S	Cts/S
Avg	**.005**	**.041**
Stddev	.000	.000
%RSD	2.63	.344

Int. Std.	Y_3203
Units	Cts/S
Avg	**38675.**
Stddev	77.
%RSD	.19821

Sample Name: CalibStd-5.0 Acquired: 01/31/2020 09:27:59 Type: Cal
Method: Sodium and Potassium 1(v1227) Mode: IR Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Na5895
Units	Cts/S
Avg	.193
Stddev	.001
%RSD	.653

Int. Std.	Y_3203
Units	Cts/S
Avg	38442.
Stddev	87.
%RSD	.22723

Sample Name: CalibStd-10.0 Acquired: 01/31/2020 09:30:45 Type: Cal
Method: Sodium and Potassium 1(v1227) Mode: IR Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Na5895
Units	Cts/S	Cts/S	Cts/S
Avg	**.041**	**.001**	**.378**
Stddev	.000	.000	.002
%RSD	.724	6.72	.588

Int. Std.	Y_3203
Units	Cts/S
Avg	**38478.**
Stddev	97.
%RSD	.25303

Sample Name: CalibStd-50 Acquired: 01/31/2020 09:33:32 Type: Cal
Method: Sodium and Potassium 1(v1227) Mode: IR Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Na5895
Units	Cts/S
Avg	**1.87**
Stddev	.01
%RSD	.330

Int. Std.	Y_3203
Units	Cts/S
Avg	**38373.**
Stddev	98.
%RSD	.25492

Sample Name: CalibStd-100 Acquired: 01/31/2020 09:36:20 Type: Cal
Method: Sodium and Potassium 1(v1227) Mode: IR Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Na5895
Units	Cts/S	Cts/S	Cts/S
Avg	**.432**	**.011**	**3.97**
Stddev	.001	.000	.03
%RSD	.281	.923	.620

Int. Std.	Y_3203
Units	Cts/S
Avg	**38148.**
Stddev	94.
%RSD	.24618

Sample Name: CalibStd-200 Acquired: 01/31/2020 09:39:06 Type: Cal
Method: Sodium and Potassium 1(v1227) Mode: IR Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Na5895
Units	Cts/S	Cts/S	Cts/S
Avg	**.793**	**.019**	**7.20**
Stddev	.004	.000	.04
%RSD	.494	.403	.621

Int. Std.	Y_3203
Units	Cts/S
Avg	**37839.**
Stddev	101.
%RSD	.26714

Sample Name: CalibStd-500 Acquired: 01/31/2020 09:42:00 Type: Cal
Method: Sodium and Potassium 1(v1227) Mode: IR Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Al3961	Mg2852	Ca3179	Fe2343
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**3.75**	**25.8**	**4.54**	**1.16**
Stddev	.04	.2	.01	.00
%RSD	.982	.791	.307	.386

Int. Std.	Y_3203
Units	Cts/S
Avg	**36207.**
Stddev	143.
%RSD	.39562

Sample Name: icv Acquired: 01/31/2020 09:45:09 Type: QC

Method: Sodium and Potassium 1(v1227) Mode: CONC Corr. Factor: 1.000000

User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1

Comment:

Elem	K_7664	Na3302	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**96.0**	**97.9**	**.057**	**.067**	**.047**	**.171**
Stddev	.2	.8	.003	.003	.012	.039
%RSD	.194	.790	5.06	4.96	26.1	22.6
Check ?	None	None	None	None	None	None
Value						
Range						

Int. Std.	Y_3203
Units	Cts/S
Avg	**38475.**
Stddev	126.
%RSD	.32701

Sample Name: ICVLL Acquired: 01/31/2020 09:47:55 Type: QC
Method: Sodium and Potassium 1(v1227) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**2.98**	**3.09**	**.006**	**.010**	**.043**	**.023**
Stddev	.01	.01	.008	.000	.012	.008
%RSD	.267	.435	125.	2.65	28.1	34.7
Check ?	Chk Pass	Chk Pass	None	None	None	None
Value						
Range						

Int. Std.	Y_3203
Units	Cts/S
Avg	**38872.**
Stddev	30.
%RSD	.07590

Sample Name: icb Acquired: 01/31/2020 09:50:42 Type: QC
Method: Sodium and Potassium 1(v1227) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**.026**	**.035**	**.003**	**.004**	**.010**	**.016**
Stddev	.017	.006	.009	.000	.011	.004
%RSD	64.9	17.9	307.	1.72	112.	22.4
Check ?	None	None	None	None	None	None
Value						
Range						

Int. Std.	Y_3203
Units	Cts/S
Avg	**38934.**
Stddev	65.
%RSD	.16569

Sample Name: mrl Acquired: 01/31/2020 09:53:32 Type: QC
Method: Sodium and Potassium 1(v1227) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**1.01**	**1.00**	**-.008**	**.002**	**-.011**	**-.004**
Stddev	.01	.00	.007	.001	.023	.011
%RSD	1.16	.412	97.3	29.8	202.	299.
Check ?	None	None	None	None	None	None
Value						
Range						

Int. Std.	Y_3203
Units	Cts/S
Avg	**39017.**
Stddev	84.
%RSD	.21523

Sample Name: icsa Acquired: 01/31/2020 09:56:21 Type: QC
Method: Sodium and Potassium 1(v1227) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**.000**	**-.000**	**450.**	**461.**	**457.**	**464.**
Stddev	.007	.005	3.	2.	2.	1.
%RSD	7748e12	837000.	.579	.533	.502	.306
Check ?	Chk Pass	Chk Pass	None	None	None	None
High Limit						
Low Limit						

Int. Std.	Y_3203
Units	Cts/S
Avg	**36383.**
Stddev	95.
%RSD	.26000

Sample Name: icsab Acquired: 01/31/2020 09:59:31 Type: QC
Method: Sodium and Potassium 1(v1227) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**111.**	**109.**	**524.**	**512.**	**521.**	**531.**
Stddev	1.	1.	2.	3.	1.	1.
%RSD	.514	.943	.373	.633	.238	.134
Check ?	None	None	None	None	None	None
Value						
Range						

Int. Std.	Y_3203
Units	Cts/S
Avg	**36445.**
Stddev	142.
%RSD	.39079

Sample Name: lcsw75355 Acquired: 01/31/2020 10:11:10 Type: Unk
Method: Sodium and Potassium 1(v1227) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**95.6**	**94.4**	**.927**	**104.**	**191.**	**.434**
Stddev	.6	.9	.008	1.	.	.023
%RSD	.650	.960	.908	.499	.211	5.33

Int. Std.	Y_3203
Units	Cts/S
Avg	**37732.**
Stddev	66.
%RSD	.17507

Sample Name: mbw75355 Acquired: 01/31/2020 10:13:55 Type: Unk
Method: Sodium and Potassium 1(v1227) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**.030**	**.053**	**-.003**	**.003**	**-.028**	**.009**
Stddev	.029	.006	.011	.001	.017	.005
%RSD	98.6	11.1	431.	33.3	60.0	57.1

Int. Std.	Y_3203
Units	Cts/S
Avg	**39482.**
Stddev	75.
%RSD	.18924

Sample Name: 383235 Acquired: 01/31/2020 10:16:45 Type: Unk
Method: Sodium and Potassium 1(v1227) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**.843**	**5.50**	**.067**	**27.4**	**64.1**	**.022**
Stddev	.014	.04	.018	.1	.3	.007
%RSD	1.63	.650	27.3	.437	.413	34.2

Int. Std.	Y_3203
Units	Cts/S
Avg	**38826.**
Stddev	123.
%RSD	.31768

Sample Name: I383235 Acquired: 01/31/2020 10:19:33 Type: Unk
Method: Sodium and Potassium 1(v1227) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**.160**	**1.03**	**.001**	**5.30**	**12.3**	**-.012**
Stddev	.023	.01	.006	.07	.2	.008
%RSD	14.5	1.32	873.	1.26	1.56	63.7

Int. Std.	Y_3203
Units	Cts/S
Avg	**39514.**
Stddev	60.
%RSD	.15102

Sample Name: dup383235 Acquired: 01/31/2020 10:22:22 Type: Unk
Method: Sodium and Potassium 1(v1227) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**.829**	**5.51**	**.061**	**27.4**	**64.3**	**.020**
Stddev	.032	.02	.010	.1	.4	.004
%RSD	3.83	.361	16.0	.270	.572	22.1

Int. Std.	Y_3203
Units	Cts/S
Avg	**38744.**
Stddev	133.
%RSD	.34355

Sample Name: msw383235 Acquired: 01/31/2020 10:25:11 Type: Unk
Method: Sodium and Potassium 1(v1227) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**97.7**	**101.**	**.958**	**131.**	**255.**	**.440**
Stddev	.2	1.	.008	.	.	.004
%RSD	.176	1.46	.823	.170	.047	.805

Int. Std.	Y_3203
Units	Cts/S
Avg	**37403.**
Stddev	41.
%RSD	.10864

Sample Name: msdw383235 Acquired: 01/31/2020 10:27:58 Type: Unk
Method: Sodium and Potassium 1(v1227) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**99.5**	**104.**	**.990**	**135.**	**263.**	**.435**
Stddev	.1	1.	.016	.	1.	.009
%RSD	.137	.522	1.65	.105	.413	1.99

Int. Std.	Y_3203
Units	Cts/S
Avg	**37340.**
Stddev	78.
%RSD	.20930

Sample Name: ccv Acquired: 01/31/2020 10:30:44 Type: QC
Method: Sodium and Potassium 1(v1227) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**105.**	**105.**	**.010**	**.021**	**.044**	**.061**
Stddev	.	1.	.008	.002	.017	.005
%RSD	.128	.771	78.9	9.16	39.4	7.76
Check ?	None	None	None	None	None	None
Value						
Range						

Int. Std.	Y_3203
Units	Cts/S
Avg	**38735.**
Stddev	70.
%RSD	.17979

Sample Name: ccb Acquired: 01/31/2020 10:33:31 Type: QC
Method: Sodium and Potassium 1(v1227) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**.075**	**.060**	**-.010**	**.002**	**-.014**	**-.006**
Stddev	.029	.004	.011	.000	.010	.005
%RSD	39.1	7.15	119.	9.55	70.3	88.4
Check ?	None	None	None	None	None	None
Value						
Range						

Int. Std.	Y_3203
Units	Cts/S
Avg	**39367.**
Stddev	195.
%RSD	.49417

Sample Name: pdsw383235 Acquired: 01/31/2020 10:36:22 Type: Unk
Method: Sodium and Potassium 1(v1227) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**99.8**	**107.**	**.061**	**26.8**	**63.0**	**.011**
Stddev	.9	1.	.003	.0	.3	.004
%RSD	.892	1.36	4.22	.122	.485	37.6

Int. Std.	Y_3203
Units	Cts/S
Avg	**38335.**
Stddev	82.
%RSD	.21283

Sample Name: ccv Acquired: 01/31/2020 11:04:44 Type: QC
Method: Sodium and Potassium 1(v1227) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**105.**	**104.**	**.008**	**.022**	**.002**	**.056**
Stddev	.	1.	.002	.001	.008	.009
%RSD	.133	.671	30.6	3.50	450.	16.0
Check ?	None	None	None	None	None	None
Value						
Range						

Int. Std.	Y_3203
Units	Cts/S
Avg	**39047.**
Stddev	142.
%RSD	.36242

Sample Name: ccb Acquired: 01/31/2020 11:07:30 Type: QC
Method: Sodium and Potassium 1(v1227) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**.073**	**.076**	**-.010**	**.002**	**-.077**	**-.014**
Stddev	.028	.006	.004	.001	.017	.003
%RSD	38.1	8.02	38.7	32.3	22.6	23.7
Check ?	None	None	None	None	None	None
Value						
Range						

Int. Std.	Y_3203
Units	Cts/S
Avg	**39404.**
Stddev	93.
%RSD	.23677

Element, Wavelength and Order	Date of Fit	Date of Cal.	Type of Fit	Weighting	A0	A1	A2	n (Exponent)	Correlation	Std Error of Est	Predicted MDL	Predicted MQL
Ag 328.068 {103}	02/04/2020 09:41:14	02/03/2020 14:36:14	Linear	1/Var	-0.000009	0.000003	0.000000	1.000000	0.998157	0.000007	0.669038	2.230127
Ag 338.289 {100}	02/04/2020 09:41:14	02/03/2020 14:36:14	Linear	1/Conc	0.000004	0.000001	0.000000	1.000000	0.999917	0.000000	3.172403	10.574677
Al 167.079 {501}	02/04/2020 09:41:14	02/03/2020 13:54:24	Linear	1/Conc	0.000005	0.000003	0.000000	1.000000	0.999578	0.000000	0.540552	1.801840
Al 308.215 {109}	02/04/2020 09:41:14	02/03/2020 14:14:38	Linear	1/Var	0.000030	0.000000	0.000000	1.000000	0.999898	0.000020	11.380231	37.934102
Al 396.152 { 85}	02/04/2020 09:41:14	02/03/2020 14:29:44	Linear	1/Conc	-0.000044	0.000001	0.000000	1.000000	0.999988	0.000010	5.220736	17.402452
As 193.759 {474}	02/04/2020 09:41:14	02/03/2020 13:54:24	Linear	1/Conc	0.000003	0.000001	0.000000	1.000000	0.998986	0.000000	4.265555	14.218515
As 197.262 {471}	02/04/2020 09:41:14	02/03/2020 14:01:17	Linear	1/Var	0.000001	0.000001	0.000000	1.000000	0.999993	0.000002	4.993216	16.644053
Ba 233.527 {445}	02/04/2020 09:41:14	02/03/2020 13:54:24	Linear	1/Conc	0.000000	0.000001	0.000000	1.000000	0.999924	0.000000	0.349588	1.165293
Ba 455.403 { 74}	02/04/2020 09:41:14	02/03/2020 14:01:17	Linear	1/Conc	0.000129	0.000042	0.000000	1.000000	0.999020	0.000007	0.147964	0.493213
Ba 493.409 { 68}	02/04/2020 09:41:14	02/03/2020 14:36:14	Linear	1/Conc	-389.44486	18.186259	0.000000	1.000000	0.999601	51.828702	0.656761	2.189204
Be 313.042 {108}	02/04/2020 09:41:14	02/03/2020 13:54:25	Linear	1/Conc	-0.000145	0.000090	0.000000	1.000000	0.999909	0.000001	0.028251	0.094170
Be 234.861 {144}	02/04/2020 09:41:14	02/03/2020 13:54:25	Linear	1/Conc	0.000002	0.000006	0.000000	1.000000	0.999968	0.000001	0.162320	0.541067
Ca 315.887 {107}	02/04/2020 09:41:14	02/03/2020 14:29:44	Curvili	1/Var	0.000057	0.000000	0.000000	1.000000	0.999912	0.000006	3.567724	11.892412
Ca 317.933 {106}	02/04/2020 09:41:14	02/03/2020 14:29:44	Linear	1/Var	0.000843	0.000001	0.000000	1.000000	0.998721	0.000121	1.807844	6.026146
Ca 393.366 { 86}	02/04/2020 09:41:14	02/03/2020 13:54:25	Linear	None	0.000463	0.000150	0.000000	1.000000	0.999999	0.000191	0.030495	0.101651
Ca 396.847 { 85}	02/04/2020 09:41:14	02/03/2020 14:01:17	Linear	1/Conc	0.000268	0.000066	0.000000	1.000000	0.999885	0.000047	0.070863	0.236210
Cd 226.502 {449}	02/04/2020 09:41:14	02/03/2020 13:54:25	Linear	1/Conc	-0.000006	0.000025	0.000000	1.000000	0.999836	0.000000	0.196798	0.655994
Cd 228.802 {447}	02/04/2020 09:41:14	02/03/2020 13:54:25	Linear	1/Conc	0.000010	0.000044	0.000000	1.000000	0.999739	0.000001	0.143578	0.478594
Co 228.616 {447}	02/04/2020 09:41:14	02/03/2020 14:01:17	Linear	1/Conc	0.000006	0.000018	0.000000	1.000000	0.999784	0.000001	0.287119	0.957062
Co 238.892 {141}	02/04/2020 09:41:14	02/03/2020 14:01:17	Linear	1/Var	0.000080	0.000025	0.000000	1.000000	0.999731	0.000193	0.534059	1.780196
Cr 205.560 {464}	02/04/2020 09:41:14	02/03/2020 14:08:23	Linear	1/Var	0.000002	0.000016	0.000000	1.000000	0.999381	0.000036	0.253694	0.845646
Cr 267.716 {126}	02/04/2020 09:41:14	02/03/2020 14:01:18	Linear	1/Conc	-0.000000	0.000025	0.000000	1.000000	0.999839	0.000004	0.577605	1.925351
Cu 223.008 {451}	02/04/2020 09:41:14	02/03/2020 14:01:18	Linear	None	0.000009	0.000007	0.000000	1.000000	0.999983	0.000017	0.872768	2.909227
Cu 224.700 {450}	02/04/2020 09:41:14	02/03/2020 14:08:23	Linear	1/Conc	0.000003	0.000006	0.000000	1.000000	0.999547	0.000010	0.580250	1.934166
Cu 324.754 {104}	02/04/2020 09:41:14	02/03/2020 14:08:23	Linear	1/Conc	0.000272	0.000002	0.000000	1.000000	0.999865	0.000002	1.294386	4.314620
Cu 327.396 {103}	02/04/2020 09:41:14	02/03/2020 14:01:18	Linear	1/Conc	0.000017	0.000002	0.000000	1.000000	0.999581	0.000000	2.987079	9.956931
Fe 234.349 {144}	02/04/2020 09:41:14	02/03/2020 14:14:39	Linear	1/Var	0.000018	0.000001	0.000000	1.000000	0.999913	0.000013	1.203622	4.012072
Fe 239.562 {140}	02/04/2020 09:41:14	02/03/2020 14:29:44	Linear	1/Var	0.000005	0.000001	0.000000	1.000000	0.997234	0.000036	1.580145	5.267151
Fe 259.940 {129}	02/04/2020 09:41:14	02/03/2020 14:21:52	Linear	1/Var	0.000003	0.000002	0.000000	1.000000	0.998901	0.000036	1.030823	3.436077
Mg 202.582 {466}	02/04/2020 09:41:14	02/03/2020 14:29:44	Curvili	1/Var	0.000001	0.000000	0.000000	1.000000	0.999167	0.000010	2.235794	7.452646
Mg 279.079 {121}	02/04/2020 09:41:14	02/03/2020 14:29:44	Linear	1/Var	-0.000004	0.000000	0.000000	1.000000	0.999627	0.000004	13.358451	44.528169
Mg 280.270 {120}	02/04/2020 09:41:14	02/03/2020 14:01:19	Linear	1/Var	417.97954	78.504435	0.000000	1.000000	0.999303	289.85925	0.024150	0.080500
Mn 257.610 {131}	02/04/2020 09:41:14	02/03/2020 14:01:19	Linear	1/Var	0.000009	0.000014	0.000000	1.000000	0.998732	0.000013	0.068428	0.228092
Mn 259.373 {130}	02/04/2020 09:41:14	02/03/2020 14:08:24	Linear	1/Conc	0.000002	0.000007	0.000000	1.000000	0.999983	0.000019	0.273226	0.910754
Mo 202.030 {466}	02/04/2020 09:41:14	02/03/2020 13:54:28	Linear	1/Conc	0.000002	0.000010	0.000000	1.000000	0.999806	0.000001	0.386218	1.287395
Mo 203.844 {465}	02/04/2020 09:41:14	02/03/2020 13:54:28	Linear	1/Var	0.000004	0.000006	0.000000	1.000000	0.999742	0.000011	0.701140	2.337134
Mo 204.598 {464}	02/04/2020 09:41:14	02/03/2020 14:01:19	Linear	1/Conc	-0.000002	0.000006	0.000000	1.000000	0.999918	0.000001	0.686491	2.288302
Ni 221.647 {452}	02/04/2020 09:41:14	02/03/2020 14:01:19	Linear	1/Conc	-0.000010	0.000016	0.000000	1.000000	0.999810	0.000014	0.418320	1.394402
Ni 231.604 {445}	02/04/2020 09:41:14	02/03/2020 14:01:19	Linear	1/Conc	-0.000014	0.000015	0.000000	1.000000	0.999707	0.000001	0.416333	1.387777
Pb 216.999 {455}	02/04/2020 09:41:14	02/03/2020 14:08:24	Linear	1/Var	0.000013	0.000001	0.000000	1.000000	0.998968	0.000014	3.811455	12.704851
Pb 220.353 {453}	02/04/2020 09:41:14	02/03/2020 13:54:28	Linear	None	0.000000	0.000003	0.000000	1.000000	0.999994	0.000005	2.223813	7.412711
Pb 220.353 {153}	02/04/2020 09:41:14	02/03/2020 14:08:24	Linear	1/Conc	-0.000001	0.000001	0.000000	1.000000	0.999590	0.000005	4.590592	15.301973
Sb 206.833 {463}	02/04/2020 09:41:14	02/03/2020 14:01:20	Linear	1/Var	0.000008	0.000002	0.000000	1.000000	0.999850	0.000016	2.008762	6.695875
Sb 217.581 {455}	02/04/2020 09:41:14	02/03/2020 14:01:20	Linear	1/Conc	0.000001	0.000001	0.000000	1.000000	0.999899	0.000000	3.465544	11.551813

	Element, Wavelength and Order	Status	Reslope		QC Norm	
			Slope	Y-int	Slope factor	Offset
	Ag 328.068 {103}	OK.	1.000000	0.000000	1	0
	Ag 338.289 {100}	OK.	1.000000	0.000000	1	0
	Al 167.079 {501}	OK.	1.000000	0.000000	1	0
	Al 308.215 {109}	OK.	1.000000	0.000000	1	0
	Al 396.152 { 85}	OK.	1.000000	0.000000	1	0
	As 193.759 {474}	OK.	1.000000	0.000000	1	0
	As 197.262 {471}	OK.	1.000000	0.000000	1	0
	Ba 233.527 {445}	OK.	1.000000	0.000000	1	0
	Ba 455.403 { 74}	OK.	1.000000	0.000000	1	0
	Ba 493.409 { 68}	OK.	1.000000	0.000000	1	0
	Be 313.042 {108}	OK.	1.000000	0.000000	1	0
	Be 234.861 {144}	OK.	1.000000	0.000000	1	0
	Ca 315.887 {107}	OK.	1.000000	0.000000	1	0
	Ca 317.933 {106}	OK.	1.000000	0.000000	1	0
	Ca 393.366 { 86}	OK.	1.000000	0.000000	1	0
	Ca 396.847 { 85}	OK.	1.000000	0.000000	1	0
	Cd 226.502 {449}	OK.	1.000000	0.000000	1	0
	Cd 228.802 {447}	OK.	1.000000	0.000000	1	0
	Co 228.616 {447}	OK.	1.000000	0.000000	1	0
	Co 238.892 {141}	OK.	1.000000	0.000000	1	0
	Cr 205.560 {464}	OK.	1.000000	0.000000	1	0
	Cr 267.716 {126}	OK.	1.000000	0.000000	1	0
	Cu 223.008 {451}	OK.	1.000000	0.000000	1	0
	Cu 224.700 {450}	OK.	1.000000	0.000000	1	0
	Cu 324.754 {104}	OK.	1.000000	0.000000	1	0
	Cu 327.396 {103}	OK.	1.000000	0.000000	1	0
	Fe 234.349 {144}	OK.	1.000000	0.000000	1	0
	Fe 239.562 {140}	OK.	1.000000	0.000000	1	0
	Fe 259.940 {129}	OK.	1.000000	0.000000	1	0
	Mg 202.582 {466}	OK.	1.000000	0.000000	1	0
	Mg 279.079 {121}	OK.	1.000000	0.000000	1	0
	Mg 280.270 {120}	OK.	1.000000	0.000000	1	0
	Mn 257.610 {131}	OK.	1.000000	0.000000	1	0
	Mn 259.373 {130}	OK.	1.000000	0.000000	1	0
	Mo 202.030 {466}	OK.	1.000000	0.000000	1	0
	Mo 203.844 {465}	OK.	1.000000	0.000000	1	0
	Mo 204.598 {464}	OK.	1.000000	0.000000	1	0
	Ni 221.647 {452}	OK.	1.000000	0.000000	1	0
	Ni 231.604 {445}	OK.	1.000000	0.000000	1	0
	Pb 216.999 {455}	OK.	1.000000	0.000000	1	0
	Pb 220.353 {453}	OK.	1.000000	0.000000	1	0
	Pb 220.353 {153}	OK.	1.000000	0.000000	1	0
	Sb 206.833 {463}	OK.	1.000000	0.000000	1	0
	Sb 217.581 {455}	OK.	1.000000	0.000000	1	0

Element, Wavelength and Order	Date of Fit	Date of Cal.	Type of Fit	Weighting	A0	A1	A2	n (Exponent)	Correlation	Std Error of Est	Predicted MDL	Predicted MQL
Se 196.090 {472}	02/04/2020 09:41:14	02/03/2020 13:54:29	Linear	1/Conc	0.000003	0.000001	0.000000	1.000000	0.999685	0.000000	4.118025	13.726749
Se 203.985 {465}	02/04/2020 09:41:14	02/03/2020 13:54:29	Linear	None	-0.000000	0.000001	0.000000	1.000000	0.999941	0.000005	6.230226	20.767419
Se 206.279 {463}	02/04/2020 09:41:14	02/03/2020 14:01:20	Linear	1/Conc	-0.000002	0.000000	0.000000	1.000000	0.999885	0.000000	20.203381	67.344603
Tl 190.856 {476}	02/04/2020 09:41:14	02/03/2020 14:01:20	Linear	1/Conc	0.000007	0.000002	0.000000	1.000000	0.999915	0.000000	2.162445	7.208148
Tl 190.856 {477}	02/04/2020 09:41:14	02/03/2020 14:01:20	Linear	1/Var	0.000012	0.000001	0.000000	1.000000	0.999381	0.000049	3.475085	11.583617
V 290.882 {116}	02/04/2020 09:41:14	02/03/2020 14:01:20	Linear	1/Conc	0.000012	0.000001	0.000000	1.000000	0.999963	0.000001	1.898498	6.328327
V 292.402 {115}	02/04/2020 09:41:14	02/03/2020 14:01:21	Linear	1/Var	0.000016	0.000007	0.000000	1.000000	0.999876	0.000020	0.458206	1.527355
Zn 206.200 {463}	02/04/2020 09:41:14	02/03/2020 14:08:24	Curvili	1/Conc	0.000008	0.000021	-0.000000	1.000000	0.999992	0.000004	0.214336	0.714455
Zn 213.856 {457}	02/04/2020 09:41:14	02/03/2020 13:54:30	Linear	1/Conc	0.000030	0.000045	0.000000	1.000000	0.999946	0.000002	0.107167	0.357224
Y 224.306 {450}*	02/04/2020 09:41:14	02/03/2020 13:05:27	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-1.000000	-1.000000
Y 324.228 {104}*	02/04/2020 09:41:14	02/03/2020 13:05:27	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-1.000000	-1.000000
Y 371.030 { 91}*	02/04/2020 09:41:14	02/03/2020 13:05:28	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-1.000000	-1.000000
Na 588.995 { 57}	02/04/2020 09:41:14	02/03/2020 14:01:21	Linear	None	0.001945	0.000004	0.000000	1.000000	1.000000	0.000119	4.178118	13.927060
Na 589.592 { 57}	02/04/2020 09:41:14	02/03/2020 14:29:45	Linear	1/Var	0.000036	0.000002	0.000000	1.000000	0.998895	0.000069	4.781656	15.938854
Si 251.611 {134}	02/04/2020 09:41:14	02/03/2020 14:29:45	Linear	1/Var	16.077669	0.478919	0.000000	1.000000	0.998481	50.082511	3.325442	11.084807
Ti 323.452 {104}	02/04/2020 09:41:14	02/03/2020 14:01:21	Linear	1/Conc	0.000165	0.000008	0.000000	1.000000	0.999935	0.000001	0.525740	1.752466
Ti 334.941 {101}	02/04/2020 09:41:14	02/03/2020 14:01:21	Linear	1/Conc	0.000005	0.000006	0.000000	1.000000	0.999926	0.000001	0.466874	1.556245
Sr 407.771 { 83}	02/04/2020 09:41:14	02/03/2020 14:01:21	Linear	1/Conc	0.000023	0.000093	0.000000	1.000000	0.999857	0.000006	0.064616	0.215386
Sr 421.552 { 80}	02/04/2020 09:41:14	02/03/2020 14:01:22	Linear	1/Conc	0.000017	0.000082	0.000000	1.000000	0.999915	0.000004	0.072754	0.242513
Sn 189.989 {477}	02/04/2020 09:41:14	02/03/2020 14:01:22	Linear	1/Conc	0.000001	0.000003	0.000000	1.000000	0.999631	0.000001	0.996688	3.322292
B 249.678 {135}	02/04/2020 09:41:14	02/03/2020 14:01:22	Linear	1/Var	0.000001	0.000002	0.000000	1.000000	0.999919	0.000004	0.769342	2.564473
B 249.773 {135}	02/04/2020 09:41:14	02/03/2020 14:01:22	Linear	1/Var	0.000003	0.000004	0.000000	1.000000	0.999952	0.000008	0.470328	1.567760
Li 670.784 { 50}	02/04/2020 09:41:14	02/03/2020 14:01:22	Linear	1/Conc	-0.000030	0.000019	0.000000	1.000000	0.999879	0.000004	0.604968	2.016561
K 766.490 { 44}	02/04/2020 09:41:14	02/03/2020 14:29:45	Linear	1/Var	-9.638712	0.457354	0.000000	1.000000	0.998127	213.20312	21.072415	70.241384
K 769.896 { 44}	02/04/2020 09:41:14	02/03/2020 14:29:45	Curvili	1/Var	45.924398	0.183383	-0.000000	1.000000	0.999871	63.920441	33.610203	112.03401
P 213.618 {457}	02/04/2020 09:41:14	02/03/2020 14:01:22	Linear	1/Conc	-0.000009	0.000008	0.000000	1.000000	1.000000	0.000000	0.530390	1.767968
S 182.034 {485}	02/04/2020 09:41:14	02/03/2020 14:29:45	Linear	1/Var	0.000018	0.000001	0.000000	1.000000	0.999556	0.000170	4.534358	15.114526
Hg 184.950 {482}	02/04/2020 09:41:14	02/03/2020 13:54:32	Linear	1/Conc	0.000002	0.000000	0.000000	1.000000	0.999952	0.000000	1.011919	3.373062
Ce 404.076 { 83}	02/04/2020 09:41:14	02/03/2020 13:54:32	Linear	1/Conc	0.000009	0.000001	0.000000	1.000000	1.000000	0.000000	9.297192	30.990640

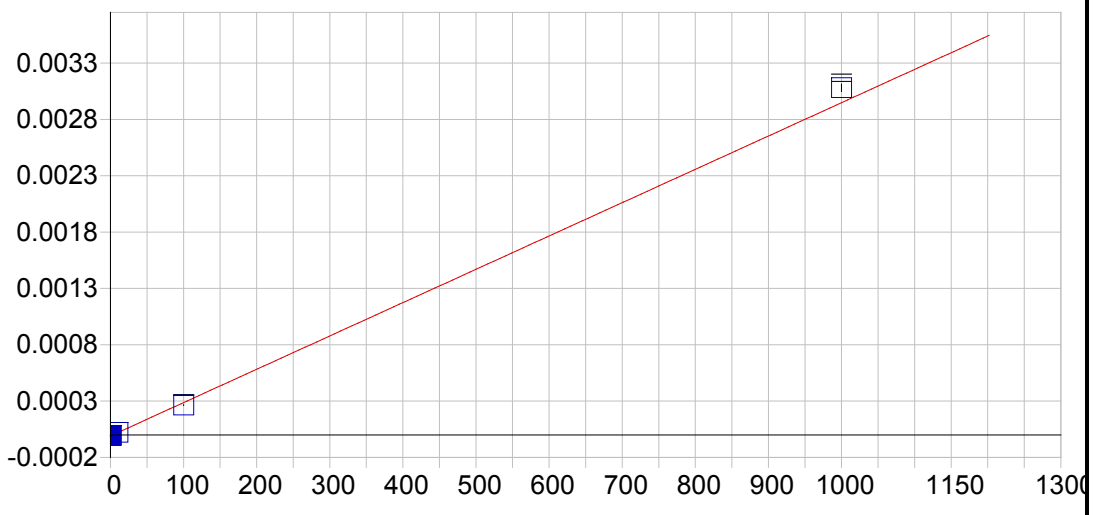
	Element, Wavelength and Order	Status	Reslope		QC Norm	
			Slope	Y-int	Slope factor	Offset
	Se 196.090 {472}	OK.	1.000000	0.000000	1	0
	Se 203.985 {465}	OK.	1.000000	0.000000	1	0
	Se 206.279 {463}	OK.	1.000000	0.000000	1	0
	Tl 190.856 {476}	OK.	1.000000	0.000000	1	0
	Tl 190.856 {477}	OK.	1.000000	0.000000	1	0
	V 290.882 {116}	OK.	1.000000	0.000000	1	0
	V 292.402 {115}	OK.	1.000000	0.000000	1	0
	Zn 206.200 {463}	OK.	1.000000	0.000000	1	0
	Zn 213.856 {457}	OK.	1.000000	0.000000	1	0
	Y 224.306 {450}*	Warnin	1.000000	0.000000	1	0
	Y 324.228 {104}*	Warnin	1.000000	0.000000	1	0
	Y 371.030 { 91}*	Warnin	1.000000	0.000000	1	0
	Na 588.995 { 57}	OK.	1.000000	0.000000	1	0
	Na 589.592 { 57}	OK.	1.000000	0.000000	1	0
	Si 251.611 {134}	OK.	1.000000	0.000000	1	0
	Ti 323.452 {104}	OK.	1.000000	0.000000	1	0
	Ti 334.941 {101}	OK.	1.000000	0.000000	1	0
	Sr 407.771 { 83}	OK.	1.000000	0.000000	1	0
	Sr 421.552 { 80}	OK.	1.000000	0.000000	1	0
	Sn 189.989 {477}	OK.	1.000000	0.000000	1	0
	B 249.678 {135}	OK.	1.000000	0.000000	1	0
	B 249.773 {135}	OK.	1.000000	0.000000	1	0
	Li 670.784 { 50}	OK.	1.000000	0.000000	1	0
	K 766.490 { 44}	OK.	1.000000	0.000000	1	0
	K 769.896 { 44}	OK.	1.000000	0.000000	1	0
	P 213.618 {457}	OK.	1.000000	0.000000	1	0
	S 182.034 {485}	OK.	1.000000	0.000000	1	0
	Hg 184.950 {482}	OK.	1.000000	0.000000	1	0
	Ce 404.076 { 83}	OK.	1.000000	0.000000	1	0

Element, Wavelength and Order	Use?	# IECs	IEC	k1	k2	Calc-in-fit?
Ag 328.068 {103}	☒	2	Fe	-0.000153	0.000000	No
			Ce	0.000000	0.000000	No
Ag 338.289 {100}	☒	2	Fe	0.000068	0.000000	No
			Ti	0.002000	0.000000	No
Al 167.079 {501}	☒	None				
Al 308.215 {109}	☒	None				
Al 396.152 { 85}	☒	None				
As 193.759 {474}	☒	4	Al	0.001463	0.000000	No
			Mn	-0.000114	0.000000	No
			Ni	-0.000722	0.000000	No
			Cr	0.000734	0.000000	No
As 197.262 {471}	☒	2	Al	0.000210	0.000000	No
			V	0.006278	0.000000	No
Ba 233.527 {445}	☒	3	Fe	0.000002	0.000000	No
			V	0.000000	0.000000	No
			Cr	0.000118	0.000000	No
Ba 455.403 { 74}	☒	1	Fe	0.000002	0.000000	No
Ba 493.409 { 68}	☒	1	Fe	0.000102	0.000000	No
Be 313.042 {108}	☒	4	Fe	0.000002	0.000000	No
			Ti	-0.000006	0.000000	No
			V	0.000050	0.000000	No
			Ni	0.000000	0.000000	No
Be 234.861 {144}	☒	1	Fe	0.000001	0.000000	No
Ca 315.887 {107}	☒	1	Fe	0.000000	0.000000	No
Ca 317.933 {106}	☒	None				
Ca 393.366 { 86}	☒	1	Cu	0.000000	0.000000	No
Ca 396.847 { 85}	☒	None				
Cd 226.502 {449}	☒	1	Fe	0.000071	0.000000	No
Cd 228.802 {447}	☒	1	Fe	0.000000	0.000000	No
Co 228.616 {447}	☒	3	Fe	-0.000004	0.000000	No
			Ba	-0.000881	0.000000	No
			Ti	0.001700	0.000000	No
Co 238.892 {141}	☒	1	Fe	0.000226	0.000000	No
Cr 205.560 {464}	☒	1	Fe	0.000000	0.000000	No
Cr 267.716 {126}	☒	4	Fe	0.000005	0.000000	No
			Mn	0.000234	0.000000	No
			Ti	0.000100	0.000000	No
			V	-0.000074	0.000000	No
Cu 223.008 {451}	☒	1	Fe	-0.000063	0.000000	No
Cu 224.700 {450}	☒	2	Fe	0.000068	0.000000	No
			Ni	-0.007040	0.000000	No
Cu 324.754 {104}	☒	1	Fe	-0.000081	0.000000	No
Cu 327.396 {103}	☒	2	Fe	-0.000003	0.000000	No
			Mo	-0.000590	0.000000	No

Element, Wavelength and Order	Use?	# IECs	IEC	k1	k2	Calc-in-fit?
Fe 234.349 {144}	☒	None				
Fe 239.562 {140}	☒	None				
Fe 259.940 {129}	☒	None				
Mg 202.582 {466}	☒	None				
Mg 279.079 {121}	☒	None				
Mg 280.270 {120}	☒	None				
Mn 257.610 {131}	☒	1	Al	-0.000012	0.000000	No
Mn 259.373 {130}	☒	1	Mg	0.001300	0.000000	No
Mo 202.030 {466}	☒	2	Fe	-0.000018	0.000000	No
			Ti	0.001417	0.000000	No
Mo 203.844 {465}	☒	1	Fe	-0.000045	0.000000	No
Mo 204.598 {464}	☒	1	Fe	0.000099	0.000000	No
Ni 221.647 {452}	☒	1	Ca	0.000021	0.000000	No
Ni 231.604 {445}	☒	5	Fe	-0.000056	0.000000	No
			Co	0.001774	0.000000	No
			Mo	0.000000	0.000000	No
			Al	0.000003	0.000000	No
			Mn	0.000089	0.000000	No
Pb 216.999 {455}	☒	2	Al	0.003361	0.000000	No
			Na	0.000000	0.000000	No
Pb 220.353 {453}	☒	5	Si	0.000000	0.000000	No
			Al	-0.000059	0.000000	No
			Ni	0.000106	0.000000	No
			Mo	-0.000635	0.000000	No
			V	-0.000088	0.000000	No
Pb 220.353 {153}	☒	2	Fe	-0.000002	0.000000	No
			Al	-0.000123	0.000000	No
Sb 206.833 {463}	☒	1	Fe	0.000108	0.000000	No
Sb 217.581 {455}	☒	3	Fe	-0.000067	0.000000	No
			Ni	0.000133	0.000000	No
			V	0.000000	0.000000	No
Se 196.090 {472}	☒	2	Fe	-0.000039	0.000000	No
			Mn	0.000304	0.000000	No
Se 203.985 {465}	☒	1	Fe	-0.000160	0.000000	No
Se 206.279 {463}	☒	1	Fe	0.001816	0.000000	No
Tl 190.856 {476}	☒	8	Fe	-0.000393	0.000000	No
			Be	-0.000013	0.000000	No
			Ti	-0.000379	0.000000	No
			V	0.000000	0.000000	No
			Ce	0.000000	0.000000	No
			Mn	0.000068	0.000000	No
			Ni	-0.000070	0.000000	No
			Co	0.000000	0.000000	No
Tl 190.856 {477}	☒	2	Fe	-0.000350	0.000000	No

Element, Wavelength and Order	Use?	# IECs	IEC	k1	k2	Calc-in-fit?
			Cr	0.000884	0.000000	No
V 290.882 {116}	☒	1	Fe	0.000207	0.000000	No
V 292.402 {115}	☒	5	Fe	0.000018	0.000000	No
			Cr	0.003071	0.000000	No
			Al	0.000000	0.000000	No
			Ti	0.000420	0.000000	No
			Mo	-0.003753	0.000000	No
Zn 206.200 {463}	☒	1	Fe	0.000026	0.000000	No
Zn 213.856 {457}	☒	9	Fe	0.000170	0.000000	No
			Cu	0.000000	0.000000	No
			Al	0.000000	0.000000	No
			Mn	0.000094	0.000000	No
			Ni	0.005870	0.000000	No
			Ti	-0.000307	0.000000	No
			Mg	0.000004	0.000000	No
			Mo	0.000851	0.000000	No
			Ca	0.000000	0.000000	No
Y 224.306 {450}*	☒	None				
Y 324.228 {104}*	☒	None				
Y 371.030 { 91}*	☒	None				
Na 588.995 { 57}	☒	1	Fe	0.000106	0.000000	No
Na 589.592 { 57}	☒	1	Fe	-0.000003	0.000000	No
Si 251.611 {134}	☒	4	Fe	-0.000019	0.000000	No
			Mo	0.028793	0.000000	No
			Ti	0.028118	0.000000	No
			Sn	0.022103	0.000000	No
Ti 323.452 {104}	☒	6	Fe	0.000011	0.000000	No
			Ce	-0.000795	0.000000	No
			Mn	0.000074	0.000000	No
			Ni	0.000273	0.000000	No
			Cr	0.000125	0.000000	No
			V	0.000477	0.000000	No
Ti 334.941 {101}	☒	1	Fe	0.000099	0.000000	No
Sr 407.771 { 83}	☒	1	Fe	0.000015	0.000000	No
Sr 421.552 { 80}	☒	2	Ca	0.000013	0.000000	No
			Al	0.000025	0.000000	No
Sn 189.989 {477}	☒	1	Fe	0.000034	0.000000	No
B 249.678 {135}	☒	1	Fe	-0.000029	0.000000	No
B 249.773 {135}	☒	1	Fe	0.000367	0.000000	No
Li 670.784 { 50}	☒	1	Fe	0.000016	0.000000	No
K 766.490 { 44}	☒	1	Fe	-0.000191	0.000000	No
K 769.896 { 44}	☒	1	Fe	0.000049	0.000000	No
P 213.618 {457}	☒	1	Fe	-0.000079	0.000000	No
S 182.034 {485}	☒	2	Mn	0.002145	0.000000	No

	Element, Wavelength and Order	Use?	# IECs	IEC	k1	k2	Calc-in-fit?
				Al	0.001210	0.000000	No
	Hg 184.950 {482}	☒	1	Fe	0.000001	0.000000	No
	Ce 404.076 { 83}	☒	1	Fe	0.000227	0.000000	No

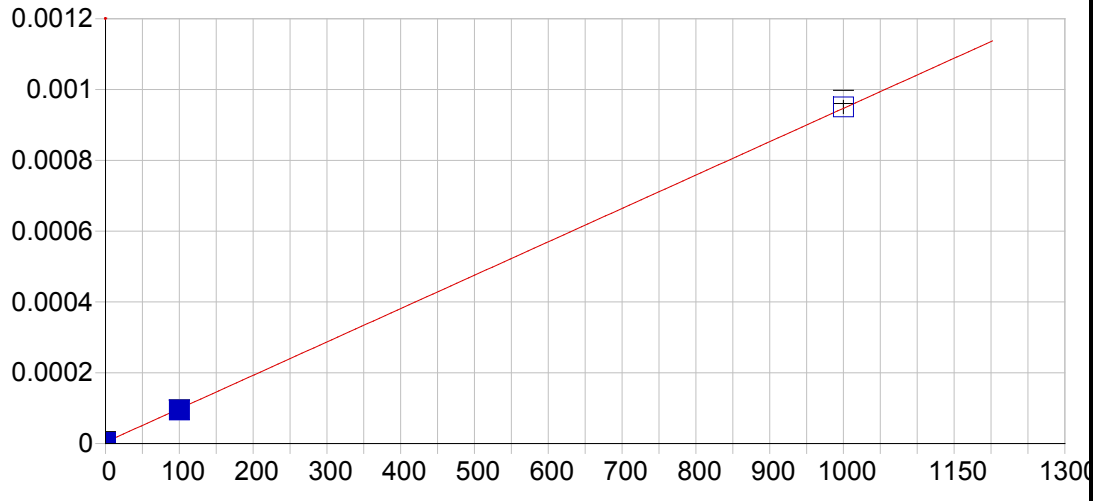


Ag 328.068 {103}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	-0.000009	Re-Slope:	1.000000
A1 (Gain):	0.000003	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.998157	Status:	OK.
Std Error of Est:	0.000007		
Predicted MDL:	0.669038		
Predicted MQL:	2.230127		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.73428	.734	.000	-.00001	.000	1
CalStd5=10	10.000	10.475	.475	4.75	.00002	.000	1
CalStd8=100	100.00	92.583	-7.42	-7.42	.00026	.000	1
CalStd3=1	1.0000	.84268	-.157	-15.7	-.00001	.000	1
Ag Ba 1000,	1000.0	1044.7	44.7	4.47	.00308	.000	1

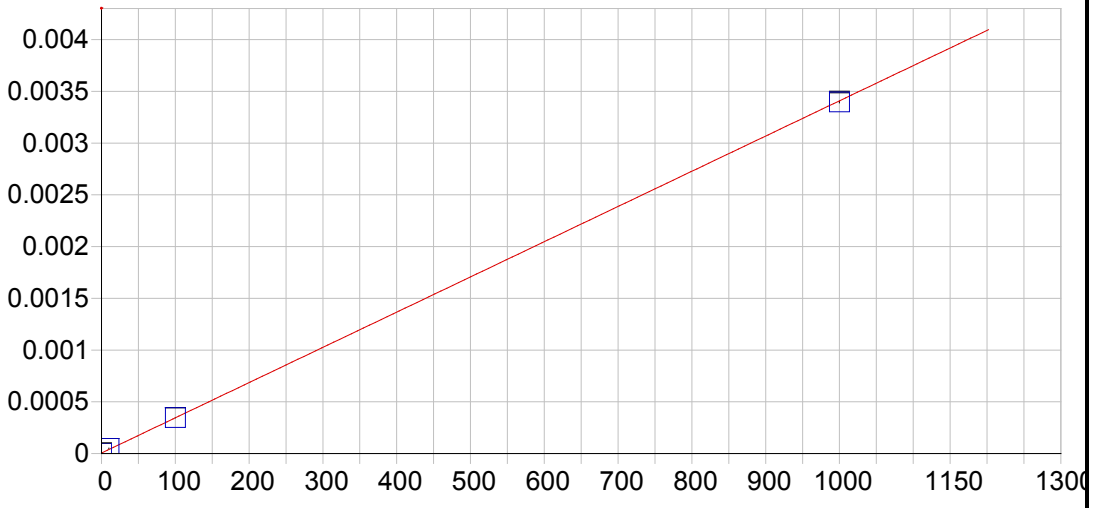


Ag 338.289 {100}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000004	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999917	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	3.172403		
Predicted MQL:	10.574677		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00367	.004	.000	.00000	.000	1
CalStd8=100	100.00	95.923	-4.08	-4.08	.00009	.000	1
Ag Ba 1000,	1000.0	1004.1	4.09	.409	.00095	.000	1

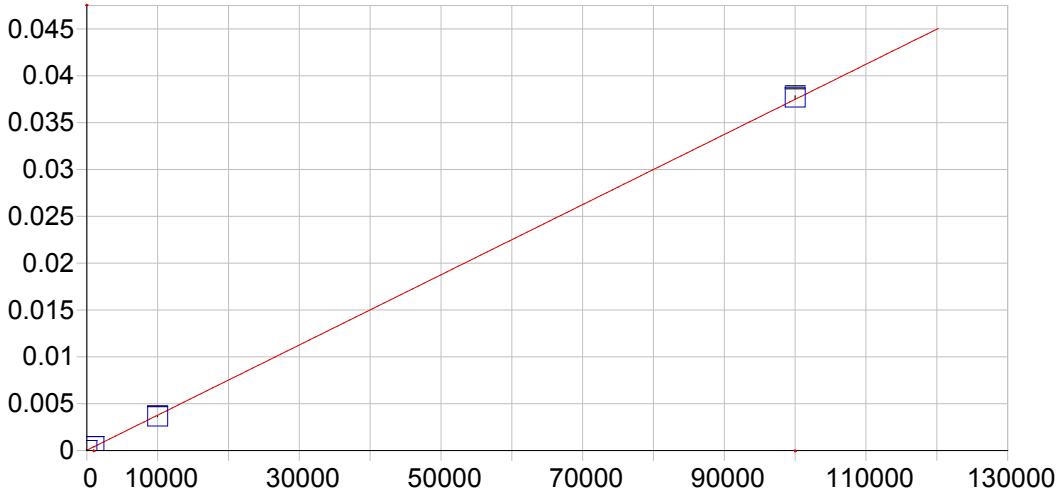


Al 167.079 {501}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000005	Re-Slope:	1.000000
A1 (Gain):	0.000003	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999578	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	0.540552		
Predicted MQL:	1.801840		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00305	-.003	.000	.00000	.000	1
CalStd9=100	1000.0	996.47	-3.53	-.353	.00340	.000	1
CalStd5=10	10.000	13.037	3.04	30.4	.00005	.000	1
CalStd8=100	100.00	100.49	.493	.493	.00035	.000	1

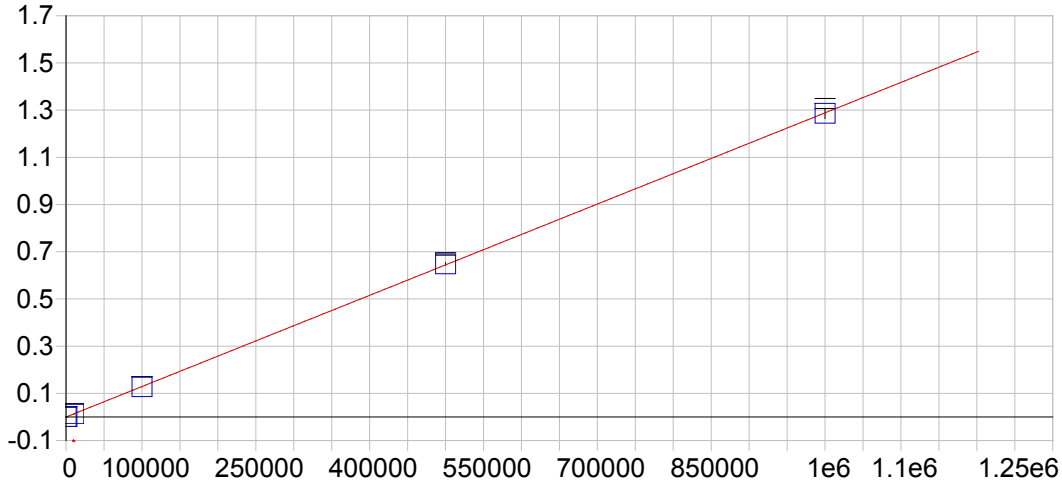


Al 308.215 {109}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000030	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999898	Status:	OK.
Std Error of Est:	0.000020		
Predicted MDL:	11.380231		
Predicted MQL:	37.934102		

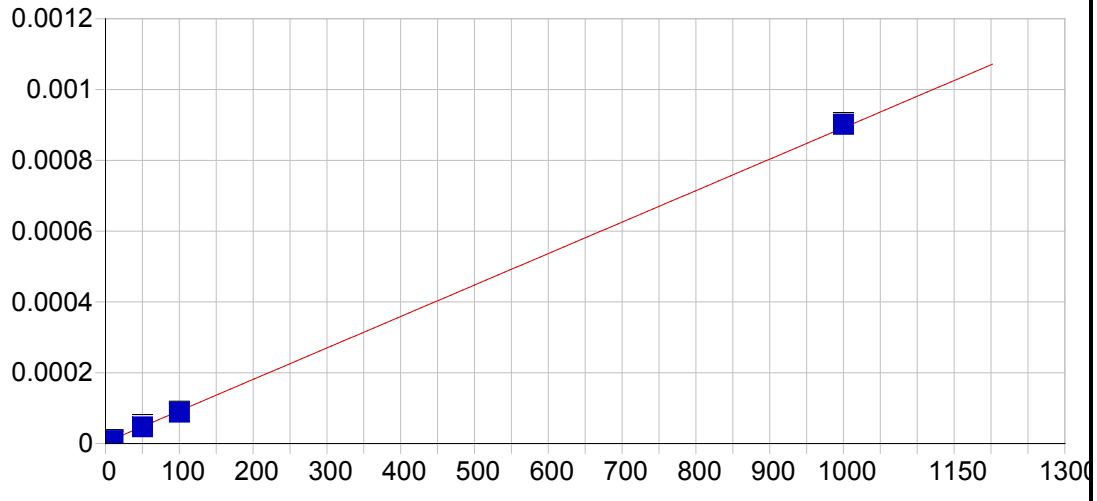
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.87190	.872	.000	.00003	.000	1
CalStd10=10	10000.	9663.0	-337.	-3.37	.00365	.000	1
CalStd9=100	1000.0	1011.2	11.2	1.12	.00041	.000	1
CalStd13=10	100000.	100570.	568.	.568	.03770	.000	1



Al 396.152 { 85}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	-0.000044		Re-Slope:	1.000000	
A1 (Gain):	0.000001		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.999988		Status:	OK.	
Std Error of Est:	0.000010				
Predicted MDL:	5.220736				
Predicted MQL:	17.402452				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00263	-.003	.000	-.00004	.000	1
CalStd14=50	500000.	503170.	3170.	.635	.64837	.005	1
CalStd13=10	100000.	99182.	-818.	-.818	.12777	.001	1
CalStd10=10	10000.	9771.8	-228.	-2.28	.01255	.000	1
CalStd9=100	1000.0	1029.4	29.4	2.94	.00128	.000	1
CalibStd15=	1000000.	997840.	-2160.	-.216	1.2858	.021	1

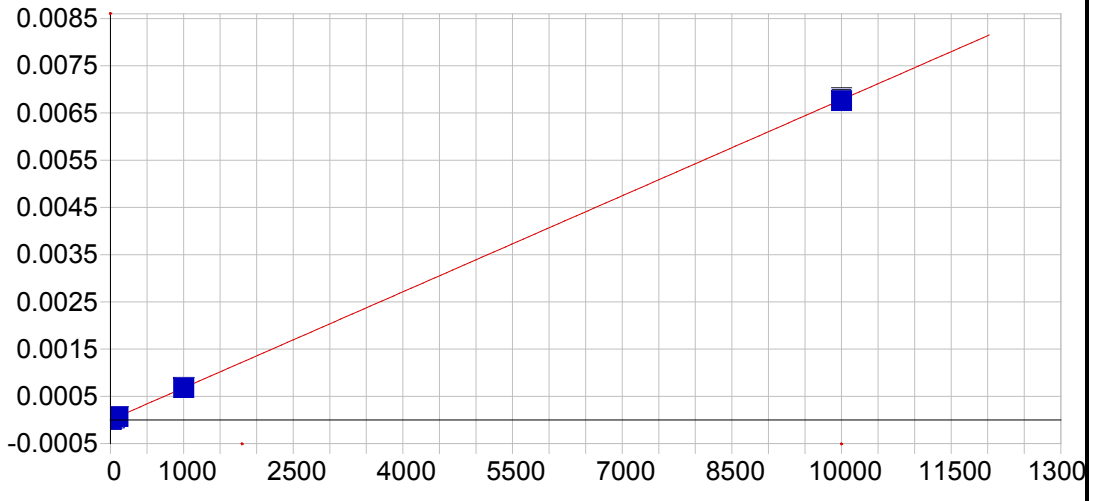


As 193.759 {474}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000003	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.998986	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	4.265555		
Predicted MQL:	14.218515		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00506	.005	.000	.00000	.000	1
CalStd9=100	1000.0	1010.0	10.0	1.00	.00090	.000	1
CalStd7=50	50.000	49.016	-.984	-1.97	.00005	.000	1
CalStd5=10	10.000	5.4869	-4.51	-45.1	.00001	.000	1
CalStd8=100	100.00	95.493	-4.51	-4.51	.00009	.000	1

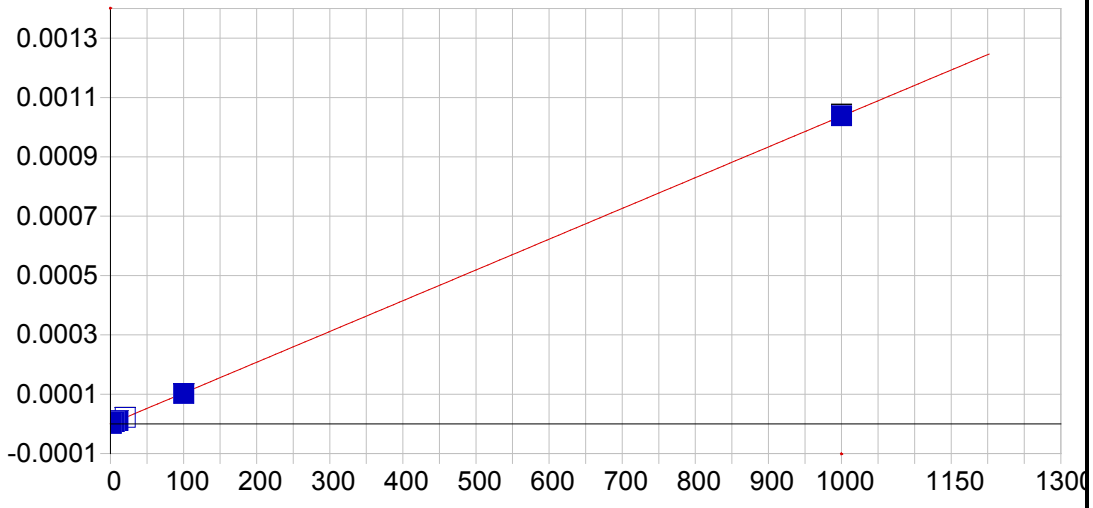


As 197.262 {471}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000001	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999993	Status:	OK.
Std Error of Est:	0.000002		
Predicted MDL:	4.993216		
Predicted MQL:	16.644053		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.27243	-.272	.000	.00000	.000	1
CalStd9=100	1000.0	1003.3	3.28	.328	.00069	.000	1
CalStd7=50	50.000	51.011	1.01	2.02	.00004	.000	1
CalStd5=10	10.000	7.6281	-2.37	-23.7	.00001	.000	1
CalStd8=100	100.00	97.179	-2.82	-2.82	.00007	.000	1
CalStd10=10	10000.	9966.8	-33.2	-.332	.00680	.000	1

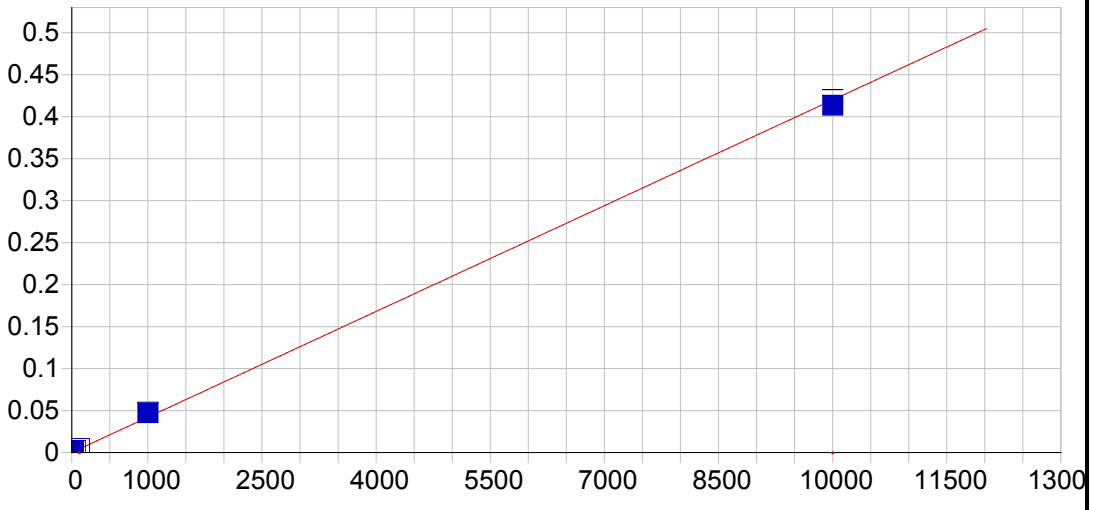


Ba 233.527 {445}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000000	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999924	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	0.349588		
Predicted MQL:	1.165293		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00000	-.000	.000	.00000	.000	1
CalStd5=10	10.000	10.062	.062	.621	.00001	.000	1
CalStd6=20	20.000	20.421	.421	2.11	.00002	.000	1
CalStd8=100	100.00	97.902	-2.10	-2.10	.00010	.000	1
CalStd4=5	5.0000	5.6954	.695	13.9	.00001	.000	1
CalStd9=100	1000.0	1001.1	1.06	.106	.00104	.000	1
CalStd3=1	1.0000	.85477	-.145	-14.5	.00000	.000	1

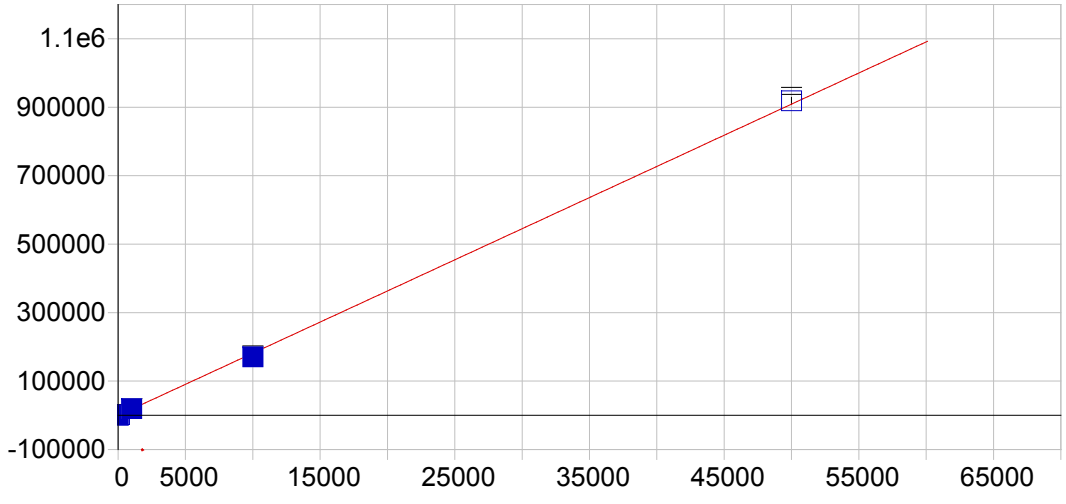


Ba 455.403 { 74}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000129	Re-Slope:	1.000000
A1 (Gain):	0.000042	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999020	Status:	OK.
Std Error of Est:	0.000007		
Predicted MDL:	0.147964		
Predicted MQL:	0.493213		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00114	-.001	.000	.00013	.000	1
CalStd7=50	50.000	60.377	10.4	20.8	.00266	.000	1
CalStd5=10	10.000	11.228	1.23	12.3	.00060	.000	1
CalStd6=20	20.000	22.748	2.75	13.7	.00108	.000	1
CalStd8=100	100.00	110.18	10.2	10.2	.00475	.000	1
CalStd4=5	5.0000	6.4139	1.41	28.3	.00040	.000	1
CalStd9=100	1000.0	1124.6	125.	12.5	.04734	.000	1
CalStd3=1	1.0000	1.1826	.183	18.3	.00018	.000	1
CalStd10=10	10000.	9849.3	-151.	-1.51	.41358	.007	1

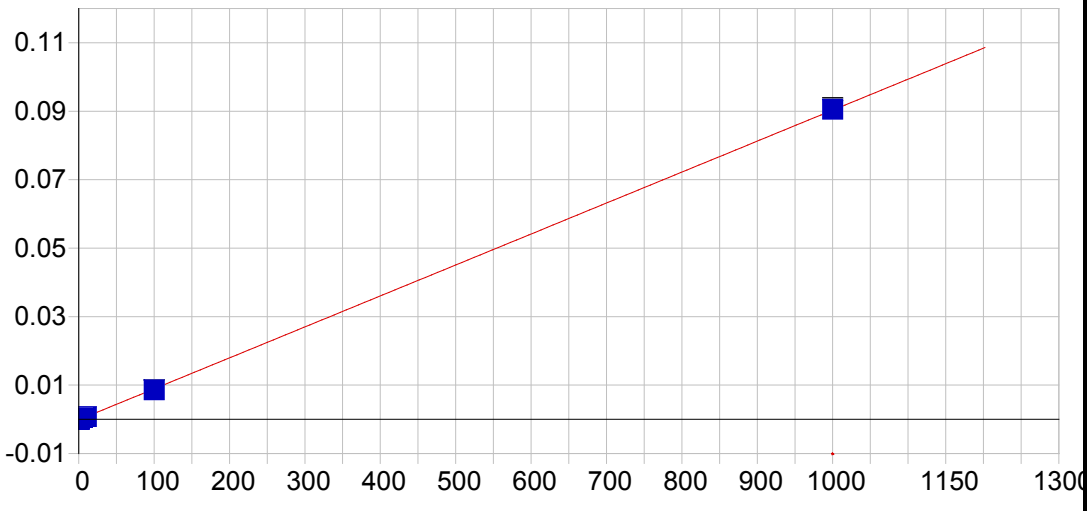


Ba 493.409 { 68}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-389.444869	Re-Slope:	1.000000
A1 (Gain):	18.186259	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999601	Status:	OK.
Std Error of Est:	51.828702		
Predicted MDL:	0.656761		
Predicted MQL:	2.189204		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00864	-.009	.000	-389.60	8.97	1
CalStd9=100	1000.0	1082.9	82.9	8.29	19306.	135.	1
CalStd8=100	100.00	105.34	5.34	5.34	1526.4	6.51	1
CalStd10=10	10000.	9397.2	-603.	-6.03	170530.	2190.	1
Ag Ba 1000,	50000.	50515.	515.	1.03	918280.	10300.	1

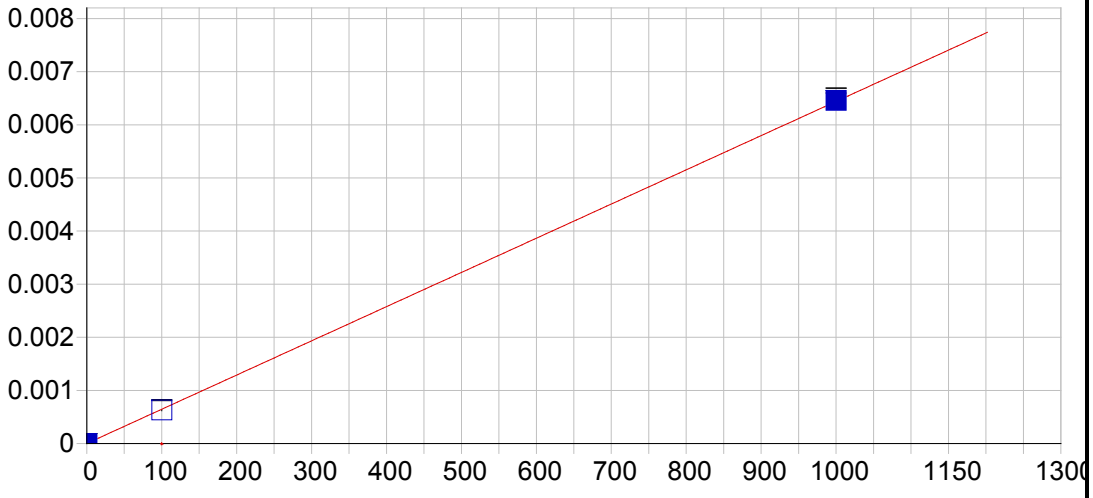


Be 313.042 {108}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000145	Re-Slope:	1.000000
A1 (Gain):	0.000090	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999909	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.028251		
Predicted MQL:	0.094170		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00013	-.000	.000	-.00015	.000	1
CalStd5=10	10.000	10.061	.061	.611	.00076	.000	1
CalStd8=100	100.00	96.496	-3.50	-3.50	.00858	.000	1
CalStd2=0.5	.50000	.54229	.042	8.46	-.00010	.000	1
CalStd4=5	5.0000	5.5441	.544	10.9	.00036	.000	1
CalStd9=100	1000.0	1002.8	2.76	.276	.09056	.000	1
CalStd3=1	1.0000	1.0966	.097	9.66	-.00005	.000	1

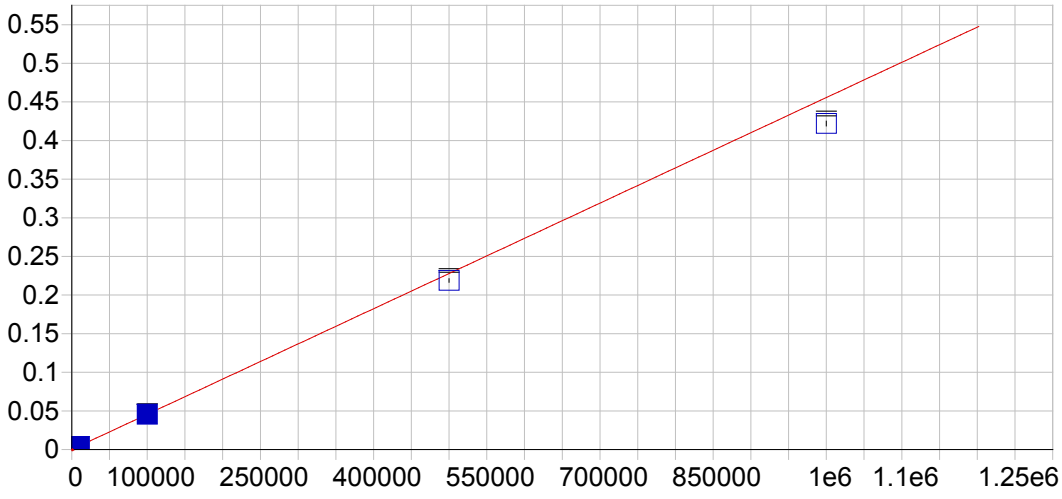


Be 234.861 {144}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000002	Re-Slope:	1.000000
A1 (Gain):	0.000006	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999968	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.162320		
Predicted MQL:	0.541067		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00227	.002	.000	.00000	.000	1
CalStd9=100	1000.0	1002.5	2.52	.252	.00646	.000	1
CalStd8=100	100.00	97.478	-2.52	-2.52	.00063	.000	1

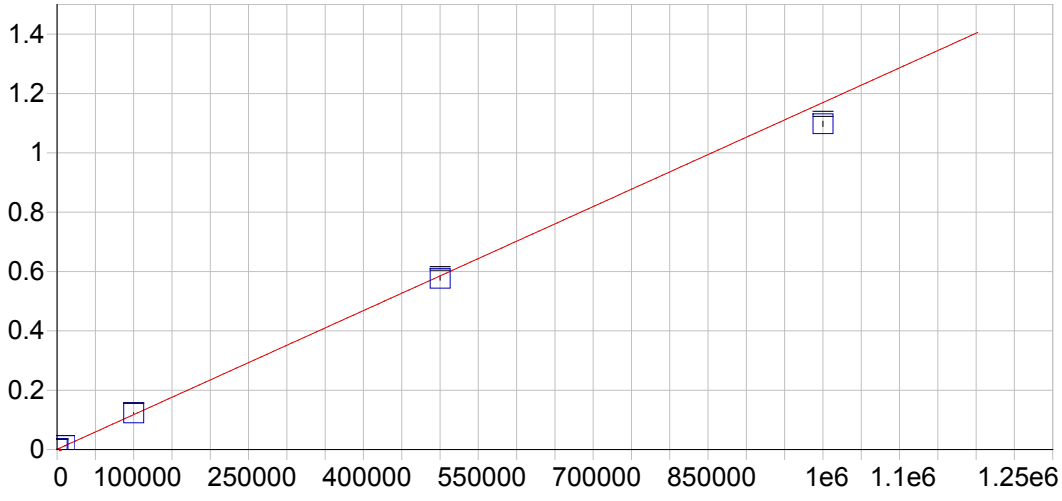


Ca 315.887 {107}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Curvilinear	Weighting:	1/Var

A0 (Offset):	0.000057	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999912	Status:	OK.
Std Error of Est:	0.000006		
Predicted MDL:	3.567724		
Predicted MQL:	11.892412		

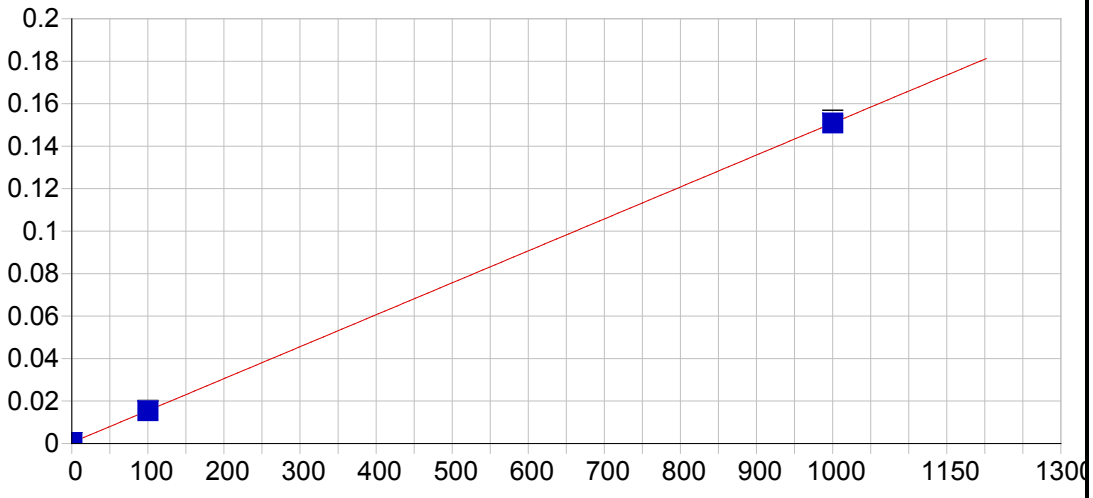
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-1.1954	-1.20	.000	.00006	.000	1
CalStd10=10	10000.	9700.0	-300.	-3.00	.00448	.000	1
CalStd13=10	100000.	100040.	35.4	.035	.04564	.000	1
CalStd14=50	500000.	480030.	-20000.	-3.99	.21877	.002	1
CalStd9=100	1000.0	1010.8	10.8	1.08	.00052	.000	1
CalibStd15=	1000000.	926090.	-73900.	-7.39	.42201	.003	1



Ca 317.933 {106}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Var
A0 (Offset):	0.000843		Re-Slope:	1.000000	
A1 (Gain):	0.000001		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.998721		Status:	OK.	
Std Error of Est:	0.000121				
Predicted MDL:	1.807844				
Predicted MQL:	6.026146				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-24.273	-24.3	.000	.00082	.000	1
CalStd10=10	10000.	10230.	230.	2.30	.01280	.000	1
CalStd13=10	100000.	104530.	4530.	4.53	.12302	.001	1
CalStd14=50	500000.	492960.	-7040.	-1.41	.57698	.006	1
CalStd9=100	1000.0	1069.7	69.7	6.97	.00209	.000	1
CalibStd15=	1000000.	938560.	-61400.	-6.14	1.0978	.009	1

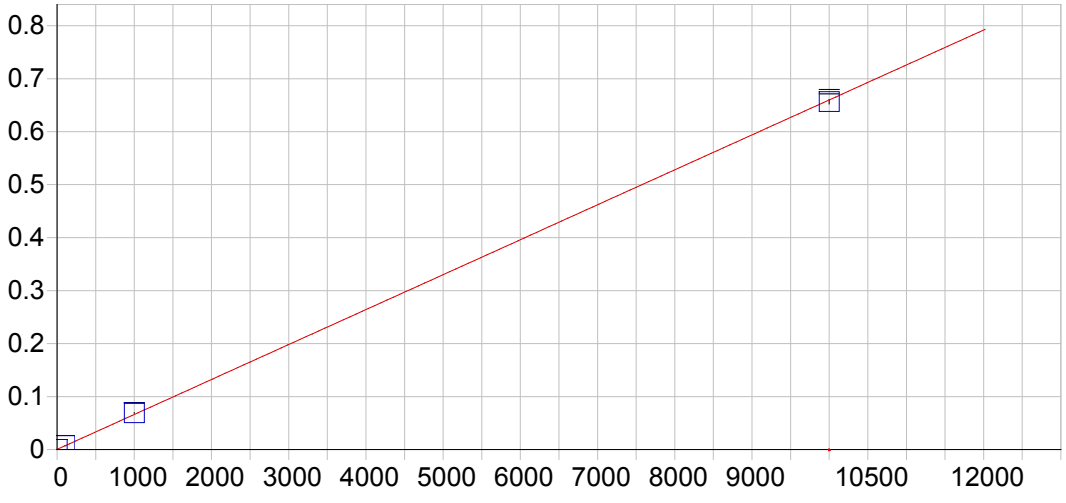


Ca 393.366 { 86}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000463	Re-Slope:	1.000000
A1 (Gain):	0.000150	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999999	Status:	OK.
Std Error of Est:	0.000191		
Predicted MDL:	0.030495		
Predicted MQL:	0.101651		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.84571	.846	.000	.00059	.000	1
CalStd9=100	1000.0	1000.1	.094	.009	.15089	.001	1
CalStd8=100	100.00	99.060	-.940	-.940	.01536	.000	1

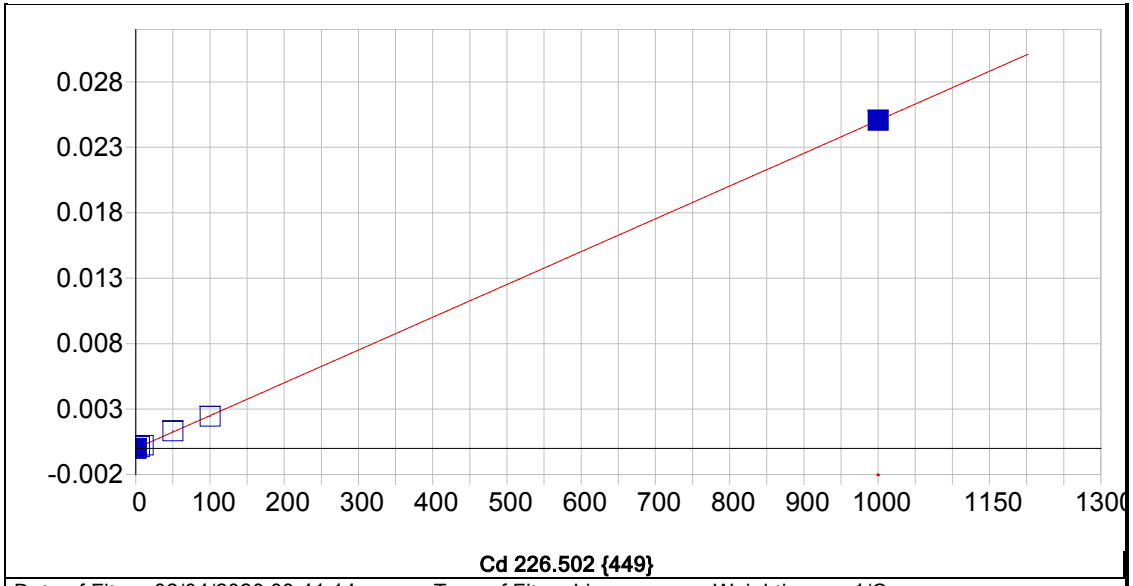


Ca 396.847 { 85}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000268	Re-Slope:	1.000000
A1 (Gain):	0.000066	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999885	Status:	OK.
Std Error of Est:	0.000047		
Predicted MDL:	0.070863		
Predicted MQL:	0.236210		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00885	-.009	.000	.00027	.000	1
CalStd10=10	10000.	9949.7	-50.3	-.503	.65660	.004	1
CalStd8=100	100.00	104.80	4.80	4.80	.00718	.000	1
CalStd9=100	1000.0	1045.4	45.4	4.54	.06923	.001	1

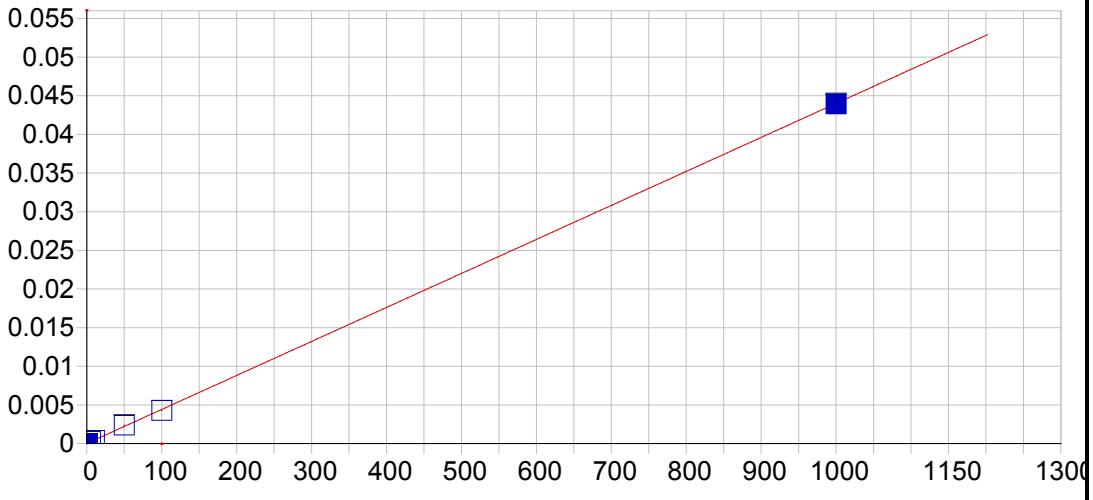


Cd 226.502 {449}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000006	Re-Slope:	1.000000
A1 (Gain):	0.000025	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999836	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	0.196798		
Predicted MQL:	0.655994		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00026	.000	.000	-.00001	.000	1
CalStd7=50	50.000	52.966	2.97	5.93	.00132	.000	1
CalStd3=1	1.0000	.94698	-.053	-5.30	.00002	.000	1
CalStd2=0.5	.50000	.23877	-.261	-52.2	.00000	.000	1
CalStd4=5	5.0000	5.1943	.194	3.89	.00012	.000	1
CalStd8=100	100.00	97.598	-2.40	-2.40	.00244	.000	1
CalStd5=10	10.000	9.8668	-.133	-1.33	.00024	.000	1
CalStd9=100	1000.0	999.69	-.310	-.031	.02505	.000	1

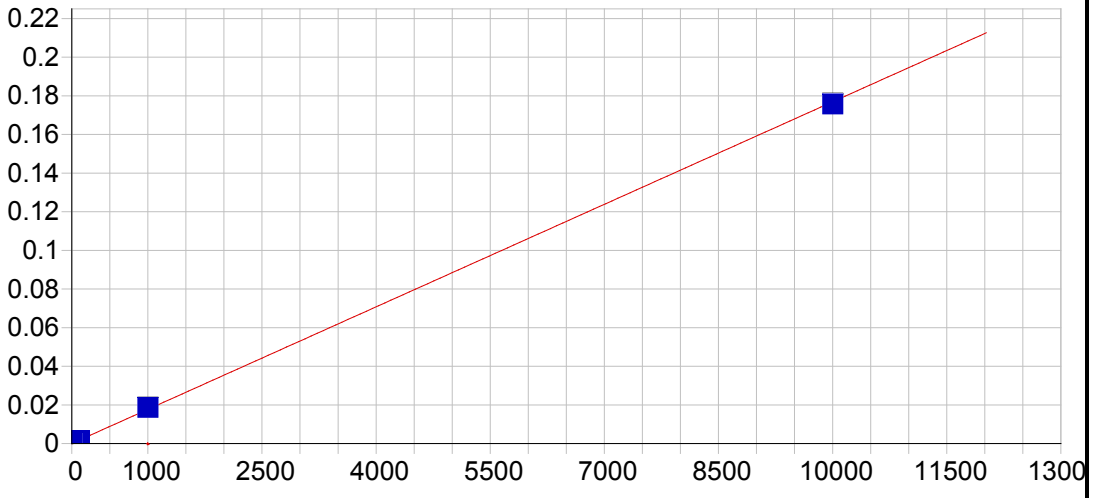


Cd 228.802 {447}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000010	Re-Slope:	1.000000
A1 (Gain):	0.000044	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999739	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.143578		
Predicted MQL:	0.478594		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00041	-.000	.000	.00001	.000	1
CalStd7=50	50.000	53.717	3.72	7.43	.00237	.000	1
CalStd3=1	1.0000	1.1875	.188	18.8	.00006	.000	1
CalStd2=0.5	.50000	.71898	.219	43.8	.00004	.000	1
CalStd4=5	5.0000	5.6921	.692	13.8	.00026	.000	1
CalStd8=100	100.00	96.892	-3.11	-3.11	.00427	.000	1
CalStd5=10	10.000	10.216	.216	2.16	.00046	.000	1
CalStd9=100	1000.0	998.08	-1.92	-.192	.04393	.000	1

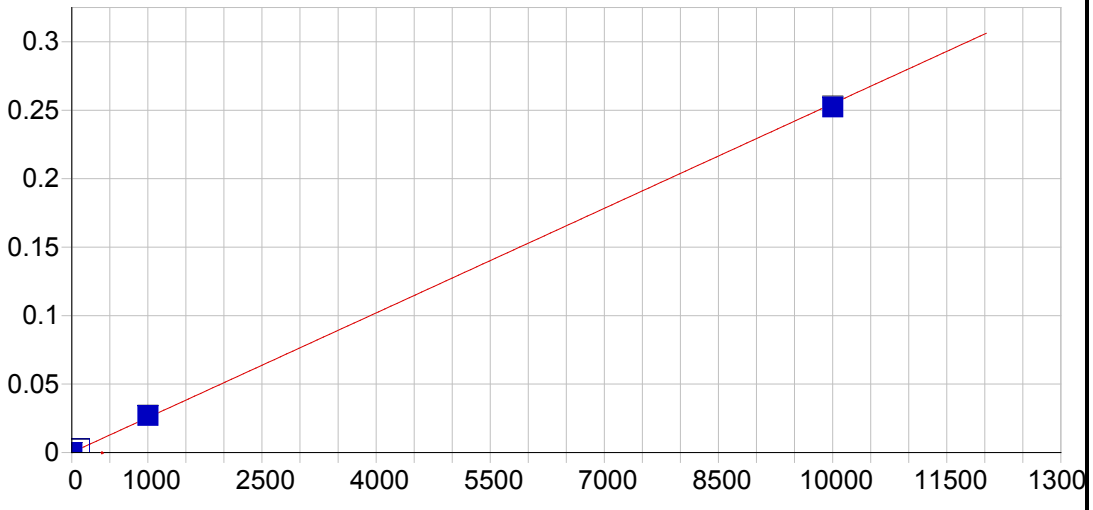


Co 228.616 {447}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000006	Re-Slope:	1.000000
A1 (Gain):	0.000018	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999784	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.287119		
Predicted MQL:	0.957062		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00067	-.001	.000	.00001	.000	1
CalStd7=50	50.000	56.934	6.93	13.9	.00101	.000	1
CalStd5=10	10.000	10.617	.617	6.17	.00019	.000	1
CalStd4=5	5.0000	5.9567	.957	19.1	.00011	.000	1
CalStd8=100	100.00	102.94	2.94	2.94	.00183	.000	1
CalStd9=100	1000.0	1055.4	55.4	5.54	.01869	.000	1
CalStd3=1	1.0000	1.1965	.196	19.6	.00003	.000	1
CalStd10=10	10000.	9933.0	-67.0	-.670	.17600	.000	1

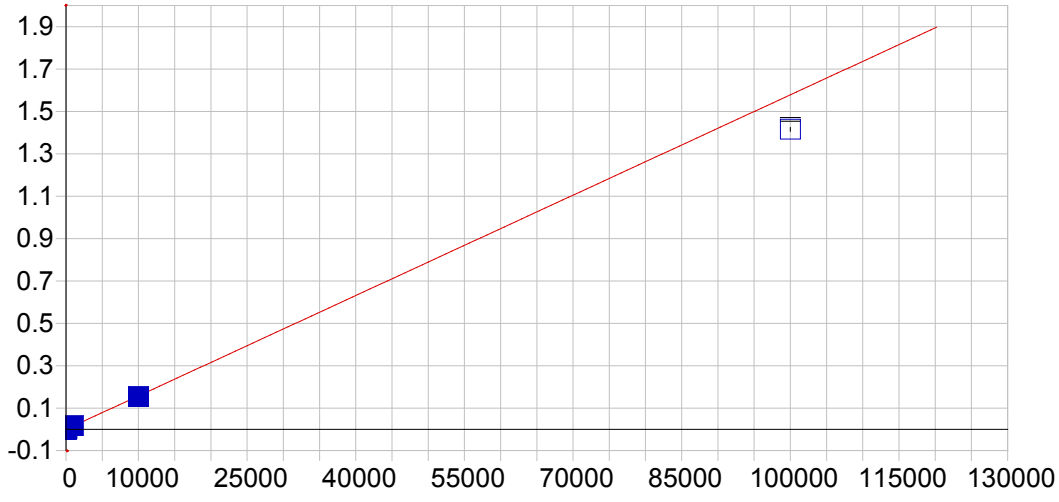


Co 238.892 {141}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000080	Re-Slope:	1.000000
A1 (Gain):	0.000025	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999731	Status:	OK.
Std Error of Est:	0.000193		
Predicted MDL:	0.534059		
Predicted MQL:	1.780196		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-2.0863	-2.09	.000	.00003	.000	1
CalStd9=100	1000.0	1057.1	57.1	5.71	.02701	.000	1
CalStd10=10	10000.	9903.1	-96.9	-.969	.25235	.001	1
CalStd8=100	100.00	101.16	1.16	1.16	.00266	.000	1

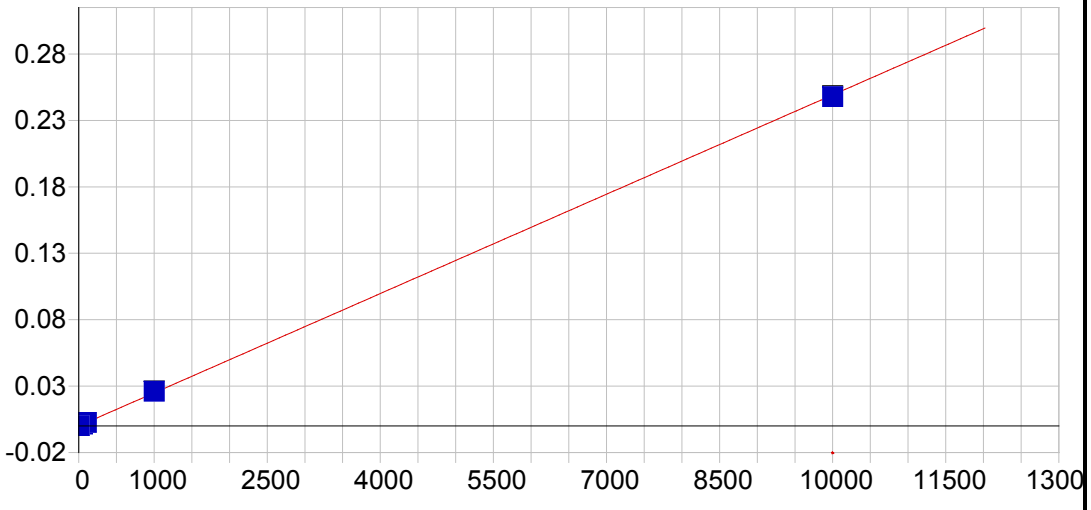


Cr 205.560 {464}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000002	Re-Slope:	1.000000
A1 (Gain):	0.000016	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999381	Status:	OK.
Std Error of Est:	0.000036		
Predicted MDL:	0.253694		
Predicted MQL:	0.845646		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.43741	-.437	.000	-.00000	.000	1
CalStd5=10	10.000	9.8917	-.108	-1.08	.00016	.000	1
CalStd7=50	50.000	55.139	5.14	10.3	.00087	.000	1
CalStd9=100	1000.0	1033.3	33.3	3.33	.01631	.000	1
CalStd8=100	100.00	99.830	-.170	-.170	.00158	.000	1
CalStd4=5	5.0000	5.4059	.406	8.12	.00009	.000	1
CalStd3=1	1.0000	.88878	-.111	-11.1	.00002	.000	1
CalStd10=10	10000.	9783.2	-217.	-2.17	.15444	.000	1
CalStd12=10	100000.	89665.	-10300.	-10.3	1.4154	.009	1

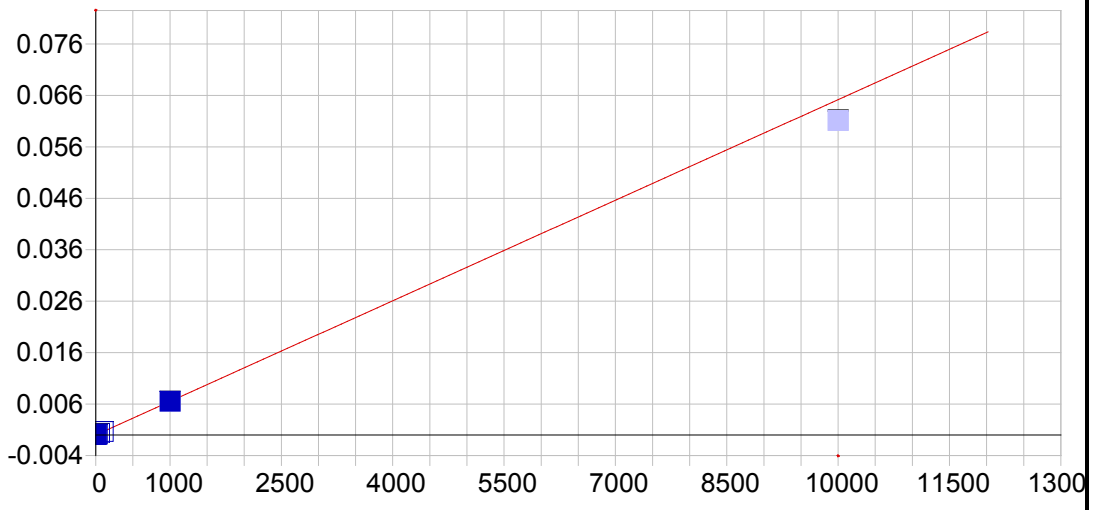


Cr 267.716 {126}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000000	Re-Slope:	1.000000
A1 (Gain):	0.000025	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999839	Status:	OK.
Std Error of Est:	0.000004		
Predicted MDL:	0.577605		
Predicted MQL:	1.925351		

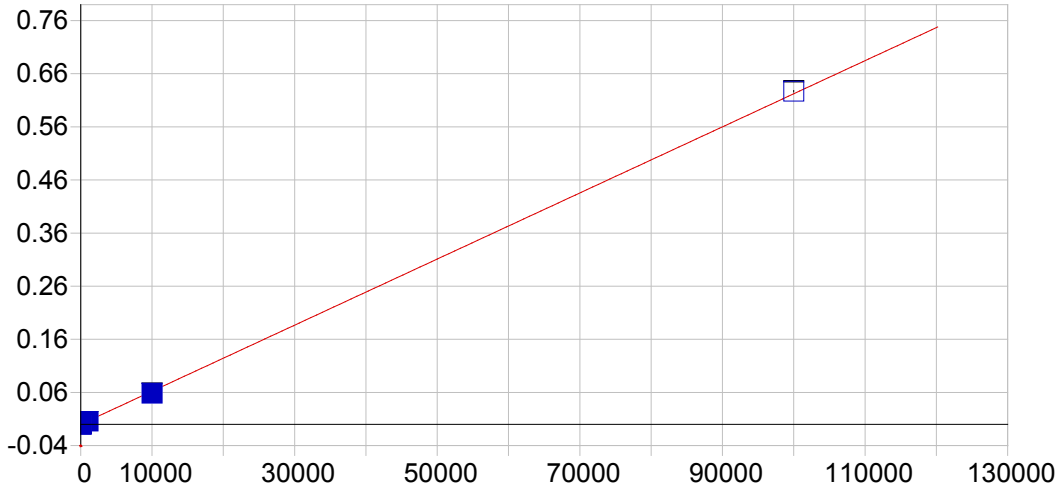
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00254	-.003	.000	-.00000	.000	1
CalStd5=10	10.000	10.763	.763	7.63	.00027	.000	1
CalStd7=50	50.000	55.805	5.80	11.6	.00139	.000	1
CalStd9=100	1000.0	1046.7	46.7	4.67	.02609	.000	1
CalStd8=100	100.00	101.38	1.38	1.38	.00253	.000	1
CalStd4=5	5.0000	6.3070	1.31	26.1	.00016	.000	1
CalStd10=10	10000.	9944.0	-56.0	-.560	.24788	.001	1



Cu 223.008 {451}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	None
A0 (Offset):	0.000009		Re-Slope:	1.000000	
A1 (Gain):	0.000007		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.999983		Status:	OK.	
Std Error of Est:	0.000017				
Predicted MDL:	0.872768				
Predicted MQL:	2.909227				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.82024	-.820	.000	.00000	.000	1
CalStd9=100	1000.0	1000.2	.158	.016	.00653	.000	1
CalStd7=50	50.000	53.690	3.69	7.38	.00036	.000	1
CalStd8=100	100.00	96.514	-3.49	-3.49	.00064	.000	1
CalStd6=20	20.000	20.159	.159	.796	.00014	.000	1
CalStd10=10	10000.	9372.8	-627.	-6.27	.06109	.000	0
CalStd5=10	10.000	10.298	.298	2.98	.00008	.000	1

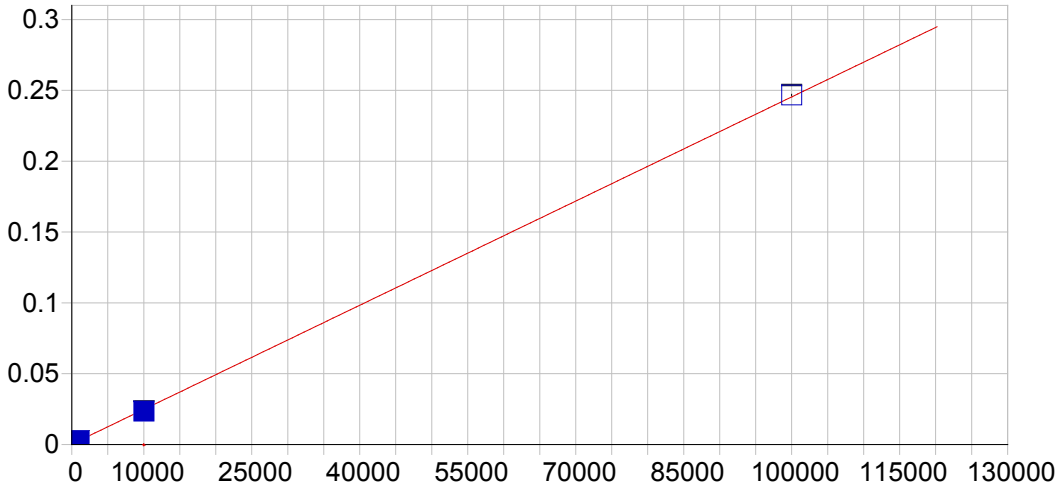


Cu 224.700 {450}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000003	Re-Slope:	1.000000
A1 (Gain):	0.000006	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999547	Status:	OK.
Std Error of Est:	0.000010		
Predicted MDL:	0.580250		
Predicted MQL:	1.934166		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.03914	.039	.000	.00000	.000	1
CalStd9=100	1000.0	938.25	-61.8	-6.18	.00580	.000	1
CalStd7=50	50.000	19.089	-30.9	-61.8	.00012	.000	1
CalStd8=100	100.00	50.340	-49.7	-49.7	.00031	.000	1
CalStd6=20	20.000	5.4519	-14.5	-72.7	.00004	.000	1
CalStd12=10	100000.	100760.	758.	.758	.62695	.001	1
CalStd10=10	10000.	9394.3	-606.	-6.06	.05802	.000	1

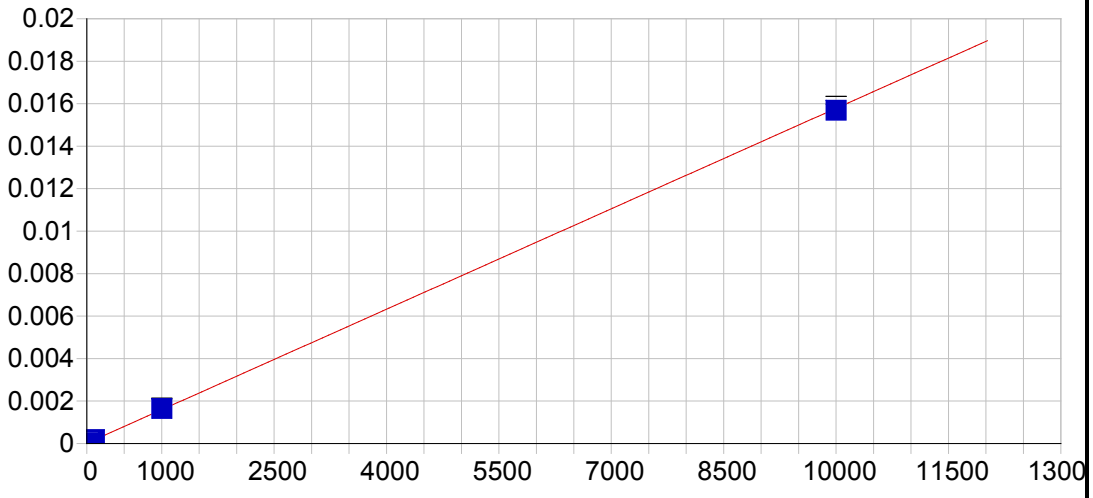


Cu 324.754 {104}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000272	Re-Slope:	1.000000
A1 (Gain):	0.000002	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999865	Status:	OK.
Std Error of Est:	0.000002		
Predicted MDL:	1.294386		
Predicted MQL:	4.314620		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00109	.001	.000	.00027	.000	1
CalStd9=100	1000.0	985.09	-14.9	-1.49	.00269	.000	1
CalStd8=100	100.00	95.564	-4.44	-4.44	.00051	.000	1
CalStd10=10	10000.	9485.3	-515.	-5.15	.02352	.000	1
CalStd12=10	100000.	100530.	532.	.532	.24672	.000	1
CalStd5=10	10.000	9.5199	-.480	-4.80	.00030	.000	1
CalStd6=20	20.000	19.614	-.386	-1.93	.00032	.000	1
CalStd7=50	50.000	53.205	3.21	6.41	.00040	.000	1

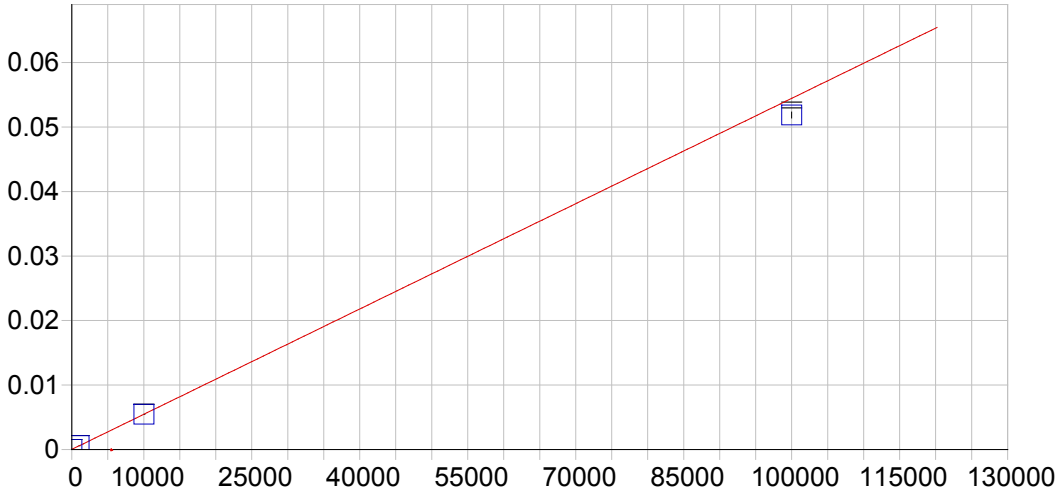


Cu 327.396 {103}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000017	Re-Slope:	1.000000
A1 (Gain):	0.000002	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999581	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	2.987079		
Predicted MQL:	9.956931		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00837	-.008	.000	.00002	.000	1
CalStd6=20	20.000	26.038	6.04	30.2	.00006	.000	1
CalStd7=50	50.000	59.011	9.01	18.0	.00011	.000	1
CalStd8=100	100.00	103.80	3.80	3.80	.00018	.000	1
CalStd9=100	1000.0	1033.6	33.6	3.36	.00165	.000	1
CalStd10=10	10000.	9940.4	-59.6	-.596	.01569	.000	1
CalStd4=5	5.0000	9.0739	4.07	81.5	.00003	.000	1
CalStd5=10	10.000	13.120	3.12	31.2	.00004	.000	1

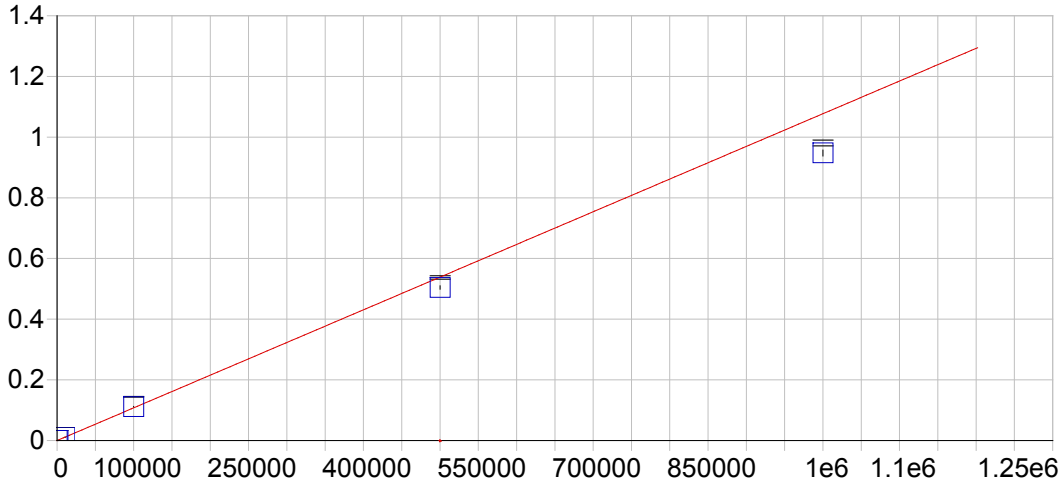


Fe 234.349 {144}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000018	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999913	Status:	OK.
Std Error of Est:	0.000013		
Predicted MDL:	1.203622		
Predicted MQL:	4.012072		

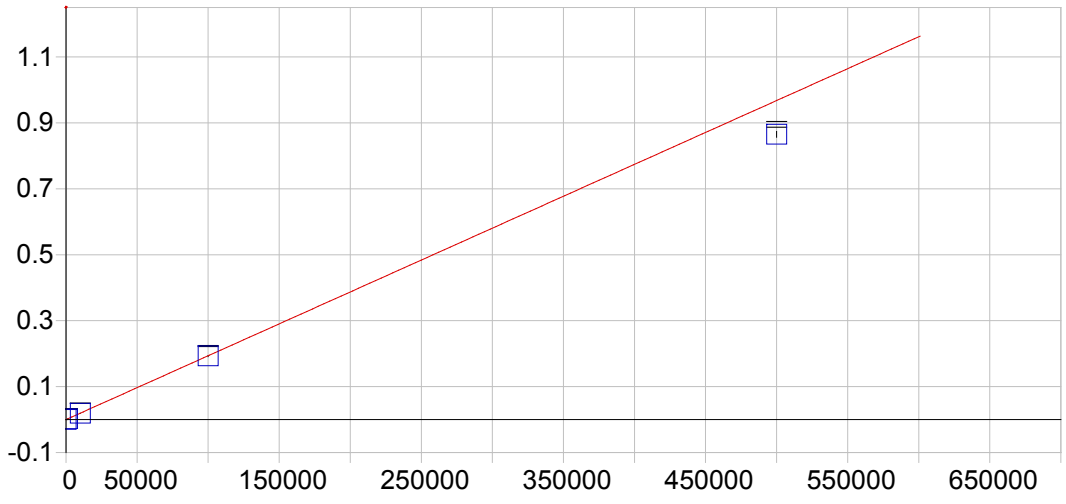
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-3.3792	-3.38	.000	.00002	.000	1
CalStd10=10	10000.	9987.7	-12.3	-.123	.00545	.000	1
CalStd13=10	100000.	95244.	-4760.	-4.76	.05186	.000	1
CalStd9=100	1000.0	1063.4	63.4	6.34	.00060	.000	1



Fe 239.562 {140}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Var
A0 (Offset):	0.000005		Re-Slope:	1.000000	
A1 (Gain):	0.000001		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.997234		Status:	OK.	
Std Error of Est:	0.000036				
Predicted MDL:	1.580145				
Predicted MQL:	5.267151				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-2.8304	-2.83	.000	.00000	.000	1
CalStd10=10	10000.	10315.	315.	3.15	.01112	.000	1
CalStd13=10	100000.	103340.	3340.	3.34	.11131	.001	1
CalStd14=50	500000.	468210.	-31800.	-6.36	.50433	.006	1
CalStd9=100	1000.0	1078.8	78.8	7.88	.00117	.000	1
CalibStd15=	1000000.	879890.	-120000.	-12.0	.94776	.010	1

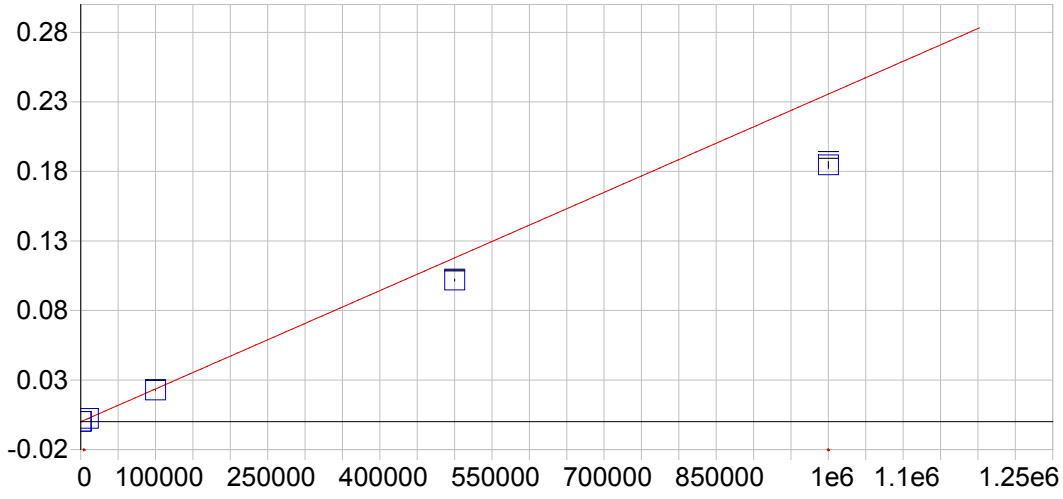


Fe 259.940 {129}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000003	Re-Slope:	1.000000
A1 (Gain):	0.000002	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.998901	Status:	OK.
Std Error of Est:	0.000036		
Predicted MDL:	1.030823		
Predicted MQL:	3.436077		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-1.7350	-1.73	.000	.00000	.000	1
CalStd10=10	10000.	9850.6	-149.	-1.49	.01907	.000	1
CalStd13=10	100000.	99604.	-396.	-.396	.19279	.002	1
CalStd14=50	500000.	446980.	-53000.	-10.6	.86516	.009	1
CalStd9=100	1000.0	1029.9	29.9	2.99	.00200	.000	1

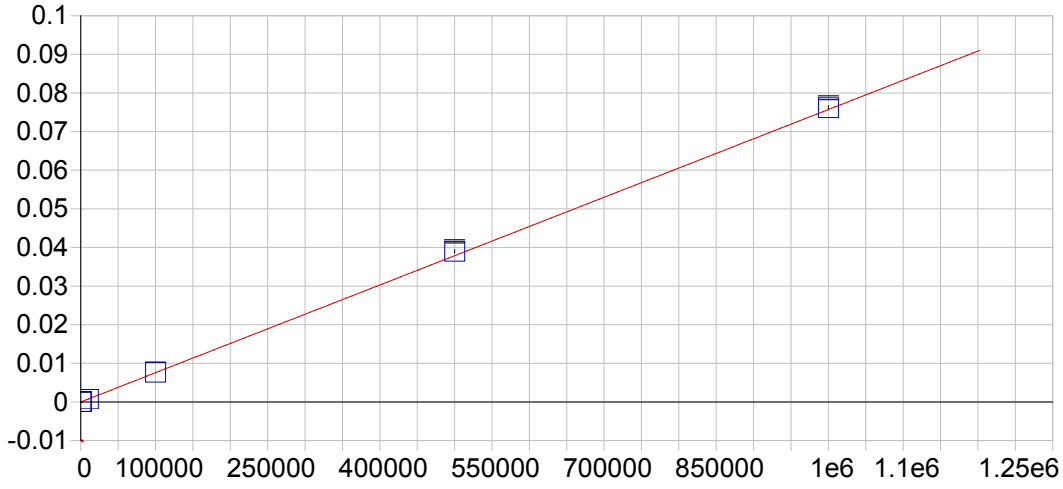


Mg 202.582 {466}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Curvilinear	Weighting:	1/Var

A0 (Offset):	0.000001	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999167	Status:	OK.
Std Error of Est:	0.000010		
Predicted MDL:	2.235794		
Predicted MQL:	7.452646		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-5.1462	-5.15	.000	-.00000	.000	1
CalStd13=10	100000.	96549.	-3450.	-3.45	.02275	.000	1
CalStd10=10	10000.	9864.8	-135.	-1.35	.00232	.000	1
CalStd14=50	500000.	432220.	-67800.	-13.6	.10183	.001	1
CalStd9=100	1000.0	1148.1	148.	14.8	.00027	.000	1
CalibStd15=	1000000.	783670.	-216000.	-21.6	.18464	.002	1

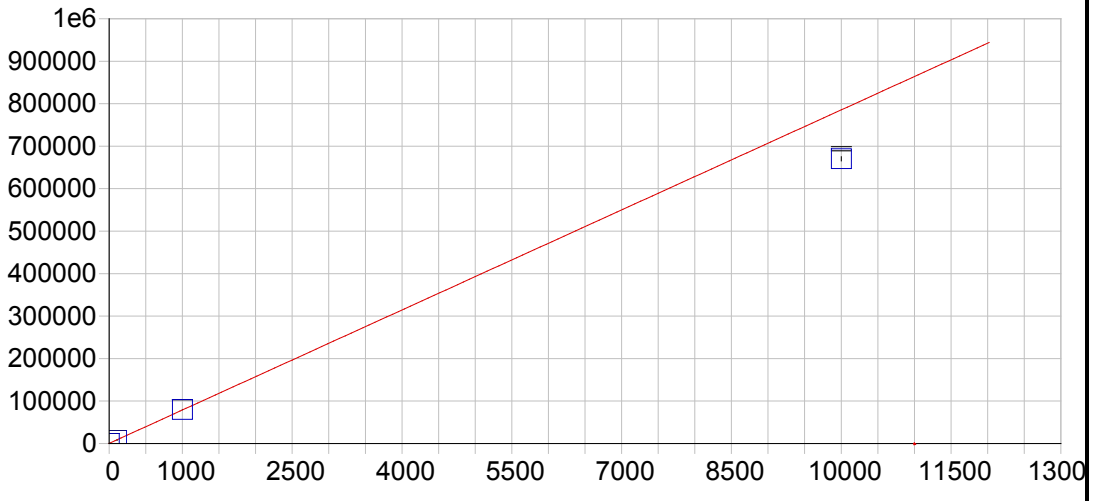


Mg 279.079 {121}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	-0.000004	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999627	Status:	OK.
Std Error of Est:	0.000004		
Predicted MDL:	13.358451		
Predicted MQL:	44.528169		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	22.387	22.4	.000	-.00000	.000	1
CalStd13=10	100000.	101230.	1230.	1.23	.00766	.000	1
CalStd10=10	10000.	9452.0	-548.	-5.48	.00071	.000	1
CalStd14=50	500000.	514710.	14700.	2.94	.03897	.000	1
CalStd9=100	1000.0	999.58	-.423	-.042	.00007	.000	1
CalibStd15=	1000000.	1005700.	5710.	.571	.07615	.001	1

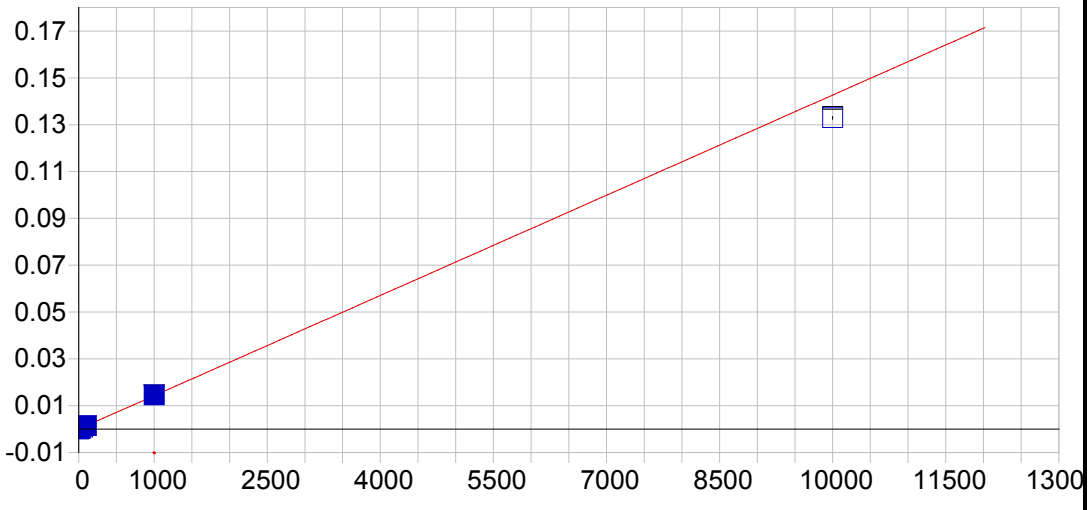


Mg 280.270 {120}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	417.979543	Re-Slope:	1.000000
A1 (Gain):	78.504435	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999303	Status:	OK.
Std Error of Est:	289.859251		
Predicted MDL:	0.024150		
Predicted MQL:	0.080500		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.02442	-.024	.000	416.06	8.48	1
CalStd9=100	1000.0	1010.7	10.7	1.07	79759.	127.	1
CalStd10=10	10000.	8533.8	-1470.	-14.7	670360.	4820.	1
CalStd8=100	100.00	99.615	-.385	-.385	8238.2	38.9	1

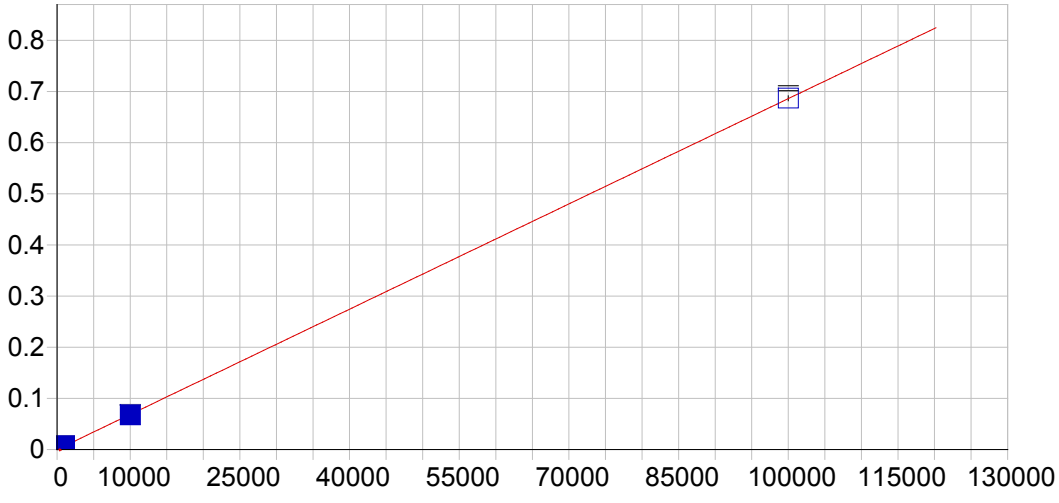


Mn 257.610 {131}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000009	Re-Slope:	1.000000
A1 (Gain):	0.000014	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.998732	Status:	OK.
Std Error of Est:	0.000013		
Predicted MDL:	0.068428		
Predicted MQL:	0.228092		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.59623	-.596	.000	.00000	.000	1
CalStd5=10	10.000	9.8409	-.159	-1.59	.00015	.000	1
CalStd7=50	50.000	55.451	5.45	10.9	.00080	.000	1
CalStd6=20	20.000	20.243	.243	1.21	.00030	.000	1
CalStd8=100	100.00	99.878	-.122	-.122	.00143	.000	1
CalStd4=5	5.0000	5.4549	.455	9.10	.00009	.000	1
CalStd9=100	1000.0	1018.4	18.4	1.84	.01454	.000	1
CalStd10=10	10000.	9317.4	-683.	-6.83	.13293	.001	1

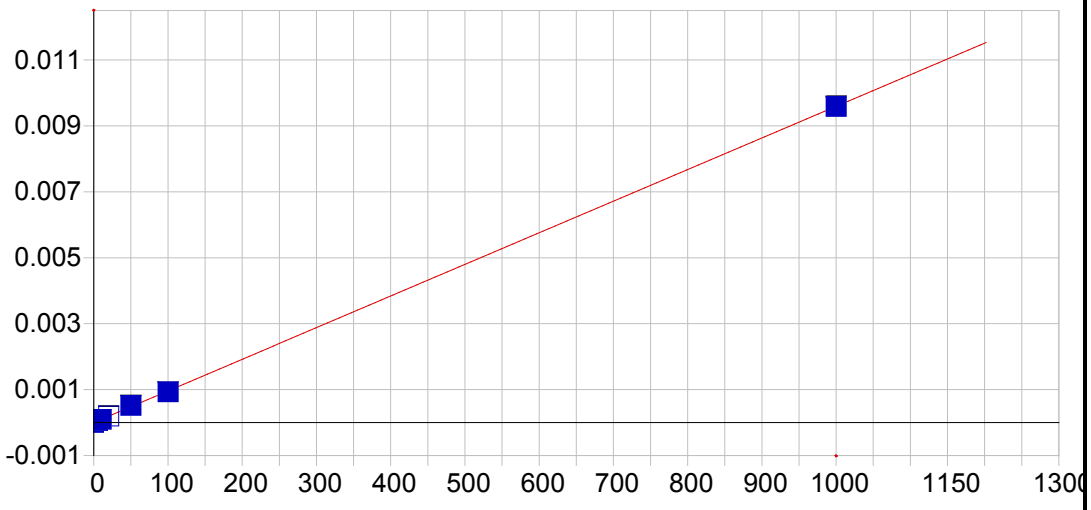


Mn 259.373 {130}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000002	Re-Slope:	1.000000
A1 (Gain):	0.000007	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999983	Status:	OK.
Std Error of Est:	0.000019		
Predicted MDL:	0.273226		
Predicted MQL:	0.910754		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.02395	-.024	.000	.00000	.000	1
CalStd10=10	10000.	9853.6	-146.	-1.46	.06768	.001	1
CalStd9=100	1000.0	1037.5	37.5	3.75	.00713	.000	1
CalStd12=10	100000.	100110.	109.	.109	.68673	.005	1

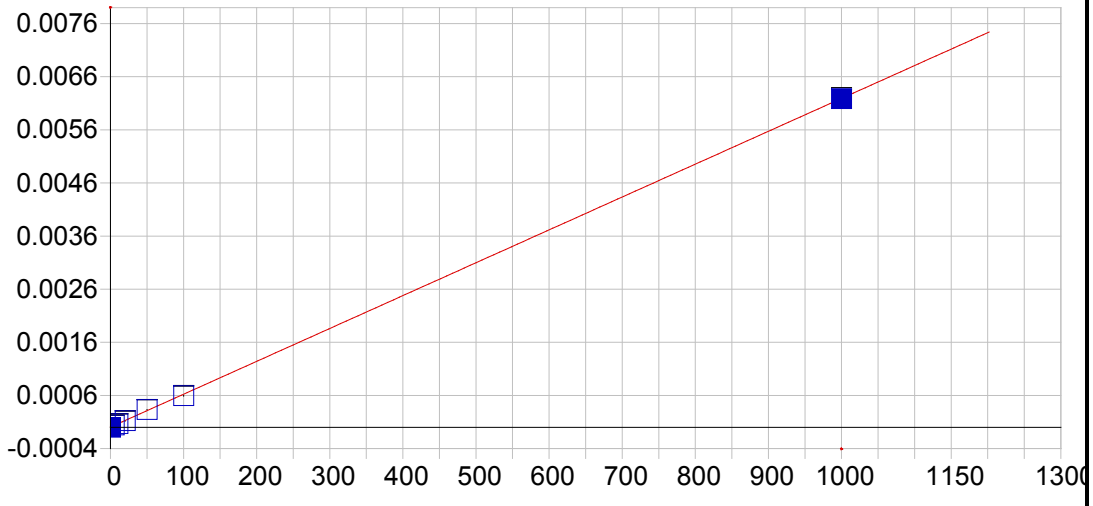


Mo 202.030 {466}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000002	Re-Slope:	1.000000
A1 (Gain):	0.000010	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999806	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.386218		
Predicted MQL:	1.287395		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00084	-.001	.000	.00000	.000	1
CalStd7=50	50.000	53.574	3.57	7.15	.00052	.000	1
CalStd6=20	20.000	19.884	-.116	-.582	.00019	.000	1
CalStd5=10	10.000	9.9879	-.012	-.121	.00010	.000	1
CalStd8=100	100.00	96.717	-3.28	-3.28	.00093	.000	1
CalStd4=5	5.0000	5.6901	.690	13.8	.00006	.000	1
CalStd9=100	1000.0	999.15	-.853	-.085	.00960	.000	1

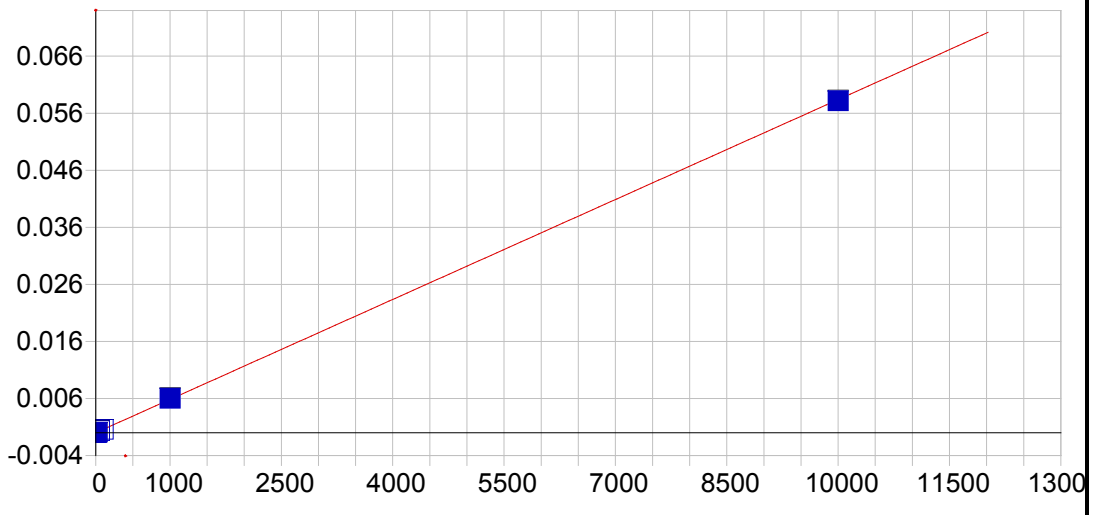


Mo 203.844 {465}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000004	Re-Slope:	1.000000
A1 (Gain):	0.000006	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999742	Status:	OK.
Std Error of Est:	0.000011		
Predicted MDL:	0.701140		
Predicted MQL:	2.337134		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.57021	-.570	.000	.00000	.000	1
CalStd7=50	50.000	52.877	2.88	5.75	.00033	.000	1
CalStd6=20	20.000	18.954	-1.05	-5.23	.00012	.000	1
CalStd5=10	10.000	9.7924	-.208	-2.08	.00006	.000	1
CalStd8=100	100.00	95.264	-4.74	-4.74	.00059	.000	1
CalStd4=5	5.0000	5.8160	.816	16.3	.00004	.000	1
CalStd9=100	1000.0	998.86	-1.14	-.114	.00618	.000	1

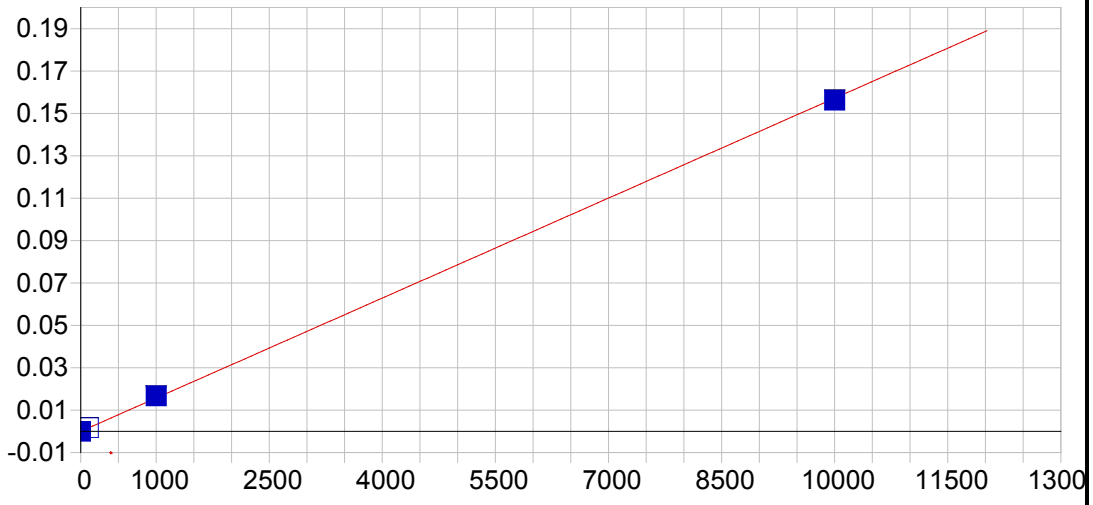


Mo 204.598 {464}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000002	Re-Slope:	1.000000
A1 (Gain):	0.000006	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999918	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.686491		
Predicted MQL:	2.288302		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00084	-.001	.000	-.00000	.000	1
CalStd7=50	50.000	54.961	4.96	9.92	.00032	.000	1
CalStd6=20	20.000	20.204	.204	1.02	.00012	.000	1
CalStd5=10	10.000	9.5128	-.487	-4.87	.00005	.000	1
CalStd8=100	100.00	99.483	-.517	-.517	.00058	.000	1
CalStd4=5	5.0000	5.4173	.417	8.35	.00003	.000	1
CalStd9=100	1000.0	1033.6	33.6	3.36	.00603	.000	1
CalStd10=10	10000.	9961.8	-38.2	-.382	.05817	.000	1

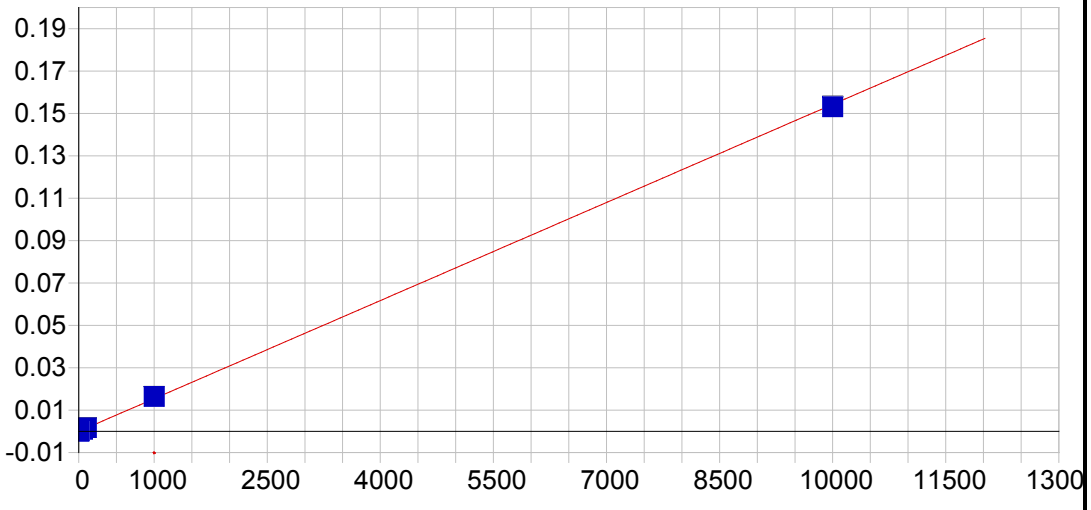


Ni 221.647 {452}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000010	Re-Slope:	1.000000
A1 (Gain):	0.000016	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999810	Status:	OK.
Std Error of Est:	0.000014		
Predicted MDL:	0.418320		
Predicted MQL:	1.394402		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00929	-.009	.000	-.00001	.000	1
CalStd10=10	10000.	9935.7	-64.3	-.643	.15623	.000	1
CalStd8=100	100.00	103.89	3.89	3.89	.00162	.000	1
CalStd9=100	1000.0	1060.4	60.4	6.04	.01666	.000	1

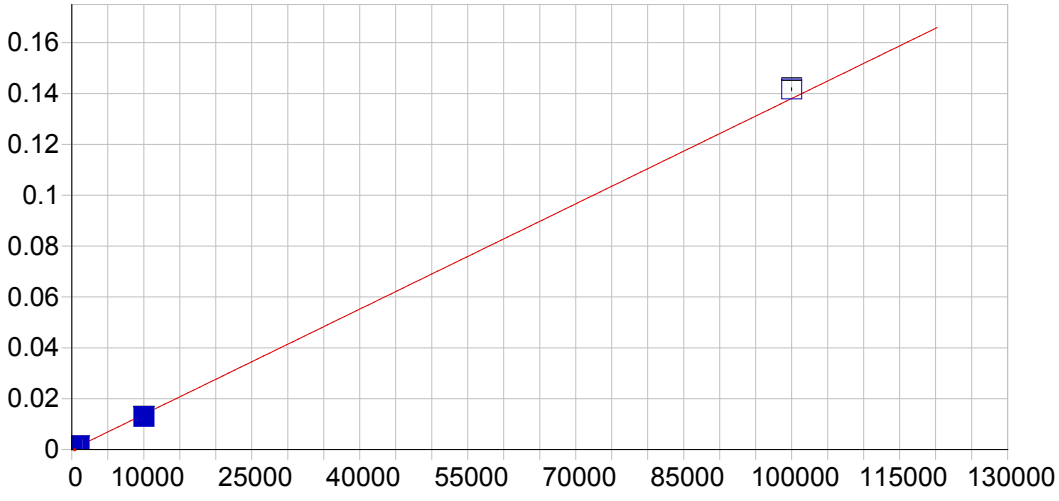


Ni 231.604 {445}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000014	Re-Slope:	1.000000
A1 (Gain):	0.000015	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999707	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.416333		
Predicted MQL:	1.387777		

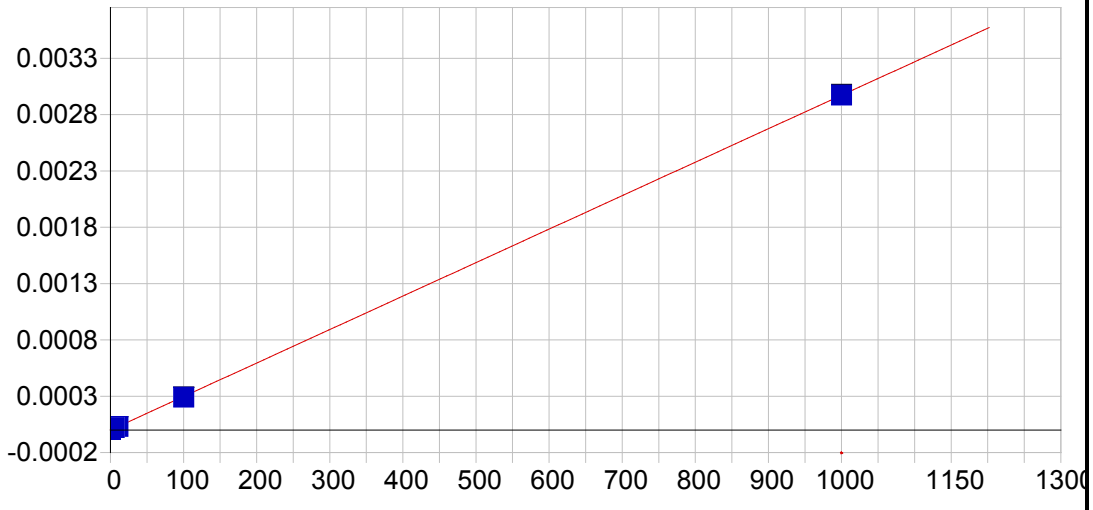
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00071	-.001	.000	-.00001	.000	1
CalStd7=50	50.000	57.818	7.82	15.6	.00088	.000	1
CalStd5=10	10.000	10.848	.848	8.48	.00015	.000	1
CalStd8=100	100.00	103.59	3.59	3.59	.00159	.000	1
CalStd4=5	5.0000	6.5348	1.53	30.7	.00009	.000	1
CalStd9=100	1000.0	1063.7	63.7	6.37	.01643	.000	1
CalStd3=1	1.0000	1.0689	.069	6.89	.00000	.000	1
CalStd10=10	10000.	9922.4	-77.6	-.776	.15336	.000	1



Pb 216.999 {455}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Var
A0 (Offset):	0.000013		Re-Slope:	1.000000	
A1 (Gain):	0.000001		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.998968		Status:	OK.	
Std Error of Est:	0.000014				
Predicted MDL:	3.811455				
Predicted MQL:	12.704851				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-4.4162	-4.42	.000	.00001	.000	1
CalStd9=100	1000.0	1036.8	36.8	3.68	.00145	.000	1
CalStd10=10	10000.	9391.6	-608.	-6.08	.01298	.000	1
CalStd8=100	100.00	100.00	.001	.001	.00015	.000	1
CalStd5=10	10.000	5.3656	-4.63	-46.3	.00002	.000	1
CalStd12=10	100000.	102690.	2690.	2.69	.14174	.000	1

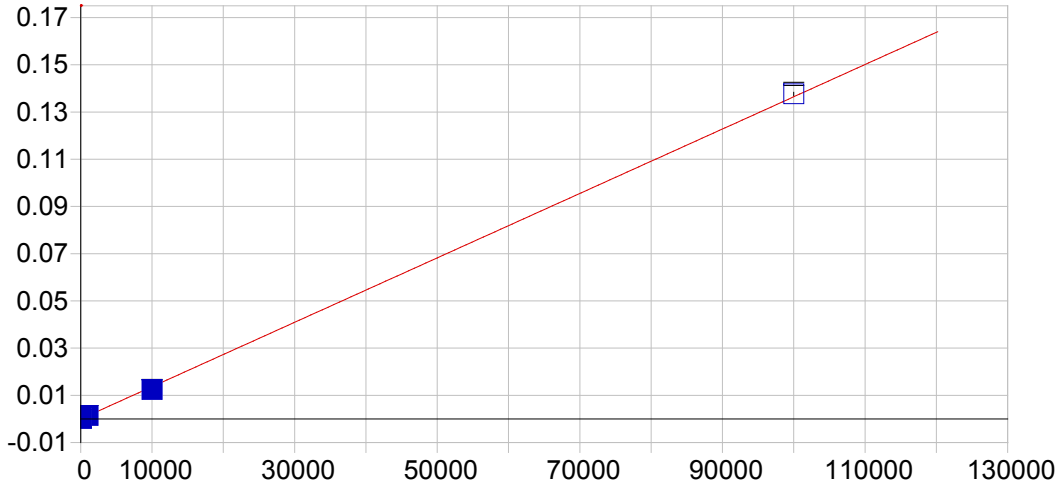


Pb 220.353 {453}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000000	Re-Slope:	1.000000
A1 (Gain):	0.000003	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999994	Status:	OK.
Std Error of Est:	0.000005		
Predicted MDL:	2.223813		
Predicted MQL:	7.412711		

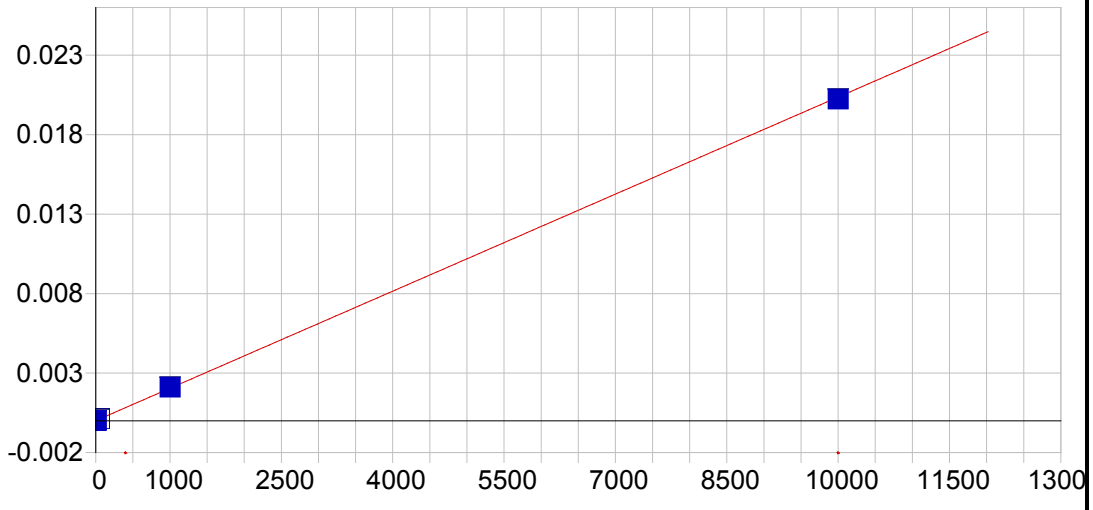
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.33114	-.331	.000	-.00000	.000	1
CalStd5=10	10.000	10.428	.428	4.28	.00003	.000	1
CalStd8=100	100.00	97.724	-2.28	-2.28	.00029	.000	1
CalStd4=5	5.0000	6.9660	1.97	39.3	.00002	.000	1
CalStd9=100	1000.0	1000.2	.213	.021	.00297	.000	1



Pb 220.353 {153}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	-0.000001		Re-Slope:	1.000000	
A1 (Gain):	0.000001		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.999590		Status:	OK.	
Std Error of Est:	0.000005				
Predicted MDL:	4.590592				
Predicted MQL:	15.301973				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00780	.008	.000	-.00000	.000	1
CalStd9=100	1000.0	1012.9	12.9	1.29	.00138	.000	1
CalStd10=10	10000.	9089.4	-911.	-9.11	.01240	.000	1
CalStd8=100	100.00	99.115	-.885	-.885	.00013	.000	1
CalStd12=10	100000.	100900.	899.	.899	.13769	.001	1

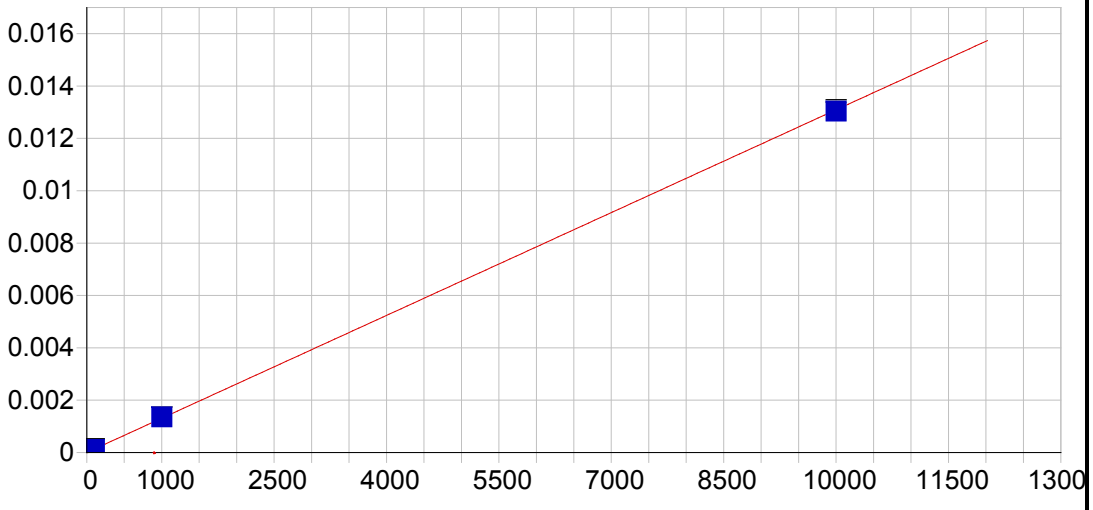


Sb 206.833 {463}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000008	Re-Slope:	1.000000
A1 (Gain):	0.000002	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999850	Status:	OK.
Std Error of Est:	0.000016		
Predicted MDL:	2.008762		
Predicted MQL:	6.695875		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-5.7580	-5.76	.000	-.00000	.000	1
CalStd9=100	1000.0	1033.1	33.1	3.31	.00211	.000	1
CalStd5=10	10.000	3.9832	-6.02	-60.2	.00002	.000	1
CalStd7=50	50.000	51.337	1.34	2.67	.00011	.000	1
CalStd10=10	10000.	9934.3	-65.7	-.657	.02024	.000	1

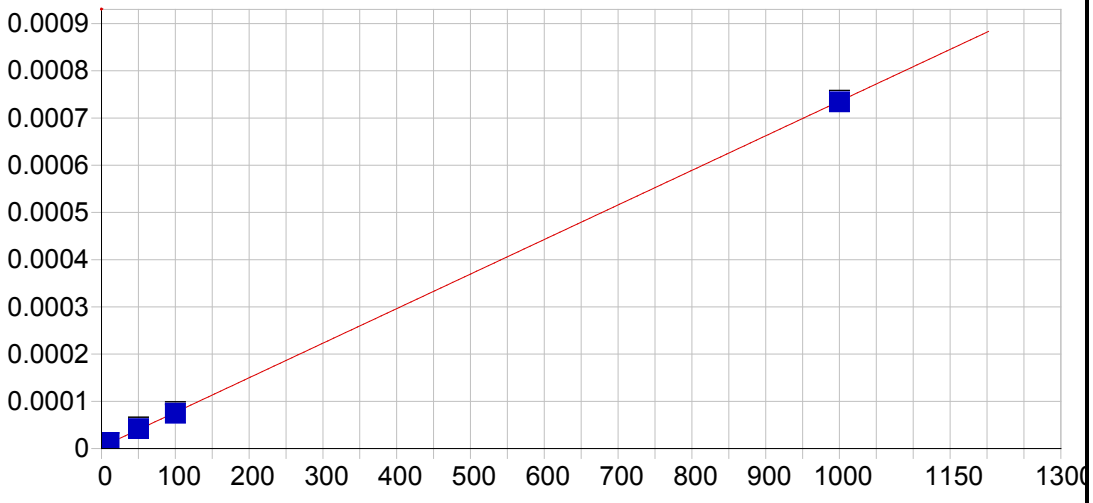


Sb 217.581 {455}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000001	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999899	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	3.465544		
Predicted MQL:	11.551813		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00251	-.003	.000	.00000	.000	1
CalStd9=100	1000.0	1037.5	37.5	3.75	.00136	.000	1
CalStd6=20	20.000	21.258	1.26	6.29	.00003	.000	1
CalStd5=10	10.000	11.153	1.15	11.5	.00002	.000	1
CalStd8=100	100.00	98.914	-1.09	-1.09	.00013	.000	1
CalStd4=5	5.0000	6.5084	1.51	30.2	.00001	.000	1
CalStd10=10	10000.	9959.6	-40.4	-.404	.01304	.000	1

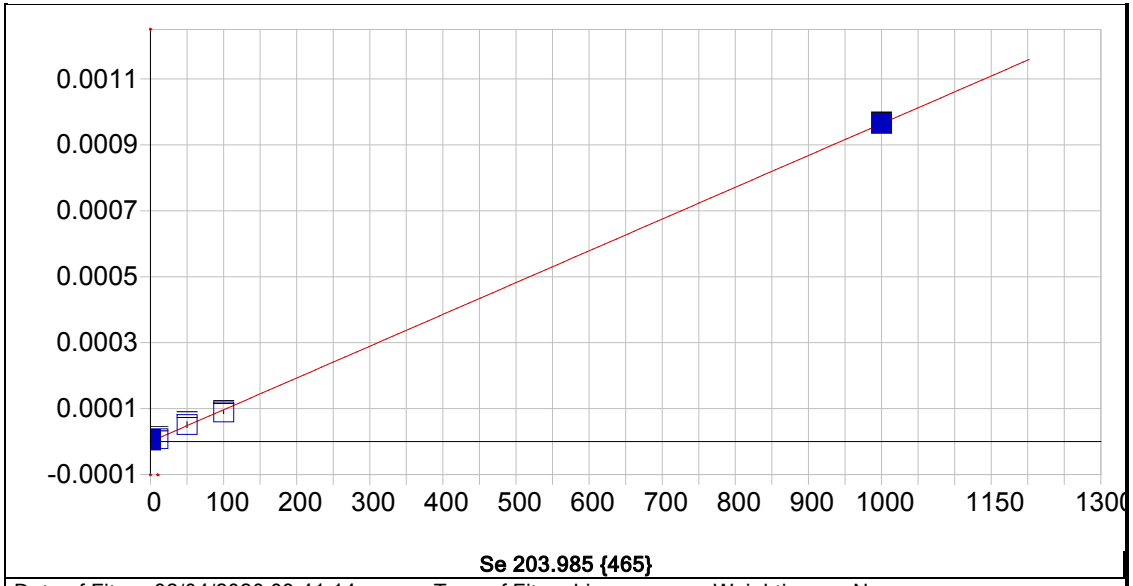


Se 196.090 {472}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000003	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999685	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	4.118025		
Predicted MQL:	13.726749		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00246	-.002	.000	.00000	.000	1
CalStd7=50	50.000	52.622	2.62	5.24	.00004	.000	1
CalStd9=100	1000.0	998.05	-1.95	-.195	.00073	.000	1
CalStd5=10	10.000	12.246	2.25	22.5	.00001	.000	1
CalStd8=100	100.00	97.085	-2.91	-2.91	.00007	.000	1

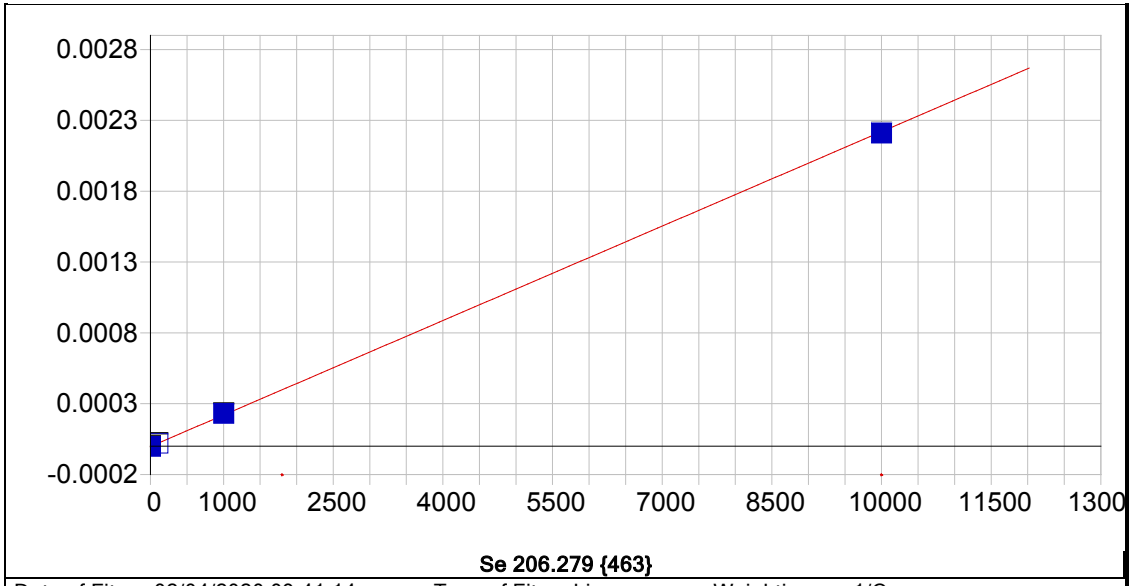


Se 203.985 {465}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	-0.000000	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999941	Status:	OK.
Std Error of Est:	0.000005		
Predicted MDL:	6.230226		
Predicted MQL:	20.767419		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	4.7586	4.76	.000	.00000	.000	1
CalStd7=50	50.000	53.197	3.20	6.39	.00005	.000	1
CalStd9=100	1000.0	1000.6	.575	.057	.00096	.000	1
CalStd5=10	10.000	8.6840	-1.32	-13.2	.00001	.000	1
CalStd8=100	100.00	92.786	-7.21	-7.21	.00009	.000	1

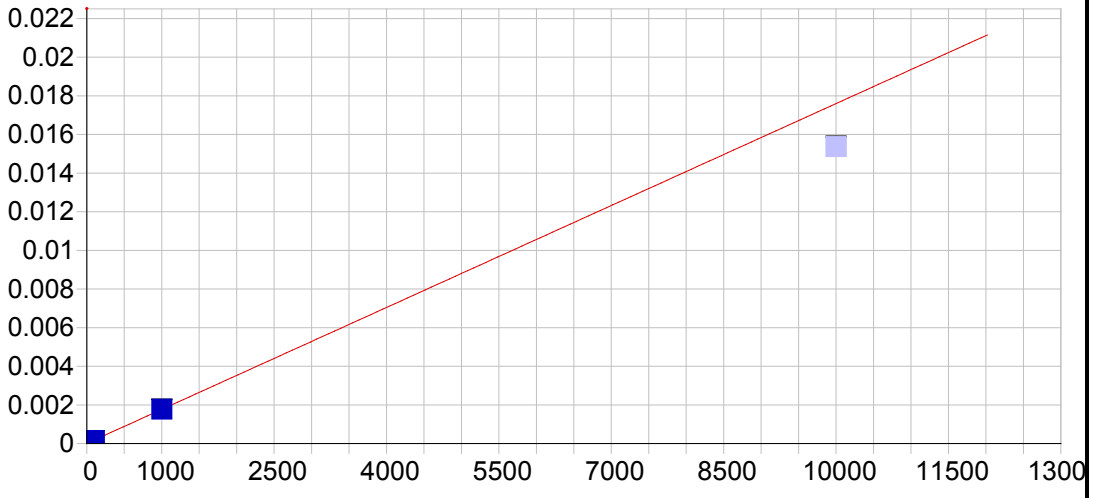


Se 206.279 {463}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000002	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999885	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	20.203381		
Predicted MQL:	67.344603		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00667	-.007	.000	-.00000	.000	1
CalStd9=100	1000.0	1047.5	47.5	4.75	.00023	.000	1
CalStd10=10	10000.	9950.1	-49.9	-.499	.00221	.000	1
CalStd8=100	100.00	102.42	2.42	2.42	.00002	.000	1

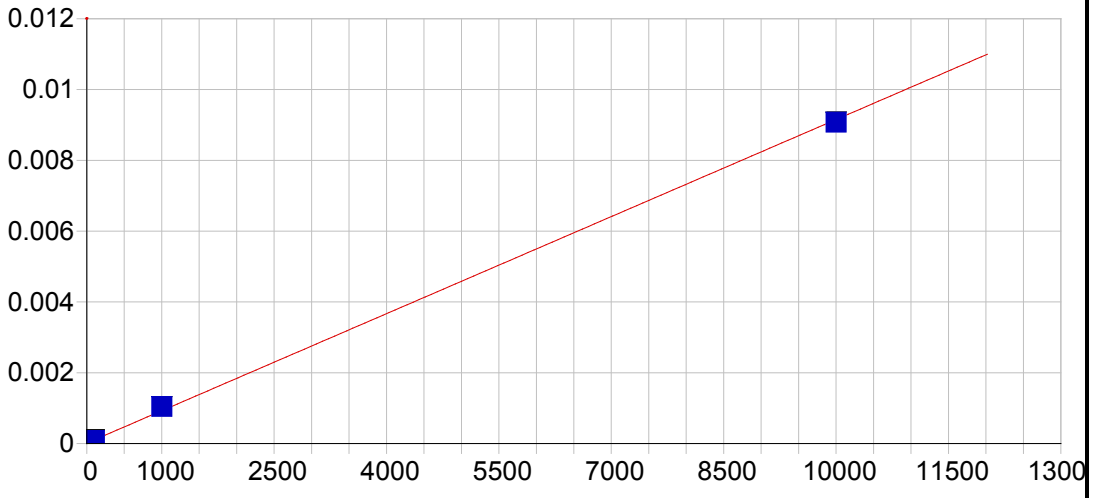


Tl 190.856 {476}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000007	Re-Slope:	1.000000
A1 (Gain):	0.000002	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999915	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	2.162445		
Predicted MQL:	7.208148		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00131	.001	.000	.00001	.000	1
CalStd9=100	1000.0	1003.4	3.38	.338	.00177	.000	1
CalStd8=100	100.00	97.739	-2.26	-2.26	.00018	.000	1
CalStd5=10	10.000	8.8809	-1.12	-11.2	.00002	.000	1
CalStd10=10	10000.	8732.4	-1270.	-12.7	.01535	.000	0

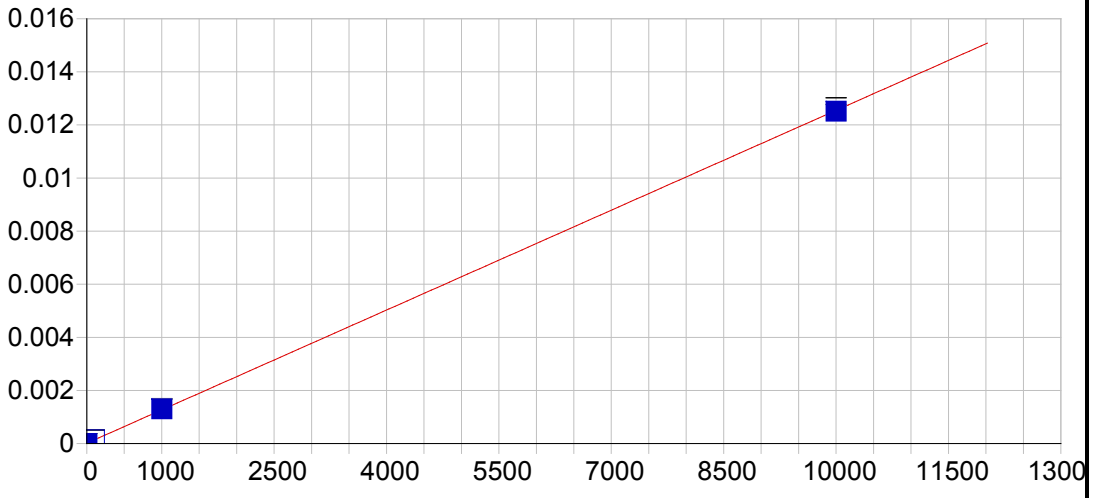


Tl 190.856 {477}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000012	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999381	Status:	OK.
Std Error of Est:	0.000049		
Predicted MDL:	3.475085		
Predicted MQL:	11.583617		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-10.868	-10.9	.000	.00000	.000	1
CalStd9=100	1000.0	1126.8	127.	12.7	.00104	.000	1
CalStd8=100	100.00	97.083	-2.92	-2.92	.00010	.000	1
CalStd5=10	10.000	-5.2409	-15.2	-152.	.00001	.000	1
CalStd10=10	10000.	9915.0	-85.0	-.850	.00908	.000	1

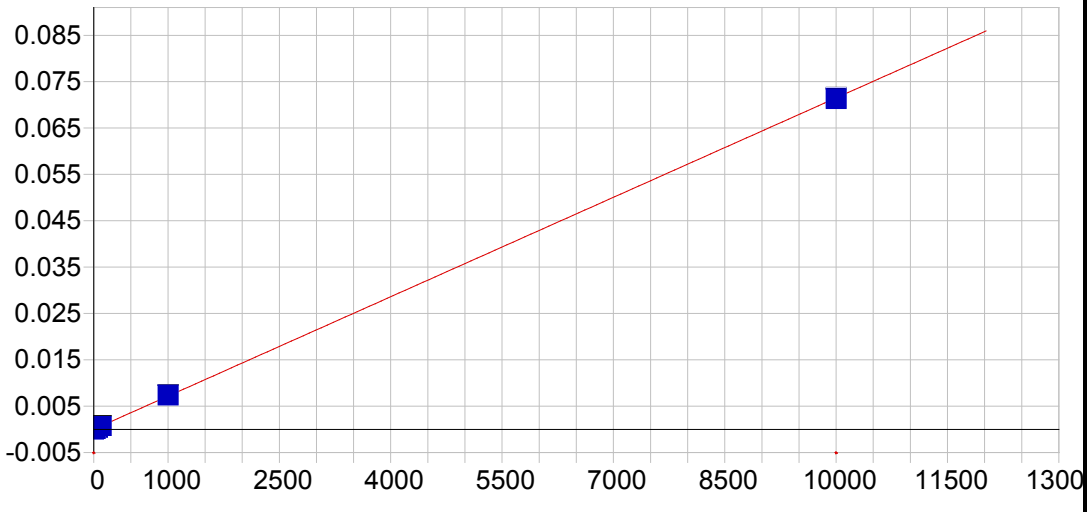


V 290.882 {116}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000012	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999963	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	1.898498		
Predicted MQL:	6.328327		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00198	-.002	.000	.00001	.000	1
CalStd9=100	1000.0	1027.4	27.4	2.74	.00130	.000	1
CalStd10=10	10000.	9973.1	-26.9	-.269	.01252	.000	1
CalStd8=100	100.00	99.508	-.492	-.492	.00014	.000	1

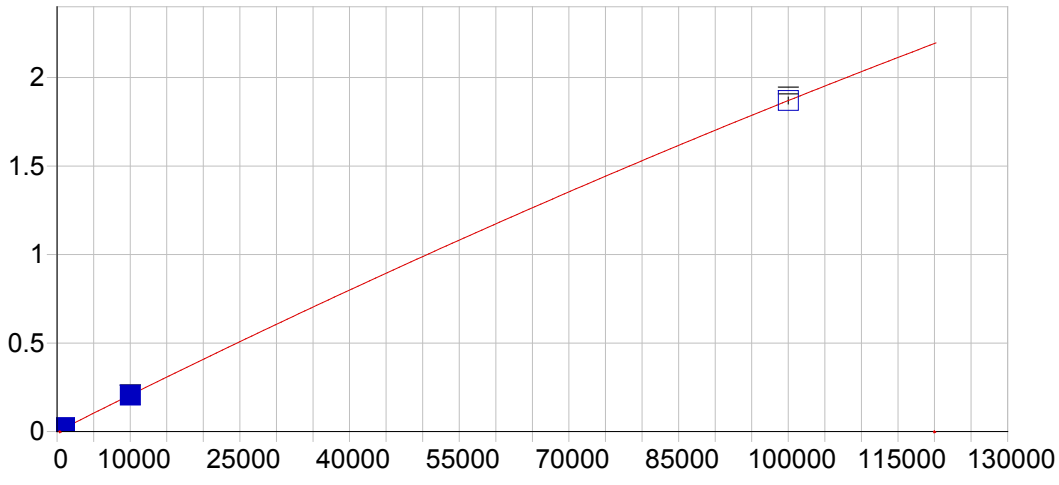


V 292.402 {115}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000016	Re-Slope:	1.000000
A1 (Gain):	0.000007	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999876	Status:	OK.
Std Error of Est:	0.000020		
Predicted MDL:	0.458206		
Predicted MQL:	1.527355		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-1.9828	-1.98	.000	.00000	.000	1
CalStd7=50	50.000	53.689	3.69	7.38	.00040	.000	1
CalStd9=100	1000.0	1029.4	29.4	2.94	.00737	.000	1
CalStd6=20	20.000	18.919	-1.08	-5.41	.00015	.000	1
CalStd5=10	10.000	8.7974	-1.20	-12.0	.00008	.000	1
CalStd8=100	100.00	98.411	-1.59	-1.59	.00072	.000	1
CalStd10=10	10000.	9973.3	-26.7	-.267	.07156	.000	1

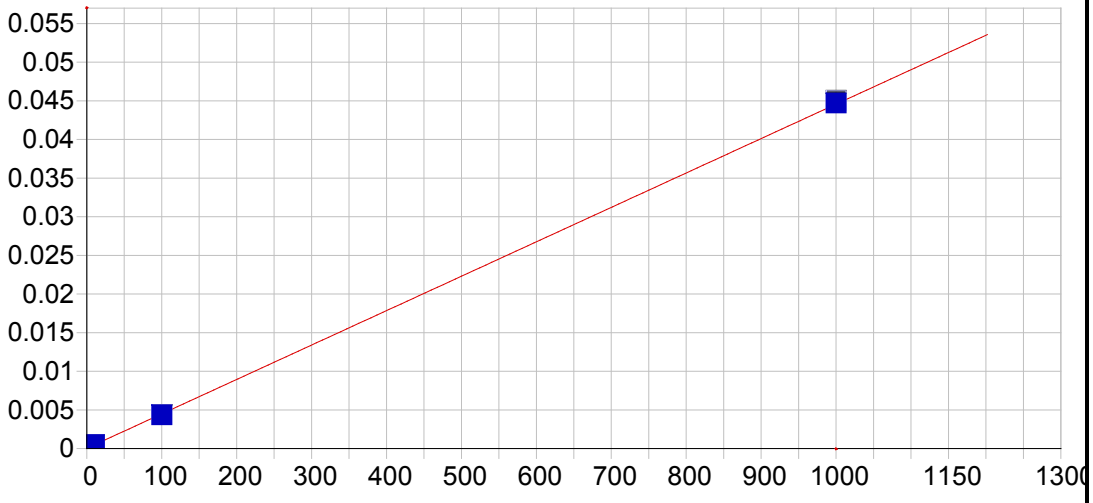


Zn 206.200 {463}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Curvilinear	Weighting:	1/Conc

A0 (Offset):	0.000008	Re-Slope:	1.000000
A1 (Gain):	0.000021	Y-int:	0.000000
A2 (Curvature):	-0.000000		
n (Exponent):	1.000000		
Correlation:	0.999992	Status:	OK.
Std Error of Est:	0.000004		
Predicted MDL:	0.214336		
Predicted MQL:	0.714455		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
CalStd10=10	10000.	9958.5	-41.5	-.415	.20545	.000	1
Blank	.00000	-.00074	-.001	.000	.00001	.000	1
CalStd9=100	1000.0	1036.6	36.6	3.66	.02159	.000	1
CalStd12=10	100000.	100000.	4.66	.005	1.8700	.019	1
CalStd5=10	10.000	10.420	.420	4.20	.00023	.000	1
CalStd8=100	100.00	99.978	-.022	-.022	.00209	.000	1

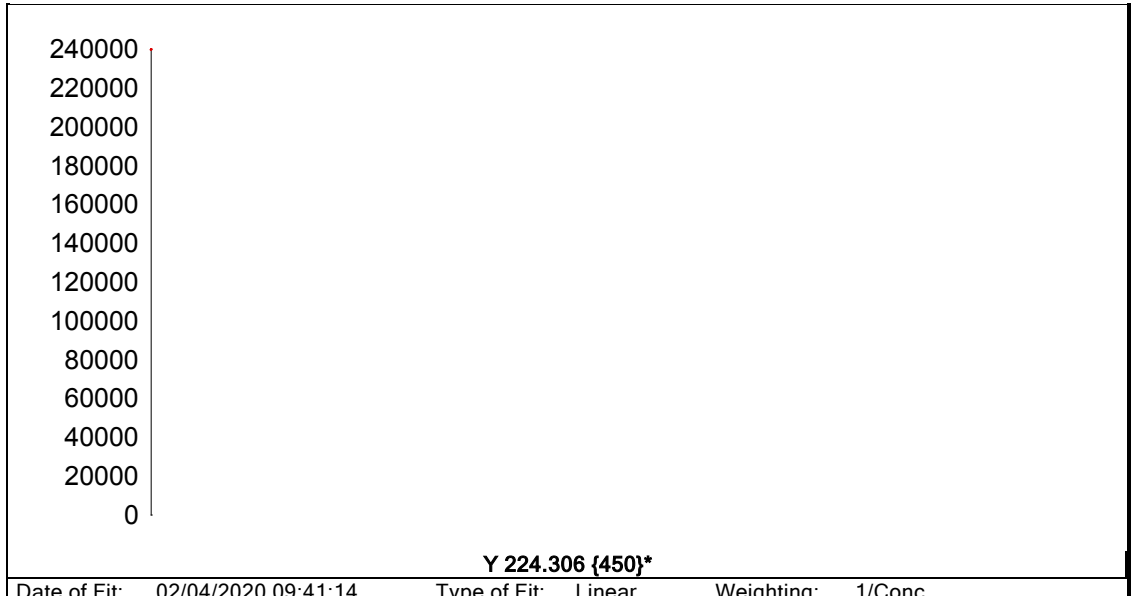


Zn 213.856 {457}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc

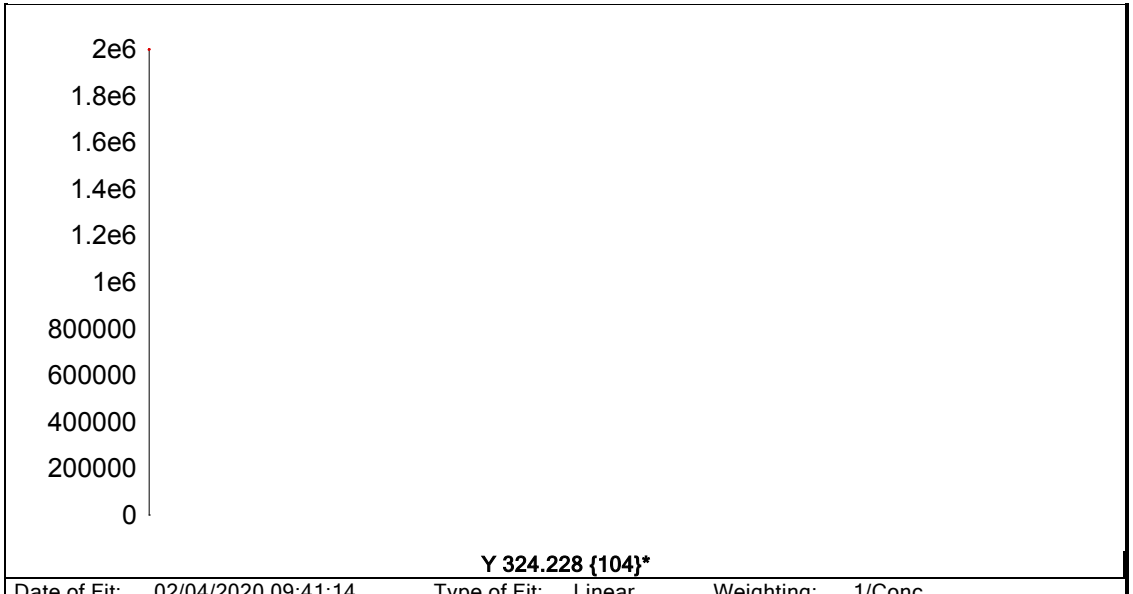
A0 (Offset):	0.000030	Re-Slope:	1.000000
A1 (Gain):	0.000045	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999946	Status:	OK.
Std Error of Est:	0.000002		
Predicted MDL:	0.107167		
Predicted MQL:	0.357224		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00000	-.000	.000	.00003	.000	1
CalStd9=100	1000.0	1002.9	2.92	.292	.04500	.000	1
CalStd5=10	10.000	10.296	.296	2.96	.00049	.000	1
CalStd8=100	100.00	96.787	-3.21	-3.21	.00437	.000	1



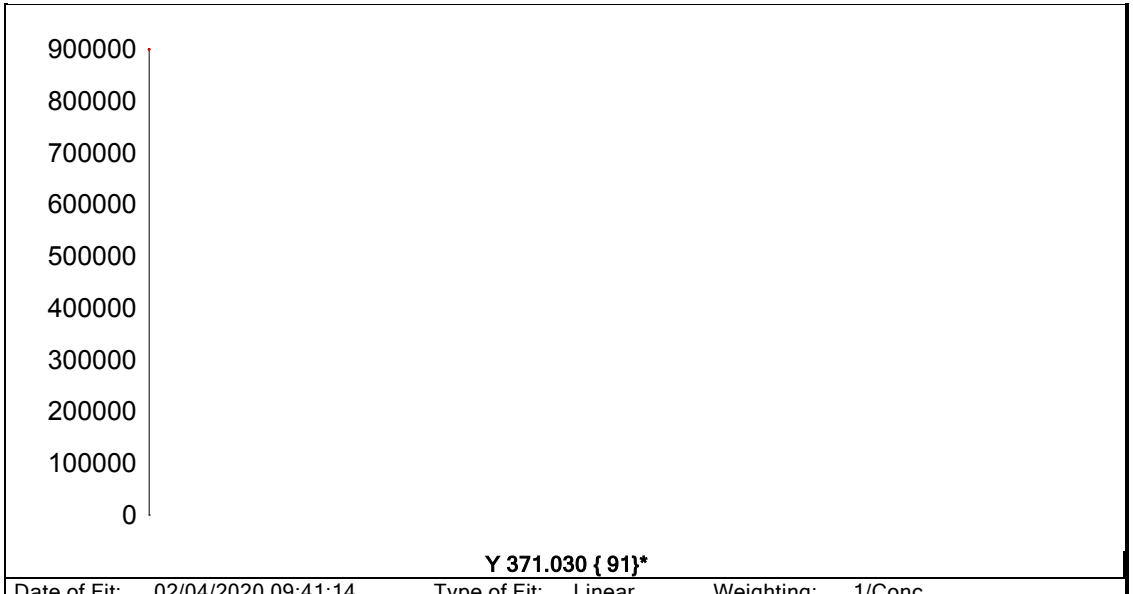
Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	0.000000		Re-Slope:	1.000000		
A1 (Gain):	0.000000		Y-int:	0.000000		
A2 (Curvature):	0.000000					
n (Exponent):	1.000000					
Correlation:	0.000000		Status:	Warning	Zero Gain	
Std Error of Est:	0.000000					
Predicted MDL:	n/a					
Predicted MQL:	n/a					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	226120.	369.	1



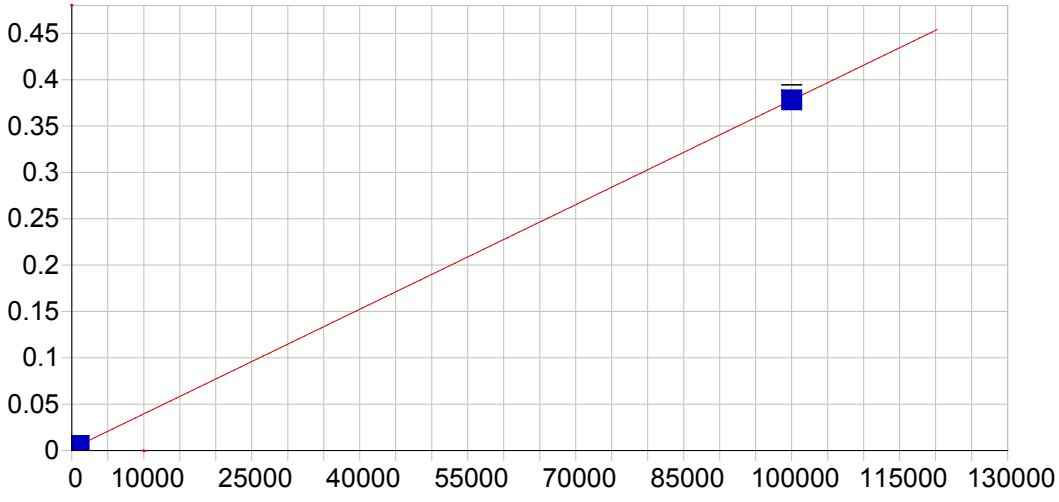
Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000000		Re-Slope:	1.000000	
A1 (Gain):	0.000000		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.000000		Status:	Warning	Zero Gain
Std Error of Est:	0.000000				
Predicted MDL:	n/a				
Predicted MQL:	n/a				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	1824400.	14200.	1



Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	0.000000		Re-Slope:	1.000000		
A1 (Gain):	0.000000		Y-int:	0.000000		
A2 (Curvature):	0.000000					
n (Exponent):	1.000000					
Correlation:	0.000000		Status:	Warning	Zero Gain	
Std Error of Est:	0.000000					
Predicted MDL:	n/a					
Predicted MQL:	n/a					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	813690.	7280.	1

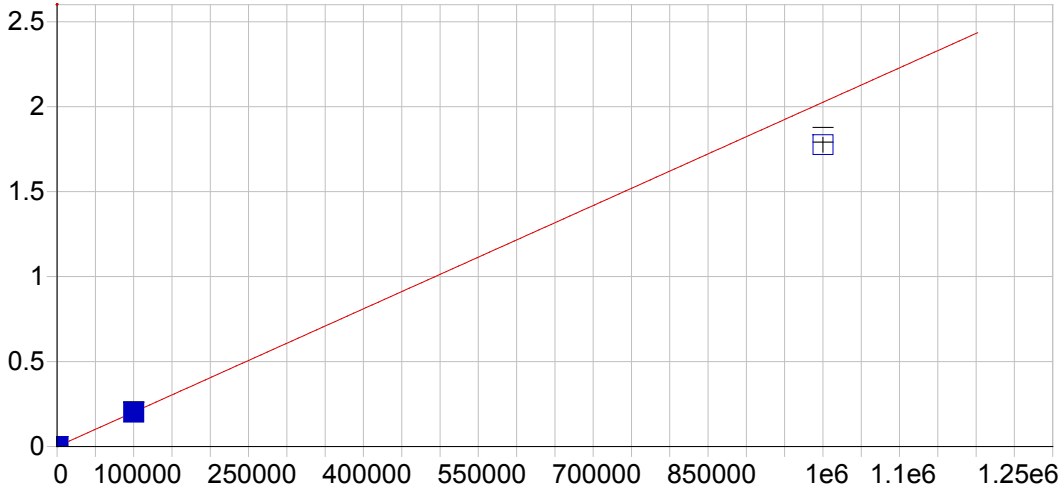


Na 588.995 { 57}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.001945	Re-Slope:	1.000000
A1 (Gain):	0.000004	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000119		
Predicted MDL:	4.178118		
Predicted MQL:	13.927060		

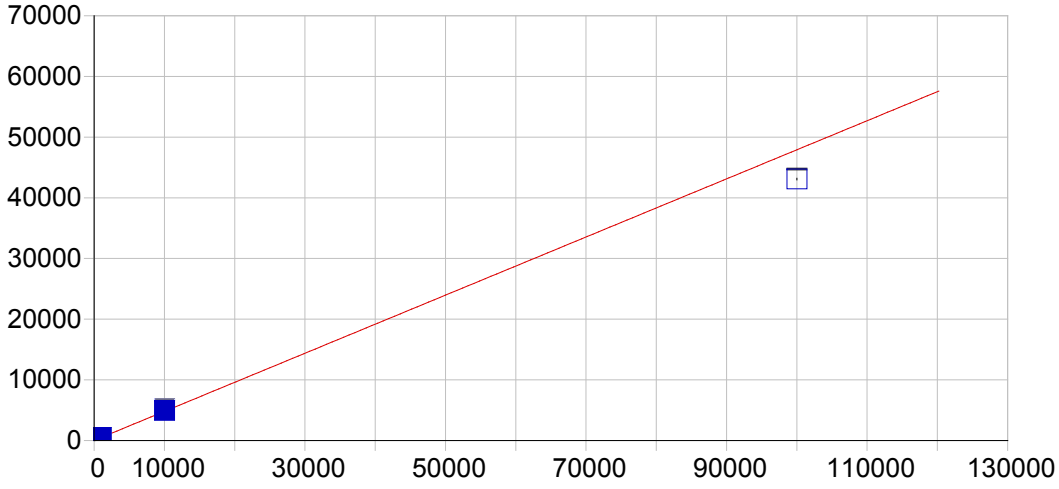
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-22.198	-22.2	.000	.00186	.000	1
CalStd9=100	1000.0	1022.4	22.4	2.24	.00579	.000	1
CalStd10=10	100000.	100000.	-.224	-.000	.37803	.006	1



Na 589.592 { 57}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Var
A0 (Offset):	0.000036		Re-Slope:	1.000000	
A1 (Gain):	0.000002		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.998895		Status:	OK.	
Std Error of Est:	0.000069				
Predicted MDL:	4.781656				
Predicted MQL:	15.938854				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-4.7081	-4.71	.000	.00003	.000	1
CalStd9=100	1000.0	1026.9	26.9	2.69	.00212	.000	1
CalStd10=10	100000.	99701.	-299.	-.299	.20202	.002	1
CalibStd15=	1000000.	876470.	-124000.	-12.4	1.7757	.043	1

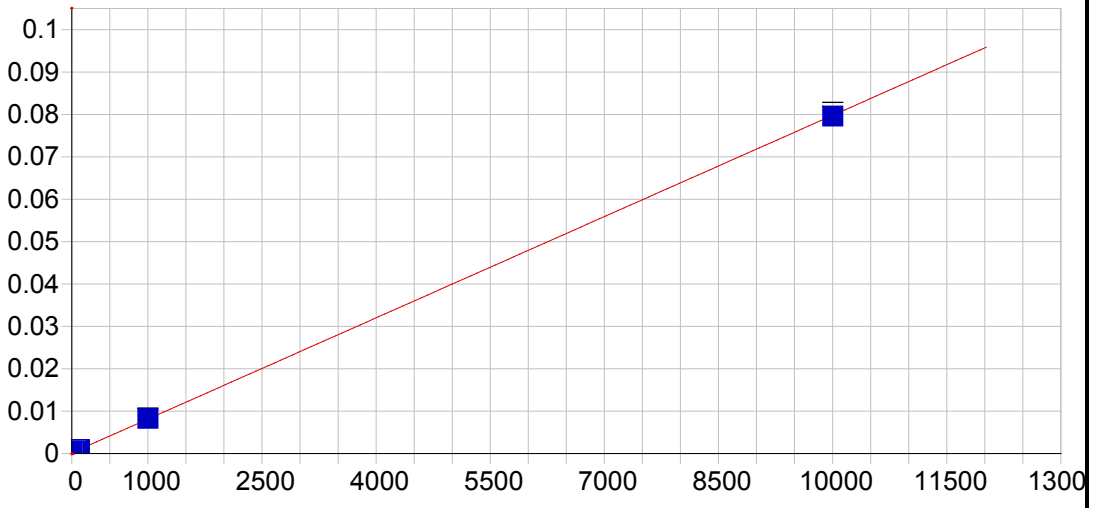


Si 251.611 {134}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	16.077669	Re-Slope:	1.000000
A1 (Gain):	0.478919	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.998481	Status:	OK.
Std Error of Est:	50.082511		
Predicted MDL:	3.325442		
Predicted MQL:	11.084807		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-18.726	-18.7	.000	7.1095	1.22	1
CalStd9=100	1000.0	1014.6	14.6	1.46	539.84	1.29	1
CalStd10=10	10000.	10295.	295.	2.95	5187.2	8.36	1
CalibStd15=	100000.	89943.	-10100.	-10.1	43091.	137.	1

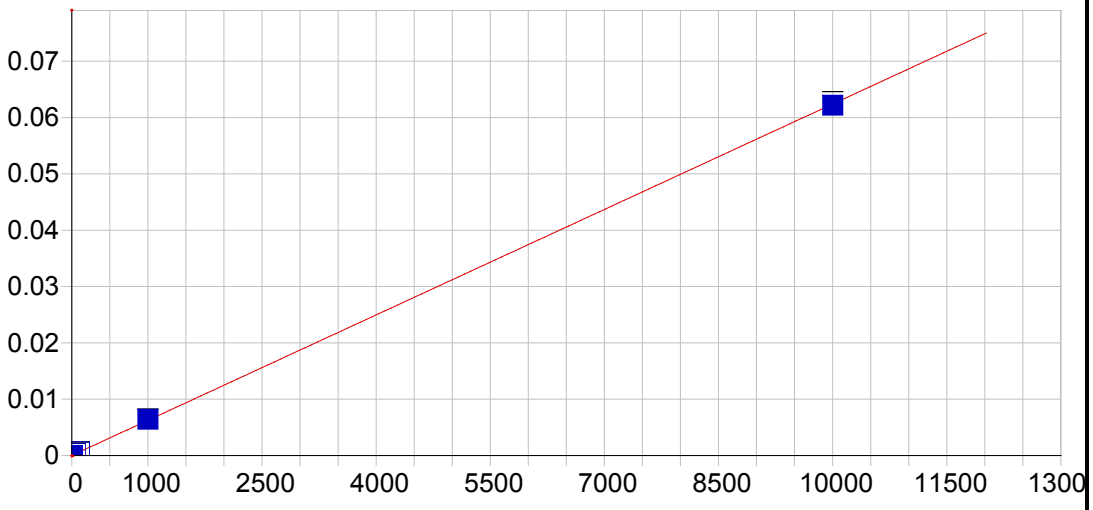


Ti 323.452 {104}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000165	Re-Slope:	1.000000
A1 (Gain):	0.000008	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999935	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.525740		
Predicted MQL:	1.752466		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00250	-.002	.000	.00017	.000	1
CalStd5=10	10.000	10.622	.622	6.22	.00025	.000	1
CalStd8=100	100.00	100.70	.696	.696	.00097	.000	1
CalStd9=100	1000.0	1017.3	17.3	1.73	.00827	.000	1
CalStd10=10	10000.	9974.5	-25.5	-.255	.07966	.001	1
CalStd7=50	50.000	55.333	5.33	10.7	.00061	.000	1
CalStd4=5	5.0000	6.5441	1.54	30.9	.00022	.000	1

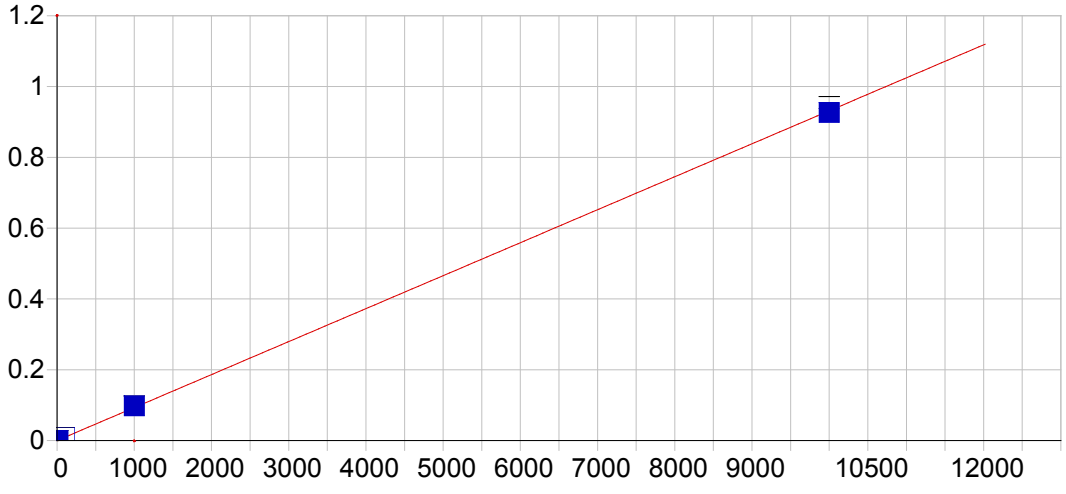


Ti 334.941 {101}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000005	Re-Slope:	1.000000
A1 (Gain):	0.000006	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999926	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.466874		
Predicted MQL:	1.556245		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00192	-.002	.000	.00000	.000	1
CalStd5=10	10.000	10.397	.397	3.97	.00007	.000	1
CalStd8=100	100.00	101.50	1.50	1.50	.00064	.000	1
CalStd9=100	1000.0	1030.1	30.1	3.01	.00643	.000	1
CalStd10=10	10000.	9962.8	-37.2	-.372	.06217	.001	1
CalStd7=50	50.000	54.086	4.09	8.17	.00034	.000	1
CalStd4=5	5.0000	6.1087	1.11	22.2	.00004	.000	1

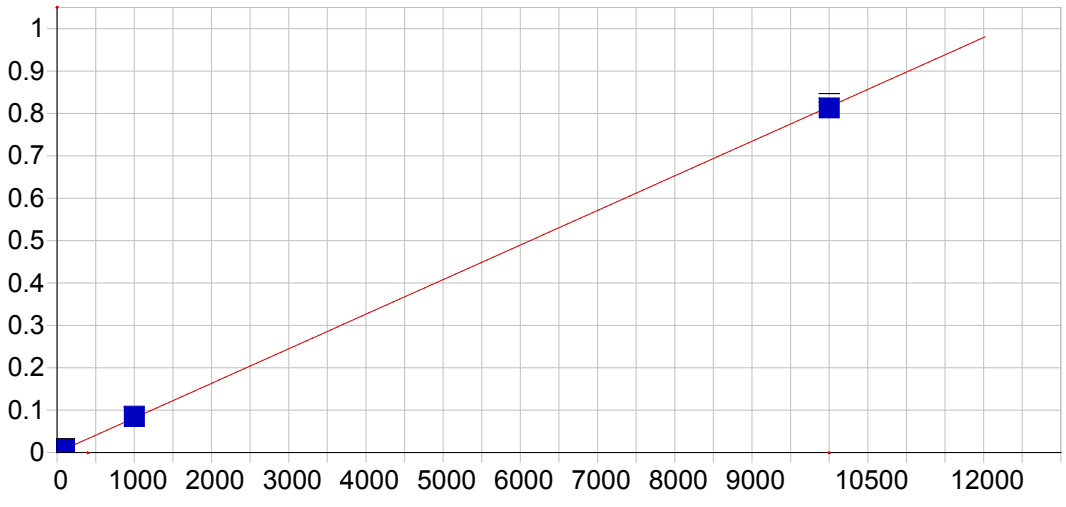


Sr 407.771 { 83}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000023	Re-Slope:	1.000000
A1 (Gain):	0.000093	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999857	Status:	OK.
Std Error of Est:	0.000006		
Predicted MDL:	0.064616		
Predicted MQL:	0.215386		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00046	-.000	.000	.00002	.000	1
CalStd3=1	1.0000	1.1237	.124	12.4	.00013	.000	1
CalStd4=5	5.0000	6.0365	1.04	20.7	.00059	.000	1
CalStd5=10	10.000	10.424	.424	4.24	.00099	.000	1
CalStd8=100	100.00	103.93	3.93	3.93	.00970	.000	1
CalStd9=100	1000.0	1049.6	49.6	4.96	.09780	.001	1
CalStd10=10	10000.	9944.8	-55.2	-.552	.92640	.017	1

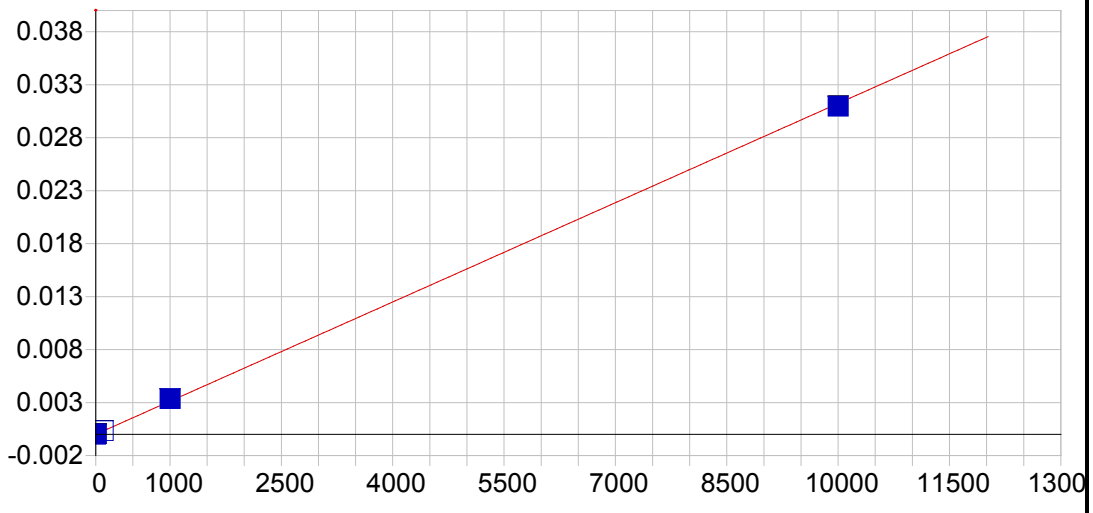


Sr 421.552 { 80}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000017	Re-Slope:	1.000000
A1 (Gain):	0.000082	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999915	Status:	OK.
Std Error of Est:	0.000004		
Predicted MDL:	0.072754		
Predicted MQL:	0.242513		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00043	-.000	.000	.00002	.000	1
CalStd3=1	1.0000	1.1215	.121	12.1	.00011	.000	1
CalStd4=5	5.0000	6.0580	1.06	21.2	.00051	.000	1
CalStd5=10	10.000	10.349	.349	3.49	.00086	.000	1
CalStd8=100	100.00	102.94	2.94	2.94	.00842	.000	1
CalStd9=100	1000.0	1037.0	37.0	3.70	.08465	.001	1
CalStd10=10	10000.	9958.5	-41.5	-.415	.81268	.011	1

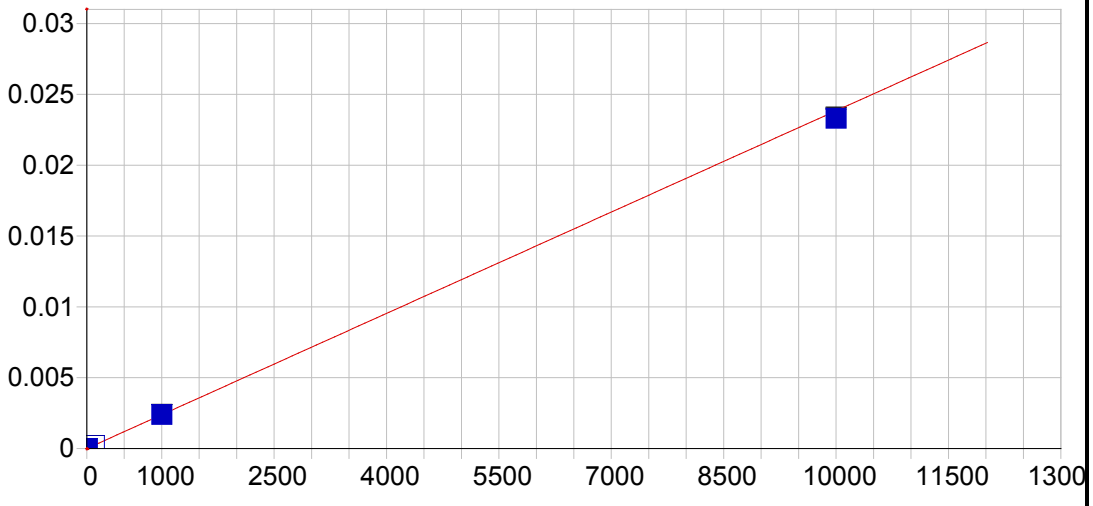


Sn 189.989 {477}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000001	Re-Slope:	1.000000
A1 (Gain):	0.000003	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999631	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.996688		
Predicted MQL:	3.322292		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00486	-.005	.000	.00000	.000	1
CalStd10=10	10000.	9914.0	-86.0	-.860	.03096	.000	1
CalStd9=100	1000.0	1076.1	76.1	7.61	.00336	.000	1
CalStd8=100	100.00	106.30	6.30	6.30	.00033	.000	1
CalStd5=10	10.000	13.560	3.56	35.6	.00004	.000	1

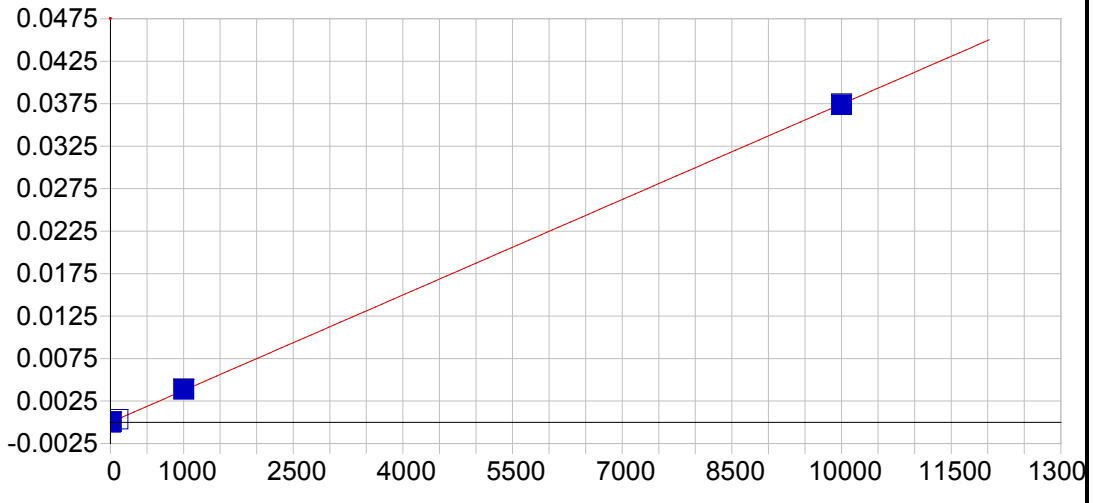


B 249.678 {135}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000001	Re-Slope:	1.000000
A1 (Gain):	0.000002	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999919	Status:	OK.
Std Error of Est:	0.000004		
Predicted MDL:	0.769342		
Predicted MQL:	2.564473		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.04038	-.040	.000	.00000	.000	1
CalStd8=100	100.00	95.114	-4.89	-4.89	.00023	.000	1
CalStd5=10	10.000	11.278	1.28	12.8	.00003	.000	1
CalStd9=100	1000.0	1006.1	6.14	.614	.00240	.000	1
CalStd10=10	10000.	9775.9	-224.	-2.24	.02331	.000	1

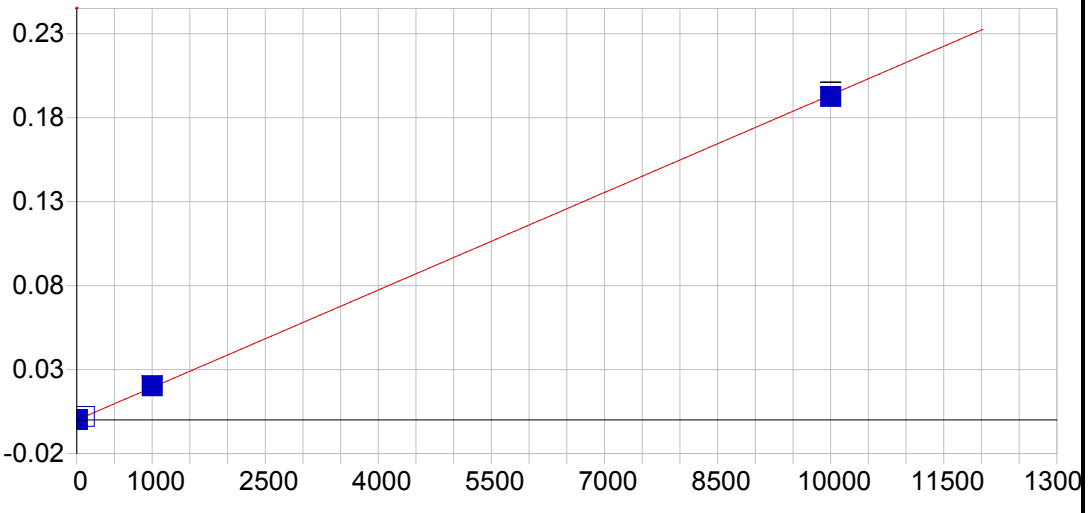


B 249.773 {135}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000003	Re-Slope:	1.000000
A1 (Gain):	0.000004	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999952	Status:	OK.
Std Error of Est:	0.000008		
Predicted MDL:	0.470328		
Predicted MQL:	1.567760		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.38529	-.385	.000	.00000	.000	1
CalStd8=100	100.00	98.312	-1.69	-1.69	.00037	.000	1
CalStd5=10	10.000	10.287	.287	2.87	.00004	.000	1
CalStd9=100	1000.0	1032.6	32.6	3.26	.00387	.000	1
CalStd10=10	10000.	9979.8	-20.2	-.202	.03739	.000	1

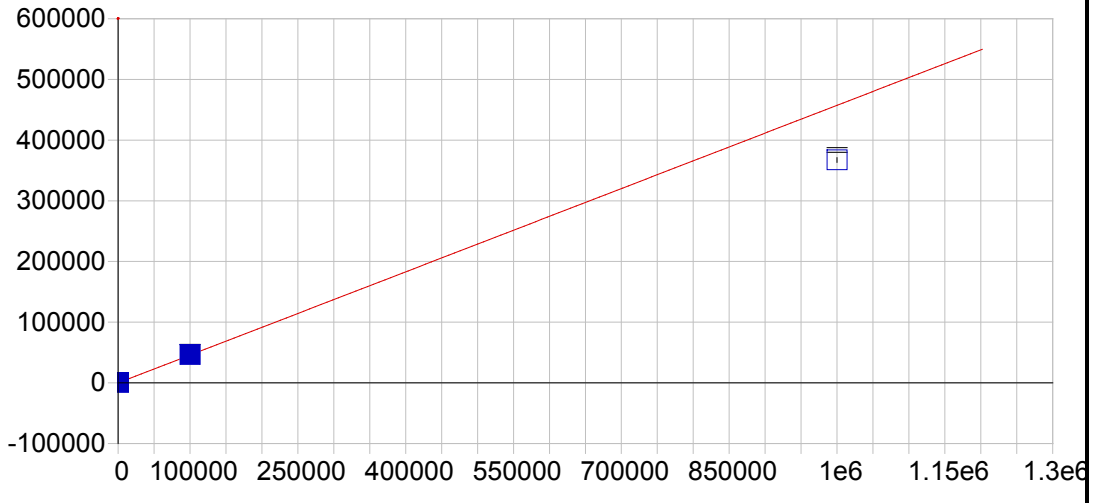


Li 670.784 { 50}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000030	Re-Slope:	1.000000
A1 (Gain):	0.000019	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999879	Status:	OK.
Std Error of Est:	0.000004		
Predicted MDL:	0.604968		
Predicted MQL:	2.016561		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00155	-.002	.000	-.00003	.000	1
CalStd5=10	10.000	10.692	.692	6.92	.00018	.000	1
CalStd8=100	100.00	104.42	4.42	4.42	.00199	.000	1
CalStd9=100	1000.0	1046.7	46.7	4.67	.02023	.000	1
CalStd10=10	10000.	9948.1	-51.9	-.519	.19251	.003	1

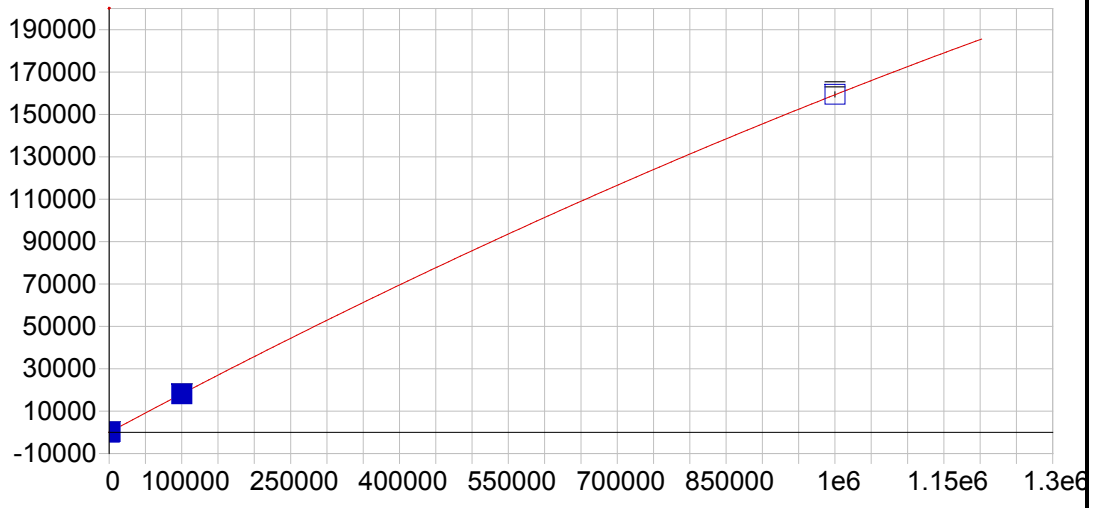


K 766.490 { 44}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	-9.638712	Re-Slope:	1.000000
A1 (Gain):	0.457354	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.998127	Status:	OK.
Std Error of Est:	213.203125		
Predicted MDL:	21.072415		
Predicted MQL:	70.241384		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-22.790	-22.8	.000	-20.062	7.26	1
CalStd9=100	1000.0	1040.8	40.8	4.08	466.31	11.4	1
CalStd10=10	100000.	101860.	1860.	1.86	46574.	119.	1
CalibStd15=	1000000.	803150.	-197000.	-19.7	367320.	3830.	1

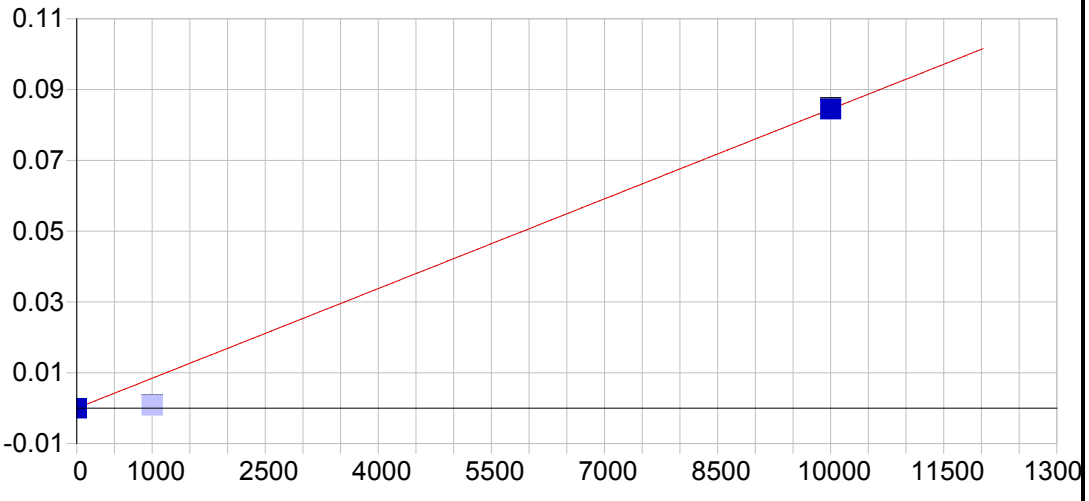


K 769.896 { 44}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Curvilinear	Weighting:	1/Var

A0 (Offset):	45.924398	Re-Slope:	1.000000
A1 (Gain):	0.183383	Y-int:	0.000000
A2 (Curvature):	-0.000000		
n (Exponent):	1.000000		
Correlation:	0.999871	Status:	OK.
Std Error of Est:	63.920441		
Predicted MDL:	33.610203		
Predicted MQL:	112.034010		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-223.31	-223.	.000	4.9719	6.50	1
CalStd9=100	1000.0	1137.6	138.	13.8	254.52	5.07	1
CalStd10=10	100000.	99916.	-84.1	-.084	18128.	37.1	1
CalibStd15=	1000000.	1001100.	1140.	.114	159450.	1200.	1

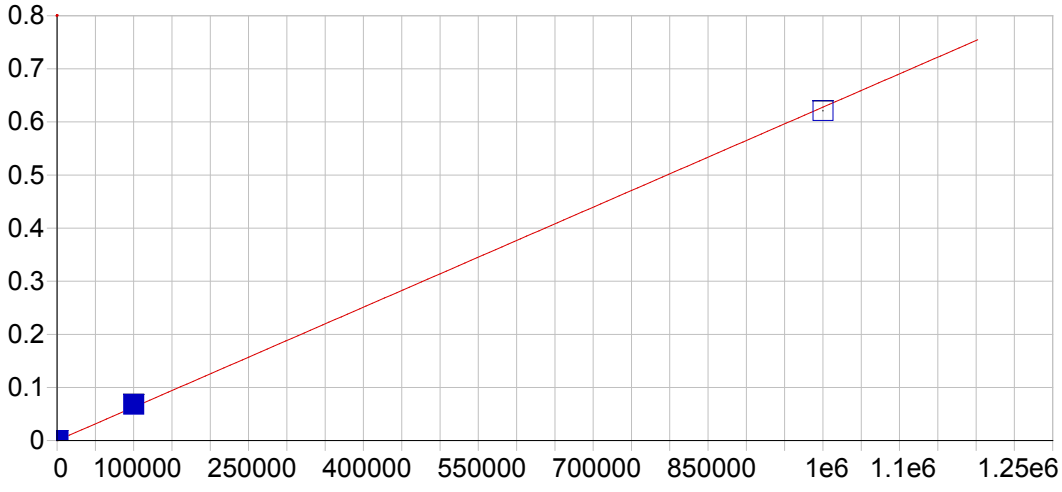


P 213.618 {457}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000009	Re-Slope:	1.000000
A1 (Gain):	0.000008	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	0.530390		
Predicted MQL:	1.767968		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	-.00001	.000	1
CalStd10=10	10000.	10000.	.000	.000	.08447	.000	1
CalStd9=100	1000.0	101.57	-898.	-89.8	.00085	.000	0

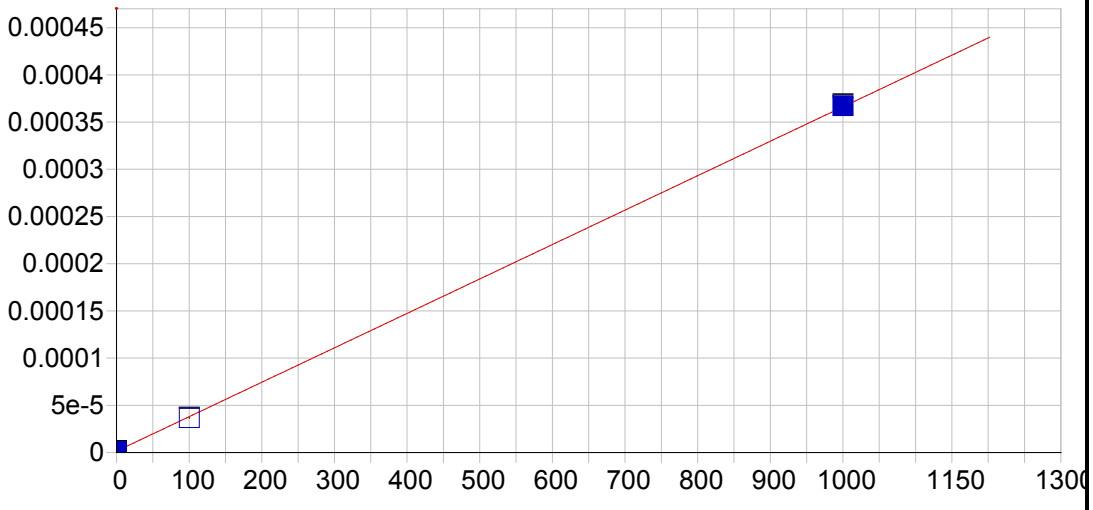


S 182.034 {485}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000018	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999556	Status:	OK.
Std Error of Est:	0.000170		
Predicted MDL:	4.534358		
Predicted MQL:	15.114526		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-21.267	-21.3	.000	.00000	.000	1
CalStd9=100	1000.0	1085.1	85.1	8.51	.00070	.000	1
CalStd10=10	100000.	108300.	8300.	8.30	.06802	.000	1
CalibStd15=	1000000.	989420.	-10600.	-1.06	.62118	.000	1

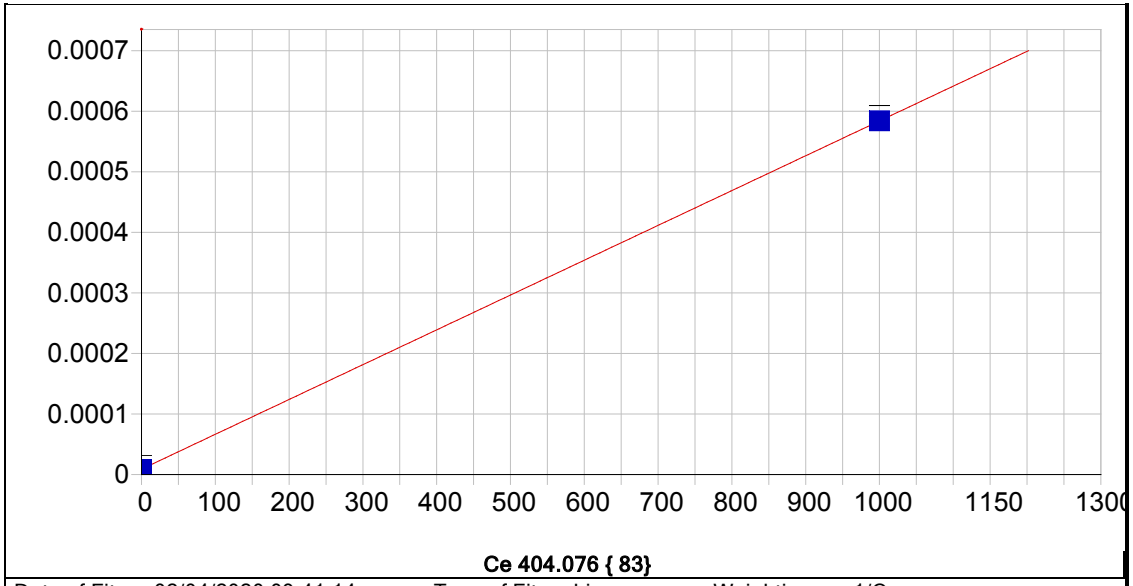


Hg 184.950 {482}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000002	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999952	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	1.011919		
Predicted MQL:	3.373062		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00280	.003	.000	.00000	.000	1
CalStd8=100	100.00	96.893	-3.11	-3.11	.00004	.000	1
CalStd9=100	1000.0	1003.1	3.11	.311	.00037	.000	1



Ce 404.076 { 83}

Date of Fit:	02/04/2020 09:41:14	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000009	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	9.297192		
Predicted MQL:	30.990640		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	.00001	.000	1
CalStd9=100	1000.0	1000.0	.000	.000	.00058	.000	1

Sample Name: Blank Acquired: 02/03/2020 12:59:17 Type: Cal
Method: DOD Calibration Updated 060614(v3723) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	Al3082	Al3961	As1937	As1972	Ba2335	Ba4934	Be3130	Ca3158	Ca3933	Ca3968
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.000**	**.000**	**.000**	**-.000**	**.000**	**.000**	**.000**	**-390.**	**-.000**	**.000**	**.001**	**.000**
Stddev	.000	.000	.000	.000	.000	.000	.000	9.	.000	.000	.000	.000
%RSD	24.5	22.1	14.5	17.0	38.0	208.	106.	2.30	2.06	2.18	5.81	6.26

Elem	Cd2265	Co2286	Co2388	Cr2055	Cr2677	Cu2230	Cu3247	Fe2395	Fe2599	Mg2790	Mg2802	Mn2576
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.000**	**.000**	**.000**	**-.000**	**-.000**	**.000**	**.000**	**.000**	**.000**	**-.000**	**416.**	**.000**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	8.	.000
%RSD	55.4	87.9	60.2	35.7	8820.	192.	1.17	95.4	15000.	51.2	2.04	7120.

Elem	Mn2593	Mo2020	Mo2045	Ni2216	Ni2316	Pb2169	Pb2203	Sb2068	Sb2175	Se1960	Se2062	Tl1908
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**-.000**	**-.000**	**-.000**	**.000**	**-.000**	**-.000**	**.000**	**.000**	**-.000**	**.000**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	66.3	117.	72.4	16.6	40.2	31.0	238.	148.	41.4	35.9	185.	27.8

Elem	V_2924	Zn2062	Zn2138
Units	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.000**
Stddev	.000	.000	.000
%RSD	193.	42.3	12.1

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**226120.**	**1824400.**	**813690.**
Stddev	369.	14249.	7276.
%RSD	.16328	.78102	.89415

Sample Name: CalStd2=0.5 Acquired: 02/03/2020 13:05:32 Type: Cal
Method: DOD Calibration Updated 060614(v3723) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Be3130	Cd2265
Units	Cts/S	Cts/S
Avg	**-.000**	**.000**
Stddev	.000	.000
%RSD	.474	4000.

Int. Std.	Y_2243	Y_3242
Units	Cts/S	Cts/S
Avg	**222200.**	**1799900.**
Stddev	590.	6634.
%RSD	.26561	.36857

Sample Name: CalStd3=1 Acquired: 02/03/2020 13:11:55 Type: Cal
Method: DOD Calibration Updated 060614(v3723) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Ba2335	Be3130	Cd2265	Co2286	Cr2055	Ni2316
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.000**	**.000**	**-.000**	**.000**	**.000**	**.000**	**.000**
Stddev	.000	.000	.000	.000	.000	.000	.000
%RSD	15.8	17.0	4.74	33.7	16.3	8.09	137.

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**221670.**	**1793700.**	**807630.**
Stddev	307.	11847.	7680.
%RSD	.13834	.66052	.95088

Sample Name: CalStd4=5 Acquired: 02/03/2020 13:18:08 Type: Cal
Method: DOD Calibration Updated 060614(v3723) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ba2335	Be3130	Cd2265	Co2286	Cr2055	Cr2677	Mn2576	Mo2020	Mo2045	Ni2316	Pb2203	Sb2175
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	7.48	1.06	3.69	2.02	5.33	6.81	1.27	1.24	9.86	3.36	17.0	13.0

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**221920.**	**1796300.**	**796430.**
Stddev	384.	1834.	6084.
%RSD	.17293	.10209	.76393

Sample Name: CalStd5=10 Acquired: 02/03/2020 13:24:21 Type: Cal
Method: DOD Calibration Updated 060614(v3723) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	As1972	Ba2335	Be3130	Cd2265	Co2286	Cr2055	Cr2677	Cu2230	Cu3247
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.000**	**.000**	**.000**	**.001**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	5.72	5.15	25.4	53.2	1.67	.321	1.82	1.96	1.42	1.39	5.27	.656

Elem	Mn2576	Mo2020	Mo2045	Ni2316	Pb2169	Pb2203	Sb2068	Sb2175	Se1960	Tl1908	V_2924	Zn2062
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	.846	3.14	1.63	3.78	20.2	10.1	13.9	17.8	6.82	23.9	1.49	1.72

Elem	Zn2138
Units	Cts/S
Avg	**.000**
Stddev	.000
%RSD	.330

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**221800.**	**1809700.**	**803670.**
Stddev	682.	5436.	3724.
%RSD	.30737	.30038	.46336

Sample Name: CalStd6=20 Acquired: 02/03/2020 13:30:36 Type: Cal
Method: DOD Calibration Updated 060614(v3723) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ba2335	Cu2230	Cu3247	Mn2576	Mo2020	Mo2045	Sb2175	V_2924
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	1.33	3.08	.573	.289	1.89	1.31	23.2	2.32

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**222080.**	**1799000.**	**799740.**
Stddev	445.	8438.	4416.
%RSD	.20033	.46906	.55221

Sample Name: CalStd7=50 Acquired: 02/03/2020 13:36:48 Type: Cal
Method: DOD Calibration Updated 060614(v3723) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	As1937	As1972	Cd2265	Co2286	Cr2055	Cr2677	Cu2230	Cu3247	Mn2576	Mo2020	Mo2045	Ni2316
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.001**	**.001**	**.001**	**.001**	**.000**	**.000**	**.001**	**.001**	**.000**	**.001**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	14.4	12.3	.708	.580	.627	1.10	.743	1.34	.937	.838	1.14	1.07

Elem	Sb2068	Se1960	V_2924
Units	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.000**
Stddev	.000	.000	.000
%RSD	1.10	7.30	.449

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**221800.**	**1795600.**	**805580.**
Stddev	297.	11896.	6098.
%RSD	.13397	.66248	.75694

Sample Name: CalStd8=100 Acquired: 02/03/2020 13:43:02 Type: Cal
Method: DOD Calibration Updated 060614(v3723) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	As1972	Ba2335	Ba4934	Be3130	Ca3933	Ca3968	Cd2265	Co2286	Co2388
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.000**	**.000**	**.000**	**1530.**	**.009**	**.015**	**.007**	**.002**	**.002**	**.003**
Stddev	.000	.000	.000	.000	.000	7.	.000	.000	.000	.000	.000	.000
%RSD	1.53	.403	2.81	4.83	.225	.427	.618	1.44	1.33	.280	.263	.564

Elem	Cr2055	Cr2677	Cu2230	Cu3247	Mg2802	Mn2576	Mo2020	Mo2045	Ni2216	Ni2316	Pb2169	Pb2203
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.002**	**.003**	**.001**	**.001**	**8240.**	**.001**	**.001**	**.001**	**.002**	**.002**	**.000**	**.000**
Stddev	.000	.000	.000	.000	39.	.000	.000	.000	.000	.000	.000	.000
%RSD	.452	1.28	.660	1.46	.472	.731	.746	.211	.134	.482	.371	.364

Elem	Sb2175	Se1960	Se2062	Tl1908	V_2924	Zn2062	Zn2138
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.000**	**.000**	**.001**	**.002**	**.004**
Stddev	.000	.000	.000	.000	.000	.000	.000
%RSD	5.27	4.25	21.1	1.55	.677	.489	.222

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**222140.**	**1810600.**	**801870.**
Stddev	665.	5234.	10702.
%RSD	.29925	.28909	1.3346

Sample Name: CalStd9=1000 Acquired: 02/03/2020 13:49:09 Type: Cal
Method: DOD Calibration Updated 060614(v3723) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Al1670	Al3082	Al3961	As1937	As1972	Ba2335	Ba4934	Be3130	Ca3158	Ca3933	Ca3968
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.003**	**.000**	**.001**	**.001**	**.001**	**.001**	**19300.**	**.091**	**.001**	**.151**	**.069**
Stddev	.000	.000	.000	.000	.000	.000	135.	.000	.000	.001	.001
%RSD	.243	1.89	1.15	.486	.274	.480	.700	.419	.660	.865	.885

Elem	Cd2265	Co2286	Co2388	Cr2055	Cr2677	Cu2230	Cu3247	Fe2395	Fe2599	Mg2790	Mg2802
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.025**	**.019**	**.027**	**.016**	**.026**	**.007**	**.003**	**.001**	**.002**	**.000**	**79800.**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	127.
%RSD	.093	.167	.496	.155	.366	.240	.819	.738	.432	.819	.160

Elem	Mn2576	Mn2593	Mo2020	Mo2045	Ni2216	Ni2316	Pb2169	Pb2203	Sb2068	Sb2175	Se1960
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.015**	**.007**	**.010**	**.006**	**.017**	**.016**	**.001**	**.003**	**.002**	**.001**	**.001**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	.341	.718	.149	.248	.185	.153	.355	.246	.354	.419	.424

Elem	Se2062	Tl1908	V_2924	Zn2062	Zn2138
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.002**	**.007**	**.022**	**.045**
Stddev	.000	.000	.000	.000	.000
%RSD	1.40	.326	.431	.144	.120

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**221540.**	**1808800.**	**808550.**
Stddev	445.	7819.	4064.
%RSD	.20075	.43229	.50260

Sample Name: CalStd10=10000 Acquired: 02/03/2020 13:54:36 Type: Cal
Method: DOD Calibration Updated 060614(v3723) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Al3082	Al3961	As1972	Ba4934	Ca3158	Ca3968	Co2286	Co2388	Cr2055	Cr2677
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.004**	**.013**	**.007**	**171000.**	**.004**	**.657**	**.176**	**.252**	**.154**	**.248**
Stddev	.000	.000	.000	2190.	.000	.004	.000	.001	.000	.001
%RSD	.995	1.00	.281	1.28	.952	.650	.099	.203	.139	.207

Elem	Cu2230	Cu3247	Fe2395	Fe2599	Mg2790	Mg2802	Mn2576	Mn2593	Mo2045	Ni2216
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.061**	**.024**	**.011**	**.019**	**.001**	**670000.**	**.133**	**.068**	**.058**	**.156**
Stddev	.000	.000	.000	.000	.000	4820.	.001	.001	.000	.000
%RSD	.151	1.31	.955	.958	1.02	.719	.443	1.03	.146	.037

Elem	Ni2316	Pb2169	Sb2068	Sb2175	Se2062	Tl1908	V_2924	Zn2062
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.153**	**.013**	**.020**	**.013**	**.002**	**.015**	**.072**	**.205**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	.086	.377	.160	.372	.127	.174	.087	.169

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**212010.**	**1736200.**	**801340.**
Stddev	487.	2211.	8209.
%RSD	.22982	.12735	1.0243

Sample Name: CalStd12=100K Acquired: 02/03/2020 14:01:26 Type: Cal
Method: DOD Calibration Updated 060614(v3723) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Cr2055	Cu3247	Mn2593	Pb2169	Zn2062
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**1.42**	**.247**	**.687**	**.142**	**1.87**
Stddev	.01	.000	.005	.000	.02
%RSD	.627	.188	.702	.340	1.02

Int. Std.	Y_2243	Y_3710
Units	Cts/S	Cts/S
Avg	**217880.**	**814020.**
Stddev	611.	1054.
%RSD	.28027	.12941

Sample Name: CalStd13=100000 Acquired: 02/03/2020 14:08:28 Type: Cal
Method: DOD Calibration Updated 060614(v3723) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Al3082	Al3961	Ca3158	Fe2395	Fe2599	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.038**	**.128**	**.046**	**.111**	**.193**	**.008**
Stddev	.000	.001	.000	.001	.002	.000
%RSD	.411	.586	.675	.800	.851	.741

Int. Std.	Y_3242	Y_3710
Units	Cts/S	Cts/S
Avg	**1749600.**	**795250.**
Stddev	15020.	5592.
%RSD	.85849	.70312

Sample Name: CalStd14=500000 Acquired: 02/03/2020 14:14:44 Type: Cal
Method: DOD Calibration Updated 060614(v3723) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Al3961	Ca3158	Fe2395	Fe2599	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.648**	**.219**	**.504**	**.865**	**.039**
Stddev	.005	.002	.006	.009	.000
%RSD	.741	1.03	1.12	1.02	1.04

Int. Std.	Y_3242	Y_3710
Units	Cts/S	Cts/S
Avg	**1618300.**	**766480.**
Stddev	9600.	7782.
%RSD	.59319	1.0153

Sample Name: CalibStd15=1000k Acquired: 02/03/2020 14:21:56 Type: Cal
Method: DOD Calibration Updated 060614(v3723) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Al3961	Ca3158	Fe2395	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**1.29**	**.422**	**.948**	**.076**
Stddev	.02	.003	.010	.001
%RSD	1.64	.723	1.03	.659

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**170340.**	**1451100.**	**704980.**
Stddev	247.	17738.	4931.
%RSD	.14490	1.2223	.69951

Sample Name: Ag Ba 1000, 50000 Acquired: 02/03/2020 14:29:49 Type: Cal
Method: DOD Calibration Updated 060614(v3723) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Ba4934
Units	Cts/S	Cts/S
Avg	.003	918000.
Stddev	.000	10300.
%RSD	1.05	1.12

Int. Std.	Y_3242	Y_3710
Units	Cts/S	Cts/S
Avg	1805100.	807990.
Stddev	7860.	6893.
%RSD	.43543	.85315

Sample Name: icv Acquired: 02/03/2020 14:42:32 Type: QC
Method: DOD Calibration Updated 060614(v3723) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3082	Al3961	As1937	As1972	Ba4934	Be3130	Ca3158	Ca3968	Cd2265	Co2286	Co2388
Avg	**48.1**	**11700.**	**11500.**	**2030.**	**2030.**	**2070.**	**50.2**	**9800.**	**9930.**	**49.2**	**526.**	**527.**
Stddev	.6	41.	46.	13.	2.	5.	.1	43.	100.	.1	.	3.
%RSD	1.19	.346	.402	.635	.100	.241	.217	.437	1.01	.302	.056	.531
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Cr2055	Cr2677	Cu2230	Fe2599	Mg2790	Mg2802	Mn2576	Mn2593	Mo2020	Mo2045	Ni2216	Ni2316
Avg	**206.**	**209.**	**249.**	**5000.**	**9720.**	**9010.**	**508.**	**503.**	**494.**	**511.**	**524.**	**524.**
Stddev	1.	1.	1.	23.	74.	17.	2.	3.	1.	1.	1.	1.
%RSD	.400	.242	.478	.464	.758	.192	.357	.514	.274	.234	.117	.134
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Pb2169	Pb2203	Sb2068	Sb2175	Se1960	Se2062	Tl1908	V_2924	Zn2062	Zn2138
Avg	**481.**	**495.**	**511.**	**520.**	**1980.**	**2110.**	**1950.**	**519.**	**523.**	**508.**
Stddev	5.	3.	4.	5.	8.	25.	6.	2.	3.	1.
%RSD	1.14	.657	.751	.978	.422	1.20	.297	.386	.544	.126
Check ?	None	None	None	None	None	None	None	None	None	None
Value										
Range										

Sample Name: icv Acquired: 02/03/2020 14:42:32 Type: QC
Method: DOD Calibration Updated 060614(v3723) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**219300.**	**1789600.**	**794320.**
Stddev	572.	3709.	3016.
%RSD	.26089	.20728	.37967

Sample Name: ICVLL Acquired: 02/03/2020 14:54:36 Type: QC
Method: DOD Calibration Updated 060614(v3723) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	Al3082	As1937	Ba2335	Be3130	Ca3158	Ca3933	Ca3968	Cd2265	Co2286	Cr2677
Avg	F **24.5**	**1160.**	**1160.**	**61.4**	**29.2**	**12.3**	**1470.**	**1460.**	**1530.**	**14.9**	**31.2**	**30.5**
Stddev	.7	2.	14.	.9	.6	.1	14.	14.	15.	.2	.2	.7
%RSD	2.99	.136	1.18	1.40	2.20	.838	.950	.981	.979	1.15	.597	2.24
Check ?	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value	60.0											
Range	-30.0%											

Elem	Cu2230	Fe2599	Mg2802	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Avg	**29.6**	**894.**	**1460.**	**30.0**	**30.9**	**31.7**	**31.1**	**61.7**	**64.5**	**57.5**	**29.3**	**30.8**
Stddev	.8	7.	5.	.3	.2	.4	1.7	2.5	2.1	1.6	.4	.1
%RSD	2.75	.754	.361	1.08	.781	1.22	5.41	4.07	3.33	2.86	1.32	.294
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value												
Range												

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**220710.**	**1797500.**	**792200.**
Stddev	237.	13589.	5658.
%RSD	.10758	.75599	.71424

Sample Name: icb Acquired: 02/03/2020 15:00:48 Type: QC
Method: DOD Calibration Updated 060614(v3723) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3933	Ca3968	Cd2265	Co2286	Cr2677	Cu2230	Fe2599
Avg	**.601**	**.206**	**-2.79**	**-.176**	**-.059**	**-2.20**	**-3.21**	**-.059**	**.027**	**.157**	**-.393**	**-1.77**
Stddev	.104	.562	3.46	.164	.027	.09	.12	.064	.177	.607	.661	.78
%RSD	17.3	273.	124.	92.9	45.1	3.89	3.73	109.	651.	387.	168.	43.9
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Mg2802	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	Zn2138
Avg	**-1.06**	**-.680**	**-.088**	**-.288**	**.061**	**.477**	**2.53**	**1.95**	**-.281**
Stddev	.01	.047	.198	.301	1.69	2.12	2.11	1.85	.047
%RSD	1.29	6.95	225.	105.	2770.	444.	83.4	94.6	16.8
Check ?	None	None	None	None	None	None	None	None	None
Value									
Range									

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**227590.**	**1826300.**	**813680.**
Stddev	256.	11300.	6941.
%RSD	.11252	.61875	.85304

Sample Name: MRL/LLOQ Acquired: 02/03/2020 15:13:15 Type: QC
Method: DOD Calibration Updated 060614(v3723) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3933	Ca3968	Cd2265	Co2286	Cr2677	Cu2230	Fe2599
Avg	F **8.85**	**403.**	**17.1**	**9.66**	**4.07**	**483.**	**507.**	**4.87**	**10.5**	**9.96**	**9.47**	**297.**
Stddev	.65	1.	2.1	.29	.03	3.	3.	.27	.2	.48	.86	2.
%RSD	7.38	.183	12.2	2.99	.760	.518	.543	5.63	1.87	4.85	9.12	.713
Check ?	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value	20.0											
Range	-30.0%											

Elem	Mg2802	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Avg	**491.**	**9.73**	**9.93**	**10.8**	**9.72**	**18.1**	**20.8**	**19.7**	**8.40**	**10.3**
Stddev	1.	.09	.24	.4	.85	.9	2.0	1.0	.38	.1
%RSD	.180	.960	2.40	3.38	8.71	4.74	9.73	5.28	4.57	.694
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value										
Range										

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**221730.**	**1802100.**	**798260.**
Stddev	392.	9790.	3170.
%RSD	.17680	.54324	.39711

Sample Name: ICSA Acquired: 02/03/2020 15:19:25 Type: QC
Method: DOD Calibration Updated 060614(v3723) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3961	As1937	Ba2335	Be3130	Ca3158	Cd2265	Co2286	Cr2677	Cu2230	Fe2599
Avg	**6.27**	**488000.**	**-.194**	**-.014**	**.488**	**465000.**	**-.531**	**1.14**	**1.10**	**1.17**	**441000.**
Stddev	.67	3430.	3.53	.294	.030	1980.	.163	.22	.71	.71	989.
%RSD	10.6	.703	1820.	2170.	6.12	.425	30.6	19.7	64.6	60.8	.225
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit											
Low Limit											

Elem	Mg2790	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	Zn2138
Avg	**500000.**	**1.81**	**.127**	**-2.74**	**1.37**	**.498**	**-12.2**	**2.96**	**-3.11**
Stddev	2450.	.17	.578	.47	2.84	3.37	8.5	4.90	.26
%RSD	.489	9.62	454.	17.2	207.	677.	69.2	165.	8.44
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit									
Low Limit									

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**192960.**	**1605900.**	**740380.**
Stddev	334.	8855.	2341.
%RSD	.17287	.55140	.31623

Sample Name: ICSAB Acquired: 02/03/2020 15:26:35 Type: QC
Method: DOD Calibration Updated 060614(v3723) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3961	As1937	Ba2335	Be3130	Ca3158	Cd2265	Co2286	Co2388	Cr2055	Cr2677
Avg	**529.**	**503000.**	**527.**	**482.**	**485.**	**480000.**	**452.**	**481.**	**438.**	**508.**	**517.**
Stddev	2.	5970.	24.	3.	1.	3930.	2.	.	3.	1.	2.
%RSD	.414	1.19	4.46	.538	.244	.818	.333	.101	.762	.167	.446
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value											
Range											

Elem	Cu2230	Fe2599	Mg2790	Mn2576	Mn2593	Mo2020	Mo2045	Ni2216	Ni2316	Pb2203	Sb2068
Avg	**504.**	**436000.**	**518000.**	**483.**	**410.**	**520.**	**515.**	**466.**	**465.**	**445.**	**491.**
Stddev	1.	3000.	4240.	2.	5.	1.	1.	1.	1.	4.	4.
%RSD	.293	.686	.818	.331	1.27	.210	.276	.139	.220	.849	.772
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value											
Range											

Elem	Sb2175	Se1960	Tl1908	V_2924	Zn2062	Zn2138
Avg	**502.**	**470.**	**583.**	**538.**	**448.**	**489.**
Stddev	10.	9.	4.	1.	2.	1.
%RSD	2.03	1.95	.654	.227	.349	.261
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value						
Range						

Sample Name: ICSAB Acquired: 02/03/2020 15:26:35 Type: QC
Method: DOD Calibration Updated 060614(v3723) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**192490.**	**1599300.**	**736570.**
Stddev	389.	7826.	5738.
%RSD	.20217	.48936	.77906

Sample Name: ICVLL Ag Acquired: 02/03/2020 15:39:17 Type: Unk
Method: DOD Calibration Updated 060614(v3723) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3933	Ca3968	Cd2265	Co2286	Cr2677	Cu2230	Fe2599
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**9.91**	**1.57**	**-2.58**	**.121**	**.111**	**.656**	**-.169**	**-.131**	**.251**	**.415**	**.251**	**35.9**
Stddev	.48	.41	3.30	.205	.023	.124	.131	.059	.206	.104	.750	16.8
%RSD	4.90	26.1	128.	169.	20.4	18.8	77.2	45.1	81.8	25.0	298.	46.8

Elem	Mg2802	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	Zn2138
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**.346**	**-.333**	**.073**	**.678**	**-.277**	**1.14**	**.583**	**.241**	**.222**
Stddev	.060	.021	.244	.236	1.74	2.61	3.39	1.16	.078
%RSD	17.4	6.32	334.	34.8	627.	229.	581.	484.	35.3

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**221600.**	**1785600.**	**767840.**
Stddev	514.	7629.	6709.
%RSD	.23209	.42726	.87379

Sample Name: ccv1 Acquired: 02/03/2020 16:43:01 Type: QC
Method: DOD Calibration Updated 060614(v3723) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Ag3382	Al3082	As1972	Ba4934	Be3130	Ca3158	Ca3968	Cd2265	Co2388	Cr2055	Cr2677
Avg	**365.**	**524.**	**4920.**	**5080.**	**5010.**	**494.**	**4920.**	**5090.**	**491.**	**5080.**	**4990.**	**5080.**
Stddev	1.	5.	38.	15.	38.	2.	28.	68.	1.	10.	8.	8.
%RSD	.406	.960	.762	.304	.755	.486	.580	1.34	.263	.193	.151	.149
Check ?	None	None	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value												
Range												

Elem	Cu2230	Fe2599	Mg2790	Mg2802	Mn2593	Mo2045	Ni2216	Pb2169	Sb2068	Se2062	Tl1908	V_2924
Avg	**4800.**	**5060.**	**4830.**	**4600.**	**5080.**	**5100.**	**5130.**	**4870.**	**5100.**	**5180.**	**4670.**	**5110.**
Stddev	10.	26.	20.	40.	22.	3.	4.	9.	13.	13.	7.	19.
%RSD	.202	.507	.418	.874	.433	.068	.070	.183	.263	.252	.147	.369
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value												
Range												

Elem	Zn2062
Avg	**5140.**
Stddev	7.
%RSD	.132
Check ?	Chk Pass
Value	
Range	

Sample Name: ccv1 Acquired: 02/03/2020 16:43:01 Type: QC
Method: DOD Calibration Updated 060614(v3723) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	215260.	1763800.	765190.
Stddev	206.	8806.	3870.
%RSD	.09572	.49926	.50573

Sample Name: ccv2 Acquired: 02/03/2020 16:49:19 Type: QC
Method: DOD Calibration Updated 060614(v3723) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3933	Ca3968	Cd2265	Co2286	Co2388	Cr2055	Cr2677
Avg	**47.6**	**527.**	**515.**	**509.**	**50.7**	**507.**	**535.**	**50.0**	**533.**	**536.**	**517.**	**529.**
Stddev	.7	2.	3.	5.	.5	6.	7.	.5	1.	2.	2.	2.
%RSD	1.43	.407	.639	.926	1.01	1.25	1.33	.912	.209	.391	.399	.358
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value												
Range												

Elem	Cu2230	Fe2599	Mg2802	Mn2576	Mn2593	Mo2020	Mo2045	Ni2216	Ni2316	Pb2169	Pb2203	Sb2068
Avg	**505.**	**525.**	**508.**	**520.**	**527.**	**505.**	**523.**	**540.**	**539.**	**518.**	**500.**	**522.**
Stddev	1.	5.	2.	4.	6.	2.	2.	1.	1.	3.	1.	2.
%RSD	.131	.963	.355	.757	1.23	.492	.324	.178	.115	.658	.283	.367
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value												
Range												

Elem	Sb2175	Se1960	Tl1908	V_2924	Zn2062	Zn2138
Avg	**518.**	**505.**	**509.**	**531.**	**529.**	**513.**
Stddev	2.	5.	4.	6.	1.	1.
%RSD	.468	.946	.689	1.13	.216	.150
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value						
Range						

Sample Name: ccv2 Acquired: 02/03/2020 16:49:19 Type: QC
Method: DOD Calibration Updated 060614(v3723) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**220760.**	**1789300.**	**771380.**
Stddev	472.	14836.	8356.
%RSD	.21387	.82916	1.0833

Sample Name: ccb Acquired: 02/03/2020 16:54:57 Type: QC
Method: DOD Calibration Updated 060614(v3723) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3933	Ca3968	Cd2265	Co2286	Cr2677	Cu2230	Fe2599
Avg	**.613**	**-.087**	**-.388**	**-.133**	**.043**	**-2.32**	**-3.44**	**-.029**	**-.034**	**-.032**	**-.815**	**-1.43**
Stddev	.300	.893	6.46	.259	.019	.05	.08	.169	.085	.364	.848	.42
%RSD	48.8	1020.	1670.	196.	45.6	2.24	2.45	581.	247.	1130.	104.	29.8
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Mg2802	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Avg	**-.852**	**-.672**	**.294**	**.121**	**1.73**	**.898**	**4.27**	**.673**	**-1.71**	**-.141**
Stddev	.033	.029	.484	.167	.54	3.92	1.91	2.58	.16	.077
%RSD	3.83	4.30	165.	138.	30.9	437.	44.6	384.	9.38	54.8
Check ?	None	None	None	None	None	None	None	None	None	None
Value										
Range										

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**226800.**	**1828100.**	**784880.**
Stddev	677.	5459.	6351.
%RSD	.29866	.29864	.80919

Sample Name: lcsw75355 Acquired: 02/03/2020 17:47:54 Type: Unk
Method: DOD Calibration Updated 060614(v3723) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3158	Cd2265	Co2286	Cr2677	Cu3273	Fe2599
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**19.5**	**784.**	**854.**	**780.**	**20.3**	**198000.**	**19.8**	**209.**	**85.9**	**110.**	**411.**
Stddev	.6	3.	5.	4.	.1	1300.	.1	.	.6	1.	4.
%RSD	3.01	.417	.549	.515	.292	.654	.749	.219	.697	1.29	.941

Elem	Mg2790	Mn2576	Mo2045	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**101000.**	**199.**	**2190.**	**210.**	**194.**	**215.**	**818.**	**733.**	**217.**	**210.**
Stddev	548.	1.	3.	.	3.	3.	4.	5.	1.	.
%RSD	.544	.545	.148	.197	1.32	1.44	.483	.649	.515	.107

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**204850.**	**1714700.**	**741200.**
Stddev	423.	6741.	4304.
%RSD	.20648	.39312	.58063

Sample Name: mbw75355 Acquired: 02/03/2020 17:54:21 Type: Unk
Method: DOD Calibration Updated 060614(v3723) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3933	Ca3968	Cd2265	Co2286	Cr2677	Cu2230	Fe2599
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**.830**	**1.51**	**-1.92**	**-.075**	**.069**	**3.62**	**2.90**	**-.194**	**-.077**	**-.517**	**.973**	**3.68**
Stddev	.490	.17	3.49	.171	.025	.61	.66	.066	.109	.236	.932	.26
%RSD	59.1	11.4	181.	227.	36.5	16.9	22.9	34.0	142.	45.5	95.8	7.14

Elem	Mg2802	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-.394**	**-.131**	**1.09**	**-.143**	**.249**	**-.575**	**2.21**	**-2.67**	**-1.95**	**-.034**
Stddev	.073	.092	.23	.238	1.62	3.27	2.82	2.34	.48	.063
%RSD	18.4	70.7	21.5	166.	650.	568.	127.	87.7	24.7	184.

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**223100.**	**1823200.**	**777430.**
Stddev	647.	11547.	2921.
%RSD	.28983	.63335	.37573

Sample Name: 383235 Acquired: 02/03/2020 18:00:34 Type: Unk
Method: DOD Calibration Updated 060614(v3723) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3158	Cd2265	Co2286	Cr2677	Cu2230	Fe2599	Mg2790
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**.959**	**17.4**	**-.659**	**96.2**	**.106**	**66400.**	**-.310**	**.139**	**2.41**	**2.25**	**24.9**	**26100.**
Stddev	.296	.4	1.43	.9	.022	699.	.094	.256	.34	.41	1.2	296.
%RSD	30.9	2.14	217.	.907	20.5	1.05	30.2	183.	14.1	18.2	4.67	1.13

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**2.47**	**3.68**	**-.005**	**1.57**	**-2.35**	**.914**	**-.628**	**-1.95**	**7.86**
Stddev	.07	.34	.235	2.88	4.87	2.77	1.07	.38	.12
%RSD	2.97	9.32	4880.	183.	207.	303.	170.	19.4	1.50

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**216210.**	**1795400.**	**768350.**
Stddev	596.	14400.	8552.
%RSD	.27569	.80206	1.1130

Sample Name: ccv1 Acquired: 02/03/2020 18:06:59 Type: QC
Method: DOD Calibration Updated 060614(v3723) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3082	As1972	Ba4934	Be3130	Ca3158	Ca3968	Cd2265	Co2388	Cr2055	Cr2677	Cu2230
Avg	**363.**	**4760.**	**5110.**	**5090.**	**491.**	**4840.**	**5100.**	**495.**	**5140.**	**5020.**	**5140.**	**4840.**
Stddev	1.	28.	15.	44.	1.	26.	75.	1.	10.	5.	8.	10.
%RSD	.277	.593	.295	.862	.199	.530	1.46	.288	.194	.106	.157	.214
Check ?	None	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value												
Range												

Elem	Fe2599	Mg2790	Mg2802	Mn2593	Mo2045	Ni2216	Pb2169	Sb2068	Se2062	Tl1908	V_2924	Zn2062
Avg	**5020.**	**4750.**	**4680.**	**5000.**	**5110.**	**5160.**	**4900.**	**5120.**	**5210.**	**4710.**	**5030.**	**5160.**
Stddev	29.	45.	25.	28.	6.	3.	17.	10.	27.	15.	5.	10.
%RSD	.582	.946	.544	.555	.125	.058	.344	.186	.516	.324	.108	.193
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value												
Range												

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**215080.**	**1786200.**	**778130.**
Stddev	263.	3898.	5011.
%RSD	.12251	.21825	.64399

Sample Name: ccv2 Acquired: 02/03/2020 18:13:17 Type: QC
Method: DOD Calibration Updated 060614(v3723) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3933	Ca3968	Cd2265	Co2286	Co2388	Cr2055	Cr2677
Avg	**47.3**	**536.**	**519.**	**501.**	**50.1**	**506.**	**528.**	**50.4**	**535.**	**537.**	**521.**	**534.**
Stddev	.3	1.	6.	3.	.3	5.	5.	.2	1.	2.	1.	2.
%RSD	.615	.265	1.23	.558	.599	.892	.950	.396	.142	.389	.213	.319
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value												
Range												

Elem	Cu2230	Fe2599	Mg2802	Mn2576	Mn2593	Mo2020	Mo2045	Ni2216	Ni2316	Pb2169	Pb2203	Sb2068
Avg	**508.**	**527.**	**512.**	**512.**	**523.**	**510.**	**525.**	**543.**	**543.**	**522.**	**504.**	**522.**
Stddev	1.	4.	2.	4.	5.	1.	1.	1.	1.	2.	3.	2.
%RSD	.143	.848	.334	.693	.936	.192	.131	.227	.116	.408	.601	.303
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value												
Range												

Elem	Sb2175	Se1960	Tl1908	V_2924	Zn2062	Zn2138
Avg	**523.**	**510.**	**514.**	**516.**	**533.**	**514.**
Stddev	1.	5.	1.	3.	1.	.
%RSD	.264	.969	.211	.568	.233	.085
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value						
Range						

Sample Name: ccv2 Acquired: 02/03/2020 18:13:17 Type: QC
Method: DOD Calibration Updated 060614(v3723) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	221190.	1826900.	781300.
Stddev	374.	11110.	5446.
%RSD	.16896	.60815	.69709

Sample Name: ccb Acquired: 02/03/2020 18:18:56 Type: QC
Method: DOD Calibration Updated 060614(v3723) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3933	Ca3968	Cd2265	Co2286	Cr2677	Cu2230	Fe2599
Avg	**.526**	**.107**	**-2.27**	**-.264**	**.097**	**-2.16**	**-3.25**	**-.139**	**.103**	**-.184**	**-.924**	**-1.87**
Stddev	.244	.583	4.50	.145	.018	.04	.04	.099	.224	.526	.330	.48
%RSD	46.4	546.	198.	55.0	18.6	1.94	1.30	71.1	218.	286.	35.8	26.0
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Mg2802	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Avg	**-.857**	**-.613**	**.553**	**-.310**	**1.57**	**1.05**	**-.075**	**1.20**	**-1.74**	**-.111**
Stddev	.036	.057	.135	.284	1.62	.82	3.08	2.04	.16	.138
%RSD	4.24	9.33	24.3	91.6	103.	78.2	4110.	170.	9.33	123.
Check ?	None	None	None	None	None	None	None	None	None	None
Value										
Range										

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**226880.**	**1864300.**	**790340.**
Stddev	465.	7295.	5231.
%RSD	.20493	.39131	.66183

Sample Name: I383235 Acquired: 02/03/2020 18:25:10 Type: Unk
Method: DOD Calibration Updated 060614(v3723) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3158	Cd2265	Co2286	Cr2677	Cu2230	Fe2599	Mg2790
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**1.01**	**4.60**	**.967**	**23.4**	**.203**	**23100.**	**-.183**	**-.182**	**.459**	**.156**	**7.61**	**9130.**
Stddev	.65	.76	3.88	1.5	.009	1300.	.253	.331	.504	.827	1.05	493.
%RSD	64.9	16.5	401.	6.30	4.67	5.63	139.	182.	110.	529.	13.9	5.41

Elem	Mg2802	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**7110.**	**.237**	**.919**	**-.280**	**-1.33**	**2.54**	**2.02**	**1.95**	**-1.91**	**2.03**
Stddev	336.	.020	.246	.540	1.19	3.13	5.25	1.02	.34	.12
%RSD	4.72	8.32	26.7	193.	89.6	123.	260.	52.5	17.7	5.88

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**220270.**	**1835200.**	**769680.**
Stddev	252.	11592.	6983.
%RSD	.11438	.63165	.90729

Sample Name: dup383235 Acquired: 02/03/2020 18:31:49 Type: Unk
Method: DOD Calibration Updated 060614(v3723) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3158	Cd2265	Co2286	Cr2677	Cu2230	Fe2599	Mg2790
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**1.32**	**20.7**	**-.470**	**95.6**	**.236**	**67100.**	**-.407**	**-.144**	**1.95**	**2.88**	**25.7**	**26700.**
Stddev	.65	.3	2.64	.6	.012	408.	.190	.273	.26	1.03	.7	195.
%RSD	49.4	1.56	562.	.650	5.06	.608	46.7	189.	13.6	35.8	2.81	.731

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**2.17**	**3.80**	**.250**	**-.110**	**-.195**	**.862**	**-.121**	**-1.92**	**8.26**
Stddev	.04	.16	.140	2.16	1.26	5.36	1.26	.45	.07
%RSD	1.71	4.12	56.1	1960.	643.	622.	1040.	23.7	.890

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**214280.**	**1806500.**	**760640.**
Stddev	383.	7762.	4903.
%RSD	.17876	.42966	.64463

Sample Name: msw383235 Acquired: 02/03/2020 18:38:14 Type: Unk
Method: DOD Calibration Updated 060614(v3723) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3158	Cd2265	Co2286	Cr2677	Cu3273	Fe2599
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**19.7**	**822.**	**884.**	**866.**	**20.6**	**267000.**	**20.6**	**210.**	**89.5**	**113.**	**448.**
Stddev	.6	3.	11.	5.	.0	602.	.1	1.	.5	2.	3.
%RSD	3.23	.407	1.29	.526	.102	.225	.704	.316	.605	1.54	.769

Elem	Mg2790	Mn2576	Mo2045	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**131000.**	**200.**	**2250.**	**211.**	**191.**	**213.**	**836.**	**737.**	**219.**	**221.**
Stddev	337.	.	5.	1.	2.	4.	7.	3.	1.	1.
%RSD	.257	.230	.228	.350	1.27	1.64	.893	.467	.673	.294

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**200400.**	**1711500.**	**730520.**
Stddev	275.	8004.	1406.
%RSD	.13738	.46766	.19249

Sample Name: msdw383235 Acquired: 02/03/2020 18:44:39 Type: Unk
Method: DOD Calibration Updated 060614(v3723) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3158	Cd2265	Co2286	Cr2677	Cu3273	Fe2599
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**20.3**	**814.**	**877.**	**866.**	**20.5**	**267000.**	**20.3**	**210.**	**89.5**	**111.**	**438.**
Stddev	.5	1.	5.	6.	.1	986.	.1	.	.4	1.	2.
%RSD	2.41	.166	.563	.711	.594	.369	.290	.197	.499	1.30	.368

Elem	Mg2790	Mn2576	Mo2045	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**131000.**	**198.**	**2260.**	**210.**	**192.**	**214.**	**829.**	**737.**	**218.**	**221.**
Stddev	522.	1.	4.	1.	2.	3.	7.	3.	1.	.
%RSD	.397	.328	.173	.301	.781	1.39	.868	.415	.323	.109

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**200600.**	**1713500.**	**739950.**
Stddev	499.	7928.	2526.
%RSD	.24893	.46265	.34135

Sample Name: pdsw383235 Acquired: 02/03/2020 18:51:05 Type: Unk
Method: DOD Calibration Updated 060614(v3723) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3082	As1972	Ba4934	Be3130	Ca3158	Cd2265	Co2286	Co2388	Cr2055	Cr2677
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**87.1**	**4020.**	**3990.**	**3790.**	**90.3**	**457000.**	**91.9**	**939.**	**921.**	**375.**	**391.**
Stddev	.3	212.	20.	151.	.3	21200.	.2	.	4.	.	1.
%RSD	.376	5.26	.506	4.00	.354	4.64	.221	.048	.393	.106	.255

Elem	Cu2230	Fe2599	Mg2790	Mn2576	Mn2593	Mo2020	Ni2216	Ni2316	Pb2169	Pb2203	Sb2068
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**450.**	**1970.**	**235000.**	**871.**	**715.**	**2.90**	**922.**	**921.**	**920.**	**838.**	**995.**
Stddev	2.	104.	11600.	3.	46.	.28	1.	1.	6.	2.	6.
%RSD	.483	5.26	4.91	.347	6.48	9.74	.131	.071	.641	.295	.569

Elem	Se2062	Tl1908	V_2924	Zn2062	Zn2138
Units	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**4100.**	**3250.**	**953.**	**948.**	**971.**
Stddev	24.	9.	3.	2.	1.
%RSD	.592	.273	.300	.166	.115

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**195950.**	**1682400.**	**722090.**
Stddev	439.	6143.	9381.
%RSD	.22387	.36512	1.2991

Sample Name: ccv1 Acquired: 02/03/2020 19:29:55 Type: QC
Method: DOD Calibration Updated 060614(v3723) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3082	As1972	Ba4934	Be3130	Ca3158	Ca3968	Cd2265	Co2388	Cr2055	Cr2677	Cu2230
Avg	**359.**	**4940.**	**5090.**	**4830.**	**481.**	**4970.**	**5040.**	**513.**	**5000.**	**4890.**	**5130.**	**4810.**
Stddev	1.	42.	16.	60.	3.	35.	63.	1.	9.	8.	21.	10.
%RSD	.399	.859	.304	1.23	.553	.699	1.24	.262	.187	.167	.406	.216
Check ?	None	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value												
Range												

Elem	Fe2599	Mg2790	Mg2802	Mn2593	Mo2045	Ni2216	Pb2169	Sb2068	Se2062	Tl1908	V_2924	Zn2062
Avg	**5090.**	**5000.**	**4540.**	**5150.**	**5070.**	**5120.**	**4850.**	**5130.**	**5260.**	**4760.**	**5020.**	**5180.**
Stddev	45.	47.	22.	45.	4.	5.	35.	14.	42.	8.	34.	9.
%RSD	.888	.946	.475	.878	.077	.107	.726	.275	.790	.164	.672	.168
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value												
Range												

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**214050.**	**1814000.**	**747830.**
Stddev	490.	6577.	6034.
%RSD	.22886	.36256	.80680

Sample Name: ccv2 Acquired: 02/03/2020 19:36:14 Type: QC
Method: DOD Calibration Updated 060614(v3723) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3933	Ca3968	Cd2265	Co2286	Co2388	Cr2055	Cr2677
Avg	**47.7**	**539.**	**519.**	**497.**	**49.0**	**491.**	**515.**	**52.3**	**532.**	**519.**	**507.**	**531.**
Stddev	.6	3.	6.	2.	.4	2.	2.	.1	.	2.	1.	2.
%RSD	1.22	.483	1.15	.307	.767	.384	.308	.261	.084	.453	.236	.369
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value												
Range												

Elem	Cu2230	Fe2599	Mg2802	Mn2576	Mn2593	Mo2020	Mo2045	Ni2216	Ni2316	Pb2169	Pb2203	Sb2068
Avg	**506.**	**528.**	**501.**	**493.**	**533.**	**502.**	**520.**	**539.**	**537.**	**516.**	**488.**	**523.**
Stddev	2.	.	1.	3.	2.	.	2.	.	1.	6.	2.	2.
%RSD	.368	.088	.247	.667	.294	.072	.326	.089	.204	1.07	.459	.400
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value												
Range												

Elem	Sb2175	Se1960	Tl1908	V_2924	Zn2062	Zn2138
Avg	**499.**	**510.**	**518.**	**516.**	**534.**	**515.**
Stddev	4.	5.	2.	4.	1.	.
%RSD	.894	.992	.321	.776	.196	.077
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value						
Range						

Sample Name: ccv2 Acquired: 02/03/2020 19:36:14 Type: QC
Method: DOD Calibration Updated 060614(v3723) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**220130.**	**1852900.**	**755450.**
Stddev	327.	8840.	1074.
%RSD	.14870	.47708	.14210

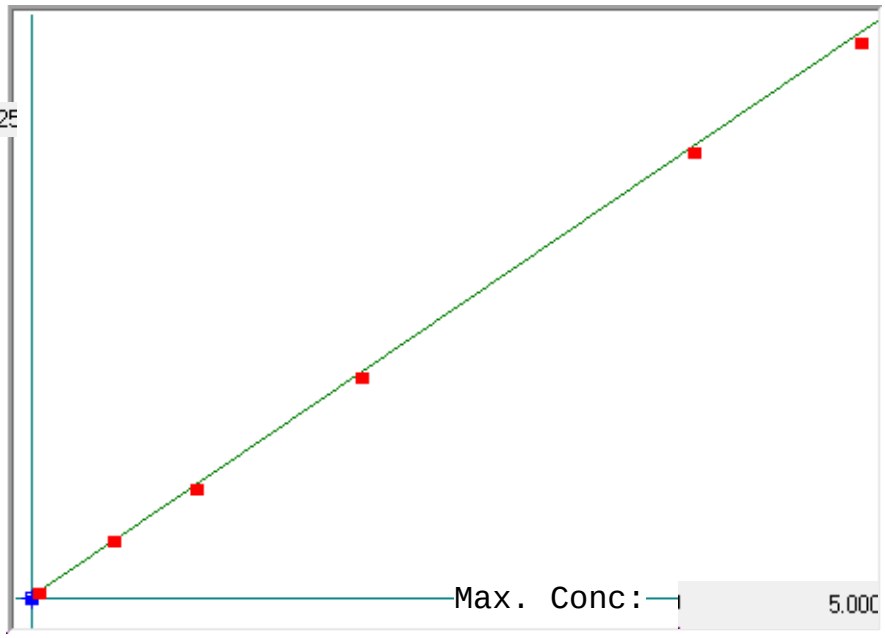
Sample Name: ccb Acquired: 02/03/2020 19:41:52 Type: QC
Method: DOD Calibration Updated 060614(v3723) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3933	Ca3968	Cd2265	Co2286	Cr2677	Cu2230	Fe2599
Avg	**1.29**	**-.262**	**-1.95**	**-.044**	**.274**	**-2.08**	**-3.14**	**-.179**	**.129**	**-.651**	**-1.01**	**-1.92**
Stddev	.79	.732	5.20	.223	.030	.06	.11	.152	.163	.202	.74	1.06
%RSD	61.2	279.	267.	508.	11.0	3.05	3.62	84.9	127.	31.1	73.2	55.2
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Mg2802	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Avg	**-.562**	**-.655**	**.351**	**.107**	**.453**	**.752**	**1.92**	**1.37**	**-1.75**	**-.148**
Stddev	.056	.051	.250	.331	1.48	2.11	2.68	3.04	.16	.113
%RSD	9.93	7.81	71.2	309.	327.	281.	140.	222.	9.25	76.5
Check ?	None	None	None	None	None	None	None	None	None	None
Value										
Range										

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**224970.**	**1891800.**	**776070.**
Stddev	1047.	7520.	12221.
%RSD	.46527	.39747	1.5747

Hg Waters



A= 0.0000e+000

B= 1.2388e-004

C= -1.0046e-002

Rho= 0.9995208

Accept= Accepted

Accepted Date=

02/20/20 08:57

Std ID	Conc.	Calc.	Dev.	Mean	SD or %RSD	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
CALIBRATION BLANK	0.000	-0.000	-0.000	80	1.479	78	80	81	82	
0.05	0.050	0.053	0.003	510	1.6 %	500	505	514	521	
0.5	0.500	0.508	0.008	4183	1.8 %	4081	4152	4218	4281	
1.0	1.000	0.977	-0.023	7971	2.5 %	7699	7882	8066	8239	
2.0	2.000	1.952	-0.048	15835	1.8 %	15482	15655	15958	16247	
4.0	4.000	3.942	-0.058	31898	2.1 %	30928	31690	32273	32701	
5.0	5.000	4.911	-0.089	39724	1.8 %	38902	39311	39939	40747	

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Method: Hg Waters Operator: Admin Date of Analysis: 20 Feb 2020 07:51:54

Sample ID	Date	Element	Units	Extended ID	LT Mean Conc
CALIBRATION BLANK	20 Feb 2020 08:42:47	Hg			80.250
0.05	20 Feb 2020 08:44:47	Hg			510.000
0.5	20 Feb 2020 08:46:48	Hg			4183.000
1.0	20 Feb 2020 08:48:49	Hg			7971.500
2.0	20 Feb 2020 08:50:49	Hg			15835.500
4.0	20 Feb 2020 08:52:52	Hg			31898.000
5.0	20 Feb 2020 08:54:54	Hg			39724.750
ICV	20 Feb 2020 08:57:00	Hg			3.032
ICB	20 Feb 2020 09:01:11	Hg			-0.004
lcsw	20 Feb 2020 09:05:10	Hg			2.060
mbw	20 Feb 2020 09:09:14	Hg			-0.002
383235	20 Feb 2020 09:11:13	Hg			-0.001
388474	20 Feb 2020 09:13:12	Hg			-0.003
388475	20 Feb 2020 09:15:12	Hg			-0.002
387005	20 Feb 2020 09:17:11	Hg			0.003
387016	20 Feb 2020 09:19:11	Hg			-0.003
387073	20 Feb 2020 09:21:11	Hg			0.117
CCV	20 Feb 2020 09:25:10	Hg			2.884
CCB	20 Feb 2020 09:29:15	Hg			-0.002
387173	20 Feb 2020 09:31:14	Hg			0.010
387175	20 Feb 2020 09:33:15	Hg			0.009
387177	20 Feb 2020 09:35:16	Hg			0.015
387194	20 Feb 2020 09:37:15	Hg			-0.003
388740dup 388474	20 Feb 2020 09:39:14	Hg			0.005
388825dup 387016	20 Feb 2020 09:41:13	Hg			-0.001
388736msw 383235	20 Feb 2020 09:45:12	Hg			1.946
388737msdw 383235	20 Feb 2020 09:47:14	Hg			1.965
388741msw 388474	20 Feb 2020 09:49:17	Hg			1.931
CCV	20 Feb 2020 09:53:21	Hg			2.832
CCB	20 Feb 2020 09:57:27	Hg			-0.002
388742msdw 388474	20 Feb 2020 10:01:26	Hg			1.982
388826msw 387016	20 Feb 2020 10:03:29	Hg			2.027
388827msdw 387016	20 Feb 2020 10:05:33	Hg			2.042
388830msw 387177	20 Feb 2020 10:07:36	Hg			2.057
388831msdw 387177	20 Feb 2020 10:09:39	Hg			2.069
388732msw 387194	20 Feb 2020 10:11:41	Hg			1.935
388733msdw 387194	20 Feb 2020 10:13:43	Hg			2.036
CCV	20 Feb 2020 10:17:47	Hg			2.907
CCB	20 Feb 2020 10:21:51	Hg			-0.003

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Method: Hg Waters Operator: Admin Date of Analysis: 20 Feb 2020 07:51:54

Sample ID	Date	Element	Units	Extended ID	µ Abs.	Conc.
CALIBRATION BLANK - 1	20 Feb 2020 08:42:47	Hg			78	-
CALIBRATION BLANK - 2	20 Feb 2020 08:42:47	Hg			80	-
CALIBRATION BLANK - 3	20 Feb 2020 08:42:47	Hg			81	-
CALIBRATION BLANK - 4	20 Feb 2020 08:42:47	Hg			82	-
0.05 - 1	20 Feb 2020 08:44:47	Hg			500	-
0.05 - 2	20 Feb 2020 08:44:47	Hg			505	-
0.05 - 3	20 Feb 2020 08:44:47	Hg			514	-
0.05 - 4	20 Feb 2020 08:44:47	Hg			521	-
0.5 - 1	20 Feb 2020 08:46:48	Hg			4081	-
0.5 - 2	20 Feb 2020 08:46:48	Hg			4152	-
0.5 - 3	20 Feb 2020 08:46:48	Hg			4218	-
0.5 - 4	20 Feb 2020 08:46:48	Hg			4281	-
1.0 - 1	20 Feb 2020 08:48:49	Hg			7699	-
1.0 - 2	20 Feb 2020 08:48:49	Hg			7882	-
1.0 - 3	20 Feb 2020 08:48:49	Hg			8066	-
1.0 - 4	20 Feb 2020 08:48:49	Hg			8239	-
2.0 - 1	20 Feb 2020 08:50:49	Hg			15482	-
2.0 - 2	20 Feb 2020 08:50:49	Hg			15655	-
2.0 - 3	20 Feb 2020 08:50:49	Hg			15958	-
2.0 - 4	20 Feb 2020 08:50:49	Hg			16247	-
4.0 - 1	20 Feb 2020 08:52:52	Hg			30928	-
4.0 - 2	20 Feb 2020 08:52:52	Hg			31690	-
4.0 - 3	20 Feb 2020 08:52:52	Hg			32273	-
4.0 - 4	20 Feb 2020 08:52:52	Hg			32701	-
5.0 - 1	20 Feb 2020 08:54:54	Hg			38902	-
5.0 - 2	20 Feb 2020 08:54:54	Hg			39311	-
5.0 - 3	20 Feb 2020 08:54:54	Hg			39939	-
5.0 - 4	20 Feb 2020 08:54:54	Hg			40747	-
ICV - 1	20 Feb 2020 08:57:00	Hg			23878	98.3% 2.948
ICV - 2	20 Feb 2020 08:57:00	Hg			24388	100.4% 3.011
ICV - 3	20 Feb 2020 08:57:00	Hg			24800	102.1% 3.062
ICV - 4	20 Feb 2020 08:57:00	Hg			25158	103.6% 3.107
ICB - 1	20 Feb 2020 09:01:11	Hg			54	-0.003
ICB - 2	20 Feb 2020 09:01:11	Hg			53	-0.003
ICB - 3	20 Feb 2020 09:01:11	Hg			51	-0.004
ICB - 4	20 Feb 2020 09:01:11	Hg			50	-0.004
lcsw - 1	20 Feb 2020 09:05:10	Hg			16203	1.997
lcsw - 2	20 Feb 2020 09:05:10	Hg			16570	2.043
lcsw - 3	20 Feb 2020 09:05:10	Hg			16901	2.084
lcsw - 4	20 Feb 2020 09:05:10	Hg			17151	2.115
mbw - 1	20 Feb 2020 09:09:14	Hg			57	-0.003 [ ]
mbw - 2	20 Feb 2020 09:09:14	Hg			66	-0.002 [ ]
mbw - 3	20 Feb 2020 09:09:14	Hg			65	-0.002 [ ]
mbw - 4	20 Feb 2020 09:09:14	Hg			71	-0.001 [ ]
383235 - 1	20 Feb 2020 09:11:13	Hg			71	-0.001 [ ]
383235 - 2	20 Feb 2020 09:11:13	Hg			75	-0.001 [ ]
383235 - 3	20 Feb 2020 09:11:13	Hg			75	-0.001 [ ]
383235 - 4	20 Feb 2020 09:11:13	Hg			78	-0.000 [ ]
388474 - 1	20 Feb 2020 09:13:12	Hg			55	-0.003 [ ]
388474 - 2	20 Feb 2020 09:13:12	Hg			64	-0.002 [ ]
388474 - 3	20 Feb 2020 09:13:12	Hg			63	-0.002 [ ]
388474 - 4	20 Feb 2020 09:13:12	Hg			61	-0.002 [ ]
388475 - 1	20 Feb 2020 09:15:12	Hg			59	-0.003 [ ]
388475 - 2	20 Feb 2020 09:15:12	Hg			58	-0.003 [ ]
388475 - 3	20 Feb 2020 09:15:12	Hg			64	-0.002 [ ]
388475 - 4	20 Feb 2020 09:15:12	Hg			72	-0.001 [ ]
387005 - 1	20 Feb 2020 09:17:11	Hg			97	0.002
387005 - 2	20 Feb 2020 09:17:11	Hg			103	0.003
387005 - 3	20 Feb 2020 09:17:11	Hg			104	0.003
387005 - 4	20 Feb 2020 09:17:11	Hg			105	0.003
387016 - 1	20 Feb 2020 09:19:11	Hg			54	-0.003 [ ]
387016 - 2	20 Feb 2020 09:19:11	Hg			56	-0.003 [ ]
387016 - 3	20 Feb 2020 09:19:11	Hg			63	-0.002 [ ]
387016 - 4	20 Feb 2020 09:19:11	Hg			62	-0.002 [ ]
387073 - 1	20 Feb 2020 09:21:11	Hg			1006	0.115
387073 - 2	20 Feb 2020 09:21:11	Hg			1016	0.116
387073 - 3	20 Feb 2020 09:21:11	Hg			1035	0.118
387073 - 4	20 Feb 2020 09:21:11	Hg			1051	0.120
CCV - 1	20 Feb 2020 09:25:10	Hg			22743	93.6% 2.807
CCV - 2	20 Feb 2020 09:25:10	Hg			23175	95.4% 2.861
CCV - 3	20 Feb 2020 09:25:10	Hg			23610	97.2% 2.915
CCV - 4	20 Feb 2020 09:25:10	Hg			23923	98.5% 2.954
CCB - 1	20 Feb 2020 09:29:15	Hg			66	-0.002
CCB - 2	20 Feb 2020 09:29:15	Hg			66	-0.002
CCB - 3	20 Feb 2020 09:29:15	Hg			67	-0.002
CCB - 4	20 Feb 2020 09:29:15	Hg			61	-0.002
387173 - 1	20 Feb 2020 09:31:14	Hg			156	0.009
387173 - 2	20 Feb 2020 09:31:14	Hg			152	0.009
387173 - 3	20 Feb 2020 09:31:14	Hg			165	0.010

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Sample ID	Date	Element	Units	Extended ID	µ Abs.	Conc.
387173 - 4	20 Feb 2020 09:31:14	Hg			170	0.011
387175 - 1	20 Feb 2020 09:33:15	Hg			153	0.009
387175 - 2	20 Feb 2020 09:33:15	Hg			156	0.009
387175 - 3	20 Feb 2020 09:33:15	Hg			152	0.009
387175 - 4	20 Feb 2020 09:33:15	Hg			151	0.009
387177 - 1	20 Feb 2020 09:35:16	Hg			198	0.014
387177 - 2	20 Feb 2020 09:35:16	Hg			202	0.015
387177 - 3	20 Feb 2020 09:35:16	Hg			209	0.016
387177 - 4	20 Feb 2020 09:35:16	Hg			212	0.016
387194 - 1	20 Feb 2020 09:37:15	Hg			57	-0.003 [ ]
387194 - 2	20 Feb 2020 09:37:15	Hg			62	-0.002 [ ]
387194 - 3	20 Feb 2020 09:37:15	Hg			60	-0.003 [ ]
387194 - 4	20 Feb 2020 09:37:15	Hg			61	-0.002 [ ]
388740dup 388474 - 1	20 Feb 2020 09:39:14	Hg			121	0.005
388740dup 388474 - 2	20 Feb 2020 09:39:14	Hg			118	0.005
388740dup 388474 - 3	20 Feb 2020 09:39:14	Hg			117	0.004
388740dup 388474 - 4	20 Feb 2020 09:39:14	Hg			117	0.004
388825dup 387016 - 1	20 Feb 2020 09:41:13	Hg			69	-0.001 [ ]
388825dup 387016 - 2	20 Feb 2020 09:41:13	Hg			69	-0.001 [ ]
388825dup 387016 - 3	20 Feb 2020 09:41:13	Hg			69	-0.001 [ ]
388825dup 387016 - 4	20 Feb 2020 09:41:13	Hg			71	-0.001 [ ]
388736msw 383235 - 1	20 Feb 2020 09:45:12	Hg			15297	1.885
388736msw 383235 - 2	20 Feb 2020 09:45:12	Hg			15661	1.930
388736msw 383235 - 3	20 Feb 2020 09:45:12	Hg			15954	1.966
388736msw 383235 - 4	20 Feb 2020 09:45:12	Hg			16259	2.004
388737msdw 383235 - 1	20 Feb 2020 09:47:14	Hg			15546	1.916
388737msdw 383235 - 2	20 Feb 2020 09:47:14	Hg			15788	1.946
388737msdw 383235 - 3	20 Feb 2020 09:47:14	Hg			16068	1.981
388737msdw 383235 - 4	20 Feb 2020 09:47:14	Hg			16361	2.017
388741msw 388474 - 1	20 Feb 2020 09:49:17	Hg			15170	1.869
388741msw 388474 - 2	20 Feb 2020 09:49:17	Hg			15498	1.910
388741msw 388474 - 3	20 Feb 2020 09:49:17	Hg			15863	1.955
388741msw 388474 - 4	20 Feb 2020 09:49:17	Hg			16155	1.991
CCV - 1	20 Feb 2020 09:53:21	Hg			22120	91.0% 2.730
CCV - 2	20 Feb 2020 09:53:21	Hg			22724	93.5% 2.805
CCV - 3	20 Feb 2020 09:53:21	Hg			23283	95.8% 2.874
CCV - 4	20 Feb 2020 09:53:21	Hg			23644	97.3% 2.919
CCB - 1	20 Feb 2020 09:57:27	Hg			70	-0.001
CCB - 2	20 Feb 2020 09:57:27	Hg			68	-0.002
CCB - 3	20 Feb 2020 09:57:27	Hg			67	-0.002
CCB - 4	20 Feb 2020 09:57:27	Hg			52	-0.004
388742msdw 388474 - 1	20 Feb 2020 10:01:26	Hg			15710	1.936
388742msdw 388474 - 2	20 Feb 2020 10:01:26	Hg			15982	1.970
388742msdw 388474 - 3	20 Feb 2020 10:01:26	Hg			16194	1.996
388742msdw 388474 - 4	20 Feb 2020 10:01:26	Hg			16438	2.026
388826msw 387016 - 1	20 Feb 2020 10:03:29	Hg			16127	1.988
388826msw 387016 - 2	20 Feb 2020 10:03:29	Hg			16293	2.008
388826msw 387016 - 3	20 Feb 2020 10:03:29	Hg			16506	2.035
388826msw 387016 - 4	20 Feb 2020 10:03:29	Hg			16838	2.076
388827msdw 387016 - 1	20 Feb 2020 10:05:33	Hg			16254	2.004
388827msdw 387016 - 2	20 Feb 2020 10:05:33	Hg			16423	2.024
388827msdw 387016 - 3	20 Feb 2020 10:05:33	Hg			16679	2.056
388827msdw 387016 - 4	20 Feb 2020 10:05:33	Hg			16896	2.083
388830msw 387177 - 1	20 Feb 2020 10:07:36	Hg			16206	1.998
388830msw 387177 - 2	20 Feb 2020 10:07:36	Hg			16546	2.040
388830msw 387177 - 3	20 Feb 2020 10:07:36	Hg			16860	2.079
388830msw 387177 - 4	20 Feb 2020 10:07:36	Hg			17124	2.111
388831msdw 387177 - 1	20 Feb 2020 10:09:39	Hg			16215	1.999
388831msdw 387177 - 2	20 Feb 2020 10:09:39	Hg			16575	2.043
388831msdw 387177 - 3	20 Feb 2020 10:09:39	Hg			16982	2.094
388831msdw 387177 - 4	20 Feb 2020 10:09:39	Hg			17342	2.138
388732msw 387194 - 1	20 Feb 2020 10:11:41	Hg			15305	1.886
388732msw 387194 - 2	20 Feb 2020 10:11:41	Hg			15558	1.917
388732msw 387194 - 3	20 Feb 2020 10:11:41	Hg			15842	1.953
388732msw 387194 - 4	20 Feb 2020 10:11:41	Hg			16112	1.986
388733msdw 387194 - 1	20 Feb 2020 10:13:43	Hg			16154	1.991
388733msdw 387194 - 2	20 Feb 2020 10:13:43	Hg			16349	2.015
388733msdw 387194 - 3	20 Feb 2020 10:13:43	Hg			16606	2.047
388733msdw 387194 - 4	20 Feb 2020 10:13:43	Hg			16959	2.091
CCV - 1	20 Feb 2020 10:17:47	Hg			22942	94.4% 2.832
CCV - 2	20 Feb 2020 10:17:47	Hg			23353	96.1% 2.883
CCV - 3	20 Feb 2020 10:17:47	Hg			23776	97.8% 2.935
CCV - 4	20 Feb 2020 10:17:47	Hg			24130	99.3% 2.979
CCB - 1	20 Feb 2020 10:21:51	Hg			62	-0.002
CCB - 2	20 Feb 2020 10:21:51	Hg			61	-0.002
CCB - 3	20 Feb 2020 10:21:51	Hg			52	-0.004
CCB - 4	20 Feb 2020 10:21:51	Hg			48	-0.004

METALS
LOGBOOK
DOCUMENTS

MICP WATER QSM Analytical Run
168515 on 02/10/2020

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME		QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	385345								MICP WATER QSM				
					ICV					0			
	385346								MICP WATER QSM				
					ICVLL					0			
	385347								MICP WATER QSM				
					ICB					0			
	385348								MICP WATER QSM				
					ICSA					0			
	385349								MICP WATER QSM				
					ICSAB					0			
	385350								MICP WATER QSM				
					ICVLL					0			
	385351								MICP WATER QSM				
					CCV1					0			
	385352								MICP WATER QSM				
					CCV2					0			
	385353								MICP WATER QSM				
					CCB					0			
	383541								ICP TOTAL QSM 5.0				
					LCSW					75355			
	383540								ICP TOTAL QSM 5.0				
					MBW					75355			
151023	383235		01/27/2020	1520			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU 54	ICP TOTAL QSM 5.0		GW	**4**	
		54IDW								75355			
	385354								MICP WATER QSM				
					CCV1					0			
	385355								MICP WATER QSM				
					CCV2					0			
	385356								MICP WATER QSM				
					CCB					0			
	385357								ICP TOTAL QSM 5.0				
					L	383235				0			
	383542		01/27/2020	1520					ICP TOTAL QSM 5.0				
		54IDW			DUP	383235				75355			
	383543		01/27/2020	1520					ICP TOTAL QSM 5.0				
		54IDW			MSW	383235				75355			
	383544		01/27/2020	1520					ICP TOTAL QSM 5.0				
		54IDW			MSDW	383543				75355			

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

MICP WATER QSM Analytical Run
168515 on 02/10/2020

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	385358						ICP TOTAL QSM 5.0				
				PDSW 383235				0			
	385359						MICP WATER QSM				
				CCV1				0			
	385360						MICP WATER QSM				
				CCV2				0			
	385361						MICP WATER QSM				
				CCB				0			

23 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

MICP WATER QSM K&Na Analytical Run
168516 on 02/10/2020

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME		QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	384727								MICP WATER QSM K&Na				
					ICV					0			
	384728								MICP WATER QSM K&Na				
					ICVLL					0			
	384729								MICP WATER QSM K&Na				
					ICB					0			
	384730								MICP WATER QSM K&Na				
					MRL					0			
	384731								MICP WATER QSM K&Na				
					ICSA					0			
	384732								MICP WATER QSM K&Na				
					ICSAB					0			
	383541								ICP K TOTAL QSM 5.0				
					LCSW					75355			
	383541								ICP NA TOTAL QSM 5.0				
					LCSW					75355			
	383540								ICP K TOTAL QSM 5.0				
					MBW					75355			
	383540								ICP NA TOTAL QSM 5.0				
					MBW					75355			
151023	383235		01/27/2020	1520			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU 54	ICP K TOTAL QSM 5.0		GW	**4**	
		54IDW								75355			
151023	383235		01/27/2020	1520			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU 54	ICP NA TOTAL QSM 5.0		GW	**4**	
		54IDW								75355			
	384733								ICP K TOTAL QSM 5.0				
					L	383235				0			
	384733								ICP NA TOTAL QSM 5.0				
					L	383235				0			
	383542		01/27/2020	1520					ICP K TOTAL QSM 5.0				
		54IDW			DUP	383235				75355			
	383542		01/27/2020	1520					ICP NA TOTAL QSM 5.0				
		54IDW			DUP	383235				75355			
	383543		01/27/2020	1520					ICP K TOTAL QSM 5.0				
		54IDW			MSW	383235				75355			
	383543		01/27/2020	1520					ICP NA TOTAL QSM 5.0				
		54IDW			MSW	383235				75355			

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

MICP WATER QSM K&Na Analytical Run
168516 on 02/10/2020

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	383544		01/27/2020 1520					ICP K TOTAL QSM 5.0				
		54IDW		MSDW	383543				75355			
	383544		01/27/2020 1520					ICP NA TOTAL QSM 5.0				
		54IDW		MSDW	383543				75355			
	384734							MICP WATER QSM K&Na				
				CCV					0			
	384735							MICP WATER QSM K&Na				
				CCB					0			
	384736							ICP K TOTAL QSM 5.0				
				PDSW	383235				0			
	384736							ICP NA TOTAL QSM 5.0				
				PDSW	383235				0			
	384737							MICP WATER QSM K&Na				
				CCV					0			
	384738							MICP WATER QSM K&Na				
				CCB					0			

26 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

MERCURY QSM 5.0 Analytical Run
168893 on 02/21/2020

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME		QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	389790								MERCURY QSM 5.0				
					ICV					0			
	389791								MERCURY QSM 5.0				
					ICB					0			
	388735								MERCURY TOTAL QSM 5.0				
					LCSW					75506			
	388734								MERCURY TOTAL QSM 5.0				
					MBW					75506			
151023	383235		01/27/2020	1520			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU 54	MERCURY TOTAL QSM 5.0		GW	**4**	Y
		54IDW								75506			
	389792								MERCURY QSM 5.0				
					CCV					0			
	389793								MERCURY QSM 5.0				
					CCB					0			
	388736		01/27/2020	1520					MERCURY TOTAL QSM 5.0				
		54IDW			MSW	383235				75506			
	388737		01/27/2020	1520					MERCURY TOTAL QSM 5.0				
		54IDW			MSDW	388736				75506			
	389795								MERCURY QSM 5.0				
					CCV					0			
	389796								MERCURY QSM 5.0				
					CCB					0			

11 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

PREP WORKSHEET
on 02/10/2020

Prep Batch **75,355** Date Prepped: 01/29/2020 Prepped By NAH

Folder #	Order	QC Type	Link	Test	Matrix	Volume	Weight	Initial Volume	SDG Level	Notes
	383540	MBW		ICP TOTAL QSM 5.0	LIQUID	50		50.0		
	383540	MBW		ICP K TOTAL QSM 5.0	LIQUID	50		50.0		
	383540	MBW		ICP NA TOTAL QSM 5.0	LIQUID	50		50.0		
	383541	LCSW		ICP K TOTAL QSM 5.0	LIQUID	50		50.0		
	383541	LCSW		ICP NA TOTAL QSM 5.0	LIQUID	50		50.0		
	383541	LCSW		ICP TOTAL QSM 5.0	LIQUID	50		50.0		
151023	383235			ICP K TOTAL QSM 5.0	GROUND WATER	50		50.0	4	
	383235			ICP NA TOTAL QSM 5.0	GROUND WATER	50		50.0	4	
	383235			ICP TOTAL QSM 5.0	GROUND WATER	50		50.0	4	
	383542	DUP	383235	ICP NA TOTAL QSM 5.0	GROUND WATER	50		50.0		
	383542	DUP	383235	ICP K TOTAL QSM 5.0	GROUND WATER	50		50.0		
	383542	DUP	383235	ICP TOTAL QSM 5.0	GROUND WATER	50		50.0		
	383543	MSW	383235	ICP K TOTAL QSM 5.0	GROUND WATER	50		50.0		
	383543	MSW	383235	ICP NA TOTAL QSM 5.0	GROUND WATER	50		50.0		
	383543	MSW	383235	ICP TOTAL QSM 5.0	GROUND WATER	50		50.0		
	383544	MSDW	383543	ICP K TOTAL QSM 5.0	GROUND WATER	50		50.0		
	383544	MSDW	383543	ICP NA TOTAL QSM 5.0	GROUND WATER	50		50.0		

PREP WORKSHEET
on 02/10/2020

Folder #	Order	QC Type	Link	Test	Matrix	Volume	Weight	Initial Volume	SDG Level	Notes
	383544	MSDW	383543	ICP TOTAL QSM 5.0	GROUND WATER	50		50.0		

Notes:_____

PREP WORKSHEET
on 02/21/2020

Prep Batch **75,506** Date Prepped: 02/17/2020 Prepped By BMM

Folder #	Order	QC Type	Link	Test	Matrix	Volume	Weight	Initial Volume	SDG Level	Notes
	388734	MBW		MERCURY TOTAL QSM	LIQUID	25		25.0		
	388735	LCSW		MERCURY TOTAL QSM	LIQUID	25		25.0		
151023	383235			MERCURY TOTAL QSM	GROUND WATER	25		25.0	4	
	388736	MSW	383235	MERCURY TOTAL QSM	GROUND WATER	25		25.0		
	388737	MSDW	388736	MERCURY TOTAL QSM	GROUND WATER	25		25.0		

Notes:_____

Metals Digestion Bench Sheet

Program: QSM
*Matrix: GW

Prep Methods:
200.2= ICP/GFAA Liquids
3010= ICP Liquids
3020= GFAA Liquids
3005= Sb Liquids
3050= ICP/GFAA Solids
7060/7740= GFAA, As & Se Liquids

Prep Batch #:	75355
Prep Method:	200.2
Analyst:	NAH
Date:	01/29/2020
Start Time:	11:32

Prep Analyst: BMM
Balance ID:

End Date: 01/29/2020
End Time: 20:14
Digestion Tube Lot #: MP 3375
Block Used: D2
Cell Position for Temp. Check: 60
Initial-DigestionTemp (ºC): 65
Final-Digestion Temp (ºC): 94

Reagent:	Ref. #
Nitric Acid:	AB.686
Hydrochloric Acid:	AB.685
Hydrogen Peroxide:	

Sample ID			(Solids) Sample Weight (g)	(Liquids) Sample Volume (ml)	Final Volume (ml)
383540	(MB)			50.0	50
383541	(LCS)			50.0	50
383235				50.0	50
	Comments:				50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
383542	(DUP)			50.0	50
383543	(MS)	Parent Sample		50.0	50
383544	(MSD)	383235		50.0	50
	(DUP)				50
	(MS)	Parent Sample			50
	(MSD)				50
Leave >>	(DUP) if applicable				50
blank	(MS)	Parent Sample			50
if N/A	(MSD)				50

MB=Method Blank, LCS=Laboratory Control Sample, DUP=Duplicate, MS=Matrix Spike & MSD=Matrix Spike Duplicate
*Matrix: Soil, Sludge, Waste, GW=Groundwater, WW=Wastewater, Tissue, TLCP, SPLP, ASTM or other.

MS/MSD Spike Amount (ml)	Spike Ref. #
0.2	M14055
0.5	M14109
0.5	M13961

LCS Spike Amount (ml)	Spike Ref. #
0.2	M14055
0.5	M14109
0.5	M13961

Reviewed By/Date:

02/10/202012:11

FMT12-03

Mercury Digestion Bench Sheet

(Prep Methods 7470A & 7471A)

CCV ID: M14150
ICV/LCSW ID: M14151

*Matrix: GW
Balance ID:

Prep Batch #:	75506
Prep Method:	7470A
Analyst:	BMM
Date:	02/17/2020
Start Time:	13:23

7470A= Hg Liquids
7471A= Hg Solids

End Date: 02/17/2020
End Time: 15:23

Digestion Tube Lot #: 4919103
Block Used: A
Cell Position for Temp. Check: E6
Initial-DigestionTemp (ºC): 91.8
Final-Digestion Temp (ºC): 91.8
Additional KMnO4 added (ml):
Aqua Regia added (ml)
Calibration Stds: M14149

Reagent:	Ref. #
HNO3:	AB.681
H2SO4:	AB.674
NaCl/Hydrox.SO4:	M14155
KMnO4:	M14152
K2S2O8:	M14154
Aqua-Regia:	

	Sample			(Solids) Sample Weight (g)	(Liquids) Sample Volume (ml)	Final Volume (ml)
	388734	(MB)			25.0	25
	388735	(LCS)			25.0	25
	383235				25.0	25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
		(DUP)				25
	388736	(MS)	Parent Sample		25.0	25
	388737	(MSD)	383235		25.0	25
Leave >>		(DUP)				25
blank		(MS)	Parent Sample			25
		(MSD)				25
		(DUP)				25
		(MS)	Parent Sample			25
if N/A		(MSD)				25

MB=Method Blank, LCS=Laboratory Control Sample, DUP=Duplicate, MS=Matrix Spike & MSD=Matrix Spike Duplicate
*Matrix: Soil, Sludge, Waste, GW=Groundwater, WW=Wastewater, Tissue, TLCP, SPLP, ASTM or other.

A: Spike Amount (ml)	Spike Conc. (ug/L)	Spike Ref. #
0.5	100ug/L	M14151

B: Spike Amount (ml)	Spike Conc. (ug/L)	Spike Ref. #

Reviewed By/Date:

iCAP 6000 / 6500 Data Review Checklist	Analysis Date: 2-3-2020	Data File: DOD results	Date of review: 2/7/2020
Cal Std ID: M1383 / LIMS # : 168515	Analyst: TJ	Reviewer: MDS	Approved? (Yes) No

Is Audit Trail turned on or Manual Manipulations addressed? (Yes) No (If no, any manual manipulations must be initialed, dated, and reason(s) stated for change)

QC Parameters : 6010 / ~~200.7~~ / QSM / Other	YES	NO	YES	NO	Comments:
1) Calibration linearity: ~~r > 0.995~~ / r > 0.998	✓		✓		
2) ICV: (90-110% / 95-105%	✓		✓		
2) ICVLL: 70-130% / 80-120%	✓		✓		
3) ICB: < 3X IDL / <LOD / <LOQ	✓		✓		
4) ICSA: < ABS LOD	✓		✓		
5) ICSAB: 80-120%	✓		✓		
6) MRL/LLOQ: 70-130% / 80-120%	✓		✓		
7) MDL Check: >LOD					
8) CCV1/CCB1 (CCV: 90-110%)	✓		✓		
9) CCV2/CCB2 (CCB: < 3X IDL / <LOD / <LOQ)					
10) CCV3/CCB3					
11) CCV4/CCB4					
12) CCV5/CCB5					

Preparation Batch Parameters	YES	NO	YES	NO	
Prep Batch ID#: 75555 Dig. Meth._____	✓		✓		
LCS - generated limits or project specific limits	✓		✓		
MB - <LOD or ≤ ½ RL	✓	✓	✓	✓	Se, Ag >LOD <½ RL "B"
Spiked samples in batch:					
a) 383235 matrix = GW	✓		✓		
b)_____ matrix = _____					
c)_____ matrix = _____					
PDS: ±15% / 20% / 25% Sample#:_____					
Prep Batch ID#:_____ Dig. Meth._____					
LCS - generated limits or project specific limits					
MB - <LOD or ≤ ½ RL					
Spiked samples in batch:					
a)_____ matrix = _____					
b)_____ matrix = _____					
c)_____ matrix = _____					
PDS: ±15% / 20% / 25% Sample#:_____					
Prep Batch ID#:_____ Dig. Meth._____					
LCS - generated limits or project specific limits					
MB - <LOD or ≤ ½ RL					
Spiked samples in batch:					
a)_____ matrix = _____					
b)_____ matrix = _____					
c)_____ matrix = _____					
PDS: ±15% / 20% / 25% Sample#:_____					
Prep Batch ID#:_____ Dig. Meth._____					
LCS - generated limits or project specific limits					
MB - <LOD or ≤ ½ RL					
Spiked samples in batch:					
a)_____ matrix = _____					
b)_____ matrix = _____					
c)_____ matrix = _____					
PDS: ±15% / 20% / 25% Sample#:_____					

iCAP 6000 / 6500 Data Review Checklist	Analysis Date: 1/31/2020	Data File: NaK013120 v1227	Date of review: 2/3/2020
Cal Std ID: M13933 LIMS # : 168516	Analyst: MDS	Reviewer:	Approved? Yes No
Is Audit Trail turned on or Manual Manipulations addressed? Yes / No (If no, any manual manipulations must be initialed, dated, and reason(s) stated for change)			

QC Parameters : 6010 / 200.7 / QSM / Other	YES	NO	YES	NO	Comments:
1) Calibration linearity: r > 0.995 / r > 0.998	✓		✓		
2) ICV: 90-110% / 95-105%	✓		—		
2) ICVLL: 70-130% / 80-120%	✓		—		
3) ICB: < 3X IDL / <LOD / <LOQ	✓		—		
4) ICSA: < ABS LOD	✓		—		
5) ICSAB: 80-120%	✓		—		
6) MRL: 70-130% / 80-120%	✓		—		
7) MDL Check: >LOD					
8) CCV1/CCB1 (CCV: 90-110%)	✓		—		
9) CCV2/CCB2 (CCB: < 3X IDL / <LOD / <LOQ)			—		
10) CCV3/CCB3					
11) CCV4/CCB4					
12) CCV5/CCB5					

Preparation Batch Parameters	YES	NO	YES	NO	Comments:
Prep Batch ID#: 75355 Dig. Meth. 200.7	✓		—		
LCS - generated limits or project specific limits	✓		—		
MB - <LOD or ≤ ½ RL	✓		—		
Spiked samples in batch:					
a) 383235 matrix = GW	✓	✓	—	—	Dup invalid K
b)_____ matrix =_____					
c)_____ matrix =_____					
PDS: ±15% / 20% / 25% Sample#:_____					
Prep Batch ID#:_____ Dig. Meth._____					
LCS - generated limits or project specific limits					
MB - <LOD or ≤ ½ RL					
Spiked samples in batch:					
a)_____ matrix =_____					
b)_____ matrix =_____					
c)_____ matrix =_____					
PDS: ±15% / 20% / 25% Sample#:_____					
Prep Batch ID#:_____ Dig. Meth._____					
LCS - generated limits or project specific limits					
MB - <LOD or ≤ ½ RL					
Spiked samples in batch:					
a)_____ matrix =_____					
b)_____ matrix =_____					
c)_____ matrix =_____					
PDS: ±15% / 20% / 25% Sample#:_____					
Prep Batch ID#:_____ Dig. Meth._____					
LCS - generated limits or project specific limits					
MB - <LOD or ≤ ½ RL					
Spiked samples in batch:					
a)_____ matrix =_____					
b)_____ matrix =_____					
c)_____ matrix =_____					
PDS: ±15% / 20% / 25% Sample#:_____					

GFAA / FLAA / CVAA Data Review checklist		Method: 200.9	7000 series AA	245.1 & 245.2	245.7	7470a / 7471a
Instrumentation:	THERMO M SERIES AA		CETAC Hg ANALYZER			
Analysis Date: 2/20/2020	Data File: 022020W		Date Review: 2/20/2020	**Analyte:** Hg		
Cal Std ID: M14149	LIMS # : 168893	Analyst: MDS	Reviewer:	Approved?	Yes	No
Is Audit Trail turned on or Manual Manipulations addressed?	Yes / No (If no, any manual manipulations must be initialed, dated, and reason(s) stated for change)					

Calibration Parameters -	**YES**	**NO**	**YES**	**NO**	**Comments:**
1) Calibration linearity - r > 0.995	✓		✓		
2) ICV: 90-110% 95-105%	✓		✓		
2) ICVLL: 70-130% 80-120%					
3) ICB: <IDL / <LOD / <LOQ / <½ RL	✓		✓		
6) MRL: 70-130%					
7) CCV1/CCB1- (CCV: 90-110% / 80-120%)	✓		✓		
8) CCV2/CCB2 (CCB: <IDL / <LOD / <LOQ / <½ RL)					
9) CCV3/CCB3					
10) CCV4/CCB4					
11) CCV5/CCB5					

Preparation Batch Parameters	**YES**	**NO**	**YES**	**NO**
Prep Batch ID#: 75506 Dig. Meth. 7470a	✓		✓	
LCS - generated limits or project specific limits	✓		✓	
MB - <LOD / <2.2X LOD / ≤ ½RL	✓		✓	
Spiked samples in batch:				
a) 383235 matrix = LW	✓		✓	
b)_____ matrix = _____				
c)_____ matrix = _____				
d)_____ matrix = _____				
e)_____ matrix = _____				
PDS: ±15% / 20% / 25% Sample#_____				
MSA Performed? Yes No				
Prep Batch ID#:_____ Dig. Meth._____				
LCS - generated limits or project specific limits				
MB - <LOD / <2.2X LOD / ≤ ½RL				
Spiked samples in batch:				
a)_____ matrix = _____				
b)_____ matrix = _____				
c)_____ matrix = _____				
d)_____ matrix = _____				
e)_____ matrix = _____				
PDS: ±15% / 20% / 25% Sample#_____				
MSA Performed? Yes No				
Prep Batch ID#:_____ Dig. Meth._____				
LCS - generated limits or project specific limits				
MB - <LOD / <2.2X LOD / ≤ ½RL				
Spiked samples in batch:				
a)_____ matrix = _____				
b)_____ matrix = _____				
c)_____ matrix = _____				
d)_____ matrix = _____				
e)_____ matrix = _____				
PDS: ±15% / 20% / 25% Sample#_____				
MSA Performed? Yes No				

FORM #: FMT11,12-01
Rev. #: 2.0
Effective Date: 08/19/2014
Page 1 of 1

CT Laboratories Instrument Run Log

Instrument ID: ICP 6000 (See Journal for Wavelength Check)

Date	Time Start/End	Analyst	Method	LIMS# or Sample #	Sequence I.D.	Cal. Std.	Alt. Source	Pressure (kPa) Comments	Analysis Tube Lot #	ICSA/ ICSAB
11/4/19	1249 / 1429	MDS	Li	165390	Li110419	M14033	M14036 M14035		289548	M14023 M14034
11/6/19	0844 / 1656	MDS	NaK	166247, 166295, 166221, 166232, 166017, 166016, 166227, 166228	NaK110619 v1195	M13933	M13935 M13936	350	289548	M14023 M13937
11/12/19	0934 / 1313	MDS	NaK	166474 166338, 166341, 166343, 166491, 166470	NaK111219 v1198 v1197	M13933	M13935 M13936	350	289548	M14023 M13937
11/15/19	0855 / 1525	MDS	NaK	166462, 166645, 166490, 166498, 166461, 166221, 166472, 166480, 166484, 166486	NaK111519 v1194	M13933	M13935 M13936	350	283178	M14023 M13937
11/21/19	1043 / 1303	MDS	NaK	166494, 166472, 166728, 166725	NaK112119 v1203	M13933	M13935 M13936	350	283178	M13937 M14023
11/21/19	1336 / 1919	MDS	NaK	166659, 166651, 166734, 166729 166725, 166727, 166648, 166656,	NaK112196 v1204	M13937	M13935 M13936	350	283178	M13937 M14023
11/23/19	0949 / 1636	MDS	NaK	166825, 166822, 166729 166859, 166851, 166768, 166829, 166827	NaK112319 v1207	M13933	M13935 M13936	350	283178	M13937 M14023
12/3/19	1222 / 1516	MDS	NaK	167118, 167120, 166937, 166928, 166931	NaK120319 v1209 v1208	M13933	M13935 M13936	350	283178	M13937 M14023
12/11/19	1224 / 1708	MDS	NaK	167362, 167262, 167260, 167254	NaK121119 v1210	M13935	M13935 M13936	350	283178	M13937 M14023
12/12/19	1254 / 1723	MDS	NaK	167221, 167220, 167225 167250 167240, 167255, 167256,	NaK121219 v1211	M13933	M13935 M13936	350	289548	M13937 M14023
12/13/19	0949 / 1547	MDS	NaK	167479, 167472, 167225 167461, 167456, 166988, 167455, 167459,	NaK121319 v1212	M13933	M13935 M13936	350	289548	M13937 M14023
12/16/19	0833 / 1240	MDS	DOD	167448, 167446, 167447, 167444, 167445 167434, 167435, 167436, 167437, 167438	DOD121619			350	289548	
12/19/19	1101 / 1459	MDS	NaK	167622, 167534 167474, 167618, 167531, 167624, 167530,	NaK121919 v1213	M13933	M13935 M13936	350	289548	M13937 M14023
12/24/19	1012 / 1404	MDS	NaK	167764, 167677 167530, 167474, 167622, 167682,	NaK122419	M13933	M13935 M13936	350	289548	M13937 M14023
1/8/2020	1302 / 1514	MDS	NaK	167436, 167990, 167999, 167994	NaK010820	M13933	M13935 M13936	350	289548	M13937 M14023
1/10/2020	0928 / 1310	MDS	DOD	167434, 167435, 167436, 167437 167448, 167446, 167447, 167444	DOD011020			350	289548	
1/15/2020	1217 / 1726	MDS	NaK	168099, 168100 168104, 168107, 168087, 168035, 168037	NaK011520 v1217	M13933	M13935 M13936	350	289548	M13937 M14023
1/27/2020	0946 / 1235	MDS	NaK	168370, 168405, 168391, 168362	NaK012720 v1226	M13933	M13935 M13936	350	290937	M13937 M14023
1/31/2020	0919 / 1203	MDS	NaK	168519 168516, 168521, 168526, 168524,	NaK013120 v1227	M13933	M13935 M13936	350	290937	M13937 M14023
2/7/2020	0933 / 1222	MDS	NaK	168590, 168655, 168656	NaK020720 v1228	M13933	M13935 M13936	350	290937	M13937 M14023
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Checked by: _____ Verified by: _____

CT Laboratories, LLC

ICP-6500 Instrument Run Logbook

Date	Time: Start / End	Analyst	Analytes / Sequence I.D.	Method	LIMS # or Sample Description	Nebulizer Pressure (kpa)	Calib. Std ID	Version V3722	Comments
1/29/2020	1314 / 1710	[signature]	01292020	DODCal u	168593 168451	210	M13881 M13666	V3719 V3717	M14024 M13834 M14013 M13892 M13951
2/5/2020 1/30/2020 ~~2/4/2020~~	1259 / 0110	[signature]	02042020	DODCal u	168495 168525 168520 168494 168522 168517 168523 168515 168518	260	M13831 M13666	V3723	M14024 M13834 M14013 M13852 M13951
2/6/2020	1128 / 0024	[signature]	02062020	DODCal u	168589 168654 168657 168629 168597 168658 168660	260	M13831 M13661	V3729 V3728 V3727 V3730	M14024 M13834 M14013 M13852 M13951 M13852
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Comments:_____

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Checked By / Date:_____

CT Laboratories

Mercury Analyzer Instrument Run Log

Instrument ID: Cetac M-6000A

Analysis Date	Start Time	End Time	Analyst	LIMS Run # (s)	Method File ID #	Cal. Std. ID #	Lamp Current (mA)	Analysis Tube Lot #	Comments
1/30/2020	1238	1412	MDS	168533, 168534	013020S	M14132	9.981	290937	$SnCl_2$: M14135
2/6/2020	0910	1113	MDS	168650, 168651, 168652, 168653	020620W	M14139	9.794	290937	$SnCl_2$: M14144
2/6/2020	1340	1443	MDS	168676	020620S	M14139	9.897	290937	$SnCl_2$; M14144
2/13/2020	0946	1145	MDS	168779, 168780, 168778	021320W	M14145	10.033	290937	$SnCl_2$: M14148
2/20/2020	0842	1021	MDS	168893, 168894, 168895, 168897, 168898	022020W	M14149	10.036	290937	$SnCl_2$: M14159

Reviewed By/Date:_____

Type	Date/Time	Message	User name	Application	Sequence Name
	01/27/2020 11:33:14	Running ccb (15)	MDS	Analyst	S_Sodium and Pota
	01/27/2020 11:36:04	Running 381480 (21)	MDS	Analyst	S_Sodium and Pota
	01/27/2020 11:38:49	Running 381481 (22)	MDS	Analyst	S_Sodium and Pota
	01/27/2020 11:41:36	Running 381482 (23)	MDS	Analyst	S_Sodium and Pota
	01/27/2020 11:44:31	Running 381483 (24)	MDS	Analyst	S_Sodium and Pota
	01/27/2020 11:47:19	Running 381484 (25)	MDS	Analyst	S_Sodium and Pota
	01/27/2020 11:50:15	Running 381496 (26)	MDS	Analyst	S_Sodium and Pota
	01/27/2020 11:53:01	Running 381497 (27)	MDS	Analyst	S_Sodium and Pota
	01/27/2020 11:55:46	Running 381528 (28)	MDS	Analyst	S_Sodium and Pota
	01/27/2020 11:58:41	Running 381529 (29)	MDS	Analyst	S_Sodium and Pota
	01/27/2020 12:01:26	Running 381530 (30)	MDS	Analyst	S_Sodium and Pota
	01/27/2020 12:04:12	Running ccv (14)	MDS	Analyst	S_Sodium and Pota
	01/27/2020 12:06:59	Running ccb (15)	MDS	Analyst	S_Sodium and Pota
	01/27/2020 12:09:49	Running 381531 (31)	MDS	Analyst	S_Sodium and Pota
	01/27/2020 12:12:44	Running msw381531 (32)	MDS	Analyst	S_Sodium and Pota
	01/27/2020 12:15:41	Running msdw381531 (33)	MDS	Analyst	S_Sodium and Pota
	01/27/2020 12:18:38	Running pdsw381531 (34)	MDS	Analyst	S_Sodium and Pota
	01/27/2020 12:21:25	Running 381532 (35)	MDS	Analyst	S_Sodium and Pota
	01/27/2020 12:24:11	Running 381481 (36)	MDS	Analyst	S_Sodium and Pota
	01/27/2020 12:26:58	Running 381528 (37)	MDS	Analyst	S_Sodium and Pota
	01/27/2020 12:29:43	Running mrl (16)	MDS	Analyst	S_Sodium and Pota
	01/27/2020 12:32:33	Running ccv (14)	MDS	Analyst	S_Sodium and Pota
	01/27/2020 12:35:19	Running ccb (15)	MDS	Analyst	S_Sodium and Pota
	01/27/2020 12:38:06	Autosampler Run Completed	MDS	Analyst	S_Sodium and Pota
	01/27/2020 13:00:09	Plasma extinguished successfully	MDS	Analyst	
	01/27/2020 13:00:09	Plasma off	MDS	iTEVA Control Center	
	01/31/2020 08:12:43	Plasma On	MDS	iTEVA Control Center	
	01/31/2020 08:12:49	Plasma ignition successful	MDS	Analyst	
	01/31/2020 08:13:28	D33534 - Debug:Wavelength check : x = -0.679, y =-0.375	MDS	Analyst	
	01/31/2020 09:18:58	Autosampler Run Started	MDS	Analyst	
	01/31/2020 09:18:58	Sequence Started	MDS	Analyst	S_Sodium and Pota
	01/31/2020 09:19:18	Running Blank (1)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 09:22:19	Running CalibStd-0.5 (2)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 09:25:09	Running CalibStd-1.0 (3)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 09:27:59	Running CalibStd-5.0 (4)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 09:28:41	Closing will close the method and all associated samples.	MDS	Analyst	
	01/31/2020 09:30:45	Running CalibStd-10.0 (5)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 09:33:32	Running CalibStd-50 (6)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 09:36:20	Running CalibStd-100 (7)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 09:39:06	Running CalibStd-200 (8)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 09:42:00	Running CalibStd-500 (9)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 09:45:09	Running icv (10)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 09:47:55	Running ICVLL (17)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 09:50:42	Running icb (11)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 09:53:32	Running mrl (16)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 09:56:21	Running icsa (12)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 09:59:31	Running icsab (13)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 10:02:36	Running 200 mg/L High Std (1)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 10:05:30	Running Blank (2)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 10:08:20	Running Blank (3)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 10:11:10	Running lcsw75355 (4)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 10:13:55	Running mbw75355 (5)	MDS	Analyst	S_Sodium and Pota

Type	Date/Time	Message	User name	Application	Sequence Name
	01/31/2020 10:16:45	Running 383235 (6)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 10:19:33	Running l383235 (7)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 10:22:22	Running dup383235 (8)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 10:25:11	Running msw383235 (9)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 10:27:58	Running msdw383235 (10)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 10:30:44	Running ccv (14)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 10:33:31	Running ccb (15)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 10:36:22	Running pdsw383235 (11)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 10:39:09	Running lcsw75362 (12)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 10:41:55	Running mbw75362 (13)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 10:44:46	Running 384031 (14)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 10:47:44	Running pdsw384031 (15)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 10:50:40	Running lcss75365 (16)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 10:53:24	Running mbs75365 (17)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 10:56:14	Running 383725 (18)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 10:58:56	Running 383733 (19)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 11:01:50	Running mss383733 (20)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 11:04:44	Running ccv (14)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 11:07:30	Running ccb (15)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 11:10:21	Running msds383733 (21)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 11:13:15	Running pdss383733 (22)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 11:16:10	Running lcss75354 (23)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 11:18:55	Running mbs75354 (24)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 11:21:46	Running 383269 (25)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 11:24:29	Running 383270 (26)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 11:27:13	Running mss383270 (27)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 11:29:57	Running msds383270 (28)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 11:32:40	Running pdss383270 (29)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 11:35:24	Running lcsw75349 (30)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 11:38:10	Running ccv (14)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 11:40:57	Running ccb (15)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 11:43:47	Running mbw75349 (31)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 11:46:38	Running 383191 (32)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 11:49:24	Running msw383191 (33)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 11:52:10	Running msdw383191 (34)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 11:54:57	Running pdsw383191 (35)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 11:57:42	Running mrl (16)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 12:00:32	Running ccv (14)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 12:03:19	Running ccb (15)	MDS	Analyst	S_Sodium and Pota
	01/31/2020 12:06:05	Autosampler Run Completed	MDS	Analyst	S_Sodium and Pota
	01/31/2020 12:12:21	Plasma extinguished successfully	MDS	Analyst	
	01/31/2020 12:12:21	Plasma off	MDS	iTEVA Control Center	
	02/07/2020 09:13:27	iTEVA loaded	MDS	iTEVA Control Center	
	02/07/2020 09:13:45	Connected to instrument 20070314	MDS	iTEVA Control Center	
	02/07/2020 09:14:49	Plasma On	MDS	iTEVA Control Center	
	02/07/2020 09:14:55	Plasma ignition successful	MDS	Analyst	
	02/07/2020 09:15:34	D33534 - Debug:Wavelength check : x = -0.510, y =-0.300	MDS	Analyst	
	02/07/2020 09:33:38	Autosampler Run Started	MDS	Analyst	
	02/07/2020 09:33:38	Sequence Started	MDS	Analyst	S_Sodium and Pota
	02/07/2020 09:33:59	Running Blank (1)	MDS	Analyst	S_Sodium and Pota
	02/07/2020 09:37:15	Running CalibStd-0.5 (2)	MDS	Analyst	S_Sodium and Pota
	02/07/2020 09:40:14	Running CalibStd-1.0 (3)	MDS	Analyst	S_Sodium and Pota

Type	Date/Time	Message	User name	Application	Sequence Name
	01/29/2020 16:13:43	Running 383279 (4)	NAH	Analyst	S_DOD Calibration
	01/29/2020 16:20:31	Running msw383279 (5)	NAH	Analyst	S_DOD Calibration
	01/29/2020 16:26:40	Running msdw383279 (6)	NAH	Analyst	S_DOD Calibration
	01/29/2020 16:32:49	Running 383280 (7)	NAH	Analyst	S_DOD Calibration
	01/29/2020 16:39:36	Running 383281 (8)	NAH	Analyst	S_DOD Calibration
	01/29/2020 16:46:07	Running 383283 (9)	NAH	Analyst	S_DOD Calibration
	01/29/2020 16:52:56	Running MRL/LLOQ (25)	NAH	Analyst	S_DOD Calibration
	01/29/2020 16:59:06	Running ccv1 (23)	NAH	Analyst	S_DOD Calibration
	01/29/2020 17:05:20	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration
	01/29/2020 17:10:53	Running ccb (19)	NAH	Analyst	S_DOD Calibration
	01/29/2020 17:17:08	Plasma off	NAH	iTEVA Control Center	
	01/29/2020 17:17:08	Plasma extinguished successfully	NAH	Analyst	
	01/29/2020 17:17:10	Autosampler Run Completed	NAH	Analyst	S_DOD Calibration
	01/30/2020 06:47:09	Plasma On	NAH	iTEVA Control Center	
	01/30/2020 06:47:15	Plasma ignition successful	NAH	Analyst	
	01/30/2020 06:47:54	D33534 - Debug:Wavelength check : x = 0.737, y =-0.782	NAH	Analyst	
	01/30/2020 12:44:38	iTEVA loaded	NAH	iTEVA Control Center	
	01/30/2020 12:44:56	Connected to instrument 20082101	NAH	iTEVA Control Center	
	01/30/2020 12:45:38	Plasma On	NAH	iTEVA Control Center	
	01/30/2020 13:07:45	Plasma off	NAH	iTEVA Control Center	
	01/30/2020 13:07:45	Plasma extinguished successfully	NAH	Analyst	
	02/03/2020 07:28:39	Plasma On	NAH	iTEVA Control Center	
	02/03/2020 07:28:43	Plasma ignition successful	NAH	Analyst	
	02/03/2020 07:29:25	D33534 - Debug:Wavelength check : x = 0.946, y =-0.713	NAH	Analyst	
	02/03/2020 12:45:46	Sequence Started	NAH	Analyst	S_DOD Calibration
	02/03/2020 12:45:46	Autosampler Run Started	NAH	Analyst	
	02/03/2020 12:46:07	Running Blank (1)	NAH	Analyst	S_DOD Calibration
	02/03/2020 12:52:26	Running CalStd2=0.5 (2)	NAH	Analyst	S_DOD Calibration
	02/03/2020 12:53:41	Autosampler Run Completed	NAH	Analyst	S_DOD Calibration
	02/03/2020 12:58:55	Sequence Started	NAH	Analyst	S_DOD Calibration
	02/03/2020 12:58:55	Autosampler Run Started	NAH	Analyst	
	02/03/2020 12:59:17	Running Blank (1)	NAH	Analyst	S_DOD Calibration
	02/03/2020 13:05:32	Running CalStd2=0.5 (2)	NAH	Analyst	S_DOD Calibration
	02/03/2020 13:11:55	Running CalStd3=1 (3)	NAH	Analyst	S_DOD Calibration
	02/03/2020 13:18:08	Running CalStd4=5 (4)	NAH	Analyst	S_DOD Calibration
	02/03/2020 13:21:58	Closing will close the method and all associated samples.	NAH	Analyst	
	02/03/2020 13:24:21	Running CalStd5=10 (5)	NAH	Analyst	S_DOD Calibration
	02/03/2020 13:30:36	Running CalStd6=20 (6)	NAH	Analyst	S_DOD Calibration
	02/03/2020 13:36:48	Running CalStd7=50 (7)	NAH	Analyst	S_DOD Calibration
	02/03/2020 13:43:02	Running CalStd8=100 (8)	NAH	Analyst	S_DOD Calibration
	02/03/2020 13:49:09	Running CalStd9=1000 (9)	NAH	Analyst	S_DOD Calibration
	02/03/2020 13:54:36	Running CalStd10=10000 (10)	NAH	Analyst	S_DOD Calibration
	02/03/2020 14:01:26	Running CalStd12=100K (11)	NAH	Analyst	S_DOD Calibration
	02/03/2020 14:08:28	Running CalStd13=100000 (12)	NAH	Analyst	S_DOD Calibration
	02/03/2020 14:14:44	Running CalStd14=500000 (13)	NAH	Analyst	S_DOD Calibration
	02/03/2020 14:21:56	Running CalibStd15=1000k (14)	NAH	Analyst	S_DOD Calibration
	02/03/2020 14:29:49	Running Ag Ba 1000, 50000 (15)	NAH	Analyst	S_DOD Calibration
	02/03/2020 14:36:22	Running blkrinse (22)	NAH	Analyst	S_DOD Calibration
	02/03/2020 14:42:32	Running icv (16)	NAH	Analyst	S_DOD Calibration
	02/03/2020 14:48:34	Running icv (16)	NAH	Analyst	S_DOD Calibration
	02/03/2020 14:54:36	Running ICVLL (24)	NAH	Analyst	S_DOD Calibration
	02/03/2020 15:00:48	Running icb (17)	NAH	Analyst	S_DOD Calibration

Type	Date/Time	Message	User name	Application	Sequence Name
	02/03/2020 15:07:01	Running icb (17)	NAH	Analyst	S_DOD Calibration
	02/03/2020 15:13:15	Running MRL/LLOQ (25)	NAH	Analyst	S_DOD Calibration
	02/03/2020 15:19:25	Running ICSA (20)	NAH	Analyst	S_DOD Calibration
	02/03/2020 15:26:35	Running ICSAB (21)	NAH	Analyst	S_DOD Calibration
	02/03/2020 15:33:07	Running blkrinse (22)	NAH	Analyst	S_DOD Calibration
	02/03/2020 15:39:17	Running ICVLL Ag (1)	NAH	Analyst	S_DOD Calibration
	02/03/2020 15:45:30	Running 381832 (2)	NAH	Analyst	S_DOD Calibration
	02/03/2020 15:51:43	Running 381832 (69)	NAH	Analyst	S_DOD Calibration
	02/03/2020 15:57:57	Running lcsw75362 (3)	NAH	Analyst	S_DOD Calibration
	02/03/2020 16:04:23	Running mbw75362 (4)	NAH	Analyst	S_DOD Calibration
	02/03/2020 16:10:35	Running 383548 (5)	NAH	Analyst	S_DOD Calibration
	02/03/2020 16:17:08	Running msw383548 (6)	NAH	Analyst	S_DOD Calibration
	02/03/2020 16:23:31	Running msdw383548 (7)	NAH	Analyst	S_DOD Calibration
	02/03/2020 16:29:54	Running pdsw383548 (8)	NAH	Analyst	S_DOD Calibration
	02/03/2020 16:36:25	Running 383550 (9)	NAH	Analyst	S_DOD Calibration
	02/03/2020 16:43:01	Running ccv1 (23)	NAH	Analyst	S_DOD Calibration
	02/03/2020 16:49:19	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration
	02/03/2020 16:54:57	Running ccb (19)	NAH	Analyst	S_DOD Calibration
	02/03/2020 17:01:12	Running 383552 (10)	NAH	Analyst	S_DOD Calibration
	02/03/2020 17:07:49	Running 383554 (11)	NAH	Analyst	S_DOD Calibration
	02/03/2020 17:14:23	Running 383556 (12)	NAH	Analyst	S_DOD Calibration
	02/03/2020 17:20:57	Running 383675 (13)	NAH	Analyst	S_DOD Calibration
	02/03/2020 17:27:34	Running 383677 (14)	NAH	Analyst	S_DOD Calibration
	02/03/2020 17:34:01	Running 383741 (15)	NAH	Analyst	S_DOD Calibration
	02/03/2020 17:41:00	Running 383743 (16)	NAH	Analyst	S_DOD Calibration
	02/03/2020 17:47:54	Running lcsw75355 (17)	NAH	Analyst	S_DOD Calibration
	02/03/2020 17:54:21	Running mbw75355 (18)	NAH	Analyst	S_DOD Calibration
	02/03/2020 18:00:34	Running 383235 (19)	NAH	Analyst	S_DOD Calibration
	02/03/2020 18:06:59	Running ccv1 (23)	NAH	Analyst	S_DOD Calibration
	02/03/2020 18:13:17	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration
	02/03/2020 18:18:56	Running ccb (19)	NAH	Analyst	S_DOD Calibration
	02/03/2020 18:25:10	Running l383235 (20)	NAH	Analyst	S_DOD Calibration
	02/03/2020 18:31:49	Running dup383235 (21)	NAH	Analyst	S_DOD Calibration
	02/03/2020 18:38:14	Running msw383235 (22)	NAH	Analyst	S_DOD Calibration
	02/03/2020 18:44:39	Running msdw383235 (23)	NAH	Analyst	S_DOD Calibration
	02/03/2020 18:51:05	Running pdsw383235 (24)	NAH	Analyst	S_DOD Calibration
	02/03/2020 18:57:37	Running lcsw75353 (25)	NAH	Analyst	S_DOD Calibration
	02/03/2020 19:04:05	Running mbw75353 (26)	NAH	Analyst	S_DOD Calibration
	02/03/2020 19:10:18	Running 383311 (27)	NAH	Analyst	S_DOD Calibration
	02/03/2020 19:16:54	Running msw383311 (28)	NAH	Analyst	S_DOD Calibration
	02/03/2020 19:23:25	Running msdw383311 (29)	NAH	Analyst	S_DOD Calibration
	02/03/2020 19:29:55	Running ccv1 (23)	NAH	Analyst	S_DOD Calibration
	02/03/2020 19:36:14	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration
	02/03/2020 19:41:52	Running ccb (19)	NAH	Analyst	S_DOD Calibration
	02/03/2020 19:48:06	Running pdsw383311 (30)	NAH	Analyst	S_DOD Calibration
	02/03/2020 19:54:45	Running 383326 (31)	NAH	Analyst	S_DOD Calibration
	02/03/2020 20:01:27	Running lcss75365 (32)	NAH	Analyst	S_DOD Calibration
	02/03/2020 20:07:42	Running mbs75365 (33)	NAH	Analyst	S_DOD Calibration
	02/03/2020 20:13:56	Running 383725 (34)	NAH	Analyst	S_DOD Calibration
	02/03/2020 20:20:20	Running 383733 (35)	NAH	Analyst	S_DOD Calibration
	02/03/2020 20:26:39	Running mss383733 (36)	NAH	Analyst	S_DOD Calibration
	02/03/2020 20:32:59	Running msds383733 (37)	NAH	Analyst	S_DOD Calibration

		Instrument:	CETAC
Standard Log #:	M14159	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	02/20/2020	Expiration Date:	
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14081 and brought up to volume.		

		Instrument:	ICP 6500
Standard Log #:	M14156	Standard:	ICV Std.
Analyst:	NAH	Concentrations:	**12,000 mg/L** Al **10,000 mg/L** Ca, Mg **5000 mg/L** Fe **2000 mg/L** As, Ba, Se, Tl **500 mg/L** B, Co, Li, Mn, Mo, Ni, Pb, Sb, Sn, Sr, Ti, V, Zn **250 mg/L** Cu **200 mg/L** Cr **50 mg/L** Ag, Be, Cd
Prep Date:	02/19/2020	Expiration Date:	01/30/21
Prep:	Into a 1 L volumetric flask, pipetted the following and brought up to volume with milli-Q H_2O. **10 mL** Custom Assurance Standard #18 ((200 mg/L Al, As, Ba, Se, Tl) (100 mg/L Fe) (50 mg/L Co, Mn, Ni, Pb, Sb, V, Zn) (25 mg/L Cu) (20 mg/L Cr) (5 mg/L Ag, Be, Cd)) M14138, **2 mL** Interferents A Standard ((5000 mg/L Al, Ca, Mg) (2000 mg/L Fe)) M14120, **0.5 mL** Mo (1000 mg/L) M14129, **0.5 mL** B (1000 mg/L) M14131, **0.5 mL** Sr (1000 mg/L) M14007, **0.5 mL** Li (1000 mg/L) M14127, **0.5 mL** Sn (1000 mg/L) M141008, **0.5 mL** Ti (1000 mg/L) M14009, **0.5 mL** W (1000 mg/L) Mxxxxxxx, **0.5 mL** Si (1000 mg/L) M13981, **0.5 mL** S (10000 mg/L) M14102, **0.5 mL** K (10000 mg/L) M14109, and **0.5 mL** Na (10000 mg/L) M14103		

Standard ID#:	M14157	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride Dihydrate
Date Received:	02/19/2020	Lot #:	J347-07
Expiration Date (if any):		Catalog #:	LC251701

Standard ID#:	M14158	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride Dihydrate
Date Received:	02/19/2020	Lot #:	J347-07
Expiration Date (if any):		Catalog #:	LC251701

		Instrument:	CETAC
Standard Log #:	M14148	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	02/13/2020	Expiration Date:	
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14081 and brought up to volume.		

Standard Log #:	M14152	Reagent:	Potassium Permanganate Solution
Analyst:	BMM		
Prep Date:	02/13/2020	Expiration Date:	07/13/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M14153	Reagent:	Potassium Permanganate Solution
Analyst:	BMM		
Prep Date:	02/13/2020	Expiration Date:	07/13/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M14154	Reagent:	Potassium Persulfate Solution
Analyst:	BMM		
Prep Date:	02/13/2020	Expiration Date:	07/13/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13714 and brought up to volume.		

Standard Log #:	M14155	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	BMM		
Prep Date:	02/13/2020	Expiration Date:	07/13/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13620 and **60 g** hydroxylamine sulfate M13994 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14149	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	02/17/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14150	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	02/17/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14151	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	02/17/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	HydraII
Standard Log #:	M14145	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	02/11/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14146	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	02/11/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14147	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	02/11/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M14144	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	02/06/2020	Expiration Date:	03/06/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14080 and brought up to volume.		

Standard Log #:	M14142	Reagent:	Potassium Permanganate Solution
Analyst:	BMM		
Prep Date:	02/05/2020	Expiration Date:	07/05/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14143	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	02/05/2020	Expiration Date:	02/06/2020
Prep:	Carefully mixed **3** parts HCl AB.682 with **1** part HNO_3 AB.681 in a hood.		

		Instrument:	HydraII
Standard Log #:	M14139	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	02/05/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14140	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	02/05/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14141	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	02/05/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard ID#:	M14137	Vendor:	SpexCertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	02/04/2020	Lot #:	53-196CR
Expiration Date (if any):	01/30/2021	Catalog #:	XCTIWI-1-500

Standard ID#:	M14138	Vendor:	SpexCertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	02/04/2020	Lot #:	XSPIKE-1-250
Expiration Date (if any):	01/30/2021	Catalog #:	53-197CR

		Instrument:	CETAC
Standard Log #:	M14136	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	01/30/2020	Expiration Date:	01/30/2021
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14080 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14132	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	01/29/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14133	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	01/29/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14134	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	01/29/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M14135	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	01/29/2020	Expiration Date:	01/30/2020
Prep:	Carefully mixed **3** parts HCl AB.682 with **1** part HNO_3 AB.681 in a hood.		

Standard ID#:	M14125	Vendor:	CPI International
Analyst:	MDS	Chemical:	Mercury 1000 µg/mL
Date Received:	01/24/2020	Lot #:	1009904-41
Expiration Date (if any):	07/20/2021	Catalog #:	S4400-1000331

Standard ID#:	M14126	Vendor:	CPI International
Analyst:	MDS	Chemical:	Potassium 10,000 µg/mL
Date Received:	01/24/2020	Lot #:	980507-31
Expiration Date (if any):	07/20/2021	Catalog #:	4400-10M411

Standard ID#:	M14127	Vendor:	CPI International
Analyst:	MDS	Chemical:	Lithium 1000 µg/mL
Date Received:	01/24/2020	Lot #:	1017511-7
Expiration Date (if any):	07/20/2021	Catalog #:	S4400-1000291

Standard ID#:	M14128	Vendor:	CPI International
Analyst:	MDS	Chemical:	Phosphorus 10,000 µg/mL
Date Received:	01/24/2020	Lot #:	979480-24
Expiration Date (if any):	07/20/2021	Catalog #:	S4400-10M391

Standard ID#:	M14129	Vendor:	CPI International
Analyst:	MDS	Chemical:	Molybdenum 1000 µg/mL
Date Received:	01/24/2020	Lot #:	987189-55
Expiration Date (if any):	07/20/2021	Catalog #:	S4400-1000343

Standard ID#:	M14130	Vendor:	CPI International
Analyst:	MDS	Chemical:	Barium 1000 µg/mL
Date Received:	01/24/2020	Lot #:	994634-53
Expiration Date (if any):	07/20/2021	Catalog #:	S4400-100041

Standard ID#:	M14131	Vendor:	CPI International
Analyst:	MDS	Chemical:	Boron 1000 µg/mL
Date Received:	01/24/2020	Lot #:	1024903-6
Expiration Date (if any):	07/20/2021	Catalog #:	S4400-100074

		Instrument:	HydraII
Standard Log #:	M14122	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	01/23/2020	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14123	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	01/23/2020	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14124	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	01/23/2020	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard ID#:	M14119	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Hg 1000 ug/mL
Date Received:	01/21/2020	Lot #:	CL11-96HGY
Expiration Date (if any):	01/30/2021	Catalog #:	CLHG4-2Y

Standard ID#:	M14120	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Interference A
Date Received:	01/21/2020	Lot #:	2-96JX
Expiration Date (if any):	01/30/2021	Catalog #:	INT-A1

Standard ID#:	M14121	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	01/21/2020	Lot #:	1-008DMP
Expiration Date (if any):	01/21/2021	Catalog #:	XCTWI-5-500

		Instrument:	CETAC
Standard Log #:	M14117	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	01/17/2020	Expiration Date:	02/17/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14080 and brought up to volume.		

Standard Log #:	M14118	Instrument:	GFAA
Analyst:	MDS	Standard:	MDL Spiking Solution
Prep Date:	01/17/2020	Expiration Date:	02/2020

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (2% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
Ag	0.2	M13951	1000	0.01
As	2	M13863	1000	0.1
Pb	2	M13615	10000	0.01
Sb	2	M13950	1000	0.1
Se	2	M13948	1000	0.1
Tl	2	M13583	1000	0.1

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

		Instrument:	HydraII
Standard Log #:	M14114	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	01/16/2020	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14115	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	01/16/2020	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14116	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	01/16/2020	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	GFAA
Standard Log #:	M14111	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	01/13/2020	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M14112	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	01/13/2020	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M14113	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	01/13/2020	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13786 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

Standard ID#:	M14106	Vendor:	CPI
Analyst:	NAH	Chemical:	Si 1000 ug/mL
Date Received:	01/13/2020	Lot #:	175213-60
Expiration Date (if any):	07/2021	Catalog #:	S4400-1000504F

Standard ID#:	M14107	Vendor:	CPI
Analyst:	NAH	Chemical:	Ca 10000 ug/mL
Date Received:	01/13/2020	Lot #:	855297-68
Expiration Date (if any):	07/2021	Catalog #:	4400-10M91

Standard ID#:	M14108	Vendor:	CPI
Analyst:	NAH	Chemical:	Mg 10000 ug/mL
Date Received:	01/13/2020	Lot #:	1013353-36
Expiration Date (if any):	07/2021	Catalog #:	4400-10M311

Standard ID#:	M14109	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10000ug/mL
Date Received:	01/13/2020	Lot #:	980507-79
Expiration Date (if any):	07/2021	Catalog #:	4400-10M411

Standard Log #:	M14110	Reagent:	TCLP EXTRACTION FLUID #2
Analyst:	BMM	pH:	2.88 ± 0.05
Prep Date:	01/14/2020	Expiration Date:	01/14/2021
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.684 . Dilute to 20 L and mix.		

Standard ID#:	M14100	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	Yttrium 10000 ug/mL
Date Received:	01/10/2020	Lot #:	1905324-500
Expiration Date (if any):	07/31/2021	Catalog #:	HP10M67-1-500

Standard ID#:	M14101	Vendor:	CPI
Analyst:	NAH	Chemical:	Fe 10000 ug/mL
Date Received:	01/13/2020	Lot #:	998527-45
Expiration Date (if any):	07/2021	Catalog #:	4400-10M261

Standard ID#:	M14102	Vendor:	CPI
Analyst:	NAH	Chemical:	Sulfur 10000 ug/mL
Date Received:	01/13/2020	Lot #:	9987745-28
Expiration Date (if any):	07/2021	Catalog #:	4400-10M544

Standard ID#:	M14103	Vendor:	CPI
Analyst:	NAH	Chemical:	Sodium 10000 ug/mL
Date Received:	01/13/2020	Lot #:	752887-79
Expiration Date (if any):	01/2021	Catalog #:	4400-40M521

Standard ID#:	M14104	Vendor:	CPI
Analyst:	NAH	Chemical:	Potassium 10000 ug/mL
Date Received:	01/13/2020	Lot #:	980507-31
Expiration Date (if any):	07/2021	Catalog #:	4400-10M411

Standard ID#:	M14105	Vendor:	CPI
Analyst:	NAH	Chemical:	Al 10000 ug/mL
Date Received:	01/13/2020	Lot #:	992536-34
Expiration Date (if any):	07/2021	Catalog #:	4400-10M11

Standard Log #:	M14099revised below	Instrument:	ICP 6500
Analyst:	NAH	Standard:	MDL DOD Metals Spiking soln
Prep Date:	01/09/2020	Expiration Date:	02/2020

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	5	M13951	1000	0.25
Al	10	M13962	**10000**	0.05
As	20	M13863	1000	1
Ba	2	M13949	1000	0.1
Be	0.5	M13579	1000	0.025
Ca	50	M13841	**10000**	0.25
Cd	0.5	M13570	1000	0.025
Co	2.5	M13575	1000	0.125
Cr	5.0	M13617	**10000**	0.025
Cu	10	M13618	**10000**	0.05
Fe	40	M13963	**10000**	0.2
Mg	25	M13752	**10000**	0.125
Mn	5	M13616	**10000**	0.025
Mo	2.5	M13860	1000	0.125
Ni	5	M13569	1000	0.25
Pb	10	M13615	**10000**	0.05
Sb	20	M13950	1000	1
Se	20	M13948	1000	1
Tl	20	M13583	1000	1
V	5	M13578	1000	0.25
Zn	5	M13610	**10000**	0.025

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M14099	Instrument:	ICP 6500
Analyst:	NAH	Standard:	MDL DOD Metals Spiking soln
Prep Date:	01/09/2020	Expiration Date:	02/2020

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	5	M13951	1000	0.25
Al	10	M13962	**10000**	0.05
As	20	M13863	1000	1
Ba	2	M13949	1000	0.1
Be	0.5	M13579	1000	0.025
Ca	50	M13841	**10000**	0.25
Cd	0.5	M13570	1000	0.025
Co	2.5	M13575	1000	0.125
Cr	5.0	M13617	**10000**	0.025
Cu	10	M13618	**10000**	0.05
Fe	40	M13963	**10000**	0.2
Mg	25	M13752	**10000**	0.125
Mn	5	M13616	**10000**	0.025
Mo	2.5	M13860	1000	0.125
Ni	5	M13569	1000	0.25
Pb	10	M13615	**10000**	0.05
Sb	20	M13950	1000	1
Se	20	M13948	1000	1
Tl	20	M13583	1000	1
V	5	M13578	1000	0.25
Zn	5	M13610	**10000**	0.025
Na	500	M13862	**10000**	2.5
K	500	M14003	**10000**	2.5
B	20	M13947	1000	1
Si	100	M13981	1000	5
S	200	M13696	**10000**	1
Li	20	M13577	1000	1
Sr	20	M14007	1000	1
Sn	20	M14008	1000	1
Ti	20	M14009	1000	1

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

		Instrument:	CETAC
Standard Log #:	M14097	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	01/09/2020	Expiration Date:	02/09/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.682 and dissolved **100 g** Stannous chloride M14080 and brought up to volume.		

Standard Log #:	M14098	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3050 S Spiking Solution
Prep Date:	01/09/2020	Expiration Date:	06/2020

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
S	240	M13696	10000	1.2

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

		Instrument:	CETAC
Standard Log #:	M14096	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	01/08/2020	Expiration Date:	01/09/2020
Prep:	Carefully mixed **3** parts HCl AB.682 with **1** part HNO_3 AB.681 in a hood.		

		Instrument:	HydraII
Standard Log #:	M14093	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	01/08/2020	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14094	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	01/08/2020	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14095	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	01/08/2020	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M14092	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	12/26/2019	Expiration Date:	01/26/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.682 and dissolved **100 g** Stannous chloride M14080 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14088	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	12/20/2019	Expiration Date:	01/20/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.682 and dissolved **100 g** Stannous chloride M14016 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14089	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	12/24/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14090	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	12/24/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14091	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	12/24/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M14086	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	12/19/2019	Expiration Date:	12/20/2019
Prep:	Carefully mixed **3** parts HCl AB.862 with **1** part HNO_3 AB.861 in a hood.		

		Instrument:	CETAC
Standard Log #:	M14087	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	12/24/2019	Expiration Date:	12/25/2019
Prep:	Carefully mixed **3** parts HCl AB.862 with **1** part HNO_3 AB.861 in a hood.		

		Instrument:	HydraII
Standard Log #:	M14083	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	12/18/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14084	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	12/18/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14085	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	12/18/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard ID#:	M14082	Vendor:	Environmental Express
Analyst:	MDS	Chemical:	Acid Washed TCLP Filters
Date Received:	12/11/2019	Lot #:	400168-9329-CM
Expiration Date (if any):		Catalog #:	FG77150MM

Standard ID#:	M14079	Vendor:	Thermofisher Scientific
Analyst:	MDS	Chemical:	GFAA Nickel Nitrate Modifier
Date Received:	12/12/2019	Lot #:	9192422
Expiration Date (if any):	04/30/2021	Catalog #:	39043

Standard ID#:	M14080	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride
Date Received:	12/12/2019	Lot #:	J267-10
Expiration Date (if any):		Catalog #:	LC251701

Standard ID#:	M14081	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride
Date Received:	12/12/2019	Lot #:	J267-10
Expiration Date (if any):		Catalog #:	LC251701

Standard Log #:	M14078A	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3010 B&Si Spiking Solution
Prep Date:	12/11/2019	Expiration Date:	02/21

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
B	16	M13947	1000	0.8
Si	200	M13810	1000	10

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M14078b Combined with	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3010 S Spiking Solution
Prep Date:	12/11/2019	Expiration Date:	03/201

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
S	200	M13604	10000	1.0

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M14077	Instrument:	ICP 6500
Analyst:	NAH	Standard:	LOQ 3010 DOD Metals Spiking S
Prep Date:	12/11/2019	Expiration Date:	02/20

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	4	M13851	1000	0.2
Al	36	M13982	**10000**	0.18
As	24	M13863	1000	1.2
Ba	1.8	M13949	1000	0.09
Be	0.6	M13579	1000	0.03
Ca	100	M13841	**10000**	0.5
Cd	2.0	M13570	1000	0.1
Co	4	M13575	1000	0.2
Cr	4	M13617	**10000**	0.02
Cu	7	M13618	**10000**	0.035
Fe	100	M13983	**10000**	0.5
Mg	40	M13752	**10000**	0.2
Mn	4	M13616	**10000**	0.02
Mo	7	M13860	1000	0.35
Ni	6	M13569	1000	0.2
Pb	4	M13615	**10000**	0.02
Sb	12	M13950	1000	0.6
Se	13	M13948	1000	0.65
Tl	20	M13583	1000	0.75
V	5	M13578	1000	0.25
Zn	10	M13610	**10000**	0.05

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M14076	Instrument:	ICP 6500
Analyst:	NAH	Standard:	LOQ 3050 DOD Metals Spiking S
Prep Date:	12/10/2019	Expiration Date:	02/20

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	4	M13951	1000	0.2
Al	9.6	M13982	**10000**	0.048
As	32	M13863	1000	1.6
Ba	2	M13949	1000	0.1
Be	1.6	M13579	1000	0.08
Ca	56	M13841	**10000**	0.28
Cd	1.6	M13570	1000	0.08
Co	9.6	M13575	1000	0.48
Cr	5.6	M13617	**10000**	0.028
Cu	16	M13618	**10000**	0.08
Fe	72	M13983	**10000**	0.36
Mg	32	M13752	**10000**	0.16
Mn	6	M13616	**10000**	0.03
Mo	9.6	M13860	1000	0.48
Ni	4.8	M13569	1000	0.24
Pb	10	M13615	**10000**	0.05
Sb	32	M13950	1000	1.6
Se	16	M13948	1000	0.8
Tl	19	M13583	1000	0.95
V	3.2	M13578	1000	0.16
Zn	12	M13610	**10000**	0.06

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

		Instrument:	GFAA
Standard Log #:	M14074	Standard:	LODW/LOQW Ag Spiking Sol'n
Analyst:	MDS	Concentrations:	10 ug/L (Ag)
Prep Date:	12/10/2019	Expiration Date:	02/2021
Prep:	Into a 100 mL volumetric flask, pipetted **0.1 mL** of Ag (1000mg/L) M13951 and brought to volume with Milli-Q H_2O to make a 1000 ug/L Ag std. Into a 1 L volumetric flask, pipetted **10 mL** of Ag (*1000 ug/L*) std. and brought to volume with Milli-Q H_2O. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*0.2 ug/L*) and **2 mL** spiking solution for LOQ (*0.4 ug/L*)		

		Instrument:	CETAC
Standard Log #:	M14075	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	12/10/2019	Expiration Date:	12/11/2019
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.681 in a hood.		

		Instrument:	GFAA
Standard Log #:	M14072	Standard:	LODS/LOQS Spiking Sol'n
Analyst:	MDS	Concentrations:	60 ug/L (Sb) 160 ug/L (As,Se) 40 ug/L (Pb) 50 ug/L (Tl)
Prep Date:	12/10/2019	Expiration Date:	02/2020
Prep:	Into a 200 mL volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. **1.2 mL** of Sb (1000 mg/L) M13950 **3.2 mL** of As (1000 mg/L) M13863 **3.2 mL** of Se (1000 mg/L) M13948 **0.08 mL** of Pb (10,000 mg/L) M13615 **1.0 mL** of Tl (1000 mg/L) M13583 From this diluted standard solution, pipetted **10 mL** into a 1 L volumetric flask and brought up to volume with Milli-Q H_2O to make the spiking solution. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (1.2 *ug/L* Sb, *3.2 ug/L* As, *3.2 ug/L* Se, *0.8 ug/L* Pb, *1 ug/L* Tl) and **2 mL** spiking solution for LOQ (2.4 *ug/L* Sb, *6.4 ug/L* As, *6.4 ug/L* Se, *1.6 ug/L* Pb, *2 ug/L* Tl)		

		Instrument:	GFAA
Standard Log #:	M14073	Standard:	LODW/LOQW Spiking Sol'n
Analyst:	MDS	Concentrations:	150 ug/L (Sb) 100 ug/L (As) 200 ug/L (Se) 45 ug/L (Pb) 40 ug/L (Tl)
Prep Date:	12/10/2019	Expiration Date:	02/2020
Prep:	Into a 100 mL volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. **1.5 mL** of Sb (1000 mg/L) M13950 **1.0 mL** of As (1000 mg/L) M13863 **2.0 mL** of Se (1000 mg/L) M13948 **0.045 mL** of Pb (10,000 mg/L) M13615 **0.4 mL** of Tl (1000 mg/L) M13583 From this diluted standard solution, pipetted **10 mL** into a 1 L volumetric flask and brought up to volume with Milli-Q H_2O to make the spiking solution. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*3 ug/L* Sb, *2 ug/L* As, *4 ug/L* Se, *0.9 ug/L* Pb, *0.8 ug/L* Tl) and **2 mL** spiking solution for LOQ (*6 ug/L* Sb, *4 ug/L* As, *8 ug/L* Se, *1.8 ug/L* Pb, *1.6 ug/L* Tl)		

Standard Log #:	M14071	Standard:	GFAA Instrument Check
Analyst:	MDS	Final Concentration:	12 µg/L As 6 µg/L Pb 10 µg/L Sb 20 µg/L Se 10 µg/L Tl 0.6 µg/L Ag
Prep Date:	12/10/2019	Expiration Date:	02/2020

Into six, 100 mL volumetric flasks, add the following and bring up to volume with milli-Q H_2O.

Element	Volume Pipetted (mL)	Standard Conc. (µg/mL)	Standard ID	New Conc. (µg/L)
As	1	1000	M13863	10,000
Pb	0.1	10,000	M13615	10,000
Tl	1	1000	M13583	10,000
Se	1	1000	M13948	10,000
Sb	1	1000	M13950	10,000
Ag	0.1	1000	M13951	1000

Into a 1 L volumetric flask, add the following and bring up to volume with Milli-Q H_20. (1% HNO_3)

Element	Volume Pipetted (mL)	Standard Conc. (µg/L)	New Conc. (µg/L)
As	1.2	10,000	12
Pb	0.6	10,000	6
Tl	1.0	10,000	10
Se	2.0	10,000	20
Sb	1.0	10,000	10
Ag	0.6	1000	0.6

		Instrument:	HydraII
Standard Log #:	M14068	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	12/10/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14069	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	12/10/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13734 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	CETAC
Standard Log #:	M14070	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	12/10/2019	Expiration Date:	01/10/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.682 and dissolved **100 g** Stannous chloride M14016 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14065	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	12/05/2019	Expiration Date:	01/05/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.682 and dissolved **100 g** Stannous chloride M14016 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14066	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	12/06/2019	Expiration Date:	01/06/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.682 and dissolved **100 g** Stannous chloride M14016 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14067	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	12/10/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	CETAC
Standard Log #:	M14063	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	12/03/2019	Expiration Date:	01/03/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.682 and dissolved **100 g** Stannous chloride M14016 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14064	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	12/04/2019	Expiration Date:	12/05/2019
Prep:	Carefully mixed **3** parts HCl AB.682 with **1** part HNO_3 AB.681 in a hood.		

		Instrument:	HydraII
Standard Log #:	M14061	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	12/02/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard ID#:	M14062	Vendor:	ENVIROMENTAL EXPRESS
Analyst:	BMM	Chemical:	Acid Washed TCLP Filters
Date Received:	12/02/2019	Lot #:	400168-9305-CM
Expiration Date (if any):		Catalog #:	

		Instrument:	CETAC
Standard Log #:	M14058	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	11/20/2019	Expiration Date:	12/20/2019
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M14017 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14059	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	12/02/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14060	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	12/02/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

Standard Log #:	M14056	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	11/26/2019	Expiration Date:	11/26/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.684 and **128.6 mL** 10N NaOH M14002. Dilute to 20 L and mix.		

Standard Log #:	M14057	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	11/26/2019	Expiration Date:	11/26/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.684 and **128.6 mL** 10N NaOH M14002. Dilute to 20 L and mix.		

Standard ID#:	M14054	Vendor:	Spex Certi Prep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	11/20/2019	Lot #:	53-042CR
Expiration Date (if any):	11/30/2020	Catalog #:	XCTWI-5-500

Standard ID#:	M14055	Vendor:	Spex Certi Prep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	11/20/2019	Lot #:	53-041CR
Expiration Date (if any):	11/30/2019	Catalog #:	XSPIKE-1-250

		Instrument:	GFAA
Standard Log #:	M14051	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	11/20/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M14052	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	11/20/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M14053	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	11/20/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13786 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	HydraII
Standard Log #:	M14048	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	11/19/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14049	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	11/19/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M14050	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	11/19/2019	Expiration Date:	11/20/2019
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	CETAC
Standard Log #:	M14045	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	11/11/2019	Expiration Date:	05/11/2019
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.681 and dissolved **100 g** Stannous chloride M14017 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14046	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	11/13/19	Expiration Date:	05/13/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.681 and dissolved **100 g** Stannous chloride M14017 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14047	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	11/19/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

Standard Log #:	M14044	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	11/13/2019	Expiration Date:	11/13/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.684 and **128.6 mL** 10N NaOH M13877. Dilute to 20 L and mix.		

		Instrument:	CETAC
Standard Log #:	M14041	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	11/09/2019	Expiration Date:	11/10/2019
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	CETAC
Standard Log #:	M14042	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	11/12/2019	Expiration Date:	11/13/2019
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

Standard Log #:	M14043	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	BMM		
Prep Date:	11/12/2019	Expiration Date:	04/12/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13993 and **60 g** hydroxylamine sulfate M13874 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14038	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	11/07/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14039	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	11/07/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14040	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	11/07/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	ICP 6000
Standard Log #:	M14035	Standard:	L2 ICV
Analyst:	MDS	Concentrations:	1000 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	11/04/2019	Expiration Date:	02/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of the following and brought up to volume using milli-Q H_2O. (0.5% HNO_3, 0.5% HCl) Li (1000 µg/mL) M13577 Sn (1000 µg/mL) M14008 Sr (1000 µg/mL) M14007 Ti (1000 µg/mL) M14009 W (1000 µg/mL) MXXXXX		

		Instrument:	ICP 6000
Standard Log #:	M14036	Standard:	List 2 MRL/ICVLL Prep Solution
Analyst:	MDS	Concentrations:	5000 µg/L (W) 1000 µg/L (Li, Sn) 500 µg/L (Ti, Sr)
Prep Date:	11/04/2019	Expiration Date:	02/2020

Prep:

Analyte	MRL/ICVLL Conc. (µg/L)	Standard ID	Std. Conc. (µg/mL)	Volume (mL) Pipetted into 1 L	Expiration Date
Li	20/60	M13577	1000	1	02/2020
W	100/300	MXXXX	1000	5	XX/XXXX
Ti	10/30	M14009	1000	0.5	04/2021
Sr	10/30	M14007	1000	0.5	04/2021
Sn	20/60	M14008	1000	1	04/2021

Pipette **10 mL** into a 500 mL volumetric flask to create a working MRL std. or **1 mL** into a 50 mL digestion tube for a digested MRL standard. Pipette **30 mL** into 500 mL for a working ICVLL std. or **3 mL** into a 50 mL digestion tube for a digested ICVLL standard.

(0.5% HNO_3, 0.5% HCl)

		Instrument:	CETAC
Standard Log #:	M14037	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	11/04/2019	Expiration Date:	05/04/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13922 and brought up to volume.		

		Instrument:	ICP
Standard Log #:	M14033	Standard:	L2 ICAL
Analyst:	MDS	Concentrations:	1 (µg/L) 10 (µg/L) 100 (µg/L) 1000 (µg/L) 10,000 (µg/L)
Prep Date:	11/04/2019	Expiration Date:	05/30/2020
Prep:	Standard Conc. (ug/L)	Pipette the following:	
	1	**0.01 mL** of Custom Assurance Standard XCTWI-5-500 M13839 and **0.001 mL** W (1000 µg/mL) MXXXXX into 1L = *1 µg/L*	
	10	**0.10 mL** of Custom Assurance Standard XCTWI-5-500 M13839 and **0.01 mL** W (1000 µg/mL) MXXXXX into 1L = *10 µg/L*	
	100	**1 mL** of Custom Assurance Standard XCTWI-5-500 M13839 and **0.1 mL** W (1000 µg/mL) MXXXXX into 1L = *100 µg/L*	
	1000 (CCV)	**2 mL** of Custom Assurance Standard XCTWI-5-500 M13839 and **0.2 mL** W (1000 µg/mL) MXXXXX into 200mL = *1000 µg/L*	
	10000	**20 mL** of Custom Assurance Standard XCTWI-5-500 M13839 and **2 mL** W (1000 µg/mL) MXXXXX into 200mL = *10000 µg/L*	

		Instrument:	ICP 6000
Standard Log #:	M14034	Standard:	List 2 ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	11/04/2019	Expiration Date:	02/28/2020
Prep:	Into a 200 mL volumetric flask, pipetted **20 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13738, **6 mL** of Fe (10,000 mg/L) M13751, **0.1 mL** of Li (1000 µg/mL) M13577, **0.1 mL** of Sn (1000 µg/mL) M14008, **0.1 mL** of Sr (1000 µg/mL) M14007, **0.1 mL** of Ti (1000 µg/mL) M14009, and **0.1 mL** of W (1000 µg/mL) MXXXXX and brought up to volume using Milli-Q H_2O. (0.5% HNO_3, 0.5% HCl)		

		Instrument:	CETAC
Standard Log #:	M14032	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	10/31/2019	Expiration Date:	10/31/2020
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	ICP 6000
Standard Log #:	M14028	Standard:	B&Si ICAL
Analyst:	MDS	Concentrations:	50, 200, 1000, 2000 and 10,000 ug/L (B, Si)
Prep Date:	10/30/2019	Expiration Date:	10/2020
Prep:	Into five, 1 L volumetric flasks, pipetted the following from stock standards B (1000 mg/L) M13947 and Si (1000 mg/L) M13810 and brought up to volume using milli-Q H_2O. *50 ug/L std.* - **0.05 mL** of each *200 ug/L std.* - **0.2 mL** of each *1000 ug/L std.* -**1.0 mL** of each, also used for Continuing Calibration Verification *2000 ug/L std.* - **2.0 mL** of each *10,000 ug/L std.* -**10 mL** of each		

		Instrument:	ICP 6000
Standard Log #:	M14029	Standard:	B & Si ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (B,Si)
Prep Date:	10/30/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **10 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13738, **0.05 mL** of B (1000 µg/mL) M13947, **0.05 mL** of Si (1000 µg/mL) M13810 and **3 mL** of Fe (10,000 mg/L) M13751 and brought up to volume using Milli-Q H_2O.		

		Instrument:	ICP 6000
Standard Log #:	M14030	Standard:	B&Si ICV
Analyst:	MDS	Concentrations:	1000 ug/L (B, Si)
Prep Date:	10/30/2019	Expiration Date:	05/30/2020
Prep:	Into a 1 L volumetric flask, pipetted **10 mL** of Custom Assurance Std. #23 (100 mg/L Al, As, **B**, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13839 and **1.0 mL** Si (1000 mg/L) M13981 and brought up to volume using milli-Q H_2O.		

Standard ID#:	M14031	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	Acid Washed TCLP filters
Date Received:	10/31/2019	Lot #:	400165
Expiration Date (if any):		Catalog #:	FG77150MM

		Instrument:	HydraII
Standard Log #:	M14024	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	10/29/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14025	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	10/29/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14026	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	10/29/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M14027	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	10/30/2019	Expiration Date:	04/30/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13922 and brought up to volume.		

MRL BASE STD M14024 Analyst NAH

Prep Date 10/30/2019

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	(ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L	Expiration Date
Ag	20	M13951	1000	1	02/2021
Al	400	M13690	10000	2	06/2020
Ba	10	M13949	1000	0.5	02/2021
Be	4	M13579	1000	0.2	02/2020
Cd	5	M13570	1000	0.25	01/2020
Co	10	M13575	1000	0.5	01/2020
Cr	10	M13617	10000	0.05	03/2020
Cu	10	M13618	10000	0.05	03/2020
Mg	500	M13752	10000	2.5	09/2020
Mn	10	M13616	10000	0.05	03/2020
Mo	10	M13860	1000	0.5	12/2020
Ni	10	M13569	1000	0.5	01/2020
Pb	10	M13615	10000	0.05	03/2020
Sb	20	M13950	1000	1	02/2021
V	10	M13578	1000	0.5	02/2020
Zn	10	M13610	10000	0.05	03/2020
K	1000	M14003	10000	5	04/2021
Na	1000	M13862	10000	5	12/2020
As	20	M13763	1000	1	12/2020
Ca	500	M13985	10000	2.5	04/2021
Fe	300	M13751	10000	1.5	09/2020
Se	20	M13948	1000	1	02/2021
Tl	20	M13583	1000	1	02/2020
Si	100	M13810	1000	5	10/2020
B	20	M13947	1000	1	02/2021
Li	20	M13577	1000	1	02/2020
W	50	Mxxxxxx	1000	2.5	xxxxxxxx
Ti	10	M14009	1000	0.5	04/2021
Sr	10	M14007	1000	0.5	03/2020
Sn	50	M14008	1000	2.5	04/2021
S	300	M13604	10000	1.5	03/2020

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

		Instrument:	CETAC
Standard Log #:	M14022	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	10/23/2019	Expiration Date:	04/23/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13922 and brought up to volume.		

		Instrument:	ICP 6500
Standard Log #:	M14023	Standard:	ICSA
Analyst:	NAH	Concentrations:	**500,000 ug/L** Al, Ca, Fe, Mg **10,000** V, Ce
Prep Date:	10/30/2019	Expiration Date:	02/2020
Prep:	Into a 500 mL volumetric flask, pipetted 50 **mL** Interference A std M13738 and 15 **mL** 10000 mg/L Fe M14004 5.0 **mL** 1000 mg/L V M13578 5.0 **mL** 1000 mg/L Ce M13859 and brought up to volume with milli-Q H_2O.		

Standard Log #:	M14020	Reagent:	Potassium Persulfate Solution
Analyst:	BMM		
Prep Date:	10/23/2019	Expiration Date:	04/23/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13714 and brought up to volume.		

Standard Log #:	M14021	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	BMM		
Prep Date:	10/23/2019	Expiration Date:	04/23/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13993 and **60 g** hydroxylamine sulfate M13874 and brought up to volume.		

Standard ID#:	M14016	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride
Date Received:	10/23/2019	Lot #:	J267-10
Expiration Date (if any):		Catalog #:	LC251701

Standard ID#:	M14017	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride
Date Received:	10/23/2019	Lot #:	J267-10
Expiration Date (if any):		Catalog #:	LC251701

		Instrument:	CETAC
Standard Log #:	M14018	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	10/23/2019	Expiration Date:	10/24/2019
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

Standard Log #:	M14019	Reagent:	Potassium Permanganate Solution
Analyst:	BMM		
Prep Date:	10/23/2019	Expiration Date:	04/23/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14012	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	10/21/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14013	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	10/21/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14014	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	10/21/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard Log #:	M14015	Instrument:	GFAA
Analyst:	MDS	Reagent:	Pd/Mg Matrix Modifier
Prep Date:	10/22/2019	Expiration Date:	09/30/2020
Prep:	Into a 50 mL volumetric flask, partially filled with milli-Q H_2O, pipetted **15 mL** Pd Modifier M13954 and **10 mL** Mg (10,000 mg/L) M13752 and brought up to volume.		

Standard Log #:	M14010	Reagent:	SPLP ACID MIX
Analyst:	BMM		60/40 H_2SO_4 - HNO_3
Prep Date:	10/21/2019	Expiration Date:	10/21/2020
Prep:	Into a 200 mL volumetric flask, partially filled with DI H_2O, add **12 g** H_2SO_4 AB.674 and **8 g** HNO_3 AB.677 and bring up to volume using DI H_2O.		

Standard Log #:	M14011	Reagent:	SPLP EXTRACTION FLUID EAST #
Analyst:	BMM	pH:	4.20 ± 0.05
Prep Date:	10/21/2019	Expiration Date:	10/21/2020
Prep:	Into a 20 L carboy filled with DI H_2O, adjust pH to 4.20 ± 0.05 using 60/40 HNO_3 - H_2SO_4 M14010.		

Standard ID#:	M14005	Vendor:	CPI
Analyst:	NAH	Chemical:	Y 10000 mg/L
Date Received:	10/17/2019	Lot #:	168189-30
Expiration Date (if any):	04/2021	Catalog #:	4400-110M671

Standard ID#:	M14006	Vendor:	CPI
Analyst:	NAH	Chemical:	Si 1000 mg/L
Date Received:	10/17/2019	Lot #:	1004985-62
Expiration Date (if any):	04/2021	Catalog #:	S4400-1000504F

Standard ID#:	M14007	Vendor:	CPI
Analyst:	NAH	Chemical:	Sr 1000 mg/L
Date Received:	10/17/2019	Lot #:	168227-95
Expiration Date (if any):	04/2021	Catalog #:	S4400-1000531

Standard ID#:	M14008	Vendor:	CPI
Analyst:	NAH	Chemical:	Sn 1000 mg/L
Date Received:	10/17/2019	Lot #:	977645-2
Expiration Date (if any):	04/2021	Catalog #:	S4400-1000613

Standard ID#:	M14009	Vendor:	CPI
Analyst:	NAH	Chemical:	Ti 1000 mg/L
Date Received:	10/17/2019	Lot #:	987438-36
Expiration Date (if any):	04/2021	Catalog #:	S4400-1000623

		Instrument:	CETAC
Standard Log #:	M14000	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	10/16/2019	Expiration Date:	04/16/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13923 and brought up to volume.		

Standard ID#:	M14001	Vendor:	ThermoFisher
Analyst:	MDS	Chemical:	Nickel Nitrate Matrix Modifier
Date Received:	10/17/2019	Lot #:	9192422
Expiration Date (if any):	04/30/2021	Catalog #:	39043

Standard Log #:	M14002	Reagent:	10N NaOH
Analyst:	BMM		
Prep Date:	10/17/2019	Expiration Date:	10/17/2020
Prep:	Into a 1 L volumetric flask, added **400 g** NaOH W47366 and brought up to volume.		

Standard ID#:	M14003	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10000 mg/L
Date Received:	10/17/2019	Lot #:	980507-31
Expiration Date (if any):	04/2021	Catalog #:	4400-10M411

Standard ID#:	M14004	Vendor:	CPI
Analyst:	NAH	Chemical:	Fe 10000 mg/L
Date Received:	10/17/2019	Lot #:	998527-45
Expiration Date (if any):	04/2021	Catalog #:	4400-10M261

		Instrument:	GFAA
Standard Log #:	M13997	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	10/16/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13998	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	10/16/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13999	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	10/16/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13786 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

Standard ID#:	M13993	Vendor:	Thermo fisher Scientific
Analyst:	NAH	Chemical:	Sodium Chloride
Date Received:	10/15/2019	Lot #:	193463
Expiration Date (if any):	06/2024	Catalog #:	S271-500

Standard ID#:	M13994	Vendor:	Thermo Fisher Scientific
Analyst:	NAH	Chemical:	Hydroxylamine Sulfate
Date Received:	10/15/2019	Lot #:	189407
Expiration Date (if any):	05/2024	Catalog #:	H331-500

		Instrument:	CETAC
Standard Log #:	M13995	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	10/15/2019	Expiration Date:	10/16/2019
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

Standard Log #:	M13996	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	10/16/2019	Expiration Date:	10/16/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13877. Dilute to 20 L and mix.		

		Instrument:	ICP 6000
Standard Log #:	M13992	Standard:	List 2 ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	10/15/2019	Expiration Date:	01/2020
Prep:	Into a 200 mL volumetric flask, pipetted **20 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13738, **6 mL** of Fe (10,000 mg/L) M13751, **0.1 mL** of Li (1000 µg/mL) M13577, **0.1 mL** of Sn (1000 µg/mL) M13572, **0.1 mL** of Sr (1000 µg/mL) M13580, **0.1 mL** of Ti (1000 µg/mL) M13573, and **0.1 mL** of W (1000 µg/mL) MXXXXX and brought up to volume using Milli-Q H_2O. (0.5% HNO_3, 0.5% HCl)		

		Instrument:	ICP 6000
Standard Log #:	M13989	Standard:	Sulfur ICAL
Analyst:	MDS	Concentrations:	1000 10,000 100,000 1000K µg/L (S)
Prep Date:	10/14/2019	Expiration Date:	06/2020
Prep:	Into four, 100 mL volumetric flasks, pipetted the following from stock standard S (10,000 µg/mL) M13696 and brought up to volume using milli-Q H_2O. *1000 ug/L std.* - **0.01 mL** *10,000 ug/L std.* - **0.1 mL** *100,000 ug/L std.* -**1.0 mL**, also used as the CCV *1000K ug/L std.* - **10 mL**		

		Instrument:	ICP 6000
Standard Log #:	M13990	Standard:	Sulfur ICV
Analyst:	MDS	Concentrations:	100,000 µg/L (S)
Prep Date:	10/14/2019	Expiration Date:	03/2020
Prep:	Into a 100 mL volumetric flask, pipetted **1.0 mL** of S (10,000 µg/mL) M13604 and brought up to volume using Milli-Q H_2O.		

		Instrument:	ICP 6000
Standard Log #:	M13991	Standard:	B & Si ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (B,Si)
Prep Date:	10/14/2019	Expiration Date:	12/2019
Prep:	Into a 100 mL volumetric flask, pipetted **10 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13738, **0.05 mL** of B (1000 µg/mL) M13531, **0.05 mL** of Si (1000 µg/mL) M13861 and **3 mL** of Fe (10,000 mg/L) M13751 and brought up to volume using Milli-Q H_2O.		

		Instrument:	HydraII
Standard Log #:	M13986	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	10/15/2019	Expiration Date:	04/15/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M13987	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	10/15/2019	Expiration Date:	04/15/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M13988	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	10/15/2019	Expiration Date:	04/15/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard ID#:	M13982	Vendor:	CPI
Analyst:	NAH	Chemical:	Aluminum 10000 mg/L
Date Received:	10/09/2019	Lot #:	992536-16
Expiration Date (if any):	04/2021	Catalog #:	4400-10M11

Standard ID#:	M13983	Vendor:	CPI
Analyst:	NAH	Chemical:	Fe 10000 mg/L
Date Received:	10/09/2019	Lot #:	998527-45
Expiration Date (if any):	04/2021	Catalog #:	4400-10M261

Standard ID#:	M13984	Vendor:	CPI
Analyst:	NAH	Chemical:	Mg 10000 mg/L
Date Received:	10/09/2019	Lot #:	1013353-4
Expiration Date (if any):	04/2021	Catalog #:	4400-10M311

Standard ID#:	M13985	Vendor:	CPI
Analyst:	NAH	Chemical:	Ca 10000 mg/L
Date Received:	10/09/2019	Lot #:	855297-68
Expiration Date (if any):	04/2021	Catalog #:	4400-10M91

		Instrument:	CETAC
Standard Log #:	M13978	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	10/08/2019	Expiration Date:	04/08/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13923 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13979	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	10/09/2019	Expiration Date:	04/09/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13923 and brought up to volume.		

Standard ID#:	M13980	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Std
Date Received:	10/08/2019	Lot #:	52-248CR
Expiration Date (if any):	10/30/2020	Catalog #:	XSPIKE-1-250

Standard ID#:	M13981	Vendor:	CPI
Analyst:	NAH	Chemical:	Silicon 1000 mg/l
Date Received:	10/09/2019	Lot #:	1004985-62
Expiration Date (if any):	04/2021	Catalog #:	S4400-1000504F

		Instrument:	HydraII
Standard Log #:	M13976	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	10/07/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13975 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	CETAC
Standard Log #:	M13977	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	10/07/2019	Expiration Date:	10/07/2020
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	HydraII
Standard Log #:	M13973	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	10/07/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M13974	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	10/07/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M13975	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	10/07/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	GFAA
Standard Log #:	M13970	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	10/07/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13971	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	10/07/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13972	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	10/07/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13786 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

Standard Log #:	M13969	Reagent:	1:3 HNO3
Analyst:	MDS		
Prep Date:	10/02/2019	Expiration Date:	10/02/2020
Prep:	Carefully mixed **3** parts DI with **1** part HNO_3 AB.681 in a hood.		

		Instrument:	HydraII
Standard Log #:	M13967	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	10/01/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13966 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	CETAC
Standard Log #:	M13968	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	10/01/2019	Expiration Date:	10/01/2020
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	HydraII
Standard Log #:	M13964	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	10/01/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M13965	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	10/01/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M13966	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	10/01/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard Log #:	M13963	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	09/30/2019	Expiration Date:	09/30/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13877. Dilute to 20 L and mix.		

Standard ID#:	M13961	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Std.
Date Received:	09/24/2019	Lot #:	7-093AB
Expiration Date (if any):	09/30/2020	Catalog #:	XCTWI-1-500

		Instrument:	CETAC
Standard Log #:	M13962	Reagent:	Stannous Chloride Solution
Analyst:	NAH		
Prep Date:	09/25/2019	Expiration Date:	09/25/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13923 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13960	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	09/19/2019	Expiration Date:	03/19/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.678 and dissolved **100 g** Stannous chloride M13889 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M13958	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	09/17/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	HydraII
Standard Log #:	M13959	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	09/17/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13958 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	CETAC
Standard Log #:	M13955	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	09/17/2019	Expiration Date:	09/17/2020
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	HydraII
Standard Log #:	M13956	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	09/17/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M13957	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	09/17/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

Standard Log #:	M13952	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	09/13/2019	Expiration Date:	09/13/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13877. Dilute to 20 L and mix.		

Standard Log #:	M13953	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	09/13/2019	Expiration Date:	09/13/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13877. Dilute to 20 L and mix.		

Standard ID#:	M13954	Vendor:	Environmental Expresss
Analyst:	MDS	Chemical:	1% Pd Matrix Modifier
Date Received:	09/13/2019	Lot #:	1925215
Expiration Date (if any):	09/30/2020	Catalog #:	HP1900-100

		Instrument:	CETAC
Standard Log #:	M13946	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	09/10/2019	Expiration Date:	03/10/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13889 and brought up to volume.		

Standard ID#:	M13947	Vendor:	CPI
Analyst:	NAH	Chemical:	Boron 1000 mg/lL
Date Received:	09/10/2019	Lot #:	982524-80
Expiration Date (if any):	02/2021	Catalog #:	S4400-100074

Standard ID#:	M13948	Vendor:	CPI
Analyst:	NAH	Chemical:	Selenium 1000 mg/L
Date Received:	09/10/2019	Lot #:	982461-61
Expiration Date (if any):	02/2021	Catalog #:	S4400-1000491

Standard ID#:	M13949	Vendor:	CPI
Analyst:	NAH	Chemical:	Barium 1000 mg/L
Date Received:	09/10/2019	Lot #:	994634-28
Expiration Date (if any):	02/2021	Catalog #:	S4400-100041

Standard ID#:	M13950	Vendor:	CPI
Analyst:	NAH	Chemical:	Antimony 1000 mg/L
Date Received:	09/10/2019	Lot #:	1013797-3
Expiration Date (if any):	02/2019	Catalog #:	S4400-100023

Standard ID#:	M13951	Vendor:	CPI
Analyst:	NAH	Chemical:	Silver 1000 mg/L
Date Received:	09/10/2019	Lot #:	975475-71
Expiration Date (if any):	02/2021	Catalog #:	S4400-1000511

		Instrument:	HydraII
Standard Log #:	M13944	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	09/09/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13943 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	CETAC
Standard Log #:	M13945	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	09/09/2019	Expiration Date:	09/09/2020
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	HydraII
Standard Log #:	M13941	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	09/09/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M13942	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	09/09/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M13943	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	09/09/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	GFAA
Standard Log #:	M13938	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	09/09/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13939	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	09/09/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13940	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	09/09/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13786 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13937	Standard:	NaK ICSAB
Analyst:	MDS	Concentrations:	500 mg/L (Al, Ca, Fe, Mg) 100 mg/L (Na, K)
Prep Date:	09/06/2019	Expiration Date:	02/28/2020
Prep:	Into a 250 mL volumetric flask, pipetted **25 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13738, **2.5 mL** of K (10,000 mg/L) M13755, **2.5 mL** of Na (10,000 mg/L) M13691 and **7.5 mL** of Fe (10,000 mg/L) M13695 and brought up to volume using Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13933	Standard:	Na & K ICAL
Analyst:	MDS	Concentrations:	0.5, 1, 5, 10, 50, 100, and 200 mg/L (Na,K)
Prep Date:	09/06/2019	Expiration Date:	03/2020
Prep:	Into seven, 200 mL volumetric flasks, pipetted the following from Na (1000 µg/mL) M13607 and K (1000 µg/mL) M13606 and brought up to volume using milli-Q H_2O. (2% HNO_3) *0.5 mg/L std.* - **0.1 mL** of each *1.0 mg/L std.* - **0.2 mL** of each *5.0 mg/L std.* - **1.0 mL** of each *10 mg/L std.* - **2.0 mL** of each *50 mg/L std.* - **10 mL** of each *100 mg/L std.* -**20 mL** of each, also used for Continuing Calibration Verification *200 mg/L std.* - **40 mL** of each		

		Instrument:	ICP 6000
Standard Log #:	M13934	Standard:	Na,K MRL
Analyst:	MDS	Concentrations:	1 mg/L (Na,K)
Prep Date:	09/06/2019	Expiration Date:	03/2020
Prep:	Into a 500 mL volumetric flask, pipetted **0.5 mL** of Na (1000 µg/mL) M13607 and **0.5 mL** K (1000 µg/mL) M13606 and brought to volume with Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13935	Standard:	NaK ICV
Analyst:	MDS	Concentrations:	100 mg/L (Na, K)
Prep Date:	09/06/2019	Expiration Date:	06/2020
Prep:	Into a 250 mL volumetric flask, pipetted **2.5 mL** of K (10,000 mg/L) M13755 and Na (10,000 mg/L) M13691 and brought up to volume using Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13936	Standard:	Na,K ICVLL
Analyst:	MDS	Concentrations:	3 mg/L (Na,K)
Prep Date:	09/06/2019	Expiration Date:	06/2020
Prep:	Into a 500 mL volumetric flask, pipetted **0.15 mL** of Na (10,000 µg/mL) M13691 and **0.15 mL** K (10,000 µg/mL) M13755 and brought to volume with Milli-Q H_2O. (2% HNO_3)		

		Instrument:	HydraII
Standard Log #:	M13929	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	09/03/2019	Expiration Date:	03/03/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13928 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	CETAC
Standard Log #:	M13930	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	09/03/2019	Expiration Date:	10/03/2019
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13889 and brought up to volume.		

Standard Log #:	M13931	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	09/03/2019	Expiration Date:	09/03/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13877. Dilute to 20 L and mix.		

Standard Log #:	M13932	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	09/03/2019	Expiration Date:	09/03/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13877. Dilute to 20 L and mix.		

		Instrument:	HydraII
Standard Log #:	M13926	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	09/03/2019	Expiration Date:	03/03/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M13927	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	09/03/2019	Expiration Date:	03/03/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M13928	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	09/03/2019	Expiration Date:	03/03/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard ID#:	M13924	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	Yttrium 10,000 mg/L
Date Received:	08/29/2019	Lot #:	1833905
Expiration Date (if any):	02/28/2021	Catalog #:	HP10M67-1

		Instrument:	HydraII
Standard Log #:	M13920	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	08/27/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13919 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	CETAC
Standard Log #:	M13921	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	08/28/2019	Expiration Date:	09/28/2019
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13889 and brought up to volume.		

Standard ID#:	M13922	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride Dihydrate
Date Received:	08/28/2019	Lot #:	J142-19
Expiration Date (if any):		Catalog #:	LC251701

Standard ID#:	M13923	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride Dihydrate
Date Received:	08/28/2019	Lot #:	J142-19
Expiration Date (if any):		Catalog #:	LC251701

		Instrument:	HydraII
Standard Log #:	M13917	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	08/27/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M13918	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	08/27/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M13919	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	08/27/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	GFAA
Standard Log #:	M13916	Standard:	LODW/LOQW Ag Spiking Sol'n
Analyst:	MDS	Concentrations:	10 ug/L (Ag)
Prep Date:	08/26/2019	Expiration Date:	10/2019
Prep:	Into a 100 mL volumetric flask, pipetted **0.1 mL** of Ag (1000mg/L) M13458 and brought to volume with Milli-Q H_2O to make a 1000 ug/L Ag std. Into a 1 L volumetric flask, pipetted **10 mL** of Ag (*1000 ug/L*) std. and brought to volume with Milli-Q H_2O. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*0.2 ug/L*) and **2 mL** spiking solution for LOQ (*0.4 ug/L*)		

		Instrument:	GFAA
Standard Log #:	M13914	Standard:	LODS/LOQS Spiking Sol'n
Analyst:	MDS	Concentrations:	60 ug/L (Sb) 160 ug/L (As,Se) 40 ug/L (Pb) 50 ug/L (Tl)
Prep Date:	08/26/2019	Expiration Date:	10/2019
Prep:	Into a 200 mL volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. **1.2 mL** of Sb (1000 mg/L) M13459 **3.2 mL** of As (1000 mg/L) M13863 **3.2 mL** of Se (1000 mg/L) M13460 **0.08 mL** of Pb (10,000 mg/L) M13615 **1.0 mL** of Tl (1000 mg/L) M13583 From this diluted standard solution, pipetted **10 mL** into a 1 L volumetric flask and brought up to volume with Milli-Q H_2O to make the spiking solution. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (1.2 *ug/L* Sb, *3.2 ug/L* As, *3.2 ug/L* Se, *0.8 ug/L* Pb, *1 ug/L* Tl) and **2 mL** spiking solution for LOQ (2.4 *ug/L* Sb, *6.4 ug/L* As, *6.4 ug/L* Se, *1.6 ug/L* Pb, *2 ug/L* Tl)		

		Instrument:	GFAA
Standard Log #:	M13915	Standard:	LODW/LOQW Spiking Sol'n
Analyst:	MDS	Concentrations:	150 ug/L (Sb) 100 ug/L (As) 200 ug/L (Se) 45 ug/L (Pb) 40 ug/L (Tl)
Prep Date:	08/26/2019	Expiration Date:	10/2019
Prep:	Into a 100 mL volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. **1.5 mL** of Sb (1000 mg/L) M13459 **1.0 mL** of As (1000 mg/L) M13863 **2.0 mL** of Se (1000 mg/L) M13460 **0.045 mL** of Pb (10,000 mg/L) M13615 **0.4 mL** of Tl (1000 mg/L) M13583 From this diluted standard solution, pipetted **10 mL** into a 1 L volumetric flask and brought up to volume with Milli-Q H_2O to make the spiking solution. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*3 ug/L* Sb, *2 ug/L* As, *4 ug/L* Se, *0.9 ug/L* Pb, *0.8 ug/L* Tl) and **2 mL** spiking solution for LOQ (*6 ug/L* Sb, *4 ug/L* As, *8 ug/L* Se, *1.8 ug/L* Pb, *1.6 ug/L* Tl)		

Standard Log #:	M13913 (A)	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3010 B&Si Spiking Solution
Prep Date:	08/26/2019	Expiration Date:	12/19/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
B	16	M13531	1000	0.8
Si	200	M13861	1000	10

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13913 combined with A	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3010 S Spiking Solution
Prep Date:	08/26/2019	Expiration Date:	06/20/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
S	200	M13696	10000	1.0

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

		Instrument:	CETAC
Standard Log #:	M13911	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	08/21/2019	Expiration Date:	02/21/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13888 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13912	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	08/21/2019	Expiration Date:	08/21/2020
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	HydraII
Standard Log #:	M13909	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	08/20/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13908 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	CETAC
Standard Log #:	M13910	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	08/20/2019	Expiration Date:	08/20/2020
Prep:	Carefully mixed **3** parts HCl AB.656 with **1** part HNO_3 AB.655 in a hood.		

		Instrument:	HydraII
Standard Log #:	M13906	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	08/20/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M13907	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	08/20/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M13908	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	08/20/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard Log #:	M13904	Reagent:	Potassium Persulfate Solution
Analyst:	BMM		
Prep Date:	08/19/2019	Expiration Date:	08/19/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13059 and brought up to volume.		

Standard Log #:	M13905	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	BMM		
Prep Date:	08/19/2019	Expiration Date:	08/19/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13728 and **60 g** hydroxylamine sulfate M13727 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13902	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	08/15/2019	Expiration Date:	02/15/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13888 and brought up to volume.		

Standard ID#:	M13903	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	08/15/2019	Lot #:	52-161Cr
Expiration Date (if any):	8/30/2020	Catalog #:	XSPIKE-1-250

		Instrument:	CETAC
Standard Log #:	M13898	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	08/13/2019	Expiration Date:	08/13/2020
Prep:	Carefully mixed **3** parts HCl AB.656 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	HydraII
Standard Log #:	M13899	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	08/13/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M13900	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	08/13/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M13901	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	08/13/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13734 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

Standard Log #:	M13897	Standard:	GFAA Instrument Check
Analyst:	MDS	Final Concentration:	12 µg/L As 6 µg/L Pb 10 µg/L Sb 20 µg/L Se 10 µg/L Tl 0.6 µg/L Ag
Prep Date:	08/12/2019	Expiration Date:	10/2019

Into six, 100 mL volumetric flasks, add the following and bring up to volume with milli-Q H_2O.

Element	Volume Pipetted (mL)	Standard Conc. (µg/mL)	Standard ID	New Conc. (µg/L)
As	1	1000	M13863	10,000
Pb	0.1	10,000	M13615	10,000
Tl	1	1000	M13583	10,000
Se	1	1000	M13460	10,000
Sb	1	1000	M13459	10,000
Ag	0.1	1000	M13458	1000

Into a 1 L volumetric flask, add the following and bring up to volume with Milli-Q H_20. (1% HNO_3)

Element	Volume Pipetted (mL)	Standard Conc. (µg/L)	New Conc. (µg/L)
As	1.2	10,000	12
Pb	0.6	10,000	6
Tl	1.0	10,000	10
Se	2.0	10,000	20
Sb	1.0	10,000	10
Ag	0.6	1000	0.6

Standard Log #:	M13896	Reagent:	1:3 HNO3
Analyst:	MDS		
Prep Date:	08/09/2019	Expiration Date:	08/09/2020
Prep:	Carefully mixed **3** parts DI with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13895	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	08/06/2019	Expiration Date:	02/06/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13888 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13894	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	08/05/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13893 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	CETAC
Standard Log #:	M13891	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	08/05/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	CETAC
Standard Log #:	M13892	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	08/05/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	CETAC
Standard Log #:	M13893	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	08/05/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M13890	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	07/29/2019	Expiration Date:	01/29/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13888 and brought up to volume.		

Standard ID#:	M13888	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride Dihydrate
Date Received:	07/25/2019	Lot #:	J142-19
Expiration Date (if any):		Catalog #:	LC251701

Standard ID#:	M13889	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride Dihydrate
Date Received:	07/25/2019	Lot #:	J142-19
Expiration Date (if any):		Catalog #:	LC251701

		Instrument:	CETAC
Standard Log #:	M13884	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	07/22/2019	Expiration Date:	
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	GFAA
Standard Log #:	M13885	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	07/22/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13886	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	07/22/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13887	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	07/22/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13786 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	CETAC
Standard Log #:	M13883	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	07/18/2019	Expiration Date:	01/03/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13648 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13879	Reagent:	Hg Aqua Regia
Analyst:	MDS		
Prep Date:	07/18/2019	Expiration Date:	07/18/2020
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13880	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	07/18/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	CETAC
Standard Log #:	M13881	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	07/18/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M13882	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	07/18/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13881 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

Standard Log #:	M13876	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	07/18/2019	Expiration Date:	07/18/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13750. Dilute to 20 L and mix.		

Standard Log #:	M13877	Reagent:	10N NaOH
Analyst:	BMM		
Prep Date:	07/18/2019	Expiration Date:	07/18/2020
Prep:	Into a 1 L volumetric flask, added **400 g** NaOH W45383 and brought up to volume.		

Standard Log #:	M13878	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	07/18/2019	Expiration Date:	07/18/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M45383. Dilute to 20 L and mix.		

Standard Log #:	M13873	Reagent:	Potassium Permanganate Solution
Analyst:	NAH		
Prep Date:	07/17/2019	Expiration Date:	07/17/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard ID#:	M13874	Vendor:	Fisher
Analyst:	NAH	Chemical:	Hydroxylamine Sulfate
Date Received:	07/17/2019	Lot #:	175511
Expiration Date (if any):		Catalog #:	H331-500

Standard Log #:	M13875	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	NAH		
Prep Date:	07/18/2019	Expiration Date:	07/18/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13728 and **60 g** hydroxylamine sulfate M13727 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13872	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	07/12/2019	Expiration Date:	07/12/2019
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.679 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13871	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	07/11/2019	Expiration Date:	07/11/2019
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.679 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13870	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	07/10/2019	Expiration Date:	07/10/2019
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.679 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13869	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	07/08/2019	Expiration Date:	07/08/2019
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.679 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13868	Reagent:	Stannous Chloride Solution
Analyst:	LJF		
Prep Date:	07/03/2019	Expiration Date:	01/03/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13648 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13864	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	07/02/2019	Expiration Date:	07/02/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

Standard Log #:	M13865	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	LJF		
Prep Date:	07/02/2019	Expiration Date:	01/02/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13728 and **60 g** hydroxylamine sulfate M13727 and brought up to volume.		

Standard Log #:	M13866	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	07/02/2019	Expiration Date:	01/02/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M13867	Reagent:	Potassium Persulfate Solution
Analyst:	LJF		
Prep Date:	07/02/2019	Expiration Date:	01/02/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13059 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13858	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	06/26/2019	Expiration Date:	06/26/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

Standard ID#:	M13859	Vendor:	CPI
Analyst:	NAH	Chemical:	Ce 1000 mg/L
Date Received:	06-26-2019	Lot #:	171633-12
Expiration Date (if any):	12/2020	Catalog #:	S4400-1000101

Standard ID#:	M13860	Vendor:	CPI
Analyst:	NAH	Chemical:	Mo 1000 mg/L
Date Received:	06-26-2019	Lot #:	987189-17
Expiration Date (if any):	12/2020	Catalog #:	S4400-1000343

Standard ID#:	M13861	Vendor:	CPI
Analyst:	NAH	Chemical:	Si 1000 mg/L
Date Received:	06-26-2019	Lot #:	175213-60
Expiration Date (if any):	12/2020	Catalog #:	S4400-1000504F

Standard ID#:	M13862	Vendor:	CPI
Analyst:	NAH	Chemical:	Na 10000 mg/L
Date Received:	06-26-2019	Lot #:	752887-32
Expiration Date (if any):	12/2020	Catalog #:	4400-10M521

Standard ID#:	M13863	Vendor:	CPI
Analyst:	NAH	Chemical:	As 1000 mg/L
Date Received:	06-26-2019	Lot #:	175385-105
Expiration Date (if any):	12/2020	Catalog #:	S4400-100031

Standard Log #:	M13856	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	06/21/2019	Expiration Date:	06/21/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13750. Dilute to 20 L and mix.		

Standard Log #:	M13857	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	06/21/2019	Expiration Date:	06/21/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13750. Dilute to 20 L and mix.		

		Instrument:	CETAC
Standard Log #:	M13855	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	06/19/2019	Expiration Date:	06/19/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

Standard ID#:	M13851	Vendor:	CPI
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	06-19-2019	Lot #:	52-082CR
Expiration Date (if any):	06/30/2020	Catalog #:	XSPIKE-1-250

		Instrument:	GFAA
Standard Log #:	M13852	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	06/19/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q H_2O. ($1\% HNO_3$)		

		Instrument:	GFAA
Standard Log #:	M13853	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	06/19/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q DI H_2O. ($1\% HNO_3$)		

		Instrument:	GFAA
Standard Log #:	M13854	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	06/19/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13786 and brought to volume with Milli-Q DI H_2O. ($1\% HNO_3$)		

		Instrument:	CETAC
Standard Log #:	M13850	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	06/14/2019	Expiration Date:	06/14/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

Standard Log #:	M13849	Instrument:	GFAA
Analyst:	MDS	Standard:	MDL Spiking Solution
Prep Date:	06/13/2019	Expiration Date:	07/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (2% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
Ag	0.2	M13458	1000	0.01
As	2	M13392	1000	0.1
Pb	2	M13615	10000	0.01
Sb	2	M13459	1000	0.1
Se	2	M13460	1000	0.1
Tl	2	M13583	1000	0.1

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13848	Instrument:	ICP 6500
Analyst:	NAH	Standard:	LOQ 3010 DOD Metals Spiking S
Prep Date:	06/11/2019	Expiration Date:	10/19

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	4	M13458	1000	0.2
Al	36	M13611	**10000**	0.18
As	24	M13753	1000	1.2
Ba	1.8	M13457	1000	0.09
Be	0.6	M13579	1000	0.03
Ca	100	M13692	**10000**	0.5
Cd	2.0	M13570	1000	0.1
Co	4	M13575	1000	0.2
Cr	4	M13697	**10000**	0.02
Cu	7	M13618	**10000**	0.035
Fe	100	M13609	**10000**	0.5
Mg	40	M13694	**10000**	0.2
Mn	4	M13616	**10000**	0.02
Mo	7	M13697	1000	0.35
Ni	6	M13569	1000	0.2
Pb	4	M13615	**10000**	0.02
Sb	12	M13459	1000	0.6
Se	13	M13460	1000	0.65
Tl	20	M13583	1000	0.75
V	5	M13578	1000	0.25
Zn	10	M13610	**10000**	0.05

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13847	Instrument:	ICP 6500
Analyst:	NAH	Standard:	LOQ 3050 DOD Metals Spiking S
Prep Date:	06/11/2019	Expiration Date:	10/19

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	4	M13458	1000	0.2
Al	9.6	M13611	**10000**	0.048
As	32	M13753	1000	1.6
Ba	2	M13457	1000	0.1
Be	1.6	M13579	1000	0.08
Ca	56	M13692	**10000**	0.28
Cd	1.6	M13570	1000	0.08
Co	9.6	M13575	1000	0.48
Cr	5.6	M13697	**10000**	0.028
Cu	16	M13618	**10000**	0.08
Fe	72	M13609	**10000**	0.36
Mg	32	M13694	**10000**	0.16
Mn	6	M13616	**10000**	0.03
Mo	9.6	M13697	1000	0.48
Ni	4.8	M13569	1000	0.24
Pb	10	M13615	**10000**	0.05
Sb	32	M13459	1000	1.6
Se	16	M13460	1000	0.8
Tl	19	M13583	1000	0.95
V	3.2	M13578	1000	0.16
Zn	12	M13610	**10000**	0.06

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13845	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3010 k&na Spiking Solution
Prep Date:	06/11/2019	Expiration Date:	06/2020

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
K	500	M13811	10000	2.5
Na	600	M13691	10000	3

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13846	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3050 k&na Spiking Solution
Prep Date:	06/11/2019	Expiration Date:	06/2020

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
K	2640	M13811	10000	13.2
Na	960	M13691	10000	4.8

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard ID#:	M13839	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	06/11/2019	Lot #:	52-038CR
Expiration Date (if any):	05/30/2020	Catalog #:	XCTWI-5-500

Standard ID#:	M13840	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	06/11/2019	Lot #:	5-244AB
Expiration Date (if any):	06/30/2020	Catalog #:	XCTWWI-1-500

Standard ID#:	M13841	Vendor:	CPI
Analyst:	NAH	Chemical:	Ca 10,000 mg/L
Date Received:	06/11/2019	Lot #:	855297-41
Expiration Date (if any):	11/2020	Catalog #:	4400-10M91

Standard ID#:	M13842	Vendor:	CPI
Analyst:	NAH	Chemical:	Al 10,000 mg/L
Date Received:	06/11/2019	Lot #:	169484-36
Expiration Date (if any):	11/2020	Catalog #:	4400-10M11

Standard ID#:	M13843	Vendor:	CPI
Analyst:	NAH	Chemical:	Y 10,000 mg/L
Date Received:	06/11/2019	Lot #:	168189-30
Expiration Date (if any):	11/20	Catalog #:	4400-10M671

Standard ID#:	M13844	Vendor:	CPI
Analyst:	NAH	Chemical:	Si 1000 mg/L
Date Received:	06/11/2019	Lot #:	175213-60
Expiration Date (if any):	11/2020	Catalog #:	S4400-1000504F

		Instrument:	GFAA
Standard Log #:	M13838	Standard:	LODW/LOQW Ag Spiking Sol'n
Analyst:	MDS	Concentrations:	10 ug/L (Ag)
Prep Date:	06/07/2019	Expiration Date:	10/2019
Prep:	Into a 100 mL volumetric flask, pipetted **0.1 mL** of Ag (1000mg/L) M13458 and brought to volume with Milli-Q H_2O to make a 1000 ug/L Ag std. Into a 1 L volumetric flask, pipetted **10 mL** of Ag (*1000 ug/L*) std. and brought to volume with Milli-Q H_2O. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*0.2 ug/L*) and **2 mL** spiking solution for LOQ (*0.4 ug/L*)		

		Instrument:	GFAA
Standard Log #:	M13836	Standard:	LODS/LOQS Spiking Sol'n
Analyst:	MDS	Concentrations:	60 ug/L (Sb) 160 ug/L (As,Se) 40 ug/L (Pb) 50 ug/L (Tl)
Prep Date:	06/07/2019	Expiration Date:	07/2019
Prep:	Into a 200 mL volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. **1.2 mL** of Sb (1000 mg/L) M13459 **3.2 mL** of As (1000 mg/L) M13392 **3.2 mL** of Se (1000 mg/L) M13460 **0.08 mL** of Pb (10,000 mg/L) M13615 **1.0 mL** of Tl (1000 mg/L) M13583 From this diluted standard solution, pipetted **10 mL** into a 1 L volumetric flask and brought up to volume with Milli-Q H_2O to make the spiking solution. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (1.2 *ug/L* Sb, *3.2 ug/L* As, *3.2 ug/L* Se, *0.8 ug/L* Pb, *1 ug/L* Tl) and **2 mL** spiking solution for LOQ (2.4 *ug/L* Sb, *6.4 ug/L* As, *6.4 ug/L* Se, *1.6 ug/L* Pb, *2 ug/L* Tl)		

		Instrument:	GFAA
Standard Log #:	M13837	Standard:	LODW/LOQW Spiking Sol'n
Analyst:	MDS	Concentrations:	150 ug/L (Sb) 100 ug/L (As) 200 ug/L (Se) 45 ug/L (Pb) 40 ug/L (Tl)
Prep Date:	06/07/2019	Expiration Date:	07/2019
Prep:	Into a 100 mL volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. **1.5 mL** of Sb (1000 mg/L) M13459 **1.0 mL** of As (1000 mg/L) M13392 **2.0 mL** of Se (1000 mg/L) M13460 **0.045 mL** of Pb (10,000 mg/L) M13615 **0.4 mL** of Tl (1000 mg/L) M13583 From this diluted standard solution, pipetted **10 mL** into a 1 L volumetric flask and brought up to volume with Milli-Q H_2O to make the spiking solution. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*3 ug/L* Sb, *2 ug/L* As, *4 ug/L* Se, *0.9 ug/L* Pb, *0.8 ug/L* Tl) and **2 mL** spiking solution for LOQ (*6 ug/L* Sb, *4 ug/L* As, *8 ug/L* Se, *1.8 ug/L* Pb, *1.6 ug/L* Tl)		

		Instrument:	CETAC
Standard Log #:	M13835	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	06/06/2019	Expiration Date:	06/06/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	ICP 6500
Standard Log #:	M13832	Standard:	CCV1
Analyst:	NAH	Concentrations:	**5000 µg/L** Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn **500 µg/L** Ag, Be, Cd
Prep Date:	06/03/2019	Expiration Date:	02/20
Prep:	Into a 1 L volumetric flask, pipetted **50 mL** Custom Assurance Standard #23 XCTWI-5-500 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13741 and **5.0 mL** of Custom Assurance Std. #3 XCTWI-4-500 (100 mg/L Ag, Be, Cd) M13827 and brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M13833	Standard:	CCV2
Analyst:	NAH	Concentrations:	**500 µg/L** Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn **50 µg/L** Ag, Be, Cd
Prep Date:	06/03/2019	Expiration Date:	02/20
Prep:	Into a 1 L volumetric flask, pipetted **5 mL** Custom Assurance Standard #23 XCTWI-5-500 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13741 and **0.5 mL** of Custom Assurance Std. #3 XCTWI-4-500 (100 mg/L Ag, Be, Cd) M13827 and brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M13834	Standard:	ICSAB
Analyst:	NAH	Concentrations:	**500,000 ug/L** Al, Ca, Fe, Mg **500 ug/L** Ag, As, Ba, Be, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Sb, Se, Tl, V, Zn
Prep Date:	06/03/2019	Expiration Date:	02/20
Prep:	Into a 500 mL volumetric flask, pipetted **50 mL** Interferents A Standard ((5000 mg/L Al, Ca, Mg) (2000 mg/L Fe)) M13738, **15 mL** Fe (10,000 mg/L) M13751, **2.5 mL** of Custom Assurance Std. #3 (100 mg/L Ag, Be, Cd) M13827 and **2.5 mL** Custom Assurance Std. #23 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13741 and brought up to volume with milli-Q H_2O.		

		Instrument:	CETAC
Standard Log #:	M13830	Reagent:	Stannous Chloride Solution
Analyst:	LJF		
Prep Date:	06/03/2019	Expiration Date:	12/03/2019
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.676 and dissolved **100 g** Stannous chloride M13648 and brought up to volume.		

		Instrument:	ICP 6500
Standard Log #:	M13831	Standard:	ICAL
Analyst:	NAH	Concentrations:	0.25, 0.5, 1, 5, 10, 20, 50, 100, 1000, 10,000, 100k, 100,000, 500,000 and 1000k (ug/L)
Prep Date:	06/03/2019	Expiration Date:	02/20
Prep:	Using 1 L volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (5% HNO_3, 5% HCl) *1000 ug/L Std.* - **10 mL** of Custom Assurance Std. #23 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13741, **10 mL** of Custom Assurance Std. #3 (100 mg/L Ag, Be, Cd) M13827 and **1 mL** of Si (1000 mg/L) M13810 and 1 mL M13703 Ce *0.25 ug/L Std.* - **0.25 mL** of the 1000 ug/L Std. *0.5 ug/L Std.* - **0.5 mL** of the 1000 ug/L Std. *1 ug/L Std.* - **1 mL** of the 1000 ug/L Std. *5 ug/L Std.* - **5 mL** of the 1000 ug/L Std. *10 ug/L Std.* - **10 mL** of the 1000 ug/L Std. *20 ug/L Std.* - **20 mL** of the 1000 ug/L Std. *50 ug/L Std.* - **50 mL** of the 1000 ug/L Std. *100 ug/L Std.* - **1 mL** of Custom Assurance Std. (CAS) #23 and **1 mL** of CAS #3 *10,000 ug/L Std.* - **100 mL** CAS #23, **100 mL** CAS #3 and **1 mL** of K (10,000 mg/L) M13811. *100k ug/L Std.* - **10 mL** of Cu (10,000 mg/L) M13618, **10 mL** of Mn (10,000 mg/L) M13616, **10 mL** of Cr (10,000 mg/L) M13617, **10 mL** Pb (10,000 mg/L) M13610, **10 mL** of Zn (10,000 mg/L) M13615 and **10 mL** of Na (10,000 mg/L) M13691. *100,000 ug/L Std.* - **10 mL** of Mg (10,000 mg/L) M13752, **10 mL** of Fe (10,000 mg/L) M13751, **10 mL** of Ca (10,000 mg/L) M13690 and **10 mL** Al (10,000 mg/L) M13693. *500,000 ug/L Std.* - **50 mL** of Mg (10,000 mg/L), **50 mL** of Fe (10,000 mg/L), **50 mL** of Ca (10,000 mg/L) and **50 mL** of Al (10,000 mg/L) *1000k ug/L Std.* - **100 mL** of Mg (10,000 mg/L), **100 mL** of Fe (10,000 mg/L), **100 mL** of Ca (10,000 mg/L) and **100 mL** of Al (10,000 mg/L)		

		Instrument:	CETAC
Standard Log #:	M13829	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	05/31/2019	Expiration Date:	05/31/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13828	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	05/30/2019	Expiration Date:	05/30/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

Standard ID#:	M13827	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	05-29-2019	Lot #:	XCTWI-4-500
Expiration Date (if any):	5/30/2020	Catalog #:	5-116AB

		Instrument:	CETAC
Standard Log #:	M13823	Standard:	Hg CCV
Analyst:	LJF	Concentration:	3.0 ug/L Hg
Prep Date:	05/24/2019	Expiration Date:	01/01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	CETAC
Standard Log #:	M13824	Reagent:	Stannous Chloride Solution
Analyst:	LJF		
Prep Date:	05/24/2019	Expiration Date:	11/24/2019
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.676 and dissolved **100 g** Stannous chloride M13648 and brought up to volume.		

Standard Log #:	M13825	Reagent:	Potassium Persulfate Solution
Analyst:	LJF		
Prep Date:	05/24/2019	Expiration Date:	11/24/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13059 and brought up to volume.		

Standard Log #:	M13826	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	05/24/2019	Expiration Date:	11/24/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13820	Standard:	Hg ICAL
Analyst:	LJF	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	05/24/2019	Expiration Date:	01/01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	CETAC
Standard Log #:	M13821	Standard:	Alt. Source Working Std.
Analyst:	LJF	Concentrations:	10,000 and 100 ug/L
Prep Date:	05/24/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M13822	Standard:	Hg ICV/LCS
Analyst:	LJF	Concentration:	3 ug/L
Prep Date:	05/24/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13734 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

Standard Log #:	M13818	Reagent:	TCLP 1 N HCL
Analyst:	BMM		
Prep Date:	05/22/2019	Expiration Date:	05/23/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, added 83 mL HCL AB.676 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13819	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	05/22/2019	Expiration Date:	05/22/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13817	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	05/16/2019	Expiration Date:	05/16/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

Standard Log #:	M13813	Instrument:	GFAA
Analyst:	MDS	Reagent:	Pd/Mg Matrix Modifier
Prep Date:	05/14/2019	Expiration Date:	09/30/2019
Prep:	Into a 50 mL volumetric flask, partially filled with milli-Q H_2O, pipetted **15 mL** Pd Modifier M13600 and **10 mL** Mg (10,000 mg/L) M13694 and brought up to volume.		

		Instrument:	GFAA
Standard Log #:	M13814	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	05/14/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13815	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	05/14/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13816	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	05/14/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13786 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

Standard Log #:	M13812	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	05/13/2019	Expiration Date:	11/13/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard ID#:	M13808	Vendor:	CPI
Analyst:	NAH	Chemical:	Na 10,000 ug/mL
Date Received:	05-09-2019	Lot #:	158237-121
Expiration Date (if any):	10/20	Catalog #:	4400-1000521-500

Standard ID#:	M13809	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10,000 ug/mL
Date Received:	05-09-2019	Lot #:	832313-110
Expiration Date (if any):	10/20	Catalog #:	4400-1000411-500

Standard ID#:	M13810	Vendor:	CPI
Analyst:	NAH	Chemical:	Si 1000 ug/mL
Date Received:	05-09-2019	Lot #:	175213-60
Expiration Date (if any):	10/20	Catalog #:	S400-1000504F

Standard ID#:	M13811	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10,000 ug/mL
Date Received:	05-09-2019	Lot #:	980507-14
Expiration Date (if any):	10/20	Catalog #:	4400-10M411-500

		Instrument:	CETAC
Standard Log #:	M13805	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	05/07/2019	Expiration Date:	05/07/2019
Prep:	Carefully mixed **3** parts HCl AB.677 with **1** part HNO_3 AB.676 in a hood.		

Standard Log #:	M13806	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	05/07/2019	Expiration Date:	05/07/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13750. Dilute to 20 L and mix.		

Standard Log #:	M13807	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	05/07/2019	Expiration Date:	05/07/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13750. Dilute to 20 L and mix.		

MRL BASE STD M13804 Analyst NAH

Prep Date 05/07/2019

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	(ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L	Expiration Date
Ag	20	M13458	1000	1	10/19
Al	400	M13611	10000	2	3/20
Ba	10	M13457	1000	0.5	10/19
Be	4	M13579	1000	0.2	2/20
Cd	5	M13570	1000	0.25	1/20
Co	10	M13575	1000	0.5	1/20
Cr	10	M13617	10000	0.05	3/20
Cu	10	M13618	10000	0.05	3/20
Mg	500	M13694	10000	2.5	6/20
Mn	10	M13616	10000	0.05	3/20
Mo	10	M13697	1000	0.5	6/20
Ni	10	M13569	1000	0.5	1/20
Pb	10	M13615	10000	0.05	3/20
Sb	20	M13579	1000	1	10/19
V	10	M13578	1000	0.5	2/20
Zn	10	M13610	10000	0.05	3/20
K	1000	M13755	10000	5	9/20
Na	1000	M13691	10000	5	6/20
As	20	M13753	1000	1	10000 std 0.1, 9/20
Ca	500	M13692	10000	2.5	6/20
Fe	300	M13695	10000	1.5	6/20
Se	20	M13460	1000	1	10/19
Tl	20	M13583	1000	1	2/20
Si	100	M13754	1000	5	9/20
B	20	M13531	1000	1	12/19
Li	20	M13577	1000	1	2/20
W	50	xxxx	1000	2.5	xxxx
Ti	10	M13573	1000	0.5	1/20
Sr	10	M13580	1000	0.5	2/20
Sn	50	M13572	1000	2.5	1/20
S	300	M13604	10000	1.5	3/20

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

Expiration Date: 10/19

		Instrument:	CETAC
Standard Log #:	M13800	Reagent:	Stannous Chloride Solution
Analyst:	LJF		
Prep Date:	05/06/2019	Expiration Date:	11/06/2019
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.676 and dissolved **100 g** Stannous chloride M13648 and brought up to volume.		

		Instrument:	ICP 6000
Standard Log #:	M13801	Standard:	B&Si ICAL
Analyst:	MDS	Concentrations:	50, 200, 1000, 2000 and 10,000 ug/L (B, Si)
Prep Date:	05/06/2019	Expiration Date:	12/2019
Prep:	Into five, 1 L volumetric flasks, pipetted the following from stock standards B (1000 mg/L) M13531 and Si (1000 mg/L) M13731 and brought up to volume using milli-Q H_2O. *50 ug/L std.* - **0.05 mL** of each *200 ug/L std.* - **0.2 mL** of each *1000 ug/L std.* -**1.0 mL** of each, also used for Continuing Calibration Verification *2000 ug/L std.* - **2.0 mL** of each *10,000 ug/L std.* -**10 mL** of each		

		Instrument:	ICP 6000
Standard Log #:	M13802	Standard:	B&Si ICV
Analyst:	MDS	Concentrations:	1000 ug/L (B, Si)
Prep Date:	05/06/2019	Expiration Date:	02/28/2020
Prep:	Into a 1 L volumetric flask, pipetted **10 mL** of Custom Assurance Std. #23 (100 mg/L Al, As, **B**, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13741 and **1.0 mL** Si (1000 mg/L) M13754 and brought up to volume using milli-Q H_2O.		

		Instrument:	ICP 6000
Standard Log #:	M13803	Standard:	B & Si ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (B,Si)
Prep Date:	05/06/2019	Expiration Date:	09/30/2019
Prep:	Into a 100 mL volumetric flask, pipetted **10 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13635, **0.05 mL** of B (1000 µg/mL) M13531, **0.05 mL** of Si (1000 µg/mL) M13731 and **3 mL** of Fe (10,000 mg/L) M13609 and brought up to volume using Milli-Q H_2O.		

		Instrument:	ICP 6000
Standard Log #:	M13798	Standard:	L2 ICV
Analyst:	MDS	Concentrations:	1000 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	05/03/2019	Expiration Date:	01/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of the following and brought up to volume using milli-Q H_2O. (0.5% HNO_3, 0.5% HCl) Li (1000 µg/mL) M13577 Sn (1000 µg/mL) M13572 Sr (1000 µg/mL) M13580 Ti (1000 µg/mL) M13573 W (1000 µg/mL) MXXXXX		

		Instrument:	ICP 6000
Standard Log #:	M13799	Standard:	List 2 MRL/ICVLL Prep Solution
Analyst:	MDS	Concentrations:	5000 µg/L (W) 1000 µg/L (Li, Sn) 500 µg/L (Ti, Sr)
Prep Date:	05/03/2019	Expiration Date:	01/2020

Prep:

Analyte	MRL/ICVLL Conc. (µg/L)	Standard ID	Std. Conc. (µg/mL)	Volume (mL) Pipetted into 1 L	Expiration Date
Li	20/60	M13577	1000	1	02/2020
W	100/300	MXXXXX	1000	5	XX/XXXX
Ti	10/30	M13573	1000	0.5	01/2020
Sr	10/30	M13580	1000	0.5	02/2020
Sn	20/60	M13572	1000	1	01/2020

Pipette **10 mL** into a 500 mL volumetric flask to create a working MRL std. or **1 mL** into a 50 mL digestion tube for a digested MRL standard. Pipette **30 mL** into 500 mL for a working ICVLL std. or **3 mL** into a 50 mL digestion tube for a digested ICVLL standard.

(0.5% HNO_3, 0.5% HCl)

		Instrument:	CETAC
Standard Log #:	M13795	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	05/03/2019	Expiration Date:	05/03/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	ICP
Standard Log #:	M13796	Standard:	L2 ICAL
Analyst:	MDS	Concentrations:	1 (µg/L) 10 (µg/L) 100 (µg/L) 1000 (µg/L) 10,000 (µg/L)
Prep Date:	05/03/2019	Expiration Date:	02/28/2020
Prep:	Standard Conc. (ug/L) — Pipette the following: 1 — **0.01 mL** of Custom Assurance Standard XCTWI-5-500 M13741 and **0.001 mL** W (1000 µg/mL) MXXXXX into 1L = *1 µg/L* 10 — **0.10 mL** of Custom Assurance Standard XCTWI-5-500 M13741 and **0.01 mL** W (1000 µg/mL) MXXXXX into 1L = *10 µg/L* 100 — **1 mL** of Custom Assurance Standard XCTWI-5-500 M13741 and **0.1 mL** W (1000 µg/mL) MXXXXX into 1L = *100 µg/L* 1000 (CCV) — **2 mL** of Custom Assurance Standard XCTWI-5-500 M13741 and **0.2 mL** W (1000 µg/mL) MXXXXX into 200mL = *1000 µg/L* 10000 — **20 mL** of Custom Assurance Standard XCTWI-5-500 M13741 and **2 mL** W (1000 µg/mL) MXXXXX into 200mL = *10000 µg/L*		

		Instrument:	ICP 6000
Standard Log #:	M13797	Standard:	List 2 ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	05/03/2019	Expiration Date:	09/30/2019
Prep:	Into a 200 mL volumetric flask, pipetted **20 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13635, **6 mL** of Fe (10,000 mg/L) M13609, **0.1 mL** of Li (1000 µg/mL) M13577, **0.1 mL** of Sn (1000 µg/mL) M13572, **0.1 mL** of Sr (1000 µg/mL) M13580, **0.1 mL** of Ti (1000 µg/mL) M13573, and **0.1 mL** of W (1000 µg/mL) MXXXXX and brought up to volume using Milli-Q H_2O. (0.5% HNO_3, 0.5% HCl)		

Standard Log #:	M13793	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	05/02/2019	Expiration Date:	11/02/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13793 and brought up to volume.		

Standard Log #:	M13794	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	LJF		
Prep Date:	05/02/2019	Expiration Date:	11/02/2019
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13511 and **60 g** hydroxylamine sulfate M13727 and brought up to volume.		

Standard ID#:	M13790	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	Y 10000 mg/L
Date Received:	04/29/2019	Lot #:	1833905
Expiration Date (if any):	10/31/2020	Catalog #:	HP10M67-1

Standard ID#:	M13791	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	04/29/2019	Lot #:	51-239CR
Expiration Date (if any):	02/28/2020	Catalog #:	XSPIKE-1-250

		Instrument:	CETAC
Standard Log #:	M13792	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	04/29/2019	Expiration Date:	04/29/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

Standard ID#:	M13785	Vendor:	Inorganic Ventures
Analyst:	MDS	Chemical:	GFAA ICAL/CCV BASE STD
Date Received:	04/19/2019	Lot #:	P2-MEB678822
Expiration Date (if any):	04/19/2020	Catalog #:	CTI-SPK-1

Standard ID#:	M13786	Vendor:	Inorganic Ventures
Analyst:	MDS	Chemical:	GFAA ICV/SPIKE BASE STD
Date Received:	04/19/2019	Lot #:	P2-MEB678821
Expiration Date (if any):	04/19/2020	Catalog #:	CTI-GFCAL-1

		Instrument:	GFAA
Standard Log #:	M13787	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	04/19/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q H_2O. ($1\% HNO_3$)		

		Instrument:	GFAA
Standard Log #:	M13788	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	04/19/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q DI H_2O. ($1\% HNO_3$)		

		Instrument:	GFAA
Standard Log #:	M13789	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	04/19/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13786 and brought to volume with Milli-Q DI H_2O. ($1\% HNO_3$)		

Standard Log #:	M13782	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	04/18/2019	Expiration Date:	04/18/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13750. Dilute to 20 L and mix.		

Standard ID#:	M13783	Vendor:	Alfa Aesar
Analyst:	MDS	Chemical:	GFAA 1% Nickel Nitrate Matrix Mod.
Date Received:	04/18/2019	Lot #:	9166009
Expiration Date (if any):	09/30/2020	Catalog #:	39043

Standard Log #:	M13784	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	04/18/2019	Expiration Date:	10/18/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M13780	Reagent:	Potassium Persulfate Solution
Analyst:	LJF		
Prep Date:	04/17/2019	Expiration Date:	10/17/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13059 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13781	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	04/17/2019	Expiration Date:	04/17/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.675 in a hood.		

		Instrument:	ICP 6000
Standard Log #:	M13779	Standard:	NaK ICSAB
Analyst:	MDS	Concentrations:	500 mg/L (Al, Ca, Fe, Mg) 100 mg/L (Na, K)
Prep Date:	04/12/2019	Expiration Date:	09/30/2019
Prep:	Into a 250 mL volumetric flask, pipetted **25 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13635, **2.5 mL** of K (10,000 mg/L) M13693, **2.5 mL** of Na (10,000 mg/L) M13605 and **7.5 mL** of Fe (10,000 mg/L) M13609 and brought up to volume using Milli-Q H_2O. (2% HNO_3)		

Standard Log #:	M13778	Reagent:	1:3 HNO3
Analyst:	MDS		
Prep Date:	04/11/2019	Expiration Date:	04/11/2020
Prep:	Carefully mixed **3** parts DI with **1** part HNO_3 AB.672 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13777	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	04/09/2019	Expiration Date:	04/09/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.675 in a hood.		

Standard Log #:	M13775	Instrument:	GFAA
Analyst:	MDS	Reagent:	Pd/Mg Matrix Modifier
Prep Date:	04/02/2019	Expiration Date:	09/30/2019
Prep:	Into a 50 mL volumetric flask, partially filled with milli-Q H_2O, pipetted **15 mL** Pd Modifier M13600 and **10 mL** Mg (10,000 mg/L) M13614 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13776	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	04/03/2019	Expiration Date:	04/03/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.675 in a hood.		

		Instrument:	GFAA
Standard Log #:	M13771	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	03/26/2019	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13772	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	03/26/2019	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13773	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	03/26/2019	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13498 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13774	Standard:	Sb ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 µg/L (Sb)
Prep Date:	03/26/2019	Expiration Date:	10/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.01 mL** of Antimony Stock Std. (1000 µg/mL Sb) M13459 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	CETAC
Standard Log #:	M13770	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	03/25/2019	Expiration Date:	03/25/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.675 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13768	Standard:	Hg CCV
Analyst:	LJF	Concentration:	3.0 ug/L Hg
Prep Date:	03/21/2019	Expiration Date:	01/01/2019
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	CETAC
Standard Log #:	M13769	Reagent:	Stannous Chloride Solution
Analyst:	LJF		
Prep Date:	03/21/2019	Expiration Date:	09/21/2019
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.676 and dissolved **100 g** Stannous chloride M13648 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13765	Standard:	Hg ICAL
Analyst:	LJF	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	03/21/2019	Expiration Date:	01/01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	CETAC
Standard Log #:	M13766	Standard:	Alt. Source Working Std.
Analyst:	LJF	Concentrations:	10,000 and 100 ug/L
Prep Date:	03/21/2019	Expiration Date:	04/30/2019
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13444 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M13767	Standard:	Hg ICV/LCS
Analyst:	LJF	Concentration:	3 ug/L
Prep Date:	03/21/2019	Expiration Date:	04/30/2019
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13444 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

Standard Log #:	M13763	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	03/20/2019	Expiration Date:	03/20/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13750. Dilute to 20 L and mix.		

Standard Log #:	M13764	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	03/20/2019	Expiration Date:	03/20/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13750. Dilute to 20 L and mix.		

		Instrument:	CETAC
Standard Log #:	M13761	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	03/19/2019	Expiration Date:	03/19/2019
Prep:	Carefully mixed **3** parts HCl AB.671 with **1** part HNO_3 AB.672 in a hood.		

Standard Log #:	M13762	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	LJF		
Prep Date:	03/19/2019	Expiration Date:	09/19/2019
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13511 and **60 g** hydroxylamine sulfate M13468 and brought up to volume.		

		Instrument:	ICP 6500
Standard Log #:	M13758	Standard:	ICSA4_Ni_Ti
Analyst:	NAH	Concentrations:	**10,000 ug/L** Ni and Ti
Prep Date:	03/13/2019	Expiration Date:	01/2020
Prep:	Into a 500 mL volumetric flask, pipetted 5.0 **mL** 1000 mg/L Ni M13569 5.0 **mL** 10000 mg/L Ti M13573 brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M13759	Standard:	ICSA2_Ba_Be_Sn
Analyst:	NAH	Concentrations:	**10,000 ug/L** Ba, Be, and Sn
Prep Date:	03/13/2019	Expiration Date:	10/2019
Prep:	Into a 500 mL volumetric flask, pipetted 5.0 **mL** 1000 mg/L Ba M13457 5.0 **mL** 10000 mg/L Be M13579 5.0 **mL** 10000 mg/L Sn M13572 brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M13760	Standard:	ICSA
Analyst:	NAH	Concentrations:	**500,000 ug/L** Al, Ca, Fe, Mg **10,000** V, Ce
Prep Date:	03/13/2019	Expiration Date:	09/2019
Prep:	Into a 500 mL volumetric flask, pipetted 50 **mL** Interference A std M13635 and 15 **mL** 10000 mg/L Fe M13609 5.0 **mL** 1000 mg/L V M13578 5.0 **mL** 1000 mg/L Ce M13203 and brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M13756	Standard:	ICSA1_Mn
Analyst:	NAH	Concentrations:	**10,000 ug/L** Mn
Prep Date:	03/13/2019	Expiration Date:	03/2020
Prep:	Into a 500 mL volumetric flask, pipetted 0.5 **mL** 10000 mg/L mn M13616 brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M13757	Standard:	ICSA3_Cr_Cu_Co_Mo
Analyst:	NAH	Concentrations:	**10,000 ug/L** Cr, Cu, Co and Mo
Prep Date:	03/13/2019	Expiration Date:	01/20
Prep:	Into a 500 mL volumetric flask, pipetted 0.5 **mL** 10000 mg/L Cr M13617 0.5 **mL** 10000 mg/L Cu M13618 5.0 **mL** 1000 mg/L Co M13575 5.0 **mL** 1000 mg/L Mo M13697 brought up to volume with milli-Q H_2O.		

Standard ID#:	M13751	Vendor:	CPI
Analyst:	NAH	Chemical:	Fe 10000 mg/L
Date Received:	03/12/2019	Lot #:	998527-19
Expiration Date (if any):	09/2020	Catalog #:	4400-10M261

Standard ID#:	M13752	Vendor:	CPI
Analyst:	NAH	Chemical:	Mg 10000 mg/L
Date Received:	03/12/2019	Lot #:	982185-12
Expiration Date (if any):	09/2020	Catalog #:	4400-10M311

Standard ID#:	M13753	Vendor:	CPI
Analyst:	NAH	Chemical:	As 10000 mg/L
Date Received:	03/12/2019	Lot #:	166531-32
Expiration Date (if any):	09/2020	Catalog #:	S4400--10M31

Standard ID#:	M13754	Vendor:	CPI
Analyst:	NAH	Chemical:	Si 1000 mg/L
Date Received:	03/12/2019	Lot #:	175213-60
Expiration Date (if any):	09/2020	Catalog #:	S4400-1000504F

Standard ID#:	M13755	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10000 mg/L
Date Received:	03/12/2019	Lot #:	172053-77
Expiration Date (if any):	09/2020	Catalog #:	4400-10M411

		Instrument:	CETAC
Standard Log #:	M13749	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	03/08/2019	Expiration Date:	03/08/2019
Prep:	Carefully mixed **3** parts HCl AB.671 with **1** part HNO_3 AB.672 in a hood.		

Standard Log #:	M13750	Reagent:	10N NaOH
Analyst:	BMM		
Prep Date:	03/08/2019	Expiration Date:	03/08/2020
Prep:	Into a 1 L volumetric flask, added **400 g** NaOH W45383 and brought up to volume.		

Standard ID#:	M13748	Vendor:	Potters Ind. LLC (Gainger)
Analyst:	NAH	Chemical:	Glass beads Extra Fine
Date Received:	03/07/2019	Lot #:	
Expiration Date (if any):	XXXXXX	Catalog #:	6ZC13

		Instrument:	ICP
Standard Log #:	M13746	Standard:	L2 ICAL
Analyst:	MDS	Concentrations:	1 (µg/L) 10 (µg/L) 100 (µg/L) 1000 (µg/L) 10,000 (µg/L)
Prep Date:	03/04/2019	Expiration Date:	09/30/2019

Prep:

Standard Conc. (ug/L)	Pipette the following:
1	**0.01 mL** of Custom Assurance Standard XCTWI-5-500 M13602 and **0.001 mL** W (1000 µg/mL) XXXXXX into 1L = *1 µg/L*
10	**0.10 mL** of Custom Assurance Standard XCTWI-5-500 M13602 and **0.01 mL** W (1000 µg/mL) XXXXXX into 1L = *10 µg/L*
100	**1 mL** of Custom Assurance Standard XCTWI-5-500 M13602 and **0.1 mL** W (1000 µg/mL) XXXXXX into 1L = *100 µg/L*
1000 (CCV)	**2 mL** of Custom Assurance Standard XCTWI-5-500 M13602 and **0.2 mL** W (1000 µg/mL) XXXXXX into 200mL = *1000 µg/L*
10000	**20 mL** of Custom Assurance Standard XCTWI-5-500 M13602 and **2 mL** W (1000 µg/mL) XXXXXX into 200mL = *10000 µg/L*

		Instrument:	ICP 6000
Standard Log #:	M13747	Standard:	List 2 ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	03/04/2019	Expiration Date:	09/30/2019

Prep:

Into a 200 mL volumetric flask, pipetted **20 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13635, **6 mL** of Fe (10,000 mg/L) M13609, **0.1 mL** of Li (1000 µg/mL) M13577, **0.1 mL** of Sn (1000 µg/mL) M13572, **0.1 mL** of Sr (1000 µg/mL) M13580, **0.1 mL** of Ti (1000 µg/mL) M13573, and **0.1 mL** of W (1000 µg/mL) XXXXXX and brought up to volume using Milli-Q H_2O.
(0.5% HNO_3, 0.5% HCl)

Standard Log #:	M13743	Instrument:	ICP 6500
Analyst:	NAH	Standard:	MDL DOD Metals Spiking soln
Prep Date:	02/26/2019	Expiration Date:	10/19

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	5	M13458	1000	0.25
Al	10	M13611	**10000**	0.05
As	20	M13392	1000	1
Ba	2	M13457	1000	0.1
Be	0.5	M13579	1000	0.025
Ca	50	M13692	**10000**	0.25
Cd	0.5	M13570	1000	0.025
Co	2.5	M13575	1000	0.125
Cr	5.0	M13617	**10000**	0.025
Cu	10	M13618	**10000**	0.05
Fe	40	M13609	**10000**	0.2
Mg	25	M13694	**10000**	0.125
Mn	5	M13616	**10000**	0.025
Mo	2.5	M13697	1000	0.125
Ni	5	M13569	1000	0.25
Pb	10	M13615	**10000**	0.05
Sb	20	M13459	1000	1
Se	20	M13460	1000	1
Tl	20	M13583	1000	1
V	5	M13578	1000	0.25
Zn	5	M13610	**10000**	0.025
Na	500	M13605	**10000**	2.5
K	500	M13733	**10000**	2.5
B	20	M13531	1000	1
Si	100	M13731	1000	5
S	200	M13604	**10000**	1
Li	20	M13537	1000	1
Sr	20	M13572	1000	1
Sn	20	M13580	1000	1
Ti	20	M13573	1000	1

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

		Instrument:	ICP 6000
Standard Log #:	M13740	Standard:	Sulfur ICV
Analyst:	MDS	Concentrations:	100,000 µg/L (S)
Prep Date:	02/26/2019	Expiration Date:	03/2020
Prep:	Into a 100 mL volumetric flask, pipetted **1.0 mL** of S (10,000 µg/mL) M13604 and brought up to volume using Milli-Q H_2O.		

Standard ID#:	M13741	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	02-26-2019	Lot #:	3-153AB
Expiration Date (if any):	02/28/2020	Catalog #:	XCTWI-5-500

Standard ID#:	M13742	Vendor:	IKOHE Blasting Media
Analyst:	NAH	Chemical:	Glass Neads X-fine-20u
Date Received:	02/26/2019	Lot #:	52-144
Expiration Date (if any):	*********	Catalog #:	UL-49/52-1544

		Instrument:	CETAC
Standard Log #:	M13739	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	02/22/2019	Expiration Date:	02/22/2019
Prep:	Carefully mixed **3** parts HCl AB.671 with **1** part HNO_3 AB.672 in a hood.		

Standard ID#:	M13734	Vendor:	SPEX CERTIPREP
Analyst:	LJF	Chemical:	HG 1000 ug/mL
Date Received:	02/21/2019	Lot #:	CL10-136HGY
Expiration Date (if any):	02/28/2020	Catalog #:	CLHG4-2Y

Standard Log #:	M13735	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	02/21/2019	Expiration Date:	02/21/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13736	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	02/21/2019	Expiration Date:	02/21/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard ID#:	M13737	Vendor:	SPEX CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Std
Date Received:	02/21/2019	Lot #:	51-117CR
Expiration Date (if any):	02/28/2020	Catalog #:	XSPIKE-1-250

Standard ID#:	M13738	Vendor:	SPEX CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Std
Date Received:	02/21/2019	Lot #:	2-230SGX
Expiration Date (if any):	02/28/2020	Catalog #:	INT-A1

		Instrument:	CETAC
Standard Log #:	M13730	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	02/14/2019	Expiration Date:	02/14/2019
Prep:	Carefully mixed **3** parts HCl AB.671 with **1** part HNO_3 AB.672 in a hood.		

Standard ID#:	M13731	Vendor:	CPI
Analyst:	NAH	Chemical:	Silicon 1000 ug/mL
Date Received:	02/14/2019	Lot #:	175213-60
Expiration Date (if any):	08/20	Catalog #:	S4400-1000504F

Standard ID#:	M13732	Vendor:	CPI
Analyst:	NAH	Chemical:	Yttrium 10000 ug/mL
Date Received:	02/14/2019	Lot #:	139448-54
Expiration Date (if any):	08/20	Catalog #:	4400-10M671

Standard ID#:	M13733	Vendor:	CPI
Analyst:	NAH	Chemical:	Potassium 10000 ug/mL
Date Received:	02/14/2019	Lot #:	172053-36
Expiration Date (if any):	08/20	Catalog #:	4400-10M411

Standard ID#:	M13727	Vendor:	FISHER
Analyst:	LJF	Chemical:	HYDROXYLAMINE SULFATE
Date Received:	02/08/2019	Lot #:	175511
Expiration Date (if any):		Catalog #:	H331-500

Standard ID#:	M13728	Vendor:	FISHER
Analyst:	LJF	Chemical:	SODIUM CHLORIDE
Date Received:	02/08/2019	Lot #:	186819
Expiration Date (if any):		Catalog #:	S271-500

Standard Log #:	M13729	Reagent:	Potassium Persulfate Solution
Analyst:	LJF		
Prep Date:	02/11/2019	Expiration Date:	08/11/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13059 and brought up to volume.		

Standard Log #:	M13724	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	02/07/2019	Expiration Date:	02/07/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13725	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	02/07/2019	Expiration Date:	02/07/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13726	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	02/07/2019	Expiration Date:	08/07/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13721	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	02/05/2019	Expiration Date:	02/05/2019
Prep:	Carefully mixed **3** parts HCl AB.671 with **1** part HNO_3 AB.672 in a hood.		

Standard Log #:	M13722	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	LJF		
Prep Date:	02/05/2019	Expiration Date:	08/05/2019
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13620 and **60 g** hydroxylamine sulfate M13468 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13723	Reagent:	Stannous Chloride Solution
Analyst:	LJF		
Prep Date:	02/05/2019	Expiration Date:	08/05/2019
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.671 and dissolved **100 g** Stannous chloride M13648 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13720	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	01/31/2019	Expiration Date:	01/31/2019
Prep:	Carefully mixed **3** parts HCl AB.671 with **1** part HNO_3 AB.672 in a hood.		

		Instrument:	GFAA
Standard Log #:	M13716	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	01/30/2019	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13717	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	01/30/2019	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13718	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	01/30/2019	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13498 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13719	Standard:	Sb ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 µg/L (Sb)
Prep Date:	01/30/2019	Expiration Date:	10/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.01 mL** of Antimony Stock Std. (1000 µg/mL Sb) M13459 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13713	Standard:	LODW/LOQW Ag Spiking Sol'n
Analyst:	MDS	Concentrations:	10 ug/L (Ag)
Prep Date:	01/29/2019	Expiration Date:	10/2019
Prep:	Into a 100 mL volumetric flask, pipetted **0.1 mL** of Ag (1000mg/L) M13458 and brought to volume with Milli-Q H_2O to make a 1000 ug/L Ag std. Into a 1 L volumetric flask, pipetted **10 mL** of Ag (*1000 ug/L*) std. and brought to volume with Milli-Q H_2O. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*0.2 ug/L*) and **2 mL** spiking solution for LOQ (*0.4 ug/L*)		

Standard ID#:	M13714	Vendor:	ACROS ORGANICS
Analyst:	LJF	Chemical:	POTASSIUM PERSULFATE
Date Received:	01/29/2019	Lot #:	A0391673
Expiration Date (if any):		Catalog #:	424185000

Standard ID#:	M13715	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	1/29/2019	Lot #:	51-013CR
Expiration Date (if any):	01/30/2020	Catalog #:	XCTWI-1-500

		Instrument:	GFAA
Standard Log #:	M13711	Standard:	LODS/LOQS Spiking Sol'n
Analyst:	MDS	Concentrations:	60 ug/L (Sb) 160 ug/L (As,Se) 40 ug/L (Pb) 50 ug/L (Tl)
Prep Date:	01/29/2019	Expiration Date:	07/2019
Prep:	Into a 200 mL volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. **1.2 mL** of Sb (1000 mg/L) M13459 **3.2 mL** of As (1000 mg/L) M13392 **3.2 mL** of Se (1000 mg/L) M13460 **0.08 mL** of Pb (10,000 mg/L) M13615 **1.0 mL** of Tl (1000 mg/L) M13583 From this diluted standard solution, pipetted **10 mL** into a 1 L volumetric flask and brought up to volume with Milli-Q H_2O to make the spiking solution. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (1.2 *ug/L* Sb, *3.2 ug/L* As, *3.2 ug/L* Se, *0.8 ug/L* Pb, *1 ug/L* Tl) and **2 mL** spiking solution for LOQ (2.4 *ug/L* Sb, *6.4 ug/L* As, *6.4 ug/L* Se, *1.6 ug/L* Pb, *2 ug/L* Tl)		

		Instrument:	GFAA
Standard Log #:	M13712	Standard:	LODW/LOQW Spiking Sol'n
Analyst:	MDS	Concentrations:	150 ug/L (Sb) 100 ug/L (As) 200 ug/L (Se) 45 ug/L (Pb) 40 ug/L (Tl)
Prep Date:	01/29/2019	Expiration Date:	07/2019
Prep:	Into a 100 mL volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. **1.5 mL** of Sb (1000 mg/L) M13459 **1.0 mL** of As (1000 mg/L) M13392 **2.0 mL** of Se (1000 mg/L) M13460 **0.045 mL** of Pb (10,000 mg/L) M13615 **0.4 mL** of Tl (1000 mg/L) M13583 From this diluted standard solution, pipetted **10 mL** into a 1 L volumetric flask and brought up to volume with Milli-Q H_2O to make the spiking solution. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*3 ug/L* Sb, *2 ug/L* As, *4 ug/L* Se, *0.9 ug/L* Pb, *0.8 ug/L* Tl) and **2 mL** spiking solution for LOQ (*6 ug/L* Sb, *4 ug/L* As, *8 ug/L* Se, *1.8 ug/L* Pb, *1.6 ug/L* Tl)		

		Instrument:	CETAC
Standard Log #:	M13710	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	01/22/2019	Expiration Date:	01/22/2019
Prep:	Carefully mixed **3** parts HCl AB.671 with **1** part HNO_3 AB.672 in a hood.		

		Instrument:	ICP 6000
Standard Log #:	M13709	Standard:	NaK ICSAB
Analyst:	MDS	Concentrations:	500 mg/L (Al, Ca, Fe, Mg) 100 mg/L (Na, K)
Prep Date:	01/10/2019	Expiration Date:	09/30/2019
Prep:	Into a 250 mL volumetric flask, pipetted **25 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13635, **2.5 mL** of K (10,000 mg/L) M13689, **2.5 mL** of Na (10,000 mg/L) M13605 and **7.5 mL** of Fe (10,000 mg/L) M13609 and brought up to volume using Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13705	Standard:	Na & K ICAL
Analyst:	MDS	Concentrations:	0.5, 1, 5, 10, 50, 100, and 200 mg/L (Na,K)
Prep Date:	01/10/2019	Expiration Date:	03/2020
Prep:	Into seven, 200 mL volumetric flasks, pipetted the following from Na (1000 µg/mL) M13607 and K (1000 µg/mL) M13606 and brought up to volume using milli-Q H_2O. (2% HNO_3) *0.5 mg/L std.* - **0.1 mL** of each *1.0 mg/L std.* - **0.2 mL** of each *5.0 mg/L std.* - **1.0 mL** of each *10 mg/L std.* - **2.0 mL** of each *50 mg/L std.* - **10 mL** of each *100 mg/L std.* -**20 mL** of each, also used for Continuing Calibration Verification *200 mg/L std.* - **40 mL** of each		

		Instrument:	ICP 6000
Standard Log #:	M13706	Standard:	Na,K MRL
Analyst:	MDS	Concentrations:	1 mg/L (Na,K)
Prep Date:	01/10/2019	Expiration Date:	03/2020
Prep:	Into a 500 mL volumetric flask, pipetted **0.5 mL** of Na (1000 µg/mL) M13607 and **0.5 mL** K (1000 µg/mL) M13606 and brought to volume with Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13707	Standard:	NaK ICV
Analyst:	MDS	Concentrations:	100 mg/L (Na, K)
Prep Date:	01/10/2019	Expiration Date:	03/2020
Prep:	Into a 250 mL volumetric flask, pipetted **2.5 mL** of K (10,000 mg/L) M13689 and Na (10,000 mg/L) M13605 and brought up to volume using Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13708	Standard:	Na,K ICVLL
Analyst:	MDS	Concentrations:	3 mg/L (Na,K)
Prep Date:	01/10/2019	Expiration Date:	03/2020
Prep:	Into a 500 mL volumetric flask, pipetted **0.15 mL** of Na (10,000 µg/mL) M13605 and **0.15 mL** K (10,000 µg/mL) M13689 and brought to volume with Milli-Q H_2O. (2% HNO_3)		

Standard Log #:	M13703	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	12/20/2018	Expiration Date:	12/20/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13704	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	12/20/2018	Expiration Date:	12/20/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13701	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	LJF		
Prep Date:	12/13/2018	Expiration Date:	06/13/2019
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13620 and **60 g** hydroxylamine sulfate M13468 and brought up to volume.		

Standard ID#:	M13696	Vendor:	CPI
Analyst:	NAH	Chemical:	Sulfur 10,000 mg/L
Date Received:	12/11/2018	Lot #:	167967-42
Expiration Date (if any):	06/20	Catalog #:	4400-10M544

Standard ID#:	M13697	Vendor:	CPI
Analyst:	NAH	Chemical:	Moybdenum 1000 mg/L
Date Received:	12/11/2018	Lot #:	169424-59
Expiration Date (if any):	06/20	Catalog #:	4400-1000343

Standard ID#:	M13698	Vendor:	CPI
Analyst:	NAH	Chemical:	Silicon 1000 mg/L
Date Received:	12/11/2018	Lot #:	175213-60
Expiration Date (if any):	06/20	Catalog #:	S4400-10005044F

Standard ID#:	M13699	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	12/11/2018	Lot #:	50-120CR
Expiration Date (if any):	12/30/2019	Catalog #:	XSPIKE-1-250

		Instrument:	CETAC
Standard Log #:	M13700	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	12/12/2018	Expiration Date:	12/12/2018
Prep:	Carefully mixed **3** parts HCl AB.668 with **1** part HNO_3 AB.669 in a hood.		

Standard ID#:	M13689	Vendor:	CPI
Analyst:	NAH	Chemical:	Potassium 10,000 mg/L
Date Received:	12/11/2018	Lot #:	169484-36
Expiration Date (if any):	06/20	Catalog #:	4400-10M11

Standard ID#:	M13690	Vendor:	CPI
Analyst:	NAH	Chemical:	Aluminum 10,000 mg/L
Date Received:	12/11/2018	Lot #:	169484-36
Expiration Date (if any):	06/20	Catalog #:	4400-10M11

Standard ID#:	M13691	Vendor:	CPI
Analyst:	NAH	Chemical:	Sodium 10,000 mg/L
Date Received:	12/11/2018	Lot #:	752887-32
Expiration Date (if any):	06/20	Catalog #:	4400-10M521

Standard ID#:	M13692	Vendor:	CPI
Analyst:	NAH	Chemical:	Calcium 10,000 mg/L
Date Received:	12/11/2018	Lot #:	855297-1
Expiration Date (if any):	06/20	Catalog #:	4400-10M91

Standard ID#:	M13693	Vendor:	CPI
Analyst:	NAH	Chemical:	Potassium 10,000 mg/L
Date Received:	12/11/2018	Lot #:	156651-78
Expiration Date (if any):	06/20	Catalog #:	4400-10M261

Standard ID#:	M13694	Vendor:	CPI
Analyst:	NAH	Chemical:	Magnesium 10,000 mg/L
Date Received:	12/11/2018	Lot #:	148250-72
Expiration Date (if any):	06/20	Catalog #:	4400-10M311

Standard ID#:	M13695	Vendor:	CPI
Analyst:	NAH	Chemical:	Iron 10,000 mg/L
Date Received:	12/11/2018	Lot #:	156651-78
Expiration Date (if any):	06/20	Catalog #:	4400-10M261

		Instrument:	GFAA
Standard Log #:	M13686	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	12/07/2018	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13687	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	12/07/2018	Expiration Date:	05/17/2018
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13688	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	12/07/2018	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13498 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

Standard Log #:	M13684	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	12/04/2018	Expiration Date:	06/04/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard ID#:	M13683	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	10000 mg/L
Date Received:	11/30/2018	Lot #:	1805105
Expiration Date (if any):	5/31/2020	Catalog #:	HP10M67-1

Standard Log #:	M13681	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3050 B&Si Spiking Solution
Prep Date:	11/29/2018	Expiration Date:	02/2020

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
B	52	M13531	1000	2.6
Si	192	M13394	1000	9.6

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

		Instrument:	CETAC
Standard Log #:	M13682	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	11/29/2018	Expiration Date:	11/29/2018

Prep: Carefully mixed **3** parts HCl AB.668 with **1** part HNO_3 AB.669 in a hood.

Standard Log #:	M13679	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3050 L2 Spiking Solution
Prep Date:	11/29/2018	Expiration Date:	02/2020

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
Li	14.4	M13517	1000	0.72
Sn	20	M13572	1000	1
Sr	3.2	M13586	1000	0.16
Ti	9.6	M13573	1000	0.48
W	24	xxxxxxxx	1000	1.2

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13680	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3010 B&Si Spiking Solution
Prep Date:	11/29/2018	Expiration Date:	07/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
B	16	M13531	1000	0.8
Si	200	M13394	1000	10

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13677	Instrument:	ICP 6500
Analyst:	NAH	Standard:	LOQ 3050 DOD Metals Spiking S
Prep Date:	11/29/2018	Expiration Date:	04/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	4	M13458	1000	0.2
Al	9.6	M13562	**10000**	0.048
As	32	M13392	1000	1.6
Ba	2	M13457	1000	0.1
Be	1.6	M13579	1000	0.08
Ca	56	M13324	**10000**	0.28
Cd	1.6	M13570	1000	0.08
Co	9.6	M13575	1000	0.48
Cr	5.6	M13617	**10000**	0.028
Cu	16	M13618	**10000**	0.08
Fe	72	M13463	**10000**	0.36
Mg	32	M13319	**10000**	0.16
Mn	6	M13616	**10000**	0.03
Mo	9.6	M13608	1000	0.48
Ni	4.8	M13569	1000	0.24
Pb	10	M13610	**10000**	0.05
Sb	32	M13459	1000	1.6
Se	16	M13460	1000	0.8
Tl	19	M13583	1000	0.95
V	3.2	M13578	1000	0.16
Zn	12	M13610	**10000**	0.06

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13676	Instrument:	ICP 6500
Analyst:	NAH	Standard:	LOQ 3010 DOD Metals Spiking S
Prep Date:	11/29/2018	Expiration Date:	04/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	4	M13458	1000	0.2
Al	36	M13462	**10000**	0.18
As	24	M13392	1000	1.2
Ba	1.8	M13457	1000	0.09
Be	0.6	M13579	1000	0.03
Ca	100	M13324	**10000**	0.5
Cd	2.0	M13570	1000	0.1
Co	4	M13575	1000	0.2
Cr	4	M13617	**10000**	0.02
Cu	7	M13618	**10000**	0.035
Fe	100	M13463	**10000**	0.5
Mg	40	M13319	**10000**	0.2
Mn	4	M13616	**10000**	0.02
Mo	7	M13608	1000	0.35
Ni	6	M13569	1000	0.2
Pb	4	M13610	**10000**	0.02
Sb	12	M13459	1000	0.6
Se	13	M13460	1000	0.65
Tl	20	M13583	1000	0.75
V	5	M13578	1000	0.25
Zn	10	M13610	**10000**	0.05

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

		Instrument:	CETAC
Standard Log #:	M13675	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	11/26/2018	Expiration Date:	11/26/2018
Prep:	Carefully mixed **3** parts HCl AB.668 with **1** part HNO_3 AB.669 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13671	Standard:	Hg CCV
Analyst:	LJF	Concentration:	3.0 ug/L Hg
Prep Date:	11/21/2018	Expiration Date:	01/01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	CETAC
Standard Log #:	M13672	Reagent:	Stannous Chloride Solution
Analyst:	LJF		
Prep Date:	11/21/2018	Expiration Date:	05/21/2019
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.668 and dissolved **100 g** Stannous chloride M13648 and brought up to volume.		

Standard Log #:	M13673	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	11/21/2018	Expiration Date:	05/21/2018
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M13674	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	LJF		
Prep Date:	11/21/2018	Expiration Date:	05/21/2018
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13620 and **60 g** hydroxylamine sulfate M13468 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13668	Standard:	Hg ICAL
Analyst:	LJF	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	11/21/2018	Expiration Date:	01/01/2019
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	CETAC
Standard Log #:	M13669	Standard:	Alt. Source Working Std.
Analyst:	LJF	Concentrations:	10,000 and 100 ug/L
Prep Date:	11/21/2018	Expiration Date:	04/30/2019
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13444 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M13670	Standard:	Hg ICV/LCS
Analyst:	LJF	Concentration:	3 ug/L
Prep Date:	11/21/2018	Expiration Date:	04/30/2019
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13444 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	ICP
Standard Log #:	M13666	Standard:	As Pb ICV1
Analyst:	MDS	Concentrations:	5000 ug/L (As,Pb)
Prep Date:	11/19/2018	Expiration Date:	07/2019
Prep:	Into a 1 L volumetric flask, pipetted **5 mL** of As (1000 mg/L) M13392 and **0.5 mL** Pb (10,000 mg/L) M13615 and brought to volume with Milli-Q H_2O. (2% HNO_3, 2% HCl)		

		Instrument:	CETAC
Standard Log #:	M13667	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	11/19/2018	Expiration Date:	11/19/2018
Prep:	Carefully mixed **3** parts HCl AB.668 with **1** part HNO_3 AB.669 in a hood.		

Standard Log #:	M13664	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	11/16/2018	Expiration Date:	11/16/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13665	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	11/16/2018	Expiration Date:	11/16/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

		Instrument:	CETAC
Standard Log #:	M13659	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	11/01/2018	Expiration Date:	11/01/2018
Prep:	Carefully mixed **3** parts HCl AB.668 with **1** part HNO_3 AB.669 in a hood.		

		Instrument:	ICP 6500
Standard Log #:	M13660	Standard:	ICSA
Analyst:	NAH	Concentrations:	**500,000 ug/L** Al, Ca, Fe, Mg
Prep Date:	11/01/2018	Expiration Date:	09/19
Prep:	Into a 500 mL volumetric flask, pipetted **50 mL** Interferents A Standard ((5000 mg/L Al, Ca, Mg) (2000 mg/L Fe)) M13635 and **15 mL** Fe (10000 mg/L) M13609 and brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M13661	Standard:	ICV Std.
Analyst:	NAH	Concentrations:	**12,000 mg/L** Al **10,000 mg/L** Ca, Mg **5000 mg/L** Fe **2000 mg/L** As, Ba, Se, Tl **500 mg/L** B, Co, Li, Mn, Mo, Ni, Pb, Sb, Sn, Sr, Ti, V, Zn **250 mg/L** Cu **200 mg/L** Cr **50 mg/L** Ag, Be, Cd
Prep Date:	11/06/2018	Expiration Date:	10/19
Prep:	Into a 1 L volumetric flask, pipetted the following and brought up to volume with milli-Q H_2O. **10 mL** Custom Assurance Standard #18 ((200 mg/L Al, As, Ba, Se, Tl) (100 mg/L Fe) (50 mg/L Co, Mn, Ni, Pb, Sb, V, Zn) (25 mg/L Cu) (20 mg/L Cr) (5 mg/L Ag, Be, Cd)) M13637, **2 mL** Interferents A Standard ((5000 mg/L Al, Ca, Mg) (2000 mg/L Fe)) M13635, **0.5 mL** Mo (1000 mg/L) M13608, **0.5 mL** B (1000 mg/L) M13531, **0.5 mL** Sr (1000 mg/L) M13580, **0.5 mL** Li (1000 mg/L) M13577, **0.5 mL** Sn (1000 mg/L) M13572, **0.5 mL** Ti (1000 mg/L) M13573, **0.5 mL** W (1000 mg/L) Mxxxxx, **0.5 mL** Si (1000 mg/L) M13571, **0.5 mL** S (10000 mg/L) M13530, **0.5 mL** K (10000 mg/L) M13612, and **0.5 mL** K (10000 mg/L)		

		Instrument:	ICP 6000
Standard Log #:	M13657	Standard:	L2 ICV
Analyst:	MDS	Concentrations:	1000 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	11/2/2018	Expiration Date:	01/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of the following and brought up to volume using milli-Q H_2O. (0.5% HNO_3, 0.5% HCl) Li (1000 µg/mL) M13577 Sn (1000 µg/mL) M13572 Sr (1000 µg/mL) M13580 Ti (1000 µg/mL) M13573 W (1000 µg/mL) XXX		

		Instrument:	ICP 6000
Standard Log #:	M13658	Standard:	List 2 MRL/ICVLL Prep Solution
Analyst:	MDS	Concentrations:	5000 µg/L (W) 1000 µg/L (Li, Sn) 500 µg/L (Ti, Sr)
Prep Date:	11/2/2018	Expiration Date:	01/2020

Prep:

Analyte	MRL/ICVLL Conc. (µg/L)	Standard ID	Std. Conc. (µg/mL)	Volume (mL) Pipetted into 1 L	Expiration Date
Li	20/60	M13577	1000	1	02/2020
W	100/300	XXX	1000	5	XXX
Ti	10/30	M13573	1000	0.5	01/2020
Sr	10/30	M13580	1000	0.5	02/2020
Sn	20/60	M13572	1000	1	01/2020

Pipette **10 mL** into a 500 mL volumetric flask to create a working MRL std. or **1 mL** into a 50 mL digestion tube for a digested MRL standard. Pipette **30 mL** into 500 mL for a working ICVLL std. or **3 mL** into a 50 mL digestion tube for a digested ICVLL standard.

(0.5% HNO_3, 0.5% HCl)

		Instrument:	ICP
Standard Log #:	M13655	Standard:	L2 ICAL
Analyst:	MDS	Concentrations:	1 (µg/L) 10 (µg/L) 100 (µg/L) 1000 (µg/L) 10,000 (µg/L)
Prep Date:	11/2/2018	Expiration Date:	02/28/2019
Prep:	Standard Conc. (ug/L) — Pipette the following: 1 — **0.01 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **0.001 mL** W (1000 µg/mL) xxx into 1L = *1 µg/L* 10 — **0.10 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **0.01 mL** W (1000 µg/mL) xxx into 1L = *10 µg/L* 100 — **1 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **0.1 mL** W (1000 µg/mL) xxx into 1L = *100 µg/L* 1000 (CCV) — **2 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **0.2 mL** W (1000 µg/mL) xxx into 200mL = *1000 µg/L* 10000 — **20 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **2 mL** W (1000 µg/mL) xxx into 200mL = *10000 µg/L*		

		Instrument:	ICP 6000
Standard Log #:	M13656	Standard:	List 2 ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	11/2/2018	Expiration Date:	02/28/2019
Prep:	Into a 200 mL volumetric flask, pipetted **20 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13410, **6 mL** of Fe (10,000 mg/L) M13529, **0.1 mL** of Li (1000 µg/mL) M13577, **0.1 mL** of Sn (1000 µg/mL) M13572, **0.1 mL** of Sr (1000 µg/mL) M13580, **0.1 mL** of Ti (1000 µg/mL) M13573, and **0.1 mL** of W (1000 µg/mL) XXX and brought up to volume using Milli-Q H_2O. (0.5% HNO_3, 0.5% HCl)		

		Instrument:	GFAA
Standard Log #:	M13651	Standard:	Sb ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 µg/L (Sb)
Prep Date:	10/29/2018	Expiration Date:	10/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.01 mL** of Antimony Stock Std. (1000 µg/mL Sb) M13459 and brought to volume with Milli-Q DI H_2O. ($1\% HNO_3$)		

		Instrument:	ICP 6000
Standard Log #:	M13652	Standard:	NaK ICV
Analyst:	MDS	Concentrations:	100 mg/L (Na, K)
Prep Date:	10/29/2018	Expiration Date:	10/2019
Prep:	Into a 250 mL volumetric flask, pipetted **2.5 mL** of K (10,000 mg/L) M13612 and Na (10,000 mg/L) M13461 and brought up to volume using Milli-Q H_2O. ($2\% HNO_3$)		

Standard ID#:	M13653	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance std
Date Received:	10/29/2018	Lot #:	2-036AB
Expiration Date (if any):	10/30/2019	Catalog #:	XCTWI-1-500

		Instrument:	ICP 6000
Standard Log #:	M13648	Standard:	B&Si ICAL
Analyst:	MDS	Concentrations:	50, 200, 1000, 2000 and 10,000 ug/L (B, Si)
Prep Date:	10/26/2018	Expiration Date:	07/2019
Prep:	Into five, 1 L volumetric flasks, pipetted the following from stock standards B (1000 mg/L) M13390 and Si (1000 mg/L) M13528 and brought up to volume using milli-Q H_2O. *50 ug/L std.* - **0.05 mL** of each *200 ug/L std.* - **0.2 mL** of each *1000 ug/L std.* -**1.0 mL** of each, also used for Continuing Calibration Verification *2000 ug/L std.* - **2.0 mL** of each *10,000 ug/L std.* -**10 mL** of each		

		Instrument:	ICP 6000
Standard Log #:	M13649	Standard:	B&Si ICV
Analyst:	MDS	Concentrations:	1000 ug/L (B, Si)
Prep Date:	10/26/2018	Expiration Date:	07/30/2019
Prep:	Into a 1 L volumetric flask, pipetted **10 mL** of Custom Assurance Std. #23 (100 mg/L Al, As, **B**, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13576 and **1.0 mL** Si (1000 mg/L) M13571 and brought up to volume using milli-Q H_2O.		

		Instrument:	ICP 6000
Standard Log #:	M13650	Standard:	B & Si ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (B,Si)
Prep Date:	10/27/2018	Expiration Date:	02/28/2019
Prep:	Into a 100 mL volumetric flask, pipetted **10 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13410 , **0.05 mL** of B (1000 µg/mL) M13390 , **0.05 mL** of Si (1000 µg/mL) M13528 and **3 mL** of Fe (10,000 mg/L) M13529 and brought up to volume using Milli-Q H_2O.		

		Instrument:	CETAC
Standard Log #:	M13645	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	10/24/2018	Expiration Date:	10/24/2018
Prep:	Carefully mixed **3** parts HCl AB.668 with **1** part HNO_3 AB.669 in a hood.		

Standard ID#:	M13646	Vendor:	Alfa Aesar
Analyst:	MDS	Chemical:	1% Nickel Nitrate Matrix Modifier
Date Received:	10/25/2018	Lot #:	8137324
Expiration Date (if any):	12/31/2019	Catalog #:	39043

Standard ID#:	M13647	Vendor:	LabChem
Analyst:	LJF	Chemical:	STANNOUS CHLORIDE
Date Received:	10/24/2018	Lot #:	H226-02
Expiration Date (if any):		Catalog #:	LC251701

Standard Log #:	M13643	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	10/24/2018	Expiration Date:	10/24/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13644	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	10/24/2018	Expiration Date:	10/24/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

		Instrument:	GFAA
Standard Log #:	M13639	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	10/24/2018	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13640	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	10/24/2018	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13641	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	10/24/2018	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13498 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

Standard Log #:	M13642	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	10/24/2018	Expiration Date:	10/24/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13638	Standard:	GFAA Instrument Check
Analyst:	MDS	Final Concentration:	10 µg/L As 6 µg/L Pb 12 µg/L Sb 20 µg/L Se 14 µg/L Tl 0.6 µg/L Ag
Prep Date:	10/23/2018	Expiration Date:	07/2019

Into six, 100 mL volumetric flasks, add the following and bring up to volume with milli-Q H_2O.

Element	Volume Pipetted (mL)	Standard Conc. (µg/mL)	Standard ID	New Conc. (µg/L)
As	1	1000	M13392	10,000
Pb	0.1	10,000	M13615	10,000
Tl	1	1000	M13583	10,000
Se	1	1000	M13460	10,000
Sb	1	1000	M13459	10,000
Ag	0.1	1000	M13458	1000

Into a 1 L volumetric flask, add the following and bring up to volume with Milli-Q H_20. (1% HNO_3)

Element	Volume Pipetted (mL)	Standard Conc. (µg/L)	New Conc. (µg/L)
As	1.0	10,000	10
Pb	0.6	10,000	6
Tl	1.4	10,000	14
Se	2.0	10,000	20
Sb	1.2	10,000	12
Ag	0.6	1000	0.6

Standard ID#:	M13634	Vendor:	CPI
Analyst:	NAH	Chemical:	Yttrium 10,0000 mg/L
Date Received:	10/18/2018	Lot #:	139448-54
Expiration Date (if any):	04/20	Catalog #:	4400-10m671

Standard ID#:	M13635	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Interference A
Date Received:	10/18/2018	Lot #:	2-230sgx
Expiration Date (if any):	09/30/2019	Catalog #:	INT-A1

		Instrument:	CETAC
Standard Log #:	M13636	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	10/18/2018	Expiration Date:	10/18/2018
Prep:	Carefully mixed **3** parts HCl AB.668 with **1** part HNO_3 AB.665 in a hood.		

Standard ID#:	M13637	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance standard
Date Received:	10/18/2018	Lot #:	50-0007CR
Expiration Date (if any):	10/30/2019	Catalog #:	XSPIKE-1-250

		Instrument:	CETAC
Standard Log #:	M13633	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	10/16/2018	Expiration Date:	10/16/2018
Prep:	Carefully mixed **3** parts HCl AB.668 with **1** part HNO_3 AB.665 in a hood.		

		Instrument:	GFAA
Standard Log #:	M13632	Standard:	LODW/LOQW Ag Spiking Sol'n
Analyst:	MDS	Concentrations:	10 ug/L (Ag)
Prep Date:	10/16/2018	Expiration Date:	10/2019
Prep:	Into a 100 mL volumetric flask, pipetted **0.1 mL** of Ag (1000mg/L) M13458 and brought to volume with Milli-Q H_2O to make a 1000 ug/L Ag std. Into a 1 L volumetric flask, pipetted **10 mL** of Ag (*1000 ug/L*) std. and brought to volume with Milli-Q H_2O. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*0.2 ug/L*) and **2 mL** spiking solution for LOQ (*0.4 ug/L*)		

Standard Log #:	M13627	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	10/03/2018	Expiration Date:	10/03/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13628	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	10/03/2018	Expiration Date:	10/03/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

MRL BASE STD M13626 Analyst NAH

Prep Date 10/01/2018

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	(ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L	Expiration Date
Ag	20	M13458	1000	1	10/2019
Al	400	M13462	10000	2	10/2019
Ba	10	M13457	1000	0.5	10/2019
Be	4	M13579	1000	0.2	02/20
Cd	5	M13570	1000	0.25	01/20
Co	10	M13575	1000	0.5	01/20
Cr	10	M13617	10000	0.05	03/20
Cu	10	M13618	10000	0.05	03/20
Mg	500	M13319	10000	2.5	04/19
Mn	10	M13616	10000	0.05	03/20
Mo	10	M13608	1000	0.5	03/20
Ni	10	M13569	1000	0.5	03/20
Pb	10	M13610	10000	0.05	03/20
Sb	20	M13459	1000	1	03/20
V	10	M13578	1000	0.5	02/20
Zn	10	M13610	10000	0.05	02/20
K	1000	M13341	10000	5	05/19
Na	1000	M13402	10000	5	08/19
As	20	M13392	1000	1	07/19
Ca	500	M13324	10000	2.5	04/19
Fe	300	M13463	10000	1.5	10/19
Se	20	M13460	1000	1	10/19
Tl	20	M13583	1000	1	02/20
Si	100	M13394	1000	5	07/19
B	20	M13531	1000	1	07/19
Li	20	M13517	1000	1	02/20
W	50	xxxxxxx	1000	2.5	xxxxxxx
Ti	10	M13573	1000	0.5	02/20
Sr	10	M13586	1000	0.5	02/20
Sn	50	M13572	1000	2.5	02/20
S	300	M13391	10000	1.5	07/19

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

Standard Log #:	M13625	Instrument:	GFAA
Analyst:	MDS	Reagent:	Pd/Mg Matrix Modifier
Prep Date:	10/03/2018	Expiration Date:	09/30/2019
Prep:	Into a 50 mL volumetric flask, partially filled with milli-Q H_2O, pipetted **15 mL** Pd Modifier M13600 and **10 mL** Mg (10,000 mg/L) M13464 and brought up to volume.		

Standard ID#:	M13618	Vendor:	CPI
Analyst:	NAH	Chemical:	Cu 10000 mg/L
Date Received:	09/20/2018	Lot #:	148796-39
Expiration Date (if any):	03/2020	Catalog #:	S4400-10M141

		Instrument:	CETAC
Standard Log #:	M13619	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	09/19/2018	Expiration Date:	09/19/2018
Prep:	Carefully mixed **3** parts HCl AB.664 with **1** part HNO_3 AB.665 in a hood.		

Standard ID#:	M13620	Vendor:	FISHER
Analyst:	LJF	Chemical:	SODIUM CHLORIDE
Date Received:	09/04/2018	Lot #:	177409
Expiration Date (if any):		Catalog #:	S271-500

Standard ID#:	M13611	Vendor:	CPI
Analyst:	NAH	Chemical:	Al 10000 mg/L
Date Received:	09/20/2018	Lot #:	169484-18
Expiration Date (if any):	03/2020	Catalog #:	4400-10M11

Standard ID#:	M13612	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10000 mg/L
Date Received:	09/20/2018	Lot #:	172053-36
Expiration Date (if any):	03/2020	Catalog #:	440010M411

Standard ID#:	M13613	Vendor:	CPI
Analyst:	NAH	Chemical:	Ca 10000 mg/L
Date Received:	09/20/2018	Lot #:	855297-1
Expiration Date (if any):	03/2020	Catalog #:	4400-10M91

Standard ID#:	M13614	Vendor:	CPI
Analyst:	NAH	Chemical:	Mg 10000 mg/L
Date Received:	09/20/2018	Lot #:	148250-72
Expiration Date (if any):	03/2020	Catalog #:	4400-10M311

Standard ID#:	M13615	Vendor:	CPI
Analyst:	NAH	Chemical:	Pb 10000 mg/L
Date Received:	09/20/2018	Lot #:	168223-17
Expiration Date (if any):	03/2020	Catalog #:	4400-10M281

Standard ID#:	M13616	Vendor:	CPI
Analyst:	NAH	Chemical:	Mn 10000 mg/L
Date Received:	09/20/2018	Lot #:	167540-6
Expiration Date (if any):	03/2020	Catalog #:	S4400-10M321

Standard ID#:	M13617	Vendor:	CPI
Analyst:	NAH	Chemical:	Cr 10000 mg/L
Date Received:	09/20/2018	Lot #:	158236-7
Expiration Date (if any):	03/2020	Catalog #:	s4400-10M121

Standard ID#:	M13604	Vendor:	CPI
Analyst:	NAH	Chemical:	Sulfur 10000 mg/L
Date Received:	09/20/2018	Lot #:	167967-37
Expiration Date (if any):	03/2020	Catalog #:	4400-10M544

Standard ID#:	M13605	Vendor:	CPI
Analyst:	NAH	Chemical:	Sodium 10000 mg/L
Date Received:	09/20/2018	Lot #:	752887-3
Expiration Date (if any):	03/2020	Catalog #:	4400-10M521

Standard ID#:	M13606	Vendor:	CPI
Analyst:	NAH	Chemical:	K 1000 mg/L
Date Received:	09/20/2018	Lot #:	144467-179
Expiration Date (if any):	03/2020	Catalog #:	4400-1000411-500

Standard ID#:	M13607	Vendor:	CPI
Analyst:	NAH	Chemical:	Na 1000 mg/L
Date Received:	09/20/2018	Lot #:	158237-113
Expiration Date (if any):	03/2020	Catalog #:	4400-1000521-500

Standard ID#:	M13608	Vendor:	CPI
Analyst:	NAH	Chemical:	Mo 1000 mg/L
Date Received:	09/20/2018	Lot #:	169424-37
Expiration Date (if any):	03/2020	Catalog #:	S4400-1000343

Standard ID#:	M13609	Vendor:	CPI
Analyst:	NAH	Chemical:	Fe 10000 mg/L
Date Received:	09/20/2018	Lot #:	156651-53
Expiration Date (if any):	03/2020	Catalog #:	4400-10M261

Standard ID#:	M13610	Vendor:	CPI
Analyst:	NAH	Chemical:	Zn 10000 mg/L
Date Received:	09/20/2018	Lot #:	979871-2
Expiration Date (if any):	03/2020	Catalog #:	4400-10M681

Standard Log #:	M13601	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	09/12/2018	Expiration Date:	09/12/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard ID#:	M13602	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	09-12-2018	Lot #:	1-124AB
Expiration Date (if any):	09-30-2019	Catalog #:	XCTWI-5-500

Standard ID#:	M13600	Vendor:	Environmental Express
Analyst:	MDS	Chemical:	1% Pd Matrix Modifier
Date Received:	09/11/2018	Lot #:	1808015
Expiration Date (if any):	09/30/2019	Catalog #:	HP1900-100

Standard Log #:	M13599	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	09/08/2018	Expiration Date:	09/08/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard ID#:	M13595	Vendor:	SPEX CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Std
Date Received:	08/29/2018	Lot #:	49-151CR
Expiration Date (if any):	08/30/2019	Catalog #:	XSPIKE-1-250

		Instrument:	CETAC
Standard Log #:	M13596	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	08/30/2018	Expiration Date:	08/30/2018
Prep:	Carefully mixed **3** parts HCl AB.664 with **1** part HNO_3 AB.665 in a hood.		

		Instrument:	ICP 6000
Standard Log #:	M13597	Standard:	Na & K ICAL
Analyst:	MDS	Concentrations:	0.5, 1, 5, 10, 50, 100, and 200 mg/L (Na,K)
Prep Date:	08/30/2018	Expiration Date:	05/2019
Prep:	Into seven, 200 mL volumetric flasks, pipetted the following from Na (1000 µg/mL) M13339 and K (1000 µg/mL) M13340 and brought up to volume using milli-Q H_2O. (2% HNO_3) *0.5 mg/L std.* - **0.1 mL** of each *1.0 mg/L std.* - **0.2 mL** of each *5.0 mg/L std.* - **1.0 mL** of each *10 mg/L std.* - **2.0 mL** of each *50 mg/L std.* - **10 mL** of each *100 mg/L std.* -**20 mL** of each, also used for Continuing Calibration Verification *200 mg/L std.* - **40 mL** of each		

		Instrument:	ICP 6000
Standard Log #:	M13598	Standard:	Na,K MRL
Analyst:	MDS	Concentrations:	1 mg/L (Na,K)
Prep Date:	08/30/2018	Expiration Date:	05/2019
Prep:	Into a 500 mL volumetric flask, pipetted **0.5 mL** of Na (1000 µg/mL) M13339 and **0.5 mL** K (1000 µg/mL) M13340 and brought to volume with Milli-Q H_2O. (2% HNO_3)		

Standard Log #:	M13588	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	08/21/2018	Expiration Date:	08/21/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13589	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	08/21/2018	Expiration Date:	08/21/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard ID#:	M13590	Vendor:	AMCO Clear
Analyst:	NAH	Chemical:	turbidity std 2.0 ntu
Date Received:	08/21/2018	Lot #:	18272791
Expiration Date (if any):	08/2019	Catalog #:	8008

		Instrument:	ICP 6000
Standard Log #:	M13586	Standard:	L2 ICV
Analyst:	MDS	Concentrations:	1000 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	08/20/2018	Expiration Date:	01/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of the following and brought up to volume using milli-Q H_2O. (0.5% HNO_3, 0.5% HCl) Li (1000 µg/mL) M13577 Sn (1000 µg/mL) M13572 Sr (1000 µg/mL) M13580 Ti (1000 µg/mL) M13573 W (1000 µg/mL) MXXX		

		Instrument:	ICP 6000
Standard Log #:	M13587	Standard:	List 2 MRL/ICVLL Prep Solution
Analyst:	MDS	Concentrations:	5000 µg/L (W) 1000 µg/L (Li, Sn) 500 µg/L (Ti, Sr)
Prep Date:	08/20/2018	Expiration Date:	01/2020

Prep:

Analyte	MRL/ICVLL Conc. (µg/L)	Standard ID	Std. Conc. (µg/mL)	Volume (mL) Pipetted into 1 L	Expiration Date
Li	20/60	M13577	1000	1	02/2020
W	100/300	XXX	1000	5	XXX
Ti	10/30	M13573	1000	0.5	01/2020
Sr	10/30	M13580	1000	0.5	02/2020
Sn	20/60	M13572	1000	1	01/2020

Pipette **10 mL** into a 500 mL volumetric flask to create a working MRL std. or **1 mL** into a 50 mL digestion tube for a digested MRL standard. Pipette **30 mL** into 500 mL for a working ICVLL std. or **3 mL** into a 50 mL digestion tube for a digested ICVLL standard.

(0.5% HNO_3, 0.5% HCl)

		Instrument:	ICP
Standard Log #:	M13584	Standard:	L2 ICAL
Analyst:	MDS	Concentrations:	1 (µg/L) 10 (µg/L) 100 (µg/L) 1000 (µg/L) 10,000 (µg/L)
Prep Date:	08/20/2018	Expiration Date:	07/30/2019
Prep:	Standard Conc. (ug/L)	Pipette the following:	
	1	**0.01 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **0.001 mL** W (1000 µg/mL) MXXX into 1L = *1 µg/L*	
	10	**0.10 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **0.01 mL** W (1000 µg/mL) MXXX into 1L = *10 µg/L*	
	100	**1 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **0.1 mL** W (1000 µg/mL) MXXX into 1L = *100 µg/L*	
	1000 (CCV)	**2 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **0.2 mL** W (1000 µg/mL) MXXX into 200mL = *1000 µg/L*	
	10000	**20 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **2 mL** W (1000 µg/mL) MXXX into 200mL = *10000 µg/L*	

		Instrument:	ICP 6000
Standard Log #:	M13585	Standard:	List 2 ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	08/20/2018	Expiration Date:	
Prep:	Into a 200 mL volumetric flask, pipetted **20 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13410, **6 mL** of Fe (10,000 mg/L) M13463, **0.1 mL** of Li (1000 µg/mL) M13577, **0.1 mL** of Sn (1000 µg/mL) M13572, **0.1 mL** of Sr (1000 µg/mL) M13580, **0.1 mL** of Ti (1000 µg/mL) M13573, and **0.1 mL** of W (1000 µg/mL) MXXX and brought up to volume using Milli-Q H_2O. (0.5% HNO_3, 0.5% HCl)		

Standard ID#:	M13577	Vendor:	CPI
Analyst:	NAH	Chemical:	Li 1000 mg/L
Date Received:	08/17/2018	Lot #:	751942-25
Expiration Date (if any):	02/2020	Catalog #:	S4400-1000291

Standard ID#:	M13578	Vendor:	CPI
Analyst:	NAH	Chemical:	V 1000 mg/L
Date Received:	08/17/2018	Lot #:	152207-68
Expiration Date (if any):	02/2020	Catalog #:	S4400-1000651

Standard ID#:	M13579	Vendor:	CPI
Analyst:	NAH	Chemical:	Be 1000 mg/L
Date Received:	08/17/2018	Lot #:	660981-5
Expiration Date (if any):	02/2020	Catalog #:	S4400-100051

Standard ID#:	M13580	Vendor:	CPI
Analyst:	NAH	Chemical:	Sr 1000 mg/L
Date Received:	08/17/2018	Lot #:	168227-29
Expiration Date (if any):	02/2020	Catalog #:	S4400-1000531

Standard ID#:	M13581	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10000 mg/L
Date Received:	08/17/2018	Lot #:	172053-36
Expiration Date (if any):	02/2020	Catalog #:	4400-10411

Standard ID#:	M13582	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	Y 10000 mg/L
Date Received:	08/17/2018	Lot #:	1805105
Expiration Date (if any):	02/2020	Catalog #:	HP10M67-1

Standard ID#:	M13583	Vendor:	CPI
Analyst:	NAH	Chemical:	Tl 1000 mg/L
Date Received:	08/17/2018	Lot #:	148983-70
Expiration Date (if any):	02/2020	Catalog #:	S4400-1000581

Standard ID#:	M13576	Vendor:	Spex Certiprep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	08/04/2018	Lot #:	49-045CR
Expiration Date (if any):	07/30/2019	Catalog #:	XCTWI-5-500

Standard ID#:	M13569	Vendor:	CPI
Analyst:	NAH	Chemical:	Ni 1000 mg/L
Date Received:	07/27/2018	Lot #:	166665-86
Expiration Date (if any):	01/2020	Catalog #:	s4400-1000361

Standard ID#:	M13570	Vendor:	CPI
Analyst:	NAH	Chemical:	Cd 1000 mg/L
Date Received:	07/27/2018	Lot #:	160499-32
Expiration Date (if any):	01/2020	Catalog #:	s4400-100081

Standard ID#:	M13571	Vendor:	CPI
Analyst:	NAH	Chemical:	Si 1000 mg/L
Date Received:	07/27/2018	Lot #:	175213-28
Expiration Date (if any):	01/2020	Catalog #:	s4400-1000504F

Standard ID#:	M13572	Vendor:	CPI
Analyst:	NAH	Chemical:	Sn 1000 mg/L
Date Received:	07/27/2018	Lot #:	144466-74
Expiration Date (if any):	01/2020	Catalog #:	s4400-1000613

Standard ID#:	M13573	Vendor:	CPI
Analyst:	NAH	Chemical:	Ti 1000 mg/L
Date Received:	07/27/2018	Lot #:	152616-55
Expiration Date (if any):	01/2020	Catalog #:	s4400-1000623

Standard ID#:	M13574	Vendor:	CPI
Analyst:	NAH	Chemical:	Hg 1000 mg/L
Date Received:	07/27/2018	Lot #:	175191-22
Expiration Date (if any):	01/2020	Catalog #:	s4400-1000331

Standard ID#:	M13575	Vendor:	CPI
Analyst:	NAH	Chemical:	Co 1000 mg/L
Date Received:	07/27/2018	Lot #:	161693-10
Expiration Date (if any):	01/2020	Catalog #:	s4400-1000131

Standard Log #:	M13563	Instrument:	ICP
Analyst:	LJF	Standard:	LOQ 3050 S Spiking Solution
Prep Date:	07/19/2018	Expiration Date:	10/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
S	240	M13466	10000	1.2

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard ID#:	M13557	Vendor:	Alfa Aesar Specpure
Analyst:	MDS	Chemical:	1% Nickel Nitrate Matrix Modifier
Date Received:	07/17/2018	Lot #:	8137324
Expiration Date (if any):	12/31/2019	Catalog #:	39043

		Instrument:	ICP 6000
Standard Log #:	M13558	Standard:	B&Si ICV
Analyst:	MDS	Concentrations:	1000 ug/L (B, Si)
Prep Date:	07/17/2018	Expiration Date:	05/2019
Prep:	Into a 1 L volumetric flask, pipetted **10 mL** of Custom Assurance Std. #23 (100 mg/L Al, As, **B**, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13518 and **1.0 mL** Si (1000 mg/L) M13338 and brought up to volume using milli-Q H_2O.		

Standard Log #:	M13559	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	07/17/2018	Expiration Date:	01/17/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13559 and brought up to volume.		

Standard Log #:	M13554	Instrument:	ICP
Analyst:	LJF	Standard:	LOQ 3010 B&Si Spiking Solution
Prep Date:	07/13/2018	Expiration Date:	05/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
B	16	M13390	1000	0.8
Si	200	M13338	1000	10

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13555	Instrument:	ICP
Analyst:	LJF	Standard:	LOQ 3010 S Spiking Solution
Prep Date:	07/13/2018	Expiration Date:	10/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
S	200	M13466	10000	1.0

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

		Instrument:	GFAA
Standard Log #:	M13553	Standard:	Sb ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 µg/L (Sb)
Prep Date:	07/12/2018	Expiration Date:	10/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.01 mL** of Antimony Stock Std. (1000 µg/mL Sb) M13459 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13547	Standard:	LODW/LOQW Ag Spiking Sol'n
Analyst:	MDS	Concentrations:	10 ug/L (Ag)
Prep Date:	07/09/2018	Expiration Date:	10/2019
Prep:	Into a 100 mL volumetric flask, pipetted **0.1 mL** of Ag (1000mg/L) M13458 and brought to volume with Milli-Q H_2O to make a 1000 ug/L Ag std. Into a 1 L volumetric flask, pipetted **10 mL** of Ag (*1000 ug/L*) std. and brought to volume with Milli-Q H_2O. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*0.2 ug/L*) and **2 mL** spiking solution for LOQ (*0.4 ug/L*)		

Standard Log #:	M13548	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	LJF		
Prep Date:	07/10/2018	Expiration Date:	01/10/2019
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13226 and **60 g** hydroxylamine sulfate M13468 and brought up to volume.		

		Instrument:	GFAA
Standard Log #:	M13549	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	07/10/2018	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

Standard Log #:	M13534	Standard:	GFAA Instrument Check
Analyst:	MDS	Final Concentration:	10 µg/L As 6 µg/L Pb 12 µg/L Sb 20 µg/L Se 14 µg/L Tl 0.6 µg/L Ag
Prep Date:	07/02/2018	Expiration Date:	09/16/2018

Into six, 100 mL volumetric flasks, add the following and bring up to volume with milli-Q H_2O.

Element	Volume Pipetted (mL)	Standard Conc. (µg/mL)	Standard ID	New Conc. (µg/L)
As	1	1000	M13392	10,000
Pb	0.1	10,000	M13169	10,000
Tl	1	1000	M13124	10,000
Se	1	1000	M13460	10,000
Sb	1	1000	M13459	10,000
Ag	0.1	1000	M13458	1000

Into a 1 L volumetric flask, add the following and bring up to volume with Milli-Q H_20. (1% HNO_3)

Element	Volume Pipetted (mL)	Standard Conc. (µg/L)	New Conc. (µg/L)
As	1.0	10,000	10
Pb	0.6	10,000	6
Tl	1.4	10,000	14
Se	2.0	10,000	20
Sb	1.2	10,000	12
Ag	0.6	1000	0.6

Standard ID#:	M13535	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	07/02/2018	Lot #:	48-179CR
Expiration Date (if any):	06/30/2019	Catalog #:	XSPIKE-1-250

Standard ID#:	M13526	Vendor:	CPI
Analyst:	NAH	Chemical:	YTTRIUM 10,000 ug/mL
Date Received:	06/22/2018	Lot #:	138448-54
Expiration Date (if any):	12/2019	Catalog #:	4400-10M671

Standard ID#:	M13527	Vendor:	CPI
Analyst:	NAH	Chemical:	POTASSIUM 10,000
Date Received:	06/22/2018	Lot #:	172053-32
Expiration Date (if any):	12/2019	Catalog #:	4400-104411

Standard ID#:	M13528	Vendor:	CPI
Analyst:	NAH	Chemical:	Si 1000 ug/mL
Date Received:	06/22/2018	Lot #:	142610-115
Expiration Date (if any):	12/2019	Catalog #:	S4400-1000504F

Standard ID#:	M13529	Vendor:	CPI
Analyst:	NAH	Chemical:	Fe 10,000 ug/mL
Date Received:	06/22/2018	Lot #:	156651-42
Expiration Date (if any):	12/2019	Catalog #:	4400-10M261

Standard ID#:	M13530	Vendor:	CPI
Analyst:	NAH	Chemical:	SULFUR 10,000ug/mL
Date Received:	06/22/2018	Lot #:	129880-46
Expiration Date (if any):	12/2019	Catalog #:	4400-10M544

Standard ID#:	M13531	Vendor:	CPI
Analyst:	NAH	Chemical:	BORON 1000 ug/mL
Date Received:	06/22/2018	Lot #:	158372-91
Expiration Date (if any):	12/2019	Catalog #:	S4400-100074

Standard ID#:	M13532	Vendor:	CPI
Analyst:	NAH	Chemical:	CUSTOM ASSURANCE STANDARD
Date Received:	06/22/2018	Lot #:	48-146CR
Expiration Date (if any):	06/30/2019	Catalog #:	XCTWI-1-500

Standard ID#:	M13520	Vendor:	FRISCOLYT
Analyst:	NAH	Chemical:	Electrolyte Solution
Date Received:	06/13/2018	Lot #:	1DO71H
Expiration Date (if any):	12/03/2021	Catalog #:	51 340 053

		Instrument:	ICP
Standard Log #:	M13521	Standard:	As Pb ICV1
Analyst:	MDS	Concentrations:	5000 ug/L (As,Pb)
Prep Date:	06/13/2018	Expiration Date:	10/20/2018
Prep:	Into a 1 L volumetric flask, pipetted **0.5 mL** of As (10,000 mg/L) M13392 and **0.5 mL** Pb (10,000 mg/L) M13169 and brought to volume with Milli-Q H_2O. (2% HNO_3, 2% HCl)		

Standard ID#:	M13518	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	06/11/2018	Lot #:	48-060CR
Expiration Date (if any):	06/30/2019	Catalog #:	XCTWI-5-500

		Instrument:	ICP 6500
Standard Log #:	M13519	Standard:	ICAL
Analyst:	NAH	Concentrations:	0.25, 0.5, 1, 5, 10, 20, 50, 100, 1000, 10,000, 100k, 100,000, 500,000 and 1000k (ug/L)
Prep Date:	06/11/2018	Expiration Date:	06/30/2019

Prep:

Using 1 L volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O.
(5% HNO_3, 5% HCl)
1000 ug/L Std. - **10 mL** of Custom Assurance Std. #23 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13518, **10 mL** of Custom Assurance Std. #3 (100 mg/L Ag, Be, Cd) M13506 and **1 mL** of Si (1000 mg/L) M13394 and 1 mL M13203 Ce
0.25 ug/L Std. - **0.25 mL** of the 1000 ug/L Std.
0.5 ug/L Std. - **0.5 mL** of the 1000 ug/L Std.
1 ug/L Std. - **1 mL** of the 1000 ug/L Std.
5 ug/L Std. - **5 mL** of the 1000 ug/L Std.
10 ug/L Std. - **10 mL** of the 1000 ug/L Std.
20 ug/L Std. - **20 mL** of the 1000 ug/L Std.
50 ug/L Std. - **50 mL** of the 1000 ug/L Std.
100 ug/L Std. - **1 mL** of Custom Assurance Std. (CAS) #23 and **1 mL** of CAS #3
10,000 ug/L Std. - **100 mL** CAS #23, **100 mL** CAS #3 and **1 mL** of K (10,000 mg/L) M13465.
100k ug/L Std. - **10 mL** of Cu (10,000 mg/L) M13166, **10 mL** of Mn (10,000 mg/L) M13167, **10 mL** of Cr (10,000 mg/L) M13165, **10 mL** Pb (10,000 mg/L) M13169, **10 mL** of Zn (10,000 mg/L) M13168 and **10 mL** of Na (10,000 mg/L) M13461.
100,000 ug/L Std. - **10 mL** of Mg (10,000 mg/L) M13319, **10 mL** of Fe (10,000 mg/L) M13463, **10 mL** of Ca (10,000 mg/L) M13467 and **10 mL** Al (10,000 mg/L) M13462.
500,000 ug/L Std. - **50 mL** of Mg (10,000 mg/L), **50 mL** of Fe (10,000 mg/L), **50 mL** of Ca (10,000 mg/L) and **50 mL** of Al (10,000 mg/L)
1000k ug/L Std. - **100 mL** of Mg (10,000 mg/L), **100 mL** of Fe (10,000 mg/L), **100 mL** of Ca (10,000 mg/L) and **100 mL** of Al (10,000 mg/L)

		Instrument:	CETAC
Standard Log #:	M13510	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	06/01/2018	Expiration Date:	06/01/2018
Prep:	Carefully mixed **3** parts HCl AB.656 with **1** part HNO_3 AB.655 in a hood.		

Standard ID#:	M13511	Vendor:	FISHER
Analyst:	LJF	Chemical:	SODIUM CHLORIDE
Date Received:	06/04/2018	Lot #:	176877
Expiration Date (if any):		Catalog #:	S271-500

Standard ID#:	M13506	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	05/22/2018	Lot #:	48-042CR
Expiration Date (if any):	05/30/2019	Catalog #:	XCTWI-4-500

Standard ID#:	M13507	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	05/22/2018	Lot #:	48-041CR
Expiration Date (if any):	05/30/2019	Catalog #:	XSPIKE-1-250

Standard ID#:	M13508	Vendor:	RESTEK
Analyst:	NAH	Chemical:	Diatomaceous earth (Celite 566)
Date Received:	05/22/2018	Lot #:	811030-BG
Expiration Date (if any):	N/A	Catalog #:	26033

Standard ID#:	M13495	Vendor:	LabChem
Analyst:	LJF	Chemical:	STANNOUS CHLORIDE
Date Received:	05/15/2018	Lot #:	H052-17
Expiration Date (if any):		Catalog #:	LC251701

		Instrument:	ICP 6000
Standard Log #:	M13485	Standard:	Na & K ICAL
Analyst:	MDS	Concentrations:	0.5, 1, 5, 10, 50, 100, and 200 mg/L (Na,K)
Prep Date:	05/07/2018	Expiration Date:	05/2019
Prep:	Into seven, 200 mL volumetric flasks, pipetted the following from Na (1000 µg/mL) M13339 and K (1000 µg/mL) M13340 and brought up to volume using milli-Q H_2O. (2% HNO_3) *0.5 mg/L std.* - **0.1 mL** of each *1.0 mg/L std.* - **0.2 mL** of each *5.0 mg/L std.* - **1.0 mL** of each *10 mg/L std.* - **2.0 mL** of each *50 mg/L std.* - **10 mL** of each *100 mg/L std.* -**20 mL** of each, also used for Continuing Calibration Verification *200 mg/L std.* - **40 mL** of each		

		Instrument:	ICP 6000
Standard Log #:	M13486	Standard:	NaK ICV
Analyst:	MDS	Concentrations:	100 mg/L (Na, K)
Prep Date:	05/07/2018	Expiration Date:	08/2019
Prep:	Into a 250 mL volumetric flask, pipetted **2.5 mL** of K (10,000 mg/L) M13400 and Na (10,000 mg/L) M13402 and brought up to volume using Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13487	Standard:	Na,K ICVLL
Analyst:	MDS	Concentrations:	3 mg/L (Na,K)
Prep Date:	05/07/2018	Expiration Date:	08/2019
Prep:	Into a 500 mL volumetric flask, pipetted **0.15 mL** of Na (10,000 µg/mL) M13402 and **0.15 mL** K (10,000 µg/mL) M13400 and brought to volume with Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13488	Standard:	Na,K MRL
Analyst:	MDS	Concentrations:	1 mg/L (Na,K)
Prep Date:	05/07/2018	Expiration Date:	05/2019
Prep:	Into a 500 mL volumetric flask, pipetted **0.5 mL** of Na (1000 µg/mL) M13339 and **0.5 mL** K (1000 µg/mL) M13340 and brought to volume with Milli-Q H_2O. (2% HNO_3)		

Standard ID#:	M13484	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	Y 10,000 mg/L
Date Received:	05/03/2018	Lot #:	1805105
Expiration Date (if any):	10/31/2019	Catalog #:	HP10M67-1

		Instrument:	ICP 6000
Standard Log #:	M13471	Standard:	B&Si ICAL
Analyst:	MDS	Concentrations:	50, 200, 1000, 2000 and 10,000 ug/L (B, Si)
Prep Date:	04/26/2018	Expiration Date:	07/2019
Prep:	Into five, 1 L volumetric flasks, pipetted the following from stock standards B (1000 mg/L) M13390 and Si (1000 mg/L) M13394 and brought up to volume using milli-Q H_2O. *50 ug/L std.* - **0.05 mL** of each *200 ug/L std.* - **0.2 mL** of each *1000 ug/L std.* -**1.0 mL** of each, also used for Continuing Calibration Verification *2000 ug/L std.* - **2.0 mL** of each *10,000 ug/L std.* -**10 mL** of each		

		Instrument:	ICP 6000
Standard Log #:	M13472	Standard:	B&Si ICV
Analyst:	MDS	Concentrations:	1000 ug/L (B, Si)
Prep Date:	04/26/2018	Expiration Date:	07/02/2018
Prep:	Into a 1 L volumetric flask, pipetted **10 mL** of Custom Assurance Std. #23 (100 mg/L Al, As, **B**, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13364 and **1.0 mL** Si (1000 mg/L) M13085 and brought up to volume using milli-Q H_2O.		

		Instrument:	ICP 6000
Standard Log #:	M13473	Standard:	B & Si ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (B,Si)
Prep Date:	04/26/2018	Expiration Date:	10/30/2018
Prep:	Into a 100 mL volumetric flask, pipetted **10 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13305 , **0.05 mL** of B (1000 µg/mL) M13390 , **0.05 mL** of Si (1000 µg/mL) M13394 and **3 mL** of Fe (10,000 mg/L) M13321 and brought up to volume using Milli-Q H_2O.		

Standard ID#:	M13467	Vendor:	CPI
Analyst:	NAH	Chemical:	Ca 10000 mg/L
Date Received:	04/20/2018	Lot #:	147497-47
Expiration Date (if any):	10/2019	Catalog #:	4400-10M91

Standard ID#:	M13468	Vendor:	FISHER
Analyst:	LJF	Chemical:	HYDROXYLAMINE SULFATE
Date Received:	04/24/2018	Lot #:	174236
Expiration Date (if any):		Catalog #:	H331-500

		Instrument:	CETAC
Standard Log #:	M13469	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	04/24/2018	Expiration Date:	04/24/2018
Prep:	Carefully mixed **3** parts HCl AB.656 with **1** part HNO_3 AB.655 in a hood.		

Standard ID#:	M13462	Vendor:	CPI
Analyst:	NAH	Chemical:	Al 10000 mg/L
Date Received:	04/20/2018	Lot #:	158058-23
Expiration Date (if any):	10/2019	Catalog #:	4400-10M11

Standard ID#:	M13463	Vendor:	CPI
Analyst:	NAH	Chemical:	Fe 10000 mg/L
Date Received:	04/20/2018	Lot #:	156651-18
Expiration Date (if any):	10/2019	Catalog #:	4400-10M261

Standard ID#:	M13464	Vendor:	CPI
Analyst:	NAH	Chemical:	Mg 10000 mg/L
Date Received:	04/20/2018	Lot #:	148250-67
Expiration Date (if any):	10/2019	Catalog #:	4400-10M311

Standard ID#:	M13465	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10000 mg/L
Date Received:	04/20/2018	Lot #:	172053-2
Expiration Date (if any):	10/2019	Catalog #:	4400-10M411

Standard ID#:	M13466	Vendor:	CPI
Analyst:	NAH	Chemical:	S 10000 mg/L
Date Received:	04/20/2018	Lot #:	129880-37
Expiration Date (if any):	10/2019	Catalog #:	4400-10M544

Standard ID#:	M13457	Vendor:	CPI
Analyst:	NAH	Chemical:	Barium 1000 mg/L
Date Received:	04/20/2018	Lot #:	158364-3
Expiration Date (if any):	10/2019	Catalog #:	S4400-100041

Standard ID#:	M13458	Vendor:	CPI
Analyst:	NAH	Chemical:	Ag 1000 mg/L
Date Received:	04/20/2018	Lot #:	162712-9
Expiration Date (if any):	10/2019	Catalog #:	S4400-1000511

Standard ID#:	M13459	Vendor:	CPI
Analyst:	NAH	Chemical:	Sb 1000 mg/L
Date Received:	04/20/2018	Lot #:	153992-1
Expiration Date (if any):	10/2019	Catalog #:	S4400-100023

Standard ID#:	M13460	Vendor:	CPI
Analyst:	NAH	Chemical:	Se 1000 mg/L
Date Received:	04/20/2018	Lot #:	154366-16
Expiration Date (if any):	10/2019	Catalog #:	S4400-1000491

Standard ID#:	M13461	Vendor:	CPI
Analyst:	NAH	Chemical:	Na 10000 mg/L
Date Received:	04/20/2018	Lot #:	107139-108
Expiration Date (if any):	10/2019	Catalog #:	4400-10M521

Standard Log #:	M13445	Reagent:	Potassium Persulfate Solution
Analyst:	LJF		
Prep Date:	04/19/2018	Expiration Date:	10/19/2018
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M12652 and brought up to volume.		

		Instrument:	Hach 2100 turbidity meter
Standard Log #:	M13446	Standard:	Turbity ICAL
Analyst:	NAH	Concentrations:	20, 100, 200 ntu
Prep Date:	04/19/2018	Expiration Date:	12/2019
Prep:	Using the hach vials , pipet the following: *20 ntu Std.* = **1 ml** M13436 and 9 mls DI H20. *100 ntu Std.* = **5 mls** M13436 and 5 mls DI H20. *200 ntu Std.* = ***10 mls*** M13436 *and* 0 mls DI H20.		

LPMT1-04
Metals Reagents and Standards
Prep Logbook
Created: 12/19/17

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Author: nhenn on: 4/19/2018 11:15:48 AM
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		Instrument:	ICP 6000
Standard Log #:	M13438	Standard:	Sulfur ICAL
Analyst:	MDS	Concentrations:	1000 10,000 100,000 1000K µg/L (S)
Prep Date:	04/11/2018	Expiration Date:	07/2019
Prep:	Into four, 100 mL volumetric flasks, pipetted the following from stock standard S (10,000 µg/mL) M13391 and brought up to volume using milli-Q H_2O. *1000 ug/L std.* - **0.01 mL** *10,000 ug/L std.* - **0.1 mL** *100,000 ug/L std.* -**1.0 mL**, also used as the CCV *1000K ug/L std.* - **10 mL**		

		Instrument:	ICP 6000
Standard Log #:	M13439	Standard:	Sulfur ICV
Analyst:	MDS	Concentrations:	100,000 µg/L (S)
Prep Date:	04/11/2018	Expiration Date:	01/19/2019
Prep:	Into a 100 mL volumetric flask, pipetted **1.0 mL** of S (10,000 µg/mL) M13280 and brought up to volume using Milli-Q H_2O.		

Standard Log #:	M13437	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3050 B&Si Spiking Solution
Prep Date:	04/10/2018	Expiration Date:	07/19

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
B	52	M13390	1000	2.6
Si	192	M13394	1000	9.6

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Content below was appended to locked page by mszymanski on 4/19/2018 12:20:57 PM

Standard ID#:	M13436a	Vendor:	HACH
Analyst:	NAH	Chemical:	StablCal 200 NTU
Date Received:	04/10/2018	Lot #:	A7354
Expiration Date (if any):	12/2019	Catalog #:	2660449

Standard ID#:	M13400	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10,000 ug/mL
Date Received:	02/15/2018	Lot #:	106958-116
Expiration Date (if any):	08/2019	Catalog #:	4400-10M411

Standard ID#:	M13401	Vendor:	CPI
Analyst:	NAH	Chemical:	Y 10,000 ug/mL
Date Received:	02/15/2018	Lot #:	139448-54
Expiration Date (if any):	08/2019	Catalog #:	4400-10M671

Standard ID#:	M13402	Vendor:	CPI
Analyst:	NAH	Chemical:	Na 10,000 ug/mL
Date Received:	02/15/2018	Lot #:	107139-126
Expiration Date (if any):	08/2019	Catalog #:	4400-10M521

Standard Log #:	M13388	Reagent:	SPLP EXTRACTION FLUID EAST #
Analyst:	BMM	pH:	4.20 ± 0.05
Prep Date:	01/23/2018	Expiration Date:	01/23/2019
Prep:	Into a 20 L carboy filled with DI H_2O, adjust pH to 4.20 ± 0.05 using 60/40 SPLP extraction fluid acid mixture M12457 .		

Standard Log #:	M13389	Reagent:	SPLP EXTRACTION FLUID WEST #
Analyst:	BMM	pH:	5.00 ± 0.05
Prep Date:	01/23/2018	Expiration Date:	01/23/2019
Prep:	Into a 20 L carboy filled with DI H_2O, adjust pH to 5.00 ± 0.05 using 60/40 SPLP extraction fluid acid mixture M12457 .		

Standard ID#:	M13390	Vendor:	CPI
Analyst:	NAH	Chemical:	Boron 1000 ug/mL
Date Received:	01/23/2018	Lot #:	158372-29
Expiration Date (if any):	07/2019	Catalog #:	S4400-100074

Standard ID#:	M13391	Vendor:	CPI
Analyst:	NAH	Chemical:	Sulfur 10000 ug/mL
Date Received:	01/23/2018	Lot #:	129880-28
Expiration Date (if any):	07/2019	Catalog #:	4400-10M544

Standard ID#:	M13392	Vendor:	CPI
Analyst:	NAH	Chemical:	Arsenic 1000 ug/mL
Date Received:	01/23/2018	Lot #:	143356-61
Expiration Date (if any):	07/2019	Catalog #:	S4400-100031

Standard ID#:	M13393	Vendor:	CPI
Analyst:	NAH	Chemical:	Molybdenum 1000 ug/mL
Date Received:	01/23/2018	Lot #:	134169R-102
Expiration Date (if any):	07/2019	Catalog #:	S4400-1000343

Standard ID#:	M13394	Vendor:	CPI
Analyst:	NAH	Chemical:	Silicon 1000 ug/mL
Date Received:	01/23/2018	Lot #:	142610-58
Expiration Date (if any):	07/2019	Catalog #:	S4400-1000504F

Standard ID#:	M13350	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	Yttrium 10000 mg/L
Date Received:	12/12/2017	Lot #:	1729606
Expiration Date (if any):	06//2019	Catalog #:	10M67-1

Standard ID#:	M13226	Vendor:	FISHER
Analyst:	LJF	Chemical:	SODIUM CHLORIDE
Date Received:	07/21/2017	Lot #:	170229
Expiration Date (if any):		Catalog #:	S271-500

Standard ID#:	M13199	Vendor:	National Institute of Standards and Te
Analyst:	NAH	Chemical:	SRM Montana I soil
Date Received:	05/15/2017	Lot #:	2710a
Expiration Date (if any):		Catalog #:	

Standard ID#:	M13200	Vendor:	National Institute of Standards and Te
Analyst:	NAH	Chemical:	SRM Montana II soil
Date Received:	05/15/2017	Lot #:	2711a
Expiration Date (if any):		Catalog #:	

Standard ID#:	M13186	Vendor:	FISHER
Analyst:	LJF	Chemical:	HYDROXYLAMINE SULFATE
Date Received:	05/22/2017	Lot #:	166161
Expiration Date (if any):		Catalog #:	H331-500

Standard ID#:	M13187	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	Yttrium 10,000 ug/mL
Date Received:	05/22/2017	Lot #:	1705408
Expiration Date (if any):	11/16/2018	Catalog #:	HP10M67-1

Standard ID#:	M13080	Vendor:	FISHER
Analyst:	LJF	Chemical:	POTASSIUM PERMANGANATE
Date Received:	01/30/2017	Lot #:	164080
Expiration Date (if any):		Catalog #:	P279-212

Standard ID#:	M13059	Vendor:	ACROS ORGANICS
Analyst:	LJF	Chemical:	POTASSIUM PERSULFATE
Date Received:	12/19/2016	Lot #:	A0375670
Expiration Date (if any):		Catalog #:	424185000

Standard ID#:	M13024	Vendor:	METTLER TOLEDO
Analyst:	LJF	Chemical:	FRISCOLYT
Date Received:	11/01/2016	Lot #:	1B167D
Expiration Date (if any):		Catalog #:	51340053

INORGANIC
CLP FORMS
DOCUMENTS

CT LABORATORIES
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INORGANIC ANALYSIS DATA SHEET

Sample Description

54IDW

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix (soil/water):	GROUND WATER	SDG No.:	151023
% Solids:		Lab Sample ID:	383235
Analytical Method:	EPA 410.4	Date Received:	01/28/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	168576	Analysis Date/Time	02/03/2020 08:12
Analytical Prep Batch #:	75381	Prep. Date/Time:	02/03/2020 08:16
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
COD	COD	16	J M,Y	15	35	75	75

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54IDW

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix (soil/water):	GROUND WATER	SDG No.:	151023
% Solids:		Lab Sample ID:	383235
Analytical Method:	EPA 9040C	Date Received:	01/28/2020
Dilution Factor:	1	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	168475	Analysis Date/Time	01/28/2020 13:30
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	S.U.

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
PH	pH	7.36					

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW1

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix (soil/water):	GROUND WATER	SDG No.:	151023
% Solids:		Lab Sample ID:	383234
Analytical Method:	EPA 9060A	Date Received:	01/28/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	168547	Analysis Date/Time	02/03/2020 10:06
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL0373 I	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TIC	Total Inorganic Carbon	56		0.50	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW1

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix (soil/water):	GROUND WATER	SDG No.:	151023
% Solids:		Lab Sample ID:	383234
Analytical Method:	EPA 9056A	Date Received:	01/28/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	168460	Analysis Date/Time	01/28/2020 15:53
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
16887-00-6	Chloride	2.5	J	1.0	1.5	3.0	3.0
14797-55-8	Nitrate Nitrogen	0.20	J	0.12	0.20	0.40	0.40
14808-79-8	Sulfate	29		0.80	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW1

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix (soil/water):	GROUND WATER	SDG No.:	151023
% Solids:		Lab Sample ID:	383234
Analytical Method:	EPA 9060A	Date Received:	01/28/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	168604	Analysis Date/Time	02/04/2020 18:10
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL0373	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TOC	Total Organic Carbon	1.5	U	0.50	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW10

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix (soil/water):	GROUND WATER	SDG No.:	151023
% Solids:		Lab Sample ID:	383230
Analytical Method:	EPA 9060A	Date Received:	01/28/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	168547	Analysis Date/Time	02/03/2020 09:09
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL0373 I	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TIC	Total Inorganic Carbon	59		0.50	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW10

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix (soil/water):	GROUND WATER	SDG No.:	151023
% Solids:		Lab Sample ID:	383230
Analytical Method:	EPA 9056A	Date Received:	01/28/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	168460	Analysis Date/Time	01/28/2020 13:13
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
16887-00-6	Chloride	6.4		1.0	1.5	3.0	3.0
14797-55-8	Nitrate Nitrogen	0.58		0.12	0.20	0.40	0.40
14808-79-8	Sulfate	59		0.80	1.5	3.0	3.0

CT LABORATORIES
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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW10

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix (soil/water):	GROUND WATER	SDG No.:	151023
% Solids:		Lab Sample ID:	383230
Analytical Method:	EPA 9060A	Date Received:	01/28/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	168604	Analysis Date/Time	02/04/2020 16:24
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL0373	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TOC	Total Organic Carbon	1.5	U	0.50	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW12

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix (soil/water):	GROUND WATER	SDG No.:	151023
% Solids:		Lab Sample ID:	383233
Analytical Method:	EPA 9060A	Date Received:	01/28/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	168547	Analysis Date/Time	02/03/2020 09:52
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL0373 I	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TIC	Total Inorganic Carbon	84		0.50	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW12

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix (soil/water):	GROUND WATER	SDG No.:	151023
% Solids:		Lab Sample ID:	383233
Analytical Method:	EPA 9056A	Date Received:	01/28/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	168460	Analysis Date/Time	01/28/2020 14:33
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
16887-00-6	Chloride	8.4		1.0	1.5	3.0	3.0
14797-55-8	Nitrate Nitrogen	0.76		0.12	0.20	0.40	0.40
14808-79-8	Sulfate	29	M	0.80	1.5	3.0	3.0

CT LABORATORIES
delivering more than data from your environmental analyses

1

INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW12

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix (soil/water):	GROUND WATER	SDG No.:	151023
% Solids:		Lab Sample ID:	383233
Analytical Method:	EPA 9060A	Date Received:	01/28/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	168604	Analysis Date/Time	02/04/2020 17:12
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL0373	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TOC	Total Organic Carbon	1.5	U	0.50	1.5	3.0	3.0

CT LABORATORIES
delivering more than data from your environmental analyses

1

INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW13

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix (soil/water):	GROUND WATER	SDG No.:	151023
% Solids:		Lab Sample ID:	383231
Analytical Method:	EPA 9060A	Date Received:	01/28/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	168547	Analysis Date/Time	02/03/2020 09:23
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL0373 I	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TIC	Total Inorganic Carbon	70		0.50	1.5	3.0	3.0

CT LABORATORIES
delivering more than data from your environmental analyses

1

INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW13

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix (soil/water):	GROUND WATER	SDG No.:	151023
% Solids:		Lab Sample ID:	383231
Analytical Method:	EPA 9056A	Date Received:	01/28/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	168460	Analysis Date/Time	01/28/2020 13:53
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
16887-00-6	Chloride	6.8		1.0	1.5	3.0	3.0
14797-55-8	Nitrate Nitrogen	0.63		0.12	0.20	0.40	0.40
14808-79-8	Sulfate	27		0.80	1.5	3.0	3.0

CT LABORATORIES
delivering more than data from your environmental analyses

1

INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW13

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix (soil/water):	GROUND WATER	SDG No.:	151023
% Solids:		Lab Sample ID:	383231
Analytical Method:	EPA 9060A	Date Received:	01/28/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	168604	Analysis Date/Time	02/04/2020 16:39
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL0373	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TOC	Total Organic Carbon	1.5	U	0.50	1.5	3.0	3.0

CT LABORATORIES
delivering more than data from your environmental analyses

1

INORGANIC ANALYSIS DATA SHEET

Sample Description

54TW13

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix (soil/water):	GROUND WATER	SDG No.:	151023
% Solids:		Lab Sample ID:	383232
Analytical Method:	EPA 9060A	Date Received:	01/28/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	168547	Analysis Date/Time	02/03/2020 09:37
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL0373 I	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TIC	Total Inorganic Carbon	70		0.50	1.5	3.0	3.0

CT LABORATORIES
delivering more than data from your environmental analyses

1

INORGANIC ANALYSIS DATA SHEET

Sample Description

54TW13

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix (soil/water):	GROUND WATER	SDG No.:	151023
% Solids:		Lab Sample ID:	383232
Analytical Method:	EPA 9056A	Date Received:	01/28/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	168460	Analysis Date/Time	01/28/2020 14:13
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
16887-00-6	Chloride	6.7		1.0	1.5	3.0	3.0
14797-55-8	Nitrate Nitrogen	0.62		0.12	0.20	0.40	0.40
14808-79-8	Sulfate	27		0.80	1.5	3.0	3.0

CT LABORATORIES
delivering more than data from your environmental analyses

1

INORGANIC ANALYSIS DATA SHEET

Sample Description

54TW13

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix (soil/water):	GROUND WATER	SDG No.:	151023
% Solids:		Lab Sample ID:	383232
Analytical Method:	EPA 9060A	Date Received:	01/28/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	168604	Analysis Date/Time	02/04/2020 16:57
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL0373	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TOC	Total Organic Carbon	1.5	U	0.50	1.5	3.0	3.0

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

ICV

2A-1

INITIAL CALIBRATION VERIFICATION

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168460 Lab Sample ID: 384230

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Chloride	11/20/19	01:11	15.00	13.63	91	90	110
Nitrate Nitrogen	11/20/19	01:11	3.500	3.282	94	90	110
Sulfate	11/20/19	01:11	25.00	23.31	93	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

ICV

2A-1

INITIAL CALIBRATION VERIFICATION

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168604 Lab Sample ID: 385617

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Total Organic Carbon	1/31/20	17:24	50.00	49.63	99	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168460 Lab Sample ID: 384102

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Chloride	1/28/20	12:12	15.00	14.49	97	90	110
Nitrate Nitrogen	1/28/20	12:12	3.500	3.689	105	90	110
Sulfate	1/28/20	12:12	25.00	24.73	99	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168460 Lab Sample ID: 384104

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Chloride	1/28/20	16:13	15.00	14.50	97	90	110
Nitrate Nitrogen	1/28/20	16:13	3.500	3.693	106	90	110
Sulfate	1/28/20	16:13	25.00	24.86	99	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168547 Lab Sample ID: 385121

ICAL Calibration #: ICAL0373 I Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Total Inorganic Carbon	2/3/20	08:22	50.00	49.11	98	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168547 Lab Sample ID: 385124

ICAL Calibration #: ICAL0373 I Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Total Inorganic Carbon	2/3/20	10:20	50.00	49.25	98	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168604

Lab Sample ID: 385552

ICAL Calibration #: ICAL0373

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Total Organic Carbon	2/4/20	12:32	50.00	50.01	100	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168604 Lab Sample ID: 385555

ICAL Calibration #: ICAL0373 Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Total Organic Carbon	2/4/20	15:51	50.00	49.39	99	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168604

Lab Sample ID: 385560

ICAL Calibration #: ICAL0373

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Total Organic Carbon	2/4/20	18:27	50.00	49.95	100	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168576 Lab Sample ID: 385943

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
COD	2/3/20 08:12	400.0	407.9	102	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168576

Lab Sample ID: 385944

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
COD	2/3/20 08:12	400.0	407.9	102	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
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Sample No

ICB

3-1

INITIAL CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168604 Lab Sample ID: 385618

Analytical Prep Batch #: Preparation Date/Time:

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total Organic Carbon	01/31/2020 17:38	0	U	0.5	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
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Sample No

3-1

ICB

INITIAL CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168460 Lab Sample ID: 384231

Analytical Prep Batch #: Preparation Date/Time:

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Chloride	11/20/2019 01:31	0.4853	U	1.0	1.5
Nitrate Nitrogen	11/20/2019 01:31	0.06860	U	0.12	0.20
Sulfate	11/20/2019 01:31	0.6402	U	0.8	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
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Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168460 Lab Sample ID: 384103

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Chloride	01/28/2020 16:33	0.4958	U	1.0	1.5
Nitrate Nitrogen	01/28/2020 16:33	0.07360	U	0.12	0.20
Sulfate	01/28/2020 16:33	0.6681	U	0.8	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168547 Lab Sample ID: 385125

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: ICAL0373 I Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total Inorganic Carbon	02/03/2020 10:34	0	U	0.5	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168604 Lab Sample ID: 385556

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: ICAL0373 Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total Organic Carbon	02/04/2020 16:04	0	U	0.5	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168604 Lab Sample ID: 385561

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: ICAL0373 Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total Organic Carbon	02/04/2020 18:40	0	U	0.5	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168576 Lab Sample ID: 385941

Analytical Prep Batch # Preparation Date/Time:

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
COD	02/03/2020 08:12	11.10			35

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168576 Lab Sample ID: 385942

Analytical Prep Batch # Preparation Date/Time:

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
COD	02/03/2020 08:12	11.10			35

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
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Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168460 Lab Sample ID: 384100

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Chloride	01/28/2020 12:53	0.5002	U	1.0	1.5
Nitrate Nitrogen	01/28/2020 12:53	0.07420	U	0.12	0.20
Sulfate	01/28/2020 12:53	0.6747	U	0.8	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168576 Lab Sample ID: 385029

Analytical Prep Batch # 75381 Preparation Date/Time: 02/03/2020 08:16

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total COD	02/03/2020 08:12	8.700	U	15	35

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

3-3

MB

METHOD BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168547 Lab Sample ID: 385123

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: ICAL0373 I Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total Inorganic Carbon	02/03/2020 08:49	0	U	0.5	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
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Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

SDG No.: 151023

Analytical Run #: 168604 Lab Sample ID: 385554

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: ICAL0373 Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total Organic Carbon	02/04/2020 12:59	0	U	0.5	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
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5A

SPIKE SAMPLE RECOVERY

Sample Description: **54MW12**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix:	LIQUID	SDG No.:	151023
% Solids for Sample:		Concentration Units:	mg/L
Sample No	384105	Parent Sample No.:	383233
Analytical Prep Batch #	0	Analytical Preparation Date/Time:	
Analytical Run #:	168460	ICAL Calibration #:	

Analysis Type	*Initial Analysis*	Analysis Date: -----	01/28/2020	Analysis Time: --------	15:13

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M	
Chloride	87-111	15.8		8.4		8.00	92			
Nitrate Nitrogen	88-111	2.79		0.76		2.00	102			
Sulfate	87-112	34.8		29		8.00	72			*FAIL*

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

5A

SPIKE SAMPLE RECOVERY

Sample Description

54IDW

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix:	LIQUID	SDG No.:	151023
% Solids for Sample:		Concentration Units:	mg/L
Sample No	385031	Parent Sample No.:	383235
Analytical Prep Batch #	75381	Analytical Preparation Date/Time:	02/03/2020 08:16
Analytical Run #:	168576	ICAL Calibration #:	

Analysis Type *Initial Analysis* Analysis Date: ----- 02/03/2020 Analysis Time: -------- 08:12

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
COD	90-110	176		16	J	148	108		SP

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

5A

SPIKE SAMPLE RECOVERY

Sample Description

54MW12

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix:	LIQUID	SDG No.:	151023
% Solids for Sample:		Concentration Units:	mg/L
Sample No	385558	Parent Sample No.:	383233
Analytical Prep Batch #	0	Analytical Preparation Date/Time:	
Analytical Run #:	168604	ICAL Calibration #:	ICAL0373

Analysis Type *Initial Analysis* Analysis Date: ----- 02/04/2020 Analysis Time: -------- 17:42

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Total Organic Carbon	85-111	49.4		BDL	U	50.0	99		TOC

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

5C

SPIKE DUPLICATE SAMPLE RECOVERY

Sample Description: **54IDW**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix:	LIQUID	SDG No.:	151023
% Solids for Sample:		Concentration Units:	mg/L
Sample No	385033	Parent Sample No.:	385031
Analytical Prep Batch #	75381	Analytical Preparation Date/Time:	02/03/2020 08:16
Analytical Run #:	168576	ICAL Calibration #:	

Analysis Type: *Initial Analysis* Analysis Date: ----- 02/03/2020 Analysis Time: -------- 08:12

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M	
COD	90-110	243		16	J	148	153		SP	*FAIL*

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

5C

SPIKE DUPLICATE SAMPLE RECOVERY

Sample Description: **54MW12**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix:	LIQUID	SDG No.:	151023
% Solids for Sample:		Concentration Units:	mg/L
Sample No	385559	Parent Sample No.:	385558
Analytical Prep Batch #	0	Analytical Preparation Date/Time:	
Analytical Run #:	168604	ICAL Calibration #:	ICAL0373

Analysis Type: *Initial Analysis* Analysis Date: ----- 02/04/2020 Analysis Time: -------- 17:56

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Total Organic Carbon	85-111	49.0		BDL	U	50.0	98		TOC

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

5C

SPIKE DUPLICATE SAMPLE RECOVERY

Sample Description: **54MW12**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix:	LIQUID	SDG No.:	151023
% Solids for Sample:		Concentration Units:	mg/L
Sample No	384229	Parent Sample No.:	384105
Analytical Prep Batch #		Analytical Preparation Date/Time:	
Analytical Run #:	168460	ICAL Calibration #:	

Analysis Type: *Initial Analysis* Analysis Date: ----- 01/28/2020 Analysis Time: -------- 15:33

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Chloride	87-111	16.6		8.4		8.00	102		IC
Nitrate Nitrogen	88-111	2.94		0.76		2.00	109		IC
Sulfate	87-112	36.2		29		8.00	90		IC

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

6

DUPLICATES

Sample Description

54MW12

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix: LIQUID
SDG No.: 151023
% Solid for Sample:
Concentration Units: mg/L
Analytical Prep Batch # 1
Analytical Preparation Date/Time 0
Analytical Run #: 168460
ICAL Calibration #:
Sample #: 384092
Parent Sample #: 383233

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Original Parent Conc. (S)	C	Duplicate Conc. (D)	C	RPD	Q	M
Chloride	01/28/2020	14:53	10	8.4		8.43		0		
Nitrate Nitrogen	01/28/2020	14:53	10	0.76		0.763		0		
Sulfate	01/28/2020	14:53	10	29		28.7		1		

CT LABORATORIES
delivering more than data from your environmental analyses

6

DUPLICATES

Sample Description

54IDW

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

Matrix: LIQUID

SDG No.: 151023

% Solid for Sample:

Concentration Units: S.U.

Analytical Prep Batch # 1

Analytical Preparation Date/Time

Analytical Run #: 168475

ICAL Calibration #:

Sample #: 384403

Parent Sample #: 383235

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Original Parent Conc. (S)	C	Duplicate Conc. (D)	C	RPD	Q	M
pH	01/28/2020	13:30	1	7.36		7.34		0		ELEC

CT LABORATORIES
delivering more than data from your environmental analyses

6

DUPLICATES

Sample Description

54IDW

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

Matrix: LIQUID

SDG No.: 151023

% Solid for Sample:

Concentration Units: mg/L

Analytical Prep Batch # 1

Analytical Preparation Date/Time 75381

Analytical Run #: 168576

ICAL Calibration #:

Sample #: 385032

Parent Sample #: 383235

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Original Parent Conc. (S)	C	Duplicate Conc. (D)	C	RPD	Q	M	
COD	02/03/2020	08:12	20	16	J	20.8	J	26		SP	*FAIL*

CT LABORATORIES
delivering more than data from your environmental analyses

6

DUPLICATES

Sample Description

54MW12

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

Matrix: LIQUID

SDG No.: 151023

% Solid for Sample:

Concentration Units: mg/L

Analytical Prep Batch # 1

Analytical Preparation Date/Time 0

Analytical Run #: 168604

ICAL Calibration #: ICAL0373

Sample #: 385557

Parent Sample #: 383233

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Original Parent Conc. (S)	C	Duplicate Conc. (D)	C	RPD	Q	M
Total Organic Carbon	02/04/2020	17:27	20	0.50	U	0.50	U	0		TOC

CT LABORATORIES
delivering more than data from your environmental analyses

6A

MATRIX SPIKE DUPLICATES

Sample Description: **54IDW**

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix: LIQUID
SDG No.: 151023
% Solid for Sample:
Concentration Units: mg/L
Analytical Prep Batch #: 75381
Analytical Preparation Date/Time: 02/03/2020 08:16
Analytical Run #: 168576
ICAL Calibration #:
Sample #: 385033
Parent Sample #: 385031

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Matrix Spik Parent Conc. (S)	C	Matrix Spike Duplicate Conc. (D)	C	RPD	Q	M	
COD	02/03/2020	08:12	20	176		243		32		SP	*FAIL*

CT LABORATORIES
delivering more than data from your environmental analyses

6A

MATRIX SPIKE DUPLICATES

Sample Description: **54MW12**

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix: LIQUID
SDG No.: 151023
% Solid for Sample:
Concentration Units: mg/L
Analytical Prep Batch #: 0
Analytical Preparation Date/Time:
Analytical Run #: 168604
ICAL Calibration #: ICAL0373
Sample #: 385559
Parent Sample #: 385558

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Matrix Spik Parent Conc. (S)	C	Matrix Spike Duplicate Conc. (D)	C	RPD	Q	M
Total Organic Carbon	02/04/2020	17:56	20	49.4		49.0		1		TOC

CT LABORATORIES
delivering more than data from your environmental analyses

6A

MATRIX SPIKE DUPLICATES

Sample Description: **54MW12**

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54
Matrix: LIQUID
SDG No.: 151023
% Solid for Sample:
Concentration Units: mg/L
Analytical Prep Batch #:
Analytical Preparation Date/Time:
Analytical Run #: 168460
ICAL Calibration #:
Sample #: 384229
Parent Sample #: 384105

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Matrix Spik Parent Conc. (S)	C	Matrix Spike Duplicate Conc. (D)	C	RPD	Q	M
Chloride	01/28/2020	15:33	15	15.8		16.6		5		IC
Nitrate Nitrogen	01/28/2020	15:33	15	2.79		2.94		5		IC
Sulfate	01/28/2020	15:33	15	34.8		36.2		4		IC

CT LABORATORIES
delivering more than data from your environmental analyses

7-1

Sample No:

LABORATORY CONTROL SAMPLE - AQUEOUS

LCS

Lab Name: CT Laboratories Contract WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

LCS Source: SPEX and Ultra SDG No.: 151023

Concentration Units: mg/L

Analytical Run #: 168460 Sample No.:#: 384101

Analytical Prep Batch #: 0 Preparation Date/Time:

ICAL Calibration #:

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
Chloride	01/28/2020 12:32	87-111	14.66		15.00	98		
Nitrate Nitrogen	01/28/2020 12:32	88-111	3.533		3.500	101		
Sulfate	01/28/2020 12:32	87-112	25.08		25.00	100		

CT LABORATORIES
delivering more than data from your environmental analyses

7-1

Sample No:

LABORATORY CONTROL SAMPLE - AQUEOUS

LCS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

LCS Source: SPEX and Ultra SDG No.: 151023

Concentration Units: mg/L

Analytical Run #: 168576 Sample No.:#: 385030

Analytical Prep Batch #: 75381 Preparation Date/Time: 02/03/2020 08:16

ICAL Calibration #:

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
COD	02/03/2020 08:12	90-110	412.7		400.0	103		SP

CT LABORATORIES
delivering more than data from your environmental analyses

7-1

Sample No:

LABORATORY CONTROL SAMPLE - AQUEOUS

LCS

Lab Name: CT Laboratories Contract WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

LCS Source: SPEX and Ultra SDG No.: 151023

Concentration Units: mg/L

Analytical Run #: 168547 Sample No.:#: 385122

Analytical Prep Batch #: 0 Preparation Date/Time:

ICAL Calibration #: ICAL0373 I

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
Total Inorganic Carbon	02/03/2020 08:36	85-111	49.15		50.00	98		TOC

CT LABORATORIES
delivering more than data from your environmental analyses

7-1

Sample No:

LABORATORY CONTROL SAMPLE - AQUEOUS

LCS

Lab Name: CT Laboratories Contract WESTON SOLUTIONS, INC.-RADFORD AAP SWMU 54

LCS Source: SPEX and Ultra SDG No.: 151023

Concentration Units: mg/L

Analytical Run #: 168604 Sample No.:#: 385553

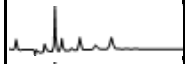
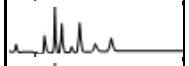
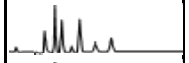
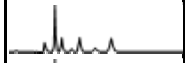
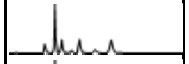
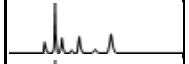
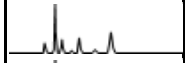
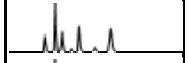
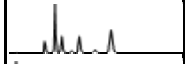
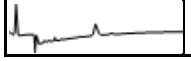
Analytical Prep Batch #: 0 Preparation Date/Time:

ICAL Calibration #: ICAL0373

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
Total Organic Carbon	02/04/2020 12:45	85-111	50.07		50.00	100		TOC

INORGANICS
RAW DATA
DOCUMENTS

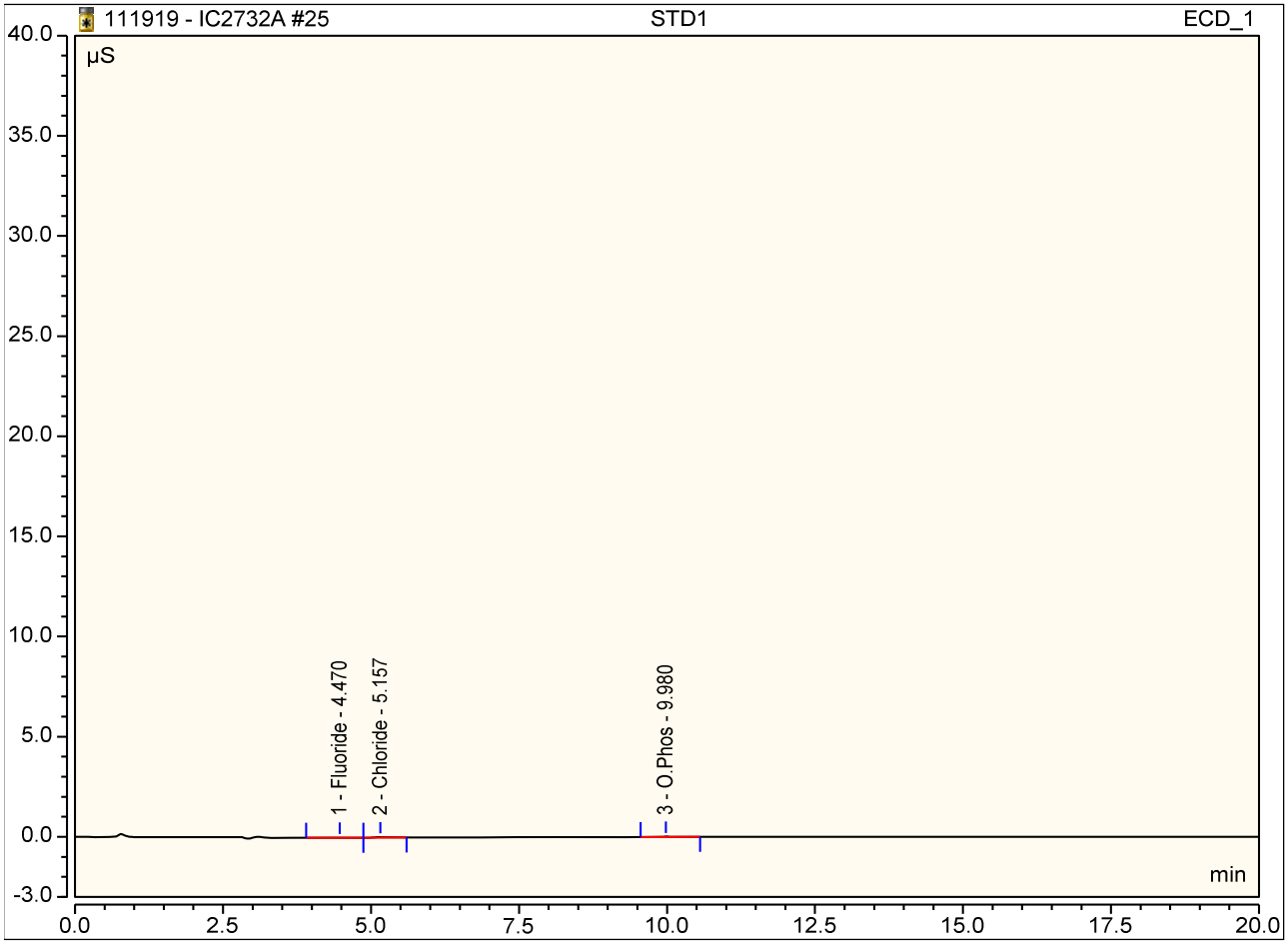
ECD_1	Name	Dilution	Type	Level	Position	Volume	Instrument Method	Processing Method	Status
	STD1	1.0000	Calibration Standard	1	25	5000	Anions 1.0	IC2732A	Finished
	STD2	1.0000	Calibration Standard	2	26	5000	Anions 1.0	IC2732A	Finished
	STD3	1.0000	Calibration Standard	3	27	5000	Anions 1.0	IC2732A	Finished
	STD4	1.0000	Calibration Standard	4	28	5000	Anions 1.0	IC2732A	Finished
	STD5	1.0000	Calibration Standard	5	29	5000	Anions 1.0	IC2732A	Finished
	STD6	1.0000	Calibration Standard	6	30	5000	Anions 1.0	IC2732A	Finished
	STD7	1.0000	Calibration Standard	7	31	5000	Anions 1.0	IC2732A	Finished
	STD8	1.0000	Calibration Standard	8	32	5000	Anions 1.0	IC2732A	Finished
	STD9	1.0000	Calibration Standard	9	33	5000	Anions 1.0	IC2732A	Finished
	ICV	1.0000	Unknown		34	5000	Anions 1.0	IC2732A	Finished
	ICB	1.0000	Unknown		35	5000	Anions 1.0	IC2732A	Finished

RJ 01/10/2020

Peak Integration Report

Sample Name:	**STD1**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Calibration Standard**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**AQUION**
Inj. Date / Time:	**19-Nov-2019 / 22:11**	*Run Time:*	**20.00**

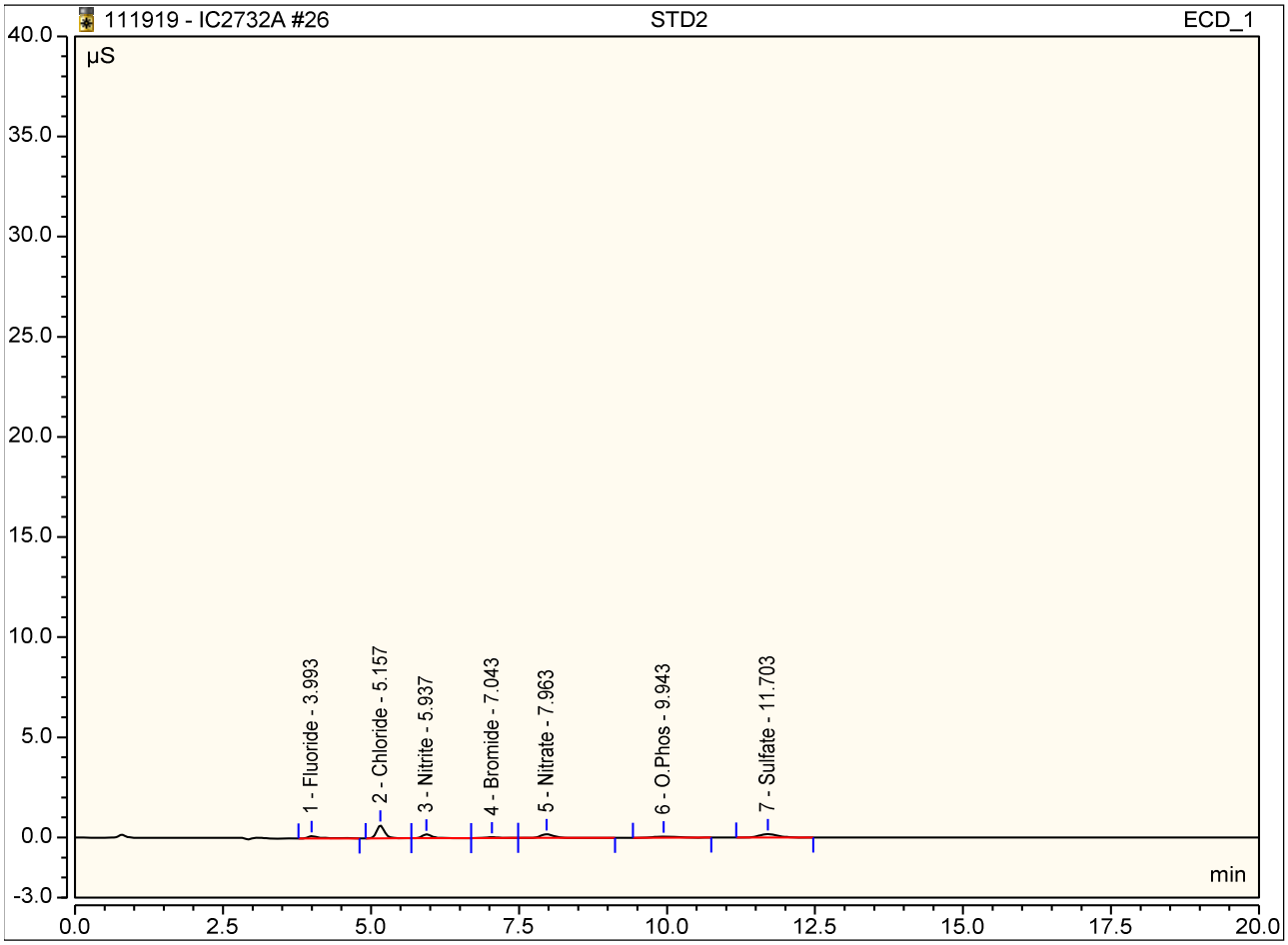
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.47	Fluoride	0.003	0.008	0.0159
2	5.16	Chloride	0.005	0.030	0.4934
3	9.98	O.Phos	0.007	0.017	n.a.



Peak Integration Report

Sample Name:	**STD2**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Calibration Standard**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**AQUION**
Inj. Date / Time:	**19-Nov-2019 / 22:31**	*Run Time:*	**20.00**

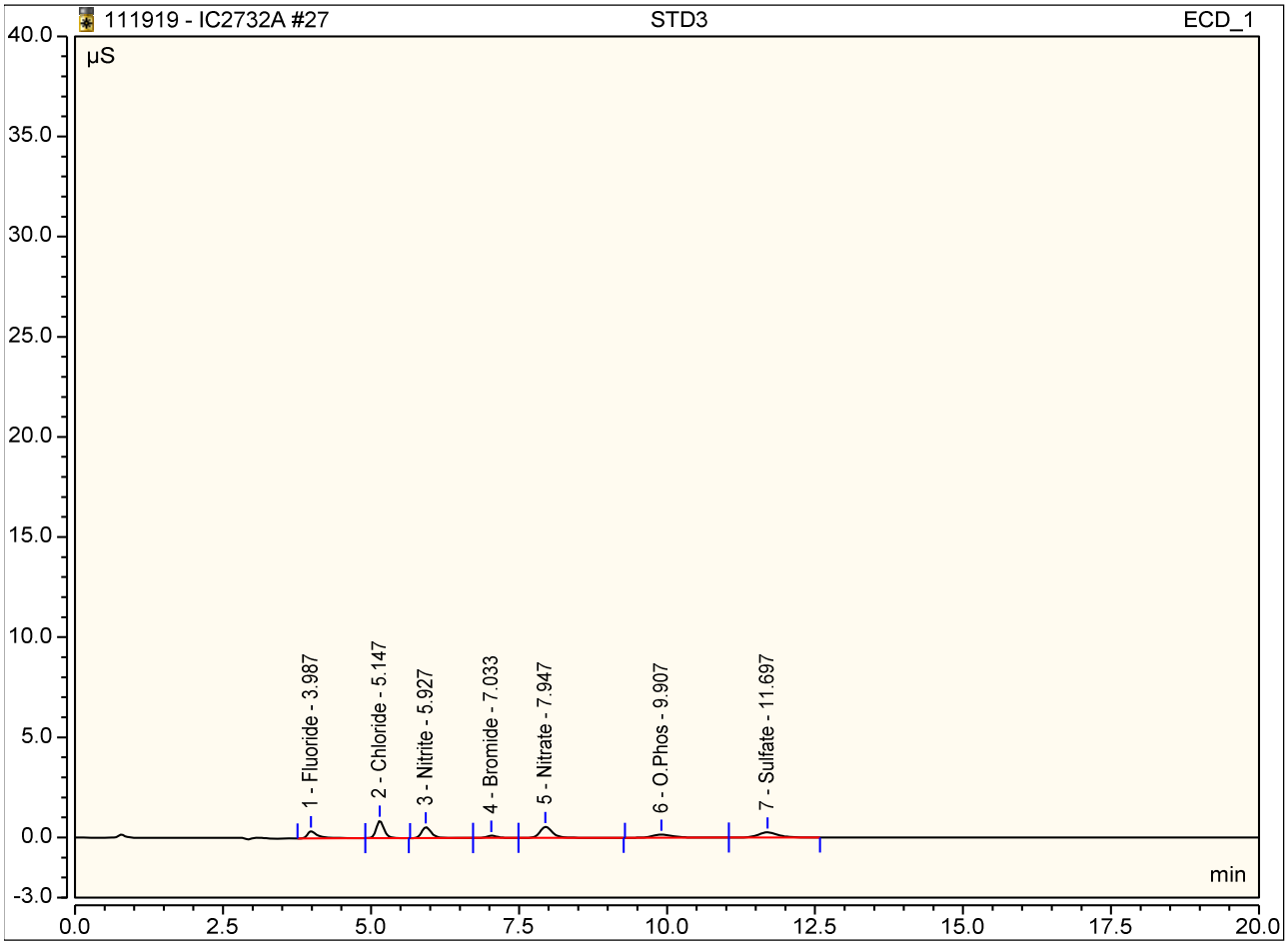
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	3.99	Fluoride	0.029	0.121	0.1155
2	5.16	Chloride	0.101	0.642	0.9050
3	5.94	Nitrite	0.036	0.184	0.1202
4	7.04	Bromide	0.008	0.038	0.1043
5	7.96	Nitrate	0.047	0.187	0.1597
6	9.94	O.Phos	0.026	0.064	0.0958
7	11.70	Sulfate	0.066	0.172	1.0380



Peak Integration Report

Sample Name:	**STD3**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Calibration Standard**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**AQUION**
Inj. Date / Time:	**19-Nov-2019 / 22:51**	*Run Time:*	**20.00**

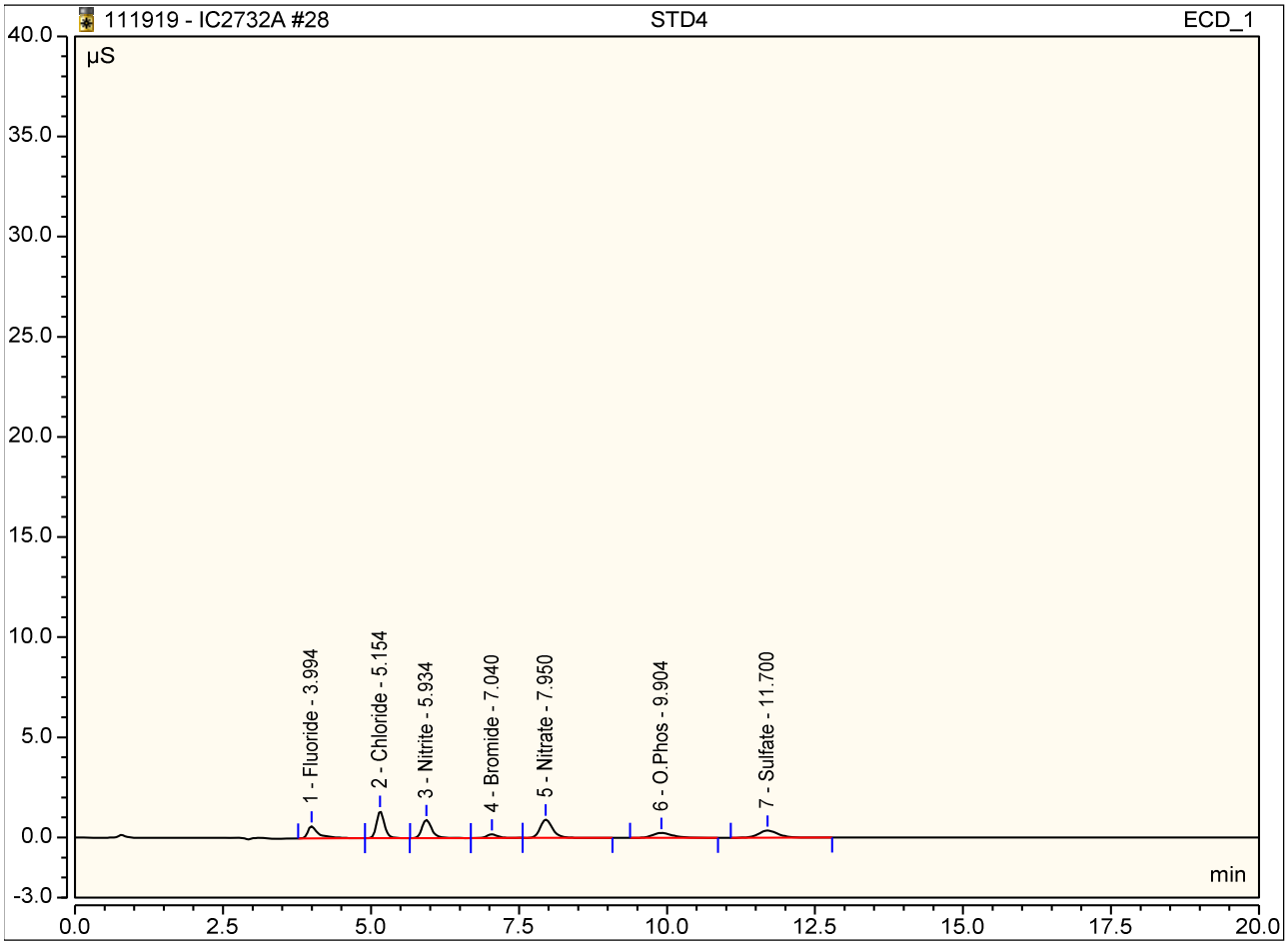
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	3.99	Fluoride	0.080	0.360	0.3013
2	5.15	Chloride	0.137	0.880	1.0634
3	5.93	Nitrite	0.106	0.542	0.3092
4	7.03	Bromide	0.023	0.111	0.3002
5	7.95	Nitrate	0.136	0.546	0.3358
6	9.91	O.Phos	0.061	0.155	0.3113
7	11.70	Sulfate	0.099	0.257	1.2514



Peak Integration Report

Sample Name:	**STD4**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Calibration Standard**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**AQUION**
Inj. Date / Time:	**19-Nov-2019 / 23:11**	*Run Time:*	**20.00**

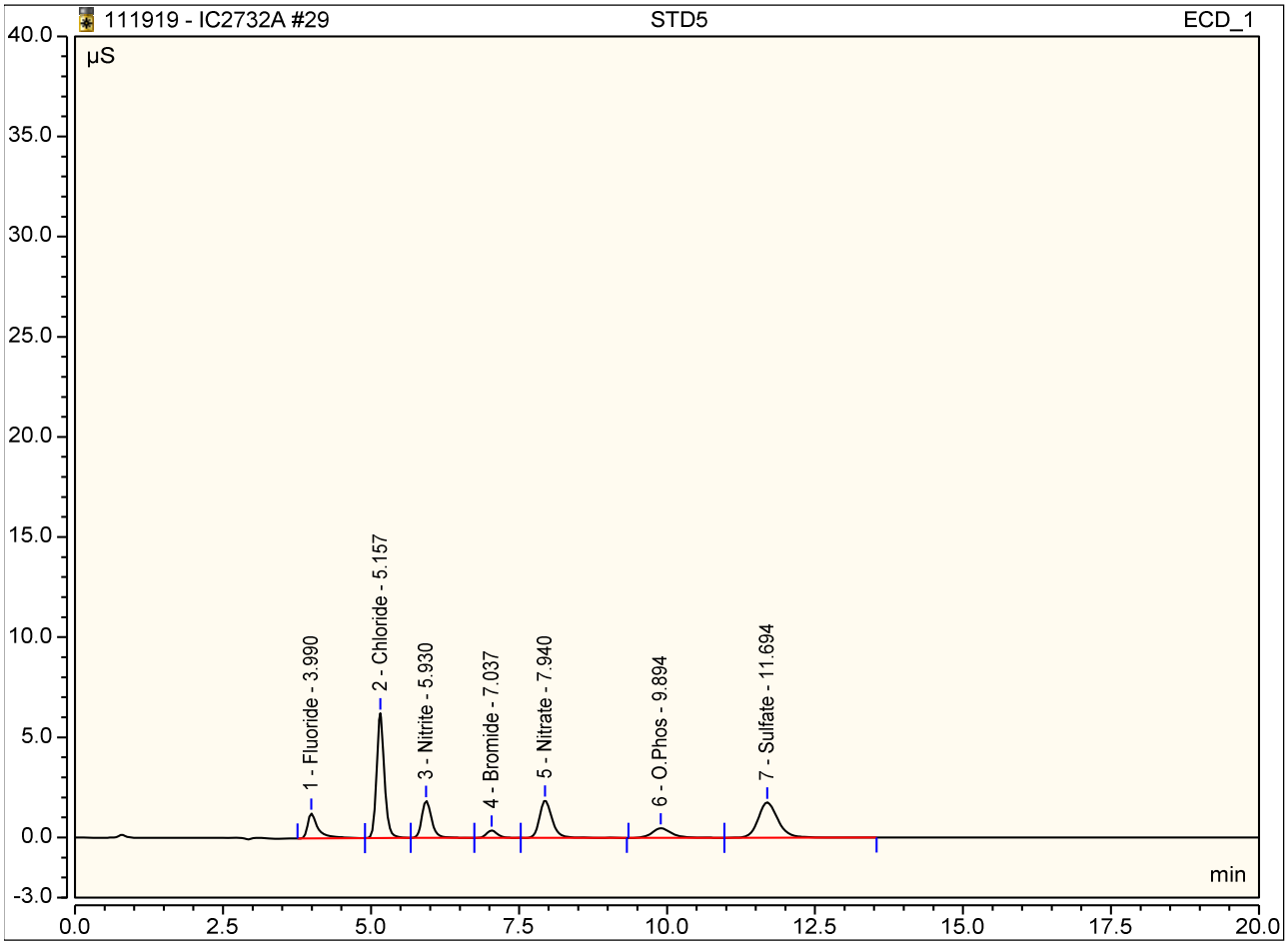
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	3.99	Fluoride	0.137	0.608	0.5149
2	5.15	Chloride	0.213	1.369	1.3911
3	5.93	Nitrite	0.179	0.913	0.5039
4	7.04	Bromide	0.039	0.184	0.5019
5	7.95	Nitrate	0.228	0.922	0.5172
6	9.90	O.Phos	0.094	0.246	0.5097
7	11.70	Sulfate	0.138	0.355	1.4957



Peak Integration Report

Sample Name:	**STD5**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Calibration Standard**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**AQUION**
Inj. Date / Time:	**19-Nov-2019 / 23:31**	*Run Time:*	**20.00**

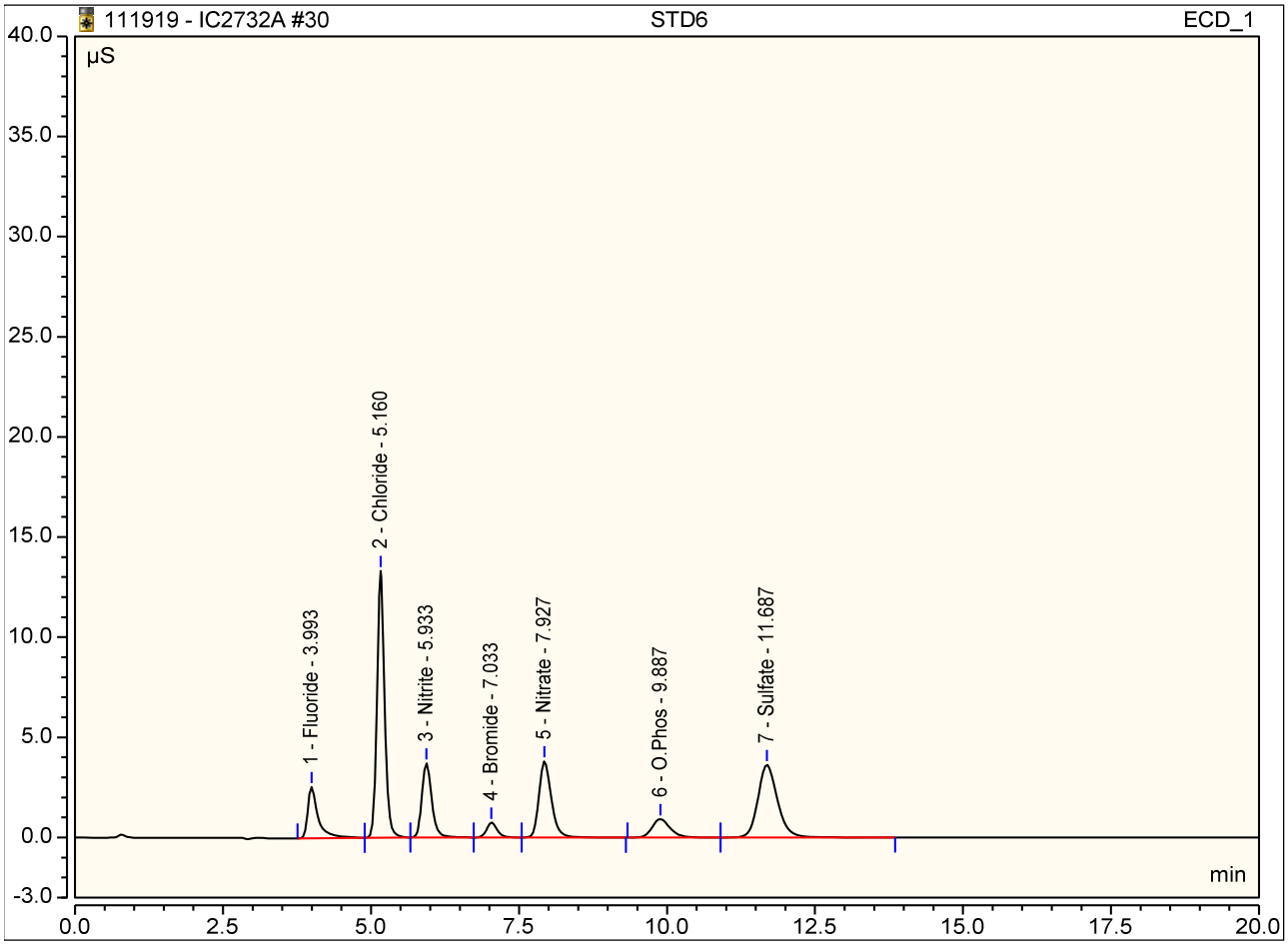
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	3.99	Fluoride	0.262	1.249	0.9787
2	5.16	Chloride	0.948	6.228	4.5546
3	5.93	Nitrite	0.359	1.845	0.9890
4	7.04	Bromide	0.078	0.372	1.0010
5	7.94	Nitrate	0.461	1.870	0.9770
6	9.89	O.Phos	0.176	0.474	1.0173
7	11.69	Sulfate	0.683	1.757	4.9423



Peak Integration Report

Sample Name:	**STD6**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Calibration Standard**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**AQUION**
Inj. Date / Time:	**19-Nov-2019 / 23:51**	*Run Time:*	**20.00**

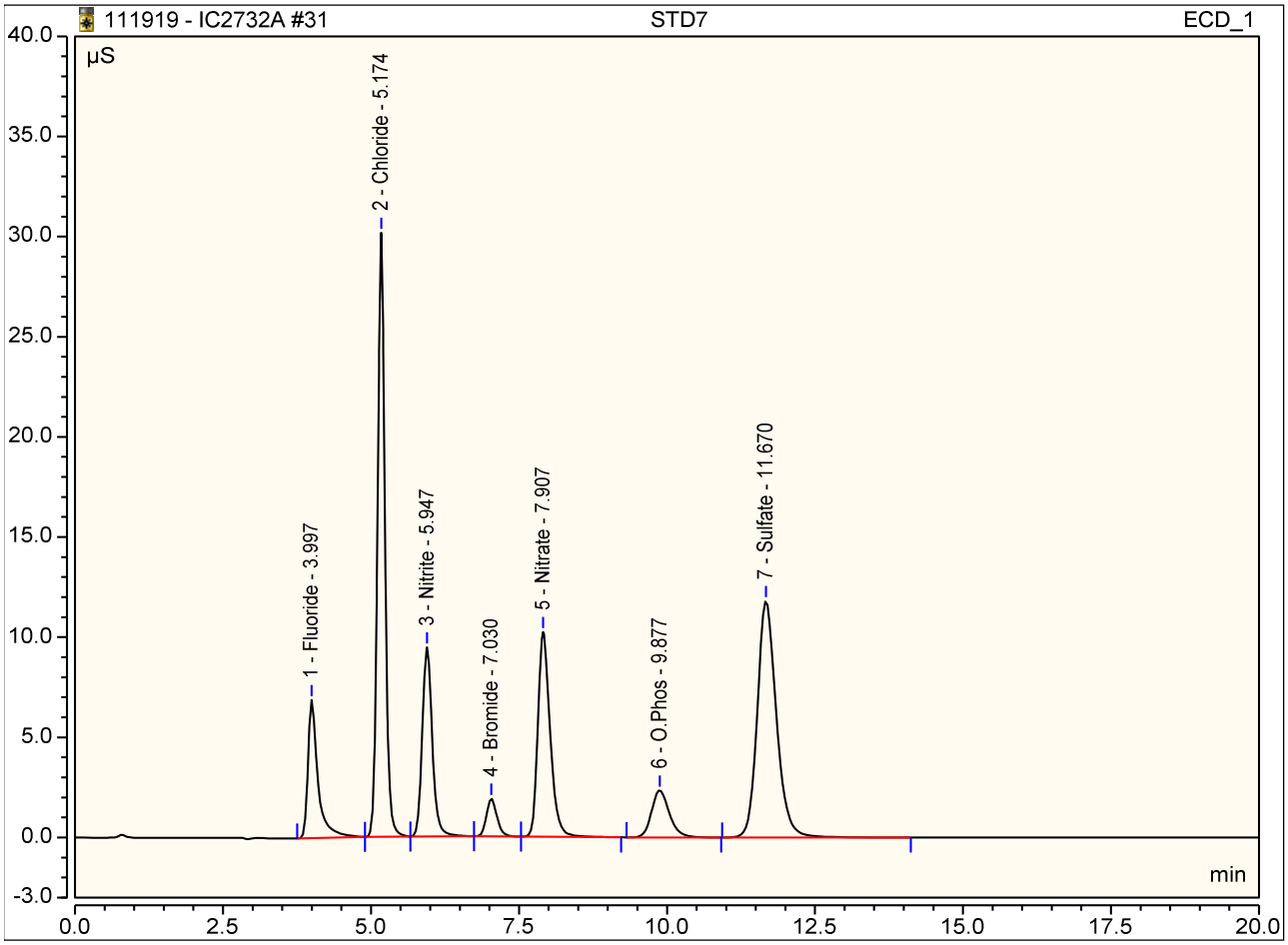
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	3.99	Fluoride	0.525	2.569	1.9523
2	5.16	Chloride	1.975	13.318	8.9813
3	5.93	Nitrite	0.721	3.702	1.9614
4	7.03	Bromide	0.155	0.743	1.9885
5	7.93	Nitrate	0.933	3.812	1.9075
6	9.89	O.Phos	0.334	0.925	1.9907
7	11.69	Sulfate	1.400	3.627	9.4805



Peak Integration Report

Sample Name:	**STD7**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Calibration Standard**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**AQUION**
Inj. Date / Time:	**20-Nov-2019 / 00:11**	*Run Time:*	**20.00**

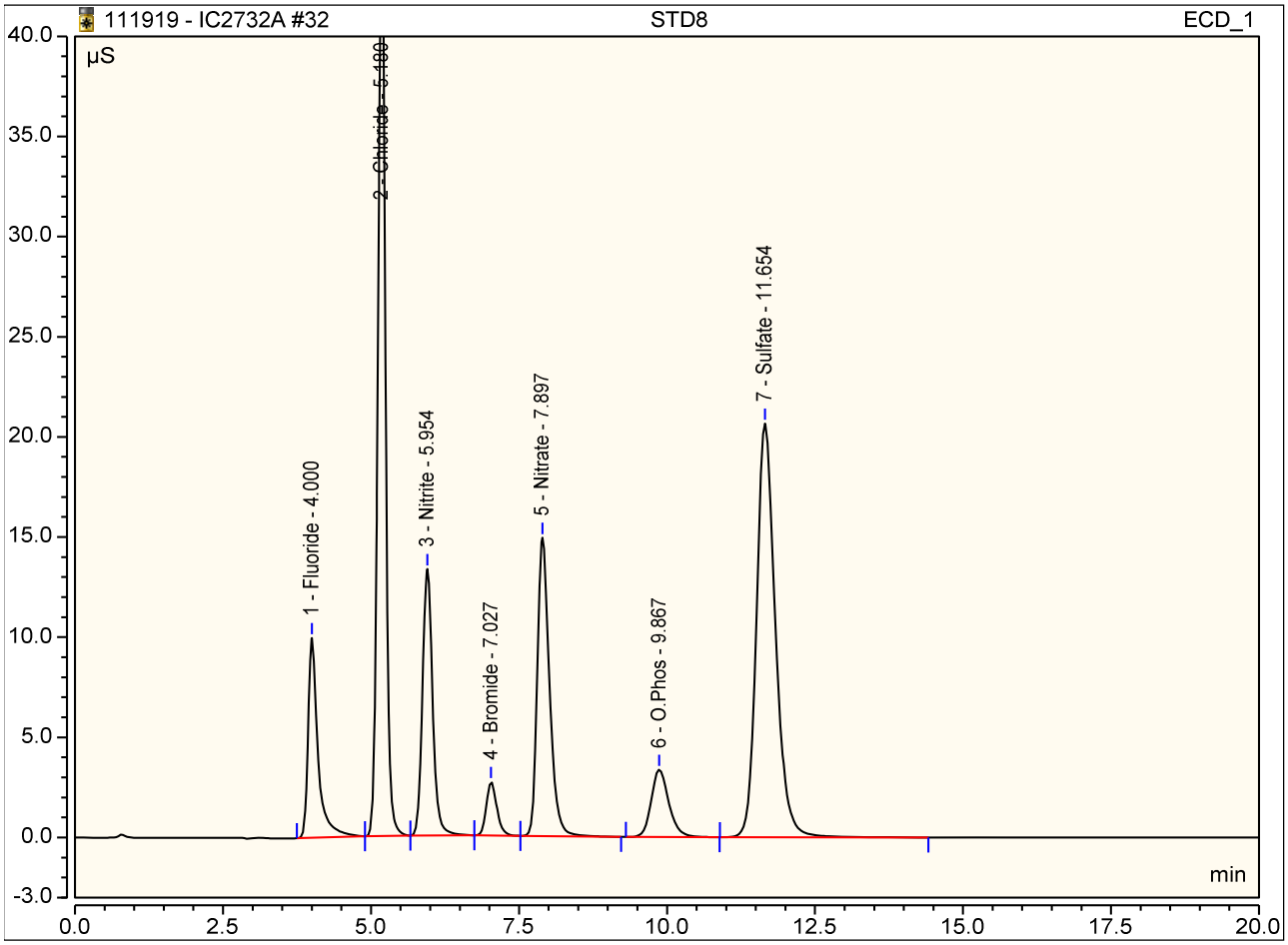
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.00	Fluoride	1.353	6.894	5.0215
2	5.17	Chloride	4.365	30.163	19.2743
3	5.95	Nitrite	1.857	9.442	5.0163
4	7.03	Bromide	0.391	1.888	5.0041
5	7.91	Nitrate	2.458	10.224	4.9183
6	9.88	O.Phos	0.821	2.345	4.9987
7	11.67	Sulfate	4.437	11.813	28.6959



Peak Integration Report

Sample Name:	**STD8**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Calibration Standard**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**AQUION**
Inj. Date / Time:	**20-Nov-2019 / 00:31**	*Run Time:*	**20.00**

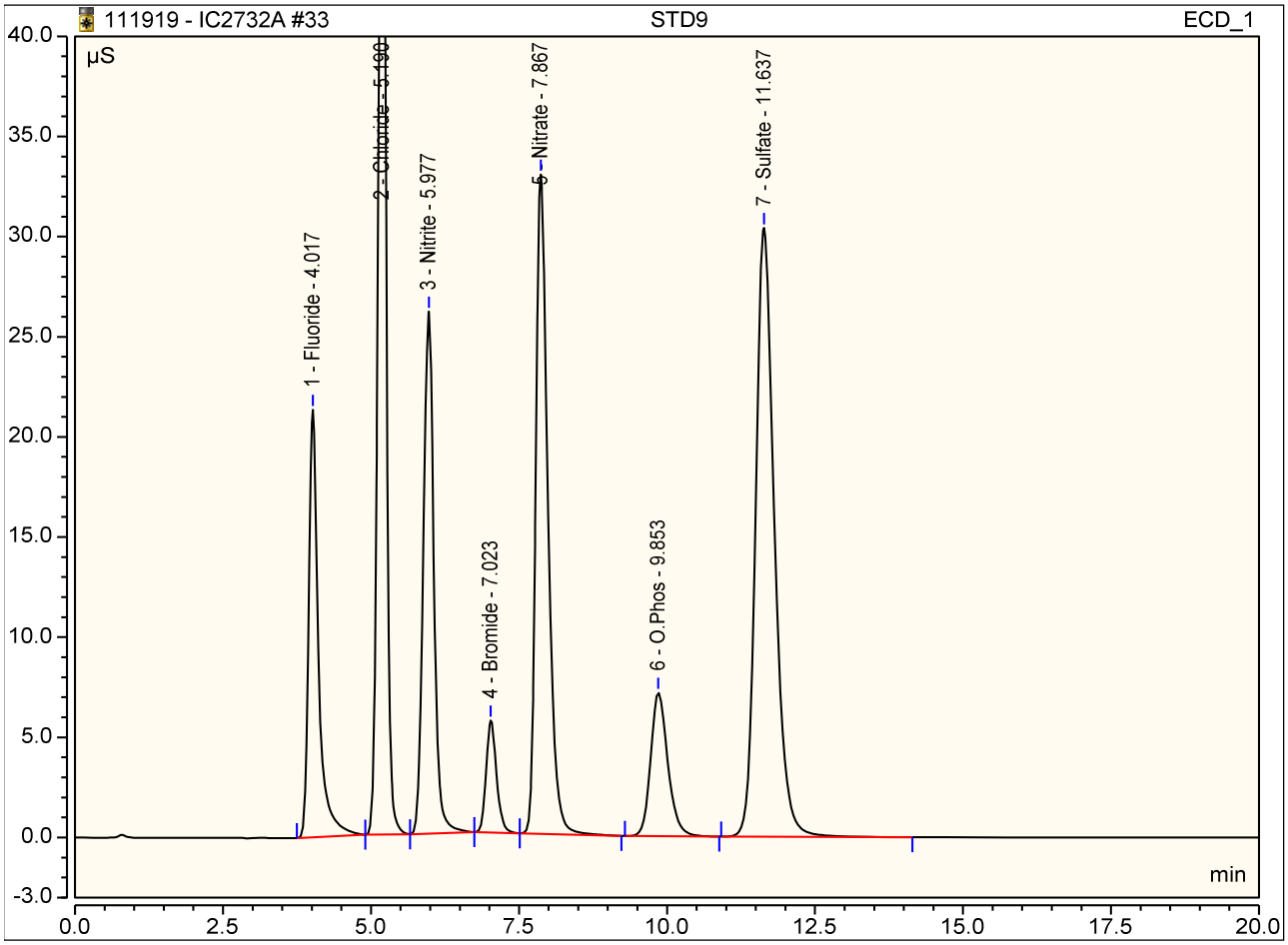
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.00	Fluoride	1.932	9.980	7.1693
2	5.18	Chloride	6.794	47.101	29.7375
3	5.95	Nitrite	2.640	13.302	7.1237
4	7.03	Bromide	0.555	2.679	7.1053
5	7.90	Nitrate	3.555	14.892	7.0844
6	9.87	O.Phos	1.164	3.364	7.1117
7	11.65	Sulfate	7.652	20.652	49.0387



Peak Integration Report

Sample Name:	**STD9**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Calibration Standard**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**AQUION**
Inj. Date / Time:	**20-Nov-2019 / 00:51**	*Run Time:*	**20.00**

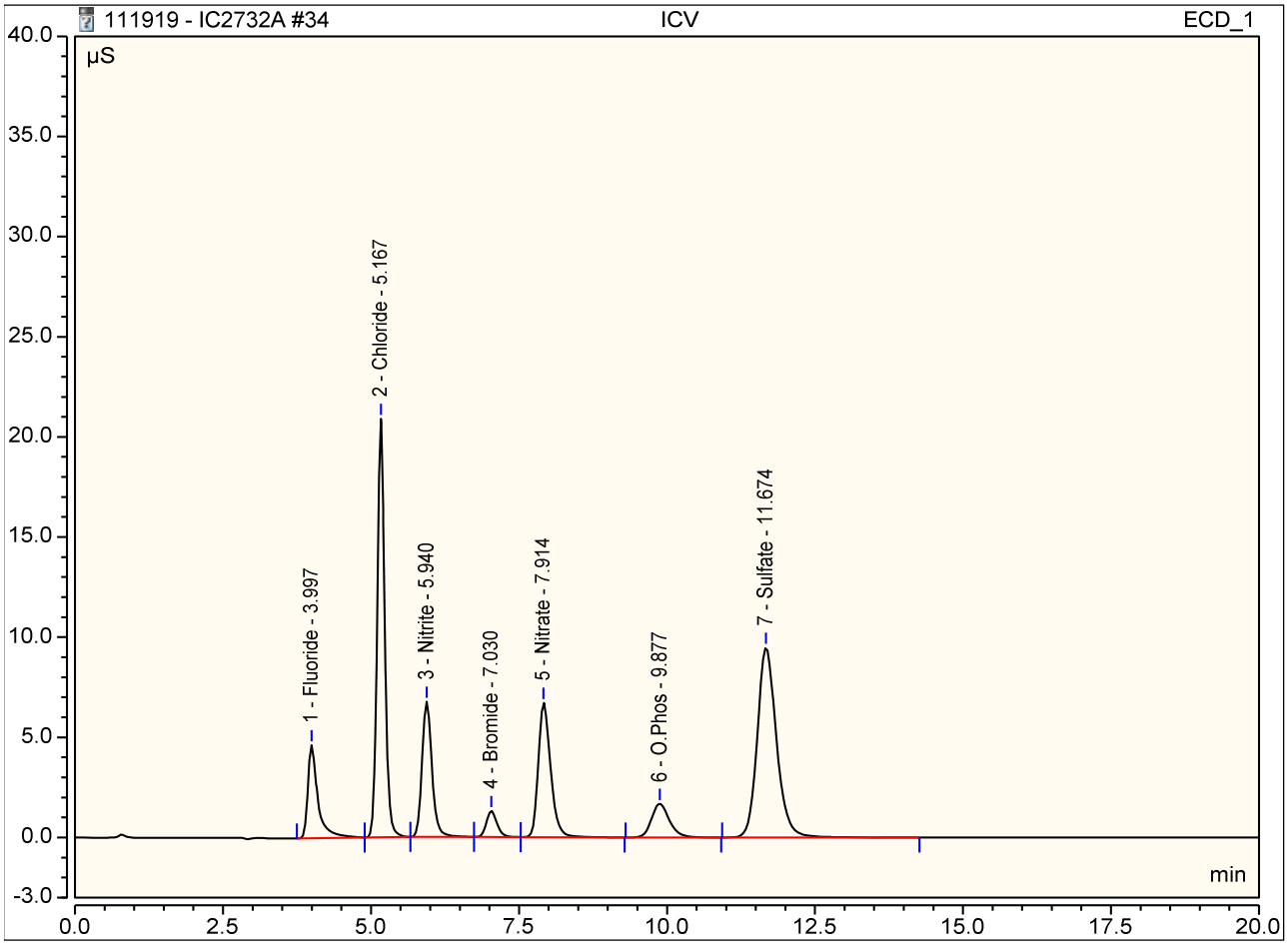
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.02	Fluoride	4.069	21.343	15.0910
2	5.19	Chloride	9.373	64.211	40.8494
3	5.98	Nitrite	5.402	26.068	14.5498
4	7.02	Bromide	1.138	5.595	14.5750
5	7.87	Nitrate	7.791	32.919	15.4457
6	9.85	O.Phos	2.416	7.164	14.8404
7	11.64	Sulfate	11.172	30.393	71.3076



Peak Integration Report

Sample Name:	**ICV**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**AQUION**
Inj. Date / Time:	**20-Nov-2019 / 01:11**	*Run Time:*	**20.00**

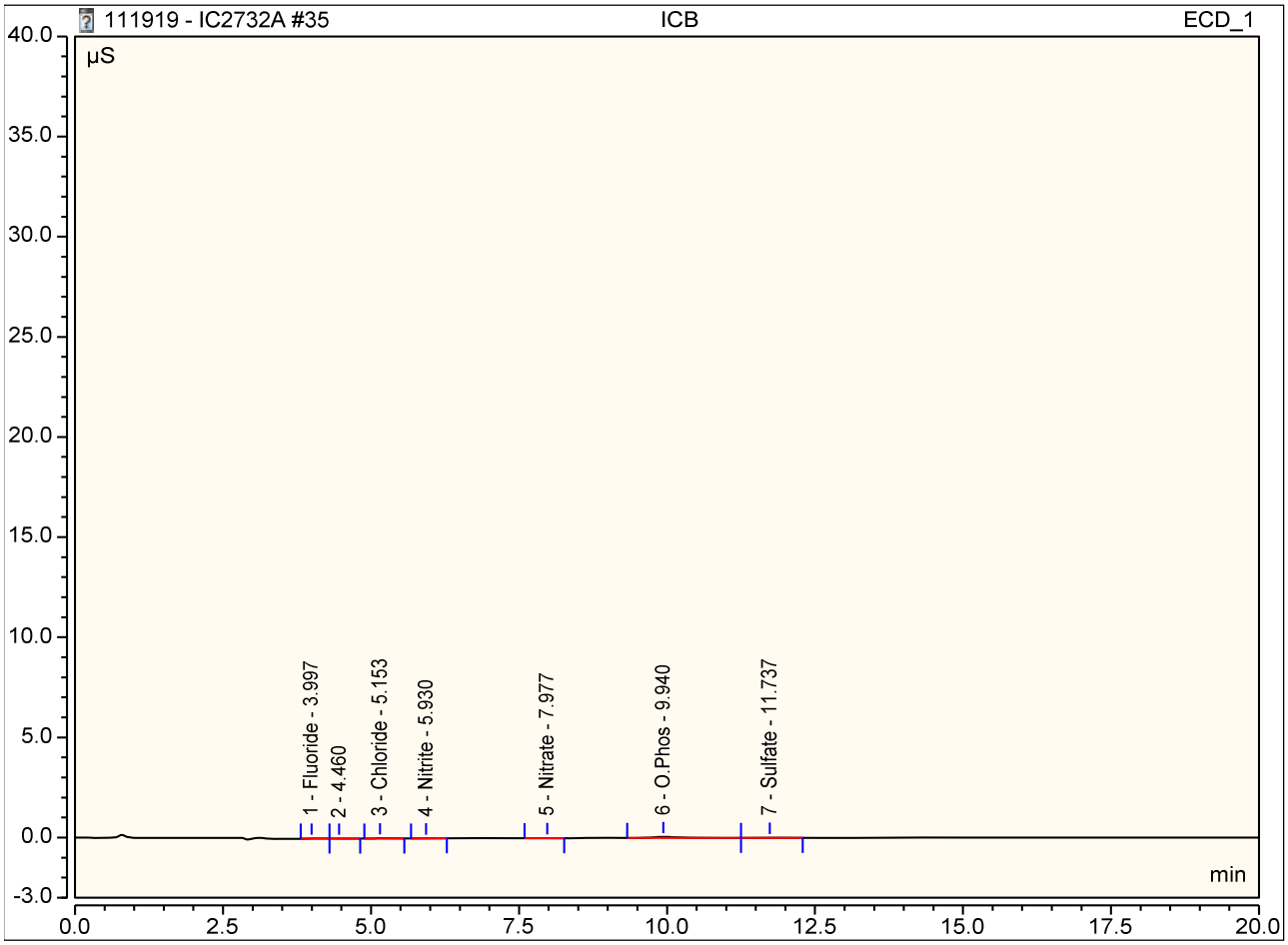
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.00	Fluoride	0.918	4.652	3.4087
2	5.17	Chloride	3.055	20.893	13.6312
3	5.94	Nitrite	1.319	6.762	3.5717
4	7.03	Bromide	0.270	1.299	3.4635
5	7.91	Nitrate	1.629	6.713	3.2822
6	9.88	O.Phos	0.595	1.685	3.6058
7	11.67	Sulfate	3.585	9.487	23.3079



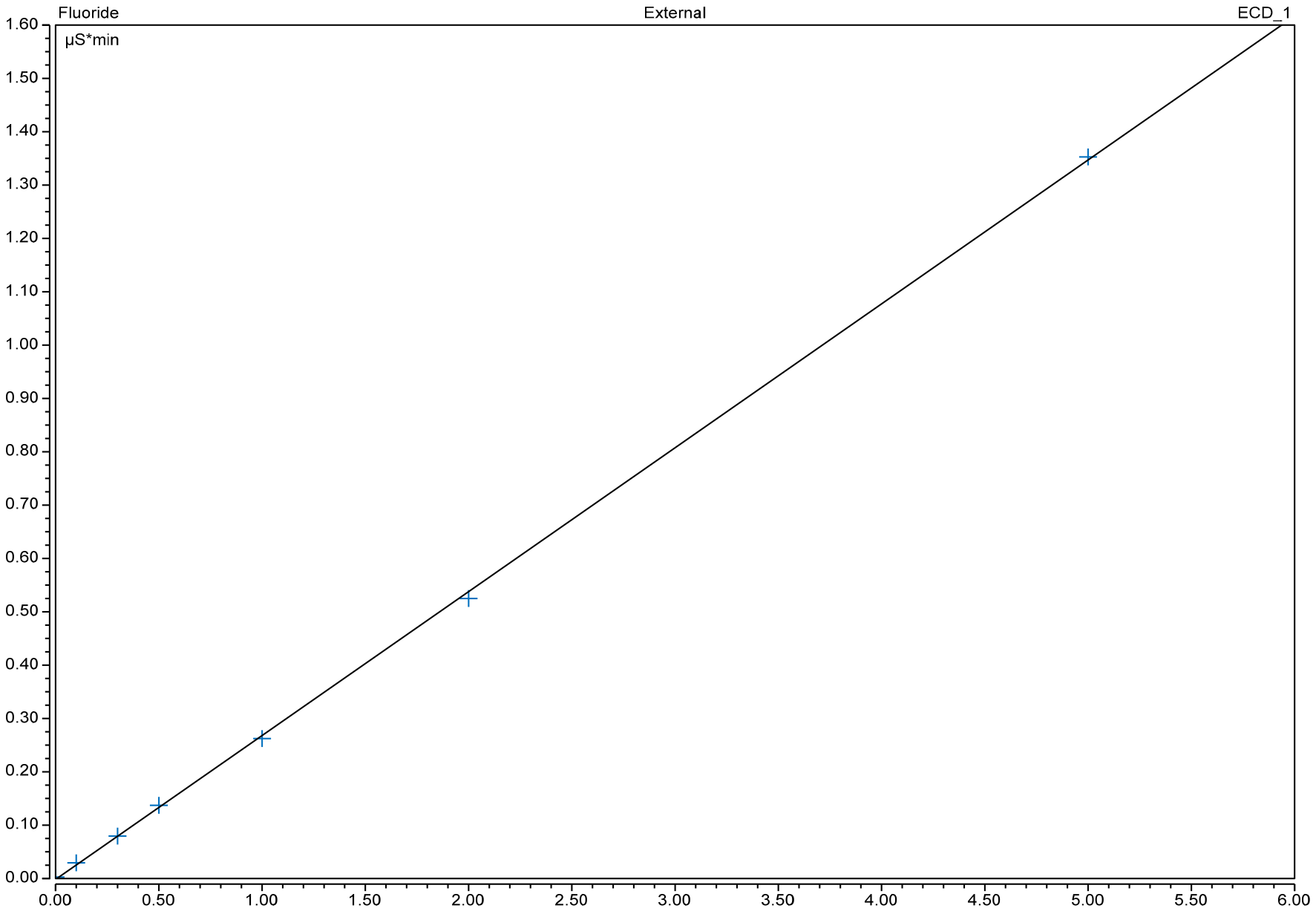
Peak Integration Report

Sample Name:	**ICB**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**AQUION**
Inj. Date / Time:	**20-Nov-2019 / 01:31**	*Run Time:*	**20.00**

No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.00	Fluoride	0.002	0.010	0.0126
3	5.15	Chloride	0.003	0.018	0.4853
4	5.93	Nitrite	0.001	0.005	0.0258
5	7.98	Nitrate	0.001	0.004	0.0686
6	9.94	O.Phos	0.026	0.058	0.0923
7	11.74	Sulfate	0.003	0.007	0.6402



Peak No.	Peak Name	Cal.Type	Eval.Type	Number of Points	Rel.Std.Dev. %	Coeff.of Determination	C0 (Offset)	C1 (Slope)	C2 (Curve)
1	Fluoride	Lin, WithOffset	Area	7	2.2106	0.99979	-0.0017	0.2697	0.0000
2	Chloride	Lin, WithOffset	Area	9	5.9184	0.99817	-0.1095	0.2321	0.0000
3	Nitrite	Lin, WithOffset	Area	6	1.6717	0.99986	-0.0086	0.3718	0.0000
4	Bromide	Lin, WithOffset	Area	6	0.4433	0.99999	0.0000	0.0781	0.0000
5	Nitrate	Lin, WithOffset	Area	7	3.3958	0.99935	-0.0338	0.5066	0.0000
6	O.Phos	Lin, WithOffset	Area	7	1.1453	0.99994	0.0109	0.1621	0.0000
7	*Sulfate*	*Lin, WithOffset*	*Area*	*8*	*4.6746*	*0.99891*	*-0.0984*	*0.1581*	*0.0000*
Maximum					**5.9184**	0.99999			
Minimum					0.4433	**0.99817**			


Fluoride
External
ECD_1
µS*min
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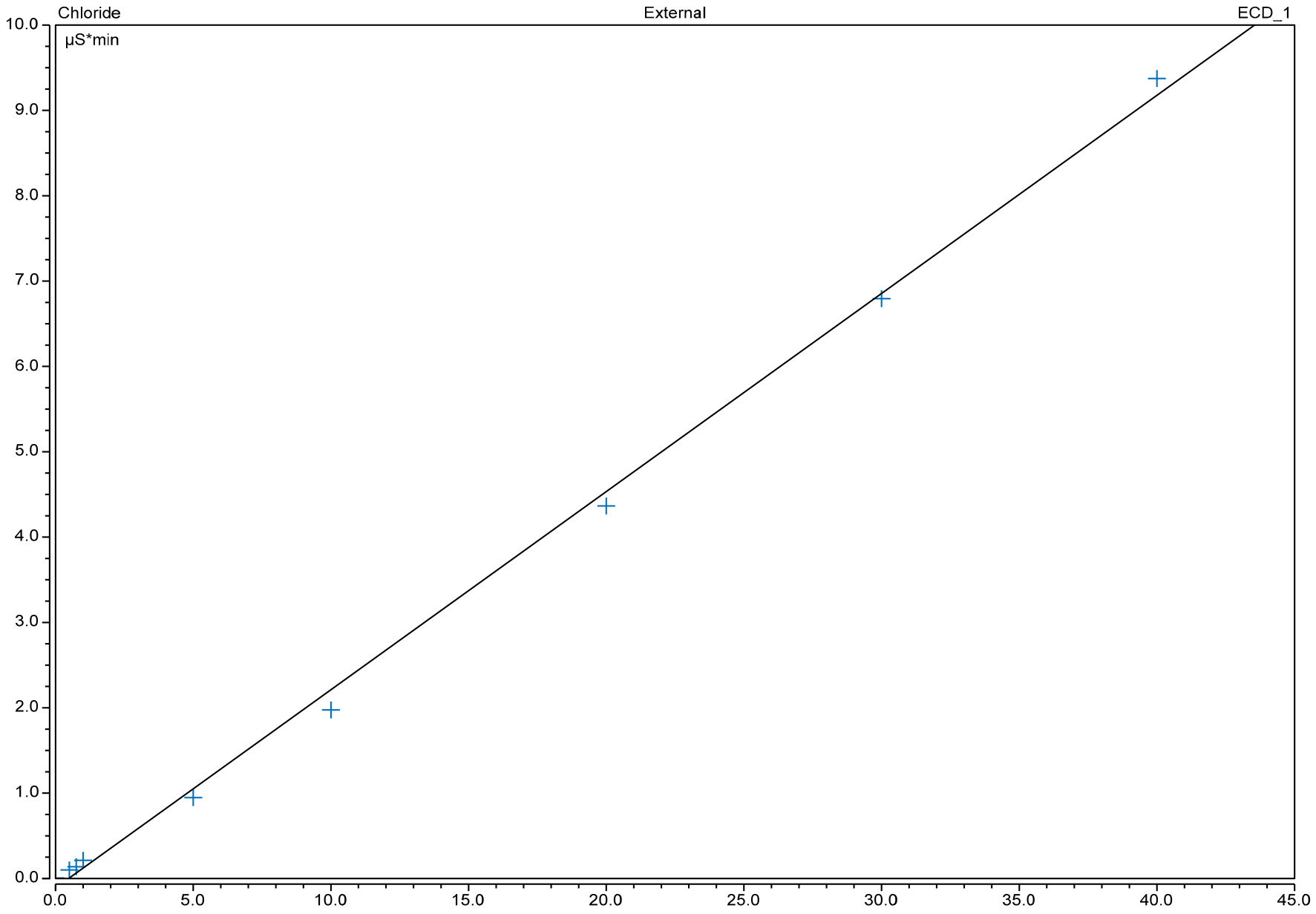
1.50
1.40
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
4.00
4.50
5.00
5.50
6.00


Chloride
External
ECD_1
µS*min
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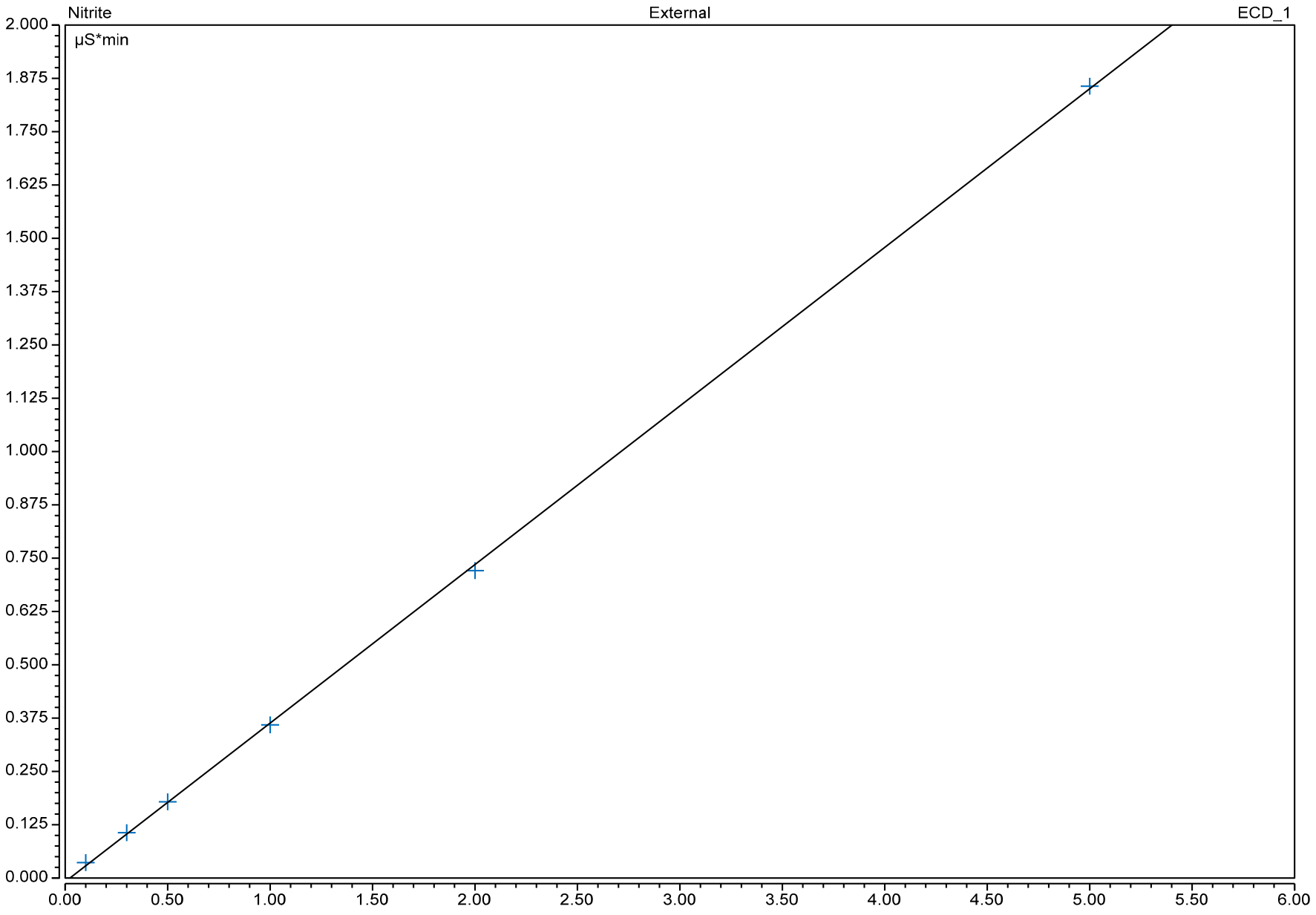
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0


Nitrite
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1.375
1.250
1.125
1.000
0.875
0.750
0.625
0.500
0.375
0.250
0.125
0.000
0.00
0.50
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2.00
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3.00
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4.00
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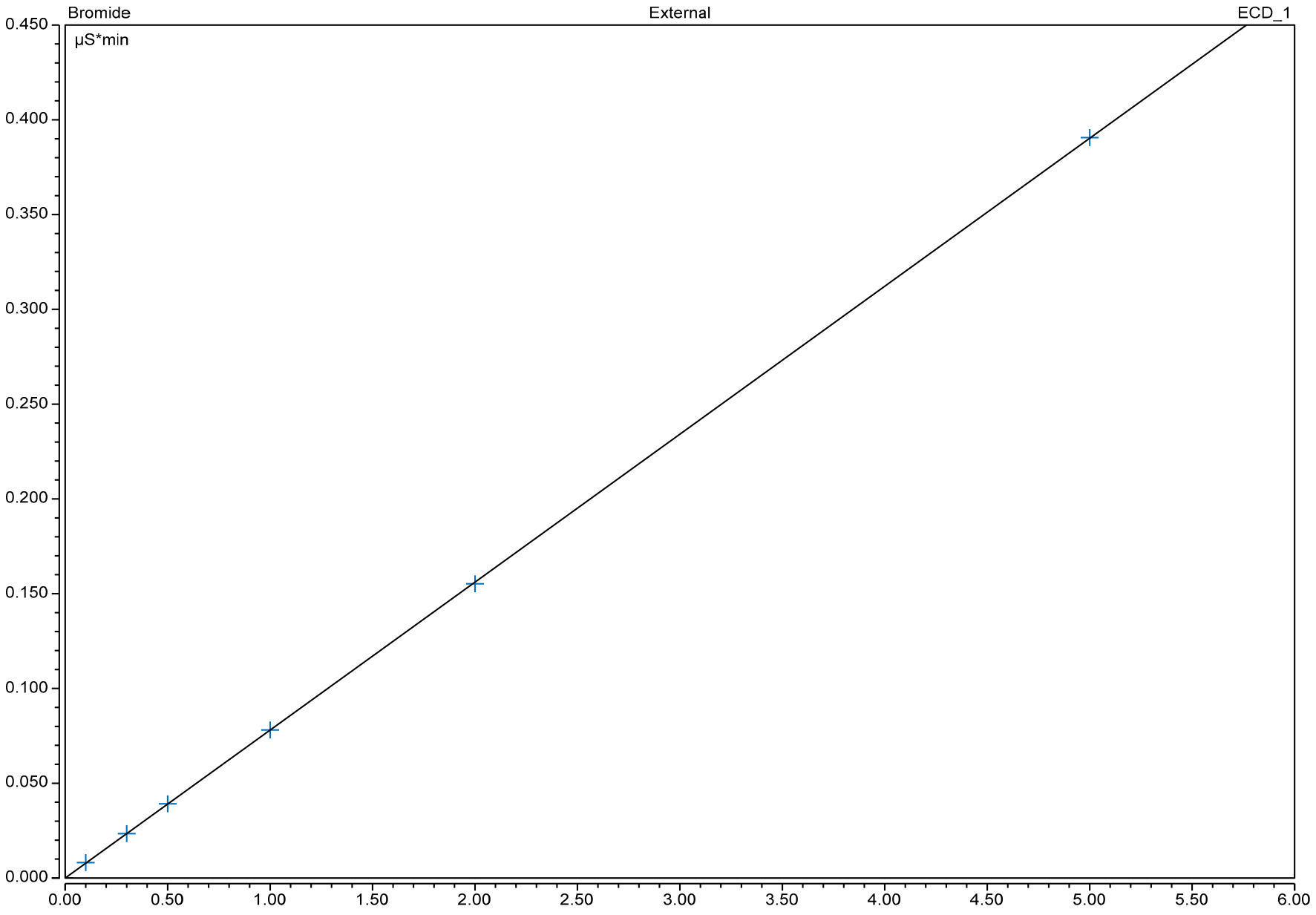
5.00
5.50
6.00


Bromide
External
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µS*min
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0.300
0.250
0.200
0.150
0.100
0.050
0.000
0.00
0.50
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2.00
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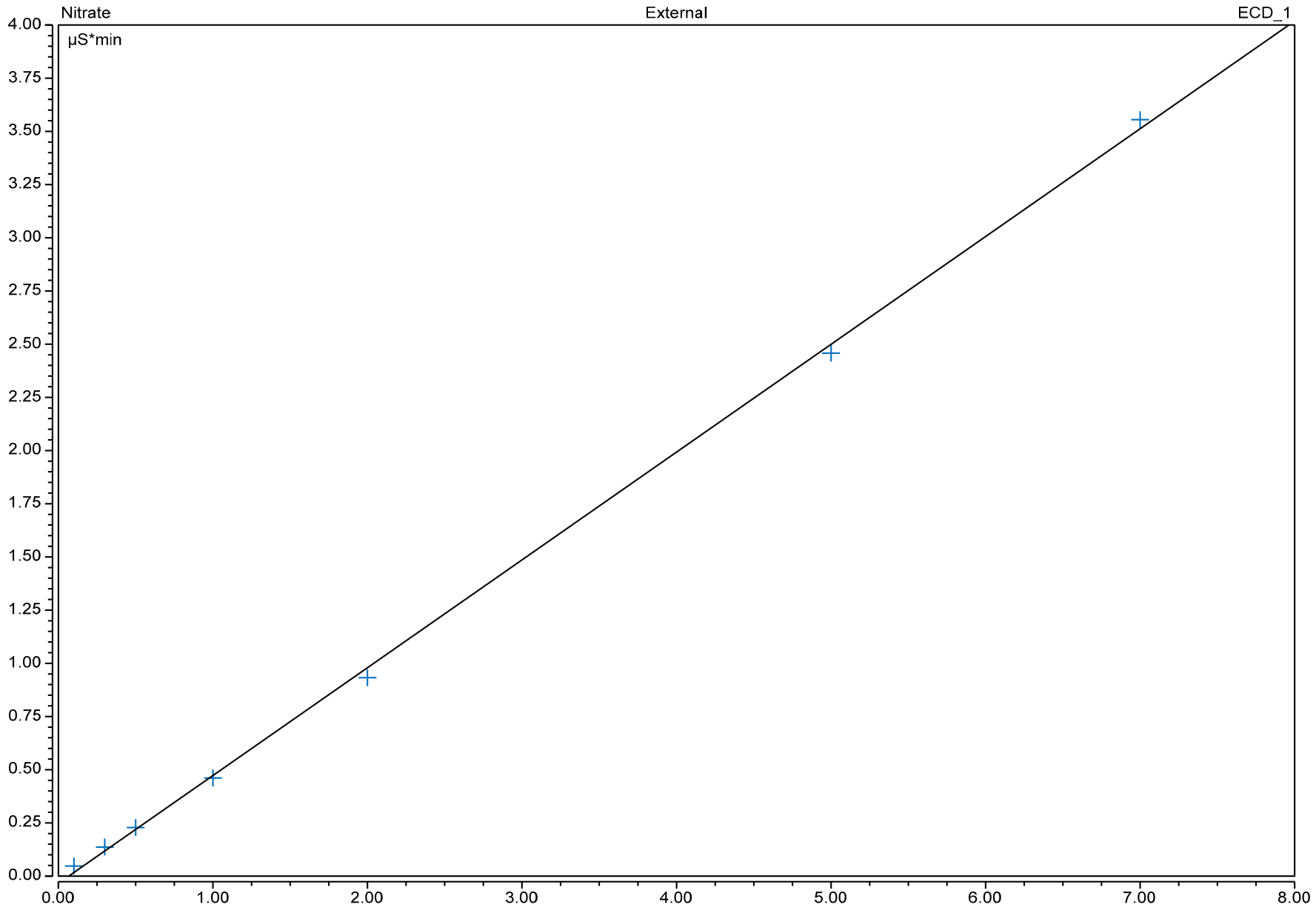
3.00
3.50
4.00
4.50
5.00
5.50
6.00


Nitrate
External
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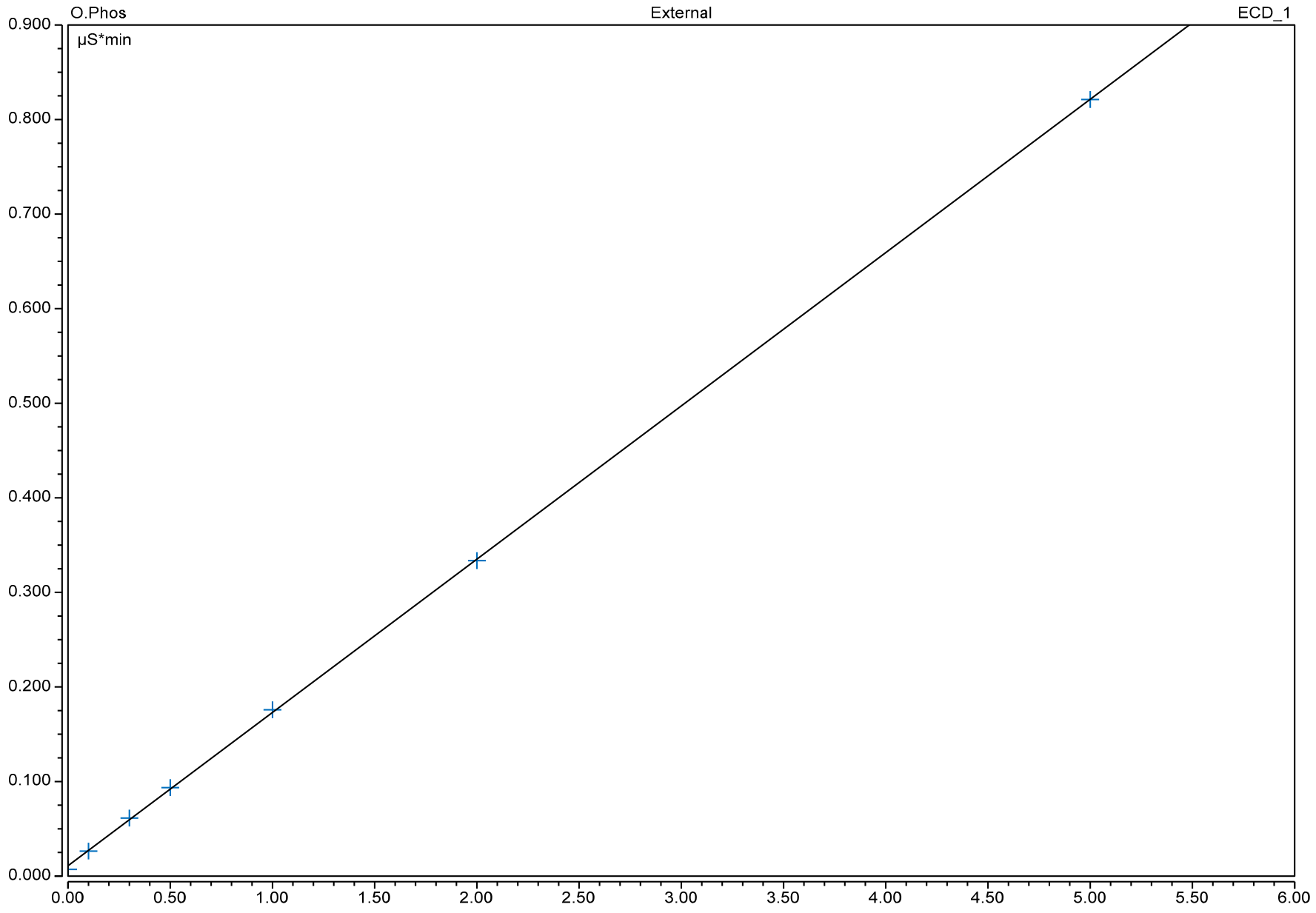
3.25
3.00
2.75
2.50
2.25
2.00
1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00

RJ 01/10/2020


O.Phos
External
ECD_1
µS*min
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0.800
0.700
0.600
0.500
0.400
0.300
0.200
0.100
0.000
0.00
0.50
1.00
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2.50
3.00
3.50
4.00
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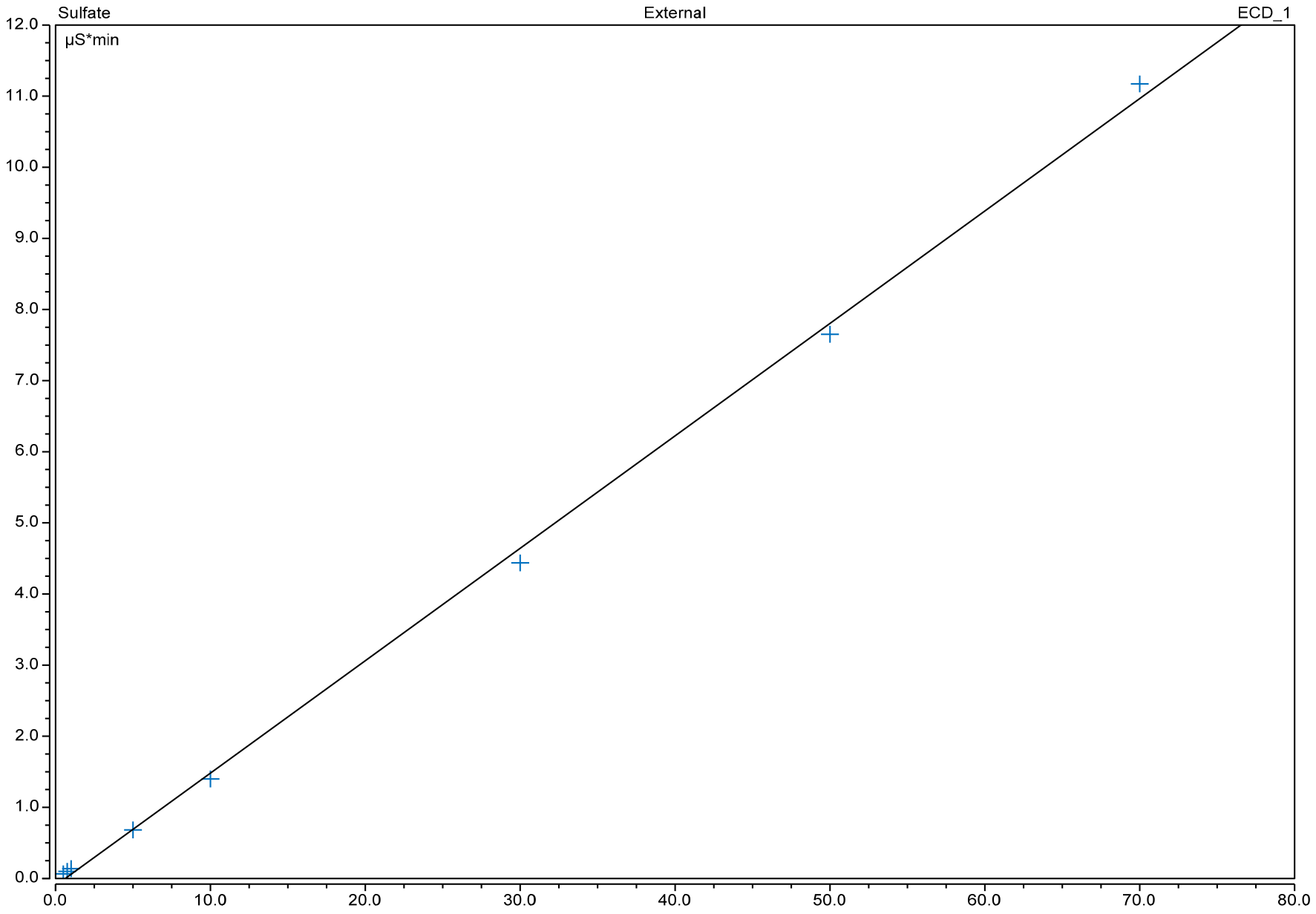
5.00
5.50
6.00

RJ 01/10/2020


Sulfate
External
ECD_1
µS*min
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9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
0.0
10.0
20.0
30.0
40.0
50.0
60.0
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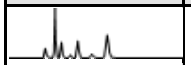
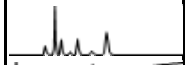
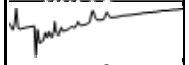
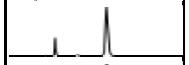
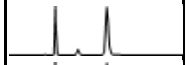
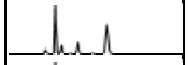
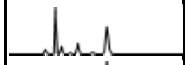
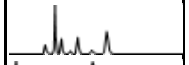
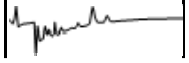
80.0

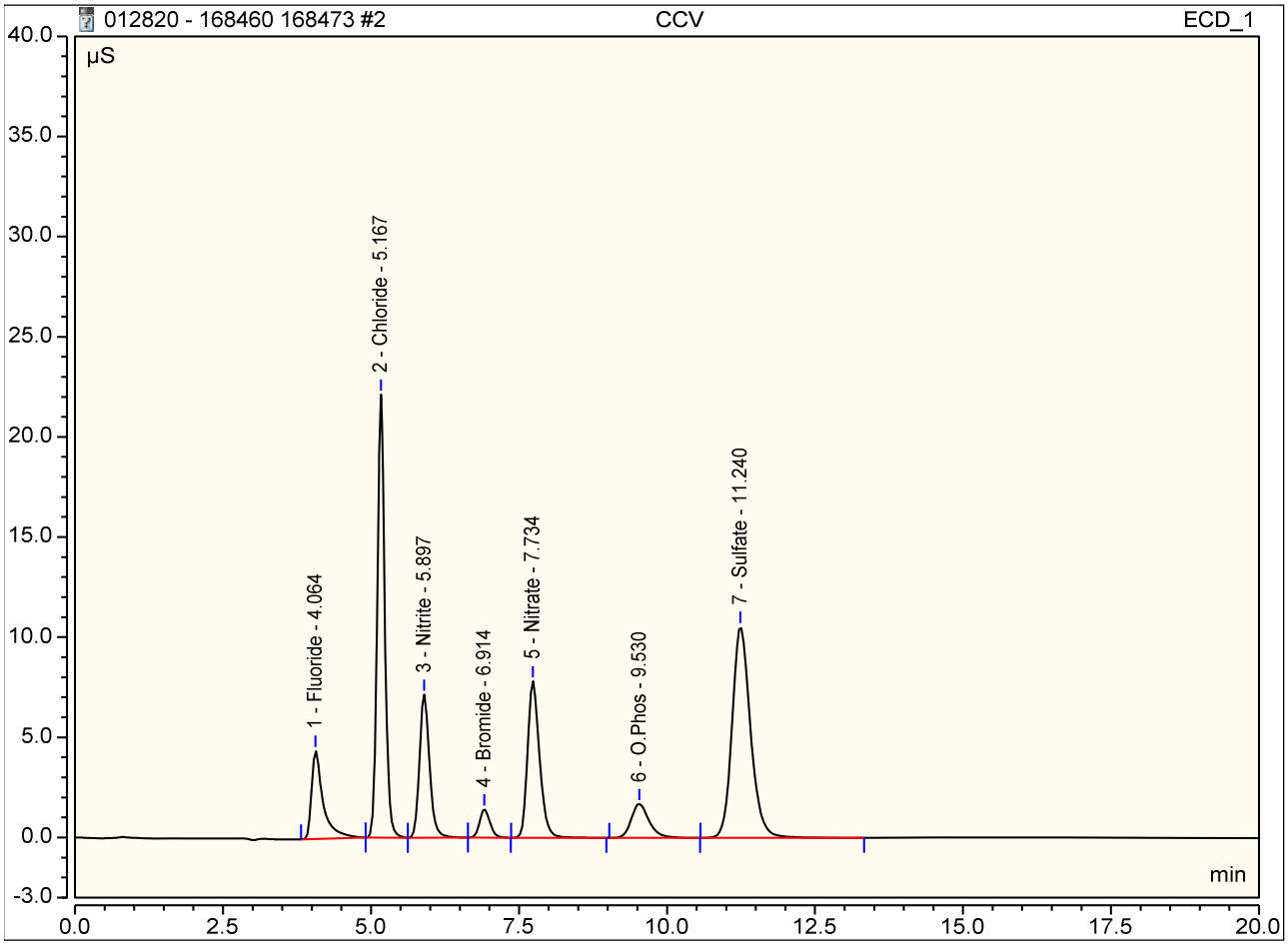
Sequence: 012820 - 168460 168473
Last Update Operator: AQUION

ECD_1	Name	Dilution	Type	Level	Position	Volume	Instrument Method	Processing Method	Status
	CCV	1.0000	Unknown		2	5000	Anions	IC2732A	Finished
	LCSW	1.0000	Unknown		3	5000	Anions	IC2732A	Finished
	MBW	1.0000	Unknown		4	5000	Anions	IC2732A	Finished
	383230	1.0000	Unknown		5	5000	Anions	IC2732A	Finished
	383230X5	1.0000	Unknown		6	5000	Anions	IC2732A	Finished
	383231	1.0000	Unknown		7	5000	Anions	IC2732A	Finished
	383232	1.0000	Unknown		8	5000	Anions	IC2732A	Finished
	383233	1.0000	Unknown		9	5000	Anions	IC2732A	Finished
	DUP383233	1.0000	Unknown		10	5000	Anions	IC2732A	Finished
	MSW383233	1.0000	Unknown		11	5000	Anions	IC2732A	Finished
	MSDW383233	1.0000	Unknown		12	5000	Anions	IC2732A	Finished
	383234	1.0000	Unknown		13	5000	Anions	IC2732A	Finished
	CCV	1.0000	Unknown		14	5000	Anions	IC2732A	Finished
	CCB	1.0000	Unknown		15	5000	Anions	IC2732A	Finished

Peak Integration Report

Sample Name:	**CCV**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**AQUION**
Inj. Date / Time:	**28-Jan-2020 / 12:12**	*Run Time:*	**20.00**

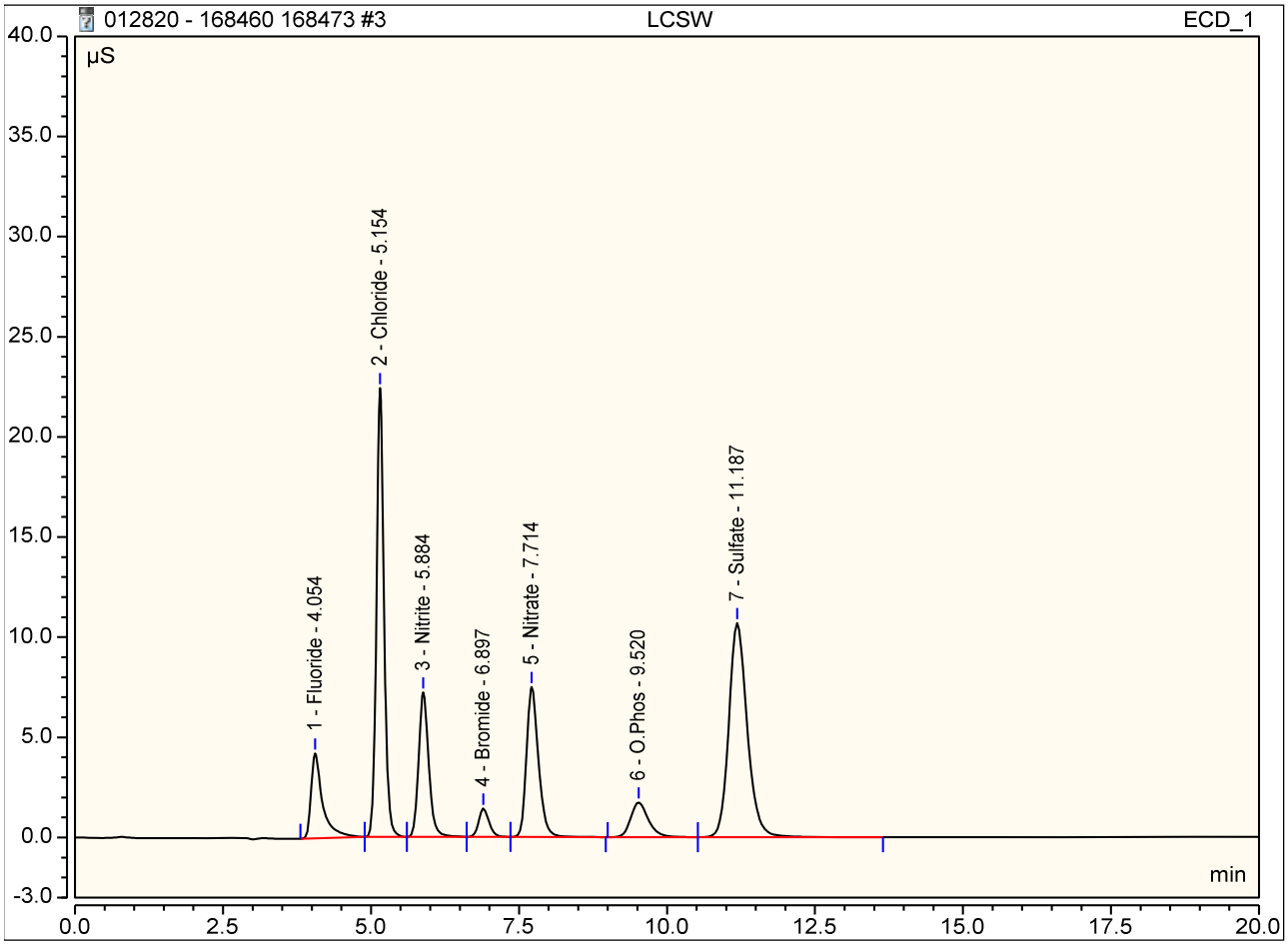
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.06	Fluoride	0.997	4.406	3.7020
2	5.17	Chloride	3.255	22.127	14.4949
3	5.90	Nitrite	1.406	7.145	3.8057
4	6.91	Bromide	0.290	1.421	3.7102
5	7.73	Nitrate	1.835	7.823	3.6888
6	9.53	O.Phos	0.595	1.699	3.6008
7	11.24	Sulfate	3.811	10.544	24.7318



Peak Integration Report

Sample Name:	**LCSW**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**AQUION**
Inj. Date / Time:	**28-Jan-2020 / 12:32**	*Run Time:*	**20.00**

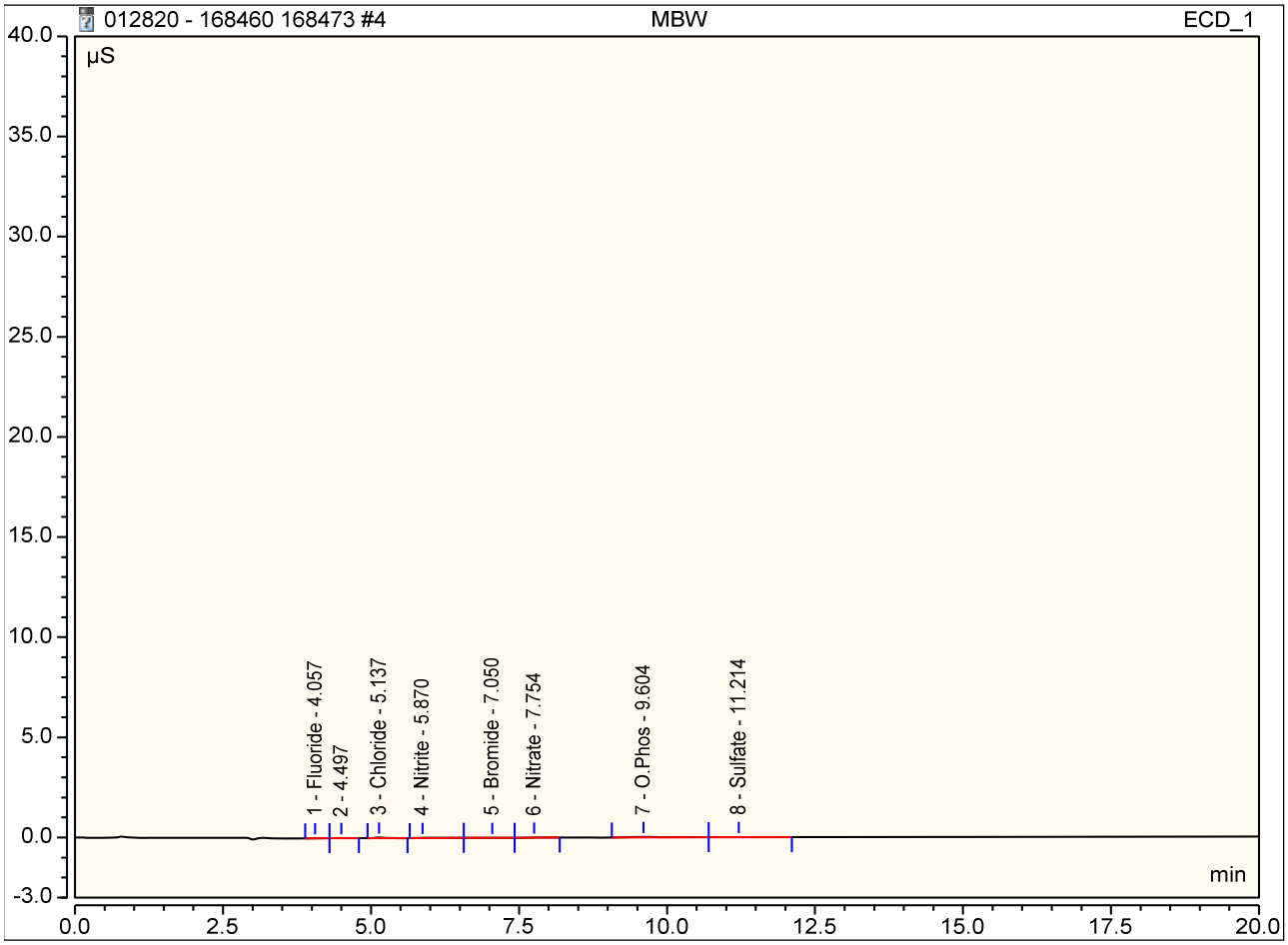
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.05	Fluoride	0.956	4.236	3.5515
2	5.15	Chloride	3.294	22.406	14.6620
3	5.88	Nitrite	1.420	7.218	3.8426
4	6.90	Bromide	0.289	1.412	3.7004
5	7.71	Nitrate	1.756	7.487	3.5327
6	9.52	O.Phos	0.603	1.737	3.6506
7	11.19	Sulfate	3.866	10.699	25.0802



Peak Integration Report

Sample Name:	**MBW**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**AQUION**
Inj. Date / Time:	**28-Jan-2020 / 12:53**	*Run Time:*	**20.00**

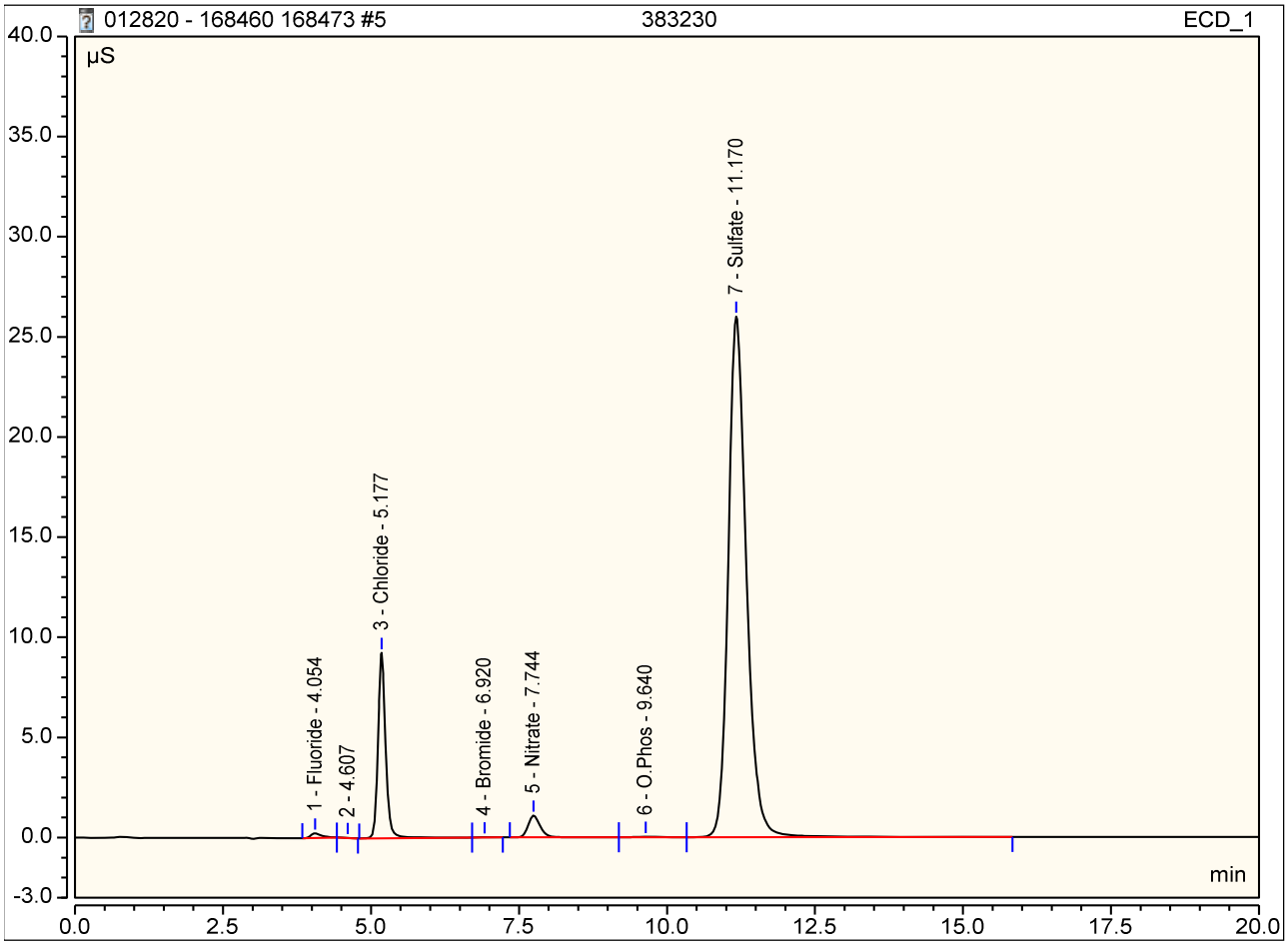
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.06	Fluoride	0.003	0.015	0.0161
3	5.14	Chloride	0.007	0.040	0.5002
4	5.87	Nitrite	0.003	0.015	0.0319
5	7.05	Bromide	0.002	0.006	0.0273
6	7.75	Nitrate	0.004	0.015	0.0742
7	9.60	O.Phos	0.016	0.035	0.0318
8	11.21	Sulfate	0.008	0.020	0.6747



Peak Integration Report

Sample Name:	**383230**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**AQUION**
Inj. Date / Time:	**28-Jan-2020 / 13:13**	*Run Time:*	**20.00**

No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.05	Fluoride	0.047	0.227	0.1799
3	5.18	Chloride	1.381	9.258	6.4211
4	6.92	Bromide	0.001	0.007	0.0192
5	7.74	Nitrate	0.261	1.088	0.5815
6	9.64	O.Phos	0.010	0.024	n.a.
7	11.17	Sulfate	9.240	25.988	59.0849

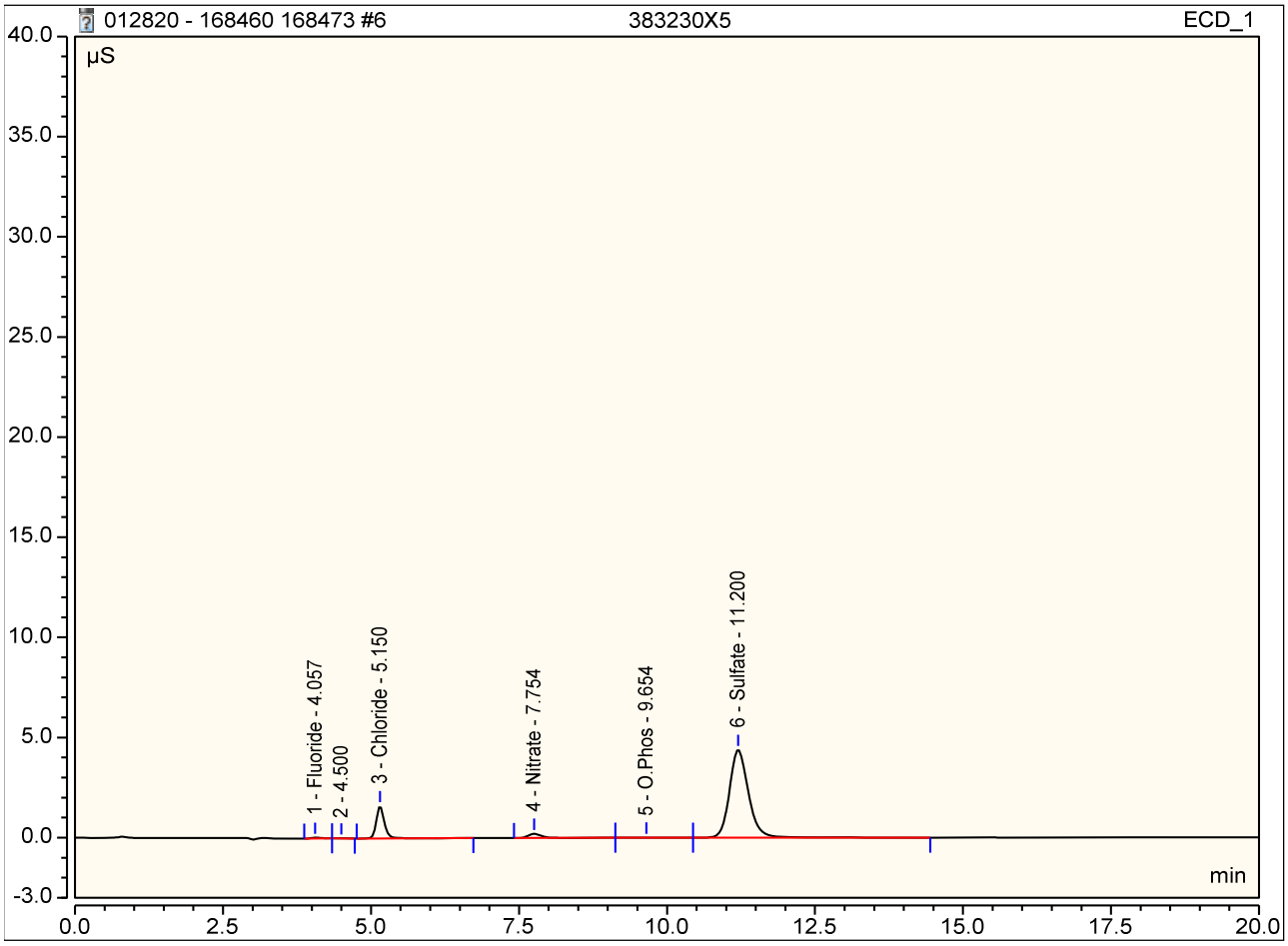


NOT USED

Peak Integration Report

Sample Name:	**383230X5**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**AQUION**
Inj. Date / Time:	**28-Jan-2020 / 13:33**	*Run Time:*	**20.00**

No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.06	Fluoride	0.008	0.044	0.0373
3	5.15	Chloride	0.261	1.628	1.5983
4	7.75	Nitrate	0.053	0.216	0.1715
5	9.65	O.Phos	0.005	0.011	n.a.
6	11.20	Sulfate	1.632	4.390	10.9482

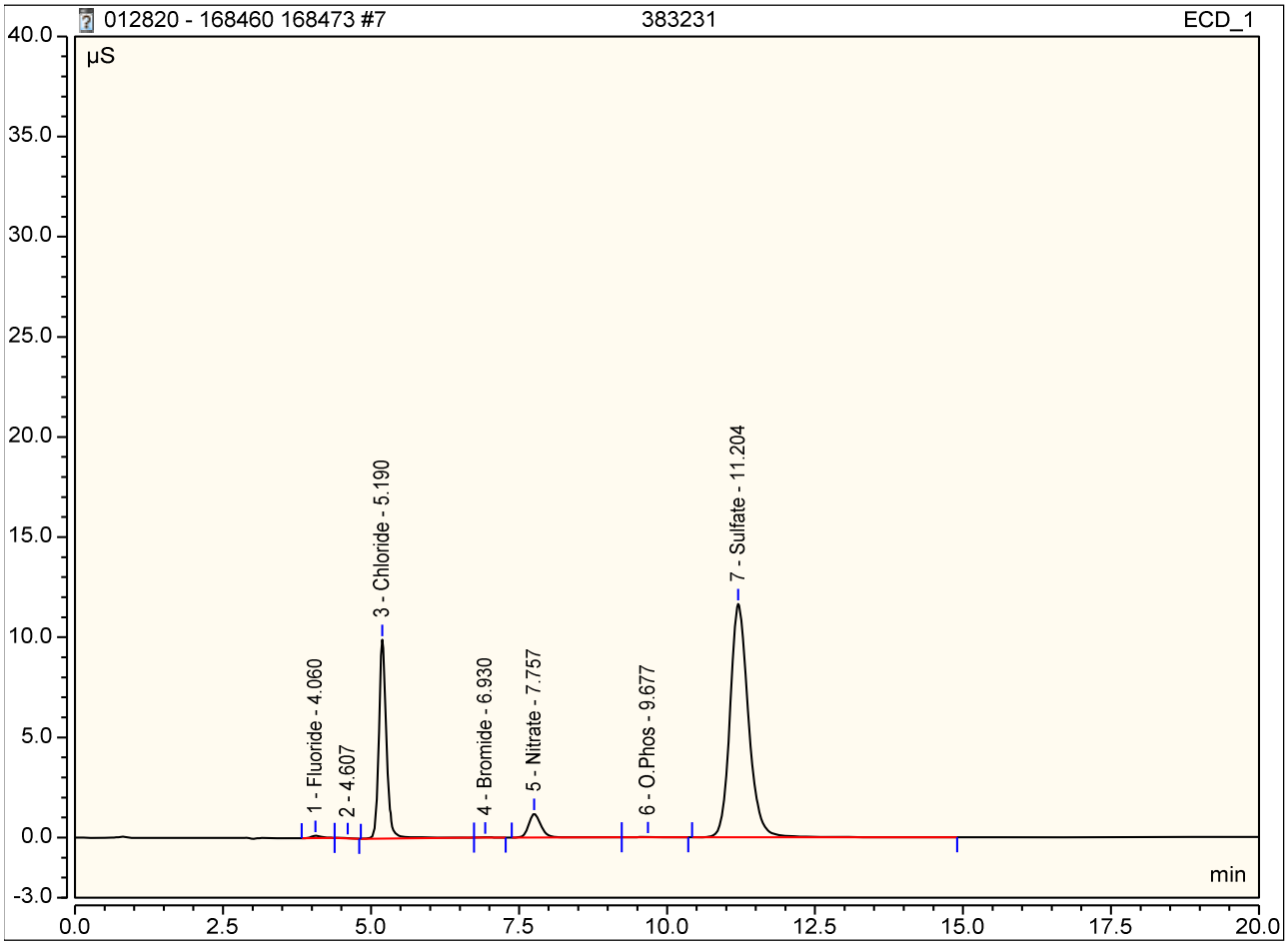


Chromeleon (c) Dionex 1996-2009
Version 7.2.9.11323

Peak Integration Report

Sample Name:	**383231**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**AQUION**
Inj. Date / Time:	**28-Jan-2020 / 13:53**	*Run Time:*	**20.00**

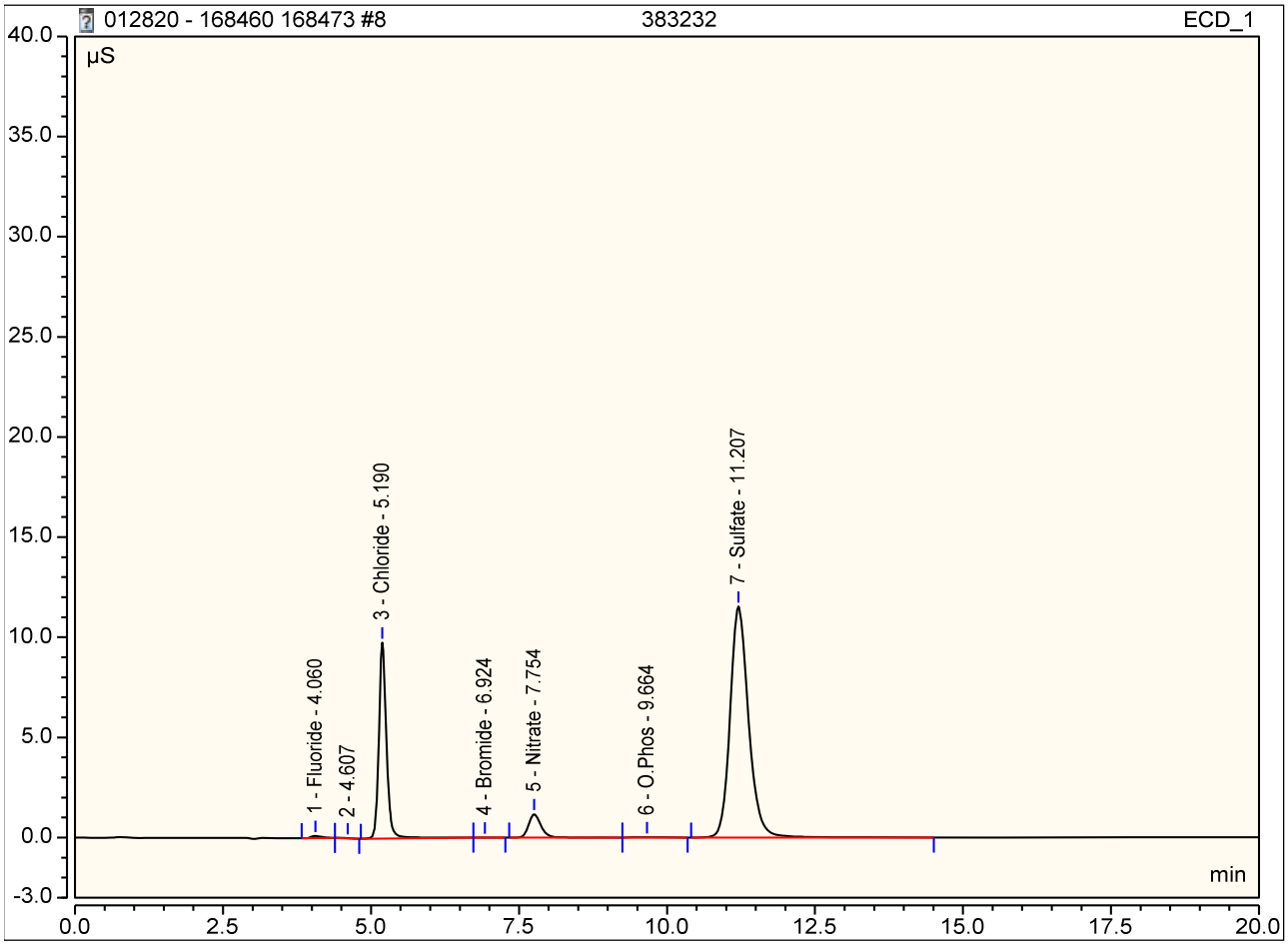
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.06	Fluoride	0.023	0.116	0.0927
3	5.19	Chloride	1.474	9.926	6.8217
4	6.93	Bromide	0.002	0.008	0.0236
5	7.76	Nitrate	0.284	1.187	0.6268
6	9.68	O.Phos	0.009	0.021	n.a.
7	11.20	Sulfate	4.219	11.650	27.3163



Peak Integration Report

Sample Name:	**383232**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**AQUION**
Inj. Date / Time:	**28-Jan-2020 / 14:13**	*Run Time:*	**20.00**

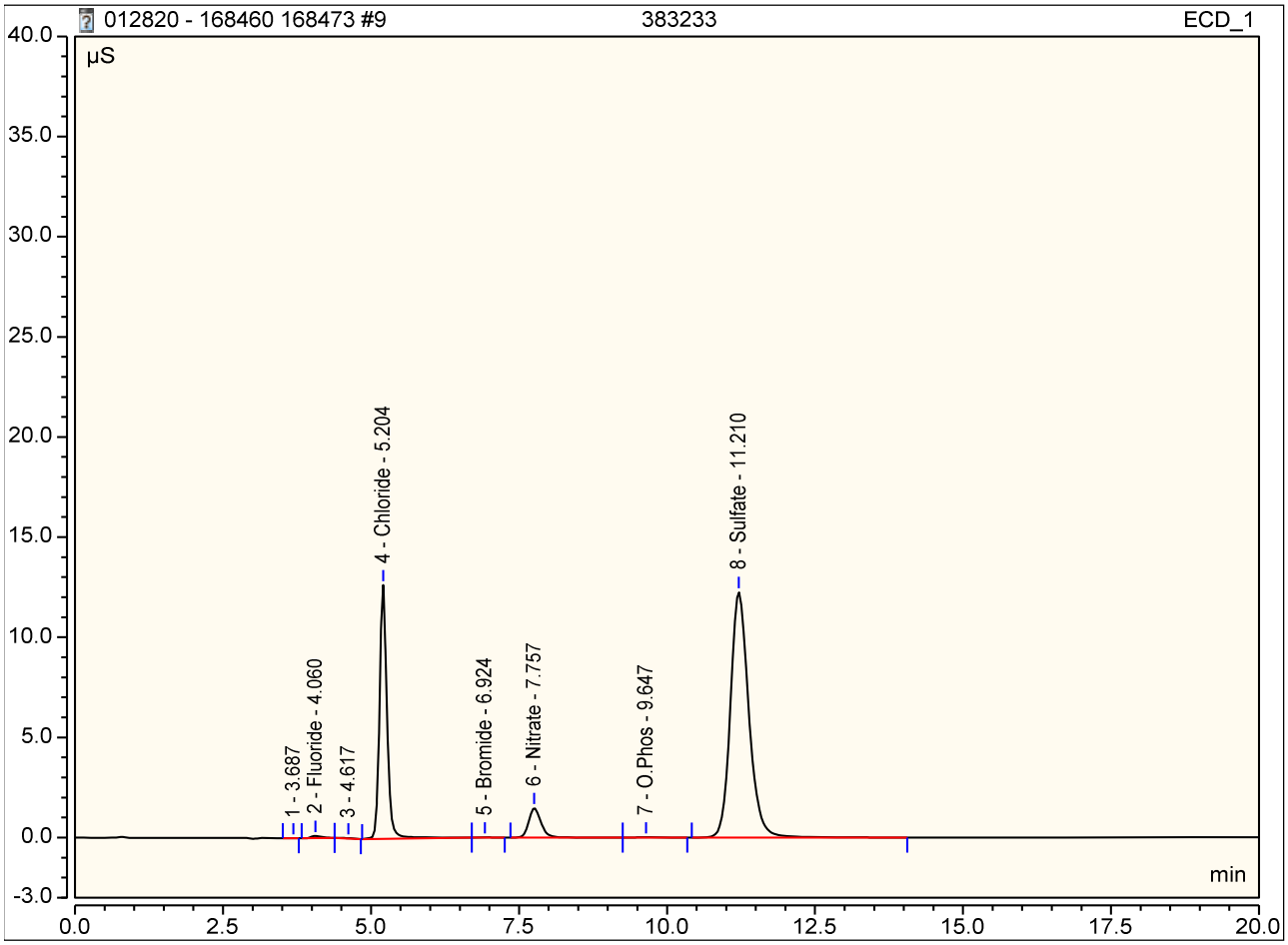
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.06	Fluoride	0.023	0.115	0.0914
3	5.19	Chloride	1.457	9.797	6.7499
4	6.92	Bromide	0.001	0.007	0.0193
5	7.75	Nitrate	0.282	1.178	0.6240
6	9.66	O.Phos	0.009	0.020	n.a.
7	11.21	Sulfate	4.188	11.539	27.1194



Peak Integration Report

Sample Name:	**383233**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**AQUION**
Inj. Date / Time:	**28-Jan-2020 / 14:33**	*Run Time:*	**20.00**

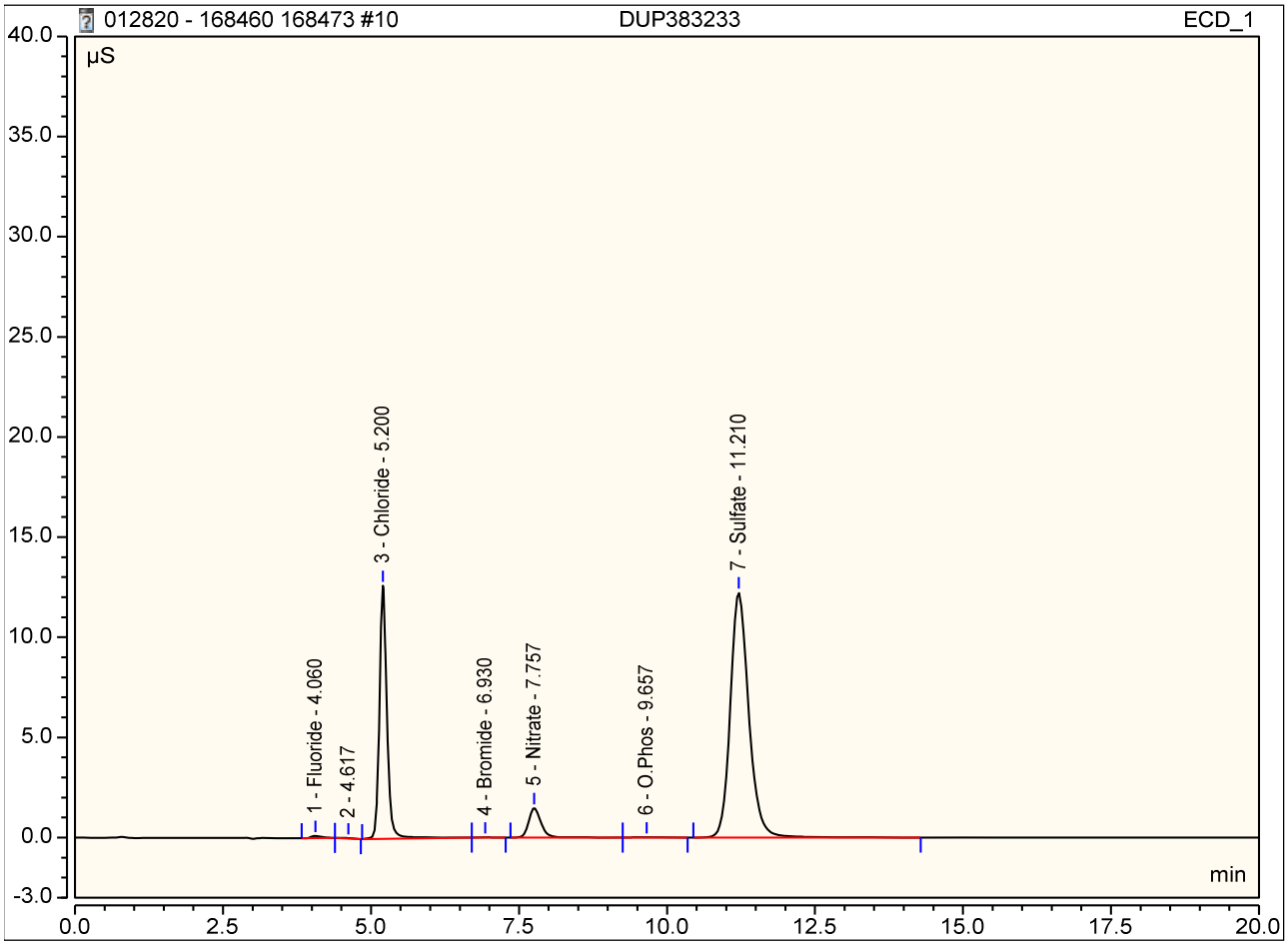
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
2	4.06	Fluoride	0.023	0.115	0.0932
4	5.20	Chloride	1.851	12.665	8.4460
5	6.92	Bromide	0.002	0.010	0.0278
6	7.76	Nitrate	0.353	1.480	0.7636
7	9.65	O.Phos	0.007	0.016	n.a.
8	11.21	Sulfate	4.438	12.267	28.7043



Peak Integration Report

Sample Name:	**DUP383233**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**AQUION**
Inj. Date / Time:	**28-Jan-2020 / 14:53**	*Run Time:*	**20.00**

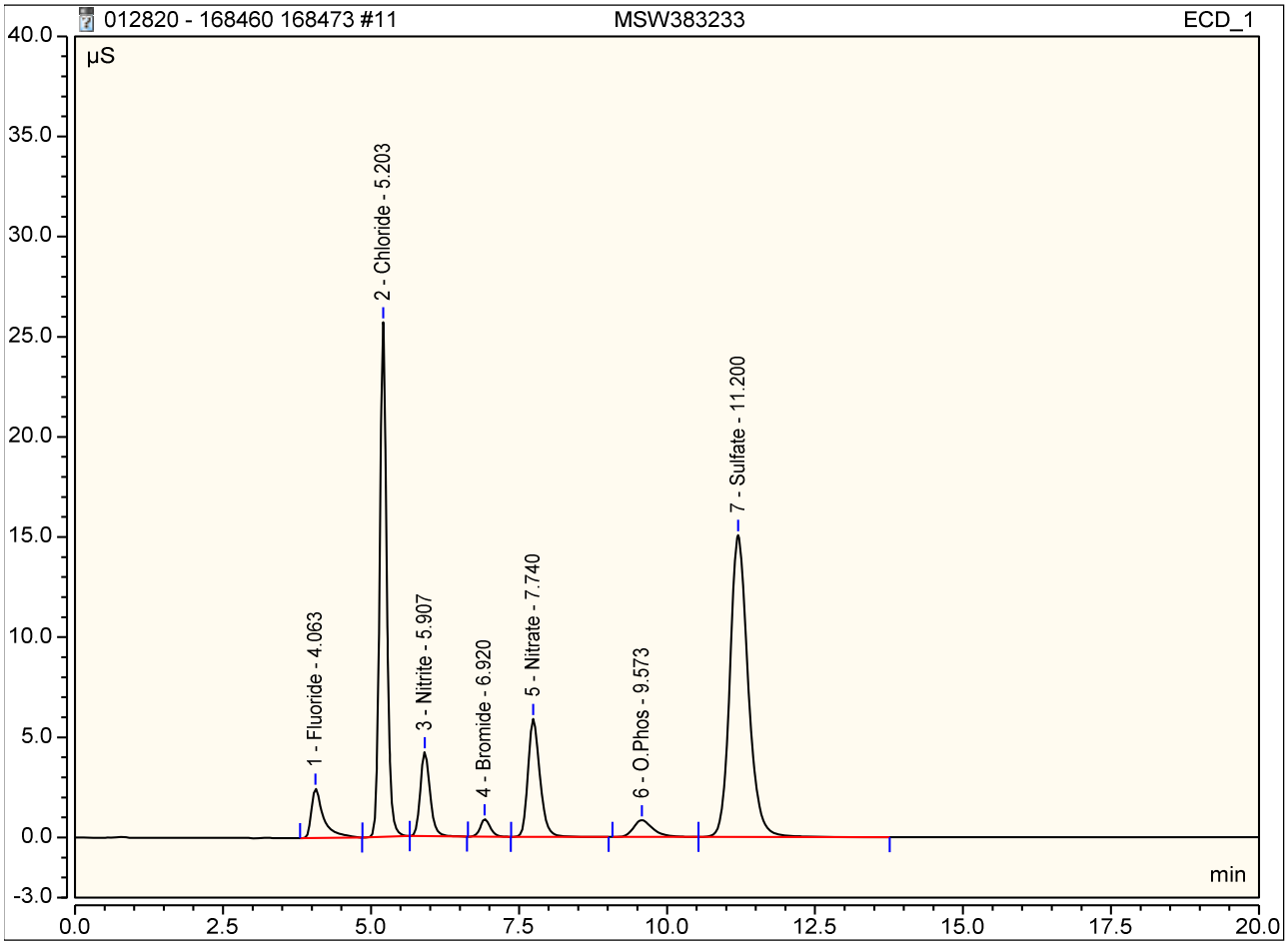
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.06	Fluoride	0.023	0.115	0.0933
3	5.20	Chloride	1.846	12.642	8.4251
4	6.93	Bromide	0.002	0.010	0.0284
5	7.76	Nitrate	0.353	1.477	0.7630
6	9.66	O.Phos	0.007	0.016	n.a.
7	11.21	Sulfate	4.436	12.245	28.6898



Peak Integration Report

Sample Name:	**MSW383233**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**AQUION**
Inj. Date / Time:	**28-Jan-2020 / 15:13**	*Run Time:*	**20.00**

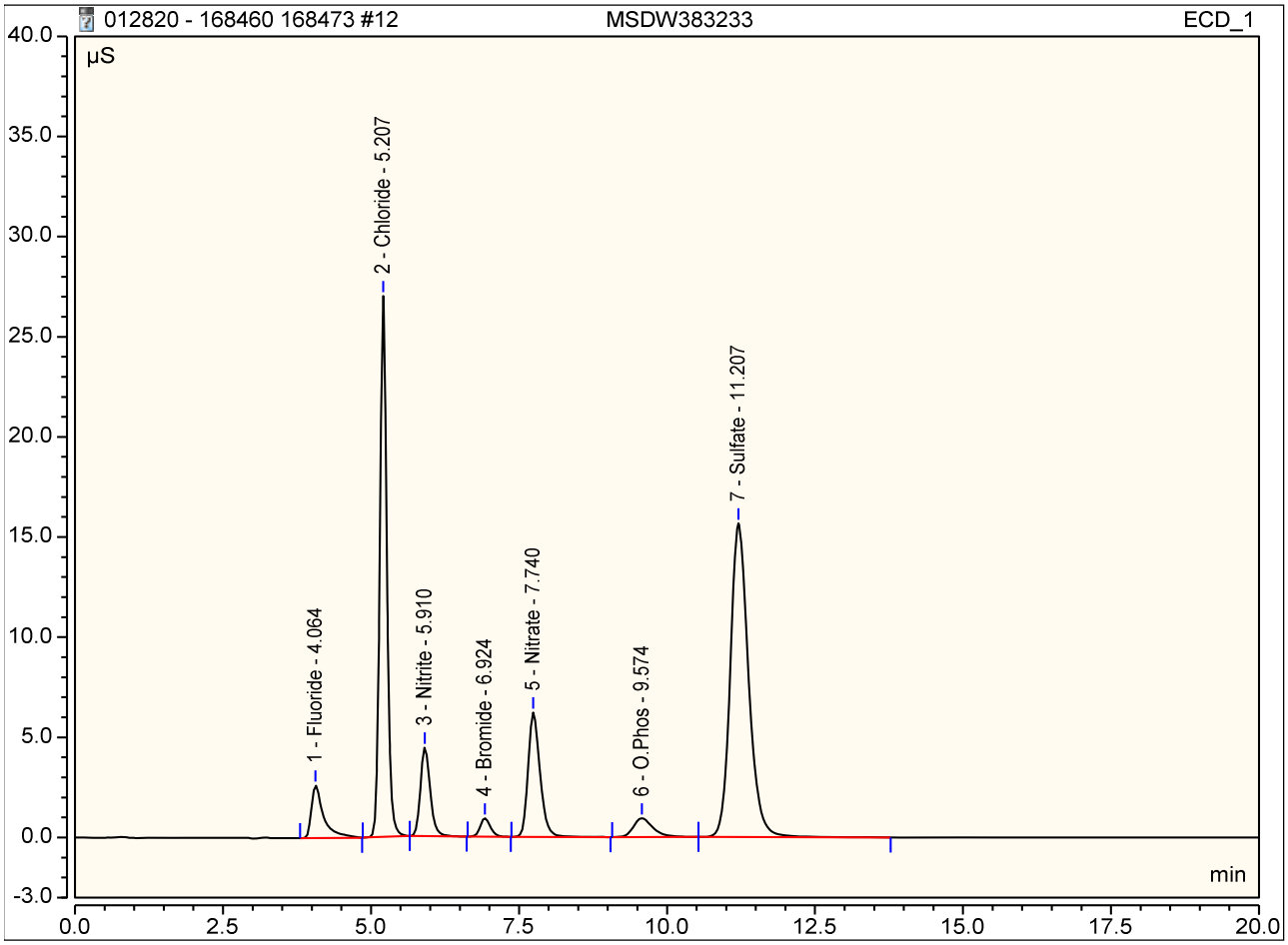
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.06	Fluoride	0.592	2.465	2.2007
2	5.20	Chloride	3.569	25.702	15.8449
3	5.91	Nitrite	0.805	4.202	2.1882
4	6.92	Bromide	0.176	0.867	2.2489
5	7.74	Nitrate	1.378	5.893	2.7863
6	9.57	O.Phos	0.322	0.837	1.9214
7	11.20	Sulfate	5.407	15.081	34.8360



Peak Integration Report

Sample Name:	**MSDW383233**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**AQUION**
Inj. Date / Time:	**28-Jan-2020 / 15:33**	*Run Time:*	**20.00**

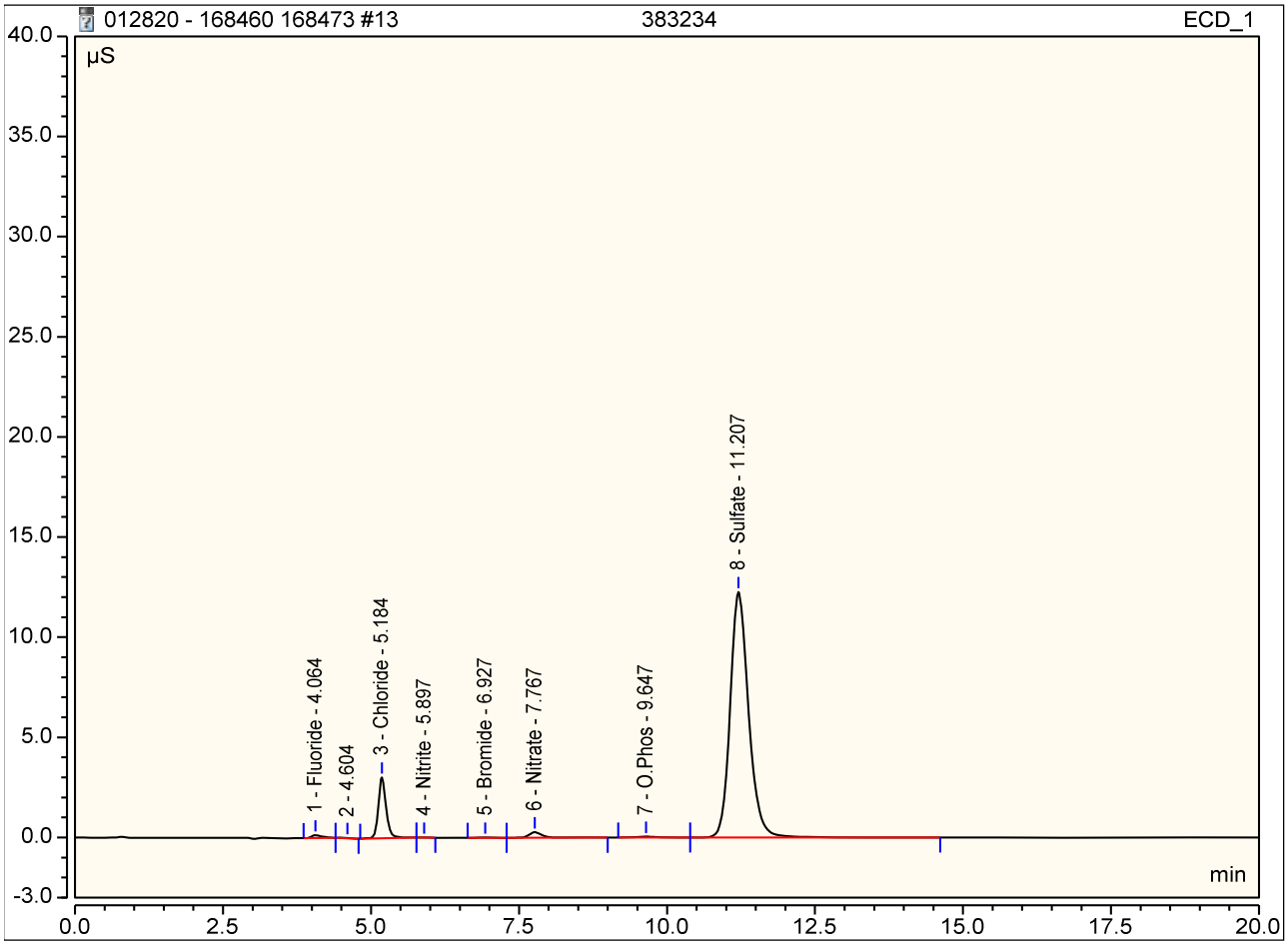
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.06	Fluoride	0.631	2.629	2.3444
2	5.21	Chloride	3.747	27.013	16.6122
3	5.91	Nitrite	0.849	4.425	2.3059
4	6.92	Bromide	0.186	0.919	2.3848
5	7.74	Nitrate	1.455	6.219	2.9390
6	9.57	O.Phos	0.360	0.937	2.1543
7	11.21	Sulfate	5.616	15.661	36.1554



Peak Integration Report

Sample Name:	**383234**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**AQUION**
Inj. Date / Time:	**28-Jan-2020 / 15:53**	*Run Time:*	**20.00**

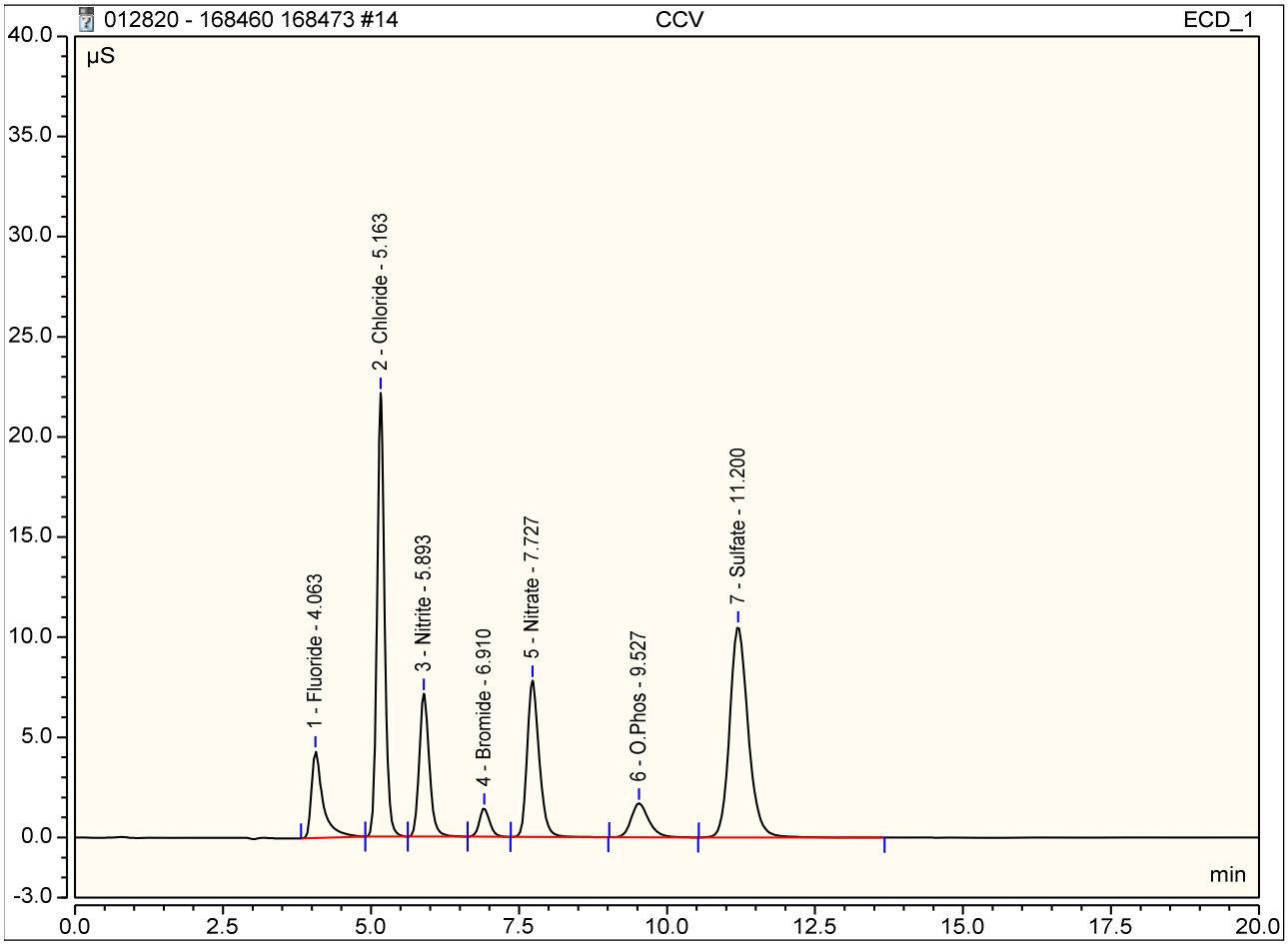
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.06	Fluoride	0.029	0.146	0.1155
3	5.18	Chloride	0.465	3.038	2.4744
4	5.90	Nitrite	0.001	0.006	0.0255
5	6.93	Bromide	0.002	0.007	0.0200
6	7.77	Nitrate	0.068	0.276	0.2015
7	9.65	O.Phos	0.021	0.049	0.0621
8	11.21	Sulfate	4.451	12.259	28.7820



Peak Integration Report

Sample Name:	**CCV**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**AQUION**
Inj. Date / Time:	**28-Jan-2020 / 16:13**	*Run Time:*	**20.00**

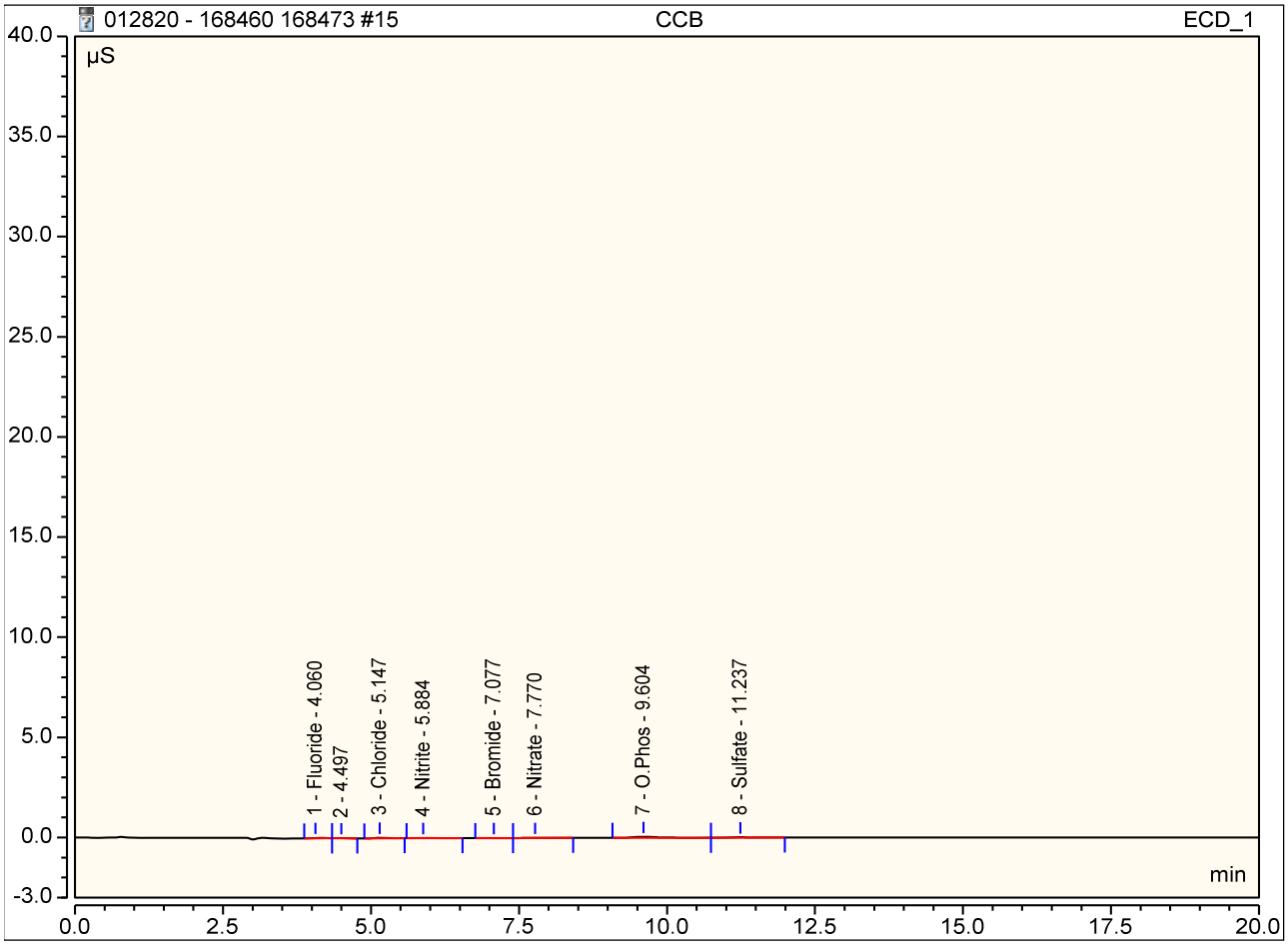
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.06	Fluoride	0.981	4.331	3.6430
2	5.16	Chloride	3.257	22.165	14.5010
3	5.89	Nitrite	1.406	7.134	3.8046
4	6.91	Bromide	0.290	1.418	3.7136
5	7.73	Nitrate	1.837	7.804	3.6928
6	9.53	O.Phos	0.590	1.692	3.5745
7	11.20	Sulfate	3.831	10.553	24.8640



Peak Integration Report

Sample Name:	**CCB**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**AQUION**
Inj. Date / Time:	**28-Jan-2020 / 16:33**	*Run Time:*	**20.00**

No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.06	Fluoride	0.005	0.026	0.0245
3	5.15	Chloride	0.006	0.033	0.4958
4	5.88	Nitrite	0.003	0.014	0.0311
5	7.08	Bromide	0.001	0.004	0.0159
6	7.77	Nitrate	0.004	0.014	0.0736
7	9.60	O.Phos	0.022	0.049	0.0683
8	11.24	Sulfate	0.007	0.019	0.6681



Method:	COD W47962.mqa (600 nm)
Last modified:	12/18/2019 14:02:00 by CTLABORATORIES
Spectrophotometer:	GENESYS 30
Serial number:	9A1W117104
Firmware:	104
Autozero:	02/04/2020 07:58:00
Measured:	02/04/2020 08:12:12 by CTLABORATORIES
Result filename:	168575 576.rqa

Sample	Dilution Factor	Ordinate [A]	Concentration [mg/L]
CCV	1	0.166	400.6
CCB	1	0.003	6.3
385022	1	0.167	403.0
385021	1	0.003	6.3
383191 (X800)	1	0.147	354.7
383193	1	0.009	20.8
MSW383193	1	0.077	185.3
MSDW383193	1	0.077	185.3
383311	1	0.166	400.6
MSW383311	1	0.163	393.4
MSDW383311	1	0.166	400.6
383326	1	0.104	250.6
CCV	1	0.166	400.6
CCB	1	0.003	6.3
384031 (X50)	1	0.162	390.9
384082	1	0.016	37.7

MSW384082	1	0.075	180.5
MSDW384082	1	0.079	190.1
384085	1	0.021	49.8
384086	1	0.025	59.5
384238 (X10)	1	0.101	243.4
384239 (X10)	1	0.057	136.9
CCV	1	0.169	407.9
CCB	1	0.005	11.1
385030	1	0.171	412.7
385029		0.008	discarded
385029	1	0.004	8.7
383235	1	0.007	15.9
DUP383235	1	0.009	20.8
MSW383235	1	0.073	175.6
MSDW383235	1	0.101	243.4
CCV	1	0.169	407.9
CCB	1	0.005	11.1

pH - Mettler Toledo Seven Easy

Date:	01/28/2020	Analyst:	ATJ	Lims #:	168475	Slope (%)	97%

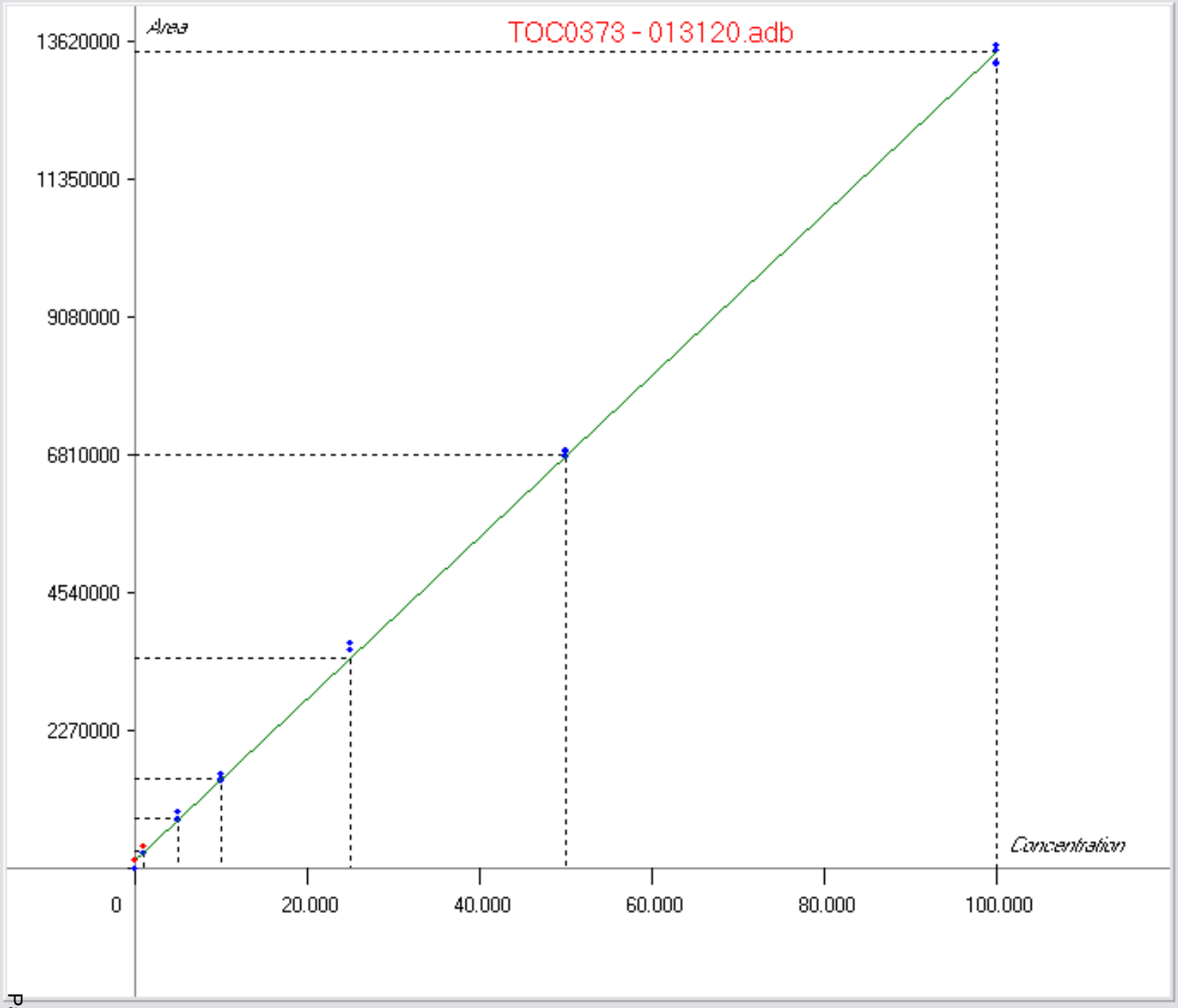
GRP	Sample ID#	Matrix	Temp (°C)*	Result	
1	BUFFER 7	QC	18.7	7.04	
2	383191	WW	16.7	3.85	
3	383194	WW	15.1	8.75	
4	383203	WW	17.0	7.31	
5	DUP383203	WW	17.1	7.26	
6	383235	GW	17.9	7.36	
7	DUP383235	GW	18.0	7.34	
8	383269	SLG	18.3	7.38	
9	383270	SLG	20.1	6.69	
10	DUP383270	SLG	20.1	6.68	
11					
dup 11					
12	BUFFER 7	QC	19.4	7.04	
13					
14					
15					
16					
17					
18					
19					
20					
21					
23					
dup 23					
24	BUFFER 7				
25					
dup 25					
26					
dup 26					

To datacapture: Save CSV file under the TSS datacapture folder.

*Temperature of samples should be room temperature around 25°C

Buffer Standard IDs:

pH 4: WC38 pH 7: W46410 pH 10: W46764



Cursor Position

Concentration	Area
109.600 mg/l	-2043000

A2	0
A1	133104
A0	158667
Correlation	0.99970
Order	1
Volume	100 µl
Conc.	100.00
Area	13571780

☐ Confidence Intervals 95%

☐ Detection/Determination 95%

Conc.	Area	Sel.
0	151176	☐
0	0	☑
0	0	☑
0	0	☑
0	0	☑
1	375613	☐
1	277633	☑
1	265020	☑

• Used Value
• Ignored Value

CurveNo:1 CurveType:TC

<-- --> Print... Exit

02/06/2020

Analysis Name TOC0373 - 013120.adb

Template Name CURVE TEMP.tdb
Method Name N / A
Operator TMG

Date Friday, January 31, 2020
Time 13:56

Start Oven Temp. 717 °C
Start Cooler Temp. 2 °C

Version 2.55 Release
Info ICAL0373 INSTRUMENT:TOCW
CCV0369 LCS0370

Element	Integration Time	Samples	Extra Samples	Max. CV
Carbon	60 s	4	1	10 %
SampleTime	240 s			

No	Type	FileName	Date/Time	Max. Area	Max Conc.	Order	Correlation	Volume	Sel.
1	TC	This Analysis	Jan 31 2020, 13:56	13571780	100	1	0.99970	100 µl	Yes
	A2: 0		*A1: 133103.926642796*		*A0: 158666.501603703*				

Inj. Order	Position	Type	Identification	Dilution Factor
1	1	Unknown	BLANK	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**ZERO !**	**76042**	**90.32**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	1 31 2020 14:07:14	17.43	2478788	1	745	2	-	-
2	1 31 2020 14:11:52	0.06	166804	1	750	2	-	Yes
3	1 31 2020 14:14:34	0.00	0	0	752	2	-	Yes
4	1 31 2020 14:18:35	ZERO !	65189	1	755	2	-	Yes
5	1 31 2020 14:21:04	ZERO !	72178	1	756	2	-	Yes

Inj. Order	Position	Type	Identification	Dilution Factor
2	2	Unknown	BLANK	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**0.00**	**0**	**0.00**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	1 31 2020 14:24:28	0.06	167235	1	757	2	-	-
2	1 31 2020 14:27:40	0.00	0	0	758	2	-	Yes
3	1 31 2020 14:31:41	0.00	0	0	759	2	-	Yes
4	1 31 2020 14:35:42	0.00	0	0	760	2	-	Yes
5	1 31 2020 14:39:43	0.00	0	0	761	2	-	Yes

Inj. Order	Position	Type	Identification	Dilution Factor
3	3	Unknown	BLANK	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**0.00**	**0**	**0.00**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	1 31 2020 14:44:33	0.10	171521	1	760	2	-	-
2	1 31 2020 14:47:39	0.00	0	0	760	2	-	Yes
3	1 31 2020 14:51:41	0.00	0	0	761	2	-	Yes
4	1 31 2020 14:55:43	0.00	0	0	761	2	-	Yes
5	1 31 2020 14:59:44	0.00	0	0	760	2	-	Yes

Inj. Order	Position	Type	Identification	Dilution Factor
4	4	Unknown	BLANK	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**0.00**	**0**	**0.00**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	1 31 2020 15:04:35	0.32	201184	1	759	2	-	-
2	1 31 2020 15:07:45	0.00	0	0	758	2	-	Yes
3	1 31 2020 15:11:46	0.00	0	0	758	2	-	Yes
4	1 31 2020 15:15:48	0.00	0	0	758	2	-	Yes
5	1 31 2020 15:19:49	0.00	0	0	758	2	-	Yes

5 5 Unknown BLANK 1 x

TC **0.00** **0** **0.00** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	1 31 2020 15:24:39	ZERO !	157474	1	758	2	-	-
2	1 31 2020 15:27:41	0.00	0	0	758	2	-	Yes
3	1 31 2020 15:31:44	0.00	0	0	758	2	-	Yes
4	1 31 2020 15:35:45	0.00	0	0	758	2	-	Yes
5	1 31 2020 15:39:46	0.00	0	0	758	2	-	Yes

---

6 S1 Standard TC Std 0.00 mg/l 1 x

TC **0.00** **0** **0.00** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	1 31 2020 15:44:38	ZERO !	151176	1	758	2	-	-
2	1 31 2020 15:47:41	0.00	0	1	757	2	-	Yes
3	1 31 2020 15:51:43	0.00	0	1	757	2	-	Yes
4	1 31 2020 15:55:44	0.00	0	1	756	2	-	Yes
5	1 31 2020 15:59:45	0.00	0	1	756	2	-	Yes

---

7 S2 Standard TC Std 1.00 mg/l 1 x

TC **0.81** **266930** **2.94** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	1 31 2020 16:04:40	1.63	375613	1	755	2	-	-
2	1 31 2020 16:07:53	0.89	277633	1	755	2	-	Yes
3	1 31 2020 16:10:18	0.80	265020	1	755	2	-	Yes
4	1 31 2020 16:12:41	0.81	266273	1	755	2	-	Yes
5	1 31 2020 16:15:08	0.75	258794	1	754	2	-	Yes

---

8 S3 Standard TC Std. 5.00 mg/l 1 x

TC **5.19** **849487** **7.42** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	1 31 2020 16:18:29	5.89	942748	1	755	2	-	Yes
2	1 31 2020 16:21:53	5.06	831956	1	754	2	-	Yes
3	1 31 2020 16:24:32	4.94	816274	1	754	2	-	Yes
4	1 31 2020 16:27:05	4.87	806970	1	754	2	-	Yes

---

9 S4 Standard TC Std. 10.00 mg/l 1 x

TC **10.16** **1510888** **3.39** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	1 31 2020 16:30:31	10.71	1584319	1	754	2	-	Yes
2	1 31 2020 16:33:55	10.09	1501178	1	753	2	-	Yes
3	1 31 2020 16:36:50	9.82	1465381	1	753	2	-	Yes
4	1 31 2020 16:39:31	10.02	1492677	1	753	2	-	Yes

---

10 S5 Standard TC Std. 25.00 mg/l 1 x

TC **26.20** **3645235** **1.57** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	1 31 2020 16:43:07	26.83	3729530	1	753	2	-	Yes
2	1 31 2020 16:46:42	25.97	3614755	1	753	2	-	Yes
3	1 31 2020 16:49:38	25.89	3605344	1	753	2	-	Yes
4	1 31 2020 16:52:34	26.09	3631314	1	753	2	-	Yes

---

11 S6 Standard TC Std. 50.00 mg/l 1 x

TC **50.32** **6855722** **0.77** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	1 31 2020 16:56:26	50.44	6871957	1	753	2	-	Yes
2	1 31 2020 17:00:04	50.81	6921508	1	753	2	-	Yes
3	1 31 2020 17:03:18	49.91	6801222	1	752	2	-	Yes
4	1 31 2020 17:06:18	50.11	6828202	1	752	2	-	Yes

---

12 S7 Standard TC Std. 100.00 mg/l 1 x

TC **99.52** **13405251** **1.11** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	1 31 2020 17:10:13	100.77	13571780	1	752	2	-	Yes
2	1 31 2020 17:14:01	100.15	13489657	1	752	2	-	Yes
3	1 31 2020 17:17:10	98.52	13271773	1	752	2	-	Yes

	4	1 31 2020 17:20:19	98.64	13287797	1	752	2	-	Yes

13	S8	Unknown	ICV - 50.00 mg/L				1 x		
		TC	**49.63**	**6765047**		**0.81**	**100 µl**		
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	1 31 2020 17:24:21	50.22	6843761	1	752	2	-	Yes
	2	1 31 2020 17:28:10	49.49	6745962	1	752	2	-	Yes
	3	1 31 2020 17:31:07	49.55	6753752	1	752	2	-	Yes
	4	1 31 2020 17:34:15	49.27	6716716	1	752	2	-	Yes

14	S9	Unknown	ICB				1 x		
		TC	**0.00**	**0**		**0.00**	**100 µl**		
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	1 31 2020 17:38:09	0.00	159191	1	752	2	-	-
	2	1 31 2020 17:41:12	0	0	0	751	2	-	Yes
	3	1 31 2020 17:45:13	0	0	0	752	2	-	Yes
	4	1 31 2020 17:49:15	0	0	0	752	2	-	Yes
	5	1 31 2020 17:53:16	0	0	0	752	2	-	Yes

Analysis Name 020320 - 168547.adb

Template Name 020320 - 168547.tdb
Method Name N / A
Operator TMG

Date Monday, February 3, 2020
Time 8:04

Start Oven Temp. 700 °C
Start Cooler Temp. 2 °C

Version 2.55 Release
Info ICAL0373 INSTRUMENT:TOCW
CCV0369 LCS0370 SPIKE0359

Element	Integration Time	Samples	Extra Samples	Max. CV
Carbon	60 s	4	1	10 %
SampleTime	240 s			

No	Type	FileName	Date/Time	Max. Area	Max Conc.	Order	Correlation	Volume	Sel.
1	TC	TOC0373 - 013120	Jan 31 2020, 13:56	13571780	100	1	0.99970	100 µl	Yes
	A2: 0		*A1: 133103.926642796*		*A0: 158666.501603703*				

Inj. Order	Position	Type	Identification	Dilution Factor
1	1	Unknown	IB	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**0.00**	**0**	**0.00**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	2 3 2020 8:04:53	0	0	0	702	2	-	Yes
2	2 3 2020 8:09:32	0	0	0	715	2	-	Yes
3	2 3 2020 8:13:32	0	0	0	723	2	-	Yes
4	2 3 2020 8:17:34	0	0	0	730	2	-	Yes

Inj. Order	Position	Type	Identification	Dilution Factor
2	S1	Unknown	CCV	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**49.11**	**6695460**	**1.68**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	2 3 2020 8:22:24	50.05	6821183	1	737	2	-	Yes
2	2 3 2020 8:26:12	49.49	6745682	1	740	2	-	Yes
3	2 3 2020 8:29:19	48.80	6653774	1	743	2	-	Yes
4	2 3 2020 8:32:12	48.10	6561201	1	745	2	-	Yes

Inj. Order	Position	Type	Identification	Dilution Factor
3	S5	Unknown	LCSW	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**49.15**	**6700612**	**1.43**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	2 3 2020 8:36:00	50.14	6832858	1	749	2	-	Yes
2	2 3 2020 8:39:39	49.11	6695433	1	750	2	-	Yes
3	2 3 2020 8:42:41	48.91	6668303	1	752	2	-	Yes
4	2 3 2020 8:45:42	48.44	6605856	1	753	2	-	Yes

Inj. Order	Position	Type	Identification	Dilution Factor
4	2	Unknown	MBW	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**0.00**	**0**	**0.00**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	2 3 2020 8:49:21	ZERO !	130996	1	754	2	-	-
2	2 3 2020 8:52:26	0	0	0	754	2	-	Yes
3	2 3 2020 8:56:27	0	0	0	756	2	-	Yes
4	2 3 2020 9:00:29	0	0	0	757	2	-	Yes
5	2 3 2020 9:04:32	0	0	0	757	2	-	Yes

Inj. Order	Position	Type	Identification	Dilution Factor
5	3	Unknown	383230	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**59.37**	**8060408**	**2.13**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	2 3 2020 9:09:23	61.23	8308685	1	759	2	-	Yes
2	2 3 2020 9:13:07	59.20	8038641	1	758	2	-	Yes
3	2 3 2020 9:16:16	58.42	7934574	1	758	2	-	Yes
4	2 3 2020 9:19:39	58.61	7959733	1	758	2	-	Yes

---

6 4 Unknown 383231 1 x

TC **69.52** **9411941** **1.54** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	2 3 2020 9:23:30	71.09	9621475	1	758	2	-	Yes
2	2 3 2020 9:27:21	69.37	9392516	1	758	2	-	Yes
3	2 3 2020 9:30:39	68.97	9338579	1	759	2	-	Yes
4	2 3 2020 9:33:48	68.64	9295194	1	759	2	-	Yes

---

7 5 Unknown 383232 1 x

TC **69.71** **9437655** **1.94** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	2 3 2020 9:37:37	71.76	9710790	1	758	2	-	Yes
2	2 3 2020 9:41:28	69.07	9352579	1	758	2	-	Yes
3	2 3 2020 9:44:46	69.18	9367215	1	758	2	-	Yes
4	2 3 2020 9:48:07	68.83	9320039	1	757	2	-	Yes

---

8 6 Unknown 383233 1 x

TC **83.59** **11285338** **2.26** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	2 3 2020 9:52:10	86.44	11664379	1	757	2	-	Yes
2	2 3 2020 9:56:04	82.89	11191472	1	756	2	-	Yes
3	2 3 2020 9:59:26	82.25	11106216	1	756	2	-	Yes
4	2 3 2020 10:02:40	82.80	11179287	1	756	2	-	Yes

---

9 7 Unknown 383234 1 x

TC **55.73** **7577458** **1.03** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	2 3 2020 10:06:57	56.53	7683525	1	755	2	-	Yes
2	2 3 2020 10:10:39	55.81	7587187	1	755	2	-	Yes
3	2 3 2020 10:13:38	55.40	7532868	1	755	2	-	Yes
4	2 3 2020 10:16:36	55.20	7506255	1	755	2	-	Yes

---

10 S1 Unknown CCV 1 x

TC **49.25** **6714255** **0.95** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	2 3 2020 10:20:23	49.84	6792852	1	755	2	-	Yes
2	2 3 2020 10:24:18	49.40	6734530	1	754	2	-	Yes
3	2 3 2020 10:27:21	49.01	6682641	1	754	2	-	Yes
4	2 3 2020 10:30:15	48.75	6646999	1	754	2	-	Yes

---

11 8 Unknown CCB 1 x

TC **ZERO !** **73707** **89.18** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	2 3 2020 10:34:14	0.01	159964	1	754	2	-	Yes
2	2 3 2020 10:37:19	0	0	0	754	2	-	Yes
3	2 3 2020 10:41:21	ZERO !	65130	1	754	2	-	Yes
4	2 3 2020 10:43:40	ZERO !	69735	1	754	2	-	Yes
5	2 3 2020 10:45:53	0	0	0	753	2	-	-

Analysis Name 020420 - 168603 168604 168605.adb

Template Name 020420 - 168603 168604 168605.tdb
Method Name N / A
Operator TMG

Date Tuesday, February 4, 2020
Time 11:59

Start Oven Temp. 752 °C
Start Cooler Temp. 2 °C

Version 2.55 Release
Info ICAL0373 INSTRUMENT:TOCW CCV0369 LCS0370 SPIKE0359

Element	Integration Time	Samples	Extra Samples	Max. CV
Carbon	60 s	4	1	10 %
SampleTime	240 s			

No	Type	FileName	Date/Time	Max. Area	Max Conc.	Order	Correlation	Volume	Sel.
1	TC	TOC0373 - 013120	Jan 31 2020, 13:56	13571780	100	1	0.99970	100 µl	Yes
	A2: 0		*A1: 133103.926642796*		*A0: 158666.501603703*				

Inj. Order	Position	Type	Identification	Dilution Factor
1	1	Unknown	IB	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**0.00**	**0**	**0.00**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	2 4 2020 12:10:27	12.45	1815601	1	756	2	-	-
2	2 4 2020 12:15:04	0	0	0	756	2	-	Yes
3	2 4 2020 12:19:05	0	0	0	757	2	-	Yes
4	2 4 2020 12:23:06	0	0	0	758	2	-	Yes
5	2 4 2020 12:27:07	0	0	0	757	2	-	Yes

Inj. Order	Position	Type	Identification	Dilution Factor
2	S1	Unknown	CCV	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**50.01**	**6814837**	**0.94**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	2 4 2020 12:32:00	50.67	6902778	1	757	2	-	Yes
2	2 4 2020 12:35:42	49.55	6754011	1	757	2	-	Yes
3	2 4 2020 12:38:42	50.03	6817513	1	756	2	-	Yes
4	2 4 2020 12:41:58	49.78	6785049	1	756	2	-	Yes

Inj. Order	Position	Type	Identification	Dilution Factor
3	S5	Unknown	LCSW	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**50.07**	**6822764**	**1.91**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	2 4 2020 12:45:49	51.51	7014513	1	756	2	-	Yes
2	2 4 2020 12:49:37	49.76	6781454	1	756	2	-	Yes
3	2 4 2020 12:52:49	49.70	6773818	1	757	2	-	Yes
4	2 4 2020 12:55:43	49.30	6721271	1	757	2	-	Yes

Inj. Order	Position	Type	Identification	Dilution Factor
4	2	Unknown	MBW	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**0.00**	**0**	**0.00**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	2 4 2020 12:59:44	ZERO !	133708	1	758	2	-	-
2	2 4 2020 13:02:48	0	0	0	757	2	-	Yes
3	2 4 2020 13:06:49	0	0	0	756	2	-	Yes
4	2 4 2020 13:10:50	0	0	0	756	2	-	Yes
5	2 4 2020 13:14:53	0	0	0	756	2	-	Yes

15	S1	Unknown	CCV				1 x		
		TC	**49.39**	**6732413**		**0.99**		**100 µl**	
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	2 4 2020 15:51:10	49.78	6784978	1	751	2	-	Yes
	2	2 4 2020 15:54:51	49.43	6737724	1	751	2	-	Yes
	3	2 4 2020 15:57:51	48.67	6636602	1	750	2	-	Yes
	4	2 4 2020 16:00:51	49.67	6770351	1	751	2	-	Yes

16	13	Unknown	CCB				1 x		
		TC	**0.00**	**0**		**0.00**		**100 µl**	
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	2 4 2020 16:04:39	ZERO !	100894	1	751	2	-	-
	2	2 4 2020 16:07:41	0	0	0	751	2	-	Yes
	3	2 4 2020 16:11:42	0	0	0	752	2	-	Yes
	4	2 4 2020 16:15:43	0	0	0	753	2	-	Yes
	5	2 4 2020 16:19:44	0	0	0	753	2	-	Yes

17	14	Unknown	383230				1 x		
		TC	**ZERO !**	**138396**		**32.43**		**100 µl**	
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	2 4 2020 16:24:38	0.34	203708	1	753	2	-	Yes
	2	2 4 2020 16:27:38	ZERO !	126040	1	752	2	-	Yes
	3	2 4 2020 16:29:59	ZERO !	122465	1	752	2	-	Yes
	4	2 4 2020 16:32:15	ZERO !	101374	1	751	2	-	Yes
	5	2 4 2020 16:34:29	0	0	0	752	2	-	-

18	15	Unknown	383231				1 x		
		TC	**ZERO !**	**58300**		**120.44**		**100 µl**	
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	2 4 2020 16:39:21	ZERO !	141043	1	752	2	-	Yes
	2	2 4 2020 16:42:29	0	0	0	753	2	-	Yes
	3	2 4 2020 16:46:30	ZERO !	92158	1	753	2	-	Yes
	4	2 4 2020 16:48:51	0	0	0	752	2	-	Yes
	5	2 4 2020 16:52:53	0	0	0	753	2	-	-

19	16	Unknown	383232				1 x		
		TC	**ZERO !**	**112236**		**44.22**		**100 µl**	
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	2 4 2020 16:57:45	0.21	186405	1	753	2	-	Yes
	2	2 4 2020 17:00:59	ZERO !	81666	1	752	2	-	Yes
	3	2 4 2020 17:03:27	ZERO !	89065	1	752	2	-	Yes
	4	2 4 2020 17:05:48	0	0	0	752	2	-	-

5	2 4 2020 17:09:50	ZERO !	91809	1	752	2	-	Yes

20	17	Unknown	383233				1 x		
		TC	**ZERO !**	**105969**		**32.48**		**100 µl**	
Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.	
1	2 4 2020 17:12:59	ZERO !	153746	1	753	2	-	Yes	
2	2 4 2020 17:16:09	ZERO !	105266	1	753	2	-	Yes	
3	2 4 2020 17:18:27	ZERO !	91451	1	752	2	-	Yes	
4	2 4 2020 17:20:46	ZERO !	73414	1	752	2	-	Yes	
5	2 4 2020 17:23:03	0	0	0	752	2	-	-	

21	18	Unknown	DUP383233				1 x		
		TC	**ZERO !**	**114248**		**33.08**		**100 µl**	
Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.	
1	2 4 2020 17:27:56	0.07	168580	1	753	2	-	Yes	
2	2 4 2020 17:31:02	ZERO !	106990	1	752	2	-	Yes	
3	2 4 2020 17:33:25	ZERO !	99969	1	752	2	-	Yes	
4	2 4 2020 17:35:44	ZERO !	81453	1	752	2	-	Yes	
5	2 4 2020 17:38:02	0	0	0	752	2	-	-	

22	19	Unknown	MSW383233				1 x		
		TC	**49.44**	**6739564**		**0.88**		**100 µl**	
Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.	
1	2 4 2020 17:42:55	49.26	6715716	1	752	2	-	Yes	
2	2 4 2020 17:46:28	49.51	6747986	1	752	2	-	Yes	
3	2 4 2020 17:49:24	50.03	6817463	1	753	2	-	Yes	
4	2 4 2020 17:52:28	48.97	6677093	1	752	2	-	Yes	

23	20	Unknown	MSDW383233				1 x		
		TC	**49.04**	**6686458**		**0.33**		**100 µl**	
Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.	
1	2 4 2020 17:56:21	49.11	6695955	1	752	2	-	Yes	
2	2 4 2020 17:59:58	49.12	6697107	1	752	2	-	Yes	
3	2 4 2020 18:03:06	49.14	6698906	1	752	2	-	Yes	
4	2 4 2020 18:06:06	48.80	6653865	1	752	2	-	Yes	

24	21	Unknown	383234				1 x		
		TC	**ZERO !**	**81444**		**77.86**		**100 µl**	
Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.	
1	2 4 2020 18:10:08	ZERO !	149646	1	752	2	-	Yes	
2	2 4 2020 18:13:09	ZERO !	106642	1	752	2	-	Yes	
3	2 4 2020 18:15:37	0	0	0	752	2	-	Yes	
4	2 4 2020 18:19:38	0	0	0	752	2	-	-	
5	2 4 2020 18:23:40	ZERO !	69490	1	752	2	-	Yes	

25	S1	Unknown	CCV				1 x		
		TC	**49.95**	**6806618**		**0.31**		**100 µl**	
Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.	
1	2 4 2020 18:27:00	49.74	6779205	1	752	2	-	Yes	
2	2 4 2020 18:30:39	49.91	6801869	1	752	2	-	Yes	
3	2 4 2020 18:33:42	50.04	6819151	1	752	2	-	Yes	
4	2 4 2020 18:36:44	50.09	6826247	1	751	2	-	Yes	

26	22	Unknown	CCB				1 x		
		TC	**0.00**	**0**		**0.00**		**100 µl**	
Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.	
1	2 4 2020 18:40:50	0	0	0	752	2	-	Yes	
2	2 4 2020 18:45:28	0	0	0	752	2	-	Yes	
3	2 4 2020 18:49:29	0	0	0	752	2	-	Yes	
4	2 4 2020 18:53:30	0	0	0	752	2	-	Yes	

INORGANICS
LOGBOOK
DOCUMENTS

WANIONS IC QSM 5.0 Analytical Run
168460 on 01/30/2020

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	ANALYTE	SAMPLE DATE:	QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	384230						WANIONS IC QSM 5.0				
		Nitrate Nitrogen		ICV							
		Chloride		ICV							
		Sulfate		ICV							
	384231						WANIONS IC QSM 5.0				
		Nitrate Nitrogen		ICB							
		Chloride		ICB							
		Sulfate		ICB							
	384102						WANIONS IC QSM 5.0				
		Nitrate Nitrogen		CCV				0			
		Chloride		CCV				0			
		Sulfate		CCV				0			
	384101						WANIONS IC QSM 5.0				
		Chloride		LCSW				0			
		Nitrate Nitrogen		LCSW				0			
		Sulfate		LCSW				0			
	384100						WANIONS IC QSM 5.0				
		Nitrate Nitrogen		MBW				0			
		Chloride		MBW				0			
		Sulfate		MBW				0			

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

WANIONS IC QSM 5.0 Analytical Run
168460 on 01/30/2020

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	ANALYTE	SAMPLE DATE:		QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
151023	383230		01/27/2020	1035		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU 54	ANIONS IC QSM 5.0		GW	**4**	
		Chloride										
		Nitrate Nitrogen										
		Sulfate										
151023	383231		01/27/2020	1205		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU 54	ANIONS IC QSM 5.0		GW	**4**	
		Chloride										
		Nitrate Nitrogen										
		Sulfate										
151023	383232		01/27/2020	1205		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU 54	ANIONS IC QSM 5.0		GW	**4**	
		Chloride										
		Nitrate Nitrogen										
		Sulfate										
151023	383233		01/27/2020	1330		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU 54	ANIONS IC QSM 5.0		GW	**4**	
		Chloride			*							
		Nitrate Nitrogen			*							
		Sulfate			*							
	384092		01/27/2020	1330				ANIONS IC QSM 5.0				
		Nitrate Nitrogen			DUP	383233			0			
		Chloride			DUP	383233			0			
		Sulfate			DUP	383233			0			

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

WANIONS IC QSM 5.0 Analytical Run
168460 on 01/30/2020

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	ANALYTE	SAMPLE DATE:		QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	384105		01/27/2020	1330					ANIONS IC QSM 5.0				
		Nitrate Nitrogen			MSW	383233				0			
		Chloride			MSW	383233				0			
		Sulfate			MSW	383233				0			
	384229		01/27/2020	1330					ANIONS IC QSM 5.0				
		Nitrate Nitrogen			MSDW	384105							
		Chloride			MSDW	384105							
		Sulfate			MSDW	384105							
151023	383234		01/27/2020	1505			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU 54	ANIONS IC QSM 5.0		GW	**4**	
		Chloride											
		Nitrate Nitrogen											
		Sulfate											
	384104								WANIONS IC QSM 5.0				
		Nitrate Nitrogen			CCV					0			
		Chloride			CCV					0			
		Sulfate			CCV					0			
	384103								WANIONS IC QSM 5.0				
		Nitrate Nitrogen			CCB					0			
		Chloride			CCB					0			
		Sulfate			CCB					0			

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Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

Data Review Checklist

	Method: Anions by Ion Chromatography 300.0/9056	Independent Data Review Checklist	Instrument: Aquion - System 4

LIMS Run #(s)	Analysis Date	Analyst/Data Interpreter	Independent Reviewer	Date of Review	Approved? (Yes/No)
168460 168473	01/28/2020	TMG	RLD	01/31/2020	Yes

Instructions: Complete one checklist per *analytical sequence* . Enter the appropriate response for each question. Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirement	Acceptance Criteria	Analyst Review		Independent Review		Comments
		Yes	No	Yes	No	(Indicate reference to an attachment if necessary)
1. Were the samples analyzed within hold time?	28 days for Cl, F, SO_4;14 days for preserved NO_2+NO_3; 48 hours for O.Phos, and unpreserved NO_2 and NO_3	Yes		Yes		
2. Was the calibration performed using the required number of standards?	Minimum three plus a blank	Yes		Yes		
3. Is the standard prep log number noted on the analytical report bench sheet?	---	Yes		Yes		
4. Was the correlation coefficient acceptable?	≥ .995	Yes		Yes		
5. Were the ICV and ICB run immediately after the calibration check standard?	---	Yes		Yes		
6. Was the ICV recovery acceptable?	90 – 110 % or contract/program specific	Yes		Yes		
7. Was the ICB result acceptable?	< LOD or contract/program specific	Yes		Yes		
8. Were the CCV's and the CCB's analyzed at the required frequency?	1 / 10 samples or contract/program specific	Yes		Yes		
9. Were the CCV recoveries acceptable?	90 – 110 % or contract/program specific	Yes		Yes		
10. Were the CCB results acceptable?	< LOD or program/project specific	Yes		Yes		
11. Was the MB analyzed at the required frequency?	1 / 20 samples or contract/program specific	Yes		Yes		
12. Were the MB results acceptable?	< LOD or contract/program specific	Yes		Yes		

13. Was a LCS run at the required frequency?	1 / 20 samples or contract/program specific	Yes		Yes		If No: Affected sample must be reanalyzed including the LCS.
14. Was the LCS recovery acceptable?	Within in-house or contract/program specific limits	Yes		Yes		If No: Affected sample should be reanalyzed with acceptable LCS recoveries if possible. Detects reported with an LCS failure must be qualified with a "Q" flag. Nondetected analytes reported with a low LCS recovery must also be qualified with a "Q" flag.
15. Was the LCS used before the indicated expiration date?	---	Yes		Yes		
16. Were the MS and MSD (when required) prepared at the required frequency?	1 per 20 samples per matrix or contract/program specific	Yes		Yes		
17. Were the MS and MSD (when required) recoveries acceptable?	Within In-house or contract/program specific limits	No		No		
18. Was the RPD between the MS and MSD (when required) acceptable?	Within in house or contract/program specific limits	Yes		Yes		
19. Was a sample duplicate prepared at the required frequency?	Contract/program specific or 1 per 20 samples (1 / 10 for SDWA samples)	Yes		Yes		
20. Was the duplicate within precision limits?	Within in-house or contract/program specific limits	Yes		Yes		
21. Were all chromatograms checked to ensure accurate peak identification?	---	Yes		Yes		
22. Are all samples on the job lists accounted for?	---	Yes		Yes		
23. Were all samples having analytes detected in amounts exceeding the calibration range diluted, reanalyzed and DF applied to the final results?	---	Yes		Yes		
24. Were non-matrix related nonconformities (if applicable) documented in the NCR spreadsheet?	---	Yes		Yes		

Non-Applicable Yes/No Cells Are Left Blank

Comments:

Aquion Run Log - System 4

Start Date	Start Time	End Date	End Time	Analyst	Lims Run #(s)	Calibration ID#	Data File	CCV ID's	LCS ID's	Spike ID's	Total Cond.	Pressure (Mpa)	Flow (mL/min)	Comments	Reviewed/Date
01/10/20	11:28	01/13/20	09:40	TMG	168060 168061	IC2732A	011020 -	IC2817 IC2820	IC2818 IC2821	IC2819 IC2822	23.23	810	0.97		RLD 02/11/2020
01/14/20	13:02	01/15/20	09:51	TMG	168138 168139	IC2732A	011420 -	IC2817 IC2820	IC2818 IC2821	IC2819 IC2822	22.82	810	0.97		RLD 02/11/2020
01/15/20	11:57	01/23/20	10:01	TMG	168169 168171	IC2732A	011520 -	IC2817 IC2820	IC2818 IC2821	IC2819 IC2822	22.25	810	0.97		RLD 02/11/2020
01/16/20	12:51	01/17/20	09:47	TMG	168204 168209	IC2732A	011620 -	IC2825 IC2828	IC2826 IC2829	IC2827 IC2830	22.27	811	0.97		RLD 02/11/2020
01/17/20	12:30	01/21/20	16:43	TMG	168231 168232 168233	IC2732A	011720 -	IC2825 IC2828	IC2826 IC2829	IC2827 IC2830	21.76	815	0.97		RLD 02/11/2020
01/18/20	13:44	01/18/20	18:25	TMG	168241	IC2732A	011820 -	IC2825 IC2828	IC2826 IC2829	IC2827 IC2830	21.51	821	0.97		RLD 02/11/2020
01/21/20	10:36	01/21/20	13:19	TMG	168300	IC2732A	012120 -	IC2825 IC2828	IC2826 IC2829	IC2827 IC2830	21.3	817	0.97		RLD 02/11/2020
01/22/20	12:21	01/22/20	18:22	TMG	168318 168319	IC2732A	012220 -	IC2825 IC2831	IC2826 IC2832	IC2827 IC2833	21.6	810	0.97		RLD 02/11/2020
01/23/20	12:55	01/23/20	17:35	TMG	168347 168349	IC2732A	012320 -	IC2834 IC2837	IC2835 IC2838	IC2836 IC2839	21.56	812	0.97		RLD 02/11/2020
01/25/20	13:57	01/25/20	18:17	DGS	168414	IC2732A	012520 -	IC2834 IC2837	IC2835 IC2838	IC2836 IC2839	21.42	815	0.97		RLD 02/11/2020
01/28/20	12:12	01/29/20	10:09	TMG	168460 168473	IC2732A	012820 -	IC2834 IC2837	IC2835 IC2838	IC2836 IC2839	21.54	813	0.97		RLD 02/11/2020
01/29/20	12:59	01/30/20	10:01	TMG	168488 168489	IC2732A	012920 -	IC2834 IC2837	IC2835 IC2838	IC2836 IC2839	21.6	810	0.97		RLD 02/11/2020
01/30/20	12:59	01/31/20	09:43	TMG	168531 168532	IC2732A	013020 -	IC2842 IC2845	IC2843 IC2846	IC2844 IC2847	21.58	817	0.97		RLD 02/11/2020
01/31/20	11:00	01/31/20	16:10	TMG	168553	IC2732A	013120 -	IC2842 IC2845	IC2843 IC2846	IC2844 IC2847	21.64	819	0.97		RLD 02/11/2020
02/04/20				TMG	168611	IC2732A	020420 -	IC2842 IC2845	IC2843 IC2846	IC2844 IC2847		812	0.97		
02/05/20				TMG	168636	IC2732A	020520 -	IC2842 IC2845	IC2843 IC2846	IC2844 IC2847		812	0.97		
02/07/20				TMG	168698 168699	IC2732A	020720 -	IC2855 IC2858	IC2856 IC2859	IC2857 IC2860		815	0.97		
02/10/20				TMG	168734	IC2732A	021020 -	IC2855 IC2861	IC2856 IC2862	IC2857 IC2863		820	0.97		

LPVO3_07_IC

IC-Volatiles Standards Prep Logbook

Logbook Created: 02/18/2019

NOTEBOOK VIEW: LTN_LPVO3_07_IC_Default, NOTEBOOK: LPVO3_07_IC, PAGE: 139
Page is Unlocked
Page is not Witnessed
Project: Unassigned
Page Title: 021020

Standard Log #:	IC2861	Standard/Reagent:	CCV NO2-P
Analyst:	TMG	Final Concentration:	7.0mg/L NO2, PO4
Prep Date:	02/10/2020	Expiration Date:	02/11/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2288) and ortho-phosphate (IC2650), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2862	Standard/Reagent:	LCSW NO2
Analyst:	TMG	Final Concentration:	7.0mg/L NO2
Prep Date:	02/10/2020	Expiration Date:	02/11/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2664) brought to volume with Milli-Q DI H20		

Standard Log #:	IC2863	Standard/Reagent:	SPIKE NO2-P
Analyst:	TMG	Final Concentration:	64.0mg/L NO2, PO4

Prep Date:	02/10/2020	Expiration Date:	02/11/2020
Prep:	Into a 100 mL volumetric flask, pipetted 6.4 mL 1000mg/L Nitrite(IC2288) and Phosphate(IC2650) brrought to volume with milli-Q H2O		

Standard Log #:	IC2864	Standard:	IC Eluent Dionex
Analyst:	TMG	Concentrations:	3.5 mM Sodium Carbonate 1.0 mM Sodium Bicarbonate
Prep Date:	02/10/2020	Expiration Date (1 Year):	02/10/2021
Prep:	Into a 10L carboy, pipetted 20mL of Dionex eluent concentrate IC2630 and brought to volume with Milli-Q DI H_20.		

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CT Laboratories, LLC

Standard Log #:	IC2842	Standard/Reagent:	CCV MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3 30mg/L C
Prep Date:	01/30/2020	Expiration Date:	02/06/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Fluoride (IC2535) , Bromide (IC2536), and Nitrate (IC2118) , 15 ml 1000 mg/L Chloride (IC2791) , and 25 ml 1000 mg/L Sulfate (IC2840), and brought to volume Milli-Q DI H20		

Standard Log #:	IC2843	Standard/Reagent:	LCSW MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3,PO4 30m
Prep Date:	01/30/2020	Expiration Date:	02/06/2020
Prep:	Into a 500 mL volumetric flask, pipetted 20 mL of Custom Mix Stock Standard (175 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 1250 mg/L Sulfate, and 750 mg/L Chloride) (IC2336) brought to volume with Milli-Q DI H20.		

Standard Log #:	IC2844	Standard/Reagent:	SPIKE MIX
Analyst:	TMG	Final Concentration:	64mg/L Fl, Br, NO3 256mg/L
Prep Date:	01/30/2020	Expiration Date:	02/06/2020
Prep:	Into a 100 mL volumetric flask pipetted 6.4 mL 1000mg/L Fluoride(IC2535), Bromide (IC2536), and Nitrate (IC2118), and 25.6mL 1000mg/L Chloride (IC2791) and 1000mg/L Sulfate (IC2840), and brought to volume with Milli-Q DI H2O		

Standard Log #:	IC2845	Standard/Reagent:	CCV NO2-P
Analyst:	TMG	Final Concentration:	7.0mg/L NO2, PO4

Prep Date:	01/30/2020	Expiration Date:	01/31/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2288) and ortho-phosphate (IC2650), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2846	Standard/Reagent:	LCSW NO2
Analyst:	TMG	Final Concentration:	7.0mg/L NO2
Prep Date:	01/30/2020	Expiration Date:	01/31/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2664) brought to volume with Milli-Q DI H20		

Standard Log #:	IC2847	Standard/Reagent:	SPIKE NO2-P
Analyst:	TMG	Final Concentration:	64.0mg/L NO2, PO4
Prep Date:	01/30/2020	Expiration Date:	01/31/2020
Prep:	Into a 100 mL volumetric flask, pipetted 6.4 mL 1000mg/L Nitrite(IC2288) and Phosphate(IC2650) brrought to volume with milli-Q H2O		

Standard Log #:	IC2848	Standard:	IC ICAL Mixed Std. Dionex
Analyst:	TMG	Concentrations:	50mg/L - NO_2, NO_3, PO_4, Br, F
Prep Date:	01/30/2020	Expiration Date (48 Hours):	02/01/2020

Prep:	Into a 100 mL volumetric flask pipetted 5 mL of 1000 mg/L Nitrite IC2288, Fluoride IC2535, Bromide IC2536, Nitrate IC2574, and Phosphate IC2650 and brought to volume with Milli-Q DI H_20.

Prep:

Prepared in 100 mL volumetric flasks and brought to volume with Milli-Q DI H_20.

Analyte	1	2	3	4	5	6	7	8	9
Mixed Std (50mg/L) IC2848	0	0.2	0.6	1.0	2.0	4.0	10.0	14.0	28.0
Chloride (1000mg/L) IC2791	0	0.05	0.075	0.1	0.5	1.0	2.0	3.0	4.0
Sulfate (1000mg/L) IC2840	0	0.05	0.075	0.1	0.5	1.0	3.0	5.0	7.0

Standard Log #:	IC2850	Standard/Reagent:	Analytical Column
Analyst:	TMG	Final Concentration:	NA
Prep Date:	01/30/2020	Expiration Date:	NA
Prep:	Serial #: 191205322 Lot#: 01914189		

Standard Log #:	IC2851	Standard/Reagent:	Guard Column
Analyst:	TMG	Final Concentration:	NA

Prep Date:	01/30/2020	Expiration Date:	NA
Prep:	Serial #: 191203132 Lot#: 01914183		

Standard Log #:	IC2834	Standard/Reagent:	CCV MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3 30mg/L C
Prep Date:	01/23/2020	Expiration Date:	01/30/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Fluoride (IC2535) , Bromide (IC2536), and Nitrate (IC2118) , 15 ml 1000 mg/L Chloride (IC2791) , and 25 ml 1000 mg/L Sulfate (IC2840), and brought to volume Milli-Q DI H20		

Standard Log #:	IC2835	Standard/Reagent:	LCSW MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3,PO4 30m
Prep Date:	01/23/2020	Expiration Date:	01/30/2020
Prep:	Into a 500 mL volumetric flask, pipetted 20 mL of Custom Mix Stock Standard (175 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 1250 mg/L Sulfate, and 750 mg/L Chloride) (IC2336) brought to volume with Milli-Q DI H20.		

Standard Log #:	IC2836	Standard/Reagent:	SPIKE MIX
Analyst:	TMG	Final Concentration:	64mg/L Fl, Br, NO3 256mg/L
Prep Date:	01/23/2020	Expiration Date:	01/30/2020
Prep:	Into a 100 mL volumetric flask pipetted 6.4 mL 1000mg/L Fluoride(IC2535), Bromide (IC2536), and Nitrate (IC2118), and 25.6mL 1000mg/L Chloride (IC2791) and 1000mg/L Sulfate (IC2840), and brought to volume with Milli-Q DI H2O		

Standard Log #:	IC2837	Standard/Reagent:	CCV NO2-P
Analyst:	TMG	Final Concentration:	7.0mg/L NO2, PO4

Prep Date:	01/23/2020	Expiration Date:	01/24/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2288) and ortho-phosphate (IC2650), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2838	Standard/Reagent:	LCSW NO2
Analyst:	TMG	Final Concentration:	7.0mg/L NO2
Prep Date:	01/23/2020	Expiration Date:	01/24/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2664) brought to volume with Milli-Q DI H20		

Standard Log #:	IC2839	Standard/Reagent:	SPIKE NO2-P
Analyst:	TMG	Final Concentration:	64.0mg/L NO2, PO4
Prep Date:	01/23/2020	Expiration Date:	01/24/2020
Prep:	Into a 100 mL volumetric flask, pipetted 6.4 mL 1000mg/L Nitrite(IC2288) and Phosphate(IC2650) brrought to volume with milli-Q H2O		

Standard Log #:	IC2840	Standard/Reagent:	SO4 STOCK
Analyst:	TMG	Final Concentration:	1000mg/L SO4
Prep Date:	01/23/2020	Expiration Date:	01/23/2021

Prep:	CAT#: 250-220-701 LOT#:S190913029 exp:01/23/2021

Standard Log #:	IC2841	Standard/Reagent:	Sodium Bicarbonate
Analyst:	TMG	Final Concentration:	na
Prep Date:	01/23/2020	Expiration Date:	05/01/23
Prep:	Rec.11/26/2019 Retest:05/01/2023		

Standard Log #:	IC2831	Standard/Reagent:	CCV NO2-P
Analyst:	TMG	Final Concentration:	7.0mg/L NO2, PO4
Prep Date:	01/22/2020	Expiration Date:	01/23/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2288) and ortho-phosphate (IC2650), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2832	Standard/Reagent:	LCSW NO2
Analyst:	TMG	Final Concentration:	7.0mg/L NO2
Prep Date:	01/22/2020	Expiration Date:	01/23/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2664) brought to volume with Milli-Q DI H20		

Standard Log #:	IC2833	Standard/Reagent:	SPIKE NO2-P
Analyst:	TMG	Final Concentration:	64.0mg/L NO2, PO4
Prep Date:	01/22/2020	Expiration Date:	01/23/2020
Prep:	Into a 100 mL volumetric flask, pipetted 6.4 mL 1000mg/L Nitrite(IC2288) and Phosphate(IC2650) brrought to volume with milli-Q H2O		

Standard Log #:	IC2825	Standard/Reagent:	CCV MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3 30mg/L C
Prep Date:	01/16/2020	Expiration Date:	01/23/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Fluoride (IC2535) , Bromide (IC2536), and Nitrate (IC2118) , 15 ml 1000 mg/L Chloride (IC2791) , and 25 ml 1000 mg/L Sulfate (IC2593), and brought to volume Milli-Q DI H20		

Standard Log #:	IC2826	Standard/Reagent:	LCSW MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3, PO4 30n
Prep Date:	01/16/2020	Expiration Date:	01/23/2020
Prep:	Into a 500 mL volumetric flask, pipetted 20 mL of Custom Mix Stock Standard (175 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 1250 mg/L Sulfate, and 750 mg/L Chloride) (IC2336) brought to volume with Milli-Q DI H20.		

Standard Log #:	IC2827	Standard/Reagent:	SPIKE MIX
Analyst:	TMG	Final Concentration:	64mg/L Fl, Br, NO3 256mg/l
Prep Date:	01/16/2020	Expiration Date:	01/23/2020
Prep:	Into a 100 mL volumetric flask pipetted 6.4 mL 1000mg/L Fluoride(IC2535), Bromide (IC2536), and Nitrate (IC2118), and 25.6mL 1000mg/L Chloride (IC2791) and 1000mg/L Sulfate (IC2593), and brought to volume with Milli-Q DI H2O		

Standard Log #:	IC2828	Standard/Reagent:	CCV NO2-P
Analyst:	TMG	Final Concentration:	7.0mg/L NO2, PO4

Prep Date:	01/16/2020	Expiration Date:	01/17/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2288) and ortho-phosphate (IC2650), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2829	Standard/Reagent:	LCSW NO2
Analyst:	TMG	Final Concentration:	7.0mg/L NO2
Prep Date:	01/16/2020	Expiration Date:	01/17/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2664) brought to volume with Milli-Q DI H20		

Standard Log #:	IC2830	Standard/Reagent:	SPIKE NO2-P
Analyst:	TMG	Final Concentration:	64.0mg/L NO2, PO4
Prep Date:	01/16/2020	Expiration Date:	01/17/2020
Prep:	Into a 100 mL volumetric flask, pipetted 6.4 mL 1000mg/L Nitrite(IC2288) and Phosphate(IC2650) brrought to volume with milli-Q H2O		

Standard Log #:	IC2817	Standard/Reagent:	CCV MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3 30mg/L C
Prep Date:	01/09/2020	Expiration Date:	01/16/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Fluoride (IC2535) , Bromide (IC2536), and Nitrate (IC2118) , 15 ml 1000 mg/L Chloride (IC2791) , and 25 ml 1000 mg/L Sulfate (IC2593), and brought to volume Milli-Q DI H20		

Standard Log #:	IC2818	Standard/Reagent:	LCSW MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3,PO4 30m
Prep Date:	01/09/2020	Expiration Date:	01/16/2020
Prep:	Into a 500 mL volumetric flask, pipetted 20 mL of Custom Mix Stock Standard (175 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 1250 mg/L Sulfate, and 750 mg/L Chloride) (IC2336) brought to volume with Milli-Q DI H20.		

Standard Log #:	IC2819	Standard/Reagent:	SPIKE MIX
Analyst:	TMG	Final Concentration:	64mg/L Fl, Br, NO3 256mg/L
Prep Date:	01/09/2020	Expiration Date:	01/16/2020
Prep:	Into a 100 mL volumetric flask pipetted 6.4 mL 1000mg/L Fluoride(IC2535), Bromide (IC2536), and Nitrate (IC2118), and 25.6mL 1000mg/L Chloride (IC2791) and 1000mg/L Sulfate (IC2593), and brought to volume with Milli-Q DI H2O		

Standard Log #:	IC2820	Standard/Reagent:	CCV NO2-P
Analyst:	TMG	Final Concentration:	7.0mg/L NO2, PO4

Prep Date:	01/09/2020	Expiration Date:	01/10/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2288) and ortho-phosphate (IC2650), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2821	Standard/Reagent:	LCSW NO2-P
Analyst:	TMG	Final Concentration:	7.0mg/L NO2
Prep Date:	01/09/2020	Expiration Date:	01/10/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2664) brought to volume with Milli-Q DI H20		

Standard Log #:	IC2822	Standard/Reagent:	SPIKE NO2-P
Analyst:	TMG	Final Concentration:	64.0mg/L NO2, PO4
Prep Date:	01/09/2020	Expiration Date:	01/10/2020
Prep:	Into a 100 mL volumetric flask, pipetted 6.4 mL 1000mg/L Nitrite(IC2288) and Phosphate(IC2650) brrought to volume with milli-Q H2O		

Standard Log #:	IC2823	Standard:	IC ICAL Mixed Std. Dionex
Analyst:	TMG	Concentrations:	50mg/L - NO_2, NO_3, PO_4, Br, F
Prep Date:	01/09/2020	Expiration Date (48 Hours):	01/11/2020

Prep:	Into a 100 mL volumetric flask pipetted 5 mL of 1000 mg/L Nitrite IC2288, Fluoride IC2535, Bromide IC2536, Nitrate IC2574, and Phosphate IC2650 and brought to volume with Milli-Q DI H_20.

Prep:

Prepared in 100 mL volumetric flasks and brought to volume with Milli-Q DI H_20.

Analyte	1	2	3	4	5	6	7	8	9
Mixed Std (50mg/L) IC2823	0	0.2	0.6	1.0	2.0	4.0	10.0	14.0	28.0
Chloride (1000mg/L) IC2791	0	0.05	0.075	0.1	0.5	1.0	2.0	3.0	4.0
Sulfate (1000mg/L) IC2733	0	0.05	0.075	0.1	0.5	1.0	3.0	5.0	7.0

Standard Log #:	IC2804	Standard/Reagent:	CCV NO2-P
Analyst:	TMG	Final Concentration:	7.0mg/L NO2, PO4
Prep Date:	01/06/2020	Expiration Date:	01/07/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2288) and ortho-phosphate (IC2650), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2805	Standard/Reagent:	LCSW NO2
Analyst:	TMG	Final Concentration:	7.0mg/L NO2
Prep Date:	01/06/2020	Expiration Date:	01/07/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2664) brought to volume with Milli-Q DI H20		

Standard Log #:	IC2806	Standard/Reagent:	SPIKE NO2-P
Analyst:	TMG	Final Concentration:	64.0mg/L NO2, PO4
Prep Date:	01/06/2020	Expiration Date:	01/07/2020
Prep:	Into a 100 mL volumetric flask, pipetted 6.4 mL 1000mg/L Nitrite(IC2288) and Phosphate(IC2650) brrought to volume with milli-Q H2O		

Standard Log #:	IC2807	Standard/Reagent:	AQUION ELUENT
Analyst:	TMG	Final Concentration:	4.5nM CARB

Prep Date:	01/06/2020	Expiration Date:	01/06/2021
Prep:	Into a 20L carboy, pipetted 100mL of Aquion Eluent Concentrate(IC2291) and brought to volume with Milli-Q Di water.		

Standard Log #:	IC2808	Standard/Reagent:	HEX ELUENT
Analyst:	TMG	Final Concentration:	250mM Ammonioum Sulfate
Prep Date:	01/06/2020	Expiration Date:	01/11/2020
Prep:	Dissolve 66g of ammonium sulfate(IC2280) into 1L of DI water and add 13mL of 29% ammonium hydroxide solution(W26415). Dilute to 2.0L with DI water.		

Standard Log #:	IC2809	Standard/Reagent:	HEX PCR
Analyst:	TMG	Final Concentration:	2mM Diphenylcarbazide/10%
Prep Date:	01/06/2020	Expiration Date:	01/11/20200
Prep:	Add 28mL of 98% sulfuric acid to 500mL of DI water in a 1L flask. In a 100mL flaks add 0.5mL of 1,5-diphenylcarbazide(W38500) to 75mL of methanol and sonicate to dissolve. Bring to volume with methanol and add to cooled sulfuric acid solution. Dilute to 1L with DI water.		

Standard Log #:	IC2810	Standard:	IC Eluent Dionex
Analyst:	TMG	Concentrations:	3.5 mM Sodium Carbonate 1.0 mM Sodium Bicarbonate
Prep Date:	01/06/2020	Expiration Date (1 Year):	01/06/21

Prep:	Into a 10L carboy, pipetted 20mL of Dionex eluent concentrate IC2630 and brought to volume with Milli-Q DI H_20.

Standard Log #:	IC2798	Standard/Reagent:	CCV MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3 30mg/L C
Prep Date:	01/02/2020	Expiration Date:	01/09/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Fluoride (IC2535) , Bromide (IC2536), and Nitrate (IC2118) , 15 ml 1000 mg/L Chloride (IC2791) , and 25 ml 1000 mg/L Sulfate (IC2593), and brought to volume Milli-Q DI H20		

Standard Log #:	IC2799	Standard/Reagent:	LCSW MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3,PO4 30m
Prep Date:	01/02/2020	Expiration Date:	01/09/2020
Prep:	Into a 500 mL volumetric flask, pipetted 20 mL of Custom Mix Stock Standard (175 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 1250 mg/L Sulfate, and 750 mg/L Chloride) (IC2336) brought to volume with Milli-Q DI H20.		

Standard Log #:	IC2800	Standard/Reagent:	SPIKE MIX
Analyst:	TMG	Final Concentration:	64mg/L Fl, Br, NO3 256mg/L
Prep Date:	01/02/2020	Expiration Date:	01/09/2020
Prep:	Into a 100 mL volumetric flask pipetted 6.4 mL 1000mg/L Fluoride(IC2535), Bromide (IC2536), and Nitrate (IC2118), and 25.6mL 1000mg/L Chloride (IC2791) and 1000mg/L Sulfate (IC2593), and brought to volume with Milli-Q DI H2O		

Standard Log #:	IC2801	Standard/Reagent:	CCV NO2-P
Analyst:	TMG	Final Concentration:	7.0mg/L NO2, PO4

Prep Date:	01/02/2020	Expiration Date:	01/03/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2288) and ortho-phosphate (IC2650), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2802	Standard/Reagent:	LCSW NO2
Analyst:	TMG	Final Concentration:	7.0mg/L NO2
Prep Date:	01/02/2020	Expiration Date:	01/03/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2664) brought to volume with Milli-Q DI H20		

Standard Log #:	IC2803	Standard/Reagent:	SPIKE NO2-P
Analyst:	TMG	Final Concentration:	64.0mg/L NO2, PO4
Prep Date:	01/02/2020	Expiration Date:	01/03/2020
Prep:	Into a 100 mL volumetric flask, pipetted 6.4 mL 1000mg/L Nitrite(IC2288) and Phosphate(IC2650) brrought to volume with milli-Q H2O		

Standard Log #:	IC2791	Standard/Reagent:	Cl Stock
Analyst:	TMG	Final Concentration:	1000mg/L
Prep Date:	12/26/2019	Expiration Date:	12/26/2020
Prep:	CAT#:250-220-371 LOT#:S191015047 EXP:12/26/2019		

Standard Log #:	IC2792	Standard/Reagent:	CCV MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3 30mg/L C
Prep Date:	12/26/2019	Expiration Date:	01/02/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Fluoride (IC2535) , Bromide (IC2536), and Nitrate (IC2118) , 15 ml 1000 mg/L Chloride (IC2791) , and 25 ml 1000 mg/L Sulfate (IC2593), and brought to volume Milli-Q DI H20		

Standard Log #:	IC2793	Standard/Reagent:	LCSW MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3,PO4 30m
Prep Date:	12/26/2019	Expiration Date:	01/02/2020
Prep:	Into a 500 mL volumetric flask, pipetted 20 mL of Custom Mix Stock Standard (175 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 1250 mg/L Sulfate, and 750 mg/L Chloride) (IC2336) brought to volume with Milli-Q DI H20.		

Standard Log #:	IC2794	Standard/Reagent:	SPIKE MIX
Analyst:	TMG	Final Concentration:	64mg/L Fl, Br, NO3 256mg/l

Standard Log #:	IC2733	Standard/Reagent:	SO4 STOCK
Analyst:	TMG	Final Concentration:	1000mg/L SO4
Prep Date:	11/21/2019	Expiration Date:	11/21/2020
Prep:	CAT#:250-220-70x LOT#: S190913029 exp:11/21/2020		

Standard Log #:	IC2734	Standard/Reagent:	CCV MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3 30mg/L C
Prep Date:	11/21/2019	Expiration Date:	11/28/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Fluoride (IC2535) , Bromide (IC2536), and Nitrate (IC2118) , 15 ml 1000 mg/L Chloride (IC2619) , and 25 ml 1000 mg/L Sulfate (IC2593), and brought to volume Milli-Q DI H20.		

Standard Log #:	IC2735	Standard/Reagent:	LCSW MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3,PO4 30m
Prep Date:	11/21/2019	Expiration Date:	11/28/2019
Prep:	Into a 500 mL volumetric flask, pipetted 20 mL of Custom Mix Stock Standard (175 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 1250 mg/L Sulfate, and 750 mg/L Chloride) (IC2336) brought to volume with Milli-Q DI H20.		

Standard Log #:	IC2736	Standard/Reagent:	SPIKE MIX
Analyst:	TMG	Final Concentration:	64mg/L Fl, Br, NO3 256mg/l

Standard Log #:	IC2731	Standard:	IC ICAL Mixed Std. Dionex
Analyst:	TMG	Concentrations:	50mg/L - NO_2, NO_3, PO_4, Br, F
Prep Date:	11/19/2019	Expiration Date (48 Hours):	11/21/2019
Prep:	Into a 100 mL volumetric flask pipetted 5 mL of 1000 mg/L Nitrite IC2288, Fluoride IC2535, Bromide IC2536, Nitrate IC2574, and Phosphate IC2650 and brought to volume with Milli-Q DI H_20.		

Standard Log #:	IC2732	Standard:	IC_Calibration_Dionex_B
Analyst:	TMG	Concentrations:	N/A
Prep Date:	11/19/2019	Expiration Date (48 hours):	11/21/2019

Prep:

Prepared in 100 mL volumetric flasks and brought to volume with Milli-Q DI H_20.

Analyte	1	2	3	4	5	6	7	8	9
Mixed Std (50mg/L) IC2731	0	0.2	0.6	1.0	2.0	4.0	10.0	14.0	28.0
Chloride (1000mg/L) IC2619	0	0.05	0.075	0.1	0.5	1.0	2.0	3.0	4.0
Sulfate (1000mg/L) IC2593	0	0.05	0.075	0.1	0.5	1.0	3.0	5.0	7.0

Standard Log #:	IC2700	Standard/Reagent:	Nitrocellulose Spiking Std.
Analyst:	RLD	Final Concentration:	5001 mg/L
Prep Date:	11/07/2019	Expiration Date:	11/14/2019
Prep:	Added 0.5001 g of IC2488 (Nitrocellulose Stock Std.-Dried) into a 100 ml volumetric flask and brought to volume with acetone (Chem Pure Brand Chemicals, Cat.# CP-9043, Lot # DU033-US).		

Standard Log #:	IC2701	Standard/Reagent:	CCV MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3 30mg/L C
Prep Date:	11/07/2019	Expiration Date:	11/14/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Fluoride (IC2535) , Bromide (IC2536), and Nitrate (IC2118) , 15 ml 1000 mg/L Chloride (IC2619) , and 25 ml 1000 mg/L Sulfate (IC2593), and brought to volume with Milli-Q DI H20Chloride (IC2619) and 1000mg/L		

Standard Log #:	IC2702	Standard/Reagent:	LCSW MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3,PO4 30m
Prep Date:	11/07/2019	Expiration Date:	11/14/2019
Prep:	Into a 500 mL volumetric flask, pipetted 20 mL of Custom Mix Stock Standard (175 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 1250 mg/L Sulfate, and 750 mg/L Chloride) (IC2336) brought to volume with Milli-Q DI H20.		

Standard Log #:	IC2703	Standard/Reagent:	SPIKE MIX
Analyst:	TMG	Final Concentration:	64mg/L Fl, Br, NO3 256mg/l

Standard Log #:	IC2680	Standard/Reagent:	Ammonium Sulfate
Analyst:	TMG	Final Concentration:	n/a
Prep Date:	10/29/2019	Expiration Date:	10/29/2020
Prep:	lot: 19E2956807 CAS: 7783-20-2		

Standard Log #:	IC2681	Standard/Reagent:	CCV NO2-P
Analyst:	TMG	Final Concentration:	7.0mg/L NO2, PO4
Prep Date:	10/29/2019	Expiration Date:	10/30/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2288) and ortho-phosphate (IC2650), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2682	Standard/Reagent:	LCSW NO2
Analyst:	TMG	Final Concentration:	7.0mg/L NO2
Prep Date:	10/29/2019	Expiration Date:	10/30/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2664) brought to volume with Milli-Q DI H20		

Standard Log #:	IC2683	Standard/Reagent:	SPIKE NO2-P

Standard Log #:	IC2661	Standard/Reagent:	CCV MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3 30mg/L C
Prep Date:	10/17/2019	Expiration Date:	10/24/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Fluoride (IC2535) , Bromide (IC2536), and Nitrate (IC2118) , 15 ml 1000 mg/L Chloride (IC2619) , and 25 ml 1000 mg/L Sulfate (IC2593), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2662	Standard/Reagent:	LCSW MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3,PO4 30m
Prep Date:	10/17/2019	Expiration Date:	10/24/2019
Prep:	Into a 500 mL volumetric flask, pipetted 20 mL of Custom Mix Stock Standard (175 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 1250 mg/L Sulfate, and 750 mg/L Chloride) (IC2336) brought to volume with Milli-Q DI H20.		

Standard Log #:	IC2663	Standard/Reagent:	SPIKE MIX
Analyst:	TMG	Final Concentration:	64mg/L Fl, Br, NO3 256mg/l
Prep Date:	10/17/2019	Expiration Date:	10/24/2019
Prep:	Into a 100 mL volumetric flask pipetted 6.4 mL 1000mg/L Fluoride(IC2535), Bromide (IC2536), and Nitrate (IC2118), and 25.6mL 1000mg/L Chloride (IC2619) and 1000mg/L Sulfate (IC2593), and brought to volume with Milli-Q DI H2O		

Standard Log #:	IC2664	Standard/Reagent:	NO2 LCS STOCK
Analyst:	TMG	Final Concentration:	1000ug/mL

Prep Date:	10/17/2019	Expiration Date:	05/30/2020
Prep:	LOT#: 4-167NO2N-2Y CAT#:AS-NO2N9-2Y EXP:05/30/2020		

Standard Log #:	IC2665	Standard/Reagent:	LCSW MIX STOCK
Analyst:	TMG	Final Concentration:	1250ug/mL SO4, 750ug/mL
Prep Date:	10/17/2019	Expiration Date:	09/30/2020
Prep:	LOT#: 15-128JKS CAT#:VCTWI-3-500 EXP:09/30/2020		

Standard Log #:	IC2650	Standard/Reagent:	PO4 STOCK
Analyst:	TMG	Final Concentration:	1000mg/L
Prep Date:	10/10/2019	Expiration Date:	10/10/2020
Prep:	LOT#: S190327034 CAT#: 250-220-611 EXP:10/10/2020		

Standard Log #:	IC2651	Standard/Reagent:	CCV MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3 30mg/L C
Prep Date:	10/10/2019	Expiration Date:	10/17/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Fluoride (IC2535) , Bromide (IC2536), and Nitrate (IC2118) , 15 ml 1000 mg/L Chloride (IC2619) , and 25 ml 1000 mg/L Sulfate (IC2593), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2652	Standard/Reagent:	LCSW MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3,PO4 30m
Prep Date:	10/10/2019	Expiration Date:	10/17/2019
Prep:	Into a 500 mL volumetric flask, pipetted 20 mL of Custom Mix Stock Standard (175 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 1250 mg/L Sulfate, and 750 mg/L Chloride) (IC2336) brought to volume with Milli-Q DI H20.		

Standard Log #:	IC2653	Standard/Reagent:	SPIKE MIX
Analyst:	TMG	Final Concentration:	64mg/L Fl, Br, NO3 256mg/l

Prep Date:	10/10/2019	Expiration Date:	10/17/2019
Prep:	Into a 100 mL volumetric flask pipetted 6.4 mL 1000mg/L Fluoride(IC2535), Bromide (IC2536), and Nitrate (IC2118), and 25.6mL 1000mg/L Chloride (IC2619) and 1000mg/L Sulfate (IC2593), and brought to volume with Milli-Q DI H2O		

Standard Log #:	IC2654	Standard/Reagent:	CCV NO2-P
Analyst:	TMG	Final Concentration:	7.0mg/L NO2, PO4
Prep Date:	10/10/2019	Expiration Date:	10/17/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2288) and ortho-phosphate (IC2650), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2646	Standard:	IC ICAL Mixed Std. Dionex
Analyst:	TMG	Concentrations:	50mg/L - NO_2, NO_3, PO_4, Br, F
Prep Date:	10/09/2019	Expiration Date (48 Hours):	10/11/2019
Prep:	Into a 100 mL volumetric flask pipetted 5 mL of 1000 mg/L Nitrite IC2288, Fluoride IC2535, Bromide IC2536, Nitrate IC2574, and Phosphate IC2245 and brought to volume with Milli-Q DI H_20.		

Standard Log #:	IC2647	Standard:	IC_Calibration_Dionex_B
Analyst:	TMG	Concentrations:	N/A
Prep Date:	10/09/2019	Expiration Date (48 hours):	10/11/2019

Prep:

Prepared in 100 mL volumetric flasks and brought to volume with Milli-Q DI H_20.

Analyte	1	2	3	4	5	6	7	8	9
Mixed Std (50mg/L) IC2646	0	0.2	0.6	1.0	2.0	4.0	10.0	14.0	28.0
Chloride (1000mg/L) IC2619	0	0.05	0.075	0.1	0.5	1.0	2.0	3.0	4.0
Sulfate (1000mg/L) IC2593	0	0.05	0.075	0.1	0.5	1.0	3.0	5.0	7.0

Standard Log #:	IC2648	Standard/Reagent:	AS14 DIONEX COLUMN

Analyst:	TMG	Final Concentration:	NA
Prep Date:	10/09/2019	Expiration Date:	NA
Prep:	Dionex As14 IonPac column Product # 046124 Serial #: 190805020 Lot# : 01914032		

Standard Log #:	IC2649	Standard/Reagent:	GUARD COLUMN
Analyst:	TMG	Final Concentration:	NA
Prep Date:	10/09/2019	Expiration Date:	NA
Prep:	SERIAL #: 190812098		

Standard Log #:	IC2629	Standard/Reagent:	Nitrocellulose Spiking Std.
Analyst:	RLD	Final Concentration:	5010 mg/L
Prep Date:	10/02/2019	Expiration Date:	10/09/2019
Prep:	Added 0.5010 g of IC2488 (Nitrocellulose Stock Std.-Dried) into a 100 ml volumetric flask and brought to volume with acetone (Chem Pure Brand Chemicals, Cat.# CP-9043, Lot # DU033-US).		

Standard Log #:	IC2630	Standard/Reagent:	Conc. Eluent Dionix
Analyst:	TMG	Final Concentration:	1.75 M Sodium Carbonate, (
Prep Date:	10/02/2019	Expiration Date:	10/02/2020
Prep:	Into a 2L volumetric flask, dissolved 371g of Sodium Carbonate and 84.0g of Sodium Bicarbonate and brought to volume with Milli-Q DI H2O. (500x concentrate)		

Standard Log #:	IC2619	Standard/Reagent:	Cl STOCK
Analyst:	TMG	Final Concentration:	1000mg/L Cl
Prep Date:	09/26/2019	Expiration Date:	09/26/2020
Prep:	LOT #: S190607015 CAT #: 250-220-371 EXP:09/26/2020		

Standard Log #:	IC2620	Standard/Reagent:	CCV MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3 30mg/L C
Prep Date:	09/26/2019	Expiration Date:	10/03/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Fluoride (IC2535) , Bromide (IC2536), and Nitrate (IC2118) , 15 ml 1000 mg/L Chloride (IC2619) , and 25 ml 1000 mg/L Sulfate (IC2593), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2621	Standard/Reagent:	LCSW MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3,PO4 30m
Prep Date:	09/26/2019	Expiration Date:	10/03/2019
Prep:	Into a 500 mL volumetric flask, pipetted 20 mL of Custom Mix Stock Standard (175 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 1250 mg/L Sulfate, and 750 mg/L Chloride) (IC2336) brought to volume with Milli-Q DI H20.		

Standard Log #:	IC2622	Standard/Reagent:	SPIKE MIX
Analyst:	TMG	Final Concentration:	64mg/L Fl, Br, NO3 256mg/L

Prep Date:	09/05/2019	Expiration Date:	09/06/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2288) and ortho-phosphate (IC2245), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2591	Standard/Reagent:	LCSW NO2
Analyst:	TMG	Final Concentration:	7.0mg/L NO2
Prep Date:	09/05/2019	Expiration Date:	09/06/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2237) brought to volume with Milli-Q DI H20		

Standard Log #:	IC2592	Standard/Reagent:	SPIKE NO2-P
Analyst:	TMG	Final Concentration:	64.0mg/L NO2, PO4
Prep Date:	09/05/2019	Expiration Date:	09/06/2019
Prep:	Into a 100 mL volumetric flask, pipetted 6.4 mL 1000mg/L Nitrite(IC2288) and Phosphate(IC2245) brrought to volume with milli-Q H2O		

Standard Log #:	IC2593	Standard/Reagent:	SO4 STOCK
Analyst:	TMG	Final Concentration:	1000mg/L
Prep Date:	09/05/2019	Expiration Date:	09/05/2020

Prep:	CAT#:250-220-701 LOT#:S190322012 Exp:09/05/2019

Standard Log #:	IC2574	Standard/Reagent:	NO2 STOCK
Analyst:	TMG	Final Concentration:	1000mg/L NO3
Prep Date:	08/29/2019	Expiration Date:	08/29/2020
Prep:	LOT #:S190225004 CAT#:250-220-521 EXP:08/29/2020		

Standard Log #:	IC2575	Standard/Reagent:	CCV MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3 30mg/L C
Prep Date:	08/29/2019	Expiration Date:	09/05/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Fluoride (IC2535) , Bromide (IC2536), and Nitrate (IC2118) , 15 ml 1000 mg/L Chloride (IC2426) , and 25 ml 1000 mg/L Sulfate (IC2427), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2576	Standard/Reagent:	LCSW MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3,PO4 30m
Prep Date:	08/29/2019	Expiration Date:	09/05/2019
Prep:	Into a 500 mL volumetric flask, pipetted 20 mL of Custom Mix Stock Standard (175 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 1250 mg/L Sulfate, and 750 mg/L Chloride) (IC2336) brought to volume with Milli-Q DI H20.		

Standard Log #:	IC2577	Standard/Reagent:	SPIKE MIX
Analyst:	TMG	Final Concentration:	64mg/L Fl, Br, NO3 256mg/L

Standard Log #:	IC2535	Standard/Reagent:	FI STOCK
Analyst:	TMG	Final Concentration:	1000mg/L
Prep Date:	08/08/2019	Expiration Date:	08/08/2020
Prep:	Lot #:S190129008 Cat #: 250-220-401 Exp: 08/08/2020		

Standard Log #:	IC2536	Standard/Reagent:	Br STOCK
Analyst:	TMG	Final Concentration:	1000mg/L
Prep Date:	08/08/2019	Expiration Date:	08/08/2020
Prep:	Lot #:S1920213009 Cat #: 250-220-236 Exp: 08/08/2020		

Standard Log #:	IC2537	Standard/Reagent:	CCV NO2-P
Analyst:	TMG	Final Concentration:	7.0mg/L NO2, PO
Prep Date:	08/08/2019	Expiration Date:	08/09/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2288) and ortho-phosphate (IC2245), and brought to volume with Milli-Q DI H20		

Standard Log #:		Standard/Reagent:	

Standard Log #:	IC2423	Standard/Reagent:	CCV MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3 30mg/L C
Prep Date:	06/12/2019	Expiration Date:	06/19/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Fluoride (IC1978) , Bromide (IC1977), and Nitrate (IC2118) , 15 ml 1000 mg/L Chloride (IC2289) , and 25 ml 1000 mg/L Sulfate (IC2290), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2424	Standard/Reagent:	LCSW MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3,PO4 30m
Prep Date:	06/12/2019	Expiration Date:	06/19/2019
Prep:	Into a 500 mL volumetric flask, pipetted 20 mL of Custom Mix Stock Standard (175 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 1250 mg/L Sulfate, and 750 mg/L Chloride) (IC2336) brought to volume with Milli-Q DI H20.		

Standard Log #:	IC2425	Standard/Reagent:	SPIKE MIX
Analyst:	TMG	Final Concentration:	64mg/L Fl, Br, NO3 256mg/L
Prep Date:	06/12/2019	Expiration Date:	06/19/2019
Prep:	Into a 100 mL volumetric flask pipetted 6.4 mL 1000mg/L Fluoride(IC1978), Bromide (IC1977), and Nitrate (IC2118), and 25.6mL 1000mg/L Chloride (IC2289) and 1000mg/L Sulfate (IC2290), and brought to volume with Milli-Q DI H2O		

Standard Log #:	IC2426	Standard/Reagent:	Cl STOCK
Analyst:	TMG	Final Concentration:	1000mg/L

Prep Date:	06/12/2019	Expiration Date:	06/12/2020
Prep:	LOT #:S190214034 CAT #:250-220-37x EXP:06/12/2020		

Standard Log #:	IC2427	Standard/Reagent:	SO4 STOCK
Analyst:	TMG	Final Concentration:	1000mg/L
Prep Date:	06/12/2019	Expiration Date:	06/12/2020
Prep:	LOT #:S190322012 CAT #:250-220-70x EXP:06/12/2020		

Standard Log #:	IC2333	Standard/Reagent:	CCV MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3 30mg/L C
Prep Date:	04/24/2019	Expiration Date:	05/01/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Fluoride (IC1978) , Bromide (IC1977), and Nitrate (IC2118) , 15 ml 1000 mg/L Chloride (IC2289) , and 25 ml 1000 mg/L Sulfate (IC2290), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2334	Standard/Reagent:	LCSW MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3,PO4 30m
Prep Date:	04/24/2019	Expiration Date:	05/01/2019
Prep:	Into a 500 mL volumetric flask, pipetted 20 mL of Custom Mix Stock Standard (175 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 1250 mg/L Sulfate, and 750 mg/L Chloride) (IC2104) brought to volume with Milli-Q DI H20.		

Standard Log #:	IC2335	Standard/Reagent:	SPIKE MIX
Analyst:	TMG	Final Concentration:	64mg/L Fl, Br, NO3 256mg/l
Prep Date:	04/24/2019	Expiration Date:	05/01/2019
Prep:	Into a 100 mL volumetric flask pipetted 6.4 mL 1000mg/L Fluoride(IC1978), Bromide (IC1977), and Nitrate (IC2118), and 25.6mL 1000mg/L Chloride (IC2289) and 1000mg/L Sulfate (IC2290), and brought to volume with Milli-Q DI H2O		

Standard Log #:	IC2336	Standard/Reagent:	LCS STOCK MIX
Analyst:	TMG	Final Concentration:	175ug/mL Br, F, NO3, PO4

Prep Date:	04/24/2019	Expiration Date:	03/30/2020
Prep:	LOT# 14-65JKS CAT# VCTWI-3-500		

Standard Log #:	IC2337	Standard/Reagent:	LCS NO2 STOCK
Analyst:	TMG	Final Concentration:	1000ug/mL
Prep Date:	04/24/2019	Expiration Date:	03/30/2020
Prep:	LOT# 4-167NO2N-2Y CAT# AS-NO2N9-2Y		

Standard Log #:	IC2316	Standard/Reagent:	AS14 DIONEX COLUMN
Analyst:	TMG	Final Concentration:	NA
Prep Date:	04/16/2019	Expiration Date:	NA
Prep:	Dionex As14 IonPac column Product # 046124 Serial #: 190215072 Lot# : 01827170		

Standard Log #:	IC2317	Standard/Reagent:	GUARD COLUMN
Analyst:	TMG	Final Concentration:	NA
Prep Date:	04/16/2019	Expiration Date:	NA
Prep:	SERIAL #181004394		

Standard Log #:	IC2318	Standard:	IC ICAL Mixed Std. Dionex
Analyst:	TMG	Concentrations:	50mg/L - NO_2, NO_3, PO_4, Br, F
Prep Date:	04/16/2019	Expiration Date (48 Hours):	04/18/2019
Prep:	Into a 100 mL volumetric flask pipetted 5 mL of 1000 mg/L Nitrite IC2288, Fluoride IC1978, Bromide IC1977, Nitrate IC2118, and Phosphate IC2245 and brought to volume with Milli-Q DI H_20.		

Standard Log #:	IC2319	Standard:	IC_Calibration_Dionex_B

Analyst:	TMG	Concentrations:	N/A
Prep Date:	04/16/2019	Expiration Date (48 hours):	04/18/2019

Prep:

Prepared in 100 mL volumetric flasks and brought to volume with Milli-Q DI H_20.

Analyte	1	2	3	4	5	6	7	8	9
Mixed Std (50mg/L) IC2318	0	0.2	0.6	1.0	2.0	4.0	10.0	14.0	28.0
Chloride (1000mg/L) IC2289	0	0.05	0.075	0.1	0.5	1.0	2.0	3.0	4.0
Sulfate (1000mg/L) IC2290	0	0.05	0.075	0.1	0.5	1.0	3.0	5.0	7.0

Standard Log #:	IC2285	Standard/Reagent:	CCV MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3 30mg/L C
Prep Date:	03/27/2019	Expiration Date:	04/03/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Fluoride (IC1978) , Bromide (IC1977), and Nitrate (IC2118) , 15 ml 1000 mg/L Chloride (2065) , and 25 ml 1000 mg/L Sulfate (IC2132), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2286	Standard/Reagent:	LCSW MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3, PO4 30n
Prep Date:	03/27/2019	Expiration Date:	04/03/2019
Prep:	Into a 500 mL volumetric flask, pipetted 20 mL of Custom Mix Stock Standard (175 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 1250 mg/L Sulfate, and 750 mg/L Chloride) (IC2104) brought to volume with Milli-Q DI H20.		

Standard Log #:	IC2287	Standard/Reagent:	SPIKE MIX
Analyst:	TMG	Final Concentration:	64mg/L Fl, Br, NO3 256mg/l
Prep Date:	03/27/2019	Expiration Date:	04/03/2019
Prep:	Into a 100 mL volumetric flask pipetted 6.4 mL 1000mg/L Fluoride(IC1978), Bromide (IC1977), and Nitrate (IC2118), and 25.6mL 1000mg/L Chloride (IC2065) and 1000mg/L Sulfate (IC2132), and brought to volume with Milli-Q DI H2O		

Standard Log #:	IC2288	Standard/Reagent:	NO2 STOCK
Analyst:	TMG	Final Concentration:	1000mg/L

Prep Date:	03/27/2019	Expiration Date:	03/27/2020
Prep:	CAT #:250-220-55x LOT #:S181129005 exp: 03/27/2020		

Standard Log #:	IC2289	Standard/Reagent:	Cl STOCK
Analyst:	TMG	Final Concentration:	1000mg/L
Prep Date:	03/27/2019	Expiration Date:	03/27/2020
Prep:	CAT #:250-220-37x LOT #:S190214034 exp: 03/27/2020		

Standard Log #:	IC2290	Standard/Reagent:	SO4 STOCK
Analyst:	TMG	Final Concentration:	1000mg/L
Prep Date:	03/27/2019	Expiration Date:	03/27/2020
Prep:	CAT #:250-220-70x LOT #:S181005026 exp: 03/27/2020		

Prep Date:	02/27/2019	Expiration Date:	02/28/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC1884) and ortho-phosphate (IC2245), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2243	Standard/Reagent:	LCSW NO2
Analyst:	TMG	Final Concentration:	7.0mg/L NO2
Prep Date:	02/27/2019	Expiration Date:	02/28/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2009) brought to volume with Milli-Q DI H20		

Standard Log #:	IC2244	Standard/Reagent:	SPIKE NO2-P
Analyst:	TMG	Final Concentration:	64.0mg/L NO2, PO4
Prep Date:	02/27/2019	Expiration Date:	02/28/2019
Prep:	Into a 100 mL volumetric flask, pipetted 6.4 mL 1000mg/L Nitrite(IC1884) and Phosphate(IC2245) brrought to volume with milli-Q H2O		

Standard Log #:	IC2245	Standard/Reagent:	PO4 STOCK
Analyst:	TMG	Final Concentration:	1000mg/L
Prep Date:	02/27/2019	Expiration Date:	02/27/2020

Prep:	LOT #:S180718005 CAT #:250-220-611 EXO:02/27/2020

WCOD QSM Analytical Run
168576 on 02/06/2020

Date Analyzed:

Date Reviewed:

Date Entered:

Date Validated:

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
151023	383235		01/27/2020 1520		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU 54	COD QSM		GW	**4**	
		54IDW						75381			
	385029						COD QSM				
				MBW				75381			
	385030						COD QSM				
				LCSW				75381			
	385031		01/27/2020 1520				COD QSM				
		54IDW		MSW 383235				75381			
	385032		01/27/2020 1520				COD QSM				
		54IDW		DUP 383235				75381			
	385033		01/27/2020 1520				COD QSM				
		54IDW		MSDW 385031				75381			
	385941						WCOD QSM				
				CCB							
	385942						WCOD QSM				
				CCB							
	385943						WCOD QSM				
				CCV							
	385944						WCOD QSM				
				CCV							

10 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

PREP WORKSHEET
on 02/11/2020

Prep Batch **75,381** Date Prepped: 02/03/2020 Prepped By ATJ

Folder #	Order	QC Type	Link	Test	Matrix	Volume	Weight	Initial Volume	SDG Level	Notes
	385029	MBW		COD QSM	LIQUID					
	385030	LCSW		COD QSM	LIQUID					
151023	383235			COD QSM	GROUND WATER				4	
	385031	MSW	383235	COD QSM	GROUND WATER					
	385032	DUP	383235	COD QSM	GROUND WATER					
	385033	MSDW	385031	COD QSM	GROUND WATER					

Notes:_____

COD Data Validation Checklist

		Method: Chemical Oxygen Demand EPA 410.4			
LIMS Run #(s)	**Analysis Date**	**Analyst / Data Interpreter**	**Independent Reviewer**	**Date of Review**	**Approved? (Yes or No)**
168576	02/03/2020	ATJ	etk	02/10/2020	yes

Instructions: Complete one checklist per *analytical run* . Enter the appropriate response for each question.
Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirement:	**Acceptance Criteria**	**Analyst Review**		**Independent Review**		**Comments:**
		Yes	No	Yes	No	(indicate reference to an attachment if necessary)
1. Does a digestion sheet accompany the data package?	---	Yes		Yes		
2. Does the digestion sheet include all reagent and standard prep log numbers?	---	Yes		Yes		
3. Was a passing calibration test applied to sample analysis?	≥0.995	Yes		Yes		
4. Was a passing ICV analyzed immediately after the calibration?	90-110%	Yes		Yes		
5. Was a passing ICB analyzed immediately after the ICV?	< |LOD|or client/project specific	Yes		Yes		
6. Were CCVs and CCB analyzed at the required frequency?	1 per 10 samples	Yes		Yes		
7. Did analyzed CCVs meet the required acceptance criteria?	90-110%	Yes		Yes		
8. Did analyzed CCBs meet the acceptance criteria?	< |LOD|or client/project specific	Yes		Yes		
9. Was a Method Blank prepared at the required frequency?	1per 20 samples or at contract/program specific frequencies	Yes		Yes		
10. Was the method blank within acceptance criteria?	< |LOD|or client/project specific	Yes		Yes		
11. Was an LCS prepared at the required frequency?	1per 20 samples or at contract/program specific frequencies	Yes		Yes		
12. Did the LCS meet the acceptance criteria?	90-110% or Within in-house or contract/program specific limits	Yes		Yes		
13. Was an MS and MSD prepared at the required frequency?	1per 10 per batch or at contract/program specific frequencies	Yes		Yes		
14. Did the MS/ MSD's meet the acceptance criteria?	90-110% or Within in-house or contract/program specific limits		No		No	383235 MSD high - M flagged

15. Did the MS/MSD's meet the RPD criteria?	Within in-house or contract/program specific limits		No		No	383235 RPD failed - Y flagged
16. Was a Duplicate prepared at the required frequency?	1per 10 per batch or at contract/program specific frequencies	Yes		Yes		
17. Did the Duplicate meet the RPD criteria?	Within in-house or contract/program specific limits		No		No	383235 dup failed - Y flagged
18. Were the samples digested within hold time?	28 days	Yes		Yes		
19. Was the max temperature(s) for reactor(s) documented?	---	Yes		Yes		
20. Was the method specifed temperature reached?		Yes		Yes		
21. Were reagents/standards used before expiration date?	---	Yes		Yes		
22. Are all samples on the job lists accounted for?	---	Yes		Yes		

CHEMICAL OXYGEN DEMAND REAGENT LOG

Prep Batch(es): 75380 75381

Date/Time/Analyst: 02/03/2020 13:03:00 ATJ

Run(s): 168575 576

Date/Time/Analyst:

Reagents:	W #	Exp Date
ICAL Preparation	W47960	03/18/2020
CCV Preparation	W47964	03/13/2020
LCS/ICV Preparation	W47963	03/18/2020
Silver Sulfate Acid	W48027	06/25/2024
Potassium Dichromate Dig Solution	W47821	11/19/2020

Spiked Samples:	W #	Exp Date
Spiking Solution	W47961	03/18/2020

Concentration 2000 mg/L

Volume of Spike Used 0.2 mL

Final Sample Volume 2.5 mL

Final Spike Concentration 148.2 mg/L

Date: 01/04/2020

Time: 09:00

COD DIGESTION BLOCK TEMPS

	A	B
Temperature (Max) 150°C ± 2°C:		150.1, 150.3

	E	D
Temperature (Max) 150°C ± 2°C:	150.2, 150.3	

GENESYS 30 Instrument Run Logbook

Date	Start Time	End Time	Analyst	Test/Analyte	Calibration Test #	Run #/ Comments	Maintenance	Review
01/27/20	8:30	15:15	ATJ	COD	COD W47962	168418		
02/04/20	7:45	08:16	ATJ	COD	COD W47962	168575 576		

LPWC01_15
WetChem Reagent Prep Logbook
Logbook Created: 11/21/2019

NOTEBOOK VIEW: LTN_LPWC01_15_Default, NOTEBOOK: LPWC01_15, PAGE: 15
Page is Locked
Author: hbeckel on: 1/2/2020 8:17:51 AM
Page is not Witnessed
Project: Unassigned
Page Title: 123119

Standard Log #:	W48027	Standard/Reagent:	Sulfuric Acid/Silver Sulfate Solution
Analyst:	HLB	Concentration:	N/A
Prep Date:	12-31-19	Expiration Date (1 Year):	12-31-20
PREP		Standards/Reagents Used	
Into a new 2.5L bottle of Sulfuric acid (H2SO4) (1), dissolved 25g of Silver Sulfate (AG2SO4) (2).		(1) WC39 (2) WC22	

1

CT Laboratories, LLC

Standard Log #:	W47960	Standard/Reagent:	COD Ical/CCV Stock Std.
Analyst:	HLB	Concentration:	1,000 mg/L
Prep Date:	12-18-19	Expiration Date (3 Months):	3-18-20
PREP			Standards/Reagents Used
Into a 500mL volumetric flask, dissolved 0.425g of Potassium Hydrogen Phthalate (KHP) (1) and filled to volume with DI water.			(1) W33269

Standard Log #:	W47961	Standard/Reagent:	COD LCS/Spiking Stock Std.
Analyst:	HLB	Concentration:	2,000 mg/L
Prep Date:	12-18-19	Expiration Date (3 Months):	3-18-20
PREP			Standards/Reagents Used
Into a 500mL volumetric flask, dissolved 0.85g of second-source Potassium Hydrogen Phthalate (KHP) (1) and filled to volume with DI water.			(1) W39424

Standard Log #:	W47962	Standard/Reagent:	COD ICAL
Analyst:	HLB	Concentration:	N/A
Prep Date:	12-18-19	Expiration Date (3 Months):	3-18-20

PREP	Standards/Reagents Used
Into 100mL volumetric flasks, added the following amounts of 1,000 mg/L COD ICal/CCV Stock Std. (1) and brought to volume with DI water: CAL Pt. A - 0 mL (Final Concentration = 0 mg/L) CAL Pt. B - 1.0 mL (Final Concentration = 10 mg/L) CAL Pt. C - 2.5 mL (Final Concentration = 25 mg/L) CAL Pt. D - 5.0 mL (Final Concentration = 50 mg/L) CAL Pt. E - 10 mL (Final Concentration = 100 mg/L) CAL Pt. F - 50 mL (Final Concentration = 500 mg/L) CAL Pt. G - 75 mL (Final Concentration = 750 mg/L)	(1) W47960

Standard Log #:	W47963	Standard/Reagent:	COD LCS
Analyst:	HLB	Concentration:	400 mg/L
Prep Date:	12-18-19	Expiration Date (3 Months):	3-18-20

PREP	Standards/Reagents Used
Into a 250mL volumetric flask, pipetted 50 mL of 2,000 mg/L COD LCS/Spiking Stock Std. (1) and filled to volume with DI water.	(1) W47961

Standard Log #:	W47964	Standard/Reagent:	COD CCV
Analyst:	HLB	Concentration:	400 mg/L
		Expiration Date	

Prep Date:	12-18-19	(3 Months):	3-18-20
PREP			Standards/Reagents Used
Into a 250mL volumetric flask, volumetrically added 100 mL of 1,000 mg/L COD ICal/CCV Stock Std. (1) and filled to volume with DI water.			(1) W47960

Standard Log #:	W47821	Standard/Reagent:	Dichromate Digestion Solution
Analyst:	GMJ	Concentration:	N/A
Prep Date:	11/19/19	Expiration Date (1 Year):	11/19/20

PREP	Standards/Reagents Used
Into a 2L volumetric flask, dissolved 66.6g of Mercuric sulfate (1) in about 500 mL of DI water. Volumetrically added 334 mL of Sulfuric acid (2) and dissolved 20.42g of Potassium dichromate (3) and then filled to volume with DI water.	(1) W46750 (2) WC13 (3) W46749

Standard Log #:	W46749	Chemical:	Potassium Dichromate
Analyst:	SAW	Vendor:	JT Baker (VWR)
Date Received:	2/22/19	Catalog #:	3090-01
Expiration Date (if any):	3/6/25	Lot #:	0000213858
Comments:	Opened 4/29/19		

Standard Log #:	W46750	Chemical:	mERCURY (II) SULFATE
Analyst:	SAW	Vendor:	BTC
Date Received:	3/11/19	Catalog #:	212940-100G
Expiration Date (if any):	4/29/20	Lot #:	50004425
Comments:	Opened 4/29/19		

Standard Log #:	W39424	Chemical:	Potassium hydrogen phthalate
Analyst:	SAW	Vendor:	ACROS
Date Received:	7/1/16	Catalog #:	424061000
Expiration Date (if any):	N/A	Lot #:	A0365830
Comments:			

PROJECT _____ Notebook No. _____ 31

Continued From Page _____

W33266 GES 1/7/14 — Sodium hypochlorite soln - Fisher cat # SS290-4 lot # 133042 exp 7/2014

W33267 GES 1/7/14 — NH_3 IL Hypochlorite: Into a 500mL vol. volumetrically combined 30mL W33266 & filled to vol w/ DI H_2O. exp 1/8/14

W33268 BJS 1/7/14 — TKN MDL ✓: (0.46mg/L) Into a 100mL vol flask pipetted 0.46mL NH_3/TKN 1000mg/L Stock W32416 & filled to volume w/ DI. Then pipetted 20mL into TKN tube.

W33269 Bms 01/07/14 — Potassium Hydrogen Phthalate (KHP): Agros Organics Catelog #: 424061000, Lot#: A0317291 (Received 06/24/13)

W33270 AGK 01/07/14 — TOCW ICAL/CCV stock (1000mg/L): Into a 100mL vol, dissolved 0.2128g KHP (W 33269) and brought to volume w/ milli-Q H_2O Exp: 07/07/14

W33271 01/07/14 AGK — TOCW ICV/LCS stock (1000mg/L) Into a 100mL vol, dissolved 0.2128g KHP (W 29079) and brought to volume w/ milli-Q H_2O Exp: 07/07/14

W33272 AGK 01/07/14 01/07/14 AGK — TOCW CCV Sto: Into a 100mL vol pipetted 50mL of W33270 and Brought to Volume with Milli-Q H_2O Exp: 02-07-14

W33273 01/07/14 AGK — TOCW LCS Sto: Into a 100mL vol pipetted 5.0mL of W33271 and brought to volume w/ milli-Q H_2O Exp: 02-07-14

W33274 01/07/14 AGK — TOCW Ical: Into 7 50mL vol, pipetted 0.005, 0.25, 0.5, 1.25, 2.5, and 5.0mL of W33270 and brought to volume with milli-Q H_2O Exp: 02/07/14

Continued on Page

Read and Understood By

1/9/14 CS
Signed — Date — Signed — Date

Standard Log #:	WC39	Chemical:	Sulfuric Acid ACS 2.5L
Analyst:	HLB	Vendor:	EMD
Date Received:	6-27-19	Catalog #:	SX1244-5
Expiration Date (if any):		Lot #:	58351
Comments:			

Standard Log #:	WC22	Chemical:	Silver Sulfate ACS 98%
Analyst:	HLB	Vendor:	Alfa Aesar/Thermo Fisher
Date Received:	12-2-19	Catalog #:	11417
Expiration Date (if any):	12-2-24	Lot #:	W04F005
Comments:			

Standard Log #:	WC13	Chemical:	SULFURIC ACID
Analyst:	GMJ	Vendor:	EMD MILIPORE CORPORATION
Date Received:	8/27/19	Catalog #:	SX1244-5
Expiration Date (if any):	NA	Lot #:	58346
Comments:	OPENED 11/19/19		

WPH Analytical Run
168475 on 01/31/2020

Date Analyzed

Date Reviewed:

Date Entered:

Date Validated:

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
151023	383235	54IDW	01/27/2020 1520		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU 54	PH		GW	**4**	

9 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

Distribution: C:\LIMSREPS\ANALYTICALRUN.RPT

pH Data Validation Checklist

		Method: pH EPA 150.1, SM 4500-H+B, EPA 9040C, EPA 9045D			
LIMS Run #(s)	**Analysis Date**	**Analyst / Data Interpreter**	**Independent Reviewer**	**Date of Review**	**Approved? (Yes or No)**
168475	01/28/2020	ATJ	etk	01/31/2020	yes

Instructions: Complete one checklist per *analytical run* . Enter the appropriate response for each question.
Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirement:	**Acceptance Criteria**	**Analyst Review**		**Independent Review**		**Comments:**
		Yes	No	Yes	No	(indicate reference to an attachment if necessary)
1. Was the calibration slope recorded on the bench sheet?	95-110%	Yes		Yes		
2. Were reagents/standards used before expiration date?	---	Yes		Yes		
3. Were duplicates analyzed at the appropriate frequency?	1 every 20 samples of the same matrix	Yes		Yes		
4. Were the duplicates within acceptable limits?	Differ by $\leq$ 0.10 pH units	Yes		Yes		
5. Are all samples on the job lists accounted for?	---	Yes		Yes		
6. Were SM 4500-H+B samples bracketed by calibration buffer 7?	Every 10 samples, Differ by $\leq$ 0.10 pH units	Yes		Yes		

Mettler Toledo (Easy Seven) pH Calibration & Maintenance Run Logbook

		pH Buffer Reference ID #			3 Point Calibration						
Date	Analyst	pH 7	pH 4	pH 10	1st Buffer	2nd Buffer	3rd Buffer	Slope (95-110%)	Temp ° C	Comments	Review
01/08/20	RLB	W46410 EX: 3/5/20	WC38 EX: 12/30/20	W46764 EX:05/2/20	7.02	4	10.07	97%	19.4		
01/09/20	RLB	W46410 EX: 3/5/20	WC38 EX: 12/30/20	W46764 EX:05/2/20	7.02	4	10.07	97%	18.8		
01/10/20	RLB	W46410 EX: 3/5/20	WC38 EX: 12/30/20	W46764 EX:05/2/20	7.02	4	10.05	97%	21.2		
01/13/20	RLB	W46410 EX: 3/5/20	WC38 EX: 12/30/20	W46764 EX:05/2/20	7.02	4	10.07	97%	19.1		
01/14/20	RLB	W46410 EX: 3/5/20	WC38 EX: 12/30/20	W46764 EX:05/2/20	7.02	4	10.07	96%	19.3		
01/15/20	RLB	W46410 EX: 3/5/20	WC38 EX: 12/30/20	W46764 EX:05/2/20	7.02	4	10.07	97%	19.6		
01/16/20	RLB	W46410 EX: 3/5/20	WC38 EX: 12/30/20	W46764 EX:05/2/20	7.02	4	10.07	98%	18.9		
01/17/20	RLB	W46410 EX: 3/5/20	WC38 EX: 12/30/20	W46764 EX:05/2/20	7.02	4	10.08	98%	18.6		
01/20/20	RLB	W46410 EX: 3/5/20	WC38 EX: 12/30/20	W46764 EX:05/2/20	7.02	4	10.07	98%	18.8		
01/21/20	HLB	W46410 EX: 3/5/20	WC38 EX: 12/30/20	W46764 EX:05/2/20	7.02	4	10.07	96%	18.5		
01/22/20	RLB	W46410 EX: 3/5/20	WC38 EX: 12/30/20	W46764 EX:05/2/20	7.02	4	10.06	97%	20		
01/23/20	RLB	W46410 EX: 3/5/20	WC38 EX: 12/30/20	W46764 EX:05/2/20	7.02	4	10.06	97%	19.6		
01/24/20	RLB	W46410 EX: 3/5/20	WC38 EX: 12/30/20	W46764 EX:05/2/20	7.02	4	10.7	98%	19.1		
01/27/20	RLB	W46410 EX: 3/5/20	WC38 EX: 12/30/20	W46764 EX:05/2/20	7.02	4	10.07	98%	19.2		
01/28/20	RLB	W46410 EX: 3/5/20	WC38 EX: 12/30/20	W46764 EX:05/2/20	7.02	4	10.07	97%	19.4		
01/29/20	RLB	W46410 EX: 3/5/20	WC38 EX: 12/30/20	W46764 EX:05/2/20	7.02	4	10.07	97%	19.3		
01/30/20	RLB	W46410 EX: 3/5/20	WC38 EX: 12/30/20	W46764 EX:05/2/20	7.02	4	10.05	97%	20.9		
01/31/20	RLB	W46410 EX: 3/5/20	WC38 EX: 12/30/20	W46764 EX:05/2/20	7.02	4	10.06	98%	20.2		
02/03/20	RLB	W46410 EX: 3/5/20	WC38 EX: 12/30/20	W46764 EX:05/2/20	7.02	4	10.07	97%	19.6		
02/04/20	RLB	W46410 EX: 3/5/20	WC38 EX: 12/30/20	W46764 EX:05/2/20	7.02	4	10.07	97%	19.6		
02/05/20	RLB	W46410 EX: 3/5/20	WC38 EX: 12/30/20	W46764 EX:05/2/20	7.02	4	10.06	97%	19.8		
02/06/20	RLB	W46410 EX: 3/5/20	WC38 EX: 12/30/20	W46764 EX:05/2/20	7.02	4	10.07	98%	19.1		
02/07/20	RLB	W46410 EX: 3/5/20	WC38 EX: 12/30/20	W46764 EX:05/2/20	7.02	4	10.07	97%	19.3		

Mettler Toledo (Easy Seven) Instrument Run Logbook

Date	Start Time	End Time	Analyst	Analyte	Lims Run #(s)	Comments
11/25/19	13:00	13:30	ATJ	PH	166981	
11/26/19	14:00	14:45	GMJ	PH	167026	
11/27/19	13:30	14:00	SRW	PH	167052	
12/03/19	15:05	15:15	CLB	PH	167150	
12/04/19	15:15	16:30	HLB/SRW	PH	167,196,197,198,199	
12/05/19	14:15	14:30	CLB	PH	167257	
12/06/19	14:15	15:00	HLB	PH	167293	
12/09/19	14:30	15:00	HLB	PH	167322	
12/10/19					NO PH TESTED	
12/11/19	16:30	16:50	HLB	PH	167409	
12/12/19	15:15	15:30	SRW	PH	167460	
12/13/19	14:20	14:44	SRW	PH	167504	
12/16/19	14:35	15:05	SRW/RLB	PH	167546	
12/17/19	13:30	14:00	ATJ	PH	167588	
12/18/19	15:00	16:30	HLB	PH	167641 167642	
12/19/19	14:30	15:00	HLB	PH	167696	
12/20/19	15:00	15:15	HLB	PH	167728	
12/23/19	13:30	13:50	HLB	PH	167778	
12/24/19	13:45	14:00	SRW/RLB	PH	167807	
12/27/19	15:30	15:45	SRW	PH	167871	
12/30/19	13:00	13:10	ATJ	PH	167889	
12/31/19	15:40	13:50	HLB	PH	167907	
01/02/20	14:50	15:20	RLB	PH	167923	
01/03/20	14:50	15:30	RLB	PH	167942	
01/06/19	14:50	14:59	ATJ	PH	167955	
01/07/20	14:40	15:10	RLB	PH	167983	
01/08/20	14:45	15:15	HLB	PH	168013	
01/09/20	14:30	15:30	HLB	PH	168040	
01/10/20	15:00	16:00	SRW	PH	168082	
01/13/20	14:45	15:00	HLB	PH	168119	
01/14/20	14:35	14:50	RLB	PH	168146	
01/15/20	14:15	14:30	HLB	PH	168185	
01/16/20	14:15	14:30	HLB	PH	168208	
01/17/20	15:30	16:00	SRW	PH	168240	
01/20/20	15:30	15:40	ATJ	PH	168289	
01/21/20	14:25	14:50	HLB	PH	168302	
01/22/20	14:45	15:00	HLB	PH	168327	
01/23/20	14:30	15:15	HLB	PH	168355	
01/24/20	13:00	14:00	SRW	PH	168406	
01/27/20	15:30	15:45	HLB	PH	168440	
01/28/20	15:30	15:58	ATJ	PH	168475	
01/29/20	16:15	16:45	SRW	PH	168497	
01/30/20	14:00	14:30	HLB	PH	168535	
01/31/20	15:45	15:25	RLB	PH	168555	
02/03/20	14:45	15:00	SRW	PH	168593	
02/04/20	14:00	14:30	ATJ	PH	168614	

WC_StdLog_01
Wet Chem Chemical Logbook
Logbook Created: 10/22/2019

NOTEBOOK VIEW: LTN_WC_StdLog_01_Default, NOTEBOOK: WC_StdLog_01, PAGE: 22
Page is Locked
Author: swachter on: 1/7/2020 9:37:47 AM
Page is not Witnessed
Project: Unassigned
Page Title: 123019

Standard Log #:	WC38	Chemical:	pH 4 Calibration Std 4L
Analyst:	HLB	Vendor:	Inorganic Ventures
Date Received:	12-30-19	Catalog #:	PHRED-4-4L
Expiration Date (if any):	12-30-20	Lot #:	P2-WCS680743
Comments:			

Standard Log #:	W46764	Chemical:	PH BUFFER 10
Analyst:	LJS	Vendor:	INORGANIC VENTURES
Date Received:	5/2/19	Catalog #:	PHBLUE-10-4L
Expiration Date (if any):	5/2/20	Lot #:	P2-WCS675599
Comments:			

Standard Log #:	W46410	Chemical:	PH 7 BUFFER
Analyst:	MEZ	Vendor:	INORGANICS VENTURES
Date Received:	2/12/19	Catalog #:	PHYELLOW-7
Expiration Date (if any):	3/5/2020	Lot #:	N2-WCS674708
Comments:	Opened 3/5/2019. Expires 1 year from open date.		

W CARBON, INORG & ORG Analytical Run
168547 on 02/05/2020

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME		QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	385121							W CARBON, INORG & ORG				
					CCV				0			
	385122							W CARBON, INORG & ORG				
					LCSW				0			
	385123							W CARBON, INORG & ORG				
					MBW				0			
151023	383230		01/27/2020	1035		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU 54	CARBON, INORG & ORG		GW	**4**	
		54MW10										
151023	383231		01/27/2020	1205		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU 54	CARBON, INORG & ORG		GW	**4**	
		54MW13										
151023	383232		01/27/2020	1205		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU 54	CARBON, INORG & ORG		GW	**4**	
		54TW13										
151023	383233		01/27/2020	1330		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU 54	CARBON, INORG & ORG		GW	**4**	
		54MW12			Designated MS/MSD							
151023	383234		01/27/2020	1505		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU 54	CARBON, INORG & ORG		GW	**4**	
		54MW1										
	385124							W CARBON, INORG & ORG				
					CCV				0			
	385125							W CARBON, INORG & ORG				
					CCB				0			

10 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

FWC39-01 Data Review Checklist

	Method: Total Organic Carbon Method 415.1/9060	Independent Data Review Checklist	Instrument: TOCW

LIMS Run #(s)	Analysis Date	Analyst / Data Interpreter	Independent Reviewer	Date of Review	Approved? (Yes or No)
168547	02/03/2020	TMG	RLD	02/05/2020	Yes

Instructions: Complete one checklist per *analytical sequence* . Enter the appropriate response for each question. Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirement	Acceptance Criteria	Analyst Review		Independent Review		Comments
		Yes	No	Yes	No	(Indicate reference to an attachment if necessary)
1. Were the samples preserved prior to analysis and analyzed within hold time?	pH <2, 28 days or program/project specific	Yes		Yes		
2. Was the calibration curve performed using the required number of standards?	3 standards and a blank	Yes		Yes		
3. Was the correlation coefficient acceptable?	r ≥ .995	Yes		Yes		
4. Were the ICV and ICB analyzed?	---	Yes		Yes		
5. Was the ICV result acceptable?	90 – 110 % Rec. or contract/program specific	Yes		Yes		
6. Was the ICB result acceptable?	< LOD or contract/program specific	Yes		Yes		
7. Was an LCS & MB run with each batch of samples?	One each per analytical batch or contract/program specific frequency.	Yes		Yes		
8. Was the LCS recovery acceptable?	In-house derived or contract/program specific limits.	Yes		Yes		
9. Were the MB results acceptable?	< LOD or project/ program specific (<1/2 RL for DOD-QSM).	Yes		Yes		
10. Were the CCV's analyzed at the required frequency?	Beginning, after every 10 sample, & at the end of a sequence.	Yes		Yes		
11. Were the CCB's analyzed at the required frequency?	After each CCV (unless MB analyzed after CCV)	Yes		Yes		
12. Were the CCV recoveries acceptable?	90 – 110 % Rec. or project/ program specific	Yes		Yes		
13. Were the CCB results acceptable?	< LOD or project/ program specific	Yes		Yes		

14. Were all positive results that were reported within the calibration curve?	---	Yes		Yes		
15. Was an MS and MSD analyzed at the required frequency?	1 / 20 of the same matrix or project/ program specific	Yes		Yes		
16. Were the MS and MSD recoveries acceptable?	In-house derived or project/ program specific limits	Yes		Yes		
17. Was the RPD between the MS and MSD acceptable?	In-house derived or project/ program specific limits	Yes		Yes		
18. Was a Duplicate analyzed at the required frequency?	1 per 20 of the same matrix or contract/program specific	Yes		Yes		
19. Was the RPD between the Duplicate (if valid) and the sample acceptable?	In-house derived or project/ program specific limits (QSM samples, duplicate only valid when sample result ≥5x the LOQ)	Yes		Yes		
20. Are all samples on the job lists accounted for?	---	Yes		Yes		
21. Is the standards prep log numbers noted on the analytical report?	---	Yes		Yes		
22. Were post analysis corrections addressed and/or the Audit Trail function turned on (if available)?	Correction should be initialed, dated, and reason given. Audit trail must be on (if available)	Yes		Yes		
23. Were non-matrix related nonconformities (if applicable) documented in the NCR spreadsheet?	---	Yes		Yes		

Non-Applicable Yes/No Cells Are Left Blank

Comments:

WORGANIC CARBON QSM 5.0 Analytical Run
168604 on 02/05/2020

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME		QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	385617								WORGANIC CARBON QSM 5.0				
					ICV								
	385618								WORGANIC CARBON QSM 5.0				
					ICB								
	385552								WORGANIC CARBON QSM 5.0				
					CCV					0			
	385553								WORGANIC CARBON QSM 5.0				
					LCSW					0			
	385554								WORGANIC CARBON QSM 5.0				
					MBW					0			
	385555								WORGANIC CARBON QSM 5.0				
					CCV					0			
	385556								WORGANIC CARBON QSM 5.0				
					CCB					0			
151023	383230		01/27/2020	1035			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU 54	ORGAN CARBON T QSM 5.0		GW	**4**	
		54MW10											
151023	383231		01/27/2020	1205			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU 54	ORGAN CARBON T QSM 5.0		GW	**4**	
		54MW13											
151023	383232		01/27/2020	1205			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU 54	ORGAN CARBON T QSM 5.0		GW	**4**	
		54TW13											
151023	383233		01/27/2020	1330			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU 54	ORGAN CARBON T QSM 5.0		GW	**4**	
		54MW12			Designated MS/MSD								
	385557		01/27/2020	1330					ORGAN CARBON T QSM 5.0				
		54MW12			DUP	383233				0			
	385558		01/27/2020	1330					ORGAN CARBON T QSM 5.0				
		54MW12			MSW	383233				0			
	385559		01/27/2020	1330					ORGAN CARBON T QSM 5.0				
		54MW12			MSDW	385558				0			
151023	383234		01/27/2020	1505			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU 54	ORGAN CARBON T QSM 5.0		GW	**4**	
		54MW1											
	385560								WORGANIC CARBON QSM 5.0				
					CCV					0			
	385561								WORGANIC CARBON QSM 5.0				
					CCB					0			

17 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

FWC39-01 Data Review Checklist

	Method: Total Organic Carbon Method 415.1/9060	Independent Data Review Checklist	Instrument: TOCW

LIMS Run #(s)	Analysis Date	Analyst / Data Interpreter	Independent Reviewer	Date of Review	Approved? (Yes or No)
168603 168604 168605	02/04/2020	TMG	RLD	02/05/2020	Yes

Instructions: Complete one checklist per *analytical sequence* . Enter the appropriate response for each question. Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirement	Acceptance Criteria	Analyst Review		Independent Review		Comments
		Yes	No	Yes	No	(Indicate reference to an attachment if necessary)
1. Were the samples preserved prior to analysis and analyzed within hold time?	pH <2, 28 days or program/project specific	Yes		Yes		
2. Was the calibration curve performed using the required number of standards?	3 standards and a blank	Yes		Yes		
3. Was the correlation coefficient acceptable?	r ≥ .995	Yes		Yes		
4. Were the ICV and ICB analyzed?	---	Yes		Yes		
5. Was the ICV result acceptable?	90 – 110 % Rec. or contract/program specific	Yes		Yes		
6. Was the ICB result acceptable?	< LOD or contract/program specific	Yes		Yes		
7. Was an LCS & MB run with each batch of samples?	One each per analytical batch or contract/program specific frequency.	Yes		Yes		
8. Was the LCS recovery acceptable?	In-house derived or contract/program specific limits.	Yes		Yes		
9. Were the MB results acceptable?	< LOD or project/ program specific (<1/2 RL for DOD-QSM).	Yes		Yes		
10. Were the CCV's analyzed at the required frequency?	Beginning, after every 10 sample, & at the end of a sequence.	Yes		Yes		
11. Were the CCB's analyzed at the required frequency?	After each CCV (unless MB analyzed after CCV)	Yes		Yes		
12. Were the CCV recoveries acceptable?	90 – 110 % Rec. or project/ program specific	Yes		Yes		
13. Were the CCB results acceptable?	< LOD or project/ program specific	Yes		Yes		

14. Were all positive results that were reported within the calibration curve?	---	Yes		Yes		
15. Was an MS and MSD analyzed at the required frequency?	1 / 20 of the same matrix or project/ program specific	Yes		Yes		
16. Were the MS and MSD recoveries acceptable?	In-house derived or project/ program specific limits	Yes		Yes		
17. Was the RPD between the MS and MSD acceptable?	In-house derived or project/ program specific limits	Yes		Yes		
18. Was a Duplicate analyzed at the required frequency?	1 per 20 of the same matrix or contract/program specific	Yes		Yes		
19. Was the RPD between the Duplicate (if valid) and the sample acceptable?	In-house derived or project/ program specific limits (QSM samples, duplicate only valid when sample result ≥5x the LOQ)	Yes		Yes		
20. Are all samples on the job lists accounted for?	---	Yes		Yes		
21. Is the standards prep log numbers noted on the analytical report?	---	Yes		Yes		
22. Were post analysis corrections addressed and/or the Audit Trail function turned on (if available)?	Correction should be initialed, dated, and reason given. Audit trail must be on (if available)	Yes		Yes		
23. Were non-matrix related nonconformities (if applicable) documented in the NCR spreadsheet?	---	Yes		Yes		

Non-Applicable Yes/No Cells Are Left Blank

Comments:

TOC Instrument Run Logbook

Start Date	Start Time	End Date	End Time	Analyst	LIMs Run #	Matrix (S or W)	Calibration ID #	COMMENTS
1/14/2020	9:40	01/14/2020	15:41	TMG	168094, 168096RR	W	0368	MDL
1/15/2020	9:34	01/15/2020	20:30	TMG	168165, 168167	W	0368	MDL
1/16/2020	10:12	01/16/2020	21:46	TMG	168166, 168159	W	0368	MDL
1/20/2020	10:34	01/20/2020	22:38	TMG	168242, 168243	W	0368	MDL
1/22/2020	9:49	01/22/2020	23:21	TMG	168312, 168313, 168314	W	0368	
1/24/2020	9:49	1/24/2020	16:44	TMG	MDL	S	0318	MDL
1/24/2020	12:09	1/24/2020	18:42	TMG	168397, 168398	W	0368	
1/27/2020	9:19	1/27/2020	10:16	TMG	MDL	S	0318	MDL
1/28/2020	9:28	1/28/2020	10:32	TMG	168443, MDL	S	0318	MDL
1/31/2020	14:07	1/31/2020	17:53	TMG	TOC0373	W	0373	
2/3/2020	8:04	2/3/2020	10:45	TMG	168547	W	0373	TIC
2/4/2020	12:10	2/4/2020	18:53	TMG	168603, 168604, 168605	W	0373	
2/5/2020	11:59	2/5/2020	20:07	TMG	168628	W	0373	

Reviewed By:_____

LPVO2-01
TOC Prep Logbook
Notebook Created: 01/12/2015
Balances used in reagent prep:
WCB01 and WCB03
NOTEBOOK VIEW: LTN_TOC_Logbook_01_Default, NOTEBOOK: TOC_Logbook_01, PAGE: 193
Page is Unlocked
Page is not Witnessed
Project: Unassigned
Page Title: 020520

Standard Log #:	TOC0374	Standard:	TOCW CCV Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	02/05/2020	Expiration Date (1 Month):	03/05/2020
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW Ical/CCV Stock (1000mg/L) TOC0376 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0375	Standard:	TOCW LCS Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	02/05/2020	Expiration Date (1 Month):	03/05/2020
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW ICV/LCS Stock (1000mg/L) TOC0359 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0376	Standard/Reagent:	CCV STOCK
Analyst:	TMG	Final Concentration:	1000ug/mL
Prep Date:	02/05/2020	Expiration Date:	08/31/2021
Prep:	LOT: 0006475816 EXP:08/31/2021		

1

CT Laboratories, LLC

Standard Log #:	TOC0373	Standard:	TOCW Ical.
Analyst:	TMG		
Prep Date:	01/31/2020	Expiration Date (1 Month):	02/29/2020

Prep:

Into seven 50mL volumetric flasks, pipetted the following amounts of TOCW Ical/CCV Stock Std. (1000mg/L) TOC0258 and brought to volume with Milli-Q H_20:

Level	ICal Stock (mL)	True Value (pg/L)
1	0	0
2	0.05	1
3	0.25	5
4	0.5	10
5	1.25	25
6	2.5	50
7	5.0	100

Standard Log #:	TOC0369	Standard:	TOCW CCV Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	01/13/2020	Expiration Date (1 Month):	02/13/2020
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW Ical/CCV Stock (1000mg/L) TOC0258 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0370	Standard:	TOCW LCS Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	01/13/2020	Expiration Date (1 Month):	02/13/2020
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW ICV/LCS Stock (1000mg/L) TOC0359 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0367	Standard:	TOCW CCV Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	12/18/2019	Expiration Date (1 Month):	01/18/2020
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW Ical/CCV Stock (1000mg/L) TOC0258 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0368A	Standard:	TOCW LCS Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	12/18/2019	Expiration Date (1 Month):	01/18/2020
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW ICV/LCS Stock (1000mg/L) TOC0359 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0368	Standard:	TOCW Ical.
Analyst:	TMG		
Prep Date:	11/26/2019	Expiration Date (1 Month):	12/26/2019
	Into seven 50mL volumetric flasks, pipetted the following amounts of TOCW Ical/CCV Stock Std. (1000mg/L) TOC0258 and brought to volume with Milli-Q H_2O:		

Prep:

volume with Milli-Q H_20:

Level	ICal Stock (mL)	True Value (pg/L)
1	0	0
2	0.05	1
3	0.25	5
4	0.5	10
5	1.25	25
6	2.5	50
7	5.0	100

Standard Log #:	TOC0364	Standard/Reagent:	25%PHOSPHORIC ACID
Analyst:	TMG	Final Concentration:	25%
Prep Date:	11/12/2019	Expiration Date:	11/12/2020
Prep:	Into a 500ml vol. flask add 125ml phosphoric acid (W38600) and bring to volume with DI water.		

Content below was appended to locked page by tgrundahl on 12/19/2019 10:52:42 AM

Standard Log #:	TOC0364A	Standard:	TOCW CCV Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	11/26/2019	Expiration Date (1 Month):	12/26/2019
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW Ical/CCV Stock (1000mg/L) TOC0258 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0365A	Standard:	TOCW LCS Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	11/26/2019	Expiration Date (1 Month):	12/26/2019
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW ICV/LCS Stock (1000mg/L) TOC0359 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0359	Standard/Reagent:	LCS TOC STOCK STD
Analyst:	TMG	Final Concentration:	1000ug/mL
Prep Date:	10/28/2019	Expiration Date:	09/01/2021
Prep:			

Standard Log #:	TOC0360	Standard:	TOCW CCV Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	10/28/2019	Expiration Date (1 Month):	11/28/2019
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW Ical/CCV Stock (1000mg/L) TOC0258 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0361	Standard:	TOCW LCS Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	10/28/2019	Expiration Date (1 Month):	11/28/2019
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW ICV/LCS Stock (1000mg/L) TOC0359 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0357	Standard:	TOCW CCV Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	10/16/2019	Expiration Date (1 Month):	11/16/2019
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW Ical/CCV Stock (1000mg/L) TOC0258 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0358	Standard:	TOCW LCS Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	10/16/2019	Expiration Date (1 Month):	11/16/2019
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW ICV/LCS Stock (1000mg/L) TOC0259 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0355	Standard:	TOCW CCV Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	10/02/2019	Expiration Date (1 Month):	11/02/2019
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW Ical/CCV Stock (1000mg/L) TOC0258 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0356	Standard:	TOCW LCS Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	10/02/2019	Expiration Date (1 Month):	11/02/2019
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW ICV/LCS Stock (1000mg/L) TOC0259 and brought to volume with Milli-Q DI H_2O.		

LPVO2-01
TOC Prep Logbook
Notebook Created: 01/12/2015
Balances used in reagent prep:
WCB01 and WCB03
NOTEBOOK VIEW: LTN_TOC_Logbook_01_Default, NOTEBOOK: TOC_Logbook_01, PAGE: 181
Page is Unlocked
Page is not Witnessed
Project: Unassigned
Page Title: 090919

Standard Log #:	TOC0352	Standard:	TOCW Ical.
Analyst:	TMG		
Prep Date:	09/09/2019	Expiration Date (1 Month):	10/09/2019

Prep:

Into seven 50mL volumetric flasks, pipetted the following amounts of TOCW Ical/CCV Stock Std. (1000mg/L) TOC0258 and brought to volume with Milli-Q H_20:

Level	ICal Stock (mL)	True Value (pg/L)
1	0	0
2	0.05	1
3	0.25	5
4	0.5	10
5	1.25	25
6	2.5	50
7	5.0	100

1

Standard Log #:	TOC0350	Standard:	TOCW CCV Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	09/04/2019	Expiration Date (1 Month):	10/04/2019
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW Ical/CCV Stock (1000mg/L) TOC0258 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0351	Standard:	TOCW LCS Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	09/04/2019	Expiration Date (1 Month):	10/04/2019
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW ICV/LCS Stock (1000mg/L) TOC0259 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0332	Standard:	TOCW LOD Check
Analyst:	TMG	Concentration:	1.5 mg/L
Prep Date:	06/05/2019	Expiration Date (1 Month):	07/05/2019
Prep:	Into a 100 mL volumetric flask, pipetted 0.15mL of TOCW Ical/CCV Stock (1000mg/L) TOC0258 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0333	Standard:	TOCW LOQ Check
Analyst:	TMG	Concentration:	3.0 mg/L
Prep Date:	06/05/2019	Expiration Date (1 Month):	07/05/2019
Prep:	Into a 100 mL volumetric flask, pipetted 0.30mL of TOCW Ical/CCV Stock (1000mg/L) TOC0258 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0258	Standard/Reagent:	TOC CCV STOCK STD
Analyst:	TMG	Final Concentration:	1000mg/L
Prep Date:	06/05/2018	Expiration Date:	02/28/2020
Prep:	Ultra Scientific TOC standard @ 1000 or - 5 ug/mL Lot # CS-0215		

Standard Log #:	TOC0259	Standard/Reagent:	TOC LCS STOCK STD
Analyst:	TMG	Final Concentration:	1000mg/L
Prep Date:	06/05/2018	Expiration Date:	11/01/2019
Prep:	CAT# 250-250-05X LOT# S171123022		

Standard Log #:	TOC0260	Standard:	TOCW CCV Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	06/05/2018	Expiration Date (1 Month):	07/05/2018
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW Ical/CCV Stock (1000mg/L) TOC0258 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0261	Standard:	TOCW LCS Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	06/05/2018	Expiration Date (1 Month):	07/05/2018
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW ICV/LCS Stock (1000mg/L) TOC0206 and brought to volume with Milli-Q DI H_2O.		

SUBCONTRACTED ANALYSIS DOCUMENTS

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LABORATORY REPORT

If you have any questions concerning this report, please do not hesitate to call us at (800) 332-4345 or (574) 233-4777.

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STATE CERTIFICATION LIST

State	Certification	State	Certification
Alabama	40700	Missouri	880
Alaska	IN00035	Montana	CERT0026
Arizona	AZ0432	Nebraska	NE-OS-05-04
Arkansas	IN00035	Nevada	IN00035
California	2920	New Hampshire*	2124
Colorado	IN00035	New Jersey*	IN598
Colorado Radiochemistry	IN00035	New Mexico	IN00035
Connecticut	PH-0132	New York*	11398
Delaware	IN035	North Carolina	18700
Florida*	E87775	North Dakota	R-035
Georgia	929	Ohio	87775
Hawaii	IN035	Oklahoma	D9508
Idaho	IN00035	Oregon (Primary AB)*	4074
Illinois*	200001	Pennsylvania*	68-00466
Illinois Microbiology	17767	Puerto Rico	IN00035
Illinois Radiochemistry	IN00035	Rhode Island	LAO00343
Indiana Chemistry	C-71-01	South Carolina	95005
Indiana Microbiology	M-76-07	South Dakota	IN00035
Iowa	098	Tennessee	TN02973
Kansas*	E-10233	Texas*	T104704187-18-12
Kentucky	90056	Texas/TCEQ	TX207
Louisiana*	LA014	Utah*	IN00035
Maine	IN00035	Vermont	VT-8775
Maryland	209	Virginia*	460275
Massachusetts	M-IN035	Washington	C837
Michigan	9926	West Virginia	9927 C
Minnesota*	018-999-338	Wisconsin	999766900
Mississippi	IN035	Wyoming	IN035
EPA	IN00035		

*NELAP/TNI Recognized Accreditation Bodies

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LABORATORY CASE NARRATIVE

Client: CT Laboratories Report #: 477015QC

All method QC was within acceptance limits, with the exception of:

300.0

Recovery of chlorite in the MS 4551871 at 250 ug/L was low biased outside the acceptance limits of 90-110% recovery. Sample was analyzed a second time with similar results.

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ASM 02/06/2020

Authorized Signature Title Date

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110 South Hill Street
South Bend, IN 46617
Tel: (574) 233-4777
Fax: (574) 233-8207
1 800 332 4345

Laboratory Report

Client: CT Laboratories

Attn: Jodi Serstad
1230 Lange Court
Baraboo, WI 53913

Report: 477015
Priority: Standard Written
Status: Final
PWS ID: Not Supplied

Sample Information

EEA ID #	Client ID	Method	Collected Date / Time	Collected By:	Received Date / Time
4551866	54MW10	300.0	01/27/20 10:35	Client	01/29/20 09:15
4551867	54MW13	300.0	01/27/20 12:05	Client	01/29/20 09:15
4551868	54TW13	300.0	01/27/20 12:05	Client	01/29/20 09:15
4551869	54MW12	300.0	01/27/20 13:30	Client	01/29/20 09:15
4551870	54MW1	300.0	01/27/20 15:05	Client	01/29/20 09:15

Report Summary

Note: See attached page for additional comments.

PO #151023 EEA-IN

Project #RADFORD AAP SWMU 54

Detailed quantitative results are presented on the following pages. The results presented relate only to the samples provided for analysis.

We appreciate the opportunity to provide you with this analysis. If you have any questions concerning this report, please do not hesitate to call Traci Chlebowski at (574) 233-4777.

Note: This report may not be reproduced, except in full, without written approval from EEA.

Traci Chlebowski ASM — 02/0 /2020

Authorized Signature | Title | Date

Client Name: CT Laboratories
Report #: 477015

Client Name: CT La#oratories Report #: 477015

Sampling Point: 54MW10 PWS ID: Not Supplied

General Chemistry									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
14866-68-3	Chlorate	300.0	---	10	< 10	ug/L	---	01/31/20 16:06	4551866
14998-27-7	Chlorite	300.0	1000 *	10	< 10	ug/L	---	01/31/20 16:06	4551866

Sampling Point: 54MW13 PWS ID: Not Supplied

General Chemistry									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
14866-68-3	Chlorate	300.0	---	10	< 10	ug/L	---	01/31/20 16:34	4551867
14998-27-7	Chlorite	300.0	1000 *	10	< 10	ug/L	---	01/31/20 16:34	4551867

Sampling Point: 54TW13 PWS ID: Not Supplied

General Chemistry									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
14866-68-3	Chlorate	300.0	---	10	< 10	ug/L	---	01/31/20 17:02	4551868
14998-27-7	Chlorite	300.0	1000 *	10	< 10	ug/L	---	01/31/20 17:02	4551868

Sampling Point: 54MW12 PWS ID: Not Supplied

General Chemistry									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
14866-68-3	Chlorate	300.0	---	10	< 10	ug/L	---	02/04/20 18:00	4551869
14998-27-7	Chlorite	300.0	1000 *	10	< 10	ug/L	---	02/04/20 18:00	4551869

Sampling Point: 54MW1 PWS ID: Not Supplied

General Chemistry									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
14866-68-3	Chlorate	300.0	---	10	< 10	ug/L	---	01/31/20 17:58	4551870
14998-27-7	Chlorite	300.0	1000 *	10	< 10	ug/L	---	01/31/20 17:58	4551870

† EEA has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices.

Reg Limit Type:	MCL	SMCL	AL
Symbol:	*	^	!

Client Name: CT La#oratories Report #: 477015

Lab Definitions

Continuing Calibration Check Standard (CCC) / Continuing Calibration Verification (CCV) / Initial Calibration Verification Standard (ICV) / Initial Performance Check (IPC) - is a standard containing one or more of the target analytes that is prepared from the same standards used to calibrate the instrument. This standard is used to verify the calibration curve at the beginning of each analytical sequence, and may also be analyzed throughout and at the end of the sequence. The concentration of continuing standards may be varied, when prescribed by the reference method, so that the range of the calibration curve is verified on a regular basis. CCL, CCM, and CCH are the CCC standards at low, mid, and high concentration levels, respectively.

Internal Standards (IS) - are pure compounds with properties similar to the analytes of interest, which are added to field samples or extracts, calibration standards, and quality control standards at a known concentration. They are used to measure the relative responses of the analytes of interest and surrogates in the sample, calibration standard or quality control standard.

Laboratory Duplicate (LD) - is a field sample aliquot taken from the same sample container in the laboratory and analyzed separately using identical procedures. Analysis of laboratory duplicates provides a measure of the precision of the laboratory procedures.

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS) - is an aliquot of reagent water to which known concentrations of the analytes of interest are added. The LFB is analyzed exactly the same as the field samples. LFBs are used to determine whether the method is in control. FBL, FBM, and FBH are the LFB samples at low, mid, and high concentration levels, respectively.

Laboratory Method Blank (LMB) / Laboratory Reagent Blank (LRB) - is a sample of reagent water included in the sample batch analyzed in the same way as the associated field samples. The LMB is used to determine if method analytes or other background contamination have been introduced during the preparation or analytical procedure. The LMB is analyzed exactly the same as the field samples.

Laboratory Trip Blank (LTB) / Field Reagent Blank (FRB) - is a sample of laboratory reagent water placed in a sample container in the laboratory and treated as a field sample, including storage, preservation, and all analytical procedures. The FRB/LTB container follows the collection bottles to and from the collection site, but the FRB/LTB is not opened at any time during the trip. The FRB/LTB is primarily a travel blank used to verify that the samples were not contaminated during shipment.

Matrix Spike Duplicate Sample (MSD) / Laboratory Fortified Sample Matrix Duplicate (LFSMD) - is a sample aliquot taken from the same field sample source as the Matrix Spike Sample to which known quantities of the analytes of interest are added in the laboratory. The MSD is analyzed exactly the same as the field samples. Analysis of the MSD provides a measure of the precision of the laboratory procedures in a specific matrix. SDL, SDM, and SDH / LFSMDL, LFSMDM, and LFSMDH are the MSD or LFSMD at low, mid, and high concentration levels, respectively.

Matrix Spike Sample (MS) / Laboratory Fortified Sample Matrix (LFSM) - is a sample aliquot taken from field sample source to which known quantities of the analytes of interest are added in the laboratory. The MS is analyzed exactly the same as the field samples. The purpose is to demonstrate recovery of the analytes from a sample matrix to determine if the specific matrix contributes bias to the analytical results. MSL, MSM, and MSH / LFSML, LFSMM, and LFSMH are the MS or LFSM at low, mid, and high concentration levels, respectively.

Quality Control Standard (QCS) / Second Source Calibration Verification (SSCV) - is a solution containing known concentrations of the analytes of interest prepared from a source different from the source of the calibration standards. The solution is obtained from a second manufacturer or lot if the lot can be demonstrated by the manufacturer as prepared independently from other lots. The QCS sample is analyzed using the same procedures as field samples. The QCS is used as a check on the calibration standards used in the method on a routine basis.

Reporting Limit Check (RLC) / Initial Calibration Check Standard (ICCS) - is a procedural standard that is analyzed each day to evaluate instrument performance at or below the minimum reporting limit (MRL).

Surrogate Standard (SS) / Surrogate Analyte (SUR) - is a pure compound with properties similar to the analytes of interest, which is highly unlikely to be found in any field sample, that is added to the field samples, calibration standards, blanks and quality control standards before sample preparation. The SS is used to evaluate the efficiency of the sample preparation process.

CT LABORATORIES
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www.ctlaboratories.com

3911698
477015

Sub-Contract Laboratory Chain-of-Custody and Purchase Order

PURCHASE ORDER # 151023 EEA-IN

The PO# must appear on all invoice and reports!

Upon Receipt of Samples, please verify that samples were received in acceptable condition then sign this form and fax to (608)356-2766 or email to the project manager. Sample temperature, upon receipt, must be recorded on this document unless thermal preservation is not a method requirement.

Ship to: Eurofins Eaton Analytical - IN
110 South Hill Street
South Bend, IN 46617

Return Invoice and Results to: **bszymanski@ctlaboratories.com**

CTLaboratories
Brett M Szymanski
1230 Lange Court
Baraboo WI 53913

Government UPS Shipping Acct ? (Y) N

Ship by: Speedee ☐ UPS Grnd ☐ UPS 2nd ☐ UPS NDA ☒

Date Due: Standard TAT ***RUSH TURNAROUND NEEDED? Y or (N) (Circle One)***

Project Name: RADFORD AAP SWMU 54 **Project State:** VA

Analytical/QC Criteria: NONE INDICATED STATE (DOD QSM) NELAP (Circle one) OTHER_____

Report results as EDD? N (Y) (Circle one and indicate type: ERIS + Excel) Data Deliverable Package LEVEL: IV

CTLabs ID#	Sample Date/Time	Matrix	Sample Description	Analyses / Method		Cost
383230	01/27/2020 1035	GROUND WATER	54MW10	CHLORATE/CHLORITE	300.1	4551866
383231	01/27/2020 1205	GROUND WATER	54MW13	CHLORATE/CHLORITE	300.1	867
383232	01/27/2020 1205	GROUND WATER	54TW13	CHLORATE/CHLORITE	300.1	868
383233 5	01/27/2020 1330	GROUND WATER	54MW12 (Designated MS/MSD)	CHLORATE/CHLORITE	300.1	869
383234	01/27/2020 1505	GROUND WATER	54MW1	CHLORATE/CHLORITE	300.1	870
						871
						872

383233 MS MSD 1330

Relinquished by: BrettSzymanski Date/Time: 01/28/2020 11:25

Received by: dMartis Date/Time: 1/29/2020 0915 Receipt Temperature (C) 1.2

COMMENTS: PLEASE LOG USING THE SAMPLE DESCRIPTIONS. SAMPLE 54MW12 IS A DESIGNATED MS/MSD.

REPORT ALL SOLIDS ON A DRY WEIGHT BASIS UNLESS OTHERWISE INDICATED

~~Client Provided Sample Container~~

dm 1-29-2020

Form #: FPM1-01
Effective Date: 02/15/14

Eurofins Eaton Analytical
Run Log

Run ID: **270933** Method: **300.0**

Type	Sample Id	Sample Site	Matrix	Instrument ID	Analysis Date	Calibration File
ICB	4554013		RW	FT	01/30/2020 10:53	
LRB	4554021		RW	FT	01/31/2020 06:40	
LFB	4554022		RW	FT	01/31/2020 07:08	
IPC	4554025		RW	FT	01/31/2020 13:13	
CCB	4554026		RW	FT	01/31/2020 13:41	
FS	4551866	54MW10	GW	FT	01/31/2020 16:06	
FS	4551867	54MW13	GW	FT	01/31/2020 16:34	
FS	4551868	54TW13	GW	FT	01/31/2020 17:02	
FS	4551870	54MW1	GW	FT	01/31/2020 17:58	
IPC	4554027		RW	FT	01/31/2020 19:22	
CCB	4554028		RW	FT	01/31/2020 19:50	

QC Summary Report

Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID #
ICB	Ch,o*$te	300.0	10	...	/	10		u%L	...	...	...	...	1.0	...	01/30/2020 10:53	4554013
ICB	Ch,o*0e	300.0	10	...	/	10		u%L	...	...	...	...	1.0	...	01/30/2020 10:53	4554013
LRB	Ch,o*$te	300.0	10	...	/	10		u%L	...	...	...	...	1.0	...	01/31/2020 06:40	4554021
LRB	Ch,o*0e	300.0	10	...	/	10		u%L	...	...	...	...	1.0	...	01/31/2020 06:40	4554021
LFB	Ch,o*$te	300.0	10	...		254.7760	250	u%L	102	90 . 110	...	...	1.0	...	01/31/2020 07:08	4554022
LFB	Ch,o*0e	300.0	10	...		249.3270	250	u%L	100	90 . 110	...	...	1.0	...	01/31/2020 07:08	4554022
IPC	Ch,o*$te	300.0	10	...		251.7490	250	u%L	101	90 . 110	...	...	1.0	...	01/31/2020 13:13	4554025
IPC	Ch,o*0e	300.0	10	...		245.1340	250	u%L	98	90 . 110	...	...	1.0	...	01/31/2020 13:13	4554025
CCB	Ch,o*$te	300.0	10	...	/	10		u%L	...	...	...	...	1.0	...	01/31/2020 13:41	4554026
CCB	Ch,o*0e	300.0	10	...	/	10		u%L	...	...	...	...	1.0	...	01/31/2020 13:41	4554026
FS	Ch,o*$te	300.0	10	54MW10	/	10		u%L	...	...	...	...	1.0	...	01/31/2020 16:06	4551866
FS	Ch,o*0e	300.0	10	54MW10	/	10		u%L	...	...	...	...	1.0	...	01/31/2020 16:06	4551866
FS	Ch,o*$te	300.0	10	54MW13	/	10		u%L	...	...	...	...	1.0	...	01/31/2020 16:34	4551867
FS	Ch,o*0e	300.0	10	54MW13	/	10		u%L	...	...	...	...	1.0	...	01/31/2020 16:34	4551867
FS	Ch,o*$te	300.0	10	54TW13	/	10		u%L	...	...	...	...	1.0	...	01/31/2020 17:02	4551868
FS	Ch,o*0e	300.0	10	54TW13	/	10		u%L	...	...	...	...	1.0	...	01/31/2020 17:02	4551868
FS	Ch,o*$te	300.0	10	54MW1	/	10		u%L	...	...	...	...	1.0	...	01/31/2020 17:58	4551870
FS	Ch,o*0e	300.0	10	54MW1	/	10		u%L	...	...	...	...	1.0	...	01/31/2020 17:58	4551870
IPC	Ch,o*$te	300.0	10	...		253.1080	250	u%L	101	90 . 110	...	...	1.0	...	01/31/2020 19:22	4554027
IPC	Ch,o*0e	300.0	10	...		248.3490	250	u%L	99	90 . 110	...	...	1.0	...	01/31/2020 19:22	4554027
CCB	Ch,o*$te	300.0	10	...	/	10		u%L	...	...	...	...	1.0	...	01/31/2020 19:50	4554028
CCB	Ch,o*0e	300.0	10	...	/	10		u%L	...	...	...	...	1.0	...	01/31/2020 19:50	4554028

Eurofins Eaton Analytical
Run Log

Run ID: **271038** Method: **300.0**

Type	Sample Id	Sample Site	Matrix	Instrument ID	Analysis Date	Calibration File
ICB	4555868		RW	DT	02/04/2020 13:04	
1 CS	4555874		RW	DT	02/04/2020 15:48	
IPC	4555876		RW	DT	02/04/2020 16:41	
LRB	4555877		RW	DT	02/04/2020 17:07	
LFB	4555878		RW	DT	02/04/2020 17:34	
FS	4551869	54MW12	GW	DT	02/04/2020 18:00	
MS	4551871	54MW12 MS	GW	DT	02/04/2020 18:27	
MSD	4551872	54MW12 MSD	GW	DT	02/04/2020 18:53	
IPC	4555879		RW	DT	02/04/2020 23:17	
CCB	4555880		RW	DT	02/04/2020 23:44	
CCB	4555884		RW	DT	02/05/2020 05:53	

QC Summary Report

Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID #
ICB	Ch,o*$te	300.0	10	...	/	10		u%L	...	...	...	...	1.0	...	02/04/2020 13:04	4555868
ICB	Ch,o*0e	300.0	10	...	/	10		u%L	...	...	...	...	1.0	...	02/04/2020 13:04	4555868
1 CS	Ch,o*$te	300.0	10	...		241.0560	250	u%L	96	90 . 110	...	...	1.0	...	02/04/2020 15:48	4555874
1 CS	Ch,o*0e	300.0	10	...		242.4870	250	u%L	97	90 . 110	...	...	1.0	...	02/04/2020 15:48	4555874
IPC	Ch,o*$te	300.0	10	...		250.7700	250	u%L	100	90 . 110	...	...	1.0	...	02/04/2020 16:41	4555876
IPC	Ch,o*0e	300.0	10	...		251.8290	250	u%L	101	90 . 110	...	...	1.0	...	02/04/2020 16:41	4555876
LRB	Ch,o*$te	300.0	10	...	/	10		u%L	...	...	...	...	1.0	...	02/04/2020 17:07	4555877
LRB	Ch,o*0e	300.0	10	...	/	10		u%L	...	...	...	...	1.0	...	02/04/2020 17:07	4555877
LFB	Ch,o*$te	300.0	10	...		251.3770	250	u%L	101	90 . 110	...	...	1.0	...	02/04/2020 17:34	4555878
LFB	Ch,o*0e	300.0	10	...		250.8980	250	u%L	100	90 . 110	...	...	1.0	...	02/04/2020 17:34	4555878
FS	Ch,o*$te	300.0	10	54MW12	/	10		u%L	...	...	...	...	1.0	...	02/04/2020 18:00	4551869
FS	Ch,o*0e	300.0	10	54MW12	/	10		u%L	...	...	...	...	1.0	...	02/04/2020 18:00	4551869
MS	Ch,o*$te	300.0	10	54MW12 MS		242.2320	250	u%L	97	90 . 110	...	...	1.0	...	02/04/2020 18:27	4551871
MS	Ch,o*0e	300.0	10	54MW12 MS		210.1790	250	u%L	**84**	90 . 110	...	...	1.0	...	02/04/2020 18:27	4551871
MSD	Ch,o*$te	300.0	10	54MW12 MSD		248.1430	250	u%L	99	90 . 110	2.4	10	1.0	...	02/04/2020 18:53	4551872
MSD	Ch,o*0e	300.0	10	54MW12 MSD		230.3960	250	u%L	92	90 . 110	9.2	10	1.0	...	02/04/2020 18:53	4551872
IPC	Ch,o*$te	300.0	10	...		249.1250	250	u%L	100	90 . 110	...	...	1.0	...	02/04/2020 23:17	4555879
IPC	Ch,o*0e	300.0	10	...		247.7800	250	u%L	99	90 . 110	...	...	1.0	...	02/04/2020 23:17	4555879
CCB	Ch,o*$te	300.0	10	...	/	10		u%L	...	...	...	...	1.0	...	02/04/2020 23:44	4555880
CCB	Ch,o*0e	300.0	10	...	/	10		u%L	...	...	...	...	1.0	...	02/04/2020 23:44	4555880
CCB	Ch,o*$te	300.0	10	...	/	10		u%L	...	...	...	...	1.0	...	02/05/2020 05:53	4555884
CCB	Ch,o*0e	300.0	10	...	/	10		u%L	...	...	...	...	1.0	...	02/05/2020 05:53	4555884

Sample Type Key

Type (Abbr.)	Sample Type	Type (Abbr.)	Sample Type
CCB	Cont0nu0n%C$,02$t0on B,$n3		
FS	F0e,d S$4),e		
ICB	In00$,C$,02$t0on B,$n3		
IPC	In-t*u4 ent Pe*&o*4 $n5e Che53		
LFB	L$2o*$to*6 Fo*t08ed B,$n3		
LRB	L$2o*$to*6 Re$%ent B,$n3		
MS	M$t*07 S)03e		
MSD	M$t*07 S)03e Du),05$te		
1 CS	1 u$,006 Cont*o, S$4),e		

'8 D 9 F R' P9 RT

Eurofins Eaton Analytical

Method 300.0 B Ion Chromatography
Standard / Reagent Preparation Log

Run ID# 270933 **Instrument#** FT

Stocks/Reagents	Manufacturer	Lot Number	Date Received	Date Opened	Date of Expiration
Chlorite Cal Stock	Inorganic Ventures	N2-CLOX665406	8/9/2019	8/9/2019	8/9/2020
Bromide Cal Stock	Inorganic Ventures	P2-BR675946	8/9/2019	8/9/2019	8/9/2020
Chlorate Cal Stock	Inorganic Ventures	P2-CLOX678509	8/9/2019	8/9/2019	8/9/2020
Chlorite QC Stock	Sigm-Aldrich	LRAB9128	10/19/2018	11/5/2018	6/30/2020
Bromide QC Stock	Ultra Scientific	CP-3274	8/16/2016	8/16/2019	8/31/2020
Chlorate QC Stock	Agilent	ICC-011	7/30/2019	10/9/2019	5/31/2023
Ethylenediamine-99% (EDA)	Fisher	175344	3/8/2018	3/8/2018	N/A
Sodium Carbonate (Na_2CO_3)	Acros	A0366523	3/29/2016	4/1/2016	N/A

Working Solutions	Prep Instructions and Concentrations			
Cal Substock -25	1250 uL of each Cal Stock in 50 mL volume RW= 25.0 mg/L			
QC Substock- 25	1250 uL of each QC Stock in 50 mL volume RW= 25.0 mg/L			
Analyst:	ML	**Prep Date:**	1/20/2020	**Exp. Date:** 7/20/2020
LRB	100 ul EDA in 100 ml volume RW			
Cal 10	40 ul of Cal Substock+100 ul EDA in 100 ml volume RW= 10.0 ug/L			
Cal 20	80 ul of Cal Substock+100 ul EDA in 100 ml volume RW= 20.0 ug/L			
Cal 100	400 ul of Cal Substock+100 ul EDA in 100 ml volume RW= 100.0 ug/L			
Cal 250 & IPC	1000 ul of Cal Substock+100 ul EDA in 100 ml volume RW= 250.0 ug/L			
Cal 500	1000 ul of Cal Substock+50 ul EDA in 50 ml volume RW= 500.0 ug/L			
Cal 1000	1000 ul of Cal Substock+25 ul EDA in 25 ml volume RW= 1000.0 ug/L			
QCS	1000 ul of QC Substock+100 ul EDA in 100 ml volume RW= 250.0 ug/L			
Analyst:	SL	**Prep Date:**	1/28/2020	**Exp. Date:** 2/4/2020
RLC 10	4 ul of Cal Substock+10 ul EDA in 10 ml volume RW= 10.0 ug/L			
LFB 250	100 ul of Cal Substock+10 ul EDA in 10 ml volume RW= 250.0 ug/L			
Analyst:	SL	**Prep Date:**	1/31/2020	**Exp. Date:** 2/4/2020
EDA solution	5.6 mL EDA to 100 mL volume RW = 50 mg/mL			**Prep ID:** IOC52-27c
Analyst:	SL	**Prep Date:**	1/8/2020	**Exp. Date:** 2/8/2020
Eluent	1.91 g Na_2CO_3 in 2 L volume RW = 9.0 mM			**Prep ID:** IOC52-33b
Analyst:	SL	**Prep Date:**	1/22/2020	**Exp. Date:** 2/22/2020

Storage Conditions: All stocks and solutions are prepared and stored at room temperature.

Comments: Dionex IonPac AS9 2mm s/n 190415290, lot no. 01619035, installed 11/14/2019

Analyst: Shreya Kori **Date:** 02/02/2020

Technician Review: [signature] **Date:** 02/05/2020

(signature)

Summary

Sequence Details

Name:	**013120A**	**29/Aug/18 17:10:22**
Directory:	**Instrument Data\FT\300B\2020**	**us25_usr_sbnlabpcs**
Data Vault:	**ChromeleonLocal**	**02/Feb/20 18:41:50**
No. of Injections:	**38**	**US25_USR_SBNLabPCs**

By Component **Chlorite**

No.	Injection Name	Inject Time	Area µS*min CD Chlorite	Amount ug/L CD Chlorite	Area µS*min CD Bromide	Amount ug/L CD Bromide	Area µS*min CD Chlorate	Amount ug/L CD Chlorate
1	\ICB\RW\1\	01/30/20 10:53	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2	\ICS\RW\1\10	01/30/20 11:21	0.007	13.234	0.002	11.973	0.006	13.018
3	\ICS\RW\1\20	01/30/20 11:49	0.015	23.910	0.010	23.029	0.012	21.800
4	\ICS\RW\1\100	01/30/20 12:17	0.072	99.070	0.066	101.010	0.063	101.034
5	\ICS\RW\1\500	01/30/20 12:45	0.368	487.607	0.344	488.339	0.314	488.635
6	\ICS\RW\1\1000	01/30/20 13:13	0.763	1006.179	0.717	1005.649	0.648	1005.513
7	\RLC\RW\1\10	01/31/20 05:44	0.007	13.243	0.003	13.324	0.006	12.727
8	\IPC\RW\1\250	01/31/20 06:12	0.185	247.262	0.174	251.435	0.162	253.641
9	\LRB\RW\1\	01/31/20 06:40	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
10	\LFB\RW\1\250	01/31/20 07:08	0.187	249.327	0.174	250.973	0.163	254.776
11	4551900\FS\DW\1\	01/31/20 07:36	n.a.	n.a.	0.053	82.977	n.a.	n.a.
12	4551900\MS\DW\1\250	01/31/20 08:04	0.179	238.610	0.227	325.565	0.155	242.871
13	4551900\MSD\DW\1\250	01/31/20 08:32	0.176	234.973	0.231	331.142	0.157	245.661
14	4551901\FS\DW\1\	01/31/20 09:00	n.a.	n.a.	0.058	90.659	n.a.	n.a.
15	4551902\FS\DW\1\	01/31/20 09:28	0.103	138.840	0.178	256.597	0.053	85.565
16	4551903\FS\DW\1\	01/31/20 09:56	0.090	122.197	0.087	131.043	0.048	78.144
17	4551904\FS\DW\1\	01/31/20 10:25	0.076	103.441	0.088	131.620	0.042	68.867
18	4551905\FS\DW\1\	01/31/20 10:53	n.a.	n.a.	0.052	81.192	n.a.	n.a.
19	4551906\FS\DW\1\	01/31/20 11:21	0.075	102.668	0.091	135.744	0.046	73.754
20	4551907\FS\DW\1\	01/31/20 11:49	n.a.	n.a.	0.113	166.600	0.003	8.395
21	4551908\FS\DW\1\	01/31/20 12:17	n.a.	n.a.	0.025	44.572	n.a.	n.a.
22	4551909\FS\DW\1\	01/31/20 12:45	0.037	53.054	0.098	145.908	0.009	16.577
23	\IPC\RW\1\250	01/31/20 13:13	0.184	245.134	0.173	250.371	0.161	251.749
24	\CCB\RW\1\	01/31/20 13:41	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
25	4550124\FS\DW\1\	01/31/20 14:14	n.a.	n.a.	0.008	21.018	n.a.	n.a.
26	4550125\FS\DW\1\	01/31/20 14:41	n.a.	n.a.	0.067	101.880	n.a.	n.a.
27	4550126\FS\DW\1\	01/31/20 15:09	n.a.	n.a.	0.010	23.746	n.a.	n.a.
28	4550127\FS\DW\1\	01/31/20 15:38	n.a.	n.a.	0.004	14.634	n.a.	n.a.
29	4551866\FS\GW\1\	01/31/20 16:06	n.a.	n.a.	0.006	18.049	n.a.	n.a.
30	4551867\FS\GW\1\	01/31/20 16:34	n.a.	n.a.	0.009	22.558	n.a.	n.a.
31	4551868\FS\GW\1\	01/31/20 17:02	n.a.	n.a.	0.010	22.895	n.a.	n.a.
32	4551869\FS\GW\1\	01/31/20 17:30	n.a.	n.a.	0.015	30.265	n.a.	n.a.
33	4551870\FS\GW\1\	01/31/20 17:58	n.a.	n.a.	0.004	14.309	n.a.	n.a.
34	4551871\MS\GW\1\250	01/31/20 18:26	0.151	202.834	0.190	272.996	0.156	245.196
35	4551872\MSD\GW\1\250	01/31/20 18:54	0.165	220.177	0.192	276.415	0.158	247.319
36	\IPC\RW\1\250	01/31/20 19:22	0.186	248.349	0.173	250.616	0.161	253.108
37	\CCB\RW\1\	01/31/20 19:50	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
38	END	01/31/20 20:18	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Instrument Method: AS19-300B
Last Update Operator: us25_usr_sbnlabpcs

Script

Stage	Time min	Command	Value	Comment
Instrument Setup				
	initial			
		Pump_ECD.Flow.Nominal	0.250 [ml/min]	
		Sampler.DelayVolume	125 [µl]	
		Pump_ECD.Pressure.UpperLimit	5000.00 [psi]	
		Pump_ECD.%A.Equate	"%A"	
		Pump_ECD.Pressure.LowerLimit	200.00 [psi]	
		Pump_ECD.Compartment_TC.TemperatureSet	30.0 [°C]	
		Pump_ECD.Column_TC.TemperatureSet	30.0 [°C]	
		Electrolytics.EluentGenerator.Concentration	0.00 [mM]	
		CDet.Rise_Time	0.5 [s]	
		CDet.Data_Collection_Rate	5.0 [Hz]	
		Sampler.FlushFactor	10	
		Sampler.DeliverSpeed	4.0 [ml/min]	
		CDet.CellHeater.TemperatureSet	35.0 [°C]	
		CDet.Temperature_Compensation	1.7 [%]	
		Wait	Pump_ECD.Ready	
		Pump_ECD.Compartment_TC.Mode	On	
		Pump_ECD.Column_TC.Mode	On	
		CDet.CellHeater.Mode	On	
		Electrolytics.CR_TC.CR_TC	Off	
		Sampler.LoadPosition		
		Sampler.DeliverSample	Volume=Full	
		Sampler.EndSamplePrep		
Inject				
	0.000			
		Wait	Sampler.CycleTimeState, Run=Hold, Timeout=Infinite	
		Sampler.Inject		
Start Run				
	0.000			
		Pump_ECD.ApproveConsumables		
		CDet.CD.AcqOn		
		CDet.CD_Total.AcqOn		
		CDet.Autozero		
Run			Duration = 25.000 [min]	
	0.000			
	0.500			
		Sampler.BeginOverlap		
Stop Run				
	25.000			
		Pump_ECD.ApproveConsumables		

```
                CDet.CD.AcqOff
                CDet.CD_Total.AcqOff
End
```

Detection Settings

Algorithm: **Chromeleon 6**

Ret.Time	Param. Name	Param.Value	Inj. Type	Channel
0.000 [min]	Inhibit Integration	On	Any	All Channels
0.000 [min]	Minimum Area	0.0010 [Signal*min]	Any	All Channels
0.000 [min]	Sensitivity	0.0010 [Signal]	Any	All Channels
0.000 [min]	Peak Slice	1.50 [s]	Any	All Channels
5.200 [min]	Inhibit Integration	Off	Any	All Channels
6.100 [min]	Inhibit Integration	On	Any	All Channels
10.750 [min]	Inhibit Integration	Off	Any	All Channels
12.800 [min]	Inhibit Integration	On	Any	All Channels

Component Table

Name	Ret.Time	Window	Channel	Eval.Type	Stand.Meth.	Cal.Type	Level "1"	Level "2"	Level "3"
Chlorite	5.580	5.000 RG	All Channels	Area	External	Lin, WithOffset	0.000000	10.000000	20.000000
Bromide	11.200	5.000 RG	All Channels	Area	External	Lin, WithOffset	0.000000	10.000000	20.000000
Chlorate	12.200	5.000 RG	All Channels	Area	External	Lin, WithOffset	0.000000	10.000000	20.000000

Level "4"	Level "5"	Level "6"	Level "7"	Conc.Unit	Factor	Peak Type	Group	Low.Conf.Prob	Up.Conf.Prob
100.000000	500.000000	1000.000000	0.000000	ug/L	1.000000	Autodetect		99.5 %	99.5 %
100.000000	500.000000	1000.000000	0.000000	ug/L	1.000000	Autodetect		99.5 %	99.5 %
100.000000	500.000000	1000.000000	0.000000	ug/L	1.000000	Autodetect		99.5 %	99.5 %

Comment	Charge

Global Calibration Settings

Mode	**Total**
Curve Fitting	**Normal**
Dual-Column Separate Calibration	**No**
Concentration Level Tolerances	**No**
Amount Ratio for Var. Int. Standard	**Yes**
Origin of Standards for Fixed Calibration:	

Calibration Table

Enabled	Name	Calib.Comment for "Chlorite"	Level	Dilution	Weight	IntStd
☑	\ICB\RW\1\	Missing Peak	1	1.0000	1.0000	1.0000
☑	\ICS\RW\1\10	Ok	2	1.0000	1.0000	1.0000
☑	\ICS\RW\1\20	Ok	3	1.0000	1.0000	1.0000
☑	\ICS\RW\1\100	Ok	4	1.0000	1.0000	1.0000
☑	\ICS\RW\1\500	Ok	5	1.0000	1.0000	1.0000
☑	\ICS\RW\1\1000	Ok	6	1.0000	1.0000	1.0000

Spike Group	Position	Volume	Comment	Instrument Method	Processing Method	Status	Inject Time	Replicate ID	GUID
	1	1 [µl]		AS19-300B	AS19-300B	Finished	1/30/2020		0251DA3E-6300-
	2	1 [µl]		AS19-300B	AS19-300B	Finished	1/30/2020		d90a0e74-7f7b-
	3	1 [µl]		AS19-300B	AS19-300B	Finished	1/30/2020		3c873475-9fa5-
	4	1 [µl]		AS19-300B	AS19-300B	Finished	1/30/2020		e7c6cec5-4780-
	5	1 [µl]		AS19-300B	AS19-300B	Finished	1/30/2020		469ca575-9778-
	6	1 [µl]		AS19-300B	AS19-300B	Finished	1/30/2020		7b6d038d-e1cf-

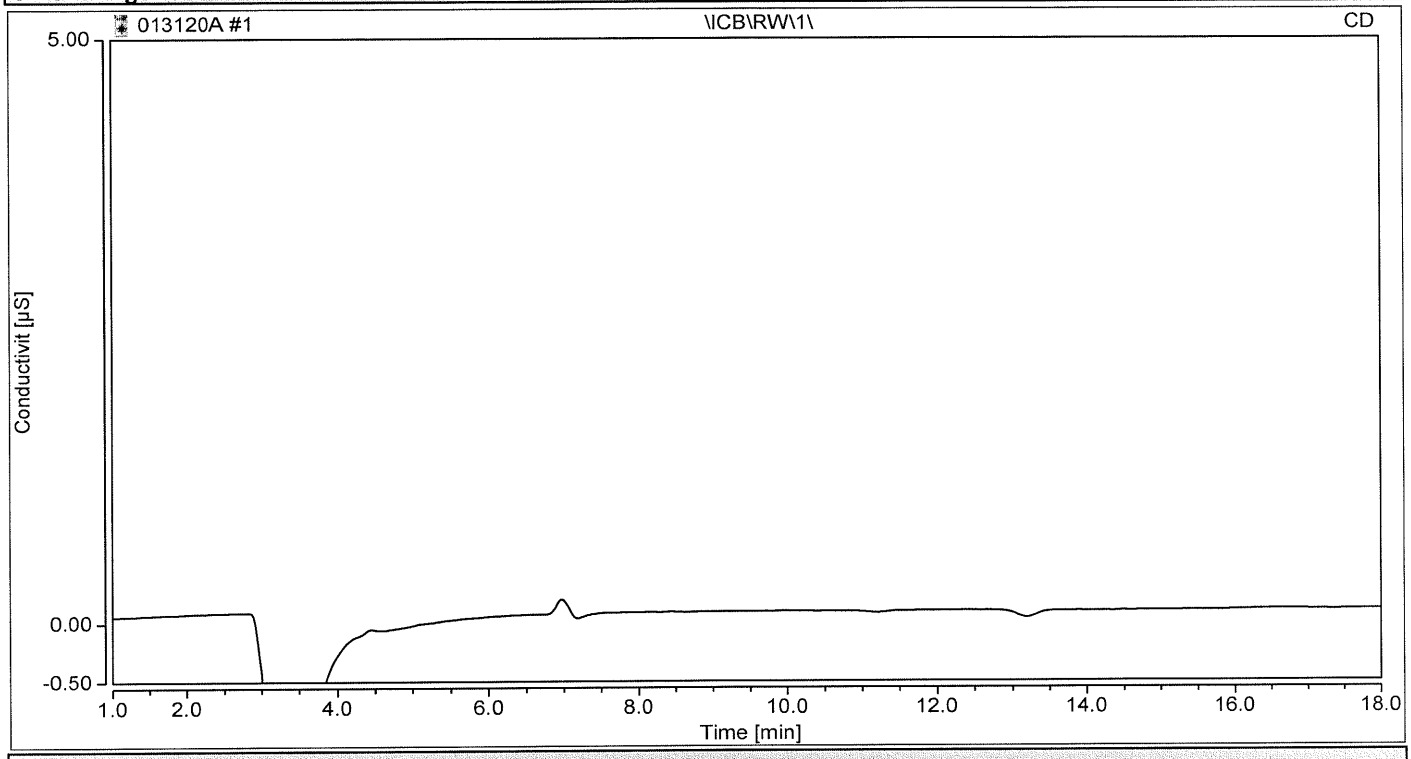
Re-injections	AutoDilution Ratio
0	0.00
0	0.00
0	0.00
0	0.00
0	0.00
0	0.00

Chromatogram and Results

Injection Details

Injection Name:	**\ICB\RW\1**	*Run Time (min):*	**25.00**
Vial Number:	**1**	*Injection Volume:*	**1.00**
Injection Type:	**Calibration Standard**	*Channel:*	**CD**
Calibration Level:	**1**	*Wavelength:*	**n.a.**
Instrument Method:	**AS19-300B**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19-300B**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Jan/20 10:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

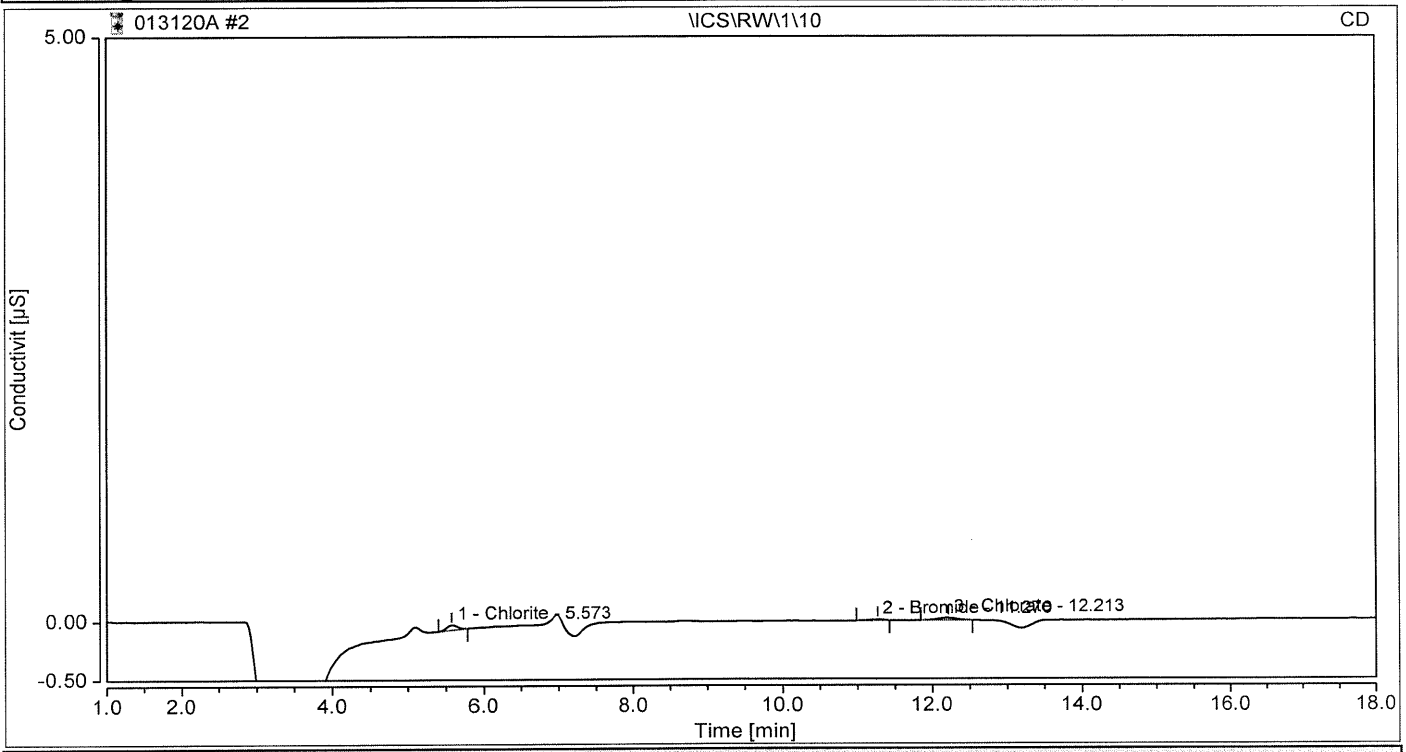
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\ICS\RW\1\10**	*Run Time (min):*	**25.00**
Vial Number:	**2**	*Injection Volume:*	**1.00**
Injection Type:	**Calibration Standard**	*Channel:*	**CD**
Calibration Level:	**2**	*Wavelength:*	**n.a.**
Instrument Method:	**AS19-300B**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19-300B**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Jan/20 11:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

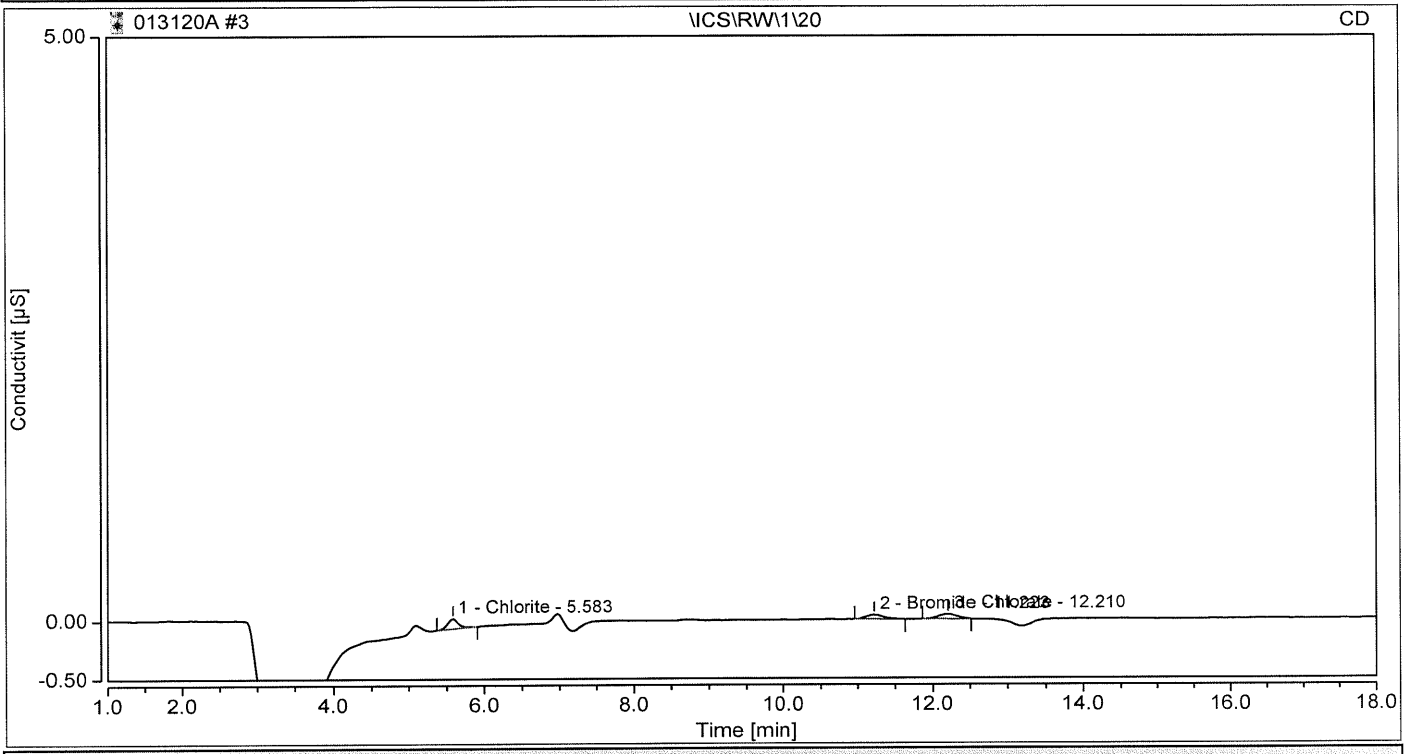
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Chlorite	5.573	0.007	0.043	46.42	59.55	13.2340
2	Bromide	11.270	0.002	0.008	12.17	11.12	11.9730
3	Chlorate	12.213	0.006	0.021	41.41	29.33	13.0182
Total:			**0.015**	**0.073**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\ICS\RW\1\20**	*Run Time (min):*	**25.00**
Vial Number:	**3**	*Injection Volume:*	**1.00**
Injection Type:	**Calibration Standard**	*Channel:*	**CD**
Calibration Level:	**3**	*Wavelength:*	**n.a.**
Instrument Method:	**AS19-300B**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19-300B**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Jan/20 11:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

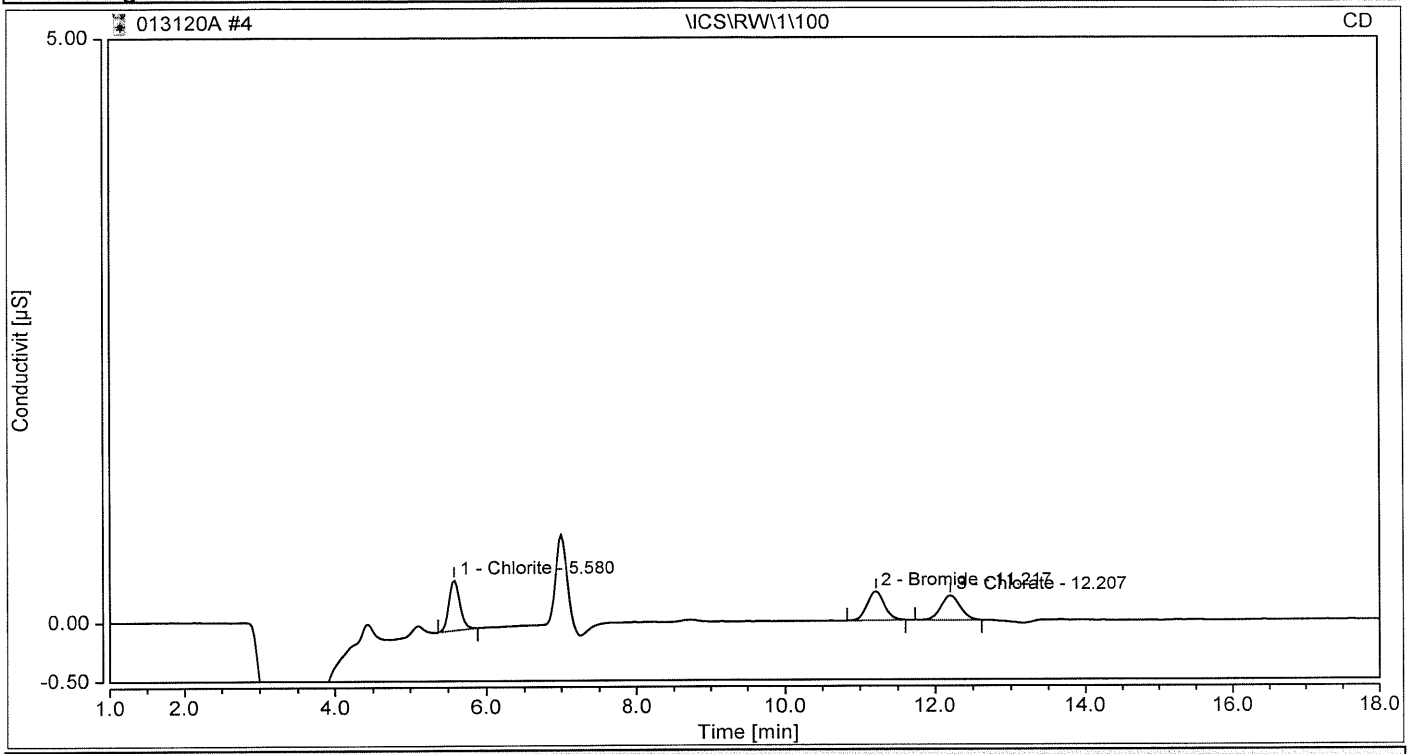
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Chlorite	5.583	0.015	0.086	41.07	52.89	23.9096
2	Bromide	11.223	0.010	0.036	26.56	22.19	23.0287
3	Chlorate	12.210	0.012	0.041	32.37	24.92	21.7998
Total:			**0.037**	**0.163**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\ICS\RW\1\100**	*Run Time (min):*	**25.00**
Vial Number:	**4**	*Injection Volume:*	**1.00**
Injection Type:	**Calibration Standard**	*Channel:*	**CD**
Calibration Level:	**4**	*Wavelength:*	**n.a.**
Instrument Method:	**AS19-300B**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19-300B**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Jan/20 12:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

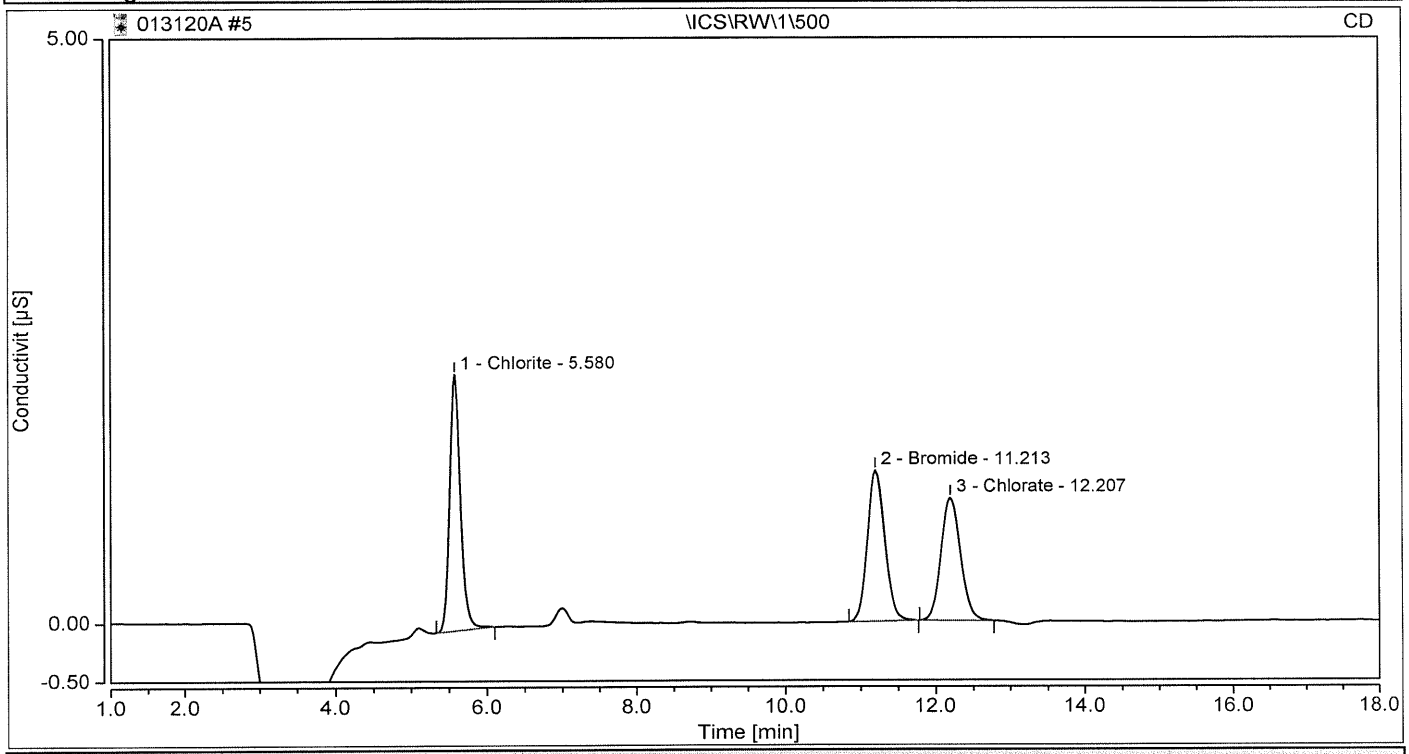
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Chlorite	5.580	0.072	0.431	35.93	48.43	99.0703
2	Bromide	11.217	0.066	0.248	32.71	27.84	101.0102
3	Chlorate	12.207	0.063	0.211	31.36	23.73	101.0343
Total:			**0.201**	**0.889**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\ICS\RW\1\500**	*Run Time (min):*	**25.00**
Vial Number:	**5**	*Injection Volume:*	**1.00**
Injection Type:	**Calibration Standard**	*Channel:*	**CD**
Calibration Level:	**5**	*Wavelength:*	**n.a.**
Instrument Method:	**AS19-300B**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19-300B**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Jan/20 12:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

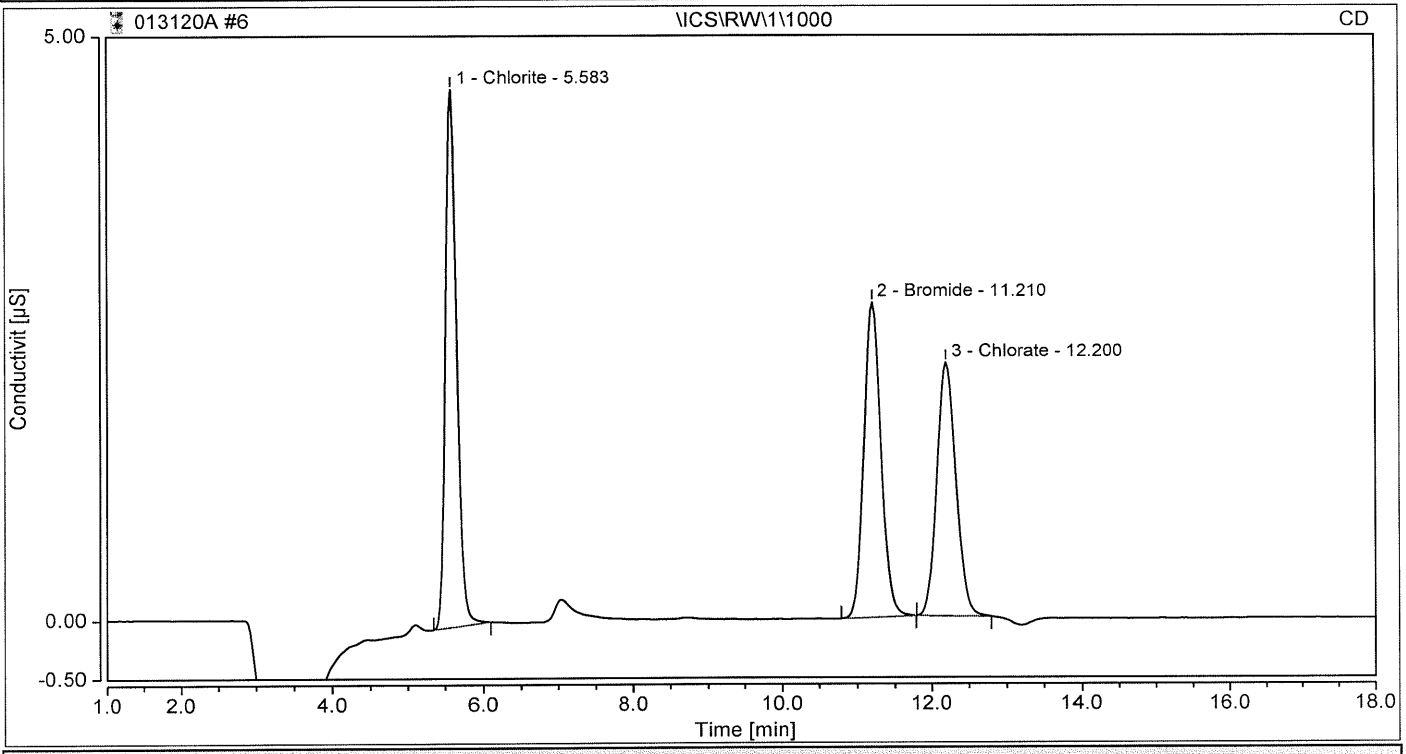
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Chlorite	5.580	0.368	2.186	35.87	48.36	487.6074
2	Bromide	11.213	0.344	1.288	33.57	28.49	488.3390
3	Chlorate	12.207	0.314	1.046	30.57	23.15	488.6347
Total:			**1.026**	**4.520**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\ICS\RW\1\1000**	*Run Time (min):*	**25.00**
Vial Number:	**6**	*Injection Volume:*	**1.00**
Injection Type:	**Calibration Standard**	*Channel:*	**CD**
Calibration Level:	**6**	*Wavelength:*	**n.a.**
Instrument Method:	**AS19-300B**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19-300B**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**30/Jan/20 13:13**	*Sample Weight:*	**1.0000**

Chromatogram



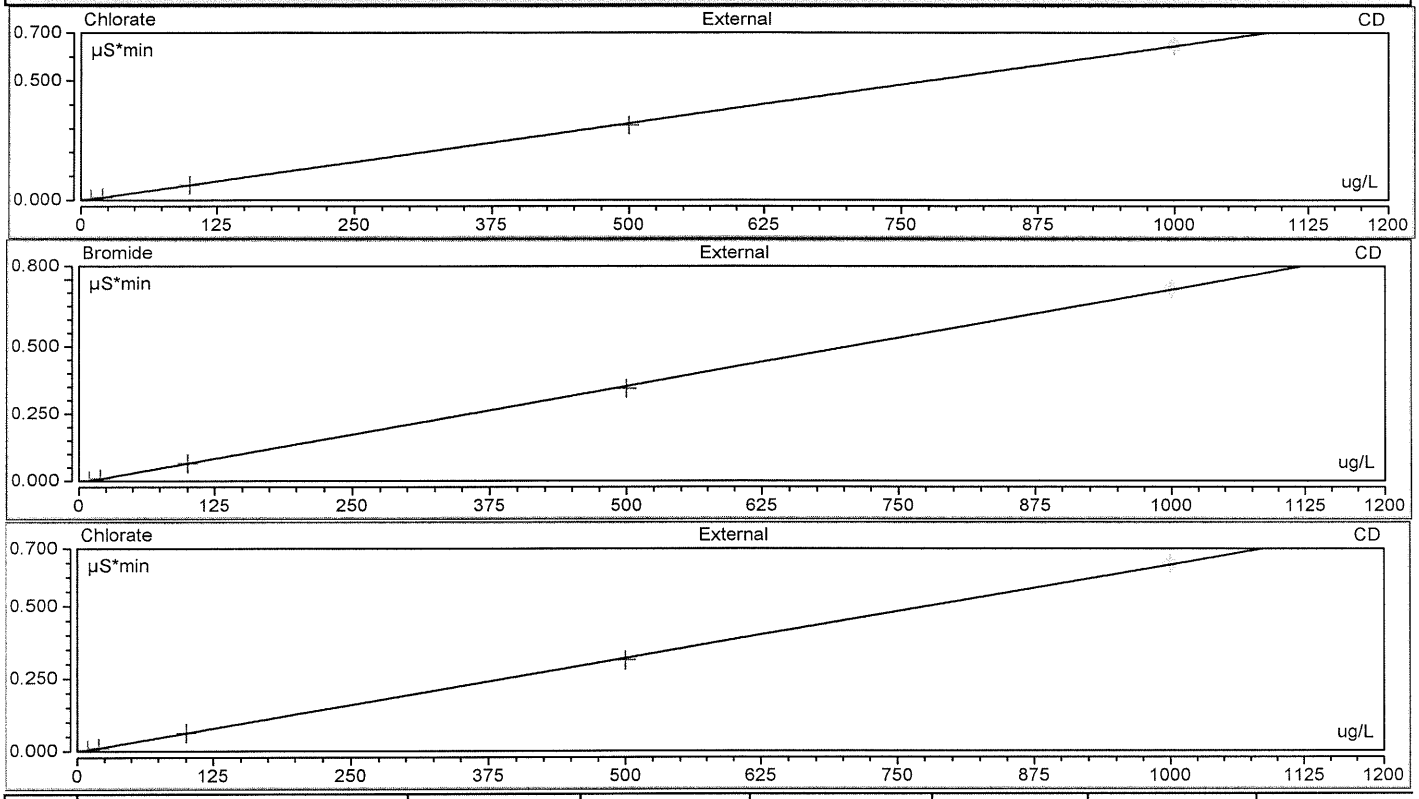
Integration Results

No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Chlorite	5.583	0.763	4.603	35.86	48.63	1006.1787
2	Bromide	11.210	0.717	2.695	33.69	28.47	1005.6492
3	Chlorate	12.200	0.648	2.168	30.45	22.90	1005.5130
Total:			**2.127**	**9.467**	**100.00**	**100.00**	

Calibration

Calibration Details	Chlorate		
Calibration Type	Lin, WithOffset	*Offset (C0)*	-0.0022
Evaluation Type	Area	*Slope (C1)*	0.0006
Number of Calibration Points	5	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.9998

Calibration Plot **Chlorate**



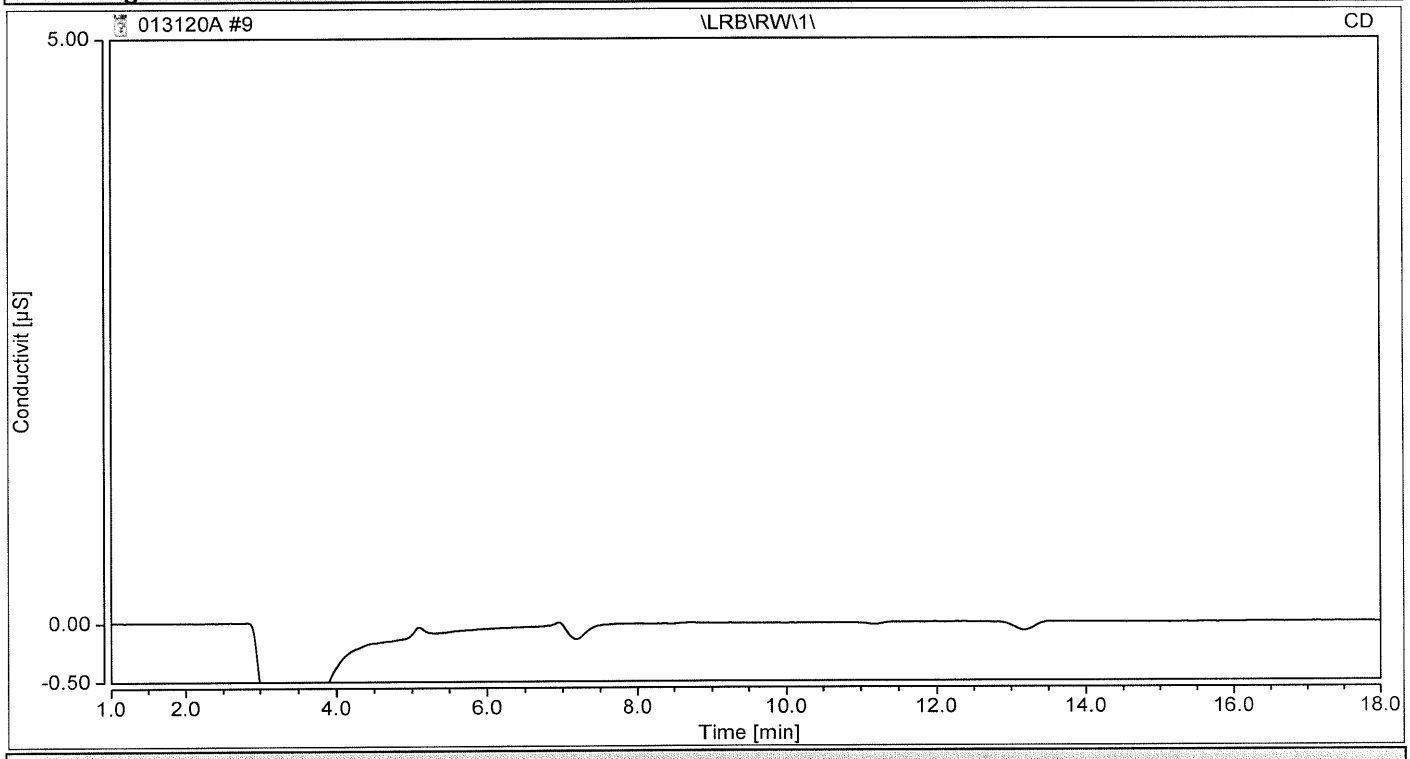
No.	Peak Name	Corr.Coeff.	Slope	Offset	Weights	Cal. Type	Response Factor
		%					
1	Chlorite	99.985	1313.84	-0.003	No Weighting	Lin, WithOffset	1.0000
2	Bromide	99.988	1390.40	-0.007	No Weighting	Lin, WithOffset	1.0000
3	Chlorate	99.988	1547.18	-0.002	No Weighting	Lin, WithOffset	1.0000

Chromatogram and Results

Injection Details

Injection Name:	**\LRB\RW\1**	*Run Time (min):*	**25.00**
Vial Number:	**43**	*Injection Volume:*	**1.00**
Injection Type:	**Unknown**	*Channel:*	**CD**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**AS19-300B**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19-300B**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**31/Jan/20 06:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

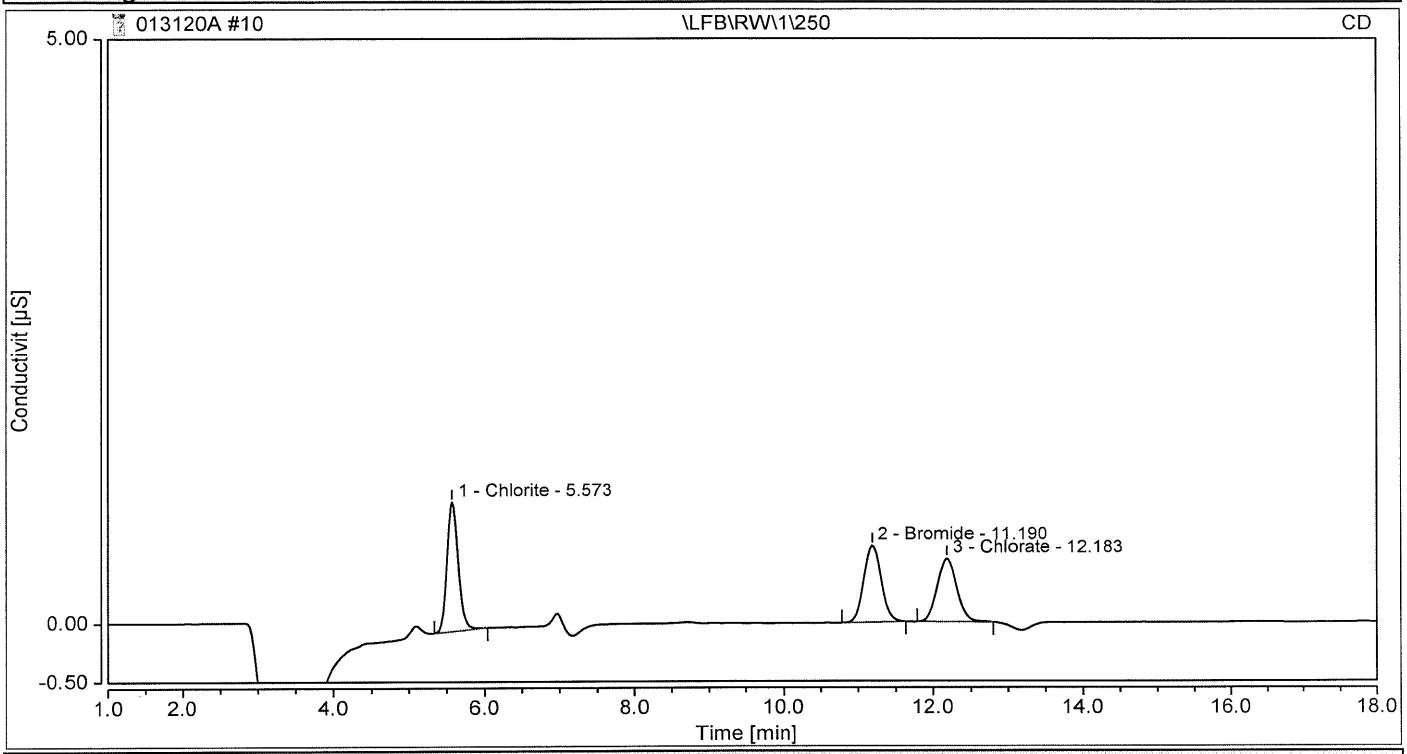
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\LFB\RW\1\250**	*Run Time (min):*	**25.00**
Vial Number:	**44**	*Injection Volume:*	**1.00**
Injection Type:	**Unknown**	*Channel:*	**CD**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**AS19-300B**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19-300B**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**31/Jan/20 07:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

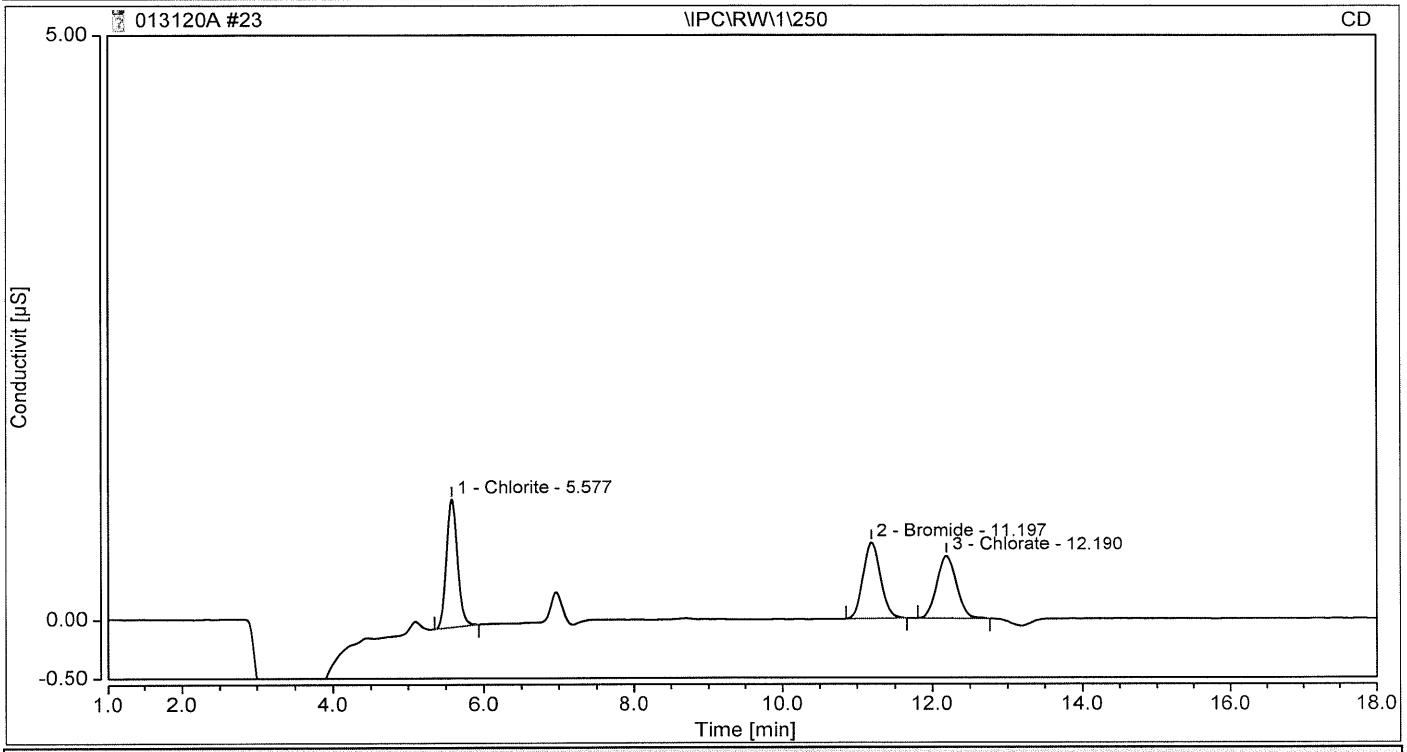
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Chlorite	5.573	0.187	1.100	35.70	48.00	249.3273
2	Bromide	11.190	0.174	0.653	33.22	28.49	250.9734
3	Chlorate	12.183	0.163	0.539	31.08	23.51	254.7764
Total:			**0.523**	**2.291**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\IPC\RW\1\250**	*Run Time (min):*	**25.00**
Vial Number:	**7**	*Injection Volume:*	**1.00**
Injection Type:	**Unknown**	*Channel:*	**CD**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**AS19-300B**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19-300B**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**31/Jan/20 13:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

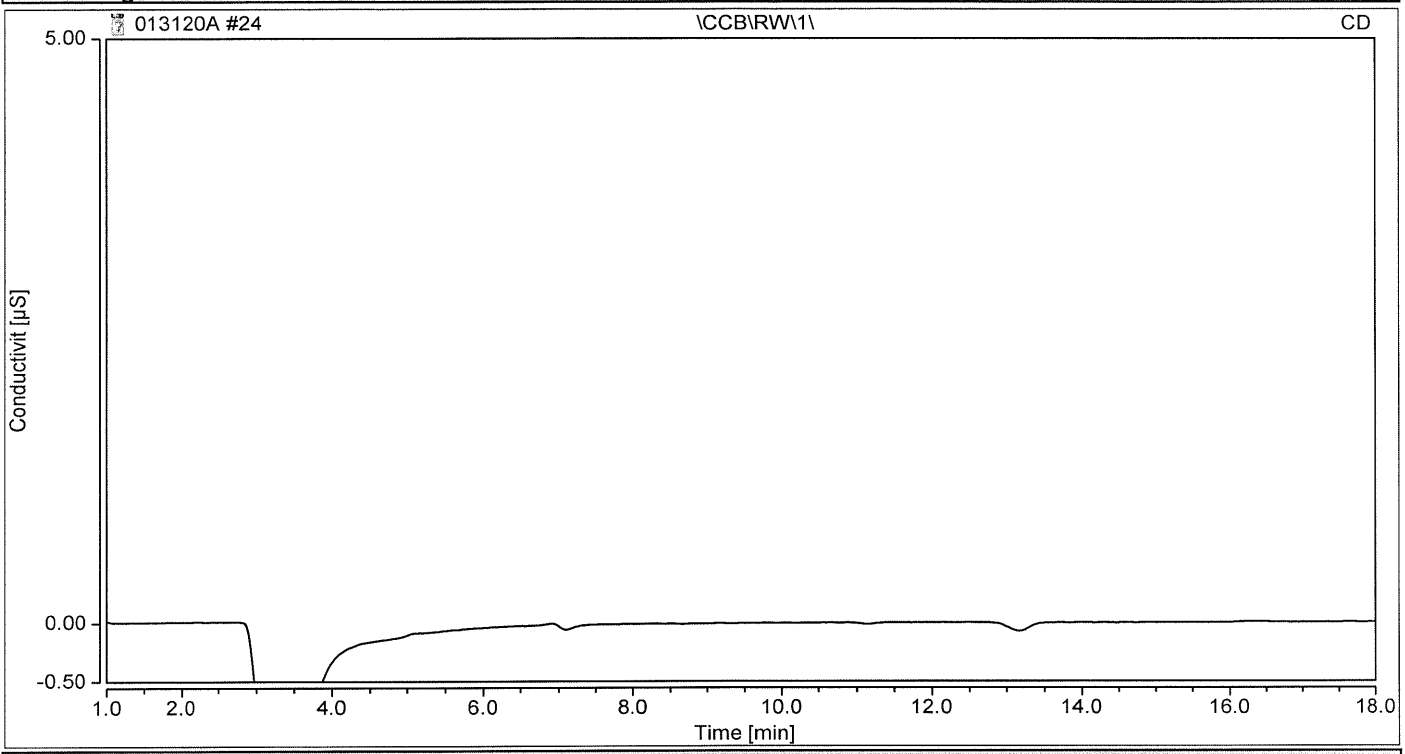
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Chlorite	5.577	0.184	1.094	35.47	48.01	245.1340
2	Bromide	11.197	0.173	0.650	33.50	28.54	250.3711
3	Chlorate	12.190	0.161	0.534	31.03	23.45	251.7491
Total:			**0.517**	**2.278**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\CCB\RW\1**	*Run Time (min):*	**25.00**
Vial Number:	**8**	*Injection Volume:*	**1.00**
Injection Type:	**Unknown**	*Channel:*	**CD**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**AS19-300B**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19-300B**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**31/Jan/20 13:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

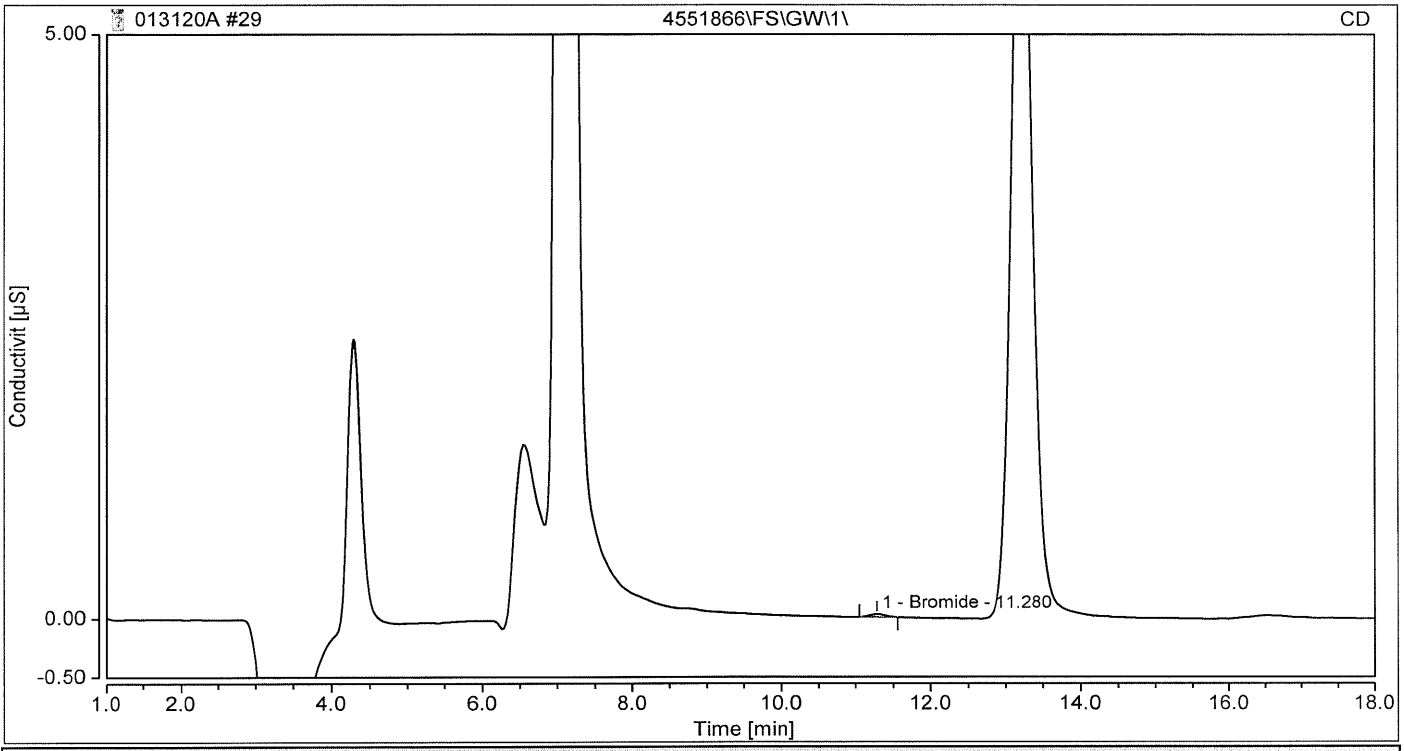
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**4551866\FS\GW\1**	*Run Time (min):*	**25.00**
Vial Number:	**13**	*Injection Volume:*	**1.00**
Injection Type:	**Unknown**	*Channel:*	**CD**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**AS19-300B**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19-300B**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**31/Jan/20 16:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

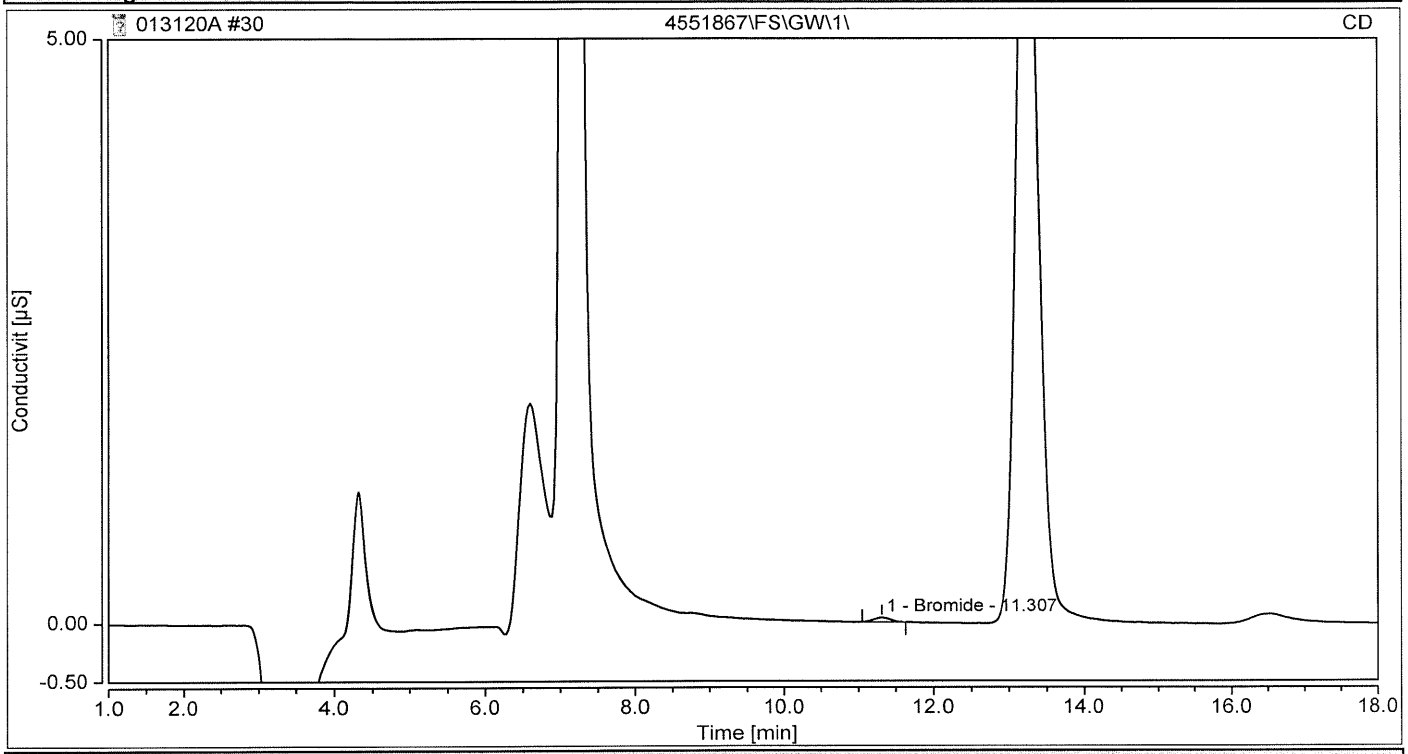
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Bromide	11.280	0.006	0.027	100.00	100.00	18.0495
Total:			**0.006**	**0.027**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**4551867\FS\GW\1**	*Run Time (min):*	**25.00**
Vial Number:	**14**	*Injection Volume:*	**1.00**
Injection Type:	**Unknown**	*Channel:*	**CD**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**AS19-300B**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19-300B**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**31/Jan/20 16:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

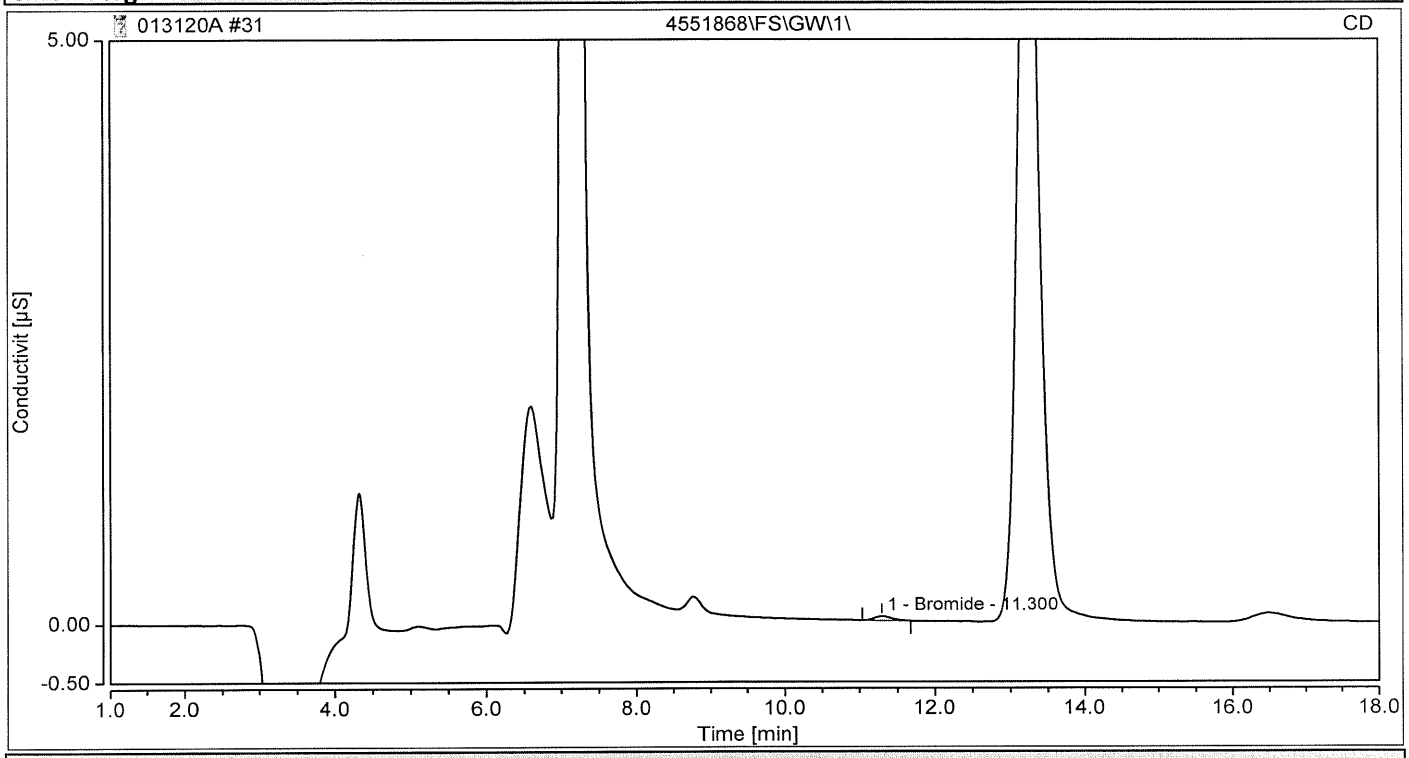
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Bromide	11.307	0.009	0.038	100.00	100.00	22.5576
Total:			**0.009**	**0.038**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**4551868\FS\GW\1**	*Run Time (min):*	**25.00**
Vial Number:	**15**	*Injection Volume:*	**1.00**
Injection Type:	**Unknown**	*Channel:*	**CD**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**AS19-300B**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19-300B**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**31/Jan/20 17:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

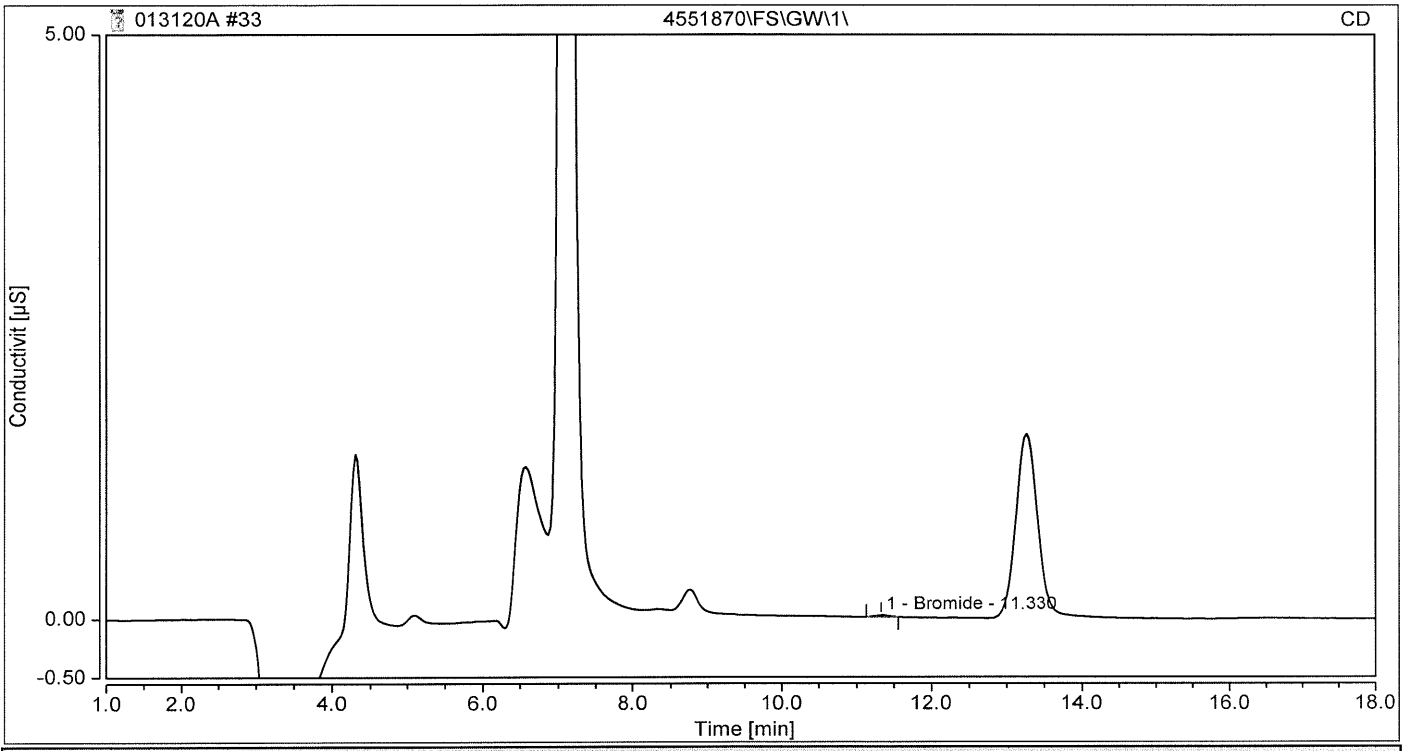
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Bromide	11.300	0.010	0.037	100.00	100.00	22.8945
Total:			**0.010**	**0.037**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**4551870\FS\GW\1**	*Run Time (min):*	**25.00**
Vial Number:	**17**	*Injection Volume:*	**1.00**
Injection Type:	**Unknown**	*Channel:*	**CD**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**AS19-300B**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19-300B**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**31/Jan/20 17:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

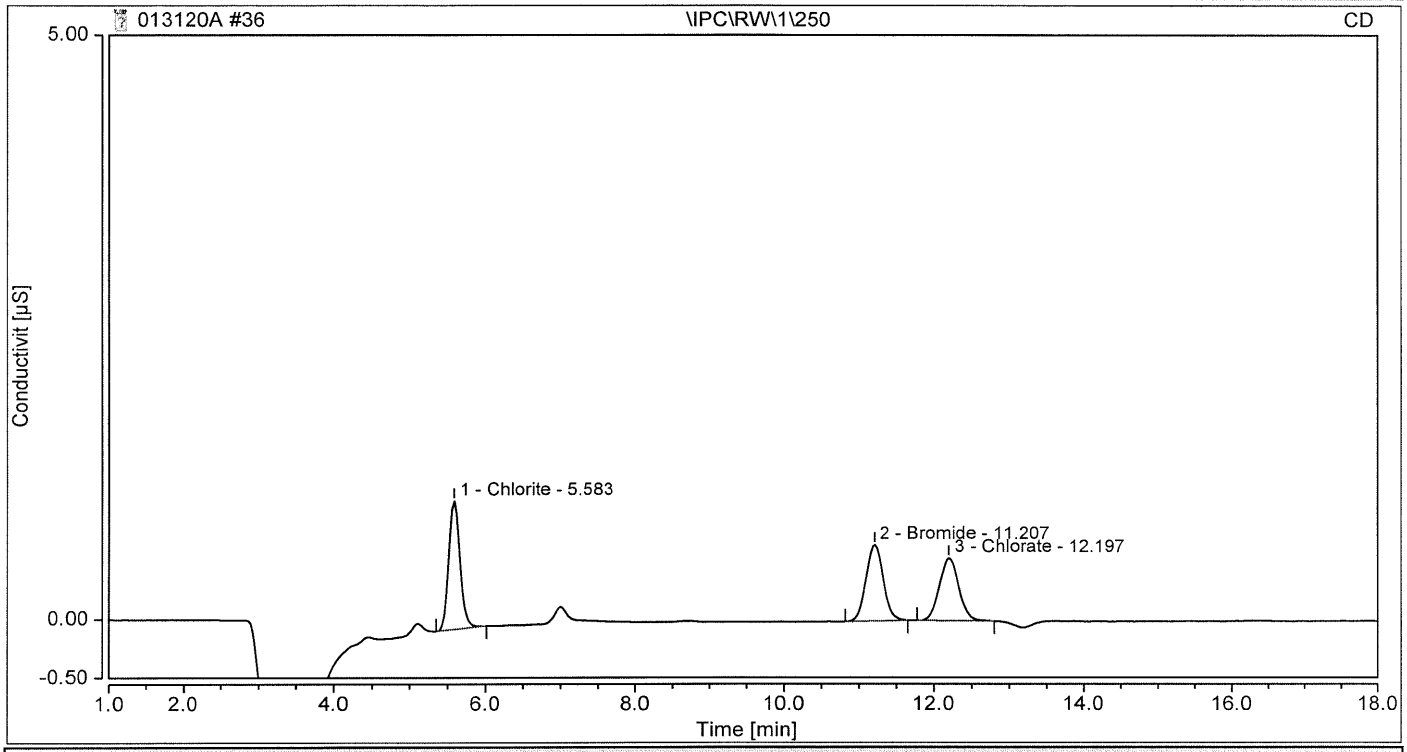
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Bromide	11.330	0.004	0.016	100.00	100.00	14.3092
Total:			**0.004**	**0.016**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\IPC\RW\1\250**	*Run Time (min):*	**25.00**
Vial Number:	**20**	*Injection Volume:*	**1.00**
Injection Type:	**Unknown**	*Channel:*	**CD**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**AS19-300B**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19-300B**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**31/Jan/20 19:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

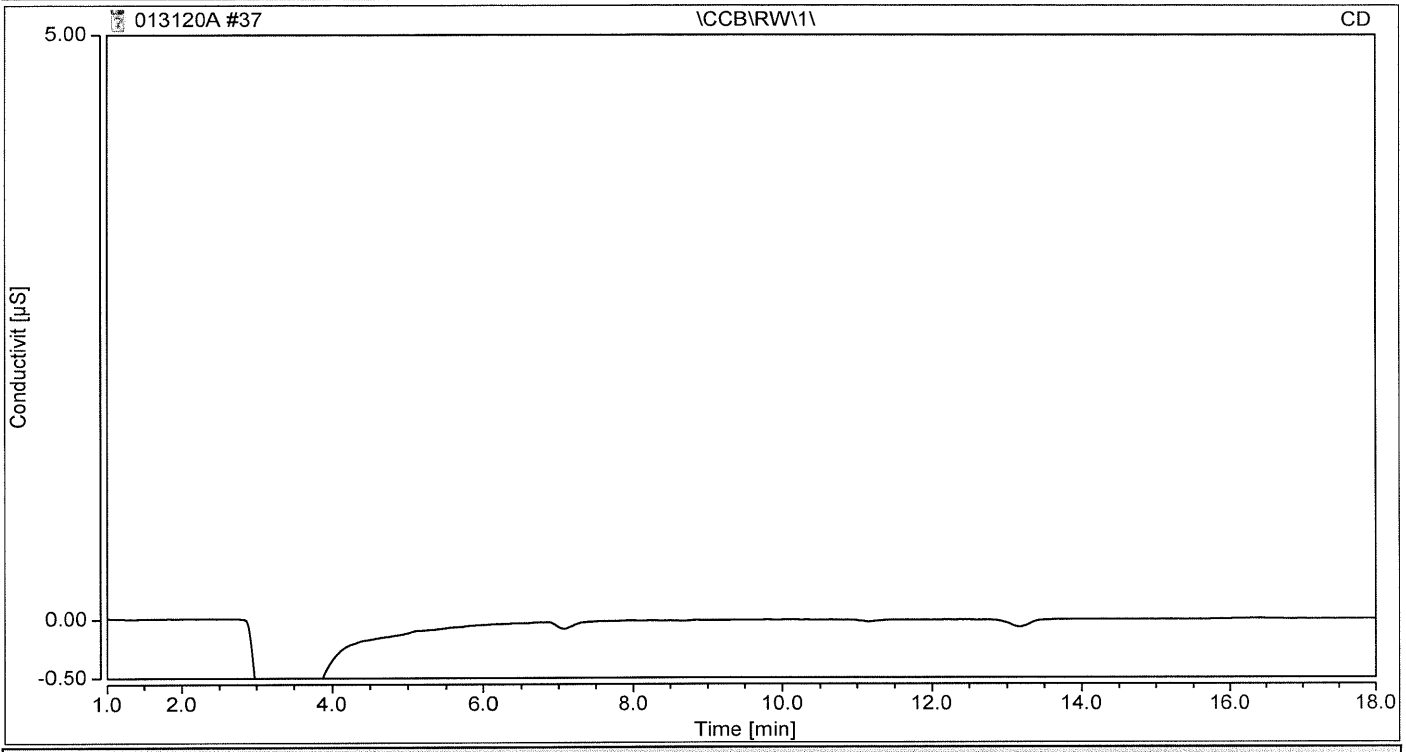
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Chlorite	5.583	0.186	1.095	35.70	48.03	248.3494
2	Bromide	11.207	0.173	0.650	33.30	28.48	250.6159
3	Chlorate	12.197	0.161	0.536	30.99	23.49	253.1077
Total:			**0.521**	**2.281**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\CCB\RW\1**	*Run Time (min):*	**25.00**
Vial Number:	**21**	*Injection Volume:*	**1.00**
Injection Type:	**Unknown**	*Channel:*	**CD**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**AS19-300B**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19-300B**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**31/Jan/20 19:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**END**	*Run Time (min):*	**n.a.**
Vial Number:	**22**	*Injection Volume:*	**1.00**
Injection Type:	**Unknown**	*Channel:*	**n.a.**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**Shutdown**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19-300B**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**31/Jan/20 20:18**	*Sample Weight:*	**1.0000**

Chromatogram

Channel CD is not available for injection #38 - END.

Integration Results

No.	Peak Name	Retention Time min	Area n.a.	Height n.a.	Relative Area %	Relative Height %	Amount n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Eurofins Eaton Analytical

Method 300.0 B Ion Chromatography
Standard / Reagent Preparation Log

Run ID# 271038 **Instrument#** DT

Stocks/Reagents	Manufacturer	Lot Number	Date Received	Date Opened	Date of Expiration
Chlorite Cal Stock	Inorganic Ventures	N2-CLOX665406	8/9/2019	8/9/2019	8/9/2020
Bromide Cal Stock	Inorganic Ventures	P2-BR675946	8/9/2019	8/9/2019	8/9/2020
Chlorate Cal Stock	Inorganic Ventures	P2-CLOX678509	8/9/2019	8/9/2019	8/9/2020
Chlorite QC Stock	Sigm-Aldrich	LRAB9128	10/19/2018	11/5/2018	6/30/2020
Bromide QC Stock	Ultra Scientific	CP-3274	8/16/2016	8/16/2016	8/31/2020
Chlorate QC Stock	Agilent	ICC-011	7/30/2019	10/9/2019	5/31/2023
Ethylenediamine-99% (EDA)	Fisher	175344	3/8/2018	3/8/2018	N/A
Sodium Carbonate (Na_2CO_3)	Acros	A0366523	3/29/2016	4/1/2016	N/A

Working Solutions	Prep Instructions and Concentrations			
Cal Substock -25	1250 uL of each Cal Stock in 50 mL volume RW= 25.0 mg/L			
QC Substock- 25	1250 uL of each QC Stock in 50 mL volume RW= 25.0 mg/L			
Analyst:	ML	**Prep Date:**	1/20/2020	**Exp. Date:** 7/20/2020
LRB	100 ul EDA in 100 ml volume RW			
Cal 10	40 ul of Cal Substock+100 ul EDA in 100 ml volume RW= 10.0 ug/L			
Cal 20	80 ul of Cal Substock+100 ul EDA in 100 ml volume RW= 20.0 ug/L			
Cal 100	400 ul of Cal Substock+100 ul EDA in 100 ml volume RW= 100.0 ug/L			
Cal 250 & IPC	1000 ul of Cal Substock+100 ul EDA in 100 ml volume RW= 250.0 ug/L			
Cal 500	1000 ul of Cal Substock+50 ul EDA in 50 ml volume RW= 500.0 ug/L			
Cal 1000	1000 ul of Cal Substock+25 ul EDA in 25 ml volume RW= 1000.0 ug/L			
QCS	1000 ul of QC Substock+100 ul EDA in 100 ml volume RW= 250.0 ug/L			
Analyst:	SL	**Prep Date:**	2/4/2020	**Exp. Date:** 2/11/2020
RLC 10	4 ul of Cal Substock+10 ul EDA in 10 ml volume RW= 10.0 ug/L			
LFB 250	100 ul of Cal Substock+10 ul EDA in 10 ml volume RW= 250.0 ug/L			
Analyst:	SL	**Prep Date:**	2/4/2020	**Exp. Date:** 2/11/2020
EDA solution	5.6 mL EDA to 100 mL volume RW = 50 mg/mL			**Prep ID:** IOC52-37c
Analyst:	SL	**Prep Date:**	2/4/2020	**Exp. Date:** 3/4/2020
Eluent	1.91 g Na_2CO_3 in 2 L volume RW = 9.0 mM			**Prep ID:** IOC52-36b
Analyst:	SL	**Prep Date:**	1/30/2020	**Exp. Date:** 2/30/20

Storage Conditions: All stocks and solutions are prepared and stored at room temperature.

Comments: Dionex IonPac AS9 2mm s/n 190416347, lot no. 01619035, installed 11/14/2019

Analyst: [signature] **Date:** 02/05/2020

Technician Review: [signature] **Date:** 02/05/2020

(signature)

Sample No.	Sample Name	Time	Amount Chlorite CD_1	Amount Bromide CD_1	Amount Chlorate CD_1
1	\ICB\RW\1\	02.04.20 13:04	n.a.	n.a.	n.a.
2	\ICS\RW\1\10	02.04.20 13:31	13.45	14.72	12.88
3	\ICS\RW\1\20	02.04.20 13:57	23.54	22.64	23.18
4	\ICS\RW\1\100	02.04.20 14:29	99.91	98.44	99.04
5	\ICS\RW\1\500	02.04.20 14:55	486.40	488.29	489.81
6	\ICS\RW\1\1000	02.04.20 15:22	1006.70	1005.91	1005.10
7	\QCS\RW\1\250	02.04.20 15:48	242.49	248.00	241.06
8	\RLC\RW\1\10	02.04.20 16:15	13.06	14.15	12.99
9	\IPC\RW\1\250	02.04.20 16:41	251.83	252.08	250.77
10	\LRB\RW\1\	02.04.20 17:07	n.a.	n.a.	n.a.
11	\LFB\RW\1\250	02.04.20 17:34	250.90	254.32	251.38
12	4551869\FS\GW\1\	02.04.20 18:00	6.81	30.82	n.a.
13	4551871\MS\GW\1\250	02.04.20 18:27	210.18	269.29	242.23
14	4551872\MSD\GW\1\250	02.04.20 18:53	230.40	273.92	248.14
15	4554221\FS\DW\1\	02.04.20 19:20	1664.98 X	43.66	158.94
16	4554222\FS\DW\1\	02.04.20 19:46	285.47	40.46	27.75
17	4554223\FS\DW\1\	02.04.20 20:12	303.69	42.12	28.28
18	4554224\FS\DW\1\	02.04.20 20:39	802.11	42.76	81.37
19	4554430\FS\DW\1\	02.04.20 21:05	n.a.	23.57	153.92
20	4554431\FS\DW\1\	02.04.20 21:32	n.a.	25.11	153.49
21	4554432\FS\DW\1\	02.04.20 21:58	n.a.	26.00	143.26
22	4554433\FS\DW\1\	02.04.20 22:24	99.25	23.37	156.87
23	4554434\FS\DW\1\	02.04.20 22:51	n.a.	19.18	138.81
24	\IPC\RW\1\250	02.04.20 23:17	247.78	250.44	249.12
25	\CCB\RW\1\	02.04.20 23:44	n.a.	n.a.	n.a.
26	4554435\FS\DW\1\	02.05.20 00:10	n.a.	25.41	106.89
27	4554436\FS\DW\1\	02.05.20 00:36	6.96	22.04	115.54
28	4554437\FS\DW\1\	02.05.20 01:03	10.19	23.37	108.64
29	4554438\FS\DW\1\	02.05.20 01:29	13.76	22.09	120.46
30	4554439\FS\DW\1\	02.05.20 01:56	n.a.	26.21	108.45
31	4554933\FS\DW\1\	02.05.20 02:22	563.15	193.89	623.01
32	4554934\FS\DW\1\	02.05.20 02:48	693.38	187.47	618.12
33	4554935\FS\DW\1\	02.05.20 03:15	559.78	179.57	528.72
34	4554936\FS\DW\1\	02.05.20 03:41	n.a.	120.07	6.94
35	4555340\FS\SW\1\	02.05.20 04:08	n.a.	35.62	n.a.
36	4555340\MS\SW\1\250	02.05.20 04:34	233.19	279.05	242.72
37	4555340\MSD\SW\1\250	02.05.20 05:00	234.89	274.91	243.75
38	\IPC\RW\1\250	02.05.20 05:27	242.17	244.09	243.03
39	\CCB\RW\1\	02.05.20 05:53	n.a.	n.a.	n.a.
	Average:	**43865.897**			**219**
	Rel.Std.Dev:	**0.000 %**			**97.977 %**

X- Repeat at a dilution. SL 2/5/20

Chromeleon (c) Dionex 1996-2006
Version 6.80 SR10 Build 2818 (166959)

Sequence: 020420a
Operator: US25_USR_SBNLABPCS

Printed: 2/5/2020 8:32:50 AM

Title:
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020
Timebase: ICS_5000_DT
#Samples: 39

Created: 2/4/2020 12:38:05 PM by US25_USR_SBNLABPCS
Last Update: 2/5/2020 8:32:44 AM by US25_USR_SBNLABPCS

No.	Name	Type	Pos.	Inj. Vol.	Program	Method	Status
1	\ICB\RW\1\	Standard	1	50.0	Met300B	Met300B	Finished
2	\ICS\RW\1\10	Standard	2	50.0	Met300B	Met300B	Finished
3	\ICS\RW\1\20	Standard	3	50.0	Met300B	Met300B	Finished
4	\ICS\RW\1\100	Standard	4	50.0	Met300B	Met300B	Finished
5	\ICS\RW\1\500	Standard	5	50.0	Met300B	Met300B	Finished
6	\ICS\RW\1\1000	Standard	6	50.0	Met300B	Met300B	Finished
7	\QCS\RW\1\250	Unknown	7	50.0	Met300B	Met300B	Finished
8	\RLC\RW\1\10	Unknown	8	50.0	Met300B	Met300B	Finished
9	\IPC\RW\1\250	Unknown	9	50.0	Met300B	Met300B	Finished
10	\LRB\RW\1\	Unknown	10	50.0	Met300B	Met300B	Finished
11	\LFB\RW\1\250	Unknown	11	50.0	Met300B	Met300B	Finished
12	4551869\FS\GW\1\	Unknown	12	50.0	Met300B	Met300B	Finished
13	4551871\MS\GW\1\250	Unknown	13	50.0	Met300B	Met300B	Finished
14	4551872\MSD\GW\1\250	Unknown	14	50.0	Met300B	Met300B	Finished
15	4554221\FS\DW\1\	Unknown	15	50.0	Met300B	Met300B	Finished
16	4554222\FS\DW\1\	Unknown	16	50.0	Met300B	Met300B	Finished
17	4554223\FS\DW\1\	Unknown	17	50.0	Met300B	Met300B	Finished
18	4554224\FS\DW\1\	Unknown	18	50.0	Met300B	Met300B	Finished
19	4554430\FS\DW\1\	Unknown	19	50.0	Met300B	Met300B	Finished
20	4554431\FS\DW\1\	Unknown	20	50.0	Met300B	Met300B	Finished
21	4554432\FS\DW\1\	Unknown	21	50.0	Met300B	Met300B	Finished
22	4554433\FS\DW\1\	Unknown	22	50.0	Met300B	Met300B	Finished
23	4554434\FS\DW\1\	Unknown	23	50.0	Met300B	Met300B	Finished
24	\IPC\RW\1\250	Unknown	24	50.0	Met300B	Met300B	Finished
25	\CCB\RW\1\	Unknown	25	50.0	Met300B	Met300B	Finished
26	4554435\FS\DW\1\	Unknown	26	50.0	Met300B	Met300B	Finished
27	4554436\FS\DW\1\	Unknown	27	50.0	Met300B	Met300B	Finished
28	4554437\FS\DW\1\	Unknown	28	50.0	Met300B	Met300B	Finished
29	4554438\FS\DW\1\	Unknown	29	50.0	Met300B	Met300B	Finished
30	4554439\FS\DW\1\	Unknown	30	50.0	Met300B	Met300B	Finished
31	4554933\FS\DW\1\	Unknown	31	50.0	Met300B	Met300B	Finished
32	4554934\FS\DW\1\	Unknown	32	50.0	Met300B	Met300B	Finished
33	4554935\FS\DW\1\	Unknown	33	50.0	Met300B	Met300B	Finished
34	4554936\FS\DW\1\	Unknown	34	50.0	Met300B	Met300B	Finished

Sequence: 020420a
Operator: US25_USR_SBNLABPCS

Title:
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020
Timebase: ICS_5000_DT
#Samples: 39

Created: 2/4/2020 12:38:05 PM by US25_USR_SBNLABPCS
Last Update: 2/5/2020 8:32:44 AM by US25_USR_SBNLABPCS

No.	Name	Inj. Date/Time	Weight	Dil. Factor	ISTD Amount	Sample ID	Replicate ID
1	\ICB\RW\1\	2/4/2020 1:04:56 PM	1.0000	1.0000	1.0000		10
2	\ICS\RW\1\10	2/4/2020 1:31:20 PM	1.0000	1.0000	1.0000		10
3	\ICS\RW\1\20	2/4/2020 1:57:44 PM	1.0000	1.0000	1.0000		10
4	\ICS\RW\1\100	2/4/2020 2:29:57 PM	1.0000	1.0000	1.0000		10
5	\ICS\RW\1\500	2/4/2020 2:55:57 PM	1.0000	1.0000	1.0000		10
6	\ICS\RW\1\1000	2/4/2020 3:22:21 PM	1.0000	1.0000	1.0000		10
7	\QCS\RW\1\250	2/4/2020 3:48:46 PM	1.0000	1.0000	1.0000		10
8	\RLC\RW\1\10	2/4/2020 4:15:10 PM	1.0000	1.0000	1.0000		10
9	\IPC\RW\1\250	2/4/2020 4:41:35 PM	1.0000	1.0000	1.0000		10
10	\LRB\RW\1\	2/4/2020 5:07:59 PM	1.0000	1.0000	1.0000		10
11	\LFB\RW\1\250	2/4/2020 5:34:23 PM	1.0000	1.0000	1.0000		10
12	4551869\FS\GW\1\	2/4/2020 6:00:47 PM	1.0000	1.0000	1.0000		10
13	4551871\MS\GW\1\250	2/4/2020 6:27:11 PM	1.0000	1.0000	1.0000		10
14	4551872\MSD\GW\1\250	2/4/2020 6:53:36 PM	1.0000	1.0000	1.0000		10
15	4554221\FS\DW\1\	2/4/2020 7:20:00 PM	1.0000	1.0000	1.0000		10
16	4554222\FS\DW\1\	2/4/2020 7:46:24 PM	1.0000	1.0000	1.0000		10
17	4554223\FS\DW\1\	2/4/2020 8:12:48 PM	1.0000	1.0000	1.0000		10
18	4554224\FS\DW\1\	2/4/2020 8:39:11 PM	1.0000	1.0000	1.0000		10
19	4554430\FS\DW\1\	2/4/2020 9:05:36 PM	1.0000	1.0000	1.0000		10
20	4554431\FS\DW\1\	2/4/2020 9:32:01 PM	1.0000	1.0000	1.0000		10
21	4554432\FS\DW\1\	2/4/2020 9:58:25 PM	1.0000	1.0000	1.0000		10
22	4554433\FS\DW\1\	2/4/2020 10:24:49 PM	1.0000	1.0000	1.0000		10
23	4554434\FS\DW\1\	2/4/2020 10:51:13 PM	1.0000	1.0000	1.0000		10
24	\IPC\RW\1\250	2/4/2020 11:17:37 PM	1.0000	1.0000	1.0000		10
25	\CCB\RW\1\	2/4/2020 11:44:01 PM	1.0000	1.0000	1.0000		10
26	4554435\FS\DW\1\	2/5/2020 12:10:26 AM	1.0000	1.0000	1.0000		10
27	4554436\FS\DW\1\	2/5/2020 12:36:50 AM	1.0000	1.0000	1.0000		10
28	4554437\FS\DW\1\	2/5/2020 1:03:15 AM	1.0000	1.0000	1.0000		10
29	4554438\FS\DW\1\	2/5/2020 1:29:40 AM	1.0000	1.0000	1.0000		10
30	4554439\FS\DW\1\	2/5/2020 1:56:04 AM	1.0000	1.0000	1.0000		10
31	4554933\FS\DW\1\	2/5/2020 2:22:28 AM	1.0000	1.0000	1.0000		10
32	4554934\FS\DW\1\	2/5/2020 2:48:53 AM	1.0000	1.0000	1.0000		10
33	4554935\FS\DW\1\	2/5/2020 3:15:17 AM	1.0000	1.0000	1.0000		10
34	4554936\FS\DW\1\	2/5/2020 3:41:42 AM	1.0000	1.0000	1.0000		10

Title:
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020
Timebase: ICS_5000_DT
#Samples: 39
Created: 2/4/2020 12:38:05 PM by US25_USR_SBNLABPCS
Last Update: 2/5/2020 8:32:44 AM by US25_USR_SBNLABPCS

No.	Name	Comment
1	\ICB\RW\1\	
2	\ICS\RW\1\10	
3	\ICS\RW\1\20	
4	\ICS\RW\1\100	
5	\ICS\RW\1\500	
6	\ICS\RW\1\1000	
7	\QCS\RW\1\250	
8	\RLC\RW\1\10	
9	\IPC\RW\1\250	
10	\LRB\RW\1\	
11	\LFB\RW\1\250	
12	4551869\FS\GW\1\	
13	4551871\MS\GW\1\250	
14	4551872\MSD\GW\1\250	
15	4554221\FS\DW\1\	
16	4554222\FS\DW\1\	
17	4554223\FS\DW\1\	
18	4554224\FS\DW\1\	
19	4554430\FS\DW\1\	
20	4554431\FS\DW\1\	
21	4554432\FS\DW\1\	
22	4554433\FS\DW\1\	
23	4554434\FS\DW\1\	
24	\IPC\RW\1\250	
25	\CCB\RW\1\	
26	4554435\FS\DW\1\	
27	4554436\FS\DW\1\	
28	4554437\FS\DW\1\	
29	4554438\FS\DW\1\	
30	4554439\FS\DW\1\	
31	4554933\FS\DW\1\	
32	4554934\FS\DW\1\	
33	4554935\FS\DW\1\	
34	4554936\FS\DW\1\	

Title:
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020
Timebase: ICS_5000_DT
#Samples: 39
Created: 2/4/2020 12:38:05 PM by US25_USR_SBNLABPCS
Last Update: 2/5/2020 8:32:44 AM by US25_USR_SBNLABPCS

No.	Name	Type	Pos.	Inj. Vol.	Program	Method	Status
35	4555340\FS\SW\1\	Unknown	35	50.0	Met300B	Met300B	Finished
36	4555340\MS\SW\1\250	Unknown	36	50.0	Met300B	Met300B	Finished
37	4555340\MSD\SW\1\250	Unknown	37	50.0	Met300B	Met300B	Finished
38	\IPC\RW\1\250	Unknown	38	50.0	Met300B	Met300B	Finished
39	\CCB\RW\1\	Unknown	39	50.0	Met300B	Met300B	Finished

Title:
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020
Timebase: ICS_5000_DT
#Samples: 39
Created: 2/4/2020 12:38:05 PM by US25_USR_SBNLABPCS
Last Update: 2/5/2020 8:32:44 AM by US25_USR_SBNLABPCS

No.	Name	Inj. Date/Time	Weight	Dil. Factor	ISTD Amount	Sample ID	Replicate ID
35	4555340\FS\SW\1\	2/5/2020 4:08:06 AM	1.0000	1.0000	1.0000		10
36	4555340\MS\SW\1\250	2/5/2020 4:34:31 AM	1.0000	1.0000	1.0000		10
37	4555340\MSD\SW\1\250	2/5/2020 5:00:55 AM	1.0000	1.0000	1.0000		10
38	\IPC\RW\1\250	2/5/2020 5:27:20 AM	1.0000	1.0000	1.0000		10
39	\CCB\RW\1\	2/5/2020 5:53:43 AM	1.0000	1.0000	1.0000		10

Title:
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020
Timebase: ICS_5000_DT
#Samples: 39
Created: 2/4/2020 12:38:05 PM by US25_USR_SBNLABPCS
Last Update: 2/5/2020 8:32:44 AM by US25_USR_SBNLABPCS

No.	Name	Comment
35	4555340\FS\SW\1\	
36	4555340\MS\SW\1\250	
37	4555340\MSD\SW\1\250	
38	\IPC\RW\1\250	
39	\CCB\RW\1\	

Title: 300B
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020\020420a.SEQ Created: 3/6/2013 4:00:11 PM by SBNLab003
Timebase: ICS_5000_DT Changed: 1/10/2020 1:40:22 PM by US25_USR_SBNLABPCS

```
          Column_TC.AcquireExclusiveAccess
          Compartment_TC.AcquireExclusiveAccess
          Pressure.LowerLimit =              100 [psi]
          Pressure.UpperLimit =              3500 [psi]
          MaximumFlowRamp =                  6.00 [ml/min²]
          %A.Equate =                        "%A"
          Pump_1_Pressure.Step =             0.20 [s]
          Pump_1_Pressure.Average =          Off
          DeliverSpeed =                     4.0 [ml/min]
          DelayVolume =                      125 [µl]
          FlushFactor =                      10
          Sampler.LoadPosition
          DeliverSample                      Volume=5000
          EndSamplePrep
          CDet1.Data_Collection_Rate =       5.0 [Hz]
          Temperature_Compensation =         1.7 [%/°C]
          CellHeater.Mode                    = On
          CellHeater.TemperatureSet =        35.00 [°C]
          Column_TC.Mode =                   On
          Column_TC.TemperatureSet =         30.00 [°C]
          Compartment_TC.Mode =              On
          Compartment_TC.TemperatureSet =    30.00 [°C]
          Suppressor1.Type =                 ASRS_2mm
          Carbonate =                        9.0 [mM]
          CurrentSet =                       18 [mA]
          ; Suppressor1.Carbonate =         9.0
          ; Suppressor1.Bicarbonate =       0.0
          ; Suppressor1.Hydroxide =         0.0
          ; Suppressor1.Tetraborate =       0.0
          ; Suppressor1.Other eluent =      0.0
          ; Suppressor1.Recommended Current =                12
          ; ASRS300.Carbonate =             9.0
          ; ASRS300.Bicarbonate =           0.0
          ; ASRS300.Hydroxide =             0.0
          ; ASRS300.Tetraborate =           0.0
          ; ASRS300.Other eluent =          0.0
          ; ASRS300.Recommended Current =   16
          Flow =                             0.250 [ml/min]
          Curve =                            5

 0.000    CDet1.Autozero
          Wait                               Ready
          Wait                               CycleTimeState
          Inject
```

Title: 300B
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020\020420a.SEQ Created: 3/6/2013 4:00:11 PM by SBNLab003
Timebase: ICS_5000_DT Changed: 1/10/2020 1:40:22 PM by US25_USR_SBNLABPCS

```
        Pump_1_Pressure.AcqOn
        CD_1.AcqOn
        CD_1_Total.AcqOn

23.500
        Pump_1_Pressure.AcqOff
        CD_1.AcqOff
        CD_1_Total.AcqOff
        Compartment_TC.ReleaseExclusiveAccess
        Column_TC.ReleaseExclusiveAccess
        End
```

Program File:	Met300B	Post-acquisition steps, Page 1 of 1
Operator:	US25_USR_SBNLABPCS	Printed: 2/5/2020 8:32:51 AM
Title:	300B	
Datasource:	SBNLAB003-PC_local	
Location:	ICS_5000_DT\300B\2020\020420a.SEQ	Created: 3/6/2013 4:00:11 PM by SBNLab003
Timebase:	ICS_5000_DT	Changed: 1/10/2020 1:40:22 PM by US25_USR_SBNLABPCS

No.	Channel	Operation	Parameters

Title: 300B
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020\020420a.SEQ
Created: 3/6/2013 4:00:11 PM by SBNLab003
Last Update: 2/4/2020 3:19:07 PM by US25_USR_SBNLABPCS

Blank Run Subtraction: No Blank Run Subtraction

Detection Table:

No.	Ret. Time [min]	Param. Name	Param. Value	Channel
1	0.000	Minimum Area	0.001 "[Signal]*min"	All Channels
2	0.000	Inhibit Integration	On	All Channels
3	0.000	Valley to Valley	On	All Channels
4	0.000	Peak Slice	1.00 s	All Channels
5	0.000	Sensitivity	0.001 "[Signal]"	All Channels
6	5.300	Inhibit Integration	Off	All Channels
7	6.150	Inhibit Integration	On	All Channels
8	10.800	Inhibit Integration	Off	All Channels
9	12.900	Inhibit Integration	On	All Channels

Title: 300B

Datasource:	SBNLAB003-PC_local	Created:	3/6/2013 4:00:11 PM by SBNLab003
Location:	ICS_5000_DT\300B\2020\020420a.SEQ	Last Update:	2/4/2020 3:19:07 PM by US25_USR_SBNLABPCS

Peak Table:

Use Recently Detected Retention Times: Off
Peak Retention Time Determination: Absolute
Dead time:
Delay Time of 2'nd Detector: <None>
Delay Time of 3'rd Detector: <None>

No.	Peak Name	Ret.Time	Window	Standard	Int.Type	Cal.Type	Peak Type	Group	Amount \ICB\RW\1\
1	Chlorite	5.560 min	5.000 RN	External	Area	LOff	Auto		0.000000
2	Bromide	11.230 min	5.000 RN	External	Area	LOff	Auto		0.000000
3	Chlorate	12.320 min	5.000 RN	External	Area	LOff	Auto		0.000000

Title: 300B
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020\020420a.SEQ
Created: 3/6/2013 4:00:11 PM by SBNLab003
Last Update: 2/4/2020 3:19:07 PM by US25_USR_SBNLABPCS

Peak Table:

Use Recently Detected Retention Times: Off
Peak Retention Time Determination: Absolute
Dead time:
Delay Time of 2'nd Detector: <None>
Delay Time of 3'rd Detector: <None>

No.	Peak Name	Ret.Time	Amount \ICS\RW\1\10	Amount \ICS\RW\1\20	Amount \ICS\RW\1\100	Amount \ICS\RW\1\250	Amount \ICS\RW\1\500	Amount \ICS\RW\1\1000
1	Chlorite	5.560 min	10.000000	20.000000	100.000000	250.000000	500.000000	1000.000000
2	Bromide	11.230 min	10.000000	20.000000	100.000000	250.000000	500.000000	1000.000000
3	Chlorate	12.320 min	10.000000	20.000000	100.000000	250.000000	500.000000	1000.000000

Title: 300B

Datasource:	SBNLAB003-PC_local	Created:	3/6/2013 4:00:11 PM by SBNLab003
Location:	ICS_5000_DT\300B\2020\020420a.SEQ	Last Update:	2/4/2020 3:19:07 PM by US25_USR_SBNLABPCS

Peak Table:

Use Recently Detected Retention Times: Off
Peak Retention Time Determination: Absolute
Dead time:
Delay Time of 2'nd Detector: <None>
Delay Time of 3'rd Detector: <None>

No.	Peak Name	Ret.Time	Comment
1	Chlorite	5.560 min	Autogenerated
2	Bromide	11.230 min	Autogenerated
3	Chlorate	12.320 min	Autogenerated

Title: 300B
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020\020420a.SEQ
Created: 3/6/2013 4:00:11 PM by SBNLab003
Last Update: 2/4/2020 3:19:07 PM by US25_USR_SBNLABPCS

Amount Table:

Dimension of Amounts:
Reference volume for amounts: Use inject volume of first standard
Number of Amount Columns: 7
Sample column used for amount column assignment: Sample Name

No.	Peak Name	Ret.Time	Resp.Fact.	Amount \ICB\RW\1\	Amount \ICS\RW\1\10	Amount \ICS\RW\1\20	Amount \ICS\RW\1\100	Amount \ICS\RW\1\250
1	Chlorite	5.560 min	1.000000	0.000000	10.000000	20.000000	100.000000	250.000000
2	Bromide	11.230 min	1.000000	0.000000	10.000000	20.000000	100.000000	250.000000
3	Chlorate	12.320 min	1.000000	0.000000	10.000000	20.000000	100.000000	250.000000

Title: 300B
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020\020420a.SEQ
Created: 3/6/2013 4:00:11 PM by SBNLab003
Last Update: 2/4/2020 3:19:07 PM by US25_USR_SBNLABPCS

Amount Table:

Dimension of Amounts:
Reference volume for amounts: Use inject volume of first standard
Number of Amount Columns: 7
Sample column used for amount column assignment: Sample Name

No.	Peak Name	Ret.Time	Amount \ICS\RW\1\500	Amount \ICS\RW\1\1000	Comment
1	Chlorite	5.560 min	500.000000	1000.000000	Autogenerated
2	Bromide	11.230 min	500.000000	1000.000000	Autogenerated
3	Chlorate	12.320 min	500.000000	1000.000000	Autogenerated

Title: 300B
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020\020420a.SEQ
Created: 3/6/2013 4:00:11 PM by SBNLab003
Last Update: 2/4/2020 3:19:07 PM by US25_USR_SBNLABPCS

Calibration:

Calibration Mode: Total
Auto Recalibrate: On
Curve Fitting Model: Normal
Dual-Column Separate Calibration: Off

No.	Enabled	Name	Smp.No.	Pos.	Inj. Vol.	Weight	ISTD Amount	Dil. Factor
1	☒	*\ICB\RW\1*	*1*	*1*	*50.0*	*1.0000*	*1.0000*	*1.0000*
2	☒	\ICS\RW\1\10	2	2	50.0	1.0000	1.0000	1.0000
3	☒	\ICS\RW\1\20	3	3	50.0	1.0000	1.0000	1.0000
4	☒	\ICS\RW\1\100	4	4	50.0	1.0000	1.0000	1.0000
5	☒	\ICS\RW\1\500	5	5	50.0	1.0000	1.0000	1.0000
6	☒	\ICS\RW\1\1000	6	6	50.0	1.0000	1.0000	1.0000

Title: 300B
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020\020420a.SEQ
Created: 3/6/2013 4:00:11 PM by SBNLab003
Last Update: 2/4/2020 3:19:07 PM by US25_USR_SBNLABPCS

Calibration:

Calibration Mode: Total
Auto Recalibrate: On
Curve Fitting Model: Normal
Dual-Column Separate Calibration: Off

No.	Enabled	Name	Inj. Date/Time	Sample Comment	Calib. Comment
1	☒	*\VCB\RW\1*	*2/4/2020 1:04:56 PM*		*Couldn't find the peak in the chromatogram.*
2	☒	\ICS\RW\1\10	2/4/2020 1:31:20 PM		Ok
3	☒	\ICS\RW\1\20	2/4/2020 1:57:44 PM		Ok
4	☒	\ICS\RW\1\100	2/4/2020 2:29:57 PM		Ok
5	☒	\ICS\RW\1\500	2/4/2020 2:55:57 PM		Ok
6	☒	\ICS\RW\1\1000	2/4/2020 3:22:21 PM		Ok

Title: 300B
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020\020420a.SEQ
Created: 3/6/2013 4:00:11 PM by SBNLab003
Last Update: 2/4/2020 3:19:07 PM by US25_USR_SBNLABPCS

System Suitability Test:

No.	Name	Sample Condition	Test Condition	Aggregate	Operator	Value	Rounding
1							

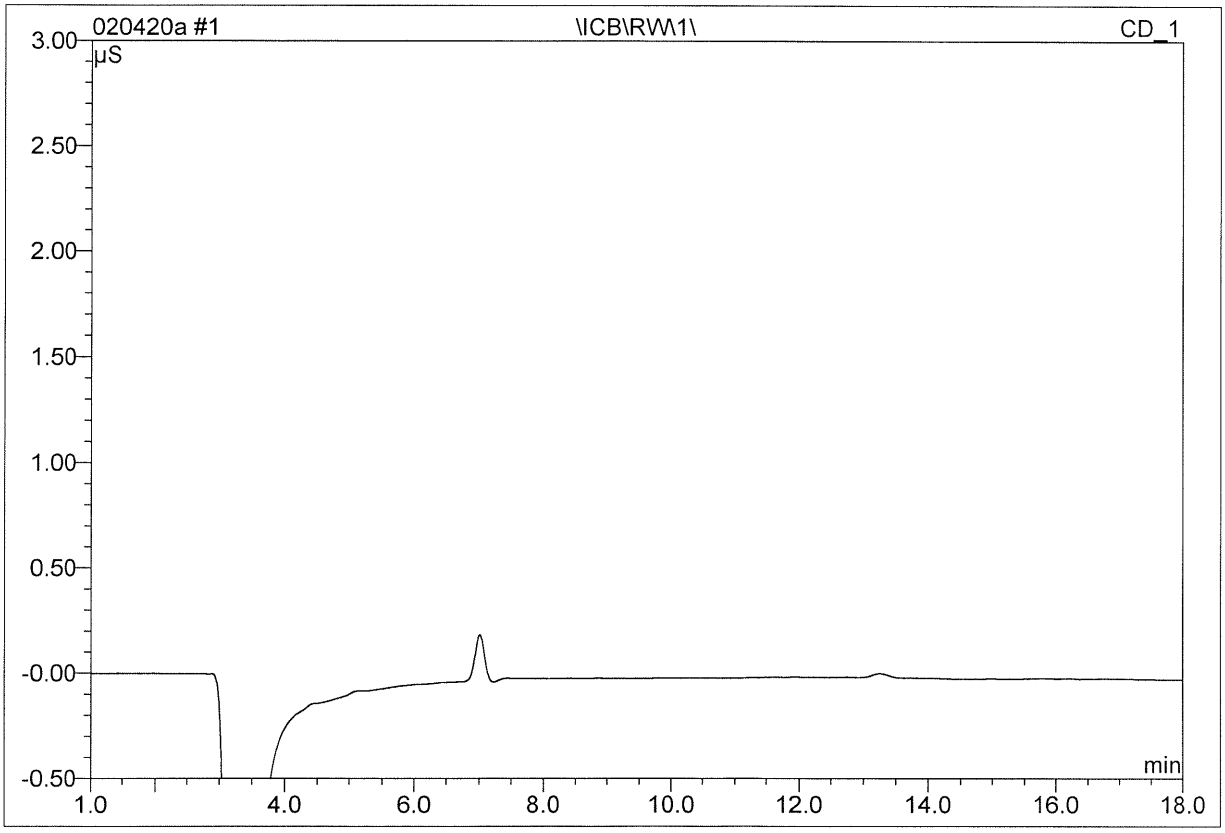
Title: 300B
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020\020420a.SEQ
Created: 3/6/2013 4:00:11 PM by SBNLab003
Last Update: 2/4/2020 3:19:07 PM by US25_USR_SBNLABPCS

System Suitability Test:

No.	Name	Channel	Peak	N.A.	Fail-Action	Result	SST Message
1							

1 \ICB\RW\1\

Sample Name:	**\ICB\RW\1**	*Injection Volume:*	**50.0**
Vial Number:	**1**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**2/4/2020 13:04**	*Sample Weight:*	**1.0000**
Run Time (min):	**23.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
Total:			0.000	0.000	0.00	0.000	

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2 \ICS\RW\1\10

Sample Name:	**\ICS\RW\1\10**	*Injection Volume:*	**50.0**
Vial Number:	**2**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**2/4/2020 13:31**	*Sample Weight:*	**1.0000**
Run Time (min):	**23.50**	*Sample Amount:*	**1.0000**

No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	5.57	Chlorite	2145.0	0.030	0.005	13.448	BMB
2	11.23	Bromide	2145.0	0.019	0.005	14.723	BMB
3	12.21	Chlorate	2145.0	0.014	0.004	12.882	BMB
Total:			6434.870	0.063	0.01	41.052	

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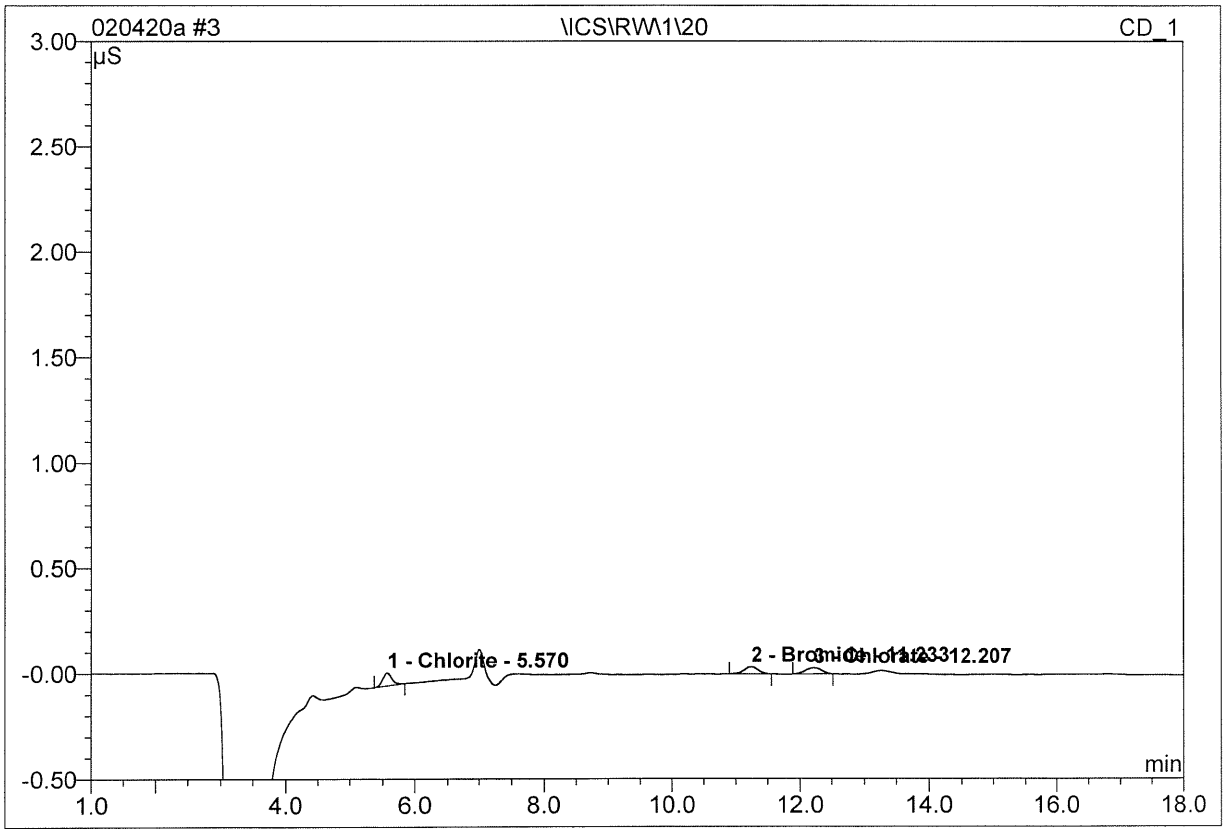
3 \ICS\RW\1\20

Sample Name:	**\ICS\RW\1\20**	*Injection Volume:*	**50.0**
Vial Number:	**3**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**2/4/2020 13:57**	*Sample Weight:*	**1.0000**
Run Time (min):	**23.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	5.57	Chlorite	2145.4	0.062	0.010	23.539	BMB
2	11.23	Bromide	2145.4	0.034	0.009	22.639	BMB
3	12.21	Chlorate	2145.4	0.030	0.009	23.176	BMB
Total:			6436.350	0.126	0.03	69.354	

4 \ICS\RW\1\100

Sample Name:	**\ICS\RW\1\100**	*Injection Volume:*	**50.0**
Vial Number:	**4**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**2/4/2020 14:29**	*Sample Weight:*	**1.0000**
Run Time (min):	**23.50**	*Sample Amount:*	**1.0000**

No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	5.57	Chlorite	2147.5	0.309	0.052	99.909	BMB
2	11.24	Bromide	2147.5	0.184	0.048	98.438	BMB
3	12.21	Chlorate	2147.5	0.149	0.044	99.036	BMB
Total:			6442.351	0.642	0.14	297.383	

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5 \ICS\RW\1\500

Sample Name:	**\ICS\RW\1\500**	*Injection Volume:*	**50.0**
Vial Number:	**5**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**2/4/2020 14:55**	*Sample Weight:*	**1.0000**
Run Time (min):	**23.50**	*Sample Amount:*	**1.0000**

No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	5.56	Chlorite	2146.1	1.598	0.261	486.401	BMB
2	11.23	Bromide	2146.1	0.954	0.249	488.288	BMB
3	12.21	Chlorate	2146.1	0.763	0.226	489.805	BMB
Total:			6438.218	3.315	0.74	1464.494	

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6 \ICS\RW\1\1000

Sample Name:	**\ICS\RW\1\1000**	*Injection Volume:*	**50.0**
Vial Number:	**6**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**2/4/2020 15:22**	*Sample Weight:*	**1.0000**
Run Time (min):	**23.50**	*Sample Amount:*	**1.0000**

No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	5.57	Chlorite	2148.5	3.350	0.542	1006.703	BMB
2	11.23	Bromide	2148.5	1.985	0.516	1005.912	BMB
3	12.21	Chlorate	2148.5	1.580	0.466	1005.102	BMB
Total:			6445.587	6.915	1.52	3017.717	

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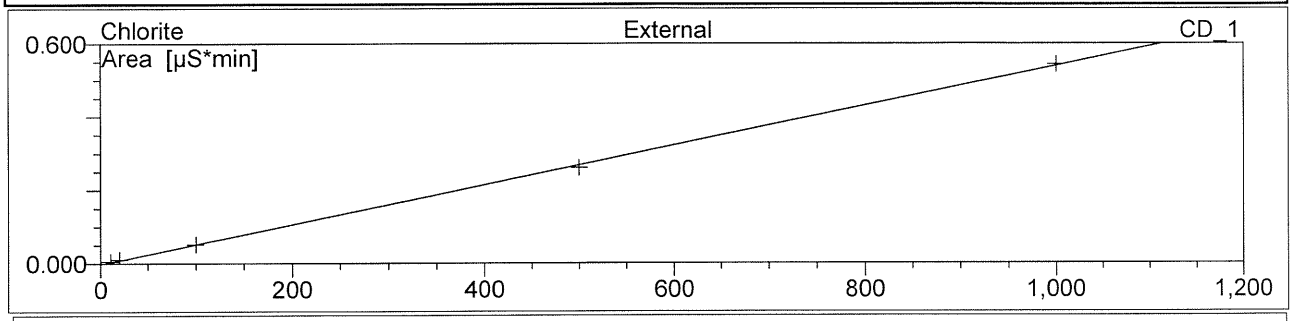
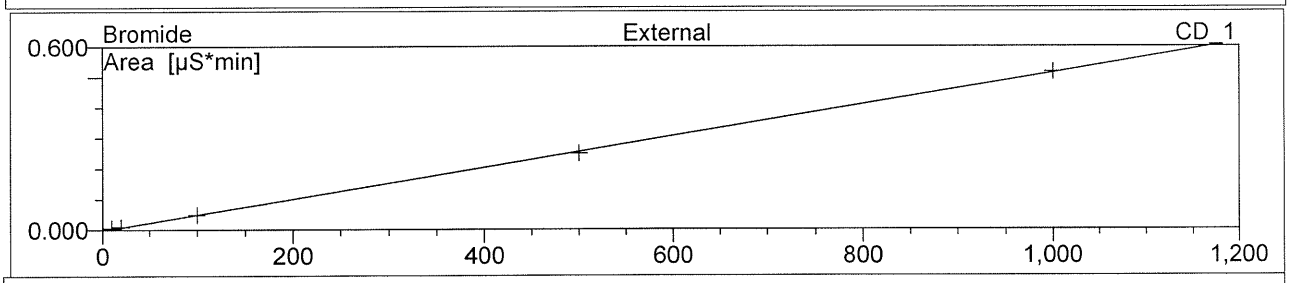
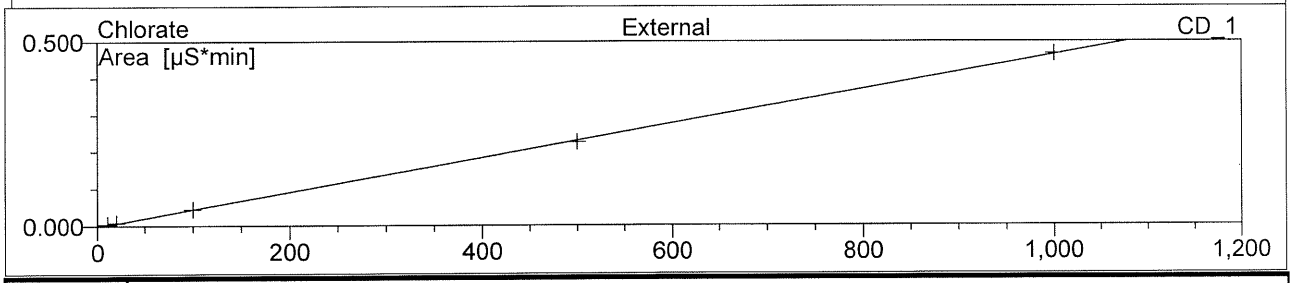
6 \ICS\RW\1\1000

Sample Name:	**\ICS\RW\1\1000**	*Injection Volume:*	**50.0**
Vial Number:	**6**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**2/4/2020 15:22**	*Sample Weight:*	**1.0000**
Run Time (min):	**23.50**	*Sample Amount:*	**1.0000**







No.	Ret.Time min	Peak Name	Cal.Type	Points	Corr.Coeff. %	Offset	Slope	Curve
1	5.57	Chlorite	LOff	5	99.983	-0.0026	0.0005	0.0000
2	11.23	Bromide	LOff	5	99.986	-0.0029	0.0005	0.0000
3	12.21	Chlorate	LOff	5	99.990	-0.0021	0.0005	0.0000
Average:					99.9861	-0.0025	0.0005	0.0000

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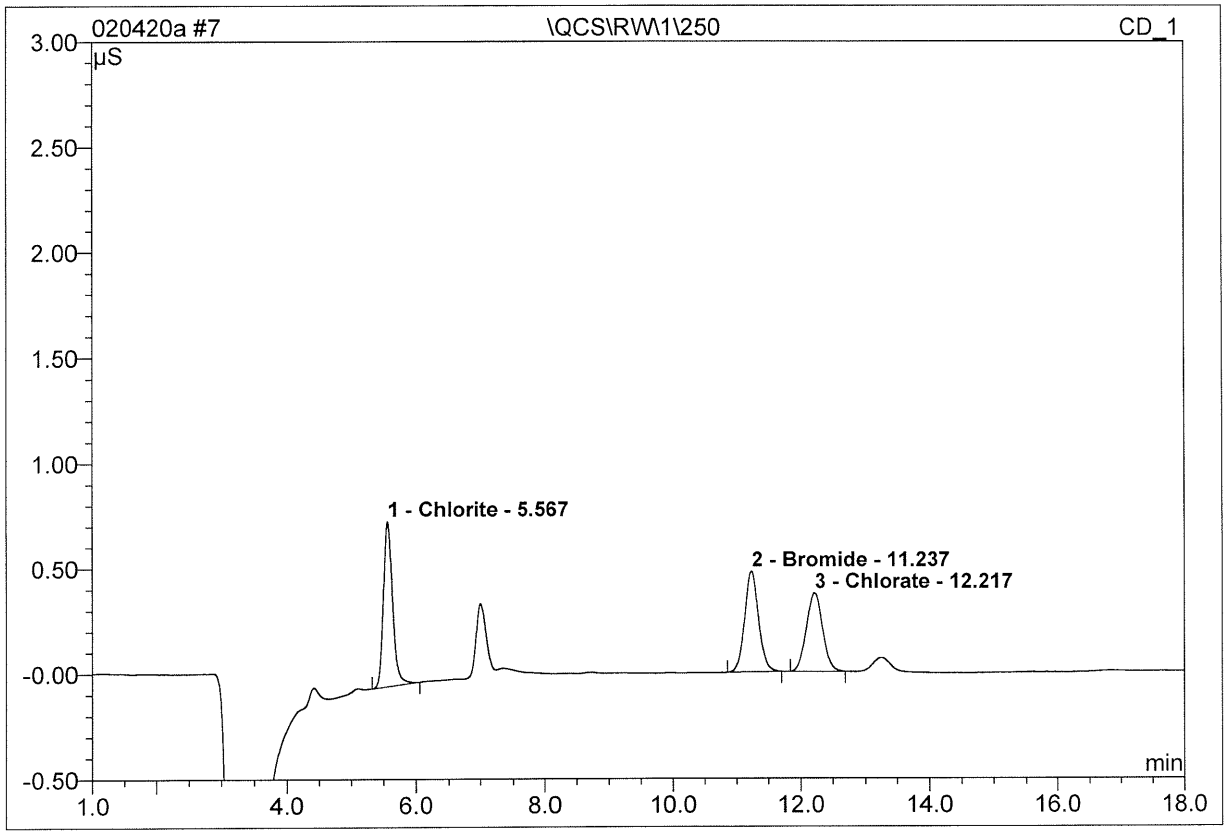
7 \QCS\RW\1\250

Sample Name:	**\QCS\RW\1\250**	*Injection Volume:*	**50.0**
Vial Number:	**7**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**2/4/2020 15:48**	*Sample Weight:*	**1.0000**
Run Time (min):	**23.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	5.57	Chlorite	2150.3	0.784	0.129	242.487	BMB
2	11.24	Bromide	2150.3	0.479	0.125	247.997	BMB
3	12.22	Chlorate	2150.3	0.374	0.110	241.056	BMB
Total:			6451.014	1.637	0.36	731.540	

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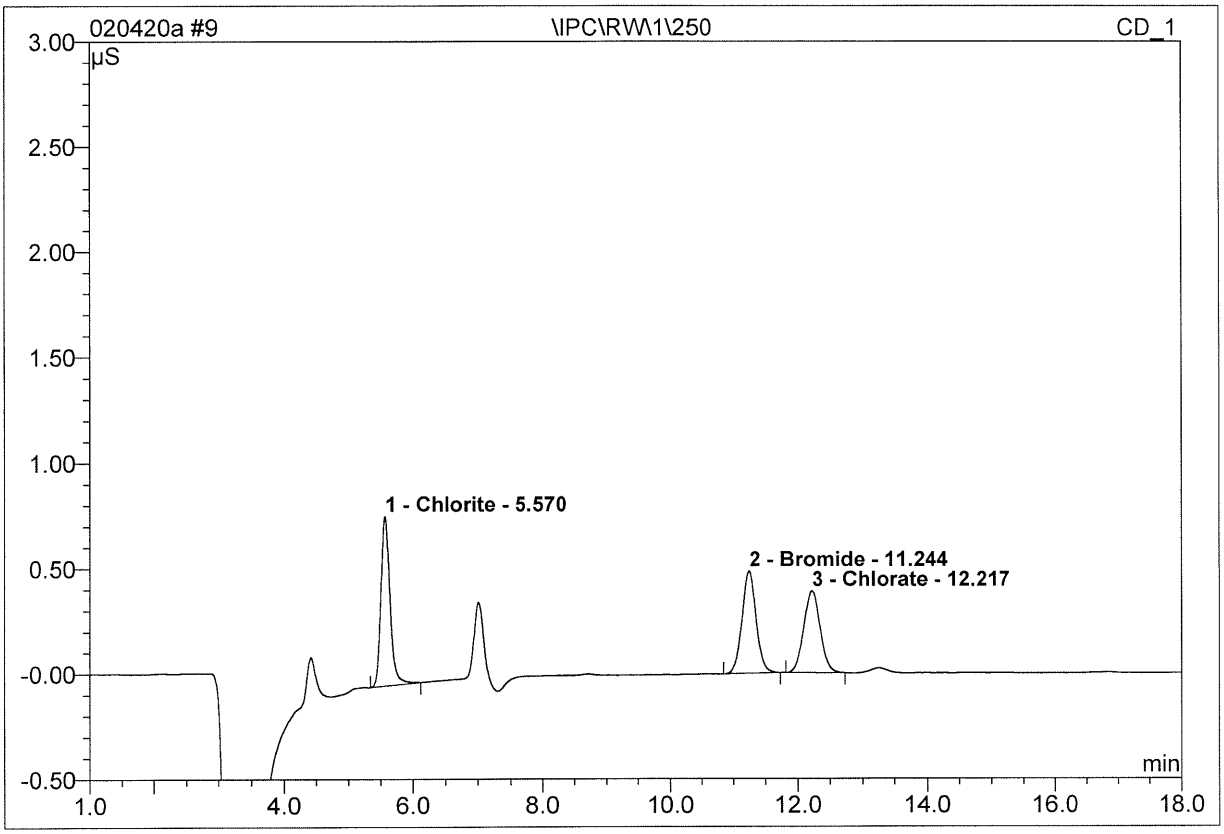
9 \IPC\RW\1\250

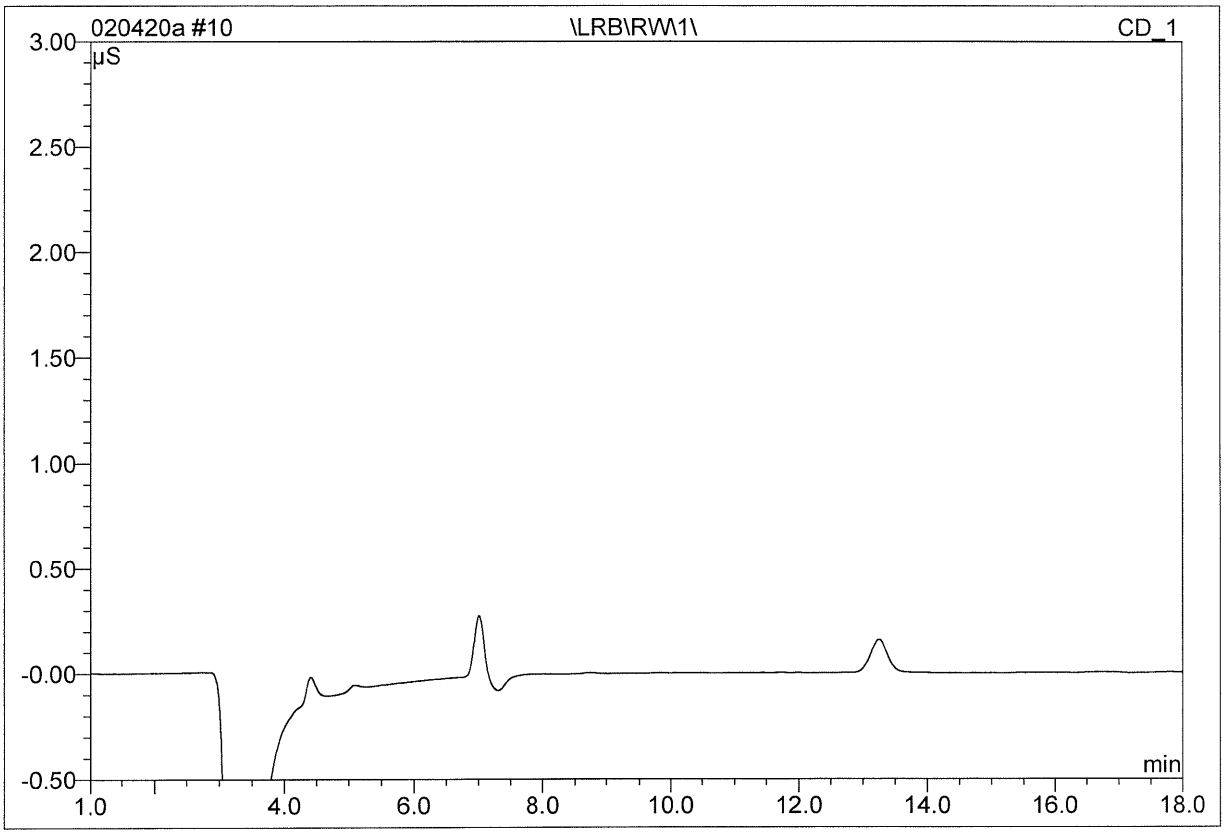
Sample Name:	**\IPC\RW\1\250**	*Injection Volume:*	**50.0**
Vial Number:	**9**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**2/4/2020 16:41**	*Sample Weight:*	**1.0000**
Run Time (min):	**23.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	5.57	Chlorite	2150.3	0.804	0.134	251.829	BMB
2	11.24	Bromide	2150.3	0.486	0.127	252.076	BMB
3	12.22	Chlorate	2150.3	0.388	0.115	250.770	BMB
Total:			6450.876	1.678	0.38	754.676	

10 \LRB\RW\1\

Sample Name:	**\LRB\RW\1**	*Injection Volume:*	**50.0**
Vial Number:	**10**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**2/4/2020 17:07**	*Sample Weight:*	**1.0000**
Run Time (min):	**23.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
Total:			0.000	0.000	0.00	0.000	

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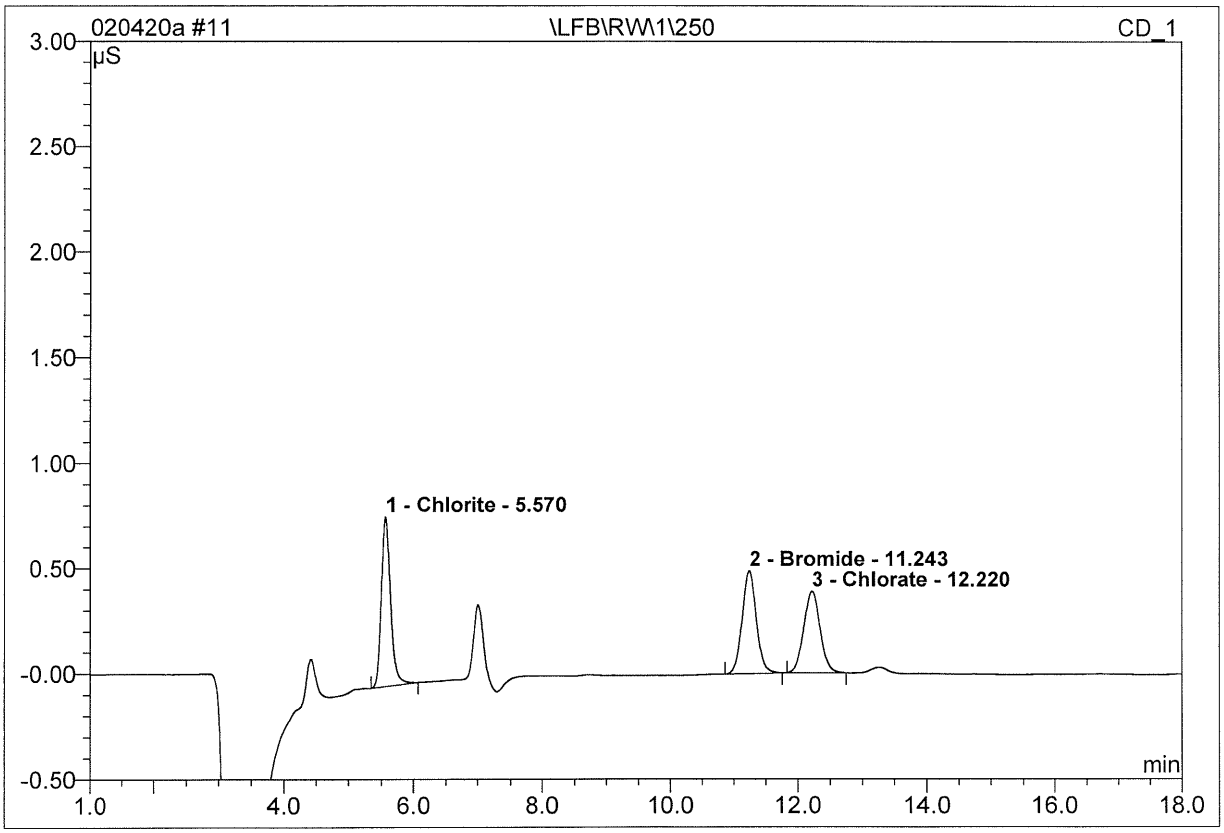
11 \LFB\RW\1\250

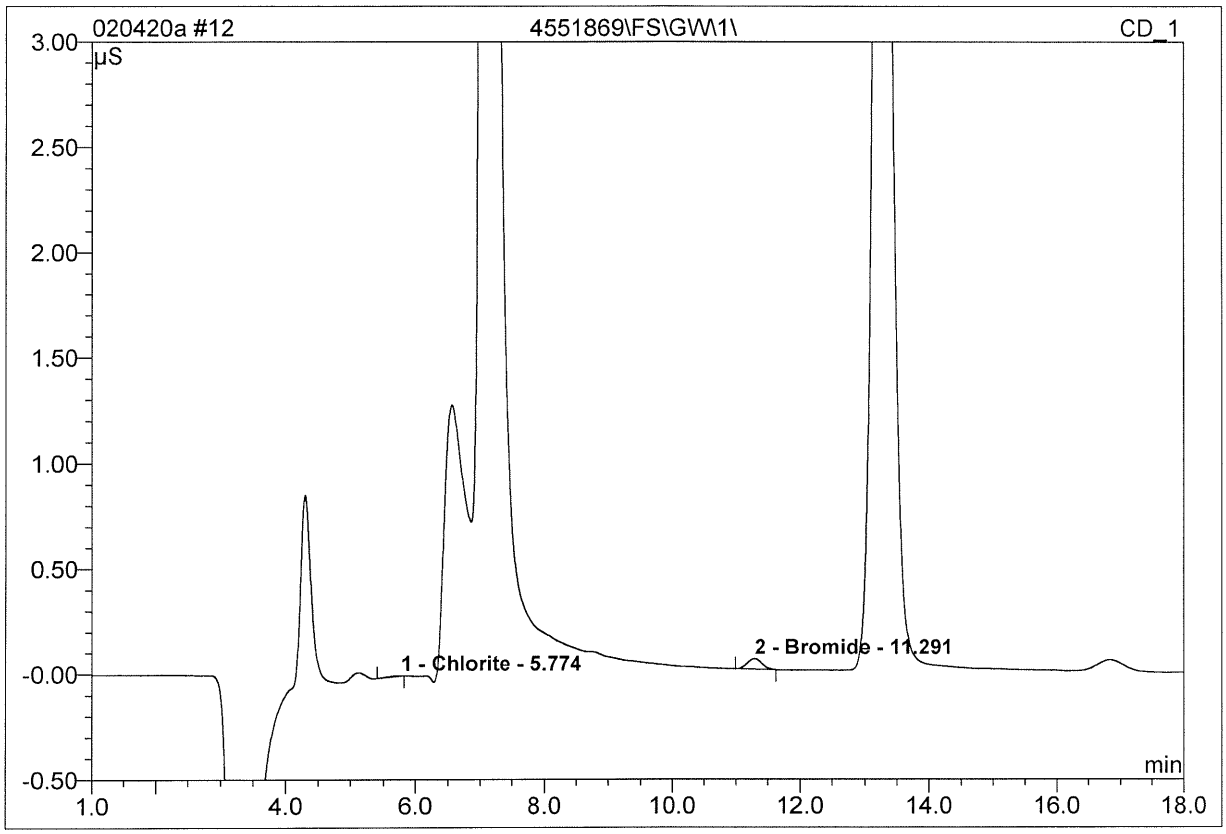
Sample Name:	**\LFB\RW\1\250**	*Injection Volume:*	**50.0**
Vial Number:	**11**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**2/4/2020 17:34**	*Sample Weight:*	**1.0000**
Run Time (min):	**23.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	5.57	Chlorite	2150.9	0.805	0.133	250.898	BMB
2	11.24	Bromide	2150.9	0.488	0.128	254.325	BMB
3	12.22	Chlorate	2150.9	0.389	0.115	251.377	BMB
Total:			6452.807	1.682	0.38	756.600	

12 4551869\FS\GW\1\

Sample Name:	**4551869\FS\GW\1**	*Injection Volume:*	**50.0**
Vial Number:	**12**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**2/4/2020 18:00**	*Sample Weight:*	**1.0000**
Run Time (min):	**23.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	5.77	Chlorite	2141.2	0.002	0.001	6.811	BMB
2	11.29	Bromide	2141.2	0.050	0.013	30.824	BMB
Total:			4282.389	0.053	0.01	37.635	

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13 4551871\MS\GW\1\250

Sample Name:	**4551871\MS\GW\1\250**	*Injection Volume:*	**50.0**
Vial Number:	**13**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**2/4/2020 18:27**	*Sample Weight:*	**1.0000**
Run Time (min):	**23.50**	*Sample Amount:*	**1.0000**

No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	5.60	Chlorite	2138.9	0.313	0.111	210.179	BMB
2	11.30	Bromide	2138.9	0.520	0.136	269.291	BMB
3	12.27	Chlorate	2138.9	0.377	0.111	242.232	BMB
Total:			6416.577	1.210	0.36	721.703	

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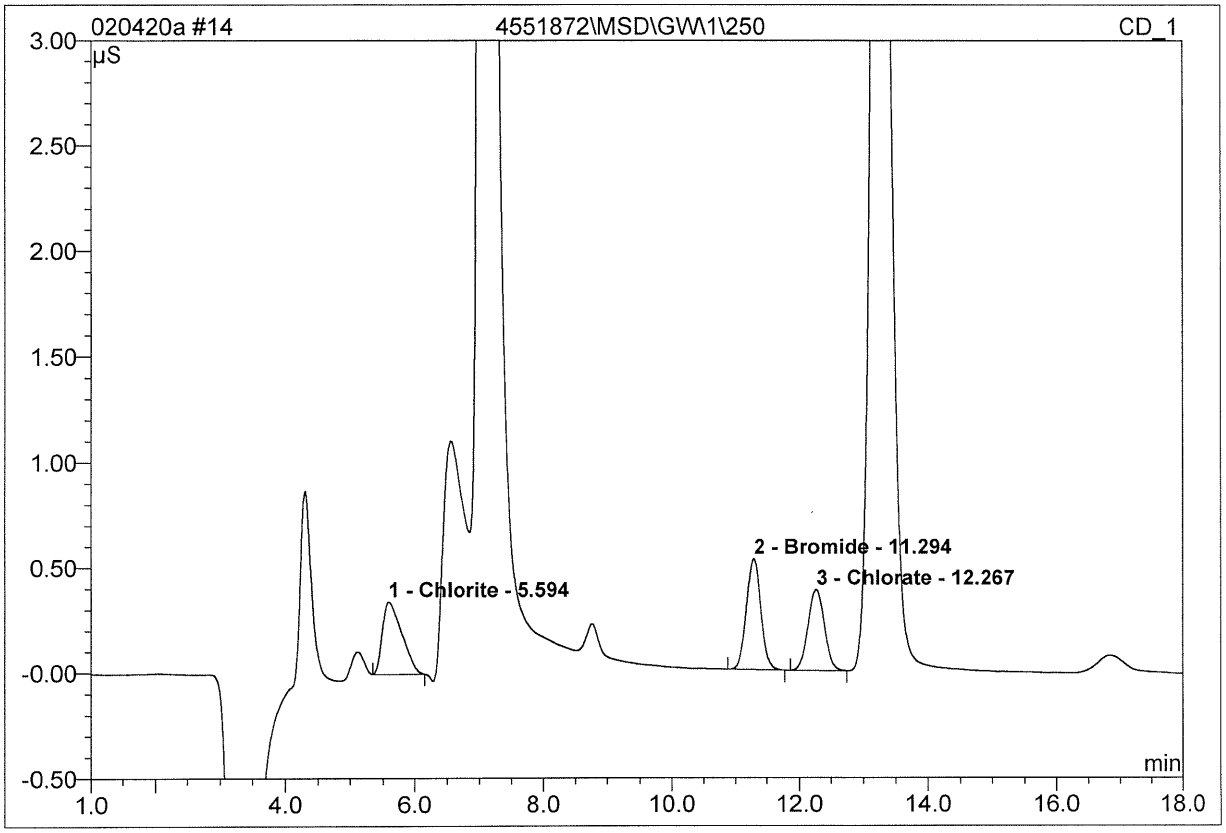
14 4551872\MSD\GW\1\250

Sample Name:	**4551872\MSD\GW\1\250**	*Injection Volume:*	**50.0**
Vial Number:	**14**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**2/4/2020 18:53**	*Sample Weight:*	**1.0000**
Run Time (min):	**23.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	5.59	Chlorite	2141.8	0.344	0.122	230.396	BMB
2	11.29	Bromide	2141.8	0.528	0.138	273.916	BMB
3	12.27	Chlorate	2141.8	0.386	0.113	248.143	BMB
Total:			6425.465	1.259	0.37	752.455	

24 \IPC\RW\1\250

Sample Name:	**\IPC\RW\1\250**	*Injection Volume:*	**50.0**
Vial Number:	**24**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**2/4/2020 23:17**	*Sample Weight:*	**1.0000**
Run Time (min):	**23.50**	*Sample Amount:*	**1.0000**

No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	5.57	Chlorite	2143.1	0.795	0.132	247.780	BMB
2	11.23	Bromide	2143.1	0.481	0.126	250.443	BMB
3	12.21	Chlorate	2143.1	0.386	0.114	249.125	BMB
Total:			6429.286	1.662	0.37	747.348	

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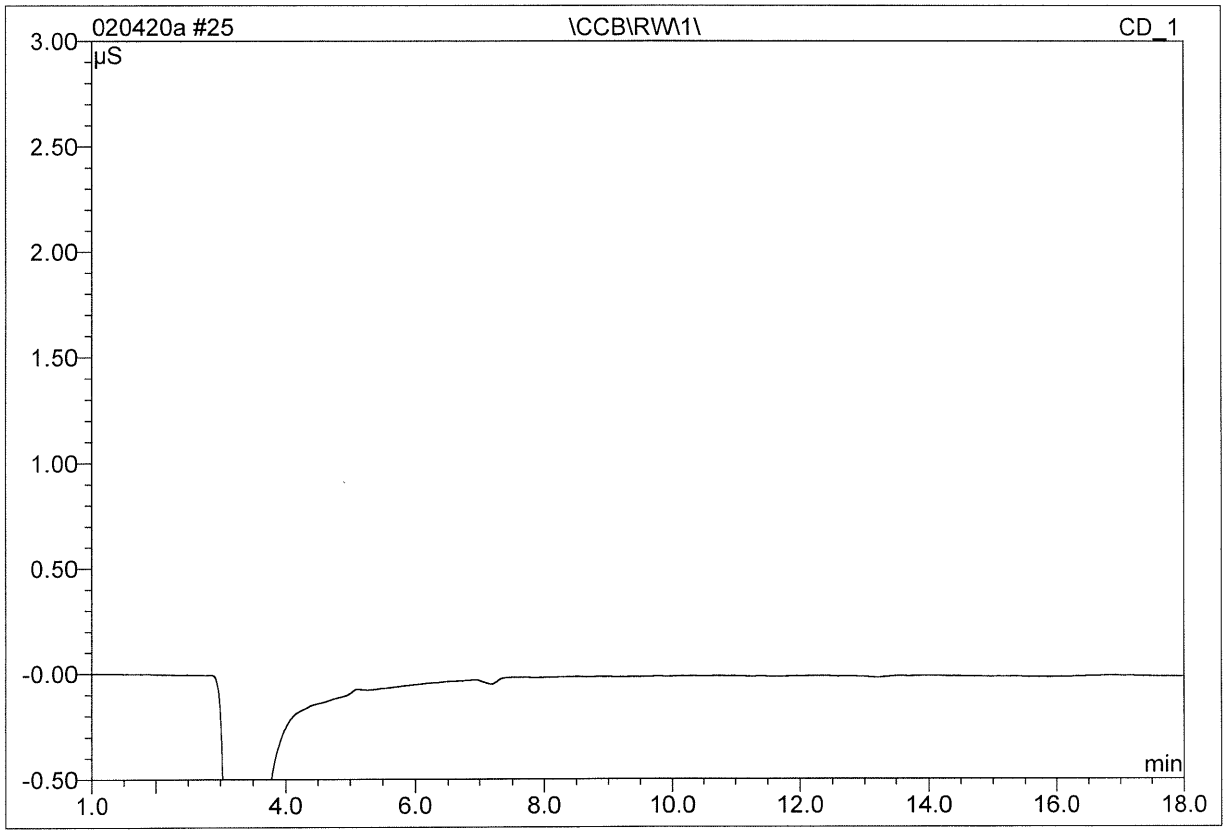
25 \CCB\RW\1\

Sample Name:	**\CCB\RW\1**	*Injection Volume:*	**50.0**
Vial Number:	**25**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**2/4/2020 23:44**	*Sample Weight:*	**1.0000**
Run Time (min):	**23.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
Total:			0.000	0.000	0.00	0.000	

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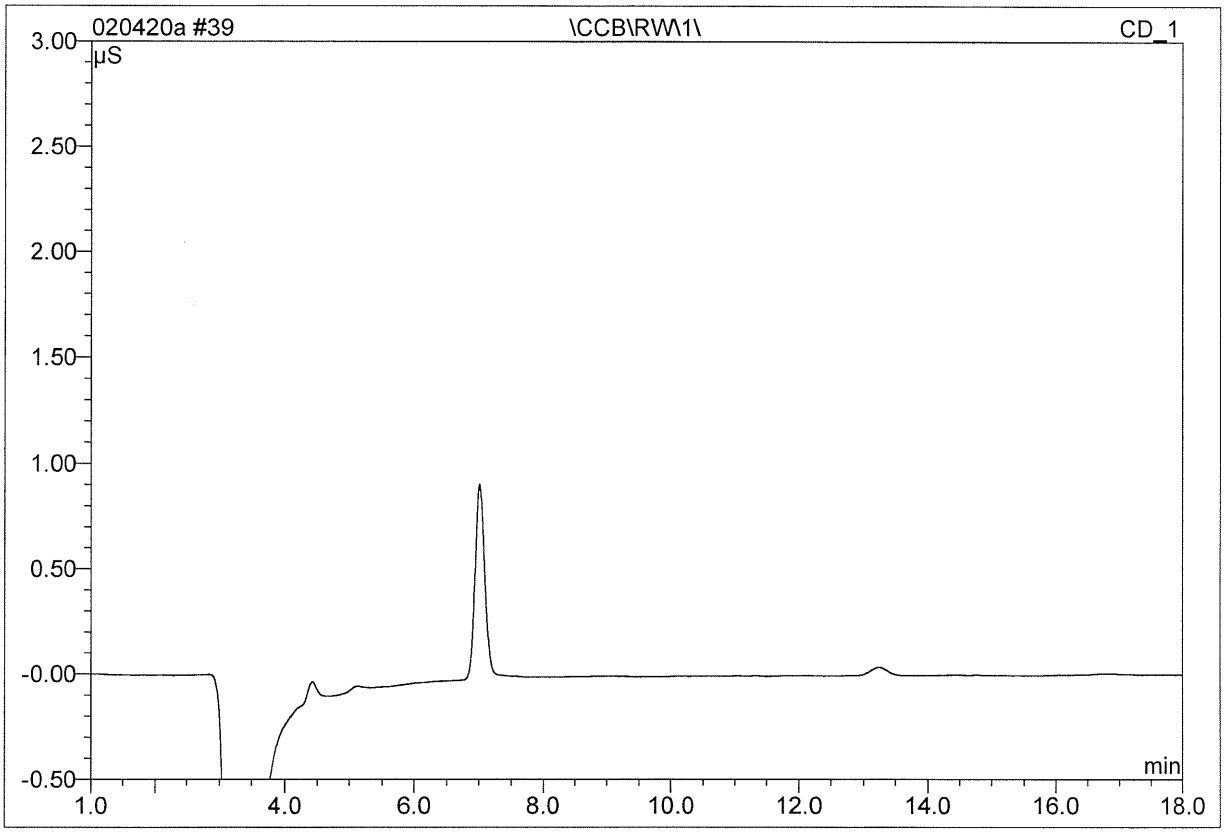
39 \CCB\RW\1\

Sample Name:	**\CCB\RW\1**	*Injection Volume:*	**50.0**
Vial Number:	**39**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**2/5/2020 5:53**	*Sample Weight:*	**1.0000**
Run Time (min):	**23.50**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
Total:			0.000	0.000	0.00	0.000	

Chromeleon (c) Dionex 1996-2006
Version 6.80 SR10 Build 2818 (166959)

QA - Method Detection Limit Study

Method:	300.0 B	Analyzed by:	multiple	Approved by:	Jon Werbianskyj	Effective Date:	8/9/2019
Instrument:	DT	Prepped by:	multiple	Comments:	*LOD to be calculated on the MDL sheet for instrument FT. 02/06/2020 jjw*		
Units:	ug/L						
Matrix Type:	RW	**Number of months next study due:**		6			
		Date Submittted:		8/9/2019			

Earliest Analysis date	Parameter	# of Pts	df	t(n-1,1-α=0.99)	mean	sd	Calculated MDL_s	MDL_b	New Instrument MDL	Old / Current LOD
10/3/2018	Bromide	15	14	2.6245	11.96819993	1.573386655	4.129353275	3.821659	4.129353275	8.1
10/3/2018	Chlorate	15	14	2.6245	12.0808	1.711488583	4.491801787	3.15842	4.491801787	7.8
10/3/2018	Chlorite	15	14	2.6245	11.47986653	1.625613571	4.266422818	0	4.266422818	7.5

QA - Method Detection Limit Study

Method:	300.0 B	Analyzed by:	Shep Lovick	Approved by:	Jon Werbianskyj	Effective Date:	12/24/2019
Instrument:	FT	Prepped by:	Shep Lovick	Comments:	*LOD updated 02/06/2020-jjw*		
Units:	ug/L						
Matrix Type:	RW			**Number of months next study due:**	6		
				Date Submittted:	12/24/2019		

Earliest Analysis date	Parameter	# of Pts	df	t(n-1,1-α=0.99)	mean	sd	Calculated MDL_s	MDL_b	New Instrument MDL	Old / Current LOD
9/14/2018	Chlorite	17	16	2.5835	13.14929412	1.143333655	2.953802496	0	2.953802496	7.5
9/14/2018	Chlorate	17	16	2.5835	12.684294	0.772397847	1.995489837	7.068999	7.068999	7.8
9/14/2018	Bromide	17	16	2.5835	12.44258818	1.49762843	3.869123049	7.45391951	7.45391951	8.1

CHAIN OF CUSTODY,
PM CONFIRMATION
AND
SAMPLE CONDITION FORMS
DOCUMENTS

Rev. 02/2017

CHAIN OF CUSTODY

Page 1 of 1

Company: Weston Solutions
Project Contact: Tony Pace
Telephone: 757-819-5310
Project Name: Radford AAP SWMU 54
Project #:
Location: Radford, VA
Sampled By: W. Bands / P. Taylor

CT
Folder #: 151023
Company: WESTON SOLUTIONS,
Project: RADFORD AAP SWMU 5
Logged By: BMS PM: BM
PO #

1230 Lange Court, Baraboo, WI 53913
608-356-2760 Fax 608-356-2766
www.ctlaboratories.com

Program:
RSM RCRA SDWA NPDES
Solid Waste Other _____

Report To:
EMAIL: Tony.Pace@WestonSolutions.com
Company: Weston Solutions, Inc.
Address: 2 Eaton St., Ste. 603
Hampton, VA 23669

Invoice To:*
EMAIL: Same as Above
Company:
Address:

*Party listed is responsible for payment of invoice as per CT Laboratories' terms and conditions

Client Special Instructions

Matrix:
GW – groundwater SW - surface water WW - wastewater DW - drinking water
S - soil/sediment SL - sludge A - air M - misc/waste

Turnaround Time: Normal (circled) RUSH*
Date Needed: _____
Rush analysis requires prior CT Laboratories' approval
Surcharges:
24 hr 200%
2-3 days 100%
4-9 days 50%

Collection Date	Collection Time	Matrix	Grab/ Comp	Sample #	Sample ID Description	Filtered? Y/N	Chlorate/Chlorite 300.1	Anions 9056A	TOC 9060A	TIC 9060A	pH 9040C	COD 410.4	Total Metals 6010C 7470A	Total # Containers	Designated MS/MSD	CT Lab ID # (Lab use only)
							Fill in Spaces with Bottles per Test									
1/27	1035	GW	G	6	~~54MW13~~ 54MW10	N	1	1	1	3				6		383230
1/27	1205	GW	G	6	54MW13	N	1	1	1	3				6		383231
1/27	1205	GW	G	6	54TW13	N	1	1	1	3				6		383232
1/27	1330	GW	G	18	54MW12	N	3	3	3	9			MS/MSD	18	X	383233
1/27	1505	GW	G	6	54MW1	N	1	1	1	3				6		383234
1/27	1520	GW	G	3	54IDW	N		1			1	1	1	3		383235

Relinquished By:	Date/Time	Received By:	Date/Time
	1/27/2020 1730	Fedex	1/27/2020 1730
Received by: Brett Szymanski	Date/Time 01/28/2020 10:33	Received for Laboratory by:	Date/Time 1/28/20 10:10

Lab Use Only
Ice Present (Yes) No
Temp 1.5 IR Gun 24
Cooler # 6434

CT Laboratories Terms and Conditions

Where a purchaser (Client) places an order for laboratory, consulting or sampling services from CT Laboratories (CTL), CTL shall provide the ordered services pursuant to these Terms and Conditions, and the related Quotation, or as agreed in a negotiated contract. In the absence of a written agreement to the contrary, the Order constitutes an acceptance by the Client of CTL's offer to do business under these Terms and Conditions, and an agreement to be bound by these Terms and Conditions. No contrary or additional terms and conditions expressed in a Client's document shall be deemed to become a part of the contract created upon acceptance of these Terms and Conditions, unless accepted by CTL in advance of the start of the project and in writing.

1. ORDERS AND RECEIPT OF SAMPLES (Sample Acceptance Policy)

1.1 The Client may place the Order (i.e., specify a Scope of Work) either by submitting a purchase order to CTL in writing, by telephone (confirmed in writing) or by negotiated contract. Whichever option the Client selects for placing the Order, the Order shall not be valid unless it contains sufficient information to enable CTL to carry out the Client's requirements. It is the policy of CTL that samples not meeting the acceptance criteria, outlined in the NELAC standards and Section 5.8.3.2 of the DOD QSM, will not be accepted by the laboratory or will be qualified on the final report. All samples submitted to the laboratory must: (a) be accompanied by proper, full and complete documentation, including sample identification, location, date and time of collection, the collector's name, type of preservation (if any), type of sample, any special comments concerning the sample and any additional pertinent fields on the chain-of-custody. In the absence of any of the required information, the laboratory will attempt to contact the client to obtain the information; if unable to obtain the necessary information, the final report will be qualified. (b) samples must be labeled appropriately with a unique sample identification written with indelible ink on water resistant labels. If the laboratory cannot determine the identity of a sample, it may be rejected and the client will be contacted for further instructions or resampling. (c) samples must be in an appropriate sample container. If the container is inappropriate, the client will be contacted for further instructions or resampling. If analysis is possible, the final report will be qualified. CTL can provide a sampling guide containing approved containers and preservations for analytical methods requested. (d) adhere to method specified holding times. If samples are received with less than ½ the holding time remaining for the requested test, CTL will make its best effort to analyze the samples and notify the client. If holding times are exceeded, the final report will be qualified. (e) contain adequate sample volume to perform the necessary testing. If sufficient volume is not present, the sample may be rejected and the client will be contacted for further instructions or resampling. If samples show signs of damage, contamination or inadequate preservation, the client will be notified. If analysis can be performed, the final report will be qualified. If not, the samples will be rejected and the client notified for further instructions or resampling. It is the Client's responsibility to understand and package samples correctly and provide the proper amount of temperature control (ice) suitable to current weather conditions.

1.2 CTL must be supplied with complete written disclosure of the known or suspected presence of any hazardous substances, as defined by applicable federal or state law. Where any samples which were not accompanied by the required disclosure, cause interruptions in the lab's ability to process work due to contamination of instruments or work areas, the Client will be responsible for the costs of clean up and recovery.

1.3 Prior to Sample Acceptance, the entire risk of loss or damage to samples remains with the Client. In no event will CTL have any responsibility or liability for the action or inaction of any carrier shipping or delivering any sample to or from CTL's premises. Client is responsible to assure that any sample containing any hazardous substance which is to be delivered to CTL's premises will be packaged, labeled, transported and delivered properly and in accordance with applicable laws.

1.4 Clients using CTL's shipping account(s) do so at their own risk and must purchase separate insurance if they do not wish to assume risk of loss. CTL will not assume any risk whatsoever for any samples outside of CTL's control and not successfully delivered to the laboratory within specified hold times.

1.5 CTL will not accept liability for any sample(s), except sample(s) damaged or broken by log-in staff prior to successful log-in of the sample(s) into the CTL- LIMS system. This includes, but may not be limited to: complete, valid COC documentation, all sample receiving issues being resolved from a delay caused by the Client in CTL's ability to log-in samples, including missed turnaround and hold times, delay in processing and, ultimately, additional charges to the Client.

1.6 CTL will only reject samples per directions from the Client. CTL's sole liability is to inform the Client of any sample receipt issues, and may provide an indication how proceeding with the analysis may affect results and final acceptance by the regulating agency. Ultimately, suitability for use is between the Client and the regulating agency(s).

1.7 Signing of this COC by the Client or Client's representative, or directions to CTL via email or Fax constitutes acceptance of these Terms and Conditions, and guarantees payment by the Client to CTL.

2. PAYMENT TERMS

2.1 Services performed by CTL will be in accordance with prices quoted and later confirmed in writing or as stated in the Price Schedule. Invoices may be submitted to Client upon completion of any sample delivery group. Payment in advance is required for all Clients except those whose credit has been established with CTL. For Clients with approved credit, payment terms are net 30 days from the date of invoice by CTL. All overdue payments are subject to an additional interest and service charge of one and one-half percent (1.5%) or the maximum rate permissible by law, per month or portion thereof from the due date until the date of payment. All fees are charged or billed directly to the Client. The billing of a third party will not be accepted without a statement, signed by the third party that acknowledges and accepts payment responsibility. CTL may suspend work and withhold delivery of data under this order at any time in the event Client fails to make timely payment of its invoices. Client shall be responsible for all costs and expenses of collection including reasonable attorney's fees. CTL reserves the right to refuse to proceed with work at any time based upon an unfavorable Client credit report.

3. CHANGE ORDERS, TERMINATION

3.1 Changes to the Scope of Work, price, or result delivery date may be initiated by CTL after Sample Acceptance due to any condition which conflicts with analytical, QA or other protocols warranted in these Terms and Conditions. CTL will not proceed with such changes until an agreement with the Client is reached on the amount of any cost, schedule change or technical change to the Scope of Work, and such agreement is documented in writing.

3.2 Changes to the Scope of Work, including but not limited to increasing or decreasing the work, changing test and analysis specification or acceleration in the performance of the work may be initiated by the Client after sample acceptance. Such a change will be documented in writing and may result in a change in cost and turnaround time commitment. CTL's acceptance of such changes is contingent upon technical feasibility and operational capacity.

3.3 Suspension or termination of all or any part of the work may be initiated by the Client. CTL will be compensated consistent with Section 2 of these Terms and Conditions. CTL will complete all work in progress and be paid in full for all work completed.

4. WARRANTIES AND LIABILITY

4.1 Where applicable, CTL will use analytical methodologies which are in substantial conformity with published test methods. CTL has implemented these methods in its Laboratory Quality Manuals and referenced Standard Operating Procedures and where the nature or composition of the sample requires it, CTL reserves the right to deviate from these methodologies as necessary or appropriate, based on the reasonable judgment of CTL, which deviations, if any, will be made on a basis consistent with recognized standards of the industry and/or CTL's Laboratory Quality Manuals. Client may request that CTL perform according to a mutually agreed Quality Assurance Project Plan (QAPP). In the event that samples arrive prior to agreement on a QAPP, CTL will proceed with analyses under its standard Quality Manuals then in effect, and CTL will not be responsible for any resampling or other charges if work must be repeated to comply with a subsequently finalized QAPP.

4.2 CTL shall start preparation and/or analysis within holding times provided that Sample Acceptance occurs within 48 hours of sampling or 1/2 of the holding time for the test, whichever is less. Samples received that do not meet this provision will be charged as expedited samples and the appropriate rate will be added accordingly. Where resolution of inconsistencies leading to Sample Acceptance does not occur within this period, CTL will use its best efforts to meet holding times and will proceed with the work provided that, in CTL's judgment, the chain-of-custody or definition of the Scope of Work provide sufficient guidance. Reanalysis of samples to comply with CTL's Quality Manuals will be deemed to have met holding times provided the initial analysis was performed within the applicable holding time. Where reanalysis demonstrates that sample matrix interference is the cause of failure to meet any Quality Manual requirements, the warranty will be deemed to have been met.

4.3 CTL warrants that it possesses and maintains all licenses and certifications which are required to perform services under these Terms and Conditions provided that such requirements are specified in writing to CTL prior to Sample Acceptance. CTL will notify the Client in writing of any decertification or revocation of any license, or notice of either, which affects work in progress.

4.4 The warranty obligations set forth in Sections 4.1, 4.2 and 4.3 are the sole and exclusive warranties given by CTL in connection with any services performed by CTL or any Results generated from such services, and CTL gives and makes NO OTHER REPRESENTATION OR WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. No representative of CTL is authorized to give or make any other representation or warranty or modify this warranty in any way.

4.5 Client's sole and exclusive remedy for the breach of warranty in connection with any services performed by CTL, will be limited to repeating any services performed, contingent on the Client's providing, at the request of CTL and at the Client's expense, additional sample(s) if necessary. Any reanalysis requested by the Client generating Results consistent with the original Results will be at the Client's expense. If resampling is necessary, CTL's liability for resampling costs will be limited to actual cost or one hundred or one hundred fifty dollars ($150) per sample, whichever is less.

4.6 CTL's liability for any and all causes of action arising hereunder, whether based in contract, tort, warranty, negligence or otherwise, shall be limited to the lesser amount of compensation for the services performed or $100,000. All claims, including those for negligence, shall be deemed waived unless suit thereon is filed within one year after CTL's completion of the services. Under no circumstances, whether arising in contract, tort (including negligence), or otherwise, shall CTL be responsible for loss of use, loss of profits, or for any special, indirect, incidental or consequential damages occasioned by the services performed or by application or use of the reports prepared.

4.7 In no event shall CTL have any responsibility or liability to the Client for any failure or delay in performance by CTL which results, directly or indirectly, in whole or in part, from any cause or circumstance beyond the reasonable control of CTL. Such causes and circumstances shall include, but not be limited to, acts of God, acts of Client, acts or orders of any governmental authority, strikes or other labor disputes, natural disasters, accidents, wars, civil disturbances, equipment breakdown, matrix interference or unknown highly contaminated samples that impact instrument operation, unavailability of supplies from usual suppliers, difficulties or delays in transportation, mail or delivery services, or any other cause beyond CTL's reasonable control.

5. RESULTS, WORK PRODUCT

5.1 Data or information provided to CTL or generated by services performed under this agreement shall only become the property of the Client upon receipt in full by CTL of payment for the whole Order. Ownership of any analytical method, QA/QC protocols, software programs or equipment developed by CTL for performance of work will be retained by CTL, and Client shall not disclose such information to any third party.

5.2 Data and sample materials provided by Client or at Client's request, and the result obtained by CTL shall be held in confidence (unless such information is generally available to the public or is in the public domain or Client has failed to pay CTL for all services rendered or is otherwise in breach of these Terms and Conditions), subject to any disclosure required by law or legal process.

5.3 Should the Results delivered by CTL be used by the Client or Client's client, even though subsequently determined not to meet the warranties described in these Terms and Conditions, then the compensation will be adjusted based upon mutual agreement. In no case shall the Client unreasonably withhold CTL's right to independently defend its data.

5.4 CTL reserves the right to subcontract services ordered by the Client to another laboratory or laboratories, if, in CTL's sole judgment, it is reasonably necessary, appropriate or advisable to do so, and with the Client's permission. CTL will in no way be liable for any subcontracted services and all applicable warranties, guarantees and insurance are those of the subcontracted laboratory.

5.5 CTL shall dispose of the Client's samples and extracts 30 days after the analytical report is issued, unless instructed to store them for an alternate period of time or to return such samples to the Client, in a manner consistent with U.S. Environmental Protection Agency regulations or other applicable Federal, state or local requirements. Additional charges will apply for samples or extracts stored longer than 30 days at the Clients request. Any samples for projects that are canceled or not accepted, or for which return was requested, will be returned to the Client at Client expense. CTL reserves the right to return to the Client any sample or unused portion of a sample that is not within CTL's permitted capability or the capabilities of CTL's designated waste disposal vendor(s), or will make arrangements to dispose of these samples at Client direction and expense.

5.6 Unless a different time period is agreed to in any order under these Terms and Conditions, CTL agrees to retain all records for five (5) years.

5.7 In the event that CTL is required to respond to legal process related to services for Client, Client agrees to reimburse CTL for hourly charges for personnel involved in the response and attorney fees reasonably incurred in obtaining advice concerning the response, preparation to testify, and appearances related to the legal process, travel and all reasonable expenses associated with the litigation.

6. INSURANCE

6.1 CTL shall maintain in force during the performance of services under these Terms and Conditions, Workers' Compensation and Employer's Liability Insurance in accordance with the laws of the states having jurisdiction over CTL's employees who are engaged in the performance of the work. CTL shall also maintain during such period, Comprehensive General and Contractual Liability (limit of $2,000,000 per occurrence/ aggregate), Comprehensive Automobile Liability, owned and hired, ($1,000,000 combined single limit), and Professional/Pollution Liability Insurance (limit of $5,000,000 per occurrence/aggregate). Any Client required changes to these limits or conditions will result in a change in cost to the Client.

7. AUDIT

7.1 Upon prior notice to CTL, the Client may audit and inspect CTL's records and accounts covering reimbursable costs related to work done for the Client, for a period of one (1) year after completion of the work. The purpose of any such audit shall be only for verification of such costs, and CTL shall not be required to provide access to cost records where prices are expressed as fixed fees or published unit prices.

FORM #: FPM3-02
Rev. #: 1.0
Effective Date: 05/27/2014
Page 1 of 1

Cooler Receipt Form

Ice Present (YES) NO

Temperature 1.5

IR Gun # 24

Initials DL

Date 1/28/20 Time 10:10

Cooler #: 6434

Folder #: 151023

PM LOGIN CONFIRMATION

Contract #: 3313

Company: WESTON SOLUTIONS, INC. **Project:** RADFORD AAP SWMU 54 **Proj #:**

Project Phase: RADFORD, VA **PO Number:** **Invoice #:** 151663

Project Manager: *BMS* **Date Received:** 01/28/20 **Log Date:** 01/28/2020

Report To: ANTHONY PACE CC:
2 EATON STREET
SUITE 603
HAMPTON, VA 23669
Phone: 757-819-5310: Fax:
Rep. E-Mail anthony.pace@westonsolutions.com

Invoice To :ACCOUNTS PAYABLE CC:
1400 WESTON WAY, BLDG 5-1
WEST CHESTER, PA 19380
Phone: Fax:
EMail:

Collected By:
Collector's Phone: 757-819-5310

Arrival Temperature: 1.5 oC

SAMPLE #: 383230 DESCR: 54MW10 **PRIMARY / DETAILED MATRIX:** AQUEOUS / GROUND WATER **SAMPLED: 01/27/2020 Time: 1035**

CLIENT SAMPLE #: **DETAILED SITE/POINT ID INFORMATION:**

TEST#	TEST	TEST METHOD	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
759	CARBON, INORG & ORG	(EPA 9060A)				02/10/2020	02/09/2020		Logged
1227	ANIONS IC QSM 5.0	(EPA 9056A)				01/29/2020	02/09/2020		Logged
			Chloride						
			Nitrate Nitrogen						
			Sulfate						
1230	ORGAN CARBON T QSM 5.(	(EPA 9060A)				02/24/2020	02/09/2020		Logged
1279	SUB CHLORATE/CHLORITE	(300.1)					02/09/2020		Logged

SAMPLE #: 383231 DESCR: 54MW13 **PRIMARY / DETAILED MATRIX:** AQUEOUS / GROUND WATER **SAMPLED: 01/27/2020 Time: 1205**

CLIENT SAMPLE #: **DETAILED SITE/POINT ID INFORMATION:**

TEST#	TEST	TEST METHOD	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
759	CARBON, INORG & ORG	(EPA 9060A)				02/10/2020	02/09/2020		Logged
1227	ANIONS IC QSM 5.0	(EPA 9056A)				01/29/2020	02/09/2020		Logged

Folder #: 151023 **Company:** *WESTON SOLUTIONS, INC.* **Project:** RADFORD AAP SWMU 54

SAMPLE #: 383231 **DESCR:** 54MW13 **PRIMARY / DETAILED MATRIX:** AQUEOUS / GROUND WATER **SAMPLED:** 01/27/2020 **Time:** 1205

CLIENT SAMPLE #: **DETAILED SITE/POINT ID INFORMATION:**

TEST#	TEST	TEST METHOD	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
			Chloride						
			Nitrate Nitrogen						
			Sulfate						
1230	ORGAN CARBON T QSM 5.0	(EPA 9060A)				02/24/2020	02/09/2020		Logged
1279	SUB CHLORATE/CHLORITE	(300.1)					02/09/2020		Logged

SAMPLE #: 383232 **DESCR:** 54TW13 **PRIMARY / DETAILED MATRIX:** AQUEOUS / GROUND WATER **SAMPLED:** 01/27/2020 **Time:** 1205

CLIENT SAMPLE #: **DETAILED SITE/POINT ID INFORMATION:**

TEST#	TEST	TEST METHOD	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
759	CARBON, INORG & ORG	(EPA 9060A)				02/10/2020	02/09/2020		Logged
1227	ANIONS IC QSM 5.0	(EPA 9056A)				01/29/2020	02/09/2020		Logged
			Chloride						
			Nitrate Nitrogen						
			Sulfate						
1230	ORGAN CARBON T QSM 5.0	(EPA 9060A)				02/24/2020	02/09/2020		Logged
1279	SUB CHLORATE/CHLORITE	(300.1)					02/09/2020		Logged

SAMPLE #: 383233 **DESCR:** 54MW12 **PRIMARY / DETAILED MATRIX:** AQUEOUS / GROUND WATER **SAMPLED:** 01/27/2020 **Time:** 1330

CLIENT SAMPLE #: **DETAILED SITE/POINT ID INFORMATION:**

TEST#	TEST	TEST METHOD	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
759	CARBON, INORG & ORG	(EPA 9060A)			***DESIGNATED MATRIX SPIKE***	02/10/2020	02/09/2020		Logged
1227	ANIONS IC QSM 5.0	(EPA 9056A)			***DESIGNATED MATRIX SPIKE***	01/29/2020	02/09/2020		Logged
			Chloride						
			Nitrate Nitrogen						
			Sulfate						
1230	ORGAN CARBON T QSM 5.0	(EPA 9060A)			***DESIGNATED MATRIX SPIKE***	02/24/2020	02/09/2020		Logged
1279	SUB CHLORATE/CHLORITE	(300.1)			***DESIGNATED MATRIX SPIKE***		02/09/2020		Logged

Folder #: 151023 **Company:** *WESTON SOLUTIONS, INC.* **Project:** RADFORD AAP SWMU 54

SAMPLE #: 383234 **DESCR:** 54MW1 **PRIMARY / DETAILED MATRIX:** AQUEOUS / GROUND WATER **SAMPLED:** 01/27/2020 **Time:** 1505

CLIENT SAMPLE #: **DETAILED SITE/POINT ID INFORMATION:**

TEST#	TEST	TEST METHOD	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
759	CARBON, INORG & ORG	(EPA 9060A)				02/10/2020	02/09/2020		Logged
1227	ANIONS IC QSM 5.0	(EPA 9056A)				01/29/2020	02/09/2020		Logged
			Chloride						
			Nitrate Nitrogen						
			Sulfate						
1230	ORGAN CARBON T QSM 5.0	(EPA 9060A)				02/24/2020	02/09/2020		Logged
1279	SUB CHLORATE/CHLORITE	(300.1)					02/09/2020		Logged

SAMPLE #: 383235 **DESCR:** 54IDW **PRIMARY / DETAILED MATRIX:** AQUEOUS / GROUND WATER **SAMPLED:** 01/27/2020 **Time:** 1520

CLIENT SAMPLE #: **DETAILED SITE/POINT ID INFORMATION:**

TEST#	TEST	TEST METHOD	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
203	PH	(EPA 9040C)					02/09/2020		Entered
989	COD QSM	(EPA 410.4)				02/24/2020	02/09/2020		NeedPrep
1183	ICP K TOTAL QSM 5.0	(EPA 6010C)				07/25/2020	02/09/2020		NeedPrep
1190	ICP NA TOTAL QSM 5.0	(EPA 6010C)				07/25/2020	02/09/2020		NeedPrep
1200	ICP TOTAL QSM 5.0	(EPA 6010C)				07/25/2020	02/09/2020		NeedPrep
			Total Aluminum						
			Total Antimony						
			Total Arsenic						
			Total Barium						
			Total Beryllium						
			Total Cadmium						
			Total Calcium						
			Total Chromium						
			Total Cobalt						
			Total Copper						
			Total Iron						

Folder #: 151023 **Company:** *WESTON SOLUTIONS, INC.* **Project:** RADFORD AAP SWMU 54

SAMPLE #: 383235 **DESCR:** 54IDW **PRIMARY / DETAILED MATRIX:** AQUEOUS / GROUND WATER **SAMPLED:** 01/27/2020 **Time:** 1520

CLIENT SAMPLE #: **DETAILED SITE/POINT ID INFORMATION:**

TEST#	TEST	TEST METHOD	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
			Total Lead						
			Total Magnesium						
			Total Manganese						
			Total Nickel						
			Total Selenium						
			Total Silver						
			Total Thallium						
			Total Vanadium						
			Total Zinc						

Folder #: 151023 **Company:** *WESTON SOLUTIONS, INC.* **Project:** RADFORD AAP SWMU 54

Invoice Number: 151663 **Preliminary Invoice Estimate:** $ 1,379.00

Item	Matrix	Quantity	Price	Expedited TAT Surcharge	Total
ANIONS IC QSM 5.0 Chloride	GROUND WATER	7	$ 12.00	0.00	$ 84.00
ANIONS IC QSM 5.0 Nitrate Nitrogen	GROUND WATER	7	$ 12.00	0.00	$ 84.00
ANIONS IC QSM 5.0 Sulfate	GROUND WATER	7	$ 12.00	0.00	$ 84.00
CARBON, INORG & ORG	GROUND WATER	7	$ 28.00	0.00	$ 196.00
COD QSM	GROUND WATER	1	$ 18.00	0.00	$ 18.00
ICP K TOTAL QSM 5.0	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP NA TOTAL QSM 5.0	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Aluminum	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Antimony	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Arsenic	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Barium	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Beryllium	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Cadmium	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Calcium	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Chromium	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Cobalt	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Copper	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Iron	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Lead	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Magnesium	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Manganese	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Nickel	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Selenium	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Silver	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Thallium	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Vanadium	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Zinc	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ORGAN CARBON T QSM 5.0	GROUND WATER	7	$ 28.00	0.00	$ 196.00
PH	GROUND WATER	1	$ 10.00	0.00	$ 10.00

SUB CHLORATE/CHLORITE	GROUND WATER	7	$ 90.00	0.00	$ 630.00
Temporary Fuel Surcharge on lab supplies and services (if applicable):					$ 0.00

Bottle Information

Container	# Containers	Tests
H2SO4 PL	**8**	TOC
HNO3	**1**	ICP,K,NA
MISC	**7**	Chlorate/Chlorite
UNPRES PL	**8**	Anions
VOA	**21**	TIC

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Sample Condition Report

Folder #: 151023
Client: WESTON SOLUTIONS, INC.

Print Date / Time: 01/29/2020 11:55
Received Date / Time / By: 01/28/2020 10:10 DJL

Project Name: RADFORD AAP SWMU 54
Project Phase: RADFORD, VA

Log-In Date / Time / By: 01/28/2020 10:33 BMS
Project #: PM: BMS

Coolers: 6434
Custody Seals Present : **Y**

Temperature: 1.5 C On Ice: **Y**
COC Present:? **Y** Complete? **Y**

Seal Intact? **Y**
Ship Method: FEDEX EXPRESS
Adequate Packaging: **Y**

Numbers: SIGNED AND DATED
Tracking Number: 779922340703
Temp Blank Enclosed? **Y**

Notes: THE SAMPLES WERE RECEIVED IN GOOD CONDITION ON ICE.

TWO CUSTODY SEALS WERE PRESENT AND INTACT UPON RECEIPT - BOTH WERE DATED 1/27/2020 AND SIGNED.

Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
383230 54MW10				
	UNPRES PL	1	/	Anions
	Total # of Containers of Type	(***UNPRES PL***) = **1**		
383230 54MW10				
	MISC	1	/	Chlorate/Chlorite
	Total # of Containers of Type	(***MISC***) = **1**		
383230 54MW10				
	VOA	1	/	TIC
	VOA	1	/	TIC
	VOA	1	/	TIC
	Total # of Containers of Type	(***VOA***) = **3**		
383230 54MW10				
	H2SO4 PL	1	Y /	TOC
	Total # of Containers of Type	(***H2SO4 PL***) = **1**		

Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
383231 54MW13				
	UNPRES PL	1	/	Anions
	Total # of Containers of Type	(***UNPRES PL***) = **1**		
383231 54MW13				
	MISC	1	/	Chlorate/Chlorite
	Total # of Containers of Type	(***MISC***) = **1**		
383231 54MW13				
	VOA	1	/	TIC
	VOA	1	/	TIC
	VOA	1	/	TIC
	Total # of Containers of Type	(***VOA***) = **3**		
383231 54MW13				
	H2SO4 PL	1	Y /	TOC
	Total # of Containers of Type	(***H2SO4 PL***) = **1**		

Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
383232 54TW13				
	UNPRES PL	1	/	Anions
	Total # of Containers of Type	(***UNPRES PL***) = **1**		
383232 54TW13				
	MISC	1	/	Chlorate/Chlorite
	Total # of Containers of Type	(***MISC***) = **1**		
383232 54TW13				
	VOA	1	/	TIC
	VOA	1	/	TIC
	VOA	1	/	TIC
	Total # of Containers of Type	(***VOA***) = **3**		
383232 54TW13				
	H2SO4 PL	1	Y /	TOC
	Total # of Containers of Type	(***H2SO4 PL***) = **1**		

Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
383233 54MW12				
	UNPRES PL	1	/	Anions
	UNPRES PL	1	/	Anions
	UNPRES PL	1	/	Anions
	Total # of Containers of Type	(***UNPRES PL***) = **3**		
383233 54MW12				
	MISC	1	/	Chlorate/Chloride
	Total # of Containers of Type	(***MISC***) = **1**		
383233 54MW12				
	MISC	1	/	Chlorate/Chlorite
	MISC	1	/	Chlorate/Chlorite
	Total # of Containers of Type	(***MISC***) = **2**		
383233 54MW12				
	VOA	1	/	TIC
	VOA	1	/	TIC
	VOA	1	/	TIC
	VOA	1	/	TIC
	VOA	1	/	TIC
	VOA	1	/	TIC
	VOA	1	/	TIC
	VOA	1	/	TIC
	VOA	1	/	TIC
	Total # of Containers of Type	(***VOA***) = **9**		
383233 54MW12				
	H2SO4 PL	1	Y /	TOC
	H2SO4 PL	1	Y /	TOC
	H2SO4 PL	1	/	TOC
	Total # of Containers of Type	(***H2SO4 PL***) = **3**		

Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
383234 54MW1				
	UNPRES PL	1	/	Anions
	Total # of Containers of Type	(***UNPRES PL***) = **1**		
383234 54MW1				
	MISC	1	/	Chlorate/Chlorite

Total # of Containers of Type (***MISC***) = **1**

383234 54MW1

VOA	1		/	TIC
VOA	1		/	TIC
VOA	1		/	TIC

Total # of Containers of Type (***VOA***) = **3**

383234 54MW1

H2SO4 PL	1	Y	/	TOC

Total # of Containers of Type (***H2SO4 PL***) = **1**

Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests

---

383235 54IDW

H2SO4 PL	1	Y	/	COD

Total # of Containers of Type (***H2SO4 PL***) = **1**

383235 54IDW

HNO3	1		/	ICP,K,NA

Total # of Containers of Type (***HNO3***) = **1**

383235 54IDW

UNPRES PL	1		/	pH

Total # of Containers of Type (***UNPRES PL***) = **1**

Condition Code	*Condition Description*
1	Sample Received OK

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ANALYTICAL RESULTS FOR:

ANTHONY PACE
WESTON SOLUTIONS, INC.
2 EATON STREET
SUITE 603
HAMPTON, VA 23669

PROJECT SITE:	RFAAP SWMU-54; RADFORD, VA
DOD CONTRACT #:	
PROJECT #:	
SDG:	***152892***
PREPARED:	May 21, 2020
TOTAL # OF PAGES:	815

The data contained in the following report have been reviewed by the appropriate CT Laboratories' LLC staff members. In addition, CT Laboratories LLC certifies that to the best of our knowledge that the analyses reported herein are true, complete and correct within the limits of the methods employed and that they follow the applicable requirements as specified by the project plan, state-specific, NELAC or DOD QSM requirements. The estimated uncertainty of measurement is only available upon request. The reported results relate only to the tested samples. This report shall not be reproduced, except in full, without written approval of CT Laboratories LLC.

APPROVED BY: Brett Szymanski
PROJECT MANAGER

Certifications: IL (NELAP 200073), KS (NELAP E-10368), WI (157066030), DOD ELAP (A2LA 3806.01), VA (NELAP 4602038), MD (WI 00061), LA (NELAP ACC20160002), ISO17025 (A2LA 3806.01), GA EDP Stipulation (Accreditor: LA NELAP, ACC#: ACC20160002, Scope: Non-potable water solid and chemical materials, biological tissue, Effective: 12/10/2014, Expires: annually)

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Case Narrative

Client: Bering Sea Environmental
Project: RFAAP SWMU-54, Radford, VA
Sample Receipt Dates: 04/29/2020 & 05/01/2020
SDG #: 152892

Six water samples were received on 04/29/2020 and analyzed for a variety of parameters, including: Metals, pH, COD, Anions, Chlorate/Chlorite, TIC, and TOC. Three of the samples were recollected on 04/30/2020 for Chlorate/Chlorate only. The Chlorate/Chlorite analysis was subcontracted to Eurofins Eaton Analytical in South Bend, IN. The assigned sample ID number, date sampled, and date received are indicated in the attached Project Summary. The samples were received intact and at a temperature within method specified acceptance limits. A breakdown of sample receipt information can be found on the Sample Condition Report located in the last section of the data package and any exceptions are noted below. The analyses were performed following DOD QSM 5.1 requirements.

Manual integrations may have been performed on the data provided with this package. If manual integrations were performed, a Reason #(s) was included on the raw data that corresponds to the "Index Key for Manual Integration Rationale." The raw data includes a "Before" and "After" manual integration illustration. The manual integrations were initialed and dated by the analyst, as well as, by the person reviewing the data.

Sample Analysis and Quality Control

Metals Analysis:

The samples were analyzed using US EPA Methods 6010C (ICP) and 7470A (Hg). All samples were analyzed within the holding time. The following summaries of quality control procedures are included:

Initial and Continuing Calibration Verification
Blanks Summary
ICP Interference Check Data
Spike Sample Recovery
Duplicates Data
Laboratory Control Sample Data
Analysis Run Log

All analysis results met the method specified quality control criteria with the following exceptions:

ICP Metals (6010C) Water Analysis

Continuing Calibration Verification (CCV) standards were analyzed at two levels (CCV1 & CCV2) with potentially differing wavelengths. Data associated with CCV's were evaluated based on the concentration of the element in the samples and compared to the appropriate CCV level/wavelength.

Some samples may have been analyzed and/or reanalyzed diluted to obtain results for all target analytes within the calibration range of the instrument.

Analytical Run # 170800

Copper and selenium were detected in the Method Blank (MB) greater than the Method Detection Limit (MDL) but less than ½ the Reporting Limit (RL). The sample was reported and qualified with a "B" flag for copper and selenium because the MB results were greater than 1/10th of the sample results.

The Duplicate (DUP) for sample # 413136 was not applicable for aluminum, antimony, arsenic, beryllium, cadmium, chromium, cobalt, copper, iron, lead, manganese, nickel, selenium, silver, thallium, vanadium, and zinc because the parent sample results were less than five times the Limit of Quantitation (LOQ). A Matrix Spike Duplicate (MSD) was analyzed to demonstrate precision and was acceptable. The parent sample was reported and not qualified.

ICP Sodium & Potassium (6010C) Water Analysis

Analytical Run # 170797

The DUP for sample # 413136 was not applicable for potassium because the parent sample result was less than five times the LOQ. A MSD was analyzed to demonstrate precision and was acceptable. The parent sample was reported and not qualified.

CVAA Mercury (7470A) Water Analysis

Analytical Run # 170961

The DUP for sample # 413136 was not applicable for mercury because the parent sample result was less than five times the LOQ. A MSD was analyzed to demonstrate precision and was acceptable. The parent sample was reported and not qualified.

Inorganic Analysis:

The samples were analyzed using US EPA Methods 9060A (TIC/TOC), 9040C (pH), 410.4 (COD) and 9056A (Anions). All samples were analyzed within the holding time unless noted below. The following summaries of quality control procedures are included:

Duplicate Analysis Data
Laboratory Control Spike Data
Method Blank Data
Initial Calibration Summary
Calibration Check Summary
Analysis Run Log
Prep Log

All analysis results met the method specified quality control criteria with the following exceptions:

Some samples may have been analyzed and/or reanalyzed diluted to obtain results for all target analytes within the calibration range of the instrument.

Anions (9056A) Water Analysis

Analytical Run # 170755

All analytical results for this run met the method/project specified quality control criteria.

COD (410.4) Water Analysis

Analytical Run # 170802

The Matrix Spike (MS) and the MSD for sample # 413136 had a high recovery. The parent sample result was qualified with an "M" flag.

pH (9040C) Water Analysis

Analytical Run # 170762

All analytical results for this run met the method/project specified quality control criteria.

TIC (9060A) Water Analysis

Analytical Run # 170826

All analytical results for this run met the method/project specified quality control criteria.

TOC (9060A) Water Analysis

Analytical Run # 170892

All analytical results for this run met the method/project specified quality control criteria.

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Data Qualifiers

Code	Description
A	Analyte averaged calibration criteria within acceptable limits.
B	Analyte detected in associated Method Blank.
C	Toxicity present in BOD sample.
D	Diluted Out.
E	Safe, No Total Coliform detected.
F	Unsafe, Total Coliform detected, no E. Coli detected.
G	Unsafe, Total Coliform detected and E. Coli detected.
H	Holding time exceeded.
J	Estimated value.
L	Significant peaks were detected outside the chromatographic window.
M	Matrix spike and/or Matrix Spike Duplicate recovery outside acceptance limits.
N	Insufficient BOD oxygen depletion.
O	Complete BOD oxygen depletion.
P	Concentration of analyte differs more than 40% between primary and confirmation analysis.
Q	Laboratory Control Sample outside acceptance limits.
R	See Narrative at end of report.
S	Surrogate standard recovery outside acceptance limits due to apparent matrix effects.
T	Sample received with improper preservation or temperature.
U	Analyte concentration was not above the detection level.
V	Raised Quantitation or Reporting Limit due to limited sample amount or dilution for matrix background interference.
W	Sample amount received was below program minimum.
X	Analyte exceeded calibration range.
Y	Replicate/Duplicate precision outside acceptance limits.
Z	Calibration criteria exceeded.

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MANUAL INTEGRATION REASON CODES

CTLaboratories has identified four general cases with valid reasons supporting the use of manual integration techniques. These codes are used on chromatograms in this data package to document the reasons for manual integrations per CTLaboratories' SOP SS-10 current revision.

#1: **Data system failed to select the correct peak or missed the peak entirely.**
In some cases the chromatography system selects and integrates the "wrong peak". In this case the analyst must correct the selection and force the system to integrate the proper peak. In other instances the system may miss the peak completely. In this case the analyst manually integrated the peak

#2: **Data System Splits the Peak Incorrectly or Integrates a False Peak as a Rider Peak.**
This phenomenon is common at low concentrations where the signal to noise ratio is low. A single compound (peak) is incorrectly split into multiple peaks or integrated as a main peak with one or more rider peaks resulting in low or high area counts for the target compound.

#3: Improperly Integrated Isomers and/or coeluting compounds.
For when the system fails to distinguish coeluting compounds and or isomers. The integration areas and concentrations may be inaccurate, and they must be corrected by manual integration. Prime examples are compounds that are unresolved and integrated improperly when present at low concentrations in standards or samples.

#4: System Established Incorrect Baseline.
There are numerous situations in chromatography where the system establishes the baseline incorrectly. Some baseline errors will be obvious to the analyst and may be corrected via manual procedures.

#5: Miscellaneous.
Some situations involving integration errors may require in-depth review and technical judgment. These cases should be brought to the attention of the group supervisor. If the form of manual integration is not clearly covered by these four cases, then review and approval by the group supervisor or the *QA/QC* Supervisor will be required.

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1230 Lange Court • Baraboo, WI 53913 • 608-356-2760
www.ctlaboratories.com

Sample Delivery Group

152892

WESTON SOLUTIONS, INC.
ANTHONY PACE
2 EATON STREET
SUITE 603
HAMPTON, VA 23669

Project Name: RADFORD AAP SWMU-54
Project #:

	CT Sample #	Folder #	Client Sample #	Sample Description	Matrix	Date Sampled	Date Received
1	413129	152892		54MW13	GROUND WATER	04/28/2020	04/29/2020
2	413132	152892		54TW13	GROUND WATER	04/28/2020	04/29/2020
3	413133	152892		54MW10	GROUND WATER	04/28/2020	04/29/2020
4	413134	152892		54MW12	GROUND WATER	04/28/2020	04/29/2020
5	413135	152892		54MW1	GROUND WATER	04/28/2020	04/29/2020
6	413136	152892		54IDW	GROUND WATER	04/28/2020	04/29/2020
7	413932	152892		54MW10	GROUND WATER	04/30/2020	04/29/2020
8	413933	152892		54MW12	GROUND WATER	04/30/2020	04/29/2020
9	413934	152892		54MW1	GROUND WATER	04/30/2020	04/29/2020

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QC Batch Cross Reference Summary

WESTON SOLUTIONS, INC.
ANTHONY PACE
2 EATON STREET
SUITE 603
HAMPTON, VA 23669

Project Name: RADFORD AAP SWMU-54
Project #:
Report Date: 05/20/2020
Date Received: 04/29/2020
SDG #: 152892

Inorganic Parameters

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
413136	pH	EPA 9040C	GROUND WATER		170762

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
413129	Carbon , Total Inorganic and Orga	EPA 9060A	GROUND WATER		170826
413132	Carbon , Total Inorganic and Orga	EPA 9060A	GROUND WATER		170826
413133	Carbon , Total Inorganic and Orga	EPA 9060A	GROUND WATER		170826
413134	Carbon , Total Inorganic and Orga	EPA 9060A	GROUND WATER		170826
413135	Carbon , Total Inorganic and Orga	EPA 9060A	GROUND WATER		170826

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
413136	COD QSM	EPA 410.4	GROUND WATER	76294	170862

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
413129	Anions QSM 5.0	EPA 9056A	GROUND WATER		170755
413132	Anions QSM 5.0	EPA 9056A	GROUND WATER		170755
413133	Anions QSM 5.0	EPA 9056A	GROUND WATER		170755
413134	Anions QSM 5.0	EPA 9056A	GROUND WATER		170755
413135	Anions QSM 5.0	EPA 9056A	GROUND WATER		170755

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
413129	Organic Carbon, Total QSM 5.0	EPA 9060A	GROUND WATER		170892
413132	Organic Carbon, Total QSM 5.0	EPA 9060A	GROUND WATER		170892
413133	Organic Carbon, Total QSM 5.0	EPA 9060A	GROUND WATER		170892
413134	Organic Carbon, Total QSM 5.0	EPA 9060A	GROUND WATER		170892
413135	Organic Carbon, Total QSM 5.0	EPA 9060A	GROUND WATER		170892

Metal Parameters

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Project Name: RADFORD AAP SWMU-54
Project #:
SDG #: 152892

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
413136	Potassium, Total QSM 5.0	EPA 6010C	GROUND WATER	76254	170797

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
413136	Sodium, Total QSM 5.0	EPA 6010C	GROUND WATER	76254	170797

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
413136	ICP Metals, Total QSM 5.0	EPA 6010C	GROUND WATER	76254	170800

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
413136	Mercury, Total QSM	EPA 7470A	GROUND WATER	76285	170961

METALS
CLP FORMS
DOCUMENTS

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54IDW

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	152892
% Solids:		Lab Sample ID:	413136
Analytical Method:	EPA 6010C	Date Received:	04/29/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	170797	Analysis Date/Time	05/01/2020 09:49
Analytical Prep Batch #:	76254	Prep. Date/Time:	04/29/2020 11:26
ICAL Calibration #:		Concentration Units:	ug/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
7440-09-7	Total Potassium	725		90	250	500	500
7440-23-5	Total Sodium	5520		100	300	600	600

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54IDW

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	152892
% Solids:		Lab Sample ID:	413136
Analytical Method:	EPA 7470A	Date Received:	04/29/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	170961	Analysis Date/Time	05/06/2020 13:32
Analytical Prep Batch #:	76285	Prep. Date/Time:	05/05/2020 14:15
ICAL Calibration #:	05062020	Concentration Units:	ug/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
7439-97-6	Total Mercury	0.060	U	0.030	0.060	0.12	0.12

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54IDW

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	152892
% Solids:		Lab Sample ID:	413136
Analytical Method:	EPA 6010C	Date Received:	04/29/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	170800	Analysis Date/Time	05/01/2020 23:28
Analytical Prep Batch #:	76254	Prep. Date/Time:	04/29/2020 11:26
ICAL Calibration #:		Concentration Units:	ug/L

CAS #	Analyte	Concentration	Qualifiers		DL	LOD	LOQ	RL
7429-90-5	Total Aluminum	12.9	J		6.0	18	36	36
7440-36-0	Total Antimony	6.0	U		2.0	6.0	12	12
7440-38-2	Total Arsenic	12	U		4.0	12	24	24
7440-39-3	Total Barium	78.2			0.29	0.90	1.8	1.8
7440-41-7	Total Beryllium	0.30	U		0.10	0.30	0.60	0.60
7440-43-9	Total Cadmium	1.0	U		0.30	1.0	2.0	2.0
7440-70-2	Total Calcium	53200			17	50	100	100
7440-47-3	Total Chromium	4.9			0.60	2.0	4.0	4.0
7440-48-4	Total Cobalt	2.0	U		0.70	2.0	4.0	4.0
7440-50-8	Total Copper	2.4	J	B	1.2	3.5	7.0	7.0
7439-89-6	Total Iron	25.0	J		16	50	100	100
7439-92-1	Total Lead	2.0	U		1.4	2.0	4.0	4.0
7439-95-4	Total Magnesium	20400			6.0	20	40	40
7439-96-5	Total Manganese	3.0	J		0.70	2.0	4.0	4.0
7440-02-0	Total Nickel	3.0	U		1.0	3.0	6.0	6.0
7782-49-2	Total Selenium	3.9	J	B	2.2	6.5	13	13
7440-22-4	Total Silver	2.0	U		0.70	2.0	4.0	4.0
7440-28-0	Total Thallium	7.5	U		2.5	7.5	15	15
7440-62-2	Total Vanadium	2.5	U		0.80	2.5	5.0	5.0
7440-66-6	Total Zinc	5.3	J		1.6	5.0	10	10

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Sample No.

ICV

2A-1

INITIAL CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170961

Lab Sample ID: 416251

ICAL Calibration #: 05062020

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Mercury	5/6/20 12:39	3.00	3.00	100	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

ICV

2A-1

INITIAL CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170797

Lab Sample ID: 414501

ICAL Calibration #:

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Potassium	5/1/20	09:07	100000	100000	100	90	110
Sodium	5/1/20	09:07	100000	101000	101	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

LLQC

2A-1

LOWER LIMIT OF QUANTITATION CHECK (LLQC)

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170797

Lab Sample ID: 414502

ICAL Calibration #:

Concentration Units:

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Potassium	5/1/20	09:10	3000	3080	103	80	120
Sodium	5/1/20	09:10	3000	3110	104	80	120

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

ICV

2A-1

INITIAL CALIBRATION VERIFICATION

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170800 Lab Sample ID: 415389

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Aluminum	5/1/20	15:13	12000	11700	98	90	110
Antimony	5/1/20	15:13	500.0	496.0	99	90	110
Arsenic	5/1/20	15:13	2000	2050	102	90	110
Barium	5/1/20	15:13	2000	2030	102	90	110
Beryllium	5/1/20	15:13	50.00	51.30	103	90	110
Cadmium	5/1/20	15:13	50.00	50.00	100	90	110
Calcium	5/1/20	15:13	10000	10200	102	90	110
Chromium	5/1/20	15:13	200.0	209.0	104	90	110
Cobalt	5/1/20	15:13	500.0	499.0	100	90	110
Copper	5/1/20	15:13	250.0	248.0	99	90	110
Iron	5/1/20	15:13	5000	5040	101	90	110
Lead	5/1/20	15:13	500.0	513.0	103	90	110
Magnesium	5/1/20	15:13	10000	10300	103	90	110
Manganese	5/1/20	15:13	500.0	514.0	103	90	110
Nickel	5/1/20	15:13	500.0	507.0	101	90	110
Selenium	5/1/20	15:13	2000	2100	105	90	110
Silver	5/1/20	15:13	50.00	49.80	100	90	110
Thallium	5/1/20	15:13	2000	2010	100	90	110
Vanadium	5/1/20	15:13	500.0	491.0	98	90	110
Zinc	5/1/20	15:13	500.0	525.0	105	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

LLQC

2A-1

LOWER LIMIT OF QUANTITATION CHECK (LLQC)

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170800 Lab Sample ID: 415390

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Aluminum	5/1/20	15:20	1200	1240	103	80	120
Antimony	5/1/20	15:20	60.00	63.20	105	80	120
Arsenic	5/1/20	15:20	60.00	67.10	112	80	120
Barium	5/1/20	15:20	30.00	32.20	107	80	120
Beryllium	5/1/20	15:20	12.00	13.40	112	80	120
Cadmium	5/1/20	15:20	15.00	16.10	107	80	120
Calcium	5/1/20	15:20	1500	1550	103	80	120
Chromium	5/1/20	15:20	30.00	32.80	109	80	120
Cobalt	5/1/20	15:20	30.00	31.80	106	80	120
Copper	5/1/20	15:20	30.00	32.60	109	80	120
Iron	5/1/20	15:20	900.0	976.0	108	80	120
Lead	5/1/20	15:20	30.00	32.20	107	80	120
Magnesium	5/1/20	15:20	1500	1690	113	80	120
Manganese	5/1/20	15:20	30.00	33.00	110	80	120
Nickel	5/1/20	15:20	30.00	33.10	110	80	120
Selenium	5/1/20	15:20	60.00	66.70	111	80	120
Thallium	5/1/20	15:20	60.00	62.20	104	80	120
Vanadium	5/1/20	15:20	30.00	31.10	104	80	120
Zinc	5/1/20	15:20	30.00	31.50	105	80	120

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
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Sample No.

LLQC

2A-1

LOWER LIMIT OF QUANTITATION CHECK (LLQC)

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170800

Lab Sample ID: 415394

ICAL Calibration #:

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Silver	5/1/20	16:05	10.00	8.97	90	80	120

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170797

Lab Sample ID: 414507

ICAL Calibration #:

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Potassium	5/1/20	09:52	100000	104000	104	90	110
Sodium	5/1/20	09:52	100000	102000	102	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170797

Lab Sample ID: 414511

ICAL Calibration #:

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Potassium	5/1/20	10:26	100000	104000	104	90	110
Sodium	5/1/20	10:26	100000	103000	103	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV High Level

2A-2

CONTINUING CALIBRATION VERIFICATION (LEVEL 1 - HIGH RANGE)

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170800 Lab Sample ID: 415395

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Aluminum	5/1/20	22:44	5000	4790	96	90	110
Antimony	5/1/20	22:44	5000	4900	98	90	110
Arsenic	5/1/20	22:44	5000	5200	104	90	110
Barium	5/1/20	22:44	5000	4930	99	90	110
Beryllium	5/1/20	22:44	500.0	503.0	101	90	110
Cadmium	5/1/20	22:44	500.0	523.0	105	90	110
Calcium	5/1/20	22:44	5000	4890	98	90	110
Chromium	5/1/20	22:44	5000	5180	104	90	110
Cobalt	5/1/20	22:44	5000	4900	98	90	110
Copper	5/1/20	22:44	5000	4990	100	90	110
Iron	5/1/20	22:44	5000	4840	97	90	110
Lead	5/1/20	22:44	5000	4930	99	90	110
Magnesium	5/1/20	22:44	5000	4790	96	90	110
Manganese	5/1/20	22:44	5000	5110	102	90	110
Nickel	5/1/20	22:44	5000	4920	98	90	110
Selenium	5/1/20	22:44	5000	5170	103	90	110
Silver	5/1/20	22:44	500.0	484.0	97	90	110
Thallium	5/1/20	22:44	5000	4670	93	90	110
Vanadium	5/1/20	22:44	5000	5050	101	90	110
Zinc	5/1/20	22:44	5000	5240	105	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
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Sample No.

CCV Low Level

2A-2

CONTINUING CALIBRATION VERIFICATION (LEVEL 2 - LOW RANGE)

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170800 Lab Sample ID: 415396

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Aluminum	5/1/20	22:50	500.0	484.0	97	90	110
Antimony	5/1/20	22:50	500.0	489.0	98	90	110
Arsenic	5/1/20	22:50	500.0	512.0	102	90	110
Barium	5/1/20	22:50	500.0	496.0	99	90	110
Beryllium	5/1/20	22:50	50.00	53.50	107	90	110
Cadmium	5/1/20	22:50	50.00	51.30	103	90	110
Calcium	5/1/20	22:50	500.0	477.0	95	90	110
Chromium	5/1/20	22:50	500.0	523.0	105	90	110
Cobalt	5/1/20	22:50	500.0	487.0	97	90	110
Copper	5/1/20	22:50	500.0	500.0	100	90	110
Iron	5/1/20	22:50	500.0	493.0	99	90	110
Lead	5/1/20	22:50	500.0	517.0	103	90	110
Magnesium	5/1/20	22:50	500.0	513.0	103	90	110
Manganese	5/1/20	22:50	500.0	516.0	103	90	110
Nickel	5/1/20	22:50	500.0	507.0	101	90	110
Selenium	5/1/20	22:50	500.0	491.0	98	90	110
Silver	5/1/20	22:50	50.00	50.20	100	90	110
Thallium	5/1/20	22:50	500.0	508.0	102	90	110
Vanadium	5/1/20	22:50	500.0	483.0	97	90	110
Zinc	5/1/20	22:50	500.0	514.0	103	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV High Level

2A-2

CONTINUING CALIBRATION VERIFICATION (LEVEL 1 - HIGH RANGE)

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170800 Lab Sample ID: 415400

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Aluminum	5/2/20	00:07	5000	4710	94	90	110
Antimony	5/2/20	00:07	5000	4860	97	90	110
Arsenic	5/2/20	00:07	5000	5170	103	90	110
Barium	5/2/20	00:07	5000	4880	98	90	110
Beryllium	5/2/20	00:07	500.0	505.0	101	90	110
Cadmium	5/2/20	00:07	500.0	521.0	104	90	110
Calcium	5/2/20	00:07	5000	4880	98	90	110
Chromium	5/2/20	00:07	5000	5260	105	90	110
Cobalt	5/2/20	00:07	5000	4870	97	90	110
Copper	5/2/20	00:07	5000	4950	99	90	110
Iron	5/2/20	00:07	5000	4840	97	90	110
Lead	5/2/20	00:07	5000	4980	100	90	110
Magnesium	5/2/20	00:07	5000	4720	94	90	110
Manganese	5/2/20	00:07	5000	5140	103	90	110
Nickel	5/2/20	00:07	5000	4930	99	90	110
Selenium	5/2/20	00:07	5000	5120	102	90	110
Silver	5/2/20	00:07	500.0	484.0	97	90	110
Thallium	5/2/20	00:07	5000	4670	93	90	110
Vanadium	5/2/20	00:07	5000	5070	101	90	110
Zinc	5/2/20	00:07	5000	5220	104	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
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Sample No.

CCV Low Level

2A-2

CONTINUING CALIBRATION VERIFICATION (LEVEL 2 - LOW RANGE)

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170800 Lab Sample ID: 415401

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Aluminum	5/2/20	00:13	500.0	478.0	96	90	110
Antimony	5/2/20	00:13	500.0	487.0	97	90	110
Arsenic	5/2/20	00:13	500.0	516.0	103	90	110
Barium	5/2/20	00:13	500.0	493.0	99	90	110
Beryllium	5/2/20	00:13	50.00	53.40	107	90	110
Cadmium	5/2/20	00:13	50.00	51.20	102	90	110
Calcium	5/2/20	00:13	500.0	471.0	94	90	110
Chromium	5/2/20	00:13	500.0	523.0	105	90	110
Cobalt	5/2/20	00:13	500.0	486.0	97	90	110
Copper	5/2/20	00:13	500.0	500.0	100	90	110
Iron	5/2/20	00:13	500.0	491.0	98	90	110
Lead	5/2/20	00:13	500.0	523.0	105	90	110
Magnesium	5/2/20	00:13	500.0	508.0	102	90	110
Manganese	5/2/20	00:13	500.0	515.0	103	90	110
Nickel	5/2/20	00:13	500.0	506.0	101	90	110
Selenium	5/2/20	00:13	500.0	491.0	98	90	110
Silver	5/2/20	00:13	50.00	49.40	99	90	110
Thallium	5/2/20	00:13	500.0	509.0	102	90	110
Vanadium	5/2/20	00:13	500.0	482.0	96	90	110
Zinc	5/2/20	00:13	500.0	513.0	103	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170961

Lab Sample ID: 416253

ICAL Calibration #: 05062020

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Mercury	5/6/20 13:20	3.00	3.03	101	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170961

Lab Sample ID: 416255

ICAL Calibration #: 05062020

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Mercury	5/6/20 14:01	3.00	3.03	101	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

MRL

2B

MRL STANDARD CHECK

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170797 Lab Sample ID: 414504

ICAL Calibration #: Concentration Units:

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Potassium	5/1/20	09:15	1000	1010	101	70	130
Sodium	5/1/20	09:15	1000	994.0	99	70	130

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

ICB

3-1

INITIAL CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170961

Lab Sample ID: 416252

Analytical Prep Batch # 0

Preparation Date/Time:

ICAL Calibration #: 05062020

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Mercury	05/06/2020 12:45	0.00300	U	0.03	0.06

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

ICB

3-1

INITIAL CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170797 Lab Sample ID: 414503

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Potassium	05/01/2020 09:12	81.00	U	90	250
Sodium	05/01/2020 09:12	39.00	U	100	300

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

ICB

3-1

INITIAL CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170800 Lab Sample ID: 415391

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Aluminum	05/01/2020 15:32	1.64	U	6	18
Antimony	05/01/2020 15:32	1.02	U	2.0	6.0
Arsenic	05/01/2020 15:32	0.513	U	4	12
Barium	05/01/2020 15:32	-0.196	U	0.29	0.90
Beryllium	05/01/2020 15:32	-0.00200	U	0.10	0.30
Cadmium	05/01/2020 15:32	0.0190	U	0.3	1.0
Calcium	05/01/2020 15:32	2.36	U	17	50
Chromium	05/01/2020 15:32	0.432	U	0.6	2.0
Cobalt	05/01/2020 15:32	0.0990	U	0.7	2.0
Copper	05/01/2020 15:32	-0.00900	U	1.2	3.5
Iron	05/01/2020 15:32	0.779	U	16	50
Lead	05/01/2020 15:32	-0.204	U	1.4	2.0
Magnesium	05/01/2020 15:32	-5.09	U	6	20
Manganese	05/01/2020 15:32	0.0580	U	0.7	2.0
Nickel	05/01/2020 15:32	0.152	U	1.0	3.0
Selenium	05/01/2020 15:32	1.54	U	2.2	6.5
Silver	05/01/2020 15:32	-1.08	U	0.7	2.0
Thallium	05/01/2020 15:32	0.741	U	2.5	7.5
Vanadium	05/01/2020 15:32	0.151	U	0.8	2.5
Zinc	05/01/2020 15:32	-1.55	U	1.6	4.0

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170961 Lab Sample ID: 416254

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: 05062020 Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Mercury	05/06/2020 13:26	0.00100	U	0.03	0.06

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170961 Lab Sample ID: 416256

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: 05062020 Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Mercury	05/06/2020 14:07	0.00300	U	0.03	0.06

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170797 Lab Sample ID: 414508

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Potassium	05/01/2020 09:55	83.00	U	90	250
Sodium	05/01/2020 09:55	52.00	U	100	300

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170797 Lab Sample ID: 414629

Analytical Prep Batch #: Preparation Date/Time:

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Potassium	05/01/2020 10:29	83.00	U	90	250
Sodium	05/01/2020 10:29	49.00	U	100	300

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170800 Lab Sample ID: 415397

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Aluminum	05/01/2020 22:56	-4.72	U	6	18
Antimony	05/01/2020 22:56	-0.305	U	2.0	6.0
Arsenic	05/01/2020 22:56	1.64	U	4	12
Barium	05/01/2020 22:56	0.0290	U	0.29	0.90
Beryllium	05/01/2020 22:56	0.0200	U	0.10	0.30
Cadmium	05/01/2020 22:56	0.0700	U	0.3	1.0
Calcium	05/01/2020 22:56	0.443	U	17	50
Chromium	05/01/2020 22:56	-0.356	U	0.6	2.0
Cobalt	05/01/2020 22:56	0.0510	U	0.7	2.0
Copper	05/01/2020 22:56	-0.652	U	1.2	3.5
Iron	05/01/2020 22:56	2.27	U	16	50
Lead	05/01/2020 22:56	0.557	U	1.4	2.0
Magnesium	05/01/2020 22:56	-4.88	U	6	20
Manganese	05/01/2020 22:56	0.195	U	0.7	2.0
Nickel	05/01/2020 22:56	0.150	U	1.0	3.0
Selenium	05/01/2020 22:56	2.06	U	2.2	6.5
Silver	05/01/2020 22:56	-1.41	U	0.7	2.0
Thallium	05/01/2020 22:56	1.58	U	2.5	7.5
Vanadium	05/01/2020 22:56	0.192	U	0.8	2.5
Zinc	05/01/2020 22:56	-2.11	U	1.6	5.0

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170800

Lab Sample ID: 415402

Analytical Prep Batch # 0

Preparation Date/Time:

ICAL Calibration #:

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Aluminum	05/02/2020 00:19	-2.30	U	6	18
Antimony	05/02/2020 00:19	0.434	U	2.0	6.0
Arsenic	05/02/2020 00:19	2.61	U	4	12
Barium	05/02/2020 00:19	0.223	U	0.29	0.90
Beryllium	05/02/2020 00:19	0.0270	U	0.10	0.30
Cadmium	05/02/2020 00:19	0.0370	U	0.3	1.0
Calcium	05/02/2020 00:19	0.622	U	17	50
Chromium	05/02/2020 00:19	0.220	U	0.6	2.0
Cobalt	05/02/2020 00:19	0.374	U	0.7	2.0
Copper	05/02/2020 00:19	-0.176	U	1.2	3.5
Iron	05/02/2020 00:19	-0.0700	U	16	50
Lead	05/02/2020 00:19	0.480	U	1.4	2.0
Magnesium	05/02/2020 00:19	-4.93	U	6	20
Manganese	05/02/2020 00:19	0.228	U	0.7	2.0
Nickel	05/02/2020 00:19	0.273	U	1.0	3.0
Selenium	05/02/2020 00:19	4.28		2.2	6.5
Silver	05/02/2020 00:19	-1.57	U	0.7	2.0
Thallium	05/02/2020 00:19	-0.889	U	2.5	7.5
Vanadium	05/02/2020 00:19	0.426	U	0.8	2.5
Zinc	05/02/2020 00:19	-2.05	U	1.6	5.0

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170961 Lab Sample ID: 414388

Analytical Prep Batch # 76285 Preparation Date/Time: 05/05/2020 14:15

ICAL Calibration #: 05062020 Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total Mercury	05/06/2020 12:54	-0.00400	U	0.03	0.06

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170797 Lab Sample ID: 413501

Analytical Prep Batch # 76254 Preparation Date/Time: 04/29/2020 11:26

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total Potassium	05/01/2020 09:47	29.00	U	90	250
Total Sodium	05/01/2020 09:47	24.00	U	100	300

** Detection Limit only reported if value was less than the control limit.

***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170797 Lab Sample ID: 413501

Analytical Prep Batch # 76254 Preparation Date/Time: 04/29/2020 11:26

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total Potassium	05/01/2020 09:47	29.00	U	90	250
Total Sodium	05/01/2020 09:47	24.00	U	100	300

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170800 Lab Sample ID: 413501

Analytical Prep Batch # 76254 Preparation Date/Time: 04/29/2020 11:26

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit	
Total Aluminum	05/01/2020 23:21	5.20	U	6	18	
Total Antimony	05/01/2020 23:21	0.722	U	2.0	6.0	
Total Arsenic	05/01/2020 23:21	2.18	U	4	12	
Total Barium	05/01/2020 23:21	0.133	U	0.29	0.90	
Total Beryllium	05/01/2020 23:21	0.0110	U	0.10	0.30	
Total Cadmium	05/01/2020 23:21	-0.0820	U	0.3	1.0	
Total Calcium	05/01/2020 23:21	3.73	U	17	50	
Total Chromium	05/01/2020 23:21	0.121	U	0.6	2.0	
Total Cobalt	05/01/2020 23:21	0.0670	U	0.7	2.0	
Total Copper	05/01/2020 23:21	1.37		1.2	3.5	FAIL
Total Iron	05/01/2020 23:21	2.32	U	16	50	
Total Lead	05/01/2020 23:21	1.21	U	1.4	2.0	
Total Magnesium	05/01/2020 23:21	-5.44	U	6	20	
Total Manganese	05/01/2020 23:21	0.0420	U	0.7	2.0	
Total Nickel	05/01/2020 23:21	0.0570	U	1.0	3.0	
Total Selenium	05/01/2020 23:21	5.19		2.2	6.5	FAIL
Total Silver	05/01/2020 23:21	-1.77	U	0.7	2.0	
Total Thallium	05/01/2020 23:21	-1.58	U	2.5	7.5	
Total Vanadium	05/01/2020 23:21	0.107	U	0.8	2.5	
Total Zinc	05/01/2020 23:21	-1.79	U	1.6	5.0	

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No:

4-1

ICP INTERFERENCE CHECK SAMPLE (SOL. A)

ICSA

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
ICP ID Number: TJA 6000
SDG No.: 152892
ICS Source: SPEX

Analytical Run #: 170797
Lab Sample ID: 414505
Inorganics MRL Standard Source: SPEX, Ultra,Inorganic Ventures and Mallinkrodt
ICAL Calibration #:
Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R	Lower Limit (1)	Upper Limit (1)
Aluminum	05/01/2020 09:18	500000	488000	98	80	120
Calcium	05/01/2020 09:18	500000	482000	96	80	120
Iron	05/01/2020 09:18	500000	482000	96	80	120
Magnesium	05/01/2020 09:18	500000	488000	98	80	120
Potassium	05/01/2020 09:18	0	0		-170	170
Sodium	05/01/2020 09:18	0	0		-140	140

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No:

4-1

ICP INTERFERENCE CHECK SAMPLE (SOL. A)

ICSA

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
ICP ID Number: TJA 6000
SDG No.: 152892
ICS Source: SPEX

Analytical Run #: 170800
Lab Sample ID: 415392
Inorganics MRL Standard Source: SPEX, Ultra,Inorganic Ventures and Mallinkrodt
ICAL Calibration #:
Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R	Lower Limit (1)	Upper Limit (1)
Aluminum	05/01/2020 15:45	500000	480000	96	80	120
Antimony	05/01/2020 15:45	0	-0.00100		-10	10
Arsenic	05/01/2020 15:45	0	-0.266		-20	20
Barium	05/01/2020 15:45	0	-0.493		-1.7	1.7
Beryllium	05/01/2020 15:45	0	0		-.7	.7
Cadmium	05/01/2020 15:45	0	-0.443		-1.3	1.3
Calcium	05/01/2020 15:45	500000	484000	97	80	120
Chromium	05/01/2020 15:45	0	-7.46		-13	13
Cobalt	05/01/2020 15:45	0	0.849		-2	2
Copper	05/01/2020 15:45	0	-0.0250		-7	7
Iron	05/01/2020 15:45	500000	441000	88	80	120
Lead	05/01/2020 15:45	0	0.397		-4.7	4.7
Magnesium	05/01/2020 15:45	500000	464000	93	80	120
Manganese	05/01/2020 15:45	0	0.812		-7.3	7.3
Nickel	05/01/2020 15:45	0	-0.0810		-7	7
Selenium	05/01/2020 15:45	0	-0.0140		-13	13
Silver	05/01/2020 15:45	0	-1.65		-7.3	7.3
Thallium	05/01/2020 15:45	0	0		-7.3	7.3
Vanadium	05/01/2020 15:45	20000	21900		16000	24000
Zinc	05/01/2020 15:45	0	3.43		-20	20

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No:

4-2

ICP INTERFERENCE CHECK SAMPLE (SOL. AB)

ICSAB

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
ICP ID Number: TJA 6000
SDG No.: 152892
ICS Source: SPEX, Ultra

Analytical Run #: 170797
Lab Sample ID: 414506
Inorganics MRL Standard Source: SPEX, Ultra,Inorganic Ventures and Mallinkrodt
ICAL Calibration #:
Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R	Lower Limit (1)	Upper Limit (1)
Aluminum	05/01/2020 09:21	500000	501000	100	80	120
Calcium	05/01/2020 09:21	500000	489000	98	80	120
Iron	05/01/2020 09:21	500000	507000	101	80	120
Magnesium	05/01/2020 09:21	500000	489000	98	80	120
Potassium	05/01/2020 09:21	100000	106000	106	80	120
Sodium	05/01/2020 09:21	100000	104000	104	80	120

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No:

4-2

ICP INTERFERENCE CHECK SAMPLE (SOL. AB)

ICSAB

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
ICP ID Number: TJA 6000
SDG No.: 152892
ICS Source: SPEX, Ultra

Analytical Run #: 170800
Lab Sample ID: 415393
Inorganics MRL Standard Source: SPEX, Ultra,Inorganic Ventures and Mallinkrodt
ICAL Calibration #:
Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R	Lower Limit (1)	Upper Limit (1)
Aluminum	05/01/2020 15:52	500000	509000	102	80	120
Antimony	05/01/2020 15:52	500.0	455.0	91	80	120
Arsenic	05/01/2020 15:52	500.0	483.0	97	80	120
Barium	05/01/2020 15:52	500.0	451.0	90	80	120
Beryllium	05/01/2020 15:52	500.0	426.0	85	80	120
Cadmium	05/01/2020 15:52	500.0	496.0	99	80	120
Calcium	05/01/2020 15:52	500000	507000	101	80	120
Chromium	05/01/2020 15:52	500.0	471.0	94	80	120
Cobalt	05/01/2020 15:52	500.0	434.0	87	80	120
Copper	05/01/2020 15:52	500.0	483.0	97	80	120
Iron	05/01/2020 15:52	500000	463000	93	80	120
Lead	05/01/2020 15:52	500.0	413.0	83	80	120
Magnesium	05/01/2020 15:52	500000	491000	98	80	120
Manganese	05/01/2020 15:52	500.0	466.0	93	80	120
Nickel	05/01/2020 15:52	500.0	428.0	86	80	120
Selenium	05/01/2020 15:52	500.0	430.0	86	80	120
Silver	05/01/2020 15:52	500.0	484.0	97	80	120
Thallium	05/01/2020 15:52	500.0	414.0	83	80	120
Vanadium	05/01/2020 15:52	500.0	445.0	89	80	120
Zinc	05/01/2020 15:52	500.0	488.0	98	80	120

CT LABORATORIES
delivering more than data from your environmental analyses

5A

SPIKE SAMPLE RECOVERY

Sample Description

54IDW

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix:	LIQUID	SDG No.:	152892
% Solids for Sample:		Concentration Units:	ug/L
Sample No	414391	Parent Sample No.:	413136
Analytical Prep Batch #	76285	Analytical Preparation Date/Time:	05/05/2020 14:15
Analytical Run #:	170961	ICAL Calibration #:	05062020

Analysis Type	*Initial Analysis*	Analysis Date: -----	05/06/2020	Analysis Time: --------	13:48

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Total Mercury	82-119	2.1		BDL	U	2.0	105		CV

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

5A

SPIKE SAMPLE RECOVERY

Sample Description

54IDW

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix:	LIQUID	SDG No.:	152892
% Solids for Sample:		Concentration Units:	ug/L
Sample No	413504	Parent Sample No.:	413136
Analytical Prep Batch #	76254	Analytical Preparation Date/Time:	04/29/2020 11:26
Analytical Run #:	170797	ICAL Calibration #:	

Analysis Type *Initial Analysis* Analysis Date: ----- 05/01/2020 Analysis Time: -------- 10:03

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Total Potassium	86-114	110000		725		100000	109		P
Total Sodium	87-115	111000		5520		100000	105		P

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

5A

SPIKE SAMPLE RECOVERY

Sample Description: **54IDW**

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix: LIQUID
SDG No.: 152892
% Solids for Sample:
Concentration Units: ug/L
Sample No: 413504
Parent Sample No.: 413136
Analytical Prep Batch #: 76254
Analytical Preparation Date/Time: 04/29/2020 11:26
Analytical Run #: 170800
ICAL Calibration #:

Analysis Type: *Initial Analysis* Analysis Date: ----- 05/01/2020 Analysis Time: -------- 23:48

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Total Aluminum	86-115	878		12.9	J	800	108		P
Total Antimony	88-113	211		BDL	U	200	106		P
Total Arsenic	87-113	905		BDL	U	800	113		P
Total Barium	88-113	863		78.2		800	98		P
Total Beryllium	89-112	19.9		BDL	U	20.0	100		P
Total Cadmium	88-113	19.9		BDL	U	20.0	100		P
Total Calcium	87-113	249000		53200		200000	98		P
Total Chromium	90-113	95.3		4.9		80.0	113		P
Total Cobalt	89-114	197		BDL	U	200	98		P
Total Copper	86-114	97.9		2.4	J	100	96		P
Total Iron	87-115	428		25.0	J	400	101		P
Total Lead	86-113	206		BDL	U	200	103		P
Total Magnesium	85-113	113000		20400		100000	93		P
Total Manganese	90-114	215		3.0	J	200	106		P
Total Nickel	88-113	203		BDL	U	200	102		P
Total Selenium	83-114	803		3.9	J	800	100		P
Total Silver	84-115	16.7		BDL	U	20.0	84		P
Total Thallium	85-114	740		BDL	U	800	92		P
Total Vanadium	90-111	207		BDL	U	200	104		P
Total Zinc	87-115	227		5.3	J	200	111		P

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

5B

POST DIGESTION SPIKE SAMPLE RECOVERY

Sample Description: **54IDW**

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix: LIQUID
SDG No.: 152892
% Solids for Sample:
Concentration Units: ug/L
Sample No: 414510
Parent Sample No.: 413136
Analytical Prep Batch #: 0
Analytical Preparation Date/Time:
Analytical Run #: 170797
ICAL Calibration #:

Analysis Type: *Initial Analysis* Analysis Date: ----- 05/01/2020 Analysis Time: -------- 10:09

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Potassium	80-120.	108000		725		100000	107		P
Sodium	80-120.	111000		5520		100000	105		P

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

5C

SPIKE DUPLICATE SAMPLE RECOVERY

Sample Description

54IDW

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix:	LIQUID	SDG No.:	152892
% Solids for Sample:		Concentration Units:	ug/L
Sample No	414392	Parent Sample No.:	414391
Analytical Prep Batch #	76285	Analytical Preparation Date/Time:	05/05/2020 14:15
Analytical Run #:	170961	ICAL Calibration #:	05062020

Analysis Type	*Initial Analysis*	Analysis Date: -----	05/06/2020	Analysis Time: --------	13:51

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Total Mercury	82-119	2.1		BDL	U	2.0	105		CV

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

5C

SPIKE DUPLICATE SAMPLE RECOVERY

Sample Description: **54IDW**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix:	LIQUID	SDG No.:	152892
% Solids for Sample:		Concentration Units:	ug/L
Sample No	413505	Parent Sample No.:	413504
Analytical Prep Batch #	76254	Analytical Preparation Date/Time:	04/29/2020 11:26
Analytical Run #:	170797	ICAL Calibration #:	

Analysis Type: *Initial Analysis* Analysis Date: ----- 05/01/2020 Analysis Time: -------- 10:06

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Total Potassium	86-114	108000		725		100000	107		P
Total Sodium	87-115	113000		5520		100000	107		P

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

5C

SPIKE DUPLICATE SAMPLE RECOVERY

Sample Description: **54IDW**

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix: LIQUID
SDG No.: 152892
% Solids for Sample:
Concentration Units: ug/L
Sample No: 413505
Parent Sample No.: 413504
Analytical Prep Batch #: 76254
Analytical Preparation Date/Time: 04/29/2020 11:26
Analytical Run #: 170800
ICAL Calibration #:

Analysis Type: *Initial Analysis* Analysis Date: ----- 05/01/2020 Analysis Time: -------- 23:54

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Total Aluminum	86-115	875		12.9	J	800	108		P
Total Antimony	88-113	210		BDL	U	200	105		P
Total Arsenic	87-113	892		BDL	U	800	112		P
Total Barium	88-113	859		78.2		800	98		P
Total Beryllium	89-112	19.9		BDL	U	20.0	100		P
Total Cadmium	88-113	19.7		BDL	U	20.0	98		P
Total Calcium	87-113	248000		53200		200000	97		P
Total Chromium	90-113	94.7		4.9		80.0	112		P
Total Cobalt	89-114	196		BDL	U	200	98		P
Total Copper	86-114	97.8		2.4	J	100	95		P
Total Iron	87-115	422		25.0	J	400	99		P
Total Lead	86-113	205		BDL	U	200	102		P
Total Magnesium	85-113	112000		20400		100000	92		P
Total Manganese	90-114	214		3.0	J	200	106		P
Total Nickel	88-113	202		BDL	U	200	101		P
Total Selenium	83-114	807		3.9	J	800	100		P
Total Silver	84-115	17.5		BDL	U	20.0	88		P
Total Thallium	85-114	736		BDL	U	800	92		P
Total Vanadium	90-111	205		BDL	U	200	102		P
Total Zinc	87-115	226		5.3	J	200	110		P

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

6

DUPLICATES

Sample Description

54IDW

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix: LIQUID
SDG No.: 152892
% Solid for Sample:
Concentration Units: ug/L
Analytical Prep Batch # 1
Analytical Preparation Date/Time 76285
Analytical Run #: 170961
ICAL Calibration #: 05062020
Sample #: 414390
Parent Sample #: 413136

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Original Parent Conc. (S)	C	Duplicate Conc. (D)	C	RPD	Q	M
Total Mercury	05/06/2020	13:36	20	0.030	U	0.030	U	0		CV

CT LABORATORIES
delivering more than data from your environmental analyses

6

DUPLICATES

Sample Description

54IDW

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

Matrix: LIQUID

SDG No.: 152892

% Solid for Sample:

Concentration Units: ug/L

Analytical Prep Batch # 1

Analytical Preparation Date/Time 76254

Analytical Run #: 170797

ICAL Calibration #:

Sample #: 413503

Parent Sample #: 413136

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Original Parent Conc. (S)	C	Duplicate Conc. (D)	C	RPD	Q	M
Total Potassium	05/01/2020	10:01	20	725		698		4		P
Total Sodium	05/01/2020	10:01	20	5520		5400		2		P

CT LABORATORIES
delivering more than data from your environmental analyses

6

DUPLICATES

Sample Description

54IDW

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

Matrix: LIQUID

SDG No.: 152892

% Solid for Sample:

Concentration Units: ug/L

Analytical Prep Batch # 1

Analytical Preparation Date/Time 76254

Analytical Run #: 170800

ICAL Calibration #:

Sample #: 413503

Parent Sample #: 413136

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Original Parent Conc. (S)	C	Duplicate Conc. (D)	C	RPD	Q	M	
Total Aluminum	05/01/2020	23:41	20	12.9	J	11.2	J	14		P	
Total Antimony	05/01/2020	23:41	20	2.0	U	2.0	U	0		P	
Total Arsenic	05/01/2020	23:41	20	4.0	U	4.0	U	0		P	
Total Barium	05/01/2020	23:41	20	78.2		77.8		1		P	
Total Beryllium	05/01/2020	23:41	20	0.10	U	0.10	U	0		P	
Total Cadmium	05/01/2020	23:41	20	0.30	U	0.30	U	0		P	
Total Calcium	05/01/2020	23:41	20	53200		53000		0		P	
Total Chromium	05/01/2020	23:41	20	4.9		4.9		0		P	
Total Cobalt	05/01/2020	23:41	20	0.70	U	0.70	U	0		P	
Total Copper	05/01/2020	23:41	20	2.4	J	2.0	J	18		P	
Total Iron	05/01/2020	23:41	20	25.0	J	23.5	J	6		P	
Total Lead	05/01/2020	23:41	20	1.4	U	1.4	U	0		P	
Total Magnesium	05/01/2020	23:41	20	20400		20400		0		P	
Total Manganese	05/01/2020	23:41	20	3.0	J	3.1	J	3		P	
Total Nickel	05/01/2020	23:41	20	1.0	U	1.0	U	0		P	
Total Selenium	05/01/2020	23:41	20	3.9	J	5.5	J	34		P	*FAIL*
Total Silver	05/01/2020	23:41	20	0.70	U	0.70	U	0		P	
Total Thallium	05/01/2020	23:41	20	2.5	U	2.5	U	0		P	
Total Vanadium	05/01/2020	23:41	20	0.80	U	0.80	U	0		P	
Total Zinc	05/01/2020	23:41	20	5.3	J	5.1	J	4		P	

CT LABORATORIES
delivering more than data from your environmental analyses

6A

MATRIX SPIKE DUPLICATES

Sample Description

54IDW

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

Matrix: LIQUID
SDG No.: 152892

% Solid for Sample:
Concentration Units: ug/L

Analytical Prep Batch # 76285
Analytical Preparation Date/Time 05/05/2020 14:15

Analytical Run #: 170961
ICAL Calibration #: 05062020

Sample #: 414392
Parent Sample #: 414391

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Matrix Spik Parent Conc. (S)	C	Matrix Spike Duplicate Conc. (D)	C	RPD	Q	M
Total Mercury	05/06/2020	13:51	20	2.1		2.1		3		CV

CT LABORATORIES
delivering more than data from your environmental analyses

6A

MATRIX SPIKE DUPLICATES

Sample Description

54IDW

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

Matrix: LIQUID
SDG No.: 152892

% Solid for Sample:
Concentration Units: ug/L

Analytical Prep Batch # 76254
Analytical Preparation Date/Time 04/29/2020 11:26

Analytical Run #: 170797
ICAL Calibration #:

Sample #: 413505
Parent Sample #: 413504

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Matrix Spik Parent Conc. (S)	C	Matrix Spike Duplicate Conc. (D)	C	RPD	Q	M
Total Potassium	05/01/2020	10:06	20	110000		108000		2		P
Total Sodium	05/01/2020	10:06	20	111000		113000		2		P

CT LABORATORIES
delivering more than data from your environmental analyses

6A

MATRIX SPIKE DUPLICATES

Sample Description: **54IDW**

Lab Name: CT Laboratories | Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

Matrix: LIQUID | SDG No.: 152892

% Solid for Sample: | Concentration Units: ug/L

Analytical Prep Batch #: 76254 | Analytical Preparation Date/Time: 04/29/2020 11:26

Analytical Run #: 170800 | ICAL Calibration #:

Sample #: 413505 | Parent Sample #: 413504

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Matrix Spik Parent Conc. (S)	C	Matrix Spike Duplicate Conc. (D)	C	RPD	Q	M
Total Aluminum	05/01/2020	23:54	20	878		875		0		P
Total Antimony	05/01/2020	23:54	20	211		210		0		P
Total Arsenic	05/01/2020	23:54	20	905		892		1		P
Total Barium	05/01/2020	23:54	20	863		859		0		P
Total Beryllium	05/01/2020	23:54	20	19.9		19.9		0		P
Total Cadmium	05/01/2020	23:54	20	19.9		19.7		1		P
Total Calcium	05/01/2020	23:54	20	249000		248000		0		P
Total Chromium	05/01/2020	23:54	20	95.3		94.7		1		P
Total Cobalt	05/01/2020	23:54	20	197		196		1		P
Total Copper	05/01/2020	23:54	20	97.9		97.8		0		P
Total Iron	05/01/2020	23:54	20	428		422		1		P
Total Lead	05/01/2020	23:54	20	206		205		0		P
Total Magnesium	05/01/2020	23:54	20	113000		112000		1		P
Total Manganese	05/01/2020	23:54	20	215		214		0		P
Total Nickel	05/01/2020	23:54	20	203		202		0		P
Total Selenium	05/01/2020	23:54	20	803		807		0		P
Total Silver	05/01/2020	23:54	20	16.7		17.5		5		P
Total Thallium	05/01/2020	23:54	20	740		736		1		P
Total Vanadium	05/01/2020	23:54	20	207		205		1		P
Total Zinc	05/01/2020	23:54	20	227		226		0		P

CT LABORATORIES
delivering more than data from your environmental analyses

7-1

Sample No:

LABORATORY CONTROL SAMPLE - AQUEOUS

LCS

Lab Name: CT Laboratories Contract WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

LCS Source: SPEX and Ultra SDG No.: 152892

Concentration Units: ug/L

Analytical Run #: 170961 Sample No.:#: 414389

Analytical Prep Batch #: 76285 Preparation Date/Time: 05/05/2020 14:15

ICAL Calibration #: 05062020

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
Total Mercury	05/06/2020 12:48	82-119	2.03		2.00	102		CV

CT LABORATORIES
delivering more than data from your environmental analyses

7-1

Sample No:

LABORATORY CONTROL SAMPLE - AQUEOUS

LCS

Lab Name: CT Laboratories Contract WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

LCS Source: SPEX and Ultra SDG No.: 152892

Concentration Units: ug/L

Analytical Run #: 170797 Sample No.:#: 413502

Analytical Prep Batch #: 76254 Preparation Date/Time: 04/29/2020 11:26

ICAL Calibration #:

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time		Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
Total Potassium	05/01/2020	09:44	86-114	107000		100000	107		P
Total Sodium	05/01/2020	09:44	87-115	105000		100000	105		P

CT LABORATORIES
delivering more than data from your environmental analyses

7-1

Sample No:

LABORATORY CONTROL SAMPLE - AQUEOUS

LCS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

LCS Source: SPEX and Ultra SDG No.: 152892

Concentration Units: ug/L

Analytical Run #: 170800 Sample No.:#: 413502

Analytical Prep Batch #: 76254 Preparation Date/Time: 04/29/2020 11:26

ICAL Calibration #:

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
Total Aluminum	05/01/2020 23:15	86-115	785.0		800.0	98		P
Total Antimony	05/01/2020 23:15	88-113	210.0		200.0	105		P
Total Arsenic	05/01/2020 23:15	87-113	906.0		800.0	113		P
Total Barium	05/01/2020 23:15	88-113	808.0		800.0	101		P
Total Beryllium	05/01/2020 23:15	89-112	20.20		20.00	101		P
Total Cadmium	05/01/2020 23:15	88-113	20.10		20.00	100		P
Total Calcium	05/01/2020 23:15	87-113	201000		200000	100		P
Total Chromium	05/01/2020 23:15	90-113	90.40		80.00	113		P
Total Cobalt	05/01/2020 23:15	89-114	200.0		200.0	100		P
Total Copper	05/01/2020 23:15	86-114	99.00		100.0	99		P
Total Iron	05/01/2020 23:15	87-115	414.0		400.0	104		P
Total Lead	05/01/2020 23:15	86-113	210.0		200.0	105		P
Total Magnesium	05/01/2020 23:15	85-113	95100		100000	95		P
Total Manganese	05/01/2020 23:15	90-114	216.0		200.0	108		P
Total Nickel	05/01/2020 23:15	88-113	207.0		200.0	104		P
Total Selenium	05/01/2020 23:15	83-114	819.0		800.0	102		P
Total Silver	05/01/2020 23:15	84-115	17.40		20.00	87		P
Total Thallium	05/01/2020 23:15	85-114	760.0		800.0	95		P
Total Vanadium	05/01/2020 23:15	90-111	209.0		200.0	104		P
Total Zinc	05/01/2020 23:15	87-115	223.0		200.0	112		P

CT LABORATORIES
delivering more than data from your environmental analyses

10

METHOD DETECTION LIMITS (ANNUALLY)

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Matrix: LIQUID

Analyte	Wavelength (nm)	Background	CRDL (ug/L)	MDL (ug/L)	M
Total Mercury	253.7			0.03	CV

CT LABORATORIES
delivering more than data from your environmental analyses

10

METHOD DETECTION LIMITS (ANNUALLY)

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

ICP ID Number: TJA SDG No.: 152892

Matrix: LIQUID

Analyte	Wavelength (nm)	Background	CRDL (ug/L)	MDL (ug/L)	M
Total Aluminum	167.0			6	P
Total Antimony	217.5			2.0	P
Total Arsenic	193.7			4	P
Total Barium	455.4			0.29	P
Total Beryllium	313.041			0.10	P
Total Cadmium	226.502			0.3	P
Total Calcium	393.3			17	P
Total Chromium	267.716			0.6	P
Total Cobalt	228.616			0.7	P
Total Copper	327.3			1.2	P
Total Iron	259.9			16	P
Total Lead	220.35			1.4	P
Total Magnesium	279.5			6	P
Total Manganese	257.61			0.7	P
Total Nickel	231.604			1.0	P
Total Potassium	766.491			90	P
Total Selenium	196.02			2.2	P
Total Silver	328.068			0.7	P
Total Sodium	589.5			100	P
Total Thallium	190.864			2.5	P
Total Vanadium	292.402			0.8	P
Total Zinc	213.856			1.6	P

ICP INTERELEMENT CORRECTION FACTORS (ANNUAL)
ICP ID NUMBER: TA ICAP6000 / ICAP6500

Element, Wavelength and Order	Use?	# IECs	IEC	k1	k2	Calc-in-fit?
Ag 328.068 {103}	☒	2	Fe	0.000006	0.000000	No
			Ce	0.000000	0.000000	No
Ag 338.289 {100}	☒	1	Fe	0.000906	0.000000	No
Al 167.079 {501}	☒	None				
Al 308.215 {109}	☒	None				
Al 396.152 { 85}	☒	None				
As 193.759 {474}	☒	1	Al	0.001713	0.000000	No
As 197.262 {471}	☒	1	Al	-0.000113	0.000000	No
Ba 233.527 {445}	☒	3	Fe	-0.000038	0.000000	No
			V	0.000180	0.000000	No
			Al	0.000000	0.000000	No
Ba 455.403 { 74}	☒	1	Fe	0.000002	0.000000	No
Ba 493.409 { 68}	☒	1	Fe	0.000029	0.000000	No
Be 313.042 {108}	☒	1	Fe	0.000000	0.000000	No
Be 234.861 {144}	☒	1	Fe	-0.000016	0.000000	No
Ca 315.887 {107}	☒	None				
Ca 317.933 {106}	☒	None				
Ca 393.366 { 86}	☒	1	Cu	0.000000	0.000000	No
Ca 396.847 { 85}	☒	None				
Cd 226.502 {449}	☒	2	Fe	0.000090	0.000000	No
			Al	0.000000	0.000000	No
Cd 228.802 {147}	☒	None				
Co 228.616 {447}	☒	5	Fe	0.000009	0.000000	No
			Ti	0.003000	0.000000	No
			Ba	-0.001300	0.000000	No
			Ni	0.000040	0.000000	No
			Al	0.000001	0.000000	No
Co 238.892 {141}	☒	1	Fe	0.000188	0.000000	No
Cr 205.560 {464}	☒	1	Fe	-0.000004	0.000000	No
Cr 267.716 {126}	☒	1	Fe	-0.000014	0.000000	No
Cu 224.700 {450}	☒	5	Fe	0.000274	0.000000	No
			Mo	0.001320	0.000000	No
			Ni	-0.006000	0.000000	No
			Pb	0.003030	0.000000	No
			Al	0.000000	0.000000	No
Cu 324.754 {104}	☒	1	Fe	-0.000136	0.000000	No
Cu 327.396 {103}	☒	1	Fe	0.000069	0.000000	No
Fe 234.349 {144}	☒	None				
Fe 239.562 {140}	☒	None				
Fe 259.940 {129}	☒	None				
Mg 202.582 {466}	☒	None				
Mg 279.079 {121}	☒	None				
Mg 280.270 {120}	☒	None				
Mn 257.610 {131}	☒	1	Al	-0.000086	0.000000	No

ICP INTERELEMENT CORRECTION FACTORS (ANNUAL)
ICP ID NUMBER: TA ICAP6000 / ICAP6500

Element, Wavelength and Order	Use?	# IECs	IEC	k1	k2	Calc-in-fit?
Mn 259.373 {130}	☒	1	Mg	0.001339	0.000000	No
Mo 202.030 {466}	☒	1	Fe	-0.000011	0.000000	No
Mo 203.844 {465}	☒	1	Fe	-0.000020	0.000000	No
Mo 204.598 {464}	☒	1	Fe	0.000036	0.000000	No
Ni 221.647 {452}	☒	1	Ca	0.000021	0.000000	No
Ni 231.604 {445}	☒	3	Fe	0.000012	0.000000	No
			Co	0.000000	0.000000	No
			Mo	0.000000	0.000000	No
Pb 216.999 {455}	☒	2	Al	0.001241	0.000000	No
			Na	0.000000	0.000000	No
Pb 220.353 {453}	☒	3	Si	0.000000	0.000000	No
			Al	0.000001	0.000000	No
			Fe	0.000018	0.000000	No
Pb 220.353 {153}	☒	1	Al	-0.000040	0.000000	No
Sb 206.833 {463}	☒	1	Fe	0.000009	0.000000	No
Sb 217.581 {455}	☒	3	Fe	-0.000069	0.000000	No
			V	0.002070	0.000000	No
			Pb	-0.001040	0.000000	No
Se 196.090 {472}	☒	1	Fe	-0.000360	0.000000	No
Se 206.279 {463}	☒	1	Fe	0.001308	0.000000	No
Tl 190.856 {476}	☒	5	Fe	0.000024	0.000000	No
			Be	-0.000013	0.000000	No
			Ti	0.000050	0.000000	No
			Cr	0.000251	0.000000	No
			V	-0.003800	0.000000	No
Tl 190.856 {477}	☒	1	Fe	-0.000048	0.000000	No
V 290.882 {116}	☒	1	Fe	0.000073	0.000000	No
V 292.402 {115}	☒	3	Fe	0.000020	0.000000	No
			Cr	-0.000400	0.000000	No
			Al	0.000000	0.000000	No
Zn 202.548 {466}	☒	1	Fe	-0.000239	0.000000	No
Zn 206.200 {463}	☒	1	Fe	-0.000003	0.000000	No
Zn 213.856 {457}	☒	2	Fe	0.000167	0.000000	No
			Cu	0.007413	0.000000	No
Y 324.228 {104}*	☒	None				
Y 371.030 { 91}*	☒	None				
Y 224.306 {451}*	☒	None				
Na 588.995 { 57}	☒	1	Fe	0.000106	0.000000	No
Si 251.611 {134}	☒	2	Fe	-0.000105	0.000000	No
			Mo	0.005400	0.000000	No
Ti 323.452 {104}	☒	1	Fe	0.000036	0.000000	No
Ti 334.941 {101}	☒	1	Fe	0.000052	0.000000	No
Sr 407.771 { 83}	☒	1	Fe	0.000014	0.000000	No
Sr 421.552 { 80}	☒	1	Fe	0.000014	0.000000	No

ICP INTERELEMENT CORRECTION FACTORS (ANNUAL)
ICP ID NUMBER: TA ICAP6000 / ICAP6500

Element, Wavelength and Order	Use?	# IECs	IEC	k1	k2	Calc-in-fit?
Sn 189.989 {477}	☒	1	Fe	0.000013	0.000000	No
B 249.678 {135}	☒	2	Fe	0.000001	0.000000	No
			Co	0.003970	0.000000	No
B 249.773 {135}	☒	1	Fe	0.000357	0.000000	No
Li 670.784 { 50}	☒	1	Fe	0.000011	0.000000	No
K 766.490 { 44}	☒	1	Fe	0.000216	0.000000	No
P 213.618 {457}	☒	1	Fe	-0.000079	0.000000	No
S 182.034 {485}	☒	1	Mg	0.000100	0.000000	No
Hg 184.950 {482}	☒	1	Fe	0.000001	0.000000	No
Ce 404.076 { 83}	☒	1	Fe	0.000227	0.000000	No

ICP LINEAR RANGES (QUARTERLY)

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

ICP ID Number: TA SDG No.: 152892

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	M
Aluminum	15.00	1000000	P
Antimony	15.00	10000	P
Arsenic	15.00	10000	P
Barium	15.00	10000	P
Beryllium	15.00	1000	P
Boron	15.00	1000	P
Cadmium	15.00	1000	P
Calcium	15.00	1000000	P
Chromium	15.00	100000	P
Cobalt	15.00	10000	P
Copper	15.00	100000	P
Iron	15.00	1000000	P
Lead	15.00	100000	P
Lithium	15.00	10000	P
Magnesium	15.00	1000000	P
Manganese	15.00	100000	P
Molybdenum	15.00	10000	P
Nickel	15.00	10000	P
Potassium	15.00	200000	P
Selenium	15.00	10000	P
Silicon	15.00	1000	P
Silver	15.00	100	P
Sodium	15.00	200000	P
Strontium	15.00	10000	P
Thallium	15.00	10000	P
Tin	15.00	10000	P
Titanium	15.00	1000	P
Tungsten	15.00	10000	P
Vanadium	15.00	10000	P
Zinc	15.00	100000	P

CT LABORATORIES
delivering more than data from your environmental analyses

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PREPARATION LOG

Lab Name: CT Laboratories

Project: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

Method: EPA 3010A

SDG No.: 152892

Preparation Batch #: 76254

Preparation Date/Time: 04/29/2020 / 11:26

Lab Sample #	QC Type	Sample Description	Matrix	**Weight (g for solid/soil) or Volume (mL for liquid/aqueous)**
413136	Normal Sample	54IDW	GROUND WATER	50.0
413501	Method Blank		LIQUID	50.0
413502	Lab Control Spike		LIQUID	50.0
413503	Lab Duplicate	54IDW	GROUND WATER	50.0
413504	Matrix Spike	54IDW	GROUND WATER	50.0
413505	Matrix Spike Duplicate	54IDW	GROUND WATER	50.0

CT LABORATORIES
delivering more than data from your environmental analyses

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PREPARATION LOG

Lab Name: CT Laboratories

Project: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

Method: EPA 7470A

SDG No.: 152892

Preparation Batch #: 76285

Preparation Date/Time: 05/05/2020 / 14:15

Lab Sample #	QC Type	Sample Description	Matrix	**Weight (g for solid/soil) or Volume (mL for liquid/aqueous)**
413136	Normal Sample	54IDW	GROUND WATER	25.0
413975	Normal Sample	49IDW	GROUND WATER	25.0
414388	Method Blank		LIQUID	25.0
414389	Lab Control Spike		LIQUID	25.0
414390	Lab Duplicate	54IDW	GROUND WATER	25.0
414391	Matrix Spike	54IDW	GROUND WATER	25.0
414392	Matrix Spike Duplicate	54IDW	GROUND WATER	25.0

CT LABORATORIES
delivering more than data from your environmental analyses

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ANALYSIS RUN LOG

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

Lab Code: CTL

SDG No.: 152892

Instrument ID Number: CETAC

Method Number: CV

Start & End Date: 05/06/2020 to 05/06/2020

Analytical Run #: 170961

Sample Number	Analysis or QC Type	DF	Analysis Date/ Time	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Mo	Li	Ni	K	Se	Si	Ag	Na	Sr	Tl	Sn	W	V	Zn
416251	ICV	1.00	5/06 12:39																X													
416252	ICB	1.00	5/06 12:45																X													
414389	LCSW	1.00	5/06 12:48																X													
414388	MBW	1.00	5/06 12:54																X													
416253	CCV	1.00	5/06 13:20																X													
416254	CCB	1.00	5/06 13:26																X													
413136	Initial	1.00	5/06 13:32																X													
414390	DUP	1.00	5/06 13:36																X													
413975	Initial	1.00	5/06 13:39																X													
414391	MSW	1.00	5/06 13:48																X													
414392	MSDW	1.00	5/06 13:51																X													
416255	CCV	1.00	5/06 14:01																X													
416256	CCB	1.00	5/06 14:07																X													

CT LABORATORIES
delivering more than data from your environmental analyses

14

ANALYSIS RUN LOG

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

Lab Code: CTL
SDG No.: 152892

Instrument ID Number: TJA
Method Number: P

Start & End Date: 05/01/2020 to 05/01/2020
Analytical Run #: 170797

Sample Number	Analysis or QC Type	DF	Analysis Date/ Time	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Mo	Li	Ni	K	Se	Si	Ag	Na	Sr	Tl	Sn	W	V	Zn
414501	ICV	1.00	5/01 09:07																				X				X					
414502	ICVLL	1.00	5/01 09:10																				X				X					
414503	ICB	1.00	5/01 09:12																				X				X					
414504	MRL	1.00	5/01 09:15																				X				X					
414505	ICSA	1.00	5/01 09:18	X							X				X		X						X				X					
414506	ICSAB	1.00	5/01 09:21	X							X				X		X						X				X					
413502	LCSW	1.00	5/01 09:44																				X				X					
413501	MBW	1.00	5/01 09:47																				X				X					
413136	Initial	1.00	5/01 09:49																				X				X					
414507	CCV	1.00	5/01 09:52																				X				X					
414508	CCB	1.00	5/01 09:55																				X				X					
414509	L	5	5/01 09:58																				X				X					
413503	DUP	1.00	5/01 10:01																				X				X					
413504	MSW	1.00	5/01 10:03																				X				X					
413505	MSDW	1.00	5/01 10:06																				X				X					
414510	PDSW	1.00	5/01 10:09																				X				X					
414511	CCV	1.00	5/01 10:26																				X				X					
414629	CCB	1.00	5/01 10:29																				X				X					

CT LABORATORIES
delivering more than data from your environmental analyses

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ANALYSIS RUN LOG

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

Lab Code: CTL

SDG No.: 152892

Instrument ID Number: TJA

Method Number: P

Start & End Date: 05/01/2020 to 05/02/2020

Analytical Run #: 170800

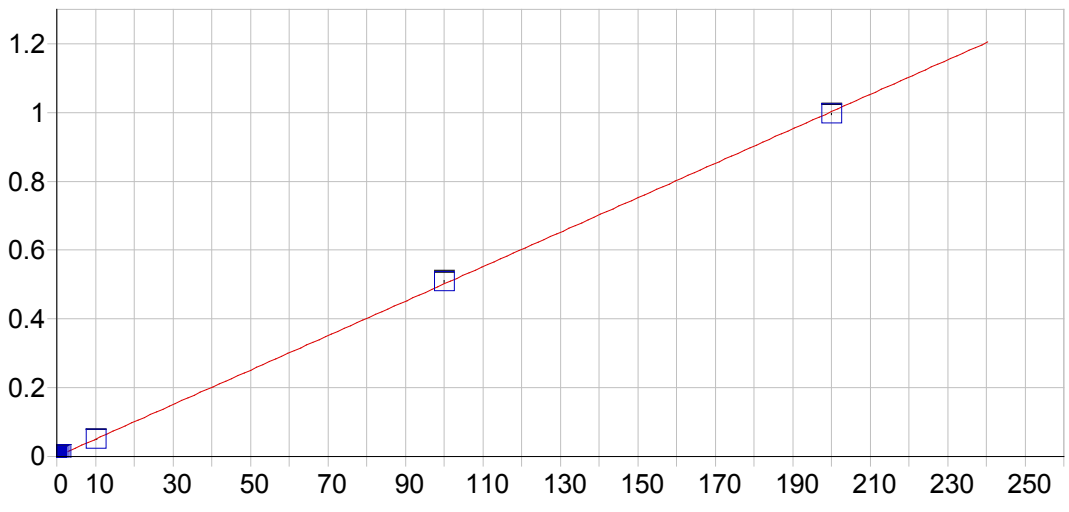
Sample Number	Analysis or QC Type	DF	Analysis Date/ Time	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Mo	Li	Ni	K	Se	Si	Ag	Na	Sr	Tl	Sn	W	V	Zn
415389	ICV	1.00	5/01 15:13	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
415390	ICVLL	1.00	5/01 15:20	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X					X			X	X
415391	ICB	1.00	5/01 15:32	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
415392	ICSA	1.00	5/01 15:45	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
415393	ICSAB	1.00	5/01 15:52	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
415394	ICVLL	1.00	5/01 16:05																							X							
415395	CCV1	1.00	5/01 22:44	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
415396	CCV2	1.00	5/01 22:50	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
415397	CCB	1.00	5/01 22:56	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
413502	LCSW	1.00	5/01 23:15	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
413501	MBW	1.00	5/01 23:21	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
413136	Initial	1.00	5/01 23:28	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
415398	L	5	5/01 23:35	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
413503	DUP	1.00	5/01 23:41	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
413504	MSW	1.00	5/01 23:48	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
413505	MSDW	1.00	5/01 23:54	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
415399	PDSW	1.00	5/02 00:01	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
415400	CCV1	1.00	5/02 00:07	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
415401	CCV2	1.00	5/02 00:13	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
415402	CCB	1.00	5/02 00:19	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X

METALS
RAW DATA
DOCUMENTS

	Element, Wavelength and Order	Date of Fit	Date of Cal.	Type of Fit	Weighting	A0	A1	A2	n (Exponent)	Correlation	Std Error of Est	Predicted MDL	Predicted MQL
	K 766.490 { 44}	05/04/2020 09:15:34	05/01/2020 09:04:02	Linear	1/Conc	0.000622	0.005010	0.000000	1.000000	0.999951	0.000024	0.027122	0.090408
	K 769.896 { 44}	05/04/2020 09:15:34	05/01/2020 09:04:02	Linear	1/Conc	0.000735	0.004719	0.000000	1.000000	0.999946	0.000024	0.038266	0.127553
	Na 330.237 {102}	05/04/2020 09:15:34	05/01/2020 09:04:02	Linear	1/Conc	0.000019	0.000101	0.000000	1.000000	0.999813	0.000005	0.810161	2.700538
	Na 589.592 { 57}	05/04/2020 09:15:34	05/01/2020 09:04:02	Linear	1/Conc	0.002333	0.045188	0.000000	1.000000	0.999964	0.000190	0.005287	0.017624
	Y 320.332 {105}*	05/04/2020 09:15:34	05/01/2020 08:44:20	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-1.000000	-1.000000
	Y 360.073 { 94}	05/04/2020 09:15:34	05/01/2020 08:44:20	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-1.000000	-1.000000
	Al 308.215 {109}	05/04/2020 09:15:34	05/01/2020 09:07:10	Linear	1/Conc	0.001366	0.000012	0.000000	1.000000	1.000000	0.000000	-1.000000	-1.000000
	Al 396.152 { 85}	05/04/2020 09:15:34	05/01/2020 09:07:10	Linear	1/Conc	0.000335	0.008380	0.000000	1.000000	1.000000	0.000000	0.010739	0.035797
	Mg 285.213 {118}	05/04/2020 09:15:34	05/01/2020 09:07:10	Linear	None	0.000061	0.048222	0.000000	1.000000	1.000000	0.000000	0.001111	0.003704
	Ca 317.933 {106}	05/04/2020 09:15:34	05/01/2020 09:07:10	Linear	None	0.020482	0.009033	0.000000	1.000000	1.000000	0.000000	0.006063	0.020209
	Fe 234.349 {144}	05/04/2020 09:15:34	05/01/2020 09:07:10	Linear	None	0.000200	0.001915	0.000000	1.000000	1.000000	0.000000	0.010417	0.034723

	Element, Wavelength and Order	Status	Reslope		QC Norm	
			Slope	Y-int	Slope factor	Offset
	K 766.490 { 44}	OK.	1.000000	0.000000	1	0
	K 769.896 { 44}	OK.	1.000000	0.000000	1	0
	Na 330.237 {102}	OK.	1.000000	0.000000	1	0
	Na 589.592 { 57}	OK.	1.000000	0.000000	1	0
	Y 320.332 {105}*	Warnin	1.000000	0.000000	1	0
	Y 360.073 { 94}	Warnin	1.000000	0.000000	1	0
	Al 308.215 {109}	OK.	1.000000	0.000000	1	0
	Al 396.152 { 85}	OK.	1.000000	0.000000	1	0
	Mg 285.213 {118}	OK.	1.000000	0.000000	1	0
	Ca 317.933 {106}	OK.	1.000000	0.000000	1	0
	Fe 234.349 {144}	OK.	1.000000	0.000000	1	0

Element, Wavelength and Order	Use?	# IECs	IEC	k1	k2	Calc-in-fit?
K 766.490 { 44}	☒	1	Fe	-0.000187	0.000000	No
K 769.896 { 44}	☒	1	Fe	0.000322	0.000000	No
Na 330.237 {102}	☒	1	Fe	-0.001617	0.000000	No
Na 589.592 { 57}	☒	1	Fe	0.000122	0.000000	No
Y 320.332 {105}*	☒	None				
Y 360.073 { 94}	☒	None				
Al 308.215 {109}	☒	1	Fe	0.000000	0.000000	No
Al 396.152 { 85}	☒	None				
Mg 285.213 {118}	☒	None				
Ca 317.933 {106}	☒	None				
Fe 234.349 {144}	☒	None				

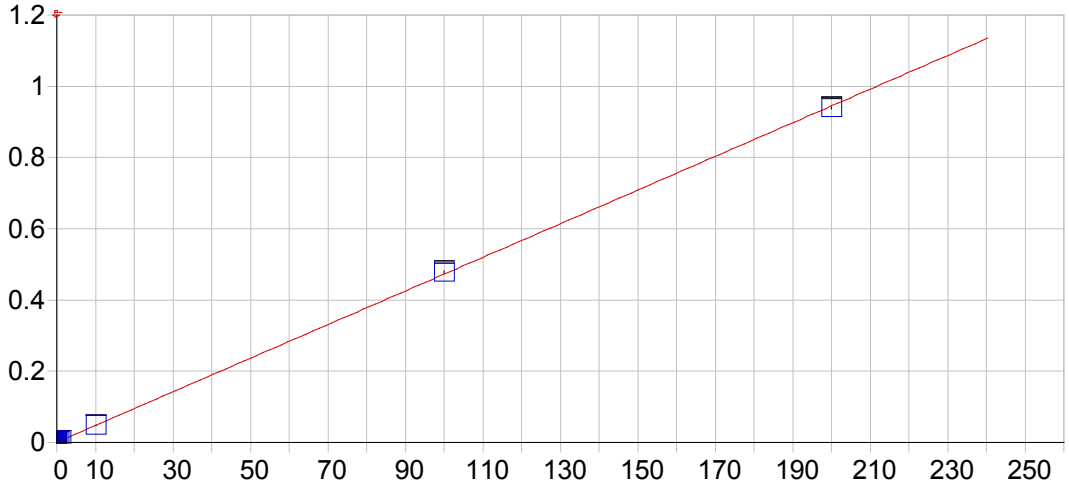


K 766.490 { 44}

Date of Fit:	05/04/2020 09:15:34	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000622	Re-Slope:	1.000000
A1 (Gain):	0.005010	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999951	Status:	OK.
Std Error of Est:	0.000024		
Predicted MDL:	0.027122		
Predicted MQL:	0.090408		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00004	-.000	.000	.00062	.000	1
CalibStd-1.0	1.0000	1.0197	.020	1.97	.00573	.000	1
CalibStd-10.	10.000	9.9551	-.045	-.449	.05050	.000	1
CalibStd-0.5	.50000	.52695	.027	5.39	.00326	.000	1
CalibStd-200	200.00	198.62	-1.38	-.692	.99571	.003	1
CalibStd-100	100.00	101.38	1.38	1.38	.50856	.002	1

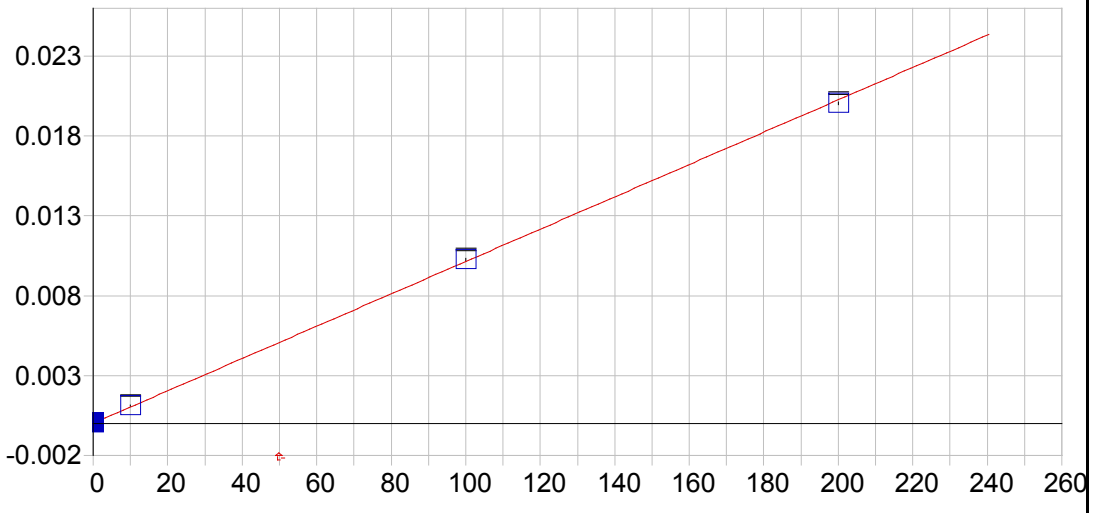


K 769.896 { 44}

Date of Fit:	05/04/2020 09:15:34	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000735	Re-Slope:	1.000000
A1 (Gain):	0.004719	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999946	Status:	OK.
Std Error of Est:	0.000024		
Predicted MDL:	0.038266		
Predicted MQL:	0.127553		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00010	.000	.000	.00074	.000	1
CalibStd-1.0	1.0000	.95195	-.048	-4.80	.00523	.000	1
CalibStd-10.	10.000	9.9904	-.010	-.096	.04788	.000	1
CalibStd-0.5	.50000	.42191	-.078	-15.6	.00273	.000	1
CalibStd-200	200.00	198.97	-1.03	-.515	.93972	.003	1
CalibStd-100	100.00	101.17	1.17	1.17	.47816	.003	1

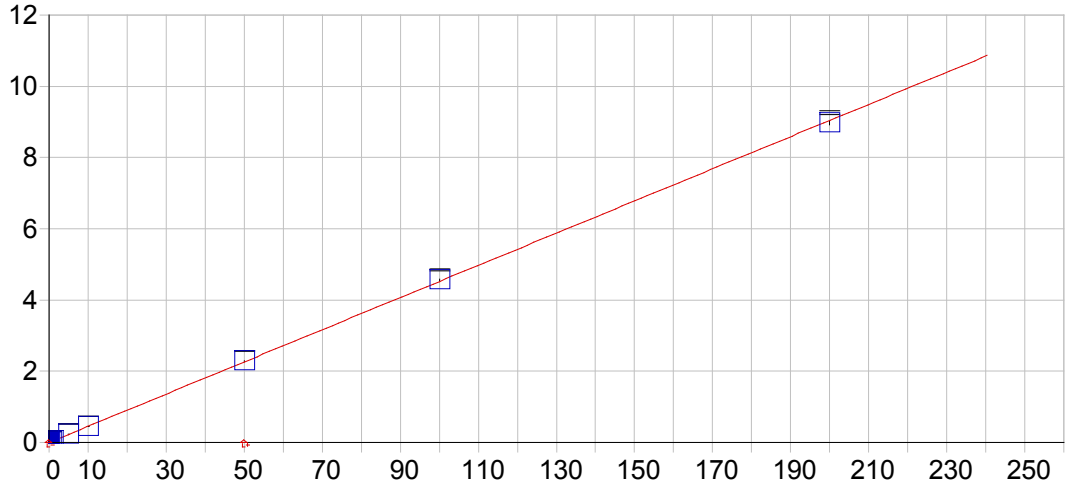


Na 330.237 {102}

Date of Fit:	05/04/2020 09:15:34	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000019	Re-Slope:	1.000000
A1 (Gain):	0.000101	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999813	Status:	OK.
Std Error of Est:	0.000005		
Predicted MDL:	0.810161		
Predicted MQL:	2.700538		

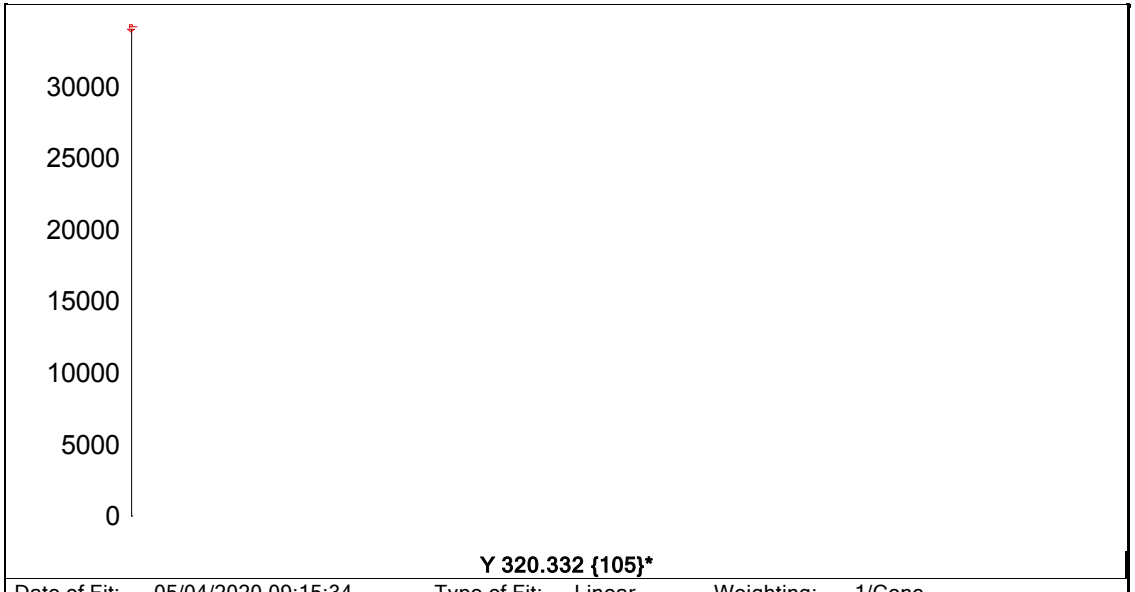
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00090	-.001	.000	.00002	.000	1
CalibStd-200	200.00	197.88	-2.12	-1.06	.02005	.000	1
CalibStd-10.	10.000	10.884	.884	8.84	.00112	.000	1
CalibStd-100	100.00	101.24	1.24	1.24	.01027	.000	1



Na 589.592 { 57}

Date of Fit:	05/04/2020 09:15:34	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.002333		Re-Slope:	1.000000	
A1 (Gain):	0.045188		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.999964		Status:	OK.	
Std Error of Est:	0.000190				
Predicted MDL:	0.005287				
Predicted MQL:	0.017624				

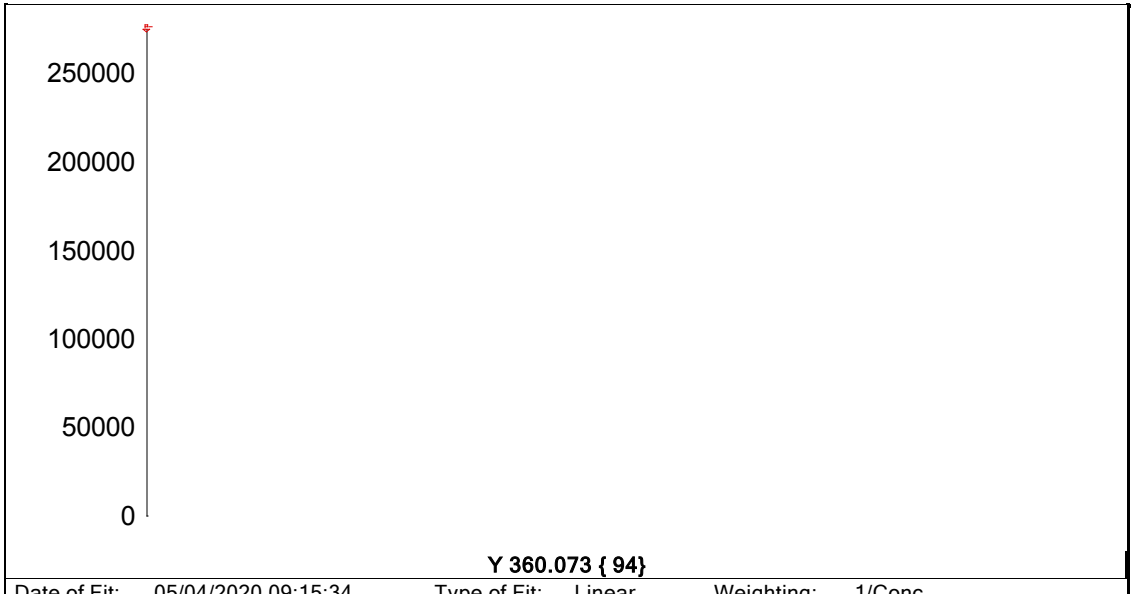
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00001	.000	.000	.00233	.000	1
CalibStd-0.5	.50000	.49214	-.008	-1.57	.02457	.000	1
CalibStd-1.0	1.0000	.97795	-.022	-2.21	.04652	.000	1
CalibStd-5.0	5.0000	5.0464	.046	.929	.23037	.001	1
CalibStd-10.	10.000	10.010	.010	.101	.45467	.001	1
CalibStd-50	50.000	50.542	.542	1.08	2.2862	.012	1
CalibStd-100	100.00	100.92	.924	.924	4.5629	.028	1
CalibStd-200	200.00	198.51	-1.49	-.746	8.9724	.050	1



Y 320.332 {105}*

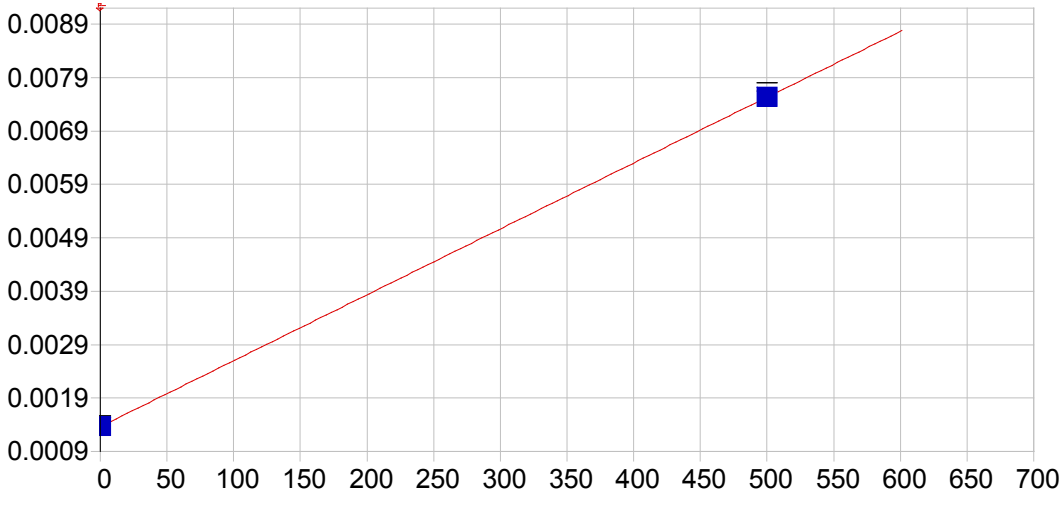
Date of Fit:	05/04/2020 09:15:34	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000000		Re-Slope:	1.000000	
A1 (Gain):	0.000000		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.000000		Status:	Warning	Zero Gain
Std Error of Est:	0.000000				
Predicted MDL:	n/a				
Predicted MQL:	n/a				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	31701.	143.	1



Date of Fit:	05/04/2020 09:15:34	Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	0.000000		Re-Slope:	1.000000		
A1 (Gain):	0.000000		Y-int:	0.000000		
A2 (Curvature):	0.000000					
n (Exponent):	1.000000					
Correlation:	0.000000		Status:	Warning	Zero Gain	
Std Error of Est:	0.000000					
Predicted MDL:	n/a					
Predicted MQL:	n/a					

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	258450.	1590.	1

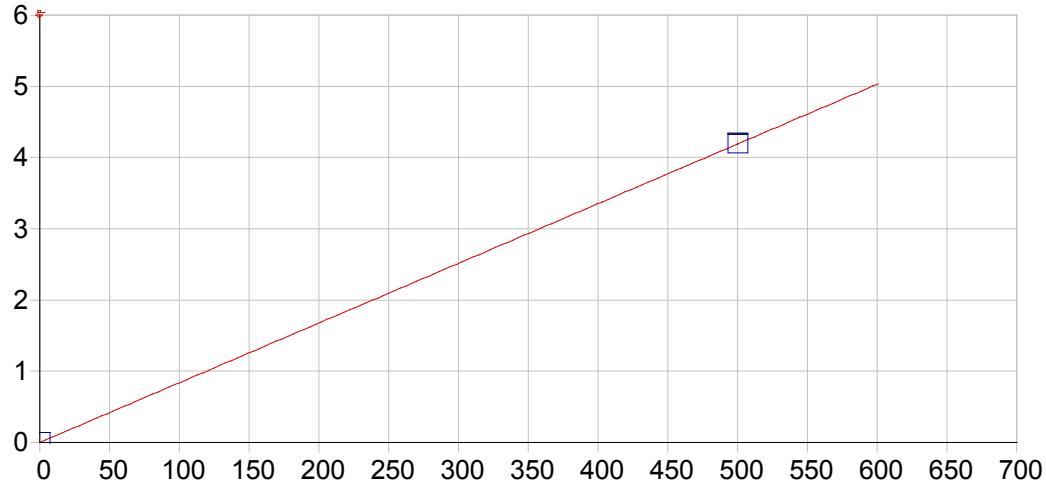


Al 308.215 {109}

Date of Fit:	05/04/2020 09:15:34	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001366	Re-Slope:	1.000000
A1 (Gain):	0.000012	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	n/a		
Predicted MQL:	n/a		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	.00137	.000	1
CalibStd-500	500.00	500.00	.000	.000	.00753	.000	1

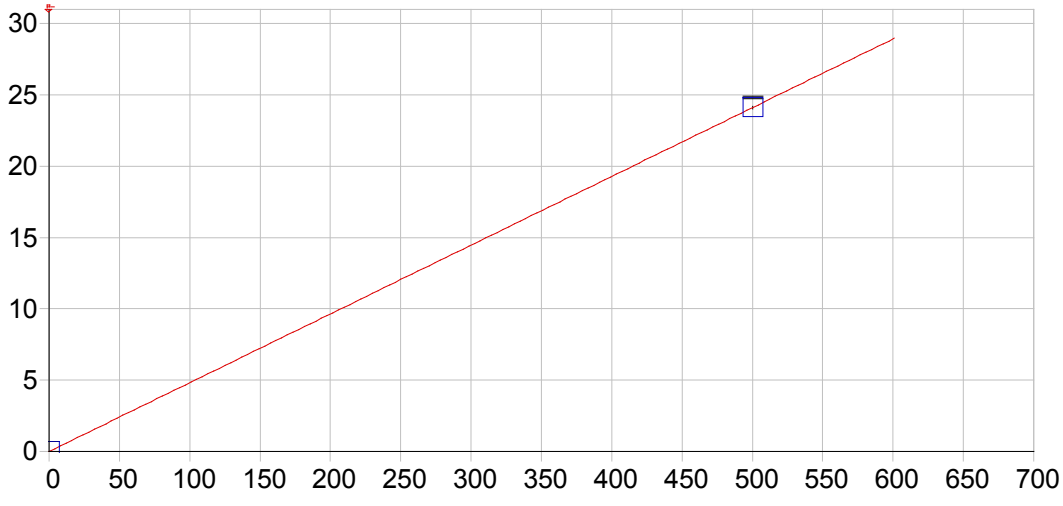


Al 396.152 { 85}

Date of Fit:	05/04/2020 09:15:34	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000335	Re-Slope:	1.000000
A1 (Gain):	0.008380	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	0.010739		
Predicted MQL:	0.035797		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	.00034	.000	1
CalibStd-500	500.00	500.00	.000	.000	4.1903	.013	1

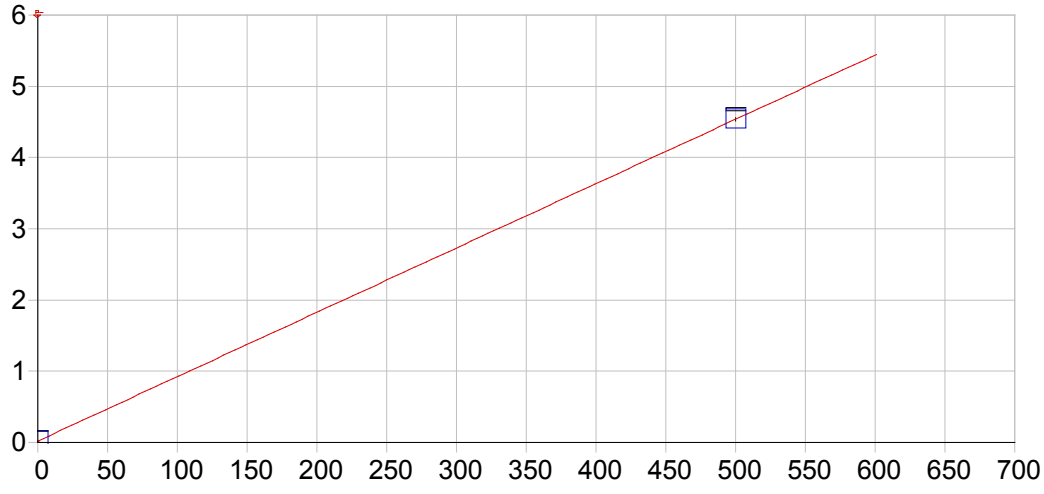


Mg 285.213 {118}

Date of Fit:	05/04/2020 09:15:34	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000061	Re-Slope:	1.000000
A1 (Gain):	0.048222	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	0.001111		
Predicted MQL:	0.003704		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	.00006	.000	1
CalibStd-500	500.00	500.00	.000	.000	24.111	.111	1

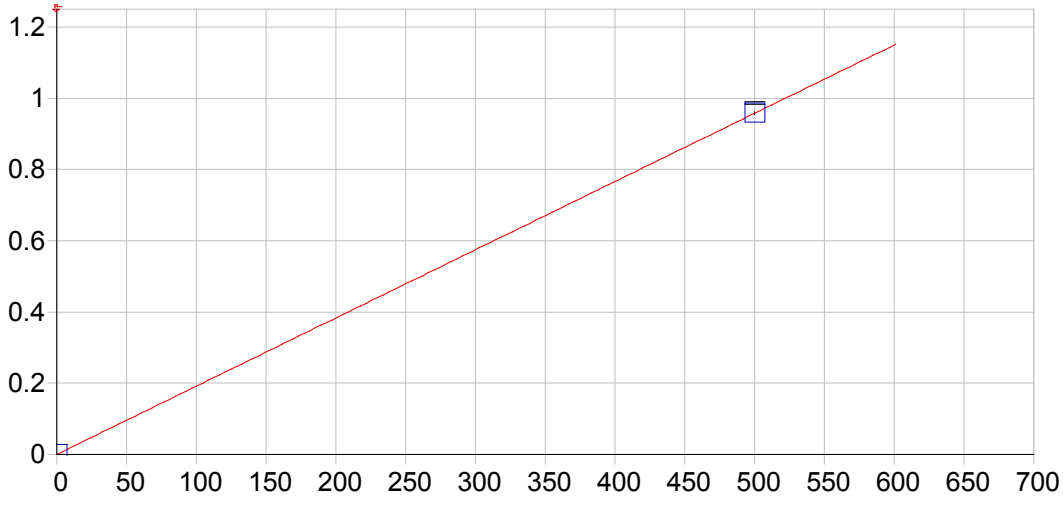


Ca 317.933 {106}

Date of Fit:	05/04/2020 09:15:34	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.020482	Re-Slope:	1.000000
A1 (Gain):	0.009033	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	0.006063		
Predicted MQL:	0.020209		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	.02048	.000	1
CalibStd-500	500.00	500.00	.000	.000	4.5368	.026	1



Fe 234.349 {144}

Date of Fit:	05/04/2020 09:15:34	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000200	Re-Slope:	1.000000
A1 (Gain):	0.001915	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	0.010417		
Predicted MQL:	0.034723		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	.00020	.000	1
CalibStd-500	500.00	500.00	.000	.000	.95779	.004	1

Sample Name: Blank Acquired: 05/01/2020 08:41:22 Type: Cal
Method: Sodium and Potassium 1(v1248) Mode: IR Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.001**	**.000**	**.002**	**.000**	**.000**	**.020**	**.000**
Stddev	.000	.000	.000	.000	.000	.000	.000
%RSD	22.0	384.	18.5	14.8	74.2	.450	5.67

Int. Std.	Y_3203
Units	Cts/S
Avg	**31701.**
Stddev	143.
%RSD	.45073

Sample Name: CalibStd-0.5 Acquired: 05/01/2020 08:44:23 Type: Cal
Method: Sodium and Potassium 1(v1248) Mode: IR Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895
Units	Cts/S	Cts/S
Avg	**.003**	**.025**
Stddev	.000	.000
%RSD	.570	1.42

Int. Std.	Y_3203
Units	Cts/S
Avg	**31733.**
Stddev	76.
%RSD	.23817

Sample Name: CalibStd-1.0 Acquired: 05/01/2020 08:47:13 Type: Cal
Method: Sodium and Potassium 1(v1248) Mode: IR Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895
Units	Cts/S	Cts/S
Avg	**.006**	**.047**
Stddev	.000	.000
%RSD	1.44	.513

Int. Std.	Y_3203
Units	Cts/S
Avg	**31724.**
Stddev	59.
%RSD	.18578

Sample Name: CalibStd-5.0 Acquired: 05/01/2020 08:50:02 Type: Cal
Method: Sodium and Potassium 1(v1248) Mode: IR Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Na5895
Units	Cts/S
Avg	.230
Stddev	.001
%RSD	.399

Int. Std.	Y_3203
Units	Cts/S
Avg	31648.
Stddev	33.
%RSD	.10498

Sample Name: CalibStd-10.0 Acquired: 05/01/2020 08:52:50 Type: Cal
Method: Sodium and Potassium 1(v1248) Mode: IR Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Na5895
Units	Cts/S	Cts/S	Cts/S
Avg	**.050**	**.001**	**.455**
Stddev	.000	.000	.001
%RSD	.246	3.71	.276

Int. Std.	Y_3203
Units	Cts/S
Avg	**31673.**
Stddev	88.
%RSD	.27719

Sample Name: CalibStd-50 Acquired: 05/01/2020 08:55:37 Type: Cal
Method: Sodium and Potassium 1(v1248) Mode: IR Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Na5895
Units	Cts/S
Avg	**2.29**
Stddev	.01
%RSD	.508

Int. Std.	Y_3203
Units	Cts/S
Avg	**31381.**
Stddev	80.
%RSD	.25535

Sample Name: CalibStd-100 Acquired: 05/01/2020 08:58:24 Type: Cal
Method: Sodium and Potassium 1(v1248) Mode: IR Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Na5895
Units	Cts/S	Cts/S	Cts/S
Avg	**.509**	**.010**	**4.56**
Stddev	.002	.000	.03
%RSD	.478	.672	.624

Int. Std.	Y_3203
Units	Cts/S
Avg	**31412.**
Stddev	55.
%RSD	.17608

Sample Name: CalibStd-200 Acquired: 05/01/2020 09:01:11 Type: Cal
Method: Sodium and Potassium 1(v1248) Mode: IR Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Na5895
Units	Cts/S	Cts/S	Cts/S
Avg	**.996**	**.020**	**8.97**
Stddev	.003	.000	.05
%RSD	.252	.381	.555

Int. Std.	Y_3203
Units	Cts/S
Avg	**31062.**
Stddev	60.
%RSD	.19225

Sample Name: CalibStd-500 Acquired: 05/01/2020 09:04:05 Type: Cal
Method: Sodium and Potassium 1(v1248) Mode: IR Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Al3961	Mg2852	Ca3179	Fe2343
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**4.19**	**24.1**	**4.54**	**.958**
Stddev	.01	.1	.03	.004
%RSD	.301	.459	.569	.387

Int. Std.	Y_3203
Units	Cts/S
Avg	**29627.**
Stddev	74.
%RSD	.25040

Sample Name: icv Acquired: 05/01/2020 09:07:14 Type: QC

Method: Sodium and Potassium 1(v1248) Mode: CONC Corr. Factor: 1.000000

User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1

Comment:

Elem	K_7664	Na3302	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**100.**	**101.**	**-.028**	**.013**	**.134**	**.043**
Stddev	1.	1.	.013	.001	.016	.024
%RSD	.607	.653	45.2	8.98	11.9	55.4
Check ?	None	None	None	None	None	None
Value						
Range						

Int. Std.	Y_3203
Units	Cts/S
Avg	**31171.**
Stddev	65.
%RSD	.20789

Sample Name: ICVLL Acquired: 05/01/2020 09:10:00 Type: QC
Method: Sodium and Potassium 1(v1248) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**3.08**	**3.11**	**-.051**	**.001**	**.124**	**-.039**
Stddev	.02	.02	.009	.001	.012	.007
%RSD	.664	.513	17.2	99.4	9.84	17.6
Check ?	Chk Pass	Chk Pass	None	None	None	None
Value						
Range						

Int. Std.	Y_3203
Units	Cts/S
Avg	**31479.**
Stddev	69.
%RSD	.21902

Sample Name: icb Acquired: 05/01/2020 09:12:47 Type: QC
Method: Sodium and Potassium 1(v1248) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**.081**	**.039**	**-.039**	**.007**	**.111**	**-.027**
Stddev	.038	.005	.007	.001	.024	.012
%RSD	46.9	11.7	17.5	8.71	21.5	43.7
Check ?	None	None	None	None	None	None
Value						
Range						

Int. Std.	Y_3203
Units	Cts/S
Avg	**31518.**
Stddev	68.
%RSD	.21437

Sample Name: mrl Acquired: 05/01/2020 09:15:37 Type: QC
Method: Sodium and Potassium 1(v1248) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**1.01**	**.994**	**-.045**	**-.001**	**.157**	**-.073**
Stddev	.03	.006	.014	.002	.013	.009
%RSD	2.70	.594	32.3	213.	8.15	12.6
Check ?	None	None	None	None	None	None
Value						
Range						

Int. Std.	Y_3203
Units	Cts/S
Avg	**31582.**
Stddev	46.
%RSD	.14707

Sample Name: icsa Acquired: 05/01/2020 09:18:27 Type: QC
Method: Sodium and Potassium 1(v1248) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**-.000**	**.000**	**488.**	**488.**	**482.**	**482.**
Stddev	.028	.005	1.	2.	4.	3.
%RSD	6458e15	199e15	.257	.506	.912	.700
Check ?	Chk Pass	Chk Pass	None	None	None	None
High Limit						
Low Limit						

Int. Std.	Y_3203
Units	Cts/S
Avg	**29170.**
Stddev	74.
%RSD	.25470

Sample Name: icsab Acquired: 05/01/2020 09:21:37 Type: QC
Method: Sodium and Potassium 1(v1248) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**106.**	**104.**	**501.**	**489.**	**489.**	**507.**
Stddev	1.	.	2.	1.	4.	2.
%RSD	.824	.313	.465	.258	.717	.298
Check ?	None	None	None	None	None	None
Value						
Range						

Int. Std.	Y_3203
Units	Cts/S
Avg	**29491.**
Stddev	62.
%RSD	.21092

Sample Name: lcsw76254 Acquired: 05/01/2020 09:44:14 Type: Unk
Method: Sodium and Potassium 1(v1248) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**107.**	**105.**	**.984**	**112.**	**207.**	**.475**
Stddev	1.	1.	.006	1.	1.	.032
%RSD	.580	.865	.636	.503	.441	6.76

Int. Std.	Y_3203
Units	Cts/S
Avg	**30026.**
Stddev	97.
%RSD	.32427

Sample Name: mbw76254 Acquired: 05/01/2020 09:47:00 Type: Unk
Method: Sodium and Potassium 1(v1248) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**.029**	**.024**	**-.045**	**.000**	**.182**	**-.051**
Stddev	.012	.005	.006	.001	.007	.008
%RSD	42.0	19.4	14.4	237.	3.59	16.1

Int. Std.	Y_3203
Units	Cts/S
Avg	**31446.**
Stddev	296.
%RSD	.93982

Sample Name: 413136 Acquired: 05/01/2020 09:49:51 Type: Unk
Method: Sodium and Potassium 1(v1248) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**.725**	**5.52**	**.014**	**24.0**	**56.3**	**-.039**
Stddev	.007	.06	.009	.1	.4	.010
%RSD	1.02	1.08	65.8	.558	.689	25.0

Int. Std.	Y_3203
Units	Cts/S
Avg	**31108.**
Stddev	114.
%RSD	.36673

Sample Name: ccv Acquired: 05/01/2020 09:52:42 Type: QC
Method: Sodium and Potassium 1(v1248) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**104.**	**102.**	**-.046**	**.001**	**.168**	**-.057**
Stddev	.	1.	.010	.000	.008	.007
%RSD	.383	.725	21.2	66.0	4.74	12.7
Check ?	None	None	None	None	None	None
Value						
Range						

Int. Std.	Y_3203
Units	Cts/S
Avg	**31056.**
Stddev	80.
%RSD	.25667

Sample Name: ccb Acquired: 05/01/2020 09:55:29 Type: QC
Method: Sodium and Potassium 1(v1248) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**.083**	**.052**	**-.049**	**-.000**	**.158**	**-.052**
Stddev	.018	.005	.005	.001	.015	.008
%RSD	22.4	8.86	9.85	726.	9.76	14.4
Check ?	None	None	None	None	None	None
Value						
Range						

Int. Std.	Y_3203
Units	Cts/S
Avg	**31275.**
Stddev	334.
%RSD	1.0687

Sample Name: I413136 Acquired: 05/01/2020 09:58:19 Type: Unk
Method: Sodium and Potassium 1(v1248) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**.117**	**1.09**	**-.042**	**4.90**	**11.7**	**-.060**
Stddev	.015	.01	.010	.03	.1	.009
%RSD	13.2	.609	23.3	.589	.756	14.9

Int. Std.	Y_3203
Units	Cts/S
Avg	**31536.**
Stddev	72.
%RSD	.22754

Sample Name: dup413136 Acquired: 05/01/2020 10:01:09 Type: Unk
Method: Sodium and Potassium 1(v1248) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**.698**	**5.40**	**.017**	**23.4**	**54.6**	**-.042**
Stddev	.043	.05	.010	.1	.5	.012
%RSD	6.13	.946	60.9	.384	.947	27.5

Int. Std.	Y_3203
Units	Cts/S
Avg	**31046.**
Stddev	63.
%RSD	.20432

Sample Name: msw413136 Acquired: 05/01/2020 10:03:59 Type: Unk
Method: Sodium and Potassium 1(v1248) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**110.**	**111.**	**1.02**	**136.**	**263.**	**.419**
Stddev	1.	1.	.03	1.	4.	.016
%RSD	.908	1.23	2.83	1.09	1.57	3.76

Int. Std.	Y_3203
Units	Cts/S
Avg	**29795.**
Stddev	114.
%RSD	.38194

Sample Name: msdw413136 Acquired: 05/01/2020 10:06:44 Type: Unk
Method: Sodium and Potassium 1(v1248) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**108.**	**113.**	**1.02**	**136.**	**263.**	**.406**
Stddev	1.	1.	.01	1.	1.	.006
%RSD	.552	.681	.726	.534	.365	1.48

Int. Std.	Y_3203
Units	Cts/S
Avg	**29825.**
Stddev	109.
%RSD	.36679

Sample Name: pdsw413136 Acquired: 05/01/2020 10:09:30 Type: Unk
Method: Sodium and Potassium 1(v1248) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**108.**	**111.**	**.024**	**23.4**	**54.7**	**-.044**
Stddev	.	1.	.010	.1	.2	.004
%RSD	.394	.591	43.8	.255	.278	9.25

Int. Std.	Y_3203
Units	Cts/S
Avg	**30605.**
Stddev	50.
%RSD	.16372

Sample Name: ccv Acquired: 05/01/2020 10:26:20 Type: QC
Method: Sodium and Potassium 1(v1248) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**104.**	**103.**	**-.049**	**.002**	**.189**	**-.057**
Stddev	.	1.	.011	.001	.027	.011
%RSD	.107	.941	23.2	66.2	14.2	19.2
Check ?	None	None	None	None	None	None
Value						
Range						

Int. Std.	Y_3203
Units	Cts/S
Avg	**30895.**
Stddev	16.
%RSD	.05229

Sample Name: ccb Acquired: 05/01/2020 10:29:07 Type: QC
Method: Sodium and Potassium 1(v1248) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**.083**	**.049**	**-.053**	**.000**	**.197**	**-.065**
Stddev	.017	.005	.009	.001	.020	.010
%RSD	20.6	10.3	17.3	181.	9.90	15.1
Check ?	None	None	None	None	None	None
Value						
Range						

Int. Std.	Y_3203
Units	Cts/S
Avg	**31357.**
Stddev	29.
%RSD	.09312

Element, Wavelength and Order	Date of Fit	Date of Cal.	Type of Fit	Weighting	A0	A1	A2	n (Exponent)	Correlation	Std Error of Est	Predicted MDL	Predicted MQL
Ag 328.068 {103}	05/05/2020 13:23:07	05/01/2020 14:13:56	Linear	1/Var	1.928183	3.898704	0.000000	1.000000	0.999315	8.216263	0.781027	2.603423
Ag 338.289 {100}	05/05/2020 13:23:07	05/01/2020 15:01:07	Linear	1/Conc	0.000007	0.000001	0.000000	1.000000	0.999997	0.000000	5.592234	18.640780
Al 167.079 {501}	05/05/2020 13:23:07	05/01/2020 14:19:37	Linear	None	0.000022	0.000003	0.000000	1.000000	0.999974	0.000013	0.856844	2.856146
Al 308.215 {109}	05/05/2020 13:23:07	05/01/2020 14:39:37	Curvili	1/Conc	0.000025	0.000000	0.000000	1.000000	0.999996	0.000001	22.816445	76.054815
Al 396.152 { 85}	05/05/2020 13:23:07	05/01/2020 14:54:30	Full Fit	1/Conc	-0.000025	0.000002	0.000000	1.000000	1.000000	0.000003	5.137588	17.125293
As 193.759 {474}	05/05/2020 13:23:07	05/01/2020 14:19:38	Linear	1/Var	0.000004	0.000001	0.000000	1.000000	0.999953	0.000002	4.099261	13.664204
As 197.262 {471}	05/05/2020 13:23:07	05/01/2020 14:26:29	Linear	1/Var	0.000001	0.000001	0.000000	1.000000	0.999923	0.000006	6.744498	22.481661
Ba 233.527 {445}	05/05/2020 13:23:07	05/01/2020 14:19:38	Linear	1/Conc	0.000000	0.000001	0.000000	1.000000	0.999274	0.000000	0.460411	1.534703
Ba 455.403 { 74}	05/05/2020 13:23:07	05/01/2020 14:26:29	Linear	1/Conc	0.000045	0.000050	0.000000	1.000000	0.999893	0.000003	0.169963	0.566543
Ba 493.409 { 68}	05/05/2020 13:23:07	05/01/2020 15:01:07	Linear	None	0.007773	0.000029	0.000000	1.000000	1.000000	0.000456	0.801475	2.671584
Be 313.042 {108}	05/05/2020 13:23:07	05/01/2020 14:19:38	Linear	1/Conc	-124.64574	103.68876	0.000000	1.000000	0.999653	2.412732	0.035861	0.119537
Be 234.861 {144}	05/05/2020 13:23:07	05/01/2020 14:19:39	Linear	1/Conc	0.000001	0.000007	0.000000	1.000000	1.000000	0.000000	0.255554	0.851848
Ca 315.887 {107}	05/05/2020 13:23:07	05/01/2020 14:54:30	Curvili	1/Var	0.000004	0.000000	0.000000	1.000000	0.999980	0.000010	7.739959	25.799864
Ca 317.933 {106}	05/05/2020 13:23:07	05/01/2020 14:54:30	Linear	1/Var	0.001300	0.000001	0.000000	1.000000	0.999786	0.000057	3.007835	10.026118
Ca 393.366 { 86}	05/05/2020 13:23:07	05/01/2020 14:19:39	Linear	None	0.000334	0.000225	0.000000	1.000000	1.000000	0.000137	0.032506	0.108354
Ca 396.847 { 85}	05/05/2020 13:23:07	05/01/2020 14:26:30	Linear	1/Conc	0.000060	0.000060	0.000000	1.000000	0.999981	0.000017	0.126696	0.422319
Cd 226.502 {449}	05/05/2020 13:23:07	05/01/2020 14:19:39	Linear	1/Conc	-0.000008	0.000023	0.000000	1.000000	0.999513	0.000001	0.253246	0.844154
Cd 228.802 {447}	05/05/2020 13:23:07	05/01/2020 14:19:40	Linear	None	0.000061	0.000046	0.000000	1.000000	0.999995	0.000053	0.171367	0.571224
Co 228.616 {447}	05/05/2020 13:23:07	05/01/2020 14:26:30	Linear	1/Conc	0.000005	0.000025	0.000000	1.000000	0.999560	0.000001	0.281963	0.939876
Co 238.892 {141}	05/05/2020 13:23:07	05/01/2020 14:26:30	Linear	1/Conc	0.000005	0.000004	0.000000	1.000000	0.999979	0.000001	0.658089	2.193631
Cr 205.560 {464}	05/05/2020 13:23:07	05/01/2020 14:33:19	Curvili	1/Conc	-0.000005	0.000013	-0.000000	1.000000	0.999989	0.000001	0.389901	1.299669
Cr 267.716 {126}	05/05/2020 13:23:07	05/01/2020 14:26:30	Linear	1/Conc	-0.000012	0.000018	0.000000	1.000000	0.999450	0.000002	1.040157	3.467189
Cu 223.008 {451}	05/05/2020 13:23:07	05/01/2020 14:19:40	Linear	1/Conc	0.000005	0.000007	0.000000	1.000000	0.998721	0.000002	1.017895	3.392983
Cu 224.700 {450}	05/05/2020 13:23:07	05/01/2020 14:33:19	Linear	None	-0.000682	0.000009	0.000000	1.000000	0.999996	0.000979	0.371006	1.236688
Cu 324.754 {104}	05/05/2020 13:23:07	05/01/2020 14:33:19	Linear	1/Conc	0.002434	0.000003	0.000000	1.000000	0.999400	0.000004	1.842958	6.143193
Cu 327.396 {103}	05/05/2020 13:23:07	05/01/2020 14:26:31	Linear	1/Conc	0.000029	0.000002	0.000000	1.000000	0.999682	0.000000	4.031322	13.437740
Fe 234.349 {144}	05/05/2020 13:23:07	05/01/2020 14:39:37	Linear	1/Conc	0.000037	0.000001	0.000000	1.000000	0.999107	0.000014	1.650367	5.501223
Fe 239.562 {140}	05/05/2020 13:23:07	05/01/2020 14:54:30	Linear	1/Var	0.000004	0.000001	0.000000	1.000000	0.999789	0.000023	3.092132	10.307106
Fe 259.940 {129}	05/05/2020 13:23:07	05/01/2020 14:46:45	Curvili	1/Var	-0.000001	0.000002	0.000000	1.000000	0.999877	0.000022	1.872030	6.240101
Mg 202.582 {466}	05/05/2020 13:23:07	05/01/2020 14:54:31	Curvili	1/Var	0.000001	0.000000	0.000000	1.000000	0.997752	0.000020	2.419016	8.063387
Mg 279.079 {121}	05/05/2020 13:23:07	05/01/2020 14:54:31	Full Fit	1/Var	0.000001	0.000000	0.000000	1.030000	0.999960	0.000005	28.811654	96.038846
Mg 280.270 {120}	05/05/2020 13:23:07	05/01/2020 14:26:32	Linear	1/Var	0.001102	0.000107	0.000000	1.000000	0.998522	0.000734	0.037200	0.123999
Mn 257.610 {131}	05/05/2020 13:23:07	05/01/2020 14:26:32	Linear	1/Conc	-0.000003	0.000018	0.000000	1.000000	0.999913	0.000002	0.094946	0.316485
Mn 259.373 {130}	05/05/2020 13:23:07	05/01/2020 14:33:19	Linear	1/Conc	-0.000003	0.000004	0.000000	1.000000	0.999995	0.000006	0.714545	2.381817
Mo 202.030 {466}	05/05/2020 13:23:07	05/01/2020 14:19:42	Linear	1/Conc	0.000000	0.000009	0.000000	1.000000	0.999066	0.000001	0.533895	1.779649
Mo 203.844 {465}	05/05/2020 13:23:07	05/01/2020 14:19:42	Linear	1/Var	0.000006	0.000005	0.000000	1.000000	0.999255	0.000008	1.024591	3.415304
Mo 204.598 {464}	05/05/2020 13:23:07	05/01/2020 14:26:32	Linear	1/Conc	-0.000008	0.000006	0.000000	1.000000	0.999815	0.000001	0.920907	3.069689
Ni 221.647 {452}	05/05/2020 13:23:07	05/01/2020 14:26:33	Linear	1/Var	0.000060	0.000014	0.000000	1.000000	0.999904	0.000080	0.586649	1.955496
Ni 231.604 {445}	05/05/2020 13:23:07	05/01/2020 14:26:33	Linear	1/Conc	-0.000016	0.000016	0.000000	1.000000	0.999435	0.000001	0.510848	1.702828
Pb 216.999 {455}	05/05/2020 13:23:07	05/01/2020 14:33:20	Linear	1/Conc	0.000005	0.000002	0.000000	1.000000	0.999968	0.000001	4.242236	14.140786
Pb 216.999 {456}	05/05/2020 13:23:07	05/01/2020 14:33:20	Linear	1/Conc	-0.000001	0.000000	0.000000	1.000000	0.999967	0.000000	24.100754	80.335846
Pb 220.353 {453}	05/05/2020 13:23:07	05/01/2020 14:19:43	Linear	1/Conc	0.000007	0.000003	0.000000	1.000000	0.999210	0.000000	3.005834	10.019446
Pb 220.353 {153}	05/05/2020 13:23:07	05/01/2020 14:33:20	Linear	1/Conc	-0.000000	0.000000	0.000000	1.000000	0.999893	0.000001	5.434647	18.115491
Sb 206.833 {463}	05/05/2020 13:23:07	05/01/2020 14:26:33	Linear	1/Conc	-0.000009	0.000002	0.000000	1.000000	0.999847	0.000000	3.117584	10.391945

	Element, Wavelength and Order	Status	Reslope		QC Norm	
			Slope	Y-int	Slope factor	Offset
	Ag 328.068 {103}	OK.	1.000000	0.000000	1	0
	Ag 338.289 {100}	OK.	1.000000	0.000000	1	0
	Al 167.079 {501}	OK.	1.000000	0.000000	1	0
	Al 308.215 {109}	OK.	1.000000	0.000000	1	0
	Al 396.152 { 85}	OK.	1.000000	0.000000	1	0
	As 193.759 {474}	OK.	1.000000	0.000000	1	0
	As 197.262 {471}	OK.	1.000000	0.000000	1	0
	Ba 233.527 {445}	OK.	1.000000	0.000000	1	0
	Ba 455.403 { 74}	OK.	1.000000	0.000000	1	0
	Ba 493.409 { 68}	OK.	1.000000	0.000000	1	0
	Be 313.042 {108}	OK.	1.000000	0.000000	1	0
	Be 234.861 {144}	OK.	1.000000	0.000000	1	0
	Ca 315.887 {107}	OK.	1.000000	0.000000	1	0
	Ca 317.933 {106}	OK.	1.000000	0.000000	1	0
	Ca 393.366 { 86}	OK.	1.000000	0.000000	1	0
	Ca 396.847 { 85}	OK.	1.000000	0.000000	1	0
	Cd 226.502 {449}	OK.	1.000000	0.000000	1	0
	Cd 228.802 {447}	OK.	1.000000	0.000000	1	0
	Co 228.616 {447}	OK.	1.000000	0.000000	1	0
	Co 238.892 {141}	OK.	1.000000	0.000000	1	0
	Cr 205.560 {464}	OK.	1.000000	0.000000	1	0
	Cr 267.716 {126}	OK.	1.000000	0.000000	1	0
	Cu 223.008 {451}	OK.	1.000000	0.000000	1	0
	Cu 224.700 {450}	OK.	1.000000	0.000000	1	0
	Cu 324.754 {104}	OK.	1.000000	0.000000	1	0
	Cu 327.396 {103}	OK.	1.000000	0.000000	1	0
	Fe 234.349 {144}	OK.	1.000000	0.000000	1	0
	Fe 239.562 {140}	OK.	1.000000	0.000000	1	0
	Fe 259.940 {129}	OK.	1.000000	0.000000	1	0
	Mg 202.582 {466}	OK.	1.000000	0.000000	1	0
	Mg 279.079 {121}	OK.	1.000000	0.000000	1	0
	Mg 280.270 {120}	OK.	1.000000	0.000000	1	0
	Mn 257.610 {131}	OK.	1.000000	0.000000	1	0
	Mn 259.373 {130}	OK.	1.000000	0.000000	1	0
	Mo 202.030 {466}	OK.	1.000000	0.000000	1	0
	Mo 203.844 {465}	OK.	1.000000	0.000000	1	0
	Mo 204.598 {464}	OK.	1.000000	0.000000	1	0
	Ni 221.647 {452}	OK.	1.000000	0.000000	1	0
	Ni 231.604 {445}	OK.	1.000000	0.000000	1	0
	Pb 216.999 {455}	OK.	1.000000	0.000000	1	0
	Pb 216.999 {456}	OK.	1.000000	0.000000	1	0
	Pb 220.353 {453}	OK.	1.000000	0.000000	1	0
	Pb 220.353 {153}	OK.	1.000000	0.000000	1	0
	Sb 206.833 {463}	OK.	1.000000	0.000000	1	0

Element, Wavelength and Order	Date of Fit	Date of Cal.	Type of Fit	Weighting	A0	A1	A2	n (Exponent)	Correlation	Std Error of Est	Predicted MDL	Predicted MQL
Sb 217.581 {455}	05/05/2020 13:23:07	05/01/2020 14:26:34	Linear	1/Conc	0.000002	0.000003	0.000000	1.000000	0.999266	0.000000	2.285698	7.618993
Se 196.090 {472}	05/05/2020 13:23:07	05/01/2020 14:19:44	Linear	1/Conc	-0.000003	0.000001	0.000000	1.000000	0.995697	0.000000	4.180525	13.935082
Se 203.985 {465}	05/05/2020 13:23:07	05/01/2020 14:19:44	Linear	1/Var	-0.000007	0.000001	0.000000	1.000000	0.999850	0.000005	13.179448	43.931492
Se 206.279 {463}	05/05/2020 13:23:07	05/01/2020 14:26:34	Curvili	1/Var	-0.000001	0.000000	0.000000	1.000000	0.999999	0.000001	27.915689	93.052298
Tl 190.856 {476}	05/05/2020 13:23:07	05/01/2020 14:19:45	Linear	1/Conc	0.000009	0.000002	0.000000	1.000000	0.999782	0.000000	2.842089	9.473631
Tl 190.856 {477}	05/05/2020 13:23:07	05/01/2020 14:26:34	Linear	1/Var	0.000010	0.000001	0.000000	1.000000	0.999242	0.000029	3.966916	13.223053
V 290.882 {116}	05/05/2020 13:23:07	05/01/2020 14:26:34	Linear	1/Conc	0.000014	0.000001	0.000000	1.000000	0.999992	0.000000	3.196126	10.653754
V 292.402 {115}	05/05/2020 13:23:07	05/01/2020 14:26:34	Linear	1/Conc	0.000005	0.000008	0.000000	1.000000	0.999855	0.000002	0.671710	2.239034
Zn 206.200 {463}	05/05/2020 13:23:07	05/01/2020 14:33:20	Linear	1/Var	0.000027	0.000015	0.000000	1.000000	0.998691	0.000082	0.372197	1.240656
Zn 213.856 {457}	05/05/2020 13:23:07	05/01/2020 14:19:46	Linear	None	0.000086	0.000030	0.000000	1.000000	0.999992	0.000074	0.184850	0.616167
Y 224.306 {450}*	05/05/2020 13:23:07	05/01/2020 13:28:13	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-1.000000	-1.000000
Y 324.228 {104}*	05/05/2020 13:23:07	05/01/2020 13:28:13	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-1.000000	-1.000000
Y 371.030 { 91}*	05/05/2020 13:23:07	05/01/2020 13:28:13	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-1.000000	-1.000000
Na 588.995 { 57}	05/05/2020 13:23:07	05/01/2020 14:39:38	Linear	None	0.002217	0.000005	0.000000	1.000000	0.999998	0.000594	5.662361	18.874536
Na 589.592 { 57}	05/05/2020 13:23:07	05/01/2020 14:54:31	Linear	1/Conc	0.000060	0.000003	0.000000	1.000000	0.999932	0.000043	6.096666	20.322220
Si 251.611 {134}	05/05/2020 13:23:07	05/01/2020 14:39:38	Linear	None	-12.845717	0.239593	0.000000	1.000000	0.999999	18.110855	5.123081	17.076936
Ti 323.452 {104}	05/05/2020 13:23:07	05/01/2020 14:26:35	Linear	1/Conc	0.000126	0.000006	0.000000	1.000000	0.999885	0.000001	0.990617	3.302055
Ti 334.941 {101}	05/05/2020 13:23:07	05/01/2020 14:26:35	Linear	1/Conc	-0.000002	0.000006	0.000000	1.000000	0.999889	0.000001	0.818549	2.728497
Sr 407.771 { 83}	05/05/2020 13:23:07	05/01/2020 14:26:35	Linear	1/Conc	0.000021	0.000082	0.000000	1.000000	0.999924	0.000004	0.118162	0.393875
Sr 421.552 { 80}	05/05/2020 13:23:07	05/01/2020 14:26:36	Linear	1/Conc	0.000023	0.000071	0.000000	1.000000	0.999939	0.000003	0.133331	0.444438
Sn 189.989 {477}	05/05/2020 13:23:07	05/01/2020 14:26:36	Linear	1/Conc	0.000005	0.000003	0.000000	1.000000	0.999741	0.000001	1.407440	4.691467
B 249.678 {135}	05/05/2020 13:23:07	05/01/2020 14:26:36	Linear	None	-0.000022	0.000002	0.000000	1.000000	0.999980	0.000054	1.847825	6.159418
B 249.773 {135}	05/05/2020 13:23:07	05/01/2020 14:26:36	Linear	1/Var	0.000003	0.000004	0.000000	1.000000	0.999749	0.000006	0.760902	2.536340
Li 670.784 { 50}	05/05/2020 13:23:07	05/01/2020 14:26:36	Linear	1/Conc	-0.000014	0.000022	0.000000	1.000000	0.999964	0.000003	0.907114	3.023714
K 766.490 { 44}	05/05/2020 13:23:07	05/01/2020 14:54:31	Linear	1/Conc	-0.000041	0.000001	0.000000	1.000000	0.999829	0.000020	22.651911	75.506370
K 769.896 { 44}	05/05/2020 13:23:07	05/01/2020 14:54:31	Linear	1/Conc	0.000016	0.000000	0.000000	1.000000	0.999449	0.000017	37.416905	124.72301
P 213.618 {457}	05/05/2020 13:23:07	05/01/2020 14:54:31	Linear	1/Conc	-0.000007	0.000001	0.000000	1.000000	0.999190	0.000064	4.904627	16.348758
S 182.034 {485}	05/05/2020 13:23:07	05/01/2020 14:54:32	Linear	1/Conc	0.000003	0.000001	0.000000	1.000000	0.998707	0.000041	6.528445	21.761483
Hg 184.950 {482}	05/05/2020 13:23:07	05/01/2020 14:19:48	Linear	1/Conc	0.000003	0.000000	0.000000	1.000000	1.000000	0.000000	1.664220	5.547400
Ce 404.076 { 83}	05/05/2020 13:23:07	05/01/2020 14:19:48	Linear	1/Conc	0.000017	0.000000	0.000000	1.000000	1.000000	0.000000	21.747466	72.491553

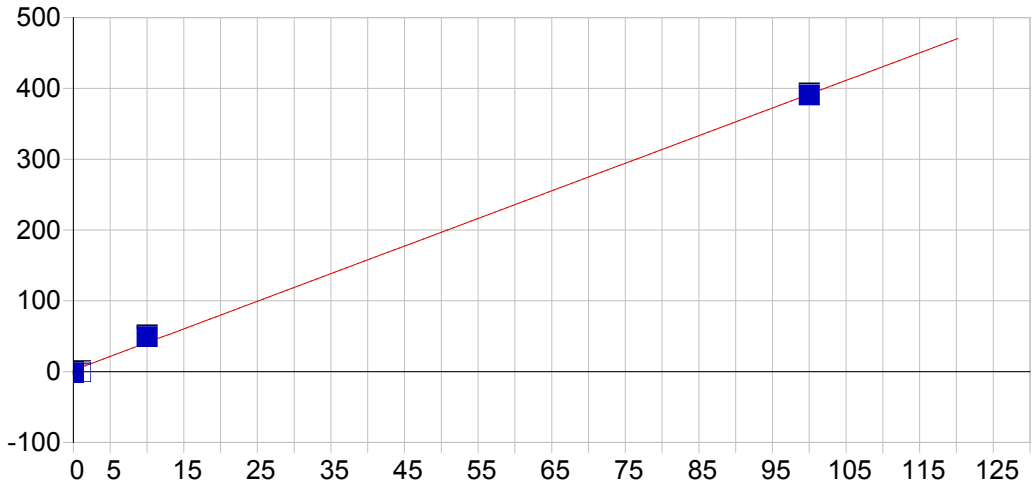
	Element, Wavelength and Order	Status	Reslope		QC Norm	
			Slope	Y-int	Slope factor	Offset
	Sb 217.581 {455}	OK.	1.000000	0.000000	1	0
	Se 196.090 {472}	OK.	1.000000	0.000000	1	0
	Se 203.985 {465}	OK.	1.000000	0.000000	1	0
	Se 206.279 {463}	OK.	1.000000	0.000000	1	0
	Tl 190.856 {476}	OK.	1.000000	0.000000	1	0
	Tl 190.856 {477}	OK.	1.000000	0.000000	1	0
	V 290.882 {116}	OK.	1.000000	0.000000	1	0
	V 292.402 {115}	OK.	1.000000	0.000000	1	0
	Zn 206.200 {463}	OK.	1.000000	0.000000	1	0
	Zn 213.856 {457}	OK.	1.000000	0.000000	1	0
	Y 224.306 {450}*	Warnin	1.000000	0.000000	1	0
	Y 324.228 {104}*	Warnin	1.000000	0.000000	1	0
	Y 371.030 { 91}*	Warnin	1.000000	0.000000	1	0
	Na 588.995 { 57}	OK.	1.000000	0.000000	1	0
	Na 589.592 { 57}	OK.	1.000000	0.000000	1	0
	Si 251.611 {134}	OK.	1.000000	0.000000	1	0
	Ti 323.452 {104}	OK.	1.000000	0.000000	1	0
	Ti 334.941 {101}	OK.	1.000000	0.000000	1	0
	Sr 407.771 { 83}	OK.	1.000000	0.000000	1	0
	Sr 421.552 { 80}	OK.	1.000000	0.000000	1	0
	Sn 189.989 {477}	OK.	1.000000	0.000000	1	0
	B 249.678 {135}	OK.	1.000000	0.000000	1	0
	B 249.773 {135}	OK.	1.000000	0.000000	1	0
	Li 670.784 { 50}	OK.	1.000000	0.000000	1	0
	K 766.490 { 44}	OK.	1.000000	0.000000	1	0
	K 769.896 { 44}	OK.	1.000000	0.000000	1	0
	P 213.618 {457}	OK.	1.000000	0.000000	1	0
	S 182.034 {485}	OK.	1.000000	0.000000	1	0
	Hg 184.950 {482}	OK.	1.000000	0.000000	1	0
	Ce 404.076 { 83}	OK.	1.000000	0.000000	1	0

Element, Wavelength and Order	Use?	# IECs	IEC	k1	k2	Calc-in-fit?
Ag 328.068 {103}	☒	4	Fe	-0.000168	0.000000	No
			Ce	0.000272	0.000000	No
			Mn	0.000066	0.000000	No
			V	0.000053	0.000000	No
Ag 338.289 {100}	☒	3	Fe	-0.000404	0.000000	No
			Ti	0.002000	0.000000	No
			Ce	-0.000298	0.000000	No
Al 167.079 {501}	☒	None				
Al 308.215 {109}	☒	None				
Al 396.152 { 85}	☒	None				
As 193.759 {474}	☒	4	Al	0.001084	0.000000	No
			Mn	-0.000003	0.000000	No
			Ni	-0.000722	0.000000	No
			Cr	0.000734	0.000000	No
As 197.262 {471}	☒	1	Al	0.000112	0.000000	No
Ba 233.527 {445}	☒	1	Fe	0.000028	0.000000	No
Ba 455.403 { 74}	☒	1	Fe	0.000002	0.000000	No
Ba 493.409 { 68}	☒	1	Fe	0.000009	0.000000	No
Be 313.042 {108}	☒	2	Fe	-0.000000	0.000000	No
			Ni	0.000000	0.000000	No
Be 234.861 {144}	☒	1	Fe	-0.000013	0.000000	No
Ca 315.887 {107}	☒	1	Fe	0.000000	0.000000	No
Ca 317.933 {106}	☒	None				
Ca 393.366 { 86}	☒	1	Cu	0.000000	0.000000	No
Ca 396.847 { 85}	☒	None				
Cd 226.502 {449}	☒	1	Fe	0.000206	0.000000	No
Cd 228.802 {447}	☒	1	Fe	-0.000005	0.000000	No
Co 228.616 {447}	☒	3	Fe	-0.000006	0.000000	No
			Ba	-0.001175	0.000000	No
			Ti	0.001700	0.000000	No
Co 238.892 {141}	☒	1	Fe	0.000226	0.000000	No
Cr 205.560 {464}	☒	1	Fe	0.000000	0.000000	No
Cr 267.716 {126}	☒	4	Fe	0.000005	0.000000	No
			Mn	0.000157	0.000000	No
			Ti	0.000100	0.000000	No
			V	-0.000002	0.000000	No
Cu 223.008 {451}	☒	2	Fe	-0.000048	0.000000	No
			Mo	0.010000	0.000000	No
Cu 224.700 {450}	☒	2	Fe	0.003134	0.000000	No
			Ni	-0.007040	0.000000	No
Cu 324.754 {104}	☒	1	Fe	-0.000081	0.000000	No
Cu 327.396 {103}	☒	2	Fe	-0.000012	0.000000	No
			Mo	-0.000319	0.000000	No
Fe 234.349 {144}	☒	None				

Element, Wavelength and Order	Use?	# IECs	IEC	k1	k2	Calc-in-fit?
Fe 239.562 {140}	☒	None				
Fe 259.940 {129}	☒	None				
Mg 202.582 {466}	☒	None				
Mg 279.079 {121}	☒	None				
Mg 280.270 {120}	☒	None				
Mn 257.610 {131}	☒	1	Al	0.000004	0.000000	No
Mn 259.373 {130}	☒	1	Mg	0.001477	0.000000	No
Mo 202.030 {466}	☒	3	Fe	-0.000016	0.000000	No
			Ti	0.001417	0.000000	No
			V	-0.000077	0.000000	No
Mo 203.844 {465}	☒	1	Fe	-0.000019	0.000000	No
Mo 204.598 {464}	☒	1	Fe	0.000044	0.000000	No
Ni 221.647 {452}	☒	2	Ca	-0.000003	0.000000	No
			Mg	-0.000003	0.000000	No
Ni 231.604 {445}	☒	6	Fe	-0.000054	0.000000	No
			Co	-0.000134	0.000000	No
			Mo	0.000840	0.000000	No
			Al	0.000003	0.000000	No
			Mn	0.000019	0.000000	No
			Be	-0.000294	0.000000	No
Pb 216.999 {455}	☒	2	Al	0.001080	0.000000	No
			Na	0.000000	0.000000	No
Pb 216.999 {456}	☒	1	Al	0.001093	0.000000	No
Pb 220.353 {453}	☒	7	Si	0.000000	0.000000	No
			Al	-0.000015	0.000000	No
			Ni	0.000106	0.000000	No
			Mo	-0.001644	0.000000	No
			V	-0.000018	0.000000	No
			Cu	0.000367	0.000000	No
			Mn	0.000094	0.000000	No
Pb 220.353 {153}	☒	1	Fe	-0.000002	0.000000	No
Sb 206.833 {463}	☒	2	Fe	-0.000097	0.000000	No
			Cr	0.000000	0.000000	No
Sb 217.581 {455}	☒	2	Fe	-0.000019	0.000000	No
			Ni	0.000133	0.000000	No
Se 196.090 {472}	☒	1	Fe	-0.000193	0.000000	No
Se 203.985 {465}	☒	1	Fe	-0.000160	0.000000	No
Se 206.279 {463}	☒	1	Fe	0.000965	0.000000	No
Tl 190.856 {476}	☒	7	Fe	-0.000073	0.000000	No
			Be	-0.000013	0.000000	No
			Ti	0.000000	0.000000	No
			Mn	0.000000	0.000000	No
			Ni	0.000000	0.000000	No
			Co	0.002495	0.000000	No

Element, Wavelength and Order	Use?	# IECs	IEC	k1	k2	Calc-in-fit?
			Cr	0.000220	0.000000	No
Tl 190.856 {477}	☒	2	Fe	-0.000350	0.000000	No
			Cr	0.000000	0.000000	No
V 290.882 {116}	☒	1	Fe	0.000207	0.000000	No
V 292.402 {115}	☒	5	Fe	0.000045	0.000000	No
			Cr	-0.000051	0.000000	No
			Al	0.000000	0.000000	No
			Ti	0.000420	0.000000	No
			Mo	-0.000481	0.000000	No
Zn 206.200 {463}	☒	1	Fe	-0.000024	0.000000	No
Zn 213.856 {457}	☒	9	Fe	0.000178	0.000000	No
			Cu	0.001765	0.000000	No
			Al	0.000000	0.000000	No
			Mn	0.000094	0.000000	No
			Ni	0.004500	0.000000	No
			Ti	-0.000307	0.000000	No
			Mg	0.000026	0.000000	No
			Mo	0.000034	0.000000	No
			Ca	0.000000	0.000000	No
Y 224.306 {450}*	☒	None				
Y 324.228 {104}*	☒	None				
Y 371.030 { 91}*	☒	None				
Na 588.995 { 57}	☒	1	Fe	0.000106	0.000000	No
Na 589.592 { 57}	☒	1	Fe	0.000324	0.000000	No
Si 251.611 {134}	☒	4	Fe	-0.000024	0.000000	No
			Mo	0.042672	0.000000	No
			Ti	0.028118	0.000000	No
			Sn	0.019943	0.000000	No
Ti 323.452 {104}	☒	6	Fe	-0.000028	0.000000	No
			Ce	-0.000795	0.000000	No
			Mn	0.000074	0.000000	No
			Ni	0.000273	0.000000	No
			Cr	0.000009	0.000000	No
			V	0.000477	0.000000	No
Ti 334.941 {101}	☒	1	Fe	0.000017	0.000000	No
Sr 407.771 { 83}	☒	1	Fe	0.000015	0.000000	No
Sr 421.552 { 80}	☒	1	Ca	0.000013	0.000000	No
Sn 189.989 {477}	☒	1	Fe	0.000034	0.000000	No
B 249.678 {135}	☒	1	Fe	-0.000005	0.000000	No
B 249.773 {135}	☒	1	Fe	0.000972	0.000000	No
Li 670.784 { 50}	☒	1	Fe	0.000016	0.000000	No
K 766.490 { 44}	☒	1	Fe	-0.000191	0.000000	No
K 769.896 { 44}	☒	1	Fe	0.000201	0.000000	No
P 213.618 {457}	☒	1	Fe	-0.000011	0.000000	No

	Element, Wavelength and Order	Use?	# IECs	IEC	k1	k2	Calc-in-fit?
	S 182.034 {485}	☒	2	Mn	0.002145	0.000000	No
				Fe	0.001405	0.000000	No
	Hg 184.950 {482}	☒	1	Fe	0.000009	0.000000	No
	Ce 404.076 { 83}	☒	1	Fe	0.000227	0.000000	No

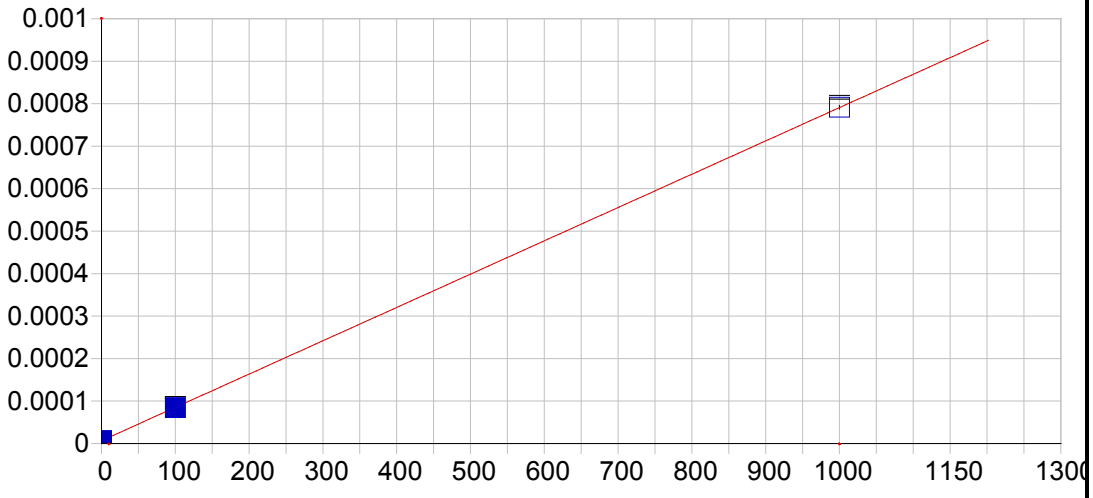


Ag 328.068 {103}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	1.928183	Re-Slope:	1.000000
A1 (Gain):	3.898704	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999315	Status:	OK.
Std Error of Est:	8.216263		
Predicted MDL:	0.781027		
Predicted MQL:	2.603423		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.96396	-.964	.000	-1.8300	2.27	1
CalStd5=10	10.000	12.154	2.15	21.5	49.315	2.13	1
CalStd8=100	100.00	99.725	-.275	-.275	390.77	2.48	1
CalStd3=1	1.0000	-.63821	-1.64	-164.	-.56000	2.60	1

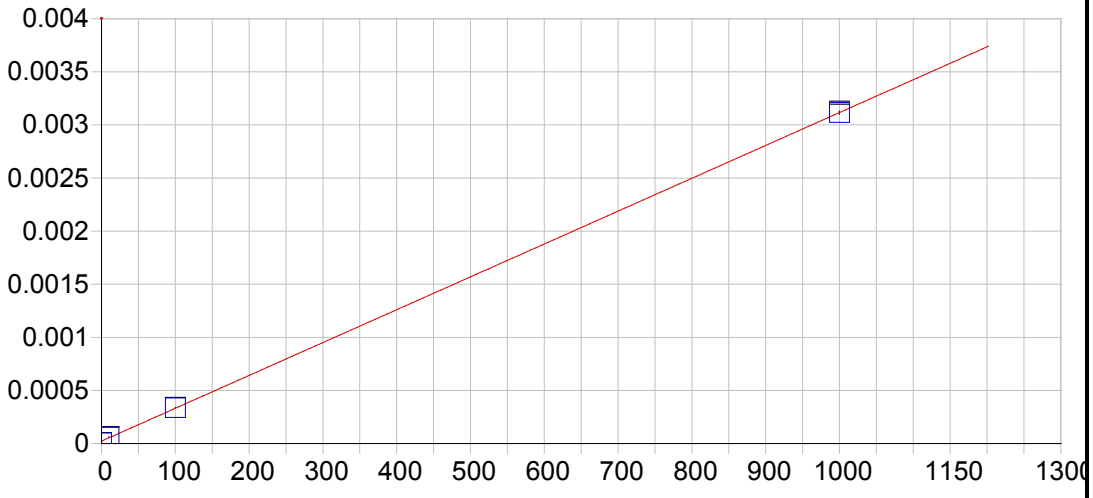


Ag 338.289 {100}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000007	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999997	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	5.592234		
Predicted MQL:	18.640780		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00068	.001	.000	.00001	.000	1
CalStd8=100	100.00	99.243	-.757	-.757	.00008	.000	1
Ag Ba 1000,	1000.0	1000.8	.758	.076	.00079	.000	1

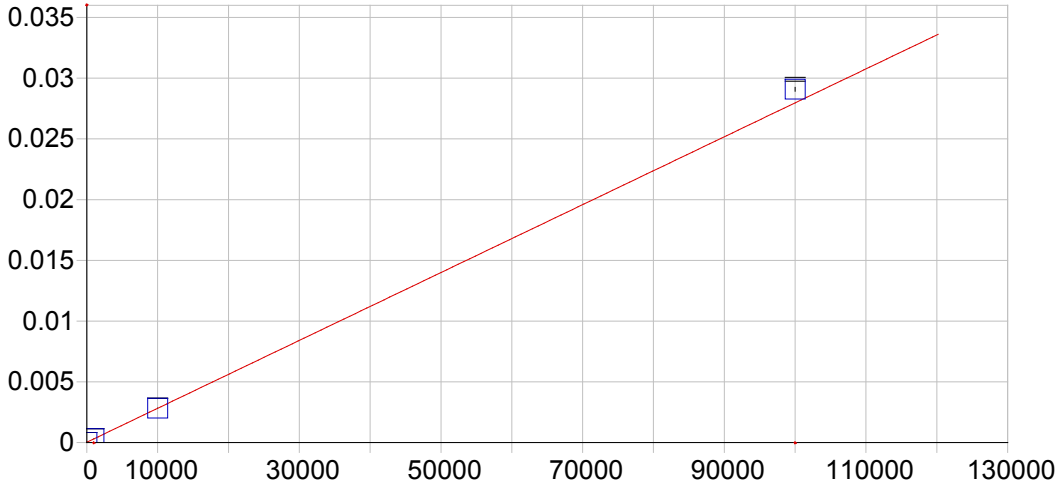


Al 167.079 {501}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000022	Re-Slope:	1.000000
A1 (Gain):	0.000003	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999974	Status:	OK.
Std Error of Est:	0.000013		
Predicted MDL:	0.856844		
Predicted MQL:	2.856146		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-4.8358	-4.84	.000	.00001	.000	1
CalStd9=100	1000.0	999.77	-.234	-.023	.00312	.000	1
CalStd5=10	10.000	13.031	3.03	30.3	.00006	.000	1
CalStd8=100	100.00	102.04	2.04	2.04	.00034	.000	1

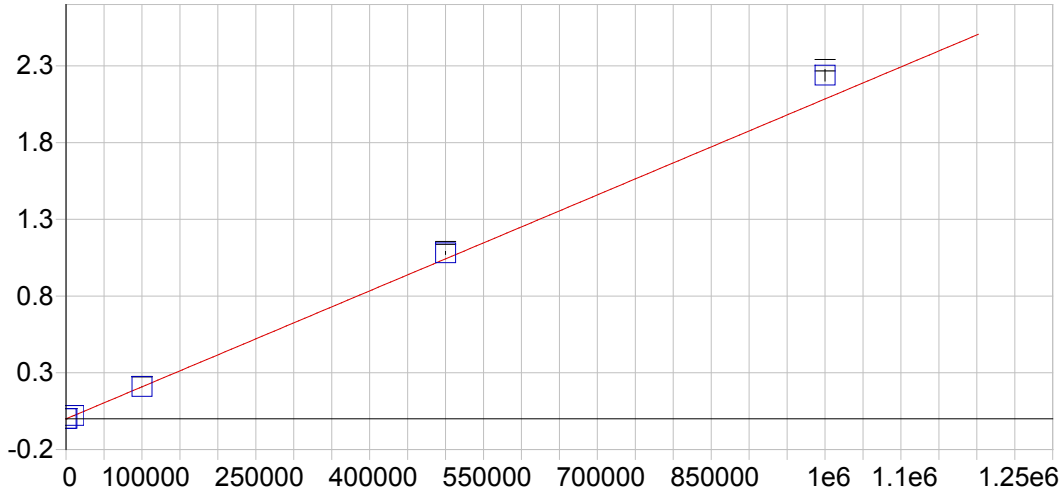


Al 308.215 {109}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Curvilinear	Weighting:	1/Conc

A0 (Offset):	0.000025	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999996	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	22.816445		
Predicted MQL:	76.054815		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.02589	-.026	.000	.00002	.000	1
CalStd10=10	10000.	10008.	7.92	.079	.00282	.000	1
CalStd9=100	1000.0	1029.5	29.5	2.95	.00031	.000	1
CalStd13=10	100000.	103990.	3990.	3.99	.02908	.000	1

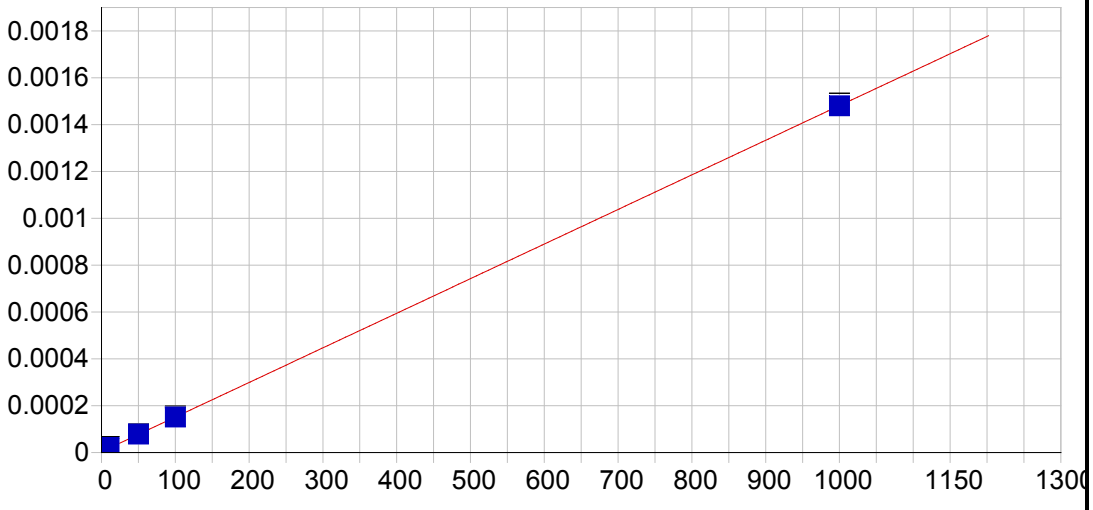


Al 396.152 { 85}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Full Fit	Weighting:	1/Conc

A0 (Offset):	-0.000025	Re-Slope:	1.000000
A1 (Gain):	0.000002	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000003		
Predicted MDL:	5.137588		
Predicted MQL:	17.125293		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	-.00003	.000	1
CalStd14=50	500000.	518790.	18800.	3.76	1.0815	.009	1
CalStd13=10	100000.	100610.	614.	.614	.20972	.001	1
CalStd10=10	10000.	9991.4	-8.62	-.086	.02080	.000	1
CalStd9=100	1000.0	1018.8	18.8	1.88	.00210	.000	1
CalibStd15=	1000000.	1074100.	74100.	7.41	2.2392	.037	1

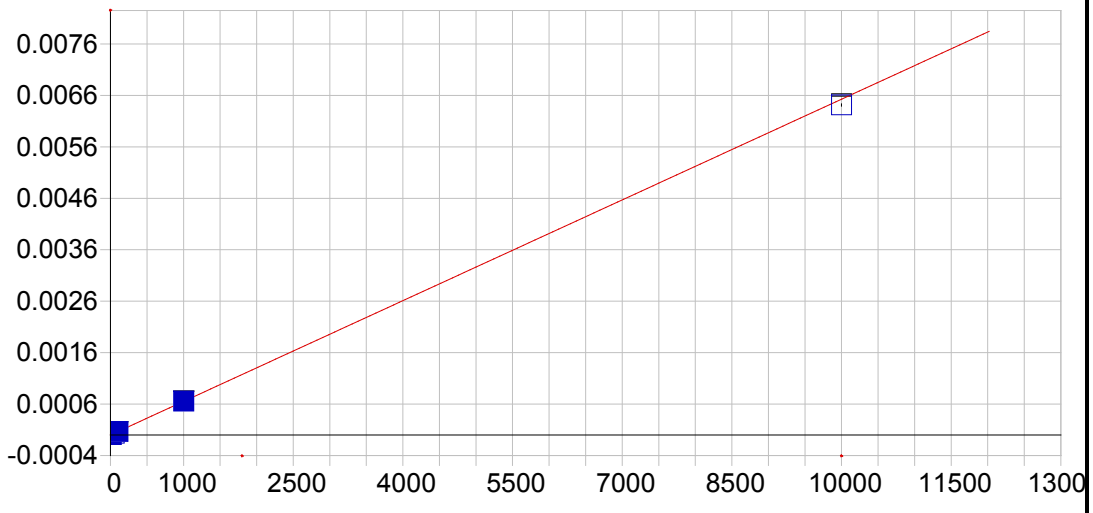


As 193.759 {474}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000004	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999953	Status:	OK.
Std Error of Est:	0.000002		
Predicted MDL:	4.099261		
Predicted MQL:	13.664204		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.36761	-.368	.000	.00000	.000	1
CalStd9=100	1000.0	999.11	-.889	-.089	.00148	.000	1
CalStd7=50	50.000	50.686	.686	1.37	.00008	.000	1
CalStd5=10	10.000	12.789	2.79	27.9	.00002	.000	1
CalStd8=100	100.00	99.956	-.044	-.044	.00015	.000	1

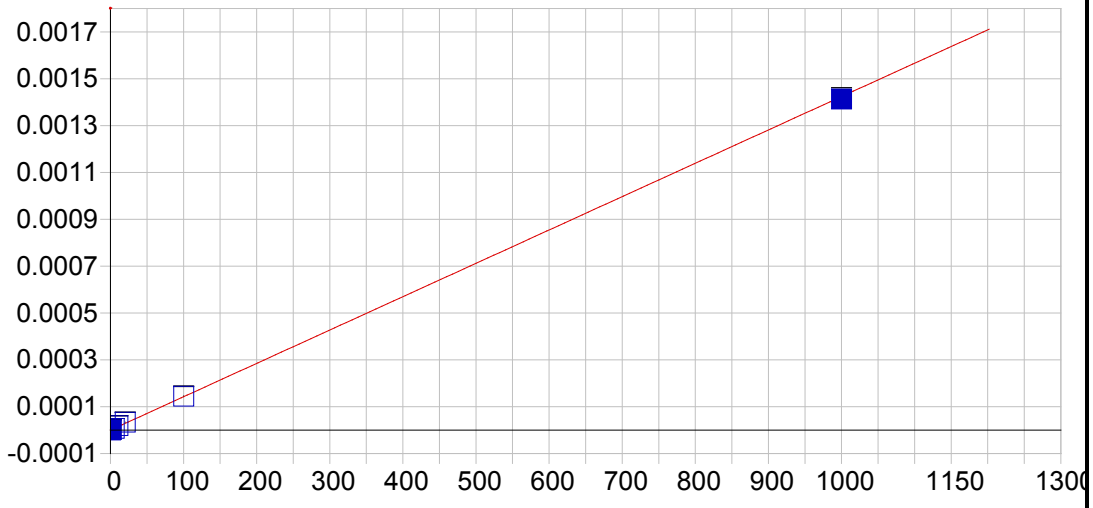


As 197.262 {471}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000001	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999923	Status:	OK.
Std Error of Est:	0.000006		
Predicted MDL:	6.744498		
Predicted MQL:	22.481661		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-4.0791	-4.08	.000	-.00000	.000	1
CalStd9=100	1000.0	1004.9	4.87	.487	.00066	.000	1
CalStd7=50	50.000	44.782	-5.22	-10.4	.00003	.000	1
CalStd5=10	10.000	6.9047	-3.10	-31.0	.00001	.000	1
CalStd8=100	100.00	98.502	-1.50	-1.50	.00007	.000	1
CalStd10=10	10000.	9828.8	-171.	-1.71	.00641	.000	1

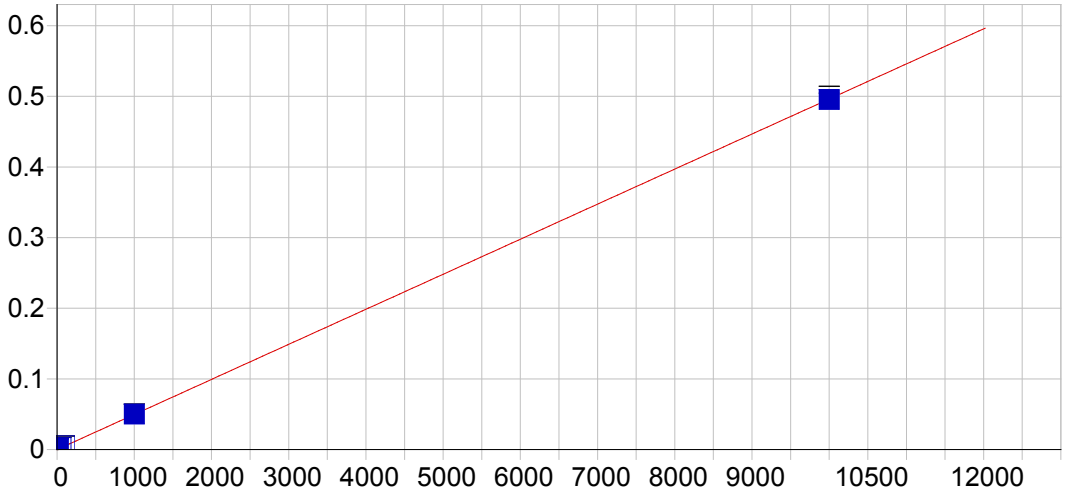


Ba 233.527 {445}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000000	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999274	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	0.460411		
Predicted MQL:	1.534703		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00042	-.000	.000	.00000	.000	1
CalStd5=10	10.000	13.058	3.06	30.6	.00002	.000	1
CalStd6=20	20.000	23.546	3.55	17.7	.00003	.000	1
CalStd8=100	100.00	101.25	1.25	1.25	.00014	.000	1
CalStd4=5	5.0000	4.7352	-.265	-5.30	.00001	.000	1
CalStd9=100	1000.0	992.42	-7.58	-.758	.00141	.000	1
CalStd3=1	1.0000	.98962	-.010	-1.04	.00000	.000	1

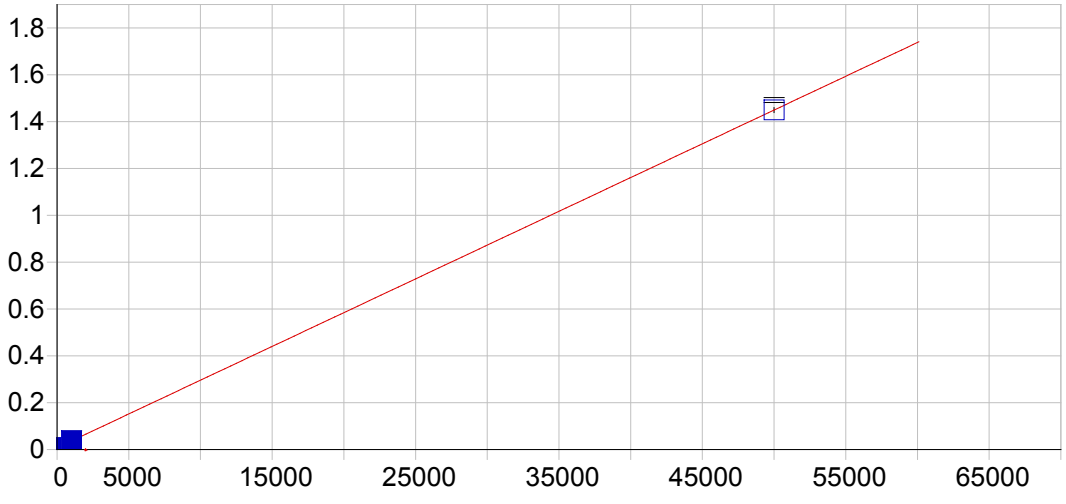


Ba 455.403 { 74}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000045	Re-Slope:	1.000000
A1 (Gain):	0.000050	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999893	Status:	OK.
Std Error of Est:	0.000003		
Predicted MDL:	0.169963		
Predicted MQL:	0.566543		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00079	-.001	.000	.00004	.000	1
CalStd7=50	50.000	51.607	1.61	3.21	.00261	.000	1
CalStd5=10	10.000	13.423	3.42	34.2	.00071	.000	1
CalStd6=20	20.000	24.483	4.48	22.4	.00126	.000	1
CalStd8=100	100.00	101.55	1.55	1.55	.00508	.000	1
CalStd4=5	5.0000	5.1584	.158	3.17	.00030	.000	1
CalStd9=100	1000.0	1009.2	9.20	.920	.05012	.000	1
CalStd3=1	1.0000	1.1374	.137	13.7	.00010	.000	1
CalStd10=10	10000.	9979.4	-20.6	-.206	.49525	.005	1

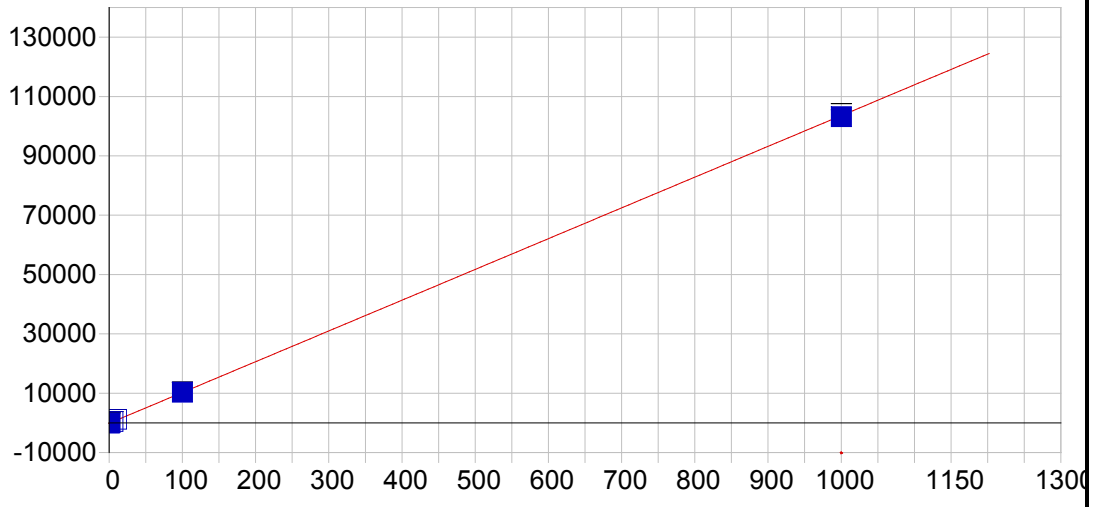


Ba 493.409 { 68}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.007773	Re-Slope:	1.000000
A1 (Gain):	0.000029	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000456		
Predicted MDL:	0.801475		
Predicted MQL:	2.671584		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-10.671	-10.7	.000	.00747	.000	1
CalStd9=100	1000.0	1018.3	18.3	1.83	.03713	.000	1
CalStd8=100	100.00	92.771	-7.23	-7.23	.01045	.000	1
Ag Ba 1000,	50000.	50000.	-.351	-.001	1.4495	.010	1

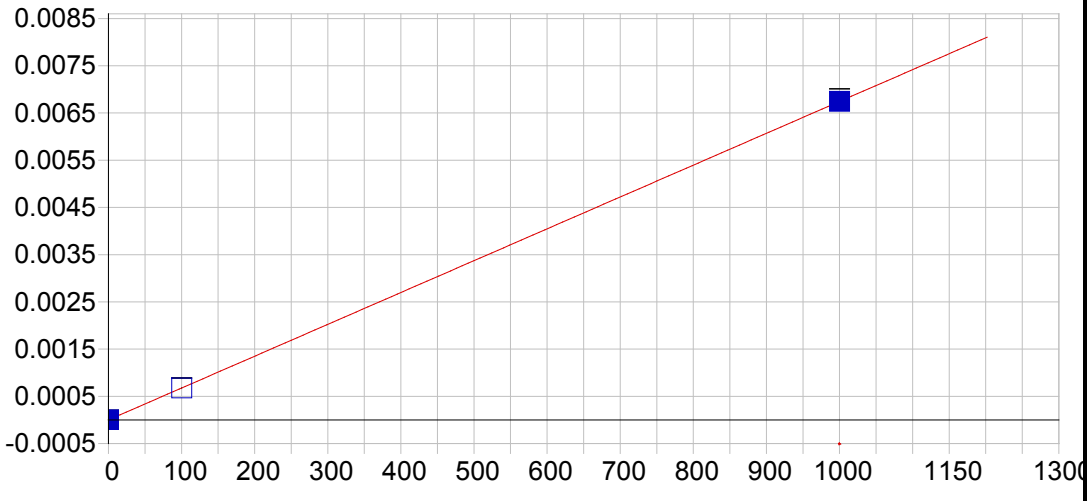


Be 313.042 {108}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-124.645743	Re-Slope:	1.000000
A1 (Gain):	103.688767	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999653	Status:	OK.
Std Error of Est:	2.412732		
Predicted MDL:	0.035861		
Predicted MQL:	0.119537		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00022	-.000	.000	-124.67	1.26	1
CalStd5=10	10.000	12.732	2.73	27.3	1195.5	7.65	1
CalStd8=100	100.00	100.77	.772	.772	10324.	39.6	1
CalStd2=0.5	.50000	.54190	.042	8.38	-68.457	3.46	1
CalStd4=5	5.0000	5.1116	.112	2.23	405.37	6.32	1
CalStd9=100	1000.0	996.29	-3.71	-.371	103180.	1060.	1
CalStd3=1	1.0000	1.0495	.049	4.95	-15.828	2.24	1

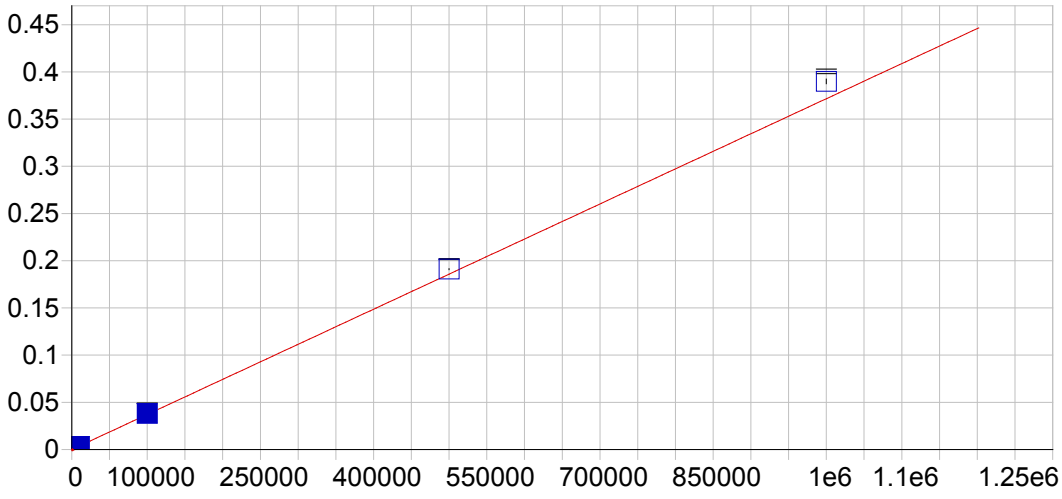


Be 234.861 {144}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000001	Re-Slope:	1.000000
A1 (Gain):	0.000007	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	0.255554		
Predicted MQL:	0.851848		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00004	-.000	.000	.00000	.000	1
CalStd9=100	1000.0	999.96	-.043	-.004	.00674	.000	1
CalStd8=100	100.00	100.04	.043	.043	.00068	.000	1

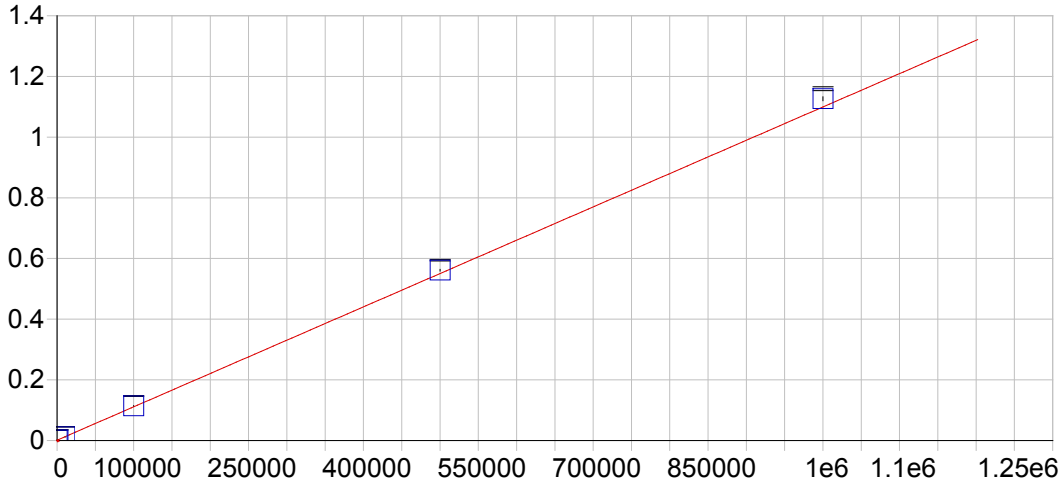


Ca 315.887 {107}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Curvilinear	Weighting:	1/Var

A0 (Offset):	0.000004	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999980	Status:	OK.
Std Error of Est:	0.000010		
Predicted MDL:	7.739959		
Predicted MQL:	25.799864		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	3.4124	3.41	.000	.00001	.000	1
CalStd10=10	10000.	9977.0	-23.0	-.230	.00371	.000	1
CalStd13=10	100000.	102830.	2830.	2.83	.03821	.000	1
CalStd14=50	500000.	514220.	14200.	2.84	.19108	.001	1
CalStd9=100	1000.0	990.15	-9.85	-.985	.00037	.000	1
CalibStd15=	1000000.	1049400.	49400.	4.94	.38992	.002	1

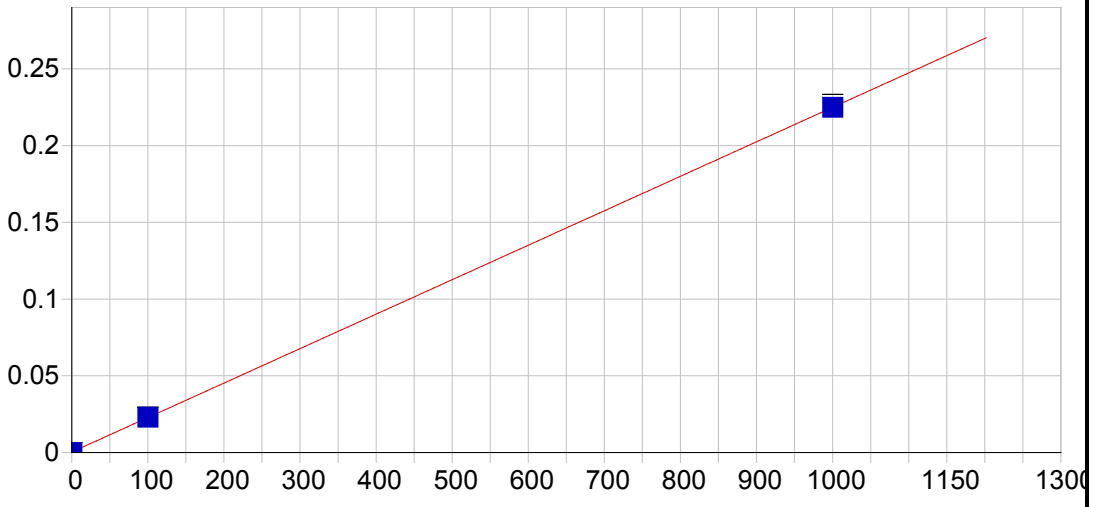


Ca 317.933 {106}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.001300	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999786	Status:	OK.
Std Error of Est:	0.000057		
Predicted MDL:	3.007835		
Predicted MQL:	10.026118		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	15.527	15.5	.000	.00132	.000	1
CalStd10=10	10000.	9901.0	-99.0	-.990	.01217	.000	1
CalStd13=10	100000.	102410.	2410.	2.41	.11376	.001	1
CalStd14=50	500000.	510070.	10100.	2.01	.56141	.003	1
CalStd9=100	1000.0	945.70	-54.3	-5.43	.00234	.000	1
CalibStd15=	1000000.	1024700.	24700.	2.47	1.1265	.006	1

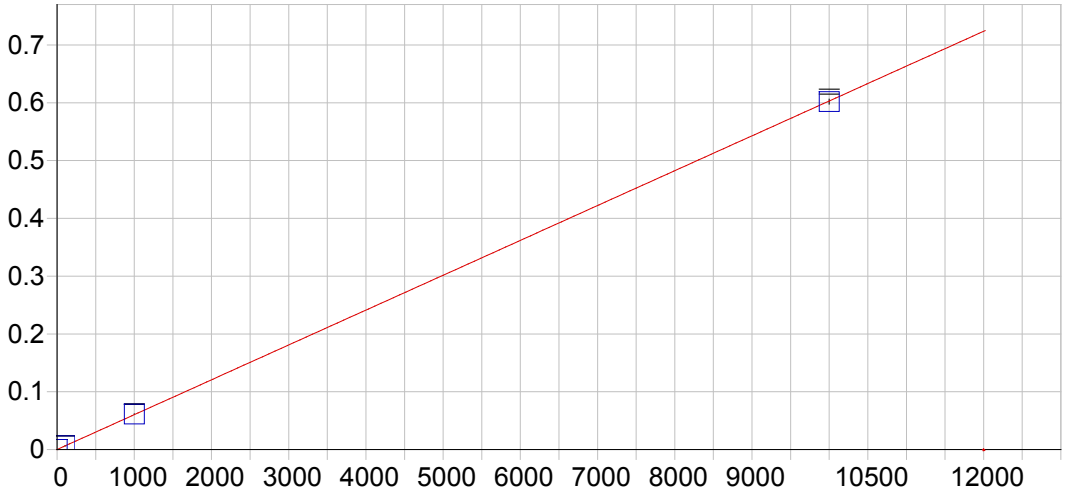


Ca 393.366 { 86}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000334	Re-Slope:	1.000000
A1 (Gain):	0.000225	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000137		
Predicted MDL:	0.032506		
Predicted MQL:	0.108354		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.40677	-.407	.000	.00024	.000	1
CalStd9=100	1000.0	999.95	-.045	-.005	.22493	.002	1
CalStd8=100	100.00	100.45	.452	.452	.02290	.000	1

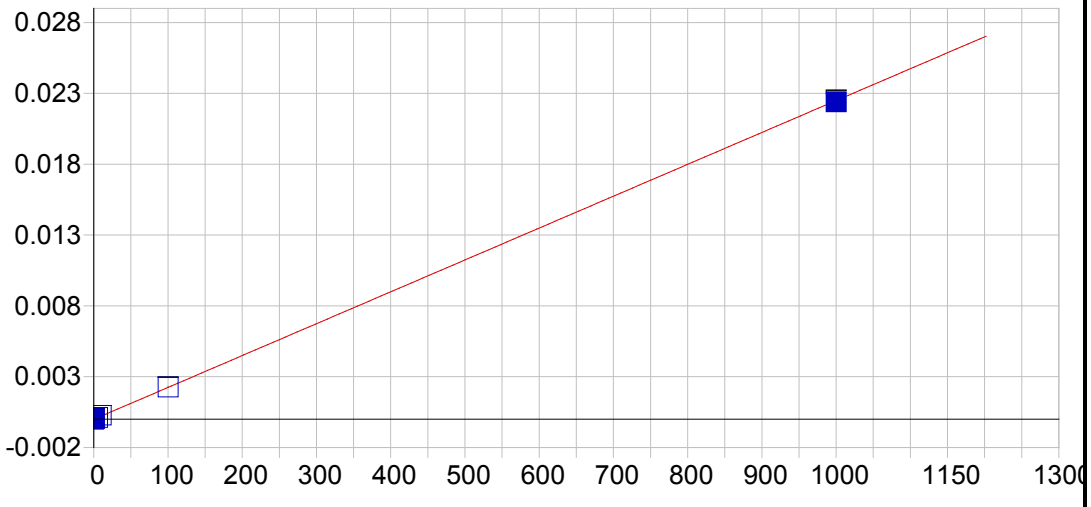


Ca 396.847 { 85}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000060	Re-Slope:	1.000000
A1 (Gain):	0.000060	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999981	Status:	OK.
Std Error of Est:	0.000017		
Predicted MDL:	0.126696		
Predicted MQL:	0.422319		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00538	-.005	.000	.00006	.000	1
CalStd10=10	10000.	9981.2	-18.8	-.188	.60196	.004	1
CalStd8=100	100.00	104.10	4.10	4.10	.00634	.000	1
CalStd9=100	1000.0	1014.7	14.7	1.47	.06125	.001	1

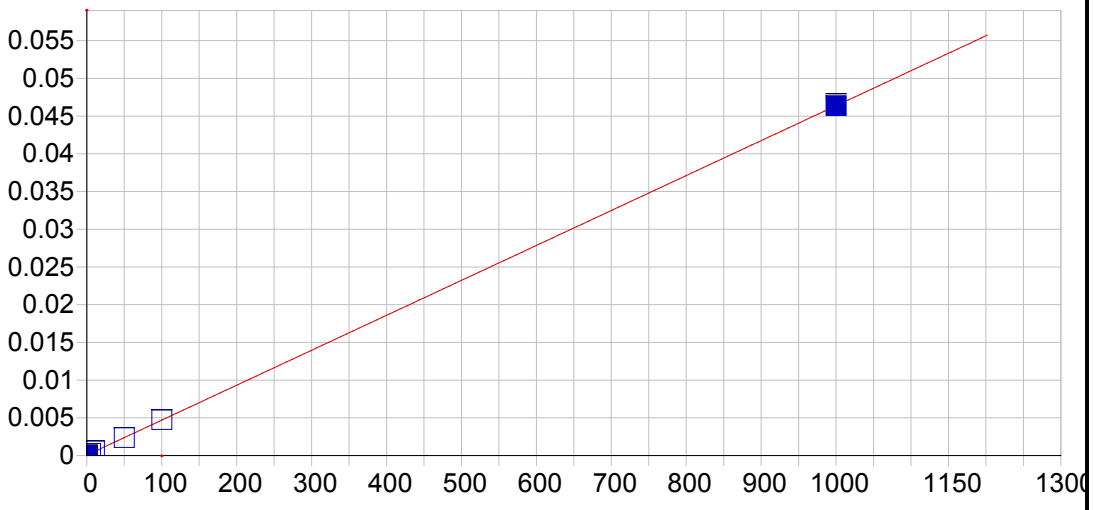


Cd 226.502 {449}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000008	Re-Slope:	1.000000
A1 (Gain):	0.000023	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999513	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.253246		
Predicted MQL:	0.844154		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00062	-.001	.000	-.00001	.000	1
CalStd3=1	1.0000	1.4578	.458	45.8	.00002	.000	1
CalStd2=0.5	.50000	.72545	.225	45.1	.00001	.000	1
CalStd4=5	5.0000	5.2696	.270	5.39	.00011	.000	1
CalStd8=100	100.00	100.73	.725	.725	.00226	.000	1
CalStd5=10	10.000	12.717	2.72	27.2	.00028	.000	1
CalStd9=100	1000.0	995.61	-4.39	-.439	.02240	.000	1

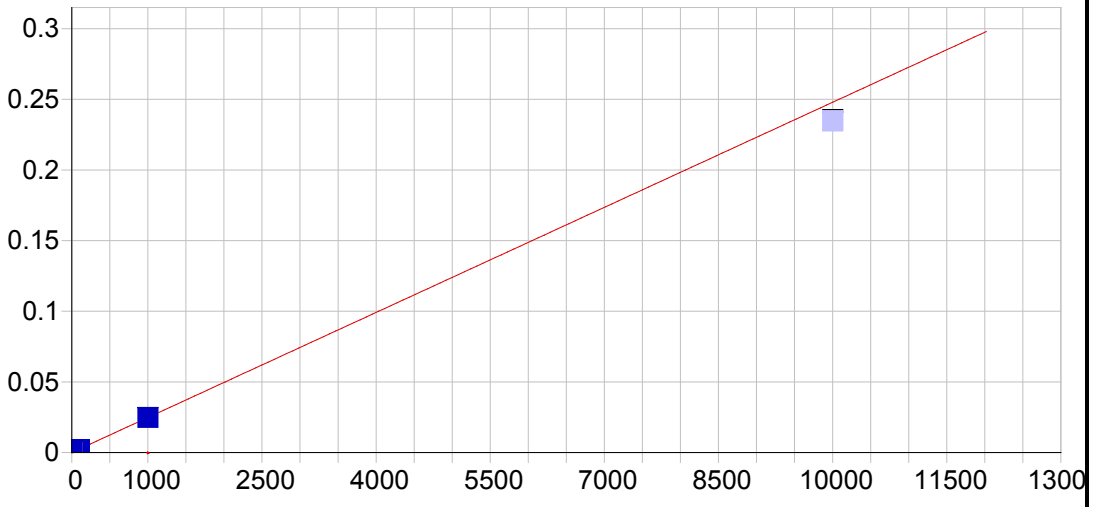


Cd 228.802 {447}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000061	Re-Slope:	1.000000
A1 (Gain):	0.000046	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999995	Status:	OK.
Std Error of Est:	0.000053		
Predicted MDL:	0.171367		
Predicted MQL:	0.571224		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-1.0597	-1.06	.000	.00001	.000	1
CalStd7=50	50.000	49.910	-.090	-.179	.00237	.000	1
CalStd3=1	1.0000	.22871	-.771	-77.1	.00007	.000	1
CalStd2=0.5	.50000	-.14213	-.642	-128.	.00005	.000	1
CalStd4=5	5.0000	4.5060	-.494	-9.88	.00027	.000	1
CalStd8=100	100.00	101.09	1.09	1.09	.00474	.000	1
CalStd5=10	10.000	12.093	2.09	20.9	.00062	.000	1
CalStd9=100	1000.0	999.88	-.121	-.012	.04638	.000	1

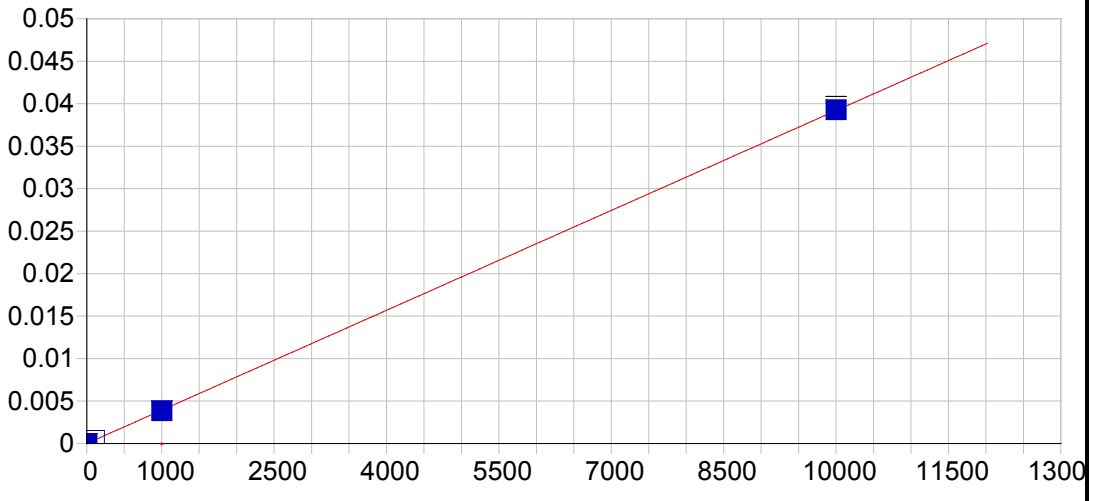


Co 228.616 {447}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000005	Re-Slope:	1.000000
A1 (Gain):	0.000025	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999560	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.281963		
Predicted MQL:	0.939876		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00042	-.000	.000	.00000	.000	1
CalStd7=50	50.000	50.669	.669	1.34	.00126	.000	1
CalStd5=10	10.000	13.138	3.14	31.4	.00033	.000	1
CalStd4=5	5.0000	5.0988	.099	1.98	.00013	.000	1
CalStd8=100	100.00	100.78	.775	.775	.00250	.000	1
CalStd9=100	1000.0	995.25	-4.75	-.475	.02469	.000	1
CalStd3=1	1.0000	1.0681	.068	6.81	.00003	.000	1
CalStd10=10	10000.	9458.3	-542.	-5.42	.23491	.001	0

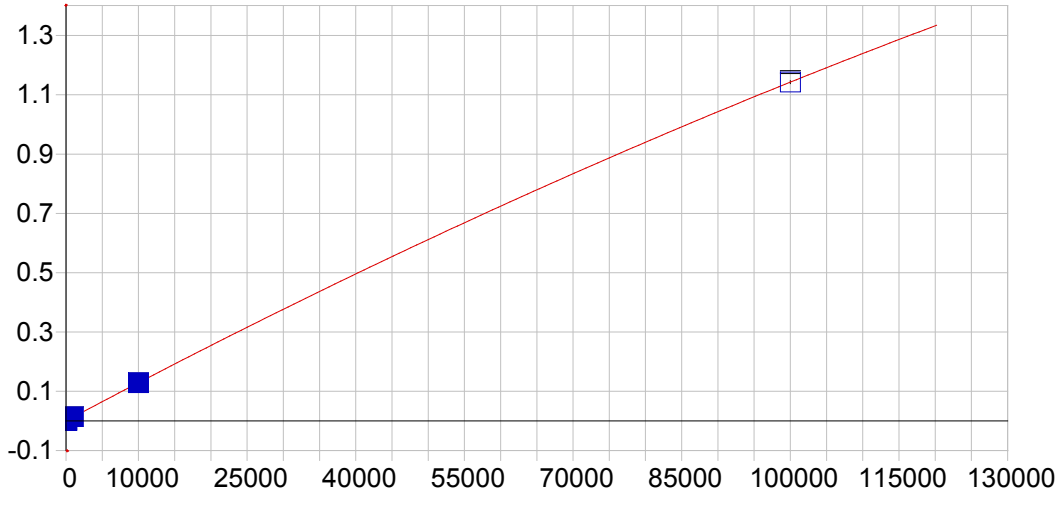


Co 238.892 {141}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000005	Re-Slope:	1.000000
A1 (Gain):	0.000004	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999979	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.658089		
Predicted MQL:	2.193631		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00280	.003	.000	.00001	.000	1
CalStd9=100	1000.0	979.77	-20.2	-2.02	.00385	.000	1
CalStd10=10	10000.	10021.	21.2	.212	.03929	.000	1
CalStd8=100	100.00	99.011	-.989	-.989	.00039	.000	1

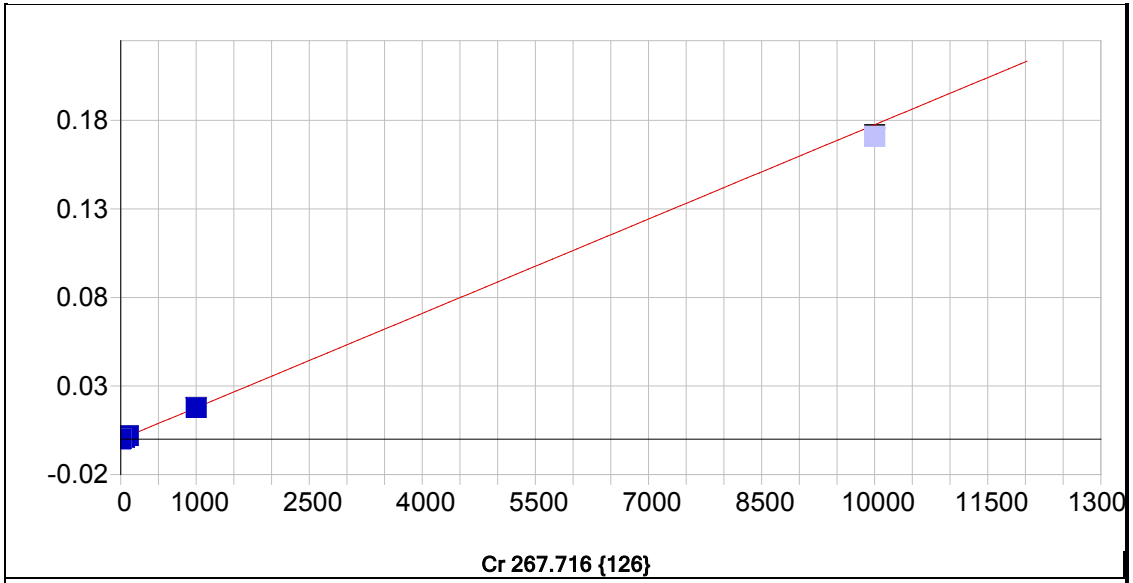


Cr 205.560 {464}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Curvilinear	Weighting:	1/Conc

A0 (Offset):	-0.000005	Re-Slope:	1.000000
A1 (Gain):	0.000013	Y-int:	0.000000
A2 (Curvature):	-0.000000		
n (Exponent):	1.000000		
Correlation:	0.999989	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.389901		
Predicted MQL:	1.299669		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00076	-.001	.000	-.00000	.000	1
CalStd5=10	10.000	13.431	3.43	34.3	.00017	.000	1
CalStd7=50	50.000	51.438	1.44	2.88	.00067	.000	1
CalStd9=100	1000.0	1020.8	20.8	2.08	.01329	.000	1
CalStd8=100	100.00	102.91	2.91	2.91	.00134	.000	1
CalStd4=5	5.0000	5.3429	.343	6.86	.00007	.000	1
CalStd3=1	1.0000	1.2736	.274	27.4	.00001	.000	1
CalStd10=10	10000.	9967.1	-32.9	-.329	.12834	.000	1
CalStd12=10	100000.	100000.	3.98	.004	1.1428	.005	1

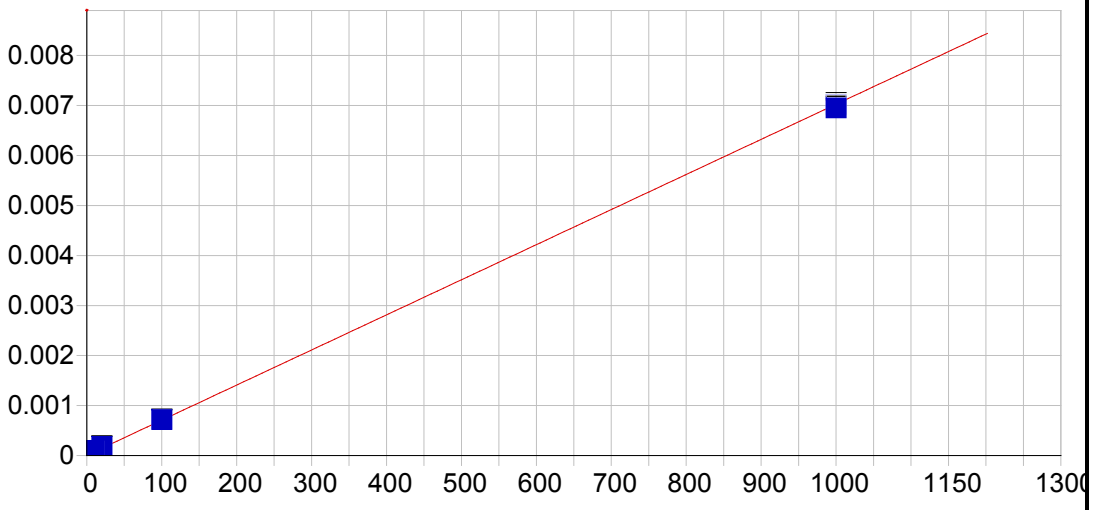


Cr 267.716 {126}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000012	Re-Slope:	1.000000
A1 (Gain):	0.000018	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999450	Status:	OK.
Std Error of Est:	0.000002		
Predicted MDL:	1.040157		
Predicted MQL:	3.467189		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00209	-.002	.000	-.00001	.000	1
CalStd5=10	10.000	13.513	3.51	35.1	.00023	.000	1
CalStd7=50	50.000	49.502	-.498	-.996	.00087	.000	1
CalStd9=100	1000.0	996.33	-3.67	-.367	.01768	.000	1
CalStd8=100	100.00	100.26	.264	.264	.00177	.000	1
CalStd4=5	5.0000	5.3867	.387	7.73	.00008	.000	1
CalStd10=10	10000.	9624.8	-375.	-3.75	.17091	.001	0

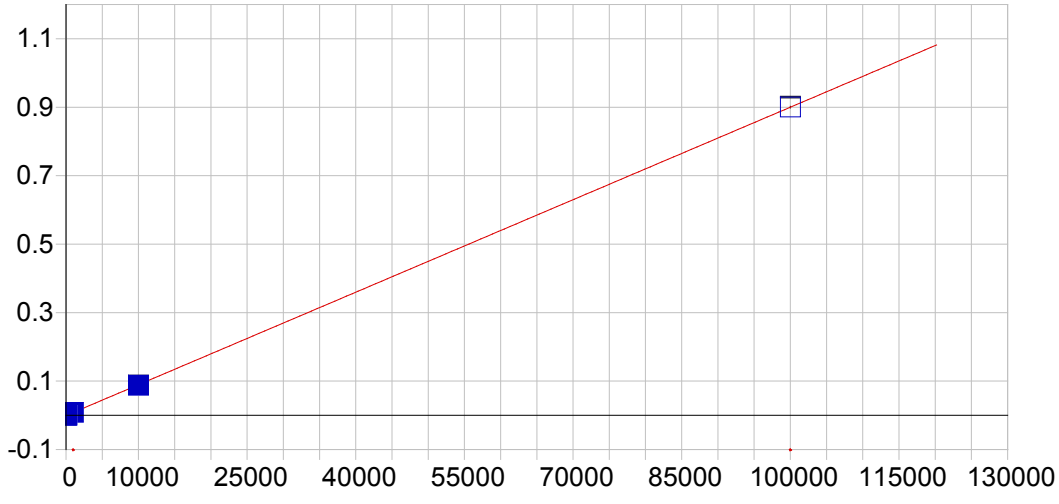


Cu 223.008 {451}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000005	Re-Slope:	1.000000
A1 (Gain):	0.000007	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.998721	Status:	OK.
Std Error of Est:	0.000002		
Predicted MDL:	1.017895		
Predicted MQL:	3.392983		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00640	-.006	.000	.00001	.000	1
CalStd9=100	1000.0	989.48	-10.5	-1.05	.00702	.000	1
CalStd8=100	100.00	101.40	1.40	1.40	.00072	.000	1
CalStd6=20	20.000	25.503	5.50	27.5	.00019	.000	1
CalStd5=10	10.000	13.613	3.61	36.1	.00010	.000	1

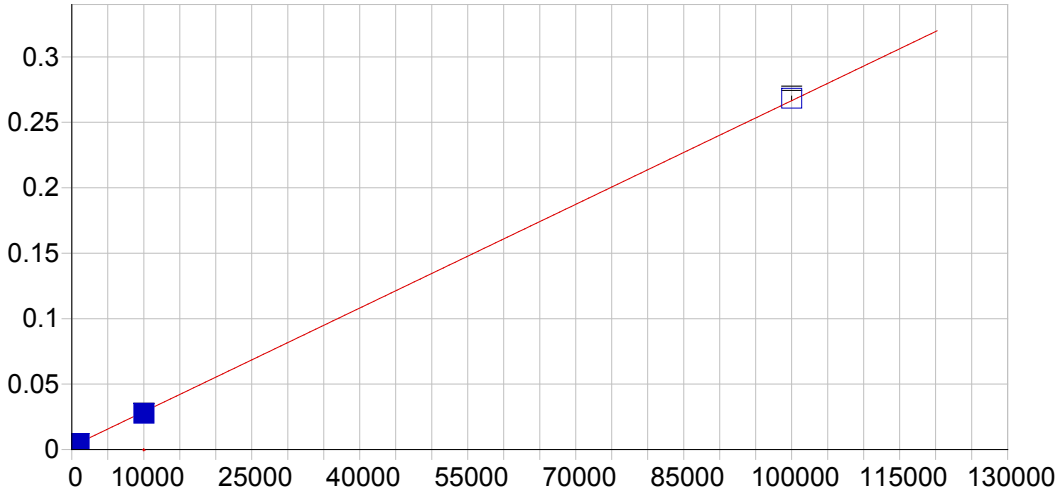


Cu 224.700 {450}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	-0.000682	Re-Slope:	1.000000
A1 (Gain):	0.000009	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999996	Status:	OK.
Std Error of Est:	0.000979		
Predicted MDL:	0.371006		
Predicted MQL:	1.236688		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	75.647	75.6	.000	-.00000	.000	1
CalStd9=100	1000.0	1028.4	28.4	2.84	.00855	.000	1
CalStd7=50	50.000	81.550	31.5	63.1	.00005	.000	1
CalStd8=100	100.00	103.13	3.13	3.13	.00024	.000	1
CalStd6=20	20.000	78.201	58.2	291.	.00002	.000	1
CalStd12=10	100000.	100020.	21.4	.021	.90021	.003	1
CalStd10=10	10000.	9781.7	-218.	-2.18	.08707	.000	1

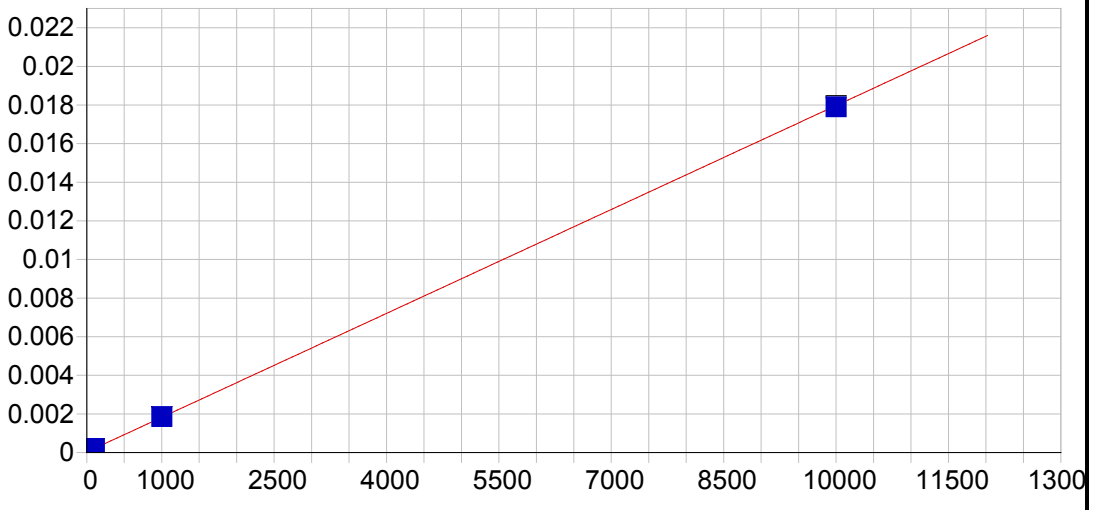


Cu 324.754 {104}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.002434	Re-Slope:	1.000000
A1 (Gain):	0.000003	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999400	Status:	OK.
Std Error of Est:	0.000004		
Predicted MDL:	1.842958		
Predicted MQL:	6.143193		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.03934	.039	.000	.00243	.000	1
CalStd9=100	1000.0	905.52	-94.5	-9.45	.00483	.000	1
CalStd8=100	100.00	46.835	-53.2	-53.2	.00256	.000	1
CalStd10=10	10000.	9524.2	-476.	-4.76	.02759	.000	1
CalStd12=10	100000.	100670.	675.	.675	.26835	.002	1
CalStd5=10	10.000	-7.8557	-17.9	-179.	.00241	.000	1
CalStd6=20	20.000	-6.9570	-27.0	-135.	.00242	.000	1
CalStd7=50	50.000	43.325	-6.67	-13.3	.00255	.000	1

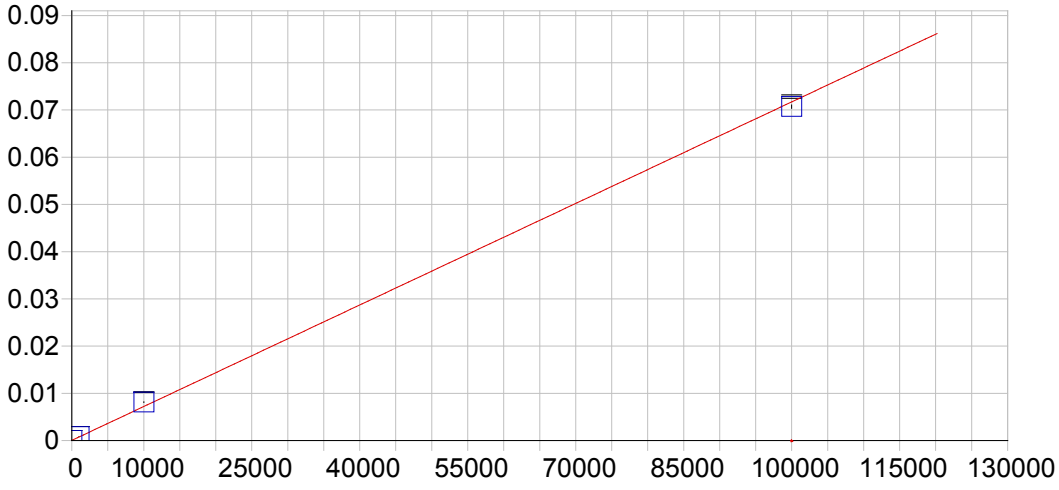


Cu 327.396 {103}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000029	Re-Slope:	1.000000
A1 (Gain):	0.000002	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999682	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	4.031322		
Predicted MQL:	13.437740		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00706	-.007	.000	.00003	.000	1
CalStd6=20	20.000	27.492	7.49	37.5	.00008	.000	1
CalStd7=50	50.000	51.652	1.65	3.30	.00012	.000	1
CalStd8=100	100.00	105.92	5.92	5.92	.00022	.000	1
CalStd9=100	1000.0	1018.2	18.2	1.82	.00186	.000	1
CalStd10=10	10000.	9959.6	-40.4	-.404	.01790	.000	1
CalStd4=5	5.0000	7.1863	2.19	43.7	.00004	.000	1
CalStd5=10	10.000	14.943	4.94	49.4	.00006	.000	1

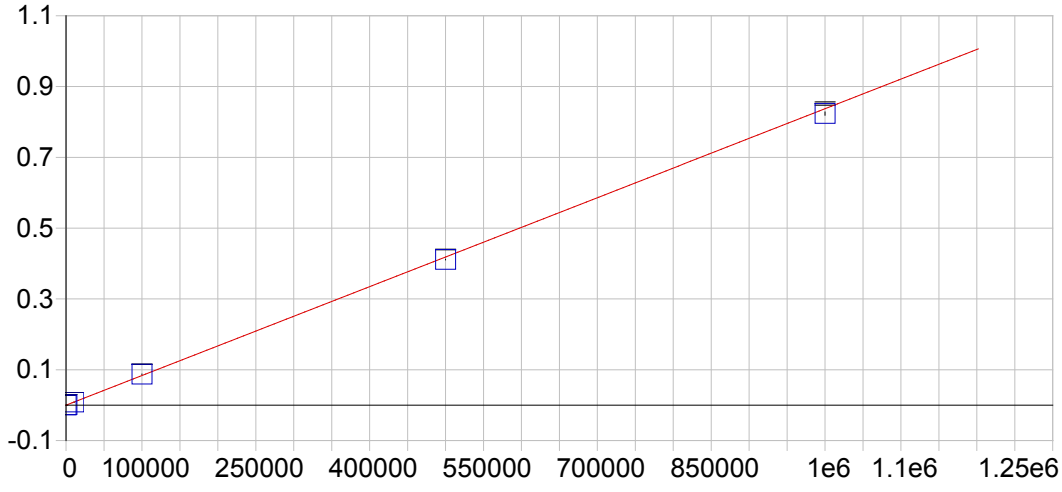


Fe 234.349 {144}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000037	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999107	Status:	OK.
Std Error of Est:	0.000014		
Predicted MDL:	1.650367		
Predicted MQL:	5.501223		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.21647	-.216	.000	.00004	.000	1
CalStd10=10	10000.	11299.	1300.	13.0	.00814	.000	1
CalStd13=10	100000.	98600.	-1400.	-1.40	.07071	.000	1
CalStd9=100	1000.0	1100.6	101.	10.1	.00083	.000	1

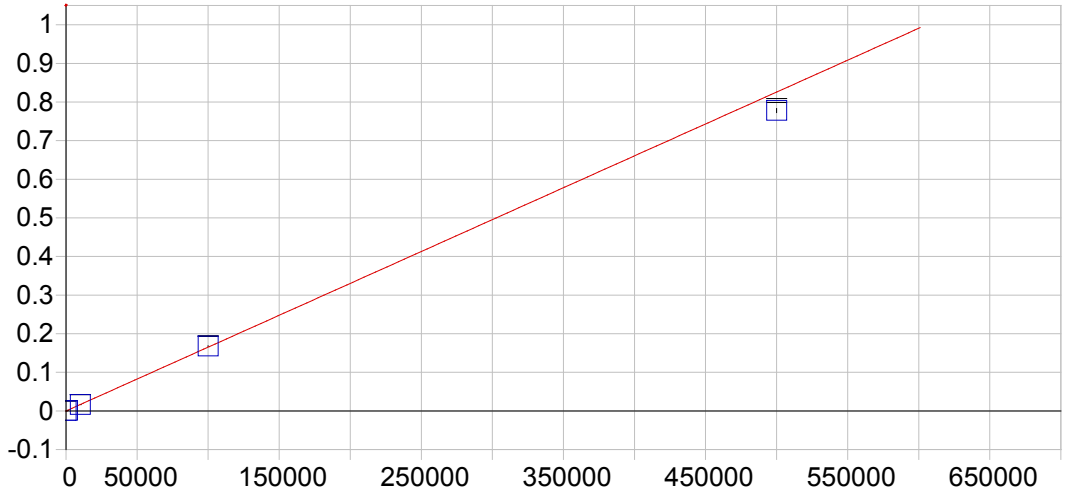


Fe 239.562 {140}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000004	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999789	Status:	OK.
Std Error of Est:	0.000023		
Predicted MDL:	3.092132		
Predicted MQL:	10.307106		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-2.6851	-2.69	.000	.00000	.000	1
CalStd10=10	10000.	10158.	158.	1.58	.00851	.000	1
CalStd13=10	100000.	104010.	4010.	4.01	.08708	.000	1
CalStd14=50	500000.	491480.	-8520.	-1.70	.41146	.001	1
CalStd9=100	1000.0	1030.3	30.3	3.03	.00087	.000	1
CalibStd15=	1000000.	983860.	-16100.	-1.61	.82366	.004	1

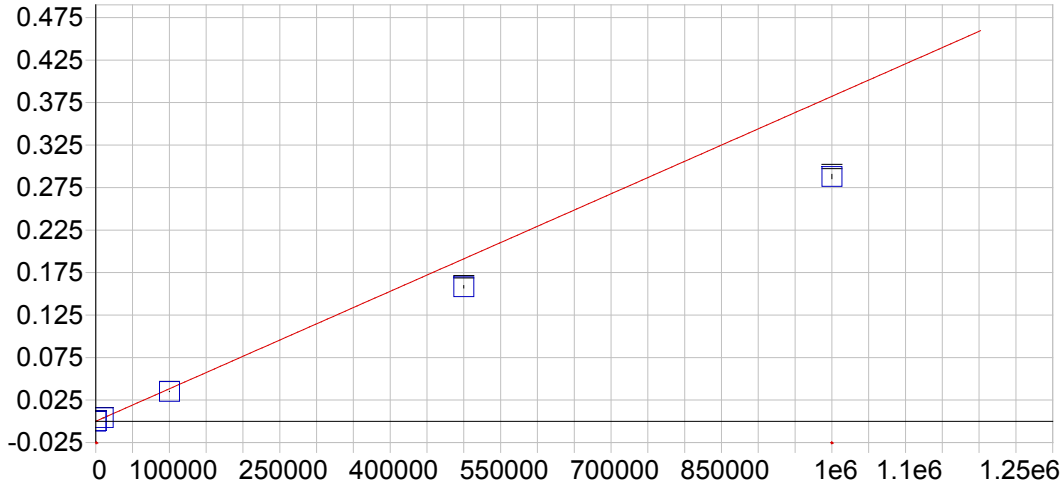


Fe 259.940 {129}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Curvilinear	Weighting:	1/Var

A0 (Offset):	-0.000001	Re-Slope:	1.000000
A1 (Gain):	0.000002	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999877	Status:	OK.
Std Error of Est:	0.000022		
Predicted MDL:	1.872030		
Predicted MQL:	6.240101		

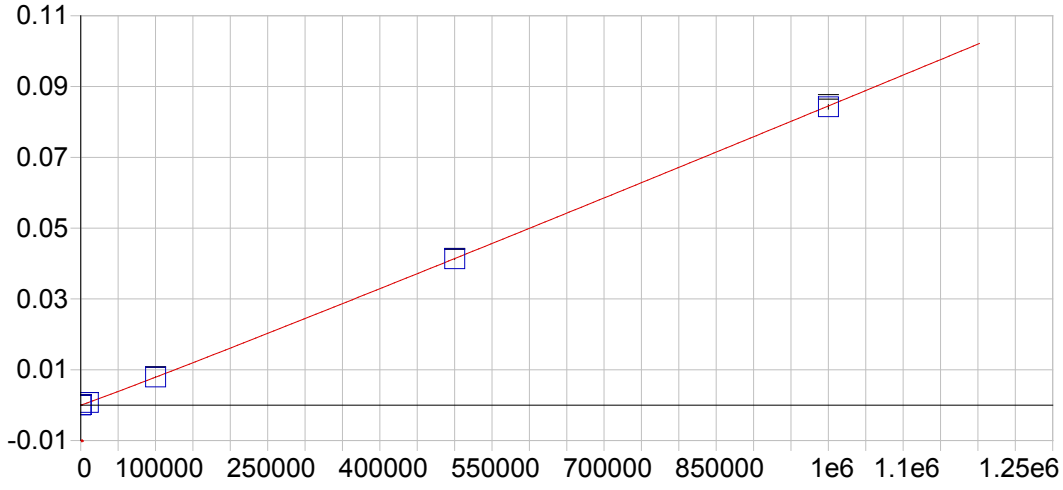
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.15093	.151	.000	-.00000	.000	1
CalStd10=10	10000.	9883.5	-116.	-1.16	.01632	.000	1
CalStd13=10	100000.	101640.	1640.	1.64	.16786	.001	1
CalStd14=50	500000.	471030.	-29000.	-5.79	.77790	.005	1
CalStd9=100	1000.0	999.59	-.408	-.041	.00165	.000	1



Mg 202.582 {466}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Curvilinear	Weighting:	1/Var
A0 (Offset):	0.000001		Re-Slope:	1.000000	
A1 (Gain):	0.000000		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.997752		Status:	OK.	
Std Error of Est:	0.000020				
Predicted MDL:	2.419016				
Predicted MQL:	8.063387				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-8.7353	-8.74	.000	-.00000	.000	1
CalStd13=10	100000.	91745.	-8250.	-8.25	.03508	.000	1
CalStd10=10	10000.	10582.	582.	5.82	.00405	.000	1
CalStd14=50	500000.	413850.	-86100.	-17.2	.15823	.001	1
CalStd9=100	1000.0	1082.2	82.2	8.22	.00042	.000	1
CalibStd15=	1000000.	753050.	-247000.	-24.7	.28792	.003	1

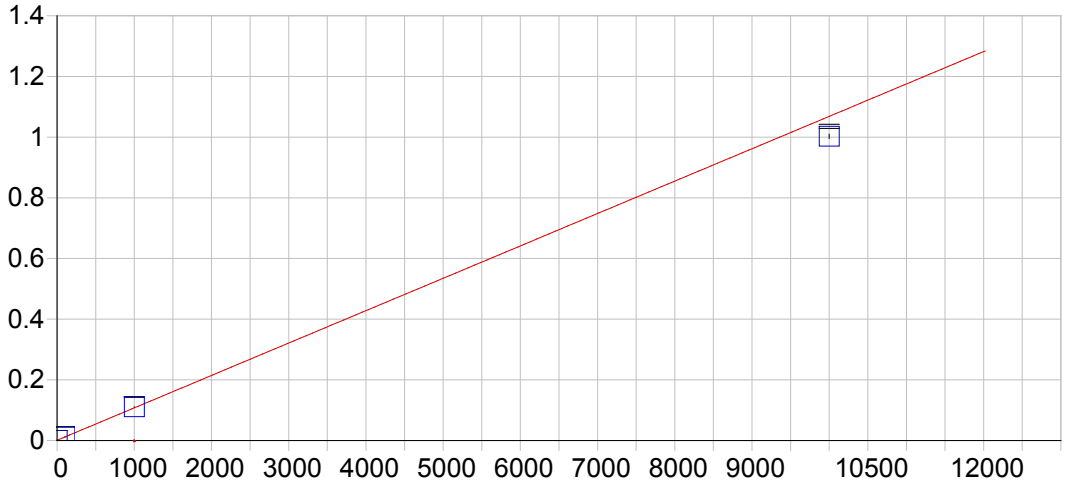


Mg 279.079 {121}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Full Fit	Weighting:	1/Var

A0 (Offset):	0.000001	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.030000		
Correlation:	0.999960	Status:	OK.
Std Error of Est:	0.000005		
Predicted MDL:	28.811654		
Predicted MQL:	96.038846		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	-.00000	.000	1
CalStd13=10	100000.	100510.	512.	.512	.00793	.000	1
CalStd10=10	10000.	9967.4	-32.6	-.326	.00073	.000	1
CalStd14=50	500000.	498970.	-1030.	-.206	.04130	.000	1
CalStd9=100	1000.0	1040.2	40.2	4.02	.00007	.000	1
CalibStd15=	1000000.	996980.	-3020.	-.302	.08426	.001	1

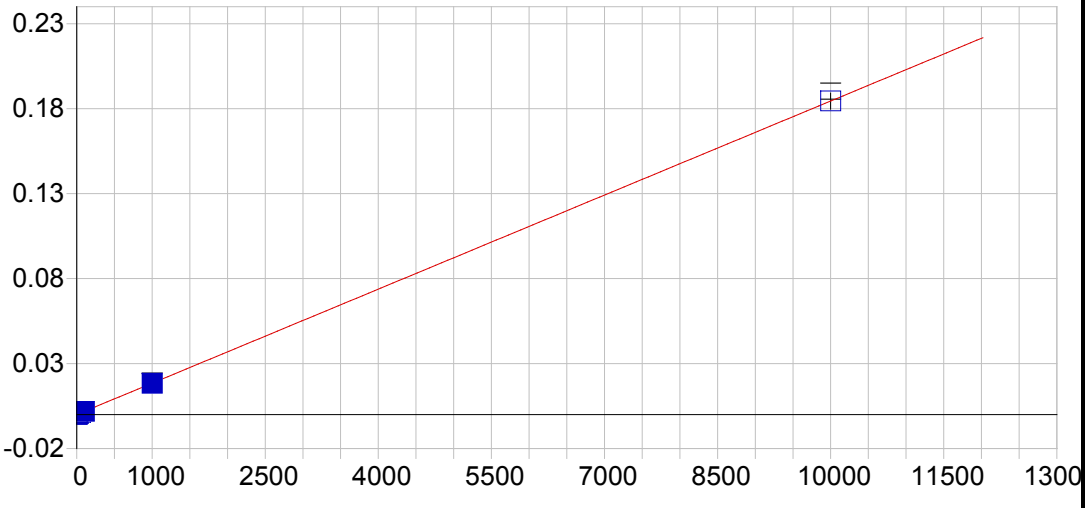


Mg 280.270 {120}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.001102	Re-Slope:	1.000000
A1 (Gain):	0.000107	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.998522	Status:	OK.
Std Error of Est:	0.000734		
Predicted MDL:	0.037200		
Predicted MQL:	0.123999		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-4.7326	-4.73	.000	.00060	.000	1
CalStd9=100	1000.0	1026.2	26.2	2.62	.11064	.001	1
CalStd10=10	10000.	9380.5	-620.	-6.20	1.0024	.007	1
CalStd8=100	100.00	101.79	1.79	1.79	.01197	.000	1

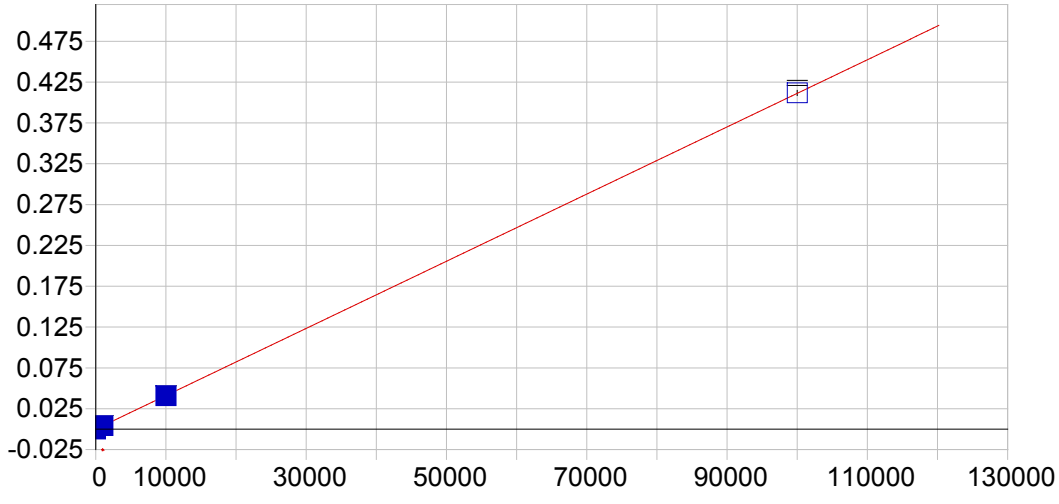


Mn 257.610 {131}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000003	Re-Slope:	1.000000
A1 (Gain):	0.000018	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999913	Status:	OK.
Std Error of Est:	0.000002		
Predicted MDL:	0.094946		
Predicted MQL:	0.316485		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00280	-.003	.000	-.00000	.000	1
CalStd5=10	10.000	13.330	3.33	33.3	.00024	.000	1
CalStd7=50	50.000	50.097	.097	.194	.00092	.000	1
CalStd6=20	20.000	23.855	3.86	19.3	.00044	.000	1
CalStd8=100	100.00	101.92	1.92	1.92	.00188	.000	1
CalStd4=5	5.0000	5.1017	.102	2.03	.00009	.000	1
CalStd9=100	1000.0	992.26	-7.74	-.774	.01830	.000	1
CalStd10=10	10000.	9998.4	-1.56	-.016	.18447	.005	1

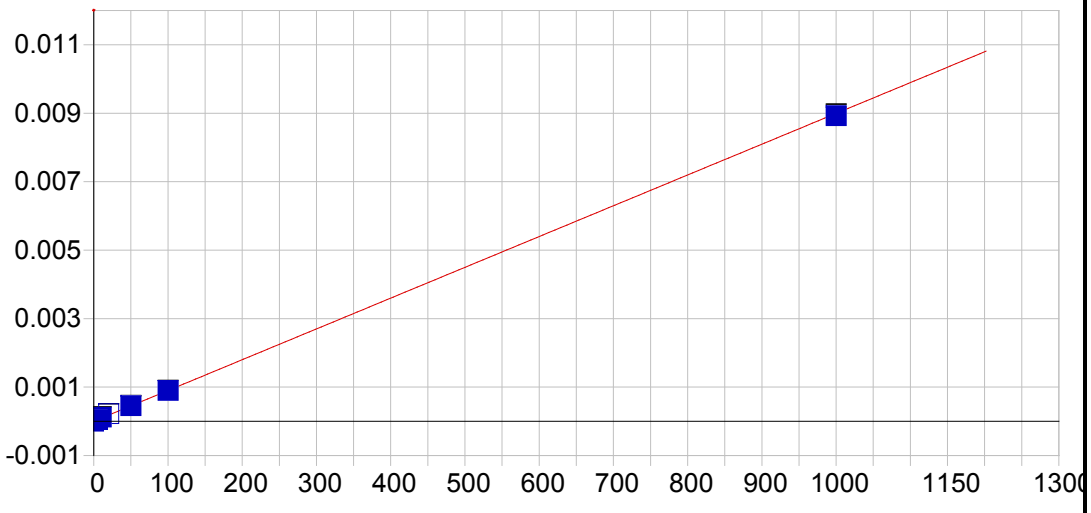


Mn 259.373 {130}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000003	Re-Slope:	1.000000
A1 (Gain):	0.000004	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999995	Status:	OK.
Std Error of Est:	0.000006		
Predicted MDL:	0.714545		
Predicted MQL:	2.381817		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00225	-.002	.000	-.00000	.000	1
CalStd10=10	10000.	9906.0	-94.0	-.940	.04080	.000	1
CalStd9=100	1000.0	1010.8	10.8	1.08	.00416	.000	1
CalStd12=10	100000.	100080.	83.4	.083	.41163	.003	1

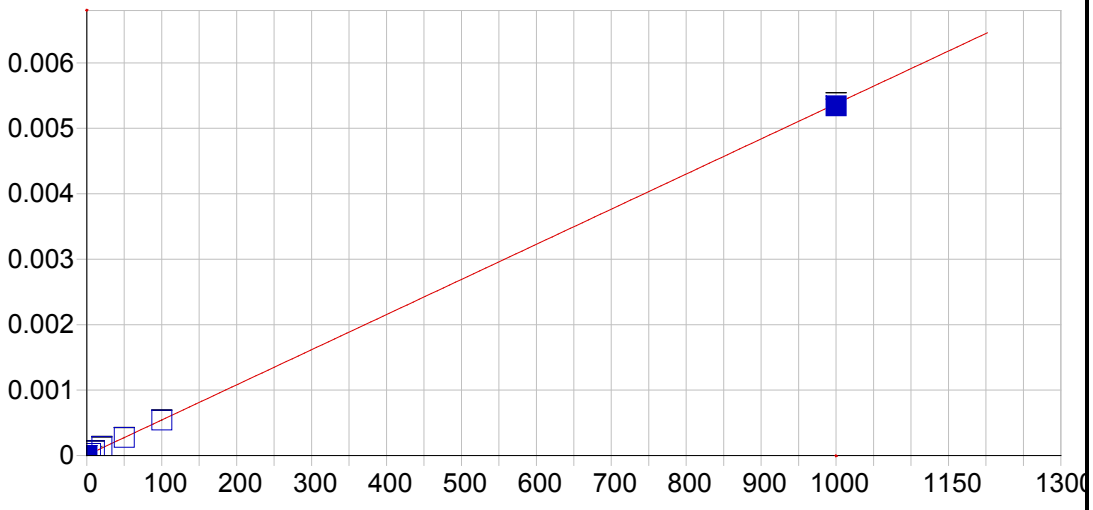


Mo 202.030 {466}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000000	Re-Slope:	1.000000
A1 (Gain):	0.000009	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999066	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.533895		
Predicted MQL:	1.779649		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00297	-.003	.000	.00000	.000	1
CalStd7=50	50.000	50.485	.485	.969	.00045	.000	1
CalStd6=20	20.000	24.370	4.37	21.8	.00022	.000	1
CalStd5=10	10.000	13.448	3.45	34.5	.00012	.000	1
CalStd8=100	100.00	99.687	-.313	-.313	.00090	.000	1
CalStd4=5	5.0000	5.1656	.166	3.31	.00005	.000	1
CalStd9=100	1000.0	991.85	-8.15	-.815	.00893	.000	1

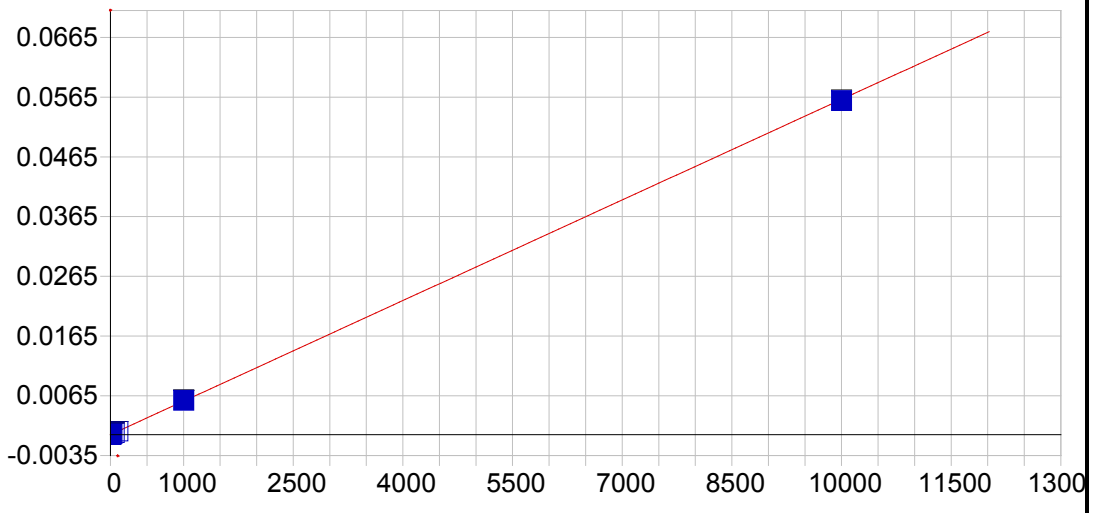


Mo 203.844 {465}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000006	Re-Slope:	1.000000
A1 (Gain):	0.000005	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999255	Status:	OK.
Std Error of Est:	0.000008		
Predicted MDL:	1.024591		
Predicted MQL:	3.415304		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.84439	-.844	.000	.00000	.000	1
CalStd7=50	50.000	49.906	-.094	-.189	.00027	.000	1
CalStd6=20	20.000	24.039	4.04	20.2	.00014	.000	1
CalStd5=10	10.000	12.163	2.16	21.6	.00007	.000	1
CalStd8=100	100.00	99.500	-.500	-.500	.00054	.000	1
CalStd4=5	5.0000	4.6705	-.329	-6.59	.00003	.000	1
CalStd9=100	1000.0	993.76	-6.24	-.624	.00534	.000	1

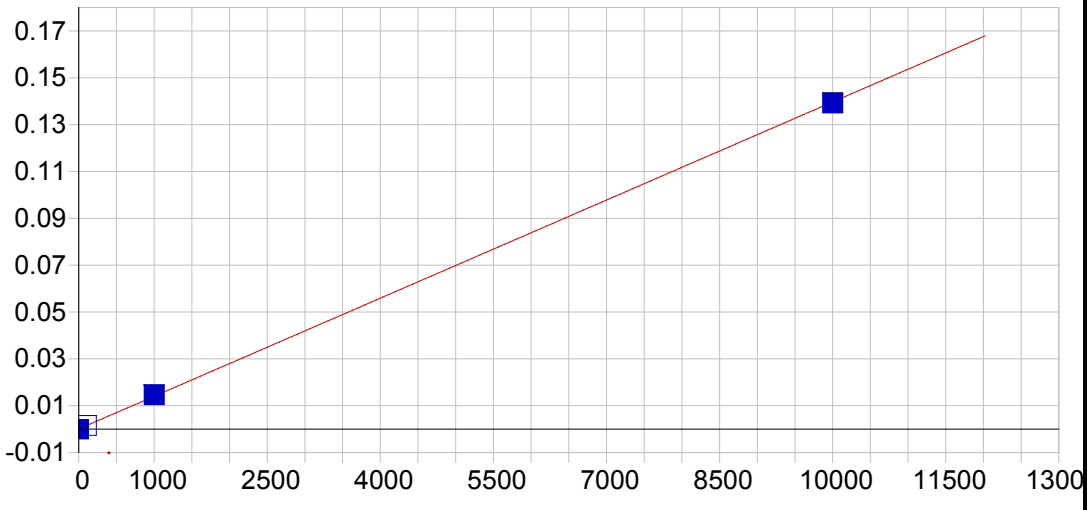


Mo 204.598 {464}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000008	Re-Slope:	1.000000
A1 (Gain):	0.000006	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999815	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.920907		
Predicted MQL:	3.069689		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00467	-.005	.000	-.00001	.000	1
CalStd7=50	50.000	52.438	2.44	4.88	.00029	.000	1
CalStd6=20	20.000	25.539	5.54	27.7	.00014	.000	1
CalStd5=10	10.000	13.918	3.92	39.2	.00007	.000	1
CalStd8=100	100.00	102.97	2.97	2.97	.00057	.000	1
CalStd4=5	5.0000	5.8319	.832	16.6	.00002	.000	1
CalStd9=100	1000.0	1023.8	23.8	2.38	.00574	.000	1
CalStd10=10	10000.	9960.5	-39.5	-.395	.05590	.000	1

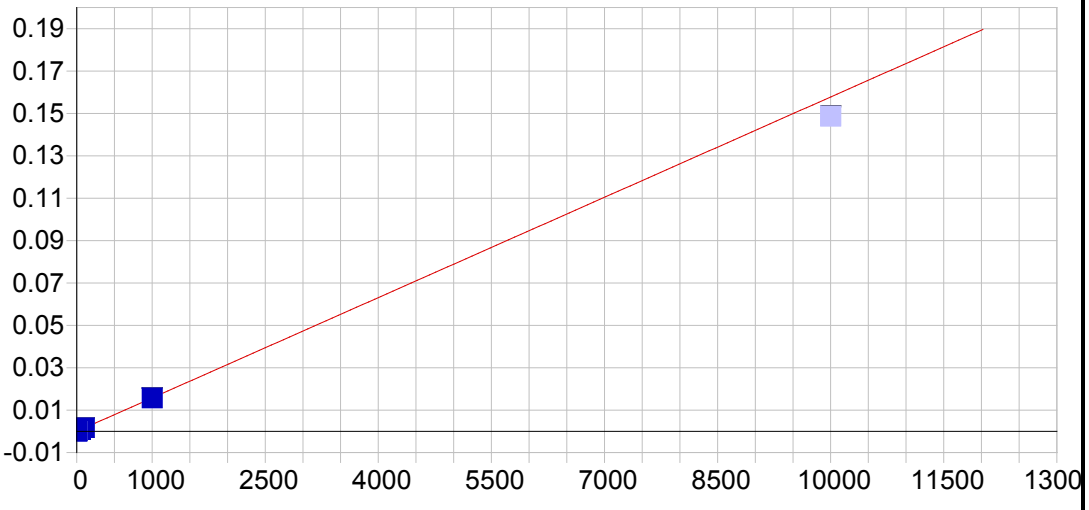


Ni 221.647 {452}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000060	Re-Slope:	1.000000
A1 (Gain):	0.000014	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999904	Status:	OK.
Std Error of Est:	0.000080		
Predicted MDL:	0.586649		
Predicted MQL:	1.955496		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-3.6076	-3.61	.000	.00001	.000	1
CalStd10=10	10000.	9962.7	-37.3	-.373	.13916	.000	1
CalStd8=100	100.00	102.19	2.19	2.19	.00149	.000	1
CalStd9=100	1000.0	1042.7	42.7	4.27	.01462	.000	1

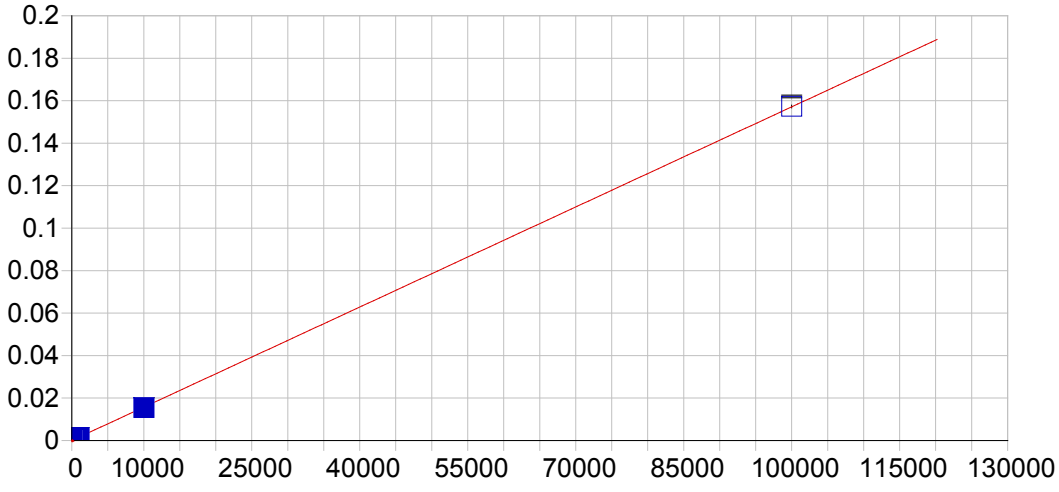


Ni 231.604 {445}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000016	Re-Slope:	1.000000
A1 (Gain):	0.000016	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999435	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.510848		
Predicted MQL:	1.702828		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00065	-.001	.000	-.00002	.000	1
CalStd7=50	50.000	50.339	.339	.679	.00078	.000	1
CalStd5=10	10.000	13.487	3.49	34.9	.00020	.000	1
CalStd8=100	100.00	100.65	.654	.654	.00157	.000	1
CalStd4=5	5.0000	5.1471	.147	2.94	.00007	.000	1
CalStd9=100	1000.0	995.11	-4.89	-.489	.01569	.000	1
CalStd3=1	1.0000	1.2628	.263	26.3	.00000	.000	1
CalStd10=10	10000.	9426.7	-573.	-5.73	.14872	.000	0

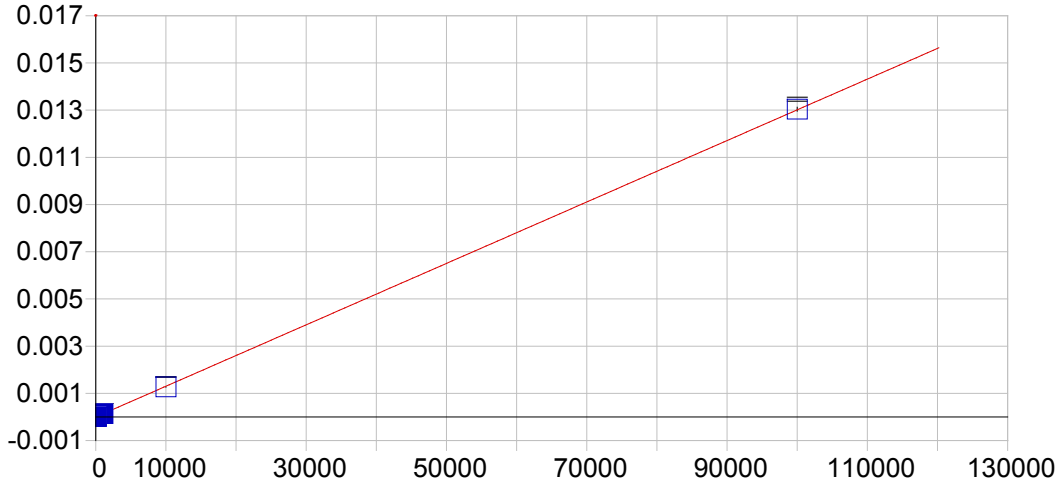


Pb 216.999 {455}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000005	Re-Slope:	1.000000
A1 (Gain):	0.000002	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999968	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	4.242236		
Predicted MQL:	14.140786		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00362	-.004	.000	.00000	.000	1
CalStd9=100	1000.0	1048.7	48.7	4.87	.00165	.000	1
CalStd10=10	10000.	9825.3	-175.	-1.75	.01544	.000	1
CalStd8=100	100.00	110.72	10.7	10.7	.00018	.000	1
CalStd5=10	10.000	12.220	2.22	22.2	.00002	.000	1
CalStd12=10	100000.	100110.	113.	.113	.15728	.001	1

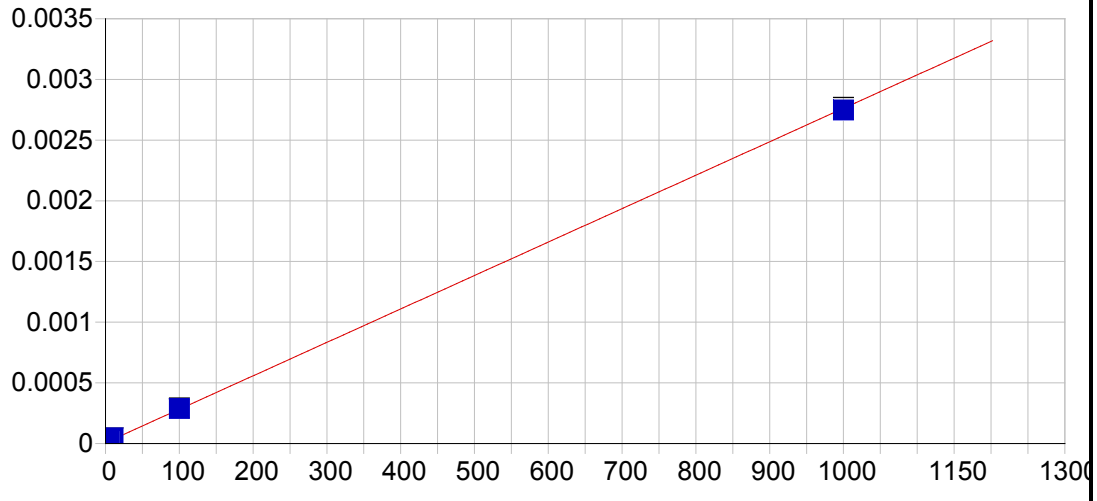


Pb 216.999 {456}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000001	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999967	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	24.100754		
Predicted MQL:	80.335846		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00037	.000	.000	-.00000	.000	1
CalStd9=100	1000.0	1028.6	28.6	2.86	.00013	.000	1
CalStd10=10	10000.	9762.0	-238.	-2.38	.00127	.000	1
CalStd8=100	100.00	105.74	5.74	5.74	.00001	.000	1
CalStd5=10	10.000	8.9910	-1.01	-10.1	.00000	.000	1
CalStd12=10	100000.	100200.	205.	.205	.01304	.000	1

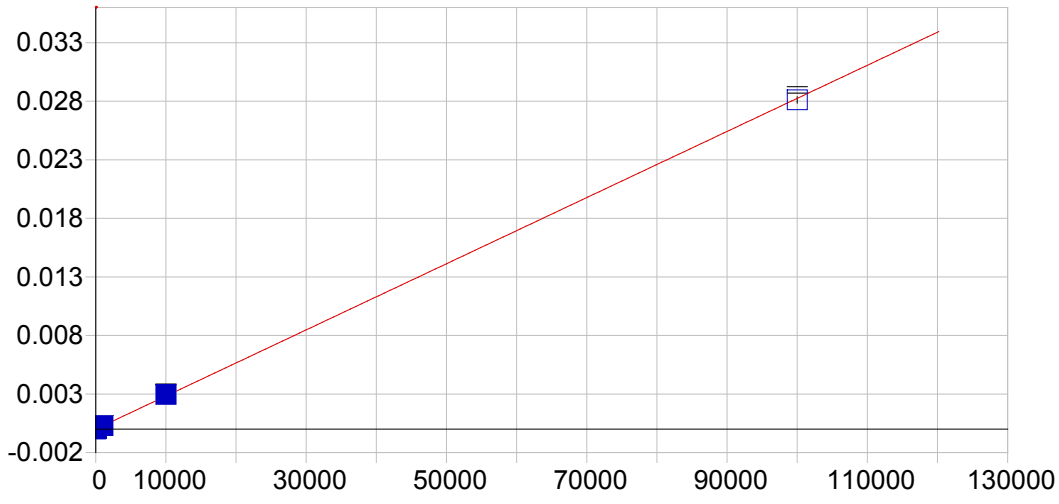


Pb 220.353 {453}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000007	Re-Slope:	1.000000
A1 (Gain):	0.000003	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999210	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	3.005834		
Predicted MQL:	10.019446		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00150	-.001	.000	.00001	.000	1
CalStd5=10	10.000	14.037	4.04	40.4	.00005	.000	1
CalStd8=100	100.00	101.81	1.81	1.81	.00029	.000	1
CalStd4=5	5.0000	4.4148	-.585	-11.7	.00002	.000	1
CalStd9=100	1000.0	994.74	-5.26	-.526	.00274	.000	1

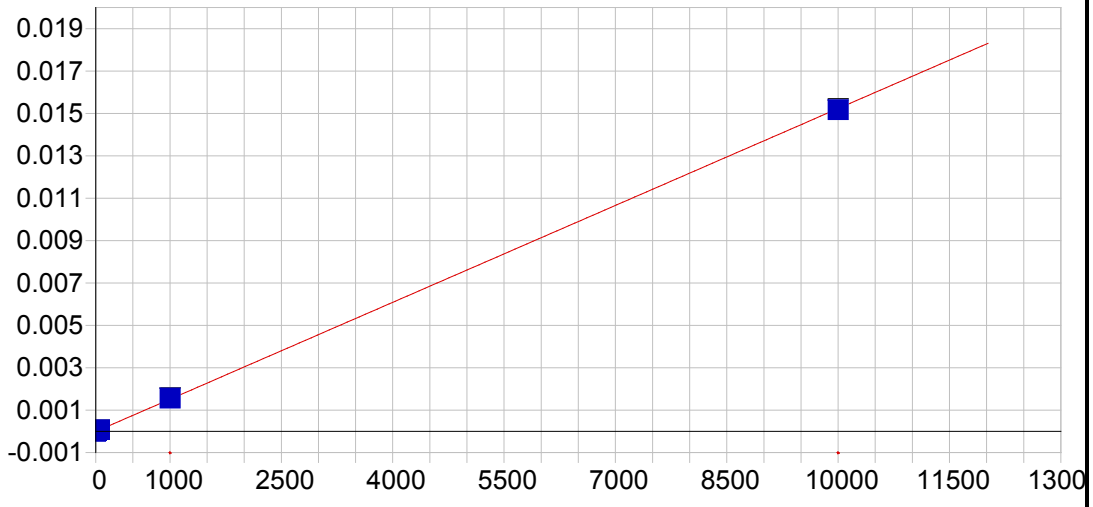


Pb 220.353 {153}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000000	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999893	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	5.434647		
Predicted MQL:	18.115491		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.01646	-.016	.000	-.00000	.000	1
CalStd9=100	1000.0	1033.5	33.5	3.35	.00029	.000	1
CalStd10=10	10000.	10442.	442.	4.42	.00295	.000	1
CalStd8=100	100.00	109.18	9.18	9.18	.00003	.000	1
CalStd12=10	100000.	99515.	-485.	-.485	.02811	.000	1

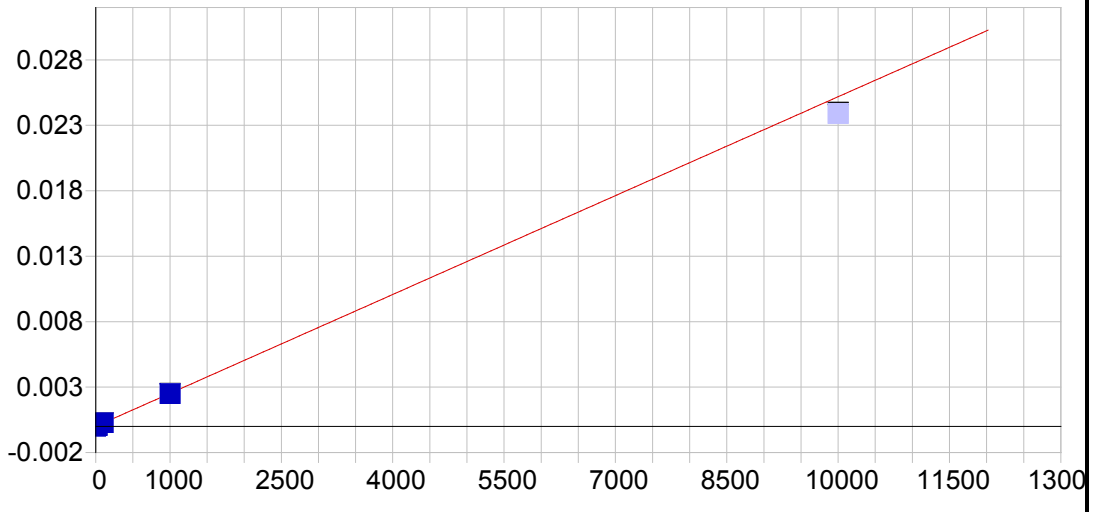


Sb 206.833 {463}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000009	Re-Slope:	1.000000
A1 (Gain):	0.000002	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999847	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	3.117584		
Predicted MQL:	10.391945		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00481	-.005	.000	-.00001	.000	1
CalStd9=100	1000.0	1034.1	34.1	3.41	.00157	.000	1
CalStd5=10	10.000	14.542	4.54	45.4	.00001	.000	1
CalStd7=50	50.000	49.829	-.171	-.343	.00007	.000	1
CalStd10=10	10000.	9961.5	-38.5	-.385	.01517	.000	1

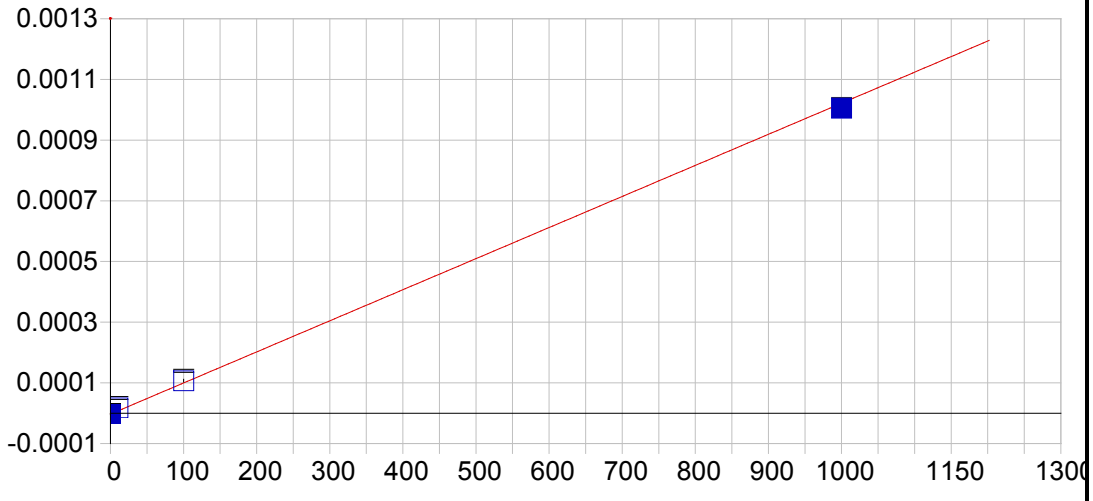


Sb 217.581 {455}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000002	Re-Slope:	1.000000
A1 (Gain):	0.000003	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999266	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	2.285698		
Predicted MQL:	7.618993		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00341	-.003	.000	.00000	.000	1
CalStd9=100	1000.0	991.03	-8.97	-.897	.00250	.000	1
CalStd6=20	20.000	23.884	3.88	19.4	.00006	.000	1
CalStd5=10	10.000	12.083	2.08	20.8	.00003	.000	1
CalStd8=100	100.00	101.64	1.64	1.64	.00026	.000	1
CalStd4=5	5.0000	6.3620	1.36	27.2	.00002	.000	1
CalStd10=10	10000.	9489.5	-510.	-5.10	.02390	.000	0

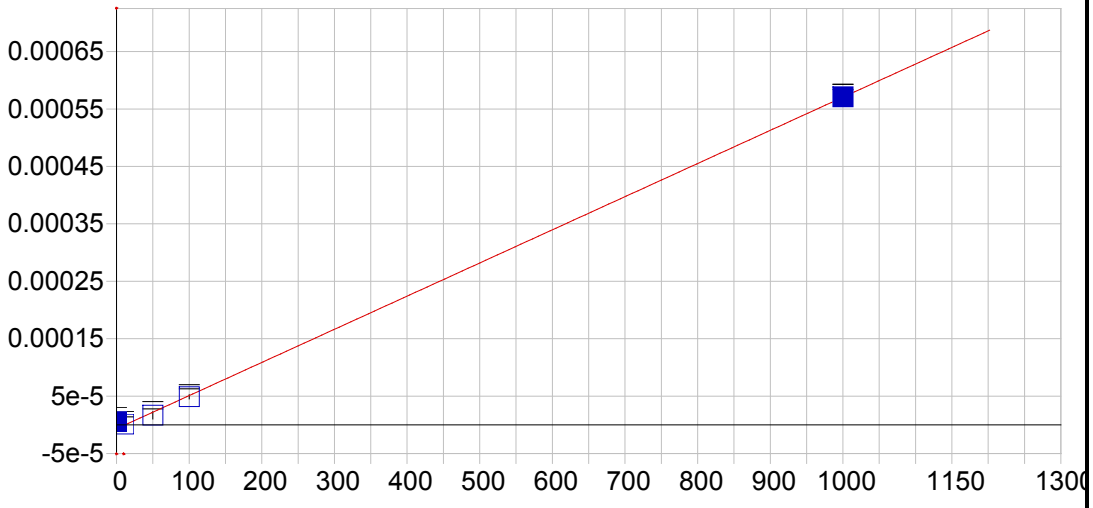


Se 196.090 {472}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000003	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.995697	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	4.180525		
Predicted MQL:	13.935082		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00994	-.010	.000	-.00000	.000	1
CalStd9=100	1000.0	983.82	-16.2	-1.62	.00100	.000	1
CalStd5=10	10.000	19.426	9.43	94.3	.00002	.000	1
CalStd8=100	100.00	106.75	6.75	6.75	.00011	.000	1

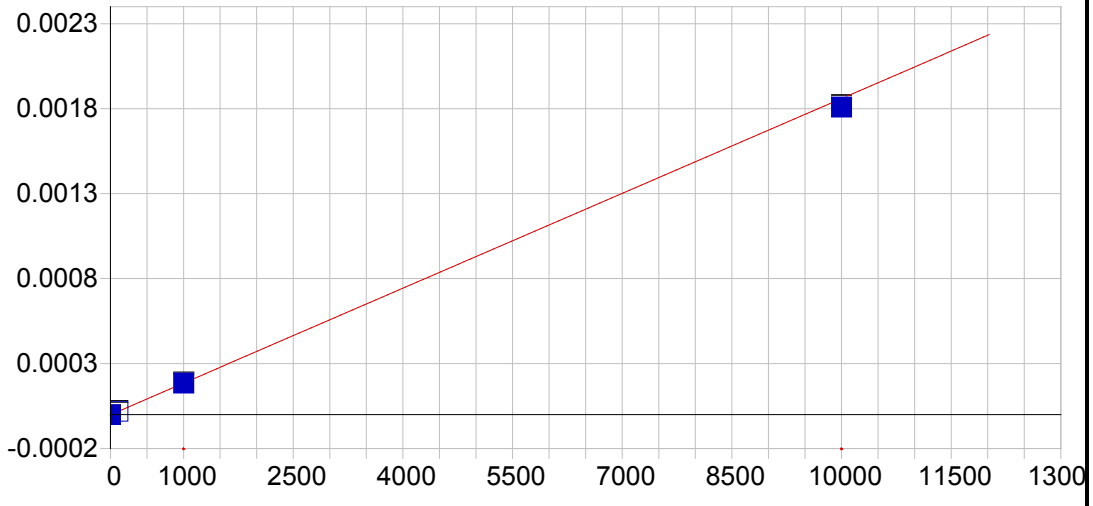


Se 203.985 {465}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	-0.000007	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999850	Status:	OK.
Std Error of Est:	0.000005		
Predicted MDL:	13.179448		
Predicted MQL:	43.931492		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	20.848	20.8	.000	.00001	.000	1
CalStd7=50	50.000	40.782	-9.22	-18.4	.00002	.000	1
CalStd9=100	1000.0	1000.8	.795	.079	.00057	.000	1
CalStd5=10	10.000	13.616	3.62	36.2	.00000	.000	1
CalStd8=100	100.00	96.303	-3.70	-3.70	.00005	.000	1

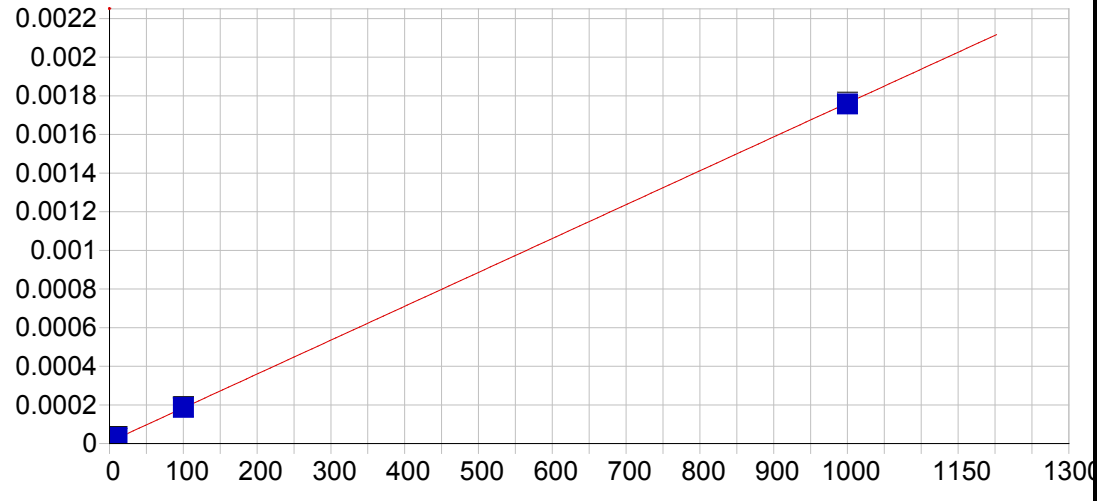


Se 206.279 {463}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Curvilinear	Weighting:	1/Var

A0 (Offset):	-0.000001	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999999	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	27.915689		
Predicted MQL:	93.052298		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-1.4360	-1.44	.000	-.00000	.000	1
CalStd9=100	1000.0	996.72	-3.28	-.328	.00018	.000	1
CalStd10=10	10000.	9724.9	-275.	-2.75	.00181	.000	1
CalStd8=100	100.00	104.15	4.15	4.15	.00002	.000	1

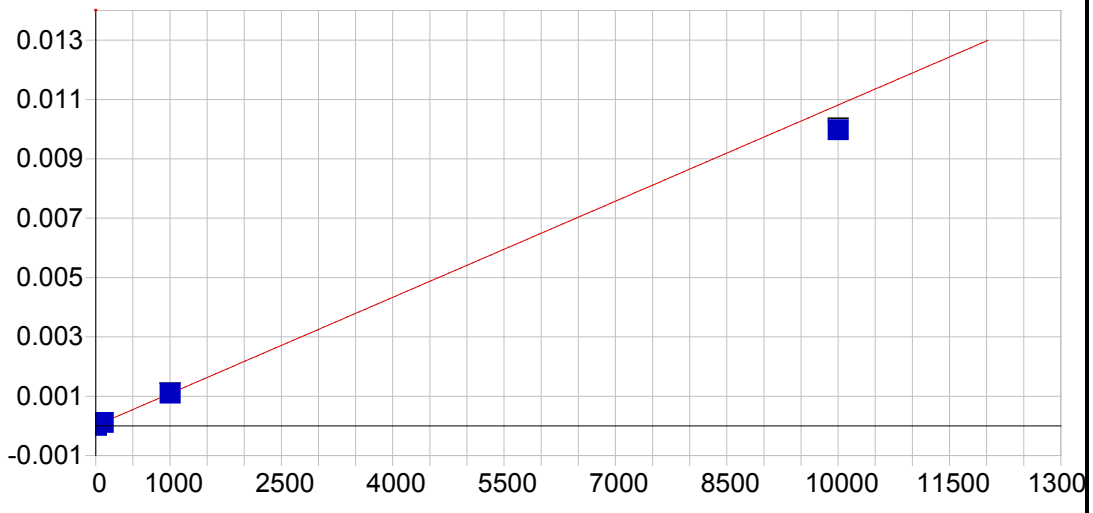


Tl 190.856 {476}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000009	Re-Slope:	1.000000
A1 (Gain):	0.000002	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999782	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	2.842089		
Predicted MQL:	9.473631		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00223	-.002	.000	.00001	.000	1
CalStd9=100	1000.0	996.65	-3.35	-.335	.00176	.000	1
CalStd8=100	100.00	101.20	1.20	1.20	.00019	.000	1
CalStd5=10	10.000	12.147	2.15	21.5	.00003	.000	1

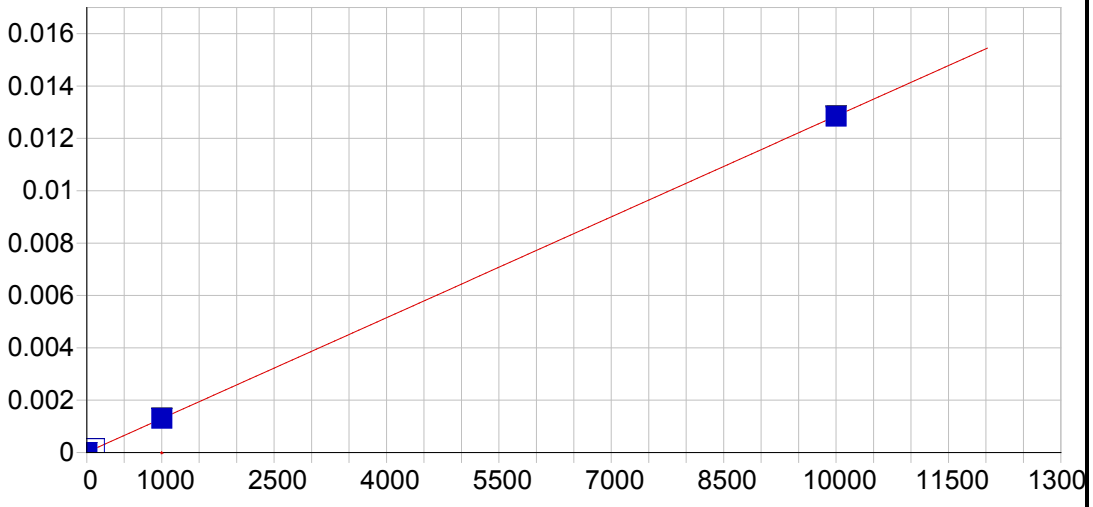


Tl 190.856 {477}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000010	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999242	Status:	OK.
Std Error of Est:	0.000029		
Predicted MDL:	3.966916		
Predicted MQL:	13.223053		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-10.407	-10.4	.000	-.00000	.000	1
CalStd9=100	1000.0	1010.5	10.5	1.05	.00110	.000	1
CalStd8=100	100.00	93.843	-6.16	-6.16	.00011	.000	1
CalStd5=10	10.000	3.1594	-6.84	-68.4	.00001	.000	1
CalStd10=10	10000.	9223.1	-777.	-7.77	.00997	.000	1

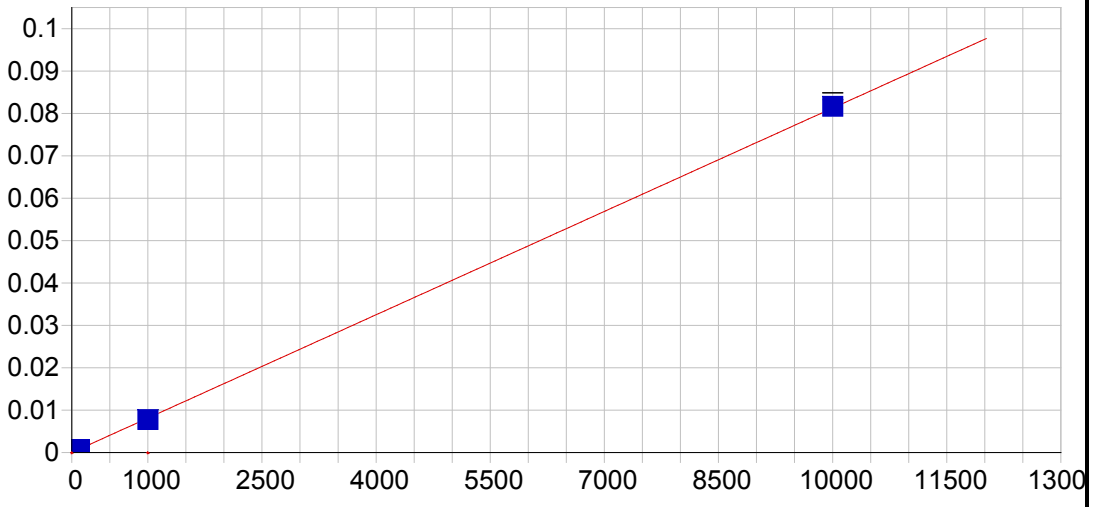


V 290.882 {116}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000014	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999992	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	3.196126		
Predicted MQL:	10.653754		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00408	-.004	.000	.00001	.000	1
CalStd9=100	1000.0	1005.9	5.87	.587	.00131	.000	1
CalStd10=10	10000.	9990.5	-9.45	-.095	.01285	.000	1
CalStd8=100	100.00	103.59	3.59	3.59	.00015	.000	1

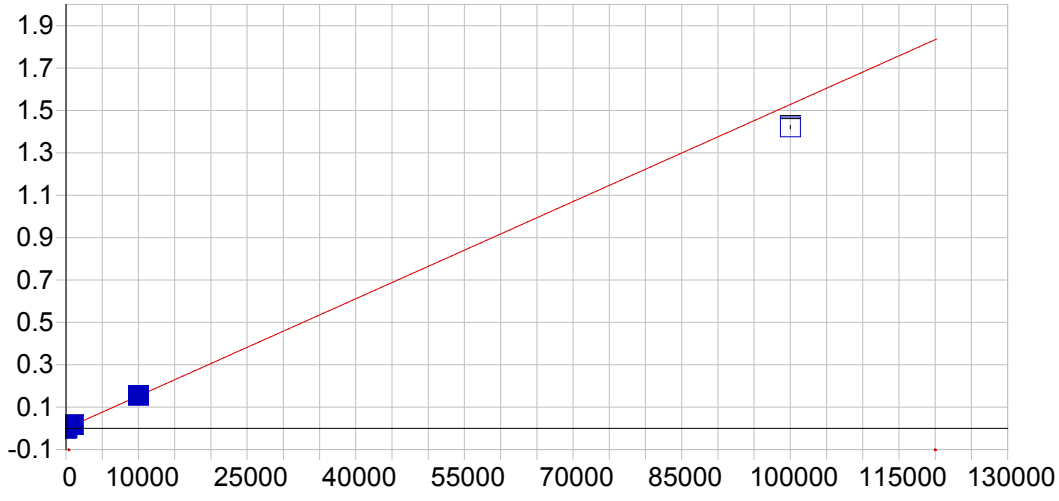


V 292.402 {115}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000005	Re-Slope:	1.000000
A1 (Gain):	0.000008	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999855	Status:	OK.
Std Error of Est:	0.000002		
Predicted MDL:	0.671710		
Predicted MQL:	2.239034		

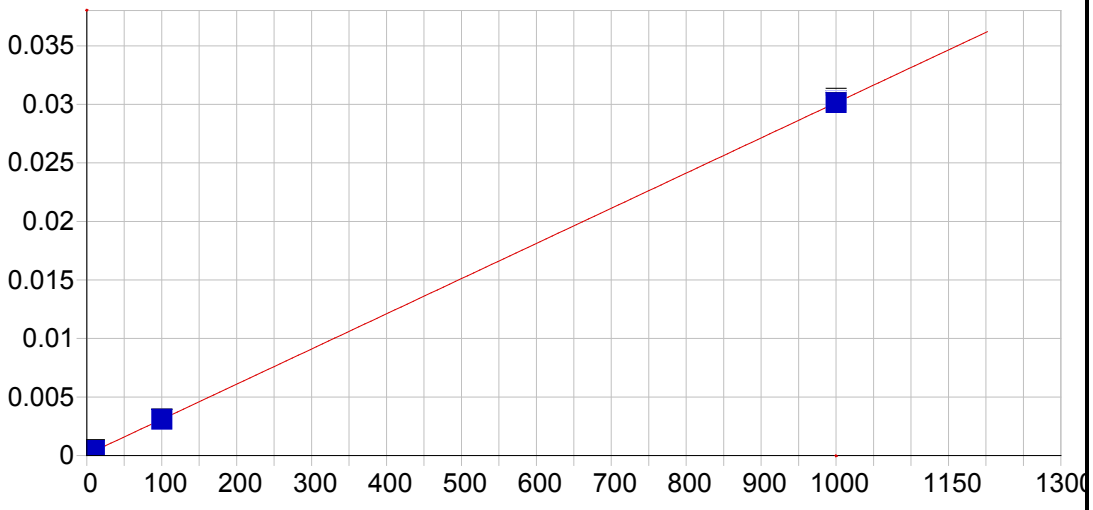
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00152	-.002	.000	.00000	.000	1
CalStd7=50	50.000	47.431	-2.57	-5.14	.00039	.000	1
CalStd9=100	1000.0	953.45	-46.6	-4.66	.00775	.000	1
CalStd6=20	20.000	22.118	2.12	10.6	.00018	.000	1
CalStd5=10	10.000	11.791	1.79	17.9	.00010	.000	1
CalStd8=100	100.00	95.951	-4.05	-4.05	.00078	.000	1
CalStd10=10	10000.	10049.	49.2	.492	.08170	.001	1



Zn 206.200 {463}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Var
A0 (Offset):	0.000027		Re-Slope:	1.000000	
A1 (Gain):	0.000015		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.998691		Status:	OK.	
Std Error of Est:	0.000082				
Predicted MDL:	0.372197				
Predicted MQL:	1.240656				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
CalStd10=10	10000.	10109.	109.	1.09	.15454	.000	1
Blank	.00000	-2.1045	-2.10	.000	-.00001	.000	1
CalStd9=100	1000.0	1051.8	51.8	5.18	.01610	.000	1
CalStd12=10	100000.	93000.	-7000.	-7.00	1.4215	.007	1
CalStd5=10	10.000	13.536	3.54	35.4	.00023	.000	1
CalStd8=100	100.00	104.84	4.84	4.84	.00163	.000	1

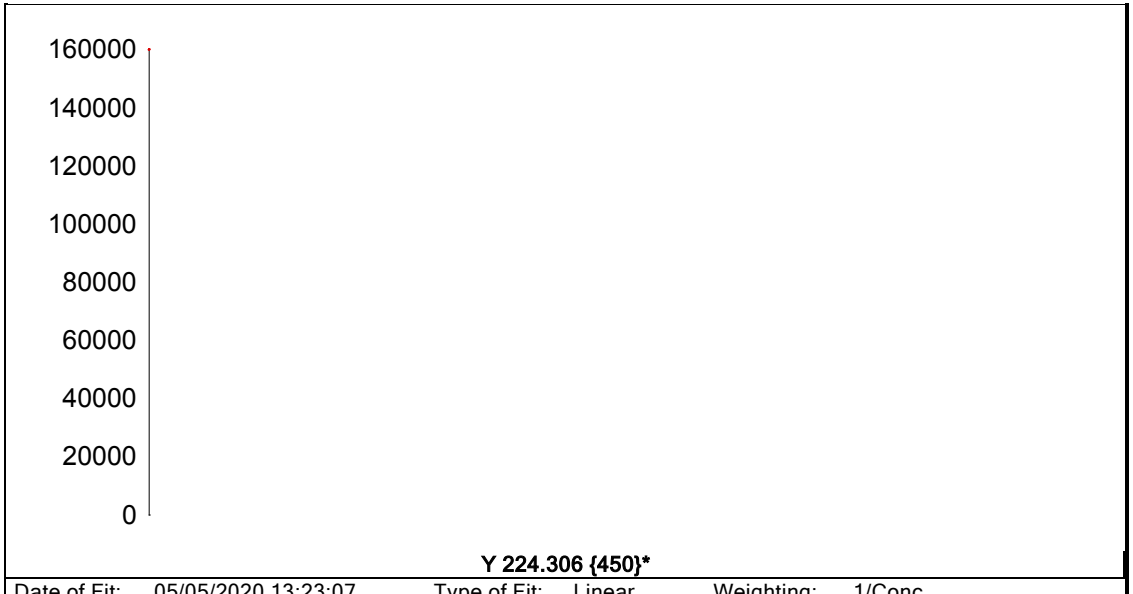


Zn 213.856 {457}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000086	Re-Slope:	1.000000
A1 (Gain):	0.000030	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999992	Status:	OK.
Std Error of Est:	0.000074		
Predicted MDL:	0.184850		
Predicted MQL:	0.616167		

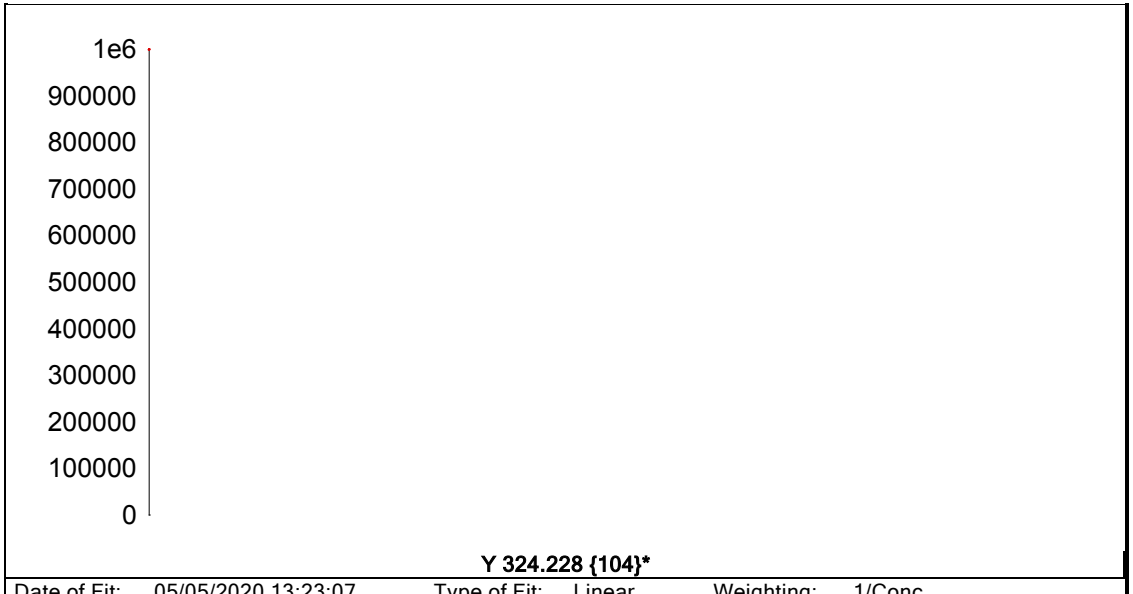
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-2.3873	-2.39	.000	.00001	.000	1
CalStd9=100	1000.0	999.99	-.014	-.001	.03033	.000	1
CalStd5=10	10.000	12.515	2.52	25.2	.00046	.000	1
CalStd8=100	100.00	99.886	-.114	-.114	.00311	.000	1



Y 224.306 {450}*

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000000		Re-Slope:	1.000000	
A1 (Gain):	0.000000		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.000000		Status:	Warning	Zero Gain
Std Error of Est:	0.000000				
Predicted MDL:	n/a				
Predicted MQL:	n/a				

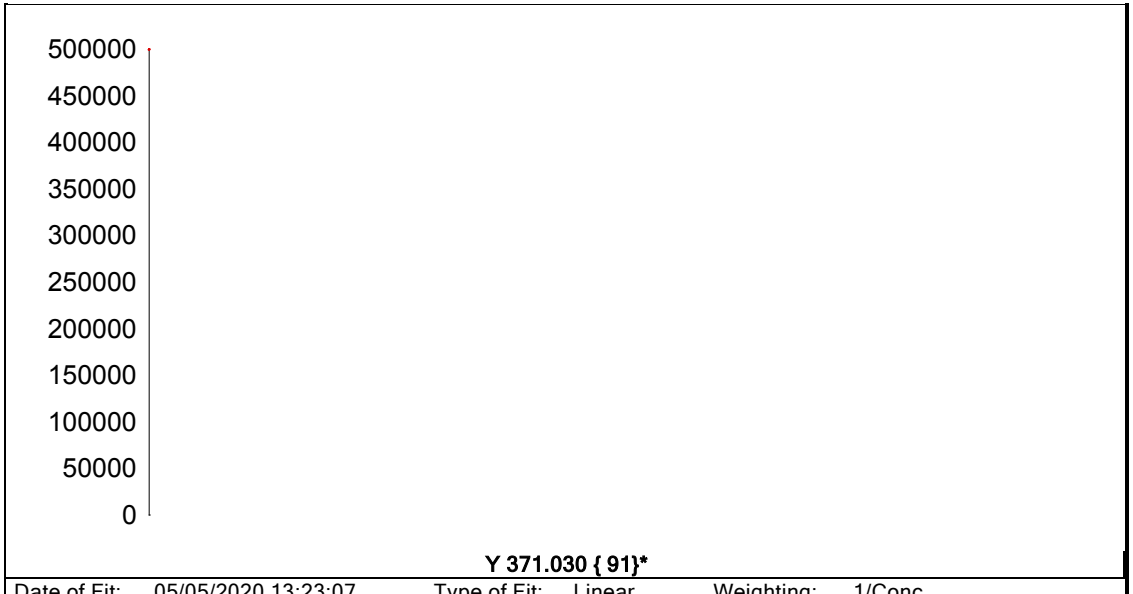
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	148380.	1280.	1



Y 324.228 {104}*

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000000		Re-Slope:	1.000000	
A1 (Gain):	0.000000		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.000000		Status:	Warning	Zero Gain
Std Error of Est:	0.000000				
Predicted MDL:	n/a				
Predicted MQL:	n/a				

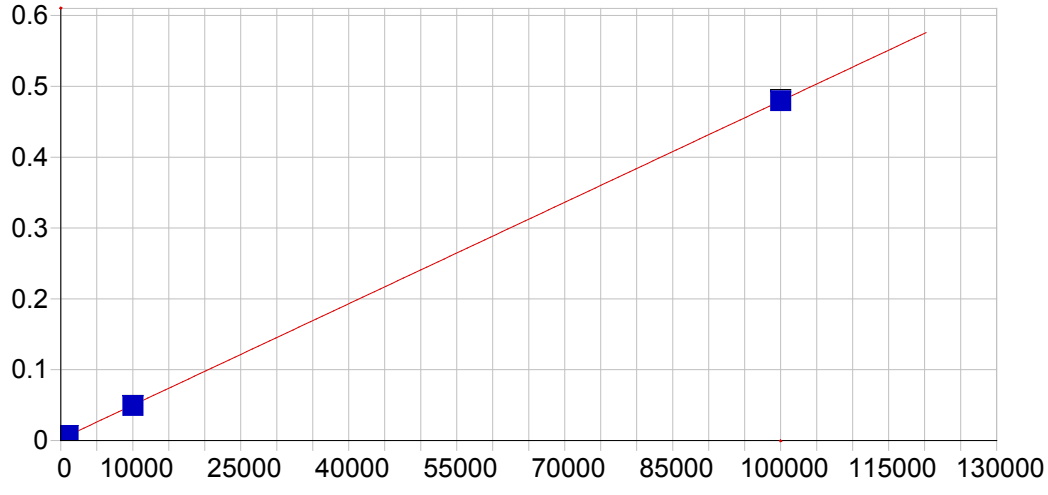
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	863700.	6340.	1



Y 371.030 { 91}*

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000000		Re-Slope:	1.000000	
A1 (Gain):	0.000000		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.000000		Status:	Warning	Zero Gain
Std Error of Est:	0.000000				
Predicted MDL:	n/a				
Predicted MQL:	n/a				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	410390.	1130.	1

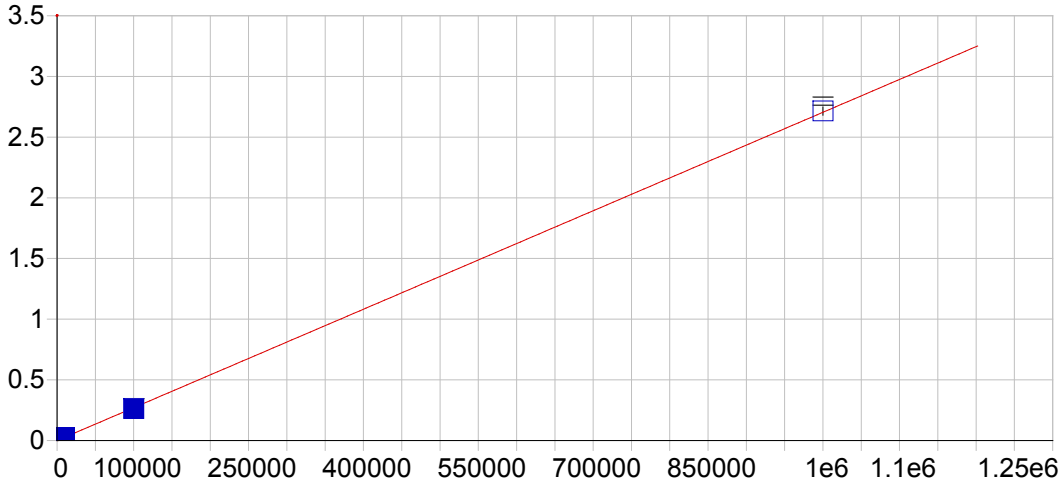


Na 588.995 { 57}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.002217	Re-Slope:	1.000000
A1 (Gain):	0.000005	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999998	Status:	OK.
Std Error of Est:	0.000594		
Predicted MDL:	5.662361		
Predicted MQL:	18.874536		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	91.566	91.6	.000	.00265	.000	1
CalStd9=100	1000.0	1038.9	38.9	3.89	.00718	.000	1
CalStd10=10	10000.	9855.5	-144.	-1.44	.04925	.000	1
CalStd13=10	100000.	100010.	14.1	.014	.47956	.002	1

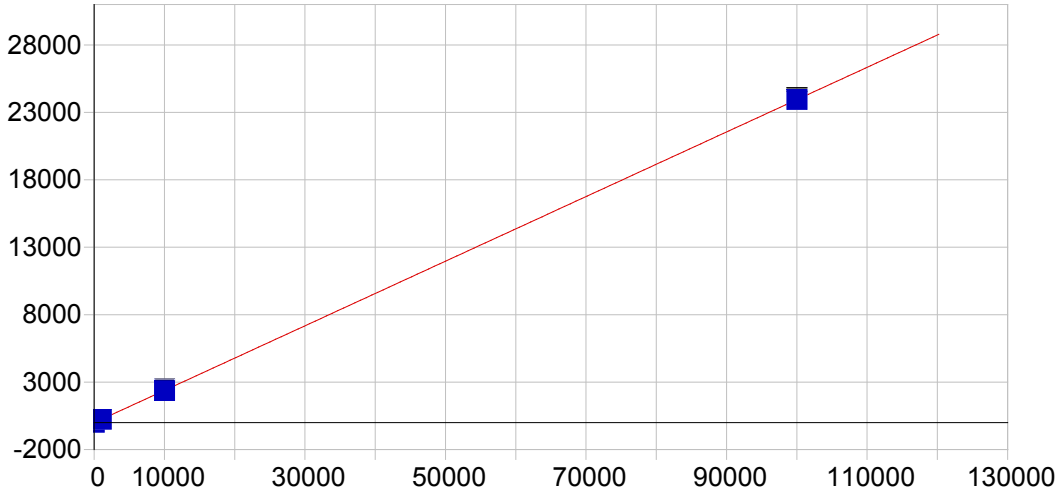


Na 589.592 { 57}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000060	Re-Slope:	1.000000
A1 (Gain):	0.000003	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999932	Status:	OK.
Std Error of Est:	0.000043		
Predicted MDL:	6.096666		
Predicted MQL:	20.322220		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.17135	.171	.000	.00006	.000	1
CalStd9=100	1000.0	915.16	-84.8	-8.48	.00254	.000	1
CalStd10=10	10000.	9403.9	-596.	-5.96	.02550	.000	1
CalibStd15=	1000000.	1003700.	3750.	.375	2.7148	.033	1
CalStd13=10	100000.	96936.	-3060.	-3.06	.26232	.001	1

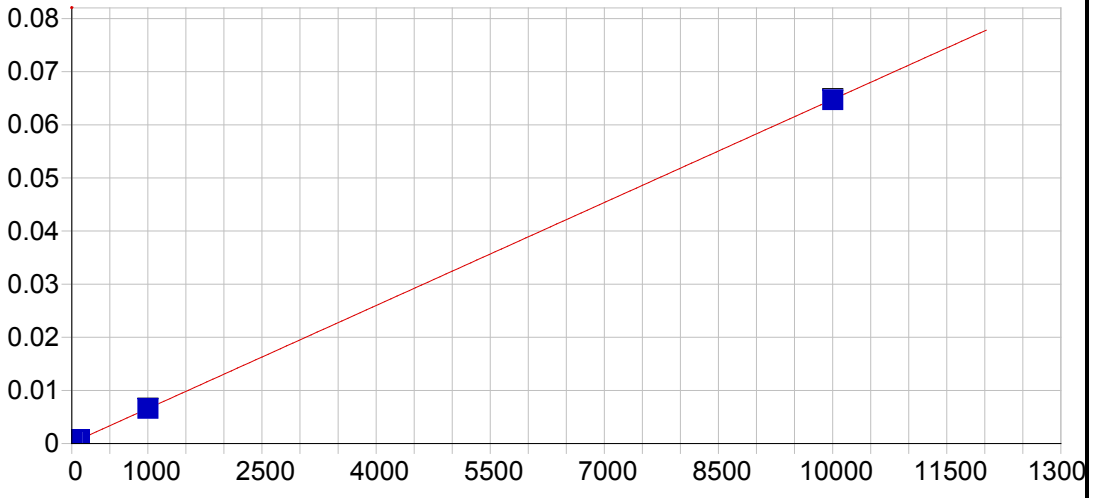


Si 251.611 {134}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	-12.845717	Re-Slope:	1.000000
A1 (Gain):	0.239593	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999999	Status:	OK.
Std Error of Est:	18.110855		
Predicted MDL:	5.123081		
Predicted MQL:	17.076936		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	68.077	68.1	.000	3.4650	1.44	1
CalStd9=100	1000.0	1005.2	5.22	.522	249.73	.755	1
CalStd10=10	10000.	9918.2	-81.8	-.818	2478.6	3.92	1
CalStd13=10	100000.	100010.	8.52	.009	23948.	130.	1

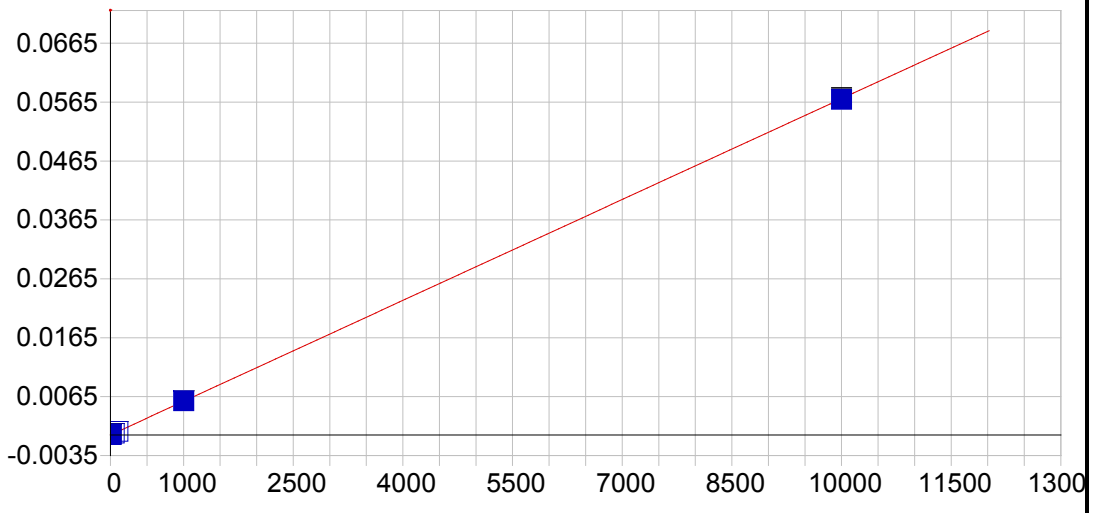


Ti 323.452 {104}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000126	Re-Slope:	1.000000
A1 (Gain):	0.000006	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999885	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.990617		
Predicted MQL:	3.302055		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00409	-.004	.000	.00013	.000	1
CalStd5=10	10.000	14.410	4.41	44.1	.00022	.000	1
CalStd8=100	100.00	101.65	1.65	1.65	.00078	.000	1
CalStd9=100	1000.0	1000.7	.675	.067	.00659	.000	1
CalStd10=10	10000.	9990.0	-9.96	-.100	.06475	.000	1
CalStd7=50	50.000	51.576	1.58	3.15	.00046	.000	1
CalStd4=5	5.0000	6.6497	1.65	33.0	.00017	.000	1

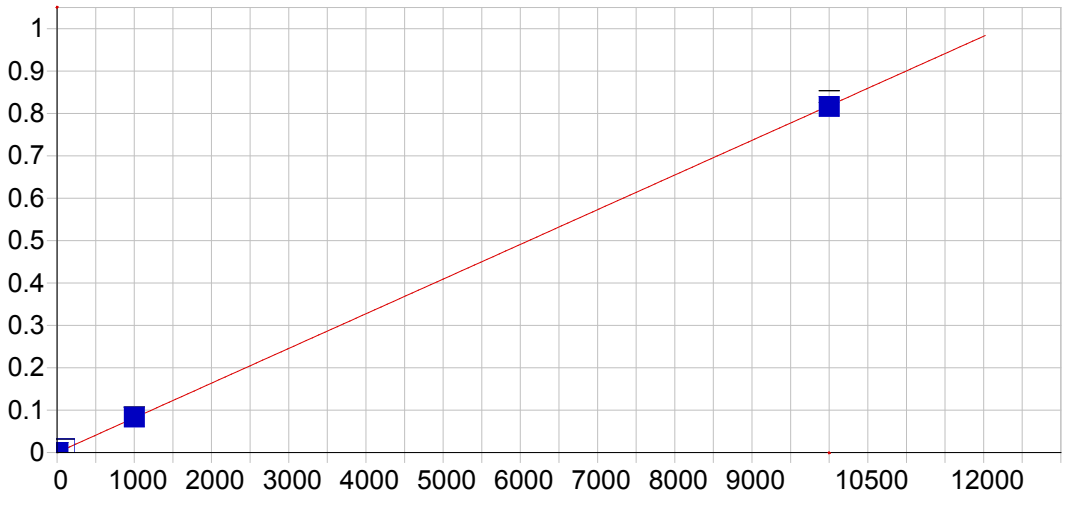


Ti 334.941 {101}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000002	Re-Slope:	1.000000
A1 (Gain):	0.000006	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999889	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.818549		
Predicted MQL:	2.728497		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00347	-.003	.000	-.00000	.000	1
CalStd5=10	10.000	14.436	4.44	44.4	.00008	.000	1
CalStd8=100	100.00	101.22	1.22	1.22	.00058	.000	1
CalStd9=100	1000.0	1014.5	14.5	1.45	.00579	.000	1
CalStd10=10	10000.	9977.3	-22.7	-.227	.05696	.000	1
CalStd7=50	50.000	51.529	1.53	3.06	.00029	.000	1
CalStd4=5	5.0000	5.9770	.977	19.5	.00003	.000	1

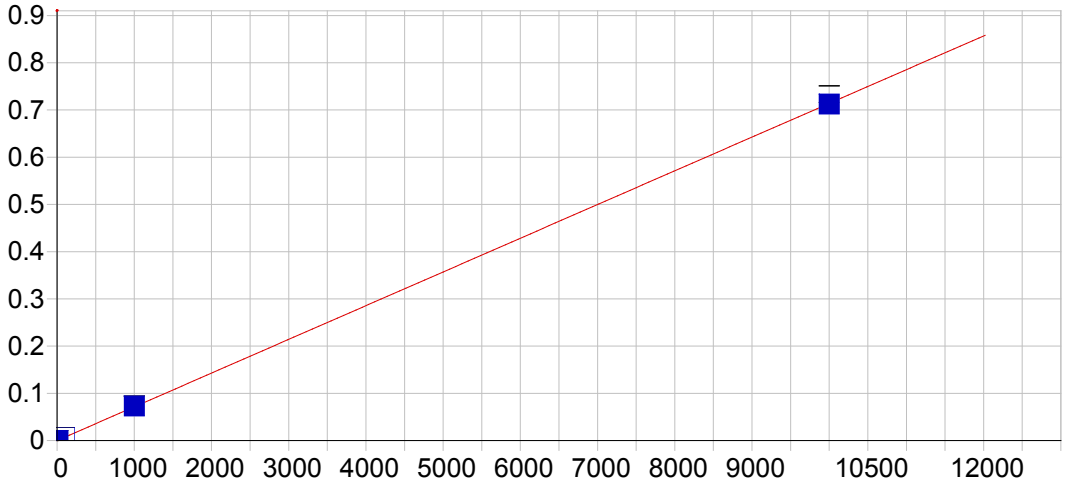


Sr 407.771 { 83}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000021	Re-Slope:	1.000000
A1 (Gain):	0.000082	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999924	Status:	OK.
Std Error of Est:	0.000004		
Predicted MDL:	0.118162		
Predicted MQL:	0.393875		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00051	-.001	.000	.00002	.000	1
CalStd3=1	1.0000	1.1092	.109	10.9	.00011	.000	1
CalStd4=5	5.0000	5.1315	.131	2.63	.00044	.000	1
CalStd5=10	10.000	13.278	3.28	32.8	.00111	.000	1
CalStd8=100	100.00	103.32	3.32	3.32	.00848	.000	1
CalStd9=100	1000.0	1020.4	20.4	2.04	.08354	.001	1
CalStd10=10	10000.	9972.8	-27.2	-.272	.81627	.014	1

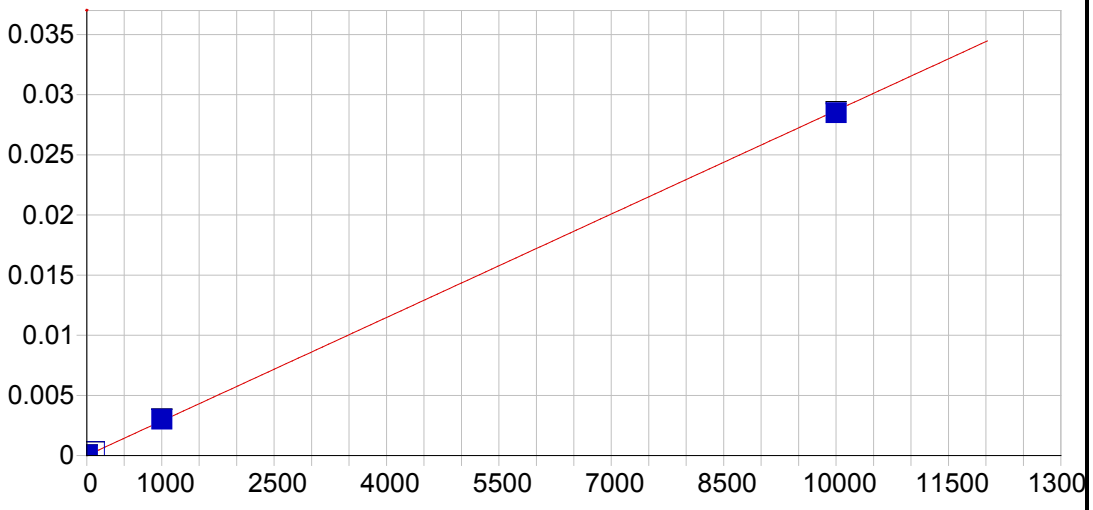


Sr 421.552 { 80}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000023	Re-Slope:	1.000000
A1 (Gain):	0.000071	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999939	Status:	OK.
Std Error of Est:	0.000003		
Predicted MDL:	0.133331		
Predicted MQL:	0.444438		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00016	-.000	.000	.00002	.000	1
CalStd3=1	1.0000	.85228	-.148	-14.8	.00008	.000	1
CalStd4=5	5.0000	4.9064	-.094	-1.87	.00037	.000	1
CalStd5=10	10.000	12.826	2.83	28.3	.00094	.000	1
CalStd8=100	100.00	102.79	2.79	2.79	.00736	.000	1
CalStd9=100	1000.0	1019.6	19.6	1.96	.07282	.001	1
CalStd10=10	10000.	9975.0	-25.0	-.250	.71220	.018	1

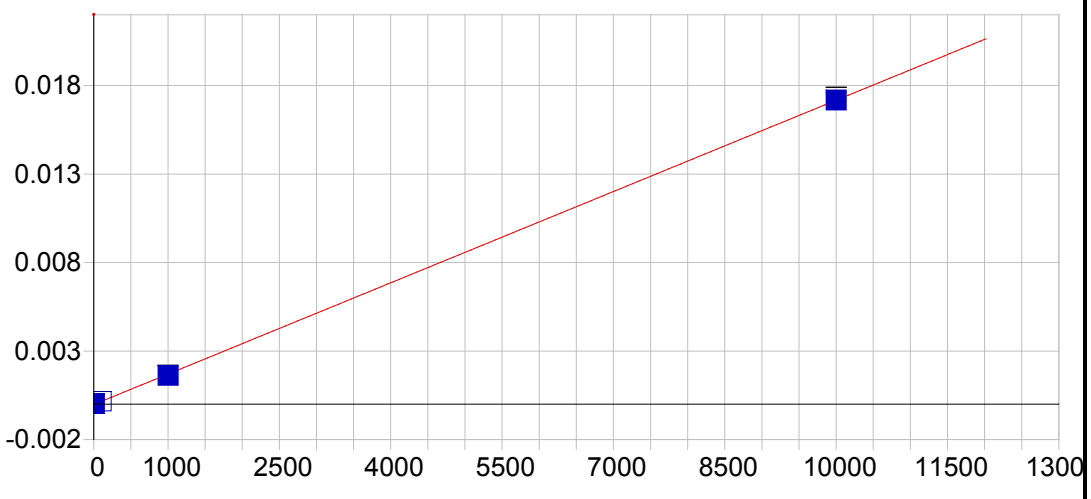


Sn 189.989 {477}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000005	Re-Slope:	1.000000
A1 (Gain):	0.000003	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999741	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	1.407440		
Predicted MQL:	4.691467		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00584	-.006	.000	.00000	.000	1
CalStd10=10	10000.	9936.5	-63.5	-.635	.02850	.000	1
CalStd9=100	1000.0	1051.0	51.0	5.10	.00302	.000	1
CalStd8=100	100.00	107.88	7.88	7.88	.00031	.000	1
CalStd5=10	10.000	14.606	4.61	46.1	.00005	.000	1

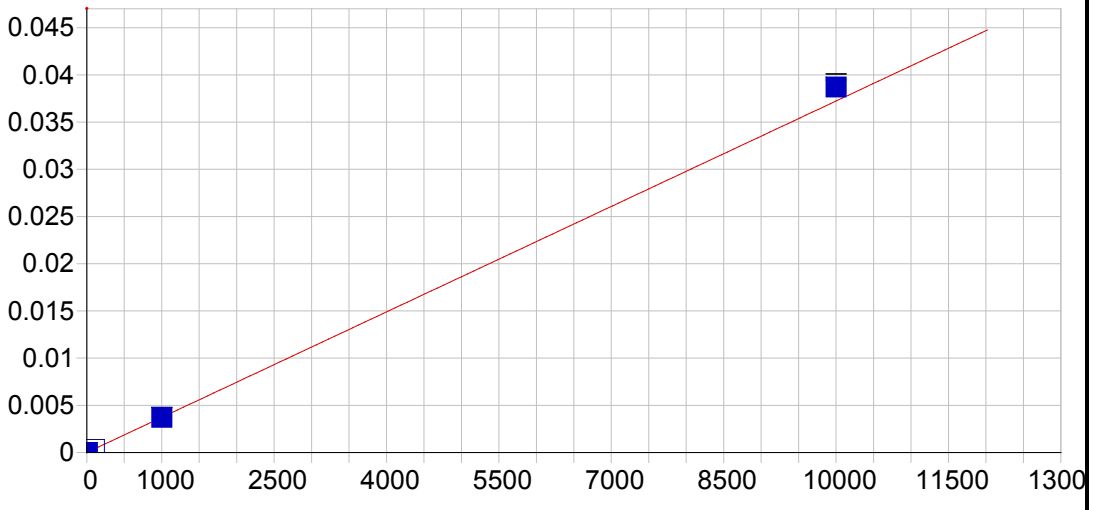


B 249.678 {135}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	-0.000022	Re-Slope:	1.000000
A1 (Gain):	0.000002	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999980	Status:	OK.
Std Error of Est:	0.000054		
Predicted MDL:	1.847825		
Predicted MQL:	6.159418		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	16.205	16.2	.000	.00001	.000	1
CalStd8=100	100.00	109.47	9.47	9.47	.00017	.000	1
CalStd5=10	10.000	27.708	17.7	177.	.00003	.000	1
CalStd9=100	1000.0	951.92	-48.1	-4.81	.00161	.000	1
CalStd10=10	10000.	10005.	4.70	.047	.01718	.000	1

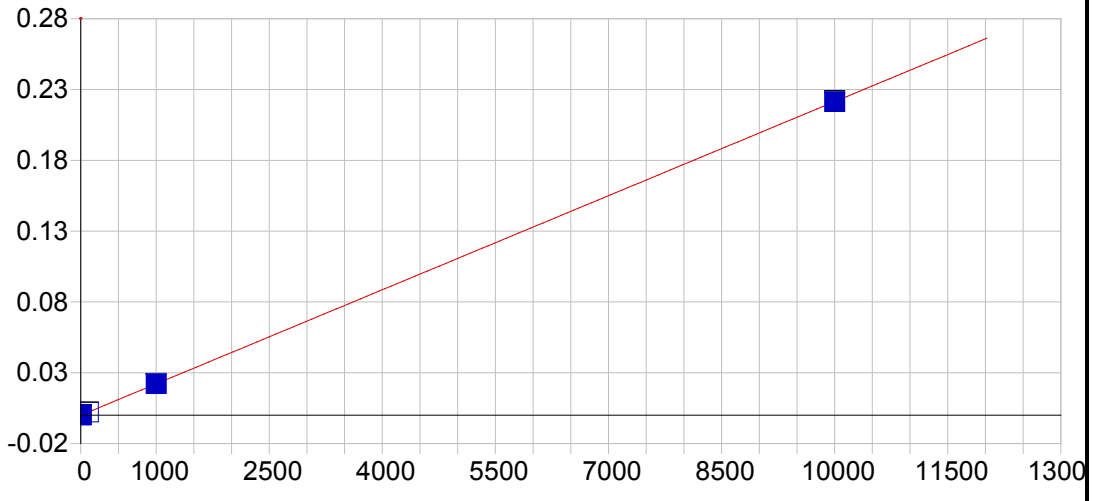


B 249.773 {135}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000003	Re-Slope:	1.000000
A1 (Gain):	0.000004	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999749	Status:	OK.
Std Error of Est:	0.000006		
Predicted MDL:	0.760902		
Predicted MQL:	2.536340		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.40201	-.402	.000	.00000	.000	1
CalStd8=100	100.00	99.338	-.662	-.662	.00037	.000	1
CalStd5=10	10.000	12.331	2.33	23.3	.00005	.000	1
CalStd9=100	1000.0	994.87	-5.13	-.513	.00371	.000	1
CalStd10=10	10000.	10392.	392.	3.92	.03873	.000	1

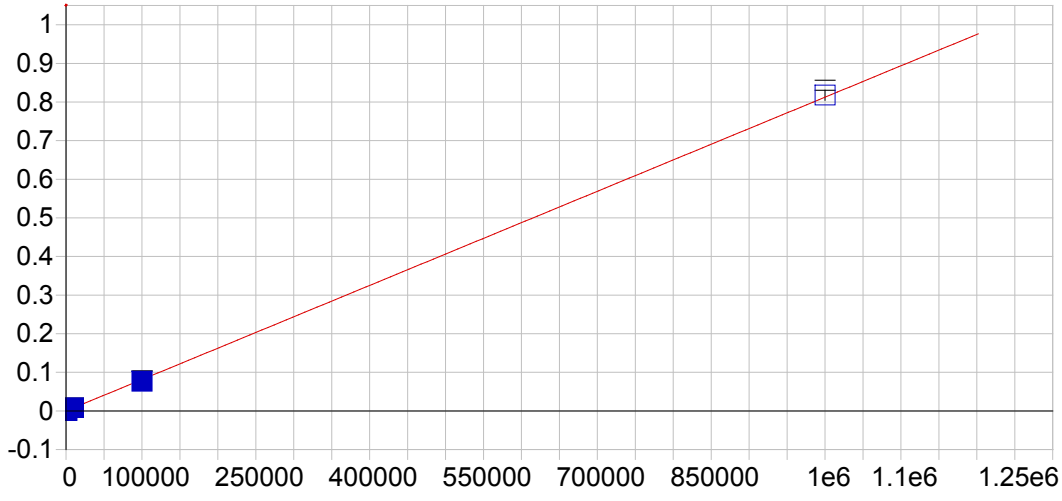


Li 670.784 { 50}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000014	Re-Slope:	1.000000
A1 (Gain):	0.000022	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999964	Status:	OK.
Std Error of Est:	0.000003		
Predicted MDL:	0.907114		
Predicted MQL:	3.023714		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00289	-.003	.000	-.00001	.000	1
CalStd5=10	10.000	12.809	2.81	28.1	.00027	.000	1
CalStd8=100	100.00	100.66	.664	.664	.00222	.000	1
CalStd9=100	1000.0	1002.1	2.07	.207	.02218	.000	1
CalStd10=10	10000.	9994.5	-5.54	-.055	.22137	.001	1

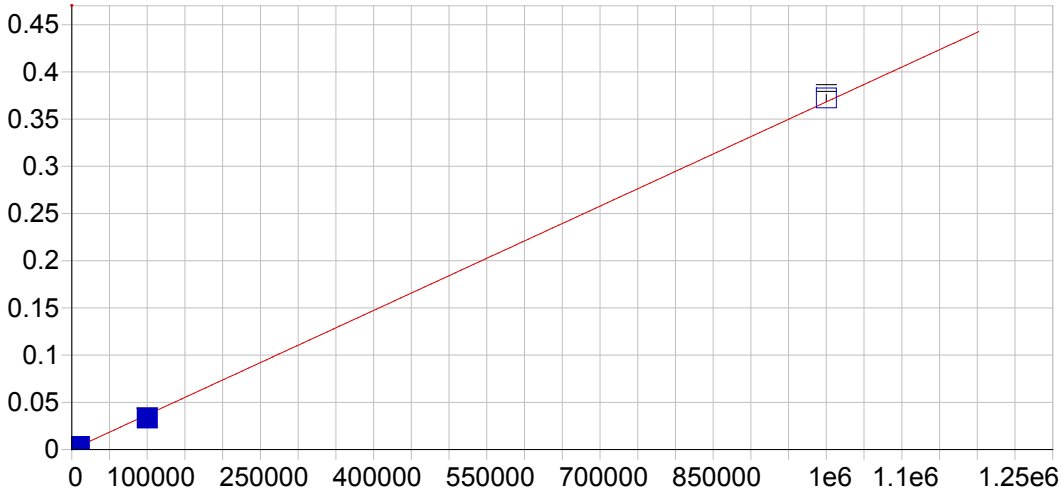


K 766.490 { 44}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000041	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999829	Status:	OK.
Std Error of Est:	0.000020		
Predicted MDL:	22.651911		
Predicted MQL:	75.506370		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.19530	.195	.000	-.00004	.000	1
CalStd9=100	1000.0	912.49	-87.5	-8.75	.00070	.000	1
CalStd10=10	10000.	9408.7	-591.	-5.91	.00760	.000	1
CalibStd15=	1000000.	1006200.	6160.	.616	.81749	.013	1
CalStd13=10	100000.	94519.	-5480.	-5.48	.07674	.001	1

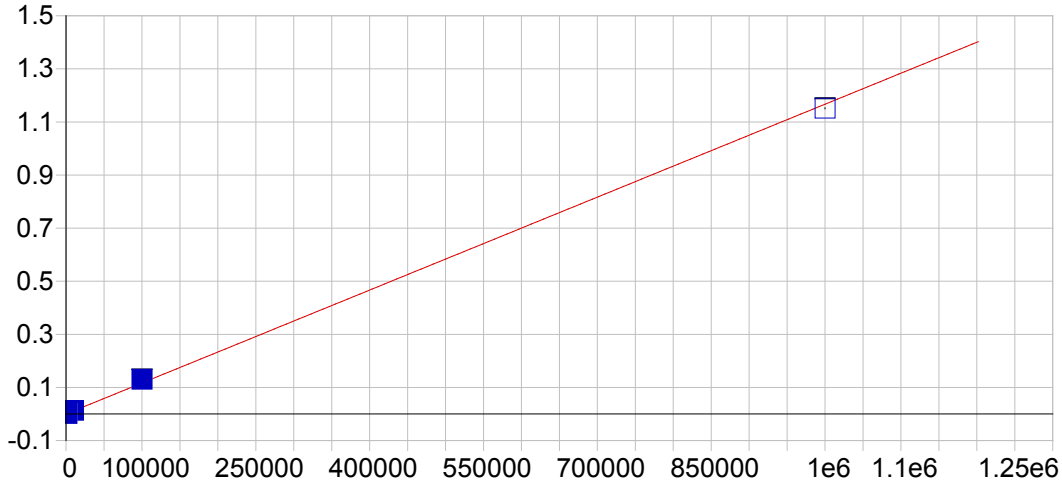


K 769.896 { 44}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000016	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999449	Status:	OK.
Std Error of Est:	0.000017		
Predicted MDL:	37.416905		
Predicted MQL:	124.723017		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.26793	.268	.000	.00002	.000	1
CalStd9=100	1000.0	923.45	-76.6	-7.66	.00036	.000	1
CalStd10=10	10000.	8971.6	-1030.	-10.3	.00332	.000	1
CalibStd15=	1000000.	1011100.	11100.	1.11	.37232	.004	1
CalStd13=10	100000.	90039.	-9960.	-9.96	.03318	.000	1

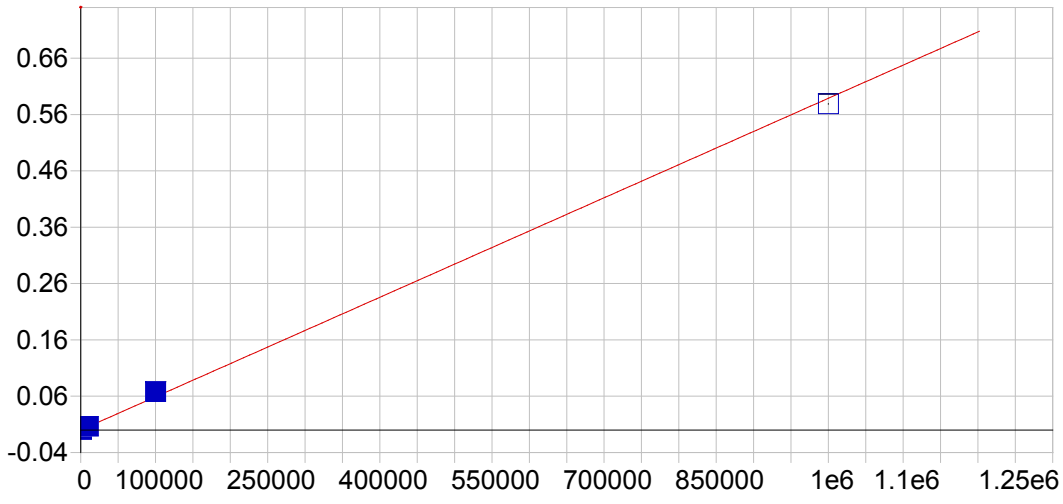


P 213.618 {457}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000007	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999190	Status:	OK.
Std Error of Est:	0.000064		
Predicted MDL:	4.904627		
Predicted MQL:	16.348758		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.38595	-.386	.000	-.00001	.000	1
CalStd10=10	10000.	11429.	1430.	14.3	.01333	.000	1
CalStd9=100	1000.0	1138.1	138.	13.8	.00132	.000	1
CalStd13=10	100000.	111830.	11800.	11.8	.13047	.000	1
CalibStd15=	1000000.	986600.	-13400.	-1.34	1.1512	.002	1

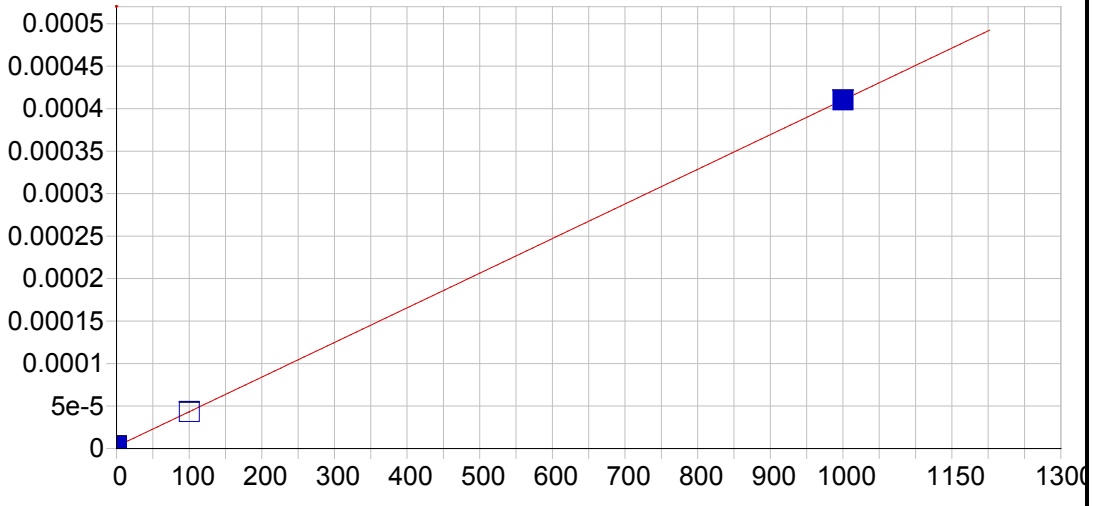


S 182.034 {485}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000003	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.998707	Status:	OK.
Std Error of Est:	0.000041		
Predicted MDL:	6.528445		
Predicted MQL:	21.761483		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.41972	-.420	.000	.00000	.000	1
CalStd9=100	1000.0	1139.5	140.	14.0	.00068	.000	1
CalStd10=10	10000.	11434.	1430.	14.3	.00676	.000	1
CalibStd15=	1000000.	983020.	-17000.	-1.70	.57888	.000	1
CalStd13=10	100000.	115380.	15400.	15.4	.06803	.000	1

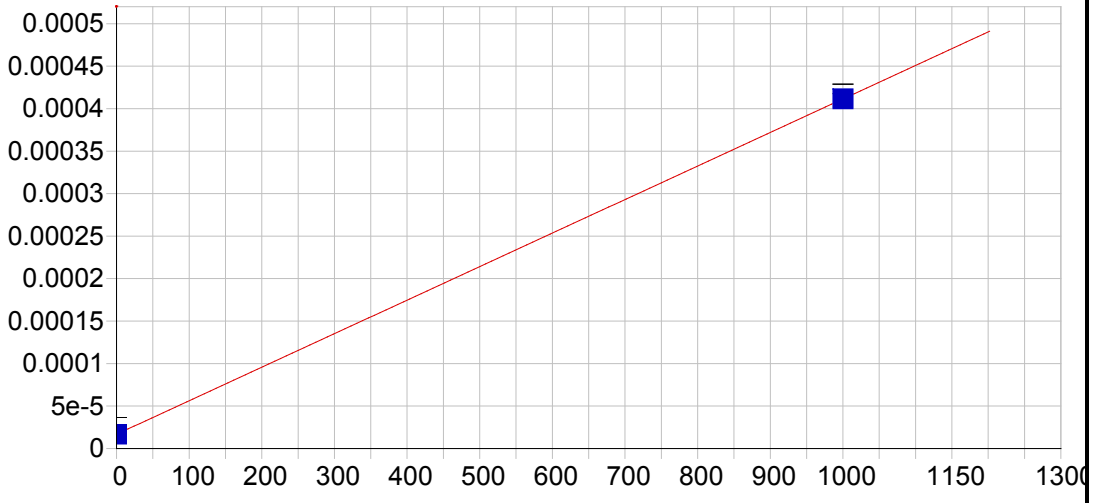


Hg 184.950 {482}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000003	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	1.664220		
Predicted MQL:	5.547400		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00016	.000	.000	.00000	.000	1
CalStd8=100	100.00	99.823	-.177	-.177	.00004	.000	1
CalStd9=100	1000.0	1000.2	.177	.018	.00041	.000	1



Ce 404.076 { 83}

Date of Fit:	05/05/2020 13:23:07	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000017	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	21.747466		
Predicted MQL:	72.491553		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	.00002	.000	1
CalStd9=100	1000.0	1000.0	.000	.000	.00041	.000	1

Sample Name: Blank Acquired: 05/01/2020 13:21:53 Type: Cal
Method: DOD Calibration Updated 060614(v3843) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	Al3082	Al3961	As1937	As1972	Ba2335	Ba4934	Be3130	Be2348	Ca3158	Ca3933
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-1.83**	**.000**	**.000**	**-.000**	**.000**	**-.000**	**.000**	**.007**	**-125.**	**.000**	**.000**	**.000**
Stddev	2.27	.000	.000	.000	.000	.000	.000	.000	1.	.000	.000	.000
%RSD	124.	24.4	30.3	31.3	33.4	136.	2460.	.390	1.01	192.	44.3	3.70

Elem	Cd2265	Cd2288	Co2286	Co2388	Cr2055	Cr2677	Cu2230	Cu2247	Fe2343	Fe2599	Mg2025	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.000**	**.000**	**.000**	**.000**	**-.000**	**-.000**	**.000**	**-.000**	**.000**	**-.000**	**-.000**	**-.000**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	79.6	30.6	94.0	38.4	72.7	68.8	64.8	445.	4.67	730.	22.5	60.8

Elem	Mg2802	Mn2576	Mn2593	Mo2020	Mo2045	Ni2216	Ni2316	Pb2169	Pb2203	Sb2068	Sb2175	Se1960
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.001**	**-.000**	**-.000**	**.000**	**-.000**	**.000**	**-.000**	**.000**	**.000**	**-.000**	**.000**	**-.000**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	12.3	41.1	60.0	1830.	20.5	122.	27.5	93.0	48.4	71.6	229.	81.8

Elem	Se2062	Tl1908	V_2908	V_2924	Zn2062	Zn2138
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.000**	**.000**	**.000**	**.000**	**-.000**	**.000**
Stddev	.000	.000	.000	.000	.000	.000
%RSD	261.	56.1	27.7	51.2	75.9	24.9

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**148380.**	**863700.**	**410390.**
Stddev	1283.	6343.	1130.
%RSD	.86473	.73439	.27542

Sample Name: CalStd2=0.5 Acquired: 05/01/2020 13:28:18 Type: Cal
Method: DOD Calibration Updated 060614(v3843) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Be3130	Cd2265	Cd2288
Units	Cts/S	Cts/S	Cts/S
Avg	**-68.5**	**.000**	**.000**
Stddev	3.5	.000	.000
%RSD	5.05	38.2	17.5

Int. Std.	Y_2243
Units	Cts/S
Avg	**143670.**
Stddev	635.
%RSD	.44193

Sample Name: CalStd3=1 Acquired: 05/01/2020 13:34:38 Type: Cal
Method: DOD Calibration Updated 060614(v3843) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Ba2335	Be3130	Cd2265	Cd2288	Co2286	Cr2055	Ni2316
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-.560**	**.000**	**-15.8**	**.000**	**.000**	**.000**	**.000**	**.000**
Stddev	2.60	.000	2.2	.000	.000	.000	.000	.000
%RSD	465.	31.5	14.2	4.49	3.83	26.5	32.5	136.

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**146130.**	**836500.**	**406560.**
Stddev	604.	11475.	1151.
%RSD	.41345	1.3718	.28299

Sample Name: CalStd4=5 Acquired: 05/01/2020 13:40:56 Type: Cal
Method: DOD Calibration Updated 060614(v3843) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ba2335	Be3130	Cd2265	Cd2288	Co2286	Cr2055	Cr2677	Mn2576	Mo2020	Mo2045	Ni2316	Pb2203
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**405.**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**
Stddev	.000	6.	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	8.62	1.56	2.59	1.11	2.03	1.38	5.06	2.13	7.70	14.1	7.93	10.1

Elem	Sb2175
Units	Cts/S
Avg	**.000**
Stddev	.000
%RSD	15.5

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**144280.**	**841050.**	**405740.**
Stddev	422.	6421.	2397.
%RSD	.29236	.76350	.59084

Sample Name: CalStd5=10 Acquired: 05/01/2020 13:48:13 Type: Cal
Method: DOD Calibration Updated 060614(v3843) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	As1972	Ba2335	Be3130	Cd2265	Cd2288	Co2286	Cr2055	Cr2677	Cu2230
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**49.3**	**.000**	**.000**	**.000**	**.000**	**1200.**	**.000**	**.001**	**.000**	**.000**	**.000**	**.000**
Stddev	2.1	.000	.000	.000	.000	8.	.000	.000	.000	.000	.000	.000
%RSD	4.32	4.69	15.2	23.3	3.92	.640	1.32	.907	1.94	2.04	7.17	4.15

Elem	Mn2576	Mo2020	Mo2045	Ni2316	Pb2169	Pb2203	Sb2068	Sb2175	Se1960	Tl1908	V_2924	Zn2062
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	1.17	2.94	6.42	1.85	14.6	2.87	29.6	17.4	28.0	12.6	1.48	2.76

Elem	Zn2138
Units	Cts/S
Avg	**.000**
Stddev	.000
%RSD	2.17

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**145870.**	**841100.**	**405410.**
Stddev	540.	6263.	379.
%RSD	.37010	.74458	.09351

Sample Name: CalStd6=20 Acquired: 05/01/2020 13:55:12 Type: Cal
Method: DOD Calibration Updated 060614(v3843) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ba2335	Cu2230	Cu2247	Mn2576	Mo2020	Mo2045	Sb2175	V_2924
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	1.58	2.32	7.68	.697	1.97	3.46	3.86	3.17

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**144760.**	**839700.**	**405750.**
Stddev	1092.	4285.	3153.
%RSD	.75434	.51034	.77711

Sample Name: CalStd7=50 Acquired: 05/01/2020 14:01:33 Type: Cal
Method: DOD Calibration Updated 060614(v3843) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	As1937	As1972	Cd2288	Co2286	Cr2055	Cr2677	Cu2247	Mn2576	Mo2020	Mo2045	Ni2316	Sb2068
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.002**	**.001**	**.001**	**.001**	**.000**	**.001**	**.000**	**.000**	**.001**	**.000**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	3.18	10.1	.415	.720	.743	2.47	3.20	.611	2.08	.759	.967	4.46

Elem	V_2924
Units	Cts/S
Avg	**.000**
Stddev	.000
%RSD	.923

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**145570.**	**843860.**	**406890.**
Stddev	885.	7288.	1782.
%RSD	.60802	.86359	.43794

Sample Name: CalStd8=100 Acquired: 05/01/2020 14:07:50 Type: Cal
Method: DOD Calibration Updated 060614(v3843) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	As1972	Ba2335	Ba4934	Be3130	Be2348	Ca3933	Cd2265	Cd2288
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**391.**	**.000**	**.000**	**.000**	**.000**	**.010**	**10300.**	**.001**	**.023**	**.002**	**.005**
Stddev	2.	.000	.000	.000	.000	.000	40.	.000	.000	.000	.000
%RSD	.633	.639	2.48	8.69	1.01	.781	.384	.710	.485	.531	.211

Elem	Co2286	Co2388	Cr2055	Cr2677	Cu2230	Cu2247	Mg2802	Mn2576	Mo2020	Mo2045	Ni2216
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.003**	**.000**	**.001**	**.002**	**.001**	**.000**	**.012**	**.002**	**.001**	**.001**	**.001**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	.446	1.10	.502	.728	.951	19.0	.385	.611	.516	.971	.627

Elem	Ni2316	Pb2169	Pb2203	Sb2175	Se1960	Se2062	Tl1908	V_2908	V_2924	Zn2062	Zn2138
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.002**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.001**	**.002**	**.003**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	.801	1.13	1.40	2.36	4.64	26.7	1.99	1.24	1.04	.618	.351

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**146040.**	**837610.**	**407600.**
Stddev	781.	5137.	1629.
%RSD	.53482	.61326	.39960

Sample Name: CalStd9=1000 Acquired: 05/01/2020 14:14:08 Type: Cal
Method: DOD Calibration Updated 060614(v3843) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Al1670	Al3082	Al3961	As1937	As1972	Ba2335	Ba4934	Be3130	Be2348	Ca3158
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.003**	**.000**	**.002**	**.001**	**.001**	**.001**	**.037**	**103000.**	**.007**	**.000**
Stddev	.000	.000	.000	.000	.000	.000	.000	1060.	.000	.000
%RSD	.462	1.45	.983	.732	.175	.377	.767	1.02	.807	1.35

Elem	Ca3933	Cd2265	Cd2288	Co2286	Co2388	Cr2055	Cr2677	Cu2230	Cu2247	Fe2343
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.225**	**.022**	**.046**	**.025**	**.004**	**.013**	**.018**	**.007**	**.009**	**.001**
Stddev	.002	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	.847	.548	.589	.552	.494	.717	1.25	.545	.977	.530

Elem	Fe2599	Mg2025	Mg2790	Mg2802	Mn2576	Mn2593	Mo2020	Mo2045	Ni2216	Ni2316
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.002**	**.000**	**.000**	**.111**	**.018**	**.004**	**.009**	**.006**	**.015**	**.016**
Stddev	.000	.000	.000	.001	.000	.000	.000	.000	.000	.000
%RSD	.973	.340	1.50	.634	.611	.470	.492	.571	.789	.949

Elem	Pb2169	Pb2203	Sb2068	Sb2175	Se1960	Se2062	Tl1908	V_2908	V_2924	Zn2062
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.002**	**.003**	**.002**	**.002**	**.001**	**.000**	**.002**	**.001**	**.008**	**.016**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	.585	.830	.610	.621	.226	2.85	.297	.847	.530	.858

Elem	Zn2138
Units	Cts/S
Avg	**.030**
Stddev	.000
%RSD	.618

Sample Name: CalStd9=1000 Acquired: 05/01/2020 14:14:08 Type: Cal
Method: DOD Calibration Updated 060614(v3843) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**144950.**	**831940.**	**409060.**
Stddev	321.	3380.	1773.
%RSD	.22148	.40632	.43334

Sample Name: CalStd10=10000 Acquired: 05/01/2020 14:19:52 Type: Cal
Method: DOD Calibration Updated 060614(v3843) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Al3082	Al3961	As1972	Ca3158	Co2286	Co2388	Cr2055	Cr2677	Cu2247	Fe2343	Fe2599	Mg2025
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.003**	**.021**	**.006**	**.004**	**.235**	**.039**	**.128**	**.171**	**.087**	**.008**	**.016**	**.004**
Stddev	.000	.000	.000	.000	.001	.000	.000	.001	.000	.000	.000	.000
%RSD	.636	.338	.339	.266	.324	1.00	.196	.503	.254	.968	.373	.872

Elem	Mg2790	Mg2802	Mn2576	Mn2593	Mo2045	Ni2216	Ni2316	Pb2169	Sb2068	Sb2175	Se2062	V_2908
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.001**	**1.00**	**.184**	**.041**	**.056**	**.139**	**.149**	**.015**	**.015**	**.024**	**.002**	**.013**
Stddev	.000	.01	.005	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	.379	.669	2.56	.143	.153	.183	.201	.341	.224	.364	.666	.197

Elem	V_2924	Zn2062
Units	Cts/S	Cts/S
Avg	**.082**	**.155**
Stddev	.001	.000
%RSD	.993	.321

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**142620.**	**761740.**	**403930.**
Stddev	137.	5465.	1104.
%RSD	.09640	.71744	.27334

Sample Name: CalStd12=100K Acquired: 05/01/2020 14:26:41 Type: Cal
Method: DOD Calibration Updated 060614(v3843) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Cr2055	Cu2247	Mn2593	Pb2169	Zn2062
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**1.14**	**.900**	**.412**	**.157**	**1.42**
Stddev	.01	.003	.003	.001	.01
%RSD	.421	.278	.765	.414	.521

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**143340.**	**833980.**	**405420.**
Stddev	551.	7342.	3064.
%RSD	.38409	.88037	.75584

Sample Name: CalStd13=100000 Acquired: 05/01/2020 14:33:24 Type: Cal
Method: DOD Calibration Updated 060614(v3843) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Al3082	Al3961	Ca3158	Fe2343	Fe2599	Mg2025	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.029**	**.210**	**.038**	**.071**	**.168**	**.035**	**.008**
Stddev	.000	.001	.000	.000	.001	.000	.000
%RSD	.526	.637	.720	.494	.518	.297	.795

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**137680.**	**791780.**	**395110.**
Stddev	750.	2506.	3876.
%RSD	.54462	.31655	.98091

Sample Name: CalStd14=500000 Acquired: 05/01/2020 14:39:44 Type: Cal
Method: DOD Calibration Updated 060614(v3843) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Al3961	Ca3158	Fe2599	Mg2025	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**1.08**	**.191**	**.778**	**.158**	**.041**
Stddev	.01	.001	.005	.001	.000
%RSD	.866	.272	.652	.858	.349

Int. Std.	Y_3242	Y_3710
Units	Cts/S	Cts/S
Avg	**752290.**	**381830.**
Stddev	6606.	1677.
%RSD	.87812	.43918

Sample Name: CalibStd15=1000k Acquired: 05/01/2020 14:46:50 Type: Cal
Method: DOD Calibration Updated 060614(v3843) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Al3961	Ca3158	Mg2025	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**2.24**	**.390**	**.288**	**.084**
Stddev	.04	.002	.003	.001
%RSD	1.67	.626	.882	.753

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**115650.**	**668290.**	**345600.**
Stddev	360.	4982.	2837.
%RSD	.31110	.74540	.82077

Sample Name: Ag Ba 1000, 50000 Acquired: 05/01/2020 14:54:35 Type: Cal
Method: DOD Calibration Updated 060614(v3843) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ba4934
Units	Cts/S
Avg	**1.45**
Stddev	.01
%RSD	.722

Int. Std.	Y_3710
Units	Cts/S
Avg	**423710.**
Stddev	1260.
%RSD	.29739

Sample Name: icv Acquired: 05/01/2020 15:13:55 Type: QC
Method: DOD Calibration Updated 060614(v3843) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3082	Al3961	As1937	As1972	Ba2335	Ba4934	Be3130	Ca3158	Cd2265	Co2286	Cr2055
Avg	**49.8**	**12300.**	**11700.**	**2060.**	**2050.**	**2000.**	**2030.**	**51.3**	**10200.**	**50.0**	**499.**	**216.**
Stddev	.6	66.	86.	14.	26.	21.	19.	.2	24.	.3	2.	1.
%RSD	1.25	.534	.732	.701	1.27	1.03	.935	.451	.234	.638	.370	.483
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Cr2677	Cu2230	Fe2343	Fe2599	Mg2025	Mg2790	Mn2576	Mo2020	Mo2045	Ni2216	Ni2316	Pb2169
Avg	**209.**	**248.**	**5430.**	**5040.**	**10700.**	**10300.**	**514.**	**515.**	**530.**	**533.**	**507.**	**527.**
Stddev	.	2.	53.	18.	107.	32.	3.	2.	3.	2.	3.	2.
%RSD	.184	.916	.973	.347	.997	.314	.660	.439	.562	.300	.523	.298
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Pb2203	Sb2175	Se1960	Se2062	Tl1908	V_2924	Zn2062	Zn2138
Avg	**513.**	**496.**	**1950.**	**2100.**	**2010.**	**491.**	**548.**	**525.**
Stddev	4.	2.	9.	22.	8.	4.	1.	2.
%RSD	.866	.443	.481	1.06	.412	.714	.147	.290
Check ?	None	None	None	None	None	None	None	None
Value								
Range								

Sample Name: icv Acquired: 05/01/2020 15:13:55 Type: QC
Method: DOD Calibration Updated 060614(v3843) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**147540.**	**836970.**	**416910.**
Stddev	900.	5880.	1938.
%RSD	.60982	.70257	.46478

Sample Name: ICVLL Acquired: 05/01/2020 15:20:12 Type: QC
Method: DOD Calibration Updated 060614(v3843) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	Al3082	Al3961	As1937	Ba2335	Be3130	Ca3158	Ca3933	Cd2265	Co2286	Cr2677
Avg	F **39.5**	**1260.**	**1300.**	**1240.**	**67.1**	**32.2**	**13.4**	**1600.**	**1550.**	**16.1**	**31.8**	**32.8**
Stddev	.5	4.	7.	7.	2.8	.3	.1	11.	10.	.1	.2	.7
%RSD	1.30	.303	.573	.533	4.11	.974	.910	.657	.659	.923	.627	2.27
Check ?	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value	60.0											
Range	-30.0%											

Elem	Cu2230	Fe2343	Fe2599	Mg2025	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924
Avg	**32.6**	**1050.**	**976.**	**1690.**	**33.0**	**34.3**	**33.1**	**32.2**	**63.2**	**66.7**	**62.2**	**31.1**
Stddev	.1	6.	10.	9.	.1	.6	.7	3.0	1.6	2.2	4.6	.4
%RSD	.455	.545	1.06	.537	.364	1.65	1.99	9.42	2.56	3.33	7.46	1.14
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value												
Range												

Elem	Zn2138
Avg	**31.5**
Stddev	.1
%RSD	.313
Check ?	Chk Pass
Value	
Range	

Sample Name: ICVLL Acquired: 05/01/2020 15:20:12 Type: QC
Method: DOD Calibration Updated 060614(v3843) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**147200.**	**844290.**	**419060.**
Stddev	719.	3723.	2695.
%RSD	.48813	.44096	.64306

Sample Name: icb Acquired: 05/01/2020 15:32:41 Type: QC
Method: DOD Calibration Updated 060614(v3843) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	Al3961	As1937	Ba2335	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2230	Fe2343
Avg	**-1.08**	**-4.43**	**1.64**	**.513**	**-.196**	**-.002**	**2.36**	**.019**	**.099**	**.432**	**-.009**	**-4.08**
Stddev	.58	.88	3.11	3.86	.337	.037	1.40	.201	.150	.378	.598	1.61
%RSD	53.9	19.8	190.	752.	172.	2190.	59.4	1060.	151.	87.5	6750.	39.4
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Fe2599	Mg2802	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Avg	**.779**	**-5.09**	**.058**	**.468**	**.152**	**-.204**	**1.02**	**1.54**	**.741**	**.151**	**-1.55**
Stddev	1.09	.15	.056	.171	.411	.968	1.52	2.64	1.44	.323	.03
%RSD	140.	2.89	97.6	36.6	270.	474.	149.	172.	195.	213.	2.16
Check ?	None	None	None	None	None	None	None	None	None	None	None
Value											
Range											

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**149820.**	**860720.**	**427680.**
Stddev	581.	2800.	2462.
%RSD	.38755	.32531	.57566

Sample Name: MRL/LLOQ Acquired: 05/01/2020 15:39:00 Type: QC
Method: DOD Calibration Updated 060614(v3843) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	Al3961	As1937	Ba2335	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2230	Fe2343
Avg	F **9.58**	**445.**	**419.**	**23.9**	**11.0**	**4.57**	**528.**	**5.44**	**11.2**	**11.3**	**12.6**	**359.**
Stddev	.28	1.	10.	2.6	.4	.02	6.	.03	.3	1.0	.9	3.
%RSD	2.91	.170	2.29	11.0	3.57	.414	1.10	.631	2.26	9.18	7.45	.866
Check ?	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value	20.0											
Range	-30.0%											

Elem	Fe2599	Mg2802	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Avg	**333.**	**561.**	**11.9**	**12.2**	**11.4**	**12.4**	**22.9**	**25.0**	**21.3**	**10.5**	**9.58**
Stddev	4.	5.	.1	.5	.5	2.9	2.0	3.4	2.3	.2	.13
%RSD	1.33	.970	1.21	4.26	3.99	23.1	8.75	13.4	10.9	2.08	1.31
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value											
Range											

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**146900.**	**840570.**	**420330.**
Stddev	643.	2323.	2271.
%RSD	.43795	.27637	.54021

Sample Name: ICSA Acquired: 05/01/2020 15:45:15 Type: QC
Method: DOD Calibration Updated 060614(v3843) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3961	As1937	Ba2335	Be3130	Ca3158	Cd2265	Co2286	Cr2677	Cu2230	Fe2599
Avg	**-1.65**	**480000.**	**-.266**	**-.493**	**.000**	**484000.**	**-.443**	**.849**	**-7.46**	**-.025**	**441000.**
Stddev	.94	2360.	11.8	.781	.048	1000.	.763	.263	1.23	1.44	1850.
%RSD	57.0	.492	4430.	159.	6450000.	.207	172.	31.0	16.5	5780.	.420
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit											
Low Limit											

Elem	Mg2025	Mg2790	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2908	Zn2138
Avg	**401000.**	**464000.**	**.812**	**-.131**	**-.081**	**.397**	**-.001**	**-.014**	**.000**	**21900.**	**3.43**
Stddev	2180.	1530.	.245	.907	.504	6.31	3.64	5.70	5.48	37.	.66
%RSD	.542	.328	30.2	695.	625.	1590.	570000.	39400.	46e6	.171	19.1
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	None	Chk Pass
High Limit											
Low Limit											

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**128580.**	**756270.**	**394960.**
Stddev	438.	2775.	1280.
%RSD	.34064	.36691	.32394

Sample Name: ICSAB Acquired: 05/01/2020 15:52:18 Type: QC
Method: DOD Calibration Updated 060614(v3843) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3382	Al3961	As1937	Ba2335	Be3130	Ca3158	Cd2265	Cd2288	Co2286	Cr2055	Cr2677
Avg	**484.**	**509000.**	**483.**	**451.**	**426.**	**507000.**	**428.**	**496.**	**434.**	**493.**	**471.**
Stddev	8.	3540.	6.	5.	3.	4200.	1.	2.	2.	1.	4.
%RSD	1.67	.695	1.32	1.20	.608	.828	.254	.306	.366	.271	.936
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value											
Range											

Elem	Cu2230	Fe2599	Mg2025	Mg2790	Mn2576	Mo2020	Mo2045	Ni2216	Ni2316	Pb2169	Pb2203
Avg	**483.**	**463000.**	**413000.**	**491000.**	**466.**	**474.**	**493.**	**453.**	**428.**	**453.**	**413.**
Stddev	3.	2710.	3580.	2690.	5.	1.	4.	1.	.	8.	3.
%RSD	.560	.584	.868	.547	1.03	.117	.770	.306	.108	1.82	.656
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value											
Range											

Elem	Sb2175	Se1960	Tl1908	V_2924	Zn2062	Zn2138
Avg	**455.**	**430.**	**414.**	**445.**	**467.**	**488.**
Stddev	2.	13.	10.	5.	1.	2.
%RSD	.444	3.05	2.31	1.22	.256	.348
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value						
Range						

Sample Name: ICSAB Acquired: 05/01/2020 15:52:18 Type: QC
Method: DOD Calibration Updated 060614(v3843) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**129390.**	**749510.**	**380170.**
Stddev	728.	4728.	2843.
%RSD	.56256	.63083	.74794

Sample Name: ICVLL ag Acquired: 05/01/2020 16:05:11 Type: Unk
Method: DOD Calibration Updated 060614(v3843) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	Al3961	As1937	Ba2335	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2230	Fe2343
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**8.97**	**-3.20**	**3.15**	**.857**	**1.60**	**.015**	**2.14**	**.146**	**.198**	**.068**	**1.91**	**31.1**
Stddev	.54	.64	3.54	3.86	.30	.024	.20	.160	.150	.746	.99	4.3
%RSD	5.97	20.0	113.	451.	19.0	164.	9.35	110.	76.1	1100.	51.9	13.7

Elem	Fe2599	Mg2802	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**70.3**	**-4.60**	**.303**	**.290**	**.651**	**-4.48**	**.235**	**4.90**	**1.71**	**.409**	**-1.55**
Stddev	32.7	.03	.046	.635	.433	1.79	1.87	2.49	1.90	.377	.13
%RSD	46.6	.567	15.1	219.	66.5	40.0	796.	50.9	111.	92.0	8.49

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**146480.**	**843880.**	**416960.**
Stddev	349.	2661.	1237.
%RSD	.23799	.31538	.29657

Sample Name: ccv1 Acquired: 05/01/2020 22:44:30 Type: QC
Method: DOD Calibration Updated 060614(v3843) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3082	Al3961	As1937	As1972	Ba4934	Be3130	Ca3158	Cd2265	Cd2288	Co2388	Cr2055
Avg	**484.**	**4980.**	**4790.**	**5170.**	**5200.**	**4930.**	**503.**	**4890.**	**496.**	**523.**	**4900.**	**5300.**
Stddev	2.	30.	19.	35.	17.	18.	3.	31.	1.	1.	63.	18.
%RSD	.429	.610	.387	.683	.319	.367	.525	.641	.182	.206	1.29	.345
Check ?	None	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value												
Range												

Elem	Cr2677	Cu2230	Cu2247	Fe2343	Fe2599	Mg2025	Mg2790	Mn2576	Mn2593	Mo2020	Mo2045	Ni2216
Avg	**5180.**	**4880.**	**4990.**	**5440.**	**4840.**	**5310.**	**4790.**	**5130.**	**5110.**	**5030.**	**5210.**	**5220.**
Stddev	27.	22.	15.	64.	21.	49.	20.	75.	24.	16.	18.	15.
%RSD	.528	.447	.292	1.18	.438	.928	.416	1.47	.462	.325	.348	.287
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value												
Range												

Elem	Ni2316	Pb2169	Pb2203	Sb2068	Sb2175	Se1960	Se2062	Tl1908	V_2908	Zn2062
Avg	**4920.**	**5090.**	**4930.**	**5230.**	**4900.**	**4820.**	**5170.**	**4670.**	**5050.**	**5240.**
Stddev	16.	21.	20.	23.	21.	19.	29.	10.	23.	26.
%RSD	.333	.412	.397	.442	.437	.389	.557	.221	.455	.494
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value										
Range										

Sample Name: ccv1 Acquired: 05/01/2020 22:44:30 Type: QC
Method: DOD Calibration Updated 060614(v3843) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**141610.**	**781450.**	**423900.**
Stddev	686.	7434.	1662.
%RSD	.48424	.95127	.39198

Sample Name: ccv2 Acquired: 05/01/2020 22:50:11 Type: QC
Method: DOD Calibration Updated 060614(v3843) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	Al3961	As1937	Ba2335	Be3130	Ca3933	Cd2265	Co2286	Cr2055	Cr2677	Cu2230
Avg	**50.2**	**500.**	**484.**	**512.**	**496.**	**53.5**	**477.**	**51.3**	**487.**	**535.**	**523.**	**500.**
Stddev	.6	4.	4.	5.	3.	.2	2.	.3	2.	2.	7.	3.
%RSD	1.29	.745	.761	.927	.583	.365	.421	.680	.341	.463	1.28	.501
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value												
Range												

Elem	Fe2343	Fe2599	Mg2802	Mn2576	Mo2020	Mo2045	Ni2216	Ni2316	Pb2169	Pb2203	Sb2175	Se1960
Avg	**532.**	**493.**	**513.**	**516.**	**509.**	**528.**	**533.**	**507.**	**536.**	**517.**	**489.**	**491.**
Stddev	6.	3.	4.	6.	2.	3.	2.	1.	3.	4.	4.	2.
%RSD	1.07	.512	.783	1.24	.400	.636	.283	.212	.496	.758	.819	.417
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value												
Range												

Elem	Tl1908	V_2924	Zn2062	Zn2138
Avg	**508.**	**483.**	**528.**	**514.**
Stddev	6.	6.	1.	1.
%RSD	1.12	1.20	.282	.246
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value				
Range				

Sample Name: ccv2 Acquired: 05/01/2020 22:50:11 Type: QC
Method: DOD Calibration Updated 060614(v3843) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**147410.**	**833390.**	**423220.**
Stddev	514.	5760.	641.
%RSD	.34901	.69115	.15142

Sample Name: ccb Acquired: 05/01/2020 22:56:03 Type: QC
Method: DOD Calibration Updated 060614(v3843) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	Al3961	As1937	Ba2335	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2230	Fe2343
Avg	**-1.41**	**-4.72**	**-.300**	**1.64**	**.029**	**.020**	**.443**	**.070**	**.051**	**-.356**	**-.652**	**-6.73**
Stddev	.65	.72	4.14	4.74	.279	.016	.142	.161	.346	.585	.804	1.53
%RSD	46.1	15.2	1380.	289.	952.	78.6	32.1	230.	673.	164.	123.	22.7
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Fe2599	Mg2802	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Avg	**2.27**	**-4.88**	**.195**	**1.40**	**.150**	**.557**	**-.305**	**2.06**	**1.58**	**.192**	**-2.11**
Stddev	1.21	.06	.110	.42	.332	5.18	1.86	2.56	1.01	.654	.06
%RSD	53.3	1.21	56.3	30.2	221.	931.	609.	124.	64.0	341.	2.70
Check ?	None	None	None	None	None	None	None	None	None	None	None
Value											
Range											

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**150810.**	**851940.**	**436470.**
Stddev	748.	3449.	2023.
%RSD	.49622	.40488	.46340

Sample Name: lcsw76254 Acquired: 05/01/2020 23:15:36 Type: Unk
Method: DOD Calibration Updated 060614(v3843) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	Al3961	As1937	Ba2335	Be3130	Ca3158	Cd2265	Co2286	Cr2677	Cu2230
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**17.4**	**785.**	**869.**	**906.**	**808.**	**20.2**	**201000.**	**20.1**	**200.**	**90.4**	**99.0**
Stddev	.2	2.	5.	2.	7.	.2	424.	.2	1.	.5	1.5
%RSD	1.19	.302	.556	.275	.829	.862	.211	1.07	.290	.598	1.47

Elem	Fe2343	Fe2599	Mg2025	Mg2790	Mn2576	Mo2020	Mo2045	Ni2316	Pb2169	Pb2203	Sb2175
Units	ug/L	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**430.**	**414.**	**96400.**	**95100.**	**216.**	**2300.**	**2370.**	**207.**	**225.**	**210.**	**210.**
Stddev	4.	4.	633.	203.	2.	2.	5.	.	5.	6.	1.
%RSD	.827	1.06	.657	.213	1.01	.094	.222	.206	2.28	3.05	.568

Elem	Se1960	Tl1908	V_2924	Zn2138
Units	ug/L	ug/L	ug/L	ug/L
Avg	**819.**	**760.**	**209.**	**223.**
Stddev	7.	6.	2.	1.
%RSD	.862	.802	.740	.321

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**134920.**	**773670.**	**417500.**
Stddev	342.	4725.	1017.
%RSD	.25320	.61073	.24369

Sample Name: mbw76254 Acquired: 05/01/2020 23:21:58 Type: Unk
Method: DOD Calibration Updated 060614(v3843) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	Al3961	As1937	Ba2335	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2230	Fe2343
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-1.77**	**-.585**	**5.20**	**2.18**	**.133**	**.011**	**3.73**	**-.082**	**.067**	**.121**	**1.37**	**-5.26**
Stddev	.48	.443	4.56	2.36	.454	.011	.82	.191	.270	1.14	.89	1.23
%RSD	26.9	75.6	87.6	108.	341.	99.5	22.0	232.	403.	939.	64.8	23.3

Elem	Fe2599	Mg2802	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**2.32**	**-5.44**	**.042**	**2.18**	**.057**	**1.21**	**.722**	**5.19**	**-1.58**	**.107**	**-1.79**
Stddev	.97	.11	.044	.43	.594	1.71	3.58	2.76	1.08	.533	.12
%RSD	41.8	1.99	104.	19.8	1040.	141.	495.	53.2	68.2	496.	6.84

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**147960.**	**838550.**	**425910.**
Stddev	461.	1841.	2554.
%RSD	.31139	.21959	.59975

Sample Name: 413136 Acquired: 05/01/2020 23:28:18 Type: Unk
Method: DOD Calibration Updated 060614(v3843) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	Al3961	As1937	Ba2335	Be3130	Ca3158	Cd2265	Co2286	Cr2677	Cu2230	Fe2343
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-1.26**	**12.9**	**18.8**	**-.634**	**78.2**	**.039**	**53200.**	**-.152**	**-.000**	**4.86**	**2.36**	**18.6**
Stddev	.98	.5	2.1	2.56	.4	.016	521.	.104	.104	.24	.84	.9
%RSD	77.7	3.62	11.0	404.	.496	40.8	.980	68.3	58700.	5.01	35.8	5.07

Elem	Fe2599	Mg2025	Mg2790	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Units	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**25.0**	**22400.**	**20400.**	**2.95**	**3.48**	**-.187**	**-.494**	**.102**	**3.93**	**1.77**	**.495**	**5.32**
Stddev	1.9	171.	221.	.12	.46	.245	4.70	2.07	3.38	1.31	.879	.08
%RSD	7.39	.766	1.08	4.09	13.1	131.	952.	2030.	86.1	74.2	178.	1.51

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**143010.**	**815990.**	**426860.**
Stddev	572.	3664.	3616.
%RSD	.39986	.44906	.84698

Sample Name: I413136 Acquired: 05/01/2020 23:35:01 Type: Unk
Method: DOD Calibration Updated 060614(v3843) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	Al3961	As1937	Ba2335	Be3130	Ca3158	Cd2265	Co2286	Cr2677	Cu2230	Fe2343
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-1.22**	**-1.07**	**3.24**	**.332**	**16.3**	**.032**	**16800.**	**.066**	**.196**	**.249**	**-.097**	**-.078**
Stddev	.46	.71	4.45	2.77	1.2	.022	1280.	.232	.069	1.13	.385	2.05
%RSD	37.6	66.8	137.	833.	7.60	71.0	7.59	350.	35.1	454.	398.	2640.

Elem	Fe2599	Mg2025	Mg2790	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Units	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**8.69**	**5020.**	**6620.**	**.713**	**.695**	**.091**	**1.10**	**-.548**	**6.13**	**-.374**	**.179**	**-.734**
Stddev	1.80	416.	482.	.088	.206	.457	1.05	1.22	2.29	1.11	.626	.143
%RSD	20.7	8.28	7.28	12.4	29.7	505.	95.9	222.	37.4	297.	350.	19.6

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**147240.**	**834880.**	**429040.**
Stddev	841.	7651.	3955.
%RSD	.57129	.91637	.92173

Sample Name: dup413136 Acquired: 05/01/2020 23:41:47 Type: Unk
Method: DOD Calibration Updated 060614(v3843) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	Al3961	As1937	Ba2335	Be3130	Ca3158	Cd2265	Co2286	Cr2677	Cu2230	Fe2343
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-1.77**	**11.0**	**11.2**	**2.90**	**77.8**	**.024**	**53000.**	**.188**	**.092**	**4.89**	**1.96**	**18.7**
Stddev	.67	1.0	5.6	1.72	.9	.021	297.	.118	.261	.63	.76	2.7
%RSD	37.8	8.80	49.6	59.2	1.19	85.9	.560	63.0	284.	12.9	38.6	14.4

Elem	Fe2599	Mg2025	Mg2790	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Units	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**23.5**	**22300.**	**20400.**	**3.07**	**3.44**	**.239**	**-.826**	**-1.57**	**5.45**	**-.514**	**.015**	**5.05**
Stddev	.3	124.	205.	.11	.40	.339	2.09	1.20	2.01	1.76	.655	.14
%RSD	1.21	.555	1.01	3.63	11.7	142.	253.	76.5	36.9	342.	4410.	2.80

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**143930.**	**815660.**	**423760.**
Stddev	791.	5092.	2164.
%RSD	.54982	.62433	.51071

Sample Name: msw413136 Acquired: 05/01/2020 23:48:30 Type: Unk
Method: DOD Calibration Updated 060614(v3843) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	Al3961	As1937	Ba2335	Be3130	Ca3158	Cd2265	Co2286	Cr2677	Cu2230
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**16.7**	**786.**	**878.**	**905.**	**863.**	**19.9**	**249000.**	**19.9**	**197.**	**95.3**	**97.9**
Stddev	.7	3.	6.	6.	4.	.1	805.	.4	1.	1.7	.9
%RSD	4.09	.386	.737	.663	.423	.702	.323	1.95	.269	1.82	.951

Elem	Fe2343	Fe2599	Mg2025	Mg2790	Mn2576	Mo2020	Mo2045	Ni2316	Pb2169	Pb2203	Sb2175
Units	ug/L	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**438.**	**428.**	**114000.**	**113000.**	**215.**	**2280.**	**2350.**	**203.**	**221.**	**206.**	**211.**
Stddev	5.	1.	513.	459.	1.	3.	3.	.	3.	2.	1.
%RSD	1.09	.316	.451	.407	.535	.135	.138	.136	1.54	.996	.542

Elem	Se1960	Tl1908	V_2924	Zn2138
Units	ug/L	ug/L	ug/L	ug/L
Avg	**803.**	**740.**	**207.**	**227.**
Stddev	10.	3.	1.	1.
%RSD	1.26	.356	.645	.236

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**133090.**	**769610.**	**417740.**
Stddev	570.	2890.	1122.
%RSD	.42791	.37554	.26855

Sample Name: msdw413136 Acquired: 05/01/2020 23:54:51 Type: Unk
Method: DOD Calibration Updated 060614(v3843) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	Al3961	As1937	Ba2335	Be3130	Ca3158	Cd2265	Co2286	Cr2677	Cu2230
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**17.5**	**784.**	**875.**	**892.**	**859.**	**19.9**	**248000.**	**19.7**	**196.**	**94.7**	**97.8**
Stddev	.2	2.	5.	6.	5.	.1	1170.	.3	1.	1.5	1.5
%RSD	1.14	.281	.599	.715	.528	.715	.474	1.69	.321	1.61	1.54

Elem	Fe2343	Fe2599	Mg2025	Mg2790	Mn2576	Mo2020	Mo2045	Ni2316	Pb2169	Pb2203	Sb2175
Units	ug/L	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**439.**	**422.**	**114000.**	**112000.**	**214.**	**2260.**	**2330.**	**202.**	**224.**	**205.**	**210.**
Stddev	5.	4.	1070.	341.	2.	2.	4.	1.	3.	2.	3.
%RSD	1.12	.897	.946	.305	.958	.101	.153	.251	1.28	.850	1.52

Elem	Se1960	Tl1908	V_2924	Zn2138
Units	ug/L	ug/L	ug/L	ug/L
Avg	**807.**	**736.**	**205.**	**226.**
Stddev	6.	4.	3.	1.
%RSD	.756	.601	1.44	.247

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**133180.**	**770160.**	**418190.**
Stddev	84.	5209.	859.
%RSD	.06343	.67634	.20532

Sample Name: pdsw413136 Acquired: 05/02/2020 00:01:15 Type: Unk
Method: DOD Calibration Updated 060614(v3843) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3082	Al3961	As1937	As1972	Ba4934	Be3130	Ca3158	Cd2265	Cd2288	Co2286
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**81.3**	**3850.**	**3580.**	**4000.**	**4020.**	**3820.**	**85.8**	**412000.**	**87.2**	**110.**	**865.**
Stddev	.7	19.	16.	24.	28.	12.	.2	1010.	.2	.	1.
%RSD	.832	.495	.454	.601	.694	.308	.193	.244	.215	.358	.058

Elem	Cr2055	Cr2677	Cu2230	Fe2343	Fe2599	Mg2025	Mg2790	Mn2576	Mo2020	Ni2216	Ni2316
Units	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**406.**	**399.**	**451.**	**1880.**	**1800.**	**190000.**	**190000.**	**931.**	**6.15**	**944.**	**883.**
Stddev	1.	4.	1.	24.	7.	2050.	648.	11.	.47	2.	1.
%RSD	.313	.968	.276	1.29	.364	1.08	.341	1.13	7.62	.167	.094

Elem	Pb2169	Pb2203	Sb2068	Sb2175	Se1960	Se2062	Tl1908	V_2908	V_2924	Zn2062	Zn2138
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**976.**	**887.**	**1010.**	**937.**	**3530.**	**3890.**	**3170.**	**1020.**	**914.**	**962.**	**992.**
Stddev	4.	8.	10.	5.	9.	27.	6.	5.	8.	1.	1.
%RSD	.428	.928	.945	.499	.251	.701	.175	.456	.835	.115	.120

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**130660.**	**750940.**	**413370.**
Stddev	159.	7365.	1432.
%RSD	.12189	.98082	.34629

Sample Name: ccv1 Acquired: 05/02/2020 00:07:47 Type: QC
Method: DOD Calibration Updated 060614(v3843) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3082	Al3961	As1937	As1972	Ba4934	Be3130	Ca3158	Cd2265	Cd2288	Co2388	Cr2055
Avg	**484.**	**4960.**	**4710.**	**5160.**	**5170.**	**4880.**	**505.**	**4880.**	**493.**	**521.**	**4870.**	**5340.**
Stddev	2.	18.	28.	19.	30.	25.	2.	32.	1.	.	36.	10.
%RSD	.438	.362	.586	.365	.584	.502	.377	.646	.179	.058	.747	.182
Check ?	None	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value												
Range												

Elem	Cr2677	Cu2230	Cu2247	Fe2343	Fe2599	Mg2025	Mg2790	Mn2576	Mn2593	Mo2020	Mo2045	Ni2216
Avg	**5260.**	**4870.**	**4950.**	**5360.**	**4840.**	**5330.**	**4720.**	**5180.**	**5140.**	**5040.**	**5230.**	**5240.**
Stddev	5.	10.	4.	55.	35.	34.	30.	40.	42.	8.	5.	2.
%RSD	.087	.198	.073	1.03	.725	.636	.641	.767	.807	.164	.098	.032
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value												
Range												

Elem	Ni2316	Pb2169	Pb2203	Sb2068	Sb2175	Se1960	Se2062	Tl1908	V_2908	Zn2062
Avg	**4930.**	**5110.**	**4980.**	**5220.**	**4860.**	**4760.**	**5120.**	**4670.**	**5070.**	**5220.**
Stddev	4.	14.	7.	5.	16.	18.	47.	9.	32.	14.
%RSD	.089	.268	.132	.096	.334	.372	.919	.185	.638	.277
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value										
Range										

Sample Name: ccv1 Acquired: 05/02/2020 00:07:47 Type: QC
Method: DOD Calibration Updated 060614(v3843) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**142140.**	**783330.**	**427840.**
Stddev	524.	5327.	2448.
%RSD	.36839	.68009	.57219

Sample Name: ccv2 Acquired: 05/02/2020 00:13:29 Type: QC
Method: DOD Calibration Updated 060614(v3843) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	Al3961	As1937	Ba2335	Be3130	Ca3933	Cd2265	Co2286	Cr2055	Cr2677	Cu2230
Avg	**49.4**	**501.**	**478.**	**516.**	**493.**	**53.4**	**471.**	**51.2**	**486.**	**537.**	**523.**	**500.**
Stddev	.8	1.	5.	8.	5.	.4	2.	.3	1.	1.	6.	2.
%RSD	1.61	.233	1.07	1.46	1.11	.718	.488	.638	.109	.123	1.11	.419
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value												
Range												

Elem	Fe2343	Fe2599	Mg2802	Mn2576	Mo2020	Mo2045	Ni2216	Ni2316	Pb2169	Pb2203	Sb2175	Se1960
Avg	**530.**	**491.**	**508.**	**515.**	**512.**	**527.**	**533.**	**506.**	**537.**	**523.**	**487.**	**491.**
Stddev	6.	7.	4.	6.	2.	1.	1.	1.	4.	2.	2.	6.
%RSD	1.09	1.49	.804	1.26	.330	.209	.164	.170	.682	.401	.459	1.16
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value												
Range												

Elem	Tl1908	V_2924	Zn2062	Zn2138
Avg	**509.**	**482.**	**526.**	**513.**
Stddev	2.	6.	2.	1.
%RSD	.442	1.33	.321	.287
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value				
Range				

Sample Name: ccv2 Acquired: 05/02/2020 00:13:29 Type: QC
Method: DOD Calibration Updated 060614(v3843) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**147210.**	**833910.**	**426690.**
Stddev	726.	7578.	1816.
%RSD	.49288	.90875	.42551

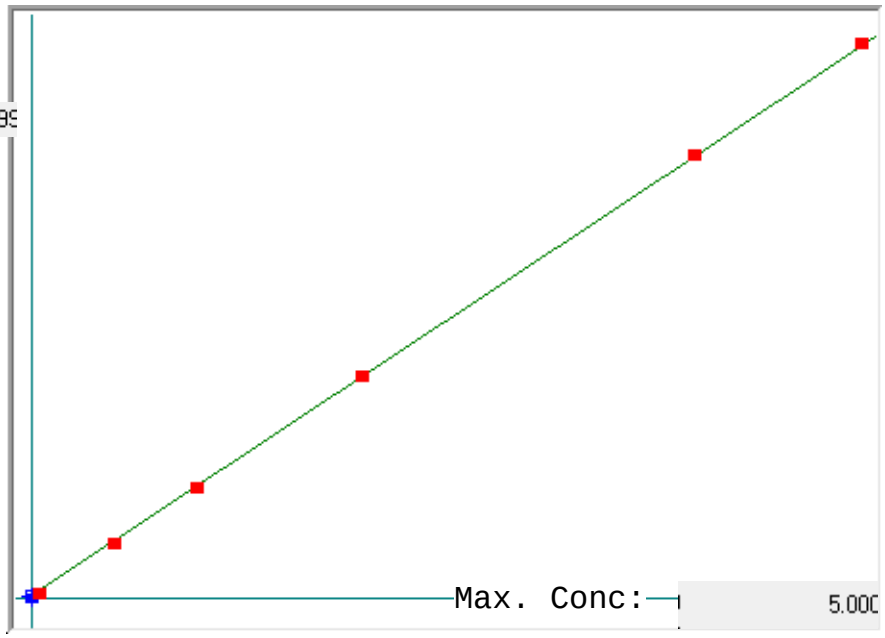
Sample Name: ccb Acquired: 05/02/2020 00:19:20 Type: QC
Method: DOD Calibration Updated 060614(v3843) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	Al3961	As1937	Ba2335	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2230	Fe2343
Avg	**-1.57**	**-4.53**	**-2.30**	**2.61**	**.223**	**.027**	**.622**	**.037**	**.374**	**.220**	**-.176**	**-5.97**
Stddev	.68	.67	5.94	2.37	.241	.020	.074	.123	.226	1.19	.561	1.20
%RSD	43.4	14.8	258.	90.8	108.	73.4	12.0	330.	60.5	541.	318.	20.1
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Fe2599	Mg2802	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Avg	**-.070**	**-4.93**	**.228**	**1.81**	**.273**	**.480**	**.434**	**4.28**	**-.889**	**.426**	**-2.05**
Stddev	1.90	.09	.084	.44	.379	1.14	2.53	1.22	4.16	.435	.16
%RSD	2730.	1.84	36.9	24.4	139.	237.	583.	28.5	468.	102.	7.77
Check ?	None	None	None	None	None	None	None	None	None	None	None
Value											
Range											

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**149980.**	**851730.**	**439330.**
Stddev	790.	5528.	4727.
%RSD	.52701	.64909	1.0759

Hg WATER



A= 0.0000e+000

B= 1.3570e-004

C= -2.1846e-002

Rho= 0.9999064

Accept= Accepted

Accepted Date=

05/06/20 12:39

Std ID	Conc.	Calc.	Dev.	Mean	SD or %RSD	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
CALIBRATION BLANK	0.000	0.000	0.000	164	6.225	155	163	169	171	
0.05	0.050	0.048	-0.002	515	2.5 %	499	509	521	533	
0.5	0.500	0.496	-0.004	3815	1.7 %	3726	3787	3843	3906	
1.0	1.000	0.995	-0.005	7491	2.3 %	7262	7404	7580	7720	
2.0	2.000	2.020	0.020	15049	1.7 %	14690	14950	15151	15406	
4.0	4.000	4.033	0.033	29882	2.5 %	28879	29546	30271	30833	
5.0	5.000	5.040	0.040	37298	1.9 %	36286	37047	37629	38232	

050620w

Method: Hg WATER Operator: Admin Date of Analysis: 06 May 2020 11:11:34

Sample ID	Date	Element	Units	Extended ID	LT Mean Conc
CALIBRATION BLANK	06 May 2020 12:16:54	Hg			164.500
0.05	06 May 2020 12:20:03	Hg			515.500
0.5	06 May 2020 12:23:15	Hg			3815.500
1.0	06 May 2020 12:26:26	Hg			7491.500
2.0	06 May 2020 12:29:37	Hg			15049.250
4.0	06 May 2020 12:32:47	Hg			29882.250
5.0	06 May 2020 12:35:57	Hg			37298.500
ICV	06 May 2020 12:39:07	Hg			2.996
ICB	06 May 2020 12:45:27	Hg			0.003
lcsw76282 76285 76286	06 May 2020 12:48:36	Hg			2.030
mbw76282 76285 76286	06 May 2020 12:54:55	Hg			-0.004
412289	06 May 2020 12:58:03	Hg			4.447
412289	06 May 2020 13:04:22	Hg		2	2.143
44376dup 412289	06 May 2020 13:07:32	Hg		2	2.165
414377msw 412289	06 May 2020 13:10:42	Hg		2	3.190
412405	06 May 2020 13:17:02	Hg			-0.002
CCV	06 May 2020 13:20:12	Hg			3.027
CCB	06 May 2020 13:26:32	Hg			0.001
414395dup 412405	06 May 2020 13:29:41	Hg			0.001
413136	06 May 2020 13:32:52	Hg			0.001
414390dup 413136	06 May 2020 13:36:04	Hg			-0.003
413975	06 May 2020 13:39:13	Hg			0.005
414396msw 412405	06 May 2020 13:42:23	Hg			2.016
414397msdw 412405	06 May 2020 13:45:32	Hg			2.028
414391msw 413136	06 May 2020 13:48:42	Hg			2.056
414392msdw 413136	06 May 2020 13:51:51	Hg			2.112
lcsw76304 76284 76283	06 May 2020 13:58:11	Hg			2.025
CCV	06 May 2020 14:01:21	Hg			3.028
CCB	06 May 2020 14:07:40	Hg			0.003
mbw76304 76284 76283	06 May 2020 14:10:49	Hg			0.002
414669	06 May 2020 14:13:59	Hg			-0.005
414688	06 May 2020 14:17:10	Hg			-0.001
414786msw 414688	06 May 2020 14:20:21	Hg			2.040
414787msdw 414688	06 May 2020 14:23:32	Hg			2.064
414689	06 May 2020 14:29:51	Hg			-0.007
414690	06 May 2020 14:33:01	Hg			-0.001
414691	06 May 2020 14:36:11	Hg			-0.003
414694	06 May 2020 14:39:21	Hg			-0.005
CCV	06 May 2020 14:42:30	Hg			3.042
CCB	06 May 2020 14:48:49	Hg			0.004
414695	06 May 2020 14:51:59	Hg			-0.001
414696	06 May 2020 14:55:08	Hg			-0.000
414697	06 May 2020 14:58:18	Hg			-0.004
414698	06 May 2020 15:01:28	Hg			0.007
414699	06 May 2020 15:04:39	Hg			0.011
414700	06 May 2020 15:07:50	Hg			0.002
414701	06 May 2020 15:11:01	Hg			-0.003
413405	06 May 2020 15:14:11	Hg			-0.007
414386msw 413405	06 May 2020 15:17:20	Hg			1.982
414387msdw 413405	06 May 2020 15:20:30	Hg			1.999
CCV	06 May 2020 15:23:40	Hg			3.084
CCB	06 May 2020 15:29:58	Hg			-0.001
412395	06 May 2020 15:33:08	Hg			0.021
412543	06 May 2020 15:36:17	Hg			-0.002
413094	06 May 2020 15:39:27	Hg			-0.003
414380msw 413094	06 May 2020 15:42:37	Hg			2.133
414381msdw 413094	06 May 2020 15:45:47	Hg			2.078
414382msw 412543	06 May 2020 15:48:58	Hg			2.103
414383msdw 412543	06 May 2020 15:52:09	Hg			2.086
CCV	06 May 2020 15:55:20	Hg			3.176
CCB	06 May 2020 16:01:38	Hg			-0.004

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Method: Hg WATER Operator: Admin Date of Analysis: 06 May 2020 11:11:34

Sample ID	Date	Element	Units	Extended ID	µ Abs.	Conc.
CALIBRATION BLANK - 1	06 May 2020 12:16:54	Hg			155	-
CALIBRATION BLANK - 2	06 May 2020 12:16:54	Hg			163	-
CALIBRATION BLANK - 3	06 May 2020 12:16:54	Hg			169	-
CALIBRATION BLANK - 4	06 May 2020 12:16:54	Hg			171	-
0.05 - 1	06 May 2020 12:20:03	Hg			499	-
0.05 - 2	06 May 2020 12:20:03	Hg			509	-
0.05 - 3	06 May 2020 12:20:03	Hg			521	-
0.05 - 4	06 May 2020 12:20:03	Hg			533	-
0.5 - 1	06 May 2020 12:23:15	Hg			3726	-
0.5 - 2	06 May 2020 12:23:15	Hg			3787	-
0.5 - 3	06 May 2020 12:23:15	Hg			3843	-
0.5 - 4	06 May 2020 12:23:15	Hg			3906	-
1.0 - 1	06 May 2020 12:26:26	Hg			7262	-
1.0 - 2	06 May 2020 12:26:26	Hg			7404	-
1.0 - 3	06 May 2020 12:26:26	Hg			7580	-
1.0 - 4	06 May 2020 12:26:26	Hg			7720	-
2.0 - 1	06 May 2020 12:29:37	Hg			14690	-
2.0 - 2	06 May 2020 12:29:37	Hg			14950	-
2.0 - 3	06 May 2020 12:29:37	Hg			15151	-
2.0 - 4	06 May 2020 12:29:37	Hg			15406	-
4.0 - 1	06 May 2020 12:32:47	Hg			28879	-
4.0 - 2	06 May 2020 12:32:47	Hg			29546	-
4.0 - 3	06 May 2020 12:32:47	Hg			30271	-
4.0 - 4	06 May 2020 12:32:47	Hg			30833	-
5.0 - 1	06 May 2020 12:35:57	Hg			36286	-
5.0 - 2	06 May 2020 12:35:57	Hg			37047	-
5.0 - 3	06 May 2020 12:35:57	Hg			37629	-
5.0 - 4	06 May 2020 12:35:57	Hg			38232	-
ICV - 1	06 May 2020 12:39:07	Hg			21522	96.6% 2.899
ICV - 2	06 May 2020 12:39:07	Hg			22019	98.9% 2.966
ICV - 3	06 May 2020 12:39:07	Hg			22501	101.1% 3.032
ICV - 4	06 May 2020 12:39:07	Hg			22903	102.9% 3.086
ICB - 1	06 May 2020 12:45:27	Hg			170	0.001
ICB - 2	06 May 2020 12:45:27	Hg			177	0.002
ICB - 3	06 May 2020 12:45:27	Hg			186	0.003
ICB - 4	06 May 2020 12:45:27	Hg			189	0.004
lcsw76282 76285 76286 - 1	06 May 2020 12:48:36	Hg			14649	1.966
lcsw76282 76285 76286 - 2	06 May 2020 12:48:36	Hg			14986	2.012
lcsw76282 76285 76286 - 3	06 May 2020 12:48:36	Hg			15309	2.056
lcsw76282 76285 76286 - 4	06 May 2020 12:48:36	Hg			15524	2.085
mbw76282 76285 76286 - 1	06 May 2020 12:54:55	Hg			122	-0.005 [ ]
mbw76282 76285 76286 - 2	06 May 2020 12:54:55	Hg			128	-0.004 [ ]
mbw76282 76285 76286 - 3	06 May 2020 12:54:55	Hg			132	-0.004 [ ]
mbw76282 76285 76286 - 4	06 May 2020 12:54:55	Hg			136	-0.003 [ ]
412289 - 1	06 May 2020 12:58:03	Hg			32030	4.325
412289 - 2	06 May 2020 12:58:03	Hg			32434	4.379
412289 - 3	06 May 2020 12:58:03	Hg			33190	4.482
412289 - 4	06 May 2020 12:58:03	Hg			34081	4.603
412289 - 1	06 May 2020 13:04:22	Hg		2	15524	2.085
412289 - 2	06 May 2020 13:04:22	Hg		2	15821	2.125
412289 - 3	06 May 2020 13:04:22	Hg		2	16076	2.160
412289 - 4	06 May 2020 13:04:22	Hg		2	16397	2.203
44376dup 412289 - 1	06 May 2020 13:07:32	Hg		2	15743	2.114
44376dup 412289 - 2	06 May 2020 13:07:32	Hg		2	15973	2.146
44376dup 412289 - 3	06 May 2020 13:07:32	Hg		2	16243	2.182
44376dup 412289 - 4	06 May 2020 13:07:32	Hg		2	16515	2.219
414377msw 412289 - 1	06 May 2020 13:10:42	Hg		2	22892	3.085
414377msw 412289 - 2	06 May 2020 13:10:42	Hg		2	23469	3.163
414377msw 412289 - 3	06 May 2020 13:10:42	Hg		2	23986	3.233
414377msw 412289 - 4	06 May 2020 13:10:42	Hg		2	24317	3.278
412405 - 1	06 May 2020 13:17:02	Hg			146	-0.002 [ ]
412405 - 2	06 May 2020 13:17:02	Hg			153	-0.001 [ ]
412405 - 3	06 May 2020 13:17:02	Hg			149	-0.002 [ ]
412405 - 4	06 May 2020 13:17:02	Hg			151	-0.001 [ ]
CCV - 1	06 May 2020 13:20:12	Hg			21819	98.0% 2.939
CCV - 2	06 May 2020 13:20:12	Hg			22263	100.0% 2.999
CCV - 3	06 May 2020 13:20:12	Hg			22681	101.9% 3.056
CCV - 4	06 May 2020 13:20:12	Hg			23113	103.8% 3.115
CCB - 1	06 May 2020 13:26:32	Hg			164	0.000
CCB - 2	06 May 2020 13:26:32	Hg			165	0.001
CCB - 3	06 May 2020 13:26:32	Hg			173	0.002
CCB - 4	06 May 2020 13:26:32	Hg			183	0.003
414395dup 412405 - 1	06 May 2020 13:29:41	Hg			162	0.000
414395dup 412405 - 2	06 May 2020 13:29:41	Hg			173	0.002
414395dup 412405 - 3	06 May 2020 13:29:41	Hg			167	0.001
414395dup 412405 - 4	06 May 2020 13:29:41	Hg			167	0.001
413136 - 1	06 May 2020 13:32:52	Hg			165	0.001
413136 - 2	06 May 2020 13:32:52	Hg			172	0.001
413136 - 3	06 May 2020 13:32:52	Hg			174	0.002

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Method: Hg WATER Operator: Admin Date of Analysis: 06 May 2020 11:11:34

Sample ID	Date	Element	Units	Extended ID	µ Abs.	Conc.
413136 - 4	06 May 2020 13:32:52	Hg			177	0.002
414390dup 413136 - 1	06 May 2020 13:36:04	Hg			136	-0.003 [ ]
414390dup 413136 - 2	06 May 2020 13:36:04	Hg			136	-0.003 [ ]
414390dup 413136 - 3	06 May 2020 13:36:04	Hg			138	-0.003 [ ]
414390dup 413136 - 4	06 May 2020 13:36:04	Hg			147	-0.002 [ ]
413975 - 1	06 May 2020 13:39:13	Hg			190	0.004
413975 - 2	06 May 2020 13:39:13	Hg			194	0.004
413975 - 3	06 May 2020 13:39:13	Hg			197	0.005
413975 - 4	06 May 2020 13:39:13	Hg			200	0.005
414396msw 412405 - 1	06 May 2020 13:42:23	Hg			14527	1.949
414396msw 412405 - 2	06 May 2020 13:42:23	Hg			14878	1.997
414396msw 412405 - 3	06 May 2020 13:42:23	Hg			15198	2.041
414396msw 412405 - 4	06 May 2020 13:42:23	Hg			15469	2.077
414397msdw 412405 - 1	06 May 2020 13:45:32	Hg			14733	1.977
414397msdw 412405 - 2	06 May 2020 13:45:32	Hg			14989	2.012
414397msdw 412405 - 3	06 May 2020 13:45:32	Hg			15242	2.046
414397msdw 412405 - 4	06 May 2020 13:45:32	Hg			15455	2.075
414391msw 413136 - 1	06 May 2020 13:48:42	Hg			15042	2.019
414391msw 413136 - 2	06 May 2020 13:48:42	Hg			15180	2.038
414391msw 413136 - 3	06 May 2020 13:48:42	Hg			15366	2.063
414391msw 413136 - 4	06 May 2020 13:48:42	Hg			15666	2.104
414392msdw 413136 - 1	06 May 2020 13:51:51	Hg			15350	2.061
414392msdw 413136 - 2	06 May 2020 13:51:51	Hg			15615	2.097
414392msdw 413136 - 3	06 May 2020 13:51:51	Hg			15845	2.128
414392msdw 413136 - 4	06 May 2020 13:51:51	Hg			16084	2.161
lcsw76304 76284 76283 - 1	06 May 2020 13:58:11	Hg			14771	1.983
lcsw76304 76284 76283 - 2	06 May 2020 13:58:11	Hg			15046	2.020
lcsw76304 76284 76283 - 3	06 May 2020 13:58:11	Hg			15173	2.037
lcsw76304 76284 76283 - 4	06 May 2020 13:58:11	Hg			15353	2.062
CCV - 1	06 May 2020 14:01:21	Hg			21720	97.5% 2.926
CCV - 2	06 May 2020 14:01:21	Hg			22189	99.6% 2.989
CCV - 3	06 May 2020 14:01:21	Hg			22790	102.4% 3.071
CCV - 4	06 May 2020 14:01:21	Hg			23191	104.2% 3.125
CCB - 1	06 May 2020 14:07:40	Hg			176	0.002
CCB - 2	06 May 2020 14:07:40	Hg			176	0.002
CCB - 3	06 May 2020 14:07:40	Hg			181	0.003
CCB - 4	06 May 2020 14:07:40	Hg			188	0.004
mbw76304 76284 76283 - 1	06 May 2020 14:10:49	Hg			166	0.001
mbw76304 76284 76283 - 2	06 May 2020 14:10:49	Hg			177	0.002
mbw76304 76284 76283 - 3	06 May 2020 14:10:49	Hg			180	0.003
mbw76304 76284 76283 - 4	06 May 2020 14:10:49	Hg			182	0.003
414669 - 1	06 May 2020 14:13:59	Hg			124	-0.005 [ ]
414669 - 2	06 May 2020 14:13:59	Hg			125	-0.005 [ ]
414669 - 3	06 May 2020 14:13:59	Hg			125	-0.005 [ ]
414669 - 4	06 May 2020 14:13:59	Hg			129	-0.004 [ ]
414688 - 1	06 May 2020 14:17:10	Hg			152	-0.001 [ ]
414688 - 2	06 May 2020 14:17:10	Hg			152	-0.001 [ ]
414688 - 3	06 May 2020 14:17:10	Hg			156	-0.001 [ ]
414688 - 4	06 May 2020 14:17:10	Hg			160	-0.000 [ ]
414786msw 414688 - 1	06 May 2020 14:20:21	Hg			14864	1.995
414786msw 414688 - 2	06 May 2020 14:20:21	Hg			15090	2.026
414786msw 414688 - 3	06 May 2020 14:20:21	Hg			15281	2.052
414786msw 414688 - 4	06 May 2020 14:20:21	Hg			15548	2.088
414787msdw 414688 - 1	06 May 2020 14:23:32	Hg			14981	2.011
414787msdw 414688 - 2	06 May 2020 14:23:32	Hg			15306	2.055
414787msdw 414688 - 3	06 May 2020 14:23:32	Hg			15505	2.082
414787msdw 414688 - 4	06 May 2020 14:23:32	Hg			15684	2.106
414689 - 1	06 May 2020 14:29:51	Hg			105	-0.008 [ ]
414689 - 2	06 May 2020 14:29:51	Hg			107	-0.007 [ ]
414689 - 3	06 May 2020 14:29:51	Hg			112	-0.007 [ ]
414689 - 4	06 May 2020 14:29:51	Hg			113	-0.007 [ ]
414690 - 1	06 May 2020 14:33:01	Hg			143	-0.002 [ ]
414690 - 2	06 May 2020 14:33:01	Hg			153	-0.001 [ ]
414690 - 3	06 May 2020 14:33:01	Hg			154	-0.001 [ ]
414690 - 4	06 May 2020 14:33:01	Hg			161	0.000
414691 - 1	06 May 2020 14:36:11	Hg			131	-0.004 [ ]
414691 - 2	06 May 2020 14:36:11	Hg			136	-0.003 [ ]
414691 - 3	06 May 2020 14:36:11	Hg			139	-0.003 [ ]
414691 - 4	06 May 2020 14:36:11	Hg			142	-0.003 [ ]
414694 - 1	06 May 2020 14:39:21	Hg			126	-0.005 [ ]
414694 - 2	06 May 2020 14:39:21	Hg			129	-0.004 [ ]
414694 - 3	06 May 2020 14:39:21	Hg			127	-0.005 [ ]
414694 - 4	06 May 2020 14:39:21	Hg			128	-0.004 [ ]
CCV - 1	06 May 2020 14:42:30	Hg			22033	98.9% 2.968
CCV - 2	06 May 2020 14:42:30	Hg			22374	100.5% 3.014
CCV - 3	06 May 2020 14:42:30	Hg			22735	102.1% 3.063
CCV - 4	06 May 2020 14:42:30	Hg			23168	104.1% 3.122
CCB - 1	06 May 2020 14:48:49	Hg			181	0.003
CCB - 2	06 May 2020 14:48:49	Hg			186	0.003

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Method: Hg WATER Operator: Admin Date of Analysis: 06 May 2020 11:11:34

Sample ID	Date	Element	Units	Extended ID	µ Abs.	Conc.
CCB - 3	06 May 2020 14:48:49	Hg			193	0.004
CCB - 4	06 May 2020 14:48:49	Hg			197	0.005
414695 - 1	06 May 2020 14:51:59	Hg			152	-0.001 [ ]
414695 - 2	06 May 2020 14:51:59	Hg			155	-0.001 [ ]
414695 - 3	06 May 2020 14:51:59	Hg			144	-0.002 [ ]
414695 - 4	06 May 2020 14:51:59	Hg			151	-0.001 [ ]
414696 - 1	06 May 2020 14:55:08	Hg			151	-0.001 [ ]
414696 - 2	06 May 2020 14:55:08	Hg			157	-0.001 [ ]
414696 - 3	06 May 2020 14:55:08	Hg			164	0.000
414696 - 4	06 May 2020 14:55:08	Hg			159	-0.000 [ ]
414697 - 1	06 May 2020 14:58:18	Hg			130	-0.004 [ ]
414697 - 2	06 May 2020 14:58:18	Hg			132	-0.004 [ ]
414697 - 3	06 May 2020 14:58:18	Hg			136	-0.003 [ ]
414697 - 4	06 May 2020 14:58:18	Hg			135	-0.004 [ ]
414698 - 1	06 May 2020 15:01:28	Hg			213	0.007
414698 - 2	06 May 2020 15:01:28	Hg			219	0.008
414698 - 3	06 May 2020 15:01:28	Hg			215	0.007
414698 - 4	06 May 2020 15:01:28	Hg			218	0.008
414699 - 1	06 May 2020 15:04:39	Hg			243	0.011
414699 - 2	06 May 2020 15:04:39	Hg			240	0.011
414699 - 3	06 May 2020 15:04:39	Hg			245	0.011
414699 - 4	06 May 2020 15:04:39	Hg			254	0.013
414700 - 1	06 May 2020 15:07:50	Hg			172	0.001
414700 - 2	06 May 2020 15:07:50	Hg			175	0.002
414700 - 3	06 May 2020 15:07:50	Hg			174	0.002
414700 - 4	06 May 2020 15:07:50	Hg			182	0.003
414701 - 1	06 May 2020 15:11:01	Hg			134	-0.004 [ ]
414701 - 2	06 May 2020 15:11:01	Hg			133	-0.004 [ ]
414701 - 3	06 May 2020 15:11:01	Hg			136	-0.003 [ ]
414701 - 4	06 May 2020 15:11:01	Hg			141	-0.003 [ ]
413405 - 1	06 May 2020 15:14:11	Hg			115	-0.006 [ ]
413405 - 2	06 May 2020 15:14:11	Hg			106	-0.007 [ ]
413405 - 3	06 May 2020 15:14:11	Hg			105	-0.008 [ ]
413405 - 4	06 May 2020 15:14:11	Hg			105	-0.008 [ ]
414386msw 413405 - 1	06 May 2020 15:17:20	Hg			14413	1.934
414386msw 413405 - 2	06 May 2020 15:17:20	Hg			14648	1.966
414386msw 413405 - 3	06 May 2020 15:17:20	Hg			14886	1.998
414386msw 413405 - 4	06 May 2020 15:17:20	Hg			15117	2.030
414387msdw 413405 - 1	06 May 2020 15:20:30	Hg			14521	1.949
414387msdw 413405 - 2	06 May 2020 15:20:30	Hg			14789	1.985
414387msdw 413405 - 3	06 May 2020 15:20:30	Hg			15075	2.024
414387msdw 413405 - 4	06 May 2020 15:20:30	Hg			15193	2.040
CCV - 1	06 May 2020 15:23:40	Hg			22353	100.4% 3.011
CCV - 2	06 May 2020 15:23:40	Hg			22713	102.0% 3.060
CCV - 3	06 May 2020 15:23:40	Hg			23051	103.5% 3.106
CCV - 4	06 May 2020 15:23:40	Hg			23444	105.3% 3.160
CCB - 1	06 May 2020 15:29:58	Hg			155	-0.001
CCB - 2	06 May 2020 15:29:58	Hg			150	-0.001
CCB - 3	06 May 2020 15:29:58	Hg			152	-0.001
CCB - 4	06 May 2020 15:29:58	Hg			151	-0.001
412395 - 1	06 May 2020 15:33:08	Hg			303	0.019
412395 - 2	06 May 2020 15:33:08	Hg			313	0.021
412395 - 3	06 May 2020 15:33:08	Hg			320	0.022
412395 - 4	06 May 2020 15:33:08	Hg			318	0.021
412543 - 1	06 May 2020 15:36:17	Hg			147	-0.002 [ ]
412543 - 2	06 May 2020 15:36:17	Hg			145	-0.002 [ ]
412543 - 3	06 May 2020 15:36:17	Hg			148	-0.002 [ ]
412543 - 4	06 May 2020 15:36:17	Hg			149	-0.002 [ ]
413094 - 1	06 May 2020 15:39:27	Hg			140	-0.003 [ ]
413094 - 2	06 May 2020 15:39:27	Hg			133	-0.004 [ ]
413094 - 3	06 May 2020 15:39:27	Hg			140	-0.003 [ ]
413094 - 4	06 May 2020 15:39:27	Hg			137	-0.003 [ ]
414380msw 413094 - 1	06 May 2020 15:42:37	Hg			15414	2.070
414380msw 413094 - 2	06 May 2020 15:42:37	Hg			15711	2.110
414380msw 413094 - 3	06 May 2020 15:42:37	Hg			16019	2.152
414380msw 413094 - 4	06 May 2020 15:42:37	Hg			16360	2.198
414381msdw 413094 - 1	06 May 2020 15:45:47	Hg			15200	2.041
414381msdw 413094 - 2	06 May 2020 15:45:47	Hg			15368	2.064
414381msdw 413094 - 3	06 May 2020 15:45:47	Hg			15520	2.084
414381msdw 413094 - 4	06 May 2020 15:45:47	Hg			15808	2.123
414382msw 412543 - 1	06 May 2020 15:48:58	Hg			15136	2.032
414382msw 412543 - 2	06 May 2020 15:48:58	Hg			15522	2.084
414382msw 412543 - 3	06 May 2020 15:48:58	Hg			15886	2.134
414382msw 412543 - 4	06 May 2020 15:48:58	Hg			16081	2.160
414383msdw 412543 - 1	06 May 2020 15:52:09	Hg			15129	2.031
414383msdw 412543 - 2	06 May 2020 15:52:09	Hg			15418	2.070
414383msdw 412543 - 3	06 May 2020 15:52:09	Hg			15677	2.106
414383msdw 412543 - 4	06 May 2020 15:52:09	Hg			15908	2.137
CCV - 1	06 May 2020 15:55:20	Hg			22882	102.8% 3.083

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Method: Hg WATER Operator: Admin Date of Analysis: 06 May 2020 11:11:34

Sample ID	Date	Element	Units	Extended ID	µ Abs.	Conc.
CCV - 2	06 May 2020 15:55:20	Hg			23426	105.2% 3.157
CCV - 3	06 May 2020 15:55:20	Hg			23882	107.3% 3.219
CCV - 4	06 May 2020 15:55:20	Hg			24077	108.2% 3.245
CCB - 1	06 May 2020 16:01:38	Hg			126	-0.005
CCB - 2	06 May 2020 16:01:38	Hg			134	-0.004
CCB - 3	06 May 2020 16:01:38	Hg			138	-0.003
CCB - 4	06 May 2020 16:01:38	Hg			136	-0.003

METALS
LOGBOOK
DOCUMENTS

MICP WATER QSM K&Na Analytical Run
170797 on 05/18/2020

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME		QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	414501								MICP WATER QSM K&Na				
					ICV					0			
	414502								MICP WATER QSM K&Na				
					ICVLL					0			
	414503								MICP WATER QSM K&Na				
					ICB					0			
	414504								MICP WATER QSM K&Na				
					MRL					0			
	414505								MICP WATER QSM K&Na				
					ICSA					0			
	414506								MICP WATER QSM K&Na				
					ICSAB					0			
	413502								ICP K TOTAL QSM 5.0				
					LCSW					76254			
	413502								ICP NA TOTAL QSM 5.0				
					LCSW					76254			
	413501								ICP K TOTAL QSM 5.0				
					MBW					76254			
	413501								ICP NA TOTAL QSM 5.0				
					MBW					76254			
152892	413136		04/28/2020	1438			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	ICP K TOTAL QSM 5.0		GW	**4**	
		54IDW								76254			
152892	413136		04/28/2020	1438			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	ICP NA TOTAL QSM 5.0		GW	**4**	
		54IDW								76254			
	414507								MICP WATER QSM K&Na				
					CCV					0			
	414508								MICP WATER QSM K&Na				
					CCB					0			
	414509								ICP K TOTAL QSM 5.0				
					L	413136				0			
	414509								ICP NA TOTAL QSM 5.0				
					L	413136				0			
	413503		04/28/2020	1438					ICP K TOTAL QSM 5.0				
		54IDW			DUP	413136				76254			
	413503		04/28/2020	1438					ICP NA TOTAL QSM 5.0				
		54IDW			DUP	413136				76254			

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

MICP WATER QSM K&Na Analytical Run
170797 on 05/18/2020

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	413504		04/28/2020 1438					ICP K TOTAL QSM 5.0				
		54IDW		MSW	413136				76254			
	413504		04/28/2020 1438					ICP NA TOTAL QSM 5.0				
		54IDW		MSW	413136				76254			
	413505		04/28/2020 1438					ICP K TOTAL QSM 5.0				
		54IDW		MSDW	413504				76254			
	413505		04/28/2020 1438					ICP NA TOTAL QSM 5.0				
		54IDW		MSDW	413504				76254			
	414510							ICP K TOTAL QSM 5.0				
				PDSW	413136				0			
	414510							ICP NA TOTAL QSM 5.0				
				PDSW	413136				0			
	414511							MICP WATER QSM K&Na				
				CCV					0			
	414629							MICP WATER QSM K&Na				
				CCB								

26 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

MICP WATER QSM Analytical Run
170800 on 05/18/2020

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME		QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	415389								MICP WATER QSM				
					ICV					0			
	415390								MICP WATER QSM				
					ICVLL					0			
	415391								MICP WATER QSM				
					ICB					0			
	415392								MICP WATER QSM				
					ICSA					0			
	415393								MICP WATER QSM				
					ICSAB					0			
	415394								MICP WATER QSM				
					ICVLL					0			
	415395								MICP WATER QSM				
					CCV1					0			
	415396								MICP WATER QSM				
					CCV2					0			
	415397								MICP WATER QSM				
					CCB					0			
	413502								ICP TOTAL QSM 5.0				
					LCSW					76254			
	413501								ICP TOTAL QSM 5.0				
					MBW					76254			
152892	413136		04/28/2020	1438			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	ICP TOTAL QSM 5.0		GW	**4**	
		54IDW								76254			
	415398								ICP TOTAL QSM 5.0				
					L	413136				0			
	413503		04/28/2020	1438					ICP TOTAL QSM 5.0				
		54IDW			DUP	413136				76254			
	413504		04/28/2020	1438					ICP TOTAL QSM 5.0				
		54IDW			MSW	413136				76254			
	413505		04/28/2020	1438					ICP TOTAL QSM 5.0				
		54IDW			MSDW	413504				76254			
	415399								ICP TOTAL QSM 5.0				
					PDSW	413136				0			
	415400								MICP WATER QSM				
					CCV1					0			
	415401								MICP WATER QSM				
					CCV2					0			

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

MICP WATER QSM Analytical Run
170800 on 05/18/2020

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	415402						MICP WATER QSM				
				CCB				0			

20 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

MERCURY QSM 5.0 Analytical Run
170961 on 05/18/2020

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME		QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	416251								MERCURY QSM 5.0				
					ICV					0			
	416252								MERCURY QSM 5.0				
					ICB					0			
	414389								MERCURY TOTAL QSM 5.0				
					LCSW					76285			
	414388								MERCURY TOTAL QSM 5.0				
					MBW					76285			
	416253								MERCURY QSM 5.0				
					CCV					0			
	416254								MERCURY QSM 5.0				
					CCB					0			
152892	413136		04/28/2020	1438			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	MERCURY TOTAL QSM 5.0		GW	**4**	
		54IDW								76285			
	414390		04/28/2020	1438					MERCURY TOTAL QSM 5.0				
		54IDW			DUP	413136				76285			
152962	413975		04/30/2020	1515			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-49	MERCURY TOTAL QSM 5.0		GW	**4**	
		49IDW								76285			
	414391		04/28/2020	1438					MERCURY TOTAL QSM 5.0				
		54IDW			MSW	413136				76285			
	414392		04/28/2020	1438					MERCURY TOTAL QSM 5.0				
		54IDW			MSDW	414391				76285			
	416255								MERCURY QSM 5.0				
					CCV					0			
	416256								MERCURY QSM 5.0				
					CCB					0			

13 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

PREP WORKSHEET
on 05/18/2020

Prep Batch **76,254** Date Prepped: 04/29/2020 Prepped By NAH

Folder #	Order	QC Type	Link	Test	Matrix	Volume	Weight	Initial Volume	SDG Level	Notes
	413501	MBW		ICP K TOTAL QSM 5.0	LIQUID	50		50.0		
	413501	MBW		ICP NA TOTAL QSM 5.0	LIQUID	50		50.0		
	413501	MBW		ICP TOTAL QSM 5.0	LIQUID	50		50.0		
	413502	LCSW		ICP K TOTAL QSM 5.0	LIQUID	50		50.0		
	413502	LCSW		ICP NA TOTAL QSM 5.0	LIQUID	50		50.0		
	413502	LCSW		ICP TOTAL QSM 5.0	LIQUID	50		50.0		
152892	413136			ICP TOTAL QSM 5.0	GROUND WATER	50		50.0	4	
	413136			ICP K TOTAL QSM 5.0	GROUND WATER	50		50.0	4	
	413136			ICP NA TOTAL QSM 5.0	GROUND WATER	50		50.0	4	
	413503	DUP	413136	ICP K TOTAL QSM 5.0	GROUND WATER	50		50.0		
	413503	DUP	413136	ICP NA TOTAL QSM 5.0	GROUND WATER	50		50.0		
	413503	DUP	413136	ICP TOTAL QSM 5.0	GROUND WATER	50		50.0		
	413504	MSW	413136	ICP K TOTAL QSM 5.0	GROUND WATER	50		50.0		
	413504	MSW	413136	ICP NA TOTAL QSM 5.0	GROUND WATER	50		50.0		
	413504	MSW	413136	ICP TOTAL QSM 5.0	GROUND WATER	50		50.0		
	413505	MSDW	413504	ICP K TOTAL QSM 5.0	GROUND WATER	50		50.0		
	413505	MSDW	413504	ICP NA TOTAL QSM 5.0	GROUND WATER	50		50.0		

PREP WORKSHEET
on 05/18/2020

Folder #	Order	QC Type	Link	Test	Matrix	Volume	Weight	Initial Volume	SDG Level	Notes
	413505	MSDW	413504	ICP TOTAL QSM 5.0	GROUND WATER	50		50.0		

Notes:_____

PREP WORKSHEET
on 05/18/2020

Prep Batch **76,285** Date Prepped: 05/05/2020 Prepped By MDS

Folder #	Order	QC Type	Link	Test	Matrix	Volume	Weight	Initial Volume	SDG Level	Notes
	414388	MBW		MERCURY TOTAL QSM	LIQUID	25		25.0		
	414389	LCSW		MERCURY TOTAL QSM	LIQUID	25		25.0		
152892	413136			MERCURY TOTAL QSM	GROUND WATER	25		25.0	4	
152962	413975			MERCURY TOTAL QSM	GROUND WATER	25		25.0	4	
	414390	DUP	413136	MERCURY TOTAL QSM	GROUND WATER	25		25.0		
	414391	MSW	413136	MERCURY TOTAL QSM	GROUND WATER	25		25.0		
	414392	MSDW	414391	MERCURY TOTAL QSM	GROUND WATER	25		25.0		

Notes:_____

Metals Digestion Bench Sheet

Program: QSM
*Matrix: liquid

Prep Methods:
200.2= ICP/GFAA Liquids
3010= ICP Liquids
3020= GFAA Liquids
3005= Sb Liquids
3050= ICP/GFAA Solids
7060/7740= GFAA, As & Se Liquids

Prep Batch #:	76254
Prep Method:	200.2
Analyst:	NAH
Date:	4/30/2020
Start Time:	11:26

Prep Analyst: BMM
Balance ID:
End Date: 4/30/2020
End Time: 22:13
Digestion Tube Lot #: MP3375
Block Used: D2
Cell Position for Temp. Check: 60
Initial-DigestionTemp (ºC): 93
Final-Digestion Temp (ºC): 94

Reagent:	Ref. #
Nitric Acid:	AB.686
Hydrochloric Acid:	AB.689
Hydrogen Peroxide:	

Sample ID			(Solids) Sample Weight (g)	(Liquids) Sample Volume (ml)	Final Volume (ml)
413501	(MB)			50.0	50
413502	(LCS)			50.0	50
413136				50.0	50
	Comments:				50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
413503	DUP			50.0	50
413504	(MS)	Parent Sample		50.0	50
413505	(MSD)	413136		50.0	50
	(DUP)				50
	(MS)	Parent Sample			50
	(MSD)				50
Leave >>	(DUP) if applicable				50
blank	(MS)	Parent Sample			50
if N/A	(MSD)				50

MB=Method Blank, LCS=Laboratory Control Sample, DUP=Duplicate, MS=Matrix Spike & MSD=Matrix Spike Duplicate
*Matrix: Soil, Sludge, Waste, GW=Groundwater, WW=Wastewater, Tissue, TLCP, SPLP, ASTM or other.

MS/MSD Spike Amount (ml)	Spike Ref. #
0.2	M14138
0.5	M14137
0.5	M14109
0.1	M14129
0.1	M14131

LCS Spike Amount (ml)	Spike Ref. #
0.2	M14138
0.5	M14137
0.5	M14109
0.1	M14129
0.1	M14131

Reviewed By/Date:

05/18/202010:40

FMT12-03

Mercury Digestion Bench Sheet

(Prep Methods 7470A & 7471A)

CCV ID: M14280
ICV/LCSW ID: M14281

*Matrix: GW
Balance ID:

Prep Batch #:	76285
Prep Method:	7470A
Analyst:	MDS
Date:	5/5/2020
Start Time:	14:15

7470A= Hg Liquids
7471A= Hg Solids

End Date: 5/5/2020
End Time: 16:15

Digestion Tube Lot #: 4120023
Block Used: B
Cell Position for Temp. Check: A-6
Initial-DigestionTemp (ºC): 91.8
Final-Digestion Temp (ºC): 91.8
Additional KMnO4 added (ml):
Aqua Regia added (ml)
Calibration Stds: M14279

Reagent:	Ref. #
HNO3:	AB.691
H2SO4:	AB.690
NaCl/Hydrox.SO4:	M14284
KMnO4:	M14282
K2S2O8:	M14283
Aqua-Regia:	

	Sample			(Solids) Sample Weight (g)	(Liquids) Sample Volume (ml)	Final Volume (ml)
	414388	(MB)			25.0	25
	414389	(LCS)			25.0	25
	413136				25.0	25
	413975				25.0	25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
	414390	(DUP)			25.0	25
	414391	(MS)	Parent Sample		25.0	25
	414392	(MSD)	413136		25.0	25
Leave >>		(DUP)				25
blank		(MS)	Parent Sample			25
		(MSD)				25
		(DUP)				25
		(MS)	Parent Sample			25
if N/A		(MSD)				25

MB=Method Blank, LCS=Laboratory Control Sample, DUP=Duplicate, MS=Matrix Spike & MSD=Matrix Spike Duplicate
*Matrix: Soil, Sludge, Waste, GW=Groundwater, WW=Wastewater, Tissue, TLCP, SPLP, ASTM or other.

A: Spike Amount (ml)	Spike Conc. (ug/L)	Spike Ref. #
0.5	100	M14281

B: Spike Amount (ml)	Spike Conc. (ug/L)	Spike Ref. #

Reviewed By/Date:

iCAP 6000 / 6500 Data Review Checklist	Analysis Date: 5/1/2020	Data File: NaK050120v1248	Date of review: 5/5/2020
Cal Std ID: M14160 LIMS # : 170797	Analyst: MDS	Reviewer:	Approved? Yes No
Is Audit Trail turned on or Manual Manipulations addressed? Yes / No (If no, any manual manipulations must be initialed, dated, and reason(s) stated for change)			

QC Parameters : 6010 / 200.7 / QSM / Other	YES	NO	YES	NO	Comments:
1) Calibration linearity: r > 0.995 / r > 0.998	✓		✓		
2) ICV: 90-110% / 95-105%	✓		✓		
2) ICVLL: 70-130% / 80-120%	✓		✓		
3) ICB: < 3X IDL / <LOD / <LOQ	✓		✓		
4) ICSA: < ABS LOD	✓		✓		
5) ICSAB: 80-120%	✓		✓		
6) MRL: 70-130% / 80-120%	✓		✓		
7) MDL Check: >LOD					
8) CCV1/CCB1 (CCV: 90-110%)	✓		✓		
9) CCV2/CCB2 (CCB: < 3X IDL / <LOD / <LOQ)					
10) CCV3/CCB3					
11) CCV4/CCB4					
12) CCV5/CCB5					
Preparation Batch Parameters	**YES**	**NO**	**YES**	**NO**	
Prep Batch ID#: 76254 Dig. Meth. 200.2	✓		✓		
LCS - generated limits or project specific limits	✓		✓		
MB - <LOD or ≤ ½ RL	✓		✓	✓	
Spiked samples in batch:					
a) 413136 matrix = GW	✓	✓	✓	✓	Dup invalid K
b)_____ matrix =_____					
c)_____ matrix =_____					
PDS: ±15% / 20% / 25% Sample#:_____					
Prep Batch ID#:_____ Dig. Meth._____					
LCS - generated limits or project specific limits					
MB - <LOD or ≤ ½ RL					
Spiked samples in batch:					
a)_____ matrix =_____					
b)_____ matrix =_____					
c)_____ matrix =_____					
PDS: ±15% / 20% / 25% Sample#:_____					
Prep Batch ID#:_____ Dig. Meth._____					
LCS - generated limits or project specific limits					
MB - <LOD or ≤ ½ RL					
Spiked samples in batch:					
a)_____ matrix =_____					
b)_____ matrix =_____					
c)_____ matrix =_____					
PDS: ±15% / 20% / 25% Sample#:_____					
Prep Batch ID#:_____ Dig. Meth._____					
LCS - generated limits or project specific limits					
MB - <LOD or ≤ ½ RL					
Spiked samples in batch:					
a)_____ matrix =_____					
b)_____ matrix =_____					
c)_____ matrix =_____					
PDS: ±15% / 20% / 25% Sample#:_____					

iCAP 6000 / 6500 Data Review Checklist	Analysis Date: 5-1-2020	Data File: 000ResultsXLS	Date of review: 5/8/2020
Cal Std ID: 200419 LIMS # : 170800	Analyst: [redacted]	Reviewer: MDS	Approved? Yes No

Is Audit Trail turned on or Manual Manipulations addressed? Yes / No (If no, any manual manipulations must be initialed, dated, and reason(s) stated for change)

Prep Batch Check

QC Parameters : 6010 / 200.7 / QSM / Other	YES	NO	YES	NO	Comments:
1) Calibration linearity: r > 0.995 / r > 0.998	✓		✓		
2) ICV: 90-110% / 95-105%	✓		✓		
2) ICVLL: 70-130% / 80-120%	✓		✓		
3) ICB: < 3X IDL / <LOD / <LOQ	✓		✓		
4) ICSA: < ABS LOD	✓		✓		
5) ICSAB: 80-120%	✓		✓		
6) MRL: 70-130% / 80-120%	✓		✓		
7) MDL Check: >LOD					
8) CCV1/CCB1 (CCV: 90-110%)	✓		✓		
9) CCV2/CCB2 (CCB: < 3X IDL / <LOD / <LOQ)					
10) CCV3/CCB3					
11) CCV4/CCB4					
12) CCV5/CCB5					
Preparation Batch Parameters	**YES**	**NO**	**YES**	**NO**	
Prep Batch ID#: 76254 Dig. Meth. 200.2	✓		✓		
LCS - generated limits or project specific limits	✓		✓		
MB - <LOD or ≤ ½ RL	✓	✓	✓	✓	Cu, Se >LOD <½ RL "B"
Spiked samples in batch:					
a) 413136 matrix = GW	✓		✓		
b)_____ matrix = _____					
c)_____ matrix = _____					
PDS: ±15% / 20% / 25% Sample#:_____					
Prep Batch ID#:_____ Dig. Meth._____					
LCS - generated limits or project specific limits					
MB - <LOD or ≤ ½ RL					
Spiked samples in batch:					
a)_____ matrix = _____					
b)_____ matrix = _____					
c)_____ matrix = _____					
PDS: ±15% / 20% / 25% Sample#:_____					
Prep Batch ID#:_____ Dig. Meth._____					
LCS - generated limits or project specific limits					
MB - <LOD or ≤ ½ RL					
Spiked samples in batch:					
a)_____ matrix = _____					
b)_____ matrix = _____					
c)_____ matrix = _____					
PDS: ±15% / 20% / 25% Sample#:_____					
Prep Batch ID#:_____ Dig. Meth._____					
LCS - generated limits or project specific limits					
MB - <LOD or ≤ ½ RL					
Spiked samples in batch:					
a)_____ matrix = _____					
b)_____ matrix = _____					

GFAA / FLAA / CVAA Data Review checklist | Method: 200.9 | 7000 series AA | 245.1 & 245.2 | 245.7 | 7470a / 7471a

Instrumentation: THERMO M SERIES AA | CETAC Hg ANALYZER

Analysis Date: 5/6/2020 | Data File: 050620w | Date Review: 5/7/2020 | **Analyte:** Hg

Cal Std ID: M14279 | LIMS # : 170961 | Analyst: MOS | Reviewer: [signature] | Approved? Yes / No

Is Audit Trail turned on or Manual Manipulations addressed? Yes / No (If no, any manual manipulations must be initialed, dated, and reason(s) stated for change)

Calibration Parameters -	YES	NO	YES	NO	**Comments:**
1) Calibration linearity - r > 0.995	✓		✓		
2) ICV: 90-110% 95-105%	✓		✓		
2) ICVLL: 70-130% 80-120%					
3) ICB: <IDL / <LOD / <LOQ / <½ RL	✓		✓		
6) MRL: 70-130%					
7) CCV1/CCB1- (CCV: 90-110% / 80-120%)	✓		✓		
8) CCV2/CCB2 (CCB: <IDL / <LOD / <LOQ / <½ RL)					
9) CCV3/CCB3					
10) CCV4/CCB4					
11) CCV5/CCB5					

Preparation Batch Parameters	YES	NO	YES	NO	**Comments:**
Prep Batch ID#: 76285 Dig. Meth. 7470a	✓		✓		
LCS - generated limits or project specific limits	✓		✓		
MB - <LOD / <2.2X LOD / ≤ ½RL	✓		✓		
Spiked samples in batch:					
a) 413136 matrix = GW	✓	✓	—	✓	Dup invalid
b) _____ matrix = _____					
c) _____ matrix = _____					
d) _____ matrix = _____					
e) _____ matrix = _____					
PDS: ±15% / 20% / 25% Sample# _____					
MSA Performed? Yes No					
Prep Batch ID#: _____ Dig. Meth. _____					
LCS - generated limits or project specific limits					
MB - <LOD / <2.2X LOD / ≤ ½RL					
Spiked samples in batch:					
a) _____ matrix = _____					
b) _____ matrix = _____					
c) _____ matrix = _____					
d) _____ matrix = _____					
e) _____ matrix = _____					
PDS: ±15% / 20% / 25% Sample# _____					
MSA Performed? Yes No					
Prep Batch ID#: _____ Dig. Meth. _____					
LCS - generated limits or project specific limits					
MB - <LOD / <2.2X LOD / ≤ ½RL					
Spiked samples in batch:					
a) _____ matrix = _____					
b) _____ matrix = _____					
c) _____ matrix = _____					
d) _____ matrix = _____					
e) _____ matrix = _____					
PDS: ±15% / 20% / 25% Sample# _____					
MSA Performed? Yes No					

CT Laboratories Instrument Run Log

Instrument ID: ICP 6000 (See Journal for Wavelength Check)

Date	Time Start/End	Analyst	Method	LIMS# or Sample #	Sequence I.D.	Cal. Std.	Alt. Source	Pressure (kPa) Comments	Analysis Tube Lot #	ICSA/ ICSAB
3/5/2020	1225 / 1618	MDS	NaK	169227, 169145, 169223, 169235, 169236, 169213, 169238,	NaK030520 v1234	M14160	M14162 M14163	350	290937	M14023 M14164
3/12/2020	0925 / 1145	MDS	NaK	169951, 169422, 169291	NaK031220 v1235	M14160	M14162 M14163	350	283466	M14023 M14164
3/16/2020	1027 / 1243	MDS	NaK	169501, 169498, 169503, 169496	NaK031620 v1236	M14160	M14162 M14163	350	283466	M14023 M14164
3/19/2020	1206 / 1625	MDS	NaK	169664, 169665, 169663, 169644, 169589, 169587, 169597,	NaK031926 v1237	M14160	M14162 M14163	350	283466	M14023 M14164
3/27/2020	1017 / 1625	MDS	NaK	169790, 169898, 169894, 169892, 169771, 169697, 169884, 169783, 169776, 169776	NaK032720 v1238	M14160	M14162 M14163	350	283466	M14023 M14164
4/2/2020	0950 / 1221	MDS	NaK	169990, 169771, 169898, 169776, 169995,	NaK040220 v1239	M14160	M14162 M14163	350	283466	M14023 M14164
4/6/2020	0953 / 1150	MDS	NaK	170107, 170061	NaK040620 v1241 #3340	M14160	M14162 M14163	350	283466	M14023 M14164
4/8/2020	0941 / 1123	MDS	NaK	170144, 170113	NaK040820 v1242	M14160	M14162 M14163	350	283466	M14023 M14164
4/10/2020	1205 / 1628	MDS	NaK	170256, 170258, 170260, 170230, 170184, 170271, 170265,	NaK041020 v1243	M14160	M14162 M14163	350	297109	M14023 M14164
4/16/2020	0946 / 1225	MDS	NaK	170301, 170391, 170396, 170401	NaK041620 v1244	M14160	M14162 M14163	350	297109	M14023 M14164
4/20/2020	1155 / 1509	MDS	NaK	170453, 170458, 170459, 170455	NaK042020 v1245	M14160	M14162 M14163	350	297109	M14023 M14164
4/24/2020	0903 / 1303	MDS	NaK	170520, 170519, 170636, 170648 170453, 170543, 170541, 170523,	NaK042420 v1247 v1246	M14160	M14162 M14163	350	297109	M14023 M14164
5/1/2020	0841 / 1411	MDS	NaK	170721, 170788, 170749, 170789, 170645 170798, 170797, 170796, 170733, 170643	NaK050120 v1248	M14160	M14162 M14163	350	297109	M14023 M14164
5/7/2020	1152 / 1653	MDS	NaK	170873, 170789, 170930, 170881 170926, 170876, 170856, 170895, 170879,	NaK050720 v1249	M14160	M14162 M14163	350	297109	M14023 M14164
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CT Laboratories, LLC

ICP-6500 Instrument Run Logbook

Date	Time: Start / End	Analyst	Analytes / Sequence I.D.	Method	LIMS # or Sample Description	Nebulizer Pressure (kpa)	Calib. Std ID	Version	Comments
4/8/2020	0749 / 1134	JA	040820	DODCal u	170162	260	M14169 M14170	V3813 V3811	M14230 M14173 M14171 M14174 M14023 M14172
4/10/2020	0946 / 0319	JA	041020	DODCal u	170185 170263 170264 170274 170229 170266 170257 170272 170237 170259 170260 170273	260	M14169 M14170	V3814 V3812	M14230 M14173 M14171 M14174 M14023 M14172
4/11/2020	1314 / 2040	JA	041420	DODCal u	170333 170332 170331 170153 170300 170330	260	M14169 M14170	V3820 V3816	M14230 M14173 M14171 M14174 M14023 M14172
4/17/2020	0905 / 0409	JA	041720	DODCal u	170446 170451 170392 170259 170454 170397 170395 170440 170456 170393 170229 170411	260	M14169 M14170	V3823 V3828	M14230 M14173 M14171 M14174 M14023 M14172
4/21/2020	1123 / 0614	JA	042120	DODCal u	170423 170397 170521 170451 170517 170441 170516 170452 170518 170515	260	M14169 M14170	V3838 V3830	M14230 M14173 M14171 M14174 M14023 M14172
4/24/2020	1019 / 0608	JA	042420	DODCal u	170542 170635 170634 170647 170573 170644 170646 170653 170544 170639 170642 170656	260	M14169 M14170	V3833 V3831	M14230 M14173 M14171 M14174 M14023 M14172
4/30/2020	1223 / 5-1-2020 1241	JA	042920	DODCal u	MDL, 170518 170287, 170641 170803 170593 170286 170657 170795 170791 170721, 22 170726	270 260	M14169 M14170	V3841 V3840 V3842	M14230 M14173 M14171 M14174 M14023 M14172
5/1/2020	1331 / 0303	JA	050120	DODCal u	170720 170711 170799 170781 170792 170801 170825 170802 170800 170824	270	M14169 M14170	V3843	M14230 M14173 M14171 M14174 M14023 M14172
5/6/2020	0824 / 5/7/2020 1047	JA	050620	DODCal u	170731 170927 170883 170875 170929 170859 170874 170957 170884 170882 170855 170931 170925 170880 170878 170928 170877,88	270	M14169 M14170	V3850 V3852 V3849 V3848	M14230 M14173 M14171 M14174 M14023 M14172
5/8/2020	/	JA	050820	DODCal u					
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Comments: _____

Checked By / Date: _____

CT Laboratories

Mercury Analyzer Instrument Run Log

Instrument ID: Cetac M-6000A

Analysis Date	Start Time	End Time	Analyst	LIMS Run # (s)	Method File ID #	Cal. Std. ID #	Lamp Current (mA)	Analysis Tube Lot #	Comments
4/28/2020	0911	1056	MDS	170703, 170702, 170704, MDLW	042820W	M14268	9.860	2834666	$SnCl_2$: M14274
4/29/2020	1057	1358	MDS	170746, 170745, MDLS	042920S	M14268	9.930	2834666	$SnCl_2$: M14274
5/6/2020	0932	1100	MDS	170953, 170952	050620S	M14279	9.871	2834666	$SnCl_2$: M14286
5/6/2020	1216	1601	MDS	170963, 170958, 170959, 170960, 170961, 170962	050620W	M14279	9.871	2834666	$SnCl_2$: M14286

Reviewed By/Date:_____

Type	Date/Time	Message	User name	Application	Sequence Name
	04/24/2020 12:07:50	Running blank (43)	MDS	Analyst	S_Sodium and Pota
	04/24/2020 12:10:41	Running lcsw76182 (44)	MDS	Analyst	S_Sodium and Pota
	04/24/2020 12:13:27	Running mbw76182 (45)	MDS	Analyst	S_Sodium and Pota
	04/24/2020 12:16:19	Running 411131 (46)	MDS	Analyst	S_Sodium and Pota
	04/24/2020 12:19:05	Running l411131 (47)	MDS	Analyst	S_Sodium and Pota
	04/24/2020 12:21:55	Running msw411131 (48)	MDS	Analyst	S_Sodium and Pota
	04/24/2020 12:24:42	Running pdsw411131 (49)	MDS	Analyst	S_Sodium and Pota
	04/24/2020 12:27:28	Running 411132 (50)	MDS	Analyst	S_Sodium and Pota
	04/24/2020 12:30:14	Running ccv (14)	MDS	Analyst	S_Sodium and Pota
	04/24/2020 12:33:01	Running ccb (15)	MDS	Analyst	S_Sodium and Pota
	04/24/2020 12:35:52	Running lcsw76174 (51)	MDS	Analyst	S_Sodium and Pota
	04/24/2020 12:38:38	Running mbw76174 (52)	MDS	Analyst	S_Sodium and Pota
	04/24/2020 12:41:29	Running 410865 (53)	MDS	Analyst	S_Sodium and Pota
	04/24/2020 12:44:16	Running l410865 (54)	MDS	Analyst	S_Sodium and Pota
	04/24/2020 12:47:06	Running dup410865 (55)	MDS	Analyst	S_Sodium and Pota
	04/24/2020 12:49:53	Running msw410865 (56)	MDS	Analyst	S_Sodium and Pota
	04/24/2020 12:52:39	Running msdw410865 (57)	MDS	Analyst	S_Sodium and Pota
	04/24/2020 12:55:25	Running pdsw410865 (58)	MDS	Analyst	S_Sodium and Pota
	04/24/2020 12:58:11	Running mrl (16)	MDS	Analyst	S_Sodium and Pota
	04/24/2020 13:01:01	Running ccv (14)	MDS	Analyst	S_Sodium and Pota
	04/24/2020 13:03:48	Running ccb (15)	MDS	Analyst	S_Sodium and Pota
	04/24/2020 13:06:39	Plasma off	MDS	iTEVA Control Center	
	04/24/2020 13:06:39	Plasma extinguished successfully	MDS	Analyst	
	04/24/2020 13:06:41	Autosampler Run Completed	MDS	Analyst	S_Sodium and Pota
	05/01/2020 08:14:59	Plasma On	MDS	iTEVA Control Center	
	05/01/2020 08:15:05	Plasma ignition successful	MDS	Analyst	
	05/01/2020 08:15:43	D33534 - Debug:Wavelength check : x = -0.612, y =-0.341	MDS	Analyst	
	05/01/2020 08:41:01	Sequence Started	MDS	Analyst	S_Sodium and Pota
	05/01/2020 08:41:01	Autosampler Run Started	MDS	Analyst	
	05/01/2020 08:41:22	Running Blank (1)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 08:44:23	Running CalibStd-0.5 (2)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 08:47:13	Running CalibStd-1.0 (3)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 08:50:02	Running CalibStd-5.0 (4)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 08:52:50	Running CalibStd-10.0 (5)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 08:55:37	Running CalibStd-50 (6)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 08:58:24	Running CalibStd-100 (7)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 09:01:11	Running CalibStd-200 (8)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 09:04:05	Running CalibStd-500 (9)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 09:07:14	Running icv (10)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 09:10:00	Running ICVLL (17)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 09:12:47	Running icb (11)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 09:15:37	Running mrl (16)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 09:18:27	Running icsa (12)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 09:21:37	Running icsab (13)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 09:24:42	Running lcsw76235 (1)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 09:27:31	Running mbw76235 (2)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 09:30:22	Running 412285 (3)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 09:33:07	Running l412285 (4)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 09:35:52	Running dup412285 (5)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 09:38:38	Running msw412285 (6)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 09:41:23	Running blank (7)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 09:44:14	Running lcsw76254 (8)	MDS	Analyst	S_Sodium and Pota

Type	Date/Time	Message	User name	Application	Sequence Name
	05/01/2020 09:47:00	Running mbw76254 (9)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 09:49:51	Running 413136 (10)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 09:52:42	Running ccv (14)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 09:55:29	Running ccb (15)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 09:58:19	Running l413136 (11)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 10:01:09	Running dup413136 (12)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 10:03:59	Running msw413136 (13)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 10:06:44	Running msdw413136 (14)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 10:09:30	Running pdsw413136 (15)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 10:12:15	Running lcsw76229 (16)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 10:15:01	Running mbw76229 (17)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 10:17:51	Running 412405 (18)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 10:20:40	Running l412405 (19)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 10:23:31	Running dup412405 (20)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 10:26:20	Running ccv (14)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 10:29:07	Running ccb (15)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 10:31:57	Running msw412405 (21)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 10:34:43	Running msdw412405 (22)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 10:37:29	Running pdsw412405 (23)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 10:40:16	Running lcsw (24)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 10:43:06	Running mbw (25)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 10:45:57	Running 412543 (26)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 10:48:46	Running msw412543 (27)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 10:51:35	Running msdw412543 (28)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 10:54:24	Running lcsw76161 (29)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 10:57:10	Running mbw76161 (30)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 11:00:01	Running ccv (14)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 11:02:47	Running ccb (15)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 11:05:37	Running 410433 (31)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 11:08:26	Running 410434 (32)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 11:11:13	Running 410435 (33)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 11:13:59	Running 410448 (34)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 11:16:49	Running 410475 (35)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 11:19:39	Running 410476 (36)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 11:22:29	Running 410485 (37)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 11:25:15	Running msw410485 (38)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 11:28:13	Running msdw410485 (39)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 11:31:10	Running pdsw410485 (40)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 11:34:08	Running ccv (14)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 11:36:55	Running ccb (15)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 11:39:45	Running 410486 (41)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 11:42:43	Running 410487 (42)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 11:45:38	Running msw410487 (43)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 11:48:33	Running msdw410487 (44)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 11:51:28	Running pdsw410487 (45)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 11:54:24	Running lcss76218 (46)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 11:57:08	Running mbs76218 (47)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 12:00:00	Running 411418 (48)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 12:02:46	Running mss411418 (49)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 12:05:31	Running msds411418 (50)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 12:08:16	Running ccv (14)	MDS	Analyst	S_Sodium and Pota
	05/01/2020 12:11:02	Running ccb (15)	MDS	Analyst	S_Sodium and Pota

Type	Date/Time	Message	User name	Application	Sequence Name
	05/01/2020 12:23:53	Running MRL/LLOQ (25)	NAH	Analyst	S_DOD Calibration
	05/01/2020 12:30:10	Running ccv1 (31)	NAH	Analyst	S_DOD Calibration
	05/01/2020 12:35:56	Running ccv2 (29)	NAH	Analyst	S_DOD Calibration
	05/01/2020 12:41:51	Running ccb (30)	NAH	Analyst	S_DOD Calibration
	05/01/2020 12:48:08	Autosampler Run Completed	NAH	Analyst	S_DOD Calibration
	05/01/2020 13:21:31	Sequence Started	NAH	Analyst	S_DOD Calibration
	05/01/2020 13:21:31	Autosampler Run Started	NAH	Analyst	
	05/01/2020 13:21:53	Running Blank (1)	NAH	Analyst	S_DOD Calibration
	05/01/2020 13:28:18	Running CalStd2=0.5 (2)	NAH	Analyst	S_DOD Calibration
	05/01/2020 13:34:38	Running CalStd3=1 (3)	NAH	Analyst	S_DOD Calibration
	05/01/2020 13:40:56	Running CalStd4=5 (4)	NAH	Analyst	S_DOD Calibration
	05/01/2020 13:48:13	Running CalStd5=10 (5)	NAH	Analyst	S_DOD Calibration
	05/01/2020 13:55:12	Running CalStd6=20 (6)	NAH	Analyst	S_DOD Calibration
	05/01/2020 13:56:23	Closing will close the method and all associated samples.	NAH	Analyst	
	05/01/2020 14:01:33	Running CalStd7=50 (7)	NAH	Analyst	S_DOD Calibration
	05/01/2020 14:05:13	Closing will close the method and all associated samples.	NAH	Analyst	
	05/01/2020 14:07:50	Running CalStd8=100 (8)	NAH	Analyst	S_DOD Calibration
	05/01/2020 14:12:44	Closing will close the method and all associated samples.	NAH	Analyst	
	05/01/2020 14:14:08	Running CalStd9=1000 (9)	NAH	Analyst	S_DOD Calibration
	05/01/2020 14:19:52	Running CalStd10=10000 (10)	NAH	Analyst	S_DOD Calibration
	05/01/2020 14:26:41	Running CalStd12=100K (11)	NAH	Analyst	S_DOD Calibration
	05/01/2020 14:33:24	Running CalStd13=100000 (12)	NAH	Analyst	S_DOD Calibration
	05/01/2020 14:39:44	Running CalStd14=500000 (13)	NAH	Analyst	S_DOD Calibration
	05/01/2020 14:46:50	Running CalibStd15=1000k (14)	NAH	Analyst	S_DOD Calibration
	05/01/2020 14:54:35	Running Ag Ba 1000, 50000 (15)	NAH	Analyst	S_DOD Calibration
	05/01/2020 15:01:22	Running blkrinse (22)	NAH	Analyst	S_DOD Calibration
	05/01/2020 15:07:38	Running icv (16)	NAH	Analyst	S_DOD Calibration
	05/01/2020 15:13:55	Running icv (16)	NAH	Analyst	S_DOD Calibration
	05/01/2020 15:20:12	Running ICVLL (24)	NAH	Analyst	S_DOD Calibration
	05/01/2020 15:26:23	Running icb (17)	NAH	Analyst	S_DOD Calibration
	05/01/2020 15:32:41	Running icb (17)	NAH	Analyst	S_DOD Calibration
	05/01/2020 15:39:00	Running MRL/LLOQ (25)	NAH	Analyst	S_DOD Calibration
	05/01/2020 15:45:15	Running ICSA (20)	NAH	Analyst	S_DOD Calibration
	05/01/2020 15:52:18	Running ICSAB (21)	NAH	Analyst	S_DOD Calibration
	05/01/2020 15:58:56	Running blkrinse (22)	NAH	Analyst	S_DOD Calibration
	05/01/2020 16:05:11	Running ICVLL ag (1)	NAH	Analyst	S_DOD Calibration
	05/01/2020 16:11:30	Running 413596 (2)	NAH	Analyst	S_DOD Calibration
	05/01/2020 16:18:01	Running msw413596 (3)	NAH	Analyst	S_DOD Calibration
	05/01/2020 16:24:30	Running msdw413596 (4)	NAH	Analyst	S_DOD Calibration
	05/01/2020 16:31:01	Running 413607 (5)	NAH	Analyst	S_DOD Calibration
	05/01/2020 16:37:35	Running 413608 (6)	NAH	Analyst	S_DOD Calibration
	05/01/2020 16:44:15	Running 413609 (7)	NAH	Analyst	S_DOD Calibration
	05/01/2020 16:50:46	Running 413610 (8)	NAH	Analyst	S_DOD Calibration
	05/01/2020 16:57:27	Running 413611 (9)	NAH	Analyst	S_DOD Calibration
	05/01/2020 17:04:02	Running 413612 (10)	NAH	Analyst	S_DOD Calibration
	05/01/2020 17:10:43	Running ccv1 (23)	NAH	Analyst	S_DOD Calibration
	05/01/2020 17:16:24	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration
	05/01/2020 17:22:15	Running ccb (19)	NAH	Analyst	S_DOD Calibration
	05/01/2020 17:28:35	Running 413613 (11)	NAH	Analyst	S_DOD Calibration
	05/01/2020 17:35:01	Running 413614 (12)	NAH	Analyst	S_DOD Calibration
	05/01/2020 17:41:40	Running 413616 (13)	NAH	Analyst	S_DOD Calibration
	05/01/2020 17:48:36	Running 413617 (14)	NAH	Analyst	S_DOD Calibration

Type	Date/Time	Message	User name	Application	Sequence Name
	05/01/2020 17:55:04	Running 413618 (15)	NAH	Analyst	S_DOD Calibration
	05/01/2020 18:01:46	Running 413619 (16)	NAH	Analyst	S_DOD Calibration
	05/01/2020 18:08:20	Running 413620 (17)	NAH	Analyst	S_DOD Calibration
	05/01/2020 18:14:52	Running 413621 (18)	NAH	Analyst	S_DOD Calibration
	05/01/2020 18:21:34	Running 413622 (19)	NAH	Analyst	S_DOD Calibration
	05/01/2020 18:28:06	Running 413623 (20)	NAH	Analyst	S_DOD Calibration
	05/01/2020 18:34:28	Running ccv1 (23)	NAH	Analyst	S_DOD Calibration
	05/01/2020 18:40:09	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration
	05/01/2020 18:46:01	Running ccb (19)	NAH	Analyst	S_DOD Calibration
	05/01/2020 18:52:21	Running 413624 (21)	NAH	Analyst	S_DOD Calibration
	05/01/2020 18:59:08	Running 413626 (22)	NAH	Analyst	S_DOD Calibration
	05/01/2020 19:06:12	Running 413627 (23)	NAH	Analyst	S_DOD Calibration
	05/01/2020 19:12:24	Running 413628 (24)	NAH	Analyst	S_DOD Calibration
	05/01/2020 19:18:54	Running 413629 (25)	NAH	Analyst	S_DOD Calibration
	05/01/2020 19:25:27	Running 413630 (26)	NAH	Analyst	S_DOD Calibration
	05/01/2020 19:32:11	Running 413631 (27)	NAH	Analyst	S_DOD Calibration
	05/01/2020 19:38:37	Running 413632 (28)	NAH	Analyst	S_DOD Calibration
	05/01/2020 19:45:19	Running msw413632 (29)	NAH	Analyst	S_DOD Calibration
	05/01/2020 19:51:52	Running msdw413632 (30)	NAH	Analyst	S_DOD Calibration
	05/01/2020 19:58:24	Running ccv1 (23)	NAH	Analyst	S_DOD Calibration
	05/01/2020 20:04:05	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration
	05/01/2020 20:09:57	Running ccb (19)	NAH	Analyst	S_DOD Calibration
	05/01/2020 20:16:18	Running lcsw76256 (31)	NAH	Analyst	S_DOD Calibration
	05/01/2020 20:22:31	Running mbw76256 (32)	NAH	Analyst	S_DOD Calibration
	05/01/2020 20:28:50	Running 413408 (33)	NAH	Analyst	S_DOD Calibration
	05/01/2020 20:35:25	Running l413408 (34)	NAH	Analyst	S_DOD Calibration
	05/01/2020 20:42:03	Running dup413408 (35)	NAH	Analyst	S_DOD Calibration
	05/01/2020 20:48:38	Running msw413408 (36)	NAH	Analyst	S_DOD Calibration
	05/01/2020 20:55:01	Running msdw413408 (37)	NAH	Analyst	S_DOD Calibration
	05/01/2020 21:01:25	Running pdsw413408 (38)	NAH	Analyst	S_DOD Calibration
	05/01/2020 21:07:47	Running 413410 (39)	NAH	Analyst	S_DOD Calibration
	05/01/2020 21:14:35	Running 413412 (40)	NAH	Analyst	S_DOD Calibration
	05/01/2020 21:21:37	Running ccv1 (23)	NAH	Analyst	S_DOD Calibration
	05/01/2020 21:27:19	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration
	05/01/2020 21:33:11	Running ccb (19)	NAH	Analyst	S_DOD Calibration
	05/01/2020 21:39:30	Running 413414 (41)	NAH	Analyst	S_DOD Calibration
	05/01/2020 21:46:11	Running lcsw76255 (42)	NAH	Analyst	S_DOD Calibration
	05/01/2020 21:52:31	Running mbw76255 (43)	NAH	Analyst	S_DOD Calibration
	05/01/2020 21:58:50	Running 413407 (44)	NAH	Analyst	S_DOD Calibration
	05/01/2020 22:05:24	Running l413407 (45)	NAH	Analyst	S_DOD Calibration
	05/01/2020 22:12:01	Running dup413407 (46)	NAH	Analyst	S_DOD Calibration
	05/01/2020 22:18:35	Running msw413407 (47)	NAH	Analyst	S_DOD Calibration
	05/01/2020 22:24:57	Running msdw413407 (48)	NAH	Analyst	S_DOD Calibration
	05/01/2020 22:31:20	Running pdsw413407 (49)	NAH	Analyst	S_DOD Calibration
	05/01/2020 22:37:44	Running 413409 (50)	NAH	Analyst	S_DOD Calibration
	05/01/2020 22:44:30	Running ccv1 (23)	NAH	Analyst	S_DOD Calibration
	05/01/2020 22:50:11	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration
	05/01/2020 22:56:03	Running ccb (19)	NAH	Analyst	S_DOD Calibration
	05/01/2020 23:02:23	Running 413411 (51)	NAH	Analyst	S_DOD Calibration
	05/01/2020 23:09:04	Running 413413 (52)	NAH	Analyst	S_DOD Calibration
	05/01/2020 23:15:36	Running lcsw76254 (53)	NAH	Analyst	S_DOD Calibration
	05/01/2020 23:21:58	Running mbw76254 (54)	NAH	Analyst	S_DOD Calibration

Type	Date/Time	Message	User name	Application	Sequence Name
	05/01/2020 23:28:18	Running 413136 (55)	NAH	Analyst	S_DOD Calibration
	05/01/2020 23:35:01	Running l413136 (56)	NAH	Analyst	S_DOD Calibration
	05/01/2020 23:41:47	Running dup413136 (57)	NAH	Analyst	S_DOD Calibration
	05/01/2020 23:48:30	Running msw413136 (58)	NAH	Analyst	S_DOD Calibration
	05/01/2020 23:54:51	Running msdw413136 (59)	NAH	Analyst	S_DOD Calibration
	05/02/2020 00:01:15	Running pdsw413136 (60)	NAH	Analyst	S_DOD Calibration
	05/02/2020 00:07:47	Running ccv1 (23)	NAH	Analyst	S_DOD Calibration
	05/02/2020 00:13:29	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration
	05/02/2020 00:19:20	Running ccb (19)	NAH	Analyst	S_DOD Calibration
	05/02/2020 00:25:40	Running lcsw76257 76259 (61)	NAH	Analyst	S_DOD Calibration
	05/02/2020 00:32:00	Running mbw76257 76259 (62)	NAH	Analyst	S_DOD Calibration
	05/02/2020 00:38:20	Running 413077 (63)	NAH	Analyst	S_DOD Calibration
	05/02/2020 00:45:07	Running 413094 (64)	NAH	Analyst	S_DOD Calibration
	05/02/2020 00:51:53	Running msw413094 (65)	NAH	Analyst	S_DOD Calibration
	05/02/2020 00:58:17	Running msdw413094 (66)	NAH	Analyst	S_DOD Calibration
	05/02/2020 01:04:42	Running pdsw413094 (67)	NAH	Analyst	S_DOD Calibration
	05/02/2020 01:11:16	Running 413405 (68)	NAH	Analyst	S_DOD Calibration
	05/02/2020 01:18:00	Running msw413405 (69)	NAH	Analyst	S_DOD Calibration
	05/02/2020 01:24:21	Running msdw413405 (70)	NAH	Analyst	S_DOD Calibration
	05/02/2020 01:30:42	Running ccv1 (28)	NAH	Analyst	S_DOD Calibration
	05/02/2020 01:36:26	Running ccv2 (26)	NAH	Analyst	S_DOD Calibration
	05/02/2020 01:42:19	Running ccb (27)	NAH	Analyst	S_DOD Calibration
	05/02/2020 01:48:40	Running pdsw413405 (71)	NAH	Analyst	S_DOD Calibration
	05/02/2020 01:55:10	Running mbw 3 (72)	NAH	Analyst	S_DOD Calibration
	05/02/2020 02:01:30	Running mbw 3 (2)1 (73)	NAH	Analyst	S_DOD Calibration
	05/02/2020 02:07:50	Running MDL water 3 (74)	NAH	Analyst	S_DOD Calibration
	05/02/2020 02:14:05	Running MDL water 3 (2) (75)	NAH	Analyst	S_DOD Calibration
	05/02/2020 02:20:20	Running mbs 3 (76)	NAH	Analyst	S_DOD Calibration
	05/02/2020 02:26:40	Running mbs 3 (2) (77)	NAH	Analyst	S_DOD Calibration
	05/02/2020 02:33:00	Running mdl soil 3 (78)	NAH	Analyst	S_DOD Calibration
	05/02/2020 02:39:21	Running mdl soil 3 (2)1 (79)	NAH	Analyst	S_DOD Calibration
	05/02/2020 02:45:40	Running MRL/LLOQ (25)	NAH	Analyst	S_DOD Calibration
	05/02/2020 02:51:56	Running ccv1 (28)	NAH	Analyst	S_DOD Calibration
	05/02/2020 02:57:39	Running ccv2 (26)	NAH	Analyst	S_DOD Calibration
	05/02/2020 03:03:31	Running ccb (27)	NAH	Analyst	S_DOD Calibration
	05/02/2020 03:09:52	Plasma extinguished successfully	NAH	Analyst	
	05/02/2020 03:09:53	Plasma off	NAH	iTEVA Control Center	
	05/02/2020 03:09:55	Autosampler Run Completed	NAH	Analyst	S_DOD Calibration
	05/04/2020 06:59:55	E2208 - : Plasma ignition failed; RF seems OK. Check your sample intr	NAH	Analyst	
	05/04/2020 07:00:41	Plasma On	NAH	iTEVA Control Center	
	05/04/2020 07:00:47	Plasma ignition successful	NAH	Analyst	
	05/04/2020 07:01:34	D33534 - Debug:Wavelength check : x = 0.914, y =-0.709	NAH	Analyst	
	05/04/2020 14:54:15	E9006 - : Plasma went out unexpectedly; RF reported over current failu	NAH	iTEVA Control Center	
	05/05/2020 06:47:57	Plasma ignition successful	NAH	Analyst	
	05/05/2020 06:48:44	D33534 - Debug:Wavelength check : x = 0.983, y =-0.795	NAH	Analyst	
	05/05/2020 06:50:05	Plasma On	NAH	iTEVA Control Center	
	05/05/2020 13:46:13	Plasma extinguished successfully	NAH	Analyst	
	05/05/2020 13:46:13	Plasma off	NAH	iTEVA Control Center	
	05/06/2020 06:51:04	Plasma On	NAH	iTEVA Control Center	
	05/06/2020 06:51:09	Plasma ignition successful	NAH	Analyst	
	05/06/2020 06:51:56	D33534 - Debug:Wavelength check : x = 0.978, y =-0.714	NAH	Analyst	
	05/06/2020 08:06:52	Autosampler Run Started	NAH	Analyst	

Standard Log #:	M14291	Reagent:	Potassium Permanganate Solution
Analyst:	MDS		
Prep Date:	05/12/2020	Expiration Date:	06/12/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M14292	Reagent:	Potassium Persulfate Solution
Analyst:	MDS		
Prep Date:	05/12/2020	Expiration Date:	06/12/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13714 and brought up to volume.		

Standard Log #:	M14293	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	MDS		
Prep Date:	05/12/2020	Expiration Date:	06/12/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M14194 and **60 g** hydroxylamine sulfate M14193 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14294	Reagent:	Hg Aqua Regia
Analyst:	MDS		
Prep Date:	05/12/2020	Expiration Date:	05/13/2020
Prep:	Carefully mixed **3** parts HCl AB.685 with **1** part HNO_3 AB.691 in a hood.		

		Instrument:	CETAC
Standard Log #:	M14295	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	05/12/2020	Expiration Date:	06/12/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14157 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14288	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	05/12/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14289	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	05/12/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14290	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	05/12/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard Log #:	M14287	Reagent:	10N NaOH
Analyst:	BMM		
Prep Date:	05/08/2020	Expiration Date:	05/08/2021
Prep:	Into a 1 L volumetric flask, added **400 g** NaOH WC07 and brought up to volume.		

Standard Log #:	M14282	Reagent:	Potassium Permanganate Solution
Analyst:	MDS		
Prep Date:	05/05/2020	Expiration Date:	06/05/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M14283	Reagent:	Potassium Persulfate Solution
Analyst:	MDS		
Prep Date:	05/05/2020	Expiration Date:	06/05/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13714 and brought up to volume.		

Standard Log #:	M14284	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	MDS		
Prep Date:	05/06/2020	Expiration Date:	06/06/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M14194 and **60 g** hydroxylamine sulfate M13468 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14285	Reagent:	Hg Aqua Regia
Analyst:	MDS		
Prep Date:	05/05/2020	Expiration Date:	05/06/2020
Prep:	Carefully mixed **3** parts HCl AB.685 with **1** part HNO_3 AB.691 in a hood.		

		Instrument:	CETAC
Standard Log #:	M14286	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	05/06/2020	Expiration Date:	06/06/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14157 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14279	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	05/05/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14280	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	05/05/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14281	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	05/05/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard ID#:	M14277	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride
Date Received:	05/05/2020	Lot #:	K111-25
Expiration Date (if any):		Catalog #:	LC251701

Standard ID#:	M14278	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride
Date Received:	05/05/2020	Lot #:	K111-25
Expiration Date (if any):		Catalog #:	LC251701

Standard ID#:	M14276	Vendor:	Fisher Chemical
Analyst:	MDS	Chemical:	Sodium Chloride
Date Received:	05/01/2020	Lot #:	195918
Expiration Date (if any):		Catalog #:	S271-500

		Instrument:	CETAC
Standard Log #:	M14275	Reagent:	Hg Aqua Regia
Analyst:	MDS		
Prep Date:	04/29/2020	Expiration Date:	04/30/2020
Prep:	Carefully mixed **3** parts HCl AB.685 with **1** part HNO_3 AB.691 in a hood.		

Standard Log #:	M14271	Reagent:	Potassium Permanganate Solution
Analyst:	MDS		
Prep Date:	04/27/2020	Expiration Date:	05/27/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M14272	Reagent:	Potassium Persulfate Solution
Analyst:	MDS		
Prep Date:	04/27/2020	Expiration Date:	05/27/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13714 and brought up to volume.		

Standard Log #:	M14273	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	MDS		
Prep Date:	04/28/2020	Expiration Date:	05/28/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M14194 and **60 g** hydroxylamine sulfate M13468 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14274	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	04/28/2020	Expiration Date:	05/28/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14157 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14268	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	04/27/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14269	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	04/27/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14270	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	04/27/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard Log #:	M14266	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	MDS		
Prep Date:	04/22/2020	Expiration Date:	05/22/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M14194 and **60 g** hydroxylamine sulfate M13463 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14267	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	04/22/2020	Expiration Date:	05/22/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14157 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14262	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	04/21/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard Log #:	M14263	Reagent:	Potassium Permanganate Solution
Analyst:	MDS		
Prep Date:	04/21/2020	Expiration Date:	
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M14264	Reagent:	Potassium Persulfate Solution
Analyst:	MDS		
Prep Date:	04/21/2020	Expiration Date:	
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13714 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14265	Reagent:	Hg Aqua Regia
Analyst:	MDS		
Prep Date:	04/21/2020	Expiration Date:	04/22/2020
Prep:	Carefully mixed **3** parts HCl AB.685 with **1** part HNO_3 AB.691 in a hood.		

Standard Log #:	M14259	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	04/21/2020	Expiration Date:	04/21/2021
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.684 and **128.6 mL** 10N NaOH M14002. Dilute to 20 L and mix.		

		Instrument:	HydraII
Standard Log #:	M14260	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	04/21/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14261	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	04/21/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

Standard Log #:	M14254	Reagent:	Potassium Permanganate Solution
Analyst:	MDS		
Prep Date:	04/14/2020	Expiration Date:	05/14/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M14255	Reagent:	Potassium Persulfate Solution
Analyst:	MDS		
Prep Date:	04/14/2020	Expiration Date:	05/14/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13714 and brought up to volume.		

Standard Log #:	M14256	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	MDS		
Prep Date:	04/15/2020	Expiration Date:	05/15/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M14194 and **60 g** hydroxylamine sulfate M13468 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14257	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	04/15/2020	Expiration Date:	05/15/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14157 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14258	Reagent:	Hg Aqua Regia
Analyst:	MDS		
Prep Date:	04/14/2020	Expiration Date:	04/15/20220
Prep:	Carefully mixed **3** parts HCl AB.685 with **1** part HNO_3 AB.691 in a hood.		

		Instrument:	HydraII
Standard Log #:	M14251	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	04/14/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14252	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	04/14/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14253	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	04/14/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard Log #:	M14250	Instrument:	ICP 6500
Analyst:	NAH	Standard:	MDL DOD Metals Spiking soln
Prep Date:	04/14/2020	Expiration Date:	12/2020

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	40	M13951	1000	2
Al	800	M13982	**10000**	4
As	40	M13863	1000	2
Ba	20	M14130	1000	1
Be	8	M14203	1000	0.4
Ca	1000	M13985	**10000**	5
Cd	10	M14201	1000	0.5
Co	20	M14204	1000	1
Cr	20	M14205	**10000**	0.1
Cu	20	M14199	**10000**	0.1
Fe	600	M14101	**10000**	3
Mg	1000	M14108	**10000**	5
Mn	20	M14200	**10000**	0.1
Mo	20	M14129	1000	1
Ni	20	M14196	1000	1
Pb	20	M14202	**10000**	0.1
Sb	40	M13950	1000	2
Se	40	M13948	1000	2
Tl	40	M14207	1000	2
V	20	M14198	1000	1
Zn	20	M14197	**10000**	0.1
Na	10000	M14103	**10000**	50
K	10000	M14104	**10000**	50
B	40	M13947	1000	2
Si	200	M14106	1000	10
S	2000	M14102	**10000**	10
Li	40	M14127	1000	2
Sr	20	M14007	1000	1
Sn	100	M14008	1000	5
Ti	20	M14009	1000	10

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

		Instrument:	GFAA
Standard Log #:	M14247	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	04/10/2020	Expiration Date:	04/10/2021
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M14227 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M14248	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	04/10/2020	Expiration Date:	04/10/2021
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M14227 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M14249	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	04/10/2020	Expiration Date:	04/10/2021
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M14228 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

Standard ID#:	M14246	Vendor:	Acros Organics
Analyst:	MDS	Chemical:	Potassium Persulfate
Date Received:	04/08/2020	Lot #:	A0412553
Expiration Date (if any):		Catalog #:	424185000

Standard Log #:	M14242	Reagent:	Potassium Permanganate Solution
Analyst:	MDS		
Prep Date:	04/06/2020	Expiration Date:	05/06/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M14243	Reagent:	Potassium Persulfate Solution
Analyst:	MDS		
Prep Date:	04/06/2020	Expiration Date:	05/06/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13714 and brought up to volume.		

Standard Log #:	M14244	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	MDS		
Prep Date:	04/07/2020	Expiration Date:	05/07/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M14194 and **60 g** hydroxylamine sulfate M13994 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14245	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	04/07/2020	Expiration Date:	05/07/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14081 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14239	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	04/06/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14240	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	04/06/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14241	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	04/06/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard Log #:	M14234	Reagent:	Potassium Permanganate Solution
Analyst:	MDS		
Prep Date:	03/31/2020	Expiration Date:	04/30/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M14235	Reagent:	Potassium Persulfate Solution
Analyst:	MDS		
Prep Date:	03/31/2020	Expiration Date:	04/30/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13714 and brought up to volume.		

Standard Log #:	M14236	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	MDS		
Prep Date:	04/01/2020	Expiration Date:	05/01/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M14194 and **60 g** hydroxylamine sulfate M13994 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14237	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	04/01/2020	Expiration Date:	05/01/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14158 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14238	Reagent:	Hg Aqua Regia
Analyst:	MDS		
Prep Date:	04/01/2020	Expiration Date:	04/02/2020
Prep:	Carefully mixed **3** parts HCl AB.685 with **1** part HNO_3 AB.686 in a hood.		

		Instrument:	HydraII
Standard Log #:	M14231	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	03/31/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14232	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	03/31/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14233	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	03/31/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

MRL BASE STD M14230 Analyst NAH

Prep Date 03/27/2020

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	(ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L	Expiration Date
Ag	20	M13951	1000	1	02/2021
Al	400	M14105	10000	2	07/2021
Ba	10	M14130	1000	0.5	07/2021
Be	4	M14203	1000	0.2	09/2021
Cd	5	M14201	1000	0.25	09/2021
Co	10	M14204	1000	0.5	09/2021
Cr	10	M14205	10000	0.05	09/2021
Cu	10	M14199	10000	0.05	09/2021
Mg	500	M14108	10000	2.5	07/2021
Mn	10	M14200	10000	0.05	09/2021
Mo	10	M14129	1000	0.5	07/2021
Ni	10	M14196	1000	0.5	09/2021
Pb	10	M14202	10000	0.05	09/2021
Sb	20	M13950	1000	1	02/2021
V	10	M14198	1000	0.5	09/2021
Zn	10	M14197	10000	0.05	09/2021
K	1000	M14104	10000	5	07/2021
Na	1000	M14103	10000	5	07/2021
As	20	M13863	1000	1	12/2020
Ca	500	M14107	10000	2.5	07/2021
Fe	300	M14101	10000	1.5	07/2021
Se	20	M13948	1000	1	02/2021
Tl	20	M14207	1000	1	09/2021
Si	100	M14106	1000	5	07/2021
B	20	M14131	1000	1	07/2021
Li	20	M14127	1000	1	07/2021
W	50	xxxxxxxd	1000	2.5	xxxxxxx
Ti	10	M14009	1000	0.5	04/2021
Sr	10	M14007	1000	0.5	04/2021
Sn	50	M14008	1000	2.5	04/2021
S	300	M14102	10000	1.5	07/2021

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

Standard Log #:	M14224	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	MDS		
Prep Date:	03/25/2020	Expiration Date:	04/25/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M14194 and **60 g** hydroxylamine sulfate M13994 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14225	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	03/25/2020	Expiration Date:	04/25/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14158 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14226	Reagent:	Hg Aqua Regia
Analyst:	MDS		
Prep Date:	03/25/2020	Expiration Date:	03/26/2020
Prep:	Carefully mixed **3** parts HCl AB.685 with **1** part HNO_3 AB.686 in a hood.		

Standard ID#:	M14227	Vendor:	Inorganic Ventures
Analyst:	MDS	Chemical:	GFAA ICAL/CCV
Date Received:	03/25/2020	Lot #:	R2-MEB691217
Expiration Date (if any):		Catalog #:	CTI-SPK-1

Standard ID#:	M14228	Vendor:	Inorganic Ventures
Analyst:	MDS	Chemical:	GFAA ICV/SPIKE
Date Received:	03/25/2020	Lot #:	R2-MEB691216
Expiration Date (if any):		Catalog #:	CTI-GFCAL-1

Standard ID#:	M14229	Vendor:	HACH
Analyst:	NAH	Chemical:	StablCal Standard 200 NTU
Date Received:	03/25/2020	Lot #:	A0038
Expiration Date (if any):	02/2022	Catalog #:	2660449

Standard Log #:	M14222	Reagent:	Potassium Permanganate Solution
Analyst:	MDS		
Prep Date:	03/24/2020	Expiration Date:	04/24/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M14223	Reagent:	Potassium Persulfate Solution
Analyst:	MDS		
Prep Date:	03/24/2020	Expiration Date:	04/24/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13714 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14219	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	03/24/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14220	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	03/24/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14221	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	03/24/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard ID#:	M14218	Vendor:	SpexCertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Std.
Date Received:	03/19/2020	Lot #:	54-035CR
Expiration Date (if any):	03/30/2021	Catalog #:	XCTWI-1-500

		Instrument:	CETAC
Standard Log #:	M14216	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	03/18/2020	Expiration Date:	03/19/2020
Prep:	Carefully mixed **3** parts HCl AB.685 with **1** part HNO_3 AB.686 in a hood.		

		Instrument:	CETAC
Standard Log #:	M14217	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	03/18/2020	Expiration Date:	04/18/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14158 and brought up to volume.		

Standard Log #:	M14211	Reagent:	Potassium Permanganate Solution
Analyst:	MDS		
Prep Date:	03/17/2020	Expiration Date:	04/17/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M14212	Reagent:	Potassium Persulfate Solution
Analyst:	MDS		
Prep Date:	03/17/2020	Expiration Date:	04/17/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13714 and brought up to volume.		

Standard Log #:	M14213	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	MDS		
Prep Date:	03/17/2020	Expiration Date:	04/17/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13620 and **60 g** hydroxylamine sulfate M13994 and brought up to volume.		

Standard ID#:	M14214	Vendor:	SpexCertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Std.
Date Received:	03/17/2020	Lot #:	54-027CR
Expiration Date (if any):	03/30/2021	Catalog #:	XSPIKE-1-250

Standard ID#:	M14215	Vendor:	SpexCertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Std.
Date Received:	03/17/2020	Lot #:	54-028CR
Expiration Date (if any):	03/30/2021	Catalog #:	XCTWI-5-500

		Instrument:	HydraII
Standard Log #:	M14208	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	03/17/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14209	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	03/17/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14210	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	03/17/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard ID#:	M14201	Vendor:	CPI
Analyst:	NAH	Chemical:	Cd 1000 mg/L
Date Received:	03/11/2020	Lot #:	996631-64
Expiration Date (if any):	09/2021	Catalog #:	S4400-100081

Standard ID#:	M14202	Vendor:	CPI
Analyst:	NAH	Chemical:	Pb 10000
Date Received:	03/11/2020	Lot #:	168223-44
Expiration Date (if any):	09/2021	Catalog #:	4400-10M281

Standard ID#:	M14203	Vendor:	CPI
Analyst:	NAH	Chemical:	Be 1000 mg/L
Date Received:	03/11/2020	Lot #:	998969-61
Expiration Date (if any):	09/2021	Catalog #:	S4400-100051

Standard ID#:	M14204	Vendor:	CPI
Analyst:	NAH	Chemical:	Co 1000 mg/L
Date Received:	03/11/2020	Lot #:	1024904-44
Expiration Date (if any):	09/2021	Catalog #:	S4400-1000131

Standard ID#:	M14205	Vendor:	CPI
Analyst:	NAH	Chemical:	Cr 10000 mg/L
Date Received:	03/11/2020	Lot #:	880115-56
Expiration Date (if any):	09/2021	Catalog #:	S4400-10M121

Standard ID#:	M14206	Vendor:	CPI
Analyst:	NAH	Chemical:	Y 10000 mg/L
Date Received:	03/11/2020	Lot #:	997484-19
Expiration Date (if any):	09/2021	Catalog #:	4400-10M671

Standard ID#:	M14207	Vendor:	CPI
Analyst:	NAH	Chemical:	Tl 1000 mg/L
Date Received:	03/11/2020	Lot #:	991734-85
Expiration Date (if any):	09/2021	Catalog #:	S4400-1000581

Standard ID#:	M14195	Vendor:	SpexCertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Std
Date Received:	03/09/2020	Lot #:	54-005CR
Expiration Date (if any):	3/30/2021	Catalog #:	XCTWI-4-500

Standard ID#:	M14196	Vendor:	CPI
Analyst:	NAH	Chemical:	Ni 1000 mg/L
Date Received:	03/11/2020	Lot #:	984273-111
Expiration Date (if any):	09/2021	Catalog #:	S4400-1000361

Standard ID#:	M14197	Vendor:	CPI
Analyst:	NAH	Chemical:	Zn 10000 mg/L
Date Received:	03/11/2020	Lot #:	1025267-1
Expiration Date (if any):	09/2021	Catalog #:	4400-10M681

Standard ID#:	M14198	Vendor:	CPI
Analyst:	NAH	Chemical:	V 1000 mg/L
Date Received:	03/11/2020	Lot #:	990117-98
Expiration Date (if any):	09/2021	Catalog #:	S4400-1000651

Standard ID#:	M14199	Vendor:	CPI
Analyst:	NAH	Chemical:	Cu 10000 mg/L
Date Received:	03/11/2020	Lot #:	982824-45
Expiration Date (if any):	09/2021	Catalog #:	S4400-10M141

Standard ID#:	M14200	Vendor:	CPI
Analyst:	NAH	Chemical:	Mn 10000 mg/L
Date Received:	03/11/2020	Lot #:	985851-17
Expiration Date (if any):	09/2021	Catalog #:	S4400-10M321

Standard ID#:	M14193	Vendor:	Fisher
Analyst:	NAH	Chemical:	Hydroxylamine Sulfate
Date Received:	03/09/2020	Lot #:	189407
Expiration Date (if any):		Catalog #:	H331-500

Standard ID#:	M14194	Vendor:	Fisher
Analyst:	NAH	Chemical:	Sodium Chloride
Date Received:	03/09/2020	Lot #:	193465
Expiration Date (if any):		Catalog #:	S271-500

		Instrument:	CETAC
Standard Log #:	M14189	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	03/10/2020	Expiration Date:	04/10/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14081 and brought up to volume.		

		Instrument:	GFAA
Standard Log #:	M14190	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	03/09/2020	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q H_2O. ($1\% HNO_3$)		

		Instrument:	GFAA
Standard Log #:	M14191	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	03/09/2020	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q DI H_2O. ($1\% HNO_3$)		

		Instrument:	GFAA
Standard Log #:	M14192	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	03/09/2020	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13786 and brought to volume with Milli-Q DI H_2O. ($1\% HNO_3$)		

		Instrument:	HydraII
Standard Log #:	M14186	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	03/09/2020	Expiration Date:	04/09/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14187	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	03/09/2020	Expiration Date:	04/09/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14188	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	03/09/2020	Expiration Date:	04/09/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M14182	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	03/06/2020	Expiration Date:	04/06/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14081 and brought up to volume.		

Standard Log #:	M14183	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	MDS		
Prep Date:	03/06/2020	Expiration Date:	04/06/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13620 and **60 g** hydroxylamine sulfate M13994 and brought up to volume.		

Standard Log #:	M14184	Reagent:	Potassium Persulfate Solution
Analyst:	MDS		
Prep Date:	03/09/2020	Expiration Date:	04/09/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13714 and brought up to volume.		

Standard Log #:	M14185	Reagent:	Potassium Permanganate Solution
Analyst:	MDS		
Prep Date:	03/09/2020	Expiration Date:	04/09/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M14180	Reagent:	Potassium Permanganate Solution
Analyst:	MDS		
Prep Date:	03/04/2020	Expiration Date:	04/04/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14181	Reagent:	Hg Aqua Regia
Analyst:	MDS		
Prep Date:	03/04/2020	Expiration Date:	03/05/2020
Prep:	Carefully mixed **3** parts HCl AB.685 with **1** part HNO_3 AB.686 in a hood.		

		Instrument:	HydraII
Standard Log #:	M14177	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	03/04/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14178	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	03/04/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14179	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	03/04/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard ID#:	M14175	Vendor:	COLE-PARMER
Analyst:	BMM	Chemical:	Acid Washed TCLP Filters
Date Received:	03/02/2020	Lot #:	400168
Expiration Date (if any):		Catalog #:	FG77150MM

Standard Log #:	M14176	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	03/03/2020	Expiration Date:	03/03/2021
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.684 and **128.6 mL** 10N NaOH M14002. Dilute to 20 L and mix.		

		Instrument:	ICP 6500
Standard Log #:	M14172	Standard:	CCV2
Analyst:	NAH	Concentrations:	**500 µg/L** Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn **50 µg/L** Ag, Be, Cd
Prep Date:	02/25/2020	Expiration Date:	05/30/2020
Prep:	Into a 1 L volumetric flask, pipetted **5 mL** Custom Assurance Standard #23 XCTWI-5-500 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M14121 and **0.5 mL** of Custom Assurance Std. #3 XCTWI-4-500 (100 mg/L Ag, Be, Cd) M13827 and brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M14173	Standard:	ICSA
Analyst:	NAH	Concentrations:	**500,000 ug/L** Al, Ca, Fe, Mg **10,000** V, Ce
Prep Date:	02/25/2020	Expiration Date:	01/30/2021
Prep:	Into a 500 mL volumetric flask, pipetted 50 **mL** Interference A std M14137 and 15 **mL** 10000 mg/L Fe M14004 5.0 **mL** 1000 mg/L V M13578 5.0 **mL** 1000 mg/L Ce M13859 and brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M14174	Standard:	ICSAB
Analyst:	NAH	Concentrations:	**500,000 ug/L** Al, Ca, Fe, Mg **500 ug/L** Ag, As, Ba, Be, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Sb, Se, Tl, V, Zn, K, Na, S, **50000 ug/L** Si **1000 ug/L.**
Prep Date:	02/25/2020	Expiration Date:	05/30/2020
Prep:	Into a 500 mL volumetric flask, pipetted **50 mL** Interferents A Standard ((5000 mg/L Al, Ca, Mg) (2000 mg/L Fe)) M14137, **15 mL** Fe (10,000 mg/L) M14004, **2.5 mL** of Custom Assurance Std. #3 (100 mg/L Ag, Be, Cd) M13827, **2.5 mL** Custom Assurance Std. #23 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn), M14121, **2.5 mLs Na 10,000 ug/mL** M14103 ,**2.5 mLs k 10,000 ug/mL** M14126 **2.5 mLs S 10,000 ug/mL** M14102, **0.5 mls Si 1000 ug/mL** M13981 and brought up to volume with milli-Q .		

		Instrument:	ICP 6500
Standard Log #:	M14170	Standard:	ICV Std.
Analyst:	NAH	Concentrations:	**12,000 mg/L** Al **10,000 mg/L** Ca, Mg **5000 mg/L** Fe **2000 mg/L** As, Ba, Se, Tl **500 mg/L** B, Co, Li, Mn, Mo, Ni, Pb, Sb, Sn, Sr, Ti, V, Zn **250 mg/L** Cu **200 mg/L** Cr **50 mg/L** Ag, Be, Cd
Prep Date:	02/25/2020	Expiration Date:	01/30/2021
Prep:	Into a 1 L volumetric flask, pipetted the following and brought up to volume with milli-Q H_2O. **10 mL** Custom Assurance Standard #18 ((200 mg/L Al, As, Ba, Se, Tl) (100 mg/L Fe) (50 mg/L Co, Mn, Ni, Pb, Sb, V, Zn) (25 mg/L Cu) (20 mg/L Cr) (5 mg/L Ag, Be, Cd)) M14138, **2 mL** Interferents A Standard ((5000 mg/L Al, Ca, Mg) (2000 mg/L Fe)) M14137, **0.5 mL** Mo (1000 mg/L) M14129, **0.5 mL** B (1000 mg/L) M14131, **0.5 mL** Sr (1000 mg/L) M14007, **0.5 mL** Li (1000 mg/L) M14127, **0.5 mL** Sn (1000 mg/L) M14008, **0.5 mL** Ti (1000 mg/L) M141009, **0.5 mL** W (1000 mg/L) Mxxxx, **0.5 mL** Si (1000 mg/L) M14106, **0.5 mL** S (10000 mg/L) M14102, **0.5 mL** K (10000 mg/L) M14126, and **0.5 mL** Na (10000 mg/L) M14103		

		Instrument:	ICP 6500
Standard Log #:	M14171	Standard:	CCV1
Analyst:	NAH	Concentrations:	**5000 µg/L** Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn **500 µg/L** Ag, Be, Cd
Prep Date:	02/25/2020	Expiration Date:	05/30/2020
Prep:	Into a 1 L volumetric flask, pipetted **50 mL** Custom Assurance Standard #23 XCTWI-5-500 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M14121 and **5.0 mL** of Custom Assurance Std. #3 XCTWI-4-500 (100 mg/L Ag, Be, Cd) M13827 and brought up to volume with milli-Q H_2O.		

		Instrument:	CETAC
Standard Log #:	M14168	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	02/24/2020	Expiration Date:	
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14081 and brought up to volume.		

		Instrument:	ICP 6500
Standard Log #:	M14169	Standard:	ICAL
Analyst:	NAH	Concentrations:	0.25, 0.5, 1, 5, 10, 20, 50, 100, 1000, 10,000, 100k, 100,000, 500,000 and 1000k (ug/L)
Prep Date:	02/25/2020	Expiration Date:	05/30/2020
Prep:	Using 1 L volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (5% HNO_3, 5% HCl) *1000 ug/L Std.* - **10 mL** of Custom Assurance Std. #23 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M14121, **10 mL** of Custom Assurance Std. #3 (100 mg/L Ag, Be, Cd) M13827 and **1 mL** of Si (1000 mg/L) M14106 and 1 mL M13859 Ce *0.25 ug/L Std.* - **0.25 mL** of the 1000 ug/L Std. *0.5 ug/L Std.* - **0.5 mL** of the 1000 ug/L Std. *1 ug/L Std.* - **1 mL** of the 1000 ug/L Std. *5 ug/L Std.* - **5 mL** of the 1000 ug/L Std. *10 ug/L Std.* - **10 mL** of the 1000 ug/L Std. *20 ug/L Std.* - **20 mL** of the 1000 ug/L Std. *50 ug/L Std.* - **50 mL** of the 1000 ug/L Std. *100 ug/L Std.* - **1 mL** of Custom Assurance Std. (CAS) #23 and **1 mL** of CAS #3 *10,000 ug/L Std.* - **100 mL** CAS #23, **100 mL** CAS #3 and **1 mL** of K (10,000 mg/L) M14104. *100k ug/L Std.* - **10 mL** of Cu (10,000 mg/L) M13618, **10 mL** of Mn (10,000 mg/L) M13616, **10 mL** of Cr (10,000 mg/L) M13617, **10 mL** Pb (10,000 mg/L) M13615, **10 mL** of Zn (10,000 mg/L) M13610 and **10 mL** of Na (10,000 mg/L) M14103. *100,000 ug/L Std.* - **10 mL** of Mg (10,000 mg/L) M14108, **10 mL** of Fe (10,000 mg/L) M14004, **10 mL** of Ca (10,000 mg/L) M14107 and **10 mL** Al (10,000 mg/L) M14105. *500,000 ug/L Std.* - **50 mL** of Mg (10,000 mg/L), **50 mL** of Fe (10,000 mg/L), **50 mL** of Ca (10,000 mg/L) and **50 mL** of Al (10,000 mg/L) *1000k ug/L Std.* - **100 mL** of Mg (10,000 mg/L), **100 mL** of Fe (10,000 mg/L), **100 mL** of Ca (10,000 mg/L) and **100 mL** of Al (10,000 mg/L)		

		Instrument:	HydraII
Standard Log #:	M14165	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	02/24/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14166	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	02/24/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14167	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	02/24/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	ICP 6000
Standard Log #:	M14163	Standard:	Na,K ICVLL
Analyst:	MDS	Concentrations:	3 mg/L (Na,K)
Prep Date:	02/21/2020	Expiration Date:	07/2021
Prep:	Into a 500 mL volumetric flask, pipetted **0.15 mL** of Na (10,000 µg/mL) M14103 and **0.15 mL** K (10,000 µg/mL) M14109 and brought to volume with Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M14164	Standard:	NaK ICSAB
Analyst:	MDS	Concentrations:	500 mg/L (Al, Ca, Fe, Mg) 100 mg/L (Na, K)
Prep Date:	02/21/2020	Expiration Date:	01/30/2021
Prep:	Into a 250 mL volumetric flask, pipetted **25 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M14120, **2.5 mL** of K (10,000 mg/L) M14109, **2.5 mL** of Na (10,000 mg/L) M14103 and **7.5 mL** of Fe (10,000 mg/L) M14101 and brought up to volume using Milli-Q H_2O. (2% HNO_3)		

		Instrument:	CETAC
Standard Log #:	M14159	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	02/20/2020	Expiration Date:	
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14081 and brought up to volume.		

		Instrument:	ICP 6000
Standard Log #:	M14160	Standard:	Na & K ICAL
Analyst:	MDS	Concentrations:	0.5, 1, 5, 10, 50, 100, and 200 mg/L (Na,K)
Prep Date:	02/21/2020	Expiration Date:	10/2020
Prep:	Into seven, 200 mL volumetric flasks, pipetted the following from Na (1000 µg/mL) M13808 and K (1000 µg/mL) M13809 and brought up to volume using milli-Q H_2O. (2% HNO_3) *0.5 mg/L std.* - **0.1 mL** of each *1.0 mg/L std.* - **0.2 mL** of each *5.0 mg/L std.* - **1.0 mL** of each *10 mg/L std.* - **2.0 mL** of each *50 mg/L std.* - **10 mL** of each *100 mg/L std.* -**20 mL** of each, also used for Continuing Calibration Verification *200 mg/L std.* - **40 mL** of each		

		Instrument:	ICP 6000
Standard Log #:	M14161	Standard:	Na,K MRL
Analyst:	MDS	Concentrations:	1 mg/L (Na,K)
Prep Date:	02/21/2020	Expiration Date:	10/2020
Prep:	Into a 500 mL volumetric flask, pipetted **0.5 mL** of Na (1000 µg/mL) M13808 and **0.5 mL** K (1000 µg/mL) M13809 and brought to volume with Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M14162	Standard:	NaK ICV
Analyst:	MDS	Concentrations:	100 mg/L (Na, K)
Prep Date:	02/21/2020	Expiration Date:	07/2021
Prep:	Into a 250 mL volumetric flask, pipetted **2.5 mL** of K (10,000 mg/L) M14109 and Na (10,000 mg/L) M14103 and brought up to volume using Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6500
Standard Log #:	M14156	Standard:	ICV Std.
Analyst:	NAH	Concentrations:	**12,000 mg/L** Al **10,000 mg/L** Ca, Mg **5000 mg/L** Fe **2000 mg/L** As, Ba, Se, Tl **500 mg/L** B, Co, Li, Mn, Mo, Ni, Pb, Sb, Sn, Sr, Ti, V, Zn **250 mg/L** Cu **200 mg/L** Cr **50 mg/L** Ag, Be, Cd
Prep Date:	02/19/2020	Expiration Date:	01/30/21
Prep:	Into a 1 L volumetric flask, pipetted the following and brought up to volume with milli-Q H_2O. **10 mL** Custom Assurance Standard #18 ((200 mg/L Al, As, Ba, Se, Tl) (100 mg/L Fe) (50 mg/L Co, Mn, Ni, Pb, Sb, V, Zn) (25 mg/L Cu) (20 mg/L Cr) (5 mg/L Ag, Be, Cd)) M14138, **2 mL** Interferents A Standard ((5000 mg/L Al, Ca, Mg) (2000 mg/L Fe)) M14120, **0.5 mL** Mo (1000 mg/L) M14129, **0.5 mL** B (1000 mg/L) M14131, **0.5 mL** Sr (1000 mg/L) M14007, **0.5 mL** Li (1000 mg/L) M14127, **0.5 mL** Sn (1000 mg/L) M141008, **0.5 mL** Ti (1000 mg/L) M14009, **0.5 mL** W (1000 mg/L) Mxxxxxxx, **0.5 mL** Si (1000 mg/L) M13981, **0.5 mL** S (10000 mg/L) M14102, **0.5 mL** K (10000 mg/L) M14109, and **0.5 mL** Na (10000 mg/L) M14103		

Standard ID#:	M14157	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride Dihydrate
Date Received:	02/19/2020	Lot #:	J347-07
Expiration Date (if any):		Catalog #:	LC251701

Standard ID#:	M14158	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride Dihydrate
Date Received:	02/19/2020	Lot #:	J347-07
Expiration Date (if any):		Catalog #:	LC251701

		Instrument:	CETAC
Standard Log #:	M14148	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	02/13/2020	Expiration Date:	
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14081 and brought up to volume.		

Standard Log #:	M14152	Reagent:	Potassium Permanganate Solution
Analyst:	BMM		
Prep Date:	02/13/2020	Expiration Date:	07/13/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M14153	Reagent:	Potassium Permanganate Solution
Analyst:	BMM		
Prep Date:	02/13/2020	Expiration Date:	07/13/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M14154	Reagent:	Potassium Persulfate Solution
Analyst:	BMM		
Prep Date:	02/13/2020	Expiration Date:	07/13/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13714 and brought up to volume.		

Standard Log #:	M14155	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	BMM		
Prep Date:	02/13/2020	Expiration Date:	07/13/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13620 and **60 g** hydroxylamine sulfate M13994 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14149	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	02/17/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14150	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	02/17/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14151	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	02/17/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	HydraII
Standard Log #:	M14145	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	02/11/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14146	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	02/11/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14147	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	02/11/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M14144	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	02/06/2020	Expiration Date:	03/06/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14080 and brought up to volume.		

Standard Log #:	M14142	Reagent:	Potassium Permanganate Solution
Analyst:	BMM		
Prep Date:	02/05/2020	Expiration Date:	07/05/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14143	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	02/05/2020	Expiration Date:	02/06/2020
Prep:	Carefully mixed **3** parts HCl AB.682 with **1** part HNO_3 AB.681 in a hood.		

		Instrument:	HydraII
Standard Log #:	M14139	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	02/05/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14140	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	02/05/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14141	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	02/05/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard ID#:	M14137	Vendor:	SpexCertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	02/04/2020	Lot #:	53-196CR
Expiration Date (if any):	01/30/2021	Catalog #:	XCTIWI-1-500

Standard ID#:	M14138	Vendor:	SpexCertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	02/04/2020	Lot #:	XSPIKE-1-250
Expiration Date (if any):	01/30/2021	Catalog #:	53-197CR

		Instrument:	CETAC
Standard Log #:	M14136	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	01/30/2020	Expiration Date:	01/30/2021
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14080 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14132	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	01/29/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14133	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	01/29/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14134	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	01/29/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M14135	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	01/29/2020	Expiration Date:	01/30/2020
Prep:	Carefully mixed **3** parts HCl AB.682 with **1** part HNO_3 AB.681 in a hood.		

Standard ID#:	M14125	Vendor:	CPI International
Analyst:	MDS	Chemical:	Mercury 1000 µg/mL
Date Received:	01/24/2020	Lot #:	1009904-41
Expiration Date (if any):	07/20/2021	Catalog #:	S4400-1000331

Standard ID#:	M14126	Vendor:	CPI International
Analyst:	MDS	Chemical:	Potassium 10,000 µg/mL
Date Received:	01/24/2020	Lot #:	980507-31
Expiration Date (if any):	07/20/2021	Catalog #:	4400-10M411

Standard ID#:	M14127	Vendor:	CPI International
Analyst:	MDS	Chemical:	Lithium 1000 µg/mL
Date Received:	01/24/2020	Lot #:	1017511-7
Expiration Date (if any):	07/20/2021	Catalog #:	S4400-1000291

Standard ID#:	M14128	Vendor:	CPI International
Analyst:	MDS	Chemical:	Phosphorus 10,000 µg/mL
Date Received:	01/24/2020	Lot #:	979480-24
Expiration Date (if any):	07/20/2021	Catalog #:	S4400-10M391

Standard ID#:	M14129	Vendor:	CPI International
Analyst:	MDS	Chemical:	Molybdenum 1000 µg/mL
Date Received:	01/24/2020	Lot #:	987189-55
Expiration Date (if any):	07/20/2021	Catalog #:	S4400-1000343

Standard ID#:	M14130	Vendor:	CPI International
Analyst:	MDS	Chemical:	Barium 1000 µg/mL
Date Received:	01/24/2020	Lot #:	994634-53
Expiration Date (if any):	07/20/2021	Catalog #:	S4400-100041

Standard ID#:	M14131	Vendor:	CPI International
Analyst:	MDS	Chemical:	Boron 1000 µg/mL
Date Received:	01/24/2020	Lot #:	1024903-6
Expiration Date (if any):	07/20/2021	Catalog #:	S4400-100074

		Instrument:	HydraII
Standard Log #:	M14122	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	01/23/2020	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14123	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	01/23/2020	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14124	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	01/23/2020	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard ID#:	M14119	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Hg 1000 ug/mL
Date Received:	01/21/2020	Lot #:	CL11-96HGY
Expiration Date (if any):	01/30/2021	Catalog #:	CLHG4-2Y

Standard ID#:	M14120	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Interference A
Date Received:	01/21/2020	Lot #:	2-96JX
Expiration Date (if any):	01/30/2021	Catalog #:	INT-A1

Standard ID#:	M14121	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	01/21/2020	Lot #:	1-008DMP
Expiration Date (if any):	01/21/2021	Catalog #:	XCTWI-5-500

		Instrument:	CETAC
Standard Log #:	M14117	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	01/17/2020	Expiration Date:	02/17/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14080 and brought up to volume.		

Standard Log #:	M14118	Instrument:	GFAA
Analyst:	MDS	Standard:	MDL Spiking Solution
Prep Date:	01/17/2020	Expiration Date:	02/2020

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (2% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
Ag	0.2	M13951	1000	0.01
As	2	M13863	1000	0.1
Pb	2	M13615	10000	0.01
Sb	2	M13950	1000	0.1
Se	2	M13948	1000	0.1
Tl	2	M13583	1000	0.1

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

		Instrument:	HydraII
Standard Log #:	M14114	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	01/16/2020	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14115	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	01/16/2020	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14116	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	01/16/2020	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	GFAA
Standard Log #:	M14111	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	01/13/2020	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M14112	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	01/13/2020	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M14113	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	01/13/2020	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13786 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

Standard ID#:	M14106	Vendor:	CPI
Analyst:	NAH	Chemical:	Si 1000 ug/mL
Date Received:	01/13/2020	Lot #:	175213-60
Expiration Date (if any):	07/2021	Catalog #:	S4400-1000504F

Standard ID#:	M14107	Vendor:	CPI
Analyst:	NAH	Chemical:	Ca 10000 ug/mL
Date Received:	01/13/2020	Lot #:	855297-68
Expiration Date (if any):	07/2021	Catalog #:	4400-10M91

Standard ID#:	M14108	Vendor:	CPI
Analyst:	NAH	Chemical:	Mg 10000 ug/mL
Date Received:	01/13/2020	Lot #:	1013353-36
Expiration Date (if any):	07/2021	Catalog #:	4400-10M311

Standard ID#:	M14109	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10000ug/mL
Date Received:	01/13/2020	Lot #:	980507-79
Expiration Date (if any):	07/2021	Catalog #:	4400-10M411

Standard Log #:	M14110	Reagent:	TCLP EXTRACTION FLUID #2
Analyst:	BMM	pH:	2.88 ± 0.05
Prep Date:	01/14/2020	Expiration Date:	01/14/2021
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.684 . Dilute to 20 L and mix.		

Standard ID#:	M14100	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	Yttrium 10000 ug/mL
Date Received:	01/10/2020	Lot #:	1905324-500
Expiration Date (if any):	07/31/2021	Catalog #:	HP10M67-1-500

Standard ID#:	M14101	Vendor:	CPI
Analyst:	NAH	Chemical:	Fe 10000 ug/mL
Date Received:	01/13/2020	Lot #:	998527-45
Expiration Date (if any):	07/2021	Catalog #:	4400-10M261

Standard ID#:	M14102	Vendor:	CPI
Analyst:	NAH	Chemical:	Sulfur 10000 ug/mL
Date Received:	01/13/2020	Lot #:	9987745-28
Expiration Date (if any):	07/2021	Catalog #:	4400-10M544

Standard ID#:	M14103	Vendor:	CPI
Analyst:	NAH	Chemical:	Sodium 10000 ug/mL
Date Received:	01/13/2020	Lot #:	752887-79
Expiration Date (if any):	01/2021	Catalog #:	4400-40M521

Standard ID#:	M14104	Vendor:	CPI
Analyst:	NAH	Chemical:	Potassium 10000 ug/mL
Date Received:	01/13/2020	Lot #:	980507-31
Expiration Date (if any):	07/2021	Catalog #:	4400-10M411

Standard ID#:	M14105	Vendor:	CPI
Analyst:	NAH	Chemical:	Al 10000 ug/mL
Date Received:	01/13/2020	Lot #:	992536-34
Expiration Date (if any):	07/2021	Catalog #:	4400-10M11

Standard Log #:	M14099revised below	Instrument:	ICP 6500
Analyst:	NAH	Standard:	MDL DOD Metals Spiking soln
Prep Date:	01/09/2020	Expiration Date:	02/2020

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	5	M13951	1000	0.25
Al	10	M13962	**10000**	0.05
As	20	M13863	1000	1
Ba	2	M13949	1000	0.1
Be	0.5	M13579	1000	0.025
Ca	50	M13841	**10000**	0.25
Cd	0.5	M13570	1000	0.025
Co	2.5	M13575	1000	0.125
Cr	5.0	M13617	**10000**	0.025
Cu	10	M13618	**10000**	0.05
Fe	40	M13963	**10000**	0.2
Mg	25	M13752	**10000**	0.125
Mn	5	M13616	**10000**	0.025
Mo	2.5	M13860	1000	0.125
Ni	5	M13569	1000	0.25
Pb	10	M13615	**10000**	0.05
Sb	20	M13950	1000	1
Se	20	M13948	1000	1
Tl	20	M13583	1000	1
V	5	M13578	1000	0.25
Zn	5	M13610	**10000**	0.025

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M14099	Instrument:	ICP 6500
Analyst:	NAH	Standard:	MDL DOD Metals Spiking soln
Prep Date:	01/09/2020	Expiration Date:	02/2020

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	5	M13951	1000	0.25
Al	10	M13962	**10000**	0.05
As	20	M13863	1000	1
Ba	2	M13949	1000	0.1
Be	0.5	M13579	1000	0.025
Ca	50	M13841	**10000**	0.25
Cd	0.5	M13570	1000	0.025
Co	2.5	M13575	1000	0.125
Cr	5.0	M13617	**10000**	0.025
Cu	10	M13618	**10000**	0.05
Fe	40	M13963	**10000**	0.2
Mg	25	M13752	**10000**	0.125
Mn	5	M13616	**10000**	0.025
Mo	2.5	M13860	1000	0.125
Ni	5	M13569	1000	0.25
Pb	10	M13615	**10000**	0.05
Sb	20	M13950	1000	1
Se	20	M13948	1000	1
Tl	20	M13583	1000	1
V	5	M13578	1000	0.25
Zn	5	M13610	**10000**	0.025
Na	500	M13862	**10000**	2.5
K	500	M14003	**10000**	2.5
B	20	M13947	1000	1
Si	100	M13981	1000	5
S	200	M13696	**10000**	1
Li	20	M13577	1000	1
Sr	20	M14007	1000	1
Sn	20	M14008	1000	1
Ti	20	M14009	1000	1

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

		Instrument:	CETAC
Standard Log #:	M14097	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	01/09/2020	Expiration Date:	02/09/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.682 and dissolved **100 g** Stannous chloride M14080 and brought up to volume.		

Standard Log #:	M14098	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3050 S Spiking Solution
Prep Date:	01/09/2020	Expiration Date:	06/2020

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
S	240	M13696	10000	1.2

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

		Instrument:	CETAC
Standard Log #:	M14096	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	01/08/2020	Expiration Date:	01/09/2020
Prep:	Carefully mixed **3** parts HCl AB.682 with **1** part HNO_3 AB.681 in a hood.		

		Instrument:	HydraII
Standard Log #:	M14093	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	01/08/2020	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14094	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	01/08/2020	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14095	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	01/08/2020	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M14092	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	12/26/2019	Expiration Date:	01/26/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.682 and dissolved **100 g** Stannous chloride M14080 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14088	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	12/20/2019	Expiration Date:	01/20/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.682 and dissolved **100 g** Stannous chloride M14016 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14089	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	12/24/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14090	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	12/24/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14091	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	12/24/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M14086	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	12/19/2019	Expiration Date:	12/20/2019
Prep:	Carefully mixed **3** parts HCl AB.862 with **1** part HNO_3 AB.861 in a hood.		

		Instrument:	CETAC
Standard Log #:	M14087	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	12/24/2019	Expiration Date:	12/25/2019
Prep:	Carefully mixed **3** parts HCl AB.862 with **1** part HNO_3 AB.861 in a hood.		

		Instrument:	HydraII
Standard Log #:	M14083	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	12/18/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14084	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	12/18/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14085	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	12/18/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard ID#:	M14082	Vendor:	Environmental Express
Analyst:	MDS	Chemical:	Acid Washed TCLP Filters
Date Received:	12/11/2019	Lot #:	400168-9329-CM
Expiration Date (if any):		Catalog #:	FG77150MM

Standard ID#:	M14079	Vendor:	Thermofisher Scientific
Analyst:	MDS	Chemical:	GFAA Nickel Nitrate Modifier
Date Received:	12/12/2019	Lot #:	9192422
Expiration Date (if any):	04/30/2021	Catalog #:	39043

Standard ID#:	M14080	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride
Date Received:	12/12/2019	Lot #:	J267-10
Expiration Date (if any):		Catalog #:	LC251701

Standard ID#:	M14081	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride
Date Received:	12/12/2019	Lot #:	J267-10
Expiration Date (if any):		Catalog #:	LC251701

Standard Log #:	M14078A	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3010 B&Si Spiking Solution
Prep Date:	12/11/2019	Expiration Date:	02/21

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
B	16	M13947	1000	0.8
Si	200	M13810	1000	10

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M14078b Combined with	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3010 S Spiking Solution
Prep Date:	12/11/2019	Expiration Date:	03/201

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
S	200	M13604	10000	1.0

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M14077	Instrument:	ICP 6500
Analyst:	NAH	Standard:	LOQ 3010 DOD Metals Spiking S
Prep Date:	12/11/2019	Expiration Date:	02/20

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	4	M13851	1000	0.2
Al	36	M13982	**10000**	0.18
As	24	M13863	1000	1.2
Ba	1.8	M13949	1000	0.09
Be	0.6	M13579	1000	0.03
Ca	100	M13841	**10000**	0.5
Cd	2.0	M13570	1000	0.1
Co	4	M13575	1000	0.2
Cr	4	M13617	**10000**	0.02
Cu	7	M13618	**10000**	0.035
Fe	100	M13983	**10000**	0.5
Mg	40	M13752	**10000**	0.2
Mn	4	M13616	**10000**	0.02
Mo	7	M13860	1000	0.35
Ni	6	M13569	1000	0.2
Pb	4	M13615	**10000**	0.02
Sb	12	M13950	1000	0.6
Se	13	M13948	1000	0.65
Tl	20	M13583	1000	0.75
V	5	M13578	1000	0.25
Zn	10	M13610	**10000**	0.05

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M14076	Instrument:	ICP 6500
Analyst:	NAH	Standard:	LOQ 3050 DOD Metals Spiking S
Prep Date:	12/10/2019	Expiration Date:	02/20

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	4	M13951	1000	0.2
Al	9.6	M13982	**10000**	0.048
As	32	M13863	1000	1.6
Ba	2	M13949	1000	0.1
Be	1.6	M13579	1000	0.08
Ca	56	M13841	**10000**	0.28
Cd	1.6	M13570	1000	0.08
Co	9.6	M13575	1000	0.48
Cr	5.6	M13617	**10000**	0.028
Cu	16	M13618	**10000**	0.08
Fe	72	M13983	**10000**	0.36
Mg	32	M13752	**10000**	0.16
Mn	6	M13616	**10000**	0.03
Mo	9.6	M13860	1000	0.48
Ni	4.8	M13569	1000	0.24
Pb	10	M13615	**10000**	0.05
Sb	32	M13950	1000	1.6
Se	16	M13948	1000	0.8
Tl	19	M13583	1000	0.95
V	3.2	M13578	1000	0.16
Zn	12	M13610	**10000**	0.06

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

		Instrument:	GFAA
Standard Log #:	M14074	Standard:	LODW/LOQW Ag Spiking Sol'n
Analyst:	MDS	Concentrations:	10 ug/L (Ag)
Prep Date:	12/10/2019	Expiration Date:	02/2021
Prep:	Into a 100 mL volumetric flask, pipetted **0.1 mL** of Ag (1000mg/L) M13951 and brought to volume with Milli-Q H_2O to make a 1000 ug/L Ag std. Into a 1 L volumetric flask, pipetted **10 mL** of Ag (*1000 ug/L*) std. and brought to volume with Milli-Q H_2O. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*0.2 ug/L*) and **2 mL** spiking solution for LOQ (*0.4 ug/L*)		

		Instrument:	CETAC
Standard Log #:	M14075	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	12/10/2019	Expiration Date:	12/11/2019
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.681 in a hood.		

		Instrument:	GFAA
Standard Log #:	M14072	Standard:	LODS/LOQS Spiking Sol'n
Analyst:	MDS	Concentrations:	60 ug/L (Sb) 160 ug/L (As,Se) 40 ug/L (Pb) 50 ug/L (Tl)
Prep Date:	12/10/2019	Expiration Date:	02/2020
Prep:	Into a 200 mL volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. **1.2 mL** of Sb (1000 mg/L) M13950 **3.2 mL** of As (1000 mg/L) M13863 **3.2 mL** of Se (1000 mg/L) M13948 **0.08 mL** of Pb (10,000 mg/L) M13615 **1.0 mL** of Tl (1000 mg/L) M13583 From this diluted standard solution, pipetted **10 mL** into a 1 L volumetric flask and brought up to volume with Milli-Q H_2O to make the spiking solution. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (1.2 *ug/L* Sb, *3.2 ug/L* As, *3.2 ug/L* Se, *0.8 ug/L* Pb, *1 ug/L* Tl) and **2 mL** spiking solution for LOQ (2.4 *ug/L* Sb, *6.4 ug/L* As, *6.4 ug/L* Se, *1.6 ug/L* Pb, *2 ug/L* Tl)		

		Instrument:	GFAA
Standard Log #:	M14073	Standard:	LODW/LOQW Spiking Sol'n
Analyst:	MDS	Concentrations:	150 ug/L (Sb) 100 ug/L (As) 200 ug/L (Se) 45 ug/L (Pb) 40 ug/L (Tl)
Prep Date:	12/10/2019	Expiration Date:	02/2020
Prep:	Into a 100 mL volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. **1.5 mL** of Sb (1000 mg/L) M13950 **1.0 mL** of As (1000 mg/L) M13863 **2.0 mL** of Se (1000 mg/L) M13948 **0.045 mL** of Pb (10,000 mg/L) M13615 **0.4 mL** of Tl (1000 mg/L) M13583 From this diluted standard solution, pipetted **10 mL** into a 1 L volumetric flask and brought up to volume with Milli-Q H_2O to make the spiking solution. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*3 ug/L* Sb, *2 ug/L* As, *4 ug/L* Se, *0.9 ug/L* Pb, *0.8 ug/L* Tl) and **2 mL** spiking solution for LOQ (*6 ug/L* Sb, *4 ug/L* As, *8 ug/L* Se, *1.8 ug/L* Pb, *1.6 ug/L* Tl)		

Standard Log #:	M14071	Standard:	GFAA Instrument Check
Analyst:	MDS	Final Concentration:	12 µg/L As 6 µg/L Pb 10 µg/L Sb 20 µg/L Se 10 µg/L Tl 0.6 µg/L Ag
Prep Date:	12/10/2019	Expiration Date:	02/2020

Into six, 100 mL volumetric flasks, add the following and bring up to volume with milli-Q H_2O.

Element	Volume Pipetted (mL)	Standard Conc. (µg/mL)	Standard ID	New Conc. (µg/L)
As	1	1000	M13863	10,000
Pb	0.1	10,000	M13615	10,000
Tl	1	1000	M13583	10,000
Se	1	1000	M13948	10,000
Sb	1	1000	M13950	10,000
Ag	0.1	1000	M13951	1000

Into a 1 L volumetric flask, add the following and bring up to volume with Milli-Q H_20. (1% HNO_3)

Element	Volume Pipetted (mL)	Standard Conc. (µg/L)	New Conc. (µg/L)
As	1.2	10,000	12
Pb	0.6	10,000	6
Tl	1.0	10,000	10
Se	2.0	10,000	20
Sb	1.0	10,000	10
Ag	0.6	1000	0.6

		Instrument:	HydraII
Standard Log #:	M14068	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	12/10/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14069	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	12/10/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13734 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	CETAC
Standard Log #:	M14070	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	12/10/2019	Expiration Date:	01/10/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.682 and dissolved **100 g** Stannous chloride M14016 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14065	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	12/05/2019	Expiration Date:	01/05/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.682 and dissolved **100 g** Stannous chloride M14016 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14066	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	12/06/2019	Expiration Date:	01/06/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.682 and dissolved **100 g** Stannous chloride M14016 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14067	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	12/10/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	CETAC
Standard Log #:	M14063	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	12/03/2019	Expiration Date:	01/03/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.682 and dissolved **100 g** Stannous chloride M14016 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14064	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	12/04/2019	Expiration Date:	12/05/2019
Prep:	Carefully mixed **3** parts HCl AB.682 with **1** part HNO_3 AB.681 in a hood.		

		Instrument:	HydraII
Standard Log #:	M14061	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	12/02/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard ID#:	M14062	Vendor:	ENVIROMENTAL EXPRESS
Analyst:	BMM	Chemical:	Acid Washed TCLP Filters
Date Received:	12/02/2019	Lot #:	400168-9305-CM
Expiration Date (if any):		Catalog #:	

		Instrument:	CETAC
Standard Log #:	M14058	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	11/20/2019	Expiration Date:	12/20/2019
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M14017 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14059	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	12/02/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14060	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	12/02/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

Standard Log #:	M14056	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	11/26/2019	Expiration Date:	11/26/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.684 and **128.6 mL** 10N NaOH M14002. Dilute to 20 L and mix.		

Standard Log #:	M14057	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	11/26/2019	Expiration Date:	11/26/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.684 and **128.6 mL** 10N NaOH M14002. Dilute to 20 L and mix.		

Standard ID#:	M14054	Vendor:	Spex Certi Prep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	11/20/2019	Lot #:	53-042CR
Expiration Date (if any):	11/30/2020	Catalog #:	XCTWI-5-500

Standard ID#:	M14055	Vendor:	Spex Certi Prep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	11/20/2019	Lot #:	53-041CR
Expiration Date (if any):	11/30/2019	Catalog #:	XSPIKE-1-250

		Instrument:	GFAA
Standard Log #:	M14051	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	11/20/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M14052	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	11/20/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M14053	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	11/20/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13786 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	HydraII
Standard Log #:	M14048	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	11/19/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14049	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	11/19/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M14050	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	11/19/2019	Expiration Date:	11/20/2019
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	CETAC
Standard Log #:	M14045	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	11/11/2019	Expiration Date:	05/11/2019
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.681 and dissolved **100 g** Stannous chloride M14017 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14046	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	11/13/19	Expiration Date:	05/13/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.681 and dissolved **100 g** Stannous chloride M14017 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14047	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	11/19/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

Standard Log #:	M14044	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	11/13/2019	Expiration Date:	11/13/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.684 and **128.6 mL** 10N NaOH M13877. Dilute to 20 L and mix.		

		Instrument:	CETAC
Standard Log #:	M14041	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	11/09/2019	Expiration Date:	11/10/2019
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	CETAC
Standard Log #:	M14042	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	11/12/2019	Expiration Date:	11/13/2019
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

Standard Log #:	M14043	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	BMM		
Prep Date:	11/12/2019	Expiration Date:	04/12/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13993 and **60 g** hydroxylamine sulfate M13874 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14038	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	11/07/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14039	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	11/07/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14040	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	11/07/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	ICP 6000
Standard Log #:	M14035	Standard:	L2 ICV
Analyst:	MDS	Concentrations:	1000 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	11/04/2019	Expiration Date:	02/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of the following and brought up to volume using milli-Q H_2O. (0.5% HNO_3, 0.5% HCl) Li (1000 µg/mL) M13577 Sn (1000 µg/mL) M14008 Sr (1000 µg/mL) M14007 Ti (1000 µg/mL) M14009 W (1000 µg/mL) MXXXXX		

		Instrument:	ICP 6000
Standard Log #:	M14036	Standard:	List 2 MRL/ICVLL Prep Solution
Analyst:	MDS	Concentrations:	5000 µg/L (W) 1000 µg/L (Li, Sn) 500 µg/L (Ti, Sr)
Prep Date:	11/04/2019	Expiration Date:	02/2020

Prep:

Analyte	MRL/ICVLL Conc. (µg/L)	Standard ID	Std. Conc. (µg/mL)	Volume (mL) Pipetted into 1 L	Expiration Date
Li	20/60	M13577	1000	1	02/2020
W	100/300	MXXXX	1000	5	XX/XXXX
Ti	10/30	M14009	1000	0.5	04/2021
Sr	10/30	M14007	1000	0.5	04/2021
Sn	20/60	M14008	1000	1	04/2021

Pipette **10 mL** into a 500 mL volumetric flask to create a working MRL std. or **1 mL** into a 50 mL digestion tube for a digested MRL standard. Pipette **30 mL** into 500 mL for a working ICVLL std. or **3 mL** into a 50 mL digestion tube for a digested ICVLL standard.

(0.5% HNO_3, 0.5% HCl)

		Instrument:	CETAC
Standard Log #:	M14037	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	11/04/2019	Expiration Date:	05/04/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13922 and brought up to volume.		

		Instrument:	ICP
Standard Log #:	M14033	Standard:	L2 ICAL
Analyst:	MDS	Concentrations:	1 (µg/L) 10 (µg/L) 100 (µg/L) 1000 (µg/L) 10,000 (µg/L)
Prep Date:	11/04/2019	Expiration Date:	05/30/2020
Prep:	Standard Conc. (ug/L)	Pipette the following:	
	1	**0.01 mL** of Custom Assurance Standard XCTWI-5-500 M13839 and **0.001 mL** W (1000 µg/mL) MXXXXX into 1L = *1 µg/L*	
	10	**0.10 mL** of Custom Assurance Standard XCTWI-5-500 M13839 and **0.01 mL** W (1000 µg/mL) MXXXXX into 1L = *10 µg/L*	
	100	**1 mL** of Custom Assurance Standard XCTWI-5-500 M13839 and **0.1 mL** W (1000 µg/mL) MXXXXX into 1L = *100 µg/L*	
	1000 (CCV)	**2 mL** of Custom Assurance Standard XCTWI-5-500 M13839 and **0.2 mL** W (1000 µg/mL) MXXXXX into 200mL = *1000 µg/L*	
	10000	**20 mL** of Custom Assurance Standard XCTWI-5-500 M13839 and **2 mL** W (1000 µg/mL) MXXXXX into 200mL = *10000 µg/L*	

		Instrument:	ICP 6000
Standard Log #:	M14034	Standard:	List 2 ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	11/04/2019	Expiration Date:	02/28/2020
Prep:	Into a 200 mL volumetric flask, pipetted **20 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13738, **6 mL** of Fe (10,000 mg/L) M13751, **0.1 mL** of Li (1000 µg/mL) M13577, **0.1 mL** of Sn (1000 µg/mL) M14008, **0.1 mL** of Sr (1000 µg/mL) M14007, **0.1 mL** of Ti (1000 µg/mL) M14009, and **0.1 mL** of W (1000 µg/mL) MXXXXX and brought up to volume using Milli-Q H_2O. (0.5% HNO_3, 0.5% HCl)		

		Instrument:	CETAC
Standard Log #:	M14032	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	10/31/2019	Expiration Date:	10/31/2020
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	ICP 6000
Standard Log #:	M14028	Standard:	B&Si ICAL
Analyst:	MDS	Concentrations:	50, 200, 1000, 2000 and 10,000 ug/L (B, Si)
Prep Date:	10/30/2019	Expiration Date:	10/2020
Prep:	Into five, 1 L volumetric flasks, pipetted the following from stock standards B (1000 mg/L) M13947 and Si (1000 mg/L) M13810 and brought up to volume using milli-Q H_2O. *50 ug/L std.* - **0.05 mL** of each *200 ug/L std.* - **0.2 mL** of each *1000 ug/L std.* -**1.0 mL** of each, also used for Continuing Calibration Verification *2000 ug/L std.* - **2.0 mL** of each *10,000 ug/L std.* -**10 mL** of each		

		Instrument:	ICP 6000
Standard Log #:	M14029	Standard:	B & Si ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (B,Si)
Prep Date:	10/30/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **10 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13738, **0.05 mL** of B (1000 µg/mL) M13947, **0.05 mL** of Si (1000 µg/mL) M13810 and **3 mL** of Fe (10,000 mg/L) M13751 and brought up to volume using Milli-Q H_2O.		

		Instrument:	ICP 6000
Standard Log #:	M14030	Standard:	B&Si ICV
Analyst:	MDS	Concentrations:	1000 ug/L (B, Si)
Prep Date:	10/30/2019	Expiration Date:	05/30/2020
Prep:	Into a 1 L volumetric flask, pipetted **10 mL** of Custom Assurance Std. #23 (100 mg/L Al, As, **B**, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13839 and **1.0 mL** Si (1000 mg/L) M13981 and brought up to volume using milli-Q H_2O.		

Standard ID#:	M14031	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	Acid Washed TCLP filters
Date Received:	10/31/2019	Lot #:	400165
Expiration Date (if any):		Catalog #:	FG77150MM

		Instrument:	HydraII
Standard Log #:	M14024	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	10/29/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14025	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	10/29/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14026	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	10/29/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M14027	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	10/30/2019	Expiration Date:	04/30/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13922 and brought up to volume.		

MRL BASE STD M14024 Analyst NAH

Prep Date 10/30/2019

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	(ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L	Expiration Date
Ag	20	M13951	1000	1	02/2021
Al	400	M13690	10000	2	06/2020
Ba	10	M13949	1000	0.5	02/2021
Be	4	M13579	1000	0.2	02/2020
Cd	5	M13570	1000	0.25	01/2020
Co	10	M13575	1000	0.5	01/2020
Cr	10	M13617	10000	0.05	03/2020
Cu	10	M13618	10000	0.05	03/2020
Mg	500	M13752	10000	2.5	09/2020
Mn	10	M13616	10000	0.05	03/2020
Mo	10	M13860	1000	0.5	12/2020
Ni	10	M13569	1000	0.5	01/2020
Pb	10	M13615	10000	0.05	03/2020
Sb	20	M13950	1000	1	02/2021
V	10	M13578	1000	0.5	02/2020
Zn	10	M13610	10000	0.05	03/2020
K	1000	M14003	10000	5	04/2021
Na	1000	M13862	10000	5	12/2020
As	20	M13763	1000	1	12/2020
Ca	500	M13985	10000	2.5	04/2021
Fe	300	M13751	10000	1.5	09/2020
Se	20	M13948	1000	1	02/2021
Tl	20	M13583	1000	1	02/2020
Si	100	M13810	1000	5	10/2020
B	20	M13947	1000	1	02/2021
Li	20	M13577	1000	1	02/2020
W	50	Mxxxxxx	1000	2.5	xxxxxxxx
Ti	10	M14009	1000	0.5	04/2021
Sr	10	M14007	1000	0.5	03/2020
Sn	50	M14008	1000	2.5	04/2021
S	300	M13604	10000	1.5	03/2020

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

		Instrument:	CETAC
Standard Log #:	M14022	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	10/23/2019	Expiration Date:	04/23/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13922 and brought up to volume.		

		Instrument:	ICP 6500
Standard Log #:	M14023	Standard:	ICSA
Analyst:	NAH	Concentrations:	**500,000 ug/L** Al, Ca, Fe, Mg **10,000** V, Ce
Prep Date:	10/30/2019	Expiration Date:	02/2020
Prep:	Into a 500 mL volumetric flask, pipetted 50 **mL** Interference A std M13738 and 15 **mL** 10000 mg/L Fe M14004 5.0 **mL** 1000 mg/L V M13578 5.0 **mL** 1000 mg/L Ce M13859 and brought up to volume with milli-Q H_2O.		

Standard Log #:	M14020	Reagent:	Potassium Persulfate Solution
Analyst:	BMM		
Prep Date:	10/23/2019	Expiration Date:	04/23/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13714 and brought up to volume.		

Standard Log #:	M14021	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	BMM		
Prep Date:	10/23/2019	Expiration Date:	04/23/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13993 and **60 g** hydroxylamine sulfate M13874 and brought up to volume.		

Standard ID#:	M14016	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride
Date Received:	10/23/2019	Lot #:	J267-10
Expiration Date (if any):		Catalog #:	LC251701

Standard ID#:	M14017	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride
Date Received:	10/23/2019	Lot #:	J267-10
Expiration Date (if any):		Catalog #:	LC251701

		Instrument:	CETAC
Standard Log #:	M14018	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	10/23/2019	Expiration Date:	10/24/2019
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

Standard Log #:	M14019	Reagent:	Potassium Permanganate Solution
Analyst:	BMM		
Prep Date:	10/23/2019	Expiration Date:	04/23/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14012	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	10/21/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14013	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	10/21/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14014	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	10/21/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard Log #:	M14015	Instrument:	GFAA
Analyst:	MDS	Reagent:	Pd/Mg Matrix Modifier
Prep Date:	10/22/2019	Expiration Date:	09/30/2020
Prep:	Into a 50 mL volumetric flask, partially filled with milli-Q H_2O, pipetted **15 mL** Pd Modifier M13954 and **10 mL** Mg (10,000 mg/L) M13752 and brought up to volume.		

Standard Log #:	M14010	Reagent:	SPLP ACID MIX
Analyst:	BMM		60/40 H_2SO_4 - HNO_3
Prep Date:	10/21/2019	Expiration Date:	10/21/2020
Prep:	Into a 200 mL volumetric flask, partially filled with DI H_2O, add **12 g** H_2SO_4 AB.674 and **8 g** HNO_3 AB.677 and bring up to volume using DI H_2O.		

Standard Log #:	M14011	Reagent:	SPLP EXTRACTION FLUID EAST #
Analyst:	BMM	pH:	4.20 ± 0.05
Prep Date:	10/21/2019	Expiration Date:	10/21/2020
Prep:	Into a 20 L carboy filled with DI H_2O, adjust pH to 4.20 ± 0.05 using 60/40 HNO_3 - H_2SO_4 M14010.		

Standard ID#:	M14005	Vendor:	CPI
Analyst:	NAH	Chemical:	Y 10000 mg/L
Date Received:	10/17/2019	Lot #:	168189-30
Expiration Date (if any):	04/2021	Catalog #:	4400-110M671

Standard ID#:	M14006	Vendor:	CPI
Analyst:	NAH	Chemical:	Si 1000 mg/L
Date Received:	10/17/2019	Lot #:	1004985-62
Expiration Date (if any):	04/2021	Catalog #:	S4400-1000504F

Standard ID#:	M14007	Vendor:	CPI
Analyst:	NAH	Chemical:	Sr 1000 mg/L
Date Received:	10/17/2019	Lot #:	168227-95
Expiration Date (if any):	04/2021	Catalog #:	S4400-1000531

Standard ID#:	M14008	Vendor:	CPI
Analyst:	NAH	Chemical:	Sn 1000 mg/L
Date Received:	10/17/2019	Lot #:	977645-2
Expiration Date (if any):	04/2021	Catalog #:	S4400-1000613

Standard ID#:	M14009	Vendor:	CPI
Analyst:	NAH	Chemical:	Ti 1000 mg/L
Date Received:	10/17/2019	Lot #:	987438-36
Expiration Date (if any):	04/2021	Catalog #:	S4400-1000623

		Instrument:	CETAC
Standard Log #:	M14000	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	10/16/2019	Expiration Date:	04/16/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13923 and brought up to volume.		

Standard ID#:	M14001	Vendor:	ThermoFisher
Analyst:	MDS	Chemical:	Nickel Nitrate Matrix Modifier
Date Received:	10/17/2019	Lot #:	9192422
Expiration Date (if any):	04/30/2021	Catalog #:	39043

Standard Log #:	M14002	Reagent:	10N NaOH
Analyst:	BMM		
Prep Date:	10/17/2019	Expiration Date:	10/17/2020
Prep:	Into a 1 L volumetric flask, added **400 g** NaOH W47366 and brought up to volume.		

Standard ID#:	M14003	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10000 mg/L
Date Received:	10/17/2019	Lot #:	980507-31
Expiration Date (if any):	04/2021	Catalog #:	4400-10M411

Standard ID#:	M14004	Vendor:	CPI
Analyst:	NAH	Chemical:	Fe 10000 mg/L
Date Received:	10/17/2019	Lot #:	998527-45
Expiration Date (if any):	04/2021	Catalog #:	4400-10M261

		Instrument:	GFAA
Standard Log #:	M13997	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	10/16/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13998	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	10/16/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13999	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	10/16/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13786 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

Standard ID#:	M13993	Vendor:	Thermo fisher Scientific
Analyst:	NAH	Chemical:	Sodium Chloride
Date Received:	10/15/2019	Lot #:	193463
Expiration Date (if any):	06/2024	Catalog #:	S271-500

Standard ID#:	M13994	Vendor:	Thermo Fisher Scientific
Analyst:	NAH	Chemical:	Hydroxylamine Sulfate
Date Received:	10/15/2019	Lot #:	189407
Expiration Date (if any):	05/2024	Catalog #:	H331-500

		Instrument:	CETAC
Standard Log #:	M13995	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	10/15/2019	Expiration Date:	10/16/2019
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

Standard Log #:	M13996	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	10/16/2019	Expiration Date:	10/16/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13877. Dilute to 20 L and mix.		

		Instrument:	ICP 6000
Standard Log #:	M13992	Standard:	List 2 ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	10/15/2019	Expiration Date:	01/2020
Prep:	Into a 200 mL volumetric flask, pipetted **20 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13738, **6 mL** of Fe (10,000 mg/L) M13751, **0.1 mL** of Li (1000 µg/mL) M13577, **0.1 mL** of Sn (1000 µg/mL) M13572, **0.1 mL** of Sr (1000 µg/mL) M13580, **0.1 mL** of Ti (1000 µg/mL) M13573, and **0.1 mL** of W (1000 µg/mL) MXXXXX and brought up to volume using Milli-Q H_2O. (0.5% HNO_3, 0.5% HCl)		

		Instrument:	ICP 6000
Standard Log #:	M13989	Standard:	Sulfur ICAL
Analyst:	MDS	Concentrations:	1000 10,000 100,000 1000K µg/L (S)
Prep Date:	10/14/2019	Expiration Date:	06/2020
Prep:	Into four, 100 mL volumetric flasks, pipetted the following from stock standard S (10,000 µg/mL) M13696 and brought up to volume using milli-Q H_2O. *1000 ug/L std.* - **0.01 mL** *10,000 ug/L std.* - **0.1 mL** *100,000 ug/L std.* -**1.0 mL**, also used as the CCV *1000K ug/L std.* - **10 mL**		

		Instrument:	ICP 6000
Standard Log #:	M13990	Standard:	Sulfur ICV
Analyst:	MDS	Concentrations:	100,000 µg/L (S)
Prep Date:	10/14/2019	Expiration Date:	03/2020
Prep:	Into a 100 mL volumetric flask, pipetted **1.0 mL** of S (10,000 µg/mL) M13604 and brought up to volume using Milli-Q H_2O.		

		Instrument:	ICP 6000
Standard Log #:	M13991	Standard:	B & Si ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (B,Si)
Prep Date:	10/14/2019	Expiration Date:	12/2019
Prep:	Into a 100 mL volumetric flask, pipetted **10 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13738, **0.05 mL** of B (1000 µg/mL) M13531, **0.05 mL** of Si (1000 µg/mL) M13861 and **3 mL** of Fe (10,000 mg/L) M13751 and brought up to volume using Milli-Q H_2O.		

		Instrument:	HydraII
Standard Log #:	M13986	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	10/15/2019	Expiration Date:	04/15/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M13987	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	10/15/2019	Expiration Date:	04/15/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M13988	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	10/15/2019	Expiration Date:	04/15/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard ID#:	M13982	Vendor:	CPI
Analyst:	NAH	Chemical:	Aluminum 10000 mg/L
Date Received:	10/09/2019	Lot #:	992536-16
Expiration Date (if any):	04/2021	Catalog #:	4400-10M11

Standard ID#:	M13983	Vendor:	CPI
Analyst:	NAH	Chemical:	Fe 10000 mg/L
Date Received:	10/09/2019	Lot #:	998527-45
Expiration Date (if any):	04/2021	Catalog #:	4400-10M261

Standard ID#:	M13984	Vendor:	CPI
Analyst:	NAH	Chemical:	Mg 10000 mg/L
Date Received:	10/09/2019	Lot #:	1013353-4
Expiration Date (if any):	04/2021	Catalog #:	4400-10M311

Standard ID#:	M13985	Vendor:	CPI
Analyst:	NAH	Chemical:	Ca 10000 mg/L
Date Received:	10/09/2019	Lot #:	855297-68
Expiration Date (if any):	04/2021	Catalog #:	4400-10M91

		Instrument:	CETAC
Standard Log #:	M13978	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	10/08/2019	Expiration Date:	04/08/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13923 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13979	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	10/09/2019	Expiration Date:	04/09/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13923 and brought up to volume.		

Standard ID#:	M13980	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Std
Date Received:	10/08/2019	Lot #:	52-248CR
Expiration Date (if any):	10/30/2020	Catalog #:	XSPIKE-1-250

Standard ID#:	M13981	Vendor:	CPI
Analyst:	NAH	Chemical:	Silicon 1000 mg/l
Date Received:	10/09/2019	Lot #:	1004985-62
Expiration Date (if any):	04/2021	Catalog #:	S4400-1000504F

		Instrument:	HydraII
Standard Log #:	M13976	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	10/07/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13975 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	CETAC
Standard Log #:	M13977	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	10/07/2019	Expiration Date:	10/07/2020
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	HydraII
Standard Log #:	M13973	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	10/07/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M13974	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	10/07/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M13975	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	10/07/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	GFAA
Standard Log #:	M13970	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	10/07/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13971	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	10/07/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13972	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	10/07/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13786 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

Standard Log #:	M13969	Reagent:	1:3 HNO3
Analyst:	MDS		
Prep Date:	10/02/2019	Expiration Date:	10/02/2020
Prep:	Carefully mixed **3** parts DI with **1** part HNO_3 AB.681 in a hood.		

		Instrument:	HydraII
Standard Log #:	M13967	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	10/01/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13966 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	CETAC
Standard Log #:	M13968	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	10/01/2019	Expiration Date:	10/01/2020
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	HydraII
Standard Log #:	M13964	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	10/01/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M13965	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	10/01/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M13966	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	10/01/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard Log #:	M13963	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	09/30/2019	Expiration Date:	09/30/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13877. Dilute to 20 L and mix.		

Standard ID#:	M13961	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Std.
Date Received:	09/24/2019	Lot #:	7-093AB
Expiration Date (if any):	09/30/2020	Catalog #:	XCTWI-1-500

		Instrument:	CETAC
Standard Log #:	M13962	Reagent:	Stannous Chloride Solution
Analyst:	NAH		
Prep Date:	09/25/2019	Expiration Date:	09/25/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13923 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13960	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	09/19/2019	Expiration Date:	03/19/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.678 and dissolved **100 g** Stannous chloride M13889 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M13958	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	09/17/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	HydraII
Standard Log #:	M13959	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	09/17/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13958 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	CETAC
Standard Log #:	M13955	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	09/17/2019	Expiration Date:	09/17/2020
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	HydraII
Standard Log #:	M13956	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	09/17/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M13957	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	09/17/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

Standard Log #:	M13952	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	09/13/2019	Expiration Date:	09/13/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13877. Dilute to 20 L and mix.		

Standard Log #:	M13953	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	09/13/2019	Expiration Date:	09/13/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13877. Dilute to 20 L and mix.		

Standard ID#:	M13954	Vendor:	Environmental Expresss
Analyst:	MDS	Chemical:	1% Pd Matrix Modifier
Date Received:	09/13/2019	Lot #:	1925215
Expiration Date (if any):	09/30/2020	Catalog #:	HP1900-100

		Instrument:	CETAC
Standard Log #:	M13946	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	09/10/2019	Expiration Date:	03/10/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13889 and brought up to volume.		

Standard ID#:	M13947	Vendor:	CPI
Analyst:	NAH	Chemical:	Boron 1000 mg/lL
Date Received:	09/10/2019	Lot #:	982524-80
Expiration Date (if any):	02/2021	Catalog #:	S4400-100074

Standard ID#:	M13948	Vendor:	CPI
Analyst:	NAH	Chemical:	Selenium 1000 mg/L
Date Received:	09/10/2019	Lot #:	982461-61
Expiration Date (if any):	02/2021	Catalog #:	S4400-1000491

Standard ID#:	M13949	Vendor:	CPI
Analyst:	NAH	Chemical:	Barium 1000 mg/L
Date Received:	09/10/2019	Lot #:	994634-28
Expiration Date (if any):	02/2021	Catalog #:	S4400-100041

Standard ID#:	M13950	Vendor:	CPI
Analyst:	NAH	Chemical:	Antimony 1000 mg/L
Date Received:	09/10/2019	Lot #:	1013797-3
Expiration Date (if any):	02/2019	Catalog #:	S4400-100023

Standard ID#:	M13951	Vendor:	CPI
Analyst:	NAH	Chemical:	Silver 1000 mg/L
Date Received:	09/10/2019	Lot #:	975475-71
Expiration Date (if any):	02/2021	Catalog #:	S4400-1000511

		Instrument:	HydraII
Standard Log #:	M13944	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	09/09/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13943 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	CETAC
Standard Log #:	M13945	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	09/09/2019	Expiration Date:	09/09/2020
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	HydraII
Standard Log #:	M13941	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	09/09/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M13942	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	09/09/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M13943	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	09/09/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	GFAA
Standard Log #:	M13938	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	09/09/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13939	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	09/09/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13940	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	09/09/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13786 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13937	Standard:	NaK ICSAB
Analyst:	MDS	Concentrations:	500 mg/L (Al, Ca, Fe, Mg) 100 mg/L (Na, K)
Prep Date:	09/06/2019	Expiration Date:	02/28/2020
Prep:	Into a 250 mL volumetric flask, pipetted **25 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13738, **2.5 mL** of K (10,000 mg/L) M13755, **2.5 mL** of Na (10,000 mg/L) M13691 and **7.5 mL** of Fe (10,000 mg/L) M13695 and brought up to volume using Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13933	Standard:	Na & K ICAL
Analyst:	MDS	Concentrations:	0.5, 1, 5, 10, 50, 100, and 200 mg/L (Na,K)
Prep Date:	09/06/2019	Expiration Date:	03/2020
Prep:	Into seven, 200 mL volumetric flasks, pipetted the following from Na (1000 µg/mL) M13607 and K (1000 µg/mL) M13606 and brought up to volume using milli-Q H_2O. (2% HNO_3) *0.5 mg/L std.* - **0.1 mL** of each *1.0 mg/L std.* - **0.2 mL** of each *5.0 mg/L std.* - **1.0 mL** of each *10 mg/L std.* - **2.0 mL** of each *50 mg/L std.* - **10 mL** of each *100 mg/L std.* -**20 mL** of each, also used for Continuing Calibration Verification *200 mg/L std.* - **40 mL** of each		

		Instrument:	ICP 6000
Standard Log #:	M13934	Standard:	Na,K MRL
Analyst:	MDS	Concentrations:	1 mg/L (Na,K)
Prep Date:	09/06/2019	Expiration Date:	03/2020
Prep:	Into a 500 mL volumetric flask, pipetted **0.5 mL** of Na (1000 µg/mL) M13607 and **0.5 mL** K (1000 µg/mL) M13606 and brought to volume with Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13935	Standard:	NaK ICV
Analyst:	MDS	Concentrations:	100 mg/L (Na, K)
Prep Date:	09/06/2019	Expiration Date:	06/2020
Prep:	Into a 250 mL volumetric flask, pipetted **2.5 mL** of K (10,000 mg/L) M13755 and Na (10,000 mg/L) M13691 and brought up to volume using Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13936	Standard:	Na,K ICVLL
Analyst:	MDS	Concentrations:	3 mg/L (Na,K)
Prep Date:	09/06/2019	Expiration Date:	06/2020
Prep:	Into a 500 mL volumetric flask, pipetted **0.15 mL** of Na (10,000 µg/mL) M13691 and **0.15 mL** K (10,000 µg/mL) M13755 and brought to volume with Milli-Q H_2O. (2% HNO_3)		

		Instrument:	HydraII
Standard Log #:	M13929	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	09/03/2019	Expiration Date:	03/03/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13928 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	CETAC
Standard Log #:	M13930	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	09/03/2019	Expiration Date:	10/03/2019
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13889 and brought up to volume.		

Standard Log #:	M13931	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	09/03/2019	Expiration Date:	09/03/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13877. Dilute to 20 L and mix.		

Standard Log #:	M13932	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	09/03/2019	Expiration Date:	09/03/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13877. Dilute to 20 L and mix.		

		Instrument:	HydraII
Standard Log #:	M13926	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	09/03/2019	Expiration Date:	03/03/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M13927	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	09/03/2019	Expiration Date:	03/03/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M13928	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	09/03/2019	Expiration Date:	03/03/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard ID#:	M13924	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	Yttrium 10,000 mg/L
Date Received:	08/29/2019	Lot #:	1833905
Expiration Date (if any):	02/28/2021	Catalog #:	HP10M67-1

		Instrument:	HydraII
Standard Log #:	M13920	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	08/27/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13919 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	CETAC
Standard Log #:	M13921	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	08/28/2019	Expiration Date:	09/28/2019
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13889 and brought up to volume.		

Standard ID#:	M13922	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride Dihydrate
Date Received:	08/28/2019	Lot #:	J142-19
Expiration Date (if any):		Catalog #:	LC251701

Standard ID#:	M13923	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride Dihydrate
Date Received:	08/28/2019	Lot #:	J142-19
Expiration Date (if any):		Catalog #:	LC251701

		Instrument:	HydraII
Standard Log #:	M13917	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	08/27/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M13918	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	08/27/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M13919	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	08/27/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	GFAA
Standard Log #:	M13916	Standard:	LODW/LOQW Ag Spiking Sol'n
Analyst:	MDS	Concentrations:	10 ug/L (Ag)
Prep Date:	08/26/2019	Expiration Date:	10/2019
Prep:	Into a 100 mL volumetric flask, pipetted **0.1 mL** of Ag (1000mg/L) M13458 and brought to volume with Milli-Q H_2O to make a 1000 ug/L Ag std. Into a 1 L volumetric flask, pipetted **10 mL** of Ag (*1000 ug/L*) std. and brought to volume with Milli-Q H_2O. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*0.2 ug/L*) and **2 mL** spiking solution for LOQ (*0.4 ug/L*)		

		Instrument:	GFAA
Standard Log #:	M13914	Standard:	LODS/LOQS Spiking Sol'n
Analyst:	MDS	Concentrations:	60 ug/L (Sb) 160 ug/L (As,Se) 40 ug/L (Pb) 50 ug/L (Tl)
Prep Date:	08/26/2019	Expiration Date:	10/2019
Prep:	Into a 200 mL volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. **1.2 mL** of Sb (1000 mg/L) M13459 **3.2 mL** of As (1000 mg/L) M13863 **3.2 mL** of Se (1000 mg/L) M13460 **0.08 mL** of Pb (10,000 mg/L) M13615 **1.0 mL** of Tl (1000 mg/L) M13583 From this diluted standard solution, pipetted **10 mL** into a 1 L volumetric flask and brought up to volume with Milli-Q H_2O to make the spiking solution. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (1.2 *ug/L* Sb, *3.2 ug/L* As, *3.2 ug/L* Se, *0.8 ug/L* Pb, *1 ug/L* Tl) and **2 mL** spiking solution for LOQ (2.4 *ug/L* Sb, *6.4 ug/L* As, *6.4 ug/L* Se, *1.6 ug/L* Pb, *2 ug/L* Tl)		

		Instrument:	GFAA
Standard Log #:	M13915	Standard:	LODW/LOQW Spiking Sol'n
Analyst:	MDS	Concentrations:	150 ug/L (Sb) 100 ug/L (As) 200 ug/L (Se) 45 ug/L (Pb) 40 ug/L (Tl)
Prep Date:	08/26/2019	Expiration Date:	10/2019
Prep:	Into a 100 mL volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. **1.5 mL** of Sb (1000 mg/L) M13459 **1.0 mL** of As (1000 mg/L) M13863 **2.0 mL** of Se (1000 mg/L) M13460 **0.045 mL** of Pb (10,000 mg/L) M13615 **0.4 mL** of Tl (1000 mg/L) M13583 From this diluted standard solution, pipetted **10 mL** into a 1 L volumetric flask and brought up to volume with Milli-Q H_2O to make the spiking solution. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*3 ug/L* Sb, *2 ug/L* As, *4 ug/L* Se, *0.9 ug/L* Pb, *0.8 ug/L* Tl) and **2 mL** spiking solution for LOQ (*6 ug/L* Sb, *4 ug/L* As, *8 ug/L* Se, *1.8 ug/L* Pb, *1.6 ug/L* Tl)		

Standard Log #:	M13913 (A)	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3010 B&Si Spiking Solution
Prep Date:	08/26/2019	Expiration Date:	12/19/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
B	16	M13531	1000	0.8
Si	200	M13861	1000	10

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13913 combined with A	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3010 S Spiking Solution
Prep Date:	08/26/2019	Expiration Date:	06/20/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
S	200	M13696	10000	1.0

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

		Instrument:	CETAC
Standard Log #:	M13911	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	08/21/2019	Expiration Date:	02/21/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13888 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13912	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	08/21/2019	Expiration Date:	08/21/2020
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	HydraII
Standard Log #:	M13909	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	08/20/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13908 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	CETAC
Standard Log #:	M13910	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	08/20/2019	Expiration Date:	08/20/2020
Prep:	Carefully mixed **3** parts HCl AB.656 with **1** part HNO_3 AB.655 in a hood.		

		Instrument:	HydraII
Standard Log #:	M13906	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	08/20/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M13907	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	08/20/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M13908	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	08/20/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard Log #:	M13904	Reagent:	Potassium Persulfate Solution
Analyst:	BMM		
Prep Date:	08/19/2019	Expiration Date:	08/19/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13059 and brought up to volume.		

Standard Log #:	M13905	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	BMM		
Prep Date:	08/19/2019	Expiration Date:	08/19/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13728 and **60 g** hydroxylamine sulfate M13727 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13902	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	08/15/2019	Expiration Date:	02/15/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13888 and brought up to volume.		

Standard ID#:	M13903	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	08/15/2019	Lot #:	52-161Cr
Expiration Date (if any):	8/30/2020	Catalog #:	XSPIKE-1-250

		Instrument:	CETAC
Standard Log #:	M13898	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	08/13/2019	Expiration Date:	08/13/2020
Prep:	Carefully mixed **3** parts HCl AB.656 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	HydraII
Standard Log #:	M13899	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	08/13/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M13900	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	08/13/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M13901	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	08/13/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13734 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

Standard Log #:	M13897	Standard:	GFAA Instrument Check
Analyst:	MDS	Final Concentration:	12 µg/L As 6 µg/L Pb 10 µg/L Sb 20 µg/L Se 10 µg/L Tl 0.6 µg/L Ag
Prep Date:	08/12/2019	Expiration Date:	10/2019

Into six, 100 mL volumetric flasks, add the following and bring up to volume with milli-Q H_2O.

Element	Volume Pipetted (mL)	Standard Conc. (µg/mL)	Standard ID	New Conc. (µg/L)
As	1	1000	M13863	10,000
Pb	0.1	10,000	M13615	10,000
Tl	1	1000	M13583	10,000
Se	1	1000	M13460	10,000
Sb	1	1000	M13459	10,000
Ag	0.1	1000	M13458	1000

Into a 1 L volumetric flask, add the following and bring up to volume with Milli-Q H_20. (1% HNO_3)

Element	Volume Pipetted (mL)	Standard Conc. (µg/L)	New Conc. (µg/L)
As	1.2	10,000	12
Pb	0.6	10,000	6
Tl	1.0	10,000	10
Se	2.0	10,000	20
Sb	1.0	10,000	10
Ag	0.6	1000	0.6

Standard Log #:	M13896	Reagent:	1:3 HNO3
Analyst:	MDS		
Prep Date:	08/09/2019	Expiration Date:	08/09/2020
Prep:	Carefully mixed **3** parts DI with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13895	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	08/06/2019	Expiration Date:	02/06/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13888 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13894	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	08/05/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13893 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	CETAC
Standard Log #:	M13891	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	08/05/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	CETAC
Standard Log #:	M13892	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	08/05/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	CETAC
Standard Log #:	M13893	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	08/05/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M13890	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	07/29/2019	Expiration Date:	01/29/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13888 and brought up to volume.		

Standard ID#:	M13888	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride Dihydrate
Date Received:	07/25/2019	Lot #:	J142-19
Expiration Date (if any):		Catalog #:	LC251701

Standard ID#:	M13889	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride Dihydrate
Date Received:	07/25/2019	Lot #:	J142-19
Expiration Date (if any):		Catalog #:	LC251701

		Instrument:	CETAC
Standard Log #:	M13884	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	07/22/2019	Expiration Date:	
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	GFAA
Standard Log #:	M13885	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	07/22/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13886	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	07/22/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13887	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	07/22/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13786 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	CETAC
Standard Log #:	M13883	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	07/18/2019	Expiration Date:	01/03/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13648 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13879	Reagent:	Hg Aqua Regia
Analyst:	MDS		
Prep Date:	07/18/2019	Expiration Date:	07/18/2020
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13880	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	07/18/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	CETAC
Standard Log #:	M13881	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	07/18/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M13882	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	07/18/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13881 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

Standard Log #:	M13876	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	07/18/2019	Expiration Date:	07/18/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13750. Dilute to 20 L and mix.		

Standard Log #:	M13877	Reagent:	10N NaOH
Analyst:	BMM		
Prep Date:	07/18/2019	Expiration Date:	07/18/2020
Prep:	Into a 1 L volumetric flask, added **400 g** NaOH W45383 and brought up to volume.		

Standard Log #:	M13878	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	07/18/2019	Expiration Date:	07/18/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M45383. Dilute to 20 L and mix.		

Standard Log #:	M13873	Reagent:	Potassium Permanganate Solution
Analyst:	NAH		
Prep Date:	07/17/2019	Expiration Date:	07/17/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard ID#:	M13874	Vendor:	Fisher
Analyst:	NAH	Chemical:	Hydroxylamine Sulfate
Date Received:	07/17/2019	Lot #:	175511
Expiration Date (if any):		Catalog #:	H331-500

Standard Log #:	M13875	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	NAH		
Prep Date:	07/18/2019	Expiration Date:	07/18/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13728 and **60 g** hydroxylamine sulfate M13727 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13872	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	07/12/2019	Expiration Date:	07/12/2019
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.679 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13871	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	07/11/2019	Expiration Date:	07/11/2019
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.679 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13870	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	07/10/2019	Expiration Date:	07/10/2019
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.679 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13869	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	07/08/2019	Expiration Date:	07/08/2019
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.679 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13868	Reagent:	Stannous Chloride Solution
Analyst:	LJF		
Prep Date:	07/03/2019	Expiration Date:	01/03/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13648 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13864	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	07/02/2019	Expiration Date:	07/02/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

Standard Log #:	M13865	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	LJF		
Prep Date:	07/02/2019	Expiration Date:	01/02/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13728 and **60 g** hydroxylamine sulfate M13727 and brought up to volume.		

Standard Log #:	M13866	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	07/02/2019	Expiration Date:	01/02/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M13867	Reagent:	Potassium Persulfate Solution
Analyst:	LJF		
Prep Date:	07/02/2019	Expiration Date:	01/02/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13059 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13858	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	06/26/2019	Expiration Date:	06/26/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

Standard ID#:	M13859	Vendor:	CPI
Analyst:	NAH	Chemical:	Ce 1000 mg/L
Date Received:	06-26-2019	Lot #:	171633-12
Expiration Date (if any):	12/2020	Catalog #:	S4400-1000101

Standard ID#:	M13860	Vendor:	CPI
Analyst:	NAH	Chemical:	Mo 1000 mg/L
Date Received:	06-26-2019	Lot #:	987189-17
Expiration Date (if any):	12/2020	Catalog #:	S4400-1000343

Standard ID#:	M13861	Vendor:	CPI
Analyst:	NAH	Chemical:	Si 1000 mg/L
Date Received:	06-26-2019	Lot #:	175213-60
Expiration Date (if any):	12/2020	Catalog #:	S4400-1000504F

Standard ID#:	M13862	Vendor:	CPI
Analyst:	NAH	Chemical:	Na 10000 mg/L
Date Received:	06-26-2019	Lot #:	752887-32
Expiration Date (if any):	12/2020	Catalog #:	4400-10M521

Standard ID#:	M13863	Vendor:	CPI
Analyst:	NAH	Chemical:	As 1000 mg/L
Date Received:	06-26-2019	Lot #:	175385-105
Expiration Date (if any):	12/2020	Catalog #:	S4400-100031

Standard Log #:	M13856	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	06/21/2019	Expiration Date:	06/21/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13750. Dilute to 20 L and mix.		

Standard Log #:	M13857	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	06/21/2019	Expiration Date:	06/21/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13750. Dilute to 20 L and mix.		

		Instrument:	CETAC
Standard Log #:	M13855	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	06/19/2019	Expiration Date:	06/19/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

Standard ID#:	M13851	Vendor:	CPI
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	06-19-2019	Lot #:	52-082CR
Expiration Date (if any):	06/30/2020	Catalog #:	XSPIKE-1-250

		Instrument:	GFAA
Standard Log #:	M13852	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	06/19/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q H_2O. ($1\% HNO_3$)		

		Instrument:	GFAA
Standard Log #:	M13853	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	06/19/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q DI H_2O. ($1\% HNO_3$)		

		Instrument:	GFAA
Standard Log #:	M13854	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	06/19/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13786 and brought to volume with Milli-Q DI H_2O. ($1\% HNO_3$)		

		Instrument:	CETAC
Standard Log #:	M13850	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	06/14/2019	Expiration Date:	06/14/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

Standard Log #:	M13849	Instrument:	GFAA
Analyst:	MDS	Standard:	MDL Spiking Solution
Prep Date:	06/13/2019	Expiration Date:	07/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (2% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
Ag	0.2	M13458	1000	0.01
As	2	M13392	1000	0.1
Pb	2	M13615	10000	0.01
Sb	2	M13459	1000	0.1
Se	2	M13460	1000	0.1
Tl	2	M13583	1000	0.1

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13848	Instrument:	ICP 6500
Analyst:	NAH	Standard:	LOQ 3010 DOD Metals Spiking S
Prep Date:	06/11/2019	Expiration Date:	10/19

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	4	M13458	1000	0.2
Al	36	M13611	**10000**	0.18
As	24	M13753	1000	1.2
Ba	1.8	M13457	1000	0.09
Be	0.6	M13579	1000	0.03
Ca	100	M13692	**10000**	0.5
Cd	2.0	M13570	1000	0.1
Co	4	M13575	1000	0.2
Cr	4	M13697	**10000**	0.02
Cu	7	M13618	**10000**	0.035
Fe	100	M13609	**10000**	0.5
Mg	40	M13694	**10000**	0.2
Mn	4	M13616	**10000**	0.02
Mo	7	M13697	1000	0.35
Ni	6	M13569	1000	0.2
Pb	4	M13615	**10000**	0.02
Sb	12	M13459	1000	0.6
Se	13	M13460	1000	0.65
Tl	20	M13583	1000	0.75
V	5	M13578	1000	0.25
Zn	10	M13610	**10000**	0.05

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13847	Instrument:	ICP 6500
Analyst:	NAH	Standard:	LOQ 3050 DOD Metals Spiking S
Prep Date:	06/11/2019	Expiration Date:	10/19

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	4	M13458	1000	0.2
Al	9.6	M13611	**10000**	0.048
As	32	M13753	1000	1.6
Ba	2	M13457	1000	0.1
Be	1.6	M13579	1000	0.08
Ca	56	M13692	**10000**	0.28
Cd	1.6	M13570	1000	0.08
Co	9.6	M13575	1000	0.48
Cr	5.6	M13697	**10000**	0.028
Cu	16	M13618	**10000**	0.08
Fe	72	M13609	**10000**	0.36
Mg	32	M13694	**10000**	0.16
Mn	6	M13616	**10000**	0.03
Mo	9.6	M13697	1000	0.48
Ni	4.8	M13569	1000	0.24
Pb	10	M13615	**10000**	0.05
Sb	32	M13459	1000	1.6
Se	16	M13460	1000	0.8
Tl	19	M13583	1000	0.95
V	3.2	M13578	1000	0.16
Zn	12	M13610	**10000**	0.06

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13845	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3010 k&na Spiking Solution
Prep Date:	06/11/2019	Expiration Date:	06/2020

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
K	500	M13811	10000	2.5
Na	600	M13691	10000	3

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13846	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3050 k&na Spiking Solution
Prep Date:	06/11/2019	Expiration Date:	06/2020

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
K	2640	M13811	10000	13.2
Na	960	M13691	10000	4.8

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard ID#:	M13839	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	06/11/2019	Lot #:	52-038CR
Expiration Date (if any):	05/30/2020	Catalog #:	XCTWI-5-500

Standard ID#:	M13840	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	06/11/2019	Lot #:	5-244AB
Expiration Date (if any):	06/30/2020	Catalog #:	XCTWWI-1-500

Standard ID#:	M13841	Vendor:	CPI
Analyst:	NAH	Chemical:	Ca 10,000 mg/L
Date Received:	06/11/2019	Lot #:	855297-41
Expiration Date (if any):	11/2020	Catalog #:	4400-10M91

Standard ID#:	M13842	Vendor:	CPI
Analyst:	NAH	Chemical:	Al 10,000 mg/L
Date Received:	06/11/2019	Lot #:	169484-36
Expiration Date (if any):	11/2020	Catalog #:	4400-10M11

Standard ID#:	M13843	Vendor:	CPI
Analyst:	NAH	Chemical:	Y 10,000 mg/L
Date Received:	06/11/2019	Lot #:	168189-30
Expiration Date (if any):	11/20	Catalog #:	4400-10M671

Standard ID#:	M13844	Vendor:	CPI
Analyst:	NAH	Chemical:	Si 1000 mg/L
Date Received:	06/11/2019	Lot #:	175213-60
Expiration Date (if any):	11/2020	Catalog #:	S4400-1000504F

		Instrument:	GFAA
Standard Log #:	M13838	Standard:	LODW/LOQW Ag Spiking Sol'n
Analyst:	MDS	Concentrations:	10 ug/L (Ag)
Prep Date:	06/07/2019	Expiration Date:	10/2019
Prep:	Into a 100 mL volumetric flask, pipetted **0.1 mL** of Ag (1000mg/L) M13458 and brought to volume with Milli-Q H_2O to make a 1000 ug/L Ag std. Into a 1 L volumetric flask, pipetted **10 mL** of Ag (*1000 ug/L*) std. and brought to volume with Milli-Q H_2O. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*0.2 ug/L*) and **2 mL** spiking solution for LOQ (*0.4 ug/L*)		

		Instrument:	GFAA
Standard Log #:	M13836	Standard:	LODS/LOQS Spiking Sol'n
Analyst:	MDS	Concentrations:	60 ug/L (Sb) 160 ug/L (As,Se) 40 ug/L (Pb) 50 ug/L (Tl)
Prep Date:	06/07/2019	Expiration Date:	07/2019
Prep:	Into a 200 mL volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. **1.2 mL** of Sb (1000 mg/L) M13459 **3.2 mL** of As (1000 mg/L) M13392 **3.2 mL** of Se (1000 mg/L) M13460 **0.08 mL** of Pb (10,000 mg/L) M13615 **1.0 mL** of Tl (1000 mg/L) M13583 From this diluted standard solution, pipetted **10 mL** into a 1 L volumetric flask and brought up to volume with Milli-Q H_2O to make the spiking solution. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (1.2 *ug/L* Sb, *3.2 ug/L* As, *3.2 ug/L* Se, *0.8 ug/L* Pb, *1 ug/L* Tl) and **2 mL** spiking solution for LOQ (2.4 *ug/L* Sb, *6.4 ug/L* As, *6.4 ug/L* Se, *1.6 ug/L* Pb, *2 ug/L* Tl)		

		Instrument:	GFAA
Standard Log #:	M13837	Standard:	LODW/LOQW Spiking Sol'n
Analyst:	MDS	Concentrations:	150 ug/L (Sb) 100 ug/L (As) 200 ug/L (Se) 45 ug/L (Pb) 40 ug/L (Tl)
Prep Date:	06/07/2019	Expiration Date:	07/2019
Prep:	Into a 100 mL volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. **1.5 mL** of Sb (1000 mg/L) M13459 **1.0 mL** of As (1000 mg/L) M13392 **2.0 mL** of Se (1000 mg/L) M13460 **0.045 mL** of Pb (10,000 mg/L) M13615 **0.4 mL** of Tl (1000 mg/L) M13583 From this diluted standard solution, pipetted **10 mL** into a 1 L volumetric flask and brought up to volume with Milli-Q H_2O to make the spiking solution. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*3 ug/L* Sb, *2 ug/L* As, *4 ug/L* Se, *0.9 ug/L* Pb, *0.8 ug/L* Tl) and **2 mL** spiking solution for LOQ (*6 ug/L* Sb, *4 ug/L* As, *8 ug/L* Se, *1.8 ug/L* Pb, *1.6 ug/L* Tl)		

		Instrument:	CETAC
Standard Log #:	M13835	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	06/06/2019	Expiration Date:	06/06/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	ICP 6500
Standard Log #:	M13832	Standard:	CCV1
Analyst:	NAH	Concentrations:	**5000 µg/L** Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn **500 µg/L** Ag, Be, Cd
Prep Date:	06/03/2019	Expiration Date:	02/20
Prep:	Into a 1 L volumetric flask, pipetted **50 mL** Custom Assurance Standard #23 XCTWI-5-500 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13741 and **5.0 mL** of Custom Assurance Std. #3 XCTWI-4-500 (100 mg/L Ag, Be, Cd) M13827 and brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M13833	Standard:	CCV2
Analyst:	NAH	Concentrations:	**500 µg/L** Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn **50 µg/L** Ag, Be, Cd
Prep Date:	06/03/2019	Expiration Date:	02/20
Prep:	Into a 1 L volumetric flask, pipetted **5 mL** Custom Assurance Standard #23 XCTWI-5-500 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13741 and **0.5 mL** of Custom Assurance Std. #3 XCTWI-4-500 (100 mg/L Ag, Be, Cd) M13827 and brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M13834	Standard:	ICSAB
Analyst:	NAH	Concentrations:	**500,000 ug/L** Al, Ca, Fe, Mg **500 ug/L** Ag, As, Ba, Be, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Sb, Se, Tl, V, Zn
Prep Date:	06/03/2019	Expiration Date:	02/20
Prep:	Into a 500 mL volumetric flask, pipetted **50 mL** Interferents A Standard ((5000 mg/L Al, Ca, Mg) (2000 mg/L Fe)) M13738, **15 mL** Fe (10,000 mg/L) M13751, **2.5 mL** of Custom Assurance Std. #3 (100 mg/L Ag, Be, Cd) M13827 and **2.5 mL** Custom Assurance Std. #23 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13741 and brought up to volume with milli-Q H_2O.		

		Instrument:	CETAC
Standard Log #:	M13830	Reagent:	Stannous Chloride Solution
Analyst:	LJF		
Prep Date:	06/03/2019	Expiration Date:	12/03/2019
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.676 and dissolved **100 g** Stannous chloride M13648 and brought up to volume.		

		Instrument:	ICP 6500
Standard Log #:	M13831	Standard:	ICAL
Analyst:	NAH	Concentrations:	0.25, 0.5, 1, 5, 10, 20, 50, 100, 1000, 10,000, 100k, 100,000, 500,000 and 1000k (ug/L)
Prep Date:	06/03/2019	Expiration Date:	02/20
Prep:	Using 1 L volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (5% HNO_3, 5% HCl) *1000 ug/L Std.* - **10 mL** of Custom Assurance Std. #23 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13741, **10 mL** of Custom Assurance Std. #3 (100 mg/L Ag, Be, Cd) M13827 and **1 mL** of Si (1000 mg/L) M13810 and 1 mL M13703 Ce *0.25 ug/L Std.* - **0.25 mL** of the 1000 ug/L Std. *0.5 ug/L Std.* - **0.5 mL** of the 1000 ug/L Std. *1 ug/L Std.* - **1 mL** of the 1000 ug/L Std. *5 ug/L Std.* - **5 mL** of the 1000 ug/L Std. *10 ug/L Std.* - **10 mL** of the 1000 ug/L Std. *20 ug/L Std.* - **20 mL** of the 1000 ug/L Std. *50 ug/L Std.* - **50 mL** of the 1000 ug/L Std. *100 ug/L Std.* - **1 mL** of Custom Assurance Std. (CAS) #23 and **1 mL** of CAS #3 *10,000 ug/L Std.* - **100 mL** CAS #23, **100 mL** CAS #3 and **1 mL** of K (10,000 mg/L) M13811. *100k ug/L Std.* - **10 mL** of Cu (10,000 mg/L) M13618, **10 mL** of Mn (10,000 mg/L) M13616, **10 mL** of Cr (10,000 mg/L) M13617, **10 mL** Pb (10,000 mg/L) M13610, **10 mL** of Zn (10,000 mg/L) M13615 and **10 mL** of Na (10,000 mg/L) M13691. *100,000 ug/L Std.* - **10 mL** of Mg (10,000 mg/L) M13752, **10 mL** of Fe (10,000 mg/L) M13751, **10 mL** of Ca (10,000 mg/L) M13690 and **10 mL** Al (10,000 mg/L) M13693. *500,000 ug/L Std.* - **50 mL** of Mg (10,000 mg/L), **50 mL** of Fe (10,000 mg/L), **50 mL** of Ca (10,000 mg/L) and **50 mL** of Al (10,000 mg/L) *1000k ug/L Std.* - **100 mL** of Mg (10,000 mg/L), **100 mL** of Fe (10,000 mg/L), **100 mL** of Ca (10,000 mg/L) and **100 mL** of Al (10,000 mg/L)		

		Instrument:	CETAC
Standard Log #:	M13829	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	05/31/2019	Expiration Date:	05/31/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13828	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	05/30/2019	Expiration Date:	05/30/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

Standard ID#:	M13827	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	05-29-2019	Lot #:	XCTWI-4-500
Expiration Date (if any):	5/30/2020	Catalog #:	5-116AB

		Instrument:	CETAC
Standard Log #:	M13823	Standard:	Hg CCV
Analyst:	LJF	Concentration:	3.0 ug/L Hg
Prep Date:	05/24/2019	Expiration Date:	01/01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	CETAC
Standard Log #:	M13824	Reagent:	Stannous Chloride Solution
Analyst:	LJF		
Prep Date:	05/24/2019	Expiration Date:	11/24/2019
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.676 and dissolved **100 g** Stannous chloride M13648 and brought up to volume.		

Standard Log #:	M13825	Reagent:	Potassium Persulfate Solution
Analyst:	LJF		
Prep Date:	05/24/2019	Expiration Date:	11/24/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13059 and brought up to volume.		

Standard Log #:	M13826	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	05/24/2019	Expiration Date:	11/24/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13820	Standard:	Hg ICAL
Analyst:	LJF	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	05/24/2019	Expiration Date:	01/01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	CETAC
Standard Log #:	M13821	Standard:	Alt. Source Working Std.
Analyst:	LJF	Concentrations:	10,000 and 100 ug/L
Prep Date:	05/24/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M13822	Standard:	Hg ICV/LCS
Analyst:	LJF	Concentration:	3 ug/L
Prep Date:	05/24/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13734 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

Standard Log #:	M13818	Reagent:	TCLP 1 N HCL
Analyst:	BMM		
Prep Date:	05/22/2019	Expiration Date:	05/23/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, added 83 mL HCL AB.676 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13819	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	05/22/2019	Expiration Date:	05/22/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13817	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	05/16/2019	Expiration Date:	05/16/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

Standard Log #:	M13813	Instrument:	GFAA
Analyst:	MDS	Reagent:	Pd/Mg Matrix Modifier
Prep Date:	05/14/2019	Expiration Date:	09/30/2019
Prep:	Into a 50 mL volumetric flask, partially filled with milli-Q H_2O, pipetted **15 mL** Pd Modifier M13600 and **10 mL** Mg (10,000 mg/L) M13694 and brought up to volume.		

		Instrument:	GFAA
Standard Log #:	M13814	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	05/14/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13815	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	05/14/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13816	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	05/14/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13786 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

Standard Log #:	M13812	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	05/13/2019	Expiration Date:	11/13/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard ID#:	M13808	Vendor:	CPI
Analyst:	NAH	Chemical:	Na 10,000 ug/mL
Date Received:	05-09-2019	Lot #:	158237-121
Expiration Date (if any):	10/20	Catalog #:	4400-1000521-500

Standard ID#:	M13809	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10,000 ug/mL
Date Received:	05-09-2019	Lot #:	832313-110
Expiration Date (if any):	10/20	Catalog #:	4400-1000411-500

Standard ID#:	M13810	Vendor:	CPI
Analyst:	NAH	Chemical:	Si 1000 ug/mL
Date Received:	05-09-2019	Lot #:	175213-60
Expiration Date (if any):	10/20	Catalog #:	S400-1000504F

Standard ID#:	M13811	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10,000 ug/mL
Date Received:	05-09-2019	Lot #:	980507-14
Expiration Date (if any):	10/20	Catalog #:	4400-10M411-500

		Instrument:	CETAC
Standard Log #:	M13805	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	05/07/2019	Expiration Date:	05/07/2019
Prep:	Carefully mixed **3** parts HCl AB.677 with **1** part HNO_3 AB.676 in a hood.		

Standard Log #:	M13806	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	05/07/2019	Expiration Date:	05/07/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13750. Dilute to 20 L and mix.		

Standard Log #:	M13807	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	05/07/2019	Expiration Date:	05/07/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13750. Dilute to 20 L and mix.		

MRL BASE STD M13804

Analyst NAH

Prep Date 05/07/2019

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	(ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L	Expiration Date
Ag	20	M13458	1000	1	10/19
Al	400	M13611	10000	2	3/20
Ba	10	M13457	1000	0.5	10/19
Be	4	M13579	1000	0.2	2/20
Cd	5	M13570	1000	0.25	1/20
Co	10	M13575	1000	0.5	1/20
Cr	10	M13617	10000	0.05	3/20
Cu	10	M13618	10000	0.05	3/20
Mg	500	M13694	10000	2.5	6/20
Mn	10	M13616	10000	0.05	3/20
Mo	10	M13697	1000	0.5	6/20
Ni	10	M13569	1000	0.5	1/20
Pb	10	M13615	10000	0.05	3/20
Sb	20	M13579	1000	1	10/19
V	10	M13578	1000	0.5	2/20
Zn	10	M13610	10000	0.05	3/20
K	1000	M13755	10000	5	9/20
Na	1000	M13691	10000	5	6/20
As	20	M13753	1000	1	10000 std 0.1, 9/20
Ca	500	M13692	10000	2.5	6/20
Fe	300	M13695	10000	1.5	6/20
Se	20	M13460	1000	1	10/19
Tl	20	M13583	1000	1	2/20
Si	100	M13754	1000	5	9/20
B	20	M13531	1000	1	12/19
Li	20	M13577	1000	1	2/20
W	50	xxxx	1000	2.5	xxxx
Ti	10	M13573	1000	0.5	1/20
Sr	10	M13580	1000	0.5	2/20
Sn	50	M13572	1000	2.5	1/20
S	300	M13604	10000	1.5	3/20

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

Expiration Date: 10/19

		Instrument:	CETAC
Standard Log #:	M13800	Reagent:	Stannous Chloride Solution
Analyst:	LJF		
Prep Date:	05/06/2019	Expiration Date:	11/06/2019
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.676 and dissolved **100 g** Stannous chloride M13648 and brought up to volume.		

		Instrument:	ICP 6000
Standard Log #:	M13801	Standard:	B&Si ICAL
Analyst:	MDS	Concentrations:	50, 200, 1000, 2000 and 10,000 ug/L (B, Si)
Prep Date:	05/06/2019	Expiration Date:	12/2019
Prep:	Into five, 1 L volumetric flasks, pipetted the following from stock standards B (1000 mg/L) M13531 and Si (1000 mg/L) M13731 and brought up to volume using milli-Q H_2O. *50 ug/L std.* - **0.05 mL** of each *200 ug/L std.* - **0.2 mL** of each *1000 ug/L std.* -**1.0 mL** of each, also used for Continuing Calibration Verification *2000 ug/L std.* - **2.0 mL** of each *10,000 ug/L std.* -**10 mL** of each		

		Instrument:	ICP 6000
Standard Log #:	M13802	Standard:	B&Si ICV
Analyst:	MDS	Concentrations:	1000 ug/L (B, Si)
Prep Date:	05/06/2019	Expiration Date:	02/28/2020
Prep:	Into a 1 L volumetric flask, pipetted **10 mL** of Custom Assurance Std. #23 (100 mg/L Al, As, **B**, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13741 and **1.0 mL** Si (1000 mg/L) M13754 and brought up to volume using milli-Q H_2O.		

		Instrument:	ICP 6000
Standard Log #:	M13803	Standard:	B & Si ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (B,Si)
Prep Date:	05/06/2019	Expiration Date:	09/30/2019
Prep:	Into a 100 mL volumetric flask, pipetted **10 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13635, **0.05 mL** of B (1000 µg/mL) M13531, **0.05 mL** of Si (1000 µg/mL) M13731 and **3 mL** of Fe (10,000 mg/L) M13609 and brought up to volume using Milli-Q H_2O.		

		Instrument:	ICP 6000
Standard Log #:	M13798	Standard:	L2 ICV
Analyst:	MDS	Concentrations:	1000 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	05/03/2019	Expiration Date:	01/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of the following and brought up to volume using milli-Q H_2O. (0.5% HNO_3, 0.5% HCl) Li (1000 µg/mL) M13577 Sn (1000 µg/mL) M13572 Sr (1000 µg/mL) M13580 Ti (1000 µg/mL) M13573 W (1000 µg/mL) MXXXXX		

		Instrument:	ICP 6000
Standard Log #:	M13799	Standard:	List 2 MRL/ICVLL Prep Solution
Analyst:	MDS	Concentrations:	5000 µg/L (W) 1000 µg/L (Li, Sn) 500 µg/L (Ti, Sr)
Prep Date:	05/03/2019	Expiration Date:	01/2020

Prep:

Analyte	MRL/ICVLL Conc. (µg/L)	Standard ID	Std. Conc. (µg/mL)	Volume (mL) Pipetted into 1 L	Expiration Date
Li	20/60	M13577	1000	1	02/2020
W	100/300	MXXXXX	1000	5	XX/XXXX
Ti	10/30	M13573	1000	0.5	01/2020
Sr	10/30	M13580	1000	0.5	02/2020
Sn	20/60	M13572	1000	1	01/2020

Pipette **10 mL** into a 500 mL volumetric flask to create a working MRL std. or **1 mL** into a 50 mL digestion tube for a digested MRL standard. Pipette **30 mL** into 500 mL for a working ICVLL std. or **3 mL** into a 50 mL digestion tube for a digested ICVLL standard.

(0.5% HNO_3, 0.5% HCl)

		Instrument:	CETAC
Standard Log #:	M13795	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	05/03/2019	Expiration Date:	05/03/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	ICP
Standard Log #:	M13796	Standard:	L2 ICAL
Analyst:	MDS	Concentrations:	1 (µg/L) 10 (µg/L) 100 (µg/L) 1000 (µg/L) 10,000 (µg/L)
Prep Date:	05/03/2019	Expiration Date:	02/28/2020
Prep:	Standard Conc. (ug/L) — Pipette the following: 1 — **0.01 mL** of Custom Assurance Standard XCTWI-5-500 M13741 and **0.001 mL** W (1000 µg/mL) MXXXXX into 1L = *1 µg/L* 10 — **0.10 mL** of Custom Assurance Standard XCTWI-5-500 M13741 and **0.01 mL** W (1000 µg/mL) MXXXXX into 1L = *10 µg/L* 100 — **1 mL** of Custom Assurance Standard XCTWI-5-500 M13741 and **0.1 mL** W (1000 µg/mL) MXXXXX into 1L = *100 µg/L* 1000 (CCV) — **2 mL** of Custom Assurance Standard XCTWI-5-500 M13741 and **0.2 mL** W (1000 µg/mL) MXXXXX into 200mL = *1000 µg/L* 10000 — **20 mL** of Custom Assurance Standard XCTWI-5-500 M13741 and **2 mL** W (1000 µg/mL) MXXXXX into 200mL = *10000 µg/L*		

		Instrument:	ICP 6000
Standard Log #:	M13797	Standard:	List 2 ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	05/03/2019	Expiration Date:	09/30/2019
Prep:	Into a 200 mL volumetric flask, pipetted **20 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13635, **6 mL** of Fe (10,000 mg/L) M13609, **0.1 mL** of Li (1000 µg/mL) M13577, **0.1 mL** of Sn (1000 µg/mL) M13572, **0.1 mL** of Sr (1000 µg/mL) M13580, **0.1 mL** of Ti (1000 µg/mL) M13573, and **0.1 mL** of W (1000 µg/mL) MXXXXX and brought up to volume using Milli-Q H_2O. (0.5% HNO_3, 0.5% HCl)		

Standard Log #:	M13793	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	05/02/2019	Expiration Date:	11/02/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13793 and brought up to volume.		

Standard Log #:	M13794	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	LJF		
Prep Date:	05/02/2019	Expiration Date:	11/02/2019
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13511 and **60 g** hydroxylamine sulfate M13727 and brought up to volume.		

Standard ID#:	M13790	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	Y 10000 mg/L
Date Received:	04/29/2019	Lot #:	1833905
Expiration Date (if any):	10/31/2020	Catalog #:	HP10M67-1

Standard ID#:	M13791	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	04/29/2019	Lot #:	51-239CR
Expiration Date (if any):	02/28/2020	Catalog #:	XSPIKE-1-250

		Instrument:	CETAC
Standard Log #:	M13792	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	04/29/2019	Expiration Date:	04/29/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

Standard ID#:	M13785	Vendor:	Inorganic Ventures
Analyst:	MDS	Chemical:	GFAA ICAL/CCV BASE STD
Date Received:	04/19/2019	Lot #:	P2-MEB678822
Expiration Date (if any):	04/19/2020	Catalog #:	CTI-SPK-1

Standard ID#:	M13786	Vendor:	Inorganic Ventures
Analyst:	MDS	Chemical:	GFAA ICV/SPIKE BASE STD
Date Received:	04/19/2019	Lot #:	P2-MEB678821
Expiration Date (if any):	04/19/2020	Catalog #:	CTI-GFCAL-1

		Instrument:	GFAA
Standard Log #:	M13787	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	04/19/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q H_2O. ($1\% HNO_3$)		

		Instrument:	GFAA
Standard Log #:	M13788	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	04/19/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q DI H_2O. ($1\% HNO_3$)		

		Instrument:	GFAA
Standard Log #:	M13789	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	04/19/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13786 and brought to volume with Milli-Q DI H_2O. ($1\% HNO_3$)		

Standard Log #:	M13782	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	04/18/2019	Expiration Date:	04/18/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13750. Dilute to 20 L and mix.		

Standard ID#:	M13783	Vendor:	Alfa Aesar
Analyst:	MDS	Chemical:	GFAA 1% Nickel Nitrate Matrix Mod.
Date Received:	04/18/2019	Lot #:	9166009
Expiration Date (if any):	09/30/2020	Catalog #:	39043

Standard Log #:	M13784	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	04/18/2019	Expiration Date:	10/18/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M13780	Reagent:	Potassium Persulfate Solution
Analyst:	LJF		
Prep Date:	04/17/2019	Expiration Date:	10/17/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13059 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13781	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	04/17/2019	Expiration Date:	04/17/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.675 in a hood.		

		Instrument:	ICP 6000
Standard Log #:	M13779	Standard:	NaK ICSAB
Analyst:	MDS	Concentrations:	500 mg/L (Al, Ca, Fe, Mg) 100 mg/L (Na, K)
Prep Date:	04/12/2019	Expiration Date:	09/30/2019
Prep:	Into a 250 mL volumetric flask, pipetted **25 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13635, **2.5 mL** of K (10,000 mg/L) M13693, **2.5 mL** of Na (10,000 mg/L) M13605 and **7.5 mL** of Fe (10,000 mg/L) M13609 and brought up to volume using Milli-Q H_2O. (2% HNO_3)		

Standard Log #:	M13778	Reagent:	1:3 HNO3
Analyst:	MDS		
Prep Date:	04/11/2019	Expiration Date:	04/11/2020
Prep:	Carefully mixed **3** parts DI with **1** part HNO_3 AB.672 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13777	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	04/09/2019	Expiration Date:	04/09/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.675 in a hood.		

Standard Log #:	M13775	Instrument:	GFAA
Analyst:	MDS	Reagent:	Pd/Mg Matrix Modifier
Prep Date:	04/02/2019	Expiration Date:	09/30/2019
Prep:	Into a 50 mL volumetric flask, partially filled with milli-Q H_2O, pipetted **15 mL** Pd Modifier M13600 and **10 mL** Mg (10,000 mg/L) M13614 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13776	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	04/03/2019	Expiration Date:	04/03/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.675 in a hood.		

		Instrument:	GFAA
Standard Log #:	M13771	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	03/26/2019	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13772	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	03/26/2019	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13773	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	03/26/2019	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13498 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13774	Standard:	Sb ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 µg/L (Sb)
Prep Date:	03/26/2019	Expiration Date:	10/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.01 mL** of Antimony Stock Std. (1000 µg/mL Sb) M13459 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	CETAC
Standard Log #:	M13770	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	03/25/2019	Expiration Date:	03/25/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.675 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13768	Standard:	Hg CCV
Analyst:	LJF	Concentration:	3.0 ug/L Hg
Prep Date:	03/21/2019	Expiration Date:	01/01/2019
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	CETAC
Standard Log #:	M13769	Reagent:	Stannous Chloride Solution
Analyst:	LJF		
Prep Date:	03/21/2019	Expiration Date:	09/21/2019
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.676 and dissolved **100 g** Stannous chloride M13648 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13765	Standard:	Hg ICAL
Analyst:	LJF	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	03/21/2019	Expiration Date:	01/01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	CETAC
Standard Log #:	M13766	Standard:	Alt. Source Working Std.
Analyst:	LJF	Concentrations:	10,000 and 100 ug/L
Prep Date:	03/21/2019	Expiration Date:	04/30/2019
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13444 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M13767	Standard:	Hg ICV/LCS
Analyst:	LJF	Concentration:	3 ug/L
Prep Date:	03/21/2019	Expiration Date:	04/30/2019
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13444 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

Standard Log #:	M13763	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	03/20/2019	Expiration Date:	03/20/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13750. Dilute to 20 L and mix.		

Standard Log #:	M13764	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	03/20/2019	Expiration Date:	03/20/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13750. Dilute to 20 L and mix.		

		Instrument:	CETAC
Standard Log #:	M13761	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	03/19/2019	Expiration Date:	03/19/2019
Prep:	Carefully mixed **3** parts HCl AB.671 with **1** part HNO_3 AB.672 in a hood.		

Standard Log #:	M13762	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	LJF		
Prep Date:	03/19/2019	Expiration Date:	09/19/2019
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13511 and **60 g** hydroxylamine sulfate M13468 and brought up to volume.		

		Instrument:	ICP 6500
Standard Log #:	M13758	Standard:	ICSA4_Ni_Ti
Analyst:	NAH	Concentrations:	**10,000 ug/L** Ni and Ti
Prep Date:	03/13/2019	Expiration Date:	01/2020
Prep:	Into a 500 mL volumetric flask, pipetted 5.0 **mL** 1000 mg/L Ni M13569 5.0 **mL** 10000 mg/L Ti M13573 brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M13759	Standard:	ICSA2_Ba_Be_Sn
Analyst:	NAH	Concentrations:	**10,000 ug/L** Ba, Be, and Sn
Prep Date:	03/13/2019	Expiration Date:	10/2019
Prep:	Into a 500 mL volumetric flask, pipetted 5.0 **mL** 1000 mg/L Ba M13457 5.0 **mL** 10000 mg/L Be M13579 5.0 **mL** 10000 mg/L Sn M13572 brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M13760	Standard:	ICSA
Analyst:	NAH	Concentrations:	**500,000 ug/L** Al, Ca, Fe, Mg **10,000** V, Ce
Prep Date:	03/13/2019	Expiration Date:	09/2019
Prep:	Into a 500 mL volumetric flask, pipetted 50 **mL** Interference A std M13635 and 15 **mL** 10000 mg/L Fe M13609 5.0 **mL** 1000 mg/L V M13578 5.0 **mL** 1000 mg/L Ce M13203 and brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M13756	Standard:	ICSA1_Mn
Analyst:	NAH	Concentrations:	**10,000 ug/L** Mn
Prep Date:	03/13/2019	Expiration Date:	03/2020
Prep:	Into a 500 mL volumetric flask, pipetted 0.5 **mL** 10000 mg/L mn M13616 brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M13757	Standard:	ICSA3_Cr_Cu_Co_Mo
Analyst:	NAH	Concentrations:	**10,000 ug/L** Cr, Cu, Co and Mo
Prep Date:	03/13/2019	Expiration Date:	01/20
Prep:	Into a 500 mL volumetric flask, pipetted 0.5 **mL** 10000 mg/L Cr M13617 0.5 **mL** 10000 mg/L Cu M13618 5.0 **mL** 1000 mg/L Co M13575 5.0 **mL** 1000 mg/L Mo M13697 brought up to volume with milli-Q H_2O.		

Standard ID#:	M13751	Vendor:	CPI
Analyst:	NAH	Chemical:	Fe 10000 mg/L
Date Received:	03/12/2019	Lot #:	998527-19
Expiration Date (if any):	09/2020	Catalog #:	4400-10M261

Standard ID#:	M13752	Vendor:	CPI
Analyst:	NAH	Chemical:	Mg 10000 mg/L
Date Received:	03/12/2019	Lot #:	982185-12
Expiration Date (if any):	09/2020	Catalog #:	4400-10M311

Standard ID#:	M13753	Vendor:	CPI
Analyst:	NAH	Chemical:	As 10000 mg/L
Date Received:	03/12/2019	Lot #:	166531-32
Expiration Date (if any):	09/2020	Catalog #:	S4400--10M31

Standard ID#:	M13754	Vendor:	CPI
Analyst:	NAH	Chemical:	Si 1000 mg/L
Date Received:	03/12/2019	Lot #:	175213-60
Expiration Date (if any):	09/2020	Catalog #:	S4400-1000504F

Standard ID#:	M13755	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10000 mg/L
Date Received:	03/12/2019	Lot #:	172053-77
Expiration Date (if any):	09/2020	Catalog #:	4400-10M411

		Instrument:	CETAC
Standard Log #:	M13749	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	03/08/2019	Expiration Date:	03/08/2019
Prep:	Carefully mixed **3** parts HCl AB.671 with **1** part HNO_3 AB.672 in a hood.		

Standard Log #:	M13750	Reagent:	10N NaOH
Analyst:	BMM		
Prep Date:	03/08/2019	Expiration Date:	03/08/2020
Prep:	Into a 1 L volumetric flask, added **400 g** NaOH W45383 and brought up to volume.		

Standard ID#:	M13748	Vendor:	Potters Ind. LLC (Gainger)
Analyst:	NAH	Chemical:	Glass beads Extra Fine
Date Received:	03/07/2019	Lot #:	
Expiration Date (if any):	XXXXXX	Catalog #:	6ZC13

		Instrument:	ICP
Standard Log #:	M13746	Standard:	L2 ICAL
Analyst:	MDS	Concentrations:	1 (µg/L) 10 (µg/L) 100 (µg/L) 1000 (µg/L) 10,000 (µg/L)
Prep Date:	03/04/2019	Expiration Date:	09/30/2019
Prep:	Standard Conc. (ug/L) — Pipette the following: 1 — **0.01 mL** of Custom Assurance Standard XCTWI-5-500 M13602 and **0.001 mL** W (1000 µg/mL) XXXXXX into 1L = *1 µg/L* 10 — **0.10 mL** of Custom Assurance Standard XCTWI-5-500 M13602 and **0.01 mL** W (1000 µg/mL) XXXXXX into 1L = *10 µg/L* 100 — **1 mL** of Custom Assurance Standard XCTWI-5-500 M13602 and **0.1 mL** W (1000 µg/mL) XXXXXX into 1L = *100 µg/L* 1000 (CCV) — **2 mL** of Custom Assurance Standard XCTWI-5-500 M13602 and **0.2 mL** W (1000 µg/mL) XXXXXX into 200mL = *1000 µg/L* 10000 — **20 mL** of Custom Assurance Standard XCTWI-5-500 M13602 and **2 mL** W (1000 µg/mL) XXXXXX into 200mL = *10000 µg/L*		

		Instrument:	ICP 6000
Standard Log #:	M13747	Standard:	List 2 ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	03/04/2019	Expiration Date:	09/30/2019
Prep:	Into a 200 mL volumetric flask, pipetted **20 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13635, **6 mL** of Fe (10,000 mg/L) M13609, **0.1 mL** of Li (1000 µg/mL) M13577, **0.1 mL** of Sn (1000 µg/mL) M13572, **0.1 mL** of Sr (1000 µg/mL) M13580, **0.1 mL** of Ti (1000 µg/mL) M13573, and **0.1 mL** of W (1000 µg/mL) XXXXXX and brought up to volume using Milli-Q H_2O. (0.5% HNO_3, 0.5% HCl)		

Standard Log #:	M13743	Instrument:	ICP 6500
Analyst:	NAH	Standard:	MDL DOD Metals Spiking soln
Prep Date:	02/26/2019	Expiration Date:	10/19

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	5	M13458	1000	0.25
Al	10	M13611	**10000**	0.05
As	20	M13392	1000	1
Ba	2	M13457	1000	0.1
Be	0.5	M13579	1000	0.025
Ca	50	M13692	**10000**	0.25
Cd	0.5	M13570	1000	0.025
Co	2.5	M13575	1000	0.125
Cr	5.0	M13617	**10000**	0.025
Cu	10	M13618	**10000**	0.05
Fe	40	M13609	**10000**	0.2
Mg	25	M13694	**10000**	0.125
Mn	5	M13616	**10000**	0.025
Mo	2.5	M13697	1000	0.125
Ni	5	M13569	1000	0.25
Pb	10	M13615	**10000**	0.05
Sb	20	M13459	1000	1
Se	20	M13460	1000	1
Tl	20	M13583	1000	1
V	5	M13578	1000	0.25
Zn	5	M13610	**10000**	0.025
Na	500	M13605	**10000**	2.5
K	500	M13733	**10000**	2.5
B	20	M13531	1000	1
Si	100	M13731	1000	5
S	200	M13604	**10000**	1
Li	20	M13537	1000	1
Sr	20	M13572	1000	1
Sn	20	M13580	1000	1
Ti	20	M13573	1000	1

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

		Instrument:	ICP 6000
Standard Log #:	M13740	Standard:	Sulfur ICV
Analyst:	MDS	Concentrations:	100,000 µg/L (S)
Prep Date:	02/26/2019	Expiration Date:	03/2020
Prep:	Into a 100 mL volumetric flask, pipetted **1.0 mL** of S (10,000 µg/mL) M13604 and brought up to volume using Milli-Q H_2O.		

Standard ID#:	M13741	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	02-26-2019	Lot #:	3-153AB
Expiration Date (if any):	02/28/2020	Catalog #:	XCTWI-5-500

Standard ID#:	M13742	Vendor:	IKOHE Blasting Media
Analyst:	NAH	Chemical:	Glass Neads X-fine-20u
Date Received:	02/26/2019	Lot #:	52-144
Expiration Date (if any):	*********	Catalog #:	UL-49/52-1544

		Instrument:	CETAC
Standard Log #:	M13739	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	02/22/2019	Expiration Date:	02/22/2019
Prep:	Carefully mixed **3** parts HCl AB.671 with **1** part HNO_3 AB.672 in a hood.		

Standard ID#:	M13734	Vendor:	SPEX CERTIPREP
Analyst:	LJF	Chemical:	HG 1000 ug/mL
Date Received:	02/21/2019	Lot #:	CL10-136HGY
Expiration Date (if any):	02/28/2020	Catalog #:	CLHG4-2Y

Standard Log #:	M13735	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	02/21/2019	Expiration Date:	02/21/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13736	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	02/21/2019	Expiration Date:	02/21/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard ID#:	M13737	Vendor:	SPEX CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Std
Date Received:	02/21/2019	Lot #:	51-117CR
Expiration Date (if any):	02/28/2020	Catalog #:	XSPIKE-1-250

Standard ID#:	M13738	Vendor:	SPEX CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Std
Date Received:	02/21/2019	Lot #:	2-230SGX
Expiration Date (if any):	02/28/2020	Catalog #:	INT-A1

		Instrument:	CETAC
Standard Log #:	M13730	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	02/14/2019	Expiration Date:	02/14/2019
Prep:	Carefully mixed **3** parts HCl AB.671 with **1** part HNO_3 AB.672 in a hood.		

Standard ID#:	M13731	Vendor:	CPI
Analyst:	NAH	Chemical:	Silicon 1000 ug/mL
Date Received:	02/14/2019	Lot #:	175213-60
Expiration Date (if any):	08/20	Catalog #:	S4400-1000504F

Standard ID#:	M13732	Vendor:	CPI
Analyst:	NAH	Chemical:	Yttrium 10000 ug/mL
Date Received:	02/14/2019	Lot #:	139448-54
Expiration Date (if any):	08/20	Catalog #:	4400-10M671

Standard ID#:	M13733	Vendor:	CPI
Analyst:	NAH	Chemical:	Potassium 10000 ug/mL
Date Received:	02/14/2019	Lot #:	172053-36
Expiration Date (if any):	08/20	Catalog #:	4400-10M411

Standard ID#:	M13727	Vendor:	FISHER
Analyst:	LJF	Chemical:	HYDROXYLAMINE SULFATE
Date Received:	02/08/2019	Lot #:	175511
Expiration Date (if any):		Catalog #:	H331-500

Standard ID#:	M13728	Vendor:	FISHER
Analyst:	LJF	Chemical:	SODIUM CHLORIDE
Date Received:	02/08/2019	Lot #:	186819
Expiration Date (if any):		Catalog #:	S271-500

Standard Log #:	M13729	Reagent:	Potassium Persulfate Solution
Analyst:	LJF		
Prep Date:	02/11/2019	Expiration Date:	08/11/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13059 and brought up to volume.		

Standard Log #:	M13724	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	02/07/2019	Expiration Date:	02/07/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13725	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	02/07/2019	Expiration Date:	02/07/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13726	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	02/07/2019	Expiration Date:	08/07/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13721	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	02/05/2019	Expiration Date:	02/05/2019
Prep:	Carefully mixed **3** parts HCl AB.671 with **1** part HNO_3 AB.672 in a hood.		

Standard Log #:	M13722	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	LJF		
Prep Date:	02/05/2019	Expiration Date:	08/05/2019
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13620 and **60 g** hydroxylamine sulfate M13468 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13723	Reagent:	Stannous Chloride Solution
Analyst:	LJF		
Prep Date:	02/05/2019	Expiration Date:	08/05/2019
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.671 and dissolved **100 g** Stannous chloride M13648 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13720	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	01/31/2019	Expiration Date:	01/31/2019
Prep:	Carefully mixed **3** parts HCl AB.671 with **1** part HNO_3 AB.672 in a hood.		

		Instrument:	GFAA
Standard Log #:	M13716	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	01/30/2019	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13717	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	01/30/2019	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13718	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	01/30/2019	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13498 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13719	Standard:	Sb ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 µg/L (Sb)
Prep Date:	01/30/2019	Expiration Date:	10/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.01 mL** of Antimony Stock Std. (1000 µg/mL Sb) M13459 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13713	Standard:	LODW/LOQW Ag Spiking Sol'n
Analyst:	MDS	Concentrations:	10 ug/L (Ag)
Prep Date:	01/29/2019	Expiration Date:	10/2019
Prep:	Into a 100 mL volumetric flask, pipetted **0.1 mL** of Ag (1000mg/L) M13458 and brought to volume with Milli-Q H_2O to make a 1000 ug/L Ag std. Into a 1 L volumetric flask, pipetted **10 mL** of Ag (*1000 ug/L*) std. and brought to volume with Milli-Q H_2O. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*0.2 ug/L*) and **2 mL** spiking solution for LOQ (*0.4 ug/L*)		

Standard ID#:	M13714	Vendor:	ACROS ORGANICS
Analyst:	LJF	Chemical:	POTASSIUM PERSULFATE
Date Received:	01/29/2019	Lot #:	A0391673
Expiration Date (if any):		Catalog #:	424185000

Standard ID#:	M13715	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	1/29/2019	Lot #:	51-013CR
Expiration Date (if any):	01/30/2020	Catalog #:	XCTWI-1-500

		Instrument:	GFAA
Standard Log #:	M13711	Standard:	LODS/LOQS Spiking Sol'n
Analyst:	MDS	Concentrations:	60 ug/L (Sb) 160 ug/L (As,Se) 40 ug/L (Pb) 50 ug/L (Tl)
Prep Date:	01/29/2019	Expiration Date:	07/2019
Prep:	Into a 200 mL volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. **1.2 mL** of Sb (1000 mg/L) M13459 **3.2 mL** of As (1000 mg/L) M13392 **3.2 mL** of Se (1000 mg/L) M13460 **0.08 mL** of Pb (10,000 mg/L) M13615 **1.0 mL** of Tl (1000 mg/L) M13583 From this diluted standard solution, pipetted **10 mL** into a 1 L volumetric flask and brought up to volume with Milli-Q H_2O to make the spiking solution. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (1.2 *ug/L* Sb, *3.2 ug/L* As, *3.2 ug/L* Se, *0.8 ug/L* Pb, *1 ug/L* Tl) and **2 mL** spiking solution for LOQ (2.4 *ug/L* Sb, *6.4 ug/L* As, *6.4 ug/L* Se, *1.6 ug/L* Pb, *2 ug/L* Tl)		

		Instrument:	GFAA
Standard Log #:	M13712	Standard:	LODW/LOQW Spiking Sol'n
Analyst:	MDS	Concentrations:	150 ug/L (Sb) 100 ug/L (As) 200 ug/L (Se) 45 ug/L (Pb) 40 ug/L (Tl)
Prep Date:	01/29/2019	Expiration Date:	07/2019
Prep:	Into a 100 mL volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. **1.5 mL** of Sb (1000 mg/L) M13459 **1.0 mL** of As (1000 mg/L) M13392 **2.0 mL** of Se (1000 mg/L) M13460 **0.045 mL** of Pb (10,000 mg/L) M13615 **0.4 mL** of Tl (1000 mg/L) M13583 From this diluted standard solution, pipetted **10 mL** into a 1 L volumetric flask and brought up to volume with Milli-Q H_2O to make the spiking solution. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*3 ug/L* Sb, *2 ug/L* As, *4 ug/L* Se, *0.9 ug/L* Pb, *0.8 ug/L* Tl) and **2 mL** spiking solution for LOQ (*6 ug/L* Sb, *4 ug/L* As, *8 ug/L* Se, *1.8 ug/L* Pb, *1.6 ug/L* Tl)		

		Instrument:	CETAC
Standard Log #:	M13710	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	01/22/2019	Expiration Date:	01/22/2019
Prep:	Carefully mixed **3** parts HCl AB.671 with **1** part HNO_3 AB.672 in a hood.		

		Instrument:	ICP 6000
Standard Log #:	M13709	Standard:	NaK ICSAB
Analyst:	MDS	Concentrations:	500 mg/L (Al, Ca, Fe, Mg) 100 mg/L (Na, K)
Prep Date:	01/10/2019	Expiration Date:	09/30/2019
Prep:	Into a 250 mL volumetric flask, pipetted **25 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13635, **2.5 mL** of K (10,000 mg/L) M13689, **2.5 mL** of Na (10,000 mg/L) M13605 and **7.5 mL** of Fe (10,000 mg/L) M13609 and brought up to volume using Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13705	Standard:	Na & K ICAL
Analyst:	MDS	Concentrations:	0.5, 1, 5, 10, 50, 100, and 200 mg/L (Na,K)
Prep Date:	01/10/2019	Expiration Date:	03/2020
Prep:	Into seven, 200 mL volumetric flasks, pipetted the following from Na (1000 µg/mL) M13607 and K (1000 µg/mL) M13606 and brought up to volume using milli-Q H_2O. (2% HNO_3) *0.5 mg/L std.* - **0.1 mL** of each *1.0 mg/L std.* - **0.2 mL** of each *5.0 mg/L std.* - **1.0 mL** of each *10 mg/L std.* - **2.0 mL** of each *50 mg/L std.* - **10 mL** of each *100 mg/L std.* -**20 mL** of each, also used for Continuing Calibration Verification *200 mg/L std.* - **40 mL** of each		

		Instrument:	ICP 6000
Standard Log #:	M13706	Standard:	Na,K MRL
Analyst:	MDS	Concentrations:	1 mg/L (Na,K)
Prep Date:	01/10/2019	Expiration Date:	03/2020
Prep:	Into a 500 mL volumetric flask, pipetted **0.5 mL** of Na (1000 µg/mL) M13607 and **0.5 mL** K (1000 µg/mL) M13606 and brought to volume with Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13707	Standard:	NaK ICV
Analyst:	MDS	Concentrations:	100 mg/L (Na, K)
Prep Date:	01/10/2019	Expiration Date:	03/2020
Prep:	Into a 250 mL volumetric flask, pipetted **2.5 mL** of K (10,000 mg/L) M13689 and Na (10,000 mg/L) M13605 and brought up to volume using Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13708	Standard:	Na,K ICVLL
Analyst:	MDS	Concentrations:	3 mg/L (Na,K)
Prep Date:	01/10/2019	Expiration Date:	03/2020
Prep:	Into a 500 mL volumetric flask, pipetted **0.15 mL** of Na (10,000 µg/mL) M13605 and **0.15 mL** K (10,000 µg/mL) M13689 and brought to volume with Milli-Q H_2O. (2% HNO_3)		

Standard Log #:	M13703	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	12/20/2018	Expiration Date:	12/20/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13704	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	12/20/2018	Expiration Date:	12/20/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13701	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	LJF		
Prep Date:	12/13/2018	Expiration Date:	06/13/2019
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13620 and **60 g** hydroxylamine sulfate M13468 and brought up to volume.		

Standard ID#:	M13696	Vendor:	CPI
Analyst:	NAH	Chemical:	Sulfur 10,000 mg/L
Date Received:	12/11/2018	Lot #:	167967-42
Expiration Date (if any):	06/20	Catalog #:	4400-10M544

Standard ID#:	M13697	Vendor:	CPI
Analyst:	NAH	Chemical:	Moybdenum 1000 mg/L
Date Received:	12/11/2018	Lot #:	169424-59
Expiration Date (if any):	06/20	Catalog #:	4400-1000343

Standard ID#:	M13698	Vendor:	CPI
Analyst:	NAH	Chemical:	Silicon 1000 mg/L
Date Received:	12/11/2018	Lot #:	175213-60
Expiration Date (if any):	06/20	Catalog #:	S4400-10005044F

Standard ID#:	M13699	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	12/11/2018	Lot #:	50-120CR
Expiration Date (if any):	12/30/2019	Catalog #:	XSPIKE-1-250

		Instrument:	CETAC
Standard Log #:	M13700	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	12/12/2018	Expiration Date:	12/12/2018
Prep:	Carefully mixed **3** parts HCl AB.668 with **1** part HNO_3 AB.669 in a hood.		

Standard ID#:	M13689	Vendor:	CPI
Analyst:	NAH	Chemical:	Potassium 10,000 mg/L
Date Received:	12/11/2018	Lot #:	169484-36
Expiration Date (if any):	06/20	Catalog #:	4400-10M11

Standard ID#:	M13690	Vendor:	CPI
Analyst:	NAH	Chemical:	Aluminum 10,000 mg/L
Date Received:	12/11/2018	Lot #:	169484-36
Expiration Date (if any):	06/20	Catalog #:	4400-10M11

Standard ID#:	M13691	Vendor:	CPI
Analyst:	NAH	Chemical:	Sodium 10,000 mg/L
Date Received:	12/11/2018	Lot #:	752887-32
Expiration Date (if any):	06/20	Catalog #:	4400-10M521

Standard ID#:	M13692	Vendor:	CPI
Analyst:	NAH	Chemical:	Calcium 10,000 mg/L
Date Received:	12/11/2018	Lot #:	855297-1
Expiration Date (if any):	06/20	Catalog #:	4400-10M91

Standard ID#:	M13693	Vendor:	CPI
Analyst:	NAH	Chemical:	Potassium 10,000 mg/L
Date Received:	12/11/2018	Lot #:	156651-78
Expiration Date (if any):	06/20	Catalog #:	4400-10M261

Standard ID#:	M13694	Vendor:	CPI
Analyst:	NAH	Chemical:	Magnesium 10,000 mg/L
Date Received:	12/11/2018	Lot #:	148250-72
Expiration Date (if any):	06/20	Catalog #:	4400-10M311

Standard ID#:	M13695	Vendor:	CPI
Analyst:	NAH	Chemical:	Iron 10,000 mg/L
Date Received:	12/11/2018	Lot #:	156651-78
Expiration Date (if any):	06/20	Catalog #:	4400-10M261

		Instrument:	GFAA
Standard Log #:	M13686	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	12/07/2018	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13687	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	12/07/2018	Expiration Date:	05/17/2018
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13688	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	12/07/2018	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13498 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

Standard Log #:	M13684	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	12/04/2018	Expiration Date:	06/04/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard ID#:	M13683	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	10000 mg/L
Date Received:	11/30/2018	Lot #:	1805105
Expiration Date (if any):	5/31/2020	Catalog #:	HP10M67-1

Standard Log #:	M13681	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3050 B&Si Spiking Solution
Prep Date:	11/29/2018	Expiration Date:	02/2020

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
B	52	M13531	1000	2.6
Si	192	M13394	1000	9.6

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

		Instrument:	CETAC
Standard Log #:	M13682	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	11/29/2018	Expiration Date:	11/29/2018

Prep: Carefully mixed **3** parts HCl AB.668 with **1** part HNO_3 AB.669 in a hood.

Standard Log #:	M13679	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3050 L2 Spiking Solution
Prep Date:	11/29/2018	Expiration Date:	02/2020

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
Li	14.4	M13517	1000	0.72
Sn	20	M13572	1000	1
Sr	3.2	M13586	1000	0.16
Ti	9.6	M13573	1000	0.48
W	24	xxxxxxxx	1000	1.2

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13680	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3010 B&Si Spiking Solution
Prep Date:	11/29/2018	Expiration Date:	07/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
B	16	M13531	1000	0.8
Si	200	M13394	1000	10

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13677	Instrument:	ICP 6500
Analyst:	NAH	Standard:	LOQ 3050 DOD Metals Spiking S
Prep Date:	11/29/2018	Expiration Date:	04/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	4	M13458	1000	0.2
Al	9.6	M13562	**10000**	0.048
As	32	M13392	1000	1.6
Ba	2	M13457	1000	0.1
Be	1.6	M13579	1000	0.08
Ca	56	M13324	**10000**	0.28
Cd	1.6	M13570	1000	0.08
Co	9.6	M13575	1000	0.48
Cr	5.6	M13617	**10000**	0.028
Cu	16	M13618	**10000**	0.08
Fe	72	M13463	**10000**	0.36
Mg	32	M13319	**10000**	0.16
Mn	6	M13616	**10000**	0.03
Mo	9.6	M13608	1000	0.48
Ni	4.8	M13569	1000	0.24
Pb	10	M13610	**10000**	0.05
Sb	32	M13459	1000	1.6
Se	16	M13460	1000	0.8
Tl	19	M13583	1000	0.95
V	3.2	M13578	1000	0.16
Zn	12	M13610	**10000**	0.06

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13676	Instrument:	ICP 6500
Analyst:	NAH	Standard:	LOQ 3010 DOD Metals Spiking S
Prep Date:	11/29/2018	Expiration Date:	04/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	4	M13458	1000	0.2
Al	36	M13462	**10000**	0.18
As	24	M13392	1000	1.2
Ba	1.8	M13457	1000	0.09
Be	0.6	M13579	1000	0.03
Ca	100	M13324	**10000**	0.5
Cd	2.0	M13570	1000	0.1
Co	4	M13575	1000	0.2
Cr	4	M13617	**10000**	0.02
Cu	7	M13618	**10000**	0.035
Fe	100	M13463	**10000**	0.5
Mg	40	M13319	**10000**	0.2
Mn	4	M13616	**10000**	0.02
Mo	7	M13608	1000	0.35
Ni	6	M13569	1000	0.2
Pb	4	M13610	**10000**	0.02
Sb	12	M13459	1000	0.6
Se	13	M13460	1000	0.65
Tl	20	M13583	1000	0.75
V	5	M13578	1000	0.25
Zn	10	M13610	**10000**	0.05

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

		Instrument:	CETAC
Standard Log #:	M13675	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	11/26/2018	Expiration Date:	11/26/2018
Prep:	Carefully mixed **3** parts HCl AB.668 with **1** part HNO_3 AB.669 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13671	Standard:	Hg CCV
Analyst:	LJF	Concentration:	3.0 ug/L Hg
Prep Date:	11/21/2018	Expiration Date:	01/01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	CETAC
Standard Log #:	M13672	Reagent:	Stannous Chloride Solution
Analyst:	LJF		
Prep Date:	11/21/2018	Expiration Date:	05/21/2019
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.668 and dissolved **100 g** Stannous chloride M13648 and brought up to volume.		

Standard Log #:	M13673	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	11/21/2018	Expiration Date:	05/21/2018
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M13674	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	LJF		
Prep Date:	11/21/2018	Expiration Date:	05/21/2018
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13620 and **60 g** hydroxylamine sulfate M13468 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13668	Standard:	Hg ICAL
Analyst:	LJF	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	11/21/2018	Expiration Date:	01/01/2019
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	CETAC
Standard Log #:	M13669	Standard:	Alt. Source Working Std.
Analyst:	LJF	Concentrations:	10,000 and 100 ug/L
Prep Date:	11/21/2018	Expiration Date:	04/30/2019
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13444 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M13670	Standard:	Hg ICV/LCS
Analyst:	LJF	Concentration:	3 ug/L
Prep Date:	11/21/2018	Expiration Date:	04/30/2019
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13444 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	ICP
Standard Log #:	M13666	Standard:	As Pb ICV1
Analyst:	MDS	Concentrations:	5000 ug/L (As,Pb)
Prep Date:	11/19/2018	Expiration Date:	07/2019
Prep:	Into a 1 L volumetric flask, pipetted **5 mL** of As (1000 mg/L) M13392 and **0.5 mL** Pb (10,000 mg/L) M13615 and brought to volume with Milli-Q H_2O. (2% HNO_3, 2% HCl)		

		Instrument:	CETAC
Standard Log #:	M13667	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	11/19/2018	Expiration Date:	11/19/2018
Prep:	Carefully mixed **3** parts HCl AB.668 with **1** part HNO_3 AB.669 in a hood.		

Standard Log #:	M13664	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	11/16/2018	Expiration Date:	11/16/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13665	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	11/16/2018	Expiration Date:	11/16/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

		Instrument:	CETAC
Standard Log #:	M13659	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	11/01/2018	Expiration Date:	11/01/2018
Prep:	Carefully mixed **3** parts HCl AB.668 with **1** part HNO_3 AB.669 in a hood.		

		Instrument:	ICP 6500
Standard Log #:	M13660	Standard:	ICSA
Analyst:	NAH	Concentrations:	**500,000 ug/L** Al, Ca, Fe, Mg
Prep Date:	11/01/2018	Expiration Date:	09/19
Prep:	Into a 500 mL volumetric flask, pipetted **50 mL** Interferents A Standard ((5000 mg/L Al, Ca, Mg) (2000 mg/L Fe)) M13635 and **15 mL** Fe (10000 mg/L) M13609 and brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M13661	Standard:	ICV Std.
Analyst:	NAH	Concentrations:	**12,000 mg/L** Al **10,000 mg/L** Ca, Mg **5000 mg/L** Fe **2000 mg/L** As, Ba, Se, Tl **500 mg/L** B, Co, Li, Mn, Mo, Ni, Pb, Sb, Sn, Sr, Ti, V, Zn **250 mg/L** Cu **200 mg/L** Cr **50 mg/L** Ag, Be, Cd
Prep Date:	11/06/2018	Expiration Date:	10/19
Prep:	Into a 1 L volumetric flask, pipetted the following and brought up to volume with milli-Q H_2O. **10 mL** Custom Assurance Standard #18 ((200 mg/L Al, As, Ba, Se, Tl) (100 mg/L Fe) (50 mg/L Co, Mn, Ni, Pb, Sb, V, Zn) (25 mg/L Cu) (20 mg/L Cr) (5 mg/L Ag, Be, Cd)) M13637, **2 mL** Interferents A Standard ((5000 mg/L Al, Ca, Mg) (2000 mg/L Fe)) M13635, **0.5 mL** Mo (1000 mg/L) M13608, **0.5 mL** B (1000 mg/L) M13531, **0.5 mL** Sr (1000 mg/L) M13580, **0.5 mL** Li (1000 mg/L) M13577, **0.5 mL** Sn (1000 mg/L) M13572, **0.5 mL** Ti (1000 mg/L) M13573, **0.5 mL** W (1000 mg/L) Mxxxxx, **0.5 mL** Si (1000 mg/L) M13571, **0.5 mL** S (10000 mg/L) M13530, **0.5 mL** K (10000 mg/L) M13612, and **0.5 mL** K (10000 mg/L)		

		Instrument:	ICP 6000
Standard Log #:	M13657	Standard:	L2 ICV
Analyst:	MDS	Concentrations:	1000 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	11/2/2018	Expiration Date:	01/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of the following and brought up to volume using milli-Q H_2O. (0.5% HNO_3, 0.5% HCl) Li (1000 µg/mL) M13577 Sn (1000 µg/mL) M13572 Sr (1000 µg/mL) M13580 Ti (1000 µg/mL) M13573 W (1000 µg/mL) XXX		

		Instrument:	ICP 6000
Standard Log #:	M13658	Standard:	List 2 MRL/ICVLL Prep Solution
Analyst:	MDS	Concentrations:	5000 µg/L (W) 1000 µg/L (Li, Sn) 500 µg/L (Ti, Sr)
Prep Date:	11/2/2018	Expiration Date:	01/2020

Prep:

Analyte	MRL/ICVLL Conc. (µg/L)	Standard ID	Std. Conc. (µg/mL)	Volume (mL) Pipetted into 1 L	Expiration Date
Li	20/60	M13577	1000	1	02/2020
W	100/300	XXX	1000	5	XXX
Ti	10/30	M13573	1000	0.5	01/2020
Sr	10/30	M13580	1000	0.5	02/2020
Sn	20/60	M13572	1000	1	01/2020

Pipette **10 mL** into a 500 mL volumetric flask to create a working MRL std. or **1 mL** into a 50 mL digestion tube for a digested MRL standard. Pipette **30 mL** into 500 mL for a working ICVLL std. or **3 mL** into a 50 mL digestion tube for a digested ICVLL standard.

(0.5% HNO_3, 0.5% HCl)

		Instrument:	ICP
Standard Log #:	M13655	Standard:	L2 ICAL
Analyst:	MDS	Concentrations:	1 (µg/L) 10 (µg/L) 100 (µg/L) 1000 (µg/L) 10,000 (µg/L)
Prep Date:	11/2/2018	Expiration Date:	02/28/2019
Prep:	Standard Conc. (ug/L) — Pipette the following: 1 — **0.01 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **0.001 mL** W (1000 µg/mL) xxx into 1L = *1 µg/L* 10 — **0.10 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **0.01 mL** W (1000 µg/mL) xxx into 1L = *10 µg/L* 100 — **1 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **0.1 mL** W (1000 µg/mL) xxx into 1L = *100 µg/L* 1000 (CCV) — **2 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **0.2 mL** W (1000 µg/mL) xxx into 200mL = *1000 µg/L* 10000 — **20 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **2 mL** W (1000 µg/mL) xxx into 200mL = *10000 µg/L*		

		Instrument:	ICP 6000
Standard Log #:	M13656	Standard:	List 2 ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	11/2/2018	Expiration Date:	02/28/2019
Prep:	Into a 200 mL volumetric flask, pipetted **20 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13410, **6 mL** of Fe (10,000 mg/L) M13529, **0.1 mL** of Li (1000 µg/mL) M13577, **0.1 mL** of Sn (1000 µg/mL) M13572, **0.1 mL** of Sr (1000 µg/mL) M13580, **0.1 mL** of Ti (1000 µg/mL) M13573, and **0.1 mL** of W (1000 µg/mL) XXX and brought up to volume using Milli-Q H_2O. (0.5% HNO_3, 0.5% HCl)		

		Instrument:	GFAA
Standard Log #:	M13651	Standard:	Sb ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 µg/L (Sb)
Prep Date:	10/29/2018	Expiration Date:	10/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.01 mL** of Antimony Stock Std. (1000 µg/mL Sb) M13459 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13652	Standard:	NaK ICV
Analyst:	MDS	Concentrations:	100 mg/L (Na, K)
Prep Date:	10/29/2018	Expiration Date:	10/2019
Prep:	Into a 250 mL volumetric flask, pipetted **2.5 mL** of K (10,000 mg/L) M13612 and Na (10,000 mg/L) M13461 and brought up to volume using Milli-Q H_2O. (2% HNO_3)		

Standard ID#:	M13653	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance std
Date Received:	10/29/2018	Lot #:	2-036AB
Expiration Date (if any):	10/30/2019	Catalog #:	XCTWI-1-500

		Instrument:	ICP 6000
Standard Log #:	M13648	Standard:	B&Si ICAL
Analyst:	MDS	Concentrations:	50, 200, 1000, 2000 and 10,000 ug/L (B, Si)
Prep Date:	10/26/2018	Expiration Date:	07/2019
Prep:	Into five, 1 L volumetric flasks, pipetted the following from stock standards B (1000 mg/L) M13390 and Si (1000 mg/L) M13528 and brought up to volume using milli-Q H_2O. *50 ug/L std.* - **0.05 mL** of each *200 ug/L std.* - **0.2 mL** of each *1000 ug/L std.* -**1.0 mL** of each, also used for Continuing Calibration Verification *2000 ug/L std.* - **2.0 mL** of each *10,000 ug/L std.* -**10 mL** of each		

		Instrument:	ICP 6000
Standard Log #:	M13649	Standard:	B&Si ICV
Analyst:	MDS	Concentrations:	1000 ug/L (B, Si)
Prep Date:	10/26/2018	Expiration Date:	07/30/2019
Prep:	Into a 1 L volumetric flask, pipetted **10 mL** of Custom Assurance Std. #23 (100 mg/L Al, As, **B**, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13576 and **1.0 mL** Si (1000 mg/L) M13571 and brought up to volume using milli-Q H_2O.		

		Instrument:	ICP 6000
Standard Log #:	M13650	Standard:	B & Si ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (B,Si)
Prep Date:	10/27/2018	Expiration Date:	02/28/2019
Prep:	Into a 100 mL volumetric flask, pipetted **10 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13410 , **0.05 mL** of B (1000 µg/mL) M13390 , **0.05 mL** of Si (1000 µg/mL) M13528 and **3 mL** of Fe (10,000 mg/L) M13529 and brought up to volume using Milli-Q H_2O.		

		Instrument:	CETAC
Standard Log #:	M13645	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	10/24/2018	Expiration Date:	10/24/2018
Prep:	Carefully mixed **3** parts HCl AB.668 with **1** part HNO_3 AB.669 in a hood.		

Standard ID#:	M13646	Vendor:	Alfa Aesar
Analyst:	MDS	Chemical:	1% Nickel Nitrate Matrix Modifier
Date Received:	10/25/2018	Lot #:	8137324
Expiration Date (if any):	12/31/2019	Catalog #:	39043

Standard ID#:	M13647	Vendor:	LabChem
Analyst:	LJF	Chemical:	STANNOUS CHLORIDE
Date Received:	10/24/2018	Lot #:	H226-02
Expiration Date (if any):		Catalog #:	LC251701

Standard Log #:	M13643	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	10/24/2018	Expiration Date:	10/24/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13644	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	10/24/2018	Expiration Date:	10/24/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

		Instrument:	GFAA
Standard Log #:	M13639	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	10/24/2018	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13640	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	10/24/2018	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13641	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	10/24/2018	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13498 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

Standard Log #:	M13642	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	10/24/2018	Expiration Date:	10/24/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13638	Standard:	GFAA Instrument Check
Analyst:	MDS	Final Concentration:	10 µg/L As 6 µg/L Pb 12 µg/L Sb 20 µg/L Se 14 µg/L Tl 0.6 µg/L Ag
Prep Date:	10/23/2018	Expiration Date:	07/2019

Into six, 100 mL volumetric flasks, add the following and bring up to volume with milli-Q H_2O.

Element	Volume Pipetted (mL)	Standard Conc. (µg/mL)	Standard ID	New Conc. (µg/L)
As	1	1000	M13392	10,000
Pb	0.1	10,000	M13615	10,000
Tl	1	1000	M13583	10,000
Se	1	1000	M13460	10,000
Sb	1	1000	M13459	10,000
Ag	0.1	1000	M13458	1000

Into a 1 L volumetric flask, add the following and bring up to volume with Milli-Q H_20. (1% HNO_3)

Element	Volume Pipetted (mL)	Standard Conc. (µg/L)	New Conc. (µg/L)
As	1.0	10,000	10
Pb	0.6	10,000	6
Tl	1.4	10,000	14
Se	2.0	10,000	20
Sb	1.2	10,000	12
Ag	0.6	1000	0.6

Standard ID#:	M13634	Vendor:	CPI
Analyst:	NAH	Chemical:	Yttrium 10,0000 mg/L
Date Received:	10/18/2018	Lot #:	139448-54
Expiration Date (if any):	04/20	Catalog #:	4400-10m671

Standard ID#:	M13635	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Interference A
Date Received:	10/18/2018	Lot #:	2-230sgx
Expiration Date (if any):	09/30/2019	Catalog #:	INT-A1

		Instrument:	CETAC
Standard Log #:	M13636	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	10/18/2018	Expiration Date:	10/18/2018
Prep:	Carefully mixed **3** parts HCl AB.668 with **1** part HNO_3 AB.665 in a hood.		

Standard ID#:	M13637	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance standard
Date Received:	10/18/2018	Lot #:	50-0007CR
Expiration Date (if any):	10/30/2019	Catalog #:	XSPIKE-1-250

		Instrument:	CETAC
Standard Log #:	M13633	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	10/16/2018	Expiration Date:	10/16/2018
Prep:	Carefully mixed **3** parts HCl AB.668 with **1** part HNO_3 AB.665 in a hood.		

		Instrument:	GFAA
Standard Log #:	M13632	Standard:	LODW/LOQW Ag Spiking Sol'n
Analyst:	MDS	Concentrations:	10 ug/L (Ag)
Prep Date:	10/16/2018	Expiration Date:	10/2019
Prep:	Into a 100 mL volumetric flask, pipetted **0.1 mL** of Ag (1000mg/L) M13458 and brought to volume with Milli-Q H_2O to make a 1000 ug/L Ag std. Into a 1 L volumetric flask, pipetted **10 mL** of Ag (*1000 ug/L*) std. and brought to volume with Milli-Q H_2O. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*0.2 ug/L*) and **2 mL** spiking solution for LOQ (*0.4 ug/L*)		

Standard Log #:	M13627	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	10/03/2018	Expiration Date:	10/03/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13628	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	10/03/2018	Expiration Date:	10/03/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

MRL BASE STD M13626 Analyst NAH

Prep Date 10/01/2018

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	(ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L	Expiration Date
Ag	20	M13458	1000	1	10/2019
Al	400	M13462	10000	2	10/2019
Ba	10	M13457	1000	0.5	10/2019
Be	4	M13579	1000	0.2	02/20
Cd	5	M13570	1000	0.25	01/20
Co	10	M13575	1000	0.5	01/20
Cr	10	M13617	10000	0.05	03/20
Cu	10	M13618	10000	0.05	03/20
Mg	500	M13319	10000	2.5	04/19
Mn	10	M13616	10000	0.05	03/20
Mo	10	M13608	1000	0.5	03/20
Ni	10	M13569	1000	0.5	03/20
Pb	10	M13610	10000	0.05	03/20
Sb	20	M13459	1000	1	03/20
V	10	M13578	1000	0.5	02/20
Zn	10	M13610	10000	0.05	02/20
K	1000	M13341	10000	5	05/19
Na	1000	M13402	10000	5	08/19
As	20	M13392	1000	1	07/19
Ca	500	M13324	10000	2.5	04/19
Fe	300	M13463	10000	1.5	10/19
Se	20	M13460	1000	1	10/19
Tl	20	M13583	1000	1	02/20
Si	100	M13394	1000	5	07/19
B	20	M13531	1000	1	07/19
Li	20	M13517	1000	1	02/20
W	50	xxxxxxx	1000	2.5	xxxxxxx
Ti	10	M13573	1000	0.5	02/20
Sr	10	M13586	1000	0.5	02/20
Sn	50	M13572	1000	2.5	02/20
S	300	M13391	10000	1.5	07/19

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

Standard Log #:	M13625	Instrument:	GFAA
Analyst:	MDS	Reagent:	Pd/Mg Matrix Modifier
Prep Date:	10/03/2018	Expiration Date:	09/30/2019
Prep:	Into a 50 mL volumetric flask, partially filled with milli-Q H_2O, pipetted **15 mL** Pd Modifier M13600 and **10 mL** Mg (10,000 mg/L) M13464 and brought up to volume.		

Standard ID#:	M13618	Vendor:	CPI
Analyst:	NAH	Chemical:	Cu 10000 mg/L
Date Received:	09/20/2018	Lot #:	148796-39
Expiration Date (if any):	03/2020	Catalog #:	S4400-10M141

		Instrument:	CETAC
Standard Log #:	M13619	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	09/19/2018	Expiration Date:	09/19/2018
Prep:	Carefully mixed **3** parts HCl AB.664 with **1** part HNO_3 AB.665 in a hood.		

Standard ID#:	M13620	Vendor:	FISHER
Analyst:	LJF	Chemical:	SODIUM CHLORIDE
Date Received:	09/04/2018	Lot #:	177409
Expiration Date (if any):		Catalog #:	S271-500

Standard ID#:	M13611	Vendor:	CPI
Analyst:	NAH	Chemical:	Al 10000 mg/L
Date Received:	09/20/2018	Lot #:	169484-18
Expiration Date (if any):	03/2020	Catalog #:	4400-10M11

Standard ID#:	M13612	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10000 mg/L
Date Received:	09/20/2018	Lot #:	172053-36
Expiration Date (if any):	03/2020	Catalog #:	440010M411

Standard ID#:	M13613	Vendor:	CPI
Analyst:	NAH	Chemical:	Ca 10000 mg/L
Date Received:	09/20/2018	Lot #:	855297-1
Expiration Date (if any):	03/2020	Catalog #:	4400-10M91

Standard ID#:	M13614	Vendor:	CPI
Analyst:	NAH	Chemical:	Mg 10000 mg/L
Date Received:	09/20/2018	Lot #:	148250-72
Expiration Date (if any):	03/2020	Catalog #:	4400-10M311

Standard ID#:	M13615	Vendor:	CPI
Analyst:	NAH	Chemical:	Pb 10000 mg/L
Date Received:	09/20/2018	Lot #:	168223-17
Expiration Date (if any):	03/2020	Catalog #:	4400-10M281

Standard ID#:	M13616	Vendor:	CPI
Analyst:	NAH	Chemical:	Mn 10000 mg/L
Date Received:	09/20/2018	Lot #:	167540-6
Expiration Date (if any):	03/2020	Catalog #:	S4400-10M321

Standard ID#:	M13617	Vendor:	CPI
Analyst:	NAH	Chemical:	Cr 10000 mg/L
Date Received:	09/20/2018	Lot #:	158236-7
Expiration Date (if any):	03/2020	Catalog #:	s4400-10M121

Standard ID#:	M13604	Vendor:	CPI
Analyst:	NAH	Chemical:	Sulfur 10000 mg/L
Date Received:	09/20/2018	Lot #:	167967-37
Expiration Date (if any):	03/2020	Catalog #:	4400-10M544

Standard ID#:	M13605	Vendor:	CPI
Analyst:	NAH	Chemical:	Sodium 10000 mg/L
Date Received:	09/20/2018	Lot #:	752887-3
Expiration Date (if any):	03/2020	Catalog #:	4400-10M521

Standard ID#:	M13606	Vendor:	CPI
Analyst:	NAH	Chemical:	K 1000 mg/L
Date Received:	09/20/2018	Lot #:	144467-179
Expiration Date (if any):	03/2020	Catalog #:	4400-1000411-500

Standard ID#:	M13607	Vendor:	CPI
Analyst:	NAH	Chemical:	Na 1000 mg/L
Date Received:	09/20/2018	Lot #:	158237-113
Expiration Date (if any):	03/2020	Catalog #:	4400-1000521-500

Standard ID#:	M13608	Vendor:	CPI
Analyst:	NAH	Chemical:	Mo 1000 mg/L
Date Received:	09/20/2018	Lot #:	169424-37
Expiration Date (if any):	03/2020	Catalog #:	S4400-1000343

Standard ID#:	M13609	Vendor:	CPI
Analyst:	NAH	Chemical:	Fe 10000 mg/L
Date Received:	09/20/2018	Lot #:	156651-53
Expiration Date (if any):	03/2020	Catalog #:	4400-10M261

Standard ID#:	M13610	Vendor:	CPI
Analyst:	NAH	Chemical:	Zn 10000 mg/L
Date Received:	09/20/2018	Lot #:	979871-2
Expiration Date (if any):	03/2020	Catalog #:	4400-10M681

Standard Log #:	M13601	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	09/12/2018	Expiration Date:	09/12/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard ID#:	M13602	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	09-12-2018	Lot #:	1-124AB
Expiration Date (if any):	09-30-2019	Catalog #:	XCTWI-5-500

Standard ID#:	M13600	Vendor:	Environmental Express
Analyst:	MDS	Chemical:	1% Pd Matrix Modifier
Date Received:	09/11/2018	Lot #:	1808015
Expiration Date (if any):	09/30/2019	Catalog #:	HP1900-100

Standard Log #:	M13599	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	09/08/2018	Expiration Date:	09/08/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard ID#:	M13595	Vendor:	SPEX CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Std
Date Received:	08/29/2018	Lot #:	49-151CR
Expiration Date (if any):	08/30/2019	Catalog #:	XSPIKE-1-250

		Instrument:	CETAC
Standard Log #:	M13596	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	08/30/2018	Expiration Date:	08/30/2018
Prep:	Carefully mixed **3** parts HCl AB.664 with **1** part HNO_3 AB.665 in a hood.		

		Instrument:	ICP 6000
Standard Log #:	M13597	Standard:	Na & K ICAL
Analyst:	MDS	Concentrations:	0.5, 1, 5, 10, 50, 100, and 200 mg/L (Na,K)
Prep Date:	08/30/2018	Expiration Date:	05/2019
Prep:	Into seven, 200 mL volumetric flasks, pipetted the following from Na (1000 µg/mL) M13339 and K (1000 µg/mL) M13340 and brought up to volume using milli-Q H_2O. (2% HNO_3) *0.5 mg/L std.* - **0.1 mL** of each *1.0 mg/L std.* - **0.2 mL** of each *5.0 mg/L std.* - **1.0 mL** of each *10 mg/L std.* - **2.0 mL** of each *50 mg/L std.* - **10 mL** of each *100 mg/L std.* -**20 mL** of each, also used for Continuing Calibration Verification *200 mg/L std.* - **40 mL** of each		

		Instrument:	ICP 6000
Standard Log #:	M13598	Standard:	Na,K MRL
Analyst:	MDS	Concentrations:	1 mg/L (Na,K)
Prep Date:	08/30/2018	Expiration Date:	05/2019
Prep:	Into a 500 mL volumetric flask, pipetted **0.5 mL** of Na (1000 µg/mL) M13339 and **0.5 mL** K (1000 µg/mL) M13340 and brought to volume with Milli-Q H_2O. (2% HNO_3)		

Standard Log #:	M13588	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	08/21/2018	Expiration Date:	08/21/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13589	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	08/21/2018	Expiration Date:	08/21/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard ID#:	M13590	Vendor:	AMCO Clear
Analyst:	NAH	Chemical:	turbidity std 2.0 ntu
Date Received:	08/21/2018	Lot #:	18272791
Expiration Date (if any):	08/2019	Catalog #:	8008

		Instrument:	ICP 6000
Standard Log #:	M13586	Standard:	L2 ICV
Analyst:	MDS	Concentrations:	1000 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	08/20/2018	Expiration Date:	01/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of the following and brought up to volume using milli-Q H_2O. (0.5% HNO_3, 0.5% HCl) Li (1000 µg/mL) M13577 Sn (1000 µg/mL) M13572 Sr (1000 µg/mL) M13580 Ti (1000 µg/mL) M13573 W (1000 µg/mL) MXXX		

		Instrument:	ICP 6000
Standard Log #:	M13587	Standard:	List 2 MRL/ICVLL Prep Solution
Analyst:	MDS	Concentrations:	5000 µg/L (W) 1000 µg/L (Li, Sn) 500 µg/L (Ti, Sr)
Prep Date:	08/20/2018	Expiration Date:	01/2020

Prep:

Analyte	MRL/ICVLL Conc. (µg/L)	Standard ID	Std. Conc. (µg/mL)	Volume (mL) Pipetted into 1 L	Expiration Date
Li	20/60	M13577	1000	1	02/2020
W	100/300	XXX	1000	5	XXX
Ti	10/30	M13573	1000	0.5	01/2020
Sr	10/30	M13580	1000	0.5	02/2020
Sn	20/60	M13572	1000	1	01/2020

Pipette **10 mL** into a 500 mL volumetric flask to create a working MRL std. or **1 mL** into a 50 mL digestion tube for a digested MRL standard. Pipette **30 mL** into 500 mL for a working ICVLL std. or **3 mL** into a 50 mL digestion tube for a digested ICVLL standard.

(0.5% HNO_3, 0.5% HCl)

		Instrument:	ICP
Standard Log #:	M13584	Standard:	L2 ICAL
Analyst:	MDS	Concentrations:	1 (µg/L) 10 (µg/L) 100 (µg/L) 1000 (µg/L) 10,000 (µg/L)
Prep Date:	08/20/2018	Expiration Date:	07/30/2019
Prep:	Standard Conc. (ug/L)	Pipette the following:	
	1	**0.01 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **0.001 mL** W (1000 µg/mL) MXXX into 1L = *1 µg/L*	
	10	**0.10 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **0.01 mL** W (1000 µg/mL) MXXX into 1L = *10 µg/L*	
	100	**1 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **0.1 mL** W (1000 µg/mL) MXXX into 1L = *100 µg/L*	
	1000 (CCV)	**2 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **0.2 mL** W (1000 µg/mL) MXXX into 200mL = *1000 µg/L*	
	10000	**20 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **2 mL** W (1000 µg/mL) MXXX into 200mL = *10000 µg/L*	

		Instrument:	ICP 6000
Standard Log #:	M13585	Standard:	List 2 ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	08/20/2018	Expiration Date:	
Prep:	Into a 200 mL volumetric flask, pipetted **20 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13410, **6 mL** of Fe (10,000 mg/L) M13463, **0.1 mL** of Li (1000 µg/mL) M13577, **0.1 mL** of Sn (1000 µg/mL) M13572, **0.1 mL** of Sr (1000 µg/mL) M13580, **0.1 mL** of Ti (1000 µg/mL) M13573, and **0.1 mL** of W (1000 µg/mL) MXXX and brought up to volume using Milli-Q H_2O. (0.5% HNO_3, 0.5% HCl)		

Standard ID#:	M13577	Vendor:	CPI
Analyst:	NAH	Chemical:	Li 1000 mg/L
Date Received:	08/17/2018	Lot #:	751942-25
Expiration Date (if any):	02/2020	Catalog #:	S4400-1000291

Standard ID#:	M13578	Vendor:	CPI
Analyst:	NAH	Chemical:	V 1000 mg/L
Date Received:	08/17/2018	Lot #:	152207-68
Expiration Date (if any):	02/2020	Catalog #:	S4400-1000651

Standard ID#:	M13579	Vendor:	CPI
Analyst:	NAH	Chemical:	Be 1000 mg/L
Date Received:	08/17/2018	Lot #:	660981-5
Expiration Date (if any):	02/2020	Catalog #:	S4400-100051

Standard ID#:	M13580	Vendor:	CPI
Analyst:	NAH	Chemical:	Sr 1000 mg/L
Date Received:	08/17/2018	Lot #:	168227-29
Expiration Date (if any):	02/2020	Catalog #:	S4400-1000531

Standard ID#:	M13581	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10000 mg/L
Date Received:	08/17/2018	Lot #:	172053-36
Expiration Date (if any):	02/2020	Catalog #:	4400-10411

Standard ID#:	M13582	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	Y 10000 mg/L
Date Received:	08/17/2018	Lot #:	1805105
Expiration Date (if any):	02/2020	Catalog #:	HP10M67-1

Standard ID#:	M13583	Vendor:	CPI
Analyst:	NAH	Chemical:	Tl 1000 mg/L
Date Received:	08/17/2018	Lot #:	148983-70
Expiration Date (if any):	02/2020	Catalog #:	S4400-1000581

Standard ID#:	M13576	Vendor:	Spex Certiprep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	08/04/2018	Lot #:	49-045CR
Expiration Date (if any):	07/30/2019	Catalog #:	XCTWI-5-500

Standard ID#:	M13569	Vendor:	CPI
Analyst:	NAH	Chemical:	Ni 1000 mg/L
Date Received:	07/27/2018	Lot #:	166665-86
Expiration Date (if any):	01/2020	Catalog #:	s4400-1000361

Standard ID#:	M13570	Vendor:	CPI
Analyst:	NAH	Chemical:	Cd 1000 mg/L
Date Received:	07/27/2018	Lot #:	160499-32
Expiration Date (if any):	01/2020	Catalog #:	s4400-100081

Standard ID#:	M13571	Vendor:	CPI
Analyst:	NAH	Chemical:	Si 1000 mg/L
Date Received:	07/27/2018	Lot #:	175213-28
Expiration Date (if any):	01/2020	Catalog #:	s4400-1000504F

Standard ID#:	M13572	Vendor:	CPI
Analyst:	NAH	Chemical:	Sn 1000 mg/L
Date Received:	07/27/2018	Lot #:	144466-74
Expiration Date (if any):	01/2020	Catalog #:	s4400-1000613

Standard ID#:	M13573	Vendor:	CPI
Analyst:	NAH	Chemical:	Ti 1000 mg/L
Date Received:	07/27/2018	Lot #:	152616-55
Expiration Date (if any):	01/2020	Catalog #:	s4400-1000623

Standard ID#:	M13574	Vendor:	CPI
Analyst:	NAH	Chemical:	Hg 1000 mg/L
Date Received:	07/27/2018	Lot #:	175191-22
Expiration Date (if any):	01/2020	Catalog #:	s4400-1000331

Standard ID#:	M13575	Vendor:	CPI
Analyst:	NAH	Chemical:	Co 1000 mg/L
Date Received:	07/27/2018	Lot #:	161693-10
Expiration Date (if any):	01/2020	Catalog #:	s4400-1000131

Standard Log #:	M13563	Instrument:	ICP
Analyst:	LJF	Standard:	LOQ 3050 S Spiking Solution
Prep Date:	07/19/2018	Expiration Date:	10/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
S	240	M13466	10000	1.2

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard ID#:	M13557	Vendor:	Alfa Aesar Specpure
Analyst:	MDS	Chemical:	1% Nickel Nitrate Matrix Modifier
Date Received:	07/17/2018	Lot #:	8137324
Expiration Date (if any):	12/31/2019	Catalog #:	39043

		Instrument:	ICP 6000
Standard Log #:	M13558	Standard:	B&Si ICV
Analyst:	MDS	Concentrations:	1000 ug/L (B, Si)
Prep Date:	07/17/2018	Expiration Date:	05/2019
Prep:	Into a 1 L volumetric flask, pipetted **10 mL** of Custom Assurance Std. #23 (100 mg/L Al, As, **B**, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13518 and **1.0 mL** Si (1000 mg/L) M13338 and brought up to volume using milli-Q H_2O.		

Standard Log #:	M13559	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	07/17/2018	Expiration Date:	01/17/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13559 and brought up to volume.		

Standard Log #:	M13554	Instrument:	ICP
Analyst:	LJF	Standard:	LOQ 3010 B&Si Spiking Solution
Prep Date:	07/13/2018	Expiration Date:	05/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
B	16	M13390	1000	0.8
Si	200	M13338	1000	10

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13555	Instrument:	ICP
Analyst:	LJF	Standard:	LOQ 3010 S Spiking Solution
Prep Date:	07/13/2018	Expiration Date:	10/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
S	200	M13466	10000	1.0

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

		Instrument:	GFAA
Standard Log #:	M13553	Standard:	Sb ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 µg/L (Sb)
Prep Date:	07/12/2018	Expiration Date:	10/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.01 mL** of Antimony Stock Std. (1000 µg/mL Sb) M13459 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13547	Standard:	LODW/LOQW Ag Spiking Sol'n
Analyst:	MDS	Concentrations:	10 ug/L (Ag)
Prep Date:	07/09/2018	Expiration Date:	10/2019
Prep:	Into a 100 mL volumetric flask, pipetted **0.1 mL** of Ag (1000mg/L) M13458 and brought to volume with Milli-Q H_2O to make a 1000 ug/L Ag std. Into a 1 L volumetric flask, pipetted **10 mL** of Ag (*1000 ug/L*) std. and brought to volume with Milli-Q H_2O. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*0.2 ug/L*) and **2 mL** spiking solution for LOQ (*0.4 ug/L*)		

Standard Log #:	M13548	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	LJF		
Prep Date:	07/10/2018	Expiration Date:	01/10/2019
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13226 and **60 g** hydroxylamine sulfate M13468 and brought up to volume.		

		Instrument:	GFAA
Standard Log #:	M13549	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	07/10/2018	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

Standard Log #:	M13534	Standard:	GFAA Instrument Check
Analyst:	MDS	Final Concentration:	10 µg/L As 6 µg/L Pb 12 µg/L Sb 20 µg/L Se 14 µg/L Tl 0.6 µg/L Ag
Prep Date:	07/02/2018	Expiration Date:	09/16/2018

Into six, 100 mL volumetric flasks, add the following and bring up to volume with milli-Q H_2O.

Element	Volume Pipetted (mL)	Standard Conc. (µg/mL)	Standard ID	New Conc. (µg/L)
As	1	1000	M13392	10,000
Pb	0.1	10,000	M13169	10,000
Tl	1	1000	M13124	10,000
Se	1	1000	M13460	10,000
Sb	1	1000	M13459	10,000
Ag	0.1	1000	M13458	1000

Into a 1 L volumetric flask, add the following and bring up to volume with Milli-Q H_20. (1% HNO_3)

Element	Volume Pipetted (mL)	Standard Conc. (µg/L)	New Conc. (µg/L)
As	1.0	10,000	10
Pb	0.6	10,000	6
Tl	1.4	10,000	14
Se	2.0	10,000	20
Sb	1.2	10,000	12
Ag	0.6	1000	0.6

Standard ID#:	M13535	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	07/02/2018	Lot #:	48-179CR
Expiration Date (if any):	06/30/2019	Catalog #:	XSPIKE-1-250

Standard ID#:	M13526	Vendor:	CPI
Analyst:	NAH	Chemical:	YTTRIUM 10,000 ug/mL
Date Received:	06/22/2018	Lot #:	138448-54
Expiration Date (if any):	12/2019	Catalog #:	4400-10M671

Standard ID#:	M13527	Vendor:	CPI
Analyst:	NAH	Chemical:	POTASSIUM 10,000
Date Received:	06/22/2018	Lot #:	172053-32
Expiration Date (if any):	12/2019	Catalog #:	4400-104411

Standard ID#:	M13528	Vendor:	CPI
Analyst:	NAH	Chemical:	Si 1000 ug/mL
Date Received:	06/22/2018	Lot #:	142610-115
Expiration Date (if any):	12/2019	Catalog #:	S4400-1000504F

Standard ID#:	M13529	Vendor:	CPI
Analyst:	NAH	Chemical:	Fe 10,000 ug/mL
Date Received:	06/22/2018	Lot #:	156651-42
Expiration Date (if any):	12/2019	Catalog #:	4400-10M261

Standard ID#:	M13530	Vendor:	CPI
Analyst:	NAH	Chemical:	SULFUR 10,000ug/mL
Date Received:	06/22/2018	Lot #:	129880-46
Expiration Date (if any):	12/2019	Catalog #:	4400-10M544

Standard ID#:	M13531	Vendor:	CPI
Analyst:	NAH	Chemical:	BORON 1000 ug/mL
Date Received:	06/22/2018	Lot #:	158372-91
Expiration Date (if any):	12/2019	Catalog #:	S4400-100074

Standard ID#:	M13532	Vendor:	CPI
Analyst:	NAH	Chemical:	CUSTOM ASSURANCE STANDARD
Date Received:	06/22/2018	Lot #:	48-146CR
Expiration Date (if any):	06/30/2019	Catalog #:	XCTWI-1-500

Standard ID#:	M13520	Vendor:	FRISCOLYT
Analyst:	NAH	Chemical:	Electrolyte Solution
Date Received:	06/13/2018	Lot #:	1DO71H
Expiration Date (if any):	12/03/2021	Catalog #:	51 340 053

		Instrument:	ICP
Standard Log #:	M13521	Standard:	As Pb ICV1
Analyst:	MDS	Concentrations:	5000 ug/L (As,Pb)
Prep Date:	06/13/2018	Expiration Date:	10/20/2018
Prep:	Into a 1 L volumetric flask, pipetted **0.5 mL** of As (10,000 mg/L) M13392 and **0.5 mL** Pb (10,000 mg/L) M13169 and brought to volume with Milli-Q H_2O. (2% HNO_3, 2% HCl)		

Standard ID#:	M13518	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	06/11/2018	Lot #:	48-060CR
Expiration Date (if any):	06/30/2019	Catalog #:	XCTWI-5-500

		Instrument:	ICP 6500
Standard Log #:	M13519	Standard:	ICAL
Analyst:	NAH	Concentrations:	0.25, 0.5, 1, 5, 10, 20, 50, 100, 1000, 10,000, 100k, 100,000, 500,000 and 1000k (ug/L)
Prep Date:	06/11/2018	Expiration Date:	06/30/2019

Prep:

Using 1 L volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O.
(5% HNO_3, 5% HCl)
1000 ug/L Std. - **10 mL** of Custom Assurance Std. #23 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13518, **10 mL** of Custom Assurance Std. #3 (100 mg/L Ag, Be, Cd) M13506 and **1 mL** of Si (1000 mg/L) M13394 and 1 mL M13203 Ce
0.25 ug/L Std. - **0.25 mL** of the 1000 ug/L Std.
0.5 ug/L Std. - **0.5 mL** of the 1000 ug/L Std.
1 ug/L Std. - **1 mL** of the 1000 ug/L Std.
5 ug/L Std. - **5 mL** of the 1000 ug/L Std.
10 ug/L Std. - **10 mL** of the 1000 ug/L Std.
20 ug/L Std. - **20 mL** of the 1000 ug/L Std.
50 ug/L Std. - **50 mL** of the 1000 ug/L Std.
100 ug/L Std. - **1 mL** of Custom Assurance Std. (CAS) #23 and **1 mL** of CAS #3
10,000 ug/L Std. - **100 mL** CAS #23, **100 mL** CAS #3 and **1 mL** of K (10,000 mg/L) M13465.
100k ug/L Std. - **10 mL** of Cu (10,000 mg/L) M13166, **10 mL** of Mn (10,000 mg/L) M13167, **10 mL** of Cr (10,000 mg/L) M13165, **10 mL** Pb (10,000 mg/L) M13169, **10 mL** of Zn (10,000 mg/L) M13168 and **10 mL** of Na (10,000 mg/L) M13461.
100,000 ug/L Std. - **10 mL** of Mg (10,000 mg/L) M13319, **10 mL** of Fe (10,000 mg/L) M13463, **10 mL** of Ca (10,000 mg/L) M13467 and **10 mL** Al (10,000 mg/L) M13462.
500,000 ug/L Std. - **50 mL** of Mg (10,000 mg/L), **50 mL** of Fe (10,000 mg/L), **50 mL** of Ca (10,000 mg/L) and **50 mL** of Al (10,000 mg/L)
1000k ug/L Std. - **100 mL** of Mg (10,000 mg/L), **100 mL** of Fe (10,000 mg/L), **100 mL** of Ca (10,000 mg/L) and **100 mL** of Al (10,000 mg/L)

		Instrument:	CETAC
Standard Log #:	M13510	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	06/01/2018	Expiration Date:	06/01/2018
Prep:	Carefully mixed **3** parts HCl AB.656 with **1** part HNO_3 AB.655 in a hood.		

Standard ID#:	M13511	Vendor:	FISHER
Analyst:	LJF	Chemical:	SODIUM CHLORIDE
Date Received:	06/04/2018	Lot #:	176877
Expiration Date (if any):		Catalog #:	S271-500

Standard ID#:	M13506	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	05/22/2018	Lot #:	48-042CR
Expiration Date (if any):	05/30/2019	Catalog #:	XCTWI-4-500

Standard ID#:	M13507	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	05/22/2018	Lot #:	48-041CR
Expiration Date (if any):	05/30/2019	Catalog #:	XSPIKE-1-250

Standard ID#:	M13508	Vendor:	RESTEK
Analyst:	NAH	Chemical:	Diatomaceous earth (Celite 566)
Date Received:	05/22/2018	Lot #:	811030-BG
Expiration Date (if any):	N/A	Catalog #:	26033

Standard ID#:	M13495	Vendor:	LabChem
Analyst:	LJF	Chemical:	STANNOUS CHLORIDE
Date Received:	05/15/2018	Lot #:	H052-17
Expiration Date (if any):		Catalog #:	LC251701

		Instrument:	ICP 6000
Standard Log #:	M13485	Standard:	Na & K ICAL
Analyst:	MDS	Concentrations:	0.5, 1, 5, 10, 50, 100, and 200 mg/L (Na,K)
Prep Date:	05/07/2018	Expiration Date:	05/2019
Prep:	Into seven, 200 mL volumetric flasks, pipetted the following from Na (1000 µg/mL) M13339 and K (1000 µg/mL) M13340 and brought up to volume using milli-Q H_2O. (2% HNO_3) *0.5 mg/L std.* - **0.1 mL** of each *1.0 mg/L std.* - **0.2 mL** of each *5.0 mg/L std.* - **1.0 mL** of each *10 mg/L std.* - **2.0 mL** of each *50 mg/L std.* - **10 mL** of each *100 mg/L std.* -**20 mL** of each, also used for Continuing Calibration Verification *200 mg/L std.* - **40 mL** of each		

		Instrument:	ICP 6000
Standard Log #:	M13486	Standard:	NaK ICV
Analyst:	MDS	Concentrations:	100 mg/L (Na, K)
Prep Date:	05/07/2018	Expiration Date:	08/2019
Prep:	Into a 250 mL volumetric flask, pipetted **2.5 mL** of K (10,000 mg/L) M13400 and Na (10,000 mg/L) M13402 and brought up to volume using Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13487	Standard:	Na,K ICVLL
Analyst:	MDS	Concentrations:	3 mg/L (Na,K)
Prep Date:	05/07/2018	Expiration Date:	08/2019
Prep:	Into a 500 mL volumetric flask, pipetted **0.15 mL** of Na (10,000 µg/mL) M13402 and **0.15 mL** K (10,000 µg/mL) M13400 and brought to volume with Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13488	Standard:	Na,K MRL
Analyst:	MDS	Concentrations:	1 mg/L (Na,K)
Prep Date:	05/07/2018	Expiration Date:	05/2019
Prep:	Into a 500 mL volumetric flask, pipetted **0.5 mL** of Na (1000 µg/mL) M13339 and **0.5 mL** K (1000 µg/mL) M13340 and brought to volume with Milli-Q H_2O. (2% HNO_3)		

Standard ID#:	M13484	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	Y 10,000 mg/L
Date Received:	05/03/2018	Lot #:	1805105
Expiration Date (if any):	10/31/2019	Catalog #:	HP10M67-1

		Instrument:	ICP 6000
Standard Log #:	M13471	Standard:	B&Si ICAL
Analyst:	MDS	Concentrations:	50, 200, 1000, 2000 and 10,000 ug/L (B, Si)
Prep Date:	04/26/2018	Expiration Date:	07/2019
Prep:	Into five, 1 L volumetric flasks, pipetted the following from stock standards B (1000 mg/L) M13390 and Si (1000 mg/L) M13394 and brought up to volume using milli-Q H_2O. *50 ug/L std.* - **0.05 mL** of each *200 ug/L std.* - **0.2 mL** of each *1000 ug/L std.* -**1.0 mL** of each, also used for Continuing Calibration Verification *2000 ug/L std.* - **2.0 mL** of each *10,000 ug/L std.* -**10 mL** of each		

		Instrument:	ICP 6000
Standard Log #:	M13472	Standard:	B&Si ICV
Analyst:	MDS	Concentrations:	1000 ug/L (B, Si)
Prep Date:	04/26/2018	Expiration Date:	07/02/2018
Prep:	Into a 1 L volumetric flask, pipetted **10 mL** of Custom Assurance Std. #23 (100 mg/L Al, As, **B**, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13364 and **1.0 mL** Si (1000 mg/L) M13085 and brought up to volume using milli-Q H_2O.		

		Instrument:	ICP 6000
Standard Log #:	M13473	Standard:	B & Si ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (B,Si)
Prep Date:	04/26/2018	Expiration Date:	10/30/2018
Prep:	Into a 100 mL volumetric flask, pipetted **10 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13305 , **0.05 mL** of B (1000 µg/mL) M13390 , **0.05 mL** of Si (1000 µg/mL) M13394 and **3 mL** of Fe (10,000 mg/L) M13321 and brought up to volume using Milli-Q H_2O.		

Standard ID#:	M13467	Vendor:	CPI
Analyst:	NAH	Chemical:	Ca 10000 mg/L
Date Received:	04/20/2018	Lot #:	147497-47
Expiration Date (if any):	10/2019	Catalog #:	4400-10M91

Standard ID#:	M13468	Vendor:	FISHER
Analyst:	LJF	Chemical:	HYDROXYLAMINE SULFATE
Date Received:	04/24/2018	Lot #:	174236
Expiration Date (if any):		Catalog #:	H331-500

		Instrument:	CETAC
Standard Log #:	M13469	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	04/24/2018	Expiration Date:	04/24/2018
Prep:	Carefully mixed **3** parts HCl AB.656 with **1** part HNO_3 AB.655 in a hood.		

Standard ID#:	M13462	Vendor:	CPI
Analyst:	NAH	Chemical:	Al 10000 mg/L
Date Received:	04/20/2018	Lot #:	158058-23
Expiration Date (if any):	10/2019	Catalog #:	4400-10M11

Standard ID#:	M13463	Vendor:	CPI
Analyst:	NAH	Chemical:	Fe 10000 mg/L
Date Received:	04/20/2018	Lot #:	156651-18
Expiration Date (if any):	10/2019	Catalog #:	4400-10M261

Standard ID#:	M13464	Vendor:	CPI
Analyst:	NAH	Chemical:	Mg 10000 mg/L
Date Received:	04/20/2018	Lot #:	148250-67
Expiration Date (if any):	10/2019	Catalog #:	4400-10M311

Standard ID#:	M13465	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10000 mg/L
Date Received:	04/20/2018	Lot #:	172053-2
Expiration Date (if any):	10/2019	Catalog #:	4400-10M411

Standard ID#:	M13466	Vendor:	CPI
Analyst:	NAH	Chemical:	S 10000 mg/L
Date Received:	04/20/2018	Lot #:	129880-37
Expiration Date (if any):	10/2019	Catalog #:	4400-10M544

Standard ID#:	M13457	Vendor:	CPI
Analyst:	NAH	Chemical:	Barium 1000 mg/L
Date Received:	04/20/2018	Lot #:	158364-3
Expiration Date (if any):	10/2019	Catalog #:	S4400-100041

Standard ID#:	M13458	Vendor:	CPI
Analyst:	NAH	Chemical:	Ag 1000 mg/L
Date Received:	04/20/2018	Lot #:	162712-9
Expiration Date (if any):	10/2019	Catalog #:	S4400-1000511

Standard ID#:	M13459	Vendor:	CPI
Analyst:	NAH	Chemical:	Sb 1000 mg/L
Date Received:	04/20/2018	Lot #:	153992-1
Expiration Date (if any):	10/2019	Catalog #:	S4400-100023

Standard ID#:	M13460	Vendor:	CPI
Analyst:	NAH	Chemical:	Se 1000 mg/L
Date Received:	04/20/2018	Lot #:	154366-16
Expiration Date (if any):	10/2019	Catalog #:	S4400-1000491

Standard ID#:	M13461	Vendor:	CPI
Analyst:	NAH	Chemical:	Na 10000 mg/L
Date Received:	04/20/2018	Lot #:	107139-108
Expiration Date (if any):	10/2019	Catalog #:	4400-10M521

Standard Log #:	M13445	Reagent:	Potassium Persulfate Solution
Analyst:	LJF		
Prep Date:	04/19/2018	Expiration Date:	10/19/2018
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M12652 and brought up to volume.		

		Instrument:	Hach 2100 turbidity meter
Standard Log #:	M13446	Standard:	Turbity ICAL
Analyst:	NAH	Concentrations:	20, 100, 200 ntu
Prep Date:	04/19/2018	Expiration Date:	12/2019
Prep:	Using the hach vials , pipet the following: *20 ntu Std.* = **1 ml** M13436 and 9 mls DI H20. *100 ntu Std.* = **5 mls** M13436 and 5 mls DI H20. *200 ntu Std.* = ***10 mls*** M13436 *and* 0 mls DI H20.		

LPMT1-04
Metals Reagents and Standards
Prep Logbook
Created: 12/19/17

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Project: Unassigned
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		Instrument:	ICP 6000
Standard Log #:	M13438	Standard:	Sulfur ICAL
Analyst:	MDS	Concentrations:	1000 10,000 100,000 1000K µg/L (S)
Prep Date:	04/11/2018	Expiration Date:	07/2019
Prep:	Into four, 100 mL volumetric flasks, pipetted the following from stock standard S (10,000 µg/mL) M13391 and brought up to volume using milli-Q H_2O. *1000 ug/L std.* - **0.01 mL** *10,000 ug/L std.* - **0.1 mL** *100,000 ug/L std.* -**1.0 mL**, also used as the CCV *1000K ug/L std.* - **10 mL**		

		Instrument:	ICP 6000
Standard Log #:	M13439	Standard:	Sulfur ICV
Analyst:	MDS	Concentrations:	100,000 µg/L (S)
Prep Date:	04/11/2018	Expiration Date:	01/19/2019
Prep:	Into a 100 mL volumetric flask, pipetted **1.0 mL** of S (10,000 µg/mL) M13280 and brought up to volume using Milli-Q H_2O.		

Standard Log #:	M13437	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3050 B&Si Spiking Solution
Prep Date:	04/10/2018	Expiration Date:	07/19

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
B	52	M13390	1000	2.6
Si	192	M13394	1000	9.6

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Content below was appended to locked page by mszymanski on 4/19/2018 12:20:57 PM

Standard ID#:	M13436a	Vendor:	HACH
Analyst:	NAH	Chemical:	StablCal 200 NTU
Date Received:	04/10/2018	Lot #:	A7354
Expiration Date (if any):	12/2019	Catalog #:	2660449

Standard ID#:	M13400	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10,000 ug/mL
Date Received:	02/15/2018	Lot #:	106958-116
Expiration Date (if any):	08/2019	Catalog #:	4400-10M411

Standard ID#:	M13401	Vendor:	CPI
Analyst:	NAH	Chemical:	Y 10,000 ug/mL
Date Received:	02/15/2018	Lot #:	139448-54
Expiration Date (if any):	08/2019	Catalog #:	4400-10M671

Standard ID#:	M13402	Vendor:	CPI
Analyst:	NAH	Chemical:	Na 10,000 ug/mL
Date Received:	02/15/2018	Lot #:	107139-126
Expiration Date (if any):	08/2019	Catalog #:	4400-10M521

Standard Log #:	M13388	Reagent:	SPLP EXTRACTION FLUID EAST #
Analyst:	BMM	pH:	4.20 ± 0.05
Prep Date:	01/23/2018	Expiration Date:	01/23/2019
Prep:	Into a 20 L carboy filled with DI H_2O, adjust pH to 4.20 ± 0.05 using 60/40 SPLP extraction fluid acid mixture M12457 .		

Standard Log #:	M13389	Reagent:	SPLP EXTRACTION FLUID WEST #
Analyst:	BMM	pH:	5.00 ± 0.05
Prep Date:	01/23/2018	Expiration Date:	01/23/2019
Prep:	Into a 20 L carboy filled with DI H_2O, adjust pH to 5.00 ± 0.05 using 60/40 SPLP extraction fluid acid mixture M12457 .		

Standard ID#:	M13390	Vendor:	CPI
Analyst:	NAH	Chemical:	Boron 1000 ug/mL
Date Received:	01/23/2018	Lot #:	158372-29
Expiration Date (if any):	07/2019	Catalog #:	S4400-100074

Standard ID#:	M13391	Vendor:	CPI
Analyst:	NAH	Chemical:	Sulfur 10000 ug/mL
Date Received:	01/23/2018	Lot #:	129880-28
Expiration Date (if any):	07/2019	Catalog #:	4400-10M544

Standard ID#:	M13392	Vendor:	CPI
Analyst:	NAH	Chemical:	Arsenic 1000 ug/mL
Date Received:	01/23/2018	Lot #:	143356-61
Expiration Date (if any):	07/2019	Catalog #:	S4400-100031

Standard ID#:	M13393	Vendor:	CPI
Analyst:	NAH	Chemical:	Molybdenum 1000 ug/mL
Date Received:	01/23/2018	Lot #:	134169R-102
Expiration Date (if any):	07/2019	Catalog #:	S4400-1000343

Standard ID#:	M13394	Vendor:	CPI
Analyst:	NAH	Chemical:	Silicon 1000 ug/mL
Date Received:	01/23/2018	Lot #:	142610-58
Expiration Date (if any):	07/2019	Catalog #:	S4400-1000504F

Standard ID#:	M13350	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	Yttrium 10000 mg/L
Date Received:	12/12/2017	Lot #:	1729606
Expiration Date (if any):	06//2019	Catalog #:	10M67-1

Standard ID#:	M13226	Vendor:	FISHER
Analyst:	LJF	Chemical:	SODIUM CHLORIDE
Date Received:	07/21/2017	Lot #:	170229
Expiration Date (if any):		Catalog #:	S271-500

Standard ID#:	M13199	Vendor:	National Institute of Standards and Te
Analyst:	NAH	Chemical:	SRM Montana I soil
Date Received:	05/15/2017	Lot #:	2710a
Expiration Date (if any):		Catalog #:	

Standard ID#:	M13200	Vendor:	National Institute of Standards and Te
Analyst:	NAH	Chemical:	SRM Montana II soil
Date Received:	05/15/2017	Lot #:	2711a
Expiration Date (if any):		Catalog #:	

Standard ID#:	M13186	Vendor:	FISHER
Analyst:	LJF	Chemical:	HYDROXYLAMINE SULFATE
Date Received:	05/22/2017	Lot #:	166161
Expiration Date (if any):		Catalog #:	H331-500

Standard ID#:	M13187	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	Yttrium 10,000 ug/mL
Date Received:	05/22/2017	Lot #:	1705408
Expiration Date (if any):	11/16/2018	Catalog #:	HP10M67-1

Standard ID#:	M13080	Vendor:	FISHER
Analyst:	LJF	Chemical:	POTASSIUM PERMANGANATE
Date Received:	01/30/2017	Lot #:	164080
Expiration Date (if any):		Catalog #:	P279-212

Standard ID#:	M13059	Vendor:	ACROS ORGANICS
Analyst:	LJF	Chemical:	POTASSIUM PERSULFATE
Date Received:	12/19/2016	Lot #:	A0375670
Expiration Date (if any):		Catalog #:	424185000

Standard ID#:	M13024	Vendor:	METTLER TOLEDO
Analyst:	LJF	Chemical:	FRISCOLYT
Date Received:	11/01/2016	Lot #:	1B167D
Expiration Date (if any):		Catalog #:	51340053

INORGANIC
CLP FORMS
DOCUMENTS

CT LABORATORIES
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INORGANIC ANALYSIS DATA SHEET

Sample Description

54IDW

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	152892
% Solids:		Lab Sample ID:	413136
Analytical Method:	EPA 410.4	Date Received:	04/29/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	170862	Analysis Date/Time	05/04/2020 14:00
Analytical Prep Batch #:	76294	Prep. Date/Time:	05/04/2020 08:34
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers		DL	LOD	LOQ	RL
COD	COD	35	U	M	15	35	75	75

CT LABORATORIES
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INORGANIC ANALYSIS DATA SHEET

Sample Description

54IDW

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	152892
% Solids:		Lab Sample ID:	413136
Analytical Method:	EPA 9040C	Date Received:	04/29/2020
Dilution Factor:	1	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	170762	Analysis Date/Time	04/29/2020 14:20
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	S.U.

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
PH	pH	7.25					

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW1

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	152892
% Solids:		Lab Sample ID:	413135
Analytical Method:	EPA 9056A	Date Received:	04/29/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	170755	Analysis Date/Time	04/30/2020 09:19
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
16887-00-6	Chloride	2.6	J	1.0	1.5	3.0	3.0
14797-55-8	Nitrate Nitrogen	0.20	U	0.12	0.20	0.40	0.40
14808-79-8	Sulfate	28		0.80	1.5	3.0	3.0

CT LABORATORIES
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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW1

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	152892
% Solids:		Lab Sample ID:	413135
Analytical Method:	EPA 9060A	Date Received:	04/29/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	170826	Analysis Date/Time	05/01/2020 10:56
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL 0381	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TIC	Total Inorganic Carbon	56		0.50	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW1

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	152892
% Solids:		Lab Sample ID:	413135
Analytical Method:	EPA 9060A	Date Received:	04/29/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	170892	Analysis Date/Time	05/05/2020 13:41
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL 0381 I	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TOC	Total Organic Carbon	1.5	U	0.50	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW10

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	152892
% Solids:		Lab Sample ID:	413133
Analytical Method:	EPA 9060A	Date Received:	04/29/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	170826	Analysis Date/Time	05/01/2020 10:24
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL 0381	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TIC	Total Inorganic Carbon	63		0.50	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW10

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	152892
% Solids:		Lab Sample ID:	413133
Analytical Method:	EPA 9060A	Date Received:	04/29/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	170892	Analysis Date/Time	05/05/2020 12:34
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL 0381 I	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TOC	Total Organic Carbon	0.99	J	0.50	1.5	3.0	3.0

CT LABORATORIES
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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW10

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	152892
% Solids:		Lab Sample ID:	413133
Analytical Method:	EPA 9056A	Date Received:	04/29/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	170755	Analysis Date/Time	04/29/2020 17:37
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
16887-00-6	Chloride	5.5		1.0	1.5	3.0	3.0
14797-55-8	Nitrate Nitrogen	1.1		0.12	0.20	0.40	0.40
14808-79-8	Sulfate	52		0.80	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW12

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	152892
% Solids:		Lab Sample ID:	413134
Analytical Method:	EPA 9060A	Date Received:	04/29/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	170826	Analysis Date/Time	05/01/2020 10:40
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL 0381	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TIC	Total Inorganic Carbon	73		0.50	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW12

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	152892
% Solids:		Lab Sample ID:	413134
Analytical Method:	EPA 9060A	Date Received:	04/29/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	170892	Analysis Date/Time	05/05/2020 12:47
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL 0381 I	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TOC	Total Organic Carbon	1.5	U	0.50	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW12

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	152892
% Solids:		Lab Sample ID:	413134
Analytical Method:	EPA 9056A	Date Received:	04/29/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	170755	Analysis Date/Time	04/29/2020 17:57
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
16887-00-6	Chloride	7.4		1.0	1.5	3.0	3.0
14797-55-8	Nitrate Nitrogen	1.0		0.12	0.20	0.40	0.40
14808-79-8	Sulfate	28		0.80	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW13

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	152892
% Solids:		Lab Sample ID:	413129
Analytical Method:	EPA 9060A	Date Received:	04/29/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	170826	Analysis Date/Time	05/01/2020 09:56
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL 0381	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TIC	Total Inorganic Carbon	46		0.50	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW13

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	152892
% Solids:		Lab Sample ID:	413129
Analytical Method:	EPA 9060A	Date Received:	04/29/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	170892	Analysis Date/Time	05/05/2020 11:40
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL 0381 I	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TOC	Total Organic Carbon	1.5	U	0.50	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW13

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	152892
% Solids:		Lab Sample ID:	413129
Analytical Method:	EPA 9056A	Date Received:	04/29/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	170755	Analysis Date/Time	04/29/2020 16:59
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
16887-00-6	Chloride	5.6		1.0	1.5	3.0	3.0
14797-55-8	Nitrate Nitrogen	0.97		0.12	0.20	0.40	0.40
14808-79-8	Sulfate	21		0.80	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54TW13

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	152892
% Solids:		Lab Sample ID:	413132
Analytical Method:	EPA 9060A	Date Received:	04/29/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	170826	Analysis Date/Time	05/01/2020 10:10
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL 0381	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TIC	Total Inorganic Carbon	46		0.50	1.5	3.0	3.0

CT LABORATORIES
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INORGANIC ANALYSIS DATA SHEET

Sample Description

54TW13

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	152892
% Solids:		Lab Sample ID:	413132
Analytical Method:	EPA 9060A	Date Received:	04/29/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	170892	Analysis Date/Time	05/05/2020 11:56
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL 0381 I	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TOC	Total Organic Carbon	1.5	U	0.50	1.5	3.0	3.0

CT LABORATORIES
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INORGANIC ANALYSIS DATA SHEET

Sample Description

54TW13

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	152892
% Solids:		Lab Sample ID:	413132
Analytical Method:	EPA 9056A	Date Received:	04/29/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	170755	Analysis Date/Time	04/29/2020 17:18
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
16887-00-6	Chloride	5.6		1.0	1.5	3.0	3.0
14797-55-8	Nitrate Nitrogen	0.95		0.12	0.20	0.40	0.40
14808-79-8	Sulfate	21		0.80	1.5	3.0	3.0

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

ICV

2A-1

INITIAL CALIBRATION VERIFICATION

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170755 Lab Sample ID: 415268

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Chloride	4/23/20	15:07	15.00	13.79	92	90	110
Nitrate Nitrogen	4/23/20	15:07	3.500	3.332	95	90	110
Sulfate	4/23/20	15:07	25.00	23.20	93	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

ICV

2A-1

INITIAL CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170862

Lab Sample ID: 419032

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
COD	3/25/20 08:32	400.0	399.3	100	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170755 Lab Sample ID: 414005

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Chloride	4/29/20	14:43	15.00	14.21	95	90	110
Nitrate Nitrogen	4/29/20	14:43	3.500	3.430	98	90	110
Sulfate	4/29/20	14:43	25.00	23.56	94	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170755 Lab Sample ID: 414010

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Chloride	4/29/20	18:54	15.00	14.19	95	90	110
Nitrate Nitrogen	4/29/20	18:54	3.500	3.452	99	90	110
Sulfate	4/29/20	18:54	25.00	23.68	95	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170755

Lab Sample ID: 415270

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Chloride	4/30/20	08:21	15.00	14.21	95	90	110
Nitrate Nitrogen	4/30/20	08:21	3.500	3.420	98	90	110
Sulfate	4/30/20	08:21	25.00	23.50	94	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170755

Lab Sample ID: 415272

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Chloride	4/30/20	11:53	15.00	14.47	96	90	110
Nitrate Nitrogen	4/30/20	11:53	3.500	3.477	99	90	110
Sulfate	4/30/20	11:53	25.00	23.79	95	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170892

Lab Sample ID: 415563

ICAL Calibration #: ICAL 0381 I

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Total Organic Carbon	5/5/20	09:08	50.00	49.63	99	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170892 Lab Sample ID: 415569

ICAL Calibration #: ICAL 0381 I Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Total Organic Carbon	5/5/20	12:09	50.00	49.06	98	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170892 Lab Sample ID: 415574

ICAL Calibration #: ICAL 0381 I Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Total Organic Carbon	5/5/20	14:42	50.00	48.82	98	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170892

Lab Sample ID: 415577

ICAL Calibration #: ICAL 0381 I

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Total Organic Carbon	5/5/20	16:32	50.00	48.53	97	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170826

Lab Sample ID: 416144

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Total Inorganic Carbon	5/1/20	11:10	50.00	50.53	101	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170826

Lab Sample ID: 416145

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Total Inorganic Carbon	5/1/20	09:08	50.00	47.93	96	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170862

Lab Sample ID: 418489

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
COD	5/4/20	14:00	400.0	394.4	99	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170862

Lab Sample ID: 418491

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
COD	5/4/20	14:00	400.0	394.4	99	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

ICB

3-1

INITIAL CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170862

Lab Sample ID: 419033

Analytical Prep Batch #

Preparation Date/Time:

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
COD	03/25/2020 08:32	-9.200			35

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

3-1

ICB

INITIAL CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170755 Lab Sample ID: 415269

Analytical Prep Batch #: Preparation Date/Time:

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Chloride	04/23/2020 15:46	0.6169	U	1.0	1.5
Nitrate Nitrogen	04/23/2020 15:46	0.09870	U	0.12	0.20
Sulfate	04/23/2020 15:46	0	U	0.8	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170892

Lab Sample ID: 415570

Analytical Prep Batch # 0

Preparation Date/Time:

ICAL Calibration #: ICAL 0381 I

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total Organic Carbon	05/05/2020 12:23	0	U	0.5	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170892

Lab Sample ID: 415575

Analytical Prep Batch # 0

Preparation Date/Time:

ICAL Calibration #: ICAL 0381 I

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total Organic Carbon	05/05/2020 14:57	0	U	0.5	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170892 Lab Sample ID: 415578

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: ICAL 0381 I Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total Organic Carbon	05/05/2020 16:47	0	U	0.5	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170826

Lab Sample ID: 416143

Analytical Prep Batch #:

Preparation Date/Time:

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total Inorganic Carbon	05/01/2020 11:24	0	U	0.5	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170862 Lab Sample ID: 418490

Analytical Prep Batch #: Preparation Date/Time:

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
COD	05/04/2020 14:00	0.6000			35

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170862

Lab Sample ID: 418492

Analytical Prep Batch #:

Preparation Date/Time:

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
COD	05/04/2020 14:00	0.6000			35

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170755 Lab Sample ID: 414011

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Chloride	04/29/2020 19:14	0.6448	U	1.0	1.5
Nitrate Nitrogen	04/29/2020 19:14	0.09760	U	0.12	0.20
Sulfate	04/29/2020 19:14	0.7866	U	0.8	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170755

Lab Sample ID: 415271

Analytical Prep Batch #:

Preparation Date/Time:

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Chloride	04/30/2020 08:40	0.6226	U	1.0	1.5
Nitrate Nitrogen	04/30/2020 08:40	0	U	0.12	0.20
Sulfate	04/30/2020 08:40	0.7964	U	0.8	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170755 Lab Sample ID: 415273

Analytical Prep Batch #: Preparation Date/Time:

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Chloride	04/30/2020 12:12	0.5853	U	1.0	1.5
Nitrate Nitrogen	04/30/2020 12:12	0.09970	U	0.12	0.20
Sulfate	04/30/2020 12:12	0.7963	U	0.8	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170862 Lab Sample ID: 414432

Analytical Prep Batch # 76294 Preparation Date/Time: 05/04/2020 08:34

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total COD	05/04/2020 14:00	5.400	U	15	35

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170892 Lab Sample ID: 415565

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: ICAL 0381 I Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total Organic Carbon	05/05/2020 09:38	0	U	0.5	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170826 Lab Sample ID: 416151

Analytical Prep Batch #: Preparation Date/Time:

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total Inorganic Carbon	05/01/2020 09:36	0	U	0.5	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 152892

Analytical Run #: 170755 Lab Sample ID: 414007

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Chloride	04/29/2020 15:23	0.6206	U	1.0	1.5
Nitrate Nitrogen	04/29/2020 15:23	0	U	0.12	0.20
Sulfate	04/29/2020 15:23	0	U	0.8	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

5A

SPIKE SAMPLE RECOVERY

Sample Description

54IDW

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix: LIQUID
SDG No.: 152892
% Solids for Sample:
Concentration Units: mg/L
Sample No 414434
Parent Sample No.: 413136
Analytical Prep Batch # 76294
Analytical Preparation Date/Time: 05/04/2020 08:34
Analytical Run #: 170862
ICAL Calibration #:

Analysis Type *Initial Analysis* Analysis Date: ----- 05/04/2020 Analysis Time: -------- 14:00

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M	
COD	90-110	174		BDL	U	148	118		SP	*FAIL*

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

5A

SPIKE SAMPLE RECOVERY

Sample Description

54MW12

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix:	LIQUID	SDG No.:	152892
% Solids for Sample:		Concentration Units:	mg/L
Sample No	415572	Parent Sample No.:	413134
Analytical Prep Batch #	0	Analytical Preparation Date/Time:	
Analytical Run #:	170892	ICAL Calibration #:	ICAL 0381 I

Analysis Type	*Initial Analysis*	Analysis Date: -----	05/05/2020	Analysis Time: --------	13:15

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Total Organic Carbon	85-111	47.8		BDL	U	50.0	96		TOC

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

5A

SPIKE SAMPLE RECOVERY

Sample Description

54MW12

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix:	LIQUID	SDG No.:	152892
% Solids for Sample:		Concentration Units:	mg/L
Sample No	414009	Parent Sample No.:	413134
Analytical Prep Batch #	0	Analytical Preparation Date/Time:	
Analytical Run #:	170755	ICAL Calibration #:	

Analysis Type	*Initial Analysis*	Analysis Date: -----	04/29/2020	Analysis Time: --------	18:35

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Chloride	87-111	14.6		7.4		8.00	90		IC
Nitrate Nitrogen	88-111	3.04		1.0		2.00	102		IC
Sulfate	87-112	35.4		28		8.00	92		IC

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

5C

SPIKE DUPLICATE SAMPLE RECOVERY

Sample Description: **54IDW**

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix: LIQUID
SDG No.: 152892
% Solids for Sample:
Concentration Units: mg/L
Sample No: 414435
Parent Sample No.: 414434
Analytical Prep Batch #: 76294
Analytical Preparation Date/Time: 05/04/2020 08:34
Analytical Run #: 170862
ICAL Calibration #:

Analysis Type: *Initial Analysis* Analysis Date: ----- 05/04/2020 Analysis Time: -------- 14:00

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M	
COD	90-110	165		BDL	U	148	111		SP	*FAIL*

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

5C

SPIKE DUPLICATE SAMPLE RECOVERY

Sample Description

54MW12

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix:	LIQUID	SDG No.:	152892
% Solids for Sample:		Concentration Units:	mg/L
Sample No	415573	Parent Sample No.:	415572
Analytical Prep Batch #	0	Analytical Preparation Date/Time:	
Analytical Run #:	170892	ICAL Calibration #:	ICAL 0381 I

Analysis Type	*Initial Analysis*	Analysis Date: -----	05/05/2020	Analysis Time: --------	13:28

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Total Organic Carbon	85-111	46.7		BDL	U	50.0	93		TOC

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

5C

SPIKE DUPLICATE SAMPLE RECOVERY

Sample Description

54MW12

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix:	LIQUID	SDG No.:	152892
% Solids for Sample:		Concentration Units:	mg/L
Sample No	414012	Parent Sample No.:	414009
Analytical Prep Batch #	0	Analytical Preparation Date/Time:	
Analytical Run #:	170755	ICAL Calibration #:	

Analysis Type	*Initial Analysis*	Analysis Date: -----	04/30/2020	Analysis Time: --------	09:00

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Chloride	87-111	14.8		7.4		8.00	92		IC
Nitrate Nitrogen	88-111	3.05		1.0		2.00	102		IC
Sulfate	87-112	35.7		28		8.00	96		IC

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

6

DUPLICATES

Sample Description

54IDW

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

Matrix: LIQUID

SDG No.: 152892

% Solid for Sample:

Concentration Units: S.U.

Analytical Prep Batch # 1

Analytical Preparation Date/Time

Analytical Run #: 170762

ICAL Calibration #:

Sample #: 413737

Parent Sample #: 413136

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Original Parent Conc. (S)	C	Duplicate Conc. (D)	C	RPD	Q	M
pH	04/29/2020	14:20	1	7.25		7.22		0		ELEC

CT LABORATORIES
delivering more than data from your environmental analyses

6

DUPLICATES

Sample Description

54MW12

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

Matrix: LIQUID

SDG No.: 152892

% Solid for Sample:

Concentration Units: mg/L

Analytical Prep Batch # 1

Analytical Preparation Date/Time 0

Analytical Run #: 170892

ICAL Calibration #: ICAL 0381 I

Sample #: 415571

Parent Sample #: 413134

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Original Parent Conc. (S)	C	Duplicate Conc. (D)	C	RPD	Q	M
Total Organic Carbon	05/05/2020	13:00	20	0.50	U	0.50	U	0		TOC

CT LABORATORIES
delivering more than data from your environmental analyses

6

DUPLICATES

Sample Description

54MW12

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix: LIQUID
SDG No.: 152892
% Solid for Sample:
Concentration Units: mg/L
Analytical Prep Batch # 1
Analytical Preparation Date/Time 0
Analytical Run #: 170755
ICAL Calibration #:
Sample #: 414008
Parent Sample #: 413134

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Original Parent Conc. (S)	C	Duplicate Conc. (D)	C	RPD	Q	M
Chloride	04/29/2020	18:16	10	7.4		7.62		3		IC
Nitrate Nitrogen	04/29/2020	18:16	10	1.0		0.996		0		IC
Sulfate	04/29/2020	18:16	10	28		28.4		1		IC

CT LABORATORIES
delivering more than data from your environmental analyses

6A

MATRIX SPIKE DUPLICATES

Sample Description: **54IDW**

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix: LIQUID
SDG No.: 152892
% Solid for Sample:
Concentration Units: mg/L
Analytical Prep Batch #: 76294
Analytical Preparation Date/Time: 05/04/2020 08:34
Analytical Run #: 170862
ICAL Calibration #:
Sample #: 414435
Parent Sample #: 414434

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Matrix Spik Parent Conc. (S)	C	Matrix Spike Duplicate Conc. (D)	C	RPD	Q	M
COD	05/04/2020	14:00	20	174		165		6		SP

CT LABORATORIES
delivering more than data from your environmental analyses

6A

MATRIX SPIKE DUPLICATES

Sample Description: **54MW12**

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix: LIQUID
SDG No.: 152892
% Solid for Sample:
Concentration Units: mg/L
Analytical Prep Batch #: 0
Analytical Preparation Date/Time:
Analytical Run #: 170892
ICAL Calibration #: ICAL 0381 I
Sample #: 415573
Parent Sample #: 415572

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Matrix Spik Parent Conc. (S)	C	Matrix Spike Duplicate Conc. (D)	C	RPD	Q	M
Total Organic Carbon	05/05/2020	13:28	20	47.8		46.7		2		TOC

CT LABORATORIES
delivering more than data from your environmental analyses

6A

MATRIX SPIKE DUPLICATES

Sample Description: **54MW12**

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix: LIQUID
SDG No.: 152892
% Solid for Sample:
Concentration Units: mg/L
Analytical Prep Batch #: 0
Analytical Preparation Date/Time:
Analytical Run #: 170755
ICAL Calibration #:
Sample #: 414012
Parent Sample #: 414009

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Matrix Spik Parent Conc. (S)	C	Matrix Spike Duplicate Conc. (D)	C	RPD	Q	M
Chloride	04/30/2020	09:00	15	14.6		14.8		1		IC
Nitrate Nitrogen	04/30/2020	09:00	15	3.04		3.05		0		IC
Sulfate	04/30/2020	09:00	15	35.4		35.7		1		IC

CT LABORATORIES
delivering more than data from your environmental analyses

7-1

Sample No:

LABORATORY CONTROL SAMPLE - AQUEOUS

LCS

Lab Name: CT Laboratories Contract WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

LCS Source: SPEX and Ultra SDG No.: 152892

Concentration Units: mg/L

Analytical Run #: 170862 Sample No.:#: 414433

Analytical Prep Batch #: 76294 Preparation Date/Time: 05/04/2020 08:34

ICAL Calibration #:

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
COD	05/04/2020 14:00	90-110	423.8		400.0	106		SP

CT LABORATORIES
delivering more than data from your environmental analyses

7-1

Sample No:

LABORATORY CONTROL SAMPLE - AQUEOUS

LCS

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

LCS Source: SPEX and Ultra

SDG No.: 152892

Concentration Units: mg/L

Analytical Run #: 170892

Sample No.:#: 415564

Analytical Prep Batch #: 0

Preparation Date/Time:

ICAL Calibration #: ICAL 0381 I

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
Total Organic Carbon	05/05/2020 09:23	85-111	49.96		50.00	100		TOC

CT LABORATORIES
delivering more than data from your environmental analyses

7-1

Sample No:

LABORATORY CONTROL SAMPLE - AQUEOUS

LCS

Lab Name: CT Laboratories Contract WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

LCS Source: SPEX and Ultra SDG No.: 152892

Concentration Units: mg/L

Analytical Run #: 170826 Sample No.:#: 416150

Analytical Prep Batch #: Preparation Date/Time:

ICAL Calibration #:

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
Total Inorganic Carbon	05/01/2020 09:22	85-111	48.46		50.00	97		TOC

CT LABORATORIES
delivering more than data from your environmental analyses

7-1

Sample No:

LABORATORY CONTROL SAMPLE - AQUEOUS

LCS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

LCS Source: SPEX and Ultra SDG No.: 152892

Concentration Units: mg/L

Analytical Run #: 170755 Sample No.:#: 414006

Analytical Prep Batch #: 0 Preparation Date/Time:

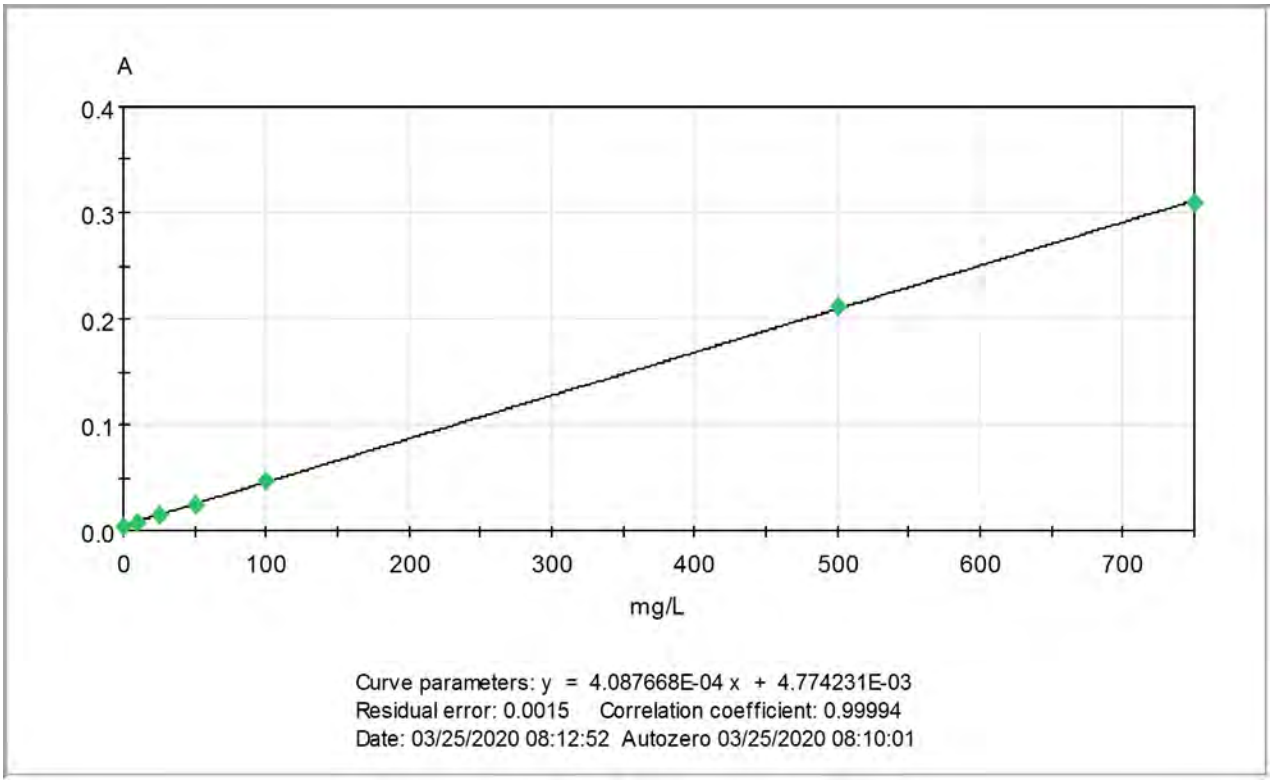
ICAL Calibration #:

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
Chloride	04/29/2020 15:03	87-111	14.36		15.00	96		IC
Nitrate Nitrogen	04/29/2020 15:03	88-111	3.381		3.500	97		IC
Sulfate	04/29/2020 15:03	87-112	23.78		25.00	95		IC

INORGANICS
RAW DATA
DOCUMENTS

Method: COD W48439.mqa (600 nm)
Last modified: 03/25/2020 08:13:56 by CTLABORATORIES
Spectrophotometer: GENESYS 30
Serial number: 9A1W117104
Firmware: 104
Autozero: 03/25/2020 08:14:58
Autozero: 03/25/2020 08:16:51
Autozero: 03/25/2020 08:18:06
Autozero: 03/25/2020 08:18:09
Measured: 03/25/2020 08:32:03 by CTLABORATORIES
Result filename: 169736 DATA.rqa



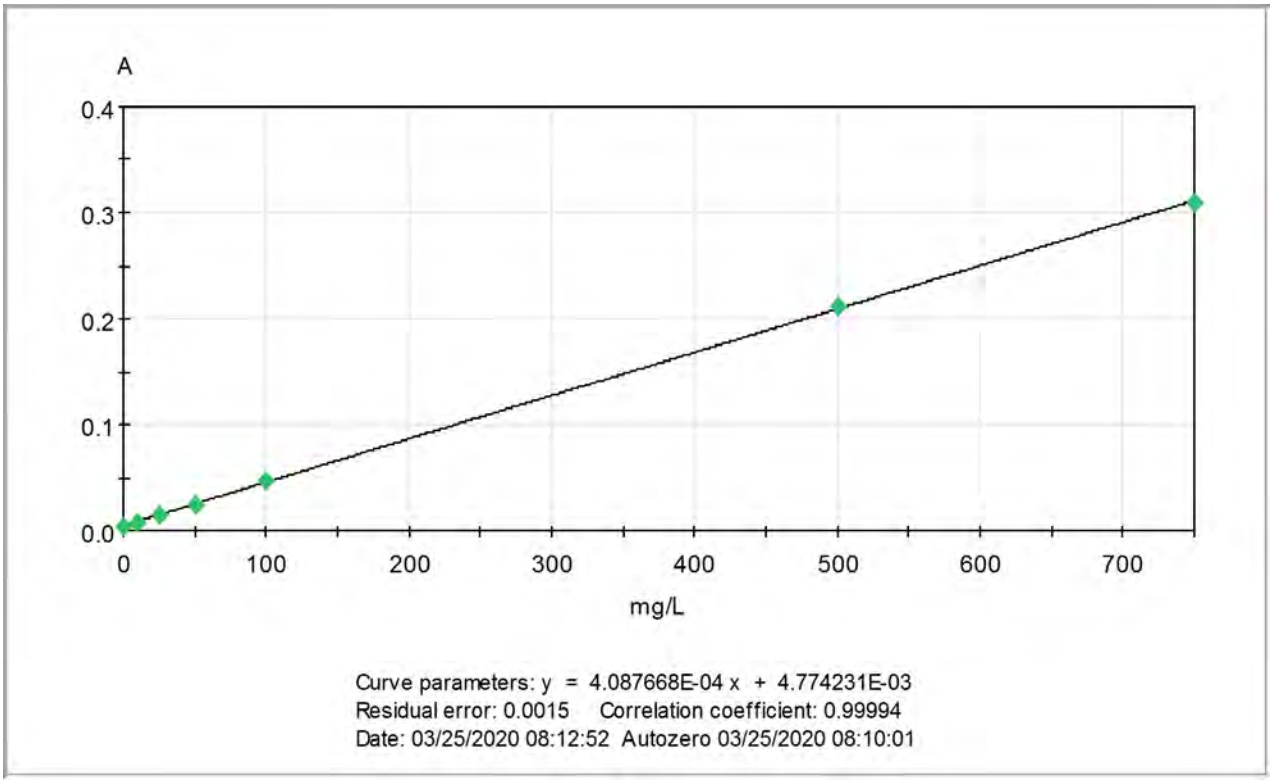
Standards

No.	Concentration [mg/L]	Ordinate [A]	Error [A]	Used
1	0.0	0.004	-0.001	Yes
2	10.0	0.008	-0.001	Yes
3	25.0	0.016	0.001	Yes
4	50.0	0.024	-0.001	Yes
5	100.0	0.047	0.001	Yes
6	500.0	0.211	0.002	Yes
7	750.0	0.310	-0.001	Yes

Sample	Dilution	Ordinate	Concentration

	Factor	[A]	[mg/L]
[illegible]		[illegible]	[illegible]
ICV	1	0.168	399.3
ICB	1	0.001	-9.2

Method: COD W48439.mqa (600 nm)
Last modified: 03/25/2020 08:13:56 by CTLABORATORIES
Spectrophotometer: GENESYS 30
Serial number: 9A1W117104
Firmware: 104
Autozero: 05/05/2020 10:01:12
Measured: 05/05/2020 10:10:42 by CTLABORATORIES
Result filename: 170861 862 DATA.rqa



Sample	Dilution Factor	Ordinate [A]	Concentration [mg/L]
CCV	1	0.167	396.9
CCB	1	0.003	-4.3
414422	1	0.178	423.8
414421	1	0.003	-4.3
412337 (X150)	1	0.179	426.2
412359 (X100)	1	0.154	365.1
412382	1	0.015	25.0
MSW412382		0.083	discarded
MSW412382	1	0.082	188.9
MSDW412382	1	0.083	191.4
413078 (X50)	1	0.091	210.9
413405	1	0.018	32.4
413662 (X100)	1	0.225	538.8
CCV	1	0.168	399.3
CCB	1	0.004	-1.9
413663 (X50)	1	0.031	64.2

413664 (X50)	1	0.240	575.5
413887	1	0.022	42.1
MSW413887	1	0.086	198.7
MSDW413887		0.108	discarded
MSDW413887	1	0.085	196.3
413888	1	0.120	281.9
413892	1	0.031	64.2
413893	1	0.023	44.6
413894	1	0.020	37.2
413896	1	0.006	3.0
CCV	1	0.170	404.2
CCB	1	0.005	0.6
413917 (X50)	1	0.144	340.6
CCV	1	0.166	394.4
CCB	1	0.005	0.6
414433	1	0.178	423.8
414432	1	0.007	5.4
413136	1	0.006	3.0
MSW413136	1	0.076	174.2
MSDW413136	1	0.072	164.5
413975	1	0.009	10.3
CCV	1	0.166	394.4
CCB	1	0.005	0.6

pH - Mettler Toledo Seven Easy

Date:	04/29/2020	Analyst:	HLB	Lims #:	170762	Slope (%)	97%

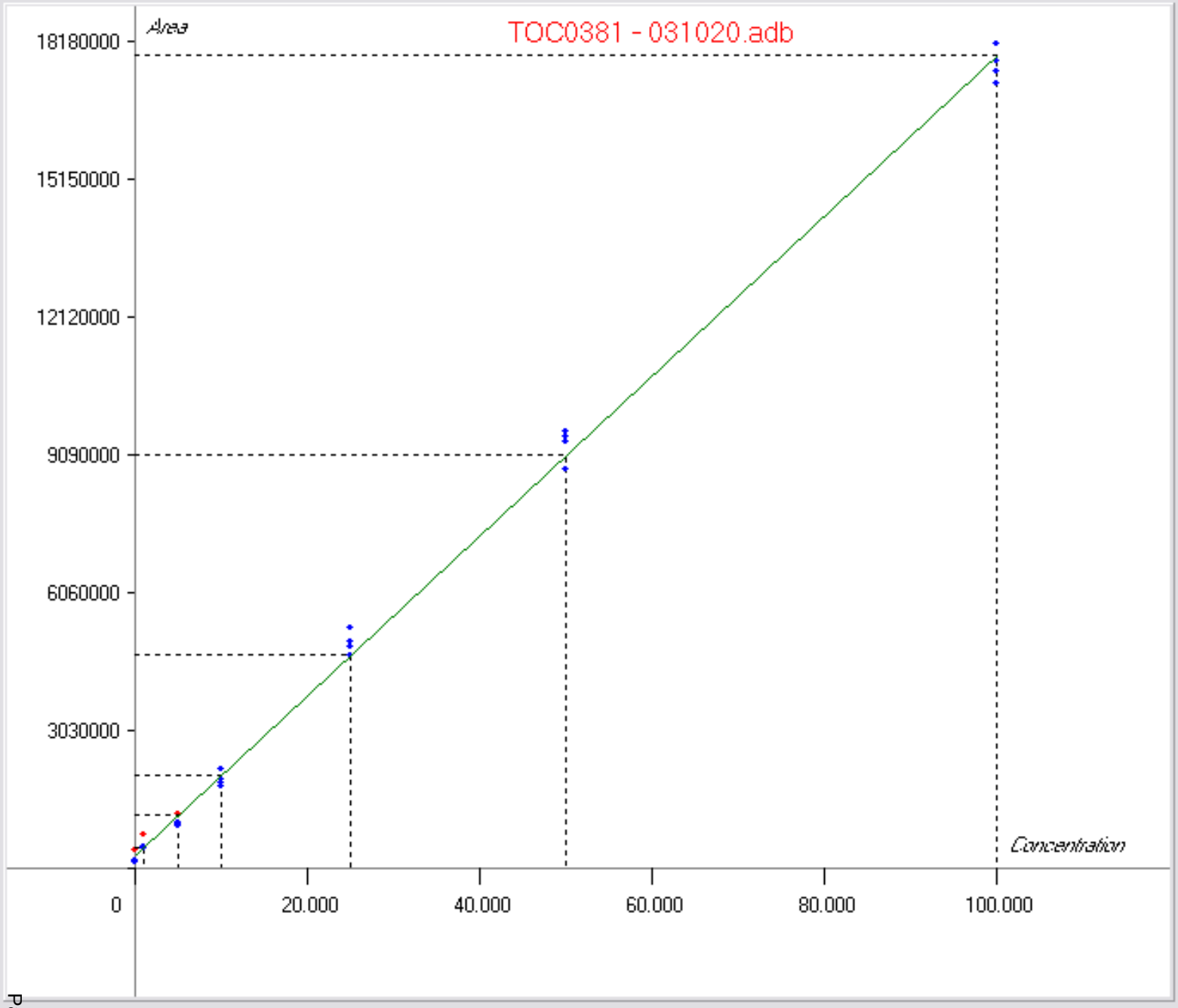
GRP	Sample ID#	Matrix	Temp (°C)*	Result	
1	BUFFER 7	QC	19.3	7.03	
2					
3					
4					
5					
6					
7	413076	WW	17.6	7.76	
8	413078	WW	13.8	7.10	
9	413170	WW	12.7	7.80	
10	413171	WW	14.0	10.89	
11	413172	WW	13.6	7.91	
dup 11	413172	WW	13.6	7.89	
12	BUFFER 7	QC	19.3	7.04	
13					
14					
15					
16					
17					
18					
19					
20					
21					
23	413136	GW	17.8	7.25	
dup 23	413136	GW	17.9	7.22	
24	BUFFER 7				
25					
dup 25					
26					
dup 26					

To datacapture: Save CSV file under the TSS datacapture folder.

*Temperature of samples should be room temperature around 25°C

Buffer Standard IDs:

pH 4: WC38 pH 7: WC70 pH 10: W46764



Cursor Position

Concentration	Area
115.200 mg/l	340875

A2	0
A1	175725
A0	310376
Correlation	0.99896
Order	1
Volume	100 µl
Conc.	100.00
Area	18164138

☐ Confidence Intervals 95%

☐ Detection/Determination 95%

Conc.	Area	Sel.
0	422661	☐
0	201520	☑
0	194563	☑
0	205412	☑
0	171881	☑
1	772926	☐
1	520333	☑
1	524604	☑

• Used Value
• Ignored Value

CurveNo:1 CurveType:TC

<-- --> Print... Exit

Analysis Name TOC0381 - 031020.adb

Template Name CURVE TEMP.tdb
Method Name N / A
Operator TMG

Date Wednesday, March 11, 2020
Time 9:29

Start Oven Temp. 711 °C
Start Cooler Temp. 2 °C

Version 2.55 Release
Info ICAL0381 INSTRUMENT:TOCW
CCV0379 LCS0380

Element	Integration Time	Samples	Extra Samples	Max. CV
Carbon	60 s	4	1	10 %
SampleTime	240 s			

No	Type	FileName	Date/Time	Max. Area	Max Conc.	Order	Correlation	Volume	Sel.
1	TC	This Analysis	Mar 11 2020, 9:29	18164138	100	1	0.99896	100 µl	Yes
	A2: 0		*A1: 175725.315032163*		*A0: 310375.939836697*				

Inj. Order	Position	Type	Identification	Dilution Factor
1	1	Unknown	BLANK	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**ZERO !**	**195852**	**33.87**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	3 11 2020 9:40:10	2.96	829690	1	750	2	-	-
2	3 11 2020 9:43:39	ZERO !	284651	1	754	2	-	Yes
3	3 11 2020 9:46:10	ZERO !	208220	1	756	2	-	Yes
4	3 11 2020 9:48:38	ZERO !	150077	1	758	2	-	Yes
5	3 11 2020 9:51:03	ZERO !	140460	1	759	2	-	Yes

Inj. Order	Position	Type	Identification	Dilution Factor
2	2	Unknown	BLANK	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**ZERO !**	**124849**	**11.55**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	3 11 2020 9:54:13	ZERO !	297283	1	761	2	-	-
2	3 11 2020 9:57:19	ZERO !	145012	1	762	2	-	Yes
3	3 11 2020 9:59:44	ZERO !	121692	1	763	2	-	Yes
4	3 11 2020 10:02:09	ZERO !	110727	1	763	2	-	Yes
5	3 11 2020 10:04:28	ZERO !	121965	1	763	2	-	Yes

Inj. Order	Position	Type	Identification	Dilution Factor
3	3	Unknown	BLANK	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**ZERO !**	**98642**	**33.18**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	3 11 2020 10:07:44	0.29	361052	1	764	2	-	-
2	3 11 2020 10:11:04	ZERO !	63632	1	764	2	-	Yes
3	3 11 2020 10:13:23	ZERO !	114252	1	764	2	-	Yes
4	3 11 2020 10:15:49	ZERO !	80455	1	764	2	-	Yes
5	3 11 2020 10:18:10	ZERO !	136231	1	763	2	-	Yes

Inj. Order	Position	Type	Identification	Dilution Factor
4	4	Unknown	BLANK	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**ZERO !**	**119501**	**11.64**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	3 11 2020 10:21:22	0.29	361440	1	763	2	-	-
2	3 11 2020 10:24:37	ZERO !	110326	1	762	2	-	Yes
3	3 11 2020 10:27:03	ZERO !	139571	1	762	2	-	Yes
4	3 11 2020 10:29:29	ZERO !	109911	1	761	2	-	Yes
5	3 11 2020 10:31:53	ZERO !	118199	1	761	2	-	Yes

5 5 Unknown BLANK 1 x

TC **ZERO !** **134877** **23.44** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	3 11 2020 10:35:02	0.28	359320	1	761	2	-	-
2	3 11 2020 10:38:14	ZERO !	91373	1	762	2	-	Yes
3	3 11 2020 10:40:36	ZERO !	165548	1	761	2	-	Yes
4	3 11 2020 10:43:09	ZERO !	147775	1	761	2	-	Yes
5	3 11 2020 10:45:31	ZERO !	134814	1	761	2	-	Yes

---

6 S1 Standard TC Std 0.00 mg/l 1 x

TC **ZERO !** **193344** **7.76** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	3 11 2020 10:48:43	0.64	422661	1	760	2	-	-
2	3 11 2020 10:51:56	ZERO !	201520	1	760	2	-	Yes
3	3 11 2020 10:54:22	ZERO !	194563	1	759	2	-	Yes
4	3 11 2020 10:56:46	ZERO !	205412	1	759	2	-	Yes
5	3 11 2020 10:59:12	ZERO !	171881	1	759	2	-	Yes

---

7 S2 Standard TC Std 1.00 mg/l 1 x

TC **1.14** **510575** **2.98** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	3 11 2020 11:02:28	2.63	772926	1	759	2	-	-
2	3 11 2020 11:05:47	1.19	520333	1	759	2	-	Yes
3	3 11 2020 11:08:19	1.22	524604	1	758	2	-	Yes
4	3 11 2020 11:10:54	1.03	490944	1	758	2	-	Yes
5	3 11 2020 11:13:24	1.12	506420	1	757	2	-	Yes

---

8 S3 Standard TC Std. 5.00 mg/l 1 x

TC **3.88** **992639** **2.90** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	3 11 2020 11:16:49	5.29	1240661	1	758	2	-	-
2	3 11 2020 11:20:18	3.80	978965	1	758	2	-	Yes
3	3 11 2020 11:22:58	3.85	986820	1	757	2	-	Yes
4	3 11 2020 11:25:33	3.75	970182	1	757	2	-	Yes
5	3 11 2020 11:28:12	4.12	1034592	1	757	2	-	Yes

---

9 S4 Standard TC Std. 10.00 mg/l 1 x

TC **9.62** **2000323** **8.23** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	3 11 2020 11:31:47	10.92	2229041	1	757	2	-	Yes
2	3 11 2020 11:35:20	9.15	1917757	1	756	2	-	Yes
3	3 11 2020 11:38:05	9.63	2003134	1	756	2	-	Yes
4	3 11 2020 11:40:51	8.77	1851360	1	756	2	-	Yes

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10 S5 Standard TC Std. 25.00 mg/l 1 x

TC **26.62** **4988451** **5.23** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	3 11 2020 11:44:34	28.59	5333765	1	756	2	-	Yes
2	3 11 2020 11:48:18	26.78	5016204	1	756	2	-	Yes
3	3 11 2020 11:51:24	26.05	4887673	1	755	2	-	Yes
4	3 11 2020 11:54:26	25.07	4716164	1	755	2	-	Yes

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11 S6 Standard TC Std. 50.00 mg/l 1 x

TC **51.44** **9349073** **3.99** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	3 11 2020 11:58:24	53.10	9641413	1	755	2	-	Yes
2	3 11 2020 12:02:18	48.34	8804449	1	755	2	-	Yes
3	3 11 2020 12:05:23	51.89	9428399	1	755	2	-	Yes
4	3 11 2020 12:08:31	52.42	9522032	1	754	2	-	Yes

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12 S7 Standard TC Std. 100.00 mg/l 1 x

TC **98.97** **17701760** **2.11** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	3 11 2020 12:12:40	101.60	18164138	1	754	2	-	Yes
2	3 11 2020 12:16:51	96.59	17284360	1	754	2	-	Yes

3	3 11 2020 12:20:15	99.53	17799645	1	754	2	-	Yes
4	3 11 2020 12:23:36	98.16	17558897	1	754	2	-	Yes

13 S8 Unknown ICV - 50.00 mg/L 1 x

TC **47.90** **8727437** **3.17** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	3 11 2020 12:27:57	48.11	8765237	1	754	2	-	Yes
2	3 11 2020 12:31:56	46.41	8465854	1	753	2	-	Yes
3	3 11 2020 12:35:16	47.06	8579342	1	753	2	-	Yes
4	3 11 2020 12:38:28	50.02	9099315	1	753	2	-	Yes

14 S9 Unknown ICB 1 x

TC **ZERO !** **240608** **19.03** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	3 11 2020 12:42:30	1.02	489488	1	753	2	-	-
2	3 11 2020 12:45:56	ZERO !	245925	1	753	2	-	Yes
3	3 11 2020 12:48:23	ZERO !	196992	1	753	2	-	Yes
4	3 11 2020 12:50:53	ZERO !	217190	1	752	2	-	Yes
5	3 11 2020 12:53:11	ZERO !	302325	1	752	2	-	Yes

Analysis Name 050120 - 170826.adb

Template Name 0501201 - 170826.tdb
Method Name N / A
Operator TMG

Date Friday, May 1, 2020
Time 8:48

Start Oven Temp. 703 °C
Start Cooler Temp. 2 °C

Version 2.55 Release
Info ICAL 0381 INST:TOCW
CCV 0390 LCS 0391 SPIKE 0359

Element	Integration Time	Samples	Extra Samples	Max. CV
Carbon	60 s	4	1	10 %

SampleTime 240 s

No	Type	FileName	Date/Time	Max. Area	Max Conc.	Order	Correlation	Volume	Sel.
1	TC	TOC0381 - 031020	Mar 11 2020, 9:29	18164138	100	1	0.99896	100 µl	Yes
	A2: 0		*A1: 175725.315032163*		*A0: 310375.939836697*				

Inj. Order	Position	Type	Identification	Dilution Factor
1	1	Unknown	IB	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**0.00**	**0**	**0.00**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	5 1 2020 8:48:31	0	0	0	704	2	-	Yes
2	5 1 2020 8:53:08	0	0	0	716	2	-	Yes
3	5 1 2020 8:57:09	0	0	0	724	2	-	Yes
4	5 1 2020 9:01:12	ZERO !	61221	1	731	2	-	-
5	5 1 2020 9:03:29	0	0	0	734	2	-	Yes

Inj. Order	Position	Type	Identification	Dilution Factor
2	S1	Unknown	CCV	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**47.93**	**8733813**	**1.98**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	5 1 2020 9:08:22	47.42	8644078	1	740	2	-	Yes
2	5 1 2020 9:12:10	46.81	8536305	1	743	2	-	Yes
3	5 1 2020 9:15:14	48.89	8902062	1	746	2	-	Yes
4	5 1 2020 9:18:24	48.61	8852810	1	748	2	-	Yes

Inj. Order	Position	Type	Identification	Dilution Factor
3	S5	Unknown	LCSW	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**48.46**	**8827183**	**2.05**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	5 1 2020 9:22:25	47.83	8715637	1	751	2	-	Yes
2	5 1 2020 9:26:24	49.94	9085936	1	752	2	-	Yes
3	5 1 2020 9:29:26	48.40	8815655	1	754	2	-	Yes
4	5 1 2020 9:32:38	47.69	8691507	1	754	2	-	Yes

Inj. Order	Position	Type	Identification	Dilution Factor
4	2	Unknown	MBW	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**0.00**	**0**	**0.00**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	5 1 2020 9:36:30	ZERO !	84758	1	755	2	-	-
2	5 1 2020 9:39:28	0	0	0	756	2	-	Yes
3	5 1 2020 9:43:31	0	0	0	757	2	-	Yes
4	5 1 2020 9:47:33	0	0	0	757	2	-	Yes
5	5 1 2020 9:51:34	0	0	0	758	2	-	Yes

Inj. Order	Position	Type	Identification	Dilution Factor
5	3	Unknown	413129	1 x

		TC	**45.82**	**8362191**		**4.36**		**100 µl**	
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	5 1 2020 9:56:27	48.91	8904611	1	759	2	-	Yes
	2	5 1 2020 10:00:33	44.68	8161759	1	759	2	-	Yes
	3	5 1 2020 10:03:46	44.52	8133620	1	758	2	-	Yes
	4	5 1 2020 10:06:51	45.18	8248775	1	758	2	-	Yes

6	4	Unknown	413132		1 x

		TC	**45.73**	**8346183**		**2.33**		**100 µl**	
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	5 1 2020 10:10:47	46.91	8553182	1	758	2	-	Yes
	2	5 1 2020 10:14:43	44.31	8096945	1	758	2	-	Yes
	3	5 1 2020 10:17:50	46.19	8427881	1	757	2	-	Yes
	4	5 1 2020 10:21:00	45.50	8306725	1	757	2	-	Yes

7	5	Unknown	413133		1 x

		TC	**64.16**	**11584427**		**1.64**		**100 µl**	
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	5 1 2020 10:24:59	65.76	11866775	1	756	2	-	Yes
	2	5 1 2020 10:29:14	63.42	11455126	1	756	2	-	Yes
	3	5 1 2020 10:32:31	63.68	11500411	1	756	2	-	Yes
	4	5 1 2020 10:35:58	63.76	11515396	1	756	2	-	Yes

8	6	Unknown	413134		1 x

		TC	**73.15**	**13164445**		**1.63**		**100 µl**	
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	5 1 2020 10:40:03	74.93	13477114	1	756	2	-	Yes
	2	5 1 2020 10:44:41	72.44	13040020	1	756	2	-	Yes
	3	5 1 2020 10:48:17	72.27	13009711	1	756	2	-	Yes
	4	5 1 2020 10:51:40	72.96	13130935	1	756	2	-	Yes

9	7	Unknown	413135		1 x

		TC	**56.13**	**10174438**		**1.97**		**100 µl**	
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	5 1 2020 10:56:12	57.35	10387672	1	756	2	-	Yes
	2	5 1 2020 11:00:10	56.56	10248885	1	756	2	-	Yes
	3	5 1 2020 11:03:17	54.64	9911328	1	756	2	-	Yes
	4	5 1 2020 11:06:17	55.99	10149870	1	755	2	-	Yes

10	S1	Unknown	CCV		1 x

		TC	**50.53**	**9189276**		**0.91**		**100 µl**	
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	5 1 2020 11:10:14	51.11	9290911	1	755	2	-	Yes
	2	5 1 2020 11:14:22	50.70	9218796	1	755	2	-	Yes
	3	5 1 2020 11:17:36	50.30	9148783	1	755	2	-	Yes
	4	5 1 2020 11:20:57	50.01	9098614	1	755	2	-	Yes

11	8	Unknown	CCB		1 x

		TC	**ZERO !**	**106563**		**10.05**		**100 µl**	
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	5 1 2020 11:24:59	ZERO !	254698	1	754	2	-	-
	2	5 1 2020 11:28:05	ZERO !	107988	1	754	2	-	Yes
	3	5 1 2020 11:30:29	ZERO !	121094	1	754	2	-	Yes
	4	5 1 2020 11:32:49	ZERO !	99972	1	754	2	-	Yes
	5	5 1 2020 11:35:11	ZERO !	97201	1	754	2	-	Yes

Analysis Name 050520 - 170892.adb

Template Name 050520 - 170892.tdb
Method Name N / A
Operator TMG

Date Tuesday, May 5, 2020
Time 8:43

Start Oven Temp. 738 °C
Start Cooler Temp. 2 °C

Version 2.55 Release
Info ICAL 0381 INST: TOCW
CCV 0390 LCS 0391 SPIKE 0359

Element	Integration Time	Samples	Extra Samples	Max. CV
Carbon	60 s	4	1	10 %

SampleTime 240 s

No	Type	FileName	Date/Time	Max. Area	Max Conc.	Order	Correlation	Volume	Sel.
1	TC	TOC0381 - 031020	Mar 11 2020, 9:29	18164138	100	1	0.99896	100 µl	Yes
	A2: 0		*A1: 175725.315032163*		*A0: 310375.939836697*				

Inj. Order	Position	Type	Identification	Dilution Factor
1	1	Unknown	IB	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**ZERO !**	**163556**	**12.42**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	5 5 2020 8:54:20	0.27	357410	1	747	2	-	-
2	5 5 2020 8:57:52	ZERO !	171901	1	748	2	-	Yes
3	5 5 2020 9:00:22	ZERO !	149180	1	749	2	-	Yes
4	5 5 2020 9:02:49	ZERO !	188294	1	750	2	-	Yes
5	5 5 2020 9:05:19	ZERO !	144849	1	751	2	-	Yes

2	S1	Unknown	CCV	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**49.63**	**9031586**	**1.01**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	5 5 2020 9:08:38	49.62	9029406	1	753	2	-	Yes
2	5 5 2020 9:12:49	50.26	9142562	1	755	2	-	Yes
3	5 5 2020 9:16:10	49.00	8920169	1	755	2	-	Yes
4	5 5 2020 9:19:22	49.64	9034210	1	755	2	-	Yes

3	S5	Unknown	LCSW	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**49.96**	**9090269**	**1.01**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	5 5 2020 9:23:26	50.70	9218798	1	757	2	-	Yes
2	5 5 2020 9:27:32	49.85	9070428	1	757	2	-	Yes
3	5 5 2020 9:30:45	49.46	9002387	1	758	2	-	Yes
4	5 5 2020 9:33:54	49.85	9069463	1	757	2	-	Yes

4	2	Unknown	MBW	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**ZERO !**	**229779**	**29.37**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	5 5 2020 9:38:02	ZERO !	271077	1	758	2	-	Yes
2	5 5 2020 9:41:30	ZERO !	171562	1	758	2	-	Yes
3	5 5 2020 9:44:00	ZERO !	303159	1	758	2	-	Yes
4	5 5 2020 9:46:32	ZERO !	173320	1	758	2	-	Yes
5	5 5 2020 9:49:04	0	0	0	758	2	-	-

13	11	Unknown	413129				1 x		
		TC	**ZERO !**	**252595**		**49.52**		**100 µl**	
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	5 5 2020 11:40:57	0.28	358954	1	753	2	-	Yes
	2	5 5 2020 11:43:49	ZERO !	292362	1	752	2	-	Yes
	3	5 5 2020 11:45:59	ZERO !	71453	1	752	2	-	Yes
	4	5 5 2020 11:49:42	ZERO !	287614	1	752	2	-	Yes
	5	5 5 2020 11:51:52	0	0	0	752	2	-	-

14	12	Unknown	413132				1 x		
		TC	**ZERO !**	**287668**		**10.18**		**100 µl**	
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	5 5 2020 11:56:44	0.11	329537	1	753	2	-	Yes
	2	5 5 2020 11:59:36	ZERO !	261854	1	752	2	-	Yes
	3	5 5 2020 12:01:47	ZERO !	283103	1	752	2	-	Yes
	4	5 5 2020 12:03:59	ZERO !	276181	1	752	2	-	Yes
	5	5 5 2020 12:06:08	ZERO !	87882	1	752	2	-	-

15	S1	Unknown	CCV				1 x		
		TC	**49.06**	**8931049**		**1.76**		**100 µl**	
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	5 5 2020 12:09:13	48.32	8800580	1	752	2	-	Yes
	2	5 5 2020 12:12:56	48.96	8914513	1	752	2	-	Yes
	3	5 5 2020 12:16:03	48.61	8852463	1	752	2	-	Yes
	4	5 5 2020 12:19:08	50.34	9156643	1	752	2	-	Yes

16	13	Unknown	CCB				1 x		
		TC	**ZERO !**	**248226**		**3.34**		**100 µl**	
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	5 5 2020 12:23:09	ZERO !	257945	1	752	2	-	Yes
	2	5 5 2020 12:26:07	ZERO !	250136	1	752	2	-	Yes
	3	5 5 2020 12:28:23	ZERO !	237934	1	751	2	-	Yes
	4	5 5 2020 12:30:39	ZERO !	246890	1	751	2	-	Yes

17	14	Unknown	413133				1 x		
		TC	**0.99**	**485149**		**12.40**		**100 µl**	
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	5 5 2020 12:34:19	1.50	574311	1	751	2	-	Yes
	2	5 5 2020 12:37:29	0.75	442590	1	751	2	-	Yes
	3	5 5 2020 12:39:52	0.88	464609	1	751	2	-	Yes
	4	5 5 2020 12:42:15	0.85	459089	1	750	2	-	Yes
	5	5 5 2020 12:44:37	ZERO !	146925	1	750	2	-	-

18	15	Unknown	413134				1 x		
		TC	**0.25**	**354116**		**10.78**		**100 µl**	
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	5 5 2020 12:47:51	0.49	396672	1	751	2	-	Yes
	2	5 5 2020 12:50:52	0.37	374785	1	751	2	-	Yes
	3	5 5 2020 12:53:11	0.02	314307	1	750	2	-	Yes
	4	5 5 2020 12:55:26	0.12	330701	1	750	2	-	Yes
	5	5 5 2020 12:57:40	ZERO !	79903	1	750	2	-	-

19	16	Unknown	DUP413134				1 x		
		TC	**ZERO !**	**309752**		**28.28**		**100 µl**	
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	5 5 2020 13:00:46	0.46	390670	1	751	2	-	Yes
	2	5 5 2020 13:03:41	0.13	332829	1	751	2	-	Yes
	3	5 5 2020 13:05:54	0.11	330320	1	751	2	-	Yes
	4	5 5 2020 13:08:05	ZERO !	172873	1	750	2	-	-
	5	5 5 2020 13:12:06	ZERO !	185191	1	750	2	-	Yes

20	17	Unknown	MSW413134				1 x		

		TC	**47.81**	**8710977**	**2.11**			**100 µl**	
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	5 5 2020 13:15:13	48.90	8902668	1	751	2	-	Yes
	2	5 5 2020 13:18:51	48.23	8786210	1	751	2	-	Yes
	3	5 5 2020 13:21:45	46.43	8468708	1	751	2	-	Yes
	4	5 5 2020 13:24:39	47.67	8686324	1	751	2	-	Yes

21	18	Unknown	MSDW413134		1 x

		TC	**46.67**	**8510551**	**0.48**			**100 µl**	
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	5 5 2020 13:28:29	46.71	8518208	1	751	2	-	Yes
	2	5 5 2020 13:32:06	46.91	8553222	1	751	2	-	Yes
	3	5 5 2020 13:35:00	46.70	8515916	1	750	2	-	Yes
	4	5 5 2020 13:37:54	46.35	8454858	1	750	2	-	Yes

27	S1	Unknown	CCV		1 x

		TC	**48.82**	**8888801**	**0.42**			**100 µl**	
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	5 5 2020 14:42:27	48.56	8842789	1	752	2	-	Yes
	2	5 5 2020 14:46:23	49.07	8932991	1	752	2	-	Yes
	3	5 5 2020 14:49:36	48.85	8894793	1	751	2	-	Yes
	4	5 5 2020 14:52:56	48.79	8884632	1	752	2	-	Yes

28	24	Unknown	CCB					1 x	
		TC	**ZERO !**	**280236**		**10.30**		**100 µl**	
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	5 5 2020 14:57:01	0.07	322411	1	752	2	-	Yes
	2	5 5 2020 15:00:08	ZERO !	258263	1	752	2	-	Yes
	3	5 5 2020 15:02:28	ZERO !	266158	1	751	2	-	Yes
	4	5 5 2020 15:04:49	ZERO !	274115	1	751	2	-	Yes
	5	5 5 2020 15:07:06	0	0	0	751	2	-	-

35	S2	Unknown	CCV			1 x
		TC	**48.53**	**8838977**	**0.94**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	5 5 2020 16:32:19	48.16	8773365	1	753	2	-	Yes
2	5 5 2020 16:36:16	48.18	8776707	1	753	2	-	Yes
3	5 5 2020 16:39:25	48.64	8857130	1	753	2	-	Yes
4	5 5 2020 16:42:37	49.16	8948707	1	753	2	-	Yes

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36 31 Unknown CCB 1 x

TC **ZERO !** **305795** **8.01** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	5 5 2020 16:47:02	0.10	328770	1	753	2	-	Yes
2	5 5 2020 16:50:09	ZERO !	276384	1	752	2	-	Yes
3	5 5 2020 16:52:24	ZERO !	295089	1	752	2	-	Yes
4	5 5 2020 16:54:44	0.07	322940	1	752	2	-	Yes

INORGANICS
LOGBOOK
DOCUMENTS

WCOD QSM Analytical Run
170862 on 05/14/2020

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME		QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	419032								WCOD QSM				
					ICV								
	419033								WCOD QSM				
					ICB								
152892	413136		04/28/2020	1438			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	COD QSM		GW	4	
		54IDW								76294			
	413975		04/30/2020	1515					COD QSM		GW		
		49IDW								76294			
	414432								COD QSM				
					MBW					76294			
	414433								COD QSM				
					LCSW					76294			
	414434		04/28/2020	1438					COD QSM				
		54IDW			MSW	413136				76294			
	414435		04/28/2020	1438					COD QSM				
		54IDW			MSDW	414434				76294			
	418489								WCOD QSM				
					CCV								
	418490								WCOD QSM				
					CCB								
	418491								WCOD QSM				
					CCV								
	418492								WCOD QSM				
					CCB								

12 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

PREP WORKSHEET
on 05/14/2020

Prep Batch **76,294** Date Prepped: 05/04/2020 Prepped By ATJ

Folder #	Order	QC Type	Link	Test	Matrix	Volume	Weight	Initial Volume	SDG Level	Notes
	414432	MBW		COD QSM	LIQUID					
	414433	LCSW		COD QSM	LIQUID					
152892	413136			COD QSM	GROUND WATER				4	
	413975			COD QSM	GROUND WATER				4	
	414434	MSW	413136	COD QSM	GROUND WATER					
	414435	MSDW	414434	COD QSM	GROUND WATER					

Notes:_____

COD Data Validation Checklist

		Method: Chemical Oxygen Demand EPA 410.4			
LIMS Run #(s)	**Analysis Date**	**Analyst / Data Interpreter**	**Independent Reviewer**	**Date of Review**	**Approved? (Yes or No)**
17082	05/04/2020	ATJ	etk	05/14/2020	yes

Instructions: Complete one checklist per *analytical run* . Enter the appropriate response for each question.
Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirement:	**Acceptance Criteria**	**Analyst Review**		**Independent Review**		**Comments:**
		Yes	No	Yes	No	(indicate reference to an attachment if necessary)
1. Does a digestion sheet accompany the data package?	---	Yes		Yes		
2. Does the digestion sheet include all reagent and standard prep log numbers?	---	Yes		Yes		
3. Was a passing calibration test applied to sample analysis?	≥0.995	Yes		Yes		
4. Was a passing ICV analyzed immediately after the calibration?	90-110%	Yes		Yes		
5. Was a passing ICB analyzed immediately after the ICV?	< |LOD|or client/project specific	Yes		Yes		
6. Were CCVs and CCB analyzed at the required frequency?	1 per 10 samples	Yes		Yes		
7. Did analyzed CCVs meet the required acceptance criteria?	90-110%	Yes		Yes		
8. Did analyzed CCBs meet the acceptance criteria?	< |LOD|or client/project specific	Yes		Yes		
9. Was a Method Blank prepared at the required frequency?	1per 20 samples or at contract/program specific frequencies	Yes		Yes		
10. Was the method blank within acceptance criteria?	< |LOD|or client/project specific	Yes		Yes		
11. Was an LCS prepared at the required frequency?	1per 20 samples or at contract/program specific frequencies	Yes		Yes		
12. Did the LCS meet the acceptance criteria?	90-110% or Within in-house or contract/program specific limits	Yes		Yes		
13. Was an MS and MSD prepared at the required frequency?	1per 10 per batch or at contract/program specific frequencies	Yes		Yes		
14. Did the MS/ MSD's meet the acceptance criteria?	90-110% or Within in-house or contract/program specific limits		No		No	413136 MS/MSD failed high - parent sample M flagged

15. Did the MS/MSD's meet the RPD criteria?	Within in-house or contract/program specific limits	Yes		Yes		
16. Was a Duplicate prepared at the required frequency?	1per 10 per batch or at contract/program specific frequencies	Yes		NA		
17. Did the Duplicate meet the RPD criteria?	Within in-house or contract/program specific limits	Yes		NA		
18. Were the samples digested within hold time?	28 days	Yes		Yes		
19. Was the max temperature(s) for reactor(s) documented?	---	Yes		Yes		
20. Was the method specifed temperature reached?		Yes		Yes		
21. Were reagents/standards used before expiration date?	---	Yes		Yes		
22. Are all samples on the job lists accounted for?	---	Yes		Yes		

CHEMICAL OXYGEN DEMAND REAGENT LOG

Prep Batch(es): 76293 76294
Date/Time/Analyst: 05-04-2020 14:00 ATJ
Run(s): 170861 862
Date/Time/Analyst: 05-05-2020 10:00 ATJ

Reagents:	W #	Exp Date
ICAL Preparation	W48439	06/23/2020
CCV Preparation	W48440	06/23/2020
LCS/ICV Preparation	W48441	06/23/2020
Silver Sulfate Acid	W48027	12/31/2020
Potassium Dichromate Dig Solution	W47821	11/19/2020

Spiked Samples:	W #	Exp Date
Spiking Solution	W48441	06/23/2020

Concentration..... 2000 mg/L
Volume of Spike Used... 0.2 mL
Final Sample Volume..... 2.5 mL
Final Spike Concentration... 148.2 mg/L

Date: 05/04/2020
Time: 14:00

COD DIGESTION BLOCK TEMPS

	A	B
Temperature (Max) 150°C ± 2°C:		148

	E	D
Temperature (Max) 150°C ± 2°C:	149.5	

GENESYS 30 Instrument Run Logbook

Date	Start Time	End Time	Analyst	Test/Analyte	Calibration Test #	Run #/ Comments	Maintenance	Review
01/27/20	8:30	15:15	ATJ	COD	COD W47962	168418		4-21-2020 HLB
02/04/20	7:45	08:16	ATJ	COD	COD W47962	168575 576		4-21-2020 HLB
02/11/20	10:00	10:30	ATJ	COD	COD W47963	168726 727		4-21-2020 HLB
02/18/20	8:00	08:13	ATJ	COD	COD W47963	168864		4-21-2020 HLB
02/25/20	13:30	13:50	ATJ	COD	COD W47964	169007		4-21-2020 HLB
03/09/20	14:00	14:30	ATJ	COD	COD W47964	169344		4-21-2020 HLB
03/13/20	13:10	14:00	HLB	PERMANGANATE	PERM W48391	169531		4-21-2020 HLB
03/18/20	7:45	09:00	ATJ	COD	COD W47964	169582		4-21-2020 HLB
03/25/20	8:05	08:45	ATJ	COD	COD W48439	169736 738 739		4-21-2020 HLB
03/31/20	14:00	14:10	ATJ	COD	COD W48439	169983		4-21-2020 HLB
04/14/20	8:45	09:20	ATJ	COD	COD W48439	170117		4-21-2020 HLB
04/15/20	10:30	10:50	ATJ	COD	COD W48439	170310		4-21-2020 HLB
04/28/20	8:30	08:55	ATJ	COD	COD W48439	170675 676		
05/05/20	9:50	10:11	ATJ	COD	COD W48439	170861 862		
05/12/20	9:00	09:20	ATJ	COD	COD W48439	171068		

Standard Log #:	W48439	Standard/Reagent:	COD Ical/CCV Stock Std.
Analyst:	ATJ	Concentration:	1,000 mg/L
Prep Date:	03-23-2020	Expiration Date (3 Months):	06-23-2020
PREP		Standards/Reagents Used	
Into a 500mL volumetric flask, dissolved 0.425g of Potassium Hydrogen Phthalate (KHP) (1) and filled to volume with DI water.		(1) W33269	

Standard Log #:	W48440	Standard/Reagent:	COD CCV
Analyst:	ATJ	Concentration:	400 mg/L
Prep Date:	03-23-2020	Expiration Date (3 Months):	06-23-2020
PREP		Standards/Reagents Used	
Into a 250mL volumetric flask, volumetrically added 100 mL of 1,000 mg/L COD ICal/CCV Stock Std. (1) and filled to volume with DI water.		(1) W48439	

Standard Log #:	W48441	Standard/Reagent:	COD LCS/Spiking Stock Std.
Analyst:	ATJ	Concentration:	2,000 mg/L
Prep Date:	03-23-2020	Expiration Date	06-23-2020

		(3 Months):	
PREP			Standards/Reagents Used
Into a 500mL volumetric flask, dissolved 0.85g of second-source Potassium Hydrogen Phthalate (KHP) (1) and filled to volume with DI water.			(1) W39424

Standard Log #:	W48442	Standard/Reagent:	COD LCS
Analyst:	ATJ	Concentration:	400 mg/L
Prep Date:	03-23-2020	Expiration Date (3 Months):	06-23-2020
PREP			Standards/Reagents Used
Into a 250mL volumetric flask, pipetted 50 mL of 2,000 mg/L COD LCS/Spiking Stock Std. (1) and filled to volume with DI water.			(1) W48441

LPWC01_15
WetChem Reagent Prep Logbook
Logbook Created: 11/21/2019

NOTEBOOK VIEW: LTN_LPWC01_15_Default, NOTEBOOK: LPWC01_15, PAGE: 15
Page is Locked
Author: hbeckel on: 1/2/2020 8:17:51 AM
Page is not Witnessed
Project: Unassigned
Page Title: 123119

Standard Log #:	W48027	Standard/Reagent:	Sulfuric Acid/Silver Sulfate Solution
Analyst:	HLB	Concentration:	N/A
Prep Date:	12-31-19	Expiration Date (1 Year):	12-31-20
PREP		Standards/Reagents Used	
Into a new 2.5L bottle of Sulfuric acid (H2SO4) (1), dissolved 25g of Silver Sulfate (AG2SO4) (2).		(1) WC39 (2) WC22	

1

CT Laboratories, LLC

Standard Log #:	W47821	Standard/Reagent:	Dichromate Digestion Solution
Analyst:	GMJ	Concentration:	N/A
Prep Date:	11/19/19	Expiration Date (1 Year):	11/19/20

PREP	Standards/Reagents Used
Into a 2L volumetric flask, dissolved 66.6g of Mercuric sulfate (1) in about 500 mL of DI water. Volumetrically added 334 mL of Sulfuric acid (2) and dissolved 20.42g of Potassium dichromate (3) and then filled to volume with DI water.	(1) W46750 (2) WC13 (3) W46749

Standard Log #:	W46749	Chemical:	Potassium Dichromate
Analyst:	SAW	Vendor:	JT Baker (VWR)
Date Received:	2/22/19	Catalog #:	3090-01
Expiration Date (if any):	3/6/25	Lot #:	0000213858
Comments:	Opened 4/29/19		

Standard Log #:	W46750	Chemical:	mERCURY (II) SULFATE
Analyst:	SAW	Vendor:	BTC
Date Received:	3/11/19	Catalog #:	212940-100G
Expiration Date (if any):	4/29/20	Lot #:	50004425
Comments:	Opened 4/29/19		

Standard Log #:	W39424	Chemical:	Potassium hydrogen phthalate
Analyst:	SAW	Vendor:	ACROS
Date Received:	7/1/16	Catalog #:	424061000
Expiration Date (if any):	N/A	Lot #:	A0365830
Comments:			

W33266 GES 1/7/14 — Sodium hypochlorite soln - Fisher cat # SS290-4 lot # 133042 exp 7/2014

W33267 GES 1/7/14 — NH_3 IL Hypochlorite: Into a 500mL vol. volumetrically combined 30mL W33266 & filled to mark w/ DI H_2O. exp 1/8/14

W33268 BJS 1/7/14 — TKN MDL ✓: (0.46mg/L) Into a 100mL vol flask pipetted 0.46mL NH_3/TKN 1000mg/L Stock W32416 + filled to volume w/ DI. Then pipetted 20mL into TKN tube.

W33269 Bms 01/07/14 — Potassium Hydrogen Phthalate (KHP): Agros Organics Catelog #: 424061000, Lot#: A0317291 (Received 06/24/13)

W33270 AGK 01/07/14 — TOCW ICAL/CCV stock (1000mg/L): Into a 100mL vol, dissolved 0.2128g KHP (W 33269) and brought to volume w/ milli-Q H_2O Exp: 07/07/14

W33271 01/07/14 AGK — TOCW ICV/LCS stock (1000mg/L) Into a 100mL vol, dissolved 0.2128g KHP (W 29079) and brought to volume w/ milli-Q H_2O Exp: 07/07/14

W33272 AGK 01/07/14 01/07/14 AGK — TOCW CCV Sto: Into a 100mL vol pipetted 50mL of W33270 and Brought to Volume with Milli-Q H_2O Exp: 02-07-14

W33273 01/07/14 AGK — TOCW LCS Sto: Into a 100mL vol pipetted 5.0mL of W33271 and brought to volume w/ milli-Q H_2O Exp: 02-07-14

W33274 01/07/14 AGK — TOCW Ical: Into 7 50mL vol, pipetted 0.005, 0.25, 0.5, 1.25, 2.5, and 5.0mL of W33270 and brought to volume with milli-Q H_2O Exp: 02/07/14

Continued on Page

Read and Understood By

1/9/14 CS
Signed — Date — Signed — Date

Standard Log #:	WC39	Chemical:	Sulfuric Acid ACS 2.5L
Analyst:	HLB	Vendor:	EMD
Date Received:	6-27-19	Catalog #:	SX1244-5
Expiration Date (if any):		Lot #:	58351
Comments:			

Standard Log #:	WC22	Chemical:	Silver Sulfate ACS 98%
Analyst:	HLB	Vendor:	Alfa Aesar/Thermo Fisher
Date Received:	12-2-19	Catalog #:	11417
Expiration Date (if any):	12-2-24	Lot #:	W04F005
Comments:			

Standard Log #:	WC13	Chemical:	SULFURIC ACID
Analyst:	GMJ	Vendor:	EMD MILIPORE CORPORATION
Date Received:	8/27/19	Catalog #:	SX1244-5
Expiration Date (if any):	NA	Lot #:	58346
Comments:	OPENED 11/19/19		

WPH Analytical Run
170762 on 05/13/2020

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	413076		04/28/2020 0200				PH SM4500H+B		WW		
		OUTFALL 016									
	413078		04/27/2020 0900				PH SM4500H+B		WW	**1**	
		658-1									
152892	413136		04/28/2020 1438		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	PH		GW	**4**	
		54IDW									
	413170		04/28/2020 0700				PH SM4500H+B		WW	**1**	
		PLANT 1									
	413171		04/28/2020 0700				PH SM4500H+B		WW	**1**	
		PLANT 2									
	413172		04/28/2020 0700				PH SM4500H+B		WW	**1**	
		PLANT 4									
	413737		04/28/2020 1438				PH				
		54IDW		DUP 413136							
	413738		04/28/2020 0700				PH SM4500H+B				
		PLANT 4		DUP 413172							

8 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

pH Data Validation Checklist

		Method: pH EPA 150.1, SM 4500-H+B, EPA 9040C, EPA 9045D			
LIMS Run #(s)	**Analysis Date**	**Analyst / Data Interpreter**	**Independent Reviewer**	**Date of Review**	**Approved? (Yes or No)**
170762	04/29/2020	HLB	etk	05/04/2020	yes

Instructions: Complete one checklist per *analytical run* . Enter the appropriate response for each question.
Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirement:	**Acceptance Criteria**	**Analyst Review**		**Independent Review**		**Comments:**
		Yes	No	Yes	No	(indicate reference to an attachment if necessary)
1. Was the calibration slope recorded on the bench sheet?	95-110%	Yes		Yes		
2. Were reagents/standards used before expiration date?	---	Yes		Yes		
3. Were duplicates analyzed at the appropriate frequency?	1 every 20 samples of the same matrix	Yes		Yes		
4. Were the duplicates within acceptable limits?	Differ by $\leq$ 0.10 pH units	Yes		Yes		
5. Are all samples on the job lists accounted for?	---	Yes		Yes		
6. Were SM 4500-H+B samples bracketed by calibration buffer 7?	Every 10 samples, Differ by $\leq$ 0.10 pH units	Yes		Yes		

Mettler Toledo (Easy Seven) pH Calibration & Maintenance Run Logbook

		pH Buffer Reference ID #			3 Point Calibration						
Date	Analyst	pH 7	pH 4	pH 10	1st Buffer	2nd Buffer	3rd Buffer	Slope (95-110%)	Temp ° C	Comments	Review
04/14/20	RLB	WC70 EX: 02/13/21	WC38 EX: 12/30/20	W46764 EX:05/2/20	7.02	4	10.06	97%	19.7		4-21-2020 HLB
04/15/20	RLB	WC70 EX: 02/13/21	WC38 EX: 12/30/20	W46764 EX:05/2/20	7.02	4	10.07	98%	19.6		4-21-2020 HLB
04/16/20	RLB	WC70 EX: 02/13/21	WC38 EX: 12/30/20	W46764 EX:05/2/20	7.02	4	10.06	97%	19.6		4-21-2020 HLB
04/17/20	HLB	WC70 EX: 02/13/21	WC38 EX: 12/30/20	W46764 EX:05/2/20	7.02	4	10.06	98%	20.9		4-21-2020 HLB
04/20/20	RLB	WC70 EX: 02/13/21	WC38 EX: 12/30/20	W46764 EX:05/2/20	7.02	4	10.06	97%	19.9		4-21-2020 HLB
04/21/20	RLB	WC70 EX: 02/13/21	WC38 EX: 12/30/20	W46764 EX:05/2/20	7.02	4	10.07	97%	19.6		4-21-2020 HLB
04/22/20	RLB	WC70 EX: 02/13/21	WC38 EX: 12/30/20	W46764 EX:05/2/20	7.02	4	10.06	97%	19.8		
04/23/20	HLB	WC70 EX: 02/13/21	WC38 EX: 12/30/20	W46764 EX:05/2/20	7.03	4	10.08	97%	18.6		
04/24/20	RLB	WC70 EX: 02/13/21	WC38 EX: 12/30/20	W46764 EX:05/2/20	7.02	4	10.06	97%	19.9		
04/27/20	RLB	WC70 EX: 02/13/21	WC38 EX: 12/30/20	W46764 EX:05/2/20	7.02	4	10.06	97%	20.3		
04/28/20	RLB	WC70 EX: 02/13/21	WC38 EX: 12/30/20	W46764 EX:05/2/20	7.02	4	10.06	97%	20.1		
04/29/20	RLB	WC70 EX: 02/13/21	WC38 EX: 12/30/20	W46764 EX:05/2/20	7.02	4	10.06	97%	20.1		
04/30/20	RLB	WC70 EX: 02/13/21	WC38 EX: 12/30/20	W46764 EX:05/2/20	7.02	4	10.06	97%	20		
05/01/20	RLB	WC70 EX: 02/13/21	WC38 EX: 12/30/20	W46764 EX:05/2/20	7.02	4	10.06	97%	20.1		
05/04/20	RLB	WC70 EX: 02/13/21	WC38 EX: 12/30/20	WC105 EX:05/04/21	7.02	4	10.05	97%	20.6		
05/05/20	RLB	WC70 EX: 02/13/21	WC38 EX: 12/30/20	WC105 EX:05/04/21	7.02	4	10.06	97%	19.9		
05/06/20	RLB	WC70 EX: 02/13/21	WC38 EX: 12/30/20	WC105 EX:05/04/21	7.02	4	10.06	97%	19.8		
05/07/20	RLB	WC70 EX: 02/13/21	WC38 EX: 12/30/20	WC105 EX:05/04/21	7.02	4	10.06	98%	20.2		
05/08/20	RLB	WC70 EX: 02/13/21	WC38 EX: 12/30/20	WC105 EX:05/04/21	7.02	4	10.06	97%	20.2		
05/11/20	RLB	WC70 EX: 02/13/21	WC38 EX: 12/30/20	WC105 EX:05/04/21	7.02	4	10.06	98%	20.3		
05/12/20	RLB	WC70 EX: 02/13/21	WC38 EX: 12/30/20	WC105 EX:05/04/21	7.02	4	10.06	97%	20.1		
05/13/20	RLB	WC70 EX: 02/13/21	WC38 EX: 12/30/20	WC105 EX:05/04/21	7.02	4	10.06	97%	20.3		

Mettler Toledo (Easy Seven) Instrument Run Logbook

Date	Start Time	End Time	Analyst	Analyte	Lims Run #(s)	Comments
04/14/20	14:00	14:30	ATJ	PH	170353	
04/15/20	14:30	15:00	HLB	PH	170386	
04/16/20	14:30	14:50	HLB	PH	170438	
04/17/20	14:10	14:20	SRW	PH	170468	
04/20/20	15:10	15:20	RLB	PH	170503	
04/21/20	14:00	14:15	HLB	PH	170535	
04/22/20	14:00	14:19	ATJ	PH	170570	
04/23/20	15:15	15:45	HLB	PH	170606	
04/24/20	14:15	14:45	SRW	PH	170660	
04/27/20	14:15	14:30	SRW	PH	170685	
04/28/20	14:00	14:30	ATJ	PH	170725	
04/29/20	14:00	14:20	HLB	PH	170762	
04/30/20	14:10	14:35	HLB	PH	170818	
05/01/20	15:30	16:00	SRW	PH	170848	
05/04/20	14:20	14:40	RLB	PH	170886	
05/05/20	14:35	15:00	ATJ	PH	170924	
05/06/20	14:40	15:15	HLB	PH	170975	
05/07/20	14:00	14:15	HLB	PH	171014	
05/08/20	14:30	15:00	SRW	PH	171050	
05/11/20	14:25	14:40	RLB	PH	171077	
05/12/20	14:00	14:30	ATJ	PH	171103	
05/13/20	14:00	14:20	hlb	PH	171145	

Standard Log #:	WC70	Chemical:	pH Buffer 7
Analyst:	HLB	Vendor:	Inorganics Ventures
Date Received:	2-13-2020	Catalog #:	PHYELLOW-7
Expiration Date (if any):	2-13-2021	Lot #:	P2-WCS680595
Comments:	bag opened 2-13-2020		

WC_StdLog_01
Wet Chem Chemical Logbook
Logbook Created: 10/22/2019

NOTEBOOK VIEW: LTN_WC_StdLog_01_Default, NOTEBOOK: WC_StdLog_01, PAGE: 22
Page is Locked
Author: swachter on: 1/7/2020 9:37:47 AM
Page is not Witnessed
Project: Unassigned
Page Title: 123019

Standard Log #:	WC38	Chemical:	pH 4 Calibration Std 4L
Analyst:	HLB	Vendor:	Inorganic Ventures
Date Received:	12-30-19	Catalog #:	PHRED-4-4L
Expiration Date (if any):	12-30-20	Lot #:	P2-WCS680743
Comments:			

Standard Log #:	W46764	Chemical:	PH BUFFER 10
Analyst:	LJS	Vendor:	INORGANIC VENTURES
Date Received:	5/2/19	Catalog #:	PHBLUE-10-4L
Expiration Date (if any):	5/2/20	Lot #:	P2-WCS675599
Comments:			

W CARBON, INORG & ORG Analytical Run
170826 on 05/07/2020

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME		QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	416145							W CARBON, INORG & ORG				
					CCV							
	416150							W CARBON, INORG & ORG				
					LCSW							
	416151							W CARBON, INORG & ORG				
					MBW							
152892	413129		04/28/2020	1000		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	CARBON, INORG & ORG		GW	4	
		54MW13										
152892	413132		04/28/2020	1000		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	CARBON, INORG & ORG		GW	4	
		54TW13										
152892	413133		04/28/2020	1130		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	CARBON, INORG & ORG		GW	4	
		54MW10										
152892	413134		04/28/2020	1245		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	CARBON, INORG & ORG		GW	4	
		54MW12			Designated MS/MSD							
152892	413135		04/28/2020	1420		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	CARBON, INORG & ORG		GW	4	
		54MW1										
	416144							W CARBON, INORG & ORG				
					CCV							
	416143							W CARBON, INORG & ORG				
					CCB							

10 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

FWC39-01 Data Review Checklist

	Method: Total Organic Carbon Method 415.1/9060	Independent Data Review Checklist	Instrument: TOCW

LIMS Run #(s)	Analysis Date	Analyst / Data Interpreter	Independent Reviewer	Date of Review	Approved? (Yes or No)
170826	05/01/2020	KMT	RLD	05/07/2020	Yes

Instructions: Complete one checklist per *analytical sequence* . Enter the appropriate response for each question. Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirement	Acceptance Criteria	Analyst Review		Independent Review		Comments
		Yes	No	Yes	No	(Indicate reference to an attachment if necessary)
1. Were the samples preserved prior to analysis and analyzed within hold time?	pH <2, 28 days or program/project specific	Yes		Yes		
2. Was the calibration curve performed using the required number of standards?	3 standards and a blank	Yes		Yes		
3. Was the correlation coefficient acceptable?	r ≥ .995	Yes		Yes		
4. Were the ICV and ICB analyzed?	---	Yes		Yes		
5. Was the ICV result acceptable?	90 – 110 % Rec. or contract/program specific	Yes		Yes		
6. Was the ICB result acceptable?	< LOD or contract/program specific	Yes		Yes		
7. Was an LCS & MB run with each batch of samples?	One each per analytical batch or contract/program specific frequency.	Yes		Yes		
8. Was the LCS recovery acceptable?	In-house derived or contract/program specific limits.	Yes		Yes		
9. Were the MB results acceptable?	< LOD or project/ program specific (<1/2 RL for DOD-QSM).	Yes		Yes		
10. Were the CCV's analyzed at the required frequency?	Beginning, after every 10 sample, & at the end of a sequence.	Yes		Yes		
11. Were the CCB's analyzed at the required frequency?	After each CCV (unless MB analyzed after CCV)	Yes		Yes		
12. Were the CCV recoveries acceptable?	90 – 110 % Rec. or project/ program specific	Yes		Yes		
13. Were the CCB results acceptable?	< LOD or project/ program specific	Yes		Yes		

14. Were all positive results that were reported within the calibration curve?	---	Yes		Yes		
15. Was an MS and MSD analyzed at the required frequency?	1 / 20 of the same matrix or project/ program specific	N/A		N/A		
16. Were the MS and MSD recoveries acceptable?	In-house derived or project/ program specific limits	N/A		N/A		
17. Was the RPD between the MS and MSD acceptable?	In-house derived or project/ program specific limits	N/A		N/A		
18. Was a Duplicate analyzed at the required frequency?	1 per 20 of the same matrix or contract/program specific	N/A		N/A		
19. Was the RPD between the Duplicate (if valid) and the sample acceptable?	In-house derived or project/ program specific limits (QSM samples, duplicate only valid when sample result ≥5x the LOQ)	N/A		N/A		
20. Are all samples on the job lists accounted for?	---	Yes		Yes		
21. Is the standards prep log numbers noted on the analytical report?	---	Yes		Yes		
22. Were post analysis corrections addressed and/or the Audit Trail function turned on (if available)?	Correction should be initialed, dated, and reason given. Audit trail must be on (if available)	Yes		Yes		
23. Were non-matrix related nonconformities (if applicable) documented in the NCR spreadsheet?	---	Yes		Yes		

Non-Applicable Yes/No Cells Are Left Blank

Comments:

WORGANIC CARBON QSM 5.0 Analytical Run
170892 on 05/07/2020

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	415563						WORGANIC CARBON QSM 5.0				
				CCV				0			
	415564						WORGANIC CARBON QSM 5.0				
				LCSW				0			
	415565						WORGANIC CARBON QSM 5.0				
				MBW				0			
	412553		04/27/2020 1015				ORGAN CARBON T QSM 5.0		GW	4	
		13MW4									
	412558		04/27/2020 1125				ORGAN CARBON T QSM 5.0		GW	4	
		13MW3									
	412559		04/27/2020 1125				ORGAN CARBON T QSM 5.0		GW	4	
		13TW3									
	412562		04/27/2020 1230				ORGAN CARBON T QSM 5.0		GW	4	
		49MW04									
	412563		04/27/2020 1325				ORGAN CARBON T QSM 5.0		GW	4	
		13MW2		Designated MS/MSD							
	416190		04/27/2020 1325				ORGAN CARBON T QSM 5.0				
		13MW2		MSW 412563							
	416191		04/27/2020 1325				ORGAN CARBON T QSM 5.0				
		13MW2		MSDW 416190							
152892	413129		04/28/2020 1000		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	ORGAN CARBON T QSM 5.0		GW	4	
		54MW13									
152892	413132		04/28/2020 1000		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	ORGAN CARBON T QSM 5.0		GW	4	
		54TW13									
	415569						WORGANIC CARBON QSM 5.0				
				CCV				0			
	415570						WORGANIC CARBON QSM 5.0				
				CCB				0			
152892	413133		04/28/2020 1130		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	ORGAN CARBON T QSM 5.0		GW	4	
		54MW10									
152892	413134		04/28/2020 1245		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	ORGAN CARBON T QSM 5.0		GW	4	
		54MW12		Designated MS/MSD							
	415571		04/28/2020 1245				ORGAN CARBON T QSM 5.0				
		54MW12		DUP 413134				0			

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

WORGANIC CARBON QSM 5.0 Analytical Run
170892 on 05/07/2020

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME		QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	415572		04/28/2020	1245					ORGAN CARBON T QSM 5.0				
		54MW12			MSW	413134				0			
	415573		04/28/2020	1245					ORGAN CARBON T QSM 5.0				
		54MW12			MSDW	415572				0			
152892	413135		04/28/2020	1420			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	ORGAN CARBON T QSM 5.0		GW	4	
		54MW1											
	413571		04/29/2020	0940					ORGAN CARBON T QSM 5.0		GW	4	
		48MW06											
	413572		04/29/2020	0952					ORGAN CARBON T QSM 5.0		GW	4	
		49EQB-48MW06											
	413574		04/29/2020	1110					ORGAN CARBON T QSM 5.0		GW	4	
		48MW1											
	413575		04/29/2020	1245					ORGAN CARBON T QSM 5.0		GW	4	
		49MW01											
	415574								WORGANIC CARBON QSM 5.0				
					CCV					0			
	415575								WORGANIC CARBON QSM 5.0				
					CCB					0			
	413576		04/29/2020	1410					ORGAN CARBON T QSM 5.0		GW	4	
		48MW2											
	413971		04/30/2020	0955					ORGAN CARBON T QSM 5.0		GW	4	
		50MW02											
	413972		04/30/2020	1100					ORGAN CARBON T QSM 5.0		GW	4	
		48MW3											
	413973		04/30/2020	1100					ORGAN CARBON T QSM 5.0		GW	4	
		48TW3											
	413974		04/30/2020	1250					ORGAN CARBON T QSM 5.0		GW	4	
		49MW02											
	416192		04/27/2020	1325					ORGAN CARBON T QSM 5.0				
		13MW2			DUP	412563							
	415577								WORGANIC CARBON QSM 5.0				
					CCV					0			

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

WORGANIC CARBON QSM 5.0 Analytical Run
170892 on 05/07/2020

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	415578						WORGANIC CARBON QSM 5.0				
				CCB				0			

34 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

FWC39-01 Data Review Checklist

	Method: Total Organic Carbon Method 415.1/9060	Independent Data Review Checklist	Instrument: TOCW

LIMS Run #(s)	Analysis Date	Analyst / Data Interpreter	Independent Reviewer	Date of Review	Approved? (Yes or No)
170892	05/05/2020	KMT	RLD	05/07/2020	Yes

Instructions: Complete one checklist per *analytical sequence* . Enter the appropriate response for each question. Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirement	Acceptance Criteria	Analyst Review		Independent Review		Comments
		Yes	No	Yes	No	(Indicate reference to an attachment if necessary)
1. Were the samples preserved prior to analysis and analyzed within hold time?	pH <2, 28 days or program/project specific	Yes		Yes		
2. Was the calibration curve performed using the required number of standards?	3 standards and a blank	Yes		Yes		
3. Was the correlation coefficient acceptable?	r ≥ .995	Yes		Yes		
4. Were the ICV and ICB analyzed?	---	Yes		Yes		
5. Was the ICV result acceptable?	90 – 110 % Rec. or contract/program specific	Yes		Yes		
6. Was the ICB result acceptable?	< LOD or contract/program specific	Yes		Yes		
7. Was an LCS & MB run with each batch of samples?	One each per analytical batch or contract/program specific frequency.	Yes		Yes		
8. Was the LCS recovery acceptable?	In-house derived or contract/program specific limits.	Yes		Yes		
9. Were the MB results acceptable?	< LOD or project/ program specific (<1/2 RL for DOD-QSM).	Yes		Yes		
10. Were the CCV's analyzed at the required frequency?	Beginning, after every 10 sample, & at the end of a sequence.	Yes		Yes		
11. Were the CCB's analyzed at the required frequency?	After each CCV (unless MB analyzed after CCV)	Yes		Yes		
12. Were the CCV recoveries acceptable?	90 – 110 % Rec. or project/ program specific	Yes		Yes		
13. Were the CCB results acceptable?	< LOD or project/ program specific	Yes		Yes		

14. Were all positive results that were reported within the calibration curve?	---	Yes		Yes		
15. Was an MS and MSD analyzed at the required frequency?	1 / 20 of the same matrix or project/ program specific	Yes		Yes		
16. Were the MS and MSD recoveries acceptable?	In-house derived or project/ program specific limits	Yes		Yes		
17. Was the RPD between the MS and MSD acceptable?	In-house derived or project/ program specific limits	Yes		Yes		
18. Was a Duplicate analyzed at the required frequency?	1 per 20 of the same matrix or contract/program specific	Yes		Yes		
19. Was the RPD between the Duplicate (if valid) and the sample acceptable?	In-house derived or project/ program specific limits (QSM samples, duplicate only valid when sample result ≥5x the LOQ)	Yes		Yes		
20. Are all samples on the job lists accounted for?	---	Yes		Yes		
21. Is the standards prep log numbers noted on the analytical report?	---	Yes		Yes		
22. Were post analysis corrections addressed and/or the Audit Trail function turned on (if available)?	Correction should be initialed, dated, and reason given. Audit trail must be on (if available)	Yes		Yes		
23. Were non-matrix related nonconformities (if applicable) documented in the NCR spreadsheet?	---	Yes		Yes		

Non-Applicable Yes/No Cells Are Left Blank

Comments:

TOC Instrument Run Logbook

Start Date	Start Time	End Date	End Time	Analyst	LIMs Run #	Matrix (S or W)	Calibration ID #	COMMENTS
04/27/2020	10:02	04/27/2020	18:25	KMT	170664, 170669, 170670	W	0381	
~~04/29/2020~~		N/A		KMT	170699	S	0387	ending CCV. CCB on 4/29/20 after instrument service
04/30/2020	09:48	04/30/2020	10:46	KMT	170699	S	0387	
04/30/2020	14:24	04/30/2020	23:53	KMT	170808, 170811, 170817	W	0381	
05/01/2020	08:48	05/01/2020	11:35	KMT	170826	W	0381	
05/05/2020	08:54	05/05/2020	16:47	KMT	170892	W	0381	

Reviewed By: _____

Standard Log #:	TOC0390	Standard:	TOCW CCV Std.
Analyst:	KMT	Concentration:	50 mg/L
Prep Date:	04/15/2020	Expiration Date (1 Month):	05/15/2020
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW Ical/CCV Stock (1000mg/L) TOC0376 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0391	Standard:	TOCW LCS Std.
Analyst:	KMT	Concentration:	50 mg/L
Prep Date:	04/15/2020	Expiration Date (1 Month):	05/15/2020
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW ICV/LCS Stock (1000mg/L) TOC0359 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0384	Standard:	TOCW LCS Std.
Analyst:	KMT	Concentration:	50 mg/L
Prep Date:	04/13/2020	Expiration Date (1 Month):	05/13/2020
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW ICV/LCS Stock (1000mg/L) TOC0359 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0382	Standard:	TOCW CCV Std.
Analyst:	KMT	Concentration:	50 mg/L
Prep Date:	04/07/2020	Expiration Date (1 Month):	05/07/2020
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW Ical/CCV Stock (1000mg/L) TOC0376 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0383	Standard:	TOCW LCS Std.
Analyst:	KMT	Concentration:	50 mg/L
Prep Date:	04/07/2020	Expiration Date (1 Month):	05/07/2020
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW ICV/LCS Stock (1000mg/L) TOC0359 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0379	Standard:	TOCW CCV Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	03/10/2020	Expiration Date (1 Month):	04/10/2020
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW Ical/CCV Stock (1000mg/L) TOC0376 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0380	Standard:	TOCW LCS Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	03/10/2020	Expiration Date (1 Month):	04/10/2020
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW ICV/LCS Stock (1000mg/L) TOC0359 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0381	Standard:	TOCW Ical.
Analyst:	TMG		
Prep Date:	03/10/2020	Expiration Date (1 Month):	04/10/2020
	Into seven 50mL volumetric flasks, pipetted the following amounts of TOCW Ical/CCV Stock Std. (1000mg/L) TOC0376 and brought to volume with Milli-Q H_2O:		

Prep:

volume with Milli-Q H_20:

Level	ICal Stock (mL)	True Value (pg/L)
1	0	0
2	0.05	1
3	0.25	5
4	0.5	10
5	1.25	25
6	2.5	50
7	5.0	100

LPVO2-01
TOC Prep Logbook
Notebook Created: 01/12/2015
Balances used in reagent prep:
WCB01 and WCB03
NOTEBOOK VIEW: LTN_TOC_Logbook_01_Default, NOTEBOOK: TOC_Logbook_01, PAGE: 193
Page is Unlocked
Page is not Witnessed
Project: Unassigned
Page Title: 020520

Standard Log #:	TOC0374	Standard:	TOCW CCV Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	02/05/2020	Expiration Date (1 Month):	03/05/2020
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW Ical/CCV Stock (1000mg/L) TOC0376 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0375	Standard:	TOCW LCS Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	02/05/2020	Expiration Date (1 Month):	03/05/2020
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW ICV/LCS Stock (1000mg/L) TOC0359 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0376	Standard/Reagent:	CCV STOCK
Analyst:	TMG	Final Concentration:	1000ug/mL
Prep Date:	02/05/2020	Expiration Date:	08/31/2021
Prep:	LOT: 0006475816 EXP:08/31/2021		

1

CT Laboratories, LLC

Standard Log #:	TOC0373	Standard:	TOCW Ical.
Analyst:	TMG		
Prep Date:	01/31/2020	Expiration Date (1 Month):	02/29/2020

Prep:

Into seven 50mL volumetric flasks, pipetted the following amounts of TOCW Ical/CCV Stock Std. (1000mg/L) TOC0258 and brought to volume with Milli-Q H_20:

Level	ICal Stock (mL)	True Value (pg/L)
1	0	0
2	0.05	1
3	0.25	5
4	0.5	10
5	1.25	25
6	2.5	50
7	5.0	100

Standard Log #:	TOC0369	Standard:	TOCW CCV Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	01/13/2020	Expiration Date (1 Month):	02/13/2020
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW Ical/CCV Stock (1000mg/L) TOC0258 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0370	Standard:	TOCW LCS Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	01/13/2020	Expiration Date (1 Month):	02/13/2020
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW ICV/LCS Stock (1000mg/L) TOC0359 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0367	Standard:	TOCW CCV Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	12/18/2019	Expiration Date (1 Month):	01/18/2020
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW Ical/CCV Stock (1000mg/L) TOC0258 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0368A	Standard:	TOCW LCS Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	12/18/2019	Expiration Date (1 Month):	01/18/2020
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW ICV/LCS Stock (1000mg/L) TOC0359 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0368	Standard:	TOCW Ical.
Analyst:	TMG		
Prep Date:	11/26/2019	Expiration Date (1 Month):	12/26/2019
	Into seven 50mL volumetric flasks, pipetted the following amounts of TOCW Ical/CCV Stock Std. (1000mg/L) TOC0258 and brought to volume with Milli-Q H_2O:		

Prep:

volume with Milli-Q H_20:

Level	ICal Stock (mL)	True Value (pg/L)
1	0	0
2	0.05	1
3	0.25	5
4	0.5	10
5	1.25	25
6	2.5	50
7	5.0	100

Standard Log #:	TOC0364	Standard/Reagent:	25%PHOSPHORIC ACID
Analyst:	TMG	Final Concentration:	25%
Prep Date:	11/12/2019	Expiration Date:	11/12/2020
Prep:	Into a 500ml vol. flask add 125ml phosphoric acid (W38600) and bring to volume with DI water.		

Content below was appended to locked page by tgrundahl on 12/19/2019 10:52:42 AM

Standard Log #:	TOC0364A	Standard:	TOCW CCV Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	11/26/2019	Expiration Date (1 Month):	12/26/2019
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW Ical/CCV Stock (1000mg/L) TOC0258 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0365A	Standard:	TOCW LCS Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	11/26/2019	Expiration Date (1 Month):	12/26/2019
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW ICV/LCS Stock (1000mg/L) TOC0359 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0359	Standard/Reagent:	LCS TOC STOCK STD
Analyst:	TMG	Final Concentration:	1000ug/mL
Prep Date:	10/28/2019	Expiration Date:	09/01/2021
Prep:			

Standard Log #:	TOC0360	Standard:	TOCW CCV Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	10/28/2019	Expiration Date (1 Month):	11/28/2019
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW Ical/CCV Stock (1000mg/L) TOC0258 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0361	Standard:	TOCW LCS Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	10/28/2019	Expiration Date (1 Month):	11/28/2019
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW ICV/LCS Stock (1000mg/L) TOC0359 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0357	Standard:	TOCW CCV Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	10/16/2019	Expiration Date (1 Month):	11/16/2019
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW Ical/CCV Stock (1000mg/L) TOC0258 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0358	Standard:	TOCW LCS Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	10/16/2019	Expiration Date (1 Month):	11/16/2019
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW ICV/LCS Stock (1000mg/L) TOC0259 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0355	Standard:	TOCW CCV Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	10/02/2019	Expiration Date (1 Month):	11/02/2019
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW Ical/CCV Stock (1000mg/L) TOC0258 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0356	Standard:	TOCW LCS Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	10/02/2019	Expiration Date (1 Month):	11/02/2019
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW ICV/LCS Stock (1000mg/L) TOC0259 and brought to volume with Milli-Q DI H_2O.		

LPVO2-01
TOC Prep Logbook
Notebook Created: 01/12/2015
Balances used in reagent prep:
WCB01 and WCB03
NOTEBOOK VIEW: LTN_TOC_Logbook_01_Default, NOTEBOOK: TOC_Logbook_01, PAGE: 181
Page is Unlocked
Page is not Witnessed
Project: Unassigned
Page Title: 090919

Standard Log #:	TOC0352	Standard:	TOCW Ical.
Analyst:	TMG		
Prep Date:	09/09/2019	Expiration Date (1 Month):	10/09/2019

Prep:

Into seven 50mL volumetric flasks, pipetted the following amounts of TOCW Ical/CCV Stock Std. (1000mg/L) TOC0258 and brought to volume with Milli-Q H_20:

Level	ICal Stock (mL)	True Value (pg/L)
1	0	0
2	0.05	1
3	0.25	5
4	0.5	10
5	1.25	25
6	2.5	50
7	5.0	100

1

Standard Log #:	TOC0350	Standard:	TOCW CCV Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	09/04/2019	Expiration Date (1 Month):	10/04/2019
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW Ical/CCV Stock (1000mg/L) TOC0258 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0351	Standard:	TOCW LCS Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	09/04/2019	Expiration Date (1 Month):	10/04/2019
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW ICV/LCS Stock (1000mg/L) TOC0259 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0332	Standard:	TOCW LOD Check
Analyst:	TMG	Concentration:	1.5 mg/L
Prep Date:	06/05/2019	Expiration Date (1 Month):	07/05/2019
Prep:	Into a 100 mL volumetric flask, pipetted 0.15mL of TOCW Ical/CCV Stock (1000mg/L) TOC0258 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0333	Standard:	TOCW LOQ Check
Analyst:	TMG	Concentration:	3.0 mg/L
Prep Date:	06/05/2019	Expiration Date (1 Month):	07/05/2019
Prep:	Into a 100 mL volumetric flask, pipetted 0.30mL of TOCW Ical/CCV Stock (1000mg/L) TOC0258 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0258	Standard/Reagent:	TOC CCV STOCK STD
Analyst:	TMG	Final Concentration:	1000mg/L
Prep Date:	06/05/2018	Expiration Date:	02/28/2020
Prep:	Ultra Scientific TOC standard @ 1000 or - 5 ug/mL Lot # CS-0215		

Standard Log #:	TOC0259	Standard/Reagent:	TOC LCS STOCK STD
Analyst:	TMG	Final Concentration:	1000mg/L
Prep Date:	06/05/2018	Expiration Date:	11/01/2019
Prep:	CAT# 250-250-05X LOT# S171123022		

Standard Log #:	TOC0260	Standard:	TOCW CCV Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	06/05/2018	Expiration Date (1 Month):	07/05/2018
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW Ical/CCV Stock (1000mg/L) TOC0258 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0261	Standard:	TOCW LCS Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	06/05/2018	Expiration Date (1 Month):	07/05/2018
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW ICV/LCS Stock (1000mg/L) TOC0206 and brought to volume with Milli-Q DI H_2O.		

SUBCONTRACTED ANALYSIS DOCUMENTS

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LABORATORY REPORT

If you have any questions concerning this report, please do not hesitate to call us at (800) 332-4345 or (574) 233-4777.

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STATE CERTIFICATION LIST

State	Certification	State	Certification
Alabama	40700	Missouri	880
Alaska	IN00035	Montana	CERT0026
Arizona	AZ0432	Nebraska	NE-OS-05-04
Arkansas	IN00035	Nevada	IN00035
California	2920	New Hampshire*	2124
Colorado	IN00035	New Jersey*	IN598
Colorado Radiochemistry	IN00035	New Mexico	IN00035
Connecticut	PH-0132	New York*	11398
Delaware	IN035	North Carolina	18700
Florida*	E87775	North Dakota	R-035
Georgia	929	Ohio	87775
Hawaii	IN035	Oklahoma	D9508
Idaho	IN00035	Oregon (Primary AB)*	4074
Illinois*	200001	Pennsylvania*	68-00466
Illinois Microbiology	17767	Puerto Rico	IN00035
Illinois Radiochemistry	IN00035	Rhode Island	LAO00343
Indiana Chemistry	C-71-01	South Carolina	95005
Indiana Microbiology	M-76-07	South Dakota	IN00035
Iowa	098	Tennessee	TN02973
Kansas*	E-10233	Texas*	T104704187-18-12
Kentucky	90056	Texas/TCEQ	TX207
Louisiana*	LA014	Utah*	IN00035
Maine	IN00035	Vermont	VT-8775
Maryland	209	Virginia*	460275
Massachusetts	M-IN035	Washington	C837
Michigan	9926	West Virginia	9927 C
Minnesota*	018-999-338	Wisconsin	999766900
Mississippi	IN035	Wyoming	IN035
EPA	IN00035		

*NELAP/TNI Recognized Accreditation Bodies

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NELAC NARRATIVE PAGE

Client: CT Laboratories Report #: 484770NP

Eurofins Eaton Analytical, LLC is a NELAP accredited laboratory. All reported results meet the requirements of the NELAC standards, unless otherwise noted.

EEA contact person: Traci Chlebowski

NELAP requires complete reporting of deviations from method requirements, regardless of the suspected impact on the data. Quality control failures not reported within the report summary are noted here.

300.0

The chlorite recoveries in the MS 4619691 and MSD 4619692 at 250 ug/L were low biased outside acceptance limits of 90-110% recovery due to matrix interference.

There were no additional quality control failures.

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Traci Chlebowski ASM 05/11/2020

Authorized Signature Title Date

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110 South Hill Street
South Bend, IN 46617
Tel: (574) 233-4777
Fax: (574) 233-8207
1 800 332 4345

Laboratory Report

Client: CT Laboratories

Attn: Jodi Serstad
1230 Lange Court
Baraboo, WI 53913

Report: 484770
Priority: Standard Written
Status: Final
PWS ID: Not Supplied

Sample Information

EEA ID #	Client ID	Method	Collected Date / Time	Collected By:	Received Date / Time
4619687	413129/54MW13	300.0	04/28/20 10:00	Client	05/05/20 07:45
4619688	413132/54TW13	300.0	04/28/20 10:00	Client	05/05/20 07:45
4619689	413932/54MW10	300.0	04/30/20 14:00	Client	05/05/20 07:45
4619690	413933/54MW12	300.0	04/30/20 14:20	Client	05/05/20 07:45
4619693	413934/54MW1	300.0	04/30/20 14:40	Client	05/05/20 07:45

Report Summary

Note: See attached page for additional comments.

Project: 152892 EEA-IN / Radford AAP SWMU-54

Detailed quantitative results are presented on the following pages. The results presented relate only to the samples provided for analysis.

We appreciate the opportunity to provide you with this analysis. If you have any questions concerning this report, please do not hesitate to call Traci Chlebowski at (574) 233-4777.

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Traci Chlebowski ASM

Authorized Signature | Title | 05/11/2020 Date

Client Name: CT Laboratories
Report #: 484770

Client Name: CT Laboratories Report #: 484770

Sampling Point: 413129/54MW13 PWS ID: Not Supplied

General Chemistry									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
14866-68-3	Chlorate	300.0	---	10	< 10	ug/L	---	05/07/20 03:13	4619687
14998-27-7	Chlorite	300.0	1000 *	10	< 10	ug/L	---	05/07/20 03:13	4619687

Sampling Point: 413132/54TW13 PWS ID: Not Supplied

General Chemistry									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
14866-68-3	Chlorate	300.0	---	10	< 10	ug/L	---	05/07/20 03:40	4619688
14998-27-7	Chlorite	300.0	1000 *	10	< 10	ug/L	---	05/07/20 03:40	4619688

Sampling Point: 413932/54MW10 PWS ID: Not Supplied

General Chemistry									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
14866-68-3	Chlorate	300.0	---	10	< 10	ug/L	---	05/07/20 04:07	4619689
14998-27-7	Chlorite	300.0	1000 *	10	< 10	ug/L	---	05/07/20 04:07	4619689

Sampling Point: 413933/54MW12 PWS ID: Not Supplied

General Chemistry									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
14866-68-3	Chlorate	300.0	---	10	< 10	ug/L	---	05/07/20 04:34	4619690
14998-27-7	Chlorite	300.0	1000 *	10	< 10	ug/L	---	05/07/20 15:01	4619690

Sampling Point: 413934/54MW1 PWS ID: Not Supplied

General Chemistry									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
14866-68-3	Chlorate	300.0	---	10	< 10	ug/L	---	05/07/20 05:55	4619693
14998-27-7	Chlorite	300.0	1000 *	10	< 10	ug/L	---	05/07/20 05:55	4619693

† EEA has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices.

Reg Limit Type:	MCL	SMCL	AL
Symbol:	*	^	!

Client Name: CT Laboratories Report #: 484770

Lab Definitions

Continuing Calibration Check Standard (CCC) / Continuing Calibration Verification (CCV) / Initial Calibration Verification Standard (ICV) / Initial Performance Check (IPC) - is a standard containing one or more of the target analytes that is prepared from the same standards used to calibrate the instrument. This standard is used to verify the calibration curve at the beginning of each analytical sequence, and may also be analyzed throughout and at the end of the sequence. The concentration of continuing standards may be varied, when prescribed by the reference method, so that the range of the calibration curve is verified on a regular basis. CCL, CCM, and CCH are the CCC standards at low, mid, and high concentration levels, respectively.

Internal Standards (IS) - are pure compounds with properties similar to the analytes of interest, which are added to field samples or extracts, calibration standards, and quality control standards at a known concentration. They are used to measure the relative responses of the analytes of interest and surrogates in the sample, calibration standard or quality control standard.

Laboratory Duplicate (LD) - is a field sample aliquot taken from the same sample container in the laboratory and analyzed separately using identical procedures. Analysis of laboratory duplicates provides a measure of the precision of the laboratory procedures.

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS) - is an aliquot of reagent water to which known concentrations of the analytes of interest are added. The LFB is analyzed exactly the same as the field samples. LFBs are used to determine whether the method is in control. FBL, FBM, and FBH are the LFB samples at low, mid, and high concentration levels, respectively.

Laboratory Method Blank (LMB) / Laboratory Reagent Blank (LRB) - is a sample of reagent water included in the sample batch analyzed in the same way as the associated field samples. The LMB is used to determine if method analytes or other background contamination have been introduced during the preparation or analytical procedure. The LMB is analyzed exactly the same as the field samples.

Laboratory Trip Blank (LTB) / Field Reagent Blank (FRB) - is a sample of laboratory reagent water placed in a sample container in the laboratory and treated as a field sample, including storage, preservation, and all analytical procedures. The FRB/LTB container follows the collection bottles to and from the collection site, but the FRB/LTB is not opened at any time during the trip. The FRB/LTB is primarily a travel blank used to verify that the samples were not contaminated during shipment.

If applicable, the calculation of the matrix spike (MS) or matrix spike duplicate (MSD) percent recovery is as follows: (MS or MSD value - Sample value) * 100 / spike target / dilution factor = **Recovery %**

Matrix Spike Duplicate Sample (MSD) / Laboratory Fortified Sample Matrix Duplicate (LFSMD) - is a sample aliquot taken from the same field sample source as the Matrix Spike Sample to which known quantities of the analytes of interest are added in the laboratory. The MSD is analyzed exactly the same as the field samples. Analysis of the MSD provides a measure of the precision of the laboratory procedures in a specific matrix. SDL, SDM, and SDH / LFSMDL, LFSMDM, and LFSMDH are the MSD or LFSMD at low, mid, and high concentration levels, respectively.

Matrix Spike Sample (MS) / Laboratory Fortified Sample Matrix (LFSM) - is a sample aliquot taken from field sample source to which known quantities of the analytes of interest are added in the laboratory. The MS is analyzed exactly the same as the field samples. The purpose is to demonstrate recovery of the analytes from a sample matrix to determine if the specific matrix contributes bias to the analytical results. MSL, MSM, and MSH / LFSML, LFSMM, and LFSMH are the MS or LFSM at low, mid, and high concentration levels, respectively.

Quality Control Standard (QCS) / Second Source Calibration Verification (SSCV) - is a solution containing known concentrations of the analytes of interest prepared from a source different from the source of the calibration standards. The solution is obtained from a second manufacturer or lot if the lot can be demonstrated by the manufacturer as prepared independently from other lots. The QCS sample is analyzed using the same procedures as field samples. The QCS is used as a check on the calibration standards used in the method on a routine basis.

Reporting Limit Check (RLC) / Initial Calibration Check Standard (ICCS) - is a procedural standard that is analyzed each day to evaluate instrument performance at or below the minimum reporting limit (MRL).

Surrogate Standard (SS) / Surrogate Analyte (SUR) - is a pure compound with properties similar to the analytes of interest, which is highly unlikely to be found in any field sample, that is added to the field samples, calibration standards, blanks and quality control standards before sample preparation. The SS is used to evaluate the efficiency of the sample preparation process.

397260 SS 5-5-2020

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397260
484770

Sub-Contract Laboratory Chain-of-Custody and Purchase Order

PURCHASE ORDER # 152892 EEA-IN *The PO# must appear on all invoice and reports!*

Upon Receipt of Samples, please verify that samples were received in acceptable condition then sign this form and fax to (608)356-2766 or email to the project manager. Sample temperature, upon receipt, must be recorded on this document unless thermal preservation is not a method requirement.

Ship to: **Eurofins Eaton Analytical - IN**
110 South Hill Street
South Bend, IN 46617

Return Invoice and Results to: **bszymanski@ctlaboratories.com**

CTLaboratories
Brett M Szymanski
1230 Lange Court
Baraboo WI 53913

Government UPS Shipping Acct ? (Y) N

Ship by: Speedee ☐ UPS Grnd ☐ UPS 2nd ☐ UPS NDA ☒

Date Due: Standard TAT *RUSH TURNAROUND NEEDED? Y or (N) (Circle One)*

Project Name: RADFORD AAP SWMU-54 **Project State:** VA

Analytical/QC Criteria: NONE INDICATED STATE (DOD QSM) NELAP (Circle one) OTHER_____

Report results as EDD? N (Y) (Circle one and indicate type: ERIS + Excel) Data Deliverable Package LEVEL: IV

CTLabs ID#	Sample Date/Time	Matrix	Sample Description		Analyses / Method		Cost
413129	04/28/2020 1000	GROUND WATER	54MW13	4619687	CHLORATE/CHLORITE	300.1	
413132	04/28/2020 1000	GROUND WATER	54TW13	688	CHLORATE/CHLORITE	300.1	
413932	04/30/2020 1400	GROUND WATER	54MW10	689	CHLORATE/CHLORITE	300.1	
413933	04/30/2020 1420	GROUND WATER	54MW12 (Designated MS/MSD) FS	690	CHLORATE/CHLORITE	300.1	MS= 4619691 MSD= 4619692
413934	04/30/2020 1440	GROUND WATER	54MW1	693	CHLORATE/CHLORITE	300.1	

Relinquished by: Brett Szymanski Date/Time: 05/04/2020 10:10

Received by: [signature] Date/Time: 5-5-2020 0745 Receipt Temperature (C) 3.0

COMMENTS: PLEASE LOG USING THE SAMPLE DESCRIPTIONS. 54MW12 IS A DESIGNATED MS/MSD SAMPLE.

REPORT ALL SOLIDS ON A DRY WEIGHT BASIS UNLESS OTHERWISE INDICATED

Form #: FPM1-01
Effective Date: 02/15/14

Eurofins Eaton Analytical
Run Log

Run ID: **274400** Method: **300.0**

Type	Sample Id	Sample Site	Matrix	Instrument ID	Analysis Date	Calibration File
ICB	4621614		RW	DT	05/06/2020 14:37	
QCS	4621620		RW	DT	05/06/2020 17:19	
LRB	4621623		RW	DT	05/06/2020 18:40	
LFB	4621624		RW	DT	05/06/2020 19:07	
IPC	4621625		RW	DT	05/07/2020 00:56	
CCB	4621626		RW	DT	05/07/2020 01:23	
FS	4619687	413129/54MW13	GW	DT	05/07/2020 03:13	
FS	4619688	413132/54TW13	GW	DT	05/07/2020 03:40	
FS	4619689	413932/54MW10	GW	DT	05/07/2020 04:07	
FS	4619690	413933/54MW12	GW	DT	05/07/2020 04:34	
MS	4619691	413933/54MW12	GW	DT	05/07/2020 05:01	
MSD	4619692	413933/54MW12	GW	DT	05/07/2020 05:28	
FS	4619693	413934/54MW1	GW	DT	05/07/2020 05:55	
IPC	4621627		RW	DT	05/07/2020 07:15	
CCB	4621628		RW	DT	05/07/2020 07:42	

QC Summary Report

Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID #
ICB	Chlorate	300.0	10	---	<	10		ug/L	---	---	---	---	1.0	---	05/06/2020 14:37	4621614
ICB	Chlorite	300.0	10	---	<	10		ug/L	---	---	---	---	1.0	---	05/06/2020 14:37	4621614
QCS	Chlorate	300.0	10	---		251.3030	250	ug/L	101	90 - 110	---	---	1.0	---	05/06/2020 17:19	4621620
QCS	Chlorite	300.0	10	---		238.1710	250	ug/L	95	90 - 110	---	---	1.0	---	05/06/2020 17:19	4621620
LRB	Chlorate	300.0	10	---	<	10		ug/L	---	---	---	---	1.0	---	05/06/2020 18:40	4621623
LRB	Chlorite	300.0	10	---	<	10		ug/L	---	---	---	---	1.0	---	05/06/2020 18:40	4621623
LFB	Chlorate	300.0	10	---		249.5640	250	ug/L	100	90 - 110	---	---	1.0	---	05/06/2020 19:07	4621624
LFB	Chlorite	300.0	10	---		245.4570	250	ug/L	98	90 - 110	---	---	1.0	---	05/06/2020 19:07	4621624
IPC	Chlorate	300.0	10	---		254.6770	250	ug/L	102	90 - 110	---	---	1.0	---	05/07/2020 00:56	4621625
IPC	Chlorite	300.0	10	---		233.0900	250	ug/L	93	90 - 110	---	---	1.0	---	05/07/2020 00:56	4621625
CCB	Chlorate	300.0	10	---	<	10		ug/L	---	---	---	---	1.0	---	05/07/2020 01:23	4621626
CCB	Chlorite	300.0	10	---	<	10		ug/L	---	---	---	---	1.0	---	05/07/2020 01:23	4621626
FS	Chlorate	300.0	10	413129/54MW13	<	10		ug/L	---	---	---	---	1.0	---	05/07/2020 03:13	4619687
FS	Chlorite	300.0	10	413129/54MW13	<	10		ug/L	---	---	---	---	1.0	---	05/07/2020 03:13	4619687
FS	Chlorate	300.0	10	413132/54TW13	<	10		ug/L	---	---	---	---	1.0	---	05/07/2020 03:40	4619688
FS	Chlorite	300.0	10	413132/54TW13	<	10		ug/L	---	---	---	---	1.0	---	05/07/2020 03:40	4619688
FS	Chlorate	300.0	10	413932/54MW10	<	10		ug/L	---	---	---	---	1.0	---	05/07/2020 04:07	4619689
FS	Chlorite	300.0	10	413932/54MW10	<	10		ug/L	---	---	---	---	1.0	---	05/07/2020 04:07	4619689
FS	Chlorate	300.0	10	413933/54MW12	<	10		ug/L	---	---	---	---	1.0	---	05/07/2020 04:34	4619690
MS	Chlorate	300.0	10	413933/54MW12		242.6380	250	ug/L	97	90 - 110	---	---	1.0	---	05/07/2020 05:01	4619691
MSD	Chlorate	300.0	10	413933/54MW12		242.4290	250	ug/L	97	90 - 110	0.1	10	1.0	---	05/07/2020 05:28	4619692
FS	Chlorate	300.0	10	413934/54MW1	<	10		ug/L	---	---	---	---	1.0	---	05/07/2020 05:55	4619693
FS	Chlorite	300.0	10	413934/54MW1	<	10		ug/L	---	---	---	---	1.0	---	05/07/2020 05:55	4619693
IPC	Chlorate	300.0	10	---		254.7400	250	ug/L	102	90 - 110	---	---	1.0	---	05/07/2020 07:15	4621627
IPC	Chlorite	300.0	10	---		231.3180	250	ug/L	93	90 - 110	---	---	1.0	---	05/07/2020 07:15	4621627
CCB	Chlorate	300.0	10	---	<	10		ug/L	---	---	---	---	1.0	---	05/07/2020 07:42	4621628
CCB	Chlorite	300.0	10	---	<	10		ug/L	---	---	---	---	1.0	---	05/07/2020 07:42	4621628

Eurofins Eaton Analytical
Run Log

Run ID: **274469** Method: **300.0**

Type	Sample Id	Sample Site	Matrix	Instrument ID	Analysis Date	Calibration File
ICB	4623020		RW	FT	05/07/2020 10:04	
QCS	4623026		RW	FT	05/07/2020 12:45	
IPC	4623028		RW	FT	05/07/2020 13:39	
LRB	4623029		RW	FT	05/07/2020 14:06	
LFB	4623030		RW	FT	05/07/2020 14:34	
FS	4619690	413933/54MW12	GW	FT	05/07/2020 15:01	
MS	4619691	413933/54MW12	GW	FT	05/07/2020 15:28	
MSD	4619692	413933/54MW12	GW	FT	05/07/2020 15:55	
IPC	4623031		RW	FT	05/07/2020 20:25	
CCB	4623032		RW	FT	05/07/2020 20:52	
CCB	4623034		RW	FT	05/08/2020 03:10	

QC Summary Report

Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID #
ICB	Chlorite	300.0	10	---	<	10		ug/L	---	---	---	---	1.0	---	05/07/2020 10:04	4623020
QCS	Chlorite	300.0	10	---		236.4110	250	ug/L	95	90 - 110	---	---	1.0	---	05/07/2020 12:45	4623026
IPC	Chlorite	300.0	10	---		248.3740	250	ug/L	99	90 - 110	---	---	1.0	---	05/07/2020 13:39	4623028
LRB	Chlorite	300.0	10	---	<	10		ug/L	---	---	---	---	1.0	---	05/07/2020 14:06	4623029
LFB	Chlorite	300.0	10	---		250.1050	250	ug/L	100	90 - 110	---	---	1.0	---	05/07/2020 14:34	4623030
FS	Chlorite	300.0	10	413933/54MW12	<	10		ug/L	---	---	---	---	1.0	---	05/07/2020 15:01	4619690
MS	Chlorite	300.0	10	413933/54MW12		208.9350	250	ug/L	**84**	90 - 110	---	---	1.0	---	05/07/2020 15:28	4619691
MSD	Chlorite	300.0	10	413933/54MW12		212.8050	250	ug/L	**85**	90 - 110	1.8	10	1.0	---	05/07/2020 15:55	4619692
IPC	Chlorite	300.0	10	---		243.5860	250	ug/L	97	90 - 110	---	---	1.0	---	05/07/2020 20:25	4623031
CCB	Chlorite	300.0	10	---	<	10		ug/L	---	---	---	---	1.0	---	05/07/2020 20:52	4623032
CCB	Chlorite	300.0	10	---	<	10		ug/L	---	---	---	---	1.0	---	05/08/2020 03:10	4623034

Sample Type Key

Type (Abbr.)	Sample Type	Type (Abbr.)	Sample Type
CCB	Continuing Calibration Blank		
FS	Field Sample		
ICB	Initial Calibration Blank		
IPC	Instrument Performance Check		
LFB	Laboratory Fortified Blank		
LRB	Laboratory Reagent Blank		
MS	Matrix Spike		
MSD	Matrix Spike Duplicate		
QCS	Quality Control Sample		

END OF REPORT

Eurofins Eaton Analytical

Method 300.0 B Ion Chromatography
Standard / Reagent Preparation Log

Run ID# 274400 **Instrument#** DT

Stocks/Reagents	Manufacturer	Lot Number	Date Received	Date Opened	Date of Expiration
Chlorite Cal Stock	Inorganic Ventures	N2-CLOX665406	8/9/2019	8/9/2019	8/9/2020
Bromide Cal Stock	Inorganic Ventures	P2-BR675946	8/9/2019	8/9/2019	8/9/2020
Chlorate Cal Stock	Inorganic Ventures	P2-CLOX678509	8/9/2019	8/9/2019	8/9/2020
Chlorite QC Stock	Sigm-Aldrich	LRAB9128	10/19/2018	11/5/2018	6/30/2020
Bromide QC Stock	Ultra Scientific	CP-3274	8/16/2016	8/16/2016	8/31/2020
Chlorate QC Stock	Agilent	ICC-011	7/30/2019	10/9/2019	5/31/2023
Ethylenediamine-99% (EDA)	Fisher	175344	2/13/2020	2/25/2020	N/A
Sodium Carbonate (Na_2CO_3)	Acros	A0366523	3/29/2016	4/1/2016	N/A

Working Solutions	Prep Instructions and Concentrations			
Cal Substock -25	1250 uL of each Cal Stock in 50 mL volume RW= 25.0 mg/L			
QC Substock- 25	1250 uL of each QC Stock in 50 mL volume RW= 25.0 mg/L			
Analyst:	SL	**Prep Date:**	3/12/2020	**Exp. Date:** 8/9/2020
LRB	100 ul EDA in 100 ml volume RW			
Cal 10	40 ul of Cal Substock+100 ul EDA in 100 ml volume RW= 10.0 ug/L			
Cal 20	80 ul of Cal Substock+100 ul EDA in 100 ml volume RW= 20.0 ug/L			
Cal 100	400 ul of Cal Substock+100 ul EDA in 100 ml volume RW= 100.0 ug/L			
Cal 250 & IPC	1000 ul of Cal Substock+100 ul EDA in 100 ml volume RW= 250.0 ug/L			
Cal 500	1000 ul of Cal Substock+50 ul EDA in 50 ml volume RW= 500.0 ug/L			
Cal 1000	1000 ul of Cal Substock+25 ul EDA in 25 ml volume RW= 1000.0 ug/L			
QCS	1000 ul of QC Substock+100 ul EDA in 100 ml volume RW= 250.0 ug/L			
Analyst:	SL	**Prep Date:**	5/6/2020	**Exp. Date:** 5/13/2020
RLC 10	4 ul of Cal Substock+10 ul EDA in 10 ml volume RW= 10.0 ug/L			
LFB 250	100 ul of Cal Substock+10 ul EDA in 10 ml volume RW= 250.0 ug/L			
Analyst:	SL	**Prep Date:**	5/6/2020	**Exp. Date:** 5/13/2020
EDA solution	5.6 mL EDA to 100 mL volume RW = 50 mg/mL			**Prep ID:** ICO52-70c
Analyst:	SL	**Prep Date:**	4/28/2020	**Exp. Date:** 5/28/2020
Eluent	1.91 g Na_2CO_3 in 2 L volume RW = 9.0 mM			**Prep ID:** IOC52-78a
Analyst:	SL	**Prep Date:**	4/24/2020	**Exp. Date:** 5/24/2020

Storage Conditions: All stocks and solutions are prepared and stored at room temperature.

Comments: Dionex IonPac AS9 2mm s/n 190416347, lot no. 01619035, installed 11/14/2019

Analyst: [signature] **Date:** 05/07/2020

Technician Review: [signature] **Date:** 05/07/2020

(signature)

Sample No.	Sample Name	Time	Amount Chlorite CD_1	Amount Bromide CD_1	Amount Chlorate CD_1
1	\ICB\RW\1\	05.06.20 14:37	n.a.	n.a.	n.a.
2	\ICS\RW\1\10	05.06.20 15:04	14.88	11.29	11.81
3	\ICS\RW\1\20	05.06.20 15:31	22.39	21.88	22.04
4	\ICS\RW\1\100	05.06.20 15:58	97.49	99.77	99.35
5	\ICS\RW\1\500	05.06.20 16:25	490.16	494.19	493.59
6	\ICS\RW\1\1000	05.06.20 16:52	1005.07	1002.88	1003.21
7	\QCS\RW\1\250	05.06.20 17:19	238.17	249.86	251.30
8	\RLC\RW\1\10	05.06.20 17:46	13.38	10.90	9.80
9	\IPC\RW\1\250	05.06.20 18:13	246.20	245.96	247.97
10	\LRB\RW\1\	05.06.20 18:40	n.a.	n.a.	n.a.
11	\LFB\RW\1\250	05.06.20 19:07	245.46	244.86	249.56
12	4617906\FS\DW\10\	05.06.20 19:33	141.22	6.66	12.57
13	4617908\FS\DW\10\	05.06.20 20:00	169.61	5.96	10.26
14	4619337\FS\DW\1\	05.06.20 20:27	370.19	10.28	76.61
15	4619337\MS\DW\1\250	05.06.20 20:54	594.59	254.00	315.51
16	4619337\MSD\DW\1\250	05.06.20 21:21	591.88	251.93	317.47
17	4619338\FS\DW\1\	05.06.20 21:48	442.61	7.93	130.76
18	4619339\FS\DW\1\	05.06.20 22:15	246.35	7.56	130.09
19	4619340\FS\DW\1\	05.06.20 22:42	351.84	5.06	161.68
20	4619341\FS\DW\1\	05.06.20 23:09	330.91	7.28	161.22
21	4619342\FS\DW\1\	05.06.20 23:36	369.39	6.83	156.50
22	4619343\FS\DW\1\	05.07.20 00:02	341.82	4.64	175.20
23	4619344\FS\DW\1\	05.07.20 00:29	246.29	8.77	129.94
24	\IPC\RW\1\250	05.07.20 00:56	233.09	250.37	254.68
25	\CCB\RW\1\	05.07.20 01:23	n.a.	n.a.	n.a.
26	4619349\FS\DW\1\	05.07.20 01:50	513.40	10.07	271.52
27	4619350\FS\DW\1\	05.07.20 02:17	372.42	10.83	236.08
28	4619351\FS\DW\1\	05.07.20 02:46	325.71	10.18	241.52
29	4619687\FS\GW\1\	05.07.20 03:13	n.a.	16.44	n.a.
30	4619688\FS\GW\1\	05.07.20 03:40	n.a.	18.31	n.a.
31	4619689\FS\GW\1\	05.07.20 04:07	n.a.	19.98	n.a.
32	4619690\FS\GW\1\	05.07.20 04:34	n.a.	24.19	n.a.
33	4619691\MS\GW\1\250	05.07.20 05:01	210.01	268.16	242.64
34	4619692\MSD\GW\1\250	05.07.20 05:28	219.15	270.32	242.43
35	4619693\FS\GW\1\	05.07.20 05:55	n.a.	13.81	n.a.
36	4620487\FS\SW\1\	05.07.20 06:22	n.a.	32.64	5.15
37	4620886\FS\SW\1\	05.07.20 06:49	n.a.	14.50	19.39
38	\IPC\RW\1\250	05.07.20 07:15	231.32	256.26	254.74
39	\CCB\RW\1\	05.07.20 07:42	n.a.	n.a.	n.a.
	Average:	**43957.965**			**198**
	Rel.Std.Dev:	**0.000 %**			**97.277 %**

Chromeleon (c) Dionex 1996-2006
Version 6.80 SR10 Build 2818 (166959)

Chromeleon (c) Dionex 1996-2006
Version 6.80 SR10 Build 2818 (166959)

Sequence: 050620A
Operator: US25_USR_SBNLABPCS

Printed: 5/7/2020 9:22:36 AM

Title:
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020
Timebase: ICS_5000_DT
#Samples: 39

Created: 5/6/2020 11:07:09 AM by US25_USR_SBNLABPCS
Last Update: 5/7/2020 9:22:29 AM by US25_USR_SBNLABPCS

No.	Name	Type	Pos.	Inj. Vol.	Program	Method	Status
1	\ICB\RW\1\	Standard	1	50.0	Met300B	Met300B	Finished
2	\ICS\RW\1\10	Standard	2	50.0	Met300B	Met300B	Finished
3	\ICS\RW\1\20	Standard	3	50.0	Met300B	Met300B	Finished
4	\ICS\RW\1\100	Standard	4	50.0	Met300B	Met300B	Finished
5	\ICS\RW\1\500	Standard	5	50.0	Met300B	Met300B	Finished
6	\ICS\RW\1\1000	Standard	6	50.0	Met300B	Met300B	Finished
7	\QCS\RW\1\250	Unknown	7	50.0	Met300B	Met300B	Finished
8	\RLC\RW\1\10	Unknown	8	50.0	Met300B	Met300B	Finished
9	\IPC\RW\1\250	Unknown	9	50.0	Met300B	Met300B	Finished
10	\LRB\RW\1\	Unknown	10	50.0	Met300B	Met300B	Finished
11	\LFB\RW\1\250	Unknown	11	50.0	Met300B	Met300B	Finished
12	4617906\FS\DW\10\	Unknown	12	50.0	Met300B	Met300B	Finished
13	4617908\FS\DW\10\	Unknown	13	50.0	Met300B	Met300B	Finished
14	4619337\FS\DW\1\	Unknown	14	50.0	Met300B	Met300B	Finished
15	4619337\MS\DW\1\250	Unknown	15	50.0	Met300B	Met300B	Finished
16	4619337\MSD\DW\1\250	Unknown	16	50.0	Met300B	Met300B	Finished
17	4619338\FS\DW\1\	Unknown	17	50.0	Met300B	Met300B	Finished
18	4619339\FS\DW\1\	Unknown	18	50.0	Met300B	Met300B	Finished
19	4619340\FS\DW\1\	Unknown	19	50.0	Met300B	Met300B	Finished
20	4619341\FS\DW\1\	Unknown	20	50.0	Met300B	Met300B	Finished
21	4619342\FS\DW\1\	Unknown	21	50.0	Met300B	Met300B	Finished
22	4619343\FS\DW\1\	Unknown	22	50.0	Met300B	Met300B	Finished
23	4619344\FS\DW\1\	Unknown	23	50.0	Met300B	Met300B	Finished
24	\IPC\RW\1\250	Unknown	24	50.0	Met300B	Met300B	Finished
25	\CCB\RW\1\	Unknown	25	50.0	Met300B	Met300B	Finished
26	4619349\FS\DW\1\	Unknown	26	50.0	Met300B	Met300B	Finished
27	4619350\FS\DW\1\	Unknown	27	50.0	Met300B	Met300B	Finished
28	4619351\FS\DW\1\	Unknown	28	50.0	Met300B	Met300B	Finished
29	4619687\FS\GW\1\	Unknown	29	50.0	Met300B	Met300B	Finished
30	4619688\FS\GW\1\	Unknown	30	50.0	Met300B	Met300B	Finished
31	4619689\FS\GW\1\	Unknown	31	50.0	Met300B	Met300B	Finished
32	4619690\FS\GW\1\	Unknown	32	50.0	Met300B	Met300B	Finished
33	4619691\MS\GW\1\250	Unknown	33	50.0	Met300B	Met300B	Finished
34	4619692\MSD\GW\1\250	Unknown	34	50.0	Met300B	Met300B	Finished

Title:
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020
Timebase: ICS_5000_DT
#Samples: 39
Created: 5/6/2020 11:07:09 AM by US25_USR_SBNLABPCS
Last Update: 5/7/2020 9:22:29 AM by US25_USR_SBNLABPCS

No.	Name	Inj. Date/Time	Weight	Dil. Factor	ISTD Amount	Sample ID	Replicate ID
1	\ICB\RW\1\	5/6/2020 2:37:55 PM	1.0000	1.0000	1.0000		10
2	\ICS\RW\1\10	5/6/2020 3:04:50 PM	1.0000	1.0000	1.0000		10
3	\ICS\RW\1\20	5/6/2020 3:31:44 PM	1.0000	1.0000	1.0000		10
4	\ICS\RW\1\100	5/6/2020 3:58:39 PM	1.0000	1.0000	1.0000		10
5	\ICS\RW\1\500	5/6/2020 4:25:33 PM	1.0000	1.0000	1.0000		10
6	\ICS\RW\1\1000	5/6/2020 4:52:27 PM	1.0000	1.0000	1.0000		10
7	\QCS\RW\1\250	5/6/2020 5:19:22 PM	1.0000	1.0000	1.0000		10
8	\RLC\RW\1\10	5/6/2020 5:46:16 PM	1.0000	1.0000	1.0000		10
9	\IPC\RW\1\250	5/6/2020 6:13:11 PM	1.0000	1.0000	1.0000		10
10	\LRB\RW\1\	5/6/2020 6:40:05 PM	1.0000	1.0000	1.0000		10
11	\LFB\RW\1\250	5/6/2020 7:07:00 PM	1.0000	1.0000	1.0000		10
12	4617906\FS\DW\10\	5/6/2020 7:33:54 PM	1.0000	1.0000	1.0000		10
13	4617908\FS\DW\10\	5/6/2020 8:00:49 PM	1.0000	1.0000	1.0000		10
14	4619337\FS\DW\1\	5/6/2020 8:27:43 PM	1.0000	1.0000	1.0000		10
15	4619337\MS\DW\1\250	5/6/2020 8:54:37 PM	1.0000	1.0000	1.0000		10
16	4619337\MSD\DW\1\250	5/6/2020 9:21:32 PM	1.0000	1.0000	1.0000		10
17	4619338\FS\DW\1\	5/6/2020 9:48:26 PM	1.0000	1.0000	1.0000		10
18	4619339\FS\DW\1\	5/6/2020 10:15:20 PM	1.0000	1.0000	1.0000		10
19	4619340\FS\DW\1\	5/6/2020 10:42:15 PM	1.0000	1.0000	1.0000		10
20	4619341\FS\DW\1\	5/6/2020 11:09:08 PM	1.0000	1.0000	1.0000		10
21	4619342\FS\DW\1\	5/6/2020 11:36:02 PM	1.0000	1.0000	1.0000		10
22	4619343\FS\DW\1\	5/7/2020 12:02:56 AM	1.0000	1.0000	1.0000		10
23	4619344\FS\DW\1\	5/7/2020 12:29:51 AM	1.0000	1.0000	1.0000		10
24	\IPC\RW\1\250	5/7/2020 12:56:46 AM	1.0000	1.0000	1.0000		10
25	\CCB\RW\1\	5/7/2020 1:23:40 AM	1.0000	1.0000	1.0000		10
26	4619349\FS\DW\1\	5/7/2020 1:50:34 AM	1.0000	1.0000	1.0000		10
27	4619350\FS\DW\1\	5/7/2020 2:17:27 AM	1.0000	1.0000	1.0000		10
28	4619351\FS\DW\1\	5/7/2020 2:46:57 AM	1.0000	1.0000	1.0000		10
29	4619687\FS\GW\1\	5/7/2020 3:13:48 AM	1.0000	1.0000	1.0000		10
30	4619688\FS\GW\1\	5/7/2020 3:40:42 AM	1.0000	1.0000	1.0000		10
31	4619689\FS\GW\1\	5/7/2020 4:07:37 AM	1.0000	1.0000	1.0000		10
32	4619690\FS\GW\1\	5/7/2020 4:34:31 AM	1.0000	1.0000	1.0000		10
33	4619691\MS\GW\1\250	5/7/2020 5:01:26 AM	1.0000	1.0000	1.0000		10
34	4619692\MSD\GW\1\250	5/7/2020 5:28:20 AM	1.0000	1.0000	1.0000		10

Sequence:	050620A		
Operator:	US25_USR_SBNLABPCS		Printed: 5/7/2020 9:22:36 AM
Title:			
Datasource:	SBNLAB003-PC_local		
Location:	ICS_5000_DT\300B\2020		
Timebase:	ICS_5000_DT	Created:	5/6/2020 11:07:09 AM by US25_USR_SBNLABPCS
#Samples:	39	Last Update:	5/7/2020 9:22:29 AM by US25_USR_SBNLABPCS

No.	Name	Comment
1	\ICB\RW\1\	
2	\ICS\RW\1\10	
3	\ICS\RW\1\20	
4	\ICS\RW\1\100	
5	\ICS\RW\1\500	
6	\ICS\RW\1\1000	
7	\QCS\RW\1\250	
8	\RLC\RW\1\10	
9	\IPC\RW\1\250	
10	\LRB\RW\1\	
11	\LFB\RW\1\250	
12	4617906\FS\DW\10\	
13	4617908\FS\DW\10\	
14	4619337\FS\DW\1\	
15	4619337\MS\DW\1\250	
16	4619337\MSD\DW\1\250	
17	4619338\FS\DW\1\	
18	4619339\FS\DW\1\	
19	4619340\FS\DW\1\	
20	4619341\FS\DW\1\	
21	4619342\FS\DW\1\	
22	4619343\FS\DW\1\	
23	4619344\FS\DW\1\	
24	\IPC\RW\1\250	
25	\CCB\RW\1\	
26	4619349\FS\DW\1\	
27	4619350\FS\DW\1\	
28	4619351\FS\DW\1\	
29	4619687\FS\GW\1\	
30	4619688\FS\GW\1\	
31	4619689\FS\GW\1\	
32	4619690\FS\GW\1\	
33	4619691\MS\GW\1\250	
34	4619692\MSD\GW\1\250	

Title:
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020
Timebase: ICS_5000_DT
#Samples: 39
Created: 5/6/2020 11:07:09 AM by US25_USR_SBNLABPCS
Last Update: 5/7/2020 9:22:29 AM by US25_USR_SBNLABPCS

No.	Name	Type	Pos.	Inj. Vol.	Program	Method	Status
35	4619693\FS\GW\1\	Unknown	35	50.0	Met300B	Met300B	Finished
36	4620487\FS\SW\1\	Unknown	36	50.0	Met300B	Met300B	Finished
37	4620886\FS\SW\1\	Unknown	37	50.0	Met300B	Met300B	Finished
38	\IPC\RW\1\250	Unknown	38	50.0	Met300B	Met300B	Finished
39	\CCB\RW\1\	Unknown	39	50.0	Met300B	Met300B	Finished

Title:
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020
Timebase: ICS_5000_DT
#Samples: 39
Created: 5/6/2020 11:07:09 AM by US25_USR_SBNLABPCS
Last Update: 5/7/2020 9:22:29 AM by US25_USR_SBNLABPCS

No.	Name	Inj. Date/Time	Weight	Dil. Factor	ISTD Amount	Sample ID	Replicate ID
35	4619693\FS\GW\1\	5/7/2020 5:55:14 AM	1.0000	1.0000	1.0000		10
36	4620487\FS\SW\1\	5/7/2020 6:22:08 AM	1.0000	1.0000	1.0000		10
37	4620886\FS\SW\1\	5/7/2020 6:49:02 AM	1.0000	1.0000	1.0000		10
38	\IPC\RW\1\250	5/7/2020 7:15:56 AM	1.0000	1.0000	1.0000		10
39	\CCB\RW\1\	5/7/2020 7:42:51 AM	1.0000	1.0000	1.0000		10

Title:
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020
Timebase: ICS_5000_DT
#Samples: 39
Created: 5/6/2020 11:07:09 AM by US25_USR_SBNLABPCS
Last Update: 5/7/2020 9:22:29 AM by US25_USR_SBNLABPCS

No.	Name	Comment
35	4619693\FS\GW\1\	
36	4620487\FS\SW\1\	
37	4620886\FS\SW\1\	
38	\IPC\RW\1\250	
39	\CCB\RW\1\	

Title: 300B
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020\050620A.SEQ Created: 3/6/2013 4:00:11 PM by SBNLab003
Timebase: ICS_5000_DT Changed: 2/19/2020 10:39:13 AM by US25_USR_SBNLABPCS

```
          Column_TC.AcquireExclusiveAccess
          Compartment_TC.AcquireExclusiveAccess
          Pressure.LowerLimit =              100 [psi]
          Pressure.UpperLimit =              3500 [psi]
          MaximumFlowRamp =                  6.00 [ml/min²]
          %A.Equate =                        "%A"
          Pump_1_Pressure.Step =             0.20 [s]
          Pump_1_Pressure.Average =          Off
          DeliverSpeed =                     4.0 [ml/min]
          DelayVolume =                      125 [µl]
          FlushFactor =                      10
          Sampler.LoadPosition
          DeliverSample                      Volume=5000
          EndSamplePrep
          CDet1.Data_Collection_Rate =       5.0 [Hz]
          Temperature_Compensation =         1.7 [%/°C]
          CellHeater.Mode                    = On
          CellHeater.TemperatureSet =        35.00 [°C]
          Column_TC.Mode =                   On
          Column_TC.TemperatureSet =         30.00 [°C]
          Compartment_TC.Mode =              On
          Compartment_TC.TemperatureSet =    30.00 [°C]
          Suppressor1.Type =                 ASRS_2mm
          Carbonate =                        9.0 [mM]
          CurrentSet =                       18 [mA]
          ; Suppressor1.Carbonate =         9.0
          ; Suppressor1.Bicarbonate =       0.0
          ; Suppressor1.Hydroxide =         0.0
          ; Suppressor1.Tetraborate =       0.0
          ; Suppressor1.Other eluent =      0.0
          ; Suppressor1.Recommended Current =              12
          ; ASRS300.Carbonate =             9.0
          ; ASRS300.Bicarbonate =           0.0
          ; ASRS300.Hydroxide =             0.0
          ; ASRS300.Tetraborate =           0.0
          ; ASRS300.Other eluent =          0.0
          ; ASRS300.Recommended Current =   16
          Flow =                             0.250 [ml/min]
          Curve =                            5

  0.000   CDet1.Autozero
          Wait                               Ready
          Wait                               CycleTimeState
          Inject
```

Title: 300B
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020\050620A.SEQ
Created: 3/6/2013 4:00:11 PM by SBNLab003
Timebase: ICS_5000_DT
Changed: 2/19/2020 10:39:13 AM by US25_USR_SBNLABPCS

```
          Pump_1_Pressure.AcqOn
          CD_1.AcqOn
          CD_1_Total.AcqOn

24.000    Pump_1_Pressure.AcqOff
          CD_1.AcqOff
          CD_1_Total.AcqOff
          Compartment_TC.ReleaseExclusiveAccess
          Column_TC.ReleaseExclusiveAccess
          End
```

Program File:	Met300B	Post-acquisition steps, Page 1 of 1
Operator:	US25_USR_SBNLABPCS	Printed: 5/7/2020 9:22:37 AM
Title:	300B	
Datasource:	SBNLAB003-PC_local	
Location:	ICS_5000_DT\300B\2020\050620A.SEQ	Created: 3/6/2013 4:00:11 PM by SBNLab003
Timebase:	ICS_5000_DT	Changed: 2/19/2020 10:39:13 AM by US25_USR_SBNLABPCS

No.	Channel	Operation	Parameters

Title: 300B
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020\050620A.SEQ
Created: 3/6/2013 4:00:11 PM by SBNLab003
Last Update: 5/7/2020 9:22:09 AM by US25_USR_SBNLABPCS

Blank Run Subtraction: No Blank Run Subtraction

Detection Table:

No.	Ret. Time [min]	Param. Name	Param. Value	Channel
1	0.000	Minimum Area	0.001 "[Signal]*min"	All Channels
2	0.000	Inhibit Integration	On	All Channels
3	0.000	Valley to Valley	On	All Channels
4	0.000	Peak Slice	3.00 s	All Channels
5	0.000	Sensitivity	0.01 "[Signal]"	All Channels
6	5.150	Inhibit Integration	Off	All Channels
7	6.000	Inhibit Integration	On	All Channels
8	10.150	Inhibit Integration	Off	All Channels
9	12.100	Inhibit Integration	On	All Channels

Title: 300B
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020\050620A.SEQ
Created: 3/6/2013 4:00:11 PM by SBNLab003
Last Update: 5/7/2020 9:22:09 AM by US25_USR_SBNLABPCS

Peak Table:

Use Recently Detected Retention Times: Off
Peak Retention Time Determination: Absolute
Dead time:
Delay Time of 2'nd Detector: <None>
Delay Time of 3'rd Detector: <None>

No.	Peak Name	Ret.Time	Window	Standard	Int.Type	Cal.Type	Peak Type	Group	Amount \ICB\RW\1\
1	Chlorite	5.460 min	2.500 RG	External	Area	LOff	Auto		0.000000
2	Bromide	10.630 min	5.000 RN	External	Area	LOff	Auto		0.000000
3	Chlorate	11.440 min	5.000 RN	External	Area	LOff	Auto		0.000000

Title: 300B
Datasource: SBNLAB003-PC_local
Created: 3/6/2013 4:00:11 PM by SBNLab003
Location: ICS_5000_DT\300B\2020\050620A.SEQ
Last Update: 5/7/2020 9:22:09 AM by US25_USR_SBNLABPCS

Peak Table:

Use Recently Detected Retention Times: Off
Peak Retention Time Determination: Absolute
Dead time:
Delay Time of 2'nd Detector: <None>
Delay Time of 3'rd Detector: <None>

No.	Peak Name	Ret.Time	Amount \ICS\RW\1\10	Amount \ICS\RW\1\20	Amount \ICS\RW\1\100	Amount \ICS\RW\1\250	Amount \ICS\RW\1\500	Amount \ICS\RW\1\1000
1	Chlorite	5.460 min	10.000000	20.000000	100.000000	250.000000	500.000000	1000.000000
2	Bromide	10.630 min	10.000000	20.000000	100.000000	250.000000	500.000000	1000.000000
3	Chlorate	11.440 min	10.000000	20.000000	100.000000	250.000000	500.000000	1000.000000

Title: 300B
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020\050620A.SEQ
Created: 3/6/2013 4:00:11 PM by SBNLab003
Last Update: 5/7/2020 9:22:09 AM by US25_USR_SBNLABPCS

Peak Table:

Use Recently Detected Retention Times: Off
Peak Retention Time Determination: Absolute
Dead time:
Delay Time of 2'nd Detector: <None>
Delay Time of 3'rd Detector: <None>

No.	Peak Name	Ret.Time	Comment
1	Chlorite	5.460 min	Autogenerated
2	Bromide	10.630 min	Autogenerated
3	Chlorate	11.440 min	Autogenerated

Title: 300B
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020\050620A.SEQ
Created: 3/6/2013 4:00:11 PM by SBNLab003
Last Update: 5/7/2020 9:22:09 AM by US25_USR_SBNLABPCS

Amount Table:

Dimension of Amounts:
Reference volume for amounts: Use inject volume of first standard
Number of Amount Columns: 7
Sample column used for amount column assignment: Sample Name

No.	Peak Name	Ret.Time	Resp.Fact.	Amount \ICB\RW\1\	Amount \ICS\RW\1\10	Amount \ICS\RW\1\20	Amount \ICS\RW\1\100	Amount \ICS\RW\1\250
1	Chlorite	5.460 min	1.000000	0.000000	10.000000	20.000000	100.000000	250.000000
2	Bromide	10.630 min	1.000000	0.000000	10.000000	20.000000	100.000000	250.000000
3	Chlorate	11.440 min	1.000000	0.000000	10.000000	20.000000	100.000000	250.000000

Title: 300B
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020\050620A.SEQ
Created: 3/6/2013 4:00:11 PM by SBNLab003
Last Update: 5/7/2020 9:22:09 AM by US25_USR_SBNLABPCS

Amount Table:

Dimension of Amounts:
Reference volume for amounts: Use inject volume of first standard
Number of Amount Columns: 7
Sample column used for amount column assignment: Sample Name

No.	Peak Name	Ret.Time	Amount \ICS\RW\1\500	Amount \ICS\RW\1\1000	Comment
1	Chlorite	5.460 min	500.000000	1000.000000	Autogenerated
2	Bromide	10.630 min	500.000000	1000.000000	Autogenerated
3	Chlorate	11.440 min	500.000000	1000.000000	Autogenerated

Title: 300B
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020\050620A.SEQ
Created: 3/6/2013 4:00:11 PM by SBNLab003
Last Update: 5/7/2020 9:22:09 AM by US25_USR_SBNLABPCS

Calibration:

Calibration Mode: Total
Auto Recalibrate: On
Curve Fitting Model: Normal
Dual-Column Separate Calibration: Off

No.	Enabled	Name	Smp.No.	Pos.	Inj. Vol.	Weight	ISTD Amount	Dil. Factor
1	☐	*\ICB\RW\1*	*1*	*1*	*50.0*	*1.0000*	*1.0000*	*1.0000*
2	☒	\ICS\RW\1\10	2	2	50.0	1.0000	1.0000	1.0000
3	☒	\ICS\RW\1\20	3	3	50.0	1.0000	1.0000	1.0000
4	☒	\ICS\RW\1\100	4	4	50.0	1.0000	1.0000	1.0000
5	☒	\ICS\RW\1\500	5	5	50.0	1.0000	1.0000	1.0000
6	☒	\ICS\RW\1\1000	6	6	50.0	1.0000	1.0000	1.0000

Title: 300B
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020\050620A.SEQ
Created: 3/6/2013 4:00:11 PM by SBNLab003
Last Update: 5/7/2020 9:22:09 AM by US25_USR_SBNLABPCS

Calibration:

Calibration Mode: Total
Auto Recalibrate: On
Curve Fitting Model: Normal
Dual-Column Separate Calibration: Off

No.	Enabled	Name	Inj. Date/Time	Sample Comment	Calib. Comment
1	☐	*\ICB\RW\1*	*5/6/2020 2:37:55 PM*		*Couldn't find the peak in the chromatogram.*
2	☒	\ICS\RW\1\10	5/6/2020 3:04:50 PM		Ok
3	☒	\ICS\RW\1\20	5/6/2020 3:31:44 PM		Ok
4	☒	\ICS\RW\1\100	5/6/2020 3:58:39 PM		Ok
5	☒	\ICS\RW\1\500	5/6/2020 4:25:33 PM		Ok
6	☒	\ICS\RW\1\1000	5/6/2020 4:52:27 PM		Ok

Title: 300B
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020\050620A.SEQ
Created: 3/6/2013 4:00:11 PM by SBNLab003
Last Update: 5/7/2020 9:22:09 AM by US25_USR_SBNLABPCS

System Suitability Test:

No.	Name	Sample Condition	Test Condition	Aggregate	Operator	Value	Rounding
1							

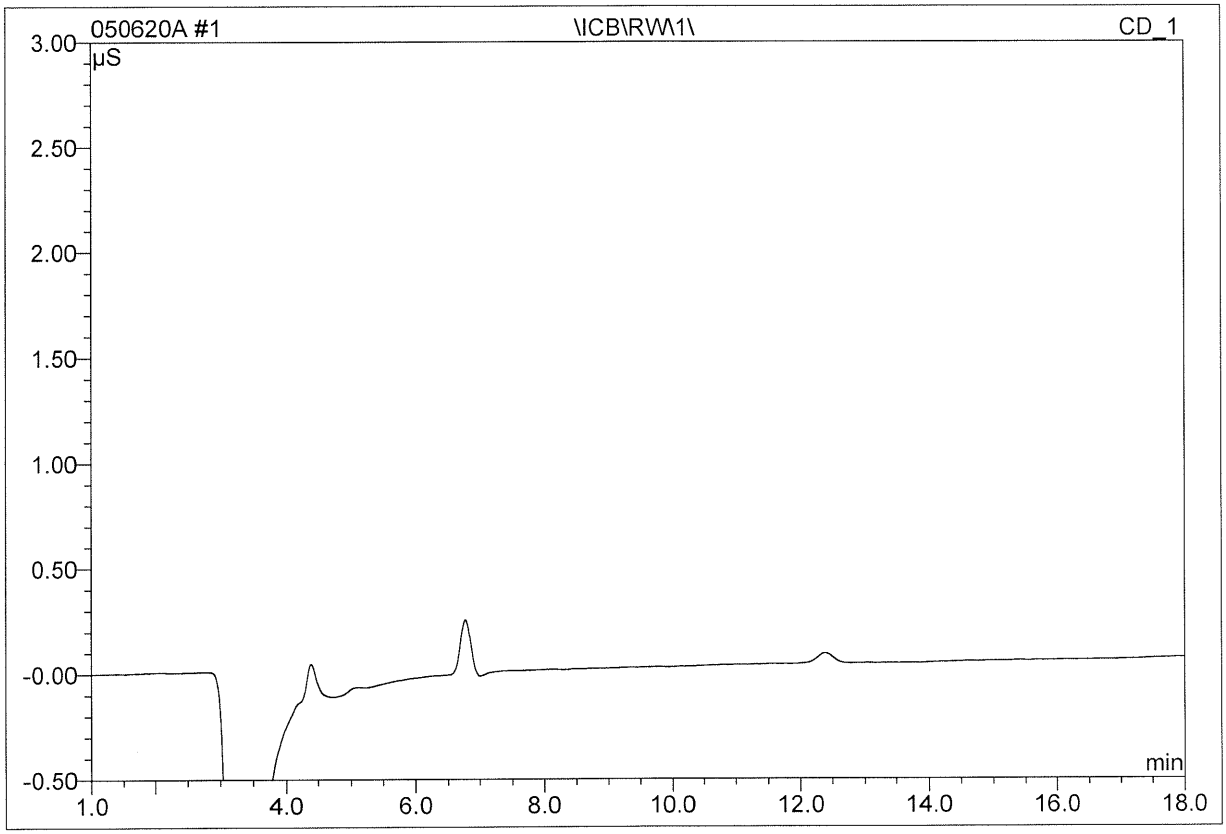
Title: 300B
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020\050620A.SEQ
Created: 3/6/2013 4:00:11 PM by SBNLab003
Last Update: 5/7/2020 9:22:09 AM by US25_USR_SBNLABPCS

System Suitability Test:

No.	Name	Channel	Peak	N.A.	Fail-Action	Result	SST Message
1							

1 \ICB\RW\1\

Sample Name:	**\ICB\RW\1**	*Injection Volume:*	**50.0**
Vial Number:	**1**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**5/6/2020 14:37**	*Sample Weight:*	**1.0000**
Run Time (min):	**24.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
Total:			0.000	0.000	0.00	0.000	

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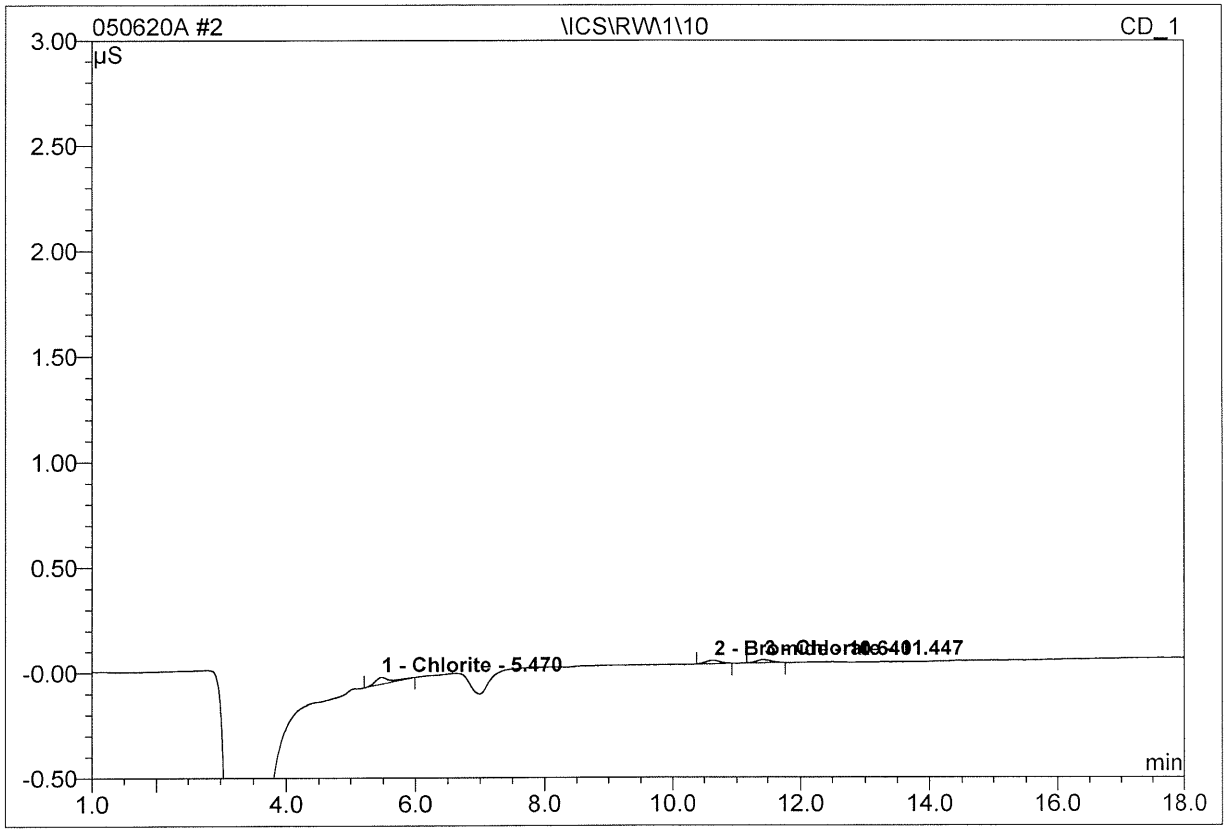
2 \ICS\RW\1\10

Sample Name:	**\ICS\RW\1\10**	*Injection Volume:*	**50.0**
Vial Number:	**2**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**5/6/2020 15:04**	*Sample Weight:*	**1.0000**
Run Time (min):	**24.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	5.47	Chlorite	2166.8	0.033	0.008	14.881	BMB
2	10.64	Bromide	2166.8	0.017	0.004	11.288	BMB
3	11.45	Chlorate	2166.8	0.014	0.004	11.809	BMB
Total:			6500.418	0.064	0.02	37.978	

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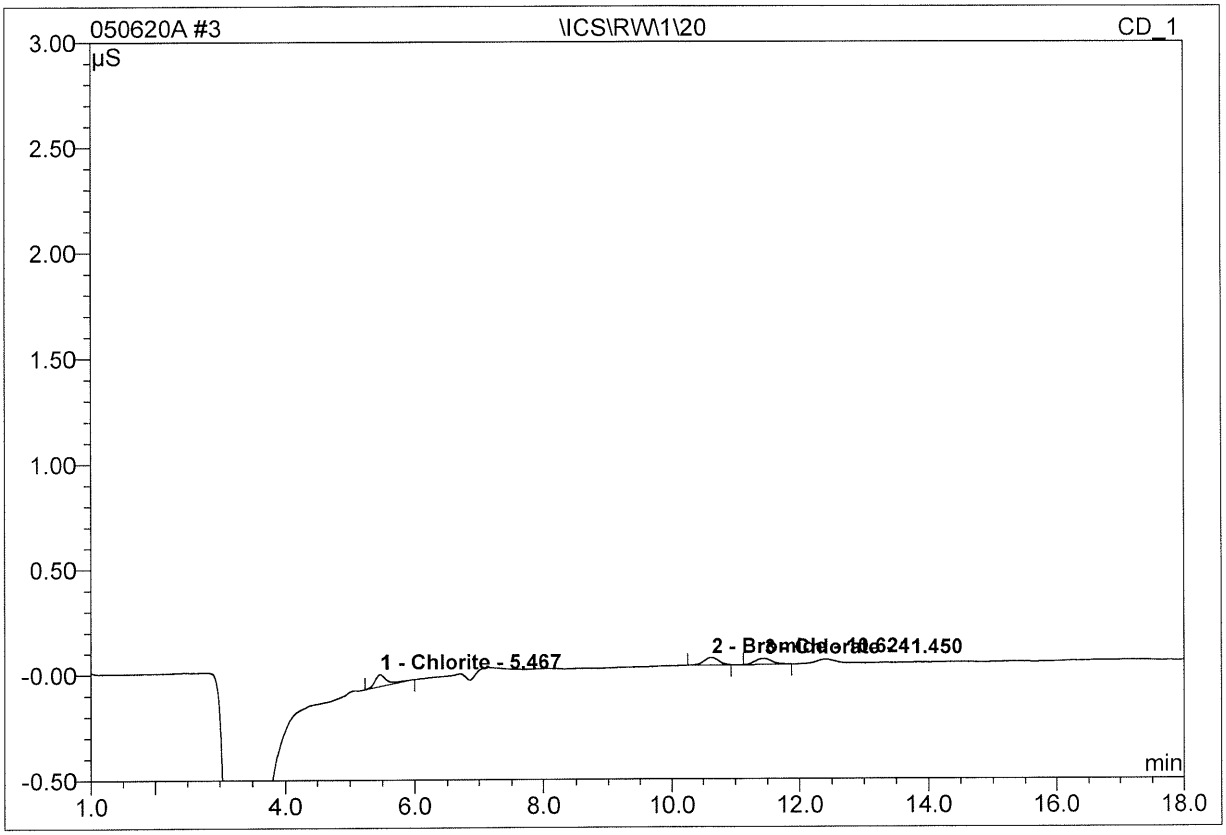
3 \ICS\RW\1\20

Sample Name:	**\ICS\RW\1\20**	*Injection Volume:*	**50.0**
Vial Number:	**3**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**5/6/2020 15:31**	*Sample Weight:*	**1.0000**
Run Time (min):	**24.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	5.47	Chlorite	2170.1	0.057	0.012	22.391	BMB
2	10.62	Bromide	2170.1	0.035	0.009	21.877	BMB
3	11.45	Chlorate	2170.1	0.028	0.009	22.039	BMB
Total:			6510.366	0.121	0.03	66.307	

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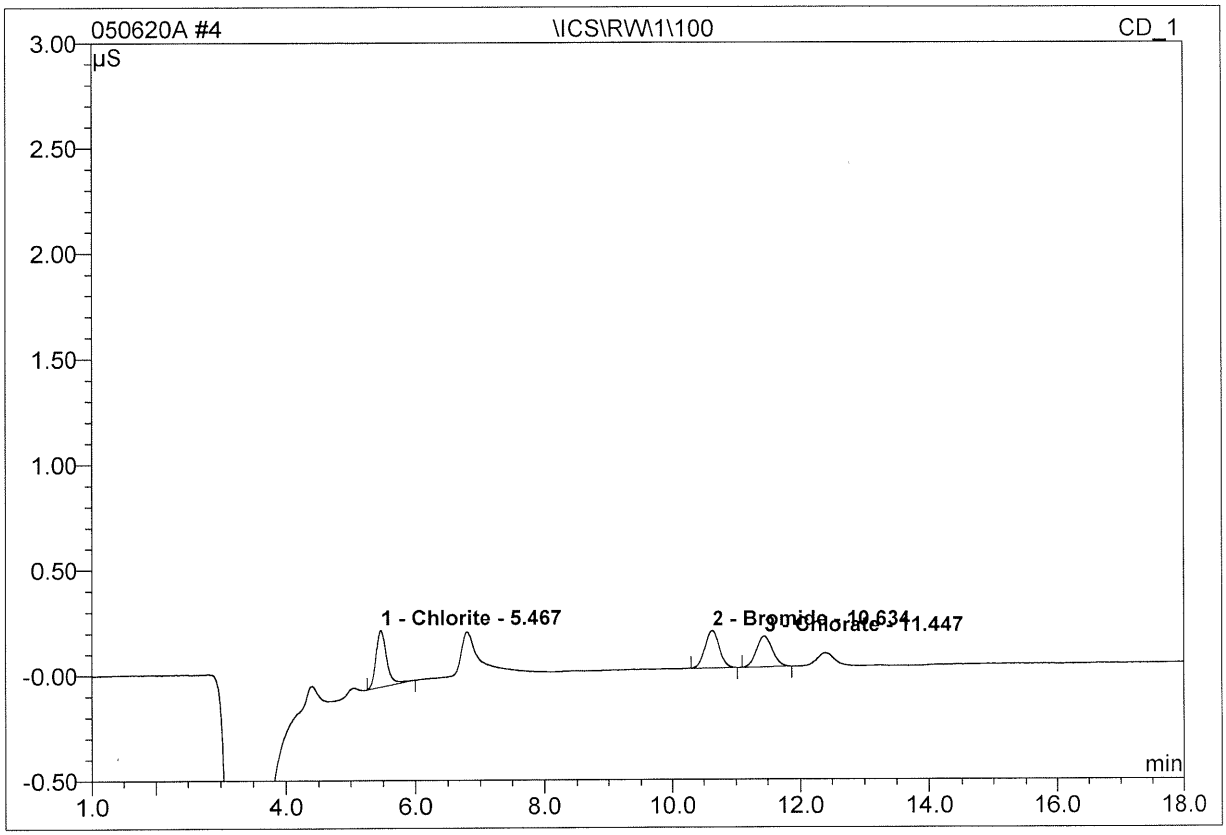
4 \ICS\RW\1\100

Sample Name:	**\ICS\RW\1\100**	*Injection Volume:*	**50.0**
Vial Number:	**4**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**5/6/2020 15:58**	*Sample Weight:*	**1.0000**
Run Time (min):	**24.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	5.47	Chlorite	2216.5	0.270	0.051	97.494	BMB
2	10.63	Bromide	2216.5	0.179	0.047	99.766	BMB
3	11.45	Chlorate	2216.5	0.146	0.042	99.351	BMB
Total:			6649.447	0.594	0.14	296.610	

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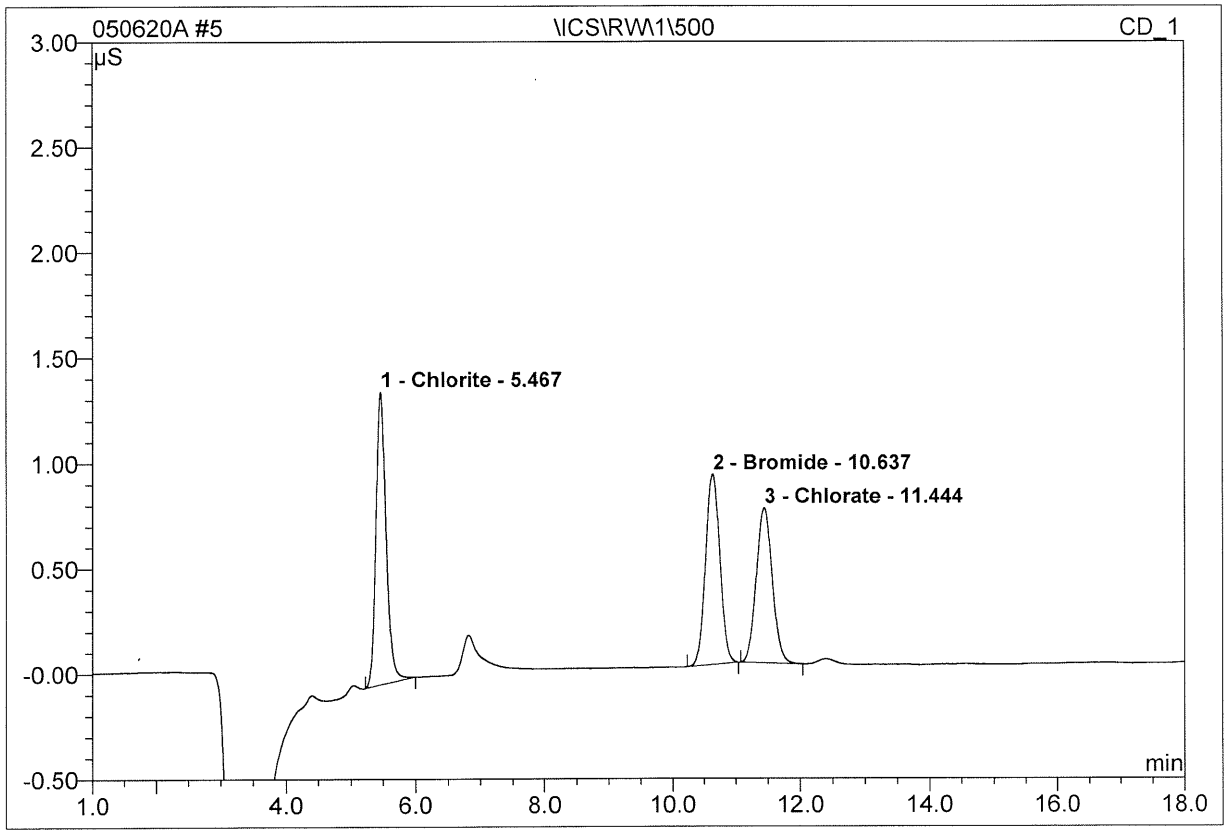
5 \ICS\RW\1\500

Sample Name:	**\ICS\RW\1\500**	*Injection Volume:*	**50.0**
Vial Number:	**5**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**5/6/2020 16:25**	*Sample Weight:*	**1.0000**
Run Time (min):	**24.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	5.47	Chlorite	2172.3	1.389	0.253	490.161	BMB
2	10.64	Bromide	2172.3	0.904	0.236	494.193	BMB
3	11.44	Chlorate	2172.3	0.737	0.213	493.590	BMB
Total:			6516.825	3.031	0.70	1477.943	

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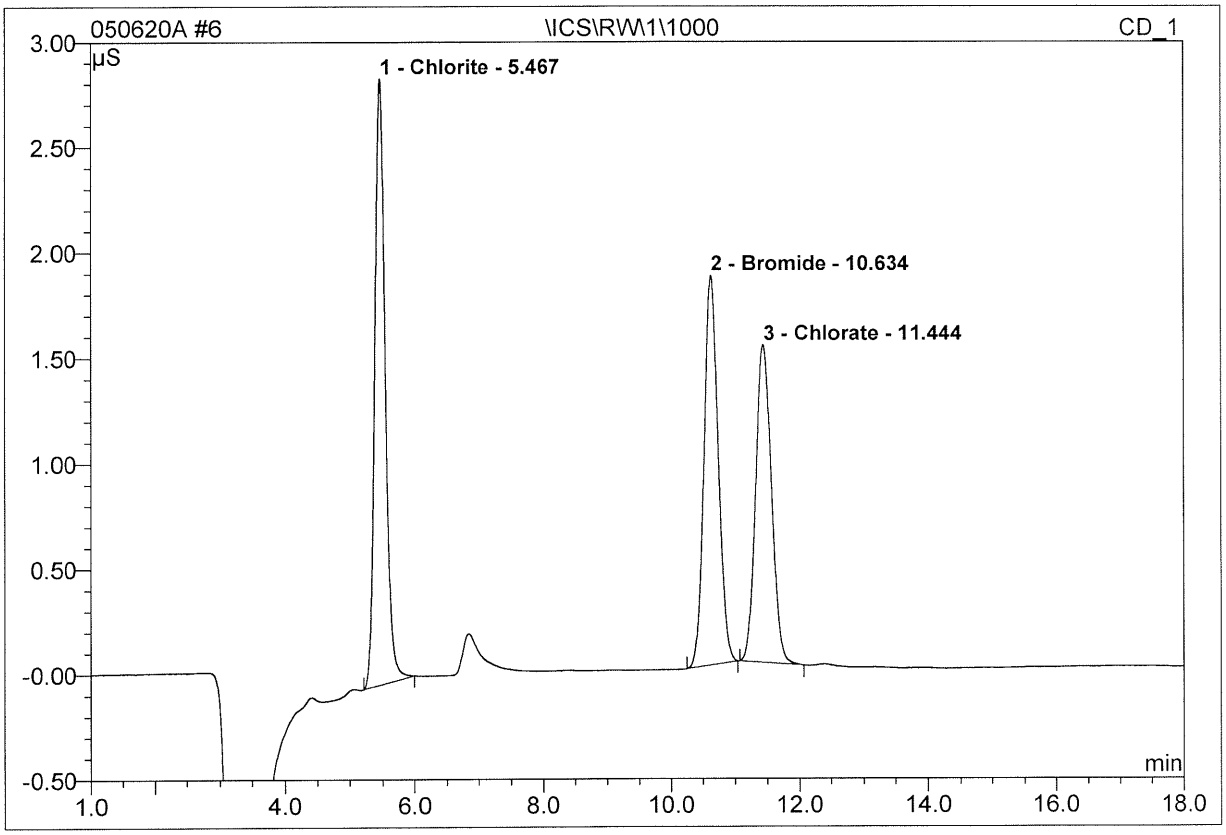
6 \ICS\RW\1\1000

Sample Name:	**\ICS\RW\1\1000**	*Injection Volume:*	**50.0**
Vial Number:	**6**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**5/6/2020 16:52**	*Sample Weight:*	**1.0000**
Run Time (min):	**24.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	5.47	Chlorite	2176.5	2.875	0.517	1005.074	BMB
2	10.63	Bromide	2176.5	1.848	0.479	1002.877	BMB
3	11.44	Chlorate	2176.5	1.506	0.435	1003.211	BMB
Total:			6529.397	6.229	1.43	3011.161	

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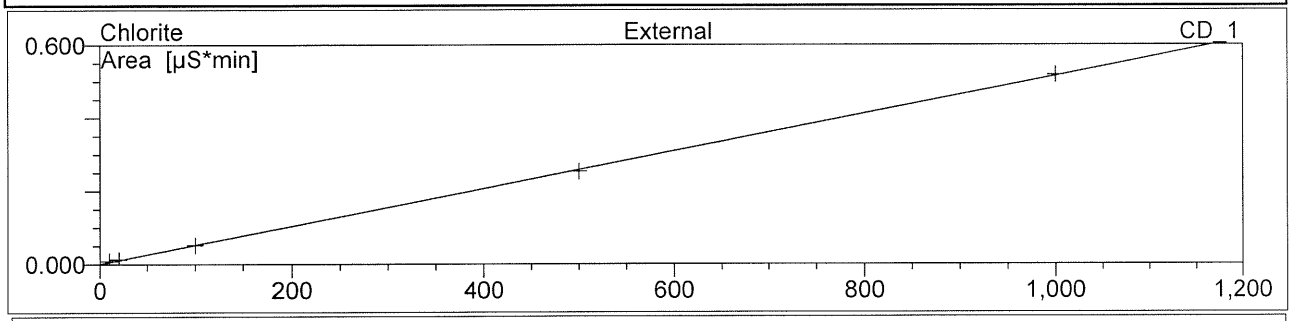
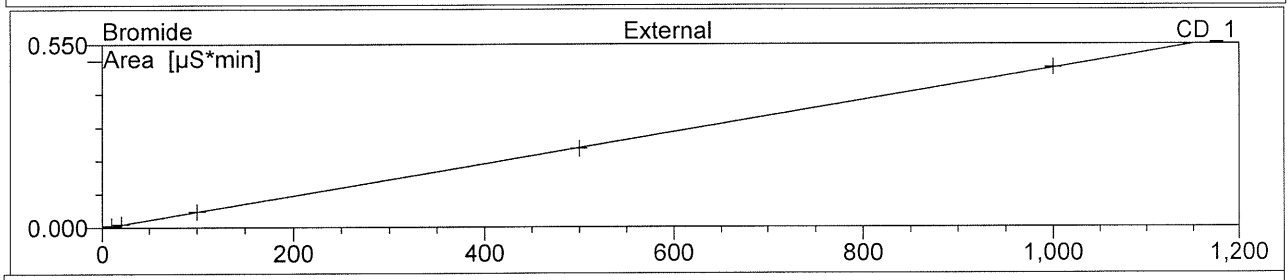
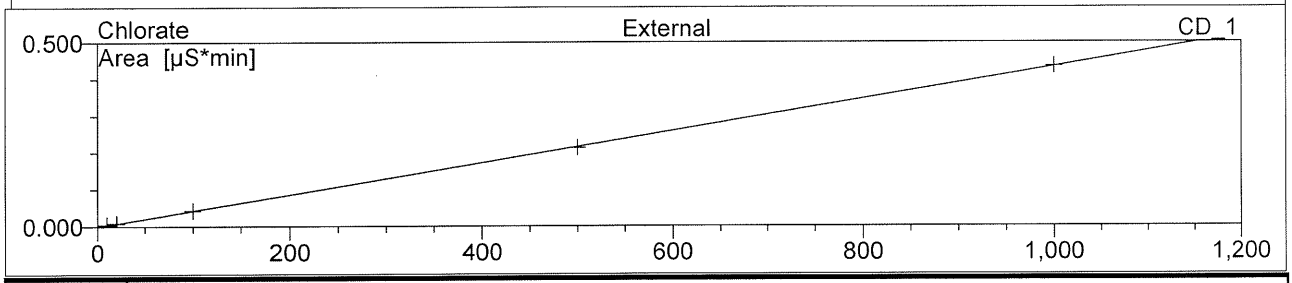
6 \ICS\RW\1\1000

Sample Name:	**\ICS\RW\1\1000**	*Injection Volume:*	**50.0**
Vial Number:	**6**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**5/6/2020 16:52**	*Sample Weight:*	**1.0000**
Run Time (min):	**24.00**	*Sample Amount:*	**1.0000**







No.	Ret.Time min	Peak Name	Cal.Type	Points	Corr.Coeff. %	Offset	Slope	Curve
1	5.47	Chlorite	LOff	5	99.989	0.0008	0.0005	0.0000
2	10.63	Bromide	LOff	5	99.997	-0.0011	0.0005	0.0000
3	11.44	Chlorate	LOff	5	99.996	-0.0010	0.0004	0.0000
Average:					99.9939	-0.0004	0.0005	0.0000

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7 \QCS\RW\1\250

Sample Name:	**\QCS\RW\1\250**	*Injection Volume:*	**50.0**
Vial Number:	**7**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**5/6/2020 17:19**	*Sample Weight:*	**1.0000**
Run Time (min):	**24.00**	*Sample Amount:*	**1.0000**

No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	5.46	Chlorite	2178.7	0.663	0.123	238.171	BMB
2	10.63	Bromide	2178.7	0.458	0.119	249.861	BMB
3	11.44	Chlorate	2178.7	0.375	0.108	251.303	BMB
Total:			6536.150	1.496	0.35	739.336	

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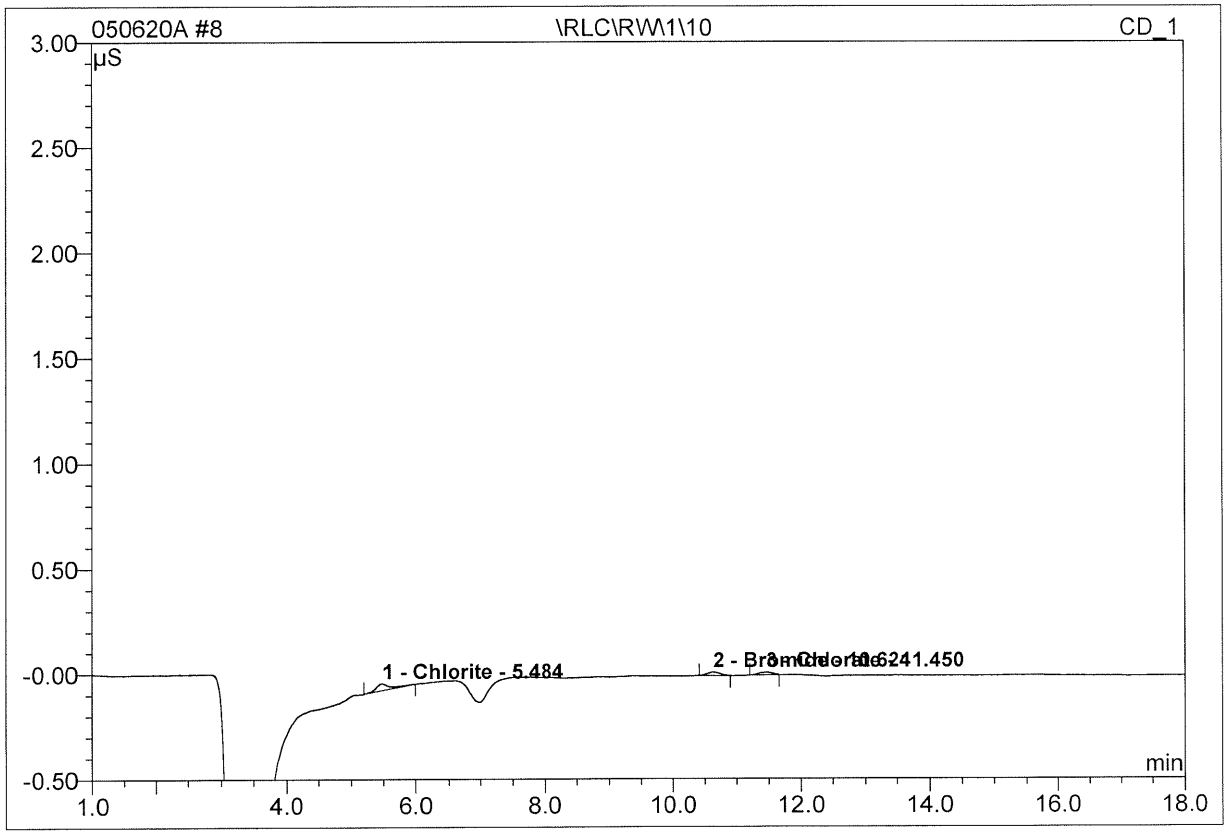
8 \RLC\RW\1\10

Sample Name:	**\RLC\RW\1\10**	*Injection Volume:*	**50.0**
Vial Number:	**8**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**5/6/2020 17:46**	*Sample Weight:*	**1.0000**
Run Time (min):	**24.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	5.48	Chlorite	2168.7	0.032	0.008	13.382	BMB
2	10.62	Bromide	2168.7	0.017	0.004	10.896	BMB
3	11.45	Chlorate	2168.7	0.013	0.003	9.803	BMB
Total:			6506.216	0.062	0.02	34.081	

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9 \IPC\RW\1\250

Sample Name:	**\IPC\RW\1\250**	*Injection Volume:*	**50.0**
Vial Number:	**9**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**5/6/2020 18:13**	*Sample Weight:*	**1.0000**
Run Time (min):	**24.00**	*Sample Amount:*	**1.0000**

No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	5.46	Chlorite	2171.5	0.690	0.127	246.200	BMB
2	10.63	Bromide	2171.5	0.449	0.117	245.956	BMB
3	11.44	Chlorate	2171.5	0.367	0.107	247.973	BMB
Total:			6514.382	1.506	0.35	740.130	

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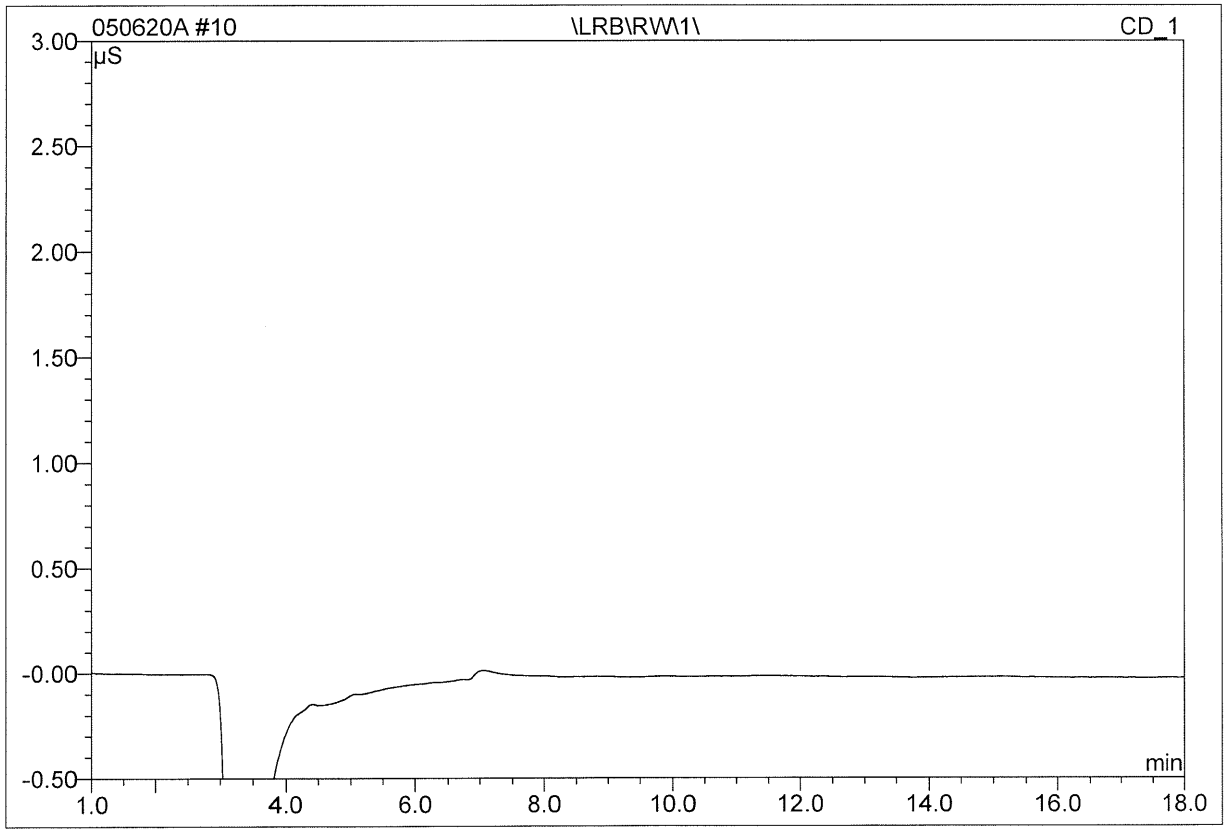
10 \LRB\RW\1\

Sample Name:	**\LRB\RW\1**	*Injection Volume:*	**50.0**
Vial Number:	**10**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**5/6/2020 18:40**	*Sample Weight:*	**1.0000**
Run Time (min):	**24.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
Total:			0.000	0.000	0.00	0.000	

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11 \LFB\RW\1\250

Sample Name:	**\LFB\RW\1\250**	*Injection Volume:*	**50.0**
Vial Number:	**11**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**5/6/2020 19:07**	*Sample Weight:*	**1.0000**
Run Time (min):	**24.00**	*Sample Amount:*	**1.0000**

No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	5.46	Chlorite	2178.1	0.683	0.127	245.457	BMB
2	10.63	Bromide	2178.1	0.444	0.116	244.859	BMB
3	11.44	Chlorate	2178.1	0.365	0.107	249.564	BMB
Total:			6534.253	1.492	0.35	739.880	

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24 \IPC\RW\1\250

Sample Name:	**\IPC\RW\1\250**	*Injection Volume:*	**50.0**
Vial Number:	**24**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**5/7/2020 0:56**	*Sample Weight:*	**1.0000**
Run Time (min):	**24.00**	*Sample Amount:*	**1.0000**

No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	5.47	Chlorite	2163.8	0.660	0.121	233.090	BMB
2	10.63	Bromide	2163.8	0.459	0.119	250.366	BMB
3	11.44	Chlorate	2163.8	0.379	0.110	254.677	BMB
Total:			6491.417	1.499	0.35	738.134	

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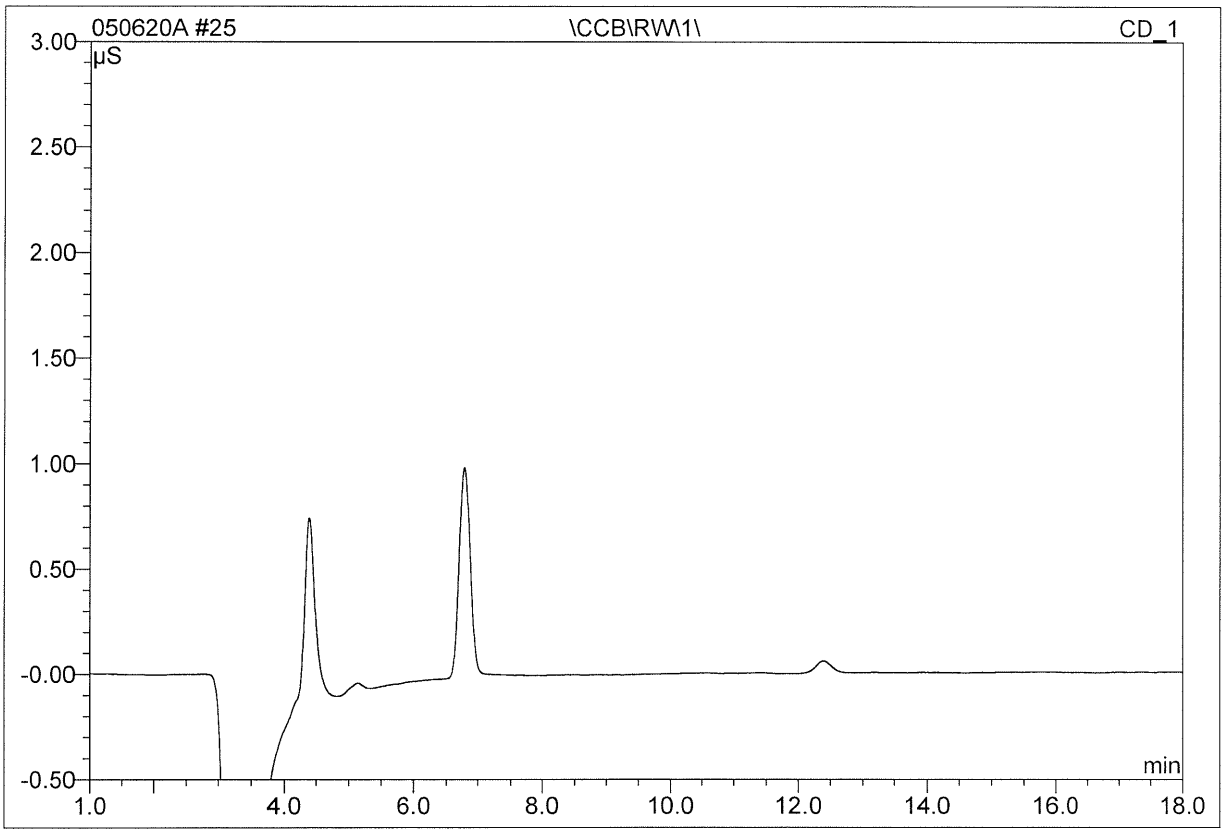
25 \CCB\RW\1\

Sample Name:	**\CCB\RW\1**	*Injection Volume:*	**50.0**
Vial Number:	**25**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**5/7/2020 1:23**	*Sample Weight:*	**1.0000**
Run Time (min):	**24.00**	*Sample Amount:*	**1.0000**

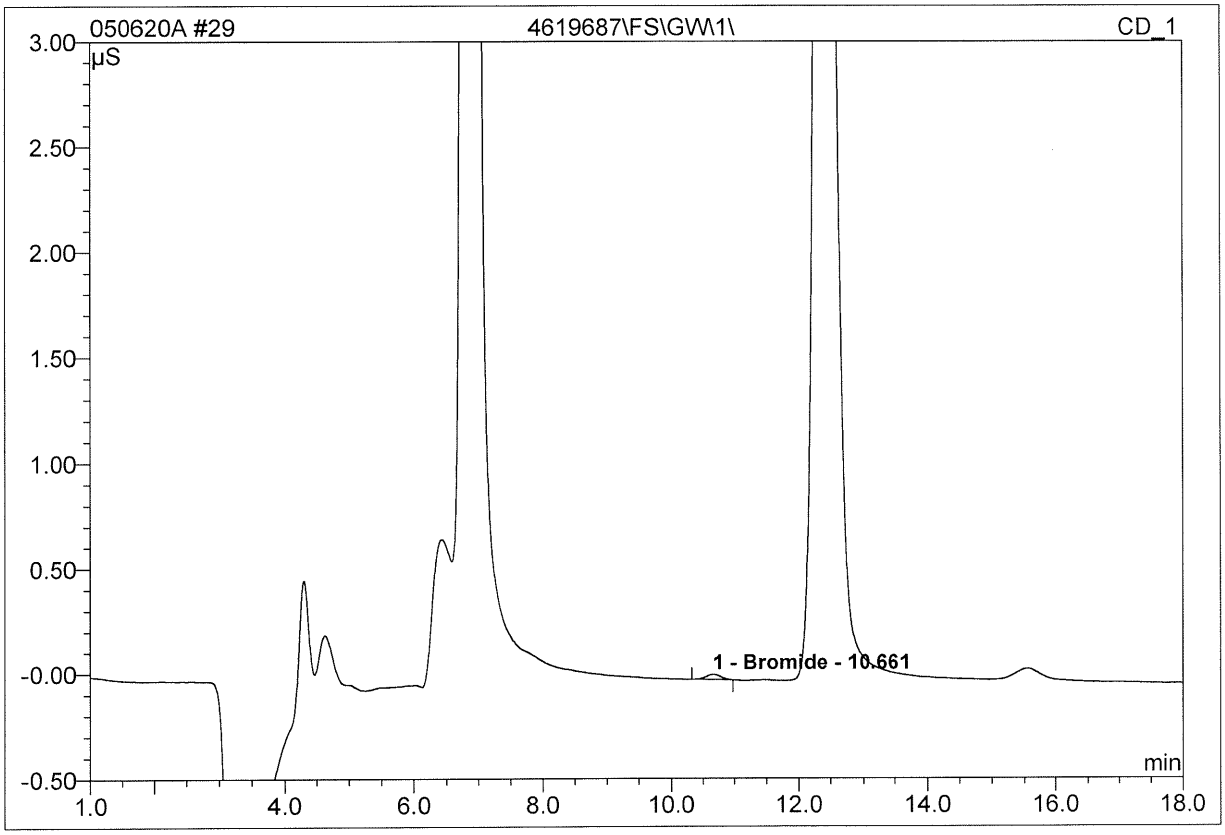


No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
Total:			0.000	0.000	0.00	0.000	

Chromeleon (c) Dionex 1996-2006
Version 6.80 SR10 Build 2818 (166959)

29 4619687\FS\GW\1\

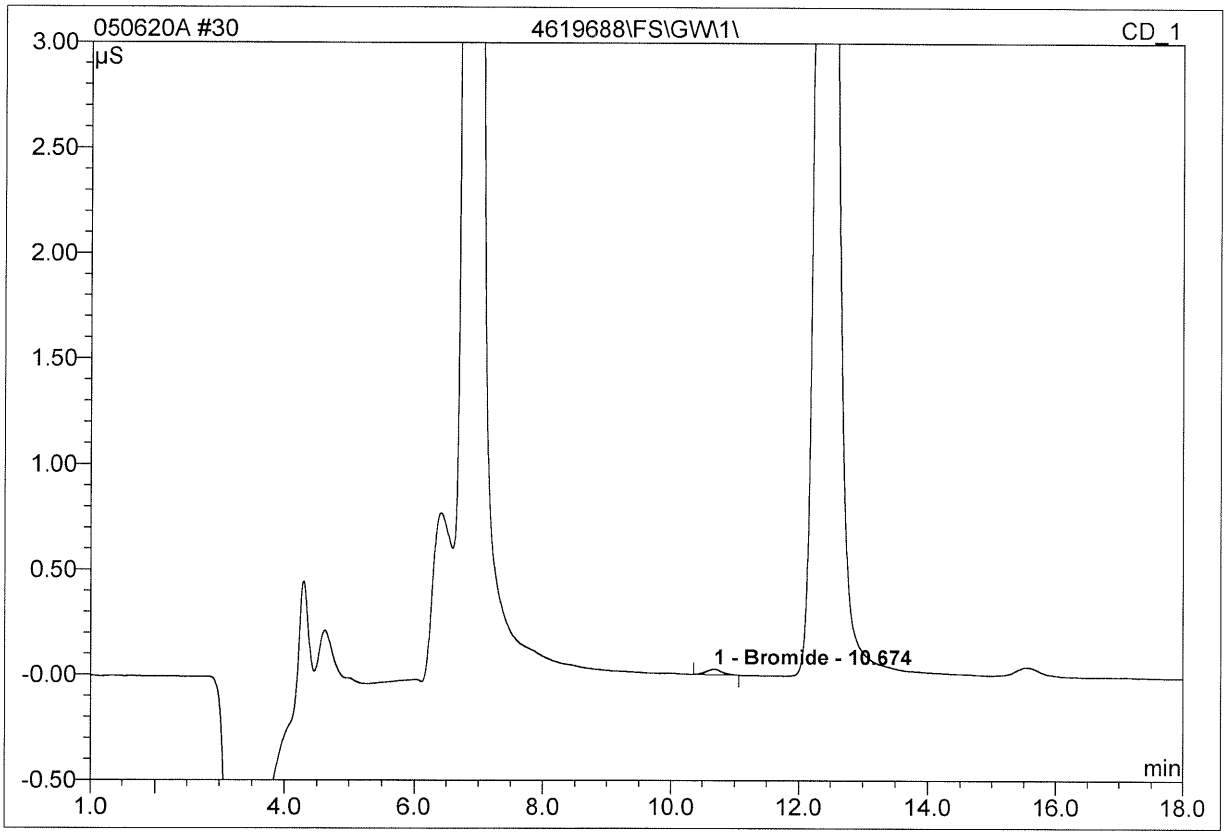
Sample Name:	**4619687\FS\GW\1**	*Injection Volume:*	**50.0**
Vial Number:	**29**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**5/7/2020 3:13**	*Sample Weight:*	**1.0000**
Run Time (min):	**24.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	10.66	Bromide	2150.3	0.025	0.007	16.445	BMB
Total:			2150.318	0.025	0.01	16.445	

30 4619688\FS\GW\1\

Sample Name:	**4619688\FS\GW\1**	*Injection Volume:*	**50.0**
Vial Number:	**30**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**5/7/2020 3:40**	*Sample Weight:*	**1.0000**
Run Time (min):	**24.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	10.67	Bromide	2161.2	0.027	0.008	18.311	BMB
Total:			2161.220	0.027	0.01	18.311	

Chromeleon (c) Dionex 1996-2006
Version 6.80 SR10 Build 2818 (166959)

31 4619689\FS\GW\1\

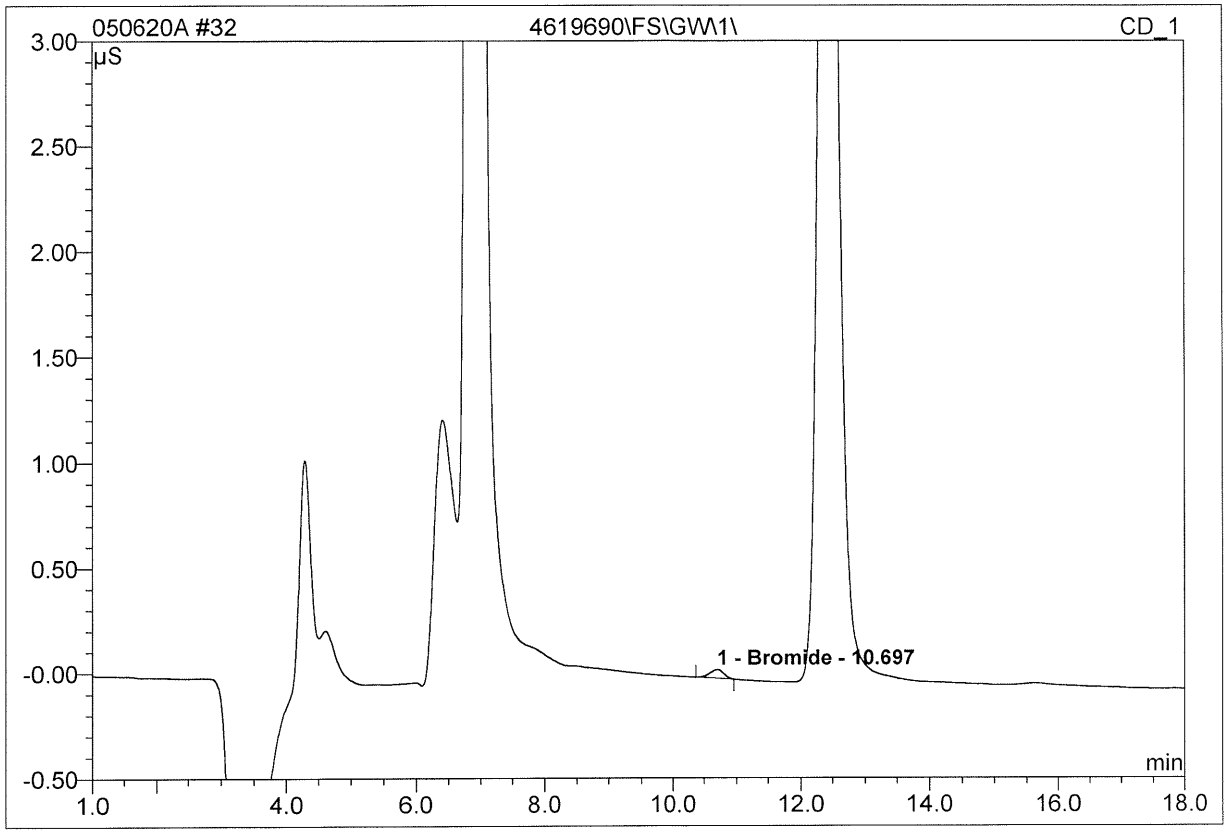
Sample Name:	**4619689\FS\GW\1**	*Injection Volume:*	**50.0**
Vial Number:	**31**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**5/7/2020 4:07**	*Sample Weight:*	**1.0000**
Run Time (min):	**24.00**	*Sample Amount:*	**1.0000**

No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	10.68	Bromide	2273.4	0.030	0.008	19.982	BMB
Total:			2273.358	0.030	0.01	19.982	

Chromeleon (c) Dionex 1996-2006
Version 6.80 SR10 Build 2818 (166959)

32 4619690\FS\GW\1\

Sample Name:	**4619690\FS\GW\1**	*Injection Volume:*	**50.0**
Vial Number:	**32**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**5/7/2020 4:34**	*Sample Weight:*	**1.0000**
Run Time (min):	**24.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	10.70	Bromide	2156.6	0.041	0.010	24.186	BMB
Total:			2156.644	0.041	0.01	24.186	

Chromeleon (c) Dionex 1996-2006
Version 6.80 SR10 Build 2818 (166959)

33 4619691\MS\GW\1\250

Sample Name:	**4619691\MS\GW\1\250**	*Injection Volume:*	**50.0**
Vial Number:	**33**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**5/7/2020 5:01**	*Sample Weight:*	**1.0000**
Run Time (min):	**24.00**	*Sample Amount:*	**1.0000**

No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	5.47	Chlorite	2149.8	0.376	0.109	210.012	BMB
2	10.70	Bromide	2149.8	0.473	0.127	268.157	BMB
3	11.51	Chlorate	2149.8	0.354	0.104	242.638	BMB
Total:			6449.454	1.202	0.34	720.807	

Chromeleon (c) Dionex 1996-2006
Version 6.80 SR10 Build 2818 (166959)

34 4619692\MSD\GW\1\250

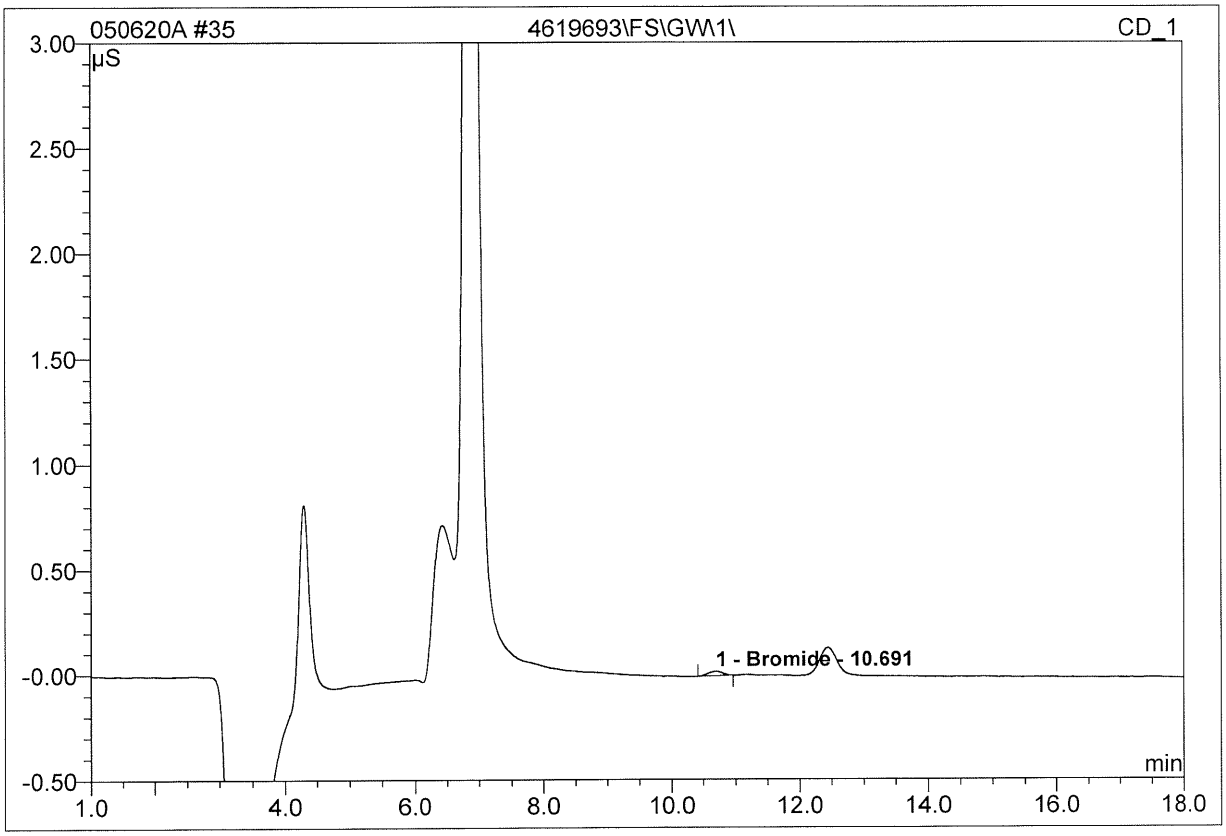
Sample Name:	**4619692\MSD\GW\1\250**	*Injection Volume:*	**50.0**
Vial Number:	**34**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**5/7/2020 5:28**	*Sample Weight:*	**1.0000**
Run Time (min):	**24.00**	*Sample Amount:*	**1.0000**

No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	5.47	Chlorite	2152.5	0.381	0.113	219.150	BMB
2	10.69	Bromide	2152.5	0.473	0.128	270.317	BMB
3	11.50	Chlorate	2152.5	0.352	0.104	242.429	BMB
Total:			6457.385	1.207	0.35	731.896	

Chromeleon (c) Dionex 1996-2006
Version 6.80 SR10 Build 2818 (166959)

35 4619693\FS\GW\1\

Sample Name:	**4619693\FS\GW\1**	*Injection Volume:*	**50.0**
Vial Number:	**35**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**5/7/2020 5:55**	*Sample Weight:*	**1.0000**
Run Time (min):	**24.00**	*Sample Amount:*	**1.0000**

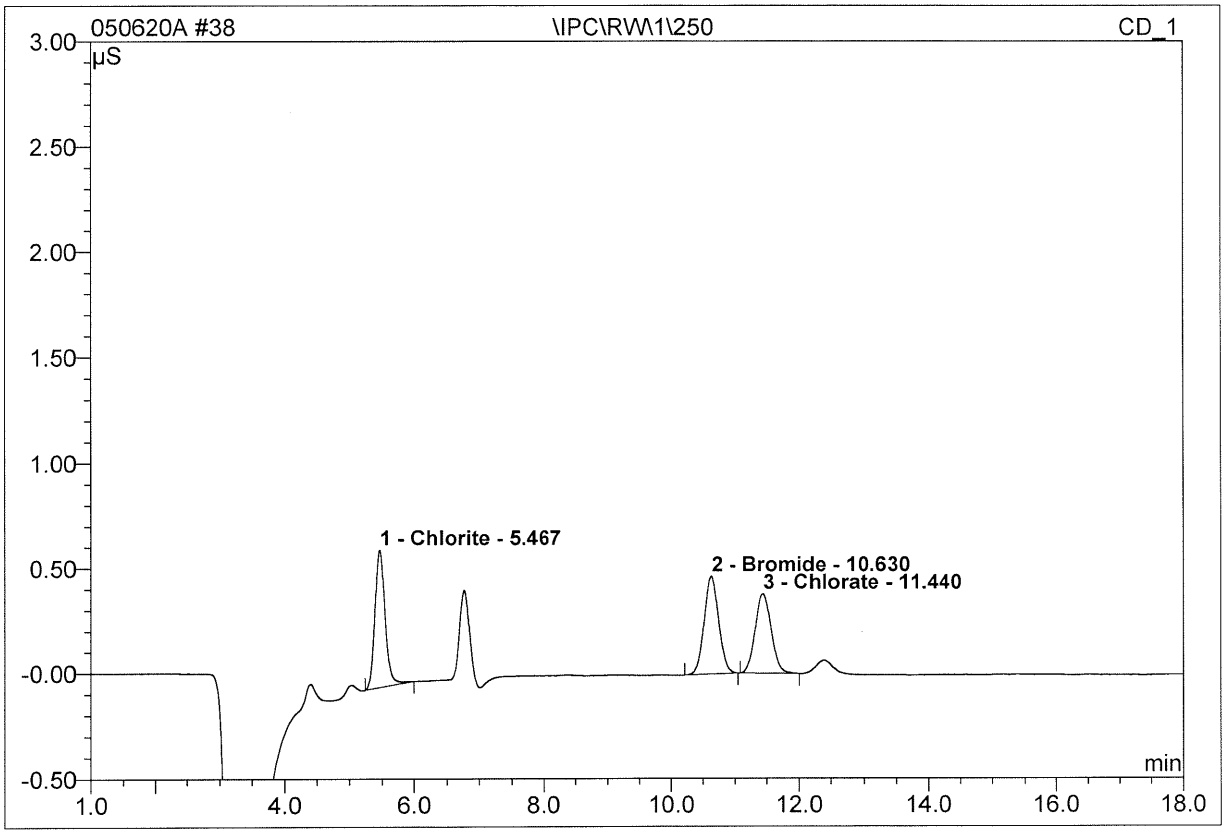


No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	10.69	Bromide	2216.1	0.022	0.006	13.810	BMB
Total:			2216.110	0.022	0.01	13.810	

Chromeleon (c) Dionex 1996-2006
Version 6.80 SR10 Build 2818 (166959)

38 \IPC\RW\1\250

Sample Name:	**\IPC\RW\1\250**	*Injection Volume:*	**50.0**
Vial Number:	**38**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**5/7/2020 7:15**	*Sample Weight:*	**1.0000**
Run Time (min):	**24.00**	*Sample Amount:*	**1.0000**

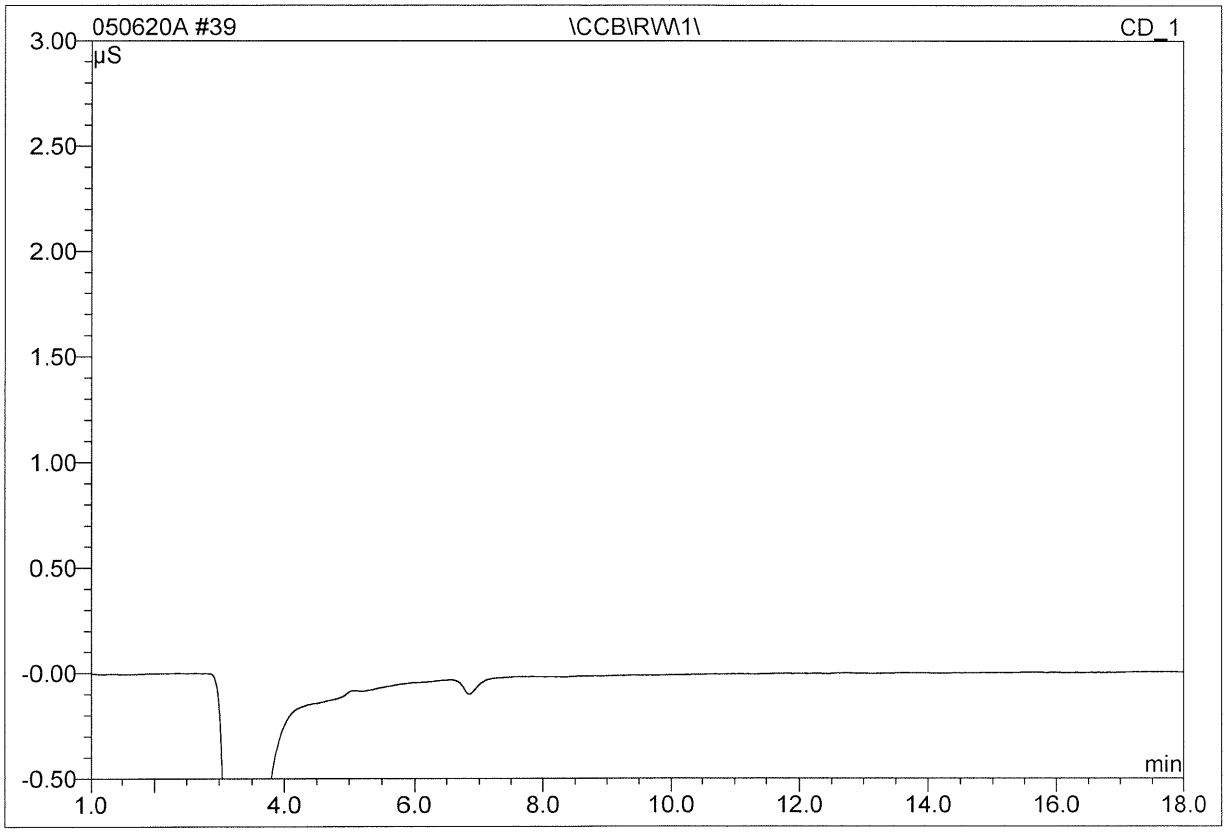


No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	5.47	Chlorite	2170.0	0.655	0.120	231.318	BMB
2	10.63	Bromide	2170.0	0.467	0.122	256.256	BMB
3	11.44	Chlorate	2170.0	0.380	0.110	254.740	BMB
Total:			6510.060	1.501	0.35	742.314	

Chromeleon (c) Dionex 1996-2006
Version 6.80 SR10 Build 2818 (166959)

39 \CCB\RW\1\

Sample Name:	**\CCB\RW\1**	*Injection Volume:*	**50.0**
Vial Number:	**39**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**5/7/2020 7:42**	*Sample Weight:*	**1.0000**
Run Time (min):	**24.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
Total:			0.000	0.000	0.00	0.000	

Chromeleon (c) Dionex 1996-2006
Version 6.80 SR10 Build 2818 (166959)

Eurofins Eaton Analytical

Method 300.0 B Ion Chromatography
Standard / Reagent Preparation Log

Run ID# 274469 **Instrument#** FT

Stocks/Reagents	Manufacturer	Lot Number	Date Received	Date Opened	Date of Expiration
Chlorite Cal Stock	Inorganic Ventures	N2-CLOX665406	8/9/2019	8/9/2019	8/9/2020
Bromide Cal Stock	Inorganic Ventures	P2-BR675946	8/9/2019	8/9/2019	8/9/2020
Chlorate Cal Stock	Inorganic Ventures	P2-CLOX678509	8/9/2019	8/9/2019	8/9/2020
Chlorite QC Stock	Sigm-Aldrich	LRAB9128	10/19/2018	11/5/2018	6/30/2020
Bromide QC Stock	Ultra Scientific	CP-3274	8/16/2016	8/16/2019	8/31/2020
Chlorate QC Stock	Agilent	ICC-011	7/30/2019	10/9/2019	5/31/2023
Ethylenediamine-99% (EDA)	Fisher	175344	3/8/2018	3/8/2018	N/A
Sodium Carbonate (Na_2CO_3)	Acros	A0366523	3/29/2016	4/1/2016	N/A

Working Solutions	Prep Instructions and Concentrations			
Cal Substock -25	1250 uL of each Cal Stock in 50 mL volume RW= 25.0 mg/L			
QC Substock- 25	1250 uL of each QC Stock in 50 mL volume RW= 25.0 mg/L			
Analyst:	SL	**Prep Date:**	3/12/2020	**Exp. Date:** 8/9/2020
LRB	100 ul EDA in 100 ml volume RW			
Cal 10	40 ul of Cal Substock+100 ul EDA in 100 ml volume RW= 10.0 ug/L			
Cal 20	80 ul of Cal Substock+100 ul EDA in 100 ml volume RW= 20.0 ug/L			
Cal 100	400 ul of Cal Substock+100 ul EDA in 100 ml volume RW= 100.0 ug/L			
Cal 250 & IPC	1000 ul of Cal Substock+100 ul EDA in 100 ml volume RW= 250.0 ug/L			
Cal 500	1000 ul of Cal Substock+50 ul EDA in 50 ml volume RW= 500.0 ug/L			
Cal 1000	1000 ul of Cal Substock+25 ul EDA in 25 ml volume RW= 1000.0 ug/L			
QCS	1000 ul of QC Substock+100 ul EDA in 100 ml volume RW= 250.0 ug/L			
Analyst:	SL	**Prep Date:**	5/6/2020	**Exp. Date:** 5/13/2020
RLC 10	4 ul of Cal Substock+10 ul EDA in 10 ml volume RW= 10.0 ug/L			
LFB 250	100 ul of Cal Substock+10 ul EDA in 10 ml volume RW= 250.0 ug/L			
Analyst:	SL	**Prep Date:**	5/7/2020	**Exp. Date:** 5/13/2020
EDA solution	5.6 mL EDA to 100 mL volume RW = 50 mg/mL			**Prep ID:** IOC52-70c
Analyst:	SL	**Prep Date:**	4/28/2020	**Exp. Date:** 5/28/2020
Eluent	1.91 g Na_2CO_3 in 2 L volume RW = 9.0 mM			**Prep ID:** IOC52-75c
Analyst:	SL	**Prep Date:**	5/7/2020	**Exp. Date:** 6/7/2020

Storage Conditions: All stocks and solutions are prepared and stored at room temperature.

Comments: Analytical column: Dionex IonPac AS9 2mm s/n 190415290, lot no. 01619035, installed 11/14/2019

Analyst: [signature] **Date:** 05/08/2020

Technician Review: [signature] **Date:** 05/08/2020

(signature)

Summary

Sequence Details		
Name:	**050720A**	**29/Aug/18 17:10:22**
Directory:	**Instrument Data\FT\300B\2020**	**us25_usr_sbnlabpcs**
Data Vault:	**ChromeleonLocal**	**08/May/20 12:29:10**
No. of Injections:	**39**	**US25_USR_SBNLabPCs**

By Component	Chlorite

No.	Injection Name	Inject Time	Area µS*min CD Chlorite	Amount ug/L CD Chlorite	Area µS*min CD Bromide	Amount ug/L CD Bromide	Area µS*min CD Chlorate	Amount ug/L CD Chlorate
1	\ICB\RW\1\	05/07/20 10:04	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2	\ICS\RW\1\10	05/07/20 10:30	0.014	14.806	0.007	12.121	0.005	10.921
3	\ICS\RW\1\20	05/07/20 10:57	0.017	19.397	0.012	20.286	0.011	21.411
4	\ICS\RW\1\100	05/07/20 11:24	0.074	96.555	0.059	95.956	0.054	98.199
5	\ICS\RW\1\500	05/07/20 11:51	0.371	497.867	0.311	502.518	0.277	498.653
6	\ICS\RW\1\1000	05/07/20 12:18	0.743	1001.375	0.618	999.118	0.557	1000.816
7	\QCS\RW\1\250	05/07/20 12:45	0.177	236.411	0.156	252.211	0.141	253.859
8	\RLC\RW\1\10	05/07/20 13:12	0.008	6.678	0.006	10.916	0.005	10.606
9	\IPC\RW\1\250	05/07/20 13:39	0.186	248.374	0.154	248.811	0.135	244.728
10	\LRB\RW\1\	05/07/20 14:06	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
11	\LFB\RW\1\250	05/07/20 14:34	0.187	250.105	0.155	250.620	0.140	252.165
12	4619690\FS\GW\1\	05/07/20 15:01	n.a.	n.a.	0.015	25.248	n.a.	n.a.
13	4619691\MS\GW\1\250	05/07/20 15:28	0.157	208.935	0.166	268.875	0.123	221.999
14	4619692\MSD\GW\1\250	05/07/20 15:55	0.160	212.805	0.163	264.280	0.123	222.917
15	4619547\FS\DW\1\	05/07/20 16:22	0.377	507.063	n.a.	n.a.	0.183	330.503
16	4619548\FS\DW\1\	05/07/20 16:49	0.266	356.167	0.001	2.247	0.158	285.137
17	4619549\FS\DW\1\	05/07/20 17:16	0.151	201.256	n.a.	n.a.	0.200	361.213
18	4619558\FS\DW\1\	05/07/20 17:43	n.a.	n.a.	0.014	22.857	n.a.	n.a.
19	4619559\FS\DW\1\	05/07/20 18:10	n.a.	n.a.	0.013	22.133	n.a.	n.a.
20	4619560\FS\DW\1\	05/07/20 18:37	0.008	7.832	0.007	12.739	0.012	23.928
21	4619680\FS\DW\1\	05/07/20 19:04	0.465	625.953	n.a.	n.a.	0.249	448.206
22	4619681\FS\DW\1\	05/07/20 19:31	0.353	474.126	0.001	2.761	0.294	529.028
23	4619682\FS\DW\1\	05/07/20 19:58	0.543	731.532	0.004	7.645	0.215	387.213
24	\IPC\RW\1\250	05/07/20 20:25	0.183	243.586	0.152	246.264	0.137	247.359
25	\CCB\RW\1\	05/07/20 20:52	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
26	4619768\FS\DW\1\	05/07/20 21:19	0.323	433.652	0.017	27.443	0.199	359.381
27	4619768\MS\DW\1\250	05/07/20 21:46	0.510	686.085	0.166	268.175	0.338	608.631
28	4619768\MSD\DW\1\250	05/07/20 22:13	0.511	688.206	0.165	266.361	0.341	613.626
29	4619769\FS\DW\1\	05/07/20 22:40	0.390	524.655	0.007	12.380	0.308	555.218
30	4619770\FS\DW\1\	05/07/20 23:07	0.322	431.922	0.009	15.124	0.280	504.563
31	4620294\FS\DW\1\	05/07/20 23:34	0.903	1218.774 X	0.095	154.018	0.371	667.314
32	4620295\FS\DW\1\	05/08/20 00:01	0.884	1192.197 X	0.096	155.082	0.349	628.506
33	4620296\FS\DW\1\	05/08/20 00:28	0.063	81.129	0.080	129.091	0.042	76.390
34	4620297\FS\DW\1\	05/08/20 00:55	n.a.	n.a.	0.081	131.533	n.a.	n.a.
35	4621855\FS\DW\1\	05/08/20 01:22	0.240	320.900	0.008	13.132	0.038	70.037
36	4621856\FS\DW\1\	05/08/20 01:49	0.217	290.791	0.007	11.458	0.038	69.842
37	4621857\FS\DW\1\	05/08/20 02:16	0.212	283.075	0.008	13.355	0.041	75.975
38	\IPC\RW\1\250	05/08/20 02:43	0.186	248.739	0.157	254.108	0.141	254.208
39	\CCB\RW\1\	05/08/20 03:10	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

X over cal Range. Repeat at a dilution. SR 5/8/2020

Detection Settings

Algorithm: **Chromeleon 6**

Ret.Time	Param. Name	Param.Value	Inj. Type	Channel
0.000 [min]	Inhibit Integration	On	Any	All Channels
0.000 [min]	Minimum Area	0.0010 [Signal*min]	Any	All Channels
0.000 [min]	Sensitivity	0.0010 [Signal]	Any	All Channels
0.000 [min]	Peak Slice	4.00 [s]	Any	All Channels
0.000 [min]	Valley To Valley	On	Any	All Channels
5.100 [min]	Inhibit Integration	Off	Any	All Channels
6.000 [min]	Inhibit Integration	On	Any	All Channels
10.200 [min]	Inhibit Integration	Off	Any	All Channels
12.300 [min]	Inhibit Integration	On	Any	All Channels

Component Table

Name	Ret.Time	Window	Channel	Eval.Type	Stand.Meth.	Cal.Type
Chlorite	5.500	10.000 RG	All Channels	Area	External	Lin, WithOffset
Bromide	10.730	5.000 RG	All Channels	Area	External	Lin, WithOffset
Chlorate	11.500	5.000 RG	All Channels	Area	External	Lin, WithOffset

Level "1"	Level "2"	Level "3"	Level "4"	Level "5"	Level "6"	Level "7"
0.000000	10.000000	20.000000	100.000000	500.000000	1000.000000	0.000000
0.000000	10.000000	20.000000	100.000000	500.000000	1000.000000	0.000000
0.000000	10.000000	20.000000	100.000000	500.000000	1000.000000	0.000000

Conc.Unit	Factor	Peak Type	Group	Low.Conf.Prob	Up.Conf.Prob	Comment
ug/L	1.000000	Autodetect		99.5 %	99.5 %	
ug/L	1.000000	Autodetect		99.5 %	99.5 %	
ug/L	1.000000	Autodetect		99.5 %	99.5 %	

Charge

Global Calibration Settings

Mode	**Total**
Curve Fitting	**Normal**
Dual-Column Separate Calibration	**No**
Concentration Level Tolerances	**No**
Amount Ratio for Var. Int. Standard	**Yes**
Origin of Standards for Fixed Calibration:	

Calibration Table

Enabled	Name	Calib.Comment for "Chlorite"	Level	Dilution
☑	\ICB\RW\1\	Missing Peak	1	1.0000
☑	\ICS\RW\1\10	Ok	2	1.0000
☑	\ICS\RW\1\20	Ok	3	1.0000
☑	\ICS\RW\1\100	Ok	4	1.0000
☑	\ICS\RW\1\500	Ok	5	1.0000
☑	\ICS\RW\1\1000	Ok	6	1.0000

Weight	IntStd	Spike Group	Position	Volume	Comment	Instrument Method
1.0000	1.0000		1	1 [µl]		AS19-300B
1.0000	1.0000		2	1 [µl]		AS19-300B
1.0000	1.0000		3	1 [µl]		AS19-300B
1.0000	1.0000		4	1 [µl]		AS19-300B
1.0000	1.0000		5	1 [µl]		AS19-300B
1.0000	1.0000		6	1 [µl]		AS19-300B

Processing Method: AS19-300B
Last Update Operator: US25_USR_SBNLabPCs

Calibration

Processing Method	Status	Inject Time	Replicate ID	GUID	Re-injections	AutoDilution Ratio
AS19-300B	Finished	5/7/2020 10:04:07 AM		C5799960-48D8-4F1F-AF33-	0	0.00
AS19-300B	Finished	5/7/2020 10:20:41 AM		1055c001-d1d9-452b-8075-	0	0.00
AS19-300B	Finished	5/7/2020 10:57:46 AM		71508ac7-0854-406a-822a-	0	0.00
AS19-300B	Finished	5/7/2020 11:24:46 AM		2c781992-7aae-465a-a52f-	0	0.00
AS19-300B	Finished	5/7/2020 11:51:47 AM		1ab05a84-2e12-4f0a-bd5d-	0	0.00
AS19-300B	Finished	5/7/2020 12:18:52 PM		20874358-8bf1-4b61-982a-	0	0.00

Instrument Method: AS19-300B
Last Update Operator: us25_usr_sbnlabpcs

Script

Stage	Time min	Command	Value	Comment
Instrument Setup				
	initial			
		Pump_ECD.Flow.Nominal	0.250 [ml/min]	
		Sampler.DelayVolume	125 [µl]	
		Pump_ECD.Pressure.UpperLimit	5000.00 [psi]	
		Pump_ECD.%A.Equate	"%A"	
		Pump_ECD.Pressure.LowerLimit	200.00 [psi]	
		Pump_ECD.Compartment_TC.TemperatureSet	25.0 [°C]	
		Electrolytics.EluentGenerator.Concentration	0.00 [mM]	
		CDet.Rise_Time	0.5 [s]	
		CDet.Data_Collection_Rate	5.0 [Hz]	
		Sampler.FlushFactor	10	
		Sampler.DeliverSpeed	4.0 [ml/min]	
		CDet.CellHeater.TemperatureSet	35.0 [°C]	
		CDet.Temperature_Compensation	1.7 [%]	
		Wait	Pump_ECD.Ready	
		Pump_ECD.Compartment_TC.Mode	On	
		Pump_ECD.Column_TC.Mode	Off	
		CDet.CellHeater.Mode	On	
		Electrolytics.CR_TC.CR_TC	Off	
		Sampler.LoadPosition		
		Sampler.DeliverSample	Volume=Full	
		Sampler.EndSamplePrep		
Inject				
	0.000			
		Wait	Sampler.CycleTimeState, Run=Hold, Timeout=Infinite	
		Sampler.Inject		
Start Run				
	0.000			
		Pump_ECD.ApproveConsumables		
		CDet.CD.AcqOn		
		CDet.CD_Total.AcqOn		
		CDet.Autozero		
Run			Duration = 24.000 [min]	
	0.000			
	0.500			
		Sampler.BeginOverlap		
Stop Run				
	24.000			
		Pump_ECD.ApproveConsumables		
		CDet.CD.AcqOff		

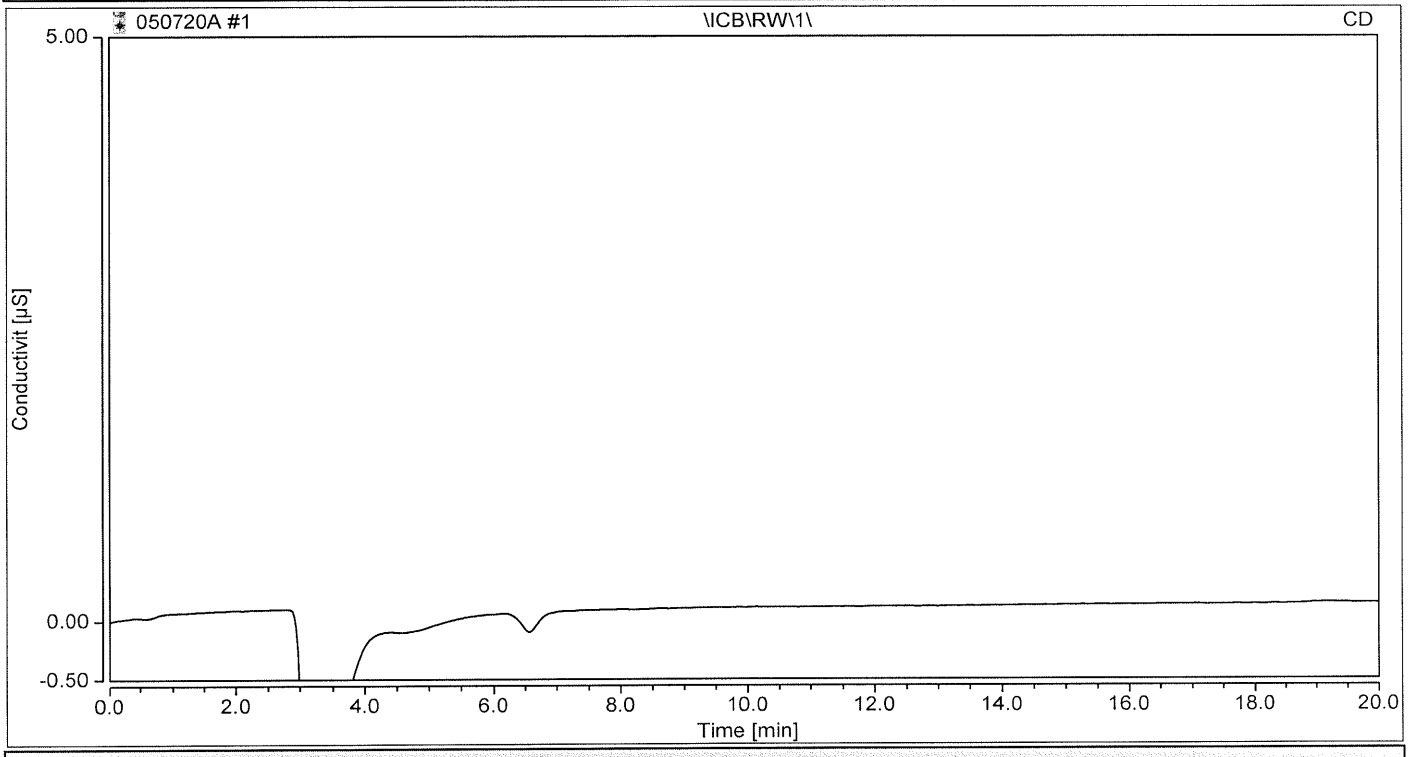
```
                    CDet.CD_Total.AcqOff
End
```

Chromatogram and Results

Injection Details

Injection Name:	**\ICB\RW\1**	*Run Time (min):*	**24.00**
Vial Number:	**1**	*Injection Volume:*	**1.00**
Injection Type:	**Calibration Standard**	*Channel:*	**CD**
Calibration Level:	**1**	*Wavelength:*	**n.a.**
Instrument Method:	**AS19-300B**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19-300B**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**07/May/20 10:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

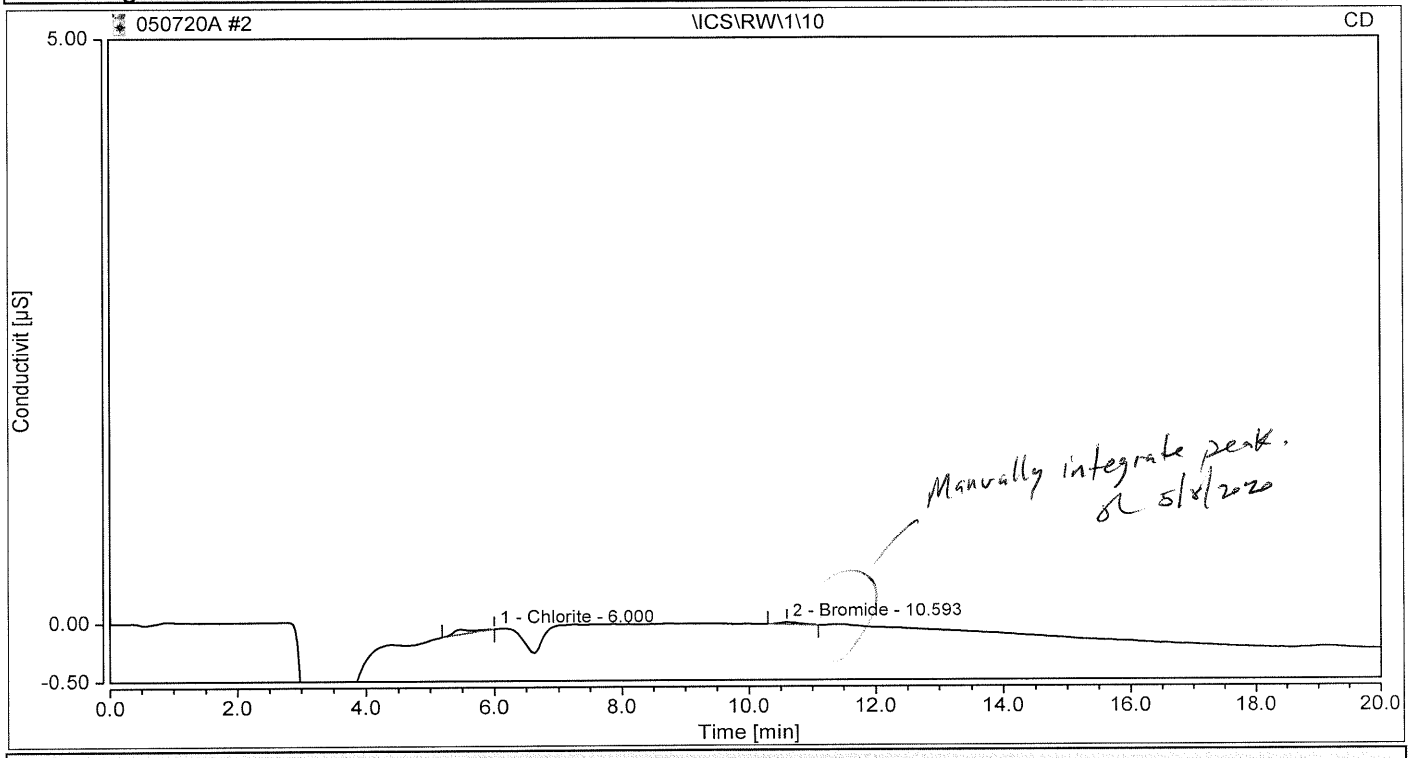
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\ICS\RW\1\10**	*Run Time (min):*	**24.00**
Vial Number:	**2**	*Injection Volume:*	**1.00**
Injection Type:	**Calibration Standard**	*Channel:*	**CD**
Calibration Level:	**2**	*Wavelength:*	**n.a.**
Instrument Method:	**AS19-300B**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19-300B**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**07/May/20 10:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

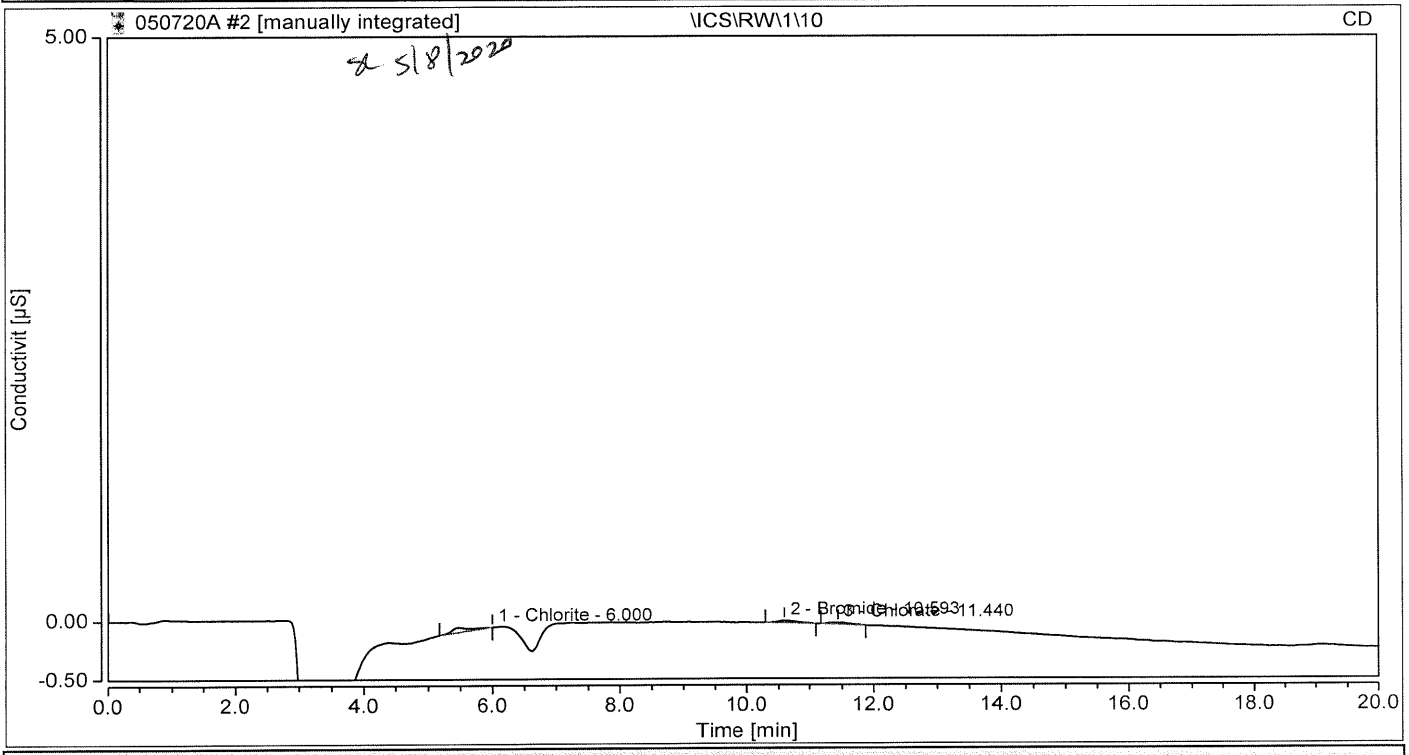
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Chlorite	6.000	0.014	0.000	65.56	0.00	14.8058
2	Bromide	10.593	0.007	0.020	34.44	100.00	12.1211
Total:			**0.021**	**0.020**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\ICS\RW\1\10**	*Run Time (min):*	**24.00**
Vial Number:	**2**	*Injection Volume:*	**1.00**
Injection Type:	**Calibration Standard**	*Channel:*	**CD**
Calibration Level:	**2**	*Wavelength:*	**n.a.**
Instrument Method:	**AS19-300B**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19-300B**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**07/May/20 10:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

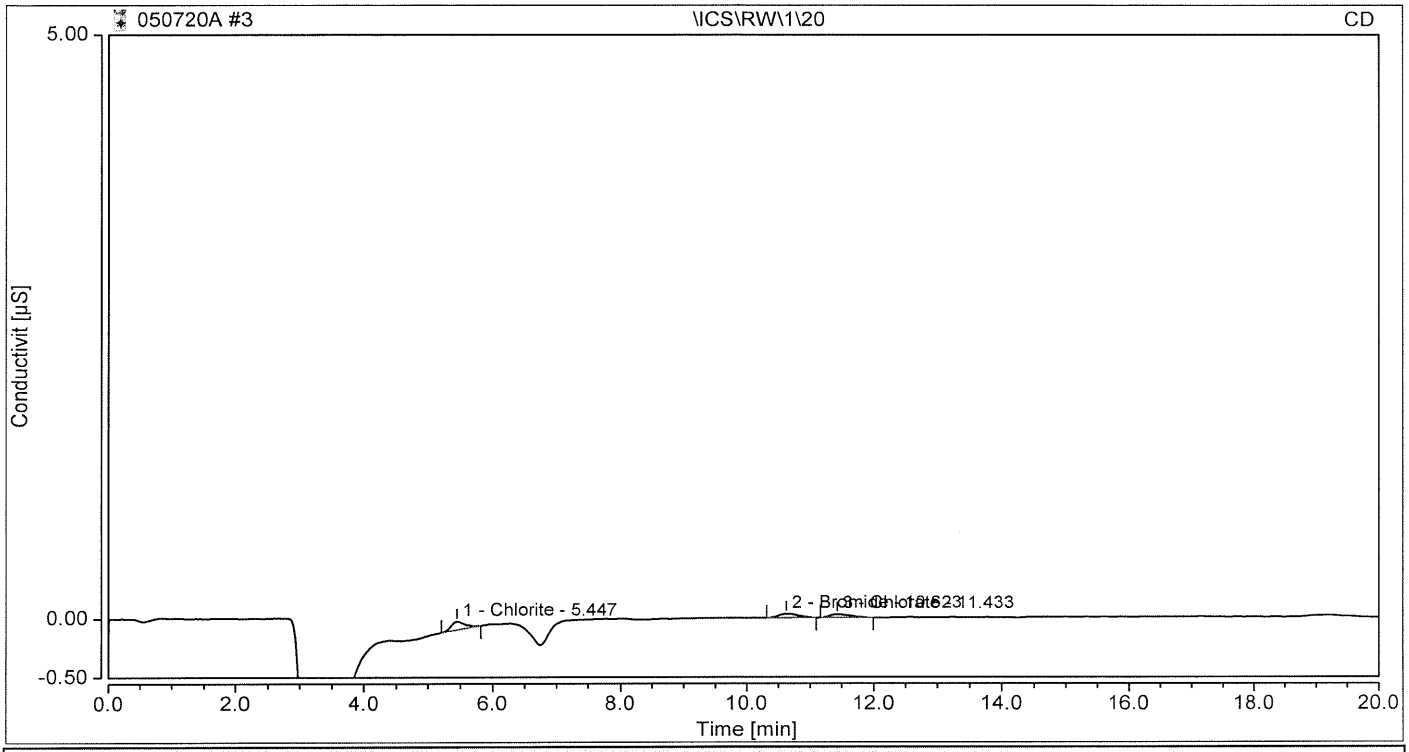
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Chlorite	6.000	0.014	0.000	52.54	0.00	14.8058
2	Bromide	10.593	0.007	0.020	27.60	58.79	12.1211
3	Chlorate	11.440	0.005	0.014	19.86	41.21	10.9210
Total:			**0.026**	**0.033**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\ICS\RW\1\20**	*Run Time (min):*	**24.00**
Vial Number:	**3**	*Injection Volume:*	**1.00**
Injection Type:	**Calibration Standard**	*Channel:*	**CD**
Calibration Level:	**3**	*Wavelength:*	**n.a.**
Instrument Method:	**AS19-300B**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19-300B**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**07/May/20 10:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

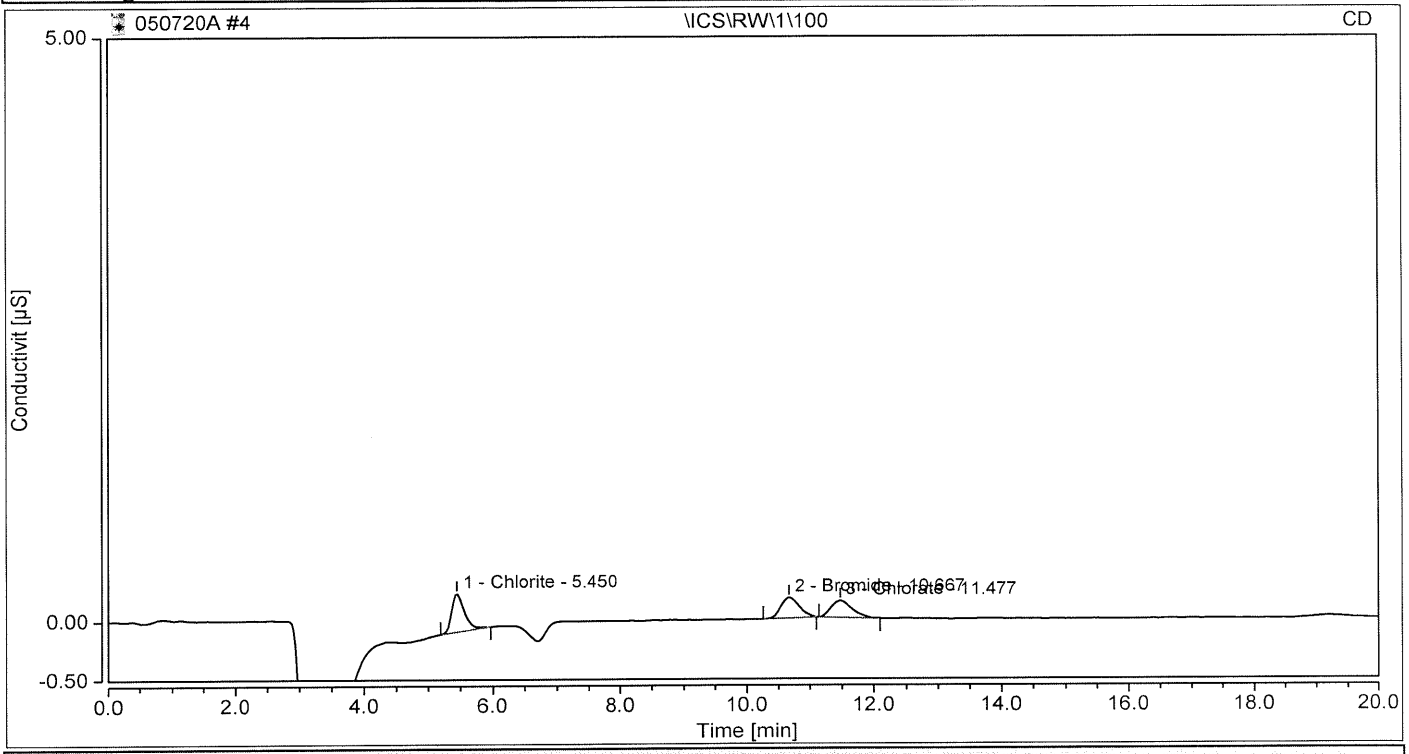
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Chlorite	5.447	0.017	0.071	42.27	53.07	19.3968
2	Bromide	10.623	0.012	0.034	30.37	25.52	20.2864
3	Chlorate	11.433	0.011	0.029	27.36	21.41	21.4109
Total:			**0.040**	**0.133**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\ICS\RW\1\100**	*Run Time (min):*	**24.00**
Vial Number:	**4**	*Injection Volume:*	**1.00**
Injection Type:	**Calibration Standard**	*Channel:*	**CD**
Calibration Level:	**4**	*Wavelength:*	**n.a.**
Instrument Method:	**AS19-300B**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19-300B**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**07/May/20 11:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

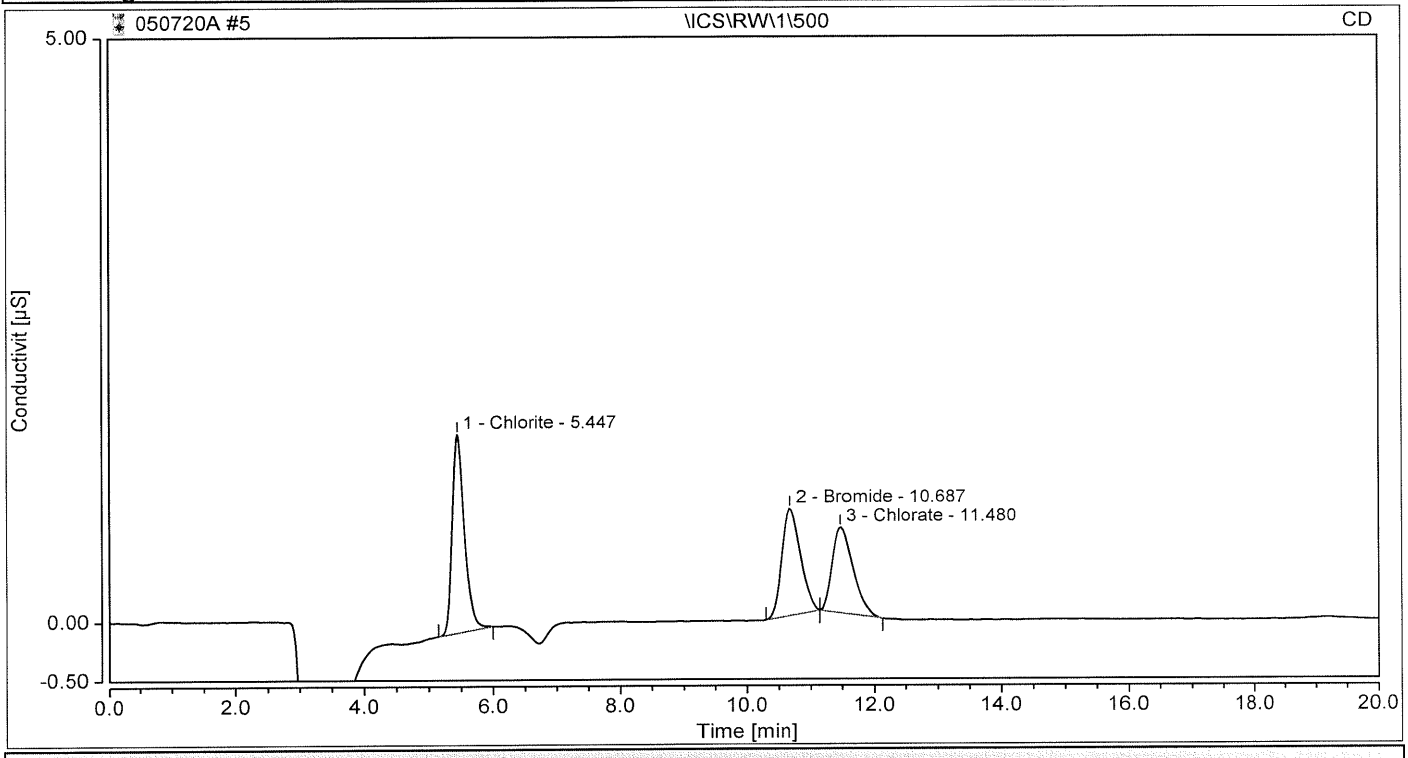
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Chlorite	5.450	0.074	0.326	39.60	50.81	96.5554
2	Bromide	10.667	0.059	0.174	31.61	27.13	95.9560
3	Chlorate	11.477	0.054	0.142	28.79	22.06	98.1991
Total:			**0.187**	**0.642**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\ICS\RW\1\500**	*Run Time (min):*	**24.00**
Vial Number:	**5**	*Injection Volume:*	**1.00**
Injection Type:	**Calibration Standard**	*Channel:*	**CD**
Calibration Level:	**5**	*Wavelength:*	**n.a.**
Instrument Method:	**AS19-300B**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19-300B**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**07/May/20 11:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

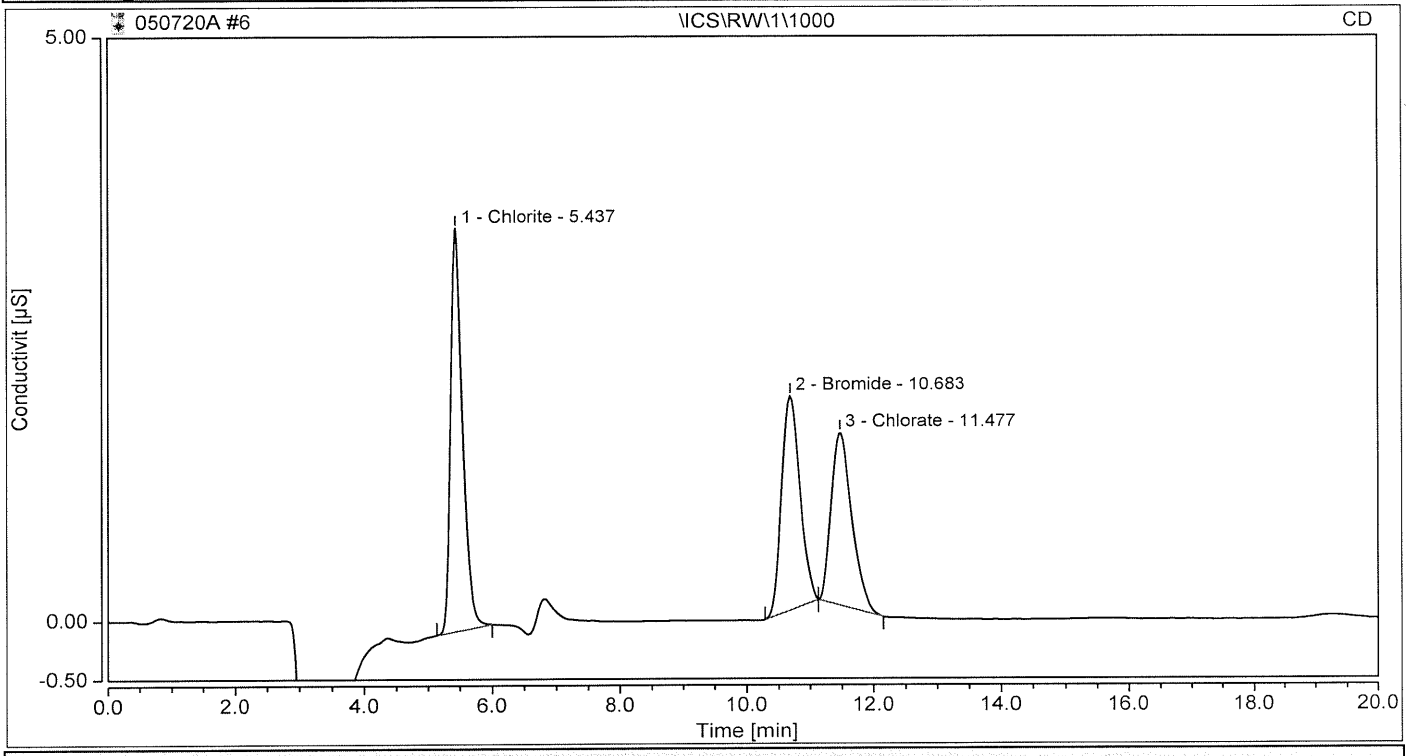
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Chlorite	5.447	0.371	1.696	38.67	50.70	497.8672
2	Bromide	10.687	0.311	0.916	32.43	27.37	502.5180
3	Chlorate	11.480	0.277	0.734	28.90	21.93	498.6525
Total:			**0.958**	**3.346**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\ICS\RW\1\1000**	*Run Time (min):*	**24.00**
Vial Number:	**6**	*Injection Volume:*	**1.00**
Injection Type:	**Calibration Standard**	*Channel:*	**CD**
Calibration Level:	**6**	*Wavelength:*	**n.a.**
Instrument Method:	**AS19-300B**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19-300B**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**07/May/20 12:18**	*Sample Weight:*	**1.0000**

Chromatogram



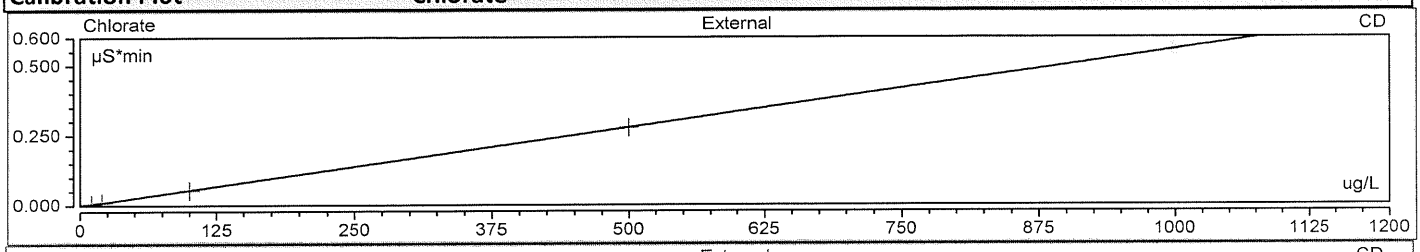
Integration Results

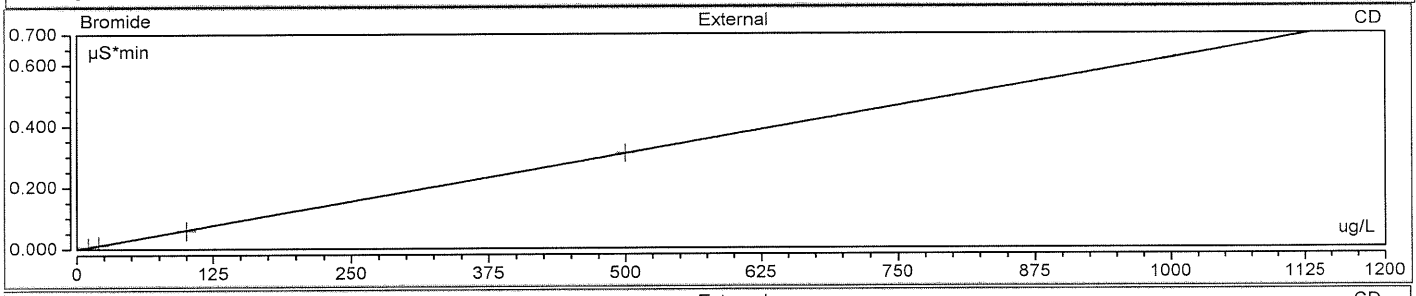
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Chlorite	5.437	0.743	3.446	38.72	50.98	1001.3749
2	Bromide	10.683	0.618	1.835	32.24	27.14	999.1184
3	Chlorate	11.477	0.557	1.479	29.04	21.88	1000.8164
Total:			**1.918**	**6.761**	**100.00**	**100.00**	

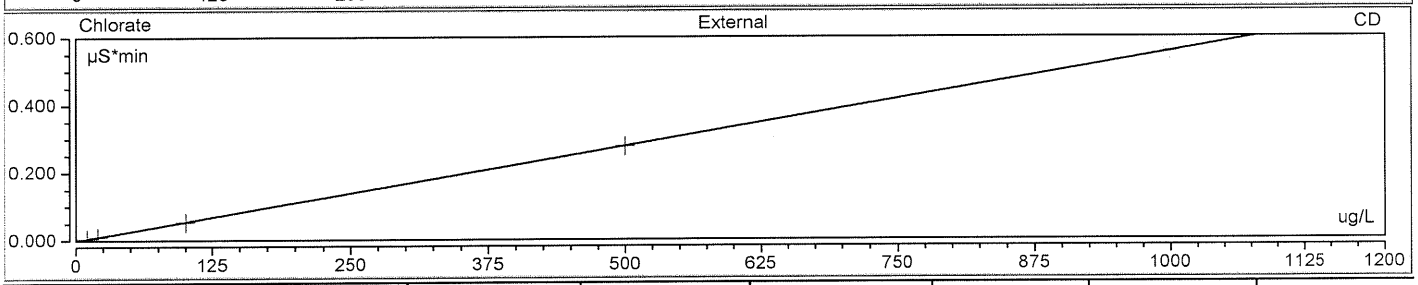
Calibration

Calibration Details	Chlorate		
Calibration Type	Lin, WithOffset	*Offset (C0)*	-0.0010
Evaluation Type	Area	*Slope (C1)*	0.0006
Number of Calibration Points	5	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	1.0000

Calibration Plot **Chlorate**







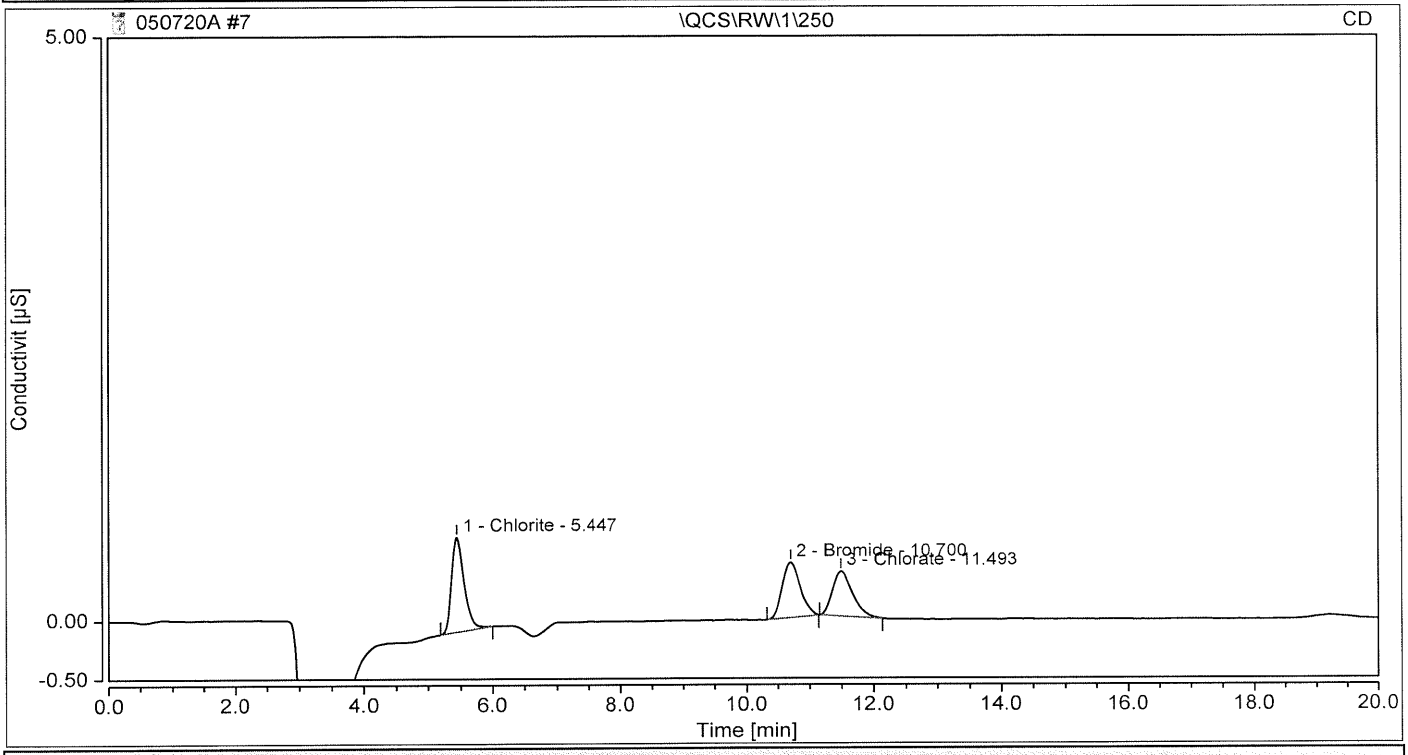
No.	Peak Name	Corr.Coeff.	Slope	Offset	Weights	Cal. Type	Response Factor
		%					
1	Chlorite	99.997	1353.24	0.003	No Weighting	Lin, WithOffset	1.0000
2	Bromide	99.998	1614.94	0.000	No Weighting	Lin, WithOffset	1.0000
3	Chlorate	99.999	1794.20	-0.001	No Weighting	Lin, WithOffset	1.0000

Chromatogram and Results

Injection Details

Injection Name:	**\QCS\RW\1\250**	*Run Time (min):*	**24.00**
Vial Number:	**7**	*Injection Volume:*	**1.00**
Injection Type:	**Unknown**	*Channel:*	**CD**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**AS19-300B**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19-300B**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**07/May/20 12:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

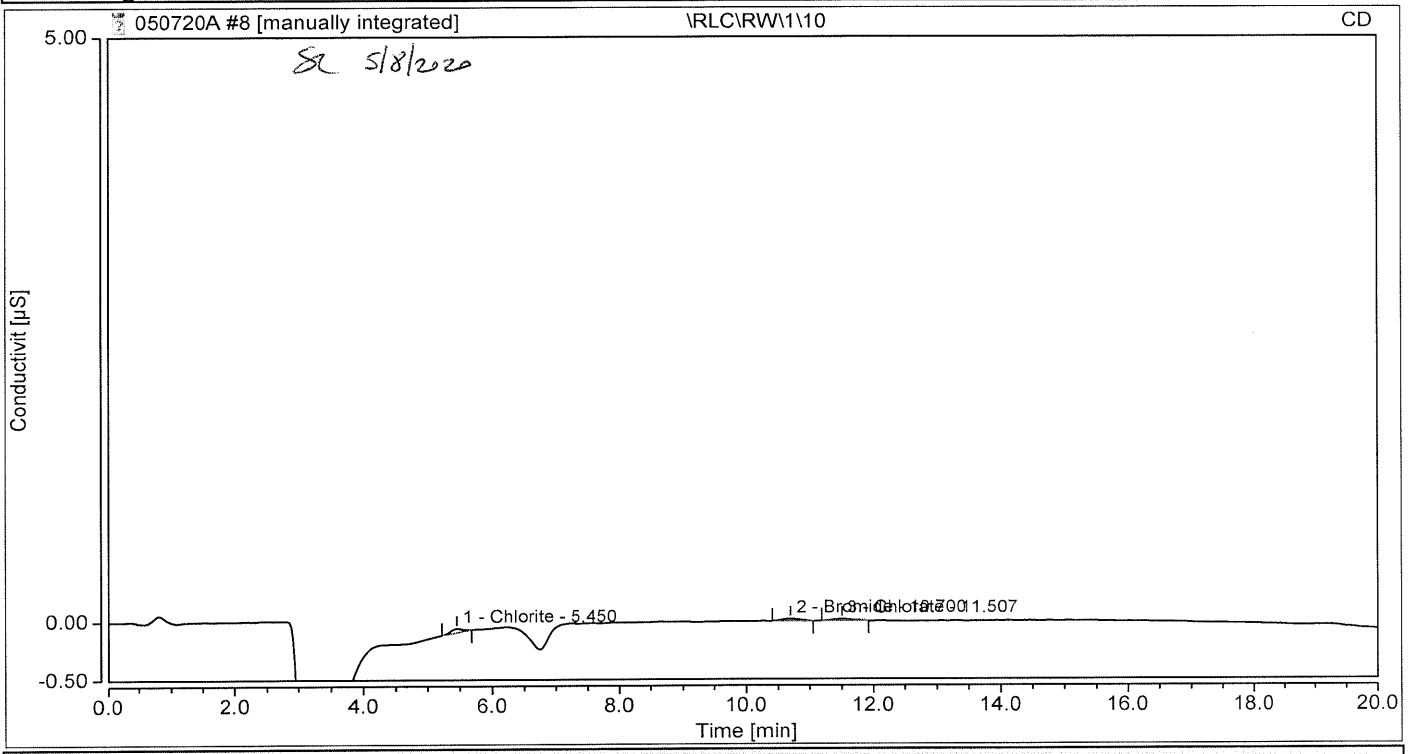
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Chlorite	5.447	0.177	0.812	37.44	48.57	236.4107
2	Bromide	10.700	0.156	0.474	32.89	28.39	252.2105
3	Chlorate	11.493	0.141	0.385	29.67	23.04	253.8586
Total:			**0.474**	**1.671**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\RLC\RW\1\10**	*Run Time (min):*	**24.00**
Vial Number:	**8**	*Injection Volume:*	**1.00**
Injection Type:	**Unknown**	*Channel:*	**CD**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**AS19-300B**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19-300B**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**07/May/20 13:12**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

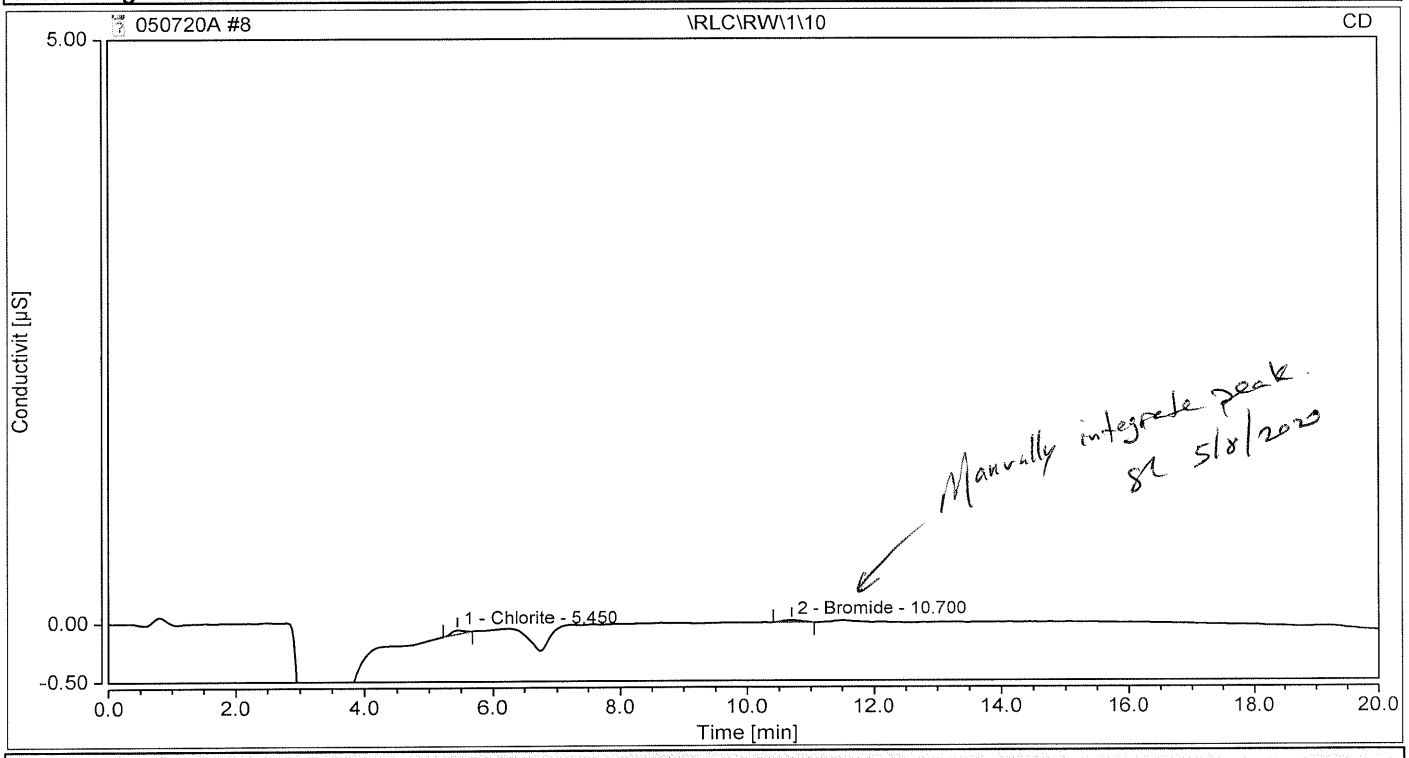
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Chlorite	5.450	0.008	0.035	40.00	50.57	6.6780
2	Bromide	10.700	0.006	0.020	33.77	28.17	10.9164
3	Chlorate	11.507	0.005	0.015	26.23	21.26	10.6062
Total:			**0.019**	**0.070**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\RLC\RW\1\10**	*Run Time (min):*	**24.00**
Vial Number:	**8**	*Injection Volume:*	**1.00**
Injection Type:	**Unknown**	*Channel:*	**CD**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**AS19-300B**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19-300B**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**07/May/20 13:12**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

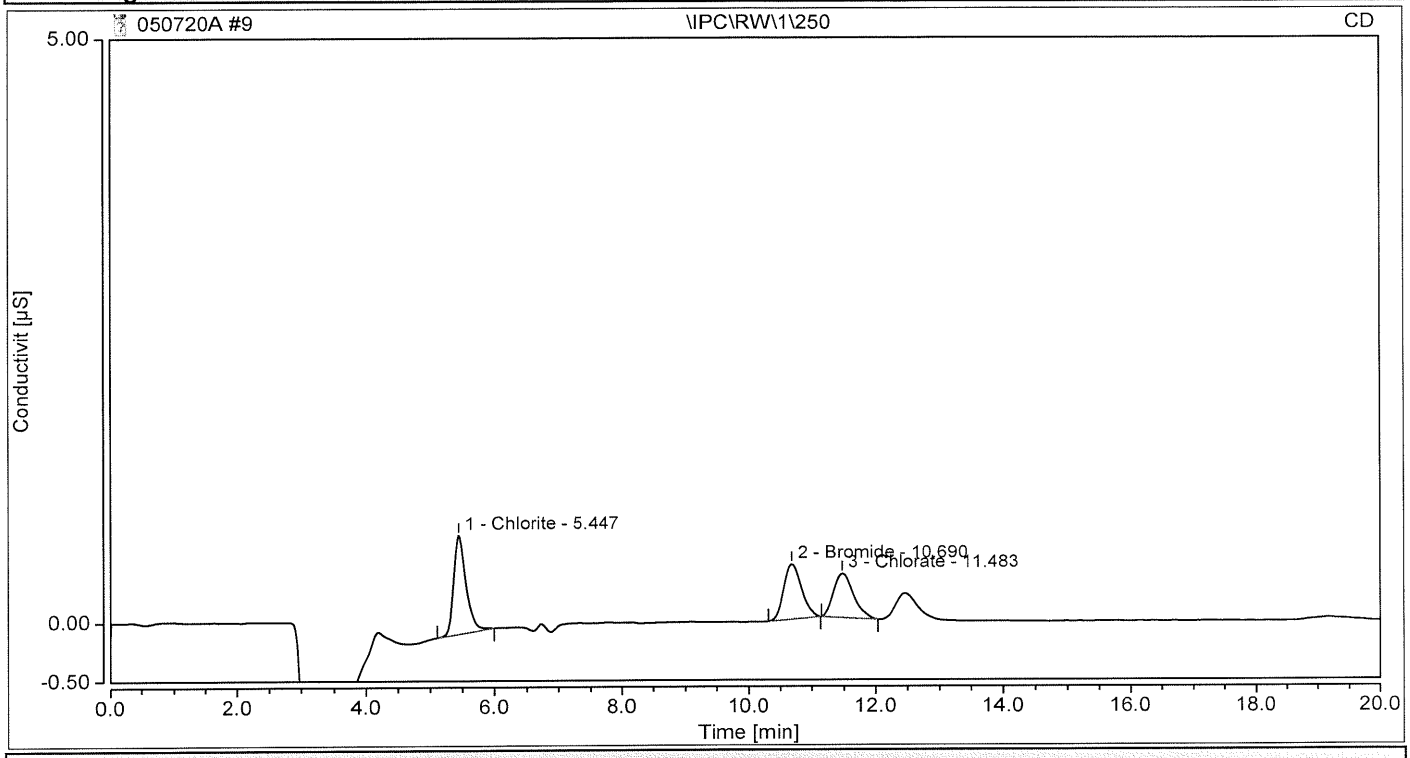
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Chlorite	5.450	0.008	0.035	54.22	64.23	6.6780
2	Bromide	10.700	0.006	0.020	45.78	35.77	10.9164
Total:			**0.014**	**0.055**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\IPC\RW\1\250**	*Run Time (min):*	**24.00**
Vial Number:	**9**	*Injection Volume:*	**1.00**
Injection Type:	**Unknown**	*Channel:*	**CD**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**AS19-300B**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19-300B**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**07/May/20 13:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

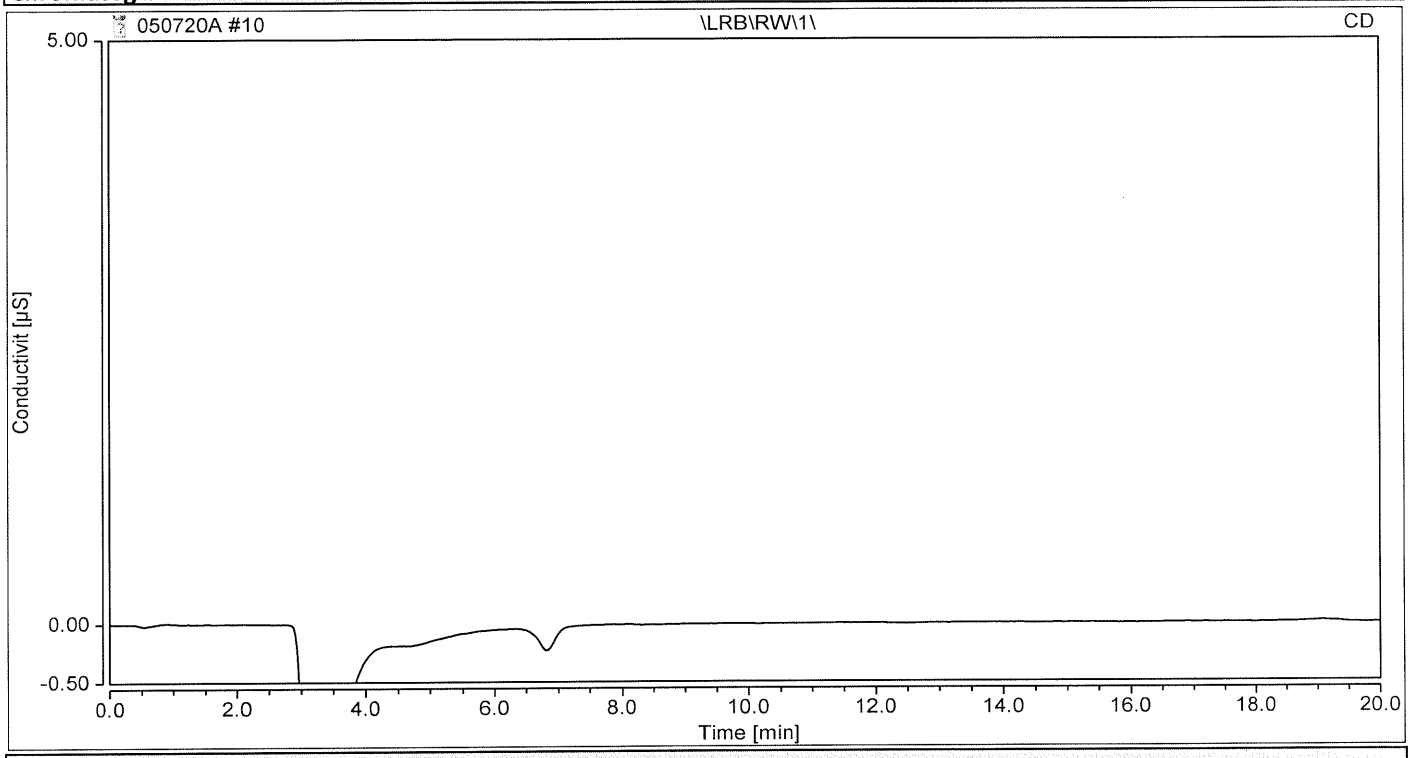
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Chlorite	5.447	0.186	0.847	39.17	49.91	248.3739
2	Bromide	10.690	0.154	0.472	32.34	27.85	248.8115
3	Chlorate	11.483	0.135	0.377	28.50	22.24	244.7281
Total:			**0.475**	**1.696**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\LRB\RW\1**	*Run Time (min):*	**24.00**
Vial Number:	**10**	*Injection Volume:*	**1.00**
Injection Type:	**Unknown**	*Channel:*	**CD**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**AS19-300B**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19-300B**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**07/May/20 14:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

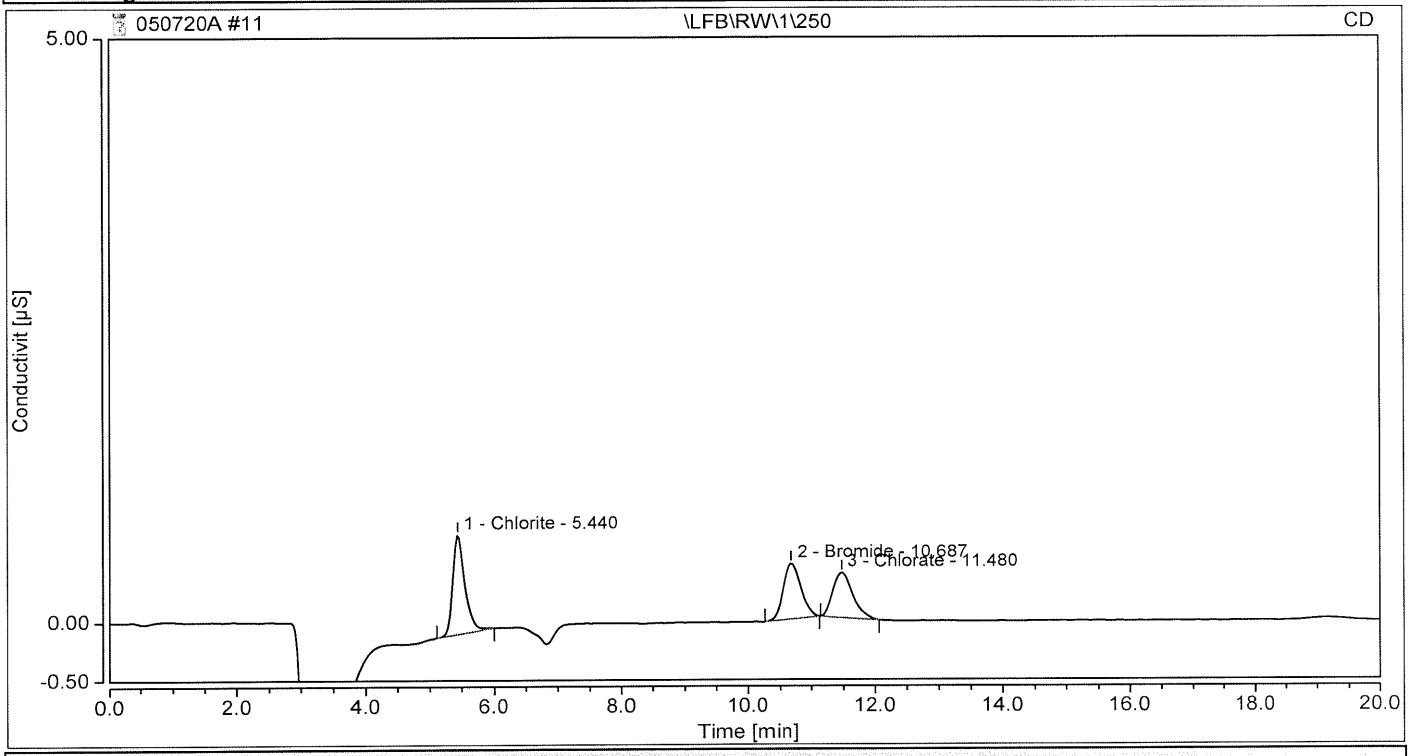
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\LFB\RW\1\250**	*Run Time (min):*	**24.00**
Vial Number:	**11**	*Injection Volume:*	**1.00**
Injection Type:	**Unknown**	*Channel:*	**CD**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**AS19-300B**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19-300B**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**07/May/20 14:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

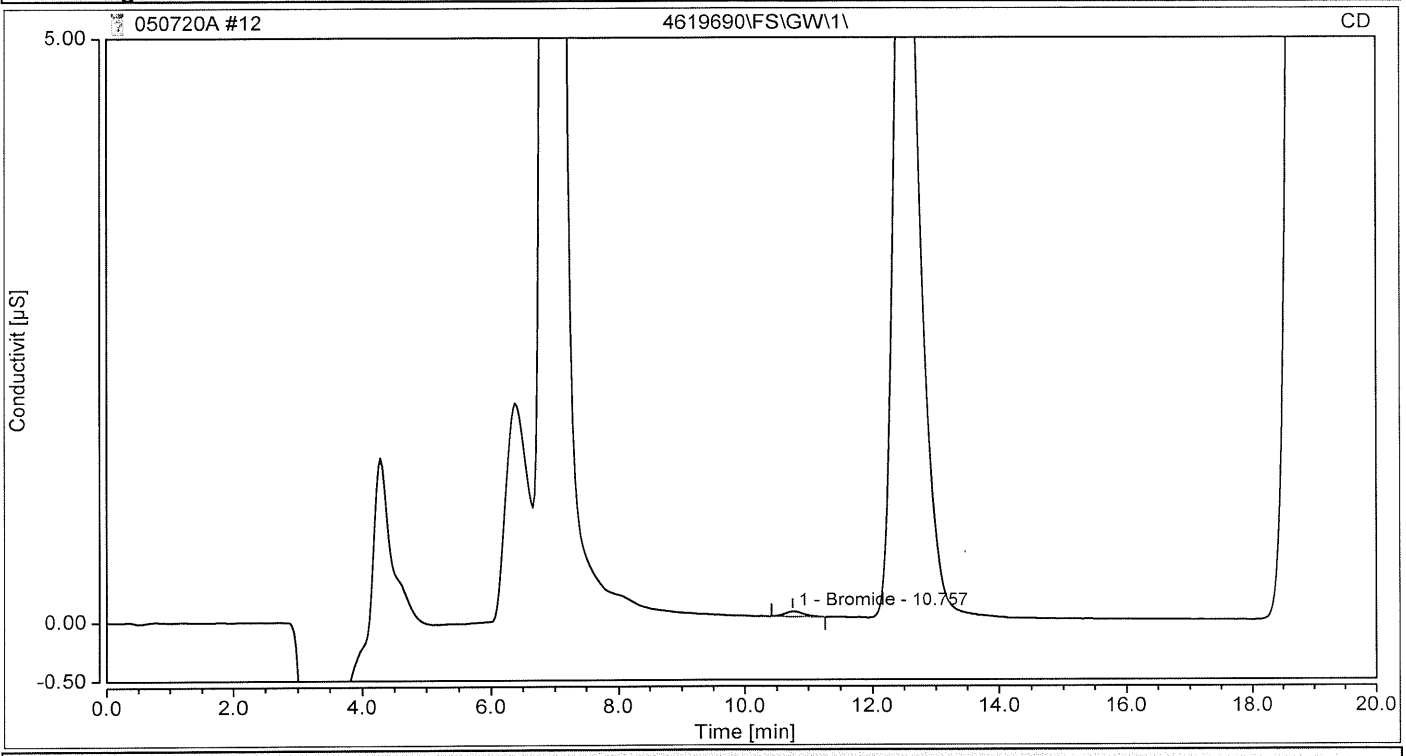
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Chlorite	5.440	0.187	0.852	38.90	49.73	250.1052
2	Bromide	10.687	0.155	0.477	32.13	27.80	250.6198
3	Chlorate	11.480	0.140	0.385	28.97	22.47	252.1653
Total:			**0.482**	**1.714**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**4619690\FS\GW\1**	*Run Time (min):*	**24.00**
Vial Number:	**12**	*Injection Volume:*	**1.00**
Injection Type:	**Unknown**	*Channel:*	**CD**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**AS19-300B**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19-300B**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**07/May/20 15:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

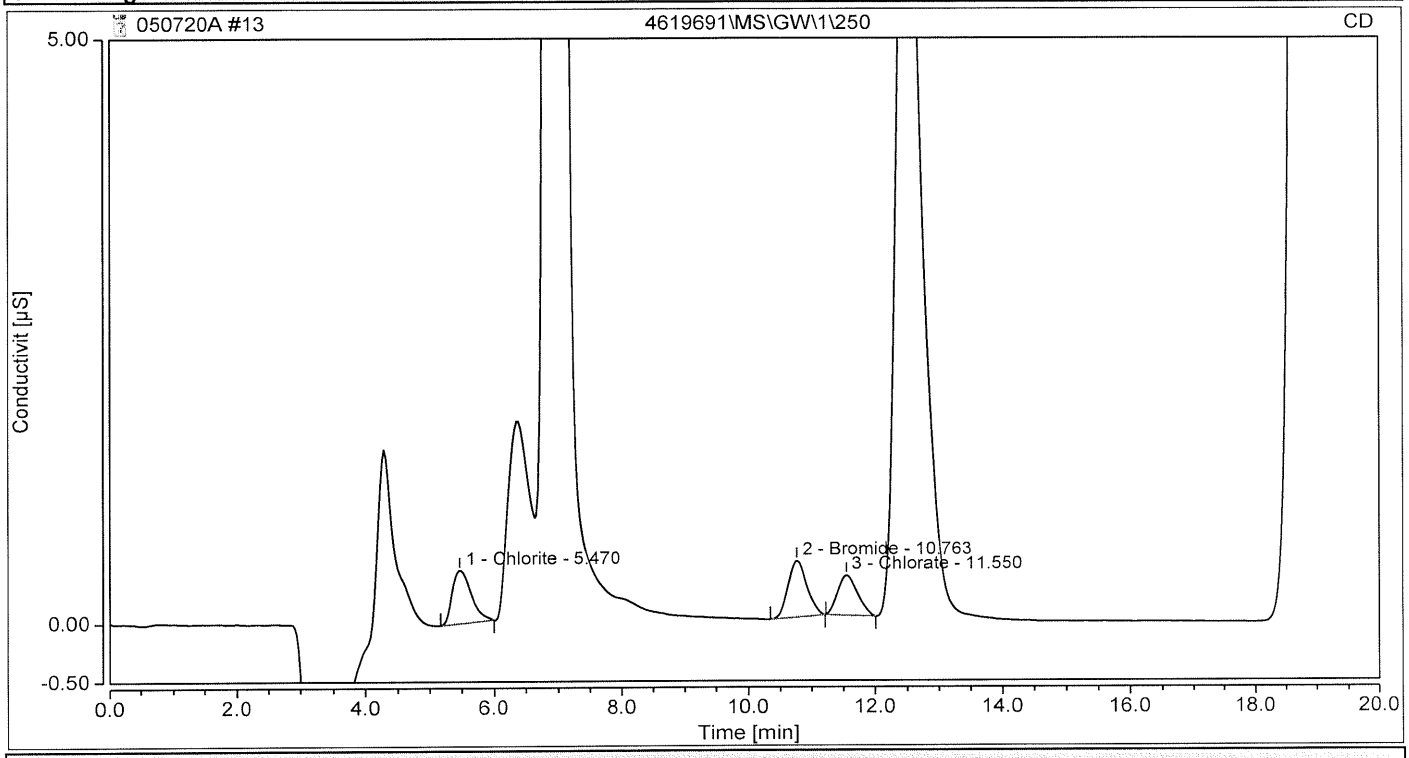
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Bromide	10.757	0.015	0.044	100.00	100.00	25.2479
Total:			**0.015**	**0.044**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**4619691\MS\GW\1\250**	*Run Time (min):*	**24.00**
Vial Number:	**13**	*Injection Volume:*	**1.00**
Injection Type:	**Unknown**	*Channel:*	**CD**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**AS19-300B**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19-300B**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**07/May/20 15:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

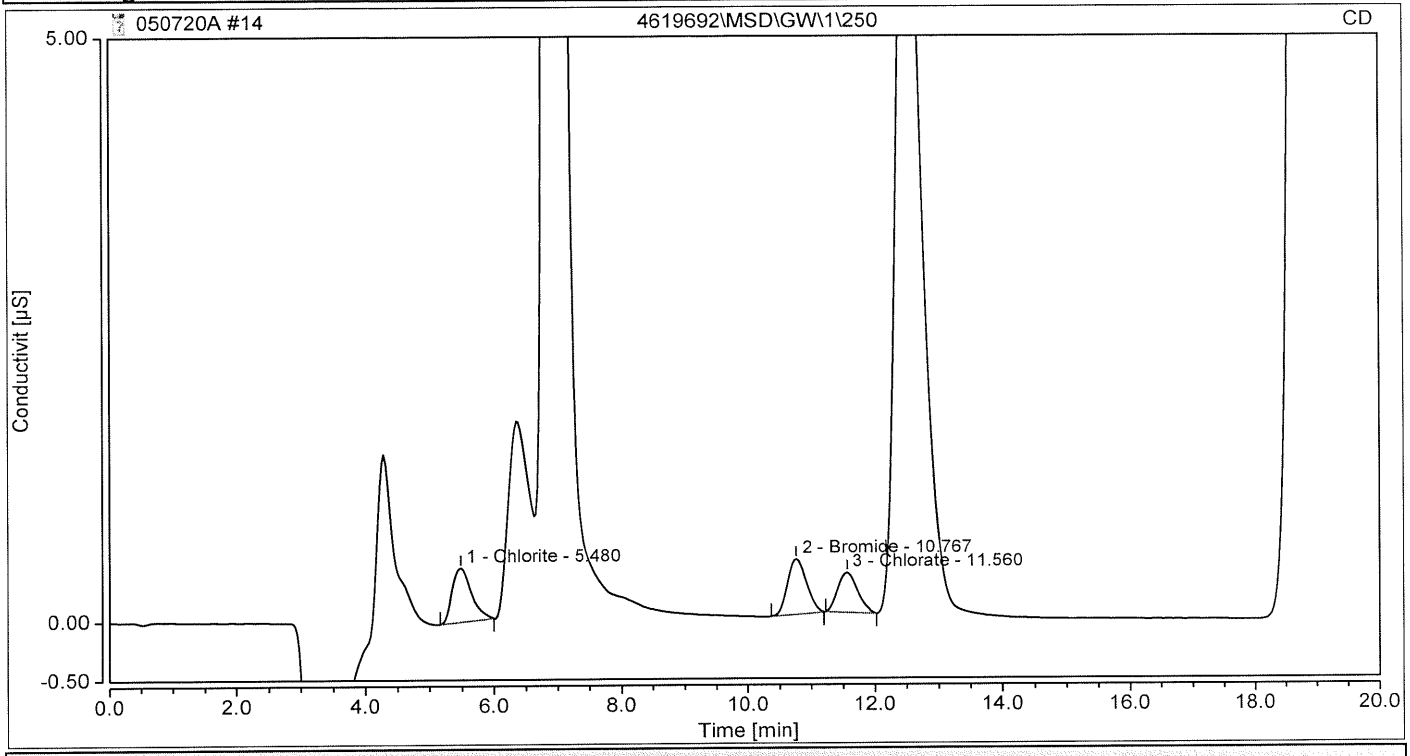
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Chlorite	5.470	0.157	0.455	35.21	35.61	208.9348
2	Bromide	10.763	0.166	0.481	37.25	37.66	268.8748
3	Chlorate	11.550	0.123	0.342	27.53	26.74	221.9986
Total:			**0.446**	**1.278**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**4619692\MSD\GW\1\250**	*Run Time (min):*	**24.00**
Vial Number:	**14**	*Injection Volume:*	**1.00**
Injection Type:	**Unknown**	*Channel:*	**CD**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**AS19-300B**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19-300B**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**07/May/20 15:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

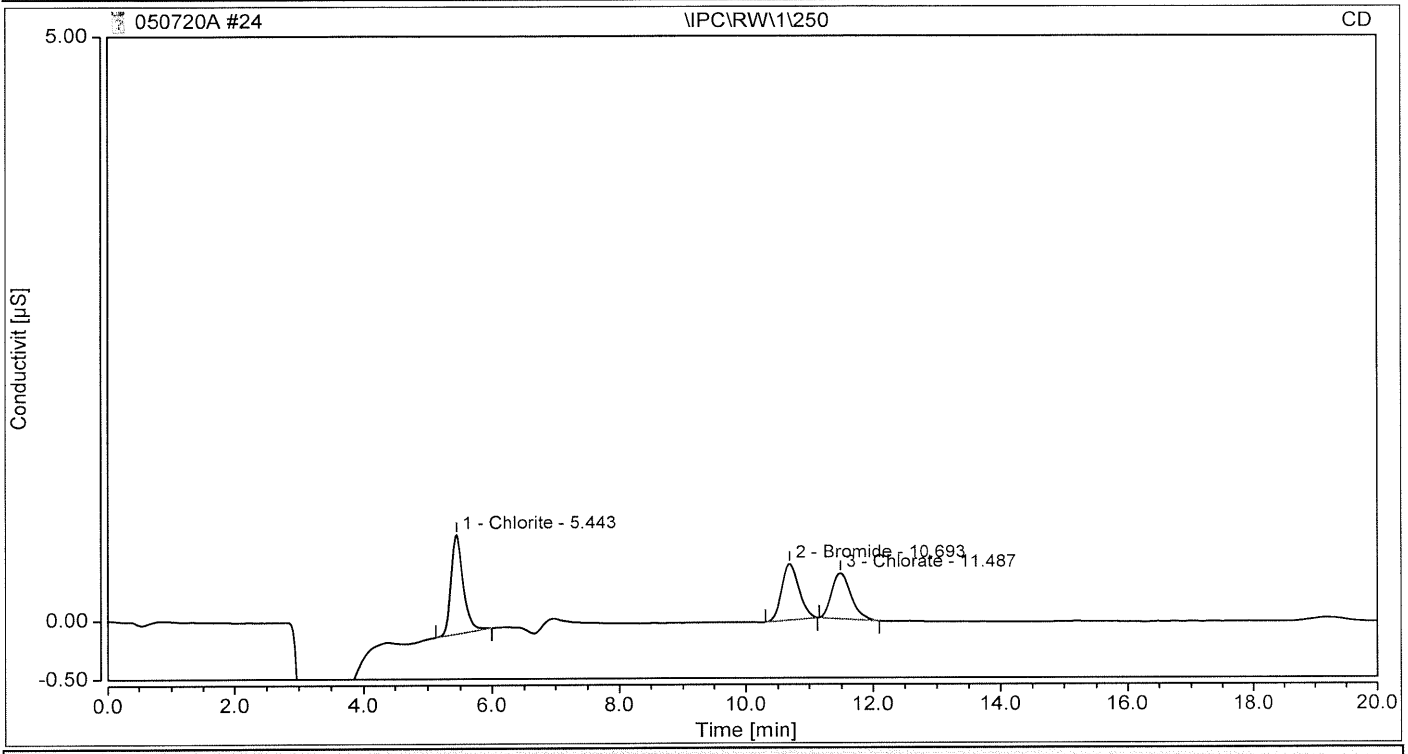
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Chlorite	5.480	0.160	0.463	35.81	36.16	212.8052
2	Bromide	10.767	0.163	0.474	36.57	37.02	264.2805
3	Chlorate	11.560	0.123	0.343	27.62	26.81	222.9173
Total:			**0.446**	**1.280**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\IPC\RW\1\250**	*Run Time (min):*	**24.00**
Vial Number:	**24**	*Injection Volume:*	**1.00**
Injection Type:	**Unknown**	*Channel:*	**CD**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**AS19-300B**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19-300B**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**07/May/20 20:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

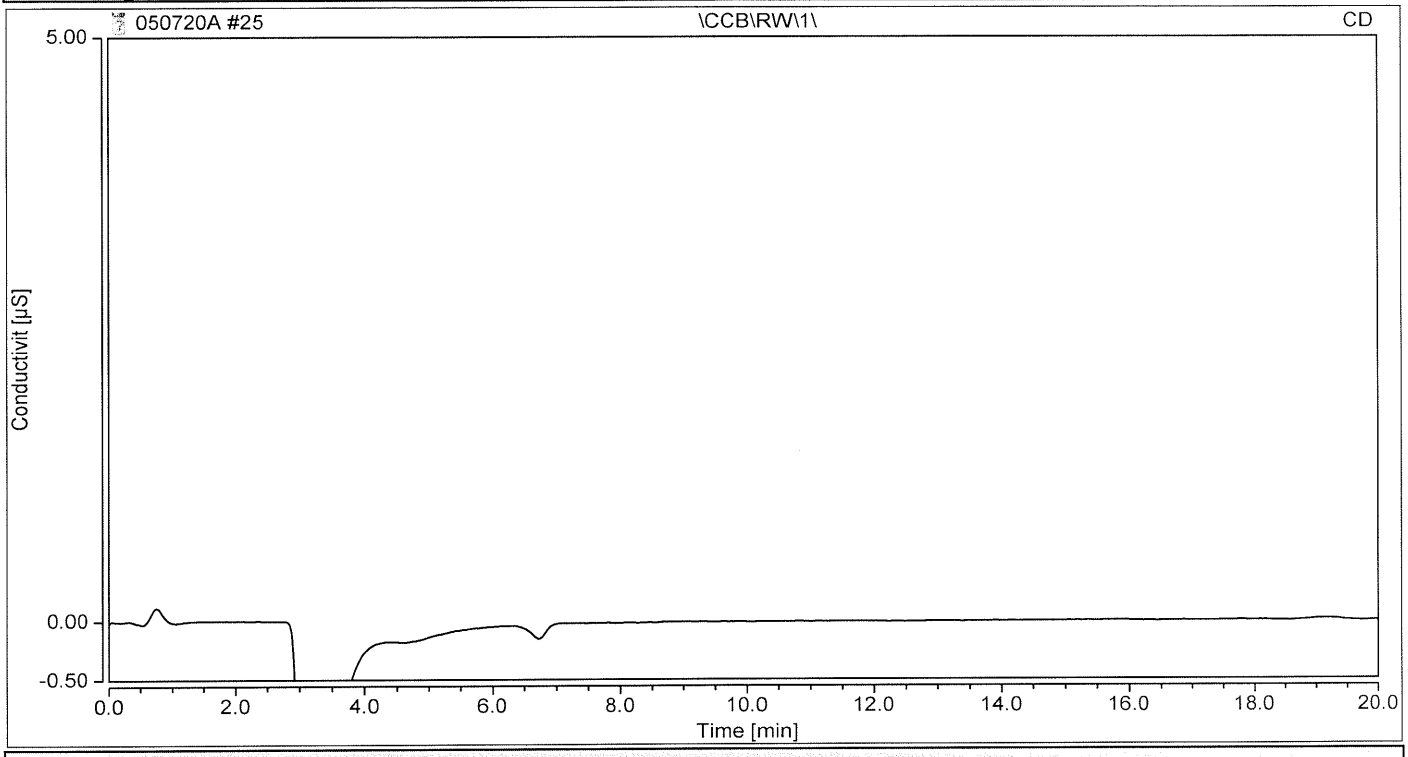
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Chlorite	5.443	0.183	0.849	38.72	49.23	243.5860
2	Bromide	10.693	0.152	0.484	32.25	28.04	246.2637
3	Chlorate	11.487	0.137	0.392	29.03	22.73	247.3588
Total:			**0.472**	**1.725**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\CCB\RW\1**	*Run Time (min):*	**24.00**
Vial Number:	**25**	*Injection Volume:*	**1.00**
Injection Type:	**Unknown**	*Channel:*	**CD**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**AS19-300B**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19-300B**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**07/May/20 20:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

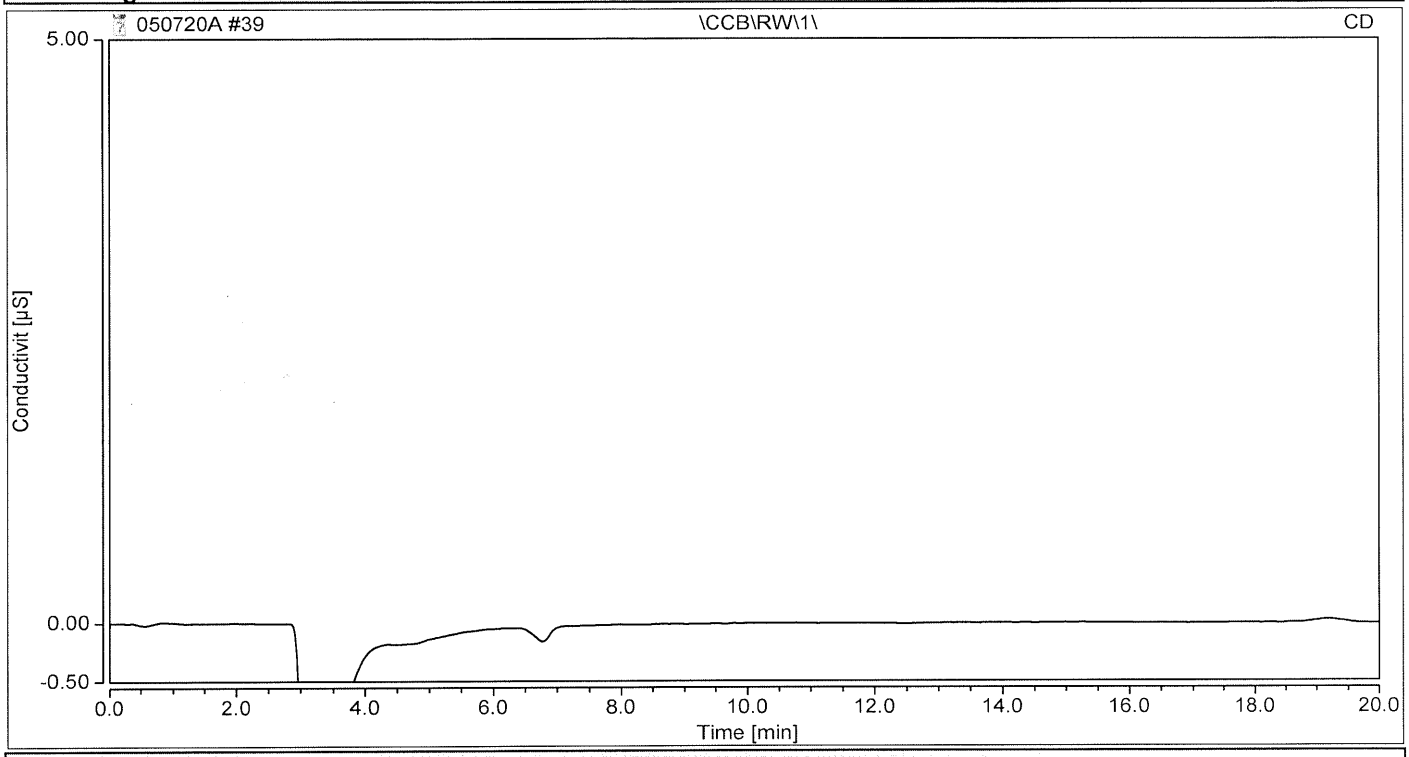
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\CCB\RW\1**	*Run Time (min):*	**24.00**
Vial Number:	**39**	*Injection Volume:*	**1.00**
Injection Type:	**Unknown**	*Channel:*	**CD**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**AS19-300B**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19-300B**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**08/May/20 03:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

QA - Method Detection Limit Study

Method:	300.0 B	Analyzed by:	multiple	Approved by:	Jon Werbianskyj	Effective Date:	12/27/2019
Instrument:	DT	Prepped by:	multiple	Comments:	*MDL sheet updated on 04/17/2020 - LOD updated-JW*		
Units:	ug/L						
Matrix Type:	RW	**Number of months next study due:**		6			
		Date Submittted:		12/27/2019			

Earliest Analysis date	Parameter	# of Pts	df	t(n-1,1-α=0.99)	mean	sd	Calculated MDL_s	MDL_b	New Instrument MDL	Old / Current LOD
10/3/2018	Bromide	17	16	2.5835	12.00335288	1.483665087	3.833048753	4.42952917	4.42952917	7.5
10/3/2018	Chlorate	17	16	2.5835	12.03635294	1.606477861	4.150335554	6.600099	6.600099	7.1
10/3/2018	Chlorite	17	16	2.5835	11.52335282	1.526069361	3.942600193	3.6021	3.942600193	4.3

QA - Method Detection Limit Study

Method:	300.0 B	Analyzed by:	Shep Lovick	Approved by:	Jon Werbianskyj	Effective Date:	12/24/2019
Instrument:	FT	Prepped by:	Shep Lovick	Comments:	*LOD updated 02/06/2020-jjw*		
Units:	ug/L						
Matrix Type:	RW			**Number of months next study due:**	6		
				Date Submittted:	12/24/2019		

Earliest Analysis date	Parameter	# of Pts	df	t(n-1,1-α=0.99)	mean	sd	Calculated MDL_s	MDL_b	New Instrument MDL	Old / Current LOD
9/14/2018	Chlorite	17	16	2.5835	13.14929412	1.143333655	2.953802496	0	2.953802496	7.5
9/14/2018	Chlorate	17	16	2.5835	12.684294	0.772397847	1.995489837	7.068999	7.068999	7.8
9/14/2018	Bromide	17	16	2.5835	12.44258818	1.49762843	3.869123049	7.45391951	7.45391951	8.1

CHAIN OF CUSTODY,
PM CONFIRMATION
AND
SAMPLE CONDITION FORMS
DOCUMENTS

Rev. 02/2017

CHAIN OF CUSTODY

Page 1 of 1

Company: Weston Solutions, Inc.
Project Contact: Tony Pace
Telephone: 757-819-5310
Project Name: Radford AAP- SWMU 54
Project #:
Location: Radford, VA
Sampled By: W. Bounds / P. Taylor

CT LABORATORIES

1230 Lange Court, Baraboo, WI 53913
608-356-2760 Fax 608-356-2766
www.ctlaboratories.com

Folder # 152892
Company: WESTON SOLUTIONS.
Project: RADFORD AAP
Logged By: JLS PM: BM

Program:
RCRA SDWA NPDES
Waste Other _____

Report To: Tony Pace
EMAIL: Tony.Pace@Weston-Solutions.com
Company: Weston Solutions, Inc.
Address: 2 Eaton St., Ste. 603
Hampton, VA 23669

Invoice To:*
EMAIL:
Company: Same as above
Address:

*Party listed is responsible for payment of invoice as per CT Laboratories' terms and conditions

Client Special Instructions

Matrix:
GW – groundwater SW - surface water WW - wastewater DW - drinking water
S - soil/sediment SL - sludge A - air M - misc/waste

Turnaround Time
(Normal) RUSH*
Date Needed: _____
Rush analysis requires prior CT Laboratories' approval
Surcharges:
24 hr 200%
2-3 days 100%
4-9 days 50%

Collection Date	Collection Time	Matrix	Grab/ Comp	Sample #	Sample ID Description	Filtered? Y/N	Chloride/Chloride 300.1	Anions 9056A	TOC 9060A	TIC 9060A	pH 9040	COD 410.4	Total Metals 6010C/7470A										Total # Containers	Designated MS/MSD	CT Lab ID # (Lab use only)
							Fill in Spaces with Bottles per Test																			
4/28/20	1000	GW	G		54MW13	N	1	1	1	3													6		413129
4/28/20	1000	GW	G		54TW13	N	1	1	1	3													6		413132
4/28/20	1130	GW	G		54MW10	N	1	1	1	3													6		413133
4/28/20	1245	GW	G		54MW12	N	1	3	3	9							MS/MSD						16	X	413134
4/28/20	1420	GW	G		54MW1	N	1	1	1	3													6		413135
4/28/20	1438	GW	~~G~~C		54IDW						1	1	1										3		413136

Relinquished By: [signature] Date/Time 4/28/2020 1700
Received By: Fedex Date/Time 4/28/2020
Received by: [signature] for EKB Date/Time 4/29/2020 1130
Received for Laboratory by: [signature] Date/Time 4/25/2020 1119

Lab Use Only
Ice Present (Yes) No
Temp 1.2 IR Gun 27
Cooler # XXXX

CT Laboratories Terms and Conditions

Where a purchaser (Client) places an order for laboratory, consulting or sampling services from CT Laboratories (CTL), CTL shall provide the ordered services pursuant to these Terms and Conditions, and the related Quotation, or as agreed in a negotiated contract. In the absence of a written agreement to the contrary, the Order constitutes an acceptance by the Client of CTL's offer to do business under these Terms and Conditions, and an agreement to be bound by these Terms and Conditions. No contrary or additional terms and conditions expressed in a Client's document shall be deemed to become a part of the contract created upon acceptance of these Terms and Conditions, unless accepted by CTL in advance of the start of the project and in writing.

1. ORDERS AND RECEIPT OF SAMPLES (Sample Acceptance Policy)

1.1 The Client may place the Order (i.e., specify a Scope of Work) either by submitting a purchase order to CTL in writing, by telephone (confirmed in writing) or by negotiated contract. Whichever option the Client selects for placing the Order, the Order shall not be valid unless it contains sufficient information to enable CTL to carry out the Client's requirements. It is the policy of CTL that samples not meeting the acceptance criteria, outlined in the NELAC standards and Section 5.8.3.2 of the DOD QSM, will not be accepted by the laboratory or will be qualified on the final report. All samples submitted to the laboratory must: (a) be accompanied by proper, full and complete documentation, including sample identification, location, date and time of collection, the collector's name, type of preservation (if any), type of sample, any special comments concerning the sample and any additional pertinent fields on the chain-of-custody. In the absence of any of the required information, the laboratory will attempt to contact the client to obtain the information; if unable to obtain the necessary information, the final report will be qualified. (b) samples must be labeled appropriately with a unique sample identification written with indelible ink on water resistant labels. If the laboratory cannot determine the identity of a sample, it may be rejected and the client will be contacted for further instructions or resampling. (c) samples must be in an appropriate sample container. If the container is inappropriate, the client will be contacted for further instructions or resampling. If analysis is possible, the final report will be qualified. CTL can provide a sampling guide containing approved containers and preservations for analytical methods requested. (d) adhere to method specified holding times. If samples are received with less than ½ the holding time remaining for the requested test, CTL will make its best effort to analyze the samples and notify the client. If holding times are exceeded, the final report will be qualified. (e) contain adequate sample volume to perform the necessary testing. If sufficient volume is not present, the sample may be rejected and the client will be contacted for further instructions or resampling. If samples show signs of damage, contamination or inadequate preservation, the client will be notified. If analysis can be performed, the final report will be qualified. If not, the samples will be rejected and the client notified for further instructions or resampling. It is the Client's responsibility to understand and package samples correctly and provide the proper amount of temperature control (ice) suitable to current weather conditions.
1.2 CTL must be supplied with complete written disclosure of the known or suspected presence of any hazardous substances, as defined by applicable federal or state law. Where any samples which were not accompanied by the required disclosure, cause interruptions in the lab's ability to process work due to contamination of instruments or work areas, the Client will be responsible for the costs of clean up and recovery.
1.3 Prior to Sample Acceptance, the entire risk of loss or damage to samples remains with the Client. In no event will CTL have any responsibility or liability for the action or inaction of any carrier shipping or delivering any sample to or from CTL's premises. Client is responsible to assure that any sample containing any hazardous substance which is to be delivered to CTL's premises will be packaged, labeled, transported and delivered properly and in accordance with applicable laws.
1.4 Clients using CTL's shipping account(s) do so at their own risk and must purchase separate insurance if they do not wish to assume risk of loss. CTL will not assume any risk whatsoever for any samples outside of CTL's control and not successfully delivered to the laboratory within specified hold times.
1.5 CTL will not accept liability for any sample(s), except sample(s) damaged or broken by log-in staff prior to successful log-in of the sample(s) into the CTL- LIMS system. This includes, but may not be limited to: complete, valid COC documentation, all sample receiving issues being resolved from a delay caused by the Client in CTL's ability to log-in samples, including missed turnaround and hold times, delay in processing and, ultimately, additional charges to the Client.
1.6 CTL will only reject samples per directions from the Client. CTL's sole liability is to inform the Client of any sample receipt issues, and may provide an indication how proceeding with the analysis may affect results and final acceptance by the regulating agency. Ultimately, suitability for use is between the Client and the regulating agency(s).
1.7 Signing of this COC by the Client or Client's representative, or directions to CTL via email or Fax constitutes acceptance of these Terms and Conditions, and guarantees payment by the Client to CTL.

2. PAYMENT TERMS

2.1 Services performed by CTL will be in accordance with prices quoted and later confirmed in writing or as stated in the Price Schedule. Invoices may be submitted to Client upon completion of any sample delivery group. Payment in advance is required for all Clients except those whose credit has been established with CTL. For Clients with approved credit, payment terms are net 30 days from the date of invoice by CTL. All overdue payments are subject to an additional interest and service charge of one and one-half percent (1.5%) or the maximum rate permissible by law, per month or portion thereof from the due date until the date of payment. All fees are charged or billed directly to the Client. The billing of a third party will not be accepted without a statement, signed by the third party that acknowledges and accepts payment responsibility. CTL may suspend work and withhold delivery of data under this order at any time in the event Client fails to make timely payment of its invoices. Client shall be responsible for all costs and expenses of collection including reasonable attorney's fees. CTL reserves the right to refuse to proceed with work at any time based upon an unfavorable Client credit report.

3. CHANGE ORDERS, TERMINATION

3.1 Changes to the Scope of Work, price, or result delivery date may be initiated by CTL after Sample Acceptance due to any condition which conflicts with analytical, QA or other protocols warranted in these Terms and Conditions. CTL will not proceed with such changes until an agreement with the Client is reached on the amount of any cost, schedule change or technical change to the Scope of Work, and such agreement is documented in writing.
3.2 Changes to the Scope of Work, including but not limited to increasing or decreasing the work; changing test and analysis specification or acceleration in the performance of the work may be initiated by the Client after sample acceptance. Such a change will be documented in writing and may result in a change in cost and turnaround time commitment. CTL's acceptance of such changes is contingent upon technical feasibility and operational capacity.
3.3 Suspension or termination of all or any part of the work may be initiated by the Client. CTL will be compensated consistent with Section 2 of these Terms and Conditions. CTL will complete all work in progress and be paid in full for all work completed.

4. WARRANTIES AND LIABILITY

4.1 Where applicable, CTL will use analytical methodologies which are in substantial conformity with published test methods. CTL has implemented these methods in its Laboratory Quality Manuals and referenced Standard Operating Procedures and where the nature or composition of the sample requires it, CTL reserves the right to deviate from these methodologies as necessary or appropriate, based on the reasonable judgment of CTL, which deviations, if any, will be made on a basis consistent with recognized standards of the industry and/or CTL's Laboratory Quality Manuals. Client may request that CTL perform according to a mutually agreed Quality Assurance Project Plan (QAPP). In the event that samples arrive prior to agreement on a QAPP, CTL will proceed with analyses under its standard Quality Manuals then in effect, and CTL will not be responsible for any resampling or other charges if work must be repeated to comply with a subsequently finalized QAPP.
4.2 CTL shall start preparation and/or analysis within holding times provided that Sample Acceptance occurs within 48 hours of sampling or 1/2 of the holding time for the test, whichever is less. Samples received that do not meet this provision will be charged as expedited samples and the appropriate rate will be added accordingly. Where resolution of inconsistencies leading to Sample Acceptance does not occur within this period, CTL will use its best efforts to meet holding times and will proceed with the work provided that, in CTL's judgment, the chain-of-custody or definition of the Scope of Work provide sufficient guidance. Reanalysis of samples to comply with CTL's Quality Manuals will be deemed to have met holding times provided the initial analysis was performed within the applicable holding time. Where reanalysis demonstrates that sample matrix interference is the cause of failure to meet any Quality Manual requirements, the warranty will be deemed to have been met.
4.3 CTL warrants that it possesses and maintains all licenses and certifications which are required to perform services under these Terms and Conditions provided that such requirements are specified in writing to CTL prior to Sample Acceptance. CTL will notify the Client in writing of any decertification or revocation of any license, or notice of either, which affects work in progress.
4.4 The warranty obligations set forth in Sections 4.1, 4.2 and 4.3 are the sole and exclusive warranties given by CTL in connection with any services performed by CTL or any Results generated from such services, and CTL gives and makes NO OTHER REPRESENTATION OR WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. No representative of CTL is authorized to give or make any other representation or warranty or modify this warranty in any way.
4.5 Client's sole and exclusive remedy for the breach of warranty in connection with any services performed by CTL, will be limited to repeating any services performed, contingent on the Client's providing, at the request of CTL and at the Client's expense, additional sample(s) if necessary. Any reanalysis requested by the Client generating Results consistent with the original Results will be at the Client's expense. If resampling is necessary, CTL's liability for resampling costs will be limited to actual cost or one hundred or one hundred fifty dollars ($150) per sample, whichever is less.
4.6 CTL's liability for any and all causes of action arising hereunder, whether based in contract, tort, warranty, negligence or otherwise, shall be limited to the lesser amount of compensation for the services performed or $100,000. All claims, including those for negligence, shall be deemed waived unless suit thereon is filed within one year after CTL's completion of the services. Under no circumstances, whether arising in contract, tort (including negligence), or otherwise, shall CTL be responsible for loss of use, loss of profits, or for any special, indirect, incidental or consequential damages occasioned by the services performed or by application or use of the reports prepared.
4.7 In no event shall CTL have any responsibility or liability to the Client for any failure or delay in performance by CTL which results, directly or indirectly, in whole or in part, from any cause or circumstance beyond the reasonable control of CTL. Such causes and circumstances shall include, but not be limited to, acts of God, acts of Client, acts or orders of any governmental authority, strikes or other labor disputes, natural disasters, accidents, wars, civil disturbances, equipment breakdown, matrix interference or unknown highly contaminated samples that impact instrument operation, unavailability of supplies from usual suppliers, difficulties or delays in transportation, mail or delivery services, or any other cause beyond CTL's reasonable control.

5. RESULTS, WORK PRODUCT

5.1 Data or information provided to CTL or generated by services performed under this agreement shall only become the property of the Client upon receipt in full by CTL of payment for the whole Order. Ownership of any analytical method, QA/QC protocols, software programs or equipment developed by CTL for performance of work will be retained by CTL, and Client shall not disclose such information to any third party.
5.2 Data and sample materials provided by Client or at Client's request, and the result obtained by CTL shall be held in confidence (unless such information is generally available to the public or is in the public domain or Client has failed to pay CTL for all services rendered or is otherwise in breach of these Terms and Conditions), subject to any disclosure required by law or legal process.
5.3 Should the Results delivered by CTL be used by the Client or Client's client, even though subsequently determined not to meet the warranties described in these Terms and Conditions, then the compensation will be adjusted based upon mutual agreement. In no case shall the Client unreasonably withhold CTL's right to independently defend its data.
5.4 CTL reserves the right to subcontract services ordered by the Client to another laboratory or laboratories, if, in CTL's sole judgment, it is reasonably necessary, appropriate or advisable to do so, and with the Client's permission. CTL will in no way be liable for any subcontracted services and all applicable warranties, guarantees and insurance are those of the subcontracted laboratory.
5.5 CTL shall dispose of the Client's samples and extracts 30 days after the analytical report is issued, unless instructed to store them for an alternate period of time or to return such samples to the Client, in a manner consistent with U.S. Environmental Protection Agency regulations or other applicable Federal, state or local requirements. Additional charges will apply for samples or extracts stored longer than 30 days at the Clients request. Any samples for projects that are canceled or not accepted, or for which return was requested, will be returned to the Client at Client expense. CTL reserves the right to return to the Client any sample or unused portion of a sample that is not within CTL's permitted capability or the capabilities of CTL's designated waste disposal vendor(s), or will make arrangements to dispose of these samples at Client direction and expense.
5.6 Unless a different time period is agreed to in any order under these Terms and Conditions, CTL agrees to retain all records for five (5) years.
5.7 In the event that CTL is required to respond to legal process related to services for Client, Client agrees to reimburse CTL for hourly charges for personnel involved in the response and attorney fees reasonably incurred in obtaining advice concerning the response, preparation to testify, and appearances related to the legal process, travel and all reasonable expenses associated with the litigation.

6. INSURANCE

6.1 CTL shall maintain in force during the performance of services under these Terms and Conditions, Workers' Compensation and Employer's Liability Insurance in accordance with the laws of the states having jurisdiction over CTL's employees who are engaged in the performance of the work. CTL shall also maintain during such period, Comprehensive General and Contractual Liability (limit of $2,000,000 per occurrence/ aggregate), Comprehensive Automobile Liability, owned and hired, ($1,000,000 combined single limit), and Professional/Pollution Liability Insurance (limit of $5,000,000 per occurrence/aggregate). Any Client required changes to these limits or conditions will result in a change in cost to the Client.

7. AUDIT

7.1 Upon prior notice to CTL, the Client may audit and inspect CTL's records and accounts covering reimbursable costs related to work done for the Client, for a period of one (1) year after completion of the work. The purpose of any such audit shall be only for verification of such costs, and CTL shall not be required to provide access to cost records where prices are expressed as fixed fees or published unit prices.

Cooler Receipt Form

Ice Present (YES) NO

Temperature 1.2

IR Gun # 27

Initials elb

Date 4-29-20 Time 10:30

Cooler #: XXXX

CUSTODY SEAL
DATE 4/28/2020
SIGNATURE

QEC
Quality Environmental Containers
800-255-3950 • www.qecusa.com

CUSTODY SEAL
DATE 4/28/2020
SIGNATURE

QEC
Quality Environmental Containers
800-255-3950 • www.qecusa.com

ORIGIN ID:WALA (770) 855-6275
PAUL I TAYLOR
WESTON SOLUTIONS INC
5655 PEACHTREE PKWY STE 150
PEACHTREE CORNERS, GA 30092
UNITED STATES US

SHIP DATE: 28APR20
ACTWGT: 41.25 LB
CAD: 6995155/SSFE2102
DIMS: 20x13x12 IN
BILL THIRD PARTY

TO CT LAB
CT LAB
1230 LANGE CT

BARABOO WI 53913
(608) 356-2760
INV:
PO: REF:
DEPT:

FedEx Express

TRK# 0201 3923 3084 7320

WED - 29 APR 10:30A
PRIORITY OVERNIGHT
AHS
53913
WI-US MSN

XH LNRA

Rev. 02/2017

CHAIN OF CUSTODY

Page 1 of 1

Company: Weston Solutions, Inc
Project Contact: Tony Pace
Telephone: 757-819-5310
Project Name: Radford AAP - SWMU-54
Project #:
Location: Radford, VA
Sampled By: W. Bounds / P. Taylor

CT LABORATORIES
1230 Lange Court, Baraboo, WI 53913
608-356-2760 Fax 608-356-2766
laboratories.com

Lab Use Only — Place Header Sticker Here

152892

Folder #: 152892
Company: WESTON SOLUTIONS,
Project: RADFORD AAP SWMU-
Logged By: EKB PM: BM

NPDES

Report To: Tony Pace
EMAIL: Tony.Pace@WestonSolutions.com
Company: Weston Solutions, Inc.
Address: 2 Eaton St. Ste. 603
Hampton, VA 23669

Invoice To:*
EMAIL:
Company: Same as Above
Address:

*Party listed is responsible for payment of invoice as per CT Laboratories' terms and conditions

Client Special Instructions

Matrix:
GW – groundwater SW - surface water WW - wastewater DW - drinking water
S - soil/sediment SL - sludge A - air M - misc/waste

Collection Date	Collection Time	Matrix	Grab/ Comp	Sample #	Sample ID Description	Filtered? Y/N	ANALYSES REQUESTED: Chloride/Chloride 300.1	Total # Containers	Designated MS/MSD	CT Lab ID # (Lab use only)
							Fill in Spaces with Bottles per Test			
4/30/20	1400	GW	G		54MW10	N	1	1		413932
4/30/20	1420	GW	G		54MW12	N	3	3	X	413933
4/30/20	1440	GW	G		54MW1	N	1	1		413934

Turnaround Time
Normal RUSH*
Date Needed: _____
Rush analysis requires prior CT Laboratories' approval
Surcharges:
24 hr 200%
2-3 days 100%
4-9 days 50%

Relinquished By:	Date/Time	Received By:	Date/Time
	4/30/2020 1700	FedEx	4/30/2020 1700
Received by:	Date/Time	Received for Laboratory by:	Date/Time
			5/1/20 4:45

Lab Use Only
Ice Present Yes No
Temp 1.1 IR Gun 24
Cooler # 6435

ELLS 5-1-2020 10:11

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CT Laboratories Terms and Conditions

Where a purchaser (Client) places an order for laboratory, consulting or sampling services from CT Laboratories (CTL), CTL shall provide the ordered services pursuant to these Terms and Conditions, and the related Quotation, or as agreed in a negotiated contract. In the absence of a written agreement to the contrary, the Order constitutes an acceptance by the Client of CTL's offer to do business under these Terms and Conditions, and an agreement to be bound by these Terms and Conditions. No contrary or additional terms and conditions expressed in a Client's document shall be deemed to become a part of the contract created upon acceptance of these Terms and Conditions, unless accepted by CTL in advance of the start of the project and in writing.

1. ORDERS AND RECEIPT OF SAMPLES (Sample Acceptance Policy)

1.1 The Client may place the Order (i.e., specify a Scope of Work) either by submitting a purchase order to CTL in writing, by telephone (confirmed in writing) or by negotiated contract. Whichever option the Client selects for placing the Order, the Order shall not be valid unless it contains sufficient information to enable CTL to carry out the Client's requirements. It is the policy of CTL that samples not meeting the acceptance criteria, outlined in the NELAC standards and Section 5.8.3.2 of the DOD QSM, will not be accepted by the laboratory or will be qualified on the final report. All samples submitted to the laboratory must: (a) be accompanied by proper, full and complete documentation, including sample identification, location, date and time of collection, the collector's name, type of preservation (if any), type of sample, any special comments concerning the sample and any additional pertinent fields on the chain-of-custody. In the absence of any of the required information, the laboratory will attempt to contact the client to obtain the information; if unable to obtain the necessary information, the final report will be qualified. (b) samples must be labeled appropriately with a unique sample identification written with indelible ink on water resistant labels. If the laboratory cannot determine the identity of a sample, it may be rejected and the client will be contacted for further instructions or resampling. (c) samples must be in an appropriate sample container. If the container is inappropriate, the client will be contacted for further instructions or resampling. If analysis is possible, the final report will be qualified. CTL can provide a sampling guide containing approved containers and preservations for analytical methods requested. (d) adhere to method specified holding times. If samples are received with less than ½ the holding time remaining for the requested test, CTL will make its best effort to analyze the samples and notify the client. If holding times are exceeded, the final report will be qualified. (e) contain adequate sample volume to perform the necessary testing. If sufficient volume is not present, the sample may be rejected and the client will be contacted for further instructions or resampling. If samples show signs of damage, contamination or inadequate preservation, the client will be notified. If analysis can be performed, the final report will be qualified. If not, the samples will be rejected and the client notified for further instructions or resampling. It is the Client's responsibility to understand and package samples correctly and provide the proper amount of temperature control (ice) suitable to current weather conditions.

1.2 CTL must be supplied with complete written disclosure of the known or suspected presence of any hazardous substances, as defined by applicable federal or state law. Where any samples which were not accompanied by the required disclosure, cause interruptions in the lab's ability to process work due to contamination of instruments or work areas, the Client will be responsible for the costs of clean up and recovery.

1.3 Prior to Sample Acceptance, the entire risk of loss or damage to samples remains with the Client. In no event will CTL have any responsibility or liability for the action or inaction of any carrier shipping or delivering any sample to or from CTL's premises. Client is responsible to assure that any sample containing any hazardous substance which is to be delivered to CTL's premises will be packaged, labeled, transported and delivered properly and in accordance with applicable laws.

1.4 Clients using CTL's shipping account(s) do so at their own risk and must purchase separate insurance if they do not wish to assume risk of loss. CTL will not assume any risk whatsoever for any samples outside of CTL's control and not successfully delivered to the laboratory within specified hold times.

1.5 CTL will not accept liability for any sample(s), except sample(s) damaged or broken by log-in staff prior to successful log-in of the sample(s) into the CTL- LIMS system. This includes, but may not be limited to: complete, valid COC documentation, all sample receiving issues being resolved from a delay caused by the Client in CTL's ability to log-in samples, including missed turnaround and hold times, delay in processing and, ultimately, additional charges to the Client.

1.6 CTL will only reject samples per directions from the Client. CTL's sole liability is to inform the Client of any sample receipt issues, and may provide an indication how proceeding with the analysis may affect results and final acceptance by the regulating agency. Ultimately, suitability for use is between the Client and the regulating agency(s).

1.7 Signing of this COC by the Client or Client's representative, or directions to CTL via email or Fax constitutes acceptance of these Terms and Conditions, and guarantees payment by the Client to CTL.

2. PAYMENT TERMS

2.1 Services performed by CTL will be in accordance with prices quoted and later confirmed in writing or as stated in the Price Schedule. Invoices may be submitted to Client upon completion of any sample delivery group. Payment in advance is required for all Clients except those whose credit has been established with CTL. For Clients with approved credit, payment terms are net 30 days from the date of invoice by CTL. All overdue payments are subject to an additional interest and service charge of one and one-half percent (1.5%) or the maximum rate permissible by law, per month or portion thereof from the due date until the date of payment. All fees are charged or billed directly to the Client. The billing of a third party will not be accepted without a statement, signed by the third party that acknowledges and accepts payment responsibility. CTL may suspend work and withhold delivery of data under this order at any time in the event Client fails to make timely payment of its invoices. Client shall be responsible for all costs and expenses of collection including reasonable attorney's fees. CTL reserves the right to refuse to proceed with work at any time based upon an unfavorable Client credit report.

3. CHANGE ORDERS, TERMINATION

3.1 Changes to the Scope of Work, price, or result delivery date may be initiated by CTL after Sample Acceptance due to any condition which conflicts with analytical, QA or other protocols warranted in these Terms and Conditions. CTL will not proceed with such changes until an agreement with the Client is reached on the amount of any cost, schedule change or technical change to the Scope of Work, and such agreement is documented in writing.

3.2 Changes to the Scope of Work, including but not limited to increasing or decreasing the work, changing test and analysis specification or acceleration in the performance of the work may be initiated by the Client after sample acceptance. Such a change will be documented in writing and may result in a change in cost and turnaround time commitment. CTL's acceptance of such changes is contingent upon technical feasibility and operational capacity.

3.3 Suspension or termination of all or any part of the work may be initiated by the Client. CTL will be compensated consistent with Section 2 of these Terms and Conditions. CTL will complete all work in progress and be paid in full for all work completed.

4. WARRANTIES AND LIABILITY

4.1 Where applicable, CTL will use analytical methodologies which are in substantial conformity with published test methods. CTL has implemented these methods in its Laboratory Quality Manuals and referenced Standard Operating Procedures and where the nature or composition of the sample requires it, CTL reserves the right to deviate from these methodologies as necessary or appropriate, based on the reasonable judgment of CTL, which deviations, if any, will be made on a basis consistent with recognized standards of the industry and/or CTL's Laboratory Quality Manuals. Client may request that CTL perform according to a mutually agreed Quality Assurance Project Plan (QAPP). In the event that samples arrive prior to agreement on a QAPP, CTL will proceed with analyses under its standard Quality Manuals then in effect, and CTL will not be responsible for any resampling or other charges it work must be repeated to comply with a subsequently finalized QAPP.

4.2 CTL shall start preparation and/or analysis within holding times provided that Sample Acceptance occurs within 48 hours of sampling or 1/2 of the holding time for the test, whichever is less. Samples received that do not meet this provision will be charged as expedited samples and the appropriate rate will be added accordingly. Where resolution of inconsistencies leading to Sample Acceptance does not occur within this period, CTL will use its best efforts to meet holding times and will proceed with the work provided that, in CTL's judgment, the chain-of-custody or definition of the Scope of Work provide sufficient guidance. Reanalysis of samples to comply with CTL's Quality Manuals will be deemed to have met holding times provided the initial analysis was performed within the applicable holding time. Where reanalysis demonstrates that sample matrix interference is the cause of failure to meet any Quality Manual requirements, the warranty will be deemed to have been met.

4.3 CTL warrants that it possesses and maintains all licenses and certifications which are required to perform services under these Terms and Conditions provided that such requirements are specified in writing to CTL prior to Sample Acceptance. CTL will notify the Client in writing of any decertification or revocation of any license, or notice of either, which affects work in progress.

4.4 The warranty obligations set forth in Sections 4.1, 4.2 and 4.3 are the sole and exclusive warranties given by CTL in connection with any services performed by CTL or any Results generated from such services, and CTL gives and makes NO OTHER REPRESENTATION OR WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. No representative of CTL is authorized to give or make any other representation or warranty or modify this warranty in any way.

4.5 Client's sole and exclusive remedy for the breach of warranty in connection with any services performed by CTL, will be limited to repeating any services performed, contingent on the Client's providing, at the request of CTL and at the Client's expense, additional sample(s) if necessary. Any reanalysis requested by the Client generating Results consistent with the original Results will be at the Client's expense. If resampling is necessary, CTL's liability for resampling costs will be limited to actual cost or one hundred or one hundred fifty dollars ($150) per sample, whichever is less.

4.6 CTL's liability for any and all causes of action arising hereunder, whether based in contract, tort, warranty, negligence or otherwise, shall be limited to the lesser amount of compensation for the services performed or $100,000. All claims, including those for negligence, shall be deemed waived unless suit thereon is filed within one year after CTL's completion of the services. Under no circumstances, whether arising in contract, tort (including negligence), or otherwise, shall CTL be responsible for loss of use, loss of profits, or for any special, indirect, incidental or consequential damages occasioned by the services performed or by application or use of the reports prepared.

4.7 In no event shall CTL have any responsibility or liability to the Client for any failure or delay in performance by CTL which results, directly or indirectly, in whole or in part, from any cause or circumstance beyond the reasonable control of CTL. Such causes and circumstances shall include, but not be limited to, acts of God, acts of Client, acts or orders of any governmental authority, strikes or other labor disputes, natural disasters, accidents, wars, civil disturbances, equipment breakdown, matrix interference or unknown highly contaminated samples that impact instrument operation, unavailability of supplies from usual suppliers, difficulties or delays in transportation, mail or delivery services, or any other cause beyond CTL's reasonable control.

5. RESULTS, WORK PRODUCT

5.1 Data or information provided to CTL or generated by services performed under this agreement shall only become the property of the Client upon receipt in full by CTL of payment for the whole Order. Ownership of any analytical method, QA/QC protocols, software programs or equipment developed by CTL for performance of work will be retained by CTL, and Client shall not disclose such information to any third party.

5.2 Data and sample materials provided by Client or at Client's request, and the result obtained by CTL shall be held in confidence (unless such information is generally available to the public or is in the public domain or Client has failed to pay CTL for all services rendered or is otherwise in breach of these Terms and Conditions), subject to any disclosure required by law or legal process.

5.3 Should the Results delivered by CTL be used by the Client or Client's client, even though subsequently determined not to meet the warranties described in these Terms and Conditions, then the compensation will be adjusted based upon mutual agreement. In no case shall the Client unreasonably withhold CTL's right to independently defend its data.

5.4 CTL reserves the right to subcontract services ordered by the Client to another laboratory or laboratories, if, in CTL's sole judgment, it is reasonably necessary, appropriate or advisable to do so, and with the Client's permission. CTL will in no way be liable for any subcontracted services and all applicable warranties, guarantees and insurance are those of the subcontracted laboratory.

5.5 CTL shall dispose of the Client's samples and extracts 30 days after the analytical report is issued, unless instructed to store them for an alternate period of time or to return such samples to the Client, in a manner consistent with U.S. Environmental Protection Agency regulations or other applicable Federal, state or local requirements. Additional charges will apply for samples or extracts stored longer than 30 days at the Clients request. Any samples for projects that are canceled or not accepted, or for which return was requested, will be returned to the Client at Client expense. CTL reserves the right to return to the Client any sample or unused portion of a sample that is not within CTL's permitted capability or the capabilities of CTL's designated waste disposal vendor(s), or will make arrangements to dispose of these samples at Client direction and expense.

5.6 Unless a different time period is agreed to in any order under these Terms and Conditions, CTL agrees to retain all records for five (5) years.

5.7 In the event that CTL is required to respond to legal process related to services for Client, Client agrees to reimburse CTL for hourly charges for personnel involved in the response and attorney fees reasonably incurred in obtaining advice concerning the response, preparation to testify, and appearances related to the legal process, travel and all reasonable expenses associated with the litigation.

6. INSURANCE

6.1 CTL shall maintain in force during the performance of services under these Terms and Conditions, Workers' Compensation and Employer's Liability Insurance in accordance with the laws of the states having jurisdiction over CTL's employees who are engaged in the performance of the work. CTL shall also maintain during such period, Comprehensive General and Contractual Liability (limit of $2,000,000 per occurrence/ aggregate), Comprehensive Automobile Liability, owned and hired, ($1,000,000 combined single limit), and Professional/Pollution Liability Insurance (limit of $5,000,000 per occurrence/aggregate). Any Client required changes to these limits or conditions will result in a change in cost to the Client.

7. AUDIT

7.1 Upon prior notice to CTL, the Client may audit and inspect CTL's records and accounts covering reimbursable costs related to work done for the Client, for a period of one (1) year after completion of the work. The purpose of any such audit shall be only for verification of such costs, and CTL shall not be required to provide access to cost records where prices are expressed as fixed fees or published unit prices.

Cooler Receipt Form

Ice Present YES NO

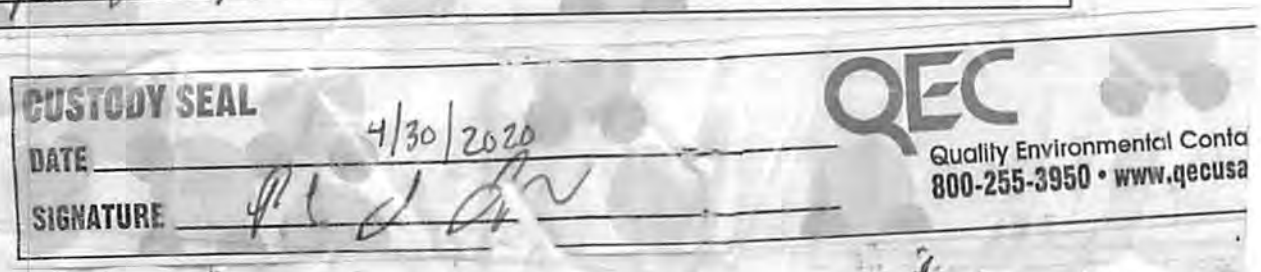
Temperature 3.1

IR Gun # 24

Initials

Date 5/1/20 Time 9:45

Cooler #: 6435



Folder #: 152892

PM LOGIN CONFIRMATION

Contract #: 3313

Company: WESTON SOLUTIONS, INC. **Project:** RADFORD AAP SWMU-54 **Proj #:**

Project Phase: RADFORD, VA **PO Number:** **Invoice #:** 153535

Project Manager: *BMS* **Date Received:** 04/29/20 **Log Date:** 04/29/2020

Report To: ANTHONY PACE CC:
2 EATON STREET
SUITE 603
HAMPTON, VA 23669
Phone: 757-819-5310: Fax:
Rep. E-Mail anthony.pace@westonsolutions.com

Invoice To :ACCOUNTS PAYABLE CC:
1400 WESTON WAY, BLDG 5-1
WEST CHESTER, PA 19380
Phone: Fax:
EMail:

Collected By:
Collector's Phone: 757-819-5310

Arrival Temperature: 1.2 oC

SAMPLE #: 413129 DESCR: 54MW13 **PRIMARY / DETAILED MATRIX:** AQUEOUS / GROUND WATER **SAMPLED: 04/28/2020 Time: 1000**

CLIENT SAMPLE #: **DETAILED SITE/POINT ID INFORMATION:**

TEST#	TEST	TEST METHOD	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
759	CARBON, INORG & ORG	(EPA 9060A)				05/12/2020	05/11/2020		Entered
1227	ANIONS IC QSM 5.0	(EPA 9056A)				04/30/2020	05/11/2020		Entered
			Chloride						
			Nitrate Nitrogen						
			Sulfate						
1230	ORGAN CARBON T QSM 5.(	(EPA 9060A)				05/26/2020	05/11/2020		Logged
1279	SUB CHLORATE/CHLORITE	(300.1)					05/11/2020		Logged

SAMPLE #: 413132 DESCR: 54TW13 **PRIMARY / DETAILED MATRIX:** AQUEOUS / GROUND WATER **SAMPLED: 04/28/2020 Time: 1000**

CLIENT SAMPLE #: **DETAILED SITE/POINT ID INFORMATION:**

TEST#	TEST	TEST METHOD	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
759	CARBON, INORG & ORG	(EPA 9060A)				05/12/2020	05/11/2020		Entered
1227	ANIONS IC QSM 5.0	(EPA 9056A)				04/30/2020	05/11/2020		Entered

Folder #: 152892 **Company:** *WESTON SOLUTIONS, INC.* **Project:** RADFORD AAP SWMU-54

SAMPLE #: 413132 **DESCR:** 54TW13 **PRIMARY / DETAILED MATRIX:** AQUEOUS / GROUND WATER **SAMPLED:** 04/28/2020 **Time:** 1000

CLIENT SAMPLE #: **DETAILED SITE/POINT ID INFORMATION:**

TEST#	TEST	TEST METHOD	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
			Chloride						
			Nitrate Nitrogen						
			Sulfate						
1230	ORGAN CARBON T QSM 5.(	(EPA 9060A)				05/26/2020	05/11/2020		Logged
1279	SUB CHLORATE/CHLORITE	(300.1)					05/11/2020		Logged

SAMPLE #: 413133 **DESCR:** 54MW10 **PRIMARY / DETAILED MATRIX:** AQUEOUS / GROUND WATER **SAMPLED:** 04/28/2020 **Time:** 1130

CLIENT SAMPLE #: **DETAILED SITE/POINT ID INFORMATION:**

TEST#	TEST	TEST METHOD	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
759	CARBON, INORG & ORG	(EPA 9060A)				05/12/2020	05/11/2020		Entered
1227	ANIONS IC QSM 5.0	(EPA 9056A)				04/30/2020	05/11/2020		Entered
			Chloride						
			Nitrate Nitrogen						
			Sulfate						
1230	ORGAN CARBON T QSM 5.(	(EPA 9060A)				05/26/2020	05/11/2020		Logged

SAMPLE #: 413134 **DESCR:** 54MW12 **PRIMARY / DETAILED MATRIX:** AQUEOUS / GROUND WATER **SAMPLED:** 04/28/2020 **Time:** 1245

CLIENT SAMPLE #: **DETAILED SITE/POINT ID INFORMATION:**

TEST#	TEST	TEST METHOD	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
759	CARBON, INORG & ORG	(EPA 9060A)			***DESIGNATED MATRIX SPIKE***	05/12/2020	05/11/2020		Entered
1227	ANIONS IC QSM 5.0	(EPA 9056A)			***DESIGNATED MATRIX SPIKE***	04/30/2020	05/11/2020		Entered
			Chloride						
			Nitrate Nitrogen						
			Sulfate						
1230	ORGAN CARBON T QSM 5.(	(EPA 9060A)			***DESIGNATED MATRIX SPIKE***	05/26/2020	05/11/2020		Logged

Folder #: 152892 **Company:** *WESTON SOLUTIONS, INC.* **Project:** RADFORD AAP SWMU-54

SAMPLE #: 413135 **DESCR:** 54MW1 **PRIMARY / DETAILED MATRIX:** AQUEOUS / GROUND WATER **SAMPLED:** 04/28/2020 **Time:** 1420

CLIENT SAMPLE #: **DETAILED SITE/POINT ID INFORMATION:**

TEST#	TEST	TEST METHOD	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
759	CARBON, INORG & ORG	(EPA 9060A)				05/12/2020	05/11/2020		Entered
1227	ANIONS IC QSM 5.0	(EPA 9056A)				04/30/2020	05/11/2020		Entered
			Chloride						
			Nitrate Nitrogen						
			Sulfate						
1230	ORGAN CARBON T QSM 5.(	(EPA 9060A)				05/26/2020	05/11/2020		Logged

SAMPLE #: 413136 **DESCR:** 54IDW **PRIMARY / DETAILED MATRIX:** AQUEOUS / GROUND WATER **SAMPLED:** 04/28/2020 **Time:** 1438

CLIENT SAMPLE #: **DETAILED SITE/POINT ID INFORMATION:**

TEST#	TEST	TEST METHOD	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
203	PH	(EPA 9040C)					05/11/2020		Entered
989	COD QSM	(EPA 410.4)					05/11/2020		Logged
1183	ICP K TOTAL QSM 5.0	(EPA 6010C)					05/11/2020		Logged
1190	ICP NA TOTAL QSM 5.0	(EPA 6010C)					05/11/2020		Logged
1200	ICP TOTAL QSM 5.0	(EPA 6010C)					05/11/2020		Logged
			Total Aluminum						
			Total Antimony						
			Total Arsenic						
			Total Barium						
			Total Beryllium						
			Total Cadmium						
			Total Calcium						
			Total Chromium						
			Total Cobalt						
			Total Copper						
			Total Iron						
			Total Lead						

SAMPLE #: 413136 **DESCR:** 54IDW **PRIMARY / DETAILED MATRIX:** AQUEOUS / GROUND WATER **SAMPLED:** 04/28/2020 **Time:** 1438

CLIENT SAMPLE #: **DETAILED SITE/POINT ID INFORMATION:**

TEST#	TEST	TEST METHOD	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
			Total Magnesium						
			Total Manganese						
			Total Nickel						
			Total Selenium						
			Total Silver						
			Total Thallium						
			Total Vanadium						
			Total Zinc						
1208	MERCURY TOTAL QSM 5.0	(EPA 7470A)					05/11/2020		NeedPrep

SAMPLE #: 413932 **DESCR:** 54MW10 **PRIMARY / DETAILED MATRIX:** AQUEOUS / GROUND WATER **SAMPLED:** 04/30/2020 **Time:** 1400

CLIENT SAMPLE #: **DETAILED SITE/POINT ID INFORMATION:**

TEST#	TEST	TEST METHOD	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
1279	SUB CHLORATE/CHLORITE	(300.1)					05/11/2020		Logged

SAMPLE #: 413933 **DESCR:** 54MW12 **PRIMARY / DETAILED MATRIX:** AQUEOUS / GROUND WATER **SAMPLED:** 04/30/2020 **Time:** 1420

CLIENT SAMPLE #: **DETAILED SITE/POINT ID INFORMATION:**

TEST#	TEST	TEST METHOD	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
1279	SUB CHLORATE/CHLORITE	(300.1)			***DESIGNATED MATRIX SPIKE***		05/11/2020		Logged

SAMPLE #: 413934 **DESCR:** 54MW1 **PRIMARY / DETAILED MATRIX:** AQUEOUS / GROUND WATER **SAMPLED:** 04/30/2020 **Time:** 1440

CLIENT SAMPLE #: **DETAILED SITE/POINT ID INFORMATION:**

TEST#	TEST	TEST METHOD	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
1279	SUB CHLORATE/CHLORITE	(300.1)					05/11/2020		Logged

Folder #: 152892 **Company:** *WESTON SOLUTIONS, INC.* **Project:** RADFORD AAP SWMU-54

Invoice Number: 153535 **Preliminary Invoice Estimate:** $ 1,402.00

Item	Matrix	Quantity	Price	Expedited TAT Surcharge	Total
ANIONS IC QSM 5.0 Chloride	GROUND WATER	7	$ 12.00	0.00	$ 84.00
ANIONS IC QSM 5.0 Nitrate Nitrogen	GROUND WATER	7	$ 12.00	0.00	$ 84.00
ANIONS IC QSM 5.0 Sulfate	GROUND WATER	7	$ 12.00	0.00	$ 84.00
CARBON, INORG & ORG	GROUND WATER	7	$ 28.00	0.00	$ 196.00
COD QSM	GROUND WATER	1	$ 18.00	0.00	$ 18.00
ICP K TOTAL QSM 5.0	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP NA TOTAL QSM 5.0	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Aluminum	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Antimony	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Arsenic	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Barium	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Beryllium	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Cadmium	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Calcium	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Chromium	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Cobalt	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Copper	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Iron	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Lead	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Magnesium	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Manganese	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Nickel	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Selenium	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Silver	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Thallium	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Vanadium	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Zinc	GROUND WATER	1	$ 3.50	0.00	$ 3.50
MERCURY TOTAL QSM 5.0	GROUND WATER	1	$ 23.00	0.00	$ 23.00
ORGAN CARBON T QSM 5.0	GROUND WATER	7	$ 28.00	0.00	$ 196.00

PH	GROUND WATER	1	$ 10.00	0.00	$ 10.00
SUB CHLORATE/CHLORITE	GROUND WATER	7	$ 90.00	0.00	$ 630.00
Temporary Fuel Surcharge on lab supplies and services (if applicable):					$ 0.00

Bottle Information

Container	# Containers	Tests
H2SO4 PL	**8**	TOC
HNO3	**1**	HG,ICP,K,NA
MISC	**7**	SUB
UNPRES PL	**8**	Anions
VOA	**21**	TIC

CT LABORATORIES
delivering more than data from your environmental analyses

Sample Condition Report

Folder #: 152892
Client: WESTON SOLUTIONS, INC.

Print Date / Time: 04/29/2020 13:18
Received Date / Time / By: 04/29/2020 10:30 JLS

Project Name: RADFORD AAP SWMU-54
Project Phase: RADFORD, VA

Log-In Date / Time / By: 04/29/2020 11:19 JLS
Project #: PM: BMS

Coolers: UNMARKED
Custody Seals Present : **Y**

Temperature: 1.2 C On Ice: **Y**
COC Present:? **Y** Complete? **Y**

Seal Intact? **Y**
Ship Method: FEDEX EXPRESS
Adequate Packaging: **Y**

Numbers: DATED AND SIGNED
Tracking Number: 392330847320
Temp Blank Enclosed? **Y**

Notes: THE SAMPLES WERE RECEIVED IN GOOD CONDITION ON ICE.

TWO CUSTODY SEALS (DATED 4/28/2020 AND SIGNED) WERE PRESENT AND INTACT UPON RECEIPT.

EDA-PRESERVED BOTTLES USED FOR CHLORATE/CHLORITE ANALYSIS WERE NOT RECEIVED FOR SAMPLES 54MW10, 54MW12, AND 54MW1. REPLACEMENT BOTTLES WILL BE SHIPPED TO THE CLIENT TO RECOLLECT THESE THREE SAMPLES FOR CHLORATE/CHLORITE.

THE RECOLLECTED CHLORATE/CHLORITE SAMPLES WERE RECEIVED ON 05/01/2020 AND WERE ADDED TO THIS FOLDER.

Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
413129 54MW13				
	UNPRES PL	1	/	Anions
	Total # of Containers of Type	(***UNPRES PL***) = **1**		
413129 54MW13				
	MISC	1	/	CHLORATE/CHLORITE
	Total # of Containers of Type	(***MISC***) = **1**		
413129 54MW13				
	VOA	1	/	TIC
	VOA	1	/	TIC
	VOA	1	/	TIC
	Total # of Containers of Type	(***VOA***) = **3**		
413129 54MW13				
	H2SO4 PL	1	Y /	TOC
	Total # of Containers of Type	(***H2SO4 PL***) = **1**		

Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
413132 54TW13				
	UNPRES PL	1	/	Anions
	Total # of Containers of Type	(***UNPRES PL***) = **1**		
413132 54TW13				
	MISC	1	/	CHLORATE/CHLORITE
	Total # of Containers of Type	(***MISC***) = **1**		
413132 54TW13				
	VOA	1	/	TIC
	VOA	1	/	TIC
	VOA	1	/	TIC

		Total # of Containers of Type	**(*VOA*) =**	**3**	
413132	54TW13				
		H2SO4 PL	1	Y /	TOC
		Total # of Containers of Type	**(*H2SO4 PL*) =**	**1**	

Sample ID / Description	**Container Type**	**Cond. Code**	**pH OK?/Filtered?**	**Tests**
413133 54MW10				
	UNPRES PL	1	/	Anions
	Total # of Containers of Type	**(*UNPRES PL*) =**	**1**	
413133 54MW10				
	VOA	1	/	TIC
	VOA	1	/	TIC
	VOA	1	/	TIC
	Total # of Containers of Type	**(*VOA*) =**	**3**	
413133 54MW10				
	H2SO4 PL	1	Y /	TOC
	Total # of Containers of Type	**(*H2SO4 PL*) =**	**1**	

Sample ID / Description	**Container Type**	**Cond. Code**	**pH OK?/Filtered?**	**Tests**
413134 54MW12				
	UNPRES PL	1	/	ANIONS
	UNPRES PL	1	/	ANIONS
	UNPRES PL	1	/	Anions
	Total # of Containers of Type	**(*UNPRES PL*) =**	**3**	
413134 54MW12				
	VOA	1	/	TIC
	VOA	1	/	TIC
	VOA	1	/	TIC
	VOA	1	/	TIC
	VOA	1	/	TIC
	VOA	1	/	TIC
	VOA	1	/	TIC
	VOA	1	/	TIC
	VOA	1	/	TIC
	Total # of Containers of Type	**(*VOA*) =**	**9**	
413134 54MW12				
	H2SO4 PL	1	Y /	TOC
	H2SO4 PL	1	Y /	TOC
	H2SO4 PL	1	Y /	TOC
	Total # of Containers of Type	**(*H2SO4 PL*) =**	**3**	

Sample ID / Description	**Container Type**	**Cond. Code**	**pH OK?/Filtered?**	**Tests**
413135 54MW1				
	UNPRES PL	1	/	Anions
	Total # of Containers of Type	**(*UNPRES PL*) =**	**1**	
413135 54MW1				
	VOA	1	/	TIC
	VOA	1	/	TIC
	VOA	1	/	TIC
	Total # of Containers of Type	**(*VOA*) =**	**3**	
413135 54MW1				
	H2SO4 PL	1	Y /	TOC
	Total # of Containers of Type	**(*H2SO4 PL*) =**	**1**	

Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
413136 54IDW				
	H2SO4 PL	1	Y /	COD
	Total # of Containers of Type (*H2SO4 PL*) = 1			
413136 54IDW				
	HNO3	1	/	HG,ICP,K,NA
	Total # of Containers of Type (*HNO3*) = 1			
413136 54IDW				
	UNPRES PL	1	/	pH
	Total # of Containers of Type (*UNPRES PL*) = 1			

Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
413932 54MW10				
	MISC	1	/	SUB
	Total # of Containers of Type (*MISC*) = 1			

Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
413933 54MW12				
	MISC	1	/	SUB
	MISC	1	/	SUB
	MISC	1	/	SUB
	Total # of Containers of Type (*MISC*) = 3			

Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
413934 54MW1				
	MISC	1	/	SUB
	Total # of Containers of Type (*MISC*) = 1			

Condition Code	*Condition Description*
1	Sample Received OK

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ANALYTICAL RESULTS FOR:

ANTHONY PACE
WESTON SOLUTIONS, INC.
2 EATON STREET
SUITE 603
HAMPTON, VA 23669

PROJECT SITE:	RFAAP SWMU-54; RADFORD, VA
DOD CONTRACT #:	
PROJECT #:	
SDG:	***154987***
PREPARED:	August 14, 2020
TOTAL # OF PAGES:	900

The data contained in the following report have been reviewed by the appropriate CT Laboratories' LLC staff members. In addition, CT Laboratories LLC certifies that to the best of our knowledge that the analyses reported herein are true, complete and correct within the limits of the methods employed and that they follow the applicable requirements as specified by the project plan, state-specific, NELAC or DOD QSM requirements. The estimated uncertainty of measurement is only available upon request. The reported results relate only to the tested samples. This report shall not be reproduced, except in full, without written approval of CT Laboratories LLC.

APPROVED BY: Brett Szymanski
PROJECT MANAGER

Certifications: IL (NELAP 200073), KS (NELAP E-10368), WI (157066030), DOD ELAP (A2LA 3806.01), VA (NELAP 4602038), MD (WI 00061), LA (NELAP ACC20160002), ISO17025 (A2LA 3806.01), GA EDP Stipulation (Accreditor: LA NELAP, ACC#: ACC20160002, Scope: Non-potable water solid and chemical materials, biological tissue, Effective: 12/10/2014, Expires: annually)

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Case Narrative

Client: Bering Sea Environmental
Project: RFAAP SWMU-54, Radford, VA
Sample Receipt Dates: 07/22/2020
SDG #: 154987

Six water samples were received for a variety of analytical parameters, including: Metals, pH, COD, Anions, Chlorate/Chlorite, TIC, and TOC. The Chlorate/Chlorite analysis was subcontracted to Eurofins Eaton Analytical in South Bend, IN. The assigned sample ID number, date sampled, and date received are indicated in the attached Project Summary. The samples were received intact and at a temperature within method specified acceptance limits. A breakdown of sample receipt information can be found on the Sample Condition Report located in the last section of the data package and any exceptions are noted below. The analyses were performed following DOD QSM 5.1 requirements.

Manual integrations may have been performed on the data provided with this package. If manual integrations were performed, a Reason #(s) was included on the raw data that corresponds to the "Index Key for Manual Integration Rationale." The raw data includes a "Before" and "After" manual integration illustration. The manual integrations were initialed and dated by the analyst, as well as, by the person reviewing the data.

Sample Analysis and Quality Control

Metals Analysis:

The samples were analyzed using US EPA Methods 6010C (ICP) and 7470A (Hg). All samples were analyzed within the holding time. The following summaries of quality control procedures are included:

Initial and Continuing Calibration Verification
Blanks Summary
ICP Interference Check Data
Spike Sample Recovery
Duplicates Data
Laboratory Control Sample Data
Analysis Run Log

All analysis results met the method specified quality control criteria with the following exceptions:

ICP Metals (6010C) Water Analysis

Continuing Calibration Verification (CCV) standards were analyzed at two levels (CCV1 & CCV2) with potentially differing wavelengths. Data associated with CCV's were evaluated based on the concentration of the element in the samples and compared to the appropriate CCV level/wavelength.

Some samples may have been analyzed and/or reanalyzed diluted to obtain results for all target analytes within the calibration range of the instrument.

Analytical Run # 173412

Arsenic was detected in the Method Blank (MB) greater than the Method Detection Limit (MDL) but less than ½ the Reporting Limit (RL). The sample was reported and not qualified because the sample arsenic result was less than the MDL.

The Matrix Spike (MS) and Matrix Spike Duplicate (MSD) for sample # 448843 had recoveries outside of acceptable limits for aluminum, iron, and vanadium. A Serial Dilution (L) was analyzed and was not applicable for aluminum, iron, and vanadium because the parent sample raw results were less than 50 times the Limit of Quantitation (LOQ). A Post Digestion Spike (PDS) was analyzed and was unacceptable for iron. The parent sample was reported and qualified with an "M" flag for the failing element.

The Duplicate (DUP) for sample # 448843 was not applicable for aluminum, antimony, arsenic, beryllium, cadmium, chromium, cobalt, copper, iron, lead, manganese, nickel, selenium, silver, thallium, vanadium, and zinc because the parent sample results were less than five times the LOQ. An MSD was analyzed to demonstrate precision and was acceptable. The parent sample was reported and not qualified.

ICP Sodium & Potassium (6010C) Water Analysis

Analytical Run # 173413

The DUP for sample # 448843 was not applicable for potassium because the parent sample result was less than five times the LOQ. A MSD was analyzed to demonstrate precision and was acceptable. The parent sample was reported and not qualified.

CVAA Mercury (7470A) Water Analysis

Analytical Run # 173576

The DUP for sample # 448843 was not applicable for mercury because the parent sample result was less than five times the LOQ. A MSD was analyzed to demonstrate precision and was acceptable. The parent sample was reported and not qualified.

Inorganic Analysis:

The samples were analyzed using US EPA Methods 9060A (TIC/TOC), 9040C (pH), 410.4 (COD) and 9056A (Anions). All samples were analyzed within the holding time unless noted below. The following summaries of quality control procedures are included:

Duplicate Analysis Data
Laboratory Control Spike Data
Method Blank Data
Initial Calibration Summary
Calibration Check Summary
Analysis Run Log
Prep Log

All analysis results met the method specified quality control criteria with the following exceptions:

Some samples may have been analyzed and/or reanalyzed diluted to obtain results for all target analytes within the calibration range of the instrument.

Anions (9056A) Water Analysis

Analytical Run # 173314

The MS and the MSD for sample # 448840 had a low recovery for sulfate. The parent sample result for this analyte was qualified with an “M” flag.

COD (410.4) Water Analysis

Analytical Run # 173688

The MS and the MSD for sample # 448840 had a low recovery. The parent sample result was qualified with an “M” flag.

pH (9040C) Water Analysis

Analytical Run # 173373

All analytical results for this run met the method/project specified quality control criteria.

TIC (9060A) Water Analysis

Analytical Run # 173439

All analytical results for this run met the method/project specified quality control criteria.

TOC (9060A) Water Analysis

Analytical Run # 173668

All analytical results for this run met the method/project specified quality control criteria.

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Data Qualifiers

Code	Description
A	Analyte averaged calibration criteria within acceptable limits.
B	Analyte detected in associated Method Blank.
C	Toxicity present in BOD sample.
D	Diluted Out.
E	Safe, No Total Coliform detected.
F	Unsafe, Total Coliform detected, no E. Coli detected.
G	Unsafe, Total Coliform detected and E. Coli detected.
H	Holding time exceeded.
J	Estimated value.
L	Significant peaks were detected outside the chromatographic window.
M	Matrix spike and/or Matrix Spike Duplicate recovery outside acceptance limits.
N	Insufficient BOD oxygen depletion.
O	Complete BOD oxygen depletion.
P	Concentration of analyte differs more than 40% between primary and confirmation analysis.
Q	Laboratory Control Sample outside acceptance limits.
R	See Narrative at end of report.
S	Surrogate standard recovery outside acceptance limits due to apparent matrix effects.
T	Sample received with improper preservation or temperature.
U	Analyte concentration was not above the detection level.
V	Raised Quantitation or Reporting Limit due to limited sample amount or dilution for matrix background interference.
W	Sample amount received was below program minimum.
X	Analyte exceeded calibration range.
Y	Replicate/Duplicate precision outside acceptance limits.
Z	Calibration criteria exceeded.

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MANUAL INTEGRATION REASON CODES

CTLaboratories has identified four general cases with valid reasons supporting the use of manual integration techniques. These codes are used on chromatograms in this data package to document the reasons for manual integrations per CTLaboratories' SOP SS-10 current revision.

#1: **Data system failed to select the correct peak or missed the peak entirely.**
In some cases the chromatography system selects and integrates the "wrong peak". In this case the analyst must correct the selection and force the system to integrate the proper peak. In other instances the system may miss the peak completely. In this case the analyst manually integrated the peak

#2: **Data System Splits the Peak Incorrectly or Integrates a False Peak as a Rider Peak.**
This phenomenon is common at low concentrations where the signal to noise ratio is low. A single compound (peak) is incorrectly split into multiple peaks or integrated as a main peak with one or more rider peaks resulting in low or high area counts for the target compound.

#3: Improperly Integrated Isomers and/or coeluting compounds.
For when the system fails to distinguish coeluting compounds and or isomers. The integration areas and concentrations may be inaccurate, and they must be corrected by manual integration. Prime examples are compounds that are unresolved and integrated improperly when present at low concentrations in standards or samples.

#4: System Established Incorrect Baseline.
There are numerous situations in chromatography where the system establishes the baseline incorrectly. Some baseline errors will be obvious to the analyst and may be corrected via manual procedures.

#5: Miscellaneous.
Some situations involving integration errors may require in-depth review and technical judgment. These cases should be brought to the attention of the group supervisor. If the form of manual integration is not clearly covered by these four cases, then review and approval by the group supervisor or the *QA/QC* Supervisor will be required.

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1230 Lange Court • Baraboo, WI 53913 • 608-356-2760
www.ctlaboratories.com

Sample Delivery Group

154987

WESTON SOLUTIONS, INC.
ANTHONY PACE
2 EATON STREET
SUITE 603
HAMPTON, VA 23669

Project Name: RADFORD AAP SWMU-54
Project #:

	CT Sample #	Folder #	Client Sample #	Sample Description	Matrix	Date Sampled	Date Received
1	448828	154987		54MW13	GROUND WATER	07/21/2020	07/22/2020
2	448839	154987		54TW13	GROUND WATER	07/21/2020	07/22/2020
3	448840	154987		54MW12	GROUND WATER	07/21/2020	07/22/2020
4	448841	154987		54MW10	GROUND WATER	07/21/2020	07/22/2020
5	448842	154987		54MW1	GROUND WATER	07/21/2020	07/22/2020
6	448843	154987		IDW-54	GROUND WATER	07/21/2020	07/22/2020

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QC Batch Cross Reference Summary

WESTON SOLUTIONS, INC.
ANTHONY PACE
2 EATON STREET
SUITE 603
HAMPTON, VA 23669

Project Name: RADFORD AAP SWMU-54
Project #:
Report Date: 08/14/2020
Date Received: 07/22/2020
SDG #: 154987

Inorganic Parameters

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
448843	pH	EPA 9040C	GROUND WATER		173373

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
448828	Carbon , Total Inorganic and Orga	EPA 9060A	GROUND WATER		173439
448839	Carbon , Total Inorganic and Orga	EPA 9060A	GROUND WATER		173439
448840	Carbon , Total Inorganic and Orga	EPA 9060A	GROUND WATER		173439
448841	Carbon , Total Inorganic and Orga	EPA 9060A	GROUND WATER		173439
448842	Carbon , Total Inorganic and Orga	EPA 9060A	GROUND WATER		173439

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
448843	COD QSM	EPA 410.4	GROUND WATER	77490	173688

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
448828	Anions QSM 5.0	EPA 9056A	GROUND WATER		173371
448839	Anions QSM 5.0	EPA 9056A	GROUND WATER		173371
448840	Anions QSM 5.0	EPA 9056A	GROUND WATER		173371
448841	Anions QSM 5.0	EPA 9056A	GROUND WATER		173371
448842	Anions QSM 5.0	EPA 9056A	GROUND WATER		173371
448841	Anions QSM 5.0	EPA 9056A	GROUND WATER		173371

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
448828	Organic Carbon, Total QSM 5.0	EPA 9060A	GROUND WATER		173668
448839	Organic Carbon, Total QSM 5.0	EPA 9060A	GROUND WATER		173668
448840	Organic Carbon, Total QSM 5.0	EPA 9060A	GROUND WATER		173668
448841	Organic Carbon, Total QSM 5.0	EPA 9060A	GROUND WATER		173668
448842	Organic Carbon, Total QSM 5.0	EPA 9060A	GROUND WATER		173668

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Project Name: RADFORD AAP SWMU-54
Project #:
SDG #: 154987

Metal Parameters

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
448843	Potassium, Total QSM 5.0	EPA 6010C	GROUND WATER	77363	173413

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
448843	Sodium, Total QSM 5.0	EPA 6010C	GROUND WATER	77363	173413

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
448843	ICP Metals, Total QSM 5.0	EPA 6010C	GROUND WATER	77363	173412

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
448843	Mercury, Total QSM	EPA 7470A	GROUND WATER	77414	173576

METALS
CLP FORMS
DOCUMENTS

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INORGANIC ANALYSIS DATA SHEET

Sample Description

IDW-54

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448843
Analytical Method:	EPA 7470A	Date Received:	07/22/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173576	Analysis Date/Time	07/29/2020 10:00
Analytical Prep Batch #:	77414	Prep. Date/Time:	07/28/2020 12:30
ICAL Calibration #:	07292020	Concentration Units:	ug/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
7439-97-6	Total Mercury	0.060	U	0.030	0.060	0.12	0.12

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Sample Description

IDW-54

INORGANIC ANALYSIS DATA SHEET

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448843
Analytical Method:	EPA 6010C	Date Received:	07/22/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173413	Analysis Date/Time	07/27/2020 15:53
Analytical Prep Batch #:	77363	Prep. Date/Time:	07/22/2020 07:31
ICAL Calibration #:		Concentration Units:	ug/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
7440-09-7	Total Potassium	1120		90	250	500	500
7440-23-5	Total Sodium	4840		100	300	600	600

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INORGANIC ANALYSIS DATA SHEET

Sample Description

IDW-54

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448843
Analytical Method:	EPA 6010C	Date Received:	07/22/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173412	Analysis Date/Time	07/24/2020 19:51
Analytical Prep Batch #:	77363	Prep. Date/Time:	07/22/2020 07:31
ICAL Calibration #:		Concentration Units:	ug/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
7429-90-5	Total Aluminum	146		6.0	18	36	36
7440-36-0	Total Antimony	6.0	U	2.0	6.0	12	12
7440-38-2	Total Arsenic	12	U	4.0	12	24	24
7440-39-3	Total Barium	70.2		0.29	0.90	1.8	1.8
7440-41-7	Total Beryllium	0.30	U	0.10	0.30	0.60	0.60
7440-43-9	Total Cadmium	1.0	U	0.30	1.0	2.0	2.0
7440-70-2	Total Calcium	64200		17	50	100	100
7440-47-3	Total Chromium	4.6		0.60	2.0	4.0	4.0
7440-48-4	Total Cobalt	2.0	U	0.70	2.0	4.0	4.0
7440-50-8	Total Copper	3.5	U	1.2	3.5	7.0	7.0
7439-89-6	Total Iron	267	M	16	50	100	100
7439-92-1	Total Lead	2.0	U	1.4	2.0	4.0	4.0
7439-95-4	Total Magnesium	27200		6.0	20	40	40
7439-96-5	Total Manganese	19.4		0.70	2.0	4.0	4.0
7440-02-0	Total Nickel	3.0	U	1.0	3.0	6.0	6.0
7782-49-2	Total Selenium	6.5	U	2.2	6.5	13	13
7440-22-4	Total Silver	2.0	U	0.70	2.0	4.0	4.0
7440-28-0	Total Thallium	7.5	U	2.5	7.5	15	15
7440-62-2	Total Vanadium	1.0	J	0.80	2.5	5.0	5.0
7440-66-6	Total Zinc	6.2	J	1.6	5.0	10	10

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Sample No.

ICV

2A-1

INITIAL CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173576

Lab Sample ID: 453552

ICAL Calibration #: 07292020

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Mercury	7/29/20 08:44	3.00	2.92	97	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

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Sample No.

ICV

2A-1

INITIAL CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173413

Lab Sample ID: 453323

ICAL Calibration #:

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Potassium	7/27/20	13:48	100000	98800	99	90	110
Sodium	7/27/20	13:48	100000	101000	101	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

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Sample No.

LLQC

2A-1

LOWER LIMIT OF QUANTITATION CHECK (LLQC)

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173413

Lab Sample ID: 453324

ICAL Calibration #:

Concentration Units:

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Potassium	7/27/20	13:51	3000	3180	106	80	120
Sodium	7/27/20	13:51	3000	3210	107	80	120

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

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Sample No.

ICV

2A-1

INITIAL CALIBRATION VERIFICATION

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173412 Lab Sample ID: 456251

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Aluminum	7/24/20	16:00	12000	11600	97	90	110
Antimony	7/24/20	16:00	500.0	489.0	98	90	110
Arsenic	7/24/20	16:00	2000	1950	98	90	110
Barium	7/24/20	16:00	2000	1900	95	90	110
Beryllium	7/24/20	16:00	50.00	47.90	96	90	110
Cadmium	7/24/20	16:00	50.00	46.40	93	90	110
Calcium	7/24/20	16:00	10000	9800	98	90	110
Chromium	7/24/20	16:00	200.0	200.0	100	90	110
Cobalt	7/24/20	16:00	500.0	498.0	100	90	110
Copper	7/24/20	16:00	250.0	234.0	94	90	110
Iron	7/24/20	16:00	5000	5140	103	90	110
Lead	7/24/20	16:00	500.0	488.0	98	90	110
Magnesium	7/24/20	16:00	10000	10200	102	90	110
Manganese	7/24/20	16:00	500.0	495.0	99	90	110
Nickel	7/24/20	16:00	500.0	498.0	100	90	110
Selenium	7/24/20	16:00	2000	1960	98	90	110
Silver	7/24/20	16:00	50.00	47.90	96	90	110
Thallium	7/24/20	16:00	2000	1920	96	90	110
Vanadium	7/24/20	16:00	500.0	494.0	99	90	110
Zinc	7/24/20	16:00	500.0	479.0	96	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
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Sample No.

LLQC

2A-1

LOWER LIMIT OF QUANTITATION CHECK (LLQC)

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173412 Lab Sample ID: 456252

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Aluminum	7/24/20	16:12	1200	1280	107	80	120
Antimony	7/24/20	16:12	60.00	63.60	106	80	120
Arsenic	7/24/20	16:12	60.00	64.70	108	80	120
Barium	7/24/20	16:12	30.00	31.70	106	80	120
Beryllium	7/24/20	16:12	12.00	13.20	110	80	120
Cadmium	7/24/20	16:12	15.00	15.90	106	80	120
Calcium	7/24/20	16:12	1500	1500	100	80	120
Chromium	7/24/20	16:12	30.00	33.20	111	80	120
Cobalt	7/24/20	16:12	30.00	33.30	111	80	120
Copper	7/24/20	16:12	30.00	31.30	104	80	120
Iron	7/24/20	16:12	900.0	1020	113	80	120
Lead	7/24/20	16:12	30.00	32.00	107	80	120
Magnesium	7/24/20	16:12	1500	1750	117	80	120
Manganese	7/24/20	16:12	30.00	34.30	114	80	120
Nickel	7/24/20	16:12	30.00	33.20	111	80	120
Selenium	7/24/20	16:12	60.00	66.10	110	80	120
Thallium	7/24/20	16:12	60.00	61.20	102	80	120
Vanadium	7/24/20	16:12	30.00	33.80	113	80	120
Zinc	7/24/20	16:12	30.00	32.70	109	80	120

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
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Sample No.

LLQC

2A-1

LOWER LIMIT OF QUANTITATION CHECK (LLQC)

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173412

Lab Sample ID: 456256

ICAL Calibration #:

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Silver	7/24/20	16:56	10.00	10.20	102	80	120

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173413

Lab Sample ID: 453329

ICAL Calibration #:

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Potassium	7/27/20	15:42	100000	101000	101	90	110
Sodium	7/27/20	15:42	100000	101000	101	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173413

Lab Sample ID: 453333

ICAL Calibration #:

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Potassium	7/27/20	16:16	100000	99800	100	90	110
Sodium	7/27/20	16:16	100000	100000	100	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173576

Lab Sample ID: 453554

ICAL Calibration #: 07292020

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Mercury	7/29/20	09:25	3.00	3.02	101	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173576

Lab Sample ID: 453556

ICAL Calibration #: 07292020

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Mercury	7/29/20 10:06	3.00	3.19	106	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173576

Lab Sample ID: 453558

ICAL Calibration #: 07292020

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Mercury	7/29/20 10:49	3.00	3.19	106	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV High Level

2A-2

CONTINUING CALIBRATION VERIFICATION (LEVEL 1 - HIGH RANGE)

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173412 Lab Sample ID: 456257

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Aluminum	7/24/20	19:20	5000	4870	97	90	110
Antimony	7/24/20	19:20	5000	4860	97	90	110
Arsenic	7/24/20	19:20	5000	4920	98	90	110
Barium	7/24/20	19:20	5000	4720	94	90	110
Beryllium	7/24/20	19:20	500.0	462.0	92	90	110
Cadmium	7/24/20	19:20	500.0	477.0	95	90	110
Calcium	7/24/20	19:20	5000	4800	96	90	110
Chromium	7/24/20	19:20	5000	5020	100	90	110
Cobalt	7/24/20	19:20	5000	4780	96	90	110
Copper	7/24/20	19:20	5000	4630	93	90	110
Iron	7/24/20	19:20	5000	4850	97	90	110
Lead	7/24/20	19:20	5000	4500	90	90	110
Magnesium	7/24/20	19:20	5000	4900	98	90	110
Manganese	7/24/20	19:20	5000	4620	92	90	110
Nickel	7/24/20	19:20	5000	4840	97	90	110
Selenium	7/24/20	19:20	5000	4900	98	90	110
Silver	7/24/20	19:20	500.0	456.0	91	90	110
Thallium	7/24/20	19:20	5000	4570	91	90	110
Vanadium	7/24/20	19:20	5000	4580	92	90	110
Zinc	7/24/20	19:20	5000	4770	95	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
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Sample No.

CCV Low Level

2A-2

CONTINUING CALIBRATION VERIFICATION (LEVEL 2 - LOW RANGE)

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173412

Lab Sample ID: 456258

ICAL Calibration #:

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Aluminum	7/24/20	19:26	500.0	480.0	96	90	110
Antimony	7/24/20	19:26	500.0	497.0	99	90	110
Arsenic	7/24/20	19:26	500.0	482.0	96	90	110
Barium	7/24/20	19:26	500.0	478.0	96	90	110
Beryllium	7/24/20	19:26	50.00	47.20	94	90	110
Cadmium	7/24/20	19:26	50.00	48.40	97	90	110
Calcium	7/24/20	19:26	500.0	457.0	91	90	110
Chromium	7/24/20	19:26	500.0	499.0	100	90	110
Cobalt	7/24/20	19:26	500.0	499.0	100	90	110
Copper	7/24/20	19:26	500.0	473.0	95	90	110
Iron	7/24/20	19:26	500.0	503.0	101	90	110
Lead	7/24/20	19:26	500.0	478.0	96	90	110
Magnesium	7/24/20	19:26	500.0	535.0	107	90	110
Manganese	7/24/20	19:26	500.0	501.0	100	90	110
Nickel	7/24/20	19:26	500.0	507.0	101	90	110
Selenium	7/24/20	19:26	500.0	483.0	97	90	110
Silver	7/24/20	19:26	50.00	47.30	95	90	110
Thallium	7/24/20	19:26	500.0	494.0	99	90	110
Vanadium	7/24/20	19:26	500.0	496.0	99	90	110
Zinc	7/24/20	19:26	500.0	474.0	95	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
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Sample No.

CCV High Level

2A-2

CONTINUING CALIBRATION VERIFICATION (LEVEL 1 - HIGH RANGE)

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173412 Lab Sample ID: 456262

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Aluminum	7/24/20	20:42	5000	4850	97	90	110
Antimony	7/24/20	20:42	5000	4980	100	90	110
Arsenic	7/24/20	20:42	5000	4920	98	90	110
Barium	7/24/20	20:42	5000	4810	96	90	110
Beryllium	7/24/20	20:42	500.0	483.0	97	90	110
Cadmium	7/24/20	20:42	500.0	496.0	99	90	110
Calcium	7/24/20	20:42	5000	5040	101	90	110
Chromium	7/24/20	20:42	5000	5120	102	90	110
Cobalt	7/24/20	20:42	5000	4870	97	90	110
Copper	7/24/20	20:42	5000	4600	92	90	110
Iron	7/24/20	20:42	5000	5080	102	90	110
Lead	7/24/20	20:42	5000	4710	94	90	110
Magnesium	7/24/20	20:42	5000	5050	101	90	110
Manganese	7/24/20	20:42	5000	4680	94	90	110
Nickel	7/24/20	20:42	5000	4910	98	90	110
Selenium	7/24/20	20:42	5000	5020	100	90	110
Silver	7/24/20	20:42	500.0	455.0	91	90	110
Thallium	7/24/20	20:42	5000	4570	91	90	110
Vanadium	7/24/20	20:42	5000	4870	97	90	110
Zinc	7/24/20	20:42	5000	5050	101	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
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Sample No.

CCV Low Level

2A-2

CONTINUING CALIBRATION VERIFICATION (LEVEL 2 - LOW RANGE)

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173412 Lab Sample ID: 456263

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Aluminum	7/24/20	20:48	500.0	507.0	101	90	110
Antimony	7/24/20	20:48	500.0	509.0	102	90	110
Arsenic	7/24/20	20:48	500.0	494.0	99	90	110
Barium	7/24/20	20:48	500.0	494.0	99	90	110
Beryllium	7/24/20	20:48	50.00	48.80	98	90	110
Cadmium	7/24/20	20:48	50.00	50.50	101	90	110
Calcium	7/24/20	20:48	500.0	486.0	97	90	110
Chromium	7/24/20	20:48	500.0	501.0	100	90	110
Cobalt	7/24/20	20:48	500.0	518.0	104	90	110
Copper	7/24/20	20:48	500.0	498.0	100	90	110
Iron	7/24/20	20:48	500.0	530.0	106	90	110
Lead	7/24/20	20:48	500.0	492.0	98	90	110
Magnesium	7/24/20	20:48	500.0	525.0	105	90	110
Manganese	7/24/20	20:48	500.0	495.0	99	90	110
Nickel	7/24/20	20:48	500.0	511.0	102	90	110
Selenium	7/24/20	20:48	500.0	495.0	99	90	110
Silver	7/24/20	20:48	50.00	46.70	93	90	110
Thallium	7/24/20	20:48	500.0	489.0	98	90	110
Vanadium	7/24/20	20:48	500.0	498.0	100	90	110
Zinc	7/24/20	20:48	500.0	500.0	100	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

MRL

2B

MRL STANDARD CHECK

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173413 Lab Sample ID: 453326

ICAL Calibration #: Concentration Units:

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Potassium	7/27/20	13:57	1000	1060	106	70	130
Sodium	7/27/20	13:57	1000	1070	107	70	130

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

ICB

3-1

INITIAL CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173576 Lab Sample ID: 453553

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: 07292020 Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Mercury	07/29/2020 08:50	0	U	0.03	0.06

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

ICB

3-1

INITIAL CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173413

Lab Sample ID: 453325

Analytical Prep Batch # 0

Preparation Date/Time:

ICAL Calibration #:

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Potassium	07/27/2020 13:54	54.00	U	90	250
Sodium	07/27/2020 13:54	35.00	U	100	300

** Detection Limit only reported if value was less than the control limit.

***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

ICB

3-1

INITIAL CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173412 Lab Sample ID: 456253

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Aluminum	07/24/2020 16:19	0.173	U	6	18
Antimony	07/24/2020 16:19	0.00500	U	2.0	6.0
Arsenic	07/24/2020 16:19	0.611	U	4	12
Barium	07/24/2020 16:19	-0.00100	U	0.29	0.90
Beryllium	07/24/2020 16:19	-0.00800	U	0.10	0.30
Cadmium	07/24/2020 16:19	-0.207	U	0.3	1.0
Calcium	07/24/2020 16:19	-7.28	U	17	50
Chromium	07/24/2020 16:19	-0.0570	U	0.6	2.0
Cobalt	07/24/2020 16:19	0.163	U	0.7	2.0
Copper	07/24/2020 16:19	-0.352	U	1.2	3.5
Iron	07/24/2020 16:19	-9.63	U	16	50
Lead	07/24/2020 16:19	0.617	U	1.4	2.0
Magnesium	07/24/2020 16:19	-2.36	U	6	20
Manganese	07/24/2020 16:19	-1.26	U	0.7	2.0
Nickel	07/24/2020 16:19	-0.0200	U	1.0	3.0
Selenium	07/24/2020 16:19	0.564	U	2.2	6.5
Silver	07/24/2020 16:19	0.395	U	0.7	2.0
Thallium	07/24/2020 16:19	-0.232	U	2.5	7.5
Vanadium	07/24/2020 16:19	0.191	U	0.8	2.5
Zinc	07/24/2020 16:19	-0.455	U	1.6	4.0

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173576 Lab Sample ID: 453555

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: 07292020 Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Mercury	07/29/2020 09:31	0.00100	U	0.03	0.06

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173576 Lab Sample ID: 453557

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: 07292020 Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Mercury	07/29/2020 10:12	0.00600	U	0.03	0.06

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173576

Lab Sample ID: 453559

Analytical Prep Batch # 0

Preparation Date/Time:

ICAL Calibration #: 07292020

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Mercury	07/29/2020 10:55	0.00400	U	0.03	0.06

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173413 Lab Sample ID: 453330

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Potassium	07/27/2020 15:45	65.00	U	90	250
Sodium	07/27/2020 15:45	45.00	U	100	300

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
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Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173413 Lab Sample ID: 453334

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Potassium	07/27/2020 16:18	84.00	U	90	250
Sodium	07/27/2020 16:18	48.00	U	100	300

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
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Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173412 Lab Sample ID: 456259

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Aluminum	07/24/2020 19:32	1.31	U	6	18
Antimony	07/24/2020 19:32	-0.411	U	2.0	6.0
Arsenic	07/24/2020 19:32	3.70	U	4	12
Barium	07/24/2020 19:32	-0.0500	U	0.29	0.90
Beryllium	07/24/2020 19:32	0.0540	U	0.10	0.30
Cadmium	07/24/2020 19:32	0.0150	U	0.3	1.0
Calcium	07/24/2020 19:32	-5.67	U	17	50
Chromium	07/24/2020 19:32	0.193	U	0.6	2.0
Cobalt	07/24/2020 19:32	0.132	U	0.7	2.0
Copper	07/24/2020 19:32	-1.14	U	1.2	3.5
Iron	07/24/2020 19:32	-10.5	U	16	50
Lead	07/24/2020 19:32	-0.959	U	1.4	2.0
Magnesium	07/24/2020 19:32	-1.04	U	6	20
Manganese	07/24/2020 19:32	-1.22	U	0.7	2.0
Nickel	07/24/2020 19:32	-0.135	U	1.0	3.0
Selenium	07/24/2020 19:32	-2.22	U	2.2	6.5
Silver	07/24/2020 19:32	0.458	U	0.7	2.0
Thallium	07/24/2020 19:32	-1.17	U	2.5	7.5
Vanadium	07/24/2020 19:32	-0.284	U	0.8	2.5
Zinc	07/24/2020 19:32	0.152	U	1.6	5.0

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

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Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173412 Lab Sample ID: 456264

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Aluminum	07/24/2020 20:54	1.25	U	6	18
Antimony	07/24/2020 20:54	0.750	U	2.0	6.0
Arsenic	07/24/2020 20:54	1.68	U	4	12
Barium	07/24/2020 20:54	0.0100	U	0.29	0.90
Beryllium	07/24/2020 20:54	-0.0590	U	0.10	0.30
Cadmium	07/24/2020 20:54	0.124	U	0.3	1.0
Calcium	07/24/2020 20:54	-4.58	U	17	50
Chromium	07/24/2020 20:54	-0.0660	U	0.6	2.0
Cobalt	07/24/2020 20:54	0.208	U	0.7	2.0
Copper	07/24/2020 20:54	-1.04	U	1.2	3.5
Iron	07/24/2020 20:54	-9.88	U	16	50
Lead	07/24/2020 20:54	0.0840	U	1.4	2.0
Magnesium	07/24/2020 20:54	-0.795	U	6	20
Manganese	07/24/2020 20:54	-1.13	U	0.7	2.0
Nickel	07/24/2020 20:54	-0.155	U	1.0	3.0
Selenium	07/24/2020 20:54	4.13		2.2	6.5
Silver	07/24/2020 20:54	-0.190	U	0.7	2.0
Thallium	07/24/2020 20:54	-0.990	U	2.5	7.5
Vanadium	07/24/2020 20:54	0.142	U	0.8	2.5
Zinc	07/24/2020 20:54	0.446	U	1.6	5.0

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
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Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173576 Lab Sample ID: 450888

Analytical Prep Batch # 77414 Preparation Date/Time: 07/28/2020 12:30

ICAL Calibration #: 07292020 Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total Mercury	07/29/2020 09:34	0.00700	U	0.03	0.06

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173412 Lab Sample ID: 449181

Analytical Prep Batch # 77363 Preparation Date/Time: 07/22/2020 07:31

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit	
Total Aluminum	07/24/2020 19:44	1.96	U	6	18	
Total Antimony	07/24/2020 19:44	0.873	U	2.0	6.0	
Total Arsenic	07/24/2020 19:44	4.33		4	12	FAIL
Total Barium	07/24/2020 19:44	0.153	U	0.29	0.90	
Total Beryllium	07/24/2020 19:44	0.0380	U	0.10	0.30	
Total Cadmium	07/24/2020 19:44	-0.145	U	0.3	1.0	
Total Calcium	07/24/2020 19:44	7.16	U	17	50	
Total Chromium	07/24/2020 19:44	-0.339	U	0.6	2.0	
Total Cobalt	07/24/2020 19:44	-0.0610	U	0.7	2.0	
Total Copper	07/24/2020 19:44	-0.0250	U	1.2	3.5	
Total Iron	07/24/2020 19:44	-3.20	U	16	50	
Total Lead	07/24/2020 19:44	-1.18	U	1.4	2.0	
Total Magnesium	07/24/2020 19:44	1.11	U	6	20	
Total Manganese	07/24/2020 19:44	-1.21	U	0.7	2.0	
Total Nickel	07/24/2020 19:44	-0.536	U	1.0	3.0	
Total Selenium	07/24/2020 19:44	1.36	U	2.2	6.5	
Total Silver	07/24/2020 19:44	0.585	U	0.7	2.0	
Total Thallium	07/24/2020 19:44	-0.917	U	2.5	7.5	
Total Vanadium	07/24/2020 19:44	-0.0290	U	0.8	2.5	
Total Zinc	07/24/2020 19:44	0.354	U	1.6	5.0	

** Detection Limit only reported if value was less than the control limit.

***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
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Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173413 Lab Sample ID: 449181

Analytical Prep Batch # 77363 Preparation Date/Time: 07/22/2020 07:31

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total Potassium	07/27/2020 15:50	-1.00	U	90	250
Total Sodium	07/27/2020 15:50	3.00	U	100	300

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173413 Lab Sample ID: 449181

Analytical Prep Batch # 77363 Preparation Date/Time: 07/22/2020 07:31

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total Potassium	07/27/2020 15:50	-1.00	U	90	250
Total Sodium	07/27/2020 15:50	3.00	U	100	300

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
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Sample No:

4-1

ICP INTERFERENCE CHECK SAMPLE (SOL. A)

ICSA

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
ICP ID Number: TJA 6000
SDG No.: 154987
ICS Source: SPEX

Analytical Run #: 173413
Lab Sample ID: 453327
Inorganics MRL Standard Source: SPEX, Ultra,Inorganic Ventures and Mallinkrodt
ICAL Calibration #:
Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R	Lower Limit (1)	Upper Limit (1)
Aluminum	07/27/2020 14:00	500000	491000	98	80	120
Calcium	07/27/2020 14:00	500000	475000	95	80	120
Iron	07/27/2020 14:00	500000	476000	95	80	120
Magnesium	07/27/2020 14:00	500000	495000	99	80	120
Potassium	07/27/2020 14:00	0	-5.00		-170	170
Sodium	07/27/2020 14:00	0	-4.00		-140	140

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No:

4-1

ICP INTERFERENCE CHECK SAMPLE (SOL. A)

ICSA

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
ICP ID Number: TJA 6000
SDG No.: 154987
ICS Source: SPEX

Analytical Run #: 173412
Lab Sample ID: 456254
Inorganics MRL Standard Source: SPEX, Ultra,Inorganic Ventures and Mallinkrodt
ICAL Calibration #:
Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R	Lower Limit (1)	Upper Limit (1)
Aluminum	07/24/2020 16:38	500000	508000	102	80	120
Antimony	07/24/2020 16:38	0	0		-10	10
Arsenic	07/24/2020 16:38	0	-0.0230		-20	20
Barium	07/24/2020 16:38	0	-0.663		-1.7	1.7
Beryllium	07/24/2020 16:38	0	0		-.7	.7
Cadmium	07/24/2020 16:38	0	0.00100		-1.3	1.3
Calcium	07/24/2020 16:38	500000	488000	98	80	120
Chromium	07/24/2020 16:38	0	-1.75		-13	13
Cobalt	07/24/2020 16:38	0	0.0270		-2	2
Copper	07/24/2020 16:38	0	0.00100		-7	7
Iron	07/24/2020 16:38	500000	455000	91	80	120
Lead	07/24/2020 16:38	0	0.384		-4.7	4.7
Magnesium	07/24/2020 16:38	500000	472000	94	80	120
Manganese	07/24/2020 16:38	0	-3.23		-7.3	7.3
Nickel	07/24/2020 16:38	0	-1.52		-7	7
Selenium	07/24/2020 16:38	0	0.0590		-13	13
Silver	07/24/2020 16:38	0	-0.0490		-7.3	7.3
Thallium	07/24/2020 16:38	0	-0.00700		-7.3	7.3
Vanadium	07/24/2020 16:38	20000	21200		16000	24000
Zinc	07/24/2020 16:38	0	6.11		-20	20

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No:

4-2

ICP INTERFERENCE CHECK SAMPLE (SOL. AB)

ICSAB

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
ICP ID Number: TJA 6000
SDG No.: 154987
ICS Source: SPEX, Ultra

Analytical Run #: 173413
Lab Sample ID: 453328
Inorganics MRL Standard Source: SPEX, Ultra,Inorganic Ventures and Mallinkrodt
ICAL Calibration #:
Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R	Lower Limit (1)	Upper Limit (1)
Aluminum	07/27/2020 14:03	500000	497000	99	80	120
Calcium	07/27/2020 14:03	500000	483000	97	80	120
Iron	07/27/2020 14:03	500000	500000	100	80	120
Magnesium	07/27/2020 14:03	500000	503000	101	80	120
Potassium	07/27/2020 14:03	100000	109000	109	80	120
Sodium	07/27/2020 14:03	100000	109000	109	80	120

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No:

4-2

ICP INTERFERENCE CHECK SAMPLE (SOL. AB)

ICSAB

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
ICP ID Number: TJA 6000
SDG No.: 154987
ICS Source: SPEX, Ultra

Analytical Run #: 173412
Lab Sample ID: 456255
Inorganics MRL Standard Source: SPEX, Ultra,Inorganic Ventures and Mallinkrodt
ICAL Calibration #:
Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R	Lower Limit (1)	Upper Limit (1)
Aluminum	07/24/2020 16:44	500000	532000	106	80	120
Antimony	07/24/2020 16:44	500.0	556.0	111	80	120
Arsenic	07/24/2020 16:44	500.0	579.0	116	80	120
Barium	07/24/2020 16:44	500.0	527.0	105	80	120
Beryllium	07/24/2020 16:44	500.0	501.0	100	80	120
Cadmium	07/24/2020 16:44	500.0	535.0	107	80	120
Calcium	07/24/2020 16:44	500000	508000	102	80	120
Chromium	07/24/2020 16:44	500.0	539.0	108	80	120
Cobalt	07/24/2020 16:44	500.0	534.0	107	80	120
Copper	07/24/2020 16:44	500.0	539.0	108	80	120
Iron	07/24/2020 16:44	500000	485000	97	80	120
Lead	07/24/2020 16:44	500.0	470.0	94	80	120
Magnesium	07/24/2020 16:44	500000	497000	99	80	120
Manganese	07/24/2020 16:44	500.0	542.0	108	80	120
Nickel	07/24/2020 16:44	500.0	517.0	103	80	120
Selenium	07/24/2020 16:44	500.0	531.0	106	80	120
Silver	07/24/2020 16:44	500.0	555.0	111	80	120
Thallium	07/24/2020 16:44	500.0	499.0	100	80	120
Vanadium	07/24/2020 16:44	500.0	545.0	109	80	120
Zinc	07/24/2020 16:44	500.0	488.0	98	80	120

CT LABORATORIES
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5A

SPIKE SAMPLE RECOVERY

Sample Description

IDW-54

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix:	LIQUID	SDG No.:	154987
% Solids for Sample:		Concentration Units:	ug/L
Sample No	450891	Parent Sample No.:	448843
Analytical Prep Batch #	77414	Analytical Preparation Date/Time:	07/28/2020 12:30
Analytical Run #:	173576	ICAL Calibration #:	07292020

Analysis Type	*Initial Analysis*	Analysis Date: -----	07/29/2020	Analysis Time: --------	10:27

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Total Mercury	82-119	2.1		BDL	U	2.0	105		CV

BDL = analyte concentration was below detection limit

CT LABORATORIES
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5A

SPIKE SAMPLE RECOVERY

Sample Description

IDW-54

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix:	LIQUID	SDG No.:	154987
% Solids for Sample:		Concentration Units:	ug/L
Sample No	449184	Parent Sample No.:	448843
Analytical Prep Batch #	77363	Analytical Preparation Date/Time:	07/22/2020 07:31
Analytical Run #:	173412	ICAL Calibration #:	

Analysis Type	*Initial Analysis*	Analysis Date: -----	07/24/2020	Analysis Time: --------	20:11

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M	
Total Aluminum	86-115	1740		146		800	199		P	*FAIL*
Total Antimony	88-113	206		BDL	U	200	103		P	
Total Arsenic	87-113	796		BDL	U	800	100		P	
Total Barium	88-113	820		70.2		800	94		P	
Total Beryllium	89-112	19.6		BDL	U	20.0	98		P	
Total Cadmium	88-113	18.3		BDL	U	20.0	92		P	
Total Calcium	87-113	261000		64200		200000	98		P	
Total Chromium	90-113	85.7		4.6		80.0	101		P	
Total Cobalt	89-114	196		BDL	U	200	98		P	
Total Copper	86-114	109		BDL	U	100	109		P	
Total Iron	87-115	1220		267		400	238		P	*FAIL*
Total Lead	86-113	185		BDL	U	200	92		P	
Total Magnesium	85-113	125000		27200		100000	98		P	
Total Manganese	90-114	215		19.4		200	98		P	
Total Nickel	88-113	193		BDL	U	200	96		P	
Total Selenium	83-114	776		BDL	U	800	97		P	
Total Silver	84-115	20.0		BDL	U	20.0	100		P	
Total Thallium	85-114	706		BDL	U	800	88		P	
Total Vanadium	90-111	175		1.0	J	200	87		P	*FAIL*
Total Zinc	87-115	205		6.2	J	200	99		P	

BDL = analyte concentration was below detection limit

CT LABORATORIES
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5A

SPIKE SAMPLE RECOVERY

Sample Description

IDW-54

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix:	LIQUID	SDG No.:	154987
% Solids for Sample:		Concentration Units:	ug/L
Sample No	449184	Parent Sample No.:	448843
Analytical Prep Batch #	77363	Analytical Preparation Date/Time:	07/22/2020 07:31
Analytical Run #:	173413	ICAL Calibration #:	

Analysis Type	*Initial Analysis*	Analysis Date: -----	07/27/2020	Analysis Time: --------	16:02

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Total Potassium	86-114	108000		1120		100000	107		P
Total Sodium	87-115	106000		4840		100000	101		P

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

5B

POST DIGESTION SPIKE SAMPLE RECOVERY

Sample Description

IDW-54

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix:	LIQUID	SDG No.:	154987
% Solids for Sample:		Concentration Units:	ug/L
Sample No	453332	Parent Sample No.:	448843
Analytical Prep Batch #	0	Analytical Preparation Date/Time:	
Analytical Run #:	173413	ICAL Calibration #:	

Analysis Type *Initial Analysis* Analysis Date: ----- 07/27/2020 Analysis Time: -------- 16:07

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Potassium	80-120.	101000		1120		100000	100		P
Sodium	80-120.	111000		4840		100000	106		P

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

5B

POST DIGESTION SPIKE SAMPLE RECOVERY

Sample Description: **IDW-54**

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix: LIQUID
SDG No.: 154987
% Solids for Sample:
Concentration Units: ug/L
Sample No: 456261
Parent Sample No.: 448843
Analytical Prep Batch #: 0
Analytical Preparation Date/Time:
Analytical Run #: 173412
ICAL Calibration #:

Analysis Type: *Initial Analysis* Analysis Date: ----- 07/24/2020 Analysis Time: -------- 20:23

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M	
Aluminum	80-120	4520		146		4000	109		P	
Iron	80-120	2800		267		2000	127		P	*FAIL*
Vanadium	80-120	997		1.0	J	1000	100		P	

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

5C

SPIKE DUPLICATE SAMPLE RECOVERY

Sample Description: **IDW-54**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix:	LIQUID	SDG No.:	154987
% Solids for Sample:		Concentration Units:	ug/L
Sample No	449185	Parent Sample No.:	449184
Analytical Prep Batch #	77363	Analytical Preparation Date/Time:	07/22/2020 07:31
Analytical Run #:	173412	ICAL Calibration #:	

Analysis Type: *Initial Analysis* Analysis Date: ----- 07/24/2020 Analysis Time: -------- 20:17

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M	
Total Aluminum	86-115	1830		146		800	210		P	*FAIL*
Total Antimony	88-113	203		BDL	U	200	102		P	
Total Arsenic	87-113	806		BDL	U	800	101		P	
Total Barium	88-113	834		70.2		800	95		P	
Total Beryllium	89-112	19.3		BDL	U	20.0	96		P	
Total Cadmium	88-113	18.3		BDL	U	20.0	92		P	
Total Calcium	87-113	269000		64200		200000	102		P	
Total Chromium	90-113	84.8		4.6		80.0	100		P	
Total Cobalt	89-114	198		BDL	U	200	99		P	
Total Copper	86-114	111		BDL	U	100	111		P	
Total Iron	87-115	1300		267		400	258		P	*FAIL*
Total Lead	86-113	186		BDL	U	200	93		P	
Total Magnesium	85-113	127000		27200		100000	100		P	
Total Manganese	90-114	213		19.4		200	97		P	
Total Nickel	88-113	193		BDL	U	200	96		P	
Total Selenium	83-114	788		BDL	U	800	98		P	
Total Silver	84-115	19.5		BDL	U	20.0	98		P	
Total Thallium	85-114	703		BDL	U	800	88		P	
Total Vanadium	90-111	172		1.0	J	200	86		P	*FAIL*
Total Zinc	87-115	207		6.2	J	200	100		P	

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

5C

SPIKE DUPLICATE SAMPLE RECOVERY

Sample Description

IDW-54

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix:	LIQUID	SDG No.:	154987
% Solids for Sample:		Concentration Units:	ug/L
Sample No	449185	Parent Sample No.:	449184
Analytical Prep Batch #	77363	Analytical Preparation Date/Time:	07/22/2020 07:31
Analytical Run #:	173413	ICAL Calibration #:	

Analysis Type *Initial Analysis* Analysis Date: ----- 07/27/2020 Analysis Time: -------- 16:04

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Total Potassium	86-114	107000		1120		100000	106		P
Total Sodium	87-115	106000		4840		100000	101		P

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

5C

SPIKE DUPLICATE SAMPLE RECOVERY

Sample Description

IDW-54

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix:	LIQUID	SDG No.:	154987
% Solids for Sample:		Concentration Units:	ug/L
Sample No	450892	Parent Sample No.:	450891
Analytical Prep Batch #	77414	Analytical Preparation Date/Time:	07/28/2020 12:30
Analytical Run #:	173576	ICAL Calibration #:	

Analysis Type *Initial Analysis* Analysis Date: ----- 07/29/2020 Analysis Time: -------- 10:30

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Total Mercury	82-119	2.1		BDL	U	2.0	105		CV

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

6

DUPLICATES

Sample Description

IDW-54

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

Matrix: LIQUID

SDG No.: 154987

% Solid for Sample:

Concentration Units: ug/L

Analytical Prep Batch # 1

Analytical Preparation Date/Time 77414

Analytical Run #: 173576

ICAL Calibration #: 07292020

Sample #: 450890

Parent Sample #: 448843

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Original Parent Conc. (S)	C	Duplicate Conc. (D)	C	RPD	Q	M
Total Mercury	07/29/2020	10:03	20	0.030	U	0.030	U	0		CV

CT LABORATORIES
delivering more than data from your environmental analyses

6

DUPLICATES

Sample Description

IDW-54

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

Matrix: LIQUID

SDG No.: 154987

% Solid for Sample:

Concentration Units: ug/L

Analytical Prep Batch # 1

Analytical Preparation Date/Time 77363

Analytical Run #: 173412

ICAL Calibration #:

Sample #: 449183

Parent Sample #: 448843

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Original Parent Conc. (S)	C	Duplicate Conc. (D)	C	RPD	Q	M	
Total Aluminum	07/24/2020	20:04	20	146		588		120		P	*FAIL*
Total Antimony	07/24/2020	20:04	20	2.0	U	2.0	U	0		P	
Total Arsenic	07/24/2020	20:04	20	4.0	U	4.0	U	0		P	
Total Barium	07/24/2020	20:04	20	70.2		72.4		3		P	
Total Beryllium	07/24/2020	20:04	20	0.10	U	0.10	U	0		P	
Total Cadmium	07/24/2020	20:04	20	0.30	U	0.30	U	0		P	
Total Calcium	07/24/2020	20:04	20	64200		64300		0		P	
Total Chromium	07/24/2020	20:04	20	4.6		5.4		16		P	
Total Cobalt	07/24/2020	20:04	20	0.70	U	0.70	U	0		P	
Total Copper	07/24/2020	20:04	20	1.2	U	3.5	J	200		P	*FAIL*
Total Iron	07/24/2020	20:04	20	267		809		101		P	*FAIL*
Total Lead	07/24/2020	20:04	20	1.4	U	1.4	U	0		P	
Total Magnesium	07/24/2020	20:04	20	27200		27000		1		P	
Total Manganese	07/24/2020	20:04	20	19.4		21.0		8		P	
Total Nickel	07/24/2020	20:04	20	1.0	U	1.0	U	0		P	
Total Selenium	07/24/2020	20:04	20	2.2	U	2.2	U	0		P	
Total Silver	07/24/2020	20:04	20	0.70	U	0.70	U	0		P	
Total Thallium	07/24/2020	20:04	20	2.5	U	2.5	U	0		P	
Total Vanadium	07/24/2020	20:04	20	1.0	J	1.7	J	52		P	*FAIL*
Total Zinc	07/24/2020	20:04	20	6.2	J	7.5	J	19		P	

CT LABORATORIES
delivering more than data from your environmental analyses

6

DUPLICATES

Sample Description

IDW-54

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix: LIQUID
SDG No.: 154987
% Solid for Sample:
Concentration Units: ug/L
Analytical Prep Batch # 1
Analytical Preparation Date/Time 77363
Analytical Run #: 173413
ICAL Calibration #:
Sample #: 449183
Parent Sample #: 448843

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Original Parent Conc. (S)	C	Duplicate Conc. (D)	C	RPD	Q	M
Total Potassium	07/27/2020	15:59	20	1120		1110		1		P
Total Sodium	07/27/2020	15:59	20	4840		4830		0		P

CT LABORATORIES
delivering more than data from your environmental analyses

6A

MATRIX SPIKE DUPLICATES

Sample Description: **IDW-54**

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix: LIQUID
SDG No.: 154987
% Solid for Sample:
Concentration Units: ug/L
Analytical Prep Batch #: 77363
Analytical Preparation Date/Time: 07/22/2020 07:31
Analytical Run #: 173412
ICAL Calibration #:
Sample #: 449185
Parent Sample #: 449184

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Matrix Spik Parent Conc. (S)	C	Matrix Spike Duplicate Conc. (D)	C	RPD	Q	M
Total Aluminum	07/24/2020	20:17	20	1740		1830		5		P
Total Antimony	07/24/2020	20:17	20	206		203		1		P
Total Arsenic	07/24/2020	20:17	20	796		806		1		P
Total Barium	07/24/2020	20:17	20	820		834		2		P
Total Beryllium	07/24/2020	20:17	20	19.6		19.3		2		P
Total Cadmium	07/24/2020	20:17	20	18.3		18.3		0		P
Total Calcium	07/24/2020	20:17	20	261000		269000		3		P
Total Chromium	07/24/2020	20:17	20	85.7		84.8		1		P
Total Cobalt	07/24/2020	20:17	20	196		198		1		P
Total Copper	07/24/2020	20:17	20	109		111		2		P
Total Iron	07/24/2020	20:17	20	1220		1300		6		P
Total Lead	07/24/2020	20:17	20	185		186		1		P
Total Magnesium	07/24/2020	20:17	20	125000		127000		2		P
Total Manganese	07/24/2020	20:17	20	215		213		1		P
Total Nickel	07/24/2020	20:17	20	193		193		0		P
Total Selenium	07/24/2020	20:17	20	776		788		2		P
Total Silver	07/24/2020	20:17	20	20.0		19.5		3		P
Total Thallium	07/24/2020	20:17	20	706		703		0		P
Total Vanadium	07/24/2020	20:17	20	175		172		2		P
Total Zinc	07/24/2020	20:17	20	205		207		1		P

CT LABORATORIES
delivering more than data from your environmental analyses

6A

MATRIX SPIKE DUPLICATES

Sample Description

IDW-54

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

Matrix: LIQUID
SDG No.: 154987

% Solid for Sample:
Concentration Units: ug/L

Analytical Prep Batch # 77363
Analytical Preparation Date/Time 07/22/2020 07:31

Analytical Run #: 173413
ICAL Calibration #:

Sample #: 449185
Parent Sample #: 449184

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Matrix Spik Parent Conc. (S)	C	Matrix Spike Duplicate Conc. (D)	C	RPD	Q	M
Total Potassium	07/27/2020	16:04	20	108000		107000		1		P
Total Sodium	07/27/2020	16:04	20	106000		106000		0		P

CT LABORATORIES
delivering more than data from your environmental analyses

6A

MATRIX SPIKE DUPLICATES

Sample Description

IDW-54

Lab Name: CT Laboratories | Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

Matrix: LIQUID | SDG No.: 154987

% Solid for Sample: | Concentration Units: ug/L

Analytical Prep Batch #: 77414 | Analytical Preparation Date/Time: 07/28/2020 12:30

Analytical Run #: 173576 | ICAL Calibration #:

Sample #: 450892 | Parent Sample #: 450891

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Matrix Spik Parent Conc. (S)	C	Matrix Spike Duplicate Conc. (D)	C	RPD	Q	M
Total Mercury	07/29/2020	10:30	20	2.1		2.1		1		CV

CT LABORATORIES
delivering more than data from your environmental analyses

7-1

Sample No:

LABORATORY CONTROL SAMPLE - AQUEOUS

LCS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

LCS Source: SPEX and Ultra SDG No.: 154987

Concentration Units: ug/L

Analytical Run #: 173576 Sample No.:#: 450889

Analytical Prep Batch #: 77414 Preparation Date/Time: 07/28/2020 12:30

ICAL Calibration #: 07292020

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
Total Mercury	07/29/2020 09:18	82-119	2.05		2.00	102		CV

CT LABORATORIES
delivering more than data from your environmental analyses

7-1

Sample No:

LABORATORY CONTROL SAMPLE - AQUEOUS

LCS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

LCS Source: SPEX and Ultra SDG No.: 154987

Concentration Units: ug/L

Analytical Run #: 173412 Sample No.:#: 449182

Analytical Prep Batch #: 77363 Preparation Date/Time: 07/22/2020 07:31

ICAL Calibration #:

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
Total Aluminum	07/24/2020 19:38	86-115	724.0		800.0	90		P
Total Antimony	07/24/2020 19:38	88-113	200.0		200.0	100		P
Total Arsenic	07/24/2020 19:38	87-113	787.0		800.0	98		P
Total Barium	07/24/2020 19:38	88-113	743.0		800.0	93		P
Total Beryllium	07/24/2020 19:38	89-112	18.90		20.00	94		P
Total Cadmium	07/24/2020 19:38	88-113	17.90		20.00	90		P
Total Calcium	07/24/2020 19:38	87-113	197000		200000	98		P
Total Chromium	07/24/2020 19:38	90-113	80.20		80.00	100		P
Total Cobalt	07/24/2020 19:38	89-114	195.0		200.0	98		P
Total Copper	07/24/2020 19:38	86-114	104.0		100.0	104		P
Total Iron	07/24/2020 19:38	87-115	407.0		400.0	102		P
Total Lead	07/24/2020 19:38	86-113	182.0		200.0	91		P
Total Magnesium	07/24/2020 19:38	85-113	98600		100000	99		P
Total Manganese	07/24/2020 19:38	90-114	196.0		200.0	98		P
Total Nickel	07/24/2020 19:38	88-113	194.0		200.0	97		P
Total Selenium	07/24/2020 19:38	83-114	772.0		800.0	96		P
Total Silver	07/24/2020 19:38	84-115	19.90		20.00	100		P
Total Thallium	07/24/2020 19:38	85-114	718.0		800.0	90		P
Total Vanadium	07/24/2020 19:38	90-111	193.0		200.0	96		P
Total Zinc	07/24/2020 19:38	87-115	194.0		200.0	97		P

CT LABORATORIES
delivering more than data from your environmental analyses

7-1

Sample No:

LABORATORY CONTROL SAMPLE - AQUEOUS

LCS

Lab Name: CT Laboratories Contract WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

LCS Source: SPEX and Ultra SDG No.: 154987

Concentration Units: ug/L

Analytical Run #: 173413 Sample No.:#: 449182

Analytical Prep Batch #: 77363 Preparation Date/Time: 07/22/2020 07:31

ICAL Calibration #:

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
Total Potassium	07/27/2020 15:48	86-114	101000		100000	101		P
Total Sodium	07/27/2020 15:48	87-115	101000		100000	101		P

CT LABORATORIES
delivering more than data from your environmental analyses

9

ICP SERIAL DILUTION

Sample Description

IDW-54

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

Matrix: LIQUID SDG No.: 154987

Concentration Units: ug/L

Sample No.: 456260 Parent Sample No.: 448843

LIMS Run #: 173412 ICAL Calibration #:.:

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time	Initial Sample Result (I)	C (I)	Serial Dilution Result (S)	C (S)	% Diff.	Q	M	
Aluminum	07/24/2020 19:57	146.	J	695		376		P	*INVALID*
Iron	07/24/2020 19:57	267.	J	1430		436		P	*INVALID*
Vanadium	07/24/2020 19:57	.998	U	4.8	J	381		P	*INVALID*

CT LABORATORIES
delivering more than data from your environmental analyses

10

METHOD DETECTION LIMITS (ANNUALLY)

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Matrix: LIQUID

Analyte	Wavelength (nm)	Background	CRDL (ug/L)	MDL (ug/L)	M
Total Mercury	253.7			0.03	CV

CT LABORATORIES
delivering more than data from your environmental analyses

10

METHOD DETECTION LIMITS (ANNUALLY)

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

ICP ID Number: TJA SDG No.: 154987

Matrix: LIQUID

Analyte	Wavelength (nm)	Background	CRDL (ug/L)	MDL (ug/L)	M
Total Aluminum	167.0			6	P
Total Antimony	217.5			2.0	P
Total Arsenic	193.7			4	P
Total Barium	455.4			0.29	P
Total Beryllium	313.041			0.10	P
Total Cadmium	226.502			0.3	P
Total Calcium	393.3			17	P
Total Chromium	267.716			0.6	P
Total Cobalt	228.616			0.7	P
Total Copper	327.3			1.2	P
Total Iron	259.9			16	P
Total Lead	220.35			1.4	P
Total Magnesium	279.5			6	P
Total Manganese	257.61			0.7	P
Total Nickel	231.604			1.0	P
Total Potassium	766.491			90	P
Total Selenium	196.02			2.2	P
Total Silver	328.068			0.7	P
Total Sodium	589.5			100	P
Total Thallium	190.864			2.5	P
Total Vanadium	292.402			0.8	P
Total Zinc	213.856			1.6	P

ICP INTERELEMENT CORRECTION FACTORS (ANNUAL)
ICP ID NUMBER: TA ICAP6000 / ICAP6500

Element, Wavelength and Order	Use?	# IECs	IEC	k1	k2	Calc-in-fit?
Ag 328.068 {103}	☒	2	Fe	0.000006	0.000000	No
			Ce	0.000000	0.000000	No
Ag 338.289 {100}	☒	1	Fe	0.000906	0.000000	No
Al 167.079 {501}	☒	None				
Al 308.215 {109}	☒	None				
Al 396.152 { 85}	☒	None				
As 193.759 {474}	☒	1	Al	0.001713	0.000000	No
As 197.262 {471}	☒	1	Al	-0.000113	0.000000	No
Ba 233.527 {445}	☒	3	Fe	-0.000038	0.000000	No
			V	0.000180	0.000000	No
			Al	0.000000	0.000000	No
Ba 455.403 { 74}	☒	1	Fe	0.000002	0.000000	No
Ba 493.409 { 68}	☒	1	Fe	0.000029	0.000000	No
Be 313.042 {108}	☒	1	Fe	0.000000	0.000000	No
Be 234.861 {144}	☒	1	Fe	-0.000016	0.000000	No
Ca 315.887 {107}	☒	None				
Ca 317.933 {106}	☒	None				
Ca 393.366 { 86}	☒	1	Cu	0.000000	0.000000	No
Ca 396.847 { 85}	☒	None				
Cd 226.502 {449}	☒	2	Fe	0.000090	0.000000	No
			Al	0.000000	0.000000	No
Cd 228.802 {147}	☒	None				
Co 228.616 {447}	☒	5	Fe	0.000009	0.000000	No
			Ti	0.003000	0.000000	No
			Ba	-0.001300	0.000000	No
			Ni	0.000040	0.000000	No
			Al	0.000001	0.000000	No
Co 238.892 {141}	☒	1	Fe	0.000188	0.000000	No
Cr 205.560 {464}	☒	1	Fe	-0.000004	0.000000	No
Cr 267.716 {126}	☒	1	Fe	-0.000014	0.000000	No
Cu 224.700 {450}	☒	5	Fe	0.000274	0.000000	No
			Mo	0.001320	0.000000	No
			Ni	-0.006000	0.000000	No
			Pb	0.003030	0.000000	No
			Al	0.000000	0.000000	No
Cu 324.754 {104}	☒	1	Fe	-0.000136	0.000000	No
Cu 327.396 {103}	☒	1	Fe	0.000069	0.000000	No
Fe 234.349 {144}	☒	None				
Fe 239.562 {140}	☒	None				
Fe 259.940 {129}	☒	None				
Mg 202.582 {466}	☒	None				
Mg 279.079 {121}	☒	None				
Mg 280.270 {120}	☒	None				
Mn 257.610 {131}	☒	1	Al	-0.000086	0.000000	No

ICP INTERELEMENT CORRECTION FACTORS (ANNUAL)
ICP ID NUMBER: TA ICAP6000 / ICAP6500

Element, Wavelength and Order	Use?	# IECs	IEC	k1	k2	Calc-in-fit?
Mn 259.373 {130}	☒	1	Mg	0.001339	0.000000	No
Mo 202.030 {466}	☒	1	Fe	-0.000011	0.000000	No
Mo 203.844 {465}	☒	1	Fe	-0.000020	0.000000	No
Mo 204.598 {464}	☒	1	Fe	0.000036	0.000000	No
Ni 221.647 {452}	☒	1	Ca	0.000021	0.000000	No
Ni 231.604 {445}	☒	3	Fe	0.000012	0.000000	No
			Co	0.000000	0.000000	No
			Mo	0.000000	0.000000	No
Pb 216.999 {455}	☒	2	Al	0.001241	0.000000	No
			Na	0.000000	0.000000	No
Pb 220.353 {453}	☒	3	Si	0.000000	0.000000	No
			Al	0.000001	0.000000	No
			Fe	0.000018	0.000000	No
Pb 220.353 {153}	☒	1	Al	-0.000040	0.000000	No
Sb 206.833 {463}	☒	1	Fe	0.000009	0.000000	No
Sb 217.581 {455}	☒	3	Fe	-0.000069	0.000000	No
			V	0.002070	0.000000	No
			Pb	-0.001040	0.000000	No
Se 196.090 {472}	☒	1	Fe	-0.000360	0.000000	No
Se 206.279 {463}	☒	1	Fe	0.001308	0.000000	No
Tl 190.856 {476}	☒	5	Fe	0.000024	0.000000	No
			Be	-0.000013	0.000000	No
			Ti	0.000050	0.000000	No
			Cr	0.000251	0.000000	No
			V	-0.003800	0.000000	No
Tl 190.856 {477}	☒	1	Fe	-0.000048	0.000000	No
V 290.882 {116}	☒	1	Fe	0.000073	0.000000	No
V 292.402 {115}	☒	3	Fe	0.000020	0.000000	No
			Cr	-0.000400	0.000000	No
			Al	0.000000	0.000000	No
Zn 202.548 {466}	☒	1	Fe	-0.000239	0.000000	No
Zn 206.200 {463}	☒	1	Fe	-0.000003	0.000000	No
Zn 213.856 {457}	☒	2	Fe	0.000167	0.000000	No
			Cu	0.007413	0.000000	No
Y 324.228 {104}*	☒	None				
Y 371.030 { 91}*	☒	None				
Y 224.306 {451}*	☒	None				
Na 588.995 { 57}	☒	1	Fe	0.000106	0.000000	No
Si 251.611 {134}	☒	2	Fe	-0.000105	0.000000	No
			Mo	0.005400	0.000000	No
Ti 323.452 {104}	☒	1	Fe	0.000036	0.000000	No
Ti 334.941 {101}	☒	1	Fe	0.000052	0.000000	No
Sr 407.771 { 83}	☒	1	Fe	0.000014	0.000000	No
Sr 421.552 { 80}	☒	1	Fe	0.000014	0.000000	No

ICP INTERELEMENT CORRECTION FACTORS (ANNUAL)
ICP ID NUMBER: TA ICAP6000 / ICAP6500

Element, Wavelength and Order	Use?	# IECs	IEC	k1	k2	Calc-in-fit?
Sn 189.989 {477}	☒	1	Fe	0.000013	0.000000	No
B 249.678 {135}	☒	2	Fe	0.000001	0.000000	No
			Co	0.003970	0.000000	No
B 249.773 {135}	☒	1	Fe	0.000357	0.000000	No
Li 670.784 { 50}	☒	1	Fe	0.000011	0.000000	No
K 766.490 { 44}	☒	1	Fe	0.000216	0.000000	No
P 213.618 {457}	☒	1	Fe	-0.000079	0.000000	No
S 182.034 {485}	☒	1	Mg	0.000100	0.000000	No
Hg 184.950 {482}	☒	1	Fe	0.000001	0.000000	No
Ce 404.076 { 83}	☒	1	Fe	0.000227	0.000000	No

ICP LINEAR RANGES (QUARTERLY)

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

ICP ID Number: TA SDG No.: 154987

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	M
Aluminum	15.00	1000000	P
Antimony	15.00	10000	P
Arsenic	15.00	10000	P
Barium	15.00	10000	P
Beryllium	15.00	1000	P
Boron	15.00	1000	P
Cadmium	15.00	1000	P
Calcium	15.00	1000000	P
Chromium	15.00	100000	P
Cobalt	15.00	10000	P
Copper	15.00	100000	P
Iron	15.00	1000000	P
Lead	15.00	100000	P
Lithium	15.00	10000	P
Magnesium	15.00	1000000	P
Manganese	15.00	100000	P
Molybdenum	15.00	10000	P
Nickel	15.00	10000	P
Potassium	15.00	200000	P
Selenium	15.00	10000	P
Silicon	15.00	1000	P
Silver	15.00	100	P
Sodium	15.00	200000	P
Strontium	15.00	10000	P
Thallium	15.00	10000	P
Tin	15.00	10000	P
Titanium	15.00	1000	P
Tungsten	15.00	10000	P
Vanadium	15.00	10000	P
Zinc	15.00	100000	P

CT LABORATORIES
delivering more than data from your environmental analyses

13

PREPARATION LOG

Lab Name: CT Laboratories

Project: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

Method: EPA 3010A

SDG No.: 154987

Preparation Batch #: 77363

Preparation Date/Time: 07/22/2020 / 07:31

Lab Sample #	QC Type	Sample Description	Matrix	**Weight (g for solid/soil) or Volume (mL for liquid/aqueous)**
448843	Normal Sample	IDW-54	GROUND WATER	50.0
449181	Method Blank		LIQUID	50.0
449182	Lab Control Spike		LIQUID	50.0
449183	Lab Duplicate	IDW-54	GROUND WATER	50.0
449184	Matrix Spike	IDW-54	GROUND WATER	50.0
449185	Matrix Spike Duplicate	IDW-54	GROUND WATER	50.0

CT LABORATORIES
delivering more than data from your environmental analyses

13

PREPARATION LOG

Lab Name: CT Laboratories

Project: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

Method: EPA 7470A

SDG No.: 154987

Preparation Batch #: 77414

Preparation Date/Time: 07/28/2020 / 12:30

Lab Sample #	QC Type	Sample Description	Matrix	**Weight (g for solid/soil) or Volume (mL for liquid/aqueous)**
448843	Normal Sample	IDW-54	GROUND WATER	25.0
450344	Normal Sample	IDW-48/49	GROUND WATER	25.0
450888	Method Blank		LIQUID	25.0
450889	Lab Control Spike		LIQUID	25.0
450890	Lab Duplicate	IDW-54	GROUND WATER	25.0
450891	Matrix Spike	IDW-54	GROUND WATER	25.0
450892	Matrix Spike Duplicate	IDW-54	GROUND WATER	25.0

CT LABORATORIES
delivering more than data from your environmental analyses

14

ANALYSIS RUN LOG

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

Lab Code: CTL

SDG No.: 154987

Instrument ID Number: CETAC

Method Number: CV

Start & End Date: 07/29/2020 to 07/29/2020

Analytical Run #: 173576

Sample Number	Analysis or QC Type	DF	Analysis Date/ Time	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Mo	Li	Ni	K	Se	Si	Ag	Na	Sr	Tl	Sn	W	V	Zn
453552	ICV	1.00	7/29 08:44																X													
453553	ICB	1.00	7/29 08:50																X													
450889	LCSW	1.00	7/29 09:18																X													
453554	CCV	1.00	7/29 09:25																X													
453555	CCB	1.00	7/29 09:31																X													
450888	MBW	1.00	7/29 09:34																X													
448843	Initial	1.00	7/29 10:00																X													
450890	DUP	1.00	7/29 10:03																X													
453556	CCV	1.00	7/29 10:06																X													
453557	CCB	1.00	7/29 10:12																X													
450344	Initial	1.00	7/29 10:15																X													
450891	MSW	1.00	7/29 10:27																X													
450892	MSDW	1.00	7/29 10:30																X													
453558	CCV	1.00	7/29 10:49																X													
453559	CCB	1.00	7/29 10:55																X													

CT LABORATORIES
delivering more than data from your environmental analyses

14

ANALYSIS RUN LOG

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

Lab Code: CTL

SDG No.: 154987

Instrument ID Number: TJA

Method Number: P

Start & End Date: 07/24/2020 to 07/24/2020

Analytical Run #: 173412

Sample Number	Analysis or QC Type	DF	Analysis Date/ Time	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Mo	Li	Ni	K	Se	Si	Ag	Na	Sr	Tl	Sn	W	V	Zn
456251	ICV	1.00	7/24 16:00	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
456252	ICVLL	1.00	7/24 16:12	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X					X			X	X
456253	ICB	1.00	7/24 16:19	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
456254	ICSA	1.00	7/24 16:38	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
456255	ICSAB	1.00	7/24 16:44	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
456256	ICVLL	1.00	7/24 16:56																							X							
456257	CCV1	1.00	7/24 19:20	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
456258	CCV2	1.00	7/24 19:26	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
456259	CCB	1.00	7/24 19:32	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
449182	LCSW	1.00	7/24 19:38	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
449181	MBW	1.00	7/24 19:44	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
448843	Initial	1.00	7/24 19:51	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
456260	L	5	7/24 19:57	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
449183	DUP	1.00	7/24 20:04	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
449184	MSW	1.00	7/24 20:11	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
449185	MSDW	1.00	7/24 20:17	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
456261	PDSW	1.00	7/24 20:23	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
456262	CCV1	1.00	7/24 20:42	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
456263	CCV2	1.00	7/24 20:48	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
456264	CCB	1.00	7/24 20:54	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X

CT LABORATORIES
delivering more than data from your environmental analyses

14

ANALYSIS RUN LOG

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

Lab Code: CTL

SDG No.: 154987

Instrument ID Number: TJA

Method Number: P

Start & End Date: 07/27/2020 to 07/27/2020

Analytical Run #: 173413

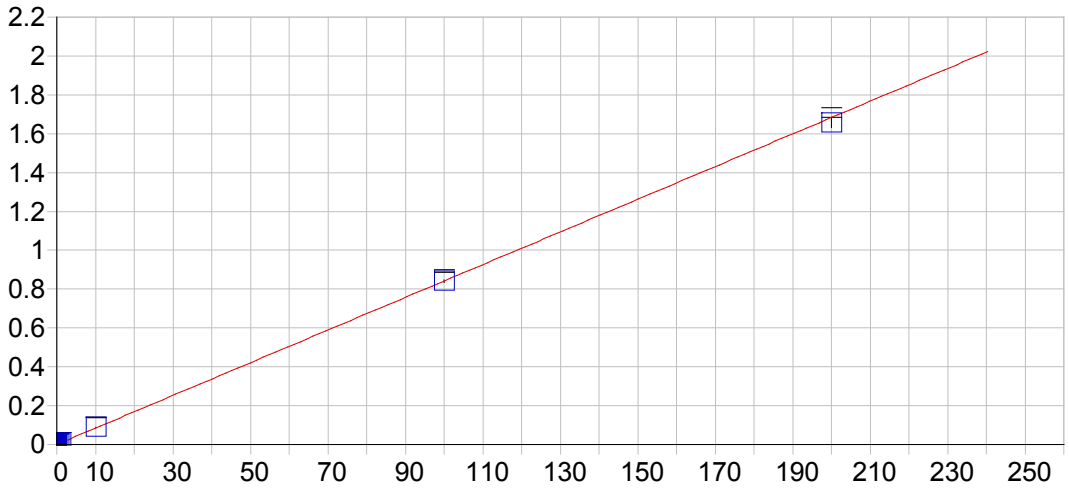
Sample Number	Analysis or QC Type	DF	Analysis Date/ Time	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Mo	Li	Ni	K	Se	Si	Ag	Na	Sr	Tl	Sn	W	V	Zn
453323	ICV	1.00	7/27 13:48																				X				X					
453324	ICVLL	1.00	7/27 13:51																				X				X					
453325	ICB	1.00	7/27 13:54																				X				X					
453326	MRL	1.00	7/27 13:57																				X				X					
453327	ICSA	1.00	7/27 14:00	X							X				X		X						X				X					
453328	ICSAB	1.00	7/27 14:03	X							X				X		X						X				X					
453329	CCV	1.00	7/27 15:42																				X				X					
453330	CCB	1.00	7/27 15:45																				X				X					
449182	LCSW	1.00	7/27 15:48																				X				X					
449181	MBW	1.00	7/27 15:50																				X				X					
448843	Initial	1.00	7/27 15:53																				X				X					
453331	L	5	7/27 15:56																				X				X					
449183	DUP	1.00	7/27 15:59																				X				X					
449184	MSW	1.00	7/27 16:02																				X				X					
449185	MSDW	1.00	7/27 16:04																				X				X					
453332	PDSW	1.00	7/27 16:07																				X				X					
453333	CCV	1.00	7/27 16:16																				X				X					
453334	CCB	1.00	7/27 16:18																				X				X					

METALS
RAW DATA
DOCUMENTS

	Element, Wavelength and Order	Date of Fit	Date of Cal.	Type of Fit	Weighting	A0	A1	A2	n (Exponent)	Correlation	Std Error of Est	Predicted MDL	Predicted MQL
	K 766.490 { 44}	07/28/2020 14:08:56	07/27/2020 13:45:50	Linear	1/Var	0.000500	0.008413	0.000000	1.000000	0.999896	0.000241	0.015063	0.050209
	K 769.896 { 44}	07/28/2020 14:08:56	07/27/2020 13:45:50	Linear	1/Conc	0.000321	0.007733	0.000000	1.000000	0.999957	0.000035	0.022184	0.073947
	Na 330.237 {102}	07/28/2020 14:08:56	07/27/2020 13:45:50	Linear	1/Conc	0.000117	0.000102	0.000000	1.000000	0.999935	0.000003	0.707505	2.358349
	Na 589.592 { 57}	07/28/2020 14:08:56	07/27/2020 13:45:50	Linear	1/Conc	0.003733	0.076892	0.000000	1.000000	0.999931	0.000447	0.002972	0.009908
	Y 320.332 {105}*	07/28/2020 14:08:56	07/27/2020 13:25:53	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-1.000000	-1.000000
	Y 360.073 { 94}	07/28/2020 14:08:56	07/27/2020 13:25:53	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-1.000000	-1.000000
	Al 308.215 {109}	07/28/2020 14:08:56	07/27/2020 13:48:47	Linear	1/Conc	0.000714	0.000011	0.000000	1.000000	1.000000	0.000000	-1.000000	-1.000000
	Al 396.152 { 85}	07/28/2020 14:08:56	07/27/2020 13:48:47	Linear	1/Conc	0.000238	0.010566	0.000000	1.000000	1.000000	0.000000	0.007593	0.025310
	Mg 285.213 {118}	07/28/2020 14:08:56	07/27/2020 13:48:47	Linear	None	0.000675	0.041660	0.000000	1.000000	1.000000	0.000000	0.001215	0.004051
	Ca 317.933 {106}	07/28/2020 14:08:56	07/27/2020 13:48:47	Linear	None	0.019180	0.005174	0.000000	1.000000	1.000000	0.000000	0.010290	0.034301
	Fe 234.349 {144}	07/28/2020 14:08:56	07/27/2020 13:48:47	Linear	None	0.000122	0.001315	0.000000	1.000000	1.000000	0.000000	0.018165	0.060550

	Element, Wavelength and Order	Status	Reslope		QC Norm	
			Slope	Y-int	Slope factor	Offset
	K 766.490 { 44}	OK.	1.000000	0.000000	1	0
	K 769.896 { 44}	OK.	1.000000	0.000000	1	0
	Na 330.237 {102}	OK.	1.000000	0.000000	1	0
	Na 589.592 { 57}	OK.	1.000000	0.000000	1	0
	Y 320.332 {105}*	Warnin	1.000000	0.000000	1	0
	Y 360.073 { 94}	Warnin	1.000000	0.000000	1	0
	Al 308.215 {109}	OK.	1.000000	0.000000	1	0
	Al 396.152 { 85}	OK.	1.000000	0.000000	1	0
	Mg 285.213 {118}	OK.	1.000000	0.000000	1	0
	Ca 317.933 {106}	OK.	1.000000	0.000000	1	0
	Fe 234.349 {144}	OK.	1.000000	0.000000	1	0

Element, Wavelength and Order	Use?	# IECs	IEC	k1	k2	Calc-in-fit?
K 766.490 { 44}	☒	1	Fe	0.000114	0.000000	No
K 769.896 { 44}	☒	1	Fe	0.000322	0.000000	No
Na 330.237 {102}	☒	1	Fe	-0.001706	0.000000	No
Na 589.592 { 57}	☒	1	Fe	0.000204	0.000000	No
Y 320.332 {105}*	☒	None				
Y 360.073 { 94}	☒	None				
Al 308.215 {109}	☒	1	Fe	0.000000	0.000000	No
Al 396.152 { 85}	☒	None				
Mg 285.213 {118}	☒	None				
Ca 317.933 {106}	☒	None				
Fe 234.349 {144}	☒	None				

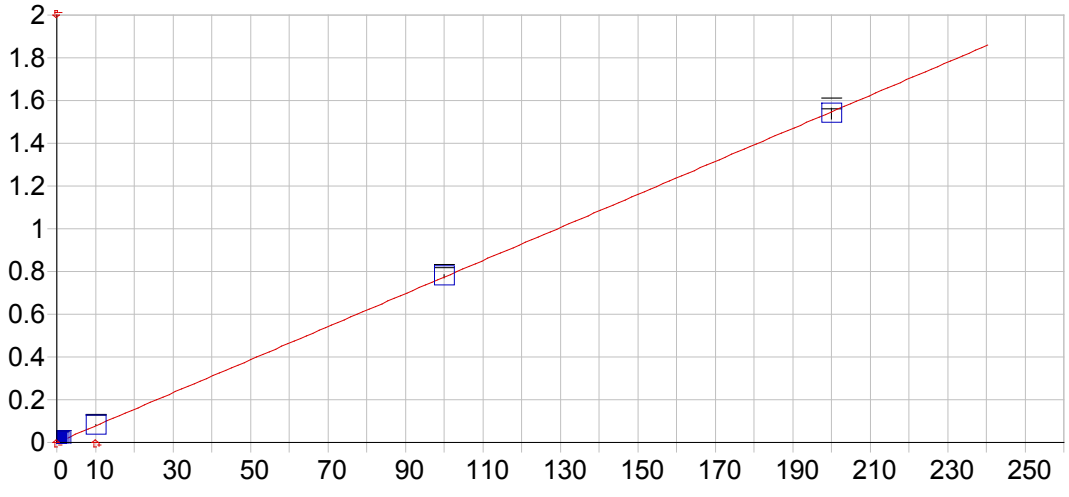


K 766.490 { 44}

Date of Fit:	07/28/2020 14:08:56	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000500	Re-Slope:	1.000000
A1 (Gain):	0.008413	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999896	Status:	OK.
Std Error of Est:	0.000241		
Predicted MDL:	0.015063		
Predicted MQL:	0.050209		

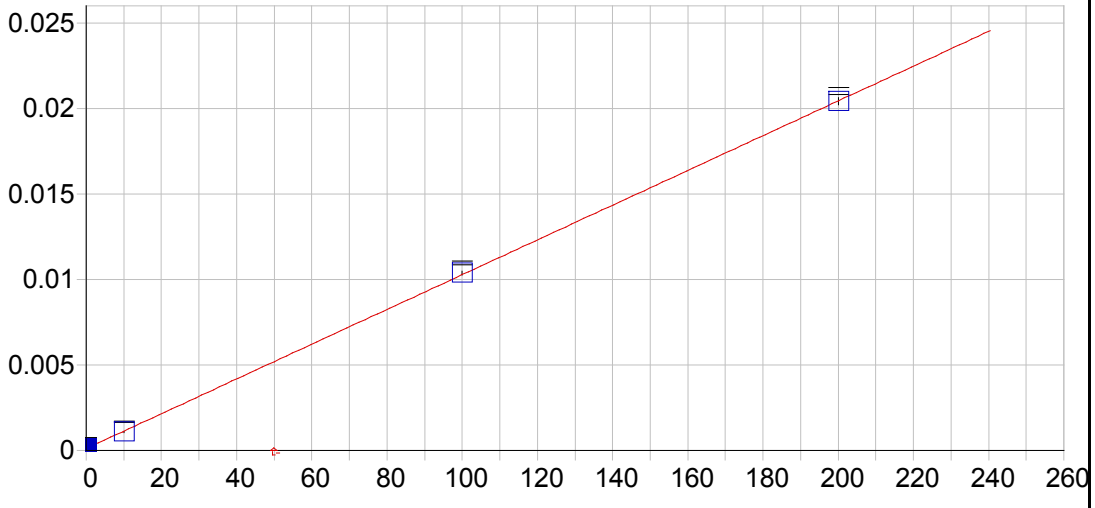
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00076	.001	.000	.00051	.000	1
CalibStd-1.0	1.0000	1.0266	.027	2.66	.00914	.000	1
CalibStd-10.	10.000	10.325	.325	3.25	.08736	.002	1
CalibStd-0.5	.50000	.48483	-.015	-3.03	.00458	.000	1
CalibStd-200	200.00	196.80	-3.20	-1.60	1.6561	.026	1
CalibStd-100	100.00	99.891	-.109	-.109	.84088	.006	1



K 769.896 { 44}

Date of Fit:	07/28/2020 14:08:56	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000321		Re-Slope:	1.000000	
A1 (Gain):	0.007733		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.999957		Status:	OK.	
Std Error of Est:	0.000035				
Predicted MDL:	0.022184				
Predicted MQL:	0.073947				

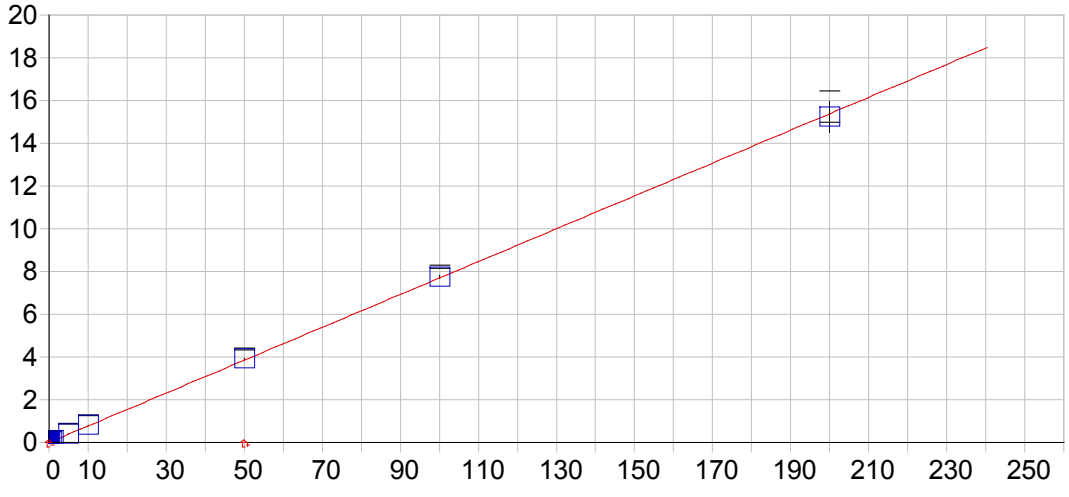
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00002	-.000	.000	.00032	.000	1
CalibStd-1.0	1.0000	1.0154	.015	1.54	.00817	.000	1
CalibStd-10.	10.000	10.407	.407	4.07	.08080	.002	1
CalibStd-0.5	.50000	.48977	-.010	-2.05	.00411	.000	1
CalibStd-200	200.00	198.94	-1.06	-.529	1.5388	.025	1
CalibStd-100	100.00	100.65	.646	.646	.77867	.008	1



Na 330.237 {102}

Date of Fit:	07/28/2020 14:08:56	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000117		Re-Slope:	1.000000	
A1 (Gain):	0.000102		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.999935		Status:	OK.	
Std Error of Est:	0.000003				
Predicted MDL:	0.707505				
Predicted MQL:	2.358349				

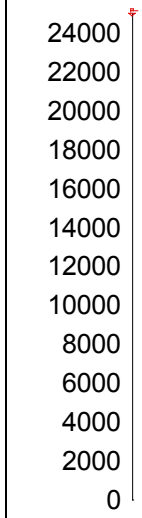
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00050	.001	.000	.00012	.000	1
CalibStd-200	200.00	199.74	-.264	-.132	.02041	.000	1
CalibStd-10.	10.000	9.4255	-.575	-5.75	.00107	.000	1
CalibStd-100	100.00	100.84	.838	.838	.01036	.000	1



Na 589.592 { 57}

Date of Fit:	07/28/2020 14:08:56	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.003733		Re-Slope:	1.000000	
A1 (Gain):	0.076892		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.999931		Status:	OK.	
Std Error of Est:	0.000447				
Predicted MDL:	0.002972				
Predicted MQL:	0.009908				

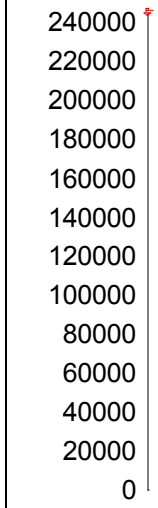
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00004	-.000	.000	.00373	.000	1
CalibStd-0.5	.50000	.49562	-.004	-.876	.04184	.001	1
CalibStd-1.0	1.0000	1.0131	.013	1.31	.08163	.002	1
CalibStd-5.0	5.0000	5.1832	.183	3.66	.40228	.006	1
CalibStd-10.	10.000	10.355	.355	3.55	.79997	.018	1
CalibStd-50	50.000	50.682	.682	1.36	3.9008	.048	1
CalibStd-100	100.00	100.65	.651	.651	7.7431	.082	1
CalibStd-200	200.00	198.12	-1.88	-.940	15.238	.738	1



Y 320.332 {105}*

Date of Fit:	07/28/2020 14:08:56	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000000		Re-Slope:	1.000000	
A1 (Gain):	0.000000		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.000000		Status:	Warning	Zero Gain
Std Error of Est:	0.000000				
Predicted MDL:	n/a				
Predicted MQL:	n/a				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	23522.	239.	1

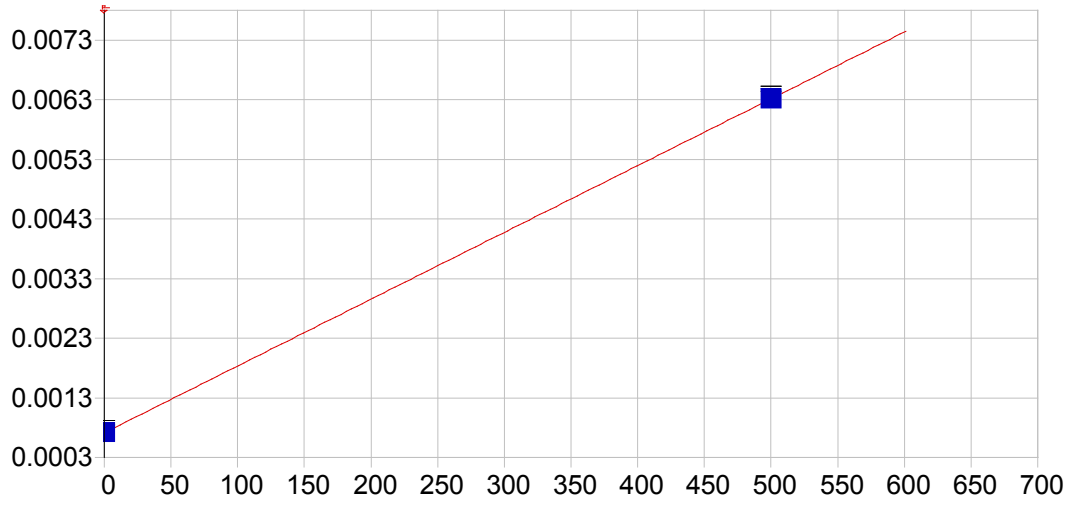


Y 360.073 { 94}

Date of Fit:	07/28/2020 14:08:56	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000000	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.000000	Status:	Warning Zero Gain
Std Error of Est:	0.000000		
Predicted MDL:	n/a		
Predicted MQL:	n/a		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	231580.	1680.	1

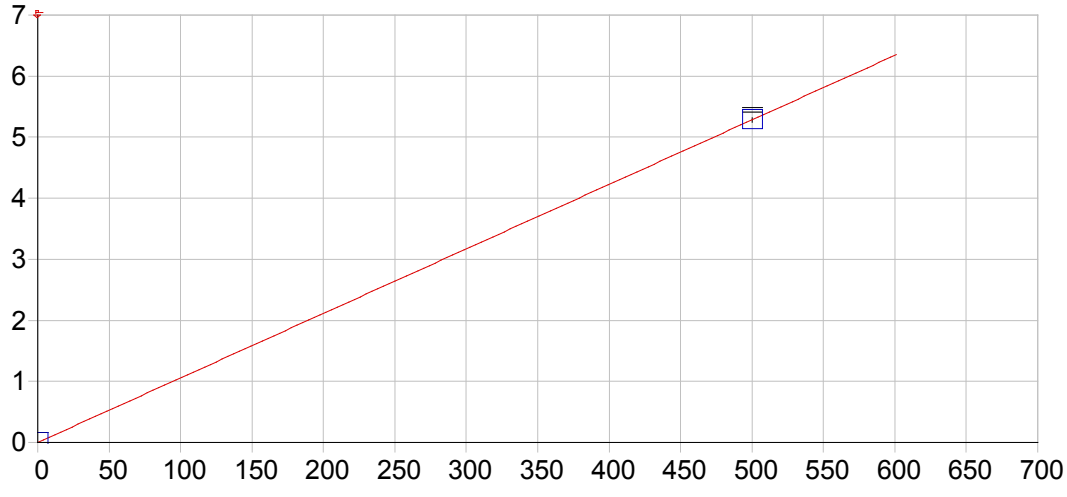


Al 308.215 {109}

Date of Fit:	07/28/2020 14:08:56	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000714	Re-Slope:	1.000000
A1 (Gain):	0.000011	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	n/a		
Predicted MQL:	n/a		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	.00071	.000	1
CalibStd-500	500.00	500.00	.000	.000	.00632	.000	1

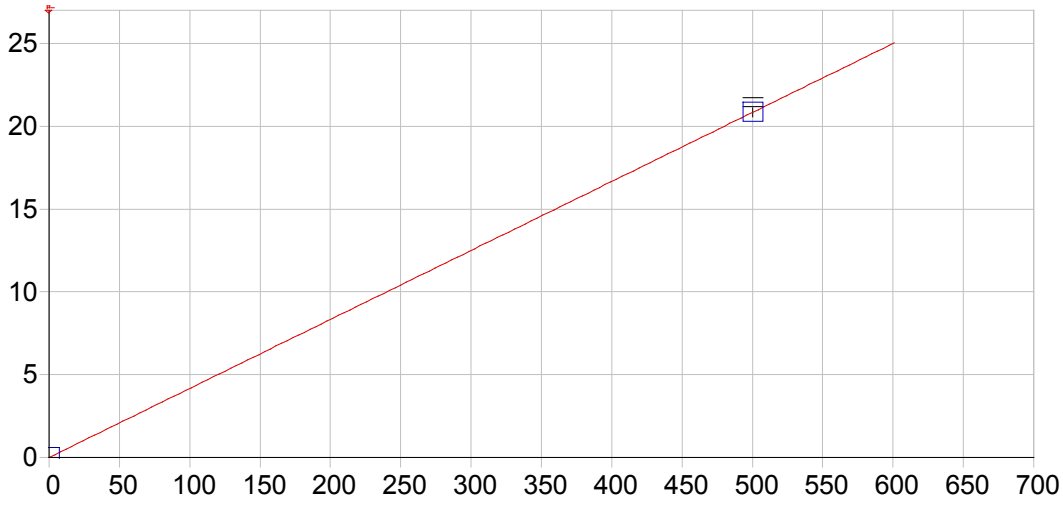


Al 396.152 { 85}

Date of Fit:	07/28/2020 14:08:56	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000238	Re-Slope:	1.000000
A1 (Gain):	0.010566	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	0.007593		
Predicted MQL:	0.025310		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	.00024	.000	1
CalibStd-500	500.00	500.00	.000	.000	5.2833	.036	1

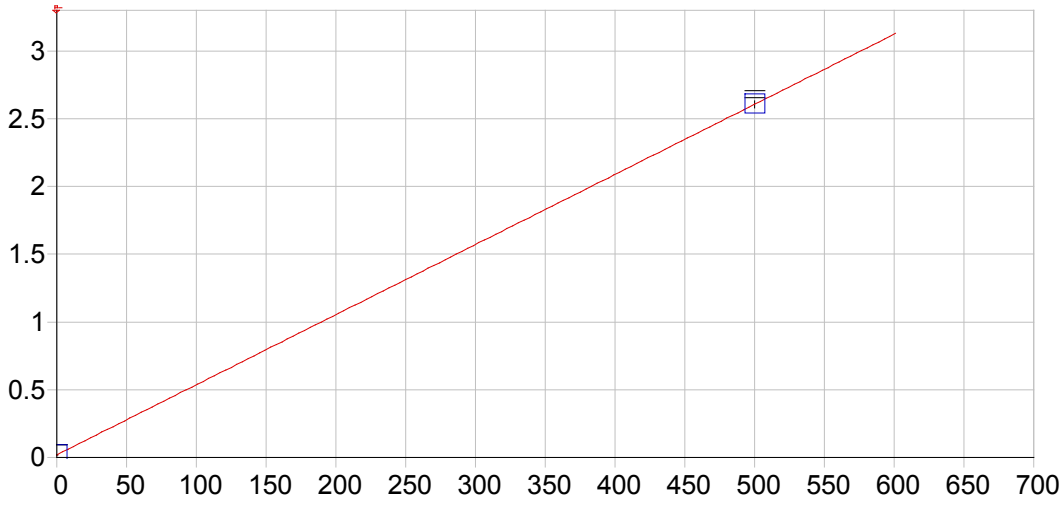


Mg 285.213 {118}

Date of Fit:	07/28/2020 14:08:56	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000675	Re-Slope:	1.000000
A1 (Gain):	0.041660	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	0.001215		
Predicted MQL:	0.004051		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	.00067	.000	1
CalibStd-500	500.00	500.00	.000	.000	20.831	.278	1

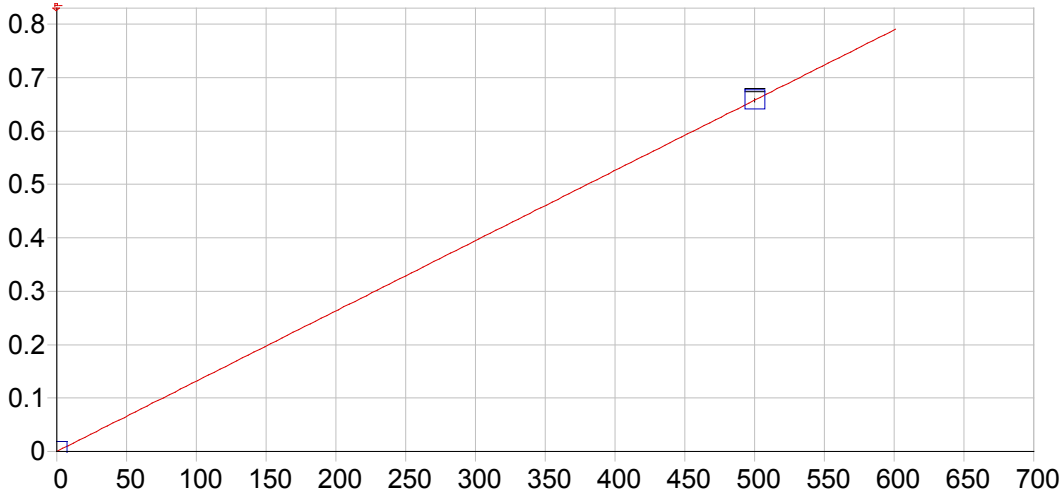


Ca 317.933 {106}

Date of Fit:	07/28/2020 14:08:56	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.019180	Re-Slope:	1.000000
A1 (Gain):	0.005174	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	0.010290		
Predicted MQL:	0.034301		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	.01918	.000	1
CalibStd-500	500.00	500.00	.000	.000	2.6060	.024	1



Fe 234.349 {144}

Date of Fit:	07/28/2020 14:08:56	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000122	Re-Slope:	1.000000
A1 (Gain):	0.001315	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	0.018165		
Predicted MQL:	0.060550		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	.00012	.000	1
CalibStd-500	500.00	500.00	.000	.000	.65762	.003	1

Sample Name: Blank Acquired: 07/27/2020 13:22:53 Type: Cal
Method: Sodium and Potassium 1(v1269) Mode: IR Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.001**	**.000**	**.004**	**.000**	**.001**	**.019**	**.000**
Stddev	.000	.000	.000	.000	.000	.000	.000
%RSD	26.3	19.6	12.6	28.6	2.46	1.26	13.8

Int. Std.	Y_3203
Units	Cts/S
Avg	**23522.**
Stddev	239.
%RSD	1.0159

Sample Name: CalibStd-0.5 Acquired: 07/27/2020 13:25:56 Type: Cal
Method: Sodium and Potassium 1(v1269) Mode: IR Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895
Units	Cts/S	Cts/S
Avg	**.005**	**.042**
Stddev	.000	.001
%RSD	2.70	3.11

Int. Std.	Y_3203
Units	Cts/S
Avg	**23126.**
Stddev	274.
%RSD	1.1852

Sample Name: CalibStd-1.0 Acquired: 07/27/2020 13:28:48 Type: Cal
Method: Sodium and Potassium 1(v1269) Mode: IR Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895
Units	Cts/S	Cts/S
Avg	**.009**	**.082**
Stddev	.000	.002
%RSD	1.93	1.91

Int. Std.	Y_3203
Units	Cts/S
Avg	**22949.**
Stddev	136.
%RSD	.59314

Sample Name: CalibStd-5.0 Acquired: 07/27/2020 13:31:39 Type: Cal
Method: Sodium and Potassium 1(v1269) Mode: IR Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Na5895
Units	Cts/S
Avg	**.402**
Stddev	.006
%RSD	1.45

Int. Std.	Y_3203
Units	Cts/S
Avg	**22912.**
Stddev	163.
%RSD	.71145

Sample Name: CalibStd-10.0 Acquired: 07/27/2020 13:34:28 Type: Cal
Method: Sodium and Potassium 1(v1269) Mode: IR Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Na5895
Units	Cts/S	Cts/S	Cts/S
Avg	**.087**	**.001**	**.800**
Stddev	.002	.000	.018
%RSD	2.12	4.42	2.28

Int. Std.	Y_3203
Units	Cts/S
Avg	**22806.**
Stddev	166.
%RSD	.72924

Sample Name: CalibStd-50 Acquired: 07/27/2020 13:37:17 Type: Cal
Method: Sodium and Potassium 1(v1269) Mode: IR Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Na5895
Units	Cts/S
Avg	**3.90**
Stddev	.05
%RSD	1.24

Int. Std.	Y_3203
Units	Cts/S
Avg	**22764.**
Stddev	122.
%RSD	.53409

Sample Name: CalibStd-100 Acquired: 07/27/2020 13:40:06 Type: Cal
Method: Sodium and Potassium 1(v1269) Mode: IR Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Na5895
Units	Cts/S	Cts/S	Cts/S
Avg	**.841**	**.010**	**7.74**
Stddev	.006	.000	.08
%RSD	.684	1.09	1.06

Int. Std.	Y_3203
Units	Cts/S
Avg	**22652.**
Stddev	63.
%RSD	.27634

Sample Name: CalibStd-200 Acquired: 07/27/2020 13:42:55 Type: Cal
Method: Sodium and Potassium 1(v1269) Mode: IR Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Na5895
Units	Cts/S	Cts/S	Cts/S
Avg	**1.66**	**.020**	**15.2**
Stddev	.03	.000	.7
%RSD	1.54	.962	4.84

Int. Std.	Y_3203
Units	Cts/S
Avg	**22263.**
Stddev	213.
%RSD	.95461

Sample Name: CalibStd-500 Acquired: 07/27/2020 13:45:53 Type: Cal
Method: Sodium and Potassium 1(v1269) Mode: IR Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Al3961	Mg2852	Ca3179	Fe2343
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**5.28**	**20.8**	**2.61**	**.658**
Stddev	.04	.3	.02	.003
%RSD	.689	1.33	.933	.439

Int. Std.	Y_3203
Units	Cts/S
Avg	**20866.**
Stddev	144.
%RSD	.68989

Sample Name: icv Acquired: 07/27/2020 13:48:50 Type: QC

Method: Sodium and Potassium 1(v1269) Mode: CONC Corr. Factor: 1.000000

User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1

Comment:

Elem	K_7664	Na3302	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**98.8**	**101.**	**.030**	**.041**	**.028**	**.169**
Stddev	2.1	1.	.011	.004	.008	.028
%RSD	2.09	1.10	36.0	9.51	26.7	16.3
Check ?	None	None	None	None	None	None
Value						
Range						

Int. Std.	Y_3203
Units	Cts/S
Avg	**22611.**
Stddev	226.
%RSD	1.0005

Sample Name: ICVLL Acquired: 07/27/2020 13:51:38 Type: QC
Method: Sodium and Potassium 1(v1269) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**3.18**	**3.21**	**-.020**	**-.001**	**-.020**	**.011**
Stddev	.06	.07	.013	.001	.011	.034
%RSD	2.02	2.26	65.6	239.	54.1	314.
Check ?	Chk Pass	Chk Pass	None	None	None	None
Value						
Range						

Int. Std.	Y_3203
Units	Cts/S
Avg	**22765.**
Stddev	180.
%RSD	.79102

Sample Name: icb Acquired: 07/27/2020 13:54:29 Type: QC
Method: Sodium and Potassium 1(v1269) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**.054**	**.035**	**-.015**	**-.006**	**-.040**	**.048**
Stddev	.010	.005	.002	.000	.014	.032
%RSD	18.2	14.6	11.2	7.84	35.2	66.1
Check ?	None	None	None	None	None	None
Value						
Range						

Int. Std.	Y_3203
Units	Cts/S
Avg	**22533.**
Stddev	301.
%RSD	1.3361

Sample Name: mrl Acquired: 07/27/2020 13:57:20 Type: QC

Method: Sodium and Potassium 1(v1269) Mode: CONC Corr. Factor: 1.000000

User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1

Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**1.06**	**1.07**	**-.022**	**-.012**	**.002**	**-.040**
Stddev	.03	.01	.004	.001	.032	.023
%RSD	2.39	.593	20.5	12.0	1400.	57.4
Check ?	None	None	None	None	None	None
Value						
Range						

Int. Std.	Y_3203
Units	Cts/S
Avg	**22836.**
Stddev	99.
%RSD	.43529

Sample Name: icsa Acquired: 07/27/2020 14:00:11 Type: QC
Method: Sodium and Potassium 1(v1269) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**-.005**	**-.004**	**491.**	**495.**	**475.**	**476.**
Stddev	.004	.002	4.	5.	2.	.
%RSD	73.6	48.3	.838	.923	.363	.086
Check ?	Chk Pass	Chk Pass	None	None	None	None
High Limit						
Low Limit						

Int. Std.	Y_3203
Units	Cts/S
Avg	**20678.**
Stddev	71.
%RSD	.34151

Sample Name: icsab Acquired: 07/27/2020 14:03:09 Type: QC
Method: Sodium and Potassium 1(v1269) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**109.**	**109.**	**497.**	**503.**	**483.**	**500.**
Stddev	2.	1.	7.	5.	2.	2.
%RSD	2.18	1.20	1.45	1.03	.383	.390
Check ?	None	None	None	None	None	None
Value						
Range						

Int. Std.	Y_3203
Units	Cts/S
Avg	**20274.**
Stddev	202.
%RSD	.99729

Sample Name: ccv Acquired: 07/27/2020 15:42:24 Type: QC
Method: Sodium and Potassium 1(v1269) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**101.**	**101.**	**-.025**	**.004**	**.015**	**-.025**
Stddev	2.	2.	.005	.001	.012	.031
%RSD	1.92	1.48	19.8	19.6	80.8	124.
Check ?	None	None	None	None	None	None
Value						
Range						

Int. Std.	Y_3203
Units	Cts/S
Avg	**22551.**
Stddev	194.
%RSD	.85815

Sample Name: ccb Acquired: 07/27/2020 15:45:13 Type: QC
Method: Sodium and Potassium 1(v1269) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**.065**	**.045**	**-.028**	**-.008**	**.020**	**-.024**
Stddev	.014	.003	.006	.001	.005	.030
%RSD	21.9	5.96	22.3	9.32	25.6	126.
Check ?	None	None	None	None	None	None
Value						
Range						

Int. Std.	Y_3203
Units	Cts/S
Avg	**22939.**
Stddev	328.
%RSD	1.4301

Sample Name: lcsw77363 Acquired: 07/27/2020 15:48:05 Type: Unk
Method: Sodium and Potassium 1(v1269) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**101.**	**101.**	**.796**	**107.**	**188.**	**.363**
Stddev	2.	1.	.005	1.	1.	.028
%RSD	2.05	1.25	.670	1.07	.534	7.76

Int. Std.	Y_3203
Units	Cts/S
Avg	**21986.**
Stddev	190.
%RSD	.86404

Sample Name: mbw77363 Acquired: 07/27/2020 15:50:51 Type: Unk
Method: Sodium and Potassium 1(v1269) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**-.001**	**.003**	**-.024**	**-.014**	**.007**	**-.054**
Stddev	.013	.001	.008	.002	.010	.023
%RSD	1060.	42.7	30.8	13.3	145.	42.3

Int. Std.	Y_3203
Units	Cts/S
Avg	**22927.**
Stddev	302.
%RSD	1.3152

Sample Name: 448843 Acquired: 07/27/2020 15:53:44 Type: Unk
Method: Sodium and Potassium 1(v1269) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**1.12**	**4.84**	**.516**	**28.3**	**59.6**	**.757**
Stddev	.04	.14	.013	.4	.2	.037
%RSD	3.28	2.95	2.58	1.45	.337	4.93

Int. Std.	Y_3203
Units	Cts/S
Avg	**22220.**
Stddev	241.
%RSD	1.0862

Sample Name: I448843 Acquired: 07/27/2020 15:56:34 Type: Unk
Method: Sodium and Potassium 1(v1269) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**.208**	**.950**	**.084**	**5.89**	**12.3**	**.111**
Stddev	.014	.018	.005	.03	.1	.007
%RSD	6.95	1.91	5.83	.575	.937	6.36

Int. Std.	Y_3203
Units	Cts/S
Avg	**22842.**
Stddev	219.
%RSD	.95692

Sample Name: dup448843 Acquired: 07/27/2020 15:59:23 Type: Unk
Method: Sodium and Potassium 1(v1269) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**1.11**	**4.83**	**.586**	**28.5**	**60.4**	**.801**
Stddev	.03	.05	.013	.1	.5	.023
%RSD	2.35	1.03	2.20	.350	.796	2.86

Int. Std.	Y_3203
Units	Cts/S
Avg	**22368.**
Stddev	134.
%RSD	.59882

Sample Name: msw448843 Acquired: 07/27/2020 16:02:12 Type: Unk
Method: Sodium and Potassium 1(v1269) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**108.**	**106.**	**1.57**	**135.**	**248.**	**1.18**
Stddev	1.	1.	.02	1.	1.	.02
%RSD	1.25	1.22	1.40	.496	.261	1.73

Int. Std.	Y_3203
Units	Cts/S
Avg	**21662.**
Stddev	97.
%RSD	.44841

Sample Name: msdw448843 Acquired: 07/27/2020 16:04:58 Type: Unk
Method: Sodium and Potassium 1(v1269) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**107.**	**106.**	**1.63**	**137.**	**255.**	**1.22**
Stddev	3.	1.	.02	2.	3.	.03
%RSD	2.81	1.38	1.24	1.46	1.21	2.72

Int. Std.	Y_3203
Units	Cts/S
Avg	**21636.**
Stddev	289.
%RSD	1.3339

Sample Name: pdsw448843 Acquired: 07/27/2020 16:07:45 Type: Unk
Method: Sodium and Potassium 1(v1269) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**101.**	**111.**	**.511**	**27.4**	**58.4**	**.723**
Stddev	1.	2.	.007	.1	.2	.010
%RSD	1.36	1.95	1.46	.226	.382	1.35

Int. Std.	Y_3203
Units	Cts/S
Avg	**22236.**
Stddev	32.
%RSD	.14595

Sample Name: ccv Acquired: 07/27/2020 16:16:10 Type: QC
Method: Sodium and Potassium 1(v1269) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**99.8**	**100.0**	**-.022**	**.003**	**-.021**	**-.009**
Stddev	1.4	1.49	.004	.001	.026	.015
%RSD	1.37	1.49	19.4	28.6	124.	163.
Check ?	None	None	None	None	None	None
Value						
Range						

Int. Std.	Y_3203
Units	Cts/S
Avg	**22871.**
Stddev	134.
%RSD	.58448

Sample Name: ccb Acquired: 07/27/2020 16:18:59 Type: QC
Method: Sodium and Potassium 1(v1269) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**.084**	**.048**	**-.029**	**-.007**	**-.040**	**-.036**
Stddev	.018	.002	.007	.000	.012	.014
%RSD	21.3	4.25	24.2	5.87	30.3	38.0
Check ?	None	None	None	None	None	None
Value						
Range						

Int. Std.	Y_3203
Units	Cts/S
Avg	**23006.**
Stddev	272.
%RSD	1.1842

Element, Wavelength and Order	Date of Fit	Date of Cal.	Type of Fit	Weighting	A0	A1	A2	n (Exponent)	Correlation	Std Error of Est	Predicted MDL	Predicted MQL
Ag 328.068 {103}	07/28/2020 14:13:13	07/24/2020 15:07:37	Linear	None	0.000013	0.000003	0.000000	1.000000	0.999997	0.000001	0.673982	2.246605
Ag 338.289 {100}	07/28/2020 14:13:13	07/24/2020 15:53:46	Linear	1/Conc	0.000002	0.000000	0.000000	1.000000	0.998500	0.000000	18.271942	60.906474
Al 167.079 {501}	07/28/2020 14:13:13	07/24/2020 15:13:24	Linear	1/Conc	0.000006	0.000003	0.000000	1.000000	0.999022	0.000001	0.808192	2.693973
Al 308.215 {109}	07/28/2020 14:13:13	07/24/2020 15:33:11	Curvili	1/Var	0.000051	0.000000	0.000000	1.000000	0.999995	0.000010	27.052548	90.175159
Al 396.152 { 85}	07/28/2020 14:13:13	07/24/2020 15:47:07	Linear	1/Conc	-0.000025	0.000002	0.000000	1.000000	0.999887	0.000056	7.520338	25.067795
As 193.759 {474}	07/28/2020 14:13:13	07/24/2020 15:13:24	Linear	1/Conc	0.000000	0.000001	0.000000	1.000000	0.999938	0.000000	3.857078	12.856927
As 197.262 {471}	07/28/2020 14:13:13	07/24/2020 15:20:15	Linear	None	-0.000000	0.000001	0.000000	1.000000	0.999997	0.000007	6.325959	21.086529
Ba 233.527 {445}	07/28/2020 14:13:13	07/24/2020 15:13:24	Linear	1/Conc	0.000001	0.000009	0.000000	1.000000	0.999872	0.000000	0.426138	1.420460
Ba 455.403 { 74}	07/28/2020 14:13:13	07/24/2020 15:20:15	Linear	1/Conc	0.000081	0.000069	0.000000	1.000000	0.999965	0.000002	0.237179	0.790596
Ba 493.409 { 68}	07/28/2020 14:13:13	07/24/2020 15:53:46	Linear	1/Var	0.009927	0.000083	0.000000	1.000000	0.999981	0.000114	0.595587	1.985288
Be 313.042 {108}	07/28/2020 14:13:13	07/24/2020 15:13:25	Linear	1/Var	-0.000037	0.000062	0.000000	1.000000	0.999957	0.000002	0.034598	0.115327
Be 234.861 {144}	07/28/2020 14:13:13	07/24/2020 15:13:25	Linear	1/Conc	0.000001	0.000006	0.000000	1.000000	0.999963	0.000001	0.567860	1.892867
Ca 315.887 {107}	07/28/2020 14:13:13	07/24/2020 15:47:07	Linear	1/Var	0.000101	0.000000	0.000000	1.000000	0.999896	0.000018	9.769991	32.566638
Ca 317.933 {106}	07/28/2020 14:13:13	07/24/2020 15:47:07	Linear	1/Var	0.000321	0.000001	0.000000	1.000000	0.999738	0.000038	5.630940	18.769801
Ca 393.366 { 86}	07/28/2020 14:13:13	07/24/2020 15:13:26	Linear	1/Var	0.002710	0.000318	0.000000	1.000000	0.996347	0.001302	0.042991	0.143304
Ca 396.847 { 85}	07/28/2020 14:13:13	07/24/2020 15:20:15	Linear	1/Conc	0.001399	0.000156	0.000000	1.000000	0.999772	0.000157	0.089360	0.297865
Cd 226.502 {449}	07/28/2020 14:13:13	07/24/2020 15:13:26	Linear	1/Conc	0.000000	0.000038	0.000000	1.000000	0.999971	0.000000	0.196781	0.655937
Cd 228.802 {447}	07/28/2020 14:13:13	07/24/2020 15:13:26	Curvili	1/Conc	0.000016	0.000046	-0.000000	1.000000	0.999845	0.000001	0.172112	0.573705
Co 228.616 {447}	07/28/2020 14:13:13	07/24/2020 15:20:15	Linear	1/Conc	0.000001	0.000024	0.000000	1.000000	0.999810	0.000002	0.293391	0.977969
Co 238.892 {141}	07/28/2020 14:13:13	07/24/2020 15:20:16	Linear	1/Conc	0.000004	0.000002	0.000000	1.000000	0.999935	0.000001	0.676814	2.256045
Cr 205.560 {464}	07/28/2020 14:13:13	07/24/2020 15:27:08	Linear	1/Var	0.000011	0.000012	0.000000	1.000000	0.998499	0.000041	0.374762	1.249208
Cr 267.716 {126}	07/28/2020 14:13:13	07/24/2020 15:20:16	Linear	1/Conc	-0.000000	0.000002	0.000000	1.000000	0.999933	0.000000	0.721510	2.405035
Cu 223.008 {451}	07/28/2020 14:13:13	07/24/2020 15:13:27	Linear	1/Var	0.000010	0.000006	0.000000	1.000000	0.999995	0.000005	1.129996	3.766655
Cu 224.700 {450}	07/28/2020 14:13:13	07/24/2020 15:27:08	Linear	1/Var	-0.000135	0.000003	0.000000	1.000000	0.905592	0.000129	1.347138	4.490460
Cu 324.754 {104}	07/28/2020 14:13:13	07/24/2020 15:27:08	Linear	1/Var	0.000201	0.000003	0.000000	1.000000	0.999926	0.000007	2.484835	8.282784
Cu 327.396 {103}	07/28/2020 14:13:13	07/24/2020 15:20:17	Linear	1/Conc	0.000021	0.000003	0.000000	1.000000	0.999963	0.000000	4.842725	16.142415
Fe 234.349 {144}	07/28/2020 14:13:13	07/24/2020 15:33:12	Linear	1/Var	0.000011	0.000001	0.000000	1.000000	0.998230	0.000008	1.540856	5.136187
Fe 239.562 {140}	07/28/2020 14:13:13	07/24/2020 15:47:08	Linear	1/Var	0.000012	0.000001	0.000000	1.000000	0.998470	0.000043	4.150967	13.836558
Fe 259.940 {129}	07/28/2020 14:13:13	07/24/2020 15:39:47	Linear	1/Var	0.000018	0.000002	0.000000	1.000000	0.999170	0.000069	3.212561	10.708536
Mg 202.582 {466}	07/28/2020 14:13:13	07/24/2020 15:47:08	Linear	1/Var	0.000001	0.000000	0.000000	1.000000	0.998371	0.000010	3.247712	10.825705
Mg 279.079 {121}	07/28/2020 14:13:13	07/24/2020 15:47:08	Curvili	1/Conc	0.000002	0.000000	0.000000	1.000000	0.999727	0.000005	30.473058	101.57685
Mg 280.270 {120}	07/28/2020 14:13:13	07/24/2020 15:20:18	Linear	1/Conc	0.000112	0.000022	0.000000	1.000000	0.999513	0.000033	0.042356	0.141186
Mn 257.610 {131}	07/28/2020 14:13:13	07/24/2020 15:20:18	Linear	1/Var	0.000014	0.000012	0.000000	1.000000	0.999051	0.000013	0.083217	0.277390
Mn 259.373 {130}	07/28/2020 14:13:13	07/24/2020 15:27:08	Linear	1/Var	4.902712	1.722951	0.000000	1.000000	0.999825	23.876331	0.526363	1.754542
Mo 202.030 {466}	07/28/2020 14:13:13	07/24/2020 15:13:29	Linear	1/Conc	0.000000	0.000010	0.000000	1.000000	0.999845	0.000001	0.456058	1.520192
Mo 203.844 {465}	07/28/2020 14:13:13	07/24/2020 15:13:29	Linear	1/Var	0.000006	0.000008	0.000000	1.000000	0.999956	0.000005	0.708771	2.362569
Mo 204.598 {464}	07/28/2020 14:13:13	07/24/2020 15:20:18	Linear	1/Conc	-0.000002	0.000004	0.000000	1.000000	0.999906	0.000000	1.153735	3.845782
Ni 221.647 {452}	07/28/2020 14:13:13	07/24/2020 15:20:18	Linear	1/Conc	-0.000008	0.000016	0.000000	1.000000	0.999838	0.000013	0.529541	1.765138
Ni 231.604 {445}	07/28/2020 14:13:13	07/24/2020 15:20:18	Linear	1/Conc	-0.000016	0.000012	0.000000	1.000000	0.999828	0.000001	0.641241	2.137469
Pb 216.999 {455}	07/28/2020 14:13:13	07/24/2020 15:27:08	Linear	1/Conc	-0.000002	0.000001	0.000000	1.000000	0.999845	0.000001	4.583074	15.276912
Pb 216.999 {456}	07/28/2020 14:13:13	07/24/2020 15:27:09	Linear	1/Conc	-0.000001	0.000000	0.000000	1.000000	0.999764	0.000000	16.926128	56.420426
Pb 220.353 {453}	07/28/2020 14:13:13	07/24/2020 15:13:30	Linear	1/Conc	0.000018	0.000003	0.000000	1.000000	0.999778	0.000000	2.900708	9.669026
Pb 220.353 {153}	07/28/2020 14:13:13	07/24/2020 15:27:09	Linear	1/Conc	0.000001	0.000000	0.000000	1.000000	0.999925	0.000000	4.335673	14.452245
Sb 206.833 {463}	07/28/2020 14:13:13	07/24/2020 15:20:19	Linear	1/Conc	-0.000006	0.000002	0.000000	1.000000	0.999934	0.000000	2.751277	9.170922

	Element, Wavelength and Order	Status	Reslope		QC Norm	
			Slope	Y-int	Slope factor	Offset
	Ag 328.068 {103}	OK.	1.000000	0.000000	1	0
	Ag 338.289 {100}	OK.	1.000000	0.000000	1	0
	Al 167.079 {501}	OK.	1.000000	0.000000	1	0
	Al 308.215 {109}	OK.	1.000000	0.000000	1	0
	Al 396.152 { 85}	OK.	1.000000	0.000000	1	0
	As 193.759 {474}	OK.	1.000000	0.000000	1	0
	As 197.262 {471}	OK.	1.000000	0.000000	1	0
	Ba 233.527 {445}	OK.	1.000000	0.000000	1	0
	Ba 455.403 { 74}	OK.	1.000000	0.000000	1	0
	Ba 493.409 { 68}	OK.	1.000000	0.000000	1	0
	Be 313.042 {108}	OK.	1.000000	0.000000	1	0
	Be 234.861 {144}	OK.	1.000000	0.000000	1	0
	Ca 315.887 {107}	OK.	1.000000	0.000000	1	0
	Ca 317.933 {106}	OK.	1.000000	0.000000	1	0
	Ca 393.366 { 86}	OK.	1.000000	0.000000	1	0
	Ca 396.847 { 85}	OK.	1.000000	0.000000	1	0
	Cd 226.502 {449}	OK.	1.000000	0.000000	1	0
	Cd 228.802 {447}	OK.	1.000000	0.000000	1	0
	Co 228.616 {447}	OK.	1.000000	0.000000	1	0
	Co 238.892 {141}	OK.	1.000000	0.000000	1	0
	Cr 205.560 {464}	OK.	1.000000	0.000000	1	0
	Cr 267.716 {126}	OK.	1.000000	0.000000	1	0
	Cu 223.008 {451}	OK.	1.000000	0.000000	1	0
	Cu 224.700 {450}	OK.	1.000000	0.000000	1	0
	Cu 324.754 {104}	OK.	1.000000	0.000000	1	0
	Cu 327.396 {103}	OK.	1.000000	0.000000	1	0
	Fe 234.349 {144}	OK.	1.000000	0.000000	1	0
	Fe 239.562 {140}	OK.	1.000000	0.000000	1	0
	Fe 259.940 {129}	OK.	1.000000	0.000000	1	0
	Mg 202.582 {466}	OK.	1.000000	0.000000	1	0
	Mg 279.079 {121}	OK.	1.000000	0.000000	1	0
	Mg 280.270 {120}	OK.	1.000000	0.000000	1	0
	Mn 257.610 {131}	OK.	1.000000	0.000000	1	0
	Mn 259.373 {130}	OK.	1.000000	0.000000	1	0
	Mo 202.030 {466}	OK.	1.000000	0.000000	1	0
	Mo 203.844 {465}	OK.	1.000000	0.000000	1	0
	Mo 204.598 {464}	OK.	1.000000	0.000000	1	0
	Ni 221.647 {452}	OK.	1.000000	0.000000	1	0
	Ni 231.604 {445}	OK.	1.000000	0.000000	1	0
	Pb 216.999 {455}	OK.	1.000000	0.000000	1	0
	Pb 216.999 {456}	OK.	1.000000	0.000000	1	0
	Pb 220.353 {453}	OK.	1.000000	0.000000	1	0
	Pb 220.353 {153}	OK.	1.000000	0.000000	1	0
	Sb 206.833 {463}	OK.	1.000000	0.000000	1	0

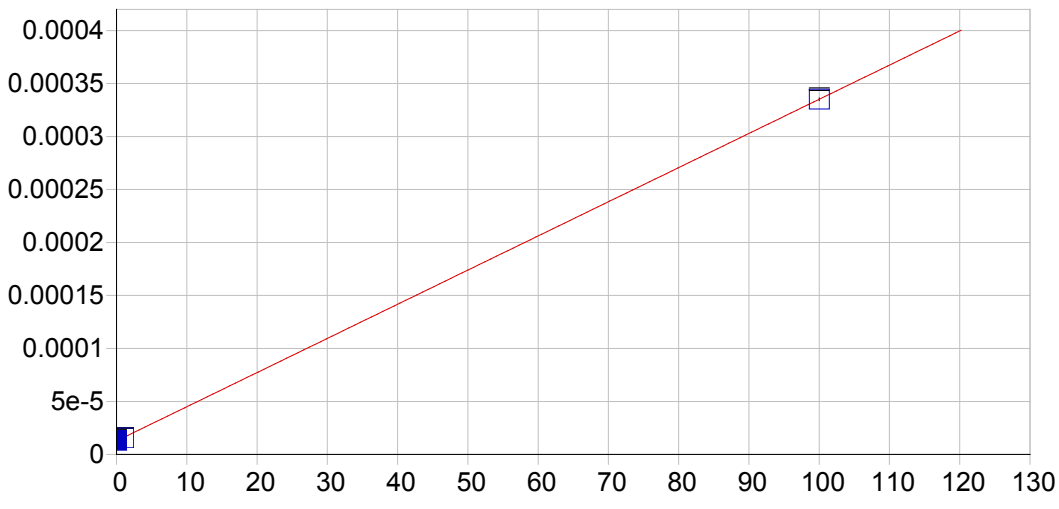
	Element, Wavelength and Order	Date of Fit	Date of Cal.	Type of Fit	Weighting	A0	A1	A2	n (Exponent)	Correlation	Std Error of Est	Predicted MDL	Predicted MQL
	Sb 217.581 {455}	07/28/2020 14:13:13	07/24/2020 15:20:19	Linear	1/Conc	0.000004	0.000002	0.000000	1.000000	0.999856	0.000000	3.060901	10.203002
	Se 196.090 {472}	07/28/2020 14:13:13	07/24/2020 15:13:31	Linear	1/Conc	0.000003	0.000001	0.000000	1.000000	0.999938	0.000000	4.090512	13.635039
	Se 203.985 {465}	07/28/2020 14:13:13	07/24/2020 15:13:31	Linear	1/Var	-0.000006	0.000001	0.000000	1.000000	0.999496	0.000004	8.599018	28.663395
	Se 206.279 {463}	07/28/2020 14:13:13	07/24/2020 15:20:20	Linear	1/Var	0.000004	0.000000	0.000000	1.000000	0.999883	0.000005	26.912900	89.709668
	Tl 190.856 {476}	07/28/2020 14:13:13	07/24/2020 15:13:32	Linear	1/Conc	0.000009	0.000002	0.000000	1.000000	0.999760	0.000000	2.487072	8.290239
	Tl 190.856 {477}	07/28/2020 14:13:13	07/24/2020 15:20:20	Linear	1/Var	-0.000000	0.000001	0.000000	1.000000	0.999592	0.000010	5.269925	17.566418
	V 290.882 {116}	07/28/2020 14:13:13	07/24/2020 15:20:20	Linear	1/Conc	0.000009	0.000001	0.000000	1.000000	0.999989	0.000000	5.203864	17.346212
	V 292.402 {115}	07/28/2020 14:13:13	07/24/2020 15:20:20	Linear	1/Conc	0.000012	0.000006	0.000000	1.000000	0.999980	0.000000	0.544900	1.816334
	Zn 206.200 {463}	07/28/2020 14:13:13	07/24/2020 15:27:09	Curvili	1/Conc	0.000014	0.000018	-0.000000	1.000000	0.999977	0.000006	0.306152	1.020506
	Zn 213.856 {457}	07/28/2020 14:13:13	07/24/2020 15:13:33	Linear	1/Conc	0.000038	0.000043	0.000000	1.000000	0.999676	0.000005	0.140492	0.468307
	Y 224.306 {450}*	07/28/2020 14:13:13	07/24/2020 14:23:15	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-1.000000	-1.000000
	Y 324.228 {104}*	07/28/2020 14:13:13	07/24/2020 14:23:15	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-1.000000	-1.000000
	Y 371.030 { 91}*	07/28/2020 14:13:13	07/24/2020 14:23:15	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-1.000000	-1.000000
	Na 588.995 { 57}	07/28/2020 14:13:13	07/24/2020 15:33:13	Linear	1/Var	0.005248	0.000013	0.000000	1.000000	0.999502	0.000243	4.126930	13.756432
	Na 589.592 { 57}	07/28/2020 14:13:13	07/24/2020 15:47:08	Linear	1/Var	0.000048	0.000006	0.000000	1.000000	0.999617	0.000169	5.102915	17.009717
	Si 251.611 {134}	07/28/2020 14:13:13	07/24/2020 15:33:13	Linear	1/Conc	0.000005	0.000001	0.000000	1.000000	0.999568	0.000009	8.045379	26.817930
	Ti 323.452 {104}	07/28/2020 14:13:13	07/24/2020 15:20:21	Linear	1/Conc	0.000194	0.000011	0.000000	1.000000	0.999973	0.000001	0.967417	3.224723
	Ti 334.941 {101}	07/28/2020 14:13:13	07/24/2020 15:20:21	Linear	1/Conc	-0.000006	0.000009	0.000000	1.000000	0.999960	0.000001	0.858872	2.862907
	Sr 407.771 { 83}	07/28/2020 14:13:13	07/24/2020 15:20:22	Linear	1/Conc	0.000079	0.000264	0.000000	1.000000	0.999852	0.000018	0.067607	0.225358
	Sr 421.552 { 80}	07/28/2020 14:13:13	07/24/2020 15:20:22	Linear	1/Conc	0.000000	0.000189	0.000000	1.000000	0.999957	0.000007	0.083226	0.277419
	Sn 189.989 {477}	07/28/2020 14:13:13	07/24/2020 15:20:22	Linear	1/Conc	0.000003	0.000003	0.000000	1.000000	0.999836	0.000001	1.200367	4.001223
	B 249.678 {135}	07/28/2020 14:13:13	07/24/2020 15:20:22	Linear	1/Var	0.000005	0.000002	0.000000	1.000000	0.999994	0.000003	1.066994	3.556648
	B 249.773 {135}	07/28/2020 14:13:13	07/24/2020 15:20:22	Linear	1/Var	0.000006	0.000003	0.000000	1.000000	0.999984	0.000004	0.606978	2.023262
	Li 670.784 { 50}	07/28/2020 14:13:13	07/24/2020 15:20:22	Linear	1/Conc	-0.000076	0.000048	0.000000	1.000000	0.999990	0.000003	0.839954	2.799847
	K 766.490 { 44}	07/28/2020 14:13:13	07/24/2020 15:47:08	Linear	1/Var	0.000022	0.000001	0.000000	1.000000	0.999710	0.000078	29.733580	99.111934
	K 769.896 { 44}	07/28/2020 14:13:13	07/24/2020 15:47:08	Linear	1/Conc	0.000095	0.000001	0.000000	1.000000	0.999802	0.000017	46.486275	154.95425
	P 213.618 {457}	07/28/2020 14:13:13	07/24/2020 15:47:09	Linear	1/Conc	-0.000004	0.000001	0.000000	1.000000	0.999701	0.000034	5.460673	18.202243
	S 182.034 {485}	07/28/2020 14:13:13	07/24/2020 15:47:09	Linear	1/Conc	0.000009	0.000001	0.000000	1.000000	0.999619	0.000022	6.288862	20.962873
	Hg 184.950 {482}	07/28/2020 14:13:13	07/24/2020 15:13:35	Linear	1/Conc	0.000001	0.000000	0.000000	1.000000	0.999984	0.000000	1.163936	3.879788
	Ce 404.076 { 83}	07/28/2020 14:13:13	07/24/2020 15:13:36	Linear	1/Conc	0.000032	0.000001	0.000000	1.000000	1.000000	0.000000	15.328178	51.093928

	Element, Wavelength and Order	Status	Reslope		QC Norm	
			Slope	Y-int	Slope factor	Offset
	Sb 217.581 {455}	OK.	1.000000	0.000000	1	0
	Se 196.090 {472}	OK.	1.000000	0.000000	1	0
	Se 203.985 {465}	OK.	1.000000	0.000000	1	0
	Se 206.279 {463}	OK.	1.000000	0.000000	1	0
	Tl 190.856 {476}	OK.	1.000000	0.000000	1	0
	Tl 190.856 {477}	OK.	1.000000	0.000000	1	0
	V 290.882 {116}	OK.	1.000000	0.000000	1	0
	V 292.402 {115}	OK.	1.000000	0.000000	1	0
	Zn 206.200 {463}	OK.	1.000000	0.000000	1	0
	Zn 213.856 {457}	OK.	1.000000	0.000000	1	0
	Y 224.306 {450}*	Warnin	1.000000	0.000000	1	0
	Y 324.228 {104}*	Warnin	1.000000	0.000000	1	0
	Y 371.030 { 91}*	Warnin	1.000000	0.000000	1	0
	Na 588.995 { 57}	OK.	1.000000	0.000000	1	0
	Na 589.592 { 57}	OK.	1.000000	0.000000	1	0
	Si 251.611 {134}	OK.	1.000000	0.000000	1	0
	Ti 323.452 {104}	OK.	1.000000	0.000000	1	0
	Ti 334.941 {101}	OK.	1.000000	0.000000	1	0
	Sr 407.771 { 83}	OK.	1.000000	0.000000	1	0
	Sr 421.552 { 80}	OK.	1.000000	0.000000	1	0
	Sn 189.989 {477}	OK.	1.000000	0.000000	1	0
	B 249.678 {135}	OK.	1.000000	0.000000	1	0
	B 249.773 {135}	OK.	1.000000	0.000000	1	0
	Li 670.784 { 50}	OK.	1.000000	0.000000	1	0
	K 766.490 { 44}	OK.	1.000000	0.000000	1	0
	K 769.896 { 44}	OK.	1.000000	0.000000	1	0
	P 213.618 {457}	OK.	1.000000	0.000000	1	0
	S 182.034 {485}	OK.	1.000000	0.000000	1	0
	Hg 184.950 {482}	OK.	1.000000	0.000000	1	0
	Ce 404.076 { 83}	OK.	1.000000	0.000000	1	0

Element, Wavelength and Order	Use?	# IECs	IEC	k1	k2	Calc-in-fit?
Ag 328.068 {103}	☒	1	Ce	-0.000476	0.000000	No
Ag 338.289 {100}	☒	3	Fe	0.000801	0.000000	No
			Ti	0.002000	0.000000	No
			Ce	0.000000	0.000000	No
Al 167.079 {501}	☒	None				
Al 308.215 {109}	☒	None				
Al 396.152 { 85}	☒	None				
As 193.759 {474}	☒	4	Al	0.001128	0.000000	No
			Mn	-0.000003	0.000000	No
			Ni	-0.000722	0.000000	No
			Cr	0.000734	0.000000	No
As 197.262 {471}	☒	1	Al	0.000112	0.000000	No
Ba 233.527 {445}	☒	1	Fe	0.000024	0.000000	No
Ba 455.403 { 74}	☒	1	Fe	0.000002	0.000000	No
Ba 493.409 { 68}	☒	1	Fe	0.000009	0.000000	No
Be 313.042 {108}	☒	2	Fe	0.000003	0.000000	No
			Ni	0.000000	0.000000	No
Be 234.861 {144}	☒	1	Fe	-0.000013	0.000000	No
Ca 315.887 {107}	☒	1	Fe	0.000000	0.000000	No
Ca 317.933 {106}	☒	None				
Ca 393.366 { 86}	☒	1	Cu	0.000000	0.000000	No
Ca 396.847 { 85}	☒	None				
Cd 226.502 {449}	☒	1	Fe	0.000163	0.000000	No
Cd 228.802 {447}	☒	1	Fe	-0.000005	0.000000	No
Co 228.616 {447}	☒	3	Fe	0.000001	0.000000	No
			Ba	-0.001175	0.000000	No
			Ti	0.001700	0.000000	No
Co 238.892 {141}	☒	1	Fe	0.000226	0.000000	No
Cr 205.560 {464}	☒	1	Fe	0.000000	0.000000	No
Cr 267.716 {126}	☒	4	Fe	0.000005	0.000000	No
			Mn	0.000157	0.000000	No
			Ti	0.000100	0.000000	No
			V	-0.000002	0.000000	No
Cu 223.008 {451}	☒	2	Fe	-0.000033	0.000000	No
			Mo	0.000000	0.000000	No
Cu 224.700 {450}	☒	2	Fe	0.003134	0.000000	No
			Ni	-0.007040	0.000000	No
Cu 324.754 {104}	☒	1	Fe	-0.000081	0.000000	No
Cu 327.396 {103}	☒	2	Fe	0.000006	0.000000	No
			Mo	-0.000319	0.000000	No
Fe 234.349 {144}	☒	None				
Fe 239.562 {140}	☒	None				
Fe 259.940 {129}	☒	None				
Mg 202.582 {466}	☒	None				

Element, Wavelength and Order	Use?	# IECs	IEC	k1	k2	Calc-in-fit?
Mg 279.079 {121}	☒	None				
Mg 280.270 {120}	☒	None				
Mn 257.610 {131}	☒	1	Al	0.000004	0.000000	No
Mn 259.373 {130}	☒	1	Mg	0.001207	0.000000	No
Mo 202.030 {466}	☒	3	Fe	-0.000020	0.000000	No
			Ti	0.001417	0.000000	No
			V	-0.000077	0.000000	No
Mo 203.844 {465}	☒	1	Fe	-0.000019	0.000000	No
Mo 204.598 {464}	☒	1	Fe	0.000044	0.000000	No
Ni 221.647 {452}	☒	2	Ca	-0.000003	0.000000	No
			Mg	-0.000003	0.000000	No
Ni 231.604 {445}	☒	6	Fe	0.000011	0.000000	No
			Co	-0.000134	0.000000	No
			Mo	0.000840	0.000000	No
			Al	0.000003	0.000000	No
			Mn	0.000019	0.000000	No
			Be	-0.000294	0.000000	No
Pb 216.999 {455}	☒	2	Al	0.003119	0.000000	No
			Na	0.000000	0.000000	No
Pb 216.999 {456}	☒	1	Al	0.002622	0.000000	No
Pb 220.353 {453}	☒	7	Si	0.000000	0.000000	No
			Al	0.000013	0.000000	No
			Ni	0.000106	0.000000	No
			Mo	-0.001644	0.000000	No
			V	-0.000018	0.000000	No
			Cu	0.000367	0.000000	No
			Mn	0.000094	0.000000	No
Pb 220.353 {153}	☒	1	Fe	-0.000000	0.000000	No
Sb 206.833 {463}	☒	2	Fe	-0.000097	0.000000	No
			Cr	0.000000	0.000000	No
Sb 217.581 {455}	☒	2	Fe	-0.000013	0.000000	No
			Ni	0.000133	0.000000	No
Se 196.090 {472}	☒	1	Fe	-0.000446	0.000000	No
Se 203.985 {465}	☒	1	Fe	-0.000160	0.000000	No
Se 206.279 {463}	☒	1	Fe	0.000965	0.000000	No
Tl 190.856 {476}	☒	6	Fe	-0.000621	0.000000	No
			Be	-0.000013	0.000000	No
			Ti	0.000000	0.000000	No
			Mn	0.000000	0.000000	No
			Ni	0.000000	0.000000	No
			Cr	0.000220	0.000000	No
Tl 190.856 {477}	☒	2	Fe	-0.000050	0.000000	No
			Cr	0.000000	0.000000	No
V 290.882 {116}	☒	1	Fe	0.000207	0.000000	No

Element, Wavelength and Order	Use?	# IECs	IEC	k1	k2	Calc-in-fit?
V 292.402 {115}	☒	5	Fe	0.000045	0.000000	No
			Cr	-0.000051	0.000000	No
			Al	0.000000	0.000000	No
			Ti	0.000420	0.000000	No
			Mo	-0.000481	0.000000	No
Zn 206.200 {463}	☒	1	Fe	-0.000024	0.000000	No
Zn 213.856 {457}	☒	9	Fe	0.000266	0.000000	No
			Cu	0.001765	0.000000	No
			Al	0.000000	0.000000	No
			Mn	0.000094	0.000000	No
			Ni	0.004500	0.000000	No
			Ti	-0.000307	0.000000	No
			Mg	0.000026	0.000000	No
			Mo	0.000034	0.000000	No
			Ca	0.000000	0.000000	No
Y 224.306 {450}*	☒	None				
Y 324.228 {104}*	☒	None				
Y 371.030 { 91}*	☒	None				
Na 588.995 { 57}	☒	1	Fe	0.000109	0.000000	No
Na 589.592 { 57}	☒	1	Fe	0.000324	0.000000	No
Si 251.611 {134}	☒	4	Fe	-0.000024	0.000000	No
			Mo	0.042672	0.000000	No
			Ti	0.028118	0.000000	No
			Sn	0.019943	0.000000	No
Ti 323.452 {104}	☒	1	Fe	0.000008	0.000000	No
Ti 334.941 {101}	☒	1	Fe	0.000082	0.000000	No
Sr 407.771 { 83}	☒	1	Fe	0.000015	0.000000	No
Sr 421.552 { 80}	☒	1	Ca	0.000013	0.000000	No
Sn 189.989 {477}	☒	1	Fe	0.000034	0.000000	No
B 249.678 {135}	☒	1	Fe	0.000002	0.000000	No
B 249.773 {135}	☒	1	Fe	0.001062	0.000000	No
Li 670.784 { 50}	☒	1	Fe	0.000016	0.000000	No
K 766.490 { 44}	☒	1	Fe	-0.000191	0.000000	No
K 769.896 { 44}	☒	1	Fe	0.000201	0.000000	No
P 213.618 {457}	☒	1	Fe	-0.000011	0.000000	No
S 182.034 {485}	☒	2	Mn	0.002145	0.000000	No
			Fe	0.001405	0.000000	No
Hg 184.950 {482}	☒	1	Fe	0.000009	0.000000	No
Ce 404.076 { 83}	☒	1	Fe	0.000227	0.000000	No

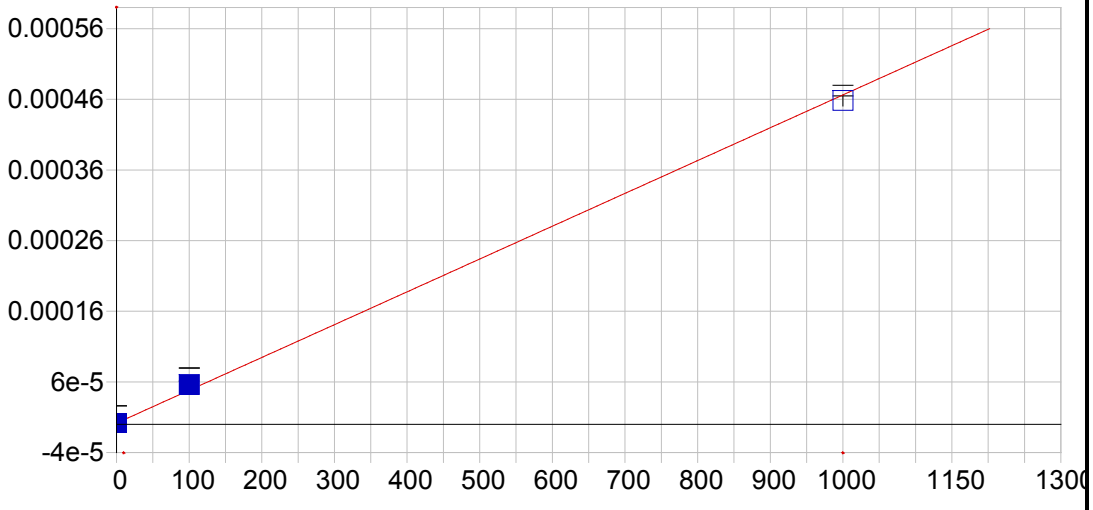


Ag 328.068 {103}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000013	Re-Slope:	1.000000
A1 (Gain):	0.000003	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999997	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.673982		
Predicted MQL:	2.246605		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.14233	.142	.000	.00001	.000	1
CalStd8=100	100.00	100.00	.001	.001	.00034	.000	1
CalStd3=1	1.0000	.85623	-.144	-14.4	.00002	.000	1

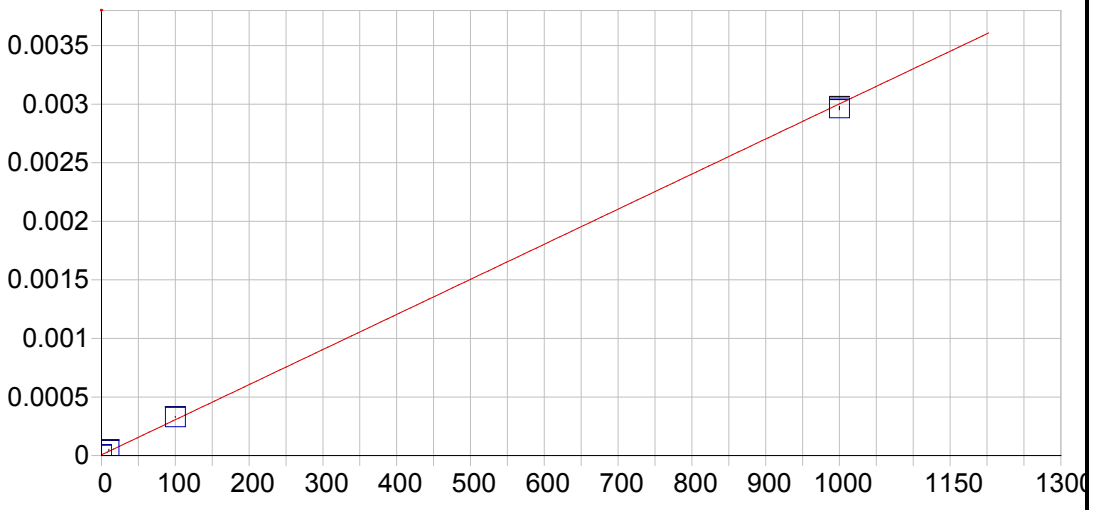


Ag 338.289 {100}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000002	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.998500	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	18.271942		
Predicted MQL:	60.906474		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.01559	-.016	.000	.00000	.000	1
CalStd8=100	100.00	117.33	17.3	17.3	.00006	.000	1
Ag Ba 1000,	1000.0	982.64	-17.4	-1.74	.00046	.000	1

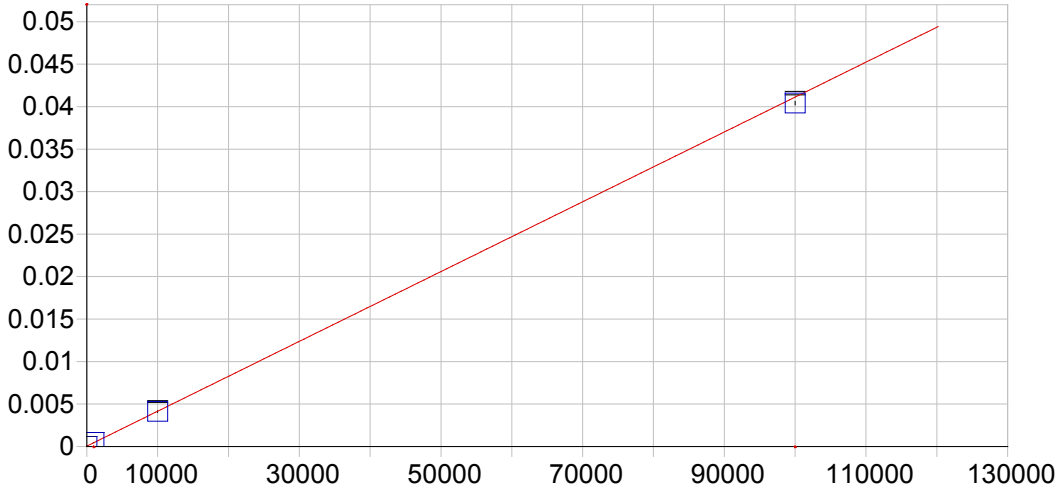


Al 167.079 {501}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000006	Re-Slope:	1.000000
A1 (Gain):	0.000003	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999022	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.808192		
Predicted MQL:	2.693973		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00443	-.004	.000	.00001	.000	1
CalStd9=100	1000.0	988.36	-11.6	-1.16	.00297	.000	1
CalStd5=10	10.000	13.761	3.76	37.6	.00005	.000	1
CalStd8=100	100.00	107.88	7.88	7.88	.00033	.000	1

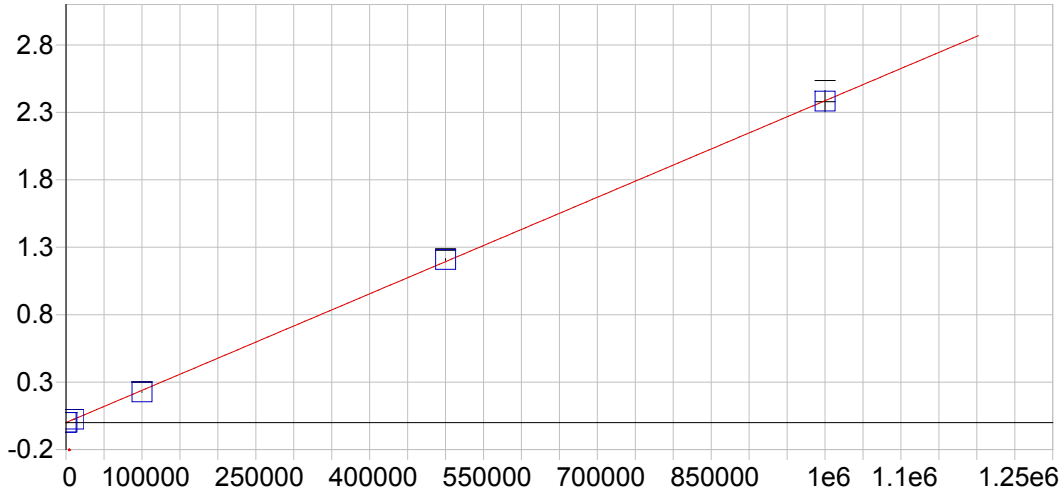


Al 308.215 {109}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Curvilinear	Weighting:	1/Var

A0 (Offset):	0.000051	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999995	Status:	OK.
Std Error of Est:	0.000010		
Predicted MDL:	27.052548		
Predicted MQL:	90.175159		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-8.6195	-8.62	.000	.00005	.000	1
CalStd10=10	10000.	9896.8	-103.	-1.03	.00412	.000	1
CalStd9=100	1000.0	1011.0	11.0	1.10	.00047	.000	1
CalStd13=10	100000.	98248.	-1750.	-1.75	.04041	.000	1

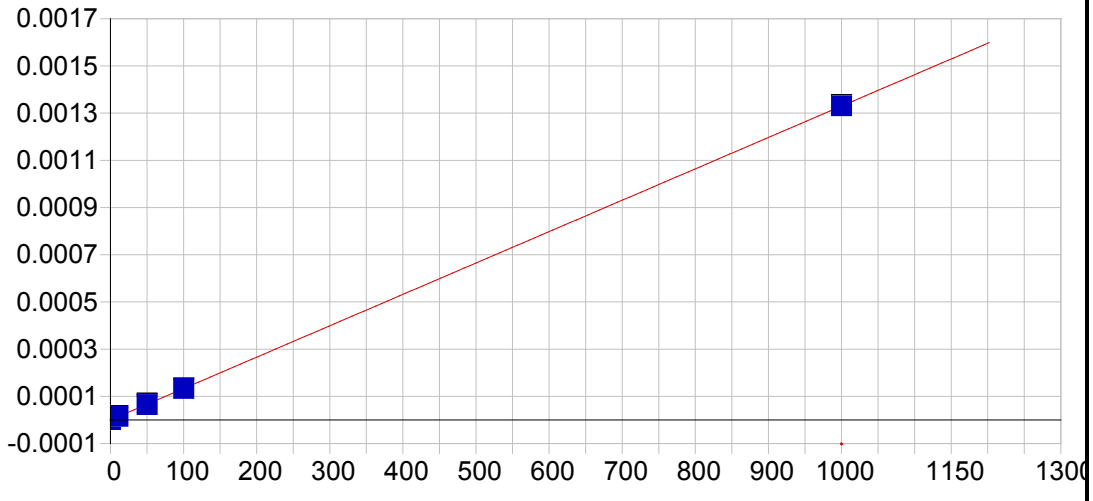


Al 396.152 { 85}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000025	Re-Slope:	1.000000
A1 (Gain):	0.000002	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999887	Status:	OK.
Std Error of Est:	0.000056		
Predicted MDL:	7.520338		
Predicted MQL:	25.067795		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.04313	-.043	.000	-.00002	.000	1
CalStd14=50	500000.	506400.	6400.	1.28	1.2085	.005	1
CalStd13=10	100000.	94804.	-5200.	-5.20	.22623	.001	1
CalStd10=10	10000.	10262.	262.	2.62	.02447	.000	1
CalStd9=100	1000.0	1057.7	57.7	5.77	.00250	.000	1
CalibStd15=	1000000.	998480.	-1520.	-.152	2.3829	.079	1

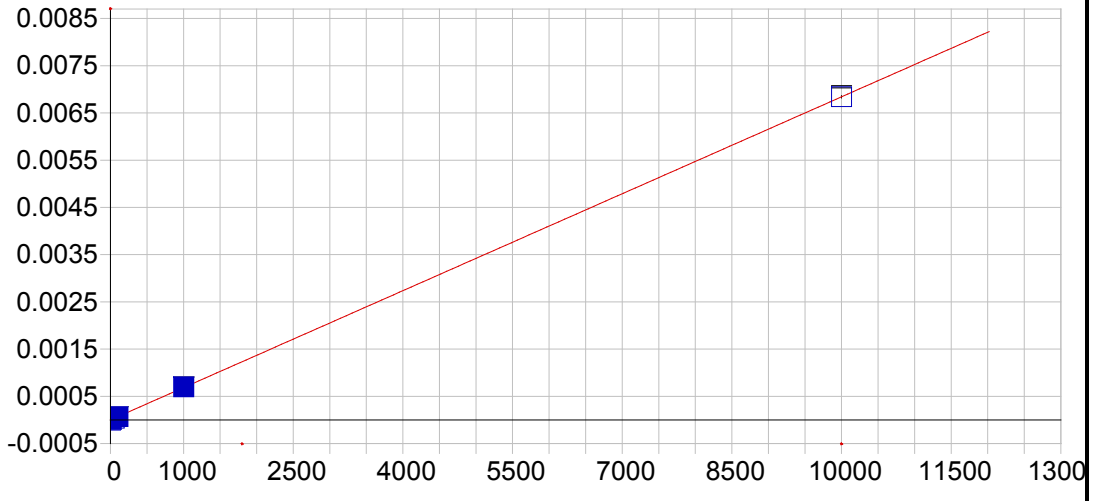


As 193.759 {474}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000000	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999938	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	3.857078		
Predicted MQL:	12.856927		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00069	-.001	.000	.00000	.000	1
CalStd9=100	1000.0	1000.5	.492	.049	.00133	.000	1
CalStd7=50	50.000	48.490	-1.51	-3.02	.00006	.000	1
CalStd5=10	10.000	10.989	.989	9.89	.00001	.000	1
CalStd8=100	100.00	100.03	.028	.028	.00013	.000	1

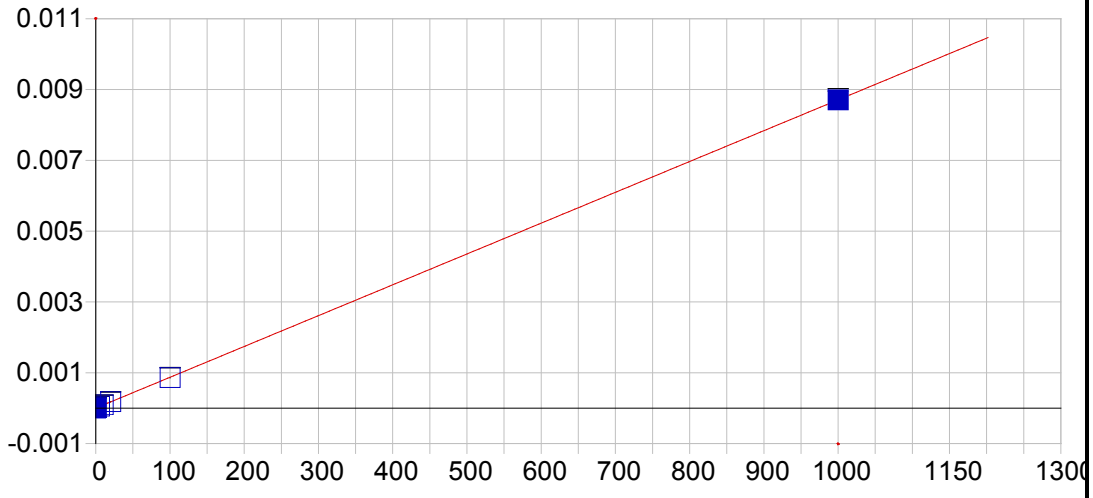


As 197.262 {471}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	-0.000000	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999997	Status:	OK.
Std Error of Est:	0.000007		
Predicted MDL:	6.325959		
Predicted MQL:	21.086529		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-9.1702	-9.17	.000	-.00001	.000	1
CalStd9=100	1000.0	1017.8	17.8	1.78	.00070	.000	1
CalStd7=50	50.000	48.109	-1.89	-3.78	.00003	.000	1
CalStd5=10	10.000	8.0070	-1.99	-19.9	.00001	.000	1
CalStd8=100	100.00	97.012	-2.99	-2.99	.00007	.000	1
CalStd10=10	10000.	9998.3	-1.74	-.017	.00684	.000	1

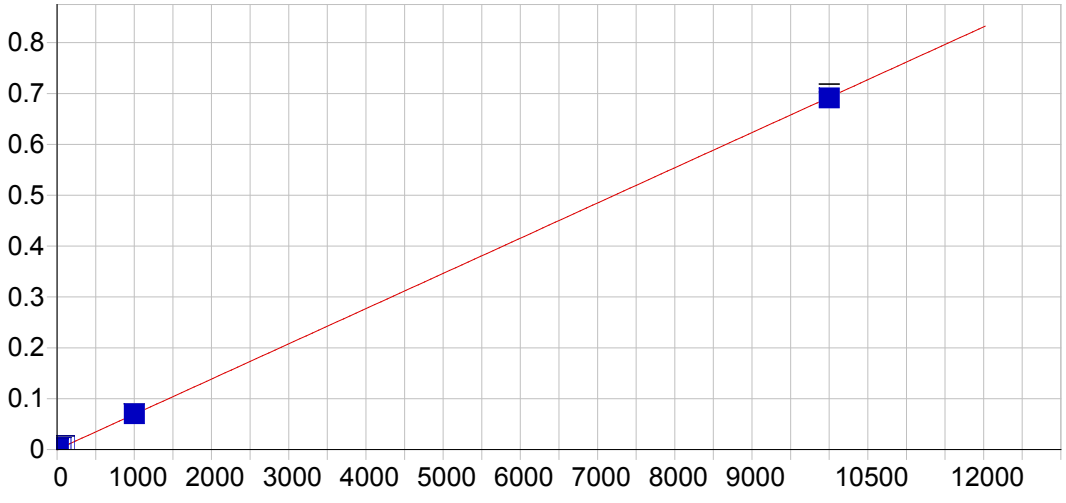


Ba 233.527 {445}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000001	Re-Slope:	1.000000
A1 (Gain):	0.000009	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999872	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	0.426138		
Predicted MQL:	1.420460		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00050	-.000	.000	.00000	.000	1
CalStd5=10	10.000	10.088	.088	.885	.00009	.000	1
CalStd6=20	20.000	20.399	.399	1.99	.00018	.000	1
CalStd8=100	100.00	98.742	-1.26	-1.26	.00086	.000	1
CalStd4=5	5.0000	5.9589	.959	19.2	.00005	.000	1
CalStd9=100	1000.0	999.52	-.476	-.048	.00871	.000	1
CalStd3=1	1.0000	1.2875	.287	28.7	.00001	.000	1

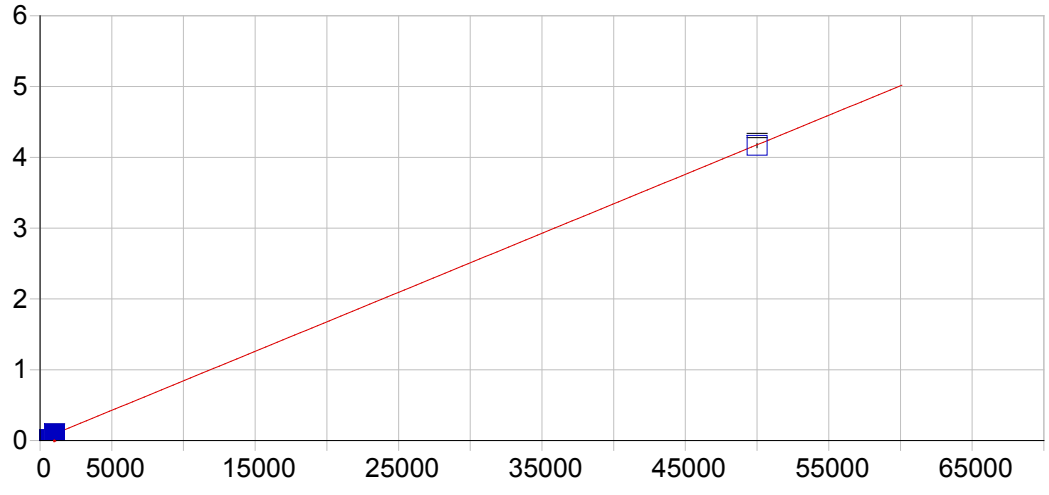


Ba 455.403 { 74}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000081	Re-Slope:	1.000000
A1 (Gain):	0.000069	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999965	Status:	OK.
Std Error of Est:	0.000002		
Predicted MDL:	0.237179		
Predicted MQL:	0.790596		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00053	-.001	.000	.00008	.000	1
CalStd7=50	50.000	52.295	2.30	4.59	.00370	.000	1
CalStd5=10	10.000	10.195	.195	1.95	.00079	.000	1
CalStd6=20	20.000	21.135	1.14	5.68	.00154	.000	1
CalStd8=100	100.00	101.56	1.56	1.56	.00711	.000	1
CalStd4=5	5.0000	6.3450	1.34	26.9	.00052	.000	1
CalStd9=100	1000.0	1012.9	12.9	1.29	.07022	.001	1
CalStd3=1	1.0000	1.1116	.112	11.2	.00016	.000	1
CalStd10=10	10000.	9980.5	-19.5	-.195	.69117	.008	1

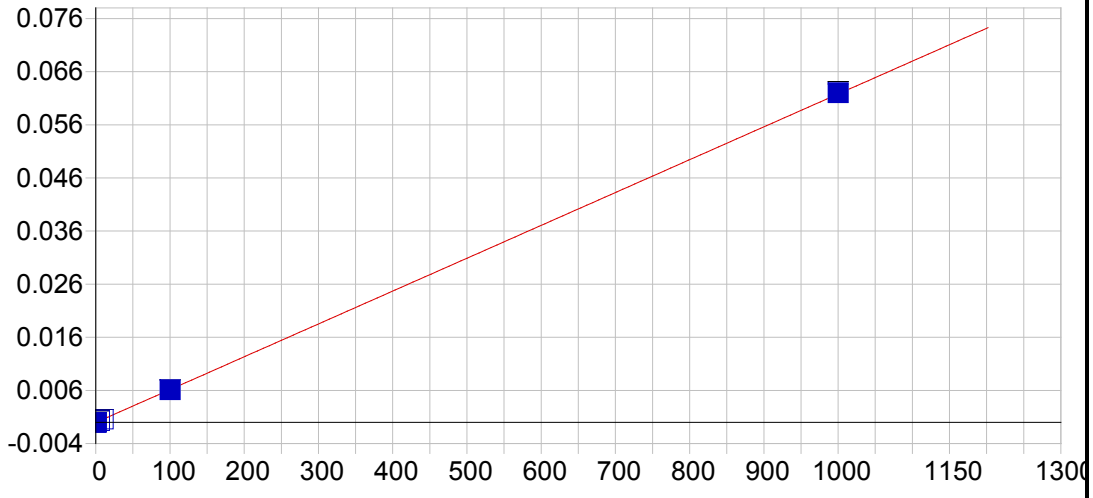


Ba 493.409 { 68}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.009927	Re-Slope:	1.000000
A1 (Gain):	0.000083	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999981	Status:	OK.
Std Error of Est:	0.000114		
Predicted MDL:	0.595587		
Predicted MQL:	1.985288		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	1.0590	1.06	.000	.01002	.000	1
CalStd9=100	1000.0	1004.3	4.33	.433	.09363	.001	1
CalStd8=100	100.00	99.395	-.605	-.605	.01821	.000	1
Ag Ba 1000,	50000.	49881.	-119.	-.237	4.1672	.031	1

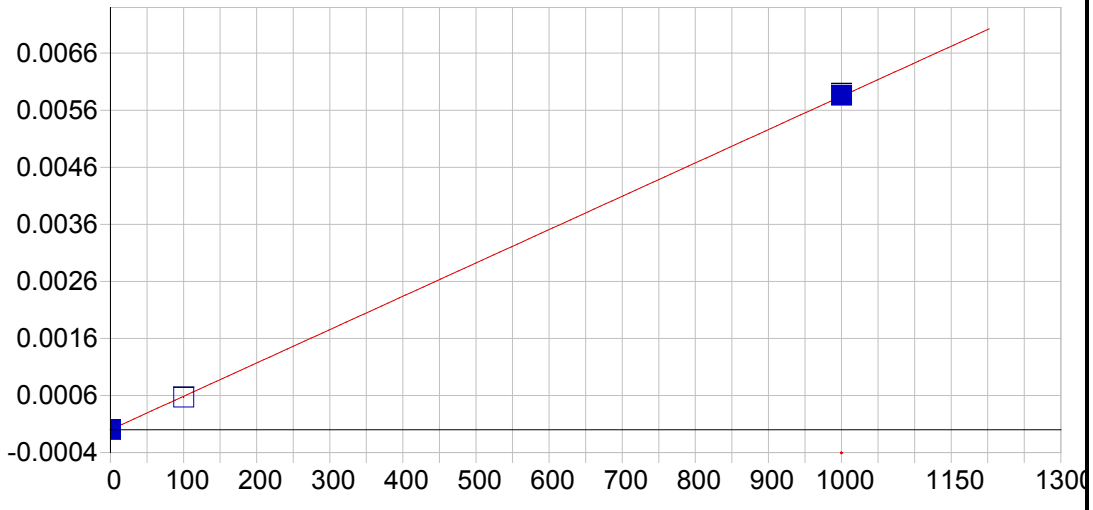


Be 313.042 {108}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	-0.000037	Re-Slope:	1.000000
A1 (Gain):	0.000062	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999957	Status:	OK.
Std Error of Est:	0.000002		
Predicted MDL:	0.034598		
Predicted MQL:	0.115327		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.01809	-.018	.000	-.00004	.000	1
CalStd5=10	10.000	10.051	.051	.515	.00058	.000	1
CalStd8=100	100.00	99.328	-.672	-.672	.00611	.000	1
CalStd2=0.5	.50000	.54038	.040	8.08	-.00000	.000	1
CalStd4=5	5.0000	5.0564	.056	1.13	.00028	.000	1
CalStd9=100	1000.0	1003.6	3.57	.357	.06202	.000	1
CalStd3=1	1.0000	1.0136	.014	1.36	.00003	.000	1

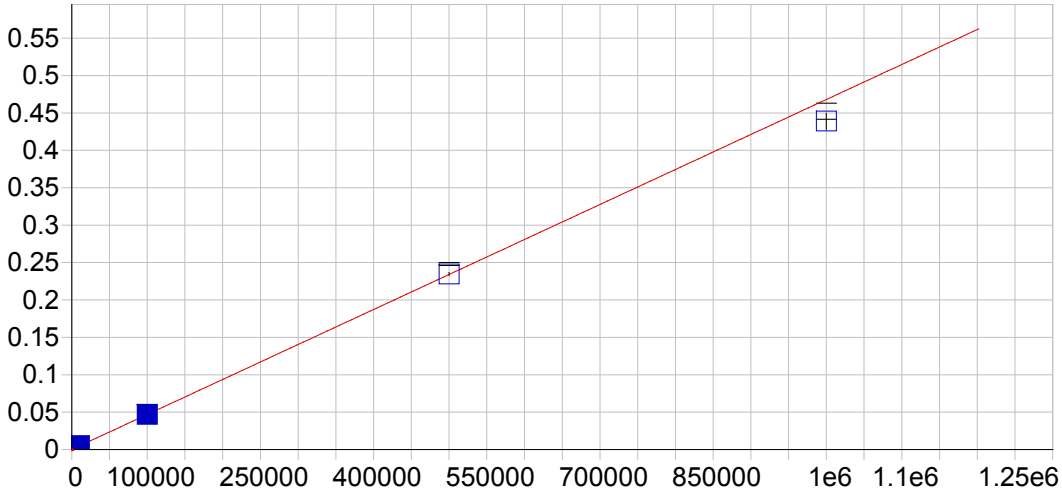


Be 234.861 {144}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000001	Re-Slope:	1.000000
A1 (Gain):	0.000006	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999963	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.567860		
Predicted MQL:	1.892867		

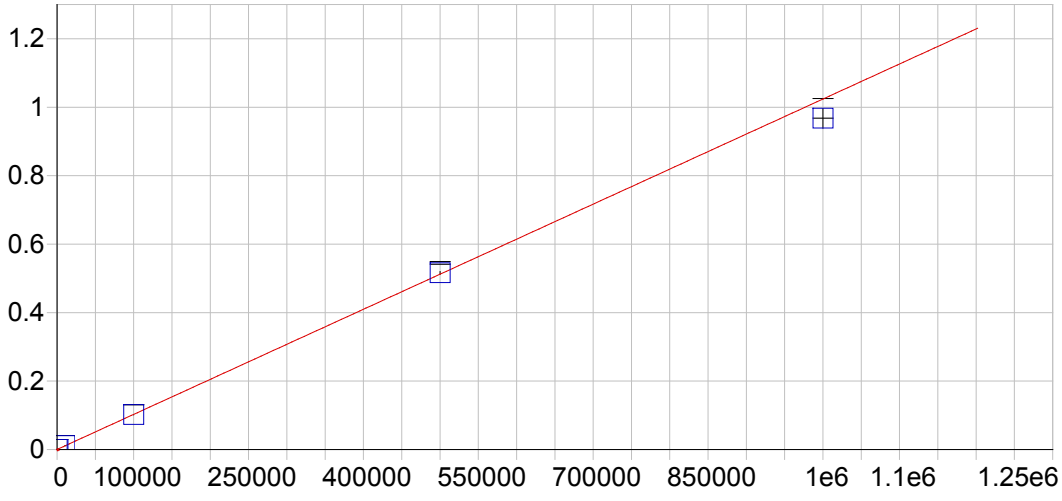
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00245	.002	.000	.00000	.000	1
CalStd9=100	1000.0	1002.7	2.72	.272	.00586	.000	1
CalStd8=100	100.00	97.280	-2.72	-2.72	.00057	.000	1



Ca 315.887 {107}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Var
A0 (Offset):	0.000101		Re-Slope:	1.000000	
A1 (Gain):	0.000000		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.999896		Status:	OK.	
Std Error of Est:	0.000018				
Predicted MDL:	9.769991				
Predicted MQL:	32.566638				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-8.1195	-8.12	.000	.00010	.000	1
CalStd10=10	10000.	10459.	459.	4.59	.00499	.000	1
CalStd13=10	100000.	99813.	-187.	-.187	.04680	.000	1
CalStd14=50	500000.	501090.	1090.	.218	.23456	.002	1
CalStd9=100	1000.0	1052.2	52.2	5.22	.00059	.000	1
CalibStd15=	1000000.	938040.	-62000.	-6.20	.43901	.011	1

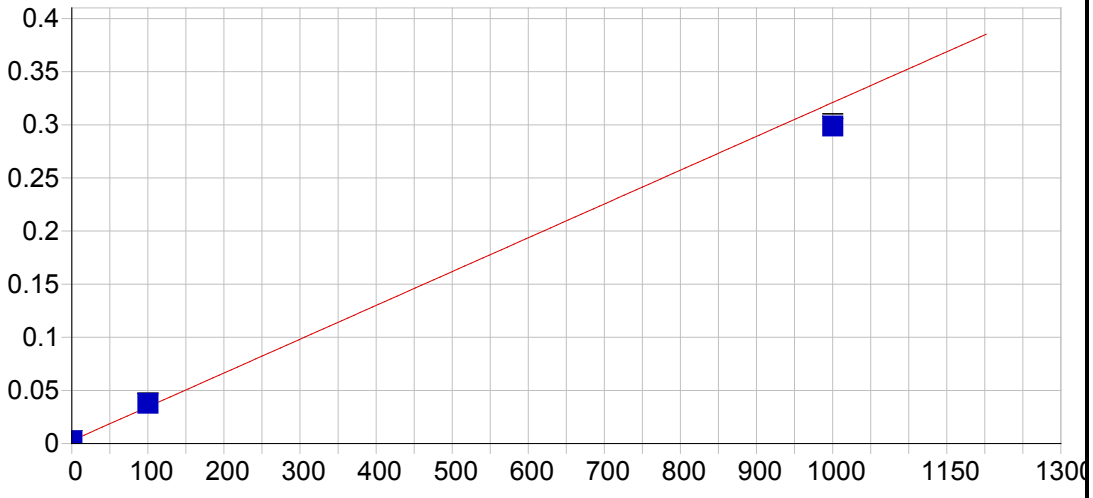


Ca 317.933 {106}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000321	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999738	Status:	OK.
Std Error of Est:	0.000038		
Predicted MDL:	5.630940		
Predicted MQL:	18.769801		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-9.7841	-9.78	.000	.00031	.000	1
CalStd10=10	10000.	10521.	521.	5.21	.01109	.000	1
CalStd13=10	100000.	99148.	-852.	-.852	.10181	.000	1
CalStd14=50	500000.	503850.	3850.	.770	.51606	.004	1
CalStd9=100	1000.0	1063.7	63.7	6.37	.00141	.000	1
CalibStd15=	1000000.	944840.	-55200.	-5.52	.96745	.029	1

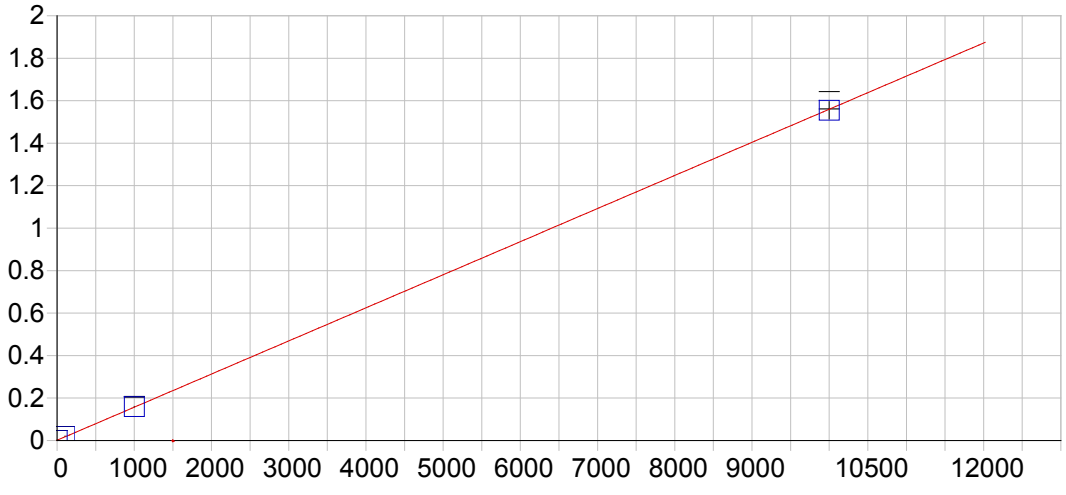


Ca 393.366 { 86}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.002710	Re-Slope:	1.000000
A1 (Gain):	0.000318	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.996347	Status:	OK.
Std Error of Est:	0.001302		
Predicted MDL:	0.042991		
Predicted MQL:	0.143304		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.29756	-.298	.000	.00262	.000	1
CalStd9=100	1000.0	929.99	-70.0	-7.00	.29866	.002	1
CalStd8=100	100.00	110.16	10.2	10.2	.03777	.000	1

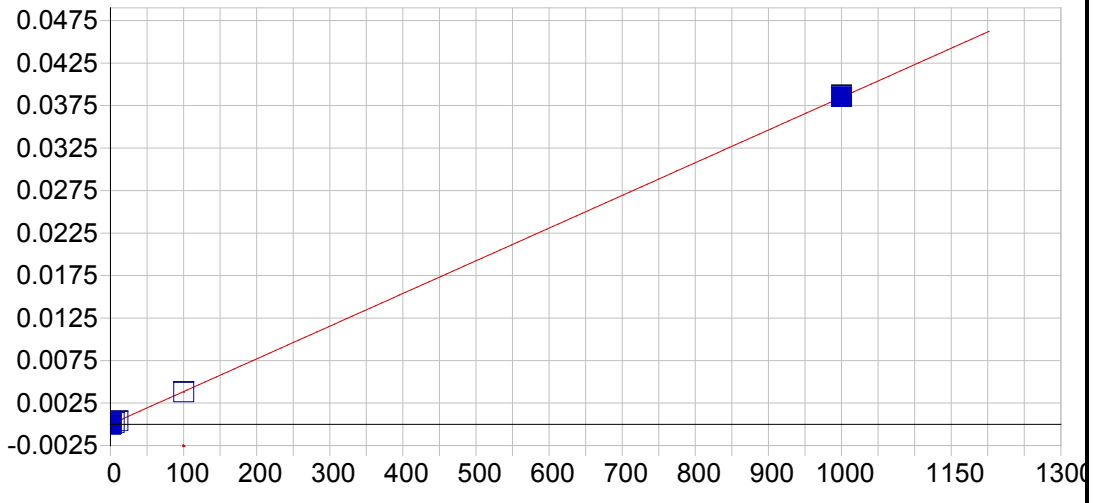


Ca 396.847 { 85}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001399	Re-Slope:	1.000000
A1 (Gain):	0.000156	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999772	Status:	OK.
Std Error of Est:	0.000157		
Predicted MDL:	0.089360		
Predicted MQL:	0.297865		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.02275	-.023	.000	.00140	.000	1
CalStd10=10	10000.	9966.1	-33.9	-.339	1.5546	.041	1
CalStd8=100	100.00	121.89	21.9	21.9	.02039	.000	1
CalStd9=100	1000.0	1012.0	12.0	1.20	.15912	.001	1

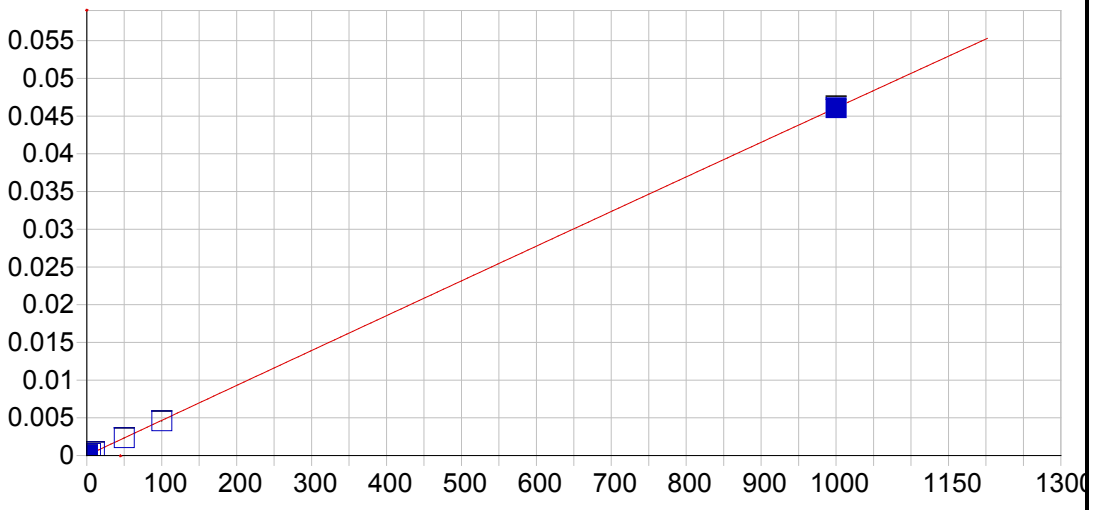


Cd 226.502 {449}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000000	Re-Slope:	1.000000
A1 (Gain):	0.000038	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999971	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	0.196781		
Predicted MQL:	0.655937		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00013	.000	.000	.00000	.000	1
CalStd3=1	1.0000	1.0600	.060	6.00	.00004	.000	1
CalStd2=0.5	.50000	.35631	-.144	-28.7	.00001	.000	1
CalStd4=5	5.0000	4.9512	-.049	-.976	.00019	.000	1
CalStd8=100	100.00	98.725	-1.28	-1.28	.00380	.000	1
CalStd5=10	10.000	9.8965	-.103	-1.03	.00038	.000	1
CalStd9=100	1000.0	1001.5	1.51	.151	.03854	.000	1

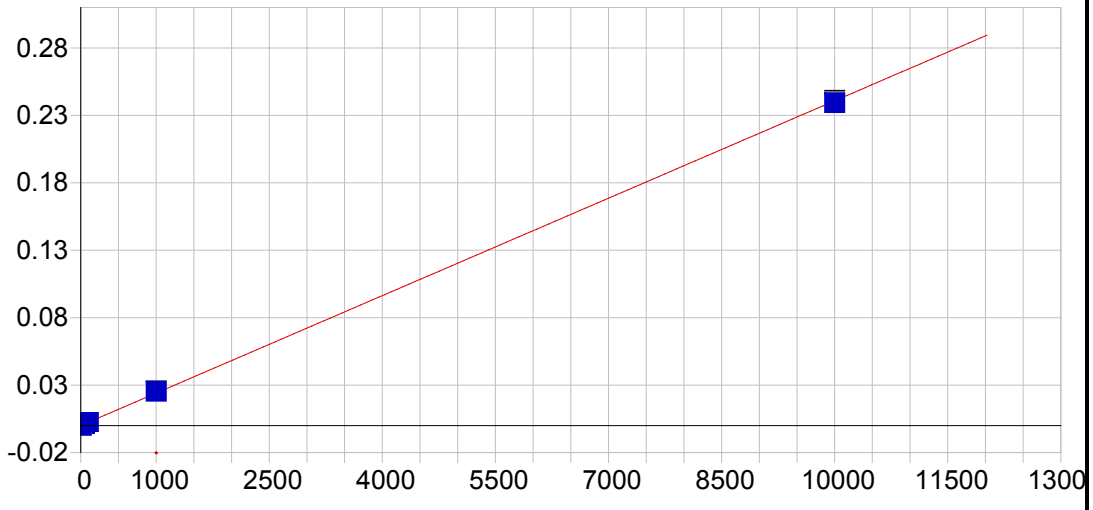


Cd 228.802 {447}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Curvilinear	Weighting:	1/Conc

A0 (Offset):	0.000016	Re-Slope:	1.000000
A1 (Gain):	0.000046	Y-int:	0.000000
A2 (Curvature):	-0.000000		
n (Exponent):	1.000000		
Correlation:	0.999845	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.172112		
Predicted MQL:	0.573705		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00051	-.001	.000	.00002	.000	1
CalStd7=50	50.000	50.156	.156	.311	.00235	.000	1
CalStd3=1	1.0000	1.2950	.295	29.5	.00008	.000	1
CalStd2=0.5	.50000	.81421	.314	62.8	.00005	.000	1
CalStd4=5	5.0000	5.4710	.471	9.42	.00027	.000	1
CalStd8=100	100.00	98.442	-1.56	-1.56	.00459	.000	1
CalStd5=10	10.000	10.176	.176	1.76	.00049	.000	1
CalStd9=100	1000.0	1000.1	.146	.015	.04610	.000	1

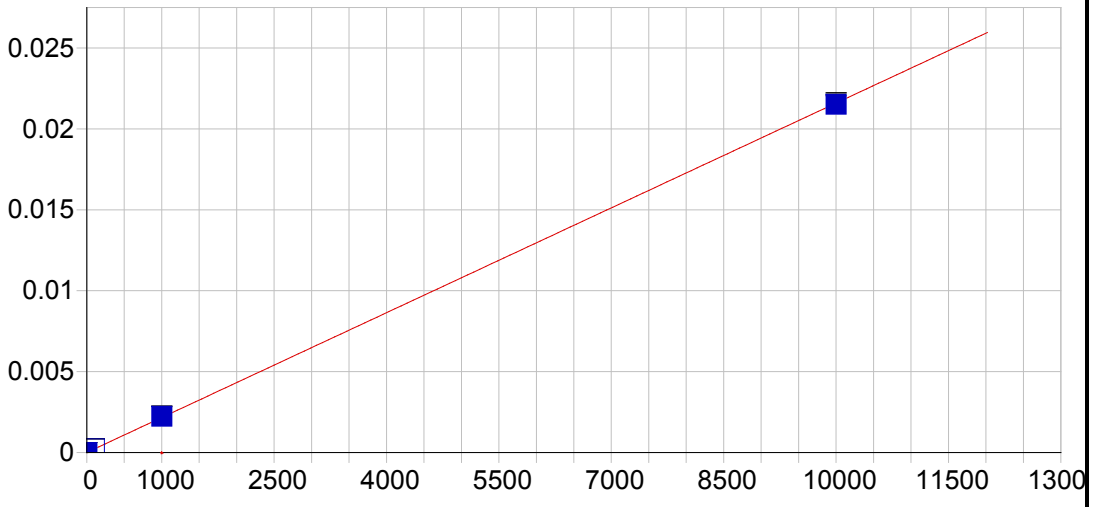


Co 228.616 {447}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000001	Re-Slope:	1.000000
A1 (Gain):	0.000024	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999810	Status:	OK.
Std Error of Est:	0.000002		
Predicted MDL:	0.293391		
Predicted MQL:	0.977969		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00092	-.001	.000	.00000	.000	1
CalStd7=50	50.000	53.409	3.41	6.82	.00129	.000	1
CalStd5=10	10.000	10.514	.514	5.14	.00025	.000	1
CalStd4=5	5.0000	6.5857	1.59	31.7	.00016	.000	1
CalStd8=100	100.00	104.77	4.77	4.77	.00253	.000	1
CalStd9=100	1000.0	1052.2	52.2	5.22	.02535	.000	1
CalStd3=1	1.0000	1.3930	.393	39.3	.00003	.000	1
CalStd10=10	10000.	9937.3	-62.7	-.627	.23974	.001	1

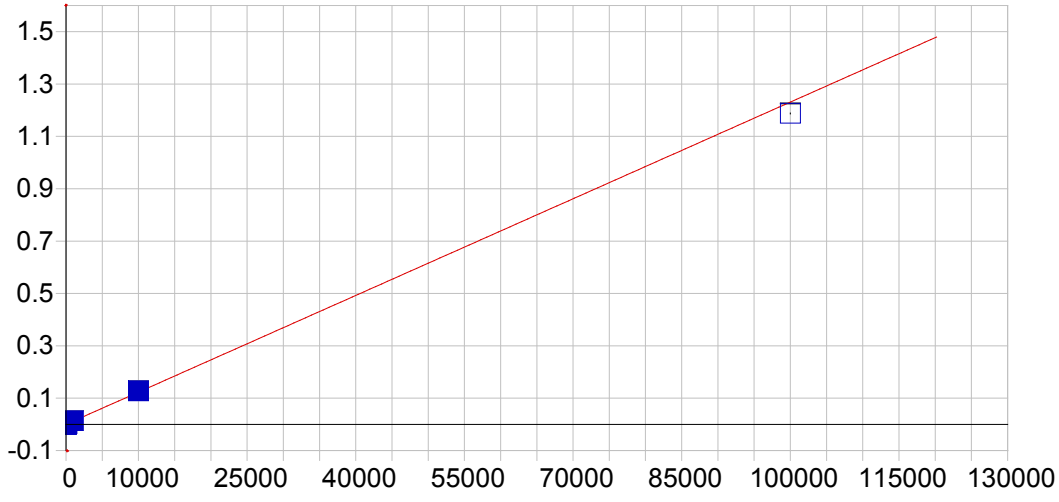


Co 238.892 {141}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000004	Re-Slope:	1.000000
A1 (Gain):	0.000002	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999935	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.676814		
Predicted MQL:	2.256045		

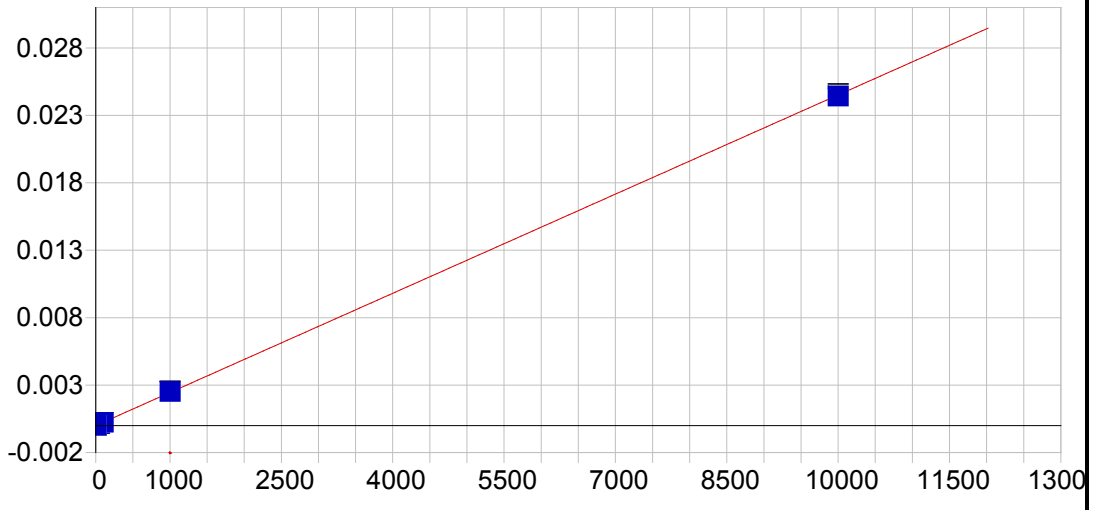
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00638	-.006	.000	.00000	.000	1
CalStd9=100	1000.0	1034.5	34.5	3.45	.00224	.000	1
CalStd10=10	10000.	9962.2	-37.8	-.378	.02152	.000	1
CalStd8=100	100.00	103.31	3.31	3.31	.00023	.000	1



Cr 205.560 {464}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Var
A0 (Offset):	0.000011		Re-Slope:	1.000000	
A1 (Gain):	0.000012		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.998499		Status:	OK.	
Std Error of Est:	0.000041				
Predicted MDL:	0.374762				
Predicted MQL:	1.249208				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-1.3441	-1.34	.000	-.00001	.000	1
CalStd5=10	10.000	9.7659	-.234	-2.34	.00013	.000	1
CalStd7=50	50.000	54.126	4.13	8.25	.00068	.000	1
CalStd9=100	1000.0	1092.9	92.9	9.29	.01347	.000	1
CalStd8=100	100.00	106.38	6.38	6.38	.00132	.000	1
CalStd4=5	5.0000	5.4352	.435	8.70	.00008	.000	1
CalStd3=1	1.0000	.06753	-.932	-93.2	.00001	.000	1
CalStd10=10	10000.	10343.	343.	3.43	.12734	.001	1
CalStd12=10	100000.	96473.	-3530.	-3.53	1.1877	.002	1

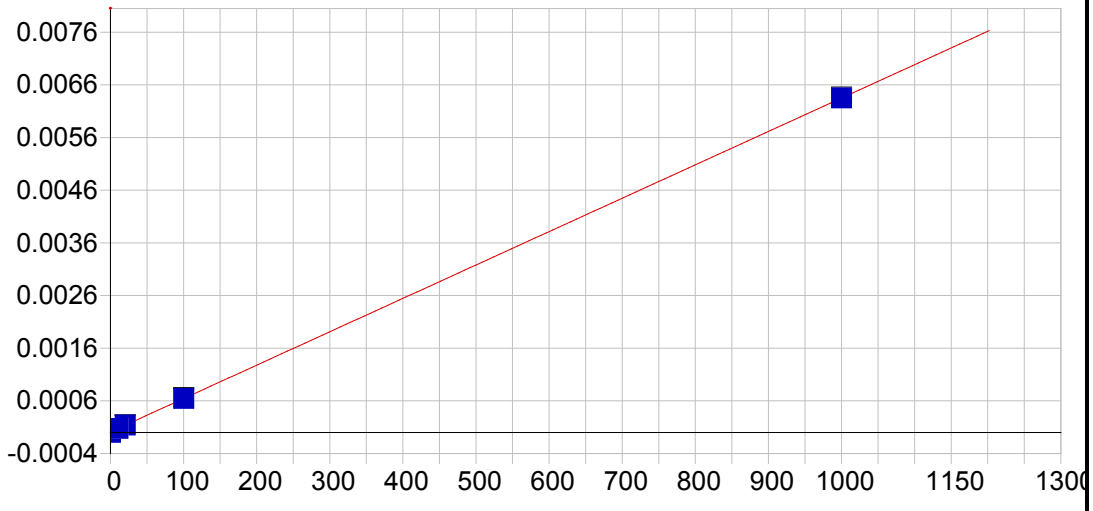


Cr 267.716 {126}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000000	Re-Slope:	1.000000
A1 (Gain):	0.000002	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999933	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	0.721510		
Predicted MQL:	2.405035		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00185	-.002	.000	-.00000	.000	1
CalStd5=10	10.000	10.370	.370	3.70	.00003	.000	1
CalStd7=50	50.000	52.411	2.41	4.82	.00013	.000	1
CalStd9=100	1000.0	1030.3	30.3	3.03	.00253	.000	1
CalStd8=100	100.00	101.89	1.89	1.89	.00025	.000	1
CalStd4=5	5.0000	6.1926	1.19	23.9	.00001	.000	1
CalStd10=10	10000.	9963.8	-36.2	-.362	.02444	.000	1

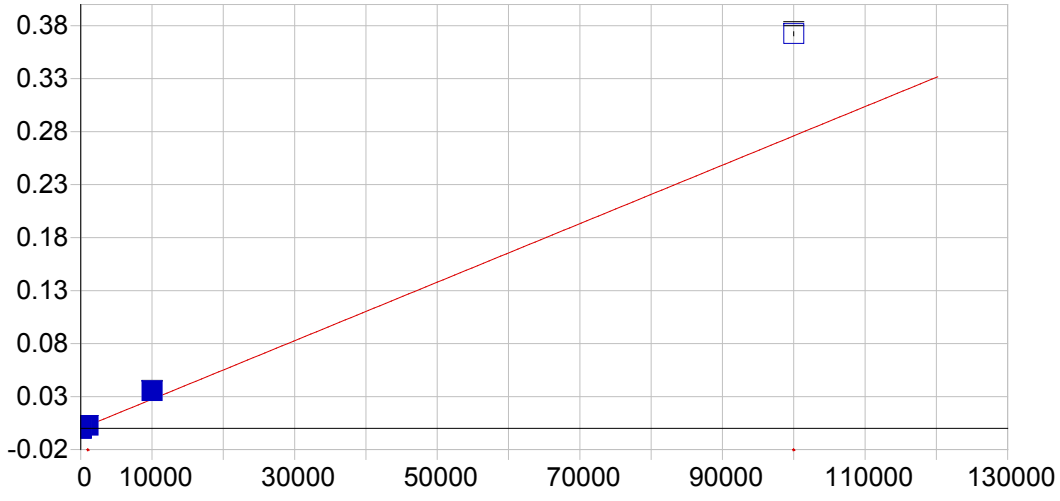


Cu 223.008 {451}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000010	Re-Slope:	1.000000
A1 (Gain):	0.000006	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999995	Status:	OK.
Std Error of Est:	0.000005		
Predicted MDL:	1.129996		
Predicted MQL:	3.766655		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-1.4237	-1.42	.000	.00000	.000	1
CalStd9=100	1000.0	999.94	-.060	-.006	.00635	.000	1
CalStd8=100	100.00	99.945	-.055	-.055	.00064	.000	1
CalStd6=20	20.000	20.497	.497	2.49	.00014	.000	1
CalStd5=10	10.000	10.245	.245	2.45	.00007	.000	1

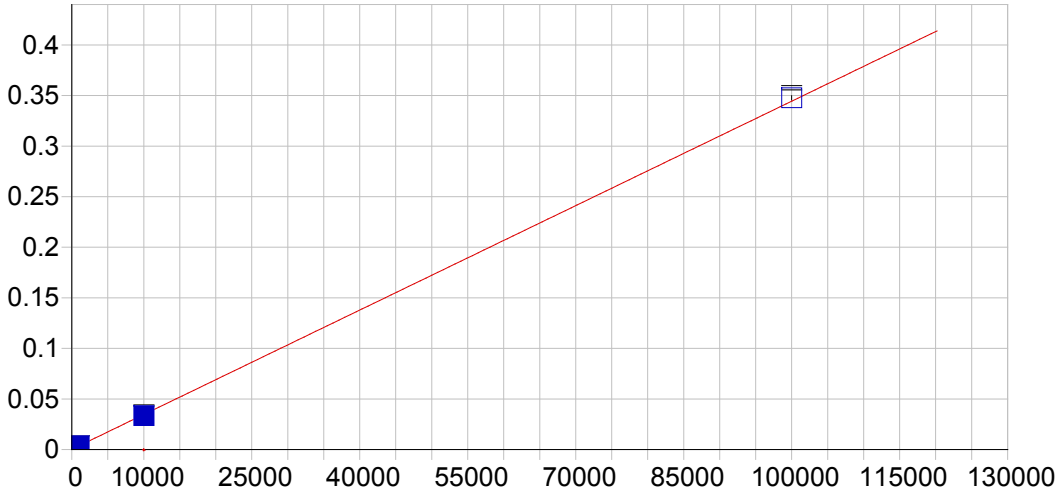


Cu 224.700 {450}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	-0.000135	Re-Slope:	1.000000
A1 (Gain):	0.000003	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.905592	Status:	OK.
Std Error of Est:	0.000129		
Predicted MDL:	1.347138		
Predicted MQL:	4.490460		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	50.052	50.1	.000	.00000	.000	1
CalStd9=100	1000.0	1070.1	70.1	7.01	.00281	.000	1
CalStd7=50	50.000	57.604	7.60	15.2	.00002	.000	1
CalStd8=100	100.00	65.122	-34.9	-34.9	.00004	.000	1
CalStd6=20	20.000	52.397	32.4	162.	.00001	.000	1
CalStd12=10	100000.	134920.	34900.	34.9	.37247	.002	1
CalStd10=10	10000.	12890.	2890.	28.9	.03536	.000	1

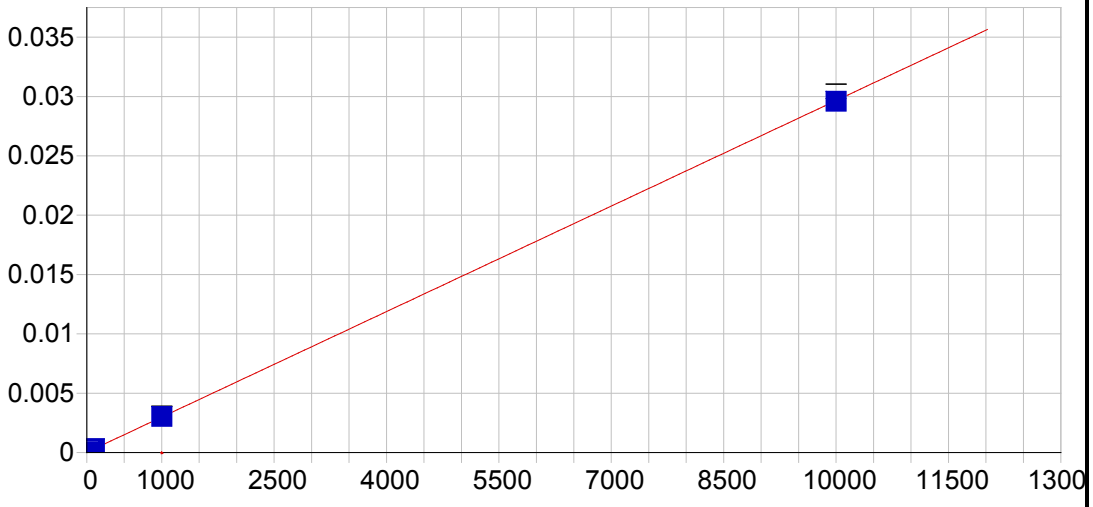


Cu 324.754 {104}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000201	Re-Slope:	1.000000
A1 (Gain):	0.000003	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999926	Status:	OK.
Std Error of Est:	0.000007		
Predicted MDL:	2.484835		
Predicted MQL:	8.282784		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.44408	.444	.000	.00020	.000	1
CalStd9=100	1000.0	994.31	-5.69	-.569	.00362	.000	1
CalStd8=100	100.00	99.763	-.237	-.237	.00054	.000	1
CalStd10=10	10000.	9657.9	-342.	-3.42	.03344	.001	1
CalStd12=10	100000.	100970.	970.	.970	.34774	.002	1
CalStd5=10	10.000	9.4413	-.559	-5.59	.00023	.000	1
CalStd6=20	20.000	21.119	1.12	5.59	.00027	.000	1
CalStd7=50	50.000	50.555	.555	1.11	.00037	.000	1

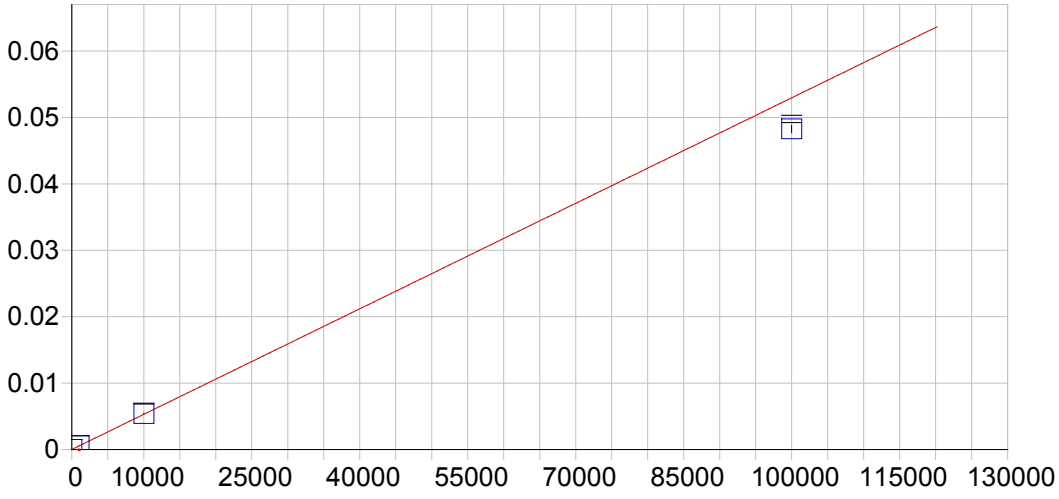


Cu 327.396 {103}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000021	Re-Slope:	1.000000
A1 (Gain):	0.000003	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999963	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	4.842725		
Predicted MQL:	16.142415		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00072	-.001	.000	.00002	.000	1
CalStd6=20	20.000	18.025	-1.98	-9.88	.00007	.000	1
CalStd7=50	50.000	50.811	.811	1.62	.00017	.000	1
CalStd8=100	100.00	102.97	2.97	2.97	.00033	.000	1
CalStd9=100	1000.0	1017.8	17.8	1.78	.00304	.000	1
CalStd10=10	10000.	9978.8	-21.2	-.212	.02960	.001	1
CalStd4=5	5.0000	5.2712	.271	5.42	.00004	.000	1
CalStd5=10	10.000	11.272	1.27	12.7	.00005	.000	1

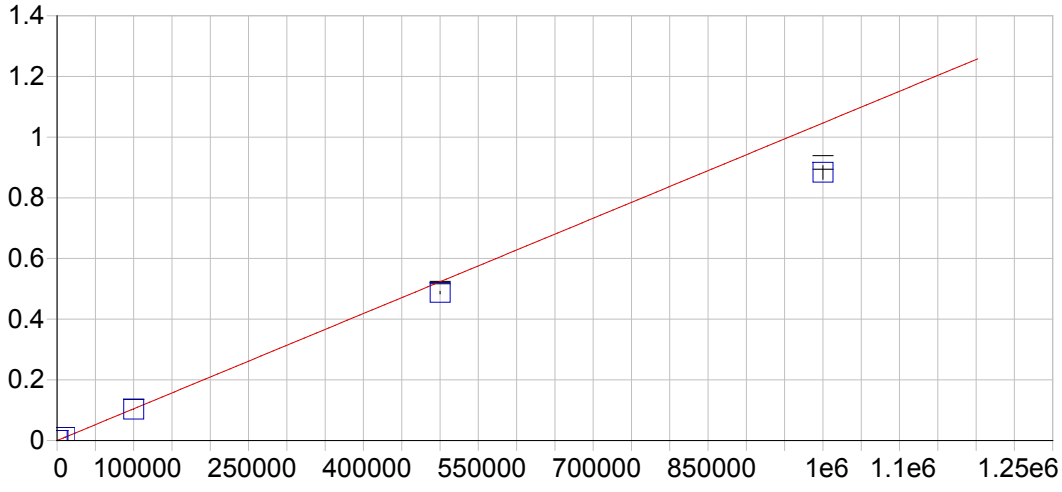


Fe 234.349 {144}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000011	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.998230	Status:	OK.
Std Error of Est:	0.000008		
Predicted MDL:	1.540856		
Predicted MQL:	5.136187		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.64970	-.650	.000	.00001	.000	1
CalStd10=10	10000.	10194.	194.	1.94	.00541	.000	1
CalStd13=10	100000.	91134.	-8870.	-8.87	.04826	.001	1
CalStd9=100	1000.0	1052.7	52.7	5.27	.00057	.000	1

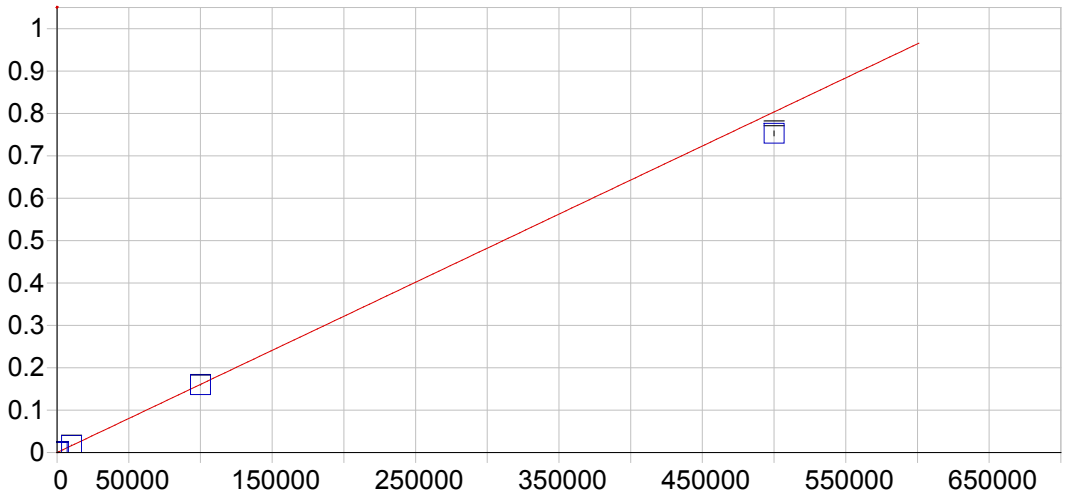


Fe 239.562 {140}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000012	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.998470	Status:	OK.
Std Error of Est:	0.000043		
Predicted MDL:	4.150967		
Predicted MQL:	13.836558		

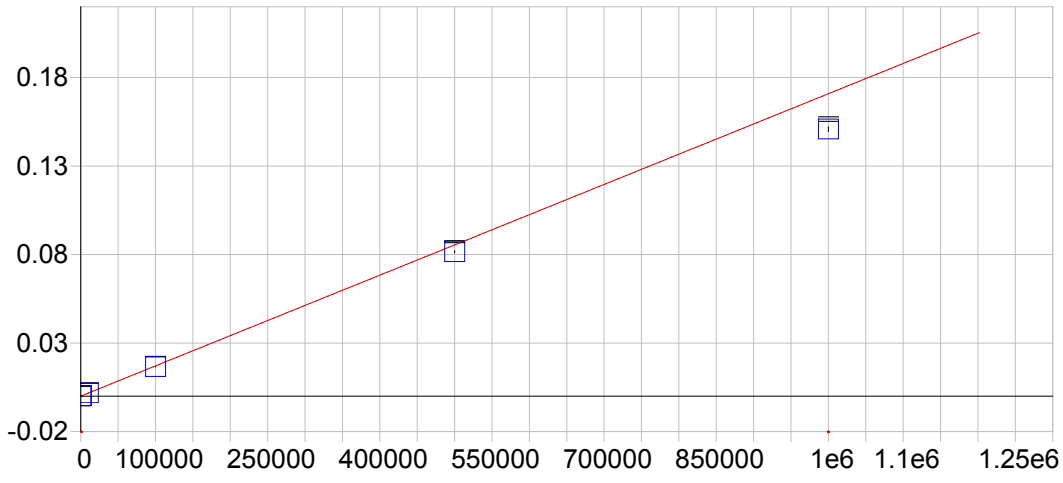
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-8.4405	-8.44	.000	.00000	.000	1
CalStd10=10	10000.	10498.	498.	4.98	.01100	.000	1
CalStd13=10	100000.	98227.	-1770.	-1.77	.10281	.000	1
CalStd14=50	500000.	465930.	-34100.	-6.81	.48761	.004	1
CalStd9=100	1000.0	1078.1	78.1	7.81	.00114	.000	1
CalibStd15=	1000000.	844400.	-156000.	-15.6	.88368	.022	1



Fe 259.940 {129}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Var
A0 (Offset):	0.000018		Re-Slope:	1.000000	
A1 (Gain):	0.000002		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.999170		Status:	OK.	
Std Error of Est:	0.000069				
Predicted MDL:	3.212561				
Predicted MQL:	10.708536				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-8.6150	-8.61	.000	.00000	.000	1
CalStd10=10	10000.	10535.	535.	5.35	.01695	.000	1
CalStd13=10	100000.	99495.	-505.	-.505	.15992	.001	1
CalStd14=50	500000.	468430.	-31600.	-6.31	.75286	.006	1
CalStd9=100	1000.0	1078.9	78.9	7.89	.00175	.000	1

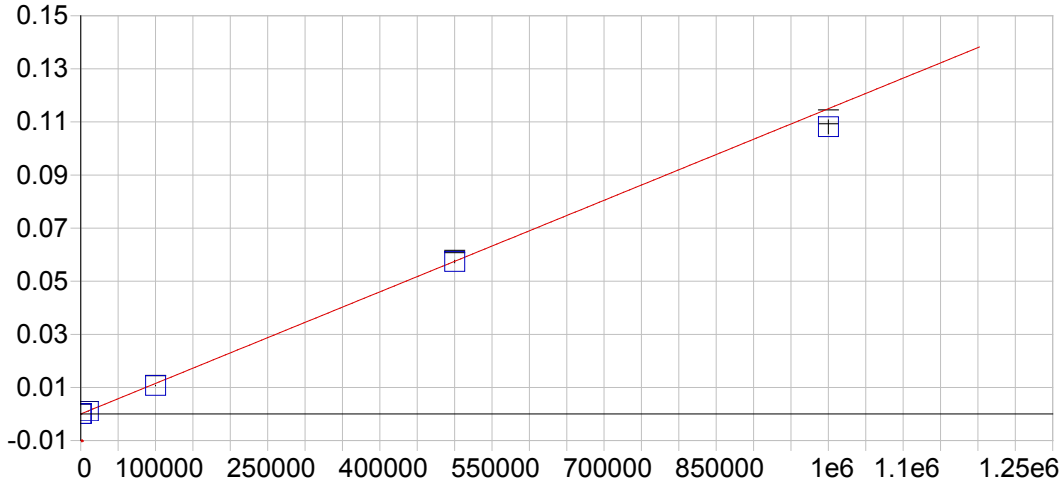


Mg 202.582 {466}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000001	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.998371	Status:	OK.
Std Error of Est:	0.000010		
Predicted MDL:	3.247712		
Predicted MQL:	10.825705		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-9.7506	-9.75	.000	-.00000	.000	1
CalStd13=10	100000.	97570.	-2430.	-2.43	.01667	.000	1
CalStd10=10	10000.	10187.	187.	1.87	.00174	.000	1
CalStd14=50	500000.	477490.	-22500.	-4.50	.08159	.001	1
CalStd9=100	1000.0	1087.8	87.8	8.78	.00019	.000	1
CalibStd15=	1000000.	883030.	-117000.	-11.7	.15088	.001	1

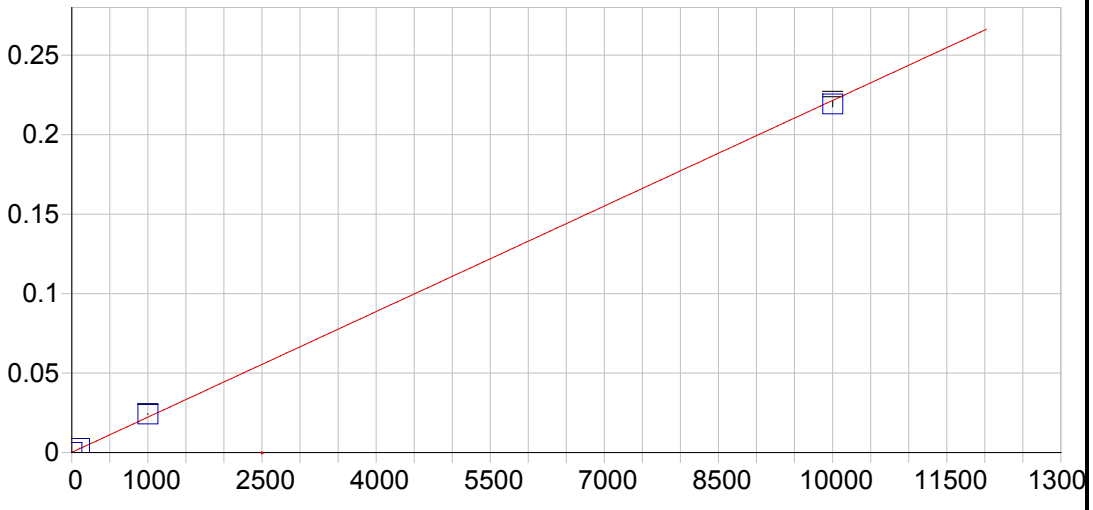


Mg 279.079 {121}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Curvilinear	Weighting:	1/Conc

A0 (Offset):	0.000002	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999727	Status:	OK.
Std Error of Est:	0.000005		
Predicted MDL:	30.473058		
Predicted MQL:	101.576858		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.11739	.117	.000	.00000	.000	1
CalStd13=10	100000.	93012.	-6990.	-6.99	.01070	.000	1
CalStd10=10	10000.	9426.0	-574.	-5.74	.00109	.000	1
CalStd14=50	500000.	499330.	-670.	-.134	.05742	.000	1
CalStd9=100	1000.0	984.12	-15.9	-1.59	.00012	.000	1
CalibStd15=	1000000.	940510.	-59500.	-5.95	.10815	.003	1

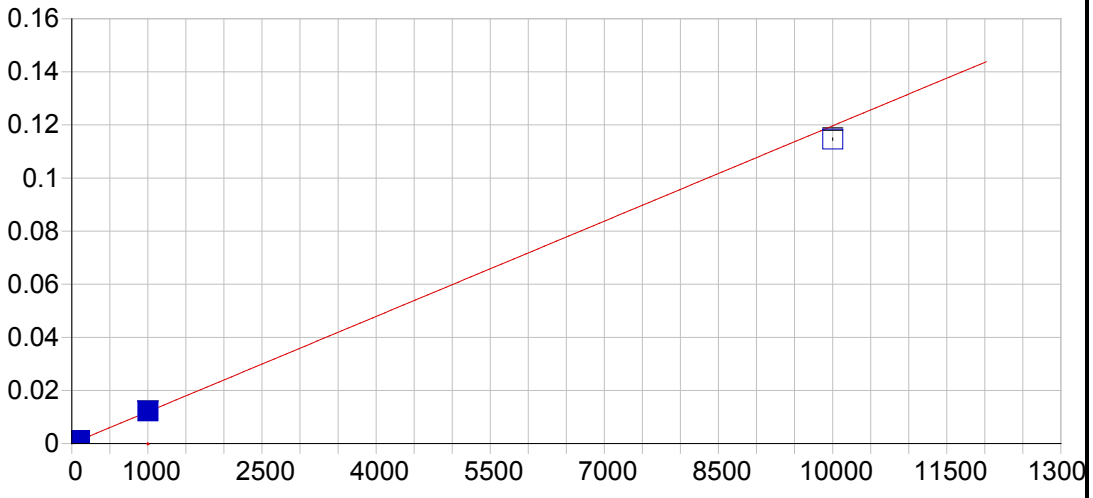


Mg 280.270 {120}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000112	Re-Slope:	1.000000
A1 (Gain):	0.000022	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999513	Status:	OK.
Std Error of Est:	0.000033		
Predicted MDL:	0.042356		
Predicted MQL:	0.141186		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.02277	-.023	.000	.00011	.000	1
CalStd9=100	1000.0	1086.6	86.6	8.66	.02417	.000	1
CalStd10=10	10000.	9898.3	-102.	-1.02	.21928	.002	1
CalStd8=100	100.00	115.13	15.1	15.1	.00266	.000	1

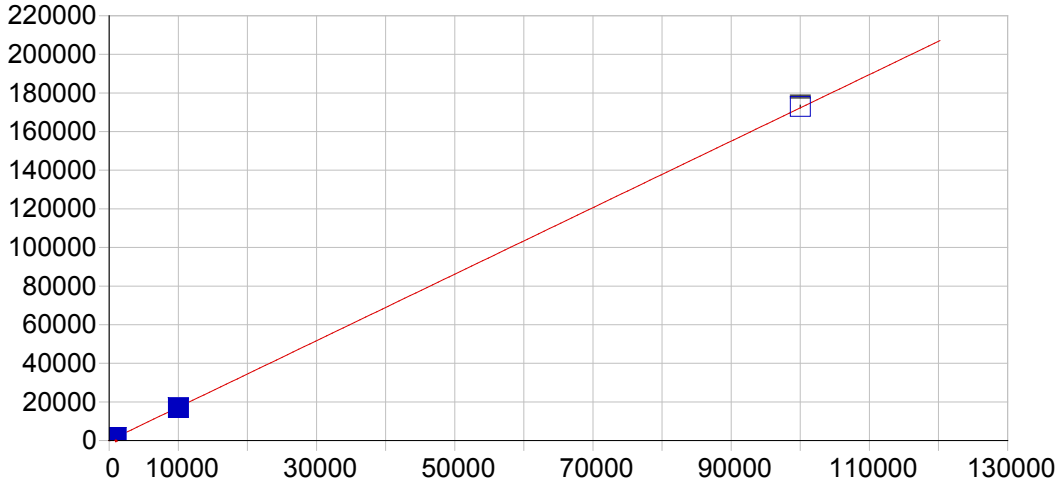


Mn 257.610 {131}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000014	Re-Slope:	1.000000
A1 (Gain):	0.000012	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999051	Status:	OK.
Std Error of Est:	0.000013		
Predicted MDL:	0.083217		
Predicted MQL:	0.277390		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-1.0165	-1.02	.000	.00000	.000	1
CalStd5=10	10.000	9.4070	-.593	-5.93	.00013	.000	1
CalStd7=50	50.000	51.686	1.69	3.37	.00063	.000	1
CalStd6=20	20.000	20.081	.081	.407	.00025	.000	1
CalStd8=100	100.00	102.61	2.61	2.61	.00124	.000	1
CalStd4=5	5.0000	5.3936	.394	7.87	.00008	.000	1
CalStd9=100	1000.0	1021.4	21.4	2.14	.01223	.000	1
CalStd10=10	10000.	9581.1	-419.	-4.19	.11465	.000	1

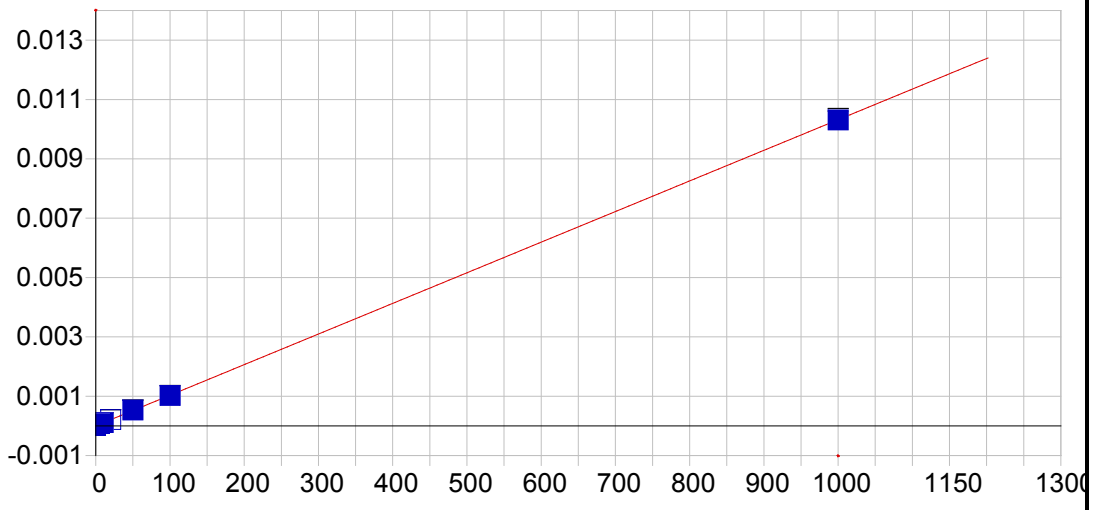


Mn 259.373 {130}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	4.902712	Re-Slope:	1.000000
A1 (Gain):	1.722951	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999825	Status:	OK.
Std Error of Est:	23.876331		
Predicted MDL:	0.526363		
Predicted MQL:	1.754542		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-2.0604	-2.06	.000	1.3527	1.15	1
CalStd10=10	10000.	9884.0	-116.	-1.16	17055.	25.4	1
CalStd9=100	1000.0	1030.9	30.9	3.09	1783.2	4.22	1
CalStd12=10	100000.	100370.	374.	.374	172940.	751.	1

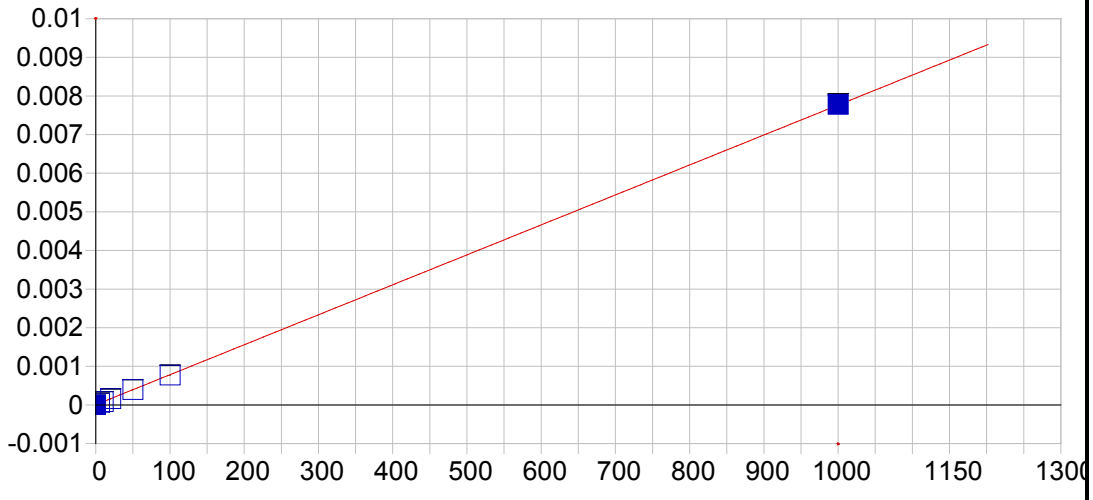


Mo 202.030 {466}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000000	Re-Slope:	1.000000
A1 (Gain):	0.000010	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999845	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.456058		
Predicted MQL:	1.520192		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00147	-.001	.000	.00000	.000	1
CalStd7=50	50.000	51.235	1.23	2.47	.00053	.000	1
CalStd6=20	20.000	20.159	.159	.797	.00021	.000	1
CalStd5=10	10.000	10.314	.314	3.14	.00011	.000	1
CalStd8=100	100.00	98.563	-1.44	-1.44	.00102	.000	1
CalStd4=5	5.0000	6.2311	1.23	24.6	.00006	.000	1
CalStd9=100	1000.0	998.50	-1.50	-.150	.01032	.000	1

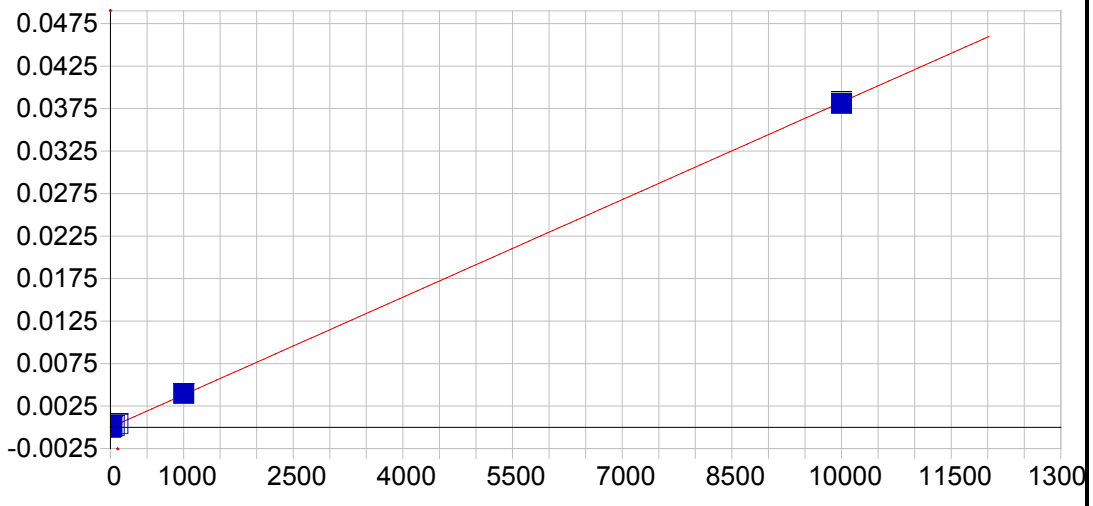


Mo 203.844 {465}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000006	Re-Slope:	1.000000
A1 (Gain):	0.000008	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999956	Status:	OK.
Std Error of Est:	0.000005		
Predicted MDL:	0.708771		
Predicted MQL:	2.362569		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-1.0863	-1.09	.000	-.00000	.000	1
CalStd7=50	50.000	50.113	.113	.225	.00040	.000	1
CalStd6=20	20.000	19.470	-.530	-2.65	.00016	.000	1
CalStd5=10	10.000	9.8644	-.136	-1.36	.00008	.000	1
CalStd8=100	100.00	98.190	-1.81	-1.81	.00077	.000	1
CalStd4=5	5.0000	5.3756	.376	7.51	.00005	.000	1
CalStd9=100	1000.0	1001.7	1.73	.173	.00778	.000	1

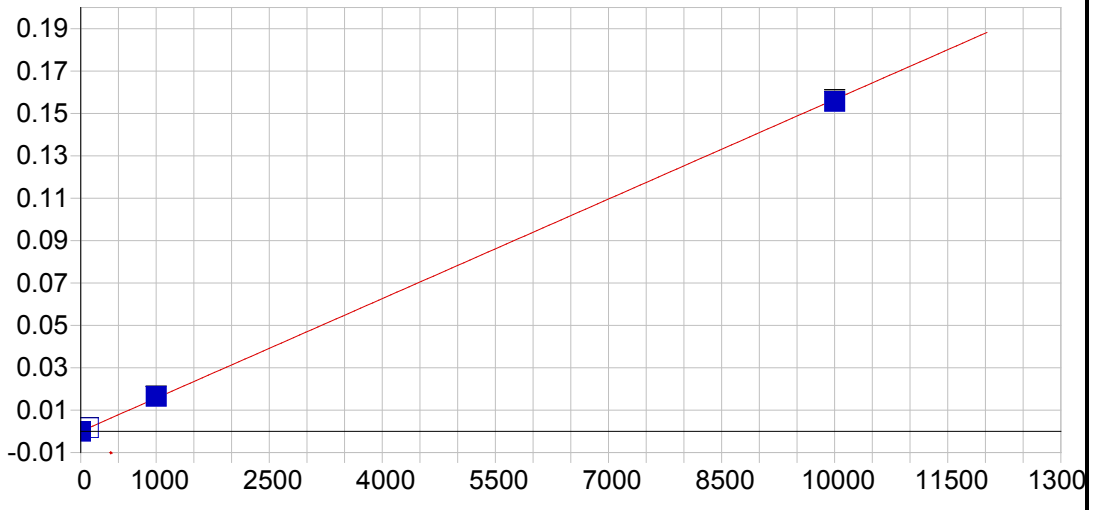


Mo 204.598 {464}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000002	Re-Slope:	1.000000
A1 (Gain):	0.000004	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999906	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	1.153735		
Predicted MQL:	3.845782		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00215	-.002	.000	-.00000	.000	1
CalStd7=50	50.000	52.574	2.57	5.15	.00020	.000	1
CalStd6=20	20.000	20.968	.968	4.84	.00008	.000	1
CalStd5=10	10.000	10.863	.863	8.63	.00004	.000	1
CalStd8=100	100.00	103.09	3.09	3.09	.00039	.000	1
CalStd4=5	5.0000	5.8973	.897	17.9	.00002	.000	1
CalStd9=100	1000.0	1037.1	37.1	3.71	.00397	.000	1
CalStd10=10	10000.	9954.5	-45.5	-.455	.03809	.000	1

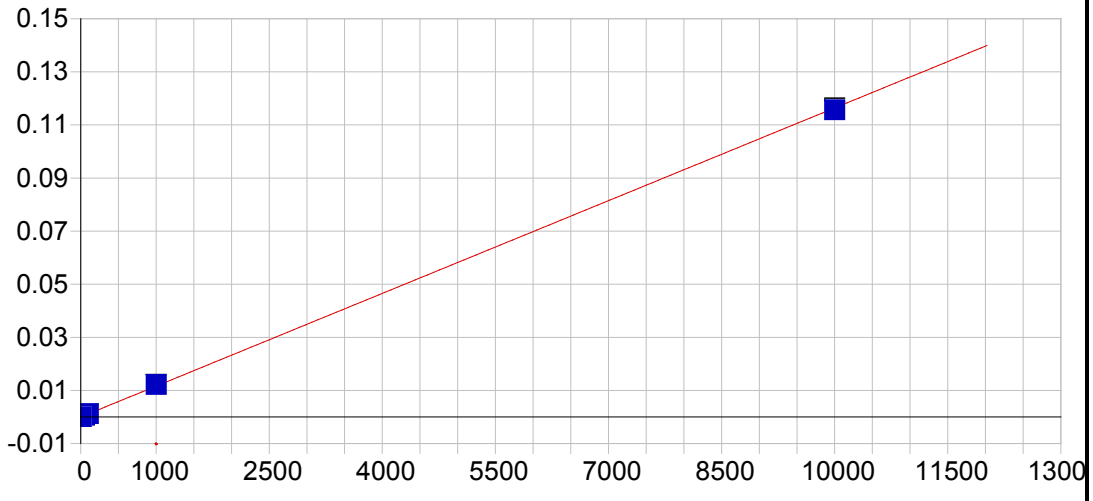


Ni 221.647 {452}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000008	Re-Slope:	1.000000
A1 (Gain):	0.000016	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999838	Status:	OK.
Std Error of Est:	0.000013		
Predicted MDL:	0.529541		
Predicted MQL:	1.765138		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.01081	-.011	.000	-.00001	.000	1
CalStd10=10	10000.	9940.4	-59.6	-.596	.15566	.001	1
CalStd8=100	100.00	106.05	6.05	6.05	.00165	.000	1
CalStd9=100	1000.0	1053.6	53.6	5.36	.01649	.000	1

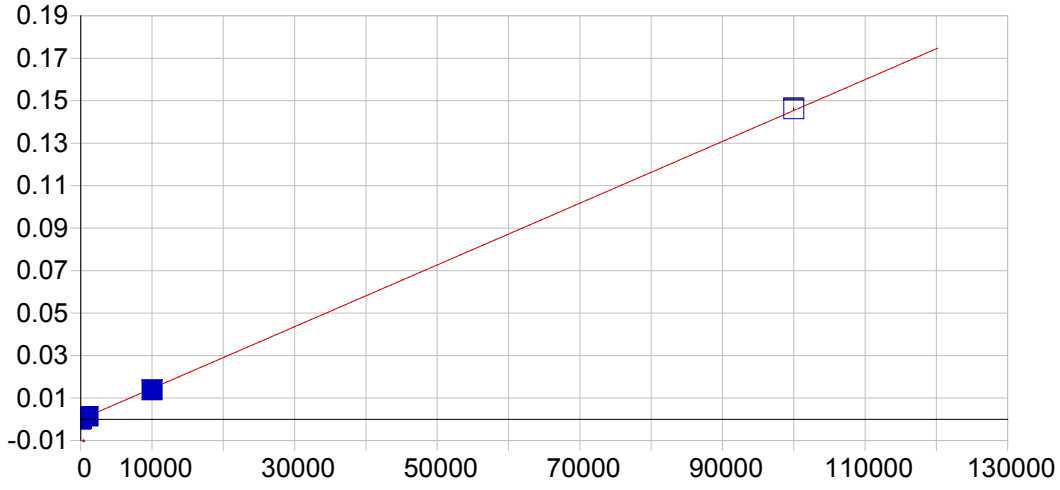


Ni 231.604 {445}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000016	Re-Slope:	1.000000
A1 (Gain):	0.000012	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999828	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.641241		
Predicted MQL:	2.137469		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00055	-.001	.000	-.00002	.000	1
CalStd7=50	50.000	53.594	3.59	7.19	.00061	.000	1
CalStd5=10	10.000	10.466	.466	4.66	.00011	.000	1
CalStd8=100	100.00	104.37	4.37	4.37	.00120	.000	1
CalStd4=5	5.0000	6.4888	1.49	29.8	.00006	.000	1
CalStd9=100	1000.0	1050.6	50.6	5.06	.01222	.000	1
CalStd3=1	1.0000	1.0478	.048	4.78	-.00000	.000	1
CalStd10=10	10000.	9939.4	-60.6	-.606	.11569	.001	1

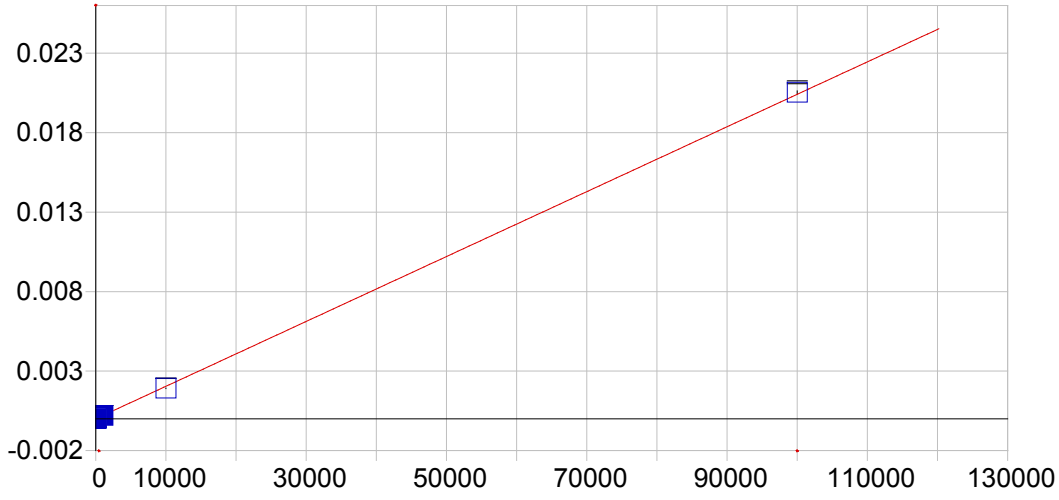


Pb 216.999 {455}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000002	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999845	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	4.583074		
Predicted MQL:	15.276912		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00527	-.005	.000	-.00000	.000	1
CalStd9=100	1000.0	1010.7	10.7	1.07	.00147	.000	1
CalStd10=10	10000.	9464.7	-535.	-5.35	.01376	.000	1
CalStd8=100	100.00	101.45	1.45	1.45	.00015	.000	1
CalStd5=10	10.000	15.501	5.50	55.0	.00002	.000	1
CalStd12=10	100000.	100520.	518.	.518	.14612	.000	1

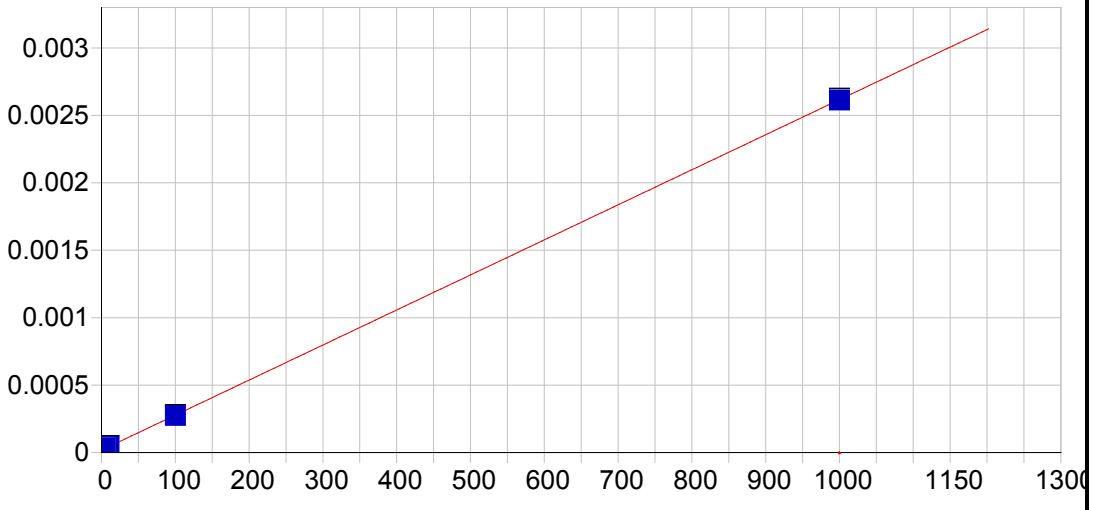


Pb 216.999 {456}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000001	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999764	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	16.926128		
Predicted MQL:	56.420426		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.01115	-.011	.000	-.00000	.000	1
CalStd9=100	1000.0	993.93	-6.07	-.607	.00020	.000	1
CalStd10=10	10000.	9396.7	-603.	-6.03	.00192	.000	1
CalStd8=100	100.00	109.01	9.01	9.01	.00002	.000	1
CalStd5=10	10.000	20.853	10.9	109.	.00000	.000	1
CalStd12=10	100000.	100590.	590.	.590	.02053	.000	1

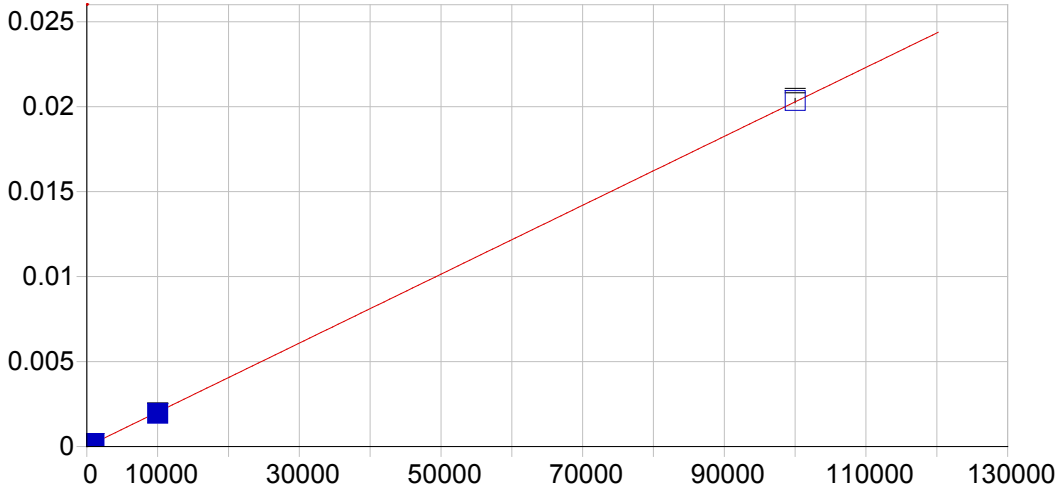


Pb 220.353 {453}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000018	Re-Slope:	1.000000
A1 (Gain):	0.000003	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999778	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	2.900708		
Predicted MQL:	9.669026		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00180	-.002	.000	.00002	.000	1
CalStd5=10	10.000	11.219	1.22	12.2	.00005	.000	1
CalStd8=100	100.00	98.549	-1.45	-1.45	.00027	.000	1
CalStd4=5	5.0000	6.2690	1.27	25.4	.00003	.000	1
CalStd9=100	1000.0	998.96	-1.04	-.104	.00261	.000	1

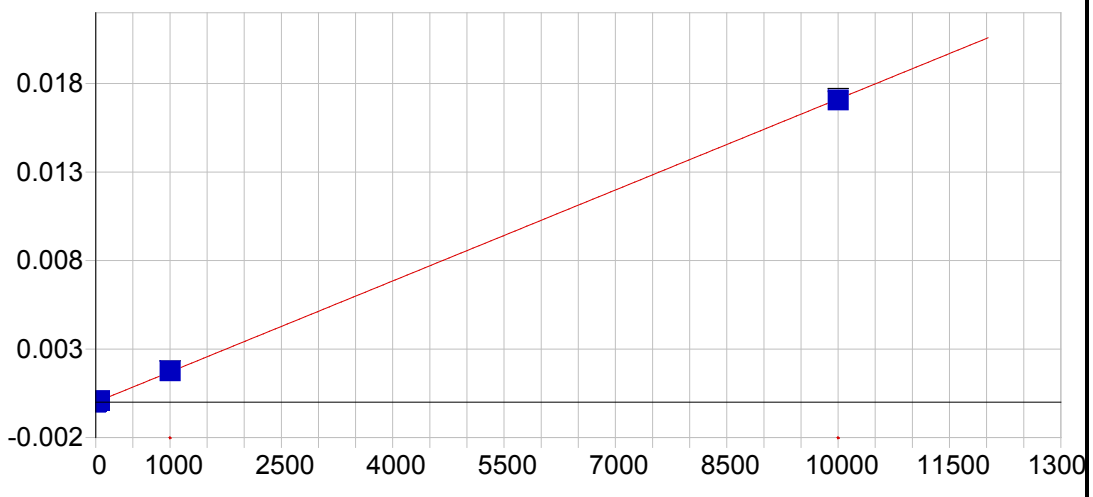


Pb 220.353 {153}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000001	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999925	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	4.335673		
Predicted MQL:	14.452245		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00316	-.003	.000	.00000	.000	1
CalStd9=100	1000.0	1015.7	15.7	1.57	.00021	.000	1
CalStd10=10	10000.	9613.8	-386.	-3.86	.00195	.000	1
CalStd8=100	100.00	105.09	5.09	5.09	.00002	.000	1
CalStd12=10	100000.	100370.	365.	.365	.02036	.000	1

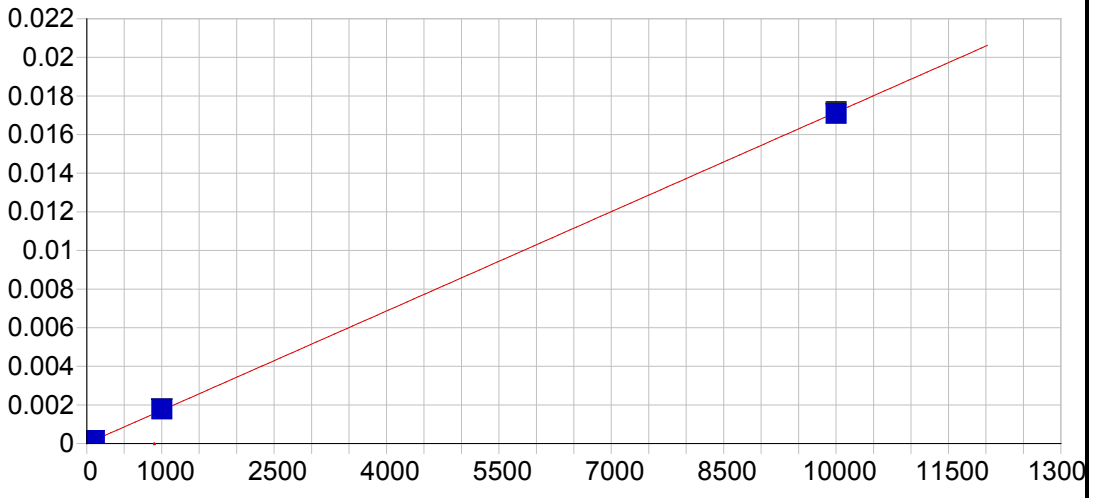


Sb 206.833 {463}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000006	Re-Slope:	1.000000
A1 (Gain):	0.000002	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999934	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	2.751277		
Predicted MQL:	9.170922		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00026	.000	.000	-.00001	.000	1
CalStd9=100	1000.0	1035.1	35.1	3.51	.00177	.000	1
CalStd5=10	10.000	9.1861	-.814	-8.14	.00001	.000	1
CalStd7=50	50.000	51.213	1.21	2.43	.00008	.000	1
CalStd10=10	10000.	9964.5	-35.5	-.355	.01706	.000	1

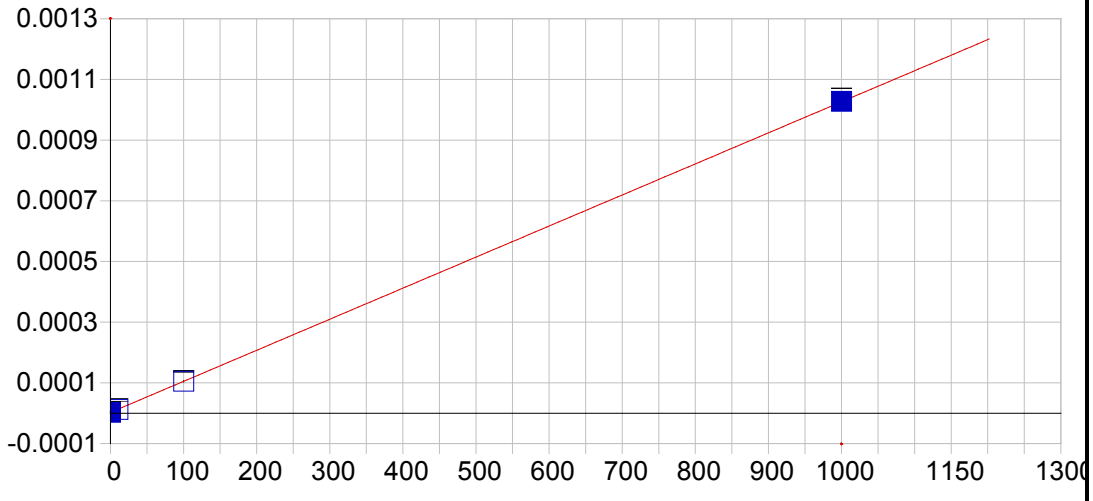


Sb 217.581 {455}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000004	Re-Slope:	1.000000
A1 (Gain):	0.000002	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999856	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	3.060901		
Predicted MQL:	10.203002		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00050	.000	.000	.00000	.000	1
CalStd9=100	1000.0	1038.3	38.3	3.83	.00178	.000	1
CalStd6=20	20.000	20.280	.280	1.40	.00004	.000	1
CalStd5=10	10.000	6.3339	-3.67	-36.7	.00001	.000	1
CalStd8=100	100.00	102.30	2.30	2.30	.00018	.000	1
CalStd4=5	5.0000	5.9769	.977	19.5	.00001	.000	1
CalStd10=10	10000.	9961.8	-38.2	-.382	.01709	.000	1

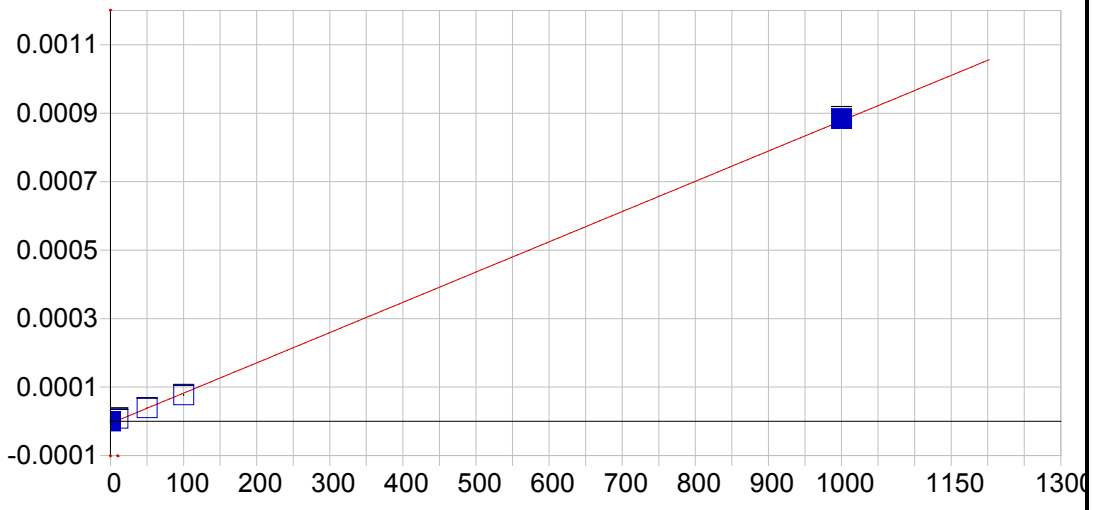


Se 196.090 {472}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000003	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999938	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	4.090512		
Predicted MQL:	13.635039		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00115	.001	.000	.00000	.000	1
CalStd9=100	1000.0	1001.1	1.11	.111	.00103	.000	1
CalStd5=10	10.000	8.8289	-1.17	-11.7	.00001	.000	1
CalStd8=100	100.00	100.06	.058	.058	.00011	.000	1

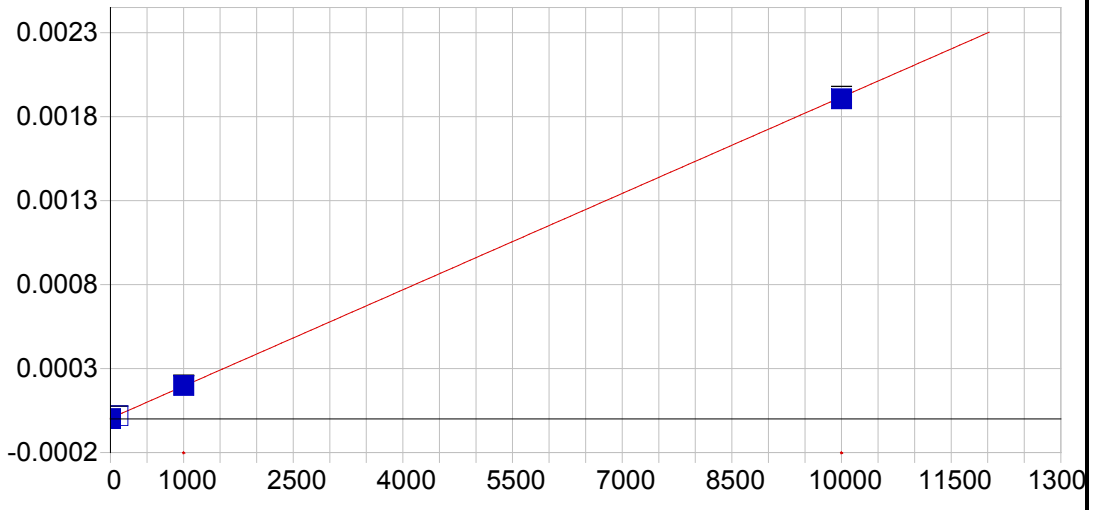


Se 203.985 {465}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	-0.000006	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999496	Status:	OK.
Std Error of Est:	0.000004		
Predicted MDL:	8.599018		
Predicted MQL:	28.663395		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	7.3781	7.38	.000	.00000	.000	1
CalStd7=50	50.000	51.056	1.06	2.11	.00004	.000	1
CalStd9=100	1000.0	1006.7	6.75	.675	.00088	.000	1
CalStd5=10	10.000	16.319	6.32	63.2	.00001	.000	1
CalStd8=100	100.00	93.954	-6.05	-6.05	.00008	.000	1

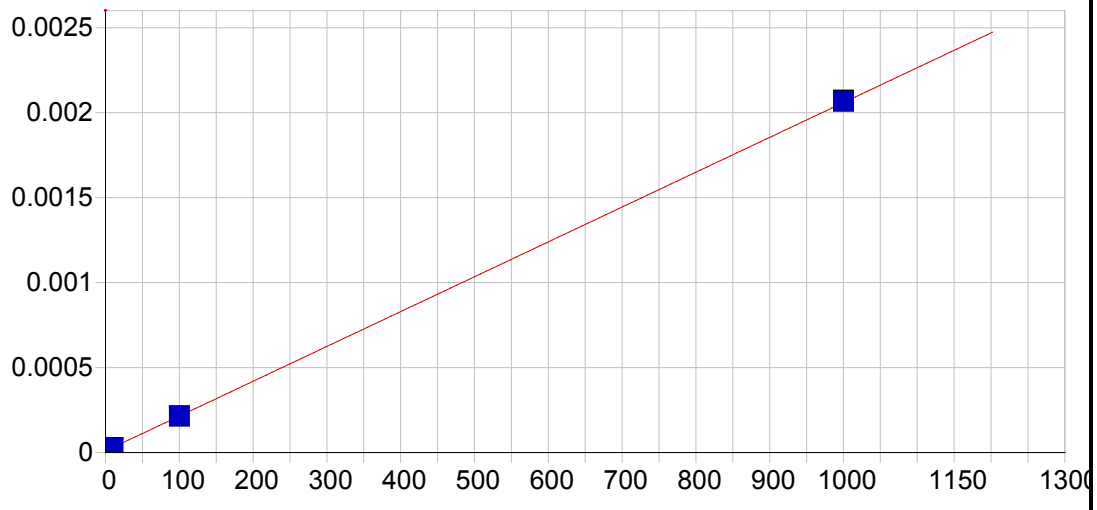


Se 206.279 {463}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000004	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999883	Status:	OK.
Std Error of Est:	0.000005		
Predicted MDL:	26.912900		
Predicted MQL:	89.709668		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-17.315	-17.3	.000	.00000	.000	1
CalStd9=100	1000.0	1016.0	16.0	1.60	.00020	.000	1
CalStd10=10	10000.	9942.5	-57.5	-.575	.00191	.000	1
CalStd8=100	100.00	74.780	-25.2	-25.2	.00002	.000	1

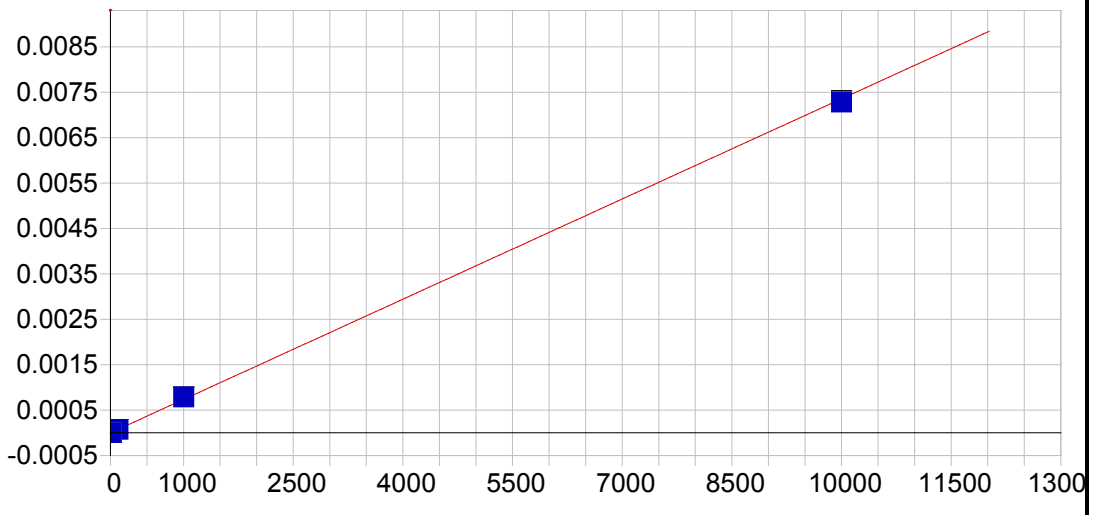


Tl 190.856 {476}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000009	Re-Slope:	1.000000
A1 (Gain):	0.000002	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999760	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	2.487072		
Predicted MQL:	8.290239		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00232	.002	.000	.00001	.000	1
CalStd9=100	1000.0	1003.2	3.16	.316	.00207	.000	1
CalStd8=100	100.00	99.110	-.890	-.890	.00021	.000	1
CalStd5=10	10.000	7.7350	-2.27	-22.7	.00003	.000	1

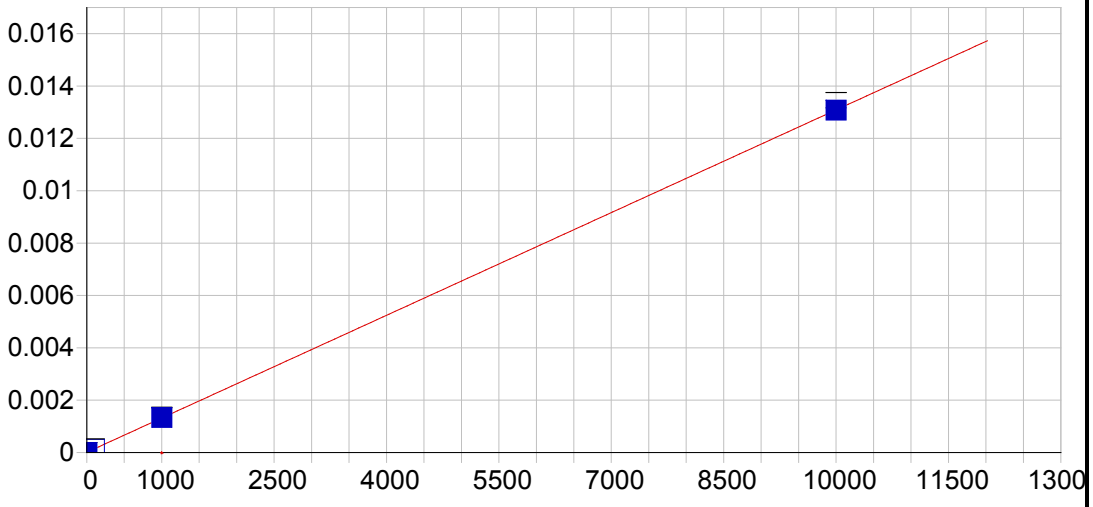


Tl 190.856 {477}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	-0.000000	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999592	Status:	OK.
Std Error of Est:	0.000010		
Predicted MDL:	5.269925		
Predicted MQL:	17.566418		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-4.5284	-4.53	.000	-.00000	.000	1
CalStd9=100	1000.0	1069.1	69.1	6.91	.00079	.000	1
CalStd8=100	100.00	104.13	4.13	4.13	.00008	.000	1
CalStd5=10	10.000	3.6206	-6.38	-63.8	.00000	.000	1
CalStd10=10	10000.	9897.1	-103.	-1.03	.00728	.000	1

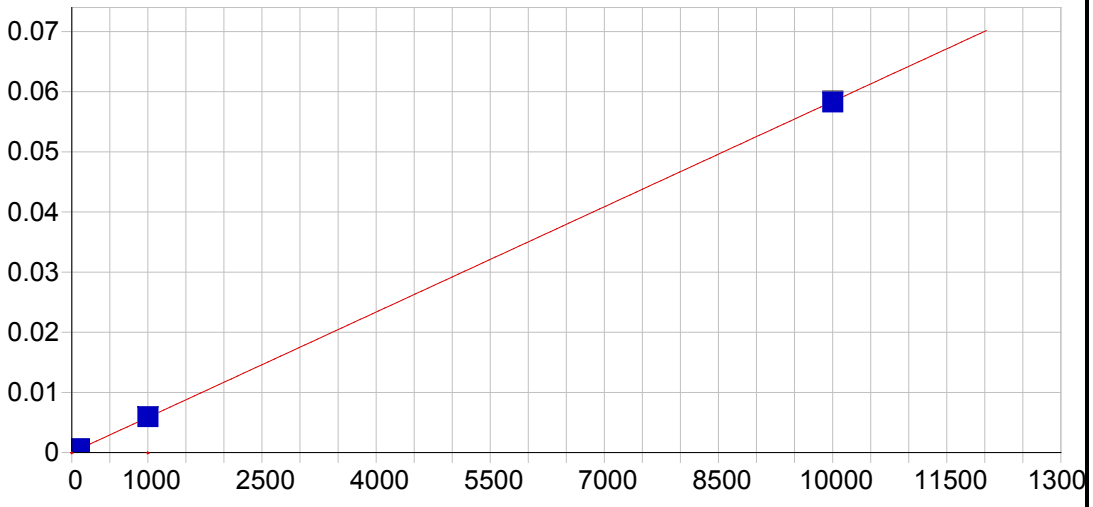


V 290.882 {116}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000009	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999989	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	5.203864		
Predicted MQL:	17.346212		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00155	.002	.000	.00001	.000	1
CalStd9=100	1000.0	1012.7	12.7	1.27	.00133	.000	1
CalStd10=10	10000.	9990.1	-9.94	-.099	.01308	.000	1
CalStd8=100	100.00	97.279	-2.72	-2.72	.00014	.000	1

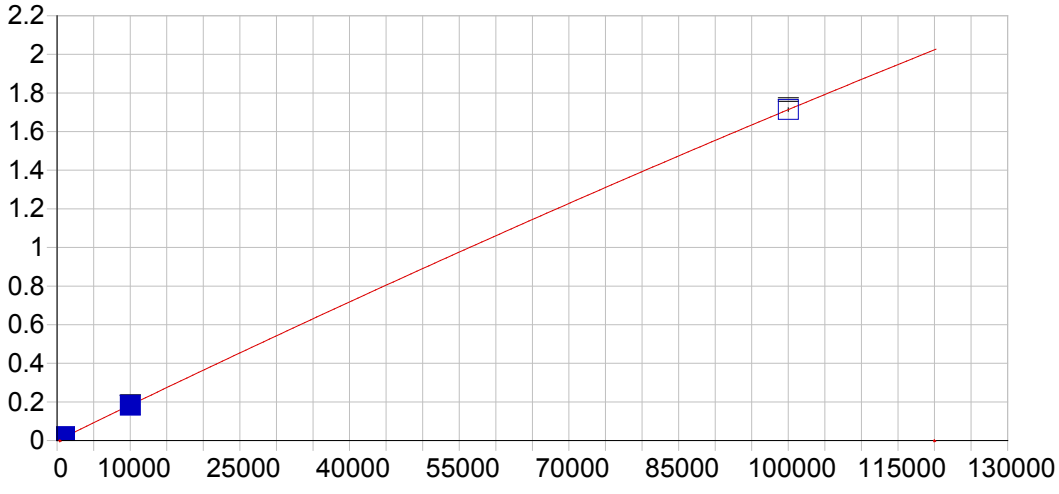


V 292.402 {115}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000012	Re-Slope:	1.000000
A1 (Gain):	0.000006	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999980	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	0.544900		
Predicted MQL:	1.816334		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00109	-.001	.000	.00001	.000	1
CalStd7=50	50.000	51.993	1.99	3.99	.00031	.000	1
CalStd9=100	1000.0	1016.1	16.1	1.61	.00594	.000	1
CalStd6=20	20.000	20.905	.905	4.52	.00013	.000	1
CalStd5=10	10.000	9.9657	-.034	-.343	.00007	.000	1
CalStd8=100	100.00	101.38	1.38	1.38	.00060	.000	1
CalStd10=10	10000.	9979.7	-20.3	-.203	.05828	.000	1

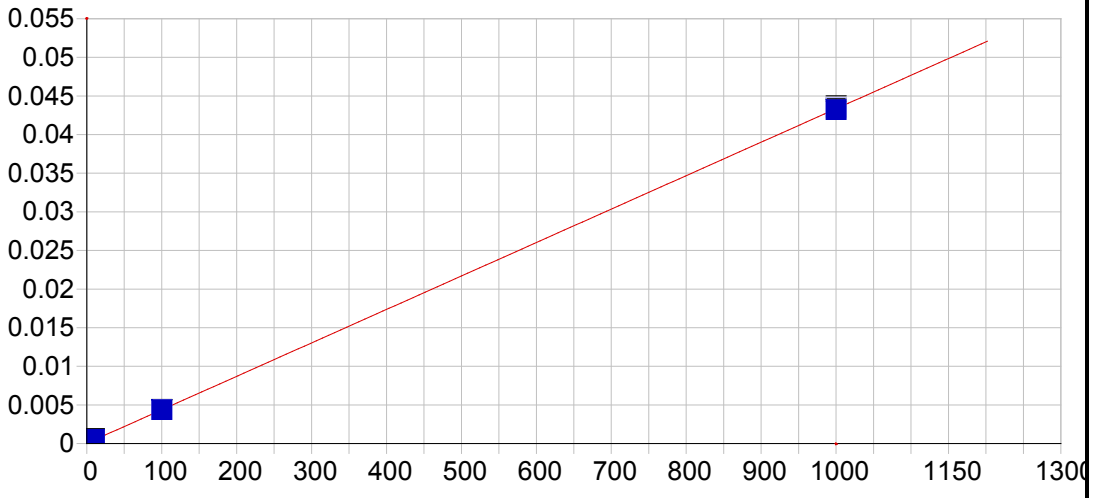


Zn 206.200 {463}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Curvilinear	Weighting:	1/Conc

A0 (Offset):	0.000014	Re-Slope:	1.000000
A1 (Gain):	0.000018	Y-int:	0.000000
A2 (Curvature):	-0.000000		
n (Exponent):	1.000000		
Correlation:	0.999977	Status:	OK.
Std Error of Est:	0.000006		
Predicted MDL:	0.306152		
Predicted MQL:	1.020506		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
CalStd10=10	10000.	9932.5	-67.5	-.675	.18230	.001	1
Blank	.00000	-.00412	-.004	.000	.00001	.000	1
CalStd9=100	1000.0	1052.7	52.7	5.27	.01946	.000	1
CalStd12=10	100000.	100010.	7.17	.007	1.7137	.009	1
CalStd5=10	10.000	13.197	3.20	32.0	.00026	.000	1
CalStd8=100	100.00	104.60	4.60	4.60	.00195	.000	1

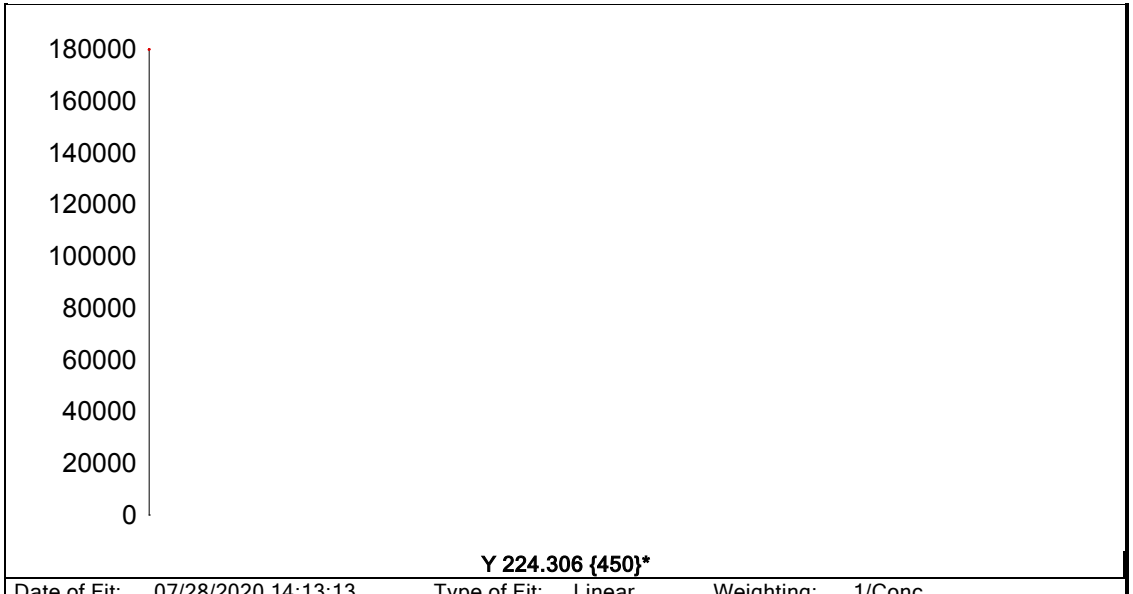


Zn 213.856 {457}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000038	Re-Slope:	1.000000
A1 (Gain):	0.000043	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999676	Status:	OK.
Std Error of Est:	0.000005		
Predicted MDL:	0.140492		
Predicted MQL:	0.468307		

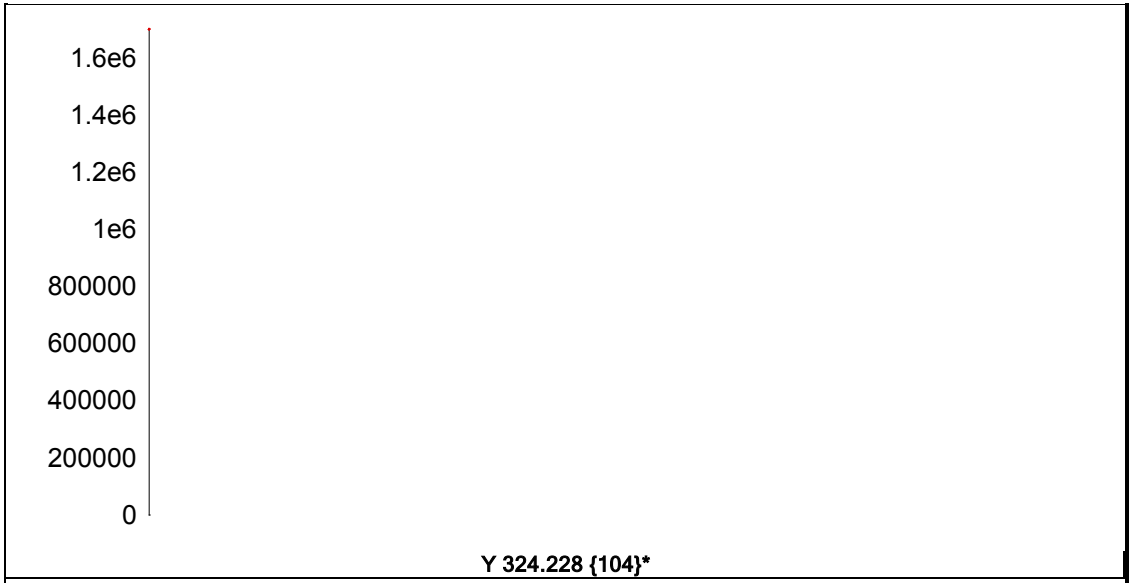
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00266	-.003	.000	.00004	.000	1
CalStd9=100	1000.0	997.27	-2.73	-.273	.04351	.000	1
CalStd5=10	10.000	12.682	2.68	26.8	.00059	.000	1
CalStd8=100	100.00	100.06	.060	.060	.00440	.000	1



Y 224.306 {450}*

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000000		Re-Slope:	1.000000	
A1 (Gain):	0.000000		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.000000		Status:	Warning	Zero Gain
Std Error of Est:	0.000000				
Predicted MDL:	n/a				
Predicted MQL:	n/a				

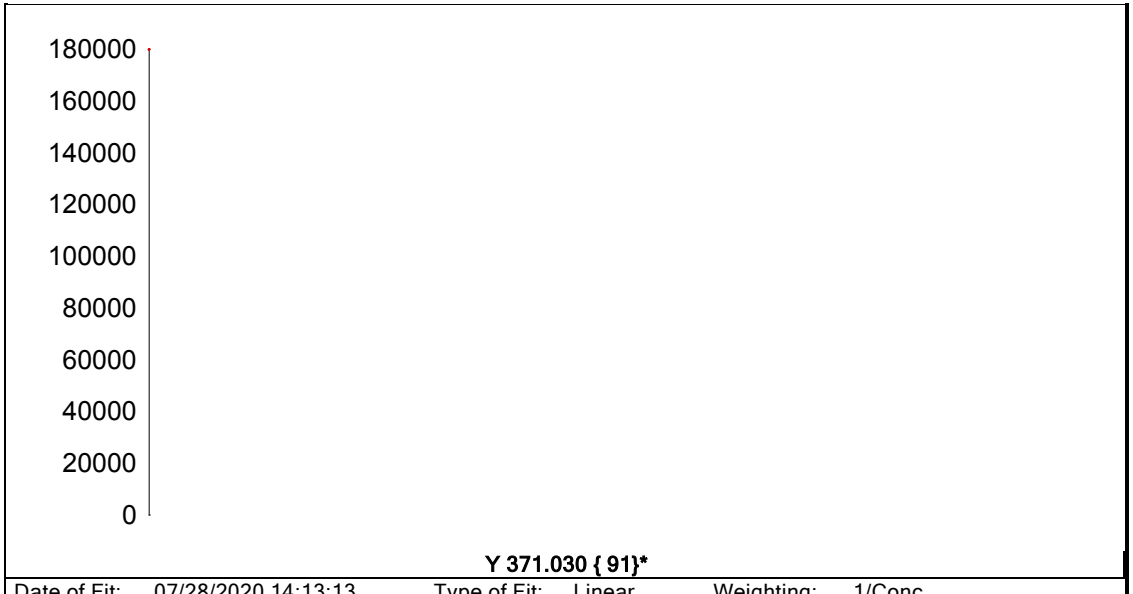
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	167630.	339.	1



Y 324.228 {104}*

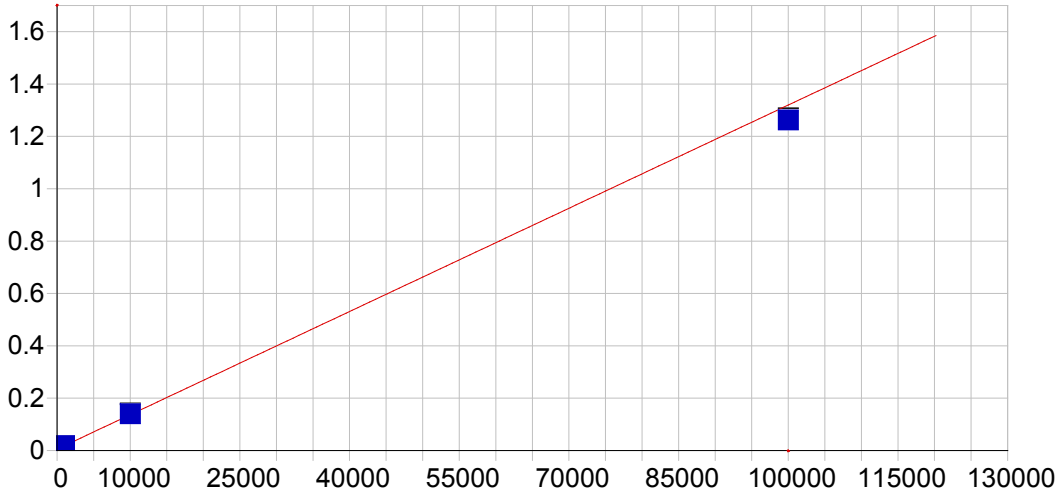
Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000000		Re-Slope:	1.000000	
A1 (Gain):	0.000000		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.000000		Status:	Warning	Zero Gain
Std Error of Est:	0.000000				
Predicted MDL:	n/a				
Predicted MQL:	n/a				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	1611500.	7440.	1



Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000000		Re-Slope:	1.000000	
A1 (Gain):	0.000000		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.000000		Status:	Warning	Zero Gain
Std Error of Est:	0.000000				
Predicted MDL:	n/a				
Predicted MQL:	n/a				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	168340.	963.	1

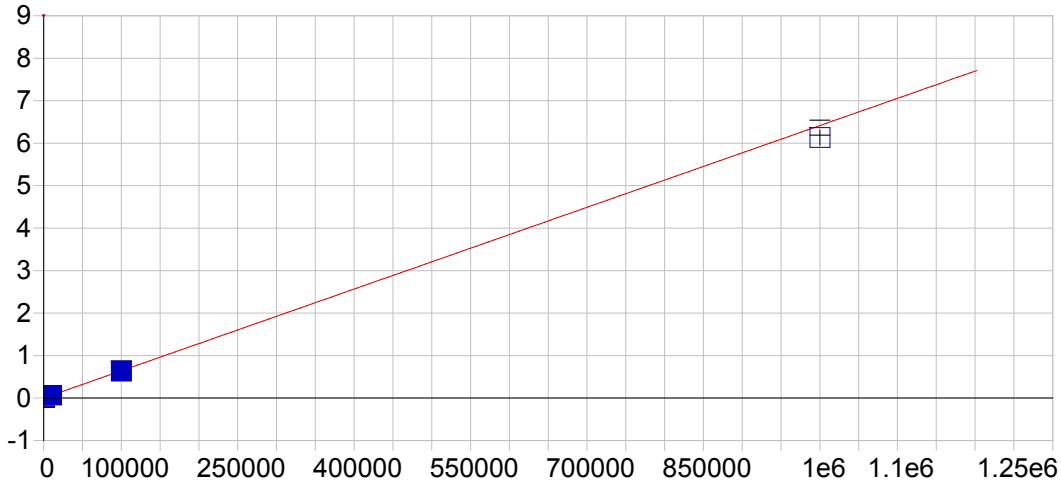


Na 588.995 { 57}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.005248	Re-Slope:	1.000000
A1 (Gain):	0.000013	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999502	Status:	OK.
Std Error of Est:	0.000243		
Predicted MDL:	4.126930		
Predicted MQL:	13.756432		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-19.599	-19.6	.000	.00499	.000	1
CalStd9=100	1000.0	1002.8	2.84	.284	.01843	.000	1
CalStd10=10	10000.	10237.	237.	2.37	.13983	.003	1
CalStd13=10	100000.	95616.	-4380.	-4.38	1.2623	.007	1

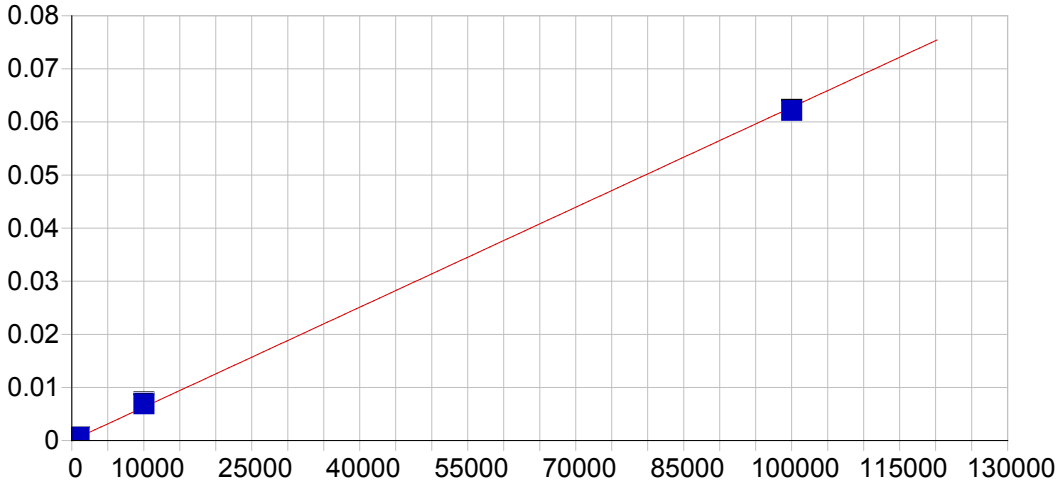


Na 589.592 { 57}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000048	Re-Slope:	1.000000
A1 (Gain):	0.000006	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999617	Status:	OK.
Std Error of Est:	0.000169		
Predicted MDL:	5.102915		
Predicted MQL:	17.009717		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-6.0059	-6.01	.000	.00001	.000	1
CalStd9=100	1000.0	1040.4	40.4	4.04	.00672	.000	1
CalStd10=10	10000.	10534.	534.	5.34	.06764	.001	1
CalibStd15=	1000000.	955600.	-44400.	-4.44	6.1296	.177	1
CalStd13=10	100000.	98546.	-1450.	-1.45	.63236	.003	1

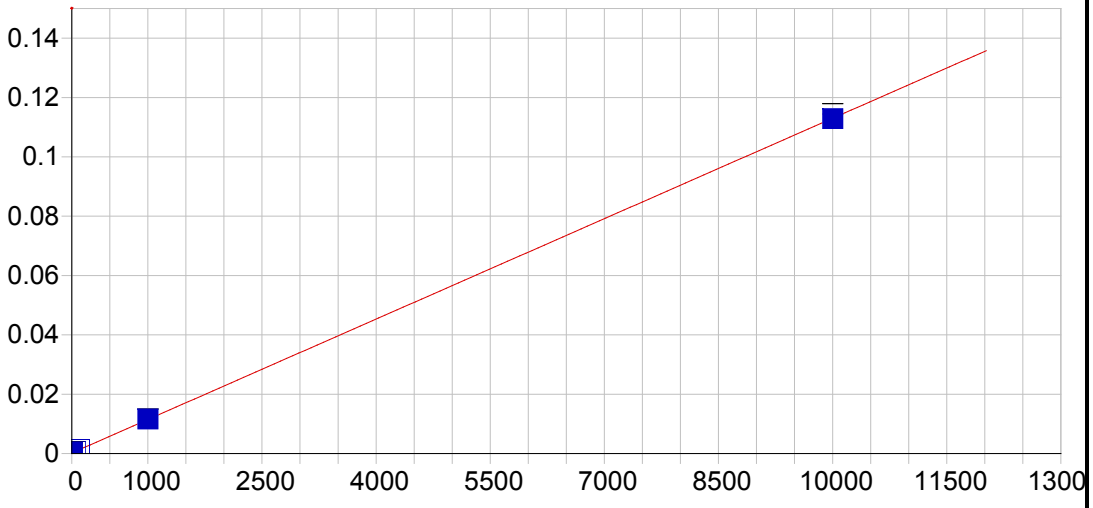


Si 251.611 {134}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000005	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999568	Status:	OK.
Std Error of Est:	0.000009		
Predicted MDL:	8.045379		
Predicted MQL:	26.817930		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.09827	-.098	.000	.00001	.000	1
CalStd9=100	1000.0	1015.0	15.0	1.50	.00070	.000	1
CalStd10=10	10000.	10931.	931.	9.31	.00717	.000	1
CalStd13=10	100000.	99007.	-993.	-.993	.06214	.000	1

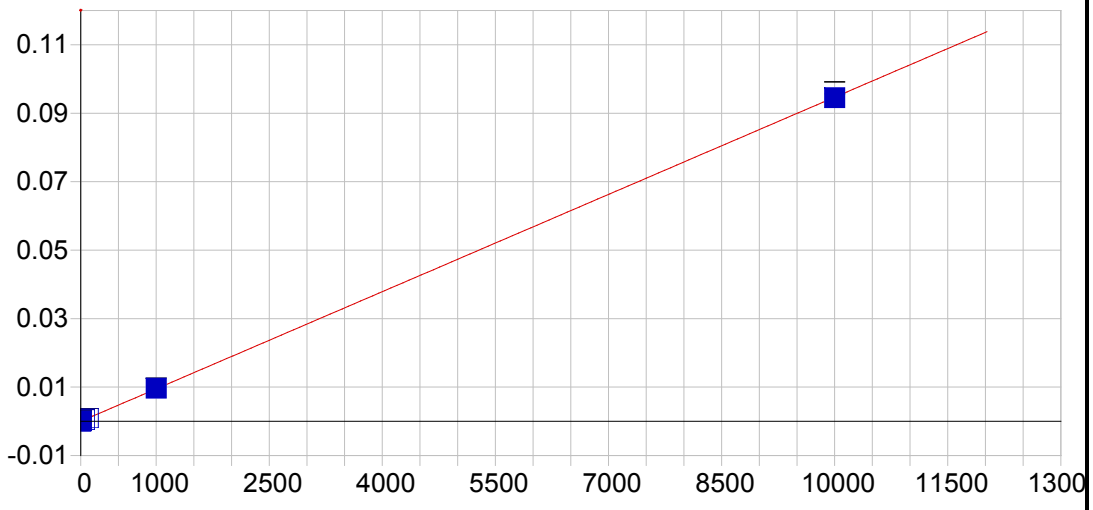


Ti 323.452 {104}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000194	Re-Slope:	1.000000
A1 (Gain):	0.000011	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999973	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.967417		
Predicted MQL:	3.224723		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00139	-.001	.000	.00019	.000	1
CalStd5=10	10.000	9.7559	-.244	-2.44	.00030	.000	1
CalStd8=100	100.00	100.06	.063	.063	.00132	.000	1
CalStd9=100	1000.0	1012.8	12.8	1.28	.01162	.000	1
CalStd10=10	10000.	9983.9	-16.1	-.161	.11282	.002	1
CalStd7=50	50.000	52.252	2.25	4.50	.00078	.000	1
CalStd4=5	5.0000	6.2285	1.23	24.6	.00026	.000	1

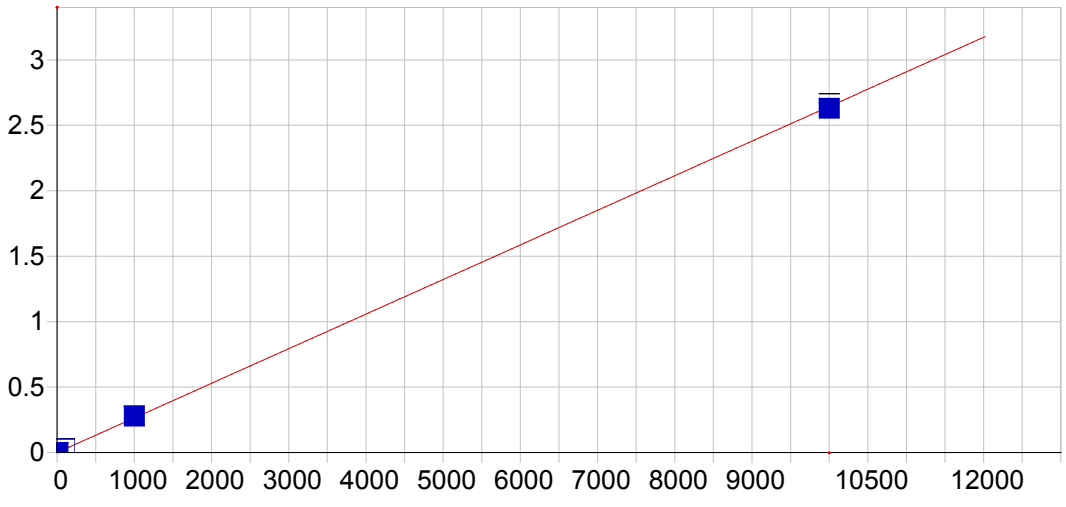


Ti 334.941 {101}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000006	Re-Slope:	1.000000
A1 (Gain):	0.000009	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999960	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.858872		
Predicted MQL:	2.862907		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00173	-.002	.000	-.00001	.000	1
CalStd5=10	10.000	9.7574	-.243	-2.43	.00009	.000	1
CalStd8=100	100.00	100.92	.924	.924	.00095	.000	1
CalStd9=100	1000.0	1016.8	16.8	1.68	.00962	.000	1
CalStd10=10	10000.	9978.9	-21.1	-.211	.09449	.002	1
CalStd7=50	50.000	52.064	2.06	4.13	.00049	.000	1
CalStd4=5	5.0000	6.5231	1.52	30.5	.00006	.000	1

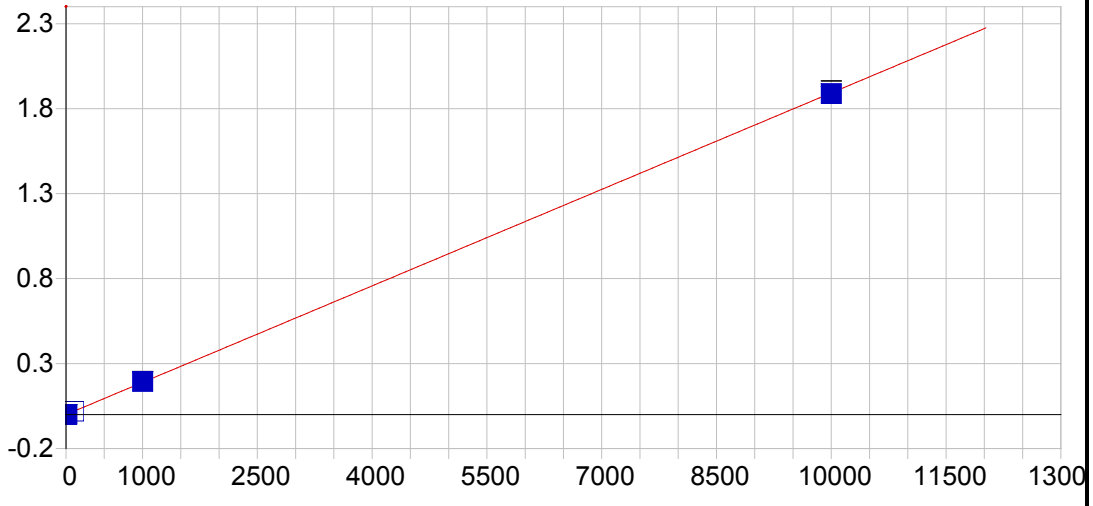


Sr 407.771 { 83}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000079	Re-Slope:	1.000000
A1 (Gain):	0.000264	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999852	Status:	OK.
Std Error of Est:	0.000018		
Predicted MDL:	0.067607		
Predicted MQL:	0.225358		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00063	-.001	.000	.00008	.000	1
CalStd3=1	1.0000	1.2029	.203	20.3	.00040	.000	1
CalStd4=5	5.0000	6.4478	1.45	29.0	.00178	.000	1
CalStd5=10	10.000	10.512	.512	5.12	.00286	.000	1
CalStd8=100	100.00	104.41	4.41	4.41	.02768	.000	1
CalStd9=100	1000.0	1048.1	48.1	4.81	.27717	.002	1
CalStd10=10	10000.	9945.4	-54.6	-.546	2.6294	.035	1

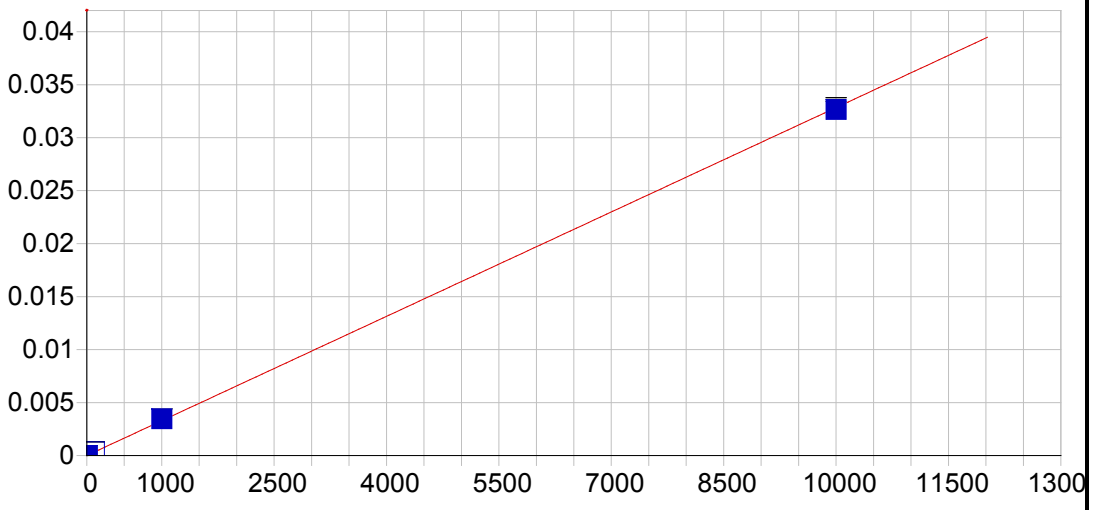


Sr 421.552 { 80}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000000	Re-Slope:	1.000000
A1 (Gain):	0.000189	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999957	Status:	OK.
Std Error of Est:	0.000007		
Predicted MDL:	0.083226		
Predicted MQL:	0.277419		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00046	-.000	.000	.00000	.000	1
CalStd3=1	1.0000	1.1537	.154	15.4	.00022	.000	1
CalStd4=5	5.0000	6.2472	1.25	24.9	.00118	.000	1
CalStd5=10	10.000	10.142	.142	1.42	.00192	.000	1
CalStd8=100	100.00	101.93	1.93	1.93	.01929	.000	1
CalStd9=100	1000.0	1022.6	22.6	2.26	.19357	.001	1
CalStd10=10	10000.	9973.9	-26.1	-.261	1.8879	.016	1

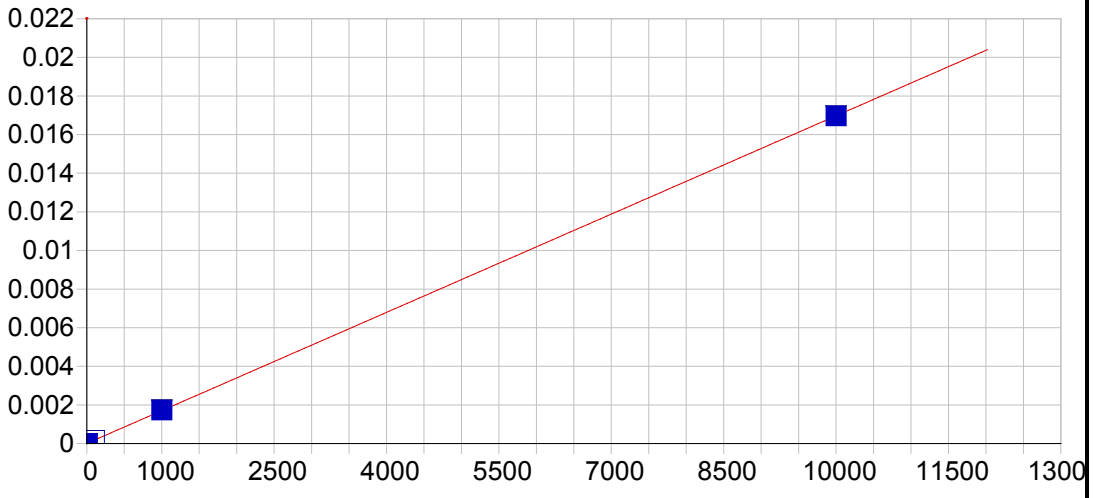


Sn 189.989 {477}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000003	Re-Slope:	1.000000
A1 (Gain):	0.000003	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999836	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	1.200367		
Predicted MQL:	4.001223		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00316	-.003	.000	.00000	.000	1
CalStd10=10	10000.	9942.1	-57.9	-.579	.03265	.000	1
CalStd9=100	1000.0	1050.7	50.7	5.07	.00345	.000	1
CalStd8=100	100.00	104.96	4.96	4.96	.00035	.000	1
CalStd5=10	10.000	12.217	2.22	22.2	.00004	.000	1

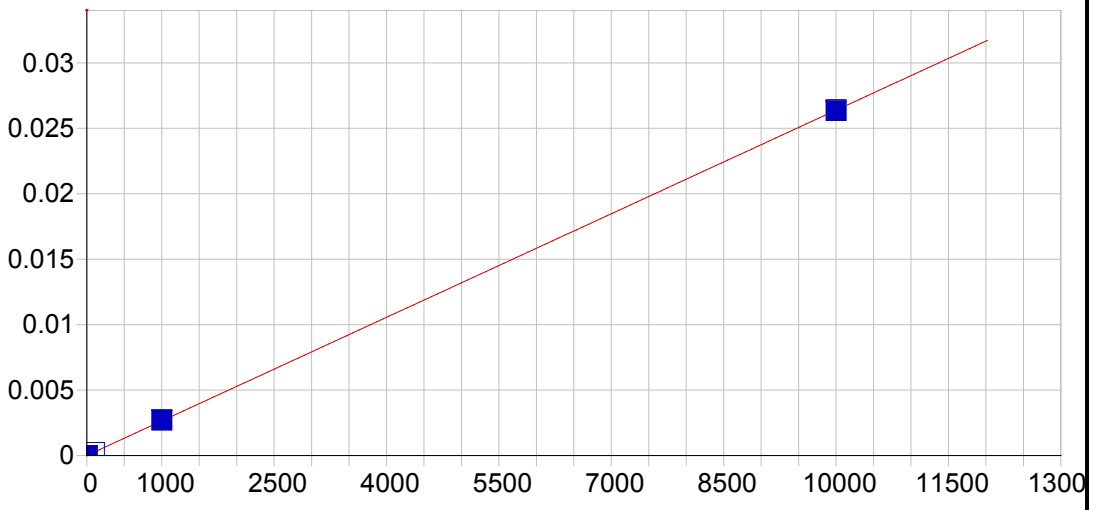


B 249.678 {135}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000005	Re-Slope:	1.000000
A1 (Gain):	0.000002	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999994	Status:	OK.
Std Error of Est:	0.000003		
Predicted MDL:	1.066994		
Predicted MQL:	3.556648		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-1.1484	-1.15	.000	.00000	.000	1
CalStd8=100	100.00	100.75	.754	.754	.00018	.000	1
CalStd5=10	10.000	10.260	.260	2.60	.00002	.000	1
CalStd9=100	1000.0	1016.6	16.6	1.66	.00173	.000	1
CalStd10=10	10000.	9993.8	-6.22	-.062	.01696	.000	1

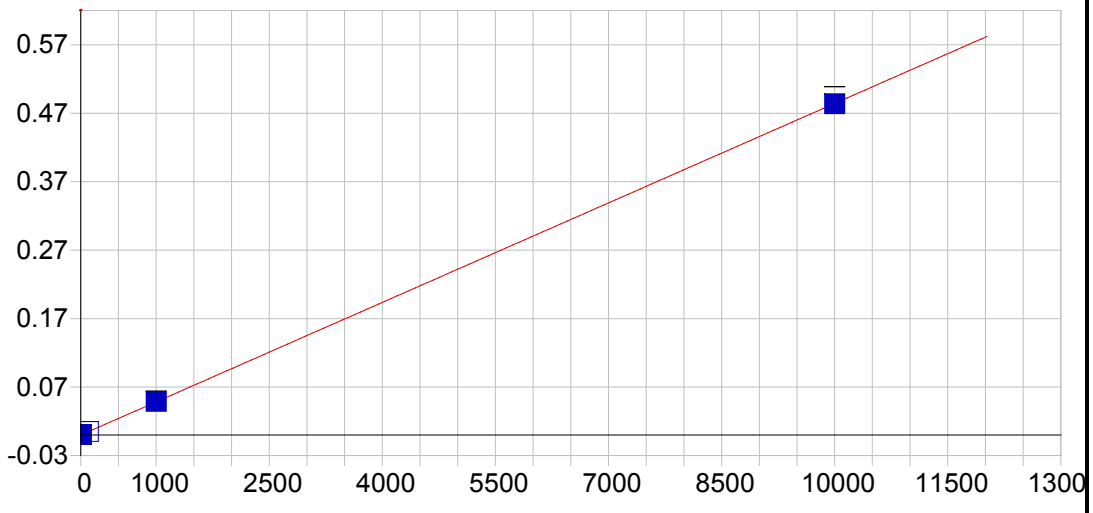


B 249.773 {135}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000006	Re-Slope:	1.000000
A1 (Gain):	0.000003	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999984	Status:	OK.
Std Error of Est:	0.000004		
Predicted MDL:	0.606978		
Predicted MQL:	2.023262		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-1.1934	-1.19	.000	.00000	.000	1
CalStd8=100	100.00	100.61	.608	.608	.00027	.000	1
CalStd5=10	10.000	9.3413	-.659	-6.59	.00003	.000	1
CalStd9=100	1000.0	1017.8	17.8	1.78	.00269	.000	1
CalStd10=10	10000.	9982.5	-17.5	-.175	.02637	.000	1

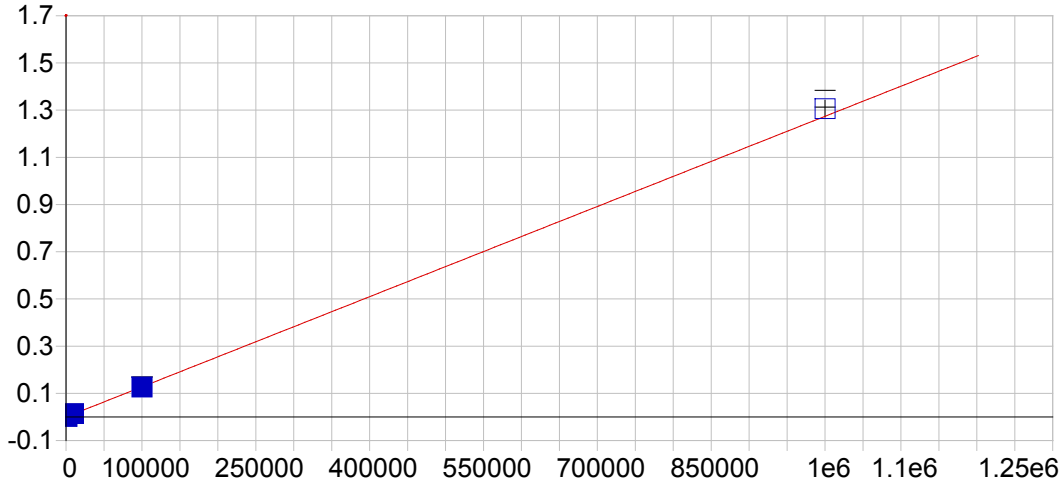


Li 670.784 { 50}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000076	Re-Slope:	1.000000
A1 (Gain):	0.000048	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999990	Status:	OK.
Std Error of Est:	0.000003		
Predicted MDL:	0.839954		
Predicted MQL:	2.799847		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00004	-.000	.000	-.00008	.000	1
CalStd5=10	10.000	9.8042	-.196	-1.96	.00040	.000	1
CalStd8=100	100.00	101.19	1.19	1.19	.00483	.000	1
CalStd9=100	1000.0	1013.3	13.3	1.33	.04901	.000	1
CalStd10=10	10000.	9985.7	-14.3	-.143	.48362	.011	1

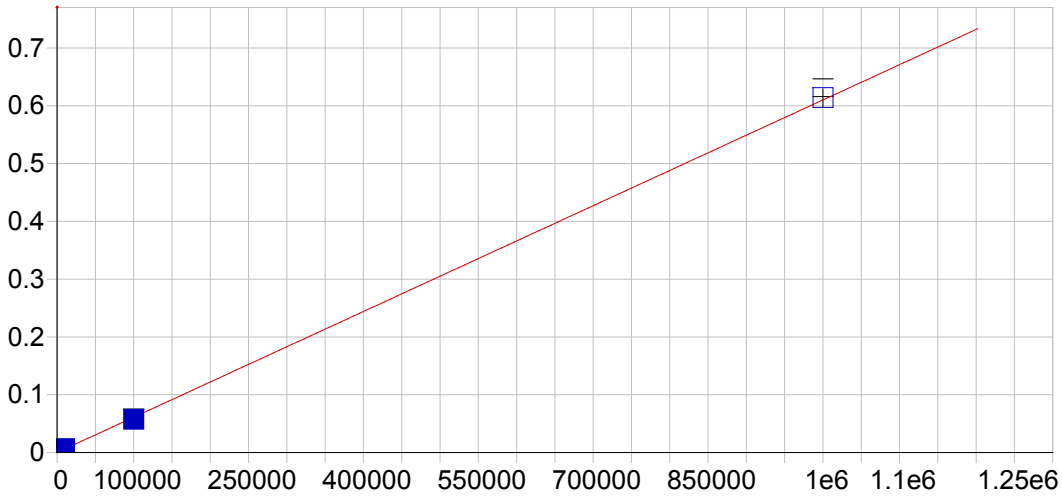


K 766.490 { 44}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000022	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999710	Status:	OK.
Std Error of Est:	0.000078		
Predicted MDL:	29.733580		
Predicted MQL:	99.111934		

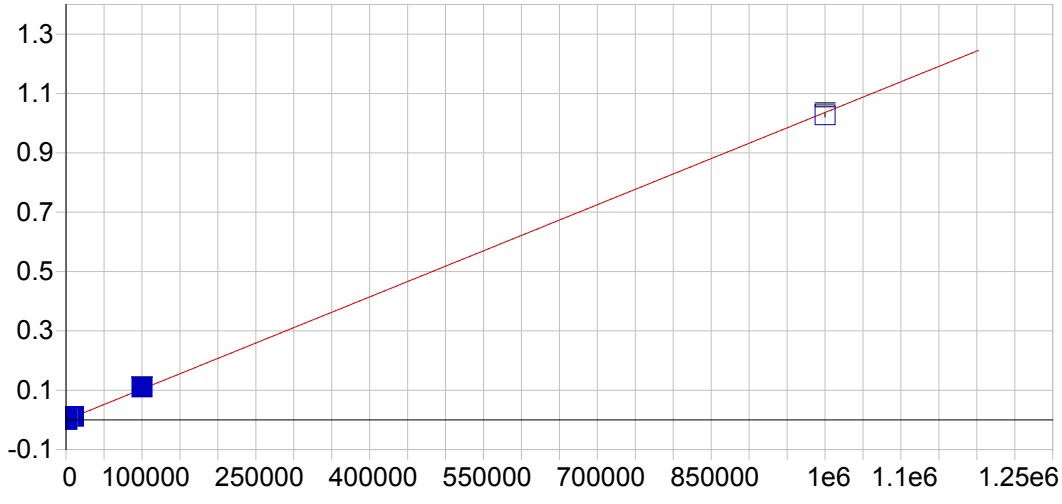
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-19.242	-19.2	.000	-.00000	.000	1
CalStd9=100	1000.0	1049.1	49.1	4.91	.00136	.000	1
CalStd10=10	10000.	10725.	725.	7.25	.01368	.000	1
CalibStd15=	1000000.	1025200.	25200.	2.52	1.3060	.036	1
CalStd13=10	100000.	99122.	-878.	-.878	.12627	.001	1



K 769.896 { 44}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000095		Re-Slope:	1.000000	
A1 (Gain):	0.000001		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.999802		Status:	OK.	
Std Error of Est:	0.000017				
Predicted MDL:	46.486275				
Predicted MQL:	154.954251				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00590	.006	.000	.00010	.000	1
CalStd9=100	1000.0	1037.0	37.0	3.70	.00073	.000	1
CalStd10=10	10000.	10141.	141.	1.41	.00628	.000	1
CalibStd15=	1000000.	1006100.	6140.	.614	.61383	.015	1
CalStd13=10	100000.	93683.	-6320.	-6.32	.05725	.000	1

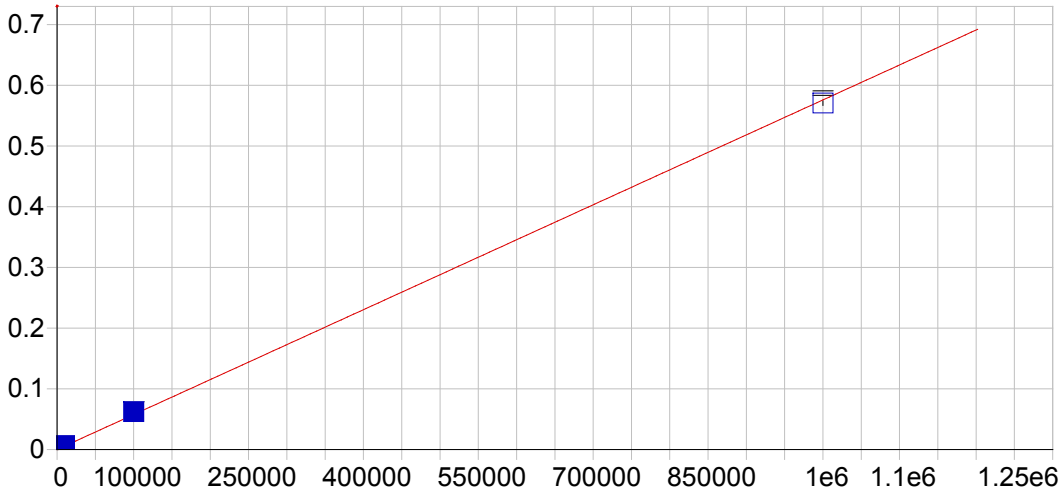


P 213.618 {457}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000004	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999701	Status:	OK.
Std Error of Est:	0.000034		
Predicted MDL:	5.460673		
Predicted MQL:	18.202243		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.30935	-.309	.000	-.00000	.000	1
CalStd10=10	10000.	11307.	1310.	13.1	.01171	.000	1
CalStd9=100	1000.0	1122.0	122.	12.2	.00116	.000	1
CalStd13=10	100000.	106450.	6450.	6.45	.11028	.000	1
CalibStd15=	1000000.	992120.	-7880.	-.788	1.0278	.007	1

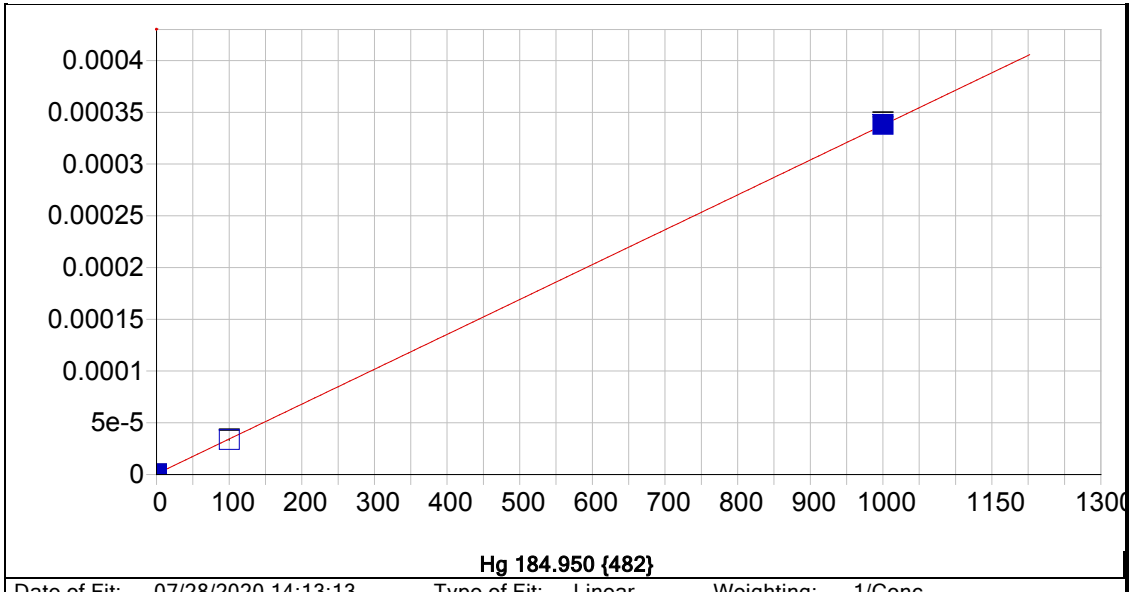


S 182.034 {485}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000009	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999619	Status:	OK.
Std Error of Est:	0.000022		
Predicted MDL:	6.288862		
Predicted MQL:	20.962873		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.28665	-.287	.000	.00001	.000	1
CalStd9=100	1000.0	1107.7	108.	10.8	.00065	.000	1
CalStd10=10	10000.	11086.	1090.	10.9	.00641	.000	1
CalibStd15=	1000000.	990830.	-9170.	-.917	.57069	.004	1
CalStd13=10	100000.	107960.	7960.	7.96	.06227	.000	1

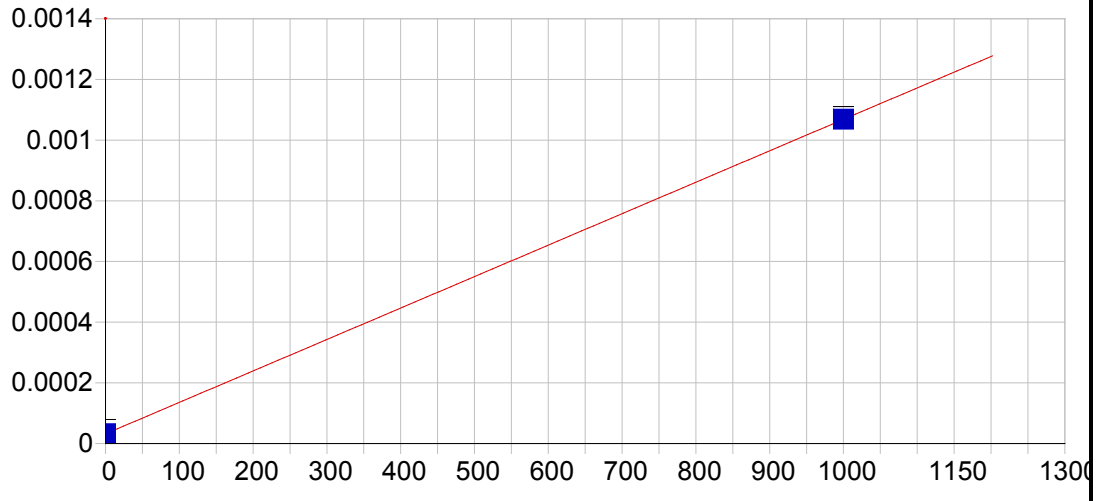


Hg 184.950 {482}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000001	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999984	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	1.163936		
Predicted MQL:	3.879788		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00161	.002	.000	.00000	.000	1
CalStd8=100	100.00	98.212	-1.79	-1.79	.00003	.000	1
CalStd9=100	1000.0	1001.8	1.79	.179	.00034	.000	1



Ce 404.076 { 83}

Date of Fit:	07/28/2020 14:13:13	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000032	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	15.328178		
Predicted MQL:	51.093928		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	.00003	.000	1
CalStd9=100	1000.0	1000.0	.000	.000	.00107	.000	1

Sample Name: Blank Acquired: 07/24/2020 14:16:52 Type: Cal
Method: DOD Calibration Updated 060614(v3965) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	Al3082	Al3961	As1937	As1972	Ba2335	Ba4934	Be3130	Be2348	Ca3158	Ca3933
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.000**	**-.000**	**.000**	**-.000**	**.000**	**.010**	**-.000**	**.000**	**.000**	**.003**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	3.17	37.2	22.3	47.8	12700.	51.3	649.	1.12	1.79	326.	3.62	1.84

Elem	Cd2265	Cd2288	Co2286	Cr2055	Cr2677	Cu2230	Cu3247	Fe2599	Mg2025	Mg2802	Mn2576	Mn2593
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.000**	**-.000**	**-.000**	**.000**	**.000**	**.000**	**-.000**	**.000**	**.000**	**1.35**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	1.15
%RSD	2030.	59.7	516.	53.3	180.	1200.	3.23	91.4	85.4	2.62	82.1	85.0

Elem	Mo2020	Mo2045	Ni2216	Ni2316	Pb2169	Pb2203	Sb2068	Sb2175	Se1960	Se2062	Tl1908	V_2908
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**-.000**	**-.000**	**-.000**	**-.000**	**.000**	**-.000**	**.000**	**.000**	**.000**	**.000**	**.000**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	1500.	201.	53.2	18.9	325.	19.1	70.7	77.0	155.	385.	32.4	67.2

Elem	V_2924	Zn2062	Zn2138
Units	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.000**
Stddev	.000	.000	.000
%RSD	18.8	37.1	13.1

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**167630.**	**1611500.**	**168340.**
Stddev	339.	7440.	963.
%RSD	.20251	.46167	.57187

Sample Name: CalStd2=0.5 Acquired: 07/24/2020 14:23:20 Type: Cal
Method: DOD Calibration Updated 060614(v3965) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Be3130	Cd2265	Cd2288
Units	Cts/S	Cts/S	Cts/S
Avg	**-.000**	**.000**	**.000**
Stddev	.000	.000	.000
%RSD	34.0	90.2	19.6

Int. Std.	Y_2243	Y_3242
Units	Cts/S	Cts/S
Avg	**163780.**	**1580000.**
Stddev	1017.	4806.
%RSD	.62069	.30415

Sample Name: CalStd3=1 Acquired: 07/24/2020 14:29:43 Type: Cal
Method: DOD Calibration Updated 060614(v3965) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Ba2335	Be3130	Cd2265	Cd2288	Co2286	Cr2055	Ni2316
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**-.000**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	3.83	45.7	9.01	5.69	10.0	8.53	50.2	80.9

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**163960.**	**1585800.**	**165940.**
Stddev	242.	8481.	2362.
%RSD	.14777	.53484	1.4233

Sample Name: CalStd4=5 Acquired: 07/24/2020 14:36:03 Type: Cal
Method: DOD Calibration Updated 060614(v3965) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ba2335	Be3130	Cd2265	Cd2288	Co2286	Cr2055	Cr2677	Mn2576	Mo2020	Mo2045	Ni2316	Pb2203
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	3.94	.966	2.14	3.09	3.37	3.48	6.47	1.01	6.42	32.2	6.58	13.9

Elem	Sb2175
Units	Cts/S
Avg	**.000**
Stddev	.000
%RSD	16.1

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**164940.**	**1581300.**	**167360.**
Stddev	194.	14177.	725.
%RSD	.11747	.89653	.43334

Sample Name: CalStd5=10 Acquired: 07/24/2020 14:42:28 Type: Cal
Method: DOD Calibration Updated 060614(v3965) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Al1670	As1937	As1972	Ba2335	Be3130	Cd2265	Cd2288	Co2286	Cr2055	Cr2677	Cu2230	Cu3247
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.000**	**.000**	**.001**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	11.7	19.7	60.4	2.52	1.07	1.39	1.22	1.06	.623	5.14	6.13	2.02

Elem	Mn2576	Mo2020	Mo2045	Ni2316	Pb2169	Pb2203	Sb2068	Sb2175	Se1960	Tl1908	V_2924	Zn2062
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	1.18	2.95	8.52	2.16	155.	13.5	13.4	52.4	37.4	13.2	4.42	3.56

Elem	Zn2138
Units	Cts/S
Avg	**.001**
Stddev	.000
%RSD	1.07

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**164680.**	**1573500.**	**167020.**
Stddev	701.	9081.	1154.
%RSD	.42537	.57710	.69098

Sample Name: CalStd6=20 Acquired: 07/24/2020 14:48:55 Type: Cal
Method: DOD Calibration Updated 060614(v3965) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ba2335	Cu2230	Cu3247	Mn2576	Mo2020	Mo2045	Sb2175	V_2924
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	3.36	6.19	2.09	2.08	2.56	4.41	13.6	1.79

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**165530.**	**1583500.**	**164000.**
Stddev	573.	21225.	2243.
%RSD	.34602	1.3404	1.3678

Sample Name: CalStd7=50 Acquired: 07/24/2020 14:55:14 Type: Cal
Method: DOD Calibration Updated 060614(v3965) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	As1937	As1972	Cd2288	Co2286	Cr2055	Cr2677	Cu3247	Mn2576	Mo2020	Mo2045	Ni2316	Sb2068
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.002**	**.001**	**.001**	**.000**	**.000**	**.001**	**.001**	**.000**	**.001**	**.000**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	9.60	6.32	.639	.220	.848	1.47	1.56	1.26	1.04	2.27	.390	1.59

Elem	V_2924
Units	Cts/S
Avg	**.000**
Stddev	.000
%RSD	1.59

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**163650.**	**1572600.**	**164150.**
Stddev	864.	7967.	2540.
%RSD	.52817	.50663	1.5472

Sample Name: CalStd8=100 Acquired: 07/24/2020 15:01:32 Type: Cal
Method: DOD Calibration Updated 060614(v3965) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	As1972	Ba2335	Ba4934	Be3130	Be2348	Ca3933	Cd2265	Cd2288	Co2286
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.000**	**.000**	**.001**	**.018**	**.006**	**.001**	**.038**	**.004**	**.005**	**.003**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	.357	.614	1.34	3.94	.793	.428	.377	.510	.707	.144	.456	.341

Elem	Cr2055	Cr2677	Cu2230	Cu3247	Mg2802	Mn2576	Mo2020	Mo2045	Ni2216	Ni2316	Pb2169	Pb2203
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.001**	**.000**	**.001**	**.001**	**.003**	**.001**	**.001**	**.000**	**.002**	**.001**	**.000**	**.000**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	.377	1.09	1.78	.574	.293	.308	.674	1.95	.709	.319	9.16	2.44

Elem	Sb2175	Se1960	Se2062	Tl1908	V_2908	V_2924	Zn2062	Zn2138
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.000**	**.000**	**.000**	**.001**	**.002**	**.004**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	2.34	2.32	26.4	1.44	4.31	.880	.409	.521

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**163720.**	**1574900.**	**166850.**
Stddev	163.	7117.	891.
%RSD	.09950	.45189	.53426

Sample Name: CalStd9=1000 Acquired: 07/24/2020 15:07:50 Type: Cal
Method: DOD Calibration Updated 060614(v3965) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Al1670	Al3082	Al3961	As1937	As1972	Ba2335	Ba4934	Be3130	Be2348	Ca3158	Ca3933	Cd2265
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.003**	**.000**	**.002**	**.001**	**.001**	**.009**	**.094**	**.062**	**.006**	**.001**	**.299**	**.039**
Stddev	.000	.000	.000	.000	.000	.000	.001	.000	.000	.000	.002	.000
%RSD	.460	2.45	1.14	.320	1.02	.426	.554	.403	.570	1.55	.743	.483

Elem	Cd2288	Co2286	Cr2055	Cr2677	Cu2230	Cu3247	Fe2599	Mg2025	Mg2802	Mn2576	Mn2593	Mo2020
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.046**	**.025**	**.013**	**.003**	**.006**	**.004**	**.002**	**.000**	**.024**	**.012**	**1780.**	**.010**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	4.	.000
%RSD	.471	.472	.234	.721	.268	.640	.632	.610	.728	.787	.237	.444

Elem	Mo2045	Ni2216	Ni2316	Pb2169	Pb2203	Sb2068	Sb2175	Se1960	Se2062	Tl1908	V_2908	V_2924
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.004**	**.016**	**.012**	**.000**	**.003**	**.002**	**.002**	**.001**	**.000**	**.002**	**.001**	**.006**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	.259	.331	.369	.550	.517	.437	.328	1.04	1.18	.347	.725	.631

Elem	Zn2062	Zn2138
Units	Cts/S	Cts/S
Avg	**.019**	**.044**
Stddev	.000	.000
%RSD	.444	.474

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**163260.**	**1574800.**	**167090.**
Stddev	436.	3847.	672.
%RSD	.26682	.24430	.40188

Sample Name: CalStd10=10000 Acquired: 07/24/2020 15:13:39 Type: Cal
Method: DOD Calibration Updated 060614(v3965) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Al3082	Al3961	As1972	Ca3158	Co2286	Cr2055	Cr2677	Cu3247	Fe2599	Mg2025	Mg2802
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.004**	**.024**	**.007**	**.005**	**.240**	**.127**	**.024**	**.033**	**.017**	**.002**	**.219**
Stddev	.000	.000	.000	.000	.001	.001	.000	.001	.000	.000	.002
%RSD	2.32	1.88	.342	2.00	.565	.481	.655	1.76	1.88	.331	.768

Elem	Mn2576	Mn2593	Mo2045	Ni2216	Ni2316	Pb2169	Sb2068	Sb2175	Se2062	V_2908	V_2924
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.115**	**17100.**	**.038**	**.156**	**.116**	**.002**	**.017**	**.017**	**.002**	**.013**	**.058**
Stddev	.000	25.	.000	.001	.001	.000	.000	.000	.000	.000	.000
%RSD	.380	.149	.574	.534	.559	.672	.531	.451	.748	2.23	.226

Elem	Zn2062
Units	Cts/S
Avg	**.182**
Stddev	.001
%RSD	.723

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**161930.**	**1539100.**	**165050.**
Stddev	505.	2734.	2947.
%RSD	.31172	.17766	1.7853

Sample Name: CalStd12=100K Acquired: 07/24/2020 15:20:27 Type: Cal
Method: DOD Calibration Updated 060614(v3965) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Cr2055	Cu3247	Mn2593	Pb2169	Zn2062
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**1.19**	**.348**	**173000.**	**.021**	**1.71**
Stddev	.00	.002	751.	.000	.01
%RSD	.138	.609	.434	.435	.523

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**160440.**	**1552700.**	**165740.**
Stddev	583.	6800.	507.
%RSD	.36316	.43792	.30583

Sample Name: CalStd13=100000 Acquired: 07/24/2020 15:27:13 Type: Cal
Method: DOD Calibration Updated 060614(v3965) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Al3082	Al3961	Ca3158	Fe2599	Mg2025
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.040**	**.226**	**.047**	**.160**	**.017**
Stddev	.000	.001	.000	.001	.000
%RSD	.507	.472	.355	.317	.847

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**154410.**	**1492500.**	**165590.**
Stddev	507.	11306.	609.
%RSD	.32859	.75755	.36766

Sample Name: CalStd14=500000 Acquired: 07/24/2020 15:33:18 Type: Cal
Method: DOD Calibration Updated 060614(v3965) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Al3961	Ca3158	Fe2599	Mg2025
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**1.21**	**.235**	**.753**	**.082**
Stddev	.01	.002	.006	.001
%RSD	.449	.864	.747	.671

Int. Std.	Y_3242	Y_3710
Units	Cts/S	Cts/S
Avg	**1413500.**	**159970.**
Stddev	9639.	1624.
%RSD	.68191	1.0149

Sample Name: CalibStd15=1000k Acquired: 07/24/2020 15:39:52 Type: Cal
Method: DOD Calibration Updated 060614(v3965) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Al3961	Ca3158	Mg2025
Units	Cts/S	Cts/S	Cts/S
Avg	**2.38**	**.439**	**.151**
Stddev	.08	.011	.001
%RSD	3.30	2.45	.834

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**130790.**	**1271300.**	**151400.**
Stddev	306.	8938.	3825.
%RSD	.23404	.70308	2.5263

Sample Name: Ag Ba 1000, 50000 Acquired: 07/24/2020 15:47:13 Type: Cal
Method: DOD Calibration Updated 060614(v3965) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ba4934
Units	Cts/S
Avg	**4.17**
Stddev	.03
%RSD	.748
Int. Std.	Y_3710
Units	Cts/S
Avg	**170010.**
Stddev	338.
%RSD	.19894

Sample Name: icv Acquired: 07/24/2020 16:00:13 Type: QC
Method: DOD Calibration Updated 060614(v3965) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3082	Al3961	As1972	Ba4934	Be3130	Ca3158	Cd2265	Co2286	Cr2055	Cr2677	Cu2230
Avg	**47.9**	**11600.**	**11400.**	**1950.**	**1900.**	**47.9**	**9800.**	**46.4**	**498.**	**209.**	**200.**	**234.**
Stddev	.9	122.	88.	19.	20.	.3	82.	.3	4.	2.	1.	2.
%RSD	1.96	1.06	.769	.995	1.07	.532	.840	.719	.775	.974	.622	1.04
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Fe2599	Mg2025	Mn2576	Mo2020	Mo2045	Ni2216	Ni2316	Pb2169	Pb2203	Sb2175	Se2062	Tl1908
Avg	**5140.**	**10200.**	**495.**	**501.**	**520.**	**498.**	**499.**	**464.**	**488.**	**489.**	**1960.**	**1920.**
Stddev	78.	85.	2.	5.	4.	4.	4.	19.	5.	4.	29.	19.
%RSD	1.51	.827	.442	1.07	.864	.737	.896	4.00	.998	.776	1.47	1.01
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	V_2924	Zn2062	Zn2138
Avg	**494.**	**502.**	**479.**
Stddev	2.	3.	4.
%RSD	.316	.694	.854
Check ?	None	None	None
Value			
Range			

Sample Name: icv Acquired: 07/24/2020 16:00:13 Type: QC
Method: DOD Calibration Updated 060614(v3965) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**162120.**	**1547500.**	**167460.**
Stddev	667.	5581.	623.
%RSD	.41146	.36064	.37218

Sample Name: ICVLL Acquired: 07/24/2020 16:12:50 Type: QC
Method: DOD Calibration Updated 060614(v3965) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	Al3082	As1937	Ba2335	Be3130	Ca3158	Ca3933	Cd2265	Co2286	Cr2677	Cu2230
Avg	F **38.7**	**1220.**	**1280.**	**64.7**	**31.7**	**13.2**	**1640.**	**1500.**	**15.9**	**33.3**	**33.2**	**31.3**
Stddev	.9	12.	20.	6.2	.3	.2	22.	13.	.2	.5	1.3	.9
%RSD	2.20	.968	1.54	9.56	.960	1.81	1.37	.884	.985	1.48	3.83	2.90
Check ?	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value	60.0											
Range	-30.0%											

Elem	Fe2599	Mg2025	Mg2802	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Avg	**1020.**	**1740.**	**1750.**	**34.3**	**34.0**	**33.2**	**32.0**	**63.6**	**66.1**	**61.2**	**33.8**	**32.7**
Stddev	12.	35.	40.	.7	.5	.4	2.3	.5	3.0	2.4	.8	.4
%RSD	1.16	1.99	2.28	2.13	1.33	1.33	7.21	.766	4.61	3.95	2.35	1.18
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value												
Range												

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**162000.**	**1534600.**	**166900.**
Stddev	634.	30311.	1856.
%RSD	.39110	1.9752	1.1119

Sample Name: icb Acquired: 07/24/2020 16:19:03 Type: QC
Method: DOD Calibration Updated 060614(v3965) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2230	Fe2599	Mg2802
Avg	**.395**	**.173**	**.611**	**-.001**	**-.008**	**-7.28**	**-.207**	**.163**	**-.057**	**-.352**	**-9.63**	**-2.36**
Stddev	.462	.761	5.60	.389	.013	.12	.180	.244	.593	.850	3.60	.07
%RSD	117.	440.	917.	46200.	165.	1.63	87.0	149.	1040.	241.	37.4	3.04
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Avg	**-1.26**	**.378**	**-.020**	**.617**	**.005**	**.564**	**-.232**	**.191**	**-.455**
Stddev	.07	.222	.354	2.83	3.08	3.39	2.42	.339	.031
%RSD	5.77	58.8	1750.	458.	67400.	602.	1040.	177.	6.75
Check ?	None	None	None	None	None	None	None	None	None
Value									
Range									

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**166120.**	**1585600.**	**168460.**
Stddev	226.	7518.	1180.
%RSD	.13583	.47416	.70070

Sample Name: MRL/LLOQ Acquired: 07/24/2020 16:31:50 Type: QC
Method: DOD Calibration Updated 060614(v3965) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2230	Fe2599	Mg2802
Avg	F **29.4**	**397.**	**22.2**	**9.37**	**4.12**	**460.**	**4.97**	**10.6**	**10.3**	**8.65**	**283.**	**546.**
Stddev	.6	1.	3.8	.40	.03	3.	.08	.3	1.0	1.02	3.	3.
%RSD	2.16	.287	16.9	4.29	.794	.661	1.54	2.89	9.31	11.7	1.07	.529
Check ?	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value	20.0											
Range	30.0%											

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Avg	**9.36**	**10.8**	**10.4**	**9.54**	**21.4**	**21.8**	**20.8**	**9.89**	**10.9**
Stddev	.07	.3	.4	1.74	1.3	4.9	1.2	.61	.1
%RSD	.798	2.76	4.04	18.3	5.90	22.3	5.61	6.16	.675
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value									
Range									

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**164200.**	**1567300.**	**169330.**
Stddev	291.	6552.	757.
%RSD	.17740	.41803	.44687

Sample Name: ICSA Acquired: 07/24/2020 16:38:07 Type: QC
Method: DOD Calibration Updated 060614(v3965) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3961	As1937	Ba2335	Be3130	Ca3158	Cd2265	Co2286	Cr2677	Cu2230	Fe2599
Avg	**-.049**	**508000.**	**-.023**	**-.663**	**-.000**	**488000.**	**.001**	**.027**	**-1.75**	**.001**	**455000.**
Stddev	.698	4540.	5.58	.475	.024	4000.	.872	.475	.57	1.59	3720.
%RSD	1420.	.893	24700.	71.7	1010000.	.820	160000.	1770.	32.4	171000.	.816
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit											
Low Limit											

Elem	Mg2025	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2908	Zn2138
Avg	**472000.**	**-3.23**	**2.55**	**-1.52**	**.384**	**-.000**	**.059**	**-.007**	**21200.**	**6.11**
Stddev	9170.	.14	.34	.71	2.57	3.59	9.65	4.57	169.	1.57
%RSD	1.94	4.49	13.4	46.9	669.	12e6	16200.	64700.	.798	25.7
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	None	Chk Pass
High Limit										
Low Limit										

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**143040.**	**1394000.**	**157100.**
Stddev	671.	27084.	1368.
%RSD	.46915	1.9429	.87078

Sample Name: ICSAB Acquired: 07/24/2020 16:44:36 Type: QC
Method: DOD Calibration Updated 060614(v3965) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3382	Al3961	As1937	Ba2335	Be3130	Ca3158	Cd2288	Co2286	Cr2055	Cr2677	Cu2230
Avg	**555.**	**532000.**	**579.**	**527.**	**501.**	**508000.**	**535.**	**534.**	**584.**	**539.**	**539.**
Stddev	14.	5270.	20.	2.	2.	5940.	1.	2.	1.	2.	4.
%RSD	2.59	.989	3.49	.423	.455	1.17	.272	.318	.223	.443	.829
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value											
Range											

Elem	Fe2599	Mg2025	Mn2576	Mo2020	Mo2045	Ni2216	Ni2316	Pb2203	Sb2175	Se1960	Tl1908
Avg	**485000.**	**497000.**	**542.**	**546.**	**575.**	**536.**	**517.**	**470.**	**556.**	**531.**	**499.**
Stddev	5670.	1780.	3.	1.	3.	1.	1.	7.	10.	2.	7.
%RSD	1.17	.359	.519	.113	.464	.133	.126	1.41	1.72	.363	1.34
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value											
Range											

Elem	V_2924	Zn2062	Zn2138
Avg	**545.**	**497.**	**488.**
Stddev	3.	2.	3.
%RSD	.514	.338	.656
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Sample Name: ICSAB Acquired: 07/24/2020 16:44:36 Type: QC
Method: DOD Calibration Updated 060614(v3965) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**142720.**	**1383700.**	**158070.**
Stddev	573.	1548.	2023.
%RSD	.40172	.11190	1.2798

Sample Name: ICVLL ag Acquired: 07/24/2020 16:56:48 Type: Unk
Method: DOD Calibration Updated 060614(v3965) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2230	Fe2599	Mg2802
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**10.2**	**1.72**	**3.93**	**.551**	**.078**	**-5.38**	**.077**	**.209**	**.968**	**.536**	**88.9**	**-1.68**
Stddev	.4	.88	2.31	.472	.015	.39	.045	.182	.220	.845	51.9	.05
%RSD	4.03	51.2	58.8	85.5	18.9	7.19	58.9	86.9	22.8	158.	58.4	3.12

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-1.15**	**.575**	**-.480**	**-1.27**	**.615**	**2.89**	**-2.85**	**.028**	**.555**
Stddev	.09	.299	.244	1.74	1.76	3.83	.87	.318	.100
%RSD	7.60	52.1	50.9	136.	287.	132.	30.4	1150.	18.1

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**162710.**	**1557300.**	**166130.**
Stddev	532.	4383.	2282.
%RSD	.32666	.28142	1.3736

Sample Name: ccv1 Acquired: 07/24/2020 19:20:32 Type: QC
Method: DOD Calibration Updated 060614(v3965) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3082	Al3961	As1972	Ba4934	Be3130	Ca3158	Cd2288	Co2388	Cr2055	Cu3247	Fe2599
Avg	**456.**	**4600.**	**4870.**	**4920.**	**4720.**	**462.**	**4800.**	**477.**	**4780.**	**5020.**	**4630.**	**4850.**
Stddev	3.	44.	86.	12.	44.	5.	55.	1.	37.	15.	34.	56.
%RSD	.637	.954	1.77	.241	.932	1.01	1.14	.184	.782	.303	.738	1.15
Check ?	None	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value												
Range												

Elem	Mg2025	Mn2593	Mo2045	Ni2216	Pb2169	Sb2068	Se2062	Tl1908	V_2908	Zn2062
Avg	**4900.**	**4620.**	**4850.**	**4840.**	**4500.**	**4860.**	**4900.**	**4570.**	**4720.**	**4770.**
Stddev	38.	18.	18.	15.	28.	19.	44.	16.	51.	17.
%RSD	.765	.399	.377	.307	.629	.389	.902	.355	1.07	.355
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value										
Range										

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**157920.**	**1505000.**	**164060.**
Stddev	461.	8824.	1573.
%RSD	.29190	.58631	.95897

Sample Name: ccv2 Acquired: 07/24/2020 19:26:10 Type: QC
Method: DOD Calibration Updated 060614(v3965) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3933	Cd2265	Cd2288	Co2286	Cr2055	Cr2677	Cu2230
Avg	**47.3**	**480.**	**482.**	**478.**	**47.2**	**457.**	**46.4**	**48.4**	**499.**	**524.**	**499.**	**473.**
Stddev	.7	2.	5.	2.	.1	5.	.1	.3	1.	.	2.	1.
%RSD	1.42	.422	1.05	.428	.214	1.05	.276	.555	.119	.083	.443	.125
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value												
Range												

Elem	Fe2599	Mg2802	Mn2576	Mo2020	Mo2045	Ni2216	Ni2316	Pb2169	Pb2203	Sb2175	Se1960	Tl1908
Avg	**503.**	**535.**	**501.**	**483.**	**502.**	**507.**	**507.**	**484.**	**478.**	**497.**	**483.**	**494.**
Stddev	2.	3.	2.	1.	2.	2.	1.	13.	2.	2.	4.	4.
%RSD	.491	.541	.357	.271	.344	.314	.201	2.58	.398	.312	.894	.839
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value												
Range												

Elem	V_2924	Zn2062	Zn2138
Avg	**496.**	**493.**	**474.**
Stddev	2.	2.	1.
%RSD	.309	.323	.230
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Sample Name: ccv2 Acquired: 07/24/2020 19:26:10 Type: QC
Method: DOD Calibration Updated 060614(v3965) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**161410.**	**1538600.**	**165940.**
Stddev	410.	1966.	1178.
%RSD	.25385	.12778	.70981

Sample Name: ccb Acquired: 07/24/2020 19:32:04 Type: QC
Method: DOD Calibration Updated 060614(v3965) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2230	Fe2599	Mg2802
Avg	**.458**	**1.31**	**3.70**	**-.050**	**.054**	**-5.67**	**.015**	**.132**	**.193**	**-1.14**	**-10.5**	**-1.04**
Stddev	.301	.56	3.25	.238	.029	.36	.228	.240	.500	.72	2.7	.09
%RSD	65.9	43.0	87.9	473.	53.3	6.40	1480.	182.	259.	62.9	26.0	9.02
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Avg	**-1.22**	**1.17**	**-.135**	**-.959**	**-.411**	**-2.22**	**-1.17**	**-.284**	**.152**
Stddev	.06	.35	1.29	1.10	1.84	2.55	2.27	.318	.145
%RSD	4.75	29.9	959.	114.	448.	115.	193.	112.	95.8
Check ?	None	None	None	None	None	None	None	None	None
Value									
Range									

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**164630.**	**1566700.**	**169060.**
Stddev	425.	4467.	1150.
%RSD	.25827	.28515	.68011

Sample Name: lcsw77363 Acquired: 07/24/2020 19:38:28 Type: Unk
Method: DOD Calibration Updated 060614(v3965) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3158	Cd2265	Co2286	Cr2677	Cu2230	Fe2599
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**19.9**	**724.**	**787.**	**743.**	**18.9**	**197000.**	**17.9**	**195.**	**80.2**	**104.**	**407.**
Stddev	1.0	13.	20.	12.	.1	2130.	.5	3.	.7	2.	8.
%RSD	4.87	1.83	2.59	1.64	.351	1.08	2.67	1.54	.843	2.23	2.08

Elem	Mg2025	Mn2576	Mo2045	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2908	Zn2138
Units	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**98600.**	**196.**	**2150.**	**194.**	**182.**	**200.**	**772.**	**718.**	**193.**	**194.**
Stddev	797.	1.	36.	3.	3.	8.	15.	9.	5.	3.
%RSD	.808	.360	1.66	1.72	1.63	3.84	1.97	1.26	2.60	1.69

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**150340.**	**1433200.**	**159930.**
Stddev	1589.	3503.	1469.
%RSD	1.0569	.24442	.91857

Sample Name: mbw77363 Acquired: 07/24/2020 19:44:40 Type: Unk
Method: DOD Calibration Updated 060614(v3965) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2230	Fe2599	Mg2802
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**.585**	**1.96**	**4.33**	**.153**	**.038**	**7.16**	**-.145**	**-.061**	**-.339**	**-.025**	**-3.20**	**1.11**
Stddev	.699	.83	1.90	.363	.035	3.02	.150	.178	.260	1.46	1.63	.22
%RSD	120.	42.3	44.0	237.	93.4	42.2	104.	291.	76.7	5790.	51.0	19.7

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-1.21**	**2.16**	**-.536**	**-1.18**	**.873**	**1.36**	**-.917**	**-.029**	**.354**
Stddev	.06	.47	.361	4.50	.965	2.26	1.43	.326	.070
%RSD	5.24	21.7	67.4	380.	111.	167.	155.	1130.	19.8

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**161110.**	**1544900.**	**165620.**
Stddev	252.	11812.	2611.
%RSD	.15628	.76459	1.5762

Sample Name: 448843 Acquired: 07/24/2020 19:51:04 Type: Unk
Method: DOD Calibration Updated 060614(v3965) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3158	Cd2265	Co2286	Cr2677	Cu2230	Fe2599	Mg2025
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L
Avg	**.428**	**146.**	**1.66**	**70.2**	**.015**	**64200.**	**-.217**	**.387**	**4.56**	**.784**	**267.**	**27200.**
Stddev	.317	1.	3.61	.4	.040	262.	.093	.470	.66	.369	5.	187.
%RSD	74.0	.429	217.	.539	267.	.408	42.7	122.	14.4	47.1	1.99	.687

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**19.4**	**4.21**	**-.665**	**1.15**	**1.33**	**-1.14**	**-.467**	**.998**	**6.18**
Stddev	.1	.28	.255	4.99	2.14	5.25	3.97	.645	.17
%RSD	.651	6.57	38.3	433.	161.	461.	851.	64.7	2.67

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**159110.**	**1520800.**	**167320.**
Stddev	618.	8752.	803.
%RSD	.38858	.57545	.47964

Sample Name: I448843 Acquired: 07/24/2020 19:57:47 Type: Unk
Method: DOD Calibration Updated 060614(v3965) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3158	Cd2265	Co2286	Cr2677	Cu2230	Fe2599	Mg2025
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L
Avg	**.326**	**139.**	**2.32**	**15.3**	**.023**	**22600.**	**-.091**	**.109**	**1.64**	**.349**	**286.**	**6030.**
Stddev	.166	13.	3.05	1.4	.009	2030.	.109	.187	.60	.117	32.	546.
%RSD	50.8	9.45	132.	9.39	39.3	8.98	120.	172.	36.4	33.5	11.3	9.05

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**4.83**	**1.73**	**-.481**	**.761**	**-2.68**	**-2.28**	**-3.03**	**.960**	**1.27**
Stddev	.37	.22	.533	2.70	3.14	2.70	1.51	.717	.15
%RSD	7.70	12.8	111.	355.	117.	118.	49.7	74.7	11.7

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**161450.**	**1542000.**	**166030.**
Stddev	595.	2361.	457.
%RSD	.36884	.15309	.27504

Sample Name: dup448843 Acquired: 07/24/2020 20:04:35 Type: Unk
Method: DOD Calibration Updated 060614(v3965) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3158	Cd2265	Co2286	Cr2677	Cu2230	Fe2599	Mg2025
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L
Avg	**.293**	**588.**	**3.80**	**72.4**	**.049**	**64300.**	**-.267**	**.351**	**5.35**	**3.49**	**809.**	**27000.**
Stddev	.474	2.	2.05	.8	.022	700.	.146	.323	.84	.98	6.	258.
%RSD	162.	.339	53.9	1.13	45.6	1.09	54.7	92.2	15.8	28.1	.752	.956

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**21.0**	**4.91**	**.129**	**-1.00**	**.449**	**-.687**	**-.087**	**1.72**	**7.47**
Stddev	.4	.46	.697	3.57	1.46	1.93	2.42	.19	.19
%RSD	1.84	9.40	542.	356.	324.	280.	2800.	11.1	2.59

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**156710.**	**1518400.**	**166380.**
Stddev	140.	16067.	1637.
%RSD	.08920	1.0582	.98372

Sample Name: msw448843 Acquired: 07/24/2020 20:11:19 Type: Unk
Method: DOD Calibration Updated 060614(v3965) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	Al3082	As1937	Ba2335	Be3130	Ca3158	Cd2265	Co2286	Cr2677	Cu2230
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**20.0**	**1480.**	**1740.**	**796.**	**820.**	**19.6**	**261000.**	**18.3**	**196.**	**85.7**	**109.**
Stddev	.5	12.	22.	8.	2.	.4	1440.	.3	1.	2.0	1.
%RSD	2.62	.799	1.25	1.06	.293	2.11	.553	1.49	.299	2.28	.781

Elem	Fe2599	Mg2025	Mn2576	Mo2045	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Units	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**1220.**	**125000.**	**215.**	**2180.**	**193.**	**185.**	**206.**	**776.**	**706.**	**175.**	**205.**
Stddev	11.	3420.	5.	6.	.	1.	1.	4.	2.	3.	1.
%RSD	.901	2.72	2.27	.283	.122	.660	.673	.490	.247	1.98	.586

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**147670.**	**1418700.**	**160180.**
Stddev	493.	33576.	1306.
%RSD	.33397	2.3667	.81505

Sample Name: msdw448843 Acquired: 07/24/2020 20:17:26 Type: Unk
Method: DOD Calibration Updated 060614(v3965) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	Al3082	As1937	Ba2335	Be3130	Ca3158	Cd2265	Co2286	Cr2677	Cu2230
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**19.5**	**1550.**	**1830.**	**806.**	**834.**	**19.3**	**269000.**	**18.3**	**198.**	**84.8**	**111.**
Stddev	.2	3.	36.	6.	1.	.1	1690.	.3	1.	.8	1.
%RSD	1.05	.187	1.95	.765	.113	.715	.627	1.45	.351	.987	1.30

Elem	Fe2599	Mg2025	Mn2576	Mo2045	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Units	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**1300.**	**127000.**	**213.**	**2200.**	**193.**	**186.**	**203.**	**788.**	**703.**	**172.**	**207.**
Stddev	15.	627.	2.	7.	1.	5.	4.	10.	5.	2.	.
%RSD	1.12	.494	.982	.304	.390	2.49	2.06	1.31	.746	1.20	.237

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**147470.**	**1436100.**	**159210.**
Stddev	388.	7919.	610.
%RSD	.26311	.55142	.38286

Sample Name: pdsw448843 Acquired: 07/24/2020 20:23:32 Type: Unk
Method: DOD Calibration Updated 060614(v3965) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3082	As1972	Ba4934	Be3130	Ca3158	Cd2265	Cd2288	Co2286	Cr2055	Cr2677	Cu2230
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**92.6**	**4520.**	**3890.**	**3890.**	**95.3**	**65500.**	**92.7**	**119.**	**983.**	**416.**	**395.**	**460.**
Stddev	.7	20.	9.	19.	.4	270.	.5	1.	1.	1.	3.	3.
%RSD	.779	.450	.237	.486	.457	.413	.580	.428	.134	.130	.792	.721

Elem	Fe2599	Mg2025	Mn2576	Mo2020	Ni2216	Ni2316	Pb2169	Pb2203	Sb2068	Se2062	Tl1908	V_2908
Units	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**2800.**	**27000.**	**976.**	**6.12**	**974.**	**972.**	**960.**	**927.**	**986.**	**3970.**	**3700.**	**1020.**
Stddev	3.	49.	5.	.55	1.	1.	12.	4.	3.	32.	14.	12.
%RSD	.119	.183	.465	8.96	.116	.095	1.24	.419	.307	.793	.385	1.13

Elem	V_2924	Zn2062	Zn2138
Units	ug/L	ug/L	ug/L
Avg	**997.**	**1000.**	**969.**
Stddev	7.	2.	2.
%RSD	.676	.211	.205

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**156560.**	**1511900.**	**163060.**
Stddev	337.	5336.	1031.
%RSD	.21540	.35289	.63204

Sample Name: ccv1 Acquired: 07/24/2020 20:42:45 Type: QC
Method: DOD Calibration Updated 060614(v3965) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3082	Al3961	As1972	Ba4934	Be3130	Ca3158	Cd2288	Co2388	Cr2055	Cu3247	Fe2599
Avg	**455.**	**4770.**	**4850.**	**4920.**	**4810.**	**483.**	**5040.**	**496.**	**4870.**	**5120.**	**4600.**	**5080.**
Stddev	2.	37.	44.	22.	44.	2.	57.	1.	15.	8.	45.	54.
%RSD	.425	.779	.898	.455	.909	.439	1.12	.231	.303	.160	.983	1.06
Check ?	None	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value												
Range												

Elem	Mg2025	Mn2593	Mo2045	Ni2216	Pb2169	Sb2068	Se2062	Tl1908	V_2908	Zn2062
Avg	**5050.**	**4680.**	**4980.**	**4910.**	**4710.**	**4980.**	**5020.**	**4570.**	**4750.**	**5050.**
Stddev	25.	29.	10.	11.	24.	10.	30.	7.	48.	12.
%RSD	.503	.621	.209	.217	.514	.210	.595	.145	1.02	.229
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value										
Range										

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**156140.**	**1511200.**	**163980.**
Stddev	392.	6312.	699.
%RSD	.25084	.41768	.42631

Sample Name: ccv2 Acquired: 07/24/2020 20:48:16 Type: QC
Method: DOD Calibration Updated 060614(v3965) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3968	Cd2265	Cd2288	Co2286	Cr2055	Cr2677	Cu2230
Avg	**46.7**	**507.**	**494.**	**494.**	**48.8**	**486.**	**48.9**	**50.5**	**518.**	**533.**	**501.**	**498.**
Stddev	.8	4.	5.	1.	.9	4.	.4	.3	1.	1.	9.	1.
%RSD	1.71	.799	.930	.222	1.78	.820	.769	.655	.284	.269	1.76	.121
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value												
Range												

Elem	Fe2599	Mg2802	Mn2576	Mo2020	Mo2045	Ni2216	Ni2316	Pb2169	Pb2203	Sb2175	Se1960	Tl1908
Avg	**530.**	**525.**	**495.**	**492.**	**514.**	**512.**	**511.**	**498.**	**492.**	**509.**	**495.**	**489.**
Stddev	8.	10.	9.	1.	1.	.	1.	21.	3.	6.	7.	3.
%RSD	1.53	1.91	1.75	.145	.197	.088	.116	4.17	.511	1.17	1.41	.532
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value												
Range												

Elem	V_2924	Zn2062	Zn2138
Avg	**498.**	**523.**	**500.**
Stddev	8.	.	2.
%RSD	1.57	.052	.351
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Sample Name: ccv2 Acquired: 07/24/2020 20:48:16 Type: QC
Method: DOD Calibration Updated 060614(v3965) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**159920.**	**1562500.**	**165440.**
Stddev	512.	20838.	890.
%RSD	.32022	1.3337	.53818

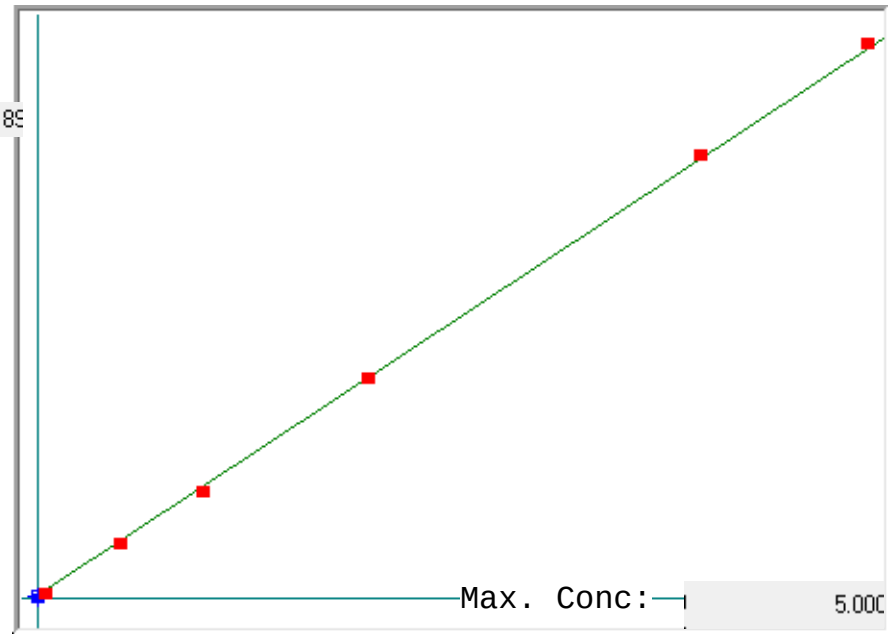
Sample Name: ccb Acquired: 07/24/2020 20:54:10 Type: QC
Method: DOD Calibration Updated 060614(v3965) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2230	Fe2599	Mg2802
Avg	**-.190**	**1.25**	**1.68**	**.010**	**-.059**	**-4.58**	**.124**	**.208**	**-.066**	**-1.04**	**-9.88**	**-.795**
Stddev	.747	.31	4.00	.329	.030	.53	.076	.116	.602	1.46	1.66	.099
%RSD	393.	25.2	238.	3290.	51.1	11.5	60.8	55.7	919.	140.	16.8	12.5
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138
Avg	**-1.13**	**1.69**	**-.155**	**.084**	**.750**	**4.13**	**-.990**	**.142**	**.446**
Stddev	.04	.20	.318	2.52	1.13	1.65	1.27	.151	.173
%RSD	3.45	12.0	205.	2990.	150.	40.0	128.	106.	38.9
Check ?	None	None	None	None	None	None	None	None	None
Value									
Range									

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**163450.**	**1583900.**	**167570.**
Stddev	121.	5810.	1060.
%RSD	.07404	.36677	.63256

Hg WATER



A= 0.0000e+000

B= 1.2985e-004

C= -2.2474e-002

Rho= 0.9997737

Accept= Accepted

Accepted Date=

07/29/20 08:44

Std ID	Conc.	Calc.	Dev.	Mean	SD or %RSD	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
CALIBRATION BLANK	0.000	0.001	0.001	178	7.886	170	171	184	188	
0.05	0.050	0.046	-0.004	528	3.6 %	502	520	539	553	
0.5	0.500	0.499	-0.001	4019	2.6 %	3880	3966	4071	4161	
1.0	1.000	0.979	-0.021	7712	2.2 %	7492	7627	7774	7956	
2.0	2.000	2.014	0.014	15687	2.1 %	15217	15578	15859	16094	
4.0	4.000	4.054	0.054	31398	2.6 %	30226	31076	31893	32400	
5.0	5.000	5.066	0.066	39188	1.8 %	38190	38953	39509	40102	

072920w

Method: Hg WATER Operator: Admin Date of Analysis: 29 Jul 2020 07:14:14

Sample ID	Date	Element	Units	Extended ID	Mean
CALIBRATION BLANK	29 Jul 2020 08:21:45	Hg			[ ] 178.250
0.05	29 Jul 2020 08:24:55	Hg			[ ] 528.500
0.5	29 Jul 2020 08:28:06	Hg			[ ] 4019.500
1.0	29 Jul 2020 08:31:18	Hg			[ ] 7712.250
2.0	29 Jul 2020 08:34:30	Hg			[ ] 15687.000
4.0	29 Jul 2020 08:37:40	Hg			[ ] 31398.750
5.0	29 Jul 2020 08:40:51	Hg			[ ] 39188.500
ICV	29 Jul 2020 08:44:01	Hg			97.2% 2.917
ICB	29 Jul 2020 08:50:21	Hg			-0.004
450880lcsw 77412	29 Jul 2020 08:53:31	Hg			2.001
450879mbw 77412	29 Jul 2020 08:59:50	Hg			0.006
444185	29 Jul 2020 09:02:59	Hg			0.017
444187	29 Jul 2020 09:06:09	Hg			0.012
444189	29 Jul 2020 09:09:18	Hg			0.022
444321	29 Jul 2020 09:12:28	Hg			0.001
450881msw 444185	29 Jul 2020 09:15:39	Hg			2.025
lcsw	29 Jul 2020 09:18:49	Hg			2.051
CCV	29 Jul 2020 09:25:10	Hg			100.7% 3.020
CCB	29 Jul 2020 09:31:30	Hg			0.001
mbw	29 Jul 2020 09:34:39	Hg			0.007
449215	29 Jul 2020 09:37:50	Hg			0.005
449216	29 Jul 2020 09:41:02	Hg			0.028
449217	29 Jul 2020 09:44:12	Hg			0.002
449218	29 Jul 2020 09:47:22	Hg			0.006
450895dup 449218	29 Jul 2020 09:50:32	Hg			0.003
449219	29 Jul 2020 09:53:42	Hg			0.024
449220	29 Jul 2020 09:56:51	Hg			0.071
448843	29 Jul 2020 10:00:01	Hg			0.009
450890dup 448843	29 Jul 2020 10:03:11	Hg			0.010
CCV	29 Jul 2020 10:06:22	Hg			106.4% 3.193
CCB	29 Jul 2020 10:12:41	Hg			0.006
450344	29 Jul 2020 10:15:51	Hg			0.013
450896msw 449218	29 Jul 2020 10:19:02	Hg			2.117
~~450897msdw 449218~~	~~29 Jul 2020 10:22:12~~	~~Hg~~			~~-0.022 [ ]~~
450897msdw 449218	29 Jul 2020 10:23:18	Hg			2.134
~~450891msw 448843~~	~~29 Jul 2020 10:26:29~~	~~Hg~~			~~-0.022 [ ]~~
450891msw 448843	29 Jul 2020 10:27:26	Hg			2.111
450842msdw 448843	29 Jul 2020 10:30:38	Hg			2.141
449501	29 Jul 2020 10:36:58	Hg			0.004
449514	29 Jul 2020 10:40:08	Hg			-0.025 [ ]
451083	29 Jul 2020 10:43:18	Hg			0.003
447988	29 Jul 2020 10:46:28	Hg			-0.003 [ ]
CCV	29 Jul 2020 10:49:38	Hg			106.2% 3.187
CCB	29 Jul 2020 10:55:57	Hg			0.004
449295	29 Jul 2020 10:59:07	Hg			-0.007 [ ]
450871msw 449501	29 Jul 2020 11:02:17	Hg			2.005
450872msdw 449501	29 Jul 2020 11:05:27	Hg			2.021
450886msw 447988	29 Jul 2020 11:08:37	Hg			1.994
453225msdw 447988	29 Jul 2020 11:11:48	Hg			1.951
451869msw 449295	29 Jul 2020 11:15:00	Hg			1.493
451870msdw 449295	29 Jul 2020 11:18:11	Hg			1.474
CCV	29 Jul 2020 11:21:21	Hg			102.9% 3.087
CCB	29 Jul 2020 11:27:41	Hg			-0.001

072920w detailed

Method: Hg WATER Operator: Admin Date of Analysis: 29 Jul 2020 07:14:14

Sample ID	Date	Element	Units	Extended ID	µ Abs.	Conc.
CALIBRATION BLANK - 1	29 Jul 2020 08:21:45	Hg			170	-
CALIBRATION BLANK - 2	29 Jul 2020 08:21:45	Hg			171	-
CALIBRATION BLANK - 3	29 Jul 2020 08:21:45	Hg			184	-
CALIBRATION BLANK - 4	29 Jul 2020 08:21:45	Hg			188	-
0.05 - 1	29 Jul 2020 08:24:55	Hg			502	-
0.05 - 2	29 Jul 2020 08:24:55	Hg			520	-
0.05 - 3	29 Jul 2020 08:24:55	Hg			539	-
0.05 - 4	29 Jul 2020 08:24:55	Hg			553	-
0.5 - 1	29 Jul 2020 08:28:06	Hg			3880	-
0.5 - 2	29 Jul 2020 08:28:06	Hg			3966	-
0.5 - 3	29 Jul 2020 08:28:06	Hg			4071	-
0.5 - 4	29 Jul 2020 08:28:06	Hg			4161	-
1.0 - 1	29 Jul 2020 08:31:18	Hg			7492	-
1.0 - 2	29 Jul 2020 08:31:18	Hg			7627	-
1.0 - 3	29 Jul 2020 08:31:18	Hg			7774	-
1.0 - 4	29 Jul 2020 08:31:18	Hg			7956	-
2.0 - 1	29 Jul 2020 08:34:30	Hg			15217	-
2.0 - 2	29 Jul 2020 08:34:30	Hg			15578	-
2.0 - 3	29 Jul 2020 08:34:30	Hg			15859	-
2.0 - 4	29 Jul 2020 08:34:30	Hg			16094	-
4.0 - 1	29 Jul 2020 08:37:40	Hg			30226	-
4.0 - 2	29 Jul 2020 08:37:40	Hg			31076	-
4.0 - 3	29 Jul 2020 08:37:40	Hg			31893	-
4.0 - 4	29 Jul 2020 08:37:40	Hg			32400	-
5.0 - 1	29 Jul 2020 08:40:51	Hg			38190	-
5.0 - 2	29 Jul 2020 08:40:51	Hg			38953	-
5.0 - 3	29 Jul 2020 08:40:51	Hg			39509	-
5.0 - 4	29 Jul 2020 08:40:51	Hg			40102	-
ICV - 1	29 Jul 2020 08:44:01	Hg			22025	(L)94.6% 2.837
ICV - 2	29 Jul 2020 08:44:01	Hg			22443	96.4% 2.892
ICV - 3	29 Jul 2020 08:44:01	Hg			22796	97.9% 2.937
ICV - 4	29 Jul 2020 08:44:01	Hg			23284	100.0% 3.001
ICB - 1	29 Jul 2020 08:50:21	Hg			133	-0.005
ICB - 2	29 Jul 2020 08:50:21	Hg			135	-0.005
ICB - 3	29 Jul 2020 08:50:21	Hg			142	-0.004
ICB - 4	29 Jul 2020 08:50:21	Hg			147	-0.003
450880lcsw 77412 - 1	29 Jul 2020 08:53:31	Hg			14997	1.925
450880lcsw 77412 - 2	29 Jul 2020 08:53:31	Hg			15409	1.978
450880lcsw 77412 - 3	29 Jul 2020 08:53:31	Hg			15815	2.031
450880lcsw 77412 - 4	29 Jul 2020 08:53:31	Hg			16105	2.069
450879mbw 77412 - 1	29 Jul 2020 08:59:50	Hg			219	0.006
450879mbw 77412 - 2	29 Jul 2020 08:59:50	Hg			220	0.006
450879mbw 77412 - 3	29 Jul 2020 08:59:50	Hg			227	0.007
450879mbw 77412 - 4	29 Jul 2020 08:59:50	Hg			224	0.007
444185 - 1	29 Jul 2020 09:02:59	Hg			293	0.016
444185 - 2	29 Jul 2020 09:02:59	Hg			295	0.016
444185 - 3	29 Jul 2020 09:02:59	Hg			301	0.017
444185 - 4	29 Jul 2020 09:02:59	Hg			316	0.019
444187 - 1	29 Jul 2020 09:06:09	Hg			250	0.010
444187 - 2	29 Jul 2020 09:06:09	Hg			266	0.012
444187 - 3	29 Jul 2020 09:06:09	Hg			262	0.012
444187 - 4	29 Jul 2020 09:06:09	Hg			274	0.013
444189 - 1	29 Jul 2020 09:09:18	Hg			335	0.021
444189 - 2	29 Jul 2020 09:09:18	Hg			335	0.021
444189 - 3	29 Jul 2020 09:09:18	Hg			343	0.022
444189 - 4	29 Jul 2020 09:09:18	Hg			344	0.022
444321 - 1	29 Jul 2020 09:12:28	Hg			185	0.002
444321 - 2	29 Jul 2020 09:12:28	Hg			179	0.001
444321 - 3	29 Jul 2020 09:12:28	Hg			191	0.002
444321 - 4	29 Jul 2020 09:12:28	Hg			183	0.001
450881msw 444185 - 1	29 Jul 2020 09:15:39	Hg			15270	1.960
450881msw 444185 - 2	29 Jul 2020 09:15:39	Hg			15620	2.006
450881msw 444185 - 3	29 Jul 2020 09:15:39	Hg			15990	2.054
450881msw 444185 - 4	29 Jul 2020 09:15:39	Hg			16182	2.079
lcsw - 1	29 Jul 2020 09:18:49	Hg			15468	1.986
lcsw - 2	29 Jul 2020 09:18:49	Hg			15776	2.026
lcsw - 3	29 Jul 2020 09:18:49	Hg			16178	2.078
lcsw - 4	29 Jul 2020 09:18:49	Hg			16442	2.112
CCV - 1	29 Jul 2020 09:25:10	Hg			22842	98.1% 2.943
CCV - 2	29 Jul 2020 09:25:10	Hg			23297	100.1% 3.003
CCV - 3	29 Jul 2020 09:25:10	Hg			23659	101.7% 3.050
CCV - 4	29 Jul 2020 09:25:10	Hg			23937	102.9% 3.086
CCB - 1	29 Jul 2020 09:31:30	Hg			177	0.001
CCB - 2	29 Jul 2020 09:31:30	Hg			179	0.001
CCB - 3	29 Jul 2020 09:31:30	Hg			184	0.001
CCB - 4	29 Jul 2020 09:31:30	Hg			183	0.001
mbw - 1	29 Jul 2020 09:34:39	Hg			236	0.008
mbw - 2	29 Jul 2020 09:34:39	Hg			236	0.008
mbw - 3	29 Jul 2020 09:34:39	Hg			226	0.007

072920w detailed

Method: Hg WATER Operator: Admin Date of Analysis: 29 Jul 2020 07:14:14

Sample ID	Date	Element	Units	Extended ID	µ Abs.	Conc.
mbw - 4	29 Jul 2020 09:34:39	Hg			224	0.007
449215 - 1	29 Jul 2020 09:37:50	Hg			204	0.004
449215 - 2	29 Jul 2020 09:37:50	Hg			209	0.005
449215 - 3	29 Jul 2020 09:37:50	Hg			214	0.005
449215 - 4	29 Jul 2020 09:37:50	Hg			210	0.005
449216 - 1	29 Jul 2020 09:41:02	Hg			376	0.026
449216 - 2	29 Jul 2020 09:41:02	Hg			390	0.028
449216 - 3	29 Jul 2020 09:41:02	Hg			393	0.029
449216 - 4	29 Jul 2020 09:41:02	Hg			389	0.028
449217 - 1	29 Jul 2020 09:44:12	Hg			191	0.002
449217 - 2	29 Jul 2020 09:44:12	Hg			196	0.003
449217 - 3	29 Jul 2020 09:44:12	Hg			197	0.003
449217 - 4	29 Jul 2020 09:44:12	Hg			183	0.001
449218 - 1	29 Jul 2020 09:47:22	Hg			214	0.005
449218 - 2	29 Jul 2020 09:47:22	Hg			220	0.006
449218 - 3	29 Jul 2020 09:47:22	Hg			220	0.006
449218 - 4	29 Jul 2020 09:47:22	Hg			227	0.007
450895dup 449218 - 1	29 Jul 2020 09:50:32	Hg			193	0.003
450895dup 449218 - 2	29 Jul 2020 09:50:32	Hg			193	0.003
450895dup 449218 - 3	29 Jul 2020 09:50:32	Hg			197	0.003
450895dup 449218 - 4	29 Jul 2020 09:50:32	Hg			199	0.003
449219 - 1	29 Jul 2020 09:53:42	Hg			359	0.024
449219 - 2	29 Jul 2020 09:53:42	Hg			358	0.024
449219 - 3	29 Jul 2020 09:53:42	Hg			359	0.024
449219 - 4	29 Jul 2020 09:53:42	Hg			361	0.024
449220 - 1	29 Jul 2020 09:56:51	Hg			706	0.069
449220 - 2	29 Jul 2020 09:56:51	Hg			716	0.070
449220 - 3	29 Jul 2020 09:56:51	Hg			732	0.073
449220 - 4	29 Jul 2020 09:56:51	Hg			738	0.073
448843 - 1	29 Jul 2020 10:00:01	Hg			239	0.009
448843 - 2	29 Jul 2020 10:00:01	Hg			243	0.009
448843 - 3	29 Jul 2020 10:00:01	Hg			240	0.009
448843 - 4	29 Jul 2020 10:00:01	Hg			242	0.009
450890dup 448843 - 1	29 Jul 2020 10:03:11	Hg			237	0.008
450890dup 448843 - 2	29 Jul 2020 10:03:11	Hg			245	0.009
450890dup 448843 - 3	29 Jul 2020 10:03:11	Hg			252	0.010
450890dup 448843 - 4	29 Jul 2020 10:03:11	Hg			254	0.011
CCV - 1	29 Jul 2020 10:06:22	Hg			23894	102.7% 3.080
CCV - 2	29 Jul 2020 10:06:22	Hg			24494	105.3% 3.158
CCV - 3	29 Jul 2020 10:06:22	Hg			25108	107.9% 3.238
CCV - 4	29 Jul 2020 10:06:22	Hg			25550	109.8% 3.295
CCB - 1	29 Jul 2020 10:12:41	Hg			214	0.005
CCB - 2	29 Jul 2020 10:12:41	Hg			212	0.005
CCB - 3	29 Jul 2020 10:12:41	Hg			221	0.006
CCB - 4	29 Jul 2020 10:12:41	Hg			221	0.006
450344 - 1	29 Jul 2020 10:15:51	Hg			258	0.011
450344 - 2	29 Jul 2020 10:15:51	Hg			262	0.012
450344 - 3	29 Jul 2020 10:15:51	Hg			276	0.013
450344 - 4	29 Jul 2020 10:15:51	Hg			285	0.015
450896msw 449218 - 1	29 Jul 2020 10:19:02	Hg			15778	2.026
450896msw 449218 - 2	29 Jul 2020 10:19:02	Hg			16265	2.089
450896msw 449218 - 3	29 Jul 2020 10:19:02	Hg			16795	2.158
450896msw 449218 - 4	29 Jul 2020 10:19:02	Hg			17065	2.193
~~450897msdw 449218 - 1~~	~~29 Jul 2020 10:22:12~~	~~Hg~~			~~0~~	~~-0.022 [ ]~~
450897msdw 449218 - 1	29 Jul 2020 10:23:18	Hg			16158	2.076
450897msdw 449218 - 2	29 Jul 2020 10:23:18	Hg			16504	2.120
450897msdw 449218 - 3	29 Jul 2020 10:23:18	Hg			16760	2.154
450897msdw 449218 - 4	29 Jul 2020 10:23:18	Hg			17013	2.187
~~450891msw 448843 - 1~~	~~29 Jul 2020 10:26:29~~	~~Hg~~			~~0~~	~~-0.022 [ ]~~
450891msw 448843 - 1	29 Jul 2020 10:27:26	Hg			15959	2.050
450891msw 448843 - 2	29 Jul 2020 10:27:26	Hg			16280	2.091
450891msw 448843 - 3	29 Jul 2020 10:27:26	Hg			16604	2.133
450891msw 448843 - 4	29 Jul 2020 10:27:26	Hg			16892	2.171
450842msdw 448843 - 1	29 Jul 2020 10:30:38	Hg			16166	2.077
450842msdw 448843 - 2	29 Jul 2020 10:30:38	Hg			16532	2.124
450842msdw 448843 - 3	29 Jul 2020 10:30:38	Hg			16863	2.167
450842msdw 448843 - 4	29 Jul 2020 10:30:38	Hg			17100	2.198
449501 - 1	29 Jul 2020 10:36:58	Hg			199	0.003
449501 - 2	29 Jul 2020 10:36:58	Hg			206	0.004
449501 - 3	29 Jul 2020 10:36:58	Hg			206	0.004
449501 - 4	29 Jul 2020 10:36:58	Hg			218	0.006
449514 - 1	29 Jul 2020 10:40:08	Hg			-29	-0.026 [ ]
449514 - 2	29 Jul 2020 10:40:08	Hg			-25	-0.026 [ ]
449514 - 3	29 Jul 2020 10:40:08	Hg			-13	-0.024 [ ]
449514 - 4	29 Jul 2020 10:40:08	Hg			-25	-0.026 [ ]
451083 - 1	29 Jul 2020 10:43:18	Hg			189	0.002
451083 - 2	29 Jul 2020 10:43:18	Hg			193	0.003
451083 - 3	29 Jul 2020 10:43:18	Hg			204	0.004
451083 - 4	29 Jul 2020 10:43:18	Hg			201	0.004

072920w detailed

Method: Hg WATER Operator: Admin Date of Analysis: 29 Jul 2020 07:14:14

Sample ID	Date	Element	Units	Extended ID	µ Abs.	Conc.
447988 - 1	29 Jul 2020 10:46:28	Hg			139	-0.004 [ ]
447988 - 2	29 Jul 2020 10:46:28	Hg			140	-0.004 [ ]
447988 - 3	29 Jul 2020 10:46:28	Hg			153	-0.003 [ ]
447988 - 4	29 Jul 2020 10:46:28	Hg			153	-0.003 [ ]
CCV - 1	29 Jul 2020 10:49:38	Hg			23889	102.6% 3.079
CCV - 2	29 Jul 2020 10:49:38	Hg			24416	104.9% 3.148
CCV - 3	29 Jul 2020 10:49:38	Hg			25062	107.7% 3.232
CCV - 4	29 Jul 2020 10:49:38	Hg			25498	109.6% 3.288
CCB - 1	29 Jul 2020 10:55:57	Hg			200	0.003
CCB - 2	29 Jul 2020 10:55:57	Hg			199	0.003
CCB - 3	29 Jul 2020 10:55:57	Hg			203	0.004
CCB - 4	29 Jul 2020 10:55:57	Hg			214	0.005
449295 - 1	29 Jul 2020 10:59:07	Hg			109	-0.008 [ ]
449295 - 2	29 Jul 2020 10:59:07	Hg			115	-0.008 [ ]
449295 - 3	29 Jul 2020 10:59:07	Hg			116	-0.007 [ ]
449295 - 4	29 Jul 2020 10:59:07	Hg			126	-0.006 [ ]
450871msw 449501 - 1	29 Jul 2020 11:02:17	Hg			15013	1.927
450871msw 449501 - 2	29 Jul 2020 11:02:17	Hg			15382	1.975
450871msw 449501 - 3	29 Jul 2020 11:02:17	Hg			15844	2.035
450871msw 449501 - 4	29 Jul 2020 11:02:17	Hg			16211	2.082
450872msdw 449501 - 1	29 Jul 2020 11:05:27	Hg			15258	1.959
450872msdw 449501 - 2	29 Jul 2020 11:05:27	Hg			15592	2.002
450872msdw 449501 - 3	29 Jul 2020 11:05:27	Hg			15881	2.040
450872msdw 449501 - 4	29 Jul 2020 11:05:27	Hg			16219	2.083
450886msw 447988 - 1	29 Jul 2020 11:08:37	Hg			15120	1.941
450886msw 447988 - 2	29 Jul 2020 11:08:37	Hg			15457	1.985
450886msw 447988 - 3	29 Jul 2020 11:08:37	Hg			15680	2.013
450886msw 447988 - 4	29 Jul 2020 11:08:37	Hg			15873	2.039
453225msdw 447988 - 1	29 Jul 2020 11:11:48	Hg			14723	1.889
453225msdw 447988 - 2	29 Jul 2020 11:11:48	Hg			14972	1.922
453225msdw 447988 - 3	29 Jul 2020 11:11:48	Hg			15343	1.970
453225msdw 447988 - 4	29 Jul 2020 11:11:48	Hg			15742	2.022
451869msw 449295 - 1	29 Jul 2020 11:15:00	Hg			11238	1.437
451869msw 449295 - 2	29 Jul 2020 11:15:00	Hg			11536	1.475
451869msw 449295 - 3	29 Jul 2020 11:15:00	Hg			11811	1.511
451869msw 449295 - 4	29 Jul 2020 11:15:00	Hg			12109	1.550
451870msdw 449295 - 1	29 Jul 2020 11:18:11	Hg			11068	1.415
451870msdw 449295 - 2	29 Jul 2020 11:18:11	Hg			11375	1.455
451870msdw 449295 - 3	29 Jul 2020 11:18:11	Hg			11691	1.496
451870msdw 449295 - 4	29 Jul 2020 11:18:11	Hg			11981	1.533
CCV - 1	29 Jul 2020 11:21:21	Hg			23074	99.1% 2.974
CCV - 2	29 Jul 2020 11:21:21	Hg			23726	101.9% 3.058
CCV - 3	29 Jul 2020 11:21:21	Hg			24290	104.4% 3.131
CCV - 4	29 Jul 2020 11:21:21	Hg			24689	106.1% 3.183
CCB - 1	29 Jul 2020 11:27:41	Hg			155	-0.002
CCB - 2	29 Jul 2020 11:27:41	Hg			156	-0.002
CCB - 3	29 Jul 2020 11:27:41	Hg			166	-0.001
CCB - 4	29 Jul 2020 11:27:41	Hg			183	0.001

METALS
LOGBOOK
DOCUMENTS

MICP WATER QSM Analytical Run
173412 on 08/11/2020

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME		QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	456251								MICP WATER QSM				
					ICV					0			
	456252								MICP WATER QSM				
					ICVLL					0			
	456253								MICP WATER QSM				
					ICB					0			
	456254								MICP WATER QSM				
					ICSA					0			
	456255								MICP WATER QSM				
					ICSAB					0			
	456256								MICP WATER QSM				
					ICVLL					0			
	456257								MICP WATER QSM				
					CCV1					0			
	456258								MICP WATER QSM				
					CCV2					0			
	456259								MICP WATER QSM				
					CCB					0			
	449182								ICP TOTAL QSM 5.0				
					LCSW					77363			
	449181								ICP TOTAL QSM 5.0				
					MBW					77363			
154987	448843		07/21/2020	1410			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	ICP TOTAL QSM 5.0		GW	**4**	
		IDW-54								77363			
	456260								ICP TOTAL QSM 5.0				
					L	448843				0			
	449183		07/21/2020	1410					ICP TOTAL QSM 5.0				
		IDW-54			DUP	448843				77363			
	449184		07/21/2020	1410					ICP TOTAL QSM 5.0				
		IDW-54			MSW	448843				77363			
	449185		07/21/2020	1410					ICP TOTAL QSM 5.0				
		IDW-54			MSDW	449184				77363			
	456261								ICP TOTAL QSM 5.0				
					PDSW	448843				0			
	456262								MICP WATER QSM				
					CCV1					0			
	456263								MICP WATER QSM				
					CCV2					0			

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

MICP WATER QSM Analytical Run
173412 on 08/11/2020

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	456264						MICP WATER QSM				
				CCB				0			

20 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

MICP WATER QSM K&Na Analytical Run
173413 on 08/11/2020

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME		QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	453323								MICP WATER QSM K&Na				
					ICV					0			
	453324								MICP WATER QSM K&Na				
					ICVLL					0			
	453325								MICP WATER QSM K&Na				
					ICB					0			
	453326								MICP WATER QSM K&Na				
					MRL					0			
	453327								MICP WATER QSM K&Na				
					ICSA					0			
	453328								MICP WATER QSM K&Na				
					ICSAB					0			
	453329								MICP WATER QSM K&Na				
					CCV					0			
	453330								MICP WATER QSM K&Na				
					CCB					0			
	449182								ICP K TOTAL QSM 5.0				
					LCSW					77363			
	449182								ICP NA TOTAL QSM 5.0				
					LCSW					77363			
	449181								ICP K TOTAL QSM 5.0				
					MBW					77363			
	449181								ICP NA TOTAL QSM 5.0				
					MBW					77363			
154987	448843		07/21/2020	1410			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	ICP K TOTAL QSM 5.0		GW	**4**	
		IDW-54								77363			
154987	448843		07/21/2020	1410			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	ICP NA TOTAL QSM 5.0		GW	**4**	
		IDW-54								77363			
	453331								ICP K TOTAL QSM 5.0				
					L	448843				0			
	453331								ICP NA TOTAL QSM 5.0				
					L	448843				0			
	449183		07/21/2020	1410					ICP K TOTAL QSM 5.0				
		IDW-54			DUP	448843				77363			
	449183		07/21/2020	1410					ICP NA TOTAL QSM 5.0				
		IDW-54			DUP	448843				77363			

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

MICP WATER QSM K&Na Analytical Run
173413 on 08/11/2020

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME		QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	449184		07/21/2020	1410					ICP K TOTAL QSM 5.0				
		IDW-54			MSW	448843				77363			
	449184		07/21/2020	1410					ICP NA TOTAL QSM 5.0				
		IDW-54			MSW	448843				77363			
	449185		07/21/2020	1410					ICP K TOTAL QSM 5.0				
		IDW-54			MSDW	449184				77363			
	449185		07/21/2020	1410					ICP NA TOTAL QSM 5.0				
		IDW-54			MSDW	449184				77363			
	453332								ICP K TOTAL QSM 5.0				
					PDSW	448843				0			
	453332								ICP NA TOTAL QSM 5.0				
					PDSW	448843				0			
	453333								MICP WATER QSM K&Na				
					CCV					0			
	453334								MICP WATER QSM K&Na				
					CCB					0			

26 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

MERCURY QSM 5.0 Analytical Run
173576 on 08/11/2020

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME		QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	453552								MERCURY QSM 5.0				
					ICV					0			
	453553								MERCURY QSM 5.0				
					ICB					0			
	450889								MERCURY TOTAL QSM 5.0				
					LCSW					77414			
	453554								MERCURY QSM 5.0				
					CCV					0			
	453555								MERCURY QSM 5.0				
					CCB					0			
	450888								MERCURY TOTAL QSM 5.0				
					MBW					77414			
154987	448843		07/21/2020	1410			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	MERCURY TOTAL QSM 5.0		GW	**4**	
		IDW-54								77414			
	450890		07/21/2020	1410					MERCURY TOTAL QSM 5.0				
		IDW-54			DUP	448843				77414			
	453556								MERCURY QSM 5.0				
					CCV					0			
	453557								MERCURY QSM 5.0				
					CCB					0			
155089	450344		07/23/2020	1500			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-49	MERCURY TOTAL QSM 5.0		GW	**4**	
		IDW-48/49								77414			
	450891		07/21/2020	1410					MERCURY TOTAL QSM 5.0				
		IDW-54			MSW	448843				77414			
	450892		07/21/2020	1410					MERCURY TOTAL QSM 5.0				
		IDW-54			MSDW	450891				77414			
	453558								MERCURY QSM 5.0				
					CCV					0			
	453559								MERCURY QSM 5.0				
					CCB					0			

15 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

PREP WORKSHEET
on 08/11/2020

Prep Batch **77,363** Date Prepped: 07/22/2020 Prepped By NAH

Folder #	Order	QC Type	Link	Test	Matrix	Volume	Weight	Initial Volume	SDG Level	Notes
	449181	MBW		ICP TOTAL QSM 5.0	LIQUID	50		50.0		
	449181	MBW		ICP K TOTAL QSM 5.0	LIQUID	50		50.0		
	449181	MBW		ICP NA TOTAL QSM 5.0	LIQUID	50		50.0		
	449182	LCSW		ICP K TOTAL QSM 5.0	LIQUID	50		50.0		
	449182	LCSW		ICP NA TOTAL QSM 5.0	LIQUID	50		50.0		
	449182	LCSW		ICP TOTAL QSM 5.0	LIQUID	50		50.0		
154987	448843			ICP TOTAL QSM 5.0	GROUND WATER	50		50.0	4	
	448843			ICP NA TOTAL QSM 5.0	GROUND WATER	50		50.0	4	
	448843			ICP K TOTAL QSM 5.0	GROUND WATER	50		50.0	4	
	449183	DUP	448843	ICP K TOTAL QSM 5.0	GROUND WATER	50		50.0		
	449183	DUP	448843	ICP NA TOTAL QSM 5.0	GROUND WATER	50		50.0		
	449183	DUP	448843	ICP TOTAL QSM 5.0	GROUND WATER	50		50.0		
	449184	MSW	448843	ICP K TOTAL QSM 5.0	GROUND WATER	50		50.0		
	449184	MSW	448843	ICP NA TOTAL QSM 5.0	GROUND WATER	50		50.0		
	449184	MSW	448843	ICP TOTAL QSM 5.0	GROUND WATER	50		50.0		
	449185	MSDW	449184	ICP K TOTAL QSM 5.0	GROUND WATER	50		50.0		
	449185	MSDW	449184	ICP NA TOTAL QSM 5.0	GROUND WATER	50		50.0		

PREP WORKSHEET
on 08/11/2020

Folder #	Order	QC Type	Link	Test	Matrix	Volume	Weight	Initial Volume	SDG Level	Notes
	449185	MSDW	449184	ICP TOTAL QSM 5.0	GROUND WATER	50		50.0		

Notes:_____

PREP WORKSHEET
on 08/11/2020

Prep Batch **77,414** Date Prepped: 07/28/2020 Prepped By MDS

Folder #	Order	QC Type	Link	Test	Matrix	Volume	Weight	Initial Volume	SDG Level	Notes
	450888	MBW		MERCURY TOTAL QSM	LIQUID	25		25.0		
	450889	LCSW		MERCURY TOTAL QSM	LIQUID	25		25.0		
154987	448843			MERCURY TOTAL QSM	GROUND WATER	25		25.0	4	
155089	450344			MERCURY TOTAL QSM	GROUND WATER	25		25.0	4	
	450890	DUP	448843	MERCURY TOTAL QSM	GROUND WATER	25		25.0		
	450891	MSW	448843	MERCURY TOTAL QSM	GROUND WATER	25		25.0		
	450892	MSDW	450891	MERCURY TOTAL QSM	GROUND WATER	25		25.0		

Notes:_____

Metals Digestion Bench Sheet

Program: QSM
*Matrix: Liquid

Prep Methods:
200.2= ICP/GFAA Liquids
3010= ICP Liquids
3020= GFAA Liquids
3005= Sb Liquids
3050= ICP/GFAA Solids
7060/7740= GFAA, As & Se Liquids

Prep Batch #:	77363
Prep Method:	200.2
Analyst:	NAH
Date:	7/22/2020
Start Time:	14:46

Prep Analyst: NAH
Balance ID:

End Date: 7/22/2020
End Time: 1:31

Reagent:	Ref. #
Nitric Acid:	AB.689
Hydrochloric Acid:	AB.691
Hydrogen Peroxide:	

Digestion Tube Lot #: 3375
Block Used: D2
Cell Position for Temp. Check: 60
Initial-DigestionTemp (ºC): 92
Final-Digestion Temp (ºC): 94

Sample ID			(Solids) Sample Weight (g)	(Liquids) Sample Volume (ml)	Final Volume (ml)
449181	(MB)			50.0	50
449182	(LCS)			50.0	50
448843				50.0	50
	Comments:				50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
449183	(DUP)			50.0	50
449184	(MS)	Parent Sample		50.0	50
449185	(MSD)	448843		50.0	50
	(DUP)				50
	(MS)	Parent Sample			50
	(MSD)				50
Leave >>	(DUP) if applicable				50
blank	(MS)	Parent Sample			50
if N/A	(MSD)				50

MB=Method Blank, LCS=Laboratory Control Sample, DUP=Duplicate, MS=Matrix Spike & MSD=Matrix Spike Duplicate
*Matrix: Soil, Sludge, Waste, GW=Groundwater, WW=Wastewater, Tissue, TLCP, SPLP, ASTM or other.

MS/MSD Spike Amount (ml)	Spike Ref. #
0.2	M14214
0.5	M14218
0.5	M14109

LCS Spike Amount (ml)	Spike Ref. #
0.2	M14214
0.5	M14218
0.5	M14109

Reviewed _____

~~08/11/202012:09~~

FMT12-03

Mercury Digestion Bench Sheet

(Prep Methods 7470A & 7471A)

CCV ID: M14406
ICV/LCSW ID: M14407

*Matrix: GW
Balance ID:

Prep Batch #:	77414
Prep Method:	7470a
Analyst:	MDS
Date:	07/28/2020
Start Time:	12:30

7470A= Hg Liquids
7471A= Hg Solids

End Date: 07/28/2020
End Time: 14:30

Digestion Tube Lot #: 7320027
Block Used: B
Cell Position for Temp. Check: D-4
Initial-DigestionTemp (ºC): 91.3
Final-Digestion Temp (ºC): 91.4
Additional KMnO4 added (ml):
Aqua Regia added (ml)
Calibration Stds: M14405

Reagent:	Ref. #
HNO3:	AB.693
H2SO4:	AB.690
NaCl/Hydrox.SO4:	M14411
KMnO4:	M14408
K2S2O8:	M14409
Aqua-Regia:	

	Sample			(Solids) Sample Weight (g)	(Liquids) Sample Volume (ml)	Final Volume (ml)
	450888	(MB)			25.0	25
	450889	(LCS)			25.0	25
	448843				25.0	25
	450344				25.0	25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
	450890	(DUP)			25.0	25
	450891	(MS)	Parent Sample		25.0	25
	450892	(MSD)	448843		25.0	25
Leave >>		(DUP)				25
blank		(MS)	Parent Sample			25
		(MSD)				25
		(DUP)				25
		(MS)	Parent Sample			25
if N/A		(MSD)				25

MB=Method Blank, LCS=Laboratory Control Sample, DUP=Duplicate, MS=Matrix Spike & MSD=Matrix Spike Duplicate
*Matrix: Soil, Sludge, Waste, GW=Groundwater, WW=Wastewater, Tissue, TLCP, SPLP, ASTM or other.

A: Spike Amount (ml)	Spike Conc. (ug/L)	Spike Ref. #
0.5	100ug/L	M14407

B: Spike Amount (ml)	Spike Conc. (ug/L)	Spike Ref. #

Reviewed By/Date:

iCAP 6000 / 6500 Data Review Checklist	Analysis Date: 7/24/2020	Data File: 200ResaUS	Date of review: 8/4/2020
Cal Std ID: 14335 LIMS #: 173418	Analyst: ~~N~~	Reviewer: MDS	Approved? Yes / No
Is Audit Trail turned on or Manual Manipulations addressed? Yes / No (If no, any manual manipulations must be initialed, dated, and reason(s) stated for change)			
Prep Batch Check ( )			

QC Parameters : 6010 / 200.7 / QSM / Other	YES	NO	YES	NO	Comments:
1) Calibration linearity: ~~r > 0.995~~ / r > 0.998	✓		✓		
2) ICV: 90-110% / 95-105%	✓		✓		
2) ICVLL: 70-130% / 80-120%	✓		✓		
3) ICB: < 3X IDL / <LOD / <LOQ	✓		✓		
4) ICSA: < ABS LOD	✓		✓		
5) ICSAB: 80-120%	✓		✓		
6) MRL: 70-130% / 80-120%	✓		✓		
7) MDL Check: >LOD					
8) CCV1/CCB1 (CCV: 90-110%)	✓		✓		
9) CCV2/CCB2 (CCB: < 3X IDL / <LOD / <LOQ)					
10) CCV3/CCB3					
11) CCV4/CCB4					
12) CCV5/CCB5					

Preparation Batch Parameters	YES	NO	YES	NO	
Prep Batch ID#: 173163 Dig. Meth. 200.2	✓		✓		
LCS - generated limits or project specific limits	✓		✓		
MB - <LOD or ≤ ½ RL	✓	✓	✓	✓	As > MB < ½ RL "B"
Spiked samples in batch:					
a) 408613 matrix = GW			✓	✓	V, Al, Fe
b)_____ matrix = _____					Fe "M"
c)_____ matrix = _____					
PDS: ±15% / 20% / 25% Sample#:_____					
Prep Batch ID#:_____ Dig. Meth._____					
LCS - generated limits or project specific limits					
MB - <LOD or ≤ ½ RL					
Spiked samples in batch:					
a)_____ matrix = _____					
b)_____ matrix = _____					
c)_____ matrix = _____					
PDS: ±15% / 20% / 25% Sample#:_____					
Prep Batch ID#:_____ Dig. Meth._____					
LCS - generated limits or project specific limits					
MB - <LOD or ≤ ½ RL					
Spiked samples in batch:					
a)_____ matrix = _____					
b)_____ matrix = _____					
c)_____ matrix = _____					
PDS: ±15% / 20% / 25% Sample#:_____					
Prep Batch ID#:_____ Dig. Meth._____					
LCS - generated limits or project specific limits					
MB - <LOD or ≤ ½ RL					
Spiked samples in batch:					
a)_____ matrix = _____					
b)_____ matrix = _____					
c)_____ matrix = _____					
PDS: ±15% / 20% / 25% Sample#:_____					

iCAP 6000 / 8500 Data Review Checklist	Analysis Date: 7/27/2020	Data File: NAK072720v1269	Date of review: 7/29/2020
Cal Std ID: M19160 LIMS #: 173913	Analyst: MOS	Reviewer:	Approved? Yes No
Is Audit Trail turned on or Manual Manipulations addressed? (Yes) No (If no, any manual manipulations must be initialed, dated, and reason(s) stated for change)			

QC Parameters : 6010 / ~~200.7~~ / QSM / Other	YES	NO	YES	NO	Comments:
1) Calibration linearity: r ~~< 0.995~~ / r > 0.998	✓		✓		
2) ICV: ~~90-110%~~ / ~~95-105%~~	✓		✓		
2) ICVLL: 70-130% / ~~80-120%~~	✓		✓		
3) ICB: < 3X IDL / <LOD / <LOQ	✓		✓		
4) ICSA: < ABS LOD	✓		✓		
5) ICSAB: ~~80-120%~~	✓		✓		
6) MRL: ~~70-130%~~ / 80-120%	✓		✓		
7) MDL Check: >LOD					
8) CCV1/CCB1 (CCV: 90-110%)	✓		✓		
9) CCV2/CCB2 (CCB: < 3X IDL / <LOD / <LOQ)					
10) CCV3/CCB3					
11) CCV4/CCB4					
12) CCV5/CCB5					

Preparation Batch Parameters	YES	NO	YES	NO	
Prep Batch ID#: 77363 Dig. Meth. 200.2	✓		✓		
LCS - generated limits or project specific limits	✓		✓		
MB - <LOD or ≤ ½ RL	✓		✓		
Spiked samples in batch:					
a) 448843 matrix = GW	✓	✓	✓	✓	Dup invalid K
b) matrix =					
c) matrix =					
PDS: ±15% / 20% / 25% Sample#:					
Prep Batch ID#: Dig. Meth.					
LCS - generated limits or project specific limits					
MB - <LOD or ≤ ½ RL					
Spiked samples in batch:					
a) matrix =					
b) matrix =					
c) matrix =					
PDS: ±15% / 20% / 25% Sample#:					
Prep Batch ID#: Dig. Meth.					
LCS - generated limits or project specific limits					
MB - <LOD or ≤ ½ RL					
Spiked samples in batch:					
a) matrix =					
b) matrix =					
c) matrix =					
PDS: ±15% / 20% / 25% Sample#:					
Prep Batch ID#: Dig. Meth.					
LCS - generated limits or project specific limits					
MB - <LOD or ≤ ½ RL					
Spiked samples in batch:					
a) matrix =					
b) matrix =					
c) matrix =					
PDS: ±15% / 20% / 25% Sample#:					
Prep Batch ID#: Dig. Meth.					
LCS - generated limits or project specific limits					
MB - <LOD or ≤ ½ RL					
Spiked samples in batch:					
a) matrix =					
b) matrix =					
c) matrix =					
PDS: ±15% / 20% / 25% Sample#:					

GFAA / FLAA / CVAA Data Review checklist | Method: 200.9 | 7000 series AA | 245.1 & 245.2 | 245.7 | 7470a / 7471a

Instrumentation:	THERMO M SERIES AA		CETAC Hg ANALYZER
Analysis Date: 7/29/2020	Data File: 072920W	Date Review: 7/30/2020	Analyte: Hg
Cal Std ID: M14405	LIMS #: 173576	Analyst: MDS	Reviewer:	Approved? Yes No

Is Audit Trail turned on or Manual Manipulations addressed? Yes No (If no, any manual manipulations must be initialed, dated, and reason(s) stated for change)

Calibration Parameters -	YES	NO	YES	NO	Comments:
1) Calibration linearity - r > 0.995	✓		✓		
2) ICV: 90-110% 95-105%	✓		✓		
2) ICVLL: 70-130% 80-120%					
3) ICB: <IDL / <LOD / <LOQ / <½ RL	✓		✓		
6) MRL: 70-130%					
7) CCV1/CCB1- (CCV: 90-110% / 80-120%)	✓		✓		
8) CCV2/CCB2 (CCB: <IDL / <LOD / <LOQ / <½ RL)					
9) CCV3/CCB3					
10) CCV4/CCB4					
11) CCV5/CCB5					
Preparation Batch Parameters	**YES**	**NO**	**YES**	**NO**	
Prep Batch ID# 77414 Dig. Meth. 7470a	✓		✓		
LCS - generated limits or project specific limits	✓		✓		
MB - <LOD / <2.2X LOD / ≤ ½RL	✓		✓		
Spiked samples in batch:					
a) 448843 matrix = LW	✓	✓	✓	✓	Dup invalid
b)_____ matrix =					
c)_____ matrix =					
d)_____ matrix =					
e)_____ matrix =					
PDS: ±15% / 20% / 25% Sample#_____					
MSA Performed? Yes No					
Prep Batch ID#_____ Dig. Meth._____					
LCS - generated limits or project specific limits					
MB - <LOD / <2.2X LOD / ≤ ½RL					
Spiked samples in batch:					
a)_____ matrix =					
b)_____ matrix =					
c)_____ matrix =					
d)_____ matrix =					
e)_____ matrix =					
PDS: ±15% / 20% / 25% Sample#_____					
MSA Performed? Yes No					
Prep Batch ID#:_____ Dig. Meth._____					
LCS - generated limits or project specific limits					
MB - <LOD / <2.2X LOD / ≤ ½RL					
Spiked samples in batch:					
a)_____ matrix =					
b)_____ matrix =					
c)_____ matrix =					
d)_____ matrix =					
e)_____ matrix =					
PDS: ±15% / 20% / 25% Sample#_____					
MSA Performed? Yes No					

CT Laboratories Instrument Run Log

Instrument ID: ICP 6000 (See Journal for Wavelength Check)

Date	Time Start/End	Analyst	Method	LIMS# or Sample #	Sequence I.D.	Cal. Std	Alt. Source	Pressure (kPa) Comments	Analysis Tube Lot #	ICSA/ ICSAB
7/1/2020	0826 / 1034	MDS	NaK	172657, 172664	NaK070120 v1260	M141160	M141162 M141163	350	297109	M141173 M141164
7/1/2020	1107 / 1343	MDS	NaK	172657, 172664	NaK070120b v1261	M141160	M141162 M141163	350	297109	M141173 M141164
7/8/2020	0749 / 1236	MDS	NaK	172787, 172852 172836, 172874, 172860, 172795,	NaK070820 v1262	M141160	M141162 M141163	350	297109	M14103 M141164
7/8/2020	1246 / 1621	MDS	NaK	172852, 172855, 172783, 172859	NaK070820b v1263 v1264	M141160	M141162 M141163	350	297109	M141173 M141164
7/10/2020	1004 / 1312	MDS	NaK	172887, 172859, 172951, 172956	NaK071020 v1266 v1265	M141160	M141162 M141163	350	297109	M141173 M141164
7/16/2020	0908 / 1204	MDS	NaK	173104, 173084, 173086, 172977	NaK071620 v1267	M141160	M141162 M141163	350	297109	M141173 M141164
7/22/2020	0933 / 1718	MDS	NaK	173309, 173233, 173229, 173140, 173240 173226, 173227, 173231, 173303, 173301,	NaK072220 v1268	M141160	M141162 M141163	350	Global Metric 05-120819	M141173 M141164
7/23/2020	1033 / 7/24	MJ	PbV3(V3)	173318 173320 173316, 173317 173319 173313 173314 173315	Pbwipe072320	m141335	m141330 m141342	320	Global Metric 05-120819	m141173 m141164
7/24/2020	0707 / 1257	MJ	PbV4(V4)	173316 173320 173313 173314	Pbwipe072320	m141335	m141330 m141342	320	Global Metric 05-120219	m141173 m141164
7/27/2020	1322 / 1801	MDS	NaK	173512, 173403, 173516 173226, 173438, 173354, 173503, 173413	NaK072720 v1269	M141160	M141162 M141163	350	106716-05-120219	M141173 M141164
7/31/2020	1000 / 1509	MDS	NaK	173516, 173617, 173605 173577, 173541, 173635, 173505, 173603	NaK073120 v1270	M141160	M141162 M141163	350	106716-05-120219	M141173 M141164
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Checked by: _____ Verified by: _____

CT Laboratories, LLC

ICP-6500 Instrument Run Logbook

Date	Time: Start / End	Analyst	Analytes / Sequence I.D.	Method	LIMS # or Sample Description	Nebulizer Pressure (kpa)	Calib. Std ID	Version	Comments
7/2/2020	1157 / 7/3 0411	[signature]	070220	DODCal u	172473 172732 172735, 34 172769 172733 172738 172737 172784 172727 172736 172770	270	M14335 M14230 M14342	V3944 V3941	M14240 M14173 M14941 M14943
7/7/2020	1136 / 7/8 0856	[signature]	070720	DODCal u	172823 172781 172786 172835 172784 172848 172782 172858 172857	270	M14335 M14230 M14342	V3943	M14240 M14173 M14941 M14943
7/9/2020	1003 / 2254	[signature]	070920	DODCal u	172945 172894 172940 172952 172926 172927 172954 172894	270	M14335 M14230 M14342	V3947	M14240 M14173 M14941 M14943
7/13/2020	1155 / 7/14 0546	[signature]	071320	DODCal u	172734 172973 172732 172967 172969 172957 172978 172770 172978 172958	270	M14335 M14230 M14342	V3949	M14240 M14173 M14941 M14943
7/14/2020	0724 / 1006	[signature]	071320AB	DODCal u	172966 173040 172965 172974 173041 173042 172976 172980	270	M14335 M14230 M14342	V3950	M14240 M14173 M14941 M14943
7/15/2020	1155 1500	[signature]	071520	DODCal u	173074 173044 173083 172854 173047 173043 172848 173087 173045 172786 173085	270	M14335 M14230 M14342	V395? V3951 V3948	M14240 M14173 M14941 M14943
7/16/2020	1456 / 1746	[signature]	071620	DODCal u	173127 173138 173126 173133 173108 173139 173125 173128 173109 173141 173142 173129 173150	270	M14335 M14230 M14342	V3959 V3955 V3953	M14240 M14173 M14941 M14943
7/17/2020	1859 0950 / 7/18 2159	[signature]	071720	DODCal u	173131 173134 173137 173163 173132 173135 173141 173172 173046 173136 173142	270	M14335 M14230 M14342	V3954	M14240 M14173 M14941 M14943
7/20/2020	0957 / 1236	[signature]	07/21/20	DODCal u	173220 173261 173253 173259 173206 173257 173222 173255 173262 173258 173221 173224	270	M14335 M14230 M14342	V3960 V3962 V3954 V3964	M14240 M14173 M14941 M14943
7/22/2020	1321 / 1548	[signature]	072220	DODCal u	173254 173230 173232 173234 173223 173228 173238 173233 173225 173235 173233 173378 173381	270	M14335 M14230 M14342	V3963 V3954	M14240 M14173 M14941 M14943
7/23/2020	1511 / 1342 24	[signature]	072320	DODCal u	173344 173310 173308 173347 173311 173304 173306 173312 173306 173308	270	M14335 M14230 M14342	V3954	M14240 M14173 M14941 M14943
7/24/2020	1416 / 7/25/20 0920	[signature]	072520	DODCal u	173437 173411 173406 173306 173414 173404 173368 173304 173412 173405 173345	270	M14335 M14230 M14342	V3958 V3956 V3965 V3966	M14240 M14173 M14941 M14943

Comments: _____

Checked By / Date: _____

CT Laboratories

Mercury Analyzer Instrument Run Log

Instrument ID: Cetac M-6000A

Analysis Date	Start Time	End Time	Analyst	LIMS Run # (s)	Method File ID #	Cal. Std. ID #	Lamp Current (mA)	Analysis Tube Lot #	Comments
7/22/2020	0820	1149	MDS	173345, 173346, 173347, 173348	072220W	M14396	9.809	Z97109	$SnCl_2$: M14403
7/23/2020	0932	1331	MDS	173388, 173389	072320S	M14396	9.805	106716-05-120219 -2 MDS 7/23/2020	$SnCl_2$: M14403
7/23/2020	1340	1528	MDS	173389, 173390, 173391	072320bS	M14396	9.735	106716-05-120219	$SnCl_2$: M14403
7/29/2020	0821	1127	MDS	173572, 173574 173571, 173575, 173576, 173573,	072920W	M14405	9.886	106716-05-120219	$SnCl_2$: M14412
7/29/2020	1212	1415	MDS	173591	072920S	M14405	9.812	106716-05-120219	$SnCl_2$: M14412

Reviewed By/Date:_____

Type	Date/Time	Message	User name	Application
	07/24/2020 11:10:03	Running 448332 (162)	MDS	Analyst
	07/24/2020 11:15:21	Running 448333 (163)	MDS	Analyst
	07/24/2020 11:20:40	Running lcss77256 (164)	MDS	Analyst
	07/24/2020 11:26:03	Running lcsds77256 (165)	MDS	Analyst
	07/24/2020 11:31:24	Running mbs77256 (166)	MDS	Analyst
	07/24/2020 11:36:49	Running 446459 (167)	MDS	Analyst
	07/24/2020 11:42:10	Running pdss446459 (168)	MDS	Analyst
	07/24/2020 11:47:31	Running 446460 (169)	MDS	Analyst
	07/24/2020 11:52:55	Running 446461 (170)	MDS	Analyst
	07/24/2020 11:58:17	Running ccv1 (19)	MDS	Analyst
	07/24/2020 12:03:32	Running ccv2 (14)	MDS	Analyst
	07/24/2020 12:08:53	Running ccb (15)	MDS	Analyst
	07/24/2020 12:14:16	Running 446462 (171)	MDS	Analyst
	07/24/2020 12:19:39	Running 446463 (172)	MDS	Analyst
	07/24/2020 12:25:04	Running 446464 (173)	MDS	Analyst
	07/24/2020 12:30:27	Running 446465 (174)	MDS	Analyst
	07/24/2020 12:35:51	Running 446466 (175)	MDS	Analyst
	07/24/2020 12:41:13	Running MRL (20)	MDS	Analyst
	07/24/2020 12:46:35	Running ccv1 (19)	MDS	Analyst
	07/24/2020 12:51:51	Running ccv2 (14)	MDS	Analyst
	07/24/2020 12:57:13	Running ccb (15)	MDS	Analyst
	07/24/2020 13:02:34	Plasma off	MDS	iTEVA Control Center
	07/24/2020 13:02:34	Plasma extinguished successfully	MDS	Analyst
	07/24/2020 13:02:36	Autosampler Run Completed	MDS	Analyst
	07/27/2020 11:30:39	Plasma On	MDS	iTEVA Control Center
	07/27/2020 11:30:43	Plasma ignition successful	MDS	Analyst
	07/27/2020 11:31:22	D33534 - Debug:Wavelength check : x = -0.705, y =-0.355	MDS	Analyst
	07/27/2020 13:22:33	Autosampler Run Started	MDS	Analyst
	07/27/2020 13:22:33	Sequence Started	MDS	Analyst
	07/27/2020 13:22:53	Running Blank (1)	MDS	Analyst
	07/27/2020 13:25:56	Running CalibStd-0.5 (2)	MDS	Analyst
	07/27/2020 13:28:48	Running CalibStd-1.0 (3)	MDS	Analyst
	07/27/2020 13:31:39	Running CalibStd-5.0 (4)	MDS	Analyst
	07/27/2020 13:34:28	Running CalibStd-10.0 (5)	MDS	Analyst
	07/27/2020 13:37:17	Running CalibStd-50 (6)	MDS	Analyst
	07/27/2020 13:40:06	Running CalibStd-100 (7)	MDS	Analyst
	07/27/2020 13:42:55	Running CalibStd-200 (8)	MDS	Analyst
	07/27/2020 13:45:53	Running CalibStd-500 (9)	MDS	Analyst
	07/27/2020 13:48:50	Running icv (10)	MDS	Analyst
	07/27/2020 13:51:38	Running ICVLL (17)	MDS	Analyst
	07/27/2020 13:54:29	Running icb (11)	MDS	Analyst
	07/27/2020 13:57:20	Running mrl (16)	MDS	Analyst
	07/27/2020 14:00:11	Running icsa (12)	MDS	Analyst
	07/27/2020 14:03:09	Running icsab (13)	MDS	Analyst
	07/27/2020 14:06:03	Running 445999 (1)	MDS	Analyst
	07/27/2020 14:08:54	Running l445999 (2)	MDS	Analyst
	07/27/2020 14:11:45	Running dup445999 (3)	MDS	Analyst
	07/27/2020 14:14:34	Running msw445999 (4)	MDS	Analyst
	07/27/2020 14:17:19	Running msdw445999 (5)	MDS	Analyst
	07/27/2020 14:20:04	Running pdsw445999 (6)	MDS	Analyst
	07/27/2020 14:22:55	Running blank (7)	MDS	Analyst
	07/27/2020 14:25:48	Running lcsw (8)	MDS	Analyst

Type	Date/Time	Message	User name	Application
	07/27/2020 14:28:36	Running mbw (9)	MDS	Analyst
	07/27/2020 14:31:29	Running 449501 (10)	MDS	Analyst
	07/27/2020 14:34:19	Running ccv (14)	MDS	Analyst
	07/27/2020 14:37:08	Running ccb (15)	MDS	Analyst
	07/27/2020 14:40:00	Running 449514 (11)	MDS	Analyst
	07/27/2020 14:42:50	Running msw449514 (12)	MDS	Analyst
	07/27/2020 14:45:39	Running msdw449514 (13)	MDS	Analyst
	07/27/2020 14:48:28	Running 447989 (14)	MDS	Analyst
	07/27/2020 14:51:17	Running msw447989 (15)	MDS	Analyst
	07/27/2020 14:54:11	Running msdw447989 (16)	MDS	Analyst
	07/27/2020 14:57:08	Running 447990 (17)	MDS	Analyst
	07/27/2020 14:59:58	Running lcsw77373 (26)	MDS	Analyst
	07/27/2020 15:02:43	Running mbw77373 (27)	MDS	Analyst
	07/27/2020 15:05:36	Running 449215 (28)	MDS	Analyst
	07/27/2020 15:08:26	Running ccv (14)	MDS	Analyst
	07/27/2020 15:11:14	Running ccb (15)	MDS	Analyst
	07/27/2020 15:14:06	Running 449216 (29)	MDS	Analyst
	07/27/2020 15:16:57	Running 449217 (30)	MDS	Analyst
	07/27/2020 15:19:49	Running 449218 (31)	MDS	Analyst
	07/27/2020 15:22:41	Running l449218 (32)	MDS	Analyst
	07/27/2020 15:25:33	Running dup449218 (33)	MDS	Analyst
	07/27/2020 15:28:25	Running msw449218 (34)	MDS	Analyst
	07/27/2020 15:31:10	Running msdw449218 (35)	MDS	Analyst
	07/27/2020 15:33:56	Running pdsw449218 (36)	MDS	Analyst
	07/27/2020 15:36:45	Running 449219 (37)	MDS	Analyst
	07/27/2020 15:39:35	Running 449220 (38)	MDS	Analyst
	07/27/2020 15:42:24	Running ccv (14)	MDS	Analyst
	07/27/2020 15:45:13	Running ccb (15)	MDS	Analyst
	07/27/2020 15:48:05	Running lcsw77363 (39)	MDS	Analyst
	07/27/2020 15:50:51	Running mbw77363 (40)	MDS	Analyst
	07/27/2020 15:53:44	Running 448843 (41)	MDS	Analyst
	07/27/2020 15:56:34	Running l448843 (42)	MDS	Analyst
	07/27/2020 15:59:23	Running dup448843 (43)	MDS	Analyst
	07/27/2020 16:02:12	Running msw448843 (44)	MDS	Analyst
	07/27/2020 16:04:58	Running msdw448843 (45)	MDS	Analyst
	07/27/2020 16:07:45	Running pdsw448843 (46)	MDS	Analyst
	07/27/2020 16:10:32	Running lcss77371 (47)	MDS	Analyst
	07/27/2020 16:13:17	Running mbs77371 (48)	MDS	Analyst
	07/27/2020 16:16:10	Running ccv (14)	MDS	Analyst
	07/27/2020 16:18:59	Running ccb (15)	MDS	Analyst
	07/27/2020 16:21:51	Running 449250 (49)	MDS	Analyst
	07/27/2020 16:24:34	Running mss449250 (50)	MDS	Analyst
	07/27/2020 16:27:16	Running msds449250 (51)	MDS	Analyst
	07/27/2020 16:29:59	Running pdss449250 (52)	MDS	Analyst
	07/27/2020 16:32:41	Running 449317 (53)	MDS	Analyst
	07/27/2020 16:35:30	Running 449319 (54)	MDS	Analyst
	07/27/2020 16:38:17	Running 449320 (55)	MDS	Analyst
	07/27/2020 16:41:08	Running 449321 (56)	MDS	Analyst
	07/27/2020 16:43:57	Running 449322 (57)	MDS	Analyst
	07/27/2020 16:46:46	Running 449467 (58)	MDS	Analyst
	07/27/2020 16:49:35	Running ccv (14)	MDS	Analyst
	07/27/2020 16:52:24	Running ccb (15)	MDS	Analyst

Type	Date/Time	Message	User name	Application	Sequence Name
	07/24/2020 10:32:04	Running 445723 (126)	NAH	Analyst	S_DOD Calibration
	07/24/2020 10:38:35	Running pdss445723 (127)	NAH	Analyst	S_DOD Calibration
	07/24/2020 10:44:49	Running 445724 (128)	NAH	Analyst	S_DOD Calibration
	07/24/2020 10:51:15	Running 445725 (129)	NAH	Analyst	S_DOD Calibration
	07/24/2020 10:57:54	Running 445726 (130)	NAH	Analyst	S_DOD Calibration
	07/24/2020 11:04:32	Running ccv1 (31)	NAH	Analyst	S_DOD Calibration
	07/24/2020 11:10:08	Running ccv2 (29)	NAH	Analyst	S_DOD Calibration
	07/24/2020 11:16:01	Running ccb (30)	NAH	Analyst	S_DOD Calibration
	07/24/2020 11:22:29	Running 445727 (131)	NAH	Analyst	S_DOD Calibration
	07/24/2020 11:28:57	Running 445728 (132)	NAH	Analyst	S_DOD Calibration
	07/24/2020 11:35:36	Running 445729 (133)	NAH	Analyst	S_DOD Calibration
	07/24/2020 11:35:52	Closing will close the method and all associated samples.	NAH	Analyst	
	07/24/2020 11:42:14	Running 445730 (134)	NAH	Analyst	S_DOD Calibration
	07/24/2020 11:48:42	Running 445731 (135)	NAH	Analyst	S_DOD Calibration
	07/24/2020 11:55:28	Running 445732 (136)	NAH	Analyst	S_DOD Calibration
	07/24/2020 12:01:54	Running 447344 (137)	NAH	Analyst	S_DOD Calibration
	07/24/2020 12:08:30	Running 447345 (138)	NAH	Analyst	S_DOD Calibration
	07/24/2020 12:15:07	Running 447346 (139)	NAH	Analyst	S_DOD Calibration
	07/24/2020 12:21:46	Running 447347 (140)	NAH	Analyst	S_DOD Calibration
	07/24/2020 12:28:07	Running ccv1 (31)	NAH	Analyst	S_DOD Calibration
	07/24/2020 12:33:43	Running ccv2 (29)	NAH	Analyst	S_DOD Calibration
	07/24/2020 12:39:36	Running ccb (30)	NAH	Analyst	S_DOD Calibration
	07/24/2020 12:46:02	Running 447348 (141)	NAH	Analyst	S_DOD Calibration
	07/24/2020 12:52:41	Running 447349 (142)	NAH	Analyst	S_DOD Calibration
	07/24/2020 12:59:19	Running 447350 (143)	NAH	Analyst	S_DOD Calibration
	07/24/2020 13:05:47	Running 447351 (144)	NAH	Analyst	S_DOD Calibration
	07/24/2020 13:12:14	Running 447352 (145)	NAH	Analyst	S_DOD Calibration
	07/24/2020 13:18:41	Running 447353 (146)	NAH	Analyst	S_DOD Calibration
	07/24/2020 13:25:06	Running MRL/LLOQ (25)	NAH	Analyst	S_DOD Calibration
	07/24/2020 13:31:23	Running ccv1 (31)	NAH	Analyst	S_DOD Calibration
	07/24/2020 13:37:03	Running ccv2 (29)	NAH	Analyst	S_DOD Calibration
	07/24/2020 13:42:56	Running ccb (30)	NAH	Analyst	S_DOD Calibration
	07/24/2020 13:49:17	Autosampler Run Completed	NAH	Analyst	S_DOD Calibration
	07/24/2020 14:01:11	E9006 - : Plasma went out unexpectedly; RF reported over current failu	NAH	iTEVA Control Center	
	07/24/2020 14:02:09	Plasma ignition successful	NAH	Analyst	
	07/24/2020 14:02:52	Plasma On	NAH	iTEVA Control Center	
	07/24/2020 14:02:56	D33534 - Debug:Wavelength check : x = 0.103, y =-0.661	NAH	Analyst	
	07/24/2020 14:03:37	Autosampler Run Started	NAH	Analyst	
	07/24/2020 14:03:37	Sequence Started	NAH	Analyst	S_DOD Calibration
	07/24/2020 14:03:59	Running Blank (1)	NAH	Analyst	S_DOD Calibration
	07/24/2020 14:09:43	Autosampler Run Completed	NAH	Analyst	S_DOD Calibration
	07/24/2020 14:16:31	Autosampler Run Started	NAH	Analyst	
	07/24/2020 14:16:31	Sequence Started	NAH	Analyst	S_DOD Calibration
	07/24/2020 14:16:52	Running Blank (1)	NAH	Analyst	S_DOD Calibration
	07/24/2020 14:23:20	Running CalStd2=0.5 (2)	NAH	Analyst	S_DOD Calibration
	07/24/2020 14:29:43	Running CalStd3=1 (3)	NAH	Analyst	S_DOD Calibration
	07/24/2020 14:36:03	Running CalStd4=5 (4)	NAH	Analyst	S_DOD Calibration
	07/24/2020 14:42:28	Running CalStd5=10 (5)	NAH	Analyst	S_DOD Calibration
	07/24/2020 14:48:55	Running CalStd6=20 (6)	NAH	Analyst	S_DOD Calibration
	07/24/2020 14:55:14	Running CalStd7=50 (7)	NAH	Analyst	S_DOD Calibration
	07/24/2020 15:01:32	Running CalStd8=100 (8)	NAH	Analyst	S_DOD Calibration
	07/24/2020 15:07:50	Running CalStd9=1000 (9)	NAH	Analyst	S_DOD Calibration

Type	Date/Time	Message	User name	Application	Sequence Name
	07/24/2020 15:13:39	Running CalStd10=10000 (10)	NAH	Analyst	S_DOD Calibration
	07/24/2020 15:20:27	Running CalStd12=100K (11)	NAH	Analyst	S_DOD Calibration
	07/24/2020 15:27:13	Running CalStd13=100000 (12)	NAH	Analyst	S_DOD Calibration
	07/24/2020 15:33:18	Running CalStd14=500000 (13)	NAH	Analyst	S_DOD Calibration
	07/24/2020 15:39:52	Running CalibStd15=1000k (14)	NAH	Analyst	S_DOD Calibration
	07/24/2020 15:47:13	Running Ag Ba 1000, 50000 (15)	NAH	Analyst	S_DOD Calibration
	07/24/2020 15:53:54	Running blkrinse (22)	NAH	Analyst	S_DOD Calibration
	07/24/2020 16:00:13	Running icv (16)	NAH	Analyst	S_DOD Calibration
	07/24/2020 16:06:32	Running icv (16)	NAH	Analyst	S_DOD Calibration
	07/24/2020 16:12:50	Running ICVLL (24)	NAH	Analyst	S_DOD Calibration
	07/24/2020 16:19:03	Running icb (17)	NAH	Analyst	S_DOD Calibration
	07/24/2020 16:25:25	Running icb (17)	NAH	Analyst	S_DOD Calibration
	07/24/2020 16:31:50	Running MRL/LLOQ (25)	NAH	Analyst	S_DOD Calibration
	07/24/2020 16:38:07	Running ICSA (20)	NAH	Analyst	S_DOD Calibration
	07/24/2020 16:44:36	Running ICSAB (21)	NAH	Analyst	S_DOD Calibration
	07/24/2020 16:50:29	Running blkrinse (22)	NAH	Analyst	S_DOD Calibration
	07/24/2020 16:56:48	Running ICVLL ag (1)	NAH	Analyst	S_DOD Calibration
	07/24/2020 17:03:12	Running 449501 (2)	NAH	Analyst	S_DOD Calibration
	07/24/2020 17:09:55	Running msw449501 (3)	NAH	Analyst	S_DOD Calibration
	07/24/2020 17:16:05	Running msdw449501 (4)	NAH	Analyst	S_DOD Calibration
	07/24/2020 17:22:16	Running 449514 (5)	NAH	Analyst	S_DOD Calibration
	07/24/2020 17:28:57	Running lcss77342 (6)	NAH	Analyst	S_DOD Calibration
	07/24/2020 17:34:48	Running mbs77342 (7)	NAH	Analyst	S_DOD Calibration
	07/24/2020 17:41:11	Running 448015 (8)	NAH	Analyst	S_DOD Calibration
	07/24/2020 17:47:31	Running mss448015 (9)	NAH	Analyst	S_DOD Calibration
	07/24/2020 17:53:33	Running msds448015 (10)	NAH	Analyst	S_DOD Calibration
	07/24/2020 17:59:35	Running ccv1 (23)	NAH	Analyst	S_DOD Calibration
	07/24/2020 18:05:18	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration
	07/24/2020 18:11:13	Running ccb (19)	NAH	Analyst	S_DOD Calibration
	07/24/2020 18:17:38	Running pdss448015 (11)	NAH	Analyst	S_DOD Calibration
	07/24/2020 18:23:42	Running 448016 (12)	NAH	Analyst	S_DOD Calibration
	07/24/2020 18:30:03	Running 448017 (13)	NAH	Analyst	S_DOD Calibration
	07/24/2020 18:36:08	Running 448018 (14)	NAH	Analyst	S_DOD Calibration
	07/24/2020 18:42:33	Running 448019 (15)	NAH	Analyst	S_DOD Calibration
	07/24/2020 18:49:02	Running 448020 (16)	NAH	Analyst	S_DOD Calibration
	07/24/2020 18:55:30	Running 448021 (17)	NAH	Analyst	S_DOD Calibration
	07/24/2020 19:01:34	Running 448022 (18)	NAH	Analyst	S_DOD Calibration
	07/24/2020 19:07:52	Running 448023 (19)	NAH	Analyst	S_DOD Calibration
	07/24/2020 19:14:15	Running 448024 (20)	NAH	Analyst	S_DOD Calibration
	07/24/2020 19:20:32	Running ccv1 (23)	NAH	Analyst	S_DOD Calibration
	07/24/2020 19:26:10	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration
	07/24/2020 19:32:04	Running ccb (19)	NAH	Analyst	S_DOD Calibration
	07/24/2020 19:38:28	Running lcsw77363 60 46 (21)	NAH	Analyst	S_DOD Calibration
	07/24/2020 19:44:40	Running mbw77363 60 46 (22)	NAH	Analyst	S_DOD Calibration
	07/24/2020 19:51:04	Running 448843 (23)	NAH	Analyst	S_DOD Calibration
	07/24/2020 19:57:47	Running l448843 (24)	NAH	Analyst	S_DOD Calibration
	07/24/2020 20:04:35	Running dup448843 (25)	NAH	Analyst	S_DOD Calibration
	07/24/2020 20:11:19	Running msw448843 (26)	NAH	Analyst	S_DOD Calibration
	07/24/2020 20:17:26	Running msdw448843 (27)	NAH	Analyst	S_DOD Calibration
	07/24/2020 20:23:32	Running pdsw448843 (28)	NAH	Analyst	S_DOD Calibration
	07/24/2020 20:29:46	Running 447988 (29)	NAH	Analyst	S_DOD Calibration
	07/24/2020 20:36:28	Running msw447988 (30)	NAH	Analyst	S_DOD Calibration

Type	Date/Time	Message	User name	Application	Sequence Name
	07/24/2020 20:42:45	Running ccv1 (23)	NAH	Analyst	S_DOD Calibration
	07/24/2020 20:48:16	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration
	07/24/2020 20:54:10	Running ccb (19)	NAH	Analyst	S_DOD Calibration
	07/24/2020 21:00:35	Running msdw447988 (31)	NAH	Analyst	S_DOD Calibration
	07/24/2020 21:06:53	Running pdsw447988 (32)	NAH	Analyst	S_DOD Calibration
	07/24/2020 21:13:11	Running 448712 (33)	NAH	Analyst	S_DOD Calibration
	07/24/2020 21:19:54	Running msw448712 (34)	NAH	Analyst	S_DOD Calibration
	07/24/2020 21:26:18	Running msdw448712 (35)	NAH	Analyst	S_DOD Calibration
	07/24/2020 21:32:38	Running pdsw448712 (36)	NAH	Analyst	S_DOD Calibration
	07/24/2020 21:39:00	Running 448804 (37)	NAH	Analyst	S_DOD Calibration
	07/24/2020 21:45:24	Running lcss77364 (38)	NAH	Analyst	S_DOD Calibration
	07/24/2020 21:51:43	Running lcsds77364 (39)	NAH	Analyst	S_DOD Calibration
	07/24/2020 21:58:04	Running mbs77364 (40)	NAH	Analyst	S_DOD Calibration
	07/24/2020 22:04:28	Running ccv1 (23)	NAH	Analyst	S_DOD Calibration
	07/24/2020 22:10:00	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration
	07/24/2020 22:15:53	Running ccb (19)	NAH	Analyst	S_DOD Calibration
	07/24/2020 22:22:18	Running 449057 (41)	NAH	Analyst	S_DOD Calibration
	07/24/2020 22:28:46	Running pdss449057 (42)	NAH	Analyst	S_DOD Calibration
	07/24/2020 22:34:59	Running 449058 (43)	NAH	Analyst	S_DOD Calibration
	07/24/2020 22:41:28	Running 449059 (44)	NAH	Analyst	S_DOD Calibration
	07/24/2020 22:47:56	Running 449060 (45)	NAH	Analyst	S_DOD Calibration
	07/24/2020 22:54:25	Running 449061 (46)	NAH	Analyst	S_DOD Calibration
	07/24/2020 23:00:53	Running 449062 (47)	NAH	Analyst	S_DOD Calibration
	07/24/2020 23:07:22	Running 449063 (48)	NAH	Analyst	S_DOD Calibration
	07/24/2020 23:13:50	Running 449064 (49)	NAH	Analyst	S_DOD Calibration
	07/24/2020 23:20:19	Running 449065 (50)	NAH	Analyst	S_DOD Calibration
	07/24/2020 23:26:47	Running ccv1 (23)	NAH	Analyst	S_DOD Calibration
	07/24/2020 23:32:18	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration
	07/24/2020 23:38:11	Running ccb (19)	NAH	Analyst	S_DOD Calibration
	07/24/2020 23:44:36	Running 449066 (51)	NAH	Analyst	S_DOD Calibration
	07/24/2020 23:51:03	Running 449074 (52)	NAH	Analyst	S_DOD Calibration
	07/24/2020 23:57:39	Running 449075 (53)	NAH	Analyst	S_DOD Calibration
	07/25/2020 00:04:08	Running 449076 (54)	NAH	Analyst	S_DOD Calibration
	07/25/2020 00:10:32	Running 449077 (55)	NAH	Analyst	S_DOD Calibration
	07/25/2020 00:17:08	Running 449078 (56)	NAH	Analyst	S_DOD Calibration
	07/25/2020 00:23:36	Running 449079 (57)	NAH	Analyst	S_DOD Calibration
	07/25/2020 00:30:09	Running 449080 (58)	NAH	Analyst	S_DOD Calibration
	07/25/2020 00:36:33	Running 449081 (59)	NAH	Analyst	S_DOD Calibration
	07/25/2020 00:43:09	Running 449082 (60)	NAH	Analyst	S_DOD Calibration
	07/25/2020 00:49:32	Running ccv1 (23)	NAH	Analyst	S_DOD Calibration
	07/25/2020 00:55:05	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration
	07/25/2020 01:00:58	Running ccb (19)	NAH	Analyst	S_DOD Calibration
	07/25/2020 01:07:23	Running 449083 (61)	NAH	Analyst	S_DOD Calibration
	07/25/2020 01:14:00	Running lcss77365 (62)	NAH	Analyst	S_DOD Calibration
	07/25/2020 01:20:21	Running lcsds77365 (63)	NAH	Analyst	S_DOD Calibration
	07/25/2020 01:26:41	Running mbs77365 (64)	NAH	Analyst	S_DOD Calibration
	07/25/2020 01:33:04	Running 449118 (65)	NAH	Analyst	S_DOD Calibration
	07/25/2020 01:39:33	Running pdss449118 (66)	NAH	Analyst	S_DOD Calibration
	07/25/2020 01:45:36	Running 449119 (67)	NAH	Analyst	S_DOD Calibration
	07/25/2020 01:52:04	Running 449120 (68)	NAH	Analyst	S_DOD Calibration
	07/25/2020 01:58:34	Running 449121 (69)	NAH	Analyst	S_DOD Calibration
	07/25/2020 02:04:58	Running 449122 (70)	NAH	Analyst	S_DOD Calibration

Standard ID#:	M14404	Vendor:	Spex Certi Prep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	07/24/2020	Lot #:	54-207CR
Expiration Date (if any):	07/30/2020	Catalog #:	XSPIKE-1-250

Standard Log #:	M14399	Reagent:	Potassium Permanganate Solution
Analyst:	MDS		
Prep Date:	07/21/2020	Expiration Date:	08/21/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M14400	Reagent:	Potassium Persulfate Solution
Analyst:	MDS		
Prep Date:	07/21/2020	Expiration Date:	08/21/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M14246 and brought up to volume.		

Standard Log #:	M14401	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	MDS		
Prep Date:	07/22/2020	Expiration Date:	08/22/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M14276 and **60 g** hydroxylamine sulfate M14306 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14402	Reagent:	Hg Aqua Regia
Analyst:	MDS		
Prep Date:	07/22/2020	Expiration Date:	07/23/2020
Prep:	Carefully mixed **3** parts HCl AB.685 with **1** part HNO_3 AB.693 in a hood.		

		Instrument:	CETAC
Standard Log #:	M14403	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	07/22/2020	Expiration Date:	08/22/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14356 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14396	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	07/21/2020	Expiration Date:	07/21/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14397	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	07/21/2020	Expiration Date:	07/21/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14398	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	07/21/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard Log #:	M14395	Instrument:	GFAA
Analyst:	MDS	Reagent:	Pd/Mg Matrix Modifier
Prep Date:	07/20/2020	Expiration Date:	09/30/2020
Prep:	Into a 50 mL volumetric flask, partially filled with milli-Q H_2O, pipetted **15 mL** Pd Modifier M13954 and **10 mL** Mg (10,000 mg/L) M13984 and brought up to volume.		

Standard Log #:	M14394	Reagent:	1:3 HNO3
Analyst:	MDS		
Prep Date:	07/17/2020	Expiration Date:	07/17/2021
Prep:	Carefully mixed **3** parts DI with **1** part HNO_3 AB.693 in a hood.		

Standard Log #:	M14389	Reagent:	Potassium Permanganate Solution
Analyst:	MDS		
Prep Date:	07/13/2020	Expiration Date:	08/13/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M14390	Reagent:	Potassium Persulfate Solution
Analyst:	MDS		
Prep Date:	07/13/2020	Expiration Date:	08/13/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M14246 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14391	Reagent:	Hg Aqua Regia
Analyst:	MDS		
Prep Date:	07/13/2020	Expiration Date:	07/14/2020
Prep:	Carefully mixed **3** parts HCl AB.685 with **1** part HNO_3 AB.693 in a hood.		

Standard Log #:	M14392	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	MDS		
Prep Date:	07/14/2020	Expiration Date:	08/14/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M14276 and **60 g** hydroxylamine sulfate M14306 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14393	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	07/14/2020	Expiration Date:	08/14/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14356 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14386	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	07/13/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14387	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	07/13/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14388	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	07/13/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard ID#:	M14384	Vendor:	Environmantal Express
Analyst:	NAH	Chemical:	Y 10000 mg/L
Date Received:	07/08/2020	Lot #:	1933801-500
Expiration Date (if any):	01/31/2022	Catalog #:	HP10M67-1-500

Standard Log #:	M14385	Standard:	GFAA Instrument Check
Analyst:	MDS	Final Concentration:	12 µg/L As 6 µg/L Pb 10 µg/L Sb 20 µg/L Se 10 µg/L Tl 0.6 µg/L Ag
Prep Date:	07/08/2020	Expiration Date:	12/2020

Into six, 100 mL volumetric flasks, add the following and bring up to volume with milli-Q H_2O.

Element	Volume Pipetted (mL)	Standard Conc. (µg/mL)	Standard ID	New Conc. (µg/L)
As	1	1000	M13863	10,000
Pb	0.1	10,000	M14202	10,000
Tl	1	1000	M14207	10,000
Se	1	1000	M13948	10,000
Sb	1	1000	M13950	10,000
Ag	0.1	1000	M13951	1000

Into a 1 L volumetric flask, add the following and bring up to volume with Milli-Q H_20. (1% HNO_3)

Element	Volume Pipetted (mL)	Standard Conc. (µg/L)	New Conc. (µg/L)
As	1.2	10,000	12
Pb	0.6	10,000	6
Tl	1.0	10,000	10
Se	2.0	10,000	20
Sb	1.0	10,000	10
Ag	0.6	1000	0.6

Standard Log #:	M14383	Reagent:	TCLP 1 N HCL
Analyst:	BMM		
Prep Date:	07/07/2020	Expiration Date:	07/07/2021
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, added 83 mL HCL AB.685 and brought up to volume.		

Standard Log #:	M14381	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	MDS		
Prep Date:	07/03/2020	Expiration Date:	08/03/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M14276 and **60 g** hydroxylamine sulfate M14193 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14382	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	07/03/2020	Expiration Date:	08/03/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14278 and brought up to volume.		

Standard Log #:	M14378	Reagent:	Potassium Permanganate Solution
Analyst:	MDS		
Prep Date:	07/02/2020	Expiration Date:	08/02/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M14379	Reagent:	Potassium Persulfate Solution
Analyst:	MDS		
Prep Date:	07/02/2020	Expiration Date:	08/02/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M14246 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14380	Reagent:	Hg Aqua Regia
Analyst:	MDS		
Prep Date:	07/02/2020	Expiration Date:	07/03/2020
Prep:	Carefully mixed **3** parts HCl AB.685 with **1** part HNO_3 AB.693 in a hood.		

		Instrument:	HydraII
Standard Log #:	M14375	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	07/02/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14376	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	07/02/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14377	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	07/02/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard Log #:	M14373	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	07/01/2020	Expiration Date:	07/01/2021
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.684 and **128.6 mL** 10N NaOH M14287. Dilute to 20 L and mix.		

Standard ID#:	M14374	Vendor:	ENVIROMENTAL EXPRESS
Analyst:	BMM	Chemical:	ACID WASHED TCLP FILTERS
Date Received:	06/18/2020	Lot #:	400169-0154-AG
Expiration Date (if any):	N/A	Catalog #:	FG77150MM

Standard ID#:	M14368	Vendor:	CPI
Analyst:	NAH	Chemical:	Mo 1000 mg/L
Date Received:	06/30/2020	Lot #:	987189-75
Expiration Date (if any):	12/2021	Catalog #:	S4400-1000343

Standard ID#:	M14369	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10000 mg/L
Date Received:	06/30/2020	Lot #:	1053109-22
Expiration Date (if any):	12/2021	Catalog #:	S4400-10M411-500

Standard ID#:	M14370	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10000 mg/L
Date Received:	06/30/2020	Lot #:	1053109-8
Expiration Date (if any):	12/2021	Catalog #:	4400-10M411

Standard ID#:	M14371	Vendor:	CPI
Analyst:	NAH	Chemical:	Si 1000 mg/L
Date Received:	06/30/2020	Lot #:	1047570-9
Expiration Date (if any):	12/2021	Catalog #:	S4400-1000504F

Standard ID#:	M14372	Vendor:	CPI
Analyst:	NAH	Chemical:	S 10000 mg/L
Date Received:	06/30/2020	Lot #:	1050965-10
Expiration Date (if any):	12/2021	Catalog #:	4400-10M544

Standard Log #:	M14363	Reagent:	Potassium Permanganate Solution
Analyst:	MDS		
Prep Date:	06/24/2020	Expiration Date:	07/24/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M14364	Reagent:	Potassium Persulfate Solution
Analyst:	MDS		
Prep Date:	06/24/2020	Expiration Date:	07/24/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M14246 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14365	Reagent:	Hg Aqua Regia
Analyst:	MDS		
Prep Date:	06/24/2020	Expiration Date:	06/25/2020
Prep:	Carefully mixed **3** parts HCl AB.685 with **1** part HNO_3 AB.691 in a hood.		

Standard Log #:	M14366	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	MDS		
Prep Date:	06/25/2020	Expiration Date:	07/25/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M14276 and **60 g** hydroxylamine sulfate M14193 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14367	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	06/25/2020	Expiration Date:	07/25/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14278 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14360	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	06/24/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14361	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	06/24/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14362	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	06/24/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard ID#:	M14358	Vendor:	Spex Certprep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	06/22/2020	Lot #:	54-161CR
Expiration Date (if any):	06/30/2021	Catalog #:	XSOIKE-1-250

Standard ID#:	M14359	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	06/23/2020	Lot #:	52-213CRX
Expiration Date (if any):	06/30/2021	Catalog #:	INT-A1

Standard ID#:	M14355	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride
Date Received:	06/17/2020	Lot #:	K111-25
Expiration Date (if any):		Catalog #:	LC251701

Standard ID#:	M14356	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride
Date Received:	06/17/2020	Lot #:	K111-25
Expiration Date (if any):		Catalog #:	LC251701

Standard ID#:	M14357	Vendor:	Mettler toledo
Analyst:	NAH	Chemical:	Electrolyte Friscolyt-b
Date Received:	06/17/2020	Lot #:	1F091L
Expiration Date (if any):	03/31/2023	Catalog #:	51340053

Standard Log #:	M14350	Reagent:	Potassium Permanganate Solution
Analyst:	MDS		
Prep Date:	06/16/2020	Expiration Date:	07/16/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M14351	Reagent:	Potassium Persulfate Solution
Analyst:	MDS		
Prep Date:	06/16/2020	Expiration Date:	07/16/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M14246 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14352	Reagent:	Hg Aqua Regia
Analyst:	MDS		
Prep Date:	06/16/2020	Expiration Date:	06/17/2020
Prep:	Carefully mixed **3** parts HCl AB.685 with **1** part HNO_3 AB.691 in a hood.		

Standard Log #:	M14353	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	MDS		
Prep Date:	06/17/2020	Expiration Date:	07/17/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M14276 and **60 g** hydroxylamine sulfate M14193 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14354	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	06/17/2020	Expiration Date:	07/17/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14278 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14347	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	06/16/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14348	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	06/16/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14349	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	06/16/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard ID#:	M14346	Vendor:	Fisher Chemical
Analyst:	MDS	Chemical:	Sodium Chloride
Date Received:	06/16/2020	Lot #:	196616
Expiration Date (if any):		Catalog #:	S271-500

Standard Log #:	M14344	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	06/12/2020	Expiration Date:	06/12/2021
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.684 and **128.6 mL** 10N NaOH M14287. Dilute to 20 L and mix.		

Standard Log #:	M14345	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	06/12/2020	Expiration Date:	06/12/2021
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.684 and **128.6 mL** 10N NaOH M14287. Dilute to 20 L and mix.		

		Instrument:	ICP 6500
Standard Log #:	M14342	Standard:	ICV Std.
Analyst:	NAH	Concentrations:	**12,000 mg/L** Al **10,000 mg/L** Ca, Mg **5000 mg/L** Fe **2000 mg/L** As, Ba, Se, Tl **500 mg/L** B, Co, Li, Mn, Mo, Ni, Pb, Sb, Sn, Sr, Ti, V, Zn **250 mg/L** Cu **200 mg/L** Cr **50 mg/L** Ag, Be, Cd
Prep Date:	06/11/2020	Expiration Date:	01/30/2021
Prep:	Into a 1 L volumetric flask, pipetted the following and brought up to volume with milli-Q H_2O. **10 mL** Custom Assurance Standard #18 ((200 mg/L Al, As, Ba, Se, Tl) (100 mg/L Fe) (50 mg/L Co, Mn, Ni, Pb, Sb, V, Zn) (25 mg/L Cu) (20 mg/L Cr) (5 mg/L Ag, Be, Cd)) M14214, **2 mL** Interferents A Standard ((5000 mg/L Al, Ca, Mg) (2000 mg/L Fe)) M14120, **0.5 mL** Mo (1000 mg/L) M14121, **0.5 mL** B (1000 mg/L) M14131, **0.5 mL** Sr (1000 mg/L) M14007, **0.5 mL** Li (1000 mg/L) M14127, **0.5 mL** Sn (1000 mg/L) M14008 and **0.5 mL** Ti (1000 mg/L) M14009.		

		Instrument:	ICP 6500
Standard Log #:	M14343	Standard:	ICSAB
Analyst:	NAH	Concentrations:	**500,000 ug/L** Al, Ca, Fe, Mg **500 ug/L** Ag, As, Ba, Be, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Sb, Se, Tl, V, Zn
Prep Date:	06/11/2020	Expiration Date:	01/30/2021
Prep:	Into a 500 mL volumetric flask, pipetted **50 mL** Interferents A Standard ((5000 mg/L Al, Ca, Mg) (2000 mg/L Fe)) M14120, **15 mL** Fe (10,000 mg/L) M14101, **2.5 mL** of Custom Assurance Std. #3 (100 mg/L Ag, Be, Cd) M14195 and **2.5 mL** Custom Assurance Std. #23 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M14215 and brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M14340	Standard:	CCV1
Analyst:	NAH	Concentrations:	**5000 µg/L** Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn **500 µg/L** Ag, Be, Cd
Prep Date:	06/11/2020	Expiration Date:	03/20/2021
Prep:	Into a 1 L volumetric flask, pipetted **50 mL** Custom Assurance Standard #23 XCTWI-5-500 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M14215 and **5.0 mL** of Custom Assurance Std. #3 XCTWI-4-500 (100 mg/L Ag, Be, Cd) M14195 and brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M14341	Standard:	CCV2
Analyst:	NAH	Concentrations:	**500 µg/L** Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn **50 µg/L** Ag, Be, Cd
Prep Date:	06/11/2020	Expiration Date:	03/20/2021
Prep:	Into a 1 L volumetric flask, pipetted **5 mL** Custom Assurance Standard #23 XCTWI-5-500 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M14215 and **0.5 mL** of Custom Assurance Std. #3 XCTWI-4-500 (100 mg/L Ag, Be, Cd) M14195 and brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M14337	Standard:	ICSA4_Ni_Ti
Analyst:	NAH	Concentrations:	**10,000 ug/L** Ni and Ti
Prep Date:	06/11/2020	Expiration Date:	04/21
Prep:	Into a 500 mL volumetric flask, pipetted 5.0 **mL** 1000 mg/L Ni M14196 5.0 **mL** 10000 mg/L Ti M14009 brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M14338	Standard:	ICSA2_Ba_Be_Sn
Analyst:	NAH	Concentrations:	**10,000 ug/L** Ba, Be, and Sn
Prep Date:	06/11/2020	Expiration Date:	04/21
Prep:	Into a 500 mL volumetric flask, pipetted 5.0 **mL** 1000 mg/L Ba M14130 5.0 **mL** 10000 mg/L Be M14203 5.0 **mL** 10000 mg/L Sn M14008 brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M14339	Standard:	ICSA3_Cr_Cu_Co_Mo
Analyst:	NAH	Concentrations:	**10,000 ug/L** Cr, Cu, Co and Mo
Prep Date:	06/11/2020	Expiration Date:	07/21
Prep:	Into a 500 mL volumetric flask, pipetted 0.5 **mL** 10000 mg/L Cr M14205 0.5 **mL** 10000 mg/L Cu M14199 5.0 **mL** 1000 mg/L Co M14204 5.0 **mL** 1000 mg/L Mo M14129 brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M14335	Standard:	ICAL
Analyst:	NAH	Concentrations:	0.25, 0.5, 1, 5, 10, 20, 50, 100, 1000, 10,000, 100k, 100,000, 500,000 and 1000k (ug/L)
Prep Date:	06/11/2020	Expiration Date:	12/2020
Prep:	Using 1 L volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (5% HNO_3, 5% HCl) *1000 ug/L Std.* - **10 mL** of Custom Assurance Std. #23 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M14215, **10 mL** of Custom Assurance Std. #3 (100 mg/L Ag, Be, Cd) M14195 and **1 mL** of Si (1000 mg/L) M14006 and 1 mL M13859 Ce *0.25 ug/L Std.* - **0.25 mL** of the 1000 ug/L Std. *0.5 ug/L Std.* - **0.5 mL** of the 1000 ug/L Std. *1 ug/L Std.* - **1 mL** of the 1000 ug/L Std. *5 ug/L Std.* - **5 mL** of the 1000 ug/L Std. *10 ug/L Std.* - **10 mL** of the 1000 ug/L Std. *20 ug/L Std.* - **20 mL** of the 1000 ug/L Std. *50 ug/L Std.* - **50 mL** of the 1000 ug/L Std. *100 ug/L Std.* - **1 mL** of Custom Assurance Std. (CAS) #23 and **1 mL** of CAS #3 *10,000 ug/L Std.* - **100 mL** CAS #23, **100 mL** CAS #3 and **1 mL** of K (10,000 mg/L) M14104. *100k ug/L Std.* - **10 mL** of Cu (10,000 mg/L) M14199, **10 mL** of Mn (10,000 mg/L) M14200, **10 mL** of Cr (10,000 mg/L) M14205, **10 mL** Pb (10,000 mg/L) M14202, **10 mL** of Zn (10,000 mg/L) M14197 and **10 mL** of Na (10,000 mg/L) M14103. *100,000 ug/L Std.* - **10 mL** of Mg (10,000 mg/L) M13984, **10 mL** of Fe (10,000 mg/L) M14004, **10 mL** of Ca (10,000 mg/L) M13985 and **10 mL** Al (10,000 mg/L) M14105. *500,000 ug/L Std.* - **50 mL** of Mg (10,000 mg/L), **50 mL** of Fe (10,000 mg/L), **50 mL** of Ca (10,000 mg/L) and **50 mL** of Al (10,000 mg/L) *1000k ug/L Std.* - **100 mL** of Mg (10,000 mg/L), **100 mL** of Fe (10,000 mg/L), **100 mL** of Ca (10,000 mg/L) and **100 mL** of Al (10,000 mg/L)		

		Instrument:	ICP 6500
Standard Log #:	M14336	Standard:	ICSA1_Mn
Analyst:	NAH	Concentrations:	**10,000 ug/L** Mn
Prep Date:	06/11/2020	Expiration Date:	04/21
Prep:	Into a 500 mL volumetric flask, pipetted 0.5 **mL** 10000 mg/L mn M14200 brought up to volume with milli-Q H_2O.		

		Instrument:	GFAA
Standard Log #:	M14332	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	06/11/2020	Expiration Date:	04/10/2021
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M14227 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M14333	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	06/11/2020	Expiration Date:	04/10/2021
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M14227 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M14334	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	06/11/2020	Expiration Date:	04/10/2021
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M14228 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

Standard Log #:	M14327	Reagent:	Potassium Permanganate Solution
Analyst:	MDS		
Prep Date:	06/09/2020	Expiration Date:	07/09/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M14328	Reagent:	Potassium Persulfate Solution
Analyst:	MDS		
Prep Date:	06/09/2020	Expiration Date:	07/09/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M14246 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14329	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	06/10/2020	Expiration Date:	07/10/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14278 and brought up to volume.		

Standard Log #:	M14330	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	MDS		
Prep Date:	06/10/2020	Expiration Date:	07/10/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M14276 and **60 g** hydroxylamine sulfate M14193 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14331	Reagent:	Hg Aqua Regia
Analyst:	MDS		
Prep Date:	06/10/2020	Expiration Date:	06/11/2020
Prep:	Carefully mixed **3** parts HCl AB.685 with **1** part HNO_3 AB.691 in a hood.		

		Instrument:	HydraII
Standard Log #:	M14324	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	06/09/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14325	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	06/09/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14326	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	06/09/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard ID#:	M14323	Vendor:	ThermoFisher
Analyst:	MDS	Chemical:	Nickel Nitrate Matrix Modifier
Date Received:	06/08/2020	Lot #:	216646
Expiration Date (if any):	11/30/2021	Catalog #:	39043

Standard Log #:	M14318	Reagent:	Potassium Permanganate Solution
Analyst:	MDS		
Prep Date:	06/03/2020	Expiration Date:	07/03/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M14319	Reagent:	Potassium Persulfate Solution
Analyst:	MDS		
Prep Date:	06/03/2020	Expiration Date:	07/03/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13714 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14320	Reagent:	Hg Aqua Regia
Analyst:	MDS		
Prep Date:	06/03/2020	Expiration Date:	06/04/2020
Prep:	Carefully mixed **3** parts HCl AB.685 with **1** part HNO_3 AB.691 in a hood.		

		Instrument:	CETAC
Standard Log #:	M14321	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	06/04/2020	Expiration Date:	07/04/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14277 and brought up to volume.		

Standard Log #:	M14322	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	MDS		
Prep Date:	06/04/2020	Expiration Date:	07/04/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M14276 and **60 g** hydroxylamine sulfate M14193 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14315	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	06/03/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14316	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	06/03/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14317	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	06/03/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard Log #:	M14310	Reagent:	Potassium Permanganate Solution
Analyst:	MDS		
Prep Date:	05/27/2020	Expiration Date:	06/27/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M14311	Reagent:	Potassium Persulfate Solution
Analyst:	MDS		
Prep Date:	05/27/2020	Expiration Date:	06/27/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13714 and brought up to volume.		

Standard Log #:	M14312	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	MDS		
Prep Date:	05/28/2020	Expiration Date:	06/28/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M14276 and **60 g** hydroxylamine sulfate M14193 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14313	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	05/28/2020	Expiration Date:	05/29/2020
Prep:	Carefully mixed **3** parts HCl AB.685 with **1** part HNO_3 AB.691 in a hood.		

		Instrument:	CETAC
Standard Log #:	M14314	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	05/28/2020	Expiration Date:	06/28/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14277 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14307	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	05/27/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14308	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	05/27/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14309	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	05/27/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard Log #:	M14304	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	05/27/2020	Expiration Date:	05/27/2021
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.684 and **128.6 mL** 10N NaOH M14287. Dilute to 20 L and mix.		

Standard Log #:	M14305	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	05/27/2020	Expiration Date:	05/27/2021
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.684 and **128.6 mL** 10N NaOH M14287. Dilute to 20 L and mix.		

Standard ID#:	M14306	Vendor:	Fisher Chemical
Analyst:	MDS	Chemical:	Hydroxylamine Sulfate
Date Received:	05/27/2020	Lot #:	189407A
Expiration Date (if any):		Catalog #:	H331-500

Standard Log #:	M14299	Reagent:	Potassium Permanganate Solution
Analyst:	MDS		
Prep Date:	05/19/2020	Expiration Date:	06/19/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M14300	Reagent:	Potassium Persulfate Solution
Analyst:	MDS		
Prep Date:	05/19/2020	Expiration Date:	06/19/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13714 and brought up to volume.		

Standard Log #:	M14301	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	MDS		
Prep Date:	05/20/2020	Expiration Date:	06/20/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M14194 and **60 g** hydroxylamine sulfate M14193 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14302	Reagent:	Hg Aqua Regia
Analyst:	MDS		
Prep Date:	05/19/2020	Expiration Date:	05/20/2020
Prep:	Carefully mixed **3** parts HCl AB.685 with **1** part HNO_3 AB.691 in a hood.		

		Instrument:	CETAC
Standard Log #:	M14303	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	05/20/2020	Expiration Date:	06/20/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14277 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14296	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	05/19/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14297	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	05/19/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14298	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	05/19/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard Log #:	M14291	Reagent:	Potassium Permanganate Solution
Analyst:	MDS		
Prep Date:	05/12/2020	Expiration Date:	06/12/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M14292	Reagent:	Potassium Persulfate Solution
Analyst:	MDS		
Prep Date:	05/12/2020	Expiration Date:	06/12/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13714 and brought up to volume.		

Standard Log #:	M14293	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	MDS		
Prep Date:	05/12/2020	Expiration Date:	06/12/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M14194 and **60 g** hydroxylamine sulfate M14193 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14294	Reagent:	Hg Aqua Regia
Analyst:	MDS		
Prep Date:	05/12/2020	Expiration Date:	05/13/2020
Prep:	Carefully mixed **3** parts HCl AB.685 with **1** part HNO_3 AB.691 in a hood.		

		Instrument:	CETAC
Standard Log #:	M14295	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	05/12/2020	Expiration Date:	06/12/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14157 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14288	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	05/12/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14289	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	05/12/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14290	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	05/12/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard Log #:	M14287	Reagent:	10N NaOH
Analyst:	BMM		
Prep Date:	05/08/2020	Expiration Date:	05/08/2021
Prep:	Into a 1 L volumetric flask, added **400 g** NaOH WC07 and brought up to volume.		

Standard Log #:	M14282	Reagent:	Potassium Permanganate Solution
Analyst:	MDS		
Prep Date:	05/05/2020	Expiration Date:	06/05/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M14283	Reagent:	Potassium Persulfate Solution
Analyst:	MDS		
Prep Date:	05/05/2020	Expiration Date:	06/05/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13714 and brought up to volume.		

Standard Log #:	M14284	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	MDS		
Prep Date:	05/06/2020	Expiration Date:	06/06/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M14194 and **60 g** hydroxylamine sulfate M13468 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14285	Reagent:	Hg Aqua Regia
Analyst:	MDS		
Prep Date:	05/05/2020	Expiration Date:	05/06/2020
Prep:	Carefully mixed **3** parts HCl AB.685 with **1** part HNO_3 AB.691 in a hood.		

		Instrument:	CETAC
Standard Log #:	M14286	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	05/06/2020	Expiration Date:	06/06/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14157 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14279	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	05/05/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14280	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	05/05/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14281	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	05/05/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard ID#:	M14277	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride
Date Received:	05/05/2020	Lot #:	K111-25
Expiration Date (if any):		Catalog #:	LC251701

Standard ID#:	M14278	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride
Date Received:	05/05/2020	Lot #:	K111-25
Expiration Date (if any):		Catalog #:	LC251701

Standard ID#:	M14276	Vendor:	Fisher Chemical
Analyst:	MDS	Chemical:	Sodium Chloride
Date Received:	05/01/2020	Lot #:	195918
Expiration Date (if any):		Catalog #:	S271-500

		Instrument:	CETAC
Standard Log #:	M14275	Reagent:	Hg Aqua Regia
Analyst:	MDS		
Prep Date:	04/29/2020	Expiration Date:	04/30/2020
Prep:	Carefully mixed **3** parts HCl AB.685 with **1** part HNO_3 AB.691 in a hood.		

Standard Log #:	M14271	Reagent:	Potassium Permanganate Solution
Analyst:	MDS		
Prep Date:	04/27/2020	Expiration Date:	05/27/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M14272	Reagent:	Potassium Persulfate Solution
Analyst:	MDS		
Prep Date:	04/27/2020	Expiration Date:	05/27/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13714 and brought up to volume.		

Standard Log #:	M14273	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	MDS		
Prep Date:	04/28/2020	Expiration Date:	05/28/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M14194 and **60 g** hydroxylamine sulfate M13468 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14274	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	04/28/2020	Expiration Date:	05/28/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14157 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14268	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	04/27/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14269	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	04/27/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14270	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	04/27/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard Log #:	M14266	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	MDS		
Prep Date:	04/22/2020	Expiration Date:	05/22/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M14194 and **60 g** hydroxylamine sulfate M13463 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14267	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	04/22/2020	Expiration Date:	05/22/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14157 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14262	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	04/21/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard Log #:	M14263	Reagent:	Potassium Permanganate Solution
Analyst:	MDS		
Prep Date:	04/21/2020	Expiration Date:	
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M14264	Reagent:	Potassium Persulfate Solution
Analyst:	MDS		
Prep Date:	04/21/2020	Expiration Date:	
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13714 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14265	Reagent:	Hg Aqua Regia
Analyst:	MDS		
Prep Date:	04/21/2020	Expiration Date:	04/22/2020
Prep:	Carefully mixed **3** parts HCl AB.685 with **1** part HNO_3 AB.691 in a hood.		

Standard Log #:	M14259	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	04/21/2020	Expiration Date:	04/21/2021
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.684 and **128.6 mL** 10N NaOH M14002. Dilute to 20 L and mix.		

		Instrument:	HydraII
Standard Log #:	M14260	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	04/21/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14261	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	04/21/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

Standard Log #:	M14254	Reagent:	Potassium Permanganate Solution
Analyst:	MDS		
Prep Date:	04/14/2020	Expiration Date:	05/14/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M14255	Reagent:	Potassium Persulfate Solution
Analyst:	MDS		
Prep Date:	04/14/2020	Expiration Date:	05/14/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13714 and brought up to volume.		

Standard Log #:	M14256	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	MDS		
Prep Date:	04/15/2020	Expiration Date:	05/15/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M14194 and **60 g** hydroxylamine sulfate M13468 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14257	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	04/15/2020	Expiration Date:	05/15/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14157 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14258	Reagent:	Hg Aqua Regia
Analyst:	MDS		
Prep Date:	04/14/2020	Expiration Date:	04/15/20220
Prep:	Carefully mixed **3** parts HCl AB.685 with **1** part HNO_3 AB.691 in a hood.		

		Instrument:	HydraII
Standard Log #:	M14251	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	04/14/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14252	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	04/14/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14253	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	04/14/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard Log #:	M14250	Instrument:	ICP 6500
Analyst:	NAH	Standard:	MDL DOD Metals Spiking soln
Prep Date:	04/14/2020	Expiration Date:	12/2020

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	40	M13951	1000	2
Al	800	M13982	**10000**	4
As	40	M13863	1000	2
Ba	20	M14130	1000	1
Be	8	M14203	1000	0.4
Ca	1000	M13985	**10000**	5
Cd	10	M14201	1000	0.5
Co	20	M14204	1000	1
Cr	20	M14205	**10000**	0.1
Cu	20	M14199	**10000**	0.1
Fe	600	M14101	**10000**	3
Mg	1000	M14108	**10000**	5
Mn	20	M14200	**10000**	0.1
Mo	20	M14129	1000	1
Ni	20	M14196	1000	1
Pb	20	M14202	**10000**	0.1
Sb	40	M13950	1000	2
Se	40	M13948	1000	2
Tl	40	M14207	1000	2
V	20	M14198	1000	1
Zn	20	M14197	**10000**	0.1
Na	10000	M14103	**10000**	50
K	10000	M14104	**10000**	50
B	40	M13947	1000	2
Si	200	M14106	1000	10
S	2000	M14102	**10000**	10
Li	40	M14127	1000	2
Sr	20	M14007	1000	1
Sn	100	M14008	1000	5
Ti	20	M14009	1000	10

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

		Instrument:	GFAA
Standard Log #:	M14247	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	04/10/2020	Expiration Date:	04/10/2021
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M14227 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M14248	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	04/10/2020	Expiration Date:	04/10/2021
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M14227 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M14249	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	04/10/2020	Expiration Date:	04/10/2021
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M14228 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

Standard ID#:	M14246	Vendor:	Acros Organics
Analyst:	MDS	Chemical:	Potassium Persulfate
Date Received:	04/08/2020	Lot #:	A0412553
Expiration Date (if any):		Catalog #:	424185000

Standard Log #:	M14242	Reagent:	Potassium Permanganate Solution
Analyst:	MDS		
Prep Date:	04/06/2020	Expiration Date:	05/06/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M14243	Reagent:	Potassium Persulfate Solution
Analyst:	MDS		
Prep Date:	04/06/2020	Expiration Date:	05/06/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13714 and brought up to volume.		

Standard Log #:	M14244	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	MDS		
Prep Date:	04/07/2020	Expiration Date:	05/07/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M14194 and **60 g** hydroxylamine sulfate M13994 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14245	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	04/07/2020	Expiration Date:	05/07/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14081 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14239	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	04/06/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14240	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	04/06/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14241	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	04/06/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard Log #:	M14234	Reagent:	Potassium Permanganate Solution
Analyst:	MDS		
Prep Date:	03/31/2020	Expiration Date:	04/30/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M14235	Reagent:	Potassium Persulfate Solution
Analyst:	MDS		
Prep Date:	03/31/2020	Expiration Date:	04/30/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13714 and brought up to volume.		

Standard Log #:	M14236	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	MDS		
Prep Date:	04/01/2020	Expiration Date:	05/01/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M14194 and **60 g** hydroxylamine sulfate M13994 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14237	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	04/01/2020	Expiration Date:	05/01/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14158 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14238	Reagent:	Hg Aqua Regia
Analyst:	MDS		
Prep Date:	04/01/2020	Expiration Date:	04/02/2020
Prep:	Carefully mixed **3** parts HCl AB.685 with **1** part HNO_3 AB.686 in a hood.		

		Instrument:	HydraII
Standard Log #:	M14231	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	03/31/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14232	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	03/31/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14233	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	03/31/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

MRL BASE STD M14230 Analyst NAH

Prep Date 03/27/2020

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	(ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L	Expiration Date
Ag	20	M13951	1000	1	02/2021
Al	400	M14105	10000	2	07/2021
Ba	10	M14130	1000	0.5	07/2021
Be	4	M14203	1000	0.2	09/2021
Cd	5	M14201	1000	0.25	09/2021
Co	10	M14204	1000	0.5	09/2021
Cr	10	M14205	10000	0.05	09/2021
Cu	10	M14199	10000	0.05	09/2021
Mg	500	M14108	10000	2.5	07/2021
Mn	10	M14200	10000	0.05	09/2021
Mo	10	M14129	1000	0.5	07/2021
Ni	10	M14196	1000	0.5	09/2021
Pb	10	M14202	10000	0.05	09/2021
Sb	20	M13950	1000	1	02/2021
V	10	M14198	1000	0.5	09/2021
Zn	10	M14197	10000	0.05	09/2021
K	1000	M14104	10000	5	07/2021
Na	1000	M14103	10000	5	07/2021
As	20	M13863	1000	1	12/2020
Ca	500	M14107	10000	2.5	07/2021
Fe	300	M14101	10000	1.5	07/2021
Se	20	M13948	1000	1	02/2021
Tl	20	M14207	1000	1	09/2021
Si	100	M14106	1000	5	07/2021
B	20	M14131	1000	1	07/2021
Li	20	M14127	1000	1	07/2021
W	50	xxxxxxxd	1000	2.5	xxxxxxx
Ti	10	M14009	1000	0.5	04/2021
Sr	10	M14007	1000	0.5	04/2021
Sn	50	M14008	1000	2.5	04/2021
S	300	M14102	10000	1.5	07/2021

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

Standard Log #:	M14224	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	MDS		
Prep Date:	03/25/2020	Expiration Date:	04/25/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M14194 and **60 g** hydroxylamine sulfate M13994 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14225	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	03/25/2020	Expiration Date:	04/25/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14158 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14226	Reagent:	Hg Aqua Regia
Analyst:	MDS		
Prep Date:	03/25/2020	Expiration Date:	03/26/2020
Prep:	Carefully mixed **3** parts HCl AB.685 with **1** part HNO_3 AB.686 in a hood.		

Standard ID#:	M14227	Vendor:	Inorganic Ventures
Analyst:	MDS	Chemical:	GFAA ICAL/CCV
Date Received:	03/25/2020	Lot #:	R2-MEB691217
Expiration Date (if any):		Catalog #:	CTI-SPK-1

Standard ID#:	M14228	Vendor:	Inorganic Ventures
Analyst:	MDS	Chemical:	GFAA ICV/SPIKE
Date Received:	03/25/2020	Lot #:	R2-MEB691216
Expiration Date (if any):		Catalog #:	CTI-GFCAL-1

Standard ID#:	M14229	Vendor:	HACH
Analyst:	NAH	Chemical:	StablCal Standard 200 NTU
Date Received:	03/25/2020	Lot #:	A0038
Expiration Date (if any):	02/2022	Catalog #:	2660449

Standard Log #:	M14222	Reagent:	Potassium Permanganate Solution
Analyst:	MDS		
Prep Date:	03/24/2020	Expiration Date:	04/24/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M14223	Reagent:	Potassium Persulfate Solution
Analyst:	MDS		
Prep Date:	03/24/2020	Expiration Date:	04/24/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13714 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14219	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	03/24/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14220	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	03/24/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14221	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	03/24/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard ID#:	M14218	Vendor:	SpexCertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Std.
Date Received:	03/19/2020	Lot #:	54-035CR
Expiration Date (if any):	03/30/2021	Catalog #:	XCTWI-1-500

		Instrument:	CETAC
Standard Log #:	M14216	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	03/18/2020	Expiration Date:	03/19/2020
Prep:	Carefully mixed **3** parts HCl AB.685 with **1** part HNO_3 AB.686 in a hood.		

		Instrument:	CETAC
Standard Log #:	M14217	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	03/18/2020	Expiration Date:	04/18/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14158 and brought up to volume.		

Standard Log #:	M14211	Reagent:	Potassium Permanganate Solution
Analyst:	MDS		
Prep Date:	03/17/2020	Expiration Date:	04/17/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M14212	Reagent:	Potassium Persulfate Solution
Analyst:	MDS		
Prep Date:	03/17/2020	Expiration Date:	04/17/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13714 and brought up to volume.		

Standard Log #:	M14213	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	MDS		
Prep Date:	03/17/2020	Expiration Date:	04/17/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13620 and **60 g** hydroxylamine sulfate M13994 and brought up to volume.		

Standard ID#:	M14214	Vendor:	SpexCertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Std.
Date Received:	03/17/2020	Lot #:	54-027CR
Expiration Date (if any):	03/30/2021	Catalog #:	XSPIKE-1-250

Standard ID#:	M14215	Vendor:	SpexCertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Std.
Date Received:	03/17/2020	Lot #:	54-028CR
Expiration Date (if any):	03/30/2021	Catalog #:	XCTWI-5-500

		Instrument:	HydraII
Standard Log #:	M14208	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	03/17/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14209	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	03/17/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14210	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	03/17/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard ID#:	M14201	Vendor:	CPI
Analyst:	NAH	Chemical:	Cd 1000 mg/L
Date Received:	03/11/2020	Lot #:	996631-64
Expiration Date (if any):	09/2021	Catalog #:	S4400-100081

Standard ID#:	M14202	Vendor:	CPI
Analyst:	NAH	Chemical:	Pb 10000
Date Received:	03/11/2020	Lot #:	168223-44
Expiration Date (if any):	09/2021	Catalog #:	4400-10M281

Standard ID#:	M14203	Vendor:	CPI
Analyst:	NAH	Chemical:	Be 1000 mg/L
Date Received:	03/11/2020	Lot #:	998969-61
Expiration Date (if any):	09/2021	Catalog #:	S4400-100051

Standard ID#:	M14204	Vendor:	CPI
Analyst:	NAH	Chemical:	Co 1000 mg/L
Date Received:	03/11/2020	Lot #:	1024904-44
Expiration Date (if any):	09/2021	Catalog #:	S4400-1000131

Standard ID#:	M14205	Vendor:	CPI
Analyst:	NAH	Chemical:	Cr 10000 mg/L
Date Received:	03/11/2020	Lot #:	880115-56
Expiration Date (if any):	09/2021	Catalog #:	S4400-10M121

Standard ID#:	M14206	Vendor:	CPI
Analyst:	NAH	Chemical:	Y 10000 mg/L
Date Received:	03/11/2020	Lot #:	997484-19
Expiration Date (if any):	09/2021	Catalog #:	4400-10M671

Standard ID#:	M14207	Vendor:	CPI
Analyst:	NAH	Chemical:	Tl 1000 mg/L
Date Received:	03/11/2020	Lot #:	991734-85
Expiration Date (if any):	09/2021	Catalog #:	S4400-1000581

Standard ID#:	M14195	Vendor:	SpexCertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Std
Date Received:	03/09/2020	Lot #:	54-005CR
Expiration Date (if any):	3/30/2021	Catalog #:	XCTWI-4-500

Standard ID#:	M14196	Vendor:	CPI
Analyst:	NAH	Chemical:	Ni 1000 mg/L
Date Received:	03/11/2020	Lot #:	984273-111
Expiration Date (if any):	09/2021	Catalog #:	S4400-1000361

Standard ID#:	M14197	Vendor:	CPI
Analyst:	NAH	Chemical:	Zn 10000 mg/L
Date Received:	03/11/2020	Lot #:	1025267-1
Expiration Date (if any):	09/2021	Catalog #:	4400-10M681

Standard ID#:	M14198	Vendor:	CPI
Analyst:	NAH	Chemical:	V 1000 mg/L
Date Received:	03/11/2020	Lot #:	990117-98
Expiration Date (if any):	09/2021	Catalog #:	S4400-1000651

Standard ID#:	M14199	Vendor:	CPI
Analyst:	NAH	Chemical:	Cu 10000 mg/L
Date Received:	03/11/2020	Lot #:	982824-45
Expiration Date (if any):	09/2021	Catalog #:	S4400-10M141

Standard ID#:	M14200	Vendor:	CPI
Analyst:	NAH	Chemical:	Mn 10000 mg/L
Date Received:	03/11/2020	Lot #:	985851-17
Expiration Date (if any):	09/2021	Catalog #:	S4400-10M321

Standard ID#:	M14193	Vendor:	Fisher
Analyst:	NAH	Chemical:	Hydroxylamine Sulfate
Date Received:	03/09/2020	Lot #:	189407
Expiration Date (if any):		Catalog #:	H331-500

Standard ID#:	M14194	Vendor:	Fisher
Analyst:	NAH	Chemical:	Sodium Chloride
Date Received:	03/09/2020	Lot #:	193465
Expiration Date (if any):		Catalog #:	S271-500

		Instrument:	CETAC
Standard Log #:	M14189	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	03/10/2020	Expiration Date:	04/10/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14081 and brought up to volume.		

		Instrument:	GFAA
Standard Log #:	M14190	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	03/09/2020	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q H_2O. ($1\% HNO_3$)		

		Instrument:	GFAA
Standard Log #:	M14191	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	03/09/2020	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q DI H_2O. ($1\% HNO_3$)		

		Instrument:	GFAA
Standard Log #:	M14192	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	03/09/2020	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13786 and brought to volume with Milli-Q DI H_2O. ($1\% HNO_3$)		

		Instrument:	HydraII
Standard Log #:	M14186	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	03/09/2020	Expiration Date:	04/09/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14187	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	03/09/2020	Expiration Date:	04/09/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14188	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	03/09/2020	Expiration Date:	04/09/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M14182	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	03/06/2020	Expiration Date:	04/06/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14081 and brought up to volume.		

Standard Log #:	M14183	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	MDS		
Prep Date:	03/06/2020	Expiration Date:	04/06/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13620 and **60 g** hydroxylamine sulfate M13994 and brought up to volume.		

Standard Log #:	M14184	Reagent:	Potassium Persulfate Solution
Analyst:	MDS		
Prep Date:	03/09/2020	Expiration Date:	04/09/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13714 and brought up to volume.		

Standard Log #:	M14185	Reagent:	Potassium Permanganate Solution
Analyst:	MDS		
Prep Date:	03/09/2020	Expiration Date:	04/09/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M14180	Reagent:	Potassium Permanganate Solution
Analyst:	MDS		
Prep Date:	03/04/2020	Expiration Date:	04/04/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14181	Reagent:	Hg Aqua Regia
Analyst:	MDS		
Prep Date:	03/04/2020	Expiration Date:	03/05/2020
Prep:	Carefully mixed **3** parts HCl AB.685 with **1** part HNO_3 AB.686 in a hood.		

		Instrument:	HydraII
Standard Log #:	M14177	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	03/04/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14178	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	03/04/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14179	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	03/04/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard ID#:	M14175	Vendor:	COLE-PARMER
Analyst:	BMM	Chemical:	Acid Washed TCLP Filters
Date Received:	03/02/2020	Lot #:	400168
Expiration Date (if any):		Catalog #:	FG77150MM

Standard Log #:	M14176	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	03/03/2020	Expiration Date:	03/03/2021
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.684 and **128.6 mL** 10N NaOH M14002. Dilute to 20 L and mix.		

		Instrument:	ICP 6500
Standard Log #:	M14172	Standard:	CCV2
Analyst:	NAH	Concentrations:	**500 µg/L** Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn **50 µg/L** Ag, Be, Cd
Prep Date:	02/25/2020	Expiration Date:	05/30/2020
Prep:	Into a 1 L volumetric flask, pipetted **5 mL** Custom Assurance Standard #23 XCTWI-5-500 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M14121 and **0.5 mL** of Custom Assurance Std. #3 XCTWI-4-500 (100 mg/L Ag, Be, Cd) M13827 and brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M14173	Standard:	ICSA
Analyst:	NAH	Concentrations:	**500,000 ug/L** Al, Ca, Fe, Mg **10,000** V, Ce
Prep Date:	02/25/2020	Expiration Date:	01/30/2021
Prep:	Into a 500 mL volumetric flask, pipetted 50 **mL** Interference A std M14137 and 15 **mL** 10000 mg/L Fe M14004 5.0 **mL** 1000 mg/L V M13578 5.0 **mL** 1000 mg/L Ce M13859 and brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M14174	Standard:	ICSAB
Analyst:	NAH	Concentrations:	**500,000 ug/L** Al, Ca, Fe, Mg **500 ug/L** Ag, As, Ba, Be, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Sb, Se, Tl, V, Zn, K, Na, S, **50000 ug/L** Si **1000 ug/L.**
Prep Date:	02/25/2020	Expiration Date:	05/30/2020
Prep:	Into a 500 mL volumetric flask, pipetted **50 mL** Interferents A Standard ((5000 mg/L Al, Ca, Mg) (2000 mg/L Fe)) M14137, **15 mL** Fe (10,000 mg/L) M14004, **2.5 mL** of Custom Assurance Std. #3 (100 mg/L Ag, Be, Cd) M13827, **2.5 mL** Custom Assurance Std. #23 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn), M14121, **2.5 mLs Na 10,000 ug/mL** M14103 ,**2.5 mLs k 10,000 ug/mL** M14126 **2.5 mLs S 10,000 ug/mL** M14102, **0.5 mls Si 1000 ug/mL** M13981 and brought up to volume with milli-Q .		

		Instrument:	ICP 6500
Standard Log #:	M14170	Standard:	ICV Std.
Analyst:	NAH	Concentrations:	**12,000 mg/L** Al **10,000 mg/L** Ca, Mg **5000 mg/L** Fe **2000 mg/L** As, Ba, Se, Tl **500 mg/L** B, Co, Li, Mn, Mo, Ni, Pb, Sb, Sn, Sr, Ti, V, Zn **250 mg/L** Cu **200 mg/L** Cr **50 mg/L** Ag, Be, Cd
Prep Date:	02/25/2020	Expiration Date:	01/30/2021
Prep:	Into a 1 L volumetric flask, pipetted the following and brought up to volume with milli-Q H_2O. **10 mL** Custom Assurance Standard #18 ((200 mg/L Al, As, Ba, Se, Tl) (100 mg/L Fe) (50 mg/L Co, Mn, Ni, Pb, Sb, V, Zn) (25 mg/L Cu) (20 mg/L Cr) (5 mg/L Ag, Be, Cd)) M14138, **2 mL** Interferents A Standard ((5000 mg/L Al, Ca, Mg) (2000 mg/L Fe)) M14137, **0.5 mL** Mo (1000 mg/L) M14129, **0.5 mL** B (1000 mg/L) M14131, **0.5 mL** Sr (1000 mg/L) M14007, **0.5 mL** Li (1000 mg/L) M14127, **0.5 mL** Sn (1000 mg/L) M14008, **0.5 mL** Ti (1000 mg/L) M141009, **0.5 mL** W (1000 mg/L) Mxxxx, **0.5 mL** Si (1000 mg/L) M14106, **0.5 mL** S (10000 mg/L) M14102, **0.5 mL** K (10000 mg/L) M14126, and **0.5 mL** Na (10000 mg/L) M14103		

		Instrument:	ICP 6500
Standard Log #:	M14171	Standard:	CCV1
Analyst:	NAH	Concentrations:	**5000 µg/L** Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn **500 µg/L** Ag, Be, Cd
Prep Date:	02/25/2020	Expiration Date:	05/30/2020
Prep:	Into a 1 L volumetric flask, pipetted **50 mL** Custom Assurance Standard #23 XCTWI-5-500 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M14121 and **5.0 mL** of Custom Assurance Std. #3 XCTWI-4-500 (100 mg/L Ag, Be, Cd) M13827 and brought up to volume with milli-Q H_2O.		

		Instrument:	CETAC
Standard Log #:	M14168	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	02/24/2020	Expiration Date:	
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14081 and brought up to volume.		

		Instrument:	ICP 6500
Standard Log #:	M14169	Standard:	ICAL
Analyst:	NAH	Concentrations:	0.25, 0.5, 1, 5, 10, 20, 50, 100, 1000, 10,000, 100k, 100,000, 500,000 and 1000k (ug/L)
Prep Date:	02/25/2020	Expiration Date:	05/30/2020
Prep:	Using 1 L volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (5% HNO_3, 5% HCl) *1000 ug/L Std.* - **10 mL** of Custom Assurance Std. #23 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M14121, **10 mL** of Custom Assurance Std. #3 (100 mg/L Ag, Be, Cd) M13827 and **1 mL** of Si (1000 mg/L) M14106 and 1 mL M13859 Ce *0.25 ug/L Std.* - **0.25 mL** of the 1000 ug/L Std. *0.5 ug/L Std.* - **0.5 mL** of the 1000 ug/L Std. *1 ug/L Std.* - **1 mL** of the 1000 ug/L Std. *5 ug/L Std.* - **5 mL** of the 1000 ug/L Std. *10 ug/L Std.* - **10 mL** of the 1000 ug/L Std. *20 ug/L Std.* - **20 mL** of the 1000 ug/L Std. *50 ug/L Std.* - **50 mL** of the 1000 ug/L Std. *100 ug/L Std.* - **1 mL** of Custom Assurance Std. (CAS) #23 and **1 mL** of CAS #3 *10,000 ug/L Std.* - **100 mL** CAS #23, **100 mL** CAS #3 and **1 mL** of K (10,000 mg/L) M14104. *100k ug/L Std.* - **10 mL** of Cu (10,000 mg/L) M13618, **10 mL** of Mn (10,000 mg/L) M13616, **10 mL** of Cr (10,000 mg/L) M13617, **10 mL** Pb (10,000 mg/L) M13615, **10 mL** of Zn (10,000 mg/L) M13610 and **10 mL** of Na (10,000 mg/L) M14103. *100,000 ug/L Std.* - **10 mL** of Mg (10,000 mg/L) M14108, **10 mL** of Fe (10,000 mg/L) M14004, **10 mL** of Ca (10,000 mg/L) M14107 and **10 mL** Al (10,000 mg/L) M14105. *500,000 ug/L Std.* - **50 mL** of Mg (10,000 mg/L), **50 mL** of Fe (10,000 mg/L), **50 mL** of Ca (10,000 mg/L) and **50 mL** of Al (10,000 mg/L) *1000k ug/L Std.* - **100 mL** of Mg (10,000 mg/L), **100 mL** of Fe (10,000 mg/L), **100 mL** of Ca (10,000 mg/L) and **100 mL** of Al (10,000 mg/L)		

		Instrument:	HydraII
Standard Log #:	M14165	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	02/24/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14166	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	02/24/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14167	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	02/24/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	ICP 6000
Standard Log #:	M14163	Standard:	Na,K ICVLL
Analyst:	MDS	Concentrations:	3 mg/L (Na,K)
Prep Date:	02/21/2020	Expiration Date:	07/2021
Prep:	Into a 500 mL volumetric flask, pipetted **0.15 mL** of Na (10,000 µg/mL) M14103 and **0.15 mL** K (10,000 µg/mL) M14109 and brought to volume with Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M14164	Standard:	NaK ICSAB
Analyst:	MDS	Concentrations:	500 mg/L (Al, Ca, Fe, Mg) 100 mg/L (Na, K)
Prep Date:	02/21/2020	Expiration Date:	01/30/2021
Prep:	Into a 250 mL volumetric flask, pipetted **25 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M14120, **2.5 mL** of K (10,000 mg/L) M14109, **2.5 mL** of Na (10,000 mg/L) M14103 and **7.5 mL** of Fe (10,000 mg/L) M14101 and brought up to volume using Milli-Q H_2O. (2% HNO_3)		

		Instrument:	CETAC
Standard Log #:	M14159	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	02/20/2020	Expiration Date:	
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14081 and brought up to volume.		

		Instrument:	ICP 6000
Standard Log #:	M14160	Standard:	Na & K ICAL
Analyst:	MDS	Concentrations:	0.5, 1, 5, 10, 50, 100, and 200 mg/L (Na,K)
Prep Date:	02/21/2020	Expiration Date:	10/2020
Prep:	Into seven, 200 mL volumetric flasks, pipetted the following from Na (1000 µg/mL) M13808 and K (1000 µg/mL) M13809 and brought up to volume using milli-Q H_2O. (2% HNO_3) *0.5 mg/L std.* - **0.1 mL** of each *1.0 mg/L std.* - **0.2 mL** of each *5.0 mg/L std.* - **1.0 mL** of each *10 mg/L std.* - **2.0 mL** of each *50 mg/L std.* - **10 mL** of each *100 mg/L std.* -**20 mL** of each, also used for Continuing Calibration Verification *200 mg/L std.* - **40 mL** of each		

		Instrument:	ICP 6000
Standard Log #:	M14161	Standard:	Na,K MRL
Analyst:	MDS	Concentrations:	1 mg/L (Na,K)
Prep Date:	02/21/2020	Expiration Date:	10/2020
Prep:	Into a 500 mL volumetric flask, pipetted **0.5 mL** of Na (1000 µg/mL) M13808 and **0.5 mL** K (1000 µg/mL) M13809 and brought to volume with Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M14162	Standard:	NaK ICV
Analyst:	MDS	Concentrations:	100 mg/L (Na, K)
Prep Date:	02/21/2020	Expiration Date:	07/2021
Prep:	Into a 250 mL volumetric flask, pipetted **2.5 mL** of K (10,000 mg/L) M14109 and Na (10,000 mg/L) M14103 and brought up to volume using Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6500
Standard Log #:	M14156	Standard:	ICV Std.
Analyst:	NAH	Concentrations:	**12,000 mg/L** Al **10,000 mg/L** Ca, Mg **5000 mg/L** Fe **2000 mg/L** As, Ba, Se, Tl **500 mg/L** B, Co, Li, Mn, Mo, Ni, Pb, Sb, Sn, Sr, Ti, V, Zn **250 mg/L** Cu **200 mg/L** Cr **50 mg/L** Ag, Be, Cd
Prep Date:	02/19/2020	Expiration Date:	01/30/21
Prep:	Into a 1 L volumetric flask, pipetted the following and brought up to volume with milli-Q H_2O. **10 mL** Custom Assurance Standard #18 ((200 mg/L Al, As, Ba, Se, Tl) (100 mg/L Fe) (50 mg/L Co, Mn, Ni, Pb, Sb, V, Zn) (25 mg/L Cu) (20 mg/L Cr) (5 mg/L Ag, Be, Cd)) M14138, **2 mL** Interferents A Standard ((5000 mg/L Al, Ca, Mg) (2000 mg/L Fe)) M14120, **0.5 mL** Mo (1000 mg/L) M14129, **0.5 mL** B (1000 mg/L) M14131, **0.5 mL** Sr (1000 mg/L) M14007, **0.5 mL** Li (1000 mg/L) M14127, **0.5 mL** Sn (1000 mg/L) M141008, **0.5 mL** Ti (1000 mg/L) M14009, **0.5 mL** W (1000 mg/L) Mxxxxxxx, **0.5 mL** Si (1000 mg/L) M13981, **0.5 mL** S (10000 mg/L) M14102, **0.5 mL** K (10000 mg/L) M14109, and **0.5 mL** Na (10000 mg/L) M14103		

Standard ID#:	M14157	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride Dihydrate
Date Received:	02/19/2020	Lot #:	J347-07
Expiration Date (if any):		Catalog #:	LC251701

Standard ID#:	M14158	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride Dihydrate
Date Received:	02/19/2020	Lot #:	J347-07
Expiration Date (if any):		Catalog #:	LC251701

		Instrument:	CETAC
Standard Log #:	M14148	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	02/13/2020	Expiration Date:	
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14081 and brought up to volume.		

Standard Log #:	M14152	Reagent:	Potassium Permanganate Solution
Analyst:	BMM		
Prep Date:	02/13/2020	Expiration Date:	07/13/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M14153	Reagent:	Potassium Permanganate Solution
Analyst:	BMM		
Prep Date:	02/13/2020	Expiration Date:	07/13/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M14154	Reagent:	Potassium Persulfate Solution
Analyst:	BMM		
Prep Date:	02/13/2020	Expiration Date:	07/13/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13714 and brought up to volume.		

Standard Log #:	M14155	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	BMM		
Prep Date:	02/13/2020	Expiration Date:	07/13/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13620 and **60 g** hydroxylamine sulfate M13994 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14149	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	02/17/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14150	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	02/17/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14151	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	02/17/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	HydraII
Standard Log #:	M14145	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	02/11/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14146	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	02/11/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14147	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	02/11/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M14144	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	02/06/2020	Expiration Date:	03/06/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14080 and brought up to volume.		

Standard Log #:	M14142	Reagent:	Potassium Permanganate Solution
Analyst:	BMM		
Prep Date:	02/05/2020	Expiration Date:	07/05/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14143	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	02/05/2020	Expiration Date:	02/06/2020
Prep:	Carefully mixed **3** parts HCl AB.682 with **1** part HNO_3 AB.681 in a hood.		

		Instrument:	HydraII
Standard Log #:	M14139	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	02/05/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14140	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	02/05/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14141	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	02/05/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard ID#:	M14137	Vendor:	SpexCertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	02/04/2020	Lot #:	53-196CR
Expiration Date (if any):	01/30/2021	Catalog #:	XCTIWI-1-500

Standard ID#:	M14138	Vendor:	SpexCertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	02/04/2020	Lot #:	XSPIKE-1-250
Expiration Date (if any):	01/30/2021	Catalog #:	53-197CR

		Instrument:	CETAC
Standard Log #:	M14136	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	01/30/2020	Expiration Date:	01/30/2021
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14080 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14132	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	01/29/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14133	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	01/29/2020	Expiration Date:	07/20/2021
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M14125 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14134	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	01/29/2020	Expiration Date:	01/30/2021
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M14119 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M14135	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	01/29/2020	Expiration Date:	01/30/2020
Prep:	Carefully mixed **3** parts HCl AB.682 with **1** part HNO_3 AB.681 in a hood.		

Standard ID#:	M14125	Vendor:	CPI International
Analyst:	MDS	Chemical:	Mercury 1000 µg/mL
Date Received:	01/24/2020	Lot #:	1009904-41
Expiration Date (if any):	07/20/2021	Catalog #:	S4400-1000331

Standard ID#:	M14126	Vendor:	CPI International
Analyst:	MDS	Chemical:	Potassium 10,000 µg/mL
Date Received:	01/24/2020	Lot #:	980507-31
Expiration Date (if any):	07/20/2021	Catalog #:	4400-10M411

Standard ID#:	M14127	Vendor:	CPI International
Analyst:	MDS	Chemical:	Lithium 1000 µg/mL
Date Received:	01/24/2020	Lot #:	1017511-7
Expiration Date (if any):	07/20/2021	Catalog #:	S4400-1000291

Standard ID#:	M14128	Vendor:	CPI International
Analyst:	MDS	Chemical:	Phosphorus 10,000 µg/mL
Date Received:	01/24/2020	Lot #:	979480-24
Expiration Date (if any):	07/20/2021	Catalog #:	S4400-10M391

Standard ID#:	M14129	Vendor:	CPI International
Analyst:	MDS	Chemical:	Molybdenum 1000 µg/mL
Date Received:	01/24/2020	Lot #:	987189-55
Expiration Date (if any):	07/20/2021	Catalog #:	S4400-1000343

Standard ID#:	M14130	Vendor:	CPI International
Analyst:	MDS	Chemical:	Barium 1000 µg/mL
Date Received:	01/24/2020	Lot #:	994634-53
Expiration Date (if any):	07/20/2021	Catalog #:	S4400-100041

Standard ID#:	M14131	Vendor:	CPI International
Analyst:	MDS	Chemical:	Boron 1000 µg/mL
Date Received:	01/24/2020	Lot #:	1024903-6
Expiration Date (if any):	07/20/2021	Catalog #:	S4400-100074

		Instrument:	HydraII
Standard Log #:	M14122	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	01/23/2020	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14123	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	01/23/2020	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14124	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	01/23/2020	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard ID#:	M14119	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Hg 1000 ug/mL
Date Received:	01/21/2020	Lot #:	CL11-96HGY
Expiration Date (if any):	01/30/2021	Catalog #:	CLHG4-2Y

Standard ID#:	M14120	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Interference A
Date Received:	01/21/2020	Lot #:	2-96JX
Expiration Date (if any):	01/30/2021	Catalog #:	INT-A1

Standard ID#:	M14121	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	01/21/2020	Lot #:	1-008DMP
Expiration Date (if any):	01/21/2021	Catalog #:	XCTWI-5-500

		Instrument:	CETAC
Standard Log #:	M14117	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	01/17/2020	Expiration Date:	02/17/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.685 and dissolved **100 g** Stannous chloride M14080 and brought up to volume.		

Standard Log #:	M14118	Instrument:	GFAA
Analyst:	MDS	Standard:	MDL Spiking Solution
Prep Date:	01/17/2020	Expiration Date:	02/2020

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (2% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
Ag	0.2	M13951	1000	0.01
As	2	M13863	1000	0.1
Pb	2	M13615	10000	0.01
Sb	2	M13950	1000	0.1
Se	2	M13948	1000	0.1
Tl	2	M13583	1000	0.1

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

		Instrument:	HydraII
Standard Log #:	M14114	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	01/16/2020	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14115	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	01/16/2020	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14116	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	01/16/2020	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	GFAA
Standard Log #:	M14111	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	01/13/2020	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M14112	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	01/13/2020	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M14113	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	01/13/2020	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13786 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

Standard ID#:	M14106	Vendor:	CPI
Analyst:	NAH	Chemical:	Si 1000 ug/mL
Date Received:	01/13/2020	Lot #:	175213-60
Expiration Date (if any):	07/2021	Catalog #:	S4400-1000504F

Standard ID#:	M14107	Vendor:	CPI
Analyst:	NAH	Chemical:	Ca 10000 ug/mL
Date Received:	01/13/2020	Lot #:	855297-68
Expiration Date (if any):	07/2021	Catalog #:	4400-10M91

Standard ID#:	M14108	Vendor:	CPI
Analyst:	NAH	Chemical:	Mg 10000 ug/mL
Date Received:	01/13/2020	Lot #:	1013353-36
Expiration Date (if any):	07/2021	Catalog #:	4400-10M311

Standard ID#:	M14109	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10000ug/mL
Date Received:	01/13/2020	Lot #:	980507-79
Expiration Date (if any):	07/2021	Catalog #:	4400-10M411

Standard Log #:	M14110	Reagent:	TCLP EXTRACTION FLUID #2
Analyst:	BMM	pH:	2.88 ± 0.05
Prep Date:	01/14/2020	Expiration Date:	01/14/2021
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.684 . Dilute to 20 L and mix.		

Standard ID#:	M14100	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	Yttrium 10000 ug/mL
Date Received:	01/10/2020	Lot #:	1905324-500
Expiration Date (if any):	07/31/2021	Catalog #:	HP10M67-1-500

Standard ID#:	M14101	Vendor:	CPI
Analyst:	NAH	Chemical:	Fe 10000 ug/mL
Date Received:	01/13/2020	Lot #:	998527-45
Expiration Date (if any):	07/2021	Catalog #:	4400-10M261

Standard ID#:	M14102	Vendor:	CPI
Analyst:	NAH	Chemical:	Sulfur 10000 ug/mL
Date Received:	01/13/2020	Lot #:	9987745-28
Expiration Date (if any):	07/2021	Catalog #:	4400-10M544

Standard ID#:	M14103	Vendor:	CPI
Analyst:	NAH	Chemical:	Sodium 10000 ug/mL
Date Received:	01/13/2020	Lot #:	752887-79
Expiration Date (if any):	01/2021	Catalog #:	4400-40M521

Standard ID#:	M14104	Vendor:	CPI
Analyst:	NAH	Chemical:	Potassium 10000 ug/mL
Date Received:	01/13/2020	Lot #:	980507-31
Expiration Date (if any):	07/2021	Catalog #:	4400-10M411

Standard ID#:	M14105	Vendor:	CPI
Analyst:	NAH	Chemical:	Al 10000 ug/mL
Date Received:	01/13/2020	Lot #:	992536-34
Expiration Date (if any):	07/2021	Catalog #:	4400-10M11

Standard Log #:	M14099revised below	Instrument:	ICP 6500
Analyst:	NAH	Standard:	MDL DOD Metals Spiking soln
Prep Date:	01/09/2020	Expiration Date:	02/2020

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	5	M13951	1000	0.25
Al	10	M13962	**10000**	0.05
As	20	M13863	1000	1
Ba	2	M13949	1000	0.1
Be	0.5	M13579	1000	0.025
Ca	50	M13841	**10000**	0.25
Cd	0.5	M13570	1000	0.025
Co	2.5	M13575	1000	0.125
Cr	5.0	M13617	**10000**	0.025
Cu	10	M13618	**10000**	0.05
Fe	40	M13963	**10000**	0.2
Mg	25	M13752	**10000**	0.125
Mn	5	M13616	**10000**	0.025
Mo	2.5	M13860	1000	0.125
Ni	5	M13569	1000	0.25
Pb	10	M13615	**10000**	0.05
Sb	20	M13950	1000	1
Se	20	M13948	1000	1
Tl	20	M13583	1000	1
V	5	M13578	1000	0.25
Zn	5	M13610	**10000**	0.025

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M14099	Instrument:	ICP 6500
Analyst:	NAH	Standard:	MDL DOD Metals Spiking soln
Prep Date:	01/09/2020	Expiration Date:	02/2020

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	5	M13951	1000	0.25
Al	10	M13962	**10000**	0.05
As	20	M13863	1000	1
Ba	2	M13949	1000	0.1
Be	0.5	M13579	1000	0.025
Ca	50	M13841	**10000**	0.25
Cd	0.5	M13570	1000	0.025
Co	2.5	M13575	1000	0.125
Cr	5.0	M13617	**10000**	0.025
Cu	10	M13618	**10000**	0.05
Fe	40	M13963	**10000**	0.2
Mg	25	M13752	**10000**	0.125
Mn	5	M13616	**10000**	0.025
Mo	2.5	M13860	1000	0.125
Ni	5	M13569	1000	0.25
Pb	10	M13615	**10000**	0.05
Sb	20	M13950	1000	1
Se	20	M13948	1000	1
Tl	20	M13583	1000	1
V	5	M13578	1000	0.25
Zn	5	M13610	**10000**	0.025
Na	500	M13862	**10000**	2.5
K	500	M14003	**10000**	2.5
B	20	M13947	1000	1
Si	100	M13981	1000	5
S	200	M13696	**10000**	1
Li	20	M13577	1000	1
Sr	20	M14007	1000	1
Sn	20	M14008	1000	1
Ti	20	M14009	1000	1

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

		Instrument:	CETAC
Standard Log #:	M14097	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	01/09/2020	Expiration Date:	02/09/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.682 and dissolved **100 g** Stannous chloride M14080 and brought up to volume.		

Standard Log #:	M14098	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3050 S Spiking Solution
Prep Date:	01/09/2020	Expiration Date:	06/2020

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
S	240	M13696	10000	1.2

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

		Instrument:	CETAC
Standard Log #:	M14096	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	01/08/2020	Expiration Date:	01/09/2020
Prep:	Carefully mixed **3** parts HCl AB.682 with **1** part HNO_3 AB.681 in a hood.		

		Instrument:	HydraII
Standard Log #:	M14093	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	01/08/2020	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14094	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	01/08/2020	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14095	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	01/08/2020	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M14092	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	12/26/2019	Expiration Date:	01/26/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.682 and dissolved **100 g** Stannous chloride M14080 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14088	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	12/20/2019	Expiration Date:	01/20/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.682 and dissolved **100 g** Stannous chloride M14016 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14089	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	12/24/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14090	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	12/24/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14091	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	12/24/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M14086	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	12/19/2019	Expiration Date:	12/20/2019
Prep:	Carefully mixed **3** parts HCl AB.862 with **1** part HNO_3 AB.861 in a hood.		

		Instrument:	CETAC
Standard Log #:	M14087	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	12/24/2019	Expiration Date:	12/25/2019
Prep:	Carefully mixed **3** parts HCl AB.862 with **1** part HNO_3 AB.861 in a hood.		

		Instrument:	HydraII
Standard Log #:	M14083	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	12/18/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14084	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	12/18/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14085	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	12/18/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard ID#:	M14082	Vendor:	Environmental Express
Analyst:	MDS	Chemical:	Acid Washed TCLP Filters
Date Received:	12/11/2019	Lot #:	400168-9329-CM
Expiration Date (if any):		Catalog #:	FG77150MM

Standard ID#:	M14079	Vendor:	Thermofisher Scientific
Analyst:	MDS	Chemical:	GFAA Nickel Nitrate Modifier
Date Received:	12/12/2019	Lot #:	9192422
Expiration Date (if any):	04/30/2021	Catalog #:	39043

Standard ID#:	M14080	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride
Date Received:	12/12/2019	Lot #:	J267-10
Expiration Date (if any):		Catalog #:	LC251701

Standard ID#:	M14081	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride
Date Received:	12/12/2019	Lot #:	J267-10
Expiration Date (if any):		Catalog #:	LC251701

Standard Log #:	M14078A	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3010 B&Si Spiking Solution
Prep Date:	12/11/2019	Expiration Date:	02/21

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
B	16	M13947	1000	0.8
Si	200	M13810	1000	10

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M14078b Combined with	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3010 S Spiking Solution
Prep Date:	12/11/2019	Expiration Date:	03/201

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
S	200	M13604	10000	1.0

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M14077	Instrument:	ICP 6500
Analyst:	NAH	Standard:	LOQ 3010 DOD Metals Spiking S
Prep Date:	12/11/2019	Expiration Date:	02/20

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	4	M13851	1000	0.2
Al	36	M13982	**10000**	0.18
As	24	M13863	1000	1.2
Ba	1.8	M13949	1000	0.09
Be	0.6	M13579	1000	0.03
Ca	100	M13841	**10000**	0.5
Cd	2.0	M13570	1000	0.1
Co	4	M13575	1000	0.2
Cr	4	M13617	**10000**	0.02
Cu	7	M13618	**10000**	0.035
Fe	100	M13983	**10000**	0.5
Mg	40	M13752	**10000**	0.2
Mn	4	M13616	**10000**	0.02
Mo	7	M13860	1000	0.35
Ni	6	M13569	1000	0.2
Pb	4	M13615	**10000**	0.02
Sb	12	M13950	1000	0.6
Se	13	M13948	1000	0.65
Tl	20	M13583	1000	0.75
V	5	M13578	1000	0.25
Zn	10	M13610	**10000**	0.05

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M14076	Instrument:	ICP 6500
Analyst:	NAH	Standard:	LOQ 3050 DOD Metals Spiking S
Prep Date:	12/10/2019	Expiration Date:	02/20

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	4	M13951	1000	0.2
Al	9.6	M13982	**10000**	0.048
As	32	M13863	1000	1.6
Ba	2	M13949	1000	0.1
Be	1.6	M13579	1000	0.08
Ca	56	M13841	**10000**	0.28
Cd	1.6	M13570	1000	0.08
Co	9.6	M13575	1000	0.48
Cr	5.6	M13617	**10000**	0.028
Cu	16	M13618	**10000**	0.08
Fe	72	M13983	**10000**	0.36
Mg	32	M13752	**10000**	0.16
Mn	6	M13616	**10000**	0.03
Mo	9.6	M13860	1000	0.48
Ni	4.8	M13569	1000	0.24
Pb	10	M13615	**10000**	0.05
Sb	32	M13950	1000	1.6
Se	16	M13948	1000	0.8
Tl	19	M13583	1000	0.95
V	3.2	M13578	1000	0.16
Zn	12	M13610	**10000**	0.06

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

		Instrument:	GFAA
Standard Log #:	M14074	Standard:	LODW/LOQW Ag Spiking Sol'n
Analyst:	MDS	Concentrations:	10 ug/L (Ag)
Prep Date:	12/10/2019	Expiration Date:	02/2021
Prep:	Into a 100 mL volumetric flask, pipetted **0.1 mL** of Ag (1000mg/L) M13951 and brought to volume with Milli-Q H_2O to make a 1000 ug/L Ag std. Into a 1 L volumetric flask, pipetted **10 mL** of Ag (*1000 ug/L*) std. and brought to volume with Milli-Q H_2O. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*0.2 ug/L*) and **2 mL** spiking solution for LOQ (*0.4 ug/L*)		

		Instrument:	CETAC
Standard Log #:	M14075	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	12/10/2019	Expiration Date:	12/11/2019
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.681 in a hood.		

		Instrument:	GFAA
Standard Log #:	M14072	Standard:	LODS/LOQS Spiking Sol'n
Analyst:	MDS	Concentrations:	60 ug/L (Sb) 160 ug/L (As,Se) 40 ug/L (Pb) 50 ug/L (Tl)
Prep Date:	12/10/2019	Expiration Date:	02/2020
Prep:	Into a 200 mL volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. **1.2 mL** of Sb (1000 mg/L) M13950 **3.2 mL** of As (1000 mg/L) M13863 **3.2 mL** of Se (1000 mg/L) M13948 **0.08 mL** of Pb (10,000 mg/L) M13615 **1.0 mL** of Tl (1000 mg/L) M13583 From this diluted standard solution, pipetted **10 mL** into a 1 L volumetric flask and brought up to volume with Milli-Q H_2O to make the spiking solution. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (1.2 *ug/L* Sb, *3.2 ug/L* As, *3.2 ug/L* Se, *0.8 ug/L* Pb, *1 ug/L* Tl) and **2 mL** spiking solution for LOQ (2.4 *ug/L* Sb, *6.4 ug/L* As, *6.4 ug/L* Se, *1.6 ug/L* Pb, *2 ug/L* Tl)		

		Instrument:	GFAA
Standard Log #:	M14073	Standard:	LODW/LOQW Spiking Sol'n
Analyst:	MDS	Concentrations:	150 ug/L (Sb) 100 ug/L (As) 200 ug/L (Se) 45 ug/L (Pb) 40 ug/L (Tl)
Prep Date:	12/10/2019	Expiration Date:	02/2020
Prep:	Into a 100 mL volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. **1.5 mL** of Sb (1000 mg/L) M13950 **1.0 mL** of As (1000 mg/L) M13863 **2.0 mL** of Se (1000 mg/L) M13948 **0.045 mL** of Pb (10,000 mg/L) M13615 **0.4 mL** of Tl (1000 mg/L) M13583 From this diluted standard solution, pipetted **10 mL** into a 1 L volumetric flask and brought up to volume with Milli-Q H_2O to make the spiking solution. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*3 ug/L* Sb, *2 ug/L* As, *4 ug/L* Se, *0.9 ug/L* Pb, *0.8 ug/L* Tl) and **2 mL** spiking solution for LOQ (*6 ug/L* Sb, *4 ug/L* As, *8 ug/L* Se, *1.8 ug/L* Pb, *1.6 ug/L* Tl)		

Standard Log #:	M14071	Standard:	GFAA Instrument Check
Analyst:	MDS	Final Concentration:	12 µg/L As 6 µg/L Pb 10 µg/L Sb 20 µg/L Se 10 µg/L Tl 0.6 µg/L Ag
Prep Date:	12/10/2019	Expiration Date:	02/2020

Into six, 100 mL volumetric flasks, add the following and bring up to volume with milli-Q H_2O.

Element	Volume Pipetted (mL)	Standard Conc. (µg/mL)	Standard ID	New Conc. (µg/L)
As	1	1000	M13863	10,000
Pb	0.1	10,000	M13615	10,000
Tl	1	1000	M13583	10,000
Se	1	1000	M13948	10,000
Sb	1	1000	M13950	10,000
Ag	0.1	1000	M13951	1000

Into a 1 L volumetric flask, add the following and bring up to volume with Milli-Q H_20. (1% HNO_3)

Element	Volume Pipetted (mL)	Standard Conc. (µg/L)	New Conc. (µg/L)
As	1.2	10,000	12
Pb	0.6	10,000	6
Tl	1.0	10,000	10
Se	2.0	10,000	20
Sb	1.0	10,000	10
Ag	0.6	1000	0.6

		Instrument:	HydraII
Standard Log #:	M14068	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	12/10/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14069	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	12/10/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13734 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	CETAC
Standard Log #:	M14070	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	12/10/2019	Expiration Date:	01/10/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.682 and dissolved **100 g** Stannous chloride M14016 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14065	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	12/05/2019	Expiration Date:	01/05/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.682 and dissolved **100 g** Stannous chloride M14016 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14066	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	12/06/2019	Expiration Date:	01/06/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.682 and dissolved **100 g** Stannous chloride M14016 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14067	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	12/10/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	CETAC
Standard Log #:	M14063	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	12/03/2019	Expiration Date:	01/03/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.682 and dissolved **100 g** Stannous chloride M14016 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14064	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	12/04/2019	Expiration Date:	12/05/2019
Prep:	Carefully mixed **3** parts HCl AB.682 with **1** part HNO_3 AB.681 in a hood.		

		Instrument:	HydraII
Standard Log #:	M14061	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	12/02/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard ID#:	M14062	Vendor:	ENVIROMENTAL EXPRESS
Analyst:	BMM	Chemical:	Acid Washed TCLP Filters
Date Received:	12/02/2019	Lot #:	400168-9305-CM
Expiration Date (if any):		Catalog #:	

		Instrument:	CETAC
Standard Log #:	M14058	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	11/20/2019	Expiration Date:	12/20/2019
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M14017 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14059	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	12/02/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14060	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	12/02/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

Standard Log #:	M14056	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	11/26/2019	Expiration Date:	11/26/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.684 and **128.6 mL** 10N NaOH M14002. Dilute to 20 L and mix.		

Standard Log #:	M14057	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	11/26/2019	Expiration Date:	11/26/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.684 and **128.6 mL** 10N NaOH M14002. Dilute to 20 L and mix.		

Standard ID#:	M14054	Vendor:	Spex Certi Prep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	11/20/2019	Lot #:	53-042CR
Expiration Date (if any):	11/30/2020	Catalog #:	XCTWI-5-500

Standard ID#:	M14055	Vendor:	Spex Certi Prep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	11/20/2019	Lot #:	53-041CR
Expiration Date (if any):	11/30/2019	Catalog #:	XSPIKE-1-250

		Instrument:	GFAA
Standard Log #:	M14051	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	11/20/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M14052	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	11/20/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M14053	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	11/20/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13786 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	HydraII
Standard Log #:	M14048	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	11/19/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14049	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	11/19/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M14050	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	11/19/2019	Expiration Date:	11/20/2019
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	CETAC
Standard Log #:	M14045	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	11/11/2019	Expiration Date:	05/11/2019
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.681 and dissolved **100 g** Stannous chloride M14017 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M14046	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	11/13/19	Expiration Date:	05/13/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.681 and dissolved **100 g** Stannous chloride M14017 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14047	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	11/19/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

Standard Log #:	M14044	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	11/13/2019	Expiration Date:	11/13/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.684 and **128.6 mL** 10N NaOH M13877. Dilute to 20 L and mix.		

		Instrument:	CETAC
Standard Log #:	M14041	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	11/09/2019	Expiration Date:	11/10/2019
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	CETAC
Standard Log #:	M14042	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	11/12/2019	Expiration Date:	11/13/2019
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

Standard Log #:	M14043	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	BMM		
Prep Date:	11/12/2019	Expiration Date:	04/12/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13993 and **60 g** hydroxylamine sulfate M13874 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14038	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	11/07/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14039	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	11/07/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14040	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	11/07/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	ICP 6000
Standard Log #:	M14035	Standard:	L2 ICV
Analyst:	MDS	Concentrations:	1000 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	11/04/2019	Expiration Date:	02/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of the following and brought up to volume using milli-Q H_2O. (0.5% HNO_3, 0.5% HCl) Li (1000 µg/mL) M13577 Sn (1000 µg/mL) M14008 Sr (1000 µg/mL) M14007 Ti (1000 µg/mL) M14009 W (1000 µg/mL) MXXXXX		

		Instrument:	ICP 6000
Standard Log #:	M14036	Standard:	List 2 MRL/ICVLL Prep Solution
Analyst:	MDS	Concentrations:	5000 µg/L (W) 1000 µg/L (Li, Sn) 500 µg/L (Ti, Sr)
Prep Date:	11/04/2019	Expiration Date:	02/2020

Prep:

Analyte	MRL/ICVLL Conc. (µg/L)	Standard ID	Std. Conc. (µg/mL)	Volume (mL) Pipetted into 1 L	Expiration Date
Li	20/60	M13577	1000	1	02/2020
W	100/300	MXXXX	1000	5	XX/XXXX
Ti	10/30	M14009	1000	0.5	04/2021
Sr	10/30	M14007	1000	0.5	04/2021
Sn	20/60	M14008	1000	1	04/2021

Pipette **10 mL** into a 500 mL volumetric flask to create a working MRL std. or **1 mL** into a 50 mL digestion tube for a digested MRL standard. Pipette **30 mL** into 500 mL for a working ICVLL std. or **3 mL** into a 50 mL digestion tube for a digested ICVLL standard.

(0.5% HNO_3, 0.5% HCl)

		Instrument:	CETAC
Standard Log #:	M14037	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	11/04/2019	Expiration Date:	05/04/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13922 and brought up to volume.		

		Instrument:	ICP
Standard Log #:	M14033	Standard:	L2 ICAL
Analyst:	MDS	Concentrations:	1 (µg/L) 10 (µg/L) 100 (µg/L) 1000 (µg/L) 10,000 (µg/L)
Prep Date:	11/04/2019	Expiration Date:	05/30/2020
Prep:	Standard Conc. (ug/L)	Pipette the following:	
	1	**0.01 mL** of Custom Assurance Standard XCTWI-5-500 M13839 and **0.001 mL** W (1000 µg/mL) MXXXXX into 1L = *1 µg/L*	
	10	**0.10 mL** of Custom Assurance Standard XCTWI-5-500 M13839 and **0.01 mL** W (1000 µg/mL) MXXXXX into 1L = *10 µg/L*	
	100	**1 mL** of Custom Assurance Standard XCTWI-5-500 M13839 and **0.1 mL** W (1000 µg/mL) MXXXXX into 1L = *100 µg/L*	
	1000 (CCV)	**2 mL** of Custom Assurance Standard XCTWI-5-500 M13839 and **0.2 mL** W (1000 µg/mL) MXXXXX into 200mL = *1000 µg/L*	
	10000	**20 mL** of Custom Assurance Standard XCTWI-5-500 M13839 and **2 mL** W (1000 µg/mL) MXXXXX into 200mL = *10000 µg/L*	

		Instrument:	ICP 6000
Standard Log #:	M14034	Standard:	List 2 ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	11/04/2019	Expiration Date:	02/28/2020
Prep:	Into a 200 mL volumetric flask, pipetted **20 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13738, **6 mL** of Fe (10,000 mg/L) M13751, **0.1 mL** of Li (1000 µg/mL) M13577, **0.1 mL** of Sn (1000 µg/mL) M14008, **0.1 mL** of Sr (1000 µg/mL) M14007, **0.1 mL** of Ti (1000 µg/mL) M14009, and **0.1 mL** of W (1000 µg/mL) MXXXXX and brought up to volume using Milli-Q H_2O. (0.5% HNO_3, 0.5% HCl)		

		Instrument:	CETAC
Standard Log #:	M14032	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	10/31/2019	Expiration Date:	10/31/2020
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	ICP 6000
Standard Log #:	M14028	Standard:	B&Si ICAL
Analyst:	MDS	Concentrations:	50, 200, 1000, 2000 and 10,000 ug/L (B, Si)
Prep Date:	10/30/2019	Expiration Date:	10/2020
Prep:	Into five, 1 L volumetric flasks, pipetted the following from stock standards B (1000 mg/L) M13947 and Si (1000 mg/L) M13810 and brought up to volume using milli-Q H_2O. *50 ug/L std.* - **0.05 mL** of each *200 ug/L std.* - **0.2 mL** of each *1000 ug/L std.* -**1.0 mL** of each, also used for Continuing Calibration Verification *2000 ug/L std.* - **2.0 mL** of each *10,000 ug/L std.* -**10 mL** of each		

		Instrument:	ICP 6000
Standard Log #:	M14029	Standard:	B & Si ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (B,Si)
Prep Date:	10/30/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **10 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13738, **0.05 mL** of B (1000 µg/mL) M13947, **0.05 mL** of Si (1000 µg/mL) M13810 and **3 mL** of Fe (10,000 mg/L) M13751 and brought up to volume using Milli-Q H_2O.		

		Instrument:	ICP 6000
Standard Log #:	M14030	Standard:	B&Si ICV
Analyst:	MDS	Concentrations:	1000 ug/L (B, Si)
Prep Date:	10/30/2019	Expiration Date:	05/30/2020
Prep:	Into a 1 L volumetric flask, pipetted **10 mL** of Custom Assurance Std. #23 (100 mg/L Al, As, **B**, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13839 and **1.0 mL** Si (1000 mg/L) M13981 and brought up to volume using milli-Q H_2O.		

Standard ID#:	M14031	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	Acid Washed TCLP filters
Date Received:	10/31/2019	Lot #:	400165
Expiration Date (if any):		Catalog #:	FG77150MM

		Instrument:	HydraII
Standard Log #:	M14024	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	10/29/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14025	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	10/29/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14026	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	10/29/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M14027	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	10/30/2019	Expiration Date:	04/30/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13922 and brought up to volume.		

MRL BASE STD M14024 Analyst NAH

Prep Date 10/30/2019

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	(ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L	Expiration Date
Ag	20	M13951	1000	1	02/2021
Al	400	M13690	10000	2	06/2020
Ba	10	M13949	1000	0.5	02/2021
Be	4	M13579	1000	0.2	02/2020
Cd	5	M13570	1000	0.25	01/2020
Co	10	M13575	1000	0.5	01/2020
Cr	10	M13617	10000	0.05	03/2020
Cu	10	M13618	10000	0.05	03/2020
Mg	500	M13752	10000	2.5	09/2020
Mn	10	M13616	10000	0.05	03/2020
Mo	10	M13860	1000	0.5	12/2020
Ni	10	M13569	1000	0.5	01/2020
Pb	10	M13615	10000	0.05	03/2020
Sb	20	M13950	1000	1	02/2021
V	10	M13578	1000	0.5	02/2020
Zn	10	M13610	10000	0.05	03/2020
K	1000	M14003	10000	5	04/2021
Na	1000	M13862	10000	5	12/2020
As	20	M13763	1000	1	12/2020
Ca	500	M13985	10000	2.5	04/2021
Fe	300	M13751	10000	1.5	09/2020
Se	20	M13948	1000	1	02/2021
Tl	20	M13583	1000	1	02/2020
Si	100	M13810	1000	5	10/2020
B	20	M13947	1000	1	02/2021
Li	20	M13577	1000	1	02/2020
W	50	Mxxxxxx	1000	2.5	xxxxxxxx
Ti	10	M14009	1000	0.5	04/2021
Sr	10	M14007	1000	0.5	03/2020
Sn	50	M14008	1000	2.5	04/2021
S	300	M13604	10000	1.5	03/2020

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

		Instrument:	CETAC
Standard Log #:	M14022	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	10/23/2019	Expiration Date:	04/23/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13922 and brought up to volume.		

		Instrument:	ICP 6500
Standard Log #:	M14023	Standard:	ICSA
Analyst:	NAH	Concentrations:	**500,000 ug/L** Al, Ca, Fe, Mg **10,000** V, Ce
Prep Date:	10/30/2019	Expiration Date:	02/2020
Prep:	Into a 500 mL volumetric flask, pipetted 50 **mL** Interference A std M13738 and 15 **mL** 10000 mg/L Fe M14004 5.0 **mL** 1000 mg/L V M13578 5.0 **mL** 1000 mg/L Ce M13859 and brought up to volume with milli-Q H_2O.		

Standard Log #:	M14020	Reagent:	Potassium Persulfate Solution
Analyst:	BMM		
Prep Date:	10/23/2019	Expiration Date:	04/23/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13714 and brought up to volume.		

Standard Log #:	M14021	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	BMM		
Prep Date:	10/23/2019	Expiration Date:	04/23/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13993 and **60 g** hydroxylamine sulfate M13874 and brought up to volume.		

Standard ID#:	M14016	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride
Date Received:	10/23/2019	Lot #:	J267-10
Expiration Date (if any):		Catalog #:	LC251701

Standard ID#:	M14017	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride
Date Received:	10/23/2019	Lot #:	J267-10
Expiration Date (if any):		Catalog #:	LC251701

		Instrument:	CETAC
Standard Log #:	M14018	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	10/23/2019	Expiration Date:	10/24/2019
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

Standard Log #:	M14019	Reagent:	Potassium Permanganate Solution
Analyst:	BMM		
Prep Date:	10/23/2019	Expiration Date:	04/23/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14012	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	10/21/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14013	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	10/21/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14014	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	10/21/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard Log #:	M14015	Instrument:	GFAA
Analyst:	MDS	Reagent:	Pd/Mg Matrix Modifier
Prep Date:	10/22/2019	Expiration Date:	09/30/2020
Prep:	Into a 50 mL volumetric flask, partially filled with milli-Q H_2O, pipetted **15 mL** Pd Modifier M13954 and **10 mL** Mg (10,000 mg/L) M13752 and brought up to volume.		

Standard Log #:	M14010	Reagent:	SPLP ACID MIX
Analyst:	BMM		60/40 H_2SO_4 - HNO_3
Prep Date:	10/21/2019	Expiration Date:	10/21/2020
Prep:	Into a 200 mL volumetric flask, partially filled with DI H_2O, add **12 g** H_2SO_4 AB.674 and **8 g** HNO_3 AB.677 and bring up to volume using DI H_2O.		

Standard Log #:	M14011	Reagent:	SPLP EXTRACTION FLUID EAST #
Analyst:	BMM	pH:	4.20 ± 0.05
Prep Date:	10/21/2019	Expiration Date:	10/21/2020
Prep:	Into a 20 L carboy filled with DI H_2O, adjust pH to 4.20 ± 0.05 using 60/40 HNO_3 - H_2SO_4 M14010.		

Standard ID#:	M14005	Vendor:	CPI
Analyst:	NAH	Chemical:	Y 10000 mg/L
Date Received:	10/17/2019	Lot #:	168189-30
Expiration Date (if any):	04/2021	Catalog #:	4400-110M671

Standard ID#:	M14006	Vendor:	CPI
Analyst:	NAH	Chemical:	Si 1000 mg/L
Date Received:	10/17/2019	Lot #:	1004985-62
Expiration Date (if any):	04/2021	Catalog #:	S4400-1000504F

Standard ID#:	M14007	Vendor:	CPI
Analyst:	NAH	Chemical:	Sr 1000 mg/L
Date Received:	10/17/2019	Lot #:	168227-95
Expiration Date (if any):	04/2021	Catalog #:	S4400-1000531

Standard ID#:	M14008	Vendor:	CPI
Analyst:	NAH	Chemical:	Sn 1000 mg/L
Date Received:	10/17/2019	Lot #:	977645-2
Expiration Date (if any):	04/2021	Catalog #:	S4400-1000613

Standard ID#:	M14009	Vendor:	CPI
Analyst:	NAH	Chemical:	Ti 1000 mg/L
Date Received:	10/17/2019	Lot #:	987438-36
Expiration Date (if any):	04/2021	Catalog #:	S4400-1000623

		Instrument:	CETAC
Standard Log #:	M14000	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	10/16/2019	Expiration Date:	04/16/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13923 and brought up to volume.		

Standard ID#:	M14001	Vendor:	ThermoFisher
Analyst:	MDS	Chemical:	Nickel Nitrate Matrix Modifier
Date Received:	10/17/2019	Lot #:	9192422
Expiration Date (if any):	04/30/2021	Catalog #:	39043

Standard Log #:	M14002	Reagent:	10N NaOH
Analyst:	BMM		
Prep Date:	10/17/2019	Expiration Date:	10/17/2020
Prep:	Into a 1 L volumetric flask, added **400 g** NaOH W47366 and brought up to volume.		

Standard ID#:	M14003	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10000 mg/L
Date Received:	10/17/2019	Lot #:	980507-31
Expiration Date (if any):	04/2021	Catalog #:	4400-10M411

Standard ID#:	M14004	Vendor:	CPI
Analyst:	NAH	Chemical:	Fe 10000 mg/L
Date Received:	10/17/2019	Lot #:	998527-45
Expiration Date (if any):	04/2021	Catalog #:	4400-10M261

		Instrument:	GFAA
Standard Log #:	M13997	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	10/16/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13998	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	10/16/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13999	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	10/16/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13786 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

Standard ID#:	M13993	Vendor:	Thermo fisher Scientific
Analyst:	NAH	Chemical:	Sodium Chloride
Date Received:	10/15/2019	Lot #:	193463
Expiration Date (if any):	06/2024	Catalog #:	S271-500

Standard ID#:	M13994	Vendor:	Thermo Fisher Scientific
Analyst:	NAH	Chemical:	Hydroxylamine Sulfate
Date Received:	10/15/2019	Lot #:	189407
Expiration Date (if any):	05/2024	Catalog #:	H331-500

		Instrument:	CETAC
Standard Log #:	M13995	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	10/15/2019	Expiration Date:	10/16/2019
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

Standard Log #:	M13996	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	10/16/2019	Expiration Date:	10/16/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13877. Dilute to 20 L and mix.		

		Instrument:	ICP 6000
Standard Log #:	M13992	Standard:	List 2 ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	10/15/2019	Expiration Date:	01/2020
Prep:	Into a 200 mL volumetric flask, pipetted **20 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13738, **6 mL** of Fe (10,000 mg/L) M13751, **0.1 mL** of Li (1000 µg/mL) M13577, **0.1 mL** of Sn (1000 µg/mL) M13572, **0.1 mL** of Sr (1000 µg/mL) M13580, **0.1 mL** of Ti (1000 µg/mL) M13573, and **0.1 mL** of W (1000 µg/mL) MXXXXX and brought up to volume using Milli-Q H_2O. (0.5% HNO_3, 0.5% HCl)		

		Instrument:	ICP 6000
Standard Log #:	M13989	Standard:	Sulfur ICAL
Analyst:	MDS	Concentrations:	1000 10,000 100,000 1000K µg/L (S)
Prep Date:	10/14/2019	Expiration Date:	06/2020
Prep:	Into four, 100 mL volumetric flasks, pipetted the following from stock standard S (10,000 µg/mL) M13696 and brought up to volume using milli-Q H_2O. *1000 ug/L std.* - **0.01 mL** *10,000 ug/L std.* - **0.1 mL** *100,000 ug/L std.* -**1.0 mL**, also used as the CCV *1000K ug/L std.* - **10 mL**		

		Instrument:	ICP 6000
Standard Log #:	M13990	Standard:	Sulfur ICV
Analyst:	MDS	Concentrations:	100,000 µg/L (S)
Prep Date:	10/14/2019	Expiration Date:	03/2020
Prep:	Into a 100 mL volumetric flask, pipetted **1.0 mL** of S (10,000 µg/mL) M13604 and brought up to volume using Milli-Q H_2O.		

		Instrument:	ICP 6000
Standard Log #:	M13991	Standard:	B & Si ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (B,Si)
Prep Date:	10/14/2019	Expiration Date:	12/2019
Prep:	Into a 100 mL volumetric flask, pipetted **10 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13738, **0.05 mL** of B (1000 µg/mL) M13531, **0.05 mL** of Si (1000 µg/mL) M13861 and **3 mL** of Fe (10,000 mg/L) M13751 and brought up to volume using Milli-Q H_2O.		

		Instrument:	HydraII
Standard Log #:	M13986	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	10/15/2019	Expiration Date:	04/15/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M13987	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	10/15/2019	Expiration Date:	04/15/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M13988	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	10/15/2019	Expiration Date:	04/15/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard ID#:	M13982	Vendor:	CPI
Analyst:	NAH	Chemical:	Aluminum 10000 mg/L
Date Received:	10/09/2019	Lot #:	992536-16
Expiration Date (if any):	04/2021	Catalog #:	4400-10M11

Standard ID#:	M13983	Vendor:	CPI
Analyst:	NAH	Chemical:	Fe 10000 mg/L
Date Received:	10/09/2019	Lot #:	998527-45
Expiration Date (if any):	04/2021	Catalog #:	4400-10M261

Standard ID#:	M13984	Vendor:	CPI
Analyst:	NAH	Chemical:	Mg 10000 mg/L
Date Received:	10/09/2019	Lot #:	1013353-4
Expiration Date (if any):	04/2021	Catalog #:	4400-10M311

Standard ID#:	M13985	Vendor:	CPI
Analyst:	NAH	Chemical:	Ca 10000 mg/L
Date Received:	10/09/2019	Lot #:	855297-68
Expiration Date (if any):	04/2021	Catalog #:	4400-10M91

		Instrument:	CETAC
Standard Log #:	M13978	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	10/08/2019	Expiration Date:	04/08/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13923 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13979	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	10/09/2019	Expiration Date:	04/09/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13923 and brought up to volume.		

Standard ID#:	M13980	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Std
Date Received:	10/08/2019	Lot #:	52-248CR
Expiration Date (if any):	10/30/2020	Catalog #:	XSPIKE-1-250

Standard ID#:	M13981	Vendor:	CPI
Analyst:	NAH	Chemical:	Silicon 1000 mg/l
Date Received:	10/09/2019	Lot #:	1004985-62
Expiration Date (if any):	04/2021	Catalog #:	S4400-1000504F

		Instrument:	HydraII
Standard Log #:	M13976	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	10/07/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13975 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	CETAC
Standard Log #:	M13977	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	10/07/2019	Expiration Date:	10/07/2020
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	HydraII
Standard Log #:	M13973	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	10/07/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M13974	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	10/07/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M13975	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	10/07/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	GFAA
Standard Log #:	M13970	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	10/07/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13971	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	10/07/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13972	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	10/07/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13786 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

Standard Log #:	M13969	Reagent:	1:3 HNO3
Analyst:	MDS		
Prep Date:	10/02/2019	Expiration Date:	10/02/2020
Prep:	Carefully mixed **3** parts DI with **1** part HNO_3 AB.681 in a hood.		

		Instrument:	HydraII
Standard Log #:	M13967	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	10/01/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13966 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	CETAC
Standard Log #:	M13968	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	10/01/2019	Expiration Date:	10/01/2020
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	HydraII
Standard Log #:	M13964	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	10/01/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M13965	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	10/01/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M13966	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	10/01/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard Log #:	M13963	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	09/30/2019	Expiration Date:	09/30/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13877. Dilute to 20 L and mix.		

Standard ID#:	M13961	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Std.
Date Received:	09/24/2019	Lot #:	7-093AB
Expiration Date (if any):	09/30/2020	Catalog #:	XCTWI-1-500

		Instrument:	CETAC
Standard Log #:	M13962	Reagent:	Stannous Chloride Solution
Analyst:	NAH		
Prep Date:	09/25/2019	Expiration Date:	09/25/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13923 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13960	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	09/19/2019	Expiration Date:	03/19/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.678 and dissolved **100 g** Stannous chloride M13889 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M13958	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	09/17/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	HydraII
Standard Log #:	M13959	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	09/17/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13958 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	CETAC
Standard Log #:	M13955	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	09/17/2019	Expiration Date:	09/17/2020
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	HydraII
Standard Log #:	M13956	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	09/17/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M13957	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	09/17/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

Standard Log #:	M13952	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	09/13/2019	Expiration Date:	09/13/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13877. Dilute to 20 L and mix.		

Standard Log #:	M13953	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	09/13/2019	Expiration Date:	09/13/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13877. Dilute to 20 L and mix.		

Standard ID#:	M13954	Vendor:	Environmental Expresss
Analyst:	MDS	Chemical:	1% Pd Matrix Modifier
Date Received:	09/13/2019	Lot #:	1925215
Expiration Date (if any):	09/30/2020	Catalog #:	HP1900-100

		Instrument:	CETAC
Standard Log #:	M13946	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	09/10/2019	Expiration Date:	03/10/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13889 and brought up to volume.		

Standard ID#:	M13947	Vendor:	CPI
Analyst:	NAH	Chemical:	Boron 1000 mg/lL
Date Received:	09/10/2019	Lot #:	982524-80
Expiration Date (if any):	02/2021	Catalog #:	S4400-100074

Standard ID#:	M13948	Vendor:	CPI
Analyst:	NAH	Chemical:	Selenium 1000 mg/L
Date Received:	09/10/2019	Lot #:	982461-61
Expiration Date (if any):	02/2021	Catalog #:	S4400-1000491

Standard ID#:	M13949	Vendor:	CPI
Analyst:	NAH	Chemical:	Barium 1000 mg/L
Date Received:	09/10/2019	Lot #:	994634-28
Expiration Date (if any):	02/2021	Catalog #:	S4400-100041

Standard ID#:	M13950	Vendor:	CPI
Analyst:	NAH	Chemical:	Antimony 1000 mg/L
Date Received:	09/10/2019	Lot #:	1013797-3
Expiration Date (if any):	02/2019	Catalog #:	S4400-100023

Standard ID#:	M13951	Vendor:	CPI
Analyst:	NAH	Chemical:	Silver 1000 mg/L
Date Received:	09/10/2019	Lot #:	975475-71
Expiration Date (if any):	02/2021	Catalog #:	S4400-1000511

		Instrument:	HydraII
Standard Log #:	M13944	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	09/09/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13943 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	CETAC
Standard Log #:	M13945	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	09/09/2019	Expiration Date:	09/09/2020
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	HydraII
Standard Log #:	M13941	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	09/09/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M13942	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	09/09/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M13943	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	09/09/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	GFAA
Standard Log #:	M13938	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	09/09/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13939	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	09/09/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13940	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	09/09/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13786 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13937	Standard:	NaK ICSAB
Analyst:	MDS	Concentrations:	500 mg/L (Al, Ca, Fe, Mg) 100 mg/L (Na, K)
Prep Date:	09/06/2019	Expiration Date:	02/28/2020
Prep:	Into a 250 mL volumetric flask, pipetted **25 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13738, **2.5 mL** of K (10,000 mg/L) M13755, **2.5 mL** of Na (10,000 mg/L) M13691 and **7.5 mL** of Fe (10,000 mg/L) M13695 and brought up to volume using Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13933	Standard:	Na & K ICAL
Analyst:	MDS	Concentrations:	0.5, 1, 5, 10, 50, 100, and 200 mg/L (Na,K)
Prep Date:	09/06/2019	Expiration Date:	03/2020
Prep:	Into seven, 200 mL volumetric flasks, pipetted the following from Na (1000 µg/mL) M13607 and K (1000 µg/mL) M13606 and brought up to volume using milli-Q H_2O. (2% HNO_3) *0.5 mg/L std.* - **0.1 mL** of each *1.0 mg/L std.* - **0.2 mL** of each *5.0 mg/L std.* - **1.0 mL** of each *10 mg/L std.* - **2.0 mL** of each *50 mg/L std.* - **10 mL** of each *100 mg/L std.* -**20 mL** of each, also used for Continuing Calibration Verification *200 mg/L std.* - **40 mL** of each		

		Instrument:	ICP 6000
Standard Log #:	M13934	Standard:	Na,K MRL
Analyst:	MDS	Concentrations:	1 mg/L (Na,K)
Prep Date:	09/06/2019	Expiration Date:	03/2020
Prep:	Into a 500 mL volumetric flask, pipetted **0.5 mL** of Na (1000 µg/mL) M13607 and **0.5 mL** K (1000 µg/mL) M13606 and brought to volume with Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13935	Standard:	NaK ICV
Analyst:	MDS	Concentrations:	100 mg/L (Na, K)
Prep Date:	09/06/2019	Expiration Date:	06/2020
Prep:	Into a 250 mL volumetric flask, pipetted **2.5 mL** of K (10,000 mg/L) M13755 and Na (10,000 mg/L) M13691 and brought up to volume using Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13936	Standard:	Na,K ICVLL
Analyst:	MDS	Concentrations:	3 mg/L (Na,K)
Prep Date:	09/06/2019	Expiration Date:	06/2020
Prep:	Into a 500 mL volumetric flask, pipetted **0.15 mL** of Na (10,000 µg/mL) M13691 and **0.15 mL** K (10,000 µg/mL) M13755 and brought to volume with Milli-Q H_2O. (2% HNO_3)		

		Instrument:	HydraII
Standard Log #:	M13929	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	09/03/2019	Expiration Date:	03/03/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13928 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	CETAC
Standard Log #:	M13930	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	09/03/2019	Expiration Date:	10/03/2019
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13889 and brought up to volume.		

Standard Log #:	M13931	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	09/03/2019	Expiration Date:	09/03/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13877. Dilute to 20 L and mix.		

Standard Log #:	M13932	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	09/03/2019	Expiration Date:	09/03/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13877. Dilute to 20 L and mix.		

		Instrument:	HydraII
Standard Log #:	M13926	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	09/03/2019	Expiration Date:	03/03/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M13927	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	09/03/2019	Expiration Date:	03/03/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M13928	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	09/03/2019	Expiration Date:	03/03/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard ID#:	M13924	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	Yttrium 10,000 mg/L
Date Received:	08/29/2019	Lot #:	1833905
Expiration Date (if any):	02/28/2021	Catalog #:	HP10M67-1

		Instrument:	HydraII
Standard Log #:	M13920	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	08/27/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13919 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	CETAC
Standard Log #:	M13921	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	08/28/2019	Expiration Date:	09/28/2019
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13889 and brought up to volume.		

Standard ID#:	M13922	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride Dihydrate
Date Received:	08/28/2019	Lot #:	J142-19
Expiration Date (if any):		Catalog #:	LC251701

Standard ID#:	M13923	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride Dihydrate
Date Received:	08/28/2019	Lot #:	J142-19
Expiration Date (if any):		Catalog #:	LC251701

		Instrument:	HydraII
Standard Log #:	M13917	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	08/27/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M13918	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	08/27/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M13919	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	08/27/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	GFAA
Standard Log #:	M13916	Standard:	LODW/LOQW Ag Spiking Sol'n
Analyst:	MDS	Concentrations:	10 ug/L (Ag)
Prep Date:	08/26/2019	Expiration Date:	10/2019
Prep:	Into a 100 mL volumetric flask, pipetted **0.1 mL** of Ag (1000mg/L) M13458 and brought to volume with Milli-Q H_2O to make a 1000 ug/L Ag std. Into a 1 L volumetric flask, pipetted **10 mL** of Ag (*1000 ug/L*) std. and brought to volume with Milli-Q H_2O. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*0.2 ug/L*) and **2 mL** spiking solution for LOQ (*0.4 ug/L*)		

		Instrument:	GFAA
Standard Log #:	M13914	Standard:	LODS/LOQS Spiking Sol'n
Analyst:	MDS	Concentrations:	60 ug/L (Sb) 160 ug/L (As,Se) 40 ug/L (Pb) 50 ug/L (Tl)
Prep Date:	08/26/2019	Expiration Date:	10/2019
Prep:	Into a 200 mL volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. **1.2 mL** of Sb (1000 mg/L) M13459 **3.2 mL** of As (1000 mg/L) M13863 **3.2 mL** of Se (1000 mg/L) M13460 **0.08 mL** of Pb (10,000 mg/L) M13615 **1.0 mL** of Tl (1000 mg/L) M13583 From this diluted standard solution, pipetted **10 mL** into a 1 L volumetric flask and brought up to volume with Milli-Q H_2O to make the spiking solution. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (1.2 *ug/L* Sb, *3.2 ug/L* As, *3.2 ug/L* Se, *0.8 ug/L* Pb, *1 ug/L* Tl) and **2 mL** spiking solution for LOQ (2.4 *ug/L* Sb, *6.4 ug/L* As, *6.4 ug/L* Se, *1.6 ug/L* Pb, *2 ug/L* Tl)		

		Instrument:	GFAA
Standard Log #:	M13915	Standard:	LODW/LOQW Spiking Sol'n
Analyst:	MDS	Concentrations:	150 ug/L (Sb) 100 ug/L (As) 200 ug/L (Se) 45 ug/L (Pb) 40 ug/L (Tl)
Prep Date:	08/26/2019	Expiration Date:	10/2019
Prep:	Into a 100 mL volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. **1.5 mL** of Sb (1000 mg/L) M13459 **1.0 mL** of As (1000 mg/L) M13863 **2.0 mL** of Se (1000 mg/L) M13460 **0.045 mL** of Pb (10,000 mg/L) M13615 **0.4 mL** of Tl (1000 mg/L) M13583 From this diluted standard solution, pipetted **10 mL** into a 1 L volumetric flask and brought up to volume with Milli-Q H_2O to make the spiking solution. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*3 ug/L* Sb, *2 ug/L* As, *4 ug/L* Se, *0.9 ug/L* Pb, *0.8 ug/L* Tl) and **2 mL** spiking solution for LOQ (*6 ug/L* Sb, *4 ug/L* As, *8 ug/L* Se, *1.8 ug/L* Pb, *1.6 ug/L* Tl)		

Standard Log #:	M13913 (A)	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3010 B&Si Spiking Solution
Prep Date:	08/26/2019	Expiration Date:	12/19/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
B	16	M13531	1000	0.8
Si	200	M13861	1000	10

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13913 combined with A	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3010 S Spiking Solution
Prep Date:	08/26/2019	Expiration Date:	06/20/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
S	200	M13696	10000	1.0

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

		Instrument:	CETAC
Standard Log #:	M13911	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	08/21/2019	Expiration Date:	02/21/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13888 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13912	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	08/21/2019	Expiration Date:	08/21/2020
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	HydraII
Standard Log #:	M13909	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	08/20/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13908 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	CETAC
Standard Log #:	M13910	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	08/20/2019	Expiration Date:	08/20/2020
Prep:	Carefully mixed **3** parts HCl AB.656 with **1** part HNO_3 AB.655 in a hood.		

		Instrument:	HydraII
Standard Log #:	M13906	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	08/20/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M13907	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	08/20/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M13908	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	08/20/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard Log #:	M13904	Reagent:	Potassium Persulfate Solution
Analyst:	BMM		
Prep Date:	08/19/2019	Expiration Date:	08/19/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13059 and brought up to volume.		

Standard Log #:	M13905	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	BMM		
Prep Date:	08/19/2019	Expiration Date:	08/19/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13728 and **60 g** hydroxylamine sulfate M13727 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13902	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	08/15/2019	Expiration Date:	02/15/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13888 and brought up to volume.		

Standard ID#:	M13903	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	08/15/2019	Lot #:	52-161Cr
Expiration Date (if any):	8/30/2020	Catalog #:	XSPIKE-1-250

		Instrument:	CETAC
Standard Log #:	M13898	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	08/13/2019	Expiration Date:	08/13/2020
Prep:	Carefully mixed **3** parts HCl AB.656 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	HydraII
Standard Log #:	M13899	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	08/13/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M13900	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	08/13/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M13901	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	08/13/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13734 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

Standard Log #:	M13897	Standard:	GFAA Instrument Check
Analyst:	MDS	Final Concentration:	12 µg/L As 6 µg/L Pb 10 µg/L Sb 20 µg/L Se 10 µg/L Tl 0.6 µg/L Ag
Prep Date:	08/12/2019	Expiration Date:	10/2019

Into six, 100 mL volumetric flasks, add the following and bring up to volume with milli-Q H_2O.

Element	Volume Pipetted (mL)	Standard Conc. (µg/mL)	Standard ID	New Conc. (µg/L)
As	1	1000	M13863	10,000
Pb	0.1	10,000	M13615	10,000
Tl	1	1000	M13583	10,000
Se	1	1000	M13460	10,000
Sb	1	1000	M13459	10,000
Ag	0.1	1000	M13458	1000

Into a 1 L volumetric flask, add the following and bring up to volume with Milli-Q H_20. (1% HNO_3)

Element	Volume Pipetted (mL)	Standard Conc. (µg/L)	New Conc. (µg/L)
As	1.2	10,000	12
Pb	0.6	10,000	6
Tl	1.0	10,000	10
Se	2.0	10,000	20
Sb	1.0	10,000	10
Ag	0.6	1000	0.6

Standard Log #:	M13896	Reagent:	1:3 HNO3
Analyst:	MDS		
Prep Date:	08/09/2019	Expiration Date:	08/09/2020
Prep:	Carefully mixed **3** parts DI with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13895	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	08/06/2019	Expiration Date:	02/06/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13888 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13894	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	08/05/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13893 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	CETAC
Standard Log #:	M13891	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	08/05/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	CETAC
Standard Log #:	M13892	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	08/05/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	CETAC
Standard Log #:	M13893	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	08/05/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M13890	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	07/29/2019	Expiration Date:	01/29/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13888 and brought up to volume.		

Standard ID#:	M13888	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride Dihydrate
Date Received:	07/25/2019	Lot #:	J142-19
Expiration Date (if any):		Catalog #:	LC251701

Standard ID#:	M13889	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride Dihydrate
Date Received:	07/25/2019	Lot #:	J142-19
Expiration Date (if any):		Catalog #:	LC251701

		Instrument:	CETAC
Standard Log #:	M13884	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	07/22/2019	Expiration Date:	
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	GFAA
Standard Log #:	M13885	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	07/22/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13886	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	07/22/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13887	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	07/22/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13786 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	CETAC
Standard Log #:	M13883	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	07/18/2019	Expiration Date:	01/03/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13648 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13879	Reagent:	Hg Aqua Regia
Analyst:	MDS		
Prep Date:	07/18/2019	Expiration Date:	07/18/2020
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13880	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	07/18/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	CETAC
Standard Log #:	M13881	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	07/18/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M13882	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	07/18/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13881 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

Standard Log #:	M13876	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	07/18/2019	Expiration Date:	07/18/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13750. Dilute to 20 L and mix.		

Standard Log #:	M13877	Reagent:	10N NaOH
Analyst:	BMM		
Prep Date:	07/18/2019	Expiration Date:	07/18/2020
Prep:	Into a 1 L volumetric flask, added **400 g** NaOH W45383 and brought up to volume.		

Standard Log #:	M13878	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	07/18/2019	Expiration Date:	07/18/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M45383. Dilute to 20 L and mix.		

Standard Log #:	M13873	Reagent:	Potassium Permanganate Solution
Analyst:	NAH		
Prep Date:	07/17/2019	Expiration Date:	07/17/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard ID#:	M13874	Vendor:	Fisher
Analyst:	NAH	Chemical:	Hydroxylamine Sulfate
Date Received:	07/17/2019	Lot #:	175511
Expiration Date (if any):		Catalog #:	H331-500

Standard Log #:	M13875	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	NAH		
Prep Date:	07/18/2019	Expiration Date:	07/18/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13728 and **60 g** hydroxylamine sulfate M13727 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13872	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	07/12/2019	Expiration Date:	07/12/2019
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.679 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13871	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	07/11/2019	Expiration Date:	07/11/2019
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.679 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13870	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	07/10/2019	Expiration Date:	07/10/2019
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.679 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13869	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	07/08/2019	Expiration Date:	07/08/2019
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.679 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13868	Reagent:	Stannous Chloride Solution
Analyst:	LJF		
Prep Date:	07/03/2019	Expiration Date:	01/03/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13648 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13864	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	07/02/2019	Expiration Date:	07/02/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

Standard Log #:	M13865	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	LJF		
Prep Date:	07/02/2019	Expiration Date:	01/02/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13728 and **60 g** hydroxylamine sulfate M13727 and brought up to volume.		

Standard Log #:	M13866	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	07/02/2019	Expiration Date:	01/02/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M13867	Reagent:	Potassium Persulfate Solution
Analyst:	LJF		
Prep Date:	07/02/2019	Expiration Date:	01/02/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13059 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13858	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	06/26/2019	Expiration Date:	06/26/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

Standard ID#:	M13859	Vendor:	CPI
Analyst:	NAH	Chemical:	Ce 1000 mg/L
Date Received:	06-26-2019	Lot #:	171633-12
Expiration Date (if any):	12/2020	Catalog #:	S4400-1000101

Standard ID#:	M13860	Vendor:	CPI
Analyst:	NAH	Chemical:	Mo 1000 mg/L
Date Received:	06-26-2019	Lot #:	987189-17
Expiration Date (if any):	12/2020	Catalog #:	S4400-1000343

Standard ID#:	M13861	Vendor:	CPI
Analyst:	NAH	Chemical:	Si 1000 mg/L
Date Received:	06-26-2019	Lot #:	175213-60
Expiration Date (if any):	12/2020	Catalog #:	S4400-1000504F

Standard ID#:	M13862	Vendor:	CPI
Analyst:	NAH	Chemical:	Na 10000 mg/L
Date Received:	06-26-2019	Lot #:	752887-32
Expiration Date (if any):	12/2020	Catalog #:	4400-10M521

Standard ID#:	M13863	Vendor:	CPI
Analyst:	NAH	Chemical:	As 1000 mg/L
Date Received:	06-26-2019	Lot #:	175385-105
Expiration Date (if any):	12/2020	Catalog #:	S4400-100031

Standard Log #:	M13856	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	06/21/2019	Expiration Date:	06/21/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13750. Dilute to 20 L and mix.		

Standard Log #:	M13857	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	06/21/2019	Expiration Date:	06/21/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13750. Dilute to 20 L and mix.		

		Instrument:	CETAC
Standard Log #:	M13855	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	06/19/2019	Expiration Date:	06/19/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

Standard ID#:	M13851	Vendor:	CPI
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	06-19-2019	Lot #:	52-082CR
Expiration Date (if any):	06/30/2020	Catalog #:	XSPIKE-1-250

		Instrument:	GFAA
Standard Log #:	M13852	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	06/19/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q H_2O. ($1\% HNO_3$)		

		Instrument:	GFAA
Standard Log #:	M13853	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	06/19/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q DI H_2O. ($1\% HNO_3$)		

		Instrument:	GFAA
Standard Log #:	M13854	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	06/19/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13786 and brought to volume with Milli-Q DI H_2O. ($1\% HNO_3$)		

		Instrument:	CETAC
Standard Log #:	M13850	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	06/14/2019	Expiration Date:	06/14/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

Standard Log #:	M13849	Instrument:	GFAA
Analyst:	MDS	Standard:	MDL Spiking Solution
Prep Date:	06/13/2019	Expiration Date:	07/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (2% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
Ag	0.2	M13458	1000	0.01
As	2	M13392	1000	0.1
Pb	2	M13615	10000	0.01
Sb	2	M13459	1000	0.1
Se	2	M13460	1000	0.1
Tl	2	M13583	1000	0.1

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13848	Instrument:	ICP 6500
Analyst:	NAH	Standard:	LOQ 3010 DOD Metals Spiking S
Prep Date:	06/11/2019	Expiration Date:	10/19

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	4	M13458	1000	0.2
Al	36	M13611	**10000**	0.18
As	24	M13753	1000	1.2
Ba	1.8	M13457	1000	0.09
Be	0.6	M13579	1000	0.03
Ca	100	M13692	**10000**	0.5
Cd	2.0	M13570	1000	0.1
Co	4	M13575	1000	0.2
Cr	4	M13697	**10000**	0.02
Cu	7	M13618	**10000**	0.035
Fe	100	M13609	**10000**	0.5
Mg	40	M13694	**10000**	0.2
Mn	4	M13616	**10000**	0.02
Mo	7	M13697	1000	0.35
Ni	6	M13569	1000	0.2
Pb	4	M13615	**10000**	0.02
Sb	12	M13459	1000	0.6
Se	13	M13460	1000	0.65
Tl	20	M13583	1000	0.75
V	5	M13578	1000	0.25
Zn	10	M13610	**10000**	0.05

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13847	Instrument:	ICP 6500
Analyst:	NAH	Standard:	LOQ 3050 DOD Metals Spiking S
Prep Date:	06/11/2019	Expiration Date:	10/19

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	4	M13458	1000	0.2
Al	9.6	M13611	**10000**	0.048
As	32	M13753	1000	1.6
Ba	2	M13457	1000	0.1
Be	1.6	M13579	1000	0.08
Ca	56	M13692	**10000**	0.28
Cd	1.6	M13570	1000	0.08
Co	9.6	M13575	1000	0.48
Cr	5.6	M13697	**10000**	0.028
Cu	16	M13618	**10000**	0.08
Fe	72	M13609	**10000**	0.36
Mg	32	M13694	**10000**	0.16
Mn	6	M13616	**10000**	0.03
Mo	9.6	M13697	1000	0.48
Ni	4.8	M13569	1000	0.24
Pb	10	M13615	**10000**	0.05
Sb	32	M13459	1000	1.6
Se	16	M13460	1000	0.8
Tl	19	M13583	1000	0.95
V	3.2	M13578	1000	0.16
Zn	12	M13610	**10000**	0.06

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13845	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3010 k&na Spiking Solution
Prep Date:	06/11/2019	Expiration Date:	06/2020

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
K	500	M13811	10000	2.5
Na	600	M13691	10000	3

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13846	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3050 k&na Spiking Solution
Prep Date:	06/11/2019	Expiration Date:	06/2020

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
K	2640	M13811	10000	13.2
Na	960	M13691	10000	4.8

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard ID#:	M13839	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	06/11/2019	Lot #:	52-038CR
Expiration Date (if any):	05/30/2020	Catalog #:	XCTWI-5-500

Standard ID#:	M13840	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	06/11/2019	Lot #:	5-244AB
Expiration Date (if any):	06/30/2020	Catalog #:	XCTWWI-1-500

Standard ID#:	M13841	Vendor:	CPI
Analyst:	NAH	Chemical:	Ca 10,000 mg/L
Date Received:	06/11/2019	Lot #:	855297-41
Expiration Date (if any):	11/2020	Catalog #:	4400-10M91

Standard ID#:	M13842	Vendor:	CPI
Analyst:	NAH	Chemical:	Al 10,000 mg/L
Date Received:	06/11/2019	Lot #:	169484-36
Expiration Date (if any):	11/2020	Catalog #:	4400-10M11

Standard ID#:	M13843	Vendor:	CPI
Analyst:	NAH	Chemical:	Y 10,000 mg/L
Date Received:	06/11/2019	Lot #:	168189-30
Expiration Date (if any):	11/20	Catalog #:	4400-10M671

Standard ID#:	M13844	Vendor:	CPI
Analyst:	NAH	Chemical:	Si 1000 mg/L
Date Received:	06/11/2019	Lot #:	175213-60
Expiration Date (if any):	11/2020	Catalog #:	S4400-1000504F

		Instrument:	GFAA
Standard Log #:	M13838	Standard:	LODW/LOQW Ag Spiking Sol'n
Analyst:	MDS	Concentrations:	10 ug/L (Ag)
Prep Date:	06/07/2019	Expiration Date:	10/2019
Prep:	Into a 100 mL volumetric flask, pipetted **0.1 mL** of Ag (1000mg/L) M13458 and brought to volume with Milli-Q H_2O to make a 1000 ug/L Ag std. Into a 1 L volumetric flask, pipetted **10 mL** of Ag (*1000 ug/L*) std. and brought to volume with Milli-Q H_2O. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*0.2 ug/L*) and **2 mL** spiking solution for LOQ (*0.4 ug/L*)		

		Instrument:	GFAA
Standard Log #:	M13836	Standard:	LODS/LOQS Spiking Sol'n
Analyst:	MDS	Concentrations:	60 ug/L (Sb) 160 ug/L (As,Se) 40 ug/L (Pb) 50 ug/L (Tl)
Prep Date:	06/07/2019	Expiration Date:	07/2019
Prep:	Into a 200 mL volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. **1.2 mL** of Sb (1000 mg/L) M13459 **3.2 mL** of As (1000 mg/L) M13392 **3.2 mL** of Se (1000 mg/L) M13460 **0.08 mL** of Pb (10,000 mg/L) M13615 **1.0 mL** of Tl (1000 mg/L) M13583 From this diluted standard solution, pipetted **10 mL** into a 1 L volumetric flask and brought up to volume with Milli-Q H_2O to make the spiking solution. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (1.2 *ug/L* Sb, *3.2 ug/L* As, *3.2 ug/L* Se, *0.8 ug/L* Pb, *1 ug/L* Tl) and **2 mL** spiking solution for LOQ (2.4 *ug/L* Sb, *6.4 ug/L* As, *6.4 ug/L* Se, *1.6 ug/L* Pb, *2 ug/L* Tl)		

		Instrument:	GFAA
Standard Log #:	M13837	Standard:	LODW/LOQW Spiking Sol'n
Analyst:	MDS	Concentrations:	150 ug/L (Sb) 100 ug/L (As) 200 ug/L (Se) 45 ug/L (Pb) 40 ug/L (Tl)
Prep Date:	06/07/2019	Expiration Date:	07/2019
Prep:	Into a 100 mL volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. **1.5 mL** of Sb (1000 mg/L) M13459 **1.0 mL** of As (1000 mg/L) M13392 **2.0 mL** of Se (1000 mg/L) M13460 **0.045 mL** of Pb (10,000 mg/L) M13615 **0.4 mL** of Tl (1000 mg/L) M13583 From this diluted standard solution, pipetted **10 mL** into a 1 L volumetric flask and brought up to volume with Milli-Q H_2O to make the spiking solution. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*3 ug/L* Sb, *2 ug/L* As, *4 ug/L* Se, *0.9 ug/L* Pb, *0.8 ug/L* Tl) and **2 mL** spiking solution for LOQ (*6 ug/L* Sb, *4 ug/L* As, *8 ug/L* Se, *1.8 ug/L* Pb, *1.6 ug/L* Tl)		

		Instrument:	CETAC
Standard Log #:	M13835	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	06/06/2019	Expiration Date:	06/06/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	ICP 6500
Standard Log #:	M13832	Standard:	CCV1
Analyst:	NAH	Concentrations:	**5000 µg/L** Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn **500 µg/L** Ag, Be, Cd
Prep Date:	06/03/2019	Expiration Date:	02/20
Prep:	Into a 1 L volumetric flask, pipetted **50 mL** Custom Assurance Standard #23 XCTWI-5-500 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13741 and **5.0 mL** of Custom Assurance Std. #3 XCTWI-4-500 (100 mg/L Ag, Be, Cd) M13827 and brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M13833	Standard:	CCV2
Analyst:	NAH	Concentrations:	**500 µg/L** Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn **50 µg/L** Ag, Be, Cd
Prep Date:	06/03/2019	Expiration Date:	02/20
Prep:	Into a 1 L volumetric flask, pipetted **5 mL** Custom Assurance Standard #23 XCTWI-5-500 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13741 and **0.5 mL** of Custom Assurance Std. #3 XCTWI-4-500 (100 mg/L Ag, Be, Cd) M13827 and brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M13834	Standard:	ICSAB
Analyst:	NAH	Concentrations:	**500,000 ug/L** Al, Ca, Fe, Mg **500 ug/L** Ag, As, Ba, Be, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Sb, Se, Tl, V, Zn
Prep Date:	06/03/2019	Expiration Date:	02/20
Prep:	Into a 500 mL volumetric flask, pipetted **50 mL** Interferents A Standard ((5000 mg/L Al, Ca, Mg) (2000 mg/L Fe)) M13738, **15 mL** Fe (10,000 mg/L) M13751, **2.5 mL** of Custom Assurance Std. #3 (100 mg/L Ag, Be, Cd) M13827 and **2.5 mL** Custom Assurance Std. #23 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13741 and brought up to volume with milli-Q H_2O.		

		Instrument:	CETAC
Standard Log #:	M13830	Reagent:	Stannous Chloride Solution
Analyst:	LJF		
Prep Date:	06/03/2019	Expiration Date:	12/03/2019
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.676 and dissolved **100 g** Stannous chloride M13648 and brought up to volume.		

		Instrument:	ICP 6500
Standard Log #:	M13831	Standard:	ICAL
Analyst:	NAH	Concentrations:	0.25, 0.5, 1, 5, 10, 20, 50, 100, 1000, 10,000, 100k, 100,000, 500,000 and 1000k (ug/L)
Prep Date:	06/03/2019	Expiration Date:	02/20
Prep:	Using 1 L volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (5% HNO_3, 5% HCl) *1000 ug/L Std.* - **10 mL** of Custom Assurance Std. #23 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13741, **10 mL** of Custom Assurance Std. #3 (100 mg/L Ag, Be, Cd) M13827 and **1 mL** of Si (1000 mg/L) M13810 and 1 mL M13703 Ce *0.25 ug/L Std.* - **0.25 mL** of the 1000 ug/L Std. *0.5 ug/L Std.* - **0.5 mL** of the 1000 ug/L Std. *1 ug/L Std.* - **1 mL** of the 1000 ug/L Std. *5 ug/L Std.* - **5 mL** of the 1000 ug/L Std. *10 ug/L Std.* - **10 mL** of the 1000 ug/L Std. *20 ug/L Std.* - **20 mL** of the 1000 ug/L Std. *50 ug/L Std.* - **50 mL** of the 1000 ug/L Std. *100 ug/L Std.* - **1 mL** of Custom Assurance Std. (CAS) #23 and **1 mL** of CAS #3 *10,000 ug/L Std.* - **100 mL** CAS #23, **100 mL** CAS #3 and **1 mL** of K (10,000 mg/L) M13811. *100k ug/L Std.* - **10 mL** of Cu (10,000 mg/L) M13618, **10 mL** of Mn (10,000 mg/L) M13616, **10 mL** of Cr (10,000 mg/L) M13617, **10 mL** Pb (10,000 mg/L) M13610, **10 mL** of Zn (10,000 mg/L) M13615 and **10 mL** of Na (10,000 mg/L) M13691. *100,000 ug/L Std.* - **10 mL** of Mg (10,000 mg/L) M13752, **10 mL** of Fe (10,000 mg/L) M13751, **10 mL** of Ca (10,000 mg/L) M13690 and **10 mL** Al (10,000 mg/L) M13693. *500,000 ug/L Std.* - **50 mL** of Mg (10,000 mg/L), **50 mL** of Fe (10,000 mg/L), **50 mL** of Ca (10,000 mg/L) and **50 mL** of Al (10,000 mg/L) *1000k ug/L Std.* - **100 mL** of Mg (10,000 mg/L), **100 mL** of Fe (10,000 mg/L), **100 mL** of Ca (10,000 mg/L) and **100 mL** of Al (10,000 mg/L)		

		Instrument:	CETAC
Standard Log #:	M13829	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	05/31/2019	Expiration Date:	05/31/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13828	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	05/30/2019	Expiration Date:	05/30/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

Standard ID#:	M13827	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	05-29-2019	Lot #:	XCTWI-4-500
Expiration Date (if any):	5/30/2020	Catalog #:	5-116AB

		Instrument:	CETAC
Standard Log #:	M13823	Standard:	Hg CCV
Analyst:	LJF	Concentration:	3.0 ug/L Hg
Prep Date:	05/24/2019	Expiration Date:	01/01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	CETAC
Standard Log #:	M13824	Reagent:	Stannous Chloride Solution
Analyst:	LJF		
Prep Date:	05/24/2019	Expiration Date:	11/24/2019
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.676 and dissolved **100 g** Stannous chloride M13648 and brought up to volume.		

Standard Log #:	M13825	Reagent:	Potassium Persulfate Solution
Analyst:	LJF		
Prep Date:	05/24/2019	Expiration Date:	11/24/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13059 and brought up to volume.		

Standard Log #:	M13826	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	05/24/2019	Expiration Date:	11/24/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13820	Standard:	Hg ICAL
Analyst:	LJF	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	05/24/2019	Expiration Date:	01/01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	CETAC
Standard Log #:	M13821	Standard:	Alt. Source Working Std.
Analyst:	LJF	Concentrations:	10,000 and 100 ug/L
Prep Date:	05/24/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M13822	Standard:	Hg ICV/LCS
Analyst:	LJF	Concentration:	3 ug/L
Prep Date:	05/24/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13734 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

Standard Log #:	M13818	Reagent:	TCLP 1 N HCL
Analyst:	BMM		
Prep Date:	05/22/2019	Expiration Date:	05/23/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, added 83 mL HCL AB.676 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13819	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	05/22/2019	Expiration Date:	05/22/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13817	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	05/16/2019	Expiration Date:	05/16/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

Standard Log #:	M13813	Instrument:	GFAA
Analyst:	MDS	Reagent:	Pd/Mg Matrix Modifier
Prep Date:	05/14/2019	Expiration Date:	09/30/2019
Prep:	Into a 50 mL volumetric flask, partially filled with milli-Q H_2O, pipetted **15 mL** Pd Modifier M13600 and **10 mL** Mg (10,000 mg/L) M13694 and brought up to volume.		

		Instrument:	GFAA
Standard Log #:	M13814	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	05/14/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13815	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	05/14/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13816	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	05/14/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13786 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

Standard Log #:	M13812	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	05/13/2019	Expiration Date:	11/13/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard ID#:	M13808	Vendor:	CPI
Analyst:	NAH	Chemical:	Na 10,000 ug/mL
Date Received:	05-09-2019	Lot #:	158237-121
Expiration Date (if any):	10/20	Catalog #:	4400-1000521-500

Standard ID#:	M13809	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10,000 ug/mL
Date Received:	05-09-2019	Lot #:	832313-110
Expiration Date (if any):	10/20	Catalog #:	4400-1000411-500

Standard ID#:	M13810	Vendor:	CPI
Analyst:	NAH	Chemical:	Si 1000 ug/mL
Date Received:	05-09-2019	Lot #:	175213-60
Expiration Date (if any):	10/20	Catalog #:	S400-1000504F

Standard ID#:	M13811	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10,000 ug/mL
Date Received:	05-09-2019	Lot #:	980507-14
Expiration Date (if any):	10/20	Catalog #:	4400-10M411-500

		Instrument:	CETAC
Standard Log #:	M13805	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	05/07/2019	Expiration Date:	05/07/2019
Prep:	Carefully mixed **3** parts HCl AB.677 with **1** part HNO_3 AB.676 in a hood.		

Standard Log #:	M13806	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	05/07/2019	Expiration Date:	05/07/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13750. Dilute to 20 L and mix.		

Standard Log #:	M13807	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	05/07/2019	Expiration Date:	05/07/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13750. Dilute to 20 L and mix.		

MRL BASE STD M13804 Analyst NAH

Prep Date 05/07/2019

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	(ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L	Expiration Date
Ag	20	M13458	1000	1	10/19
Al	400	M13611	10000	2	3/20
Ba	10	M13457	1000	0.5	10/19
Be	4	M13579	1000	0.2	2/20
Cd	5	M13570	1000	0.25	1/20
Co	10	M13575	1000	0.5	1/20
Cr	10	M13617	10000	0.05	3/20
Cu	10	M13618	10000	0.05	3/20
Mg	500	M13694	10000	2.5	6/20
Mn	10	M13616	10000	0.05	3/20
Mo	10	M13697	1000	0.5	6/20
Ni	10	M13569	1000	0.5	1/20
Pb	10	M13615	10000	0.05	3/20
Sb	20	M13579	1000	1	10/19
V	10	M13578	1000	0.5	2/20
Zn	10	M13610	10000	0.05	3/20
K	1000	M13755	10000	5	9/20
Na	1000	M13691	10000	5	6/20
As	20	M13753	1000	1	10000 std 0.1, 9/20
Ca	500	M13692	10000	2.5	6/20
Fe	300	M13695	10000	1.5	6/20
Se	20	M13460	1000	1	10/19
Tl	20	M13583	1000	1	2/20
Si	100	M13754	1000	5	9/20
B	20	M13531	1000	1	12/19
Li	20	M13577	1000	1	2/20
W	50	xxxx	1000	2.5	xxxx
Ti	10	M13573	1000	0.5	1/20
Sr	10	M13580	1000	0.5	2/20
Sn	50	M13572	1000	2.5	1/20
S	300	M13604	10000	1.5	3/20

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

Expiration Date: 10/19

		Instrument:	CETAC
Standard Log #:	M13800	Reagent:	Stannous Chloride Solution
Analyst:	LJF		
Prep Date:	05/06/2019	Expiration Date:	11/06/2019
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.676 and dissolved **100 g** Stannous chloride M13648 and brought up to volume.		

		Instrument:	ICP 6000
Standard Log #:	M13801	Standard:	B&Si ICAL
Analyst:	MDS	Concentrations:	50, 200, 1000, 2000 and 10,000 ug/L (B, Si)
Prep Date:	05/06/2019	Expiration Date:	12/2019
Prep:	Into five, 1 L volumetric flasks, pipetted the following from stock standards B (1000 mg/L) M13531 and Si (1000 mg/L) M13731 and brought up to volume using milli-Q H_2O. *50 ug/L std.* - **0.05 mL** of each *200 ug/L std.* - **0.2 mL** of each *1000 ug/L std.* -**1.0 mL** of each, also used for Continuing Calibration Verification *2000 ug/L std.* - **2.0 mL** of each *10,000 ug/L std.* -**10 mL** of each		

		Instrument:	ICP 6000
Standard Log #:	M13802	Standard:	B&Si ICV
Analyst:	MDS	Concentrations:	1000 ug/L (B, Si)
Prep Date:	05/06/2019	Expiration Date:	02/28/2020
Prep:	Into a 1 L volumetric flask, pipetted **10 mL** of Custom Assurance Std. #23 (100 mg/L Al, As, **B**, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13741 and **1.0 mL** Si (1000 mg/L) M13754 and brought up to volume using milli-Q H_2O.		

		Instrument:	ICP 6000
Standard Log #:	M13803	Standard:	B & Si ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (B,Si)
Prep Date:	05/06/2019	Expiration Date:	09/30/2019
Prep:	Into a 100 mL volumetric flask, pipetted **10 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13635, **0.05 mL** of B (1000 µg/mL) M13531, **0.05 mL** of Si (1000 µg/mL) M13731 and **3 mL** of Fe (10,000 mg/L) M13609 and brought up to volume using Milli-Q H_2O.		

		Instrument:	ICP 6000
Standard Log #:	M13798	Standard:	L2 ICV
Analyst:	MDS	Concentrations:	1000 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	05/03/2019	Expiration Date:	01/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of the following and brought up to volume using milli-Q H_2O. (0.5% HNO_3, 0.5% HCl) Li (1000 µg/mL) M13577 Sn (1000 µg/mL) M13572 Sr (1000 µg/mL) M13580 Ti (1000 µg/mL) M13573 W (1000 µg/mL) MXXXXX		

		Instrument:	ICP 6000
Standard Log #:	M13799	Standard:	List 2 MRL/ICVLL Prep Solution
Analyst:	MDS	Concentrations:	5000 µg/L (W) 1000 µg/L (Li, Sn) 500 µg/L (Ti, Sr)
Prep Date:	05/03/2019	Expiration Date:	01/2020

Prep:

Analyte	MRL/ICVLL Conc. (µg/L)	Standard ID	Std. Conc. (µg/mL)	Volume (mL) Pipetted into 1 L	Expiration Date
Li	20/60	M13577	1000	1	02/2020
W	100/300	MXXXXX	1000	5	XX/XXXX
Ti	10/30	M13573	1000	0.5	01/2020
Sr	10/30	M13580	1000	0.5	02/2020
Sn	20/60	M13572	1000	1	01/2020

Pipette **10 mL** into a 500 mL volumetric flask to create a working MRL std. or **1 mL** into a 50 mL digestion tube for a digested MRL standard. Pipette **30 mL** into 500 mL for a working ICVLL std. or **3 mL** into a 50 mL digestion tube for a digested ICVLL standard.

(0.5% HNO_3, 0.5% HCl)

		Instrument:	CETAC
Standard Log #:	M13795	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	05/03/2019	Expiration Date:	05/03/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	ICP
Standard Log #:	M13796	Standard:	L2 ICAL
Analyst:	MDS	Concentrations:	1 (µg/L) 10 (µg/L) 100 (µg/L) 1000 (µg/L) 10,000 (µg/L)
Prep Date:	05/03/2019	Expiration Date:	02/28/2020
Prep:	Standard Conc. (ug/L) — Pipette the following: 1 — **0.01 mL** of Custom Assurance Standard XCTWI-5-500 M13741 and **0.001 mL** W (1000 µg/mL) MXXXXX into 1L = *1 µg/L* 10 — **0.10 mL** of Custom Assurance Standard XCTWI-5-500 M13741 and **0.01 mL** W (1000 µg/mL) MXXXXX into 1L = *10 µg/L* 100 — **1 mL** of Custom Assurance Standard XCTWI-5-500 M13741 and **0.1 mL** W (1000 µg/mL) MXXXXX into 1L = *100 µg/L* 1000 (CCV) — **2 mL** of Custom Assurance Standard XCTWI-5-500 M13741 and **0.2 mL** W (1000 µg/mL) MXXXXX into 200mL = *1000 µg/L* 10000 — **20 mL** of Custom Assurance Standard XCTWI-5-500 M13741 and **2 mL** W (1000 µg/mL) MXXXXX into 200mL = *10000 µg/L*		

		Instrument:	ICP 6000
Standard Log #:	M13797	Standard:	List 2 ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	05/03/2019	Expiration Date:	09/30/2019
Prep:	Into a 200 mL volumetric flask, pipetted **20 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13635, **6 mL** of Fe (10,000 mg/L) M13609, **0.1 mL** of Li (1000 µg/mL) M13577, **0.1 mL** of Sn (1000 µg/mL) M13572, **0.1 mL** of Sr (1000 µg/mL) M13580, **0.1 mL** of Ti (1000 µg/mL) M13573, and **0.1 mL** of W (1000 µg/mL) MXXXXX and brought up to volume using Milli-Q H_2O. (0.5% HNO_3, 0.5% HCl)		

Standard Log #:	M13793	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	05/02/2019	Expiration Date:	11/02/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13793 and brought up to volume.		

Standard Log #:	M13794	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	LJF		
Prep Date:	05/02/2019	Expiration Date:	11/02/2019
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13511 and **60 g** hydroxylamine sulfate M13727 and brought up to volume.		

Standard ID#:	M13790	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	Y 10000 mg/L
Date Received:	04/29/2019	Lot #:	1833905
Expiration Date (if any):	10/31/2020	Catalog #:	HP10M67-1

Standard ID#:	M13791	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	04/29/2019	Lot #:	51-239CR
Expiration Date (if any):	02/28/2020	Catalog #:	XSPIKE-1-250

		Instrument:	CETAC
Standard Log #:	M13792	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	04/29/2019	Expiration Date:	04/29/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

Standard ID#:	M13785	Vendor:	Inorganic Ventures
Analyst:	MDS	Chemical:	GFAA ICAL/CCV BASE STD
Date Received:	04/19/2019	Lot #:	P2-MEB678822
Expiration Date (if any):	04/19/2020	Catalog #:	CTI-SPK-1

Standard ID#:	M13786	Vendor:	Inorganic Ventures
Analyst:	MDS	Chemical:	GFAA ICV/SPIKE BASE STD
Date Received:	04/19/2019	Lot #:	P2-MEB678821
Expiration Date (if any):	04/19/2020	Catalog #:	CTI-GFCAL-1

		Instrument:	GFAA
Standard Log #:	M13787	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	04/19/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q H_2O. ($1\% HNO_3$)		

		Instrument:	GFAA
Standard Log #:	M13788	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	04/19/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q DI H_2O. ($1\% HNO_3$)		

		Instrument:	GFAA
Standard Log #:	M13789	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	04/19/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13786 and brought to volume with Milli-Q DI H_2O. ($1\% HNO_3$)		

Standard Log #:	M13782	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	04/18/2019	Expiration Date:	04/18/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13750. Dilute to 20 L and mix.		

Standard ID#:	M13783	Vendor:	Alfa Aesar
Analyst:	MDS	Chemical:	GFAA 1% Nickel Nitrate Matrix Mod.
Date Received:	04/18/2019	Lot #:	9166009
Expiration Date (if any):	09/30/2020	Catalog #:	39043

Standard Log #:	M13784	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	04/18/2019	Expiration Date:	10/18/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M13780	Reagent:	Potassium Persulfate Solution
Analyst:	LJF		
Prep Date:	04/17/2019	Expiration Date:	10/17/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13059 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13781	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	04/17/2019	Expiration Date:	04/17/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.675 in a hood.		

		Instrument:	ICP 6000
Standard Log #:	M13779	Standard:	NaK ICSAB
Analyst:	MDS	Concentrations:	500 mg/L (Al, Ca, Fe, Mg) 100 mg/L (Na, K)
Prep Date:	04/12/2019	Expiration Date:	09/30/2019
Prep:	Into a 250 mL volumetric flask, pipetted **25 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13635, **2.5 mL** of K (10,000 mg/L) M13693, **2.5 mL** of Na (10,000 mg/L) M13605 and **7.5 mL** of Fe (10,000 mg/L) M13609 and brought up to volume using Milli-Q H_2O. (2% HNO_3)		

Standard Log #:	M13778	Reagent:	1:3 HNO3
Analyst:	MDS		
Prep Date:	04/11/2019	Expiration Date:	04/11/2020
Prep:	Carefully mixed **3** parts DI with **1** part HNO_3 AB.672 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13777	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	04/09/2019	Expiration Date:	04/09/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.675 in a hood.		

Standard Log #:	M13775	Instrument:	GFAA
Analyst:	MDS	Reagent:	Pd/Mg Matrix Modifier
Prep Date:	04/02/2019	Expiration Date:	09/30/2019
Prep:	Into a 50 mL volumetric flask, partially filled with milli-Q H_2O, pipetted **15 mL** Pd Modifier M13600 and **10 mL** Mg (10,000 mg/L) M13614 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13776	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	04/03/2019	Expiration Date:	04/03/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.675 in a hood.		

		Instrument:	GFAA
Standard Log #:	M13771	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	03/26/2019	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13772	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	03/26/2019	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13773	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	03/26/2019	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13498 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13774	Standard:	Sb ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 µg/L (Sb)
Prep Date:	03/26/2019	Expiration Date:	10/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.01 mL** of Antimony Stock Std. (1000 µg/mL Sb) M13459 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	CETAC
Standard Log #:	M13770	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	03/25/2019	Expiration Date:	03/25/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.675 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13768	Standard:	Hg CCV
Analyst:	LJF	Concentration:	3.0 ug/L Hg
Prep Date:	03/21/2019	Expiration Date:	01/01/2019
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	CETAC
Standard Log #:	M13769	Reagent:	Stannous Chloride Solution
Analyst:	LJF		
Prep Date:	03/21/2019	Expiration Date:	09/21/2019
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.676 and dissolved **100 g** Stannous chloride M13648 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13765	Standard:	Hg ICAL
Analyst:	LJF	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	03/21/2019	Expiration Date:	01/01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	CETAC
Standard Log #:	M13766	Standard:	Alt. Source Working Std.
Analyst:	LJF	Concentrations:	10,000 and 100 ug/L
Prep Date:	03/21/2019	Expiration Date:	04/30/2019
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13444 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M13767	Standard:	Hg ICV/LCS
Analyst:	LJF	Concentration:	3 ug/L
Prep Date:	03/21/2019	Expiration Date:	04/30/2019
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13444 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

Standard Log #:	M13763	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	03/20/2019	Expiration Date:	03/20/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13750. Dilute to 20 L and mix.		

Standard Log #:	M13764	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	03/20/2019	Expiration Date:	03/20/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13750. Dilute to 20 L and mix.		

		Instrument:	CETAC
Standard Log #:	M13761	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	03/19/2019	Expiration Date:	03/19/2019
Prep:	Carefully mixed **3** parts HCl AB.671 with **1** part HNO_3 AB.672 in a hood.		

Standard Log #:	M13762	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	LJF		
Prep Date:	03/19/2019	Expiration Date:	09/19/2019
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13511 and **60 g** hydroxylamine sulfate M13468 and brought up to volume.		

		Instrument:	ICP 6500
Standard Log #:	M13758	Standard:	ICSA4_Ni_Ti
Analyst:	NAH	Concentrations:	**10,000 ug/L** Ni and Ti
Prep Date:	03/13/2019	Expiration Date:	01/2020
Prep:	Into a 500 mL volumetric flask, pipetted 5.0 **mL** 1000 mg/L Ni M13569 5.0 **mL** 10000 mg/L Ti M13573 brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M13759	Standard:	ICSA2_Ba_Be_Sn
Analyst:	NAH	Concentrations:	**10,000 ug/L** Ba, Be, and Sn
Prep Date:	03/13/2019	Expiration Date:	10/2019
Prep:	Into a 500 mL volumetric flask, pipetted 5.0 **mL** 1000 mg/L Ba M13457 5.0 **mL** 10000 mg/L Be M13579 5.0 **mL** 10000 mg/L Sn M13572 brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M13760	Standard:	ICSA
Analyst:	NAH	Concentrations:	**500,000 ug/L** Al, Ca, Fe, Mg **10,000** V, Ce
Prep Date:	03/13/2019	Expiration Date:	09/2019
Prep:	Into a 500 mL volumetric flask, pipetted 50 **mL** Interference A std M13635 and 15 **mL** 10000 mg/L Fe M13609 5.0 **mL** 1000 mg/L V M13578 5.0 **mL** 1000 mg/L Ce M13203 and brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M13756	Standard:	ICSA1_Mn
Analyst:	NAH	Concentrations:	**10,000 ug/L** Mn
Prep Date:	03/13/2019	Expiration Date:	03/2020
Prep:	Into a 500 mL volumetric flask, pipetted 0.5 **mL** 10000 mg/L mn M13616 brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M13757	Standard:	ICSA3_Cr_Cu_Co_Mo
Analyst:	NAH	Concentrations:	**10,000 ug/L** Cr, Cu, Co and Mo
Prep Date:	03/13/2019	Expiration Date:	01/20
Prep:	Into a 500 mL volumetric flask, pipetted 0.5 **mL** 10000 mg/L Cr M13617 0.5 **mL** 10000 mg/L Cu M13618 5.0 **mL** 1000 mg/L Co M13575 5.0 **mL** 1000 mg/L Mo M13697 brought up to volume with milli-Q H_2O.		

Standard ID#:	M13751	Vendor:	CPI
Analyst:	NAH	Chemical:	Fe 10000 mg/L
Date Received:	03/12/2019	Lot #:	998527-19
Expiration Date (if any):	09/2020	Catalog #:	4400-10M261

Standard ID#:	M13752	Vendor:	CPI
Analyst:	NAH	Chemical:	Mg 10000 mg/L
Date Received:	03/12/2019	Lot #:	982185-12
Expiration Date (if any):	09/2020	Catalog #:	4400-10M311

Standard ID#:	M13753	Vendor:	CPI
Analyst:	NAH	Chemical:	As 10000 mg/L
Date Received:	03/12/2019	Lot #:	166531-32
Expiration Date (if any):	09/2020	Catalog #:	S4400--10M31

Standard ID#:	M13754	Vendor:	CPI
Analyst:	NAH	Chemical:	Si 1000 mg/L
Date Received:	03/12/2019	Lot #:	175213-60
Expiration Date (if any):	09/2020	Catalog #:	S4400-1000504F

Standard ID#:	M13755	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10000 mg/L
Date Received:	03/12/2019	Lot #:	172053-77
Expiration Date (if any):	09/2020	Catalog #:	4400-10M411

		Instrument:	CETAC
Standard Log #:	M13749	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	03/08/2019	Expiration Date:	03/08/2019
Prep:	Carefully mixed **3** parts HCl AB.671 with **1** part HNO_3 AB.672 in a hood.		

Standard Log #:	M13750	Reagent:	10N NaOH
Analyst:	BMM		
Prep Date:	03/08/2019	Expiration Date:	03/08/2020
Prep:	Into a 1 L volumetric flask, added **400 g** NaOH W45383 and brought up to volume.		

Standard ID#:	M13748	Vendor:	Potters Ind. LLC (Gainger)
Analyst:	NAH	Chemical:	Glass beads Extra Fine
Date Received:	03/07/2019	Lot #:	
Expiration Date (if any):	XXXXXX	Catalog #:	6ZC13

		Instrument:	ICP
Standard Log #:	M13746	Standard:	L2 ICAL
Analyst:	MDS	Concentrations:	1 (µg/L) 10 (µg/L) 100 (µg/L) 1000 (µg/L) 10,000 (µg/L)
Prep Date:	03/04/2019	Expiration Date:	09/30/2019

Prep:

Standard Conc. (ug/L)	Pipette the following:
1	**0.01 mL** of Custom Assurance Standard XCTWI-5-500 M13602 and **0.001 mL** W (1000 µg/mL) XXXXXX into 1L = *1 µg/L*
10	**0.10 mL** of Custom Assurance Standard XCTWI-5-500 M13602 and **0.01 mL** W (1000 µg/mL) XXXXXX into 1L = *10 µg/L*
100	**1 mL** of Custom Assurance Standard XCTWI-5-500 M13602 and **0.1 mL** W (1000 µg/mL) XXXXXX into 1L = *100 µg/L*
1000 (CCV)	**2 mL** of Custom Assurance Standard XCTWI-5-500 M13602 and **0.2 mL** W (1000 µg/mL) XXXXXX into 200mL = *1000 µg/L*
10000	**20 mL** of Custom Assurance Standard XCTWI-5-500 M13602 and **2 mL** W (1000 µg/mL) XXXXXX into 200mL = *10000 µg/L*

		Instrument:	ICP 6000
Standard Log #:	M13747	Standard:	List 2 ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	03/04/2019	Expiration Date:	09/30/2019

Prep:

Into a 200 mL volumetric flask, pipetted **20 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13635, **6 mL** of Fe (10,000 mg/L) M13609, **0.1 mL** of Li (1000 µg/mL) M13577, **0.1 mL** of Sn (1000 µg/mL) M13572, **0.1 mL** of Sr (1000 µg/mL) M13580, **0.1 mL** of Ti (1000 µg/mL) M13573, and **0.1 mL** of W (1000 µg/mL) XXXXXX and brought up to volume using Milli-Q H_2O.
(0.5% HNO_3, 0.5% HCl)

Standard Log #:	M13743	Instrument:	ICP 6500
Analyst:	NAH	Standard:	MDL DOD Metals Spiking soln
Prep Date:	02/26/2019	Expiration Date:	10/19

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	5	M13458	1000	0.25
Al	10	M13611	**10000**	0.05
As	20	M13392	1000	1
Ba	2	M13457	1000	0.1
Be	0.5	M13579	1000	0.025
Ca	50	M13692	**10000**	0.25
Cd	0.5	M13570	1000	0.025
Co	2.5	M13575	1000	0.125
Cr	5.0	M13617	**10000**	0.025
Cu	10	M13618	**10000**	0.05
Fe	40	M13609	**10000**	0.2
Mg	25	M13694	**10000**	0.125
Mn	5	M13616	**10000**	0.025
Mo	2.5	M13697	1000	0.125
Ni	5	M13569	1000	0.25
Pb	10	M13615	**10000**	0.05
Sb	20	M13459	1000	1
Se	20	M13460	1000	1
Tl	20	M13583	1000	1
V	5	M13578	1000	0.25
Zn	5	M13610	**10000**	0.025
Na	500	M13605	**10000**	2.5
K	500	M13733	**10000**	2.5
B	20	M13531	1000	1
Si	100	M13731	1000	5
S	200	M13604	**10000**	1
Li	20	M13537	1000	1
Sr	20	M13572	1000	1
Sn	20	M13580	1000	1
Ti	20	M13573	1000	1

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

		Instrument:	ICP 6000
Standard Log #:	M13740	Standard:	Sulfur ICV
Analyst:	MDS	Concentrations:	100,000 µg/L (S)
Prep Date:	02/26/2019	Expiration Date:	03/2020
Prep:	Into a 100 mL volumetric flask, pipetted **1.0 mL** of S (10,000 µg/mL) M13604 and brought up to volume using Milli-Q H_2O.		

Standard ID#:	M13741	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	02-26-2019	Lot #:	3-153AB
Expiration Date (if any):	02/28/2020	Catalog #:	XCTWI-5-500

Standard ID#:	M13742	Vendor:	IKOHE Blasting Media
Analyst:	NAH	Chemical:	Glass Neads X-fine-20u
Date Received:	02/26/2019	Lot #:	52-144
Expiration Date (if any):	*********	Catalog #:	UL-49/52-1544

		Instrument:	CETAC
Standard Log #:	M13739	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	02/22/2019	Expiration Date:	02/22/2019
Prep:	Carefully mixed **3** parts HCl AB.671 with **1** part HNO_3 AB.672 in a hood.		

Standard ID#:	M13734	Vendor:	SPEX CERTIPREP
Analyst:	LJF	Chemical:	HG 1000 ug/mL
Date Received:	02/21/2019	Lot #:	CL10-136HGY
Expiration Date (if any):	02/28/2020	Catalog #:	CLHG4-2Y

Standard Log #:	M13735	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	02/21/2019	Expiration Date:	02/21/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13736	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	02/21/2019	Expiration Date:	02/21/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard ID#:	M13737	Vendor:	SPEX CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Std
Date Received:	02/21/2019	Lot #:	51-117CR
Expiration Date (if any):	02/28/2020	Catalog #:	XSPIKE-1-250

Standard ID#:	M13738	Vendor:	SPEX CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Std
Date Received:	02/21/2019	Lot #:	2-230SGX
Expiration Date (if any):	02/28/2020	Catalog #:	INT-A1

		Instrument:	CETAC
Standard Log #:	M13730	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	02/14/2019	Expiration Date:	02/14/2019
Prep:	Carefully mixed **3** parts HCl AB.671 with **1** part HNO_3 AB.672 in a hood.		

Standard ID#:	M13731	Vendor:	CPI
Analyst:	NAH	Chemical:	Silicon 1000 ug/mL
Date Received:	02/14/2019	Lot #:	175213-60
Expiration Date (if any):	08/20	Catalog #:	S4400-1000504F

Standard ID#:	M13732	Vendor:	CPI
Analyst:	NAH	Chemical:	Yttrium 10000 ug/mL
Date Received:	02/14/2019	Lot #:	139448-54
Expiration Date (if any):	08/20	Catalog #:	4400-10M671

Standard ID#:	M13733	Vendor:	CPI
Analyst:	NAH	Chemical:	Potassium 10000 ug/mL
Date Received:	02/14/2019	Lot #:	172053-36
Expiration Date (if any):	08/20	Catalog #:	4400-10M411

Standard ID#:	M13727	Vendor:	FISHER
Analyst:	LJF	Chemical:	HYDROXYLAMINE SULFATE
Date Received:	02/08/2019	Lot #:	175511
Expiration Date (if any):		Catalog #:	H331-500

Standard ID#:	M13728	Vendor:	FISHER
Analyst:	LJF	Chemical:	SODIUM CHLORIDE
Date Received:	02/08/2019	Lot #:	186819
Expiration Date (if any):		Catalog #:	S271-500

Standard Log #:	M13729	Reagent:	Potassium Persulfate Solution
Analyst:	LJF		
Prep Date:	02/11/2019	Expiration Date:	08/11/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13059 and brought up to volume.		

Standard Log #:	M13724	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	02/07/2019	Expiration Date:	02/07/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13725	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	02/07/2019	Expiration Date:	02/07/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13726	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	02/07/2019	Expiration Date:	08/07/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13721	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	02/05/2019	Expiration Date:	02/05/2019
Prep:	Carefully mixed **3** parts HCl AB.671 with **1** part HNO_3 AB.672 in a hood.		

Standard Log #:	M13722	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	LJF		
Prep Date:	02/05/2019	Expiration Date:	08/05/2019
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13620 and **60 g** hydroxylamine sulfate M13468 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13723	Reagent:	Stannous Chloride Solution
Analyst:	LJF		
Prep Date:	02/05/2019	Expiration Date:	08/05/2019
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.671 and dissolved **100 g** Stannous chloride M13648 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13720	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	01/31/2019	Expiration Date:	01/31/2019
Prep:	Carefully mixed **3** parts HCl AB.671 with **1** part HNO_3 AB.672 in a hood.		

		Instrument:	GFAA
Standard Log #:	M13716	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	01/30/2019	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13717	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	01/30/2019	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13718	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	01/30/2019	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13498 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13719	Standard:	Sb ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 µg/L (Sb)
Prep Date:	01/30/2019	Expiration Date:	10/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.01 mL** of Antimony Stock Std. (1000 µg/mL Sb) M13459 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13713	Standard:	LODW/LOQW Ag Spiking Sol'n
Analyst:	MDS	Concentrations:	10 ug/L (Ag)
Prep Date:	01/29/2019	Expiration Date:	10/2019
Prep:	Into a 100 mL volumetric flask, pipetted **0.1 mL** of Ag (1000mg/L) M13458 and brought to volume with Milli-Q H_2O to make a 1000 ug/L Ag std. Into a 1 L volumetric flask, pipetted **10 mL** of Ag (*1000 ug/L*) std. and brought to volume with Milli-Q H_2O. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*0.2 ug/L*) and **2 mL** spiking solution for LOQ (*0.4 ug/L*)		

Standard ID#:	M13714	Vendor:	ACROS ORGANICS
Analyst:	LJF	Chemical:	POTASSIUM PERSULFATE
Date Received:	01/29/2019	Lot #:	A0391673
Expiration Date (if any):		Catalog #:	424185000

Standard ID#:	M13715	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	1/29/2019	Lot #:	51-013CR
Expiration Date (if any):	01/30/2020	Catalog #:	XCTWI-1-500

		Instrument:	GFAA
Standard Log #:	M13711	Standard:	LODS/LOQS Spiking Sol'n
Analyst:	MDS	Concentrations:	60 ug/L (Sb) 160 ug/L (As,Se) 40 ug/L (Pb) 50 ug/L (Tl)
Prep Date:	01/29/2019	Expiration Date:	07/2019
Prep:	Into a 200 mL volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. **1.2 mL** of Sb (1000 mg/L) M13459 **3.2 mL** of As (1000 mg/L) M13392 **3.2 mL** of Se (1000 mg/L) M13460 **0.08 mL** of Pb (10,000 mg/L) M13615 **1.0 mL** of Tl (1000 mg/L) M13583 From this diluted standard solution, pipetted **10 mL** into a 1 L volumetric flask and brought up to volume with Milli-Q H_2O to make the spiking solution. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (1.2 *ug/L* Sb, *3.2 ug/L* As, *3.2 ug/L* Se, *0.8 ug/L* Pb, *1 ug/L* Tl) and **2 mL** spiking solution for LOQ (2.4 *ug/L* Sb, *6.4 ug/L* As, *6.4 ug/L* Se, *1.6 ug/L* Pb, *2 ug/L* Tl)		

		Instrument:	GFAA
Standard Log #:	M13712	Standard:	LODW/LOQW Spiking Sol'n
Analyst:	MDS	Concentrations:	150 ug/L (Sb) 100 ug/L (As) 200 ug/L (Se) 45 ug/L (Pb) 40 ug/L (Tl)
Prep Date:	01/29/2019	Expiration Date:	07/2019
Prep:	Into a 100 mL volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. **1.5 mL** of Sb (1000 mg/L) M13459 **1.0 mL** of As (1000 mg/L) M13392 **2.0 mL** of Se (1000 mg/L) M13460 **0.045 mL** of Pb (10,000 mg/L) M13615 **0.4 mL** of Tl (1000 mg/L) M13583 From this diluted standard solution, pipetted **10 mL** into a 1 L volumetric flask and brought up to volume with Milli-Q H_2O to make the spiking solution. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*3 ug/L* Sb, *2 ug/L* As, *4 ug/L* Se, *0.9 ug/L* Pb, *0.8 ug/L* Tl) and **2 mL** spiking solution for LOQ (*6 ug/L* Sb, *4 ug/L* As, *8 ug/L* Se, *1.8 ug/L* Pb, *1.6 ug/L* Tl)		

		Instrument:	CETAC
Standard Log #:	M13710	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	01/22/2019	Expiration Date:	01/22/2019
Prep:	Carefully mixed **3** parts HCl AB.671 with **1** part HNO_3 AB.672 in a hood.		

		Instrument:	ICP 6000
Standard Log #:	M13709	Standard:	NaK ICSAB
Analyst:	MDS	Concentrations:	500 mg/L (Al, Ca, Fe, Mg) 100 mg/L (Na, K)
Prep Date:	01/10/2019	Expiration Date:	09/30/2019
Prep:	Into a 250 mL volumetric flask, pipetted **25 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13635, **2.5 mL** of K (10,000 mg/L) M13689, **2.5 mL** of Na (10,000 mg/L) M13605 and **7.5 mL** of Fe (10,000 mg/L) M13609 and brought up to volume using Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13705	Standard:	Na & K ICAL
Analyst:	MDS	Concentrations:	0.5, 1, 5, 10, 50, 100, and 200 mg/L (Na,K)
Prep Date:	01/10/2019	Expiration Date:	03/2020
Prep:	Into seven, 200 mL volumetric flasks, pipetted the following from Na (1000 µg/mL) M13607 and K (1000 µg/mL) M13606 and brought up to volume using milli-Q H_2O. (2% HNO_3) *0.5 mg/L std.* - **0.1 mL** of each *1.0 mg/L std.* - **0.2 mL** of each *5.0 mg/L std.* - **1.0 mL** of each *10 mg/L std.* - **2.0 mL** of each *50 mg/L std.* - **10 mL** of each *100 mg/L std.* -**20 mL** of each, also used for Continuing Calibration Verification *200 mg/L std.* - **40 mL** of each		

		Instrument:	ICP 6000
Standard Log #:	M13706	Standard:	Na,K MRL
Analyst:	MDS	Concentrations:	1 mg/L (Na,K)
Prep Date:	01/10/2019	Expiration Date:	03/2020
Prep:	Into a 500 mL volumetric flask, pipetted **0.5 mL** of Na (1000 µg/mL) M13607 and **0.5 mL** K (1000 µg/mL) M13606 and brought to volume with Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13707	Standard:	NaK ICV
Analyst:	MDS	Concentrations:	100 mg/L (Na, K)
Prep Date:	01/10/2019	Expiration Date:	03/2020
Prep:	Into a 250 mL volumetric flask, pipetted **2.5 mL** of K (10,000 mg/L) M13689 and Na (10,000 mg/L) M13605 and brought up to volume using Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13708	Standard:	Na,K ICVLL
Analyst:	MDS	Concentrations:	3 mg/L (Na,K)
Prep Date:	01/10/2019	Expiration Date:	03/2020
Prep:	Into a 500 mL volumetric flask, pipetted **0.15 mL** of Na (10,000 µg/mL) M13605 and **0.15 mL** K (10,000 µg/mL) M13689 and brought to volume with Milli-Q H_2O. (2% HNO_3)		

Standard Log #:	M13703	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	12/20/2018	Expiration Date:	12/20/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13704	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	12/20/2018	Expiration Date:	12/20/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13701	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	LJF		
Prep Date:	12/13/2018	Expiration Date:	06/13/2019
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13620 and **60 g** hydroxylamine sulfate M13468 and brought up to volume.		

Standard ID#:	M13696	Vendor:	CPI
Analyst:	NAH	Chemical:	Sulfur 10,000 mg/L
Date Received:	12/11/2018	Lot #:	167967-42
Expiration Date (if any):	06/20	Catalog #:	4400-10M544

Standard ID#:	M13697	Vendor:	CPI
Analyst:	NAH	Chemical:	Moybdenum 1000 mg/L
Date Received:	12/11/2018	Lot #:	169424-59
Expiration Date (if any):	06/20	Catalog #:	4400-1000343

Standard ID#:	M13698	Vendor:	CPI
Analyst:	NAH	Chemical:	Silicon 1000 mg/L
Date Received:	12/11/2018	Lot #:	175213-60
Expiration Date (if any):	06/20	Catalog #:	S4400-10005044F

Standard ID#:	M13699	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	12/11/2018	Lot #:	50-120CR
Expiration Date (if any):	12/30/2019	Catalog #:	XSPIKE-1-250

		Instrument:	CETAC
Standard Log #:	M13700	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	12/12/2018	Expiration Date:	12/12/2018
Prep:	Carefully mixed **3** parts HCl AB.668 with **1** part HNO_3 AB.669 in a hood.		

Standard ID#:	M13689	Vendor:	CPI
Analyst:	NAH	Chemical:	Potassium 10,000 mg/L
Date Received:	12/11/2018	Lot #:	169484-36
Expiration Date (if any):	06/20	Catalog #:	4400-10M11

Standard ID#:	M13690	Vendor:	CPI
Analyst:	NAH	Chemical:	Aluminum 10,000 mg/L
Date Received:	12/11/2018	Lot #:	169484-36
Expiration Date (if any):	06/20	Catalog #:	4400-10M11

Standard ID#:	M13691	Vendor:	CPI
Analyst:	NAH	Chemical:	Sodium 10,000 mg/L
Date Received:	12/11/2018	Lot #:	752887-32
Expiration Date (if any):	06/20	Catalog #:	4400-10M521

Standard ID#:	M13692	Vendor:	CPI
Analyst:	NAH	Chemical:	Calcium 10,000 mg/L
Date Received:	12/11/2018	Lot #:	855297-1
Expiration Date (if any):	06/20	Catalog #:	4400-10M91

Standard ID#:	M13693	Vendor:	CPI
Analyst:	NAH	Chemical:	Potassium 10,000 mg/L
Date Received:	12/11/2018	Lot #:	156651-78
Expiration Date (if any):	06/20	Catalog #:	4400-10M261

Standard ID#:	M13694	Vendor:	CPI
Analyst:	NAH	Chemical:	Magnesium 10,000 mg/L
Date Received:	12/11/2018	Lot #:	148250-72
Expiration Date (if any):	06/20	Catalog #:	4400-10M311

Standard ID#:	M13695	Vendor:	CPI
Analyst:	NAH	Chemical:	Iron 10,000 mg/L
Date Received:	12/11/2018	Lot #:	156651-78
Expiration Date (if any):	06/20	Catalog #:	4400-10M261

		Instrument:	GFAA
Standard Log #:	M13686	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	12/07/2018	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13687	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	12/07/2018	Expiration Date:	05/17/2018
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13688	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	12/07/2018	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13498 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

Standard Log #:	M13684	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	12/04/2018	Expiration Date:	06/04/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard ID#:	M13683	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	10000 mg/L
Date Received:	11/30/2018	Lot #:	1805105
Expiration Date (if any):	5/31/2020	Catalog #:	HP10M67-1

Standard Log #:	M13681	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3050 B&Si Spiking Solution
Prep Date:	11/29/2018	Expiration Date:	02/2020

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
B	52	M13531	1000	2.6
Si	192	M13394	1000	9.6

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

		Instrument:	CETAC
Standard Log #:	M13682	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	11/29/2018	Expiration Date:	11/29/2018

Prep: Carefully mixed **3** parts HCl AB.668 with **1** part HNO_3 AB.669 in a hood.

Standard Log #:	M13679	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3050 L2 Spiking Solution
Prep Date:	11/29/2018	Expiration Date:	02/2020

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
Li	14.4	M13517	1000	0.72
Sn	20	M13572	1000	1
Sr	3.2	M13586	1000	0.16
Ti	9.6	M13573	1000	0.48
W	24	xxxxxxxx	1000	1.2

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13680	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3010 B&Si Spiking Solution
Prep Date:	11/29/2018	Expiration Date:	07/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
B	16	M13531	1000	0.8
Si	200	M13394	1000	10

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13677	Instrument:	ICP 6500
Analyst:	NAH	Standard:	LOQ 3050 DOD Metals Spiking S
Prep Date:	11/29/2018	Expiration Date:	04/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	4	M13458	1000	0.2
Al	9.6	M13562	**10000**	0.048
As	32	M13392	1000	1.6
Ba	2	M13457	1000	0.1
Be	1.6	M13579	1000	0.08
Ca	56	M13324	**10000**	0.28
Cd	1.6	M13570	1000	0.08
Co	9.6	M13575	1000	0.48
Cr	5.6	M13617	**10000**	0.028
Cu	16	M13618	**10000**	0.08
Fe	72	M13463	**10000**	0.36
Mg	32	M13319	**10000**	0.16
Mn	6	M13616	**10000**	0.03
Mo	9.6	M13608	1000	0.48
Ni	4.8	M13569	1000	0.24
Pb	10	M13610	**10000**	0.05
Sb	32	M13459	1000	1.6
Se	16	M13460	1000	0.8
Tl	19	M13583	1000	0.95
V	3.2	M13578	1000	0.16
Zn	12	M13610	**10000**	0.06

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13676	Instrument:	ICP 6500
Analyst:	NAH	Standard:	LOQ 3010 DOD Metals Spiking S
Prep Date:	11/29/2018	Expiration Date:	04/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	4	M13458	1000	0.2
Al	36	M13462	**10000**	0.18
As	24	M13392	1000	1.2
Ba	1.8	M13457	1000	0.09
Be	0.6	M13579	1000	0.03
Ca	100	M13324	**10000**	0.5
Cd	2.0	M13570	1000	0.1
Co	4	M13575	1000	0.2
Cr	4	M13617	**10000**	0.02
Cu	7	M13618	**10000**	0.035
Fe	100	M13463	**10000**	0.5
Mg	40	M13319	**10000**	0.2
Mn	4	M13616	**10000**	0.02
Mo	7	M13608	1000	0.35
Ni	6	M13569	1000	0.2
Pb	4	M13610	**10000**	0.02
Sb	12	M13459	1000	0.6
Se	13	M13460	1000	0.65
Tl	20	M13583	1000	0.75
V	5	M13578	1000	0.25
Zn	10	M13610	**10000**	0.05

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

		Instrument:	CETAC
Standard Log #:	M13675	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	11/26/2018	Expiration Date:	11/26/2018
Prep:	Carefully mixed **3** parts HCl AB.668 with **1** part HNO_3 AB.669 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13671	Standard:	Hg CCV
Analyst:	LJF	Concentration:	3.0 ug/L Hg
Prep Date:	11/21/2018	Expiration Date:	01/01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	CETAC
Standard Log #:	M13672	Reagent:	Stannous Chloride Solution
Analyst:	LJF		
Prep Date:	11/21/2018	Expiration Date:	05/21/2019
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.668 and dissolved **100 g** Stannous chloride M13648 and brought up to volume.		

Standard Log #:	M13673	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	11/21/2018	Expiration Date:	05/21/2018
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M13674	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	LJF		
Prep Date:	11/21/2018	Expiration Date:	05/21/2018
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13620 and **60 g** hydroxylamine sulfate M13468 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13668	Standard:	Hg ICAL
Analyst:	LJF	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	11/21/2018	Expiration Date:	01/01/2019
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	CETAC
Standard Log #:	M13669	Standard:	Alt. Source Working Std.
Analyst:	LJF	Concentrations:	10,000 and 100 ug/L
Prep Date:	11/21/2018	Expiration Date:	04/30/2019
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13444 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M13670	Standard:	Hg ICV/LCS
Analyst:	LJF	Concentration:	3 ug/L
Prep Date:	11/21/2018	Expiration Date:	04/30/2019
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13444 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	ICP
Standard Log #:	M13666	Standard:	As Pb ICV1
Analyst:	MDS	Concentrations:	5000 ug/L (As,Pb)
Prep Date:	11/19/2018	Expiration Date:	07/2019
Prep:	Into a 1 L volumetric flask, pipetted **5 mL** of As (1000 mg/L) M13392 and **0.5 mL** Pb (10,000 mg/L) M13615 and brought to volume with Milli-Q H_2O. (2% HNO_3, 2% HCl)		

		Instrument:	CETAC
Standard Log #:	M13667	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	11/19/2018	Expiration Date:	11/19/2018
Prep:	Carefully mixed **3** parts HCl AB.668 with **1** part HNO_3 AB.669 in a hood.		

Standard Log #:	M13664	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	11/16/2018	Expiration Date:	11/16/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13665	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	11/16/2018	Expiration Date:	11/16/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

		Instrument:	CETAC
Standard Log #:	M13659	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	11/01/2018	Expiration Date:	11/01/2018
Prep:	Carefully mixed **3** parts HCl AB.668 with **1** part HNO_3 AB.669 in a hood.		

		Instrument:	ICP 6500
Standard Log #:	M13660	Standard:	ICSA
Analyst:	NAH	Concentrations:	**500,000 ug/L** Al, Ca, Fe, Mg
Prep Date:	11/01/2018	Expiration Date:	09/19
Prep:	Into a 500 mL volumetric flask, pipetted **50 mL** Interferents A Standard ((5000 mg/L Al, Ca, Mg) (2000 mg/L Fe)) M13635 and **15 mL** Fe (10000 mg/L) M13609 and brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M13661	Standard:	ICV Std.
Analyst:	NAH	Concentrations:	**12,000 mg/L** Al **10,000 mg/L** Ca, Mg **5000 mg/L** Fe **2000 mg/L** As, Ba, Se, Tl **500 mg/L** B, Co, Li, Mn, Mo, Ni, Pb, Sb, Sn, Sr, Ti, V, Zn **250 mg/L** Cu **200 mg/L** Cr **50 mg/L** Ag, Be, Cd
Prep Date:	11/06/2018	Expiration Date:	10/19
Prep:	Into a 1 L volumetric flask, pipetted the following and brought up to volume with milli-Q H_2O. **10 mL** Custom Assurance Standard #18 ((200 mg/L Al, As, Ba, Se, Tl) (100 mg/L Fe) (50 mg/L Co, Mn, Ni, Pb, Sb, V, Zn) (25 mg/L Cu) (20 mg/L Cr) (5 mg/L Ag, Be, Cd)) M13637, **2 mL** Interferents A Standard ((5000 mg/L Al, Ca, Mg) (2000 mg/L Fe)) M13635, **0.5 mL** Mo (1000 mg/L) M13608, **0.5 mL** B (1000 mg/L) M13531, **0.5 mL** Sr (1000 mg/L) M13580, **0.5 mL** Li (1000 mg/L) M13577, **0.5 mL** Sn (1000 mg/L) M13572, **0.5 mL** Ti (1000 mg/L) M13573, **0.5 mL** W (1000 mg/L) Mxxxxx, **0.5 mL** Si (1000 mg/L) M13571, **0.5 mL** S (10000 mg/L) M13530, **0.5 mL** K (10000 mg/L) M13612, and **0.5 mL** K (10000 mg/L)		

		Instrument:	ICP 6000
Standard Log #:	M13657	Standard:	L2 ICV
Analyst:	MDS	Concentrations:	1000 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	11/2/2018	Expiration Date:	01/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of the following and brought up to volume using milli-Q H_2O. (0.5% HNO_3, 0.5% HCl) Li (1000 µg/mL) M13577 Sn (1000 µg/mL) M13572 Sr (1000 µg/mL) M13580 Ti (1000 µg/mL) M13573 W (1000 µg/mL) XXX		

		Instrument:	ICP 6000
Standard Log #:	M13658	Standard:	List 2 MRL/ICVLL Prep Solution
Analyst:	MDS	Concentrations:	5000 µg/L (W) 1000 µg/L (Li, Sn) 500 µg/L (Ti, Sr)
Prep Date:	11/2/2018	Expiration Date:	01/2020

Prep:

Analyte	MRL/ICVLL Conc. (µg/L)	Standard ID	Std. Conc. (µg/mL)	Volume (mL) Pipetted into 1 L	Expiration Date
Li	20/60	M13577	1000	1	02/2020
W	100/300	XXX	1000	5	XXX
Ti	10/30	M13573	1000	0.5	01/2020
Sr	10/30	M13580	1000	0.5	02/2020
Sn	20/60	M13572	1000	1	01/2020

Pipette **10 mL** into a 500 mL volumetric flask to create a working MRL std. or **1 mL** into a 50 mL digestion tube for a digested MRL standard. Pipette **30 mL** into 500 mL for a working ICVLL std. or **3 mL** into a 50 mL digestion tube for a digested ICVLL standard.

(0.5% HNO_3, 0.5% HCl)

		Instrument:	ICP
Standard Log #:	M13655	Standard:	L2 ICAL
Analyst:	MDS	Concentrations:	1 (µg/L) 10 (µg/L) 100 (µg/L) 1000 (µg/L) 10,000 (µg/L)
Prep Date:	11/2/2018	Expiration Date:	02/28/2019
Prep:	Standard Conc. (ug/L)	Pipette the following:	
	1	**0.01 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **0.001 mL** W (1000 µg/mL) xxx into 1L = *1 µg/L*	
	10	**0.10 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **0.01 mL** W (1000 µg/mL) xxx into 1L = *10 µg/L*	
	100	**1 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **0.1 mL** W (1000 µg/mL) xxx into 1L = *100 µg/L*	
	1000 (CCV)	**2 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **0.2 mL** W (1000 µg/mL) xxx into 200mL = *1000 µg/L*	
	10000	**20 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **2 mL** W (1000 µg/mL) xxx into 200mL = *10000 µg/L*	

		Instrument:	ICP 6000
Standard Log #:	M13656	Standard:	List 2 ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	11/2/2018	Expiration Date:	02/28/2019
Prep:	Into a 200 mL volumetric flask, pipetted **20 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13410, **6 mL** of Fe (10,000 mg/L) M13529, **0.1 mL** of Li (1000 µg/mL) M13577, **0.1 mL** of Sn (1000 µg/mL) M13572, **0.1 mL** of Sr (1000 µg/mL) M13580, **0.1 mL** of Ti (1000 µg/mL) M13573, and **0.1 mL** of W (1000 µg/mL) XXX and brought up to volume using Milli-Q H_2O. (0.5% HNO_3, 0.5% HCl)		

		Instrument:	GFAA
Standard Log #:	M13651	Standard:	Sb ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 µg/L (Sb)
Prep Date:	10/29/2018	Expiration Date:	10/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.01 mL** of Antimony Stock Std. (1000 µg/mL Sb) M13459 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13652	Standard:	NaK ICV
Analyst:	MDS	Concentrations:	100 mg/L (Na, K)
Prep Date:	10/29/2018	Expiration Date:	10/2019
Prep:	Into a 250 mL volumetric flask, pipetted **2.5 mL** of K (10,000 mg/L) M13612 and Na (10,000 mg/L) M13461 and brought up to volume using Milli-Q H_2O. (2% HNO_3)		

Standard ID#:	M13653	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance std
Date Received:	10/29/2018	Lot #:	2-036AB
Expiration Date (if any):	10/30/2019	Catalog #:	XCTWI-1-500

		Instrument:	ICP 6000
Standard Log #:	M13648	Standard:	B&Si ICAL
Analyst:	MDS	Concentrations:	50, 200, 1000, 2000 and 10,000 ug/L (B, Si)
Prep Date:	10/26/2018	Expiration Date:	07/2019
Prep:	Into five, 1 L volumetric flasks, pipetted the following from stock standards B (1000 mg/L) M13390 and Si (1000 mg/L) M13528 and brought up to volume using milli-Q H_2O. *50 ug/L std.* - **0.05 mL** of each *200 ug/L std.* - **0.2 mL** of each *1000 ug/L std.* -**1.0 mL** of each, also used for Continuing Calibration Verification *2000 ug/L std.* - **2.0 mL** of each *10,000 ug/L std.* -**10 mL** of each		

		Instrument:	ICP 6000
Standard Log #:	M13649	Standard:	B&Si ICV
Analyst:	MDS	Concentrations:	1000 ug/L (B, Si)
Prep Date:	10/26/2018	Expiration Date:	07/30/2019
Prep:	Into a 1 L volumetric flask, pipetted **10 mL** of Custom Assurance Std. #23 (100 mg/L Al, As, **B**, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13576 and **1.0 mL** Si (1000 mg/L) M13571 and brought up to volume using milli-Q H_2O.		

		Instrument:	ICP 6000
Standard Log #:	M13650	Standard:	B & Si ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (B,Si)
Prep Date:	10/27/2018	Expiration Date:	02/28/2019
Prep:	Into a 100 mL volumetric flask, pipetted **10 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13410 , **0.05 mL** of B (1000 µg/mL) M13390 , **0.05 mL** of Si (1000 µg/mL) M13528 and **3 mL** of Fe (10,000 mg/L) M13529 and brought up to volume using Milli-Q H_2O.		

		Instrument:	CETAC
Standard Log #:	M13645	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	10/24/2018	Expiration Date:	10/24/2018
Prep:	Carefully mixed **3** parts HCl AB.668 with **1** part HNO_3 AB.669 in a hood.		

Standard ID#:	M13646	Vendor:	Alfa Aesar
Analyst:	MDS	Chemical:	1% Nickel Nitrate Matrix Modifier
Date Received:	10/25/2018	Lot #:	8137324
Expiration Date (if any):	12/31/2019	Catalog #:	39043

Standard ID#:	M13647	Vendor:	LabChem
Analyst:	LJF	Chemical:	STANNOUS CHLORIDE
Date Received:	10/24/2018	Lot #:	H226-02
Expiration Date (if any):		Catalog #:	LC251701

Standard Log #:	M13643	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	10/24/2018	Expiration Date:	10/24/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13644	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	10/24/2018	Expiration Date:	10/24/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

		Instrument:	GFAA
Standard Log #:	M13639	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	10/24/2018	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13640	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	10/24/2018	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13641	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	10/24/2018	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13498 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

Standard Log #:	M13642	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	10/24/2018	Expiration Date:	10/24/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13638	Standard:	GFAA Instrument Check
Analyst:	MDS	Final Concentration:	10 µg/L As 6 µg/L Pb 12 µg/L Sb 20 µg/L Se 14 µg/L Tl 0.6 µg/L Ag
Prep Date:	10/23/2018	Expiration Date:	07/2019

Into six, 100 mL volumetric flasks, add the following and bring up to volume with milli-Q H_2O.

Element	Volume Pipetted (mL)	Standard Conc. (µg/mL)	Standard ID	New Conc. (µg/L)
As	1	1000	M13392	10,000
Pb	0.1	10,000	M13615	10,000
Tl	1	1000	M13583	10,000
Se	1	1000	M13460	10,000
Sb	1	1000	M13459	10,000
Ag	0.1	1000	M13458	1000

Into a 1 L volumetric flask, add the following and bring up to volume with Milli-Q H_20. (1% HNO_3)

Element	Volume Pipetted (mL)	Standard Conc. (µg/L)	New Conc. (µg/L)
As	1.0	10,000	10
Pb	0.6	10,000	6
Tl	1.4	10,000	14
Se	2.0	10,000	20
Sb	1.2	10,000	12
Ag	0.6	1000	0.6

Standard ID#:	M13634	Vendor:	CPI
Analyst:	NAH	Chemical:	Yttrium 10,0000 mg/L
Date Received:	10/18/2018	Lot #:	139448-54
Expiration Date (if any):	04/20	Catalog #:	4400-10m671

Standard ID#:	M13635	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Interference A
Date Received:	10/18/2018	Lot #:	2-230sgx
Expiration Date (if any):	09/30/2019	Catalog #:	INT-A1

		Instrument:	CETAC
Standard Log #:	M13636	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	10/18/2018	Expiration Date:	10/18/2018
Prep:	Carefully mixed **3** parts HCl AB.668 with **1** part HNO_3 AB.665 in a hood.		

Standard ID#:	M13637	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance standard
Date Received:	10/18/2018	Lot #:	50-0007CR
Expiration Date (if any):	10/30/2019	Catalog #:	XSPIKE-1-250

		Instrument:	CETAC
Standard Log #:	M13633	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	10/16/2018	Expiration Date:	10/16/2018
Prep:	Carefully mixed **3** parts HCl AB.668 with **1** part HNO_3 AB.665 in a hood.		

		Instrument:	GFAA
Standard Log #:	M13632	Standard:	LODW/LOQW Ag Spiking Sol'n
Analyst:	MDS	Concentrations:	10 ug/L (Ag)
Prep Date:	10/16/2018	Expiration Date:	10/2019
Prep:	Into a 100 mL volumetric flask, pipetted **0.1 mL** of Ag (1000mg/L) M13458 and brought to volume with Milli-Q H_2O to make a 1000 ug/L Ag std. Into a 1 L volumetric flask, pipetted **10 mL** of Ag (*1000 ug/L*) std. and brought to volume with Milli-Q H_2O. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*0.2 ug/L*) and **2 mL** spiking solution for LOQ (*0.4 ug/L*)		

Standard Log #:	M13627	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	10/03/2018	Expiration Date:	10/03/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13628	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	10/03/2018	Expiration Date:	10/03/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

MRL BASE STD M13626 Analyst NAH

Prep Date 10/01/2018

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	(ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L	Expiration Date
Ag	20	M13458	1000	1	10/2019
Al	400	M13462	10000	2	10/2019
Ba	10	M13457	1000	0.5	10/2019
Be	4	M13579	1000	0.2	02/20
Cd	5	M13570	1000	0.25	01/20
Co	10	M13575	1000	0.5	01/20
Cr	10	M13617	10000	0.05	03/20
Cu	10	M13618	10000	0.05	03/20
Mg	500	M13319	10000	2.5	04/19
Mn	10	M13616	10000	0.05	03/20
Mo	10	M13608	1000	0.5	03/20
Ni	10	M13569	1000	0.5	03/20
Pb	10	M13610	10000	0.05	03/20
Sb	20	M13459	1000	1	03/20
V	10	M13578	1000	0.5	02/20
Zn	10	M13610	10000	0.05	02/20
K	1000	M13341	10000	5	05/19
Na	1000	M13402	10000	5	08/19
As	20	M13392	1000	1	07/19
Ca	500	M13324	10000	2.5	04/19
Fe	300	M13463	10000	1.5	10/19
Se	20	M13460	1000	1	10/19
Tl	20	M13583	1000	1	02/20
Si	100	M13394	1000	5	07/19
B	20	M13531	1000	1	07/19
Li	20	M13517	1000	1	02/20
W	50	xxxxxxx	1000	2.5	xxxxxxx
Ti	10	M13573	1000	0.5	02/20
Sr	10	M13586	1000	0.5	02/20
Sn	50	M13572	1000	2.5	02/20
S	300	M13391	10000	1.5	07/19

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

Standard Log #:	M13625	Instrument:	GFAA
Analyst:	MDS	Reagent:	Pd/Mg Matrix Modifier
Prep Date:	10/03/2018	Expiration Date:	09/30/2019
Prep:	Into a 50 mL volumetric flask, partially filled with milli-Q H_2O, pipetted **15 mL** Pd Modifier M13600 and **10 mL** Mg (10,000 mg/L) M13464 and brought up to volume.		

Standard ID#:	M13618	Vendor:	CPI
Analyst:	NAH	Chemical:	Cu 10000 mg/L
Date Received:	09/20/2018	Lot #:	148796-39
Expiration Date (if any):	03/2020	Catalog #:	S4400-10M141

		Instrument:	CETAC
Standard Log #:	M13619	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	09/19/2018	Expiration Date:	09/19/2018
Prep:	Carefully mixed **3** parts HCl AB.664 with **1** part HNO_3 AB.665 in a hood.		

Standard ID#:	M13620	Vendor:	FISHER
Analyst:	LJF	Chemical:	SODIUM CHLORIDE
Date Received:	09/04/2018	Lot #:	177409
Expiration Date (if any):		Catalog #:	S271-500

Standard ID#:	M13611	Vendor:	CPI
Analyst:	NAH	Chemical:	Al 10000 mg/L
Date Received:	09/20/2018	Lot #:	169484-18
Expiration Date (if any):	03/2020	Catalog #:	4400-10M11

Standard ID#:	M13612	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10000 mg/L
Date Received:	09/20/2018	Lot #:	172053-36
Expiration Date (if any):	03/2020	Catalog #:	440010M411

Standard ID#:	M13613	Vendor:	CPI
Analyst:	NAH	Chemical:	Ca 10000 mg/L
Date Received:	09/20/2018	Lot #:	855297-1
Expiration Date (if any):	03/2020	Catalog #:	4400-10M91

Standard ID#:	M13614	Vendor:	CPI
Analyst:	NAH	Chemical:	Mg 10000 mg/L
Date Received:	09/20/2018	Lot #:	148250-72
Expiration Date (if any):	03/2020	Catalog #:	4400-10M311

Standard ID#:	M13615	Vendor:	CPI
Analyst:	NAH	Chemical:	Pb 10000 mg/L
Date Received:	09/20/2018	Lot #:	168223-17
Expiration Date (if any):	03/2020	Catalog #:	4400-10M281

Standard ID#:	M13616	Vendor:	CPI
Analyst:	NAH	Chemical:	Mn 10000 mg/L
Date Received:	09/20/2018	Lot #:	167540-6
Expiration Date (if any):	03/2020	Catalog #:	S4400-10M321

Standard ID#:	M13617	Vendor:	CPI
Analyst:	NAH	Chemical:	Cr 10000 mg/L
Date Received:	09/20/2018	Lot #:	158236-7
Expiration Date (if any):	03/2020	Catalog #:	s4400-10M121

Standard ID#:	M13604	Vendor:	CPI
Analyst:	NAH	Chemical:	Sulfur 10000 mg/L
Date Received:	09/20/2018	Lot #:	167967-37
Expiration Date (if any):	03/2020	Catalog #:	4400-10M544

Standard ID#:	M13605	Vendor:	CPI
Analyst:	NAH	Chemical:	Sodium 10000 mg/L
Date Received:	09/20/2018	Lot #:	752887-3
Expiration Date (if any):	03/2020	Catalog #:	4400-10M521

Standard ID#:	M13606	Vendor:	CPI
Analyst:	NAH	Chemical:	K 1000 mg/L
Date Received:	09/20/2018	Lot #:	144467-179
Expiration Date (if any):	03/2020	Catalog #:	4400-1000411-500

Standard ID#:	M13607	Vendor:	CPI
Analyst:	NAH	Chemical:	Na 1000 mg/L
Date Received:	09/20/2018	Lot #:	158237-113
Expiration Date (if any):	03/2020	Catalog #:	4400-1000521-500

Standard ID#:	M13608	Vendor:	CPI
Analyst:	NAH	Chemical:	Mo 1000 mg/L
Date Received:	09/20/2018	Lot #:	169424-37
Expiration Date (if any):	03/2020	Catalog #:	S4400-1000343

Standard ID#:	M13609	Vendor:	CPI
Analyst:	NAH	Chemical:	Fe 10000 mg/L
Date Received:	09/20/2018	Lot #:	156651-53
Expiration Date (if any):	03/2020	Catalog #:	4400-10M261

Standard ID#:	M13610	Vendor:	CPI
Analyst:	NAH	Chemical:	Zn 10000 mg/L
Date Received:	09/20/2018	Lot #:	979871-2
Expiration Date (if any):	03/2020	Catalog #:	4400-10M681

Standard Log #:	M13601	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	09/12/2018	Expiration Date:	09/12/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard ID#:	M13602	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	09-12-2018	Lot #:	1-124AB
Expiration Date (if any):	09-30-2019	Catalog #:	XCTWI-5-500

Standard ID#:	M13600	Vendor:	Environmental Express
Analyst:	MDS	Chemical:	1% Pd Matrix Modifier
Date Received:	09/11/2018	Lot #:	1808015
Expiration Date (if any):	09/30/2019	Catalog #:	HP1900-100

Standard Log #:	M13599	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	09/08/2018	Expiration Date:	09/08/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard ID#:	M13595	Vendor:	SPEX CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Std
Date Received:	08/29/2018	Lot #:	49-151CR
Expiration Date (if any):	08/30/2019	Catalog #:	XSPIKE-1-250

		Instrument:	CETAC
Standard Log #:	M13596	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	08/30/2018	Expiration Date:	08/30/2018
Prep:	Carefully mixed **3** parts HCl AB.664 with **1** part HNO_3 AB.665 in a hood.		

		Instrument:	ICP 6000
Standard Log #:	M13597	Standard:	Na & K ICAL
Analyst:	MDS	Concentrations:	0.5, 1, 5, 10, 50, 100, and 200 mg/L (Na,K)
Prep Date:	08/30/2018	Expiration Date:	05/2019
Prep:	Into seven, 200 mL volumetric flasks, pipetted the following from Na (1000 µg/mL) M13339 and K (1000 µg/mL) M13340 and brought up to volume using milli-Q H_2O. (2% HNO_3) *0.5 mg/L std.* - **0.1 mL** of each *1.0 mg/L std.* - **0.2 mL** of each *5.0 mg/L std.* - **1.0 mL** of each *10 mg/L std.* - **2.0 mL** of each *50 mg/L std.* - **10 mL** of each *100 mg/L std.* -**20 mL** of each, also used for Continuing Calibration Verification *200 mg/L std.* - **40 mL** of each		

		Instrument:	ICP 6000
Standard Log #:	M13598	Standard:	Na,K MRL
Analyst:	MDS	Concentrations:	1 mg/L (Na,K)
Prep Date:	08/30/2018	Expiration Date:	05/2019
Prep:	Into a 500 mL volumetric flask, pipetted **0.5 mL** of Na (1000 µg/mL) M13339 and **0.5 mL** K (1000 µg/mL) M13340 and brought to volume with Milli-Q H_2O. (2% HNO_3)		

Standard Log #:	M13588	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	08/21/2018	Expiration Date:	08/21/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13589	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	08/21/2018	Expiration Date:	08/21/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard ID#:	M13590	Vendor:	AMCO Clear
Analyst:	NAH	Chemical:	turbidity std 2.0 ntu
Date Received:	08/21/2018	Lot #:	18272791
Expiration Date (if any):	08/2019	Catalog #:	8008

		Instrument:	ICP 6000
Standard Log #:	M13586	Standard:	L2 ICV
Analyst:	MDS	Concentrations:	1000 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	08/20/2018	Expiration Date:	01/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of the following and brought up to volume using milli-Q H_2O. (0.5% HNO_3, 0.5% HCl) Li (1000 µg/mL) M13577 Sn (1000 µg/mL) M13572 Sr (1000 µg/mL) M13580 Ti (1000 µg/mL) M13573 W (1000 µg/mL) MXXX		

		Instrument:	ICP 6000
Standard Log #:	M13587	Standard:	List 2 MRL/ICVLL Prep Solution
Analyst:	MDS	Concentrations:	5000 µg/L (W) 1000 µg/L (Li, Sn) 500 µg/L (Ti, Sr)
Prep Date:	08/20/2018	Expiration Date:	01/2020

Prep:

Analyte	MRL/ICVLL Conc. (µg/L)	Standard ID	Std. Conc. (µg/mL)	Volume (mL) Pipetted into 1 L	Expiration Date
Li	20/60	M13577	1000	1	02/2020
W	100/300	XXX	1000	5	XXX
Ti	10/30	M13573	1000	0.5	01/2020
Sr	10/30	M13580	1000	0.5	02/2020
Sn	20/60	M13572	1000	1	01/2020

Pipette **10 mL** into a 500 mL volumetric flask to create a working MRL std. or **1 mL** into a 50 mL digestion tube for a digested MRL standard. Pipette **30 mL** into 500 mL for a working ICVLL std. or **3 mL** into a 50 mL digestion tube for a digested ICVLL standard.

(0.5% HNO_3, 0.5% HCl)

		Instrument:	ICP
Standard Log #:	M13584	Standard:	L2 ICAL
Analyst:	MDS	Concentrations:	1 (µg/L) 10 (µg/L) 100 (µg/L) 1000 (µg/L) 10,000 (µg/L)
Prep Date:	08/20/2018	Expiration Date:	07/30/2019
Prep:	Standard Conc. (ug/L)	Pipette the following:	
	1	**0.01 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **0.001 mL** W (1000 µg/mL) MXXX into 1L = *1 µg/L*	
	10	**0.10 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **0.01 mL** W (1000 µg/mL) MXXX into 1L = *10 µg/L*	
	100	**1 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **0.1 mL** W (1000 µg/mL) MXXX into 1L = *100 µg/L*	
	1000 (CCV)	**2 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **0.2 mL** W (1000 µg/mL) MXXX into 200mL = *1000 µg/L*	
	10000	**20 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **2 mL** W (1000 µg/mL) MXXX into 200mL = *10000 µg/L*	

		Instrument:	ICP 6000
Standard Log #:	M13585	Standard:	List 2 ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	08/20/2018	Expiration Date:	
Prep:	Into a 200 mL volumetric flask, pipetted **20 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13410, **6 mL** of Fe (10,000 mg/L) M13463, **0.1 mL** of Li (1000 µg/mL) M13577, **0.1 mL** of Sn (1000 µg/mL) M13572, **0.1 mL** of Sr (1000 µg/mL) M13580, **0.1 mL** of Ti (1000 µg/mL) M13573, and **0.1 mL** of W (1000 µg/mL) MXXX and brought up to volume using Milli-Q H_2O. (0.5% HNO_3, 0.5% HCl)		

Standard ID#:	M13577	Vendor:	CPI
Analyst:	NAH	Chemical:	Li 1000 mg/L
Date Received:	08/17/2018	Lot #:	751942-25
Expiration Date (if any):	02/2020	Catalog #:	S4400-1000291

Standard ID#:	M13578	Vendor:	CPI
Analyst:	NAH	Chemical:	V 1000 mg/L
Date Received:	08/17/2018	Lot #:	152207-68
Expiration Date (if any):	02/2020	Catalog #:	S4400-1000651

Standard ID#:	M13579	Vendor:	CPI
Analyst:	NAH	Chemical:	Be 1000 mg/L
Date Received:	08/17/2018	Lot #:	660981-5
Expiration Date (if any):	02/2020	Catalog #:	S4400-100051

Standard ID#:	M13580	Vendor:	CPI
Analyst:	NAH	Chemical:	Sr 1000 mg/L
Date Received:	08/17/2018	Lot #:	168227-29
Expiration Date (if any):	02/2020	Catalog #:	S4400-1000531

Standard ID#:	M13581	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10000 mg/L
Date Received:	08/17/2018	Lot #:	172053-36
Expiration Date (if any):	02/2020	Catalog #:	4400-10411

Standard ID#:	M13582	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	Y 10000 mg/L
Date Received:	08/17/2018	Lot #:	1805105
Expiration Date (if any):	02/2020	Catalog #:	HP10M67-1

Standard ID#:	M13583	Vendor:	CPI
Analyst:	NAH	Chemical:	Tl 1000 mg/L
Date Received:	08/17/2018	Lot #:	148983-70
Expiration Date (if any):	02/2020	Catalog #:	S4400-1000581

Standard ID#:	M13576	Vendor:	Spex Certiprep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	08/04/2018	Lot #:	49-045CR
Expiration Date (if any):	07/30/2019	Catalog #:	XCTWI-5-500

Standard ID#:	M13569	Vendor:	CPI
Analyst:	NAH	Chemical:	Ni 1000 mg/L
Date Received:	07/27/2018	Lot #:	166665-86
Expiration Date (if any):	01/2020	Catalog #:	s4400-1000361

Standard ID#:	M13570	Vendor:	CPI
Analyst:	NAH	Chemical:	Cd 1000 mg/L
Date Received:	07/27/2018	Lot #:	160499-32
Expiration Date (if any):	01/2020	Catalog #:	s4400-100081

Standard ID#:	M13571	Vendor:	CPI
Analyst:	NAH	Chemical:	Si 1000 mg/L
Date Received:	07/27/2018	Lot #:	175213-28
Expiration Date (if any):	01/2020	Catalog #:	s4400-1000504F

Standard ID#:	M13572	Vendor:	CPI
Analyst:	NAH	Chemical:	Sn 1000 mg/L
Date Received:	07/27/2018	Lot #:	144466-74
Expiration Date (if any):	01/2020	Catalog #:	s4400-1000613

Standard ID#:	M13573	Vendor:	CPI
Analyst:	NAH	Chemical:	Ti 1000 mg/L
Date Received:	07/27/2018	Lot #:	152616-55
Expiration Date (if any):	01/2020	Catalog #:	s4400-1000623

Standard ID#:	M13574	Vendor:	CPI
Analyst:	NAH	Chemical:	Hg 1000 mg/L
Date Received:	07/27/2018	Lot #:	175191-22
Expiration Date (if any):	01/2020	Catalog #:	s4400-1000331

Standard ID#:	M13575	Vendor:	CPI
Analyst:	NAH	Chemical:	Co 1000 mg/L
Date Received:	07/27/2018	Lot #:	161693-10
Expiration Date (if any):	01/2020	Catalog #:	s4400-1000131

Standard Log #:	M13563	Instrument:	ICP
Analyst:	LJF	Standard:	LOQ 3050 S Spiking Solution
Prep Date:	07/19/2018	Expiration Date:	10/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
S	240	M13466	10000	1.2

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard ID#:	M13557	Vendor:	Alfa Aesar Specpure
Analyst:	MDS	Chemical:	1% Nickel Nitrate Matrix Modifier
Date Received:	07/17/2018	Lot #:	8137324
Expiration Date (if any):	12/31/2019	Catalog #:	39043

		Instrument:	ICP 6000
Standard Log #:	M13558	Standard:	B&Si ICV
Analyst:	MDS	Concentrations:	1000 ug/L (B, Si)
Prep Date:	07/17/2018	Expiration Date:	05/2019
Prep:	Into a 1 L volumetric flask, pipetted **10 mL** of Custom Assurance Std. #23 (100 mg/L Al, As, **B**, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13518 and **1.0 mL** Si (1000 mg/L) M13338 and brought up to volume using milli-Q H_2O.		

Standard Log #:	M13559	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	07/17/2018	Expiration Date:	01/17/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13559 and brought up to volume.		

Standard Log #:	M13554	Instrument:	ICP
Analyst:	LJF	Standard:	LOQ 3010 B&Si Spiking Solution
Prep Date:	07/13/2018	Expiration Date:	05/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
B	16	M13390	1000	0.8
Si	200	M13338	1000	10

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13555	Instrument:	ICP
Analyst:	LJF	Standard:	LOQ 3010 S Spiking Solution
Prep Date:	07/13/2018	Expiration Date:	10/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
S	200	M13466	10000	1.0

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

		Instrument:	GFAA
Standard Log #:	M13553	Standard:	Sb ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 µg/L (Sb)
Prep Date:	07/12/2018	Expiration Date:	10/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.01 mL** of Antimony Stock Std. (1000 µg/mL Sb) M13459 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13547	Standard:	LODW/LOQW Ag Spiking Sol'n
Analyst:	MDS	Concentrations:	10 ug/L (Ag)
Prep Date:	07/09/2018	Expiration Date:	10/2019
Prep:	Into a 100 mL volumetric flask, pipetted **0.1 mL** of Ag (1000mg/L) M13458 and brought to volume with Milli-Q H_2O to make a 1000 ug/L Ag std. Into a 1 L volumetric flask, pipetted **10 mL** of Ag (*1000 ug/L*) std. and brought to volume with Milli-Q H_2O. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*0.2 ug/L*) and **2 mL** spiking solution for LOQ (*0.4 ug/L*)		

Standard Log #:	M13548	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	LJF		
Prep Date:	07/10/2018	Expiration Date:	01/10/2019
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13226 and **60 g** hydroxylamine sulfate M13468 and brought up to volume.		

		Instrument:	GFAA
Standard Log #:	M13549	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	07/10/2018	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

Standard Log #:	M13534	Standard:	GFAA Instrument Check
Analyst:	MDS	Final Concentration:	10 µg/L As 6 µg/L Pb 12 µg/L Sb 20 µg/L Se 14 µg/L Tl 0.6 µg/L Ag
Prep Date:	07/02/2018	Expiration Date:	09/16/2018

Into six, 100 mL volumetric flasks, add the following and bring up to volume with milli-Q H_2O.

Element	Volume Pipetted (mL)	Standard Conc. (µg/mL)	Standard ID	New Conc. (µg/L)
As	1	1000	M13392	10,000
Pb	0.1	10,000	M13169	10,000
Tl	1	1000	M13124	10,000
Se	1	1000	M13460	10,000
Sb	1	1000	M13459	10,000
Ag	0.1	1000	M13458	1000

Into a 1 L volumetric flask, add the following and bring up to volume with Milli-Q H_20. (1% HNO_3)

Element	Volume Pipetted (mL)	Standard Conc. (µg/L)	New Conc. (µg/L)
As	1.0	10,000	10
Pb	0.6	10,000	6
Tl	1.4	10,000	14
Se	2.0	10,000	20
Sb	1.2	10,000	12
Ag	0.6	1000	0.6

Standard ID#:	M13535	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	07/02/2018	Lot #:	48-179CR
Expiration Date (if any):	06/30/2019	Catalog #:	XSPIKE-1-250

Standard ID#:	M13526	Vendor:	CPI
Analyst:	NAH	Chemical:	YTTRIUM 10,000 ug/mL
Date Received:	06/22/2018	Lot #:	138448-54
Expiration Date (if any):	12/2019	Catalog #:	4400-10M671

Standard ID#:	M13527	Vendor:	CPI
Analyst:	NAH	Chemical:	POTASSIUM 10,000
Date Received:	06/22/2018	Lot #:	172053-32
Expiration Date (if any):	12/2019	Catalog #:	4400-104411

Standard ID#:	M13528	Vendor:	CPI
Analyst:	NAH	Chemical:	Si 1000 ug/mL
Date Received:	06/22/2018	Lot #:	142610-115
Expiration Date (if any):	12/2019	Catalog #:	S4400-1000504F

Standard ID#:	M13529	Vendor:	CPI
Analyst:	NAH	Chemical:	Fe 10,000 ug/mL
Date Received:	06/22/2018	Lot #:	156651-42
Expiration Date (if any):	12/2019	Catalog #:	4400-10M261

Standard ID#:	M13530	Vendor:	CPI
Analyst:	NAH	Chemical:	SULFUR 10,000ug/mL
Date Received:	06/22/2018	Lot #:	129880-46
Expiration Date (if any):	12/2019	Catalog #:	4400-10M544

Standard ID#:	M13531	Vendor:	CPI
Analyst:	NAH	Chemical:	BORON 1000 ug/mL
Date Received:	06/22/2018	Lot #:	158372-91
Expiration Date (if any):	12/2019	Catalog #:	S4400-100074

Standard ID#:	M13532	Vendor:	CPI
Analyst:	NAH	Chemical:	CUSTOM ASSURANCE STANDARD
Date Received:	06/22/2018	Lot #:	48-146CR
Expiration Date (if any):	06/30/2019	Catalog #:	XCTWI-1-500

Standard ID#:	M13520	Vendor:	FRISCOLYT
Analyst:	NAH	Chemical:	Electrolyte Solution
Date Received:	06/13/2018	Lot #:	1DO71H
Expiration Date (if any):	12/03/2021	Catalog #:	51 340 053

		Instrument:	ICP
Standard Log #:	M13521	Standard:	As Pb ICV1
Analyst:	MDS	Concentrations:	5000 ug/L (As,Pb)
Prep Date:	06/13/2018	Expiration Date:	10/20/2018
Prep:	Into a 1 L volumetric flask, pipetted **0.5 mL** of As (10,000 mg/L) M13392 and **0.5 mL** Pb (10,000 mg/L) M13169 and brought to volume with Milli-Q H_2O. (2% HNO_3, 2% HCl)		

Standard ID#:	M13518	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	06/11/2018	Lot #:	48-060CR
Expiration Date (if any):	06/30/2019	Catalog #:	XCTWI-5-500

		Instrument:	ICP 6500
Standard Log #:	M13519	Standard:	ICAL
Analyst:	NAH	Concentrations:	0.25, 0.5, 1, 5, 10, 20, 50, 100, 1000, 10,000, 100k, 100,000, 500,000 and 1000k (ug/L)
Prep Date:	06/11/2018	Expiration Date:	06/30/2019

Prep:

Using 1 L volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O.
(5% HNO_3, 5% HCl)
1000 ug/L Std. - **10 mL** of Custom Assurance Std. #23 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13518, **10 mL** of Custom Assurance Std. #3 (100 mg/L Ag, Be, Cd) M13506 and **1 mL** of Si (1000 mg/L) M13394 and 1 mL M13203 Ce
0.25 ug/L Std. - **0.25 mL** of the 1000 ug/L Std.
0.5 ug/L Std. - **0.5 mL** of the 1000 ug/L Std.
1 ug/L Std. - **1 mL** of the 1000 ug/L Std.
5 ug/L Std. - **5 mL** of the 1000 ug/L Std.
10 ug/L Std. - **10 mL** of the 1000 ug/L Std.
20 ug/L Std. - **20 mL** of the 1000 ug/L Std.
50 ug/L Std. - **50 mL** of the 1000 ug/L Std.
100 ug/L Std. - **1 mL** of Custom Assurance Std. (CAS) #23 and **1 mL** of CAS #3
10,000 ug/L Std. - **100 mL** CAS #23, **100 mL** CAS #3 and **1 mL** of K (10,000 mg/L) M13465.
100k ug/L Std. - **10 mL** of Cu (10,000 mg/L) M13166, **10 mL** of Mn (10,000 mg/L) M13167, **10 mL** of Cr (10,000 mg/L) M13165, **10 mL** Pb (10,000 mg/L) M13169, **10 mL** of Zn (10,000 mg/L) M13168 and **10 mL** of Na (10,000 mg/L) M13461.
100,000 ug/L Std. - **10 mL** of Mg (10,000 mg/L) M13319, **10 mL** of Fe (10,000 mg/L) M13463, **10 mL** of Ca (10,000 mg/L) M13467 and **10 mL** Al (10,000 mg/L) M13462.
500,000 ug/L Std. - **50 mL** of Mg (10,000 mg/L), **50 mL** of Fe (10,000 mg/L), **50 mL** of Ca (10,000 mg/L) and **50 mL** of Al (10,000 mg/L)
1000k ug/L Std. - **100 mL** of Mg (10,000 mg/L), **100 mL** of Fe (10,000 mg/L), **100 mL** of Ca (10,000 mg/L) and **100 mL** of Al (10,000 mg/L)

		Instrument:	CETAC
Standard Log #:	M13510	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	06/01/2018	Expiration Date:	06/01/2018
Prep:	Carefully mixed **3** parts HCl AB.656 with **1** part HNO_3 AB.655 in a hood.		

Standard ID#:	M13511	Vendor:	FISHER
Analyst:	LJF	Chemical:	SODIUM CHLORIDE
Date Received:	06/04/2018	Lot #:	176877
Expiration Date (if any):		Catalog #:	S271-500

Standard ID#:	M13506	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	05/22/2018	Lot #:	48-042CR
Expiration Date (if any):	05/30/2019	Catalog #:	XCTWI-4-500

Standard ID#:	M13507	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	05/22/2018	Lot #:	48-041CR
Expiration Date (if any):	05/30/2019	Catalog #:	XSPIKE-1-250

Standard ID#:	M13508	Vendor:	RESTEK
Analyst:	NAH	Chemical:	Diatomaceous earth (Celite 566)
Date Received:	05/22/2018	Lot #:	811030-BG
Expiration Date (if any):	N/A	Catalog #:	26033

Standard ID#:	M13495	Vendor:	LabChem
Analyst:	LJF	Chemical:	STANNOUS CHLORIDE
Date Received:	05/15/2018	Lot #:	H052-17
Expiration Date (if any):		Catalog #:	LC251701

		Instrument:	ICP 6000
Standard Log #:	M13485	Standard:	Na & K ICAL
Analyst:	MDS	Concentrations:	0.5, 1, 5, 10, 50, 100, and 200 mg/L (Na,K)
Prep Date:	05/07/2018	Expiration Date:	05/2019
Prep:	Into seven, 200 mL volumetric flasks, pipetted the following from Na (1000 µg/mL) M13339 and K (1000 µg/mL) M13340 and brought up to volume using milli-Q H_2O. (2% HNO_3) *0.5 mg/L std.* - **0.1 mL** of each *1.0 mg/L std.* - **0.2 mL** of each *5.0 mg/L std.* - **1.0 mL** of each *10 mg/L std.* - **2.0 mL** of each *50 mg/L std.* - **10 mL** of each *100 mg/L std.* -**20 mL** of each, also used for Continuing Calibration Verification *200 mg/L std.* - **40 mL** of each		

		Instrument:	ICP 6000
Standard Log #:	M13486	Standard:	NaK ICV
Analyst:	MDS	Concentrations:	100 mg/L (Na, K)
Prep Date:	05/07/2018	Expiration Date:	08/2019
Prep:	Into a 250 mL volumetric flask, pipetted **2.5 mL** of K (10,000 mg/L) M13400 and Na (10,000 mg/L) M13402 and brought up to volume using Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13487	Standard:	Na,K ICVLL
Analyst:	MDS	Concentrations:	3 mg/L (Na,K)
Prep Date:	05/07/2018	Expiration Date:	08/2019
Prep:	Into a 500 mL volumetric flask, pipetted **0.15 mL** of Na (10,000 µg/mL) M13402 and **0.15 mL** K (10,000 µg/mL) M13400 and brought to volume with Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13488	Standard:	Na,K MRL
Analyst:	MDS	Concentrations:	1 mg/L (Na,K)
Prep Date:	05/07/2018	Expiration Date:	05/2019
Prep:	Into a 500 mL volumetric flask, pipetted **0.5 mL** of Na (1000 µg/mL) M13339 and **0.5 mL** K (1000 µg/mL) M13340 and brought to volume with Milli-Q H_2O. (2% HNO_3)		

Standard ID#:	M13484	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	Y 10,000 mg/L
Date Received:	05/03/2018	Lot #:	1805105
Expiration Date (if any):	10/31/2019	Catalog #:	HP10M67-1

		Instrument:	ICP 6000
Standard Log #:	M13471	Standard:	B&Si ICAL
Analyst:	MDS	Concentrations:	50, 200, 1000, 2000 and 10,000 ug/L (B, Si)
Prep Date:	04/26/2018	Expiration Date:	07/2019
Prep:	Into five, 1 L volumetric flasks, pipetted the following from stock standards B (1000 mg/L) M13390 and Si (1000 mg/L) M13394 and brought up to volume using milli-Q H_2O. *50 ug/L std.* - **0.05 mL** of each *200 ug/L std.* - **0.2 mL** of each *1000 ug/L std.* -**1.0 mL** of each, also used for Continuing Calibration Verification *2000 ug/L std.* - **2.0 mL** of each *10,000 ug/L std.* -**10 mL** of each		

		Instrument:	ICP 6000
Standard Log #:	M13472	Standard:	B&Si ICV
Analyst:	MDS	Concentrations:	1000 ug/L (B, Si)
Prep Date:	04/26/2018	Expiration Date:	07/02/2018
Prep:	Into a 1 L volumetric flask, pipetted **10 mL** of Custom Assurance Std. #23 (100 mg/L Al, As, **B**, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13364 and **1.0 mL** Si (1000 mg/L) M13085 and brought up to volume using milli-Q H_2O.		

		Instrument:	ICP 6000
Standard Log #:	M13473	Standard:	B & Si ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (B,Si)
Prep Date:	04/26/2018	Expiration Date:	10/30/2018
Prep:	Into a 100 mL volumetric flask, pipetted **10 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13305 , **0.05 mL** of B (1000 µg/mL) M13390 , **0.05 mL** of Si (1000 µg/mL) M13394 and **3 mL** of Fe (10,000 mg/L) M13321 and brought up to volume using Milli-Q H_2O.		

Standard ID#:	M13467	Vendor:	CPI
Analyst:	NAH	Chemical:	Ca 10000 mg/L
Date Received:	04/20/2018	Lot #:	147497-47
Expiration Date (if any):	10/2019	Catalog #:	4400-10M91

Standard ID#:	M13468	Vendor:	FISHER
Analyst:	LJF	Chemical:	HYDROXYLAMINE SULFATE
Date Received:	04/24/2018	Lot #:	174236
Expiration Date (if any):		Catalog #:	H331-500

		Instrument:	CETAC
Standard Log #:	M13469	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	04/24/2018	Expiration Date:	04/24/2018
Prep:	Carefully mixed **3** parts HCl AB.656 with **1** part HNO_3 AB.655 in a hood.		

Standard ID#:	M13462	Vendor:	CPI
Analyst:	NAH	Chemical:	Al 10000 mg/L
Date Received:	04/20/2018	Lot #:	158058-23
Expiration Date (if any):	10/2019	Catalog #:	4400-10M11

Standard ID#:	M13463	Vendor:	CPI
Analyst:	NAH	Chemical:	Fe 10000 mg/L
Date Received:	04/20/2018	Lot #:	156651-18
Expiration Date (if any):	10/2019	Catalog #:	4400-10M261

Standard ID#:	M13464	Vendor:	CPI
Analyst:	NAH	Chemical:	Mg 10000 mg/L
Date Received:	04/20/2018	Lot #:	148250-67
Expiration Date (if any):	10/2019	Catalog #:	4400-10M311

Standard ID#:	M13465	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10000 mg/L
Date Received:	04/20/2018	Lot #:	172053-2
Expiration Date (if any):	10/2019	Catalog #:	4400-10M411

Standard ID#:	M13466	Vendor:	CPI
Analyst:	NAH	Chemical:	S 10000 mg/L
Date Received:	04/20/2018	Lot #:	129880-37
Expiration Date (if any):	10/2019	Catalog #:	4400-10M544

Standard ID#:	M13457	Vendor:	CPI
Analyst:	NAH	Chemical:	Barium 1000 mg/L
Date Received:	04/20/2018	Lot #:	158364-3
Expiration Date (if any):	10/2019	Catalog #:	S4400-100041

Standard ID#:	M13458	Vendor:	CPI
Analyst:	NAH	Chemical:	Ag 1000 mg/L
Date Received:	04/20/2018	Lot #:	162712-9
Expiration Date (if any):	10/2019	Catalog #:	S4400-1000511

Standard ID#:	M13459	Vendor:	CPI
Analyst:	NAH	Chemical:	Sb 1000 mg/L
Date Received:	04/20/2018	Lot #:	153992-1
Expiration Date (if any):	10/2019	Catalog #:	S4400-100023

Standard ID#:	M13460	Vendor:	CPI
Analyst:	NAH	Chemical:	Se 1000 mg/L
Date Received:	04/20/2018	Lot #:	154366-16
Expiration Date (if any):	10/2019	Catalog #:	S4400-1000491

Standard ID#:	M13461	Vendor:	CPI
Analyst:	NAH	Chemical:	Na 10000 mg/L
Date Received:	04/20/2018	Lot #:	107139-108
Expiration Date (if any):	10/2019	Catalog #:	4400-10M521

Standard Log #:	M13445	Reagent:	Potassium Persulfate Solution
Analyst:	LJF		
Prep Date:	04/19/2018	Expiration Date:	10/19/2018
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M12652 and brought up to volume.		

		Instrument:	Hach 2100 turbidity meter
Standard Log #:	M13446	Standard:	Turbity ICAL
Analyst:	NAH	Concentrations:	20, 100, 200 ntu
Prep Date:	04/19/2018	Expiration Date:	12/2019
Prep:	Using the hach vials , pipet the following: *20 ntu Std.* = **1 ml** M13436 and 9 mls DI H20. *100 ntu Std.* = **5 mls** M13436 and 5 mls DI H20. *200 ntu Std.* = ***10 mls*** M13436 *and* 0 mls DI H20.		

LPMT1-04
Metals Reagents and Standards
Prep Logbook
Created: 12/19/17

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		Instrument:	ICP 6000
Standard Log #:	M13438	Standard:	Sulfur ICAL
Analyst:	MDS	Concentrations:	1000 10,000 100,000 1000K µg/L (S)
Prep Date:	04/11/2018	Expiration Date:	07/2019
Prep:	Into four, 100 mL volumetric flasks, pipetted the following from stock standard S (10,000 µg/mL) M13391 and brought up to volume using milli-Q H_2O. *1000 ug/L std.* - **0.01 mL** *10,000 ug/L std.* - **0.1 mL** *100,000 ug/L std.* -**1.0 mL**, also used as the CCV *1000K ug/L std.* - **10 mL**		

		Instrument:	ICP 6000
Standard Log #:	M13439	Standard:	Sulfur ICV
Analyst:	MDS	Concentrations:	100,000 µg/L (S)
Prep Date:	04/11/2018	Expiration Date:	01/19/2019
Prep:	Into a 100 mL volumetric flask, pipetted **1.0 mL** of S (10,000 µg/mL) M13280 and brought up to volume using Milli-Q H_2O.		

Standard Log #:	M13437	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3050 B&Si Spiking Solution
Prep Date:	04/10/2018	Expiration Date:	07/19

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
B	52	M13390	1000	2.6
Si	192	M13394	1000	9.6

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Content below was appended to locked page by mszymanski on 4/19/2018 12:20:57 PM

Standard ID#:	M13436a	Vendor:	HACH
Analyst:	NAH	Chemical:	StablCal 200 NTU
Date Received:	04/10/2018	Lot #:	A7354
Expiration Date (if any):	12/2019	Catalog #:	2660449

Standard ID#:	M13400	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10,000 ug/mL
Date Received:	02/15/2018	Lot #:	106958-116
Expiration Date (if any):	08/2019	Catalog #:	4400-10M411

Standard ID#:	M13401	Vendor:	CPI
Analyst:	NAH	Chemical:	Y 10,000 ug/mL
Date Received:	02/15/2018	Lot #:	139448-54
Expiration Date (if any):	08/2019	Catalog #:	4400-10M671

Standard ID#:	M13402	Vendor:	CPI
Analyst:	NAH	Chemical:	Na 10,000 ug/mL
Date Received:	02/15/2018	Lot #:	107139-126
Expiration Date (if any):	08/2019	Catalog #:	4400-10M521

Standard Log #:	M13388	Reagent:	SPLP EXTRACTION FLUID EAST #
Analyst:	BMM	pH:	4.20 ± 0.05
Prep Date:	01/23/2018	Expiration Date:	01/23/2019
Prep:	Into a 20 L carboy filled with DI H_2O, adjust pH to 4.20 ± 0.05 using 60/40 SPLP extraction fluid acid mixture M12457 .		

Standard Log #:	M13389	Reagent:	SPLP EXTRACTION FLUID WEST #
Analyst:	BMM	pH:	5.00 ± 0.05
Prep Date:	01/23/2018	Expiration Date:	01/23/2019
Prep:	Into a 20 L carboy filled with DI H_2O, adjust pH to 5.00 ± 0.05 using 60/40 SPLP extraction fluid acid mixture M12457 .		

Standard ID#:	M13390	Vendor:	CPI
Analyst:	NAH	Chemical:	Boron 1000 ug/mL
Date Received:	01/23/2018	Lot #:	158372-29
Expiration Date (if any):	07/2019	Catalog #:	S4400-100074

Standard ID#:	M13391	Vendor:	CPI
Analyst:	NAH	Chemical:	Sulfur 10000 ug/mL
Date Received:	01/23/2018	Lot #:	129880-28
Expiration Date (if any):	07/2019	Catalog #:	4400-10M544

Standard ID#:	M13392	Vendor:	CPI
Analyst:	NAH	Chemical:	Arsenic 1000 ug/mL
Date Received:	01/23/2018	Lot #:	143356-61
Expiration Date (if any):	07/2019	Catalog #:	S4400-100031

Standard ID#:	M13393	Vendor:	CPI
Analyst:	NAH	Chemical:	Molybdenum 1000 ug/mL
Date Received:	01/23/2018	Lot #:	134169R-102
Expiration Date (if any):	07/2019	Catalog #:	S4400-1000343

Standard ID#:	M13394	Vendor:	CPI
Analyst:	NAH	Chemical:	Silicon 1000 ug/mL
Date Received:	01/23/2018	Lot #:	142610-58
Expiration Date (if any):	07/2019	Catalog #:	S4400-1000504F

Standard ID#:	M13350	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	Yttrium 10000 mg/L
Date Received:	12/12/2017	Lot #:	1729606
Expiration Date (if any):	06//2019	Catalog #:	10M67-1

Standard ID#:	M13226	Vendor:	FISHER
Analyst:	LJF	Chemical:	SODIUM CHLORIDE
Date Received:	07/21/2017	Lot #:	170229
Expiration Date (if any):		Catalog #:	S271-500

Standard ID#:	M13199	Vendor:	National Institute of Standards and Te
Analyst:	NAH	Chemical:	SRM Montana I soil
Date Received:	05/15/2017	Lot #:	2710a
Expiration Date (if any):		Catalog #:	

Standard ID#:	M13200	Vendor:	National Institute of Standards and Te
Analyst:	NAH	Chemical:	SRM Montana II soil
Date Received:	05/15/2017	Lot #:	2711a
Expiration Date (if any):		Catalog #:	

Standard ID#:	M13186	Vendor:	FISHER
Analyst:	LJF	Chemical:	HYDROXYLAMINE SULFATE
Date Received:	05/22/2017	Lot #:	166161
Expiration Date (if any):		Catalog #:	H331-500

Standard ID#:	M13187	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	Yttrium 10,000 ug/mL
Date Received:	05/22/2017	Lot #:	1705408
Expiration Date (if any):	11/16/2018	Catalog #:	HP10M67-1

Standard ID#:	M13080	Vendor:	FISHER
Analyst:	LJF	Chemical:	POTASSIUM PERMANGANATE
Date Received:	01/30/2017	Lot #:	164080
Expiration Date (if any):		Catalog #:	P279-212

Standard ID#:	M13059	Vendor:	ACROS ORGANICS
Analyst:	LJF	Chemical:	POTASSIUM PERSULFATE
Date Received:	12/19/2016	Lot #:	A0375670
Expiration Date (if any):		Catalog #:	424185000

Standard ID#:	M13024	Vendor:	METTLER TOLEDO
Analyst:	LJF	Chemical:	FRISCOLYT
Date Received:	11/01/2016	Lot #:	1B167D
Expiration Date (if any):		Catalog #:	51340053

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DOCUMENTS

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delivering more than data from your environmental analyses

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW1

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448842
Analytical Method:	EPA 9060A	Date Received:	07/22/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173668	Analysis Date/Time	08/01/2020 00:19
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL 0398 I	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TOC	Total Organic Carbon	1.5	U	0.50	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW1

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448842
Analytical Method:	EPA 9060A	Date Received:	07/22/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173439	Analysis Date/Time	07/24/2020 11:03
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL 0398 I	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TIC	Total Inorganic Carbon	63		0.50	1.5	3.0	3.0

CT LABORATORIES
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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW1

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448842
Analytical Method:	EPA 9056A	Date Received:	07/22/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173371	Analysis Date/Time	07/22/2020 16:25
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
16887-00-6	Chloride	2.3	J	1.0	1.5	3.0	3.0
14797-55-8	Nitrate Nitrogen	0.12	J	0.12	0.20	0.40	0.40
14808-79-8	Sulfate	28		0.80	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW10

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448841
Analytical Method:	EPA 9060A	Date Received:	07/22/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173668	Analysis Date/Time	08/01/2020 00:00
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL 0398 I	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TOC	Total Organic Carbon	1.5	U	0.50	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW10

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448841
Analytical Method:	EPA 9056A	Date Received:	07/22/2020
Dilution Factor:	5.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173371	Analysis Date/Time	07/23/2020 09:56
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
14808-79-8	Sulfate	180		4.0	7.5	15	15

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW10

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448841
Analytical Method:	EPA 9060A	Date Received:	07/22/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173439	Analysis Date/Time	07/24/2020 10:48
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL 0398 I	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TIC	Total Inorganic Carbon	82		0.50	1.5	3.0	3.0

CT LABORATORIES
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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW10

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448841
Analytical Method:	EPA 9056A	Date Received:	07/22/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173371	Analysis Date/Time	07/22/2020 16:06
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
16887-00-6	Chloride	3.6		1.0	1.5	3.0	3.0
14797-55-8	Nitrate Nitrogen	0.20	U	0.12	0.20	0.40	0.40

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW12

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448840
Analytical Method:	EPA 9060A	Date Received:	07/22/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173439	Analysis Date/Time	07/24/2020 10:33
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL 0398 I	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TIC	Total Inorganic Carbon	65		0.50	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW12

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448840
Analytical Method:	EPA 9056A	Date Received:	07/22/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173371	Analysis Date/Time	07/22/2020 15:48
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
16887-00-6	Chloride	4.9		1.0	1.5	3.0	3.0
14797-55-8	Nitrate Nitrogen	1.0		0.12	0.20	0.40	0.40
14808-79-8	Sulfate	22	M	0.80	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW12

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448840
Analytical Method:	EPA 9060A	Date Received:	07/22/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173668	Analysis Date/Time	07/31/2020 22:56
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL 0398 I	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TOC	Total Organic Carbon	1.5	U	0.50	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW13

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448828
Analytical Method:	EPA 9060A	Date Received:	07/22/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173439	Analysis Date/Time	07/24/2020 10:04
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL 0398 I	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TIC	Total Inorganic Carbon	48		0.50	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW13

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448828
Analytical Method:	EPA 9056A	Date Received:	07/22/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173371	Analysis Date/Time	07/22/2020 15:12
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
16887-00-6	Chloride	4.7		1.0	1.5	3.0	3.0
14797-55-8	Nitrate Nitrogen	1.0		0.12	0.20	0.40	0.40
14808-79-8	Sulfate	20		0.80	1.5	3.0	3.0

CT LABORATORIES
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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW13

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448828
Analytical Method:	EPA 9060A	Date Received:	07/22/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173668	Analysis Date/Time	07/31/2020 22:21
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL 0398 I	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TOC	Total Organic Carbon	1.5	U	0.50	1.5	3.0	3.0

CT LABORATORIES
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INORGANIC ANALYSIS DATA SHEET

Sample Description

54TW13

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448839
Analytical Method:	EPA 9060A	Date Received:	07/22/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173439	Analysis Date/Time	07/24/2020 10:18
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL 0398 I	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TIC	Total Inorganic Carbon	47		0.50	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54TW13

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448839
Analytical Method:	EPA 9056A	Date Received:	07/22/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173371	Analysis Date/Time	07/22/2020 15:30
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
16887-00-6	Chloride	4.6		1.0	1.5	3.0	3.0
14797-55-8	Nitrate Nitrogen	1.0		0.12	0.20	0.40	0.40
14808-79-8	Sulfate	20		0.80	1.5	3.0	3.0

CT LABORATORIES
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INORGANIC ANALYSIS DATA SHEET

Sample Description

54TW13

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448839
Analytical Method:	EPA 9060A	Date Received:	07/22/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173668	Analysis Date/Time	07/31/2020 22:36
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL 0398 I	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TOC	Total Organic Carbon	1.5	U	0.50	1.5	3.0	3.0

CT LABORATORIES
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INORGANIC ANALYSIS DATA SHEET

Sample Description

IDW-54

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448843
Analytical Method:	EPA 410.4	Date Received:	07/22/2020
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173688	Analysis Date/Time	07/31/2020 13:17
Analytical Prep Batch #:	77490	Prep. Date/Time:	07/31/2020 08:16
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers		DL	LOD	LOQ	RL
COD	COD	35	U	M	15	35	75	75

CT LABORATORIES
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Sample Description

IDW-54

INORGANIC ANALYSIS DATA SHEET

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	154987
% Solids:		Lab Sample ID:	448843
Analytical Method:	EPA 9040C	Date Received:	07/22/2020
Dilution Factor:	1	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	173373	Analysis Date/Time	07/22/2020 14:07
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	S.U.

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
PH	pH	7.37					

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Sample No.

ICV

2A-1

INITIAL CALIBRATION VERIFICATION

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173371 Lab Sample ID: 452241

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Chloride	11/20/19	01:11	15.00	13.63	91	90	110
Nitrate Nitrogen	11/20/19	01:11	3.500	3.282	94	90	110
Sulfate	11/20/19	01:11	25.00	23.31	93	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
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Sample No.

ICV

2A-1

INITIAL CALIBRATION VERIFICATION

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173688 Lab Sample ID: 460411

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
COD	7/31/20 13:17	400.0	414.4	104	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

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Sample No.

ICV

2A-1

INITIAL CALIBRATION VERIFICATION

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173668 Lab Sample ID: 460094

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Total Organic Carbon	6/8/20	19:50	50.00	48.76	98	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173371

Lab Sample ID: 449835

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Chloride	7/22/20	20:01	15.00	14.35	96	90	110
Nitrate Nitrogen	7/22/20	20:01	3.500	3.563	102	90	110
Sulfate	7/22/20	20:01	25.00	24.24	97	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173371

Lab Sample ID: 449840

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Chloride	7/22/20	14:18	15.00	14.25	95	90	110
Nitrate Nitrogen	7/22/20	14:18	3.500	3.531	101	90	110
Sulfate	7/22/20	14:18	25.00	24.04	96	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173371

Lab Sample ID: 449842

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Chloride	7/23/20	10:50	15.00	14.46	96	90	110
Nitrate Nitrogen	7/23/20	10:50	3.500	3.563	102	90	110
Sulfate	7/23/20	10:50	25.00	24.14	97	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173371

Lab Sample ID: 449844

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Chloride	7/23/20	09:20	15.00	14.30	95	90	110
Nitrate Nitrogen	7/23/20	09:20	3.500	3.546	101	90	110
Sulfate	7/23/20	09:20	25.00	24.06	96	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173371

Lab Sample ID: 449846

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Chloride	7/22/20	18:31	15.00	14.49	97	90	110
Nitrate Nitrogen	7/22/20	18:31	3.500	3.577	102	90	110
Sulfate	7/22/20	18:31	25.00	24.10	96	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173439

Lab Sample ID: 450469

ICAL Calibration #: ICAL 0398 I

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Total Inorganic Carbon	7/24/20	09:19	50.00	52.45	105	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173439 Lab Sample ID: 450472

ICAL Calibration #: ICAL 0398 I Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Total Inorganic Carbon	7/24/20	11:18	50.00	53.88	108	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173668

Lab Sample ID: 455158

ICAL Calibration #: ICAL 0398 I

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Total Organic Carbon	7/31/20	17:54	50.00	51.16	102	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173668

Lab Sample ID: 455161

ICAL Calibration #: ICAL 0398 I

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Total Organic Carbon	7/31/20	21:23	50.00	51.16	102	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173668

Lab Sample ID: 455166

ICAL Calibration #: ICAL 0398 I

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Total Organic Carbon	8/1/20	00:41	50.00	52.15	104	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173668

Lab Sample ID: 455168

ICAL Calibration #: ICAL 0398 I

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Total Organic Carbon	8/1/20	03:39	50.00	52.77	106	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173688

Lab Sample ID: 455222

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
COD	7/31/20 13:17	400.0	404.7	101	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173688

Lab Sample ID: 455225

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
COD	7/31/20 13:17	400.0	412.0	103	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173688

Lab Sample ID: 455227

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
COD	7/31/20 13:17	400.0	409.6	102	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
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Sample No

ICB

3-1

INITIAL CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173668 Lab Sample ID: 460095

Analytical Prep Batch #: Preparation Date/Time:

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total Organic Carbon	06/08/2020 20:04	0	U	0.5	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
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Sample No

ICB

3-1

INITIAL CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173688 Lab Sample ID: 460412

Analytical Prep Batch #: Preparation Date/Time:

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
COD	07/31/2020 13:17	10.20			35

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
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Sample No

ICB

3-1

INITIAL CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173371

Lab Sample ID: 452242

Analytical Prep Batch #:

Preparation Date/Time:

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Chloride	11/20/2019 01:31	0.4853	U	1.0	1.5
Nitrate Nitrogen	11/20/2019 01:31	0.06860	U	0.12	0.20
Sulfate	11/20/2019 01:31	0.6402	U	0.8	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
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Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173371 Lab Sample ID: 449834

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Chloride	07/22/2020 20:19	0.5207	U	1.0	1.5
Nitrate Nitrogen	07/22/2020 20:19	0.07750	U	0.12	0.20
Sulfate	07/22/2020 20:19	0.6934	U	0.8	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
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Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173371 Lab Sample ID: 449841

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Chloride	07/23/2020 11:08	0.5168	U	1.0	1.5
Nitrate Nitrogen	07/23/2020 11:08	0.07770	U	0.12	0.20
Sulfate	07/23/2020 11:08	0.6828	U	0.8	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
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Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173371

Lab Sample ID: 449843

Analytical Prep Batch # 0

Preparation Date/Time:

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Chloride	07/23/2020 09:38	0.5183	U	1.0	1.5
Nitrate Nitrogen	07/23/2020 09:38	0.07960	U	0.12	0.20
Sulfate	07/23/2020 09:38	0.6842	U	0.8	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173371 Lab Sample ID: 449845

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Chloride	07/22/2020 18:49	0.5257	U	1.0	1.5
Nitrate Nitrogen	07/22/2020 18:49	0.07880	U	0.12	0.20
Sulfate	07/22/2020 18:49	0.6847	U	0.8	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173439

Lab Sample ID: 450473

Analytical Prep Batch # 0

Preparation Date/Time:

ICAL Calibration #: ICAL 0398 I

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total Inorganic Carbon	07/24/2020 11:32	0.07000	U	0.5	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173668

Lab Sample ID: 455162

Analytical Prep Batch # 0

Preparation Date/Time:

ICAL Calibration #: ICAL 0398 I

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total Organic Carbon	07/31/2020 21:37	0	U	0.5	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173668

Lab Sample ID: 455167

Analytical Prep Batch # 0

Preparation Date/Time:

ICAL Calibration #: ICAL 0398 I

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total Organic Carbon	08/01/2020 00:55	0	U	0.5	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173668

Lab Sample ID: 455169

Analytical Prep Batch # 0

Preparation Date/Time:

ICAL Calibration #: ICAL 0398 I

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total Organic Carbon	08/01/2020 03:53	0	U	0.5	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173688 Lab Sample ID: 455223

Analytical Prep Batch #: Preparation Date/Time:

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
COD	07/31/2020 13:17	0.4000			35

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173688 Lab Sample ID: 455226

Analytical Prep Batch #: Preparation Date/Time:

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
COD	07/31/2020 13:17	5.300			35

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173688

Lab Sample ID: 455228

Analytical Prep Batch #:

Preparation Date/Time:

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
COD	07/31/2020 13:17	10.20			35

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173371 Lab Sample ID: 449838

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Chloride	07/22/2020 14:54	0.5125	U	1.0	1.5
Nitrate Nitrogen	07/22/2020 14:54	0.07620	U	0.12	0.20
Sulfate	07/22/2020 14:54	0.6819	U	0.8	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173439 Lab Sample ID: 450471

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: ICAL 0398 I Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total Inorganic Carbon	07/24/2020 09:47	0	U	0.5	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173688 Lab Sample ID: 454511

Analytical Prep Batch # 77490 Preparation Date/Time: 07/31/2020 08:16

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total COD	07/31/2020 13:17	10.20	U	15	35

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 154987

Analytical Run #: 173668 Lab Sample ID: 455160

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: ICAL 0398 I Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total Organic Carbon	07/31/2020 18:21	0	U	0.5	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

5A

SPIKE SAMPLE RECOVERY

Sample Description

54MW12

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix:	LIQUID	SDG No.:	154987
% Solids for Sample:		Concentration Units:	mg/L
Sample No	449836	Parent Sample No.:	448840
Analytical Prep Batch #	0	Analytical Preparation Date/Time:	
Analytical Run #:	173371	ICAL Calibration #:	

Analysis Type	*Initial Analysis*	Analysis Date: -----	07/22/2020	Analysis Time: --------	19:25

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M	
Chloride	87-111	12.2		4.9		8.00	91			
Nitrate Nitrogen	88-111	2.99		1.0		2.00	100			
Sulfate	87-112	28.5		22		8.00	81			*FAIL*

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

5A

SPIKE SAMPLE RECOVERY

Sample Description

IDW-54

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix:	LIQUID	SDG No.:	154987
% Solids for Sample:		Concentration Units:	mg/L
Sample No	454521	Parent Sample No.:	448843
Analytical Prep Batch #	77490	Analytical Preparation Date/Time:	07/31/2020 08:16
Analytical Run #:	173688	ICAL Calibration #:	

Analysis Type *Initial Analysis* Analysis Date: ----- 07/31/2020 Analysis Time: -------- 13:17

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M	
COD	90-110	171		BDL	U	148	116		SP	*FAIL*

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

5A

SPIKE SAMPLE RECOVERY

Sample Description

54MW12

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix:	LIQUID	SDG No.:	154987
% Solids for Sample:		Concentration Units:	mg/L
Sample No	455164	Parent Sample No.:	448840
Analytical Prep Batch #	0	Analytical Preparation Date/Time:	
Analytical Run #:	173668	ICAL Calibration #:	ICAL 0398 I

Analysis Type	*Initial Analysis*	Analysis Date: -----	07/31/2020	Analysis Time: --------	23:33

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Total Organic Carbon	85-111	51.0		BDL	U	50.0	102		TOC

BDL = analyte concentration was below detection limit

CT LABORATORIES
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5C

SPIKE DUPLICATE SAMPLE RECOVERY

Sample Description

IDW-54

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix:	LIQUID	SDG No.:	154987
% Solids for Sample:		Concentration Units:	mg/L
Sample No	454522	Parent Sample No.:	454521
Analytical Prep Batch #	77490	Analytical Preparation Date/Time:	07/31/2020 08:16
Analytical Run #:	173688	ICAL Calibration #:	

Analysis Type *Initial Analysis* Analysis Date: ----- 07/31/2020 Analysis Time: -------- 13:17

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M	
COD	90-110	169		BDL	U	148	114		SP	*FAIL*

BDL = analyte concentration was below detection limit

CT LABORATORIES
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5C

SPIKE DUPLICATE SAMPLE RECOVERY

Sample Description: **54MW12**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix:	LIQUID	SDG No.:	154987
% Solids for Sample:		Concentration Units:	mg/L
Sample No	455165	Parent Sample No.:	455164
Analytical Prep Batch #	0	Analytical Preparation Date/Time:	
Analytical Run #:	173668	ICAL Calibration #:	ICAL 0398 I

Analysis Type: *Initial Analysis* Analysis Date: ----- 07/31/2020 Analysis Time: -------- 23:47

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Total Organic Carbon	85-111	50.9		BDL	U	50.0	102		TOC

BDL = analyte concentration was below detection limit

CT LABORATORIES
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5C

SPIKE DUPLICATE SAMPLE RECOVERY

Sample Description

54MW12

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix:	LIQUID	SDG No.:	154987
% Solids for Sample:		Concentration Units:	mg/L
Sample No	452240	Parent Sample No.:	449836
Analytical Prep Batch #		Analytical Preparation Date/Time:	
Analytical Run #:	173371	ICAL Calibration #:	

Analysis Type	*Initial Analysis*	Analysis Date: -----	07/22/2020	Analysis Time: --------	19:43

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M	
Chloride	87-111	12.2		4.9		8.00	91		IC	
Nitrate Nitrogen	88-111	3.00		1.0		2.00	100		IC	
Sulfate	87-112	28.5		22		8.00	81		IC	*FAIL*

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

6

DUPLICATES

Sample Description

54MW12

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

Matrix: LIQUID

SDG No.: 154987

% Solid for Sample:

Concentration Units: mg/L

Analytical Prep Batch # 1

Analytical Preparation Date/Time 0

Analytical Run #: 173371

ICAL Calibration #:

Sample #: 449837

Parent Sample #: 448840

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Original Parent Conc. (S)	C	Duplicate Conc. (D)	C	RPD	Q	M
Chloride	07/22/2020	19:07	10	4.9		4.81		2		
Nitrate Nitrogen	07/22/2020	19:07	10	1.0		1.03		3		
Sulfate	07/22/2020	19:07	10	22		21.8		1		

CT LABORATORIES
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6

DUPLICATES

Sample Description

IDW-54

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

Matrix: LIQUID

SDG No.: 154987

% Solid for Sample:

Concentration Units: S.U.

Analytical Prep Batch # 1

Analytical Preparation Date/Time

Analytical Run #: 173373

ICAL Calibration #:

Sample #: 453805

Parent Sample #: 448843

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim	RPD Limit	Original Parent Conc. (S)	C	Duplicate Conc. (D)	C	RPD	Q	M
pH	07/22/2020 14:07	1	7.37		7.41		1		ELEC

CT LABORATORIES
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6

DUPLICATES

Sample Description

54MW12

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

Matrix: LIQUID

SDG No.: 154987

% Solid for Sample:

Concentration Units: mg/L

Analytical Prep Batch # 1

Analytical Preparation Date/Time 0

Analytical Run #: 173668

ICAL Calibration #: ICAL 0398 I

Sample #: 455163

Parent Sample #: 448840

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Original Parent Conc. (S)	C	Duplicate Conc. (D)	C	RPD	Q	M
Total Organic Carbon	07/31/2020	23:16	20	0.50	U	0.50	U	0		TOC

CT LABORATORIES
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6A

MATRIX SPIKE DUPLICATES

Sample Description: **IDW-54**

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix: LIQUID
SDG No.: 154987
% Solid for Sample:
Concentration Units: mg/L
Analytical Prep Batch #: 77490
Analytical Preparation Date/Time: 07/31/2020 08:16
Analytical Run #: 173688
ICAL Calibration #:
Sample #: 454522
Parent Sample #: 454521

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Matrix Spik Parent Conc. (S)	C	Matrix Spike Duplicate Conc. (D)	C	RPD	Q	M
COD	07/31/2020	13:17	20	171		169		1		SP

CT LABORATORIES
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6A

MATRIX SPIKE DUPLICATES

Sample Description: **54MW12**

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix: LIQUID
SDG No.: 154987
% Solid for Sample:
Concentration Units: mg/L
Analytical Prep Batch #: 0
Analytical Preparation Date/Time:
Analytical Run #: 173668
ICAL Calibration #: ICAL 0398 I
Sample #: 455165
Parent Sample #: 455164

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Matrix Spik Parent Conc. (S)	C	Matrix Spike Duplicate Conc. (D)	C	RPD	Q	M
Total Organic Carbon	07/31/2020	23:47	20	51.0		50.9		0		TOC

CT LABORATORIES
delivering more than data from your environmental analyses

6A

MATRIX SPIKE DUPLICATES

Sample Description: **54MW12**

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix: LIQUID
SDG No.: 154987
% Solid for Sample:
Concentration Units: mg/L
Analytical Prep Batch #:
Analytical Preparation Date/Time:
Analytical Run #: 173371
ICAL Calibration #:
Sample #: 452240
Parent Sample #: 449836

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Matrix Spik Parent Conc. (S)	C	Matrix Spike Duplicate Conc. (D)	C	RPD	Q	M
Chloride	07/22/2020	19:43	15	12.2		12.2		1		IC
Nitrate Nitrogen	07/22/2020	19:43	15	2.99		3.00		1		IC
Sulfate	07/22/2020	19:43	15	28.5		28.5		0		IC

CT LABORATORIES
delivering more than data from your environmental analyses

7-1

Sample No:

LABORATORY CONTROL SAMPLE - AQUEOUS

LCS

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

LCS Source: SPEX and Ultra

SDG No.: 154987

Concentration Units: mg/L

Analytical Run #: 173371

Sample No.:#: 449839

Analytical Prep Batch #: 0

Preparation Date/Time:

ICAL Calibration #:

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
Chloride	07/22/2020 14:36	87-111	14.45		15.00	96		
Nitrate Nitrogen	07/22/2020 14:36	88-111	3.434		3.500	98		
Sulfate	07/22/2020 14:36	87-112	24.38		25.00	98		

CT LABORATORIES
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7-1

Sample No:

LABORATORY CONTROL SAMPLE - AQUEOUS

LCS

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

LCS Source: SPEX and Ultra

SDG No.: 154987

Concentration Units: mg/L

Analytical Run #: 173439

Sample No.:#: 450470

Analytical Prep Batch #: 0

Preparation Date/Time:

ICAL Calibration #: ICAL 0398 I

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
Total Inorganic Carbon	07/24/2020 09:33	85-111	51.52		50.00	103		TOC

CT LABORATORIES
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7-1

Sample No:

LABORATORY CONTROL SAMPLE - AQUEOUS

LCS

Lab Name: CT Laboratories Contract WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

LCS Source: SPEX and Ultra SDG No.: 154987

Concentration Units: mg/L

Analytical Run #: 173688 Sample No.:#: 454513

Analytical Prep Batch #: 77490 Preparation Date/Time: 07/31/2020 08:16

ICAL Calibration #:

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
COD	07/31/2020 13:17	90-110	414.4		400.0	104		SP

CT LABORATORIES
delivering more than data from your environmental analyses

7-1

Sample No:

LABORATORY CONTROL SAMPLE - AQUEOUS

LCS

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

LCS Source: SPEX and Ultra

SDG No.: 154987

Concentration Units: mg/L

Analytical Run #: 173668

Sample No.:#: 455159

Analytical Prep Batch #: 0

Preparation Date/Time:

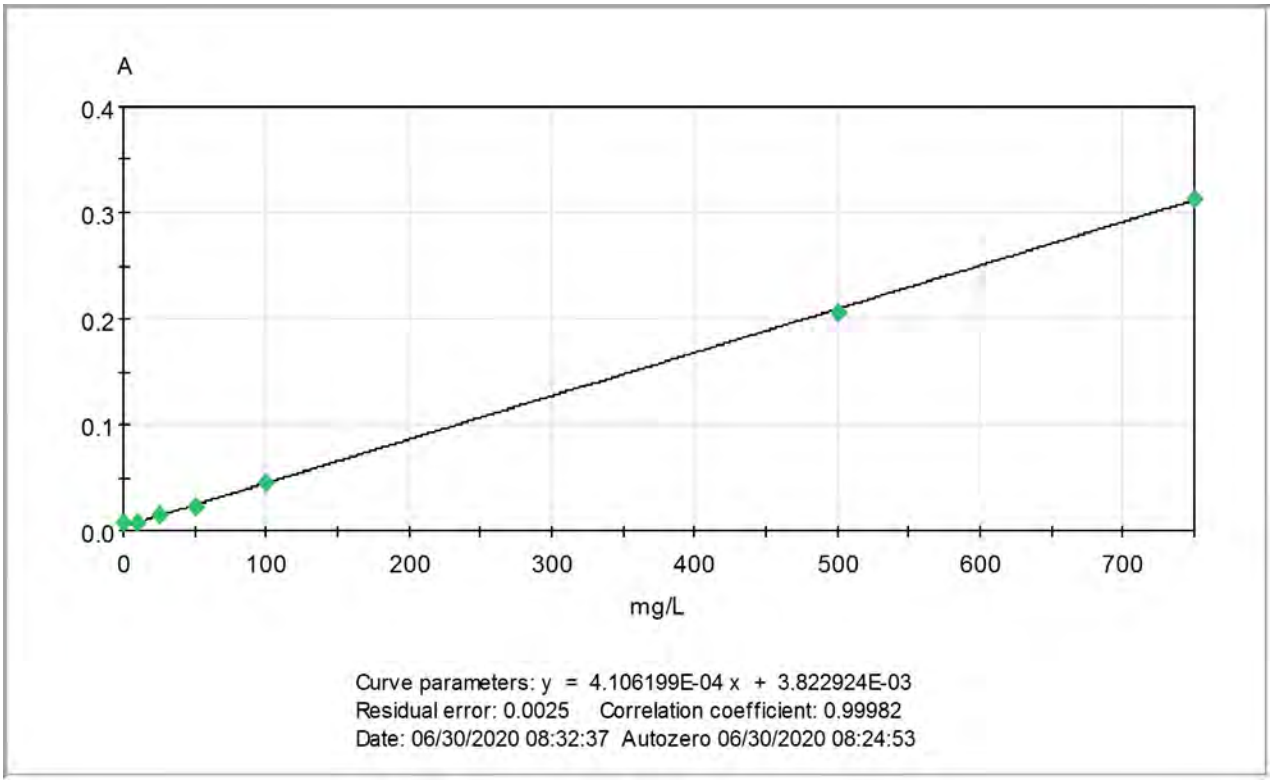
ICAL Calibration #: ICAL 0398 I

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
Total Organic Carbon	07/31/2020 18:08	85-111	51.04		50.00	102		TOC

INORGANICS
RAW DATA
DOCUMENTS

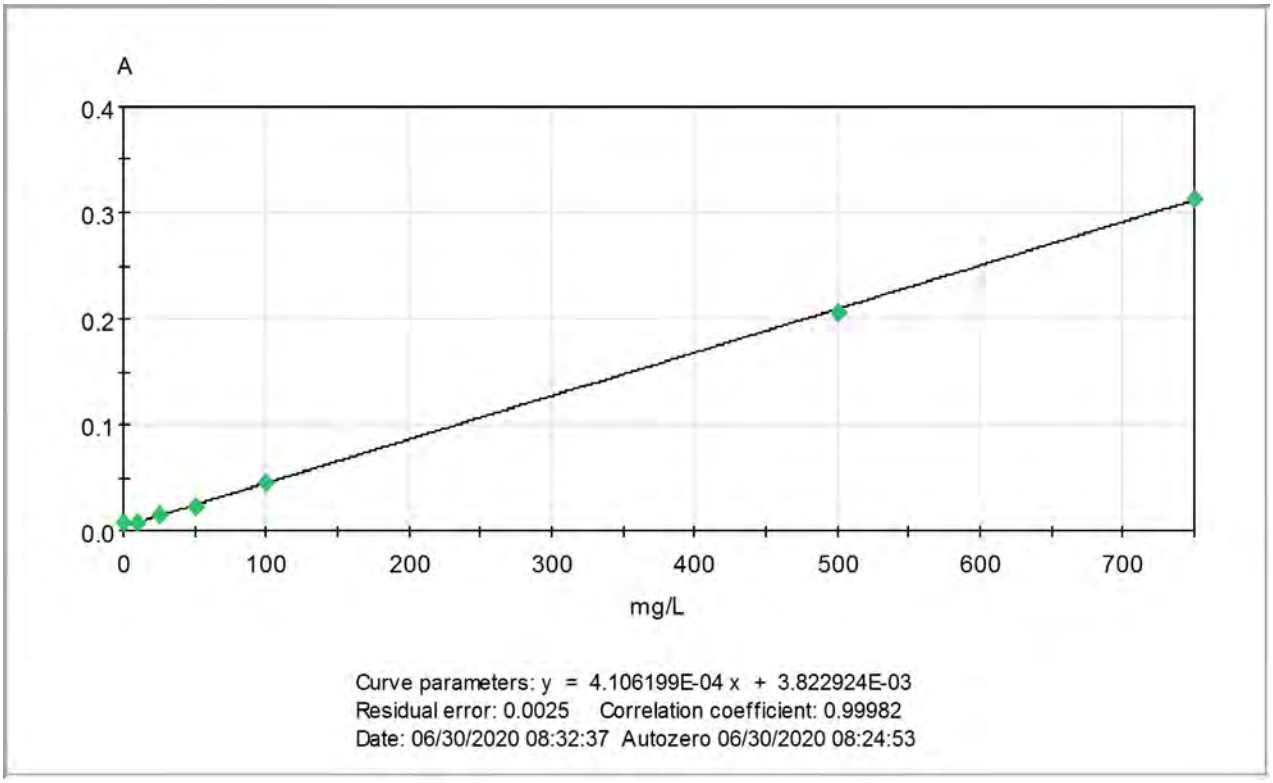
Method: COD W49999.mqa (600 nm)
Last modified: 06/30/2020 08:34:21 by CTLABORATORIES
Spectrophotometer: GENESYS 30
Serial number: 9A1W117104
Firmware: 104



Standards

No.	Concentration [mg/L]	Ordinate [A]	Error [A]	Used
1	0.0	0.007	0.003	Yes
2	10.0	0.007	-0.001	Yes
3	25.0	0.015	0.001	Yes
4	50.0	0.022	-0.002	Yes
5	100.0	0.045	0.000	Yes
6	500.0	0.206	-0.003	Yes
7	750.0	0.314	0.002	Yes

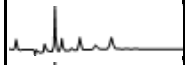
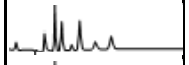
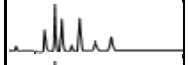
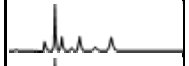
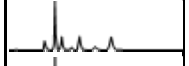
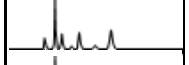
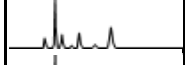
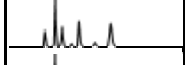
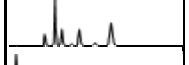
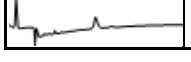
Method: COD W49999.mqa (600 nm)
Last modified: 06/30/2020 08:34:21 by CTLABORATORIES
Spectrophotometer: GENESYS 30
Serial number: 9A1W117104
Firmware: 104
Autozero: 07/31/2020 12:57:51
Measured: 07/31/2020 13:17:12 by CTLABORATORIES
Result filename: 173687 688 DATA.rqa



Sample	Dilution Factor	Ordinate [A]	Concentration [mg/L]
CCV	1	0.169	402.3
CCB	1	0.003	-2.0
454509	1	0.163	387.7
454508	1	0.006	5.3
446870 (X50)	1	0.132	312.2
447988	1	0.010	15.0
448712 (X4)	1	0.078	180.6
448798	1	0.044	97.8
MSW448798	1	0.111	261.0
MSDW448798	1	0.113	265.9
448800 (X50)	1	0.223	533.8
449494 (X50)	1	0.119	280.5
CCV		0.121	discarded
CCV	1	0.172	409.6
CCB	1	0.005	2.9
449496 (X100)	1	0.122	287.8

449497 (X100)	1	0.174	414.4
449498 (X50)	1	0.239	572.7
451914 (X50)	1	0.306	735.9
451961	1	0.033	71.1
MSW451961	1	0.099	231.8
MSDW451961	1	0.099	231.8
CCV	1	0.170	404.7
CCB	1	0.004	0.4
ICV	1	0.174	414.4
ICB	1	0.008	10.2
448843	1	0.008	10.2
MSW448843	1	0.074	170.9
MSDW448843	1	0.073	168.5
449324 (X400)	1	0.192	458.3
MSW449324 (X400)	1	0.236	565.4
MSDW449324 (X400)	1	0.236	565.4
449325 (X200)	1	0.273	655.5
449326 (X200)	1	0.285	684.8
CCV	1	0.173	412.0
CCB	1	0.006	5.3
449327 (X100)	1	0.193	460.7
449328 (X100)	1	0.153	363.3
450344 (X2)	1	0.121	285.4
CCV	1	0.172	409.6
CCB	1	0.008	10.2

Sequence: 111919 - IC2732A
Last Update Operator: AQUION

ECD_1	Name	Dilution	Type	Level	Position	Volume	Instrument Method	Processing Method	Status
	STD1	1.0000	Calibration Standard	1	25	5000	Anions 1.0	IC2732A	Finished
	STD2	1.0000	Calibration Standard	2	26	5000	Anions 1.0	IC2732A	Finished
	STD3	1.0000	Calibration Standard	3	27	5000	Anions 1.0	IC2732A	Finished
	STD4	1.0000	Calibration Standard	4	28	5000	Anions 1.0	IC2732A	Finished
	STD5	1.0000	Calibration Standard	5	29	5000	Anions 1.0	IC2732A	Finished
	STD6	1.0000	Calibration Standard	6	30	5000	Anions 1.0	IC2732A	Finished
	STD7	1.0000	Calibration Standard	7	31	5000	Anions 1.0	IC2732A	Finished
	STD8	1.0000	Calibration Standard	8	32	5000	Anions 1.0	IC2732A	Finished
	STD9	1.0000	Calibration Standard	9	33	5000	Anions 1.0	IC2732A	Finished
	ICV	1.0000	Unknown		34	5000	Anions 1.0	IC2732A	Finished
	ICB	1.0000	Unknown		35	5000	Anions 1.0	IC2732A	Finished

Calibration Concentrations

Instrument:AQUION 4	Cal. File: IC2732A				ICV	IC2716 2729		Analyst/Date: TMG 11/19/2019		
Analyte	Cal Level 1 (mg/L)	Cal Level 2 (mg/L)	Cal Level 3 (mg/L)	Cal Level 4 (mg/L)	Cal Level 5 (mg/L)	Cal Level 6 (mg/L)	Cal Level 7 (mg/L)	Cal Level 8 (mg/L)	Cal Level 9 (mg/L)	ICV (mg/L)
Fluoride	0.0	0.1	0.30	0.5	1.0	2.0	5.0			3.5
Chloride	0.0	0.5	0.75	1.0	5.0	10.0	20.0	30.0	40.0	15.0
Bromide	0.0	0.1	0.30	0.5	1.0	2.0	5.0			3.5
Nitrite	0.0	0.1	0.30	0.5	1.0	2.0	5.0			3.5
Nitrate	0.0	0.1	0.30	0.5	1.0	2.0	5.0	7.0		3.5
O-Phoshorous	0.0	0.1	0.30	0.5	1.0	2.0	5.0			3.5
Sulfate	0.0	0.5	0.75	1.0	5.0	10.0	30.0	50.0	70.0	25.0

RJ 01/10/2020

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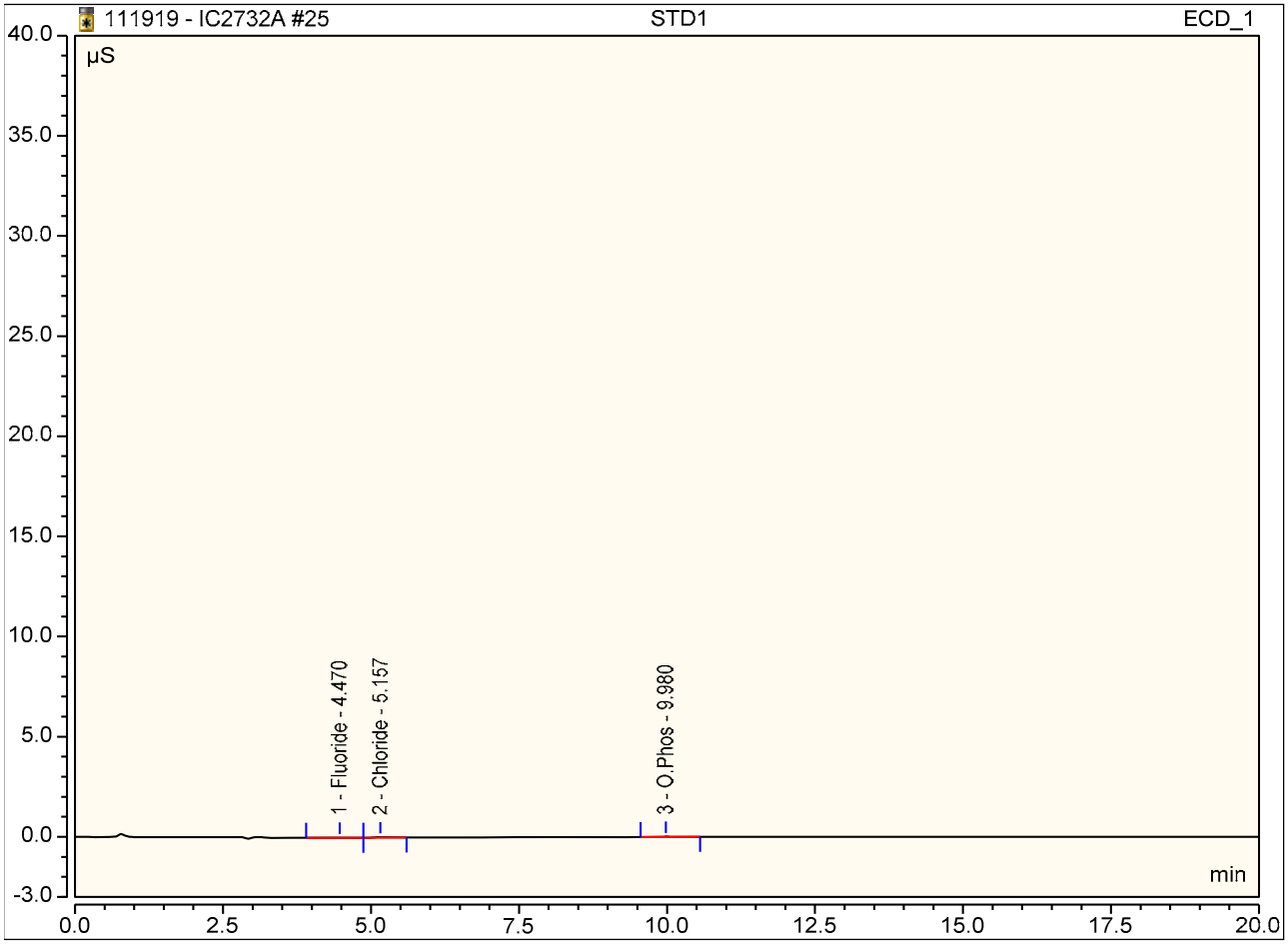
Peak Integration Report

Sample Name:	**STD1**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Calibration Standard**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**AQUION**
Inj. Date / Time:	**19-Nov-2019 / 22:11**	*Run Time:*	**20.00**

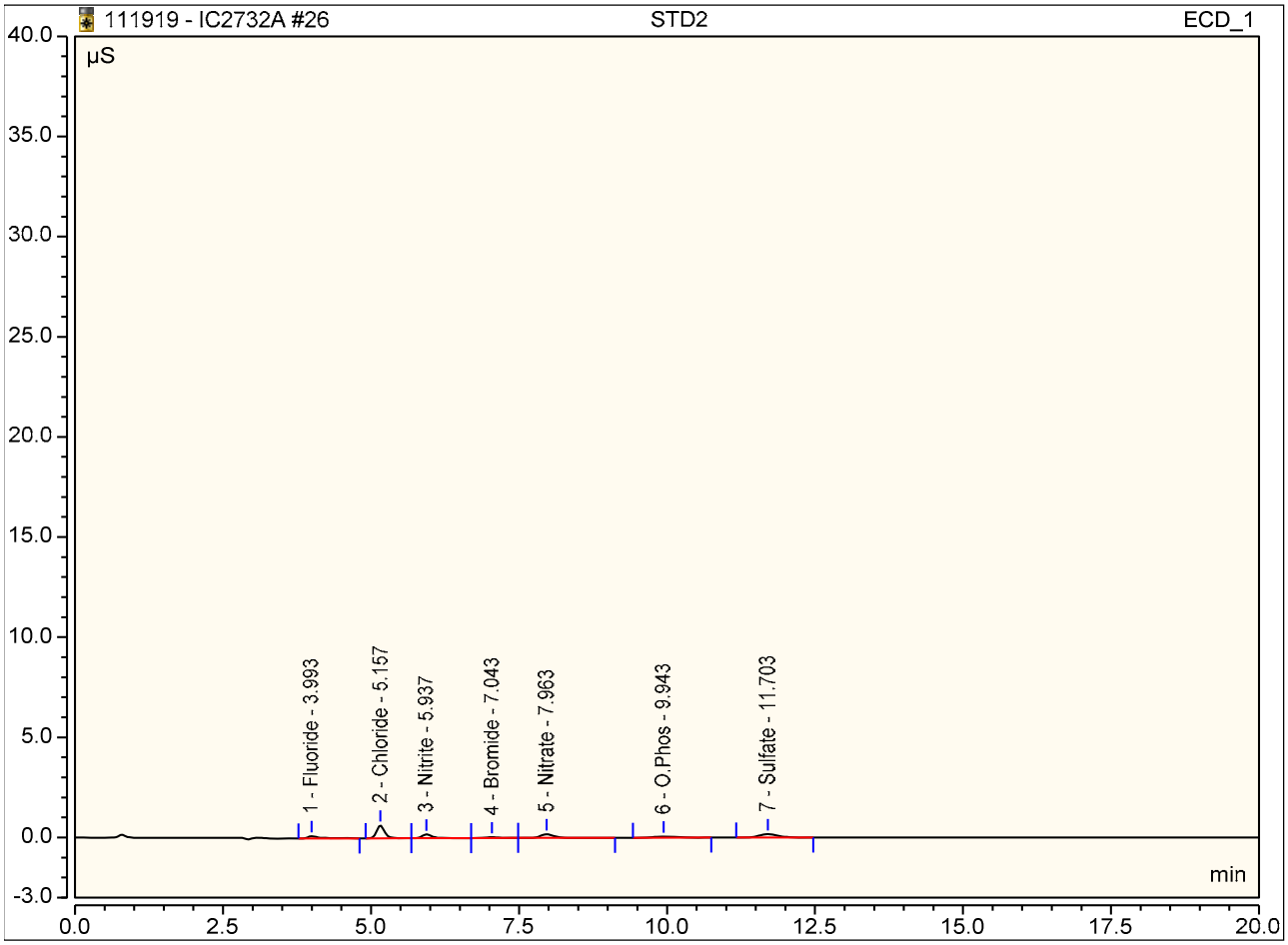
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.47	Fluoride	0.003	0.008	0.0159
2	5.16	Chloride	0.005	0.030	0.4934
3	9.98	O.Phos	0.007	0.017	n.a.



Peak Integration Report

Sample Name:	**STD2**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Calibration Standard**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**AQUION**
Inj. Date / Time:	**19-Nov-2019 / 22:31**	*Run Time:*	**20.00**

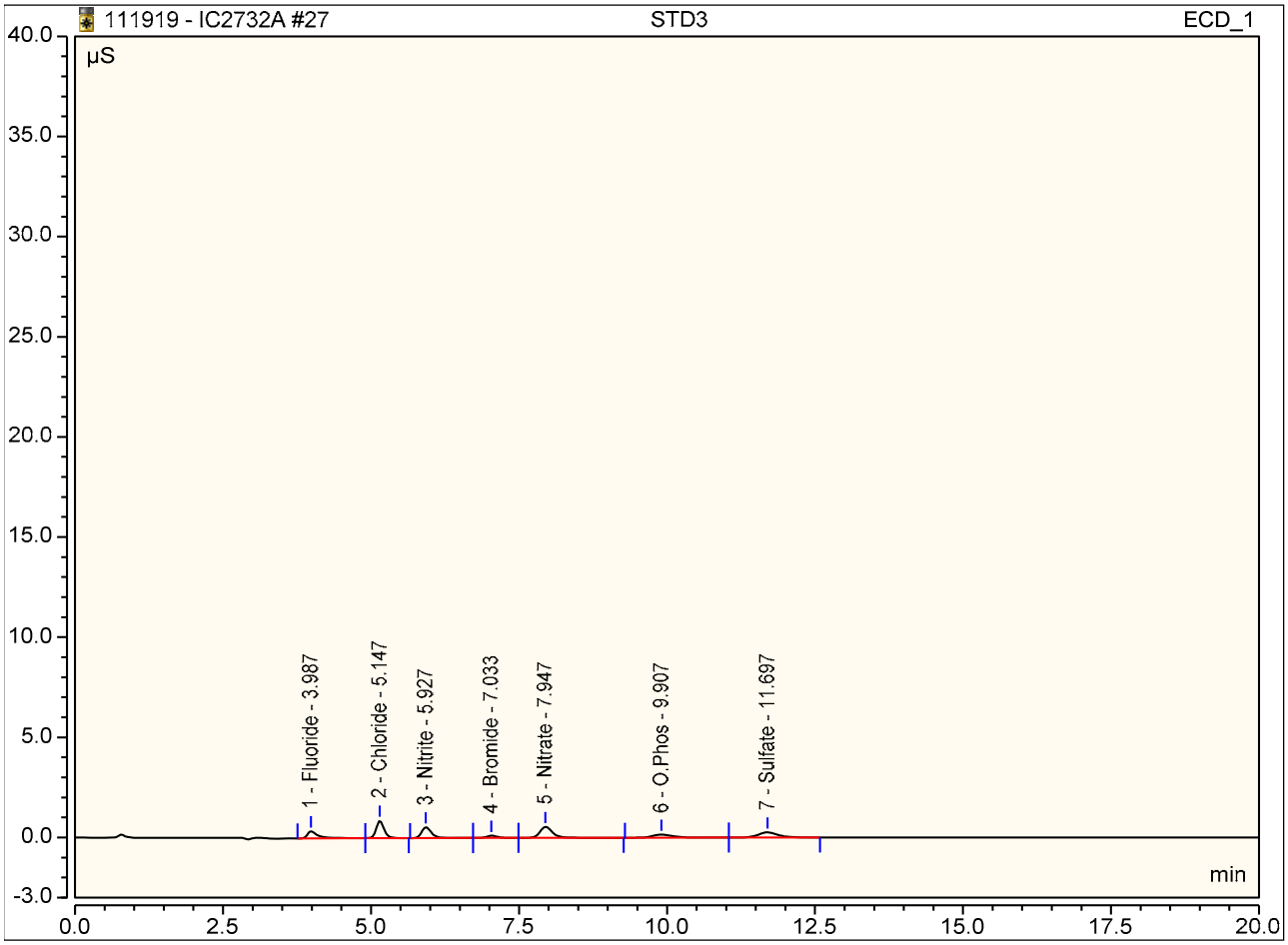
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	3.99	Fluoride	0.029	0.121	0.1155
2	5.16	Chloride	0.101	0.642	0.9050
3	5.94	Nitrite	0.036	0.184	0.1202
4	7.04	Bromide	0.008	0.038	0.1043
5	7.96	Nitrate	0.047	0.187	0.1597
6	9.94	O.Phos	0.026	0.064	0.0958
7	11.70	Sulfate	0.066	0.172	1.0380



Peak Integration Report

Sample Name:	**STD3**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Calibration Standard**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**AQUION**
Inj. Date / Time:	**19-Nov-2019 / 22:51**	*Run Time:*	**20.00**

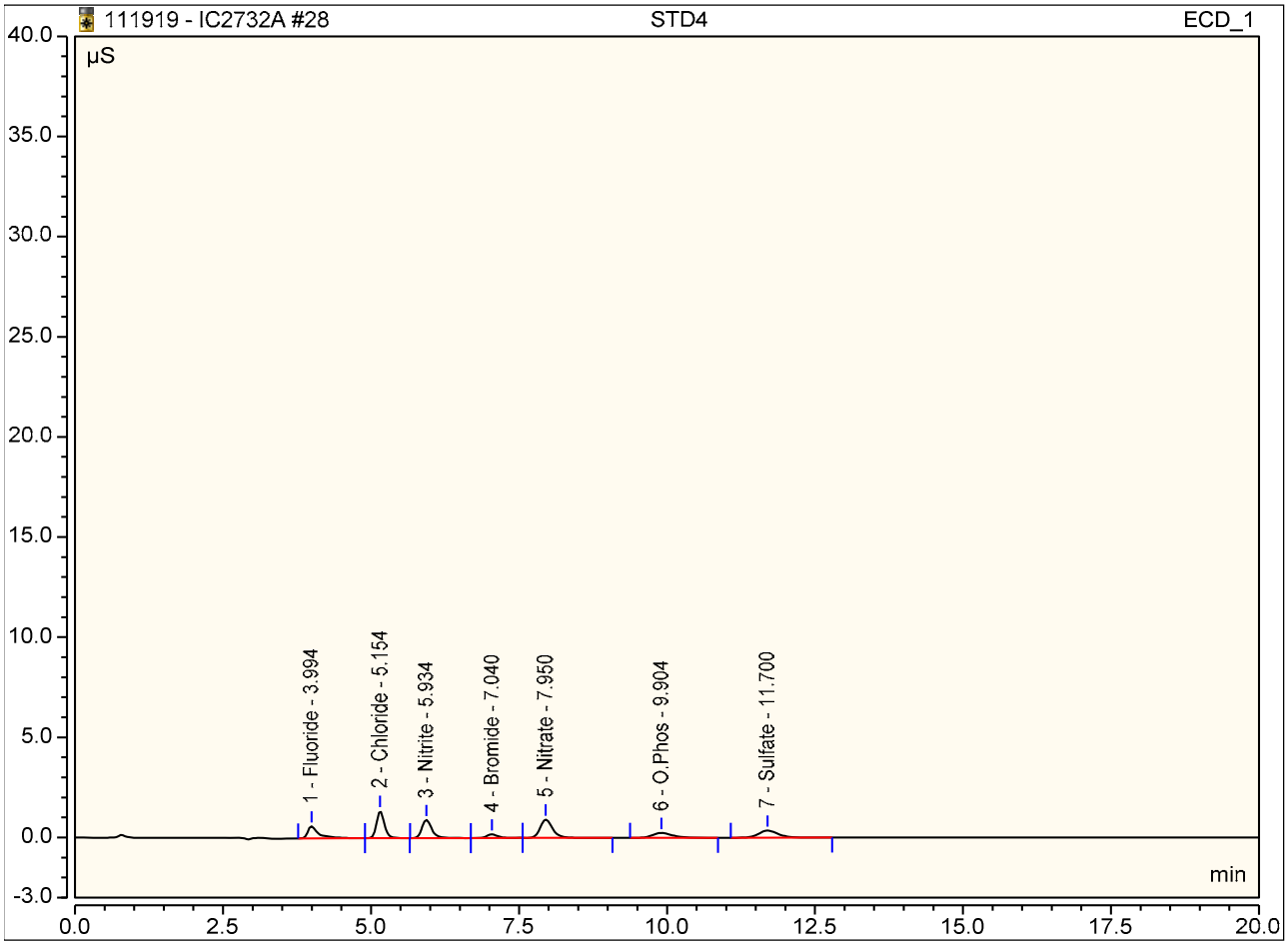
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	3.99	Fluoride	0.080	0.360	0.3013
2	5.15	Chloride	0.137	0.880	1.0634
3	5.93	Nitrite	0.106	0.542	0.3092
4	7.03	Bromide	0.023	0.111	0.3002
5	7.95	Nitrate	0.136	0.546	0.3358
6	9.91	O.Phos	0.061	0.155	0.3113
7	11.70	Sulfate	0.099	0.257	1.2514



Peak Integration Report

Sample Name:	**STD4**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Calibration Standard**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**AQUION**
Inj. Date / Time:	**19-Nov-2019 / 23:11**	*Run Time:*	**20.00**

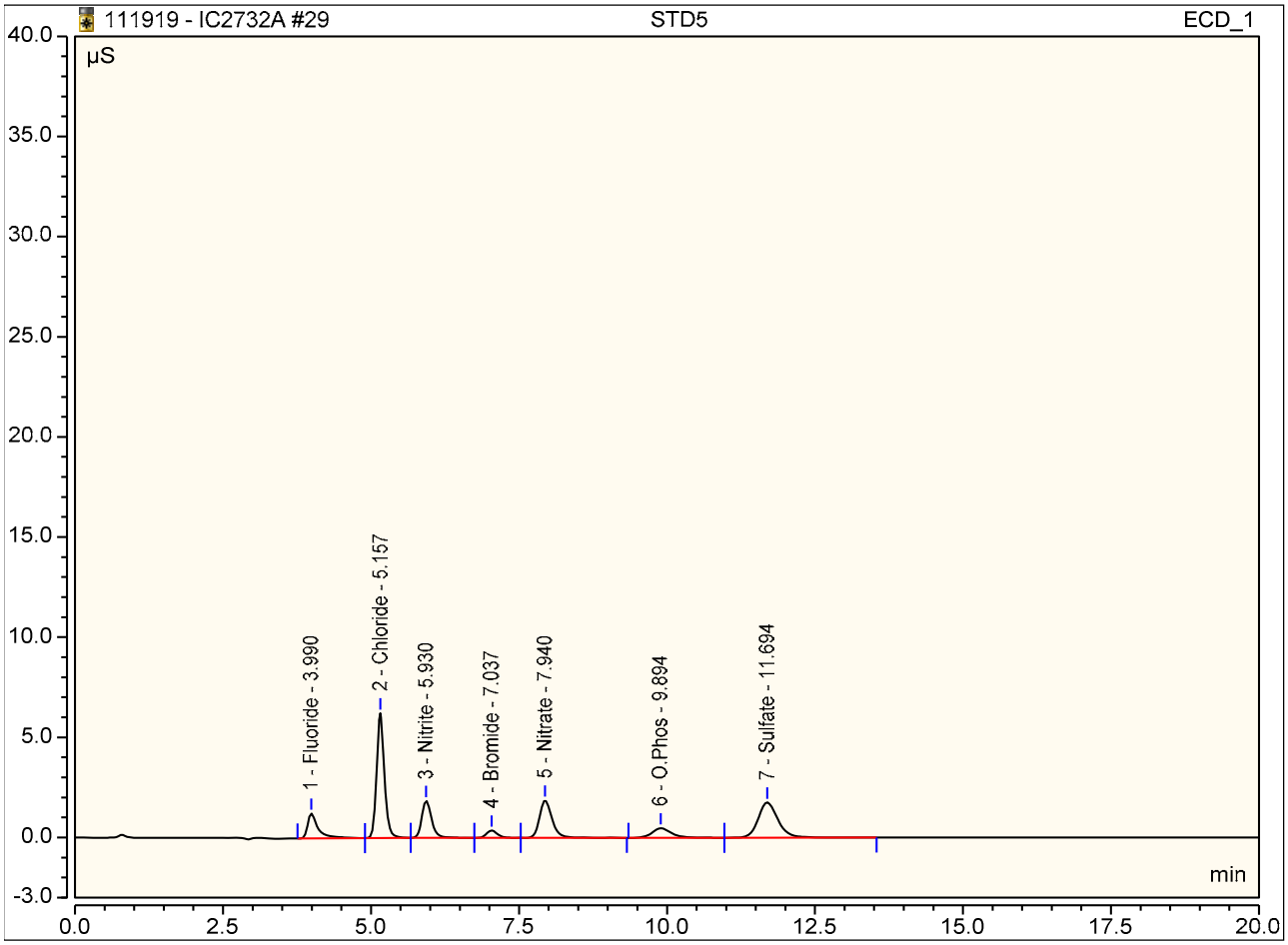
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	3.99	Fluoride	0.137	0.608	0.5149
2	5.15	Chloride	0.213	1.369	1.3911
3	5.93	Nitrite	0.179	0.913	0.5039
4	7.04	Bromide	0.039	0.184	0.5019
5	7.95	Nitrate	0.228	0.922	0.5172
6	9.90	O.Phos	0.094	0.246	0.5097
7	11.70	Sulfate	0.138	0.355	1.4957



Peak Integration Report

Sample Name:	**STD5**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Calibration Standard**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**AQUION**
Inj. Date / Time:	**19-Nov-2019 / 23:31**	*Run Time:*	**20.00**

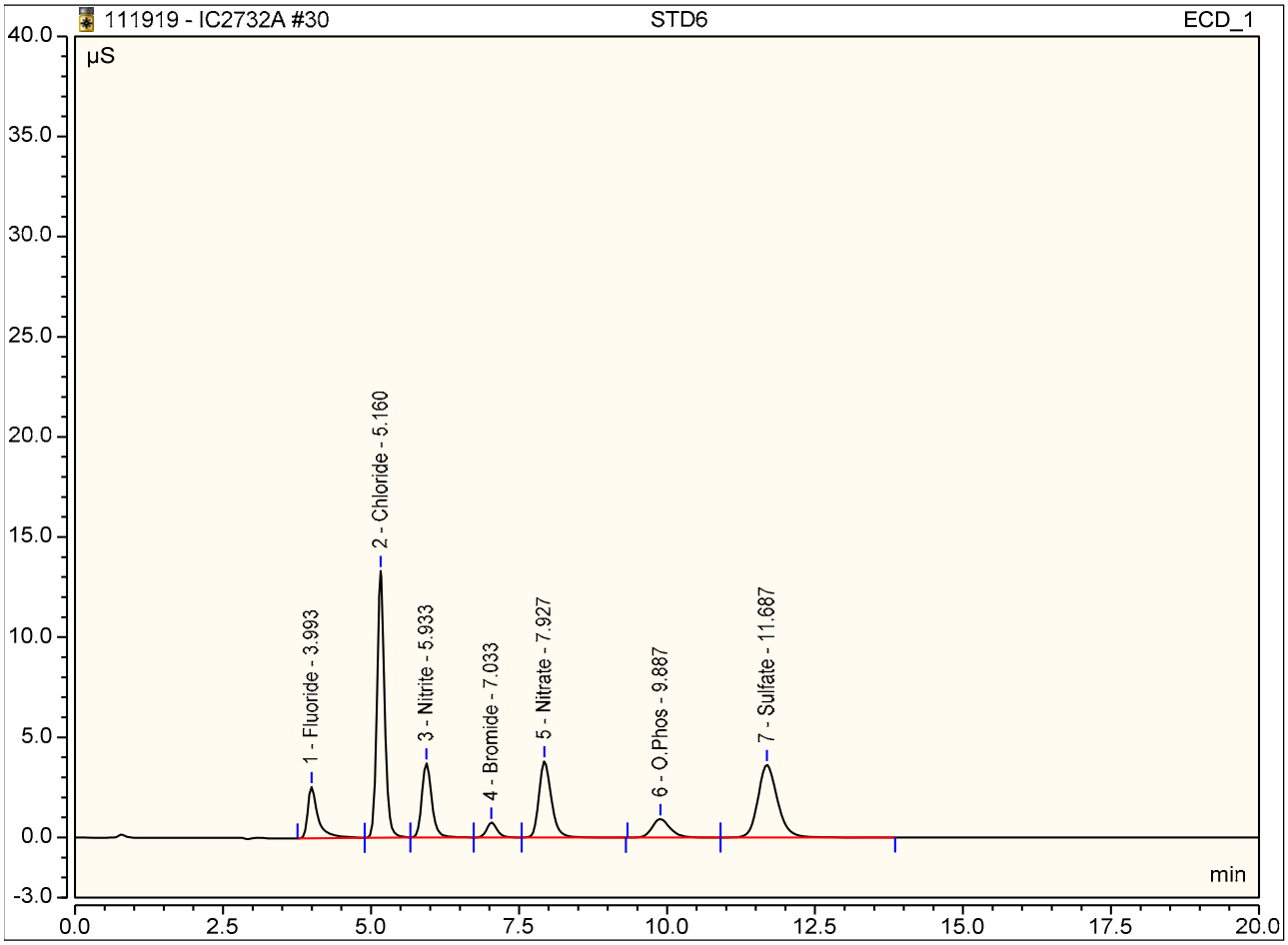
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	3.99	Fluoride	0.262	1.249	0.9787
2	5.16	Chloride	0.948	6.228	4.5546
3	5.93	Nitrite	0.359	1.845	0.9890
4	7.04	Bromide	0.078	0.372	1.0010
5	7.94	Nitrate	0.461	1.870	0.9770
6	9.89	O.Phos	0.176	0.474	1.0173
7	11.69	Sulfate	0.683	1.757	4.9423



Peak Integration Report

Sample Name:	**STD6**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Calibration Standard**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**AQUION**
Inj. Date / Time:	**19-Nov-2019 / 23:51**	*Run Time:*	**20.00**

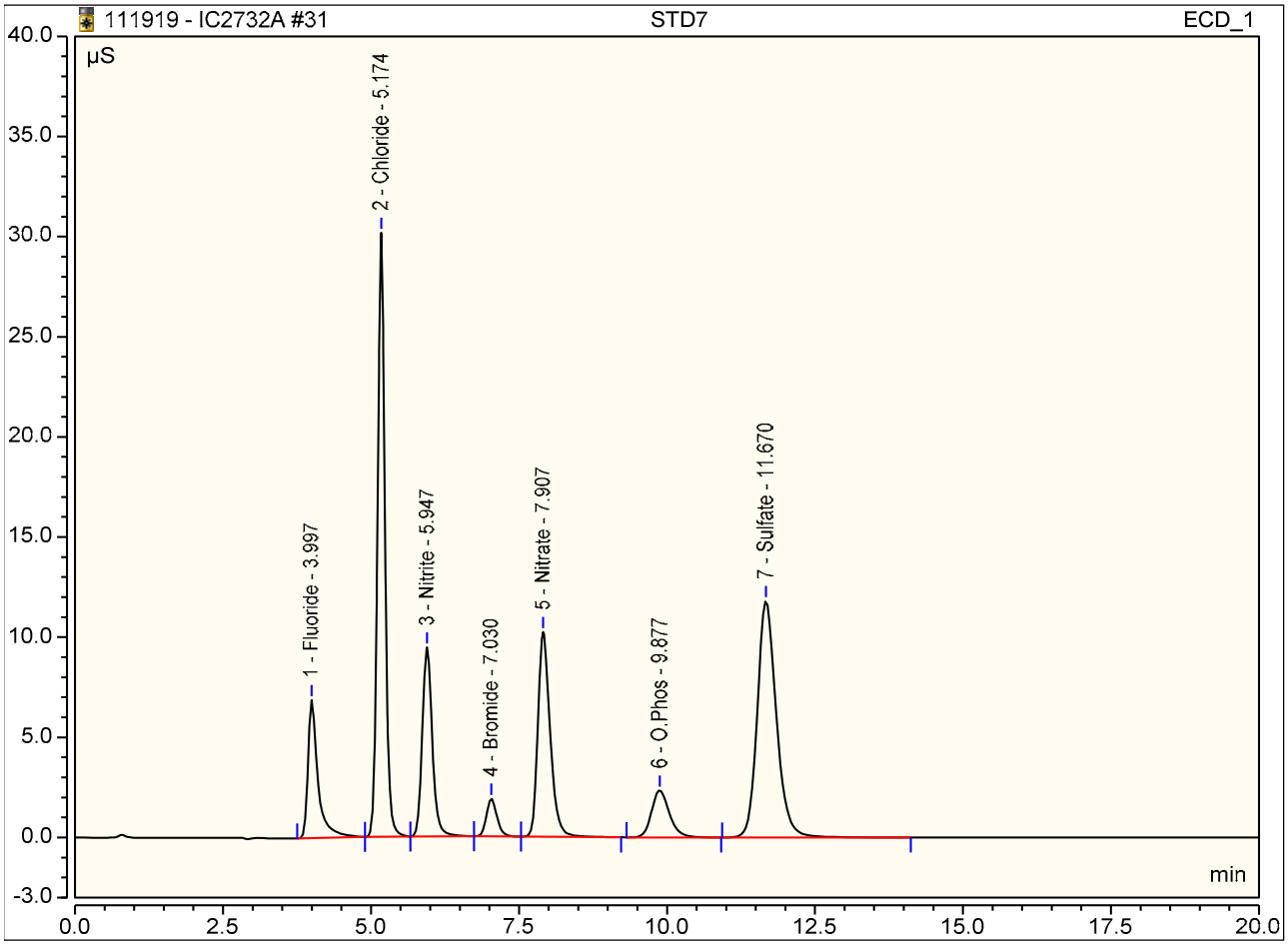
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	3.99	Fluoride	0.525	2.569	1.9523
2	5.16	Chloride	1.975	13.318	8.9813
3	5.93	Nitrite	0.721	3.702	1.9614
4	7.03	Bromide	0.155	0.743	1.9885
5	7.93	Nitrate	0.933	3.812	1.9075
6	9.89	O.Phos	0.334	0.925	1.9907
7	11.69	Sulfate	1.400	3.627	9.4805



Peak Integration Report

Sample Name:	**STD7**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Calibration Standard**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**AQUION**
Inj. Date / Time:	**20-Nov-2019 / 00:11**	*Run Time:*	**20.00**

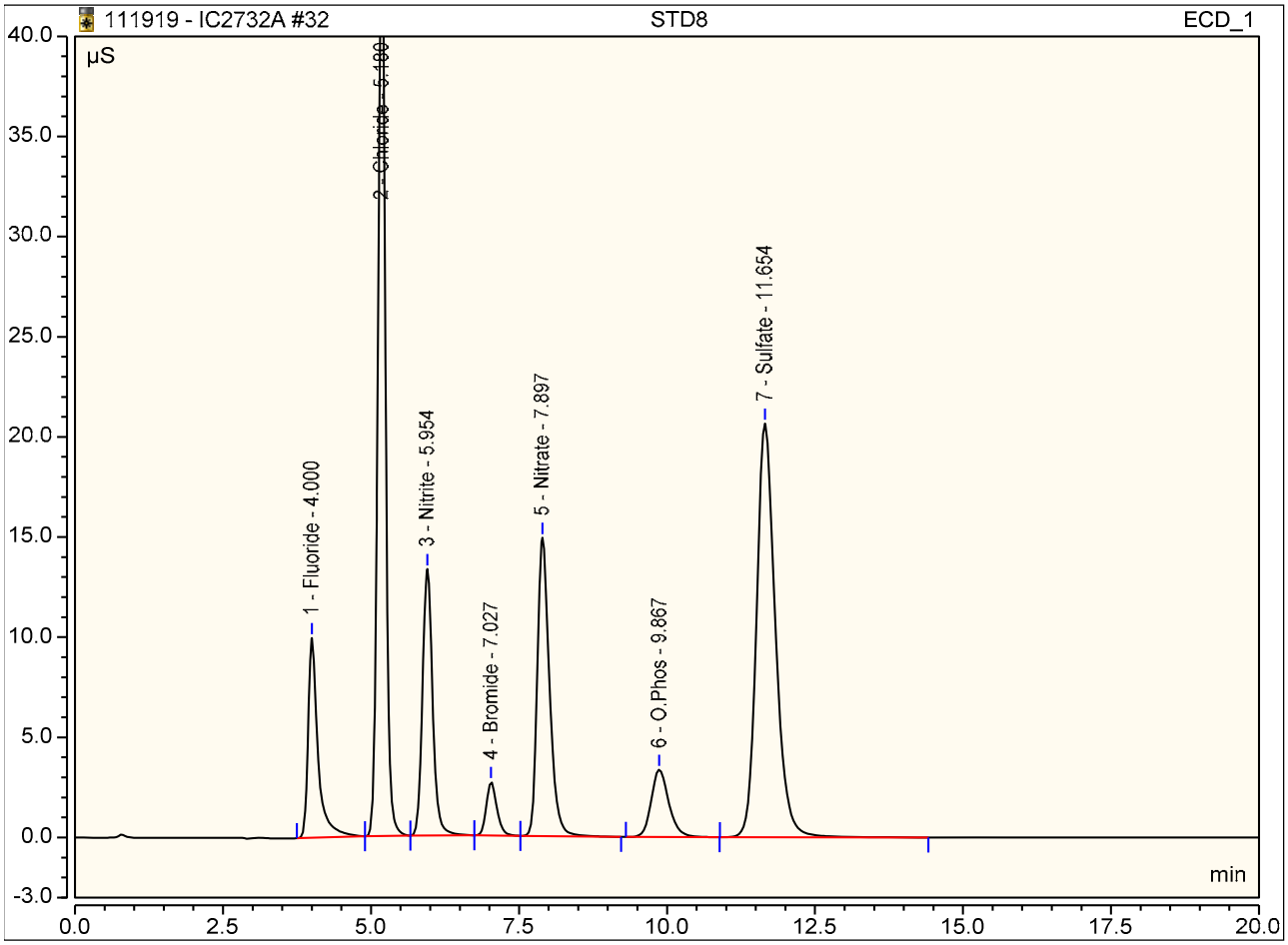
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.00	Fluoride	1.353	6.894	5.0215
2	5.17	Chloride	4.365	30.163	19.2743
3	5.95	Nitrite	1.857	9.442	5.0163
4	7.03	Bromide	0.391	1.888	5.0041
5	7.91	Nitrate	2.458	10.224	4.9183
6	9.88	O.Phos	0.821	2.345	4.9987
7	11.67	Sulfate	4.437	11.813	28.6959



Peak Integration Report

Sample Name:	**STD8**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Calibration Standard**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**AQUION**
Inj. Date / Time:	**20-Nov-2019 / 00:31**	*Run Time:*	**20.00**

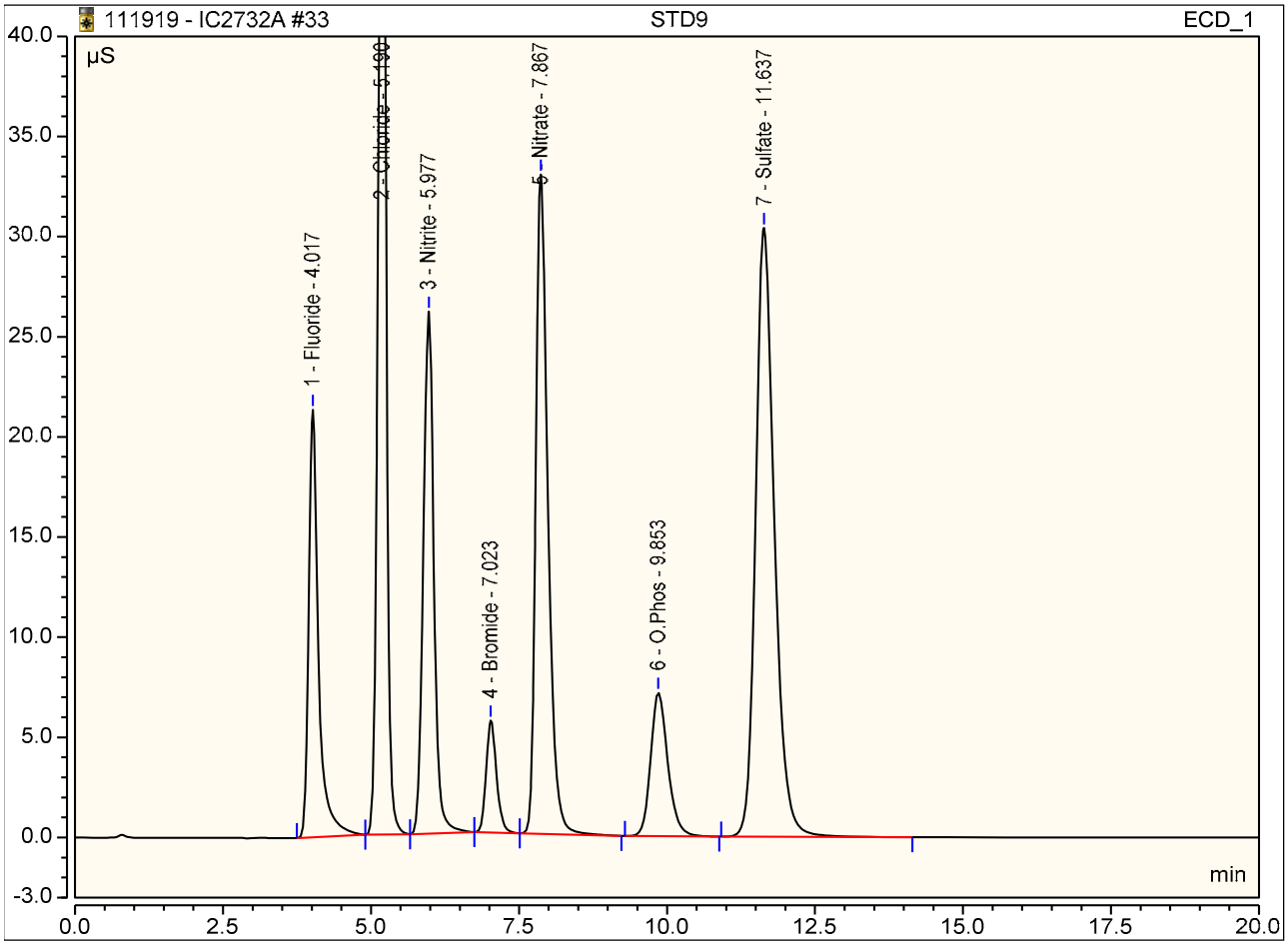
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.00	Fluoride	1.932	9.980	7.1693
2	5.18	Chloride	6.794	47.101	29.7375
3	5.95	Nitrite	2.640	13.302	7.1237
4	7.03	Bromide	0.555	2.679	7.1053
5	7.90	Nitrate	3.555	14.892	7.0844
6	9.87	O.Phos	1.164	3.364	7.1117
7	11.65	Sulfate	7.652	20.652	49.0387



Peak Integration Report

Sample Name:	**STD9**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Calibration Standard**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**AQUION**
Inj. Date / Time:	**20-Nov-2019 / 00:51**	*Run Time:*	**20.00**

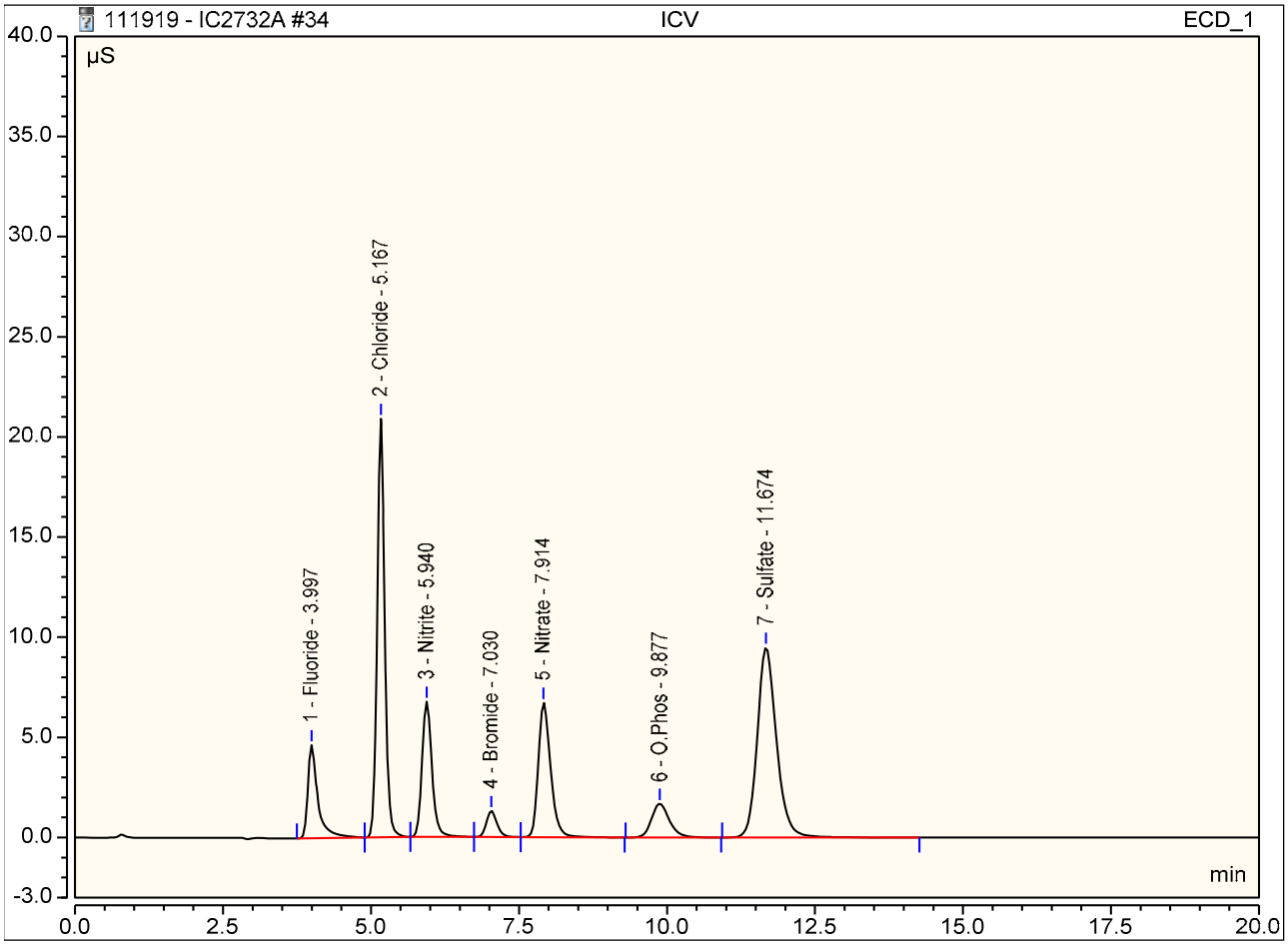
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.02	Fluoride	4.069	21.343	15.0910
2	5.19	Chloride	9.373	64.211	40.8494
3	5.98	Nitrite	5.402	26.068	14.5498
4	7.02	Bromide	1.138	5.595	14.5750
5	7.87	Nitrate	7.791	32.919	15.4457
6	9.85	O.Phos	2.416	7.164	14.8404
7	11.64	Sulfate	11.172	30.393	71.3076



Peak Integration Report

Sample Name:	**ICV**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**AQUION**
Inj. Date / Time:	**20-Nov-2019 / 01:11**	*Run Time:*	**20.00**

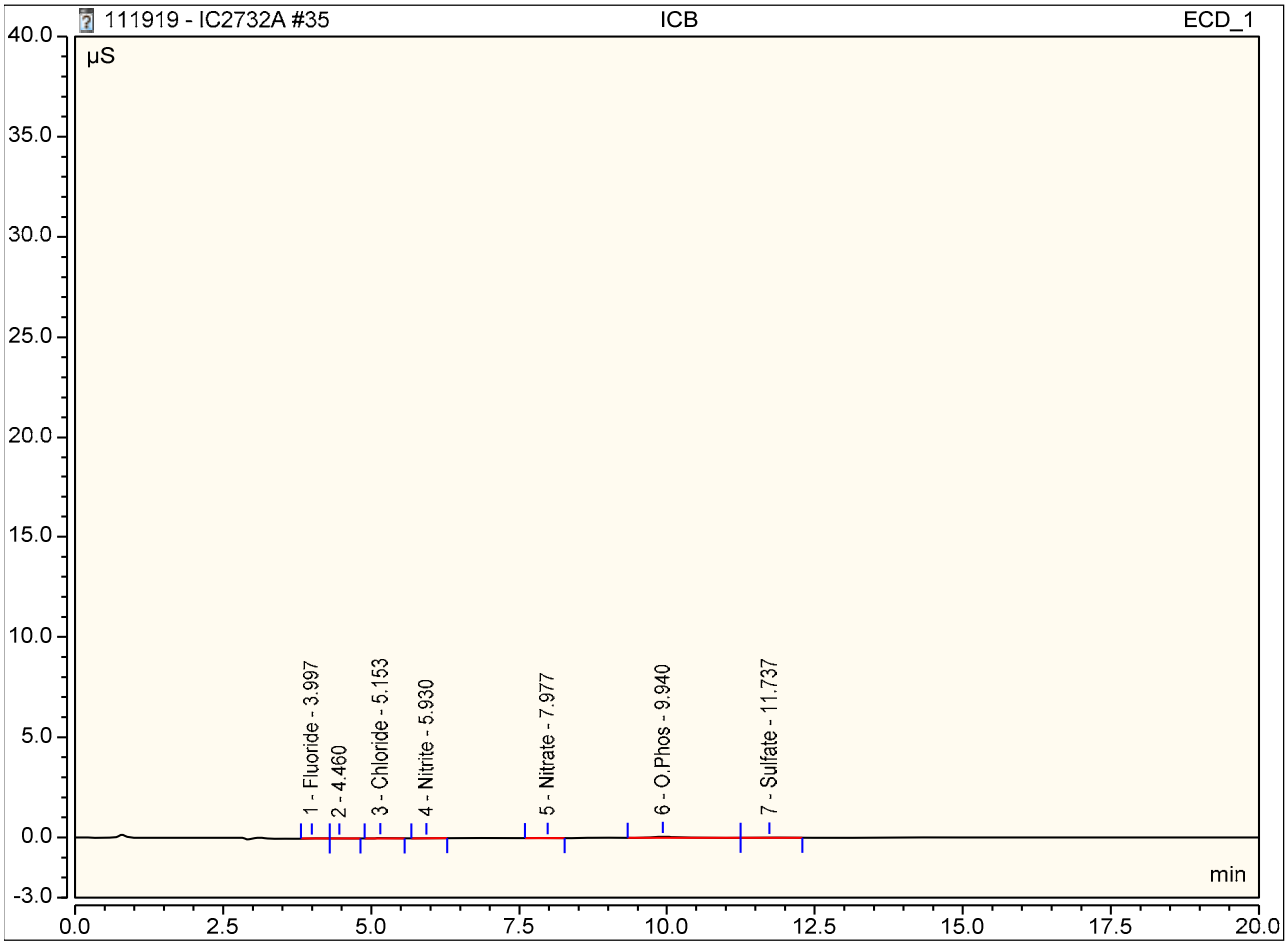
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.00	Fluoride	0.918	4.652	3.4087
2	5.17	Chloride	3.055	20.893	13.6312
3	5.94	Nitrite	1.319	6.762	3.5717
4	7.03	Bromide	0.270	1.299	3.4635
5	7.91	Nitrate	1.629	6.713	3.2822
6	9.88	O.Phos	0.595	1.685	3.6058
7	11.67	Sulfate	3.585	9.487	23.3079



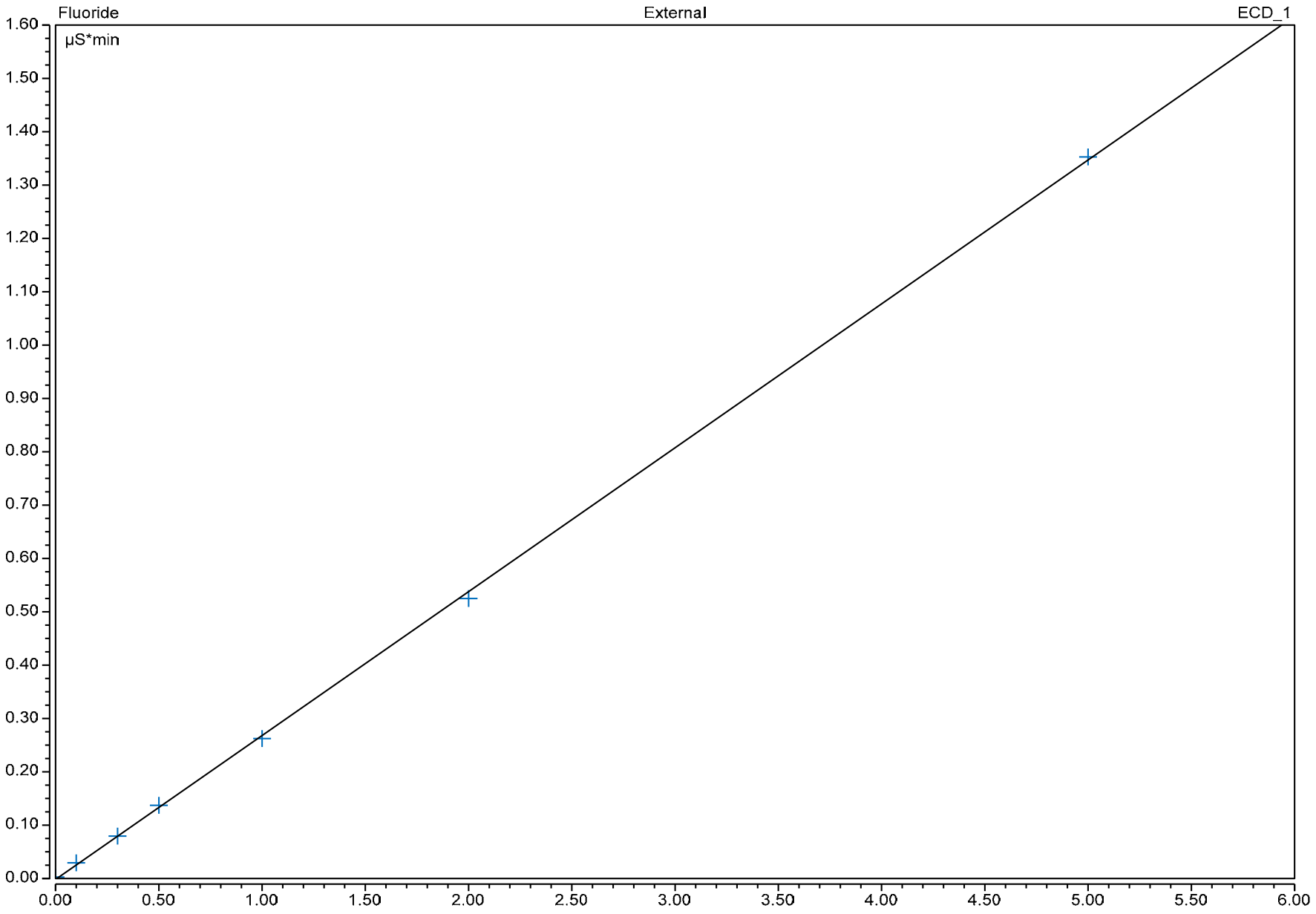
Peak Integration Report

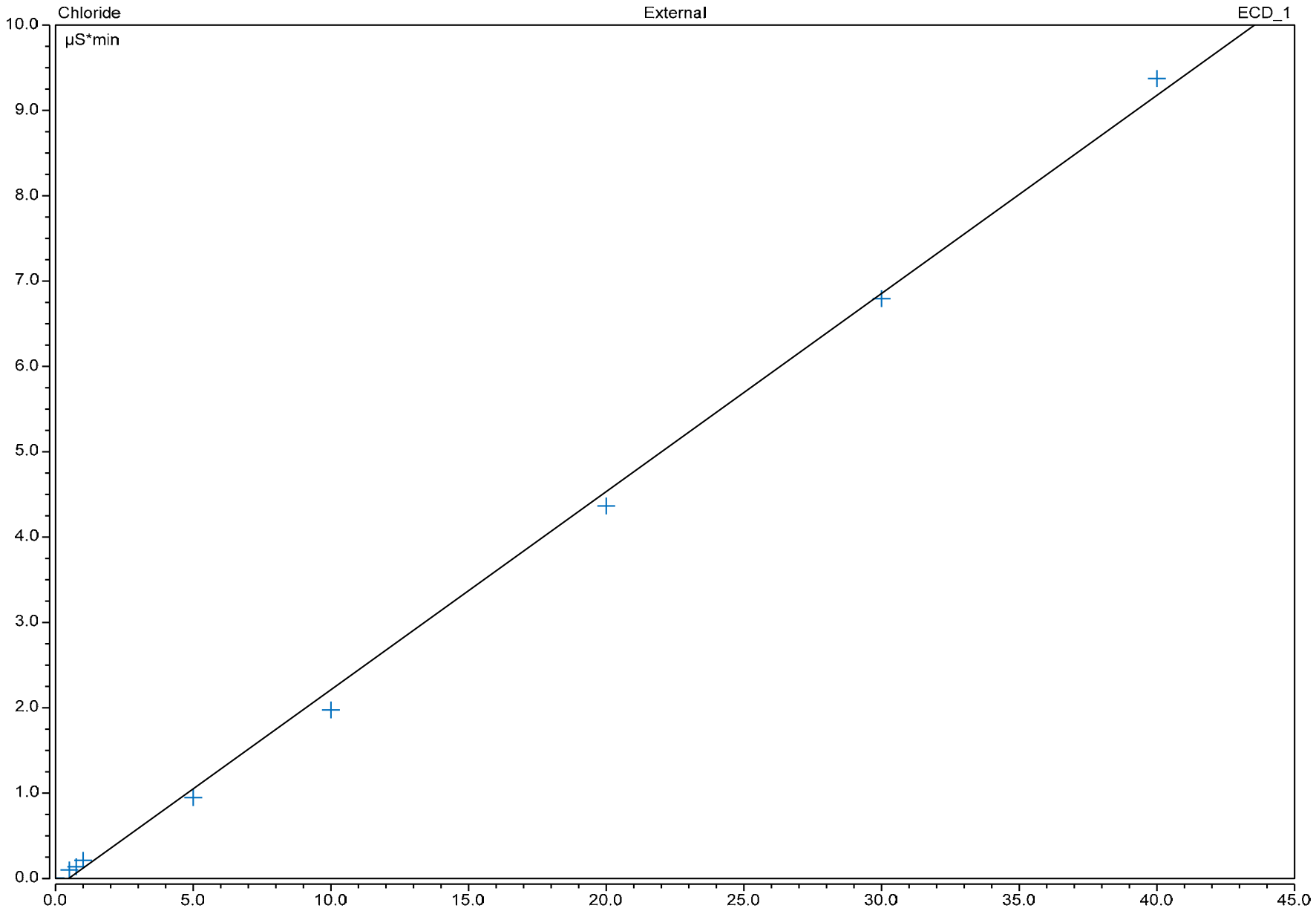
Sample Name:	**ICB**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**AQUION**
Inj. Date / Time:	**20-Nov-2019 / 01:31**	*Run Time:*	**20.00**

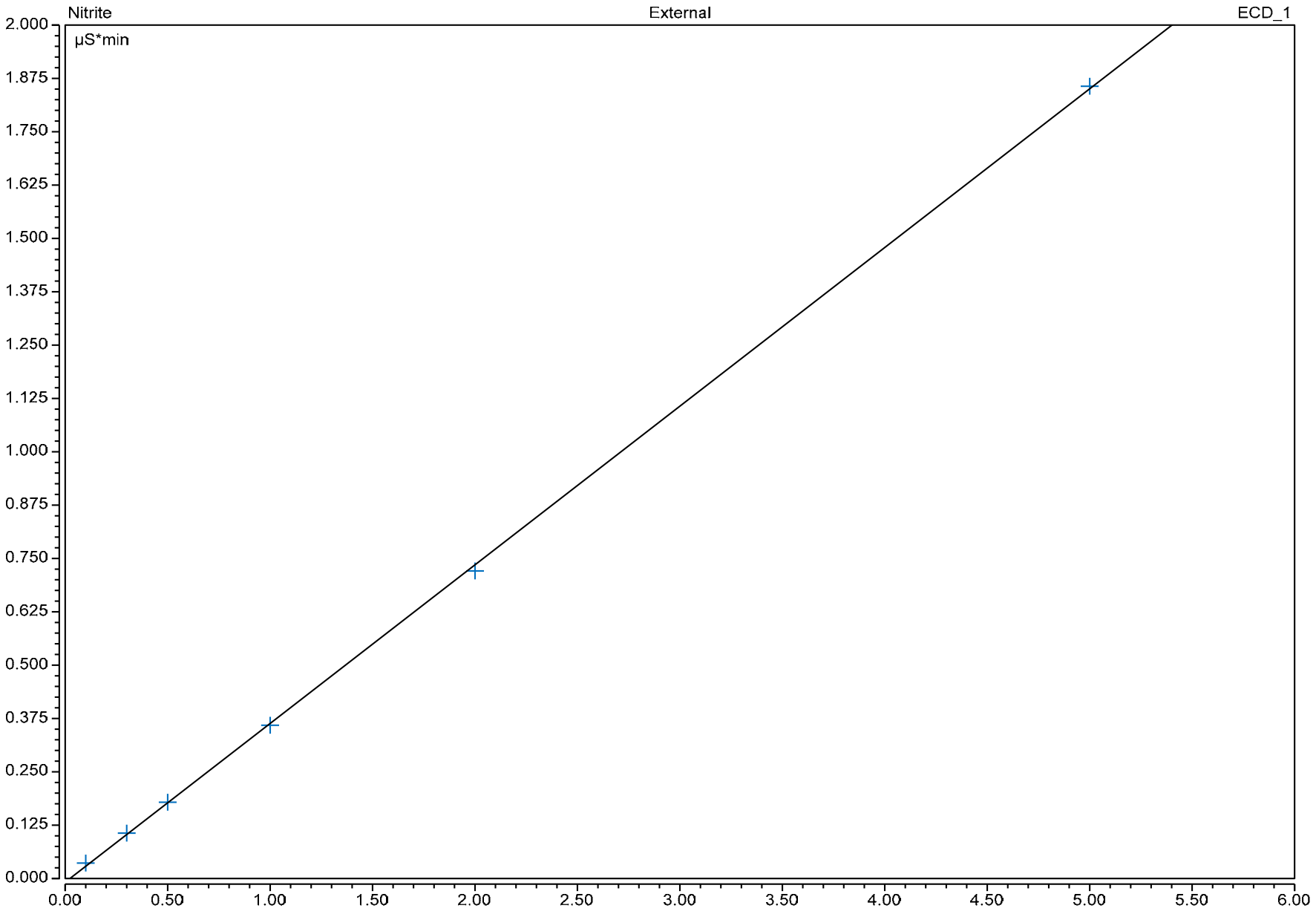
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.00	Fluoride	0.002	0.010	0.0126
3	5.15	Chloride	0.003	0.018	0.4853
4	5.93	Nitrite	0.001	0.005	0.0258
5	7.98	Nitrate	0.001	0.004	0.0686
6	9.94	O.Phos	0.026	0.058	0.0923
7	11.74	Sulfate	0.003	0.007	0.6402



Peak No.	Peak Name	Cal.Type	Eval.Type	Number of Points	Rel.Std.Dev. %	Coeff.of Determination	C0 (Offset)	C1 (Slope)	C2 (Curve)
1	Fluoride	Lin, WithOffset	Area	7	2.2106	0.99979	-0.0017	0.2697	0.0000
2	Chloride	Lin, WithOffset	Area	9	5.9184	0.99817	-0.1095	0.2321	0.0000
3	Nitrite	Lin, WithOffset	Area	6	1.6717	0.99986	-0.0086	0.3718	0.0000
4	Bromide	Lin, WithOffset	Area	6	0.4433	0.99999	0.0000	0.0781	0.0000
5	Nitrate	Lin, WithOffset	Area	7	3.3958	0.99935	-0.0338	0.5066	0.0000
6	O.Phos	Lin, WithOffset	Area	7	1.1453	0.99994	0.0109	0.1621	0.0000
7	*Sulfate*	*Lin, WithOffset*	*Area*	*8*	*4.6746*	*0.99891*	*-0.0984*	*0.1581*	*0.0000*
Maximum					**5.9184**	0.99999			
Minimum					0.4433	**0.99817**			


Fluoride
External
ECD_1
µS*min
1.60
1.50
1.40
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
4.00
4.50
5.00
5.50
6.00


Chloride
External
ECD_1
µS*min
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0


Nitrite
External
ECD_1
µS*min
2.000
1.875
1.750
1.625
1.500
1.375
1.250
1.125
1.000
0.875
0.750
0.625
0.500
0.375
0.250
0.125
0.000
0.00
0.50
1.00
1.50
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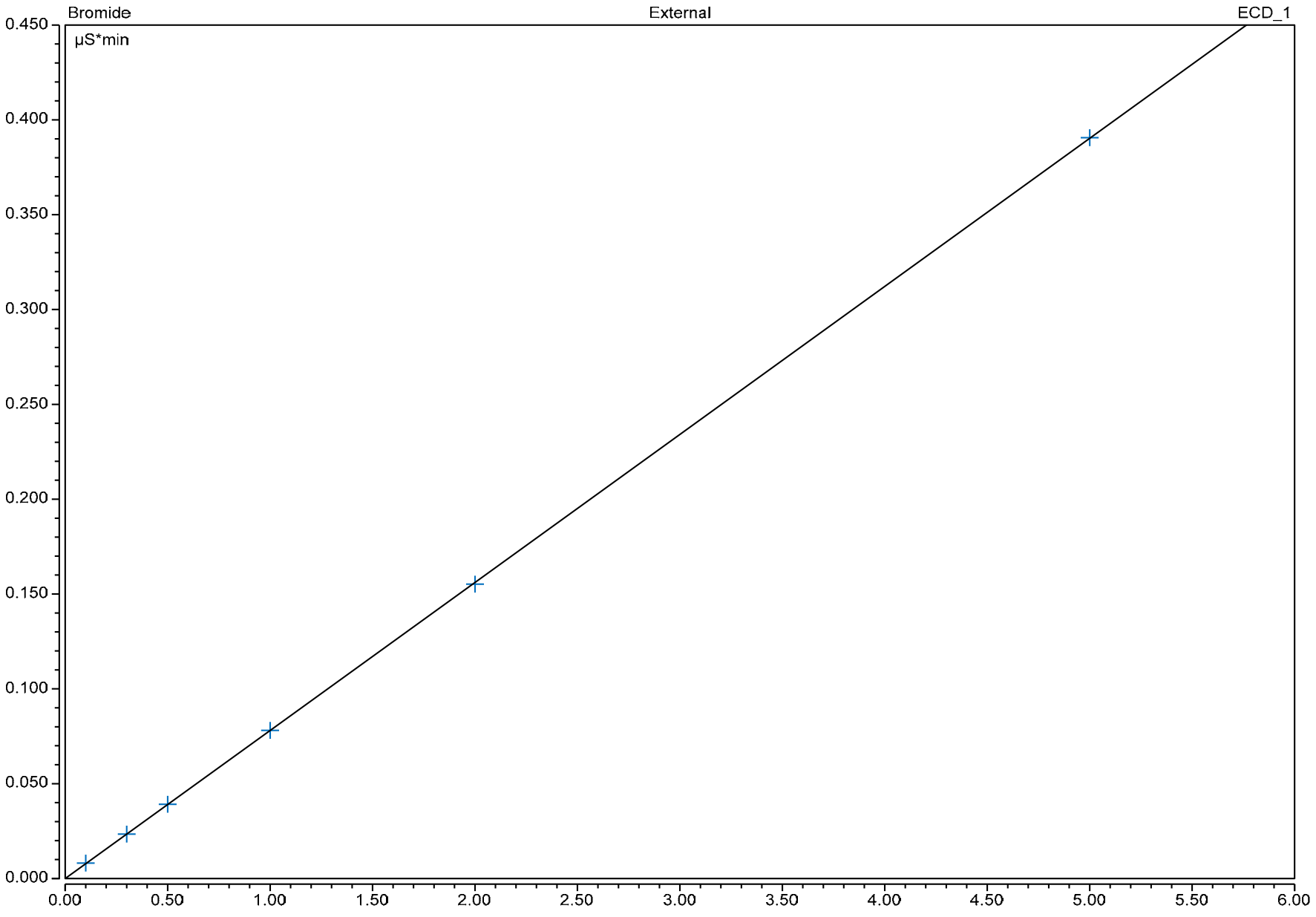
2.50
3.00
3.50
4.00
4.50
5.00
5.50
6.00

RJ 01/10/2020


Bromide
External
ECD_1
µS*min
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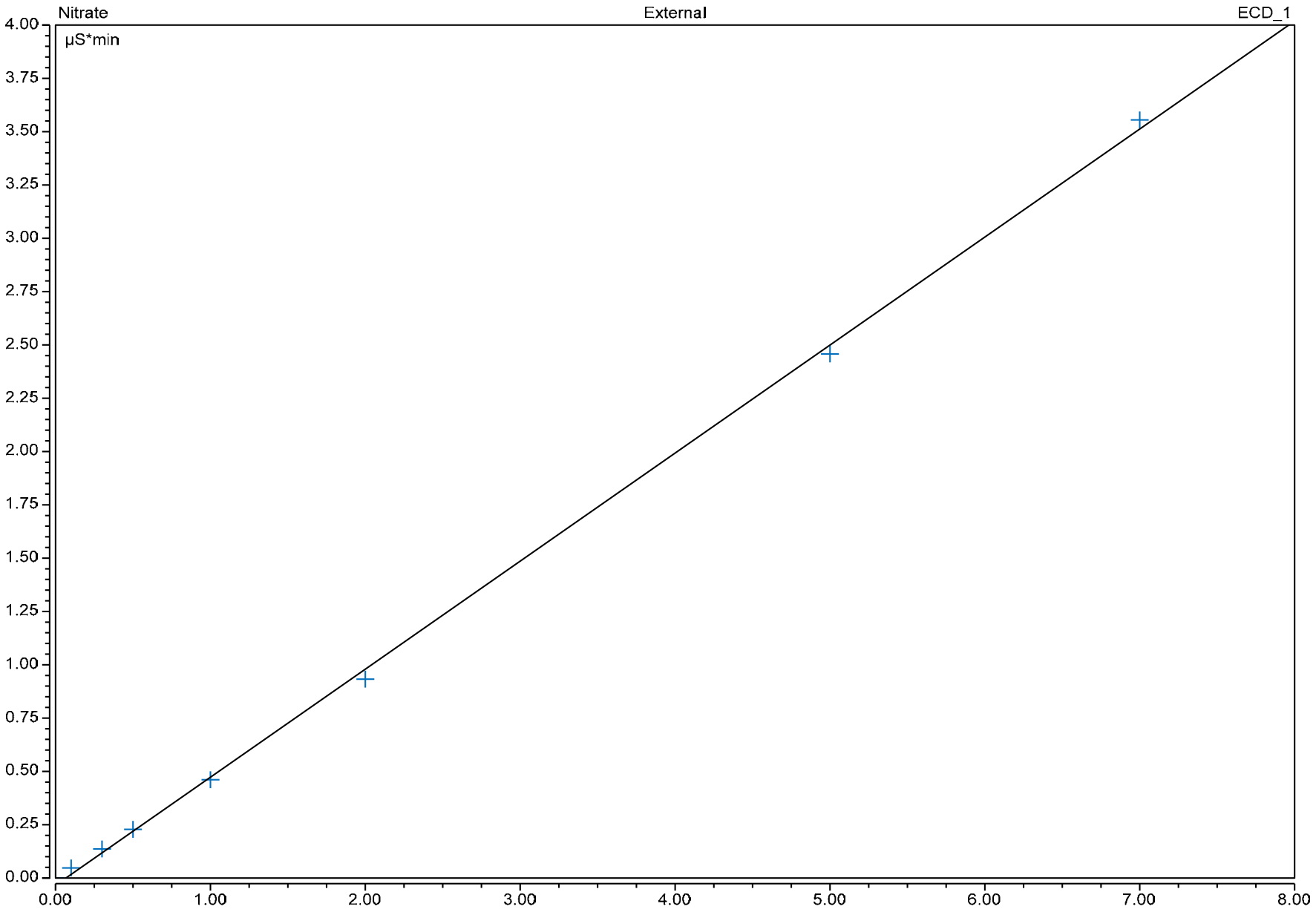
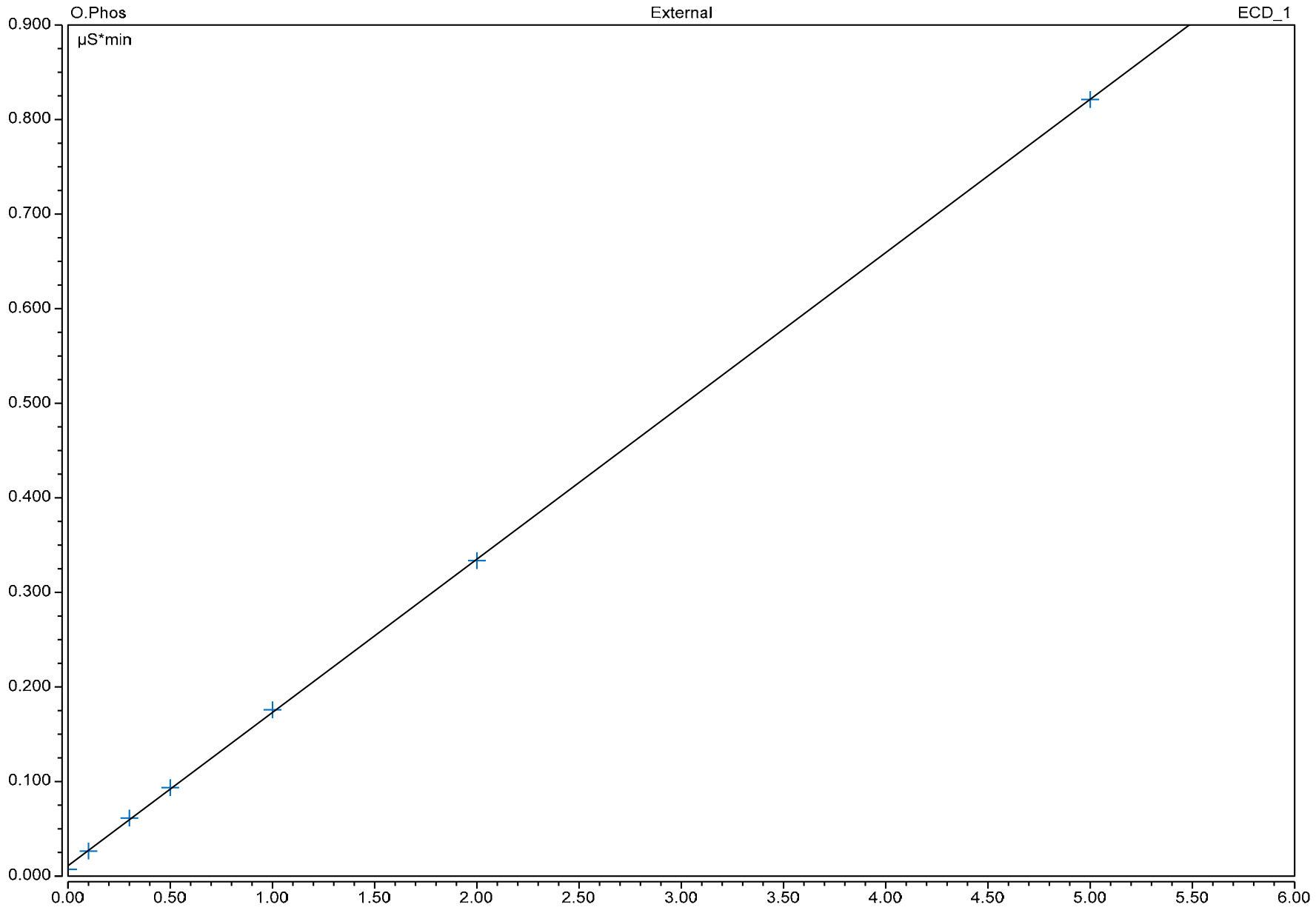
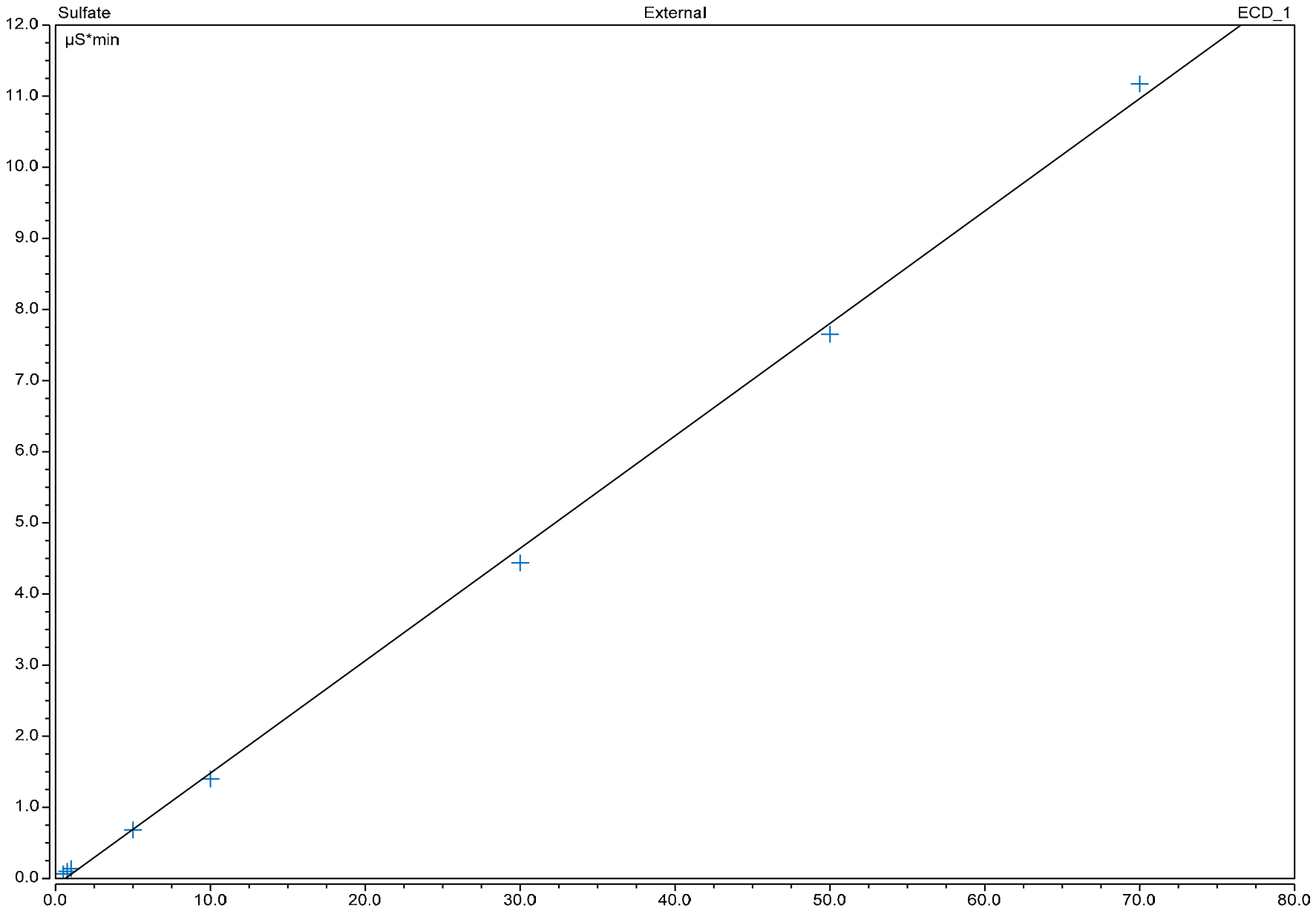
0.400
0.350
0.300
0.250
0.200
0.150
0.100
0.050
0.000
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
4.00
4.50
5.00
5.50
6.00


Nitrate
External
ECD_1
µS*min
4.00
3.75
3.50
3.25
3.00
2.75
2.50
2.25
2.00
1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00

RJ 01/10/2020


O.Phos
External
ECD_1
µS*min
0.900
0.800
0.700
0.600
0.500
0.400
0.300
0.200
0.100
0.000
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
4.00
4.50
5.00
5.50
6.00

RJ 01/10/2020


Sulfate
External
ECD_1
µS*min
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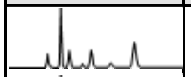
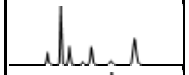
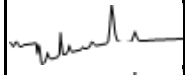
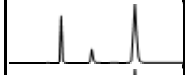
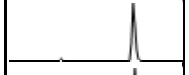
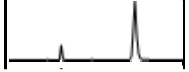
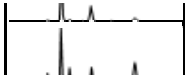
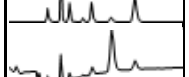
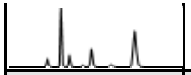
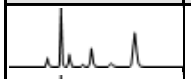
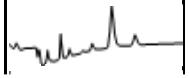
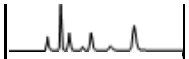
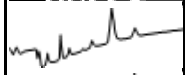
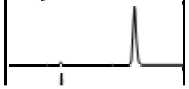
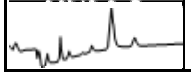
11.0
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0

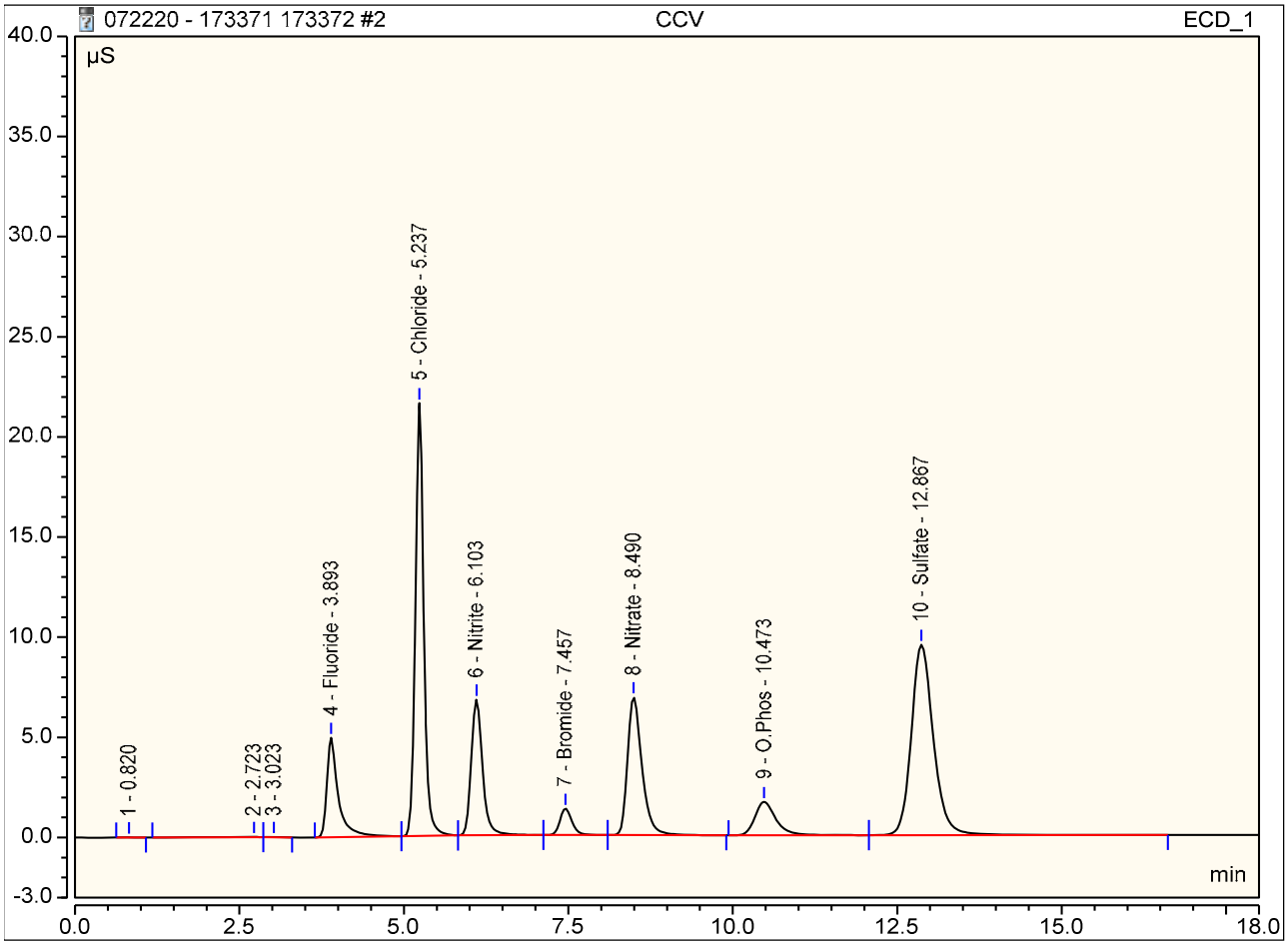
ECD_1	Name	Dilution	Type	Level	Position	Volume	Instrument Method	Processing Method	Status
	CCV	1.0000	Unknown		2	5000	Anions 1.0	IC2732A	Finished
	LCSW	1.0000	Unknown		3	5000	Anions 1.0	IC2732A	Finished
	MBW	1.0000	Unknown		4	5000	Anions 1.0	IC2732A	Finished
	448828	1.0000	Unknown		5	5000	Anions 1.0	IC2732A	Finished
	448839	1.0000	Unknown		6	5000	Anions 1.0	IC2732A	Finished
	448840	1.0000	Unknown		7	5000	Anions 1.0	IC2732A	Finished
	448841	1.0000	Unknown		8	5000	Anions 1.0	IC2732A	Finished
	448842	1.0000	Unknown		9	5000	Anions 1.0	IC2732A	Finished
	CCV	1.0000	Unknown		16	5000	Anions 1.0	IC2732A	Finished
	CCB	1.0000	Unknown		17	5000	Anions 1.0	IC2732A	Finished
	DUP448840	1.0000	Unknown		18	5000	Anions 1.0	IC2732A	Finished

ECD_1	Name	Dilution	Type	Level	Position	Volume	Instrument Method	Processing Method	Status
	MSW448840	1.0000	Unknown		19	5000	Anions 1.0	IC2732A	Finished
	MSDW448840	1.0000	Unknown		20	5000	Anions 1.0	IC2732A	Finished
	CCV	1.0000	Unknown		21	5000	Anions 1.0	IC2732A	Finished
	CCB	1.0000	Unknown		22	5000	Anions 1.0	IC2732A	Finished
	CCV	1.0000	Unknown		25	5000	Anions 1.0	IC2732A	Finished
	CCB	1.0000	Unknown		26	5000	Anions 1.0	IC2732A	Finished
	448841X5	1.0000	Unknown		27	5000	Anions 1.0	IC2732A	Finished
	CCV	1.0000	Unknown		30	5000	Anions 1.0	IC2732A	Finished
	CCB	1.0000	Unknown		31	5000	Anions 1.0	IC2732A	Finished

Peak Integration Report

Sample Name:	**CCV**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**aquion**
Inj. Date / Time:	**22-Jul-2020 / 14:18**	*Run Time:*	**18.00**

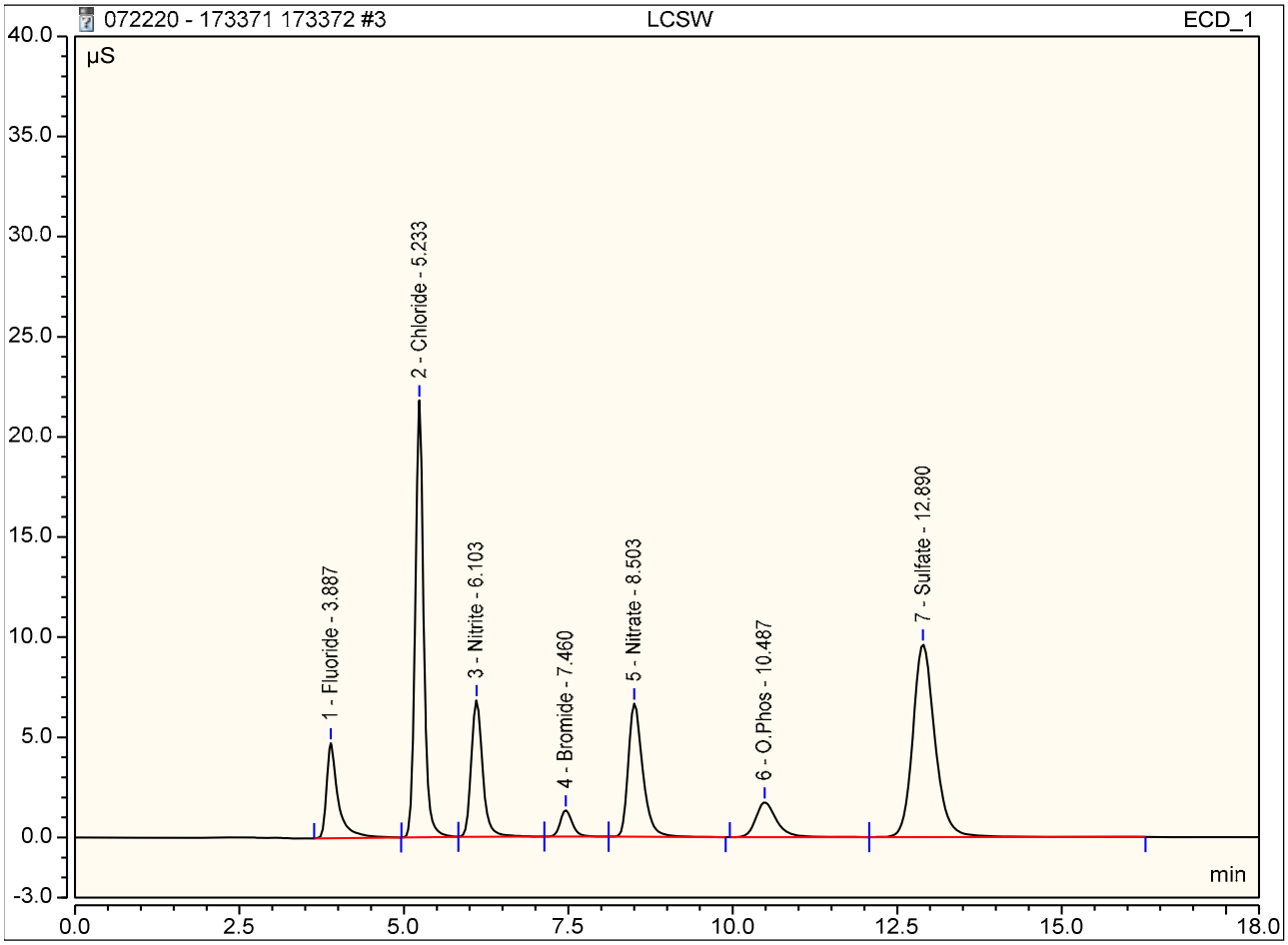
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
4	3.89	Fluoride	1.008	4.963	3.7435
5	5.24	Chloride	3.198	21.607	14.2502
6	6.10	Nitrite	1.355	6.779	3.6678
7	7.46	Bromide	0.282	1.319	3.6103
8	8.49	Nitrate	1.755	6.888	3.5308
9	10.47	O.Phos	0.620	1.667	3.7574
10	12.87	Sulfate	3.701	9.502	24.0382



Peak Integration Report

Sample Name:	**LCSW**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**aquion**
Inj. Date / Time:	**22-Jul-2020 / 14:36**	*Run Time:*	**18.00**

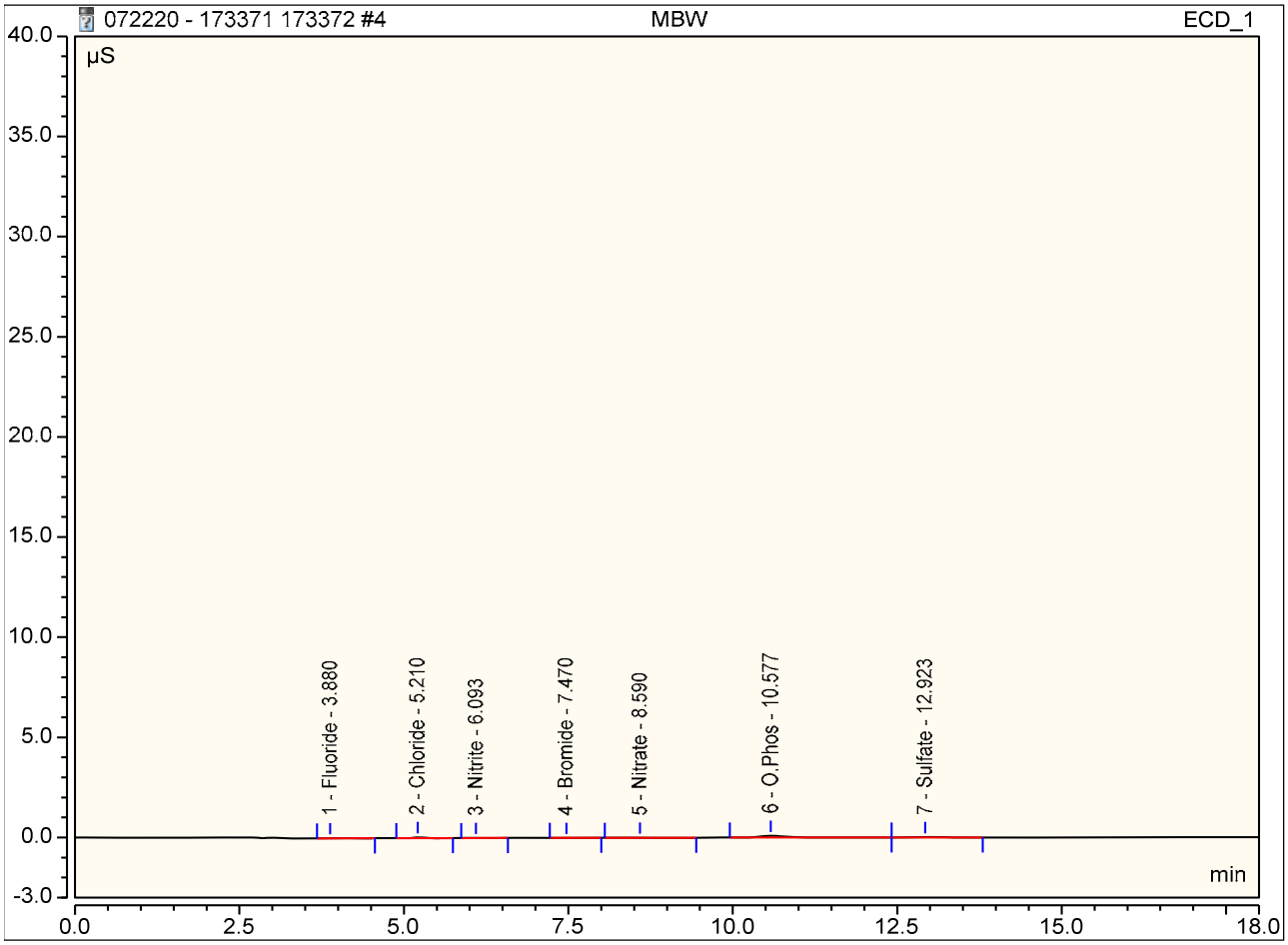
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	3.89	Fluoride	0.970	4.744	3.6024
2	5.23	Chloride	3.245	21.811	14.4488
3	6.10	Nitrite	1.370	6.819	3.7070
4	7.46	Bromide	0.283	1.318	3.6276
5	8.50	Nitrate	1.706	6.661	3.4336
6	10.49	O.Phos	0.638	1.733	3.8661
7	12.89	Sulfate	3.754	9.621	24.3752



Peak Integration Report

Sample Name:	**MBW**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**aquion**
Inj. Date / Time:	**22-Jul-2020 / 14:54**	*Run Time:*	**18.00**

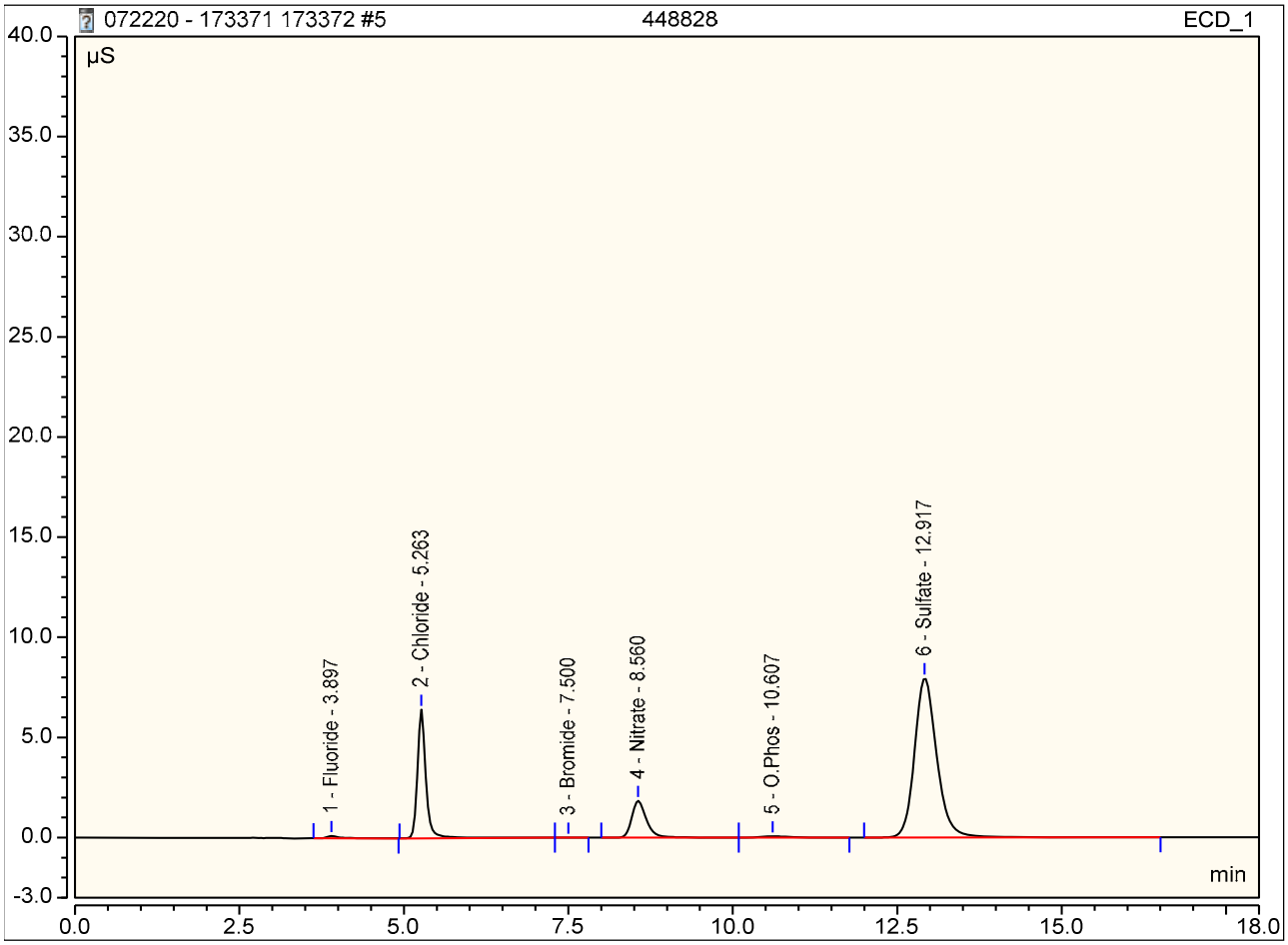
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	3.88	Fluoride	0.005	0.020	0.0233
2	5.21	Chloride	0.009	0.057	0.5125
3	6.09	Nitrite	0.004	0.018	0.0327
4	7.47	Bromide	0.001	0.005	0.0177
5	8.59	Nitrate	0.005	0.016	0.0762
6	10.58	O.Phos	0.045	0.092	0.2111
7	12.92	Sulfate	0.009	0.023	0.6819



Peak Integration Report

Sample Name:	**448828**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**aquion**
Inj. Date / Time:	**22-Jul-2020 / 15:12**	*Run Time:*	**18.00**

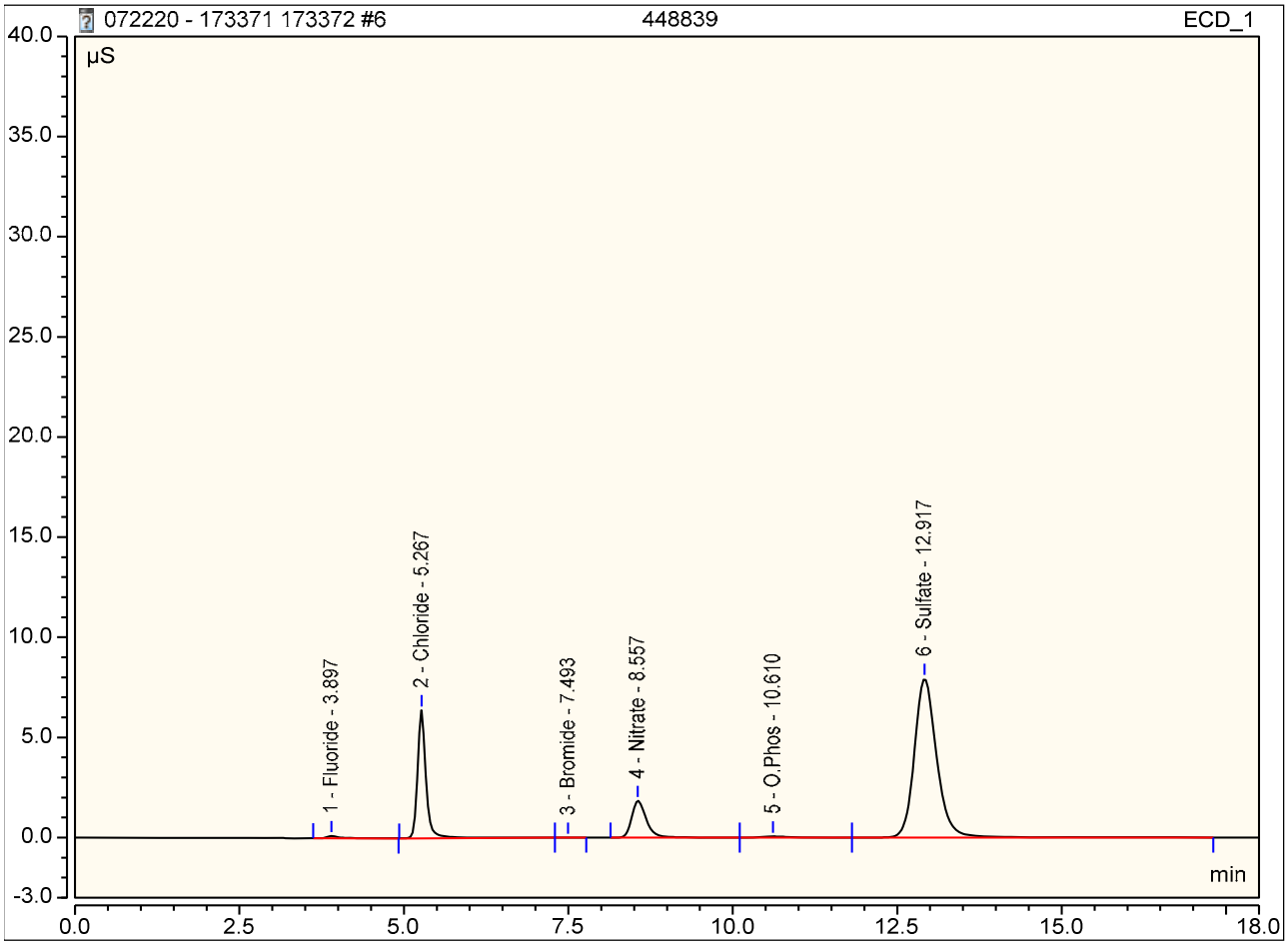
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	3.90	Fluoride	0.033	0.119	0.1292
2	5.26	Chloride	0.972	6.420	4.6606
3	7.50	Bromide	0.001	0.005	0.0140
4	8.56	Nitrate	0.478	1.837	1.0094
5	10.61	O.Phos	0.031	0.067	0.1208
6	12.92	Sulfate	3.130	7.952	20.4270



Peak Integration Report

Sample Name:	**448839**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**aquion**
Inj. Date / Time:	**22-Jul-2020 / 15:30**	*Run Time:*	**18.00**

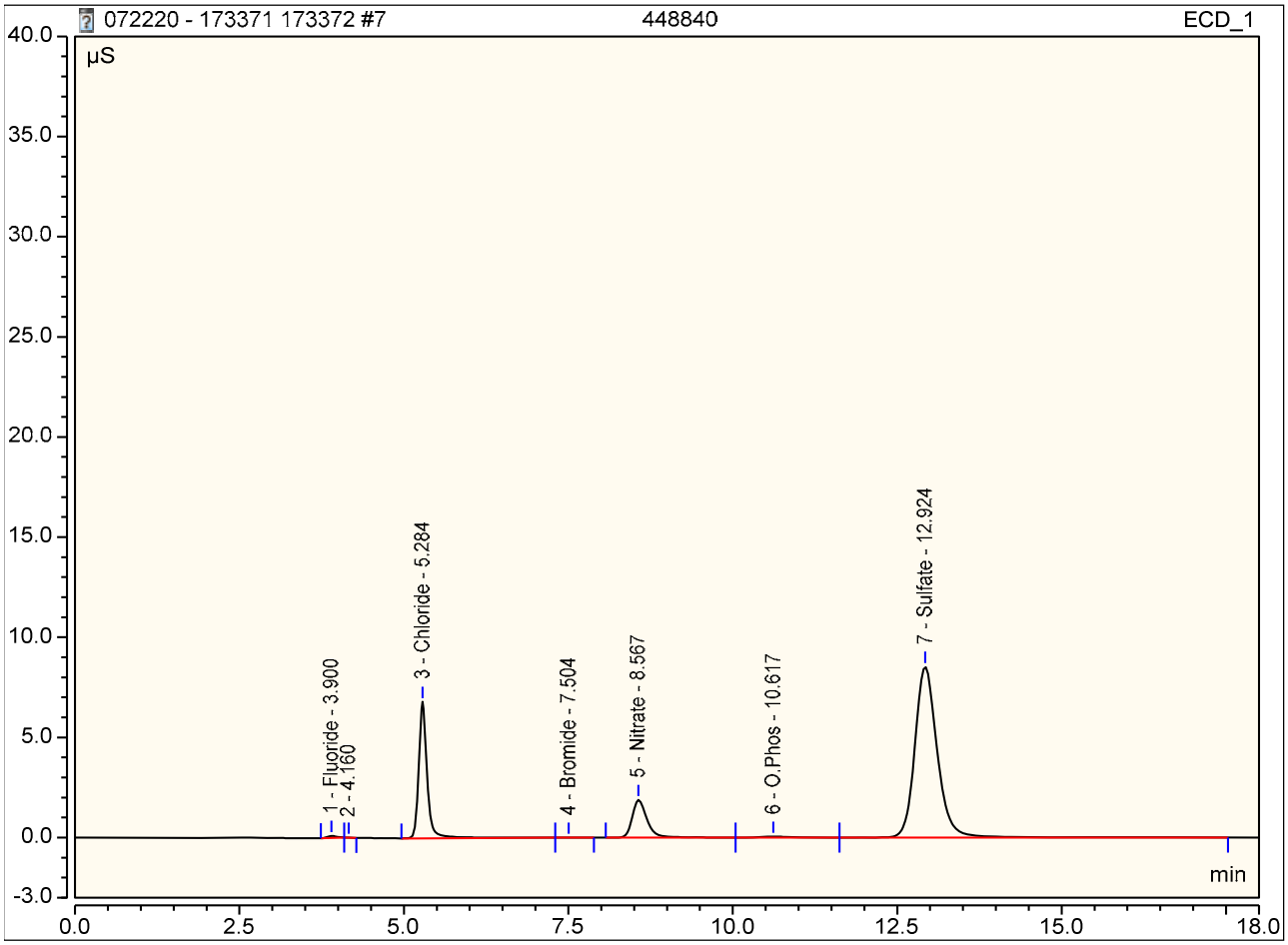
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	3.90	Fluoride	0.033	0.116	0.1273
2	5.27	Chloride	0.969	6.395	4.6472
3	7.49	Bromide	0.001	0.005	0.0131
4	8.56	Nitrate	0.479	1.841	1.0115
5	10.61	O.Phos	0.026	0.055	0.0901
6	12.92	Sulfate	3.119	7.924	20.3557



Peak Integration Report

Sample Name:	**448840**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**aquion**
Inj. Date / Time:	**22-Jul-2020 / 15:48**	*Run Time:*	**18.00**

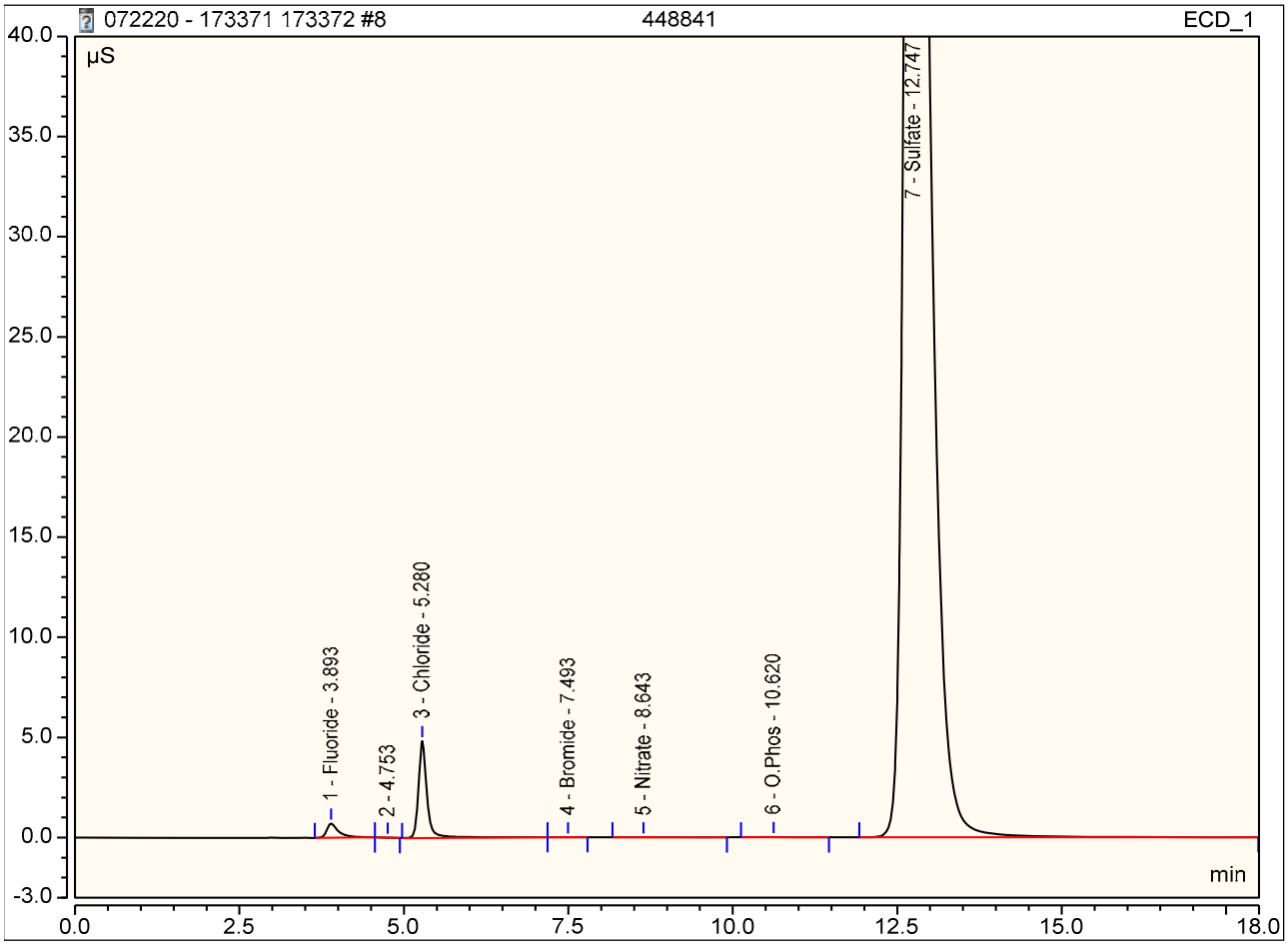
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	3.90	Fluoride	0.016	0.101	0.0643
3	5.28	Chloride	1.022	6.812	4.8750
4	7.50	Bromide	0.001	0.006	0.0181
5	8.57	Nitrate	0.488	1.879	1.0307
6	10.62	O.Phos	0.021	0.047	0.0642
7	12.92	Sulfate	3.357	8.526	21.8593



Peak Integration Report

Sample Name:	**448841**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**aquion**
Inj. Date / Time:	**22-Jul-2020 / 16:06**	*Run Time:*	**18.00**

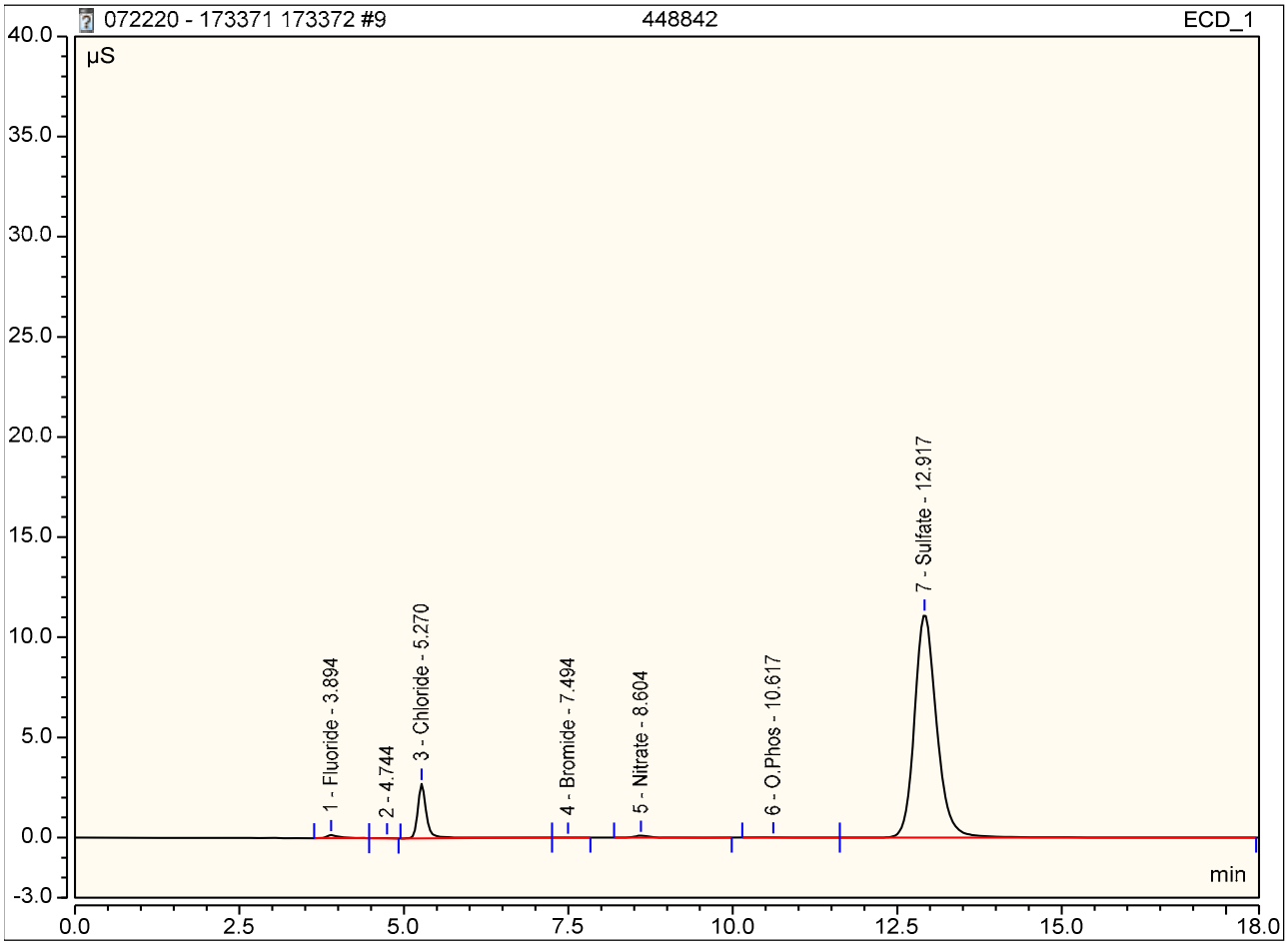
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	3.89	Fluoride	0.153	0.713	0.5726
3	5.28	Chloride	0.737	4.838	3.6471
4	7.49	Bromide	0.001	0.007	0.0192
5	8.64	Nitrate	0.004	0.008	0.0737
6	10.62	O.Phos	0.013	0.028	0.0121
7	12.75	Sulfate	35.087	87.345	222.6199



Peak Integration Report

Sample Name:	**448842**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**aquion**
Inj. Date / Time:	**22-Jul-2020 / 16:25**	*Run Time:*	**18.00**

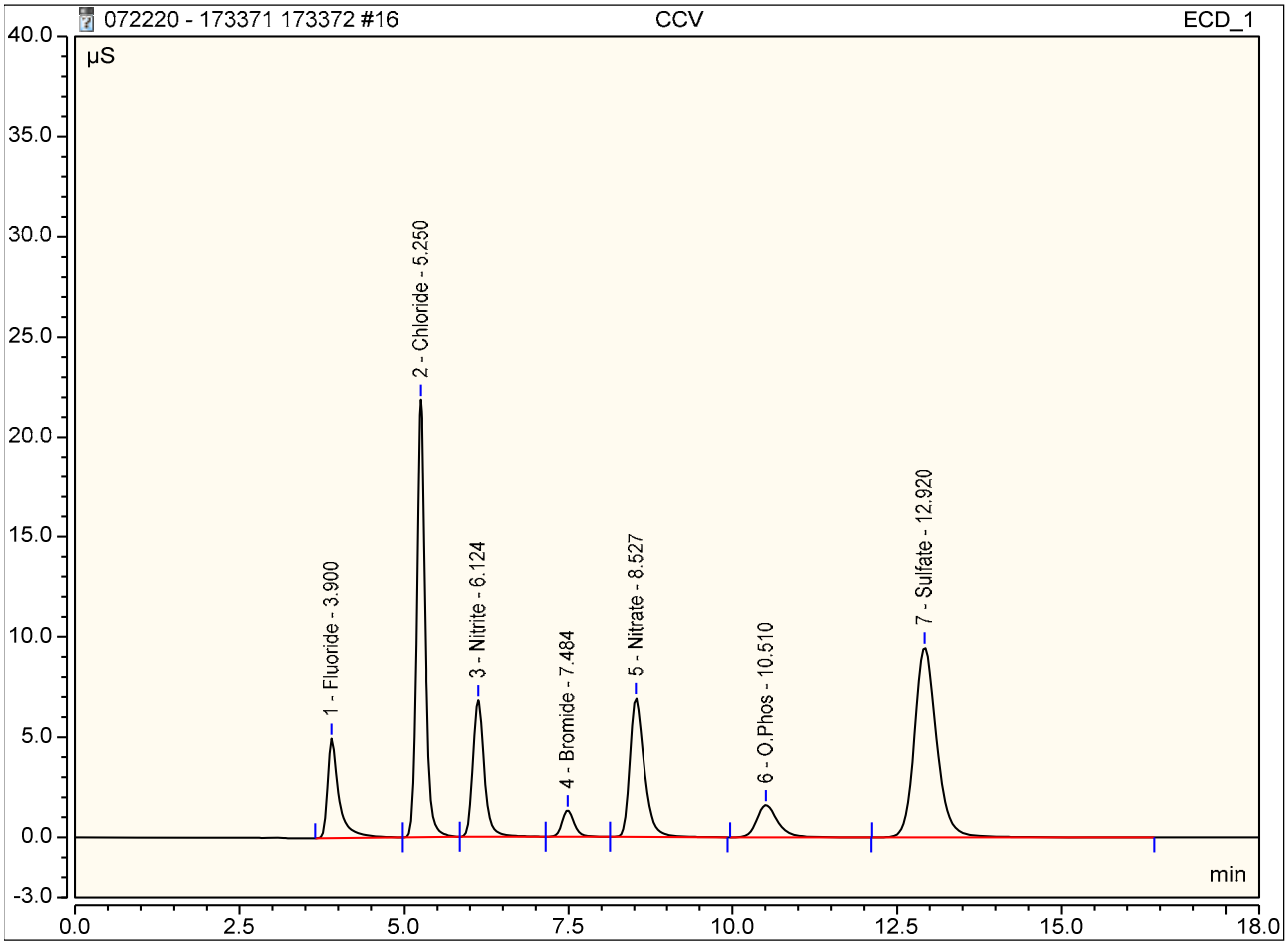
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	3.89	Fluoride	0.033	0.156	0.1286
3	5.27	Chloride	0.435	2.728	2.3474
4	7.49	Bromide	0.001	0.005	0.0138
5	8.60	Nitrate	0.029	0.102	0.1229
6	10.62	O.Phos	0.011	0.023	n.a.
7	12.92	Sulfate	4.363	11.142	28.2298



Peak Integration Report

Sample Name:	**CCV**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**aquion**
Inj. Date / Time:	**22-Jul-2020 / 18:31**	*Run Time:*	**18.00**

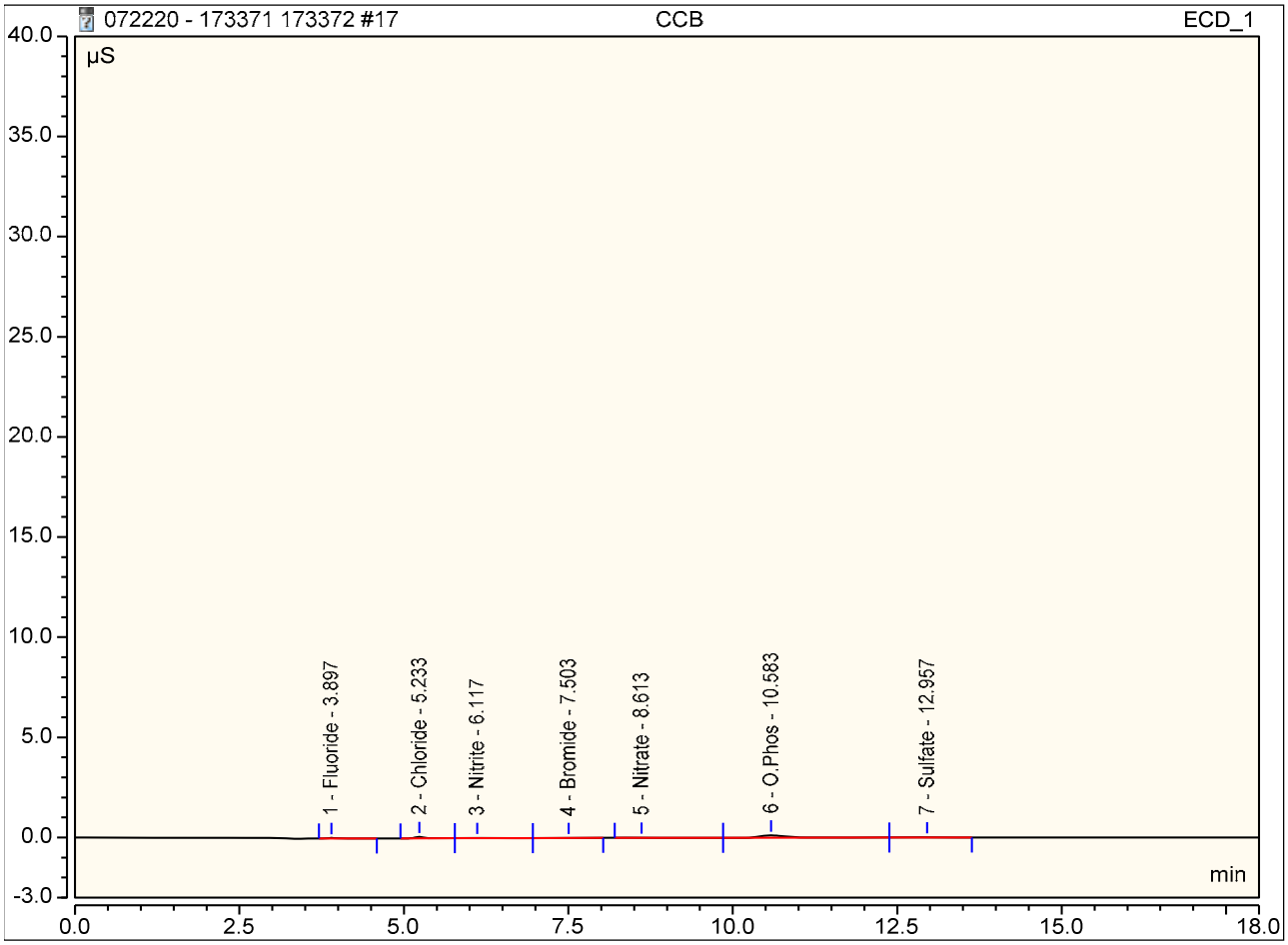
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	3.90	Fluoride	1.006	4.971	3.7367
2	5.25	Chloride	3.255	21.864	14.4921
3	6.12	Nitrite	1.371	6.811	3.7116
4	7.48	Bromide	0.283	1.313	3.6206
5	8.53	Nitrate	1.778	6.932	3.5770
6	10.51	O.Phos	0.597	1.606	3.6161
7	12.92	Sulfate	3.711	9.473	24.1021



Peak Integration Report

Sample Name:	**CCB**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**aquion**
Inj. Date / Time:	**22-Jul-2020 / 18:49**	*Run Time:*	**18.00**

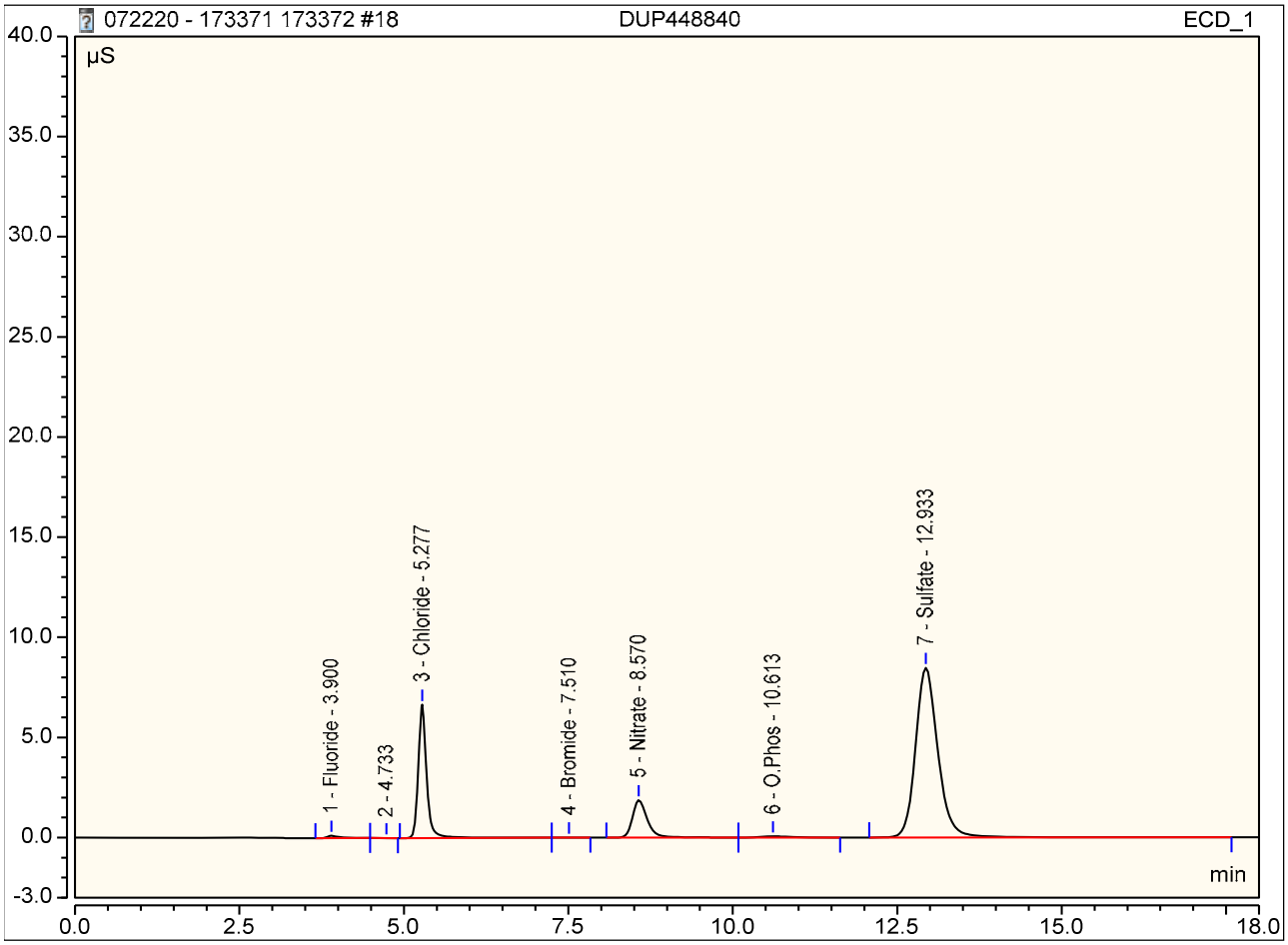
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	3.90	Fluoride	0.007	0.029	0.0308
2	5.23	Chloride	0.012	0.075	0.5257
3	6.12	Nitrite	0.004	0.019	0.0347
4	7.50	Bromide	0.001	0.005	0.0179
5	8.61	Nitrate	0.006	0.020	0.0788
6	10.58	O.Phos	0.055	0.119	0.2721
7	12.96	Sulfate	0.010	0.024	0.6847



Peak Integration Report

Sample Name:	**DUP448840**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**aquion**
Inj. Date / Time:	**22-Jul-2020 / 19:07**	*Run Time:*	**18.00**

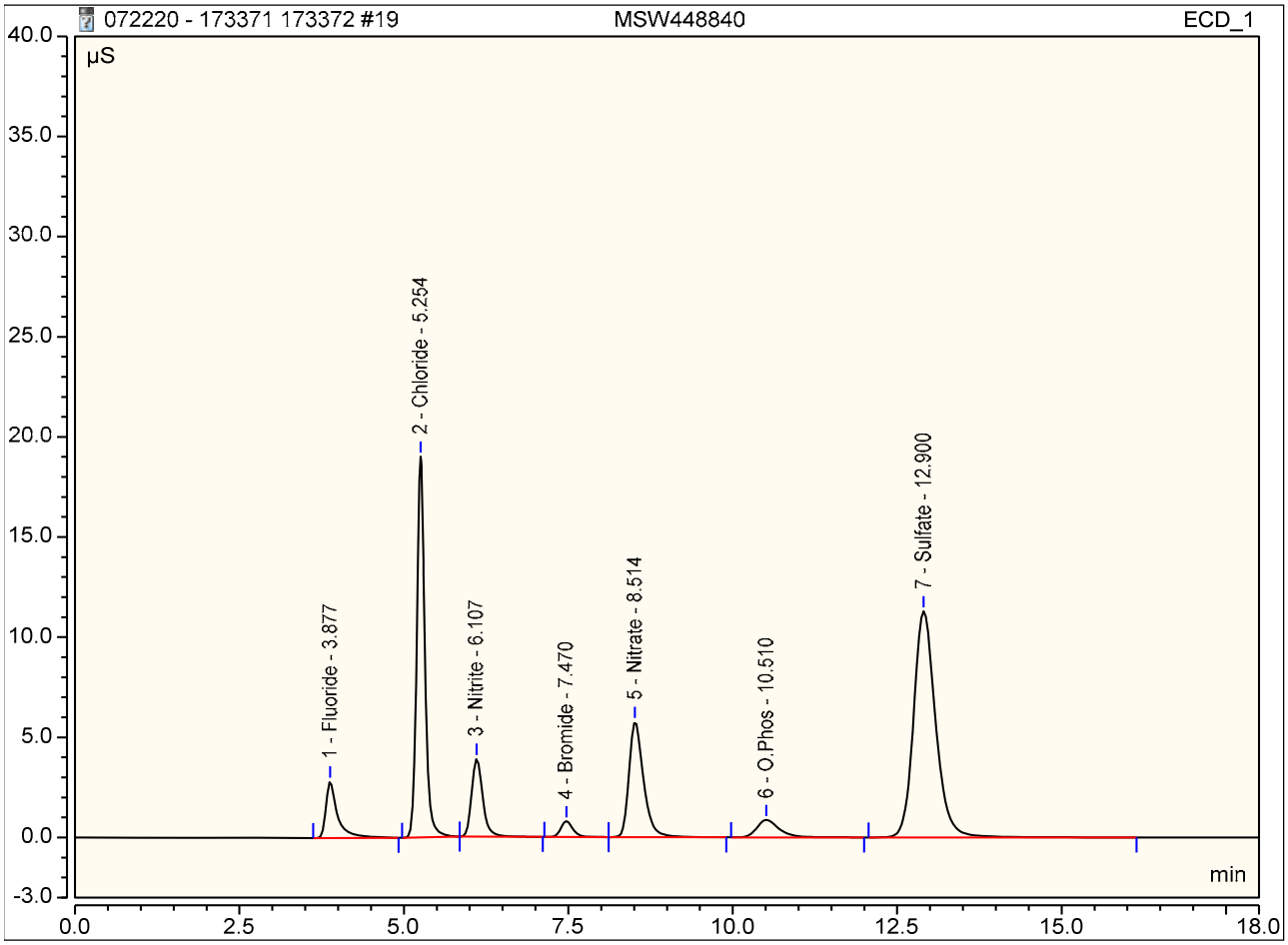
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	3.90	Fluoride	0.027	0.125	0.1080
3	5.28	Chloride	1.006	6.667	4.8056
4	7.51	Bromide	0.001	0.007	0.0187
5	8.57	Nitrate	0.488	1.869	1.0302
6	10.61	O.Phos	0.027	0.061	0.1020
7	12.93	Sulfate	3.340	8.465	21.7566



Peak Integration Report

Sample Name:	**MSW448840**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**aquion**
Inj. Date / Time:	**22-Jul-2020 / 19:25**	*Run Time:*	**18.00**

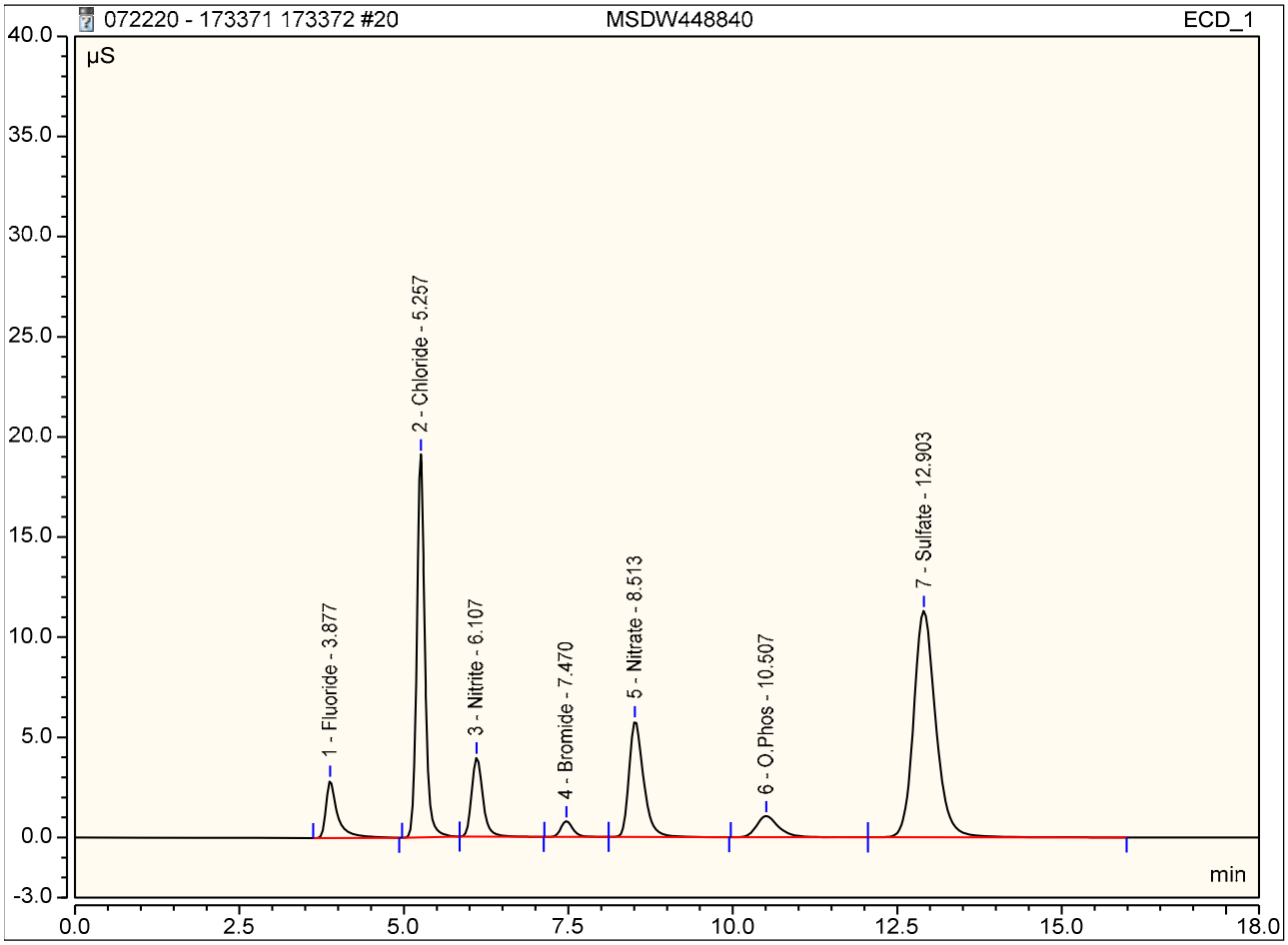
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	3.88	Fluoride	0.592	2.831	2.1998
2	5.25	Chloride	2.715	19.015	12.1664
3	6.11	Nitrite	0.770	3.895	2.0933
4	7.47	Bromide	0.169	0.785	2.1609
5	8.51	Nitrate	1.479	5.755	2.9854
6	10.51	O.Phos	0.346	0.872	2.0672
7	12.90	Sulfate	4.402	11.291	28.4713



Peak Integration Report

Sample Name:	**MSDW448840**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**aquion**
Inj. Date / Time:	**22-Jul-2020 / 19:43**	*Run Time:*	**18.00**

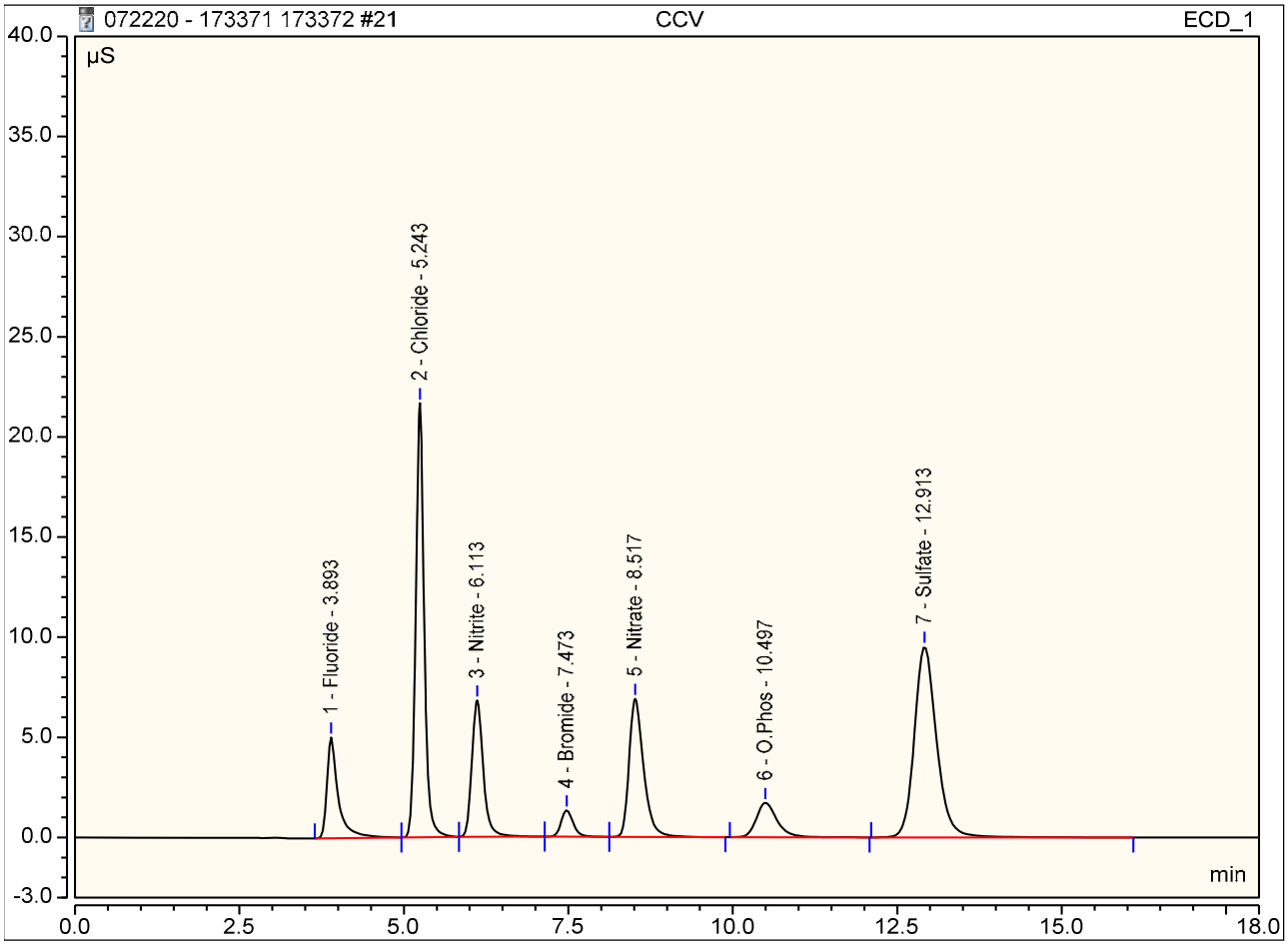
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	3.88	Fluoride	0.600	2.875	2.2291
2	5.26	Chloride	2.732	19.122	12.2420
3	6.11	Nitrite	0.783	3.958	2.1291
4	7.47	Bromide	0.170	0.791	2.1791
5	8.51	Nitrate	1.488	5.792	3.0043
6	10.51	O.Phos	0.417	1.057	2.5028
7	12.90	Sulfate	4.406	11.308	28.5010



Peak Integration Report

Sample Name:	**CCV**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**aquion**
Inj. Date / Time:	**22-Jul-2020 / 20:01**	*Run Time:*	**18.00**

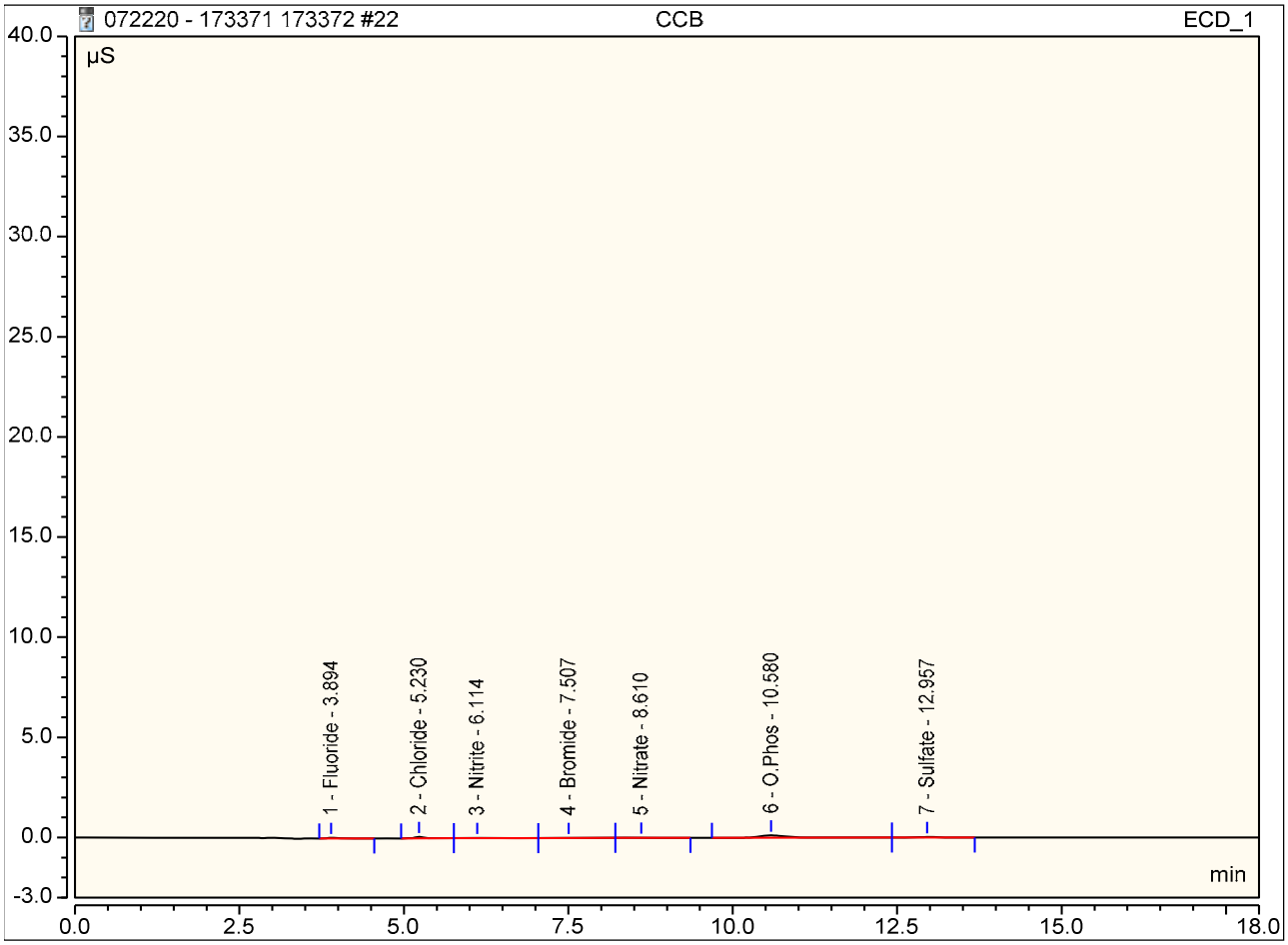
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	3.89	Fluoride	1.010	5.035	3.7498
2	5.24	Chloride	3.222	21.672	14.3524
3	6.11	Nitrite	1.372	6.817	3.7120
4	7.47	Bromide	0.285	1.322	3.6497
5	8.52	Nitrate	1.771	6.897	3.5629
6	10.50	O.Phos	0.635	1.721	3.8503
7	12.91	Sulfate	3.732	9.522	24.2365



Peak Integration Report

Sample Name:	**CCB**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**aquion**
Inj. Date / Time:	**22-Jul-2020 / 20:19**	*Run Time:*	**18.00**

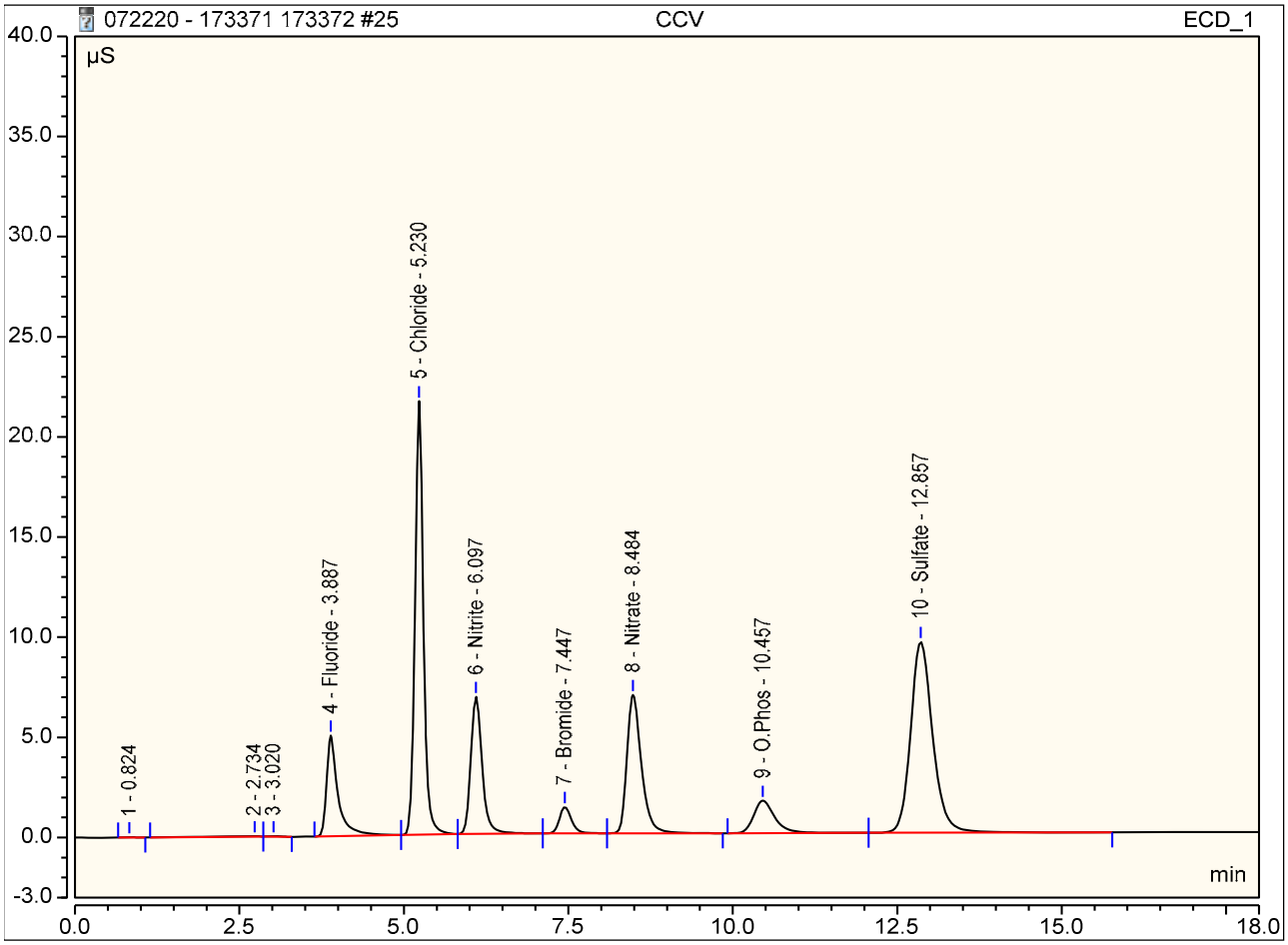
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	3.89	Fluoride	0.008	0.036	0.0356
2	5.23	Chloride	0.011	0.069	0.5207
3	6.11	Nitrite	0.005	0.021	0.0358
4	7.51	Bromide	0.002	0.006	0.0242
5	8.61	Nitrate	0.005	0.019	0.0775
6	10.58	O.Phos	0.054	0.116	0.2677
7	12.96	Sulfate	0.011	0.027	0.6934



Peak Integration Report

Sample Name:	**CCV**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**aquion**
Inj. Date / Time:	**23-Jul-2020 / 09:20**	*Run Time:*	**18.00**

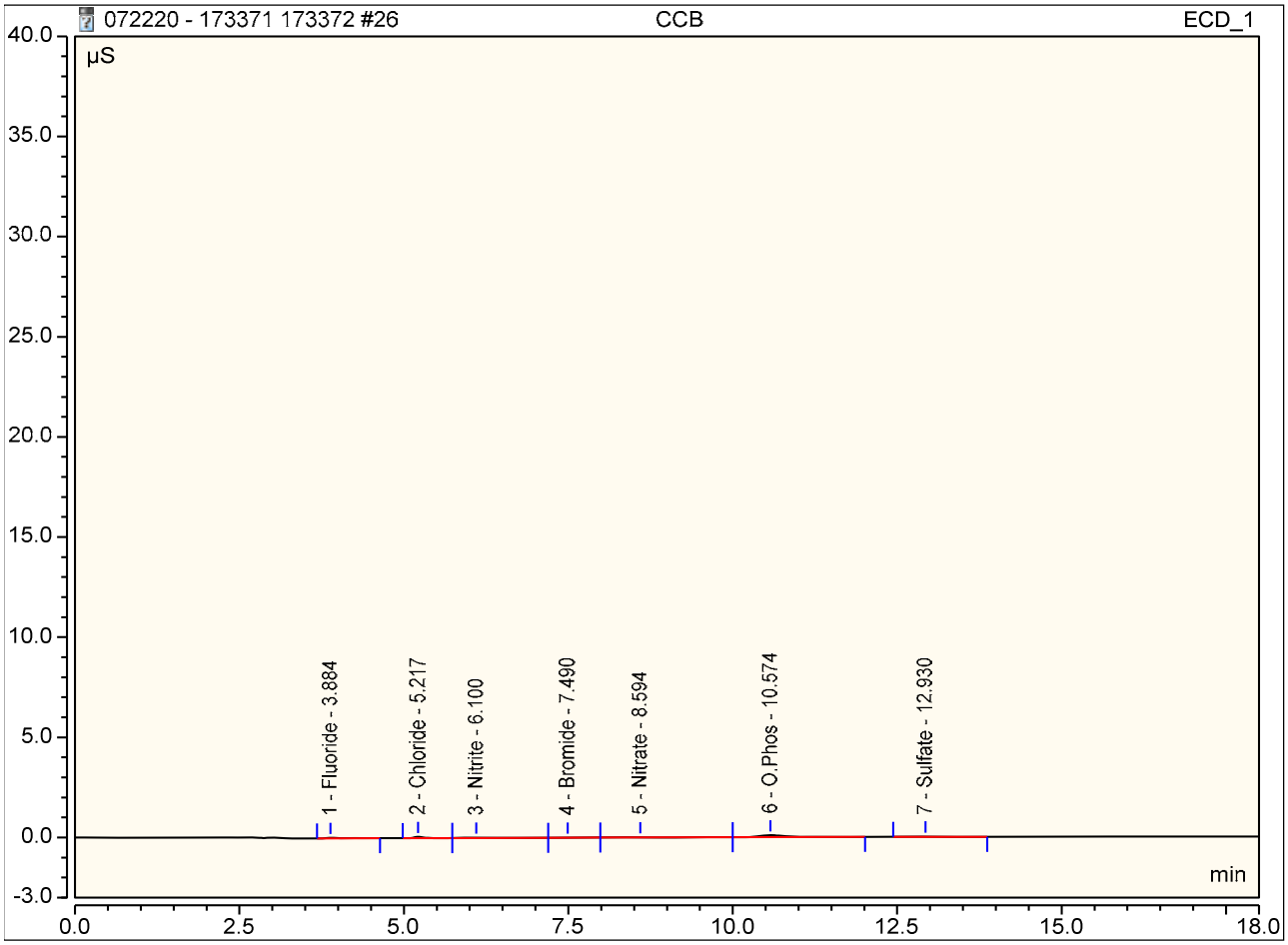
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
4	3.89	Fluoride	1.019	5.028	3.7858
5	5.23	Chloride	3.211	21.635	14.3037
6	6.10	Nitrite	1.373	6.842	3.7146
7	7.45	Bromide	0.283	1.321	3.6262
8	8.48	Nitrate	1.762	6.911	3.5456
9	10.46	O.Phos	0.606	1.621	3.6686
10	12.86	Sulfate	3.705	9.529	24.0626



Peak Integration Report

Sample Name:	**CCB**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**aquion**
Inj. Date / Time:	**23-Jul-2020 / 09:38**	*Run Time:*	**18.00**

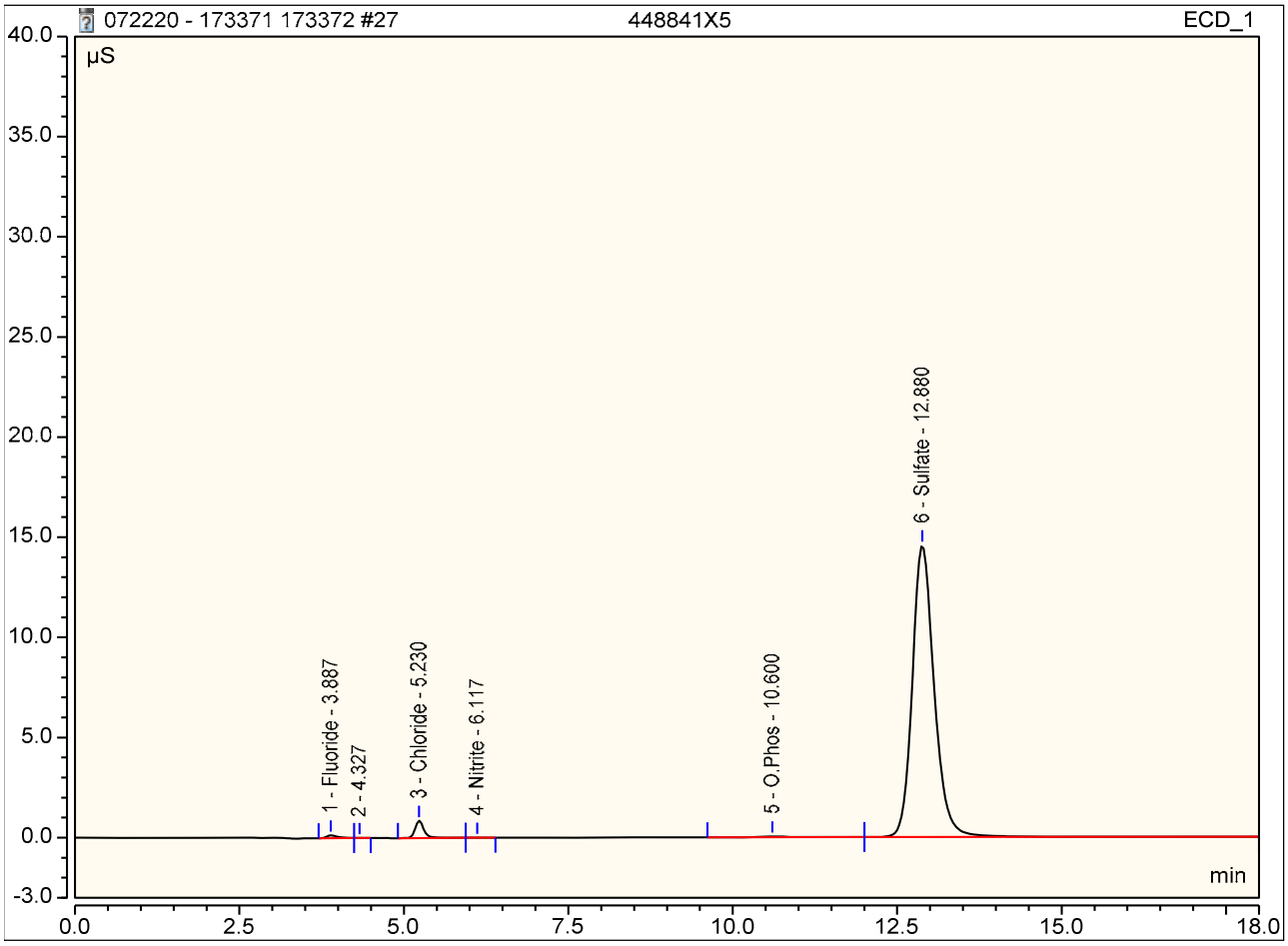
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	3.88	Fluoride	0.007	0.032	0.0334
2	5.22	Chloride	0.011	0.066	0.5183
3	6.10	Nitrite	0.005	0.022	0.0370
4	7.49	Bromide	0.001	0.006	0.0183
5	8.59	Nitrate	0.007	0.020	0.0796
6	10.57	O.Phos	0.046	0.098	0.2165
7	12.93	Sulfate	0.010	0.024	0.6842



Peak Integration Report

Sample Name:	**448841X5**		*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**		*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**		*Operator:*	**aquion**
Inj. Date / Time:	**23-Jul-2020**	**/ 09:56**	*Run Time:*	**18.00**

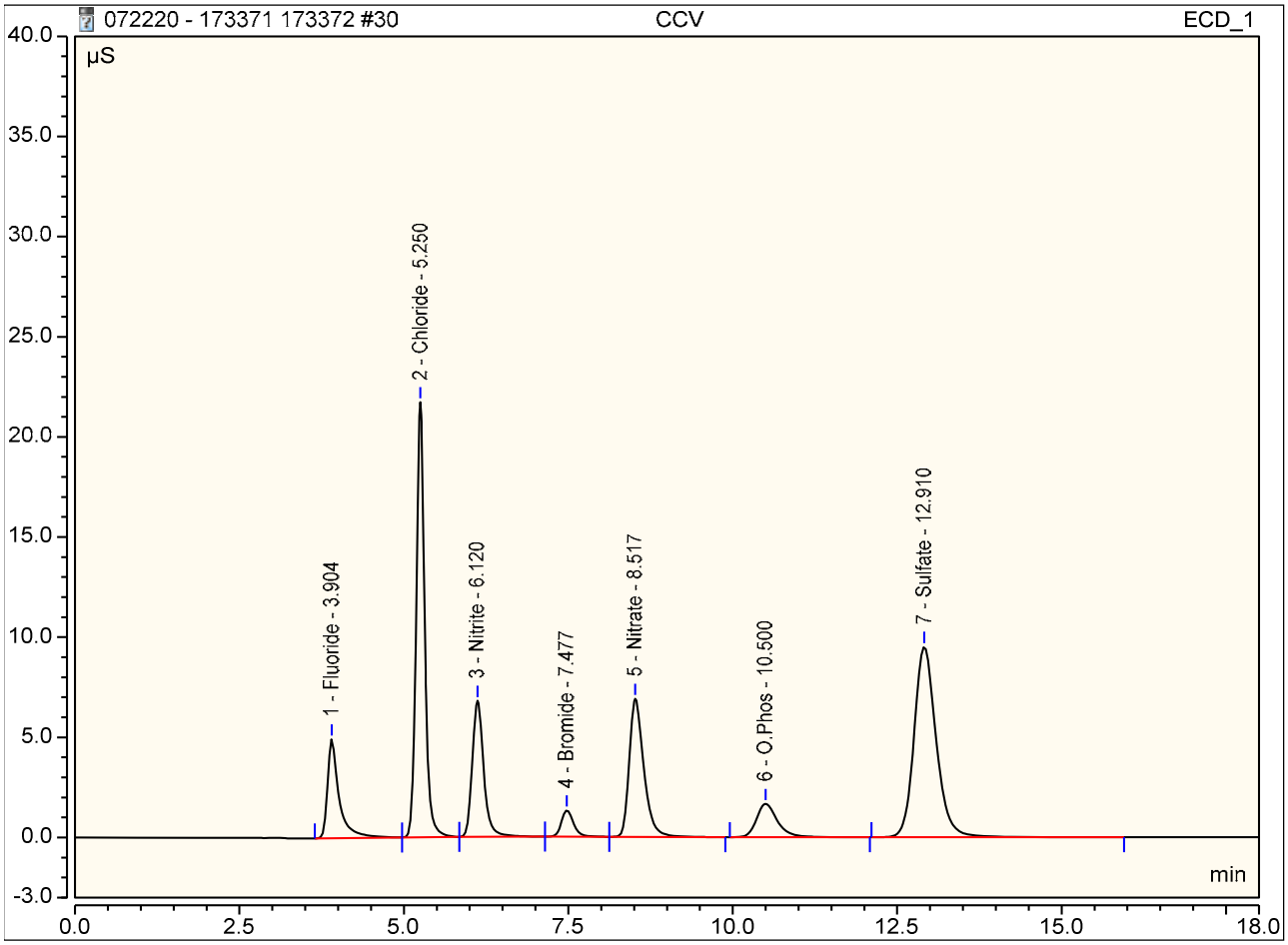
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	3.89	Fluoride	0.026	0.140	0.1013
3	5.23	Chloride	0.135	0.859	1.0523
4	6.12	Nitrite	0.001	0.007	0.0269
5	10.60	O.Phos	0.019	0.039	0.0516
6	12.88	Sulfate	5.648	14.567	36.3600



Peak Integration Report

Sample Name:	**CCV**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**aquion**
Inj. Date / Time:	**23-Jul-2020 / 10:50**	*Run Time:*	**18.00**

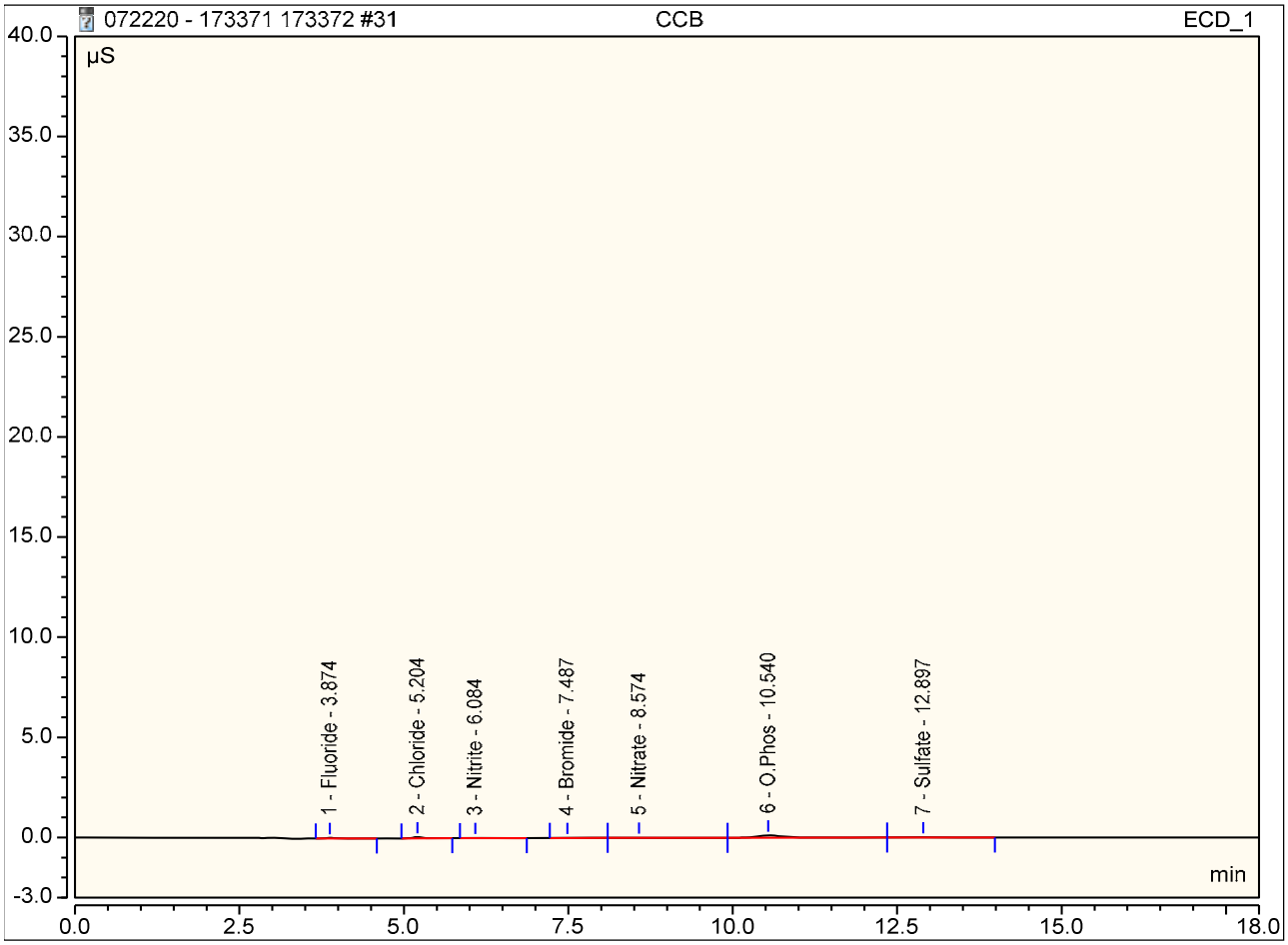
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	3.90	Fluoride	1.016	4.931	3.7744
2	5.25	Chloride	3.246	21.723	14.4561
3	6.12	Nitrite	1.371	6.789	3.7110
4	7.48	Bromide	0.284	1.317	3.6386
5	8.52	Nitrate	1.771	6.894	3.5631
6	10.50	O.Phos	0.620	1.669	3.7600
7	12.91	Sulfate	3.717	9.509	24.1388



Peak Integration Report

Sample Name:	**CCB**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2732A**	*Operator:*	**aquion**
Inj. Date / Time:	**23-Jul-2020 / 11:08**	*Run Time:*	**18.00**

No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	3.87	Fluoride	0.007	0.030	0.0321
2	5.20	Chloride	0.010	0.063	0.5168
3	6.08	Nitrite	0.004	0.018	0.0335
4	7.49	Bromide	0.001	0.004	0.0156
5	8.57	Nitrate	0.006	0.017	0.0777
6	10.54	O.Phos	0.054	0.113	0.2666
7	12.90	Sulfate	0.009	0.022	0.6828



pH - Mettler Toledo Seven Easy

Date:	07/22/2020	Analyst:	LAY	Lims #:	173373	Slope (%)	97%

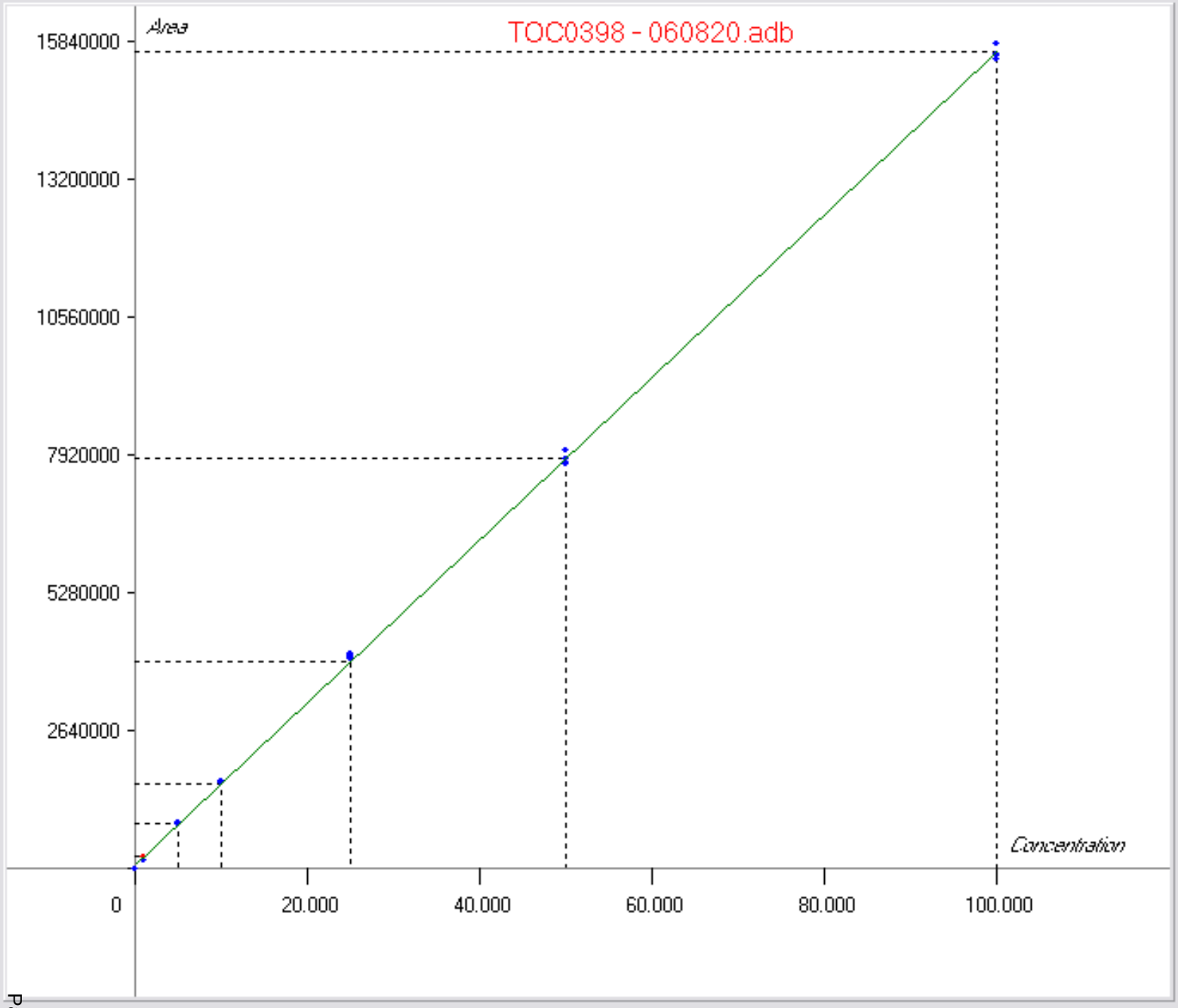
GRP	Sample ID#	Matrix	Temp (°C)*	Result	
1	BUFFER 7	QC	20.2	7.03	
2	447987	WW	14.8	7.66	
3	448259	WW	7.7	6.97	
4	448712	WW	14.7	6.70	
5	448800	WW	16.6	3.35	
6	448899	WW	17.2	7.69	
7	448902	WW	14.8	7.98	
8	448903	WW	14.1	11.99	
9					
10					
11	448904	WW	13.7	7.52	
dup 11	448904	WW	13.8	7.48	
12	BUFFER 7	QC	7.0	7.04	
13					
14					
15					
16					
17					
18					
19					
20					
21					
23	448843	GW	18.4	7.37	
dup 23	448843	GW	18.5	7.41	
24	BUFFER 7				
25					
dup 25					
26					
dup 26					

To datacapture: Save CSV file under the TSS datacapture folder.

*Temperature of samples should be room temperature around 25°C

Buffer Standard IDs:

pH 4: WC38 pH 7: WC70 pH 10: WC105



Cursor Position

Concentration	Area
119.400 mg/l	-2046000

A2	0
A1	155770
A0	89095
Correlation	0.99987
Order	1
Volume	100 µl
Conc.	100.00
Area	15814248

☐ Confidence Intervals 95%

☐ Detection/Determination 95%

Conc.	Area	Sel.
0	0	☑
0	0	☑
0	0	☑
0	0	☑
1	236737	☐
1	188301	☑
1	172704	☑
1	183870	☑

• Used Value
• Ignored Value

CurveNo:1 CurveType:TC

<-- --> Print... Exit

06/10/2020

Analysis Name TOC0398 - 060820.adb

Template Name CURVE TEMP.tdb
Method Name N / A
Operator KMT

Date Monday, June 8, 2020
Time 16:30

Start Oven Temp. 765 °C
Start Cooler Temp. 2 °C

Version 2.55 Release
Info INST: TOCW
ICAL TOC0376 ICV TOC0359

Element	Integration Time	Samples	Extra Samples	Max. CV
Carbon	60 s	4	1	10 %
SampleTime	240 s			

No	Type	FileName	Date/Time	Max. Area	Max Conc.	Order	Correlation	Volume	Sel.
1	TC	This Analysis	Jun 8 2020, 16:30	15814248	100	1	0.99987	100 µl	Yes
	A2: 0		*A1: 155769.996641552*		*A0: 89094.5916376438*				

Inj. Order	Position	Type	Identification	Dilution Factor
1	1	Unknown	BLANK	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**0.00**	**0**	**0.00**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	6 8 2020 16:41:38	0.34	142490	1	763	2	-	-
2	6 8 2020 16:44:44	0.00	0	0	762	2	-	Yes
3	6 8 2020 16:48:45	0.00	0	0	761	2	-	Yes
4	6 8 2020 16:52:46	0.00	0	0	760	2	-	Yes
5	6 8 2020 16:56:48	0.00	0	0	760	2	-	Yes

Inj. Order	Position	Type	Identification	Dilution Factor
2	2	Unknown	BLANK	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**0.00**	**0**	**0.00**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	6 8 2020 17:01:38	0.00	0	0	760	2	-	Yes
2	6 8 2020 17:06:16	0.00	0	0	760	2	-	Yes
3	6 8 2020 17:10:17	0.00	0	0	760	2	-	Yes
4	6 8 2020 17:14:19	0.00	0	0	760	2	-	Yes

Inj. Order	Position	Type	Identification	Dilution Factor
3	3	Unknown	BLANK	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**0.00**	**0**	**0.00**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	6 8 2020 17:19:10	0.00	0	0	759	2	-	Yes
2	6 8 2020 17:23:48	0.00	0	0	758	2	-	Yes
3	6 8 2020 17:27:50	0.00	0	0	758	2	-	Yes
4	6 8 2020 17:31:51	0.00	0	0	757	2	-	Yes

Inj. Order	Position	Type	Identification	Dilution Factor
4	4	Unknown	BLANK	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**0.00**	**0**	**0.00**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	6 8 2020 17:36:43	0.00	0	0	756	2	-	Yes
2	6 8 2020 17:41:21	0.00	0	0	756	2	-	Yes
3	6 8 2020 17:45:22	0.00	0	0	755	2	-	Yes
4	6 8 2020 17:49:24	0.00	0	0	755	2	-	Yes

Inj. Order	Position	Type	Identification	Dilution Factor
5	5	Unknown	BLANK	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**0.00**	**0**	**0.00**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	6 8 2020 17:54:16	0.00	0	0	755	2	-	Yes
2	6 8 2020 17:58:54	0.00	0	0	755	2	-	Yes
3	6 8 2020 18:02:57	0.00	0	0	755	2	-	Yes
4	6 8 2020 18:06:58	0.00	0	0	754	2	-	Yes

---

6 S1 Standard TC Std 0.00 mg/l 1 x

TC **0.00** **0** **0.00** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	6 8 2020 18:11:49	0.00	0	1	754	2	-	Yes
2	6 8 2020 18:16:26	0.00	0	1	754	2	-	Yes
3	6 8 2020 18:20:28	0.00	0	1	753	2	-	Yes
4	6 8 2020 18:24:28	0.00	0	1	753	2	-	Yes

---

7 S2 Standard TC Std 1.00 mg/l 1 x

TC **0.62** **185570** **5.53** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	6 8 2020 18:29:22	0.95	236737	1	753	2	-	-
2	6 8 2020 18:32:33	0.64	188301	1	753	2	-	Yes
3	6 8 2020 18:34:56	0.54	172704	1	752	2	-	Yes
4	6 8 2020 18:37:16	0.61	183870	1	752	2	-	Yes
5	6 8 2020 18:39:42	0.70	197405	1	752	2	-	Yes

---

8 S3 Standard TC Std. 5.00 mg/l 1 x

TC **5.20** **899352** **1.87** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	6 8 2020 18:42:59	5.22	902554	1	753	2	-	Yes
2	6 8 2020 18:46:17	5.05	874998	1	753	2	-	Yes
3	6 8 2020 18:48:51	5.25	906925	1	752	2	-	Yes
4	6 8 2020 18:51:33	5.29	912934	1	752	2	-	Yes

---

9 S4 Standard TC Std. 10.00 mg/l 1 x

TC **10.30** **1693392** **1.05** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	6 8 2020 18:55:12	10.42	1712111	1	753	2	-	Yes
2	6 8 2020 18:58:39	10.37	1704242	1	752	2	-	Yes
3	6 8 2020 19:01:26	10.24	1683437	1	753	2	-	Yes
4	6 8 2020 19:04:09	10.17	1673781	1	752	2	-	Yes

---

10 S5 Standard TC Std. 25.00 mg/l 1 x

TC **25.73** **4096491** **0.87** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	6 8 2020 19:07:45	25.85	4116283	1	753	2	-	Yes
2	6 8 2020 19:11:22	25.46	4054952	1	752	2	-	Yes
3	6 8 2020 19:14:15	25.97	4134675	1	752	2	-	Yes
4	6 8 2020 19:17:18	25.62	4080057	1	752	2	-	Yes

---

11 S6 Standard TC Std. 50.00 mg/l 1 x

TC **49.89** **7859913** **1.45** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	6 8 2020 19:21:05	50.92	8021301	1	752	2	-	Yes
2	6 8 2020 19:24:50	49.86	7856205	1	752	2	-	Yes
3	6 8 2020 19:28:05	49.49	7798294	1	752	2	-	Yes
4	6 8 2020 19:31:16	49.27	7763855	1	752	2	-	Yes

---

12 S7 Standard TC Std. 100.00 mg/l 1 x

TC **99.84** **15641010** **0.78** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	6 8 2020 19:35:15	99.47	15583764	1	752	2	-	Yes
2	6 8 2020 19:39:11	99.76	15628181	1	752	2	-	Yes
3	6 8 2020 19:42:38	99.18	15537849	1	752	2	-	Yes
4	6 8 2020 19:45:52	100.95	15814248	1	752	2	-	Yes

---

13 S8 Unknown ICV - 50.00 mg/L 1 x

		TC	**48.76**	**7684474**	**0.06**		**100 µl**		
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	6 8 2020 19:50:10	48.75	7682462	1	752	2	-	Yes
	2	6 8 2020 19:53:58	48.72	7678407	1	752	2	-	Yes
	3	6 8 2020 19:57:03	48.79	7688578	1	752	2	-	Yes
	4	6 8 2020 20:00:01	48.79	7688451	1	752	2	-	Yes

14	S9	Unknown	ICB				1 x		
		TC	**0.00**	**0**	**0.00**		**100 µl**		
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	6 8 2020 20:04:04	0	0	0	752	2	-	Yes
	2	6 8 2020 20:08:40	0	0	0	752	2	-	Yes
	3	6 8 2020 20:12:42	0	0	0	752	2	-	Yes
	4	6 8 2020 20:16:44	0	0	0	752	2	-	Yes

Analysis Name 072420 - 173439.adb

Template Name 072420 - 173439.tdb
Method Name N / A
Operator KMT

Date Friday, July 24, 2020
Time 9:01

Start Oven Temp. 736 °C
Start Cooler Temp. 2 °C

Version 2.55 Release
Info ICAL 0398 INST: TOCW
CCV 0406 LCS 0405 SPIKE 0359

Element	Integration Time	Samples	Extra Samples	Max. CV
Carbon	60 s	4	1	10 %
SampleTime	240 s			

No	Type	FileName	Date/Time	Max. Area	Max Conc.	Order	Correlation	Volume	Sel.
1	TC	TOC0398 - 060820	Jun 8 2020, 16:30	15814248	100	1	0.99987	100 µl	Yes
	A2: 0		*A1: 155769.996641552*		*A0: 89094.5916376438*				

Inj. Order	Position	Type	Identification	Dilution Factor
1	1	Unknown	IB	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**0.00**	**0**	**0.00**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 24 2020 9:02:15	0.00	0	0	737	2	-	Yes
2	7 24 2020 9:06:52	0	0	0	741	2	-	Yes
3	7 24 2020 9:10:54	0	0	0	745	2	-	Yes
4	7 24 2020 9:14:55	0	0	0	747	2	-	Yes

Inj. Order	Position	Type	Identification	Dilution Factor
2	S1	Unknown	CCV	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**52.45**	**8257976**	**1.30**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 24 2020 9:19:48	53.44	8412910	1	750	2	-	Yes
2	7 24 2020 9:23:35	52.08	8200830	1	752	2	-	Yes
3	7 24 2020 9:26:41	51.89	8171739	1	753	2	-	Yes
4	7 24 2020 9:29:46	52.37	8246427	1	754	2	-	Yes

Inj. Order	Position	Type	Identification	Dilution Factor
3	S5	Unknown	LCSW	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**51.52**	**8114647**	**0.94**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 24 2020 9:33:39	52.23	8225332	1	756	2	-	Yes
2	7 24 2020 9:37:30	51.41	8096575	1	756	2	-	Yes
3	7 24 2020 9:40:35	51.34	8086843	1	757	2	-	Yes
4	7 24 2020 9:43:38	51.11	8049839	1	758	2	-	Yes

Inj. Order	Position	Type	Identification	Dilution Factor
4	2	Unknown	MBW	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**ZERO !**	**78755**	**74.43**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 24 2020 9:47:32	0.33	141159	1	758	2	-	Yes
2	7 24 2020 9:50:55	0	0	0	758	2	-	Yes
3	7 24 2020 9:54:57	0.03	93208	1	758	2	-	Yes
4	7 24 2020 9:57:27	ZERO !	80654	1	758	2	-	Yes
5	7 24 2020 9:59:51	0	0	0	758	2	-	-

Inj. Order	Position	Type	Identification	Dilution Factor
5	3	Unknown	448828	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**48.28**	**7608928**	**2.36**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 24 2020 10:04:43	49.95	7869042	1	759	2	-	Yes
2	7 24 2020 10:08:48	48.12	7584271	1	759	2	-	Yes
3	7 24 2020 10:11:49	47.65	7511555	1	758	2	-	Yes
4	7 24 2020 10:14:59	47.39	7470844	1	758	2	-	Yes

---

6 4 Unknown 448839 1 x

TC **47.22** **7444578** **2.12** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 24 2020 10:18:55	48.60	7659926	1	758	2	-	Yes
2	7 24 2020 10:22:57	47.35	7465099	1	757	2	-	Yes
3	7 24 2020 10:26:13	46.40	7317050	1	757	2	-	Yes
4	7 24 2020 10:29:18	46.52	7336240	1	757	2	-	Yes

---

7 5 Unknown 448840 1 x

TC **64.88** **10195299** **1.09** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 24 2020 10:33:17	65.85	10346668	1	757	2	-	Yes
2	7 24 2020 10:37:17	64.84	10189442	1	757	2	-	Yes
3	7 24 2020 10:40:36	64.67	10163277	1	757	2	-	Yes
4	7 24 2020 10:43:50	64.15	10081812	1	757	2	-	Yes

---

8 6 Unknown 448841 1 x

TC **81.78** **12827608** **0.44** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 24 2020 10:48:03	82.16	12886721	1	757	2	-	Yes
2	7 24 2020 10:52:05	81.89	12844895	1	756	2	-	Yes
3	7 24 2020 10:55:32	81.77	12826488	1	755	2	-	Yes
4	7 24 2020 10:59:01	81.29	12752328	1	755	2	-	Yes

---

9 7 Unknown 448842 1 x

TC **62.97** **9898195** **0.61** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 24 2020 11:03:18	63.49	9978928	1	755	2	-	Yes
2	7 24 2020 11:07:25	63.04	9909136	1	755	2	-	Yes
3	7 24 2020 11:10:58	62.75	9863289	1	755	2	-	Yes
4	7 24 2020 11:14:21	62.61	9841428	1	755	2	-	Yes

---

10 S1 Unknown CCV 1 x

TC **53.88** **8480829** **0.62** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 24 2020 11:18:24	54.01	8501501	1	754	2	-	Yes
2	7 24 2020 11:22:22	54.29	8545089	1	754	2	-	Yes
3	7 24 2020 11:25:29	53.62	8442245	1	753	2	-	Yes
4	7 24 2020 11:28:37	53.58	8434481	1	753	2	-	Yes

---

11 8 Unknown CCB 1 x

TC **0.07** **100452** **7.32** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 24 2020 11:32:43	0.71	200415	1	753	2	-	-
2	7 24 2020 11:36:10	0.08	101927	1	753	2	-	Yes
3	7 24 2020 11:38:34	0.06	98593	1	752	2	-	Yes
4	7 24 2020 11:41:11	0.13	109486	1	752	2	-	Yes
5	7 24 2020 11:43:46	0.02	91805	1	752	2	-	Yes

Analysis Name 073020 - 173665 173666 173667 173668.adb

Template Name	073020 - 173665 173666 173667 173668.tdb
Method Name	N / A
Operator	KMT
Date	Friday, July 31, 2020
Time	11:18
Start Oven Temp.	787 °C
Start Cooler Temp.	2 °C
Version	2.55 Release
Info	ICAL 0398 INST: TOCW CCV 0411 LCS 0407 SPIKE 0359

Element	Integration Time	Samples	Extra Samples	Max. CV
Carbon	60 s	4	1	10 %
SampleTime	240 s			

No	Type	FileName	Date/Time	Max. Area	Max Conc.	Order	Correlation	Volume	Sel.
1	TC	TOC0398 - 060820	Jun 8 2020, 16:30	15814248	100	1	0.99987	100 µl	Yes
	A2: 0		*A1: 155769.996641552*		*A0: 89094.5916376438*				

Inj. Order	Position	Type	Identification	Dilution Factor
1	1	Unknown	IB	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**0.00**	**0**	**0.00**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 31 2020 11:29:09	6.51	1103917	1	783	2	-	-
2	7 31 2020 11:33:02	0	0	0	780	2	-	Yes
3	7 31 2020 11:37:04	0	0	0	778	2	-	Yes
4	7 31 2020 11:41:05	0	0	0	776	2	-	Yes
5	7 31 2020 11:45:06	0	0	0	775	2	-	Yes

2	S1	Unknown	CCV	1 x

TC		**53.66**	**8448186**	**1.01**		**100 µl**		
Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 31 2020 11:49:58	54.43	8568231	1	773	2	-	Yes
2	7 31 2020 11:53:46	53.67	8449057	1	771	2	-	Yes
3	7 31 2020 11:56:52	53.22	8379290	1	769	2	-	Yes
4	7 31 2020 11:59:59	53.33	8396169	1	768	2	-	Yes

3	S5	Unknown	LCSW	1 x

TC		**53.44**	**8414135**	**1.05**		**100 µl**		
Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 31 2020 12:03:56	53.14	8367040	1	767	2	-	Yes
2	7 31 2020 12:07:50	54.28	8544795	1	766	2	-	Yes
3	7 31 2020 12:11:11	53.08	8357905	1	765	2	-	Yes
4	7 31 2020 12:14:23	53.27	8386801	1	764	2	-	Yes

4	2	Unknown	MBW	1 x

TC		**0.07**	**55698**	**116.54**		**100 µl**		
Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 31 2020 12:18:29	0.21	122139	1	763	2	-	Yes
2	7 31 2020 12:21:38	0	0	0	763	2	-	Yes
3	7 31 2020 12:25:39	0.07	100656	1	762	2	-	Yes
4	7 31 2020 12:28:04	0	0	0	761	2	-	Yes
5	7 31 2020 12:32:05	0	0	0	761	2	-	-

---

5 3 Unknown IB 1 x

TC **ZERO !** **49026** **128.27** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 31 2020 12:36:57	0.27	131597	1	761	2	-	Yes
2	7 31 2020 12:40:07	ZERO !	64507	1	760	2	-	Yes
3	7 31 2020 12:42:32	0	0	0	760	2	-	Yes
4	7 31 2020 12:46:34	0	0	0	760	2	-	Yes
5	7 31 2020 12:50:35	0	0	0	759	2	-	-

---

6 4 Unknown 447446 1 x

TC **1.01** **246020** **11.25** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 31 2020 12:55:28	1.66	348051	1	758	2	-	-
2	7 31 2020 12:58:45	1.27	286666	1	757	2	-	Yes
3	7 31 2020 13:01:19	0.93	233585	1	757	2	-	Yes
4	7 31 2020 13:04:01	0.96	238707	1	756	2	-	Yes
5	7 31 2020 13:06:28	0.87	225123	1	756	2	-	Yes

---

7 5 Unknown 447448 1 x

TC **0.33** **140201** **6.70** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 31 2020 13:09:43	0.82	217326	1	756	2	-	-
2	7 31 2020 13:12:56	0.33	140251	1	755	2	-	Yes
3	7 31 2020 13:15:17	0.36	145476	1	755	2	-	Yes
4	7 31 2020 13:17:41	0.24	126993	1	754	2	-	Yes
5	7 31 2020 13:20:07	0.38	148084	1	754	2	-	Yes

---

8 6 Unknown 449251 1 x

TC **4.14** **734006** **3.94** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 31 2020 13:23:26	5.55	953012	1	754	2	-	-
2	7 31 2020 13:27:08	3.92	700211	1	754	2	-	Yes
3	7 31 2020 13:29:55	4.05	720629	1	753	2	-	Yes
4	7 31 2020 13:32:35	4.33	763918	1	753	2	-	Yes
5	7 31 2020 13:35:34	4.25	751268	1	753	2	-	Yes

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9 7 Unknown 449273 1 x

TC **1.61** **339411** **5.71** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 31 2020 13:39:17	1.78	365690	1	753	2	-	Yes
2	7 31 2020 13:42:21	1.62	341375	1	752	2	-	Yes
3	7 31 2020 13:44:46	1.54	329310	1	752	2	-	Yes
4	7 31 2020 13:47:08	1.49	321270	1	752	2	-	Yes

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10 8 Unknown 449275 1 x

TC **10.79** **1770372** **2.55** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 31 2020 13:50:24	11.22	1836975	1	752	2	-	Yes
2	7 31 2020 13:53:42	10.58	1736685	1	752	2	-	Yes
3	7 31 2020 13:56:13	10.69	1754456	1	752	2	-	Yes
4	7 31 2020 13:58:48	10.68	1753373	1	752	2	-	Yes

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11 9 Unknown 449277 1 x

TC **1.18** **273653** **8.18** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 31 2020 14:02:11	1.38	304718	1	752	2	-	Yes
2	7 31 2020 14:05:06	1.04	251396	1	752	2	-	Yes
3	7 31 2020 14:07:16	1.15	268032	1	752	2	-	Yes
4	7 31 2020 14:09:26	1.16	270467	1	752	2	-	Yes

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12 10 Unknown 449280 1 x

TC **ZERO !** **-94682** **0.00** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 31 2020 14:13:20	0.59	180904	1	753	2	-	-
2	7 31 2020 14:16:08	ZERO !	-164190	1	752	2	-	Yes

3	7 31 2020 14:20:09	ZERO !	-163450	1	753	2	-	Yes
4	7 31 2020 14:24:10	0.36	145423	1	753	2	-	Yes
5	7 31 2020 14:26:16	ZERO !	-196511	1	752	2	-	Yes

13 11 Unknown 449282 1 x

TC **ZERO !** **-84322** **0.00** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 31 2020 14:30:54	ZERO !	-13711	1	753	2	-	Yes
2	7 31 2020 14:35:32	ZERO !	-142060	1	753	2	-	Yes
3	7 31 2020 14:39:34	0.83	218094	1	754	2	-	-
4	7 31 2020 14:41:41	ZERO !	-114870	1	753	2	-	Yes
5	7 31 2020 14:45:43	ZERO !	-66650	1	754	2	-	Yes

14 12 Unknown 449284 1 x

TC **0.80** **213051** **9.76** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 31 2020 14:49:58	0.94	236094	1	754	2	-	Yes
2	7 31 2020 14:52:45	0.69	196561	1	753	2	-	Yes
3	7 31 2020 14:54:50	0.68	194404	1	752	2	-	Yes
4	7 31 2020 14:56:55	0.87	225146	1	752	2	-	Yes

15 S1 Unknown CCV 1 x

TC **50.82** **8005551** **0.44** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 31 2020 15:01:05	50.58	7967436	1	753	2	-	Yes
2	7 31 2020 15:04:44	51.08	8045964	1	753	2	-	Yes
3	7 31 2020 15:07:44	50.92	8021309	1	753	2	-	Yes
4	7 31 2020 15:10:45	50.71	7987498	1	753	2	-	Yes

16 13 Unknown CCB 1 x

TC **0.00** **0** **0.00** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 31 2020 15:14:30	0	0	0	753	2	-	Yes
2	7 31 2020 15:19:08	0	0	0	753	2	-	Yes
3	7 31 2020 15:23:09	0	0	0	753	2	-	Yes
4	7 31 2020 15:27:11	0	0	0	753	2	-	Yes

17 14 Unknown 449286 1 x

TC **1.84** **375978** **4.72** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 31 2020 15:32:05	2.70	509534	1	753	2	-	-
2	7 31 2020 15:35:14	1.68	350667	1	752	2	-	Yes
3	7 31 2020 15:37:33	1.85	376688	1	752	2	-	Yes
4	7 31 2020 15:39:51	1.92	388776	1	752	2	-	Yes
5	7 31 2020 15:42:12	1.92	387783	1	752	2	-	Yes

18 15 Unknown 449288 1 x

TC **1.30** **291091** **2.68** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 31 2020 15:45:21	1.77	364150	1	753	2	-	-
2	7 31 2020 15:48:21	1.36	300373	1	752	2	-	Yes
3	7 31 2020 15:50:36	1.31	292681	1	752	2	-	Yes
4	7 31 2020 15:52:49	1.24	281502	1	752	2	-	Yes
5	7 31 2020 15:55:00	1.29	289808	1	752	2	-	Yes

19 16 Unknown 450263 1 x

TC **ZERO !** **-105332** **0.00** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 31 2020 15:58:03	ZERO !	-63894	1	752	2	-	Yes
2	7 31 2020 16:02:31	0.31	137664	1	753	2	-	-
3	7 31 2020 16:04:39	0.22	123805	1	752	2	-	Yes
4	7 31 2020 16:06:45	ZERO !	-194004	1	752	2	-	Yes
5	7 31 2020 16:10:48	ZERO !	-287237	1	753	2	-	Yes

20 17 Unknown 450267 1 x

		TC	**ZERO !**	**-6582**		**0.00**		**100 µl**	
Sample		Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1		7 31 2020 16:15:40	1.13	265206	1	753	2	-	-
2		7 31 2020 16:18:28	ZERO !	-149595	1	752	2	-	Yes
3		7 31 2020 16:22:30	ZERO !	13542	1	753	2	-	Yes
4		7 31 2020 16:25:46	0.78	210386	1	752	2	-	Yes
5		7 31 2020 16:27:52	ZERO !	-100663	1	751	2	-	Yes

21	18	Unknown	450269	1 x

		TC	**ZERO !**	**132765**		**124.93**		**100 µl**	
Sample		Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1		7 31 2020 16:32:46	0.93	233709	1	753	2	-	Yes
2		7 31 2020 16:35:34	ZERO !	-115158	1	752	2	-	Yes
3		7 31 2020 16:39:22	0.79	212216	1	752	2	-	Yes
4		7 31 2020 16:41:28	ZERO !	-164541	1	752	2	-	-
5		7 31 2020 16:45:29	0.71	200295	1	752	2	-	Yes

22	19	Unknown	450271	1 x

		TC	**ZERO !**	**-261182**		**0.00**		**100 µl**	
Sample		Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1		7 31 2020 16:48:26	ZERO !	-180332	1	752	2	-	-
2		7 31 2020 16:53:03	ZERO !	-272643	1	752	2	-	Yes
3		7 31 2020 16:56:54	ZERO !	-291090	1	752	2	-	Yes
4		7 31 2020 17:00:56	ZERO !	-237549	1	752	2	-	Yes
5		7 31 2020 17:04:58	ZERO !	-243449	1	752	2	-	Yes

23	20	Unknown	DUP450271	1 x

		TC	**ZERO !**	**-250879**		**0.00**		**100 µl**	
Sample		Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1		7 31 2020 17:09:52	0.40	151585	1	752	2	-	-
2		7 31 2020 17:12:38	ZERO !	-278001	1	751	2	-	Yes
3		7 31 2020 17:16:39	ZERO !	-262382	1	751	2	-	Yes
4		7 31 2020 17:20:40	ZERO !	-199779	1	752	2	-	Yes
5		7 31 2020 17:24:12	ZERO !	-263357	1	752	2	-	Yes

24	21	Unknown	MSW450271	1 x

		TC	**51.09**	**8047679**		**0.68**		**100 µl**	
Sample		Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1		7 31 2020 17:28:58	50.67	7981351	1	752	2	-	Yes
2		7 31 2020 17:32:27	51.43	8099630	1	752	2	-	Yes
3		7 31 2020 17:35:17	50.94	8024698	1	752	2	-	Yes
4		7 31 2020 17:38:05	51.33	8085038	1	752	2	-	Yes

25	22	Unknown	MSDW450271	1 x

		TC	**50.54**	**7961062**		**0.60**		**100 µl**	
Sample		Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1		7 31 2020 17:41:44	50.83	8006133	1	752	2	-	Yes
2		7 31 2020 17:45:20	50.73	7990900	1	752	2	-	Yes
3		7 31 2020 17:48:12	50.14	7899424	1	752	2	-	Yes
4		7 31 2020 17:50:58	50.45	7947793	1	752	2	-	Yes

26	S1	Unknown	CCV	1 x

		TC	**51.16**	**8058838**		**0.45**		**100 µl**	
Sample		Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1		7 31 2020 17:54:36	51.05	8040795	1	752	2	-	Yes
2		7 31 2020 17:58:22	51.13	8054246	1	752	2	-	Yes
3		7 31 2020 18:01:20	51.50	8111560	1	752	2	-	Yes
4		7 31 2020 18:04:17	50.97	8028752	1	752	2	-	Yes

27	S5	Unknown	LCSW	1 x

		TC	**51.04**	**8039457**		**1.16**		**100 µl**	
Sample		Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1		7 31 2020 18:08:08	51.13	8053190	1	752	2	-	Yes
2		7 31 2020 18:11:50	50.43	7944404	1	752	2	-	Yes
3		7 31 2020 18:14:48	50.77	7997343	1	752	2	-	Yes

4	7 31 2020 18:17:46	51.83	8162892	1	752	2	-	Yes

28 23 Unknown MBW-CCB 1 x

	TC	**0.00**	**0**		**0.00**		**100 µl**	
Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 31 2020 18:21:39	0.07	99695	1	752	2	-	-
2	7 31 2020 18:24:35	0	0	0	752	2	-	Yes
3	7 31 2020 18:28:36	0	0	0	752	2	-	Yes
4	7 31 2020 18:32:37	0	0	0	752	2	-	Yes
5	7 31 2020 18:36:40	0	0	0	752	2	-	Yes

29 24 Unknown 447280 1 x

	TC	**ZERO !**	**105057**		**33.97**		**100 µl**	
Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 31 2020 18:41:33	0.44	158093	1	753	2	-	Yes
2	7 31 2020 18:44:34	0	0	0	752	2	-	-
3	7 31 2020 18:48:34	0.00	89233	1	752	2	-	Yes
4	7 31 2020 18:50:53	ZERO !	80780	1	752	2	-	Yes
5	7 31 2020 18:53:06	0.02	92122	1	752	2	-	Yes

30 25 Unknown DUP447280 1 x

	TC	**ZERO !**	**50074**		**118.23**		**100 µl**	
Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 31 2020 18:56:11	0.17	115719	1	752	2	-	Yes
2	7 31 2020 18:59:03	ZERO !	84579	1	752	2	-	Yes
3	7 31 2020 19:01:14	0	0	0	752	2	-	Yes
4	7 31 2020 19:05:15	0	0	0	752	2	-	Yes
5	7 31 2020 19:09:16	0	0	0	752	2	-	-

31 26 Unknown MSW447280 1 x

	TC	**51.02**	**8036156**		**1.95**		**100 µl**	
Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 31 2020 19:14:09	52.19	8219451	1	753	2	-	Yes
2	7 31 2020 19:17:39	51.46	8105525	1	752	2	-	Yes
3	7 31 2020 19:20:30	50.47	7951550	1	752	2	-	Yes
4	7 31 2020 19:23:19	49.94	7868098	1	752	2	-	Yes

32 27 Unknown MSDW447280 1 x

	TC	**50.72**	**7989980**		**1.62**		**100 µl**	
Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 31 2020 19:27:00	51.79	8156310	1	752	2	-	Yes
2	7 31 2020 19:30:34	49.96	7870882	1	752	2	-	Yes
3	7 31 2020 19:33:24	50.96	8026962	1	752	2	-	Yes
4	7 31 2020 19:36:14	50.18	7905767	1	751	2	-	Yes

33 28 Unknown 447991 1 x

	TC	**ZERO !**	**102597**		**100.94**		**100 µl**	
Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 31 2020 19:39:52	ZERO !	-51282	1	752	2	-	Yes
2	7 31 2020 19:44:29	0.36	145636	1	752	2	-	Yes
3	7 31 2020 19:46:37	0.34	142219	1	751	2	-	Yes
4	7 31 2020 19:48:43	0.54	173817	1	751	2	-	Yes
5	7 31 2020 19:50:49	ZERO !	-81656	1	751	2	-	-

34 29 Unknown 447992 1 x

	TC	**ZERO !**	**-267031**		**0.00**		**100 µl**	
Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 31 2020 19:55:44	0.39	149974	1	752	2	-	-
2	7 31 2020 19:58:30	ZERO !	-282372	1	752	2	-	Yes
3	7 31 2020 20:02:31	ZERO !	-183227	1	752	2	-	Yes
4	7 31 2020 20:06:22	ZERO !	-330792	1	752	2	-	Yes
5	7 31 2020 20:10:23	ZERO !	-271734	1	751	2	-	Yes

35 30 Unknown 447993 1 x

		TC	**ZERO !**	**-263219**	**0.00**		**100 µl**		
Sample		Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1		7 31 2020 20:15:00	ZERO !	-199121	1	752	2	-	-
2		7 31 2020 20:19:30	ZERO !	-243884	1	751	2	-	Yes
3		7 31 2020 20:23:03	ZERO !	-293010	1	751	2	-	Yes
4		7 31 2020 20:27:04	ZERO !	-254732	1	752	2	-	Yes
5		7 31 2020 20:30:36	ZERO !	-261253	1	751	2	-	Yes

36	31	Unknown	447994		1 x

		TC	**ZERO !**	**-154600**	**0.00**		**100 µl**		
Sample		Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1		7 31 2020 20:35:31	ZERO !	-91058	1	752	2	-	Yes
2		7 31 2020 20:39:46	ZERO !	-218757	1	751	2	-	Yes
3		7 31 2020 20:43:47	ZERO !	-172316	1	752	2	-	Yes
4		7 31 2020 20:47:31	0.50	167284	1	752	2	-	-
5		7 31 2020 20:49:35	ZERO !	-136269	1	751	2	-	Yes

37	32	Unknown	447995		1 x

		TC	**0.91**	**230922**	**8.57**		**100 µl**		
Sample		Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1		7 31 2020 20:54:21	1.08	258006	1	752	2	-	Yes
2		7 31 2020 20:57:09	0.87	224568	1	751	2	-	Yes
3		7 31 2020 20:59:15	ZERO !	-39033	1	751	2	-	-
4		7 31 2020 21:03:16	0.91	230215	1	752	2	-	Yes
5		7 31 2020 21:05:23	0.78	210899	1	751	2	-	Yes

38	33	Unknown	DUP447995		1 x

		TC	**ZERO !**	**148821**	**100.66**		**100 µl**		
Sample		Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1		7 31 2020 21:08:21	0.91	231140	1	751	2	-	Yes
2		7 31 2020 21:11:08	0.90	228686	1	751	2	-	Yes
3		7 31 2020 21:13:15	0.78	210938	1	751	2	-	Yes
4		7 31 2020 21:15:22	ZERO !	-169249	1	751	2	-	-
5		7 31 2020 21:19:23	ZERO !	-75480	1	752	2	-	Yes

39	S2	Unknown	CCV		1 x

		TC	**51.16**	**8057605**	**1.14**		**100 µl**		
Sample		Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1		7 31 2020 21:23:53	50.79	8000255	1	752	2	-	Yes
2		7 31 2020 21:27:41	50.53	7960087	1	752	2	-	Yes
3		7 31 2020 21:30:35	51.74	8148949	1	752	2	-	Yes
4		7 31 2020 21:33:33	51.56	8121129	1	751	2	-	Yes

40	34	Unknown	CCB		1 x

		TC	**0.00**	**0**	**0.00**		**100 µl**		
Sample		Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1		7 31 2020 21:37:34	0	0	0	752	2	-	Yes
2		7 31 2020 21:42:11	0	0	0	752	2	-	Yes
3		7 31 2020 21:46:12	0	0	0	752	2	-	Yes
4		7 31 2020 21:50:13	0	0	0	752	2	-	Yes

41	35	Unknown	MSW447995		1 x

		TC	**54.01**	**8501672**	**0.87**		**100 µl**		
Sample		Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1		7 31 2020 21:55:09	54.68	8606115	1	752	2	-	Yes
2		7 31 2020 21:58:49	53.95	8492763	1	752	2	-	Yes
3		7 31 2020 22:01:46	53.83	8474869	1	751	2	-	Yes
4		7 31 2020 22:04:43	53.57	8432943	1	752	2	-	Yes

42	36	Unknown	MSDW447995		1 x

		TC	**52.68**	**8295713**	**2.14**		**100 µl**		
Sample		Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1		7 31 2020 22:08:32	54.20	8531221	1	752	2	-	Yes
2		7 31 2020 22:12:20	52.89	8328532	1	752	2	-	Yes

3	7 31 2020 22:15:17	52.02	8192927	1	752	2	-	Yes
4	7 31 2020 22:18:10	51.62	8130175	1	752	2	-	Yes

43 37 Unknown 448828 1 x

	TC	**0.33**	**140089**	**15.71**		**100 µl**		
Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 31 2020 22:21:59	0.53	171759	1	752	2	-	Yes
2	7 31 2020 22:24:49	0.21	121720	1	751	2	-	Yes
3	7 31 2020 22:26:55	0.26	129908	1	751	2	-	Yes
4	7 31 2020 22:29:01	0.31	136971	1	751	2	-	Yes
5	7 31 2020 22:31:06	0	0	0	751	2	-	-

44 38 Unknown 448839 1 x

	TC	**ZERO !**	**-255344**	**0.00**		**100 µl**		
Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 31 2020 22:36:01	ZERO !	-172046	1	753	2	-	-
2	7 31 2020 22:40:38	ZERO !	-265311	1	753	2	-	Yes
3	7 31 2020 22:44:40	ZERO !	-208230	1	753	2	-	Yes
4	7 31 2020 22:48:23	ZERO !	-224153	1	753	2	-	Yes
5	7 31 2020 22:51:58	ZERO !	-323684	1	752	2	-	Yes

45 39 Unknown 448840 1 x

	TC	**ZERO !**	**-183742**	**0.00**		**100 µl**		
Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 31 2020 22:56:54	0.67	192771	1	753	2	-	-
2	7 31 2020 22:59:43	ZERO !	-157456	1	752	2	-	Yes
3	7 31 2020 23:03:43	ZERO !	-210273	1	753	2	-	Yes
4	7 31 2020 23:07:45	ZERO !	-165043	1	753	2	-	Yes
5	7 31 2020 23:11:44	ZERO !	-202199	1	753	2	-	Yes

46 40 Unknown DUP448840 1 x

	TC	**ZERO !**	**-83647**	**0.00**		**100 µl**		
Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 31 2020 23:16:40	ZERO !	-84854	1	753	2	-	Yes
2	7 31 2020 23:20:49	ZERO !	-191992	1	753	2	-	Yes
3	7 31 2020 23:24:48	ZERO !	-201724	1	753	2	-	Yes
4	7 31 2020 23:28:50	0.35	143982	1	753	2	-	Yes
5	7 31 2020 23:30:55	0.39	149262	1	752	2	-	-

47 41 Unknown MSW448840 1 x

	TC	**50.96**	**8027072**	**0.49**		**100 µl**		
Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 31 2020 23:33:52	51.21	8065962	1	752	2	-	Yes
2	7 31 2020 23:37:29	50.91	8018685	1	751	2	-	Yes
3	7 31 2020 23:40:19	51.09	8047434	1	751	2	-	Yes
4	7 31 2020 23:43:14	50.63	7976209	1	751	2	-	Yes

48 42 Unknown MSDW448840 1 x

	TC	**50.87**	**8013007**	**1.34**		**100 µl**		
Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	7 31 2020 23:47:00	50.78	7999142	1	751	2	-	Yes
2	7 31 2020 23:50:38	49.94	7868921	1	751	2	-	Yes
3	7 31 2020 23:53:28	51.21	8066594	1	751	2	-	Yes
4	7 31 2020 23:56:22	51.54	8117373	1	751	2	-	Yes

49 43 Unknown 448841 1 x

	TC	**ZERO !**	**-267992**	**0.00**		**100 µl**		
Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	8 1 2020 0:00:09	0.22	123788	1	752	2	-	-
2	8 1 2020 0:02:55	ZERO !	-240129	1	751	2	-	Yes
3	8 1 2020 0:06:56	ZERO !	-229138	1	751	2	-	Yes
4	8 1 2020 0:10:39	ZERO !	-322233	1	752	2	-	Yes
5	8 1 2020 0:14:40	ZERO !	-280468	1	752	2	-	Yes

50	44	Unknown	448842				1 x		
		TC	**ZERO !**	**-47279**	**0.00**		**100 µl**		
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	8 1 2020 0:19:35	ZERO !	-189116	1	753	2	-	Yes
	2	8 1 2020 0:24:13	0	0	0	753	2	-	-
	3	8 1 2020 0:28:15	0	0	0	753	2	-	Yes
	4	8 1 2020 0:32:16	0	0	0	753	2	-	Yes
	5	8 1 2020 0:36:17	0	0	0	753	2	-	Yes

51	S2	Unknown	CCV				1 x		
		TC	**52.15**	**8213067**	**0.93**		**100 µl**		
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	8 1 2020 0:41:12	51.86	8168050	1	754	2	-	Yes
	2	8 1 2020 0:44:54	52.86	8323074	1	753	2	-	Yes
	3	8 1 2020 0:47:58	52.10	8204805	1	752	2	-	Yes
	4	8 1 2020 0:51:03	51.79	8156341	1	752	2	-	Yes

52	45	Unknown	CCB				1 x		
		TC	**0.00**	**0**	**0.00**		**100 µl**		
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	8 1 2020 0:55:07	0.09	103283	1	753	2	-	-
	2	8 1 2020 0:57:58	0	0	0	752	2	-	Yes
	3	8 1 2020 1:01:59	0	0	0	752	2	-	Yes
	4	8 1 2020 1:06:01	0	0	0	753	2	-	Yes
	5	8 1 2020 1:10:02	0	0	0	753	2	-	Yes

53	46	Unknown	449329				1 x		
		TC	**0.41**	**152563**	**5.29**		**100 µl**		
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	8 1 2020 1:14:59	0.77	209463	1	753	2	-	-
	2	8 1 2020 1:17:58	0.38	148820	1	752	2	-	Yes
	3	8 1 2020 1:20:12	0.42	155201	1	751	2	-	Yes
	4	8 1 2020 1:22:24	0.35	143795	1	751	2	-	Yes
	5	8 1 2020 1:24:35	0.47	162438	1	751	2	-	Yes

54	47	Unknown	449330				1 x		
		TC	**0.29**	**134019**	**7.64**		**100 µl**		
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	8 1 2020 1:27:46	0.61	183622	1	751	2	-	-
	2	8 1 2020 1:30:40	0.19	118691	1	751	2	-	Yes
	3	8 1 2020 1:32:49	0.32	139320	1	751	2	-	Yes
	4	8 1 2020 1:34:58	0.33	139871	1	750	2	-	Yes
	5	8 1 2020 1:37:05	0.32	138194	1	750	2	-	Yes

55	48	Unknown	449331				1 x		
		TC	**0.39**	**149590**	**15.45**		**100 µl**		
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	8 1 2020 1:40:09	0.61	183870	1	750	2	-	Yes
	2	8 1 2020 1:42:59	0.33	139935	1	750	2	-	Yes
	3	8 1 2020 1:45:05	0.28	133307	1	750	2	-	Yes
	4	8 1 2020 1:47:08	0.33	141249	1	750	2	-	Yes
	5	8 1 2020 1:49:13	ZERO !	-171269	1	750	2	-	-

56	49	Unknown	449332				1 x		
		TC	**0.45**	**159154**	**13.80**		**100 µl**		
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	8 1 2020 1:54:08	0.63	187482	1	752	2	-	Yes
	2	8 1 2020 1:56:58	0.31	137474	1	751	2	-	Yes
	3	8 1 2020 1:59:02	0.37	147069	1	750	2	-	Yes
	4	8 1 2020 2:01:07	0.48	164593	1	750	2	-	Yes
	5	8 1 2020 2:03:12	ZERO !	-136764	1	750	2	-	-

57 50 Unknown 449333 1 x

TC **ZERO !** **-95512** **0.00** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	8 1 2020 2:08:08	0.43	156266	1	752	2	-	-
2	8 1 2020 2:10:53	ZERO !	-226506	1	751	2	-	Yes
3	8 1 2020 2:14:39	0.26	130320	1	751	2	-	Yes
4	8 1 2020 2:16:44	ZERO !	-285862	1	750	2	-	Yes
5	8 1 2020 2:20:46	0	0	0	751	2	-	Yes

58 51 Unknown 449334 1 x

TC **ZERO !** **-67652** **0.00** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	8 1 2020 2:25:40	ZERO !	-270609	1	753	2	-	Yes
2	8 1 2020 2:30:02	0	0	0	752	2	-	-
3	8 1 2020 2:34:04	0	0	0	752	2	-	Yes
4	8 1 2020 2:38:04	0	0	0	752	2	-	Yes
5	8 1 2020 2:42:07	0	0	0	752	2	-	Yes

59 52 Unknown 450340 1 x

TC **ZERO !** **248074** **62.04** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	8 1 2020 2:47:03	0.44	156938	1	752	2	-	Yes
2	8 1 2020 2:51:36	1.80	369027	1	752	2	-	Yes
3	8 1 2020 2:53:47	ZERO !	53168	1	751	2	-	-
4	8 1 2020 2:57:47	ZERO !	78747	1	752	2	-	Yes
5	8 1 2020 3:01:46	1.92	387586	1	752	2	-	Yes

60 53 Unknown 450341 1 x

TC **ZERO !** **-2186** **0.00** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	8 1 2020 3:04:56	0.63	186743	1	751	2	-	-
2	8 1 2020 3:07:44	0.48	164094	1	751	2	-	Yes
3	8 1 2020 3:09:49	ZERO !	-102518	1	750	2	-	Yes
4	8 1 2020 3:13:45	ZERO !	-230576	1	751	2	-	Yes
5	8 1 2020 3:17:28	0.46	160253	1	752	2	-	Yes

61 54 Unknown 450342 1 x

TC **ZERO !** **-260235** **0.00** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	8 1 2020 3:20:30	0.22	123586	1	751	2	-	-
2	8 1 2020 3:23:14	ZERO !	-226092	1	751	2	-	Yes
3	8 1 2020 3:27:01	ZERO !	-223429	1	752	2	-	Yes
4	8 1 2020 3:30:43	ZERO !	-287712	1	752	2	-	Yes
5	8 1 2020 3:34:44	ZERO !	-303707	1	752	2	-	Yes

62 S2 Unknown CCV 1 x

TC **52.77** **8308221** **1.10** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	8 1 2020 3:39:39	52.52	8269482	1	752	2	-	Yes
2	8 1 2020 3:43:28	52.29	8234543	1	752	2	-	Yes
3	8 1 2020 3:46:30	52.63	8287302	1	751	2	-	Yes
4	8 1 2020 3:49:36	53.62	8441560	1	752	2	-	Yes

63 55 Unknown CCB 1 x

TC **ZERO !** **110692** **13.30** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	8 1 2020 3:53:39	0.16	114738	1	752	2	-	Yes
2	8 1 2020 3:56:34	ZERO !	88943	1	751	2	-	Yes
3	8 1 2020 3:58:42	ZERO !	88217	1	751	2	-	-
4	8 1 2020 4:00:53	0.21	121045	1	751	2	-	Yes
5	8 1 2020 4:03:07	0.19	118043	1	751	2	-	Yes

INORGANICS
LOGBOOK
DOCUMENTS

WCOD QSM Analytical Run
173688 on 08/12/2020

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	460411							WCOD QSM				
				ICV								
	460412							WCOD QSM				
				ICB								
154987	448843		07/21/2020 1410			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	COD QSM		GW	4	
		IDW-54							77490			
	449324		07/21/2020 1100					COD QSM		S	1	
		TURKEY #1 - FRESH							77490			
	449325		07/21/2020 1100					COD QSM		S	1	
		TURKEY #2 - MIDDLE							77490			
	449326		07/21/2020 1100					COD QSM		S	1	
		TURKEY #3 - OLD							77490			
	449327		07/21/2020 1200					COD QSM		S	1	
		SWINE #1 - FINISTTERS							77490			
	449328		07/21/2020 1200					COD QSM		S	1	
		SWINE #2 - SOW/NURSERY							77490			
	450344		07/23/2020 1500					COD QSM		GW	4	
		IDW-48/49							77490			
	454511							COD QSM				
				MBW					77490			
	454513							COD QSM				
				LCSW					77490			
	454521		07/21/2020 1410					COD QSM				
		IDW-54		MSW	448843				77490			
	454522		07/21/2020 1410					COD QSM				
		IDW-54		MSDW	454521				77490			
	454523		07/21/2020 1100					COD QSM				
		TURKEY #1 - FRESH		MSS	449324				77490			
	454524		07/21/2020 1100					COD QSM				
		TURKEY #1 - FRESH		MSDS	454523				77490			
	455222							WCOD QSM				
				CCV								
	455223							WCOD QSM				
				CCB								

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

WCOD QSM Analytical Run
173688 on 08/12/2020

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	455225						WCOD QSM				
				CCV							
	455226						WCOD QSM				
				CCB							
	455227						WCOD QSM				
				CCV							
	455228						WCOD QSM				
				CCB							

21 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

PREP WORKSHEET
on 08/12/2020

Prep Batch **77,490** Date Prepped: 07/31/2020 Prepped By ATJ

Folder #	Order	QC Type	Link	Test	Matrix	Volume	Weight	Initial Volume	SDG Level	Notes
	454511	MBW		COD QSM	LIQUID					
	454513	LCSW		COD QSM	LIQUID					
154987	448843			COD QSM	GROUND WATER				4	
	449324			COD QSM	SOIL	2.5	2.5		1	
	449325			COD QSM	SOIL				1	
	449326			COD QSM	SOIL				1	
	449327			COD QSM	SOIL				1	
	449328			COD QSM	SOIL				1	
	450344			COD QSM	GROUND WATER				4	
	454521	MSW	448843	COD QSM	GROUND WATER					
	454522	MSDW	454521	COD QSM	GROUND WATER					
	454523	MSS	449324	COD QSM	SOIL					
	454524	MSDS	454523	COD QSM	SOIL					

Notes:_____

COD Data Validation Checklist

		Method: Chemical Oxygen Demand EPA 410.4			
LIMS Run #(s)	**Analysis Date**	**Analyst / Data Interpreter**	**Independent Reviewer**	**Date of Review**	**Approved? (Yes or No)**
173687 688	07/31/2020	ATJ	HLB	08/03/2020	Yes

Instructions: Complete one checklist per *analytical run* . Enter the appropriate response for each question.
Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirement:	**Acceptance Criteria**	**Analyst Review**		**Independent Review**		**Comments:**
		Yes	No	Yes	No	(indicate reference to an attachment if necessary)
1. Does a digestion sheet accompany the data package?	---	Yes		Yes		
2. Does the digestion sheet include all reagent and standard prep log numbers?	---	Yes		Yes		
3. Was a passing calibration test applied to sample analysis?	≥0.995	Yes		Yes		
4. Was a passing ICV analyzed immediately after the calibration?	90-110%	Yes		Yes		
5. Was a passing ICB analyzed immediately after the ICV?	< |LOD|or client/project specific	Yes		Yes		
6. Were CCVs and CCB analyzed at the required frequency?	1 per 10 samples	Yes		Yes		
7. Did analyzed CCVs meet the required acceptance criteria?	90-110%	Yes		Yes		
8. Did analyzed CCBs meet the acceptance criteria?	< |LOD|or client/project specific	Yes		Yes		
9. Was a Method Blank prepared at the required frequency?	1per 20 samples or at contract/program specific frequencies	Yes		Yes		
10. Was the method blank within acceptance criteria?	< |LOD|or client/project specific	Yes		Yes		
11. Was an LCS prepared at the required frequency?	1per 20 samples or at contract/program specific frequencies	Yes		Yes		
12. Did the LCS meet the acceptance criteria?	90-110% or Within in-house or contract/program specific limits	Yes		Yes		
13. Was an MS and MSD prepared at the required frequency?	1per 10 per batch or at contract/program specific frequencies	Yes		Yes		
14. Did the MS/ MSD's meet the acceptance criteria?	90-110% or Within in-house or contract/program specific limits		No		No	Parent samples M flagged

15. Did the MS/MSD's meet the RPD criteria?	Within in-house or contract/program specific limits	Yes		Yes		
16. Was a Duplicate prepared at the required frequency?	1per 10 per batch or at contract/program specific frequencies	Yes		Yes		
17. Did the Duplicate meet the RPD criteria?	Within in-house or contract/program specific limits	Yes		Yes		
18. Were the samples digested within hold time?	28 days	Yes		Yes		
19. Was the max temperature(s) for reactor(s) documented?	---	Yes		Yes		
20. Was the method specifed temperature reached?		Yes		Yes		
21. Were reagents/standards used before expiration date?	---	Yes		Yes		
22. Are all samples on the job lists accounted for?	---	Yes		Yes		

CHEMICAL OXYGEN DEMAND REAGENT LOG

Prep Batch(es): 77489 77490

Date/Time/Analyst: 07-31-2020 09:45 ATJ

Run(s): 073687 688

Date/Time/Analyst: 07-31-2020 13:17:00 ATJ

Reagents:	W #	Exp Date
ICAL Preparation	48999	09/29/2020
CCV Preparation	49001	09/29/2020
LCS/ICV Preparation	49000	09/29/2020
Silver Sulfate Acid	48975	06/25/2021
Potassium Dichromate Dig Solution	W47821	11/19/2020

Spiked Samples:	W #	Exp Date
Spiking Solution	49002	09/29/2020

Concentration 2000 mg/L

Volume of Spike Used 0.2 mL

Final Sample Volume 2.5 mL

Final Spike Concentration 148.2 mg/L

Date: 07/31/2020

Time: 09:45

COD DIGESTION BLOCK TEMPS

	A	B
Temperature (Max) 150°C ± 2°C:		149.5

	E	D
Temperature (Max) 150°C ± 2°C:	151.3	

GENESYS 30 Instrument Run Logbook

Date	Start Time	End Time	Analyst	Test/Analyte	Calibration Test #	Run #/ Comments	Maintenance	Review
01/27/20	8:30	15:15	ATJ	COD	COD W47962	168418		4-21-2020 HLB
02/04/20	7:45	08:16	ATJ	COD	COD W47962	168575 576		4-21-2020 HLB
02/11/20	10:00	10:30	ATJ	COD	COD W47963	168726 727		4-21-2020 HLB
02/18/20	8:00	08:13	ATJ	COD	COD W47963	168864		4-21-2020 HLB
02/25/20	13:30	13:50	ATJ	COD	COD W47964	169007		4-21-2020 HLB
03/09/20	14:00	14:30	ATJ	COD	COD W47964	169344		4-21-2020 HLB
03/13/20	13:10	14:00	HLB	PERMANGANATE	PERM W48391	169531		4-21-2020 HLB
03/18/20	7:45	09:00	ATJ	COD	COD W47964	169582		4-21-2020 HLB
03/25/20	8:05	08:45	ATJ	COD	COD W48439	169736 738 739		4-21-2020 HLB
03/31/20	14:00	14:10	ATJ	COD	COD W48439	169983		4-21-2020 HLB
04/14/20	8:45	09:20	ATJ	COD	COD W48439	170117		4-21-2020 HLB
04/15/20	10:30	10:50	ATJ	COD	COD W48439	170310		4-21-2020 HLB
04/28/20	8:30	08:55	ATJ	COD	COD W48439	170675 676		
05/05/20	9:50	10:11	ATJ	COD	COD W48439	170861 862		
05/12/20	9:00	09:20	ATJ	COD	COD W48439	171068		
05/19/20	14:45	15:00	ATJ	COD	COD W48439	171286 287		
05/29/20	10:00	10:11	HLB/ATJ	CHLOROPHYLL-A	NA	171659		
06/02/20	7:55	08:20	ATJ	COD	COD W48439	171723		
06/09/20	11:30	11:48	ATJ	COD	COD W48439	171955		
06/16/20	11:25	11:39	ATJ	COD	COD W48439	172234 236		
06/23/20	10:00	10:40	ATJ	COD	COD W48439	172452 454 459		
06/30/20	9:00	09:20	ATJ	COD	COD W49999	CURVE		
07/09/20	12:15	13:00	ATJ	COD	COD W49999	172906 907		
07/14/20	12:42	13:02	ATJ/SRW	COD	COD W49999	173001		
07/20/20	13:20	13:50	ATJ	COD	COD W49999	173207		
07/31/20	12:43	13:18	ATJ	COD	COD W49999	173687 688		
08/01/20	14:57	15:07	ATJ/HLB	CHLOROPHYLL-A	NA	173732		

Standard Log #:	W48999	Standard/Reagent:	COD ICAL
Analyst:	ATJ	Concentration:	N/A
Prep Date:	06-29-2020	Expiration Date (3 Months):	09-29-2020
PREP		Standards/Reagents Used	
Into 100mL volumetric flasks, added the following amounts of 1,000 mg/L COD ICal/CCV Stock Std. (1) and brought to volume with DI water: CAL Pt. A - 0 mL (Final Concentration = 0 mg/L) CAL Pt. B - 1.0 mL (Final Concentration = 10 mg/L) CAL Pt. C - 2.5 mL (Final Concentration = 25 mg/L) CAL Pt. D - 5.0 mL (Final Concentration = 50 mg/L) CAL Pt. E - 10 mL (Final Concentration = 100 mg/L) CAL Pt. F - 50 mL (Final Concentration = 500 mg/L) CAL Pt. G - 75 mL (Final Concentration = 750 mg/L)		(1) W46827	

Standard Log #:	W49000	Standard/Reagent:	COD LCS
Analyst:	ATJ	Concentration:	400 mg/L
Prep Date:	06-29-2020	Expiration Date (3 Months):	09-29-2020
PREP		Standards/Reagents Used	
Into a 250mL volumetric flask, pipetted 50 mL of 2,000 mg/L COD LCS/Spiking Stock Std. (1) and filled to volume with DI water.		(1) W46827	

Standard Log #:	W49001	Standard/Reagent:	COD CCV
Analyst:	ATJ	Concentration:	400 mg/L
Prep Date:	06-29-2020	Expiration Date (3 Months):	09-29-2020
PREP			Standards/Reagents Used
Into a 250mL volumetric flask, volumetrically added 100 mL of 1,000 mg/L COD ICal/CCV Stock Std. (1) and filled to volume with DI water.			(1) W48999

Standard Log #:	W49002	Standard/Reagent:	COD LCS/Spiking Stock Std.
Analyst:	ATJ	Concentration:	2,000 mg/L
Prep Date:	06-29-2020	Expiration Date (3 Months):	09-29-2020
PREP			Standards/Reagents Used
Into a 500mL volumetric flask, dissolved 0.85g of second-source Potassium Hydrogen Phthalate (KHP) (1) and filled to volume with DI water.			(1) W49000

Standard Log #:	W48975	Standard/Reagent:	Sulfuric Acid/Silver Sulfate Solution
Analyst:	ATJ	Concentration:	N/A
Prep Date:	06-25-2020	Expiration Date (1 Year):	06-25-2021

PREP	Standards/Reagents Used
Into a new 2.5L bottle of Sulfuric acid (H2SO4) (1), dissolved 25g of Silver Sulfate (AG2SO4) (2).	(1) WC128 (2) WC50

Standard Log #:	W47821	Standard/Reagent:	Dichromate Digestion Solution
Analyst:	GMJ	Concentration:	N/A
Prep Date:	11/19/19	Expiration Date (1 Year):	11/19/20

PREP	Standards/Reagents Used
Into a 2L volumetric flask, dissolved 66.6g of Mercuric sulfate (1) in about 500 mL of DI water. Volumetrically added 334 mL of Sulfuric acid (2) and dissolved 20.42g of Potassium dichromate (3) and then filled to volume with DI water.	(1) W46750 (2) WC13 (3) W46749

Standard Log #:	W46827	Chemical:	Potassiuim hydrogen phthalate
Analyst:	HLB	Vendor:	VWR
Date Received:	4-8-19	Catalog #:	BDH9260-125G
Expiration Date (if any):	NA	Lot #:	18J2356114
Comments:			

Standard Log #:	W46749	Chemical:	Potassium Dichromate
Analyst:	SAW	Vendor:	JT Baker (VWR)
Date Received:	2/22/19	Catalog #:	3090-01
Expiration Date (if any):	3/6/25	Lot #:	0000213858
Comments:	Opened 4/29/19		

Standard Log #:	W46750	Chemical:	mERCURY (II) SULFATE
Analyst:	SAW	Vendor:	BTC
Date Received:	3/11/19	Catalog #:	212940-100G
Expiration Date (if any):	4/29/20	Lot #:	50004425
Comments:	Opened 4/29/19		

Standard Log #:	W46658	Standard/Reagent:	Sulfuric Acid Diluent
Analyst:	LJS	Concentration:	N/A
Prep Date:	4/10/19	Expiration Date (3 Months):	7/10/19
PREP		Standards/Reagents Used	
Into a large carboy, volumetrically added 40mL of Sulfuric acid (H2SO4) (1) and filled to a final volume of 20L with DI water		(1) W35903	

Standard ID#:	W35459	Vendor:	FISHER
Analyst:	MER	Chemical:	SODIUM HYPOCHLORITE
Date Received:	8/23/14	Lot #:	143357
Expiration Date (if any):	03/2015	Catelog #:	SS290-4

Standard Log #:	WC128	Chemical:	Sulfuric Acid
Analyst:	ATJ	Vendor:	EMD
Date Received:	01-29-2020	Catalog #:	7664-93-9
Expiration Date (if any):	01-27-2025	Lot #:	59274
Comments:			

Standard Log #:	WC50	Chemical:	Silver Sulfate ACS 98%
Analyst:	HLB	Vendor:	ThermoFisher
Date Received:	1-16-2020	Catalog #:	11417
Expiration Date (if any):	1-16-2025	Lot #:	W04F005
Comments:			

Standard Log #:	WC13	Chemical:	SULFURIC ACID
Analyst:	GMJ	Vendor:	EMD MILIPORE CORPORATION
Date Received:	8/27/19	Catalog #:	SX1244-5
Expiration Date (if any):	NA	Lot #:	58346
Comments:	OPENED 11/19/19		

WANIONS IC QSM 5.0 Analytical Run
173371 on 08/03/2020

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	ANALYTE	SAMPLE DATE:	QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	452241						WANIONS IC QSM 5.0				
		Nitrate Nitrogen		ICV							
		Chloride		ICV							
		Sulfate		ICV							
	452242						WANIONS IC QSM 5.0				
		Nitrate Nitrogen		ICB							
		Chloride		ICB							
		Sulfate		ICB							
	449840						WANIONS IC QSM 5.0				
		Nitrate Nitrogen		CCV				0			
		Chloride		CCV				0			
		Sulfate		CCV				0			
	449839						WANIONS IC QSM 5.0				
		Nitrate Nitrogen		LCSW				0			
		Sulfate		LCSW				0			
		Chloride		LCSW				0			
	449838						WANIONS IC QSM 5.0				
		Nitrate Nitrogen		MBW				0			
		Chloride		MBW				0			
		Sulfate		MBW				0			

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

WANIONS IC QSM 5.0 Analytical Run
173371 on 08/03/2020

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	ANALYTE	SAMPLE DATE:		QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
154987	448828		07/21/2020	0940		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	ANIONS IC QSM 5.0		GW	**4**	
		Chloride										
		Nitrate Nitrogen										
		Sulfate										
154987	448839		07/21/2020	0940		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	ANIONS IC QSM 5.0		GW	**4**	
		Chloride										
		Nitrate Nitrogen										
		Sulfate										
154987	448840		07/21/2020	1050		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	ANIONS IC QSM 5.0		GW	**4**	
		Chloride			*							
		Nitrate Nitrogen			*							
		Sulfate			*							
154987	448841		07/21/2020	1230		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	ANIONS IC QSM 5.0		GW	**4**	
		Chloride										
		Nitrate Nitrogen										
		Sulfate										
154987	448842		07/21/2020	1400		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	ANIONS IC QSM 5.0		GW	**4**	
		Chloride										
		Nitrate Nitrogen										
		Sulfate										

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

WANIONS IC QSM 5.0 Analytical Run
173371 on 08/03/2020

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	ANALYTE	SAMPLE DATE:		QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	449846								WANIONS IC QSM 5.0				
		Nitrate Nitrogen			CCV					0			
		Sulfate			CCV					0			
		Chloride			CCV					0			
	449845								WANIONS IC QSM 5.0				
		Nitrate Nitrogen			CCB					0			
		Chloride			CCB					0			
		Sulfate			CCB					0			
	449837		07/21/2020	1050					ANIONS IC QSM 5.0				
		Nitrate Nitrogen			DUP	448840				0			
		Chloride			DUP	448840				0			
		Sulfate			DUP	448840				0			
	449836		07/21/2020	1050					ANIONS IC QSM 5.0				
		Nitrate Nitrogen			MSW	448840				0			
		Chloride			MSW	448840				0			
		Sulfate			MSW	448840				0			
	452240		07/21/2020	1050					ANIONS IC QSM 5.0				
		Nitrate Nitrogen			MSDW	449836							
		Chloride			MSDW	449836							
		Sulfate			MSDW	449836							

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

WANIONS IC QSM 5.0 Analytical Run
173371 on 08/03/2020

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	ANALYTE	SAMPLE DATE:	QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	449835						WANIONS IC QSM 5.0				
		Nitrate Nitrogen		CCV				0			
		Chloride		CCV				0			
		Sulfate		CCV				0			
	449834						WANIONS IC QSM 5.0				
		Sulfate		CCB				0			
		Nitrate Nitrogen		CCB				0			
		Chloride		CCB				0			
	449844						WANIONS IC QSM 5.0				
		Chloride		CCV				0			
		Sulfate		CCV				0			
		Nitrate Nitrogen		CCV				0			
	449843						WANIONS IC QSM 5.0				
		Nitrate Nitrogen		CCB				0			
		Chloride		CCB				0			
		Sulfate		CCB				0			
154987	448841		07/21/2020 1230		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	ANIONS IC QSM 5.0		GW	**4**	
		Chloride	***RERUN***								
		Nitrate Nitrogen	***RERUN***								
		Sulfate	***RERUN***								

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

WANIONS IC QSM 5.0 Analytical Run
173371 on 08/03/2020

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	ANALYTE	SAMPLE DATE:	QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	449842						WANIONS IC QSM 5.0				
		Nitrate Nitrogen		CCV				0			
		Chloride		CCV				0			
		Sulfate		CCV				0			
	449841						WANIONS IC QSM 5.0				
		Nitrate Nitrogen		CCB				0			
		Chloride		CCB				0			
		Sulfate		CCB				0			

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Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

Data Review Checklist

	Method: Anions by Ion Chromatography 300.0/9056	Independent Data Review Checklist	Instrument: Aquion - System 4

LIMS Run #(s)	Analysis Date	Analyst/Data Interpreter	Independent Reviewer	Date of Review	Approved? (Yes/No)
173371 173372	07/22/2020	TMG	RLD	07/28/2020	Yes

Instructions: Complete one checklist per *analytical sequence* . Enter the appropriate response for each question. Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirement	Acceptance Criteria	Analyst Review		Independent Review		Comments
		Yes	No	Yes	No	(Indicate reference to an attachment if necessary)
1. Were the samples analyzed within hold time?	28 days for Cl, F, SO_4;14 days for preserved NO_2+NO_3; 48 hours for O.Phos, and unpreserved NO_2 and NO_3	Yes		Yes		
2. Was the calibration performed using the required number of standards?	Minimum three plus a blank	Yes		Yes		
3. Is the standard prep log number noted on the analytical report bench sheet?	---	Yes		Yes		
4. Was the correlation coefficient acceptable?	≥ .995	Yes		Yes		
5. Were the ICV and ICB run immediately after the calibration check standard?	---	Yes		Yes		
6. Was the ICV recovery acceptable?	90 – 110 % or contract/program specific	Yes		Yes		
7. Was the ICB result acceptable?	< LOD or contract/program specific	Yes		Yes		
8. Were the CCV's and the CCB's analyzed at the required frequency?	1 / 10 samples or contract/program specific	Yes		Yes		
9. Were the CCV recoveries acceptable?	90 – 110 % or contract/program specific	Yes		Yes		
10. Were the CCB results acceptable?	< LOD or program/project specific	Yes		Yes		
11. Was the MB analyzed at the required frequency?	1 / 20 samples or contract/program specific	Yes		Yes		
12. Were the MB results acceptable?	< LOD or contract/program specific	Yes		Yes		

13. Was a LCS run at the required frequency?	1 / 20 samples or contract/program specific	Yes		Yes		
14. Was the LCS recovery acceptable?	Within in-house or contract/program specific limits	Yes		Yes		
15. Was the LCS used before the indicated expiration date?	---	Yes		Yes		
16. Were the MS and MSD (when required) prepared at the required frequency?	1 per 20 samples per matrix or contract/program specific	Yes		Yes		
17. Were the MS and MSD (when required) recoveries acceptable?	Within In-house or contract/program specific limits		No		No	Affected sample results were "M" flagged
18. Was the RPD between the MS and MSD (when required) acceptable?	Within in house or contract/program specific limits	Yes		Yes		
19. Was a sample duplicate prepared at the required frequency?	Contract/program specific or 1 per 20 samples (1 / 10 for SDWA samples)	Yes		Yes		
20. Was the duplicate within precision limits?	Within in-house or contract/program specific limits	Yes		Yes		
21. Were all chromatograms checked to ensure accurate peak identification?	---	Yes		Yes		
22. Are all samples on the job lists accounted for?	---	Yes		Yes		
23. Were all samples having analytes detected in amounts exceeding the calibration range diluted, reanalyzed and DF applied to the final results?	---	Yes		Yes		
24. Were manual integrations performed correctly and the documentation and rationale for the manual integrations verified?	Manual integratons must be dated, initialed, and reason given, along with "Before" and "After" chromatograms.	Yes		Yes		
25. Were non-matrix related nonconformities (if applicable) documented in the NCR spreadsheet?	---	Yes		Yes		

*Non-Applicable Yes/No Cells Are Left Blank

Comments:

Aquion Run Log - System 4

Start Date	Start Time	End Date	End Time	Analyst	Lims Run #(s)	Calibration ID#	Data File	CCV ID's	LCS ID's	Spike ID's	Total Cond.	Pressure (Mpa)	Flow (mL/min)	Comments	Reviewed/Date
04/28/20	11:27	04/29/20230	18:30	TMG	170715 170716 170727	IC2990A	042820 -	IC2994 IC3003	IC2995 IC3004	IC2996 IC3005	19.59	868	1		RLD 05/06/2020
04/30/20	14:03	05/01/20	10:22	TMG	170809 170810 170822	IC2990A	043020 -	IC3006 IC3009	IC3007 IC3010	IC3008 IC3011	19.87	872	1		RLD 05/06/2020
05/01/20	12:41	05/01/20	18:23	TMG	170839 170840	IC2990A	050120 -	IC3006 IC3009	IC3007 IC3010	IC3008 IC3011	20.72	858	1		RLD 05/06/2020
05/04/20	11:17	05/04/20	12:55	TMG	170870	IC2990A	050420 -	IC3006 IC3018	IC3007 IC3019	IC3008 IC3020	20.41	869	1		
05/05/20	9:46	05/06/20	10:37	TMG	170869 170921	IC2647A	050520 -	IC3006 IC3018	IC3007 IC3019	IC3008 IC3020	20.57	847	0.97		
05/06/20	15:28	05/06/20	17:35	TMG	170977	IC2647A	050620 -	IC3006 IC3021	IC3007 IC3022	IC3008 IC3023	20.14	854	0.97		
05/08/20	8:31	05/08/20	13:30	TMG	170546 171021	IC2647A	050820 -	IC3024 IC3027	IC3025 IC3028	IC3026 IC3029	19.77	854	0.97		
05/11/20	9:43	05/11/20	12:46	TMG	IC3030 LL	IC3030 LL	051120 -	IC3031	IC3031	IC3032	20.18	868	1		
05/11/20	15:25	05/11/20	17:32	TMG	171064 LL	IC3030 LL	051120 -	IC3031	IC3031	IC3032	20.75	872	1		
05/12/20	9:54	05/13/20	12:16	TMG	171063 171081	IC2647A	051220 -	IC3024 IC3034	IC3025 IC3035	IC3026 IC3036	19.7	844	0.97		
05/13/20	15:42	05/13/20	18:59	TMG	171150	IC2647A	051320 -	IC3024 IC3037	IC3025 IC3038	IC3026 IC3039	20.28	852	0.97		
05/14/20	11:21	05/15/20	11:46	TMG	171180 171202 171203	IC2647A	051420 -	IC3024 IC3037	IC3025 IC3037	IC3026 IC3039	19.81	842	0.97		
05/18/20	14:51	05/19/20	09:03	TMG	171292	IC2647A	051820 -	IC3043 IC3051	IC3044 IC3052	IC3045 IC3053	19.98	863	1		
05/19/20	11:19	05/19/20	14:20	TMG	171323	IC2647A	051920 -	IC3057 IC3060	IC3058 IC3061	IC3059 IC3062	20.34	872	1		
05/21/20	14:21	05/21/20	22:19	TMG	171445 171451	IC2647A	052120 -	IC3057 IC3060	IC3058 IC3061	IC3059 IC3062	20.66	888	1		
05/22/20	8:57	05/22/20	12:00	TMG	IC3063 LL	IC3063 LL	052220 -	NA	IC3064	NA	20.08	875	1		
05/22/20	13:02	05/26/20	09:35	TMG	171475	IC2647A	052220 -	IC3057 IC3060	IC3058 IC3061	IC3059 IC3062	20.72	863	1		
05/26/20	11:23	05/26/20	14:11	TMG	171416LL	IC3063 LL	052620 -	NA		NA	20.67	882	1		
05/27/20	8:36	05/27/20	14:11	TMG	171557 171558	IC2647A	052720 -	IC3057 IC3067	IC3058 IC3068	IC3059 IC3069	20.11	875	1		
05/28/20	16:03	05/28/20	21:12	TMG	171645	IC2647A	052820 -	IC3070 IC3073	IC3071 IC3074	IC3072 IC3075	20.87	901	1.02		
06/08/20	11:05	06/08/20	14:52	TMG	IC3097LL	IC3097LL	060820 -	NA	IC3099	NA	21.6	1112	1	New Column	
06/09/20	7:54	06/10/20	10:40	TMG	171954	IC3097LL	060920 -	IC3099	IC3099	IC3098	21.02	1104	1		
06/10/20	13:54	06/11/20	11:51	TMG	172015	IC2732A	061020 -	IC3089 IC3103	IC3090 IC3104	IC3091 IC3105	21.1	1100	0.97		
06/12/20	13:46	06/15/20	10:06	TMG	172135 172140 172141	IC2732A	061220 -	IC3106 IC3109	IC3107 IC3110	IC3108 IC3111	21.01	1070	0.97		
06/16/20	12:27	06/17/20	09:53	TMG	172275 172276	IC2732A	061620 -	IC3106 IC3113	IC3107 IC3114	IC3108 IC3115	21.06	1074	0.97		
06/17/20	13:45	06/18/20	11:50	TMG	172339 172340	IC2732A	061720 -	IC3106 IC3113	IC3107 IC3114	IC3108 IC3115	21.36	1069	0.97		
06/18/20	16:48	06/19/20	12:19	TMG	172385 172386 172387	IC2732A	061820 -	IC3106 IC3116	IC3107 IC3117	IC3108 IC3118	21.33	892	0.97		
06/19/20	13:38	06/20/20	04:43	KMT	172417 172418	IC2732A	061920B -	IC3119 IC3116	IC3120 IC 3117	IC3121 IC3118	21.64	839	0.97		
06/22/20	16:12	06/22/20	20:27	KMT	172466	IC2732A	062220B -	IC3119 IC3122	IC3120 IC3123	IC3121 IC3124	21.62	819	0.97		
06/23/20	13:02	06/24/20	11:02	KMT	172511	IC2732A	062320 -	IC3119 IC3122	IC3120 IC3123	IC3121 IC3124	21.18	872	0.97		
06/24/20	15:49	06/25/20	06:18	KMT	172556 172558	IC2732A	062420 -	IC3119 IC3125	IC3120 IC3126	IC3121 IC3127	21.5	866	0.97		
06/25/20	15:23	06/26/20	10:15	TMG	172610	IC2732A	062520 -	IC3132 IC3135	IC3133 IC3136	IC3134 IC3137	21.39	1073	0.97		
06/26/20	11:00	06/26/20	14:01	TMG	ML IC3138	ML IC3138	062620 -	IC3139	IC3140	NA	21.87	1100	1		
06/26/20	14:45	06/29/20	10:43	TMG	172503	ML IC3138	062620 -	IC3139	IC3140	IC3134	21.91	1095	1		
06/30/20	9:15	06/30/20	19:50	TMG	172702	IC2732A	063020 -	IC3132 IC3135	IC3133 IC3136	IC3134 IC3137	21.42	1073	0.97		
07/01/20	12:19	07/02/20	07:03	TMG	172729	IC2732A	070120 -	IC3132 IC3135	IC3133 IC3136	IC3134 IC3137	21.44	1080	0.97		
07/02/20	12:55	07/02/20	20:47	TMG	172791 172792	IC2732A	070220 -	IC3150 IC3153	IC3151 IC3154	IC3152 IC3155	21.74	1070	0.97		
07/03/20	9:33	07/03/20	13:12	KMT	172816	IC2732A	070320 -	IC3150 IC3153	IC3151 IC3154	IC3152 IC3155	21.83	1074	0.97		
07/07/20	13:03	07/07/20	20:00	TMG	172879 172885	IC2732A	070720 -	IC3150 IC3156	IC3151 IC3157	IC3152 IC3158	21.64	1071	0.97		
07/08/20	13:04	07/09/20	11:31	TMG	172910 172912	IC2732A	070820 -	IC3150 IC3156	IC3151 IC3157	IC3152 IC3158	21.45	1072	0.97		
07/09/20	12:12	07/10/20	08:54	TMG	172948 172949 172953	IC2732A	070920 -	IC3159 IC3162	IC3160 IC3163	IC3161 IC3164	21.47	1072	0.97		
07/10/20	12:16	07/10/20	17:23	TMG	172989 172990	IC2732A	071020 -	IC3159 IC3162	IC3160 IC3163	IC3161 IC3164	21.18	1076	0.97		
07/14/20	13:11	07/16/20	09:57	TMG	173062 173064 173065 173066	IC2732A	071420 -	IC3159 IC3168	IC3160 IC3169	IC3161 IC3170	21.24	1075	0.97		
07/16/20	13:08	07/16/20	23:40	TMG	173151 173153 173156	IC2732A	071620 -	IC3172 IC3175	IC3173 IC3176	IC3174 IC3177	21.19	1138	1		
07/17/20	13:11	07/20/20	15:47	TMG	173190 173191 173192 173194 173198	IC2732A	071720 -	IC3172 IC3175	IC3173 IC3176	IC3174 IC3177	20.91	1106	1		
07/21/20	15:28	07/22/20	10:52	TMG	173314 173315	IC2732A	072120 -	IC3172 IC3175	IC3173 IC3176	IC3174 IC3177	20.94	1116	1		
07/22/20	14:18	07/23/20	11:08	TMG	173371 173372	IC2732A	072220 -	IC3172 IC3175	IC3173 IC3176	IC3174 IC3177	21.28	1099	1		
07/23/20	12:36	07/24/20	13:29	TMG	173399 173426	IC2732A	072320 -	IC3179 IC3182	IC3180 IC3183	IC3181 IC3184	21.46	1105	1		
07/27/20	12:07	07/28/20	10:06	TMG	ML MIC3185 173527	ML IC3185	072720 -	IC3186	IC3187	IC3181	21.47	1105	1		
07/28/20				TMG	173532 173565	IC2732A	072820 -	IC3179 IC3188	IC3180 IC3189	IC3181 IC3190		1092	1		

Standard Log #:	IC3191	Standard/Reagent:	CCV MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3 30mg/L C
Prep Date:	07/30/2020	Expiration Date:	08/06/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Fluoride (IC3088) , Bromide (IC3087), and Nitrate (IC3084), 15 ml 1000 mg/L Chloride (IC3085) , and 25 ml 1000 mg/L Sulfate (IC2902), and brought to volume Milli-Q DI H20		

Standard Log #:	IC3192	Standard/Reagent:	LCSW MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3,PO4 30m
Prep Date:	07/30/2020	Expiration Date:	08/06/2020
Prep:	Into a 500 mL volumetric flask, pipetted 20 mL of Custom Mix Stock Standard (175 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 1250 mg/L Sulfate, and 750 mg/L Chloride) (IC2986) brought to volume with Milli-Q DI H20.		

Standard Log #:	IC3193	Standard/Reagent:	SPIKE MIX
Analyst:	TMG	Final Concentration:	64mg/L Fl, Br, NO3 256mg/L
Prep Date:	07/30/2020	Expiration Date:	08/06/2020
Prep:	Into a 100 mL volumetric flask pipetted 6.4 mL 1000mg/L Fluoride(IC3088), Bromide (IC3087), and Nitrate (IC3084), and 25.6mL 1000mg/L Chloride (IC3085) and 1000mg/L Sulfate (IC2902), and brought to volume with Milli-Q DI H2O		

Standard Log #:	IC3194	Standard/Reagent:	CCV NO2-P
Analyst:	TMG	Final Concentration:	7.0mg/L NO2, PO4

Prep Date:	07/30/2020	Expiration Date:	07/31/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2900) and ortho-phosphate (IC3149), and brought to volume with Milli-Q DI H200		

Standard Log #:	IC3195	Standard/Reagent:	LCSW NO2
Analyst:	TMG	Final Concentration:	7.0mg/L NO2
Prep Date:	07/30/2020	Expiration Date:	07/31/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2985) brought to volume with Milli-Q DI H2O		

Standard Log #:	IC3196	Standard/Reagent:	SPIKE NO2-P
Analyst:	TMG	Final Concentration:	64.0mg/L NO2, PO4
Prep Date:	07/30/2020	Expiration Date:	07/31/2020
Prep:	Into a 100 mL volumetric flask, pipetted 6.4 mL 1000mg/L Nitrite(IC2900) and Phosphate(IC3149) brrought to volume with milli-Q H2O		

Standard Log #:	IC3188	Standard/Reagent:	CCV NO2-P
Analyst:	TMG	Final Concentration:	7.0mg/L NO2, PO4
Prep Date:	07/28/2020	Expiration Date:	07/29/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2900) and ortho-phosphate (IC3149), and brought to volume with Milli-Q DI H200		

Standard Log #:	IC3189	Standard/Reagent:	LCSW NO2
Analyst:	TMG	Final Concentration:	7.0mg/L NO2
Prep Date:	07/28/2020	Expiration Date:	07/29/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2985) brought to volume with Milli-Q DI H2O		

Standard Log #:	IC3190	Standard/Reagent:	SPIKE NO2-P
Analyst:	TMG	Final Concentration:	64.0mg/L NO2, PO4
Prep Date:	07/28/2020	Expiration Date:	07/29/2020
Prep:	Into a 100 mL volumetric flask, pipetted 6.4 mL 1000mg/L Nitrite(IC2900) and Phosphate(IC3149) brrought to volume with milli-Q H2O		

Standard Log #:	IC3179	Standard/Reagent:	CCV MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3 30mg/L C
Prep Date:	07/23/2020	Expiration Date:	07/30/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Fluoride (IC3088) , Bromide (IC3087), and Nitrate (IC3084), 15 ml 1000 mg/L Chloride (IC3085) , and 25 ml 1000 mg/L Sulfate (IC2902), and brought to volume Milli-Q DI H20		

Standard Log #:	IC3180	Standard/Reagent:	LCSW MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3,PO4 30m
Prep Date:	07/23/2020	Expiration Date:	07/30/2020
Prep:	Into a 500 mL volumetric flask, pipetted 20 mL of Custom Mix Stock Standard (175 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 1250 mg/L Sulfate, and 750 mg/L Chloride) (IC2986) brought to volume with Milli-Q DI H20.		

Standard Log #:	IC3181	Standard/Reagent:	SPIKE MIX
Analyst:	TMG	Final Concentration:	64mg/L Fl, Br, NO3 256mg/L
Prep Date:	07/23/2020	Expiration Date:	07/30/2020
Prep:	Into a 100 mL volumetric flask pipetted 6.4 mL 1000mg/L Fluoride(IC3088), Bromide (IC3087), and Nitrate (IC3084), and 25.6mL 1000mg/L Chloride (IC3085) and 1000mg/L Sulfate (IC2902), and brought to volume with Milli-Q DI H2O		

Standard Log #:	IC3182	Standard/Reagent:	CCV NO2-P
Analyst:	TMG	Final Concentration:	7.0mg/L NO2, PO4

Prep Date:	07/23/2020	Expiration Date:	07/24/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2900) and ortho-phosphate (IC3149), and brought to volume with Milli-Q DI H200		

Standard Log #:	IC3183	Standard/Reagent:	LCSW NO2
Analyst:	TMG	Final Concentration:	7.0mg/L NO2, PO4
Prep Date:	07/23/2020	Expiration Date:	07/24/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2985) brought to volume with Milli-Q DI H2O		

Standard Log #:	IC3184	Standard/Reagent:	SPIKE NO2-P
Analyst:	TMG	Final Concentration:	64.0mg/L NO2, PO4
Prep Date:	07/23/2020	Expiration Date:	07/24/2020
Prep:	Into a 100 mL volumetric flask, pipetted 6.4 mL 1000mg/L Nitrite(IC2900) and Phosphate(IC3149) brrought to volume with milli-Q H2O		

Standard Log #:	IC3172	Standard/Reagent:	CCV MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3 30mg/L C
Prep Date:	07/16/2020	Expiration Date:	07/23/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Fluoride (IC3088) , Bromide (IC3087), and Nitrate (IC3084), 15 ml 1000 mg/L Chloride (IC3085) , and 25 ml 1000 mg/L Sulfate (IC2902), and brought to volume Milli-Q DI H20		

Standard Log #:	IC3173	Standard/Reagent:	LCSW MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3,PO4 30m
Prep Date:	07/16/2020	Expiration Date:	07/23/2020
Prep:	Into a 500 mL volumetric flask, pipetted 20 mL of Custom Mix Stock Standard (175 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 1250 mg/L Sulfate, and 750 mg/L Chloride) (IC2986) brought to volume with Milli-Q DI H20.		

Standard Log #:	IC3174	Standard/Reagent:	SPIKE MIX
Analyst:	TMG	Final Concentration:	64mg/L Fl, Br, NO3 256mg/L
Prep Date:	07/16/2020	Expiration Date:	07/23/2020
Prep:	Into a 100 mL volumetric flask pipetted 6.4 mL 1000mg/L Fluoride(IC3088), Bromide (IC3087), and Nitrate (IC3084), and 25.6mL 1000mg/L Chloride (IC3085) and 1000mg/L Sulfate (IC2902), and brought to volume with Milli-Q DI H2O		

Standard Log #:	IC3175	Standard/Reagent:	CCV NO2-P
Analyst:	TMG	Final Concentration:	7.0mg/L NO2, PO4

Prep Date:	07/16/2020	Expiration Date:	07/17/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2900) and ortho-phosphate (IC3149), and brought to volume with Milli-Q DI H200		

Standard Log #:	IC3176	Standard/Reagent:	LCSW NO2
Analyst:	TMG	Final Concentration:	7.0mg/L NO2
Prep Date:	07/16/2020	Expiration Date:	07/17/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2985) brought to volume with Milli-Q DI H2O		

Standard Log #:	IC3177	Standard/Reagent:	SPIKE NO2-P
Analyst:	TMG	Final Concentration:	64.0mg/L NO2, PO4
Prep Date:	07/16/2020	Expiration Date:	07/17/2020
Prep:	Into a 100 mL volumetric flask, pipetted 6.4 mL 1000mg/L Nitrite(IC2900) and Phosphate(IC3149) brrought to volume with milli-Q H2O		

Standard Log #:	IC3168	Standard/Reagent:	CCV NO2-P
Analyst:	TMG	Final Concentration:	7.0mg/L NO2, PO4
Prep Date:	07/14/2020	Expiration Date:	07/15/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2900) and ortho-phosphate (IC3149), and brought to volume with Milli-Q DI H200		

Standard Log #:	IC3169	Standard/Reagent:	LCSW NO2
Analyst:	TMG	Final Concentration:	7.0mg/L NO2
Prep Date:	07/14/2020	Expiration Date:	07/15/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2985) brought to volume with Milli-Q DI H2O		

Standard Log #:	IC3170	Standard/Reagent:	SPIKE NO2-P
Analyst:	TMG	Final Concentration:	64.0mg/L NO2, PO4
Prep Date:	07/14/2020	Expiration Date:	07/15/2020
Prep:	Into a 100 mL volumetric flask, pipetted 6.4 mL 1000mg/L Nitrite(IC2900) and Phosphate(IC3149) brrought to volume with milli-Q H2O		

Standard Log #:	IC3149	Standard/Reagent:	PO4 STOCK
Analyst:	TMG	Final Concentration:	1000mg/L
Prep Date:	07/02/2020	Expiration Date:	01/31/2021
Prep:	cat#:250-220-611 lot#: S190327034		

Standard Log #:	IC3150	Standard/Reagent:	CCV MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3 30mg/L C
Prep Date:	07/02/2020	Expiration Date:	07/09/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Fluoride (IC3088) , Bromide (IC3087), and Nitrate (IC3084), 15 ml 1000 mg/L Chloride (IC3085) , and 25 ml 1000 mg/L Sulfate (IC2902), and brought to volume Milli-Q DI H20		

Standard Log #:	IC3151	Standard/Reagent:	LCSW MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3,PO4 30m
Prep Date:	07/02/2020	Expiration Date:	07/09/2020
Prep:	Into a 500 mL volumetric flask, pipetted 20 mL of Custom Mix Stock Standard (175 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 1250 mg/L Sulfate, and 750 mg/L Chloride) (IC2986) brought to volume with Milli-Q DI H20.		

Standard Log #:	IC3152	Standard/Reagent:	SPIKE MIX
Analyst:	TMG	Final Concentration:	64mg/L Fl, Br, NO3 256mg/l

Standard Log #:	IC3145	Standard/Reagent:	Sodium Bicarbonate
Analyst:	TMG	Final Concentration:	NA
Prep Date:	06/30/2020	Expiration Date:	09/30/2022
Prep:	Lot: 175903 Cat: S233-500 Retest Date: 09/30/2022		

Standard Log #:	IC3146	Standard/Reagent:	Sodium Carbonate
Analyst:	TMG	Final Concentration:	NA
Prep Date:	06/30/2020	Expiration Date:	08/31/2024
Prep:	Lot: 191666 Cat: S263-500 Retest Date: 08/31/2024		

Standard Log #:	IC3147	Standard/Reagent:	Aquion Eluent
Analyst:	TMG	Final Concentration:	4.5nM CARB
Prep Date:	06/30/2020	Expiration Date:	06/30/2021
Prep:	Into a 20L carboy, pipetted 100mL of Aquion Eluent Concentrate(IC2935) and brought to volume with Milli-Q Di water.		

Standard Log #:	IC3148	Standard:	IC Eluent Dionex
			3.5 mM Sodium Carbonate

Analyst:	TMG	Concentrations:	1.0 mM Sodium Bicarbonate
Prep Date:	06/30/2020	Expiration Date (1 Year):	60/30/2021
Prep:	Into a 10L carboy, pipetted 20mL of Dionex eluent concentrate IC2630 and brought to volume with Milli-Q DI H_20.		

Standard Log #:	IC3095	Standard/Reagent:	Analytical Column
Analyst:	TMG	Final Concentration:	na
Prep Date:	06/08/2020	Expiration Date:	na
Prep:	Lot #: 01930011 Product #: 046124 Serial #: 200319160		

Standard Log #:	IC3096	Standard/Reagent:	Guard Column
Analyst:	TMG	Final Concentration:	na
Prep Date:	06/08/2020	Expiration Date:	na
Prep:	Lot #: 01930008 Product #: 046134 Serial #: 200306339		

Standard Log #:	IC3097	Standard/Reagent:	LL CURVE
Analyst:	TMG	Final Concentration:	see description
Prep Date:	06/08/2020	Expiration Date:	06/09/2020
Prep:	WS: into 100 ml flask pipette 0.1mL of P(IC2650) and bring to volume Curve: into 11 separate sample tubes pipette 0, 0.100, 0.250, 0.500, 1.00, 2.00, 3.00, 4.00, 5.00, 7.50, and 10.0ml of WS bring each tube to 10 ml of total volume using Milli-Q H2O		

Standard Log #:	IC3098	Standard/Reagent:	LL SPIKE
Analyst:	TMG	Final Concentration:	10mg/L

Standard Log #:	IC3083	Standard:	IC Eluent Dionex
Analyst:	TMG	Concentrations:	3.5 mM Sodium Carbonate 1.0 mM Sodium Bicarbonate
Prep Date:	06/04/2020	Expiration Date (1 Year):	06/04/2021
Prep:	Into a 10L carboy, pipetted 20mL of Dionex eluent concentrate IC2630 and brought to volume with Milli-Q DI H_20.		

Standard Log #:	IC3084	Standard/Reagent:	NO3 STOCK
Analyst:	TMG	Final Concentration:	1000mg/L
Prep Date:	06/04/2020	Expiration Date:	
Prep:	CAT#: 250-220-5x LOT#: S200217055		

Standard Log #:	IC3085	Standard/Reagent:	CL STOCK
Analyst:	TMG	Final Concentration:	1000mg/L
Prep Date:	06/04/2020	Expiration Date:	06/04/2021
Prep:	CAT#: 250-220-37x LOT#: S200218022		

Standard Log #:	IC3086	Standard/Reagent:	SO4 STOCK

Analyst:	TMG	Final Concentration:	1000mg/L
Prep Date:	06/04/2020	Expiration Date:	
Prep:	CAT#: 250-220-70x LOT#: S200330020		

Standard Log #:	IC3087	Standard/Reagent:	BR STOCK
Analyst:	TMG	Final Concentration:	1000mg/L
Prep Date:	06/04/2020	Expiration Date:	
Prep:	CAT#: 250-220-23x LOT#: S200413026		

Standard Log #:	IC3088	Standard/Reagent:	FI STOCK
Analyst:	TMG	Final Concentration:	1000mg/L
Prep Date:	06/04/2020	Expiration Date:	
Prep:	CAT#: 250-220-40x LOT#: S191114024		

Standard Log #:	IC3089	Standard/Reagent:	CCV MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3 30mg/L C
Prep Date:	06/04/2020	Expiration Date:	06/11/2020

Standard Log #:	IC3033A	Standard:	IC ICAL Mixed Std. Dionex
Analyst:	TMG	Concentrations:	50mg/L - NO_2, NO_3, PO_4, Br, F
Prep Date:	05/11/2020	Expiration Date (48 Hours):	05/13/2020
Prep:	Into a 100 mL volumetric flask pipetted 5 mL of 1000 mg/L Nitrite IC2900, Fluoride IC2535, Bromide IC2536, Nitrate IC2574, and Phosphate IC2650 and brought to volume with Milli-Q DI H_20.		

Standard Log #:	IC3033	Standard:	IC_Calibration_Dionex_B
Analyst:	TMG	Concentrations:	N/A
Prep Date:	05/11/2020	Expiration Date (48 hours):	05/13/2020

Prep:

Prepared in 100 mL volumetric flasks and brought to volume with Milli-Q DI H_20.

Analyte	1	2	3	4	5	6	7	8	9
Mixed Std (50mg/L) IC3033A	0	0.2	0.6	1.0	2.0	4.0	10.0	14.0	28.0
Chloride (1000mg/L) IC2901	0	0.05	0.075	0.1	0.5	1.0	2.0	3.0	4.0
Sulfate (1000mg/L) IC2902	0	0.05	0.075	0.1	0.5	1.0	3.0	5.0	7.0

Standard Log #:	IC3034	Standard/Reagent:	CCV NO2-P

Analyst:	TMG	Final Concentration:	7.0mg/L NO2, PO4
Prep Date:	05/11/2020	Expiration Date:	05/12/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2900) and ortho-phosphate (IC2650), and brought to volume with Milli-Q DI H200		

Standard Log #:	IC3035	Standard/Reagent:	LCSW NO2
Analyst:	TMG	Final Concentration:	7.0mg/L NO2
Prep Date:	05/11/2020	Expiration Date:	05/12/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2664) brought to volume with Milli-Q DI H2O		

Standard Log #:	IC3036	Standard/Reagent:	SPIKE NO2-P
Analyst:	TMG	Final Concentration:	64.0mg/L NO2, PO4
Prep Date:	05/11/2020	Expiration Date:	05/12/2020
Prep:	Into a 100 mL volumetric flask, pipetted 6.4 mL 1000mg/L Nitrite(IC2900) and Phosphate(IC2650) brrought to volume with milli-Q H2O		

Standard Log #:	IC2983	Standard/Reagent:	SPIKE MIX
Analyst:	KMT	Final Concentration:	64mg/L Fl, Br, NO3 256mg/l
Prep Date:	04/20/2020	Expiration Date:	04/27/2020
Prep:	Into a 100 mL volumetric flask pipetted 6.4 mL 1000mg/L Fluoride(IC2535), Bromide (IC2536), and Nitrate (IC2118), and 25.6mL 1000mg/L Chloride (IC2901) and 1000mg/L Sulfate (IC2840), and brought to volume with Milli-Q DI H2O		

Standard Log #:	IC2984	Standard/Reagent:	Sodium carbonate
Analyst:	TMG	Final Concentration:	NA
Prep Date:	04/20/2020	Expiration Date:	08/2024
Prep:	CAT:S263 LOT:191666		

Standard Log #:	IC2985	Standard/Reagent:	LCS NO2 STOCK
Analyst:	TMG	Final Concentration:	1000ug/L
Prep Date:	04/20/2020	Expiration Date:	04/30/2021
Prep:	CAT: AS-NO2N9-2Y LOT:S-29NO2N-2Y		

Standard Log #:	IC2986	Standard/Reagent:	LCS MIX STOCK
Analyst:	TMG	Final Concentration:	175ug/mL F, NO3, PO4, BR

Prep Date:	04/20/2020	Expiration Date:	04/30/2021
Prep:	CAT: VCTWI-3-500 LOT:16-119JKS		

Standard Log #:	IC2897	Standard/Reagent:	CCV NO2-P
Analyst:	TMG	Final Concentration:	7.0mg/L NO2, PO4
Prep Date:	02/25/2020	Expiration Date:	02/26/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2288) and ortho-phosphate (IC2650), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2898	Standard/Reagent:	LCSW NO2
Analyst:	TMG	Final Concentration:	7.0mg/L NO2
Prep Date:	02/25/2020	Expiration Date:	02/26/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2664) brought to volume with Milli-Q DI H20		

Standard Log #:	IC2899	Standard/Reagent:	SPIKE NO2-P
Analyst:	TMG	Final Concentration:	64.0mg/L NO2, PO4
Prep Date:	02/25/2020	Expiration Date:	02/26/2020
Prep:	Into a 100 mL volumetric flask, pipetted 6.4 mL 1000mg/L Nitrite(IC2288) and Phosphate(IC2650) brrought to volume with milli-Q H2O		

Standard Log #:	IC2900	Standard/Reagent:	NO2 STOCK
Analyst:	TMG	Final Concentration:	1000mg/L

Prep Date:	02/25/2020	Expiration Date:	07/2021
Prep:	CAT #:250-220-55X LOT#: S191010033		

Standard Log #:	IC2901	Standard/Reagent:	Cl STOCK
Analyst:	TMG	Final Concentration:	1000mg/L
Prep Date:	02/25/2020	Expiration Date:	07/2021
Prep:	CAT #: 250-220-37X LOT#: S191015047		

Standard Log #:	IC2902	Standard/Reagent:	SO4 STOCK
Analyst:	TMG	Final Concentration:	1000mg/L
Prep Date:	02/25/2020	Expiration Date:	06/2021
Prep:	CAT #: 250-220-70X LOT#: S190913029		

Prep Date:	01/30/2020	Expiration Date:	01/31/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2288) and ortho-phosphate (IC2650), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2846	Standard/Reagent:	LCSW NO2
Analyst:	TMG	Final Concentration:	7.0mg/L NO2
Prep Date:	01/30/2020	Expiration Date:	01/31/2020
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2664) brought to volume with Milli-Q DI H20		

Standard Log #:	IC2847	Standard/Reagent:	SPIKE NO2-P
Analyst:	TMG	Final Concentration:	64.0mg/L NO2, PO4
Prep Date:	01/30/2020	Expiration Date:	01/31/2020
Prep:	Into a 100 mL volumetric flask, pipetted 6.4 mL 1000mg/L Nitrite(IC2288) and Phosphate(IC2650) brrought to volume with milli-Q H2O		

Standard Log #:	IC2848	Standard:	IC ICAL Mixed Std. Dionex
Analyst:	TMG	Concentrations:	50mg/L - NO_2, NO_3, PO_4, Br, F
Prep Date:	01/30/2020	Expiration Date (48 Hours):	02/01/2020

Prep:	Into a 100 mL volumetric flask pipetted 5 mL of 1000 mg/L Nitrite IC2288, Fluoride IC2535, Bromide IC2536, Nitrate IC2574, and Phosphate IC2650 and brought to volume with Milli-Q DI H_20.

Prep:

Prepared in 100 mL volumetric flasks and brought to volume with Milli-Q DI H_20.

Analyte	1	2	3	4	5	6	7	8	9
Mixed Std (50mg/L) IC2848	0	0.2	0.6	1.0	2.0	4.0	10.0	14.0	28.0
Chloride (1000mg/L) IC2791	0	0.05	0.075	0.1	0.5	1.0	2.0	3.0	4.0
Sulfate (1000mg/L) IC2840	0	0.05	0.075	0.1	0.5	1.0	3.0	5.0	7.0

Standard Log #:	IC2850	Standard/Reagent:	Analytical Column
Analyst:	TMG	Final Concentration:	NA
Prep Date:	01/30/2020	Expiration Date:	NA
Prep:	Serial #: 191205322 Lot#: 01914189		

Standard Log #:	IC2851	Standard/Reagent:	Guard Column
Analyst:	TMG	Final Concentration:	NA

Prep Date:	01/30/2020	Expiration Date:	NA
Prep:	Serial #: 191203132 Lot#: 01914183		

Prep:	CAT#: 250-220-701 LOT#:S190913029 exp:01/23/2021

Standard Log #:	IC2841	Standard/Reagent:	Sodium Bicarbonate
Analyst:	TMG	Final Concentration:	na
Prep Date:	01/23/2020	Expiration Date:	05/01/23
Prep:	Rec.11/26/2019 Retest:05/01/2023		

Standard Log #:	IC2661	Standard/Reagent:	CCV MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3 30mg/L C
Prep Date:	10/17/2019	Expiration Date:	10/24/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Fluoride (IC2535) , Bromide (IC2536), and Nitrate (IC2118) , 15 ml 1000 mg/L Chloride (IC2619) , and 25 ml 1000 mg/L Sulfate (IC2593), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2662	Standard/Reagent:	LCSW MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3,PO4 30m
Prep Date:	10/17/2019	Expiration Date:	10/24/2019
Prep:	Into a 500 mL volumetric flask, pipetted 20 mL of Custom Mix Stock Standard (175 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 1250 mg/L Sulfate, and 750 mg/L Chloride) (IC2336) brought to volume with Milli-Q DI H20.		

Standard Log #:	IC2663	Standard/Reagent:	SPIKE MIX
Analyst:	TMG	Final Concentration:	64mg/L Fl, Br, NO3 256mg/l
Prep Date:	10/17/2019	Expiration Date:	10/24/2019
Prep:	Into a 100 mL volumetric flask pipetted 6.4 mL 1000mg/L Fluoride(IC2535), Bromide (IC2536), and Nitrate (IC2118), and 25.6mL 1000mg/L Chloride (IC2619) and 1000mg/L Sulfate (IC2593), and brought to volume with Milli-Q DI H2O		

Standard Log #:	IC2664	Standard/Reagent:	NO2 LCS STOCK
Analyst:	TMG	Final Concentration:	1000ug/mL

Prep Date:	10/17/2019	Expiration Date:	05/30/2020
Prep:	LOT#: 4-167NO2N-2Y CAT#:AS-NO2N9-2Y EXP:05/30/2020		

Standard Log #:	IC2665	Standard/Reagent:	LCSW MIX STOCK
Analyst:	TMG	Final Concentration:	1250ug/mL SO4, 750ug/mL
Prep Date:	10/17/2019	Expiration Date:	09/30/2020
Prep:	LOT#: 15-128JKS CAT#:VCTWI-3-500 EXP:09/30/2020		

Standard Log #:	IC2650	Standard/Reagent:	PO4 STOCK
Analyst:	TMG	Final Concentration:	1000mg/L
Prep Date:	10/10/2019	Expiration Date:	10/10/2020
Prep:	LOT#: S190327034 CAT#: 250-220-611 EXP:10/10/2020		

Standard Log #:	IC2651	Standard/Reagent:	CCV MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3 30mg/L C
Prep Date:	10/10/2019	Expiration Date:	10/17/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Fluoride (IC2535) , Bromide (IC2536), and Nitrate (IC2118) , 15 ml 1000 mg/L Chloride (IC2619) , and 25 ml 1000 mg/L Sulfate (IC2593), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2652	Standard/Reagent:	LCSW MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3,PO4 30m
Prep Date:	10/10/2019	Expiration Date:	10/17/2019
Prep:	Into a 500 mL volumetric flask, pipetted 20 mL of Custom Mix Stock Standard (175 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 1250 mg/L Sulfate, and 750 mg/L Chloride) (IC2336) brought to volume with Milli-Q DI H20.		

Standard Log #:	IC2653	Standard/Reagent:	SPIKE MIX
Analyst:	TMG	Final Concentration:	64mg/L Fl, Br, NO3 256mg/l

Standard Log #:	IC2574	Standard/Reagent:	NO2 STOCK
Analyst:	TMG	Final Concentration:	1000mg/L NO3
Prep Date:	08/29/2019	Expiration Date:	08/29/2020
Prep:	LOT #:S190225004 CAT#:250-220-521 EXP:08/29/2020		

Standard Log #:	IC2575	Standard/Reagent:	CCV MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3 30mg/L C
Prep Date:	08/29/2019	Expiration Date:	09/05/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Fluoride (IC2535) , Bromide (IC2536), and Nitrate (IC2118) , 15 ml 1000 mg/L Chloride (IC2426) , and 25 ml 1000 mg/L Sulfate (IC2427), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2576	Standard/Reagent:	LCSW MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3,PO4 30m
Prep Date:	08/29/2019	Expiration Date:	09/05/2019
Prep:	Into a 500 mL volumetric flask, pipetted 20 mL of Custom Mix Stock Standard (175 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 1250 mg/L Sulfate, and 750 mg/L Chloride) (IC2336) brought to volume with Milli-Q DI H20.		

Standard Log #:	IC2577	Standard/Reagent:	SPIKE MIX
Analyst:	TMG	Final Concentration:	64mg/L Fl, Br, NO3 256mg/L

Standard Log #:	IC2535	Standard/Reagent:	FI STOCK
Analyst:	TMG	Final Concentration:	1000mg/L
Prep Date:	08/08/2019	Expiration Date:	08/08/2020
Prep:	Lot #:S190129008 Cat #: 250-220-401 Exp: 08/08/2020		

Standard Log #:	IC2536	Standard/Reagent:	Br STOCK
Analyst:	TMG	Final Concentration:	1000mg/L
Prep Date:	08/08/2019	Expiration Date:	08/08/2020
Prep:	Lot #:S1920213009 Cat #: 250-220-236 Exp: 08/08/2020		

Standard Log #:	IC2537	Standard/Reagent:	CCV NO2-P
Analyst:	TMG	Final Concentration:	7.0mg/L NO2, PO
Prep Date:	08/08/2019	Expiration Date:	08/09/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2288) and ortho-phosphate (IC2245), and brought to volume with Milli-Q DI H20		

Standard Log #:		Standard/Reagent:	

WPH Analytical Run
173373 on 08/12/2020

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	447987		07/20/2020 0800				PH SM4500H+B		WW		
		WP WASTEWATER									
	448259		07/21/2020 0920				PH SM4500H+B		WW	1	
		EFFLUENT GRAB									
	448712		07/21/2020 1230				PH SM4500H+B		WW	1	
		WW									
	448800		07/20/2020 1000				PH SM4500H+B		WW	1	
		114									
154987	448843		07/21/2020 1410		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	PH		GW	4	
		IDW-54									
	448899		07/21/2020 0900				PH SM4500H+B		WW	1	
		EFFLUENT									
	448902		07/21/2020 0700				PH SM4500H+B		WW	1	
		PLANT 1									
	448903		07/21/2020 0700				PH SM4500H+B		WW	1	
		PLANT 2									
	448904		07/21/2020 0700				PH SM4500H+B		WW	1	
		PLANT 4									
	453804		07/21/2020 0700				PH SM4500H+B				
		PLANT 4		DUP 448904							
	453805		07/21/2020 1410				PH				
		IDW-54		DUP 448843							

11 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

pH Data Validation Checklist

		Method: pH EPA 150.1, SM 4500-H+B, EPA 9040C, EPA 9045D			
LIMS Run #(s)	**Analysis Date**	**Analyst / Data Interpreter**	**Independent Reviewer**	**Date of Review**	**Approved? (Yes or No)**
173373	07/22/2020	LAY	SRW	07/29/2020	YES

Instructions: Complete one checklist per *analytical run* . Enter the appropriate response for each question.
Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirement:	**Acceptance Criteria**	**Analyst Review**		**Independent Review**		**Comments:**
		Yes	No	Yes	No	(indicate reference to an attachment if necessary)
1. Was the calibration slope recorded on the bench sheet?	95-110%	Yes		Yes		
2. Were reagents/standards used before expiration date?	---	Yes		Yes		
3. Were duplicates analyzed at the appropriate frequency?	1 every 20 samples of the same matrix	Yes		Yes		
4. Were the duplicates within acceptable limits?	Differ by $\leq$ 0.10 pH units	Yes		Yes		
5. Are all samples on the job lists accounted for?	---	Yes		Yes		
6. Were SM 4500-H+B samples bracketed by calibration buffer 7?	Every 10 samples, Differ by $\leq$ 0.10 pH units	Yes		Yes		

Mettler Toledo (Easy Seven) pH Calibration & Maintenance Run Logbook

		pH Buffer Reference ID #			3 Point Calibration						
Date	Analyst	pH 7	pH 4	pH 10	1st Buffer	2nd Buffer	3rd Buffer	Slope (95-110%)	Temp ° C	Comments	Review
07/21/20	LAY	WC70 EX: 02/13/21	WC38 EX: 12/30/20	WC105 EX:05/04/21	7.02	4	10.07	96%	19.2		
07/22/20	LAY	WC70 EX: 02/13/21	WC38 EX: 12/30/20	WC105 EX:05/04/21	7.02	4	10.07	97%	19.4		
07/23/20	LAY	WC70 EX: 02/13/21	WC38 EX: 12/30/20	WC105 EX:05/04/21	7.02	4	10.07	97%	19.2		
07/24/20	LAY	WC70 EX: 02/13/21	WC38 EX: 12/30/20	WC105 EX:05/04/21	7.02	4	10.07	97%	19.6		
07/27/20	LAY	WC70 EX: 02/13/21	WC38 EX: 12/30/20	WC105 EX:05/04/21	7.02	4	10.06	95%	19.9		
07/28/20	LAY	WC70 EX: 02/13/21	WC38 EX: 12/30/20	WC105 EX:05/04/21	7.02	4	10.07	96%	19.1		
07/29/20	LAY	WC70 EX: 02/13/21	WC38 EX: 12/30/20	WC105 EX:05/04/21	7.02	4	10.06	97%	19.9		
07/30/20	LAY	WC70 EX: 02/13/21	WC38 EX: 12/30/20	WC105 EX:05/04/21	7.02	4	10.07	97%	19.5		
07/31/20	LAY	WC70 EX: 02/13/21	WC38 EX: 12/30/20	WC105 EX:05/04/21	7.02	4	10.07	97%	19.3		
08/03/20	LAY	WC70 EX: 02/13/21	WC38 EX: 12/30/20	WC105 EX:05/04/21	7.02	4	10.07	98%	19.1		
08/04/20	LAY	WC70 EX: 02/13/21	WC38 EX: 12/30/20	WC105 EX:05/04/21	7.02	4	10.08	97%	18.8		
08/05/20	LAY	WC70 EX: 02/13/21	WC38 EX: 12/30/20	WC105 EX:05/04/21	7.02	4	10.07	98%	19		
08/06/20	LAY	WC70 EX: 02/13/21	WC38 EX: 12/30/20	WC105 EX:05/04/21	7.02	4	10.07	97%	19.1		
08/07/20	LAY	WC70 EX: 02/13/21	WC38 EX: 12/30/20	WC105 EX:05/04/21	7.02	4	10.07	97%	19.3		
08/10/20	LAY	WC70 EX: 02/13/21	WC38 EX: 12/30/20	WC105 EX:05/04/21	7.02	4	10.06	97%	19.9		
08/11/20	LAY	WC70 EX: 02/13/21	WC38 EX: 12/30/20	WC105 EX:05/04/21	7.02	4	10.06	96%	19.6		
08/12/20	LAY	WC70 EX: 02/13/21	WC38 EX: 12/30/20	WC105 EX:05/04/21	7.02	4	10.07	97%	19.4		
08/13/20	LAY	WC70 EX: 02/13/21	WC38 EX: 12/30/20	WC105 EX:05/04/21	7.02	4	10.07	97%	19.3		
08/14/20	LAY	WC70 EX: 02/13/21	WC38 EX: 12/30/20	WC105 EX:05/04/21	7.02	4	10.07	97%	19.5		

Mettler Toledo (Easy Seven) Instrument Run Logbook

Date	Start Time	End Time	Analyst	Analyte	Lims Run #(s)	Comments
06/19/20	16:20	16:50	SRW	PH	172428	
06/22/20	14:55	15:20	RLB	PH	172465	
06/23/20	14:15	14:25	HLB	PH	172520	
06/24/20	14:00	14:15	ATJ	PH	172564	
06/25/20	14:25	14:45	HLB	PH	172613	
06/26/20	15:00	15:30	SRW	PH	172647	
06/30/20	14:55	15:05	HLB	PH	172719	
07/01/20	14:00	14:30	atj	ph	172751	
07/02/20	15:00	15:30	SRW	PH	172797	
07/03/20	14:00	14:37	ATJ/LAY	PH	172832	
07/06/20	14:30	14:45	RLB	PH	172861	
07/07/20	16:15	16:25	HLB	PH	172892	
07/08/20	14:15	14:45	ATJ/LAY	PH	172913	
07/09/20	14:30	15:00	SRW/LAY	PH	172963 172964	
07/10/20	14:25	14:43	ATJ/LAY	PH	172993	
07/13/20	14:35	14:44	RLB	PH	173030	
07/14/20	15:05	15:25	LAY	PH	173069	
07/15/20	14:00	14:20	hlb	PH	173098	
07/16/20	14:18	14:45	ATJ	PH	173155	
07/17/20	14:20	14:50	HLB	PH	173196	
07/20/20	14:00	14:10	RLB	PH	173256	
07/22/20	14:07	14:57	LAY	PH	173373	
07/23/20	15:15	15:40	HLB	PH	173425	
07/24/20	14:05	14:20	HLB	PH	173461	
07/27/20	14:20	14:30	RLB	PH	173509	
07/28/20	16:00	16:30	SRW	PH	173568	
07/29/20	14:13	14:44	LAY	PH	173620 173624	
07/30/20	15:00	15:20	ATJ	PH	173672	
07/31/20	15:05	15:30	HLB	PH	173703	
08/03/20	14:05	14:25	RLB	PH	173745	
08/04/20	14:00	14:15	SRW	PH	173774	
08/05/20	14:25	14:50	LAY	PH	173804	
08/06/20	15:30	16:20	ATJ	PH	173884	
08/06/20	16:25	16:40	HLB	PH	173852	
08/07/20	15:00	15:15	HLB	PH	173917	
08/10/20	15:30	16:30	HLB	PH	173958 173959	
08/11/20	16:40	16:50	HLB	PH	174011	
08/12/20	15:35	15:55	LAY	PH	174056	
08/13/20	14:30	15:14	ATJ	PH	174086	

Standard Log #:	WC105	Chemical:	pH Buffer 10
Analyst:	HLB	Vendor:	Inorganics Ventures
Date Received:	4-23-2020	Catalog #:	PHBLUE-10
Expiration Date (if any):	5-4-2021	Lot #:	P2-WCS681003
Comments:	opened 5-4-2020		

Standard Log #:	WC70	Chemical:	pH Buffer 7
Analyst:	HLB	Vendor:	Inorganics Ventures
Date Received:	2-13-2020	Catalog #:	PHYELLOW-7
Expiration Date (if any):	2-13-2021	Lot #:	P2-WCS680595
Comments:	bag opened 2-13-2020		

WC_StdLog_01
Wet Chem Chemical Logbook
Logbook Created: 10/22/2019

NOTEBOOK VIEW: LTN_WC_StdLog_01_Default, NOTEBOOK: WC_StdLog_01, PAGE: 22
Page is Locked
Author: swachter on: 1/7/2020 9:37:47 AM
Page is not Witnessed
Project: Unassigned
Page Title: 123019

Standard Log #:	WC38	Chemical:	pH 4 Calibration Std 4L
Analyst:	HLB	Vendor:	Inorganic Ventures
Date Received:	12-30-19	Catalog #:	PHRED-4-4L
Expiration Date (if any):	12-30-20	Lot #:	P2-WCS680743
Comments:			

W CARBON, INORG & ORG Analytical Run
173439 on Aug 03, 2020

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	450469						W CARBON, INORG & ORG				
				CCV				0			
	450470						W CARBON, INORG & ORG				
				LCSW				0			
	450471						W CARBON, INORG & ORG				
				MBW				0			
154987	448828		Jul 21, 2020 0940		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	CARBON, INORG & ORG		GW	**4**	
		54MW13									
154987	448839		Jul 21, 2020 0940		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	CARBON, INORG & ORG		GW	**4**	
		54TW13									
154987	448840		Jul 21, 2020 1050		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	CARBON, INORG & ORG		GW	**4**	
		54MW12		Designated MS/MSD							
154987	448841		Jul 21, 2020 1230		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	CARBON, INORG & ORG		GW	**4**	
		54MW10									
154987	448842		Jul 21, 2020 1400		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	CARBON, INORG & ORG		GW	**4**	
		54MW1									
	450472						W CARBON, INORG & ORG				
				CCV				0			
	450473						W CARBON, INORG & ORG				
				CCB				0			

10 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

FWC39-01 Data Review Checklist

	Method: Total Organic Carbon Method 415.1/9060	Independent Data Review Checklist	Instrument: TOCW

LIMS Run #(s)	Analysis Date	Analyst / Data Interpreter	Independent Reviewer	Date of Review	Approved? (Yes or No)
173439	07/24/2020	KMT	RLD	08/03/2020	Yes

Instructions: Complete one checklist per *analytical sequence* . Enter the appropriate response for each question. Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirement	Acceptance Criteria	Analyst Review		Independent Review		Comments
		Yes	No	Yes	No	(Indicate reference to an attachment if necessary)
1. Were the samples preserved prior to analysis and analyzed within hold time?	pH <2, 28 days or program/project specific	Yes		Yes		
2. Was the calibration curve performed using the required number of standards?	3 standards and a blank	Yes		Yes		
3. Was the correlation coefficient acceptable?	r ≥ .995	Yes		Yes		
4. Were the ICV and ICB analyzed?	---	Yes		Yes		
5. Was the ICV result acceptable?	90 – 110 % Rec. or contract/program specific	Yes		Yes		
6. Was the ICB result acceptable?	< LOD or contract/program specific	Yes		Yes		
7. Was an LCS & MB run with each batch of samples?	One each per analytical batch or contract/program specific frequency.	Yes		Yes		
8. Was the LCS recovery acceptable?	In-house derived or contract/program specific limits.	Yes		Yes		
9. Were the MB results acceptable?	< LOD or project/ program specific (<1/2 RL for DOD-QSM).	Yes		Yes		
10. Were the CCV's analyzed at the required frequency?	Beginning, after every 10 sample, & at the end of a sequence.	Yes		Yes		
11. Were the CCB's analyzed at the required frequency?	After each CCV (unless MB analyzed after CCV)	Yes		Yes		
12. Were the CCV recoveries acceptable?	90 – 110 % Rec. or project/ program specific	Yes		Yes		
13. Were the CCB results acceptable?	< LOD or project/ program specific	Yes		Yes		

14. Were all positive results that were reported within the calibration curve?	---	Yes		Yes		
15. Was an MS and MSD analyzed at the required frequency?	1 / 20 of the same matrix or project/ program specific	Yes		Yes		
16. Were the MS and MSD recoveries acceptable?	In-house derived or project/ program specific limits	Yes		Yes		
17. Was the RPD between the MS and MSD acceptable?	In-house derived or project/ program specific limits	Yes		Yes		
18. Was a Duplicate analyzed at the required frequency?	1 per 20 of the same matrix or contract/program specific	Yes		Yes		
19. Was the RPD between the Duplicate (if valid) and the sample acceptable?	In-house derived or project/ program specific limits (QSM samples, duplicate only valid when sample result ≥5x the LOQ)	Yes		Yes		
20. Are all samples on the job lists accounted for?	---	Yes		Yes		
21. Is the standards prep log numbers noted on the analytical report?	---	Yes		Yes		
22. Were post analysis corrections addressed and/or the Audit Trail function turned on (if available)?	Correction should be initialed, dated, and reason given. Audit trail must be on (if available)	Yes		Yes		
23. Were non-matrix related nonconformities (if applicable) documented in the NCR spreadsheet?	---	Yes		Yes		

Non-Applicable Yes/No Cells Are Left Blank

Comments:

WORGANIC CARBON QSM 5.0 Analytical Run
173668 on 08/12/2020

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME		QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	460094								WORGANIC CARBON QSM 5.0				
					ICV								
	460095								WORGANIC CARBON QSM 5.0				
					ICB								
	455158								WORGANIC CARBON QSM 5.0				
					CCV					0			
	455159								WORGANIC CARBON QSM 5.0				
					LCSW					0			
	455160								WORGANIC CARBON QSM 5.0				
					MBW					0			
	455161								WORGANIC CARBON QSM 5.0				
					CCV					0			
	455162								WORGANIC CARBON QSM 5.0				
					CCB					0			
154987	448828		07/21/2020	0940			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	ORGAN CARBON T QSM 5.0		GW	**4**	
		54MW13											
154987	448839		07/21/2020	0940			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	ORGAN CARBON T QSM 5.0		GW	**4**	
		54TW13											
154987	448840		07/21/2020	1050			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	ORGAN CARBON T QSM 5.0		GW	**4**	
		54MW12			Designated MS/MSD								
	455163		07/21/2020	1050					ORGAN CARBON T QSM 5.0				
		54MW12			DUP	448840				0			
	455164		07/21/2020	1050					ORGAN CARBON T QSM 5.0				
		54MW12			MSW	448840				0			
	455165		07/21/2020	1050					ORGAN CARBON T QSM 5.0				
		54MW12			MSDW	455164				0			
154987	448841		07/21/2020	1230			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	ORGAN CARBON T QSM 5.0		GW	**4**	
		54MW10											
154987	448842		07/21/2020	1400			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	ORGAN CARBON T QSM 5.0		GW	**4**	
		54MW1											
	455166								WORGANIC CARBON QSM 5.0				
					CCV					0			
	455167								WORGANIC CARBON QSM 5.0				
					CCB					0			
	449329		07/22/2020	1000					ORGAN CARBON T QSM 5.0		GW	**4**	
		50MW02											

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

WORGANIC CARBON QSM 5.0 Analytical Run
173668 on 08/12/2020

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME		QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	449330		07/22/2020	1110				ORGAN CARBON T QSM 5.0		GW	4	
	449331	48MW2	07/22/2020	1205				ORGAN CARBON T QSM 5.0		GW	4	
	449332	48MW3	07/22/2020	1205				ORGAN CARBON T QSM 5.0		GW	4	
	449333	48TW3	07/22/2020	1335				ORGAN CARBON T QSM 5.0		GW	4	
	449334	49MW2	07/22/2020	1500				ORGAN CARBON T QSM 5.0		GW	4	
	450340	49EB2	07/23/2020	0920				ORGAN CARBON T QSM 5.0		GW	4	
	450341	48MW06	07/23/2020	1015				ORGAN CARBON T QSM 5.0		GW	4	
	450342	48MW01	07/23/2020	1135				ORGAN CARBON T QSM 5.0		GW	4	
	455168	49MW01						WORGANIC CARBON QSM 5.0				
					CCV				0			
	455169							WORGANIC CARBON QSM 5.0				
					CCB				0			

28 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

FWC39-01 Data Review Checklist

	Method: Total Organic Carbon Method 415.1/9060	Independent Data Review Checklist	Instrument: TOCW

LIMS Run #(s)	Analysis Date	Analyst / Data Interpreter	Independent Reviewer	Date of Review	Approved? (Yes or No)
173665, 173666, 173667, 173668	07/31/2020	KMT	RLD	08/03/2020	Yes

Instructions: Complete one checklist per *analytical sequence* . Enter the appropriate response for each question. Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirement	Acceptance Criteria	Analyst Review		Independent Review		Comments
		Yes	No	Yes	No	(Indicate reference to an attachment if necessary)
1. Were the samples preserved prior to analysis and analyzed within hold time?	pH <2, 28 days or program/project specific	Yes		Yes		
2. Was the calibration curve performed using the required number of standards?	3 standards and a blank	Yes		Yes		
3. Was the correlation coefficient acceptable?	r ≥ .995	Yes		Yes		
4. Were the ICV and ICB analyzed?	---	Yes		Yes		
5. Was the ICV result acceptable?	90 – 110 % Rec. or contract/program specific	Yes		Yes		
6. Was the ICB result acceptable?	< LOD or contract/program specific	Yes		Yes		
7. Was an LCS & MB run with each batch of samples?	One each per analytical batch or contract/program specific frequency.	Yes		Yes		
8. Was the LCS recovery acceptable?	In-house derived or contract/program specific limits.	Yes		Yes		
9. Were the MB results acceptable?	< LOD or project/ program specific (<1/2 RL for DOD-QSM).	Yes		Yes		
10. Were the CCV's analyzed at the required frequency?	Beginning, after every 10 sample, & at the end of a sequence.	Yes		Yes		
11. Were the CCB's analyzed at the required frequency?	After each CCV (unless MB analyzed after CCV)	Yes		Yes		
12. Were the CCV recoveries acceptable?	90 – 110 % Rec. or project/ program specific	Yes		Yes		
13. Were the CCB results acceptable?	< LOD or project/ program specific	Yes		Yes		

14. Were all positive results that were reported within the calibration curve?	---	Yes		Yes		
15. Was an MS and MSD analyzed at the required frequency?	1 / 20 of the same matrix or project/ program specific	Yes		Yes		
16. Were the MS and MSD recoveries acceptable?	In-house derived or project/ program specific limits	Yes		Yes		
17. Was the RPD between the MS and MSD acceptable?	In-house derived or project/ program specific limits	Yes		Yes		
18. Was a Duplicate analyzed at the required frequency?	1 per 20 of the same matrix or contract/program specific	Yes		Yes		
19. Was the RPD between the Duplicate (if valid) and the sample acceptable?	In-house derived or project/ program specific limits (QSM samples, duplicate only valid when sample result ≥5x the LOQ)	Yes		Yes		DUP (447995) <LOD = Invvalid
20. Are all samples on the job lists accounted for?	---	Yes		Yes		
21. Is the standards prep log numbers noted on the analytical report?	---	Yes		Yes		
22. Were post analysis corrections addressed and/or the Audit Trail function turned on (if available)?	Correction should be initialed, dated, and reason given. Audit trail must be on (if available)	Yes		Yes		
23. Were non-matrix related nonconformities (if applicable) documented in the NCR spreadsheet?	---	Yes		Yes		

Non-Applicable Yes/No Cells Are Left Blank

Comments:

TOC Instrument Run Logbook

Start Date	Start Time	End Date	End Time	Analyst	LIMs Run #	Matrix (S or W)	Calibration ID #	COMMENTS
7/8/2020	KMT 7/9/2020 ~~10:05~~ 10:06	7/8/2020	17:44	KMT	172901, 172902	W	0398	070820 - 070820B-
7/9/2020	11:13	7/9/2020	15:32	KMT	172944	W	0398	
7/10/2020	09:52	7/10/2020	13:32	KMT	172975	W	0398	
~~7/11/2020~~ ~~7/13/2020~~ KMT 7/14/2020		KMT 7/21/2020		KMT	173028, 173029	W	0398	
7/21/2020	13:07	7/22/2020	01:51	KMT	173028, 173029, 173300, 173301	W	0398	
7/22/2020	11:02	7/23/2020	02:52	KMT	173349, 173350, 173351	W	0398	
7/23/2020	09:35	7/23/2020	20:22	KMT	RR 173349, 173350	W	0398	
7/24/2020	09:02	7/24/2020	11:43	KMT	173439	W	0398	
7/24/2020	13:06	7/25/2020	00:32	KMT	173451, 173452	W	0398	
7/25/2020	17:14	7/25/2020	23:25	KMT	173483	W	0398	
7/27/2020	09:43	7/27/2020	18:27	KMT	173482, 173485	W	0398	
7/28/2020	09:34	7/28/2020	16:35	KMT	RR 173482, 173485	W	0398	
7/29/2020	13:48	7/30/2020	04:13	KMT	①~~SAND TEST~~ 173614 173615	~~S~~ W	①~~038~~ 0398	
7/30/2020	16:37	7/31/2020	07:22	KMT	173665, 173666, 173667	W	0398	
7/31/2020	11:29	8/1/2020	04:03	KMT	RR 173665 173667 173666 173668	W	0398	
8/1/2020	16:38	8/1/2020	19:59	KMT	173705	W	0398	
8/3/2020	14:47	8/3/2020	16:00	KMT	ICAL 0412	S	~~N/A~~ KMT 8/3/2020	
8/3/2020	17:32	8/3/2020	21:00	KMT	RR 173705	W	0398	

Reviewed By: RJ 8/5/2020

① KMT 7/21/2020

Standard Log #:	TOC0411	Standard:	TOCW CCV Std.
Analyst:	KMT	Concentration:	50 mg/L
Prep Date:	07/30/2020	Expiration Date (1 Month):	08/30/2020
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW Ical/CCV Stock (1000mg/L) TOC0376 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0407	Standard:	TOCW LCS Std.
Analyst:	KMT	Concentration:	50 mg/L
Prep Date:	07/27/2020	Expiration Date (1 Month):	08/27/2020
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW ICV/LCS Stock (1000mg/L) TOC0359 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0406	Standard:	TOCW CCV Std.
Analyst:	KMT	Concentration:	50 mg/L
Prep Date:	07/24/2020	Expiration Date (1 Month):	08/24/2020
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW Ical/CCV Stock (1000mg/L) TOC0376 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0405	Standard:	TOCW LCS Std.
Analyst:	KMT	Concentration:	50 mg/L
Prep Date:	07/21/2020	Expiration Date (1 Month):	08/21/2020
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW ICV/LCS Stock (1000mg/L) TOC0359 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0403	Standard:	TOCW LCS Std.
Analyst:	KMT	Concentration:	50 mg/L
Prep Date:	06/25/2020	Expiration Date (1 Month):	07/25/2020
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW ICV/LCS Stock (1000mg/L) TOC0359 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0402	Standard:	TOCW CCV Std.
Analyst:	KMT	Concentration:	50 mg/L
Prep Date:	06/22/2020	Expiration Date (1 Month):	07/22/2020
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW Ical/CCV Stock (1000mg/L) TOC0376 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0401	Standard:	TOCW LCS Std.
Analyst:	KMT	Concentration:	50 mg/L
Prep Date:	06/15/2020	Expiration Date (1 Month):	07/15/2020
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW ICV/LCS Stock (1000mg/L) TOC0359 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0400	Standard:	TOCW CCV Std.
Analyst:	KMT	Concentration:	50 mg/L
Prep Date:	06/12/2020	Expiration Date (1 Month):	07/12/2020
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW Ical/CCV Stock (1000mg/L) TOC0376 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0398	Standard:	TOCW Ical.
Analyst:	KMT		
Prep Date:	06/08/2020	Expiration Date (1 Month):	07/08/2020

Prep:

Into seven 50mL volumetric flasks, pipetted the following amounts of TOCW Ical/CCV Stock Std. (1000mg/L) TOC0376 and brought to volume with Milli-Q H_20:

Level	ICal Stock (mL)	True Value (pg/L)
1	0	0
2	0.05	1
3	0.25	5
4	0.5	10
5	1.25	25
6	2.5	50
7	5.0	100

Standard Log #:	TOC0399	Standard/Reagent:	CATALYST TC-PLATINIM
Analyst:	KMT	Final Concentration:	N/A
Prep Date:	N/A	Expiration Date:	N/A

Prep:

Part # 2CA10316
Lot # 170849 (21-12-2017)

Standard Log #:	TOC0396	Standard:	TOCW CCV Std.
Analyst:	KMT	Concentration:	50 mg/L
Prep Date:	05/28/2020	Expiration Date (1 Month):	06/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW Ical/CCV Stock (1000mg/L) TOC0376 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0397	Standard:	TOCW LCS Std.
Analyst:	KMT	Concentration:	50 mg/L
Prep Date:	05/28/2020	Expiration Date (1 Month):	06/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW ICV/LCS Stock (1000mg/L) TOC0359 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0394	Standard:	TOCW CCV Std.
Analyst:	KMT	Concentration:	50 mg/L
Prep Date:	05/18/2020	Expiration Date (1 Month):	06/18/2020
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW Ical/CCV Stock (1000mg/L) TOC0376 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0395	Standard:	TOCW LCS Std.
Analyst:	KMT	Concentration:	50 mg/L
Prep Date:	05/18/2020	Expiration Date (1 Month):	06/18/2020
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW ICV/LCS Stock (1000mg/L) TOC0359 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0390	Standard:	TOCW CCV Std.
Analyst:	KMT	Concentration:	50 mg/L
Prep Date:	04/15/2020	Expiration Date (1 Month):	05/15/2020
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW Ical/CCV Stock (1000mg/L) TOC0376 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0391	Standard:	TOCW LCS Std.
Analyst:	KMT	Concentration:	50 mg/L
Prep Date:	04/15/2020	Expiration Date (1 Month):	05/15/2020
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW ICV/LCS Stock (1000mg/L) TOC0359 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0384	Standard:	TOCW LCS Std.
Analyst:	KMT	Concentration:	50 mg/L
Prep Date:	04/13/2020	Expiration Date (1 Month):	05/13/2020
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW ICV/LCS Stock (1000mg/L) TOC0359 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0382	Standard:	TOCW CCV Std.
Analyst:	KMT	Concentration:	50 mg/L
Prep Date:	04/07/2020	Expiration Date (1 Month):	05/07/2020
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW Ical/CCV Stock (1000mg/L) TOC0376 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0383	Standard:	TOCW LCS Std.
Analyst:	KMT	Concentration:	50 mg/L
Prep Date:	04/07/2020	Expiration Date (1 Month):	05/07/2020
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW ICV/LCS Stock (1000mg/L) TOC0359 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0379	Standard:	TOCW CCV Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	03/10/2020	Expiration Date (1 Month):	04/10/2020
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW Ical/CCV Stock (1000mg/L) TOC0376 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0380	Standard:	TOCW LCS Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	03/10/2020	Expiration Date (1 Month):	04/10/2020
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW ICV/LCS Stock (1000mg/L) TOC0359 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0381	Standard:	TOCW Ical.
Analyst:	TMG		
Prep Date:	03/10/2020	Expiration Date (1 Month):	04/10/2020
	Into seven 50mL volumetric flasks, pipetted the following amounts of TOCW Ical/CCV Stock Std. (1000mg/L) TOC0376 and brought to volume with Milli-Q H_2O:		

Prep:

volume with Milli-Q H_20:

Level	ICal Stock (mL)	True Value (pg/L)
1	0	0
2	0.05	1
3	0.25	5
4	0.5	10
5	1.25	25
6	2.5	50
7	5.0	100

LPVO2-01
TOC Prep Logbook
Notebook Created: 01/12/2015
Balances used in reagent prep:
WCB01 and WCB03
NOTEBOOK VIEW: LTN_TOC_Logbook_01_Default, NOTEBOOK: TOC_Logbook_01, PAGE: 193
Page is Unlocked
Page is not Witnessed
Project: Unassigned
Page Title: 020520

Standard Log #:	TOC0374	Standard:	TOCW CCV Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	02/05/2020	Expiration Date (1 Month):	03/05/2020
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW Ical/CCV Stock (1000mg/L) TOC0376 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0375	Standard:	TOCW LCS Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	02/05/2020	Expiration Date (1 Month):	03/05/2020
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW ICV/LCS Stock (1000mg/L) TOC0359 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0376	Standard/Reagent:	CCV STOCK
Analyst:	TMG	Final Concentration:	1000ug/mL
Prep Date:	02/05/2020	Expiration Date:	08/31/2021
Prep:	LOT: 0006475816 EXP:08/31/2021		

1

CT Laboratories, LLC

Standard Log #:	TOC0359	Standard/Reagent:	LCS TOC STOCK STD
Analyst:	TMG	Final Concentration:	1000ug/mL
Prep Date:	10/28/2019	Expiration Date:	09/01/2021
Prep:			

Standard Log #:	TOC0360	Standard:	TOCW CCV Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	10/28/2019	Expiration Date (1 Month):	11/28/2019
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW Ical/CCV Stock (1000mg/L) TOC0258 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0361	Standard:	TOCW LCS Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	10/28/2019	Expiration Date (1 Month):	11/28/2019
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW ICV/LCS Stock (1000mg/L) TOC0359 and brought to volume with Milli-Q DI H_2O.		

SUBCONTRACTED ANALYSIS DOCUMENTS

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LABORATORY REPORT

If you have any questions concerning this report, please do not hesitate to call us at (800) 332-4345 or (574) 233-4777.

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STATE CERTIFICATION LIST

State	Certification	State	Certification
Alabama	40700	Missouri	880
Alaska	IN00035	Montana	CERT0026
Arizona	AZ0432	Nebraska	NE-OS-05-04
Arkansas	IN00035	Nevada	IN00035
California	2920	New Hampshire*	2124
Colorado	IN00035	New Jersey*	IN598
Colorado Radiochemistry	IN00035	New Mexico	IN00035
Connecticut	PH-0132	New York*	11398
Delaware	IN035	North Carolina	18700
Florida*	E87775	North Dakota	R-035
Georgia	929	Ohio	87775
Hawaii	IN035	Oklahoma	D9508
Idaho	IN00035	Oregon (Primary AB)*	4074
Illinois*	200001	Pennsylvania*	68-00466
Illinois Microbiology	17767	Puerto Rico	IN00035
Illinois Radiochemistry	IN00035	Rhode Island	LAO00343
Indiana Chemistry	C-71-01	South Carolina	95005
Indiana Microbiology	M-76-07	South Dakota	IN00035
Iowa	098	Tennessee	TN02973
Kansas*	E-10233	Texas*	T104704187-18-12
Kentucky	90056	Texas/TCEQ	TX207
Louisiana*	LA014	Utah*	IN00035
Maine	IN00035	Vermont	VT-8775
Maryland	209	Virginia*	460275
Massachusetts	M-IN035	Washington	C837
Michigan	9926	West Virginia	9927 C
Minnesota*	018-999-338	Wisconsin	999766900
Mississippi	IN035	Wyoming	IN035
EPA	IN00035		

*NELAP/TNI Recognized Accreditation Bodies

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NELAC NARRATIVE PAGE

Client: CT Laboratories Report #: 492342NP

Eurofins Eaton Analytical, LLC is a NELAP accredited laboratory. All reported results meet the requirements of the NELAC standards, unless otherwise noted.

EEA contact person: Traci Chlebowski

NELAP requires complete reporting of deviations from method requirements, regardless of the suspected impact on the data. Quality control failures not reported within the report summary are noted here.

There were no quality control failures.

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Traci Chlebowski ASM 07/28/2020

Authorized Signature Title Date

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110 South Hill Street
South Bend, IN 46617
Tel: (574) 233-4777
Fax: (574) 233-8207
1 800 332 4345

Laboratory Report

Client: CT Laboratories

Attn: Jodi Serstad
1230 Lange Court
Baraboo, WI 53913

Report: 492342
Priority: Standard Written
Status: Final
PWS ID: Not Supplied

Sample Information

EEA ID #	Client ID	Method	Collected Date / Time	Collected By:	Received Date / Time
4679783	54MW13	300.0	07/21/20 09:40	Client	07/23/20 09:30
4679784	54TW13	300.0	07/21/20 09:40	Client	07/23/20 09:30
4679785	54MW12	300.0	07/21/20 10:50	Client	07/23/20 09:30
4679788	54MW10	300.0	07/21/20 12:30	Client	07/23/20 09:30
4679789	54MW1	300.0	07/21/20 14:00	Client	07/23/20 09:30

Report Summary

Note: See attached page for additional comments.

PO #154987 EEA-IN

Detailed quantitative results are presented on the following pages. The results presented relate only to the samples provided for analysis.

We appreciate the opportunity to provide you with this analysis. If you have any questions concerning this report, please do not hesitate to call Traci Chlebowski at (574) 233-4777.

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Traci Chlebowski ASM

Authorized Signature | Title | 07/28/2020 Date

Client Name: CT Laboratories
Report #: 492342

Client Name: CT Laboratories Report #: 492342

Sampling Point: 54MW13 PWS ID: Not Supplied

General Chemistry									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
14866-68-3	Chlorate	300.0	---	10	< 10	ug/L	---	07/28/20 02:56	4679783
14998-27-7	Chlorite	300.0	1000 *	10	< 10	ug/L	---	07/28/20 02:56	4679783

Sampling Point: 54TW13 PWS ID: Not Supplied

General Chemistry									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
14866-68-3	Chlorate	300.0	---	10	< 10	ug/L	---	07/28/20 03:25	4679784
14998-27-7	Chlorite	300.0	1000 *	10	< 10	ug/L	---	07/28/20 03:25	4679784

Sampling Point: 54MW12 PWS ID: Not Supplied

General Chemistry									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
14866-68-3	Chlorate	300.0	---	10	< 10	ug/L	---	07/28/20 03:54	4679785
14998-27-7	Chlorite	300.0	1000 *	10	< 10	ug/L	---	07/28/20 03:54	4679785

Sampling Point: 54MW10 PWS ID: Not Supplied

General Chemistry									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
14866-68-3	Chlorate	300.0	---	10	< 10	ug/L	---	07/28/20 05:20	4679788
14998-27-7	Chlorite	300.0	1000 *	10	< 10	ug/L	---	07/28/20 05:20	4679788

Sampling Point: 54MW1 PWS ID: Not Supplied

General Chemistry									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
14866-68-3	Chlorate	300.0	---	10	< 10	ug/L	---	07/28/20 05:49	4679789
14998-27-7	Chlorite	300.0	1000 *	10	< 10	ug/L	---	07/28/20 05:49	4679789

† EEA has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices.

Reg Limit Type:	MCL	SMCL	AL
Symbol:	*	^	!

Client Name: CT Laboratories Report #: 492342

Lab Definitions

Continuing Calibration Check Standard (CCC) / Continuing Calibration Verification (CCV) / Initial Calibration Verification Standard (ICV) / Initial Performance Check (IPC) - is a standard containing one or more of the target analytes that is prepared from the same standards used to calibrate the instrument. This standard is used to verify the calibration curve at the beginning of each analytical sequence, and may also be analyzed throughout and at the end of the sequence. The concentration of continuing standards may be varied, when prescribed by the reference method, so that the range of the calibration curve is verified on a regular basis. CCL, CCM, and CCH are the CCC standards at low, mid, and high concentration levels, respectively.

Internal Standards (IS) - are pure compounds with properties similar to the analytes of interest, which are added to field samples or extracts, calibration standards, and quality control standards at a known concentration. They are used to measure the relative responses of the analytes of interest and surrogates in the sample, calibration standard or quality control standard.

Laboratory Duplicate (LD) - is a field sample aliquot taken from the same sample container in the laboratory and analyzed separately using identical procedures. Analysis of laboratory duplicates provides a measure of the precision of the laboratory procedures.

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS) - is an aliquot of reagent water to which known concentrations of the analytes of interest are added. The LFB is analyzed exactly the same as the field samples. LFBs are used to determine whether the method is in control. FBL, FBM, and FBH are the LFB samples at low, mid, and high concentration levels, respectively.

Laboratory Method Blank (LMB) / Laboratory Reagent Blank (LRB) - is a sample of reagent water included in the sample batch analyzed in the same way as the associated field samples. The LMB is used to determine if method analytes or other background contamination have been introduced during the preparation or analytical procedure. The LMB is analyzed exactly the same as the field samples.

Laboratory Trip Blank (LTB) / Field Reagent Blank (FRB) - is a sample of laboratory reagent water placed in a sample container in the laboratory and treated as a field sample, including storage, preservation, and all analytical procedures. The FRB/LTB container follows the collection bottles to and from the collection site, but the FRB/LTB is not opened at any time during the trip. The FRB/LTB is primarily a travel blank used to verify that the samples were not contaminated during shipment.

If applicable, the calculation of the matrix spike (MS) or matrix spike duplicate (MSD) percent recovery is as follows: (MS or MSD value - Sample value) * 100 / spike target / dilution factor = **Recovery %**

Matrix Spike Duplicate Sample (MSD) / Laboratory Fortified Sample Matrix Duplicate (LFSMD) - is a sample aliquot taken from the same field sample source as the Matrix Spike Sample to which known quantities of the analytes of interest are added in the laboratory. The MSD is analyzed exactly the same as the field samples. Analysis of the MSD provides a measure of the precision of the laboratory procedures in a specific matrix. SDL, SDM, and SDH / LFSMDL, LFSMDM, and LFSMDH are the MSD or LFSMD at low, mid, and high concentration levels, respectively.

Matrix Spike Sample (MS) / Laboratory Fortified Sample Matrix (LFSM) - is a sample aliquot taken from field sample source to which known quantities of the analytes of interest are added in the laboratory. The MS is analyzed exactly the same as the field samples. The purpose is to demonstrate recovery of the analytes from a sample matrix to determine if the specific matrix contributes bias to the analytical results. MSL, MSM, and MSH / LFSML, LFSMM, and LFSMH are the MS or LFSM at low, mid, and high concentration levels, respectively.

Quality Control Standard (QCS) / Second Source Calibration Verification (SSCV) - is a solution containing known concentrations of the analytes of interest prepared from a source different from the source of the calibration standards. The solution is obtained from a second manufacturer or lot if the lot can be demonstrated by the manufacturer as prepared independently from other lots. The QCS sample is analyzed using the same procedures as field samples. The QCS is used as a check on the calibration standards used in the method on a routine basis.

Reporting Limit Check (RLC) / Initial Calibration Check Standard (ICCS) - is a procedural standard that is analyzed each day to evaluate instrument performance at or below the minimum reporting limit (MRL).

Surrogate Standard (SS) / Surrogate Analyte (SUR) - is a pure compound with properties similar to the analytes of interest, which is highly unlikely to be found in any field sample, that is added to the field samples, calibration standards, blanks and quality control standards before sample preparation. The SS is used to evaluate the efficiency of the sample preparation process.

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www.ctlaboratories.com

4679783
492342

Sub-Contract Laboratory Chain-of-Custody and Purchase Order

PURCHASE ORDER # 154987 EEA-IN

The PO# must appear on all invoice and reports!

Upon Receipt of Samples, please verify that samples were received in acceptable condition then sign this form and fax to (608)356-2766 or email to the project manager. Sample temperature, upon receipt, must be recorded on this document unless thermal preservation is not a method requirement.

Ship to: **Eurofins Eaton Analytical - IN**
110 South Hill Street
South Bend, IN 46617

Return Invoice and Results to: **bszymanski@ctlaboratories.com**

CTLaboratories
Brett M Szymanski
1230 Lange Court
Baraboo WI 53913

Government UPS Shipping Acct ? (Y) N

Ship by: Speedee ☐ UPS Grnd ☐ UPS 2nd ☐ UPS NDA ☒

Date Due: Standard TAT ***RUSH TURNAROUND NEEDED? Y or (N) (Circle One)***

Project Name: RADFORD AAP SWMU-54 **Project State:** VA

Analytical/QC Criteria: NONE INDICATED STATE (DOD QSM) NELAP (Circle one) OTHER_____

Report results as EDD? N (Y) (Circle one and indicate type: ERIS + Excel) Data Deliverable Package LEVEL: IV

CTLabs ID#	Sample Date/Time	Matrix	Sample Description	Analyses / Method		Cost
4679783 448828	07/21/2020 0940	GROUND WATER	54MW13	CHLORATE/CHLORITE	300.1	
784 448839	~~07~~/21/2020 0940	GROUND WATER	54TW13	CHLORATE/CHLORITE	300.1	
785 448840	07/21/2020 1050	GROUND WATER	54MW12 (Designated MS/MSD) MS=4679786	CHLORATE/CHLORITE	300.1	MSD=4679787
788 448841	07/21/2020 1230	GROUND WATER	54MW10	CHLORATE/CHLORITE	300.1	
789 448842	07/21/2020 1400	GROUND WATER	54MW1	CHLORATE/CHLORITE	300.1	

Relinquished by: Brett Szymanski Date/Time: 07/22/2020 14:00

Received by: [signature] Date/Time: 7-23-2020 0930 Receipt Temperature (C) 2.6°C

COMMENTS: PLEASE LOG USING THE SAMPLE DESCRIPTIONS. 54MW12 IS A DESIGNATED MS/MSD SAMPLE.

REPORT ALL SOLIDS ON A DRY WEIGHT BASIS UNLESS OTHERWISE INDICATED

Form #: FPM1-01
Effective Date: 02/15/14

Eurofins Eaton Analytical
Run Log

Run ID: **277589** Method: **300.0**

Type	Sample Id	Sample Site	Matrix	Instrument ID	Analysis Date	Calibration File
ICB	4682967		RW	DT	07/27/2020 13:26	
QCS	4682973		RW	DT	07/27/2020 16:20	
LRB	4680651		RW	DT	07/27/2020 17:47	
LFB	4680653		RW	DT	07/27/2020 18:15	
IPC	4680654		RW	DT	07/28/2020 00:31	
CCB	4680655		RW	DT	07/28/2020 01:00	
FS	4679783	54MW13	GW	DT	07/28/2020 02:56	
FS	4679784	54TW13	GW	DT	07/28/2020 03:25	
FS	4679785	54MW12	GW	DT	07/28/2020 03:54	
MS	4679786	54MW12	GW	DT	07/28/2020 04:23	
MSD	4679787	54MW12	GW	DT	07/28/2020 04:51	
FS	4679788	54MW10	GW	DT	07/28/2020 05:20	
FS	4679789	54MW1	GW	DT	07/28/2020 05:49	
IPC	4680656		RW	DT	07/28/2020 07:16	
CCB	4680657		RW	DT	07/28/2020 07:45	

QC Summary Report

Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID #
ICB	Chlorate	300.0	10	---	<	10		ug/L	---	---	---	---	1.0	---	07/27/2020 13:26	4682967
ICB	Chlorite	300.0	10	---	<	10		ug/L	---	---	---	---	1.0	---	07/27/2020 13:26	4682967
QCS	Chlorate	300.0	10	---		248.5950	250	ug/L	99	90 - 110	---	---	1.0	---	07/27/2020 16:20	4682973
QCS	Chlorite	300.0	10	---		252.3600	250	ug/L	101	90 - 110	---	---	1.0	---	07/27/2020 16:20	4682973
LRB	Chlorate	300.0	10	---	<	10		ug/L	---	---	---	---	1.0	---	07/27/2020 17:47	4680651
LRB	Chlorite	300.0	10	---	<	10		ug/L	---	---	---	---	1.0	---	07/27/2020 17:47	4680651
LFB	Chlorate	300.0	10	---		247.6970	250	ug/L	99	90 - 110	---	---	1.0	---	07/27/2020 18:15	4680653
LFB	Chlorite	300.0	10	---		248.9590	250	ug/L	100	90 - 110	---	---	1.0	---	07/27/2020 18:15	4680653
IPC	Chlorate	300.0	10	---		248.1200	250	ug/L	99	90 - 110	---	---	1.0	---	07/28/2020 00:31	4680654
IPC	Chlorite	300.0	10	---		252.1130	250	ug/L	101	90 - 110	---	---	1.0	---	07/28/2020 00:31	4680654
CCB	Chlorate	300.0	10	---	<	10		ug/L	---	---	---	---	1.0	---	07/28/2020 01:00	4680655
CCB	Chlorite	300.0	10	---	<	10		ug/L	---	---	---	---	1.0	---	07/28/2020 01:00	4680655
FS	Chlorate	300.0	10	54MW13	<	10		ug/L	---	---	---	---	1.0	---	07/28/2020 02:56	4679783
FS	Chlorite	300.0	10	54MW13	<	10		ug/L	---	---	---	---	1.0	---	07/28/2020 02:56	4679783
FS	Chlorate	300.0	10	54TW13	<	10		ug/L	---	---	---	---	1.0	---	07/28/2020 03:25	4679784
FS	Chlorite	300.0	10	54TW13	<	10		ug/L	---	---	---	---	1.0	---	07/28/2020 03:25	4679784
FS	Chlorate	300.0	10	54MW12	<	10		ug/L	---	---	---	---	1.0	---	07/28/2020 03:54	4679785
FS	Chlorite	300.0	10	54MW12	<	10		ug/L	---	---	---	---	1.0	---	07/28/2020 03:54	4679785
MS	Chlorate	300.0	10	54MW12		258.2330	250	ug/L	103	90 - 110	---	---	1.0	---	07/28/2020 04:23	4679786
MS	Chlorite	300.0	10	54MW12		251.4910	250	ug/L	101	90 - 110	---	---	1.0	---	07/28/2020 04:23	4679786
MSD	Chlorate	300.0	10	54MW12		255.1250	250	ug/L	102	90 - 110	1.2	10	1.0	---	07/28/2020 04:51	4679787
MSD	Chlorite	300.0	10	54MW12		247.4480	250	ug/L	99	90 - 110	1.6	10	1.0	---	07/28/2020 04:51	4679787
FS	Chlorate	300.0	10	54MW10	<	10		ug/L	---	---	---	---	1.0	---	07/28/2020 05:20	4679788
FS	Chlorite	300.0	10	54MW10	<	10		ug/L	---	---	---	---	1.0	---	07/28/2020 05:20	4679788
FS	Chlorate	300.0	10	54MW1	<	10		ug/L	---	---	---	---	1.0	---	07/28/2020 05:49	4679789
FS	Chlorite	300.0	10	54MW1	<	10		ug/L	---	---	---	---	1.0	---	07/28/2020 05:49	4679789
IPC	Chlorate	300.0	10	---		255.2980	250	ug/L	102	90 - 110	---	---	1.0	---	07/28/2020 07:16	4680656
IPC	Chlorite	300.0	10	---		253.1070	250	ug/L	101	90 - 110	---	---	1.0	---	07/28/2020 07:16	4680656
CCB	Chlorate	300.0	10	---	<	10		ug/L	---	---	---	---	1.0	---	07/28/2020 07:45	4680657
CCB	Chlorite	300.0	10	---	<	10		ug/L	---	---	---	---	1.0	---	07/28/2020 07:45	4680657

Sample Type Key

Type (Abbr.)	Sample Type	Type (Abbr.)	Sample Type
CCB	Continuing Calibration Blank		
FS	Field Sample		
ICB	Initial Calibration Blank		
IPC	Instrument Performance Check		
LFB	Laboratory Fortified Blank		
LRB	Laboratory Reagent Blank		
MS	Matrix Spike		
MSD	Matrix Spike Duplicate		
QCS	Quality Control Sample		

END OF REPORT

Eurofins Eaton Analytical

Method 300.0 B Ion Chromatography
Standard / Reagent Preparation Log

Run ID# 277589 **Instrument#** DT

Stocks/Reagents	Manufacturer	Lot Number	Date Received	Date Opened	Date of Expiration
Chlorite Cal Stock	Inorganic Ventures	N2-CLOX665406	8/9/2019	8/9/2019	8/9/2020
Bromide Cal Stock	Inorganic Ventures	P2-BR675946	8/9/2019	8/9/2019	8/9/2020
Chlorate Cal Stock	Inorganic Ventures	P2-CLOX678509	8/9/2019	8/9/2019	8/9/2020
Chlorite QC Stock	Sigm-Aldrich	LRAC6304	6/12/2020	6/29/2020	5/31/2023
Bromide QC Stock	Accustandard	219115018	6/18/2020	6/19/2020	12/31/2021
Chlorate QC Stock	Agilent	ICC-011	7/30/2019	10/9/2019	5/31/2023
Ethylenediamine-99% (EDA)	Fisher	175344	2/13/2020	2/25/2020	N/A
Sodium Carbonate (Na_2CO_3)	Acros	A0366523	3/29/2016	4/1/2016	N/A

Working Solutions	Prep Instructions and Concentrations			
Cal Substock -25	1250 uL of each Cal Stock in 50 mL volume RW= 25.0 mg/L			
QC Substock- 25	1250 uL of each QC Stock in 50 mL volume RW= 25.0 mg/L			
Analyst:	SL	**Prep Date:**	6/29/2020	**Exp. Date:** 8/9/2020
LRB	100 ul EDA in 100 ml volume RW			
Cal 10	40 ul of Cal Substock+100 ul EDA in 100 ml volume RW= 10.0 ug/L			
Cal 20	80 ul of Cal Substock+100 ul EDA in 100 ml volume RW= 20.0 ug/L			
Cal 100	400 ul of Cal Substock+100 ul EDA in 100 ml volume RW= 100.0 ug/L			
Cal 250 & IPC	1000 ul of Cal Substock+100 ul EDA in 100 ml volume RW= 250.0 ug/L			
Cal 500	1000 ul of Cal Substock+50 ul EDA in 50 ml volume RW= 500.0 ug/L			
Cal 1000	1000 ul of Cal Substock+25 ul EDA in 25 ml volume RW= 1000.0 ug/L			
QCS	1000 ul of QC Substock+100 ul EDA in 100 ml volume RW= 250.0 ug/L			
Analyst:	SL	**Prep Date:**	7/27/2020	**Exp. Date:** 8/3/2020
RLC 10	4 ul of Cal Substock+10 ul EDA in 10 ml volume RW= 10.0 ug/L			
LFB 250	100 ul of Cal Substock+10 ul EDA in 10 ml volume RW= 250.0 ug/L			
Analyst:	SL	**Prep Date:**	7/27/2020	**Exp. Date:** 8/3/2020
EDA solution	5.6 mL EDA to 100 mL volume RW = 50 mg/mL			**Prep ID:** IOC53-8c
Analyst:	SL	**Prep Date:**	7/27/2020	**Exp. Date:** 8/27/2020
Eluent	1.91 g Na_2CO_3 in 2 L volume RW = 9.0 mM			**Prep ID:** IOC53-3b
Analyst:	SL	**Prep Date:**	7/20/2020	**Exp. Date:** 8/20/2020

Storage Conditions: All stocks and solutions are prepared and stored at room temperature.

Comments: Dionex IonPac AS9 2mm s/n 190416347, lot no. 01619035, installed 11/14/2019

Analyst: Stephen **Date:** 07/28/2020

Technician Review: [signature] **Date:** 07/30/2020

(signature)

Sample No.	Sample Name	Time	Amount Chlorite CD_1	Amount Bromide CD_1	Amount Chlorate CD_1
1	\ICB\RW\1\	07.27.20 13:26	n.a.	n.a.	n.a.
2	\ICS\RW\1\10	07.27.20 13:55	14.94	12.49	10.52
3	\ICS\RW\1\20	07.27.20 14:24	21.42	19.37	22.21
4	\ICS\RW\1\100	07.27.20 14:53	99.68	100.80	98.02
5	\ICS\RW\1\500	07.27.20 15:22	488.01	494.86	498.21
6	\ICS\RW\1\1000	07.27.20 15:51	1005.95	1002.48	1001.05
7	\QCS\RW\1\250	07.27.20 16:20	252.36	249.14	248.60
8	\RLC\RW\1\10	07.27.20 16:49	13.79	12.44	7.93
9	\IPC\RW\1\250	07.27.20 17:18	252.85	248.22	251.10
10	\LRB\RW\1\	07.27.20 17:47	n.a.	n.a.	n.a.
11	\LFB\RW\1\250	07.27.20 18:15	248.96	254.33	247.70
12	4676706\FS\DW\1\	07.27.20 18:44	n.a.	293.58	340.44
13	4676706\MS\DW\1\250	07.27.20 19:13	198.10	540.05	606.18
14	4676706\MSD\DW\1\250	07.27.20 19:42	196.89	538.44	596.43
15	4677845\FS\DW\1\	07.27.20 20:11	673.28	14.96	1182.33
16	4677846\FS\DW\1\	07.27.20 20:40	644.82	17.77	1112.69
17	4677847\FS\DW\1\	07.27.20 21:09	715.12	14.08	1110.16
18	4678736\FS\DW\1\	07.27.20 21:38	701.36	12.87	501.51
19	4678737\FS\DW\1\	07.27.20 22:07	701.91	14.47	487.44
20	4678738\FS\DW\1\	07.27.20 22:36	662.33	13.90	455.71
21	4679708\FS\DW\1\	07.27.20 23:05	147.23	177.36	5.19
22	4679709\FS\DW\1\	07.27.20 23:33	92.27	196.96	24.25
23	4679710\FS\DW\1\	07.28.20 00:02	121.72	191.28	23.99
24	\IPC\RW\1\250	07.28.20 00:31	252.11	253.59	248.12
25	\CCB\RW\1\	07.28.20 01:00	n.a.	n.a.	n.a.
26	4679716\FS\DW\1\	07.28.20 01:29	664.24	n.a.	667.29
27	4679717FS\DW\1\	07.28.20 01:58	675.80	9.02	763.97
28	4679718\FS\DW\1\	07.28.20 02:27	539.91	n.a.	511.33
29	4679783\FS\GW\1\	07.28.20 02:56	n.a.	15.97	n.a.
30	4679784\FS\GW\1\	07.28.20 03:25	n.a.	19.03	n.a.
31	4679785\FS\GW\1\	07.28.20 03:54	n.a.	21.02	n.a.
32	4679786\MS\GW\1\250	07.28.20 04:23	251.49	277.72	258.23
33	4679787\MSD\GW\1\250	07.28.20 04:51	247.45	275.28	255.12
34	4679788\FS\GW\1\	07.28.20 05:20	n.a.	18.11	n.a.
35	4679789\FS\GW\1\	07.28.20 05:49	n.a.	14.22	n.a.
36	4681084\FS\GW\1\	07.28.20 06:18	15.58	505.52	49.93
37	4681088\FS\GW\1\	07.28.20 06:47	n.a.	87.52	16.01
38	\IPC\RW\1\250	07.28.20 07:16	253.11	253.04	255.30
39	\CCB\RW\1\	07.28.20 07:45	n.a.	n.a.	n.a.
	Average:	**44039.942**			**395**
	Rel.Std.Dev:	**0.001 %**			**90.591 %**

Chromeleon (c) Dionex 1996-2006
Version 6.80 SR10 Build 2818 (166959)

Sequence: 072720A
Operator: US25_USR_SBNLABPCS

Printed: 7/28/2020 9:38:53 AM

Title:
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020
Timebase: ICS_5000_DT
#Samples: 39

Created: 7/27/2020 12:57:53 PM by US25_USR_SBNLABPCS
Last Update: 7/28/2020 9:38:38 AM by US25_USR_SBNLABPCS

No.	Name	Type	Pos.	Inj. Vol.	Program	Method	Status
1	\ICB\RW\1\	Standard	1	50.0	Met300B	Met300B	Finished
2	\ICS\RW\1\10	Standard	2	50.0	Met300B	Met300B	Finished
3	\ICS\RW\1\20	Standard	3	50.0	Met300B	Met300B	Finished
4	\ICS\RW\1\100	Standard	4	50.0	Met300B	Met300B	Finished
5	\ICS\RW\1\500	Standard	5	50.0	Met300B	Met300B	Finished
6	\ICS\RW\1\1000	Standard	6	50.0	Met300B	Met300B	Finished
7	\QCS\RW\1\250	Unknown	7	50.0	Met300B	Met300B	Finished
8	\RLC\RW\1\10	Unknown	8	50.0	Met300B	Met300B	Finished
9	\IPC\RW\1\250	Unknown	9	50.0	Met300B	Met300B	Finished
10	\LRB\RW\1\	Unknown	10	50.0	Met300B	Met300B	Finished
11	\LFB\RW\1\250	Unknown	11	50.0	Met300B	Met300B	Finished
12	4676706\FS\DW\1\	Unknown	12	50.0	Met300B	Met300B	Finished
13	4676706\MS\DW\1\250	Unknown	13	50.0	Met300B	Met300B	Finished
14	4676706\MSD\DW\1\250	Unknown	14	50.0	Met300B	Met300B	Finished
15	4677845\FS\DW\1\	Unknown	15	50.0	Met300B	Met300B	Finished
16	4677846\FS\DW\1\	Unknown	16	50.0	Met300B	Met300B	Finished
17	4677847\FS\DW\1\	Unknown	17	50.0	Met300B	Met300B	Finished
18	4678736\FS\DW\1\	Unknown	18	50.0	Met300B	Met300B	Finished
19	4678737\FS\DW\1\	Unknown	19	50.0	Met300B	Met300B	Finished
20	4678738\FS\DW\1\	Unknown	20	50.0	Met300B	Met300B	Finished
21	4679708\FS\DW\1\	Unknown	21	50.0	Met300B	Met300B	Finished
22	4679709\FS\DW\1\	Unknown	22	50.0	Met300B	Met300B	Finished
23	4679710\FS\DW\1\	Unknown	23	50.0	Met300B	Met300B	Finished
24	\IPC\RW\1\250	Unknown	24	50.0	Met300B	Met300B	Finished
25	\CCB\RW\1\	Unknown	25	50.0	Met300B	Met300B	Finished
26	4679716\FS\DW\1\	Unknown	26	50.0	Met300B	Met300B	Finished
27	4679717FS\DW\1\	Unknown	27	50.0	Met300B	Met300B	Finished
28	4679718\FS\DW\1\	Unknown	28	50.0	Met300B	Met300B	Finished
29	4679783\FS\GW\1\	Unknown	29	50.0	Met300B	Met300B	Finished
30	4679784\FS\GW\1\	Unknown	30	50.0	Met300B	Met300B	Finished
31	4679785\FS\GW\1\	Unknown	31	50.0	Met300B	Met300B	Finished
32	4679786\MS\GW\1\250	Unknown	32	50.0	Met300B	Met300B	Finished
33	4679787\MSD\GW\1\250	Unknown	33	50.0	Met300B	Met300B	Finished
34	4679788\FS\GW\1\	Unknown	34	50.0	Met300B	Met300B	Finished

Sequence: 072720A
Operator: US25_USR_SBNLABPCS

Title:
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020
Timebase: ICS_5000_DT
#Samples: 39

Created: 7/27/2020 12:57:53 PM by US25_USR_SBNLABPCS
Last Update: 7/28/2020 9:38:38 AM by US25_USR_SBNLABPCS

No.	Name	Inj. Date/Time	Weight	Dil. Factor	ISTD Amount	Sample ID
1	\ICB\RW\1\	7/27/2020 1:26:51 PM	1.0000	1.0000	1.0000	
2	\ICS\RW\1\10	7/27/2020 1:55:45 PM	1.0000	1.0000	1.0000	
3	\ICS\RW\1\20	7/27/2020 2:24:40 PM	1.0000	1.0000	1.0000	
4	\ICS\RW\1\100	7/27/2020 2:53:35 PM	1.0000	1.0000	1.0000	
5	\ICS\RW\1\500	7/27/2020 3:22:29 PM	1.0000	1.0000	1.0000	
6	\ICS\RW\1\1000	7/27/2020 3:51:23 PM	1.0000	1.0000	1.0000	
7	\QCS\RW\1\250	7/27/2020 4:20:18 PM	1.0000	1.0000	1.0000	
8	\RLC\RW\1\10	7/27/2020 4:49:13 PM	1.0000	1.0000	1.0000	
9	\IPC\RW\1\250	7/27/2020 5:18:07 PM	1.0000	1.0000	1.0000	
10	\LRB\RW\1\	7/27/2020 5:47:02 PM	1.0000	1.0000	1.0000	
11	\LFB\RW\1\250	7/27/2020 6:15:57 PM	1.0000	1.0000	1.0000	
12	4676706\FS\DW\1\	7/27/2020 6:44:51 PM	1.0000	1.0000	1.0000	
13	4676706\MS\DW\1\250	7/27/2020 7:13:45 PM	1.0000	1.0000	1.0000	
14	4676706\MSD\DW\1\250	7/27/2020 7:42:39 PM	1.0000	1.0000	1.0000	
15	4677845\FS\DW\1\	7/27/2020 8:11:34 PM	1.0000	1.0000	1.0000	
16	4677846\FS\DW\1\	7/27/2020 8:40:29 PM	1.0000	1.0000	1.0000	
17	4677847\FS\DW\1\	7/27/2020 9:09:24 PM	1.0000	1.0000	1.0000	
18	4678736\FS\DW\1\	7/27/2020 9:38:18 PM	1.0000	1.0000	1.0000	
19	4678737\FS\DW\1\	7/27/2020 10:07:13 PM	1.0000	1.0000	1.0000	
20	4678738\FS\DW\1\	7/27/2020 10:36:07 PM	1.0000	1.0000	1.0000	
21	4679708\FS\DW\1\	7/27/2020 11:05:01 PM	1.0000	1.0000	1.0000	
22	4679709\FS\DW\1\	7/27/2020 11:33:56 PM	1.0000	1.0000	1.0000	
23	4679710\FS\DW\1\	7/28/2020 12:02:50 AM	1.0000	1.0000	1.0000	
24	\IPC\RW\1\250	7/28/2020 12:31:44 AM	1.0000	1.0000	1.0000	
25	\CCB\RW\1\	7/28/2020 1:00:38 AM	1.0000	1.0000	1.0000	
26	4679716\FS\DW\1\	7/28/2020 1:29:32 AM	1.0000	1.0000	1.0000	
27	4679717FS\DW\1\	7/28/2020 1:58:26 AM	1.0000	1.0000	1.0000	
28	4679718\FS\DW\1\	7/28/2020 2:27:21 AM	1.0000	1.0000	1.0000	
29	4679783\FS\GW\1\	7/28/2020 2:56:15 AM	1.0000	1.0000	1.0000	
30	4679784\FS\GW\1\	7/28/2020 3:25:11 AM	1.0000	1.0000	1.0000	
31	4679785\FS\GW\1\	7/28/2020 3:54:05 AM	1.0000	1.0000	1.0000	
32	4679786\MS\GW\1\250	7/28/2020 4:23:00 AM	1.0000	1.0000	1.0000	
33	4679787\MSD\GW\1\250	7/28/2020 4:51:53 AM	1.0000	1.0000	1.0000	
34	4679788\FS\GW\1\	7/28/2020 5:20:48 AM	1.0000	1.0000	1.0000	

Title:
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020
Timebase: ICS_5000_DT
#Samples: 39
Created: 7/27/2020 12:57:53 PM by US25_USR_SBNLABPCS
Last Update: 7/28/2020 9:38:38 AM by US25_USR_SBNLABPCS

No.	Name	Replicate ID	Comment
1	\ICB\RW\1\	10	
2	\ICS\RW\1\10	10	
3	\ICS\RW\1\20	10	
4	\ICS\RW\1\100	10	
5	\ICS\RW\1\500	10	
6	\ICS\RW\1\1000	10	
7	\QCS\RW\1\250	10	
8	\RLC\RW\1\10	10	
9	\IPC\RW\1\250	10	
10	\LRB\RW\1\	10	
11	\LFB\RW\1\250	10	
12	4676706\FS\DW\1\	10	
13	4676706\MS\DW\1\250	10	
14	4676706\MSD\DW\1\250	10	
15	4677845\FS\DW\1\	10	
16	4677846\FS\DW\1\	10	
17	4677847\FS\DW\1\	10	
18	4678736\FS\DW\1\	10	
19	4678737\FS\DW\1\	10	
20	4678738\FS\DW\1\	10	
21	4679708\FS\DW\1\	10	
22	4679709\FS\DW\1\	10	
23	4679710\FS\DW\1\	10	
24	\IPC\RW\1\250	10	
25	\CCB\RW\1\	10	
26	4679716\FS\DW\1\	10	
27	4679717FS\DW\1\	10	
28	4679718\FS\DW\1\	10	
29	4679783\FS\GW\1\	10	
30	4679784\FS\GW\1\	10	
31	4679785\FS\GW\1\	10	
32	4679786\MS\GW\1\250	10	
33	4679787\MSD\GW\1\250	10	
34	4679788\FS\GW\1\	10	

Title:
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020
Timebase: ICS_5000_DT
#Samples: 39
Created: 7/27/2020 12:57:53 PM by US25_USR_SBNLABPCS
Last Update: 7/28/2020 9:38:38 AM by US25_USR_SBNLABPCS

No.	Name	Type	Pos.	Inj. Vol.	Program	Method	Status
35	4679789\FS\GW\1\	Unknown	35	50.0	Met300B	Met300B	Finished
36	4681084\FS\GW\1\	Unknown	36	50.0	Met300B	Met300B	Finished
37	4681088\FS\GW\1\	Unknown	37	50.0	Met300B	Met300B	Finished
38	\IPC\RW\1\250	Unknown	38	50.0	Met300B	Met300B	Finished
39	\CCB\RW\1\	Unknown	39	50.0	Met300B	Met300B	Finished

Title:
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020
Timebase: ICS_5000_DT
#Samples: 39
Created: 7/27/2020 12:57:53 PM by US25_USR_SBNLABPCS
Last Update: 7/28/2020 9:38:38 AM by US25_USR_SBNLABPCS

No.	Name	Inj. Date/Time	Weight	Dil. Factor	ISTD Amount	Sample ID
35	4679789\FS\GW\1\	7/28/2020 5:49:43 AM	1.0000	1.0000	1.0000	
36	4681084\FS\GW\1\	7/28/2020 6:18:36 AM	1.0000	1.0000	1.0000	
37	4681088\FS\GW\1\	7/28/2020 6:47:31 AM	1.0000	1.0000	1.0000	
38	\IPC\RW\1\250	7/28/2020 7:16:25 AM	1.0000	1.0000	1.0000	
39	\CCB\RW\1\	7/28/2020 7:45:20 AM	1.0000	1.0000	1.0000	

Title:
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020
Timebase: ICS_5000_DT
#Samples: 39
Created: 7/27/2020 12:57:53 PM by US25_USR_SBNLABPCS
Last Update: 7/28/2020 9:38:38 AM by US25_USR_SBNLABPCS

No.	Name	Replicate ID	Comment
35	4679789\FS\GW\1\	10	
36	4681084\FS\GW\1\	10	
37	4681088\FS\GW\1\	10	
38	\IPC\RW\1\250	10	
39	\CCB\RW\1\	10	

Title: 300B
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020\072720A.SEQ
Created: 3/6/2013 4:00:11 PM by SBNLab003
Timebase: ICS_5000_DT
Changed: 7/15/2020 3:53:23 PM by US25_USR_SBNLABPCS

```
          Column_TC.AcquireExclusiveAccess
          Compartment_TC.AcquireExclusiveAccess
          Pressure.LowerLimit =              100 [psi]
          Pressure.UpperLimit =              3500 [psi]
          MaximumFlowRamp =                  6.00 [ml/min²]
          %A.Equate =                        "%A"
          Pump_1_Pressure.Step =             0.20 [s]
          Pump_1_Pressure.Average =          Off
          DeliverSpeed =                     4.0 [ml/min]
          DelayVolume =                      125 [µl]
          FlushFactor =                      10
          Sampler.LoadPosition
          DeliverSample                      Volume=5000
          EndSamplePrep
          CDet1.Data_Collection_Rate =       5.0 [Hz]
          Temperature_Compensation =         1.7 [%/°C]
          CellHeater.Mode                    = On
          CellHeater.TemperatureSet =        35.00 [°C]
          Column_TC.Mode =                   On
          Column_TC.TemperatureSet =         30.00 [°C]
          Compartment_TC.Mode =              On
          Compartment_TC.TemperatureSet =    30.00 [°C]
          Suppressor1.Type =                 ASRS_2mm
          Carbonate =                        9.0 [mM]
          CurrentSet =                       18 [mA]
          ; Suppressor1.Carbonate =         9.0
          ; Suppressor1.Bicarbonate =       0.0
          ; Suppressor1.Hydroxide =         0.0
          ; Suppressor1.Tetraborate =       0.0
          ; Suppressor1.Other eluent =      0.0
          ; Suppressor1.Recommended Current =                12
          ; ASRS300.Carbonate =             9.0
          ; ASRS300.Bicarbonate =           0.0
          ; ASRS300.Hydroxide =             0.0
          ; ASRS300.Tetraborate =           0.0
          ; ASRS300.Other eluent =          0.0
          ; ASRS300.Recommended Current =   16
          Flow =                             0.250 [ml/min]
          Curve =                            5

  0.000   CDet1.Autozero
          Wait                               Ready
          Wait                               CycleTimeState
          Inject
```

Title: 300B
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020\072720A.SEQ
Created: 3/6/2013 4:00:11 PM by SBNLab003
Timebase: ICS_5000_DT
Changed: 7/15/2020 3:53:23 PM by US25_USR_SBNLABPCS

```
          Pump_1_Pressure.AcqOn
          CD_1.AcqOn
          CD_1_Total.AcqOn

26.000    Pump_1_Pressure.AcqOff
          CD_1.AcqOff
          CD_1_Total.AcqOff
          Compartment_TC.ReleaseExclusiveAccess
          Column_TC.ReleaseExclusiveAccess
          End
```

Program File:	Met300B	Post-acquisition steps, Page 1 of 1
Operator:	US25_USR_SBNLABPCS	Printed: 7/28/2020 9:38:53 AM
Title:	300B	
Datasource:	SBNLAB003-PC_local	
Location:	ICS_5000_DT\300B\2020\072720A.SEQ	Created: 3/6/2013 4:00:11 PM by SBNLab003
Timebase:	ICS_5000_DT	Changed: 7/15/2020 3:53:23 PM by US25_USR_SBNLABPCS

No.	Channel	Operation	Parameters

Title: 300B
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020\072720A.SEQ
Created: 3/6/2013 4:00:11 PM by SBNLab003
Last Update: 7/28/2020 9:38:27 AM by US25_USR_SBNLABPCS

Blank Run Subtraction: No Blank Run Subtraction

Detection Table:

No.	Ret. Time [min]	Param. Name	Param. Value	Channel
1	0.000	Minimum Area	0.001 "[Signal]*min"	All Channels
2	0.000	Inhibit Integration	On	All Channels
3	0.000	Valley to Valley	On	All Channels
4	0.000	Peak Slice	1.00 s	All Channels
5	0.000	Sensitivity	0.001 "[Signal]"	All Channels
6	5.800	Inhibit Integration	Off	All Channels
7	6.700	Inhibit Integration	On	All Channels
8	12.000	Inhibit Integration	Off	All Channels
9	14.300	Inhibit Integration	On	All Channels

Title: 300B

Datasource:	SBNLAB003-PC_local	Created:	3/6/2013 4:00:11 PM by SBNLab003
Location:	ICS_5000_DT\300B\2020\072720A.SEQ	Last Update:	7/28/2020 9:38:27 AM by US25_USR_SBNLABPCS

Peak Table:

Use Recently Detected Retention Times: Off
Peak Retention Time Determination: Absolute
Dead time:
Delay Time of 2'nd Detector: <None>
Delay Time of 3'rd Detector: <None>

No.	Peak Name	Ret.Time	Window	Standard	Int.Type	Cal.Type	Peak Type	Group	Amount \ICB\RW\1\
1	Chlorite	6.120 min	12.000 RN	External	Area	LOff	Auto		0.000000
2	Bromide	12.450 min	5.000 RN	External	Area	LOff	Auto		0.000000
3	Chlorate	13.570 min	5.000 RN	External	Area	LOff	Auto		0.000000

Title: 300B
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020\072720A.SEQ
Created: 3/6/2013 4:00:11 PM by SBNLab003
Last Update: 7/28/2020 9:38:27 AM by US25_USR_SBNLABPCS

Peak Table:

Use Recently Detected Retention Times: Off
Peak Retention Time Determination: Absolute
Dead time:
Delay Time of 2'nd Detector: <None>
Delay Time of 3'rd Detector: <None>

No.	Peak Name	Ret.Time	Amount \ICS\RW\1\10	Amount \ICS\RW\1\20	Amount \ICS\RW\1\100	Amount \ICS\RW\1\250	Amount \ICS\RW\1\500	Amount \ICS\RW\1\1000
1	Chlorite	6.120 min	10.000000	20.000000	100.000000	250.000000	500.000000	1000.000000
2	Bromide	12.450 min	10.000000	20.000000	100.000000	250.000000	500.000000	1000.000000
3	Chlorate	13.570 min	10.000000	20.000000	100.000000	250.000000	500.000000	1000.000000

Title: 300B

Datasource:	SBNLAB003-PC_local	Created:	3/6/2013 4:00:11 PM by SBNLab003
Location:	ICS_5000_DT\300B\2020\072720A.SEQ	Last Update:	7/28/2020 9:38:27 AM by US25_USR_SBNLABPCS

Peak Table:

Use Recently Detected Retention Times: Off
Peak Retention Time Determination: Absolute
Dead time:
Delay Time of 2'nd Detector: <None>
Delay Time of 3'rd Detector: <None>

No.	Peak Name	Ret.Time	Comment
1	Chlorite	6.120 min	Autogenerated
2	Bromide	12.450 min	Autogenerated
3	Chlorate	13.570 min	Autogenerated

Title: 300B
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020\072720A.SEQ
Created: 3/6/2013 4:00:11 PM by SBNLab003
Last Update: 7/28/2020 9:38:27 AM by US25_USR_SBNLABPCS

Amount Table:

Dimension of Amounts:
Reference volume for amounts: Use inject volume of first standard
Number of Amount Columns: 7
Sample column used for amount column assignment: Sample Name

No.	Peak Name	Ret.Time	Resp.Fact.	Amount \ICB\RW\1\	Amount \ICS\RW\1\10	Amount \ICS\RW\1\20	Amount \ICS\RW\1\100	Amount \ICS\RW\1\250
1	Chlorite	6.120 min	1.000000	0.000000	10.000000	20.000000	100.000000	250.000000
2	Bromide	12.450 min	1.000000	0.000000	10.000000	20.000000	100.000000	250.000000
3	Chlorate	13.570 min	1.000000	0.000000	10.000000	20.000000	100.000000	250.000000

Title: 300B
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020\072720A.SEQ
Created: 3/6/2013 4:00:11 PM by SBNLab003
Last Update: 7/28/2020 9:38:27 AM by US25_USR_SBNLABPCS

Amount Table:

Dimension of Amounts:
Reference volume for amounts: Use inject volume of first standard
Number of Amount Columns: 7
Sample column used for amount column assignment: Sample Name

No.	Peak Name	Ret.Time	Amount \ICS\RW\1\500	Amount \ICS\RW\1\1000	Comment
1	Chlorite	6.120 min	500.000000	1000.000000	Autogenerated
2	Bromide	12.450 min	500.000000	1000.000000	Autogenerated
3	Chlorate	13.570 min	500.000000	1000.000000	Autogenerated

Title: 300B
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020\072720A.SEQ
Created: 3/6/2013 4:00:11 PM by SBNLab003
Last Update: 7/28/2020 9:38:27 AM by US25_USR_SBNLABPCS

Calibration:

Calibration Mode: Total
Auto Recalibrate: On
Curve Fitting Model: Normal
Dual-Column Separate Calibration: Off

No.	Enabled	Name	Smp.No.	Pos.	Inj. Vol.	Weight	ISTD Amount	Dil. Factor
1	☒	*\ICB\RW\1*	*1*	*1*	*50.0*	*1.0000*	*1.0000*	*1.0000*
2	☒	\ICS\RW\1\10	2	2	50.0	1.0000	1.0000	1.0000
3	☒	\ICS\RW\1\20	3	3	50.0	1.0000	1.0000	1.0000
4	☒	\ICS\RW\1\100	4	4	50.0	1.0000	1.0000	1.0000
5	☒	\ICS\RW\1\500	5	5	50.0	1.0000	1.0000	1.0000
6	☒	\ICS\RW\1\1000	6	6	50.0	1.0000	1.0000	1.0000

Title: 300B
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020\072720A.SEQ
Created: 3/6/2013 4:00:11 PM by SBNLab003
Last Update: 7/28/2020 9:38:27 AM by US25_USR_SBNLABPCS

Calibration:

Calibration Mode: Total
Auto Recalibrate: On
Curve Fitting Model: Normal
Dual-Column Separate Calibration: Off

No.	Enabled	Name	Inj. Date/Time	Sample Comment
1	☒	*\ICB\RW\1*	*7/27/2020 1:26:51 PM*	
2	☒	\ICS\RW\1\10	7/27/2020 1:55:45 PM	
3	☒	\ICS\RW\1\20	7/27/2020 2:24:40 PM	
4	☒	\ICS\RW\1\100	7/27/2020 2:53:35 PM	
5	☒	\ICS\RW\1\500	7/27/2020 3:22:29 PM	
6	☒	\ICS\RW\1\1000	7/27/2020 3:51:23 PM	

Title: 300B
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020\072720A.SEQ
Created: 3/6/2013 4:00:11 PM by SBNLab003
Last Update: 7/28/2020 9:38:27 AM by US25_USR_SBNLABPCS

Calibration:

Calibration Mode: Total
Auto Recalibrate: On
Curve Fitting Model: Normal
Dual-Column Separate Calibration: Off

No.	Enabled	Name	Calib. Comment
1	☒	*\CB\RW\1*	*Couldn't find the peak in the chromatogram.*
2	☒	\ICS\RW\1\10	Ok
3	☒	\ICS\RW\1\20	Ok
4	☒	\ICS\RW\1\100	Ok
5	☒	\ICS\RW\1\500	Ok
6	☒	\ICS\RW\1\1000	Ok

Title: 300B
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020\072720A.SEQ
Created: 3/6/2013 4:00:11 PM by SBNLab003
Last Update: 7/28/2020 9:38:27 AM by US25_USR_SBNLABPCS

System Suitability Test:

No.	Name	Sample Condition	Test Condition	Aggregate	Operator	Value	Rounding
1							

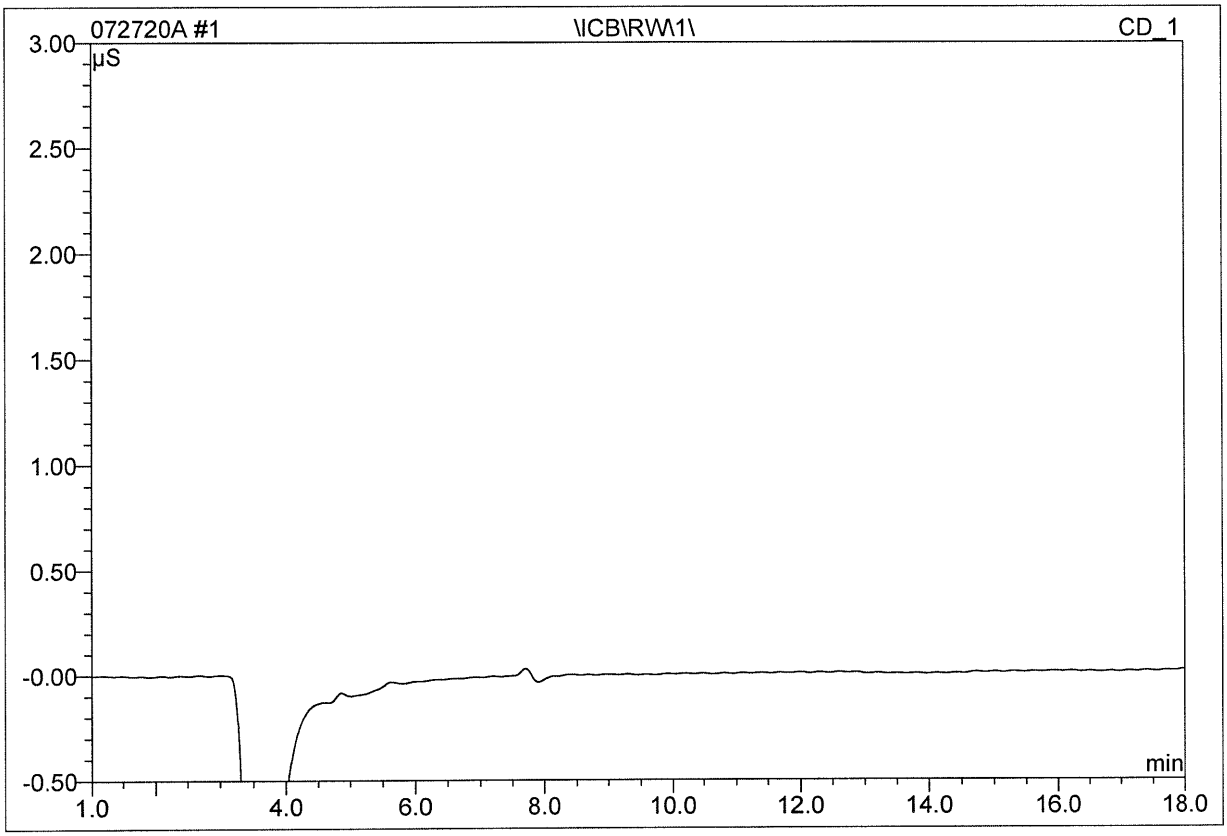
Title: 300B
Datasource: SBNLAB003-PC_local
Location: ICS_5000_DT\300B\2020\072720A.SEQ
Created: 3/6/2013 4:00:11 PM by SBNLab003
Last Update: 7/28/2020 9:38:27 AM by US25_USR_SBNLABPCS

System Suitability Test:

No.	Name	Channel	Peak	N.A.	Fail-Action	Result	SST Message
1							

1 \ICB\RW\1\

Sample Name:	**\ICB\RW\1**	*Injection Volume:*	**50.0**
Vial Number:	**1**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**7/27/2020 13:26**	*Sample Weight:*	**1.0000**
Run Time (min):	**26.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
Total:			0.000	0.000	0.00	0.000	

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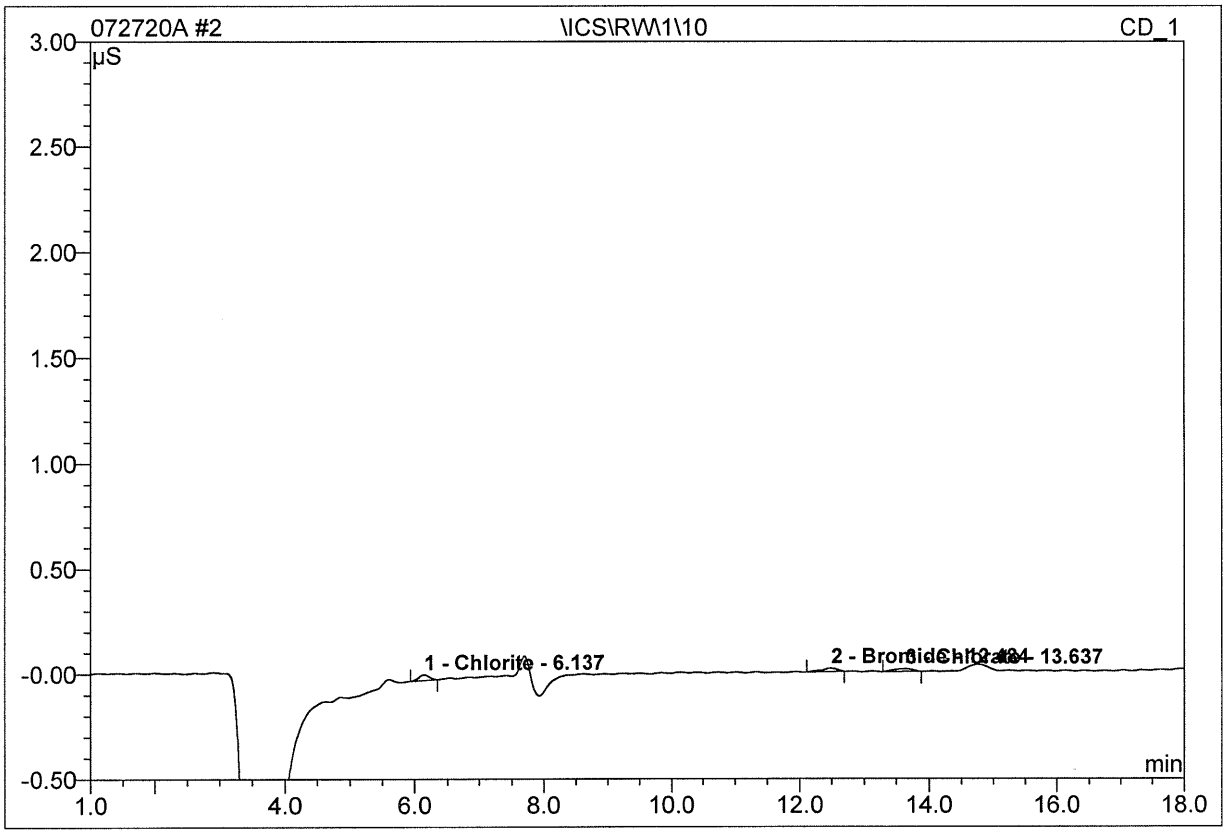
2 \ICS\RW\1\10

Sample Name:	**\ICS\RW\1\10**	*Injection Volume:*	**50.0**
Vial Number:	**2**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**7/27/2020 13:55**	*Sample Weight:*	**1.0000**
Run Time (min):	**26.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	6.14	Chlorite	2091.1	0.027	0.005	14.935	BMB
2	12.48	Bromide	2091.1	0.017	0.005	12.490	BMB
3	13.64	Chlorate	2091.1	0.014	0.005	10.522	BMB
Total:			6273.329	0.058	0.01	37.947	

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3 \ICS\RW\1\20

Sample Name:	**\ICS\RW\1\20**	*Injection Volume:*	**50.0**
Vial Number:	**3**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**7/27/2020 14:24**	*Sample Weight:*	**1.0000**
Run Time (min):	**26.00**	*Sample Amount:*	**1.0000**

No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	6.13	Chlorite	2115.8	0.048	0.008	21.424	BMB
2	12.48	Bromide	2115.8	0.031	0.008	19.374	BMB
3	13.63	Chlorate	2115.8	0.028	0.010	22.206	BMB
Total:			6347.282	0.108	0.03	63.004	

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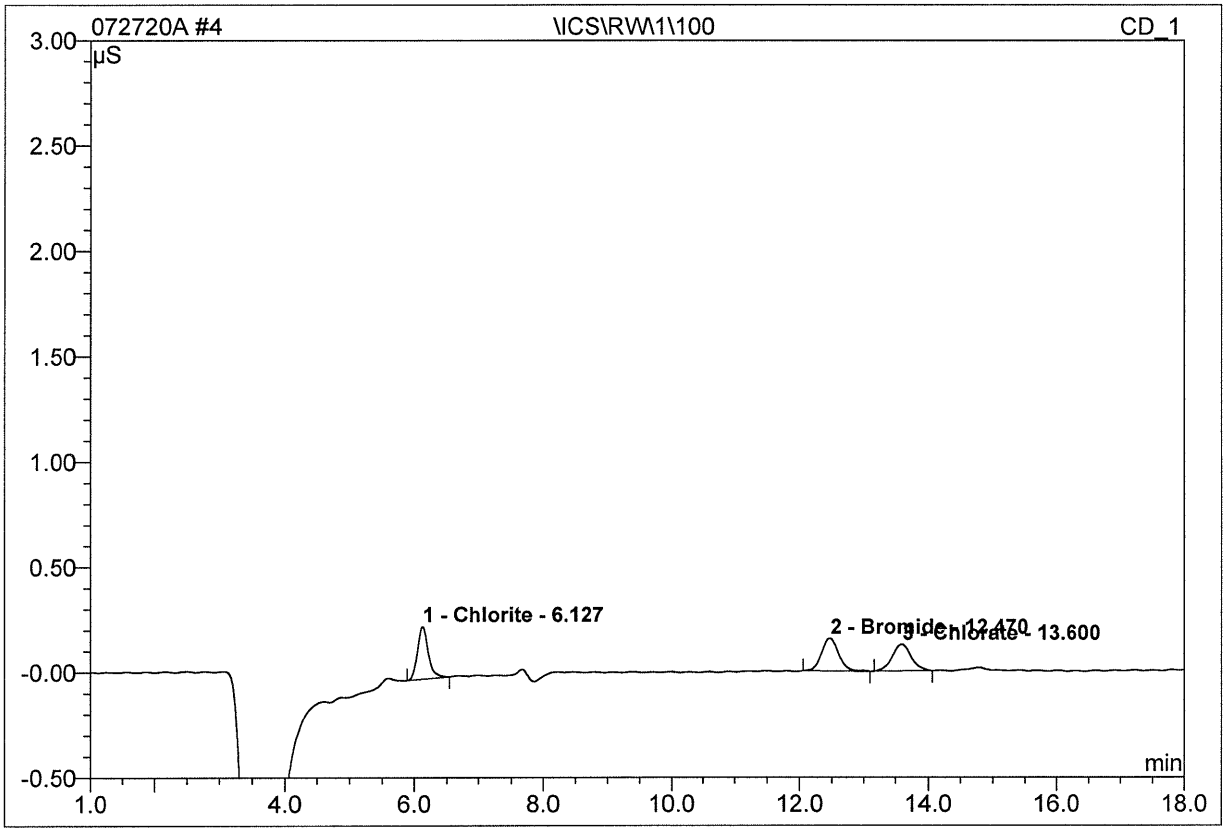
4 \ICS\RW\1\100

Sample Name:	**\ICS\RW\1\100**	*Injection Volume:*	**50.0**
Vial Number:	**4**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**7/27/2020 14:53**	*Sample Weight:*	**1.0000**
Run Time (min):	**26.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	6.13	Chlorite	2115.8	0.249	0.049	99.681	BMB
2	12.47	Bromide	2115.8	0.156	0.048	100.800	BMB
3	13.60	Chlorate	2115.8	0.127	0.043	98.020	BMB
Total:			6347.527	0.531	0.14	298.501	

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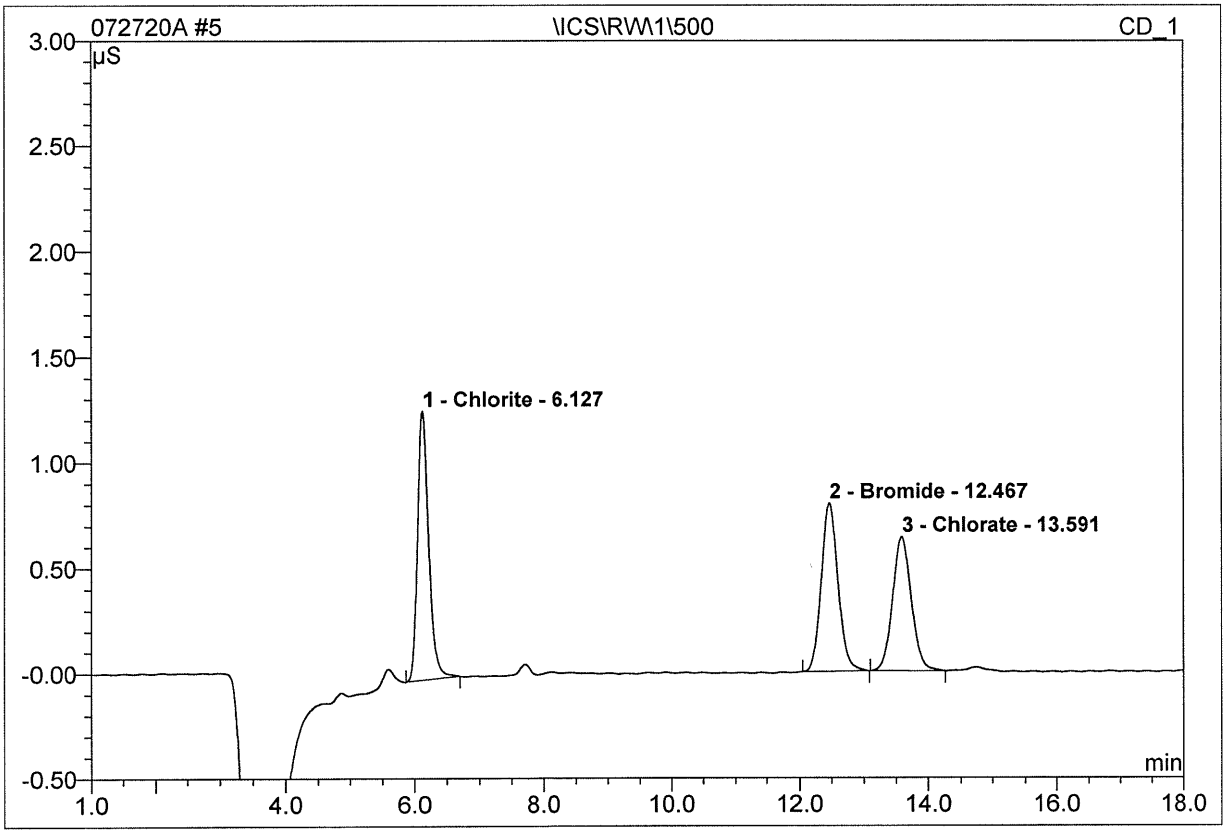
5 \ICS\RW\1\500

Sample Name:	**\ICS\RW\1\500**	*Injection Volume:*	**50.0**
Vial Number:	**5**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**7/27/2020 15:22**	*Sample Weight:*	**1.0000**
Run Time (min):	**26.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	6.13	Chlorite	2098.0	1.273	0.248	488.011	BMB
2	12.47	Bromide	2098.0	0.798	0.242	494.858	BMB
3	13.59	Chlorate	2098.0	0.638	0.217	498.207	BMB
Total:			6293.943	2.709	0.71	1481.075	

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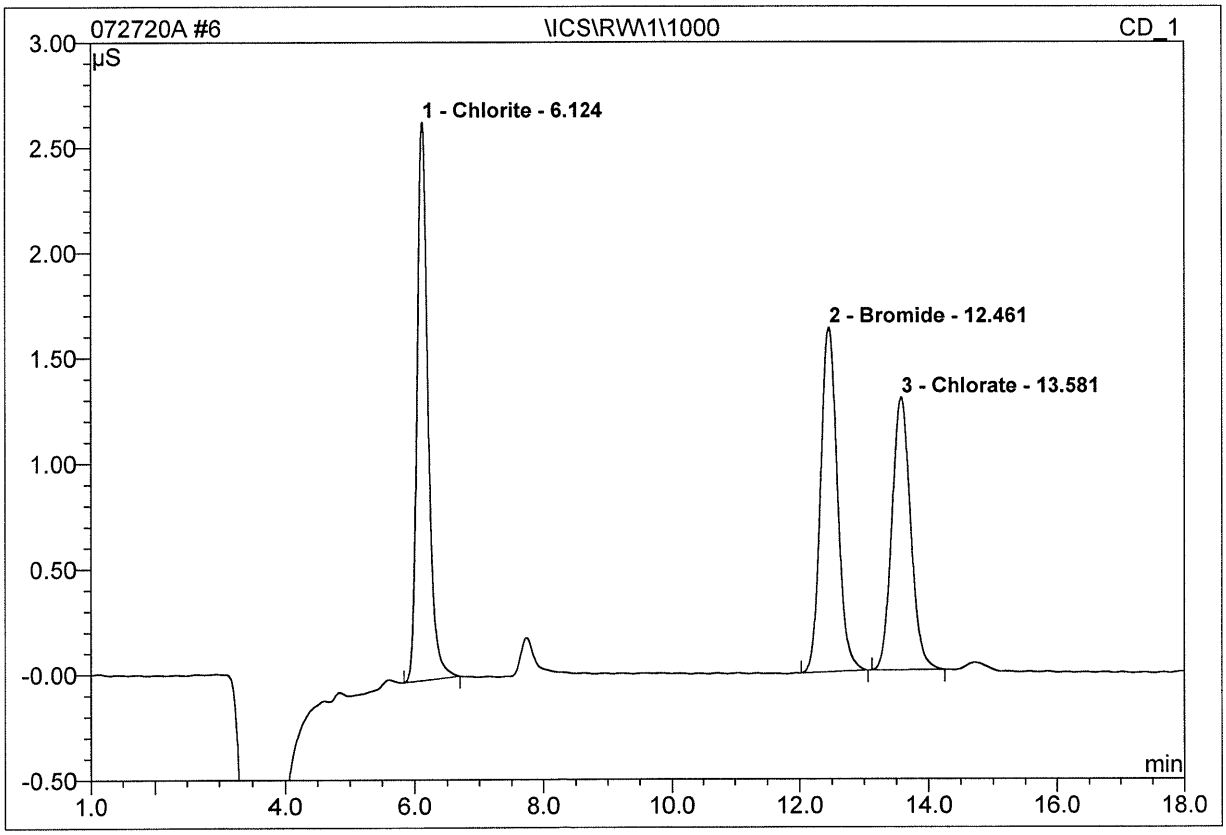
6 \ICS\RW\1\1000

Sample Name:	**\ICS\RW\1\1000**	*Injection Volume:*	**50.0**
Vial Number:	**6**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**7/27/2020 15:51**	*Sample Weight:*	**1.0000**
Run Time (min):	**26.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	6.12	Chlorite	2090.1	2.649	0.513	1005.949	BMB
2	12.46	Bromide	2090.1	1.633	0.492	1002.479	BMB
3	13.58	Chlorate	2090.1	1.293	0.436	1001.045	BMB
Total:			6270.242	5.575	1.44	3009.473	

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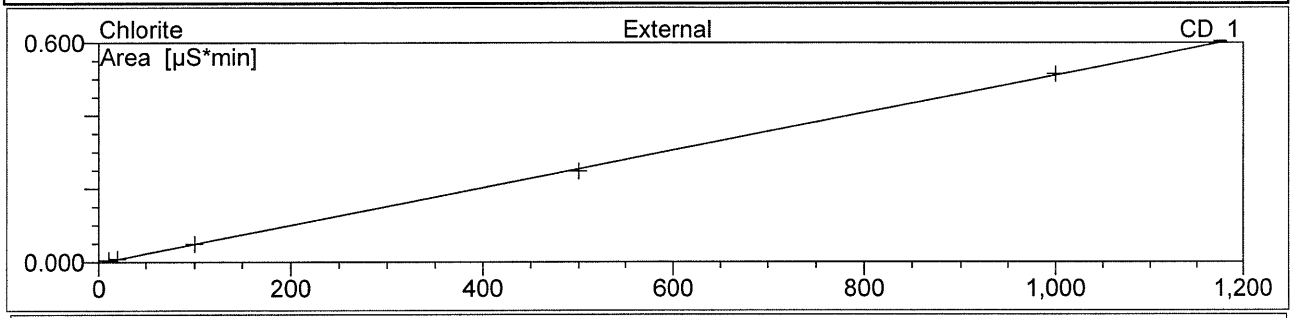
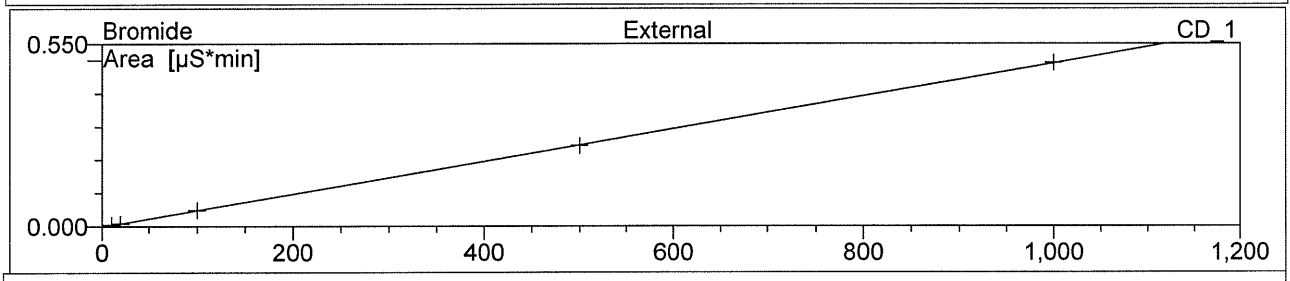
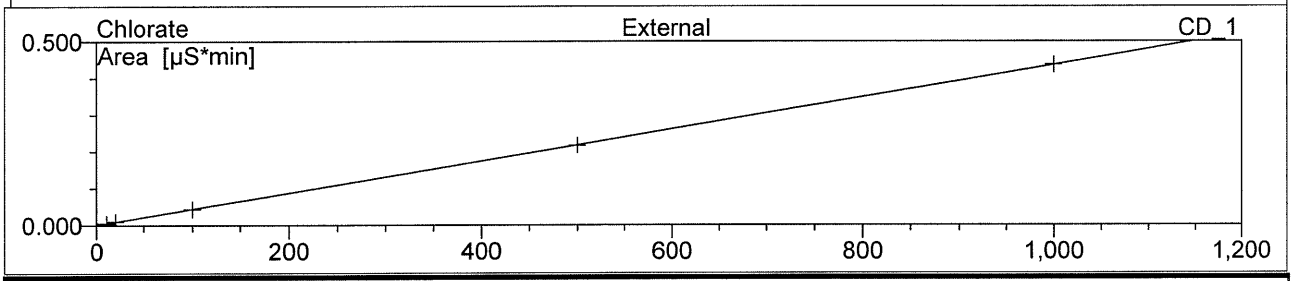
6 \ICS\RW\1\1000

Sample Name:	**\ICS\RW\1\1000**	*Injection Volume:*	**50.0**
Vial Number:	**6**	*Channel:*	**CD_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**7/27/2020 15:51**	*Sample Weight:*	**1.0000**
Run Time (min):	**26.00**	*Sample Amount:*	**1.0000**



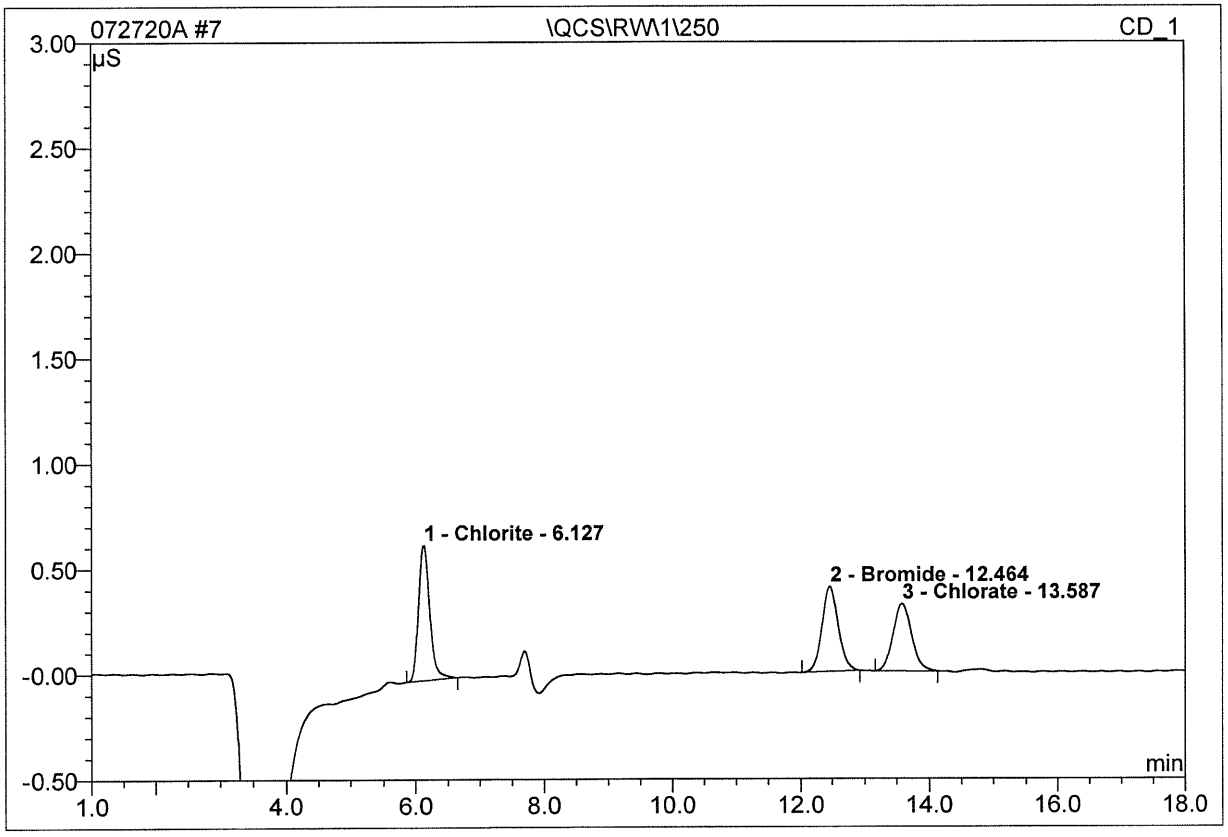




No.	Ret.Time min	Peak Name	Cal.Type	Points	Corr.Coeff. %	Offset	Slope	Curve
1	6.12	Chlorite	LOff	5	99.986	-0.0026	0.0005	0.0000
2	12.46	Bromide	LOff	5	99.997	-0.0015	0.0005	0.0000
3	13.58	Chlorate	LOff	5	99.999	0.0002	0.0004	0.0000
Average:					99.9941	-0.0013	0.0005	0.0000

7 \QCS\RW\1\250

Sample Name:	**\QCS\RW\1\250**	*Injection Volume:*	**50.0**
Vial Number:	**7**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**7/27/2020 16:20**	*Sample Weight:*	**1.0000**
Run Time (min):	**26.00**	*Sample Amount:*	**1.0000**

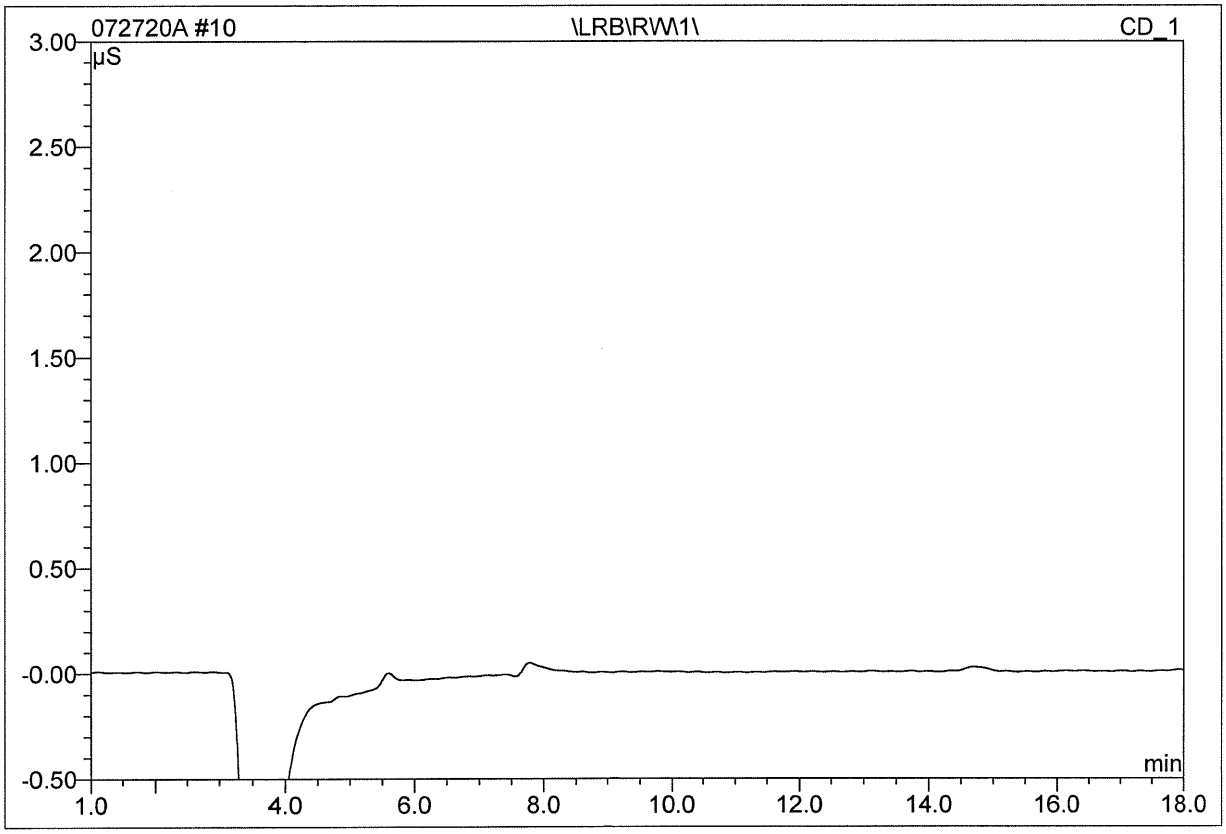


No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	6.13	Chlorite	2126.7	0.643	0.127	252.360	BMB
2	12.46	Bromide	2126.7	0.405	0.121	249.142	BMB
3	13.59	Chlorate	2126.7	0.321	0.108	248.595	BMB
Total:			6380.087	1.369	0.36	750.098	

Chromeleon (c) Dionex 1996-2006
Version 6.80 SR10 Build 2818 (166959)

10 \LRB\RW\1\

Sample Name:	**\LRB\RW\1**	*Injection Volume:*	**50.0**
Vial Number:	**10**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**7/27/2020 17:47**	*Sample Weight:*	**1.0000**
Run Time (min):	**26.00**	*Sample Amount:*	**1.0000**

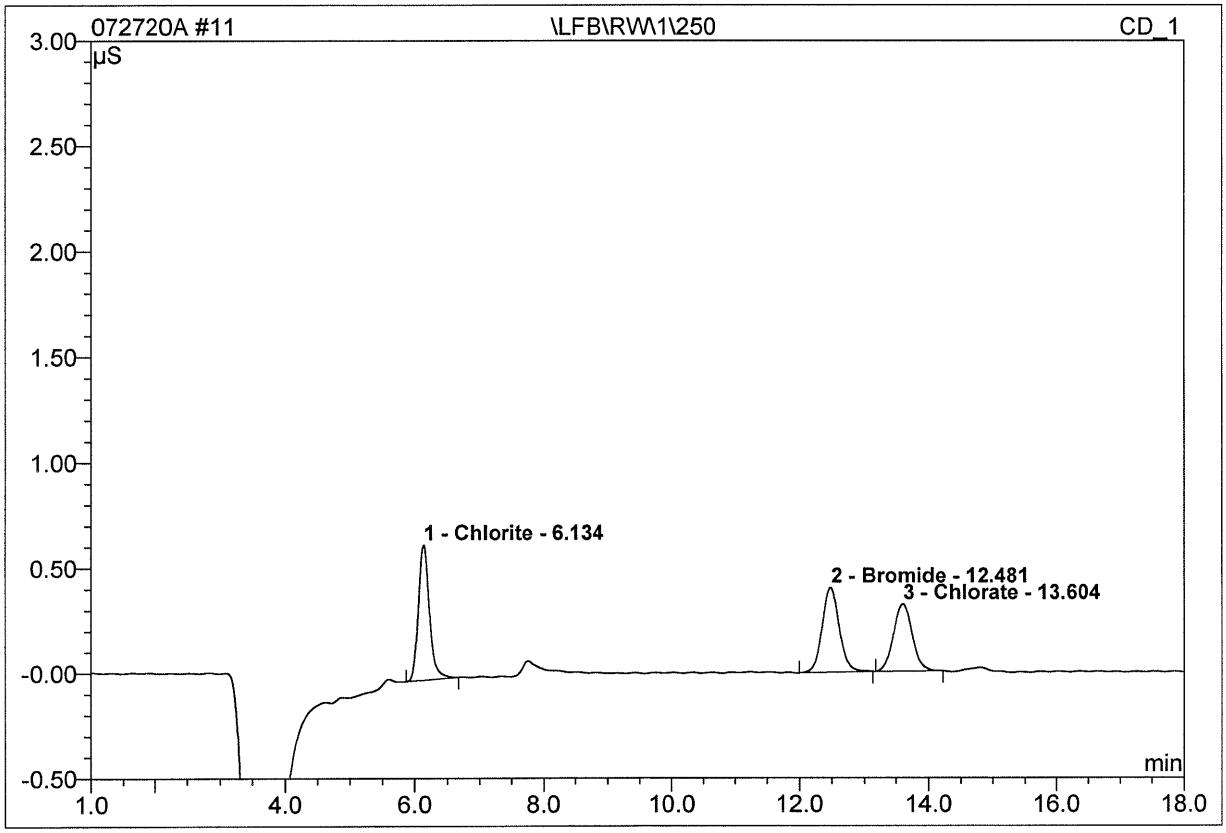


No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
Total:			0.000	0.000	0.00	0.000	

Chromeleon (c) Dionex 1996-2006
Version 6.80 SR10 Build 2818 (166959)

11 \LFB\RW\1\250

Sample Name:	**\LFB\RW\1\250**	*Injection Volume:*	**50.0**
Vial Number:	**11**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**7/27/2020 18:15**	*Sample Weight:*	**1.0000**
Run Time (min):	**26.00**	*Sample Amount:*	**1.0000**

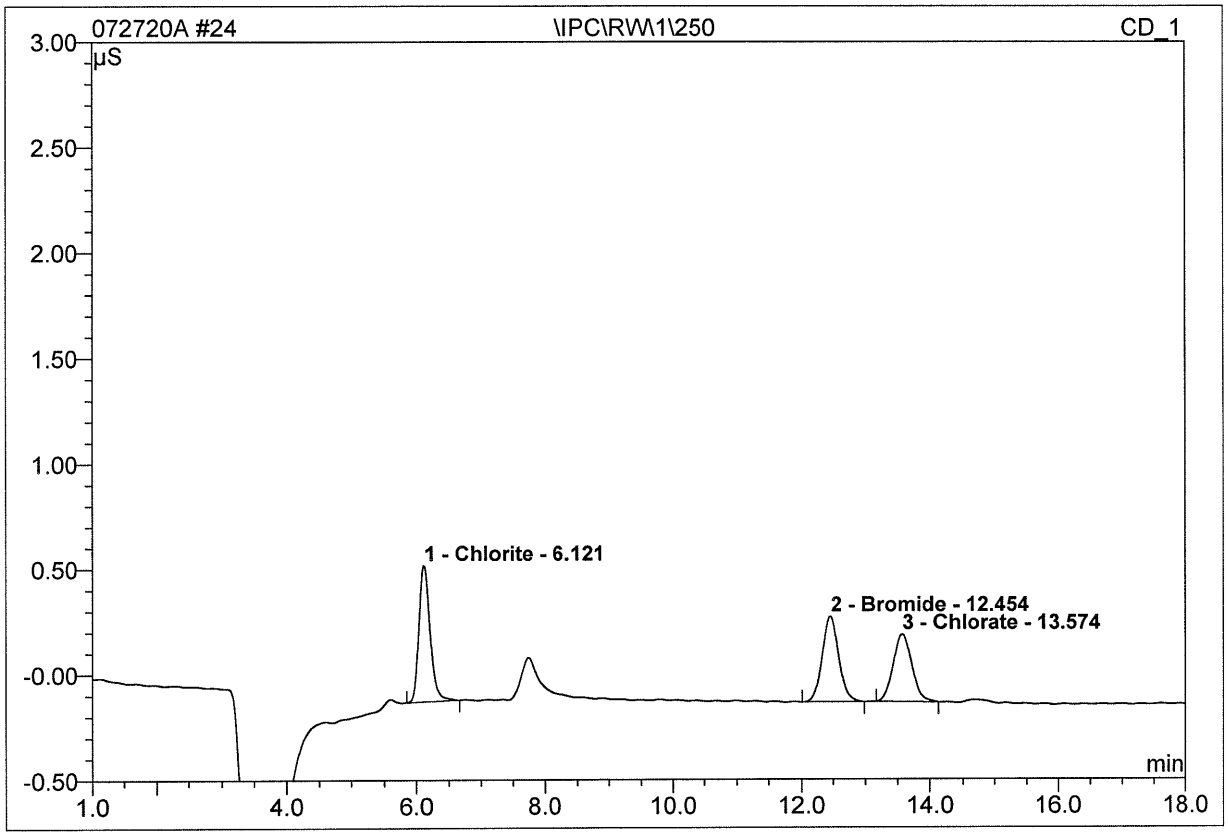


No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	6.13	Chlorite	2133.8	0.643	0.125	248.959	BMB
2	12.48	Bromide	2133.8	0.405	0.124	254.329	BMB
3	13.60	Chlorate	2133.8	0.321	0.108	247.697	BMB
Total:			6401.423	1.369	0.36	750.985	

Chromeleon (c) Dionex 1996-2006
Version 6.80 SR10 Build 2818 (166959)

24 \IPC\RW\1\250

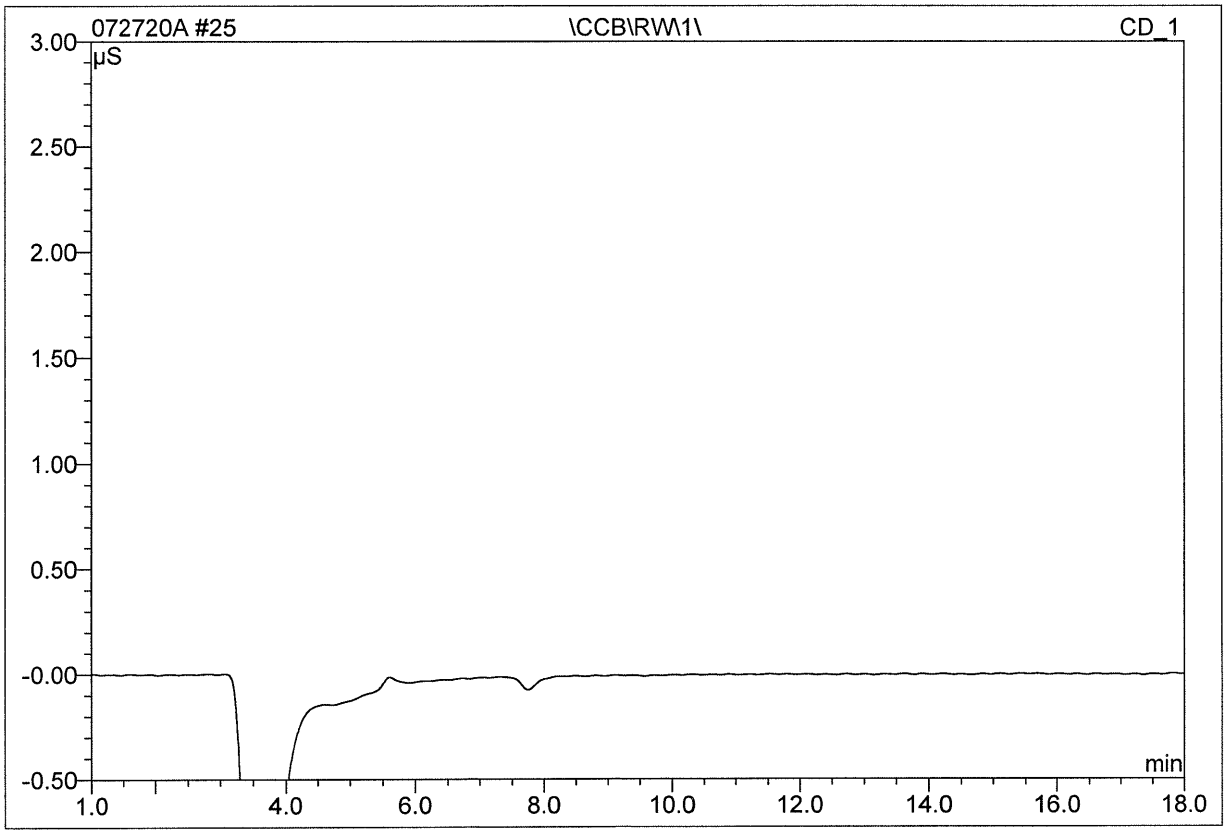
Sample Name:	**\IPC\RW\1\250**	*Injection Volume:*	**50.0**
Vial Number:	**24**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**7/28/2020 0:31**	*Sample Weight:*	**1.0000**
Run Time (min):	**26.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	6.12	Chlorite	2105.9	0.647	0.127	252.113	BMB
2	12.45	Bromide	2105.9	0.407	0.123	253.589	BMB
3	13.57	Chlorate	2105.9	0.321	0.108	248.120	BMB
Total:			6317.686	1.375	0.36	753.822	

25 \CCB\RW\1\

Sample Name:	**\CCB\RW\1**	*Injection Volume:*	**50.0**
Vial Number:	**25**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**7/28/2020 1:00**	*Sample Weight:*	**1.0000**
Run Time (min):	**26.00**	*Sample Amount:*	**1.0000**

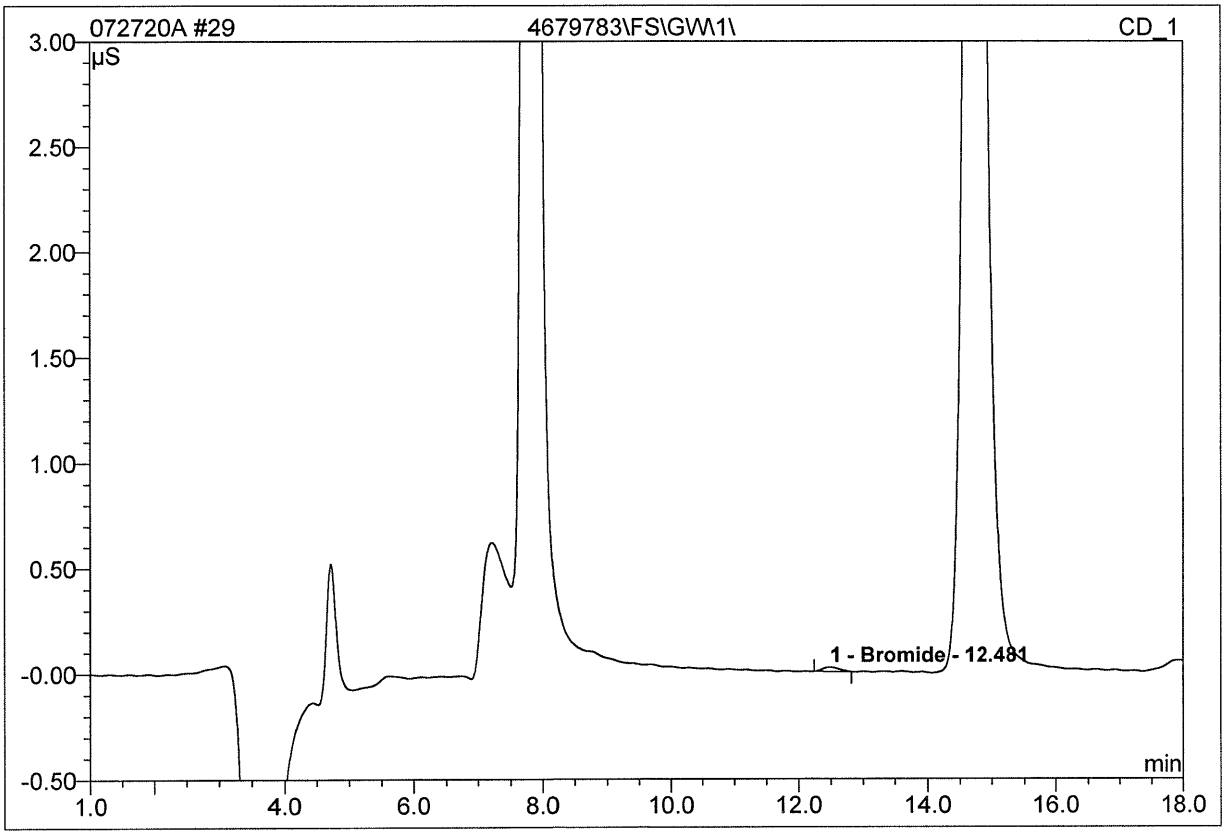


No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
Total:			0.000	0.000	0.00	0.000	

Chromeleon (c) Dionex 1996-2006
Version 6.80 SR10 Build 2818 (166959)

29 4679783\FS\GW\1\

Sample Name:	**4679783\FS\GW\1**	*Injection Volume:*	**50.0**
Vial Number:	**29**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**7/28/2020 2:56**	*Sample Weight:*	**1.0000**
Run Time (min):	**26.00**	*Sample Amount:*	**1.0000**

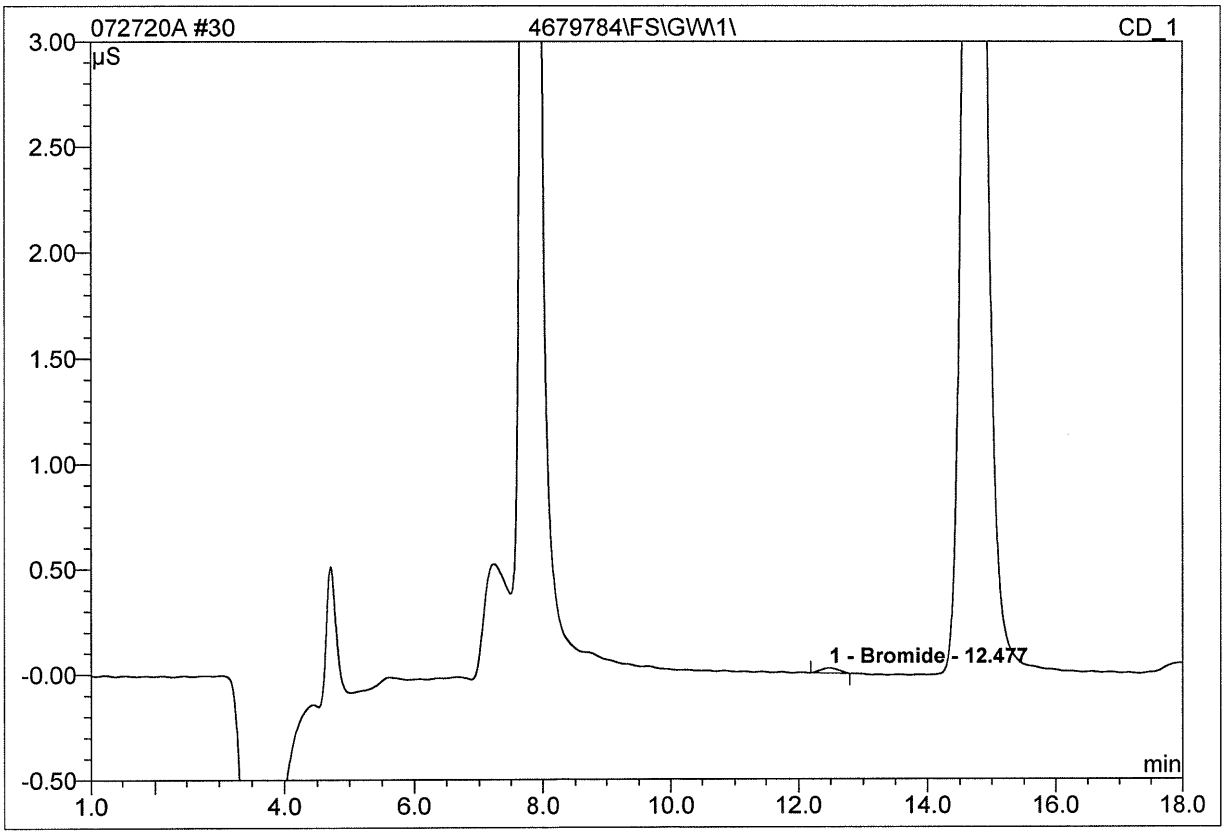


No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	12.48	Bromide	2088.7	0.022	0.006	15.967	BMB
Total:			2088.713	0.022	0.01	15.967	

Chromeleon (c) Dionex 1996-2006
Version 6.80 SR10 Build 2818 (166959)

30 4679784\FS\GW\1\

Sample Name:	**4679784\FS\GW\1**	*Injection Volume:*	**50.0**
Vial Number:	**30**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**7/28/2020 3:25**	*Sample Weight:*	**1.0000**
Run Time (min):	**26.00**	*Sample Amount:*	**1.0000**

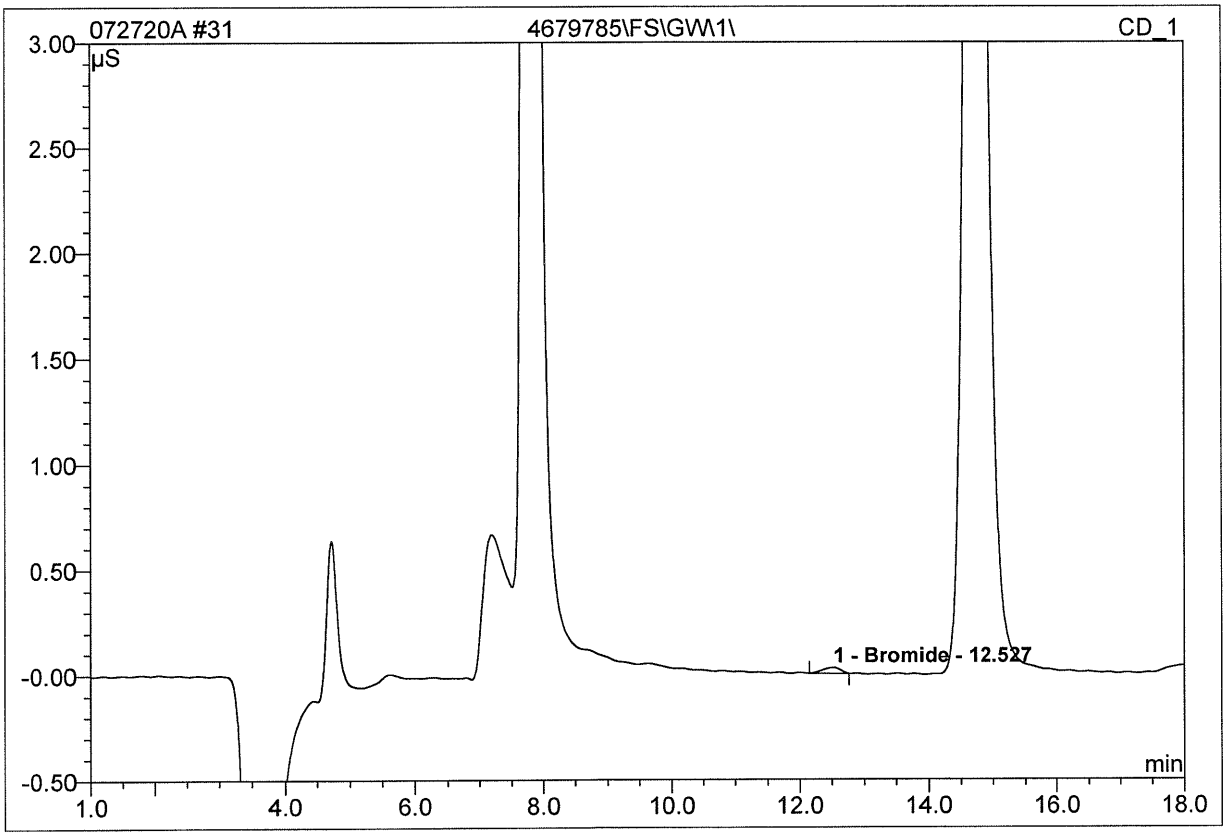


No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	12.48	Bromide	2073.7	0.025	0.008	19.030	BMB
Total:			2073.667	0.025	0.01	19.030	

Chromeleon (c) Dionex 1996-2006
Version 6.80 SR10 Build 2818 (166959)

31 4679785\FS\GW\1\

Sample Name:	**4679785\FS\GW\1**	*Injection Volume:*	**50.0**
Vial Number:	**31**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**7/28/2020 3:54**	*Sample Weight:*	**1.0000**
Run Time (min):	**26.00**	*Sample Amount:*	**1.0000**

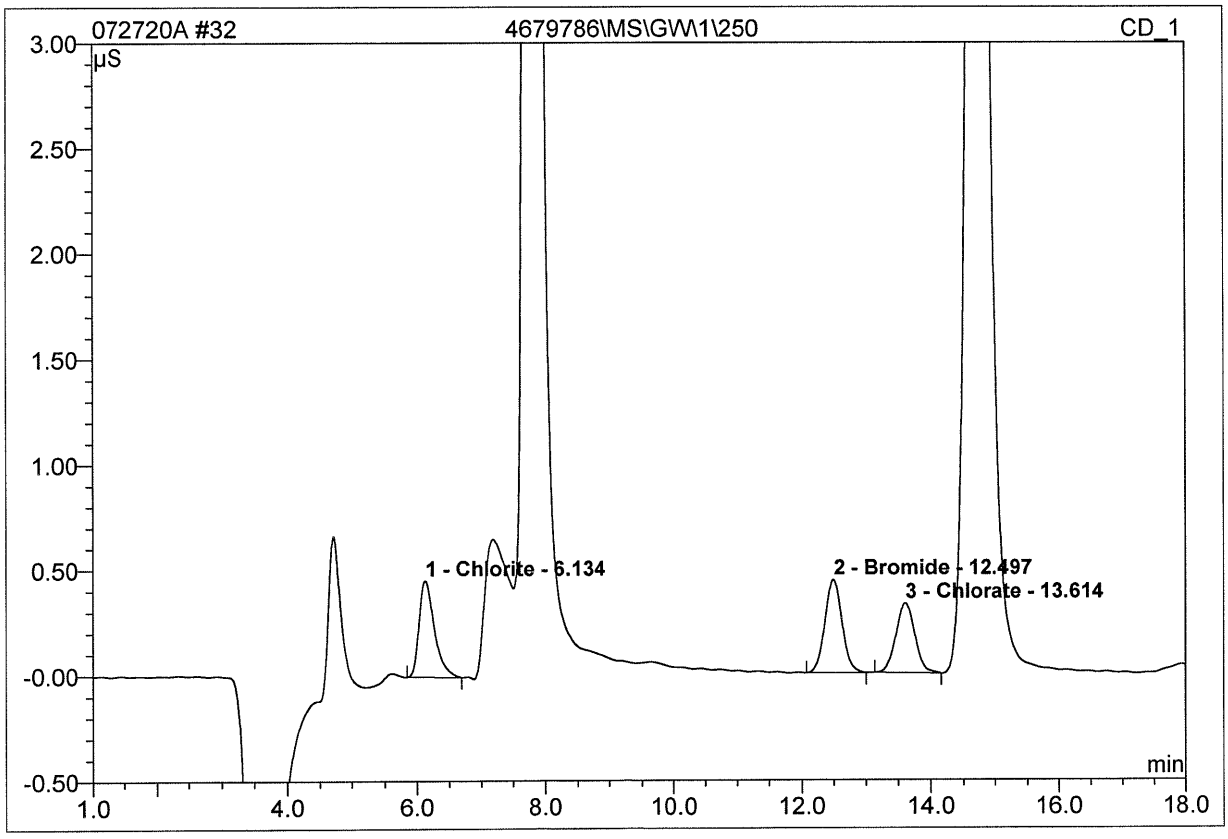


No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	12.53	Bromide	2065.2	0.028	0.009	21.024	BMB
Total:			2065.176	0.028	0.01	21.024	

Chromeleon (c) Dionex 1996-2006
Version 6.80 SR10 Build 2818 (166959)

32 4679786\MS\GW\1\250

Sample Name:	**4679786\MS\GW\1\250**	*Injection Volume:*	**50.0**
Vial Number:	**32**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**7/28/2020 4:23**	*Sample Weight:*	**1.0000**
Run Time (min):	**26.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	6.13	Chlorite	2059.8	0.457	0.126	251.491	BMB
2	12.50	Bromide	2059.8	0.444	0.135	277.725	BMB
3	13.61	Chlorate	2059.8	0.331	0.113	258.233	BMB
Total:			6179.495	1.232	0.37	787.448	

Chromeleon (c) Dionex 1996-2006
Version 6.80 SR10 Build 2818 (166959)

33 4679787\MSD\GW\1\250

Sample Name:	**4679787\MSD\GW\1\250**	*Injection Volume:*	**50.0**
Vial Number:	**33**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**7/28/2020 4:51**	*Sample Weight:*	**1.0000**
Run Time (min):	**26.00**	*Sample Amount:*	**1.0000**

No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	6.13	Chlorite	2087.4	0.459	0.124	247.448	BMB
2	12.49	Bromide	2087.4	0.441	0.134	275.277	BMB
3	13.61	Chlorate	2087.4	0.330	0.111	255.125	BMB
Total:			6262.182	1.230	0.37	777.850	

Chromeleon (c) Dionex 1996-2006
Version 6.80 SR10 Build 2818 (166959)

34 4679788\FS\GW\1\

Sample Name:	**4679788\FS\GW\1**	*Injection Volume:*	**50.0**
Vial Number:	**34**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**7/28/2020 5:20**	*Sample Weight:*	**1.0000**
Run Time (min):	**26.00**	*Sample Amount:*	**1.0000**

No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	12.46	Bromide	2058.8	0.025	0.007	18.113	BMB
Total:			2058.759	0.025	0.01	18.113	

Chromeleon (c) Dionex 1996-2006
Version 6.80 SR10 Build 2818 (166959)

35 4679789\FS\GW\1\

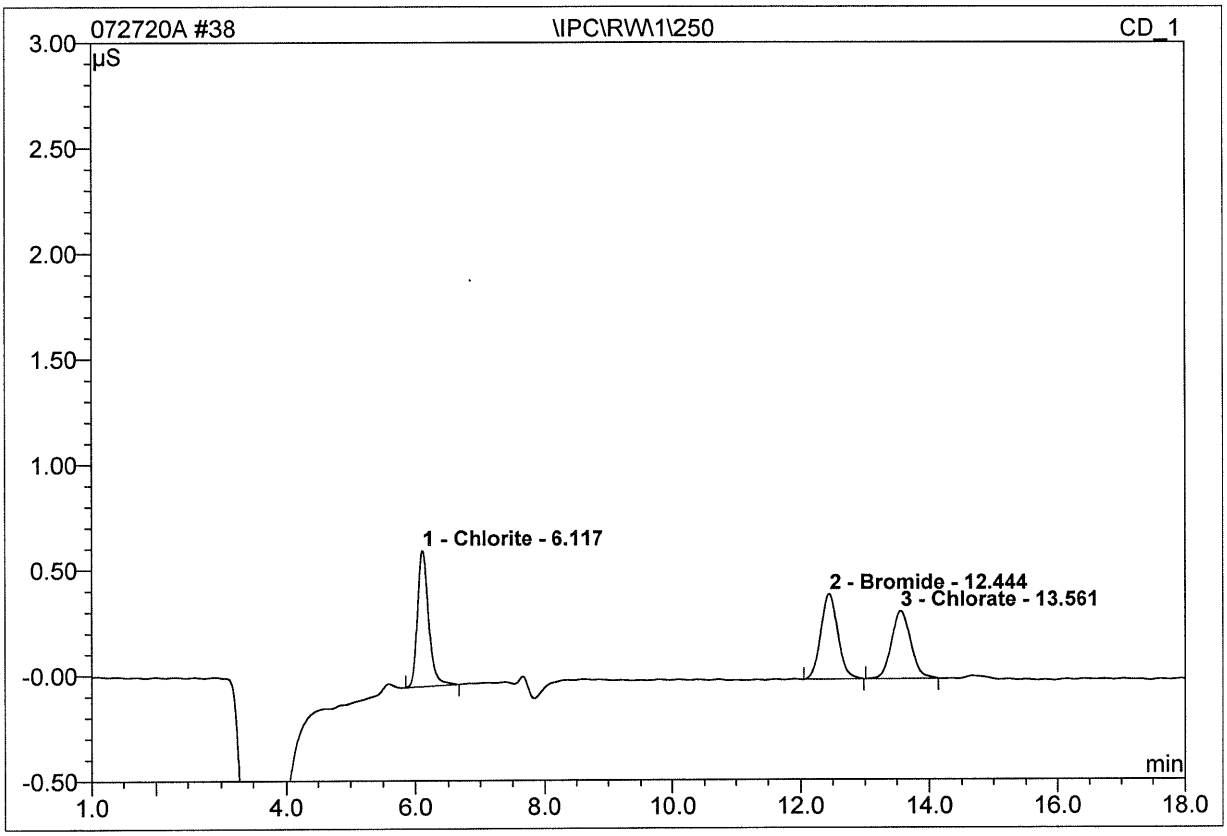
Sample Name:	**4679789\FS\GW\1**	*Injection Volume:*	**50.0**
Vial Number:	**35**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**7/28/2020 5:49**	*Sample Weight:*	**1.0000**
Run Time (min):	**26.00**	*Sample Amount:*	**1.0000**

No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	12.48	Bromide	2071.4	0.017	0.005	14.221	BMB
Total:			2071.435	0.017	0.01	14.221	

Chromeleon (c) Dionex 1996-2006
Version 6.80 SR10 Build 2818 (166959)

38 \IPC\RW\1\250

Sample Name:	**\IPC\RW\1\250**	*Injection Volume:*	**50.0**
Vial Number:	**38**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**7/28/2020 7:16**	*Sample Weight:*	**1.0000**
Run Time (min):	**26.00**	*Sample Amount:*	**1.0000**

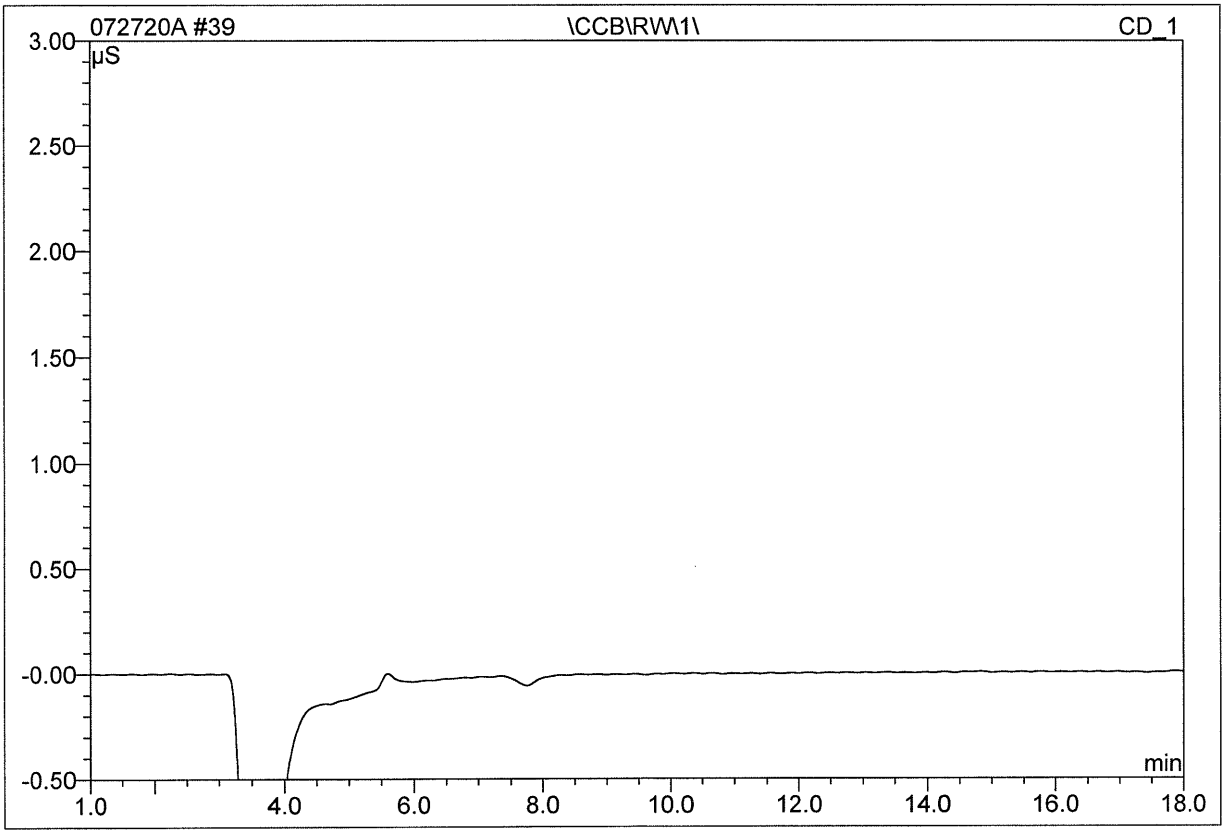


No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
1	6.12	Chlorite	2092.0	0.644	0.127	253.107	BMB
2	12.44	Bromide	2092.0	0.406	0.123	253.044	BMB
3	13.56	Chlorate	2092.0	0.323	0.111	255.298	BMB
Total:			6276.083	1.373	0.36	761.449	

Chromeleon (c) Dionex 1996-2006
Version 6.80 SR10 Build 2818 (166959)

39 \CCB\RW\1\

Sample Name:	**\CCB\RW\1**	*Injection Volume:*	**50.0**
Vial Number:	**39**	*Channel:*	**CD_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Met300B**	*Bandwidth:*	**n.a.**
Quantif. Method:	**Met300B**	*Dilution Factor:*	**1.0000**
Recording Time:	**7/28/2020 7:45**	*Sample Weight:*	**1.0000**
Run Time (min):	**26.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Pressure psi	Height µS	Area µS*min	Amount	Type
Total:			0.000	0.000	0.00	0.000	

Chromeleon (c) Dionex 1996-2006
Version 6.80 SR10 Build 2818 (166959)

QA - Method Detection Limit Study

Method:	300.0 B	Analyzed by:	Multiple Analysts	Approved by:	Jon Werbianskyj	Effective Date:	6/30/2020
Instrument:	DT	Prepped by:	Multiple Analysts	Comments:	*MDL recalculated on 07/17/2020. LOD updated from this sheet. JW- 07/17/2020*		
Units:	ug/L						
Matrix Type:	RW		**Number of months next study due:**	6			
			Date Submittted:	6/30/2020			

Earliest Analysis date	Parameter	# of Pts	df	t(n-1,1-α=0.99)	mean	sd	Calculated MDL_s	MDL_b	New Instrument MDL	Old / Current LOD
10/3/2018	Bromide	21	20	2.528	11.82390471	1.38558513	3.502759208	4.43015924	4.43015924	7.4
10/3/2018	Chlorate	21	20	2.528	12.24733333	1.656737708	4.188232926	6.504399	6.504399	7.1
10/3/2018	Chlorite	21	20	2.528	11.70780943	1.443698985	3.649671034	3.59895	3.649671034	3.7

CHAIN OF CUSTODY,
PM CONFIRMATION
AND
SAMPLE CONDITION FORMS
DOCUMENTS

Rev. 02/2017

CHAIN OF CUSTODY

Page 1 of 1

Company: WESTON SOLUTIONS
Project Contact: TONY PACE
Telephone: 757 819 5310
Project Name: RADFORD AAP 54
Project #:
Location: RADFORD VA
Sampled By: BOWERS / EWALD

CT LABORATORIES

1230 Lange Court, Baraboo, WI 53913
608-356-2760 Fax 608-356-2766
www.ctlaboratories.com

Folder #: 154987
Company: WESTON SOLUTIONS.
Project: RADFORD AAP 54
Logged By: EKB PM: BM

Program:
QSM RCRA SDWA NPDES
Solid Waste Other _____

PO #

Report To:
EMAIL: TONY.PACE@WESTONSOLUTIONS.COM
Company: WESTON SOLUTIONS
Address: 2 EATON ST SUITE 603
HAMPTON VA 23669

Invoice To:*
EMAIL:
Company:
Address:

*Party listed is responsible for payment of invoice as per CT Laboratories' terms and conditions

Client Special Instructions

Matrix:
GW – groundwater SW - surface water WW - wastewater DW - drinking water
S - soil/sediment SL - sludge A - air M - misc/waste

Turnaround Time
Normal RUSH*
Date Needed: _____
Rush analysis requires prior CT Laboratories' approval
Surcharges:
24 hr 200%
2-3 days 100%
4-9 days 50%

Collection Date	Collection Time	Matrix	Grab/ Comp	Sample #	Sample ID Description	Filtered? Y/N	Chloride/chlorate	Anions 9056A	TOC 9060A	TIC 9060A	pH 9040C	Con 410.4	Total metals 6020A	Total # Containers	Designated MS/MSD	CT Lab ID # (Lab use only)
							Fill in Spaces with Bottles per Test									
7/21/20	0940	GW	G	6	54MW13		1	1	1	3				6		448828
7/21/20	0940	GW	G	6	54TW13		1	1	1	3				6		448839
7/21/20	1050	GW	G	18	54MW12		3	3	3	9		MS/MSD		18	X	448840
7/21/20	1230	GW	G	6	54MW10		1	1	1	3				6		448841
7/21/20	1700	GW	G	6	54MW1		1	1	1	3				6		448842
7/21/20	1410	GW	G	3	IDW-54						1	1	1			448843

Relinquished By: Matthew Ewald
Date/Time: 7/21/20 1700

Received By: FedEx
Date/Time:

Received by: ekb for DL
Date/Time: 7-22-2020 10:20

Received for Laboratory by: ekb
Date/Time: 7-22-2020 11:17

Lab Use Only
Ice Present (Yes) No
Temp 2.4 IR Gun 37
Cooler # 5925

CT Laboratories Terms and Conditions

Where a purchaser (Client) places an order for laboratory, consulting or sampling services from CT Laboratories (CTL), CTL shall provide the ordered services pursuant to these Terms and Conditions, and the related Quotation, or as agreed in a negotiated contract. In the absence of a written agreement to the contrary, the Order constitutes an acceptance by the Client of CTL's offer to do business under these Terms and Conditions, and an agreement to be bound by these Terms and Conditions. No contrary or additional terms and conditions expressed in a Client's document shall be deemed to become a part of the contract created upon acceptance of these Terms and Conditions, unless accepted by CTL in advance of the start of the project and in writing.

1. ORDERS AND RECEIPT OF SAMPLES (Sample Acceptance Policy)

1.1 The Client may place the Order (i.e., specify a Scope of Work) either by submitting a purchase order to CTL in writing, by telephone (confirmed in writing) or by negotiated contract. Whichever option the Client selects for placing the Order, the Order shall not be valid unless it contains sufficient information to enable CTL to carry out the Client's requirements. It is the policy of CTL that samples not meeting the acceptance criteria, outlined in the NELAC standards and Section 5.8.3.2 of the DOD QSM, will not be accepted by the laboratory or will be qualified on the final report. All samples submitted to the laboratory must: (a) be accompanied by proper, full and complete documentation, including sample identification, location, date and time of collection, the collector's name, type of preservation (if any), type of sample, any special comments concerning the sample and any additional pertinent fields on the chain-of-custody. In the absence of any of the required information, the laboratory will attempt to contact the client to obtain the information; if unable to obtain the necessary information, the final report will be qualified. (b) samples must be labeled appropriately with a unique sample identification written with indelible ink on water resistant labels. If the laboratory cannot determine the identity of a sample, it may be rejected and the client will be contacted for further instructions or resampling. (c) samples must be in an appropriate sample container. If the container is inappropriate, the client will be contacted for further instructions or resampling. If analysis is possible, the final report will be qualified. CTL can provide a sampling guide containing approved containers and preservations for analytical methods requested. (d) adhere to method specified holding times. If samples are received with less than ½ the holding time remaining for the requested test, CTL will make its best effort to analyze the samples and notify the client. If holding times are exceeded, the final report will be qualified. (e) contain adequate sample volume to perform the necessary testing. If sufficient volume is not present, the sample may be rejected and the client will be contacted for further instructions or resampling. If samples show signs of damage, contamination or inadequate preservation, the client will be notified. If analysis can be performed, the final report will be qualified. If not, the samples will be rejected and the client notified for further instructions or resampling. It is the Client's responsibility to understand and package samples correctly and provide the proper amount of temperature control (ice) suitable to current weather conditions.

1.2 CTL must be supplied with complete written disclosure of the known or suspected presence of any hazardous substances, as defined by applicable federal or state law. Where any samples which were not accompanied by the required disclosure, cause interruptions in the lab's ability to process work due to contamination of instruments or work areas, the Client will be responsible for the costs of clean up and recovery.

1.3 Prior to Sample Acceptance, the entire risk of loss or damage to samples remains with the Client. In no event will CTL have any responsibility or liability for the action or inaction of any carrier shipping or delivering any sample to or from CTL's premises. Client is responsible to assure that any sample containing any hazardous substance which is to be delivered to CTL's premises will be packaged, labeled, transported and delivered properly and in accordance with applicable laws.

1.4 Clients using CTL's shipping account(s) do so at their own risk and must purchase separate insurance if they do not wish to assume risk of loss. CTL will not assume any risk whatsoever for any samples outside of CTL's control and not successfully delivered to the laboratory within specified hold times.

1.5 CTL will not accept liability for any sample(s), except sample(s) damaged or broken by log-in staff prior to successful log-in of the sample(s) into the CTL- LIMS system. This includes, but may not be limited to: complete, valid COC documentation, all sample receiving issues being resolved from a delay caused by the Client in CTL's ability to log-in samples, including missed turnaround and hold times, delay in processing and, ultimately, additional charges to the Client.

1.6 CTL will only reject samples per directions from the Client. CTL's sole liability is to inform the Client of any sample receipt issues, and may provide an indication how proceeding with the analysis may affect results and final acceptance by the regulating agency. Ultimately, suitability for use is between the Client and the regulating agency(s).

1.7 Signing of this COC by the Client or Client's representative, or directions to CTL via email or Fax constitutes acceptance of these Terms and Conditions, and guarantees payment by the Client to CTL.

2. PAYMENT TERMS

2.1 Services performed by CTL will be in accordance with prices quoted and later confirmed in writing or as stated in the Price Schedule. Invoices may be submitted to Client upon completion of any sample delivery group. Payment in advance is required for all Clients except those whose credit has been established with CTL. For Clients with approved credit, payment terms are net 30 days from the date of invoice by CTL. All overdue payments are subject to an additional interest and service charge of one and one-half percent (1.5%) or the maximum rate permissible by law, per month or portion thereof from the due date until the date of payment. All fees are charged or billed directly to the Client. The billing of a third party will not be accepted without a statement, signed by the third party that acknowledges and accepts payment responsibility. CTL may suspend work and withhold delivery of data under this order at any time in the event Client fails to make timely payment of its invoices. Client shall be responsible for all costs and expenses of collection including reasonable attorney's fees. CTL reserves the right to refuse to proceed with work at any time based upon an unfavorable Client credit report.

3. CHANGE ORDERS, TERMINATION

3.1 Changes to the Scope of Work, price, or result delivery date may be initiated by CTL after Sample Acceptance due to any condition which conflicts with analytical, QA or other protocols warranted in these Terms and Conditions. CTL will not proceed with such changes until an agreement with the Client is reached on the amount of any cost, schedule change or technical change to the Scope of Work, and such agreement is documented in writing.

3.2 Changes to the Scope of Work, including but not limited to increasing or decreasing the work, changing test and analysis specification or acceleration in the performance of the work may be initiated by the Client after sample acceptance. Such a change will be documented in writing and may result in a change in cost and turnaround time commitment. CTL's acceptance of such changes is contingent upon technical feasibility and operational capacity.

3.3 Suspension or termination of all or any part of the work may be initiated by the Client. CTL will be compensated consistent with Section 2 of these Terms and Conditions. CTL will complete all work in progress and be paid in full for all work completed.

4. WARRANTIES AND LIABILITY

4.1 Where applicable, CTL will use analytical methodologies which are in substantial conformity with published test methods. CTL has implemented these methods in its Laboratory Quality Manuals and referenced Standard Operating Procedures and where the nature or composition of the sample requires it, CTL reserves the right to deviate from these methodologies as necessary or appropriate, based on the reasonable judgment of CTL, which deviations, if any, will be made on a basis consistent with recognized standards of the industry and/or CTL's Laboratory Quality Manuals. Client may request that CTL perform according to a mutually agreed Quality Assurance Project Plan (QAPP). In the event that samples arrive prior to agreement on a QAPP, CTL will proceed with analyses under its standard Quality Manuals then in effect, and CTL will not be responsible for any resampling or other charges if work must be repeated to comply with a subsequently finalized QAPP.

4.2 CTL shall start preparation and/or analysis within holding times provided that Sample Acceptance occurs within 48 hours of sampling or 1/2 of the holding time for the test, whichever is less. Samples received that do not meet this provision will be charged as expedited samples and the appropriate rate will be added accordingly. Where resolution of inconsistencies leading to Sample Acceptance does not occur within this period, CTL will use its best efforts to meet holding times and will proceed with the work provided that, in CTL's judgment, the chain-of-custody or definition of the Scope of Work provide sufficient guidance. Reanalysis of samples to comply with CTL's Quality Manuals will be deemed to have met holding times provided the initial analysis was performed within the applicable holding time. Where reanalysis demonstrates that sample matrix interference is the cause of failure to meet any Quality Manual requirements, the warranty will be deemed to have been met.

4.3 CTL warrants that it possesses and maintains all licenses and certifications which are required to perform services under these Terms and Conditions provided that such requirements are specified in writing to CTL prior to Sample Acceptance. CTL will notify the Client in writing of any decertification or revocation of any license, or notice of either, which affects work in progress.

4.4 The warranty obligations set forth in Sections 4.1, 4.2 and 4.3 are the sole and exclusive warranties given by CTL in connection with any services performed by CTL or any Results generated from such services, and CTL gives and makes NO OTHER REPRESENTATION OR WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. No representative of CTL is authorized to give or make any other representation or warranty or modify this warranty in any way.

4.5 Client's sole and exclusive remedy for the breach of warranty in connection with any services performed by CTL, will be limited to repeating any services performed, contingent on the Client's providing, at the request of CTL and at the Client's expense, additional sample(s) if necessary. Any reanalysis requested by the Client generating Results consistent with the original Results will be at the Client's expense. If resampling is necessary, CTL's liability for resampling costs will be limited to actual cost or one hundred or one hundred fifty dollars ($150) per sample, whichever is less.

4.6 CTL's liability for any and all causes of action arising hereunder, whether based in contract, tort, warranty, negligence or otherwise, shall be limited to the lesser amount of compensation for the services performed or $100,000. All claims, including those for negligence, shall be deemed waived unless suit thereon is filed within one year after CTL's completion of the services. Under no circumstances, whether arising in contract, tort (including negligence), or otherwise, shall CTL be responsible for loss of use, loss of profits, or for any special, indirect, incidental or consequential damages occasioned by the services performed or by application or use of the reports prepared.

4.7 In no event shall CTL have any responsibility or liability to the Client for any failure or delay in performance by CTL which results, directly or indirectly, in whole or in part, from any cause or circumstance beyond the reasonable control of CTL. Such causes and circumstances shall include, but not be limited to, acts of God, acts of Client, acts or orders of any governmental authority, strikes or other labor disputes, natural disasters, accidents, wars, civil disturbances, equipment breakdown, matrix interference or unknown highly contaminated samples that impact instrument operation, unavailability of supplies from usual suppliers, difficulties or delays in transportation, mail or delivery services, or any other cause beyond CTL's reasonable control.

5. RESULTS, WORK PRODUCT

5.1 Data or information provided to CTL or generated by services performed under this agreement shall only become the property of the Client upon receipt in full by CTL of payment for the whole Order. Ownership of any analytical method, QA/QC protocols, software programs or equipment developed by CTL for performance of work will be retained by CTL, and Client shall not disclose such information to any third party.

5.2 Data and sample materials provided by Client or at Client's request, and the result obtained by CTL shall be held in confidence (unless such information is generally available to the public or is in the public domain or Client has failed to pay CTL for all services rendered or is otherwise in breach of these Terms and Conditions), subject to any disclosure required by law or legal process.

5.3 Should the Results delivered by CTL be used by the Client or Client's client, even though subsequently determined not to meet the warranties described in these Terms and Conditions, then the compensation will be adjusted based upon mutual agreement. In no case shall the Client unreasonably withhold CTL's right to independently defend its data.

5.4 CTL reserves the right to subcontract services ordered by the Client to another laboratory or laboratories, if, in CTL's sole judgment, it is reasonably necessary, appropriate or advisable to do so, and with the Client's permission. CTL will in no way be liable for any subcontracted services and all applicable warranties, guarantees and insurance are those of the subcontracted laboratory.

5.5 CTL shall dispose of the Client's samples and extracts 30 days after the analytical report is issued, unless instructed to store them for an alternate period of time or to return such samples to the Client, in a manner consistent with U.S. Environmental Protection Agency regulations or other applicable Federal, state or local requirements. Additional charges will apply for samples or extracts stored longer than 30 days at the Clients request. Any samples for projects that are canceled or not accepted, or for which return was requested, will be returned to the Client at Client expense. CTL reserves the right to return to the Client any sample or unused portion of a sample that is not within CTL's permitted capability or the capabilities of CTL's designated waste disposal vendor(s), or will make arrangements to dispose of these samples at Client direction and expense.

5.6 Unless a different time period is agreed to in any order under these Terms and Conditions, CTL agrees to retain all records for five (5) years.

5.7 In the event that CTL is required to respond to legal process related to services for Client, Client agrees to reimburse CTL for hourly charges for personnel involved in the response and attorney fees reasonably incurred in obtaining advice concerning the response, preparation to testify, and appearances related to the legal process, travel and all reasonable expenses associated with the litigation.

6. INSURANCE

6.1 CTL shall maintain in force during the performance of services under these Terms and Conditions, Workers' Compensation and Employer's Liability Insurance in accordance with the laws of the states having jurisdiction over CTL's employees who are engaged in the performance of the work. CTL shall also maintain during such period, Comprehensive General and Contractual Liability (limit of $2,000,000 per occurrence/ aggregate), Comprehensive Automobile Liability, owned and hired, ($1,000,000 combined single limit), and Professional/Pollution Liability Insurance (limit of $5,000,000 per occurrence/aggregate). Any Client required changes to these limits or conditions will result in a change in cost to the Client.

7. AUDIT

7.1 Upon prior notice to CTL, the Client may audit and inspect CTL's records and accounts covering reimbursable costs related to work done for the Client, for a period of one (1) year after completion of the work. The purpose of any such audit shall be only for verification of such costs, and CTL shall not be required to provide access to cost records where prices are expressed as fixed fees or published unit prices.

Cooler Receipt Form

Ice Present (YES) NO

Temperature 2.4

IR Gun # 27

Initials DL

Date 7/22/20 Time 10:20

Cooler #: 5975

CUSTODY SEAL
DATE 7/21/20
SIGNATURE

QEC
Quality Environmental Containers
800-255-3950 • www.qecusa.com

CUSTODY SEAL
DATE 7/21/20
SIGNATURE

QEC
Quality Environmental Container
800-255-3950 • www.qecusa.com

Folder #: 154987

PM LOGIN CONFIRMATION

Contract #: 3313

Company: WESTON SOLUTIONS, INC. **Project:** RADFORD AAP SWMU-54 **Proj #:**

Project Phase: RADFORD, VA **PO Number:** **Invoice #:** 155634

Project Manager: *BMS* **Date Received:** 07/22/20 **Log Date:** 07/22/2020

Report To: ANTHONY PACE CC:
2 EATON STREET
SUITE 603
HAMPTON, VA 23669
Phone: 757-819-5310: Fax:
Rep. E-Mail anthony.pace@westonsolutions.com

Invoice To :ACCOUNTS PAYABLE CC:
1400 WESTON WAY, BLDG 5-1
WEST CHESTER, PA 19380
Phone: Fax:
EMail:

Collected By:
Collector's Phone: 757-819-5310

Arrival Temperature: 2.4 oC

SAMPLE #: 448828 **DESCR:** 54MW13 **PRIMARY / DETAILED MATRIX:** AQUEOUS / GROUND WATER **SAMPLED:** 07/21/2020 **Time:** 0940

CLIENT SAMPLE #: **DETAILED SITE/POINT ID INFORMATION:**

TEST#	TEST	TEST METHOD	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
759	CARBON, INORG & ORG	(EPA 9060A)				08/04/2020	08/03/2020		Logged
1227	ANIONS IC QSM 5.0	(EPA 9056A)				07/23/2020	08/03/2020		Logged
			Chloride						
			Nitrate Nitrogen						
			Sulfate						
1230	ORGAN CARBON T QSM 5.(	(EPA 9060A)				08/18/2020	08/03/2020		Logged
1279	SUB CHLORATE/CHLORITE	(300.1)					08/03/2020		Logged

SAMPLE #: 448839 **DESCR:** 54TW13 **PRIMARY / DETAILED MATRIX:** AQUEOUS / GROUND WATER **SAMPLED:** 07/21/2020 **Time:** 0940

CLIENT SAMPLE #: **DETAILED SITE/POINT ID INFORMATION:**

TEST#	TEST	TEST METHOD	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
759	CARBON, INORG & ORG	(EPA 9060A)				08/04/2020	08/03/2020		Logged
1227	ANIONS IC QSM 5.0	(EPA 9056A)				07/23/2020	08/03/2020		Logged

Folder #: 154987 **Company:** *WESTON SOLUTIONS, INC.* **Project:** RADFORD AAP SWMU-54

SAMPLE #: 448839 **DESCR:** 54TW13 **PRIMARY / DETAILED MATRIX:** AQUEOUS / GROUND WATER **SAMPLED:** 07/21/2020 **Time:** 0940

CLIENT SAMPLE #: **DETAILED SITE/POINT ID INFORMATION:**

TEST#	TEST	TEST METHOD	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
			Chloride						
			Nitrate Nitrogen						
			Sulfate						
1230	ORGAN CARBON T QSM 5.0	(EPA 9060A)				08/18/2020	08/03/2020		Logged
1279	SUB CHLORATE/CHLORITE	(300.1)					08/03/2020		Logged

SAMPLE #: 448840 **DESCR:** 54MW12 **PRIMARY / DETAILED MATRIX:** AQUEOUS / GROUND WATER **SAMPLED:** 07/21/2020 **Time:** 1050

CLIENT SAMPLE #: **DETAILED SITE/POINT ID INFORMATION:**

TEST#	TEST	TEST METHOD	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
759	CARBON, INORG & ORG	(EPA 9060A)			***DESIGNATED MATRIX SPIKE***	08/04/2020	08/03/2020		Logged
1227	ANIONS IC QSM 5.0	(EPA 9056A)			***DESIGNATED MATRIX SPIKE***	07/23/2020	08/03/2020		Logged
			Chloride						
			Nitrate Nitrogen						
			Sulfate						
1230	ORGAN CARBON T QSM 5.0	(EPA 9060A)			***DESIGNATED MATRIX SPIKE***	08/18/2020	08/03/2020		Logged
1279	SUB CHLORATE/CHLORITE	(300.1)			***DESIGNATED MATRIX SPIKE***		08/03/2020		Logged

SAMPLE #: 448841 **DESCR:** 54MW10 **PRIMARY / DETAILED MATRIX:** AQUEOUS / GROUND WATER **SAMPLED:** 07/21/2020 **Time:** 1230

CLIENT SAMPLE #: **DETAILED SITE/POINT ID INFORMATION:**

TEST#	TEST	TEST METHOD	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
759	CARBON, INORG & ORG	(EPA 9060A)				08/04/2020	08/03/2020		Logged
1227	ANIONS IC QSM 5.0	(EPA 9056A)				07/23/2020	08/03/2020		Logged
			Chloride						
			Nitrate Nitrogen						
			Sulfate						
1230	ORGAN CARBON T QSM 5.0	(EPA 9060A)				08/18/2020	08/03/2020		Logged
1279	SUB CHLORATE/CHLORITE	(300.1)					08/03/2020		Logged

Folder #: 154987 **Company:** *WESTON SOLUTIONS, INC.* **Project:** RADFORD AAP SWMU-54

SAMPLE #: 448842 **DESCR:** 54MW1 **PRIMARY / DETAILED MATRIX:** AQUEOUS / GROUND WATER **SAMPLED:** 07/21/2020 **Time:** 1400

CLIENT SAMPLE #: **DETAILED SITE/POINT ID INFORMATION:**

TEST#	TEST	TEST METHOD	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
759	CARBON, INORG & ORG	(EPA 9060A)				08/04/2020	08/03/2020		Logged
1227	ANIONS IC QSM 5.0	(EPA 9056A)				07/23/2020	08/03/2020		Logged
			Chloride						
			Nitrate Nitrogen						
			Sulfate						
1230	ORGAN CARBON T QSM 5.0	(EPA 9060A)				08/18/2020	08/03/2020		Logged
1279	SUB CHLORATE/CHLORITE	(300.1)					08/03/2020		Logged

SAMPLE #: 448843 **DESCR:** IDW-54 **PRIMARY / DETAILED MATRIX:** AQUEOUS / GROUND WATER **SAMPLED:** 07/21/2020 **Time:** 1410

CLIENT SAMPLE #: **DETAILED SITE/POINT ID INFORMATION:**

TEST#	TEST	TEST METHOD	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
203	PH	(EPA 9040C)					08/03/2020		Logged
989	COD QSM	(EPA 410.4)				08/18/2020	08/03/2020		NeedPrep
1183	ICP K TOTAL QSM 5.0	(EPA 6010C)				01/17/2021	08/03/2020		NeedPrep
1190	ICP NA TOTAL QSM 5.0	(EPA 6010C)				01/17/2021	08/03/2020		NeedPrep
1200	ICP TOTAL QSM 5.0	(EPA 6010C)				01/17/2021	08/03/2020		NeedPrep
			Total Aluminum						
			Total Antimony						
			Total Arsenic						
			Total Barium						
			Total Beryllium						
			Total Cadmium						
			Total Calcium						
			Total Chromium						
			Total Cobalt						
			Total Copper						
			Total Iron						

Folder #: 154987 **Company:** *WESTON SOLUTIONS, INC.* **Project:** RADFORD AAP SWMU-54

SAMPLE #: 448843 **DESCR:** IDW-54 **PRIMARY / DETAILED MATRIX:** AQUEOUS / GROUND WATER **SAMPLED:** 07/21/2020 **Time:** 1410

CLIENT SAMPLE #: **DETAILED SITE/POINT ID INFORMATION:**

TEST#	TEST	TEST METHOD	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
			Total Lead						
			Total Magnesium						
			Total Manganese						
			Total Nickel						
			Total Selenium						
			Total Silver						
			Total Thallium						
			Total Vanadium						
			Total Zinc						
1208	MERCURY TOTAL QSM 5.0(EPA 7470A)					08/18/2020	08/03/2020		NeedPrep

Folder #: 154987 **Company:** *WESTON SOLUTIONS, INC.* **Project:** RADFORD AAP SWMU-54

Invoice Number: 155634 **Preliminary Invoice Estimate:** $ 1,402.00

Item	Matrix	Quantity	Price	Expedited TAT Surcharge	Total
ANIONS IC QSM 5.0 Chloride	GROUND WATER	7	$ 12.00	0.00	$ 84.00
ANIONS IC QSM 5.0 Nitrate Nitrogen	GROUND WATER	7	$ 12.00	0.00	$ 84.00
ANIONS IC QSM 5.0 Sulfate	GROUND WATER	7	$ 12.00	0.00	$ 84.00
CARBON, INORG & ORG	GROUND WATER	7	$ 28.00	0.00	$ 196.00
COD QSM	GROUND WATER	1	$ 18.00	0.00	$ 18.00
ICP K TOTAL QSM 5.0	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP NA TOTAL QSM 5.0	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Aluminum	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Antimony	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Arsenic	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Barium	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Beryllium	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Cadmium	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Calcium	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Chromium	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Cobalt	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Copper	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Iron	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Lead	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Magnesium	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Manganese	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Nickel	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Selenium	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Silver	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Thallium	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Vanadium	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Zinc	GROUND WATER	1	$ 3.50	0.00	$ 3.50
MERCURY TOTAL QSM 5.0	GROUND WATER	1	$ 23.00	0.00	$ 23.00
ORGAN CARBON T QSM 5.0	GROUND WATER	7	$ 28.00	0.00	$ 196.00

PH	GROUND WATER	1	$ 10.00	0.00	$ 10.00
SUB CHLORATE/CHLORITE	GROUND WATER	7	$ 90.00	0.00	$ 630.00
Temporary Fuel Surcharge on lab supplies and services (if applicable):					$ 0.00

Bottle Information

Container	# Containers	Tests
H2SO4 PL	**8**	COD
HNO3	**1**	HG,ICP,K,NA
MISC	**7**	SUB
UNPRES PL	**8**	pH
VOA	**21**	

CT LABORATORIES
delivering more than data from your environmental analyses

Sample Condition Report

Folder #: 154987
Client: WESTON SOLUTIONS, INC.

Print Date / Time: 07/22/2020 11:18
Received Date / Time / By: 07/22/2020 10:20 DJL

Project Name: RADFORD AAP SWMU-54
Project Phase: RADFORD, VA

Log-In Date / Time / By: 07/22/2020 11:17 EKB
Project #: PM: BMS

Coolers: 5975
Custody Seals Present : **Y**

Temperature: 2.4 C On Ice: **Y**
COC Present:? **Y** Complete? **Y**

Seal Intact? **Y**
Ship Method: FEDEX EXPRESS
Adequate Packaging: **Y**

Numbers: DATED & SIGNED
Tracking Number: 395019997324
Temp Blank Enclosed? **Y**

Notes: THE SAMPLES WERE RECEIVED IN GOOD CONDITION ON ICE.

TWO CUSTODY SEALS WERE PRESENT AND INTACT UPON RECEIPT - BOTH WERE DATED 7/21/20 AND SIGNED.

Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
448828 54MW13				
	VOA	1	/	
	VOA	1	/	
	VOA	1	/	
	Total # of Containers of Type	(***VOA***) = **3**		
448828 54MW13				
	UNPRES PL	1	/	Anions
	Total # of Containers of Type	(***UNPRES PL***) = **1**		
448828 54MW13				
	MISC	1	/	SUB
	Total # of Containers of Type	(***MISC***) = **1**		
448828 54MW13				
	H2SO4 PL	1	Y /	TOC
	Total # of Containers of Type	(***H2SO4 PL***) = **1**		

Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
448839 54TW13				
	VOA	1	/	
	VOA	1	/	
	VOA	1	/	
	Total # of Containers of Type	(***VOA***) = **3**		
448839 54TW13				
	UNPRES PL	1	/	Anions
	Total # of Containers of Type	(***UNPRES PL***) = **1**		
448839 54TW13				
	MISC	1	/	SUB
	Total # of Containers of Type	(***MISC***) = **1**		
448839 54TW13				
	H2SO4 PL	1	Y /	TOC
	Total # of Containers of Type	(***H2SO4 PL***) = **1**		

Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
448840 54MW12				
	VOA	1	/	
	VOA	1	/	
	VOA	1	/	
	VOA	1	/	
	VOA	1	/	
	VOA	1	/	
	VOA	1	/	
	VOA	1	/	
	VOA	1	/	
	Total # of Containers of Type	(***VOA***) = **9**		
448840 54MW12				
	UNPRES PL	1	/	Anions
	UNPRES PL	1	/	Anions
	UNPRES PL	1	/	Anions
	Total # of Containers of Type	(***UNPRES PL***) = **3**		
448840 54MW12				
	MISC	1	/	SUB
	MISC	1	/	SUB
	MISC	1	/	SUB
	Total # of Containers of Type	(***MISC***) = **3**		
448840 54MW12				
	H2SO4 PL	1	/	TOC
	H2SO4 PL	1	Y /	TOC
	H2SO4 PL	1	Y /	TOC
	Total # of Containers of Type	(***H2SO4 PL***) = **3**		

Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
448841 54MW10				
	VOA	1	/	
	VOA	1	/	
	VOA	1	/	
	Total # of Containers of Type	(***VOA***) = **3**		
448841 54MW10				
	UNPRES PL	1	/	Anions
	Total # of Containers of Type	(***UNPRES PL***) = **1**		
448841 54MW10				
	MISC	1	/	SUB
	Total # of Containers of Type	(***MISC***) = **1**		
448841 54MW10				
	H2SO4 PL	1	Y /	TOC
	Total # of Containers of Type	(***H2SO4 PL***) = **1**		

Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
448842 54MW1				
	VOA	1	/	
	VOA	1	/	
	VOA	1	/	
	Total # of Containers of Type	(***VOA***) = **3**		
448842 54MW1				
	UNPRES PL	1	/	Anions
	Total # of Containers of Type	(***UNPRES PL***) = **1**		

154987

448842	54MW1					
		MISC	1		/	SUB
		Total # of Containers of Type	(***MISC***) = **1**			
448842	54MW1					
		H2SO4 PL	1	Y	/	TOC
		Total # of Containers of Type	(***H2SO4 PL***) = **1**			

Sample ID / Description	**Container Type**	**Cond. Code**	**pH OK?/Filtered?**		**Tests**
448843	IDW-54				
	H2SO4 PL	1	Y	/	COD
	Total # of Containers of Type	(***H2SO4 PL***) = **1**			
448843	IDW-54				
	HNO3	1	Y	/	HG,ICP,K,NA
	Total # of Containers of Type	(***HNO3***) = **1**			
448843	IDW-54				
	UNPRES PL	1		/	pH
	Total # of Containers of Type	(***UNPRES PL***) = **1**			

Condition Code *Condition Description*

1 Sample Received OK

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ANALYTICAL RESULTS FOR:

ANTHONY PACE
WESTON SOLUTIONS, INC.
2 EATON STREET
SUITE 603
HAMPTON, VA 23669

PROJECT SITE:	RFAAP SWMU-54; RADFORD, VA
DOD CONTRACT #:	
PROJECT #:	
SDG:	149018
PREPARED:	December 5, 2019
TOTAL # OF PAGES:	826

The data contained in the following report have been reviewed by the appropriate CT Laboratories' LLC staff members. In addition, CT Laboratories LLC certifies that to the best of our knowledge that the analyses reported herein are true, complete and correct within the limits of the methods employed and that they follow the applicable requirements as specified by the project plan, state-specific, NELAC or DOD QSM requirements. The estimated uncertainty of measurement is only available upon request. The reported results relate only to the tested samples. This report shall not be reproduced, except in full, without written approval of CT Laboratories LLC.

APPROVED BY: Brett Szymanski
PROJECT MANAGER

Certifications: IL (NELAP 200073), KS (NELAP E-10368), WI (157066030), DOD ELAP (A2LA 3806.01), VA (NELAP 4602038), MD (WI 00061), LA (NELAP ACC20160002), ISO17025 (A2LA 3806.01), GA EDP Stipulation (Accreditor: LA NELAP, ACC#: ACC20160002, Scope: Non-potable water solid and chemical materials, biological tissue, Effective: 12/10/2014, Expires: annually)

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Case Narrative

Client: Bering Sea Environmental
Project: RFAAP SWMU-49, Radford, VA
Sample Receipt Date: 10/18/2019
SDG #: 148990

Fifteen water samples were received and analyzed for a variety of parameters, including: VOCs, Dissolved Gases, Metals, pH, COD, Anions, and TOC. One Trip Blank was included with the VOCs. The assigned sample ID number, date sampled, and date received are indicated in the attached Project Summary. The samples were received intact and at a temperature within method specified acceptance limits. A breakdown of sample receipt information can be found on the Sample Condition Report located in the last section of the data package and any exceptions are noted below. The analyses were performed following DOD QSM 5.1 requirements.

Manual integrations may have been performed on the data provided with this package. If manual integrations were performed, a Reason #(s) was included on the raw data that corresponds to the "Index Key for Manual Integration Rationale." The raw data includes a "Before" and "After" manual integration illustration. The manual integrations were initialed and dated by the analyst, as well as, by the person reviewing the data.

Sample Analysis and Quality Control

Volatile Analysis:

The samples were analyzed using US EPA Methods 8260C (VOC) and RSK-175 (Dissolved Gases). All samples were analyzed within the holding time. The following summaries of quality control procedures are included:

Surrogate Recovery Data
Matrix Spike/Matrix Spike Duplicate Recovery Data
Laboratory Control Spike Data
Method Blank Data
Initial Calibration Summary
Calibration Check Summary
Analysis Run Log
Prep Log
Chromatograms

All analysis results met the method specified quality control criteria with the following exceptions:

Detailed reports were provided for the 8260 data for all detected compounds, as well as, for those compounds manually integrated (if applicable). Compounds not reported on the form 1's were either not detected or did not meet identification criteria so they were reported as non-detects.

Some samples may have been analyzed and/or reanalyzed diluted to obtain results for all target analytes within the calibration range of the instrument.

VOC (8260C) Water Analysis

Analytical Run # 165696

CCV3 had high recoveries outside of specified criteria for dichlorodifluoromethane and 1,1,2-trichloro-1,2,2-trifluoroethane. These compounds were qualified with a "Z" flag on all associated samples.

CCVF3 had a low recovery outside of specified criteria for 1,4-dioxane. This compound was qualified with a "Z" flag on all associated samples.

Sample # 343864 had a pH > 2. This sample was qualified with a "T" flag for being insufficiently preserved.

The Matrix Spike (MS) and the Matrix Spike Duplicate (MSD) for sample # 343848 had a low recovery 1,4-dioxane. The MSD also had high recoveries for vinyl chloride and 1,1,2-trichloro-1,2,2-trifluoroethane. The parent sample results for these compounds were qualified with an "M" flag. The MS/MSD for this sample also had a Relative Percent Difference (RPD) failure for 1,4-dioxane. The parent sample result for this compound was qualified with a "Y" flag.

Dissolved Gases (RSK-175) Analysis

Analytical Run # 165890

All analytical results for this run met the method/project specified quality control criteria.

Metals Analysis:

The samples were analyzed using US EPA Methods 6010C (ICP) and 7470A (Hg). All samples were analyzed within the holding time. The following summaries of quality control procedures are included:

Initial and Continuing Calibration Verification
Blanks Summary
ICP Interference Check Data
Spike Sample Recovery
Duplicates Data
Laboratory Control Sample Data
Analysis Run Log

All analysis results met the method specified quality control criteria with the following exceptions:

ICP Metals (6010C) Water Analysis

Continuing Calibration Verification (CCV) standards were analyzed at two levels (CCV1 & CCV2) with potentially differing wavelengths. Data associated with CCV's were evaluated based on the concentration of the element in the samples and compared to the appropriate CCV level/wavelength.

Some samples may have been analyzed and/or reanalyzed diluted to obtain results for all target analytes within the calibration range of the instrument.

Analytical Run # 165750

The sample QC was performed on a sample from SDG # 149018.

Selenium was detected in the Method Blank (MB) greater than the Method Detection Limit (MDL) but less than ½ the Reporting Limit (RL). The samples were reported and not qualified because the results were less than the MDL.

ICP Sodium & Potassium (6010C) Water Analysis

Analytical Run # 165751

The sample QC was performed on a sample from SDG # 149018.

CVAA Mercury (7470A) Water Analysis

Analytical Run # 165806

Mercury exceeded the recovery limit in the CCV standard. The CCV standard was reanalyzed twice and was acceptable.

The sample QC was performed on a sample from SDG # 149018.

Inorganic Analysis:

The samples were analyzed using US EPA Methods 9060A (TOC), 9040C (pH), 410.4 (COD) and 9056A (Anions). All samples were analyzed within the holding time unless noted below. The following summaries of quality control procedures are included:

Duplicate Analysis Data
Laboratory Control Spike Data
Method Blank Data
Initial Calibration Summary
Calibration Check Summary
Analysis Run Log
Prep Log

Some samples may have been analyzed and/or reanalyzed diluted to obtain results for all target analytes within the calibration range of the instrument.

Anions (9056A) Water Analysis

Analytical Run # 165651

Sample #'s 343846, 343848, 343850, 343852, 343854, 343856, 343858, 343860, 343862, 343864, and 343866 were received past hold for nitrate analysis. This analyte was qualified with an "H" flag on these samples.

The MS and the MSD for sample #'s 343840 and 343848 had low sulfate recoveries. The parent sample result for this analyte was qualified with an "M" flag.

The Duplicate (DUP) for sample # 343848 exceeded RPD limits for chloride. The parent sample result for this analyte was qualified with a "Y" flag.

COD (410.4) Water Analysis

Analytical Run # 165740

All analytical results for this run met the method/project specified quality control criteria.

pH (9040C) Water Analysis

Analytical Run # 165767

All analytical results for this run met the method/project specified quality control criteria.

TOC (9060A) Water Analysis

Analytical Run # 165875

All analytical results for this run met the method/project specified quality control criteria.

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Data Qualifiers

Code	Description
A	Analyte averaged calibration criteria within acceptable limits.
B	Analyte detected in associated Method Blank.
C	Toxicity present in BOD sample.
D	Diluted Out.
E	Safe, No Total Coliform detected.
F	Unsafe, Total Coliform detected, no E. Coli detected.
G	Unsafe, Total Coliform detected and E. Coli detected.
H	Holding time exceeded.
J	Estimated value.
L	Significant peaks were detected outside the chromatographic window.
M	Matrix spike and/or Matrix Spike Duplicate recovery outside acceptance limits.
N	Insufficient BOD oxygen depletion.
O	Complete BOD oxygen depletion.
P	Concentration of analyte differs more than 40% between primary and confirmation analysis.
Q	Laboratory Control Sample outside acceptance limits.
R	See Narrative at end of report.
S	Surrogate standard recovery outside acceptance limits due to apparent matrix effects.
T	Sample received with improper preservation or temperature.
U	Analyte concentration was not above the detection level.
V	Raised Quantitation or Reporting Limit due to limited sample amount or dilution for matrix background interference.
W	Sample amount received was below program minimum.
X	Analyte exceeded calibration range.
Y	Replicate/Duplicate precision outside acceptance limits.
Z	Calibration criteria exceeded.

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MANUAL INTEGRATION REASON CODES

CTLaboratories has identified four general cases with valid reasons supporting the use of manual integration techniques. These codes are used on chromatograms in this data package to document the reasons for manual integrations per CTLaboratories' SOP SS-10 current revision.

#1: **Data system failed to select the correct peak or missed the peak entirely.**
In some cases the chromatography system selects and integrates the "wrong peak". In this case the analyst must correct the selection and force the system to integrate the proper peak. In other instances the system may miss the peak completely. In this case the analyst manually integrated the peak

#2: **Data System Splits the Peak Incorrectly or Integrates a False Peak as a Rider Peak.**
This phenomenon is common at low concentrations where the signal to noise ratio is low. A single compound (peak) is incorrectly split into multiple peaks or integrated as a main peak with one or more rider peaks resulting in low or high area counts for the target compound.

#3: Improperly Integrated Isomers and/or coeluting compounds.
For when the system fails to distinguish coeluting compounds and or isomers. The integration areas and concentrations may be inaccurate, and they must be corrected by manual integration. Prime examples are compounds that are unresolved and integrated improperly when present at low concentrations in standards or samples.

#4: System Established Incorrect Baseline.
There are numerous situations in chromatography where the system establishes the baseline incorrectly. Some baseline errors will be obvious to the analyst and may be corrected via manual procedures.

#5: Miscellaneous.
Some situations involving integration errors may require in-depth review and technical judgment. These cases should be brought to the attention of the group supervisor. If the form of manual integration is not clearly covered by these four cases, then review and approval by the group supervisor or the *QA/QC* Supervisor will be required.

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www.ctlaboratories.com

Sample Delivery Group

149018

WESTON SOLUTIONS, INC.
ANTHONY PACE
2 EATON STREET
SUITE 603
HAMPTON, VA 23669

Project Name: RADFORD AAP SWMU-54
Project #:

	CT Sample #	Folder #	Client Sample #	Sample Description	Matrix	Date Sampled	Date Received
1	343788	149018		54MW13	GROUND WATER	10/14/2019	10/18/2019
2	343836	149018		54TW13	GROUND WATER	10/14/2019	10/18/2019
3	343838	149018		54MW10	GROUND WATER	10/14/2019	10/18/2019
4	343840	149018		54MW12	GROUND WATER	10/14/2019	10/18/2019
5	343842	149018		54MW1	GROUND WATER	10/14/2019	10/18/2019
6	343844	149018		54IDW	GROUND WATER	10/14/2019	10/18/2019

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QC Batch Cross Reference Summary

WESTON SOLUTIONS, INC.
ANTHONY PACE
2 EATON STREET
SUITE 603
HAMPTON, VA 23669

Project Name: RADFORD AAP SWMU-54
Project #:
Report Date: 12/05/2019
Date Received: 10/21/2019
SDG #: 149018

Inorganic Parameters

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
343844	pH	EPA 9040C	GROUND WATER		165767

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
343788	Carbon , Total Inorganic and Orga	EPA 9060A	GROUND WATER		165683
343836	Carbon , Total Inorganic and Orga	EPA 9060A	GROUND WATER		165683
343838	Carbon , Total Inorganic and Orga	EPA 9060A	GROUND WATER		165683
343840	Carbon , Total Inorganic and Orga	EPA 9060A	GROUND WATER		165683
343842	Carbon , Total Inorganic and Orga	EPA 9060A	GROUND WATER		165683

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
343844	COD QSM	EPA 410.4	GROUND WATER	74074	165740

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
343788	Anions QSM 5.0	EPA 9056A	GROUND WATER		165651
343836	Anions QSM 5.0	EPA 9056A	GROUND WATER		165651
343838	Anions QSM 5.0	EPA 9056A	GROUND WATER		165651
343840	Anions QSM 5.0	EPA 9056A	GROUND WATER		165651
343842	Anions QSM 5.0	EPA 9056A	GROUND WATER		165651
343838	Anions QSM 5.0	EPA 9056A	GROUND WATER		165651

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
343788	Organic Carbon, Total QSM 5.0	EPA 9060A	GROUND WATER		165946
343836	Organic Carbon, Total QSM 5.0	EPA 9060A	GROUND WATER		165946
343838	Organic Carbon, Total QSM 5.0	EPA 9060A	GROUND WATER		165946
343840	Organic Carbon, Total QSM 5.0	EPA 9060A	GROUND WATER		165946
343842	Organic Carbon, Total QSM 5.0	EPA 9060A	GROUND WATER		165946

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Project Name: RADFORD AAP SWMU-54
Project #:
SDG #: 149018

Metal Parameters

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
343844	Potassium, Total QSM 5.0	EPA 6010C	GROUND WATER	74046	165751

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
343844	Sodium, Total QSM 5.0	EPA 6010C	GROUND WATER	74046	165751

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
343844	ICP Metals, Total QSM 5.0	EPA 6010C	GROUND WATER	74046	165750

CTI LAB#:	Parameter	Method	Matrix	Prep Batch #	Analytical Run #
343844	Mercury, Total QSM	EPA 7470A	GROUND WATER	74031	165806

METALS
CLP FORMS
DOCUMENTS

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54IDW

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	149018
% Solids:		Lab Sample ID:	343844
Analytical Method:	EPA 7470A	Date Received:	10/18/2019
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	165806	Analysis Date/Time	10/24/2019 10:35
Analytical Prep Batch #:	74031	Prep. Date/Time:	10/22/2019 15:03
ICAL Calibration #:	10242019	Concentration Units:	ug/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
7439-97-6	Total Mercury	0.060	U	0.030	0.060	0.12	0.12

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54IDW

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	149018
% Solids:		Lab Sample ID:	343844
Analytical Method:	EPA 6010C	Date Received:	10/18/2019
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	165751	Analysis Date/Time	10/22/2019 14:37
Analytical Prep Batch #:	74046	Prep. Date/Time:	10/21/2019 10:53
ICAL Calibration #:		Concentration Units:	ug/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
7440-09-7	Total Potassium	1190		90	250	500	500
7440-23-5	Total Sodium	6950		100	300	600	600

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54IDW

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	149018
% Solids:		Lab Sample ID:	343844
Analytical Method:	EPA 6010C	Date Received:	10/18/2019
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	165750	Analysis Date/Time	10/23/2019 17:50
Analytical Prep Batch #:	74046	Prep. Date/Time:	10/21/2019 10:53
ICAL Calibration #:		Concentration Units:	ug/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
7429-90-5	Total Aluminum	153		6.0	18	36	36
7440-36-0	Total Antimony	6.0	U	2.0	6.0	12	12
7440-38-2	Total Arsenic	12	U	4.0	12	24	24
7440-39-3	Total Barium	94.0		0.29	0.90	1.8	1.8
7440-41-7	Total Beryllium	0.30	U	0.10	0.30	0.60	0.60
7440-43-9	Total Cadmium	1.0	U	0.30	1.0	2.0	2.0
7440-70-2	Total Calcium	93600		17	50	100	100
7440-47-3	Total Chromium	0.76	J	0.60	2.0	4.0	4.0
7440-48-4	Total Cobalt	2.0	U	0.70	2.0	4.0	4.0
7440-50-8	Total Copper	2.4	J	1.2	3.5	7.0	7.0
7439-89-6	Total Iron	333		16	50	100	100
7439-92-1	Total Lead	2.0	U	1.4	2.0	4.0	4.0
7439-95-4	Total Magnesium	34600		6.0	20	40	40
7439-96-5	Total Manganese	22.0		0.70	2.0	4.0	4.0
7440-02-0	Total Nickel	3.0	U	1.0	3.0	6.0	6.0
7782-49-2	Total Selenium	6.5	U	2.2	6.5	13	13
7440-22-4	Total Silver	2.0	U	0.70	2.0	4.0	4.0
7440-28-0	Total Thallium	7.5	U	2.5	7.5	15	15
7440-62-2	Total Vanadium	2.5	U	0.80	2.5	5.0	5.0
7440-66-6	Total Zinc	15.8		1.6	5.0	10	10

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Sample No.

ICV

2A-1

INITIAL CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165806

Lab Sample ID: 347231

ICAL Calibration #: 10242019

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Mercury	10/24/19 08:02	3.00	3.02	101	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

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Sample No.

ICV

2A-1

INITIAL CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165751

Lab Sample ID: 346556

ICAL Calibration #:

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Potassium	10/22/19	10:22	100000	99100	99	90	110
Sodium	10/22/19	10:22	100000	99400	99	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

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Sample No.

LLQC

2A-1

LOWER LIMIT OF QUANTITATION CHECK (LLQC)

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165751

Lab Sample ID: 346557

ICAL Calibration #:

Concentration Units:

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Potassium	10/22/19	10:25	3000	2940	98	80	120
Sodium	10/22/19	10:25	3000	3180	106	80	120

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

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Sample No.

ICV

2A-1

INITIAL CALIBRATION VERIFICATION

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165750 Lab Sample ID: 349443

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Aluminum	10/23/19	16:27	12000	11800	98	90	110
Antimony	10/23/19	16:27	500.0	519.0	104	90	110
Arsenic	10/23/19	16:27	2000	2070	104	90	110
Barium	10/23/19	16:27	2000	2090	104	90	110
Beryllium	10/23/19	16:27	50.00	50.00	100	90	110
Cadmium	10/23/19	16:27	50.00	50.50	101	90	110
Calcium	10/23/19	16:27	10000	9950	100	90	110
Chromium	10/23/19	16:27	200.0	200.0	100	90	110
Cobalt	10/23/19	16:27	500.0	522.0	104	90	110
Copper	10/23/19	16:27	250.0	239.0	96	90	110
Iron	10/23/19	16:27	5000	5210	104	90	110
Lead	10/23/19	16:27	500.0	509.0	102	90	110
Magnesium	10/23/19	16:27	10000	9800	98	90	110
Manganese	10/23/19	16:27	500.0	497.0	99	90	110
Nickel	10/23/19	16:27	500.0	520.0	104	90	110
Selenium	10/23/19	16:27	2000	2050	102	90	110
Silver	10/23/19	16:27	50.00	52.20	104	90	110
Thallium	10/23/19	16:27	2000	2110	106	90	110
Vanadium	10/23/19	16:27	500.0	504.0	101	90	110
Zinc	10/23/19	16:27	500.0	519.0	104	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

LLQC

2A-1

LOWER LIMIT OF QUANTITATION CHECK (LLQC)

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165750 Lab Sample ID: 349444

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Aluminum	10/23/19	16:39	1200	1240	103	80	120
Antimony	10/23/19	16:39	60.00	69.30	116	80	120
Arsenic	10/23/19	16:39	60.00	62.30	104	80	120
Barium	10/23/19	16:39	30.00	31.80	106	80	120
Beryllium	10/23/19	16:39	12.00	13.00	108	80	120
Cadmium	10/23/19	16:39	15.00	16.20	108	80	120
Calcium	10/23/19	16:39	1500	1590	106	80	120
Chromium	10/23/19	16:39	30.00	29.40	98	80	120
Cobalt	10/23/19	16:39	30.00	33.80	113	80	120
Copper	10/23/19	16:39	30.00	31.40	105	80	120
Iron	10/23/19	16:39	900.0	981.0	109	80	120
Lead	10/23/19	16:39	30.00	31.70	106	80	120
Magnesium	10/23/19	16:39	1500	1570	105	80	120
Manganese	10/23/19	16:39	30.00	30.90	103	80	120
Nickel	10/23/19	16:39	30.00	32.70	109	80	120
Selenium	10/23/19	16:39	60.00	65.10	108	80	120
Thallium	10/23/19	16:39	60.00	65.80	110	80	120
Vanadium	10/23/19	16:39	30.00	31.50	105	80	120
Zinc	10/23/19	16:39	30.00	34.00	113	80	120

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

LLQC

2A-1

LOWER LIMIT OF QUANTITATION CHECK (LLQC)

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165750

Lab Sample ID: 349448

ICAL Calibration #:

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Silver	10/23/19 17:24	10.00	11.50	115	80	120

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165751

Lab Sample ID: 346562

ICAL Calibration #:

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Potassium	10/22/19	13:55	100000	101000	101	90	110
Sodium	10/22/19	13:55	100000	99000	99	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165751

Lab Sample ID: 346564

ICAL Calibration #:

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Potassium	10/22/19	14:29	100000	101000	101	90	110
Sodium	10/22/19	14:29	100000	98700	99	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165751

Lab Sample ID: 346568

ICAL Calibration #:

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Potassium	10/22/19	15:02	100000	102000	102	90	110
Sodium	10/22/19	15:02	100000	98700	99	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165806

Lab Sample ID: 347233

ICAL Calibration #: 10242019

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Mercury	10/24/19 08:29	3.00	2.74	91	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165806

Lab Sample ID: 347235

ICAL Calibration #: 10242019

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Mercury	10/24/19	08:55	3.00	2.82	94	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165806 Lab Sample ID: 347237

ICAL Calibration #: 10242019 Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Mercury	10/24/19 10:13	3.00	3.06	102	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165806 Lab Sample ID: 347240

ICAL Calibration #: 10242019 Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Mercury	10/24/19	10:45	3.00	3.24	108	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165806

Lab Sample ID: 347242

ICAL Calibration #: 10242019

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Mercury	10/24/19 11:11	3.00	2.95	98	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165806

Lab Sample ID: 348220

ICAL Calibration #:

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Mercury	10/24/19	10:41	3.00	2.93	98	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV High Level

2A-2

CONTINUING CALIBRATION VERIFICATION (LEVEL 1 - HIGH RANGE)

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165750

Lab Sample ID: 349451

ICAL Calibration #:

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Aluminum	10/23/19	18:29	5000	5070	101	90	110
Antimony	10/23/19	18:29	5000	4980	100	90	110
Arsenic	10/23/19	18:29	5000	4990	100	90	110
Barium	10/23/19	18:29	5000	5140	103	90	110
Beryllium	10/23/19	18:29	500.0	508.0	102	90	110
Cadmium	10/23/19	18:29	500.0	519.0	104	90	110
Calcium	10/23/19	18:29	5000	4980	100	90	110
Chromium	10/23/19	18:29	5000	5040	101	90	110
Cobalt	10/23/19	18:29	5000	5040	101	90	110
Copper	10/23/19	18:29	5000	4570	91	90	110
Iron	10/23/19	18:29	5000	5040	101	90	110
Lead	10/23/19	18:29	5000	4720	94	90	110
Magnesium	10/23/19	18:29	5000	4940	99	90	110
Manganese	10/23/19	18:29	5000	4720	94	90	110
Nickel	10/23/19	18:29	5000	4990	100	90	110
Selenium	10/23/19	18:29	5000	5000	100	90	110
Silver	10/23/19	18:29	500.0	509.0	102	90	110
Thallium	10/23/19	18:29	5000	5070	101	90	110
Vanadium	10/23/19	18:29	5000	5120	102	90	110
Zinc	10/23/19	18:29	5000	5090	102	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
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Sample No.

CCV Low Level

2A-2

CONTINUING CALIBRATION VERIFICATION (LEVEL 2 - LOW RANGE)

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165750 Lab Sample ID: 349452

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Aluminum	10/23/19	18:35	500.0	505.0	101	90	110
Antimony	10/23/19	18:35	500.0	495.0	99	90	110
Arsenic	10/23/19	18:35	500.0	494.0	99	90	110
Barium	10/23/19	18:35	500.0	495.0	99	90	110
Beryllium	10/23/19	18:35	50.00	50.30	101	90	110
Cadmium	10/23/19	18:35	50.00	50.30	101	90	110
Calcium	10/23/19	18:35	500.0	492.0	98	90	110
Chromium	10/23/19	18:35	500.0	501.0	100	90	110
Cobalt	10/23/19	18:35	500.0	516.0	103	90	110
Copper	10/23/19	18:35	500.0	460.0	92	90	110
Iron	10/23/19	18:35	500.0	512.0	102	90	110
Lead	10/23/19	18:35	500.0	496.0	99	90	110
Magnesium	10/23/19	18:35	500.0	482.0	96	90	110
Manganese	10/23/19	18:35	500.0	486.0	97	90	110
Nickel	10/23/19	18:35	500.0	501.0	100	90	110
Selenium	10/23/19	18:35	500.0	487.0	97	90	110
Silver	10/23/19	18:35	50.00	53.00	106	90	110
Thallium	10/23/19	18:35	500.0	527.0	105	90	110
Vanadium	10/23/19	18:35	500.0	493.0	99	90	110
Zinc	10/23/19	18:35	500.0	489.0	98	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
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Sample No.

CCV High Level

2A-2

CONTINUING CALIBRATION VERIFICATION (LEVEL 1 - HIGH RANGE)

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165750 Lab Sample ID: 349454

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Aluminum	10/23/19	19:52	5000	5160	103	90	110
Antimony	10/23/19	19:52	5000	5090	102	90	110
Arsenic	10/23/19	19:52	5000	5120	102	90	110
Barium	10/23/19	19:52	5000	5200	104	90	110
Beryllium	10/23/19	19:52	500.0	506.0	101	90	110
Cadmium	10/23/19	19:52	500.0	522.0	104	90	110
Calcium	10/23/19	19:52	5000	5210	104	90	110
Chromium	10/23/19	19:52	5000	5070	101	90	110
Cobalt	10/23/19	19:52	5000	5060	101	90	110
Copper	10/23/19	19:52	5000	4680	94	90	110
Iron	10/23/19	19:52	5000	5210	104	90	110
Lead	10/23/19	19:52	5000	4720	94	90	110
Magnesium	10/23/19	19:52	5000	4950	99	90	110
Manganese	10/23/19	19:52	5000	4940	99	90	110
Nickel	10/23/19	19:52	5000	5070	101	90	110
Selenium	10/23/19	19:52	5000	5020	100	90	110
Silver	10/23/19	19:52	500.0	512.0	102	90	110
Thallium	10/23/19	19:52	5000	5020	100	90	110
Vanadium	10/23/19	19:52	5000	5180	104	90	110
Zinc	10/23/19	19:52	5000	5250	105	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
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Sample No.

CCV Low Level

2A-2

CONTINUING CALIBRATION VERIFICATION (LEVEL 2 - LOW RANGE)

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165750

Lab Sample ID: 349455

ICAL Calibration #:

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Aluminum	10/23/19	19:57	500.0	508.0	102	90	110
Antimony	10/23/19	19:57	500.0	509.0	102	90	110
Arsenic	10/23/19	19:57	500.0	519.0	104	90	110
Barium	10/23/19	19:57	500.0	502.0	100	90	110
Beryllium	10/23/19	19:57	50.00	50.30	101	90	110
Cadmium	10/23/19	19:57	50.00	51.00	102	90	110
Calcium	10/23/19	19:57	500.0	506.0	101	90	110
Chromium	10/23/19	19:57	500.0	509.0	102	90	110
Cobalt	10/23/19	19:57	500.0	512.0	102	90	110
Copper	10/23/19	19:57	500.0	483.0	97	90	110
Iron	10/23/19	19:57	500.0	538.0	108	90	110
Lead	10/23/19	19:57	500.0	504.0	101	90	110
Magnesium	10/23/19	19:57	500.0	503.0	101	90	110
Manganese	10/23/19	19:57	500.0	510.0	102	90	110
Nickel	10/23/19	19:57	500.0	531.0	106	90	110
Selenium	10/23/19	19:57	500.0	495.0	99	90	110
Silver	10/23/19	19:57	50.00	53.50	107	90	110
Thallium	10/23/19	19:57	500.0	525.0	105	90	110
Vanadium	10/23/19	19:57	500.0	501.0	100	90	110
Zinc	10/23/19	19:57	500.0	512.0	102	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

MRL

2B

MRL STANDARD CHECK

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165751 Lab Sample ID: 346559

ICAL Calibration #: Concentration Units:

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Potassium	10/22/19	10:31	1000	946.0	95	70	130
Sodium	10/22/19	10:31	1000	1000	100	70	130

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: 70-130

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

ICB

3-1

INITIAL CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165806 Lab Sample ID: 347232

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: 10242019 Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Mercury	10/24/2019 08:06	0	U	0.03	0.06

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

ICB

3-1

INITIAL CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165751

Lab Sample ID: 346558

Analytical Prep Batch # 0

Preparation Date/Time:

ICAL Calibration #:

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Potassium	10/22/2019 10:28	25.00	U	90	250
Sodium	10/22/2019 10:28	13.00	U	100	300

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

ICB

3-1

INITIAL CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165750 Lab Sample ID: 349445

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Aluminum	10/23/2019 16:52	-2.38	U	6	18
Antimony	10/23/2019 16:52	3.53		2.0	6.0
Arsenic	10/23/2019 16:52	0.319	U	4	12
Barium	10/23/2019 16:52	0.117	U	0.29	0.90
Beryllium	10/23/2019 16:52	0.0100	U	0.10	0.30
Cadmium	10/23/2019 16:52	-0.189	U	0.3	1.0
Calcium	10/23/2019 16:52	6.81	U	17	50
Chromium	10/23/2019 16:52	-2.22	U	0.6	2.0
Cobalt	10/23/2019 16:52	-0.0160	U	0.7	2.0
Copper	10/23/2019 16:52	1.02	U	1.2	3.5
Iron	10/23/2019 16:52	1.73	U	16	50
Lead	10/23/2019 16:52	0.828	U	1.4	2.0
Magnesium	10/23/2019 16:52	-3.43	U	6	20
Manganese	10/23/2019 16:52	-0.888	U	0.7	2.0
Nickel	10/23/2019 16:52	-0.197	U	1.0	3.0
Selenium	10/23/2019 16:52	-1.00	U	2.2	6.5
Silver	10/23/2019 16:52	0.454	U	0.7	2.0
Thallium	10/23/2019 16:52	-0.726	U	2.5	7.5
Vanadium	10/23/2019 16:52	-0.595	U	0.8	2.5
Zinc	10/23/2019 16:52	1.27	U	1.6	4.0

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165806 Lab Sample ID: 347234

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: 10242019 Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Mercury	10/24/2019 08:33	0.0110	U	0.03	0.06

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165806

Lab Sample ID: 347236

Analytical Prep Batch # 0

Preparation Date/Time:

ICAL Calibration #: 10242019

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Mercury	10/24/2019 08:59	0	U	0.03	0.06

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165806

Lab Sample ID: 347238

Analytical Prep Batch # 0

Preparation Date/Time:

ICAL Calibration #: 10242019

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Mercury	10/24/2019 10:17	0	U	0.03	0.06

** Detection Limit only reported if value was less than the control limit.

***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165806

Lab Sample ID: 347241

Analytical Prep Batch # 0

Preparation Date/Time:

ICAL Calibration #: 10242019

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Mercury	10/24/2019 10:49	0	U	0.03	0.06

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

3-2

CONTINUING CALIBRATION BLANKS

CCB

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165806 Lab Sample ID: 347243

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: 10242019 Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Mercury	10/24/2019 11:15	0	U	0.03	0.06

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165751 Lab Sample ID: 346563

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Potassium	10/22/2019 13:58	24.00	U	90	250
Sodium	10/22/2019 13:58	146.0		100	300

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165751 Lab Sample ID: 346565

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Potassium	10/22/2019 14:32	-27.0	U	90	250
Sodium	10/22/2019 14:32	122.0		100	300

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165751 Lab Sample ID: 346569

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Potassium	10/22/2019 15:05	73.00	U	90	250
Sodium	10/22/2019 15:05	120.0		100	300

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165750 Lab Sample ID: 349453

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Aluminum	10/23/2019 18:40	-4.19	U	6	18
Antimony	10/23/2019 18:40	3.76		2.0	6.0
Arsenic	10/23/2019 18:40	8.20		4	12
Barium	10/23/2019 18:40	0.0670	U	0.29	0.90
Beryllium	10/23/2019 18:40	0.0430	U	0.10	0.30
Cadmium	10/23/2019 18:40	-0.140	U	0.3	1.0
Calcium	10/23/2019 18:40	2.83	U	17	50
Chromium	10/23/2019 18:40	-1.59	U	0.6	2.0
Cobalt	10/23/2019 18:40	0.234	U	0.7	2.0
Copper	10/23/2019 18:40	0.830	U	1.2	3.5
Iron	10/23/2019 18:40	1.84	U	16	50
Lead	10/23/2019 18:40	0.233	U	1.4	2.0
Magnesium	10/23/2019 18:40	-5.49	U	6	20
Manganese	10/23/2019 18:40	-0.830	U	0.7	2.0
Nickel	10/23/2019 18:40	-0.771	U	1.0	3.0
Selenium	10/23/2019 18:40	1.51	U	2.2	6.5
Silver	10/23/2019 18:40	0.424	U	0.7	2.0
Thallium	10/23/2019 18:40	2.30	U	2.5	7.5
Vanadium	10/23/2019 18:40	0.210	U	0.8	2.5
Zinc	10/23/2019 18:40	0.536	U	1.6	5.0

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
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Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165750

Lab Sample ID: 349456

Analytical Prep Batch # 0

Preparation Date/Time:

ICAL Calibration #:

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Aluminum	10/23/2019 20:03	-4.34	U	6	18
Antimony	10/23/2019 20:03	-0.208	U	2.0	6.0
Arsenic	10/23/2019 20:03	5.19		4	12
Barium	10/23/2019 20:03	0.166	U	0.29	0.90
Beryllium	10/23/2019 20:03	-0.0700	U	0.10	0.30
Cadmium	10/23/2019 20:03	-0.125	U	0.3	1.0
Calcium	10/23/2019 20:03	3.74	U	17	50
Chromium	10/23/2019 20:03	-1.37	U	0.6	2.0
Cobalt	10/23/2019 20:03	0.255	U	0.7	2.0
Copper	10/23/2019 20:03	-0.508	U	1.2	3.5
Iron	10/23/2019 20:03	-0.832	U	16	50
Lead	10/23/2019 20:03	0.838	U	1.4	2.0
Magnesium	10/23/2019 20:03	-14.7	U	6	20
Manganese	10/23/2019 20:03	-0.781	U	0.7	2.0
Nickel	10/23/2019 20:03	-0.234	U	1.0	3.0
Selenium	10/23/2019 20:03	4.97		2.2	6.5
Silver	10/23/2019 20:03	0.611	U	0.7	2.0
Thallium	10/23/2019 20:03	0.142	U	2.5	7.5
Vanadium	10/23/2019 20:03	-0.653	U	0.8	2.5
Zinc	10/23/2019 20:03	0.644	U	1.6	5.0

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
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Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165806 Lab Sample ID: 344335

Analytical Prep Batch # 74031 Preparation Date/Time: 10/22/2019 15:03

ICAL Calibration #: 10242019 Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total Mercury	10/24/2019 08:41	-0.0110	U	0.03	0.06

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165750 Lab Sample ID: 344413

Analytical Prep Batch # 74046 Preparation Date/Time: 10/21/2019 10:53

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit	
Total Aluminum	10/23/2019 17:43	-3.85	U	6	18	
Total Antimony	10/23/2019 17:43	-0.267	U	2.0	6.0	
Total Arsenic	10/23/2019 17:43	-3.10	U	4	12	
Total Barium	10/23/2019 17:43	0.0110	U	0.29	0.90	
Total Beryllium	10/23/2019 17:43	0.0150	U	0.10	0.30	
Total Cadmium	10/23/2019 17:43	0.0490	U	0.3	1.0	
Total Calcium	10/23/2019 17:43	7.21	U	17	50	
Total Chromium	10/23/2019 17:43	-1.86	U	0.6	2.0	
Total Cobalt	10/23/2019 17:43	-0.0260	U	0.7	2.0	
Total Copper	10/23/2019 17:43	0.934	U	1.2	3.5	
Total Iron	10/23/2019 17:43	10.50	U	16	50	
Total Lead	10/23/2019 17:43	-1.29	U	1.4	2.0	
Total Magnesium	10/23/2019 17:43	2.82	U	6	20	
Total Manganese	10/23/2019 17:43	-1.17	U	0.7	2.0	
Total Nickel	10/23/2019 17:43	-0.258	U	1.0	3.0	
Total Selenium	10/23/2019 17:43	3.18		2.2	6.5	FAIL
Total Silver	10/23/2019 17:43	-0.0690	U	0.7	2.0	
Total Thallium	10/23/2019 17:43	-1.21	U	2.5	7.5	
Total Vanadium	10/23/2019 17:43	-0.513	U	0.8	2.5	
Total Zinc	10/23/2019 17:43	0.691	U	1.6	5.0	

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
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Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165751 Lab Sample ID: 344413

Analytical Prep Batch # 74046 Preparation Date/Time: 10/21/2019 10:53

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total Potassium	10/22/2019 14:34	-23.0	U	90	250
Total Sodium	10/22/2019 14:34	39.00	U	100	300

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165751 Lab Sample ID: 344413

Analytical Prep Batch # 74046 Preparation Date/Time: 10/21/2019 10:53

ICAL Calibration #: Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total Potassium	10/22/2019 14:34	-23.0	U	90	250
Total Sodium	10/22/2019 14:34	39.00	U	100	300

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
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Sample No:

4-1

ICP INTERFERENCE CHECK SAMPLE (SOL. A)

ICSA

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

ICP ID Number: TJA 6000

SDG No.: 149018

ICS Source: SPEX

Analytical Run #: 165751

Lab Sample ID: 346560

Inorganics MRL Standard Source: SPEX, Ultra,Inorganic Ventures and Mallinkrodt

ICAL Calibration #:

Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R	Lower Limit (1)	Upper Limit (1)
Aluminum	10/22/2019 10:33	500000	484000	97	80	120
Calcium	10/22/2019 10:33	500000	487000	97	80	120
Iron	10/22/2019 10:33	500000	496000	99	80	120
Magnesium	10/22/2019 10:33	500000	490000	98	80	120
Potassium	10/22/2019 10:33	0	83.00		-170	170
Sodium	10/22/2019 10:33	0	-8.00		-140	140

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No:

4-1

ICP INTERFERENCE CHECK SAMPLE (SOL. A)

ICSA

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
ICP ID Number: TJA 6000
SDG No.: 149018
ICS Source: SPEX

Analytical Run #: 165750
Lab Sample ID: 349446
Inorganics MRL Standard Source: SPEX, Ultra,Inorganic Ventures and Mallinkrodt
ICAL Calibration #:
Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R	Lower Limit (1)	Upper Limit (1)
Aluminum	10/23/2019 17:04	500000	539000	108	80	120
Antimony	10/23/2019 17:04	0	1.13		-10	10
Arsenic	10/23/2019 17:04	0	-0.295		-20	20
Barium	10/23/2019 17:04	0	-0.213		-1.7	1.7
Beryllium	10/23/2019 17:04	0	-0.562		-.7	.7
Cadmium	10/23/2019 17:04	0	-0.0580		-1.3	1.3
Calcium	10/23/2019 17:04	500000	503000	101	80	120
Chromium	10/23/2019 17:04	0	-5.67		-13	13
Cobalt	10/23/2019 17:04	0	0.364		-2	2
Copper	10/23/2019 17:04	0	0.234		-7	7
Iron	10/23/2019 17:04	500000	485000	97	80	120
Lead	10/23/2019 17:04	0	2.63		-4.7	4.7
Magnesium	10/23/2019 17:04	500000	518000	104	80	120
Manganese	10/23/2019 17:04	0	-2.07		-7.3	7.3
Nickel	10/23/2019 17:04	0	-0.234		-7	7
Selenium	10/23/2019 17:04	0	-8.86		-13	13
Silver	10/23/2019 17:04	0	0.0110		-7.3	7.3
Thallium	10/23/2019 17:04	0	1.24		-7.3	7.3
Vanadium	10/23/2019 17:04	10000	11300		8000	12000
Zinc	10/23/2019 17:04	0	-4.46		-20	20

CT LABORATORIES
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Sample No:

4-2

ICP INTERFERENCE CHECK SAMPLE (SOL. AB)

ICSAB

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
ICP ID Number: TJA 6000
SDG No.: 149018
ICS Source: SPEX, Ultra

Analytical Run #: 165751
Lab Sample ID: 346561
Inorganics MRL Standard Source: SPEX, Ultra,Inorganic Ventures and Mallinkrodt
ICAL Calibration #:
Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R	Lower Limit (1)	Upper Limit (1)
Aluminum	10/22/2019 10:36	500000	490000	98	80	120
Calcium	10/22/2019 10:36	500000	488000	98	80	120
Iron	10/22/2019 10:36	500000	501000	100	80	120
Magnesium	10/22/2019 10:36	500000	485000	97	80	120
Potassium	10/22/2019 10:36	100000	106000	106	80	120
Sodium	10/22/2019 10:36	100000	106000	106	80	120

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No:

4-2

ICP INTERFERENCE CHECK SAMPLE (SOL. AB)

ICSAB

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
ICP ID Number: TJA 6000
SDG No.: 149018
ICS Source: SPEX, Ultra

Analytical Run #: 165750
Lab Sample ID: 349447
Inorganics MRL Standard Source: SPEX, Ultra,Inorganic Ventures and Mallinkrodt
ICAL Calibration #:
Concentration Units: ug/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R	Lower Limit (1)	Upper Limit (1)
Aluminum	10/23/2019 17:11	500000	578000	116	80	120
Antimony	10/23/2019 17:11	500.0	552.0	110	80	120
Arsenic	10/23/2019 17:11	500.0	431.0	86	80	120
Barium	10/23/2019 17:11	500.0	531.0	106	80	120
Beryllium	10/23/2019 17:11	500.0	552.0	110	80	120
Cadmium	10/23/2019 17:11	500.0	570.0	114	80	120
Calcium	10/23/2019 17:11	500000	550000	110	80	120
Chromium	10/23/2019 17:11	500.0	523.0	105	80	120
Cobalt	10/23/2019 17:11	500.0	527.0	105	80	120
Copper	10/23/2019 17:11	500.0	520.0	104	80	120
Iron	10/23/2019 17:11	500000	517000	103	80	120
Lead	10/23/2019 17:11	500.0	475.0	95	80	120
Magnesium	10/23/2019 17:11	500000	550000	110	80	120
Manganese	10/23/2019 17:11	500.0	510.0	102	80	120
Nickel	10/23/2019 17:11	500.0	508.0	102	80	120
Selenium	10/23/2019 17:11	500.0	512.0	102	80	120
Silver	10/23/2019 17:11	500.0	586.0	117	80	120
Thallium	10/23/2019 17:11	500.0	548.0	110	80	120
Vanadium	10/23/2019 17:11	500.0	530.0	106	80	120
Zinc	10/23/2019 17:11	500.0	535.0	107	80	120

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5A

SPIKE SAMPLE RECOVERY

Sample Description

54IDW

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix:	LIQUID	SDG No.:	149018
% Solids for Sample:		Concentration Units:	ug/L
Sample No	344338	Parent Sample No.:	343844
Analytical Prep Batch #	74031	Analytical Preparation Date/Time:	10/22/2019 15:03
Analytical Run #:	165806	ICAL Calibration #:	10242019

Analysis Type	*Initial Analysis*	Analysis Date: -----	10/24/2019	Analysis Time: --------	10:53

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Total Mercury	82-119	2.1		BDL	U	2.0	105		CV

BDL = analyte concentration was below detection limit

CT LABORATORIES
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5A

SPIKE SAMPLE RECOVERY

Sample Description: **54IDW**

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix: LIQUID
SDG No.: 149018
% Solids for Sample:
Concentration Units: ug/L
Sample No: 344416
Parent Sample No.: 343844
Analytical Prep Batch #: 74046
Analytical Preparation Date/Time: 10/21/2019 10:53
Analytical Run #: 165750
ICAL Calibration #:

Analysis Type: *Initial Analysis* Analysis Date: ----- 10/23/2019 Analysis Time: -------- 18:09

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Total Aluminum	86-115	987		153		800	104		P
Total Antimony	88-113	211		BDL	U	200	106		P
Total Arsenic	87-113	779		BDL	U	800	97		P
Total Barium	88-113	885		94.0		800	99		P
Total Beryllium	89-112	20.6		BDL	U	20.0	103		P
Total Cadmium	88-113	19.8		BDL	U	20.0	99		P
Total Calcium	87-113	296000		93600		200000	101		P
Total Chromium	90-113	81.0		0.76	J	80.0	100		P
Total Cobalt	89-114	207		BDL	U	200	104		P
Total Copper	86-114	105		2.4	J	100	103		P
Total Iron	87-115	733		333		400	100		P
Total Lead	86-113	194		BDL	U	200	97		P
Total Magnesium	85-113	137000		34600		100000	102		P
Total Manganese	90-114	214		22.0		200	96		P
Total Nickel	88-113	199		BDL	U	200	100		P
Total Selenium	83-114	816		BDL	U	800	102		P
Total Silver	84-115	20.9		BDL	U	20.0	104		P
Total Thallium	85-114	781		BDL	U	800	98		P
Total Vanadium	90-111	208		BDL	U	200	104		P
Total Zinc	87-115	223		15.8		200	104		P

BDL = analyte concentration was below detection limit

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5A

SPIKE SAMPLE RECOVERY

Sample Description

54IDW

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix:	LIQUID	SDG No.:	149018
% Solids for Sample:		Concentration Units:	ug/L
Sample No	344416	Parent Sample No.:	343844
Analytical Prep Batch #	74046	Analytical Preparation Date/Time:	10/21/2019 10:53
Analytical Run #:	165751	ICAL Calibration #:	

Analysis Type *Initial Analysis* Analysis Date: ----- 10/22/2019 Analysis Time: -------- 14:45

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Total Potassium	86-114	102000		1190		100000	101		P
Total Sodium	87-115	104000		6950		100000	97		P

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

5B

POST DIGESTION SPIKE SAMPLE RECOVERY

Sample Description: **54IDW**

Lab Name: CT Laboratories | Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

Matrix: LIQUID | SDG No.: 149018

% Solids for Sample: | Concentration Units: ug/L

Sample No: 346567 | Parent Sample No.: 343844

Analytical Prep Batch #: 0 | Analytical Preparation Date/Time:

Analytical Run #: 165751 | ICAL Calibration #:

Analysis Type: *Initial Analysis* | Analysis Date: ----- 10/22/2019 | Analysis Time: -------- 14:51

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Potassium	80-120.	102000		1190		100000	101		P
Sodium	80-120.	105000		6950		100000	98		P

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

5C

SPIKE DUPLICATE SAMPLE RECOVERY

Sample Description: **54IDW**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix:	LIQUID	SDG No.:	149018
% Solids for Sample:		Concentration Units:	ug/L
Sample No	344339	Parent Sample No.:	344338
Analytical Prep Batch #	74031	Analytical Preparation Date/Time:	10/22/2019 15:03
Analytical Run #:	165806	ICAL Calibration #:	10242019

Analysis Type: *Initial Analysis* Analysis Date: ----- 10/24/2019 Analysis Time: -------- 10:55

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Total Mercury	82-119	1.9		BDL	U	2.0	95		CV

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

5C

SPIKE DUPLICATE SAMPLE RECOVERY

Sample Description: **54IDW**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix:	LIQUID	SDG No.:	149018
% Solids for Sample:		Concentration Units:	ug/L
Sample No	344417	Parent Sample No.:	344416
Analytical Prep Batch #	74046	Analytical Preparation Date/Time:	10/21/2019 10:53
Analytical Run #:	165750	ICAL Calibration #:	

Analysis Type: *Initial Analysis* Analysis Date: ----- 10/23/2019 Analysis Time: -------- 18:16

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Total Aluminum	86-115	1010		153		800	107		P
Total Antimony	88-113	223		BDL	U	200	112		P
Total Arsenic	87-113	822		BDL	U	800	103		P
Total Barium	88-113	921		94.0		800	103		P
Total Beryllium	89-112	21.4		BDL	U	20.0	107		P
Total Cadmium	88-113	20.4		BDL	U	20.0	102		P
Total Calcium	87-113	302000		93600		200000	104		P
Total Chromium	90-113	85.2		0.76	J	80.0	106		P
Total Cobalt	89-114	212		BDL	U	200	106		P
Total Copper	86-114	109		2.4	J	100	107		P
Total Iron	87-115	751		333		400	104		P
Total Lead	86-113	202		BDL	U	200	101		P
Total Magnesium	85-113	141000		34600		100000	106		P
Total Manganese	90-114	225		22.0		200	102		P
Total Nickel	88-113	213		BDL	U	200	106		P
Total Selenium	83-114	852		BDL	U	800	106		P
Total Silver	84-115	21.4		BDL	U	20.0	107		P
Total Thallium	85-114	804		BDL	U	800	100		P
Total Vanadium	90-111	218		BDL	U	200	109		P
Total Zinc	87-115	232		15.8		200	108		P

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

5C

SPIKE DUPLICATE SAMPLE RECOVERY

Sample Description

54IDW

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix:	LIQUID	SDG No.:	149018
% Solids for Sample:		Concentration Units:	ug/L
Sample No	344417	Parent Sample No.:	344416
Analytical Prep Batch #	74046	Analytical Preparation Date/Time:	10/21/2019 10:53
Analytical Run #:	165751	ICAL Calibration #:	

Analysis Type *Initial Analysis* Analysis Date: ----- 10/22/2019 Analysis Time: -------- 14:48

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Total Potassium	86-114	104000		1190		100000	103		P
Total Sodium	87-115	105000		6950		100000	98		P

BDL = analyte concentration was below detection limit

CT LABORATORIES
delivering more than data from your environmental analyses

6

DUPLICATES

Sample Description

54IDW

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

Matrix: LIQUID

SDG No.: 149018

% Solid for Sample:

Concentration Units: ug/L

Analytical Prep Batch # 1

Analytical Preparation Date/Time 74046

Analytical Run #: 165750

ICAL Calibration #:

Sample #: 344415

Parent Sample #: 343844

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Original Parent Conc. (S)	C	Duplicate Conc. (D)	C	RPD	Q	M	
Total Aluminum	10/23/2019	18:03	20	153		158		3		P	
Total Antimony	10/23/2019	18:03	20	2.0	U	2.0	U	0		P	
Total Arsenic	10/23/2019	18:03	20	4.0	U	4.0	U	0		P	
Total Barium	10/23/2019	18:03	20	94.0		97.3		3		P	
Total Beryllium	10/23/2019	18:03	20	0.10	U	0.10	U	0		P	
Total Cadmium	10/23/2019	18:03	20	0.30	U	0.30	U	0		P	
Total Calcium	10/23/2019	18:03	20	93600		96300		3		P	
Total Chromium	10/23/2019	18:03	20	0.76	J	0.60	U	200		P	*FAIL*
Total Cobalt	10/23/2019	18:03	20	0.70	U	0.70	U	0		P	
Total Copper	10/23/2019	18:03	20	2.4	J	1.8	J	29		P	*FAIL*
Total Iron	10/23/2019	18:03	20	333		337		1		P	
Total Lead	10/23/2019	18:03	20	1.4	U	1.4	U	0		P	
Total Magnesium	10/23/2019	18:03	20	34600		35900		4		P	
Total Manganese	10/23/2019	18:03	20	22.0		22.8		4		P	
Total Nickel	10/23/2019	18:03	20	1.0	U	1.0	U	0		P	
Total Selenium	10/23/2019	18:03	20	2.2	U	2.2	U	0		P	
Total Silver	10/23/2019	18:03	20	0.70	U	0.70	U	0		P	
Total Thallium	10/23/2019	18:03	20	2.5	U	2.5	U	0		P	
Total Vanadium	10/23/2019	18:03	20	0.80	U	0.80	U	0		P	
Total Zinc	10/23/2019	18:03	20	15.8		16.3		3		P	

CT LABORATORIES
delivering more than data from your environmental analyses

6

DUPLICATES

Sample Description

54IDW

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

Matrix: LIQUID

SDG No.: 149018

% Solid for Sample:

Concentration Units: ug/L

Analytical Prep Batch # 1

Analytical Preparation Date/Time 74046

Analytical Run #: 165751

ICAL Calibration #:

Sample #: 344415

Parent Sample #: 343844

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Original Parent Conc. (S)	C	Duplicate Conc. (D)	C	RPD	Q	M
Total Potassium	10/22/2019	14:43	20	1190		1210		2		P
Total Sodium	10/22/2019	14:43	20	6950		7230		4		P

CT LABORATORIES
delivering more than data from your environmental analyses

6

DUPLICATES

Sample Description

54IDW

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

Matrix: LIQUID

SDG No.: 149018

% Solid for Sample:

Concentration Units: ug/L

Analytical Prep Batch # 1

Analytical Preparation Date/Time 74031

Analytical Run #: 165806

ICAL Calibration #:

Sample #: 344337

Parent Sample #: 343844

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Original Parent Conc. (S)	C	Duplicate Conc. (D)	C	RPD	Q	M
Total Mercury	10/24/2019	10:51	20	0.030	U	0.030	U	0		CV

CT LABORATORIES
delivering more than data from your environmental analyses

6A

MATRIX SPIKE DUPLICATES

Sample Description: **54IDW**

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix: LIQUID
SDG No.: 149018
% Solid for Sample:
Concentration Units: ug/L
Analytical Prep Batch #: 74031
Analytical Preparation Date/Time: 10/22/2019 15:03
Analytical Run #: 165806
ICAL Calibration #: 10242019
Sample #: 344339
Parent Sample #: 344338

Analysis Type: *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Matrix Spik Parent Conc. (S)	C	Matrix Spike Duplicate Conc. (D)	C	RPD	Q	M
Total Mercury	10/24/2019	10:55	20	2.1		1.9		11		CV

CT LABORATORIES
delivering more than data from your environmental analyses

6A

MATRIX SPIKE DUPLICATES

Sample Description: **54IDW**

Lab Name: CT Laboratories | Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

Matrix: LIQUID | SDG No.: 149018

% Solid for Sample: | Concentration Units: ug/L

Analytical Prep Batch #: 74046 | Analytical Preparation Date/Time: 10/21/2019 10:53

Analytical Run #: 165750 | ICAL Calibration #:

Sample #: 344417 | Parent Sample #: 344416

Analysis Type: *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Matrix Spik Parent Conc. (S)	C	Matrix Spike Duplicate Conc. (D)	C	RPD	Q	M
Total Aluminum	10/23/2019	18:16	20	987		1010		2		P
Total Antimony	10/23/2019	18:16	20	211		223		6		P
Total Arsenic	10/23/2019	18:16	20	779		822		5		P
Total Barium	10/23/2019	18:16	20	885		921		4		P
Total Beryllium	10/23/2019	18:16	20	20.6		21.4		4		P
Total Cadmium	10/23/2019	18:16	20	19.8		20.4		3		P
Total Calcium	10/23/2019	18:16	20	296000		302000		2		P
Total Chromium	10/23/2019	18:16	20	81.0		85.2		5		P
Total Cobalt	10/23/2019	18:16	20	207		212		2		P
Total Copper	10/23/2019	18:16	20	105		109		4		P
Total Iron	10/23/2019	18:16	20	733		751		2		P
Total Lead	10/23/2019	18:16	20	194		202		4		P
Total Magnesium	10/23/2019	18:16	20	137000		141000		3		P
Total Manganese	10/23/2019	18:16	20	214		225		5		P
Total Nickel	10/23/2019	18:16	20	199		213		7		P
Total Selenium	10/23/2019	18:16	20	816		852		4		P
Total Silver	10/23/2019	18:16	20	20.9		21.4		2		P
Total Thallium	10/23/2019	18:16	20	781		804		3		P
Total Vanadium	10/23/2019	18:16	20	208		218		5		P
Total Zinc	10/23/2019	18:16	20	223		232		4		P

CT LABORATORIES
delivering more than data from your environmental analyses

6A

MATRIX SPIKE DUPLICATES

Sample Description

54IDW

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

Matrix: LIQUID
SDG No.: 149018

% Solid for Sample:
Concentration Units: ug/L

Analytical Prep Batch # 74046
Analytical Preparation Date/Time 10/21/2019 10:53

Analytical Run #: 165751
ICAL Calibration #:

Sample #: 344417
Parent Sample #: 344416

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Matrix Spik Parent Conc. (S)	C	Matrix Spike Duplicate Conc. (D)	C	RPD	Q	M
Total Potassium	10/22/2019	14:48	20	102000		104000		2		P
Total Sodium	10/22/2019	14:48	20	104000		105000		1		P

CT LABORATORIES
delivering more than data from your environmental analyses

7-1

Sample No:

LABORATORY CONTROL SAMPLE - AQUEOUS

LCS

Lab Name: CT Laboratories Contract WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

LCS Source: SPEX and Ultra SDG No.: 149018

Concentration Units: ug/L

Analytical Run #: 165806 Sample No.:#: 344336

Analytical Prep Batch #: 74031 Preparation Date/Time: 10/22/2019 15:03

ICAL Calibration #: 10242019

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
Total Mercury	10/24/2019 08:16	82-119	1.65		2.00	82		CV

CT LABORATORIES
delivering more than data from your environmental analyses

7-1

Sample No:

LABORATORY CONTROL SAMPLE - AQUEOUS

LCS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

LCS Source: SPEX and Ultra SDG No.: 149018

Concentration Units: ug/L

Analytical Run #: 165750 Sample No.:#: 344414

Analytical Prep Batch #: 74046 Preparation Date/Time: 10/21/2019 10:53

ICAL Calibration #:

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
Total Aluminum	10/23/2019 17:37	86-115	784.0		800.0	98		P
Total Antimony	10/23/2019 17:37	88-113	212.0		200.0	106		P
Total Arsenic	10/23/2019 17:37	87-113	871.0		800.0	109		P
Total Barium	10/23/2019 17:37	88-113	794.0		800.0	99		P
Total Beryllium	10/23/2019 17:37	89-112	20.60		20.00	103		P
Total Cadmium	10/23/2019 17:37	88-113	19.80		20.00	99		P
Total Calcium	10/23/2019 17:37	87-113	200000		200000	100		P
Total Chromium	10/23/2019 17:37	90-113	80.30		80.00	100		P
Total Cobalt	10/23/2019 17:37	89-114	206.0		200.0	103		P
Total Copper	10/23/2019 17:37	86-114	102.0		100.0	102		P
Total Iron	10/23/2019 17:37	87-115	424.0		400.0	106		P
Total Lead	10/23/2019 17:37	86-113	195.0		200.0	98		P
Total Magnesium	10/23/2019 17:37	85-113	100000		100000	100		P
Total Manganese	10/23/2019 17:37	90-114	196.0		200.0	98		P
Total Nickel	10/23/2019 17:37	88-113	204.0		200.0	102		P
Total Selenium	10/23/2019 17:37	83-114	814.0		800.0	102		P
Total Silver	10/23/2019 17:37	84-115	20.90		20.00	104		P
Total Thallium	10/23/2019 17:37	85-114	793.0		800.0	99		P
Total Vanadium	10/23/2019 17:37	90-111	211.0		200.0	106		P
Total Zinc	10/23/2019 17:37	87-115	208.0		200.0	104		P

CT LABORATORIES
delivering more than data from your environmental analyses

7-1

Sample No:

LABORATORY CONTROL SAMPLE - AQUEOUS

LCS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

LCS Source: SPEX and Ultra SDG No.: 149018

Concentration Units: ug/L

Analytical Run #: 165751 Sample No.:#: 344414

Analytical Prep Batch #: 74046 Preparation Date/Time: 10/21/2019 10:53

ICAL Calibration #:

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
Total Potassium	10/22/2019 14:26	86-114	101000		100000	101		P
Total Sodium	10/22/2019 14:26	87-115	97200		100000	97		P

CT LABORATORIES
delivering more than data from your environmental analyses

10

METHOD DETECTION LIMITS (ANNUALLY)

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Matrix: LIQUID

Analyte	Wavelength (nm)	Background	CRDL (ug/L)	MDL (ug/L)	M
Total Mercury	253.7			0.03	CV

CT LABORATORIES
delivering more than data from your environmental analyses

10

METHOD DETECTION LIMITS (ANNUALLY)

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

ICP ID Number: TJA SDG No.: 149018

Matrix: LIQUID

Analyte	Wavelength (nm)	Background	CRDL (ug/L)	MDL (ug/L)	M
Total Aluminum	167.0			6	P
Total Antimony	217.5			2.0	P
Total Arsenic	193.7			4	P
Total Barium	455.4			0.29	P
Total Beryllium	313.041			0.10	P
Total Cadmium	226.502			0.3	P
Total Calcium	393.3			17	P
Total Chromium	267.716			0.6	P
Total Cobalt	228.616			0.7	P
Total Copper	327.3			1.2	P
Total Iron	259.9			16	P
Total Lead	220.35			1.4	P
Total Magnesium	279.5			6	P
Total Manganese	257.61			0.7	P
Total Nickel	231.604			1.0	P
Total Potassium	766.491			90	P
Total Selenium	196.02			2.2	P
Total Silver	328.068			0.7	P
Total Sodium	589.5			100	P
Total Thallium	190.864			2.5	P
Total Vanadium	292.402			0.8	P
Total Zinc	213.856			1.6	P

ICP INTERELEMENT CORRECTION FACTORS (ANNUAL)
ICP ID NUMBER: TA ICAP6000 / ICAP6500

Element, Wavelength and Order	Use?	# IECs	IEC	k1	k2	Calc-in-fit?
Ag 328.068 {103}	☒	2	Fe	0.000006	0.000000	No
			Ce	0.000000	0.000000	No
Ag 338.289 {100}	☒	1	Fe	0.000906	0.000000	No
Al 167.079 {501}	☒	None				
Al 308.215 {109}	☒	None				
Al 396.152 { 85}	☒	None				
As 193.759 {474}	☒	1	Al	0.001713	0.000000	No
As 197.262 {471}	☒	1	Al	-0.000113	0.000000	No
Ba 233.527 {445}	☒	3	Fe	-0.000038	0.000000	No
			V	0.000180	0.000000	No
			Al	0.000000	0.000000	No
Ba 455.403 { 74}	☒	1	Fe	0.000002	0.000000	No
Ba 493.409 { 68}	☒	1	Fe	0.000029	0.000000	No
Be 313.042 {108}	☒	1	Fe	0.000000	0.000000	No
Be 234.861 {144}	☒	1	Fe	-0.000016	0.000000	No
Ca 315.887 {107}	☒	None				
Ca 317.933 {106}	☒	None				
Ca 393.366 { 86}	☒	1	Cu	0.000000	0.000000	No
Ca 396.847 { 85}	☒	None				
Cd 226.502 {449}	☒	2	Fe	0.000090	0.000000	No
			Al	0.000000	0.000000	No
Cd 228.802 {147}	☒	None				
Co 228.616 {447}	☒	5	Fe	0.000009	0.000000	No
			Ti	0.003000	0.000000	No
			Ba	-0.001300	0.000000	No
			Ni	0.000040	0.000000	No
			Al	0.000001	0.000000	No
Co 238.892 {141}	☒	1	Fe	0.000188	0.000000	No
Cr 205.560 {464}	☒	1	Fe	-0.000004	0.000000	No
Cr 267.716 {126}	☒	1	Fe	-0.000014	0.000000	No
Cu 224.700 {450}	☒	5	Fe	0.000274	0.000000	No
			Mo	0.001320	0.000000	No
			Ni	-0.006000	0.000000	No
			Pb	0.003030	0.000000	No
			Al	0.000000	0.000000	No
Cu 324.754 {104}	☒	1	Fe	-0.000136	0.000000	No
Cu 327.396 {103}	☒	1	Fe	0.000069	0.000000	No
Fe 234.349 {144}	☒	None				
Fe 239.562 {140}	☒	None				
Fe 259.940 {129}	☒	None				
Mg 202.582 {466}	☒	None				
Mg 279.079 {121}	☒	None				
Mg 280.270 {120}	☒	None				
Mn 257.610 {131}	☒	1	Al	-0.000086	0.000000	No

ICP INTERELEMENT CORRECTION FACTORS (ANNUAL)
ICP ID NUMBER: TA ICAP6000 / ICAP6500

Element, Wavelength and Order	Use?	# IECs	IEC	k1	k2	Calc-in-fit?
Mn 259.373 {130}	☒	1	Mg	0.001339	0.000000	No
Mo 202.030 {466}	☒	1	Fe	-0.000011	0.000000	No
Mo 203.844 {465}	☒	1	Fe	-0.000020	0.000000	No
Mo 204.598 {464}	☒	1	Fe	0.000036	0.000000	No
Ni 221.647 {452}	☒	1	Ca	0.000021	0.000000	No
Ni 231.604 {445}	☒	3	Fe	0.000012	0.000000	No
			Co	0.000000	0.000000	No
			Mo	0.000000	0.000000	No
Pb 216.999 {455}	☒	2	Al	0.001241	0.000000	No
			Na	0.000000	0.000000	No
Pb 220.353 {453}	☒	3	Si	0.000000	0.000000	No
			Al	0.000001	0.000000	No
			Fe	0.000018	0.000000	No
Pb 220.353 {153}	☒	1	Al	-0.000040	0.000000	No
Sb 206.833 {463}	☒	1	Fe	0.000009	0.000000	No
Sb 217.581 {455}	☒	3	Fe	-0.000069	0.000000	No
			V	0.002070	0.000000	No
			Pb	-0.001040	0.000000	No
Se 196.090 {472}	☒	1	Fe	-0.000360	0.000000	No
Se 206.279 {463}	☒	1	Fe	0.001308	0.000000	No
Tl 190.856 {476}	☒	5	Fe	0.000024	0.000000	No
			Be	-0.000013	0.000000	No
			Ti	0.000050	0.000000	No
			Cr	0.000251	0.000000	No
			V	-0.003800	0.000000	No
Tl 190.856 {477}	☒	1	Fe	-0.000048	0.000000	No
V 290.882 {116}	☒	1	Fe	0.000073	0.000000	No
V 292.402 {115}	☒	3	Fe	0.000020	0.000000	No
			Cr	-0.000400	0.000000	No
			Al	0.000000	0.000000	No
Zn 202.548 {466}	☒	1	Fe	-0.000239	0.000000	No
Zn 206.200 {463}	☒	1	Fe	-0.000003	0.000000	No
Zn 213.856 {457}	☒	2	Fe	0.000167	0.000000	No
			Cu	0.007413	0.000000	No
Y 324.228 {104}*	☒	None				
Y 371.030 { 91}*	☒	None				
Y 224.306 {451}*	☒	None				
Na 588.995 { 57}	☒	1	Fe	0.000106	0.000000	No
Si 251.611 {134}	☒	2	Fe	-0.000105	0.000000	No
			Mo	0.005400	0.000000	No
Ti 323.452 {104}	☒	1	Fe	0.000036	0.000000	No
Ti 334.941 {101}	☒	1	Fe	0.000052	0.000000	No
Sr 407.771 { 83}	☒	1	Fe	0.000014	0.000000	No
Sr 421.552 { 80}	☒	1	Fe	0.000014	0.000000	No

ICP INTERELEMENT CORRECTION FACTORS (ANNUAL)
ICP ID NUMBER: TA ICAP6000 / ICAP6500

Element, Wavelength and Order	Use?	# IECs	IEC	k1	k2	Calc-in-fit?
Sn 189.989 {477}	☒	1	Fe	0.000013	0.000000	No
B 249.678 {135}	☒	2	Fe	0.000001	0.000000	No
			Co	0.003970	0.000000	No
B 249.773 {135}	☒	1	Fe	0.000357	0.000000	No
Li 670.784 { 50}	☒	1	Fe	0.000011	0.000000	No
K 766.490 { 44}	☒	1	Fe	0.000216	0.000000	No
P 213.618 {457}	☒	1	Fe	-0.000079	0.000000	No
S 182.034 {485}	☒	1	Mg	0.000100	0.000000	No
Hg 184.950 {482}	☒	1	Fe	0.000001	0.000000	No
Ce 404.076 { 83}	☒	1	Fe	0.000227	0.000000	No

ICP LINEAR RANGES (QUARTERLY)

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

ICP ID Number: TA SDG No.: 149018

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	M
Aluminum	15.00	1000000	P
Antimony	15.00	10000	P
Arsenic	15.00	10000	P
Barium	15.00	10000	P
Beryllium	15.00	1000	P
Boron	15.00	1000	P
Cadmium	15.00	1000	P
Calcium	15.00	1000000	P
Chromium	15.00	100000	P
Cobalt	15.00	10000	P
Copper	15.00	100000	P
Iron	15.00	1000000	P
Lead	15.00	100000	P
Lithium	15.00	10000	P
Magnesium	15.00	1000000	P
Manganese	15.00	100000	P
Molybdenum	15.00	10000	P
Nickel	15.00	10000	P
Potassium	15.00	200000	P
Selenium	15.00	10000	P
Silicon	15.00	1000	P
Silver	15.00	100	P
Sodium	15.00	200000	P
Strontium	15.00	10000	P
Thallium	15.00	10000	P
Tin	15.00	10000	P
Titanium	15.00	1000	P
Tungsten	15.00	10000	P
Vanadium	15.00	10000	P
Zinc	15.00	100000	P

CT LABORATORIES
delivering more than data from your environmental analyses

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PREPARATION LOG

Lab Name: CT Laboratories

Project: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

Method: EPA 7470A

SDG No.: 149018

Preparation Batch #: 74031

Preparation Date/Time: 10/22/2019 / 15:03

Lab Sample #	QC Type	Sample Description	Matrix	**Weight (g for solid/soil) or Volume (mL for liquid/aqueous)**
343844	Normal Sample	54IDW	GROUND WATER	25.0
343878	Normal Sample	49IDW	GROUND WATER	25.0
344335	Method Blank		LIQUID	25.0
344336	Lab Control Spike		LIQUID	25.0
344337	Lab Duplicate	54IDW	GROUND WATER	25.0
344338	Matrix Spike	54IDW	GROUND WATER	25.0
344339	Matrix Spike Duplicate	54IDW	GROUND WATER	25.0

CT LABORATORIES
delivering more than data from your environmental analyses

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PREPARATION LOG

Lab Name: CT Laboratories

Project: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

Method: EPA 3010A

SDG No.: 149018

Preparation Batch #: 74046

Preparation Date/Time: 10/21/2019 / 10:53

Lab Sample #	QC Type	Sample Description	Matrix	**Weight (g for solid/soil) or Volume (mL for liquid/aqueous)**
343844	Normal Sample	54IDW	GROUND WATER	50.0
343878	Normal Sample	49IDW	GROUND WATER	50.0
344413	Method Blank		LIQUID	50.0
344414	Lab Control Spike		LIQUID	50.0
344415	Lab Duplicate	54IDW	GROUND WATER	50.0
344416	Matrix Spike	54IDW	GROUND WATER	50.0
344417	Matrix Spike Duplicate	54IDW	GROUND WATER	50.0

CT LABORATORIES
delivering more than data from your environmental analyses

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ANALYSIS RUN LOG

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

Lab Code: CTL

SDG No.: 149018

Instrument ID Number: CETAC

Method Number: CV

Start & End Date: 10/24/2019 to 10/24/2019

Analytical Run #: 165806

Sample Number	Analysis or QC Type	DF	Analysis Date/ Time	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Mo	Li	Ni	K	Se	Si	Ag	Na	Sr	Tl	Sn	W	V	Zn
347231	ICV	1.00	10/24 08:02																X													
347232	ICB	1.00	10/24 08:06																X													
344336	LCSW	1.00	10/24 08:16																X													
347233	CCV	1.00	10/24 08:29																X													
347234	CCB	1.00	10/24 08:33																X													
344335	MBW	1.00	10/24 08:41																X													
347235	CCV	1.00	10/24 08:55																X													
347236	CCB	1.00	10/24 08:59																X													
347237	CCV	1.00	10/24 10:13																X													
347238	CCB	1.00	10/24 10:17																X													
343844	Initial	1.00	10/24 10:35																X													
343878	Initial	1.00	10/24 10:37																X													
347239	CCV	1.00	10/24 10:40																X													
348220	CCV	1.00	10/24 10:41																X													
347240	CCV	1.00	10/24 10:45																X													
347241	CCB	1.00	10/24 10:49																X													
344337	DUP	1.00	10/24 10:51																X													
344338	MSW	1.00	10/24 10:53																X													
344339	MSDW	1.00	10/24 10:55																X													
347242	CCV	1.00	10/24 11:11																X													
347243	CCB	1.00	10/24 11:15																X													

CT LABORATORIES
delivering more than data from your environmental analyses

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ANALYSIS RUN LOG

Lab Name: CT Laboratories | Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

Lab Code: CTL | SDG No.: 149018

Instrument ID Number: TJA | Method Number: P

Start & End Date: 10/23/2019 to 10/23/2019 | Analytical Run #: 165750

Sample Number	Analysis or QC Type	DF	Analysis Date/ Time	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Mo	Li	Ni	K	Se	Si	Ag	Na	Sr	Tl	Sn	W	V	Zn
349443	ICV	1.00	10/23 16:27	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
349444	ICVLL	1.00	10/23 16:39	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X					X			X	X
349445	ICB	1.00	10/23 16:52	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
349446	ICSA	1.00	10/23 17:04	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
349447	ICSAB	1.00	10/23 17:11	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
349448	ICVLL	1.00	10/23 17:24																							X							
344414	LCSW	1.00	10/23 17:37	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
344413	MBW	1.00	10/23 17:43	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
343844	Initial	1.00	10/23 17:50	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
349449	L	5	10/23 17:56	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
344415	DUP	1.00	10/23 18:03	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
344416	MSW	1.00	10/23 18:09	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
344417	MSDW	1.00	10/23 18:16	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
343878	Initial	1.00	10/23 18:23	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
349451	CCV1	1.00	10/23 18:29	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
349452	CCV2	1.00	10/23 18:35	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
349453	CCB	1.00	10/23 18:40	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
349450	PDSW	1.00	10/23 18:47	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
349454	CCV1	1.00	10/23 19:52	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
349455	CCV2	1.00	10/23 19:57	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X
349456	CCB	1.00	10/23 20:03	X	X	X	X	X		X	X	X	X	X	X	X	X	X				X		X		X			X			X	X

CT LABORATORIES
delivering more than data from your environmental analyses

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ANALYSIS RUN LOG

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

Lab Code: CTL
SDG No.: 149018

Instrument ID Number: TJA
Method Number: P

Start & End Date: 10/22/2019 to 10/22/2019
Analytical Run #: 165751

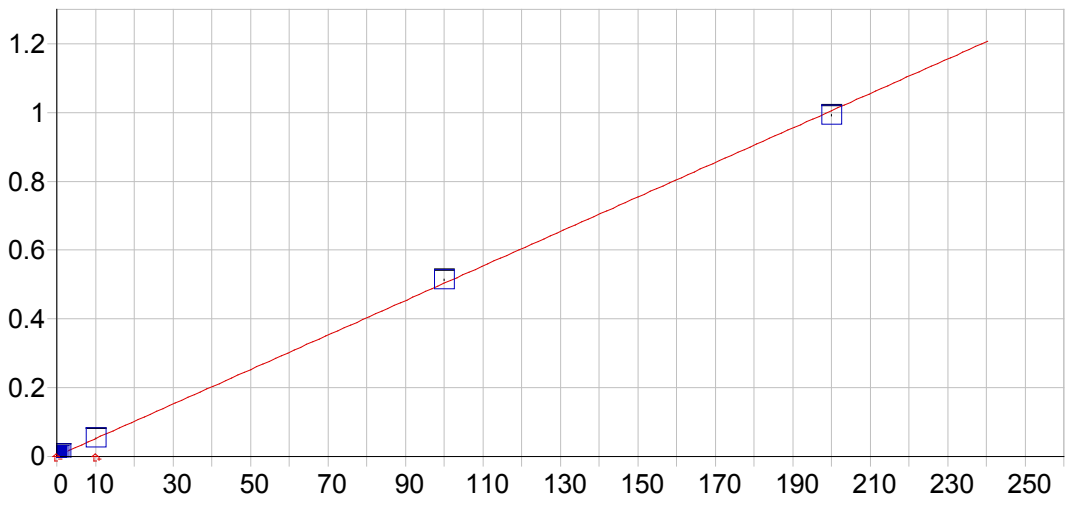
Sample Number	Analysis or QC Type	DF	Analysis Date/ Time	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Hg	Mo	Li	Ni	K	Se	Si	Ag	Na	Sr	Tl	Sn	W	V	Zn
346556	ICV	1.00	10/22 10:22																				X				X					
346557	ICVLL	1.00	10/22 10:25																				X				X					
346558	ICB	1.00	10/22 10:28																				X				X					
346559	MRL	1.00	10/22 10:31																				X				X					
346560	ICSA	1.00	10/22 10:33	X							X				X		X						X				X					
346561	ICSAB	1.00	10/22 10:36	X							X				X		X						X				X					
346562	CCV	1.00	10/22 13:55																				X				X					
346563	CCB	1.00	10/22 13:58																				X				X					
344414	LCSW	1.00	10/22 14:26																				X				X					
346564	CCV	1.00	10/22 14:29																				X				X					
346565	CCB	1.00	10/22 14:32																				X				X					
344413	MBW	1.00	10/22 14:34																				X				X					
343844	Initial	1.00	10/22 14:37																				X				X					
346566	L	5	10/22 14:40																				X				X					
344415	DUP	1.00	10/22 14:43																				X				X					
344416	MSW	1.00	10/22 14:45																				X				X					
344417	MSDW	1.00	10/22 14:48																				X				X					
346567	PDSW	1.00	10/22 14:51																				X				X					
343878	Initial	1.00	10/22 14:54																				X				X					
346568	CCV	1.00	10/22 15:02																				X				X					
346569	CCB	1.00	10/22 15:05																				X				X					

METALS
RAW DATA
DOCUMENTS

	Element, Wavelength and Order	Date of Fit	Date of Cal.	Type of Fit	Weighting	A0	A1	A2	n (Exponent)	Correlation	Std Error of Est	Predicted MDL	Predicted MQL
	K 766.490 { 44}	10/23/2019 07:30:40	10/22/2019 10:19:48	Linear	1/Var	0.001849	0.005017	0.000000	1.000000	0.999867	0.001270	0.053721	0.179071
	Na 330.237 {102}	10/23/2019 07:30:40	10/22/2019 10:19:48	Linear	1/Var	0.000248	0.000086	0.000000	1.000000	0.999883	0.000145	1.628482	5.428273
	Na 589.592 { 57}	10/23/2019 07:30:40	10/22/2019 10:19:48	Linear	1/Var	-0.000853	0.053343	0.000000	1.000000	0.999971	0.001321	0.009804	0.032679
	Y 360.073 { 94}	10/23/2019 07:30:40	10/22/2019 10:00:14	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-1.000000	-1.000000
	Y 320.332 {105}*	10/23/2019 07:30:40	10/22/2019 10:00:14	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-1.000000	-1.000000
	Al 308.215 {109}	10/23/2019 07:30:40	10/22/2019 10:22:40	Linear	1/Conc	0.003414	0.000016	0.000000	1.000000	1.000000	0.000000	-1.000000	-1.000000
	Al 396.152 { 85}	10/23/2019 07:30:40	10/22/2019 10:22:40	Linear	1/Conc	-0.000178	0.009236	0.000000	1.000000	1.000000	0.000000	0.018748	0.062493
	Mg 285.213 {118}	10/23/2019 07:30:40	10/22/2019 10:22:40	Linear	None	-0.000049	0.041682	0.000000	1.000000	1.000000	0.000000	0.002100	0.006999
	Ca 317.933 {106}	10/23/2019 07:30:40	10/22/2019 10:22:40	Linear	None	0.043559	0.003112	0.000000	1.000000	1.000000	0.000000	0.026952	0.089841
	Fe 234.349 {144}	10/23/2019 07:30:40	10/22/2019 10:22:40	Linear	None	0.000099	0.002380	0.000000	1.000000	1.000000	0.000000	0.012149	0.040497

	Element, Wavelength and Order	Status	Reslope		QC Norm	
			Slope	Y-int	Slope factor	Offset
	K 766.490 { 44}	OK.	1.000000	0.000000	1	0
	Na 330.237 {102}	OK.	1.000000	0.000000	1	0
	Na 589.592 { 57}	OK.	1.000000	0.000000	1	0
	Y 360.073 { 94}	Warnin	1.000000	0.000000	1	0
	Y 320.332 {105}*	Warnin	1.000000	0.000000	1	0
	Al 308.215 {109}	OK.	1.000000	0.000000	1	0
	Al 396.152 { 85}	OK.	1.000000	0.000000	1	0
	Mg 285.213 {118}	OK.	1.000000	0.000000	1	0
	Ca 317.933 {106}	OK.	1.000000	0.000000	1	0
	Fe 234.349 {144}	OK.	1.000000	0.000000	1	0

Element, Wavelength and Order	Use?	# IECs	IEC	k1	k2	Calc-in-fit?
K 766.490 { 44}	☒	1	Fe	-0.000209	0.000000	No
Na 330.237 {102}	☒	1	Fe	-0.003722	0.000000	No
Na 589.592 { 57}	☒	1	Fe	0.000066	0.000000	No
Y 360.073 { 94}	☒	None				
Y 320.332 {105}*	☒	None				
Al 308.215 {109}	☒	1	Fe	0.000000	0.000000	No
Al 396.152 { 85}	☒	None				
Mg 285.213 {118}	☒	None				
Ca 317.933 {106}	☒	None				
Fe 234.349 {144}	☒	None				

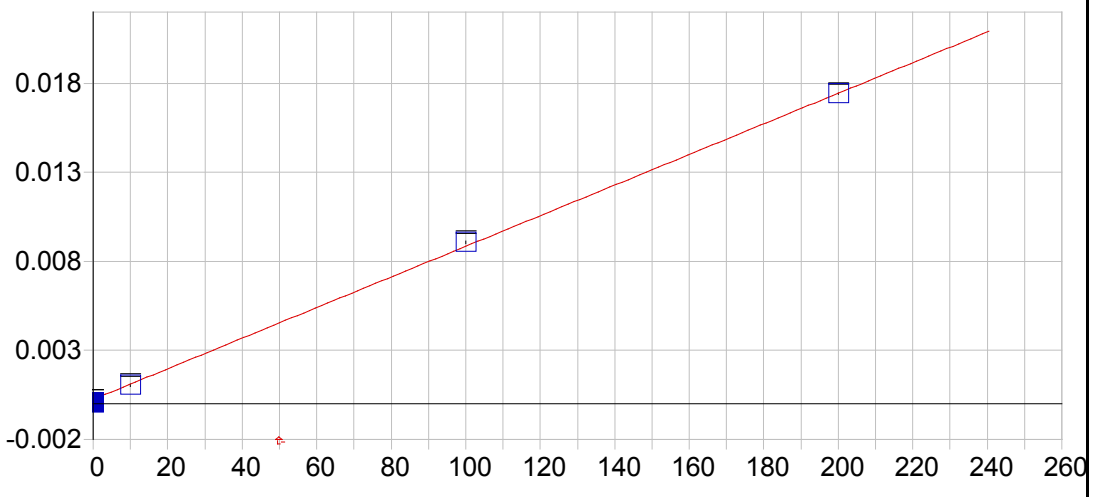


K 766.490 { 44}

Date of Fit:	10/23/2019 07:30:40	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.001849	Re-Slope:	1.000000
A1 (Gain):	0.005017	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999867	Status:	OK.
Std Error of Est:	0.001270		
Predicted MDL:	0.053721		
Predicted MQL:	0.179071		

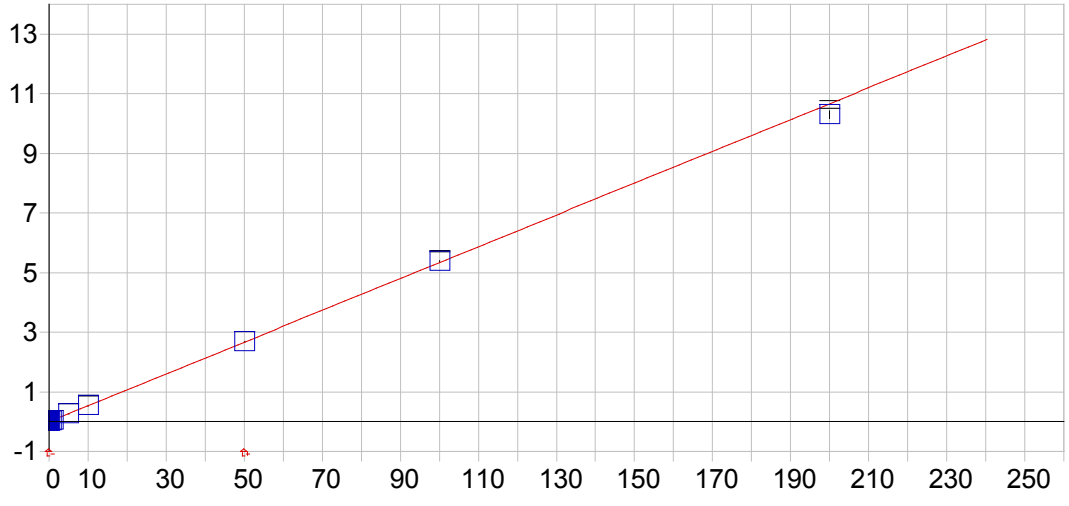
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.05873	-.059	.000	.00155	.000	1
CalibStd-1.0	1.0000	.97176	-.028	-2.82	.00672	.000	1
CalibStd-10.	10.000	10.200	.200	2.00	.05302	.000	1
CalibStd-0.5	.50000	.49207	-.008	-1.59	.00432	.000	1
CalibStd-200	200.00	197.44	-2.56	-1.28	.99239	.002	1
CalibStd-100	100.00	102.00	2.00	2.00	.51359	.001	1



Na 330.237 {102}

Date of Fit:	10/23/2019 07:30:40	Type of Fit:	Linear	Weighting:	1/Var
A0 (Offset):	0.000248		Re-Slope:	1.000000	
A1 (Gain):	0.000086		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.999883		Status:	OK.	
Std Error of Est:	0.000145				
Predicted MDL:	1.628482				
Predicted MQL:	5.428273				

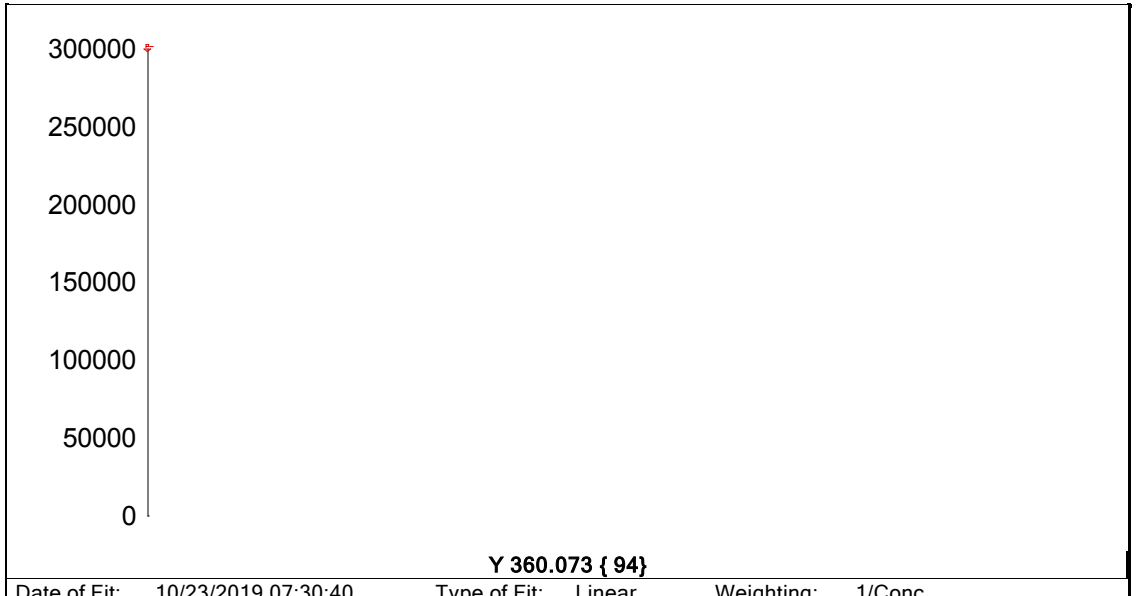
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-2.5615	-2.56	.000	.00003	.000	1
CalibStd-200	200.00	199.69	-.310	-.155	.01742	.000	1
CalibStd-10.	10.000	9.1637	-.836	-8.36	.00104	.000	1
CalibStd-100	100.00	102.65	2.65	2.65	.00907	.000	1



Na 589.592 { 57}

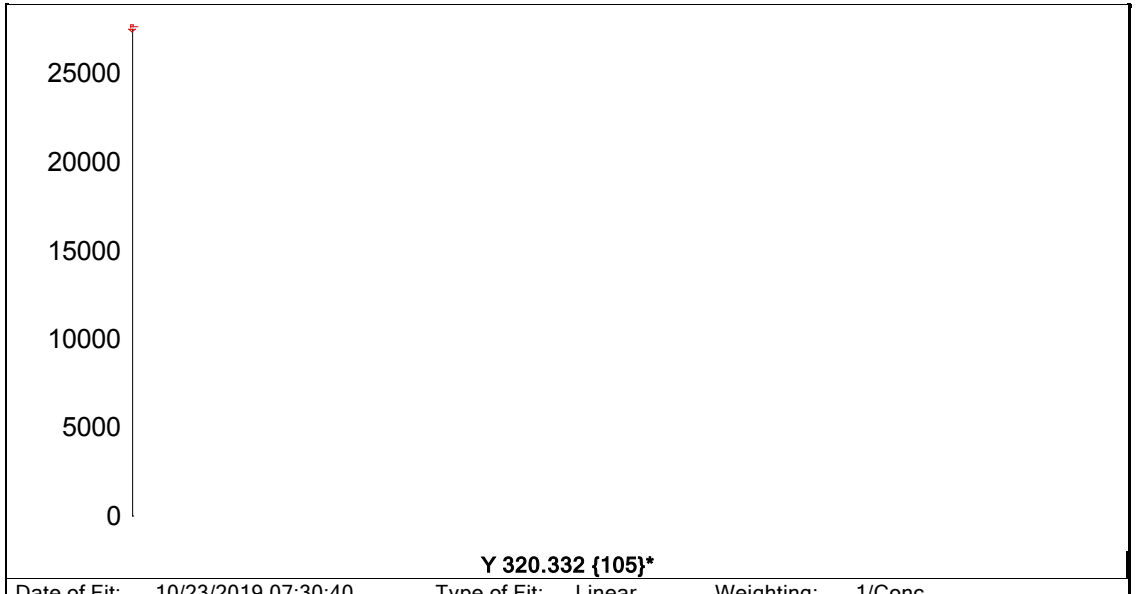
Date of Fit:	10/23/2019 07:30:40	Type of Fit:	Linear	Weighting:	1/Var
A0 (Offset):	-0.000853		Re-Slope:	1.000000	
A1 (Gain):	0.053343		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.999971		Status:	OK.	
Std Error of Est:	0.001321				
Predicted MDL:	0.009804				
Predicted MQL:	0.032679				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00337	.003	.000	-.00067	.000	1
CalibStd-0.5	.50000	.52167	.022	4.33	.02697	.001	1
CalibStd-1.0	1.0000	.97884	-.021	-2.12	.05136	.001	1
CalibStd-5.0	5.0000	4.9599	-.040	-.802	.26373	.001	1
CalibStd-10.	10.000	9.9577	-.042	-.423	.53033	.001	1
CalibStd-50	50.000	50.195	.195	.391	2.6767	.005	1
CalibStd-100	100.00	100.71	.710	.710	5.3714	.023	1
CalibStd-200	200.00	192.90	-7.10	-3.55	10.289	.129	1



Date of Fit:	10/23/2019 07:30:40	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000000		Re-Slope:	1.000000	
A1 (Gain):	0.000000		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.000000		Status:	Warning	Zero Gain
Std Error of Est:	0.000000				
Predicted MDL:	n/a				
Predicted MQL:	n/a				

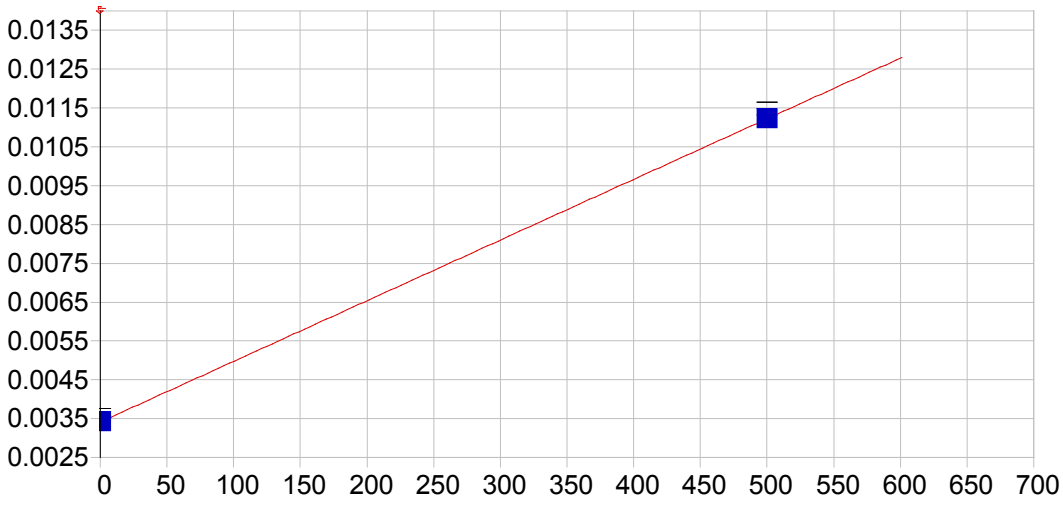
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	281840.	1500.	1



Y 320.332 {105}*

Date of Fit:	10/23/2019 07:30:40	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000000		Re-Slope:	1.000000	
A1 (Gain):	0.000000		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.000000		Status:	Warning	Zero Gain
Std Error of Est:	0.000000				
Predicted MDL:	n/a				
Predicted MQL:	n/a				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	26028.	117.	1

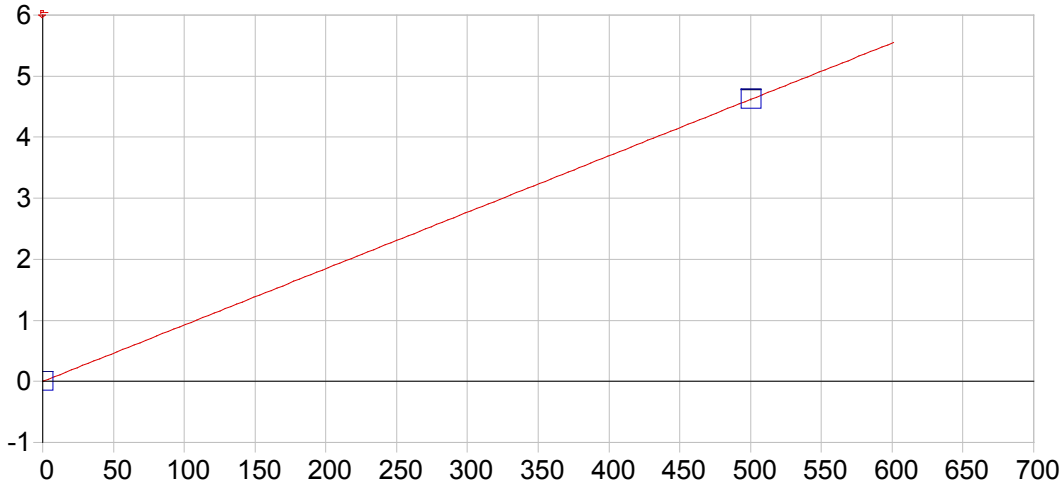


Al 308.215 {109}

Date of Fit:	10/23/2019 07:30:40	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.003414	Re-Slope:	1.000000
A1 (Gain):	0.000016	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	n/a		
Predicted MQL:	n/a		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	.00341	.000	1
CalibStd-500	500.00	500.00	.000	.000	.01122	.000	1

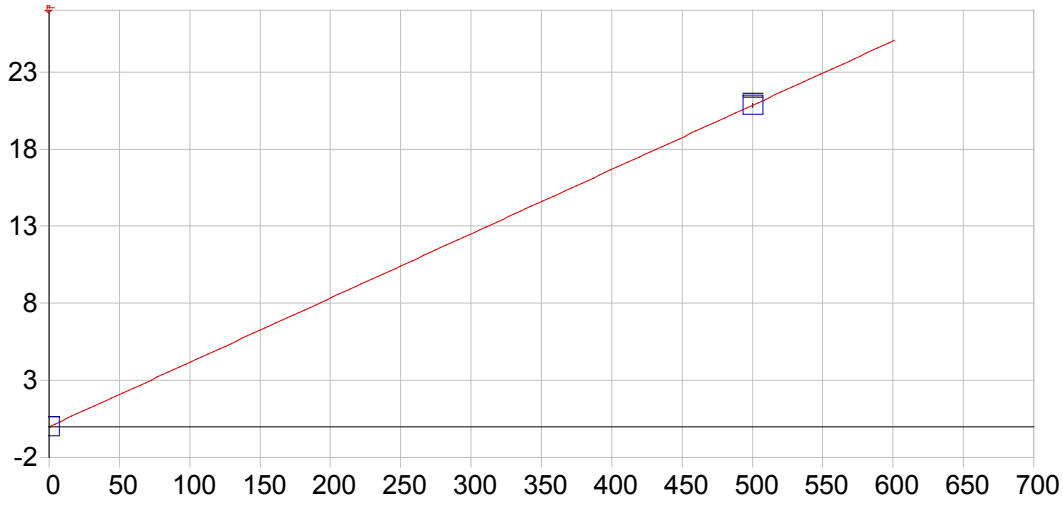


Al 396.152 { 85}

Date of Fit:	10/23/2019 07:30:40	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000178	Re-Slope:	1.000000
A1 (Gain):	0.009236	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	0.018748		
Predicted MQL:	0.062493		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	-.00018	.000	1
CalibStd-500	500.00	500.00	.000	.000	4.6177	.006	1

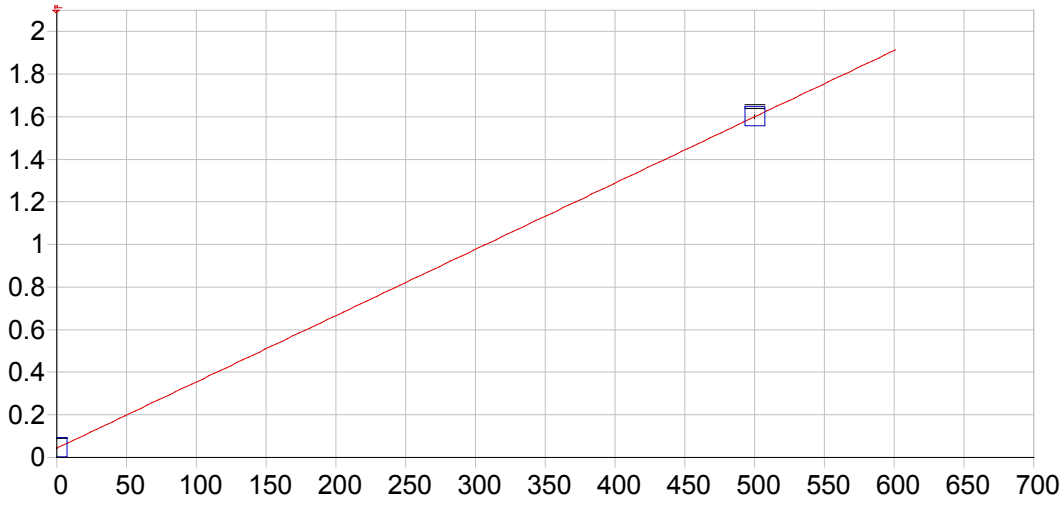


Mg 285.213 {118}

Date of Fit:	10/23/2019 07:30:40	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	-0.000049	Re-Slope:	1.000000
A1 (Gain):	0.041682	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	0.002100		
Predicted MQL:	0.006999		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	-.00005	.000	1
CalibStd-500	500.00	500.00	.000	.000	20.841	.115	1

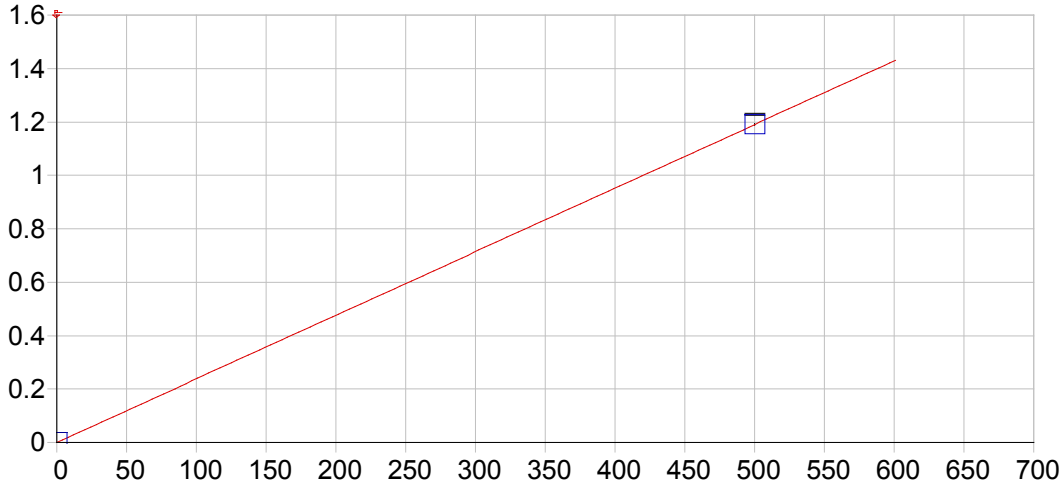


Ca 317.933 {106}

Date of Fit:	10/23/2019 07:30:40	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.043559	Re-Slope:	1.000000
A1 (Gain):	0.003112	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	0.026952		
Predicted MQL:	0.089841		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	.04356	.000	1
CalibStd-500	500.00	500.00	.000	.000	1.5997	.010	1



Fe 234.349 {144}

Date of Fit:	10/23/2019 07:30:40	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000099	Re-Slope:	1.000000
A1 (Gain):	0.002380	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	0.012149		
Predicted MQL:	0.040497		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	.00010	.000	1
CalibStd-500	500.00	500.00	.000	.000	1.1901	.004	1

Sample Name: Blank Acquired: 10/22/2019 09:57:20 Type: Cal
Method: Sodium and Potassium 1(v1191) Mode: IR Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.001**	**.000**	**-.001**	**-.000**	**-.000**	**.044**	**.000**
Stddev	.000	.000	.000	.000	.000	.000	.000
%RSD	31.1	735.	37.7	98.1	107.	.474	34.4

Int. Std.	Y_3203
Units	Cts/S
Avg	**26028.**
Stddev	117.
%RSD	.45112

Sample Name: CalibStd-0.5 Acquired: 10/22/2019 10:00:17 Type: Cal
Method: Sodium and Potassium 1(v1191) Mode: IR Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895
Units	Cts/S	Cts/S
Avg	**.004**	**.027**
Stddev	.000	.001
%RSD	1.24	2.22

Int. Std.	Y_3203
Units	Cts/S
Avg	**26134.**
Stddev	104.
%RSD	.39964

Sample Name: CalibStd-1.0 Acquired: 10/22/2019 10:03:02 Type: Cal
Method: Sodium and Potassium 1(v1191) Mode: IR Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895
Units	Cts/S	Cts/S
Avg	**.007**	**.051**
Stddev	.000	.001
%RSD	3.65	1.02

Int. Std.	Y_3203
Units	Cts/S
Avg	**26082.**
Stddev	38.
%RSD	.14594

Sample Name: CalibStd-5.0 Acquired: 10/22/2019 10:05:48 Type: Cal
Method: Sodium and Potassium 1(v1191) Mode: IR Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Na5895
Units	Cts/S
Avg	.264
Stddev	.001
%RSD	.446

Int. Std.	Y_3203
Units	Cts/S
Avg	25940.
Stddev	145.
%RSD	.56047

Sample Name: CalibStd-10.0 Acquired: 10/22/2019 10:08:35 Type: Cal
Method: Sodium and Potassium 1(v1191) Mode: IR Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Na5895
Units	Cts/S	Cts/S	Cts/S
Avg	**.061**	**.001**	**.530**
Stddev	.000	.000	.001
%RSD	.571	7.06	.252

Int. Std.	Y_3203
Units	Cts/S
Avg	**25809.**
Stddev	50.
%RSD	.19274

Sample Name: CalibStd-50 Acquired: 10/22/2019 10:11:22 Type: Cal
Method: Sodium and Potassium 1(v1191) Mode: IR Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Na5895
Units	Cts/S
Avg	**2.67**
Stddev	.01
%RSD	.174

Int. Std.	Y_3203
Units	Cts/S
Avg	**25838.**
Stddev	86.
%RSD	.33182

Sample Name: CalibStd-100 Acquired: 10/22/2019 10:14:09 Type: Cal
Method: Sodium and Potassium 1(v1191) Mode: IR Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Na5895
Units	Cts/S	Cts/S	Cts/S
Avg	**.595**	**.009**	**5.36**
Stddev	.002	.000	.02
%RSD	.403	.880	.414

Int. Std.	Y_3203
Units	Cts/S
Avg	**25822.**
Stddev	132.
%RSD	.51124

Sample Name: CalibStd-200 Acquired: 10/22/2019 10:16:55 Type: Cal
Method: Sodium and Potassium 1(v1191) Mode: IR Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Na5895
Units	Cts/S	Cts/S	Cts/S
Avg	**1.15**	**.017**	**10.3**
Stddev	.00	.000	.1
%RSD	.339	.226	1.27

Int. Std.	Y_3203
Units	Cts/S
Avg	**25636.**
Stddev	58.
%RSD	.22716

Sample Name: CalibStd-500 Acquired: 10/22/2019 10:19:51 Type: Cal
Method: Sodium and Potassium 1(v1191) Mode: IR Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Al3961	Mg2852	Ca3179	Fe2343
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**4.62**	**20.8**	**1.60**	**1.19**
Stddev	.01	.1	.01	.00
%RSD	.134	.552	.633	.317

Int. Std.	Y_3203
Units	Cts/S
Avg	**24693.**
Stddev	58.
%RSD	.23482

Sample Name: icv Acquired: 10/22/2019 10:22:44 Type: QC
Method: Sodium and Potassium 1(v1191) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**99.1**	**99.4**	**.037**	**.061**	**.223**	**.233**
Stddev	.2	.9	.018	.009	.029	.073
%RSD	.193	.914	49.5	15.0	13.1	31.4
Check ?	None	None	None	None	None	None
Value						
Range						

Int. Std.	Y_3203
Units	Cts/S
Avg	**25968.**
Stddev	87.
%RSD	.33653

Sample Name: ICVLL Acquired: 10/22/2019 10:25:30 Type: QC
Method: Sodium and Potassium 1(v1191) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**2.94**	**3.18**	**.009**	**.012**	**.218**	**.042**
Stddev	.06	.02	.024	.003	.073	.010
%RSD	1.98	.487	271.	24.1	33.6	24.8
Check ?	Chk Pass	Chk Pass	None	None	None	None
Value						
Range						

Int. Std.	Y_3203
Units	Cts/S
Avg	**26307.**
Stddev	138.
%RSD	.52457

Sample Name: icb Acquired: 10/22/2019 10:28:16 Type: QC
Method: Sodium and Potassium 1(v1191) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**.025**	**.013**	**.004**	**.005**	**.189**	**.030**
Stddev	.057	.006	.019	.001	.071	.022
%RSD	230.	41.9	514.	27.8	37.4	73.0
Check ?	None	None	None	None	None	None
Value						
Range						

Int. Std.	Y_3203
Units	Cts/S
Avg	**26215.**
Stddev	59.
%RSD	.22442

Sample Name: mrl Acquired: 10/22/2019 10:31:01 Type: QC
Method: Sodium and Potassium 1(v1191) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**.946**	**1.00**	**-.008**	**.002**	**.162**	**-.004**
Stddev	.053	.01	.009	.001	.042	.010
%RSD	5.65	.824	120.	43.0	26.0	266.
Check ?	None	None	None	None	None	None
Value						
Range						

Int. Std.	Y_3203
Units	Cts/S
Avg	**26370.**
Stddev	117.
%RSD	.44520

Sample Name: icsa Acquired: 10/22/2019 10:33:47 Type: QC
Method: Sodium and Potassium 1(v1191) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**.083**	**-.008**	**484.**	**490.**	**487.**	**496.**
Stddev	.063	.011	1.	7.	2.	1.
%RSD	75.3	138.	.224	1.38	.416	.288
Check ?	Chk Pass	Chk Pass	None	None	None	None
High Limit						
Low Limit						

Int. Std.	Y_3203
Units	Cts/S
Avg	**24739.**
Stddev	72.
%RSD	.29284

Sample Name: icsab Acquired: 10/22/2019 10:36:41 Type: QC
Method: Sodium and Potassium 1(v1191) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**106.**	**106.**	**490.**	**485.**	**488.**	**501.**
Stddev	.	2.	1.	6.	2.	1.
%RSD	.251	1.55	.161	1.20	.373	.244
Check ?	None	None	None	None	None	None
Value						
Range						

Int. Std.	Y_3203
Units	Cts/S
Avg	**24882.**
Stddev	129.
%RSD	.51726

Sample Name: ccv Acquired: 10/22/2019 13:55:59 Type: QC

Method: Sodium and Potassium 1(v1191) Mode: CONC Corr. Factor: 1.000000

User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1

Comment:

Elem	K_7664	Na3302	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**101.**	**99.0**	**-.003**	**.053**	**-.311**	**.004**
Stddev	.	2.3	.005	.006	.086	.011
%RSD	.442	2.28	196.	11.3	27.6	287.
Check ?	None	None	None	None	None	None
Value						
Range						

Int. Std.	Y_3203
Units	Cts/S
Avg	**26219.**
Stddev	96.
%RSD	.36598

Sample Name: ccb Acquired: 10/22/2019 13:58:45 Type: QC
Method: Sodium and Potassium 1(v1191) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**.024**	**.146**	**-.016**	**.005**	**-.368**	**-.006**
Stddev	.020	.006	.012	.002	.067	.013
%RSD	85.1	4.22	77.6	29.7	18.1	231.
Check ?	None	None	None	None	None	None
Value						
Range						

Int. Std.	Y_3203
Units	Cts/S
Avg	**26488.**
Stddev	39.
%RSD	.14671

Sample Name: lcsw74046 Acquired: 10/22/2019 14:26:29 Type: Unk
Method: Sodium and Potassium 1(v1191) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**101.**	**97.2**	**.884**	**104.**	**182.**	**.386**
Stddev	.	2.2	.016	.	1.	.011
%RSD	.158	2.28	1.85	.360	.617	2.82

Int. Std.	Y_3203
Units	Cts/S
Avg	**25716.**
Stddev	39.
%RSD	.15027

Sample Name: ccv Acquired: 10/22/2019 14:29:16 Type: QC

Method: Sodium and Potassium 1(v1191) Mode: CONC Corr. Factor: 1.000000

User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1

Comment:

Elem	K_7664	Na3302	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**101.**	**98.7**	**.002**	**.048**	**-.338**	**.005**
Stddev	.	1.8	.012	.002	.056	.007
%RSD	.164	1.81	819.	4.26	16.6	137.
Check ?	None	None	None	None	None	None
Value						
Range						

Int. Std.	Y_3203
Units	Cts/S
Avg	**26303.**
Stddev	93.
%RSD	.35484

Sample Name: ccb Acquired: 10/22/2019 14:32:03 Type: QC
Method: Sodium and Potassium 1(v1191) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**-.027**	**.122**	**-.015**	**.008**	**-.411**	**-.003**
Stddev	.033	.010	.005	.002	.081	.006
%RSD	119.	7.92	32.4	22.8	19.7	238.
Check ?	None	None	None	None	None	None
Value						
Range						

Int. Std.	Y_3203
Units	Cts/S
Avg	**26556.**
Stddev	127.
%RSD	.47943

Sample Name: mbw74046 Acquired: 10/22/2019 14:34:49 Type: Unk
Method: Sodium and Potassium 1(v1191) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**-.023**	**.039**	**-.010**	**.004**	**-.382**	**-.013**
Stddev	.034	.006	.006	.001	.067	.008
%RSD	146.	14.4	59.3	23.5	17.6	57.8

Int. Std.	Y_3203
Units	Cts/S
Avg	**26776.**
Stddev	93.
%RSD	.34659

Sample Name: 343844 Acquired: 10/22/2019 14:37:37 Type: Unk
Method: Sodium and Potassium 1(v1191) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**1.19**	**6.95**	**.186**	**36.5**	**85.1**	**.309**
Stddev	.04	.03	.010	.0	.5	.011
%RSD	3.61	.417	5.43	.096	.547	3.45

Int. Std.	Y_3203
Units	Cts/S
Avg	**26172.**
Stddev	107.
%RSD	.40815

Sample Name: I343844 Acquired: 10/22/2019 14:40:24 Type: Unk
Method: Sodium and Potassium 1(v1191) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**.185**	**1.45**	**.021**	**7.70**	**16.7**	**.064**
Stddev	.042	.02	.016	.04	.2	.004
%RSD	22.6	1.38	77.7	.462	1.22	5.64

Int. Std.	Y_3203
Units	Cts/S
Avg	**26674.**
Stddev	75.
%RSD	.28011

Sample Name: dup343844 Acquired: 10/22/2019 14:43:10 Type: Unk
Method: Sodium and Potassium 1(v1191) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**1.21**	**7.23**	**.214**	**37.8**	**87.8**	**.334**
Stddev	.04	.03	.016	.0	.6	.008
%RSD	3.68	.378	7.51	.066	.695	2.40

Int. Std.	Y_3203
Units	Cts/S
Avg	**26242.**
Stddev	72.
%RSD	.27469

Sample Name: msw343844 Acquired: 10/22/2019 14:45:57 Type: Unk
Method: Sodium and Potassium 1(v1191) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**102.**	**104.**	**1.14**	**140.**	**270.**	**.717**
Stddev	.	2.	.01	.	2.	.019
%RSD	.172	1.72	1.16	.203	.743	2.70

Int. Std.	Y_3203
Units	Cts/S
Avg	**25568.**
Stddev	139.
%RSD	.54396

Sample Name: msdw343844 Acquired: 10/22/2019 14:48:42 Type: Unk
Method: Sodium and Potassium 1(v1191) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**104.**	**105.**	**1.14**	**141.**	**274.**	**.740**
Stddev	.	2.	.02	.	1.	.016
%RSD	.153	2.27	2.12	.251	.277	2.22

Int. Std.	Y_3203
Units	Cts/S
Avg	**25419.**
Stddev	76.
%RSD	.29860

Sample Name: pdsw343844 Acquired: 10/22/2019 14:51:29 Type: Unk
Method: Sodium and Potassium 1(v1191) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**102.**	**105.**	**.199**	**35.3**	**81.1**	**.300**
Stddev	.	2.	.008	.1	.4	.006
%RSD	.411	1.48	3.82	.414	.537	1.93

Int. Std.	Y_3203
Units	Cts/S
Avg	**26032.**
Stddev	76.
%RSD	.29154

Sample Name: 343878 Acquired: 10/22/2019 14:54:16 Type: Unk
Method: Sodium and Potassium 1(v1191) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**3.00**	**16.5**	**4.28**	**38.4**	**61.7**	**3.87**
Stddev	.03	.1	.07	.1	.5	.03
%RSD	1.04	.655	1.73	.239	.877	.839

Int. Std.	Y_3203
Units	Cts/S
Avg	**26871.**
Stddev	83.
%RSD	.31013

Sample Name: ccv Acquired: 10/22/2019 15:02:35 Type: QC
Method: Sodium and Potassium 1(v1191) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na3302	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**102.**	**98.7**	**-.007**	**.047**	**-.282**	**-.002**
Stddev	.	1.4	.026	.001	.094	.017
%RSD	.207	1.41	383.	1.76	33.3	692.
Check ?	None	None	None	None	None	None
Value						
Range						

Int. Std.	Y_3203
Units	Cts/S
Avg	**26285.**
Stddev	47.
%RSD	.17751

Sample Name: ccb Acquired: 10/22/2019 15:05:21 Type: QC
Method: Sodium and Potassium 1(v1191) Mode: CONC Corr. Factor: 1.000000
User: MDS ICAP6000: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	K_7664	Na5895	Al3961	Mg2852	Ca3179	Fe2343
Units	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L
Avg	**.073**	**.120**	**.003**	**.010**	**-.385**	**-.008**
Stddev	.025	.003	.009	.001	.052	.004
%RSD	33.9	2.82	300.	8.61	13.4	55.2
Check ?	None	None	None	None	None	None
Value						
Range						

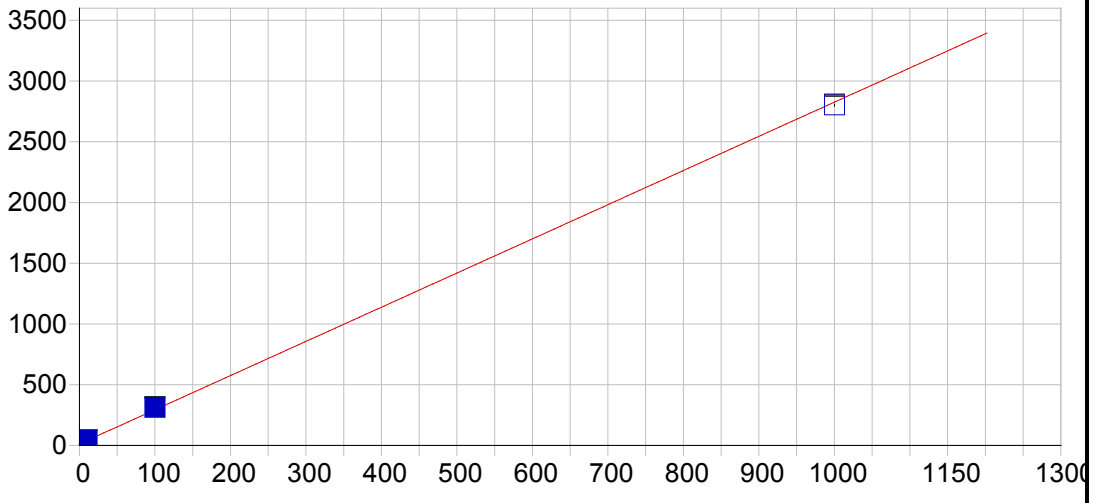
Int. Std.	Y_3203
Units	Cts/S
Avg	**26531.**
Stddev	136.
%RSD	.51228

Element, Wavelength and Order	Date of Fit	Date of Cal.	Type of Fit	Weighting	A0	A1	A2	n (Exponent)	Correlation	Std Error of Est	Predicted MDL	Predicted MQL
Ag 328.068 {103}	10/28/2019 14:26:29	10/23/2019 16:21:13	Linear	1/Conc	12.187419	2.814250	0.000000	1.000000	0.999483	0.123094	0.922110	3.073702
Ag 338.289 {100}	10/28/2019 14:26:29	10/23/2019 16:21:13	Linear	1/Conc	-0.000004	0.000001	0.000000	1.000000	0.999596	0.000000	6.697481	22.324936
Al 167.079 {501}	10/28/2019 14:26:29	10/23/2019 15:40:40	Linear	1/Var	0.000017	0.000002	0.000000	1.000000	0.999802	0.000008	1.029416	3.431386
Al 308.215 {109}	10/28/2019 14:26:29	10/23/2019 16:00:03	Linear	1/Var	0.000059	0.000000	0.000000	1.000000	0.998877	0.000066	18.044426	60.148087
Al 396.152 { 85}	10/28/2019 14:26:29	10/23/2019 16:14:39	Linear	1/Var	-0.000033	0.000001	0.000000	1.000000	0.999592	0.000069	9.085830	30.286101
As 193.759 {474}	10/28/2019 14:26:29	10/23/2019 15:40:41	Linear	1/Conc	0.093858	0.143923	0.000000	1.000000	0.998156	0.038478	5.571486	18.571619
As 197.262 {471}	10/28/2019 14:26:29	10/23/2019 15:47:08	Linear	1/Conc	-0.000003	0.000000	0.000000	1.000000	0.999473	0.000000	14.496270	48.320901
Ba 233.527 {445}	10/28/2019 14:26:29	10/23/2019 15:40:41	Linear	1/Conc	-0.000000	0.000009	0.000000	1.000000	0.999511	0.000000	0.437458	1.458193
Ba 455.403 { 74}	10/28/2019 14:26:29	10/23/2019 15:47:08	Curvili	1/Conc	0.000177	0.000053	-0.000000	1.000000	0.999884	0.000003	0.227707	0.759022
Ba 493.409 { 68}	10/28/2019 14:26:29	10/23/2019 16:21:13	Linear	1/Conc	0.010603	0.000025	0.000000	1.000000	0.999940	0.000028	1.327846	4.426153
Be 313.042 {108}	10/28/2019 14:26:29	10/23/2019 15:40:41	Linear	1/Conc	0.000008	0.000058	0.000000	1.000000	0.999848	0.000001	0.043198	0.143993
Be 234.861 {144}	10/28/2019 14:26:29	10/23/2019 15:40:42	Linear	1/Var	1.355266	1.072019	0.000000	1.000000	0.999578	2.949794	0.687608	2.292027
Ca 315.887 {107}	10/28/2019 14:26:29	10/23/2019 16:14:39	Linear	1/Var	0.000054	0.000000	0.000000	1.000000	0.999057	0.000031	15.831684	52.772279
Ca 317.933 {106}	10/28/2019 14:26:29	10/23/2019 16:14:39	Full Fit	1/Conc	0.003910	0.000001	0.000000	0.990000	0.999865	0.000031	3.372631	11.242104
Ca 393.366 { 86}	10/28/2019 14:26:29	10/23/2019 15:40:42	Linear	None	0.001485	0.000161	0.000000	1.000000	0.999990	0.000572	0.052524	0.175080
Ca 396.847 { 85}	10/28/2019 14:26:29	10/23/2019 15:47:09	Linear	1/Var	0.000036	0.000020	0.000000	1.000000	0.997833	0.000493	0.367627	1.225423
Cd 226.502 {449}	10/28/2019 14:26:29	10/23/2019 15:40:42	Linear	1/Conc	-0.000000	0.000026	0.000000	1.000000	0.999554	0.000001	0.229872	0.766241
Cd 228.802 {447}	10/28/2019 14:26:29	10/23/2019 15:40:42	Linear	1/Conc	0.000015	0.000036	0.000000	1.000000	0.999448	0.000001	0.207527	0.691756
Co 228.616 {447}	10/28/2019 14:26:29	10/23/2019 15:47:09	Linear	1/Conc	0.000003	0.000021	0.000000	1.000000	0.999837	0.000001	0.321978	1.073260
Co 238.892 {141}	10/28/2019 14:26:29	10/23/2019 15:47:09	Linear	1/Conc	0.000005	0.000002	0.000000	1.000000	1.000000	0.000000	1.068046	3.560152
Cr 205.560 {464}	10/28/2019 14:26:29	10/23/2019 15:53:33	Curvili	1/Conc	-0.000008	0.000013	-0.000000	1.000000	0.999985	0.000001	0.361403	1.204677
Cr 267.716 {126}	10/28/2019 14:26:29	10/23/2019 15:47:09	Linear	1/Var	0.000003	0.000003	0.000000	1.000000	0.999576	0.000009	0.775885	2.586283
Cu 223.008 {451}	10/28/2019 14:26:29	10/23/2019 15:53:33	Linear	1/Conc	0.000005	0.000003	0.000000	1.000000	0.999594	0.000004	1.702477	5.674925
Cu 224.700 {450}	10/28/2019 14:26:29	10/23/2019 15:53:33	Linear	1/Conc	0.189363	1.522876	0.000000	1.000000	0.999253	3.280208	0.511630	1.705432
Cu 324.754 {104}	10/28/2019 14:26:29	10/23/2019 15:53:34	Linear	1/Conc	0.001465	0.000002	0.000000	1.000000	0.998538	0.000005	2.809836	9.366121
Cu 327.396 {103}	10/28/2019 14:26:29	10/23/2019 15:47:10	Linear	1/Conc	0.000030	0.000001	0.000000	1.000000	0.999685	0.000000	9.368032	31.226772
Fe 234.349 {144}	10/28/2019 14:26:29	10/23/2019 16:00:04	Linear	1/Conc	41.258771	0.462365	0.000000	1.000000	0.999982	1.310841	2.091373	6.971243
Fe 239.562 {140}	10/28/2019 14:26:29	10/23/2019 16:14:40	Linear	1/Var	0.000001	0.000000	0.000000	1.000000	0.998007	0.000050	10.522385	35.074618
Fe 259.940 {129}	10/28/2019 14:26:29	10/23/2019 16:07:07	Full Fit	1/Conc	0.000002	0.000016	0.000000	0.740000	0.997228	0.000103	0.220888	0.736295
Mg 202.582 {466}	10/28/2019 14:26:29	10/23/2019 16:14:40	Linear	1/Conc	0.000004	0.000002	0.000000	1.000000	0.997544	0.000198	3.474787	11.582622
Mg 279.079 {121}	10/28/2019 14:26:29	10/23/2019 16:14:40	Linear	1/Var	1.131914	0.026099	0.000000	1.000000	0.999628	14.810857	25.139350	83.797834
Mg 280.270 {120}	10/28/2019 14:26:29	10/23/2019 15:47:11	Linear	1/Conc	0.000111	0.000030	0.000000	1.000000	0.999985	0.000008	0.042060	0.140201
Mn 257.610 {131}	10/28/2019 14:26:29	10/23/2019 15:47:11	Linear	1/Var	0.000003	0.000005	0.000000	1.000000	0.998256	0.000011	0.268589	0.895295
Mn 259.373 {130}	10/28/2019 14:26:29	10/23/2019 15:53:34	Linear	None	-0.001412	0.000003	0.000000	1.000000	0.999912	0.002182	1.429911	4.766370
Mo 202.030 {466}	10/28/2019 14:26:29	10/23/2019 15:40:45	Linear	None	0.000011	0.000003	0.000000	1.000000	0.999973	0.000010	1.224300	4.080999
Mo 203.844 {465}	10/28/2019 14:26:29	10/23/2019 15:40:45	Linear	1/Var	0.000023	0.000006	0.000000	1.000000	0.999387	0.000019	0.933807	3.112690
Mo 204.598 {464}	10/28/2019 14:26:29	10/23/2019 15:47:11	Linear	1/Var	-0.000003	0.000002	0.000000	1.000000	0.999590	0.000005	2.127907	7.093024
Ni 221.647 {452}	10/28/2019 14:26:29	10/23/2019 15:47:11	Linear	1/Var	0.000004	0.000007	0.000000	1.000000	0.999915	0.000013	1.152149	3.840496
Ni 231.604 {445}	10/28/2019 14:26:29	10/23/2019 15:47:11	Linear	1/Conc	-0.000013	0.000006	0.000000	1.000000	0.999879	0.000000	1.231324	4.104412
Pb 216.999 {455}	10/28/2019 14:26:29	10/23/2019 15:53:34	Linear	1/Var	0.000001	0.000001	0.000000	1.000000	0.998610	0.000074	4.466472	14.888240
Pb 220.353 {453}	10/28/2019 14:26:29	10/23/2019 15:40:45	Linear	1/Var	0.000010	0.000003	0.000000	1.000000	0.999991	0.000002	2.939009	9.796696
Pb 220.353 {153}	10/28/2019 14:26:29	10/23/2019 15:53:34	Linear	1/Conc	0.000001	0.000000	0.000000	1.000000	0.999680	0.000001	4.894901	16.316337
Sb 206.833 {463}	10/28/2019 14:26:29	10/23/2019 15:47:12	Linear	1/Var	-0.000002	0.000001	0.000000	1.000000	0.999914	0.000008	4.572563	15.241876
Sb 217.581 {455}	10/28/2019 14:26:29	10/23/2019 15:47:12	Linear	1/Conc	0.000001	0.000001	0.000000	1.000000	0.999852	0.000000	4.414548	14.715159

	Element, Wavelength and Order	Status	Reslope		QC Norm	
			Slope	Y-int	Slope factor	Offset
	Ag 328.068 {103}	OK.	1.000000	0.000000	1	0
	Ag 338.289 {100}	OK.	1.000000	0.000000	1	0
	Al 167.079 {501}	OK.	1.000000	0.000000	1	0
	Al 308.215 {109}	OK.	1.000000	0.000000	1	0
	Al 396.152 { 85}	OK.	1.000000	0.000000	1	0
	As 193.759 {474}	OK.	1.000000	0.000000	1	0
	As 197.262 {471}	OK.	1.000000	0.000000	1	0
	Ba 233.527 {445}	OK.	1.000000	0.000000	1	0
	Ba 455.403 { 74}	OK.	1.000000	0.000000	1	0
	Ba 493.409 { 68}	OK.	1.000000	0.000000	1	0
	Be 313.042 {108}	OK.	1.000000	0.000000	1	0
	Be 234.861 {144}	OK.	1.000000	0.000000	1	0
	Ca 315.887 {107}	OK.	1.000000	0.000000	1	0
	Ca 317.933 {106}	OK.	1.000000	0.000000	1	0
	Ca 393.366 { 86}	OK.	1.000000	0.000000	1	0
	Ca 396.847 { 85}	OK.	1.000000	0.000000	1	0
	Cd 226.502 {449}	OK.	1.000000	0.000000	1	0
	Cd 228.802 {447}	OK.	1.000000	0.000000	1	0
	Co 228.616 {447}	OK.	1.000000	0.000000	1	0
	Co 238.892 {141}	OK.	1.000000	0.000000	1	0
	Cr 205.560 {464}	OK.	1.000000	0.000000	1	0
	Cr 267.716 {126}	OK.	1.000000	0.000000	1	0
	Cu 223.008 {451}	OK.	1.000000	0.000000	1	0
	Cu 224.700 {450}	OK.	1.000000	0.000000	1	0
	Cu 324.754 {104}	OK.	1.000000	0.000000	1	0
	Cu 327.396 {103}	OK.	1.000000	0.000000	1	0
	Fe 234.349 {144}	OK.	1.000000	0.000000	1	0
	Fe 239.562 {140}	OK.	1.000000	0.000000	1	0
	Fe 259.940 {129}	Warnin	1.000000	0.000000	1	0
	Mg 202.582 {466}	OK.	1.000000	0.000000	1	0
	Mg 279.079 {121}	OK.	1.000000	0.000000	1	0
	Mg 280.270 {120}	OK.	1.000000	0.000000	1	0
	Mn 257.610 {131}	OK.	1.000000	0.000000	1	0
	Mn 259.373 {130}	OK.	1.000000	0.000000	1	0
	Mo 202.030 {466}	OK.	1.000000	0.000000	1	0
	Mo 203.844 {465}	OK.	1.000000	0.000000	1	0
	Mo 204.598 {464}	OK.	1.000000	0.000000	1	0
	Ni 221.647 {452}	OK.	1.000000	0.000000	1	0
	Ni 231.604 {445}	OK.	1.000000	0.000000	1	0
	Pb 216.999 {455}	OK.	1.000000	0.000000	1	0
	Pb 220.353 {453}	OK.	1.000000	0.000000	1	0
	Pb 220.353 {153}	OK.	1.000000	0.000000	1	0
	Sb 206.833 {463}	OK.	1.000000	0.000000	1	0
	Sb 217.581 {455}	OK.	1.000000	0.000000	1	0

Element, Wavelength and Order	Date of Fit	Date of Cal.	Type of Fit	Weighting	A0	A1	A2	n (Exponent)	Correlation	Std Error of Est	Predicted MDL	Predicted MQL
Se 196.090 {472}	10/28/2019 14:26:29	10/23/2019 15:40:46	Linear	1/Conc	0.000002	0.000001	0.000000	1.000000	0.999129	0.000000	4.570619	15.235398
Se 203.985 {465}	10/28/2019 14:26:29	10/23/2019 15:40:46	Linear	1/Conc	-0.000027	0.000001	0.000000	1.000000	0.998348	0.000000	10.900606	36.335352
Se 206.279 {463}	10/28/2019 14:26:29	10/23/2019 15:47:12	Curvili	1/Conc	-0.000004	0.000000	-0.000000	1.000000	0.999971	0.000000	23.373834	77.912779
Tl 190.856 {476}	10/28/2019 14:26:29	10/23/2019 15:47:12	Linear	1/Conc	0.000008	0.000002	0.000000	1.000000	0.999855	0.000001	2.332948	7.776495
Tl 190.856 {477}	10/28/2019 14:26:29	10/23/2019 15:47:12	Linear	1/Conc	0.000002	0.000001	0.000000	1.000000	0.999836	0.000000	4.395979	14.653263
V 290.882 {116}	10/28/2019 14:26:29	10/23/2019 15:47:12	Linear	1/Conc	0.000013	0.000001	0.000000	1.000000	0.999993	0.000000	3.436722	11.455741
V 292.402 {115}	10/28/2019 14:26:29	10/23/2019 15:47:12	Linear	1/Conc	0.000003	0.000005	0.000000	1.000000	0.999954	0.000001	0.898085	2.993615
Zn 206.200 {463}	10/28/2019 14:26:29	10/23/2019 15:53:34	Linear	1/Var	0.000016	0.000010	0.000000	1.000000	0.999834	0.000011	0.571119	1.903729
Zn 213.856 {457}	10/28/2019 14:26:29	10/23/2019 15:40:47	Linear	1/Conc	0.000024	0.000024	0.000000	1.000000	0.999816	0.000002	0.242893	0.809643
Y 224.306 {450}*	10/28/2019 14:26:29	10/23/2019 14:51:14	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-1.000000	-1.000000
Y 324.228 {104}*	10/28/2019 14:26:29	10/23/2019 14:51:14	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-1.000000	-1.000000
Y 371.030 { 91}*	10/28/2019 14:26:29	10/23/2019 14:51:14	Linear	1/Conc	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-1.000000	-1.000000
Na 588.995 { 57}	10/28/2019 14:26:29	10/23/2019 15:47:13	Linear	None	0.004105	0.000005	0.000000	1.000000	1.000000	0.000022	6.256066	20.853555
Na 589.592 { 57}	10/28/2019 14:26:29	10/23/2019 16:14:40	Linear	1/Var	0.000049	0.000001	0.000000	1.000000	0.998889	0.000060	25.128504	83.761681
Si 251.611 {134}	10/28/2019 14:26:29	10/23/2019 16:14:40	Linear	1/Var	2.892276	0.140210	0.000000	1.000000	0.997462	12.320226	7.797696	25.992320
Ti 323.452 {104}	10/28/2019 14:26:29	10/23/2019 15:47:13	Linear	1/Conc	0.000273	0.000003	0.000000	1.000000	0.999836	0.000000	2.511358	8.371193
Ti 334.941 {101}	10/28/2019 14:26:29	10/23/2019 15:47:13	Linear	1/Conc	-0.000001	0.000002	0.000000	1.000000	0.999902	0.000000	2.797856	9.326187
Sr 407.771 { 83}	10/28/2019 14:26:29	10/23/2019 15:47:13	Linear	1/Conc	0.000091	0.000089	0.000000	1.000000	0.999968	0.000003	0.120337	0.401123
Sr 421.552 { 80}	10/28/2019 14:26:29	10/23/2019 15:47:14	Linear	1/Conc	0.000016	0.000080	0.000000	1.000000	0.999984	0.000002	0.135456	0.451520
Sn 189.989 {477}	10/28/2019 14:26:29	10/23/2019 15:47:14	Linear	1/Conc	0.000000	0.000003	0.000000	1.000000	0.999941	0.000000	1.573514	5.245047
B 249.678 {135}	10/28/2019 14:26:29	10/23/2019 15:47:14	Linear	1/Conc	0.000006	0.000002	0.000000	1.000000	0.999956	0.000000	1.399181	4.663935
B 249.773 {135}	10/28/2019 14:26:29	10/23/2019 15:47:14	Curvili	1/Var	0.000010	0.000004	0.000000	1.000000	0.999989	0.000002	0.630501	2.101669
Li 670.784 { 50}	10/28/2019 14:26:29	10/23/2019 15:47:14	Linear	1/Conc	-0.000026	0.000034	0.000000	1.000000	0.999989	0.000002	0.871705	2.905684
K 766.490 { 44}	10/28/2019 14:26:29	10/23/2019 16:14:40	Linear	1/Var	-0.000030	0.000001	0.000000	1.000000	0.999779	0.000079	23.830204	79.434014
P 213.618 {457}	10/28/2019 14:26:29	10/23/2019 15:47:14	Linear	1/Conc	-0.000001	0.000000	0.000000	1.000000	0.999924	0.000000	6.770312	22.567708
S 182.034 {485}	10/28/2019 14:26:29	10/23/2019 16:14:40	Curvili	1/Conc	0.000001	0.000000	0.000000	1.000000	1.000000	0.000000	9.954942	33.183142
Hg 184.950 {482}	10/28/2019 14:26:29	10/23/2019 15:40:49	Linear	1/Conc	0.000017	0.000001	0.000000	1.000000	1.000000	0.000000	2.940960	9.803202
Ce 404.076 { 83}	10/28/2019 14:26:29	10/23/2019 15:40:49	Linear	1/Conc	0.000038	0.000001	0.000000	1.000000	1.000000	0.000000	16.427212	54.757372

	Element, Wavelength and Order	Status	Reslope		QC Norm	
			Slope	Y-int	Slope factor	Offset
	Se 196.090 {472}	OK.	1.000000	0.000000	1	0
	Se 203.985 {465}	OK.	1.000000	0.000000	1	0
	Se 206.279 {463}	OK.	1.000000	0.000000	1	0
	Tl 190.856 {476}	OK.	1.000000	0.000000	1	0
	Tl 190.856 {477}	OK.	1.000000	0.000000	1	0
	V 290.882 {116}	OK.	1.000000	0.000000	1	0
	V 292.402 {115}	OK.	1.000000	0.000000	1	0
	Zn 206.200 {463}	OK.	1.000000	0.000000	1	0
	Zn 213.856 {457}	OK.	1.000000	0.000000	1	0
	Y 224.306 {450}*	Warnin	1.000000	0.000000	1	0
	Y 324.228 {104}*	Warnin	1.000000	0.000000	1	0
	Y 371.030 { 91}*	Warnin	1.000000	0.000000	1	0
	Na 588.995 { 57}	OK.	1.000000	0.000000	1	0
	Na 589.592 { 57}	OK.	1.000000	0.000000	1	0
	Si 251.611 {134}	OK.	1.000000	0.000000	1	0
	Ti 323.452 {104}	OK.	1.000000	0.000000	1	0
	Ti 334.941 {101}	OK.	1.000000	0.000000	1	0
	Sr 407.771 { 83}	OK.	1.000000	0.000000	1	0
	Sr 421.552 { 80}	OK.	1.000000	0.000000	1	0
	Sn 189.989 {477}	OK.	1.000000	0.000000	1	0
	B 249.678 {135}	OK.	1.000000	0.000000	1	0
	B 249.773 {135}	Warnin	1.000000	0.000000	1	0
	Li 670.784 { 50}	OK.	1.000000	0.000000	1	0
	K 766.490 { 44}	OK.	1.000000	0.000000	1	0
	P 213.618 {457}	OK.	1.000000	0.000000	1	0
	S 182.034 {485}	OK.	1.000000	0.000000	1	0
	Hg 184.950 {482}	OK.	1.000000	0.000000	1	0
	Ce 404.076 { 83}	OK.	1.000000	0.000000	1	0

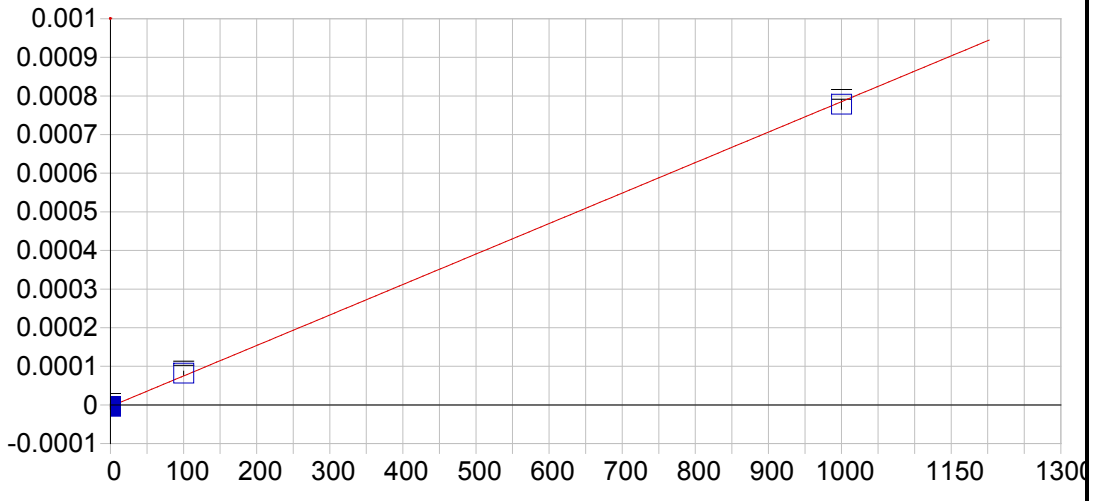


Ag 328.068 {103}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	12.187419	Re-Slope:	1.000000
A1 (Gain):	2.814250	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999483	Status:	OK.
Std Error of Est:	0.123094		
Predicted MDL:	0.922110		
Predicted MQL:	3.073702		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00086	-.001	.000	12.185	1.99	1
CalStd5=10	10.000	11.458	1.46	14.6	44.430	3.03	1
CalStd8=100	100.00	106.55	6.55	6.55	312.01	4.05	1
CalStd3=1	1.0000	1.6568	.657	65.7	16.850	1.63	1
Ag Ba 1000,	1000.0	991.33	-8.67	-.867	2802.1	8.34	1

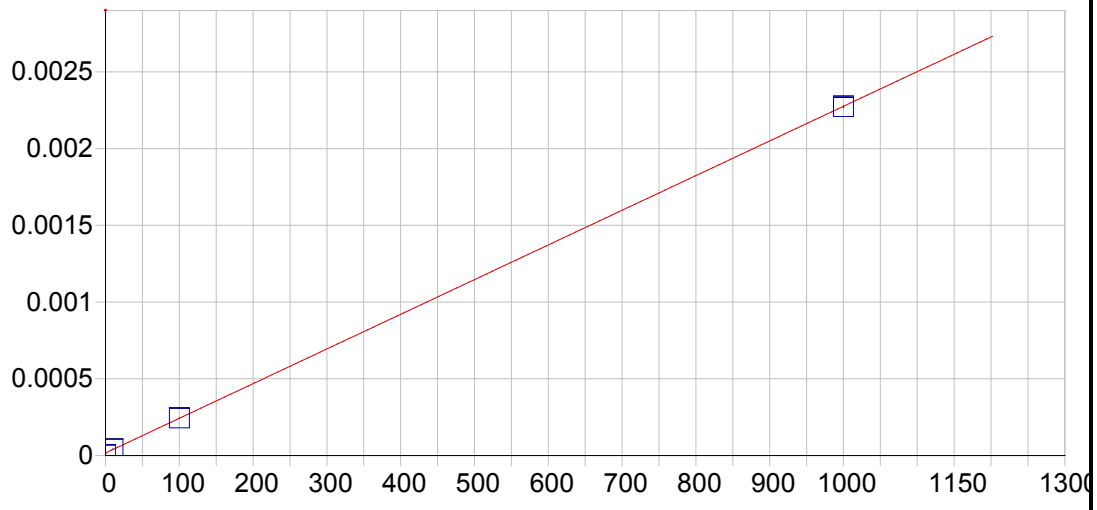


Ag 338.289 {100}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000004	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999596	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	6.697481		
Predicted MQL:	22.324936		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00809	-.008	.000	-.00000	.000	1
CalStd8=100	100.00	108.99	8.99	8.99	.00008	.000	1
Ag Ba 1000,	1000.0	991.01	-8.99	-.899	.00078	.000	1

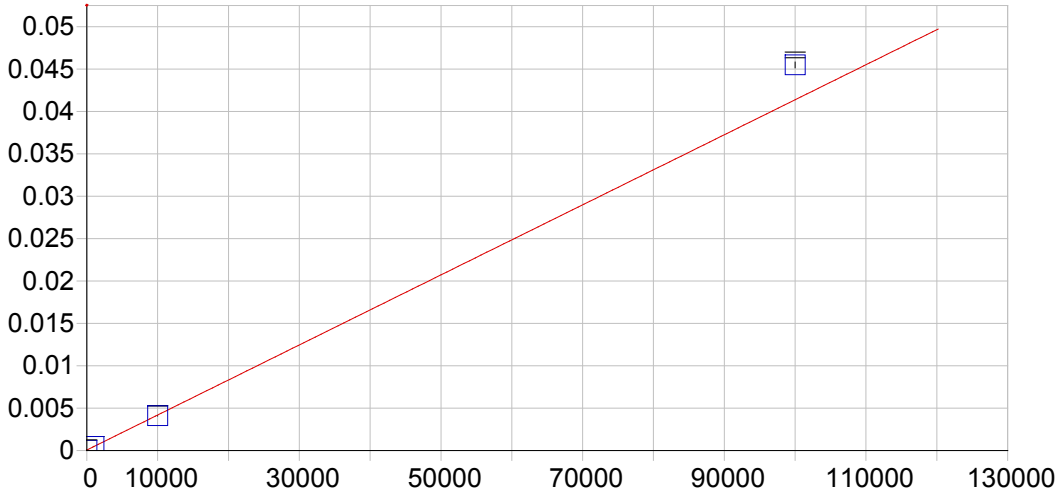


Al 167.079 {501}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000017	Re-Slope:	1.000000
A1 (Gain):	0.000002	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999802	Status:	OK.
Std Error of Est:	0.000008		
Predicted MDL:	1.029416		
Predicted MQL:	3.431386		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-5.2672	-5.27	.000	.00000	.000	1
CalStd9=100	1000.0	998.85	-1.15	-.115	.00227	.000	1
CalStd5=10	10.000	11.490	1.49	14.9	.00004	.000	1
CalStd8=100	100.00	100.67	.671	.671	.00024	.000	1

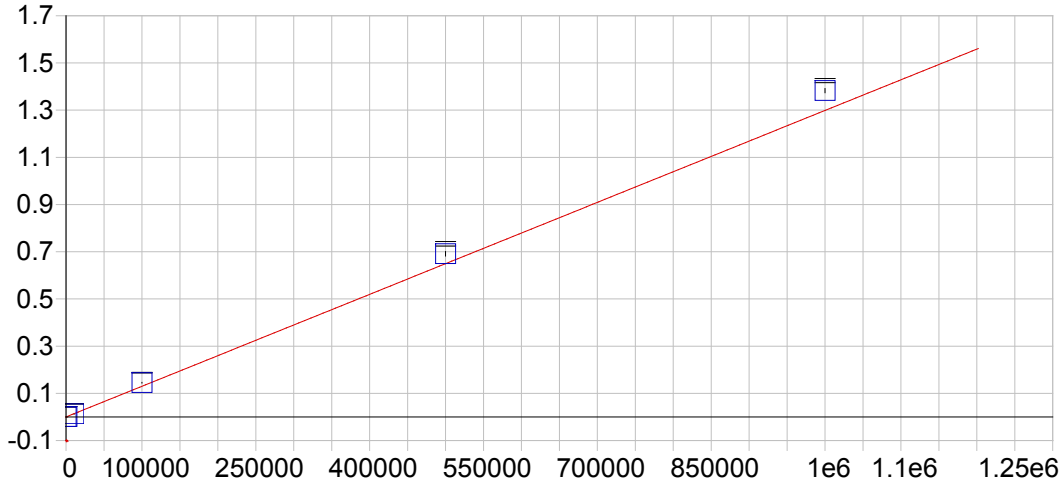


Al 308.215 {109}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000059	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.998877	Status:	OK.
Std Error of Est:	0.000066		
Predicted MDL:	18.044426		
Predicted MQL:	60.148087		

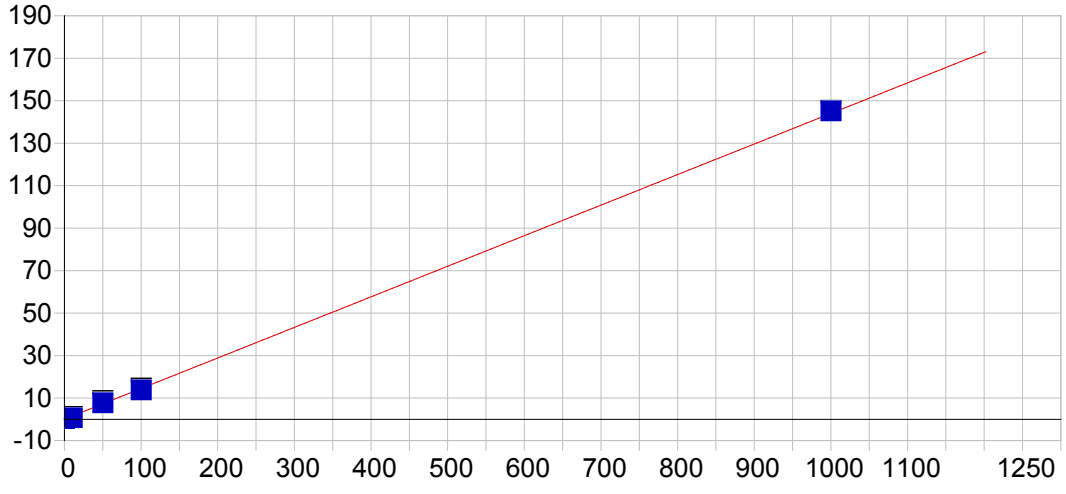
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	10.615	10.6	.000	.00006	.000	1
CalStd10=10	10000.	9785.0	-215.	-2.15	.00410	.000	1
CalStd9=100	1000.0	1009.4	9.36	.936	.00048	.000	1
CalStd13=10	100000.	109950.	9950.	9.95	.04549	.000	1



Al 396.152 { 85}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Var
A0 (Offset):	-0.000033		Re-Slope:	1.000000	
A1 (Gain):	0.000001		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.999592		Status:	OK.	
Std Error of Est:	0.000069				
Predicted MDL:	9.085830				
Predicted MQL:	30.286101				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-5.2900	-5.29	.000	-.00004	.000	1
CalStd14=50	500000.	532160.	32200.	6.43	.69110	.009	1
CalStd13=10	100000.	111640.	11600.	11.6	.14495	.001	1
CalStd10=10	10000.	9901.9	-98.1	-.981	.01283	.000	1
CalStd9=100	1000.0	1004.4	4.37	.437	.00127	.000	1
CalibStd15=	1000000.	1064500.	64500.	6.45	1.3825	.009	1

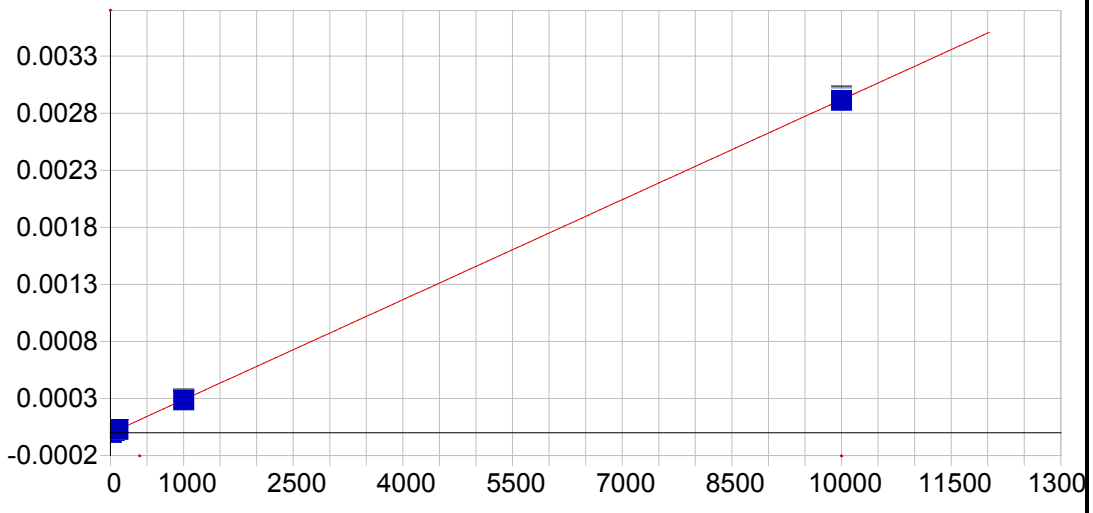


As 193.759 {474}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.093858	Re-Slope:	1.000000
A1 (Gain):	0.143923	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.998156	Status:	OK.
Std Error of Est:	0.038478		
Predicted MDL:	5.571486		
Predicted MQL:	18.571619		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00603	.006	.000	.09473	.510	1
CalStd9=100	1000.0	1008.0	8.04	.804	145.27	.185	1
CalStd7=50	50.000	52.816	2.82	5.63	7.6997	.960	1
CalStd5=10	10.000	3.7934	-6.21	-62.1	.64185	.670	1
CalStd8=100	100.00	95.360	-4.64	-4.64	13.828	.786	1

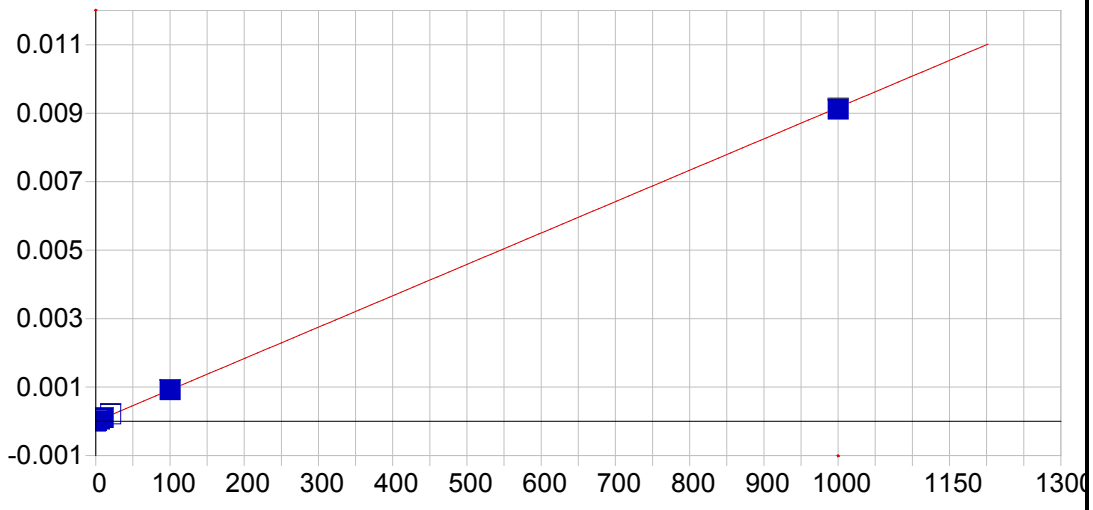


As 197.262 {471}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000003	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999473	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	14.496270		
Predicted MQL:	48.320901		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.01052	-.011	.000	-.00000	.000	1
CalStd9=100	1000.0	991.31	-8.69	-.869	.00029	.000	1
CalStd7=50	50.000	69.569	19.6	39.1	.00002	.000	1
CalStd5=10	10.000	15.951	5.95	59.5	.00000	.000	1
CalStd8=100	100.00	107.64	7.64	7.64	.00003	.000	1
CalStd10=10	10000.	9975.7	-24.3	-.243	.00293	.000	1

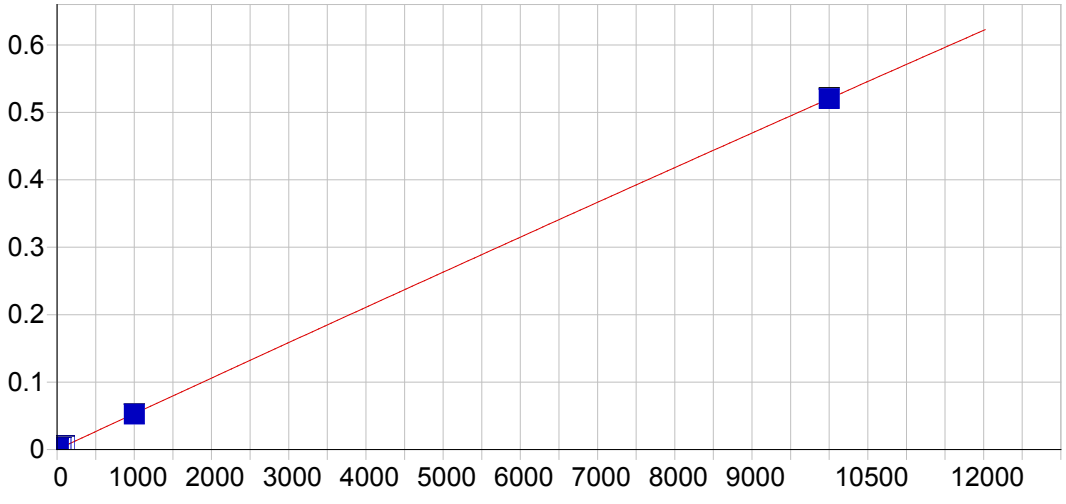


Ba 233.527 {445}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000000	Re-Slope:	1.000000
A1 (Gain):	0.000009	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999511	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	0.437458		
Predicted MQL:	1.458193		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00084	-.001	.000	-.00000	.000	1
CalStd5=10	10.000	10.828	.828	8.28	.00010	.000	1
CalStd6=20	20.000	22.961	2.96	14.8	.00021	.000	1
CalStd8=100	100.00	100.02	.019	.019	.00092	.000	1
CalStd4=5	5.0000	6.5485	1.55	31.0	.00006	.000	1
CalStd9=100	1000.0	994.34	-5.66	-.566	.00912	.000	1
CalStd3=1	1.0000	1.3049	.305	30.5	.00001	.000	1

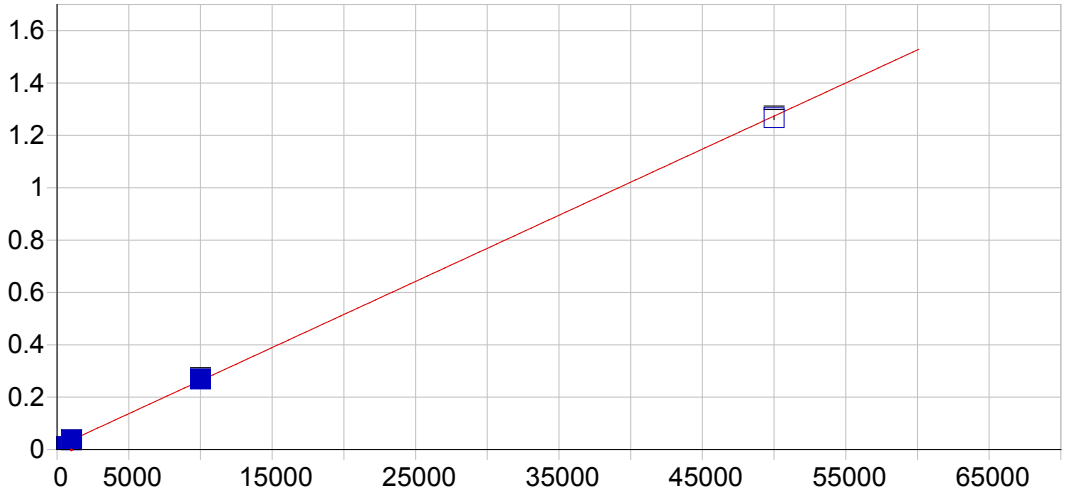


Ba 455.403 { 74}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Curvilinear	Weighting:	1/Conc

A0 (Offset):	0.000177	Re-Slope:	1.000000
A1 (Gain):	0.000053	Y-int:	0.000000
A2 (Curvature):	-0.000000		
n (Exponent):	1.000000		
Correlation:	0.999884	Status:	OK.
Std Error of Est:	0.000003		
Predicted MDL:	0.227707		
Predicted MQL:	0.759022		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00117	-.001	.000	.00018	.000	1
CalStd7=50	50.000	56.924	6.92	13.8	.00320	.000	1
CalStd5=10	10.000	11.042	1.04	10.4	.00076	.000	1
CalStd6=20	20.000	22.898	2.90	14.5	.00139	.000	1
CalStd8=100	100.00	98.125	-1.87	-1.87	.00539	.000	1
CalStd4=5	5.0000	6.7255	1.73	34.5	.00053	.000	1
CalStd9=100	1000.0	987.55	-12.5	-1.25	.05255	.000	1
CalStd3=1	1.0000	1.4690	.469	46.9	.00026	.000	1
CalStd10=10	10000.	10001.	1.27	.013	.52045	.001	1

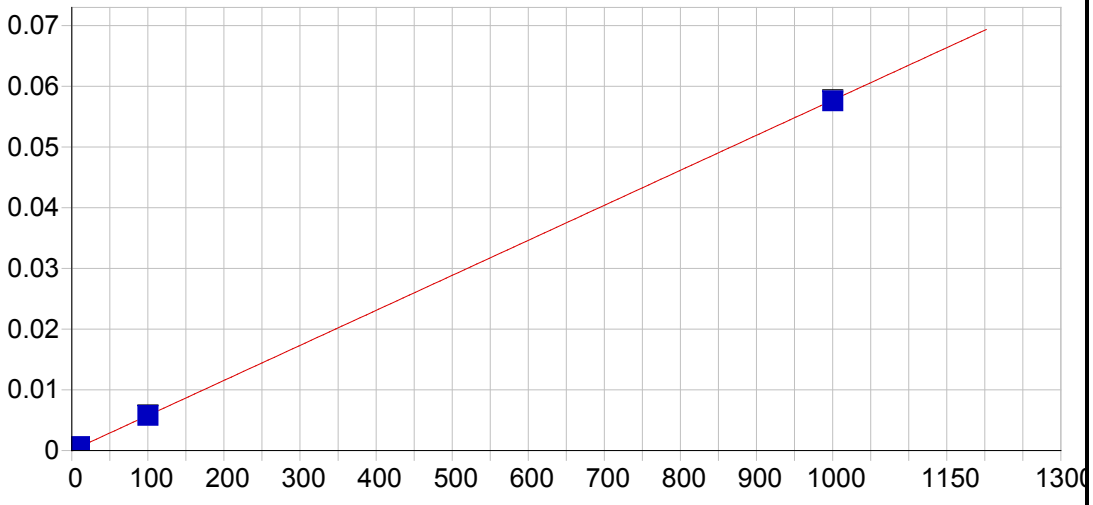


Ba 493.409 { 68}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.010603	Re-Slope:	1.000000
A1 (Gain):	0.000025	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999940	Status:	OK.
Std Error of Est:	0.000028		
Predicted MDL:	1.327846		
Predicted MQL:	4.426153		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00666	-.007	.000	.01060	.000	1
CalStd9=100	1000.0	1028.5	28.5	2.85	.03659	.000	1
CalStd8=100	100.00	102.05	2.05	2.05	.01318	.000	1
CalStd10=10	10000.	10228.	228.	2.28	.26904	.005	1
Ag Ba 1000,	50000.	49742.	-258.	-.517	1.2673	.007	1

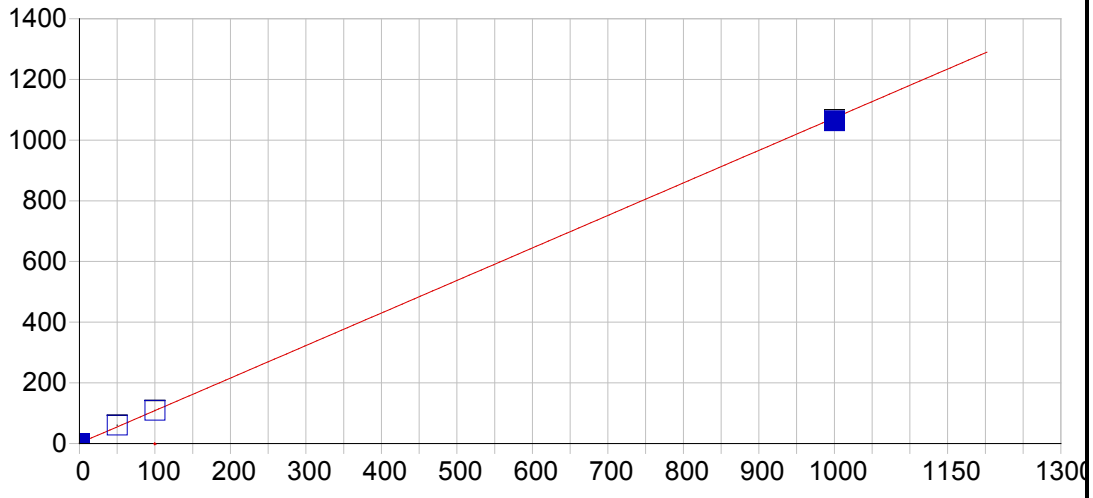


Be 313.042 {108}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000008	Re-Slope:	1.000000
A1 (Gain):	0.000058	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999848	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.043198		
Predicted MQL:	0.143993		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00030	-.000	.000	.00001	.000	1
CalStd5=10	10.000	10.901	.901	9.01	.00064	.000	1
CalStd8=100	100.00	99.979	-.021	-.021	.00578	.000	1
CalStd2=0.5	.50000	.56337	.063	12.7	.00004	.000	1
CalStd4=5	5.0000	6.0387	1.04	20.8	.00036	.000	1
CalStd9=100	1000.0	997.85	-2.15	-.215	.05759	.000	1
CalStd3=1	1.0000	1.1709	.171	17.1	.00008	.000	1

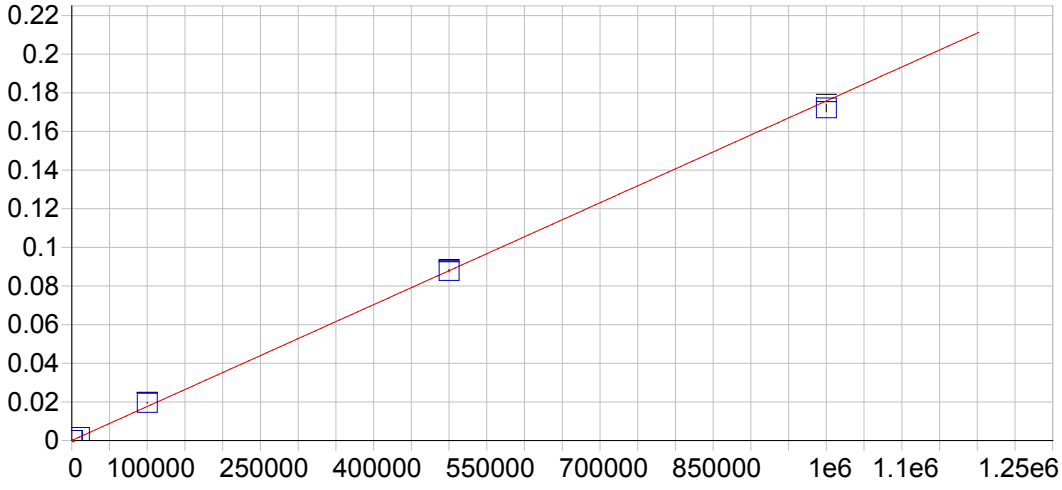


Be 234.861 {144}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	1.355266	Re-Slope:	1.000000
A1 (Gain):	1.072019	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999578	Status:	OK.
Std Error of Est:	2.949794		
Predicted MDL:	0.687608		
Predicted MQL:	2.292027		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.77491	-.775	.000	.52455	.276	1
CalStd9=100	1000.0	990.46	-9.54	-.954	1063.3	4.07	1
CalStd8=100	100.00	100.46	.459	.459	109.05	.781	1
CalStd7=50	50.000	55.001	5.00	10.0	60.318	.707	1

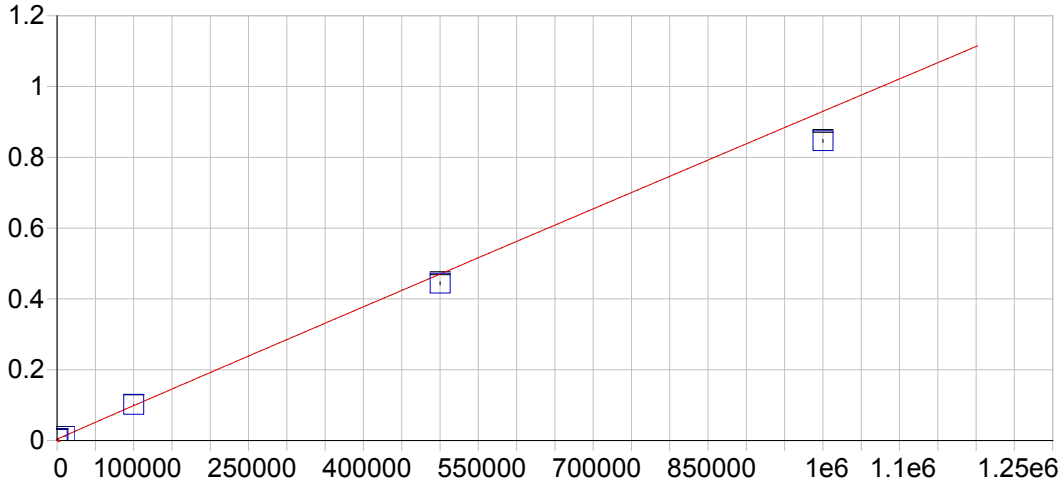


Ca 315.887 {107}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000054	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999057	Status:	OK.
Std Error of Est:	0.000031		
Predicted MDL:	15.831684		
Predicted MQL:	52.772279		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	19.908	19.9	.000	.00006	.000	1
CalStd10=10	10000.	9773.9	-226.	-2.26	.00177	.000	1
CalStd13=10	100000.	111250.	11200.	11.2	.01960	.000	1
CalStd14=50	500000.	499880.	-120.	-.024	.08790	.001	1
CalStd9=100	1000.0	967.58	-32.4	-3.24	.00022	.000	1
CalibStd15=	1000000.	979120.	-20900.	-2.09	.17212	.002	1

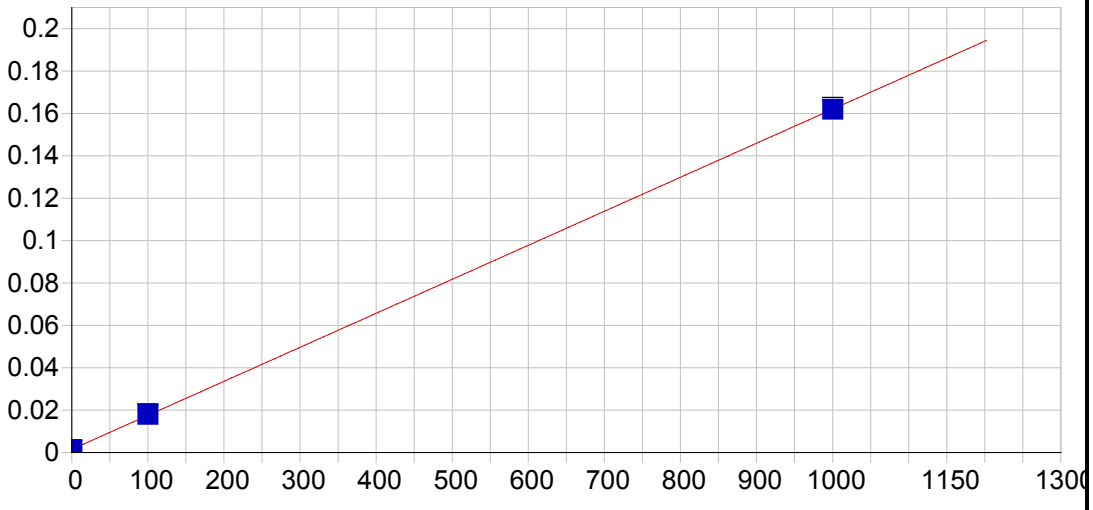


Ca 317.933 {106}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Full Fit	Weighting:	1/Conc

A0 (Offset):	0.003910	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	0.990000		
Correlation:	0.999865	Status:	OK.
Std Error of Est:	0.000031		
Predicted MDL:	3.372631		
Predicted MQL:	11.242104		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.19496	.195	.000	.00391	.000	1
CalStd10=10	10000.	8828.4	-1170.	-11.7	.01248	.000	1
CalStd13=10	100000.	103060.	3060.	3.06	.10154	.001	1
CalStd14=50	500000.	471920.	-28100.	-5.62	.44424	.004	1
CalStd9=100	1000.0	867.78	-132.	-13.2	.00477	.000	1
CalibStd15=	1000000.	909000.	-91000.	-9.10	.84653	.004	1

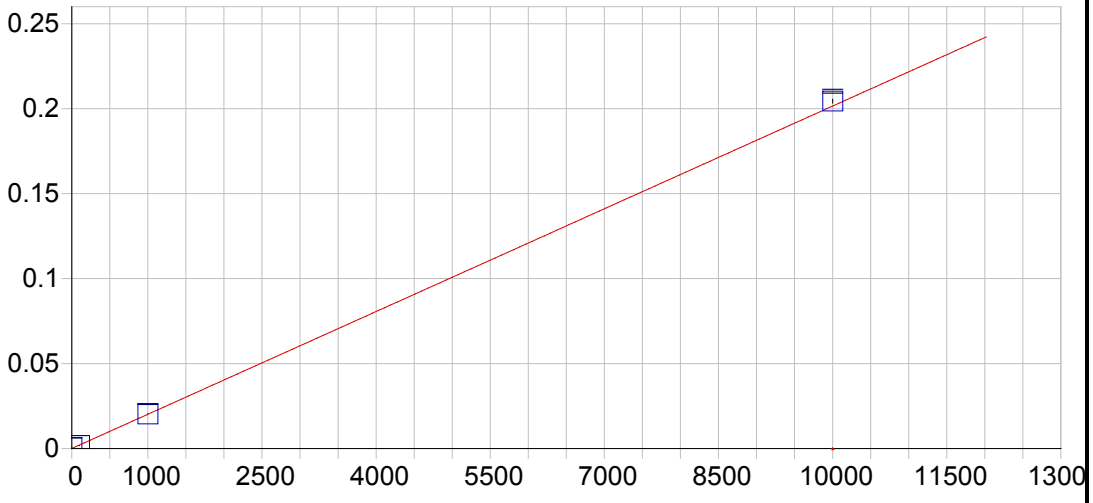


Ca 393.366 { 86}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.001485	Re-Slope:	1.000000
A1 (Gain):	0.000161	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999990	Status:	OK.
Std Error of Est:	0.000572		
Predicted MDL:	0.052524		
Predicted MQL:	0.175080		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-2.3755	-2.38	.000	.00110	.000	1
CalStd9=100	1000.0	999.74	-.264	-.026	.16196	.001	1
CalStd8=100	100.00	102.64	2.64	2.64	.01796	.000	1

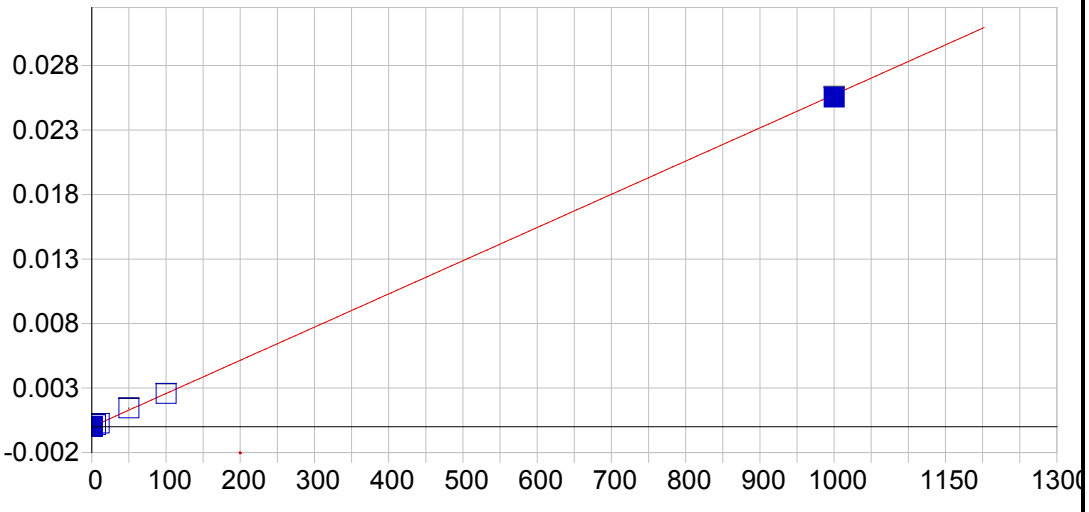


Ca 396.847 { 85}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000036	Re-Slope:	1.000000
A1 (Gain):	0.000020	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.997833	Status:	OK.
Std Error of Est:	0.000493		
Predicted MDL:	0.367627		
Predicted MQL:	1.225423		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	17.918	17.9	.000	.00040	.000	1
CalStd10=10	10000.	10142.	142.	1.42	.20439	.001	1
CalStd8=100	100.00	83.719	-16.3	-16.3	.00172	.000	1
CalStd9=100	1000.0	1003.7	3.68	.368	.02026	.000	1

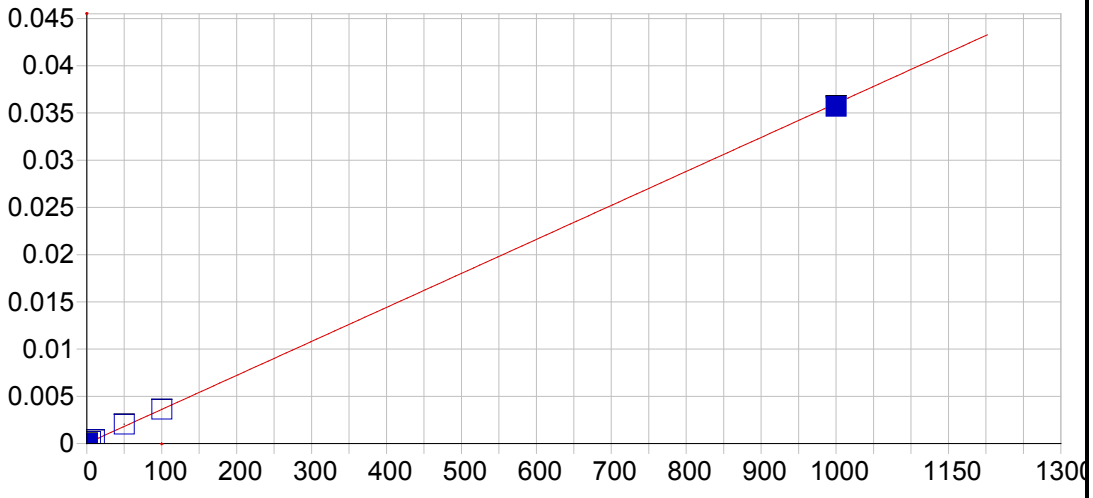


Cd 226.502 {449}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000000	Re-Slope:	1.000000
A1 (Gain):	0.000026	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999554	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.229872		
Predicted MQL:	0.766241		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00007	-.000	.000	-.00000	.000	1
CalStd7=50	50.000	56.120	6.12	12.2	.00144	.000	1
CalStd3=1	1.0000	1.0025	.002	.249	.00003	.000	1
CalStd2=0.5	.50000	.38770	-.112	-22.5	.00001	.000	1
CalStd4=5	5.0000	5.9320	.932	18.6	.00015	.000	1
CalStd8=100	100.00	99.965	-.035	-.035	.00257	.000	1
CalStd5=10	10.000	10.614	.614	6.14	.00027	.000	1
CalStd9=100	1000.0	992.48	-7.52	-.752	.02555	.000	1

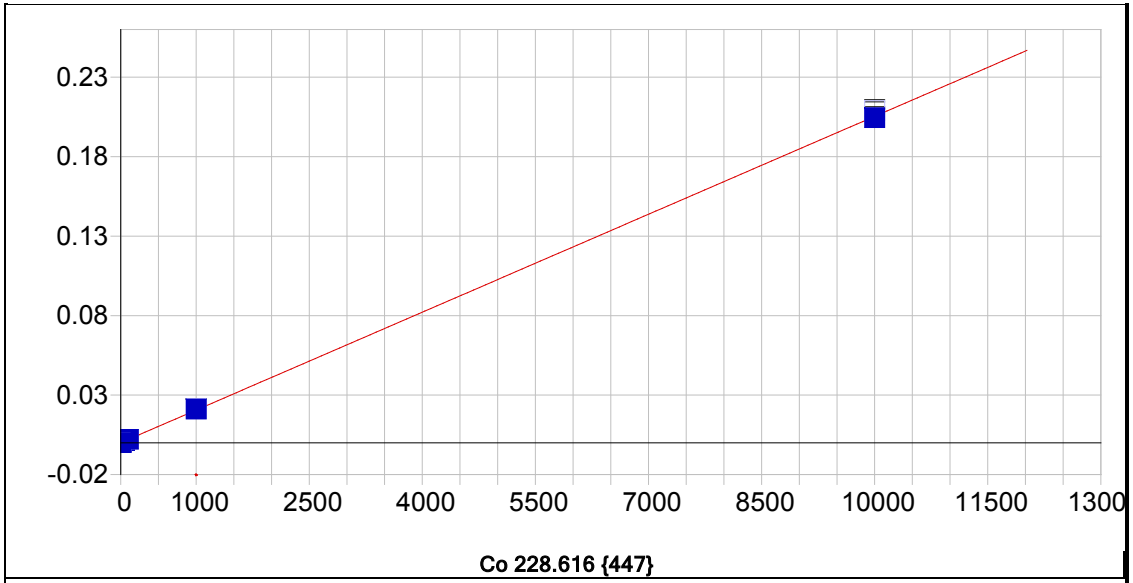


Cd 228.802 {447}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000015	Re-Slope:	1.000000
A1 (Gain):	0.000036	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999448	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.207527		
Predicted MQL:	0.691756		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00048	-.000	.000	.00001	.000	1
CalStd7=50	50.000	56.480	6.48	13.0	.00205	.000	1
CalStd3=1	1.0000	1.1807	.181	18.1	.00006	.000	1
CalStd2=0.5	.50000	.68749	.187	37.5	.00004	.000	1
CalStd4=5	5.0000	6.0237	1.02	20.5	.00023	.000	1
CalStd8=100	100.00	100.23	.233	.233	.00362	.000	1
CalStd5=10	10.000	10.755	.755	7.55	.00040	.000	1
CalStd9=100	1000.0	991.14	-8.86	-.886	.03569	.000	1

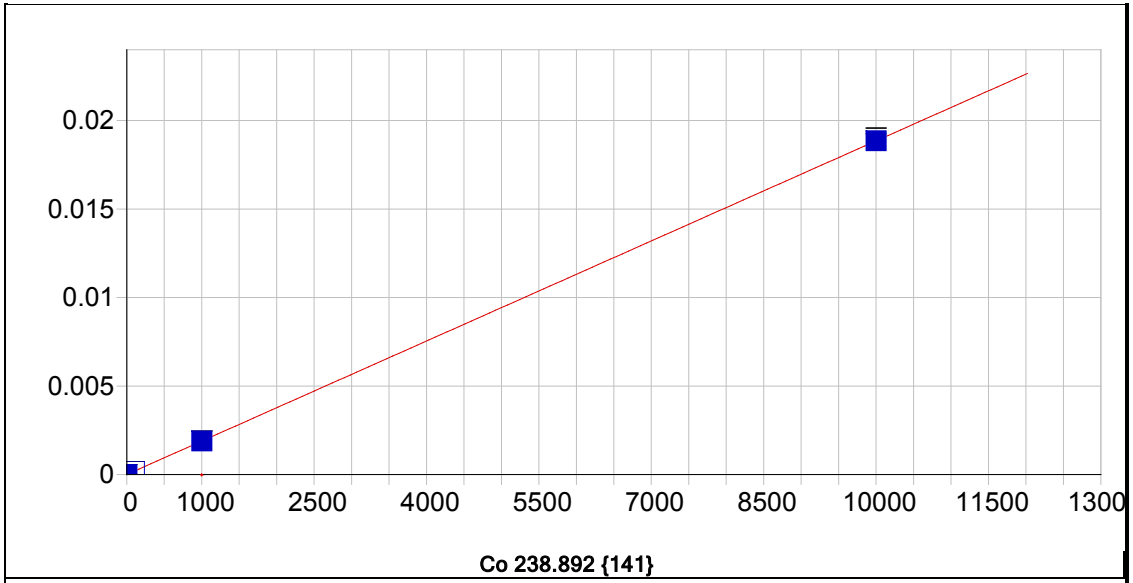


Co 228.616 {447}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000003	Re-Slope:	1.000000
A1 (Gain):	0.000021	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999837	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.321978		
Predicted MQL:	1.073260		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00090	-.001	.000	.00000	.000	1
CalStd7=50	50.000	60.010	10.0	20.0	.00124	.000	1
CalStd5=10	10.000	11.593	1.59	15.9	.00024	.000	1
CalStd4=5	5.0000	6.5928	1.59	31.9	.00014	.000	1
CalStd8=100	100.00	103.13	3.13	3.13	.00216	.000	1
CalStd9=100	1000.0	1026.9	26.9	2.69	.02151	.000	1
CalStd3=1	1.0000	1.1701	.170	17.0	.00003	.000	1
CalStd10=10	10000.	9956.8	-43.2	-.432	.20884	.001	1

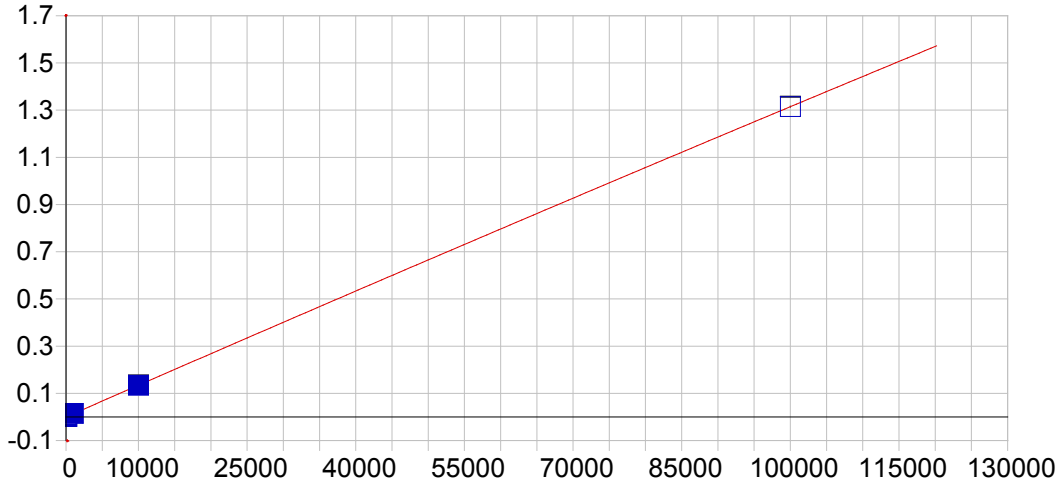


Co 238.892 {141}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000005	Re-Slope:	1.000000
A1 (Gain):	0.000002	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	1.068046		
Predicted MQL:	3.560152		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00020	-.000	.000	.00000	.000	1
CalStd9=100	1000.0	1002.5	2.51	.251	.00189	.000	1
CalStd10=10	10000.	9997.5	-2.48	-.025	.01885	.000	1
CalStd8=100	100.00	99.972	-.028	-.028	.00019	.000	1

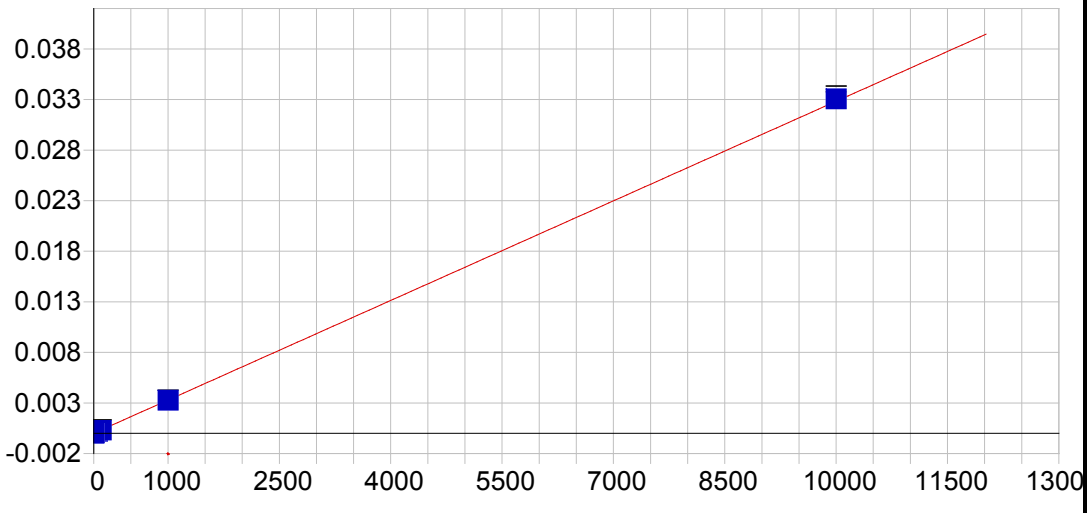


Cr 205.560 {464}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Curvilinear	Weighting:	1/Conc

A0 (Offset):	-0.000008	Re-Slope:	1.000000
A1 (Gain):	0.000013	Y-int:	0.000000
A2 (Curvature):	-0.000000		
n (Exponent):	1.000000		
Correlation:	0.999985	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.361403		
Predicted MQL:	1.204677		

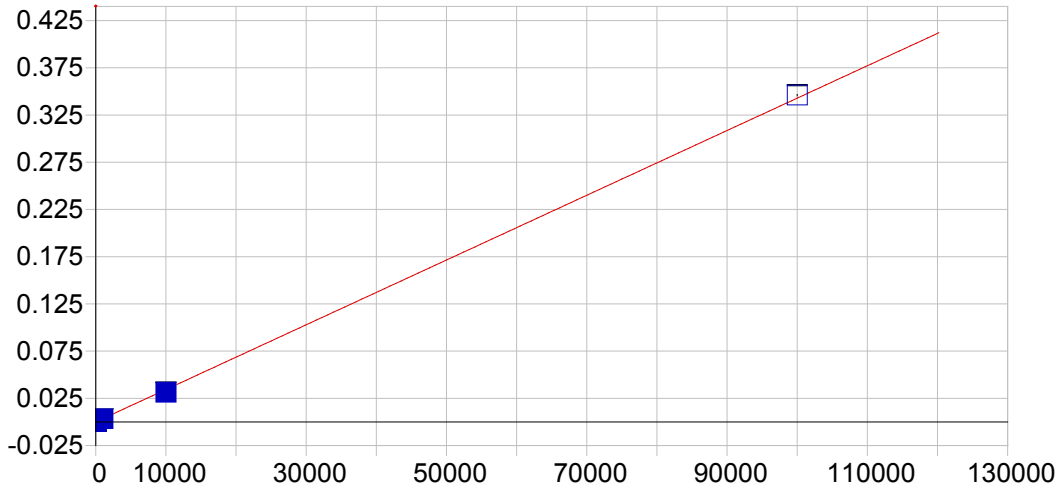
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00112	-.001	.000	-.00001	.000	1
CalStd5=10	10.000	11.494	1.49	14.9	.00015	.000	1
CalStd7=50	50.000	58.096	8.10	16.2	.00077	.000	1
CalStd9=100	1000.0	1023.3	23.3	2.33	.01377	.000	1
CalStd8=100	100.00	102.31	2.31	2.31	.00137	.000	1
CalStd4=5	5.0000	6.7952	1.80	35.9	.00008	.000	1
CalStd3=1	1.0000	1.4093	.409	40.9	.00001	.000	1
CalStd10=10	10000.	9958.5	-41.5	-.415	.13376	.000	1
CalStd12=10	100000.	100000.	4.08	.004	1.3147	.002	1



Cr 267.716 {126}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Var
A0 (Offset):	0.000003		Re-Slope:	1.000000	
A1 (Gain):	0.000003		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.999576		Status:	OK.	
Std Error of Est:	0.000009				
Predicted MDL:	0.775885				
Predicted MQL:	2.586283				

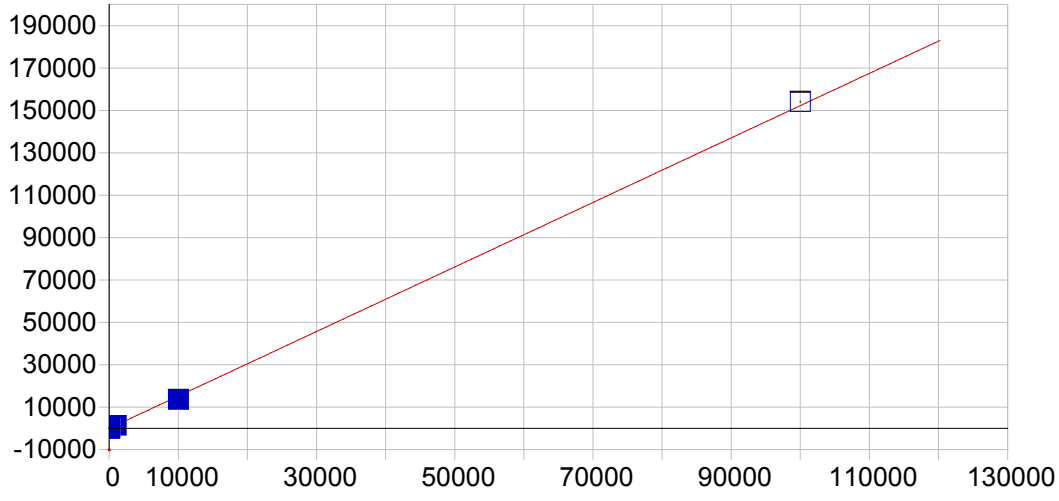
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-2.0824	-2.08	.000	-.00000	.000	1
CalStd5=10	10.000	8.6998	-1.30	-13.0	.00003	.000	1
CalStd7=50	50.000	55.081	5.08	10.2	.00018	.000	1
CalStd9=100	1000.0	993.88	-6.12	-.612	.00327	.000	1
CalStd8=100	100.00	97.106	-2.89	-2.89	.00032	.000	1
CalStd4=5	5.0000	4.7346	-.265	-5.31	.00002	.000	1
CalStd10=10	10000.	10068.	68.3	.683	.03306	.000	1



Cu 223.008 {451}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000005		Re-Slope:	1.000000	
A1 (Gain):	0.000003		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.999594		Status:	OK.	
Std Error of Est:	0.000004				
Predicted MDL:	1.702477				
Predicted MQL:	5.674925				

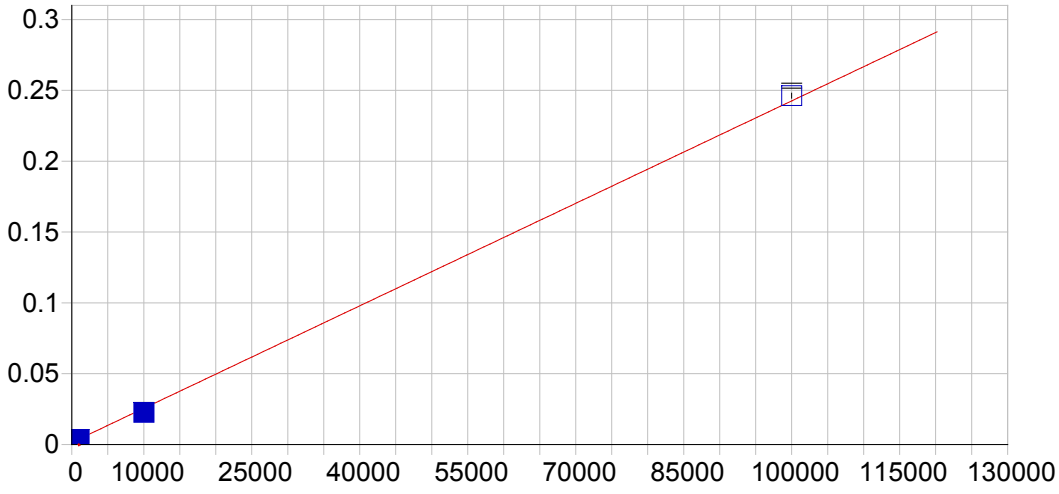
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00239	-.002	.000	.00001	.000	1
CalStd9=100	1000.0	943.88	-56.1	-5.61	.00324	.000	1
CalStd7=50	50.000	55.522	5.52	11.0	.00020	.000	1
CalStd8=100	100.00	96.300	-3.70	-3.70	.00034	.000	1
CalStd6=20	20.000	22.698	2.70	13.5	.00008	.000	1
CalStd12=10	100000.	100930.	928.	.928	.34605	.001	1
CalStd10=10	10000.	9121.4	-879.	-8.79	.03128	.000	1
CalStd5=10	10.000	11.657	1.66	16.6	.00005	.000	1



Cu 224.700 {450}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.189363		Re-Slope:	1.000000	
A1 (Gain):	1.522876		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.999253		Status:	OK.	
Std Error of Est:	3.280208				
Predicted MDL:	0.511630				
Predicted MQL:	1.705432				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.03416	.034	.000	.24138	.380	1
CalStd9=100	1000.0	922.59	-77.4	-7.74	1394.5	1.99	1
CalStd7=50	50.000	26.972	-23.0	-46.1	41.265	.507	1
CalStd8=100	100.00	65.613	-34.4	-34.4	99.037	4.28	1
CalStd6=20	20.000	5.3592	-14.6	-73.2	8.3507	.768	1
CalStd12=10	100000.	101200.	1200.	1.20	154120.	217.	1
CalStd10=10	10000.	8940.1	-1060.	-10.6	13508.	54.2	1

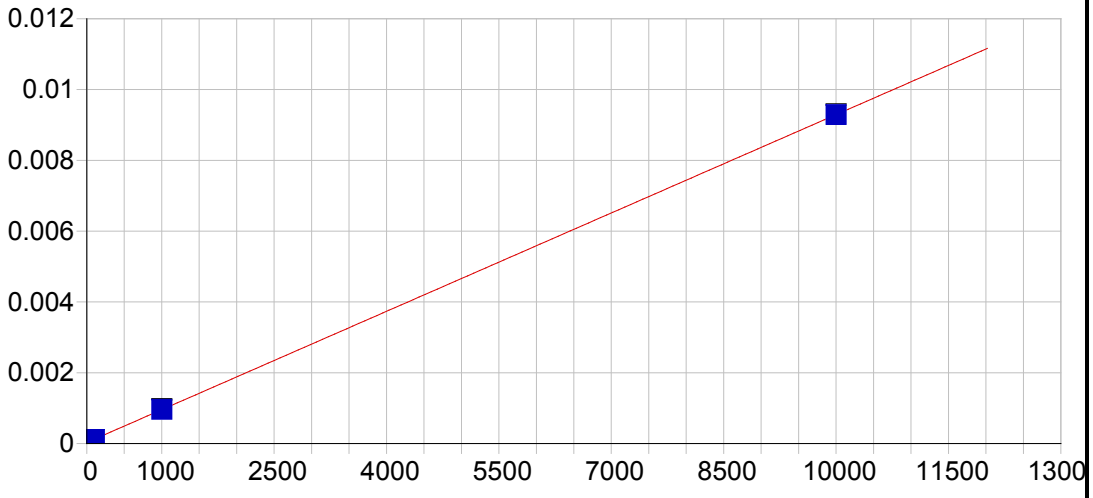


Cu 324.754 {104}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001465	Re-Slope:	1.000000
A1 (Gain):	0.000002	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.998538	Status:	OK.
Std Error of Est:	0.000005		
Predicted MDL:	2.809836		
Predicted MQL:	9.366121		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.04451	.045	.000	.00146	.000	1
CalStd9=100	1000.0	847.80	-152.	-15.2	.00351	.000	1
CalStd8=100	100.00	25.809	-74.2	-74.2	.00153	.000	1
CalStd10=10	10000.	8764.6	-1240.	-12.4	.02259	.000	1
CalStd12=10	100000.	101520.	1520.	1.52	.24627	.002	1
CalStd5=10	10.000	-11.073	-21.1	-211.	.00144	.000	1
CalStd6=20	20.000	-2.1772	-22.2	-111.	.00146	.000	1
CalStd7=50	50.000	38.404	-11.6	-23.2	.00156	.000	1

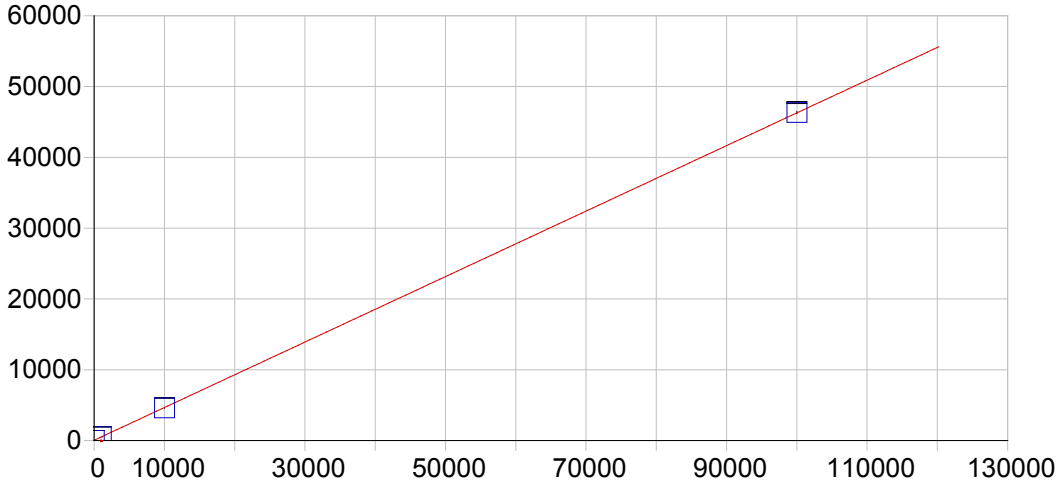


Cu 327.396 {103}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000030	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999685	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	9.368032		
Predicted MQL:	31.226772		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00562	.006	.000	.00003	.000	1
CalStd6=20	20.000	23.666	3.67	18.3	.00005	.000	1
CalStd7=50	50.000	51.625	1.63	3.25	.00008	.000	1
CalStd8=100	100.00	101.27	1.27	1.27	.00012	.000	1
CalStd9=100	1000.0	1005.5	5.47	.547	.00096	.000	1
CalStd10=10	10000.	9996.6	-3.44	-.034	.00929	.000	1
CalStd4=5	5.0000	.01846	-4.98	-99.6	.00003	.000	1
CalStd5=10	10.000	6.3925	-3.61	-36.1	.00004	.000	1

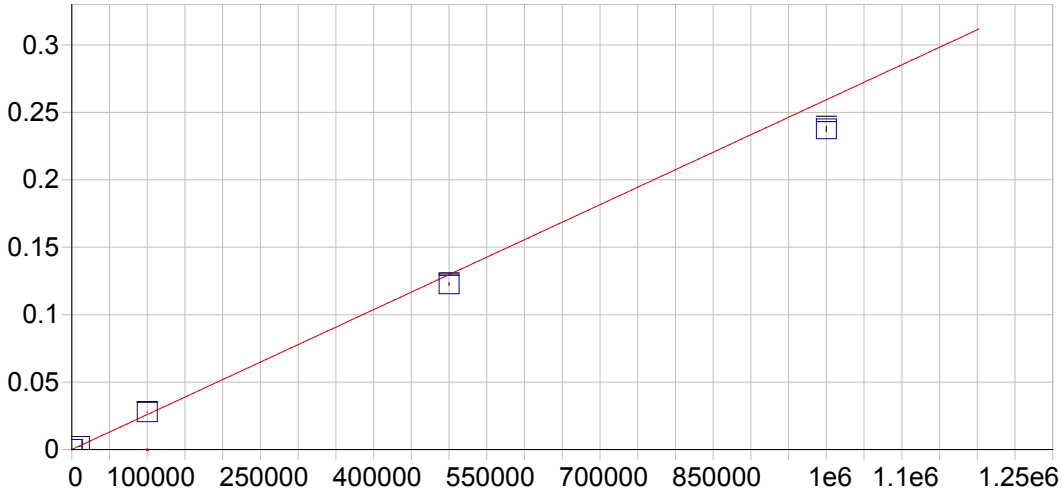


Fe 234.349 {144}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	41.258771	Re-Slope:	1.000000
A1 (Gain):	0.462365	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999982	Status:	OK.
Std Error of Est:	1.310841		
Predicted MDL:	2.091373		
Predicted MQL:	6.971243		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.03219	-.032	.000	41.244	1.03	1
CalStd10=10	10000.	9862.0	-138.	-1.38	4601.1	26.7	1
CalStd13=10	100000.	100090.	93.0	.093	46321.	143.	1
CalStd9=100	1000.0	1045.1	45.1	4.51	524.46	1.51	1

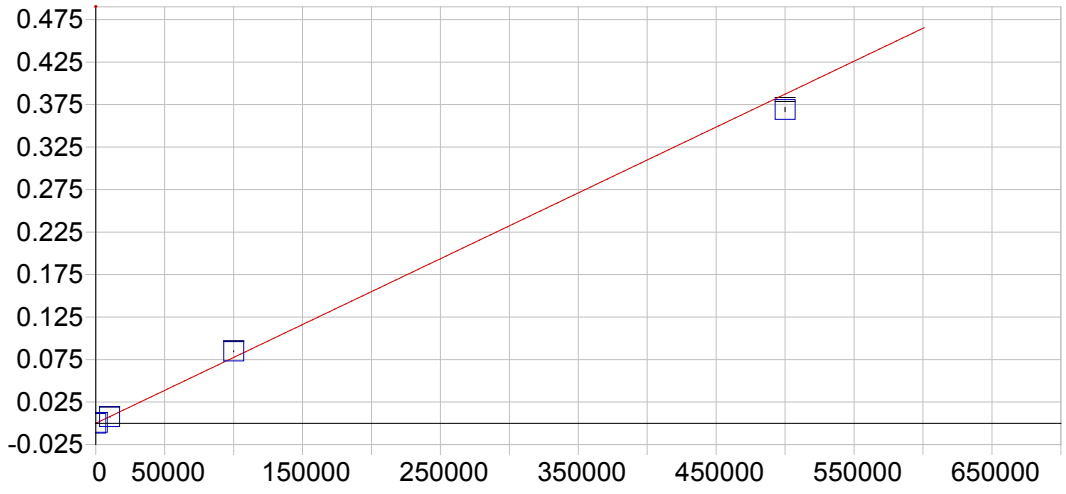


Fe 239.562 {140}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000001	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.998007	Status:	OK.
Std Error of Est:	0.000050		
Predicted MDL:	10.522385		
Predicted MQL:	35.074618		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	9.4612	9.46	.000	.00000	.000	1
CalStd10=10	10000.	9709.3	-291.	-2.91	.00252	.000	1
CalStd13=10	100000.	107520.	7520.	7.52	.02789	.000	1
CalStd14=50	500000.	473140.	-26900.	-5.37	.12272	.001	1
CalStd9=100	1000.0	999.76	-.236	-.024	.00026	.000	1
CalibStd15=	1000000.	916550.	-83500.	-8.35	.23773	.002	1

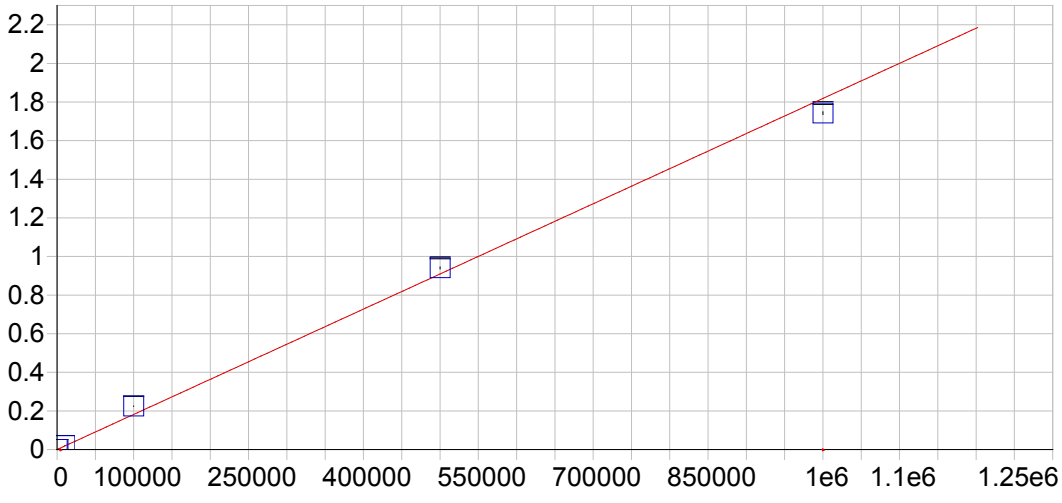


Fe 259.940 {129}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	-0.000002	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999475	Status:	OK.
Std Error of Est:	0.000029		
Predicted MDL:	4.559814		
Predicted MQL:	15.199380		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.03585	.036	.000	-.00000	.000	1
CalStd10=10	10000.	9939.2	-60.8	-.608	.00770	.000	1
CalStd13=10	100000.	109550.	9550.	9.55	.08485	.000	1
CalStd14=50	500000.	476590.	-23400.	-4.68	.36915	.002	1
CalStd9=100	1000.0	1008.2	8.24	.824	.00078	.000	1

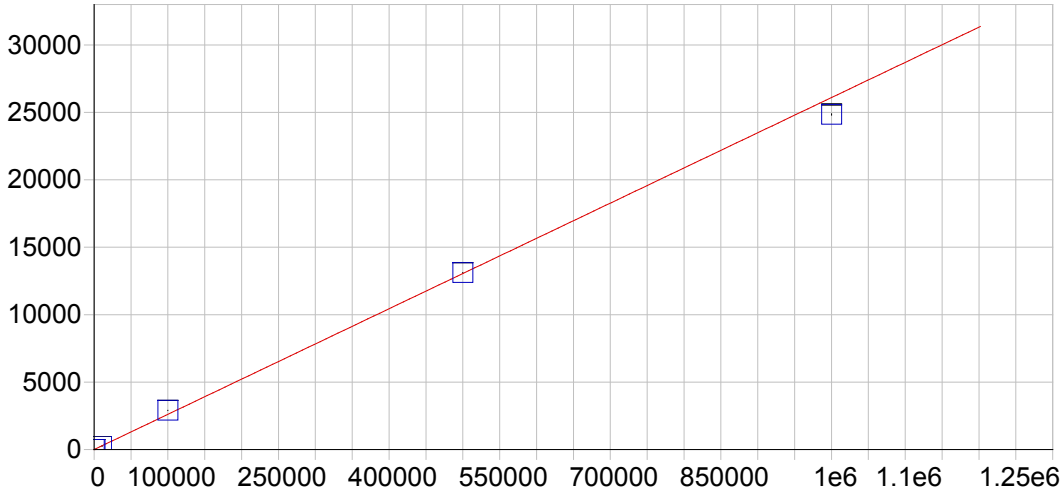


Mg 202.582 {466}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000004	Re-Slope:	1.000000
A1 (Gain):	0.000002	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.997544	Status:	OK.
Std Error of Est:	0.000198		
Predicted MDL:	3.474787		
Predicted MQL:	11.582622		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.52678	-.527	.000	.00000	.000	1
CalStd13=10	100000.	123290.	23300.	23.3	.22420	.001	1
CalStd10=10	10000.	11115.	1120.	11.2	.02022	.000	1
CalStd14=50	500000.	517320.	17300.	3.46	.94071	.005	1
CalStd9=100	1000.0	1189.6	190.	19.0	.00217	.000	1
CalibStd15=	1000000.	958090.	-41900.	-4.19	1.7422	.007	1

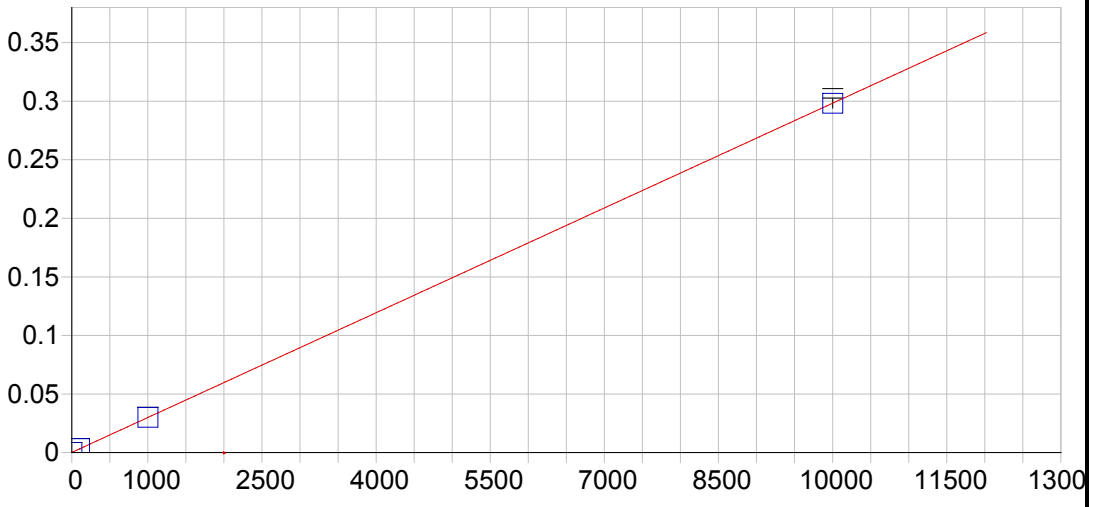


Mg 279.079 {121}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	1.131914	Re-Slope:	1.000000
A1 (Gain):	0.026099	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999628	Status:	OK.
Std Error of Est:	14.810857		
Predicted MDL:	25.139350		
Predicted MQL:	83.797834		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	3.7313	3.73	.000	1.2293	.392	1
CalStd13=10	100000.	111100.	11100.	11.1	2900.8	10.8	1
CalStd10=10	10000.	9850.2	-150.	-1.50	258.22	1.18	1
CalStd14=50	500000.	502270.	2270.	.455	13110.	10.8	1
CalStd9=100	1000.0	993.52	-6.48	-.648	27.062	.705	1
CalibStd15=	1000000.	951980.	-48000.	-4.80	24847.	51.4	1

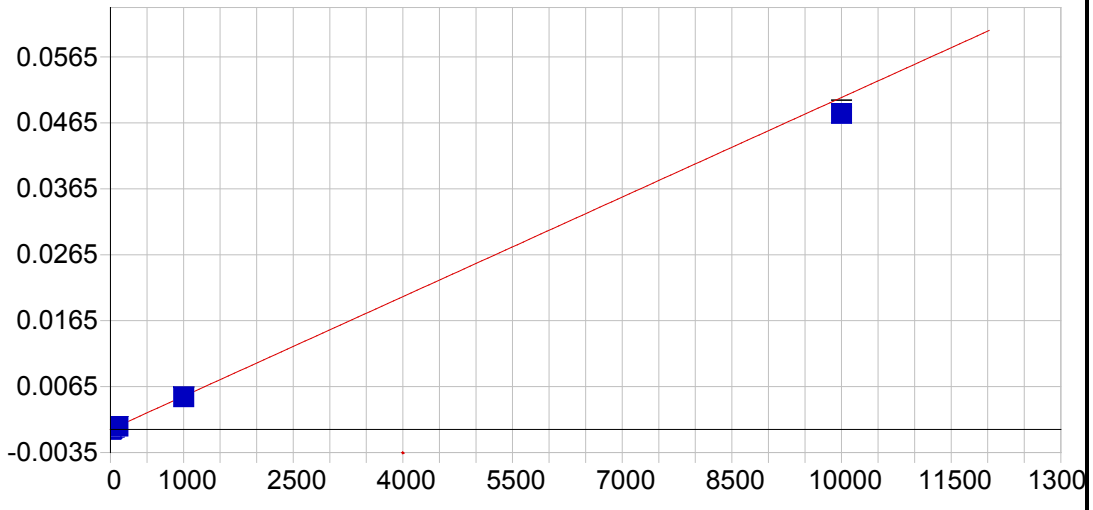


Mg 280.270 {120}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000111	Re-Slope:	1.000000
A1 (Gain):	0.000030	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999985	Status:	OK.
Std Error of Est:	0.000008		
Predicted MDL:	0.042060		
Predicted MQL:	0.140201		

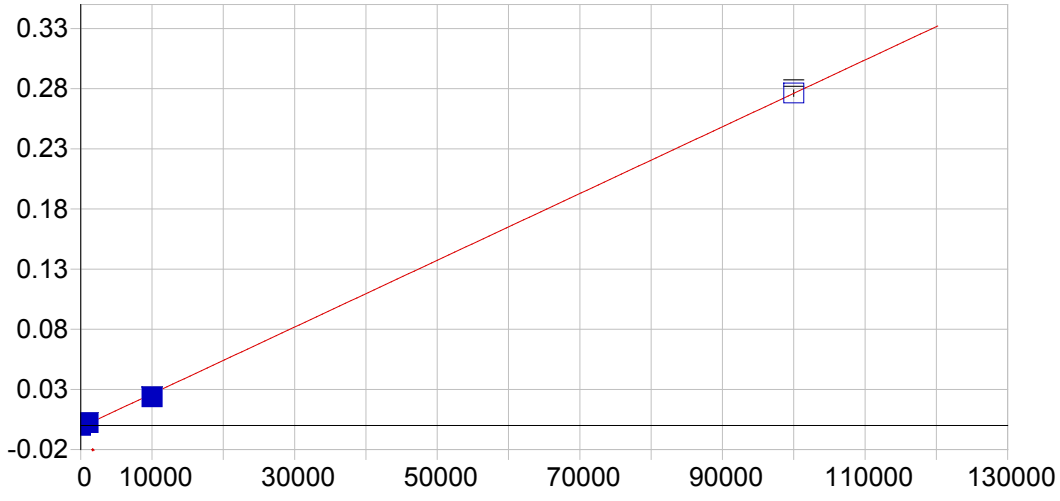
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00566	-.006	.000	.00011	.000	1
CalStd9=100	1000.0	1000.2	.180	.018	.02993	.000	1
CalStd10=10	10000.	9994.1	-5.88	-.059	.29811	.004	1
CalStd8=100	100.00	105.70	5.70	5.70	.00326	.000	1



Mn 257.610 {131}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Var
A0 (Offset):	0.000003		Re-Slope:	1.000000	
A1 (Gain):	0.000005		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.998256		Status:	OK.	
Std Error of Est:	0.000011				
Predicted MDL:	0.268589				
Predicted MQL:	0.895295				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-1.0973	-1.10	.000	-.00000	.000	1
CalStd5=10	10.000	9.7329	-.267	-2.67	.00005	.000	1
CalStd7=50	50.000	55.434	5.43	10.9	.00028	.000	1
CalStd6=20	20.000	21.822	1.82	9.11	.00011	.000	1
CalStd8=100	100.00	97.132	-2.87	-2.87	.00049	.000	1
CalStd4=5	5.0000	5.3798	.380	7.60	.00003	.000	1
CalStd9=100	1000.0	977.51	-22.5	-2.25	.00492	.000	1
CalStd10=10	10000.	9514.9	-485.	-4.85	.04791	.001	1

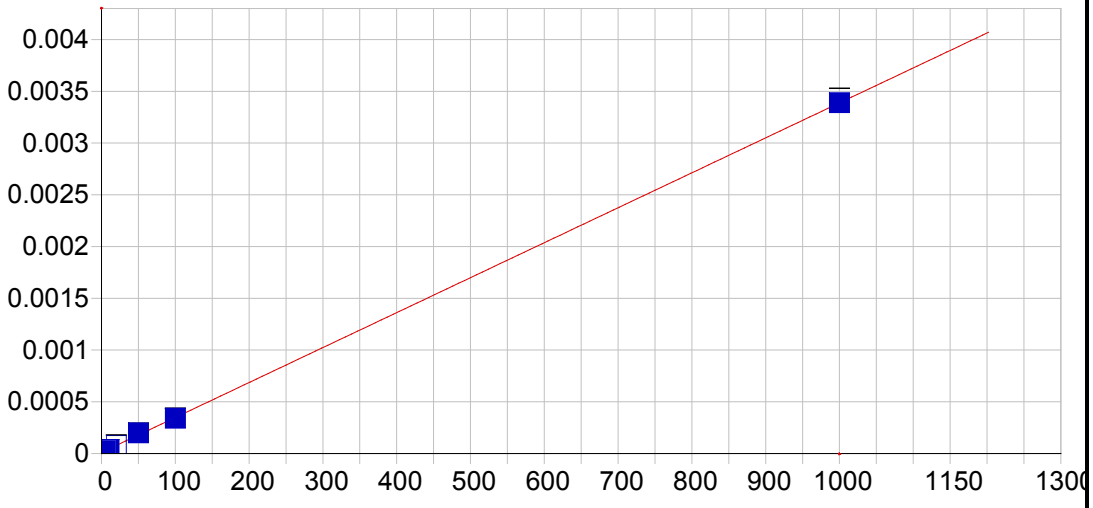


Mn 259.373 {130}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	-0.001412	Re-Slope:	1.000000
A1 (Gain):	0.000003	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999912	Status:	OK.
Std Error of Est:	0.002182		
Predicted MDL:	1.429911		
Predicted MQL:	4.766370		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	508.18	508.	.000	-.00000	.000	1
CalStd10=10	10000.	9071.9	-928.	-9.28	.02380	.000	1
CalStd9=100	1000.0	1330.3	330.	33.0	.00228	.000	1
CalStd12=10	100000.	100090.	89.6	.090	.27636	.003	1

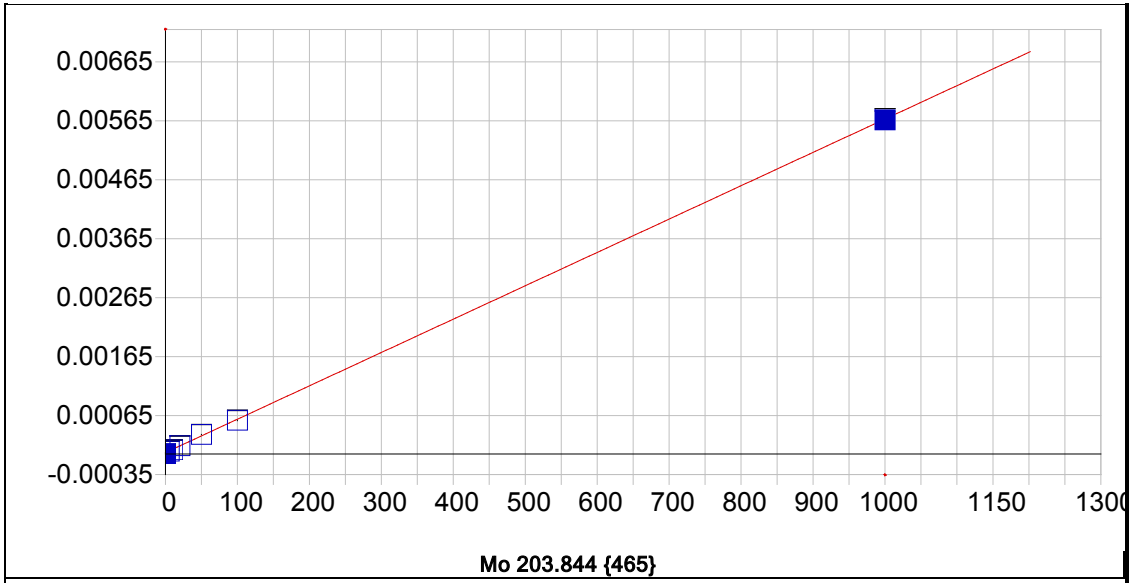


Mo 202.030 {466}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.000011	Re-Slope:	1.000000
A1 (Gain):	0.000003	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999973	Status:	OK.
Std Error of Est:	0.000010		
Predicted MDL:	1.224300		
Predicted MQL:	4.080999		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-2.3200	-2.32	.000	.00000	.000	1
CalStd7=50	50.000	55.474	5.47	10.9	.00020	.000	1
CalStd6=20	20.000	20.838	.838	4.19	.00008	.000	1
CalStd5=10	10.000	8.6526	-1.35	-13.5	.00004	.000	1
CalStd8=100	100.00	97.603	-2.40	-2.40	.00034	.000	1
CalStd4=5	5.0000	4.7891	-.211	-4.22	.00003	.000	1
CalStd9=100	1000.0	999.96	-.036	-.004	.00339	.000	1

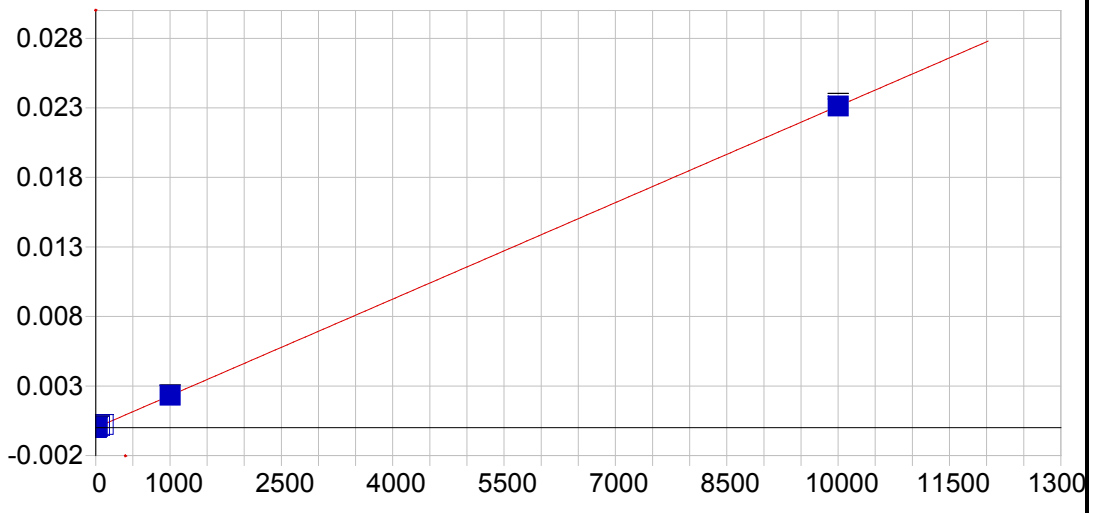


Mo 203.844 {465}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000023	Re-Slope:	1.000000
A1 (Gain):	0.000006	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999387	Status:	OK.
Std Error of Est:	0.000019		
Predicted MDL:	0.933807		
Predicted MQL:	3.112690		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-3.3245	-3.32	.000	.00000	.000	1
CalStd7=50	50.000	53.863	3.86	7.73	.00033	.000	1
CalStd6=20	20.000	19.967	-.033	-.163	.00014	.000	1
CalStd5=10	10.000	7.5893	-2.41	-24.1	.00007	.000	1
CalStd8=100	100.00	96.602	-3.40	-3.40	.00057	.000	1
CalStd4=5	5.0000	3.9252	-1.07	-21.5	.00004	.000	1
CalStd9=100	1000.0	996.87	-3.13	-.313	.00566	.000	1

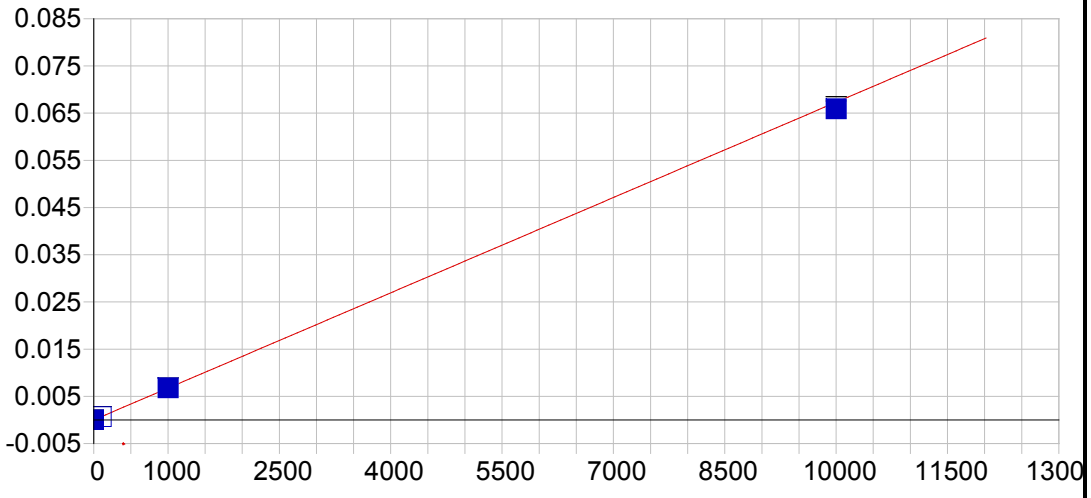


Mo 204.598 {464}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	-0.000003	Re-Slope:	1.000000
A1 (Gain):	0.000002	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999590	Status:	OK.
Std Error of Est:	0.000005		
Predicted MDL:	2.127907		
Predicted MQL:	7.093024		

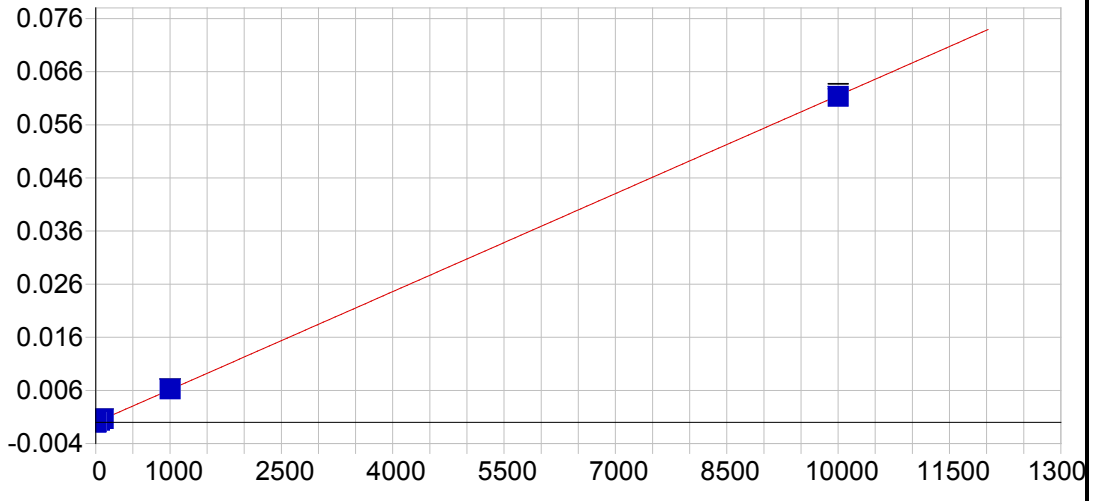
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-1.4937	-1.49	.000	-.00001	.000	1
CalStd7=50	50.000	56.121	6.12	12.2	.00013	.000	1
CalStd6=20	20.000	22.508	2.51	12.5	.00005	.000	1
CalStd5=10	10.000	10.201	.201	2.01	.00002	.000	1
CalStd8=100	100.00	99.645	-.355	-.355	.00023	.000	1
CalStd4=5	5.0000	6.2961	1.30	25.9	.00001	.000	1
CalStd9=100	1000.0	1007.1	7.08	.708	.00233	.000	1
CalStd10=10	10000.	9998.7	-1.31	-.013	.02312	.000	1



Ni 221.647 {452}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Var
A0 (Offset):	0.000004		Re-Slope:	1.000000	
A1 (Gain):	0.000007		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.999915		Status:	OK.	
Std Error of Est:	0.000013				
Predicted MDL:	1.152149				
Predicted MQL:	3.840496				

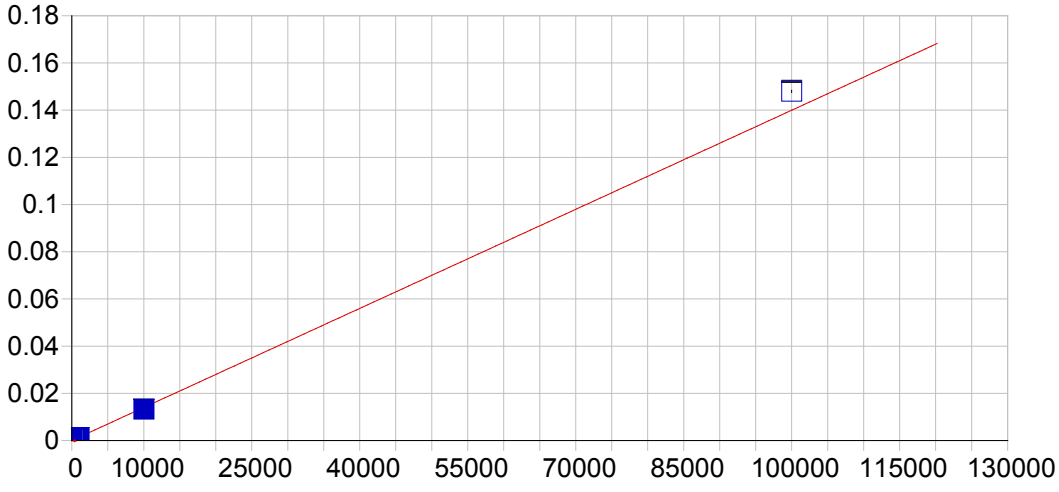
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.36734	-.367	.000	.00000	.000	1
CalStd10=10	10000.	9789.3	-211.	-2.11	.06590	.000	1
CalStd8=100	100.00	100.71	.707	.707	.00068	.000	1
CalStd9=100	1000.0	1006.8	6.76	.676	.00678	.000	1



Ni 231.604 {445}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	-0.000013		Re-Slope:	1.000000	
A1 (Gain):	0.000006		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.999879		Status:	OK.	
Std Error of Est:	0.000000				
Predicted MDL:	1.231324				
Predicted MQL:	4.104412				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00039	.000	.000	-.00001	.000	1
CalStd7=50	50.000	57.595	7.59	15.2	.00034	.000	1
CalStd5=10	10.000	9.9339	-.066	-.661	.00005	.000	1
CalStd8=100	100.00	102.05	2.05	2.05	.00061	.000	1
CalStd4=5	5.0000	6.1980	1.20	24.0	.00003	.000	1
CalStd9=100	1000.0	1021.4	21.4	2.14	.00627	.000	1
CalStd3=1	1.0000	.18351	-.816	-81.6	-.00001	.000	1
CalStd10=10	10000.	9968.7	-31.3	-.313	.06142	.000	1

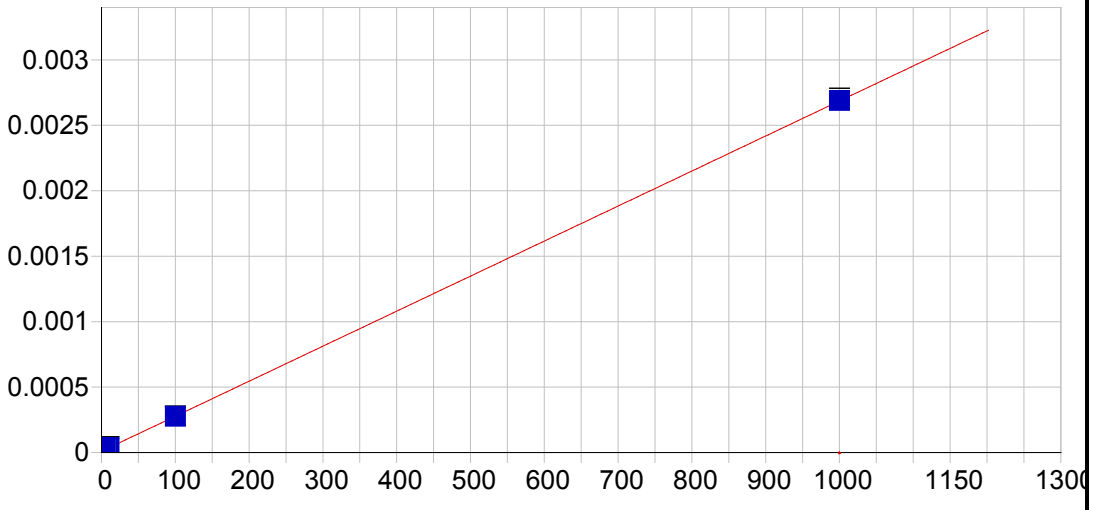


Pb 216.999 {455}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000001	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.998610	Status:	OK.
Std Error of Est:	0.000074		
Predicted MDL:	4.466472		
Predicted MQL:	14.888240		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	3.4737	3.47	.000	.00001	.000	1
CalStd9=100	1000.0	985.18	-14.8	-1.48	.00138	.000	1
CalStd10=10	10000.	9433.3	-567.	-5.67	.01320	.000	1
CalStd8=100	100.00	104.63	4.63	4.63	.00015	.000	1
CalStd5=10	10.000	15.546	5.55	55.5	.00002	.000	1
CalStd12=10	100000.	105710.	5710.	5.71	.14796	.000	1

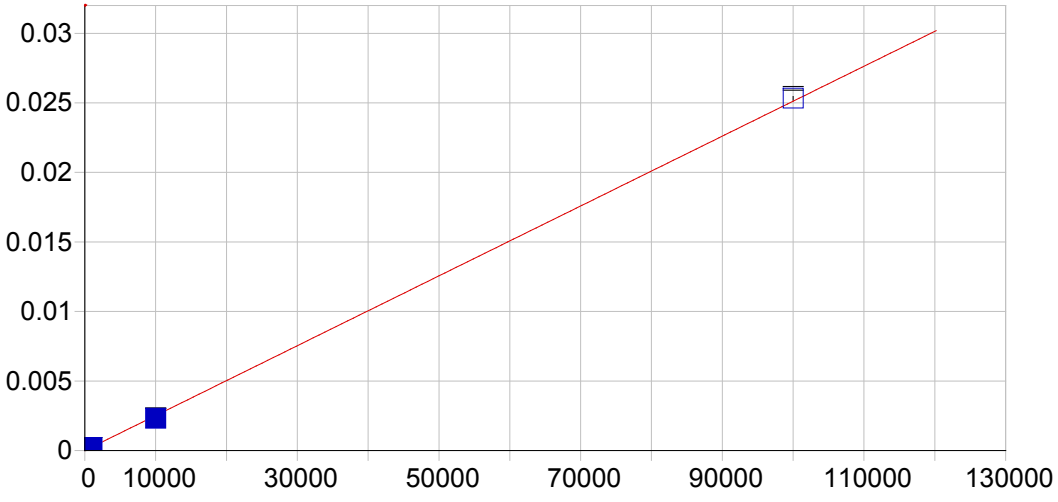


Pb 220.353 {453}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000010	Re-Slope:	1.000000
A1 (Gain):	0.000003	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999991	Status:	OK.
Std Error of Est:	0.000002		
Predicted MDL:	2.939009		
Predicted MQL:	9.796696		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.22457	.225	.000	.00001	.000	1
CalStd5=10	10.000	11.101	1.10	11.0	.00004	.000	1
CalStd8=100	100.00	99.507	-.493	-.493	.00028	.000	1
CalStd4=5	5.0000	5.9018	.902	18.0	.00003	.000	1
CalStd9=100	1000.0	1001.3	1.32	.132	.00269	.000	1

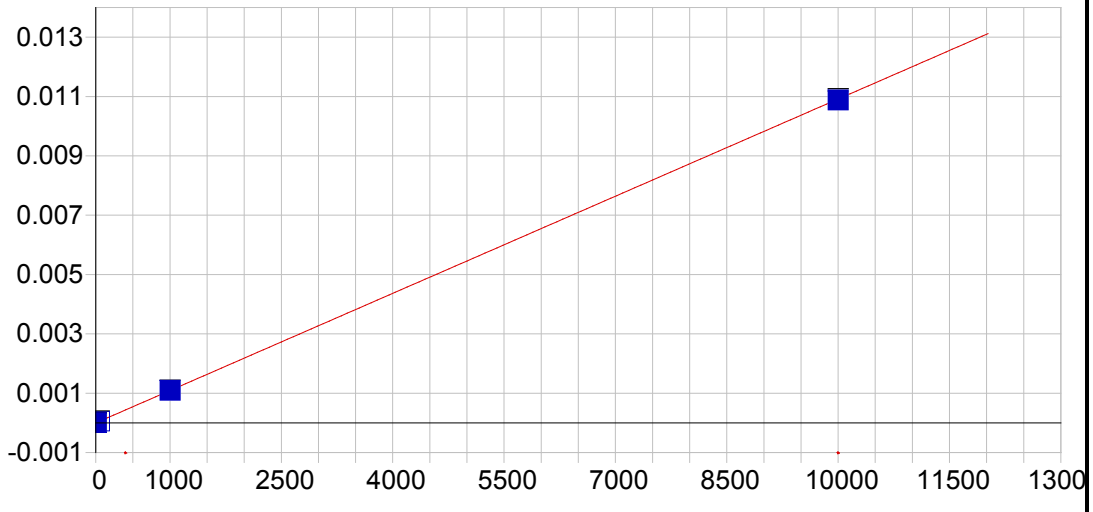


Pb 220.353 {153}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000001	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999680	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	4.894901		
Predicted MQL:	16.316337		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.02251	.023	.000	.00000	.000	1
CalStd9=100	1000.0	943.99	-56.0	-5.60	.00024	.000	1
CalStd10=10	10000.	9226.1	-774.	-7.74	.00232	.000	1
CalStd8=100	100.00	89.988	-10.0	-10.0	.00002	.000	1
CalStd12=10	100000.	100840.	840.	.840	.02533	.000	1

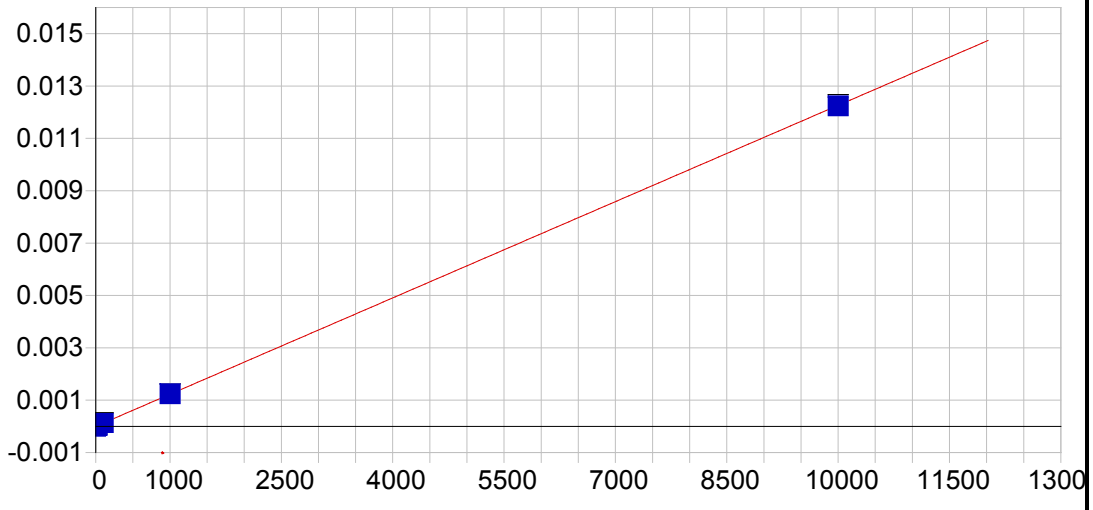


Sb 206.833 {463}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	-0.000002	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999914	Status:	OK.
Std Error of Est:	0.000008		
Predicted MDL:	4.572563		
Predicted MQL:	15.241876		

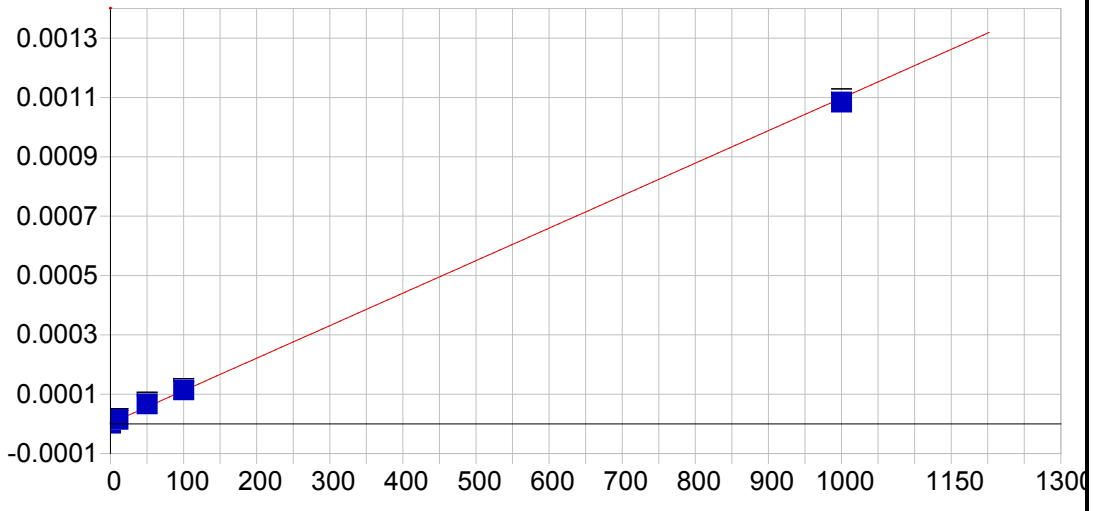
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-6.2826	-6.28	.000	-.00001	.000	1
CalStd9=100	1000.0	1004.7	4.71	.471	.00110	.000	1
CalStd5=10	10.000	7.5778	-2.42	-24.2	.00001	.000	1
CalStd7=50	50.000	56.764	6.76	13.5	.00006	.000	1
CalStd10=10	10000.	9969.0	-31.0	-.310	.01088	.000	1



Sb 217.581 {455}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000001		Re-Slope:	1.000000	
A1 (Gain):	0.000001		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.999852		Status:	OK.	
Std Error of Est:	0.000000				
Predicted MDL:	4.414548				
Predicted MQL:	14.715159				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00479	-.005	.000	.00000	.000	1
CalStd9=100	1000.0	1008.0	7.95	.795	.00124	.000	1
CalStd6=20	20.000	26.040	6.04	30.2	.00003	.000	1
CalStd5=10	10.000	11.847	1.85	18.5	.00002	.000	1
CalStd8=100	100.00	102.50	2.50	2.50	.00013	.000	1
CalStd4=5	5.0000	7.2015	2.20	44.0	.00001	.000	1
CalStd10=10	10000.	9979.5	-20.5	-.205	.01224	.000	1

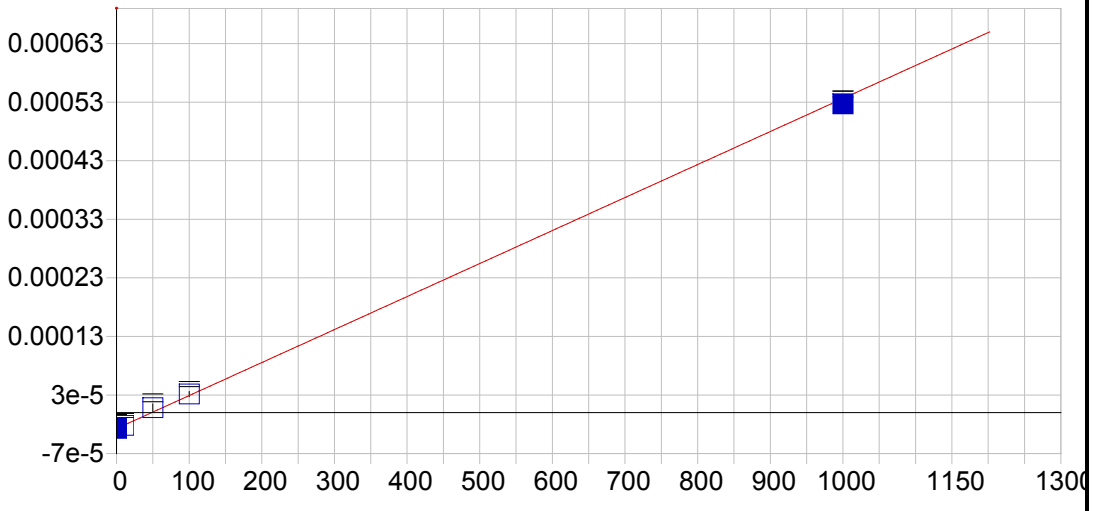


Se 196.090 {472}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000002	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999129	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	4.570619		
Predicted MQL:	15.235398		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00326	-.003	.000	.00000	.000	1
CalStd7=50	50.000	59.009	9.01	18.0	.00007	.000	1
CalStd9=100	1000.0	987.28	-12.7	-1.27	.00108	.000	1
CalStd5=10	10.000	11.349	1.35	13.5	.00001	.000	1
CalStd8=100	100.00	102.36	2.36	2.36	.00011	.000	1

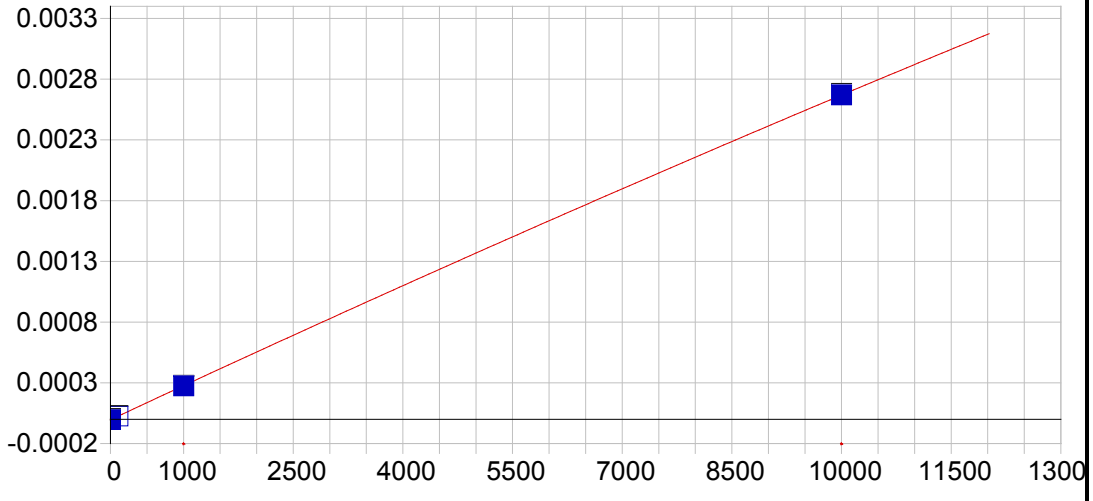


Se 203.985 {465}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000027	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.998348	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	10.900606		
Predicted MQL:	36.335352		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00223	-.002	.000	-.00003	.000	1
CalStd7=50	50.000	62.907	12.9	25.8	.00001	.000	1
CalStd9=100	1000.0	983.33	-16.7	-1.67	.00053	.000	1
CalStd5=10	10.000	9.3764	-.624	-6.24	-.00002	.000	1
CalStd8=100	100.00	104.39	4.39	4.39	.00003	.000	1

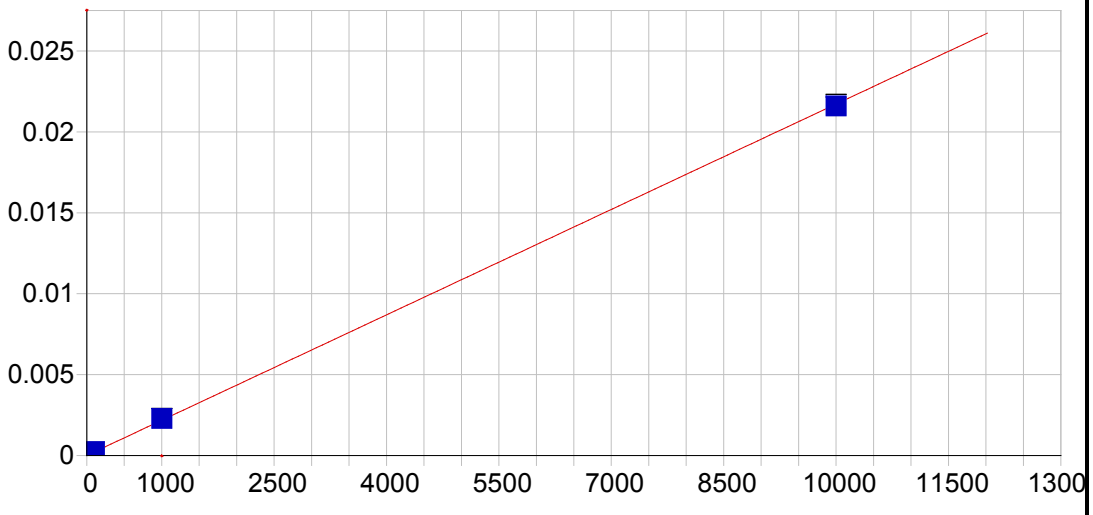


Se 206.279 {463}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Curvilinear	Weighting:	1/Conc

A0 (Offset):	-0.000004	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	-0.000000		
n (Exponent):	1.000000		
Correlation:	0.999971	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	23.373834		
Predicted MQL:	77.912779		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00643	-.006	.000	-.00000	.000	1
CalStd9=100	1000.0	991.99	-8.01	-.801	.00027	.000	1
CalStd10=10	10000.	10001.	.802	.008	.00267	.000	1
CalStd8=100	100.00	107.23	7.23	7.23	.00003	.000	1

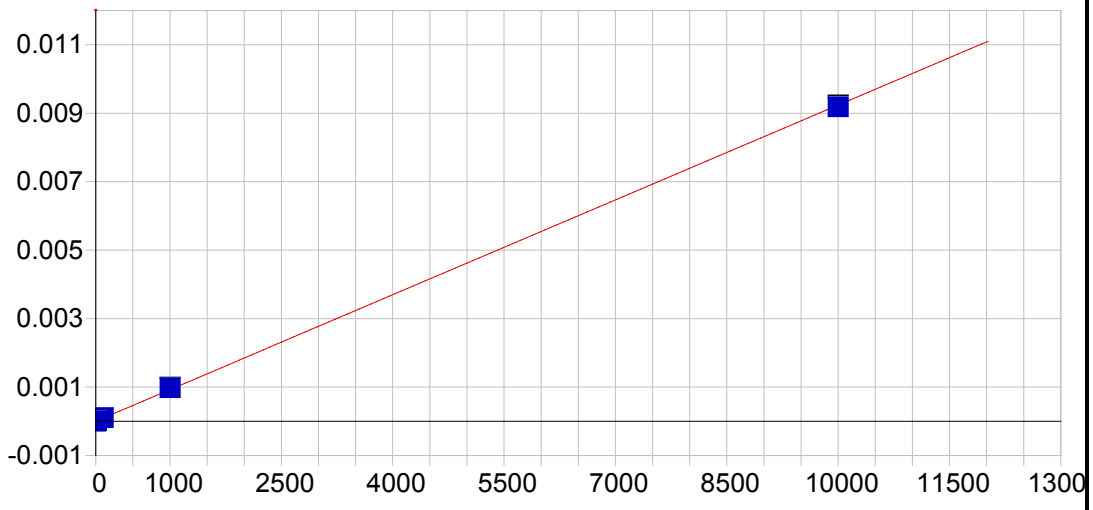


Tl 190.856 {476}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000008	Re-Slope:	1.000000
A1 (Gain):	0.000002	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999855	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	2.332948		
Predicted MQL:	7.776495		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00083	-.001	.000	.00001	.000	1
CalStd9=100	1000.0	1050.6	50.6	5.06	.00229	.000	1
CalStd8=100	100.00	105.80	5.80	5.80	.00024	.000	1
CalStd5=10	10.000	9.8011	-.199	-1.99	.00003	.000	1
CalStd10=10	10000.	9943.8	-56.2	-.562	.02162	.000	1

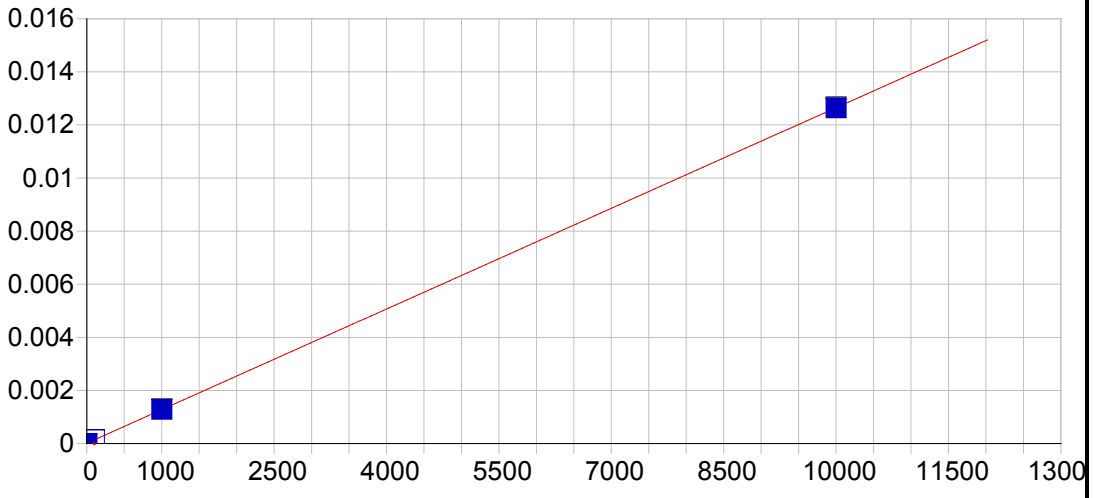


Tl 190.856 {477}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000002	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999836	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	4.395979		
Predicted MQL:	14.653263		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00070	-.001	.000	.00000	.000	1
CalStd9=100	1000.0	1056.6	56.6	5.66	.00098	.000	1
CalStd8=100	100.00	103.10	3.10	3.10	.00010	.000	1
CalStd5=10	10.000	9.8805	-.119	-1.19	.00001	.000	1
CalStd10=10	10000.	9940.5	-59.5	-.595	.00919	.000	1

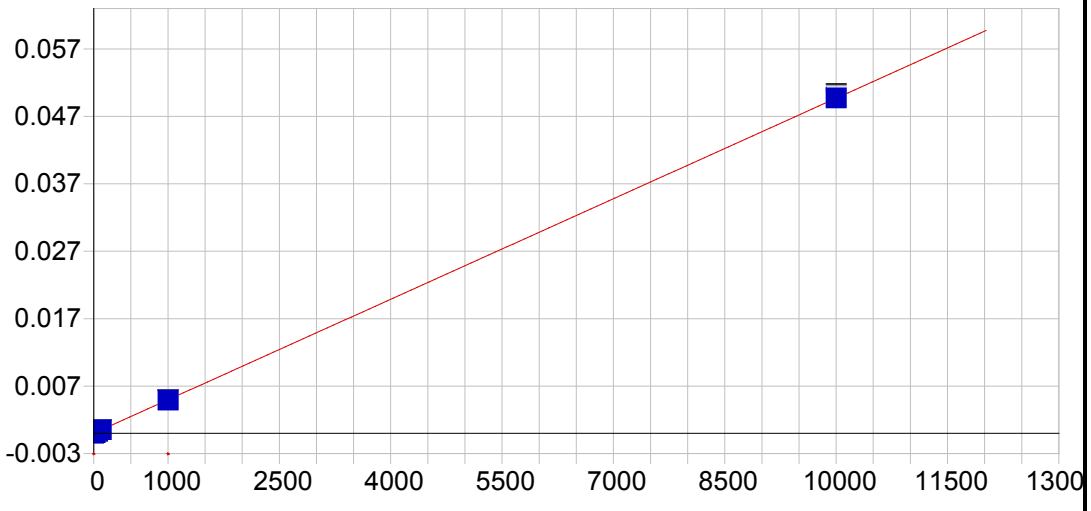


V 290.882 {116}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000013	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999993	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	3.436722		
Predicted MQL:	11.455741		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00366	-.004	.000	.00001	.000	1
CalStd9=100	1000.0	1006.3	6.32	.632	.00128	.000	1
CalStd10=10	10000.	9990.6	-9.45	-.094	.01264	.000	1
CalStd8=100	100.00	103.12	3.12	3.12	.00014	.000	1

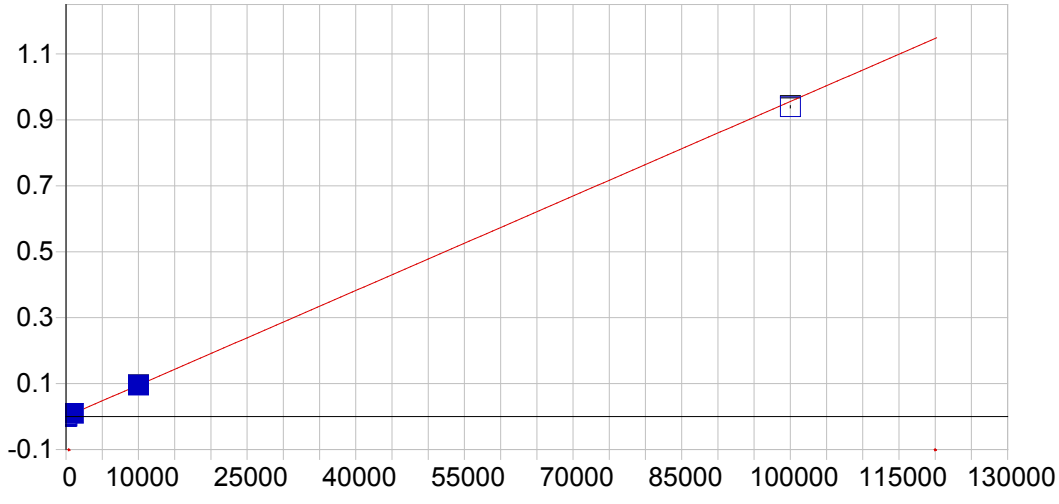


V 292.402 {115}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000003	Re-Slope:	1.000000
A1 (Gain):	0.000005	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999954	Status:	OK.
Std Error of Est:	0.000001		
Predicted MDL:	0.898085		
Predicted MQL:	2.993615		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00215	-.002	.000	.00000	.000	1
CalStd7=50	50.000	55.450	5.45	10.9	.00028	.000	1
CalStd9=100	1000.0	988.51	-11.5	-1.15	.00491	.000	1
CalStd6=20	20.000	22.238	2.24	11.2	.00011	.000	1
CalStd5=10	10.000	10.266	.266	2.66	.00005	.000	1
CalStd8=100	100.00	97.800	-2.20	-2.20	.00049	.000	1
CalStd10=10	10000.	10006.	5.72	.057	.04990	.000	1

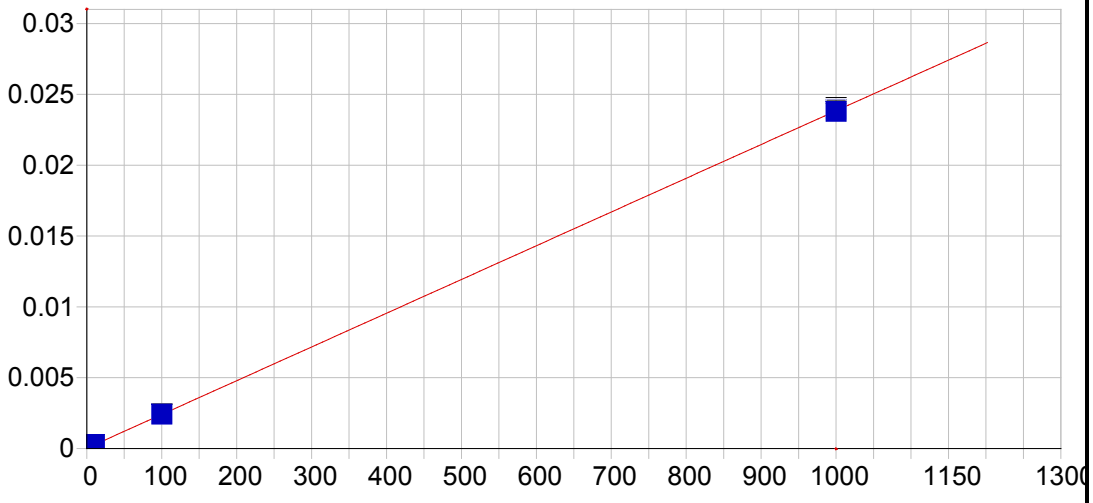


Zn 206.200 {463}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000016	Re-Slope:	1.000000
A1 (Gain):	0.000010	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999834	Status:	OK.
Std Error of Est:	0.000011		
Predicted MDL:	0.571119		
Predicted MQL:	1.903729		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
CalStd10=10	10000.	9947.8	-52.2	-.522	.09510	.001	1
Blank	.00000	-1.7326	-1.73	.000	-.00000	.000	1
CalStd9=100	1000.0	1026.2	26.2	2.62	.00982	.000	1
CalStd12=10	100000.	98310.	-1690.	-1.69	.93969	.003	1
CalStd5=10	10.000	9.9838	-.016	-.162	.00011	.000	1
CalStd8=100	100.00	100.77	.767	.767	.00098	.000	1

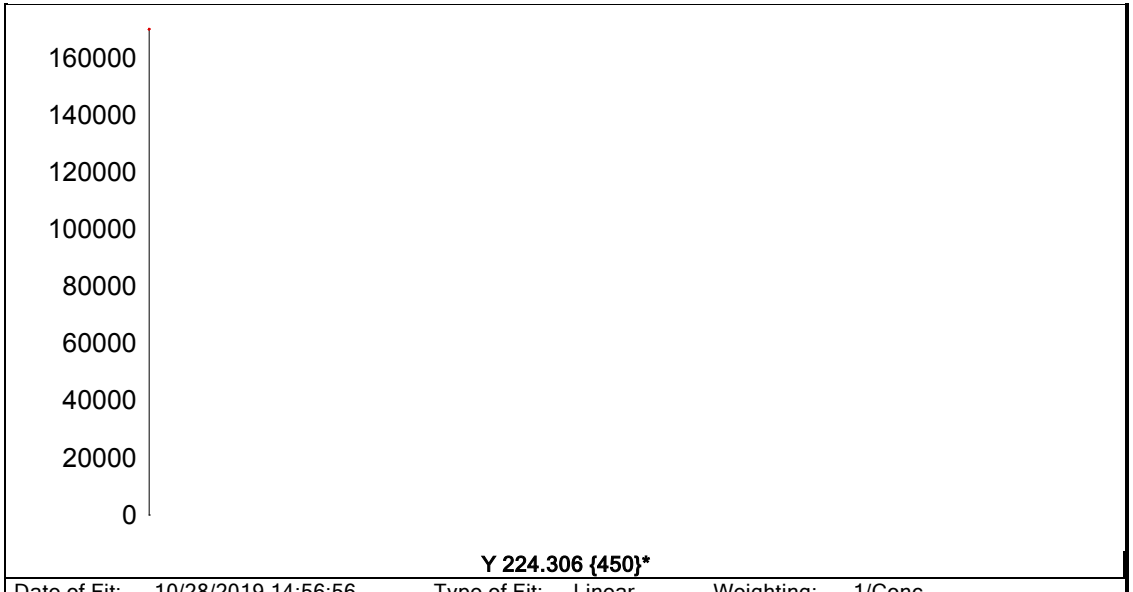


Zn 213.856 {457}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc

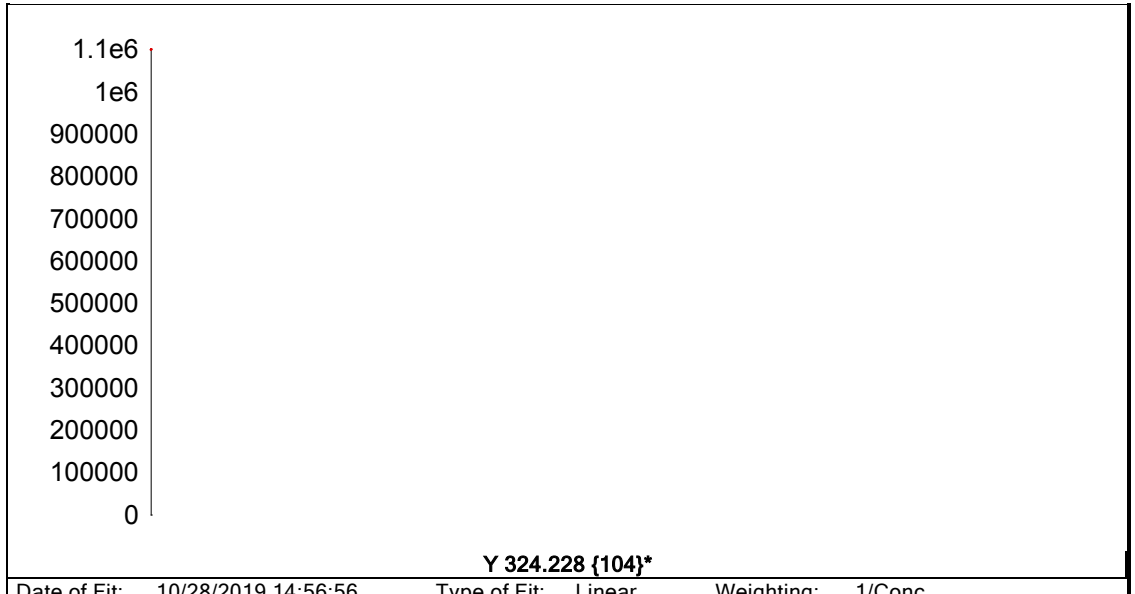
A0 (Offset):	0.000024	Re-Slope:	1.000000
A1 (Gain):	0.000024	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999816	Status:	OK.
Std Error of Est:	0.000002		
Predicted MDL:	0.242893		
Predicted MQL:	0.809643		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00204	-.002	.000	.00002	.000	1
CalStd9=100	1000.0	997.54	-2.46	-.246	.02395	.000	1
CalStd5=10	10.000	12.014	2.01	20.1	.00031	.000	1
CalStd8=100	100.00	100.45	.454	.454	.00243	.000	1



Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000000		Re-Slope:	1.000000	
A1 (Gain):	0.000000		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.000000		Status:	Warning	Zero Gain
Std Error of Est:	0.000000				
Predicted MDL:	n/a				
Predicted MQL:	n/a				

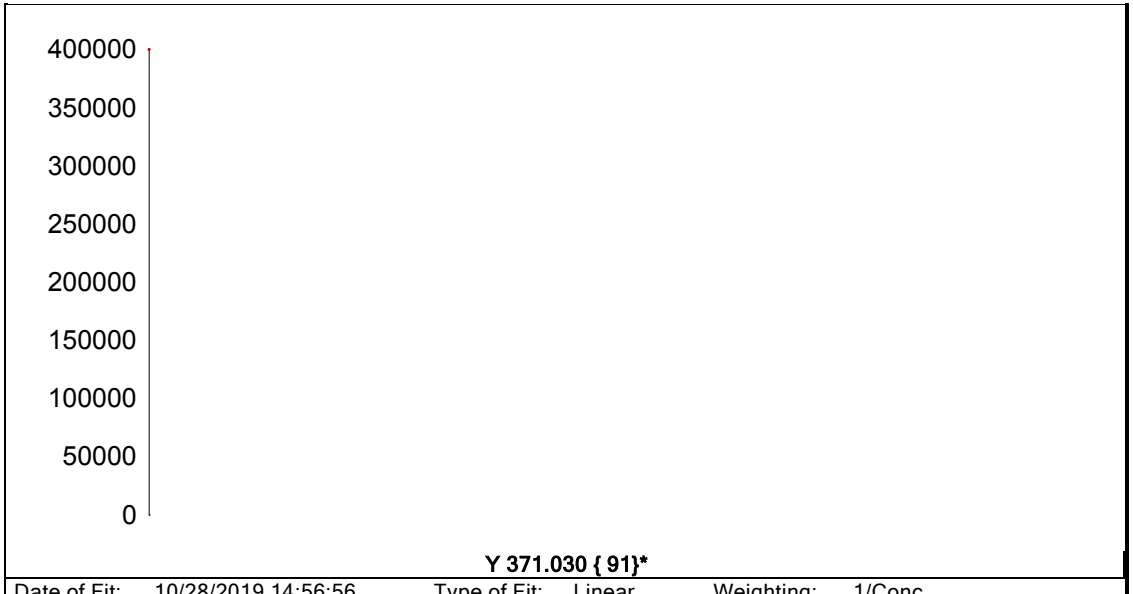
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	157440.	341.	1



Y 324.228 {104}*

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000000		Re-Slope:	1.000000	
A1 (Gain):	0.000000		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.000000		Status:	Warning	Zero Gain
Std Error of Est:	0.000000				
Predicted MDL:	n/a				
Predicted MQL:	n/a				

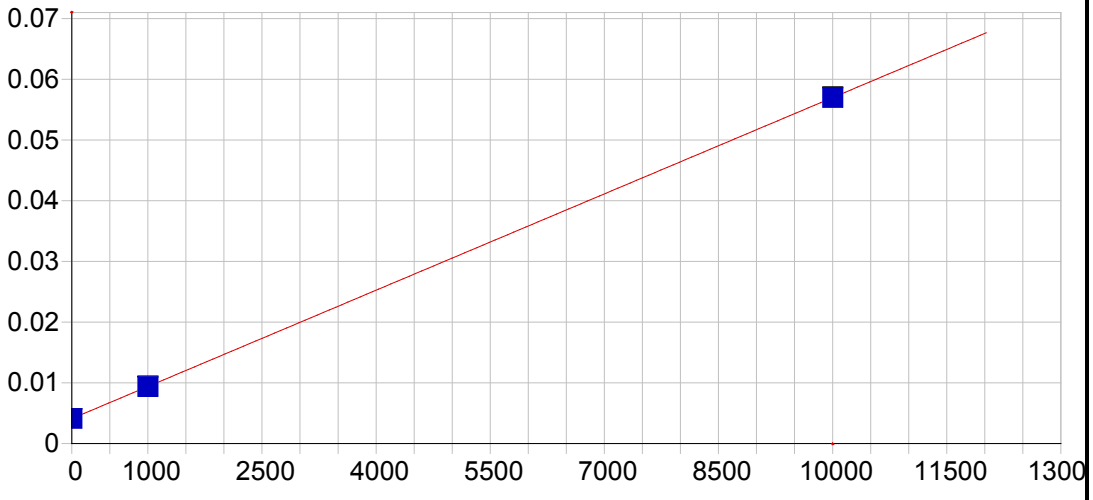
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	1005400.	4260.	1



Y 371.030 { 91}*

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000000		Re-Slope:	1.000000	
A1 (Gain):	0.000000		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.000000		Status:	Warning	Zero Gain
Std Error of Est:	0.000000				
Predicted MDL:	n/a				
Predicted MQL:	n/a				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	373300.	3120.	1

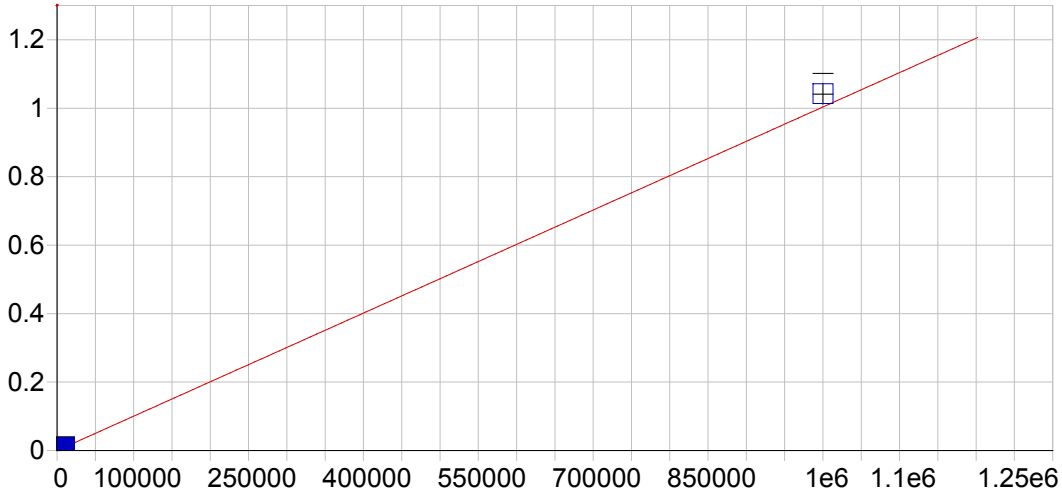


Na 588.995 { 57}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	None

A0 (Offset):	0.004105	Re-Slope:	1.000000
A1 (Gain):	0.000005	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000022		
Predicted MDL:	6.256066		
Predicted MQL:	20.853555		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	2.7381	2.74	.000	.00412	.000	1
CalStd9=100	1000.0	996.96	-3.04	-.304	.00938	.000	1
CalStd10=10	10000.	10000.	.304	.003	.05701	.000	1

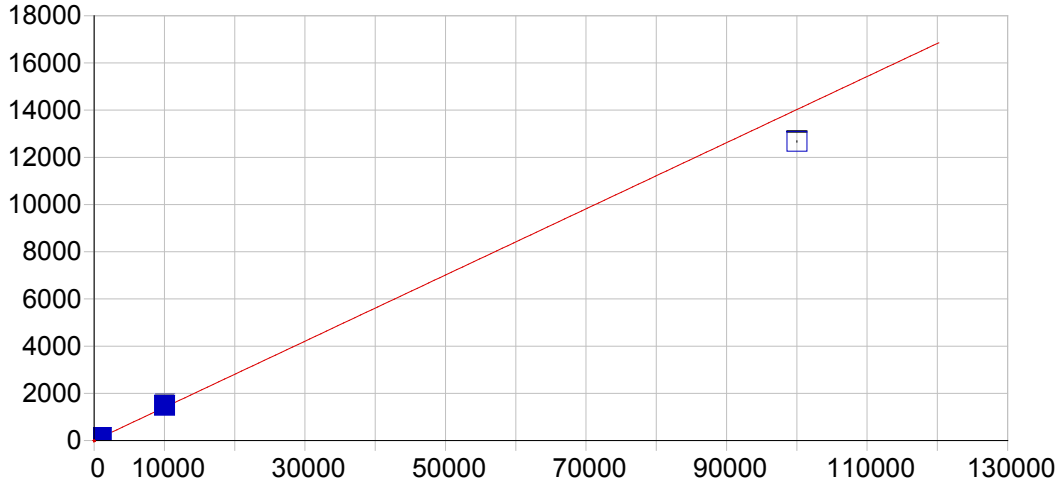


Na 589.592 { 57}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	0.000049	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.998889	Status:	OK.
Std Error of Est:	0.000060		
Predicted MDL:	25.128504		
Predicted MQL:	83.761681		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	27.035	27.0	.000	.00008	.000	1
CalStd9=100	1000.0	954.03	-46.0	-4.60	.00101	.000	1
CalStd10=10	10000.	10280.	280.	2.80	.01037	.000	1
CalibStd15=	1000000.	1038400.	38400.	3.84	1.0422	.030	1

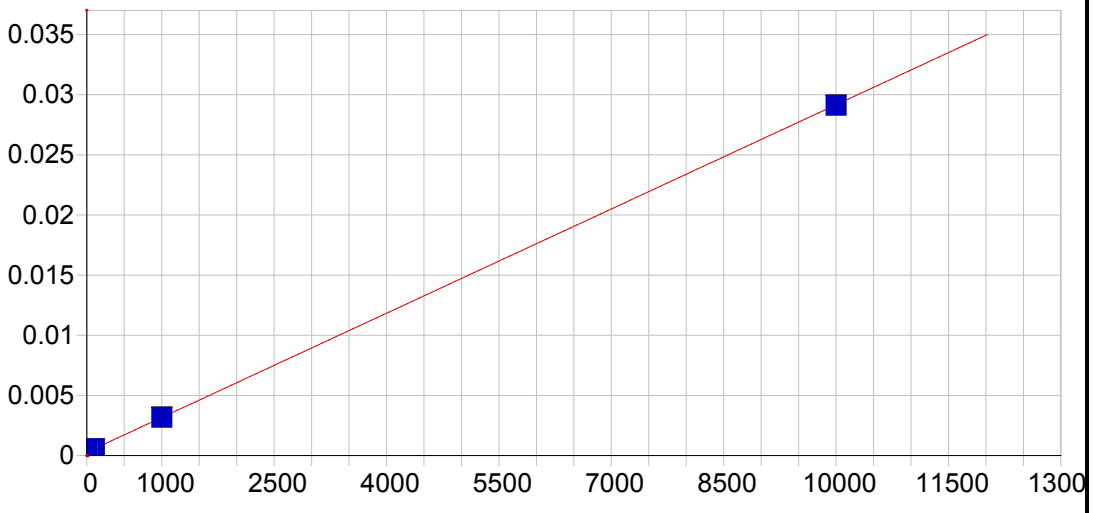


Si 251.611 {134}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	2.892276	Re-Slope:	1.000000
A1 (Gain):	0.140210	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.997462	Status:	OK.
Std Error of Est:	12.320226		
Predicted MDL:	7.797696		
Predicted MQL:	25.992320		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.84494	-.845	.000	2.7738	.143	1
CalStd9=100	1000.0	925.65	-74.3	-7.43	143.74	1.03	1
CalStd10=10	10000.	10562.	562.	5.62	1554.1	2.13	1
CalibStd15=	100000.	90367.	-9630.	-9.63	12673.	28.0	1

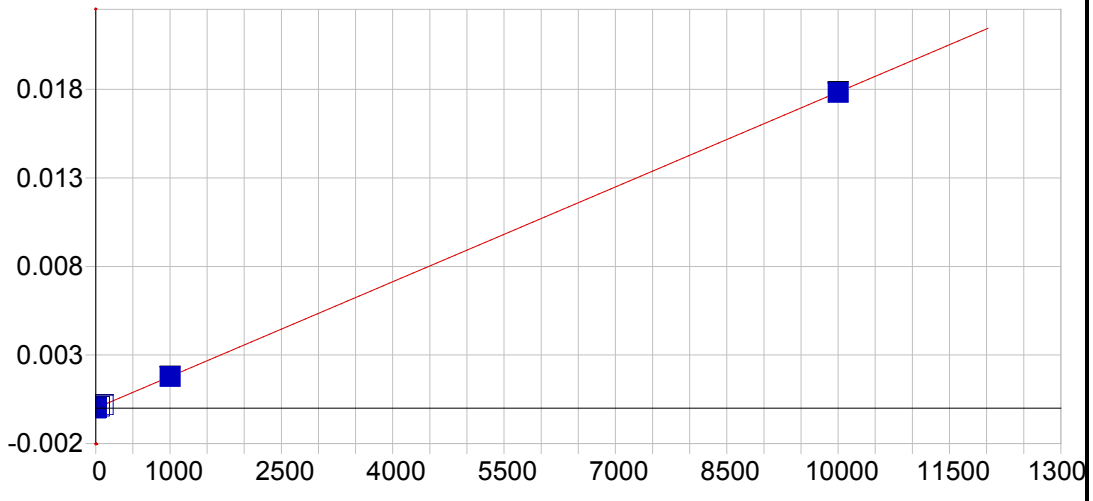


Ti 323.452 {104}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000273	Re-Slope:	1.000000
A1 (Gain):	0.000003	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999836	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	2.511358		
Predicted MQL:	8.371193		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00510	-.005	.000	.00027	.000	1
CalStd5=10	10.000	13.604	3.60	36.0	.00031	.000	1
CalStd8=100	100.00	104.37	4.37	4.37	.00058	.000	1
CalStd9=100	1000.0	1001.7	1.75	.175	.00317	.000	1
CalStd10=10	10000.	9980.8	-19.2	-.192	.02914	.000	1
CalStd7=50	50.000	57.061	7.06	14.1	.00044	.000	1
CalStd4=5	5.0000	7.3789	2.38	47.6	.00029	.000	1

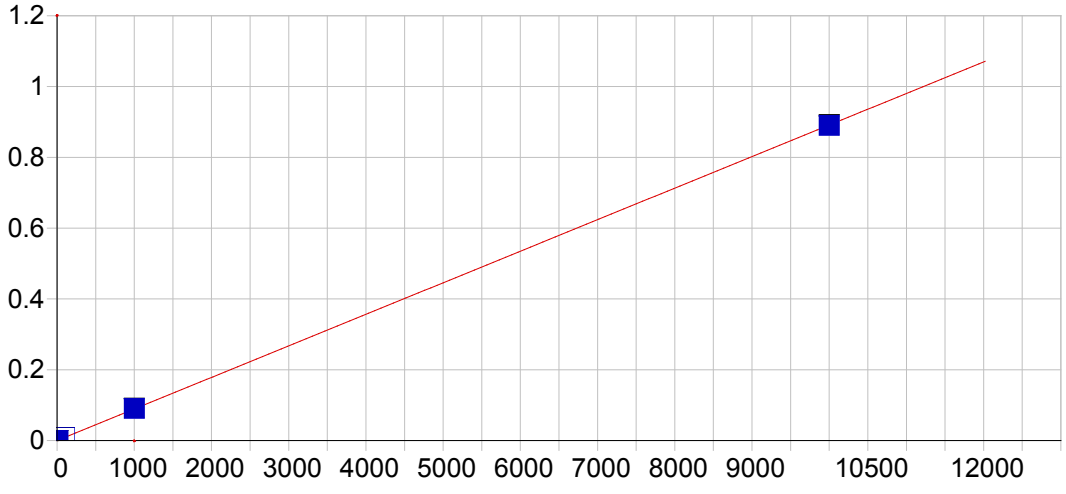


Ti 334.941 {101}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000001	Re-Slope:	1.000000
A1 (Gain):	0.000002	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999902	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	2.797856		
Predicted MQL:	9.326187		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00272	-.003	.000	-.00000	.000	1
CalStd5=10	10.000	10.453	.453	4.53	.00002	.000	1
CalStd8=100	100.00	101.96	1.96	1.96	.00018	.000	1
CalStd9=100	1000.0	997.54	-2.46	-.246	.00178	.000	1
CalStd10=10	10000.	9989.4	-10.6	-.106	.01783	.000	1
CalStd7=50	50.000	59.129	9.13	18.3	.00010	.000	1
CalStd4=5	5.0000	6.4968	1.50	29.9	.00001	.000	1

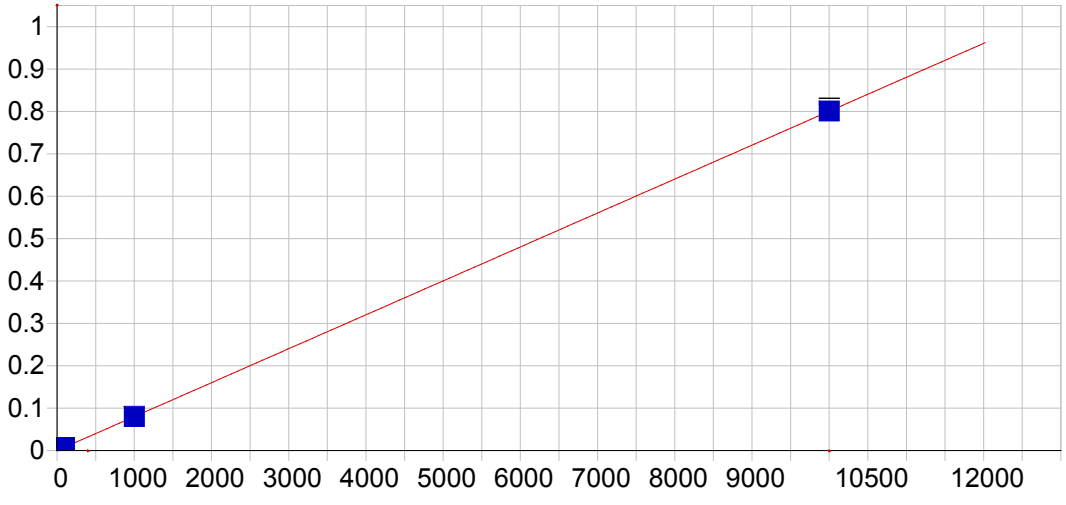


Sr 407.771 { 83}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000091	Re-Slope:	1.000000
A1 (Gain):	0.000089	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999968	Status:	OK.
Std Error of Est:	0.000003		
Predicted MDL:	0.120337		
Predicted MQL:	0.401123		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00054	-.001	.000	.00009	.000	1
CalStd3=1	1.0000	1.1448	.145	14.5	.00019	.000	1
CalStd4=5	5.0000	6.4489	1.45	29.0	.00067	.000	1
CalStd5=10	10.000	10.869	.869	8.69	.00106	.000	1
CalStd8=100	100.00	101.23	1.23	1.23	.00911	.000	1
CalStd9=100	1000.0	1012.7	12.7	1.27	.09034	.001	1
CalStd10=10	10000.	9983.6	-16.4	-.164	.88985	.002	1

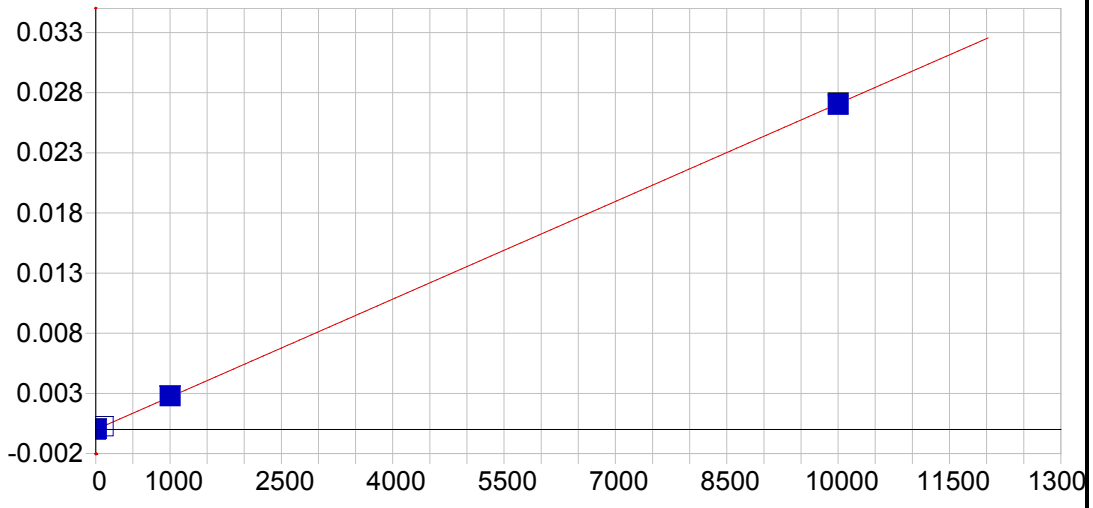


Sr 421.552 { 80}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000016	Re-Slope:	1.000000
A1 (Gain):	0.000080	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999984	Status:	OK.
Std Error of Est:	0.000002		
Predicted MDL:	0.135456		
Predicted MQL:	0.451520		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00038	-.000	.000	.00002	.000	1
CalStd3=1	1.0000	1.0647	.065	6.47	.00010	.000	1
CalStd4=5	5.0000	6.2365	1.24	24.7	.00052	.000	1
CalStd5=10	10.000	10.702	.702	7.02	.00087	.000	1
CalStd8=100	100.00	99.654	-.346	-.346	.00799	.000	1
CalStd9=100	1000.0	997.59	-2.41	-.241	.07988	.001	1
CalStd10=10	10000.	10001.	.751	.008	.80063	.007	1

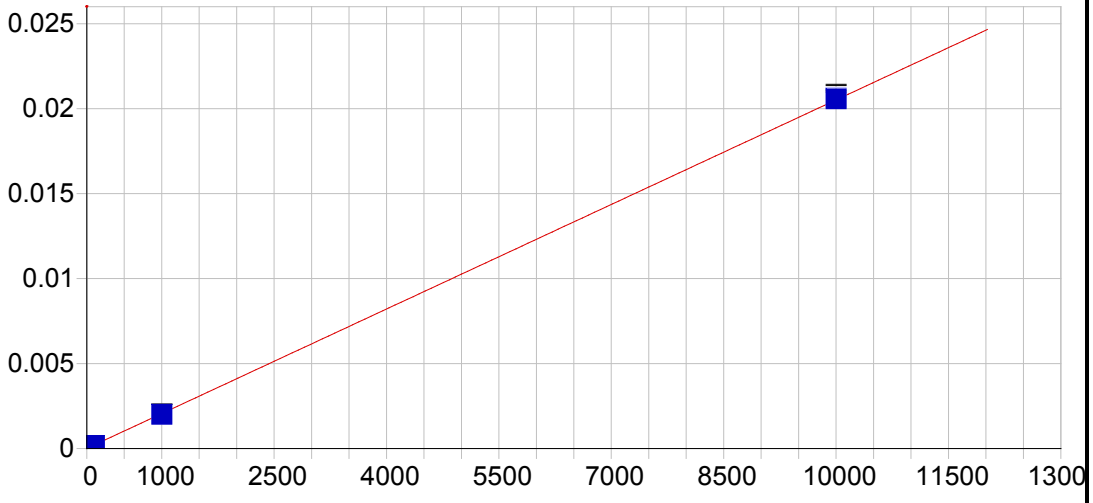


Sn 189.989 {477}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000000	Re-Slope:	1.000000
A1 (Gain):	0.000003	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999941	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	1.573514		
Predicted MQL:	5.245047		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00280	-.003	.000	.00000	.000	1
CalStd10=10	10000.	9971.7	-28.3	-.283	.02701	.000	1
CalStd9=100	1000.0	1024.7	24.7	2.47	.00278	.000	1
CalStd8=100	100.00	101.09	1.09	1.09	.00027	.000	1
CalStd5=10	10.000	12.470	2.47	24.7	.00003	.000	1

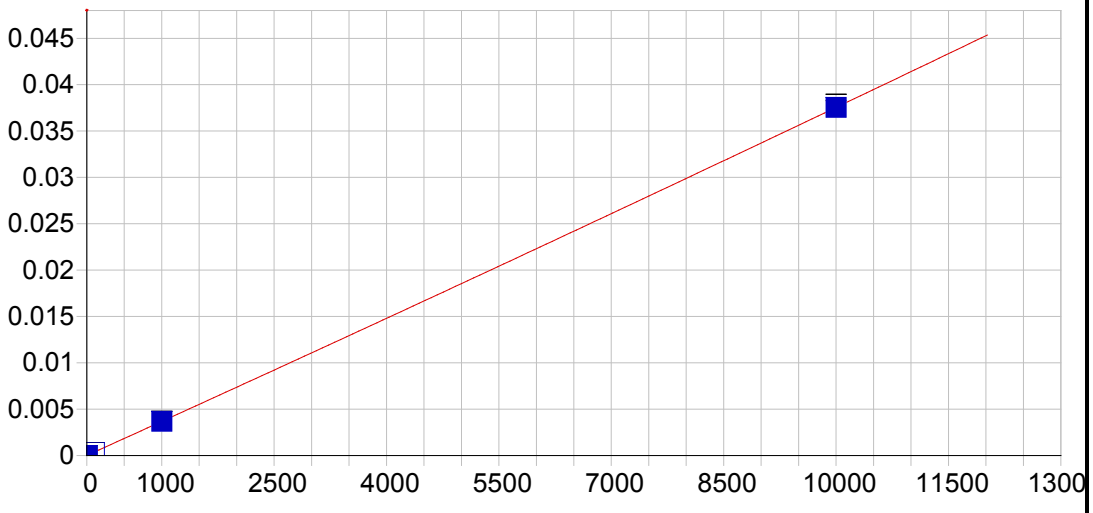


B 249.678 {135}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000006	Re-Slope:	1.000000
A1 (Gain):	0.000002	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999956	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	1.399181		
Predicted MQL:	4.663935		

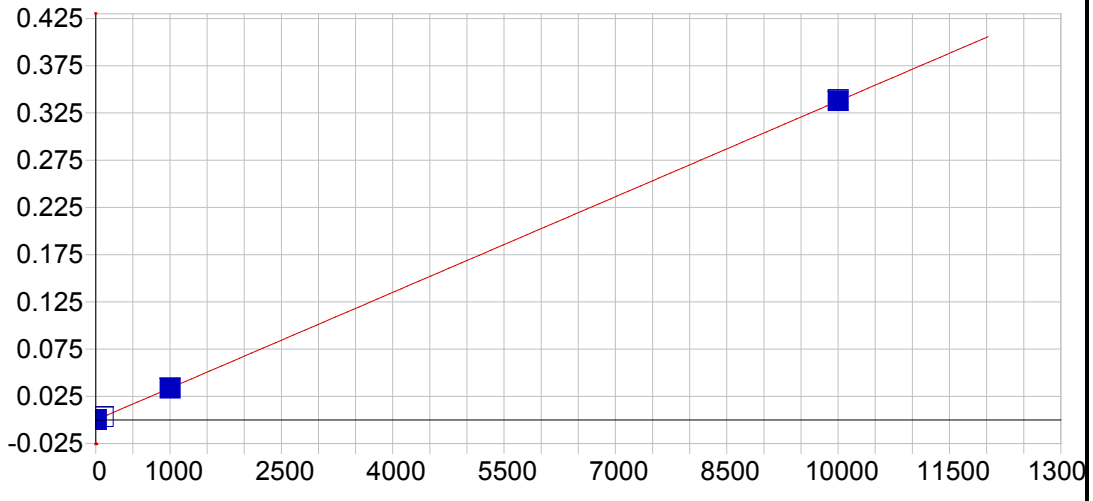
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00166	.002	.000	.00001	.000	1
CalStd8=100	100.00	94.622	-5.38	-5.38	.00020	.000	1
CalStd5=10	10.000	9.0714	-.929	-9.29	.00003	.000	1
CalStd9=100	1000.0	977.31	-22.7	-2.27	.00202	.000	1
CalStd10=10	10000.	10029.	29.0	.290	.02065	.000	1



B 249.773 {135}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Curvilinear	Weighting:	1/Var
A0 (Offset):	0.000010		Re-Slope:	1.000000	
A1 (Gain):	0.000004		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.999989		Status:	Warning	Positive Curvature
Std Error of Est:	0.000002				
Predicted MDL:	0.630501				
Predicted MQL:	2.101669				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.07860	.079	.000	.00001	.000	1
CalStd8=100	100.00	97.881	-2.12	-2.12	.00037	.000	1
CalStd5=10	10.000	9.6324	-.368	-3.68	.00005	.000	1
CalStd9=100	1000.0	1001.1	1.10	.110	.00369	.000	1
CalStd10=10	10000.	9994.2	-5.77	-.058	.03757	.000	1

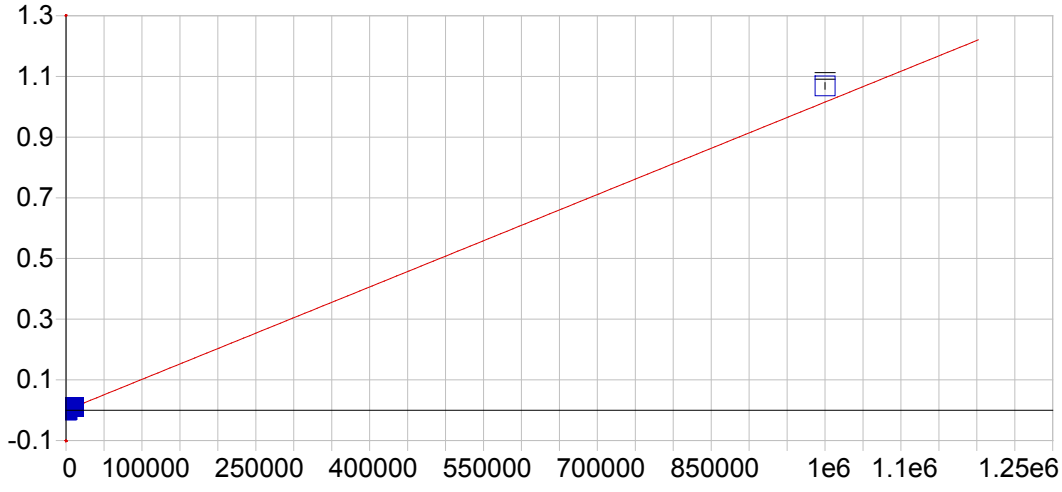


Li 670.784 { 50}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000026	Re-Slope:	1.000000
A1 (Gain):	0.000034	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999989	Status:	OK.
Std Error of Est:	0.000002		
Predicted MDL:	0.871705		
Predicted MQL:	2.905684		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	-.00090	-.001	.000	-.00003	.000	1
CalStd5=10	10.000	11.161	1.16	11.6	.00035	.000	1
CalStd8=100	100.00	98.106	-1.89	-1.89	.00329	.000	1
CalStd9=100	1000.0	992.25	-7.75	-.775	.03348	.000	1
CalStd10=10	10000.	10008.	8.49	.085	.33789	.001	1

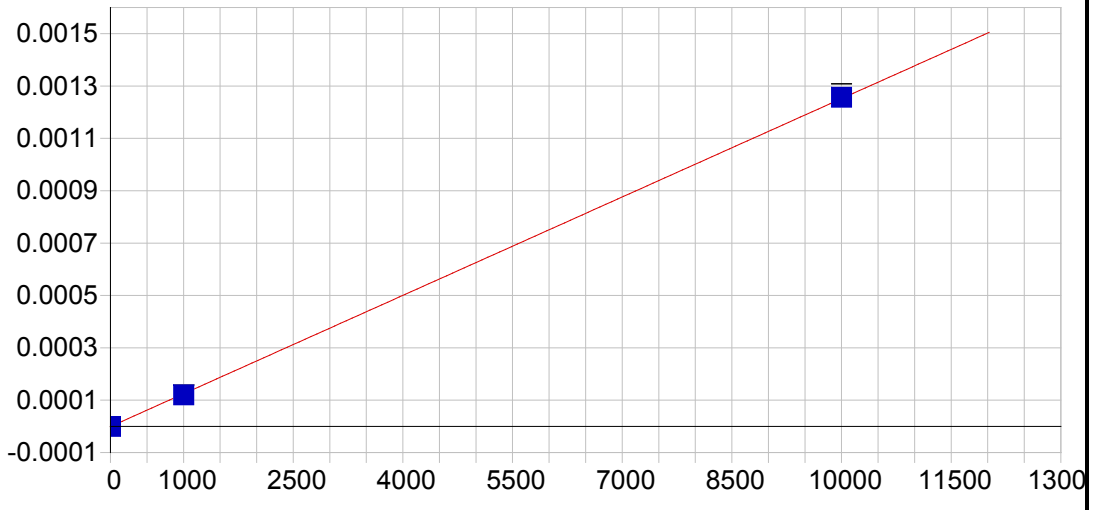


K 766.490 { 44}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Var

A0 (Offset):	-0.000030	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999779	Status:	OK.
Std Error of Est:	0.000079		
Predicted MDL:	23.830204		
Predicted MQL:	79.434014		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	8.6933	8.69	.000	-.00002	.000	1
CalStd9=100	1000.0	1002.7	2.67	.267	.00099	.000	1
CalStd10=10	10000.	9924.7	-75.3	-.753	.01005	.000	1
CalibStd15=	1000000.	1052400.	52400.	5.24	1.0686	.011	1

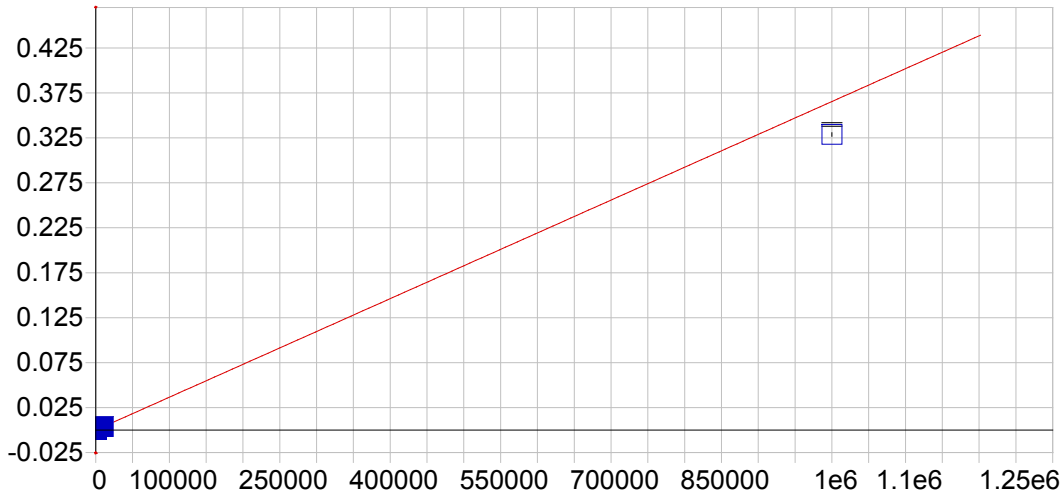


P 213.618 {457}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000001	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999924	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	6.770312		
Predicted MQL:	22.567708		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.03512	.035	.000	-.00000	.000	1
CalStd10=10	10000.	10039.	39.0	.390	.00126	.000	1
CalStd9=100	1000.0	960.98	-39.0	-3.90	.00012	.000	1

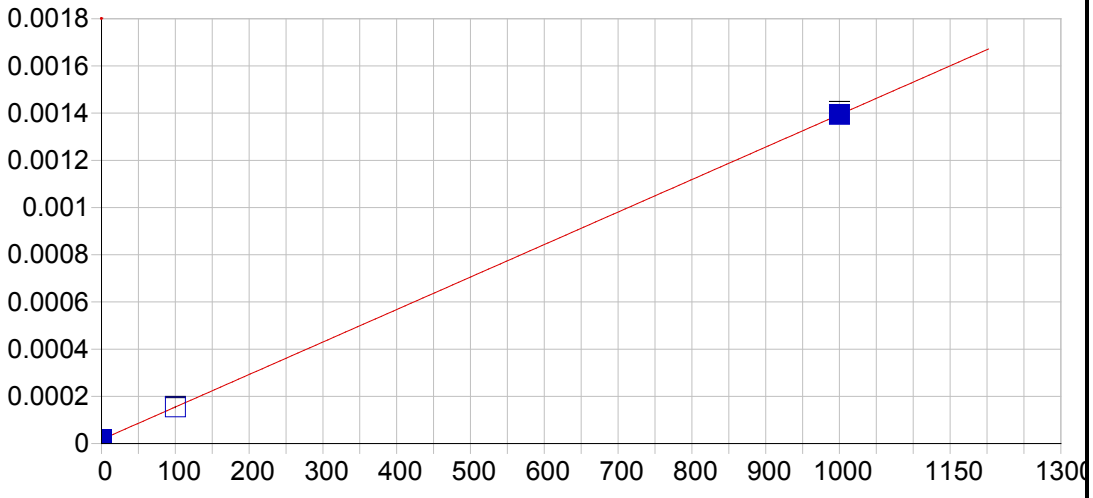


S 182.034 {485}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Curvilinear	Weighting:	1/Conc

A0 (Offset):	0.000001	Re-Slope:	1.000000
A1 (Gain):	0.000000	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	9.954942		
Predicted MQL:	33.183142		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00917	.009	.000	.00000	.000	1
CalStd9=100	1000.0	989.71	-10.3	-1.03	.00036	.000	1
CalStd10=10	10000.	10000.	.255	.003	.00366	.000	1
CalibStd15=	1000000.	899690.	-100000.	-10.0	.32876	.002	1

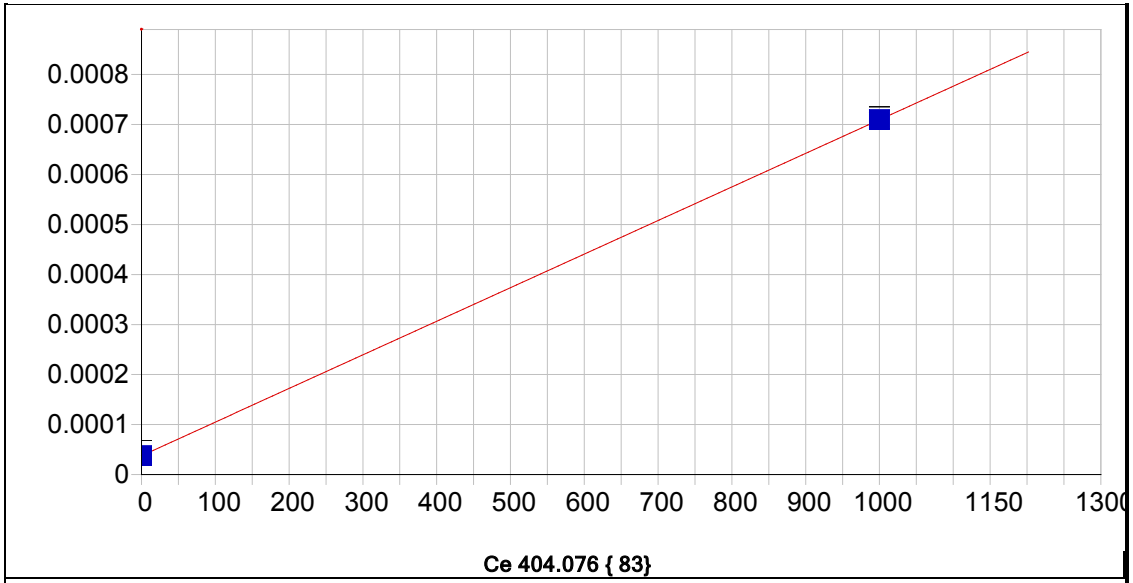


Hg 184.950 {482}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000017	Re-Slope:	1.000000
A1 (Gain):	0.000001	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	1.000000	Status:	OK.
Std Error of Est:	0.000000		
Predicted MDL:	2.940960		
Predicted MQL:	9.803202		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00007	.000	.000	.00002	.000	1
CalStd8=100	100.00	99.927	-.073	-.073	.00015	.000	1
CalStd9=100	1000.0	1000.1	.073	.007	.00139	.000	1



Ce 404.076 { 83}

Date of Fit:	10/28/2019 14:56:56	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000038		Re-Slope:	1.000000	
A1 (Gain):	0.000001		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	1.000000		Status:	OK.	
Std Error of Est:	0.000000				
Predicted MDL:	16.427212				
Predicted MQL:	54.757372				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
Blank	.00000	.00000	.000	.000	.00004	.000	1
CalStd9=100	1000.0	1000.0	.000	.000	.00071	.000	1

Sample Name: Blank Acquired: 10/23/2019 14:45:01 Type: Cal
Method: DOD Calibration Updated 060614(v3580) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	Al3961	As1937	As1972	Ba2335	Ba4934	Be3130	Ca3158	Ca3933	Cd2265	Cd2288
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**12.2**	**.000**	**-.000**	**.095**	**-.000**	**-.000**	**.011**	**.000**	**.000**	**.001**	**-.000**	**.000**
Stddev	2.0	.000	.000	.510	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	16.3	32.3	18.0	539.	118.	308.	1.01	12.8	4.10	8.35	724.	69.0

Elem	Co2286	Co2388	Cr2055	Cr2677	Cu2230	Fe2395	Fe2599	Mg2790	Mn2576	Mn2593	Mo2020	Mo2045
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**-.000**	**-.000**	**.000**	**.000**	**-.000**	**1.23**	**-.000**	**-.000**	**.000**	**-.000**
Stddev	.000	.000	.000	.000	.000	.000	.000	.39	.000	.000	.000	.000
%RSD	112.	67.7	45.7	69.3	141.	83.0	74.6	31.9	28.2	281.	84.8	26.2

Elem	Ni2216	Ni2316	Pb2169	Pb2203	Sb2068	Sb2175	Se1960	Se2062	Tl1908	V_2908	V_2924	Zn2062
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**-.000**	**.000**	**.000**	**-.000**	**.000**	**.000**	**-.000**	**.000**	**.000**	**.000**	**-.000**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	199.	42.8	81.2	37.6	29.6	490.	156.	165.	42.6	39.6	172.	660.

Elem	Zn2138	Sr4077	Sr4215	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.000**	**.000**
Stddev	.000	.000	.000	.000
%RSD	24.9	3.81	32.9	50.4

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**157440.**	**1005400.**	**373300.**
Stddev	341.	4256.	3123.
%RSD	.21687	.42326	.83667

Sample Name: CalStd2=0.5 Acquired: 10/23/2019 14:51:19 Type: Cal
Method: DOD Calibration Updated 060614(v3580) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Be3130	Cd2265	Cd2288
Units	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.000**
Stddev	.000	.000	.000
%RSD	3.43	48.6	1.72

Int. Std.	Y_2243	Y_3242
Units	Cts/S	Cts/S
Avg	**153540.**	**997990.**
Stddev	438.	2696.
%RSD	.28521	.27012

Sample Name: CalStd3=1 Acquired: 10/23/2019 14:57:36 Type: Cal
Method: DOD Calibration Updated 060614(v3580) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Ba2335	Be3130	Cd2265	Cd2288	Co2286	Cr2055	Ni2316	Sr4077	Sr4215
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**16.8**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**-.000**	**.000**	**.000**
Stddev	1.6	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	9.69	36.1	4.86	12.8	19.3	14.2	28.0	78.0	6.76	3.48

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**153160.**	**996100.**	**368320.**
Stddev	549.	2330.	1528.
%RSD	.35844	.23390	.41483

Sample Name: CalStd4=5 Acquired: 10/23/2019 15:03:53 Type: Cal
Method: DOD Calibration Updated 060614(v3580) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ba2335	Be3130	Cd2265	Cd2288	Co2286	Cr2055	Cr2677	Mn2576	Mo2020	Mo2045	Ni2316	Pb2203
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	7.27	.842	1.41	1.00	3.84	4.16	7.81	5.81	13.2	31.1	8.62	42.8

Elem	Sb2175	Sr4077	Sr4215
Units	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.001**	**.001**
Stddev	.000	.000	.000
%RSD	13.9	1.08	3.12

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**154250.**	**991500.**	**365610.**
Stddev	137.	3484.	1033.
%RSD	.08858	.35137	.28265

Sample Name: CalStd5=10 Acquired: 10/23/2019 15:10:09 Type: Cal
Method: DOD Calibration Updated 060614(v3580) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	As1972	Ba2335	Be3130	Cd2265	Cd2288	Co2286	Cr2055	Cr2677	Cu2230
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**44.4**	**.000**	**.642**	**.000**	**.000**	**.001**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**
Stddev	3.0	.000	.670	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	6.82	2.05	104.	168.	4.83	.200	1.57	1.87	1.18	2.58	11.4	7.53

Elem	Mn2576	Mo2020	Mo2045	Ni2316	Pb2169	Pb2203	Sb2068	Sb2175	Se1960	Tl1908	V_2924	Zn2062
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	2.91	6.91	18.9	9.07	29.9	20.9	48.8	14.7	21.5	12.3	7.63	1.06

Elem	Zn2138	Sr4077	Sr4215	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.001**	**.001**	**.000**
Stddev	.000	.000	.000	.000
%RSD	.792	.438	2.17	9.10

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**153520.**	**986130.**	**367940.**
Stddev	517.	2348.	1890.
%RSD	.33692	.23810	.51376

Sample Name: CalStd6=20 Acquired: 10/23/2019 15:16:29 Type: Cal
Method: DOD Calibration Updated 060614(v3580) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ba2335	Cu2230	Mn2576	Mo2020	Mo2045	Sb2175	V_2924
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**
Stddev	.000	.000	.000	.000	.000	.000	.000
%RSD	1.13	6.28	.951	4.61	11.3	12.3	2.88

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**153880.**	**980980.**	**367240.**
Stddev	247.	5075.	879.
%RSD	.16049	.51730	.23938

Sample Name: CalStd7=50 Acquired: 10/23/2019 15:22:42 Type: Cal
Method: DOD Calibration Updated 060614(v3580) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	As1937	As1972	Cd2265	Cd2288	Co2286	Cr2055	Cr2677	Cu2230	Mn2576	Mo2020	Mo2045	Ni2316
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**7.70**	**.000**	**.001**	**.002**	**.001**	**.001**	**.000**	**.000**	**.000**	**.000**	**.000**	**.000**
Stddev	.96	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	12.5	15.1	.327	.146	.518	.481	1.43	1.17	.661	1.59	2.16	1.87

Elem	Sb2068	Se1960	V_2924
Units	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.000**
Stddev	.000	.000	.000
%RSD	4.20	9.27	1.17

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**153990.**	**986900.**	**365900.**
Stddev	174.	6258.	3919.
%RSD	.11296	.63411	1.0710

Sample Name: CalStd8=100 Acquired: 10/23/2019 15:28:55 Type: Cal
Method: DOD Calibration Updated 060614(v3580) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	As1972	Ba2335	Ba4934	Be3130	Ca3933	Cd2265	Cd2288	Co2286	Co2388
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**312.**	**.000**	**13.8**	**.000**	**.001**	**.013**	**.006**	**.018**	**.003**	**.004**	**.002**	**.000**
Stddev	4.	.000	.8	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	1.30	.720	5.69	7.97	.487	.807	.933	1.25	.389	.233	.230	1.16

Elem	Cr2055	Cr2677	Cu2230	Mn2576	Mo2020	Mo2045	Ni2216	Ni2316	Pb2169	Pb2203	Sb2175	Se1960
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.001**	**.000**	**.000**	**.000**	**.000**	**.000**	**.001**	**.001**	**.000**	**.000**	**.000**	**.000**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	.697	1.33	.882	1.11	.368	.348	.696	2.21	2.53	1.22	2.98	4.25

Elem	Se2062	Tl1908	V_2908	V_2924	Zn2062	Zn2138	Sr4077	Sr4215	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.000**	**.000**	**.000**	**.000**	**.001**	**.002**	**.009**	**.008**	**.000**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	23.3	1.43	2.44	.764	.421	.550	1.09	1.24	3.65

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**153830.**	**993280.**	**369470.**
Stddev	495.	4643.	2607.
%RSD	.32148	.46741	.70562

Sample Name: CalStd9=1000 Acquired: 10/23/2019 15:35:11 Type: Cal
Method: DOD Calibration Updated 060614(v3580) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Al1670	Al3961	As1937	As1972	Ba2335	Ba4934	Be3130	Ca3158	Ca3933	Cd2265	Cd2288	Co2286
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.002**	**.001**	**145.**	**.000**	**.009**	**.037**	**.058**	**.000**	**.162**	**.026**	**.036**	**.022**
Stddev	.000	.000	.	.000	.000	.000	.000	.000	.001	.000	.000	.000
%RSD	.232	.304	.127	1.92	.270	.898	.259	2.27	.529	.218	.267	.085

Elem	Co2388	Cr2055	Cr2677	Cu2230	Fe2395	Fe2599	Mg2790	Mn2576	Mn2593	Mo2020	Mo2045	Ni2216
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.002**	**.014**	**.003**	**.003**	**.000**	**.001**	**27.1**	**.005**	**.002**	**.003**	**.002**	**.007**
Stddev	.000	.000	.000	.000	.000	.000	.7	.000	.000	.000	.000	.000
%RSD	.754	.368	.455	.758	.943	.850	2.60	.335	1.17	1.26	.966	.461

Elem	Ni2316	Pb2169	Pb2203	Sb2068	Sb2175	Se1960	Se2062	Tl1908	V_2908	V_2924	Zn2062	Zn2138
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.006**	**.001**	**.003**	**.001**	**.001**	**.001**	**.000**	**.002**	**.001**	**.005**	**.010**	**.024**
Stddev	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	.580	.451	.665	.531	.673	1.02	1.40	.322	1.03	.182	.484	.532

Elem	Sr4077	Sr4215	B_2496
Units	Cts/S	Cts/S	Cts/S
Avg	**.090**	**.080**	**.002**
Stddev	.001	.001	.000
%RSD	.617	.786	.154

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**153800.**	**982490.**	**366500.**
Stddev	112.	2718.	2464.
%RSD	.07285	.27659	.67217

Sample Name: CalStd10=10000 Acquired: 10/23/2019 15:40:53 Type: Cal
Method: DOD Calibration Updated 060614(v3580) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Al3961	As1972	Ba4934	Ca3158	Co2286	Co2388	Cr2055	Cr2677	Cu2230	Fe2395	Fe2599	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.013**	**.003**	**.269**	**.002**	**.209**	**.019**	**.134**	**.033**	**.031**	**.003**	**.008**	**258.**
Stddev	.000	.000	.005	.000	.001	.000	.000	.000	.000	.000	.000	1.
%RSD	.173	.685	1.69	.520	.303	.845	.157	.866	.521	.563	.202	.457

Elem	Mn2576	Mn2593	Mo2045	Ni2216	Ni2316	Pb2169	Sb2068	Sb2175	Se2062	Tl1908	V_2908	V_2924
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.048**	**.024**	**.023**	**.066**	**.061**	**.013**	**.011**	**.012**	**.003**	**.022**	**.013**	**.050**
Stddev	.001	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
%RSD	1.12	.411	.873	.695	.770	.370	.371	.421	.306	.417	.258	.934

Elem	Zn2062	Sr4077	Sr4215	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.095**	**.890**	**.801**	**.021**
Stddev	.001	.002	.007	.000
%RSD	.625	.229	.861	.921

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**150590.**	**927640.**	**367620.**
Stddev	631.	5158.	868.
%RSD	.41885	.55606	.23610

Sample Name: CalStd12=100K Acquired: 10/23/2019 15:47:19 Type: Cal
Method: DOD Calibration Updated 060614(v3580) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Cr2055	Cu2230	Mn2593	Pb2169	Zn2062
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**1.31**	**.346**	**.276**	**.148**	**.940**
Stddev	.00	.001	.003	.000	.003
%RSD	.117	.186	.962	.309	.363

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**150890.**	**973560.**	**367960.**
Stddev	371.	4596.	2744.
%RSD	.24610	.47204	.74577

Sample Name: CalStd13=100000 Acquired: 10/23/2019 15:53:38 Type: Cal
Method: DOD Calibration Updated 060614(v3580) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Al3961	Ca3158	Fe2395	Fe2599	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.145**	**.020**	**.028**	**.085**	**2900.**
Stddev	.001	.000	.000	.000	11.
%RSD	.888	.930	.436	.541	.373

Int. Std.	Y_2243	Y_3710
Units	Cts/S	Cts/S
Avg	**147290.**	**360220.**
Stddev	505.	2556.
%RSD	.34254	.70968

Sample Name: CalStd14=500000 Acquired: 10/23/2019 16:00:09 Type: Cal
Method: DOD Calibration Updated 060614(v3580) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Al3961	Ca3158	Fe2395	Fe2599	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.691**	**.088**	**.123**	**.369**	**13100.**
Stddev	.009	.001	.001	.002	11.
%RSD	1.35	.646	.743	.624	.082

Int. Std.	Y_2243	Y_3710
Units	Cts/S	Cts/S
Avg	**135320.**	**340650.**
Stddev	413.	2416.
%RSD	.30555	.70915

Sample Name: CalibStd15=1000k Acquired: 10/23/2019 16:07:12 Type: Cal
Method: DOD Calibration Updated 060614(v3580) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Al3961	Ca3158	Fe2395	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**1.38**	**.172**	**.238**	**24800.**
Stddev	.01	.002	.002	51.
%RSD	.640	1.10	.854	.207

Int. Std.	Y_2243	Y_3710
Units	Cts/S	Cts/S
Avg	**121930.**	**323600.**
Stddev	217.	1947.
%RSD	.17770	.60175

Sample Name: Ag Ba 1000, 50000 Acquired: 10/23/2019 16:14:44 Type: Cal
Method: DOD Calibration Updated 060614(v3580) Mode: IR Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Ba4934
Units	Cts/S	Cts/S
Avg	**2800.**	**1.27**
Stddev	8.	.01
%RSD	.298	.522

Int. Std.	Y_3710
Units	Cts/S
Avg	**373180.**
Stddev	1679.
%RSD	.45006

Sample Name: icv Acquired: 10/23/2019 16:27:39 Type: QC
Method: DOD Calibration Updated 060614(v3580) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3961	As1937	As1972	Ba4934	Be3130	Ca3158	Cd2265	Co2286	Cr2055	Cr2677	Cu2230
Avg	**52.2**	**11800.**	**2050.**	**2070.**	**2090.**	**50.0**	**9950.**	**50.5**	**522.**	**208.**	**200.**	**239.**
Stddev	.3	14.	5.	28.	4.	.2	20.	.3	1.	.	1.	3.
%RSD	.553	.116	.239	1.37	.196	.343	.202	.556	.140	.069	.549	1.41
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Fe2599	Mg2790	Mn2576	Mo2020	Mo2045	Ni2216	Ni2316	Pb2169	Pb2203	Sb2068	Sb2175	Se1960
Avg	**5210.**	**9800.**	**497.**	**517.**	**521.**	**509.**	**520.**	**499.**	**509.**	**512.**	**519.**	**2060.**
Stddev	91.	17.	4.	3.	.	1.	3.	3.	6.	5.	4.	4.
%RSD	1.74	.172	.842	.632	.010	.270	.533	.695	1.10	.881	.693	.193
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Se2062	Tl1908	V_2908	V_2924	Zn2062	Zn2138	Sr4077	Sr4215
Avg	**2050.**	**2110.**	**514.**	**504.**	**530.**	**519.**	**532.**	**524.**
Stddev	4.	14.	2.	.	4.	3.	1.	.
%RSD	.182	.688	.334	.007	.678	.570	.199	.086
Check ?	None	None	None	None	None	None	None	None
Value								
Range								

Sample Name: icv Acquired: 10/23/2019 16:27:39 Type: QC
Method: DOD Calibration Updated 060614(v3580) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**152460.**	**981630.**	**367120.**
Stddev	225.	2975.	444.
%RSD	.14743	.30311	.12086

Sample Name: ICVLL Acquired: 10/23/2019 16:39:52 Type: QC
Method: DOD Calibration Updated 060614(v3580) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	Al3961	As1937	Ba2335	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2230	Fe2599
Avg	F **42.0**	**1260.**	**1240.**	**62.3**	**31.8**	**13.0**	**1590.**	**16.2**	**33.8**	**29.4**	**31.4**	**981.**
Stddev	.6	4.	4.	6.4	.4	.1	11.	.1	.4	.7	1.0	8.
%RSD	1.37	.347	.326	10.3	1.34	.526	.695	.671	1.07	2.46	3.30	.860
Check ?	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value	60.0											
Range	-30.0%											

Elem	Mg2790	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138	Sr4077	B_2496
Avg	**1570.**	**30.9**	**31.9**	**32.7**	**31.7**	**69.3**	**65.1**	**65.8**	**31.5**	**34.0**	**32.9**	**62.8**
Stddev	36.	.1	1.1	.7	1.9	3.6	6.4	1.5	.5	.3	.3	1.5
%RSD	2.30	.246	3.47	2.05	5.88	5.27	9.85	2.25	1.54	.798	.992	2.41
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value												
Range												

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**153050.**	**993690.**	**369150.**
Stddev	247.	2445.	2236.
%RSD	.16112	.24600	.60560

Sample Name: icb Acquired: 10/23/2019 16:52:16 Type: QC
Method: DOD Calibration Updated 060614(v3580) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2230	Fe2599	Mg2790
Avg	**.454**	**-2.38**	**.319**	**.117**	**.010**	**6.81**	**-.189**	**-.016**	**-2.22**	**1.02**	**1.73**	**-3.43**
Stddev	.579	.54	7.10	.331	.007	.26	.162	.199	.87	.86	4.16	30.3
%RSD	127.	22.5	2230.	283.	71.1	3.81	85.7	1270.	39.3	84.2	241.	886.
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138	Sr4077	B_2496
Avg	**-.888**	**-2.18**	**-.197**	**.828**	**3.53**	**-1.00**	**-.726**	**-.595**	**1.27**	**.324**	**-1.80**
Stddev	.274	.73	.493	2.18	.44	5.55	1.66	.906	.26	.098	1.24
%RSD	30.8	33.4	250.	263.	12.4	555.	229.	152.	20.8	30.3	68.9
Check ?	None	None	None	None	None	None	None	None	None	None	None
Value											
Range											

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**157870.**	**1005800.**	**374110.**
Stddev	489.	5785.	3973.
%RSD	.30956	.57510	1.0620

Sample Name: MRL/LLOQ Acquired: 10/23/2019 16:58:31 Type: QC
Method: DOD Calibration Updated 060614(v3580) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2230	Fe2599	Mg2790
Avg	**16.2**	**426.**	**21.5**	**10.4**	**4.40**	**516.**	**5.37**	**11.1**	**7.90**	**12.1**	**320.**	**517.**
Stddev	.7	1.	6.4	.6	.09	.	.14	.3	.67	1.0	3.	24.
%RSD	4.58	.128	29.5	5.98	1.99	.051	2.53	2.54	8.44	8.48	.847	4.73
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value												
Range												

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138	Sr4077	B_2496
Avg	**9.19**	**8.65**	**11.0**	**9.77**	**19.8**	**18.9**	**20.3**	**10.0**	**12.2**	**10.6**	**18.7**
Stddev	.22	.72	.9	1.69	5.3	4.0	2.4	.3	.2	.1	.8
%RSD	2.37	8.27	7.84	17.3	26.7	21.0	11.8	2.59	1.58	.792	4.49
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value											
Range											

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**154360.**	**977530.**	**366730.**
Stddev	495.	6089.	2016.
%RSD	.32043	.62293	.54981

Sample Name: ICSA Acquired: 10/23/2019 17:04:42 Type: QC
Method: DOD Calibration Updated 060614(v3580) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3961	As1937	Ba2335	Be3130	Ca3158	Cd2265	Co2286	Cr2677	Cu2230	Fe2395
Avg	**.011**	**539000.**	**-.295**	**-.213**	**-.562**	**503000.**	**-.058**	**.364**	**-5.67**	**.234**	**485000.**
Stddev	.577	5850.	14.9	.742	.060	2860.	.522	.289	1.29	3.01	2000.
%RSD	5320.	1.09	5040.	349.	10.6	.568	903.	79.4	22.8	1280.	.412
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit											
Low Limit											

Elem	Fe2599	Mg2790	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2908	Zn2138
Avg	**485000.**	**518000.**	**-2.07**	**.552**	**-.234**	**2.63**	**1.13**	**-8.86**	**1.24**	**11300.**	**-4.46**
Stddev	1430.	1200.	.28	1.21	2.68	3.34	13.9	12.2	4.26	87.	.68
%RSD	.294	.232	13.7	219.	1140.	127.	1240.	138.	344.	.768	15.2
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	None	Chk Pass
High Limit											
Low Limit											

Elem	Sr4077	B_2496
Avg	**.880**	**-1.62**
Stddev	.136	1.31
%RSD	15.4	81.0
Check ?	Chk Pass	Chk Pass
High Limit		
Low Limit		

Sample Name: ICSA Acquired: 10/23/2019 17:04:42 Type: QC
Method: DOD Calibration Updated 060614(v3580) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**135700.**	**870340.**	**339200.**
Stddev	320.	7963.	3089.
%RSD	.23561	.91489	.91058

Sample Name: ICSAB Acquired: 10/23/2019 17:11:43 Type: QC
Method: DOD Calibration Updated 060614(v3580) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3961	As1937	As1972	Ba2335	Be3130	Ca3158	Cd2288	Co2286	Cr2055	Cr2677
Avg	**586.**	**578000.**	**504.**	**431.**	**531.**	**552.**	**550000.**	**570.**	**527.**	**552.**	**523.**
Stddev	2.	4990.	10.	12.	1.	3.	1820.	1.	2.	1.	1.
%RSD	.256	.863	1.90	2.76	.209	.599	.330	.221	.329	.098	.208
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value											
Range											

Elem	Cu2230	Fe2395	Fe2599	Mg2790	Mn2576	Mo2020	Mo2045	Ni2216	Ni2316	Pb2169	Pb2203
Avg	**520.**	**519000.**	**517000.**	**550000.**	**510.**	**544.**	**523.**	**516.**	**508.**	**428.**	**475.**
Stddev	2.	4940.	4590.	1240.	6.	5.	8.	2.	2.	6.	7.
%RSD	.334	.953	.889	.226	1.25	.850	1.54	.424	.343	1.31	1.56
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value											
Range											

Elem	Sb2068	Sb2175	Se1960	Tl1908	V_2908	V_2924	Zn2062	Zn2138	Sr4077	Sr4215	B_2496
Avg	**476.**	**552.**	**512.**	**548.**	**580.**	**530.**	**514.**	**535.**	**591.**	**568.**	**523.**
Stddev	8.	7.	14.	2.	10.	6.	3.	2.	2.	2.	3.
%RSD	1.62	1.36	2.63	.444	1.71	1.15	.616	.321	.259	.316	.525
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value											
Range											

Sample Name: ICSAB Acquired: 10/23/2019 17:11:43 Type: QC
Method: DOD Calibration Updated 060614(v3580) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**135220.**	**869630.**	**334580.**
Stddev	678.	1348.	1236.
%RSD	.50156	.15502	.36940

Sample Name: ICVLL ag Acquired: 10/23/2019 17:24:26 Type: Unk
Method: DOD Calibration Updated 060614(v3580) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2230	Fe2599	Mg2790
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**11.5**	**2.64**	**4.51**	**.024**	**.012**	**3.03**	**.061**	**.108**	**-1.70**	**.499**	**175.**	**4.57**
Stddev	1.0	.58	4.19	.237	.036	.33	.230	.207	.47	.510	53.	20.8
%RSD	8.48	22.0	93.0	972.	306.	10.9	376.	191.	27.8	102.	30.4	455.

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138	Sr4077	B_2496
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-1.10**	**-3.17**	**-.432**	**.868**	**.786**	**2.05**	**1.11**	**.105**	**.824**	**.001**	**-2.20**
Stddev	.16	1.13	.600	.898	3.60	2.20	1.52	.170	.152	.129	1.04
%RSD	14.7	35.6	139.	104.	457.	107.	138.	162.	18.4	12100.	47.2

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**156940.**	**1003900.**	**370730.**
Stddev	449.	4379.	2394.
%RSD	.28594	.43617	.64585

Sample Name: lcsw74046 Acquired: 10/23/2019 17:37:12 Type: Unk
Method: DOD Calibration Updated 060614(v3580) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	As1972	Ba2335	Be3130	Ca3158	Cd2265	Co2286	Cr2677	Cu2230
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**20.9**	**784.**	**789.**	**871.**	**794.**	**20.6**	**200000.**	**19.8**	**206.**	**80.3**	**102.**
Stddev	1.9	.	12.	18.	1.	.2	2310.	.2	.	1.5	2.
%RSD	9.11	.054	1.48	2.03	.109	1.20	1.16	.940	.230	1.86	2.28

Elem	Fe2599	Mg2790	Mn2576	Mo2045	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2908	V_2924
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**424.**	**100000.**	**196.**	**2050.**	**204.**	**195.**	**212.**	**814.**	**793.**	**185.**	**211.**
Stddev	9.	147.	2.	13.	1.	7.	3.	4.	2.	4.	3.
%RSD	2.10	.147	.944	.626	.360	3.52	1.57	.507	.219	2.25	1.41

Elem	Zn2138	Sr4077	B_2496
Units	ug/L	ug/L	ug/L
Avg	**208.**	**3.78**	**-2.12**
Stddev	1.	.07	.90
%RSD	.331	1.72	42.6

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**143190.**	**915420.**	**359850.**
Stddev	216.	10029.	1438.
%RSD	.15105	1.0955	.39948

Sample Name: mbw74046 Acquired: 10/23/2019 17:43:51 Type: Unk
Method: DOD Calibration Updated 060614(v3580) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2230	Fe2599	Mg2790
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-.069**	**-3.85**	**-3.10**	**.011**	**.015**	**7.21**	**.049**	**-.026**	**-1.86**	**.934**	**10.5**	**2.82**
Stddev	.488	.32	3.00	.370	.023	1.63	.290	.379	.53	1.38	2.0	15.5
%RSD	709.	8.17	96.8	3410.	154.	22.6	595.	1440.	28.2	148.	19.3	550.

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138	Sr4077	B_2496
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-1.17**	**-.467**	**-.258**	**-1.29**	**-.267**	**3.18**	**-1.21**	**-.513**	**.691**	**-.131**	**-1.22**
Stddev	.21	1.93	1.09	2.64	4.22	1.25	.86	.905	.241	.141	1.49
%RSD	17.6	414.	424.	205.	1580.	39.3	70.8	176.	34.9	108.	122.

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**155010.**	**993220.**	**369300.**
Stddev	535.	10001.	1783.
%RSD	.34525	1.0069	.48285

Sample Name: 343844 Acquired: 10/23/2019 17:50:09 Type: Unk
Method: DOD Calibration Updated 060614(v3580) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3158	Cd2265	Co2286	Cr2677	Cu2230	Fe2599	Mg2790
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**-.254**	**153.**	**-7.34**	**94.0**	**.059**	**93600.**	**-.046**	**-.006**	**.762**	**2.36**	**333.**	**34600.**
Stddev	.445	2.	4.77	.5	.038	1000.	.120	.250	1.04	1.19	5.	83.
%RSD	175.	1.53	65.0	.500	64.3	1.07	262.	4000.	137.	50.7	1.62	.240

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138	Sr4215	B_2496
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**22.0**	**.766**	**-.054**	**.586**	**-1.56**	**-1.89**	**-1.17**	**-.001**	**15.8**	**3860.**	**24.8**
Stddev	.5	1.12	1.67	2.30	3.37	6.02	2.32	.542	.3	21.	1.5
%RSD	2.25	146.	3110.	393.	216.	319.	199.	51600.	1.71	.536	5.97

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**148940.**	**949400.**	**359010.**
Stddev	81.	3959.	2083.
%RSD	.05467	.41696	.58006

Sample Name: I343844 Acquired: 10/23/2019 17:56:45 Type: Unk
Method: DOD Calibration Updated 060614(v3580) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3158	Cd2265	Co2286	Cr2677	Cu2230	Fe2599	Mg2790
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**.340**	**34.3**	**.110**	**23.9**	**.029**	**23400.**	**-.030**	**.169**	**-1.76**	**1.25**	**78.8**	**8870.**
Stddev	.367	.4	2.36	.5	.052	180.	.104	.276	.59	1.93	5.0	31.
%RSD	108.	1.12	2140.	1.99	182.	.768	343.	163.	33.6	154.	6.34	.346

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138	Sr4077	Sr4215	B_2496
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**4.68**	**-2.27**	**-1.19**	**-1.68**	**2.29**	**-.924**	**-1.06**	**-.392**	**3.95**	**969.**	**952.**	**5.24**
Stddev	.10	.64	.85	3.47	3.01	2.62	2.74	.375	.13	3.	3.	1.18
%RSD	2.19	28.2	70.8	206.	132.	284.	259.	95.8	3.40	.350	.322	22.5

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**154340.**	**980140.**	**369250.**
Stddev	371.	4234.	1107.
%RSD	.24067	.43197	.29988

Sample Name: dup343844 Acquired: 10/23/2019 18:03:20 Type: Unk
Method: DOD Calibration Updated 060614(v3580) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3158	Cd2265	Co2286	Cr2677	Cu2230	Fe2599	Mg2790
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**.210**	**158.**	**-7.16**	**97.3**	**.024**	**96300.**	**-.082**	**.190**	**.429**	**1.76**	**337.**	**35900.**
Stddev	1.27	1.	5.46	.5	.029	373.	.323	.461	.822	1.31	5.	59.
%RSD	603.	.651	76.3	.463	122.	.387	392.	242.	192.	74.4	1.52	.165

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138	Sr4215	B_2496
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**22.8**	**1.41**	**.226**	**1.20**	**-.690**	**1.89**	**-1.13**	**-.041**	**16.3**	**3970.**	**23.1**
Stddev	.3	1.03	1.20	2.28	5.65	2.38	2.23	1.26	.5	33.	.4
%RSD	1.50	73.4	533.	189.	819.	126.	198.	3100.	3.19	.825	1.75

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**149070.**	**958670.**	**363550.**
Stddev	332.	3531.	2487.
%RSD	.22261	.36830	.68398

Sample Name: msw343844 Acquired: 10/23/2019 18:09:55 Type: Unk
Method: DOD Calibration Updated 060614(v3580) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	Al3961	As1937	As1972	Ba2335	Be3130	Ca3158	Cd2265	Co2286	Cr2677
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**20.9**	**987.**	**1140.**	**779.**	**871.**	**885.**	**20.6**	**296000.**	**19.8**	**207.**	**81.0**
Stddev	.8	1.	8.	2.	29.	4.	.1	1460.	.2	1.	.5
%RSD	3.72	.125	.736	.214	3.31	.437	.461	.494	.875	.655	.597

Elem	Cu2230	Fe2599	Mg2790	Mn2576	Mo2045	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**105.**	**733.**	**137000.**	**214.**	**2020.**	**199.**	**194.**	**211.**	**816.**	**781.**	**179.**
Stddev	3.	9.	262.	3.	23.	2.	4.	5.	7.	3.	2.
%RSD	2.39	1.16	.191	1.24	1.15	1.07	2.10	2.14	.910	.347	1.01

Elem	V_2924	Zn2138	Sr4215	B_2496
Units	ug/L	ug/L	ug/L	ug/L
Avg	**208.**	**223.**	**3910.**	**23.9**
Stddev	2.	2.	7.	1.6
%RSD	.908	.961	.184	6.80

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**140670.**	**906500.**	**356950.**
Stddev	266.	3872.	875.
%RSD	.18900	.42715	.24509

Sample Name: msdw343844 Acquired: 10/23/2019 18:16:30 Type: Unk
Method: DOD Calibration Updated 060614(v3580) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	Al3961	As1937	As1972	Ba2335	Be3130	Ca3158	Cd2265	Co2286	Cr2677
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**21.4**	**1010.**	**1160.**	**822.**	**925.**	**921.**	**21.4**	**302000.**	**20.4**	**212.**	**85.2**
Stddev	.4	5.	11.	13.	8.	2.	.1	2320.	.1	2.	.7
%RSD	1.97	.450	.981	1.54	.854	.227	.609	.769	.734	.970	.771

Elem	Cu2230	Fe2599	Mg2790	Mn2576	Mo2045	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2908
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**109.**	**751.**	**141000.**	**225.**	**2140.**	**213.**	**202.**	**223.**	**852.**	**804.**	**186.**
Stddev	3.	12.	311.	2.	10.	1.	3.	3.	5.	4.	4.
%RSD	2.35	1.59	.221	.705	.465	.474	1.42	1.53	.540	.539	2.19

Elem	V_2924	Zn2138	Sr4215	B_2496
Units	ug/L	ug/L	ug/L	ug/L
Avg	**218.**	**232.**	**3930.**	**22.1**
Stddev	.	1.	40.	.4
%RSD	.227	.325	1.01	1.71

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**141190.**	**902600.**	**360000.**
Stddev	456.	3345.	1586.
%RSD	.32288	.37055	.44056

Sample Name: 343878 Acquired: 10/23/2019 18:23:04 Type: Unk
Method: DOD Calibration Updated 060614(v3580) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3961	As1937	Ba2335	Be3130	Ca3158	Cd2265	Co2286	Cr2677	Cu2230	Fe2599	Mg2790
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**.440**	**3520.**	**2.08**	**164.**	**.149**	**69500.**	**-.040**	**2.78**	**5.66**	**7.88**	**3640.**	**35400.**
Stddev	.417	25.	2.78	1.	.040	484.	.101	.46	.99	.68	45.	64.
%RSD	94.7	.696	133.	.316	26.6	.697	249.	16.4	17.5	8.63	1.25	.182

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138	Sr4077	B_2496
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**374.**	**.318**	**5.84**	**7.55**	**-.549**	**1.47**	**-1.79**	**5.44**	**28.2**	**201.**	**14.4**
Stddev	4.	.988	.80	.28	3.34	4.69	.14	.98	.2	1.	2.1
%RSD	1.01	311.	13.7	3.69	609.	320.	7.65	18.1	.620	.686	14.3

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**149070.**	**953430.**	**359210.**
Stddev	788.	6404.	2487.
%RSD	.52877	.67164	.69244

Sample Name: ccv1 Acquired: 10/23/2019 18:29:38 Type: QC
Method: DOD Calibration Updated 060614(v3580) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3961	As1972	Ba4934	Be3130	Ca3158	Cd2288	Co2388	Cr2055	Cu2230	Fe2599	Mg2790
Avg	**509.**	**5070.**	**4990.**	**5140.**	**508.**	**4980.**	**519.**	**5040.**	**5040.**	**4570.**	**5040.**	**4940.**
Stddev	1.	23.	11.	31.	4.	62.	1.	48.	10.	9.	35.	30.
%RSD	.286	.451	.216	.592	.763	1.25	.148	.955	.192	.199	.700	.613
Check ?	None	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	None	Chk Pass	Chk Pass
Value												
Range												

Elem	Mn2593	Mo2045	Ni2216	Ni2316	Pb2169	Sb2068	Se2062	Tl1908	V_2908	Zn2062	Sr4215	B_2496
Avg	**4720.**	**4990.**	**4920.**	**4990.**	**4720.**	**4980.**	**5000.**	**5070.**	**5120.**	**5090.**	**5050.**	**5110.**
Stddev	16.	3.	9.	6.	24.	16.	24.	11.	38.	9.	32.	30.
%RSD	.342	.064	.193	.115	.517	.314	.483	.218	.747	.180	.639	.579
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value												
Range												

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**151400.**	**937890.**	**361410.**
Stddev	494.	1949.	1504.
%RSD	.32642	.20780	.41623

Sample Name: ccv2 Acquired: 10/23/2019 18:35:07 Type: QC
Method: DOD Calibration Updated 060614(v3580) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	As1972	Ba2335	Be3130	Ca3933	Cd2265	Co2286	Cr2055	Cr2677	Cu2230
Avg	**53.0**	**505.**	**501.**	**494.**	**495.**	**50.3**	**492.**	**50.3**	**516.**	**507.**	**501.**	**460.**
Stddev	1.1	1.	4.	11.	.	.6	2.	.5	1.	1.	5.	2.
%RSD	2.12	.176	.762	2.24	.070	1.16	.398	.994	.258	.099	1.08	.428
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value												
Range												

Elem	Fe2599	Mg2790	Mn2576	Mo2020	Mo2045	Ni2216	Ni2316	Pb2169	Pb2203	Sb2068	Sb2175	Se1960
Avg	**512.**	**482.**	**486.**	**490.**	**494.**	**492.**	**501.**	**487.**	**496.**	**494.**	**495.**	**487.**
Stddev	7.	12.	5.	3.	4.	3.	2.	5.	1.	5.	6.	3.
%RSD	1.30	2.56	.961	.670	.843	.622	.343	.971	.235	1.10	1.15	.691
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value												
Range												

Elem	Tl1908	V_2908	V_2924	Zn2062	Zn2138	Sr4077	Sr4215	B_2496
Avg	**527.**	**506.**	**493.**	**505.**	**489.**	**502.**	**494.**	**501.**
Stddev	4.	1.	6.	1.	1.	1.	2.	8.
%RSD	.728	.220	1.22	.193	.291	.248	.389	1.57
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value								
Range								

Sample Name: ccv2 Acquired: 10/23/2019 18:35:07 Type: QC
Method: DOD Calibration Updated 060614(v3580) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**155370.**	**985260.**	**365270.**
Stddev	406.	11700.	675.
%RSD	.26127	1.1875	.18467

Sample Name: ccb Acquired: 10/23/2019 18:40:57 Type: QC
Method: DOD Calibration Updated 060614(v3580) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2230	Fe2599	Mg2790
Avg	**.424**	**-4.19**	**8.20**	**.067**	**.043**	**2.83**	**-.140**	**.234**	**-1.59**	**.830**	**1.84**	**-5.49**
Stddev	1.13	.88	5.89	.235	.033	.17	.120	.378	.74	2.25	1.54	17.2
%RSD	267.	21.1	71.8	350.	78.1	6.18	86.0	161.	46.3	271.	83.8	314.
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138	Sr4077	B_2496
Avg	**-.830**	**-1.39**	**-.771**	**.233**	**3.76**	**1.51**	**2.30**	**.210**	**.536**	**.326**	**4.24**
Stddev	.174	1.26	.964	2.32	3.81	3.77	1.77	1.24	.225	.107	.64
%RSD	21.0	90.5	125.	998.	101.	249.	77.0	588.	42.1	32.9	15.1
Check ?	None	None	None	None	None	None	None	None	None	None	None
Value											
Range											

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**160290.**	**1007300.**	**375470.**
Stddev	539.	6604.	3399.
%RSD	.33624	.65562	.90531

Sample Name: pdsw343844 Acquired: 10/23/2019 18:47:15 Type: Unk
Method: DOD Calibration Updated 060614(v3580) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3961	As1972	Ba4934	Be3130	Ca3158	Cd2265	Cd2288	Co2286	Cr2055	Cr2677
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**81.4**	**3650.**	**3540.**	**3610.**	**83.4**	**429000.**	**80.9**	**102.**	**839.**	**343.**	**330.**
Stddev	1.1	45.	7.	30.	.3	3390.	.4	.	1.	.	1.
%RSD	1.35	1.22	.188	.822	.400	.790	.445	.455	.134	.142	.248

Elem	Cu2230	Fe2599	Mg2790	Mn2576	Mo2045	Ni2216	Ni2316	Pb2169	Pb2203	Sb2068	Sb2175
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**391.**	**1950.**	**206000.**	**808.**	**1720.**	**835.**	**815.**	**823.**	**797.**	**885.**	**881.**
Stddev	2.	20.	253.	2.	11.	3.	5.	3.	5.	7.	11.
%RSD	.615	1.03	.123	.217	.638	.400	.632	.407	.609	.841	1.21

Elem	Se2062	Tl1908	V_2908	V_2924	Zn2062	Zn2138	Sr4215	B_2496
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Avg	**3400.**	**3140.**	**851.**	**843.**	**847.**	**871.**	**3810.**	**25.0**
Stddev	27.	7.	11.	3.	3.	4.	26.	1.4
%RSD	.790	.226	1.28	.364	.404	.443	.669	5.45

Int. Std.	Y_2243	Y_3242	Y_3710
Units	Cts/S	Cts/S	Cts/S
Avg	**140000.**	**900710.**	**354120.**
Stddev	483.	3644.	2325.
%RSD	.34525	.40460	.65667

Sample Name: ccv1 Acquired: 10/23/2019 19:52:31 Type: QC
Method: DOD Calibration Updated 060614(v3580) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al3961	As1972	Ba4934	Be3130	Ca3158	Cd2288	Co2388	Cr2055	Cu2230	Fe2599	Mg2790
Avg	**512.**	**5160.**	**5120.**	**5200.**	**506.**	**5210.**	**522.**	**5060.**	**5070.**	**4680.**	**5210.**	**4950.**
Stddev	1.	33.	29.	33.	4.	47.	.	41.	9.	23.	38.	20.
%RSD	.178	.640	.561	.629	.765	.911	.079	.800	.172	.501	.723	.400
Check ?	None	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	None	Chk Pass	Chk Pass
Value												
Range												

Elem	Mn2593	Mo2045	Ni2216	Ni2316	Pb2169	Sb2068	Se2062	Tl1908	V_2908	Zn2062	Sr4215	B_2496
Avg	**4940.**	**5140.**	**5070.**	**5150.**	**4720.**	**5090.**	**5020.**	**5020.**	**5180.**	**5250.**	**5150.**	**5180.**
Stddev	41.	40.	21.	34.	28.	21.	40.	9.	21.	16.	28.	34.
%RSD	.837	.771	.412	.655	.594	.407	.792	.175	.410	.299	.542	.655
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value												
Range												

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**153830.**	**965450.**	**364020.**
Stddev	448.	4145.	1795.
%RSD	.29133	.42934	.49296

Sample Name: ccv2 Acquired: 10/23/2019 19:57:59 Type: QC
Method: DOD Calibration Updated 060614(v3580) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	As1972	Ba2335	Be3130	Ca3933	Cd2265	Co2286	Cr2055	Cr2677	Cu2230
Avg	**53.5**	**508.**	**519.**	**524.**	**502.**	**50.3**	**506.**	**51.0**	**512.**	**516.**	**509.**	**483.**
Stddev	.8	4.	7.	12.	1.	.2	2.	.2	1.	1.	1.	3.
%RSD	1.55	.788	1.37	2.26	.191	.400	.453	.445	.168	.265	.260	.613
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value												
Range												

Elem	Fe2599	Mg2790	Mn2576	Mo2020	Mo2045	Ni2216	Ni2316	Pb2169	Pb2203	Sb2068	Sb2175	Se1960
Avg	**538.**	**503.**	**510.**	**520.**	**522.**	**522.**	**531.**	**487.**	**504.**	**513.**	**509.**	**495.**
Stddev	7.	3.	3.	3.	2.	2.	3.	5.	3.	5.	3.	9.
%RSD	1.35	.600	.507	.581	.387	.436	.629	1.12	.609	.902	.657	1.73
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value												
Range												

Elem	Tl1908	V_2908	V_2924	Zn2062	Zn2138	Sr4077	Sr4215	B_2496
Avg	**525.**	**522.**	**501.**	**533.**	**512.**	**524.**	**518.**	**517.**
Stddev	3.	4.	2.	2.	1.	2.	3.	5.
%RSD	.627	.799	.371	.356	.108	.448	.484	.873
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value								
Range								

Sample Name: ccv2 Acquired: 10/23/2019 19:57:59 Type: QC
Method: DOD Calibration Updated 060614(v3580) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**158790.**	**1022300.**	**363150.**
Stddev	398.	1617.	3258.
%RSD	.25038	.15821	.89713

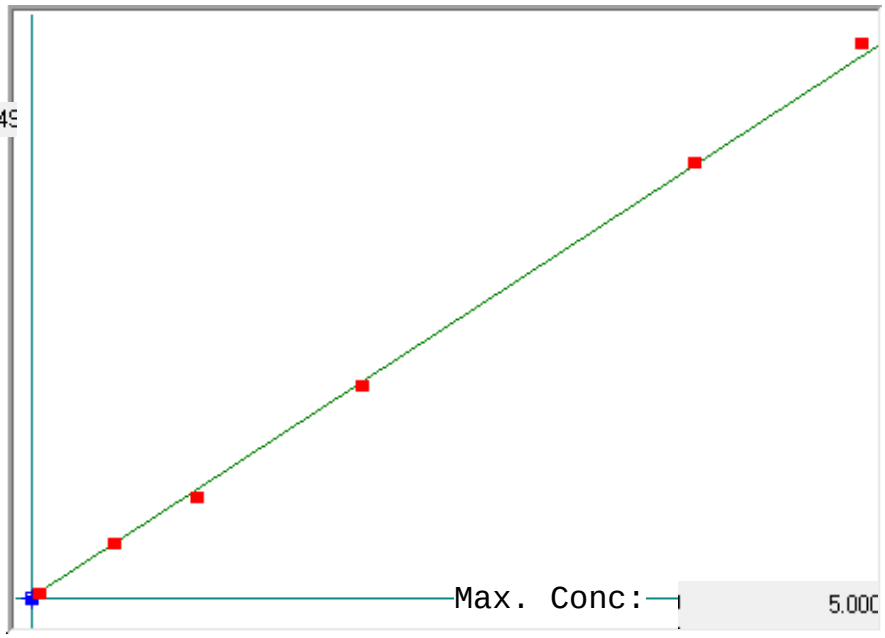
Sample Name: ccb Acquired: 10/23/2019 20:03:49 Type: QC
Method: DOD Calibration Updated 060614(v3580) Mode: CONC Corr. Factor: 1.000000
User: NAH ICAP6500: PrepBatch: Post Digestion dilution: 1
Comment:

Elem	Ag3280	Al1670	As1937	Ba2335	Be3130	Ca3933	Cd2265	Co2286	Cr2677	Cu2230	Fe2599	Mg2790
Avg	**.611**	**-4.34**	**5.19**	**.166**	**-.070**	**3.74**	**-.125**	**.255**	**-1.37**	**-.508**	**-.832**	**-14.7**
Stddev	.898	.29	1.81	.189	.022	.31	.052	.186	.64	1.01	1.57	31.5
%RSD	147.	6.60	35.0	114.	31.7	8.37	41.7	72.9	46.5	198.	188.	214.
Check ?	None	None	None	None	None	None	None	None	None	None	None	None
Value												
Range												

Elem	Mn2576	Mo2020	Ni2316	Pb2203	Sb2175	Se1960	Tl1908	V_2924	Zn2138	Sr4077	B_2496
Avg	**-.781**	**-2.06**	**-.234**	**.838**	**-.208**	**4.97**	**.142**	**-.653**	**.644**	**.331**	**4.39**
Stddev	.146	.94	.867	2.42	2.26	3.87	2.36	.763	.264	.181	.58
%RSD	18.8	45.5	370.	289.	1090.	77.9	1660.	117.	41.1	54.9	13.1
Check ?	None	None	None	None	None	None	None	None	None	None	None
Value											
Range											

Int. Std.	Y_2243	Y_3242	Y_3710
Avg	**163480.**	**1041200.**	**373570.**
Stddev	733.	3229.	1067.
%RSD	.44834	.31014	.28552

Hg WATERS



A= 0.0000e+000

B= 1.4544e-004

C= -4.2766e-003

Rho= 0.9995373

Accept= Accepted

Accepted Date=

10/24/19 08:02

Std ID	Conc.	Calc.	Dev.	Mean	SD or %RSD	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
Calibration Blank	0.000	0.000	0.000	29	1.118	28	30	31	29	
0.05	0.050	0.049	-0.001	368	2.0 %	358	367	372	378	
0.5	0.500	0.527	0.027	3655	3.1 %	3499	3605	3711	3806	
1.0	1.000	0.947	-0.053	6542	3.2 %	6252	6464	6635	6817	
2.0	2.000	1.974	-0.026	13604	2.6 %	13111	13469	13761	14076	
4.0	4.000	4.051	0.051	27885	2.9 %	26714	27592	28361	28876	
5.0	5.000	5.137	0.137	35349	2.5 %	34199	34924	35689	36585	

Sample ID	Date	Element	Units	Extended ID	LT Mean Conc
Calibration Blank	24 Oct 2019 07:48:02	Hg			29.500
0.05	24 Oct 2019 07:50:02	Hg			368.750
0.5	24 Oct 2019 07:52:04	Hg			3655.250
1.0	24 Oct 2019 07:54:05	Hg			6542.000
2.0	24 Oct 2019 07:56:06	Hg			13604.250
4.0	24 Oct 2019 07:58:08	Hg			27885.750
5.0	24 Oct 2019 08:00:10	Hg			35349.250
ICV	24 Oct 2019 08:02:24	Hg			3.017
ICB	24 Oct 2019 08:06:50	Hg			-0.022
342860lcsw 73988	24 Oct 2019 08:10:49	Hg			1.662
343318lcsw 74000	24 Oct 2019 08:12:51	Hg			1.671
343340lcsw 74009	24 Oct 2019 08:14:53	Hg			1.577
344336lcsw 74031	24 Oct 2019 08:16:55	Hg			1.652
342195lcsw 73975	24 Oct 2019 08:18:56	Hg			1.597
345081lcsw 74067	24 Oct 2019 08:20:58	Hg			1.684
343336lcsw 74007	24 Oct 2019 08:23:00	Hg			1.582
CCV	24 Oct 2019 08:29:05	Hg			2.741
CCB	24 Oct 2019 08:33:15	Hg			0.011
342859mbw 73988	24 Oct 2019 08:35:14	Hg			0.026
343317mbw 74000	24 Oct 2019 08:37:15	Hg			0.000
343339mbw 74009	24 Oct 2019 08:39:16	Hg			-0.000
344335mbw 74031	24 Oct 2019 08:41:15	Hg			-0.011
342194mbw 73975	24 Oct 2019 08:43:15	Hg			-0.005
345080mbw 74067	24 Oct 2019 08:45:14	Hg			-0.011
343335mbw 74007	24 Oct 2019 08:47:14	Hg			-0.009
342264	24 Oct 2019 08:49:12	Hg			-0.004
342265	24 Oct 2019 08:51:12	Hg			0.020
CCV	24 Oct 2019 08:55:11	Hg			2.822
CCB	24 Oct 2019 08:59:21	Hg			-0.019
342266	24 Oct 2019 09:01:21	Hg			0.003
342267	24 Oct 2019 09:03:20	Hg			-0.005
342268	24 Oct 2019 09:05:21	Hg			-0.003
342269	24 Oct 2019 09:07:22	Hg			-0.001
342270	24 Oct 2019 09:09:23	Hg			-0.004
342271	24 Oct 2019 09:11:22	Hg			0.004
342272	24 Oct 2019 09:13:21	Hg			0.018
342273	24 Oct 2019 09:15:20	Hg			0.002
342274	24 Oct 2019 09:17:20	Hg			0.020
CCV	24 Oct 2019 09:21:18	Hg			2.855
CCB	24 Oct 2019 09:25:28	Hg			-0.022
342861dup 342264	24 Oct 2019 09:27:28	Hg			-0.003
342862msw 342264	24 Oct 2019 09:31:27	Hg			1.727
342863msdw 342264	24 Oct 2019 09:33:30	Hg			1.751
342965	24 Oct 2019 09:37:37	Hg			-0.002
342980	24 Oct 2019 09:39:38	Hg			-0.007
342981	24 Oct 2019 09:41:38	Hg			0.012
342982	24 Oct 2019 09:43:38	Hg			0.001
342983	24 Oct 2019 09:45:37	Hg			0.000
CCV	24 Oct 2019 09:47:36	Hg			3.204
CCB	24 Oct 2019 09:51:38	Hg			-0.017
342984	24 Oct 2019 09:53:37	Hg			0.650
342985	24 Oct 2019 09:55:37	Hg			-0.100
342986	24 Oct 2019 09:57:37	Hg			0.006
342987	24 Oct 2019 09:59:36	Hg			-0.003
343319dup 342965	24 Oct 2019 10:01:37	Hg			0.002
343320msw 342965	24 Oct 2019 10:03:37	Hg			2.252
343321msdw 342965	24 Oct 2019 10:05:38	Hg			1.886
343340lcsw 74009	24 Oct 2019 10:07:41	Hg			-0.257
343336lcsw 74007	24 Oct 2019 10:09:45	Hg			2.036
343340 lcsw 74009	24 Oct 2019 10:11:44	Hg			1.824
CCV	24 Oct 2019 10:13:46	Hg			3.058
CCB	24 Oct 2019 10:17:54	Hg			-0.012
343071	24 Oct 2019 10:19:54	Hg			-0.011
343112	24 Oct 2019 10:21:54	Hg			-0.006
343130	24 Oct 2019 10:23:53	Hg			-0.009

102419w

Method: Hg WATERS Operator: Admin Date of Analysis: 24 Oct 2019 07:21:00

Sample ID	Date	Element	Units	Extended ID	LT Mean Conc
343498	24 Oct 2019 10:25:53	Hg			-0.005
343341dup 343130	24 Oct 2019 10:27:52	Hg			-0.005
343342msw 343130	24 Oct 2019 10:29:52	Hg			2.012
343343msdw 343130	24 Oct 2019 10:31:52	Hg			1.911
343844	24 Oct 2019 10:35:58	Hg			-0.006
343878	24 Oct 2019 10:37:59	Hg		See next page	-0.003
~~CCV~~	~~24 Oct 2019 10:40:00~~	~~Hg~~			~~3.131~~
CCV	24 Oct 2019 10:45:44	Hg			3.241
CCB	24 Oct 2019 10:49:46	Hg			-0.007
3443337dup 343844	24 Oct 2019 10:51:46	Hg			0.003
344338msw 343844	24 Oct 2019 10:53:46	Hg			2.107
344339msdw 343844	24 Oct 2019 10:55:46	Hg			1.893
341312	24 Oct 2019 10:59:51	Hg			-0.002
341898	24 Oct 2019 11:01:51	Hg			0.004
343073	24 Oct 2019 11:03:52	Hg			0.026
343086	24 Oct 2019 11:05:52	Hg			0.525
343960	24 Oct 2019 11:07:52	Hg			-0.057
CCV	24 Oct 2019 11:11:53	Hg			2.954
CCB	24 Oct 2019 11:15:57	Hg			-0.002
342196msw 341312	24 Oct 2019 11:17:58	Hg			2.028
342197msdw 341312	24 Oct 2019 11:19:59	Hg			1.866
345082msw 341898	24 Oct 2019 11:22:02	Hg			1.945
343337msw 343073	24 Oct 2019 11:24:05	Hg			1.868
343338msdw 343073	24 Oct 2019 11:26:08	Hg			1.850
319007mbw 73257	24 Oct 2019 11:30:14	Hg			-0.009
315195	24 Oct 2019 11:32:14	Hg			0.067
lqckw	24 Oct 2019 11:34:15	Hg		See next page	0.123
~~CCV~~	~~24 Oct 2019 11:36:15~~	~~Hg~~			~~3.105~~
CCB	24 Oct 2019 11:42:18	Hg			-0.008

102419w ccvs

Method: Hg WATERS Operator: Admin Date of Analysis: 24 Oct 2019 07:21:00

Sample ID	Date	Element	Units	Extended ID	Mean
CCV	24 Oct 2019 10:40:00	Hg			(H)111.0% 3.331
CCV	24 Oct 2019 10:41:58	Hg			97.7% 2.932
CCV	24 Oct 2019 10:45:44	Hg			108.0% 3.241
CCV	24 Oct 2019 11:36:15	Hg			(H)110.7% 3.320
CCV	24 Oct 2019 11:38:13	Hg			96.3% 2.889

Software averaged CCV results.

METALS
LOGBOOK
DOCUMENTS

MICP WATER QSM Analytical Run
165750 on 11/08/2019

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME		QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	349443								MICP WATER QSM				
					ICV					0			
	349444								MICP WATER QSM				
					ICVLL					0			
	349445								MICP WATER QSM				
					ICB					0			
	349446								MICP WATER QSM				
					ICSA					0			
	349447								MICP WATER QSM				
					ICSAB					0			
	349448								MICP WATER QSM				
					ICVLL					0			
	344414								ICP TOTAL QSM 5.0				
					LCSW					74046			
	344413								ICP TOTAL QSM 5.0				
					MBW					74046			
149018	343844		10/14/2019	1600			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	ICP TOTAL QSM 5.0		GW	**4**	
		54IDW								74046			
	349449								ICP TOTAL QSM 5.0				
					L	343844				0			
	344415		10/14/2019	1600					ICP TOTAL QSM 5.0				
		54IDW			DUP	343844				74046			
	344416		10/14/2019	1600					ICP TOTAL QSM 5.0				
		54IDW			MSW	343844				74046			
	344417		10/14/2019	1600					ICP TOTAL QSM 5.0				
		54IDW			MSDW	344416				74046			
148990	343878		10/17/2019	1530			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-49	ICP TOTAL QSM 5.0		GW	**4**	
		49IDW								74046			
	349451								MICP WATER QSM				
					CCV1					0			
	349452								MICP WATER QSM				
					CCV2					0			
	349453								MICP WATER QSM				
					CCB					0			
	349450								ICP TOTAL QSM 5.0				
					PDSW	343844				0			
	349454								MICP WATER QSM				
					CCV1					0			

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

MICP WATER QSM Analytical Run
165750 on 11/08/2019

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	349455						MICP WATER QSM				
				CCV2				0			
	349456						MICP WATER QSM				
				CCB				0			

21 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

MICP WATER QSM K&Na Analytical Run
165751 on 11/08/2019

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME		QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	346556								MICP WATER QSM K&Na				
					ICV					0			
	346557								MICP WATER QSM K&Na				
					ICVLL					0			
	346558								MICP WATER QSM K&Na				
					ICB					0			
	346559								MICP WATER QSM K&Na				
					MRL					0			
	346560								MICP WATER QSM K&Na				
					ICSA					0			
	346561								MICP WATER QSM K&Na				
					ICSAB					0			
	346562								MICP WATER QSM K&Na				
					CCV					0			
	346563								MICP WATER QSM K&Na				
					CCB					0			
	344414								ICP K TOTAL QSM 5.0				
					LCSW					74046			
	344414								ICP NA TOTAL QSM 5.0				
					LCSW					74046			
	346564								MICP WATER QSM K&Na				
					CCV					0			
	346565								MICP WATER QSM K&Na				
					CCB					0			
	344413								ICP K TOTAL QSM 5.0				
					MBW					74046			
	344413								ICP NA TOTAL QSM 5.0				
					MBW					74046			
149018	343844		10/14/2019	1600			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	ICP K TOTAL QSM 5.0		GW	**4**	
		54IDW								74046			
149018	343844		10/14/2019	1600			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	ICP NA TOTAL QSM 5.0		GW	**4**	
		54IDW								74046			
	346566								ICP K TOTAL QSM 5.0				
					L	343844				0			
	346566								ICP NA TOTAL QSM 5.0				
					L	343844				0			

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

MICP WATER QSM K&Na Analytical Run
165751 on 11/08/2019

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME		QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	344415		10/14/2019	1600					ICP K TOTAL QSM 5.0				
		54IDW			DUP	343844				74046			
	344415		10/14/2019	1600					ICP NA TOTAL QSM 5.0				
		54IDW			DUP	343844				74046			
	344416		10/14/2019	1600					ICP K TOTAL QSM 5.0				
		54IDW			MSW	343844				74046			
	344416		10/14/2019	1600					ICP NA TOTAL QSM 5.0				
		54IDW			MSW	343844				74046			
	344417		10/14/2019	1600					ICP K TOTAL QSM 5.0				
		54IDW			MSDW	344416				74046			
	344417		10/14/2019	1600					ICP NA TOTAL QSM 5.0				
		54IDW			MSDW	344416				74046			
	346567								ICP K TOTAL QSM 5.0				
					PDSW	343844				0			
	346567								ICP NA TOTAL QSM 5.0				
					PDSW	343844				0			
148990	343878		10/17/2019	1530			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-49	ICP K TOTAL QSM 5.0		GW	**4**	
		49IDW								74046			
148990	343878		10/17/2019	1530			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-49	ICP NA TOTAL QSM 5.0		GW	**4**	
		49IDW								74046			
	346568								MICP WATER QSM K&Na				
					CCV					0			
	346569								MICP WATER QSM K&Na				
					CCB					0			

30 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

MERCURY QSM 5.0 Analytical Run
165806 on 11/08/2019

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME		QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	347231								MERCURY QSM 5.0				
					ICV					0			
	347232								MERCURY QSM 5.0				
					ICB					0			
	344336								MERCURY TOTAL QSM 5.0				
					LCSW					74031			
	347233								MERCURY QSM 5.0				
					CCV					0			
	347234								MERCURY QSM 5.0				
					CCB					0			
	344335								MERCURY TOTAL QSM 5.0				
					MBW					74031			
	347235								MERCURY QSM 5.0				
					CCV					0			
	347236								MERCURY QSM 5.0				
					CCB					0			
	347237								MERCURY QSM 5.0				
					CCV					0			
	347238								MERCURY QSM 5.0				
					CCB					0			
149018	343844		10/14/2019	1600			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	MERCURY TOTAL QSM 5.0		GW	**4**	
		54IDW								74031			
148990	343878		10/17/2019	1530			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-49	MERCURY TOTAL QSM 5.0		GW	**4**	
		49IDW								74031			
	347239								MERCURY QSM 5.0				
					CCV					0			
	348220								MERCURY QSM 5.0				
					CCV								
	347240								MERCURY QSM 5.0				
					CCV					0			
	347241								MERCURY QSM 5.0				
					CCB					0			
	344337		10/14/2019	1600					MERCURY TOTAL QSM 5.0				
		54IDW			DUP	343844				74031			
	344338		10/14/2019	1600					MERCURY TOTAL QSM 5.0				
		54IDW			MSW	343844				74031			
	344339		10/14/2019	1600					MERCURY TOTAL QSM 5.0				
		54IDW			MSDW	344338				74031			

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

MERCURY QSM 5.0 Analytical Run
165806 on 11/08/2019

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME	QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	347242						MERCURY QSM 5.0				
				CCV				0			
	347243						MERCURY QSM 5.0				
				CCB				0			

21 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

PREP WORKSHEET
on 11/08/2019

Prep Batch **74,046** Date Prepped: 10/21/2019 Prepped By NAH

Folder #	Order	QC Type	Link	Test	Matrix	Volume	Weight	Initial Volume	SDG Level	Notes
	344413	MBW		ICP TOTAL QSM 5.0	LIQUID	50		50.0		
	344413	MBW		ICP K TOTAL QSM 5.0	LIQUID	50		50.0		
	344413	MBW		ICP NA TOTAL QSM 5.0	LIQUID	50		50.0		
	344414	LCSW		ICP K TOTAL QSM 5.0	LIQUID	50		50.0		
	344414	LCSW		ICP NA TOTAL QSM 5.0	LIQUID	50		50.0		
	344414	LCSW		ICP TOTAL QSM 5.0	LIQUID	50		50.0		
149018	343844			ICP K TOTAL QSM 5.0	GROUND WATER	50		50.0	4	
	343844			ICP NA TOTAL QSM 5.0	GROUND WATER	50		50.0	4	
	343844			ICP TOTAL QSM 5.0	GROUND WATER	50		50.0	4	
148990	343878			ICP K TOTAL QSM 5.0	GROUND WATER	50		50.0	4	
	343878			ICP NA TOTAL QSM 5.0	GROUND WATER	50		50.0	4	
	343878			ICP TOTAL QSM 5.0	GROUND WATER	50		50.0	4	
	344415	DUP	343844	ICP K TOTAL QSM 5.0	GROUND WATER	50		50.0		
	344415	DUP	343844	ICP NA TOTAL QSM 5.0	GROUND WATER	50		50.0		
	344415	DUP	343844	ICP TOTAL QSM 5.0	GROUND WATER	50		50.0		
	344416	MSW	343844	ICP K TOTAL QSM 5.0	GROUND WATER	50		50.0		
	344416	MSW	343844	ICP NA TOTAL QSM 5.0	GROUND WATER	50		50.0		

PREP WORKSHEET
on 11/08/2019

Folder #	Order	QC Type	Link	Test	Matrix	Volume	Weight	Initial Volume	SDG Level	Notes
	344416	MSW	343844	ICP TOTAL QSM 5.0	GROUND WATER	50		50.0		
	344417	MSDW	344416	ICP K TOTAL QSM 5.0	GROUND WATER	50		50.0		
	344417	MSDW	344416	ICP NA TOTAL QSM 5.0	GROUND WATER	50		50.0		
	344417	MSDW	344416	ICP TOTAL QSM 5.0	GROUND WATER	50		50.0		

Notes:_____

PREP WORKSHEET
on 11/08/2019

Prep Batch **74,031** Date Prepped: 10/22/2019 Prepped By BMM

Folder #	Order	QC Type	Link	Test	Matrix	Volume	Weight	Initial Volume	SDG Level	Notes
	344335	MBW		MERCURY TOTAL QSM	LIQUID	25		25.0		
	344336	LCSW		MERCURY TOTAL QSM	LIQUID	25		25.0		
149018	343844			MERCURY TOTAL QSM	GROUND WATER	25		25.0	4	
148990	343878			MERCURY TOTAL QSM	GROUND WATER	25		25.0	4	
	344337	DUP	343844	MERCURY TOTAL QSM	GROUND WATER	25		25.0		
	344338	MSW	343844	MERCURY TOTAL QSM	GROUND WATER	25		25.0		
	344339	MSDW	344338	MERCURY TOTAL QSM	GROUND WATER	25		25.0		

Notes:_____

Metals Digestion Bench Sheet

Program: QSM
*Matrix: LIQUID

Prep Methods:
200.2= ICP/GFAA Liquids
3010= ICP Liquids
3020= GFAA Liquids
3005= Sb Liquids
3050= ICP/GFAA Solids
7060/7740= GFAA, As & Se Liquids

Prep Batch #:	74046
Prep Method:	200.2
Analyst:	NAH
Date:	10/21/2019
Start Time:	10:53

Prep Analyst: NAH
Balance ID:

End Date: 10/21/2019
End Time: 19:32

Reagent:	Ref. #
Nitric Acid:	AB.677
Hydrochloric Acid:	AB.680
Hydrogen Peroxide:	

Digestion Tube Lot #: MP3334
Block Used: D2
Cell Position for Temp. Check: 60
Initial-DigestionTemp (ºC): 93
Final-Digestion Temp (ºC): 92

Sample ID			(Solids) Sample Weight (g)	(Liquids) Sample Volume (ml)	Final Volume (ml)
344413	(MB)			50.0	50
344414	(LCS)			50.0	50
343844				50.0	50
343878	**Comments:**			50.0	50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
					50
344415	(DUP)			50.0	50
344416	(MS)	Parent Sample		50.0	50
344417	(MSD)	373844		50.0	50
	(DUP)				50
	(MS)	Parent Sample			50
	(MSD)				50
Leave >>	(DUP) if applicable				50
blank	(MS)	Parent Sample			50
if N/A	(MSD)				50

MB=Method Blank, LCS=Laboratory Control Sample, DUP=Duplicate, MS=Matrix Spike & MSD=Matrix Spike Duplicate
*Matrix: Soil, Sludge, Waste, GW=Groundwater, WW=Wastewater, Tissue, TLCP, SPLP, ASTM or other.

MS/MSD Spike Amount (ml)	Spike Ref. #
0.2	M13903
0.5	M13840
0.5	M13811
0.1	M13860

LCS Spike Amount (ml)	Spike Ref. #
0.2	M13903
0.5	M13840
0.5	M13811
0.1	M13860

Reviewed By/Date:

11/08/201910:21

FMT12-03

Mercury Digestion Bench Sheet

(Prep Methods 7470A & 7471A)

CCV ID: M14013
ICV/LCSW ID: M14014

*Matrix: GW
Balance ID:

Prep Batch #:	74031
Prep Method:	7470A
Analyst:	BMM
Date:	10/22/2019
Start Time:	15:03

7470A= Hg Liquids
7471A= Hg Solids

End Date: 10/22/2019
End Time: 17:05

Digestion Tube Lot #: 4919103
Block Used: D2
Cell Position for Temp. Check: A
Initial-DigestionTemp (ºC): 91
Final-Digestion Temp (ºC): 91
Additional KMnO4 added (ml):
Aqua Regia added (ml)
Calibration Stds: M14012

Reagent:	Ref. #
HNO3:	AB.677
H2SO4:	AB.674
NaCl/Hydrox.SO4:	M13875
KMnO4:	M13873
K2S2O8:	M13867
Aqua-Regia:	

	Sample			(Solids) Sample Weight (g)	(Liquids) Sample Volume (ml)	Final Volume (ml)
	344335	(MB)			25.0	25
	344336	(LCS)			25.0	25
	343844				25.0	25
	343878	**Comments:**			25.0	25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
						25
	344337	(DUP)			25.0	25
	344338	(MS)	Parent Sample		25.0	25
	344339	(MSD)	343844		25.0	25
Leave >>		(DUP)				25
blank		(MS)	Parent Sample			25
		(MSD)				25
		(DUP)				25
		(MS)	Parent Sample			25
if N/A		(MSD)				25

MB=Method Blank, LCS=Laboratory Control Sample, DUP=Duplicate, MS=Matrix Spike & MSD=Matrix Spike Duplicate
*Matrix: Soil, Sludge, Waste, GW=Groundwater, WW=Wastewater, Tissue, TLCP, SPLP, ASTM or other.

A: Spike Amount (ml)	Spike Conc. (ug/L)	Spike Ref. #
0.5	100ug/L	M14014

B: Spike Amount (ml)	Spike Conc. (ug/L)	Spike Ref. #

Reviewed By/Date:

Cal Std ID: 111383	LIMS # : 163750	Analyst: [illegible]	Reviewer: MMS	Approved? Yes / No

Is Audit Trail turned on or Manual Manipulations addressed? Yes / No (If no, any manual manipulations must be initialed, dated, and reason(s) stated for change)

QC Parameters : 6010 / 200.7 / QSM / Other	YES	NO	YES	NO	Comments:
1) Calibration linearity: r > 0.995 / r > 0.998	✓		✓		
2) ICV: 90-110% / 95-105%	✓		✓		
2) ICVLL: 70-130% / 80-120%	✓		✓		
3) ICB: < 3X IDL / <LOD / <LOQ	✓		✓		
4) ICSA: < ABS LOD	✓		✓		
5) ICSAB: 80-120%	✓		✓		
6) MRL/LLOQ: 70-130% / 80-120%	✓		✓		
7) MDL Check: >LOD					
8) CCV1/CCB1 (CCV: 90-110%)	✓		✓		
9) CCV2/CCB2 (CCB: < 3X IDL / <LOD / <LOQ)			✓		
10) CCV3/CCB3					
11) CCV4/CCB4					
12) CCV5/CCB5					

Preparation Batch Parameters	YES	NO	YES	NO	Comments:
Prep Batch ID#: 240916 Dig. Meth. 200.2	✓		✓		
LCS - generated limits or project specific limits	✓		✓		
MB - <LOD or ≤ ½ RL	✓	✓	✓	✓	Se >LOD <½ RL.
Spiked samples in batch:					
a) 343844 matrix = GW	✓		✓		
b)_____ matrix = _____					
c)_____ matrix = _____					
PDS: ±15% / 20% / 25% Sample#:_____					
Prep Batch ID#:_____ Dig. Meth._____					
LCS - generated limits or project specific limits					
MB - <LOD or ≤ ½ RL					
Spiked samples in batch:					
a)_____ matrix = _____					
b)_____ matrix = _____					
c)_____ matrix = _____					
PDS: ±15% / 20% / 25% Sample#:_____					
Prep Batch ID#:_____ Dig. Meth._____					
LCS - generated limits or project specific limits					
MB - <LOD or ≤ ½ RL					
Spiked samples in batch:					
a)_____ matrix = _____					
b)_____ matrix = _____					
c)_____ matrix = _____					
PDS: ±15% / 20% / 25% Sample#:_____					
Prep Batch ID#:_____ Dig. Meth._____					
LCS - generated limits or project specific limits					
MB - <LOD or ≤ ½ RL					
Spiked samples in batch:					
a)_____ matrix = _____					
b)_____ matrix = _____					
c)_____ matrix = _____					
PDS: ±15% / 20% / 25% Sample#:_____					

iCAP 6000 /6500 Data Review Checklist	Analysis Date: 10/22/19	Data File: MK102219r1191	Date of review: 10/24/19
Cal Std ID: M13933 LIMS # : 165751	Analyst: DMD	Reviewer:	Approved? Yes No
Is Audit Trail turned on or Manual Manipulations addressed? Yes No (If no, any manual manipulations must be initialed, dated, and reason(s) stated for change)			

QC Parameters : 6010 / 200.7 / QSM / Other	YES	NO	YES	NO	Comments:
1) Calibration linearity: r ≥ 0.995 / r > 0.998	✓		✓		
2) ICV: 90-110% / 95-105%	✓		✓		
2) ICVLL: 70-130% / 80-120%	✓		✓		
3) ICB: < 3X IDL / <LOD / <LOQ	✓		✓		
4) ICSA: < ABS LOD	✓		✓		
5) ICSAB: 80-120%	✓		✓		
6) MRL: 70-130% / 80-120%	✓		✓		
7) MDL Check: >LOD					
8) CCV1/CCB1 (CCV: 90-110%)	✓		✓		
9) CCV2/CCB2 (CCB: < 3X IDL / <LOD / <LOQ)					
10) CCV3/CCB3					
11) CCV4/CCB4					
12) CCV5/CCB5					

Preparation Batch Parameters	YES	NO	YES	NO	Comments:
Prep Batch ID#: 74046 Dig. Meth. 7002	✓		✓		
LCS - generated limits or project specific limits	✓		✓		
MB - <LOD or ≤ ½ RL	✓		✓		
Spiked samples in batch:			✓		
a) 343844 matrix = GW	✓	✓	✓	✓	Dup invalid K
b)_____ matrix =_____					
c)_____ matrix =_____					
PDS: ±15% / 20% / 25% Sample#:_____					
Prep Batch ID#:_____ Dig. Meth._____					
LCS - generated limits or project specific limits					
MB - <LOD or ≤ ½ RL					
Spiked samples in batch:					
a)_____ matrix =_____					
b)_____ matrix =_____					
c)_____ matrix =_____					
PDS: ±15% / 20% / 25% Sample#:_____					
Prep Batch ID#:_____ Dig. Meth._____					
LCS - generated limits or project specific limits					
MB - <LOD or ≤ ½ RL					
Spiked samples in batch:					
a)_____ matrix =_____					
b)_____ matrix =_____					
c)_____ matrix =_____					
PDS: ±15% / 20% / 25% Sample#:_____					
Prep Batch ID#:_____ Dig. Meth._____					
LCS - generated limits or project specific limits					
MB - <LOD or ≤ ½ RL					
Spiked samples in batch:					
a)_____ matrix =_____					
b)_____ matrix =_____					
c)_____ matrix =_____					
PDS: ±15% / 20% / 25% Sample#:_____					

GFAA / FLAA / CVAA Data Review checklist | Method: 200.9 | 7000 series AA | 245.1 & 245.2 | 245.7 | 7470a / 7471a

Instrumentation: THERMO M SERIES AA | Hydra II CETAC Hg ANALYZER

Analysis Date: 10/24/19 | Data File: 102419w | Date Review: 10/25/19 | Analyte: Hg

Cal Std ID: M14012 | LIMS #: 165806 | Analyst: MJS | Reviewer: [illegible] | Approved? Yes No

Is Audit Trail turned on or Manual Manipulations addressed? Yes / No (If no, any manual manipulations must be initialed, dated, and reason(s) stated for change)

Calibration Parameters -	YES	NO	YES	NO	Comments:
1) Calibration linearity - r > 0.995	✓				
2) ICV: 90-110% 95-105%	✓				
2) ICVLL: 70-130% 80-120%					
3) ICB: <IDL / <LOD / <LOQ / <½ RL	✓				
6) MRL: 70-130%					
7) CCV1/CCB1- (CCV: 90-110% / 80-120%)	✓	✓			CCV failed ↑, was reanalyzed twice + was acceptable
8) CCV2/CCB2 (CCB: <IDL / <LOD / <LOQ / <½ RL)					Software averaged results @ 1040
9) CCV3/CCB3					
10) CCV4/CCB4					
11) CCV5/CCB5					

Preparation Batch Parameters	YES	NO	YES	NO	Comments:
Prep Batch ID#: 74031 Dig. Meth. 7470a	✓				
LCS - generated limits or project specific limits	✓				
MB - <LOD / <2.2X LOD / ≤ ½RL	✓				
Spiked samples in batch:					
a) 343844 matrix = GW	✓	✓			Dup invalid
b) matrix =					
c) matrix =					
d) matrix =					
e) matrix =					
PDS: ±15% / 20% / 25% Sample#					
MSA Performed? Yes No					
Prep Batch ID#: Dig. Meth.					
LCS - generated limits or project specific limits					
MB - <LOD / <2.2X LOD / ≤ ½RL					
Spiked samples in batch:					
a) matrix =					
b) matrix =					
c) matrix =					
d) matrix =					
e) matrix =					
PDS: ±15% / 20% / 25% Sample#					
MSA Performed? Yes No					
Prep Batch ID#: Dig. Meth.					
LCS - generated limits or project specific limits					
MB - <LOD / <2.2X LOD / ≤ ½RL					
Spiked samples in batch:					
a) matrix =					
b) matrix =					
c) matrix =					
d) matrix =					
e) matrix =					
PDS: ±15% / 20% / 25% Sample#					
MSA Performed? Yes No					

CT Laboratories Instrument Run Log

Instrument ID: ICP 6000 (See Journal for Wavelength Check)

Date	Time Start/End	Analyst	Method	LIMS# or Sample #	Sequence I.D.	Cal. Std	A/I Source	Pressure (kPa) Comments	Analysis Tube Lot#	ICSA/ ICSAB
7/17/19	0857 / 1239	MDS	NaK	162628 162592, 162631, 162635, 162643	NaK071719 v1164	M13705	M13707 M13708	360	283466	M13760 M13779
7/17/19	1253 / 1455	MDS	NaK	162643, 162628	NaK071919 v1165	M13705	M13707 M13708	360	283466	M13760 M13779
7/23/19	1441 / 1732	MDS	NaK	162842, 162841 162592, 162628, 162836, 162838	NaK072319 v1166	M13705	M13707 M13708	350	2834166	M13760 M13779
7/26/19	1001 / 1305	MDS	NaK	162937, 162842, 162933	NaK072619 v1168	M13705	M13707 M13708	350	2834166	M13760 M13779
7/31/19	1119 / 1407	MDS	NaK	163006, 163013, 163008	NaK073119 v1169	M13705	M13707 M13708	350	283466	M13760 M13779
8/7/19	0849 / 1207	MDS	NaK	163263 163186, 163266, 163268, 163259,	NaK080719 v1171	M13705	M13707 M13708	350	2834166	M13760 M13779
8/7/19	1211 / 1424	MDS	NaK	163263, 163164, 163271	NaK080719B v1172	M13705	M13707 M13708	350	283466	M13760 M13779
8/13/19	1404 / 1751	MDS	NaK	163357, 163312 163337, 163443, 163445, 163447,	NaK081319 v1174 v1173	M13705	M13707 M13208	350	289548	M13760 M13779
8/20/19	1048 / 1436	MDS	NaK	163465 163357, 163391, 163561, 163568, 163666	NaK082019 v1176 v1175	M13705	M13707 M13708	350	289548	M13760 M13779
8/27/19	1101 / 1406	MDS	NaK	163891, 163871 163879, 163875, 163775, 163823, 163796	NaK082719 v1180 v1179	M13705	M13707 M13708	350	289548	M13760 M13779
8/30/19	0832 / 1054	MDS	NaK	163991, 163994	NaK083019 v1181	M13705	M13707 M13708	350	289548	M13760 M13779
9/6/19	0911 / 1522	MDS	NaK	164134, 164033, 164031, 164201 164141, 164047, 164137, 164035, 164040	NaK090619 v1182	M13933	M13935 M13936	350	289548	M13760 M13937
9/12/19	0838 / 1252	MDS	NaK	164258, 164257 164141, 164278, 164201, 164315, 164314	NaK091219 v1183	M13933	M13935 M13936	350	289548	M13760 M13937
9/13/19	0819 / 1250	MDS	NaK	164354, 164390, 164394, 164391, 164389	NaK091319 v1184	M13933	M13935 M13936	350	289548	M13760 M13937
9/17/19	1113 / 1401	MDS	NaK	164482, 164483, 164427, 164479, 164213	NaK091719 v1185	M13933	M13935 M13936	350	289548	M13760 M13937
10/9/19	0742 / 1253	MDS	NaK	165157, 165194, 165281, 165149, 165172 164965, 165182, 165211, 165162, 165183,	NaK100919 v1186	M13933	M13935 M13936	350	289548	M13937
10/10/19	1214 / 1619	MDS	DOD	163876, 163874, 163878 163884, 163883, 163882, 163881, 163877,	D00101019				289548	
10/14/19	1343 / 1496	MDS	S	163878	S101419	M13989	M13990	300	289548	
10/14/19	1506 / 1556	MDS	B+Si	163874	BSi101419	M13801	M13802	350	289548	
10/15/19	1330 / 1501	MDS	Li	165876	Li101519	M13796	M13798	350	289549	
10/17/19	1114 / 1508	MDS	NaK	165307, 165361, 165469 165391, 165375, 165302, 165297,	NaK101719 v1189 v1187	M13933	M13935 M13936	350	289549	M13937
10/22/19	0957 / 1738	MDS	NaK	165749, 165755, 165742, 165744, 165633, 165633 165464, 165567, 165629, 165630, 165624	NaK102219 v1191	M13933	M13935 M13936	350	289549	M13937
10/23/19	0757 / 1708	MDS	NaK	165753, 165752, 165564 165567, 165629, 165630, 165747, 165744	NaK102319 v1192	M13933	M13935 M13936	350	289549	M13937
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Checked by: _____ Verified by: _____

CT Laboratories, LLC

ICP-6500 Instrument Run Logbook

Date	Time: Start / End	Analyst	Analytes / Sequence I.D.	Method	LIMS # or Sample Description	Nebulizer Pressure (kpa)	Calib. Std ID	Version	Comments
10/9/19	1458 / 10/10/19 1242	JA	100919	DODCal w	165141, 165210 165186 165181 165187, 165180, 165182 165179 165184 165176 165558	260	m13831 m13834	V3550 V3547	M13704 m13857 m13760 m13822 m13830
10/10/19	1512 / 10/11/19 1519	JA	101019	DODCal w	165156 165156 165148 165293 165304 165327 165305 165301 165285 165320 165329 165558 165303 165213 165301 165300, 165280 165299 165298 165331 165553 165352 165354 165524 165377	260	m13831 m13834	V3552 V3551	M13704 m13857 m13760 m13822 m13830
10/11/19	1528 / 0544	JA	101119	DODCal w	165389 165384 165180 165502 165387 165385 165503, 165506 165383 165179 165408 165573 165572 165371 165390 165524 165168 165527 165870 165530 165528	260	m13831 m13834	V3559 V3553	M13704 m13857 m13760 m13822 m13830
10/16/19	1157 / 0750	JA	101619	DODCal w	165527 165555 165528 165529	260	m13831 m13834	V3560	M13704 m13857 m13760 m13822 m13830
10/17/19	1314 / 2257	JA	101719	DODCal w	165501 165560 165566 165529 165569 165565, 72, 63 165504 165568 165632	260	m13834 m13831	V3564 V3563	M13704 m13857 m13760 m13822 m13830
10/18/19	0835 / 1508	JA	101819	DODCal w	165746 165625 165627 165574 165748 165626 165628 165629 165754 165742 165745	260	m13834 m13831	V3565 V3576 V3569 V3577	M13704 M13857 M13760 M13822 M13830
10/19/19	1535 / 0830	JA	101919	DODCal w	165750 165736 165753 165793 165799 165794	260	M13834 m13831	V3570	M13704 M13857 M13760 M13822 M13830
10/22/19	1356 / 1434	JA	102219	DODCal w	165794 165796 165814 165795 165873 165816 165824 165798 165823	260	m13834 m13831	V3572 V3573 V3571	M13704 M13857 M13760 M13822 M13830
10/23/19	1445 / 10/24 0300	JA	102319	DODCal w	165815 165826, 60 165917 165463 165919 165918 165665 165921 165920 165914	260	M13834 m13831	V3574	M13804 M13857 M13760 M13822 M13830
10/24/19	0823 / 10/25 11:49	JA	102419	DODCal w					
10/25/19	1156 / 0655	JA	102519	DODCal w					
	/								

Comments: _____

Checked By / Date: _____

CT Laboratories Instrument Run Log

Instrument ID: Thermo M Series AA

Date	Start Time	End Time	Analyst	Analyte	LIMS Run #	Data File ID	Analysis ID	Cal. Std ID #	CCV Std ID #	ICV Std ID #	PMT	Char. Conc.	Cuvette Lot #	Sample Cup Lot #	Instrument Check
10/16/19	1333	1916	MDS	As	165380 165490,165492,165381	As101619	4	M13997	M13998	M13999	521	0.9167	103387371	5118	✓
10/17/19	0824	0850	MDS	Tl MSA	165474	Tl101719	1	M13997	—	—	467	—	103387371	5118	
10/17/19	1119	1624	MDS	As	165487,165488,165498	As101719	3	M13997	M13998	M13999	521	0.9160	103387371	5118	✓
10/18/19	0830	1024	MDS	Tl	165595	Tl101819	5	M13997	M13998	M13999	452	0.7714	103387371	5118	✓
10/18/19	1307	1456	MDS	Sb	165596,165355	Sb101819	6	M13997	M13998	M13999	404	1.4129	103387371	5118	✓
10/21/19	0843	1312	MDS	Pb	165473 165593,165356,165472	Pb102119	5	M13997	M13998	M13999	551	0.2328	103387371	5118	✓
10/21/19	1352	1921	MDS	As	165581,165732,165733	As102119	1	M13997	M13998	M13999	521	0.8787	103387371	5118	
10/22/19	1122	1837	MDS	Tl	165611,165730,165731	Tl102219	2	M13997	M13998	M13999	453	1.0903	103387371	5118	
10/23/19	0945	1218	MDS	Tl	165611	Tl102319	3	M13997	M13998	M13999	453	0.7802	103387371	5118	
10/23/19	1238	1717	MDS	Tl	165611,165730,165731	Tl102319	4	M13997	M13998	M13999	453	0.9181	103387371	5118	
10/24/19	0927	1209	MDS	Tl	165730	Tl102419	2	M13997	M13998	M13999	477	2.1986	103387371	5118	
10/25/19	0844	1051	MDS	Tl	165731	Tl102519	2	M13997	M13998	M13999	467	2.2202	103387371	5118	
10/25/19	1431	1617	MDS	Sb	165729	Sb102519	4	M13997	M13998	M13999	403	1.4637	103387371	5118	
10/28/19	0932	1122	MDS	Sb	165729	Sb102819	5	M13997	M13998	M13999	404	1.2504	103387371	5118	✓
10/28/19	1250	1457	MDS	As	165998	As102819	3	M13997	M13998	M13999	522	0.8208	103387371	5118	✓
10/28/19	1606	1734	MDS	Sb	165596,165355	Sb102819	9	M13997	M13998	M13999	403	1.2226	103387371	5118	
10/29/19	0841	1048	MDS	Sb	166030	Sb102919	2	M13997	M13998	M13999	399	1.2209	103387371	5118	
10/29/19	1125	1544	MDS	Tl	166031,166032	Tl102919	1	M13997	M13998	M13999	467	1.0322	103387371	5118	
10/30/19	1118	1511	MDS	Tl	166032,166033	Tl103019	2	M13997	M13998	M13999	468	1.4018	103387371	5118	
10/31/19	1042	1452	MDS	As	166063,166062	As103119	2	M13997	M13998	M13999	521	1.1181	103387371	5118	
10/31/19	1501	1907	MDS	As	166064	As103119	3	M13997	M13998	M13999	521	1.1476	103387371	5118	
11/01/19	0824	0851	MDS	Tl MSA	166032	Tl110119	2	M13997	—	✓	477	—	103387371	5118	
11/1/19	1244	1648	MDS	As	166172,166171	As110119	4	M13997	M13998	M13999	521	0.7981	103387371	5118	✓
11/4/19	1414	1936	MDS	As	166174,166193	As110419	4	M13997	M13998	M13999	521	0.9246	103387371	5118	
11/6/19	0744	0920	MDS	Pb	166246	Pb110619	3	M13997	M13998	M13999	551	0.2667	103387371	0819	
11/6/19	1124	1255	MDS	Se	166173	Se110619	3	M13997	M13998	M13999	526	1.3131	103387371	0819	

Reviewed By (Initials/Date):_____

Type	Date/Time	Message	User name	Application	Sequence Name
	10/17/2019 13:58:44	Running 338191 (37)	MDS	Analyst	S_Sodium and Pota
	10/17/2019 14:01:41	Running msw338191 (38)	MDS	Analyst	S_Sodium and Pota
	10/17/2019 14:04:38	Running msdw338191 (39)	MDS	Analyst	S_Sodium and Pota
	10/17/2019 14:07:35	Running pdsw338191 (40)	MDS	Analyst	S_Sodium and Pota
	10/17/2019 14:10:32	Running ccv (14)	MDS	Analyst	S_Sodium and Pota
	10/17/2019 14:13:19	Running ccb (15)	MDS	Analyst	S_Sodium and Pota
	10/17/2019 14:16:05	Running lcsw73922 (41)	MDS	Analyst	S_Sodium and Pota
	10/17/2019 14:18:52	Running mbw73922 (42)	MDS	Analyst	S_Sodium and Pota
	10/17/2019 14:21:38	Running 339578 (43)	MDS	Analyst	S_Sodium and Pota
	10/17/2019 14:24:20	Running 339580 (44)	MDS	Analyst	S_Sodium and Pota
	10/17/2019 14:27:06	Running msw339580 (45)	MDS	Analyst	S_Sodium and Pota
	10/17/2019 14:29:52	Running msdw339580 (46)	MDS	Analyst	S_Sodium and Pota
	10/17/2019 14:32:38	Running pdsw339580 (47)	MDS	Analyst	S_Sodium and Pota
	10/17/2019 14:35:24	Running blank (48)	MDS	Analyst	S_Sodium and Pota
	10/17/2019 14:38:12	Running 338844 (49)	MDS	Analyst	S_Sodium and Pota
	10/17/2019 14:40:57	Running l338844 (50)	MDS	Analyst	S_Sodium and Pota
	10/17/2019 14:43:43	Running ccv (14)	MDS	Analyst	S_Sodium and Pota
	10/17/2019 14:46:29	Running ccb (15)	MDS	Analyst	S_Sodium and Pota
	10/17/2019 14:49:16	Running dup338844 (51)	MDS	Analyst	S_Sodium and Pota
	10/17/2019 14:52:01	Running msw338844 (52)	MDS	Analyst	S_Sodium and Pota
	10/17/2019 14:54:47	Running msdw338844 (53)	MDS	Analyst	S_Sodium and Pota
	10/17/2019 14:57:33	Running pdsw338844 (54)	MDS	Analyst	S_Sodium and Pota
	10/17/2019 15:00:19	Running 338847 (55)	MDS	Analyst	S_Sodium and Pota
	10/17/2019 15:03:05	Running mrl (16)	MDS	Analyst	S_Sodium and Pota
	10/17/2019 15:05:51	Running ccv (14)	MDS	Analyst	S_Sodium and Pota
	10/17/2019 15:08:38	Running ccb (15)	MDS	Analyst	S_Sodium and Pota
	10/17/2019 15:11:25	Plasma off	MDS	iTEVA Control Center	
	10/17/2019 15:11:25	Plasma extinguished successfully	MDS	Analyst	
	10/17/2019 15:11:27	Autosampler Run Completed	MDS	Analyst	S_Sodium and Pota
	10/22/2019 09:46:02	Plasma On	MDS	iTEVA Control Center	
	10/22/2019 09:46:07	Plasma ignition successful	MDS	Analyst	
	10/22/2019 09:46:46	D33534 - Debug:Wavelength check : x = -0.364, y =-0.297	MDS	Analyst	
	10/22/2019 09:57:00	Autosampler Run Started	MDS	Analyst	
	10/22/2019 09:57:00	Sequence Started	MDS	Analyst	S_Sodium and Pota
	10/22/2019 09:57:20	Running Blank (1)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 10:00:17	Running CalibStd-0.5 (2)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 10:03:02	Running CalibStd-1.0 (3)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 10:05:48	Running CalibStd-5.0 (4)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 10:08:35	Running CalibStd-10.0 (5)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 10:11:22	Running CalibStd-50 (6)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 10:14:09	Running CalibStd-100 (7)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 10:16:55	Running CalibStd-200 (8)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 10:19:51	Running CalibStd-500 (9)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 10:22:44	Running icv (10)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 10:25:30	Running ICVLL (17)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 10:28:16	Running icb (11)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 10:31:01	Running mrl (16)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 10:33:47	Running icsa (12)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 10:36:41	Running icsab (13)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 10:39:35	Running lcsw (1)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 10:42:20	Running mbw (2)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 10:45:06	Running 344135 (3)	MDS	Analyst	S_Sodium and Pota

Type	Date/Time	Message	User name	Application	Sequence Name
	10/22/2019 10:47:51	Running msw344135 (4)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 10:50:36	Running msdw344135 (5)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 10:53:21	Running 344138 (6)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 10:56:06	Running 344140 (7)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 10:58:51	Running lcsw73981 (8)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 11:01:37	Running mbw73981 (9)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 11:04:24	Running 342264 (10)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 11:07:11	Running ccv (14)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 11:09:58	Running ccb (15)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 11:12:44	Running l342264 (11)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 11:15:30	Running dup342264 (12)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 11:18:16	Running msw342264 (13)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 11:21:00	Running msdw342264 (14)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 11:23:43	Running pdsw342264 (15)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 11:26:28	Running 342265 (16)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 11:29:13	Running 342266 (17)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 11:32:08	Running 342267 (18)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 11:34:53	Running 342268 (19)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 11:37:38	Running 342269 (20)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 11:40:24	Running ccv (14)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 11:43:10	Running ccb (15)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 11:45:56	Running 342270 (21)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 11:48:42	Running 342271 (22)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 11:51:27	Running 342272 (23)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 11:54:11	Running 342273 (24)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 11:56:56	Running 342274 (25)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 11:59:41	Running lcsw73997 (26)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 12:02:27	Running mbw73997 (27)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 12:05:13	Running 342965 (28)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 12:08:07	Running l342965 (29)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 12:11:05	Running dup342965 (30)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 12:13:59	Running ccv (14)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 12:16:46	Running ccb (15)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 12:19:32	Running msw342965 (31)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 12:22:32	Running msdw342965 (32)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 12:25:38	Running pdsw342965 (33)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 12:28:34	Running 342980 (34)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 12:31:31	Running 342981 (35)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 12:34:29	Running 342982 (36)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 12:37:16	Running 342983 (37)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 12:40:12	Running 342984 (38)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 12:43:09	Running 342985 (39)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 12:45:53	Running 342986 (40)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 12:48:50	Running ccv (14)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 12:51:36	Running ccb (15)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 12:54:22	Running 342987 (41)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 12:57:06	Running lcsw73998 (42)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 12:59:52	Running mbw73998 (43)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 13:02:38	Running 343101 (44)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 13:05:24	Running l343101 (45)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 13:08:09	Running dup343101 (46)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 13:10:56	Running msw343101 (47)	MDS	Analyst	S_Sodium and Pota

Type	Date/Time	Message	User name	Application	Sequence Name
	10/22/2019 13:13:42	Running msdw343101 (48)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 13:16:29	Running pdsw343101 (49)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 13:19:14	Running 343104 (50)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 13:22:01	Running ccv (14)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 13:24:47	Running ccb (15)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 13:27:33	Running 343105 (51)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 13:30:29	Running lcsw73999 (52)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 13:33:25	Running mbw73999 (53)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 13:36:12	Running 343071 (54)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 13:38:59	Running 343112 (55)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 13:41:45	Running 343130 (56)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 13:44:31	Running l343130 (57)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 13:47:18	Running dup343130 (58)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 13:50:04	Running msw343130 (59)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 13:53:01	Running msdw343130 (60)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 13:55:59	Running ccv (14)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 13:58:45	Running ccb (15)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 14:01:32	Running pdsw343130 (61)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 14:04:18	Running lcsw74037 (62)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 14:07:04	Running mbw74037 (63)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 14:09:52	Running 343498 (64)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 14:12:38	Running l343498 (65)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 14:15:26	Running dup343498 (66)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 14:18:12	Running msw343498 (67)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 14:20:58	Running msdw343498 (68)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 14:23:42	Running pdsw343498 (69)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 14:26:29	Running lcsw74046 (70)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 14:29:16	Running ccv (14)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 14:32:03	Running ccb (15)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 14:34:49	Running mbw74046 (71)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 14:37:37	Running 343844 (72)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 14:40:24	Running l343844 (73)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 14:43:10	Running dup343844 (74)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 14:45:57	Running msw343844 (75)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 14:48:42	Running msdw343844 (76)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 14:51:29	Running pdsw343844 (77)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 14:54:16	Running 343878 (78)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 14:57:01	Running lcsw74047 (79)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 14:59:47	Running mbw74047 (80)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 15:02:35	Running ccv (14)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 15:05:21	Running ccb (15)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 15:08:08	Running 343880 (81)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 15:10:54	Running 343886 (82)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 15:13:39	Running 343887 (83)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 15:16:24	Running 343888 (84)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 15:19:22	Running 343889 (85)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 15:22:19	Running 343890 (86)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 15:25:16	Running 343891 (87)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 15:28:13	Running 343892 (88)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 15:31:10	Running 343893 (89)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 15:34:08	Running 343894 (90)	MDS	Analyst	S_Sodium and Pota
	10/22/2019 15:37:05	Running ccv (14)	MDS	Analyst	S_Sodium and Pota

Type	Date/Time	Message	User name	Application	Sequence Name
	10/23/2019 13:30:13	Running pdsw343366 (153)	NAH	Analyst	S_DOD Calibration
	10/23/2019 13:35:10	Closing will close the method and all associated samples.	NAH	Analyst	
	10/23/2019 13:36:43	Running lcsw74062 (154)	NAH	Analyst	S_DOD Calibration
	10/23/2019 13:39:57	Closing will close the method and all associated samples.	NAH	Analyst	
	10/23/2019 13:43:22	Running mbw74062 (155)	NAH	Analyst	S_DOD Calibration
	10/23/2019 13:49:44	Running 343367 (156)	NAH	Analyst	S_DOD Calibration
	10/23/2019 13:56:30	Running l343367 (157)	NAH	Analyst	S_DOD Calibration
	10/23/2019 14:03:08	Running dup343367 (158)	NAH	Analyst	S_DOD Calibration
	10/23/2019 14:09:36	Closing will close the method and all associated samples.	NAH	Analyst	
	10/23/2019 14:09:54	Running msw343367 (159)	NAH	Analyst	S_DOD Calibration
	10/23/2019 14:16:27	Running msdw343367 (160)	NAH	Analyst	S_DOD Calibration
	10/23/2019 14:17:20	Closing will close the method and all associated samples.	NAH	Analyst	
	10/23/2019 14:23:00	Running ccv1 (31)	NAH	Analyst	S_DOD Calibration
	10/23/2019 14:28:33	Running ccv2 (29)	NAH	Analyst	S_DOD Calibration
	10/23/2019 14:34:15	Closing will close the method and all associated samples.	NAH	Analyst	
	10/23/2019 14:34:29	Running ccb (30)	NAH	Analyst	S_DOD Calibration
	10/23/2019 14:40:49	Running pdsw343367 (161)	NAH	Analyst	S_DOD Calibration
	10/23/2019 14:41:08	Autosampler Run Completed	NAH	Analyst	S_DOD Calibration
	10/23/2019 14:44:40	Sequence Started	NAH	Analyst	S_DOD Calibration
	10/23/2019 14:44:40	Autosampler Run Started	NAH	Analyst	
	10/23/2019 14:45:01	Running Blank (1)	NAH	Analyst	S_DOD Calibration
	10/23/2019 14:51:19	Running CalStd2=0.5 (2)	NAH	Analyst	S_DOD Calibration
	10/23/2019 14:57:36	Running CalStd3=1 (3)	NAH	Analyst	S_DOD Calibration
	10/23/2019 15:03:53	Running CalStd4=5 (4)	NAH	Analyst	S_DOD Calibration
	10/23/2019 15:10:09	Running CalStd5=10 (5)	NAH	Analyst	S_DOD Calibration
	10/23/2019 15:16:29	Running CalStd6=20 (6)	NAH	Analyst	S_DOD Calibration
	10/23/2019 15:22:42	Running CalStd7=50 (7)	NAH	Analyst	S_DOD Calibration
	10/23/2019 15:28:55	Running CalStd8=100 (8)	NAH	Analyst	S_DOD Calibration
	10/23/2019 15:35:11	Running CalStd9=1000 (9)	NAH	Analyst	S_DOD Calibration
	10/23/2019 15:40:53	Running CalStd10=10000 (10)	NAH	Analyst	S_DOD Calibration
	10/23/2019 15:47:19	Running CalStd12=100K (11)	NAH	Analyst	S_DOD Calibration
	10/23/2019 15:53:38	Running CalStd13=100000 (12)	NAH	Analyst	S_DOD Calibration
	10/23/2019 16:00:09	Running CalStd14=500000 (13)	NAH	Analyst	S_DOD Calibration
	10/23/2019 16:07:12	Running CalibStd15=1000k (14)	NAH	Analyst	S_DOD Calibration
	10/23/2019 16:14:44	Running Ag Ba 1000, 50000 (15)	NAH	Analyst	S_DOD Calibration
	10/23/2019 16:21:26	Running blkrinse (22)	NAH	Analyst	S_DOD Calibration
	10/23/2019 16:27:39	Running icv (16)	NAH	Analyst	S_DOD Calibration
	10/23/2019 16:33:45	Running icv (16)	NAH	Analyst	S_DOD Calibration
	10/23/2019 16:39:52	Running ICVLL (24)	NAH	Analyst	S_DOD Calibration
	10/23/2019 16:46:02	Running icb (17)	NAH	Analyst	S_DOD Calibration
	10/23/2019 16:52:16	Running icb (17)	NAH	Analyst	S_DOD Calibration
	10/23/2019 16:58:31	Running MRL/LLOQ (25)	NAH	Analyst	S_DOD Calibration
	10/23/2019 17:04:42	Running ICSA (20)	NAH	Analyst	S_DOD Calibration
	10/23/2019 17:11:43	Running ICSAB (21)	NAH	Analyst	S_DOD Calibration
	10/23/2019 17:18:14	Running blkrinse (22)	NAH	Analyst	S_DOD Calibration
	10/23/2019 17:24:26	Running ICVLL ag (1)	NAH	Analyst	S_DOD Calibration
	10/23/2019 17:30:43	Running pdsw343367 (161)	NAH	Analyst	S_DOD Calibration
	10/23/2019 17:37:12	Running lcsw74046 (162)	NAH	Analyst	S_DOD Calibration
	10/23/2019 17:43:51	Running mbw74046 (163)	NAH	Analyst	S_DOD Calibration
	10/23/2019 17:50:09	Running 343844 (164)	NAH	Analyst	S_DOD Calibration
	10/23/2019 17:56:45	Running l343844 (165)	NAH	Analyst	S_DOD Calibration
	10/23/2019 18:03:20	Running dup343844 (166)	NAH	Analyst	S_DOD Calibration

Type	Date/Time	Message	User name	Application	Sequence Name
	10/23/2019 18:09:55	Running msw343844 (167)	NAH	Analyst	S_DOD Calibration
	10/23/2019 18:16:30	Running msdw343844 (168)	NAH	Analyst	S_DOD Calibration
	10/23/2019 18:23:04	Running pdsw343844 (169)	NAH	Analyst	S_DOD Calibration
	10/23/2019 18:29:38	Running ccv1 (23)	NAH	Analyst	S_DOD Calibration
	10/23/2019 18:35:07	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration
	10/23/2019 18:40:57	Running ccb (19)	NAH	Analyst	S_DOD Calibration
	10/23/2019 18:47:15	Running 343878 (170)	NAH	Analyst	S_DOD Calibration
	10/23/2019 18:53:45	Running lcsw74033 (171)	NAH	Analyst	S_DOD Calibration
	10/23/2019 19:00:24	Running mbw74033 (172)	NAH	Analyst	S_DOD Calibration
	10/23/2019 19:06:43	Running 343960 (173)	NAH	Analyst	S_DOD Calibration
	10/23/2019 19:13:25	Running msw343960 (174)	NAH	Analyst	S_DOD Calibration
	10/23/2019 19:20:00	Running msdw343960 (175)	NAH	Analyst	S_DOD Calibration
	10/23/2019 19:26:34	Running pdsw343960 (176)	NAH	Analyst	S_DOD Calibration
	10/23/2019 19:32:56	Running 345198 (2)	NAH	Analyst	S_DOD Calibration
	10/23/2019 19:39:32	Running msw345198 (3)	NAH	Analyst	S_DOD Calibration
	10/23/2019 19:46:01	Running msdw345198 (4)	NAH	Analyst	S_DOD Calibration
	10/23/2019 19:52:31	Running ccv1 (23)	NAH	Analyst	S_DOD Calibration
	10/23/2019 19:57:59	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration
	10/23/2019 20:03:49	Running ccb (19)	NAH	Analyst	S_DOD Calibration
	10/23/2019 20:10:03	Running 345199 (5)	NAH	Analyst	S_DOD Calibration
	10/23/2019 20:16:43	Running 345200 (6)	NAH	Analyst	S_DOD Calibration
	10/23/2019 20:23:24	Running 345202 (7)	NAH	Analyst	S_DOD Calibration
	10/23/2019 20:30:00	Running 343791 (8)	NAH	Analyst	S_DOD Calibration
	10/23/2019 20:36:39	Running 343792 (9)	NAH	Analyst	S_DOD Calibration
	10/23/2019 20:43:04	Running 343793 (10)	NAH	Analyst	S_DOD Calibration
	10/23/2019 20:49:35	Running 343794 (11)	NAH	Analyst	S_DOD Calibration
	10/23/2019 20:55:54	Running 343795 (12)	NAH	Analyst	S_DOD Calibration
	10/23/2019 21:02:05	Running 343796 (13)	NAH	Analyst	S_DOD Calibration
	10/23/2019 21:08:30	Running 343798 (14)	NAH	Analyst	S_DOD Calibration
	10/23/2019 21:14:49	Running ccv1 (23)	NAH	Analyst	S_DOD Calibration
	10/23/2019 21:20:17	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration
	10/23/2019 21:26:07	Running ccb (19)	NAH	Analyst	S_DOD Calibration
	10/23/2019 21:32:23	Running 344135 (15)	NAH	Analyst	S_DOD Calibration
	10/23/2019 21:39:04	Running 344138 (16)	NAH	Analyst	S_DOD Calibration
	10/23/2019 21:45:45	Running 344140 (17)	NAH	Analyst	S_DOD Calibration
	10/23/2019 21:52:27	Running lcswtclp (18)	NAH	Analyst	S_DOD Calibration
	10/23/2019 21:58:48	Running mbwtclp (19)	NAH	Analyst	S_DOD Calibration
	10/23/2019 22:05:02	Running 341887 (20)	NAH	Analyst	S_DOD Calibration
	10/23/2019 22:11:38	Running msw341887 (21)	NAH	Analyst	S_DOD Calibration
	10/23/2019 22:18:08	Running 341888 (22)	NAH	Analyst	S_DOD Calibration
	10/23/2019 22:25:01	Running 341889 (23)	NAH	Analyst	S_DOD Calibration
	10/23/2019 22:31:59	Running 341898 (24)	NAH	Analyst	S_DOD Calibration
	10/23/2019 22:38:47	Running ccv1 (23)	NAH	Analyst	S_DOD Calibration
	10/23/2019 22:44:16	Running ccv2 (18)	NAH	Analyst	S_DOD Calibration
	10/23/2019 22:50:05	Running ccb (19)	NAH	Analyst	S_DOD Calibration
	10/23/2019 22:56:20	Running lcss74069 (25)	NAH	Analyst	S_DOD Calibration
	10/23/2019 23:02:07	Running mbs74069 (26)	NAH	Analyst	S_DOD Calibration
	10/23/2019 23:08:21	Running 344799 (27)	NAH	Analyst	S_DOD Calibration
	10/23/2019 23:14:33	Running l344799 (28)	NAH	Analyst	S_DOD Calibration
	10/23/2019 23:20:48	Running dup344799 (29)	NAH	Analyst	S_DOD Calibration
	10/23/2019 23:27:23	Running mss344799 (30)	NAH	Analyst	S_DOD Calibration
	10/23/2019 23:33:44	Running msds344799 (31)	NAH	Analyst	S_DOD Calibration

		Instrument:	ICP 6000
Standard Log #:	M14035	Standard:	L2 ICV
Analyst:	MDS	Concentrations:	1000 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	11/04/2019	Expiration Date:	02/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of the following and brought up to volume using milli-Q H_2O. (0.5% HNO_3, 0.5% HCl) Li (1000 µg/mL) M13577 Sn (1000 µg/mL) M14008 Sr (1000 µg/mL) M14007 Ti (1000 µg/mL) M14009 W (1000 µg/mL) MXXXXX		

		Instrument:	ICP 6000
Standard Log #:	M14036	Standard:	List 2 MRL/ICVLL Prep Solution
Analyst:	MDS	Concentrations:	5000 µg/L (W) 1000 µg/L (Li, Sn) 500 µg/L (Ti, Sr)
Prep Date:	11/04/2019	Expiration Date:	02/2020

Prep:

Analyte	MRL/ICVLL Conc. (µg/L)	Standard ID	Std. Conc. (µg/mL)	Volume (mL) Pipetted into 1 L	Expiration Date
Li	20/60	M13577	1000	1	02/2020
W	100/300	MXXXX	1000	5	XX/XXXX
Ti	10/30	M14009	1000	0.5	04/2021
Sr	10/30	M14007	1000	0.5	04/2021
Sn	20/60	M14008	1000	1	04/2021

Pipette **10 mL** into a 500 mL volumetric flask to create a working MRL std. or **1 mL** into a 50 mL digestion tube for a digested MRL standard. Pipette **30 mL** into 500 mL for a working ICVLL std. or **3 mL** into a 50 mL digestion tube for a digested ICVLL standard.

(0.5% HNO_3, 0.5% HCl)

		Instrument:	CETAC
Standard Log #:	M14037	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	11/04/2019	Expiration Date:	05/04/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13922 and brought up to volume.		

		Instrument:	ICP
Standard Log #:	M14033	Standard:	L2 ICAL
Analyst:	MDS	Concentrations:	1 (µg/L) 10 (µg/L) 100 (µg/L) 1000 (µg/L) 10,000 (µg/L)
Prep Date:	11/04/2019	Expiration Date:	05/30/2020
Prep:	Standard Conc. (ug/L)	Pipette the following:	
	1	**0.01 mL** of Custom Assurance Standard XCTWI-5-500 M13839 and **0.001 mL** W (1000 µg/mL) MXXXXX into 1L = *1 µg/L*	
	10	**0.10 mL** of Custom Assurance Standard XCTWI-5-500 M13839 and **0.01 mL** W (1000 µg/mL) MXXXXX into 1L = *10 µg/L*	
	100	**1 mL** of Custom Assurance Standard XCTWI-5-500 M13839 and **0.1 mL** W (1000 µg/mL) MXXXXX into 1L = *100 µg/L*	
	1000 (CCV)	**2 mL** of Custom Assurance Standard XCTWI-5-500 M13839 and **0.2 mL** W (1000 µg/mL) MXXXXX into 200mL = *1000 µg/L*	
	10000	**20 mL** of Custom Assurance Standard XCTWI-5-500 M13839 and **2 mL** W (1000 µg/mL) MXXXXX into 200mL = *10000 µg/L*	

		Instrument:	ICP 6000
Standard Log #:	M14034	Standard:	List 2 ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	11/04/2019	Expiration Date:	02/28/2020
Prep:	Into a 200 mL volumetric flask, pipetted **20 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13738, **6 mL** of Fe (10,000 mg/L) M13751, **0.1 mL** of Li (1000 µg/mL) M13577, **0.1 mL** of Sn (1000 µg/mL) M14008, **0.1 mL** of Sr (1000 µg/mL) M14007, **0.1 mL** of Ti (1000 µg/mL) M14009, and **0.1 mL** of W (1000 µg/mL) MXXXXX and brought up to volume using Milli-Q H_2O. (0.5% HNO_3, 0.5% HCl)		

		Instrument:	CETAC
Standard Log #:	M14032	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	10/31/2019	Expiration Date:	10/31/2020
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	ICP 6000
Standard Log #:	M14028	Standard:	B&Si ICAL
Analyst:	MDS	Concentrations:	50, 200, 1000, 2000 and 10,000 ug/L (B, Si)
Prep Date:	10/30/2019	Expiration Date:	10/2020
Prep:	Into five, 1 L volumetric flasks, pipetted the following from stock standards B (1000 mg/L) M13947 and Si (1000 mg/L) M13810 and brought up to volume using milli-Q H_2O. *50 ug/L std.* - **0.05 mL** of each *200 ug/L std.* - **0.2 mL** of each *1000 ug/L std.* -**1.0 mL** of each, also used for Continuing Calibration Verification *2000 ug/L std.* - **2.0 mL** of each *10,000 ug/L std.* -**10 mL** of each		

		Instrument:	ICP 6000
Standard Log #:	M14029	Standard:	B & Si ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (B,Si)
Prep Date:	10/30/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **10 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13738, **0.05 mL** of B (1000 µg/mL) M13947, **0.05 mL** of Si (1000 µg/mL) M13810 and **3 mL** of Fe (10,000 mg/L) M13751 and brought up to volume using Milli-Q H_2O.		

		Instrument:	ICP 6000
Standard Log #:	M14030	Standard:	B&Si ICV
Analyst:	MDS	Concentrations:	1000 ug/L (B, Si)
Prep Date:	10/30/2019	Expiration Date:	05/30/2020
Prep:	Into a 1 L volumetric flask, pipetted **10 mL** of Custom Assurance Std. #23 (100 mg/L Al, As, **B**, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13839 and **1.0 mL** Si (1000 mg/L) M13981 and brought up to volume using milli-Q H_2O.		

Standard ID#:	M14031	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	Acid Washed TCLP filters
Date Received:	10/31/2019	Lot #:	400165
Expiration Date (if any):		Catalog #:	FG77150MM

		Instrument:	HydraII
Standard Log #:	M14024	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	10/29/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14025	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	10/29/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14026	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	10/29/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M14027	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	10/30/2019	Expiration Date:	04/30/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13922 and brought up to volume.		

MRL BASE STD M14024 Analyst NAH

Prep Date 10/30/2019

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	(ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L	Expiration Date
Ag	20	M13951	1000	1	02/2021
Al	400	M13690	10000	2	06/2020
Ba	10	M13949	1000	0.5	02/2021
Be	4	M13579	1000	0.2	02/2020
Cd	5	M13570	1000	0.25	01/2020
Co	10	M13575	1000	0.5	01/2020
Cr	10	M13617	10000	0.05	03/2020
Cu	10	M13618	10000	0.05	03/2020
Mg	500	M13752	10000	2.5	09/2020
Mn	10	M13616	10000	0.05	03/2020
Mo	10	M13860	1000	0.5	12/2020
Ni	10	M13569	1000	0.5	01/2020
Pb	10	M13615	10000	0.05	03/2020
Sb	20	M13950	1000	1	02/2021
V	10	M13578	1000	0.5	02/2020
Zn	10	M13610	10000	0.05	03/2020
K	1000	M14003	10000	5	04/2021
Na	1000	M13862	10000	5	12/2020
As	20	M13763	1000	1	12/2020
Ca	500	M13985	10000	2.5	04/2021
Fe	300	M13751	10000	1.5	09/2020
Se	20	M13948	1000	1	02/2021
Tl	20	M13583	1000	1	02/2020
Si	100	M13810	1000	5	10/2020
B	20	M13947	1000	1	02/2021
Li	20	M13577	1000	1	02/2020
W	50	Mxxxxxx	1000	2.5	xxxxxxxx
Ti	10	M14009	1000	0.5	04/2021
Sr	10	M14007	1000	0.5	03/2020
Sn	50	M14008	1000	2.5	04/2021
S	300	M13604	10000	1.5	03/2020

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

		Instrument:	CETAC
Standard Log #:	M14022	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	10/23/2019	Expiration Date:	04/23/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13922 and brought up to volume.		

		Instrument:	ICP 6500
Standard Log #:	M14023	Standard:	ICSA
Analyst:	NAH	Concentrations:	**500,000 ug/L** Al, Ca, Fe, Mg **10,000** V, Ce
Prep Date:	10/30/2019	Expiration Date:	02/2020
Prep:	Into a 500 mL volumetric flask, pipetted 50 **mL** Interference A std M13738 and 15 **mL** 10000 mg/L Fe M14004 5.0 **mL** 1000 mg/L V M13578 5.0 **mL** 1000 mg/L Ce M13859 and brought up to volume with milli-Q H_2O.		

Standard Log #:	M14020	Reagent:	Potassium Persulfate Solution
Analyst:	BMM		
Prep Date:	10/23/2019	Expiration Date:	04/23/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13714 and brought up to volume.		

Standard Log #:	M14021	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	BMM		
Prep Date:	10/23/2019	Expiration Date:	04/23/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13993 and **60 g** hydroxylamine sulfate M13874 and brought up to volume.		

Standard ID#:	M14016	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride
Date Received:	10/23/2019	Lot #:	J267-10
Expiration Date (if any):		Catalog #:	LC251701

Standard ID#:	M14017	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride
Date Received:	10/23/2019	Lot #:	J267-10
Expiration Date (if any):		Catalog #:	LC251701

		Instrument:	CETAC
Standard Log #:	M14018	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	10/23/2019	Expiration Date:	10/24/2019
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

Standard Log #:	M14019	Reagent:	Potassium Permanganate Solution
Analyst:	BMM		
Prep Date:	10/23/2019	Expiration Date:	04/23/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M14012	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	10/21/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M14013	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	10/21/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M14014	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	10/21/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard Log #:	M14015	Instrument:	GFAA
Analyst:	MDS	Reagent:	Pd/Mg Matrix Modifier
Prep Date:	10/22/2019	Expiration Date:	09/30/2020
Prep:	Into a 50 mL volumetric flask, partially filled with milli-Q H_2O, pipetted **15 mL** Pd Modifier M13954 and **10 mL** Mg (10,000 mg/L) M13752 and brought up to volume.		

Standard Log #:	M14010	Reagent:	SPLP ACID MIX
Analyst:	BMM		60/40 H_2SO_4 - HNO_3
Prep Date:	10/21/2019	Expiration Date:	10/21/2020
Prep:	Into a 200 mL volumetric flask, partially filled with DI H_2O, add **12 g** H_2SO_4 AB.674 and **8 g** HNO_3 AB.677 and bring up to volume using DI H_2O.		

Standard Log #:	M14011	Reagent:	SPLP EXTRACTION FLUID EAST #
Analyst:	BMM	pH:	4.20 ± 0.05
Prep Date:	10/21/2019	Expiration Date:	10/21/2020
Prep:	Into a 20 L carboy filled with DI H_2O, adjust pH to 4.20 ± 0.05 using 60/40 HNO_3 - H_2SO_4 M14010.		

Standard ID#:	M14005	Vendor:	CPI
Analyst:	NAH	Chemical:	Y 10000 mg/L
Date Received:	10/17/2019	Lot #:	168189-30
Expiration Date (if any):	04/2021	Catalog #:	4400-110M671

Standard ID#:	M14006	Vendor:	CPI
Analyst:	NAH	Chemical:	Si 1000 mg/L
Date Received:	10/17/2019	Lot #:	1004985-62
Expiration Date (if any):	04/2021	Catalog #:	S4400-1000504F

Standard ID#:	M14007	Vendor:	CPI
Analyst:	NAH	Chemical:	Sr 1000 mg/L
Date Received:	10/17/2019	Lot #:	168227-95
Expiration Date (if any):	04/2021	Catalog #:	S4400-1000531

Standard ID#:	M14008	Vendor:	CPI
Analyst:	NAH	Chemical:	Sn 1000 mg/L
Date Received:	10/17/2019	Lot #:	977645-2
Expiration Date (if any):	04/2021	Catalog #:	S4400-1000613

Standard ID#:	M14009	Vendor:	CPI
Analyst:	NAH	Chemical:	Ti 1000 mg/L
Date Received:	10/17/2019	Lot #:	987438-36
Expiration Date (if any):	04/2021	Catalog #:	S4400-1000623

		Instrument:	CETAC
Standard Log #:	M14000	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	10/16/2019	Expiration Date:	04/16/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13923 and brought up to volume.		

Standard ID#:	M14001	Vendor:	ThermoFisher
Analyst:	MDS	Chemical:	Nickel Nitrate Matrix Modifier
Date Received:	10/17/2019	Lot #:	9192422
Expiration Date (if any):	04/30/2021	Catalog #:	39043

Standard Log #:	M14002	Reagent:	10N NaOH
Analyst:	BMM		
Prep Date:	10/17/2019	Expiration Date:	10/17/2020
Prep:	Into a 1 L volumetric flask, added **400 g** NaOH W47366 and brought up to volume.		

Standard ID#:	M14003	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10000 mg/L
Date Received:	10/17/2019	Lot #:	980507-31
Expiration Date (if any):	04/2021	Catalog #:	4400-10M411

Standard ID#:	M14004	Vendor:	CPI
Analyst:	NAH	Chemical:	Fe 10000 mg/L
Date Received:	10/17/2019	Lot #:	998527-45
Expiration Date (if any):	04/2021	Catalog #:	4400-10M261

		Instrument:	GFAA
Standard Log #:	M13997	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	10/16/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13998	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	10/16/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13999	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	10/16/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13786 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

Standard ID#:	M13993	Vendor:	Thermo fisher Scientific
Analyst:	NAH	Chemical:	Sodium Chloride
Date Received:	10/15/2019	Lot #:	193463
Expiration Date (if any):	06/2024	Catalog #:	S271-500

Standard ID#:	M13994	Vendor:	Thermo Fisher Scientific
Analyst:	NAH	Chemical:	Hydroxylamine Sulfate
Date Received:	10/15/2019	Lot #:	189407
Expiration Date (if any):	05/2024	Catalog #:	H331-500

		Instrument:	CETAC
Standard Log #:	M13995	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	10/15/2019	Expiration Date:	10/16/2019
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

Standard Log #:	M13996	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	10/16/2019	Expiration Date:	10/16/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13877. Dilute to 20 L and mix.		

		Instrument:	ICP 6000
Standard Log #:	M13992	Standard:	List 2 ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	10/15/2019	Expiration Date:	01/2020
Prep:	Into a 200 mL volumetric flask, pipetted **20 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13738, **6 mL** of Fe (10,000 mg/L) M13751, **0.1 mL** of Li (1000 µg/mL) M13577, **0.1 mL** of Sn (1000 µg/mL) M13572, **0.1 mL** of Sr (1000 µg/mL) M13580, **0.1 mL** of Ti (1000 µg/mL) M13573, and **0.1 mL** of W (1000 µg/mL) MXXXXX and brought up to volume using Milli-Q H_2O. (0.5% HNO_3, 0.5% HCl)		

		Instrument:	ICP 6000
Standard Log #:	M13989	Standard:	Sulfur ICAL
Analyst:	MDS	Concentrations:	1000 10,000 100,000 1000K µg/L (S)
Prep Date:	10/14/2019	Expiration Date:	06/2020
Prep:	Into four, 100 mL volumetric flasks, pipetted the following from stock standard S (10,000 µg/mL) M13696 and brought up to volume using milli-Q H_2O. *1000 ug/L std.* - **0.01 mL** *10,000 ug/L std.* - **0.1 mL** *100,000 ug/L std.* -**1.0 mL**, also used as the CCV *1000K ug/L std.* - **10 mL**		

		Instrument:	ICP 6000
Standard Log #:	M13990	Standard:	Sulfur ICV
Analyst:	MDS	Concentrations:	100,000 µg/L (S)
Prep Date:	10/14/2019	Expiration Date:	03/2020
Prep:	Into a 100 mL volumetric flask, pipetted **1.0 mL** of S (10,000 µg/mL) M13604 and brought up to volume using Milli-Q H_2O.		

		Instrument:	ICP 6000
Standard Log #:	M13991	Standard:	B & Si ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (B,Si)
Prep Date:	10/14/2019	Expiration Date:	12/2019
Prep:	Into a 100 mL volumetric flask, pipetted **10 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13738, **0.05 mL** of B (1000 µg/mL) M13531, **0.05 mL** of Si (1000 µg/mL) M13861 and **3 mL** of Fe (10,000 mg/L) M13751 and brought up to volume using Milli-Q H_2O.		

		Instrument:	HydraII
Standard Log #:	M13986	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	10/15/2019	Expiration Date:	04/15/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M13987	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	10/15/2019	Expiration Date:	04/15/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M13988	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	10/15/2019	Expiration Date:	04/15/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard ID#:	M13982	Vendor:	CPI
Analyst:	NAH	Chemical:	Aluminum 10000 mg/L
Date Received:	10/09/2019	Lot #:	992536-16
Expiration Date (if any):	04/2021	Catalog #:	4400-10M11

Standard ID#:	M13983	Vendor:	CPI
Analyst:	NAH	Chemical:	Fe 10000 mg/L
Date Received:	10/09/2019	Lot #:	998527-45
Expiration Date (if any):	04/2021	Catalog #:	4400-10M261

Standard ID#:	M13984	Vendor:	CPI
Analyst:	NAH	Chemical:	Mg 10000 mg/L
Date Received:	10/09/2019	Lot #:	1013353-4
Expiration Date (if any):	04/2021	Catalog #:	4400-10M311

Standard ID#:	M13985	Vendor:	CPI
Analyst:	NAH	Chemical:	Ca 10000 mg/L
Date Received:	10/09/2019	Lot #:	855297-68
Expiration Date (if any):	04/2021	Catalog #:	4400-10M91

		Instrument:	CETAC
Standard Log #:	M13978	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	10/08/2019	Expiration Date:	04/08/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13923 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13979	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	10/09/2019	Expiration Date:	04/09/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13923 and brought up to volume.		

Standard ID#:	M13980	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Std
Date Received:	10/08/2019	Lot #:	52-248CR
Expiration Date (if any):	10/30/2020	Catalog #:	XSPIKE-1-250

Standard ID#:	M13981	Vendor:	CPI
Analyst:	NAH	Chemical:	Silicon 1000 mg/l
Date Received:	10/09/2019	Lot #:	1004985-62
Expiration Date (if any):	04/2021	Catalog #:	S4400-1000504F

		Instrument:	HydraII
Standard Log #:	M13976	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	10/07/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13975 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	CETAC
Standard Log #:	M13977	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	10/07/2019	Expiration Date:	10/07/2020
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	HydraII
Standard Log #:	M13973	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	10/07/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M13974	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	10/07/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M13975	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	10/07/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	GFAA
Standard Log #:	M13970	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	10/07/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13971	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	10/07/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13972	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	10/07/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13786 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

Standard Log #:	M13969	Reagent:	1:3 HNO3
Analyst:	MDS		
Prep Date:	10/02/2019	Expiration Date:	10/02/2020
Prep:	Carefully mixed **3** parts DI with **1** part HNO_3 AB.681 in a hood.		

		Instrument:	HydraII
Standard Log #:	M13967	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	10/01/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13966 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	CETAC
Standard Log #:	M13968	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	10/01/2019	Expiration Date:	10/01/2020
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	HydraII
Standard Log #:	M13964	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	10/01/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M13965	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	10/01/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M13966	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	10/01/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard Log #:	M13963	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	09/30/2019	Expiration Date:	09/30/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13877. Dilute to 20 L and mix.		

Standard ID#:	M13961	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Std.
Date Received:	09/24/2019	Lot #:	7-093AB
Expiration Date (if any):	09/30/2020	Catalog #:	XCTWI-1-500

		Instrument:	CETAC
Standard Log #:	M13962	Reagent:	Stannous Chloride Solution
Analyst:	NAH		
Prep Date:	09/25/2019	Expiration Date:	09/25/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13923 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13960	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	09/19/2019	Expiration Date:	03/19/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.678 and dissolved **100 g** Stannous chloride M13889 and brought up to volume.		

		Instrument:	HydraII
Standard Log #:	M13958	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	09/17/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	HydraII
Standard Log #:	M13959	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	09/17/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13958 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	CETAC
Standard Log #:	M13955	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	09/17/2019	Expiration Date:	09/17/2020
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	HydraII
Standard Log #:	M13956	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	09/17/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M13957	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	09/17/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

Standard Log #:	M13952	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	09/13/2019	Expiration Date:	09/13/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13877. Dilute to 20 L and mix.		

Standard Log #:	M13953	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	09/13/2019	Expiration Date:	09/13/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13877. Dilute to 20 L and mix.		

Standard ID#:	M13954	Vendor:	Environmental Expresss
Analyst:	MDS	Chemical:	1% Pd Matrix Modifier
Date Received:	09/13/2019	Lot #:	1925215
Expiration Date (if any):	09/30/2020	Catalog #:	HP1900-100

		Instrument:	CETAC
Standard Log #:	M13946	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	09/10/2019	Expiration Date:	03/10/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13889 and brought up to volume.		

Standard ID#:	M13947	Vendor:	CPI
Analyst:	NAH	Chemical:	Boron 1000 mg/lL
Date Received:	09/10/2019	Lot #:	982524-80
Expiration Date (if any):	02/2021	Catalog #:	S4400-100074

Standard ID#:	M13948	Vendor:	CPI
Analyst:	NAH	Chemical:	Selenium 1000 mg/L
Date Received:	09/10/2019	Lot #:	982461-61
Expiration Date (if any):	02/2021	Catalog #:	S4400-1000491

Standard ID#:	M13949	Vendor:	CPI
Analyst:	NAH	Chemical:	Barium 1000 mg/L
Date Received:	09/10/2019	Lot #:	994634-28
Expiration Date (if any):	02/2021	Catalog #:	S4400-100041

Standard ID#:	M13950	Vendor:	CPI
Analyst:	NAH	Chemical:	Antimony 1000 mg/L
Date Received:	09/10/2019	Lot #:	1013797-3
Expiration Date (if any):	02/2019	Catalog #:	S4400-100023

Standard ID#:	M13951	Vendor:	CPI
Analyst:	NAH	Chemical:	Silver 1000 mg/L
Date Received:	09/10/2019	Lot #:	975475-71
Expiration Date (if any):	02/2021	Catalog #:	S4400-1000511

		Instrument:	HydraII
Standard Log #:	M13944	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	09/09/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13943 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	CETAC
Standard Log #:	M13945	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	09/09/2019	Expiration Date:	09/09/2020
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	HydraII
Standard Log #:	M13941	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	09/09/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M13942	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	09/09/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M13943	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	09/09/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	GFAA
Standard Log #:	M13938	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	09/09/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13939	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	09/09/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13940	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	09/09/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13786 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13937	Standard:	NaK ICSAB
Analyst:	MDS	Concentrations:	500 mg/L (Al, Ca, Fe, Mg) 100 mg/L (Na, K)
Prep Date:	09/06/2019	Expiration Date:	02/28/2020
Prep:	Into a 250 mL volumetric flask, pipetted **25 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13738, **2.5 mL** of K (10,000 mg/L) M13755, **2.5 mL** of Na (10,000 mg/L) M13691 and **7.5 mL** of Fe (10,000 mg/L) M13695 and brought up to volume using Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13933	Standard:	Na & K ICAL
Analyst:	MDS	Concentrations:	0.5, 1, 5, 10, 50, 100, and 200 mg/L (Na,K)
Prep Date:	09/06/2019	Expiration Date:	03/2020
Prep:	Into seven, 200 mL volumetric flasks, pipetted the following from Na (1000 µg/mL) M13607 and K (1000 µg/mL) M13606 and brought up to volume using milli-Q H_2O. (2% HNO_3) *0.5 mg/L std.* - **0.1 mL** of each *1.0 mg/L std.* - **0.2 mL** of each *5.0 mg/L std.* - **1.0 mL** of each *10 mg/L std.* - **2.0 mL** of each *50 mg/L std.* - **10 mL** of each *100 mg/L std.* -**20 mL** of each, also used for Continuing Calibration Verification *200 mg/L std.* - **40 mL** of each		

		Instrument:	ICP 6000
Standard Log #:	M13934	Standard:	Na,K MRL
Analyst:	MDS	Concentrations:	1 mg/L (Na,K)
Prep Date:	09/06/2019	Expiration Date:	03/2020
Prep:	Into a 500 mL volumetric flask, pipetted **0.5 mL** of Na (1000 µg/mL) M13607 and **0.5 mL** K (1000 µg/mL) M13606 and brought to volume with Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13935	Standard:	NaK ICV
Analyst:	MDS	Concentrations:	100 mg/L (Na, K)
Prep Date:	09/06/2019	Expiration Date:	06/2020
Prep:	Into a 250 mL volumetric flask, pipetted **2.5 mL** of K (10,000 mg/L) M13755 and Na (10,000 mg/L) M13691 and brought up to volume using Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13936	Standard:	Na,K ICVLL
Analyst:	MDS	Concentrations:	3 mg/L (Na,K)
Prep Date:	09/06/2019	Expiration Date:	06/2020
Prep:	Into a 500 mL volumetric flask, pipetted **0.15 mL** of Na (10,000 µg/mL) M13691 and **0.15 mL** K (10,000 µg/mL) M13755 and brought to volume with Milli-Q H_2O. (2% HNO_3)		

		Instrument:	HydraII
Standard Log #:	M13929	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	09/03/2019	Expiration Date:	03/03/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13928 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	CETAC
Standard Log #:	M13930	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	09/03/2019	Expiration Date:	10/03/2019
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13889 and brought up to volume.		

Standard Log #:	M13931	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	09/03/2019	Expiration Date:	09/03/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13877. Dilute to 20 L and mix.		

Standard Log #:	M13932	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	09/03/2019	Expiration Date:	09/03/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13877. Dilute to 20 L and mix.		

		Instrument:	HydraII
Standard Log #:	M13926	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	09/03/2019	Expiration Date:	03/03/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M13927	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	09/03/2019	Expiration Date:	03/03/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M13928	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	09/03/2019	Expiration Date:	03/03/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard ID#:	M13924	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	Yttrium 10,000 mg/L
Date Received:	08/29/2019	Lot #:	1833905
Expiration Date (if any):	02/28/2021	Catalog #:	HP10M67-1

		Instrument:	HydraII
Standard Log #:	M13920	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	08/27/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13919 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	CETAC
Standard Log #:	M13921	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	08/28/2019	Expiration Date:	09/28/2019
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13889 and brought up to volume.		

Standard ID#:	M13922	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride Dihydrate
Date Received:	08/28/2019	Lot #:	J142-19
Expiration Date (if any):		Catalog #:	LC251701

Standard ID#:	M13923	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride Dihydrate
Date Received:	08/28/2019	Lot #:	J142-19
Expiration Date (if any):		Catalog #:	LC251701

		Instrument:	HydraII
Standard Log #:	M13917	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	08/27/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M13918	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	08/27/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M13919	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	08/27/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	GFAA
Standard Log #:	M13916	Standard:	LODW/LOQW Ag Spiking Sol'n
Analyst:	MDS	Concentrations:	10 ug/L (Ag)
Prep Date:	08/26/2019	Expiration Date:	10/2019
Prep:	Into a 100 mL volumetric flask, pipetted **0.1 mL** of Ag (1000mg/L) M13458 and brought to volume with Milli-Q H_2O to make a 1000 ug/L Ag std. Into a 1 L volumetric flask, pipetted **10 mL** of Ag (*1000 ug/L*) std. and brought to volume with Milli-Q H_2O. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*0.2 ug/L*) and **2 mL** spiking solution for LOQ (*0.4 ug/L*)		

		Instrument:	GFAA
Standard Log #:	M13914	Standard:	LODS/LOQS Spiking Sol'n
Analyst:	MDS	Concentrations:	60 ug/L (Sb) 160 ug/L (As,Se) 40 ug/L (Pb) 50 ug/L (Tl)
Prep Date:	08/26/2019	Expiration Date:	10/2019
Prep:	Into a 200 mL volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. **1.2 mL** of Sb (1000 mg/L) M13459 **3.2 mL** of As (1000 mg/L) M13863 **3.2 mL** of Se (1000 mg/L) M13460 **0.08 mL** of Pb (10,000 mg/L) M13615 **1.0 mL** of Tl (1000 mg/L) M13583 From this diluted standard solution, pipetted **10 mL** into a 1 L volumetric flask and brought up to volume with Milli-Q H_2O to make the spiking solution. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (1.2 *ug/L* Sb, *3.2 ug/L* As, *3.2 ug/L* Se, *0.8 ug/L* Pb, *1 ug/L* Tl) and **2 mL** spiking solution for LOQ (2.4 *ug/L* Sb, *6.4 ug/L* As, *6.4 ug/L* Se, *1.6 ug/L* Pb, *2 ug/L* Tl)		

		Instrument:	GFAA
Standard Log #:	M13915	Standard:	LODW/LOQW Spiking Sol'n
Analyst:	MDS	Concentrations:	150 ug/L (Sb) 100 ug/L (As) 200 ug/L (Se) 45 ug/L (Pb) 40 ug/L (Tl)
Prep Date:	08/26/2019	Expiration Date:	10/2019
Prep:	Into a 100 mL volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. **1.5 mL** of Sb (1000 mg/L) M13459 **1.0 mL** of As (1000 mg/L) M13863 **2.0 mL** of Se (1000 mg/L) M13460 **0.045 mL** of Pb (10,000 mg/L) M13615 **0.4 mL** of Tl (1000 mg/L) M13583 From this diluted standard solution, pipetted **10 mL** into a 1 L volumetric flask and brought up to volume with Milli-Q H_2O to make the spiking solution. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*3 ug/L* Sb, *2 ug/L* As, *4 ug/L* Se, *0.9 ug/L* Pb, *0.8 ug/L* Tl) and **2 mL** spiking solution for LOQ (*6 ug/L* Sb, *4 ug/L* As, *8 ug/L* Se, *1.8 ug/L* Pb, *1.6 ug/L* Tl)		

Standard Log #:	M13913 (A)	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3010 B&Si Spiking Solution
Prep Date:	08/26/2019	Expiration Date:	12/19/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
B	16	M13531	1000	0.8
Si	200	M13861	1000	10

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13913 combined with A	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3010 S Spiking Solution
Prep Date:	08/26/2019	Expiration Date:	06/20/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
S	200	M13696	10000	1.0

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

		Instrument:	CETAC
Standard Log #:	M13911	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	08/21/2019	Expiration Date:	02/21/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13888 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13912	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	08/21/2019	Expiration Date:	08/21/2020
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	HydraII
Standard Log #:	M13909	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	08/20/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13908 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	CETAC
Standard Log #:	M13910	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	08/20/2019	Expiration Date:	08/20/2020
Prep:	Carefully mixed **3** parts HCl AB.656 with **1** part HNO_3 AB.655 in a hood.		

		Instrument:	HydraII
Standard Log #:	M13906	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	08/20/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M13907	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	08/20/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M13908	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	08/20/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

Standard Log #:	M13904	Reagent:	Potassium Persulfate Solution
Analyst:	BMM		
Prep Date:	08/19/2019	Expiration Date:	08/19/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13059 and brought up to volume.		

Standard Log #:	M13905	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	BMM		
Prep Date:	08/19/2019	Expiration Date:	08/19/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13728 and **60 g** hydroxylamine sulfate M13727 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13902	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	08/15/2019	Expiration Date:	02/15/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13888 and brought up to volume.		

Standard ID#:	M13903	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	08/15/2019	Lot #:	52-161Cr
Expiration Date (if any):	8/30/2020	Catalog #:	XSPIKE-1-250

		Instrument:	CETAC
Standard Log #:	M13898	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	08/13/2019	Expiration Date:	08/13/2020
Prep:	Carefully mixed **3** parts HCl AB.656 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	HydraII
Standard Log #:	M13899	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	08/13/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	HydraII
Standard Log #:	M13900	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	08/13/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	HydraII
Standard Log #:	M13901	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	08/13/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13734 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

Standard Log #:	M13897	Standard:	GFAA Instrument Check
Analyst:	MDS	Final Concentration:	12 µg/L As 6 µg/L Pb 10 µg/L Sb 20 µg/L Se 10 µg/L Tl 0.6 µg/L Ag
Prep Date:	08/12/2019	Expiration Date:	10/2019

Into six, 100 mL volumetric flasks, add the following and bring up to volume with milli-Q H_2O.

Element	Volume Pipetted (mL)	Standard Conc. (µg/mL)	Standard ID	New Conc. (µg/L)
As	1	1000	M13863	10,000
Pb	0.1	10,000	M13615	10,000
Tl	1	1000	M13583	10,000
Se	1	1000	M13460	10,000
Sb	1	1000	M13459	10,000
Ag	0.1	1000	M13458	1000

Into a 1 L volumetric flask, add the following and bring up to volume with Milli-Q H_20. (1% HNO_3)

Element	Volume Pipetted (mL)	Standard Conc. (µg/L)	New Conc. (µg/L)
As	1.2	10,000	12
Pb	0.6	10,000	6
Tl	1.0	10,000	10
Se	2.0	10,000	20
Sb	1.0	10,000	10
Ag	0.6	1000	0.6

Standard Log #:	M13896	Reagent:	1:3 HNO3
Analyst:	MDS		
Prep Date:	08/09/2019	Expiration Date:	08/09/2020
Prep:	Carefully mixed **3** parts DI with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13895	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	08/06/2019	Expiration Date:	02/06/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13888 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13894	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	08/05/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13893 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	CETAC
Standard Log #:	M13891	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	08/05/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	CETAC
Standard Log #:	M13892	Standard:	Hg CCV
Analyst:	MDS	Concentration:	3.0 ug/L Hg
Prep Date:	08/05/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	CETAC
Standard Log #:	M13893	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	08/05/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M13890	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	07/29/2019	Expiration Date:	01/29/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13888 and brought up to volume.		

Standard ID#:	M13888	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride Dihydrate
Date Received:	07/25/2019	Lot #:	J142-19
Expiration Date (if any):		Catalog #:	LC251701

Standard ID#:	M13889	Vendor:	LabChem
Analyst:	MDS	Chemical:	Stannous Chloride Dihydrate
Date Received:	07/25/2019	Lot #:	J142-19
Expiration Date (if any):		Catalog #:	LC251701

		Instrument:	CETAC
Standard Log #:	M13884	Reagent:	Hg Aqua Regia
Analyst:	BMM		
Prep Date:	07/22/2019	Expiration Date:	
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	GFAA
Standard Log #:	M13885	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	07/22/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13886	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	07/22/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13887	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	07/22/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13786 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	CETAC
Standard Log #:	M13883	Reagent:	Stannous Chloride Solution
Analyst:	MDS		
Prep Date:	07/18/2019	Expiration Date:	01/03/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13648 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13879	Reagent:	Hg Aqua Regia
Analyst:	MDS		
Prep Date:	07/18/2019	Expiration Date:	07/18/2020
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13880	Standard:	Hg ICAL
Analyst:	MDS	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	07/18/2019	Expiration Date:	01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	CETAC
Standard Log #:	M13881	Standard:	Alt. Source Working Std.
Analyst:	MDS	Concentrations:	10,000 and 100 ug/L
Prep Date:	07/18/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M13882	Standard:	Hg ICV/LCS
Analyst:	MDS	Concentration:	3 ug/L
Prep Date:	07/18/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13881 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

Standard Log #:	M13876	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	07/18/2019	Expiration Date:	07/18/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13750. Dilute to 20 L and mix.		

Standard Log #:	M13877	Reagent:	10N NaOH
Analyst:	BMM		
Prep Date:	07/18/2019	Expiration Date:	07/18/2020
Prep:	Into a 1 L volumetric flask, added **400 g** NaOH W45383 and brought up to volume.		

Standard Log #:	M13878	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	07/18/2019	Expiration Date:	07/18/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M45383. Dilute to 20 L and mix.		

Standard Log #:	M13873	Reagent:	Potassium Permanganate Solution
Analyst:	NAH		
Prep Date:	07/17/2019	Expiration Date:	07/17/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard ID#:	M13874	Vendor:	Fisher
Analyst:	NAH	Chemical:	Hydroxylamine Sulfate
Date Received:	07/17/2019	Lot #:	175511
Expiration Date (if any):		Catalog #:	H331-500

Standard Log #:	M13875	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	NAH		
Prep Date:	07/18/2019	Expiration Date:	07/18/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13728 and **60 g** hydroxylamine sulfate M13727 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13872	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	07/12/2019	Expiration Date:	07/12/2019
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.679 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13871	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	07/11/2019	Expiration Date:	07/11/2019
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.679 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13870	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	07/10/2019	Expiration Date:	07/10/2019
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.679 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13869	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	07/08/2019	Expiration Date:	07/08/2019
Prep:	Carefully mixed **3** parts HCl AB.680 with **1** part HNO_3 AB.679 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13868	Reagent:	Stannous Chloride Solution
Analyst:	LJF		
Prep Date:	07/03/2019	Expiration Date:	01/03/2020
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.680 and dissolved **100 g** Stannous chloride M13648 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13864	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	07/02/2019	Expiration Date:	07/02/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

Standard Log #:	M13865	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	LJF		
Prep Date:	07/02/2019	Expiration Date:	01/02/2020
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13728 and **60 g** hydroxylamine sulfate M13727 and brought up to volume.		

Standard Log #:	M13866	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	07/02/2019	Expiration Date:	01/02/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M13867	Reagent:	Potassium Persulfate Solution
Analyst:	LJF		
Prep Date:	07/02/2019	Expiration Date:	01/02/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13059 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13858	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	06/26/2019	Expiration Date:	06/26/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

Standard ID#:	M13859	Vendor:	CPI
Analyst:	NAH	Chemical:	Ce 1000 mg/L
Date Received:	06-26-2019	Lot #:	171633-12
Expiration Date (if any):	12/2020	Catalog #:	S4400-1000101

Standard ID#:	M13860	Vendor:	CPI
Analyst:	NAH	Chemical:	Mo 1000 mg/L
Date Received:	06-26-2019	Lot #:	987189-17
Expiration Date (if any):	12/2020	Catalog #:	S4400-1000343

Standard ID#:	M13861	Vendor:	CPI
Analyst:	NAH	Chemical:	Si 1000 mg/L
Date Received:	06-26-2019	Lot #:	175213-60
Expiration Date (if any):	12/2020	Catalog #:	S4400-1000504F

Standard ID#:	M13862	Vendor:	CPI
Analyst:	NAH	Chemical:	Na 10000 mg/L
Date Received:	06-26-2019	Lot #:	752887-32
Expiration Date (if any):	12/2020	Catalog #:	4400-10M521

Standard ID#:	M13863	Vendor:	CPI
Analyst:	NAH	Chemical:	As 1000 mg/L
Date Received:	06-26-2019	Lot #:	175385-105
Expiration Date (if any):	12/2020	Catalog #:	S4400-100031

Standard Log #:	M13856	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	06/21/2019	Expiration Date:	06/21/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13750. Dilute to 20 L and mix.		

Standard Log #:	M13857	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	06/21/2019	Expiration Date:	06/21/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13750. Dilute to 20 L and mix.		

		Instrument:	CETAC
Standard Log #:	M13855	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	06/19/2019	Expiration Date:	06/19/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

Standard ID#:	M13851	Vendor:	CPI
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	06-19-2019	Lot #:	52-082CR
Expiration Date (if any):	06/30/2020	Catalog #:	XSPIKE-1-250

		Instrument:	GFAA
Standard Log #:	M13852	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	06/19/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q H_2O. ($1\% HNO_3$)		

		Instrument:	GFAA
Standard Log #:	M13853	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	06/19/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q DI H_2O. ($1\% HNO_3$)		

		Instrument:	GFAA
Standard Log #:	M13854	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	06/19/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13786 and brought to volume with Milli-Q DI H_2O. ($1\% HNO_3$)		

		Instrument:	CETAC
Standard Log #:	M13850	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	06/14/2019	Expiration Date:	06/14/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

Standard Log #:	M13849	Instrument:	GFAA
Analyst:	MDS	Standard:	MDL Spiking Solution
Prep Date:	06/13/2019	Expiration Date:	07/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (2% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
Ag	0.2	M13458	1000	0.01
As	2	M13392	1000	0.1
Pb	2	M13615	10000	0.01
Sb	2	M13459	1000	0.1
Se	2	M13460	1000	0.1
Tl	2	M13583	1000	0.1

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13848	Instrument:	ICP 6500
Analyst:	NAH	Standard:	LOQ 3010 DOD Metals Spiking S
Prep Date:	06/11/2019	Expiration Date:	10/19

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	4	M13458	1000	0.2
Al	36	M13611	**10000**	0.18
As	24	M13753	1000	1.2
Ba	1.8	M13457	1000	0.09
Be	0.6	M13579	1000	0.03
Ca	100	M13692	**10000**	0.5
Cd	2.0	M13570	1000	0.1
Co	4	M13575	1000	0.2
Cr	4	M13697	**10000**	0.02
Cu	7	M13618	**10000**	0.035
Fe	100	M13609	**10000**	0.5
Mg	40	M13694	**10000**	0.2
Mn	4	M13616	**10000**	0.02
Mo	7	M13697	1000	0.35
Ni	6	M13569	1000	0.2
Pb	4	M13615	**10000**	0.02
Sb	12	M13459	1000	0.6
Se	13	M13460	1000	0.65
Tl	20	M13583	1000	0.75
V	5	M13578	1000	0.25
Zn	10	M13610	**10000**	0.05

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13847	Instrument:	ICP 6500
Analyst:	NAH	Standard:	LOQ 3050 DOD Metals Spiking S
Prep Date:	06/11/2019	Expiration Date:	10/19

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	4	M13458	1000	0.2
Al	9.6	M13611	**10000**	0.048
As	32	M13753	1000	1.6
Ba	2	M13457	1000	0.1
Be	1.6	M13579	1000	0.08
Ca	56	M13692	**10000**	0.28
Cd	1.6	M13570	1000	0.08
Co	9.6	M13575	1000	0.48
Cr	5.6	M13697	**10000**	0.028
Cu	16	M13618	**10000**	0.08
Fe	72	M13609	**10000**	0.36
Mg	32	M13694	**10000**	0.16
Mn	6	M13616	**10000**	0.03
Mo	9.6	M13697	1000	0.48
Ni	4.8	M13569	1000	0.24
Pb	10	M13615	**10000**	0.05
Sb	32	M13459	1000	1.6
Se	16	M13460	1000	0.8
Tl	19	M13583	1000	0.95
V	3.2	M13578	1000	0.16
Zn	12	M13610	**10000**	0.06

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13845	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3010 k&na Spiking Solution
Prep Date:	06/11/2019	Expiration Date:	06/2020

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
K	500	M13811	10000	2.5
Na	600	M13691	10000	3

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13846	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3050 k&na Spiking Solution
Prep Date:	06/11/2019	Expiration Date:	06/2020

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
K	2640	M13811	10000	13.2
Na	960	M13691	10000	4.8

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard ID#:	M13839	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	06/11/2019	Lot #:	52-038CR
Expiration Date (if any):	05/30/2020	Catalog #:	XCTWI-5-500

Standard ID#:	M13840	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	06/11/2019	Lot #:	5-244AB
Expiration Date (if any):	06/30/2020	Catalog #:	XCTWWI-1-500

Standard ID#:	M13841	Vendor:	CPI
Analyst:	NAH	Chemical:	Ca 10,000 mg/L
Date Received:	06/11/2019	Lot #:	855297-41
Expiration Date (if any):	11/2020	Catalog #:	4400-10M91

Standard ID#:	M13842	Vendor:	CPI
Analyst:	NAH	Chemical:	Al 10,000 mg/L
Date Received:	06/11/2019	Lot #:	169484-36
Expiration Date (if any):	11/2020	Catalog #:	4400-10M11

Standard ID#:	M13843	Vendor:	CPI
Analyst:	NAH	Chemical:	Y 10,000 mg/L
Date Received:	06/11/2019	Lot #:	168189-30
Expiration Date (if any):	11/20	Catalog #:	4400-10M671

Standard ID#:	M13844	Vendor:	CPI
Analyst:	NAH	Chemical:	Si 1000 mg/L
Date Received:	06/11/2019	Lot #:	175213-60
Expiration Date (if any):	11/2020	Catalog #:	S4400-1000504F

		Instrument:	GFAA
Standard Log #:	M13838	Standard:	LODW/LOQW Ag Spiking Sol'n
Analyst:	MDS	Concentrations:	10 ug/L (Ag)
Prep Date:	06/07/2019	Expiration Date:	10/2019
Prep:	Into a 100 mL volumetric flask, pipetted **0.1 mL** of Ag (1000mg/L) M13458 and brought to volume with Milli-Q H_2O to make a 1000 ug/L Ag std. Into a 1 L volumetric flask, pipetted **10 mL** of Ag (*1000 ug/L*) std. and brought to volume with Milli-Q H_2O. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*0.2 ug/L*) and **2 mL** spiking solution for LOQ (*0.4 ug/L*)		

		Instrument:	GFAA
Standard Log #:	M13836	Standard:	LODS/LOQS Spiking Sol'n
Analyst:	MDS	Concentrations:	60 ug/L (Sb) 160 ug/L (As,Se) 40 ug/L (Pb) 50 ug/L (Tl)
Prep Date:	06/07/2019	Expiration Date:	07/2019
Prep:	Into a 200 mL volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. **1.2 mL** of Sb (1000 mg/L) M13459 **3.2 mL** of As (1000 mg/L) M13392 **3.2 mL** of Se (1000 mg/L) M13460 **0.08 mL** of Pb (10,000 mg/L) M13615 **1.0 mL** of Tl (1000 mg/L) M13583 From this diluted standard solution, pipetted **10 mL** into a 1 L volumetric flask and brought up to volume with Milli-Q H_2O to make the spiking solution. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (1.2 *ug/L* Sb, *3.2 ug/L* As, *3.2 ug/L* Se, *0.8 ug/L* Pb, *1 ug/L* Tl) and **2 mL** spiking solution for LOQ (2.4 *ug/L* Sb, *6.4 ug/L* As, *6.4 ug/L* Se, *1.6 ug/L* Pb, *2 ug/L* Tl)		

		Instrument:	GFAA
Standard Log #:	M13837	Standard:	LODW/LOQW Spiking Sol'n
Analyst:	MDS	Concentrations:	150 ug/L (Sb) 100 ug/L (As) 200 ug/L (Se) 45 ug/L (Pb) 40 ug/L (Tl)
Prep Date:	06/07/2019	Expiration Date:	07/2019
Prep:	Into a 100 mL volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. **1.5 mL** of Sb (1000 mg/L) M13459 **1.0 mL** of As (1000 mg/L) M13392 **2.0 mL** of Se (1000 mg/L) M13460 **0.045 mL** of Pb (10,000 mg/L) M13615 **0.4 mL** of Tl (1000 mg/L) M13583 From this diluted standard solution, pipetted **10 mL** into a 1 L volumetric flask and brought up to volume with Milli-Q H_2O to make the spiking solution. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*3 ug/L* Sb, *2 ug/L* As, *4 ug/L* Se, *0.9 ug/L* Pb, *0.8 ug/L* Tl) and **2 mL** spiking solution for LOQ (*6 ug/L* Sb, *4 ug/L* As, *8 ug/L* Se, *1.8 ug/L* Pb, *1.6 ug/L* Tl)		

		Instrument:	CETAC
Standard Log #:	M13835	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	06/06/2019	Expiration Date:	06/06/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	ICP 6500
Standard Log #:	M13832	Standard:	CCV1
Analyst:	NAH	Concentrations:	**5000 µg/L** Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn **500 µg/L** Ag, Be, Cd
Prep Date:	06/03/2019	Expiration Date:	02/20
Prep:	Into a 1 L volumetric flask, pipetted **50 mL** Custom Assurance Standard #23 XCTWI-5-500 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13741 and **5.0 mL** of Custom Assurance Std. #3 XCTWI-4-500 (100 mg/L Ag, Be, Cd) M13827 and brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M13833	Standard:	CCV2
Analyst:	NAH	Concentrations:	**500 µg/L** Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn **50 µg/L** Ag, Be, Cd
Prep Date:	06/03/2019	Expiration Date:	02/20
Prep:	Into a 1 L volumetric flask, pipetted **5 mL** Custom Assurance Standard #23 XCTWI-5-500 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13741 and **0.5 mL** of Custom Assurance Std. #3 XCTWI-4-500 (100 mg/L Ag, Be, Cd) M13827 and brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M13834	Standard:	ICSAB
Analyst:	NAH	Concentrations:	**500,000 ug/L** Al, Ca, Fe, Mg **500 ug/L** Ag, As, Ba, Be, Cd, Co, Cr, Cu, Mn, Mo, Ni, Pb, Sb, Se, Tl, V, Zn
Prep Date:	06/03/2019	Expiration Date:	02/20
Prep:	Into a 500 mL volumetric flask, pipetted **50 mL** Interferents A Standard ((5000 mg/L Al, Ca, Mg) (2000 mg/L Fe)) M13738, **15 mL** Fe (10,000 mg/L) M13751, **2.5 mL** of Custom Assurance Std. #3 (100 mg/L Ag, Be, Cd) M13827 and **2.5 mL** Custom Assurance Std. #23 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13741 and brought up to volume with milli-Q H_2O.		

		Instrument:	CETAC
Standard Log #:	M13830	Reagent:	Stannous Chloride Solution
Analyst:	LJF		
Prep Date:	06/03/2019	Expiration Date:	12/03/2019
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.676 and dissolved **100 g** Stannous chloride M13648 and brought up to volume.		

		Instrument:	ICP 6500
Standard Log #:	M13831	Standard:	ICAL
Analyst:	NAH	Concentrations:	0.25, 0.5, 1, 5, 10, 20, 50, 100, 1000, 10,000, 100k, 100,000, 500,000 and 1000k (ug/L)
Prep Date:	06/03/2019	Expiration Date:	02/20
Prep:	Using 1 L volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (5% HNO_3, 5% HCl) *1000 ug/L Std.* - **10 mL** of Custom Assurance Std. #23 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13741, **10 mL** of Custom Assurance Std. #3 (100 mg/L Ag, Be, Cd) M13827 and **1 mL** of Si (1000 mg/L) M13810 and 1 mL M13703 Ce *0.25 ug/L Std.* - **0.25 mL** of the 1000 ug/L Std. *0.5 ug/L Std.* - **0.5 mL** of the 1000 ug/L Std. *1 ug/L Std.* - **1 mL** of the 1000 ug/L Std. *5 ug/L Std.* - **5 mL** of the 1000 ug/L Std. *10 ug/L Std.* - **10 mL** of the 1000 ug/L Std. *20 ug/L Std.* - **20 mL** of the 1000 ug/L Std. *50 ug/L Std.* - **50 mL** of the 1000 ug/L Std. *100 ug/L Std.* - **1 mL** of Custom Assurance Std. (CAS) #23 and **1 mL** of CAS #3 *10,000 ug/L Std.* - **100 mL** CAS #23, **100 mL** CAS #3 and **1 mL** of K (10,000 mg/L) M13811. *100k ug/L Std.* - **10 mL** of Cu (10,000 mg/L) M13618, **10 mL** of Mn (10,000 mg/L) M13616, **10 mL** of Cr (10,000 mg/L) M13617, **10 mL** Pb (10,000 mg/L) M13610, **10 mL** of Zn (10,000 mg/L) M13615 and **10 mL** of Na (10,000 mg/L) M13691. *100,000 ug/L Std.* - **10 mL** of Mg (10,000 mg/L) M13752, **10 mL** of Fe (10,000 mg/L) M13751, **10 mL** of Ca (10,000 mg/L) M13690 and **10 mL** Al (10,000 mg/L) M13693. *500,000 ug/L Std.* - **50 mL** of Mg (10,000 mg/L), **50 mL** of Fe (10,000 mg/L), **50 mL** of Ca (10,000 mg/L) and **50 mL** of Al (10,000 mg/L) *1000k ug/L Std.* - **100 mL** of Mg (10,000 mg/L), **100 mL** of Fe (10,000 mg/L), **100 mL** of Ca (10,000 mg/L) and **100 mL** of Al (10,000 mg/L)		

		Instrument:	CETAC
Standard Log #:	M13829	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	05/31/2019	Expiration Date:	05/31/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13828	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	05/30/2019	Expiration Date:	05/30/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

Standard ID#:	M13827	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	05-29-2019	Lot #:	XCTWI-4-500
Expiration Date (if any):	5/30/2020	Catalog #:	5-116AB

		Instrument:	CETAC
Standard Log #:	M13823	Standard:	Hg CCV
Analyst:	LJF	Concentration:	3.0 ug/L Hg
Prep Date:	05/24/2019	Expiration Date:	01/01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	CETAC
Standard Log #:	M13824	Reagent:	Stannous Chloride Solution
Analyst:	LJF		
Prep Date:	05/24/2019	Expiration Date:	11/24/2019
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.676 and dissolved **100 g** Stannous chloride M13648 and brought up to volume.		

Standard Log #:	M13825	Reagent:	Potassium Persulfate Solution
Analyst:	LJF		
Prep Date:	05/24/2019	Expiration Date:	11/24/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13059 and brought up to volume.		

Standard Log #:	M13826	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	05/24/2019	Expiration Date:	11/24/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13820	Standard:	Hg ICAL
Analyst:	LJF	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	05/24/2019	Expiration Date:	01/01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	CETAC
Standard Log #:	M13821	Standard:	Alt. Source Working Std.
Analyst:	LJF	Concentrations:	10,000 and 100 ug/L
Prep Date:	05/24/2019	Expiration Date:	02/28/2020
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13734 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M13822	Standard:	Hg ICV/LCS
Analyst:	LJF	Concentration:	3 ug/L
Prep Date:	05/24/2019	Expiration Date:	02/28/2020
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13734 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

Standard Log #:	M13818	Reagent:	TCLP 1 N HCL
Analyst:	BMM		
Prep Date:	05/22/2019	Expiration Date:	05/23/2020
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, added 83 mL HCL AB.676 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13819	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	05/22/2019	Expiration Date:	05/22/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13817	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	05/16/2019	Expiration Date:	05/16/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

Standard Log #:	M13813	Instrument:	GFAA
Analyst:	MDS	Reagent:	Pd/Mg Matrix Modifier
Prep Date:	05/14/2019	Expiration Date:	09/30/2019
Prep:	Into a 50 mL volumetric flask, partially filled with milli-Q H_2O, pipetted **15 mL** Pd Modifier M13600 and **10 mL** Mg (10,000 mg/L) M13694 and brought up to volume.		

		Instrument:	GFAA
Standard Log #:	M13814	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	05/14/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13815	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	05/14/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13816	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	05/14/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13786 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

Standard Log #:	M13812	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	05/13/2019	Expiration Date:	11/13/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard ID#:	M13808	Vendor:	CPI
Analyst:	NAH	Chemical:	Na 10,000 ug/mL
Date Received:	05-09-2019	Lot #:	158237-121
Expiration Date (if any):	10/20	Catalog #:	4400-1000521-500

Standard ID#:	M13809	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10,000 ug/mL
Date Received:	05-09-2019	Lot #:	832313-110
Expiration Date (if any):	10/20	Catalog #:	4400-1000411-500

Standard ID#:	M13810	Vendor:	CPI
Analyst:	NAH	Chemical:	Si 1000 ug/mL
Date Received:	05-09-2019	Lot #:	175213-60
Expiration Date (if any):	10/20	Catalog #:	S400-1000504F

Standard ID#:	M13811	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10,000 ug/mL
Date Received:	05-09-2019	Lot #:	980507-14
Expiration Date (if any):	10/20	Catalog #:	4400-10M411-500

		Instrument:	CETAC
Standard Log #:	M13805	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	05/07/2019	Expiration Date:	05/07/2019
Prep:	Carefully mixed **3** parts HCl AB.677 with **1** part HNO_3 AB.676 in a hood.		

Standard Log #:	M13806	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	05/07/2019	Expiration Date:	05/07/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13750. Dilute to 20 L and mix.		

Standard Log #:	M13807	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	05/07/2019	Expiration Date:	05/07/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13750. Dilute to 20 L and mix.		

MRL BASE STD M13804 Analyst NAH

Prep Date 05/07/2019

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	(ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L	Expiration Date
Ag	20	M13458	1000	1	10/19
Al	400	M13611	10000	2	3/20
Ba	10	M13457	1000	0.5	10/19
Be	4	M13579	1000	0.2	2/20
Cd	5	M13570	1000	0.25	1/20
Co	10	M13575	1000	0.5	1/20
Cr	10	M13617	10000	0.05	3/20
Cu	10	M13618	10000	0.05	3/20
Mg	500	M13694	10000	2.5	6/20
Mn	10	M13616	10000	0.05	3/20
Mo	10	M13697	1000	0.5	6/20
Ni	10	M13569	1000	0.5	1/20
Pb	10	M13615	10000	0.05	3/20
Sb	20	M13579	1000	1	10/19
V	10	M13578	1000	0.5	2/20
Zn	10	M13610	10000	0.05	3/20
K	1000	M13755	10000	5	9/20
Na	1000	M13691	10000	5	6/20
As	20	M13753	1000	1	10000 std 0.1, 9/20
Ca	500	M13692	10000	2.5	6/20
Fe	300	M13695	10000	1.5	6/20
Se	20	M13460	1000	1	10/19
Tl	20	M13583	1000	1	2/20
Si	100	M13754	1000	5	9/20
B	20	M13531	1000	1	12/19
Li	20	M13577	1000	1	2/20
W	50	xxxx	1000	2.5	xxxx
Ti	10	M13573	1000	0.5	1/20
Sr	10	M13580	1000	0.5	2/20
Sn	50	M13572	1000	2.5	1/20
S	300	M13604	10000	1.5	3/20

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

Expiration Date: 10/19

		Instrument:	CETAC
Standard Log #:	M13800	Reagent:	Stannous Chloride Solution
Analyst:	LJF		
Prep Date:	05/06/2019	Expiration Date:	11/06/2019
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.676 and dissolved **100 g** Stannous chloride M13648 and brought up to volume.		

		Instrument:	ICP 6000
Standard Log #:	M13801	Standard:	B&Si ICAL
Analyst:	MDS	Concentrations:	50, 200, 1000, 2000 and 10,000 ug/L (B, Si)
Prep Date:	05/06/2019	Expiration Date:	12/2019
Prep:	Into five, 1 L volumetric flasks, pipetted the following from stock standards B (1000 mg/L) M13531 and Si (1000 mg/L) M13731 and brought up to volume using milli-Q H_2O. *50 ug/L std.* - **0.05 mL** of each *200 ug/L std.* - **0.2 mL** of each *1000 ug/L std.* -**1.0 mL** of each, also used for Continuing Calibration Verification *2000 ug/L std.* - **2.0 mL** of each *10,000 ug/L std.* -**10 mL** of each		

		Instrument:	ICP 6000
Standard Log #:	M13802	Standard:	B&Si ICV
Analyst:	MDS	Concentrations:	1000 ug/L (B, Si)
Prep Date:	05/06/2019	Expiration Date:	02/28/2020
Prep:	Into a 1 L volumetric flask, pipetted **10 mL** of Custom Assurance Std. #23 (100 mg/L Al, As, **B**, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13741 and **1.0 mL** Si (1000 mg/L) M13754 and brought up to volume using milli-Q H_2O.		

		Instrument:	ICP 6000
Standard Log #:	M13803	Standard:	B & Si ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (B,Si)
Prep Date:	05/06/2019	Expiration Date:	09/30/2019
Prep:	Into a 100 mL volumetric flask, pipetted **10 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13635, **0.05 mL** of B (1000 µg/mL) M13531, **0.05 mL** of Si (1000 µg/mL) M13731 and **3 mL** of Fe (10,000 mg/L) M13609 and brought up to volume using Milli-Q H_2O.		

		Instrument:	ICP 6000
Standard Log #:	M13798	Standard:	L2 ICV
Analyst:	MDS	Concentrations:	1000 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	05/03/2019	Expiration Date:	01/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of the following and brought up to volume using milli-Q H_2O. (0.5% HNO_3, 0.5% HCl) Li (1000 µg/mL) M13577 Sn (1000 µg/mL) M13572 Sr (1000 µg/mL) M13580 Ti (1000 µg/mL) M13573 W (1000 µg/mL) MXXXXX		

		Instrument:	ICP 6000
Standard Log #:	M13799	Standard:	List 2 MRL/ICVLL Prep Solution
Analyst:	MDS	Concentrations:	5000 µg/L (W) 1000 µg/L (Li, Sn) 500 µg/L (Ti, Sr)
Prep Date:	05/03/2019	Expiration Date:	01/2020

Prep:

Analyte	MRL/ICVLL Conc. (µg/L)	Standard ID	Std. Conc. (µg/mL)	Volume (mL) Pipetted into 1 L	Expiration Date
Li	20/60	M13577	1000	1	02/2020
W	100/300	MXXXXX	1000	5	XX/XXXX
Ti	10/30	M13573	1000	0.5	01/2020
Sr	10/30	M13580	1000	0.5	02/2020
Sn	20/60	M13572	1000	1	01/2020

Pipette **10 mL** into a 500 mL volumetric flask to create a working MRL std. or **1 mL** into a 50 mL digestion tube for a digested MRL standard. Pipette **30 mL** into 500 mL for a working ICVLL std. or **3 mL** into a 50 mL digestion tube for a digested ICVLL standard.

(0.5% HNO_3, 0.5% HCl)

		Instrument:	CETAC
Standard Log #:	M13795	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	05/03/2019	Expiration Date:	05/03/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

		Instrument:	ICP
Standard Log #:	M13796	Standard:	L2 ICAL
Analyst:	MDS	Concentrations:	1 (µg/L) 10 (µg/L) 100 (µg/L) 1000 (µg/L) 10,000 (µg/L)
Prep Date:	05/03/2019	Expiration Date:	02/28/2020
Prep:	Standard Conc. (ug/L) — Pipette the following: 1 — **0.01 mL** of Custom Assurance Standard XCTWI-5-500 M13741 and **0.001 mL** W (1000 µg/mL) MXXXXX into 1L = *1 µg/L* 10 — **0.10 mL** of Custom Assurance Standard XCTWI-5-500 M13741 and **0.01 mL** W (1000 µg/mL) MXXXXX into 1L = *10 µg/L* 100 — **1 mL** of Custom Assurance Standard XCTWI-5-500 M13741 and **0.1 mL** W (1000 µg/mL) MXXXXX into 1L = *100 µg/L* 1000 (CCV) — **2 mL** of Custom Assurance Standard XCTWI-5-500 M13741 and **0.2 mL** W (1000 µg/mL) MXXXXX into 200mL = *1000 µg/L* 10000 — **20 mL** of Custom Assurance Standard XCTWI-5-500 M13741 and **2 mL** W (1000 µg/mL) MXXXXX into 200mL = *10000 µg/L*		

		Instrument:	ICP 6000
Standard Log #:	M13797	Standard:	List 2 ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	05/03/2019	Expiration Date:	09/30/2019
Prep:	Into a 200 mL volumetric flask, pipetted **20 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13635, **6 mL** of Fe (10,000 mg/L) M13609, **0.1 mL** of Li (1000 µg/mL) M13577, **0.1 mL** of Sn (1000 µg/mL) M13572, **0.1 mL** of Sr (1000 µg/mL) M13580, **0.1 mL** of Ti (1000 µg/mL) M13573, and **0.1 mL** of W (1000 µg/mL) MXXXXX and brought up to volume using Milli-Q H_2O. (0.5% HNO_3, 0.5% HCl)		

Standard Log #:	M13793	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	05/02/2019	Expiration Date:	11/02/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13793 and brought up to volume.		

Standard Log #:	M13794	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	LJF		
Prep Date:	05/02/2019	Expiration Date:	11/02/2019
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13511 and **60 g** hydroxylamine sulfate M13727 and brought up to volume.		

Standard ID#:	M13790	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	Y 10000 mg/L
Date Received:	04/29/2019	Lot #:	1833905
Expiration Date (if any):	10/31/2020	Catalog #:	HP10M67-1

Standard ID#:	M13791	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	04/29/2019	Lot #:	51-239CR
Expiration Date (if any):	02/28/2020	Catalog #:	XSPIKE-1-250

		Instrument:	CETAC
Standard Log #:	M13792	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	04/29/2019	Expiration Date:	04/29/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.677 in a hood.		

Standard ID#:	M13785	Vendor:	Inorganic Ventures
Analyst:	MDS	Chemical:	GFAA ICAL/CCV BASE STD
Date Received:	04/19/2019	Lot #:	P2-MEB678822
Expiration Date (if any):	04/19/2020	Catalog #:	CTI-SPK-1

Standard ID#:	M13786	Vendor:	Inorganic Ventures
Analyst:	MDS	Chemical:	GFAA ICV/SPIKE BASE STD
Date Received:	04/19/2019	Lot #:	P2-MEB678821
Expiration Date (if any):	04/19/2020	Catalog #:	CTI-GFCAL-1

		Instrument:	GFAA
Standard Log #:	M13787	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	04/19/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q H_2O. ($1\% HNO_3$)		

		Instrument:	GFAA
Standard Log #:	M13788	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	04/19/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13785 and brought to volume with Milli-Q DI H_2O. ($1\% HNO_3$)		

		Instrument:	GFAA
Standard Log #:	M13789	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	04/19/2019	Expiration Date:	04/19/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13786 and brought to volume with Milli-Q DI H_2O. ($1\% HNO_3$)		

Standard Log #:	M13782	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	04/18/2019	Expiration Date:	04/18/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13750. Dilute to 20 L and mix.		

Standard ID#:	M13783	Vendor:	Alfa Aesar
Analyst:	MDS	Chemical:	GFAA 1% Nickel Nitrate Matrix Mod.
Date Received:	04/18/2019	Lot #:	9166009
Expiration Date (if any):	09/30/2020	Catalog #:	39043

Standard Log #:	M13784	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	04/18/2019	Expiration Date:	10/18/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M13780	Reagent:	Potassium Persulfate Solution
Analyst:	LJF		
Prep Date:	04/17/2019	Expiration Date:	10/17/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13059 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13781	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	04/17/2019	Expiration Date:	04/17/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.675 in a hood.		

		Instrument:	ICP 6000
Standard Log #:	M13779	Standard:	NaK ICSAB
Analyst:	MDS	Concentrations:	500 mg/L (Al, Ca, Fe, Mg) 100 mg/L (Na, K)
Prep Date:	04/12/2019	Expiration Date:	09/30/2019
Prep:	Into a 250 mL volumetric flask, pipetted **25 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13635, **2.5 mL** of K (10,000 mg/L) M13693, **2.5 mL** of Na (10,000 mg/L) M13605 and **7.5 mL** of Fe (10,000 mg/L) M13609 and brought up to volume using Milli-Q H_2O. (2% HNO_3)		

Standard Log #:	M13778	Reagent:	1:3 HNO3
Analyst:	MDS		
Prep Date:	04/11/2019	Expiration Date:	04/11/2020
Prep:	Carefully mixed **3** parts DI with **1** part HNO_3 AB.672 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13777	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	04/09/2019	Expiration Date:	04/09/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.675 in a hood.		

Standard Log #:	M13775	Instrument:	GFAA
Analyst:	MDS	Reagent:	Pd/Mg Matrix Modifier
Prep Date:	04/02/2019	Expiration Date:	09/30/2019
Prep:	Into a 50 mL volumetric flask, partially filled with milli-Q H_2O, pipetted **15 mL** Pd Modifier M13600 and **10 mL** Mg (10,000 mg/L) M13614 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13776	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	04/03/2019	Expiration Date:	04/03/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.675 in a hood.		

		Instrument:	GFAA
Standard Log #:	M13771	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	03/26/2019	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13772	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	03/26/2019	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13773	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	03/26/2019	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13498 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13774	Standard:	Sb ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 µg/L (Sb)
Prep Date:	03/26/2019	Expiration Date:	10/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.01 mL** of Antimony Stock Std. (1000 µg/mL Sb) M13459 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	CETAC
Standard Log #:	M13770	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	03/25/2019	Expiration Date:	03/25/2019
Prep:	Carefully mixed **3** parts HCl AB.676 with **1** part HNO_3 AB.675 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13768	Standard:	Hg CCV
Analyst:	LJF	Concentration:	3.0 ug/L Hg
Prep Date:	03/21/2019	Expiration Date:	01/01/2019
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	CETAC
Standard Log #:	M13769	Reagent:	Stannous Chloride Solution
Analyst:	LJF		
Prep Date:	03/21/2019	Expiration Date:	09/21/2019
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.676 and dissolved **100 g** Stannous chloride M13648 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13765	Standard:	Hg ICAL
Analyst:	LJF	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	03/21/2019	Expiration Date:	01/01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	CETAC
Standard Log #:	M13766	Standard:	Alt. Source Working Std.
Analyst:	LJF	Concentrations:	10,000 and 100 ug/L
Prep Date:	03/21/2019	Expiration Date:	04/30/2019
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13444 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M13767	Standard:	Hg ICV/LCS
Analyst:	LJF	Concentration:	3 ug/L
Prep Date:	03/21/2019	Expiration Date:	04/30/2019
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13444 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

Standard Log #:	M13763	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	03/20/2019	Expiration Date:	03/20/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13750. Dilute to 20 L and mix.		

Standard Log #:	M13764	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	03/20/2019	Expiration Date:	03/20/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13750. Dilute to 20 L and mix.		

		Instrument:	CETAC
Standard Log #:	M13761	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	03/19/2019	Expiration Date:	03/19/2019
Prep:	Carefully mixed **3** parts HCl AB.671 with **1** part HNO_3 AB.672 in a hood.		

Standard Log #:	M13762	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	LJF		
Prep Date:	03/19/2019	Expiration Date:	09/19/2019
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13511 and **60 g** hydroxylamine sulfate M13468 and brought up to volume.		

		Instrument:	ICP 6500
Standard Log #:	M13758	Standard:	ICSA4_Ni_Ti
Analyst:	NAH	Concentrations:	**10,000 ug/L** Ni and Ti
Prep Date:	03/13/2019	Expiration Date:	01/2020
Prep:	Into a 500 mL volumetric flask, pipetted 5.0 **mL** 1000 mg/L Ni M13569 5.0 **mL** 10000 mg/L Ti M13573 brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M13759	Standard:	ICSA2_Ba_Be_Sn
Analyst:	NAH	Concentrations:	**10,000 ug/L** Ba, Be, and Sn
Prep Date:	03/13/2019	Expiration Date:	10/2019
Prep:	Into a 500 mL volumetric flask, pipetted 5.0 **mL** 1000 mg/L Ba M13457 5.0 **mL** 10000 mg/L Be M13579 5.0 **mL** 10000 mg/L Sn M13572 brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M13760	Standard:	ICSA
Analyst:	NAH	Concentrations:	**500,000 ug/L** Al, Ca, Fe, Mg **10,000** V, Ce
Prep Date:	03/13/2019	Expiration Date:	09/2019
Prep:	Into a 500 mL volumetric flask, pipetted 50 **mL** Interference A std M13635 and 15 **mL** 10000 mg/L Fe M13609 5.0 **mL** 1000 mg/L V M13578 5.0 **mL** 1000 mg/L Ce M13203 and brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M13756	Standard:	ICSA1_Mn
Analyst:	NAH	Concentrations:	**10,000 ug/L** Mn
Prep Date:	03/13/2019	Expiration Date:	03/2020
Prep:	Into a 500 mL volumetric flask, pipetted 0.5 **mL** 10000 mg/L mn M13616 brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M13757	Standard:	ICSA3_Cr_Cu_Co_Mo
Analyst:	NAH	Concentrations:	**10,000 ug/L** Cr, Cu, Co and Mo
Prep Date:	03/13/2019	Expiration Date:	01/20
Prep:	Into a 500 mL volumetric flask, pipetted 0.5 **mL** 10000 mg/L Cr M13617 0.5 **mL** 10000 mg/L Cu M13618 5.0 **mL** 1000 mg/L Co M13575 5.0 **mL** 1000 mg/L Mo M13697 brought up to volume with milli-Q H_2O.		

Standard ID#:	M13751	Vendor:	CPI
Analyst:	NAH	Chemical:	Fe 10000 mg/L
Date Received:	03/12/2019	Lot #:	998527-19
Expiration Date (if any):	09/2020	Catalog #:	4400-10M261

Standard ID#:	M13752	Vendor:	CPI
Analyst:	NAH	Chemical:	Mg 10000 mg/L
Date Received:	03/12/2019	Lot #:	982185-12
Expiration Date (if any):	09/2020	Catalog #:	4400-10M311

Standard ID#:	M13753	Vendor:	CPI
Analyst:	NAH	Chemical:	As 10000 mg/L
Date Received:	03/12/2019	Lot #:	166531-32
Expiration Date (if any):	09/2020	Catalog #:	S4400--10M31

Standard ID#:	M13754	Vendor:	CPI
Analyst:	NAH	Chemical:	Si 1000 mg/L
Date Received:	03/12/2019	Lot #:	175213-60
Expiration Date (if any):	09/2020	Catalog #:	S4400-1000504F

Standard ID#:	M13755	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10000 mg/L
Date Received:	03/12/2019	Lot #:	172053-77
Expiration Date (if any):	09/2020	Catalog #:	4400-10M411

		Instrument:	CETAC
Standard Log #:	M13749	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	03/08/2019	Expiration Date:	03/08/2019
Prep:	Carefully mixed **3** parts HCl AB.671 with **1** part HNO_3 AB.672 in a hood.		

Standard Log #:	M13750	Reagent:	10N NaOH
Analyst:	BMM		
Prep Date:	03/08/2019	Expiration Date:	03/08/2020
Prep:	Into a 1 L volumetric flask, added **400 g** NaOH W45383 and brought up to volume.		

Standard ID#:	M13748	Vendor:	Potters Ind. LLC (Gainger)
Analyst:	NAH	Chemical:	Glass beads Extra Fine
Date Received:	03/07/2019	Lot #:	
Expiration Date (if any):	XXXXXX	Catalog #:	6ZC13

		Instrument:	ICP
Standard Log #:	M13746	Standard:	L2 ICAL
Analyst:	MDS	Concentrations:	1 (µg/L) 10 (µg/L) 100 (µg/L) 1000 (µg/L) 10,000 (µg/L)
Prep Date:	03/04/2019	Expiration Date:	09/30/2019

Prep:

Standard Conc. (ug/L)	Pipette the following:
1	**0.01 mL** of Custom Assurance Standard XCTWI-5-500 M13602 and **0.001 mL** W (1000 µg/mL) XXXXXX into 1L = *1 µg/L*
10	**0.10 mL** of Custom Assurance Standard XCTWI-5-500 M13602 and **0.01 mL** W (1000 µg/mL) XXXXXX into 1L = *10 µg/L*
100	**1 mL** of Custom Assurance Standard XCTWI-5-500 M13602 and **0.1 mL** W (1000 µg/mL) XXXXXX into 1L = *100 µg/L*
1000 (CCV)	**2 mL** of Custom Assurance Standard XCTWI-5-500 M13602 and **0.2 mL** W (1000 µg/mL) XXXXXX into 200mL = *1000 µg/L*
10000	**20 mL** of Custom Assurance Standard XCTWI-5-500 M13602 and **2 mL** W (1000 µg/mL) XXXXXX into 200mL = *10000 µg/L*

		Instrument:	ICP 6000
Standard Log #:	M13747	Standard:	List 2 ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	03/04/2019	Expiration Date:	09/30/2019

Prep:

Into a 200 mL volumetric flask, pipetted **20 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13635, **6 mL** of Fe (10,000 mg/L) M13609, **0.1 mL** of Li (1000 µg/mL) M13577, **0.1 mL** of Sn (1000 µg/mL) M13572, **0.1 mL** of Sr (1000 µg/mL) M13580, **0.1 mL** of Ti (1000 µg/mL) M13573, and **0.1 mL** of W (1000 µg/mL) XXXXXX and brought up to volume using Milli-Q H_2O.
(0.5% HNO_3, 0.5% HCl)

Standard Log #:	M13743	Instrument:	ICP 6500
Analyst:	NAH	Standard:	MDL DOD Metals Spiking soln
Prep Date:	02/26/2019	Expiration Date:	10/19

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	5	M13458	1000	0.25
Al	10	M13611	**10000**	0.05
As	20	M13392	1000	1
Ba	2	M13457	1000	0.1
Be	0.5	M13579	1000	0.025
Ca	50	M13692	**10000**	0.25
Cd	0.5	M13570	1000	0.025
Co	2.5	M13575	1000	0.125
Cr	5.0	M13617	**10000**	0.025
Cu	10	M13618	**10000**	0.05
Fe	40	M13609	**10000**	0.2
Mg	25	M13694	**10000**	0.125
Mn	5	M13616	**10000**	0.025
Mo	2.5	M13697	1000	0.125
Ni	5	M13569	1000	0.25
Pb	10	M13615	**10000**	0.05
Sb	20	M13459	1000	1
Se	20	M13460	1000	1
Tl	20	M13583	1000	1
V	5	M13578	1000	0.25
Zn	5	M13610	**10000**	0.025
Na	500	M13605	**10000**	2.5
K	500	M13733	**10000**	2.5
B	20	M13531	1000	1
Si	100	M13731	1000	5
S	200	M13604	**10000**	1
Li	20	M13537	1000	1
Sr	20	M13572	1000	1
Sn	20	M13580	1000	1
Ti	20	M13573	1000	1

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

		Instrument:	ICP 6000
Standard Log #:	M13740	Standard:	Sulfur ICV
Analyst:	MDS	Concentrations:	100,000 µg/L (S)
Prep Date:	02/26/2019	Expiration Date:	03/2020
Prep:	Into a 100 mL volumetric flask, pipetted **1.0 mL** of S (10,000 µg/mL) M13604 and brought up to volume using Milli-Q H_2O.		

Standard ID#:	M13741	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	02-26-2019	Lot #:	3-153AB
Expiration Date (if any):	02/28/2020	Catalog #:	XCTWI-5-500

Standard ID#:	M13742	Vendor:	IKOHE Blasting Media
Analyst:	NAH	Chemical:	Glass Neads X-fine-20u
Date Received:	02/26/2019	Lot #:	52-144
Expiration Date (if any):	*********	Catalog #:	UL-49/52-1544

		Instrument:	CETAC
Standard Log #:	M13739	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	02/22/2019	Expiration Date:	02/22/2019
Prep:	Carefully mixed **3** parts HCl AB.671 with **1** part HNO_3 AB.672 in a hood.		

Standard ID#:	M13734	Vendor:	SPEX CERTIPREP
Analyst:	LJF	Chemical:	HG 1000 ug/mL
Date Received:	02/21/2019	Lot #:	CL10-136HGY
Expiration Date (if any):	02/28/2020	Catalog #:	CLHG4-2Y

Standard Log #:	M13735	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	02/21/2019	Expiration Date:	02/21/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13736	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	02/21/2019	Expiration Date:	02/21/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard ID#:	M13737	Vendor:	SPEX CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Std
Date Received:	02/21/2019	Lot #:	51-117CR
Expiration Date (if any):	02/28/2020	Catalog #:	XSPIKE-1-250

Standard ID#:	M13738	Vendor:	SPEX CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Std
Date Received:	02/21/2019	Lot #:	2-230SGX
Expiration Date (if any):	02/28/2020	Catalog #:	INT-A1

		Instrument:	CETAC
Standard Log #:	M13730	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	02/14/2019	Expiration Date:	02/14/2019
Prep:	Carefully mixed **3** parts HCl AB.671 with **1** part HNO_3 AB.672 in a hood.		

Standard ID#:	M13731	Vendor:	CPI
Analyst:	NAH	Chemical:	Silicon 1000 ug/mL
Date Received:	02/14/2019	Lot #:	175213-60
Expiration Date (if any):	08/20	Catalog #:	S4400-1000504F

Standard ID#:	M13732	Vendor:	CPI
Analyst:	NAH	Chemical:	Yttrium 10000 ug/mL
Date Received:	02/14/2019	Lot #:	139448-54
Expiration Date (if any):	08/20	Catalog #:	4400-10M671

Standard ID#:	M13733	Vendor:	CPI
Analyst:	NAH	Chemical:	Potassium 10000 ug/mL
Date Received:	02/14/2019	Lot #:	172053-36
Expiration Date (if any):	08/20	Catalog #:	4400-10M411

Standard ID#:	M13727	Vendor:	FISHER
Analyst:	LJF	Chemical:	HYDROXYLAMINE SULFATE
Date Received:	02/08/2019	Lot #:	175511
Expiration Date (if any):		Catalog #:	H331-500

Standard ID#:	M13728	Vendor:	FISHER
Analyst:	LJF	Chemical:	SODIUM CHLORIDE
Date Received:	02/08/2019	Lot #:	186819
Expiration Date (if any):		Catalog #:	S271-500

Standard Log #:	M13729	Reagent:	Potassium Persulfate Solution
Analyst:	LJF		
Prep Date:	02/11/2019	Expiration Date:	08/11/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M13059 and brought up to volume.		

Standard Log #:	M13724	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	02/07/2019	Expiration Date:	02/07/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13725	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	02/07/2019	Expiration Date:	02/07/2020
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.673 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13726	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	02/07/2019	Expiration Date:	08/07/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13721	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	02/05/2019	Expiration Date:	02/05/2019
Prep:	Carefully mixed **3** parts HCl AB.671 with **1** part HNO_3 AB.672 in a hood.		

Standard Log #:	M13722	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	LJF		
Prep Date:	02/05/2019	Expiration Date:	08/05/2019
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13620 and **60 g** hydroxylamine sulfate M13468 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13723	Reagent:	Stannous Chloride Solution
Analyst:	LJF		
Prep Date:	02/05/2019	Expiration Date:	08/05/2019
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.671 and dissolved **100 g** Stannous chloride M13648 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13720	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	01/31/2019	Expiration Date:	01/31/2019
Prep:	Carefully mixed **3** parts HCl AB.671 with **1** part HNO_3 AB.672 in a hood.		

		Instrument:	GFAA
Standard Log #:	M13716	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	01/30/2019	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13717	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	01/30/2019	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13718	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	01/30/2019	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13498 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13719	Standard:	Sb ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 µg/L (Sb)
Prep Date:	01/30/2019	Expiration Date:	10/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.01 mL** of Antimony Stock Std. (1000 µg/mL Sb) M13459 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13713	Standard:	LODW/LOQW Ag Spiking Sol'n
Analyst:	MDS	Concentrations:	10 ug/L (Ag)
Prep Date:	01/29/2019	Expiration Date:	10/2019
Prep:	Into a 100 mL volumetric flask, pipetted **0.1 mL** of Ag (1000mg/L) M13458 and brought to volume with Milli-Q H_2O to make a 1000 ug/L Ag std. Into a 1 L volumetric flask, pipetted **10 mL** of Ag (*1000 ug/L*) std. and brought to volume with Milli-Q H_2O. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*0.2 ug/L*) and **2 mL** spiking solution for LOQ (*0.4 ug/L*)		

Standard ID#:	M13714	Vendor:	ACROS ORGANICS
Analyst:	LJF	Chemical:	POTASSIUM PERSULFATE
Date Received:	01/29/2019	Lot #:	A0391673
Expiration Date (if any):		Catalog #:	424185000

Standard ID#:	M13715	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	1/29/2019	Lot #:	51-013CR
Expiration Date (if any):	01/30/2020	Catalog #:	XCTWI-1-500

		Instrument:	GFAA
Standard Log #:	M13711	Standard:	LODS/LOQS Spiking Sol'n
Analyst:	MDS	Concentrations:	60 ug/L (Sb) 160 ug/L (As,Se) 40 ug/L (Pb) 50 ug/L (Tl)
Prep Date:	01/29/2019	Expiration Date:	07/2019
Prep:	Into a 200 mL volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. **1.2 mL** of Sb (1000 mg/L) M13459 **3.2 mL** of As (1000 mg/L) M13392 **3.2 mL** of Se (1000 mg/L) M13460 **0.08 mL** of Pb (10,000 mg/L) M13615 **1.0 mL** of Tl (1000 mg/L) M13583 From this diluted standard solution, pipetted **10 mL** into a 1 L volumetric flask and brought up to volume with Milli-Q H_2O to make the spiking solution. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (1.2 *ug/L* Sb, *3.2 ug/L* As, *3.2 ug/L* Se, *0.8 ug/L* Pb, *1 ug/L* Tl) and **2 mL** spiking solution for LOQ (2.4 *ug/L* Sb, *6.4 ug/L* As, *6.4 ug/L* Se, *1.6 ug/L* Pb, *2 ug/L* Tl)		

		Instrument:	GFAA
Standard Log #:	M13712	Standard:	LODW/LOQW Spiking Sol'n
Analyst:	MDS	Concentrations:	150 ug/L (Sb) 100 ug/L (As) 200 ug/L (Se) 45 ug/L (Pb) 40 ug/L (Tl)
Prep Date:	01/29/2019	Expiration Date:	07/2019
Prep:	Into a 100 mL volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. **1.5 mL** of Sb (1000 mg/L) M13459 **1.0 mL** of As (1000 mg/L) M13392 **2.0 mL** of Se (1000 mg/L) M13460 **0.045 mL** of Pb (10,000 mg/L) M13615 **0.4 mL** of Tl (1000 mg/L) M13583 From this diluted standard solution, pipetted **10 mL** into a 1 L volumetric flask and brought up to volume with Milli-Q H_2O to make the spiking solution. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*3 ug/L* Sb, *2 ug/L* As, *4 ug/L* Se, *0.9 ug/L* Pb, *0.8 ug/L* Tl) and **2 mL** spiking solution for LOQ (*6 ug/L* Sb, *4 ug/L* As, *8 ug/L* Se, *1.8 ug/L* Pb, *1.6 ug/L* Tl)		

		Instrument:	CETAC
Standard Log #:	M13710	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	01/22/2019	Expiration Date:	01/22/2019
Prep:	Carefully mixed **3** parts HCl AB.671 with **1** part HNO_3 AB.672 in a hood.		

		Instrument:	ICP 6000
Standard Log #:	M13709	Standard:	NaK ICSAB
Analyst:	MDS	Concentrations:	500 mg/L (Al, Ca, Fe, Mg) 100 mg/L (Na, K)
Prep Date:	01/10/2019	Expiration Date:	09/30/2019
Prep:	Into a 250 mL volumetric flask, pipetted **25 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13635, **2.5 mL** of K (10,000 mg/L) M13689, **2.5 mL** of Na (10,000 mg/L) M13605 and **7.5 mL** of Fe (10,000 mg/L) M13609 and brought up to volume using Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13705	Standard:	Na & K ICAL
Analyst:	MDS	Concentrations:	0.5, 1, 5, 10, 50, 100, and 200 mg/L (Na,K)
Prep Date:	01/10/2019	Expiration Date:	03/2020
Prep:	Into seven, 200 mL volumetric flasks, pipetted the following from Na (1000 µg/mL) M13607 and K (1000 µg/mL) M13606 and brought up to volume using milli-Q H_2O. (2% HNO_3) *0.5 mg/L std.* - **0.1 mL** of each *1.0 mg/L std.* - **0.2 mL** of each *5.0 mg/L std.* - **1.0 mL** of each *10 mg/L std.* - **2.0 mL** of each *50 mg/L std.* - **10 mL** of each *100 mg/L std.* -**20 mL** of each, also used for Continuing Calibration Verification *200 mg/L std.* - **40 mL** of each		

		Instrument:	ICP 6000
Standard Log #:	M13706	Standard:	Na,K MRL
Analyst:	MDS	Concentrations:	1 mg/L (Na,K)
Prep Date:	01/10/2019	Expiration Date:	03/2020
Prep:	Into a 500 mL volumetric flask, pipetted **0.5 mL** of Na (1000 µg/mL) M13607 and **0.5 mL** K (1000 µg/mL) M13606 and brought to volume with Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13707	Standard:	NaK ICV
Analyst:	MDS	Concentrations:	100 mg/L (Na, K)
Prep Date:	01/10/2019	Expiration Date:	03/2020
Prep:	Into a 250 mL volumetric flask, pipetted **2.5 mL** of K (10,000 mg/L) M13689 and Na (10,000 mg/L) M13605 and brought up to volume using Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13708	Standard:	Na,K ICVLL
Analyst:	MDS	Concentrations:	3 mg/L (Na,K)
Prep Date:	01/10/2019	Expiration Date:	03/2020
Prep:	Into a 500 mL volumetric flask, pipetted **0.15 mL** of Na (10,000 µg/mL) M13605 and **0.15 mL** K (10,000 µg/mL) M13689 and brought to volume with Milli-Q H_2O. (2% HNO_3)		

Standard Log #:	M13703	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	12/20/2018	Expiration Date:	12/20/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13704	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	12/20/2018	Expiration Date:	12/20/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13701	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	LJF		
Prep Date:	12/13/2018	Expiration Date:	06/13/2019
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13620 and **60 g** hydroxylamine sulfate M13468 and brought up to volume.		

Standard ID#:	M13696	Vendor:	CPI
Analyst:	NAH	Chemical:	Sulfur 10,000 mg/L
Date Received:	12/11/2018	Lot #:	167967-42
Expiration Date (if any):	06/20	Catalog #:	4400-10M544

Standard ID#:	M13697	Vendor:	CPI
Analyst:	NAH	Chemical:	Moybdenum 1000 mg/L
Date Received:	12/11/2018	Lot #:	169424-59
Expiration Date (if any):	06/20	Catalog #:	4400-1000343

Standard ID#:	M13698	Vendor:	CPI
Analyst:	NAH	Chemical:	Silicon 1000 mg/L
Date Received:	12/11/2018	Lot #:	175213-60
Expiration Date (if any):	06/20	Catalog #:	S4400-10005044F

Standard ID#:	M13699	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	12/11/2018	Lot #:	50-120CR
Expiration Date (if any):	12/30/2019	Catalog #:	XSPIKE-1-250

		Instrument:	CETAC
Standard Log #:	M13700	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	12/12/2018	Expiration Date:	12/12/2018
Prep:	Carefully mixed **3** parts HCl AB.668 with **1** part HNO_3 AB.669 in a hood.		

Standard ID#:	M13689	Vendor:	CPI
Analyst:	NAH	Chemical:	Potassium 10,000 mg/L
Date Received:	12/11/2018	Lot #:	169484-36
Expiration Date (if any):	06/20	Catalog #:	4400-10M11

Standard ID#:	M13690	Vendor:	CPI
Analyst:	NAH	Chemical:	Aluminum 10,000 mg/L
Date Received:	12/11/2018	Lot #:	169484-36
Expiration Date (if any):	06/20	Catalog #:	4400-10M11

Standard ID#:	M13691	Vendor:	CPI
Analyst:	NAH	Chemical:	Sodium 10,000 mg/L
Date Received:	12/11/2018	Lot #:	752887-32
Expiration Date (if any):	06/20	Catalog #:	4400-10M521

Standard ID#:	M13692	Vendor:	CPI
Analyst:	NAH	Chemical:	Calcium 10,000 mg/L
Date Received:	12/11/2018	Lot #:	855297-1
Expiration Date (if any):	06/20	Catalog #:	4400-10M91

Standard ID#:	M13693	Vendor:	CPI
Analyst:	NAH	Chemical:	Potassium 10,000 mg/L
Date Received:	12/11/2018	Lot #:	156651-78
Expiration Date (if any):	06/20	Catalog #:	4400-10M261

Standard ID#:	M13694	Vendor:	CPI
Analyst:	NAH	Chemical:	Magnesium 10,000 mg/L
Date Received:	12/11/2018	Lot #:	148250-72
Expiration Date (if any):	06/20	Catalog #:	4400-10M311

Standard ID#:	M13695	Vendor:	CPI
Analyst:	NAH	Chemical:	Iron 10,000 mg/L
Date Received:	12/11/2018	Lot #:	156651-78
Expiration Date (if any):	06/20	Catalog #:	4400-10M261

		Instrument:	GFAA
Standard Log #:	M13686	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	12/07/2018	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13687	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	12/07/2018	Expiration Date:	05/17/2018
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13688	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	12/07/2018	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13498 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

Standard Log #:	M13684	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	12/04/2018	Expiration Date:	06/04/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard ID#:	M13683	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	10000 mg/L
Date Received:	11/30/2018	Lot #:	1805105
Expiration Date (if any):	5/31/2020	Catalog #:	HP10M67-1

Standard Log #:	M13681	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3050 B&Si Spiking Solution
Prep Date:	11/29/2018	Expiration Date:	02/2020

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
B	52	M13531	1000	2.6
Si	192	M13394	1000	9.6

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

		Instrument:	CETAC
Standard Log #:	M13682	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	11/29/2018	Expiration Date:	11/29/2018

Prep: Carefully mixed **3** parts HCl AB.668 with **1** part HNO_3 AB.669 in a hood.

Standard Log #:	M13679	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3050 L2 Spiking Solution
Prep Date:	11/29/2018	Expiration Date:	02/2020

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
Li	14.4	M13517	1000	0.72
Sn	20	M13572	1000	1
Sr	3.2	M13586	1000	0.16
Ti	9.6	M13573	1000	0.48
W	24	xxxxxxxx	1000	1.2

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13680	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3010 B&Si Spiking Solution
Prep Date:	11/29/2018	Expiration Date:	07/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
B	16	M13531	1000	0.8
Si	200	M13394	1000	10

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13677	Instrument:	ICP 6500
Analyst:	NAH	Standard:	LOQ 3050 DOD Metals Spiking S
Prep Date:	11/29/2018	Expiration Date:	04/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	4	M13458	1000	0.2
Al	9.6	M13562	**10000**	0.048
As	32	M13392	1000	1.6
Ba	2	M13457	1000	0.1
Be	1.6	M13579	1000	0.08
Ca	56	M13324	**10000**	0.28
Cd	1.6	M13570	1000	0.08
Co	9.6	M13575	1000	0.48
Cr	5.6	M13617	**10000**	0.028
Cu	16	M13618	**10000**	0.08
Fe	72	M13463	**10000**	0.36
Mg	32	M13319	**10000**	0.16
Mn	6	M13616	**10000**	0.03
Mo	9.6	M13608	1000	0.48
Ni	4.8	M13569	1000	0.24
Pb	10	M13610	**10000**	0.05
Sb	32	M13459	1000	1.6
Se	16	M13460	1000	0.8
Tl	19	M13583	1000	0.95
V	3.2	M13578	1000	0.16
Zn	12	M13610	**10000**	0.06

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13676	Instrument:	ICP 6500
Analyst:	NAH	Standard:	LOQ 3010 DOD Metals Spiking S
Prep Date:	11/29/2018	Expiration Date:	04/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3, 5% HCl)

Analyte	MDL Conc. (ug/L)	Std. ID #	Std Conc	Volume (mL) pipetted into 1 L
Ag	4	M13458	1000	0.2
Al	36	M13462	**10000**	0.18
As	24	M13392	1000	1.2
Ba	1.8	M13457	1000	0.09
Be	0.6	M13579	1000	0.03
Ca	100	M13324	**10000**	0.5
Cd	2.0	M13570	1000	0.1
Co	4	M13575	1000	0.2
Cr	4	M13617	**10000**	0.02
Cu	7	M13618	**10000**	0.035
Fe	100	M13463	**10000**	0.5
Mg	40	M13319	**10000**	0.2
Mn	4	M13616	**10000**	0.02
Mo	7	M13608	1000	0.35
Ni	6	M13569	1000	0.2
Pb	4	M13610	**10000**	0.02
Sb	12	M13459	1000	0.6
Se	13	M13460	1000	0.65
Tl	20	M13583	1000	0.75
V	5	M13578	1000	0.25
Zn	10	M13610	**10000**	0.05

Of this Base standard, pipet **10 mL** into a 500 mL volumetric flask to create a working std or **1 mL** into a 50 mL digestion tube for a digested working standard.

		Instrument:	CETAC
Standard Log #:	M13675	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	11/26/2018	Expiration Date:	11/26/2018
Prep:	Carefully mixed **3** parts HCl AB.668 with **1** part HNO_3 AB.669 in a hood.		

		Instrument:	CETAC
Standard Log #:	M13671	Standard:	Hg CCV
Analyst:	LJF	Concentration:	3.0 ug/L Hg
Prep Date:	11/21/2018	Expiration Date:	01/01/2020
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *3.0 ug/L Std.* (CCV) - **3.0 mL** Hg (*100 ug/L*)		

		Instrument:	CETAC
Standard Log #:	M13672	Reagent:	Stannous Chloride Solution
Analyst:	LJF		
Prep Date:	11/21/2018	Expiration Date:	05/21/2019
Prep:	Into a 1 L volumetric flask, partially filled with 400 mL milli-Q H_2O, added **70 mL** hydrochloric acid AB.668 and dissolved **100 g** Stannous chloride M13648 and brought up to volume.		

Standard Log #:	M13673	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	11/21/2018	Expiration Date:	05/21/2018
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13080 and brought up to volume.		

Standard Log #:	M13674	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	LJF		
Prep Date:	11/21/2018	Expiration Date:	05/21/2018
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13620 and **60 g** hydroxylamine sulfate M13468 and brought up to volume.		

		Instrument:	CETAC
Standard Log #:	M13668	Standard:	Hg ICAL
Analyst:	LJF	Concentrations:	10,000, 100, 0.5, 1, 2, 4, 5, 10 ug/L
Prep Date:	11/21/2018	Expiration Date:	01/01/2019
Prep:	Using 100 mL volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** Hg (1000 mg/L) M13574 *100 ug/L Std.* - **1 mL** Hg (*10,000 ug/L*) *0.5 ug/L Std.* - **0.5 mL** Hg (*100 ug/L*) *1 ug/L Std.* - **1 mL** Hg (*100 ug/L*) *2 ug/L Std.* - **2 mL** Hg (*100 ug/L*) *4 ug/L Std.* - **4 mL** Hg (*100 ug/L*) *5 ug/L Std.* - **5 mL** Hg (*100 ug/L*) *10 ug/L Std.* - **10 mL** Hg *(100 ug/L)*		

		Instrument:	CETAC
Standard Log #:	M13669	Standard:	Alt. Source Working Std.
Analyst:	LJF	Concentrations:	10,000 and 100 ug/L
Prep Date:	11/21/2018	Expiration Date:	04/30/2019
Prep:	Into two, 100 mL volumetric flasks, pipetted the following and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl) *10,000 ug/L Std.* - **1 mL** of Hg (1000 mg/L) M13444 *100 ug/L Std.* - **1 mL** of Hg (*10,000 ug/L working Std.*)		

		Instrument:	CETAC
Standard Log #:	M13670	Standard:	Hg ICV/LCS
Analyst:	LJF	Concentration:	3 ug/L
Prep Date:	11/21/2018	Expiration Date:	04/30/2019
Prep:	Into a 100 mL volumetric flask, pipetted **3 mL** of Hg (*100 ug/L working Std.*) M13444 and brought up to volume using Milli-Q H_2O. (0.2% HNO_3, 0.2% HCl)		

		Instrument:	ICP
Standard Log #:	M13666	Standard:	As Pb ICV1
Analyst:	MDS	Concentrations:	5000 ug/L (As,Pb)
Prep Date:	11/19/2018	Expiration Date:	07/2019
Prep:	Into a 1 L volumetric flask, pipetted **5 mL** of As (1000 mg/L) M13392 and **0.5 mL** Pb (10,000 mg/L) M13615 and brought to volume with Milli-Q H_2O. (2% HNO_3, 2% HCl)		

		Instrument:	CETAC
Standard Log #:	M13667	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	11/19/2018	Expiration Date:	11/19/2018
Prep:	Carefully mixed **3** parts HCl AB.668 with **1** part HNO_3 AB.669 in a hood.		

Standard Log #:	M13664	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	11/16/2018	Expiration Date:	11/16/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13665	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	11/16/2018	Expiration Date:	11/16/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

		Instrument:	CETAC
Standard Log #:	M13659	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	11/01/2018	Expiration Date:	11/01/2018
Prep:	Carefully mixed **3** parts HCl AB.668 with **1** part HNO_3 AB.669 in a hood.		

		Instrument:	ICP 6500
Standard Log #:	M13660	Standard:	ICSA
Analyst:	NAH	Concentrations:	**500,000 ug/L** Al, Ca, Fe, Mg
Prep Date:	11/01/2018	Expiration Date:	09/19
Prep:	Into a 500 mL volumetric flask, pipetted **50 mL** Interferents A Standard ((5000 mg/L Al, Ca, Mg) (2000 mg/L Fe)) M13635 and **15 mL** Fe (10000 mg/L) M13609 and brought up to volume with milli-Q H_2O.		

		Instrument:	ICP 6500
Standard Log #:	M13661	Standard:	ICV Std.
Analyst:	NAH	Concentrations:	**12,000 mg/L** Al **10,000 mg/L** Ca, Mg **5000 mg/L** Fe **2000 mg/L** As, Ba, Se, Tl **500 mg/L** B, Co, Li, Mn, Mo, Ni, Pb, Sb, Sn, Sr, Ti, V, Zn **250 mg/L** Cu **200 mg/L** Cr **50 mg/L** Ag, Be, Cd
Prep Date:	11/06/2018	Expiration Date:	10/19
Prep:	Into a 1 L volumetric flask, pipetted the following and brought up to volume with milli-Q H_2O. **10 mL** Custom Assurance Standard #18 ((200 mg/L Al, As, Ba, Se, Tl) (100 mg/L Fe) (50 mg/L Co, Mn, Ni, Pb, Sb, V, Zn) (25 mg/L Cu) (20 mg/L Cr) (5 mg/L Ag, Be, Cd)) M13637, **2 mL** Interferents A Standard ((5000 mg/L Al, Ca, Mg) (2000 mg/L Fe)) M13635, **0.5 mL** Mo (1000 mg/L) M13608, **0.5 mL** B (1000 mg/L) M13531, **0.5 mL** Sr (1000 mg/L) M13580, **0.5 mL** Li (1000 mg/L) M13577, **0.5 mL** Sn (1000 mg/L) M13572, **0.5 mL** Ti (1000 mg/L) M13573, **0.5 mL** W (1000 mg/L) Mxxxxx, **0.5 mL** Si (1000 mg/L) M13571, **0.5 mL** S (10000 mg/L) M13530, **0.5 mL** K (10000 mg/L) M13612, and **0.5 mL** K (10000 mg/L)		

		Instrument:	ICP 6000
Standard Log #:	M13657	Standard:	L2 ICV
Analyst:	MDS	Concentrations:	1000 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	11/2/2018	Expiration Date:	01/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of the following and brought up to volume using milli-Q H_2O. (0.5% HNO_3, 0.5% HCl) Li (1000 µg/mL) M13577 Sn (1000 µg/mL) M13572 Sr (1000 µg/mL) M13580 Ti (1000 µg/mL) M13573 W (1000 µg/mL) XXX		

		Instrument:	ICP 6000
Standard Log #:	M13658	Standard:	List 2 MRL/ICVLL Prep Solution
Analyst:	MDS	Concentrations:	5000 µg/L (W) 1000 µg/L (Li, Sn) 500 µg/L (Ti, Sr)
Prep Date:	11/2/2018	Expiration Date:	01/2020

Prep:

Analyte	MRL/ICVLL Conc. (µg/L)	Standard ID	Std. Conc. (µg/mL)	Volume (mL) Pipetted into 1 L	Expiration Date
Li	20/60	M13577	1000	1	02/2020
W	100/300	XXX	1000	5	XXX
Ti	10/30	M13573	1000	0.5	01/2020
Sr	10/30	M13580	1000	0.5	02/2020
Sn	20/60	M13572	1000	1	01/2020

Pipette **10 mL** into a 500 mL volumetric flask to create a working MRL std. or **1 mL** into a 50 mL digestion tube for a digested MRL standard. Pipette **30 mL** into 500 mL for a working ICVLL std. or **3 mL** into a 50 mL digestion tube for a digested ICVLL standard.

(0.5% HNO_3, 0.5% HCl)

		Instrument:	ICP
Standard Log #:	M13655	Standard:	L2 ICAL
Analyst:	MDS	Concentrations:	1 (µg/L) 10 (µg/L) 100 (µg/L) 1000 (µg/L) 10,000 (µg/L)
Prep Date:	11/2/2018	Expiration Date:	02/28/2019
Prep:	Standard Conc. (ug/L) — Pipette the following: 1 — **0.01 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **0.001 mL** W (1000 µg/mL) xxx into 1L = *1 µg/L* 10 — **0.10 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **0.01 mL** W (1000 µg/mL) xxx into 1L = *10 µg/L* 100 — **1 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **0.1 mL** W (1000 µg/mL) xxx into 1L = *100 µg/L* 1000 (CCV) — **2 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **0.2 mL** W (1000 µg/mL) xxx into 200mL = *1000 µg/L* 10000 — **20 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **2 mL** W (1000 µg/mL) xxx into 200mL = *10000 µg/L*		

		Instrument:	ICP 6000
Standard Log #:	M13656	Standard:	List 2 ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	11/2/2018	Expiration Date:	02/28/2019
Prep:	Into a 200 mL volumetric flask, pipetted **20 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13410, **6 mL** of Fe (10,000 mg/L) M13529, **0.1 mL** of Li (1000 µg/mL) M13577, **0.1 mL** of Sn (1000 µg/mL) M13572, **0.1 mL** of Sr (1000 µg/mL) M13580, **0.1 mL** of Ti (1000 µg/mL) M13573, and **0.1 mL** of W (1000 µg/mL) XXX and brought up to volume using Milli-Q H_2O. (0.5% HNO_3, 0.5% HCl)		

		Instrument:	GFAA
Standard Log #:	M13651	Standard:	Sb ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 µg/L (Sb)
Prep Date:	10/29/2018	Expiration Date:	10/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.01 mL** of Antimony Stock Std. (1000 µg/mL Sb) M13459 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13652	Standard:	NaK ICV
Analyst:	MDS	Concentrations:	100 mg/L (Na, K)
Prep Date:	10/29/2018	Expiration Date:	10/2019
Prep:	Into a 250 mL volumetric flask, pipetted **2.5 mL** of K (10,000 mg/L) M13612 and Na (10,000 mg/L) M13461 and brought up to volume using Milli-Q H_2O. (2% HNO_3)		

Standard ID#:	M13653	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance std
Date Received:	10/29/2018	Lot #:	2-036AB
Expiration Date (if any):	10/30/2019	Catalog #:	XCTWI-1-500

		Instrument:	ICP 6000
Standard Log #:	M13648	Standard:	B&Si ICAL
Analyst:	MDS	Concentrations:	50, 200, 1000, 2000 and 10,000 ug/L (B, Si)
Prep Date:	10/26/2018	Expiration Date:	07/2019
Prep:	Into five, 1 L volumetric flasks, pipetted the following from stock standards B (1000 mg/L) M13390 and Si (1000 mg/L) M13528 and brought up to volume using milli-Q H_2O. *50 ug/L std.* - **0.05 mL** of each *200 ug/L std.* - **0.2 mL** of each *1000 ug/L std.* -**1.0 mL** of each, also used for Continuing Calibration Verification *2000 ug/L std.* - **2.0 mL** of each *10,000 ug/L std.* -**10 mL** of each		

		Instrument:	ICP 6000
Standard Log #:	M13649	Standard:	B&Si ICV
Analyst:	MDS	Concentrations:	1000 ug/L (B, Si)
Prep Date:	10/26/2018	Expiration Date:	07/30/2019
Prep:	Into a 1 L volumetric flask, pipetted **10 mL** of Custom Assurance Std. #23 (100 mg/L Al, As, **B**, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13576 and **1.0 mL** Si (1000 mg/L) M13571 and brought up to volume using milli-Q H_2O.		

		Instrument:	ICP 6000
Standard Log #:	M13650	Standard:	B & Si ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (B,Si)
Prep Date:	10/27/2018	Expiration Date:	02/28/2019
Prep:	Into a 100 mL volumetric flask, pipetted **10 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13410 , **0.05 mL** of B (1000 µg/mL) M13390 , **0.05 mL** of Si (1000 µg/mL) M13528 and **3 mL** of Fe (10,000 mg/L) M13529 and brought up to volume using Milli-Q H_2O.		

		Instrument:	CETAC
Standard Log #:	M13645	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	10/24/2018	Expiration Date:	10/24/2018
Prep:	Carefully mixed **3** parts HCl AB.668 with **1** part HNO_3 AB.669 in a hood.		

Standard ID#:	M13646	Vendor:	Alfa Aesar
Analyst:	MDS	Chemical:	1% Nickel Nitrate Matrix Modifier
Date Received:	10/25/2018	Lot #:	8137324
Expiration Date (if any):	12/31/2019	Catalog #:	39043

Standard ID#:	M13647	Vendor:	LabChem
Analyst:	LJF	Chemical:	STANNOUS CHLORIDE
Date Received:	10/24/2018	Lot #:	H226-02
Expiration Date (if any):		Catalog #:	LC251701

Standard Log #:	M13643	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	10/24/2018	Expiration Date:	10/24/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13644	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	10/24/2018	Expiration Date:	10/24/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

		Instrument:	GFAA
Standard Log #:	M13639	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	10/24/2018	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13640	Standard:	CCV Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.5 ug/L (Ag)
Prep Date:	10/24/2018	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.1 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13641	Standard:	ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 ug/L (As, Pb, Sb, Se, Tl) 1.0 ug/L (Ag)
Prep Date:	10/24/2018	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of GFAA Custom Stock Std. ((10 ug/mL As, Pb, Sb, Se, Tl) (1.0 ug/mL Ag)) M13498 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

Standard Log #:	M13642	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	10/24/2018	Expiration Date:	10/24/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13638	Standard:	GFAA Instrument Check
Analyst:	MDS	Final Concentration:	10 µg/L As 6 µg/L Pb 12 µg/L Sb 20 µg/L Se 14 µg/L Tl 0.6 µg/L Ag
Prep Date:	10/23/2018	Expiration Date:	07/2019

Into six, 100 mL volumetric flasks, add the following and bring up to volume with milli-Q H_2O.

Element	Volume Pipetted (mL)	Standard Conc. (µg/mL)	Standard ID	New Conc. (µg/L)
As	1	1000	M13392	10,000
Pb	0.1	10,000	M13615	10,000
Tl	1	1000	M13583	10,000
Se	1	1000	M13460	10,000
Sb	1	1000	M13459	10,000
Ag	0.1	1000	M13458	1000

Into a 1 L volumetric flask, add the following and bring up to volume with Milli-Q H_20. (1% HNO_3)

Element	Volume Pipetted (mL)	Standard Conc. (µg/L)	New Conc. (µg/L)
As	1.0	10,000	10
Pb	0.6	10,000	6
Tl	1.4	10,000	14
Se	2.0	10,000	20
Sb	1.2	10,000	12
Ag	0.6	1000	0.6

Standard ID#:	M13634	Vendor:	CPI
Analyst:	NAH	Chemical:	Yttrium 10,0000 mg/L
Date Received:	10/18/2018	Lot #:	139448-54
Expiration Date (if any):	04/20	Catalog #:	4400-10m671

Standard ID#:	M13635	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Interference A
Date Received:	10/18/2018	Lot #:	2-230sgx
Expiration Date (if any):	09/30/2019	Catalog #:	INT-A1

		Instrument:	CETAC
Standard Log #:	M13636	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	10/18/2018	Expiration Date:	10/18/2018
Prep:	Carefully mixed **3** parts HCl AB.668 with **1** part HNO_3 AB.665 in a hood.		

Standard ID#:	M13637	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance standard
Date Received:	10/18/2018	Lot #:	50-0007CR
Expiration Date (if any):	10/30/2019	Catalog #:	XSPIKE-1-250

		Instrument:	CETAC
Standard Log #:	M13633	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	10/16/2018	Expiration Date:	10/16/2018
Prep:	Carefully mixed **3** parts HCl AB.668 with **1** part HNO_3 AB.665 in a hood.		

		Instrument:	GFAA
Standard Log #:	M13632	Standard:	LODW/LOQW Ag Spiking Sol'n
Analyst:	MDS	Concentrations:	10 ug/L (Ag)
Prep Date:	10/16/2018	Expiration Date:	10/2019
Prep:	Into a 100 mL volumetric flask, pipetted **0.1 mL** of Ag (1000mg/L) M13458 and brought to volume with Milli-Q H_2O to make a 1000 ug/L Ag std. Into a 1 L volumetric flask, pipetted **10 mL** of Ag (*1000 ug/L*) std. and brought to volume with Milli-Q H_2O. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*0.2 ug/L*) and **2 mL** spiking solution for LOQ (*0.4 ug/L*)		

Standard Log #:	M13627	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	10/03/2018	Expiration Date:	10/03/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13628	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	10/03/2018	Expiration Date:	10/03/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

MRL BASE STD M13626 Analyst NAH

Prep Date 10/01/2018

Into a 1000 mL Volumetric Flask, pipet the following:

Analyte	(ug/L)	Std ID #	Std Conc (mg/L)	Amount (mL) to pipet into 1 L	Expiration Date
Ag	20	M13458	1000	1	10/2019
Al	400	M13462	10000	2	10/2019
Ba	10	M13457	1000	0.5	10/2019
Be	4	M13579	1000	0.2	02/20
Cd	5	M13570	1000	0.25	01/20
Co	10	M13575	1000	0.5	01/20
Cr	10	M13617	10000	0.05	03/20
Cu	10	M13618	10000	0.05	03/20
Mg	500	M13319	10000	2.5	04/19
Mn	10	M13616	10000	0.05	03/20
Mo	10	M13608	1000	0.5	03/20
Ni	10	M13569	1000	0.5	03/20
Pb	10	M13610	10000	0.05	03/20
Sb	20	M13459	1000	1	03/20
V	10	M13578	1000	0.5	02/20
Zn	10	M13610	10000	0.05	02/20
K	1000	M13341	10000	5	05/19
Na	1000	M13402	10000	5	08/19
As	20	M13392	1000	1	07/19
Ca	500	M13324	10000	2.5	04/19
Fe	300	M13463	10000	1.5	10/19
Se	20	M13460	1000	1	10/19
Tl	20	M13583	1000	1	02/20
Si	100	M13394	1000	5	07/19
B	20	M13531	1000	1	07/19
Li	20	M13517	1000	1	02/20
W	50	xxxxxxx	1000	2.5	xxxxxxx
Ti	10	M13573	1000	0.5	02/20
Sr	10	M13586	1000	0.5	02/20
Sn	50	M13572	1000	2.5	02/20
S	300	M13391	10000	1.5	07/19

Of this Base standard, pipet 10 mls into 500 ml volumetric to create a working std or 1 ml into 50 ml digestion tube for a digested working standard.

Standard Log #:	M13625	Instrument:	GFAA
Analyst:	MDS	Reagent:	Pd/Mg Matrix Modifier
Prep Date:	10/03/2018	Expiration Date:	09/30/2019
Prep:	Into a 50 mL volumetric flask, partially filled with milli-Q H_2O, pipetted **15 mL** Pd Modifier M13600 and **10 mL** Mg (10,000 mg/L) M13464 and brought up to volume.		

Standard ID#:	M13618	Vendor:	CPI
Analyst:	NAH	Chemical:	Cu 10000 mg/L
Date Received:	09/20/2018	Lot #:	148796-39
Expiration Date (if any):	03/2020	Catalog #:	S4400-10M141

		Instrument:	CETAC
Standard Log #:	M13619	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	09/19/2018	Expiration Date:	09/19/2018
Prep:	Carefully mixed **3** parts HCl AB.664 with **1** part HNO_3 AB.665 in a hood.		

Standard ID#:	M13620	Vendor:	FISHER
Analyst:	LJF	Chemical:	SODIUM CHLORIDE
Date Received:	09/04/2018	Lot #:	177409
Expiration Date (if any):		Catalog #:	S271-500

Standard ID#:	M13611	Vendor:	CPI
Analyst:	NAH	Chemical:	Al 10000 mg/L
Date Received:	09/20/2018	Lot #:	169484-18
Expiration Date (if any):	03/2020	Catalog #:	4400-10M11

Standard ID#:	M13612	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10000 mg/L
Date Received:	09/20/2018	Lot #:	172053-36
Expiration Date (if any):	03/2020	Catalog #:	440010M411

Standard ID#:	M13613	Vendor:	CPI
Analyst:	NAH	Chemical:	Ca 10000 mg/L
Date Received:	09/20/2018	Lot #:	855297-1
Expiration Date (if any):	03/2020	Catalog #:	4400-10M91

Standard ID#:	M13614	Vendor:	CPI
Analyst:	NAH	Chemical:	Mg 10000 mg/L
Date Received:	09/20/2018	Lot #:	148250-72
Expiration Date (if any):	03/2020	Catalog #:	4400-10M311

Standard ID#:	M13615	Vendor:	CPI
Analyst:	NAH	Chemical:	Pb 10000 mg/L
Date Received:	09/20/2018	Lot #:	168223-17
Expiration Date (if any):	03/2020	Catalog #:	4400-10M281

Standard ID#:	M13616	Vendor:	CPI
Analyst:	NAH	Chemical:	Mn 10000 mg/L
Date Received:	09/20/2018	Lot #:	167540-6
Expiration Date (if any):	03/2020	Catalog #:	S4400-10M321

Standard ID#:	M13617	Vendor:	CPI
Analyst:	NAH	Chemical:	Cr 10000 mg/L
Date Received:	09/20/2018	Lot #:	158236-7
Expiration Date (if any):	03/2020	Catalog #:	s4400-10M121

Standard ID#:	M13604	Vendor:	CPI
Analyst:	NAH	Chemical:	Sulfur 10000 mg/L
Date Received:	09/20/2018	Lot #:	167967-37
Expiration Date (if any):	03/2020	Catalog #:	4400-10M544

Standard ID#:	M13605	Vendor:	CPI
Analyst:	NAH	Chemical:	Sodium 10000 mg/L
Date Received:	09/20/2018	Lot #:	752887-3
Expiration Date (if any):	03/2020	Catalog #:	4400-10M521

Standard ID#:	M13606	Vendor:	CPI
Analyst:	NAH	Chemical:	K 1000 mg/L
Date Received:	09/20/2018	Lot #:	144467-179
Expiration Date (if any):	03/2020	Catalog #:	4400-1000411-500

Standard ID#:	M13607	Vendor:	CPI
Analyst:	NAH	Chemical:	Na 1000 mg/L
Date Received:	09/20/2018	Lot #:	158237-113
Expiration Date (if any):	03/2020	Catalog #:	4400-1000521-500

Standard ID#:	M13608	Vendor:	CPI
Analyst:	NAH	Chemical:	Mo 1000 mg/L
Date Received:	09/20/2018	Lot #:	169424-37
Expiration Date (if any):	03/2020	Catalog #:	S4400-1000343

Standard ID#:	M13609	Vendor:	CPI
Analyst:	NAH	Chemical:	Fe 10000 mg/L
Date Received:	09/20/2018	Lot #:	156651-53
Expiration Date (if any):	03/2020	Catalog #:	4400-10M261

Standard ID#:	M13610	Vendor:	CPI
Analyst:	NAH	Chemical:	Zn 10000 mg/L
Date Received:	09/20/2018	Lot #:	979871-2
Expiration Date (if any):	03/2020	Catalog #:	4400-10M681

Standard Log #:	M13601	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	09/12/2018	Expiration Date:	09/12/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard ID#:	M13602	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	09-12-2018	Lot #:	1-124AB
Expiration Date (if any):	09-30-2019	Catalog #:	XCTWI-5-500

Standard ID#:	M13600	Vendor:	Environmental Express
Analyst:	MDS	Chemical:	1% Pd Matrix Modifier
Date Received:	09/11/2018	Lot #:	1808015
Expiration Date (if any):	09/30/2019	Catalog #:	HP1900-100

Standard Log #:	M13599	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	09/08/2018	Expiration Date:	09/08/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard ID#:	M13595	Vendor:	SPEX CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Std
Date Received:	08/29/2018	Lot #:	49-151CR
Expiration Date (if any):	08/30/2019	Catalog #:	XSPIKE-1-250

		Instrument:	CETAC
Standard Log #:	M13596	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	08/30/2018	Expiration Date:	08/30/2018
Prep:	Carefully mixed **3** parts HCl AB.664 with **1** part HNO_3 AB.665 in a hood.		

		Instrument:	ICP 6000
Standard Log #:	M13597	Standard:	Na & K ICAL
Analyst:	MDS	Concentrations:	0.5, 1, 5, 10, 50, 100, and 200 mg/L (Na,K)
Prep Date:	08/30/2018	Expiration Date:	05/2019
Prep:	Into seven, 200 mL volumetric flasks, pipetted the following from Na (1000 µg/mL) M13339 and K (1000 µg/mL) M13340 and brought up to volume using milli-Q H_2O. (2% HNO_3) *0.5 mg/L std.* - **0.1 mL** of each *1.0 mg/L std.* - **0.2 mL** of each *5.0 mg/L std.* - **1.0 mL** of each *10 mg/L std.* - **2.0 mL** of each *50 mg/L std.* - **10 mL** of each *100 mg/L std.* -**20 mL** of each, also used for Continuing Calibration Verification *200 mg/L std.* - **40 mL** of each		

		Instrument:	ICP 6000
Standard Log #:	M13598	Standard:	Na,K MRL
Analyst:	MDS	Concentrations:	1 mg/L (Na,K)
Prep Date:	08/30/2018	Expiration Date:	05/2019
Prep:	Into a 500 mL volumetric flask, pipetted **0.5 mL** of Na (1000 µg/mL) M13339 and **0.5 mL** K (1000 µg/mL) M13340 and brought to volume with Milli-Q H_2O. (2% HNO_3)		

Standard Log #:	M13588	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	08/21/2018	Expiration Date:	08/21/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard Log #:	M13589	Reagent:	TCLP EXTRACTION FLUID #1
Analyst:	BMM	pH:	4.93 ± 0.05
Prep Date:	08/21/2018	Expiration Date:	08/21/2019
Prep:	Into a 20 L carboy filled with 19 L of DI H_2O, add **114 mL** Glacial acetic acid AB.659 and **128.6 mL** 10N NaOH M13514. Dilute to 20 L and mix.		

Standard ID#:	M13590	Vendor:	AMCO Clear
Analyst:	NAH	Chemical:	turbidity std 2.0 ntu
Date Received:	08/21/2018	Lot #:	18272791
Expiration Date (if any):	08/2019	Catalog #:	8008

		Instrument:	ICP 6000
Standard Log #:	M13586	Standard:	L2 ICV
Analyst:	MDS	Concentrations:	1000 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	08/20/2018	Expiration Date:	01/2020
Prep:	Into a 1 L volumetric flask, pipetted **1.0 mL** of the following and brought up to volume using milli-Q H_2O. (0.5% HNO_3, 0.5% HCl) Li (1000 µg/mL) M13577 Sn (1000 µg/mL) M13572 Sr (1000 µg/mL) M13580 Ti (1000 µg/mL) M13573 W (1000 µg/mL) MXXX		

		Instrument:	ICP 6000
Standard Log #:	M13587	Standard:	List 2 MRL/ICVLL Prep Solution
Analyst:	MDS	Concentrations:	5000 µg/L (W) 1000 µg/L (Li, Sn) 500 µg/L (Ti, Sr)
Prep Date:	08/20/2018	Expiration Date:	01/2020

Prep:

Analyte	MRL/ICVLL Conc. (µg/L)	Standard ID	Std. Conc. (µg/mL)	Volume (mL) Pipetted into 1 L	Expiration Date
Li	20/60	M13577	1000	1	02/2020
W	100/300	XXX	1000	5	XXX
Ti	10/30	M13573	1000	0.5	01/2020
Sr	10/30	M13580	1000	0.5	02/2020
Sn	20/60	M13572	1000	1	01/2020

Pipette **10 mL** into a 500 mL volumetric flask to create a working MRL std. or **1 mL** into a 50 mL digestion tube for a digested MRL standard. Pipette **30 mL** into 500 mL for a working ICVLL std. or **3 mL** into a 50 mL digestion tube for a digested ICVLL standard.

(0.5% HNO_3, 0.5% HCl)

		Instrument:	ICP
Standard Log #:	M13584	Standard:	L2 ICAL
Analyst:	MDS	Concentrations:	1 (µg/L) 10 (µg/L) 100 (µg/L) 1000 (µg/L) 10,000 (µg/L)
Prep Date:	08/20/2018	Expiration Date:	07/30/2019
Prep:	Standard Conc. (ug/L)	Pipette the following:	
	1	**0.01 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **0.001 mL** W (1000 µg/mL) MXXX into 1L = *1 µg/L*	
	10	**0.10 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **0.01 mL** W (1000 µg/mL) MXXX into 1L = *10 µg/L*	
	100	**1 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **0.1 mL** W (1000 µg/mL) MXXX into 1L = *100 µg/L*	
	1000 (CCV)	**2 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **0.2 mL** W (1000 µg/mL) MXXX into 200mL = *1000 µg/L*	
	10000	**20 mL** of Custom Assurance Standard XCTWI-5-500 M13576 and **2 mL** W (1000 µg/mL) MXXX into 200mL = *10000 µg/L*	

		Instrument:	ICP 6000
Standard Log #:	M13585	Standard:	List 2 ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (Li, Sn, Sr, Ti, W)
Prep Date:	08/20/2018	Expiration Date:	
Prep:	Into a 200 mL volumetric flask, pipetted **20 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13410 , **6 mL** of Fe (10,000 mg/L) M13463 , **0.1 mL** of Li (1000 µg/mL) M13577 , **0.1 mL** of Sn (1000 µg/mL) M13572 , **0.1 mL** of Sr (1000 µg/mL) M13580 , **0.1 mL** of Ti (1000 µg/mL) M13573 , and **0.1 mL** of W (1000 µg/mL) MXXX and brought up to volume using Milli-Q H_2O. (0.5% HNO_3, 0.5% HCl)		

Standard ID#:	M13577	Vendor:	CPI
Analyst:	NAH	Chemical:	Li 1000 mg/L
Date Received:	08/17/2018	Lot #:	751942-25
Expiration Date (if any):	02/2020	Catalog #:	S4400-1000291

Standard ID#:	M13578	Vendor:	CPI
Analyst:	NAH	Chemical:	V 1000 mg/L
Date Received:	08/17/2018	Lot #:	152207-68
Expiration Date (if any):	02/2020	Catalog #:	S4400-1000651

Standard ID#:	M13579	Vendor:	CPI
Analyst:	NAH	Chemical:	Be 1000 mg/L
Date Received:	08/17/2018	Lot #:	660981-5
Expiration Date (if any):	02/2020	Catalog #:	S4400-100051

Standard ID#:	M13580	Vendor:	CPI
Analyst:	NAH	Chemical:	Sr 1000 mg/L
Date Received:	08/17/2018	Lot #:	168227-29
Expiration Date (if any):	02/2020	Catalog #:	S4400-1000531

Standard ID#:	M13581	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10000 mg/L
Date Received:	08/17/2018	Lot #:	172053-36
Expiration Date (if any):	02/2020	Catalog #:	4400-10411

Standard ID#:	M13582	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	Y 10000 mg/L
Date Received:	08/17/2018	Lot #:	1805105
Expiration Date (if any):	02/2020	Catalog #:	HP10M67-1

Standard ID#:	M13583	Vendor:	CPI
Analyst:	NAH	Chemical:	Tl 1000 mg/L
Date Received:	08/17/2018	Lot #:	148983-70
Expiration Date (if any):	02/2020	Catalog #:	S4400-1000581

Standard ID#:	M13576	Vendor:	Spex Certiprep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	08/04/2018	Lot #:	49-045CR
Expiration Date (if any):	07/30/2019	Catalog #:	XCTWI-5-500

Standard ID#:	M13569	Vendor:	CPI
Analyst:	NAH	Chemical:	Ni 1000 mg/L
Date Received:	07/27/2018	Lot #:	166665-86
Expiration Date (if any):	01/2020	Catalog #:	s4400-1000361

Standard ID#:	M13570	Vendor:	CPI
Analyst:	NAH	Chemical:	Cd 1000 mg/L
Date Received:	07/27/2018	Lot #:	160499-32
Expiration Date (if any):	01/2020	Catalog #:	s4400-100081

Standard ID#:	M13571	Vendor:	CPI
Analyst:	NAH	Chemical:	Si 1000 mg/L
Date Received:	07/27/2018	Lot #:	175213-28
Expiration Date (if any):	01/2020	Catalog #:	s4400-1000504F

Standard ID#:	M13572	Vendor:	CPI
Analyst:	NAH	Chemical:	Sn 1000 mg/L
Date Received:	07/27/2018	Lot #:	144466-74
Expiration Date (if any):	01/2020	Catalog #:	s4400-1000613

Standard ID#:	M13573	Vendor:	CPI
Analyst:	NAH	Chemical:	Ti 1000 mg/L
Date Received:	07/27/2018	Lot #:	152616-55
Expiration Date (if any):	01/2020	Catalog #:	s4400-1000623

Standard ID#:	M13574	Vendor:	CPI
Analyst:	NAH	Chemical:	Hg 1000 mg/L
Date Received:	07/27/2018	Lot #:	175191-22
Expiration Date (if any):	01/2020	Catalog #:	s4400-1000331

Standard ID#:	M13575	Vendor:	CPI
Analyst:	NAH	Chemical:	Co 1000 mg/L
Date Received:	07/27/2018	Lot #:	161693-10
Expiration Date (if any):	01/2020	Catalog #:	s4400-1000131

Standard Log #:	M13563	Instrument:	ICP
Analyst:	LJF	Standard:	LOQ 3050 S Spiking Solution
Prep Date:	07/19/2018	Expiration Date:	10/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
S	240	M13466	10000	1.2

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard ID#:	M13557	Vendor:	Alfa Aesar Specpure
Analyst:	MDS	Chemical:	1% Nickel Nitrate Matrix Modifier
Date Received:	07/17/2018	Lot #:	8137324
Expiration Date (if any):	12/31/2019	Catalog #:	39043

		Instrument:	ICP 6000
Standard Log #:	M13558	Standard:	B&Si ICV
Analyst:	MDS	Concentrations:	1000 ug/L (B, Si)
Prep Date:	07/17/2018	Expiration Date:	05/2019
Prep:	Into a 1 L volumetric flask, pipetted **10 mL** of Custom Assurance Std. #23 (100 mg/L Al, As, **B**, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13518 and **1.0 mL** Si (1000 mg/L) M13338 and brought up to volume using milli-Q H_2O.		

Standard Log #:	M13559	Reagent:	Potassium Permanganate Solution
Analyst:	LJF		
Prep Date:	07/17/2018	Expiration Date:	01/17/2019
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium permanganate M13559 and brought up to volume.		

Standard Log #:	M13554	Instrument:	ICP
Analyst:	LJF	Standard:	LOQ 3010 B&Si Spiking Solution
Prep Date:	07/13/2018	Expiration Date:	05/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
B	16	M13390	1000	0.8
Si	200	M13338	1000	10

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Standard Log #:	M13555	Instrument:	ICP
Analyst:	LJF	Standard:	LOQ 3010 S Spiking Solution
Prep Date:	07/13/2018	Expiration Date:	10/2019

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
S	200	M13466	10000	1.0

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

		Instrument:	GFAA
Standard Log #:	M13553	Standard:	Sb ICV/LCS Std.
Analyst:	MDS	Concentrations:	10 µg/L (Sb)
Prep Date:	07/12/2018	Expiration Date:	10/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.01 mL** of Antimony Stock Std. (1000 µg/mL Sb) M13459 and brought to volume with Milli-Q DI H_2O. (1% HNO_3)		

		Instrument:	GFAA
Standard Log #:	M13547	Standard:	LODW/LOQW Ag Spiking Sol'n
Analyst:	MDS	Concentrations:	10 ug/L (Ag)
Prep Date:	07/09/2018	Expiration Date:	10/2019
Prep:	Into a 100 mL volumetric flask, pipetted **0.1 mL** of Ag (1000mg/L) M13458 and brought to volume with Milli-Q H_2O to make a 1000 ug/L Ag std. Into a 1 L volumetric flask, pipetted **10 mL** of Ag (*1000 ug/L*) std. and brought to volume with Milli-Q H_2O. (1% HNO_3) *Pipette **1 mL** spiking solution into 50 mL H_2O for LOD (*0.2 ug/L*) and **2 mL** spiking solution for LOQ (*0.4 ug/L*)		

Standard Log #:	M13548	Reagent:	NaCl Hydroxylamine Sulfate
Analyst:	LJF		
Prep Date:	07/10/2018	Expiration Date:	01/10/2019
Prep:	Into a 500 mL volumetric flask, partially filled with milli-Q H_2O, dissolved **60 g** NaCl M13226 and **60 g** hydroxylamine sulfate M13468 and brought up to volume.		

		Instrument:	GFAA
Standard Log #:	M13549	Standard:	Calibration Std.
Analyst:	MDS	Concentrations:	25 ug/L (As, Pb, Sb, Se, Tl) 3.75 ug/L (Ag)
Prep Date:	07/10/2018	Expiration Date:	05/17/2019
Prep:	Into a 1 L volumetric flask, pipetted **0.25 mL** of GFAA Custom Stock Std. ((100 ug/mL As, Pb, Sb, Se, Tl) (15 ug/mL Ag)) M13497 and brought to volume with Milli-Q H_2O. (1% HNO_3)		

Standard Log #:	M13534	Standard:	GFAA Instrument Check
Analyst:	MDS	Final Concentration:	10 µg/L As 6 µg/L Pb 12 µg/L Sb 20 µg/L Se 14 µg/L Tl 0.6 µg/L Ag
Prep Date:	07/02/2018	Expiration Date:	09/16/2018

Into six, 100 mL volumetric flasks, add the following and bring up to volume with milli-Q H_2O.

Element	Volume Pipetted (mL)	Standard Conc. (µg/mL)	Standard ID	New Conc. (µg/L)
As	1	1000	M13392	10,000
Pb	0.1	10,000	M13169	10,000
Tl	1	1000	M13124	10,000
Se	1	1000	M13460	10,000
Sb	1	1000	M13459	10,000
Ag	0.1	1000	M13458	1000

Into a 1 L volumetric flask, add the following and bring up to volume with Milli-Q H_20. (1% HNO_3)

Element	Volume Pipetted (mL)	Standard Conc. (µg/L)	New Conc. (µg/L)
As	1.0	10,000	10
Pb	0.6	10,000	6
Tl	1.4	10,000	14
Se	2.0	10,000	20
Sb	1.2	10,000	12
Ag	0.6	1000	0.6

Standard ID#:	M13535	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	07/02/2018	Lot #:	48-179CR
Expiration Date (if any):	06/30/2019	Catalog #:	XSPIKE-1-250

Standard ID#:	M13526	Vendor:	CPI
Analyst:	NAH	Chemical:	YTTRIUM 10,000 ug/mL
Date Received:	06/22/2018	Lot #:	138448-54
Expiration Date (if any):	12/2019	Catalog #:	4400-10M671

Standard ID#:	M13527	Vendor:	CPI
Analyst:	NAH	Chemical:	POTASSIUM 10,000
Date Received:	06/22/2018	Lot #:	172053-32
Expiration Date (if any):	12/2019	Catalog #:	4400-104411

Standard ID#:	M13528	Vendor:	CPI
Analyst:	NAH	Chemical:	Si 1000 ug/mL
Date Received:	06/22/2018	Lot #:	142610-115
Expiration Date (if any):	12/2019	Catalog #:	S4400-1000504F

Standard ID#:	M13529	Vendor:	CPI
Analyst:	NAH	Chemical:	Fe 10,000 ug/mL
Date Received:	06/22/2018	Lot #:	156651-42
Expiration Date (if any):	12/2019	Catalog #:	4400-10M261

Standard ID#:	M13530	Vendor:	CPI
Analyst:	NAH	Chemical:	SULFUR 10,000ug/mL
Date Received:	06/22/2018	Lot #:	129880-46
Expiration Date (if any):	12/2019	Catalog #:	4400-10M544

Standard ID#:	M13531	Vendor:	CPI
Analyst:	NAH	Chemical:	BORON 1000 ug/mL
Date Received:	06/22/2018	Lot #:	158372-91
Expiration Date (if any):	12/2019	Catalog #:	S4400-100074

Standard ID#:	M13532	Vendor:	CPI
Analyst:	NAH	Chemical:	CUSTOM ASSURANCE STANDARD
Date Received:	06/22/2018	Lot #:	48-146CR
Expiration Date (if any):	06/30/2019	Catalog #:	XCTWI-1-500

Standard ID#:	M13520	Vendor:	FRISCOLYT
Analyst:	NAH	Chemical:	Electrolyte Solution
Date Received:	06/13/2018	Lot #:	1DO71H
Expiration Date (if any):	12/03/2021	Catalog #:	51 340 053

		Instrument:	ICP
Standard Log #:	M13521	Standard:	As Pb ICV1
Analyst:	MDS	Concentrations:	5000 ug/L (As,Pb)
Prep Date:	06/13/2018	Expiration Date:	10/20/2018
Prep:	Into a 1 L volumetric flask, pipetted **0.5 mL** of As (10,000 mg/L) M13392 and **0.5 mL** Pb (10,000 mg/L) M13169 and brought to volume with Milli-Q H_2O. (2% HNO_3, 2% HCl)		

Standard ID#:	M13518	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	06/11/2018	Lot #:	48-060CR
Expiration Date (if any):	06/30/2019	Catalog #:	XCTWI-5-500

		Instrument:	ICP 6500
Standard Log #:	M13519	Standard:	ICAL
Analyst:	NAH	Concentrations:	0.25, 0.5, 1, 5, 10, 20, 50, 100, 1000, 10,000, 100k, 100,000, 500,000 and 1000k (ug/L)
Prep Date:	06/11/2018	Expiration Date:	06/30/2019

Prep:

Using 1 L volumetric flasks, pipetted the following and brought up to volume using milli-Q H_2O.
(5% HNO_3, 5% HCl)
1000 ug/L Std. - **10 mL** of Custom Assurance Std. #23 (100 mg/L Al, As, B, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13518 , **10 mL** of Custom Assurance Std. #3 (100 mg/L Ag, Be, Cd) M13506 and **1 mL** of Si (1000 mg/L) M13394 and 1 mL M13203 Ce
0.25 ug/L Std. - **0.25 mL** of the 1000 ug/L Std.
0.5 ug/L Std. - **0.5 mL** of the 1000 ug/L Std.
1 ug/L Std. - **1 mL** of the 1000 ug/L Std.
5 ug/L Std. - **5 mL** of the 1000 ug/L Std.
10 ug/L Std. - **10 mL** of the 1000 ug/L Std.
20 ug/L Std. - **20 mL** of the 1000 ug/L Std.
50 ug/L Std. - **50 mL** of the 1000 ug/L Std.
100 ug/L Std. - **1 mL** of Custom Assurance Std. (CAS) #23 and **1 mL** of CAS #3
10,000 ug/L Std. - **100 mL** CAS #23, **100 mL** CAS #3 and **1 mL** of K (10,000 mg/L) M13465 .
100k ug/L Std. - **10 mL** of Cu (10,000 mg/L) M13166 , **10 mL** of Mn (10,000 mg/L) M13167 , **10 mL** of Cr (10,000 mg/L) M13165 , **10 mL** Pb (10,000 mg/L) M13169 , **10 mL** of Zn (10,000 mg/L) M13168 and **10 mL** of Na (10,000 mg/L) M13461 .
100,000 ug/L Std. - **10 mL** of Mg (10,000 mg/L) M13319 , **10 mL** of Fe (10,000 mg/L) M13463 , **10 mL** of Ca (10,000 mg/L) M13467 and **10 mL** Al (10,000 mg/L) M13462 .
500,000 ug/L Std. - **50 mL** of Mg (10,000 mg/L), **50 mL** of Fe (10,000 mg/L), **50 mL** of Ca (10,000 mg/L) and **50 mL** of Al (10,000 mg/L)
1000k ug/L Std. - **100 mL** of Mg (10,000 mg/L), **100 mL** of Fe (10,000 mg/L), **100 mL** of Ca (10,000 mg/L) and **100 mL** of Al (10,000 mg/L)

		Instrument:	CETAC
Standard Log #:	M13510	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	06/01/2018	Expiration Date:	06/01/2018
Prep:	Carefully mixed **3** parts HCl AB.656 with **1** part HNO_3 AB.655 in a hood.		

Standard ID#:	M13511	Vendor:	FISHER
Analyst:	LJF	Chemical:	SODIUM CHLORIDE
Date Received:	06/04/2018	Lot #:	176877
Expiration Date (if any):		Catalog #:	S271-500

Standard ID#:	M13506	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	05/22/2018	Lot #:	48-042CR
Expiration Date (if any):	05/30/2019	Catalog #:	XCTWI-4-500

Standard ID#:	M13507	Vendor:	Spex CertiPrep
Analyst:	NAH	Chemical:	Custom Assurance Standard
Date Received:	05/22/2018	Lot #:	48-041CR
Expiration Date (if any):	05/30/2019	Catalog #:	XSPIKE-1-250

Standard ID#:	M13508	Vendor:	RESTEK
Analyst:	NAH	Chemical:	Diatomaceous earth (Celite 566)
Date Received:	05/22/2018	Lot #:	811030-BG
Expiration Date (if any):	N/A	Catalog #:	26033

Standard ID#:	M13495	Vendor:	LabChem
Analyst:	LJF	Chemical:	STANNOUS CHLORIDE
Date Received:	05/15/2018	Lot #:	H052-17
Expiration Date (if any):		Catalog #:	LC251701

		Instrument:	ICP 6000
Standard Log #:	M13485	Standard:	Na & K ICAL
Analyst:	MDS	Concentrations:	0.5, 1, 5, 10, 50, 100, and 200 mg/L (Na,K)
Prep Date:	05/07/2018	Expiration Date:	05/2019
Prep:	Into seven, 200 mL volumetric flasks, pipetted the following from Na (1000 µg/mL) M13339 and K (1000 µg/mL) M13340 and brought up to volume using milli-Q H_2O. (2% HNO_3) *0.5 mg/L std.* - **0.1 mL** of each *1.0 mg/L std.* - **0.2 mL** of each *5.0 mg/L std.* - **1.0 mL** of each *10 mg/L std.* - **2.0 mL** of each *50 mg/L std.* - **10 mL** of each *100 mg/L std.* -**20 mL** of each, also used for Continuing Calibration Verification *200 mg/L std.* - **40 mL** of each		

		Instrument:	ICP 6000
Standard Log #:	M13486	Standard:	NaK ICV
Analyst:	MDS	Concentrations:	100 mg/L (Na, K)
Prep Date:	05/07/2018	Expiration Date:	08/2019
Prep:	Into a 250 mL volumetric flask, pipetted **2.5 mL** of K (10,000 mg/L) M13400 and Na (10,000 mg/L) M13402 and brought up to volume using Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13487	Standard:	Na,K ICVLL
Analyst:	MDS	Concentrations:	3 mg/L (Na,K)
Prep Date:	05/07/2018	Expiration Date:	08/2019
Prep:	Into a 500 mL volumetric flask, pipetted **0.15 mL** of Na (10,000 µg/mL) M13402 and **0.15 mL** K (10,000 µg/mL) M13400 and brought to volume with Milli-Q H_2O. (2% HNO_3)		

		Instrument:	ICP 6000
Standard Log #:	M13488	Standard:	Na,K MRL
Analyst:	MDS	Concentrations:	1 mg/L (Na,K)
Prep Date:	05/07/2018	Expiration Date:	05/2019
Prep:	Into a 500 mL volumetric flask, pipetted **0.5 mL** of Na (1000 µg/mL) M13339 and **0.5 mL** K (1000 µg/mL) M13340 and brought to volume with Milli-Q H_2O. (2% HNO_3)		

Standard ID#:	M13484	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	Y 10,000 mg/L
Date Received:	05/03/2018	Lot #:	1805105
Expiration Date (if any):	10/31/2019	Catalog #:	HP10M67-1

		Instrument:	ICP 6000
Standard Log #:	M13471	Standard:	B&Si ICAL
Analyst:	MDS	Concentrations:	50, 200, 1000, 2000 and 10,000 ug/L (B, Si)
Prep Date:	04/26/2018	Expiration Date:	07/2019
Prep:	Into five, 1 L volumetric flasks, pipetted the following from stock standards B (1000 mg/L) M13390 and Si (1000 mg/L) M13394 and brought up to volume using milli-Q H_2O. *50 ug/L std.* - **0.05 mL** of each *200 ug/L std.* - **0.2 mL** of each *1000 ug/L std.* -**1.0 mL** of each, also used for Continuing Calibration Verification *2000 ug/L std.* - **2.0 mL** of each *10,000 ug/L std.* -**10 mL** of each		

		Instrument:	ICP 6000
Standard Log #:	M13472	Standard:	B&Si ICV
Analyst:	MDS	Concentrations:	1000 ug/L (B, Si)
Prep Date:	04/26/2018	Expiration Date:	07/02/2018
Prep:	Into a 1 L volumetric flask, pipetted **10 mL** of Custom Assurance Std. #23 (100 mg/L Al, As, **B**, Ba, Ca, Co, Cr, Cu, Fe, Li, Mg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Sr, Ti, Tl, V, Zn) M13364 and **1.0 mL** Si (1000 mg/L) M13085 and brought up to volume using milli-Q H_2O.		

		Instrument:	ICP 6000
Standard Log #:	M13473	Standard:	B & Si ICSAB
Analyst:	MDS	Concentrations:	500,000 µg/L (Al, Ca, Fe, Mg) 500 µg/L (B,Si)
Prep Date:	04/26/2018	Expiration Date:	10/30/2018
Prep:	Into a 100 mL volumetric flask, pipetted **10 mL** of Interferents A custom stock (5000 mg/L Al, Ca, Mg and 2000 mg/L Fe) M13305 , **0.05 mL** of B (1000 µg/mL) M13390 , **0.05 mL** of Si (1000 µg/mL) M13394 and **3 mL** of Fe (10,000 mg/L) M13321 and brought up to volume using Milli-Q H_2O.		

Standard ID#:	M13467	Vendor:	CPI
Analyst:	NAH	Chemical:	Ca 10000 mg/L
Date Received:	04/20/2018	Lot #:	147497-47
Expiration Date (if any):	10/2019	Catalog #:	4400-10M91

Standard ID#:	M13468	Vendor:	FISHER
Analyst:	LJF	Chemical:	HYDROXYLAMINE SULFATE
Date Received:	04/24/2018	Lot #:	174236
Expiration Date (if any):		Catalog #:	H331-500

		Instrument:	CETAC
Standard Log #:	M13469	Reagent:	Hg Aqua Regia
Analyst:	LJF		
Prep Date:	04/24/2018	Expiration Date:	04/24/2018
Prep:	Carefully mixed **3** parts HCl AB.656 with **1** part HNO_3 AB.655 in a hood.		

Standard ID#:	M13462	Vendor:	CPI
Analyst:	NAH	Chemical:	Al 10000 mg/L
Date Received:	04/20/2018	Lot #:	158058-23
Expiration Date (if any):	10/2019	Catalog #:	4400-10M11

Standard ID#:	M13463	Vendor:	CPI
Analyst:	NAH	Chemical:	Fe 10000 mg/L
Date Received:	04/20/2018	Lot #:	156651-18
Expiration Date (if any):	10/2019	Catalog #:	4400-10M261

Standard ID#:	M13464	Vendor:	CPI
Analyst:	NAH	Chemical:	Mg 10000 mg/L
Date Received:	04/20/2018	Lot #:	148250-67
Expiration Date (if any):	10/2019	Catalog #:	4400-10M311

Standard ID#:	M13465	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10000 mg/L
Date Received:	04/20/2018	Lot #:	172053-2
Expiration Date (if any):	10/2019	Catalog #:	4400-10M411

Standard ID#:	M13466	Vendor:	CPI
Analyst:	NAH	Chemical:	S 10000 mg/L
Date Received:	04/20/2018	Lot #:	129880-37
Expiration Date (if any):	10/2019	Catalog #:	4400-10M544

Standard ID#:	M13457	Vendor:	CPI
Analyst:	NAH	Chemical:	Barium 1000 mg/L
Date Received:	04/20/2018	Lot #:	158364-3
Expiration Date (if any):	10/2019	Catalog #:	S4400-100041

Standard ID#:	M13458	Vendor:	CPI
Analyst:	NAH	Chemical:	Ag 1000 mg/L
Date Received:	04/20/2018	Lot #:	162712-9
Expiration Date (if any):	10/2019	Catalog #:	S4400-1000511

Standard ID#:	M13459	Vendor:	CPI
Analyst:	NAH	Chemical:	Sb 1000 mg/L
Date Received:	04/20/2018	Lot #:	153992-1
Expiration Date (if any):	10/2019	Catalog #:	S4400-100023

Standard ID#:	M13460	Vendor:	CPI
Analyst:	NAH	Chemical:	Se 1000 mg/L
Date Received:	04/20/2018	Lot #:	154366-16
Expiration Date (if any):	10/2019	Catalog #:	S4400-1000491

Standard ID#:	M13461	Vendor:	CPI
Analyst:	NAH	Chemical:	Na 10000 mg/L
Date Received:	04/20/2018	Lot #:	107139-108
Expiration Date (if any):	10/2019	Catalog #:	4400-10M521

Standard Log #:	M13445	Reagent:	Potassium Persulfate Solution
Analyst:	LJF		
Prep Date:	04/19/2018	Expiration Date:	10/19/2018
Prep:	Into a 1 L volumetric flask, partially filled with milli-Q H_2O, dissolved **50 g** potassium persulfate M12652 and brought up to volume.		

		Instrument:	Hach 2100 turbidity meter
Standard Log #:	M13446	Standard:	Turbity ICAL
Analyst:	NAH	Concentrations:	20, 100, 200 ntu
Prep Date:	04/19/2018	Expiration Date:	12/2019
Prep:	Using the hach vials , pipet the following: *20 ntu Std.* = **1 ml** M13436 and 9 mls DI H20. *100 ntu Std.* = **5 mls** M13436 and 5 mls DI H20. *200 ntu Std.* = ***10 mls*** M13436 *and* 0 mls DI H20.		

LPMT1-04
Metals Reagents and Standards
Prep Logbook
Created: 12/19/17

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Project: Unassigned
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		Instrument:	ICP 6000
Standard Log #:	M13438	Standard:	Sulfur ICAL
Analyst:	MDS	Concentrations:	1000 10,000 100,000 1000K µg/L (S)
Prep Date:	04/11/2018	Expiration Date:	07/2019
Prep:	Into four, 100 mL volumetric flasks, pipetted the following from stock standard S (10,000 µg/mL) M13391 and brought up to volume using milli-Q H_2O. *1000 ug/L std.* - **0.01 mL** *10,000 ug/L std.* - **0.1 mL** *100,000 ug/L std.* -**1.0 mL**, also used as the CCV *1000K ug/L std.* - **10 mL**		

		Instrument:	ICP 6000
Standard Log #:	M13439	Standard:	Sulfur ICV
Analyst:	MDS	Concentrations:	100,000 µg/L (S)
Prep Date:	04/11/2018	Expiration Date:	01/19/2019
Prep:	Into a 100 mL volumetric flask, pipetted **1.0 mL** of S (10,000 µg/mL) M13280 and brought up to volume using Milli-Q H_2O.		

Standard Log #:	M13437	Instrument:	ICP
Analyst:	NAH	Standard:	LOQ 3050 B&Si Spiking Solution
Prep Date:	04/10/2018	Expiration Date:	07/19

Prep:

Into a 1 L volumetric flask, pipetted the following and brought up to volume with Milli-Q H_2O. (5% HNO_3)

Analyte	Final MDL Conc. (ug/L)	Std. ID #	Std. Conc. (mg/L)	Volume (mL) pipetted
B	52	M13390	1000	2.6
Si	192	M13394	1000	9.6

Of this base standard, pipetted **1 mL** into a 50 mL digestion tube for a digested working standard.

Content below was appended to locked page by mszymanski on 4/19/2018 12:20:57 PM

Standard ID#:	M13436a	Vendor:	HACH
Analyst:	NAH	Chemical:	StablCal 200 NTU
Date Received:	04/10/2018	Lot #:	A7354
Expiration Date (if any):	12/2019	Catalog #:	2660449

Standard ID#:	M13400	Vendor:	CPI
Analyst:	NAH	Chemical:	K 10,000 ug/mL
Date Received:	02/15/2018	Lot #:	106958-116
Expiration Date (if any):	08/2019	Catalog #:	4400-10M411

Standard ID#:	M13401	Vendor:	CPI
Analyst:	NAH	Chemical:	Y 10,000 ug/mL
Date Received:	02/15/2018	Lot #:	139448-54
Expiration Date (if any):	08/2019	Catalog #:	4400-10M671

Standard ID#:	M13402	Vendor:	CPI
Analyst:	NAH	Chemical:	Na 10,000 ug/mL
Date Received:	02/15/2018	Lot #:	107139-126
Expiration Date (if any):	08/2019	Catalog #:	4400-10M521

Standard Log #:	M13388	Reagent:	SPLP EXTRACTION FLUID EAST #
Analyst:	BMM	pH:	4.20 ± 0.05
Prep Date:	01/23/2018	Expiration Date:	01/23/2019
Prep:	Into a 20 L carboy filled with DI H_2O, adjust pH to 4.20 ± 0.05 using 60/40 SPLP extraction fluid acid mixture M12457 .		

Standard Log #:	M13389	Reagent:	SPLP EXTRACTION FLUID WEST #
Analyst:	BMM	pH:	5.00 ± 0.05
Prep Date:	01/23/2018	Expiration Date:	01/23/2019
Prep:	Into a 20 L carboy filled with DI H_2O, adjust pH to 5.00 ± 0.05 using 60/40 SPLP extraction fluid acid mixture M12457 .		

Standard ID#:	M13390	Vendor:	CPI
Analyst:	NAH	Chemical:	Boron 1000 ug/mL
Date Received:	01/23/2018	Lot #:	158372-29
Expiration Date (if any):	07/2019	Catalog #:	S4400-100074

Standard ID#:	M13391	Vendor:	CPI
Analyst:	NAH	Chemical:	Sulfur 10000 ug/mL
Date Received:	01/23/2018	Lot #:	129880-28
Expiration Date (if any):	07/2019	Catalog #:	4400-10M544

Standard ID#:	M13392	Vendor:	CPI
Analyst:	NAH	Chemical:	Arsenic 1000 ug/mL
Date Received:	01/23/2018	Lot #:	143356-61
Expiration Date (if any):	07/2019	Catalog #:	S4400-100031

Standard ID#:	M13393	Vendor:	CPI
Analyst:	NAH	Chemical:	Molybdenum 1000 ug/mL
Date Received:	01/23/2018	Lot #:	134169R-102
Expiration Date (if any):	07/2019	Catalog #:	S4400-1000343

Standard ID#:	M13394	Vendor:	CPI
Analyst:	NAH	Chemical:	Silicon 1000 ug/mL
Date Received:	01/23/2018	Lot #:	142610-58
Expiration Date (if any):	07/2019	Catalog #:	S4400-1000504F

Standard ID#:	M13350	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	Yttrium 10000 mg/L
Date Received:	12/12/2017	Lot #:	1729606
Expiration Date (if any):	06//2019	Catalog #:	10M67-1

Standard ID#:	M13226	Vendor:	FISHER
Analyst:	LJF	Chemical:	SODIUM CHLORIDE
Date Received:	07/21/2017	Lot #:	170229
Expiration Date (if any):		Catalog #:	S271-500

Standard ID#:	M13199	Vendor:	National Institute of Standards and Te
Analyst:	NAH	Chemical:	SRM Montana I soil
Date Received:	05/15/2017	Lot #:	2710a
Expiration Date (if any):		Catalog #:	

Standard ID#:	M13200	Vendor:	National Institute of Standards and Te
Analyst:	NAH	Chemical:	SRM Montana II soil
Date Received:	05/15/2017	Lot #:	2711a
Expiration Date (if any):		Catalog #:	

Standard ID#:	M13186	Vendor:	FISHER
Analyst:	LJF	Chemical:	HYDROXYLAMINE SULFATE
Date Received:	05/22/2017	Lot #:	166161
Expiration Date (if any):		Catalog #:	H331-500

Standard ID#:	M13187	Vendor:	Environmental Express
Analyst:	NAH	Chemical:	Yttrium 10,000 ug/mL
Date Received:	05/22/2017	Lot #:	1705408
Expiration Date (if any):	11/16/2018	Catalog #:	HP10M67-1

Standard ID#:	M13080	Vendor:	FISHER
Analyst:	LJF	Chemical:	POTASSIUM PERMANGANATE
Date Received:	01/30/2017	Lot #:	164080
Expiration Date (if any):		Catalog #:	P279-212

Standard ID#:	M13059	Vendor:	ACROS ORGANICS
Analyst:	LJF	Chemical:	POTASSIUM PERSULFATE
Date Received:	12/19/2016	Lot #:	A0375670
Expiration Date (if any):		Catalog #:	424185000

Standard ID#:	M13024	Vendor:	METTLER TOLEDO
Analyst:	LJF	Chemical:	FRISCOLYT
Date Received:	11/01/2016	Lot #:	1B167D
Expiration Date (if any):		Catalog #:	51340053

INORGANIC
CLP FORMS
DOCUMENTS

CT LABORATORIES
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INORGANIC ANALYSIS DATA SHEET

Sample Description

54IDW

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	149018
% Solids:		Lab Sample ID:	343844
Analytical Method:	EPA 410.4	Date Received:	10/18/2019
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	165740	Analysis Date/Time	10/23/2019 13:01
Analytical Prep Batch #:	74074	Prep. Date/Time:	10/22/2019 08:35
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers		DL	LOD	LOQ	RL
COD	COD	35	U	M	15	35	75	75

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54IDW

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	149018
% Solids:		Lab Sample ID:	343844
Analytical Method:	EPA 9040C	Date Received:	10/18/2019
Dilution Factor:	1	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	165767	Analysis Date/Time	10/22/2019 14:10
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	S.U.

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
PH	pH			0.1	0.1	0.1	

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW1

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	149018
% Solids:		Lab Sample ID:	343842
Analytical Method:	EPA 9060A	Date Received:	10/18/2019
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	165683	Analysis Date/Time	10/21/2019 10:52
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL0352	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TIC	Total Inorganic Carbon	61		0.50	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW1

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	149018
% Solids:		Lab Sample ID:	343842
Analytical Method:	EPA 9056A	Date Received:	10/18/2019
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	165651	Analysis Date/Time	10/18/2019 18:56
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers		DL	LOD	LOQ	RL
16887-00-6	Chloride	2.5	J		1.0	1.5	3.0	3.0
14797-55-8	Nitrate Nitrogen	0.20	U	H	0.12	0.20	0.40	0.40
14808-79-8	Sulfate	28			0.80	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW1

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	149018
% Solids:		Lab Sample ID:	343842
Analytical Method:	EPA 9060A	Date Received:	10/18/2019
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	165946	Analysis Date/Time	10/25/2019 20:02
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL0352 I	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TOC	Total Organic Carbon	1.5	U	0.50	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW10

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	149018
% Solids:		Lab Sample ID:	343838
Analytical Method:	EPA 9056A	Date Received:	10/18/2019
Dilution Factor:	5.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	165651	Analysis Date/Time	10/21/2019 08:58
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
14808-79-8	Sulfate	140		4.0	7.5	15	15

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW10

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	149018
% Solids:		Lab Sample ID:	343838
Analytical Method:	EPA 9060A	Date Received:	10/18/2019
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	165683	Analysis Date/Time	10/21/2019 10:21
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL0352	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TIC	Total Inorganic Carbon	85		0.50	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW10

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	149018
% Solids:		Lab Sample ID:	343838
Analytical Method:	EPA 9056A	Date Received:	10/18/2019
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	165651	Analysis Date/Time	10/18/2019 18:16
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers		DL	LOD	LOQ	RL
16887-00-6	Chloride	4.5			1.0	1.5	3.0	3.0
14797-55-8	Nitrate Nitrogen	0.18	J	H	0.12	0.20	0.40	0.40

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW10

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	149018
% Solids:		Lab Sample ID:	343838
Analytical Method:	EPA 9060A	Date Received:	10/18/2019
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	165946	Analysis Date/Time	10/25/2019 18:28
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL0352 I	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TOC	Total Organic Carbon	0.62	J	0.50	1.5	3.0	3.0

CT LABORATORIES
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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW12

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	149018
% Solids:		Lab Sample ID:	343840
Analytical Method:	EPA 9060A	Date Received:	10/18/2019
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	165683	Analysis Date/Time	10/21/2019 10:37
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL0352	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TIC	Total Inorganic Carbon	86		0.50	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW12

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	149018
% Solids:		Lab Sample ID:	343840
Analytical Method:	EPA 9056A	Date Received:	10/18/2019
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	165651	Analysis Date/Time	10/18/2019 18:36
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
16887-00-6	Chloride	7.3		1.0	1.5	3.0	3.0
14797-55-8	Nitrate Nitrogen	0.58	H	0.12	0.20	0.40	0.40
14808-79-8	Sulfate	32		0.80	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW12

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	149018
% Solids:		Lab Sample ID:	343840
Analytical Method:	EPA 9060A	Date Received:	10/18/2019
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	165946	Analysis Date/Time	10/25/2019 19:11
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL0352 I	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TOC	Total Organic Carbon	0.69	J	0.50	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW13

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	149018
% Solids:		Lab Sample ID:	343788
Analytical Method:	EPA 9060A	Date Received:	10/18/2019
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	165683	Analysis Date/Time	10/21/2019 09:49
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL0352	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TIC	Total Inorganic Carbon	97		0.50	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW13

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	149018
% Solids:		Lab Sample ID:	343788
Analytical Method:	EPA 9056A	Date Received:	10/18/2019
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	165651	Analysis Date/Time	10/18/2019 17:36
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
16887-00-6	Chloride	7.6		1.0	1.5	3.0	3.0
14797-55-8	Nitrate Nitrogen	0.52	H	0.12	0.20	0.40	0.40
14808-79-8	Sulfate	33		0.80	1.5	3.0	3.0

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INORGANIC ANALYSIS DATA SHEET

Sample Description

54MW13

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	149018
% Solids:		Lab Sample ID:	343788
Analytical Method:	EPA 9060A	Date Received:	10/18/2019
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	165946	Analysis Date/Time	10/25/2019 17:57
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL0352 I	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TOC	Total Organic Carbon	0.53	J	0.50	1.5	3.0	3.0

CT LABORATORIES
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INORGANIC ANALYSIS DATA SHEET

Sample Description

54TW13

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	149018
% Solids:		Lab Sample ID:	343836
Analytical Method:	EPA 9060A	Date Received:	10/18/2019
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	165683	Analysis Date/Time	10/21/2019 10:05
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL0352	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TIC	Total Inorganic Carbon	95		0.50	1.5	3.0	3.0

CT LABORATORIES
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INORGANIC ANALYSIS DATA SHEET

Sample Description

54TW13

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	149018
% Solids:		Lab Sample ID:	343836
Analytical Method:	EPA 9056A	Date Received:	10/18/2019
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	165651	Analysis Date/Time	10/18/2019 17:56
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:		Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
16887-00-6	Chloride	7.4		1.0	1.5	3.0	3.0
14797-55-8	Nitrate Nitrogen	0.52	H	0.12	0.20	0.40	0.40
14808-79-8	Sulfate	33		0.80	1.5	3.0	3.0

CT LABORATORIES
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INORGANIC ANALYSIS DATA SHEET

Sample Description

54TW13

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix (soil/water):	GROUND WATER	SDG No.:	149018
% Solids:		Lab Sample ID:	343836
Analytical Method:	EPA 9060A	Date Received:	10/18/2019
Dilution Factor:	1.00	TCLP/SPLP Extraction Date/time:	
Analytical Run #:	165946	Analysis Date/Time	10/25/2019 18:12
Analytical Prep Batch #:		Prep. Date/Time:	
ICAL Calibration #:	ICAL0352 I	Concentration Units:	mg/L

CAS #	Analyte	Concentration	Qualifiers	DL	LOD	LOQ	RL
TOC	Total Organic Carbon	1.5	U	0.50	1.5	3.0	3.0

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

ICV

2A-1

INITIAL CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165651

Lab Sample ID: 352168

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Chloride	10/10/19	11:16	15.00	13.93	93	90	110
Nitrate Nitrogen	10/10/19	11:16	3.500	3.311	95	90	110
Sulfate	10/10/19	11:16	25.00	24.31	97	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
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Sample No.

ICV

2A-1

INITIAL CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165946

Lab Sample ID: 353176

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Total Organic Carbon	9/9/19	12:35	50.00	48.38	97	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165683 Lab Sample ID: 344542

ICAL Calibration #: ICAL0352 Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Total Inorganic Carbon	10/21/19 09:03	50.00	52.99	106	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165683 Lab Sample ID: 344545

ICAL Calibration #: ICAL0352 Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Total Inorganic Carbon	10/21/19	11:06	50.00	53.92	108	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165651

Lab Sample ID: 345888

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Chloride	10/18/19	19:16	15.00	14.62	97	90	110
Nitrate Nitrogen	10/18/19	19:16	3.500	3.520	101	90	110
Sulfate	10/18/19	19:16	25.00	24.72	99	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165651

Lab Sample ID: 345893

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Chloride	10/18/19	14:56	15.00	14.41	96	90	110
Nitrate Nitrogen	10/18/19	14:56	3.500	3.551	101	90	110
Sulfate	10/18/19	14:56	25.00	24.60	98	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165651

Lab Sample ID: 345895

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Chloride	10/21/19	11:38	15.00	14.82	99	90	110
Nitrate Nitrogen	10/21/19	11:38	3.500	3.567	102	90	110
Sulfate	10/21/19	11:38	25.00	24.95	100	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165651

Lab Sample ID: 345897

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Chloride	10/21/19	08:18	15.00	14.85	99	90	110
Nitrate Nitrogen	10/21/19	08:18	3.500	3.579	102	90	110
Sulfate	10/21/19	08:18	25.00	25.16	101	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165651

Lab Sample ID: 345939

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Chloride	10/18/19	23:17	15.00	14.49	97	90	110
Nitrate Nitrogen	10/18/19	23:17	3.500	3.493	100	90	110
Sulfate	10/18/19	23:17	25.00	24.50	98	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165946 Lab Sample ID: 348936

ICAL Calibration #: ICAL0352 I Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Total Organic Carbon	10/25/19 15:37	50.00	53.22	106	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165946

Lab Sample ID: 348939

ICAL Calibration #: ICAL0352 I

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Total Organic Carbon	10/25/19 18:43	50.00	54.66	109	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165946 Lab Sample ID: 348944

ICAL Calibration #: ICAL0352 I Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Total Organic Carbon	10/25/19 21:11	50.00	54.23	108	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165740

Lab Sample ID: 350943

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
COD	10/23/19 13:01	400.0	409.0	102	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165740

Lab Sample ID: 350945

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
COD	10/23/19 13:01	400.0	409.0	102	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
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Sample No.

CCV

2A-2

CONTINUING CALIBRATION VERIFICATION

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165651

Lab Sample ID: 352176

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time		Spiked Conc.	Measured Conc.	%R**	Lower Limit (1)	Upper Limit (1)
Chloride	10/19/19	03:18	15.00	14.49	97	90	110
Nitrate Nitrogen	10/19/19	03:18	3.500	3.497	100	90	110
Sulfate	10/19/19	03:18	25.00	24.54	98	90	110

Default Limits (not applicable to MDL Check) **No percent recovery is calculated for MDL checks. The check is simply whether the analyte is detected.

(1) Control Limits: Mercury 80-120; Other Metals 90-110; Cyanide 85-115

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

3-1

ICB

INITIAL CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165946 Lab Sample ID: 353177

Analytical Prep Batch #: Preparation Date/Time:

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total Organic Carbon	09/09/2019 12:50	0	U	0.5	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

ICB

3-1

INITIAL CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165651 Lab Sample ID: 352169

Analytical Prep Batch #: Preparation Date/Time:

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Chloride	10/10/2019 11:36	0	U	1.0	1.5
Nitrate Nitrogen	10/10/2019 11:36	0	U	0.12	0.20
Sulfate	10/10/2019 11:36	0	U	0.8	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165683

Lab Sample ID: 344546

Analytical Prep Batch # 0

Preparation Date/Time:

ICAL Calibration #: ICAL0352

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total Inorganic Carbon	10/21/2019 11:21	0	U	0.5	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165651 Lab Sample ID: 345887

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Chloride	10/18/2019 19:36	0	U	1.0	1.5
Nitrate Nitrogen	10/18/2019 19:36	0	U	0.12	0.20
Sulfate	10/18/2019 19:36	0	U	0.8	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165651

Lab Sample ID: 345894

Analytical Prep Batch # 0

Preparation Date/Time:

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Chloride	10/21/2019 11:58	0	U	1.0	1.5
Nitrate Nitrogen	10/21/2019 11:58	0	U	0.12	0.20
Sulfate	10/21/2019 11:58	0	U	0.8	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165651 Lab Sample ID: 345896

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Chloride	10/21/2019 08:38	0	U	1.0	1.5
Nitrate Nitrogen	10/21/2019 08:38	0	U	0.12	0.20
Sulfate	10/21/2019 08:38	0	U	0.8	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165651 Lab Sample ID: 345938

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Chloride	10/18/2019 23:37	0	U	1.0	1.5
Nitrate Nitrogen	10/18/2019 23:37	0	U	0.12	0.20
Sulfate	10/18/2019 23:37	0	U	0.8	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165946

Lab Sample ID: 348940

Analytical Prep Batch # 0

Preparation Date/Time:

ICAL Calibration #: ICAL0352 I

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total Organic Carbon	10/25/2019 18:58	0	U	0.5	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165946

Lab Sample ID: 348945

Analytical Prep Batch # 0

Preparation Date/Time:

ICAL Calibration #: ICAL0352 I

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total Organic Carbon	10/25/2019 21:25	0.2100	U	0.5	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was
less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165740 Lab Sample ID: 350944

Analytical Prep Batch #: Preparation Date/Time:

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
COD	10/23/2019 13:01	13.00			35

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165740 Lab Sample ID: 350946

Analytical Prep Batch #: Preparation Date/Time:

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
COD	10/23/2019 13:01	13.00			35

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

CCB

3-2

CONTINUING CALIBRATION BLANKS

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165651

Lab Sample ID: 352177

Analytical Prep Batch #:

Preparation Date/Time:

ICAL Calibration #:

Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Chloride	10/19/2019 03:38	0	U	1.0	1.5
Nitrate Nitrogen	10/19/2019 03:38	0	U	0.12	0.20
Sulfate	10/19/2019 03:38	0	U	0.8	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165683 Lab Sample ID: 344544

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: ICAL0352 Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total Inorganic Carbon	10/21/2019 09:32	0	U	0.5	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165740 Lab Sample ID: 345136

Analytical Prep Batch # 74074 Preparation Date/Time: 10/22/2019 08:35

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total COD	10/23/2019 13:01	8.200	U	15	35

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165651 Lab Sample ID: 345889

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Chloride	10/18/2019 15:36	0.5047	U	1.0	1.5
Nitrate Nitrogen	10/18/2019 15:36	0	U	0.12	0.20
Sulfate	10/18/2019 15:36	0	U	0.8	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

Sample No

MB

3-3

METHOD BLANKS

Lab Name: CT Laboratories Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

SDG No.: 149018

Analytical Run #: 165946 Lab Sample ID: 348938

Analytical Prep Batch # 0 Preparation Date/Time:

ICAL Calibration #: ICAL0352 I Concentration Units: mg/L

Analysis Type: Initial Analysis

Analyte	Analysis Date/Time	Measured Concentration	C***	Detection Limit**	Control Limit
Total Organic Carbon	10/25/2019 16:05	0	U	0.5	1.5

** Detection Limit only reported if value was less than the control limit.
***A "U" indicates the analyte was not detected in the method blank at the detection limit or the Control Limit whichever was less.

CT LABORATORIES
delivering more than data from your environmental analyses

5A

SPIKE SAMPLE RECOVERY

Sample Description

54IDW

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix:	LIQUID	SDG No.:	149018
% Solids for Sample:		Concentration Units:	mg/L
Sample No	345128	Parent Sample No.:	343844
Analytical Prep Batch #	74074	Analytical Preparation Date/Time:	10/22/2019 08:35
Analytical Run #:	165740	ICAL Calibration #:	

Analysis Type *Initial Analysis* Analysis Date: ----- 10/23/2019 Analysis Time: -------- 13:01

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M	
COD	90-110	169		BDL	U	148	114		SP	*FAIL*

BDL = analyte concentration was below detection limit

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5A

SPIKE SAMPLE RECOVERY

Sample Description

54MW12

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix:	LIQUID	SDG No.:	149018
% Solids for Sample:		Concentration Units:	mg/L
Sample No	345935	Parent Sample No.:	343840
Analytical Prep Batch #	0	Analytical Preparation Date/Time:	
Analytical Run #:	165651	ICAL Calibration #:	

Analysis Type	*Initial Analysis*	Analysis Date: -----	10/19/2019	Analysis Time: --------	01:37

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M	
Chloride	87-111	14.7		7.3		8.00	92			
Nitrate Nitrogen	88-111	2.55		0.58		2.00	98			
Sulfate	87-112	38.8		32		8.00	85			*FAIL*

BDL = analyte concentration was below detection limit

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5A

SPIKE SAMPLE RECOVERY

Sample Description

54MW12

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix:	LIQUID	SDG No.:	149018
% Solids for Sample:		Concentration Units:	mg/L
Sample No	348942	Parent Sample No.:	343840
Analytical Prep Batch #	0	Analytical Preparation Date/Time:	
Analytical Run #:	165946	ICAL Calibration #:	ICAL0352 I

Analysis Type	*Initial Analysis*	Analysis Date: -----	10/25/2019	Analysis Time: --------	19:34

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Total Organic Carbon	85-111	48.3		0.69	J	50.0	95		TOC

BDL = analyte concentration was below detection limit

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5C

SPIKE DUPLICATE SAMPLE RECOVERY

Sample Description: **54IDW**

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix: LIQUID
SDG No.: 149018
% Solids for Sample:
Concentration Units: mg/L
Sample No: 345129
Parent Sample No.: 345128
Analytical Prep Batch #: 74074
Analytical Preparation Date/Time: 10/22/2019 08:35
Analytical Run #: 165740
ICAL Calibration #:

Analysis Type: *Initial Analysis* Analysis Date: ----- 10/23/2019 Analysis Time: -------- 13:01

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M	
COD	90-110	181		BDL	U	148	122		SP	*FAIL*

BDL = analyte concentration was below detection limit

CT LABORATORIES
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5C

SPIKE DUPLICATE SAMPLE RECOVERY

Sample Description

54MW12

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix:	LIQUID	SDG No.:	149018
% Solids for Sample:		Concentration Units:	mg/L
Sample No	348943	Parent Sample No.:	348942
Analytical Prep Batch #	0	Analytical Preparation Date/Time:	
Analytical Run #:	165946	ICAL Calibration #:	ICAL0352 I

Analysis Type *Initial Analysis* Analysis Date: ----- 10/25/2019 Analysis Time: -------- 19:48

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M
Total Organic Carbon	85-111	48.9		0.69	J	50.0	96		TOC

BDL = analyte concentration was below detection limit

CT LABORATORIES
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5C

SPIKE DUPLICATE SAMPLE RECOVERY

Sample Description: **54MW12**

Lab Name:	CT Laboratories	Contract:	WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix:	LIQUID	SDG No.:	149018
% Solids for Sample:		Concentration Units:	mg/L
Sample No	352167	Parent Sample No.:	345935
Analytical Prep Batch #		Analytical Preparation Date/Time:	
Analytical Run #:	165651	ICAL Calibration #:	

Analysis Type	*Initial Analysis*	Analysis Date: -----	10/19/2019	Analysis Time: --------	01:57

Analyte	Control Limit (%R)	Spike Result	C (Spike)	Parent Result	C (Parent)	Spike Amount	%R	Q	M	
Chloride	87-111	14.9		7.3		8.00	95		IC	
Nitrate Nitrogen	88-111	2.59		0.58		2.00	100		IC	
Sulfate	87-112	38.9		32		8.00	86		IC	*FAIL*

BDL = analyte concentration was below detection limit

CT LABORATORIES
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6

DUPLICATES

Sample Description

54MW12

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix: LIQUID
SDG No.: 149018
% Solid for Sample:
Concentration Units: mg/L
Analytical Prep Batch # 1
Analytical Preparation Date/Time 0
Analytical Run #: 165651
ICAL Calibration #:
Sample #: 345937
Parent Sample #: 343840

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Original Parent Conc. (S)	C	Duplicate Conc. (D)	C	RPD	Q	M
Chloride	10/19/2019	01:17	10	7.3		7.39		1		
Nitrate Nitrogen	10/19/2019	01:17	10	0.58		0.583		1		
Sulfate	10/19/2019	01:17	10	32		32.3		1		

CT LABORATORIES
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6

DUPLICATES

Sample Description

54MW12

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

Matrix: LIQUID

SDG No.: 149018

% Solid for Sample:

Concentration Units: mg/L

Analytical Prep Batch # 1

Analytical Preparation Date/Time 0

Analytical Run #: 165946

ICAL Calibration #: ICAL0352 I

Sample #: 348941

Parent Sample #: 343840

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Original Parent Conc. (S)	C	Duplicate Conc. (D)	C	RPD	Q	M
Total Organic Carbon	10/25/2019	19:23	20	0.69	J	0.660	J	4		TOC

CT LABORATORIES
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6

DUPLICATES

Sample Description

54IDW

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

Matrix: LIQUID

SDG No.: 149018

% Solid for Sample:

Concentration Units: S.U.

Analytical Prep Batch # 1

Analytical Preparation Date/Time

Analytical Run #: 165767

ICAL Calibration #:

Sample #: 349103

Parent Sample #: 343844

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Original Parent Conc. (S)	C	Duplicate Conc. (D)	C	RPD	Q	M
pH	10/22/2019	14:10	1	7.55		7.56		0		ELEC

CT LABORATORIES
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6A

MATRIX SPIKE DUPLICATES

Sample Description: **54IDW**

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix: LIQUID
SDG No.: 149018
% Solid for Sample:
Concentration Units: mg/L
Analytical Prep Batch #: 74074
Analytical Preparation Date/Time: 10/22/2019 08:35
Analytical Run #: 165740
ICAL Calibration #:
Sample #: 345129
Parent Sample #: 345128

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Matrix Spik Parent Conc. (S)	C	Matrix Spike Duplicate Conc. (D)	C	RPD	Q	M
COD	10/23/2019	13:01	20	169		181		7		SP

CT LABORATORIES
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6A

MATRIX SPIKE DUPLICATES

Sample Description: **54MW12**

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix: LIQUID
SDG No.: 149018
% Solid for Sample:
Concentration Units: mg/L
Analytical Prep Batch #: 0
Analytical Preparation Date/Time:
Analytical Run #: 165946
ICAL Calibration #: ICAL0352 I
Sample #: 348943
Parent Sample #: 348942

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Matrix Spik Parent Conc. (S)	C	Matrix Spike Duplicate Conc. (D)	C	RPD	Q	M
Total Organic Carbon	10/25/2019	19:48	20	48.3		48.9		1		TOC

CT LABORATORIES
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6A

MATRIX SPIKE DUPLICATES

Sample Description: **54MW12**

Lab Name: CT Laboratories
Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54
Matrix: LIQUID
SDG No.: 149018
% Solid for Sample:
Concentration Units: mg/L
Analytical Prep Batch #:
Analytical Preparation Date/Time:
Analytical Run #: 165651
ICAL Calibration #:
Sample #: 352167
Parent Sample #: 345935

Analysis Type *Initial Analysis*

Analyte	Analysis Date/Tim		RPD Limit	Matrix Spik Parent Conc. (S)	C	Matrix Spike Duplicate Conc. (D)	C	RPD	Q	M
Chloride	10/19/2019	01:57	15	14.7		14.9		1		IC
Nitrate Nitrogen	10/19/2019	01:57	15	2.55		2.59		2		IC
Sulfate	10/19/2019	01:57	15	38.8		38.9		0		IC

CT LABORATORIES
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7-1

Sample No:

LABORATORY CONTROL SAMPLE - AQUEOUS

LCS

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

LCS Source: SPEX and Ultra

SDG No.: 149018

Concentration Units: mg/L

Analytical Run #: 165683

Sample No.:#: 344543

Analytical Prep Batch #: 0

Preparation Date/Time:

ICAL Calibration #: ICAL0352

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
Total Inorganic Carbon	10/21/2019 09:17	85-111	51.24		50.00	102		TOC

CT LABORATORIES
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7-1

Sample No:

LABORATORY CONTROL SAMPLE - AQUEOUS

LCS

Lab Name: CT Laboratories Contract WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

LCS Source: SPEX and Ultra SDG No.: 149018

Concentration Units: mg/L

Analytical Run #: 165740 Sample No.:#: 345137

Analytical Prep Batch #: 74074 Preparation Date/Time: 10/22/2019 08:35

ICAL Calibration #:

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
COD	10/23/2019 13:01	90-110	411.4		400.0	103		SP

CT LABORATORIES
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7-1

Sample No:

LABORATORY CONTROL SAMPLE - AQUEOUS

LCS

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

LCS Source: SPEX and Ultra

SDG No.: 149018

Concentration Units: mg/L

Analytical Run #: 165651

Sample No.:#: 345890

Analytical Prep Batch #: 0

Preparation Date/Time:

ICAL Calibration #:

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
Chloride	10/18/2019 15:16	87-111	14.40		15.00	96		
Nitrate Nitrogen	10/18/2019 15:16	88-111	3.400		3.500	97		
Sulfate	10/18/2019 15:16	87-112	24.83		25.00	99		

CT LABORATORIES
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7-1

Sample No:

LABORATORY CONTROL SAMPLE - AQUEOUS

LCS

Lab Name: CT Laboratories

Contract: WESTON SOLUTIONS, INC.-RADFORD AAP SWMU-54

LCS Source: SPEX and Ultra

SDG No.: 149018

Concentration Units: mg/L

Analytical Run #: 165946

Sample No.:#: 348937

Analytical Prep Batch #: 0

Preparation Date/Time:

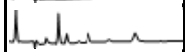
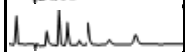
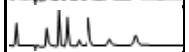
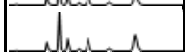
ICAL Calibration #: ICAL0352 I

Analysis Type ---------- Initial Analysis

Analyte	Analysis Date/Time	Control Limit (%R)	Spike Result	C	Spike Amount	%R	Q	M
Total Organic Carbon	10/25/2019 15:51	85-111	49.38		50.00	99		TOC

INORGANICS
RAW DATA
DOCUMENTS

Sequence: 101019 - IC2647
Last Update Operator: AQUION

ECD_1	Name	Dilution	Type	Level	Position	Volume	Instrument Method	Processing Method	Status
	IB	1.0000	Unknown		2	5000	Anions 1.0	IC2647A	Finished
	STD1	1.0000	Calibration Standard	1	3	5000	Anions 1.0	IC2647A	Finished
	STD2	1.0000	Calibration Standard	2	4	5000	Anions 1.0	IC2647A	Finished
	STD3	1.0000	Calibration Standard	3	5	5000	Anions 1.0	IC2647A	Finished
	STD4	1.0000	Calibration Standard	4	6	5000	Anions 1.0	IC2647A	Finished
	STD5	1.0000	Calibration Standard	5	7	5000	Anions 1.0	IC2647A	Finished
	STD6	1.0000	Calibration Standard	6	8	5000	Anions 1.0	IC2647A	Finished
	STD7	1.0000	Calibration Standard	7	9	5000	Anions 1.0	IC2647A	Finished
	STD8	1.0000	Calibration Standard	8	10	5000	Anions 1.0	IC2647A	Finished
	STD9	1.0000	Calibration Standard	9	11	5000	Anions 1.0	IC2647A	Finished
	ICV	1.0000	Unknown		12	5000	Anions 1.0	IC2647A	Finished
	ICB	1.0000	Unknown		13	5000	Anions 1.0	IC2647A	Finished

RJ 11/20/2019

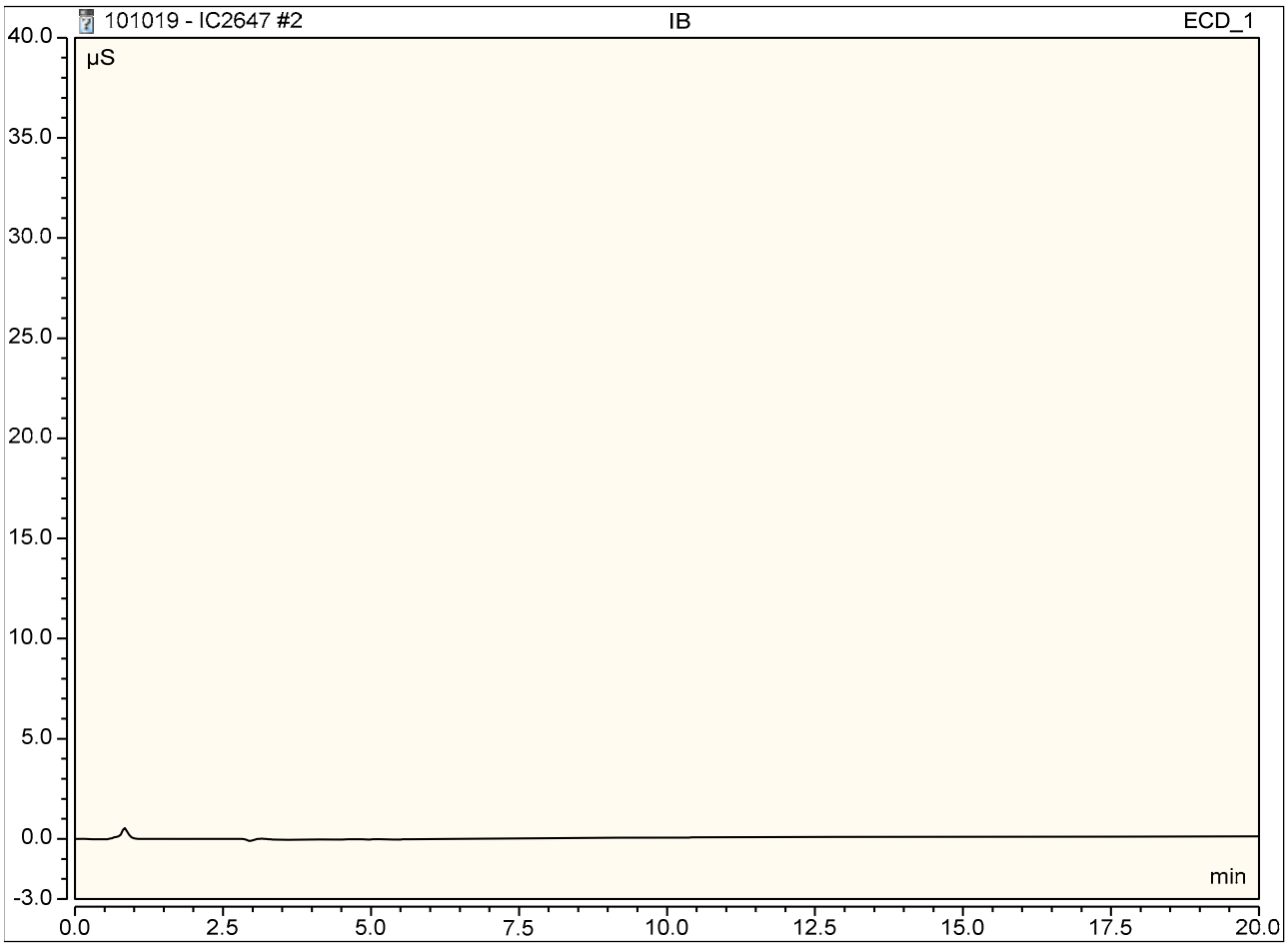
Calibration Concentrations

Instrument:	AQUION (4)	Cal. File:	IC2647A		ICV	IC2652/IC2655		Analyst/Date: TMG 10/10/2019		
Analyte	Cal Level 1 (mg/L)	Cal Level 2 (mg/L)	Cal Level 3 (mg/L)	Cal Level 4 (mg/L)	Cal Level 5 (mg/L)	Cal Level 6 (mg/L)	Cal Level 7 (mg/L)	Cal Level 8 (mg/L)	Cal Level 9 (mg/L)	ICV (mg/L)
Fluoride	0.0	0.1	0.30	0.5	1.0	2.0	5.0			3.5
Chloride	0.0	0.5	0.75	1.0	5.0	10.0	20.0	30.0	40.0	15.0
Bromide	0.0	0.1	0.30	0.5	1.0	2.0	5.0			3.5
Nitrite	0.0	0.1	0.30	0.5	1.0	2.0	5.0			3.5
Nitrate	0.0	0.1	0.30	0.5	1.0	2.0	5.0	7.0		3.5
O-Phoshorous	0.0	0.1	0.30	0.5	1.0	2.0	5.0			3.5
Sulfate	0.0	0.5	0.75	1.0	5.0	10.0	30.0	50.0	70.0	25.0

Peak Integration Report

Sample Name:	**IB**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**AQUION**
Inj. Date / Time:	**10-Oct-2019 / 07:56**	*Run Time:*	**20.00**

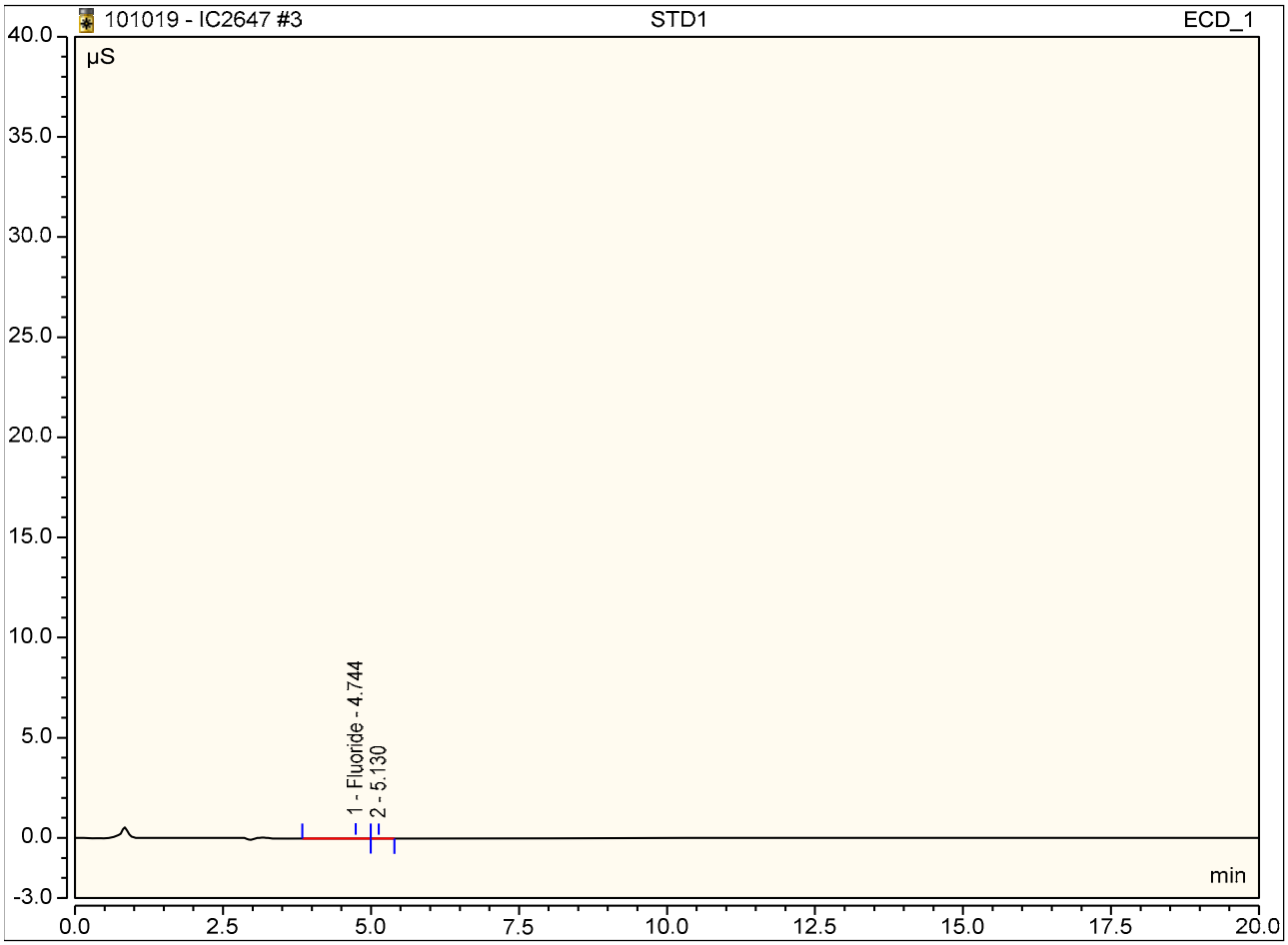
No.	Time min	Peak Name	Area µS*min	Height µS	Amount n.a.



Peak Integration Report

Sample Name:	**STD1**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Calibration Standard**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**AQUION**
Inj. Date / Time:	**10-Oct-2019 / 08:16**	*Run Time:*	**20.00**

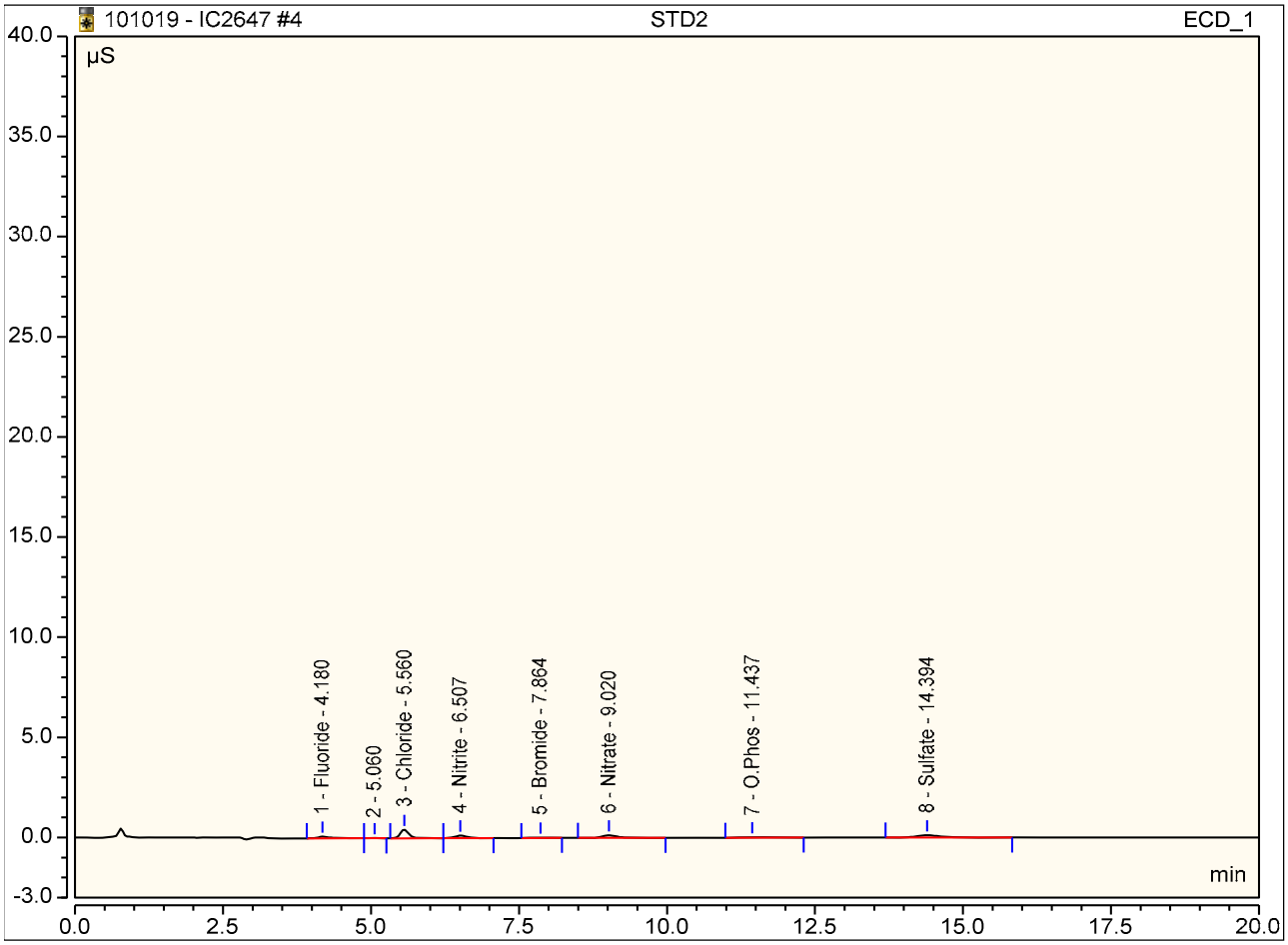
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.74	Fluoride	0.006	0.010	0.0455



Peak Integration Report

Sample Name:	**STD2**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Calibration Standard**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**AQUION**
Inj. Date / Time:	**10-Oct-2019 / 08:36**	*Run Time:*	**20.00**

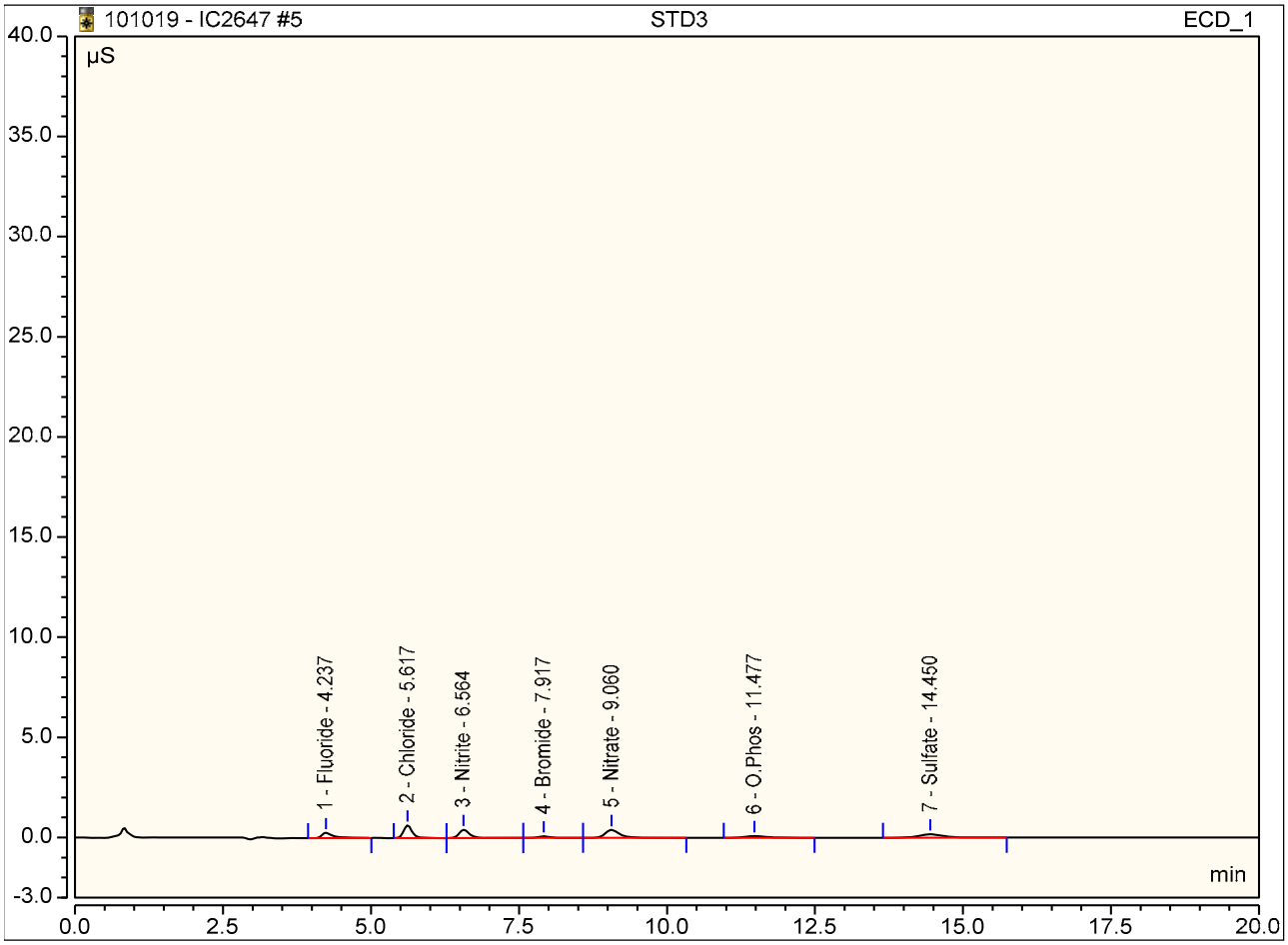
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.18	Fluoride	0.022	0.084	0.1184
3	5.56	Chloride	0.074	0.428	0.8540
4	6.51	Nitrite	0.028	0.135	0.1171
5	7.86	Bromide	0.006	0.028	0.0958
6	9.02	Nitrate	0.038	0.130	0.1392
7	11.44	O.Phos	0.013	0.030	0.1031
8	14.39	Sulfate	0.057	0.117	0.8750



Peak Integration Report

Sample Name:	**STD3**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Calibration Standard**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**AQUION**
Inj. Date / Time:	**10-Oct-2019 / 08:56**	*Run Time:*	**20.00**

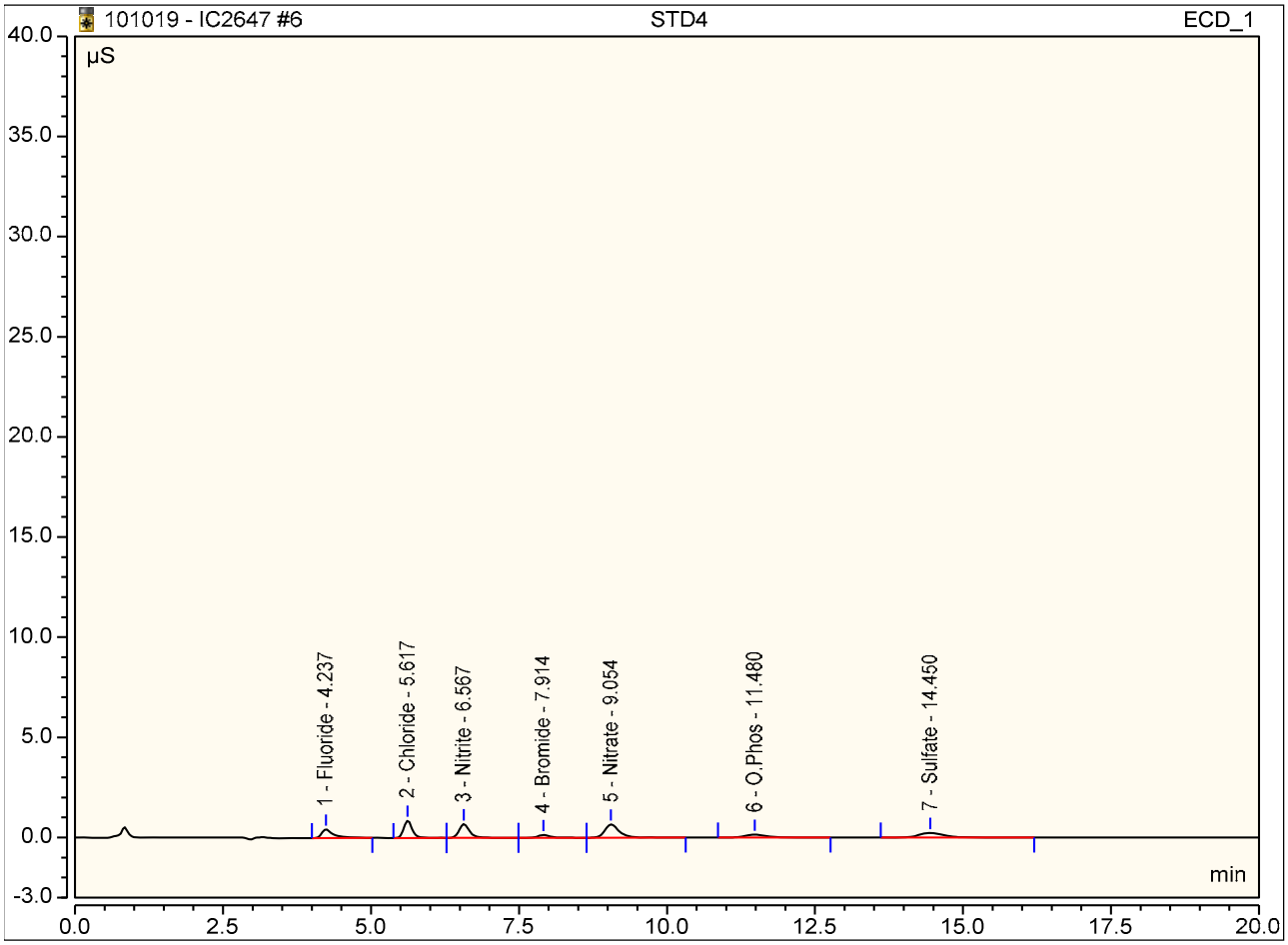
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.24	Fluoride	0.063	0.257	0.2993
2	5.62	Chloride	0.110	0.640	1.0482
3	6.56	Nitrite	0.088	0.409	0.3067
4	7.92	Bromide	0.020	0.082	0.3058
5	9.06	Nitrate	0.115	0.394	0.3210
6	11.48	O.Phos	0.037	0.086	0.2838
7	14.45	Sulfate	0.084	0.174	1.0865



Peak Integration Report

Sample Name:	**STD4**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Calibration Standard**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**AQUION**
Inj. Date / Time:	**10-Oct-2019 / 09:16**	*Run Time:*	**20.00**

No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.24	Fluoride	0.103	0.434	0.4760
2	5.62	Chloride	0.150	0.872	1.2607
3	6.57	Nitrite	0.147	0.686	0.4925
4	7.91	Bromide	0.033	0.136	0.4876
5	9.05	Nitrate	0.190	0.659	0.4989
6	11.48	O.Phos	0.064	0.148	0.4889
7	14.45	Sulfate	0.114	0.235	1.3219



Peak Integration Report

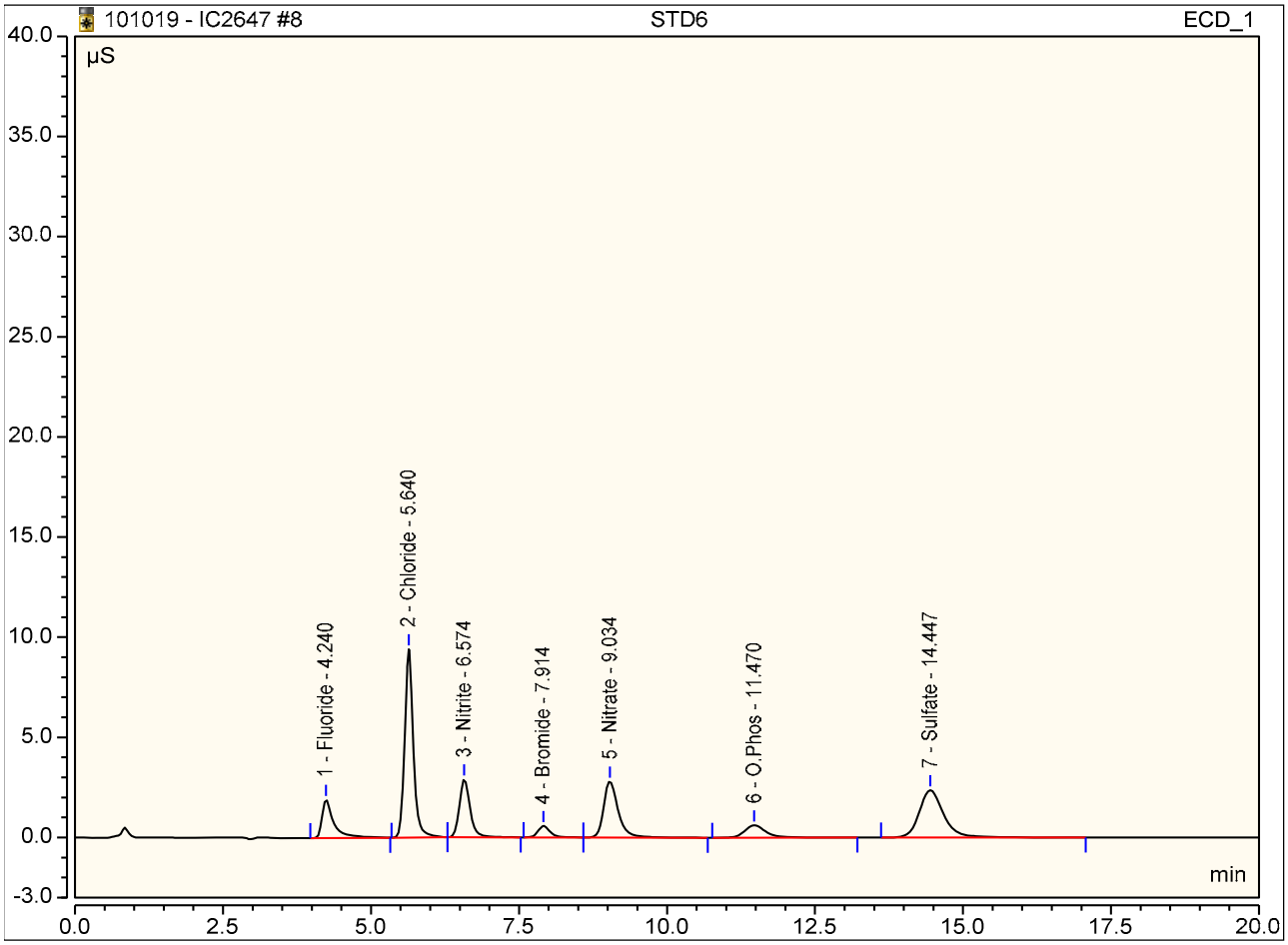
Sample Name:	**STD5**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Calibration Standard**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**AQUION**
Inj. Date / Time:	**10-Oct-2019 / 09:36**	*Run Time:*	**20.00**

No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.17	Fluoride	0.212	0.935	0.9552
3	5.56	Chloride	0.766	4.476	4.5478
4	6.50	Nitrite	0.307	1.453	1.0017
5	7.84	Bromide	0.068	0.287	1.0129
6	8.98	Nitrate	0.403	1.396	1.0021
7	11.40	O.Phos	0.137	0.311	1.0372
8	14.38	Sulfate	0.572	1.167	4.9214

Peak Integration Report

Sample Name:	**STD6**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Calibration Standard**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**AQUION**
Inj. Date / Time:	**10-Oct-2019 / 09:56**	*Run Time:*	**20.00**

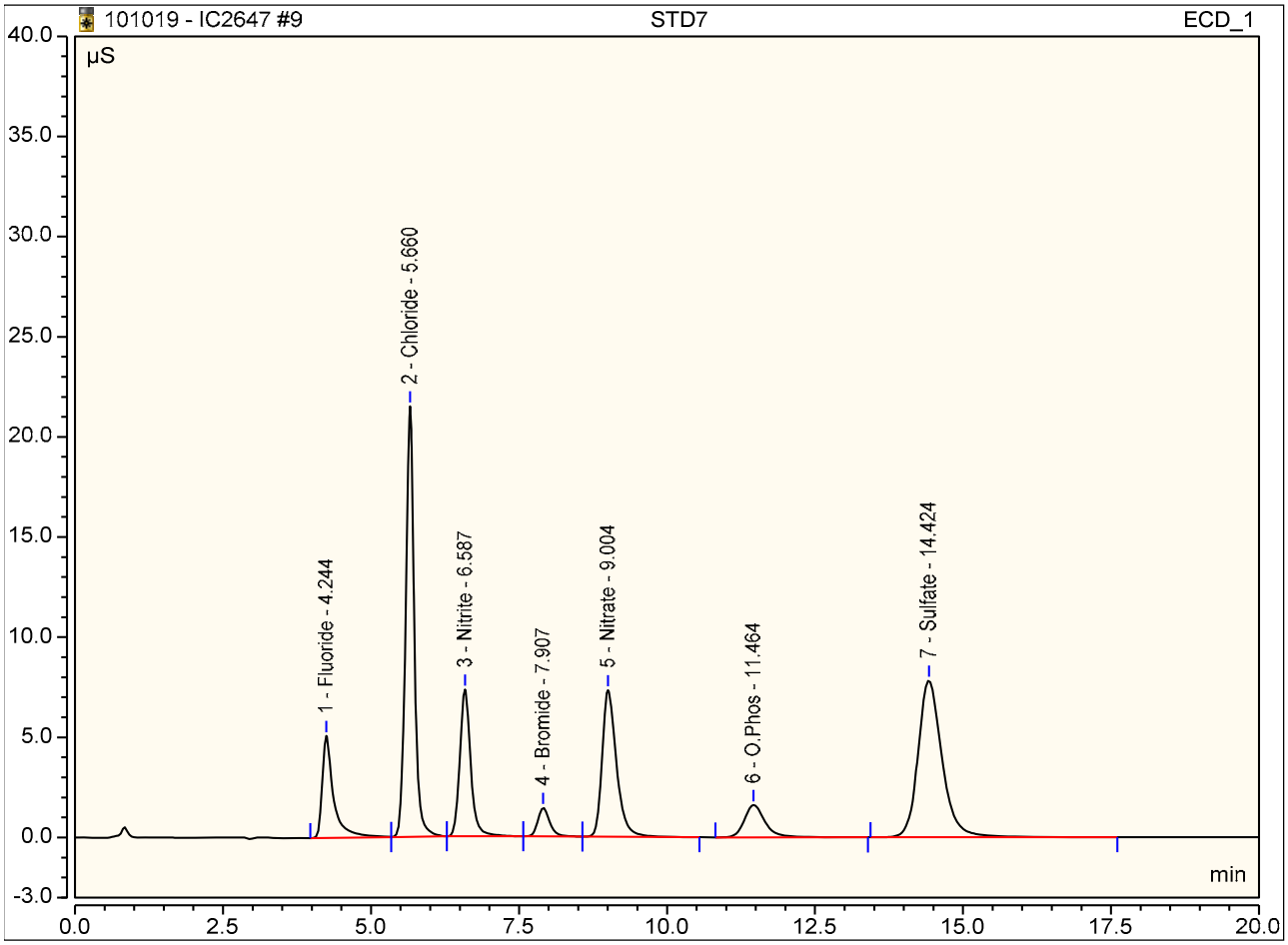
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.24	Fluoride	0.446	1.916	1.9910
2	5.64	Chloride	1.588	9.404	8.9321
3	6.57	Nitrite	0.613	2.893	1.9705
4	7.91	Bromide	0.134	0.565	1.9991
5	9.03	Nitrate	0.800	2.797	1.9429
6	11.47	O.Phos	0.263	0.622	1.9874
7	14.45	Sulfate	1.143	2.366	9.4027



Peak Integration Report

Sample Name:	**STD7**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Calibration Standard**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**AQUION**
Inj. Date / Time:	**10-Oct-2019 / 10:16**	*Run Time:*	**20.00**

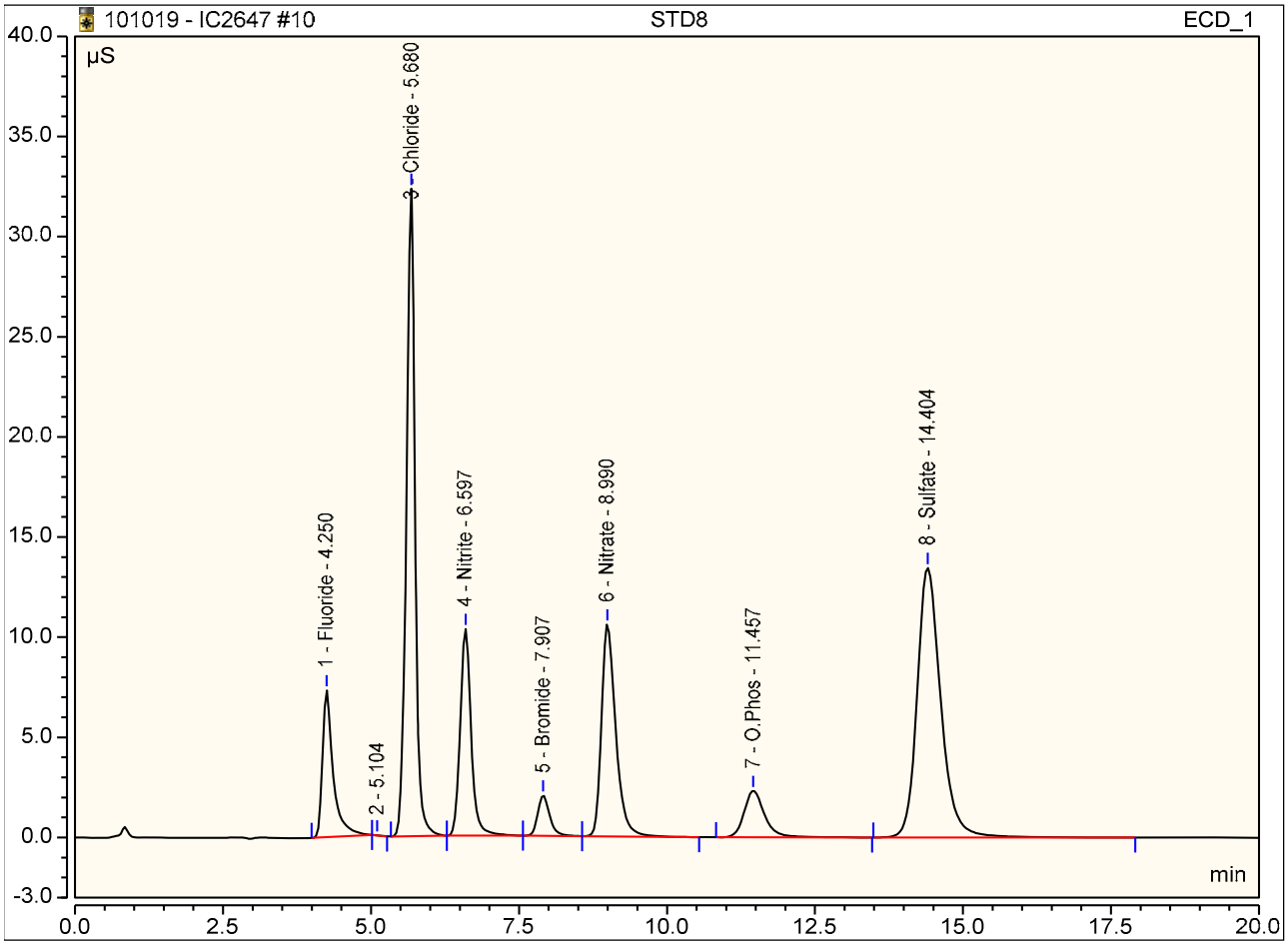
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.24	Fluoride	1.131	5.088	5.0146
2	5.66	Chloride	3.610	21.495	19.7231
3	6.59	Nitrite	1.572	7.329	5.0115
4	7.91	Bromide	0.335	1.428	4.9988
5	9.00	Nitrate	2.063	7.324	4.9340
6	11.46	O.Phos	0.661	1.615	4.9996
7	14.42	Sulfate	3.703	7.833	29.4949



Peak Integration Report

Sample Name:	**STD8**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Calibration Standard**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**AQUION**
Inj. Date / Time:	**10-Oct-2019 / 10:36**	*Run Time:*	**20.00**

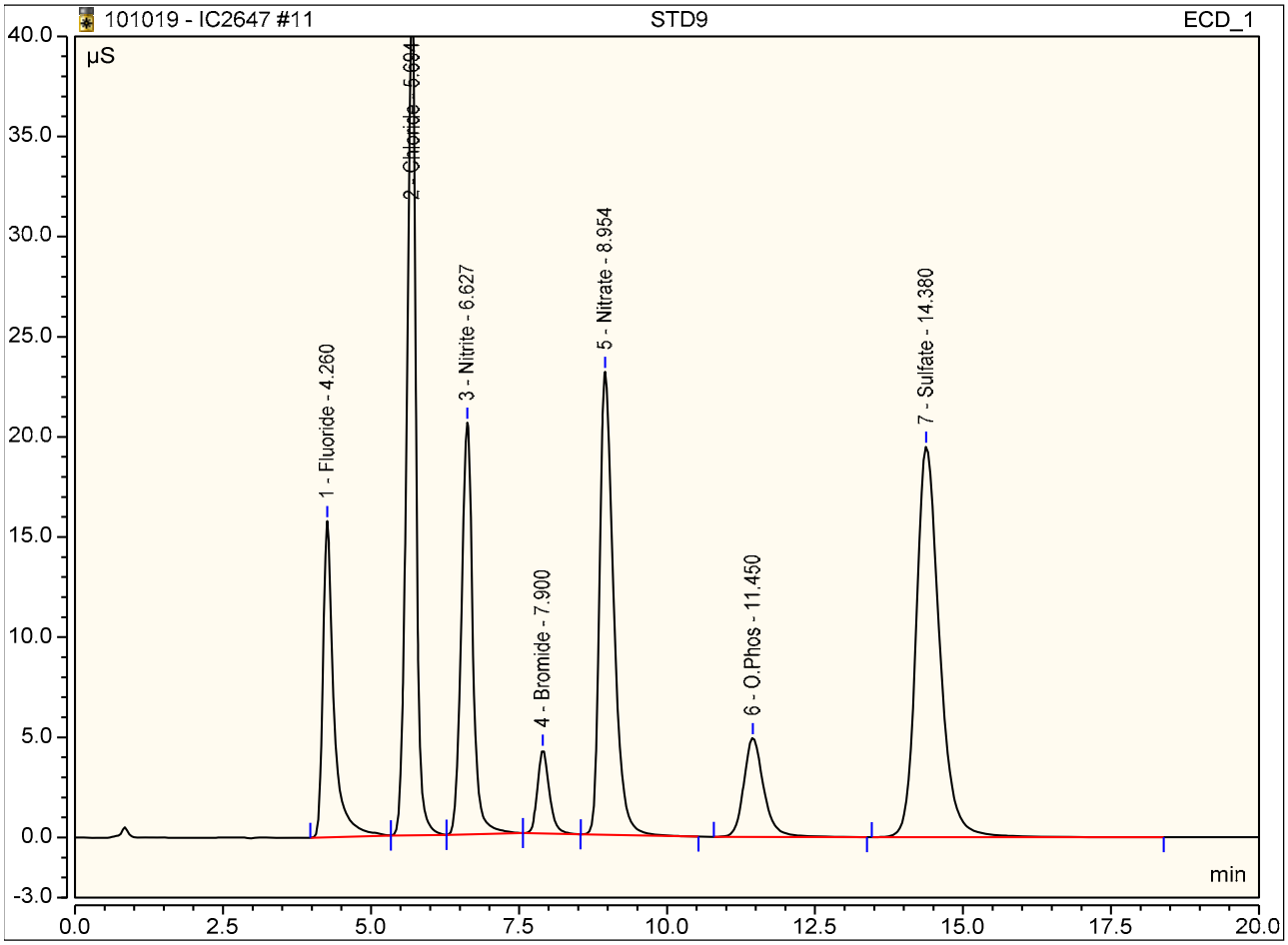
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.25	Fluoride	1.548	7.346	6.8536
3	5.68	Chloride	5.514	32.330	29.8844
4	6.60	Nitrite	2.232	10.332	7.1073
5	7.91	Bromide	0.473	2.023	7.0573
6	8.99	Nitrate	2.961	10.591	7.0617
7	11.46	O.Phos	0.937	2.321	7.0857
8	14.40	Sulfate	6.249	13.461	49.4787



Peak Integration Report

Sample Name:	**STD9**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Calibration Standard**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**AQUION**
Inj. Date / Time:	**10-Oct-2019 / 10:56**	*Run Time:*	**20.00**

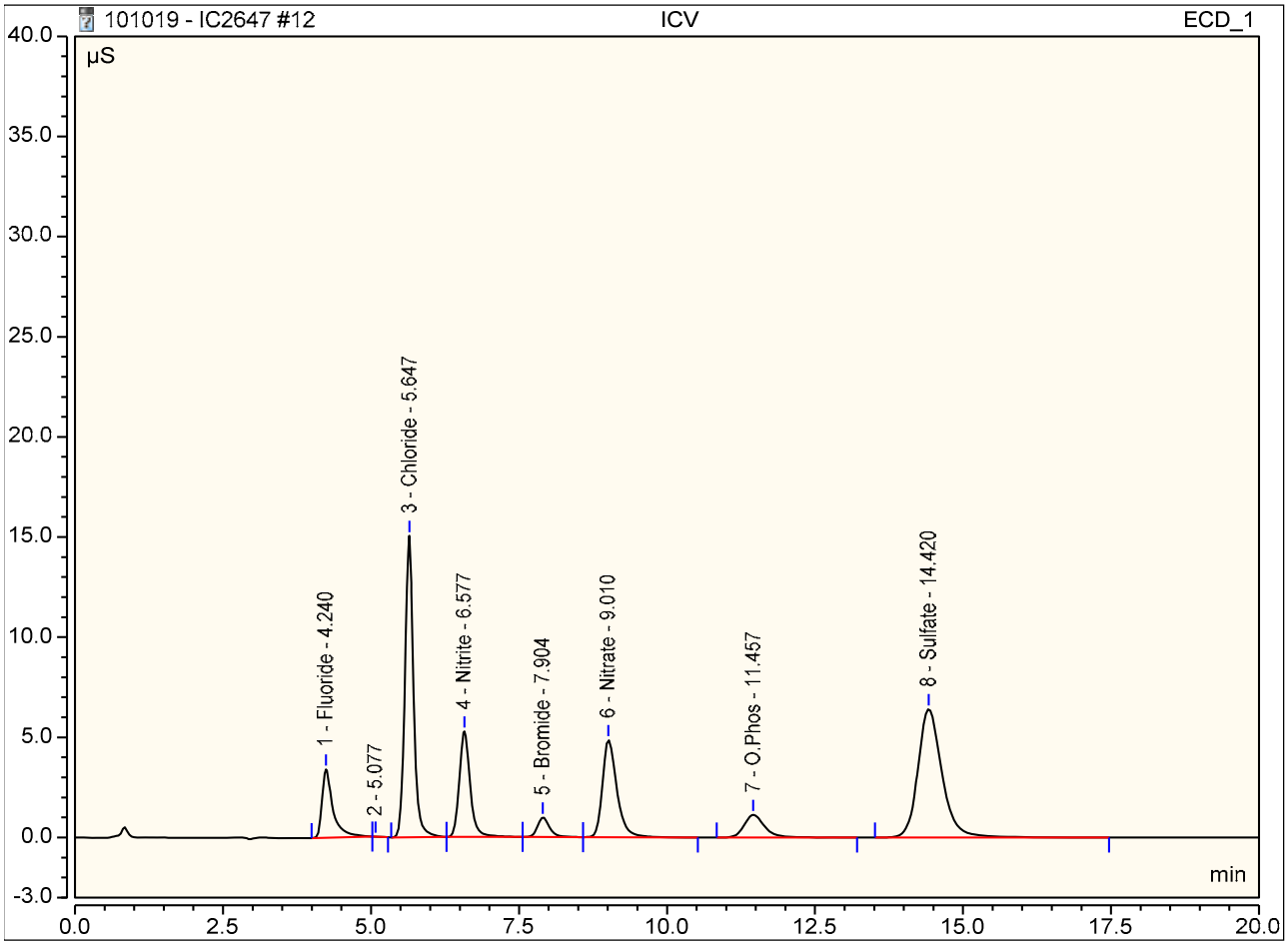
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.26	Fluoride	3.374	15.786	14.9160
2	5.69	Chloride	7.510	42.704	40.5321
3	6.63	Nitrite	4.619	20.558	14.6765
4	7.90	Bromide	0.969	4.189	14.4504
5	8.95	Nitrate	6.362	23.121	15.1149
6	11.45	O.Phos	1.937	4.937	14.6497
7	14.38	Sulfate	8.948	19.506	70.6689



Peak Integration Report

Sample Name:	**ICV**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**AQUION**
Inj. Date / Time:	**10-Oct-2019 / 11:16**	*Run Time:*	**20.00**

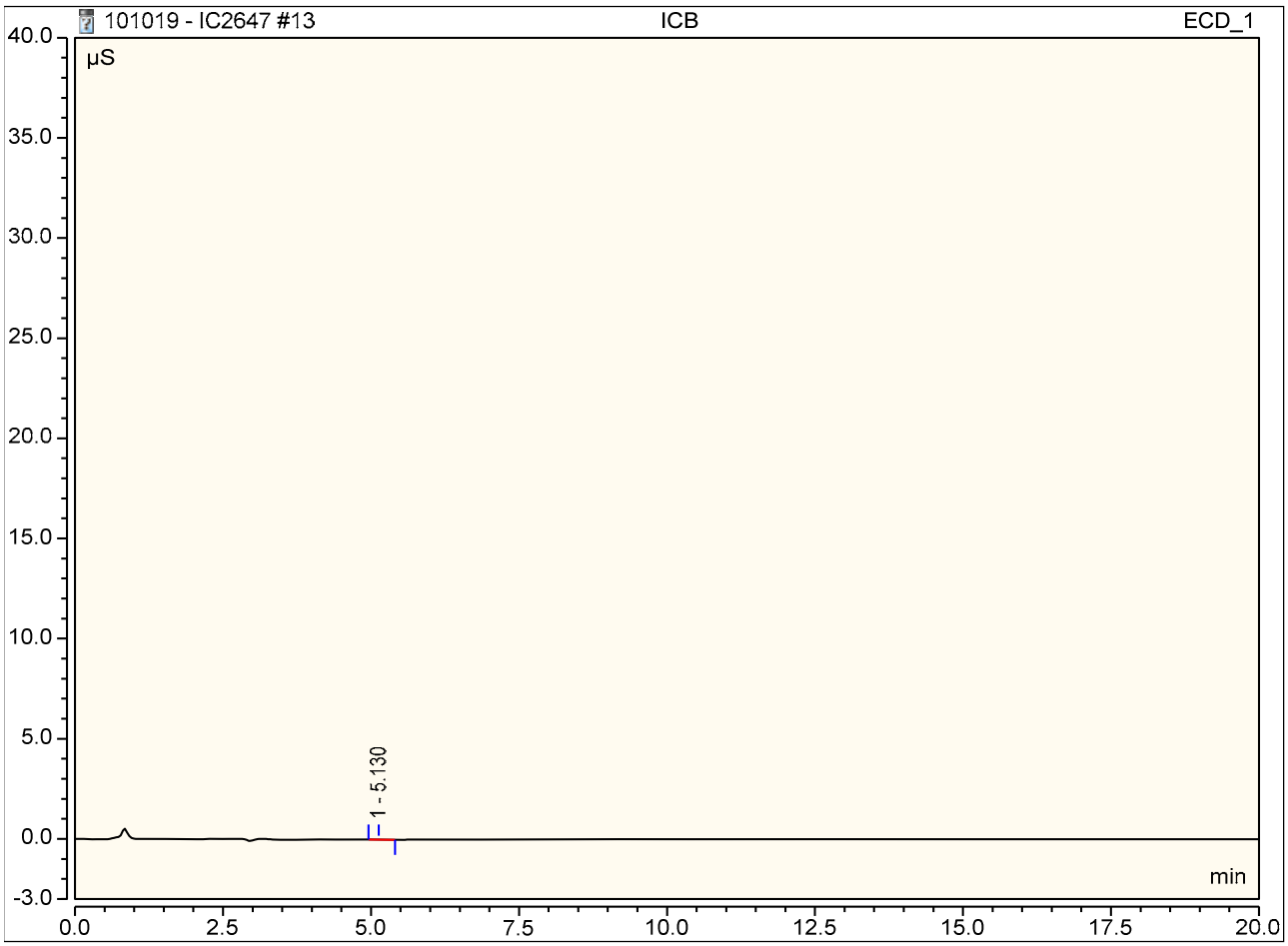
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.24	Fluoride	0.734	3.413	3.2628
3	5.65	Chloride	2.524	15.046	13.9287
4	6.58	Nitrite	1.125	5.268	3.5944
5	7.90	Bromide	0.229	0.973	3.4178
6	9.01	Nitrate	1.378	4.856	3.3109
7	11.46	O.Phos	0.467	1.135	3.5356
8	14.42	Sulfate	3.042	6.416	24.3106



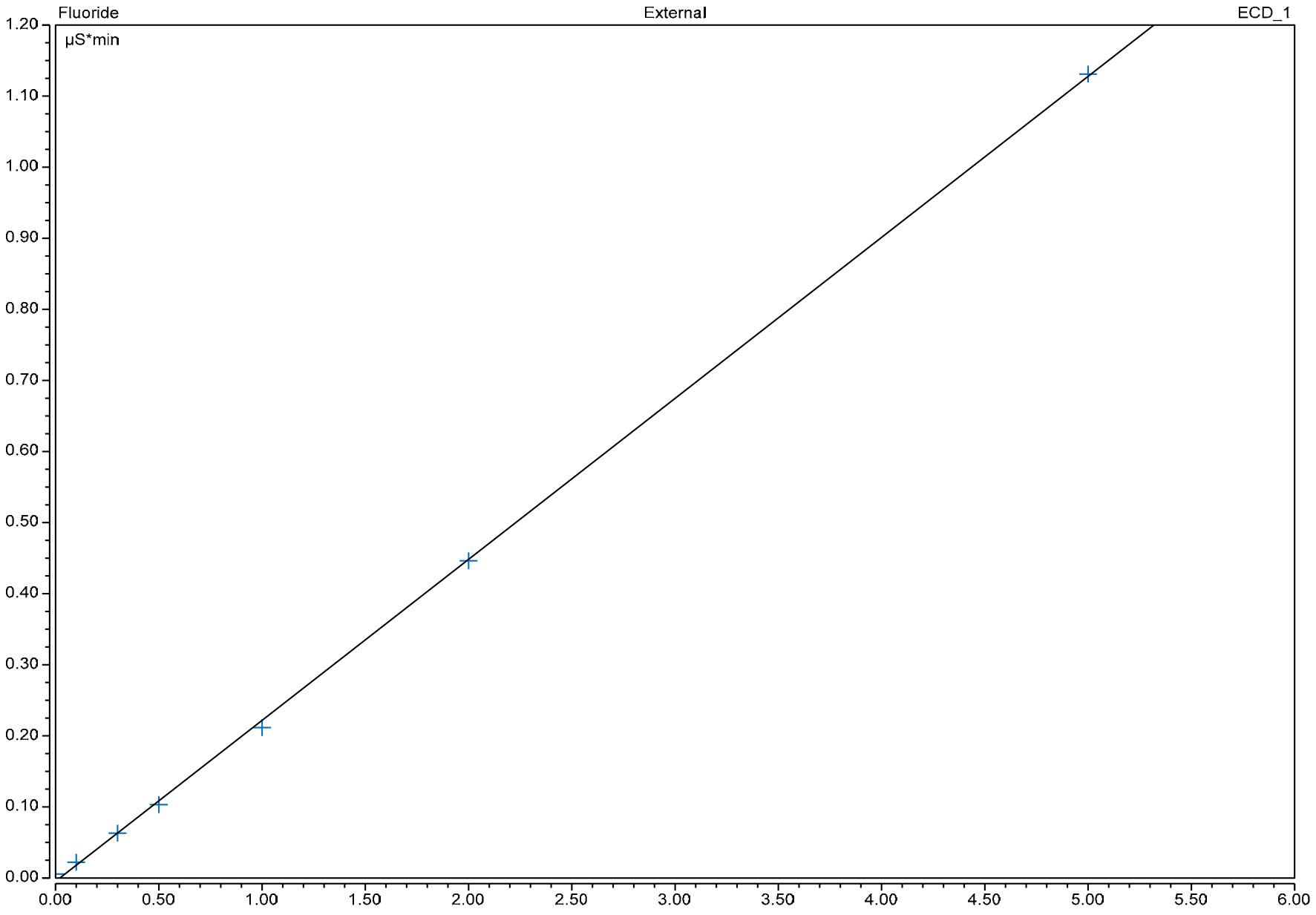
Peak Integration Report

Sample Name:	**ICB**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**AQUION**
Inj. Date / Time:	**10-Oct-2019 / 11:36**	*Run Time:*	**20.00**

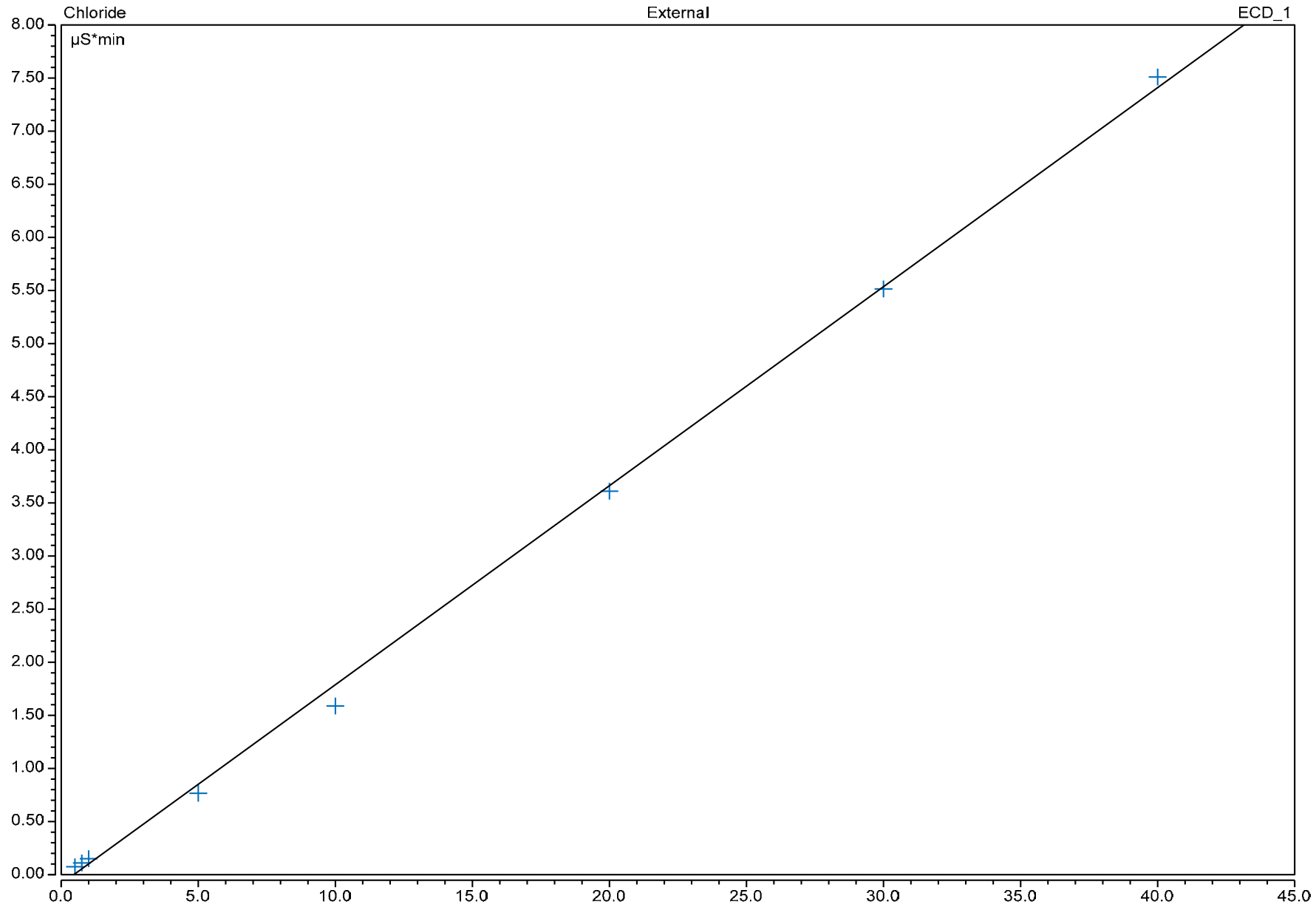
No.	Time min	Peak Name	Area µS*min	Height µS	Amount n.a.

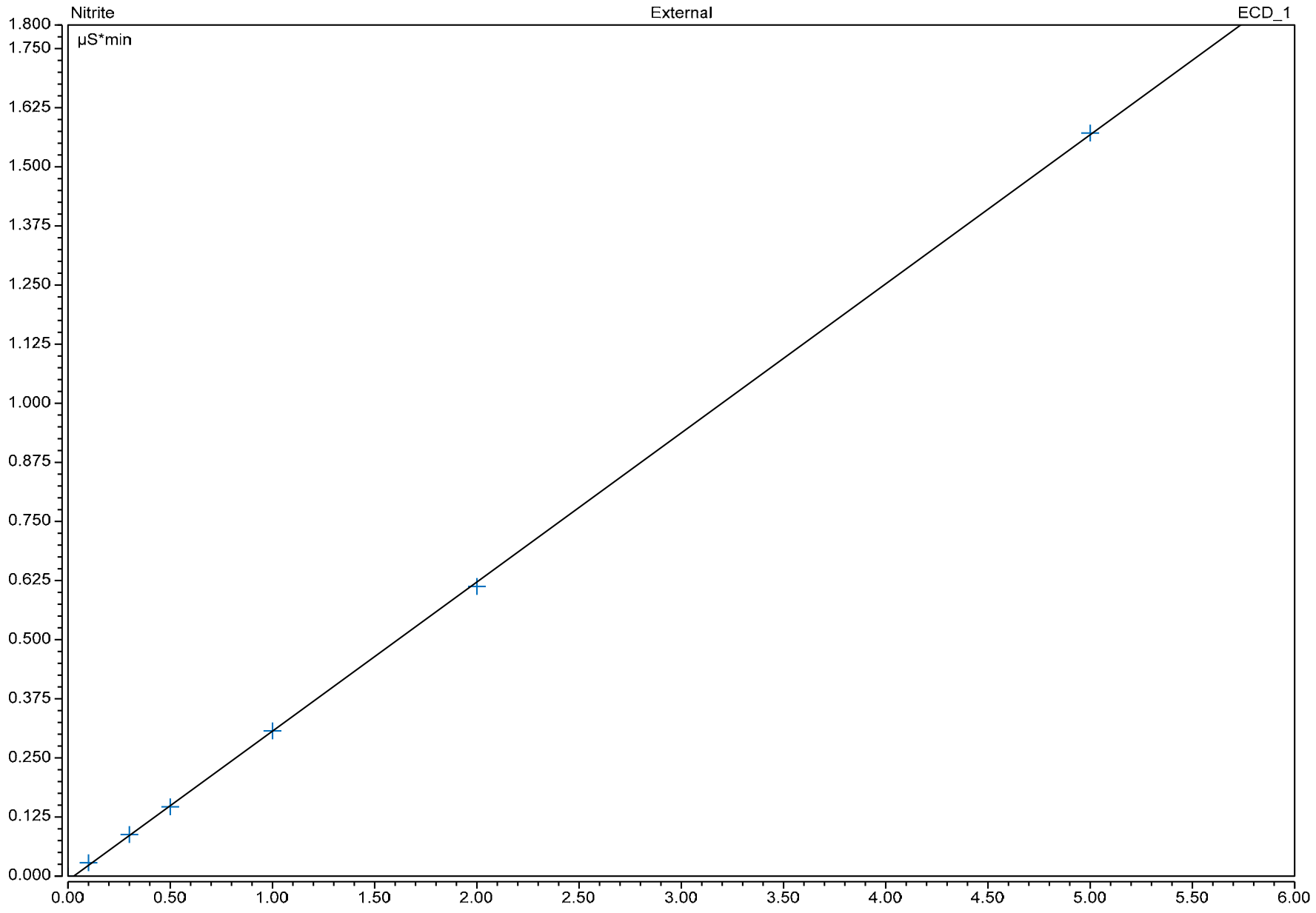


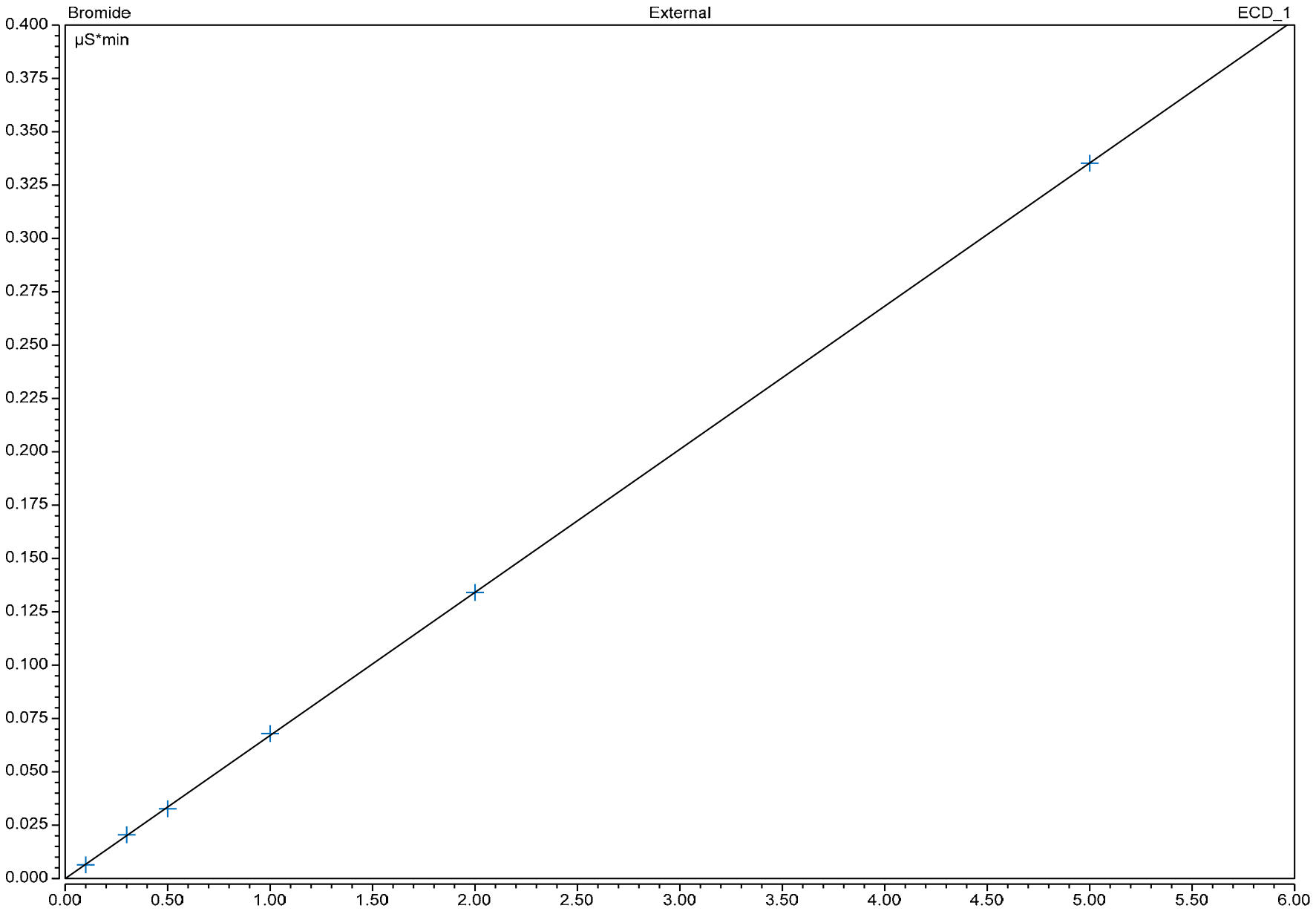
Peak No.	Peak Name	Cal.Type	Eval.Type	Number of Points	Rel.Std.Dev. %	Coeff.of Determination	C0 (Offset)	C1 (Slope)	C2 (Curve)
1	*Fluoride*	*Lin, WithOffset*	*Area*	*7*	*2.5999*	*0.99972*	*-0.0047*	*0.2265*	*0.0000*
3	Chloride	Lin, WithOffset	Area	9	4.9141	0.99873	-0.0862	0.1874	0.0000
4	Nitrite	Lin, WithOffset	Area	6	1.2839	0.99992	-0.0087	0.3153	0.0000
5	Bromide	Lin, WithOffset	Area	6	0.6521	0.99998	0.0000	0.0671	0.0000
6	Nitrate	Lin, WithOffset	Area	7	2.3292	0.99969	-0.0204	0.4222	0.0000
7	O.Phos	Lin, WithOffset	Area	6	1.4858	0.99989	-0.0002	0.1322	0.0000
8	Sulfate	Lin, WithOffset	Area	8	2.5952	0.99966	-0.0544	0.1274	0.0000
Maximum					**4.9141**	0.99998			
Minimum					0.6521	**0.99873**			


Fluoride
External
ECD_1
µS*min
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
4.00
4.50
5.00
5.50
6.00

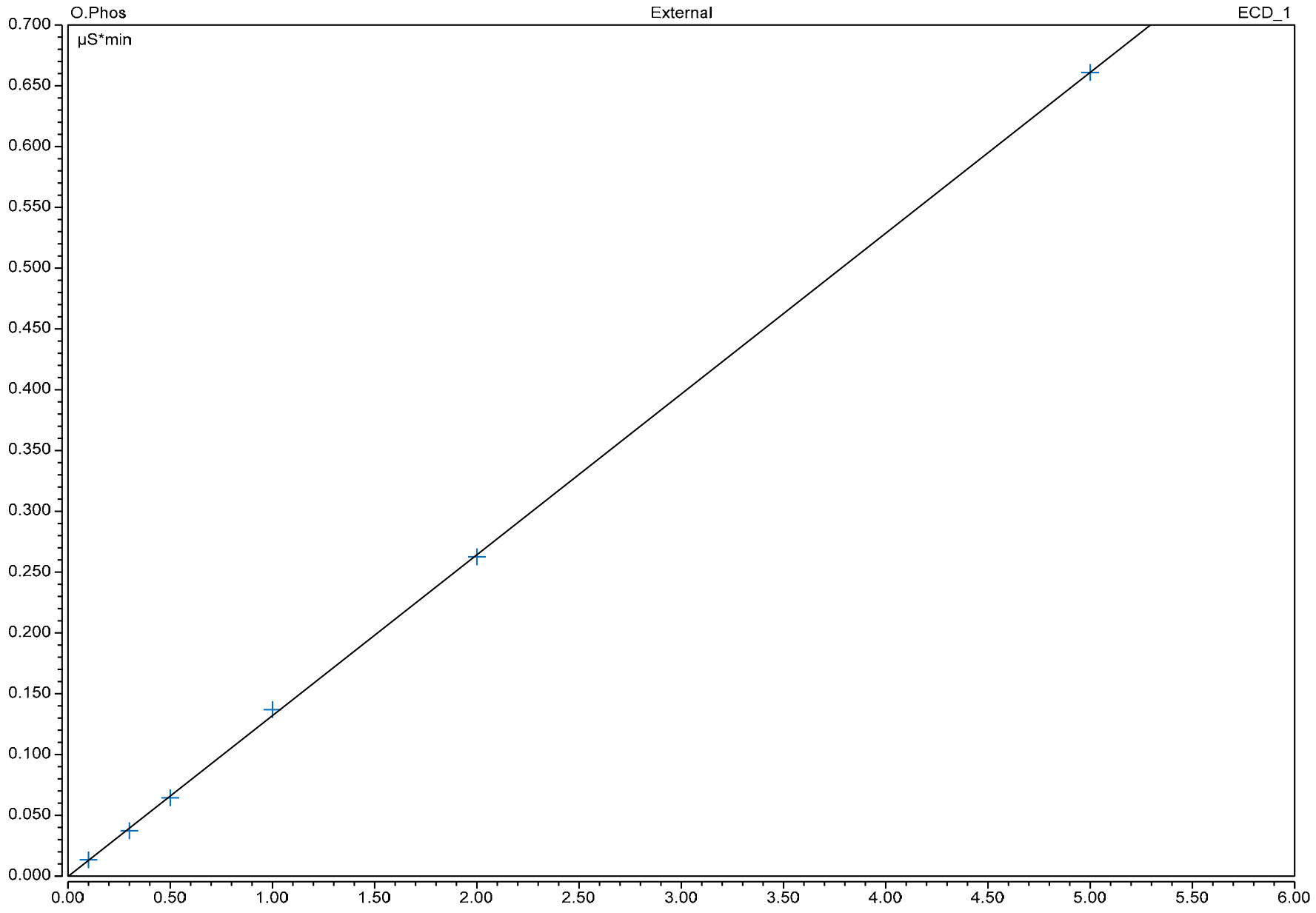
RJ 11/20/2019


Chloride
External
ECD_1
µS*min
8.00
7.50
7.00
6.50
6.00
5.50
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
0.0
5.0
10.0
15.0
20.0
25.0
30.0
35.0
40.0
45.0

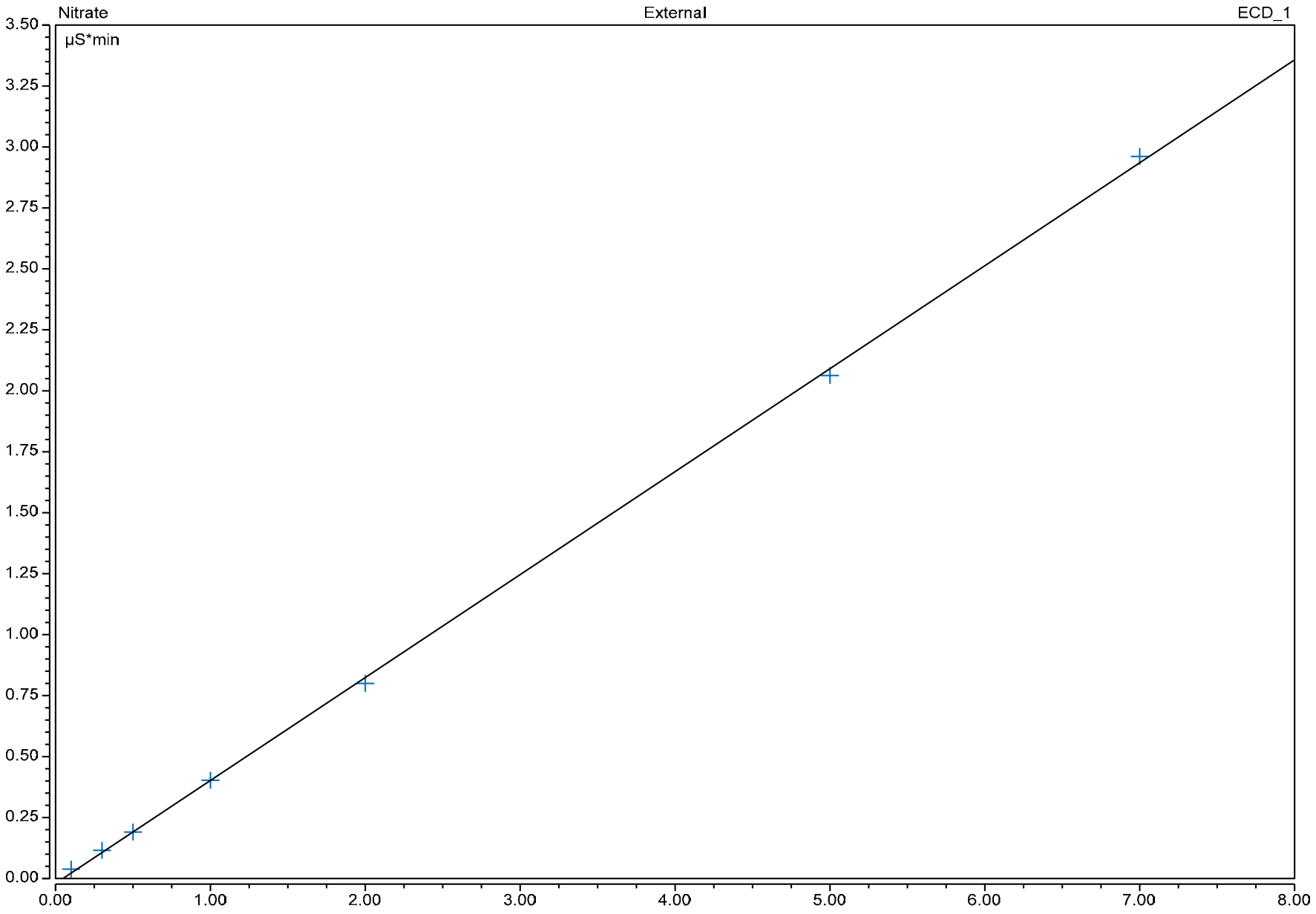

Nitrite
External
ECD_1
µS*min
1.800
1.750
1.625
1.500
1.375
1.250
1.125
1.000
0.875
0.750
0.625
0.500
0.375
0.250
0.125
0.000
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
4.00
4.50
5.00
5.50
6.00

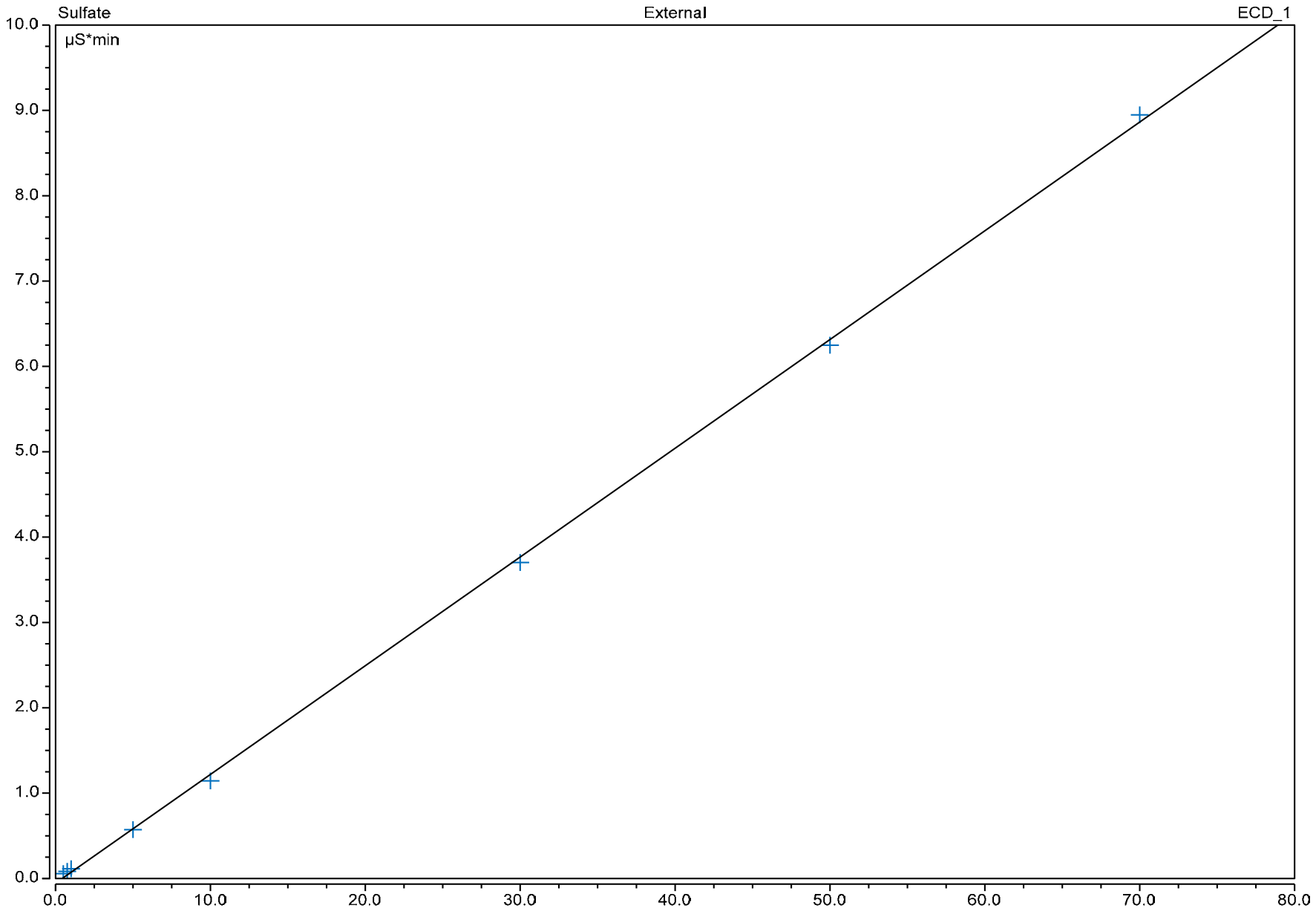

Bromide
External
ECD_1
µS*min
0.400
0.375
0.350
0.325
0.300
0.275
0.250
0.225
0.200
0.175
0.150
0.125
0.100
0.075
0.050
0.025
0.000
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
4.00
4.50
5.00
5.50
6.00

RJ 11/20/2019

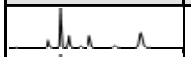
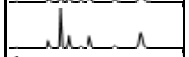
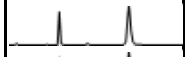
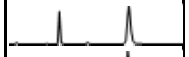
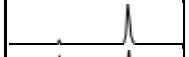
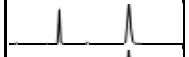
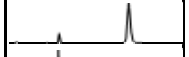
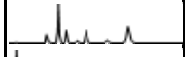
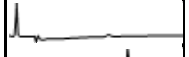
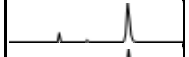
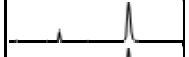
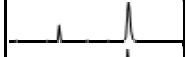
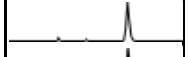
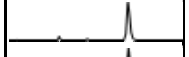
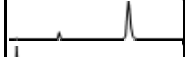

O.Phos
External
ECD_1
µS*min
0.700
0.650
0.600
0.550
0.500
0.450
0.400
0.350
0.300
0.250
0.200
0.150
0.100
0.050
0.000
0.00
0.50
1.00
1.50
2.00
2.50
3.00
3.50
4.00
4.50
5.00
5.50
6.00

RJ 11/20/2019


Nitrate
External
ECD_1
µS*min
3.50
3.25
3.00
2.75
2.50
2.25
2.00
1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00


Sulfate
External
ECD_1
µS*min
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
0.0
10.0
20.0
30.0
40.0
50.0
60.0
70.0
80.0

Sequence: 101819 - 165637 165651
Last Update Operator: aquion

ECD_1	Name	Dilution	Type	Level	Position	Volume	Instrument Method	Processing Method	Status
	CCV	1.0000	Unknown		2	5000	Anions	IC2647A	Finished
	LCSW	1.0000	Unknown		3	5000	Anions	IC2647A	Finished
	MBW	1.0000	Unknown		4	5000	Anions	IC2647A	Finished
	343367	1.0000	Unknown		5	5000	Anions	IC2467A	Finished
	343367X5	1.0000	Unknown		6	5000	Anions	IC2647A	Finished
	343868	1.0000	Unknown		7	5000	Anions	IC2647A	Finished
	343870	1.0000	Unknown		8	5000	Anions	IC2647A	Finished
	343872	1.0000	Unknown		9	5000	Anions	IC2647A	Finished
	343788	1.0000	Unknown		10	5000	Anions	IC2647A	Finished
	343836	1.0000	Unknown		11	5000	Anions	IC2647A	Finished
	343838	1.0000	Unknown		12	5000	Anions	IC2647A	Finished
	343840	1.0000	Unknown		13	5000	Anions	IC2647A	Finished
	343842	1.0000	Unknown		14	5000	Anions	IC2647A	Finished
	CCV	1.0000	Unknown		15	5000	Anions	IC2647A	Finished
	CCB	1.0000	Unknown		16	5000	Anions	IC2647A	Finished
	343846	1.0000	Unknown		17	5000	Anions	IC2647A	Finished
	343848	1.0000	Unknown		18	5000	Anions	IC2647A	Finished
	343850	1.0000	Unknown		19	5000	Anions	IC2647A	Finished
	343852	1.0000	Unknown		20	5000	Anions	IC2647A	Finished
	343854	1.0000	Unknown		21	5000	Anions	IC2647A	Finished
	343856	1.0000	Unknown		22	5000	Anions	IC2647A	Finished
	343858	1.0000	Unknown		23	5000	Anions	IC2647A	Finished
	343860	1.0000	Unknown		24	5000	Anions	IC2647A	Finished
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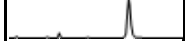
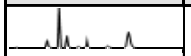
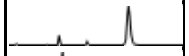
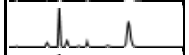
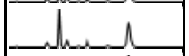
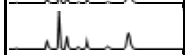
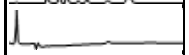
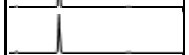
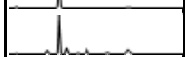
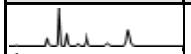
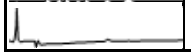
	343864	1.0000	Unknown		26	5000	Anions	IC2647A	Finished

Sequence: 101819 - 165637 165651
Last Update Operator: aquion

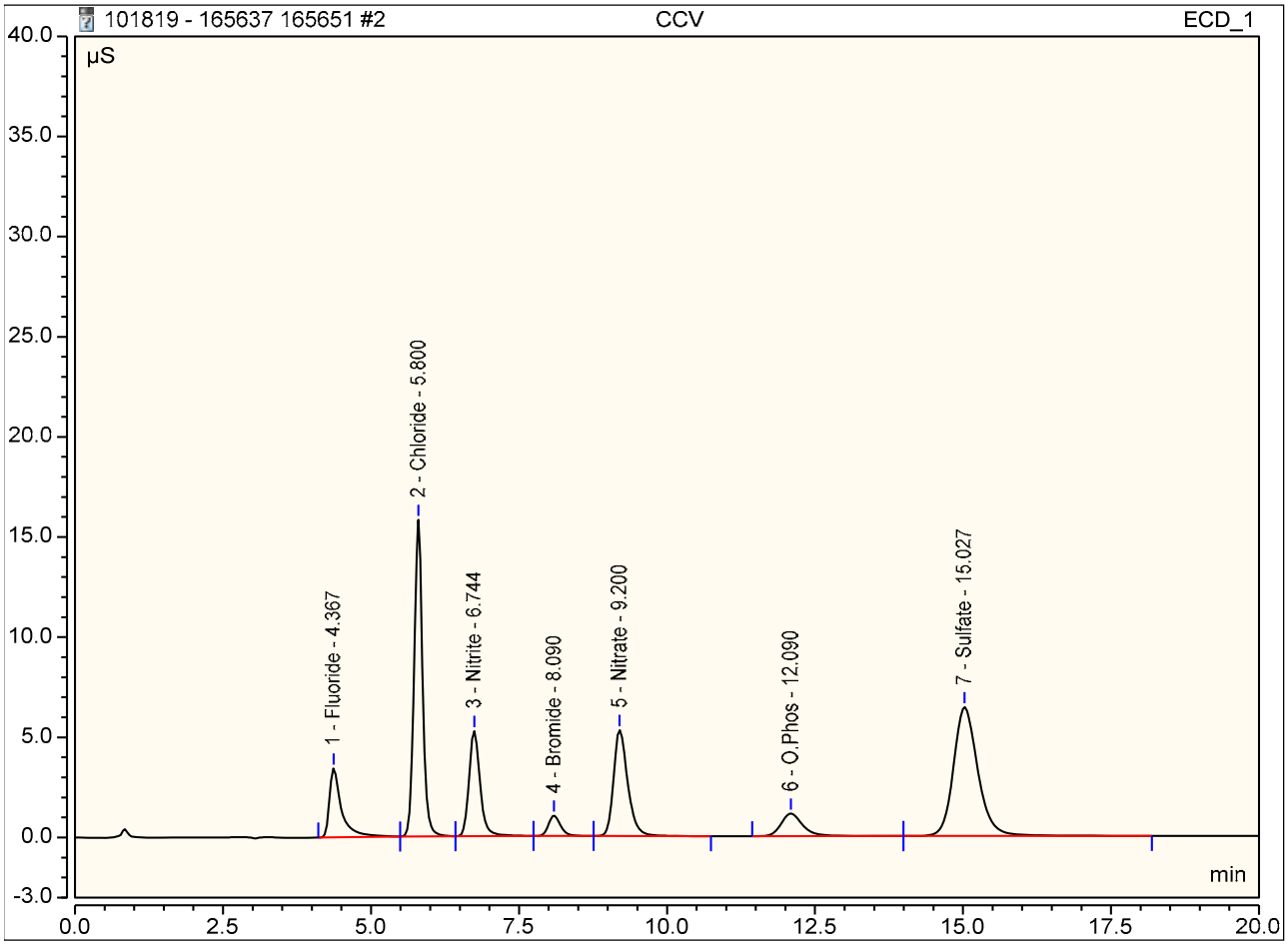
ECD_1	Name	Dilution	Type	Level	Position	Volume	Instrument Method	Processing Method	Status
	CCV	1.0000	Unknown		27	5000	Anions	IC2647A	Finished
	CCB	1.0000	Unknown		28	5000	Anions	IC2647A	Finished
	343866	1.0000	Unknown		29	5000	Anions	IC2647A	Finished
	DUP343367	1.0000	Unknown		30	5000	Anions	IC2647A	Finished
	MSW343367	1.0000	Unknown		31	5000	Anions	IC2647A	Finished
	MSDW343367	1.0000	Unknown		32	5000	Anions	IC2647A	Finished
	DUP343840	1.0000	Unknown		33	5000	Anions	IC2647A	Finished
	MSW343840	1.0000	Unknown		34	5000	Anions	IC2647A	Finished
	MSDW343840	1.0000	Unknown		35	5000	Anions	IC2647A	Finished
	DUP343848	1.0000	Unknown		36	5000	Anions	IC2647A	Finished
	MSW343848	1.0000	Unknown		37	5000	Anions	IC2647A	Finished
	MSDW343848	1.0000	Unknown		38	5000	Anions	IC2647A	Finished
	CCV	1.0000	Unknown		39	5000	Anions	IC2647A	Finished
	CCB	1.0000	Unknown		40	5000	Anions	IC2647A	Finished
	IB	1.0000	Unknown		41	5000	WEEKEND OFF	IC2647A	Interrupted
	IB	1.0000	Unknown		1	5000	Anions	IC2647A	Finished
	CCV	1.0000	Unknown		2	5000	Anions	IC2647A	Finished
	CCB	1.0000	Unknown		3	5000	Anions	IC2647A	Finished
	343838X5	1.0000	Unknown		4	5000	Anions	IC2647A	Finished
	343846X5	1.0000	Unknown		5	5000	Anions	IC2647A	Finished
	343852X5	1.0000	Unknown		6	5000	Anions	IC2647A	Finished
	343854X5	1.0000	Unknown		7	5000	Anions	IC2647A	Finished
	343367X50	1.0000	Unknown		8	5000	Anions	IC2647A	Finished
	DUP343367X50	1.0000	Unknown		9	5000	Anions	IC2647A	Finished
	MSW343367X50	1.0000	Unknown		10	5000	Anions	IC2647A	Finished

	MSDW343367X50	1.0000	Unknown		11	5000	Anions	IC2647A	Finished
ECD_1	**Name**	**Dilution**	**Type**	**Level**	**Position**	**Volume**	**Instrument Method**	**Processing Method**	**Status**
	CCV	1.0000	Unknown		12	5000	Anions	IC2647A	Finished
	CCB	1.0000	Unknown		13	5000	Anions	IC2647A	Finished

Peak Integration Report

Sample Name:	**CCV**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**AQUION**
Inj. Date / Time:	**18-Oct-2019 / 14:56**	*Run Time:*	**20.00**

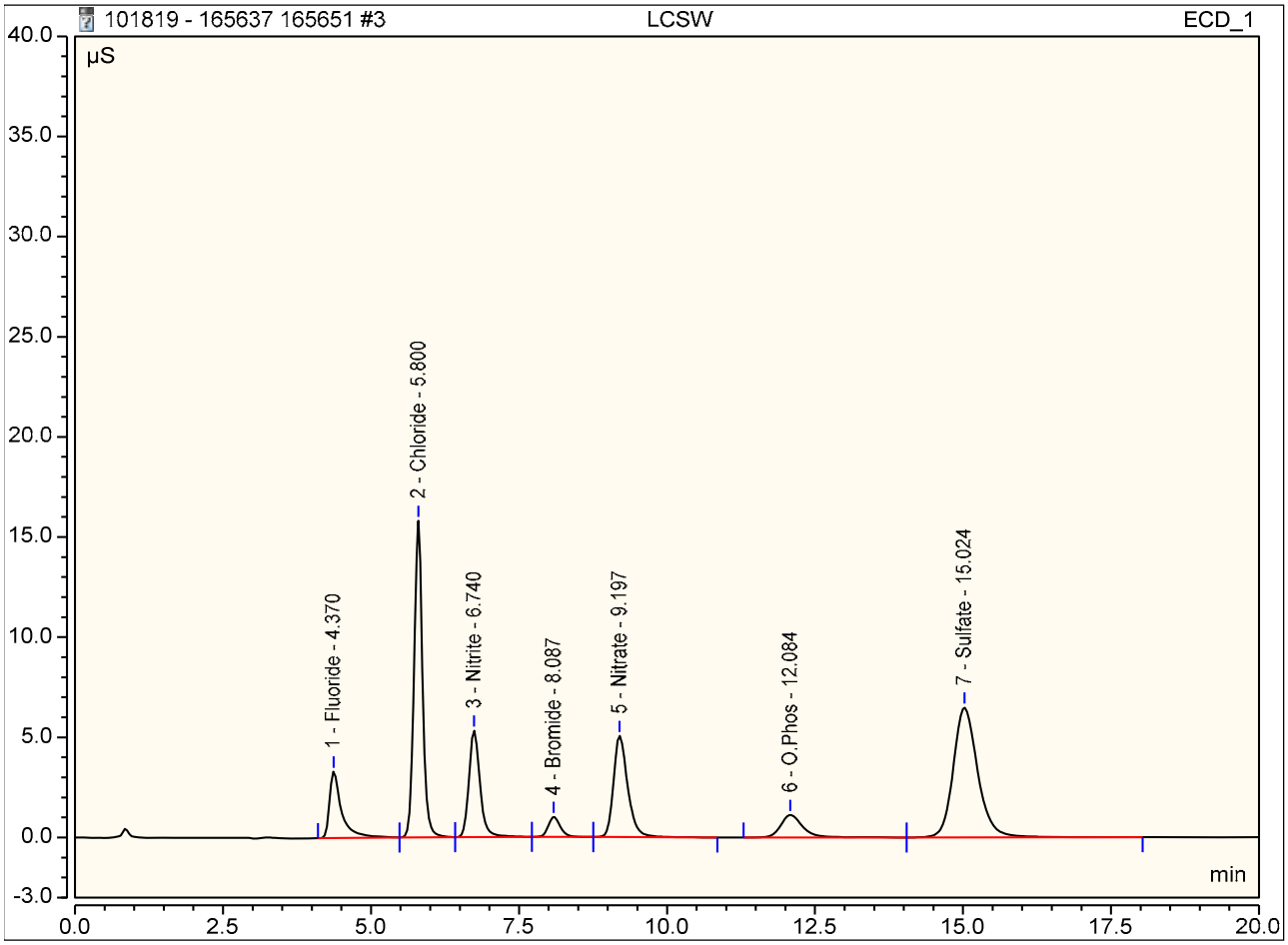
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.37	Fluoride	0.822	3.450	3.6499
2	5.80	Chloride	2.614	15.814	14.4093
3	6.74	Nitrite	1.145	5.260	3.6577
4	8.09	Bromide	0.241	1.020	3.5984
5	9.20	Nitrate	1.479	5.299	3.5508
6	12.09	O.Phos	0.487	1.131	3.6840
7	15.03	Sulfate	3.080	6.433	24.6049



Peak Integration Report

Sample Name:	**LCSW**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**AQUION**
Inj. Date / Time:	**18-Oct-2019 / 15:16**	*Run Time:*	**20.00**

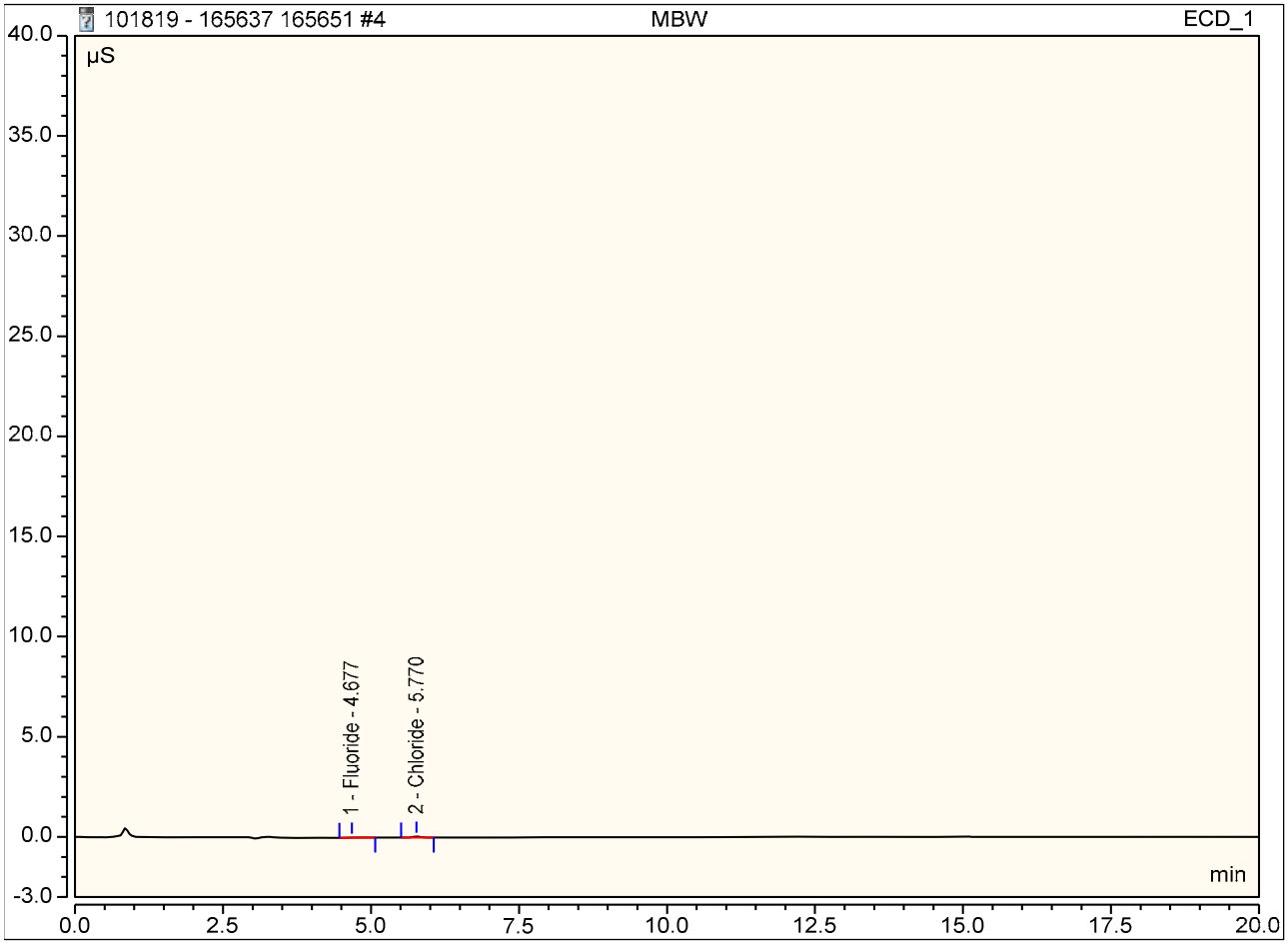
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.37	Fluoride	0.789	3.329	3.5038
2	5.80	Chloride	2.613	15.804	14.4037
3	6.74	Nitrite	1.155	5.322	3.6915
4	8.09	Bromide	0.237	1.003	3.5377
5	9.20	Nitrate	1.415	5.055	3.3997
6	12.08	O.Phos	0.484	1.128	3.6649
7	15.02	Sulfate	3.109	6.489	24.8309



Peak Integration Report

Sample Name:	**MBW**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**18-Oct-2019 / 15:36**	*Run Time:*	**20.00**

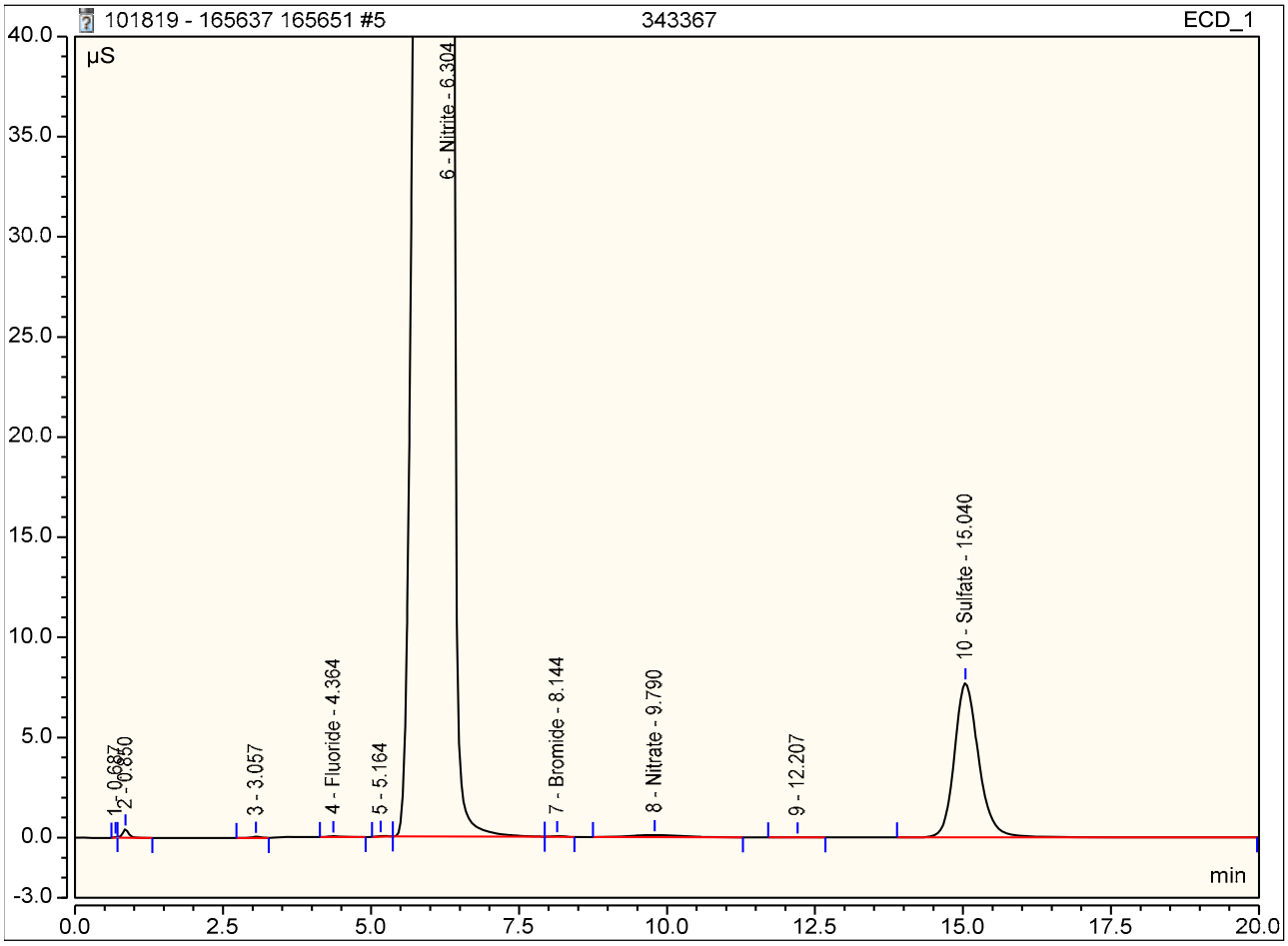
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.68	Fluoride	0.003	0.009	0.0319
2	5.77	Chloride	0.008	0.051	0.5047



Peak Integration Report

Sample Name:	**343367**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2467A**	*Operator:*	**aquion**
Inj. Date / Time:	**18-Oct-2019 / 15:56**	*Run Time:*	**20.00**

No.	Time min	Peak Name	Area µS*min	Height µS	Amount
4	4.36	Fluoride	0.010	0.040	0.0656
6	6.30	Nitrite	125.764	273.788	398.8671
7	8.14	Bromide	0.009	0.044	0.1367
8	9.79	Nitrate	0.117	0.111	0.3243
10	15.04	Sulfate	3.690	7.701	29.3938

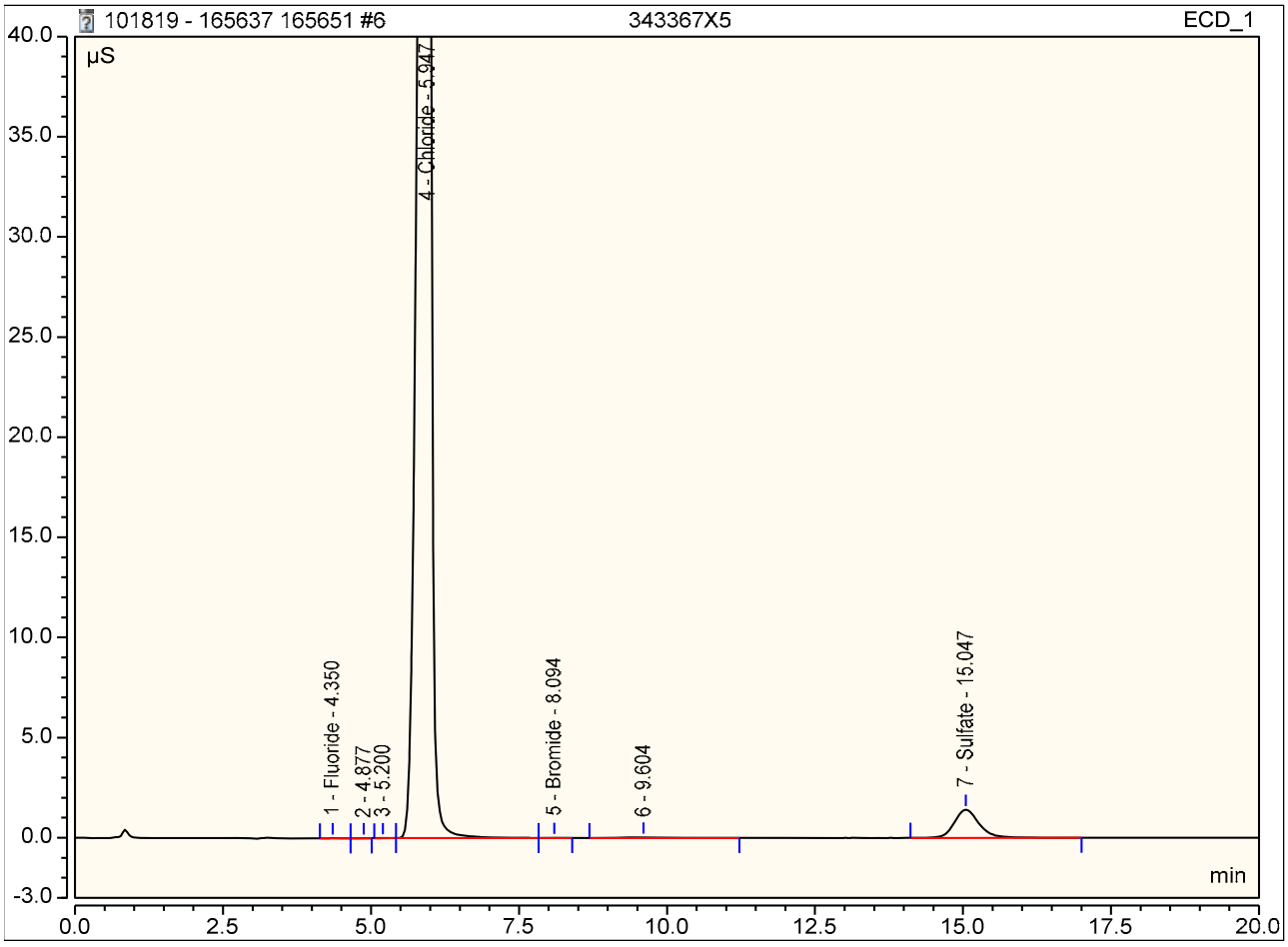


NOT USED

Peak Integration Report

Sample Name:	**343367X5**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**AQUION**
Inj. Date / Time:	**18-Oct-2019 / 16:16**	*Run Time:*	**20.00**

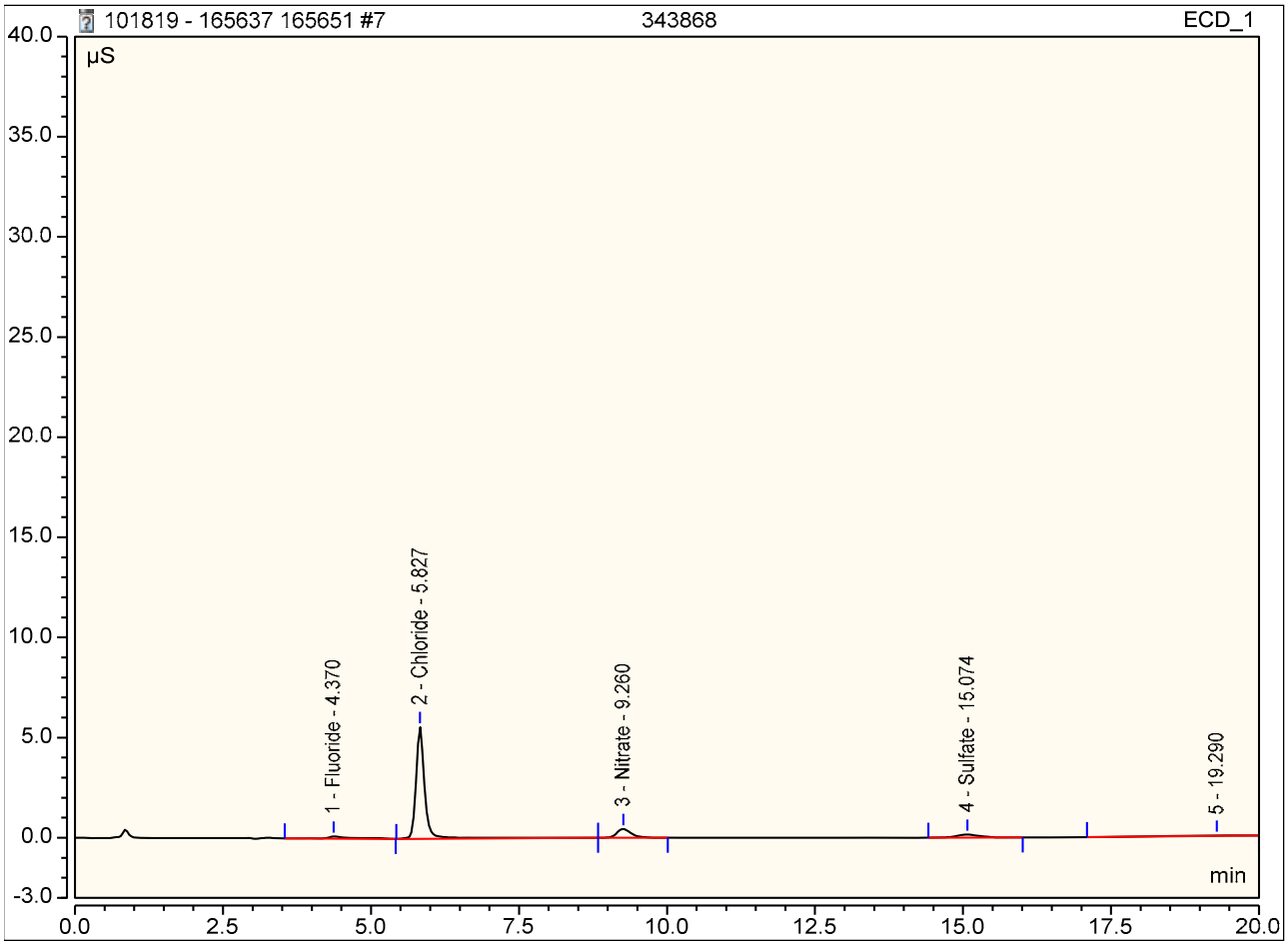
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.35	Fluoride	0.002	0.008	0.0282
4	5.95	Chloride	22.501	106.426	120.5278
5	8.09	Bromide	0.002	0.008	0.0318
7	15.05	Sulfate	0.688	1.406	5.8296



Peak Integration Report

Sample Name:	**343868**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**AQUION**
Inj. Date / Time:	**18-Oct-2019 / 16:36**	*Run Time:*	**20.00**

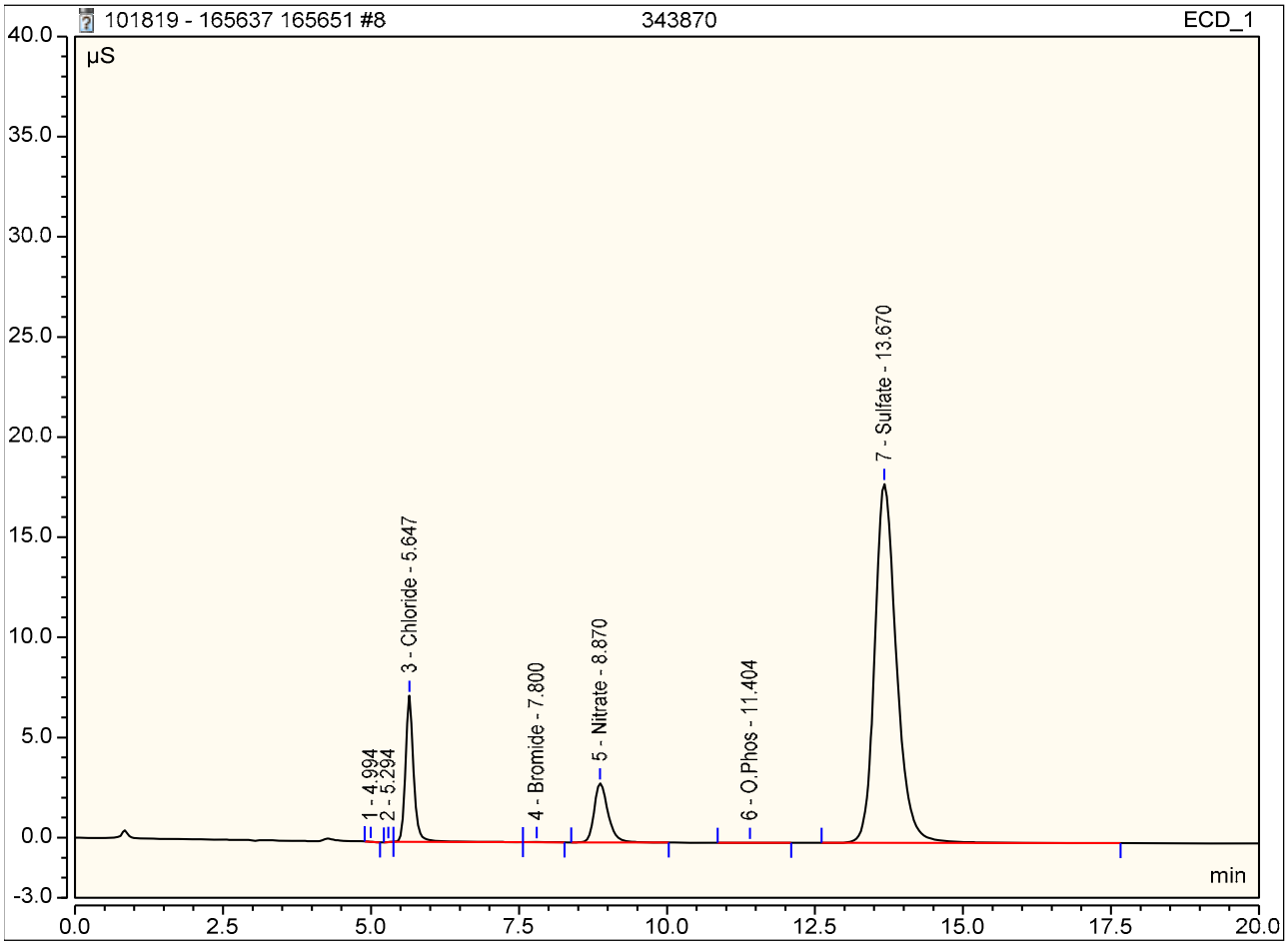
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.37	Fluoride	0.056	0.111	0.2667
2	5.83	Chloride	0.977	5.586	5.6734
3	9.26	Nitrate	0.125	0.439	0.3433
4	15.07	Sulfate	0.072	0.152	0.9910



Peak Integration Report

Sample Name:	**343870**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**18-Oct-2019 / 16:56**	*Run Time:*	**20.00**

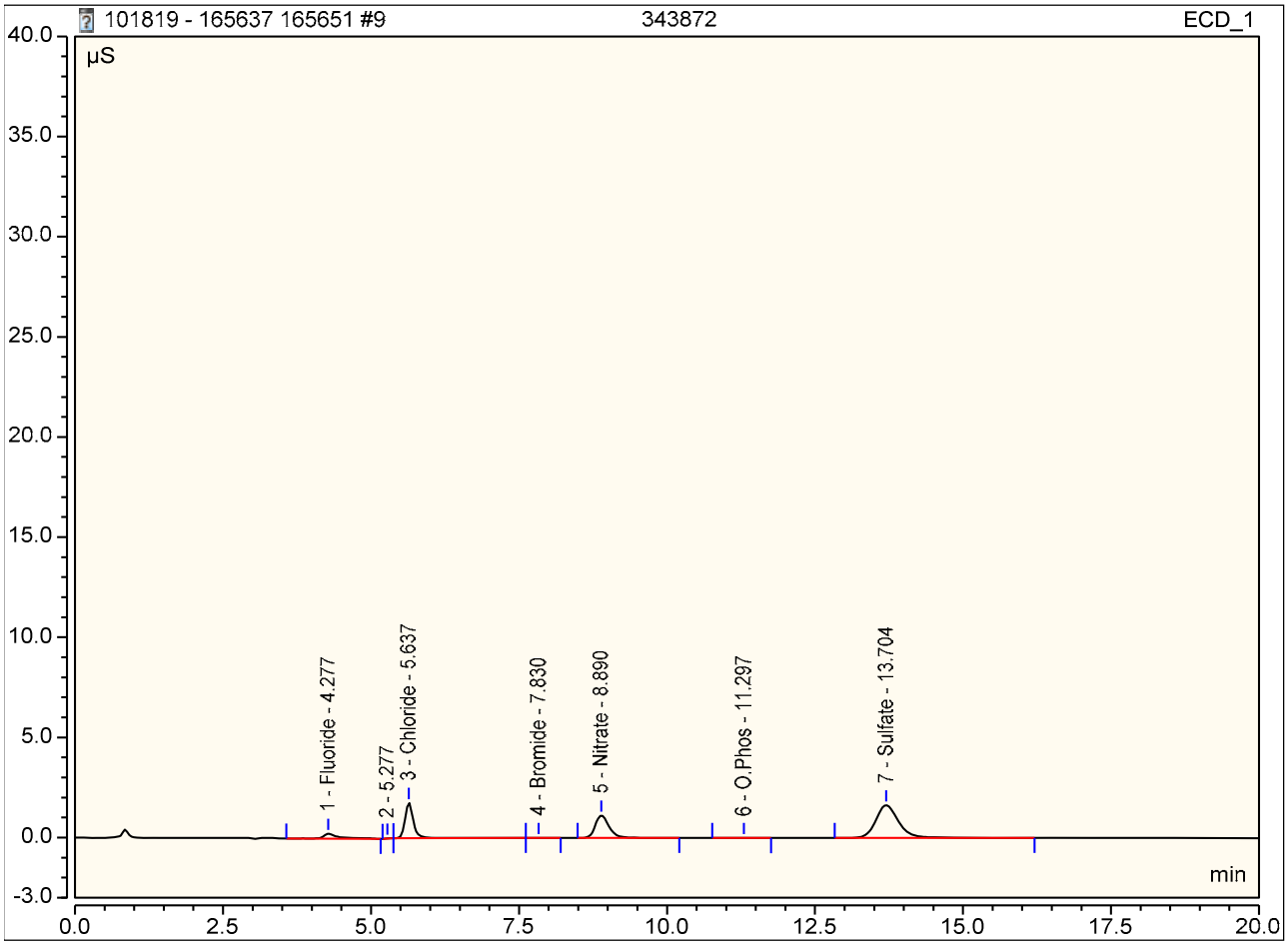
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
3	5.65	Chloride	1.159	7.290	6.6430
4	7.80	Bromide	0.003	0.013	0.0454
5	8.87	Nitrate	0.802	2.954	1.9480
6	11.40	O.Phos	0.006	0.010	0.0442
7	13.67	Sulfate	7.669	17.931	60.6289



Peak Integration Report

Sample Name:	**343872**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**18-Oct-2019 / 17:16**	*Run Time:*	**20.00**

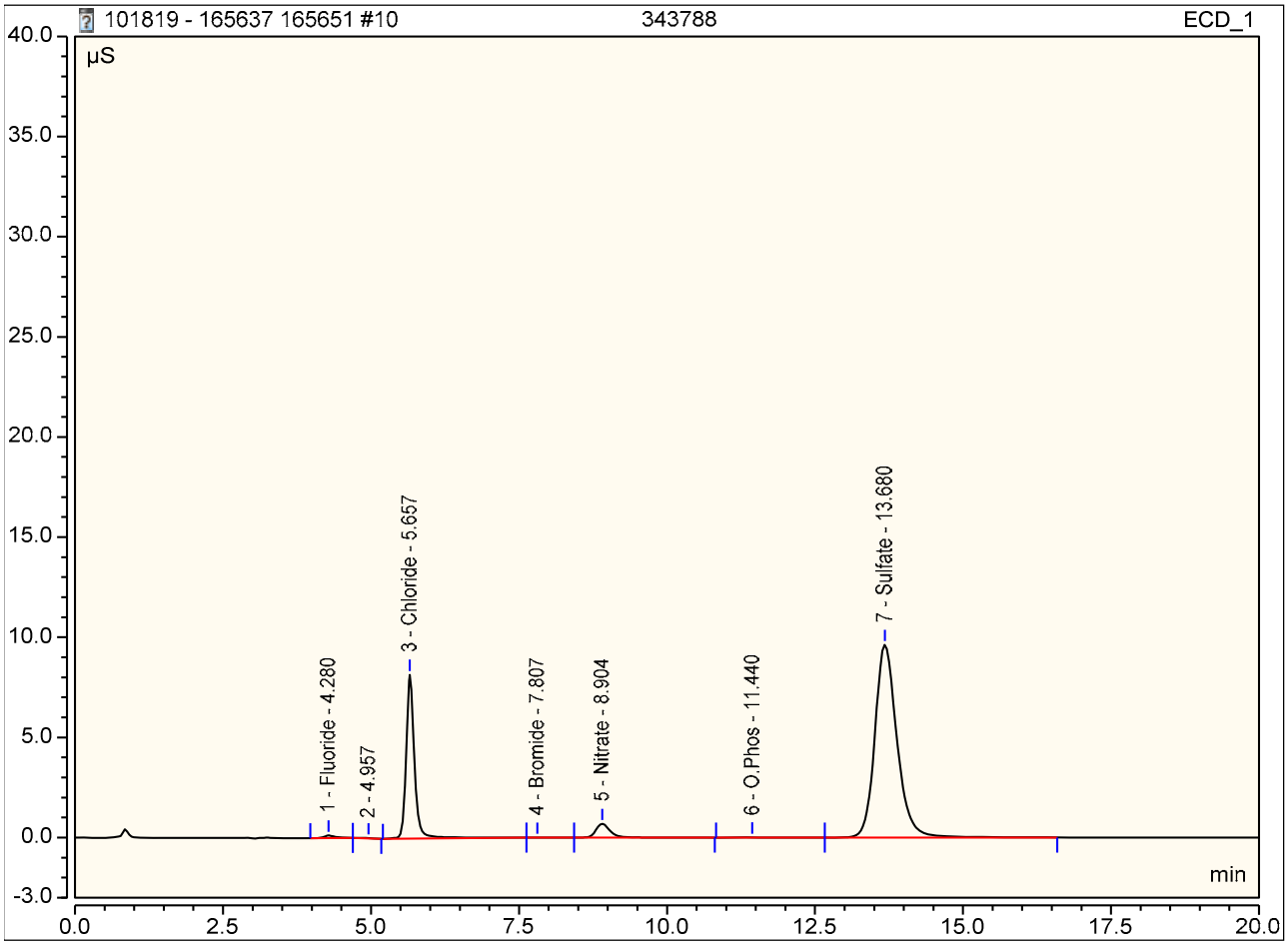
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.28	Fluoride	0.081	0.244	0.3767
3	5.64	Chloride	0.299	1.766	2.0548
4	7.83	Bromide	0.001	0.006	0.0222
5	8.89	Nitrate	0.309	1.125	0.7798
6	11.30	O.Phos	0.003	0.007	0.0212
7	13.70	Sulfate	0.737	1.635	6.2138



Peak Integration Report

Sample Name:	**343788**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**18-Oct-2019 / 17:36**	*Run Time:*	**20.00**

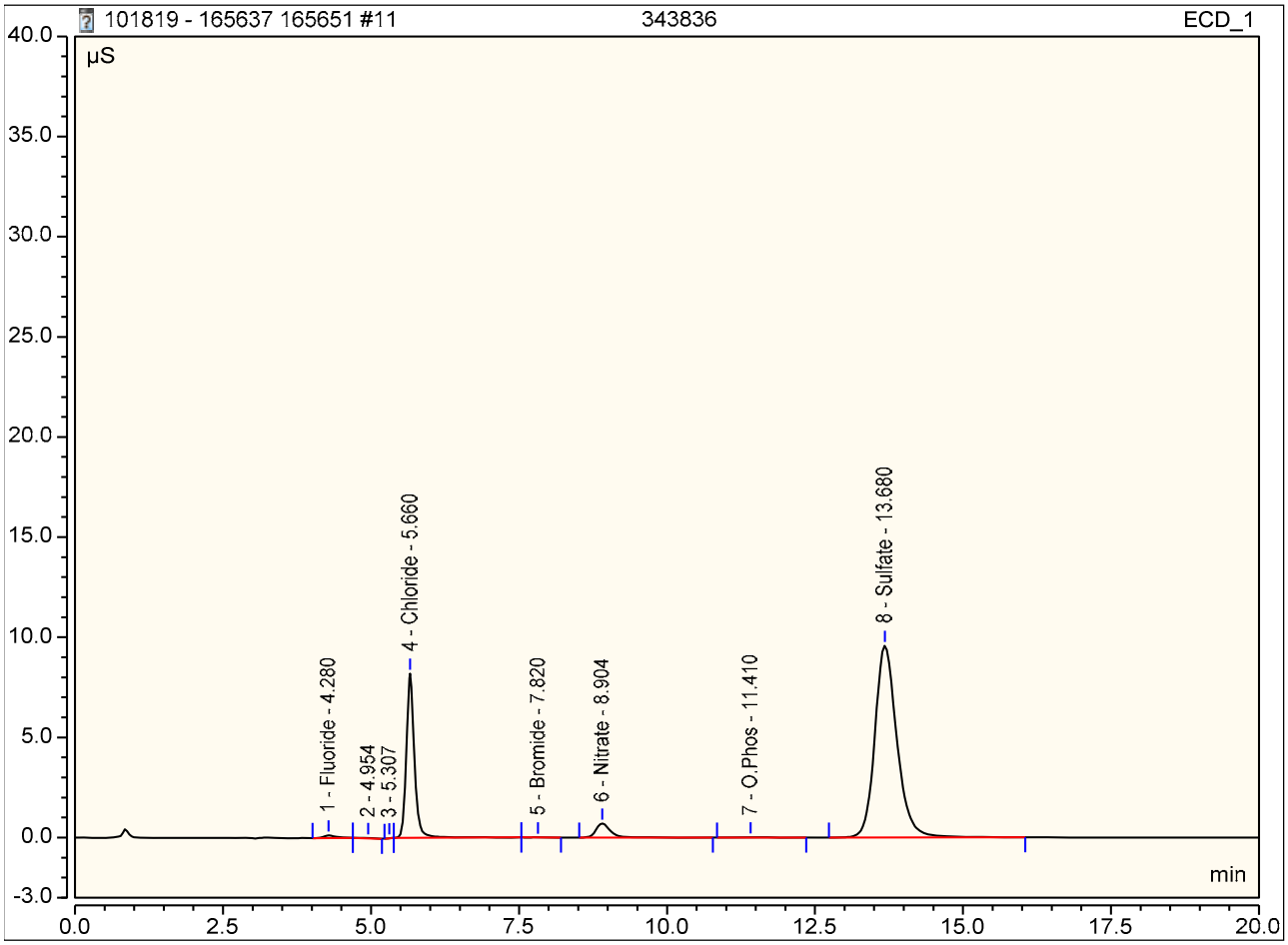
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.28	Fluoride	0.027	0.127	0.1418
3	5.66	Chloride	1.340	8.184	7.6105
4	7.81	Bromide	0.002	0.007	0.0264
5	8.90	Nitrate	0.199	0.694	0.5192
6	11.44	O.Phos	0.009	0.013	0.0669
7	13.68	Sulfate	4.180	9.625	33.2374



Peak Integration Report

Sample Name:	**343836**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**18-Oct-2019 / 17:56**	*Run Time:*	**20.00**

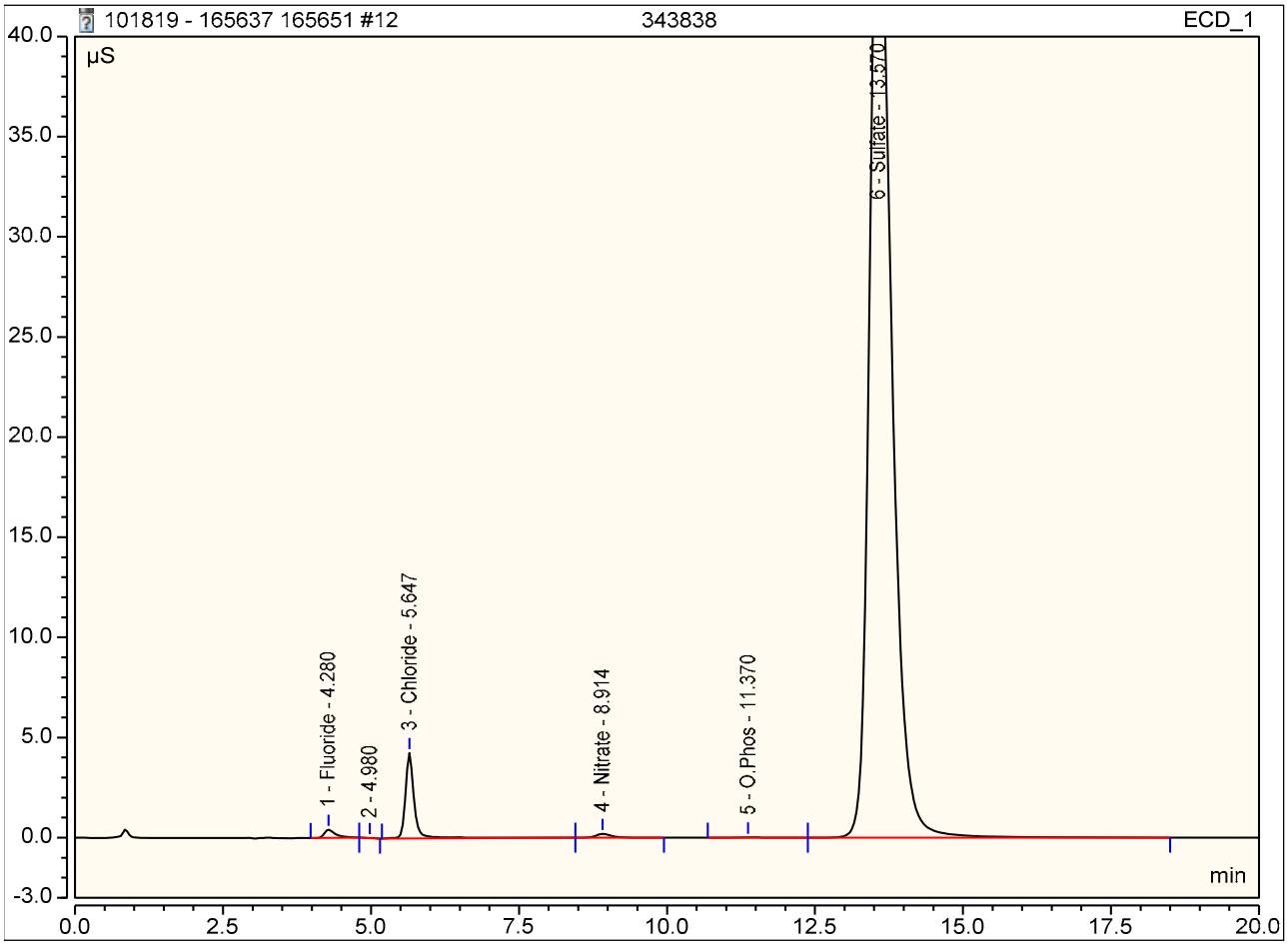
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.28	Fluoride	0.027	0.126	0.1406
4	5.66	Chloride	1.295	8.199	7.3695
5	7.82	Bromide	0.001	0.004	0.0109
6	8.90	Nitrate	0.199	0.700	0.5186
7	11.41	O.Phos	0.007	0.014	0.0578
8	13.68	Sulfate	4.150	9.572	33.0038



Peak Integration Report

Sample Name:	**343838**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**18-Oct-2019 / 18:16**	*Run Time:*	**20.00**

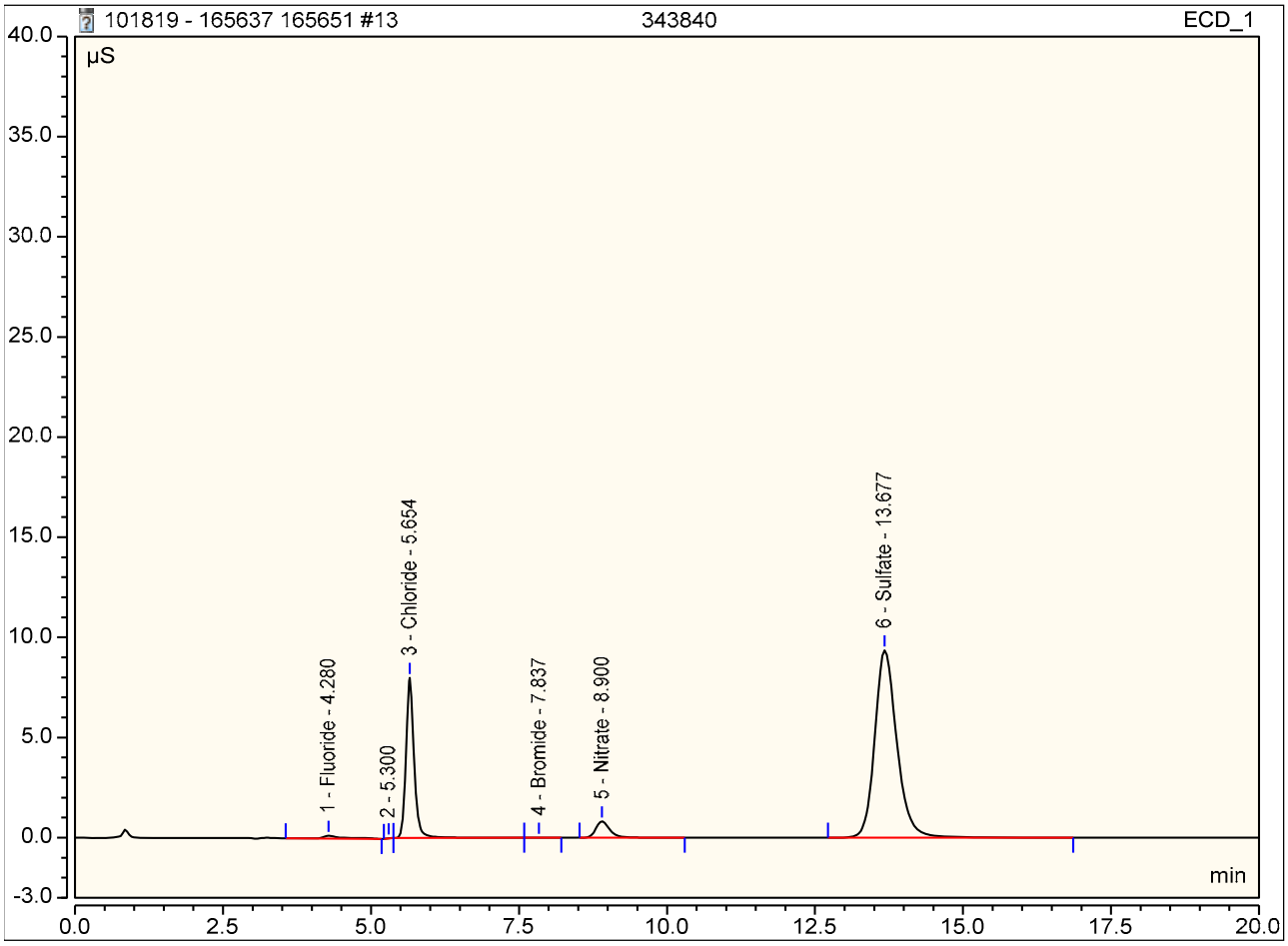
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.28	Fluoride	0.093	0.415	0.4311
3	5.65	Chloride	0.762	4.278	4.5271
4	8.91	Nitrate	0.056	0.192	0.1799
5	11.37	O.Phos	0.004	0.007	0.0358
6	13.57	Sulfate	21.319	49.886	167.7857



Peak Integration Report

Sample Name:	**343840**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**18-Oct-2019 / 18:36**	*Run Time:*	**20.00**

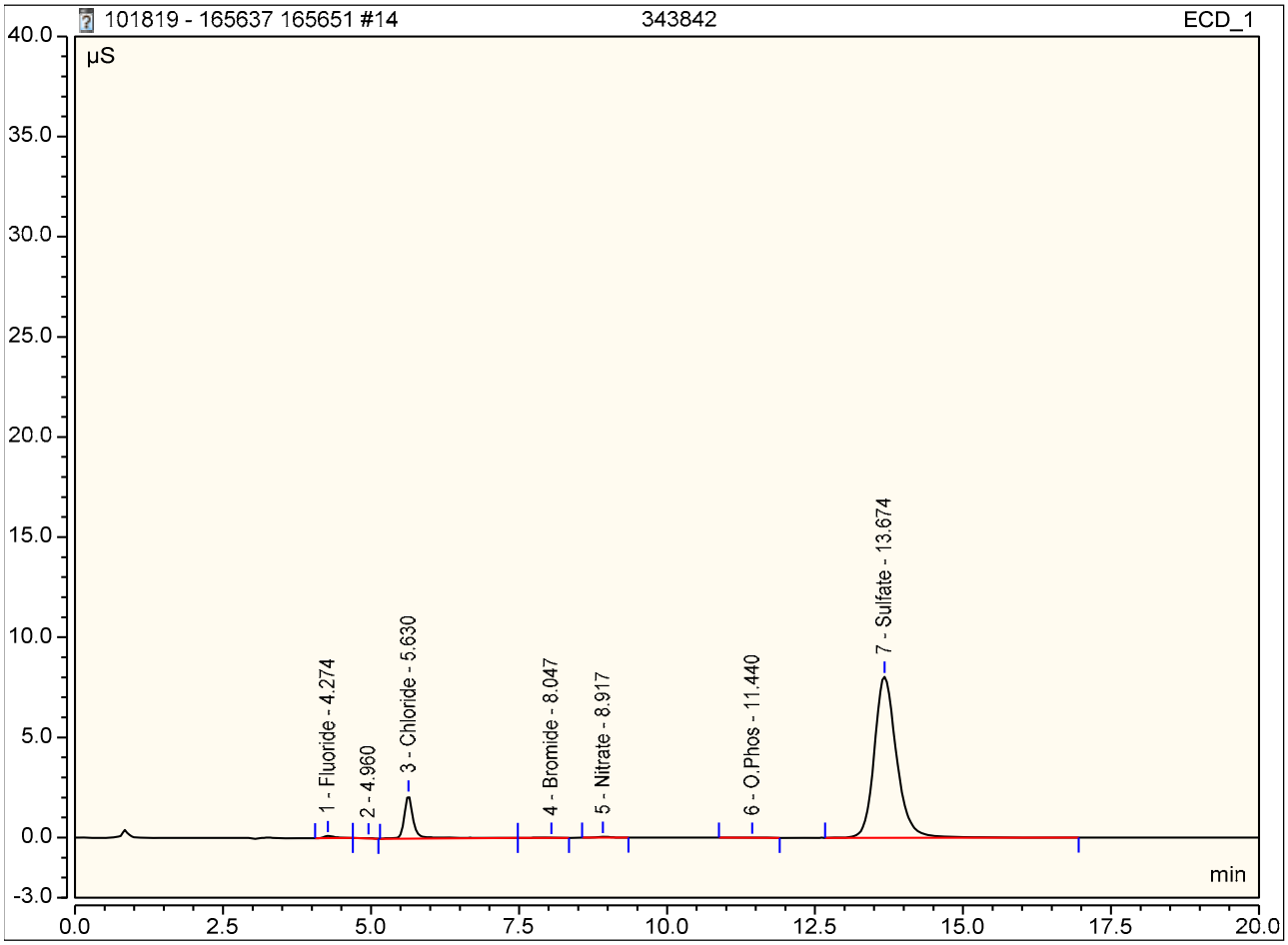
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.28	Fluoride	0.060	0.148	0.2877
3	5.65	Chloride	1.273	7.998	7.2515
4	7.84	Bromide	0.002	0.007	0.0292
5	8.90	Nitrate	0.226	0.817	0.5825
6	13.68	Sulfate	4.072	9.357	32.3941



Peak Integration Report

Sample Name:	**343842**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**18-Oct-2019 / 18:56**	*Run Time:*	**20.00**

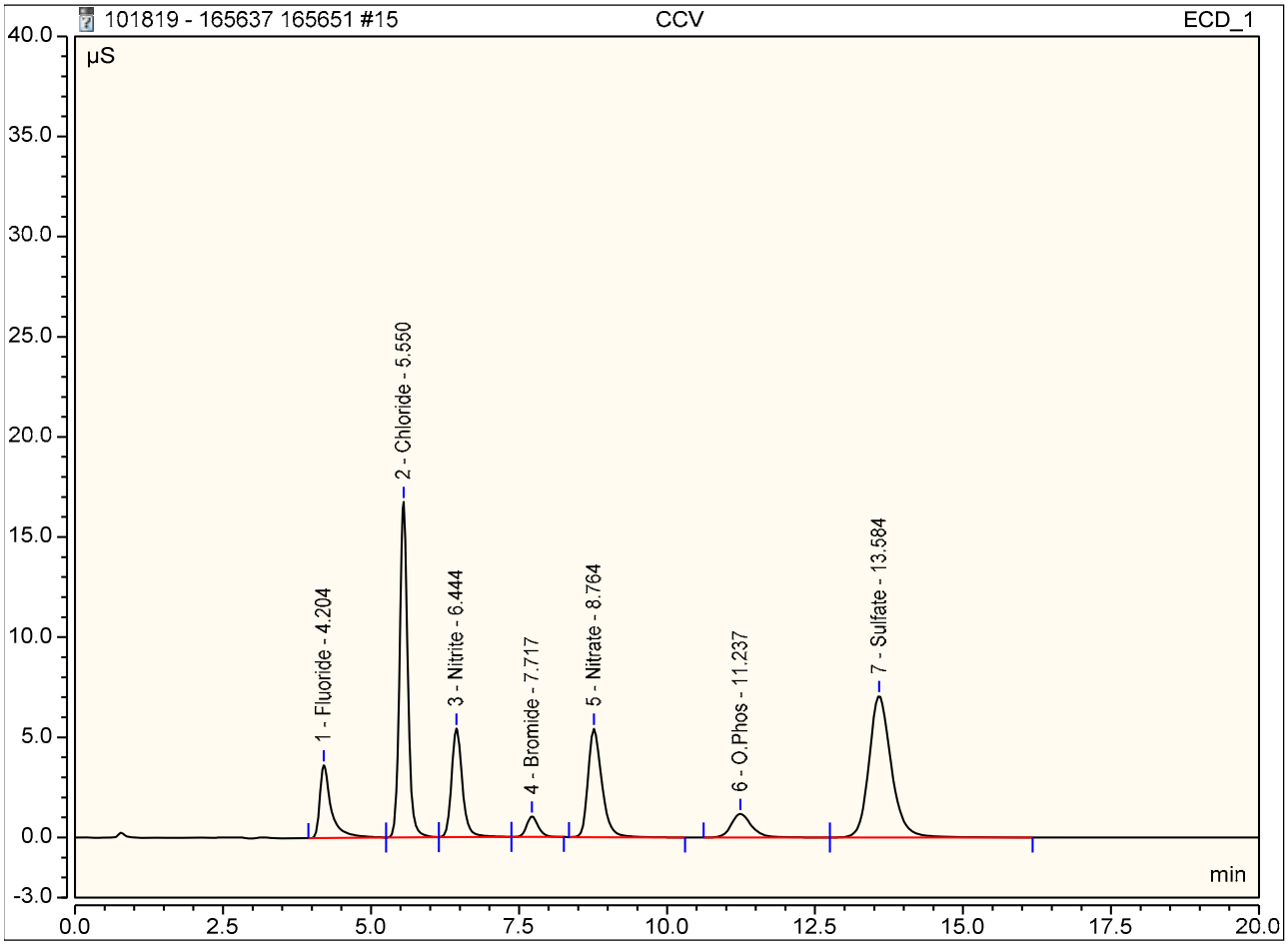
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.27	Fluoride	0.024	0.113	0.1264
3	5.63	Chloride	0.391	2.152	2.5482
4	8.05	Bromide	0.002	0.004	0.0259
5	8.92	Nitrate	0.013	0.048	0.0794
6	11.44	O.Phos	0.005	0.011	0.0367
7	13.67	Sulfate	3.519	8.044	28.0525



Peak Integration Report

Sample Name:	**CCV**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**18-Oct-2019 / 19:16**	*Run Time:*	**20.00**

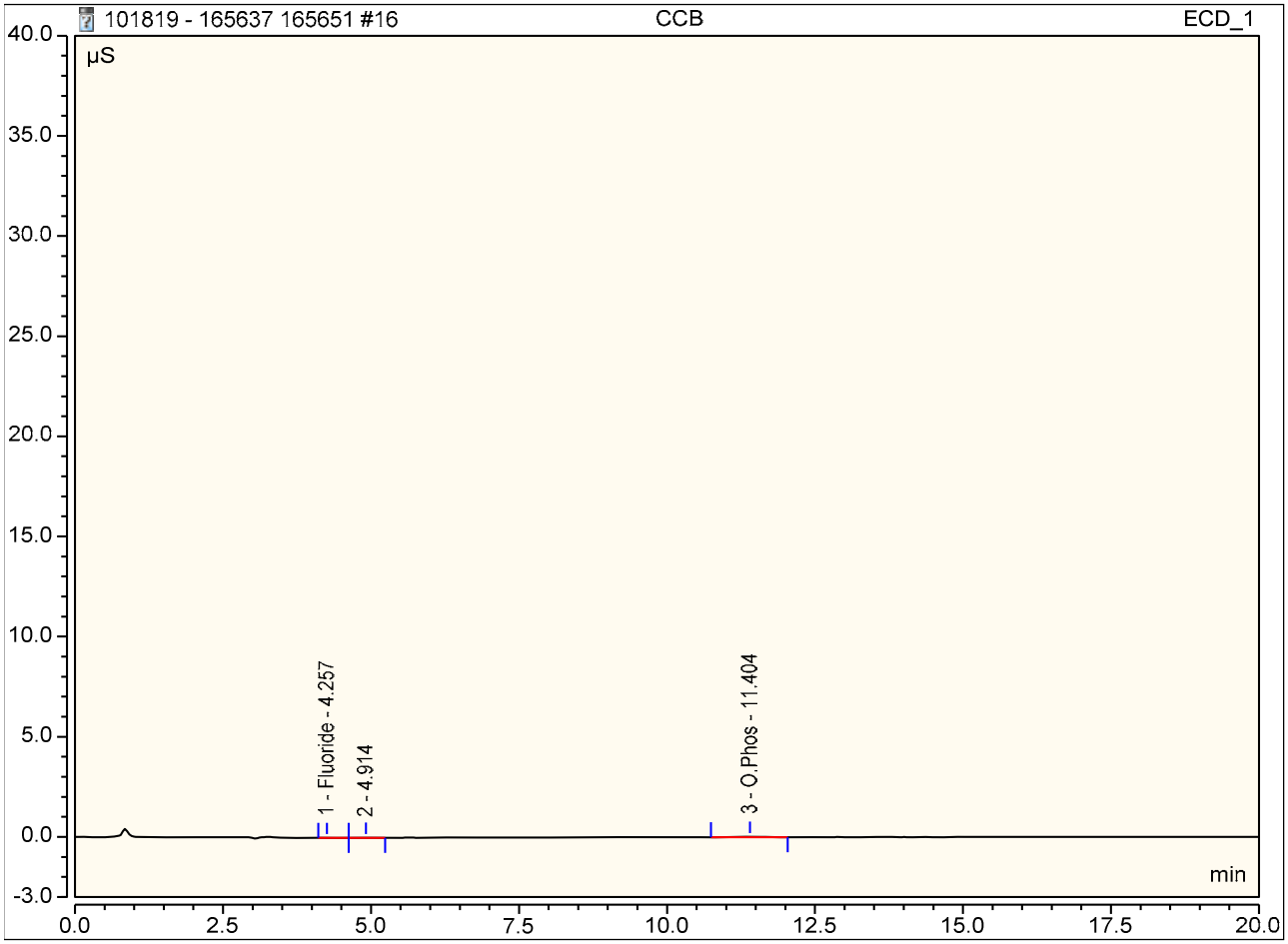
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.20	Fluoride	0.818	3.642	3.6328
2	5.55	Chloride	2.653	16.750	14.6187
3	6.44	Nitrite	1.144	5.412	3.6550
4	7.72	Bromide	0.234	1.025	3.4833
5	8.76	Nitrate	1.466	5.416	3.5196
6	11.24	O.Phos	0.474	1.181	3.5842
7	13.58	Sulfate	3.094	7.070	24.7168



Peak Integration Report

Sample Name:	**CCB**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**18-Oct-2019 / 19:36**	*Run Time:*	**20.00**

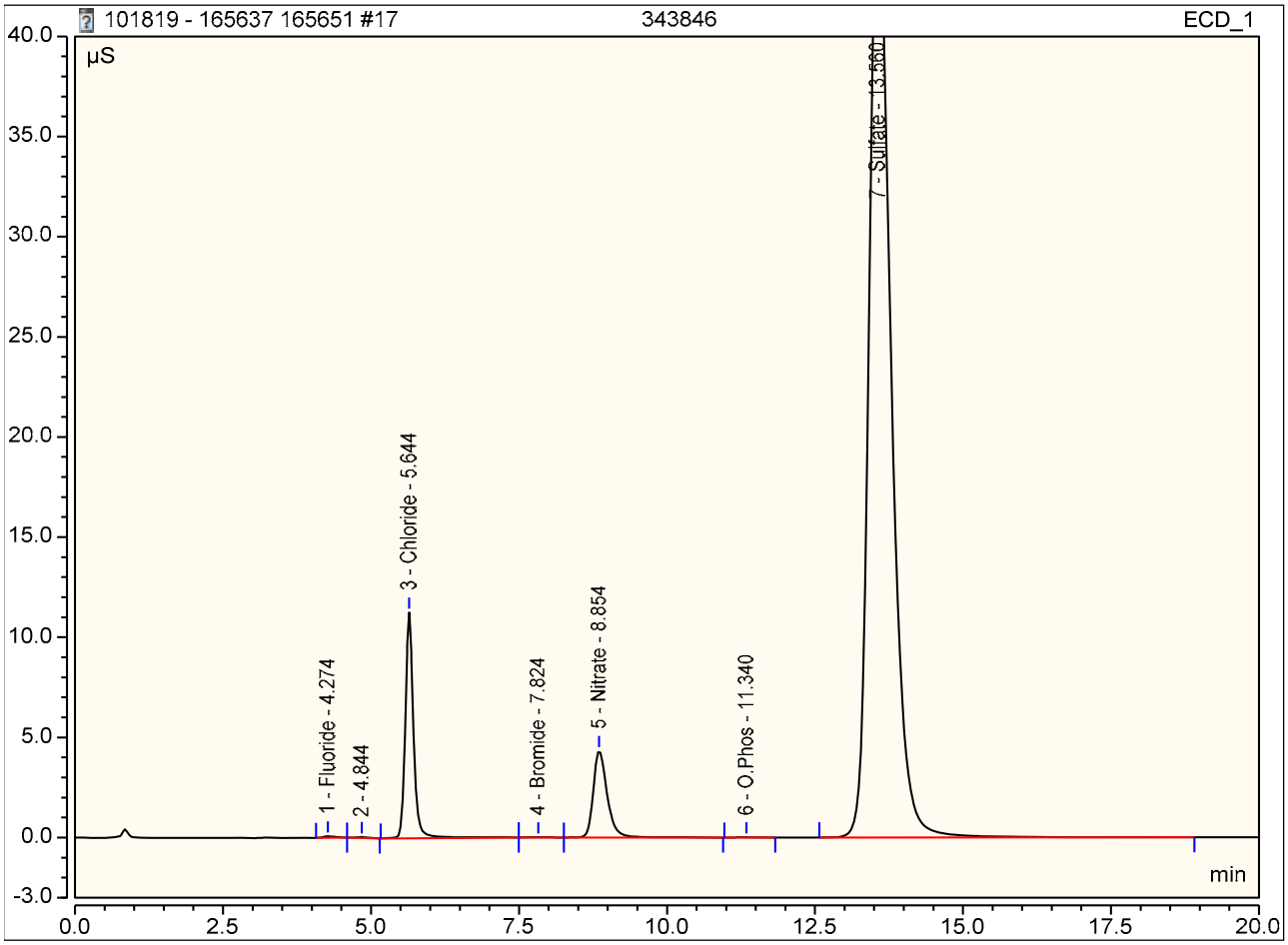
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.26	Fluoride	0.001	0.006	0.0255
3	11.40	O.Phos	0.011	0.025	0.0826



Peak Integration Report

Sample Name:	**343846**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**18-Oct-2019 / 19:56**	*Run Time:*	**20.00**

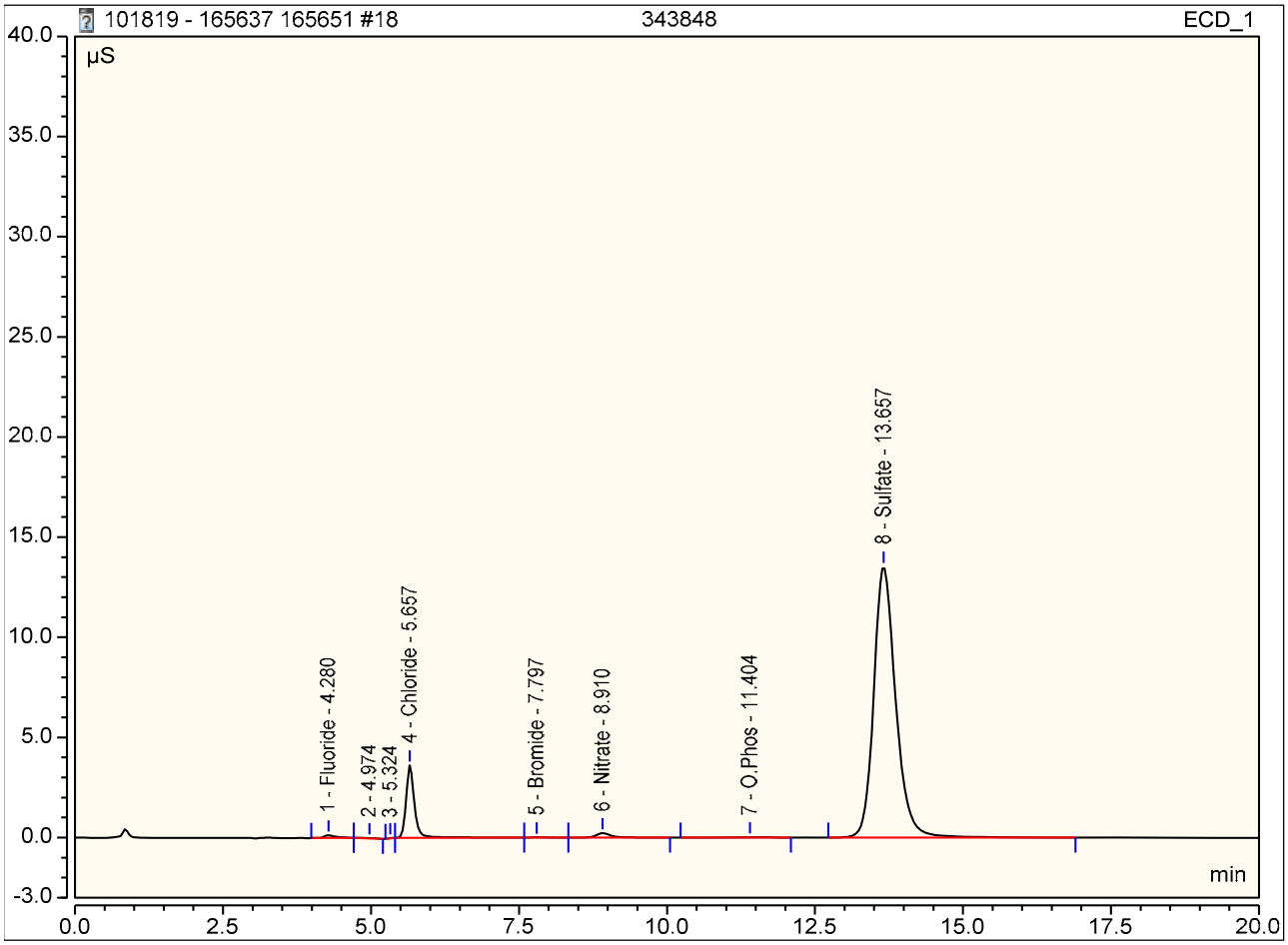
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.27	Fluoride	0.015	0.073	0.0864
3	5.64	Chloride	1.803	11.272	10.0823
4	7.82	Bromide	0.003	0.014	0.0521
5	8.85	Nitrate	1.180	4.319	2.8421
6	11.34	O.Phos	0.005	0.014	0.0402
7	13.56	Sulfate	20.333	47.659	160.0427



Peak Integration Report

Sample Name:	**343848**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**18-Oct-2019 / 20:16**	*Run Time:*	**20.00**

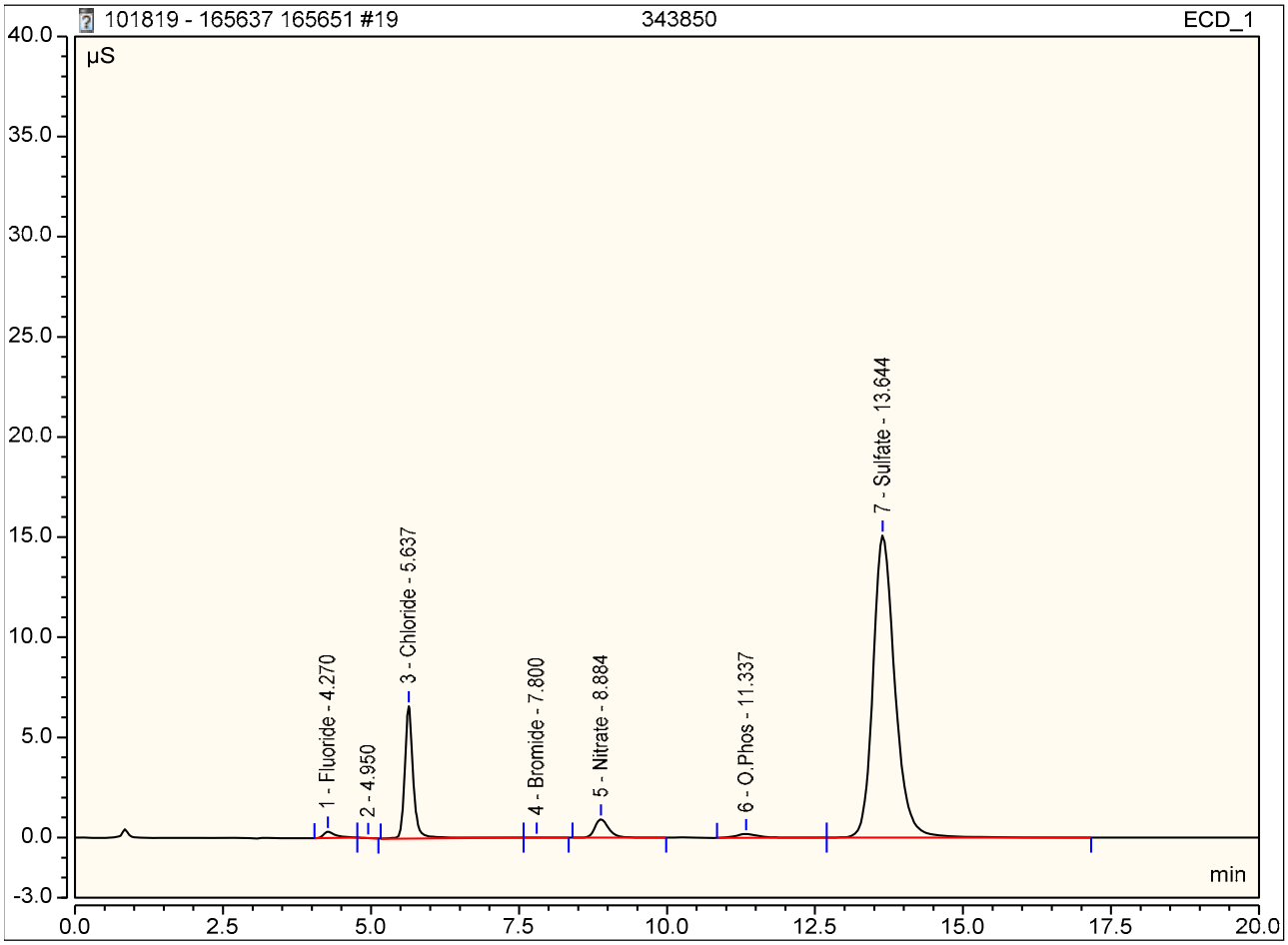
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.28	Fluoride	0.029	0.133	0.1473
4	5.66	Chloride	0.596	3.625	3.6392
5	7.80	Bromide	0.002	0.006	0.0253
6	8.91	Nitrate	0.064	0.219	0.1993
7	11.40	O.Phos	0.008	0.012	0.0614
8	13.66	Sulfate	5.823	13.524	46.1413



Peak Integration Report

Sample Name:	**343850**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**18-Oct-2019 / 20:37**	*Run Time:*	**20.00**

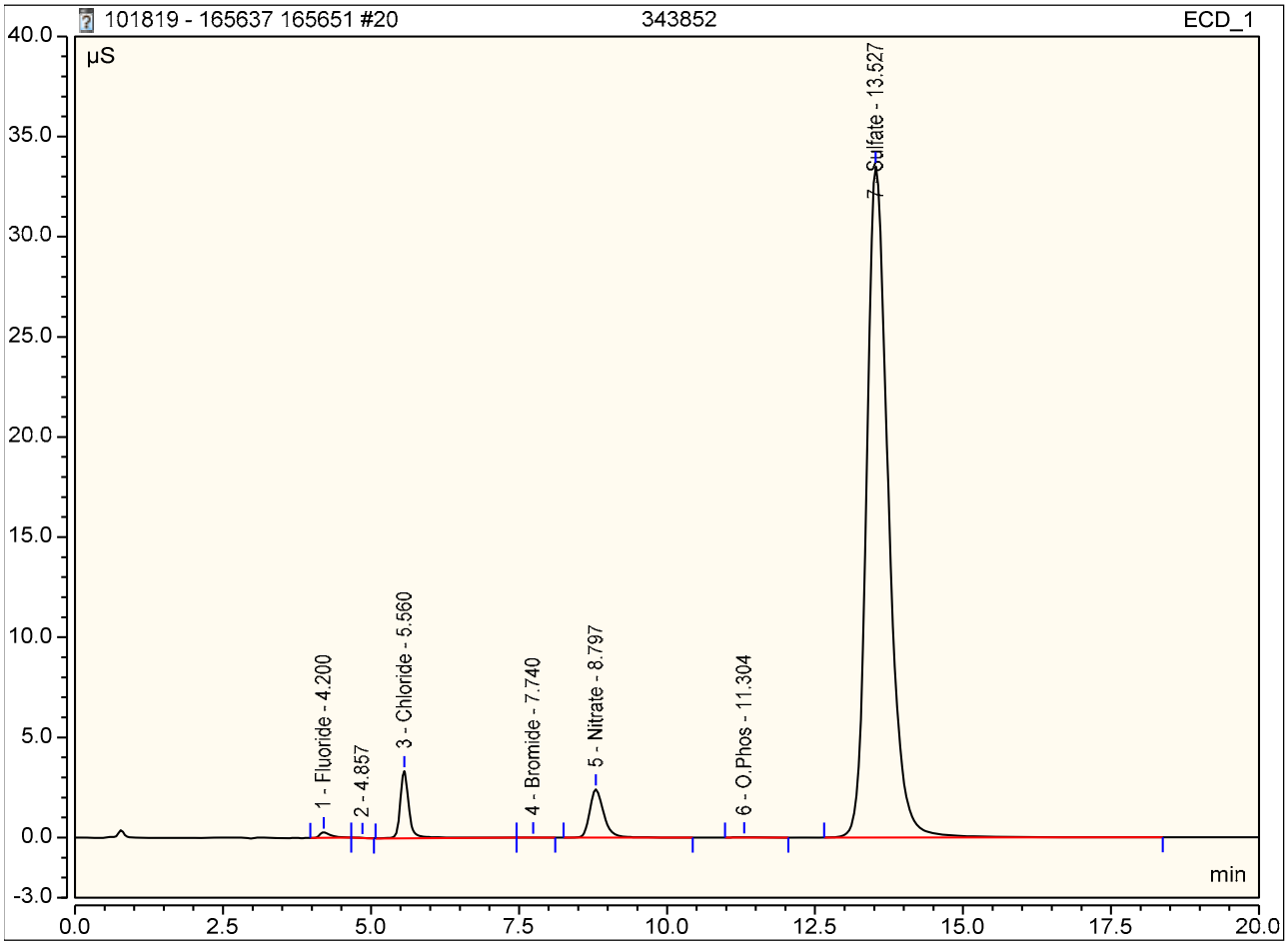
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.27	Fluoride	0.075	0.319	0.3509
3	5.64	Chloride	1.096	6.608	6.3071
4	7.80	Bromide	0.003	0.010	0.0449
5	8.88	Nitrate	0.253	0.920	0.6483
6	11.34	O.Phos	0.082	0.186	0.6217
7	13.64	Sulfate	6.480	15.090	51.2995



Peak Integration Report

Sample Name:	**343852**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**18-Oct-2019 / 20:57**	*Run Time:*	**20.00**

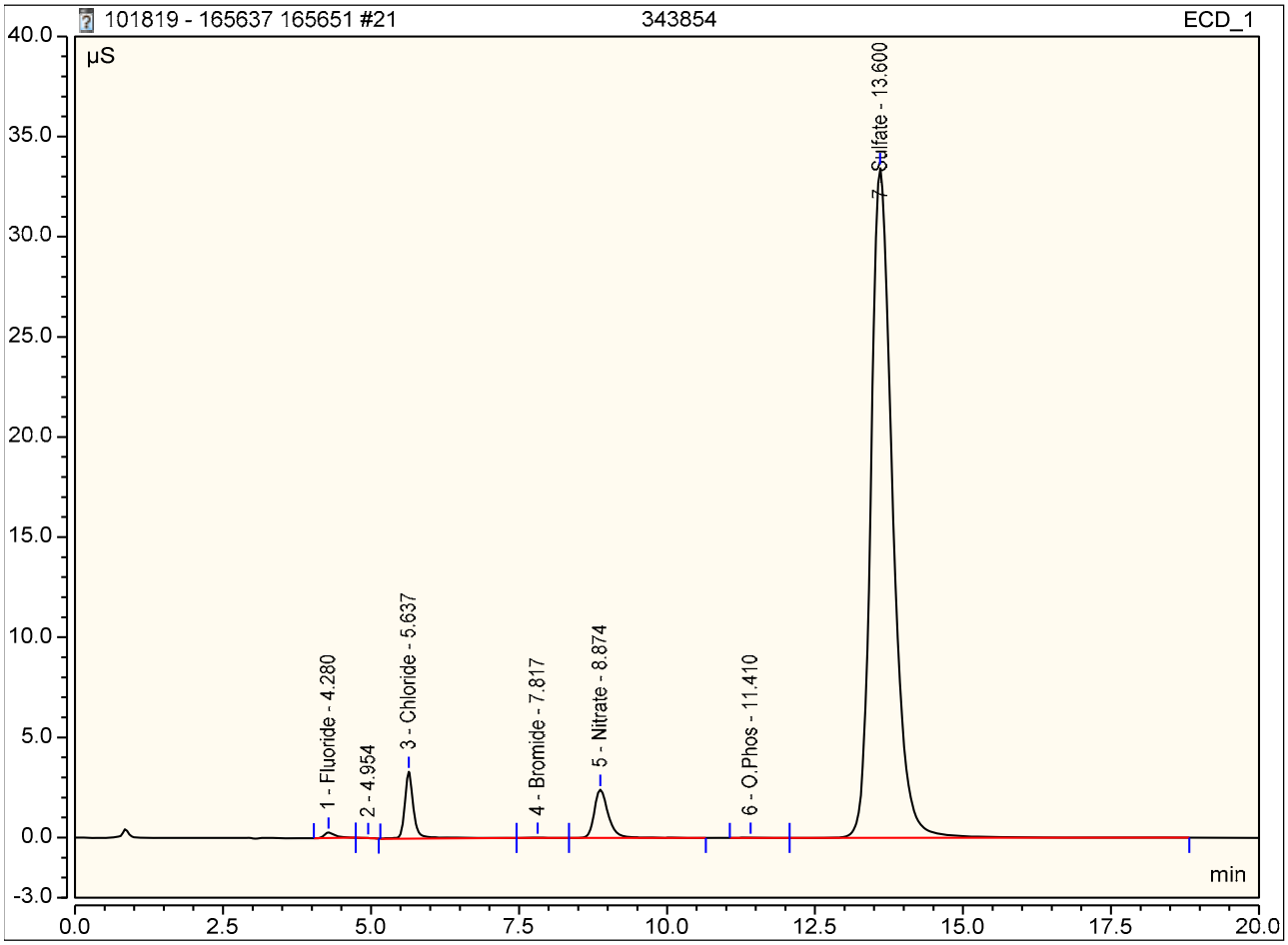
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.20	Fluoride	0.061	0.281	0.2879
3	5.56	Chloride	0.585	3.353	3.5817
4	7.74	Bromide	0.002	0.009	0.0327
5	8.80	Nitrate	0.661	2.411	1.6138
6	11.30	O.Phos	0.008	0.018	0.0637
7	13.53	Sulfate	14.248	33.498	112.2718



Peak Integration Report

Sample Name:	**343854**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**18-Oct-2019 / 21:17**	*Run Time:*	**20.00**

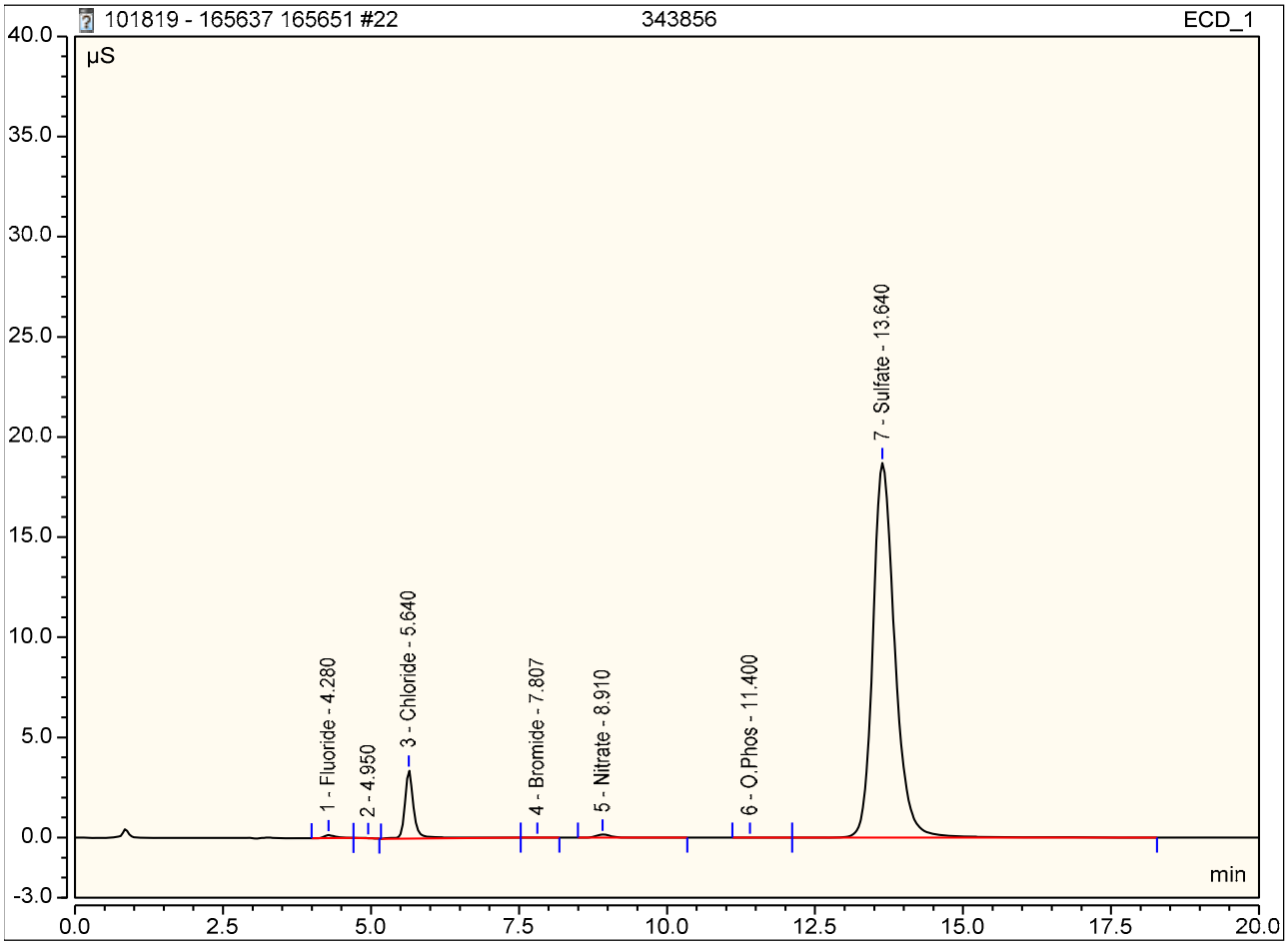
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.28	Fluoride	0.060	0.280	0.2844
3	5.64	Chloride	0.580	3.338	3.5567
4	7.82	Bromide	0.002	0.009	0.0354
5	8.87	Nitrate	0.656	2.399	1.6024
6	11.41	O.Phos	0.004	0.009	0.0321
7	13.60	Sulfate	14.205	33.440	111.9372



Peak Integration Report

Sample Name:	**343856**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**18-Oct-2019 / 21:37**	*Run Time:*	**20.00**

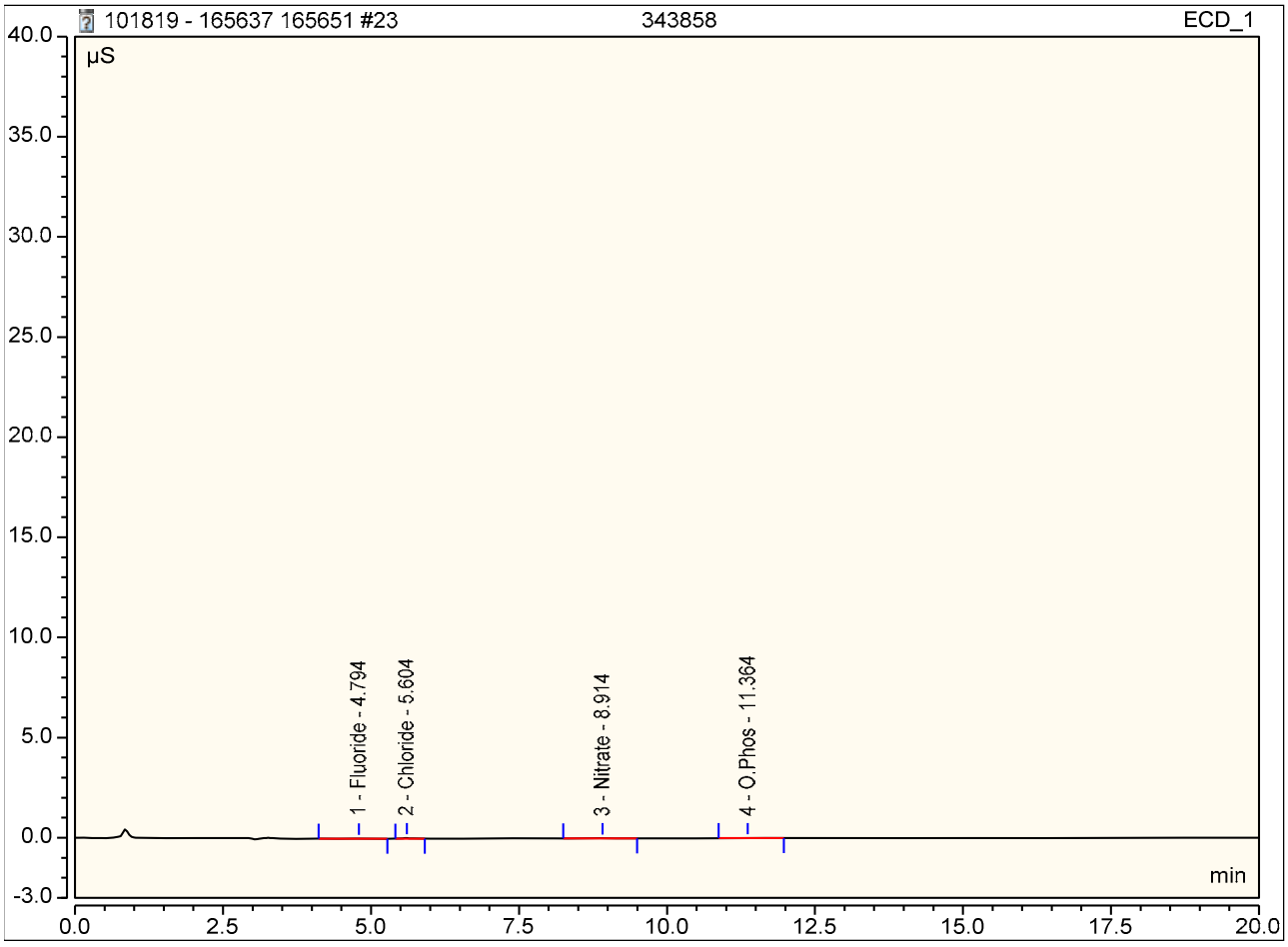
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.28	Fluoride	0.032	0.150	0.1620
3	5.64	Chloride	0.596	3.404	3.6414
4	7.81	Bromide	0.001	0.007	0.0229
5	8.91	Nitrate	0.045	0.156	0.1545
6	11.40	O.Phos	0.003	0.006	0.0234
7	13.64	Sulfate	8.030	18.702	63.4606



Peak Integration Report

Sample Name:	**343858**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**18-Oct-2019 / 21:57**	*Run Time:*	**20.00**

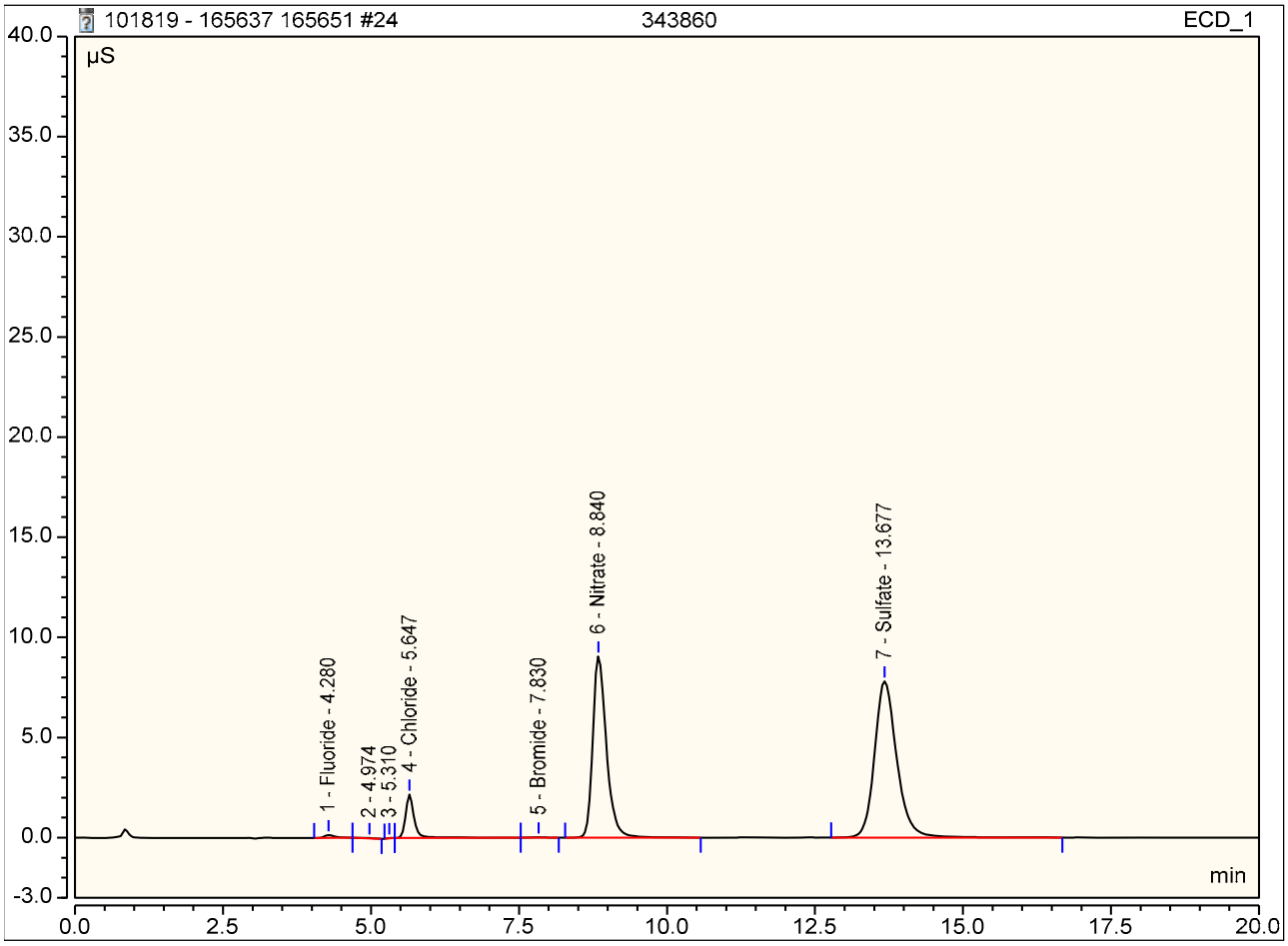
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.79	Fluoride	0.004	0.011	0.0375
2	5.60	Chloride	0.004	0.027	0.4830
3	8.91	Nitrate	0.003	0.009	0.0562
4	11.36	O.Phos	0.005	0.010	0.0384



Peak Integration Report

Sample Name:	**343860**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**18-Oct-2019 / 22:17**	*Run Time:*	**20.00**

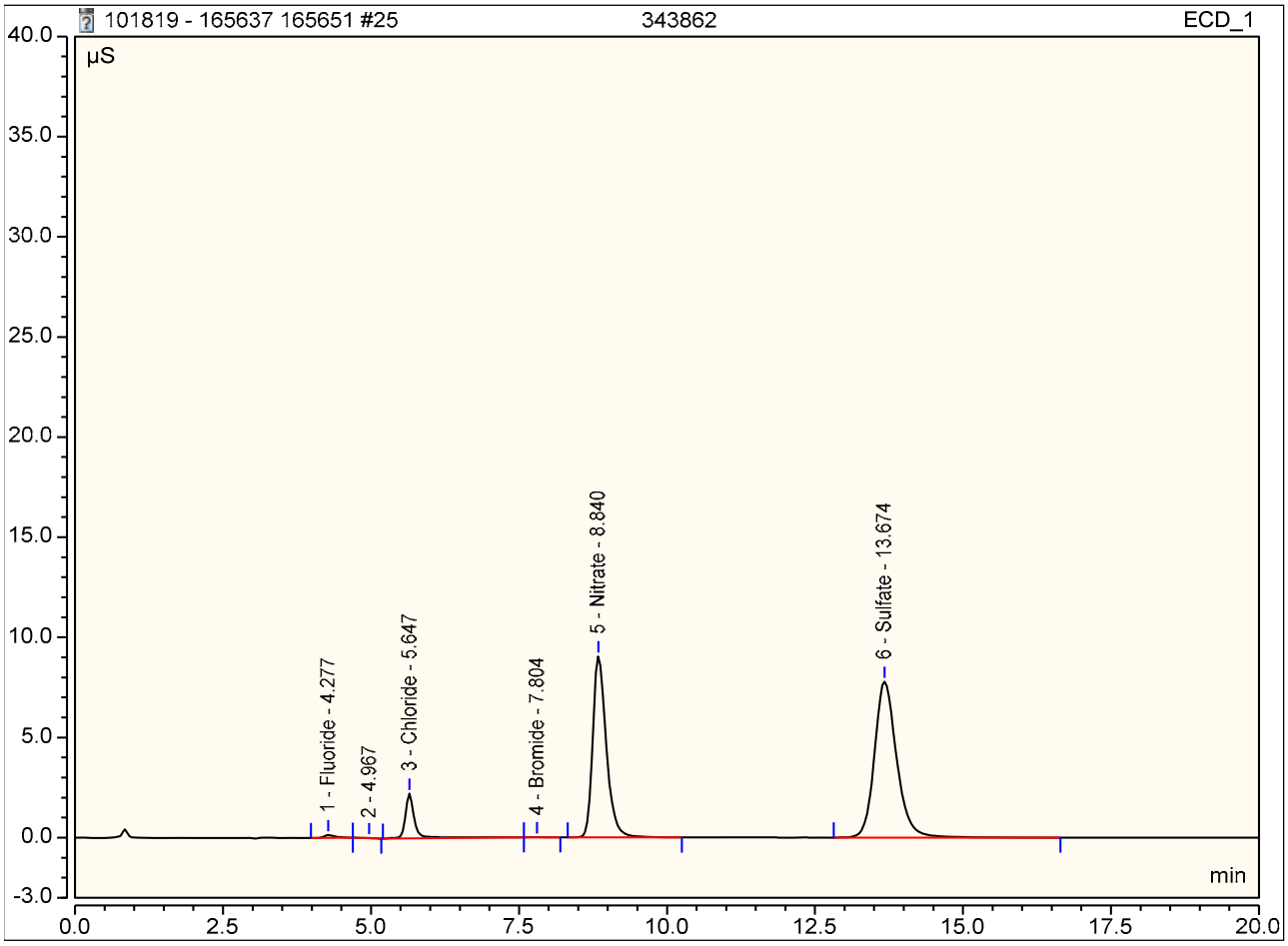
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.28	Fluoride	0.029	0.139	0.1507
4	5.65	Chloride	0.366	2.166	2.4102
5	7.83	Bromide	0.004	0.017	0.0538
6	8.84	Nitrate	2.426	9.051	5.7945
7	13.68	Sulfate	3.403	7.801	27.1446



Peak Integration Report

Sample Name:	**343862**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**18-Oct-2019 / 22:37**	*Run Time:*	**20.00**

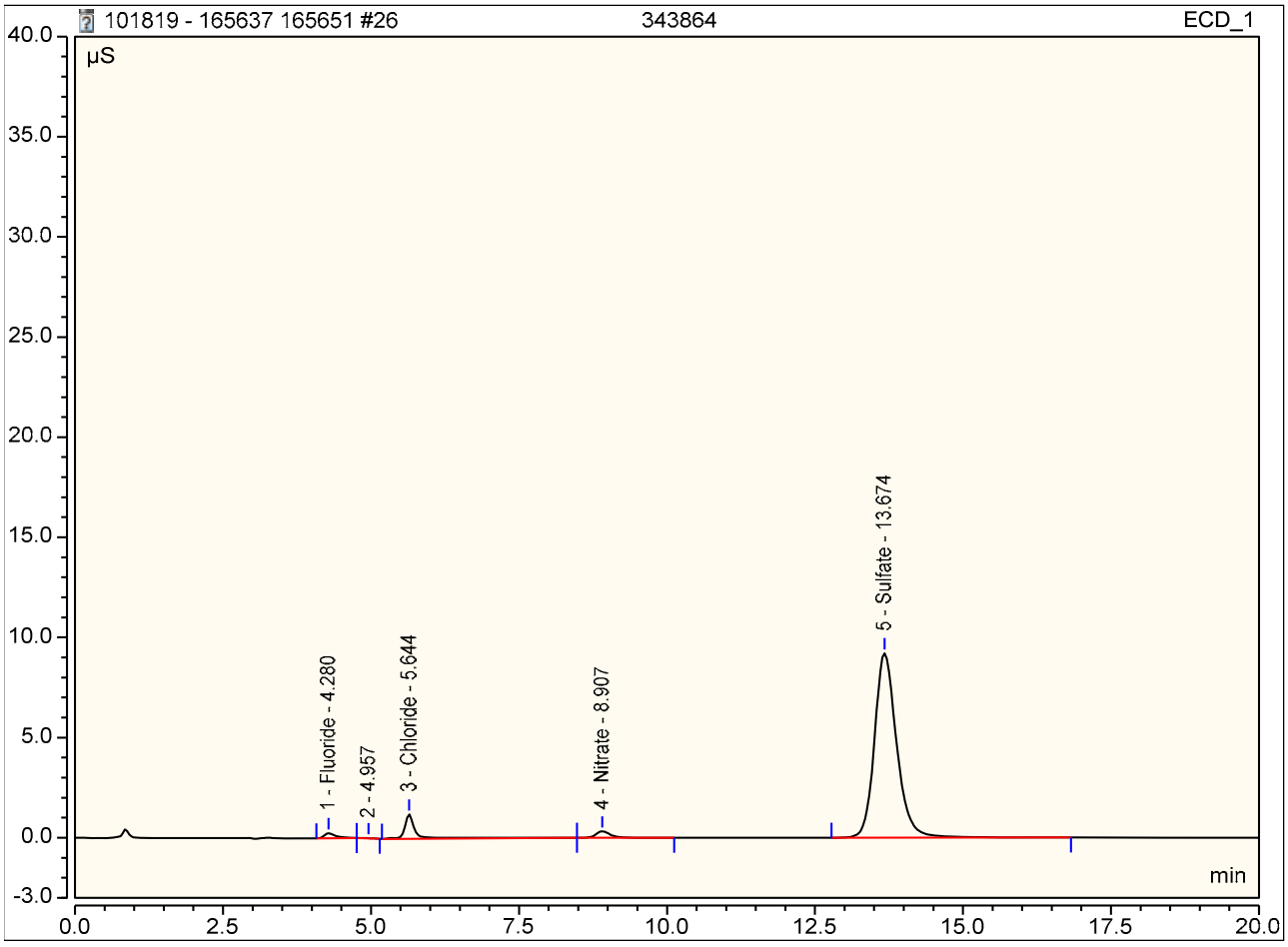
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.28	Fluoride	0.030	0.140	0.1547
3	5.65	Chloride	0.423	2.238	2.7192
4	7.80	Bromide	0.003	0.015	0.0512
5	8.84	Nitrate	2.419	9.048	5.7772
6	13.67	Sulfate	3.397	7.783	27.0963



Peak Integration Report

Sample Name:	**343864**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**18-Oct-2019 / 22:57**	*Run Time:*	**20.00**

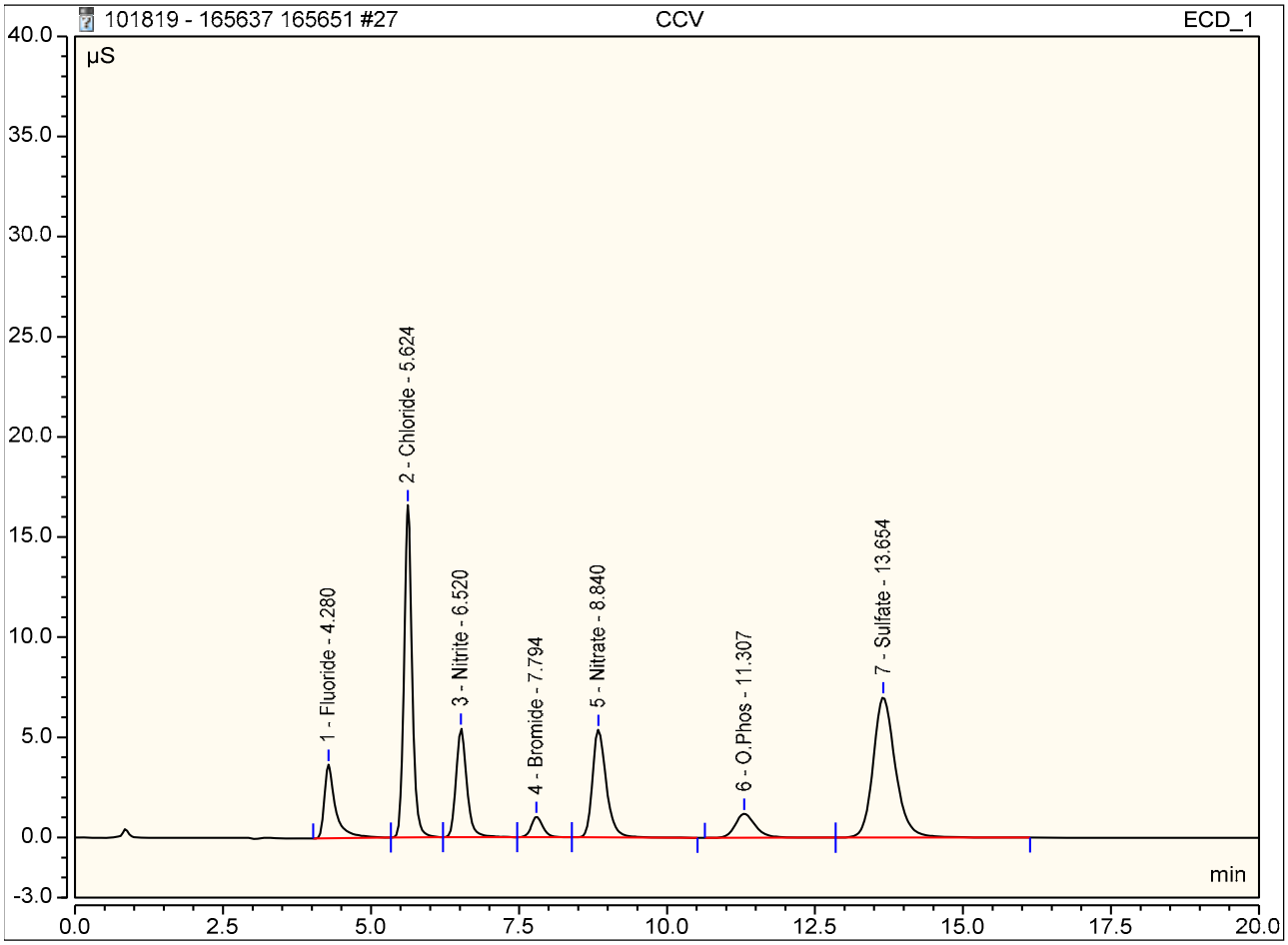
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.28	Fluoride	0.055	0.254	0.2619
3	5.64	Chloride	0.273	1.214	1.9188
4	8.91	Nitrate	0.090	0.323	0.2611
5	13.67	Sulfate	4.018	9.212	31.9657



Peak Integration Report

Sample Name:	**CCV**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**18-Oct-2019 / 23:17**	*Run Time:*	**20.00**

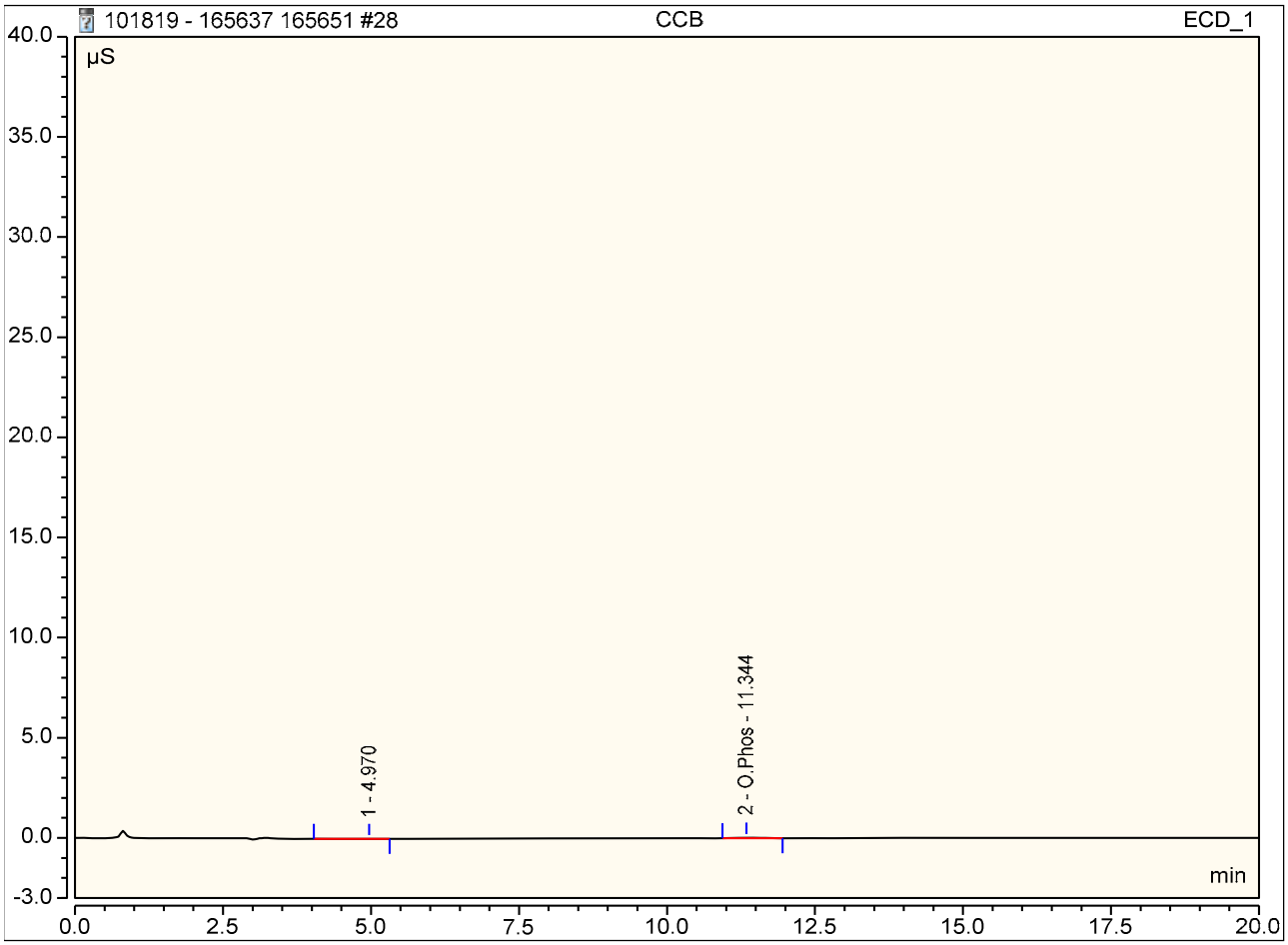
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.28	Fluoride	0.811	3.672	3.5994
2	5.62	Chloride	2.630	16.600	14.4922
3	6.52	Nitrite	1.145	5.424	3.6590
4	7.79	Bromide	0.234	1.021	3.4839
5	8.84	Nitrate	1.454	5.372	3.4926
6	11.31	O.Phos	0.478	1.200	3.6143
7	13.65	Sulfate	3.067	7.011	24.5000



Peak Integration Report

Sample Name:	**CCB**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**18-Oct-2019 / 23:37**	*Run Time:*	**20.00**

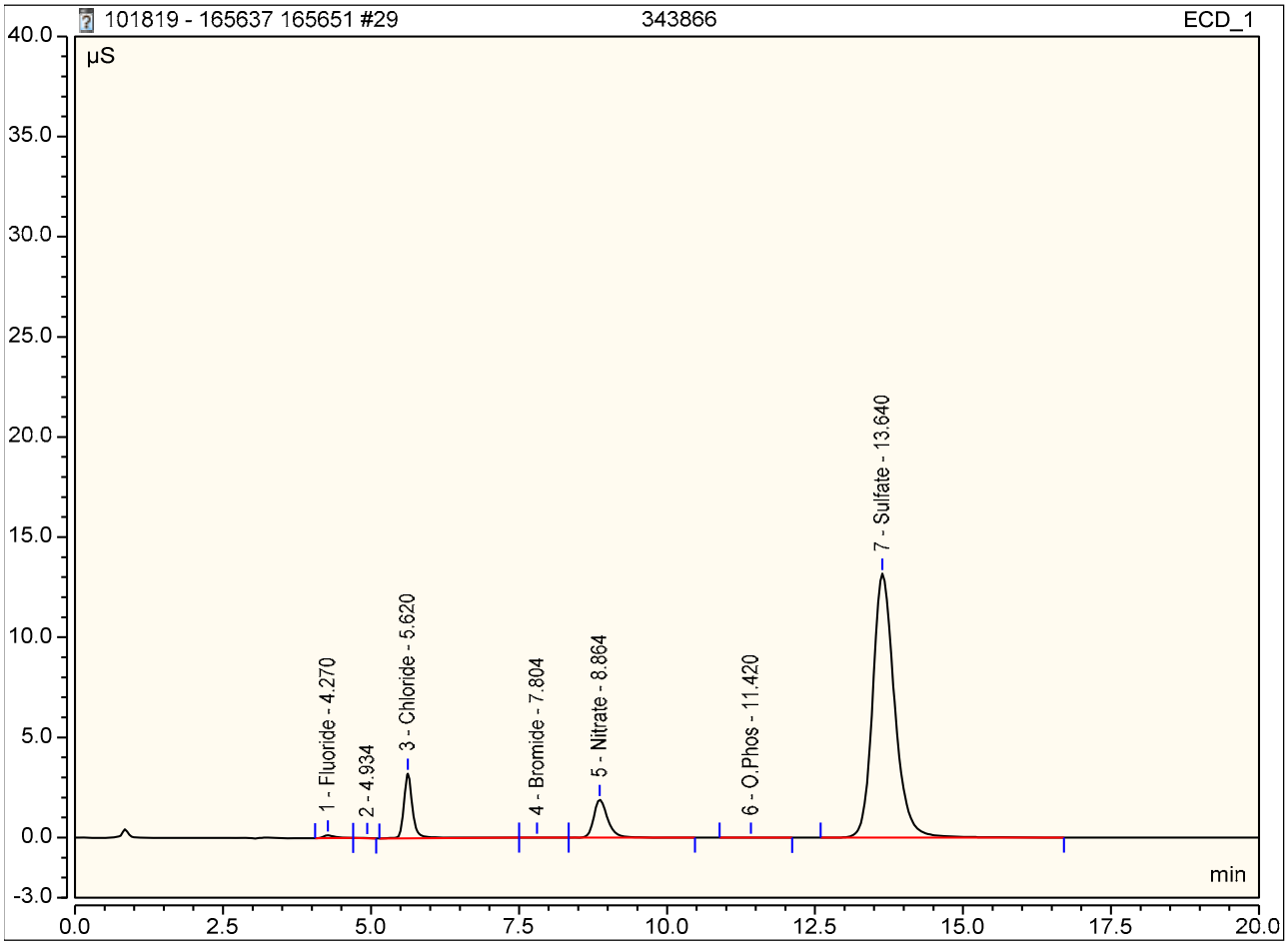
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
2	11.34	O.Phos	0.010	0.023	0.0807



Peak Integration Report

Sample Name:	**343866**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**18-Oct-2019 / 23:57**	*Run Time:*	**20.00**

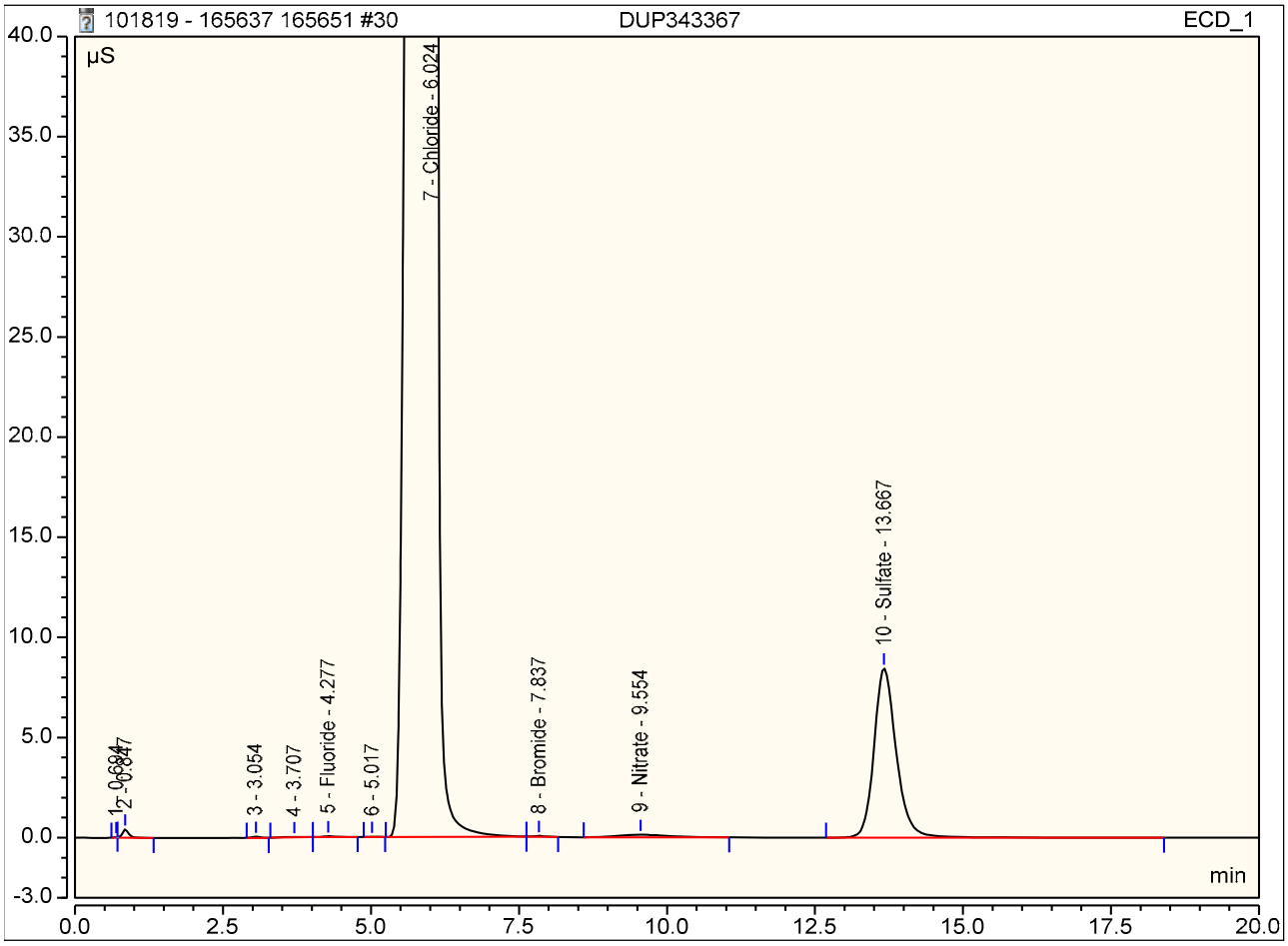
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.27	Fluoride	0.029	0.140	0.1494
3	5.62	Chloride	0.562	3.235	3.4599
4	7.80	Bromide	0.003	0.012	0.0439
5	8.86	Nitrate	0.520	1.892	1.2807
6	11.42	O.Phos	0.005	0.011	0.0424
7	13.64	Sulfate	5.687	13.181	45.0734



Peak Integration Report

Sample Name:	**DUP343367**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**19-Oct-2019 / 00:17**	*Run Time:*	**20.00**

No.	Time min	Peak Name	Area µS*min	Height µS	Amount
5	4.28	Fluoride	0.010	0.042	0.0655
7	6.02	Chloride	127.567	361.706	681.1812
8	7.84	Bromide	0.009	0.045	0.1397
9	9.55	Nitrate	0.131	0.130	0.3596
10	13.67	Sulfate	3.698	8.450	29.4560

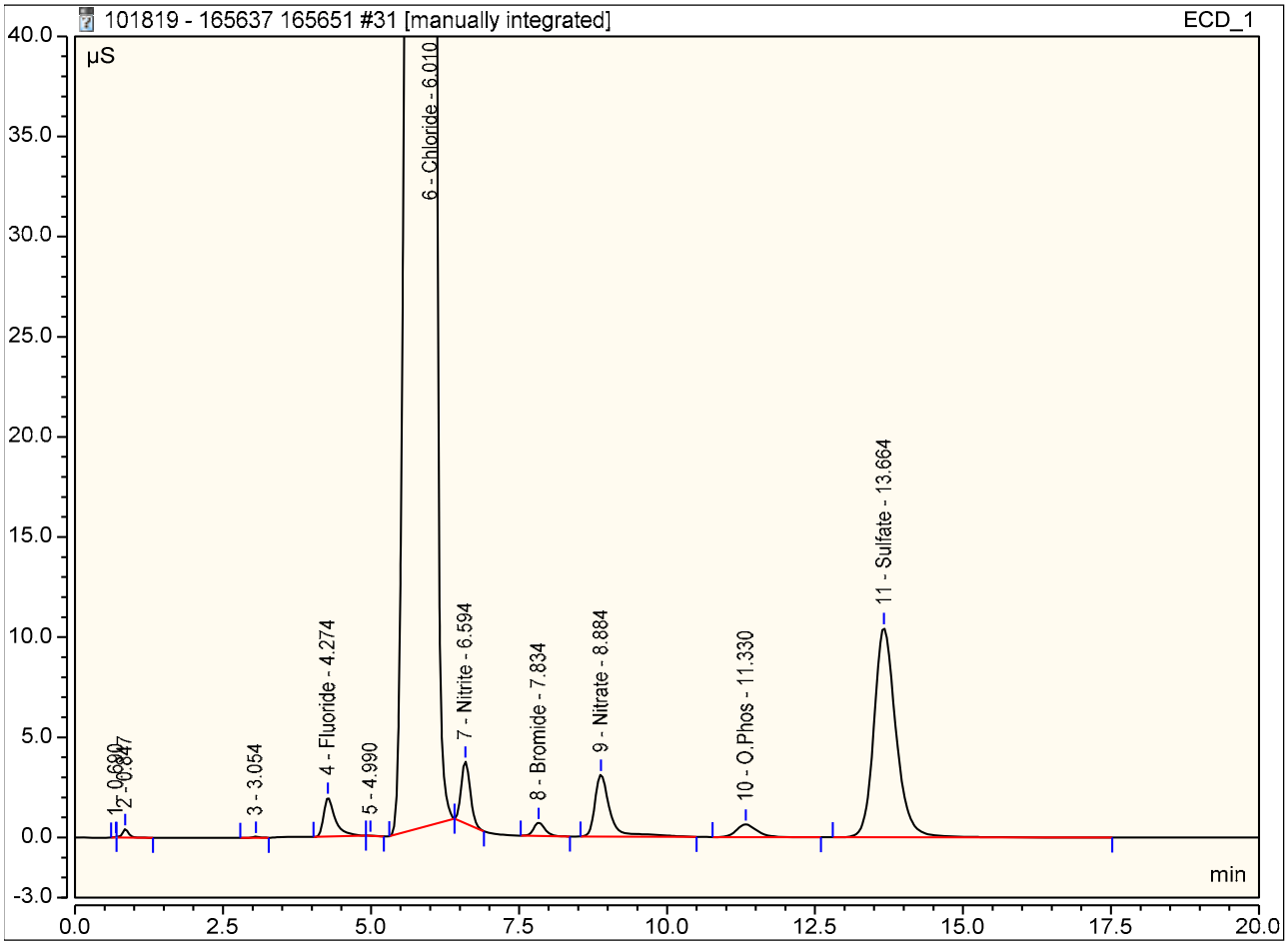


TMG 11/01/19

Peak Integration Report

Sample Name:	**MSW343367**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**AQUION**
Inj. Date / Time:	**19-Oct-2019 / 00:37**	*Run Time:*	**20.00**

No.	Time min	Peak Name	Area µS*min	Height µS	Amount
4	4.27	Fluoride	0.442	1.952	1.9705
6	6.01	Chloride	120.253	351.902	642.1561
7	6.59	Nitrite	0.554	3.095	1.7831
8	7.83	Bromide	0.148	0.664	2.2122
9	8.88	Nitrate	0.931	3.090	2.2521
10	11.33	O.Phos	0.260	0.637	1.9654
11	13.66	Sulfate	4.534	10.458	36.0195



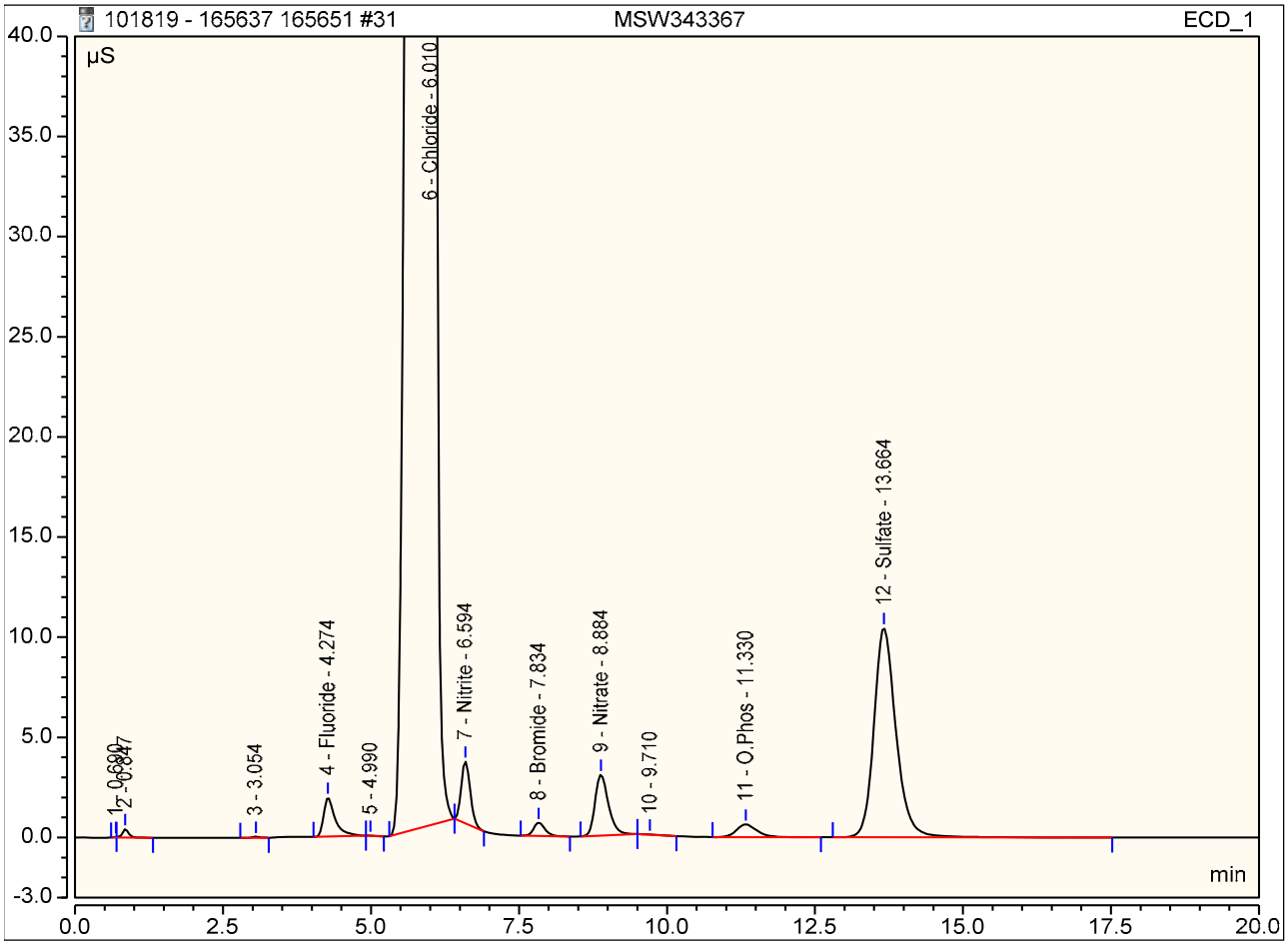
RJ 11/04/2019

Peak Integration Report

TMG 11/01/19

Sample Name:	**MSW343367**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**19-Oct-2019 / 00:37**	*Run Time:*	**20.00**

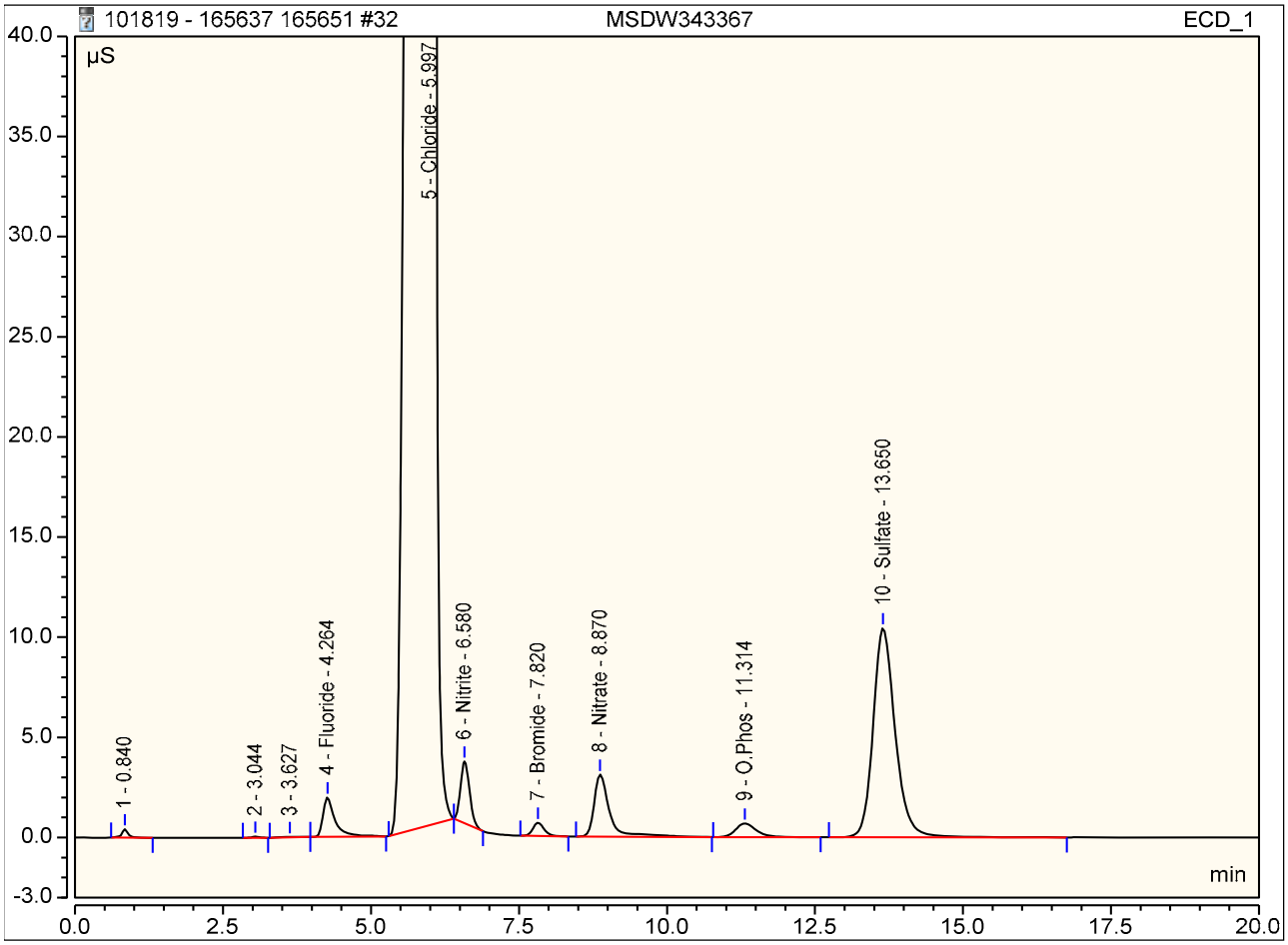
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
4	4.27	Fluoride	0.442	1.952	1.9705
6	6.01	Chloride	120.253	351.902	642.1561
7	6.59	Nitrite	0.554	3.095	1.7831
8	7.83	Bromide	0.148	0.664	2.2122
9	8.88	Nitrate	0.803	3.042	1.9493
11	11.33	O.Phos	0.260	0.637	1.9654
12	13.66	Sulfate	4.534	10.458	36.0195



Peak Integration Report

Sample Name:	**MSDW343367**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**19-Oct-2019 / 00:57**	*Run Time:*	**20.00**

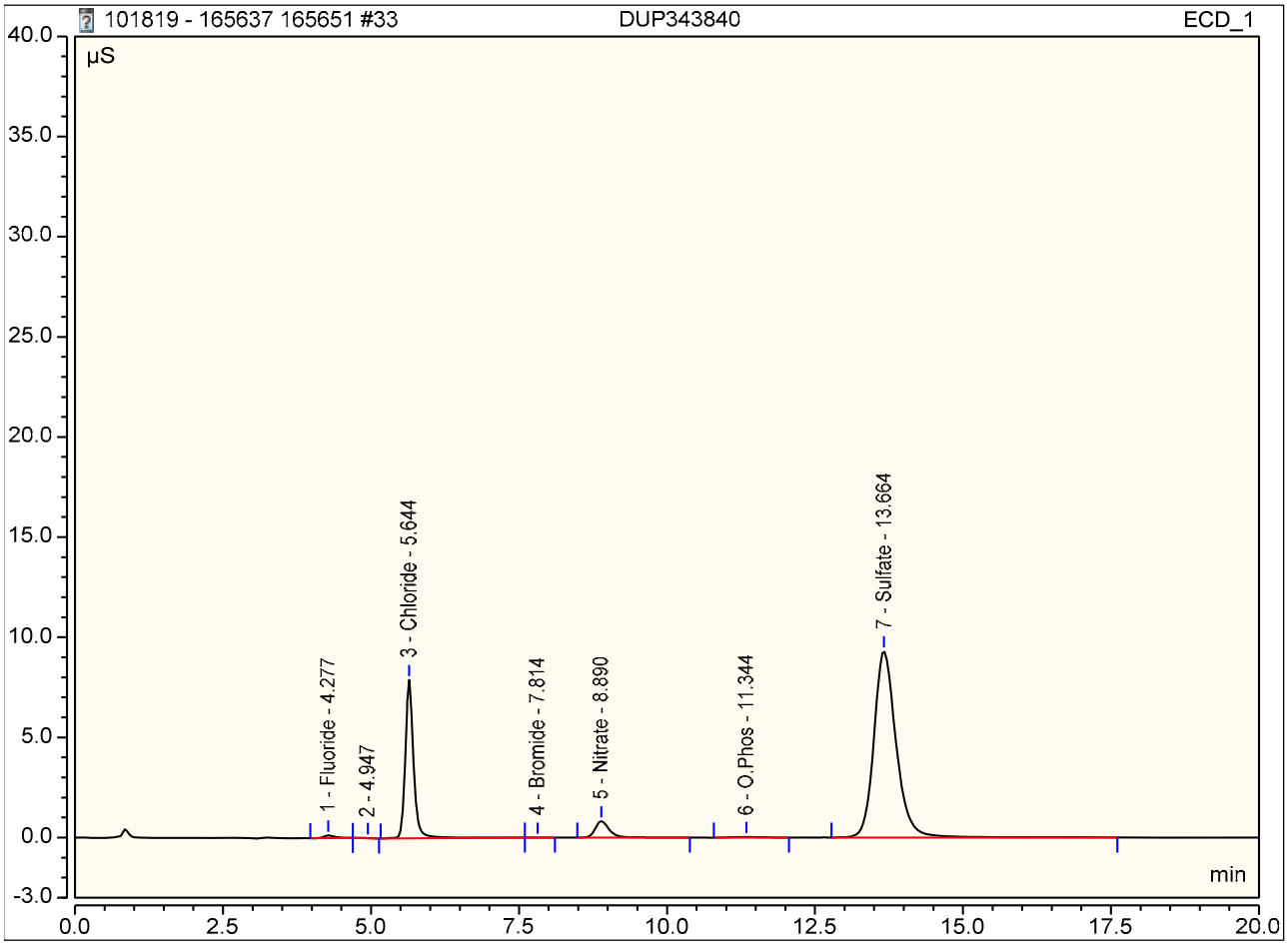
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
4	4.26	Fluoride	0.473	1.971	2.1076
5	6.00	Chloride	120.146	351.594	641.5827
6	6.58	Nitrite	0.552	3.088	1.7786
7	7.82	Bromide	0.148	0.664	2.2018
8	8.87	Nitrate	0.939	3.094	2.2730
9	11.31	O.Phos	0.278	0.680	2.1039
10	13.65	Sulfate	4.527	10.446	35.9645



Peak Integration Report

Sample Name:	**DUP343840**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**19-Oct-2019 / 01:17**	*Run Time:*	**20.00**

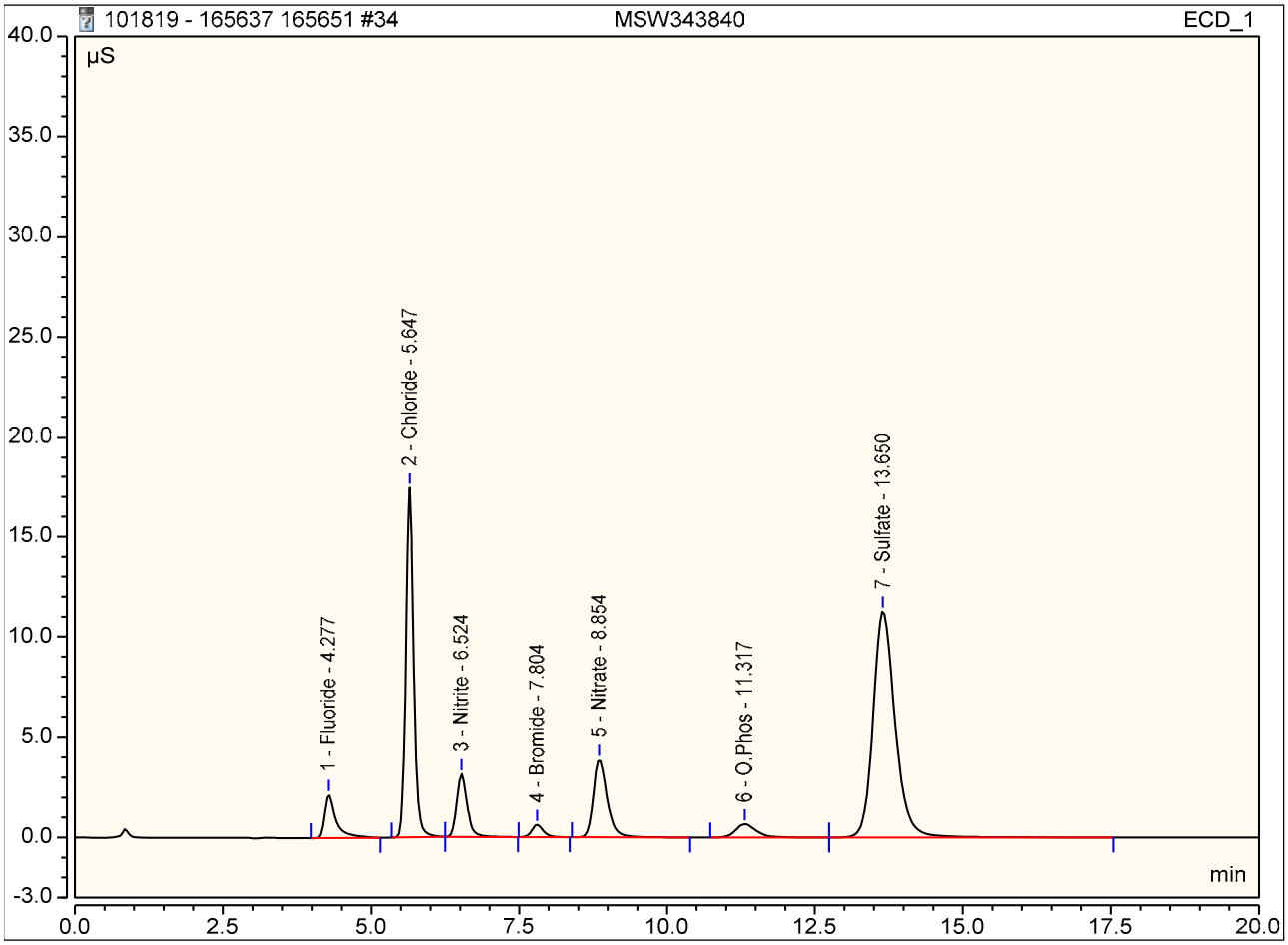
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.28	Fluoride	0.027	0.129	0.1384
3	5.64	Chloride	1.298	7.918	7.3876
4	7.81	Bromide	0.001	0.007	0.0215
5	8.89	Nitrate	0.226	0.812	0.5831
6	11.34	O.Phos	0.013	0.030	0.1022
7	13.66	Sulfate	4.061	9.300	32.3096



Peak Integration Report

Sample Name:	**MSW343840**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**19-Oct-2019 / 01:37**	*Run Time:*	**20.00**

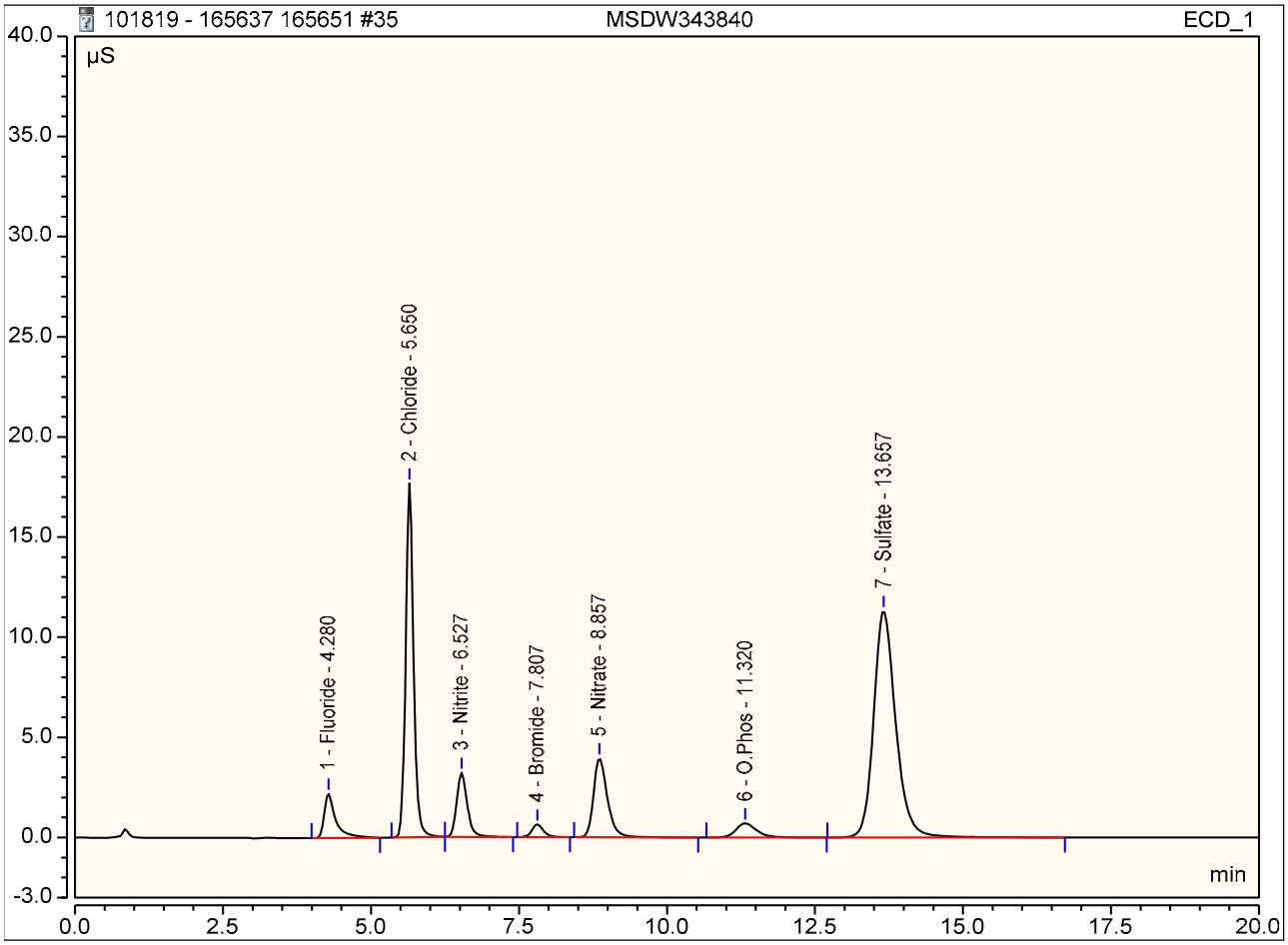
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.28	Fluoride	0.496	2.175	2.2116
2	5.65	Chloride	2.671	17.457	14.7151
3	6.52	Nitrite	0.651	3.141	2.0912
4	7.80	Bromide	0.142	0.620	2.1115
5	8.85	Nitrate	1.055	3.884	2.5480
6	11.32	O.Phos	0.274	0.668	2.0744
7	13.65	Sulfate	4.886	11.272	38.7842



Peak Integration Report

Sample Name:	**MSDW343840**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**19-Oct-2019 / 01:57**	*Run Time:*	**20.00**

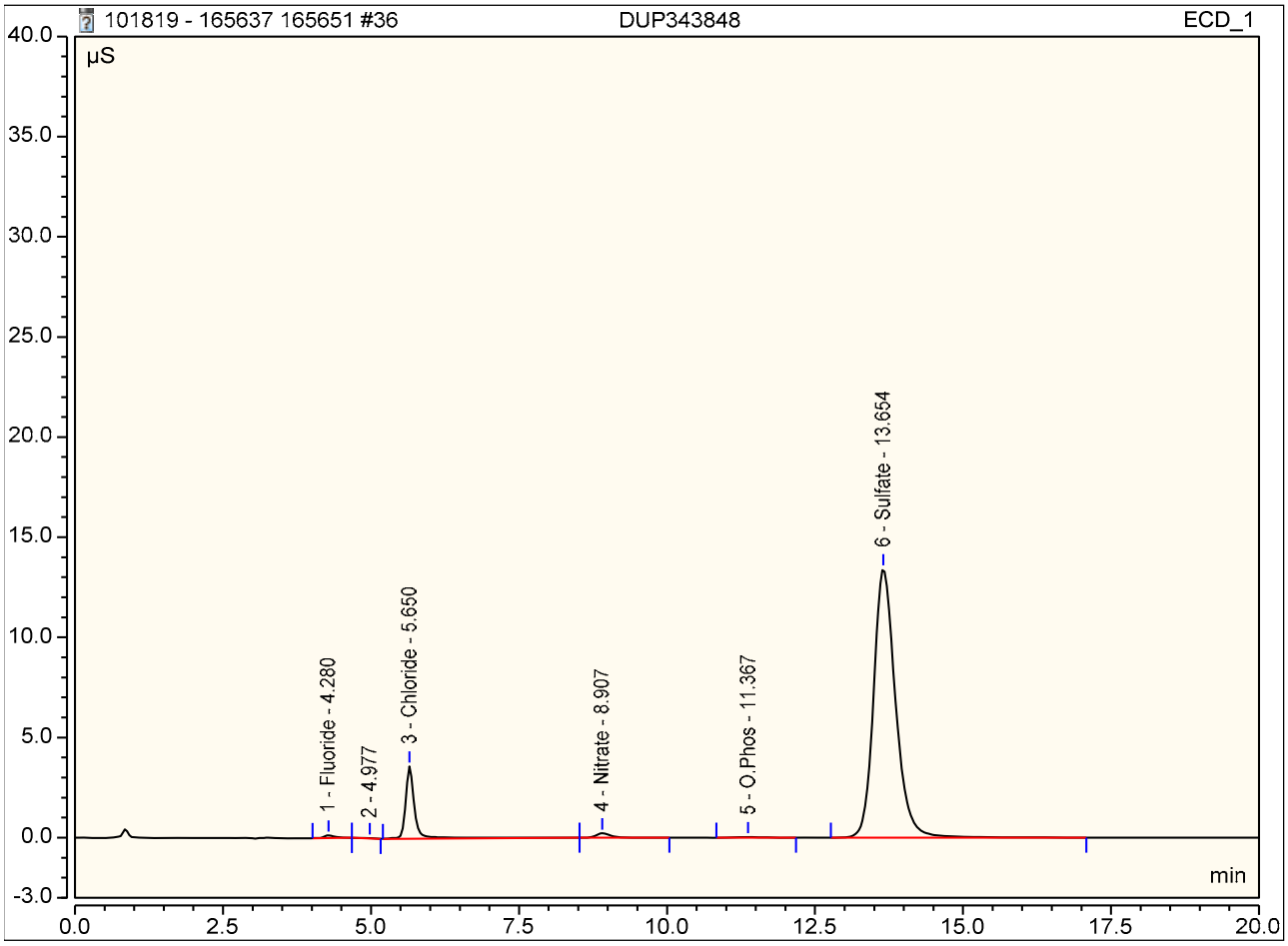
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.28	Fluoride	0.507	2.227	2.2580
2	5.65	Chloride	2.706	17.675	14.8977
3	6.53	Nitrite	0.664	3.206	2.1334
4	7.81	Bromide	0.144	0.633	2.1537
5	8.86	Nitrate	1.074	3.946	2.5921
6	11.32	O.Phos	0.293	0.712	2.2148
7	13.66	Sulfate	4.901	11.320	38.8988



Peak Integration Report

Sample Name:	**DUP343848**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**19-Oct-2019 / 02:17**	*Run Time:*	**20.00**

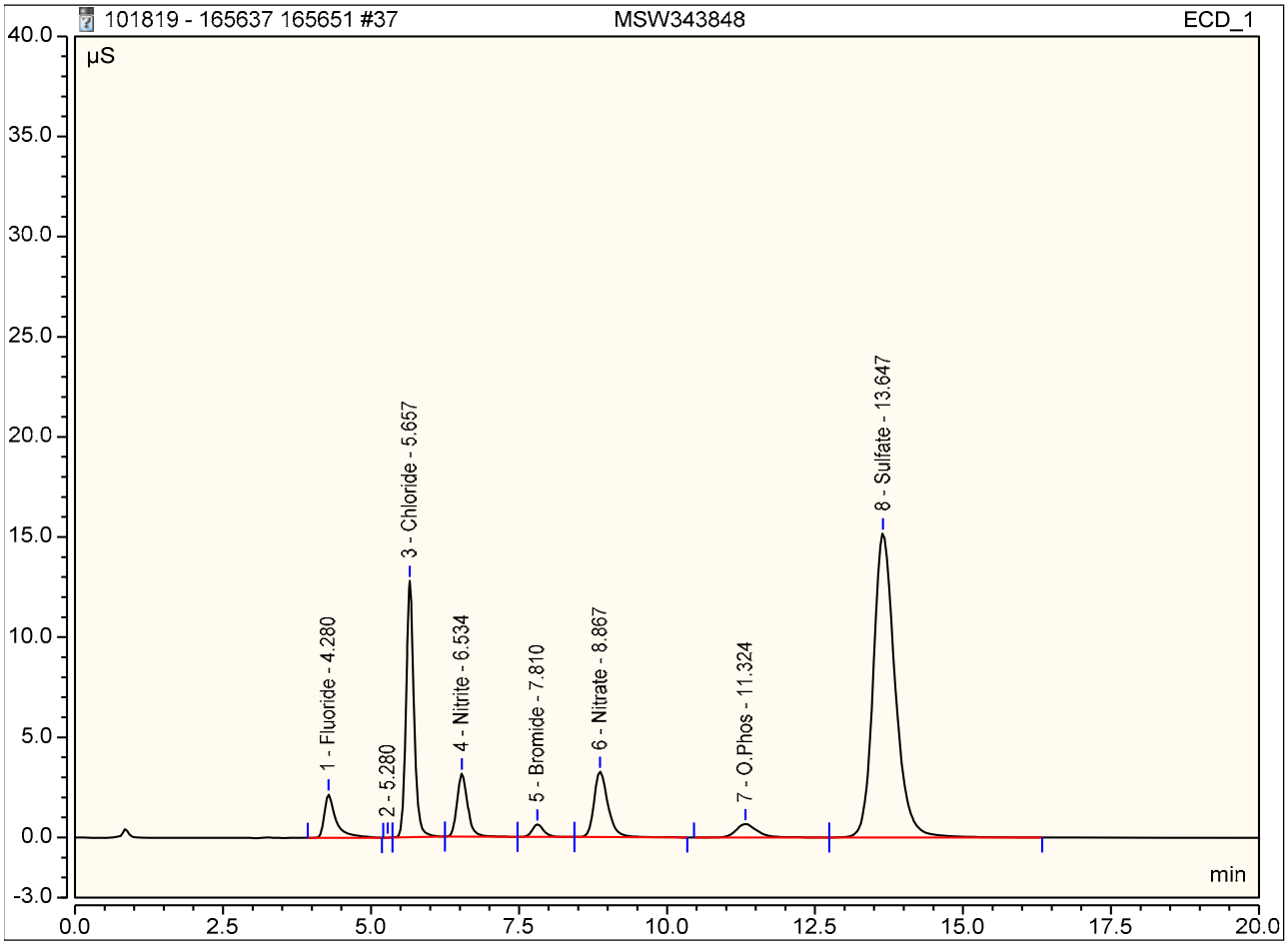
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.28	Fluoride	0.028	0.136	0.1459
3	5.65	Chloride	0.669	3.617	4.0319
4	8.91	Nitrate	0.063	0.219	0.1981
5	11.37	O.Phos	0.016	0.035	0.1215
6	13.65	Sulfate	5.783	13.409	45.8234



Peak Integration Report

Sample Name:	**MSW343848**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**19-Oct-2019 / 02:37**	*Run Time:*	**20.00**

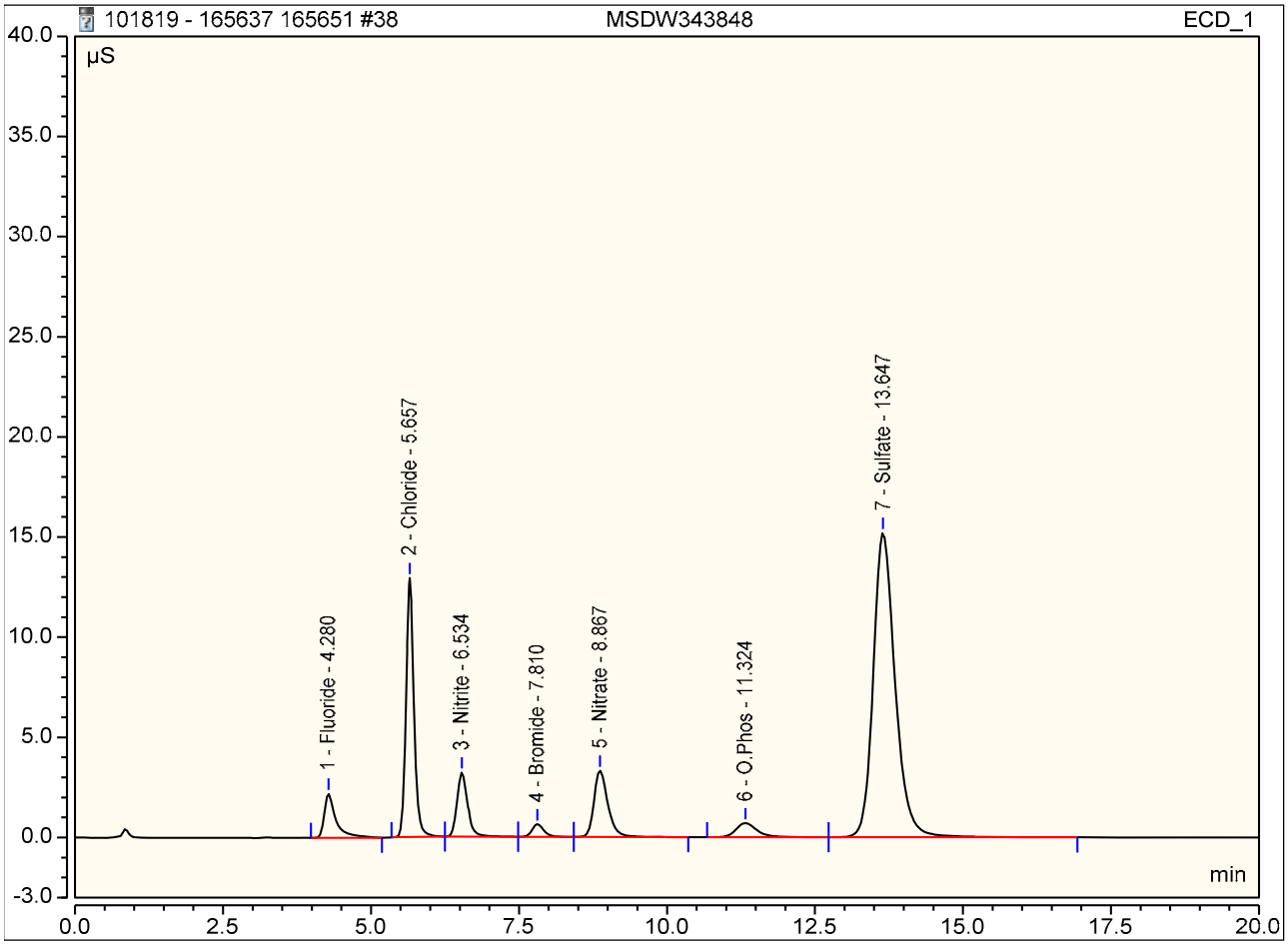
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.28	Fluoride	0.506	2.176	2.2545
3	5.66	Chloride	1.963	12.797	10.9331
4	6.53	Nitrite	0.656	3.160	2.1066
5	7.81	Bromide	0.142	0.620	2.1173
6	8.87	Nitrate	0.894	3.271	2.1649
7	11.32	O.Phos	0.280	0.670	2.1164
8	13.65	Sulfate	6.508	15.185	51.5143



Peak Integration Report

Sample Name:	**MSDW343848**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**19-Oct-2019 / 02:58**	*Run Time:*	**20.00**

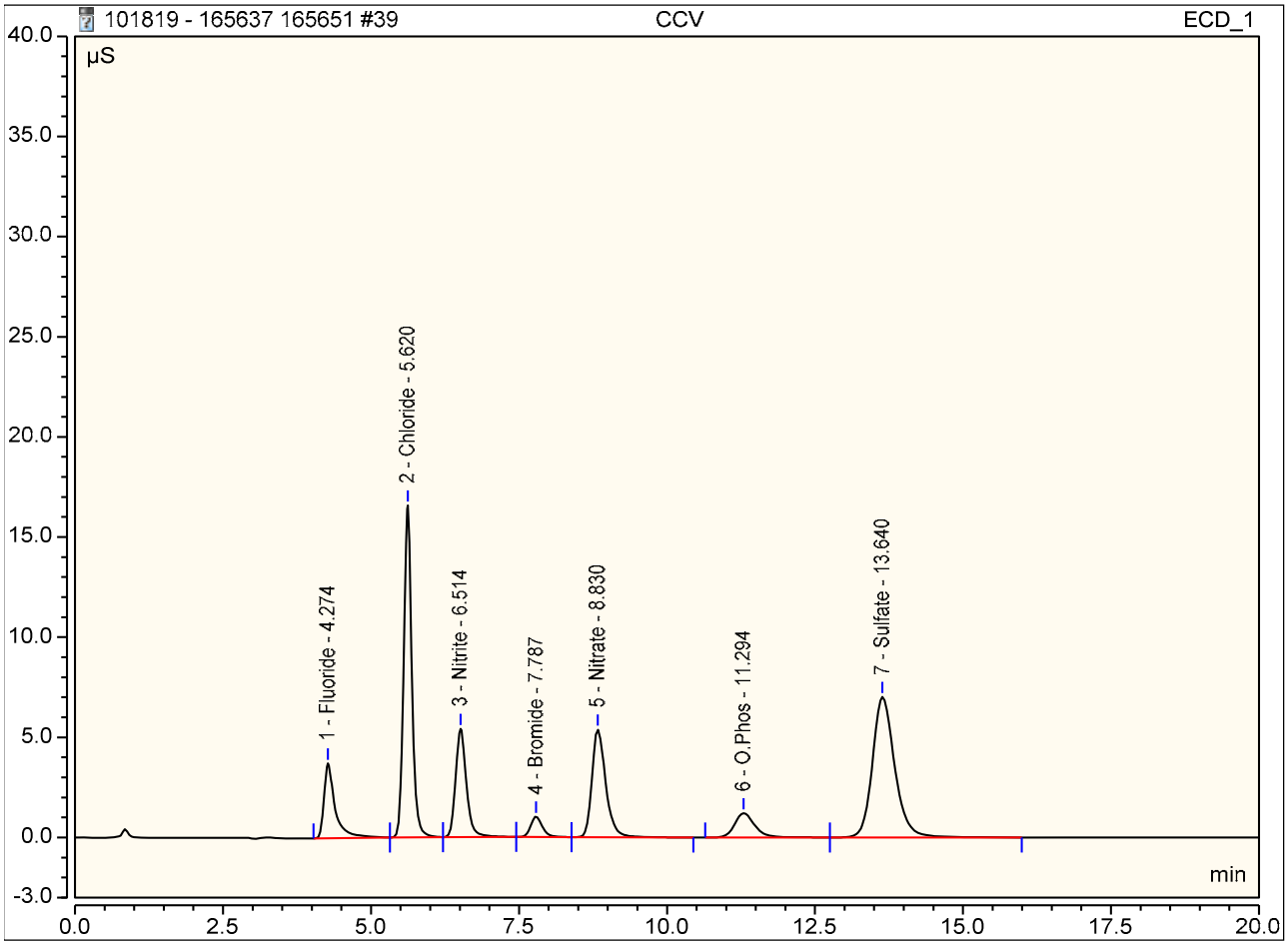
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.28	Fluoride	0.513	2.213	2.2863
2	5.66	Chloride	1.986	12.943	11.0584
3	6.53	Nitrite	0.666	3.210	2.1413
4	7.81	Bromide	0.144	0.629	2.1472
5	8.87	Nitrate	0.907	3.318	2.1956
6	11.32	O.Phos	0.295	0.707	2.2316
7	13.65	Sulfate	6.528	15.204	51.6698



Peak Integration Report

Sample Name:	**CCV**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**19-Oct-2019 / 03:18**	*Run Time:*	**20.00**

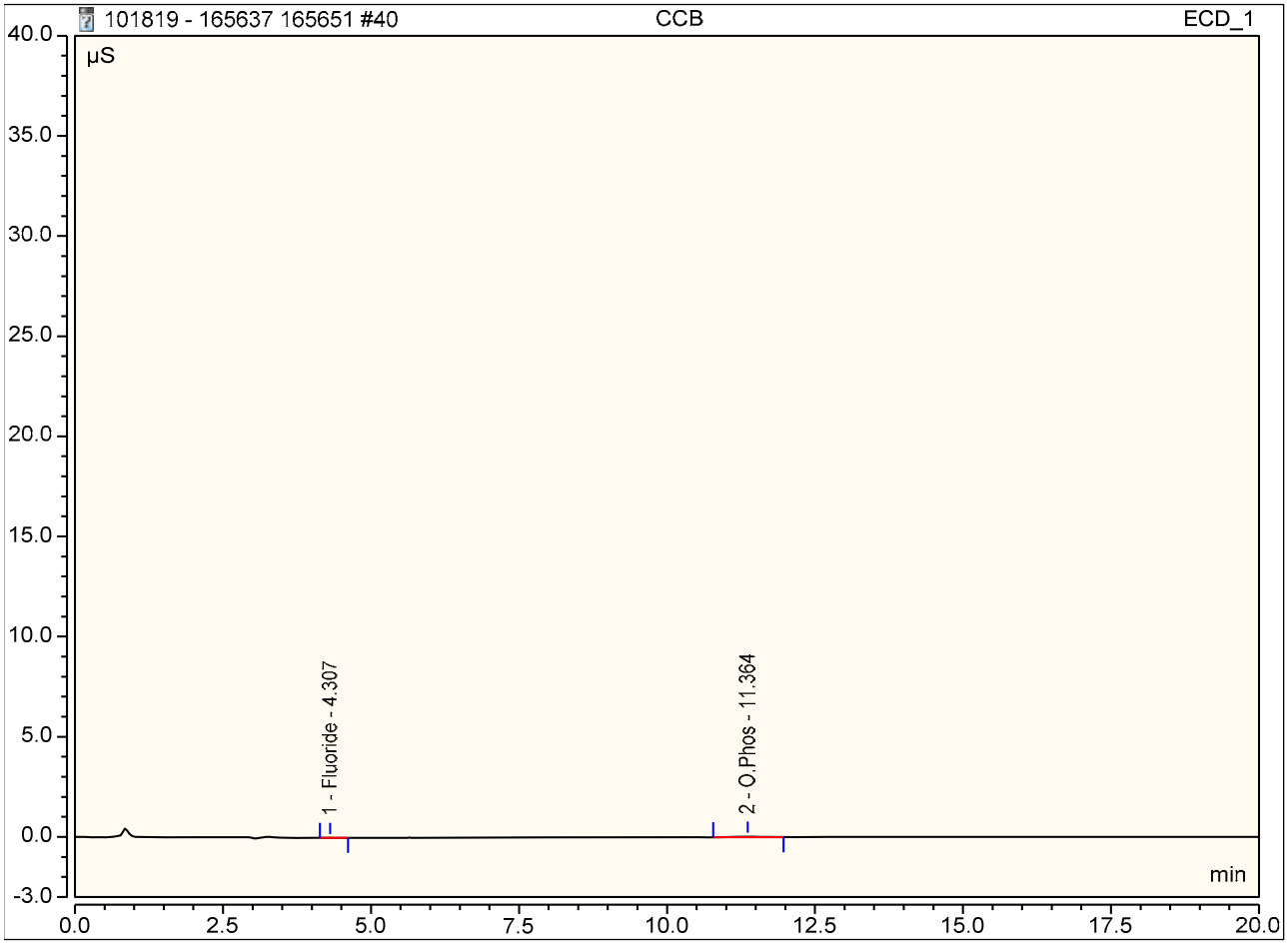
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.27	Fluoride	0.813	3.730	3.6091
2	5.62	Chloride	2.629	16.580	14.4903
3	6.51	Nitrite	1.142	5.409	3.6509
4	7.79	Bromide	0.234	1.021	3.4887
5	8.83	Nitrate	1.456	5.376	3.4971
6	11.29	O.Phos	0.483	1.212	3.6573
7	13.64	Sulfate	3.071	7.021	24.5381



Peak Integration Report

Sample Name:	**CCB**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**19-Oct-2019 / 03:38**	*Run Time:*	**20.00**

No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.31	Fluoride	0.001	0.006	0.0263
2	11.36	O.Phos	0.012	0.027	0.0931



Peak Integration Report

Sample Name:	**IB**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**19-Oct-2019 / 03:58**	*Run Time:*	**0.02**

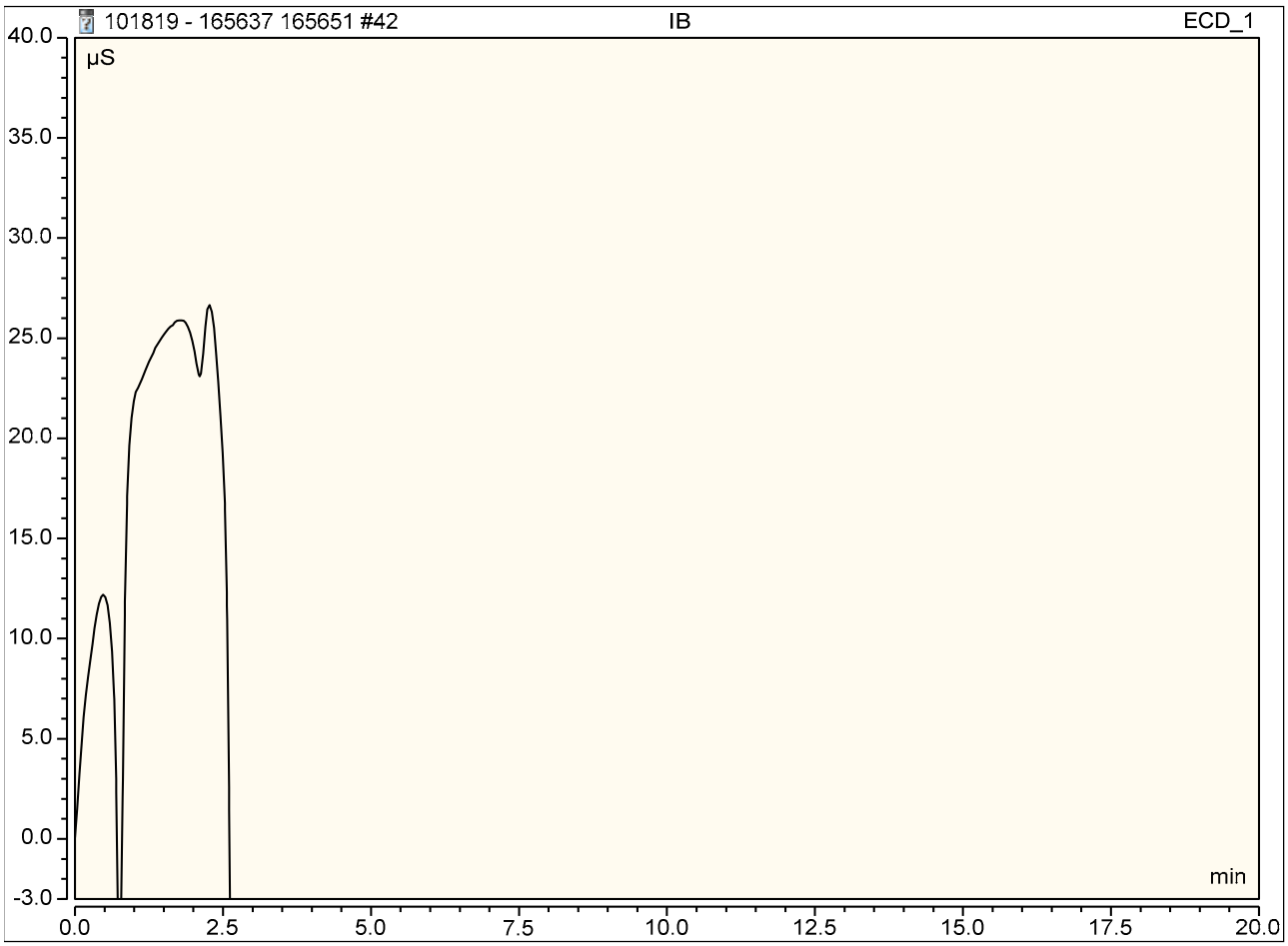
No.	Time min	Peak Name	Area µS*min	Height µS	Amount n.a.

NOT USED

Peak Integration Report

Sample Name:	**IB**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**21-Oct-2019 / 07:55**	*Run Time:*	**20.00**

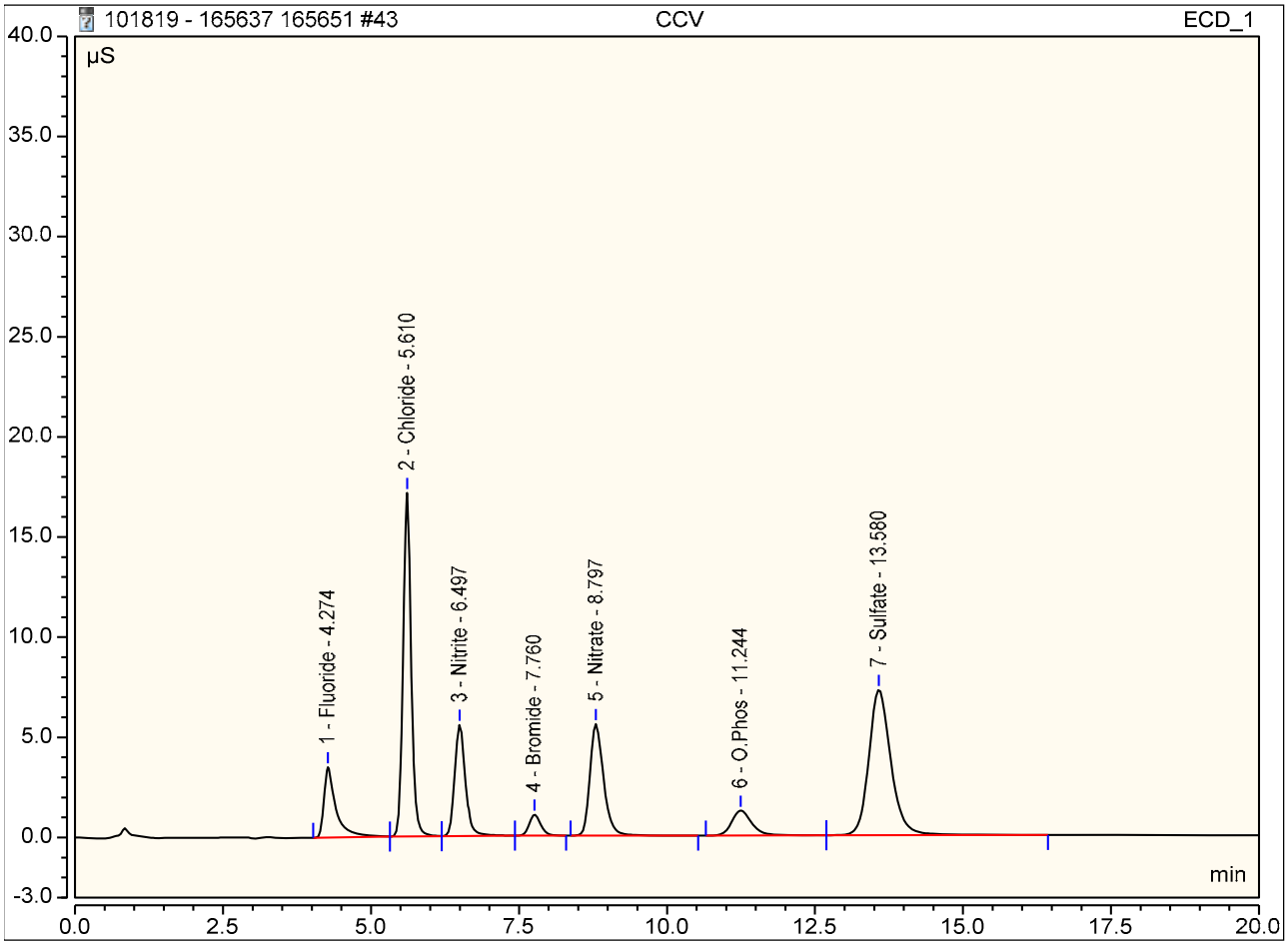
No.	Time min	Peak Name	Area µS*min	Height µS	Amount n.a.



Peak Integration Report

Sample Name:	**CCV**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**21-Oct-2019 / 08:18**	*Run Time:*	**20.00**

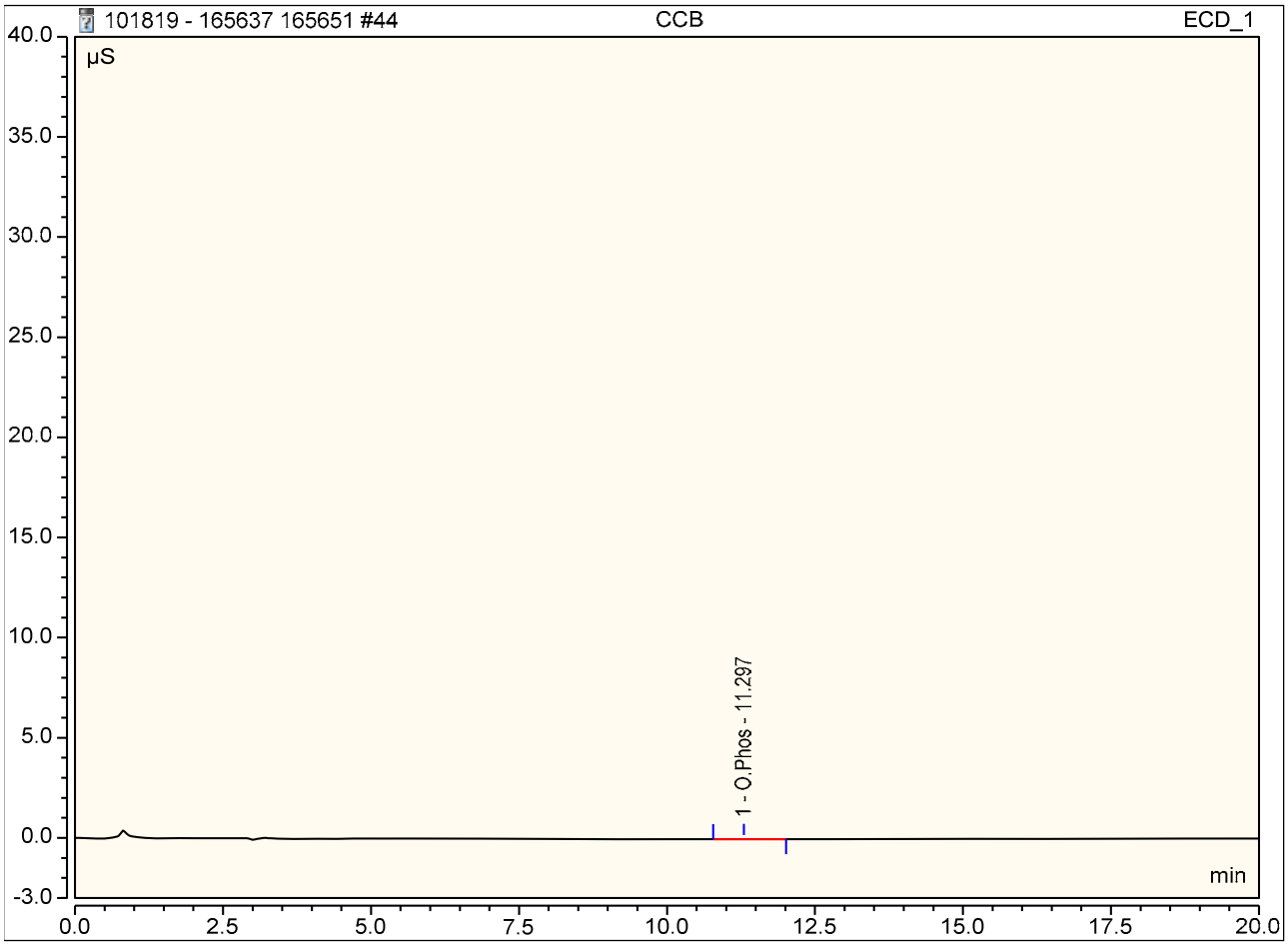
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.27	Fluoride	0.832	3.517	3.6935
2	5.61	Chloride	2.698	17.148	14.8546
3	6.50	Nitrite	1.169	5.556	3.7363
4	7.76	Bromide	0.238	1.054	3.5540
5	8.80	Nitrate	1.491	5.576	3.5790
6	11.24	O.Phos	0.490	1.247	3.7102
7	13.58	Sulfate	3.150	7.261	25.1584



Peak Integration Report

Sample Name:	**CCB**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**21-Oct-2019 / 08:38**	*Run Time:*	**20.00**

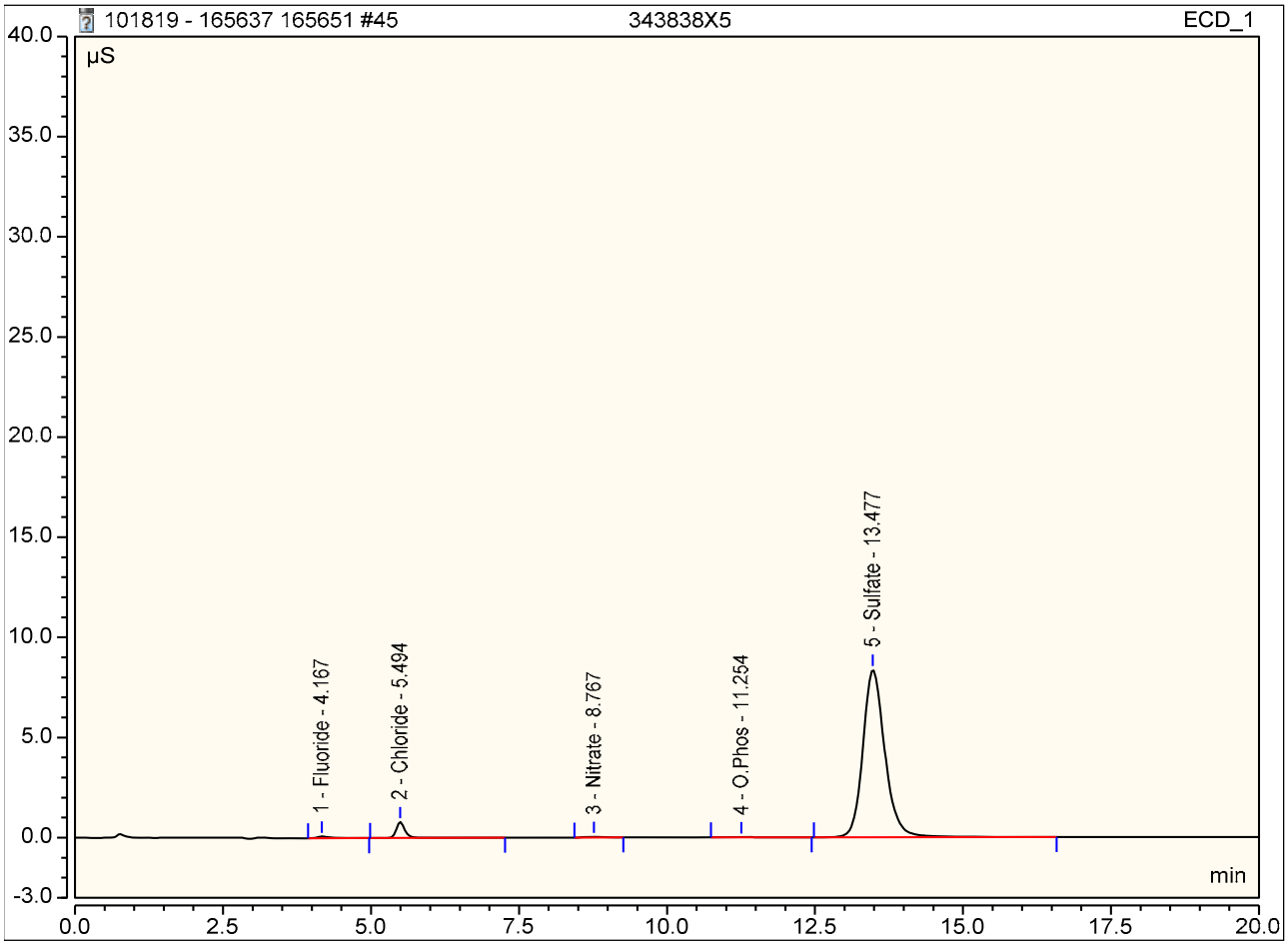
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	11.30	O.Phos	0.010	0.021	0.0743



Peak Integration Report

Sample Name:	**343838X5**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**21-Oct-2019 / 08:58**	*Run Time:*	**20.00**

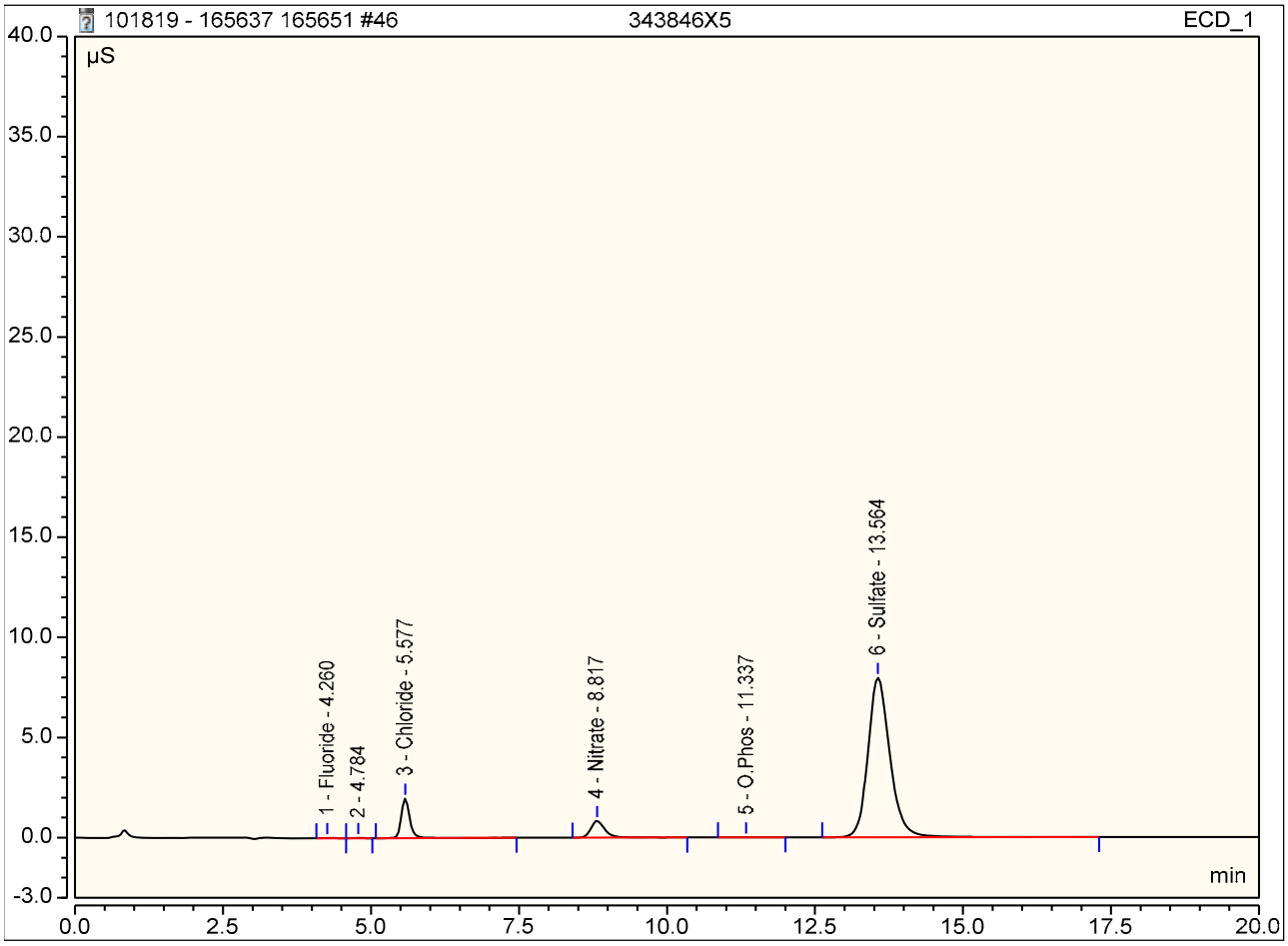
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.17	Fluoride	0.024	0.086	0.1287
2	5.49	Chloride	0.142	0.803	1.2190
3	8.77	Nitrate	0.011	0.038	0.0733
4	11.25	O.Phos	0.006	0.010	0.0440
5	13.48	Sulfate	3.611	8.365	28.7744



Peak Integration Report

Sample Name:	**343846X5**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**21-Oct-2019 / 09:18**	*Run Time:*	**20.00**

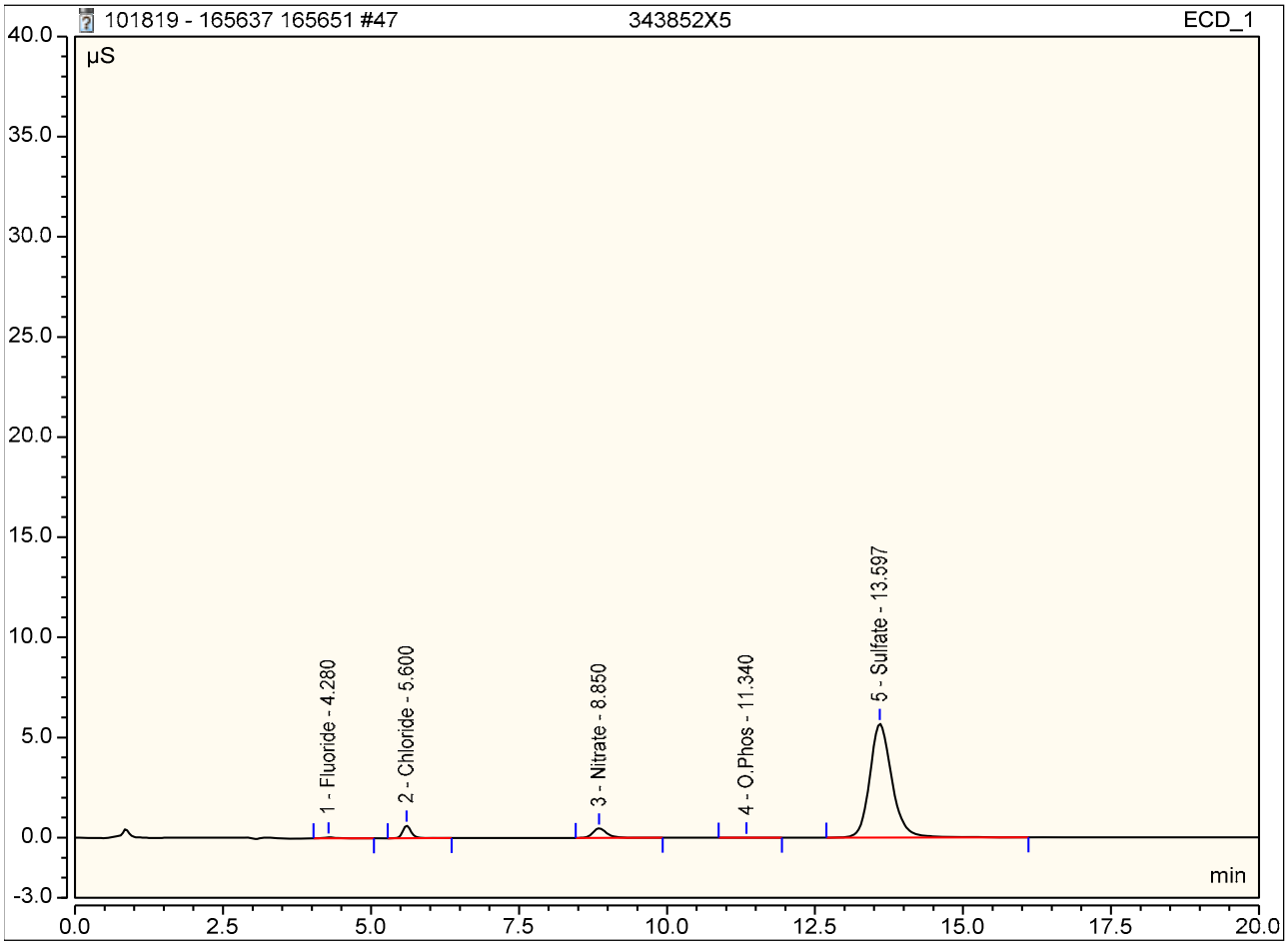
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.26	Fluoride	0.003	0.014	0.0331
3	5.58	Chloride	0.335	1.976	2.2469
4	8.82	Nitrate	0.228	0.834	0.5885
5	11.34	O.Phos	0.004	0.008	0.0302
6	13.56	Sulfate	3.447	7.960	27.4832



Peak Integration Report

Sample Name:	**343852X5**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**21-Oct-2019 / 09:38**	*Run Time:*	**20.00**

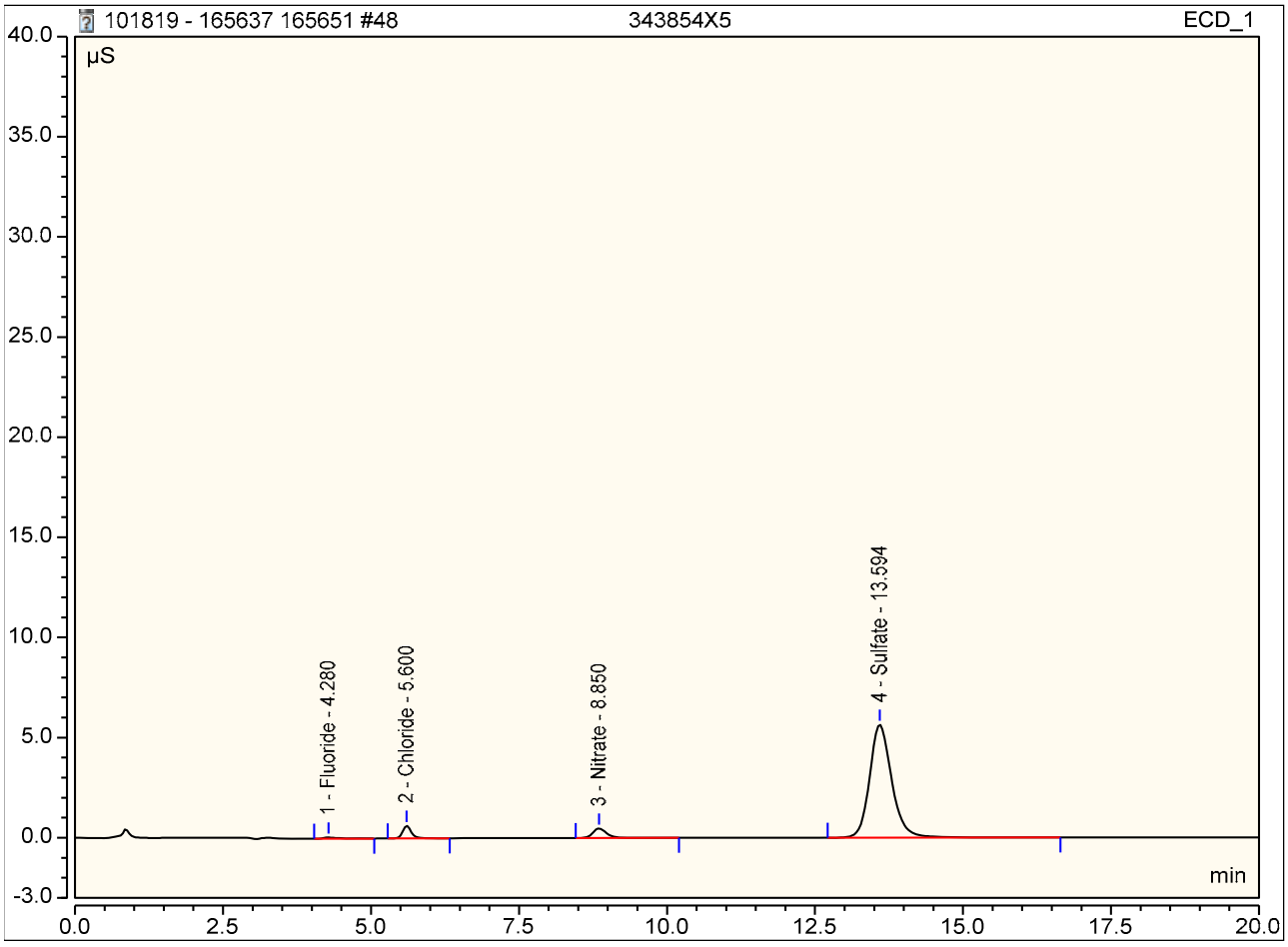
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.28	Fluoride	0.017	0.058	0.0953
2	5.60	Chloride	0.106	0.631	1.0240
3	8.85	Nitrate	0.130	0.473	0.3561
4	11.34	O.Phos	0.003	0.006	0.0238
5	13.60	Sulfate	2.467	5.671	19.7967



Peak Integration Report

Sample Name:	**343854X5**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**21-Oct-2019 / 09:58**	*Run Time:*	**20.00**

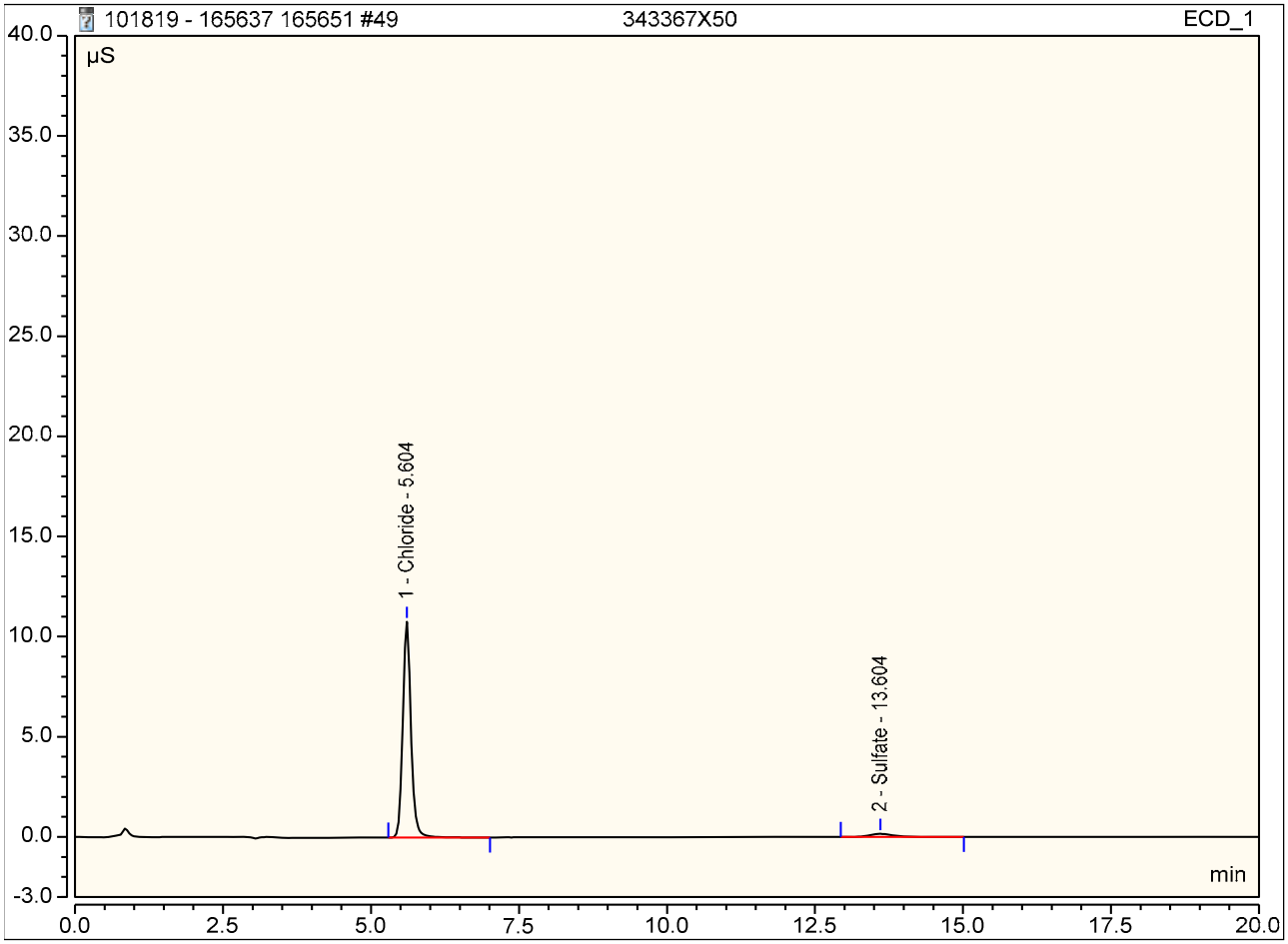
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.28	Fluoride	0.017	0.056	0.0950
2	5.60	Chloride	0.105	0.629	1.0207
3	8.85	Nitrate	0.130	0.472	0.3560
4	13.59	Sulfate	2.460	5.643	19.7405



Peak Integration Report

Sample Name:	**343367X50**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**21-Oct-2019 / 10:18**	*Run Time:*	**20.00**

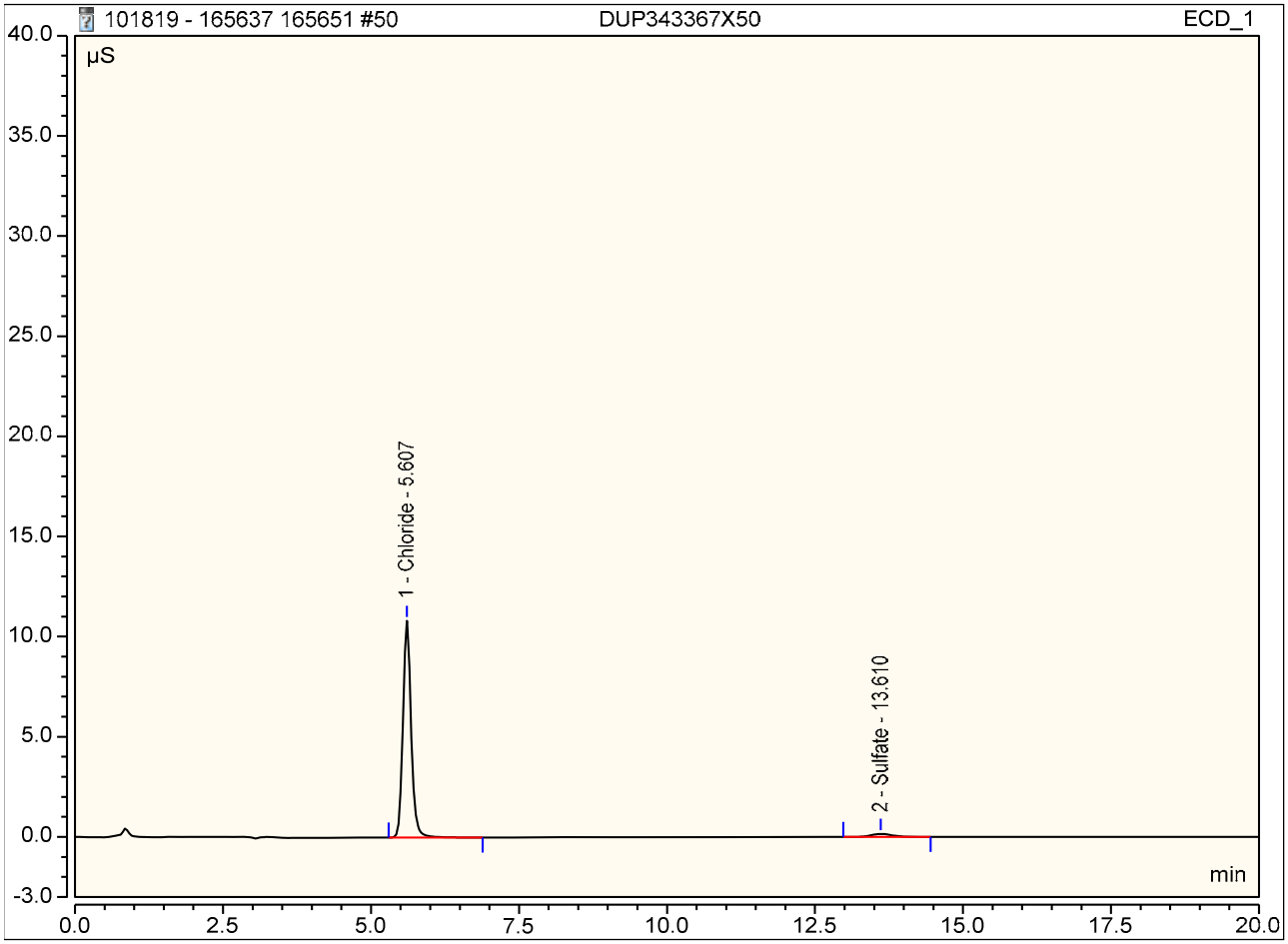
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	5.60	Chloride	1.730	10.774	9.6938
2	13.60	Sulfate	0.070	0.155	0.9764



Peak Integration Report

Sample Name:	**DUP343367X50**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**21-Oct-2019 / 10:38**	*Run Time:*	**20.00**

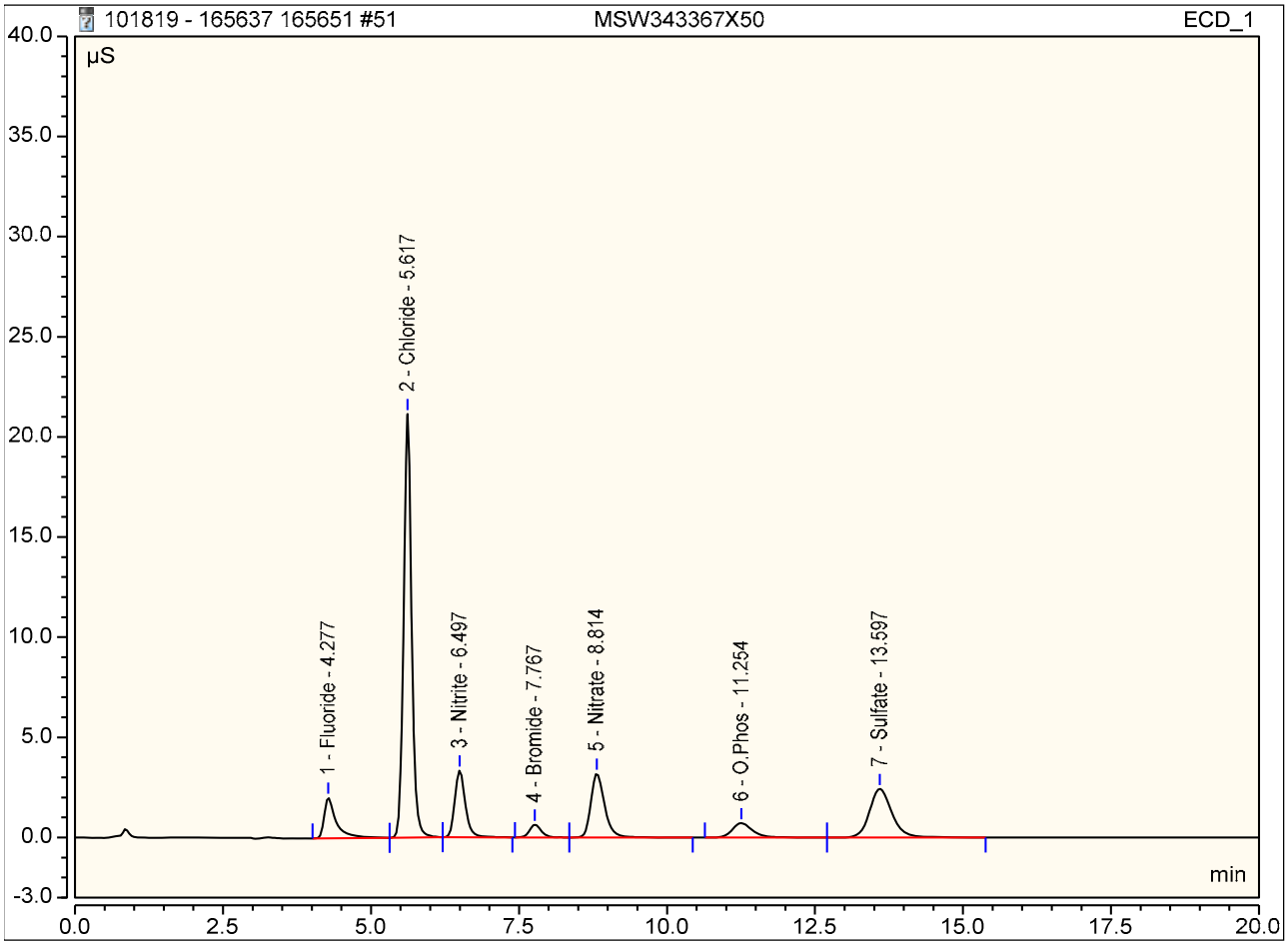
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	5.61	Chloride	1.738	10.821	9.7349
2	13.61	Sulfate	0.068	0.155	0.9583



Peak Integration Report

Sample Name:	**MSW343367X50**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**21-Oct-2019 / 10:58**	*Run Time:*	**20.00**

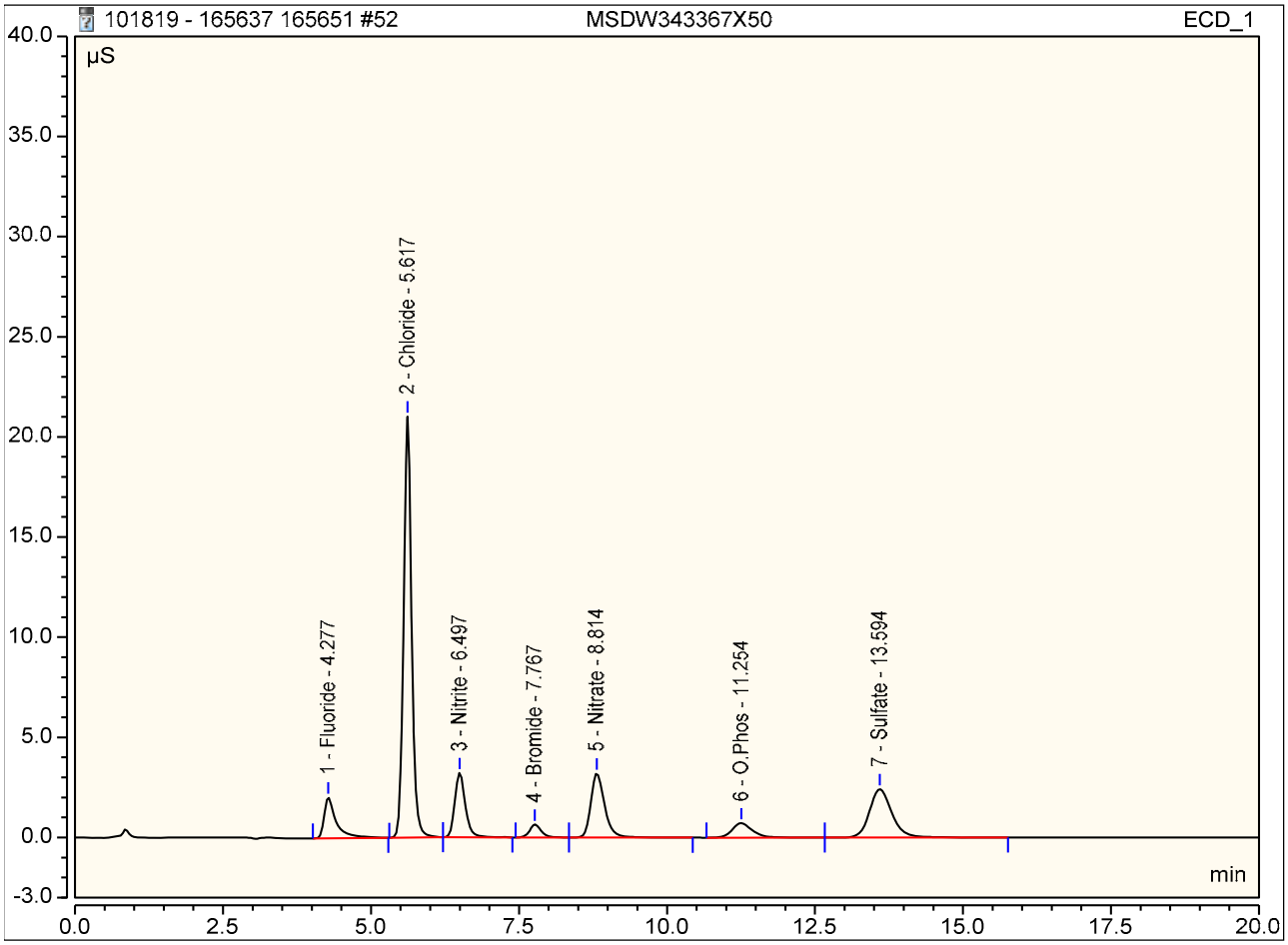
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.28	Fluoride	0.479	2.028	2.1367
2	5.62	Chloride	3.295	21.155	18.0410
3	6.50	Nitrite	0.694	3.337	2.2286
4	7.77	Bromide	0.146	0.642	2.1785
5	8.81	Nitrate	0.862	3.193	2.0907
6	11.25	O.Phos	0.290	0.722	2.1943
7	13.60	Sulfate	1.064	2.428	8.7812



Peak Integration Report

Sample Name:	**MSDW343367X50**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**21-Oct-2019 / 11:18**	*Run Time:*	**20.00**

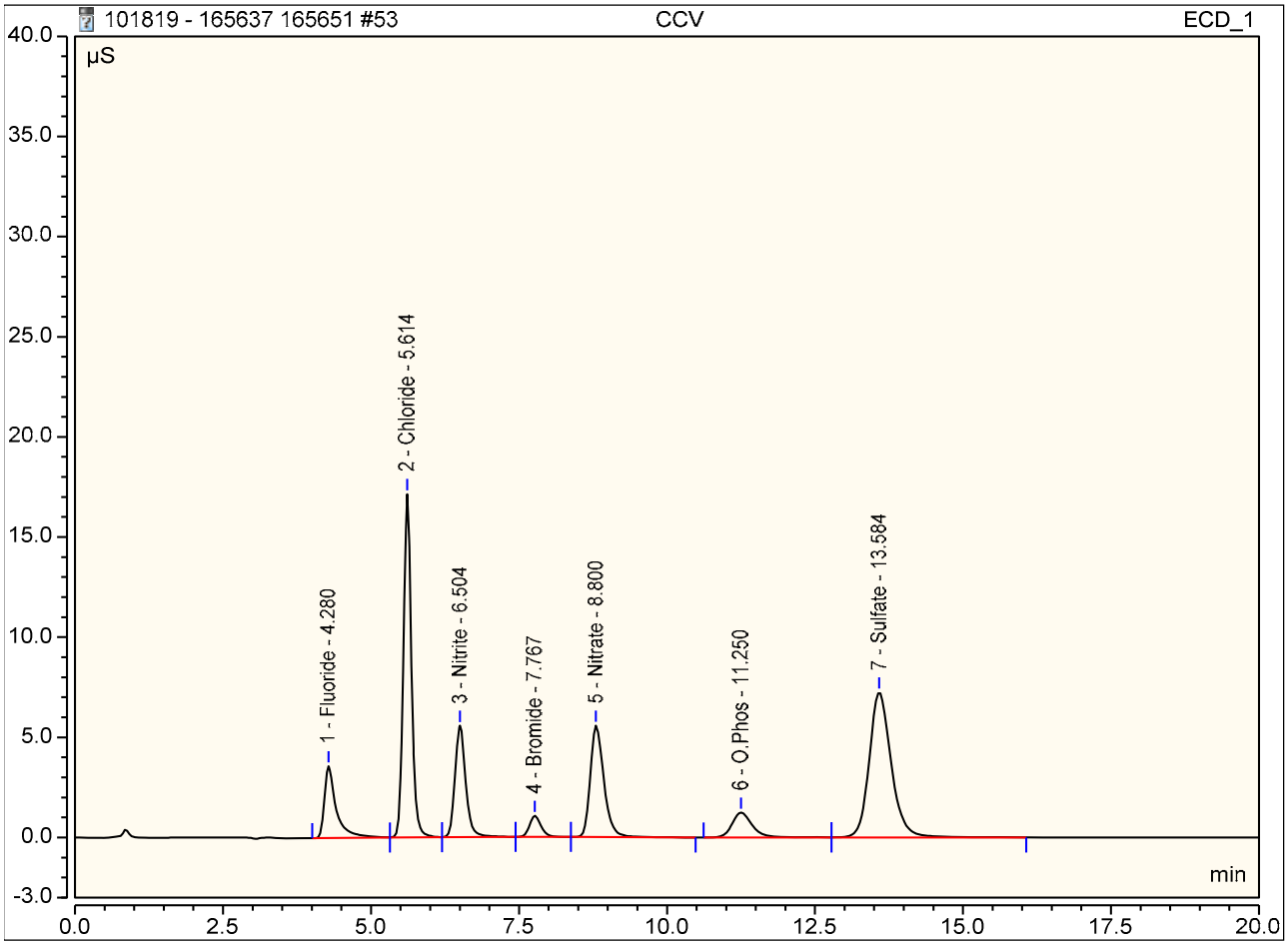
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.28	Fluoride	0.482	2.042	2.1490
2	5.62	Chloride	3.277	21.028	17.9468
3	6.50	Nitrite	0.667	3.216	2.1438
4	7.77	Bromide	0.147	0.645	2.1850
5	8.81	Nitrate	0.864	3.202	2.0949
6	11.25	O.Phos	0.292	0.723	2.2065
7	13.59	Sulfate	1.065	2.422	8.7840



Peak Integration Report

Sample Name:	**CCV**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**21-Oct-2019 / 11:38**	*Run Time:*	**20.00**

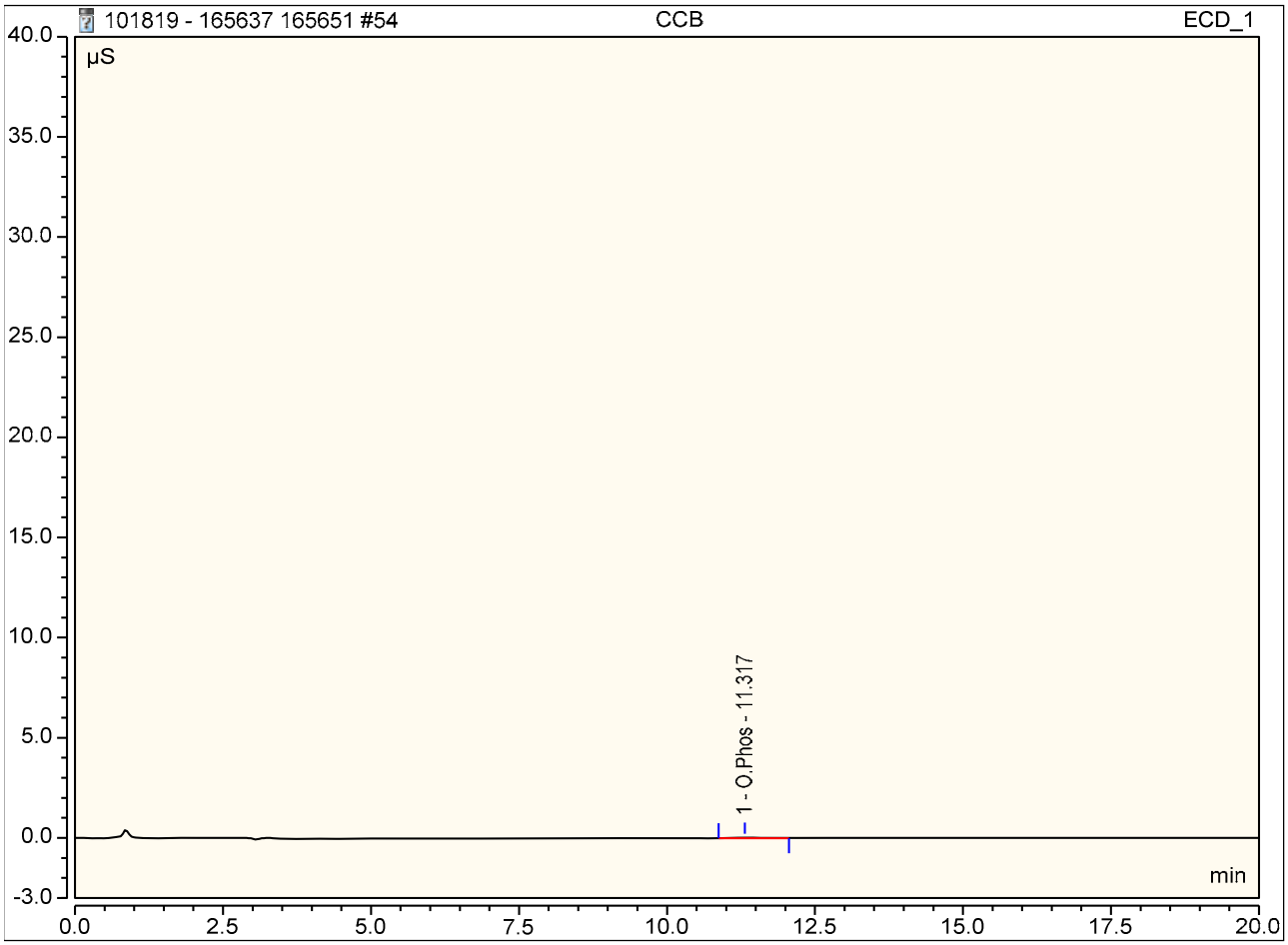
No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	4.28	Fluoride	0.829	3.586	3.6831
2	5.61	Chloride	2.691	17.138	14.8196
3	6.50	Nitrite	1.168	5.557	3.7303
4	7.77	Bromide	0.238	1.054	3.5515
5	8.80	Nitrate	1.486	5.566	3.5670
6	11.25	O.Phos	0.490	1.240	3.7056
7	13.58	Sulfate	3.124	7.238	24.9526



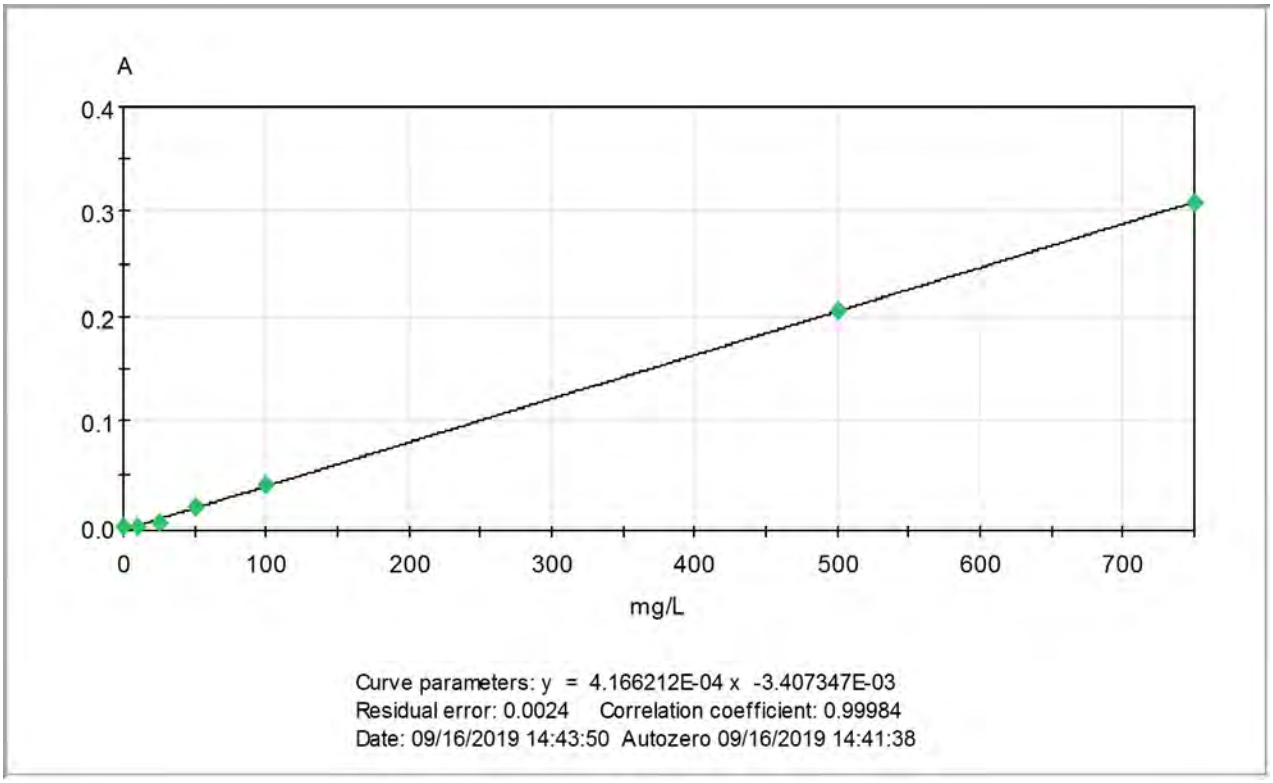
Peak Integration Report

Sample Name:	**CCB**	*Sequence Date:*	**05/04/2018**
Injection Type:	**Unknown**	*Dilution Factor:*	**1.0000**
Processing Method:	**IC2647A**	*Operator:*	**aquion**
Inj. Date / Time:	**21-Oct-2019 / 11:58**	*Run Time:*	**20.00**

No.	Time min	Peak Name	Area µS*min	Height µS	Amount
1	11.32	O.Phos	0.011	0.025	0.0863



Method: COD W47434.mqa (600 nm)
Last modified: 09/16/2019 14:44:53 by CTLABORATORIES
Spectrophotometer: GENESYS 30
Serial number: 9A1W117104
Firmware: 104
Autozero: 09/16/2019 14:41:38
Measured: 09/16/2019 15:09:23 by CTLABORATORIES
Result filename: 164444 164445 164446 DATA.rqa



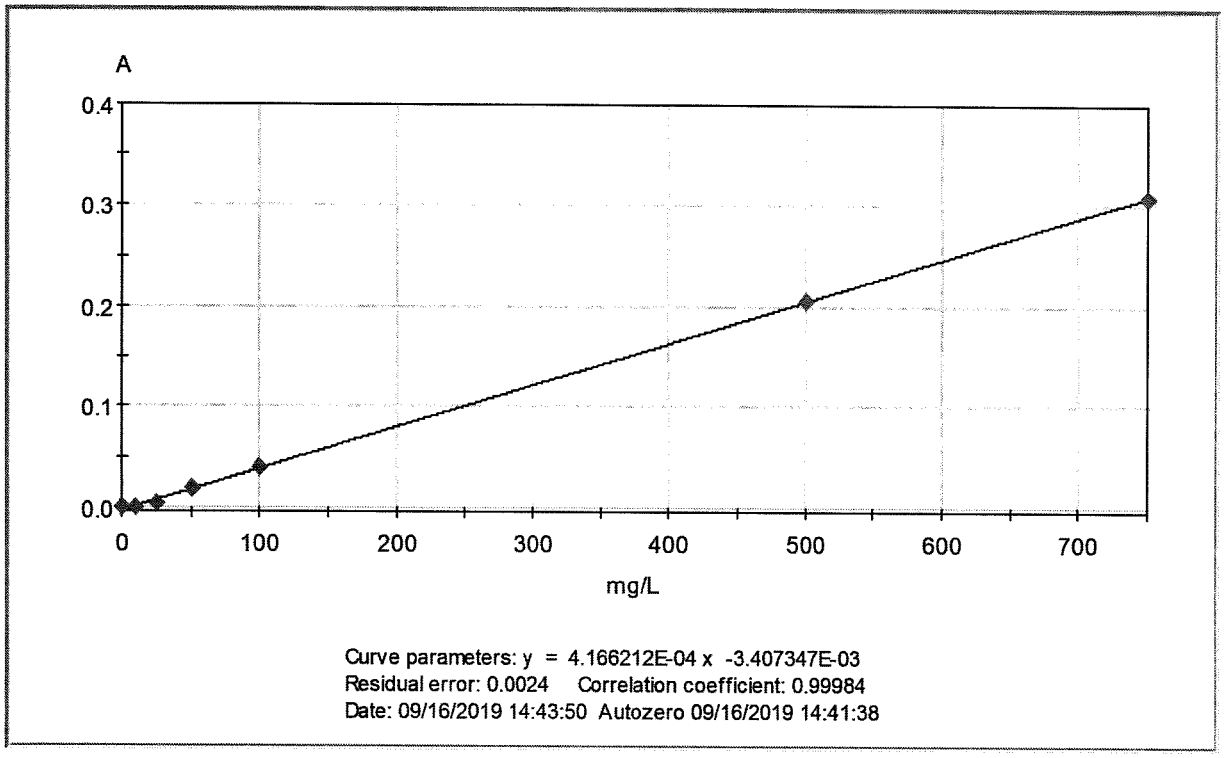
Standards

No.	Concentration [mg/L]	Ordinate [A]	Error [A]	Used
1	0.0	0.000	0.003	Yes
2	10.0	0.000	-0.001	Yes
3	25.0	0.003	-0.004	Yes
4	50.0	0.018	0.001	Yes
5	100.0	0.039	0.001	Yes
6	500.0	0.205	0.000	Yes
7	750.0	0.309	0.000	Yes

Sample	Dilution Factor	Ordinate [A]	Concentration [mg/L]

10.26-19
GMJ

Method:	COD W47434.mqa (600 nm)
Last modified:	09/16/2019 14:44:53 by CTLABORATORIES
Spectrophotometer:	GENESYS 30
Serial number:	9A1W117104
Firmware:	104
Autozero:	10/23/2019 12:44:04
Measured:	10/23/2019 13:01:18 by CTLABORATORIES
Result filename:	165738 165740 DATA.rqa



Curve parameters: y = 4.166212E-04 x -3.407347E-03
Residual error: 0.0024 Correlation coefficient: 0.99984
Date: 09/16/2019 14:43:50 Autozero 09/16/2019 14:41:38

Sample	Dilution Factor	Ordinate [A]	Concentration [mg/L]
CCV	1	0.166	406.6
CCB	1	0.001	10.6
345133	1	0.168	411.4
345132		0.003	discarded
345132	1	0.000	8.2
341300	1	0.018	51.4
MSW341300	1	0.079	197.8
MSDW341300 MSD	1	0.076	190.6
342189 (X50)	1	0.271	658.6
342190 (X50)	1	0.047	121.0
342191 (X50)	1	0.065	164.2
342929 (X50)	1	0.179	437.8
342930 (X50)	1	0.105	260.2
CCV	1	0.166	406.6
CCB	1	0.000	8.2
342931 (X20)	1	0.140	344.2

10-28-19
GMJ

342934 (X50)	1	0.090	224.2
343528 (x200)	1	0.172	421.0
343530 (X50)	1	0.081	202.6
343757 (X50)	1	0.024	65.8
343773	1	0.023	63.4
MSW343773	1	0.084	209.8
MSDW343773	1	0.083	207.4
345135	1	0.172	421.0
345134		0.009	discarded
345134		0.003	discarded
345134	1	0.000	8.2
CCV	1	0.166	406.6
CCB	1	0.001	10.6
343073	1	0.013	39.4
MSW343073	1	0.080	200.2
MSDW343073	1	0.082	205.0
343081	1	0.016	46.6
343086	1	0.023	63.4
345137	1	0.168	411.4
345136	1	0.000	8.2
305034	1	0.174	425.8
305177	1	0.166	406.6
305178	1	0.167	409.0
CCV	1	0.167	409.0
CCB	1	0.002	13.0
305179	1	0.169	413.8
343844	1	0.001	10.6
MSW343844	1	0.067	169.0
MSDW343844	1	0.072	181.0
343878	1	0.101	250.6
CCV	1	0.167	409.0
CCB	1	0.002	13.0

pH - Mettler Toledo Seven Easy

Date:	10/22/2019	Analyst:	HLB	Lims #:	135767	Slope (%)	98

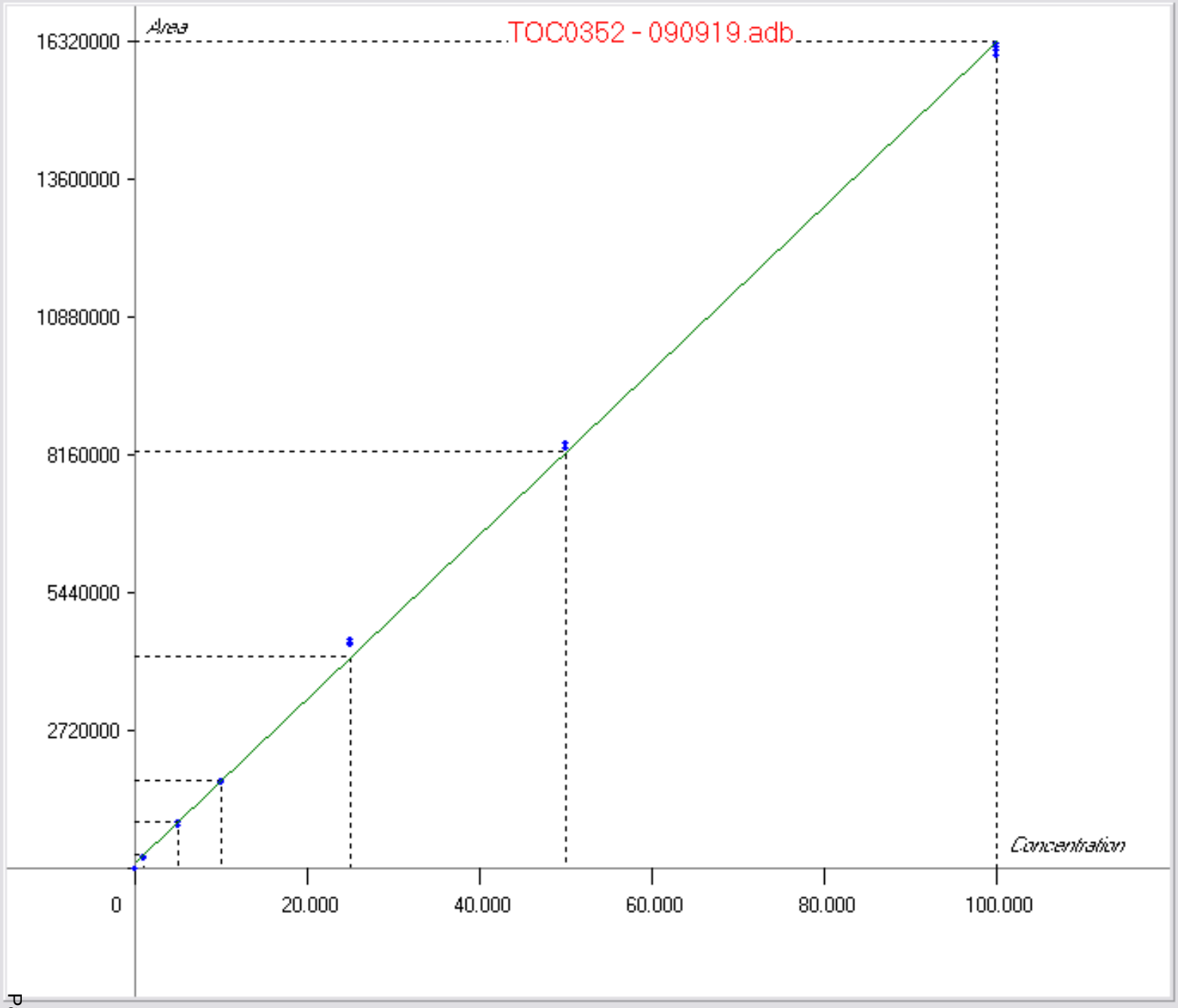
GRP	Sample ID#	Matrix	Temp (°C)*	Result	
1	BUFFER 7	QC	17.5	7.02	
2					
3					
4					
5					
6					
7	345212	WW	15.9	7.99	
8	345164	WW	8.6	8.61	
9	345161	WW	10.9	6.30	
10	345155	WW	11.6	4.95	
11	344502	WW	14.5	7.68	
dup 11	344502	WW	14.6	7.70	
12	BUFFER 7	QC	14.0	7.03	
13					
14					
15					
16					
17					
18					
19	344141	SW	8.9	8.28	
20	344137	SW	7.4	8.53	
21	343878	GW	8.7	7.77	
23	343844	GW	11.5	7.55	
dup 23	343844	GW	11.7	7.56	
24	BUFFER 7	QC	13.2	7.02	
25	344139	SW	7.8	7.99	
dup 25	344139	SW	7.9	8.00	
26					
dup 26					

To datacapture: Save CSV file under the TSS datacapture folder.

*Temperature of samples should be room temperature around 25°C

Buffer Standard IDs:

pH 4: W45311 pH 7: W46410 pH 10: W46764



Cursor Position

Concentration	Area
119.200 mg/l	5338000

A2	0
A1	162005
A0	137363
Correlation	0.99960
Order	1
Volume	100 µl
Conc.	100.00
Area	16306363

Confidence Intervals 95%

Detection/Determination 95%

Conc.	Area	Sel.
50	8411634	☑
50	8430229	☑
50	8424522	☑
50	8322530	☑
100	16222921	☑
100	16180156	☑
100	16306363	☑
100	16064230	☑

• Used Value
• Ignored Value

CurveNo:1 CurveType:TC

<-- --> Print... Exit

09/13/2019

Analysis Name TOC0352 - 090919.adb

Template Name CURVE TEMP.tdb
Method Name N / A
Operator TMG

Date Monday, September 9, 2019
Time 9:17

Start Oven Temp. 746 °C
Start Cooler Temp. 2 °C

Version 2.55 Release
Info ICAL0352 INSTRUMENT:TOCW ICV0351

Element	Integration Time	Samples	Extra Samples	Max. CV
Carbon	60 s	4	1	10 %
SampleTime	240 s			

No	Type	FileName	Date/Time	Max. Area	Max Conc.	Order	Correlation	Volume	Sel.
1	TC	This Analysis	Sep 9 2019, 9:17	16306363	100	1	0.99960	100 µl	Yes
	A2: 0		*A1: 162004.706846613*		*A0: 137362.891756699*				

Inj. Order	Position	Type	Identification	Dilution Factor
1	1	Unknown	BLANK	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**0.00**	**0**	**0.00**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	9 9 2019 9:27:48	1.28	344309	1	753	2	-	-
2	9 9 2019 9:31:16	0.00	0	0	753	2	-	Yes
3	9 9 2019 9:35:18	0.00	0	0	754	2	-	Yes
4	9 9 2019 9:39:19	0.00	0	0	754	2	-	Yes
5	9 9 2019 9:43:21	0.00	0	0	755	2	-	Yes

Inj. Order	Position	Type	Identification	Dilution Factor
2	2	Unknown	BLANK	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**0.00**	**0**	**0.00**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	9 9 2019 9:48:12	0.00	0	0	756	2	-	Yes
2	9 9 2019 9:52:50	0.00	0	0	756	2	-	Yes
3	9 9 2019 9:56:50	0.00	0	0	756	2	-	Yes
4	9 9 2019 10:00:51	0.00	0	0	757	2	-	Yes

Inj. Order	Position	Type	Identification	Dilution Factor
3	3	Unknown	BLANK	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**0.00**	**0**	**0.00**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	9 9 2019 10:05:44	0.00	0	0	758	2	-	Yes
2	9 9 2019 10:10:22	0.00	0	0	757	2	-	Yes
3	9 9 2019 10:14:23	0.00	0	0	757	2	-	Yes
4	9 9 2019 10:18:25	0.00	0	0	757	2	-	Yes

Inj. Order	Position	Type	Identification	Dilution Factor
4	4	Unknown	BLANK	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**0.00**	**0**	**0.00**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	9 9 2019 10:23:18	0.00	0	0	757	2	-	Yes
2	9 9 2019 10:27:56	0.00	0	0	757	2	-	Yes
3	9 9 2019 10:31:56	0.00	0	0	757	2	-	Yes
4	9 9 2019 10:35:58	0.00	0	0	756	2	-	Yes

Inj. Order	Position	Type	Identification	Dilution Factor
5	5	Unknown	BLANK	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**0.00**	**0**	**0.00**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	9 9 2019 10:40:50	0.00	0	0	757	2	-	Yes
2	9 9 2019 10:45:27	0.00	0	0	756	2	-	Yes
3	9 9 2019 10:49:29	0.00	0	0	756	2	-	Yes
4	9 9 2019 10:53:31	0.00	0	0	756	2	-	Yes

6 S1 Standard TC Std 0.00 mg/l 1 x

	TC	**0.00**	**0**	**0.00**		**100 µl**	
Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	9 9 2019 10:58:24	0.00	0	1	756	2	-	Yes
2	9 9 2019 11:03:01	0.00	0	1	756	2	-	Yes
3	9 9 2019 11:07:02	0.00	0	1	755	2	-	Yes
4	9 9 2019 11:11:04	0.00	0	1	755	2	-	Yes

7 S2 Standard TC Std 1.00 mg/l 1 x

	TC	**0.59**	**232657**	**8.67**		**100 µl**	
Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	9 9 2019 11:15:57	0.77	262203	1	755	2	-	Yes
2	9 9 2019 11:19:09	0.52	221762	1	754	2	-	Yes
3	9 9 2019 11:21:44	0.50	218113	1	755	2	-	Yes
4	9 9 2019 11:24:12	0.56	228553	1	755	2	-	Yes

8 S3 Standard TC Std. 5.00 mg/l 1 x

	TC	**4.59**	**881752**	**3.10**		**100 µl**	
Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	9 9 2019 11:27:32	4.83	919077	1	754	2	-	Yes
2	9 9 2019 11:30:59	4.54	873047	1	754	2	-	Yes
3	9 9 2019 11:33:42	4.59	881009	1	754	2	-	Yes
4	9 9 2019 11:36:31	4.42	853877	1	753	2	-	Yes

9 S4 Standard TC Std. 10.00 mg/l 1 x

	TC	**9.80**	**1724566**	**1.49**		**100 µl**	
Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	9 9 2019 11:40:03	10.03	1762701	1	754	2	-	Yes
2	9 9 2019 11:43:39	9.70	1708323	1	753	2	-	Yes
3	9 9 2019 11:46:27	9.75	1717356	1	753	2	-	Yes
4	9 9 2019 11:49:22	9.71	1709885	1	753	2	-	Yes

10 S5 Standard TC Std. 25.00 mg/l 1 x

	TC	**26.77**	**4474816**	**1.15**		**100 µl**	
Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	9 9 2019 11:53:05	27.21	4545982	1	753	2	-	Yes
2	9 9 2019 11:56:46	26.80	4479341	1	753	2	-	Yes
3	9 9 2019 11:59:45	26.57	4442495	1	753	2	-	Yes
4	9 9 2019 12:02:44	26.51	4431448	1	753	2	-	Yes

11 S6 Standard TC Std. 50.00 mg/l 1 x

	TC	**50.98**	**8397228**	**0.60**		**100 µl**	
Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	9 9 2019 12:06:34	51.07	8411634	1	753	2	-	Yes
2	9 9 2019 12:10:22	51.19	8430229	1	753	2	-	Yes
3	9 9 2019 12:13:34	51.15	8424522	1	752	2	-	Yes
4	9 9 2019 12:16:48	50.52	8322530	1	752	2	-	Yes

12 S7 Standard TC Std. 100.00 mg/l 1 x

	TC	**99.11**	**16193417**	**0.62**		**100 µl**	
Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	9 9 2019 12:20:50	99.29	16222921	1	753	2	-	Yes
2	9 9 2019 12:24:55	99.03	16180156	1	752	2	-	Yes
3	9 9 2019 12:28:25	99.81	16306363	1	753	2	-	Yes
4	9 9 2019 12:31:48	98.31	16064230	1	752	2	-	Yes

13 S8 Unknown ICV - 50.00 mg/L 1 x

TC **48.38** **7974714** **1.51** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	9 9 2019 12:35:55	48.28	7959487	1	752	2	-	Yes
2	9 9 2019 12:39:43	48.17	7940913	1	752	2	-	Yes
3	9 9 2019 12:42:55	49.41	8142448	1	752	2	-	Yes
4	9 9 2019 12:46:11	47.64	7856011	1	752	2	-	Yes

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14 S9 Unknown ICB 1 x

TC **0.00** **0** **0.00** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	9 9 2019 12:50:11	0	0	0	752	2	-	Yes
2	9 9 2019 12:54:47	0	0	0	752	2	-	Yes
3	9 9 2019 12:58:49	0	0	0	752	2	-	Yes
4	9 9 2019 13:02:49	0	0	0	752	2	-	Yes

Analysis Name 102519 - 165875R 165876R 165946.adb

Template Name 102519 - 165875R 165876R 165946.tdb
Method Name N / A
Operator TMG

Date Friday, October 25, 2019
Time 15:09

Start Oven Temp. 660 °C
Start Cooler Temp. 2 °C

Version 2.55 Release
Info ICAL0352 INSTRUMENT:TOCW
CCV0357 LCSW0358 SPIKE0259

Element	Integration Time	Samples	Extra Samples	Max. CV
Carbon	60 s	4	1	10 %
SampleTime	240 s			

No	Type	FileName	Date/Time	Max. Area	Max Conc.	Order	Correlation	Volume	Sel.
1	TC	TOC0352 - 090919	Sep 9 2019, 9:17	16306363	100	1	0.99960	100 µl	Yes
	A2: 0		*A1: 162004.706846613*		*A0: 137362.891756699*				

Inj. Order	Position	Type	Identification	Dilution Factor
1	1	Unknown	IB	1 x

	Injection Type	Conc.	Area	CV	Inj. Volume
	TC	**ZERO !**	**116418**	**111.77**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	10 25 2019 15:19:56	1.02	302708	1	707	2	-	Yes
2	10 25 2019 15:23:20	0	0	0	715	2	-	Yes
3	10 25 2019 15:27:21	ZERO !	74421	1	723	2	-	Yes
4	10 25 2019 15:29:48	0	0	0	727	2	-	-
5	10 25 2019 15:33:49	ZERO !	88543	1	733	2	-	Yes

Inj. Order	Position	Type	Identification	Dilution Factor
2	S1	Unknown	CCV	1 x

	Injection Type	Conc.	Area	CV	Inj. Volume
	TC	**53.22**	**8759262**	**1.52**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	10 25 2019 15:37:03	53.55	8812284	1	737	2	-	Yes
2	10 25 2019 15:40:52	54.20	8918277	1	741	2	-	Yes
3	10 25 2019 15:44:00	52.33	8615347	1	744	2	-	Yes
4	10 25 2019 15:47:11	52.80	8691141	1	746	2	-	Yes

Inj. Order	Position	Type	Identification	Dilution Factor
3	S5	Unknown	LCSW	1 x

	Injection Type	Conc.	Area	CV	Inj. Volume
	TC	**49.38**	**8137500**	**1.32**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	10 25 2019 15:51:12	50.14	8260992	1	750	2	-	Yes
2	10 25 2019 15:55:06	48.65	8019473	1	751	2	-	Yes
3	10 25 2019 15:58:23	49.04	8081917	1	753	2	-	Yes
4	10 25 2019 16:01:31	49.69	8187620	1	754	2	-	Yes

Inj. Order	Position	Type	Identification	Dilution Factor
4	2	Unknown	MBW-CCB	1 x

	Injection Type	Conc.	Area	CV	Inj. Volume
	TC	**ZERO !**	**87440**	**27.00**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	10 25 2019 16:05:30	0.13	158891	1	755	2	-	-
2	10 25 2019 16:08:44	ZERO !	118789	1	756	2	-	Yes
3	10 25 2019 16:11:09	ZERO !	75471	1	756	2	-	Yes
4	10 25 2019 16:13:30	ZERO !	64374	1	756	2	-	Yes
5	10 25 2019 16:16:00	ZERO !	91128	1	757	2	-	Yes

12	10	Unknown	343788				1 x		
		TC	**0.53**	**222813**		**12.56**	**100 µl**		
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	10 25 2019 17:57:48	0.78	264223	1	754	2	-	Yes

2	10 25 2019 18:00:54	0.48	214856	1	754	2	-	Yes
3	10 25 2019 18:03:18	0.41	203829	1	753	2	-	Yes
4	10 25 2019 18:05:40	0.44	208345	1	753	2	-	Yes
5	10 25 2019 18:08:04	0	0	0	753	2	-	-

13 11 Unknown 343836 1 x

TC **0.43** **208333** **16.17** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	10 25 2019 18:12:59	0.74	257768	1	754	2	-	Yes
2	10 25 2019 18:16:07	0.39	201322	1	753	2	-	Yes
3	10 25 2019 18:18:34	0.29	184790	1	753	2	-	Yes
4	10 25 2019 18:20:56	0.32	189455	1	752	2	-	Yes
5	10 25 2019 18:23:20	0	0	0	752	2	-	-

14 12 Unknown 343838 1 x

TC **0.62** **237704** **17.15** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	10 25 2019 18:28:13	0.98	295633	1	753	2	-	Yes
2	10 25 2019 18:31:23	0.61	236820	1	753	2	-	Yes
3	10 25 2019 18:33:50	0.44	208351	1	752	2	-	Yes
4	10 25 2019 18:36:16	0.45	210015	1	752	2	-	Yes
5	10 25 2019 18:38:36	0	0	0	752	2	-	-

15 S1 Unknown CCV 1 x

TC **54.66** **8992330** **0.72** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	10 25 2019 18:43:28	54.44	8956966	1	752	2	-	Yes
2	10 25 2019 18:47:28	55.23	9084251	1	752	2	-	Yes
3	10 25 2019 18:50:40	54.64	8988999	1	752	2	-	Yes
4	10 25 2019 18:53:53	54.33	8939107	1	752	2	-	Yes

16 13 Unknown CCB 1 x

TC **ZERO !** **105184** **7.29** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	10 25 2019 18:58:02	ZERO !	126272	1	752	2	-	-
2	10 25 2019 19:01:11	ZERO !	95568	1	752	2	-	Yes
3	10 25 2019 19:03:28	ZERO !	110962	1	752	2	-	Yes
4	10 25 2019 19:05:47	ZERO !	111738	1	752	2	-	Yes
5	10 25 2019 19:08:12	ZERO !	102468	1	752	2	-	Yes

17 14 Unknown 343840 1 x

TC **0.69** **249304** **8.34** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	10 25 2019 19:11:25	0.88	279734	1	752	2	-	Yes
2	10 25 2019 19:14:42	0.63	238821	1	752	2	-	Yes
3	10 25 2019 19:17:12	0.60	233818	1	752	2	-	Yes
4	10 25 2019 19:19:35	0.66	244843	1	752	2	-	Yes

18 15 Unknown DUP343840 1 x

TC **0.66** **243533** **8.00** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	10 25 2019 19:23:02	0.82	270826	1	752	2	-	Yes
2	10 25 2019 19:26:16	0.63	239483	1	752	2	-	Yes
3	10 25 2019 19:28:43	0.63	239250	1	752	2	-	Yes
4	10 25 2019 19:31:07	0.54	224574	1	752	2	-	Yes

19 16 Unknown MSW343840 1 x

TC **48.27** **7957133** **1.26** **100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	10 25 2019 19:34:27	48.59	8008740	1	752	2	-	Yes
2	10 25 2019 19:38:11	48.88	8055801	1	752	2	-	Yes
3	10 25 2019 19:41:20	47.46	7825781	1	752	2	-	Yes
4	10 25 2019 19:44:22	48.15	7938211	1	752	2	-	Yes

20 17 Unknown MSDW343840 1 x

	TC	48.93	8064676	0.92		100 µl		
Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	10 25 2019 19:48:19	48.62	8014720	1	752	2	-	Yes
2	10 25 2019 19:52:12	48.76	8036079	1	752	2	-	Yes
3	10 25 2019 19:55:18	49.61	8175052	1	752	2	-	Yes
4	10 25 2019 19:58:19	48.74	8032855	1	752	2	-	Yes

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21 18 Unknown 343842 1 x

	TC	0.19	168299	2.73		100 µl		
Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	10 25 2019 20:02:15	0.48	215030	1	752	2	-	-
2	10 25 2019 20:05:25	0.19	168404	1	752	2	-	Yes
3	10 25 2019 20:07:49	0.18	167202	1	752	2	-	Yes
4	10 25 2019 20:10:07	0.16	163250	1	752	2	-	Yes
5	10 25 2019 20:12:26	0.23	174343	1	751	2	-	Yes

26 S1 Unknown CCV 1 x

	TC	54.23	8924160	1.05		100 µl		
Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	10 25 2019 21:11:06	53.41	8790835	1	753	2	-	Yes
2	10 25 2019 21:15:06	54.65	8991298	1	753	2	-	Yes
3	10 25 2019 21:18:11	54.25	8926520	1	753	2	-	Yes
4	10 25 2019 21:21:14	54.63	8987988	1	753	2	-	Yes

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27 23 Unknown CCB 1 x

	TC	0.21	171550	8.78		100 µl		
Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	10 25 2019 21:25:13	0.31	187826	1	753	2	-	Yes
2	10 25 2019 21:28:25	0.10	153690	1	753	2	-	Yes
3	10 25 2019 21:30:48	0.17	165411	1	752	2	-	Yes

Analysis Name 102119 - 165683.adb

Template Name 102119 - 165683.tdb
Method Name N / A
Operator TMG

Date Monday, October 21, 2019
Time 8:45

Start Oven Temp. 707 °C
Start Cooler Temp. 2 °C

Version 2.55 Release
Info ICAL0352 INSTRUMENT:TOCW CCV0357 LCS0358

Element	Integration Time	Samples	Extra Samples	Max. CV
Carbon	60 s	4	1	10 %
SampleTime	240 s			

No	Type	FileName	Date/Time	Max. Area	Max Conc.	Order	Correlation	Volume	Sel.
1	TC	TOC0352 - 090919	Sep 9 2019, 9:17	16306363	100	1	0.99960	100 µl	Yes
	A2: 0		*A1: 162004.706846613*		*A0: 137362.891756699*				

Inj. Order	Position	Type	Identification	Dilution Factor
1	1	Unknown	IB	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**0.00**	**0**	**0.00**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	10 21 2019 8:45:29	0	0	0	708	2	-	Yes
2	10 21 2019 8:50:06	0	0	0	718	2	-	Yes
3	10 21 2019 8:54:07	0	0	0	726	2	-	Yes
4	10 21 2019 8:58:09	0	0	0	732	2	-	Yes

Inj. Order	Position	Type	Identification	Dilution Factor
2	S1	Unknown	CCV	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**52.99**	**8722172**	**1.70**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	10 21 2019 9:03:00	53.67	8832817	1	738	2	-	Yes
2	10 21 2019 9:07:11	52.04	8567784	1	742	2	-	Yes
3	10 21 2019 9:10:29	52.38	8623712	1	744	2	-	Yes
4	10 21 2019 9:13:36	53.87	8864378	1	747	2	-	Yes

Inj. Order	Position	Type	Identification	Dilution Factor
3	S5	Unknown	LCSW	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**51.24**	**8438827**	**0.89**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	10 21 2019 9:17:46	51.69	8510718	1	749	2	-	Yes
2	10 21 2019 9:21:51	51.58	8493264	1	752	2	-	Yes
3	10 21 2019 9:24:56	50.99	8397456	1	752	2	-	Yes
4	10 21 2019 9:28:22	50.72	8353871	1	754	2	-	Yes

Inj. Order	Position	Type	Identification	Dilution Factor
4	2	Unknown	MBW	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**0.00**	**0**	**0.00**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
1	10 21 2019 9:32:26	0	0	0	756	2	-	Yes
2	10 21 2019 9:37:04	0	0	0	757	2	-	Yes
3	10 21 2019 9:41:05	0	0	0	758	2	-	Yes
4	10 21 2019 9:45:06	0	0	0	758	2	-	Yes

Inj. Order	Position	Type	Identification	Dilution Factor
5	3	Unknown	343788	1 x

Injection Type	Conc.	Area	CV	Inj. Volume
TC	**97.31**	**15902280**	**0.80**	**100 µl**

Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.

	1	10 21 2019 9:49:59	98.14	16035791	1	758	2	-	Yes
	2	10 21 2019 9:54:13	97.75	15973718	1	758	2	-	Yes
	3	10 21 2019 9:57:50	96.96	15844819	1	760	2	-	Yes
	4	10 21 2019 10:01:10	96.40	15754794	1	760	2	-	Yes

6	4	Unknown	343836				1 x		
		TC	**95.85**	**15664914**	**1.44**		**100 µl**		
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	10 21 2019 10:05:32	97.25	15891817	1	759	2	-	Yes
	2	10 21 2019 10:09:54	94.45	15438128	1	758	2	-	Yes
	3	10 21 2019 10:13:22	96.81	15821775	1	758	2	-	Yes
	4	10 21 2019 10:16:50	94.88	15507937	1	759	2	-	Yes

7	5	Unknown	343838				1 x		
		TC	**85.32**	**13959415**	**0.81**		**100 µl**		
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	10 21 2019 10:21:13	86.35	14126689	1	759	2	-	Yes
	2	10 21 2019 10:25:23	84.83	13880666	1	759	2	-	Yes
	3	10 21 2019 10:28:48	84.93	13896357	1	759	2	-	Yes
	4	10 21 2019 10:32:31	85.16	13933948	1	759	2	-	Yes

8	6	Unknown	343840				1 x		
		TC	**86.75**	**14190457**	**0.96**		**100 µl**		
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	10 21 2019 10:37:00	87.35	14288087	1	758	2	-	Yes
	2	10 21 2019 10:41:05	86.66	14175937	1	757	2	-	Yes
	3	10 21 2019 10:44:28	85.59	14003575	1	757	2	-	Yes
	4	10 21 2019 10:48:01	87.39	14294231	1	757	2	-	Yes

9	7	Unknown	343842				1 x		
		TC	**60.75**	**9978243**	**0.59**		**100 µl**		
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	10 21 2019 10:52:26	60.81	9988164	1	757	2	-	Yes
	2	10 21 2019 10:56:13	60.33	9910308	1	756	2	-	Yes
	3	10 21 2019 10:59:29	60.65	9962782	1	756	2	-	Yes
	4	10 21 2019 11:02:41	61.20	10051718	1	755	2	-	Yes

10	S1	Unknown	CCV				1 x		
		TC	**53.92**	**8871912**	**0.63**		**100 µl**		
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	10 21 2019 11:06:33	53.62	8823412	1	755	2	-	Yes
	2	10 21 2019 11:10:31	54.30	8933554	1	755	2	-	Yes
	3	10 21 2019 11:13:38	54.12	8905193	1	754	2	-	Yes
	4	10 21 2019 11:16:55	53.63	8825491	1	754	2	-	Yes

11	8	Unknown	CCB				1 x		
		TC	**ZERO !**	**83207**	**68.78**		**100 µl**		
	Sample	Inj. Time	Conc.	Area	Curve	Oven	Cooler	Edited	Sel.
	1	10 21 2019 11:21:03	ZERO !	130766	1	754	2	-	Yes
	2	10 21 2019 11:24:14	ZERO !	102504	1	753	2	-	Yes
	3	10 21 2019 11:26:41	ZERO !	99561	1	753	2	-	Yes
	4	10 21 2019 11:29:02	0	0	0	753	2	-	Yes
	5	10 21 2019 11:33:02	0	0	0	753	2	-	-

INORGANICS
LOGBOOK
DOCUMENTS

WANIONS IC QSM 5.0 Analytical Run
165651 on 11/01/2019

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	ANALYTE	SAMPLE DATE:	QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	352168						WANIONS IC QSM 5.0				
		Nitrate Nitrogen		ICV							
		Chloride		ICV							
		Sulfate		ICV							
	352169						WANIONS IC QSM 5.0				
		Nitrate Nitrogen		ICB							
		Chloride		ICB							
		Sulfate		ICB							
	345893						WANIONS IC QSM 5.0				
		Nitrate Nitrogen		CCV				0			
		Chloride		CCV				0			
		Sulfate		CCV				0			
	345890						WANIONS IC QSM 5.0				
		Chloride		LCSW				0			
		Nitrate Nitrogen		LCSW				0			
		Sulfate		LCSW				0			
	345889						WANIONS IC QSM 5.0				
		Nitrate Nitrogen		MBW				0			
		Chloride		MBW				0			
		Sulfate		MBW				0			

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

WANIONS IC QSM 5.0 Analytical Run
165651 on 11/01/2019

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	ANALYTE	SAMPLE DATE:		QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	343868		10/17/2019	1200				ANIONS IC QSM 5.0		GW	4	
		Chloride										
		Nitrate Nitrogen										
		Sulfate										
	343870		10/17/2019	1315				ANIONS IC QSM 5.0		GW	4	
		Chloride										
		Nitrate Nitrogen										
		Sulfate										
	343872		10/17/2019	1450				ANIONS IC QSM 5.0		GW	4	
		Chloride										
		Nitrate Nitrogen										
		Sulfate										
149018	343788		10/14/2019	1025		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	ANIONS IC QSM 5.0		GW	4	
		Chloride										
		Nitrate Nitrogen										
		Sulfate										
149018	343836		10/14/2019	1025		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	ANIONS IC QSM 5.0		GW	4	
		Sulfate										
		Chloride										
		Nitrate Nitrogen										

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

WANIONS IC QSM 5.0 Analytical Run
165651 on 11/01/2019

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	ANALYTE	SAMPLE DATE:		QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
149018	343838		10/14/2019	1215		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	ANIONS IC QSM 5.0		GW	**4**	
		Chloride										
		Nitrate Nitrogen										
		Sulfate										
149018	343840		10/14/2019	1325		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	ANIONS IC QSM 5.0		GW	**4**	
		Chloride			*							
		Nitrate Nitrogen			*							
		Sulfate			*							
149018	343842		10/14/2019	1510		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	ANIONS IC QSM 5.0		GW	**4**	
		Chloride										
		Nitrate Nitrogen										
		Sulfate										
	345888							WANIONS IC QSM 5.0				
		Nitrate Nitrogen			CCV				0			
		Chloride			CCV				0			
		Sulfate			CCV				0			
	345887							WANIONS IC QSM 5.0				
		Nitrate Nitrogen			CCB				0			
		Chloride			CCB				0			
		Sulfate			CCB				0			

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

WANIONS IC QSM 5.0 Analytical Run
165651 on 11/01/2019

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	ANALYTE	SAMPLE DATE:		QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	343846		10/15/2019	1025				ANIONS IC QSM 5.0		GW	4	
		Chloride										
		Nitrate Nitrogen										
		Sulfate										
	343848		10/15/2019	1305				ANIONS IC QSM 5.0		GW	4	
		Chloride			*							
		Nitrate Nitrogen			*							
		Sulfate			*							
	343850		10/15/2019	1350				ANIONS IC QSM 5.0		GW	4	
		Chloride										
		Nitrate Nitrogen										
		Sulfate										
	343852		10/15/2019	1440				ANIONS IC QSM 5.0		GW	4	
		Chloride										
		Nitrate Nitrogen										
		Sulfate										
	343854		10/15/2019	1440				ANIONS IC QSM 5.0		GW	4	
		Chloride										
		Nitrate Nitrogen										
		Sulfate										

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

WANIONS IC QSM 5.0 Analytical Run
165651 on 11/01/2019

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	ANALYTE	SAMPLE DATE:		QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	343856		10/15/2019	1520				ANIONS IC QSM 5.0		GW	**4**	
		Chloride										
		Nitrate Nitrogen										
		Sulfate										
	343858		10/16/2019	1020				ANIONS IC QSM 5.0		GW	**4**	
		Chloride										
		Nitrate Nitrogen										
		Sulfate										
	343860		10/16/2019	1220				ANIONS IC QSM 5.0		GW	**4**	
		Chloride										
		Nitrate Nitrogen										
		Sulfate										
	343862		10/16/2019	1220				ANIONS IC QSM 5.0		GW	**4**	
		Chloride										
		Nitrate Nitrogen										
		Sulfate										
	343864		10/16/2019	1350				ANIONS IC QSM 5.0		GW	**4**	
		Chloride										
		Nitrate Nitrogen										
		Sulfate										

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

WANIONS IC QSM 5.0 Analytical Run
165651 on 11/01/2019

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	ANALYTE	SAMPLE DATE:		QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	345939								WANIONS IC QSM 5.0				
		Nitrate Nitrogen			CCV					0			
		Chloride			CCV					0			
		Sulfate			CCV					0			
	345938								WANIONS IC QSM 5.0				
		Nitrate Nitrogen			CCB					0			
		Chloride			CCB					0			
		Sulfate			CCB					0			
	343866		10/16/2019	1625					ANIONS IC QSM 5.0		GW	4	
		Chloride											
		Nitrate Nitrogen											
		Sulfate											
	345937		10/14/2019	1325					ANIONS IC QSM 5.0				
		Nitrate Nitrogen			DUP	343840				0			
		Chloride			DUP	343840				0			
		Sulfate			DUP	343840				0			
	345935		10/14/2019	1325					ANIONS IC QSM 5.0				
		Nitrate Nitrogen			MSW	343840				0			
		Chloride			MSW	343840				0			
		Sulfate			MSW	343840				0			

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

WANIONS IC QSM 5.0 Analytical Run
165651 on 11/01/2019

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	ANALYTE	SAMPLE DATE:		QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	352167		10/14/2019	1325					ANIONS IC QSM 5.0				
		Nitrate Nitrogen			MSDW	345935							
		Chloride			MSDW	345935							
		Sulfate			MSDW	345935							
	352170		10/15/2019	1305					ANIONS IC QSM 5.0				
		Nitrate Nitrogen			DUP	343848							
		Chloride			DUP	343848							
		Sulfate			DUP	343848							
	352171		10/15/2019	1305					ANIONS IC QSM 5.0				
		Nitrate Nitrogen			MSW	343848							
		Chloride			MSW	343848							
		Sulfate			MSW	343848							
	352172		10/15/2019	1305					ANIONS IC QSM 5.0				
		Nitrate Nitrogen			MSDW	352171							
		Chloride			MSDW	352171							
		Sulfate			MSDW	352171							
	352176								WANIONS IC QSM 5.0				
		Nitrate Nitrogen			CCV								
		Chloride			CCV								
		Sulfate			CCV								

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

WANIONS IC QSM 5.0 Analytical Run
165651 on 11/01/2019

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	ANALYTE	SAMPLE DATE:	QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	352177						WANIONS IC QSM 5.0				
		Nitrate Nitrogen		CCB							
		Chloride		CCB							
		Sulfate		CCB							
	345897						WANIONS IC QSM 5.0				
		Nitrate Nitrogen		CCV				0			
		Chloride		CCV				0			
		Sulfate		CCV				0			
	345896						WANIONS IC QSM 5.0				
		Nitrate Nitrogen		CCB				0			
		Chloride		CCB				0			
		Sulfate		CCB				0			
149018	343838		10/14/2019 1215		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	ANIONS IC QSM 5.0		GW	**4**	
		Chloride	***RERUN***								
		Nitrate Nitrogen	***RERUN***								
		Sulfate	***RERUN***								
	343846		10/15/2019 1025				ANIONS IC QSM 5.0		GW	**4**	
		Chloride	***RERUN***								
		Nitrate Nitrogen	***RERUN***								
		Sulfate	***RERUN***								

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

WANIONS IC QSM 5.0 Analytical Run
165651 on 11/01/2019

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	ANALYTE	SAMPLE DATE:	QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
148990	343852		10/15/2019 1440		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-49	ANIONS IC QSM 5.0		GW	**4**	
		Chloride	***RERUN***								
		Nitrate Nitrogen	***RERUN***								
		Sulfate	***RERUN***								
148990	343854		10/15/2019 1440		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-49	ANIONS IC QSM 5.0		GW	**4**	
		Chloride	***RERUN***								
		Nitrate Nitrogen	***RERUN***								
		Sulfate	***RERUN***								
	345895						WANIONS IC QSM 5.0				
		Nitrate Nitrogen		CCV				0			
		Chloride		CCV				0			
		Sulfate		CCV				0			
	345894						WANIONS IC QSM 5.0				
		Nitrate Nitrogen		CCB				0			
		Chloride		CCB				0			
		Sulfate		CCB				0			

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Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

Data Review Checklist

	Method: Anions by Ion Chromatography 300.0/9056	Independent Data Review Checklist	Instrument: Aquion - System 4

LIMS Run #(s)	Analysis Date	Analyst/Data Interpreter	Independent Reviewer	Date of Review	Approved? (Yes/No)
165637 165651	10/18/2019	TMG	RLD	11/04/2019	RLD

Instructions: Complete one checklist per *analytical sequence* . Enter the appropriate response for each question. Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirement	Acceptance Criteria	Analyst Review		Independent Review		Comments
		Yes	No	Yes	No	(Indicate reference to an attachment if necessary)
1. Were the samples analyzed within hold time?	28 days for Cl, F, SO_4;14 days for preserved NO_2+NO_3; 48 hours for O.Phos, and unpreserved NO_2 and NO_3		No		No	
2. Was the calibration performed using the required number of standards?	Minimum three plus a blank	Yes		Yes		
3. Is the standard prep log number noted on the analytical report bench sheet?	---	Yes		Yes		
4. Was the correlation coefficient acceptable?	≥ .995	Yes		Yes		
5. Were the ICV and ICB run immediately after the calibration check standard?	---	Yes		Yes		
6. Was the ICV recovery acceptable?	90 – 110 % or contract/program specific	Yes		Yes		
7. Was the ICB result acceptable?	< LOD or contract/program specific	Yes		Yes		
8. Were the CCV's and the CCB's analyzed at the required frequency?	1 / 10 samples or contract/program specific	Yes		Yes		
9. Were the CCV recoveries acceptable?	90 – 110 % or contract/program specific	Yes		Yes		
10. Were the CCB results acceptable?	< LOD or program/project specific	Yes		Yes		
11. Was the MB analyzed at the required frequency?	1 / 20 samples or contract/program specific	Yes		Yes		
12. Were the MB results acceptable?	< LOD or contract/program specific	Yes		Yes		

13. Was a LCS run at the required frequency?	1 / 20 samples or contract/program specific	Yes		Yes		If No: Affected sample must be reanalyzed including the LCS.
14. Was the LCS recovery acceptable?	Within in-house or contract/program specific limits	Yes		Yes		If No: Affected sample should be reanalyzed with accecptable LCS recoveries if possible. Detects reported with an LCS failure must be qualified with a "Q" flag. Nondetected analytes reported with a low LCS recovery must also be qualified with a "Q" flag.
15. Was the LCS used before the indicated expiration date?	---	Yes		Yes		
16. Were the MS and MSD (when required) prepared at the required frequency?	1 per 20 samples per matrix or contract/program specific	Yes		Yes		
17. Were the MS and MSD (when required) recoveries acceptable?	Within In-house or contract/program specific limits		No		No	
18. Was the RPD between the MS and MSD (when required) acceptable?	Within in house or contract/program specific limits	Yes		Yes		
19. Was a sample duplicate prepared at the required frequency?	Contract/program specific or 1 per 20 samples (1 / 10 for SDWA samples)	Yes		Yes		
20. Was the duplicate within precision limits?	Within in-house or contract/program specific limits		No		No	
21. Were all chromatograms checked to ensure accurate peak identification?	---	Yes		Yes		
22. Are all samples on the job lists accounted for?	---	Yes		Yes		
23. Were all samples having analytes detected in amounts exceeding the calibration range diluted, reanalyzed and DF applied to the final results?	---	Yes		Yes		
24. Were non-matrix related nonconformities (if applicable) documented in the NCR spreadsheet?	---	Yes		Yes		

Non-Applicable Yes/No Cells Are Left Blank

Comments:

Aquion Run Log - System 4

Start Date	Start Time	End Date	End Time	Analyst	Lims Run #(s)	Calibration ID#	Data File	CCV ID's	LCS ID's	Spike ID's	Total Cond.	Pressure (Mpa)	Flow (mL/min)	Comments	Reviewed/Date
08/26/19	15:56	08/26/19	20:17	TMG	163901	IC2112A	082619 -	IC2561 IC2567	IC2562 IC2568	IC2563 IC2569	21.94	1332	0.97		RLD 09/06/2019
08/29/19	10:51	08/29/19	15:52	TMG	163986	IC2112A	082919 -	IC2575 IC2578	IC2576 IC2579	IC2577 IC2580	21.72	1321	0.97		RLD 09/06/2019
08/30/19	12:18	08/30/19	17:59	TMG	164026	IC2112A	083019 -	IC2575 IC2578	IC2576 IC2579	IC2577 IC2580	21.64	1337	0.97		RLD 09/19/2019
09/03/19	9:47	09/03/19	12:28	TMG	164060	IC2112A	090319 -	IC2575 IC2582	IC2576 IC2583	IC2577 IC2584	21.82	1338	0.97		RLD 09/19/2019
09/06/19	13:10	09/06/19	17:11	TMG	164212	IC2112A	090619 -	IC2587 IC2590	IC2588 IC2591	IC2589 IC2592	21.77	1335	0.97		RLD 09/19/2019
09/10/19	13:21	09/10/19	18:02	TMG	164308	IC2112A	091019 -	IS2587 IC2594	IC2588 IC2595	IC2589 IC2596	21.78	1337	0.97		RLD 09/19/2019
09/11/19	12:54	09/12/19	09:06	TMG	164342 164343 164344	IC2112A	091119 -	IC2587 IC2594	IC2588 IC2595	IC2589 IC2596	21.61	1336	0.97		RLD 09/19/2019
09/12/19	12:59	09/12/19	22:01	TMG	164369 164370	IC2112A	091219 -	IC2601 IC2604	IC2602 IC2605	IC2603 IC2606	22.21	1339	0.97		RLD 09/19/2019
09/13/19	12:27	09/13/19	15:28	TMG	164423	IC2112A	091319 -	IC2601 IC2604	IC2602 IC2605	IC2603 IC2606	21.82	1332	0.97		RLD 09/19/2019
09/20/19	11:21	09/23/19	11:12	TMG	164667 164669	IC2112A	092019 -	IC2610 IC2613	IC2611 IC2614	IC2612 IC2615	22.24	1320	0.97		RLD 10/11/2019
09/24/19	12:59	09/24/19	15:43	TMG	164765	IC2112A	092419 -	IC1610 IC1616	IC1611 IC2617	IC2612 IC2618	21.86	1322	0.97		RLD 10/11/2019
09/27/19	14:05	09/27/19	20:06	TMG	164914	IC2112A	092719 -	IC2620 IC2623	IC2621 IC2624	IC2622 IC2625	22.2	1325	0.97		RLD 10/11/2019
10/01/19	12:20	10/01/19	17:21	TMG	164983	IC2112A	100119 -	IC2620 IC2626	IC2621 IC2627	IC2622 IC2628	22.48	1322	0.97		RLD 10/11/2019
10/04/19	13:25	10/07/19	12:22	TMG	165104	IC2112A	100419 -	IC2632 IC2635	IC2633 IC2636	IC2634 IC2637	22.41	1323	0.97		RLD 10/11/2019
10/08/19	13:19	10/09/19	13:10	TMG	165282 165283	IC2112A	100819 -	IC1632 IC2635	IC2633 IC2636	IC2634 IC2637	22.29	1332	0.97		RLD 10/11/2019
10/10/19	7:56	10/10/19	11:36	TMG	IC2647A	IC2647A	101019 -	IC2651 IC2654	IC2652 IC2655	IC2653 IC2656	22.48	867	1		RLD 10/11/2019
10/10/19	15:51	10/10/19	19:52	TMG	165335	IC2647A	101019 -	IC2651 IC2654	IC2652 IC2655	IC2653 IC2656	22.45	872	1		RLD 10/11/2019
10/11/19	13:05	10/11/19	17:05	TMG	165376	IC2647A	101119 -	IC2651 IC2654	IC2652 IC2655	IC2653 IC2656	22.07	856	0.97		RLD 11/13/2019
10/14/19	14:29	10/15/19	11:55	TMG	165451	IC2647A	101419 -	IC2651 IC2654	IC2652 IC2655	IC2653 IC2656	22.3	820	0.97		RLD 11/13/2019
10/15/19	15:36	10/16/19	10:41	TMG	165479	IC2647A	101519 -	IC2651 IC2654	IC2652 IC2655	IC2653 IC2656	22.27	827	0.97		RLD 11/13/2019
10/17/19	12:41	10/18/19	11:43	TMG	165575 165577 165597	IC2647A	101719 -	IC2661 IC2658	IC2662 IC2659	IC2663 IC2660	20.79	821	0.97		RLD 11/13/2019
10/18/19	14:56	10/21/19	11:58	TMG	165637 165651	IC2647A	101819 -	IC2661 IC2666	IC2662 IC2667	IC2663 IC2668	21.06	824	0.97		RLD 11/13/2019
10/22/19	12:40	10/22/19	17:41	TMG	165762	IC2647A	102219 -	IC2661 IC2670	IC2662 IC2671	IC2663 IC2672	20.7	826	0.97		RLD 11/13/2019
10/24/19	13:22	10/24/19	20:44	TMG	165895 165896	IC2647A	102419 -	IC2674 IC2677	IC2675 IC2678	IC2676 IC2679	20.9	822	0.97		RLD 11/13/2019
10/25/19	11:36	10/28/19	11:38	TMG	165940	IC2647A	102519 -	IC2674 IC2677	IC2675 IC2678	IC2676 IC2679	21.02	825	0.97		RLD 11/13/2019
10/29/19	11:23	10/29/19	22:04	TMG	166027 166028 PT	IC2647A	102919 -	IC2674 IC2681	IC2675 IC2682	IC2676 IC2683	20.81	856	1		RLD 11/13/2019
10/30/19	14:12	10/30/19	23:13	TMG	166101 166102	IC2647A	103019 -	IC2674 IC2681	IC2675 IC2682	IC2676 IC2683	20.69	860	1		RLD 11/13/2019
10/31/19	14:47	10/31/19	18:48	TMG	166133	IC2647A	103119 -	IC2688 IC2691	IC2689 IC2692	IC2690 IC2693	20.83	861	1		RLD 11/13/2019
11/01/19	13:11	11/01/19	23:33	TMG	IC2694LL	IC2694LL	110119 -	IC2695	IC2696		20.82	852	1		
11/05/19	11:08	11/06/19	15:49	TMG	166289	IC2224 ML	110519 -	IC2726	IC2727	IC2706	21.23	860	1		
11/08/19	12:01	11/08/19	16:07	TMG	166407	IC2237A	110819 -	IC2701 IC2704	IC2702 IC2705	IC2703 IC2706	21.27	840	0.97		
11/13/19	14:05	11/15/19	10:53	TMG	166572 166582 166615 166616	IC2237A	111319 -	IC2715 IC2718	IC2716 IC2719	IC2717 IC2720	21.61	835	0.97		
11/15/19	12:17			TMG	166665 166709	IC2237A	111519 -	IC2715 IC2718	IC2716 IC2719	IC2717 IC2720	21.38	840	0.97		
11/19/19				TMG	166777 IC2732A	IC2237A/IC2732A	111919 -	IC2715 IC2728	IC2716 IC2729	IC2717 IC2730		827	0.97		
11/21/19				TMG	166872	IC2237A	112119 -	IC2734 IC2737	IC2735 IC2738	IC2736 IC2739		833	0.97		
11/22/19				TMG	166934	IC2237A	112219 -	IC2734 IC2737	IC2735 IC2738	IC2736 IC2739		842	0.97		
11/23/19				TMG	166955	IC2237A	112319 -	IC2734 IC2737	IC2735 IC2738	IC2736 IC2739		850	0.97		
11/26/19				TMG	167014	IC2237A	112619 -	IC2734 IC2737	IC2735 IC2738	IC2736 IC2739		812	0.97		

Standard Log #:	IC2700	Standard/Reagent:	Nitrocellulose Spiking Std.
Analyst:	RLD	Final Concentration:	5001 mg/L
Prep Date:	11/07/2019	Expiration Date:	11/14/2019
Prep:	Added 0.5001 g of IC2488 (Nitrocellulose Stock Std.-Dried) into a 100 ml volumetric flask and brought to volume with acetone (Chem Pure Brand Chemicals, Cat.# CP-9043, Lot # DU033-US).		

Standard Log #:	IC2701	Standard/Reagent:	CCV MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3 30mg/L C
Prep Date:	11/07/2019	Expiration Date:	11/14/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Fluoride (IC2535) , Bromide (IC2536), and Nitrate (IC2118) , 15 ml 1000 mg/L Chloride (IC2619) , and 25 ml 1000 mg/L Sulfate (IC2593), and brought to volume with Milli-Q DI H20Chloride (IC2619) and 1000mg/L		

Standard Log #:	IC2702	Standard/Reagent:	LCSW MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3,PO4 30m
Prep Date:	11/07/2019	Expiration Date:	11/14/2019
Prep:	Into a 500 mL volumetric flask, pipetted 20 mL of Custom Mix Stock Standard (175 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 1250 mg/L Sulfate, and 750 mg/L Chloride) (IC2336) brought to volume with Milli-Q DI H20.		

Standard Log #:	IC2703	Standard/Reagent:	SPIKE MIX
Analyst:	TMG	Final Concentration:	64mg/L Fl, Br, NO3 256mg/l

Prep Date:	11/07/2019	Expiration Date:	11/14/2019
Prep:	Into a 100 mL volumetric flask pipetted 6.4 mL 1000mg/L Fluoride(IC2535), Bromide (IC2536), and Nitrate (IC2118), and 25.6mL 1000mg/L Chloride (IC2619) and 1000mg/L Sulfate (IC2593), and brought to volume with Milli-Q DI H2O		

Standard Log #:	IC2704	Standard/Reagent:	CCV NO2-P
Analyst:	TMG	Final Concentration:	7.0mg/L NO2, PO4
Prep Date:	11/07/2019	Expiration Date:	11/08/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2288) and ortho-phosphate (IC2650), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2705	Standard/Reagent:	LCSW NO2
Analyst:	TMG	Final Concentration:	7.0mg/L NO2
Prep Date:	11/07/2019	Expiration Date:	11/08/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2664) brought to volume with Milli-Q DI H20		

Standard Log #:	IC2706	Standard/Reagent:	SPIKE NO2-P
Analyst:	TMG	Final Concentration:	64.0mg/L NO2, PO4
Prep Date:	11/07/2019	Expiration Date:	11/08/2019

Prep:	Into a 100 mL volumetric flask, pipetted 6.4 mL 1000mg/L Nitrite(IC2288) and Phosphate(IC2650) brrought to volume with milli-Q H2O

Standard Log #:	IC2707	Standard/Reagent:	Hexachrome Eluent
Analyst:	TMG	Final Concentration:	na
Prep Date:	11/07/2019	Expiration Date:	11/12/2019
Prep:	Dissolve 66g of ammonium sulfate (IC2280) in 1L of DI water and add 13mL of 29% ammonium hydroxide (w26415). Dilute to 2.0L with DI water.		

Standard Log #:	IC2708	Standard/Reagent:	Hexachrome PCR
Analyst:	TMG	Final Concentration:	na
Prep Date:	11/07/2019	Expiration Date:	11/12/2019
Prep:	Add 2ml of 98% sulfuric acid to 500ml of DI water in a 1.0L volumetric flask. Add 0.5g of 1,5-Dipheynlcarbazide (w4700) to 75ml of MeoH bring to volume in 100mL flask. Combine both solutions together in 1L flask.		

Standard Log #:	IC2709	Standard:	IC Eluent Dionex
Analyst:	TMG	Concentrations:	3.5 mM Sodium Carbonate 1.0 mM Sodium Bicarbonate
Prep Date:	11/07/2019	Expiration Date (1 Year):	11/07/2020
	Into a 10L carboy, pipetted 20mL of Dionex eluent concentrate		

Prep:	IC2630 and brought to volume with Milli-Q DI H_20.

Standard Log #:	IC2697	Standard/Reagent:	Hex Curve
Analyst:	TMG	Final Concentration:	0.050, 0.10, 0.25, 0.50, 1.0,
Prep Date:	11/04/2019	Expiration Date:	11/09/2019
Prep:	Working standard (PDS): Dilute the analyte stock standard solution(1:1000) in Milli-Q water Std 7:Add 1mL of PDS into 100mL flask and fill with Milli-q water Std 6:Add 0.5mL of PDS into 100mL flask and fill with Milli-q water		

Standard Log #:	IC2698	Standard/Reagent:	Hex Eluent
Analyst:	TMG	Final Concentration:	N/A
Prep Date:	11/04/2019	Expiration Date:	11/09/2019
Prep:	Dissolve 66g of ammonium sulfate (IC2280) in 1L of DI water and add 13mL of 29% ammonium hydroxide (w26415). Dilute to 2.0L with DI water.		

Standard Log #:	IC2699	Standard/Reagent:	Hex PCR
Analyst:	TMG	Final Concentration:	N/A
Prep Date:	11/04/2019	Expiration Date:	11/09/2019
Prep:	Add 2ml of 98% sulfuric acid to 500ml of DI water in a 1.0L volumetric flask. Add 0.5g of 1,5-Dipheynlcarbazide (w4700) to 75ml of MeoH bring to volume in 100mL flask. Combine both solutions together in 1L flask.		

Standard Log #:	IC2688	Standard/Reagent:	CCV MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3 30mg/L C
Prep Date:	10/31/2019	Expiration Date:	11/07/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Fluoride (IC2535) , Bromide (IC2536), and Nitrate (IC2118) , 15 ml 1000 mg/L Chloride (IC2619) , and 25 ml 1000 mg/L Sulfate (IC2593), and brought to volume with Milli-Q DI H20Chloride (IC2619) and 1000mg/L		

Standard Log #:	IC2689	Standard/Reagent:	LCSW MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3,PO4 30m
Prep Date:	10/31/2019	Expiration Date:	11/07/2019
Prep:	Into a 500 mL volumetric flask, pipetted 20 mL of Custom Mix Stock Standard (175 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 1250 mg/L Sulfate, and 750 mg/L Chloride) (IC2336) brought to volume with Milli-Q DI H20.		

Standard Log #:	IC2690	Standard/Reagent:	SPIKE MIX
Analyst:	TMG	Final Concentration:	64mg/L Fl, Br, NO3 256mg/l
Prep Date:	10/31/2019	Expiration Date:	11/07/2019
Prep:	Into a 100 mL volumetric flask pipetted 6.4 mL 1000mg/L Fluoride(IC2535), Bromide (IC2536), and Nitrate (IC2118), and 25.6mL 1000mg/L Chloride (IC2619) and 1000mg/L Sulfate (IC2593), and brought to volume with Milli-Q DI H2O		

Standard Log #:	IC2691	Standard/Reagent:	CCV NO2-P
Analyst:	TMG	Final Concentration:	7.0mg/L NO2, PO4

Prep Date:	10/31/2019	Expiration Date:	11/01/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2288) and ortho-phosphate (IC2650), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2692	Standard/Reagent:	LCSW NO2
Analyst:	TMG	Final Concentration:	7.0mg/L NO2
Prep Date:	10/31/2019	Expiration Date:	11/01/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2664) brought to volume with Milli-Q DI H20		

Standard Log #:	IC2693	Standard/Reagent:	SPIKE MIX
Analyst:	TMG	Final Concentration:	64.0mg/L NO2, PO4
Prep Date:	10/31/2019	Expiration Date:	11/01/2019
Prep:	Into a 100 mL volumetric flask, pipetted 6.4 mL 1000mg/L Nitrite(IC2288) and Phosphate(IC2650) brrought to volume with milli-Q H2O		

Standard Log #:	IC2680	Standard/Reagent:	Ammonium Sulfate
Analyst:	TMG	Final Concentration:	n/a
Prep Date:	10/29/2019	Expiration Date:	10/29/2020
Prep:	lot: 19E2956807 CAS: 7783-20-2		

Standard Log #:	IC2681	Standard/Reagent:	CCV NO2-P
Analyst:	TMG	Final Concentration:	7.0mg/L NO2, PO4
Prep Date:	10/29/2019	Expiration Date:	10/30/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2288) and ortho-phosphate (IC2650), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2682	Standard/Reagent:	LCSW NO2
Analyst:	TMG	Final Concentration:	7.0mg/L NO2
Prep Date:	10/29/2019	Expiration Date:	10/30/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2664) brought to volume with Milli-Q DI H20		

Standard Log #:	IC2683	Standard/Reagent:	SPIKE NO2-P

Analyst:	TMG	Final Concentration:	64.0mg/L NO2, PO4
Prep Date:	10/29/2019	Expiration Date:	10/30/2019
Prep:	Into a 100 mL volumetric flask, pipetted 6.4 mL 1000mg/L Nitrite(IC2288) and Phosphate(IC2650) brrought to volume with milli-Q H2O		

Standard Log #:	IC2684	Standard/Reagent:	NO3, PO4 PT
Analyst:	TMG	Final Concentration:	UNKNOWN
Prep Date:	10/29/2019	Expiration Date:	10/30/2019
Prep:	1.0mL of 336690 was added to a 100mL flask and brought to volume with di water		

Standard Log #:	IC2685	Standard/Reagent:	NO2 PT
Analyst:	TMG	Final Concentration:	UNKNOWN
Prep Date:	10/29/2019	Expiration Date:	10/30/2019
Prep:	0.1mL of 336710 was added to a 100mL flask and brought to volume with di water		

Standard Log #:	IC2686	Standard/Reagent:	Br, Cl, Fl, SO4 PT
Analyst:	TMG	Final Concentration:	UNKNOWN
Prep Date:	10/29/2019	Expiration Date:	10/30/2019

Prep:	Sample #:336964 no prep necessary

Standard Log #:	IC2687	Standard/Reagent:	TOC PT
Analyst:	TMG	Final Concentration:	UNKNOWN
Prep Date:	10/29/2019	Expiration Date:	10/30/2019
Prep:	1.0mL of 336669 was added to a 100mL flask and brought to volume with di water		

Standard Log #:	IC2673	Standard/Reagent:	Nitrocellulose Spiking Std.
Analyst:	RLD	Final Concentration:	5007 mg/L
Prep Date:	10/24/2019	Expiration Date:	10/31/2019
Prep:	Added 0.5007 g of IC2488 (Nitrocellulose Stock Std.-Dried) into a 100 ml volumetric flask and brought to volume with acetone (Chem Pure Brand Chemicals, Cat.# CP-9043, Lot # DU033-US).		

Standard Log #:	IC2674	Standard/Reagent:	CCV MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3 30mg/L C
Prep Date:	10/24/2019	Expiration Date:	10/31/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Fluoride (IC2535) , Bromide (IC2536), and Nitrate (IC2118) , 15 ml 1000 mg/L Chloride (IC2619) , and 25 ml 1000 mg/L Sulfate (IC2593), and brought to volume with Milli-Q DI H20Chloride (IC2619) and 1000mg/L		

Standard Log #:	IC2675	Standard/Reagent:	LCSW MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3,PO4 30m
Prep Date:	10/24/2019	Expiration Date:	10/31/2019
Prep:	Into a 500 mL volumetric flask, pipetted 20 mL of Custom Mix Stock Standard (175 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 1250 mg/L Sulfate, and 750 mg/L Chloride) (IC2336) brought to volume with Milli-Q DI H20.		

Standard Log #:		Standard/Reagent:	

	IC2676		SPIKE MIX
Analyst:	TMG	Final Concentration:	64mg/L Fl, Br, NO3 256mg/l
Prep Date:	10/24/2019	Expiration Date:	10/31/2019
Prep:	Into a 100 mL volumetric flask pipetted 6.4 mL 1000mg/L Fluoride(IC2535), Bromide (IC2536), and Nitrate (IC2118), and 25.6mL 1000mg/L Chloride (IC2619) and 1000mg/L Sulfate (IC2593), and brought to volume with Milli-Q DI H2O		

Standard Log #:	IC2677	Standard/Reagent:	CCV NO2-P
Analyst:	TMG	Final Concentration:	7.0mg/L NO2,PO4
Prep Date:	10/24/2019	Expiration Date:	10/25/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2288) and ortho-phosphate (IC2650), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2678	Standard/Reagent:	LCSW NO2
Analyst:	TMG	Final Concentration:	7.0mg/L NO2
Prep Date:	10/24/2019	Expiration Date:	10/25/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2664) brought to volume with Milli-Q DI H20		

Standard Log #:	IC2679	Standard/Reagent:	SPIKE NO2-P
Analyst:	TMG	Final Concentration:	64.0mg/L NO2,PO4

Prep Date:	10/24/2019	Expiration Date:	10/25/2019
Prep:	Into a 100 mL volumetric flask, pipetted 6.4 mL 1000mg/L Nitrite(IC2288) and Phosphate(IC2650) brrought to volume with milli-Q H2O		

Standard Log #:	IC2669	Standard:	IC Eluent Dionex
Analyst:	TMG	Concentrations:	3.5 mM Sodium Carbonate 1.0 mM Sodium Bicarbonate
Prep Date:	10/22/2019	Expiration Date (1 Year):	10/22/2020
Prep:	Into a 10L carboy, pipetted 20mL of Dionex eluent concentrate IC2630 and brought to volume with Milli-Q DI H_20.		

Standard Log #:	IC2670	Standard/Reagent:	CCV NO2-P
Analyst:	TMG	Final Concentration:	7.0mg/L NO2, PO4
Prep Date:	10/22/2019	Expiration Date:	10/23/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2288) and ortho-phosphate (IC2650), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2671	Standard/Reagent:	LCSW NO2
Analyst:	TMG	Final Concentration:	7.0mg/L NO2
Prep Date:	10/22/2019	Expiration Date:	10/23/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2664) brought to volume with Milli-Q DI H20		

Standard Log #:	IC2672	Standard/Reagent:	SPIKE NO2-P

Analyst:	TMG	Final Concentration:	64.0mg/L NO2, PO
Prep Date:	10/22/2019	Expiration Date:	10/23/2019
Prep:	Into a 100 mL volumetric flask, pipetted 6.4 mL 1000mg/L Nitrite(IC2288) and Phosphate(IC2650) brrought to volume with milli-Q H2O		

Standard Log #:	IC2666	Standard/Reagent:	CCV NO2-P
Analyst:	TMG	Final Concentration:	7.0mg/L NO2, PO4
Prep Date:	10/18/2019	Expiration Date:	10/19/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2288) and ortho-phosphate (IC2650), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2667	Standard/Reagent:	LCSW NO2
Analyst:	TMG	Final Concentration:	7.0mg/L NO2
Prep Date:	10/18/2019	Expiration Date:	10/19/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2664) brought to volume with Milli-Q DI H20		

Standard Log #:	IC2668	Standard/Reagent:	SPIKE NO2-P
Analyst:	TMG	Final Concentration:	64.0mg/L NO2, PO4
Prep Date:	10/18/2019	Expiration Date:	10/19/2019
Prep:	Into a 100 mL volumetric flask, pipetted 6.4 mL 1000mg/L Nitrite(IC2288) and Phosphate(IC2650) brrought to volume with milli-Q H2O		

Standard Log #:	IC2661	Standard/Reagent:	CCV MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3 30mg/L C
Prep Date:	10/17/2019	Expiration Date:	10/24/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Fluoride (IC2535) , Bromide (IC2536), and Nitrate (IC2118) , 15 ml 1000 mg/L Chloride (IC2619) , and 25 ml 1000 mg/L Sulfate (IC2593), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2662	Standard/Reagent:	LCSW MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3,PO4 30m
Prep Date:	10/17/2019	Expiration Date:	10/24/2019
Prep:	Into a 500 mL volumetric flask, pipetted 20 mL of Custom Mix Stock Standard (175 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 1250 mg/L Sulfate, and 750 mg/L Chloride) (IC2336) brought to volume with Milli-Q DI H20.		

Standard Log #:	IC2663	Standard/Reagent:	SPIKE MIX
Analyst:	TMG	Final Concentration:	64mg/L Fl, Br, NO3 256mg/l
Prep Date:	10/17/2019	Expiration Date:	10/24/2019
Prep:	Into a 100 mL volumetric flask pipetted 6.4 mL 1000mg/L Fluoride(IC2535), Bromide (IC2536), and Nitrate (IC2118), and 25.6mL 1000mg/L Chloride (IC2619) and 1000mg/L Sulfate (IC2593), and brought to volume with Milli-Q DI H2O		

Standard Log #:	IC2664	Standard/Reagent:	NO2 LCS STOCK
Analyst:	TMG	Final Concentration:	1000ug/mL

Prep Date:	10/17/2019	Expiration Date:	05/30/2020
Prep:	LOT#: 4-167NO2N-2Y CAT#:AS-NO2N9-2Y EXP:05/30/2020		

Standard Log #:	IC2665	Standard/Reagent:	LCSW MIX STOCK
Analyst:	TMG	Final Concentration:	1250ug/mL SO4, 750ug/mL
Prep Date:	10/17/2019	Expiration Date:	09/30/2020
Prep:	LOT#: 15-128JKS CAT#:VCTWI-3-500 EXP:09/30/2020		

Standard Log #:	IC2658	Standard/Reagent:	CCV NO2-P
Analyst:	TMG	Final Concentration:	7.0mg/L NO2, PO4
Prep Date:	10/16/2019	Expiration Date:	10/17/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2288) and ortho-phosphate (IC2650), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2659	Standard/Reagent:	LCSW NO2
Analyst:	TMG	Final Concentration:	7.0mg/L NO2
Prep Date:	10/16/2019	Expiration Date:	10/17/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2237) brought to volume with Milli-Q DI H20		

Standard Log #:	IC2660	Standard/Reagent:	SPIKE NO2-P
Analyst:	TMG	Final Concentration:	64.0mg/L NO2, PO4
Prep Date:	10/16/2019	Expiration Date:	10/17/2019
Prep:	Into a 100 mL volumetric flask, pipetted 6.4 mL 1000mg/L Nitrite(IC2288) and Phosphate(IC2650) brrought to volume with milli-Q H2O		

Standard Log #:	IC2650	Standard/Reagent:	PO4 STOCK
Analyst:	TMG	Final Concentration:	1000mg/L
Prep Date:	10/10/2019	Expiration Date:	10/10/2020
Prep:	LOT#: S190327034 CAT#: 250-220-611 EXP:10/10/2020		

Standard Log #:	IC2651	Standard/Reagent:	CCV MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3 30mg/L C
Prep Date:	10/10/2019	Expiration Date:	10/17/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Fluoride (IC2535) , Bromide (IC2536), and Nitrate (IC2118) , 15 ml 1000 mg/L Chloride (IC2619) , and 25 ml 1000 mg/L Sulfate (IC2593), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2652	Standard/Reagent:	LCSW MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3,PO4 30m
Prep Date:	10/10/2019	Expiration Date:	10/17/2019
Prep:	Into a 500 mL volumetric flask, pipetted 20 mL of Custom Mix Stock Standard (175 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 1250 mg/L Sulfate, and 750 mg/L Chloride) (IC2336) brought to volume with Milli-Q DI H20.		

Standard Log #:	IC2653	Standard/Reagent:	SPIKE MIX
Analyst:	TMG	Final Concentration:	64mg/L Fl, Br, NO3 256mg/l

Prep Date:	10/10/2019	Expiration Date:	10/17/2019
Prep:	Into a 100 mL volumetric flask pipetted 6.4 mL 1000mg/L Fluoride(IC2535), Bromide (IC2536), and Nitrate (IC2118), and 25.6mL 1000mg/L Chloride (IC2619) and 1000mg/L Sulfate (IC2593), and brought to volume with Milli-Q DI H2O		

Standard Log #:	IC2654	Standard/Reagent:	CCV NO2-P
Analyst:	TMG	Final Concentration:	7.0mg/L NO2, PO4
Prep Date:	10/10/2019	Expiration Date:	10/17/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2288) and ortho-phosphate (IC2650), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2646	Standard:	IC ICAL Mixed Std. Dionex
Analyst:	TMG	Concentrations:	50mg/L - NO_2, NO_3, PO_4, Br, F
Prep Date:	10/09/2019	Expiration Date (48 Hours):	10/11/2019
Prep:	Into a 100 mL volumetric flask pipetted 5 mL of 1000 mg/L Nitrite IC2288, Fluoride IC2535, Bromide IC2536, Nitrate IC2574, and Phosphate IC2245 and brought to volume with Milli-Q DI H_20.		

Standard Log #:	IC2647	Standard:	IC_Calibration_Dionex_B
Analyst:	TMG	Concentrations:	N/A
Prep Date:	10/09/2019	Expiration Date (48 hours):	10/11/2019

Prep:

Prepared in 100 mL volumetric flasks and brought to volume with Milli-Q DI H_20.

Analyte	1	2	3	4	5	6	7	8	9
Mixed Std (50mg/L) IC2646	0	0.2	0.6	1.0	2.0	4.0	10.0	14.0	28.0
Chloride (1000mg/L) IC2619	0	0.05	0.075	0.1	0.5	1.0	2.0	3.0	4.0
Sulfate (1000mg/L) IC2593	0	0.05	0.075	0.1	0.5	1.0	3.0	5.0	7.0

Standard Log #:	IC2648	Standard/Reagent:	AS14 DIONEX COLUMN

Analyst:	TMG	Final Concentration:	NA
Prep Date:	10/09/2019	Expiration Date:	NA
Prep:	Dionex As14 IonPac column Product # 046124 Serial #: 190805020 Lot# : 01914032		

Standard Log #:	IC2649	Standard/Reagent:	GUARD COLUMN
Analyst:	TMG	Final Concentration:	NA
Prep Date:	10/09/2019	Expiration Date:	NA
Prep:	SERIAL #: 190812098		

Standard Log #:	IC2638	Standard/Reagent:	CCV NO2-P
Analyst:	TMG	Final Concentration:	7.0mg/L NO2, PO4
Prep Date:	10/08/2019	Expiration Date:	10/09/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2288) and ortho-phosphate (IC2245), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2639	Standard/Reagent:	LCSW NO2
Analyst:	TMG	Final Concentration:	7.0mg/L NO2
Prep Date:	10/08/2019	Expiration Date:	10/09/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2237) brought to volume with Milli-Q DI H20		

Standard Log #:	IC2640	Standard/Reagent:	SPIKE NO2-P
Analyst:	TMG	Final Concentration:	64.0mg/L NO2, PO4
Prep Date:	10/08/2019	Expiration Date:	10/09/2019
Prep:	Into a 100 mL volumetric flask, pipetted 6.4 mL 1000mg/L Nitrite(IC2288) and Phosphate(IC2245) brrought to volume with milli-Q H2O		

Standard Log #:	IC2641	Standard/Reagent:	Hexachrome Eluent
Analyst:	TMG	Final Concentration:	na

Prep Date:	10/08/2019	Expiration Date:	10/13/2019
Prep:	Dissolve 66g of ammonium sulfate (IC2280) in 1L of DI water and add 13mL of 29% ammonium hydroxide (w26415). Dilute to 2.0L with DI water.		

Standard Log #:	IC2642	Standard/Reagent:	Hexachrome PCR
Analyst:	TMG	Final Concentration:	na
Prep Date:	10/08/2019	Expiration Date:	10/13/2019
Prep:	Add 2ml of 98% sulfuric acid to 500ml of DI water in a 1.0L volumetric flask. Add 0.5g of 1,5-Dipheynlcarbazide (w4700) to 75ml of MeoH bring to volume in 100mL flask. Combine both solutions together in 1L flask.		

Standard Log #:	IC2643	Standard/Reagent:	Hexachrome Dig Solution
Analyst:	DGS	Final Concentration:	N/A
Prep Date:	10/08/2019	Expiration Date:	11/08/2019
Prep:	Into a 1L volumetric flask, dissolved 20g of Sodium Hydroxide (NaOH) and 30g of Sodium Carbonate (Na2CO3) and filled to volume with DI water. pH of solution must be greater than 11.5		

Standard Log #:	IC2644	Standard/Reagent:	Hexachrome PDS CCV
Analyst:	DGS	Final Concentration:	1000 ug/L
Prep Date:	10/08/2019	Expiration Date:	10/22/2019

Prep:	1mL of CCV stock standard (W46881) into 1 L volumetric flask.

Standard Log #:	IC2645	Standard/Reagent:	Hexachrome PDS LCS
Analyst:	DGS	Final Concentration:	1000 ug/L
Prep Date:	10/08/2019	Expiration Date:	10/22/2019
Prep:	1 mL of LCS stock standard (W46882) into 1 liter volumetric flask		

Standard Log #:	IC2629	Standard/Reagent:	Nitrocellulose Spiking Std.
Analyst:	RLD	Final Concentration:	5010 mg/L
Prep Date:	10/02/2019	Expiration Date:	10/09/2019
Prep:	Added 0.5010 g of IC2488 (Nitrocellulose Stock Std.-Dried) into a 100 ml volumetric flask and brought to volume with acetone (Chem Pure Brand Chemicals, Cat.# CP-9043, Lot # DU033-US).		

Standard Log #:	IC2630	Standard/Reagent:	Conc. Eluent Dionix
Analyst:	TMG	Final Concentration:	1.75 M Sodium Carbonate, (
Prep Date:	10/02/2019	Expiration Date:	10/02/2020
Prep:	Into a 2L volumetric flask, dissolved 371g of Sodium Carbonate and 84.0g of Sodium Bicarbonate and brought to volume with Milli-Q DI H2O. (500x concentrate)		

Standard Log #:	IC2619	Standard/Reagent:	Cl STOCK
Analyst:	TMG	Final Concentration:	1000mg/L Cl
Prep Date:	09/26/2019	Expiration Date:	09/26/2020
Prep:	LOT #: S190607015 CAT #: 250-220-371 EXP:09/26/2020		

Standard Log #:	IC2620	Standard/Reagent:	CCV MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3 30mg/L C
Prep Date:	09/26/2019	Expiration Date:	10/03/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Fluoride (IC2535) , Bromide (IC2536), and Nitrate (IC2118) , 15 ml 1000 mg/L Chloride (IC2619) , and 25 ml 1000 mg/L Sulfate (IC2593), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2621	Standard/Reagent:	LCSW MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3,PO4 30m
Prep Date:	09/26/2019	Expiration Date:	10/03/2019
Prep:	Into a 500 mL volumetric flask, pipetted 20 mL of Custom Mix Stock Standard (175 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 1250 mg/L Sulfate, and 750 mg/L Chloride) (IC2336) brought to volume with Milli-Q DI H20.		

Standard Log #:	IC2622	Standard/Reagent:	SPIKE MIX
Analyst:	TMG	Final Concentration:	64mg/L Fl, Br, NO3 256mg/l

Standard Log #:	IC2616	Standard/Reagent:	CCV NO2-P
Analyst:	TMG	Final Concentration:	7.0mg/L NO2, PO4
Prep Date:	09/24/2019	Expiration Date:	09/25/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2288) and ortho-phosphate (IC2245), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2617	Standard/Reagent:	LCSW NO2
Analyst:	TMG	Final Concentration:	7.0mg/L NO2
Prep Date:	09/24/2019	Expiration Date:	09/25/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2237) brought to volume with Milli-Q DI H20		

Standard Log #:	IC2618	Standard/Reagent:	SPIKE NO2-P
Analyst:	TMG	Final Concentration:	64.01mg/L NO2, PO4
Prep Date:	09/24/2019	Expiration Date:	09/25/2019
Prep:	Into a 100 mL volumetric flask, pipetted 6.4 mL 1000mg/L Nitrite(IC2288) and Phosphate(IC2245) brrought to volume with milli-Q H2O		

Prep Date:	09/05/2019	Expiration Date:	09/06/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2288) and ortho-phosphate (IC2245), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2591	Standard/Reagent:	LCSW NO2
Analyst:	TMG	Final Concentration:	7.0mg/L NO2
Prep Date:	09/05/2019	Expiration Date:	09/06/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2237) brought to volume with Milli-Q DI H20		

Standard Log #:	IC2592	Standard/Reagent:	SPIKE NO2-P
Analyst:	TMG	Final Concentration:	64.0mg/L NO2, PO4
Prep Date:	09/05/2019	Expiration Date:	09/06/2019
Prep:	Into a 100 mL volumetric flask, pipetted 6.4 mL 1000mg/L Nitrite(IC2288) and Phosphate(IC2245) brrought to volume with milli-Q H2O		

Standard Log #:	IC2593	Standard/Reagent:	SO4 STOCK
Analyst:	TMG	Final Concentration:	1000mg/L
Prep Date:	09/05/2019	Expiration Date:	09/05/2020

Prep:	CAT#:250-220-701 LOT#:S190322012 Exp:09/05/2019

Standard Log #:	IC2574	Standard/Reagent:	NO2 STOCK
Analyst:	TMG	Final Concentration:	1000mg/L NO3
Prep Date:	08/29/2019	Expiration Date:	08/29/2020
Prep:	LOT #:S190225004 CAT#:250-220-521 EXP:08/29/2020		

Standard Log #:	IC2575	Standard/Reagent:	CCV MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3 30mg/L C
Prep Date:	08/29/2019	Expiration Date:	09/05/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Fluoride (IC2535) , Bromide (IC2536), and Nitrate (IC2118) , 15 ml 1000 mg/L Chloride (IC2426) , and 25 ml 1000 mg/L Sulfate (IC2427), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2576	Standard/Reagent:	LCSW MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3,PO4 30m
Prep Date:	08/29/2019	Expiration Date:	09/05/2019
Prep:	Into a 500 mL volumetric flask, pipetted 20 mL of Custom Mix Stock Standard (175 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 1250 mg/L Sulfate, and 750 mg/L Chloride) (IC2336) brought to volume with Milli-Q DI H20.		

Standard Log #:	IC2577	Standard/Reagent:	SPIKE MIX
Analyst:	TMG	Final Concentration:	64mg/L Fl, Br, NO3 256mg/L

Standard Log #:	IC2551	Standard/Reagent:	Hexachrome Soil Digestion Solution
Analyst:	DGS	Concentration:	N/A
Prep Date:	08/21/2019	Expiration Date (1 Month):	09/21/2019
PREP		Standards/Reagents Used	
Into a 1L volumetric flask, dissolved 20g of Sodium Hydroxide (NaOH) (1) and 30g of Sodium Carbonate (Na2CO3) (2) and filled to volume with DI water. pH of solution must be greater than 11.5.		(1) W45383 (2) IC 1305	

Standard Log #:	IC2552	Standard/Reagent:	HEXACHROME PDS CCV
Analyst:	DGS	Final Concentration:	1000ug/L
Prep Date:	08/21/2019	Expiration Date:	09/04/19
Prep:	1ml of CCV stock standard (w46881) into 1 liter volumetric flask.		

Standard Log #:	IC2553	Standard/Reagent:	HEXACHROME PDS LCS-I
Analyst:	DGS	Final Concentration:	1000ug/L
Prep Date:	08/21/2019	Expiration Date:	09/04/19

Standard Log #:	IC2535	Standard/Reagent:	FI STOCK
Analyst:	TMG	Final Concentration:	1000mg/L
Prep Date:	08/08/2019	Expiration Date:	08/08/2020
Prep:	Lot #:S190129008 Cat #: 250-220-401 Exp: 08/08/2020		

Standard Log #:	IC2536	Standard/Reagent:	Br STOCK
Analyst:	TMG	Final Concentration:	1000mg/L
Prep Date:	08/08/2019	Expiration Date:	08/08/2020
Prep:	Lot #:S1920213009 Cat #: 250-220-236 Exp: 08/08/2020		

Standard Log #:	IC2537	Standard/Reagent:	CCV NO2-P
Analyst:	TMG	Final Concentration:	7.0mg/L NO2, PO
Prep Date:	08/08/2019	Expiration Date:	08/09/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2288) and ortho-phosphate (IC2245), and brought to volume with Milli-Q DI H20		

Standard Log #:		Standard/Reagent:	

	IC2538		LCSW NO2
Analyst:	TMG	Final Concentration:	7.0mg/ L NO2
Prep Date:	08/08/2019	Expiration Date:	08/09/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2237) brought to volume with Milli-Q DI H20		

Standard Log #:	IC2539	Standard/Reagent:	SPIKE NO2-P
Analyst:	TMG	Final Concentration:	64.0mg/L NO2-P
Prep Date:	08/08/2019	Expiration Date:	08/09/2019
Prep:	Into a 100 mL volumetric flask, pipetted 6.4 mL 1000mg/L Nitrite(IC2288) and Phosphate(IC2245) brrought to volume with milli-Q H2O		

Standard Log #:	IC2540	Standard:	IC ICAL Mixed Std. Dionex
Analyst:	TMG	Concentrations:	50mg/L - NO_2, NO_3, PO_4, Br, F
Prep Date:	08/08/2019	Expiration Date (48 Hours):	08/10/2019
Prep:	Into a 100 mL volumetric flask pipetted 5 mL of 1000 mg/L Nitrite IC2288, Fluoride IC2535, Bromide IC2536, Nitrate IC2118, and Phosphate IC2245 and brought to volume with Milli-Q DI H_20.		

Standard	IC2541	Standard:	IC_Calibration_Dionex_B

Log #:			
Analyst:	TMG	Concentrations:	N/A
Prep Date:	08/08/2019	Expiration Date (48 hours):	08/10/2019

Prep:

Prepared in 100 mL volumetric flasks and brought to volume with Milli-Q DI H_20.

Analyte	1	2	3	4	5	6	7	8	9
Mixed Std (50mg/L) IC2540	0	0.2	0.6	1.0	2.0	4.0	10.0	14.0	28.0
Chloride (1000mg/L) IC2426	0	0.05	0.075	0.1	0.5	1.0	2.0	3.0	4.0
Sulfate (1000mg/L) IC2427	0	0.05	0.075	0.1	0.5	1.0	3.0	5.0	7.0

Standard Log #:	IC2423	Standard/Reagent:	CCV MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3 30mg/L C
Prep Date:	06/12/2019	Expiration Date:	06/19/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Fluoride (IC1978) , Bromide (IC1977), and Nitrate (IC2118) , 15 ml 1000 mg/L Chloride (IC2289) , and 25 ml 1000 mg/L Sulfate (IC2290), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2424	Standard/Reagent:	LCSW MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3,PO4 30m
Prep Date:	06/12/2019	Expiration Date:	06/19/2019
Prep:	Into a 500 mL volumetric flask, pipetted 20 mL of Custom Mix Stock Standard (175 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 1250 mg/L Sulfate, and 750 mg/L Chloride) (IC2336) brought to volume with Milli-Q DI H20.		

Standard Log #:	IC2425	Standard/Reagent:	SPIKE MIX
Analyst:	TMG	Final Concentration:	64mg/L Fl, Br, NO3 256mg/L
Prep Date:	06/12/2019	Expiration Date:	06/19/2019
Prep:	Into a 100 mL volumetric flask pipetted 6.4 mL 1000mg/L Fluoride(IC1978), Bromide (IC1977), and Nitrate (IC2118), and 25.6mL 1000mg/L Chloride (IC2289) and 1000mg/L Sulfate (IC2290), and brought to volume with Milli-Q DI H2O		

Standard Log #:	IC2426	Standard/Reagent:	Cl STOCK
Analyst:	TMG	Final Concentration:	1000mg/L

Prep Date:	06/12/2019	Expiration Date:	06/12/2020
Prep:	LOT #:S190214034 CAT #:250-220-37x EXP:06/12/2020		

Standard Log #:	IC2427	Standard/Reagent:	SO4 STOCK
Analyst:	TMG	Final Concentration:	1000mg/L
Prep Date:	06/12/2019	Expiration Date:	06/12/2020
Prep:	LOT #:S190322012 CAT #:250-220-70x EXP:06/12/2020		

Standard Log #:	IC2333	Standard/Reagent:	CCV MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3 30mg/L C
Prep Date:	04/24/2019	Expiration Date:	05/01/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Fluoride (IC1978) , Bromide (IC1977), and Nitrate (IC2118) , 15 ml 1000 mg/L Chloride (IC2289) , and 25 ml 1000 mg/L Sulfate (IC2290), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2334	Standard/Reagent:	LCSW MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3,PO4 30m
Prep Date:	04/24/2019	Expiration Date:	05/01/2019
Prep:	Into a 500 mL volumetric flask, pipetted 20 mL of Custom Mix Stock Standard (175 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 1250 mg/L Sulfate, and 750 mg/L Chloride) (IC2104) brought to volume with Milli-Q DI H20.		

Standard Log #:	IC2335	Standard/Reagent:	SPIKE MIX
Analyst:	TMG	Final Concentration:	64mg/L Fl, Br, NO3 256mg/l
Prep Date:	04/24/2019	Expiration Date:	05/01/2019
Prep:	Into a 100 mL volumetric flask pipetted 6.4 mL 1000mg/L Fluoride(IC1978), Bromide (IC1977), and Nitrate (IC2118), and 25.6mL 1000mg/L Chloride (IC2289) and 1000mg/L Sulfate (IC2290), and brought to volume with Milli-Q DI H2O		

Standard Log #:	IC2336	Standard/Reagent:	LCS STOCK MIX
Analyst:	TMG	Final Concentration:	175ug/mL Br, F, NO3, PO4

Prep Date:	04/24/2019	Expiration Date:	03/30/2020
Prep:	LOT# 14-65JKS CAT# VCTWI-3-500		

Standard Log #:	IC2337	Standard/Reagent:	LCS NO2 STOCK
Analyst:	TMG	Final Concentration:	1000ug/mL
Prep Date:	04/24/2019	Expiration Date:	03/30/2020
Prep:	LOT# 4-167NO2N-2Y CAT# AS-NO2N9-2Y		

Standard Log #:	IC2316	Standard/Reagent:	AS14 DIONEX COLUMN
Analyst:	TMG	Final Concentration:	NA
Prep Date:	04/16/2019	Expiration Date:	NA
Prep:	Dionex As14 IonPac column Product # 046124 Serial #: 190215072 Lot# : 01827170		

Standard Log #:	IC2317	Standard/Reagent:	GUARD COLUMN
Analyst:	TMG	Final Concentration:	NA
Prep Date:	04/16/2019	Expiration Date:	NA
Prep:	SERIAL #181004394		

Standard Log #:	IC2318	Standard:	IC ICAL Mixed Std. Dionex
Analyst:	TMG	Concentrations:	50mg/L - NO_2, NO_3, PO_4, Br, F
Prep Date:	04/16/2019	Expiration Date (48 Hours):	04/18/2019
Prep:	Into a 100 mL volumetric flask pipetted 5 mL of 1000 mg/L Nitrite IC2288, Fluoride IC1978, Bromide IC1977, Nitrate IC2118, and Phosphate IC2245 and brought to volume with Milli-Q DI H_20.		

Standard Log #:	IC2319	Standard:	IC_Calibration_Dionex_B

Analyst:	TMG	Concentrations:	N/A
Prep Date:	04/16/2019	Expiration Date (48 hours):	04/18/2019

Prep:

Prepared in 100 mL volumetric flasks and brought to volume with Milli-Q DI H_20.

Analyte	1	2	3	4	5	6	7	8	9
Mixed Std (50mg/L) IC2318	0	0.2	0.6	1.0	2.0	4.0	10.0	14.0	28.0
Chloride (1000mg/L) IC2289	0	0.05	0.075	0.1	0.5	1.0	2.0	3.0	4.0
Sulfate (1000mg/L) IC2290	0	0.05	0.075	0.1	0.5	1.0	3.0	5.0	7.0

Standard Log #:	IC2285	Standard/Reagent:	CCV MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3 30mg/L C
Prep Date:	03/27/2019	Expiration Date:	04/03/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Fluoride (IC1978) , Bromide (IC1977), and Nitrate (IC2118) , 15 ml 1000 mg/L Chloride (2065) , and 25 ml 1000 mg/L Sulfate (IC2132), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2286	Standard/Reagent:	LCSW MIX
Analyst:	TMG	Final Concentration:	7mg/L Fl, Br, NO3, PO4 30n
Prep Date:	03/27/2019	Expiration Date:	04/03/2019
Prep:	Into a 500 mL volumetric flask, pipetted 20 mL of Custom Mix Stock Standard (175 mg/L Fluoride, Bromide, Nitrate, and Phosphate, 1250 mg/L Sulfate, and 750 mg/L Chloride) (IC2104) brought to volume with Milli-Q DI H20.		

Standard Log #:	IC2287	Standard/Reagent:	SPIKE MIX
Analyst:	TMG	Final Concentration:	64mg/L Fl, Br, NO3 256mg/l
Prep Date:	03/27/2019	Expiration Date:	04/03/2019
Prep:	Into a 100 mL volumetric flask pipetted 6.4 mL 1000mg/L Fluoride(IC1978), Bromide (IC1977), and Nitrate (IC2118), and 25.6mL 1000mg/L Chloride (IC2065) and 1000mg/L Sulfate (IC2132), and brought to volume with Milli-Q DI H2O		

Standard Log #:	IC2288	Standard/Reagent:	NO2 STOCK
Analyst:	TMG	Final Concentration:	1000mg/L

Prep Date:	03/27/2019	Expiration Date:	03/27/2020
Prep:	CAT #:250-220-55x LOT #:S181129005 exp: 03/27/2020		

Standard Log #:	IC2289	Standard/Reagent:	Cl STOCK
Analyst:	TMG	Final Concentration:	1000mg/L
Prep Date:	03/27/2019	Expiration Date:	03/27/2020
Prep:	CAT #:250-220-37x LOT #:S190214034 exp: 03/27/2020		

Standard Log #:	IC2290	Standard/Reagent:	SO4 STOCK
Analyst:	TMG	Final Concentration:	1000mg/L
Prep Date:	03/27/2019	Expiration Date:	03/27/2020
Prep:	CAT #:250-220-70x LOT #:S181005026 exp: 03/27/2020		

Prep Date:	02/27/2019	Expiration Date:	02/28/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC1884) and ortho-phosphate (IC2245), and brought to volume with Milli-Q DI H20		

Standard Log #:	IC2243	Standard/Reagent:	LCSW NO2
Analyst:	TMG	Final Concentration:	7.0mg/L NO2
Prep Date:	02/27/2019	Expiration Date:	02/28/2019
Prep:	Into a 500 mL volumetric flask pipetted 3.5 mL 1000 mg/L Nitrite (IC2009) brought to volume with Milli-Q DI H20		

Standard Log #:	IC2244	Standard/Reagent:	SPIKE NO2-P
Analyst:	TMG	Final Concentration:	64.0mg/L NO2, PO4
Prep Date:	02/27/2019	Expiration Date:	02/28/2019
Prep:	Into a 100 mL volumetric flask, pipetted 6.4 mL 1000mg/L Nitrite(IC1884) and Phosphate(IC2245) brrought to volume with milli-Q H2O		

Standard Log #:	IC2245	Standard/Reagent:	PO4 STOCK
Analyst:	TMG	Final Concentration:	1000mg/L
Prep Date:	02/27/2019	Expiration Date:	02/27/2020

Prep:	LOT #:S180718005 CAT #:250-220-611 EXO:02/27/2020

WCOD QSM Analytical Run
165740 on 10/28/2019

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME		QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
149018	343844		10/14/2019	1600			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	COD QSM		GW	**4**	
		54IDW								74074			
	345128		10/14/2019	1600					COD QSM				
		54IDW			MSW	343844				74074			
	345129		10/14/2019	1600					COD QSM				
		54IDW			MSDW	345128				74074			
	345136								COD QSM				
					MBW					74074			
	345137								COD QSM				
					LCSW					74074			

10 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

COD Data Validation Checklist

		Method: Chemical Oxygen Demand EPA 410.4			
LIMS Run #(s)	**Analysis Date**	**Analyst / Data Interpreter**	**Independent Reviewer**	**Date of Review**	**Approved? (Yes or No)**
165738 165730	10/23/2019	GMJ/HLB	ETK	10/31/2019	YES

Instructions: Complete one checklist per *analytical run* . Enter the appropriate response for each question.
Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirement:	**Acceptance Criteria**	**Analyst Review**		**Independent Review**		**Comments:**
		Yes	No	Yes	No	(indicate reference to an attachment if necessary)
1. Does a digestion sheet accompany the data package?	---	X		Yes		
2. Does the digestion sheet include all reagent and standard prep log numbers?	---	X		Yes		
3. Was a passing calibration test applied to sample analysis?	≥0.995	X		Yes		
4. Was a passing ICV analyzed immediately after the calibration?	90-110%	X		Yes		
5. Was a passing ICB analyzed immediately after the ICV?	< |LOD|or client/project specific	X		Yes		
6. Were CCVs and CCB analyzed at the required frequency?	1 per 10 samples	X		Yes		
7. Did analyzed CCVs meet the required acceptance criteria?	90-110%	X		Yes		
8. Did analyzed CCBs meet the acceptance criteria?	< |LOD|or client/project specific	X		Yes		
9. Was a Method Blank prepared at the required frequency?	1per 20 samples or at contract/program specific frequencies	X		Yes		
10. Was the method blank within acceptance criteria?	< |LOD|or client/project specific	X		Yes		
11. Was an LCS prepared at the required frequency?	1per 20 samples or at contract/program specific frequencies	X		Yes		
12. Did the LCS meet the acceptance criteria?	90-110% or Within in-house or contract/program specific limits	X		Yes		
13. Was an MS and MSD prepared at the required frequency?	1per 10 per batch or at contract/program specific frequencies	X		Yes		
14. Did the MS/ MSD's meet the acceptance criteria?	90-110% or Within in-house or contract/program specific limits		X		No	343073 MSDW FAILED HIGH, M FLAGGED

15. Did the MS/MSD's meet the RPD criteria?	Within in-house or contract/program specific limits	X		Yes		
16. Was a Duplicate prepared at the required frequency?	1per 10 per batch or at contract/program specific frequencies	X		Yes		
17. Did the Duplicate meet the RPD criteria?	Within in-house or contract/program specific limits	X		Yes		
18. Were the samples digested within hold time?	28 days	X		Yes		
19. Was the max temperature(s) for reactor(s) documented?	---	X		Yes		
20. Was the method specifed temperature reached?		X		Yes		
21. Were reagents/standards used before expiration date?	---	X		Yes		
22. Are all samples on the job lists accounted for?	---	X		Yes		

CHEMICAL OXYGEN DEMAND REAGENT LOG

Prep Batch(es): 74072 74073 74074
Date/Time/Analyst: 10/22/2019 12:00:00 GMJ
Run(s): 165738 165740
Date/Time/Analyst: 10/22/2019 12:00 GMJ

Reagents:	W #	Exp Date
ICAL Preparation	47437	12/16/2019
CCV Preparation	47436	12/16/2019
LCS/ICV Preparation	47438	12/16/2019
Silver Sulfate Acid	47393	09/04/2020
Potassium Dichromate Dig Solution	46751	04/29/2020

Spiked Samples:	W #	Exp Date
Spiking Solution	47435	12/16/2019

Concentration 2000 mg/L
Volume of Spike Used 0.2 mL
Final Sample Volume 2.5 mL
Final Spike Concentration 148.2 mg/L

Date: 10/22/2019
Time: 16:30

COD DIGESTION BLOCK TEMPS

	A	B
Temperature (Max) 150°C ± 2°C:	N/A	151

	E	D
Temperature (Max) 150°C ± 2°C:	150.2	N/A

GENESYS 30 Instrument Run Logbook

Date	Start Time	End Time	Analyst	Test/Analyte	Calibration Test #	Run #/ Comments	Maintenance	Review
05/29/19	15:30	16:06	SAW/HLB	COD	COD W46407	161265		
05/30/19	15:46	15:51	SAW	COD	COD W46407	161265 RERUNS		
06/10/19	15:00	18:00	SAW	CHLOROPHYLL-A	N/A	161605		
06/11/19	8:45	09:13	HLB	COD	COD W46935	161577, 583, 586		
06/11/19	15:05	15:09	SAW	CHLOROPHYLL-A	N/A	161605		
06/17/19	14:20	14:48	HLB	COD	COD W46935	161786 161787		
06/18/19	7:45	07:56	HLB	COD	COD W46935	161786 161787 RERUN		
06/19/19	13:40	14:05	SAW/JLH	CHLOROPHYLL-A	N/A	161886		
06/24/19	14:25	14:57	HLB	COD	COD W46935	161989, 162007		
07/02/19	15:30	15:59	HLB	COD	COD W46935	162309		
07/03/19	7:35	07:41	HLB	COD	COD W46935	162309 RERUN		
07/11/19	13:47	14:13	HLB	COD	COD W46935	162502 162503		
07/23/19	12:45	13:16	HLB	COD	COD W46935	162887 162888		
07/31/19	12:15	12:30	HLB	COD	COD W46935	163109		
08/05/19	10:07	10:26	JLH/HLB	CHLOROPHYLL-A	N/A	163200		
08/07/19	12:15	12:30	HLB	COD	COD W46935	163290 163202		
08/08/19	7:30	07:37	HLB	COD	COD W46935	163292 RERUN		
08/14/19	13:00	13:24	HLB	COD	COD W46935	163493 163494		
08/26/19	15:00	16:13	HLB	COD	COD W46935 A	163838, 844, 842, 843		
08/27/19	13:45	14:05	HLB	COD	COD W46935 A	163842 RERUNS		
09/04/19	15:15	15:29	HLB	COD	COD W46935 A	164084		
09/16/19	14:44	15:09	HLB	COD	CODW47434	164444 164445 164446		
09/17/19	7:10	07:20	HLB	COD	COD W47434	164444 RERUN		
09/23/19	13:50	14:16	HLB	COD	COD W47434	164704 164707 164278		
09/30/19	13:30	14:00	HLB/GMJ	COD	COD W47434	164931		
10/07/19	15:55	16:30	HLB/GMJ	COD	COD W47434	165159 165160		
10/08/19	7:15	07:26	HLB	COD	COD W47434	165160 RERUN		
09/24/19	15:43	16:07	HLB	COD	COD W47434	164736 164737		
10/15/19	14:30	15:08	GMJ	COD	COD W47434	165460 165462		
10/16/19	8:30	08:50	GMJ	COD	COD W47434	165460 RERUN		
10/24/19	10:00	11:00	GMJ	COD	COD W47434	165738 165740		
10/25/19	10:30	10:44	HLB	CHLOROPHYLL-A	NA	165929		
10/29/19	10:00	11:00	GMJ	COD	COD W47434	165460 165462 RERUN		
11/04/19	14:30	15:30	GMJ	COD	COD W47434	166256 166258		
11/05/19	8:00	08:30	GMJ	COD	COD W47434	166256 166258 RERUN		
11/11/19	13:00	13:20	GMJ	COD	COD W47434	166435		
11/20/19	8:30	08:55	GMJ	COD	COD 47434	166774, 166775		

Standard Log #:	W47436	Standard/Reagent:	COD CCV
Analyst:	HLB	Concentration:	400 mg/L
Prep Date:	9-16-19	Expiration Date (3 Months):	12-16-19
PREP			Standards/Reagents Used
Into a 250mL volumetric flask, volumetrically added 100 mL of 1,000 mg/L COD ICal/CCV Stock Std. (1) and filled to volume with DI water.			(1) W47437

Standard Log #:	W47437	Standard/Reagent:	COD Ical/CCV Stock Std.
Analyst:	HLB	Concentration:	1,000 mg/L
Prep Date:	9-16-19	Expiration Date (3 Months):	12-16-19
PREP			Standards/Reagents Used
Into a 500mL volumetric flask, dissolved 0.425g of Potassium Hydrogen Phthalate (KHP) (1) and filled to volume with DI water.			(1) W33269

Standard Log #:	W47438	Standard/Reagent:	COD LCS
Analyst:	HLB	Concentration:	400 mg/L
Prep Date:	9-16-19	Expiration Date (3 Months):	12-16-19
PREP			Standards/Reagents Used
Into a 250mL volumetric flask, pipetted 50 mL of 2,000 mg/L COD LCS/Spiking Stock Std. (1) and filled to volume with DI water.			(1) W47435

Standard Log #:	W47434	Standard/Reagent:	COD ICAL
Analyst:	HLB	Concentration:	N/A
Prep Date:	9-16--19	Expiration Date (3 Months):	12-16-19
PREP		Standards/Reagents Used	
Into 100mL volumetric flasks, added the following amounts of 1,000 mg/L COD ICal/CCV Stock Std. (1) and brought to volume with DI water: CAL Pt. A - 0 mL (Final Concentration = 0 mg/L) CAL Pt. B - 1.0 mL (Final Concentration = 10 mg/L) CAL Pt. C - 2.5 mL (Final Concentration = 25 mg/L) CAL Pt. D - 5.0 mL (Final Concentration = 50 mg/L) CAL Pt. E - 10 mL (Final Concentration = 100 mg/L) CAL Pt. F - 50 mL (Final Concentration = 500 mg/L) CAL Pt. G - 75 mL (Final Concentration = 750 mg/L)		(1) W47437	

Standard Log #:	W47435	Standard/Reagent:	COD LCS/Spiking Stock Std.
Analyst:	HLB	Concentration:	2,000 mg/L
Prep Date:	9-16-19	Expiration Date (3 Months):	12-16-19
PREP		Standards/Reagents Used	
Into a 500mL volumetric flask, dissolved 0.85g of second-source Potassium Hydrogen Phthalate (KHP) (1) and filled to volume with DI water.		(1) W39424	

Standard Log #:	W47393	Standard/Reagent:	Sulfuric Acid/Silver Sulfate Solution
Analyst:	HLB	Concentration:	N/A
Prep Date:	9-4-19	Expiration Date (1 Year):	9-4-20
PREP		Standards/Reagents Used	
Into a new 2.5L bottle of Sulfuric acid (H2SO4) (1), dissolved 25g of Silver Sulfate (AG2SO4) (2).		(1) W47235 (2) W47283	

Standard Log #:	W47283	Chemical:	Silver Sulfate ACS
Analyst:	HLB	Vendor:	LabChem
Date Received:	8-8-19	Catalog #:	LC227558
Expiration Date (if any):	NA	Lot #:	J078-11
Comments:	25g		

Standard Log #:	W47235	Chemical:	Sulfuric Acid ACS GR
Analyst:	HLB	Vendor:	EMD
Date Received:	7-30-19	Catalog #:	SX1244-5
Expiration Date (if any):	NA	Lot #:	58351
Comments:			

Standard Log #:	W46752	Chemical:	Silver Sulfate
Analyst:	SAW	Vendor:	Alfa Aesar (VWR)
Date Received:	3/11/19	Catalog #:	11417
Expiration Date (if any):	4/29/20	Lot #:	X23E017
Comments:	Opened 4/29/19		

Standard Log #:	W46753	Standard/Reagent:	Sulfuric Acid/Silver Sulfate Solution
Analyst:	SAW	Concentration:	N/A
Prep Date:	4/29/19	Expiration Date (1 Year):	4/29/20
PREP		Standards/Reagents Used	
Into a new 2.5L bottle of Sulfuric acid (H2SO4) (1), dissolved 25g of Silver Sulfate (AG2SO4) (2).		(1) W46508 (2) W46752	

Standard Log #:	W46749	Chemical:	Potassium Dichromate
Analyst:	SAW	Vendor:	JT Baker (VWR)
Date Received:	2/22/19	Catalog #:	3090-01
Expiration Date (if any):	3/6/25	Lot #:	0000213858
Comments:	Opened 4/29/19		

Standard Log #:	W46750	Chemical:	mERCURY (II) SULFATE
Analyst:	SAW	Vendor:	BTC
Date Received:	3/11/19	Catalog #:	212940-100G
Expiration Date (if any):	4/29/20	Lot #:	50004425
Comments:	Opened 4/29/19		

Standard Log #:	W46751	Standard/Reagent:	Dichromate Digestion Solution
Analyst:	SAW	Concentration:	N/A
Prep Date:	4/29/19	Expiration Date (1 Year):	4/29/20

PREP	Standards/Reagents Used
Into a 2L volumetric flask, dissolved 66.6g of Mercuric sulfate (1) in about 500 mL of DI water. Volumetrically added 334 mL of Sulfuric acid (2) and dissolved 20.42g of Potassium dichromate (3) and then filled to volume with DI water.	(1) W46750 (2) W46508 (3) W46749

LPWC01_13
WetChem Reagent Prep Logbook
Logbook Created 02/07/2019

NOTEBOOK VIEW: LTN_LPWC01_13_Default, NOTEBOOK: LPWC01_13, PAGE: 81
Page is Locked
Author: hbeckel on: 6/12/2019 1:15:54 PM
Page is not Witnessed
Project: Unassigned
Page Title: 061019

Standard Log #:	W46931	Standard/Reagent:	COD Ical/CCV Stock Std.
Analyst:	HLB	Concentration:	1,000 mg/L
Prep Date:	6-10-19	Expiration Date (3 Months):	9-10-19
PREP		Standards/Reagents Used	
Into a 500mL volumetric flask, dissolved 0.425g of Potassium Hydrogen Phthalate (KHP) (1) and filled to volume with DI water.		(1) W33269	

Standard Log #:	W46932	Standard/Reagent:	COD LCS/Spiking Stock Std.
Analyst:	HLB	Concentration:	2,000 mg/L
Prep Date:	6-10-19	Expiration Date (3 Months):	9-10-19
PREP		Standards/Reagents Used	

Into a 500mL volumetric flask, dissolved 0.85g of second-source Potassium Hydrogen Phthalate (KHP) (1) and filled to volume with DI water.	(1) W39424

Standard Log #:	W46933	Standard/Reagent:	COD CCV
Analyst:	HLB	Concentration:	400 mg/L
Prep Date:	6-10-19	Expiration Date (3 Months):	9-10-19
PREP			Standards/Reagents Used
Into a 250mL volumetric flask, volumetrically added 100 mL of 1,000 mg/L COD ICal/CCV Stock Std. (1) and filled to volume with DI water.			(1) W46931

Standard Log #:	W46934	Standard/Reagent:	COD LCS
Analyst:	HLB	Concentration:	400 mg/L
Prep Date:	6-10-19	Expiration Date (3 Months):	9-10-19
PREP			Standards/Reagents Used
Into a 250mL volumetric flask, pipetted 50 mL of 2,000 mg/L COD LCS/Spiking Stock Std. (1) and filled to volume with DI water.			(1) W46932

Standard Log #:	W46935	Standard/Reagent:	COD ICAL
Analyst:	HLB	Concentration:	N/A
Prep Date:	6-10-19	Expiration Date (3 Months):	9-10-19

PREP	Standards/Reagents Used
Into 100mL volumetric flasks, added the following amounts of 1,000 mg/L COD ICal/CCV Stock Std. (1) and brought to volume with DI water: CAL Pt. A - 0 mL (Final Concentration = 0 mg/L) CAL Pt. B - 1.0 mL (Final Concentration = 10 mg/L) CAL Pt. C - 2.5 mL (Final Concentration = 25 mg/L) CAL Pt. D - 5.0 mL (Final Concentration = 50 mg/L) CAL Pt. E - 10 mL (Final Concentration = 100 mg/L) CAL Pt. F - 50 mL (Final Concentration = 500 mg/L) CAL Pt. G - 75 mL (Final Concentration = 750 mg/L)	(1) W46931

1

CT Laboratories, LLC

Standard Log #:	W46749	Chemical:	Potassium Dichromate
Analyst:	SAW	Vendor:	JT Baker (VWR)
Date Received:	2/22/19	Catalog #:	3090-01
Expiration Date (if any):	3/6/25	Lot #:	0000213858
Comments:	Opened 4/29/19		

Standard Log #:	W46750	Chemical:	mERCURY (II) SULFATE
Analyst:	SAW	Vendor:	BTC
Date Received:	3/11/19	Catalog #:	212940-100G
Expiration Date (if any):	4/29/20	Lot #:	50004425
Comments:	Opened 4/29/19		

Standard Log #:	W46751	Standard/Reagent:	Dichromate Digestion Solution
Analyst:	SAW	Concentration:	N/A
Prep Date:	4/29/19	Expiration Date (1 Year):	4/29/20

PREP	Standards/Reagents Used
Into a 2L volumetric flask, dissolved 66.6g of Mercuric sulfate (1) in about 500 mL of DI water. Volumetrically added 334 mL of Sulfuric acid (2) and dissolved 20.42g of Potassium dichromate (3) and then filled to volume with DI water.	(1) W46750 (2) W46508 (3) W46749

Standard Log #:	W46752	Chemical:	Silver Sulfate
Analyst:	SAW	Vendor:	Alfa Aesar (VWR)
Date Received:	3/11/19	Catalog #:	11417
Expiration Date (if any):	4/29/20	Lot #:	X23E017
Comments:	Opened 4/29/19		

Standard Log #:	W46753	Standard/Reagent:	Sulfuric Acid/Silver Sulfate Solution
Analyst:	SAW	Concentration:	N/A
Prep Date:	4/29/19	Expiration Date (1 Year):	4/29/20

PREP	Standards/Reagents Used
	(1) W46508

Into a new 2.5L bottle of Sulfuric acid (H2SO4) (1), dissolved 25g of Silver Sulfate (AG2SO4) (2).	(2) W46752

Standard Log #:	W46508	Chemical:	H2SO4
Analyst:	LJS	Vendor:	MILLIPORE
Date Received:	Unknown	Catalog #:	SX1244-5
Expiration Date (if any):	N/A	Lot #:	58115
Comments:			

Standard Log #:	W39424	Chemical:	Potassium hydrogen phthalate
Analyst:	SAW	Vendor:	ACROS
Date Received:	7/1/16	Catalog #:	424061000
Expiration Date (if any):	N/A	Lot #:	A0365830
Comments:			

PROJECT _____ Notebook No. _____ 31

Continued From Page _____

W33266 GES 1/7/14 — Sodium hypochlorite soln - Fisher cat # SS290-4 lot # 133042 exp 7/2014

W33267 GES 1/7/14 — NH_3 IL Hypochlorite: Into a 500mL vol. volumetrically combined 30mL W33266 & filled to mark w/ DI H_2O exp 1/8/14

W33268 BJS 1/7/14 — TKN MDL ✓: (0.46mg/L) Into a 100mL vol flask pipetted 0.46mL NH_3/TKN 1000mg/L Stock W32416 & filled to volume w/ DI. Then pipetted 20mL into TKN tube.

W33269 Bms 01/07/14 — Potassium Hydrogen Phthalate (KHP): Agros Organics Catelog #: 424061000, Lot#: A0317291 (Received 06/24/13)

W33270 AGK 01/07/14 — TOCW ICAL/CCV stock (1000mg/L): Into a 100mL vol, dissolved 0.2128g KHP (W 33269) and brought to volume w/ milli-Q H_2O Exp: 07/07/14

W33271 01/07/14 AGK — TOCW ICV/LCS stock (1000mg/L) Into a 100mL vol, dissolved 0.2128g KHP (W 29079) and brought to volume w/ milli-Q H_2O Exp: 07/07/14

W33272 AGK 01/07/14 01/07/14 AGK — TOCW CCV Sto: Into a 100mL vol pipetted 50mL of W33270 and Brought to Volume with Milli-Q H_2O Exp: 02-07-14

W33273 01/07/14 AGK — TOCW LCS Sto: Into a 100mL vol pipetted 5.0mL of W33271 and brought to volume w/ milli-Q H_2O Exp: 02-07-14

W33274 01/07/14 AGK — TOCW Ical: Into 7 50mL vol, pipetted 0.005, 0.25, 0.5, 1.25, 2.5, and 5.0mL of W33270 and brought to volume with milli-Q H_2O Exp: 02/07/14

Continued on Page

Read and Understood By

1/9/14 CS
Signed — Date — Signed — Date

* + W23456 CES 4/2/10 KHP Buffer - Into a beaker dissolved 2.5g KHP W1521 Volumetrically added 450mL CO_2 free dI H_2O + 42.5mL 0.1 M HCl W23371 + adj pH to 3.1 ± 0.05 exp 4/9/10

* W23457 ESC 4/2/10 C.C2CON Sulfuric Acid: VWR Cat# BDH3229-4 lot # 9334 exp: 11/30/10

* W23458 ESC 4/5/10 Stock Ammonium Molybdate soln: Into a 1L vol. dissolved 40g ammonium molybdate tetrahydrate W22553 & stirred for 4 hours, brought to vol. w/ DI H_2O exp: 6/5/10

* W23459 ESC 4/5/10 Antimony Potassium Tartrate Stock: Into a 500mL vol. dissolved 1.61g Antimony Potassium tartrate W23460 & filled to vol. w/ DI H_2O exp: 6/5/10

* W23460 CSC 4/5/10 Antimony Potassium Tartrate Trihydate: Fischer Cat# A867-250 Lot # 082639A ~~exp: 4/5/15~~ 8-27-14 mml

W23461 CES 4/5/10 NH_3 LCS - Into a 200mL vol pipetted 1mL W23462 + filled to vol w/ dI H_2O exp 4/12/10

* W23462 CES 4/5/10 NH_3/TKN ICV/LCS stock - Into a 1L vol dissolved 3.819g NH_4Cl W23266 pipetted 2mL H_2SO_4 W23390 + filled to vol w/ dI H_2O exp 5/5/10

* W23463 mml 4/5/10 TKN/TPhos Ical working std 250 mg/L into a 100ml vol. pipetted 25ml W23289 + W21863 + brought to vol. w/ DI H_2O exp 5/5/10

Continued on Page

Read and Understood By

mml 4-22-10
Signed Date Signed Date

WORGANIC CARBON QSM 5.0 Analytical Run
165946 on 11/15/2019

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME		QC TYPE (Parent Sample)		CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	353176								WORGANIC CARBON QSM 5.0				
					ICV								
	353177								WORGANIC CARBON QSM 5.0				
					ICB								
	348936								WORGANIC CARBON QSM 5.0				
					CCV					0			
	348937								WORGANIC CARBON QSM 5.0				
					LCSW					0			
	348938								WORGANIC CARBON QSM 5.0				
					MBW					0			
149018	343788		10/14/2019	1025			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	ORGAN CARBON T QSM 5.0		GW	**4**	
		54MW13											
149018	343836		10/14/2019	1025			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	ORGAN CARBON T QSM 5.0		GW	**4**	
		54TW13											
149018	343838		10/14/2019	1215			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	ORGAN CARBON T QSM 5.0		GW	**4**	
		54MW10											
	348939								WORGANIC CARBON QSM 5.0				
					CCV					0			
	348940								WORGANIC CARBON QSM 5.0				
					CCB					0			
149018	343840		10/14/2019	1325			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	ORGAN CARBON T QSM 5.0		GW	**4**	
		54MW12			Designated MS/MSD								
	348941		10/14/2019	1325					ORGAN CARBON T QSM 5.0				
		54MW12			DUP	343840				0			
	348942		10/14/2019	1325					ORGAN CARBON T QSM 5.0				
		54MW12			MSW	343840				0			
	348943		10/14/2019	1325					ORGAN CARBON T QSM 5.0				
		54MW12			MSDW	348942				0			
149018	343842		10/14/2019	1510			WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	ORGAN CARBON T QSM 5.0		GW	**4**	
		54MW1											
	348944								WORGANIC CARBON QSM 5.0				
					CCV					0			
	348945								WORGANIC CARBON QSM 5.0				
					CCB					0			

17 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

FWC39-01 Data Review Checklist

	Method: Total Organic Carbon Method 415.1/9060	Independent Data Review Checklist	Instrument: TOCW

LIMS Run #(s)	Analysis Date	Analyst / Data Interpreter	Independent Reviewer	Date of Review	Approved? (Yes or No)
165875 165876 165946	10/25/2019	TMG	RLD	11/04/2019	Yes

Instructions: Complete one checklist per *analytical sequence* . Enter the appropriate response for each question. Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirement	Acceptance Criteria	Analyst Review		Independent Review		Comments
		Yes	No	Yes	No	(Indicate reference to an attachment if necessary)
1. Were the samples preserved prior to analysis and analyzed within hold time?	pH <2, 28 days or program/project specific	Yes		Yes		
2. Was the calibration curve performed using the required number of standards?	3 standards and a blank	Yes		Yes		
3. Was the correlation coefficient acceptable?	r ≥ .995	Yes		Yes		
4. Were the ICV and ICB analyzed?	---	Yes		Yes		
5. Was the ICV result acceptable?	90 – 110 % Rec. or contract/program specific	Yes		Yes		
6. Was the ICB result acceptable?	< LOD or contract/program specific	Yes		Yes		
7. Was an LCS & MB run with each batch of samples?	One each per analytical batch or contract/program specific frequency.	Yes		Yes		
8. Was the LCS recovery acceptable?	In-house derived or contract/program specific limits.	Yes		Yes		
9. Were the MB results acceptable?	< LOD or project/ program specific (<1/2 RL for DOD-QSM).	Yes		Yes		
10. Were the CCV's analyzed at the required frequency?	Beginning, after every 10 sample, & at the end of a sequence.	Yes		Yes		
11. Were the CCB's analyzed at the required frequency?	After each CCV (unless MB analyzed after CCV)	Yes		Yes		
12. Were the CCV recoveries acceptable?	90 – 110 % Rec. or project/ program specific	Yes		Yes		
13. Were the CCB results acceptable?	< LOD or project/ program specific	Yes		Yes		

14. Were all positive results that were reported within the calibration curve?	---	Yes		Yes		
15. Was an MS and MSD analyzed at the required frequency?	1 / 20 of the same matrix or project/ program specific	Yes		Yes		
16. Were the MS and MSD recoveries acceptable?	In-house derived or project/ program specific limits		No		No	
17. Was the RPD between the MS and MSD acceptable?	In-house derived or project/ program specific limits	Yes		Yes		
18. Was a Duplicate analyzed at the required frequency?	1 per 20 of the same matrix or contract/program specific	Yes		Yes		
19. Was the RPD between the Duplicate (if valid) and the sample acceptable?	In-house derived or project/ program specific limits (QSM samples, duplicate only valid when sample result ≥5x the LOQ)	Yes		Yes		
20. Are all samples on the job lists accounted for?	---	Yes		Yes		
21. Is the standards prep log numbers noted on the analytical report?	---	Yes		Yes		
22. Were post analysis corrections addressed and/or the Audit Trail function turned on (if available)?	Correction should be initialed, dated, and reason given. Audit trail must be on (if available)	Yes		Yes		
23. Were non-matrix related nonconformities (if applicable) documented in the NCR spreadsheet?	---	Yes		Yes		

Non-Applicable Yes/No Cells Are Left Blank

Comments:

W CARBON, INORG & ORG Analytical Run
165683 on 11/15/2019

Date Analyzed: _____ Date Reviewed: _____

Date Entered: _____ Date Validated: _____

COC	ORDER	SAMPLE DECRIPTION	SAMPLE DATE/ TIME		QC TYPE (Parent Sample)	CLIENT	PROJECT	TEST	PREP BATCH	MATRIX	DEL	RUSH
	344542							W CARBON, INORG & ORG				
					CCV				0			
	344543							W CARBON, INORG & ORG				
					LCSW				0			
	344544							W CARBON, INORG & ORG				
					MBW				0			
149018	343788		10/14/2019	1025		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	CARBON, INORG & ORG		GW	**4**	
		54MW13										
149018	343836		10/14/2019	1025		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	CARBON, INORG & ORG		GW	**4**	
		54TW13										
149018	343838		10/14/2019	1215		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	CARBON, INORG & ORG		GW	**4**	
		54MW10										
149018	343840		10/14/2019	1325		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	CARBON, INORG & ORG		GW	**4**	
		54MW12			Designated MS/MSD							
149018	343842		10/14/2019	1510		WESTON SOLUTIONS, INC.	RADFORD AAP SWMU-54	CARBON, INORG & ORG		GW	**4**	
		54MW1										
	344545							W CARBON, INORG & ORG				
					CCV				0			
	344546							W CARBON, INORG & ORG				
					CCB				0			

10 SAMPLE COUNT ON RUN, INCLUDING METHOD AND INSTRUMENT QC

Matrix: S-Soil Slg-Sludge GW-GroundWater M-Misc Waste SW-Surface Water A-Air WW-WasteWater DW-Drinking Water SD=Sediment Leachate=LE

FWC39-01 Data Review Checklist

	Method: Total Organic Carbon Method 415.1/9060	Independent Data Review Checklist	Instrument: TOCW

LIMS Run #(s)	Analysis Date	Analyst / Data Interpreter	Independent Reviewer	Date of Review	Approved? (Yes or No)
165683	10/21/2019	TMG	RLD	11/04/2019	Yes

Instructions: Complete one checklist per *analytical sequence* . Enter the appropriate response for each question. Each "No" response requires an explanation in the Comments section, and may require the initiation of a Nonconformance Report.

Requirement	Acceptance Criteria	Analyst Review		Independent Review		Comments
		Yes	No	Yes	No	(Indicate reference to an attachment if necessary)
1. Were the samples preserved prior to analysis and analyzed within hold time?	pH <2, 28 days or program/project specific	Yes		Yes		
2. Was the calibration curve performed using the required number of standards?	3 standards and a blank	Yes		Yes		
3. Was the correlation coefficient acceptable?	r ≥ .995	Yes		Yes		
4. Were the ICV and ICB analyzed?	---	Yes		Yes		
5. Was the ICV result acceptable?	90 – 110 % Rec. or contract/program specific	Yes		Yes		
6. Was the ICB result acceptable?	< LOD or contract/program specific	Yes		Yes		
7. Was an LCS & MB run with each batch of samples?	One each per analytical batch or contract/program specific frequency.	Yes		Yes		
8. Was the LCS recovery acceptable?	In-house derived or contract/program specific limits.	Yes		Yes		
9. Were the MB results acceptable?	< LOD or project/ program specific (<1/2 RL for DOD-QSM).	Yes		Yes		
10. Were the CCV's analyzed at the required frequency?	Beginning, after every 10 sample, & at the end of a sequence.	Yes		Yes		
11. Were the CCB's analyzed at the required frequency?	After each CCV (unless MB analyzed after CCV)	Yes		Yes		
12. Were the CCV recoveries acceptable?	90 – 110 % Rec. or project/ program specific	Yes		Yes		
13. Were the CCB results acceptable?	< LOD or project/ program specific	Yes		Yes		

14. Were all positive results that were reported within the calibration curve?	---	Yes		Yes		
15. Was an MS and MSD analyzed at the required frequency?	1 / 20 of the same matrix or project/ program specific	Yes		Yes		
16. Were the MS and MSD recoveries acceptable?	In-house derived or project/ program specific limits	Yes		Yes		
17. Was the RPD between the MS and MSD acceptable?	In-house derived or project/ program specific limits	Yes		Yes		
18. Was a Duplicate analyzed at the required frequency?	1 per 20 of the same matrix or contract/program specific	Yes		Yes		
19. Was the RPD between the Duplicate (if valid) and the sample acceptable?	In-house derived or project/ program specific limits (QSM samples, duplicate only valid when sample result ≥5x the LOQ)	Yes		Yes		
20. Are all samples on the job lists accounted for?	---	Yes		Yes		
21. Is the standards prep log numbers noted on the analytical report?	---	Yes		Yes		
22. Were post analysis corrections addressed and/or the Audit Trail function turned on (if available)?	Correction should be initialed, dated, and reason given. Audit trail must be on (if available)	Yes		Yes		
23. Were non-matrix related nonconformities (if applicable) documented in the NCR spreadsheet?	---	Yes		Yes		

Non-Applicable Yes/No Cells Are Left Blank

Comments:

TOC Instrument Run Logbook

Start Date	Start Time	End Date	End Time	Analyst	LIMs Run #	Matrix (S or W)	Calibration ID #	COMMENTS
10/03/19	14:09	10/03/19	22:22	TMG	165048, 165049, 165050	W	0352	
10/4/19	10:20	10/4/19	17:46	TMG	165084	W	0352	
10/7/19	10:01	10/7/19	17:19	TMG	165034	W	0352	
10/8/19	09:45	10/8/19	15:10	TMG	165208, 165209	W	0352	
10/9/19	9:10	10/9/19	12:52	TMG	165215, 165216	S	0318	
10/16/19	12:47	10/16/19	17:59	TMG	165508	W	0352	
10/17/19	8:37	10/17/19	10:07	TMG	165508RE	W	0352	
10/21/19	8:45	10/21/19	11:33	TMG	165683	W	0352	TIC
10/22/19	8:36	10/22/19	19:04	TMG	165735, 165734	W	0352	
10/23/19	9:27	10/23/19	20:43	TMG	165791, 165792	W	0352	
10/24/19	10:30	10/24/19	20:12	TMG	165875, 165876	W	0352	
10/25/19	11:29	10/25/19	14:37	TMG	165939	S	0318	
10/25/19	15:19	10/25/19	25:51	TMG	165875R, 165876R, 165946	W	0352	
10/28/19	12:11	10/28/19	23:37	TMG	165983, 165984	W	0352	
10/29/19	10:33	10/29/19	17:14	TMG	165985, 166025, 166026	W	0352	PT
10/30/19	9:09	10/30/19	22:51	TMG	166065, 166066, 166067	W	0352	
10/31/19	10:22	10/31/19	22:16	TMG	166029, 166112, 166113 166114	W	0352	
11/2/19	10:44	11/2/19	12:02	TMG	166177	S	0318	

Reviewed By:_____

Standard Log #:	TOC0359	Standard/Reagent:	LCS TOC STOCK STD
Analyst:	TMG	Final Concentration:	1000ug/mL
Prep Date:	10/28/2019	Expiration Date:	09/01/2021
Prep:			

Standard Log #:	TOC0360	Standard:	TOCW CCV Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	10/28/2019	Expiration Date (1 Month):	11/28/2019
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW Ical/CCV Stock (1000mg/L) TOC0258 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0361	Standard:	TOCW LCS Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	10/28/2019	Expiration Date (1 Month):	11/28/2019
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW ICV/LCS Stock (1000mg/L) TOC0359 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0357	Standard:	TOCW CCV Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	10/16/2019	Expiration Date (1 Month):	11/16/2019
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW Ical/CCV Stock (1000mg/L) TOC0258 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0358	Standard:	TOCW LCS Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	10/16/2019	Expiration Date (1 Month):	11/16/2019
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW ICV/LCS Stock (1000mg/L) TOC0259 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0355	Standard:	TOCW CCV Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	10/02/2019	Expiration Date (1 Month):	11/02/2019
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW Ical/CCV Stock (1000mg/L) TOC0258 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0356	Standard:	TOCW LCS Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	10/02/2019	Expiration Date (1 Month):	11/02/2019
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW ICV/LCS Stock (1000mg/L) TOC0259 and brought to volume with Milli-Q DI H_2O.		

LPVO2-01
TOC Prep Logbook
Notebook Created: 01/12/2015
Balances used in reagent prep:
WCB01 and WCB03
NOTEBOOK VIEW: LTN_TOC_Logbook_01_Default, NOTEBOOK: TOC_Logbook_01, PAGE: 181
Page is Unlocked
Page is not Witnessed
Project: Unassigned
Page Title: 090919

Standard Log #:	TOC0352	Standard:	TOCW Ical.
Analyst:	TMG		
Prep Date:	09/09/2019	Expiration Date (1 Month):	10/09/2019

Prep:

Into seven 50mL volumetric flasks, pipetted the following amounts of TOCW Ical/CCV Stock Std. (1000mg/L) TOC0258 and brought to volume with Milli-Q H_20:

Level	ICal Stock (mL)	True Value (pg/L)
1	0	0
2	0.05	1
3	0.25	5
4	0.5	10
5	1.25	25
6	2.5	50
7	5.0	100

1

CT Laboratories, LLC

Standard Log #:	TOC0350	Standard:	TOCW CCV Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	09/04/2019	Expiration Date (1 Month):	10/04/2019
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW Ical/CCV Stock (1000mg/L) TOC0258 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0351	Standard:	TOCW LCS Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	09/04/2019	Expiration Date (1 Month):	10/04/2019
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW ICV/LCS Stock (1000mg/L) TOC0259 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0332	Standard:	TOCW LOD Check
Analyst:	TMG	Concentration:	1.5 mg/L
Prep Date:	06/05/2019	Expiration Date (1 Month):	07/05/2019
Prep:	Into a 100 mL volumetric flask, pipetted 0.15mL of TOCW Ical/CCV Stock (1000mg/L) TOC0258 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0333	Standard:	TOCW LOQ Check
Analyst:	TMG	Concentration:	3.0 mg/L
Prep Date:	06/05/2019	Expiration Date (1 Month):	07/05/2019
Prep:	Into a 100 mL volumetric flask, pipetted 0.30mL of TOCW Ical/CCV Stock (1000mg/L) TOC0258 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0258	Standard/Reagent:	TOC CCV STOCK STD
Analyst:	TMG	Final Concentration:	1000mg/L
Prep Date:	06/05/2018	Expiration Date:	02/28/2020
Prep:	Ultra Scientific TOC standard @ 1000 or - 5 ug/mL Lot # CS-0215		

Standard Log #:	TOC0259	Standard/Reagent:	TOC LCS STOCK STD
Analyst:	TMG	Final Concentration:	1000mg/L
Prep Date:	06/05/2018	Expiration Date:	11/01/2019
Prep:	CAT# 250-250-05X LOT# S171123022		

Standard Log #:	TOC0260	Standard:	TOCW CCV Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	06/05/2018	Expiration Date (1 Month):	07/05/2018
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW Ical/CCV Stock (1000mg/L) TOC0258 and brought to volume with Milli-Q DI H_2O.		

Standard Log #:	TOC0261	Standard:	TOCW LCS Std.
Analyst:	TMG	Concentration:	50 mg/L
Prep Date:	06/05/2018	Expiration Date (1 Month):	07/05/2018
Prep:	Into a 100 mL volumetric flask, pipetted 5mL of TOCW ICV/LCS Stock (1000mg/L) TOC0206 and brought to volume with Milli-Q DI H_2O.		

SUBCONTRACTED ANALYSIS DOCUMENTS

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LABORATORY REPORT

If you have any questions concerning this report, please do not hesitate to call us at (800) 332-4345 or (574) 233-4777.

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STATE CERTIFICATION LIST

State	Certification	State	Certification
Alabama	40700	Missouri	880
Alaska	IN00035	Montana	CERT0026
Arizona	AZ0432	Nebraska	NE-OS-05-04
Arkansas	IN00035	Nevada	IN00035
California	2920	New Hampshire*	2124
Colorado	IN00035	New Jersey*	IN598
Colorado Radiochemistry	IN00035	New Mexico	IN00035
Connecticut	PH-0132	New York*	11398
Delaware	IN035	North Carolina	18700
Florida*	E87775	North Dakota	R-035
Georgia	929	Ohio	87775
Hawaii	IN035	Oklahoma	D9508
Idaho	IN00035	Oregon (Primary AB)*	4074
Illinois*	200001	Pennsylvania*	68-00466
Illinois Microbiology	17767	Puerto Rico	IN00035
Illinois Radiochemistry	IN00035	Rhode Island	LAO00343
Indiana Chemistry	C-71-01	South Carolina	95005
Indiana Microbiology	M-76-07	South Dakota	IN00035
Iowa	098	Tennessee	TN02973
Kansas*	E-10233	Texas*	T104704187-18-12
Kentucky	90056	Texas/TCEQ	TX207
Louisiana*	LA014	Utah*	IN00035
Maine	IN00035	Vermont	VT-8775
Maryland	209	Virginia*	460275
Massachusetts	M-IN035	Washington	C837
Michigan	9926	West Virginia	9927 C
Minnesota*	018-999-338	Wisconsin	999766900
Mississippi	IN035	Wyoming	IN035
EPA	IN00035		

*NELAP/TNI Recognized Accreditation Bodies

Revision date: 03/14/2019

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NELAC NARRATIVE PAGE

Client: CT Laboratories Report #: 468901NP

Eurofins Eaton Analytical, LLC is a NELAP accredited laboratory. All reported results meet the requirements of the NELAC standards, unless otherwise noted.

EEA contact person: Jim Vernon

NELAP requires complete reporting of deviations from method requirements, regardless of the suspected impact on the data. Quality control failures not reported within the report summary are noted here.

There were no quality control failures.

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11/04/2019

Authorized Signature Title Date

110 South Hill Street
South Bend, IN 46617
Tel: (574) 233-4777
Fax: (574) 233-8207
1 800 332 4345

Laboratory Report

Client: CT Laboratories

Attn: Jodi Serstad
1230 Lange Court
Baraboo, WI 53913

Report: 468901
Priority: Standard Written
Status: Final
PWS ID: Not Supplied

Sample Information

EEA ID #	Client ID	Method	Collected Date / Time	Collected By:	Received Date / Time
4462118	54MW13	300.0	10/14/19 10:25	Client	10/22/19 10:00
4462119	54TW13	300.0	10/14/19 10:25	Client	10/22/19 10:00
4462120	54MW10	300.0	10/14/19 12:15	Client	10/22/19 10:00
4462121	54MW12	300.0	10/14/19 13:25	Client	10/22/19 10:00
4462124	54MW1	300.0	10/14/19 15:10	Client	10/22/19 10:00

Report Summary

Note: See attached page for additional comments.

Project: 149018 EEA-IN / Radford AAP

Detailed quantitative results are presented on the following pages. The results presented relate only to the samples provided for analysis.

We appreciate the opportunity to provide you with this analysis. If you have any questions concerning this report, please do not hesitate to call Jim Vernon at (574) 233-4777.

Note: This report may not be reproduced, except in full, without written approval from EEA. EEA is accredited by the National Environmental Laboratory Accreditation Program (NELAP).

Authorized Signature | Title | 11/04/2019 Date

Client Name: CT Laboratories
Report #: 468901

Client Name: CT Laboratories Report #: 468901

Sampling Point: 54MW13 PWS ID: Not Supplied

General Chemistry									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
14866-68-3	Chlorate	300.0	---	10	< 10	ug/L	---	10/22/19 22:49	4462118
14998-27-7	Chlorite	300.0	1000 *	10	< 10	ug/L	---	10/22/19 22:49	4462118

Sampling Point: 54TW13 PWS ID: Not Supplied

General Chemistry									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
14866-68-3	Chlorate	300.0	---	10	< 10	ug/L	---	10/22/19 23:18	4462119
14998-27-7	Chlorite	300.0	1000 *	10	< 10	ug/L	---	10/22/19 23:18	4462119

Sampling Point: 54MW10 PWS ID: Not Supplied

General Chemistry									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
14866-68-3	Chlorate	300.0	---	10	< 10	ug/L	---	10/22/19 23:48	4462120
14998-27-7	Chlorite	300.0	1000 *	10	< 10	ug/L	---	10/22/19 23:48	4462120

Sampling Point: 54MW12 PWS ID: Not Supplied

General Chemistry									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
14866-68-3	Chlorate	300.0	---	10	< 10	ug/L	---	10/24/19 06:55	4462121
14998-27-7	Chlorite	300.0	1000 *	10	< 10	ug/L	---	10/24/19 06:55	4462121

Sampling Point: 54MW1 PWS ID: Not Supplied

General Chemistry									
Analyte ID #	Analyte	Method	Reg Limit	MRL†	Result	Units	Preparation Date	Analyzed Date	EEA ID #
14866-68-3	Chlorate	300.0	---	10	< 10	ug/L	---	10/23/19 03:39	4462124
14998-27-7	Chlorite	300.0	1000 *	10	< 10	ug/L	---	10/23/19 03:39	4462124

† EEA has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices.

Reg Limit Type:	MCL	SMCL	AL
Symbol:	*	^	!

Lab Definitions

Continuing Calibration Check Standard (CCC) / Continuing Calibration Verification (CCV) / Initial Calibration Verification Standard (ICV) / Initial Performance Check (IPC) - is a standard containing one or more of the target analytes that is prepared from the same standards used to calibrate the instrument. This standard is used to verify the calibration curve at the beginning of each analytical sequence, and may also be analyzed throughout and at the end of the sequence. The concentration of continuing standards may be varied, when prescribed by the reference method, so that the range of the calibration curve is verified on a regular basis. CCL, CCM, and CCH are the CCC standards at low, mid, and high concentration levels, respectively.

Internal Standards (IS) - are pure compounds with properties similar to the analytes of interest, which are added to field samples or extracts, calibration standards, and quality control standards at a known concentration. They are used to measure the relative responses of the analytes of interest and surrogates in the sample, calibration standard or quality control standard.

Laboratory Duplicate (LD) - is a field sample aliquot taken from the same sample container in the laboratory and analyzed separately using identical procedures. Analysis of laboratory duplicates provides a measure of the precision of the laboratory procedures.

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS) - is an aliquot of reagent water to which known concentrations of the analytes of interest are added. The LFB is analyzed exactly the same as the field samples. LFBs are used to determine whether the method is in control. FBL, FBM, and FBH are the LFB samples at low, mid, and high concentration levels, respectively.

Laboratory Method Blank (LMB) / Laboratory Reagent Blank (LRB) - is a sample of reagent water included in the sample batch analyzed in the same way as the associated field samples. The LMB is used to determine if method analytes or other background contamination have been introduced during the preparation or analytical procedure. The LMB is analyzed exactly the same as the field samples.

Laboratory Trip Blank (LTB) / Field Reagent Blank (FRB) - is a sample of laboratory reagent water placed in a sample container in the laboratory and treated as a field sample, including storage, preservation, and all analytical procedures. The FRB/LTB container follows the collection bottles to and from the collection site, but the FRB/LTB is not opened at any time during the trip. The FRB/LTB is primarily a travel blank used to verify that the samples were not contaminated during shipment.

Matrix Spike Duplicate Sample (MSD) / Laboratory Fortified Sample Matrix Duplicate (LFSMD) - is a sample aliquot taken from the same field sample source as the Matrix Spike Sample to which known quantities of the analytes of interest are added in the laboratory. The MSD is analyzed exactly the same as the field samples. Analysis of the MSD provides a measure of the precision of the laboratory procedures in a specific matrix. SDL, SDM, and SDH / LFSMDL, LFSMDM, and LFSMDH are the MSD or LFSMD at low, mid, and high concentration levels, respectively.

Matrix Spike Sample (MS) / Laboratory Fortified Sample Matrix (LFSM) - is a sample aliquot taken from field sample source to which known quantities of the analytes of interest are added in the laboratory. The MS is analyzed exactly the same as the field samples. The purpose is to demonstrate recovery of the analytes from a sample matrix to determine if the specific matrix contributes bias to the analytical results. MSL, MSM, and MSH / LFSML, LFSMM, and LFSMH are the MS or LFSM at low, mid, and high concentration levels, respectively.

Quality Control Standard (QCS) / Second Source Calibration Verification (SSCV) - is a solution containing known concentrations of the analytes of interest prepared from a source different from the source of the calibration standards. The solution is obtained from a second manufacturer or lot if the lot can be demonstrated by the manufacturer as prepared independently from other lots. The QCS sample is analyzed using the same procedures as field samples. The QCS is used as a check on the calibration standards used in the method on a routine basis.

Reporting Limit Check (RLC) / Initial Calibration Check Standard (ICCS) - is a procedural standard that is analyzed each day to evaluate instrument performance at or below the minimum reporting limit (MRL).

Surrogate Standard (SS) / Surrogate Analyte (SUR) - is a pure compound with properties similar to the analytes of interest, which is highly unlikely to be found in any field sample, that is added to the field samples, calibration standards, blanks and quality control standards before sample preparation. The SS is used to evaluate the efficiency of the sample preparation process.

CT LABORATORIES
1230 Lange Court • Baraboo, WI 53913 • 608-356-2760
www.ctlaboratories.com

VJV 383777 468901

Sub-Contract Laboratory Chain-of-Custody and Purchase Order

PURCHASE ORDER # 149018 EEA-IN *The PO# must appear on all invoice and reports!*

Upon Receipt of Samples, please verify that samples were received in acceptable condition then sign this form and fax to (608)356-2766 or email to the project manager. Sample temperature, upon receipt, must be recorded on this document unless thermal preservation is not a method requirement.

Ship to: Eurofins Eaton Analytical - IN
110 South Hill Street
South Bend, IN 46617

Return Invoice and Results to: bszymanski@ctlaboratories.com

Government UPS Shipping Acct ? (Y) N

CTLaboratories
Brett M Szymanski
1230 Lange Court
Baraboo WI 53913

Ship by: Speedee ☐ UPS Grnd ☐ UPS 2nd ☐ UPS NDA ☒

Date Due: Standard TAT *RUSH TURNAROUND NEEDED? Y or (N) (Circle One)*

Project Name: RADFORD AAP **Project State:** VA

Analytical/QC Criteria: NONE INDICATED STATE (DOD QSM) NELAP (Circle one) OTHER

Report results as EDD? N (Y) (Circle one and indicate type: ERIS + Excel) Data Deliverable Package LEVEL: IV

CTLabs ID#	Sample Date/Time	Matrix	Sample Description		Analyses / Method		Cost
343788	10/14/2019 1025	GROUND WATER	54MW13	4462 118 119	CHLORATE/CHLORITE (4)	300.1	
343836	10/14/2019 1025	GROUND WATER	54TW13	120	CHLORATE/CHLORITE (1)	300.1	
343838	10/14/2019 1215	GROUND WATER	54MW10		CHLORATE/CHLORITE (1)	300.1	MS 4462127
343840	10/14/2019 1325	GROUND WATER	54MW12 (Designated MS/MSD)	FS 121	CHLORATE/CHLORITE (3)	300.1	MSD 4462123
343842	10/14/2019 1510	GROUND WATER	54MW1	124	CHLORATE/CHLORITE (1)	300.1	

Relinquished by: Brett Szymanski Date/Time: 10/21/2019 12:40

Received by: [signature] Date/Time: 10-22-19 1000 Receipt Temperature (C) 1.0°C

COMMENTS: PLEASE LOG USING THE SAMPLE DESCRIPTIONS. SAMPLE 54MW12 IS A DESIGNATED MS/MSD.

REPORT ALL SOLIDS ON A DRY WEIGHT BASIS UNLESS OTHERWISE INDICATED

Form #: FPM1-01
Effective Date: 02/15/14

Eurofins Eaton Analytical
Run Log

Run ID: **266642** Method: **300.0**

Type	Sample Id	Sample Site	Matrix	Instrument ID	Analysis Date	Calibration File
ICB	4463868		RW	ES	10/22/2019 12:29	
QCS	4463877		RW	ES	10/22/2019 15:54	
IPC	4463878		RW	ES	10/22/2019 16:24	
LRB	4463881		RW	ES	10/22/2019 17:55	
LFB	4463882		RW	ES	10/22/2019 18:24	
FS	4462118	54MW13	GW	ES	10/22/2019 22:49	
FS	4462119	54TW13	GW	ES	10/22/2019 23:18	
FS	4462120	54MW10	GW	ES	10/22/2019 23:48	
IPC	4463883		RW	ES	10/23/2019 00:46	
CCB	4463884		RW	ES	10/23/2019 01:15	
FS	4462124	54MW1	GW	ES	10/23/2019 03:39	
IPC	4463885		RW	ES	10/23/2019 07:30	
CCB	4463886		RW	ES	10/23/2019 07:59	

QC Summary Report

Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID #
ICB	Chlorate	300.0	10	---	<	10		ug/L	---	---	---	---	1.0	---	10/22/2019 12:29	4463868
ICB	Chlorite	300.0	10	---	<	10		ug/L	---	---	---	---	1.0	---	10/22/2019 12:29	4463868
QCS	Chlorate	300.0	10	---		92.2800	100	ug/L	92	90 - 110	---	---	1.0	---	10/22/2019 15:54	4463877
QCS	Chlorite	300.0	10	---		91.4960	100	ug/L	91	90 - 110	---	---	1.0	---	10/22/2019 15:54	4463877
IPC	Chlorate	300.0	10	---		95.0880	100	ug/L	95	90 - 110	---	---	1.0	---	10/22/2019 16:24	4463878
IPC	Chlorite	300.0	10	---		94.1110	100	ug/L	94	90 - 110	---	---	1.0	---	10/22/2019 16:24	4463878
LRB	Chlorate	300.0	10	---	<	10		ug/L	---	---	---	---	1.0	---	10/22/2019 17:55	4463881
LRB	Chlorite	300.0	10	---	<	10		ug/L	---	---	---	---	1.0	---	10/22/2019 17:55	4463881
LFB	Chlorate	300.0	10	---		90.4700	100	ug/L	90	90 - 110	---	---	1.0	---	10/22/2019 18:24	4463882
LFB	Chlorite	300.0	10	---		93.9830	100	ug/L	94	90 - 110	---	---	1.0	---	10/22/2019 18:24	4463882
FS	Chlorate	300.0	10	54MW13	<	10		ug/L	---	---	---	---	1.0	---	10/22/2019 22:49	4462118
FS	Chlorite	300.0	10	54MW13	<	10		ug/L	---	---	---	---	1.0	---	10/22/2019 22:49	4462118
FS	Chlorate	300.0	10	54TW13	<	10		ug/L	---	---	---	---	1.0	---	10/22/2019 23:18	4462119
FS	Chlorite	300.0	10	54TW13	<	10		ug/L	---	---	---	---	1.0	---	10/22/2019 23:18	4462119
FS	Chlorate	300.0	10	54MW10	<	10		ug/L	---	---	---	---	1.0	---	10/22/2019 23:48	4462120
FS	Chlorite	300.0	10	54MW10	<	10		ug/L	---	---	---	---	1.0	---	10/22/2019 23:48	4462120
IPC	Chlorate	300.0	10	---		104.8380	100	ug/L	105	90 - 110	---	---	1.0	---	10/23/2019 00:46	4463883
IPC	Chlorite	300.0	10	---		101.9330	100	ug/L	102	90 - 110	---	---	1.0	---	10/23/2019 00:46	4463883
CCB	Chlorate	300.0	10	---	<	10		ug/L	---	---	---	---	1.0	---	10/23/2019 01:15	4463884
CCB	Chlorite	300.0	10	---	<	10		ug/L	---	---	---	---	1.0	---	10/23/2019 01:15	4463884
FS	Chlorate	300.0	10	54MW1	<	10		ug/L	---	---	---	---	1.0	---	10/23/2019 03:39	4462124
FS	Chlorite	300.0	10	54MW1	<	10		ug/L	---	---	---	---	1.0	---	10/23/2019 03:39	4462124
IPC	Chlorate	300.0	10	---		107.8720	100	ug/L	108	90 - 110	---	---	1.0	---	10/23/2019 07:30	4463885
IPC	Chlorite	300.0	10	---		107.1250	100	ug/L	107	90 - 110	---	---	1.0	---	10/23/2019 07:30	4463885
CCB	Chlorate	300.0	10	---	<	10		ug/L	---	---	---	---	1.0	---	10/23/2019 07:59	4463886
CCB	Chlorite	300.0	10	---	<	10		ug/L	---	---	---	---	1.0	---	10/23/2019 07:59	4463886

Eurofins Eaton Analytical
Run Log

Run ID: **266680** Method: **300.0**

Type	Sample Id	Sample Site	Matrix	Instrument ID	Analysis Date	Calibration File
ICB	4463833		RW	CQ	10/23/2019 15:28	
QCS	4463800		RW	CQ	10/23/2019 18:51	
LRB	4463844		RW	CQ	10/23/2019 20:18	
LFB	4463845		RW	CQ	10/23/2019 20:47	
IPC	4463846		RW	CQ	10/24/2019 03:04	
CCB	4463847		RW	CQ	10/24/2019 03:32	
FS	4462121	54MW12	GW	CQ	10/24/2019 06:55	
MS	4462122	54MW12	GW	CQ	10/24/2019 07:24	
MSD	4462123	54MW12	GW	CQ	10/24/2019 07:53	
IPC	4463848		RW	CQ	10/24/2019 09:49	
CCB	4463849		RW	CQ	10/24/2019 10:18	

QC Summary Report

Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID #
ICB	Chlorate	300.0	10	---	<	10		ug/L	---	---	---	---	1.0	---	10/23/2019 15:28	4463833
ICB	Chlorite	300.0	10	---	<	10		ug/L	---	---	---	---	1.0	---	10/23/2019 15:28	4463833
QCS	Chlorate	300.0	10	---		97.7340	100	ug/L	98	90 - 110	---	---	1.0	---	10/23/2019 18:51	4463800
QCS	Chlorite	300.0	10	---		97.6120	100	ug/L	98	90 - 110	---	---	1.0	---	10/23/2019 18:51	4463800
LRB	Chlorate	300.0	10	---	<	10		ug/L	---	---	---	---	1.0	---	10/23/2019 20:18	4463844
LRB	Chlorite	300.0	10	---	<	10		ug/L	---	---	---	---	1.0	---	10/23/2019 20:18	4463844
LFB	Chlorate	300.0	10	---		95.8210	100	ug/L	96	90 - 110	---	---	1.0	---	10/23/2019 20:47	4463845
LFB	Chlorite	300.0	10	---		98.0720	100	ug/L	98	90 - 110	---	---	1.0	---	10/23/2019 20:47	4463845
IPC	Chlorate	300.0	10	---		94.4800	100	ug/L	94	90 - 110	---	---	1.0	---	10/24/2019 03:04	4463846
IPC	Chlorite	300.0	10	---		93.8220	100	ug/L	94	90 - 110	---	---	1.0	---	10/24/2019 03:04	4463846
CCB	Chlorate	300.0	10	---	<	10		ug/L	---	---	---	---	1.0	---	10/24/2019 03:32	4463847
CCB	Chlorite	300.0	10	---	<	10		ug/L	---	---	---	---	1.0	---	10/24/2019 03:32	4463847
FS	Chlorate	300.0	10	54MW12	<	10		ug/L	---	---	---	---	1.0	---	10/24/2019 06:55	4462121
FS	Chlorite	300.0	10	54MW12	<	10		ug/L	---	---	---	---	1.0	---	10/24/2019 06:55	4462121
MS	Chlorate	300.0	10	54MW12		91.5010	100	ug/L	92	90 - 110	---	---	1.0	---	10/24/2019 07:24	4462122
MS	Chlorite	300.0	10	54MW12		92.4140	100	ug/L	92	90 - 110	---	---	1.0	---	10/24/2019 07:24	4462122
MSD	Chlorate	300.0	10	54MW12		93.0240	100	ug/L	93	90 - 110	1.7	10	1.0	---	10/24/2019 07:53	4462123
MSD	Chlorite	300.0	10	54MW12		93.9750	100	ug/L	94	90 - 110	1.7	10	1.0	---	10/24/2019 07:53	4462123
IPC	Chlorate	300.0	10	---		94.6340	100	ug/L	95	90 - 110	---	---	1.0	---	10/24/2019 09:49	4463848
IPC	Chlorite	300.0	10	---		94.0390	100	ug/L	94	90 - 110	---	---	1.0	---	10/24/2019 09:49	4463848
CCB	Chlorate	300.0	10	---	<	10		ug/L	---	---	---	---	1.0	---	10/24/2019 10:18	4463849
CCB	Chlorite	300.0	10	---	<	10		ug/L	---	---	---	---	1.0	---	10/24/2019 10:18	4463849

Sample Type Key

Type (Abbr.)	Sample Type	Type (Abbr.)	Sample Type
CCB	Continuing Calibration Blank		
FS	Field Sample		
ICB	Initial Calibration Blank		
IPC	Instrument Performance Check		
LFB	Laboratory Fortified Blank		
LRB	Laboratory Reagent Blank		
MS	Matrix Spike		
MSD	Matrix Spike Duplicate		
QCS	Quality Control Sample		

END OF REPORT

Eurofins Eaton Analytical

Method 300.0 B Ion Chromatography
Standard / Reagent Preparation Log

Run ID# 266642 **Instrument#** ES

Stocks/Reagents	Manufacturer	Lot Number	Date Received	Date Opened	Date of Expiration
Chlorite Cal Stock	Inorganic Ventures	N2-CLOX665406	8/9/2019	8/9/2019	8/9/2020
Bromide Cal Stock	Inorganic Ventures	P2-BR675946	8/9/2019	8/9/2019	8/9/2020
Chlorate Cal Stock	Inorganic Ventures	P2-CLOX678509	8/9/2019	8/9/2019	8/9/2020
Chlorite QC Stock	Sigm-Aldrich	LRAB9128	10/19/2018	11/5/2018	6/30/2020
Bromide QC Stock	Ultra Scientific	CP-3274	8/16/2016	8/16/2016	8/31/2020
Chlorate QC Stock	Ultra Scientific	CM-5663	8/16/2016	8/16/2016	11/30/2019
Ethylenediamine-99% (EDA)	Fisher	175344	3/8/2018	3/8/2018	N/A
Sodium Carbonate (Na_2CO_3)	Acros	A0366523	3/29/2016	4/1/2016	N/A

Working Solutions	Prep Instructions and Concentrations			
Cal Substock -25	1250 uL of each Cal Stock in 50 mL volume RW= 25.0 mg/L			
QC Substock- 25	1250 uL of each QC Stock in 50 mL volume RW= 25.0 mg/L			
Analyst:	SL	**Prep Date:**	8/9/2019	**Exp. Date:** 2/9/2020
LRB	100 ul EDA in 100 ml volume RW			
Cal 10	40 ul of Cal Substock+100 ul EDA in 100 ml volume RW= 10.0 ug/L			
Cal 20	80 ul of Cal Substock+100 ul EDA in 100 ml volume RW= 20.0 ug/L			
Cal 100	400 ul of Cal Substock+100 ul EDA in 100 ml volume RW= 100.0 ug/L			
Cal 250 & IPC	1000 ul of Cal Substock+100 ul EDA in 100 ml volume RW= 250.0 ug/L			
Cal 500	1000 ul of Cal Substock+50 ul EDA in 50 ml volume RW= 500.0 ug/L			
Cal 1000	1000 ul of Cal Substock+25 ul EDA in 25 ml volume RW= 1000.0 ug/L			
QCS	1000 ul of QC Substock+100 ul EDA in 100 ml volume RW= 250.0 ug/L			
Analyst:	SL	**Prep Date:**	10/21/2019	**Exp. Date:** 10/28/2019
RLC 10	4 ul of Cal Substock+10 ul EDA in 10 ml volume RW= 10.0 ug/L			
LFB 250	100 ul of Cal Substock+10 ul EDA in 10 ml volume RW= 250.0 ug/L			
Analyst:	SL	**Prep Date:**	10/22/2019	**Exp. Date:** 10/28/2019
EDA solution	5.6 mL EDA to 100 mL volume RW = 50 mg/mL			**Prep ID:** IOC51-92a
Analyst:	SL	**Prep Date:**	10/14/2019	**Exp. Date:** 11/14/2019
Eluent	1.91 g Na_2CO_3 in 2 L volume RW = 9.0 mM			**Prep ID:**
Analyst:	NA	**Prep Date:**	NA	**Exp. Date:** NA

Storage Conditions: All stocks and solutions are prepared and stored at room temperature.

Comments: additional prep: Cal 50 – 200ul of Cal Substock+100ul of EDA in 100ml volume RW = 50.0 ug/L
QCS 100 – 400ul of QC Substock+100ul of EDA in 100ml volume RW = 100.0 ug/L
LFB 100 – 40ul of QC Substock+10ul of EDA in 10ml volume RW = 100.0 ug/L

Analyst: [signature] **Date:** 10/24/2019

Technician Review: [signature] **Date:** 10/25/2019

(signature)

Summary

Sequence Details		
Name:	**102219a**	**14/Jan/15 15:09:59**
Directory:	**Instrument Data\ES\300B\2019**	**Eurofins Eaton Analy**
Data Vault:	**ChromeleonLocal**	**23/Oct/19 10:29:37**
No. of Injections:	**41**	**US25_USR_SBNLABPCS**

By Component	Chlorite

No.	Injection Name	Inject Time	Area µS*min CD_1 Chlorite	Amount ug/L CD_1 Chlorite	Area µS*min CD_1 Chlorate	Amount ug/L CD_1 Chlorate	Area µS*min CD_1 Bromide	Amount ug/L CD_1 Bromide
1	\ICB\RW\1\	10/22/19 12:29	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2	\ICS\RW\1\10	10/22/19 12:58	0.001	14.534	0.001	14.259	0.002	13.698
3	\ICS\RW\1\20	10/22/19 13:27	0.003	22.872	0.003	21.964	0.004	21.783
4	\ICS\RW\1\50	10/22/19 13:57	0.009	47.144	0.009	47.961	0.010	48.245
5	\ICS\RW\1\100	10/22/19 14:26	0.019	92.149	0.018	92.892	0.021	93.688
6	\ICS\RW\1\250	10/22/19 14:56	0.055	253.300	0.053	252.924	0.059	252.585
7	\ICS\RW\1\500	10/22/19 15:25	0.119	536.228	0.114	537.930	0.129	543.367
8	\QCS\RW\1\100	10/22/19 15:54	0.019	91.496	0.018	92.280	0.020	90.959
9	\IPC\RW\1\100	10/22/19 16:24	0.019	94.111	0.019	95.088	0.022	96.727
10	\RLC\RW\1\10	10/22/19 16:53	0.002	16.174	0.001	14.179	0.003	19.036
11	\RLC\RW\1\10	10/22/19 17:25	0.001	14.887	0.001	14.361	0.002	13.878
12	\LRB\RW\1\	10/22/19 17:55	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
13	\LFB\RW\1\100	10/22/19 18:24	0.019	93.983	0.018	90.470	0.022	98.649
14	4459068\FS\DW\1\	10/22/19 18:53	n.a.	n.a.	n.a.	n.a.	0.018	83.990
15	4459068\MS\DW\1\100	10/22/19 19:23	0.019	92.551	0.019	95.951	0.042	182.962
16	4459068\MSD\DW\1\100	10/22/19 19:52	0.019	92.422	0.021	105.266	0.045	194.128
17	4459566\FS\DW\1\	10/22/19 20:22	n.a.	n.a.	0.025	124.943	n.a.	n.a.
18	4461146\FS\DW\1\	10/22/19 20:51	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
19	4461765\FS\DW\1\	10/22/19 21:20	0.021	104.031	0.087	411.083 O	0.001	12.571
20	4461766\FS\DW\1\	10/22/19 21:50	0.018	86.412	0.076	359.240 O	0.002	14.207
21	4461767\FS\DW\1\	10/22/19 22:19	0.058	264.169 X	0.104	488.448 O	0.002	15.202
22	4462118\FS\DW\1\	10/22/19 22:49	n.a.	n.a.	n.a.	n.a.	0.006	33.591
23	4462119\FS\DW\1\	10/22/19 23:18	n.a.	n.a.	n.a.	n.a.	0.006	32.910
24	4462120\FS\DW\1\	10/22/19 23:48	n.a.	n.a.	n.a.	n.a.	0.006	30.762
25	4462121\FS\DW\1\	10/23/19 00:17	n.a.	n.a.	n.a.	n.a.	0.006	33.723
26	\IPC\RW\1\100	10/23/19 00:46	0.021	101.933	0.021	104.838	0.023	103.785
27	\CCB\RW\1\	10/23/19 01:15	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
28	4462122\FS\DW\1\	10/23/19 01:44	n.a.	n.a.	n.a.	n.a.	0.006	32.867
29	4462122\MS\DW\1\100	10/23/19 02:13	0.020	98.839	0.019	95.320	0.029	129.778
30	4462122\MSD\DW\1\100	10/23/19 02:42	0.021	100.523	0.019	96.916	0.030	132.252
31	4462123\FS\DW\1\	10/23/19 03:11	n.a.	n.a.	n.a.	n.a.	0.005	29.732
32	4462124\FS\DW\1\	10/23/19 03:39	n.a.	n.a.	n.a.	n.a.	0.003	20.503
33	4462488\FS\DW\1\	10/23/19 04:08	n.a.	n.a.	235.576	1094013.910 X	10.788	44923.361 O
34	4462489\FS\DW\1\	10/23/19 04:37	n.a.	n.a.	542.760	2520559.992 X	10.143	42237.651 O
35	4462606\FS\DW\1\	10/23/19 05:06	n.a.	n.a.	n.a.	n.a.	0.036	158.572
36	4462617\FS\DW\1\	10/23/19 05:35	n.a.	n.a.	n.a.	n.a.	0.004	24.385
37	4462747\FS\DW\1\	10/23/19 06:04	0.201	896.328 X	0.067	317.758 O	0.005	28.125
38	4462748\FS\DW\1\	10/23/19 06:32	0.180	801.960 X	0.066	315.471 O	0.004	23.293
39	4462749\FS\DW\1\	10/23/19 07:01	0.171	761.447 X	0.065	310.922 O	0.004	25.433
40	\IPC\RW\1\100	10/23/19 07:30	0.022	107.125	0.022	107.872	0.022	97.854
41	\CCB\RW\1\	10/23/19 07:59	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

X - over Cal Range. Repeat at a dilution 8/10/23/19

O - " " . Not reporting 8/10/23/19

Detection Settings

Algorithm: **Chromeleon 6**

Ret.Time	Param. Name	Param.Value	Inj. Type	Channel
0.000 [min]	Inhibit Integration	On	Any	All Channels
0.000 [min]	Valley To Valley	Off	Any	All Channels
0.000 [min]	Sensitivity	0.0100 [Signal]	Any	All Channels
0.000 [min]	Peak Slice	2.00 [s]	Any	All Channels
0.000 [min]	Minimum Area	0.0010 [Signal*min]	Any	All Channels
9.100 [min]	Inhibit Integration	Off	Any	All Channels
9.750 [min]	Inhibit Integration	On	Any	All Channels
13.450 [min]	Inhibit Integration	Off	Any	All Channels
15.000 [min]	Inhibit Integration	On	Any	All Channels

Component Table

Name	Ret.Time	Window	Channel	Eval.Type	Stand.Meth.	Cal.Type
Chlorite	9.400	5.000 RG	All Channels	Area	External	Lin, WithOffset
Chlorate	13.900	5.000 RG	All Channels	Area	External	Lin, WithOffset
Bromide	14.500	5.000 RG	All Channels	Area	External	Lin, WithOffset

Level "01"	Level "02"	Level "03"	Level "04"	Level "05"	Level "06"	Level "07"
0.000000	10.000000	20.000000	50.000000	100.000000	250.000000	500.000000
0.000000	10.000000	20.000000	50.000000	100.000000	250.000000	500.000000
0.000000	10.000000	20.000000	50.000000	100.000000	250.000000	500.000000

Conc.Unit	Factor	Peak Type	Group	Low.Conf.Prob	Up.Conf.Prob	Comment
ug/L	1.000000	Autodetect		99.5 %	99.5 %	auto generated
ug/L	1.000000	Autodetect		99.5 %	99.5 %	auto generated
ug/L	1.000000	Autodetect		99.5 %	99.5 %	auto generated

Charge

Global Calibration Settings

Mode	**Total**
Curve Fitting	**Normal**
Dual-Column Separate Calibration	**No**
Concentration Level Tolerances	**No**
Amount Ratio for Var. Int. Standard	**No**
Origin of Standards for Fixed Calibration:	

Calibration Table

Enabled	Name	Calib.Comment for "Chlorite"	Level	Dilution	Weight
☑	\ICB\RW\1\	Missing Peak	01	1.0000	1.0000
☑	\ICS\RW\1\10	Ok	02	1.0000	1.0000
☑	\ICS\RW\1\20	Ok	03	1.0000	1.0000
☑	\ICS\RW\1\50	Ok	04	1.0000	1.0000
☑	\ICS\RW\1\100	Ok	05	1.0000	1.0000
☑	\ICS\RW\1\250	Ok	06	1.0000	1.0000
☐	\ICS\RW\1\500	Disabled	07	1.0000	1.0000

IntStd	Spike Group	Position	Volume	Comment	Instrument Method	Processing Method
1.0000		G1	100.0 [µl]		as19 4mm	as19 4mm
1.0000		G2	100.0 [µl]		as19 4mm	as19 4mm
1.0000		G3	100.0 [µl]		as19 4mm	as19 4mm
1.0000		G4	100.0 [µl]		as19 4mm	as19 4mm
1.0000		G5	100.0 [µl]		as19 4mm	as19 4mm
1.0000		G6	100.0 [µl]		as19 4mm	as19 4mm
1.0000		G7	100.0 [µl]		as19 4mm	as19 4mm

Status	Inject Time	Replicate ID	GUID	Re-injections	AutoDilution Ratio
Finished	10/22/2019 12:20:25 PM		70d25f6e-420a-4b82-8e3e-	0	0.00
Finished	10/22/2019 12:58:27 PM		5ec709e5-b9e7-48cf-bbba-	0	0.00
Finished	10/22/2019 1:27:51 PM		511e1341-fd24-410a-9e26-	0	0.00
Finished	10/22/2019 1:57:15 PM		84db677d-f26f-4124-90e0-	0	0.00
Finished	10/22/2019 2:26:40 PM		ae833c9c-ee8c-42b2-865e-	0	0.00
Finished	10/22/2019 2:56:05 PM		4db54513-567a-41fb-a506-	0	0.00
Finished	10/22/2019 3:25:30 PM		af0c7b2d-429f-48eb-bff8-	0	0.00

Stage	Time min	Command	Value	Comment
Instrument Setup				
	initial			
		DC.Compartment_TC.AcquireExclusiveAccess		
		DC.Column_TC.AcquireExclusiveAccess		
		ESAutosampler.AcquireExclusiveAccess		
		Wait	ESAutosampler. Ready, Run=Hold, Timeout=Infinite	
		ESAutosampler.DiverterValve	Position_1	
		Wait	ESAutosampler. Ready, Run=Hold, Timeout=Infinite	
		ESAutosampler.PartialCutVolume	20.0 [µl]	
		Pump_1.Pressure.UpperLimit	5000 [psi]	
		Pump_1.%A.Equate	"%A"	
		Pump_1.Pressure.LowerLimit	200 [psi]	
		ESAutosampler.CycleTime	0 [min]	
		ESAutosampler.InjectMode	PushSeqPartial	
		ESAutosampler.BufferWashFactor	2.000	
		ESAutosampler.WashDispSpeed	20.0 [µl/s]	
		ESAutosampler.InjectWash	BeforeInj	
		ESAutosampler.WashSpeed	20.0 [µl/s]	
		ESAutosampler.WashVolume	500.0 [µl]	
		ESAutosampler.SampleHeight	2.000 [mm]	
		ESAutosampler.WasteSpeed	50.0 [µl/s]	
		ESAutosampler.DispenseDelay	2.0 [s]	
		ESAutosampler.DispSpeed	5.0 [µl/s]	
		ESAutosampler.DrawSpeed	5.0 [µl/s]	
		ESAutosampler.DrawDelay	2.0 [s]	
		ESAutosampler.DilutionMixDispenseSpeed	60.0 [µl/s]	
		ESAutosampler.DilutionMixIterations	3	
		ESAutosampler.DilutionMixSpeed	30.0 [µl/s]	
		CDet1.Rise_Time	0.50 [s]	
		CDet1.Data_Collection_Rate	5.0 [Hz]	
		CDet1.CellHeater.Mode	On	
		CDet1.CellHeater.TemperatureSet	35.00 [°C]	
		CDet1.Temperature_Compensation	1.7 [%/°C]	
		DC.Column_TC.Mode	On	
		DC.Column_TC.TemperatureSet	30.00 [°C]	
		DC.Compartment_TC.Mode	On	
		DC.Compartment_TC.TemperatureSet	30.00 [°C]	
		DC.Suppressor1.Type	AERS_4mm	
		DC.Suppressor1.Carbonate	0.0 [mM]	
		DC.Suppressor1.Bicarbonate	0.0 [mM]	

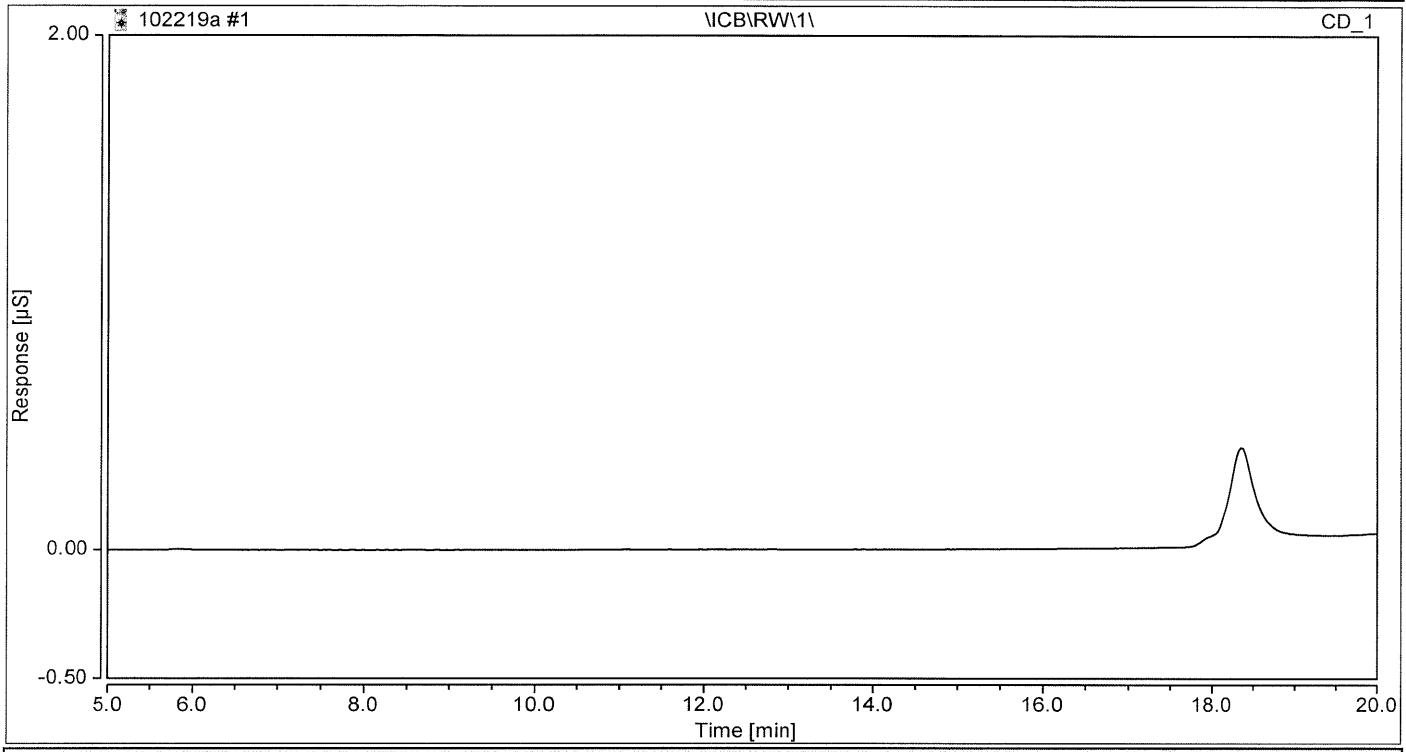
		DC.Suppressor1.Hydroxide	40.0 [mM]
		DC.Suppressor1.Tetraborate	0.0 [mM]
		DC.Suppressor1.OtherEluent	0.0 [mN]
		DC.Suppressor1.RecommendedCurrent	124 [mA]
		DC.Suppressor1.CurrentSet	124 [mA]
		Pump_1.Flow	1.25 [ml/min]
		EluentGenerator.EGC_1.CR_TC	On
		Pump_1.Curve	5
		ESAutosampler.PunctureOffset	0 [mm]
		ESAutosampler.InjectWash	BeforeInj
		EluentGenerator.EGC_1.Curve	5
		EluentGenerator.EGC_1.Concentration	5.00 [mM]
Inject			
	0.000		
		Wait	ESAutosampler. CycleTimeState, Run=Hold, Timeout=Infinite
		ESAutosampler.Inject	
		ESAutosampler.ReleaseExclusiveAccess	
Start Run			
	0.000		
		Pump_1.Pump_1_Pressure.AcqOn	
		CDet1.Autozero	
		CDet1.CD_1.AcqOn	
		CDet1.CD_1_Total.AcqOn	
Run			Duration = 25.000 [min]
	0.000		
	5.000		
		EluentGenerator.EGC_1.Concentration	5.00 [mM]
		EluentGenerator.EGC_1.Curve	5
	18.000		
		EluentGenerator.EGC_1.Concentration	50.00 [mM]
		EluentGenerator.EGC_1.Curve	7
	18.500		
		EluentGenerator.EGC_1.Concentration	5.00 [mM]
		EluentGenerator.EGC_1.Curve	1
Stop Run			
	25.000		
		Pump_1.Pump_1_Pressure.AcqOff	
		CDet1.CD_1.AcqOff	
		CDet1.CD_1_Total.AcqOff	
Post Run			
	25.000		
		DC.Column_TC.ReleaseExclusiveAccess	
		DC.Compartment_TC.ReleaseExclusiveAccess	
End			

Chromatogram and Results

Injection Details

Injection Name:	**\ICB\RW\1**	*Run Time (min):*	**25.00**
Vial Number:	**G1**	*Injection Volume:*	**100.00**
Injection Type:	**Calibration Standard**	*Channel:*	**CD_1**
Calibration Level:	**01**	*Wavelength:*	**225.0**
Instrument Method:	**as19 4mm**	*Bandwidth:*	**n.a.**
Processing Method:	**as19 4mm**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/Oct/19 12:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

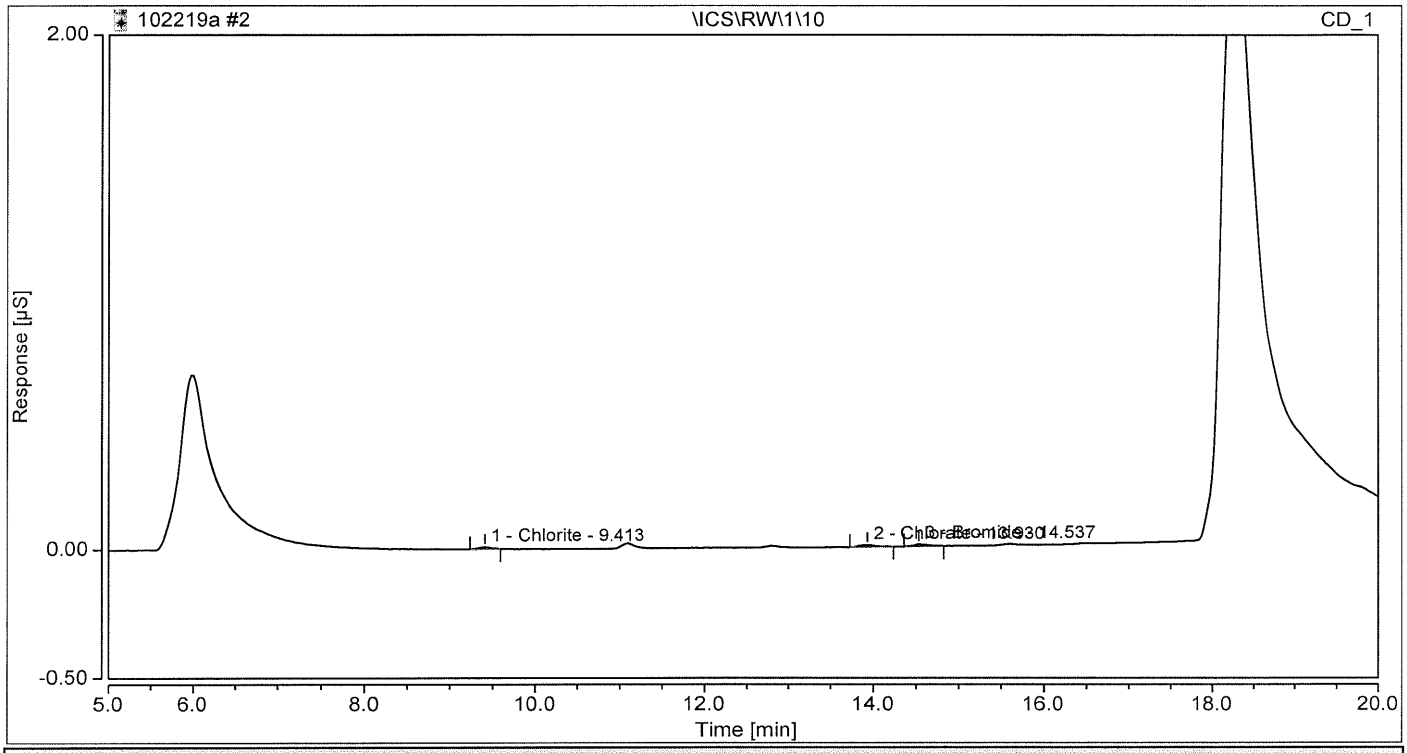
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\ICS\RW\1\10**	*Run Time (min):*	**25.00**
Vial Number:	**G2**	*Injection Volume:*	**100.00**
Injection Type:	**Calibration Standard**	*Channel:*	**CD_1**
Calibration Level:	**02**	*Wavelength:*	**225.0**
Instrument Method:	**as19 4mm**	*Bandwidth:*	**n.a.**
Processing Method:	**as19 4mm**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/Oct/19 12:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

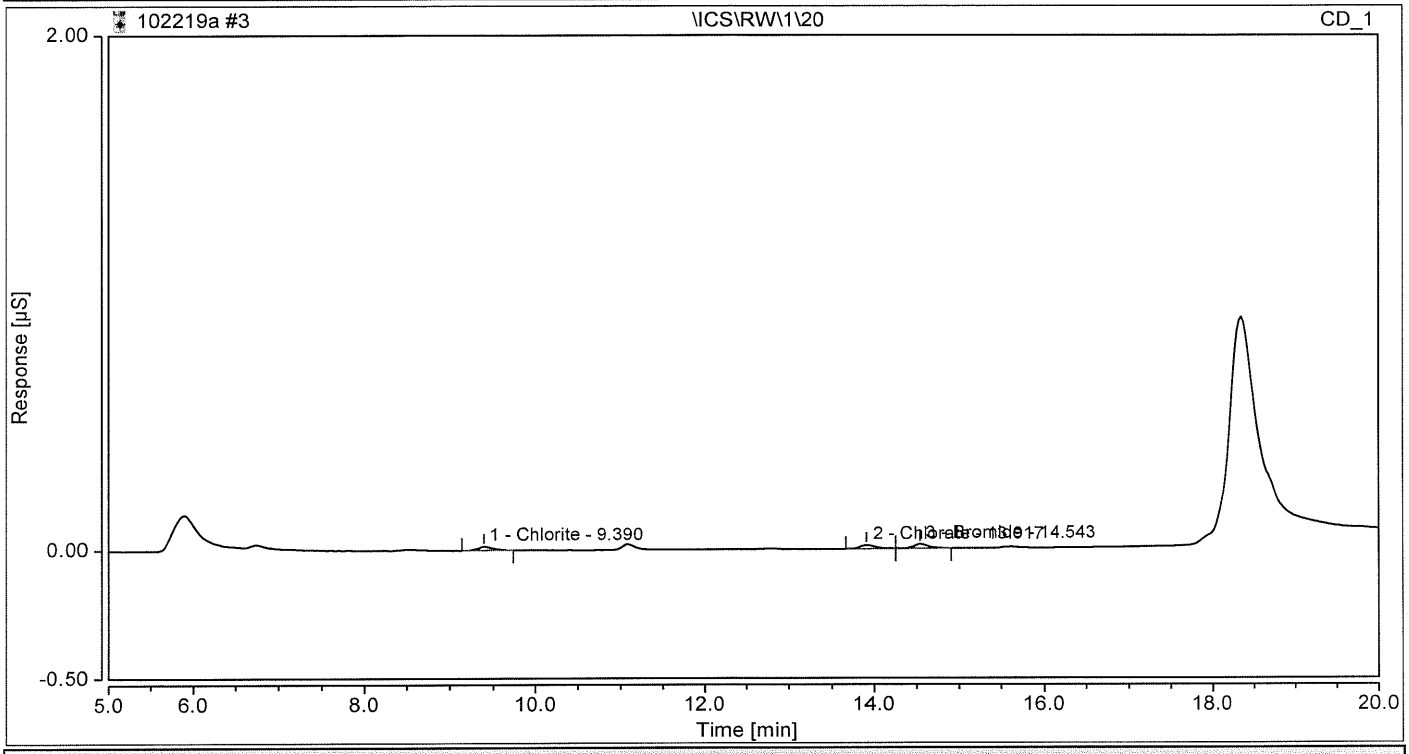
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Chlorite	9.413	0.001	0.007	28.54	32.00	14.5341
2	Chlorate	13.930	0.001	0.007	34.55	31.22	14.2591
3	Bromide	14.537	0.002	0.008	36.91	36.78	13.6984
Total:			**0.004**	**0.023**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\ICS\RW\1\20**	*Run Time (min):*	**25.00**
Vial Number:	**G3**	*Injection Volume:*	**100.00**
Injection Type:	**Calibration Standard**	*Channel:*	**CD_1**
Calibration Level:	**03**	*Wavelength:*	**225.0**
Instrument Method:	**as19 4mm**	*Bandwidth:*	**n.a.**
Processing Method:	**as19 4mm**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/Oct/19 13:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

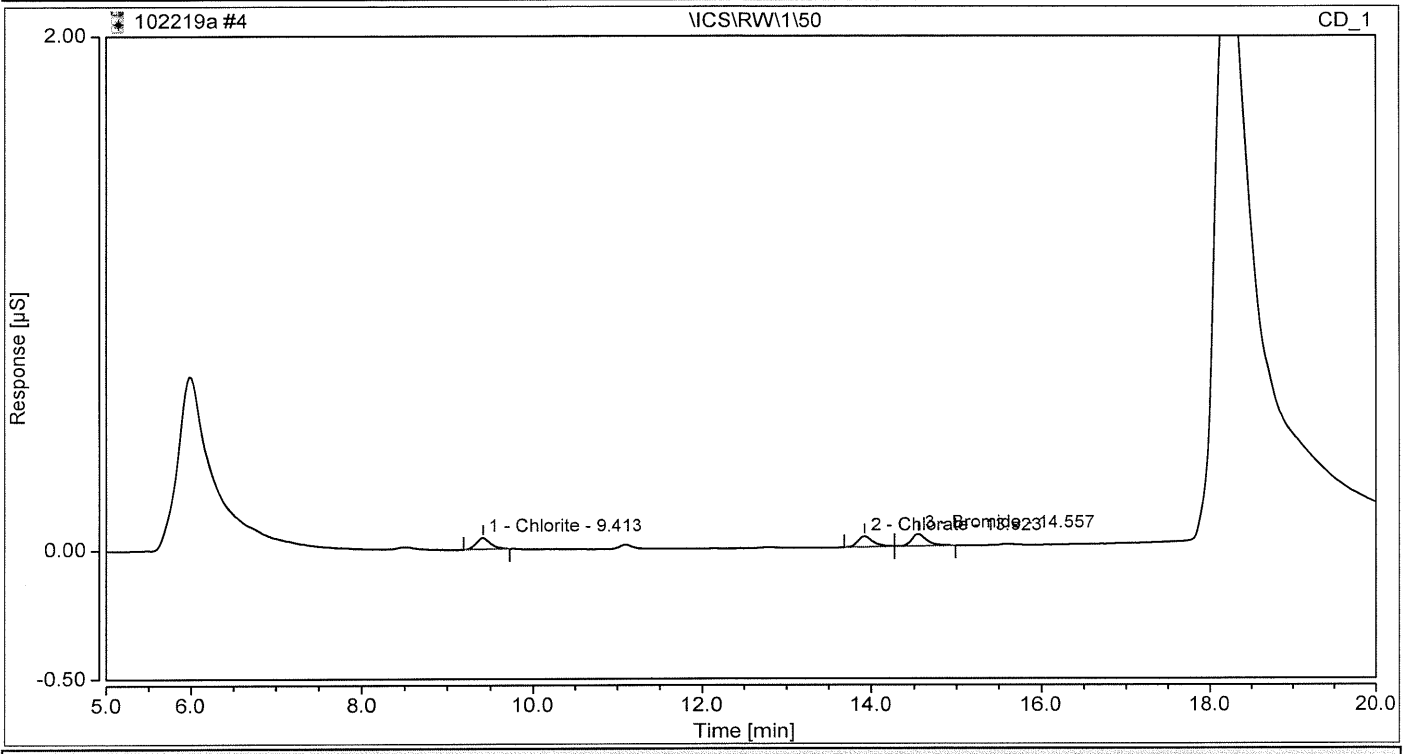
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Chlorite	9.390	0.003	0.015	31.86	31.89	22.8725
2	Chlorate	13.917	0.003	0.014	32.11	30.87	21.9644
3	Bromide	14.543	0.004	0.017	36.04	37.23	21.7829
Total:			**0.010**	**0.046**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\ICS\RW\1\50**	*Run Time (min):*	**25.00**
Vial Number:	**G4**	*Injection Volume:*	**100.00**
Injection Type:	**Calibration Standard**	*Channel:*	**CD_1**
Calibration Level:	**04**	*Wavelength:*	**225.0**
Instrument Method:	**as19 4mm**	*Bandwidth:*	**n.a.**
Processing Method:	**as19 4mm**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/Oct/19 13:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

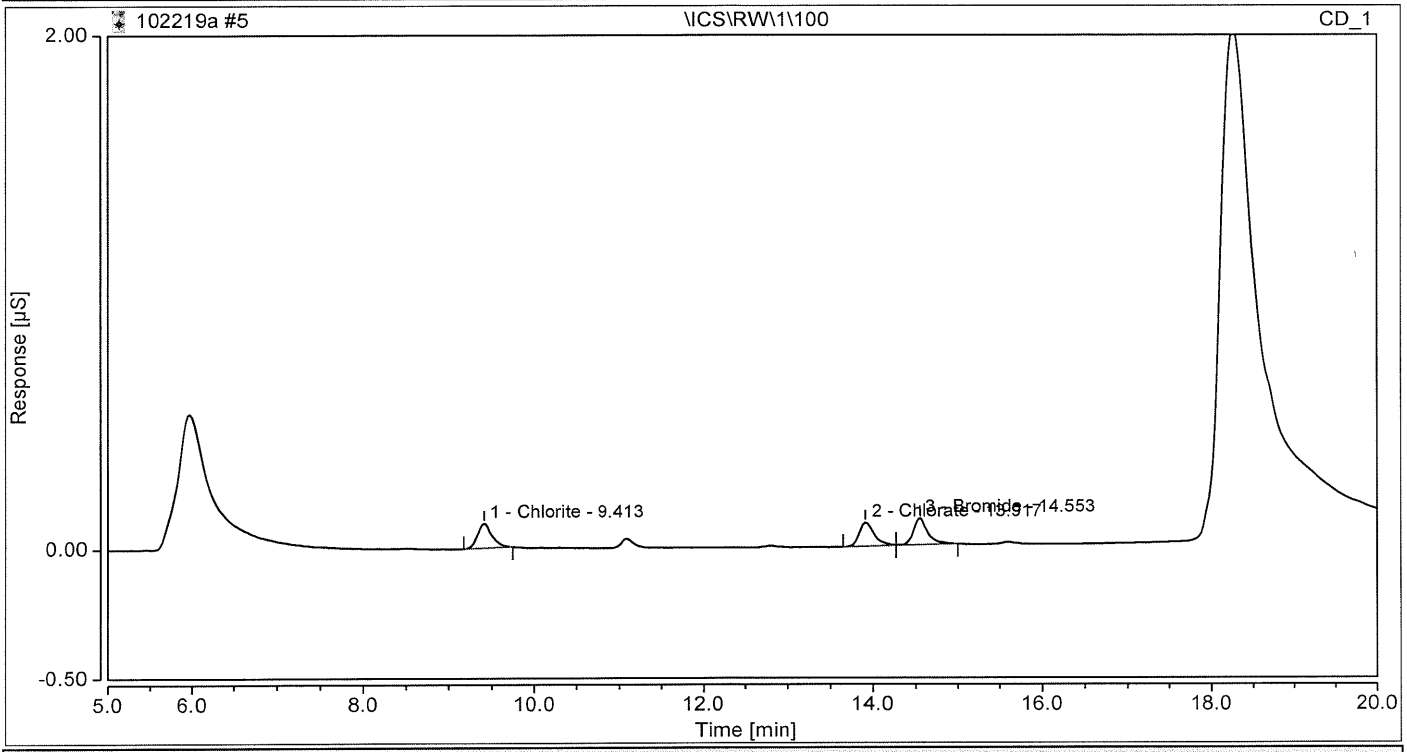
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Chlorite	9.413	0.009	0.045	31.64	33.62	47.1440
2	Chlorate	13.923	0.009	0.041	32.08	30.87	47.9612
3	Bromide	14.557	0.010	0.047	36.28	35.51	48.2454
Total:			**0.027**	**0.134**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\ICS\RW\1\100**	*Run Time (min):*	**25.00**
Vial Number:	**G5**	*Injection Volume:*	**100.00**
Injection Type:	**Calibration Standard**	*Channel:*	**CD_1**
Calibration Level:	**05**	*Wavelength:*	**225.0**
Instrument Method:	**as19 4mm**	*Bandwidth:*	**n.a.**
Processing Method:	**as19 4mm**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/Oct/19 14:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

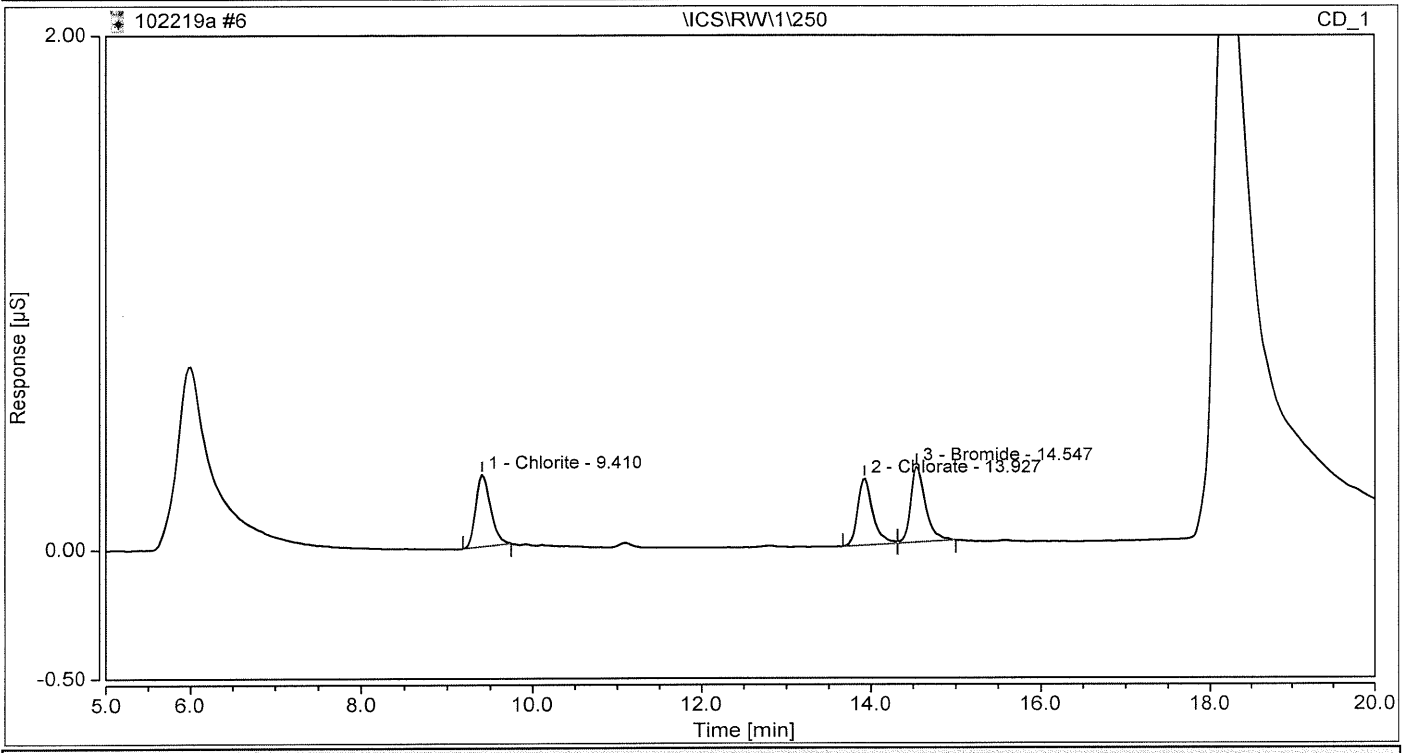
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Chlorite	9.413	0.019	0.095	32.43	32.72	92.1489
2	Chlorate	13.917	0.018	0.092	31.73	31.65	92.8917
3	Bromide	14.553	0.021	0.104	35.84	35.63	93.6883
Total:			**0.058**	**0.291**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\ICS\RW\1\250**	*Run Time (min):*	**25.00**
Vial Number:	**G6**	*Injection Volume:*	**100.00**
Injection Type:	**Calibration Standard**	*Channel:*	**CD_1**
Calibration Level:	**06**	*Wavelength:*	**225.0**
Instrument Method:	**as19 4mm**	*Bandwidth:*	**n.a.**
Processing Method:	**as19 4mm**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/Oct/19 14:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

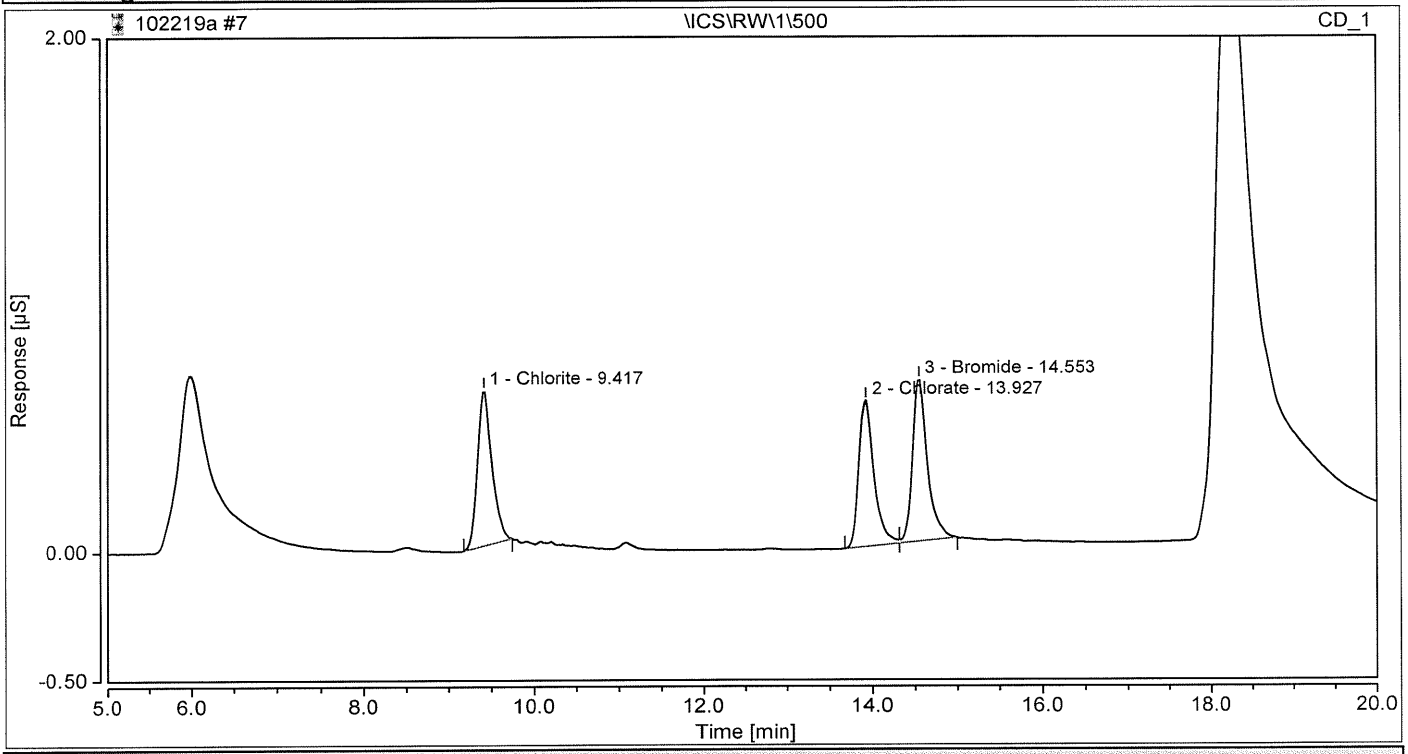
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Chlorite	9.410	0.055	0.281	33.11	33.64	253.3005
2	Chlorate	13.927	0.053	0.259	31.63	31.03	252.9236
3	Bromide	14.547	0.059	0.295	35.27	35.33	252.5850
Total:			**0.167**	**0.834**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\ICS\RW\1\500**	*Run Time (min):*	**25.00**
Vial Number:	**G7**	*Injection Volume:*	**100.00**
Injection Type:	**Calibration Standard**	*Channel:*	**CD_1**
Calibration Level:	**07**	*Wavelength:*	**225.0**
Instrument Method:	**as19 4mm**	*Bandwidth:*	**n.a.**
Processing Method:	**as19 4mm**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/Oct/19 15:25**	*Sample Weight:*	**1.0000**

Chromatogram



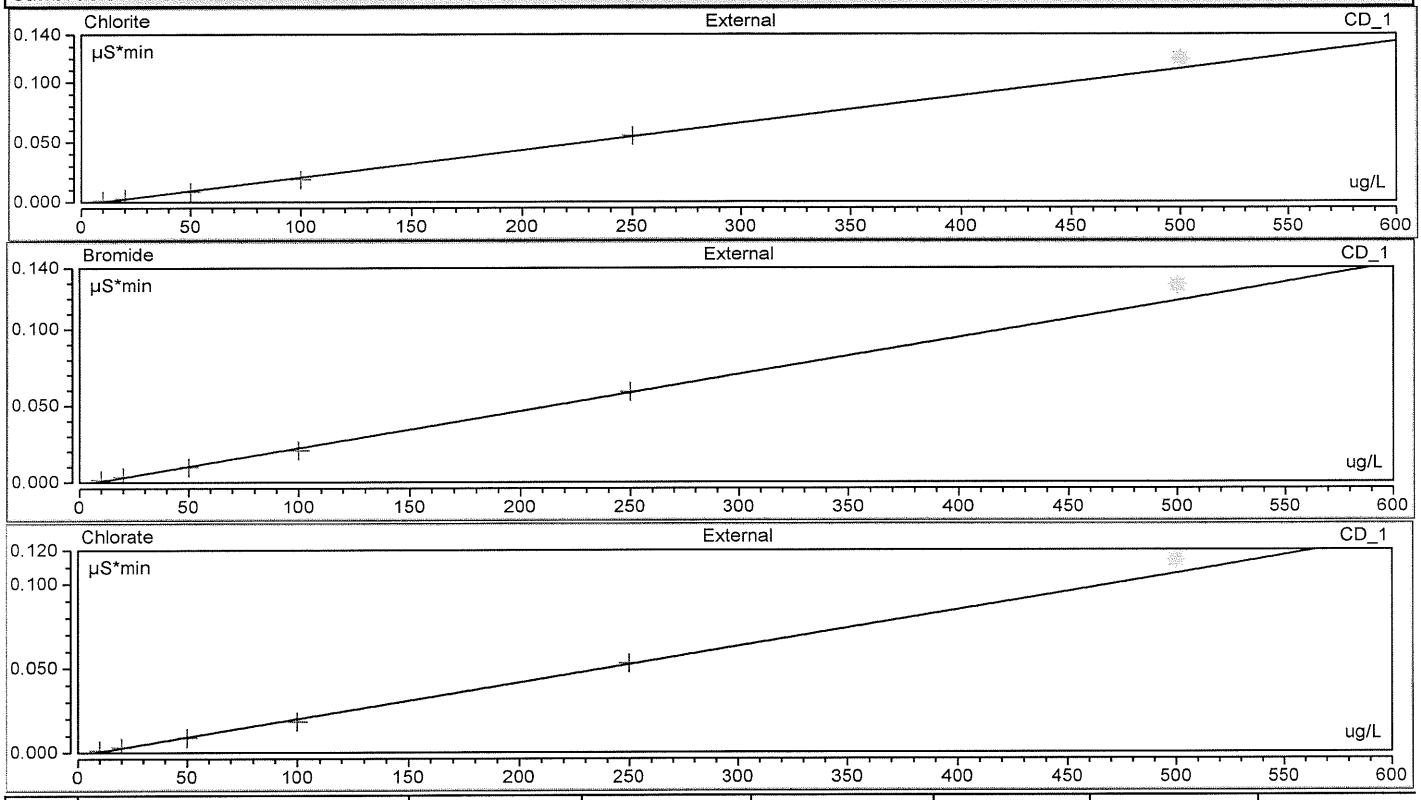
Integration Results

No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Chlorite	9.417	0.119	0.601	32.96	33.51	536.2281
2	Chlorate	13.927	0.114	0.566	31.51	31.56	537.9295
3	Bromide	14.553	0.129	0.626	35.53	34.93	543.3667
Total:			**0.362**	**1.793**	**100.00**	**100.00**	

Calibration

Calibration Details	Chlorite		
Calibration Type	Lin, WithOffset	*Offset (C0)*	-0.0021
Evaluation Type	Area	*Slope (C1)*	0.0002
Number of Calibration Points	5	*Curve (C2)*	0.0000
Number of disabled Calibration Points	1	*R-Square*	0.9972

Calibration Plot **Chlorite**



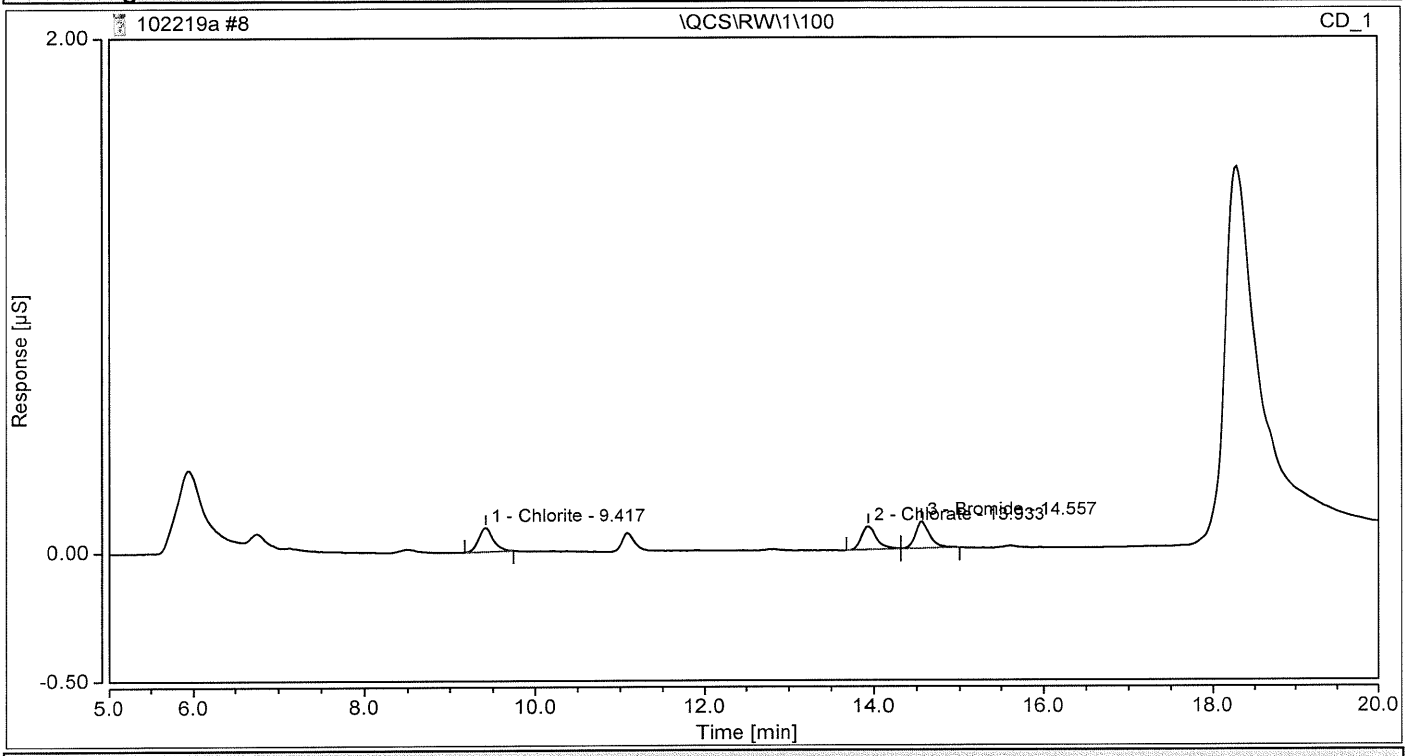
No.	Peak Name	Corr.Coeff.	Slope	Offset	Weights	Cal. Type	Response Factor
		%					
1	Chlorite	99.858	4411.91	-0.002	No Weighting	Lin, WithOffset	1.0000
2	Chlorate	99.890	4643.96	-0.002	No Weighting	Lin, WithOffset	1.0000
3	Bromide	99.914	4163.51	-0.002	No Weighting	Lin, WithOffset	1.0000

Chromatogram and Results

Injection Details

Injection Name:	**\QCS\RW\1\100**	*Run Time (min):*	**25.00**
Vial Number:	**G8**	*Injection Volume:*	**100.00**
Injection Type:	**Unknown**	*Channel:*	**CD_1**
Calibration Level:		*Wavelength:*	**225.0**
Instrument Method:	**as19 4mm**	*Bandwidth:*	**n.a.**
Processing Method:	**as19 4mm**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/Oct/19 15:54**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

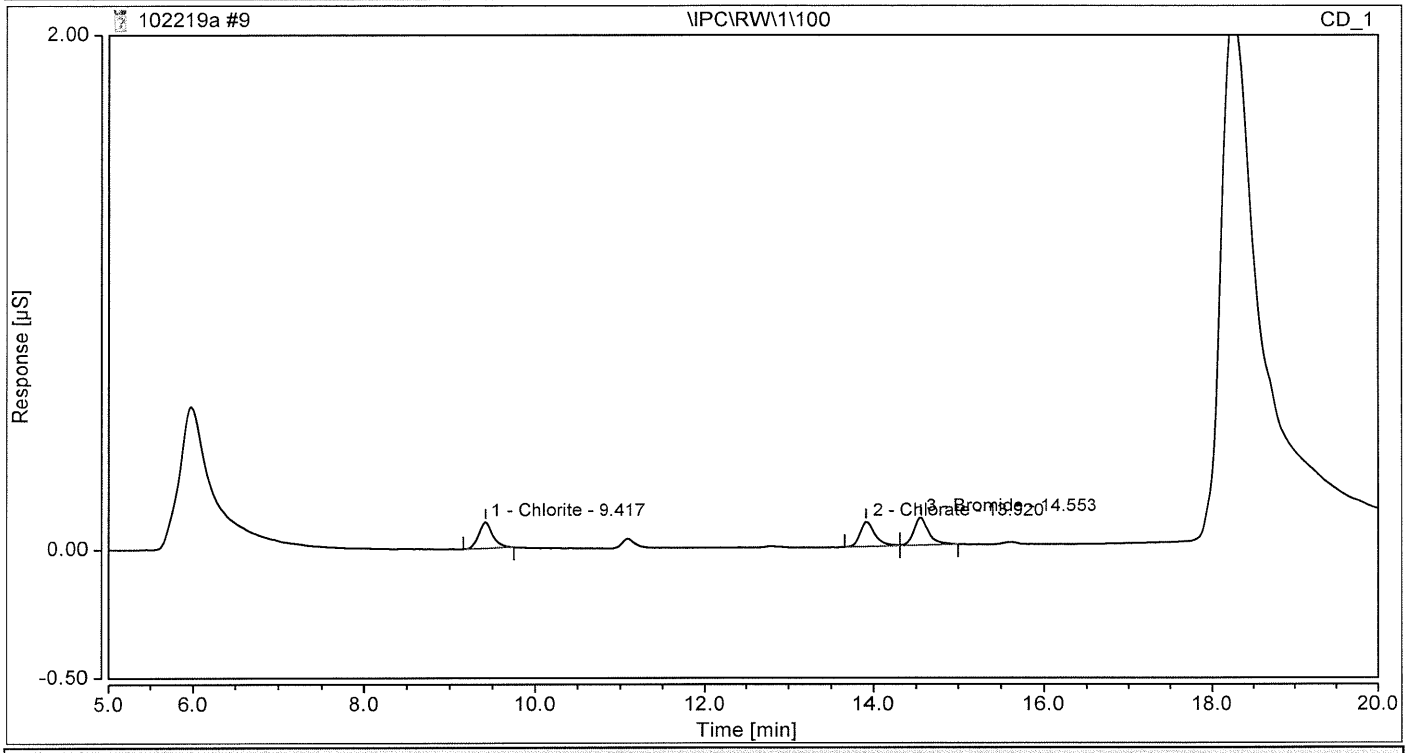
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Chlorite	9.417	0.019	0.093	32.70	32.12	91.4961
2	Chlorate	13.933	0.018	0.091	32.02	31.47	92.2804
3	Bromide	14.557	0.020	0.106	35.28	36.41	90.9590
Total:			**0.057**	**0.290**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\IPC\RW\1\100**	*Run Time (min):*	**25.00**
Vial Number:	**G5**	*Injection Volume:*	**100.00**
Injection Type:	**Unknown**	*Channel:*	**CD_1**
Calibration Level:		*Wavelength:*	**225.0**
Instrument Method:	**as19 4mm**	*Bandwidth:*	**n.a.**
Processing Method:	**as19 4mm**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/Oct/19 16:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

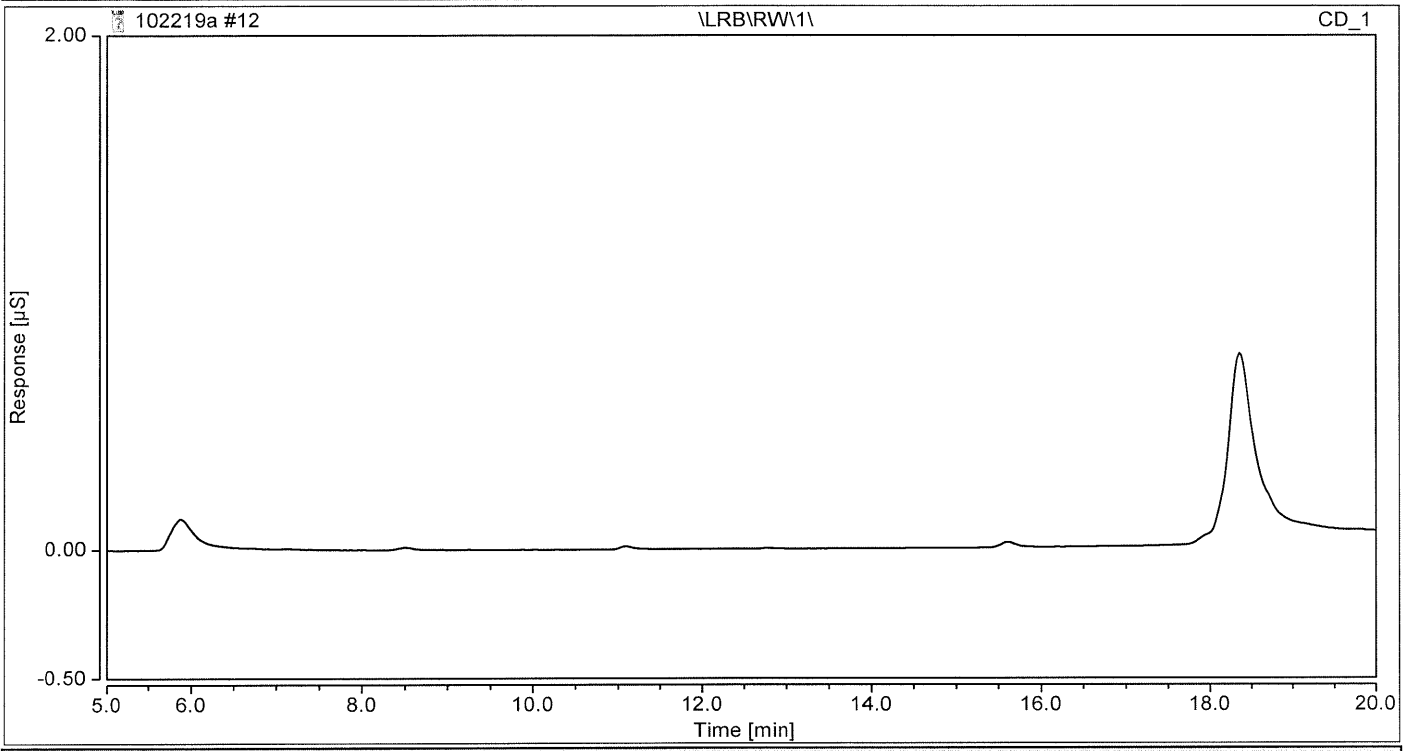
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Chlorite	9.417	0.019	0.103	32.28	33.31	94.1114
2	Chlorate	13.920	0.019	0.097	31.65	31.48	95.0876
3	Bromide	14.553	0.022	0.109	36.07	35.21	96.7275
Total:			**0.060**	**0.309**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\LRB\RW\1**	*Run Time (min):*	**25.00**
Vial Number:	**GA2**	*Injection Volume:*	**100.00**
Injection Type:	**Unknown**	*Channel:*	**CD_1**
Calibration Level:		*Wavelength:*	**225.0**
Instrument Method:	**as19 4mm**	*Bandwidth:*	**n.a.**
Processing Method:	**as19 4mm**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/Oct/19 17:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

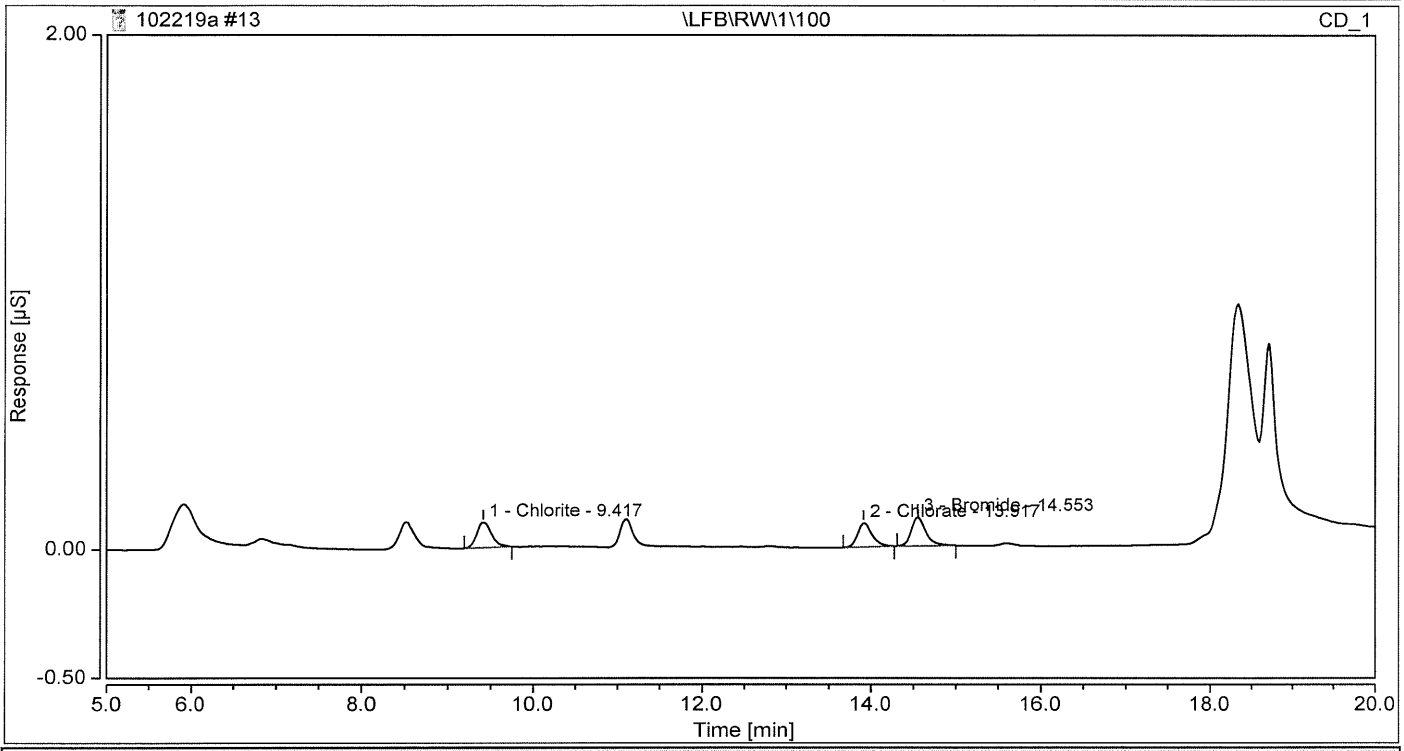
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\LFB\RW\1\100**	*Run Time (min):*	**25.00**
Vial Number:	**GA3**	*Injection Volume:*	**100.00**
Injection Type:	**Unknown**	*Channel:*	**CD_1**
Calibration Level:		*Wavelength:*	**225.0**
Instrument Method:	**as19 4mm**	*Bandwidth:*	**n.a.**
Processing Method:	**as19 4mm**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/Oct/19 18:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

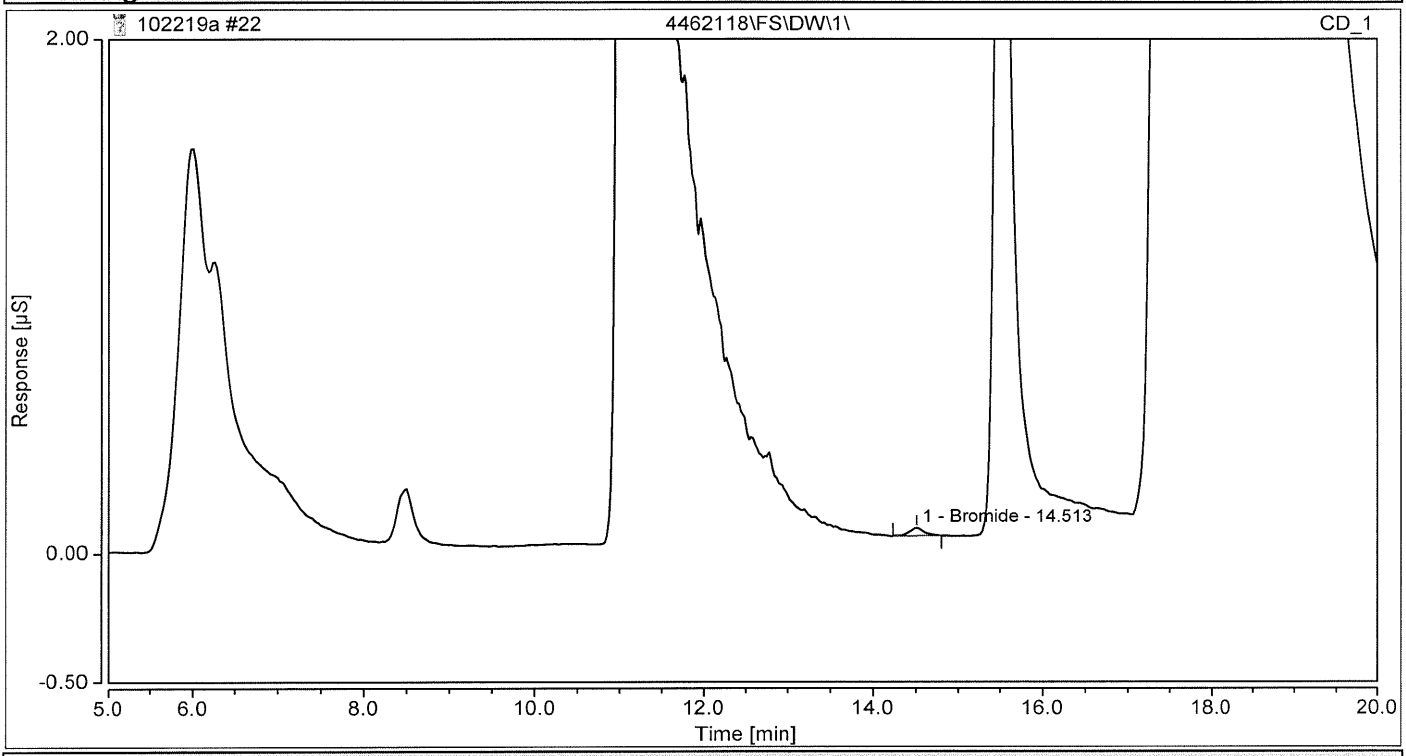
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Chlorite	9.417	0.019	0.098	32.54	32.32	93.9834
2	Chlorate	13.917	0.018	0.093	30.27	30.68	90.4700
3	Bromide	14.553	0.022	0.112	37.20	37.00	98.6491
Total:			**0.059**	**0.304**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**4462118\FS\DW\1**	*Run Time (min):*	**25.00**
Vial Number:	**GB4**	*Injection Volume:*	**100.00**
Injection Type:	**Unknown**	*Channel:*	**CD_1**
Calibration Level:		*Wavelength:*	**225.0**
Instrument Method:	**as19 4mm**	*Bandwidth:*	**n.a.**
Processing Method:	**as19 4mm**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/Oct/19 22:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

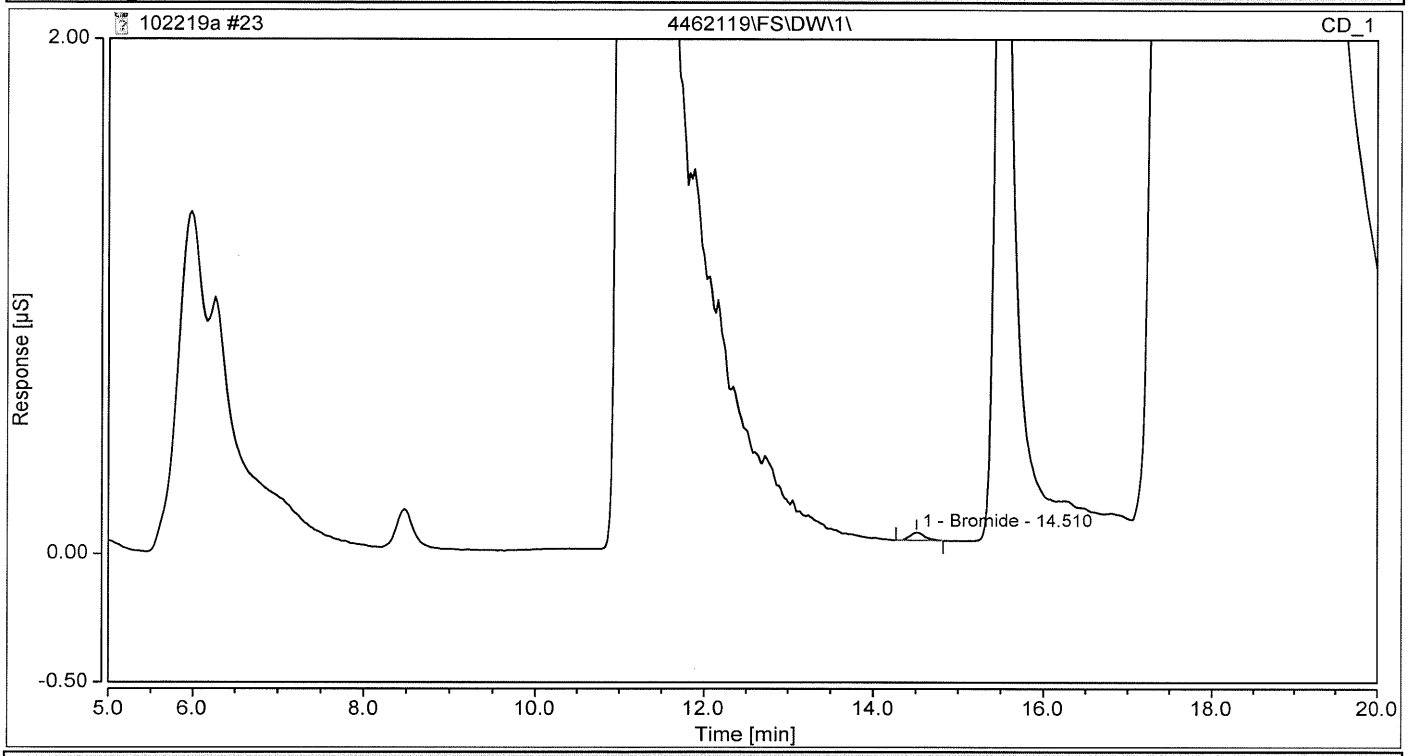
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Bromide	14.513	0.006	0.031	100.00	100.00	33.5906
Total:			**0.006**	**0.031**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**4462119\FS\DW\1**	*Run Time (min):*	**25.00**
Vial Number:	**GB5**	*Injection Volume:*	**100.00**
Injection Type:	**Unknown**	*Channel:*	**CD_1**
Calibration Level:		*Wavelength:*	**225.0**
Instrument Method:	**as19 4mm**	*Bandwidth:*	**n.a.**
Processing Method:	**as19 4mm**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/Oct/19 23:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

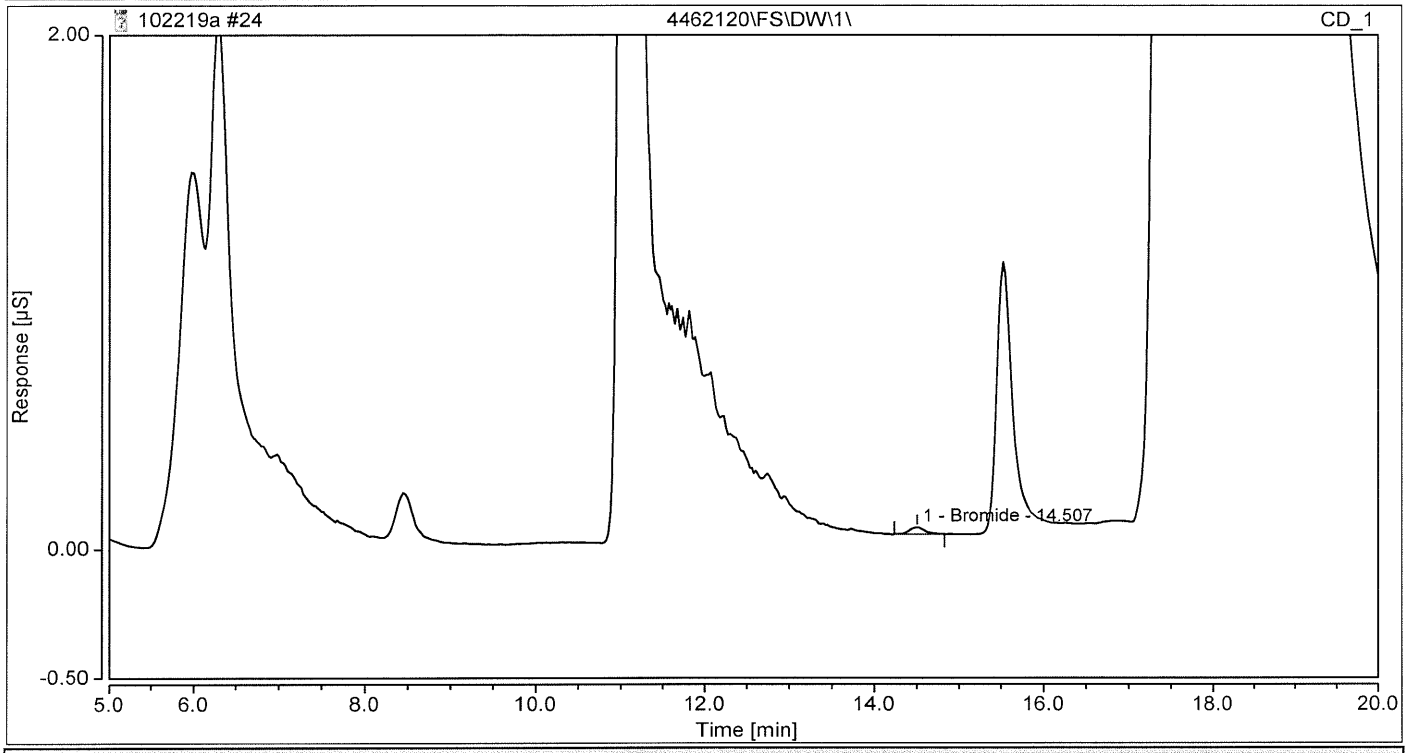
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Bromide	14.510	0.006	0.030	100.00	100.00	32.9099
Total:			**0.006**	**0.030**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**4462120\FS\DW\1**	*Run Time (min):*	**25.00**
Vial Number:	**GB6**	*Injection Volume:*	**100.00**
Injection Type:	**Unknown**	*Channel:*	**CD_1**
Calibration Level:		*Wavelength:*	**225.0**
Instrument Method:	**as19 4mm**	*Bandwidth:*	**n.a.**
Processing Method:	**as19 4mm**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/Oct/19 23:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

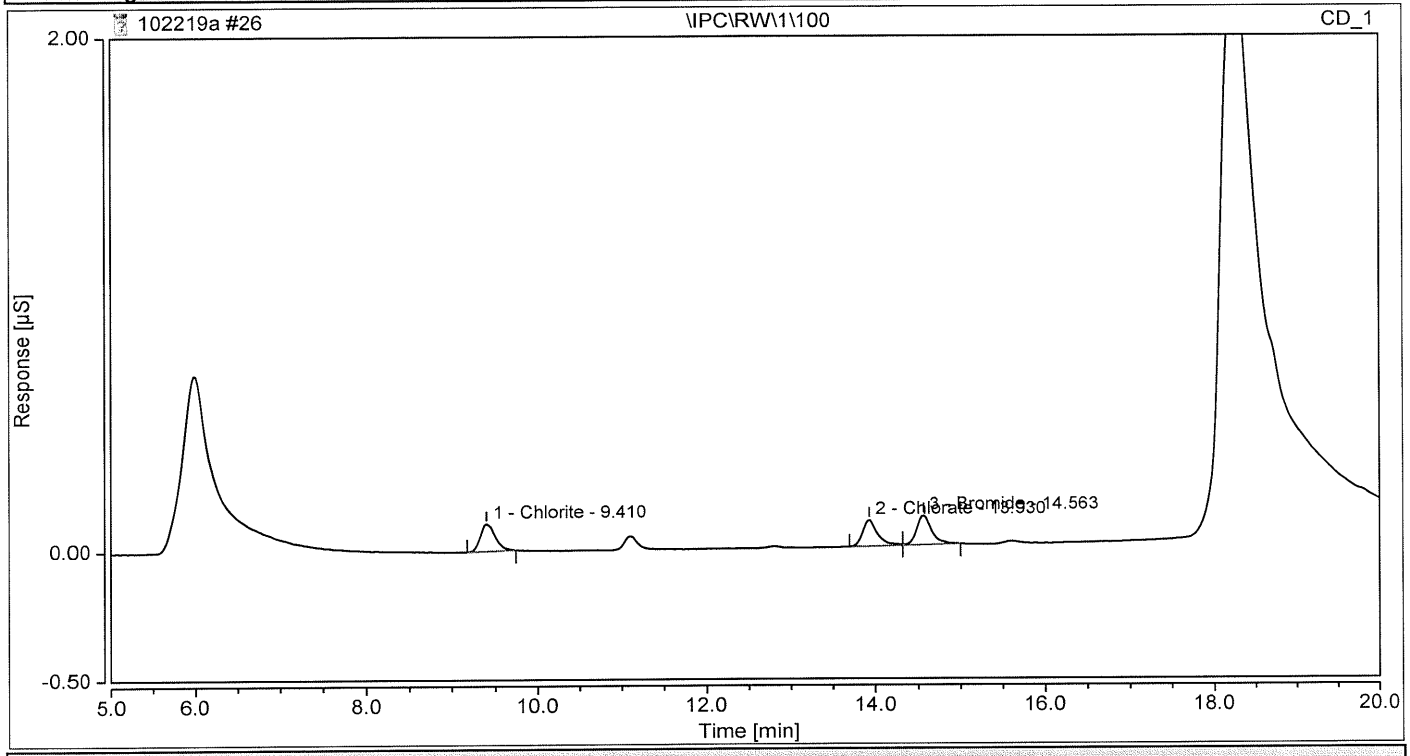
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Bromide	14.507	0.006	0.027	100.00	100.00	30.7619
Total:			**0.006**	**0.027**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\IPC\RW\1\100**	*Run Time (min):*	**25.00**
Vial Number:	**G5**	*Injection Volume:*	**100.00**
Injection Type:	**Unknown**	*Channel:*	**CD_1**
Calibration Level:		*Wavelength:*	**225.0**
Instrument Method:	**as19 4mm**	*Bandwidth:*	**n.a.**
Processing Method:	**as19 4mm**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Oct/19 00:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

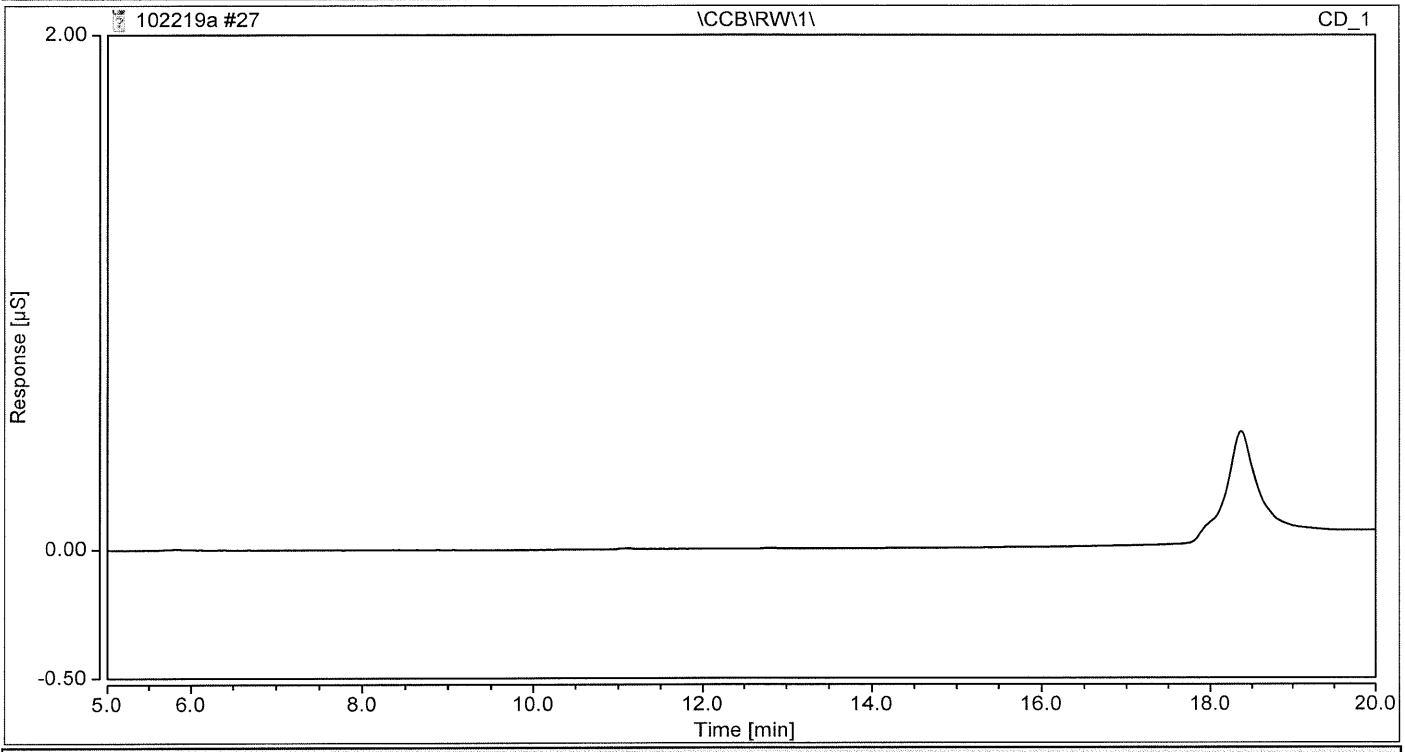
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Chlorite	9.410	0.021	0.106	32.24	32.93	101.9332
2	Chlorate	13.930	0.021	0.102	32.17	31.73	104.8379
3	Bromide	14.563	0.023	0.114	35.59	35.34	103.7851
Total:			**0.065**	**0.322**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\CCB\RW\1**	*Run Time (min):*	**25.00**
Vial Number:	**G1**	*Injection Volume:*	**100.00**
Injection Type:	**Unknown**	*Channel:*	**CD_1**
Calibration Level:		*Wavelength:*	**225.0**
Instrument Method:	**as19 4mm**	*Bandwidth:*	**n.a.**
Processing Method:	**as19 4mm**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Oct/19 01:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

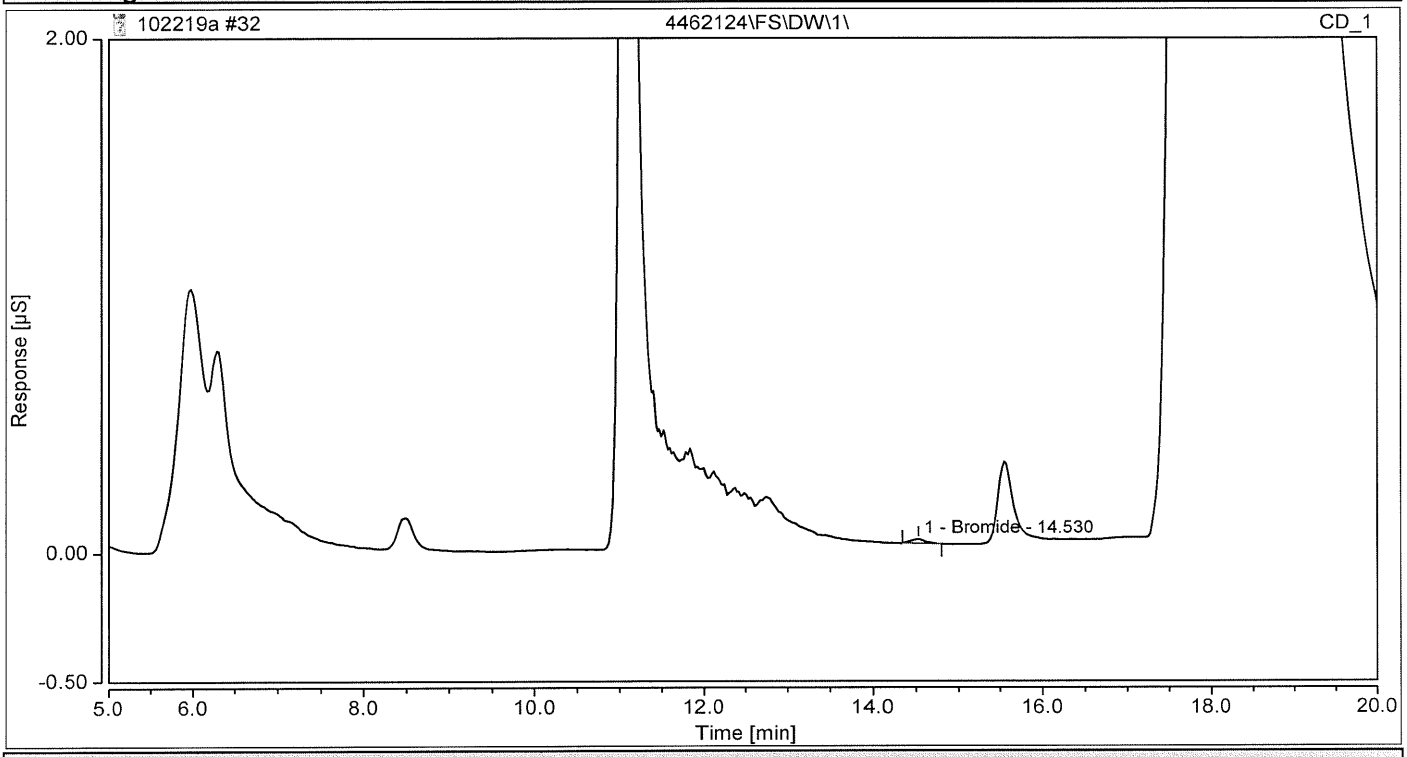
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**4462124\FS\DW\1**	*Run Time (min):*	**25.00**
Vial Number:	**GC4**	*Injection Volume:*	**100.00**
Injection Type:	**Unknown**	*Channel:*	**CD_1**
Calibration Level:		*Wavelength:*	**225.0**
Instrument Method:	**as19 4mm**	*Bandwidth:*	**n.a.**
Processing Method:	**as19 4mm**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Oct/19 03:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

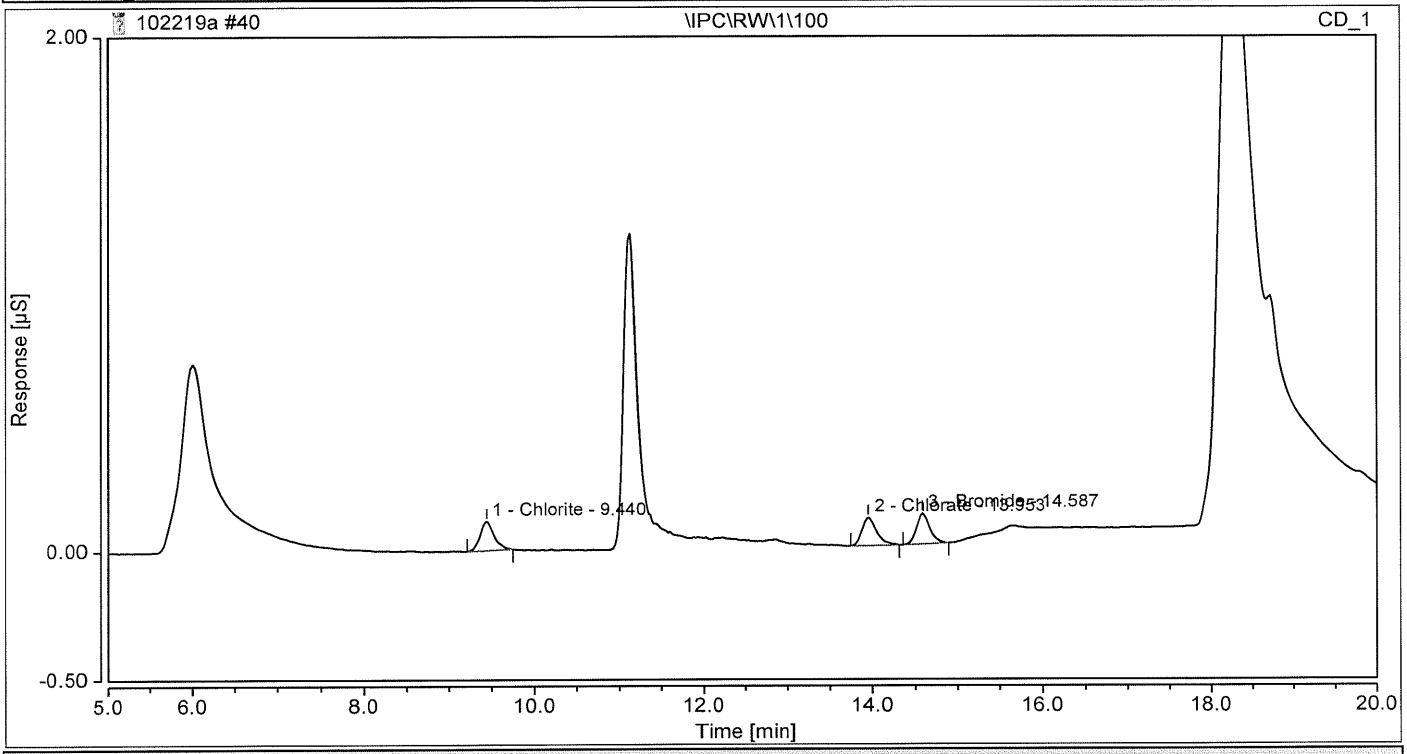
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Bromide	14.530	0.003	0.016	100.00	100.00	20.5028
Total:			**0.003**	**0.016**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\IPC\RW\1\100**	*Run Time (min):*	**25.00**
Vial Number:	**G5**	*Injection Volume:*	**100.00**
Injection Type:	**Unknown**	*Channel:*	**CD_1**
Calibration Level:		*Wavelength:*	**225.0**
Instrument Method:	**as19 4mm**	*Bandwidth:*	**n.a.**
Processing Method:	**as19 4mm**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Oct/19 07:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

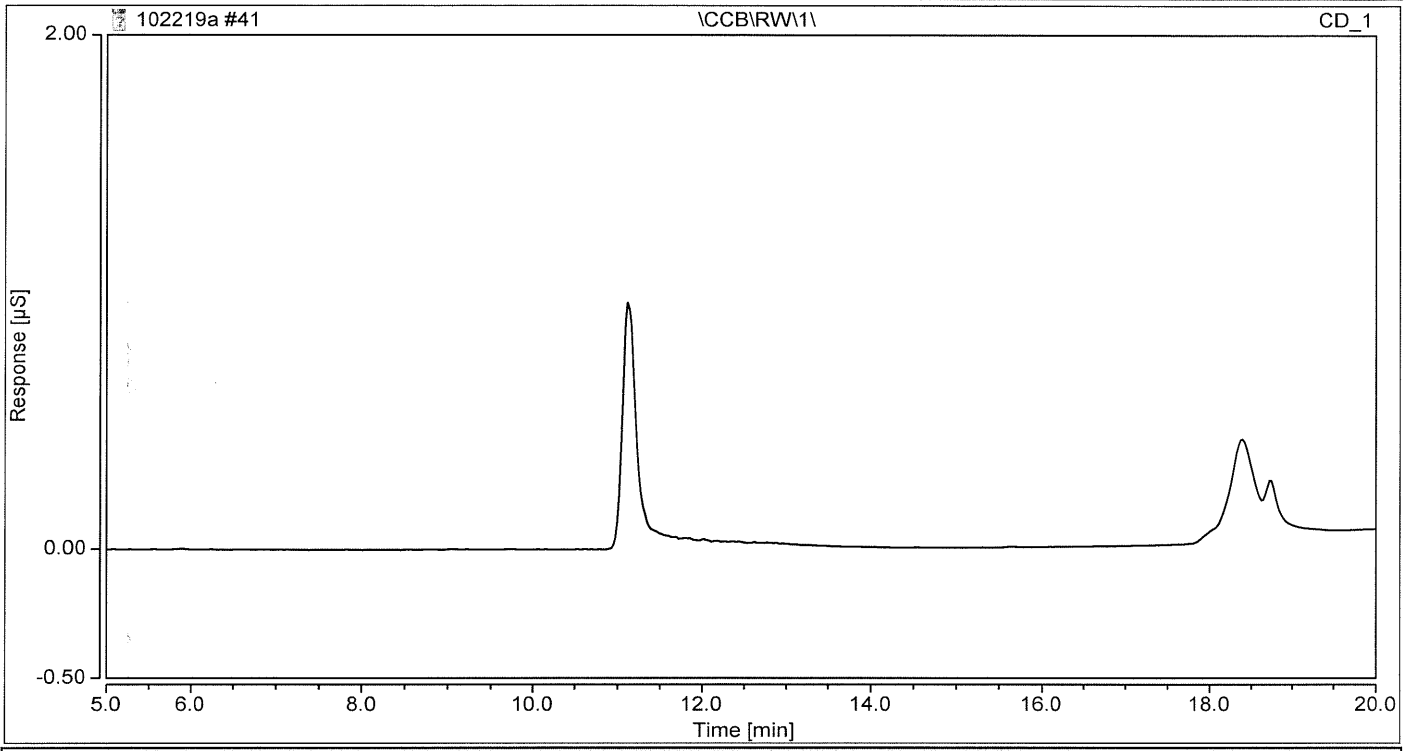
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ug/L
1	Chlorite	9.440	0.022	0.114	33.84	33.11	107.1249
2	Chlorate	13.953	0.022	0.110	32.96	32.00	107.8719
3	Bromide	14.587	0.022	0.120	33.20	34.90	97.8543
Total:			**0.066**	**0.343**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\CCB\RW\1**	*Run Time (min):*	**25.00**
Vial Number:	**G1**	*Injection Volume:*	**100.00**
Injection Type:	**Unknown**	*Channel:*	**CD_1**
Calibration Level:		*Wavelength:*	**225.0**
Instrument Method:	**as19 4mm**	*Bandwidth:*	**n.a.**
Processing Method:	**as19 4mm**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Oct/19 07:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Eurofins Eaton Analytical

Method 300.0 B Ion Chromatography
Standard / Reagent Preparation Log

Run ID# 266680 **Instrument#** CQ

Stocks/Reagents	Manufacturer	Lot Number	Date Received	Date Opened	Date of Expiration
Chlorite Cal Stock	Inorganic Ventures	N2-CLOX665406	8/9/2019	8/9/2019	8/9/2020
Bromide Cal Stock	Inorganic Ventures	P2-BR675946	8/9/2019	8/9/2019	8/9/2020
Chlorate Cal Stock	Inorganic Ventures	P2-CLOX678509	8/9/2019	8/9/2019	8/9/2020
Chlorite QC Stock	Sigm-Aldrich	LRAB9128	10/19/2018	11/5/2018	6/30/2020
Bromide QC Stock	Ultra Scientific	CP-3274	8/16/2016	8/16/2016	8/31/2020
Chlorate QC Stock	Ultra Scientific	CM-5663	8/16/2016	8/16/2016	11/30/2019
Ethylenediamine-99% (EDA)	Fisher	175344	3/8/2018	3/8/2018	N/A
Sodium Carbonate (Na_2CO_3)	Acros	A0366523	3/29/2016	4/1/2016	N/A

Working Solutions	Prep Instructions and Concentrations			
Cal Substock -25	1250 uL of each Cal Stock in 50 mL volume RW= 25.0 mg/L			
QC Substock- 25	1250 uL of each QC Stock in 50 mL volume RW= 25.0 mg/L			
Analyst:	SL	**Prep Date:**	8/9/2019	**Exp. Date:** 2/9/2020
LRB	100 ul EDA in 100 ml volume RW			
Cal 10	40 ul of Cal Substock+100 ul EDA in 100 ml volume RW= 10.0 ug/L			
Cal 20	80 ul of Cal Substock+100 ul EDA in 100 ml volume RW= 20.0 ug/L			
Cal 100	400 ul of Cal Substock+100 ul EDA in 100 ml volume RW= 100.0 ug/L			
Cal 250 & IPC	1000 ul of Cal Substock+100 ul EDA in 100 ml volume RW= 250.0 ug/L			
Cal 500	1000 ul of Cal Substock+50 ul EDA in 50 ml volume RW= 500.0 ug/L			
Cal 1000	1000 ul of Cal Substock+25 ul EDA in 25 ml volume RW= 1000.0 ug/L			
QCS	1000 ul of QC Substock+100 ul EDA in 100 ml volume RW= 250.0 ug/L			
Analyst:	SL	**Prep Date:**	10/21/2019	**Exp. Date:** 10/28/2019
RLC 10	4 ul of Cal Substock+10 ul EDA in 10 ml volume RW= 10.0 ug/L			
LFB 250	100 ul of Cal Substock+10 ul EDA in 10 ml volume RW= 250.0 ug/L			
Analyst:	SL	**Prep Date:**	10/23/2019	**Exp. Date:** 10/28/2019
EDA solution	5.6 mL EDA to 100 mL volume RW = 50 mg/mL			**Prep ID:** IOC51-92a
Analyst:	SL	**Prep Date:**	10/14/2019	**Exp. Date:** 11/14/2019
Eluent	1.91 g Na_2CO_3 in 2 L volume RW = 9.0 mM			**Prep ID:**
Analyst:	NA	**Prep Date:**	NA	**Exp. Date:** NA

Storage Conditions: All stocks and solutions are prepared and stored at room temperature.

Comments: Analytical column: Dionex IonPac AS19 4mm s/n 190315103 lot 01827189 installed 4/11/19

Cal 50 – 200ul of Cal Substock+100ul of EDA in 100ml volume RW = 50.0 ug/L

QCS 100 – 400ul of QC Substock+100ul of EDA in 100ml volume RW = 100.0 ug/L

Analyst: [signature] **Date:** 10/24/2019

Technician Review: [signature] **Date:** 10/24/2019

(signature)

Summary

Sequence Details		
Name:	**102319A**	**14/Jan/15 14:57:12**
Directory:	**Instrument Data\CQ\300B\2019**	**Eurofins Eaton Analy**
Data Vault:	**ChromeleonLocal**	**24/Oct/19 10:46:56**
No. of Injections:	**40**	**US25_USR_SBNLABPCS**

By Component	Chlorite

No.	Injection Name	Inject Time	Area µS*min ECD_1 Chlorite	Amount ppb ECD_1 Chlorite	Area µS*min ECD_1 Chlorate	Amount ppb ECD_1 Chlorate	Area µS*min ECD_1 Bromide	Amount ppb ECD_1 Bromide
1	\ICB\RW\1\	10/23/19 15:28	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2	\ICS\RW\1\10	10/23/19 15:57	0.003	12.255	0.003	14.285	0.003	13.871
3	\ICS\RW\1\20	10/23/19 16:26	0.007	21.328	0.006	22.543	0.007	22.481
4	\ICS\RW\1\50	10/23/19 16:55	0.017	47.849	0.015	49.436	0.017	49.864
5	\ICS\RW\1\100	10/23/19 17:24	0.037	97.224	0.032	96.092	0.035	96.044
6	\ICS\RW\1\250	10/23/19 17:53	0.100	251.344	0.085	243.987	0.092	244.224
7	\ICS\RW\1\500	10/23/19 18:22	0.211	523.120 ★	0.178	503.657	0.193	503.516
8	\QCS\RW\1\100	10/23/19 18:51	0.038	97.612	0.033	97.734	0.036	97.555
9	\IPC\RW\1\100	10/23/19 19:20	0.038	98.027	0.032	97.042	0.035	96.768
10	\RLC\RW\1\10	10/23/19 19:49	0.003	13.075	0.003	14.212	0.003	13.987
11	\LRB\RW\1\	10/23/19 20:18	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
12	\LFB\RW\1\100	10/23/19 20:47	0.038	98.072	0.032	95.821	0.038	102.862
13	4456311\FS\DW\5\	10/23/19 21:16	0.047	119.998	0.026	78.312	0.005	18.033
14	4456311\MS\DW\5\100	10/23/19 21:45	0.086	216.379	0.058	167.374	0.039	105.181
15	4456311\MSD\DW\5\100	10/23/19 22:14	0.087	219.214	0.058	170.021	0.039	106.219
16	4464029\FS\GW\1\	10/23/19 22:43	n.a.	n.a.	n.a.	n.a.	0.024	67.139
17	4464030\FS\GW\1\	10/23/19 23:12	n.a.	n.a.	0.002	10.536	0.004	16.351
18	4464031\FS\GW\1\	10/23/19 23:41	n.a.	n.a.	n.a.	n.a.	0.019	54.384
19	4464032\FS\GW\1\	10/24/19 00:10	n.a.	n.a.	n.a.	n.a.	0.004	15.596
20	4464033\FS\GW\10\	10/24/19 00:39	n.a.	n.a.	n.a.	n.a.	0.040	108.255
21	4464034\FS\GW\5\	10/24/19 01:08	n.a.	n.a.	n.a.	n.a.	0.059	157.616
22	4464035\FS\GW\1\	10/24/19 01:37	n.a.	n.a.	n.a.	n.a.	0.112	294.216
23	4464036\FS\GW\50\	10/24/19 02:06	n.a.	n.a.	n.a.	n.a.	0.048	130.668
24	4464037\FS\GW\50\	10/24/19 02:35	n.a.	n.a.	n.a.	n.a.	0.052	139.653
25	\IPC\RW\1\100	10/24/19 03:04	0.036	93.822	0.032	94.480	0.034	94.681
26	\CCB\RW\1\	10/24/19 03:32	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
27	4464038\FS\GW\10\	10/24/19 04:01	n.a.	n.a.	n.a.	n.a.	0.054	145.825
28	4464039\FS\GW\5\	10/24/19 04:30	n.a.	n.a.	n.a.	n.a.	0.048	130.661
29	4464040\FS\GW\1\	10/24/19 04:59	n.a.	n.a.	n.a.	n.a.	0.016	47.177
30	4464041\FS\GW\1\	10/24/19 05:28	n.a.	n.a.	n.a.	n.a.	0.022	63.219
31	4464042\FS\GW\1\	10/24/19 05:57	n.a.	n.a.	n.a.	n.a.	0.019	55.038
32	4464043\FS\GW\1\	10/24/19 06:26	n.a.	n.a.	n.a.	n.a.	0.016	47.388
33	4462121\FS\GW\1\	10/24/19 06:55	n.a.	n.a.	n.a.	n.a.	0.010	31.518
34	4462122\MS\GW\1\100	10/24/19 07:24	0.036	92.414	0.030	91.501	0.044	120.190
35	4462123\MSD\GW\1\100	10/24/19 07:53	0.036	93.975	0.031	93.024	0.044	118.267
36	4463576\FS\DW\1\	10/24/19 08:22	n.a.	n.a.	0.003	13.655	0.057	154.213
37	4463583\FS\DW\1\	10/24/19 08:51	n.a.	n.a.	0.003	15.401	0.064	172.088
38	4463590\FS\DW\1\	10/24/19 09:20	n.a.	n.a.	0.003	13.993	0.059	157.046
39	\IPC\RW\1\100	10/24/19 09:49	0.036	94.039	0.032	94.634	0.035	94.910
40	\CCB\RW\1\	10/24/19 10:18	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

★ - Cal 500 for Chlorite not included in calibration. Report up to 250 for Chlorite. SP 10/24/19

Detection Settings

Algorithm: **Chromeleon 6**

Ret.Time	Param. Name	Param.Value	Inj. Type	Channel
0.000 [min]	Inhibit Integration	On	Any	All Channels
0.000 [min]	Valley To Valley	On	Any	All Channels
0.000 [min]	Sensitivity	0.0010 [Signal]	Any	All Channels
0.000 [min]	Peak Slice	1.00 [s]	Any	All Channels
0.000 [min]	Minimum Area	0.0010 [Signal*min]	Any	All Channels
8.400 [min]	Inhibit Integration	Off	Any	All Channels
9.200 [min]	Inhibit Integration	On	Any	All Channels
13.600 [min]	Inhibit Integration	Off	Any	All Channels
15.400 [min]	Inhibit Integration	On	Any	All Channels

Component Table

Name	Ret.Time	Window	Channel	Eval.Type	Stand.Meth.	Cal.Type	Level "01"	Level "02"	Level "03"
Chlorite	8.750	5.000 RG	All Channels	Area	External	Lin, WithOffset	0.000000	10.000000	20.000000
Chlorate	13.990	5.000 RG	All Channels	Area	External	Lin, WithOffset	0.000000	10.000000	20.000000
Bromide	14.790	5.000 RG	All Channels	Area	External	Lin, WithOffset	0.000000	10.000000	20.000000

Level "04"	Level "05"	Level "06"	Level "07"	Conc.Unit	Factor	Peak Type	Group	Low.Conf.Prob	Up.Conf.Prob
50.000000	100.000000	250.000000	500.000000	ppb	1.000000	Autodetect		99.5 %	99.5 %
50.000000	100.000000	250.000000	500.000000	ppb	1.000000	Autodetect		99.5 %	99.5 %
50.000000	100.000000	250.000000	500.000000	ppb	1.000000	Autodetect		99.5 %	99.5 %

Comment	Charge
auto generated	
auto generated	
auto generated	

Global Calibration Settings

Mode	**Group**
Curve Fitting	**Normal**
Dual-Column Separate Calibration	**No**
Concentration Level Tolerances	**No**
Amount Ratio for Var. Int. Standard	**No**
Origin of Standards for Fixed Calibration:	

Calibration Table

Enabled	Name	Calib.Comment for "Chlorite"	Level	Dilution	Weight	IntStd	Spike Group	Position	Volume	Comment	Instrument Method	Processing Method

Status	Inject Time	Replicate ID	GUID	Re-injections	AutoDilution Ratio

Stage	Time min	Command	Value	Comment
Instrument Setup				
	initial			
		ESAutosampler.AcquireExclusiveAccess Wait	ESAutosampler. Ready, Run=Hold, Timeout=Infinite	
		ESAutosampler.DiverterValve	Position_2	
		Wait	ESAutosampler. Ready, Run=Hold, Timeout=Infinite	
		ESAutosampler.PartialCutVolume	20.0 [µl]	
		ESAutosampler.CycleTime	0 [min]	
		ESAutosampler.InjectMode	PushSeqPartial	
		ESAutosampler.BufferWashFactor	2.000	
		ESAutosampler.WashDispSpeed	20.0 [µl/s]	
		ESAutosampler.InjectWash	BeforeInj	
		ESAutosampler.WashSpeed	20.0 [µl/s]	
		ESAutosampler.WashVolume	500.0 [µl]	
		ESAutosampler.SampleHeight	3.000 [mm]	
		ESAutosampler.WasteSpeed	50.0 [µl/s]	
		ESAutosampler.DispenseDelay	2.0 [s]	
		ESAutosampler.DispSpeed	5.0 [µl/s]	
		ESAutosampler.DrawSpeed	5.0 [µl/s]	
		ESAutosampler.DrawDelay	2.0 [s]	
		ESAutosampler.DilutionMixDispenseSpeed	60.0 [µl/s]	
		ESAutosampler.DilutionMixIterations	3	
		ESAutosampler.DilutionMixSpeed	30.0 [µl/s]	
		Pump_ECD.Pressure.UpperLimit	3000 [psi]	
		Pump_ECD.%A.Equate	"DI Water"	
		Pump_ECD.Pressure.LowerLimit	200 [psi]	
		Pump_ECD.ColumnTemperature.Nominal	30.0 [°C]	
		Pump_ECD.CellTemperature.Nominal	35.0 [°C]	
		Pump_ECD.Data_Collection_Rate	5.0 [Hz]	
		Pump_ECD.Suppressor_Type	AERS_4mm	
		Pump_ECD.Suppressor_Carbonate	0.0 [mM]	
		Pump_ECD.Suppressor_Bicarbonate	0.0 [mM]	
		Pump_ECD.Suppressor_Hydroxide	40.0 [mM]	
		Pump_ECD.Suppressor_Tetraborate	0.0 [mM]	
		Pump_ECD.Suppressor_OtherEluent	0.0 [mN]	
		Pump_ECD.Suppressor_RecommendedCurrent	124 [mA]	
		Pump_ECD.CR_TC	On	
		ESAutosampler.PunctureOffset	0 [mm]	
		ESAutosampler.InjectWash	BeforeInj	
		Pump_ECD.Flow	1.25 [ml/min]	

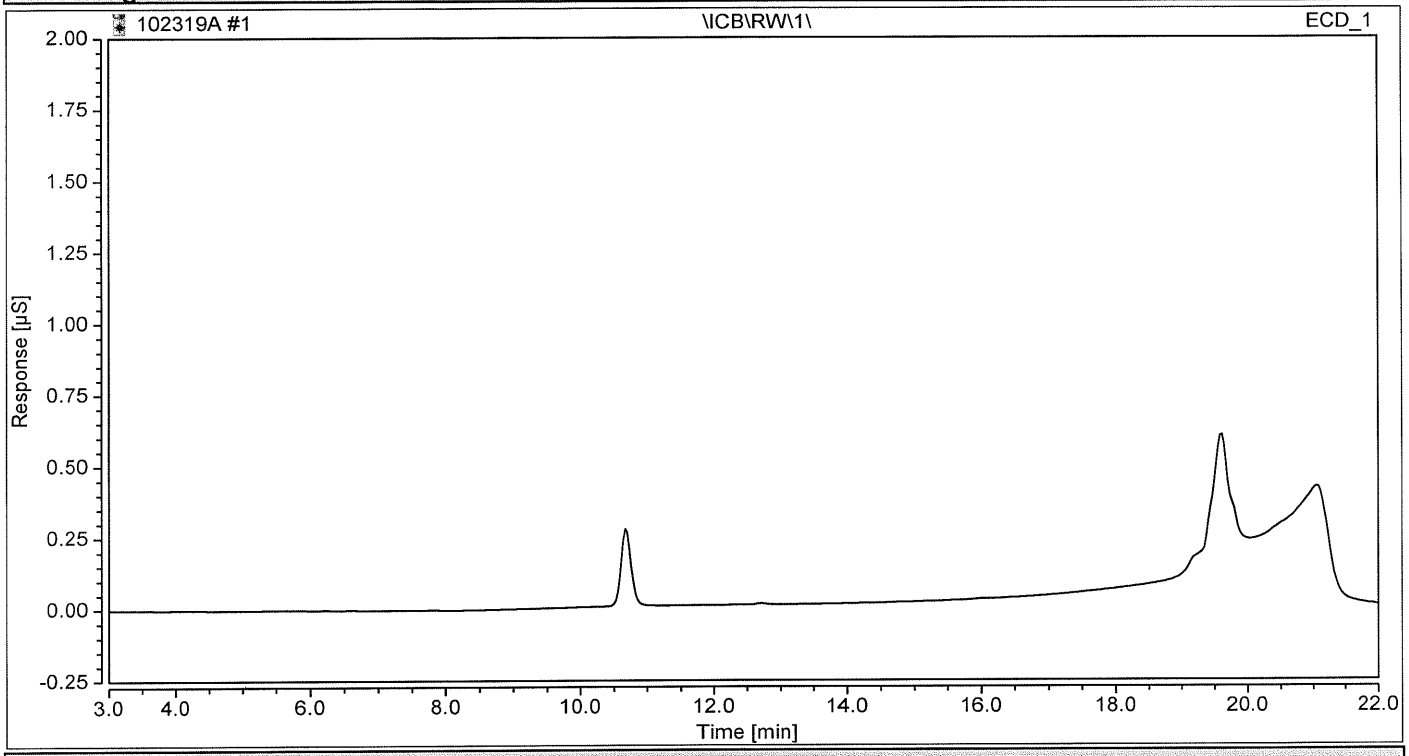
		Pump_ECD.Suppressor_Current	124 [mA]
		Pump_ECD.EluentGenerator.Curve	5
		Pump_ECD.EluentGenerator.Concentration	5.00 [mM]
Inject			
	0.000		
		Wait	ESAutosampler. CycleTimeState, Run=Hold, Timeout=Infinite
		ESAutosampler.Inject	
		ESAutosampler.ReleaseExclusiveAccess	
Start Run			
	0.000		
		Pump_ECD.Channel_Pressure.AcqOn	
		Pump_ECD.Autozero	
		Pump_ECD.ECD_1.AcqOn	
		Pump_ECD.ECD_Total.AcqOn	
Run			Duration = 25.000 [min]
	0.000		
	5.000		
		Pump_ECD.EluentGenerator.Concentration	5.00 [mM]
		Pump_ECD.EluentGenerator.Curve	5
	18.000		
		Pump_ECD.EluentGenerator.Concentration	50.00 [mM]
		Pump_ECD.EluentGenerator.Curve	8
	18.500		
		Pump_ECD.EluentGenerator.Concentration	5.00 [mM]
		Pump_ECD.EluentGenerator.Curve	1
Stop Run			
	25.000		
		Pump_ECD.Channel_Pressure.AcqOff	
		Pump_ECD.ECD_1.AcqOff	
		Pump_ECD.ECD_Total.AcqOff	
End			

Chromatogram and Results

Injection Details

Injection Name:	**\ICB\RW\1**	*Run Time (min):*	**25.00**
Vial Number:	**G1**	*Injection Volume:*	**100.00**
Injection Type:	**Calibration Standard**	*Channel:*	**ECD_1**
Calibration Level:	**01**	*Wavelength:*	**n.a.**
Instrument Method:	**AS19 4mm**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19 4mm**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Oct/19 15:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

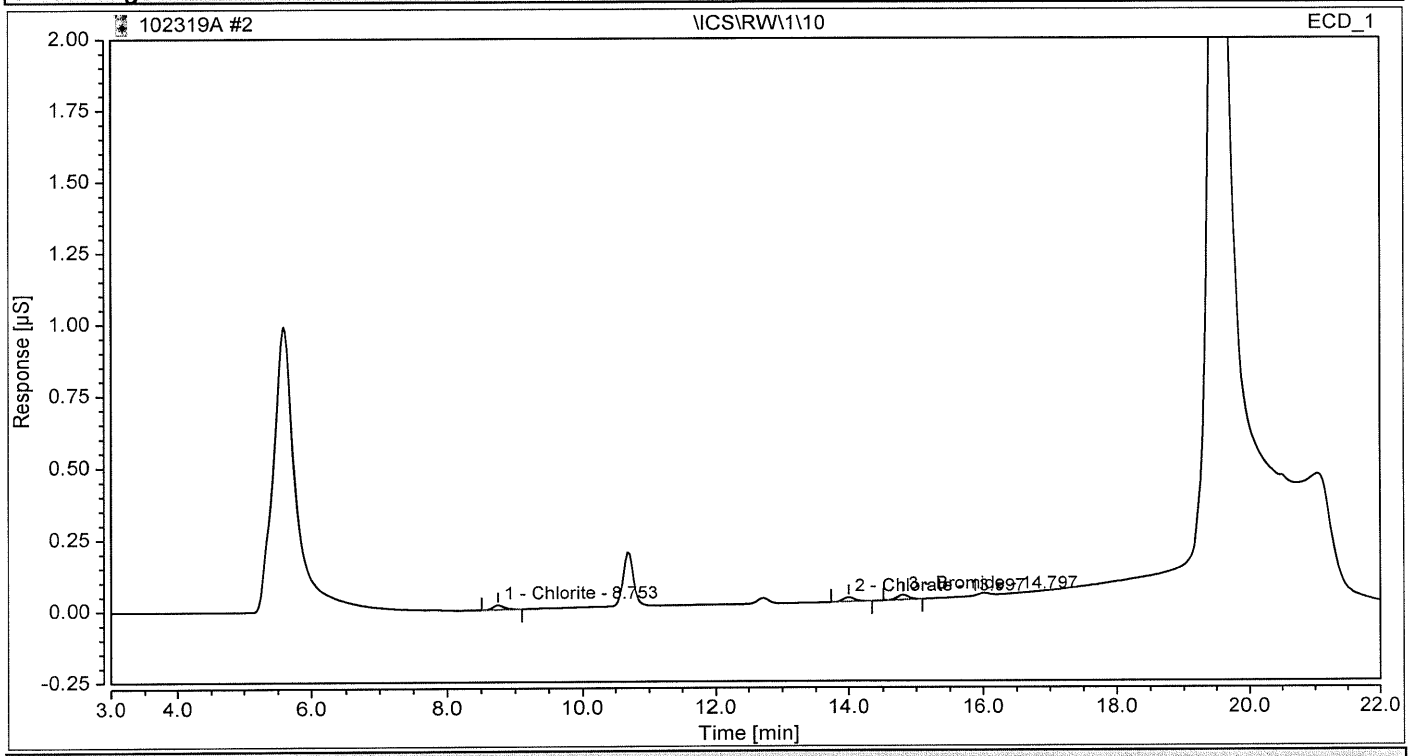
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\ICS\RW\1\10**	*Run Time (min):*	**25.00**
Vial Number:	**G2**	*Injection Volume:*	**100.00**
Injection Type:	**Calibration Standard**	*Channel:*	**ECD_1**
Calibration Level:	**02**	*Wavelength:*	**n.a.**
Instrument Method:	**AS19 4mm**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19 4mm**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Oct/19 15:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

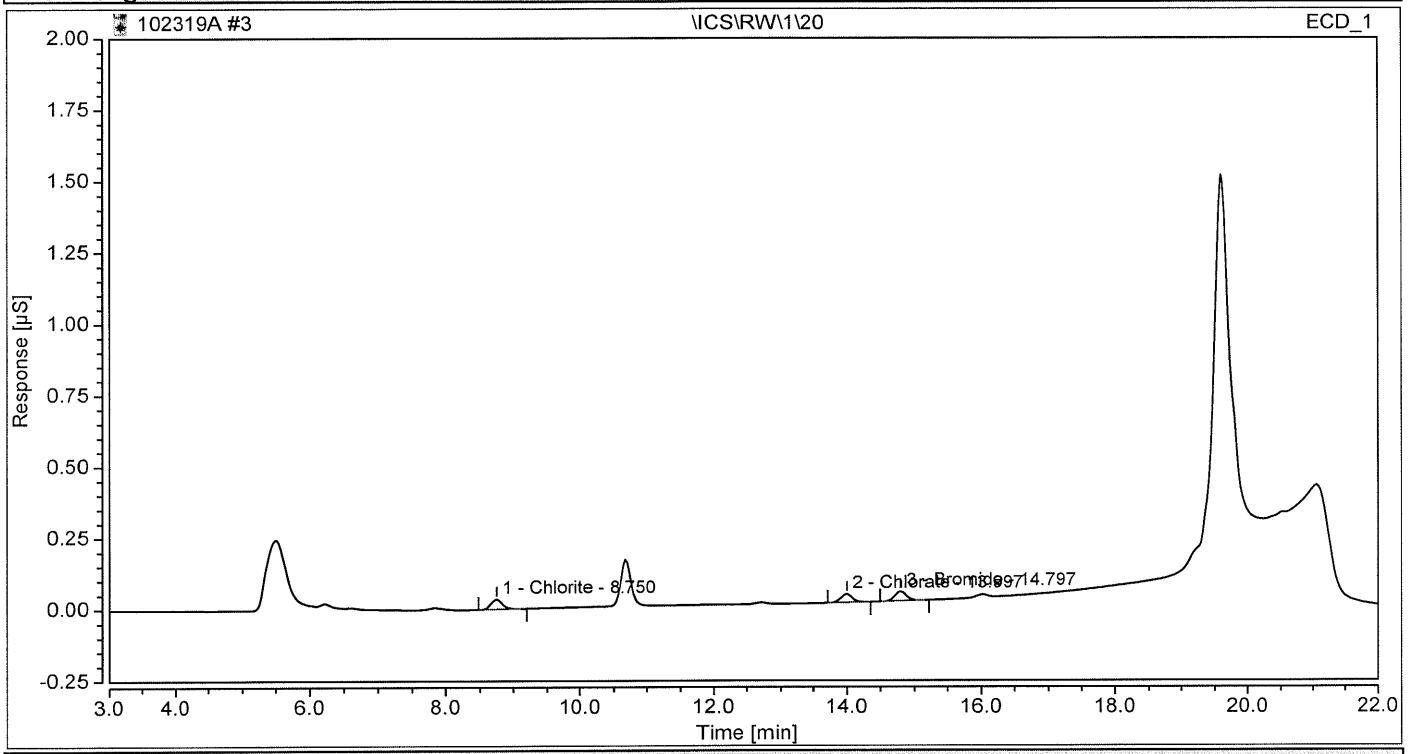
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ppb
1	Chlorite	8.753	0.003	0.015	32.30	33.01	12.2549
2	Chlorate	13.997	0.003	0.015	32.00	31.50	14.2846
3	Bromide	14.797	0.003	0.017	35.70	35.49	13.8708
Total:			**0.009**	**0.047**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\ICS\RW\1\20**	*Run Time (min):*	**25.00**
Vial Number:	**G3**	*Injection Volume:*	**100.00**
Injection Type:	**Calibration Standard**	*Channel:*	**ECD_1**
Calibration Level:	**03**	*Wavelength:*	**n.a.**
Instrument Method:	**AS19 4mm**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19 4mm**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Oct/19 16:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

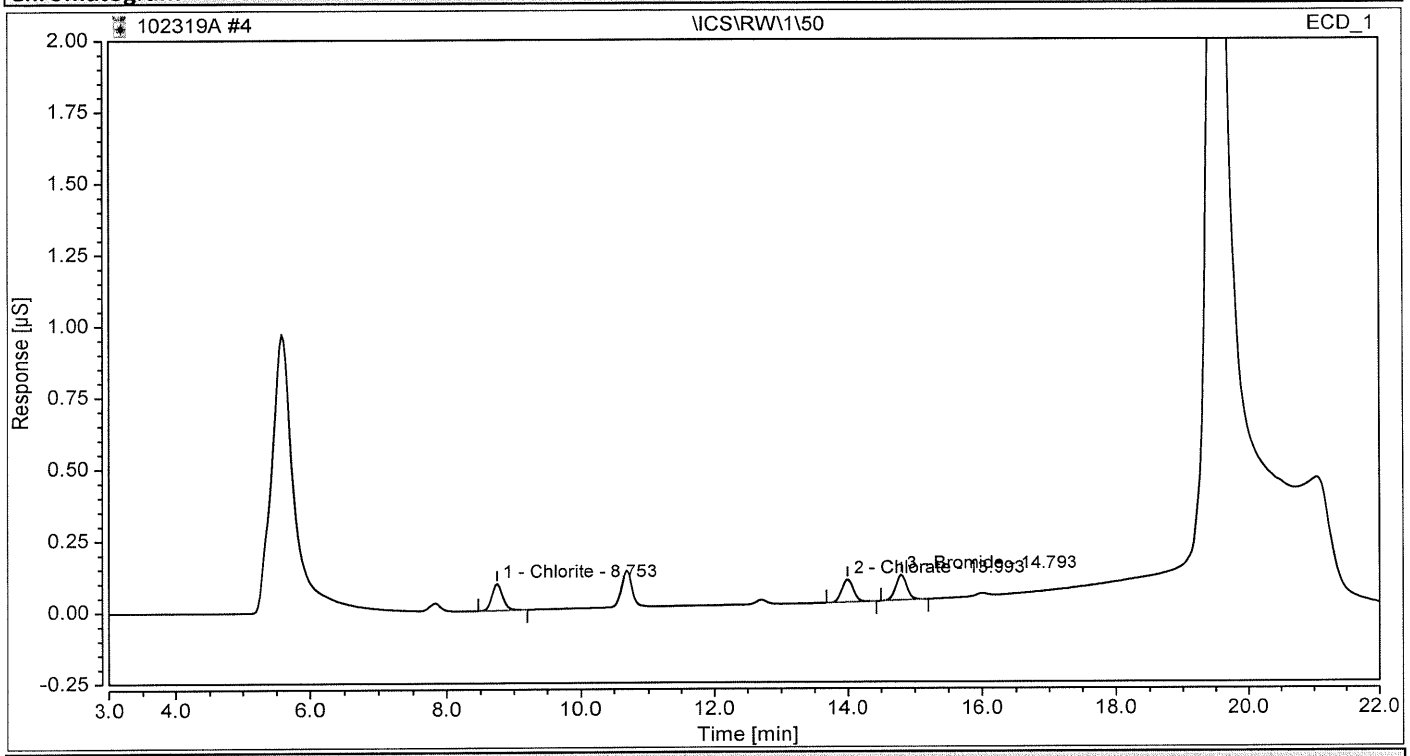
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ppb
1	Chlorite	8.750	0.007	0.035	34.77	35.59	21.3281
2	Chlorate	13.997	0.006	0.030	30.73	30.22	22.5434
3	Bromide	14.797	0.007	0.033	34.50	34.19	22.4812
Total:			**0.019**	**0.098**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\ICS\RW\1\50**	*Run Time (min):*	**25.00**
Vial Number:	**G4**	*Injection Volume:*	**100.00**
Injection Type:	**Calibration Standard**	*Channel:*	**ECD_1**
Calibration Level:	**04**	*Wavelength:*	**n.a.**
Instrument Method:	**AS19 4mm**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19 4mm**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Oct/19 16:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

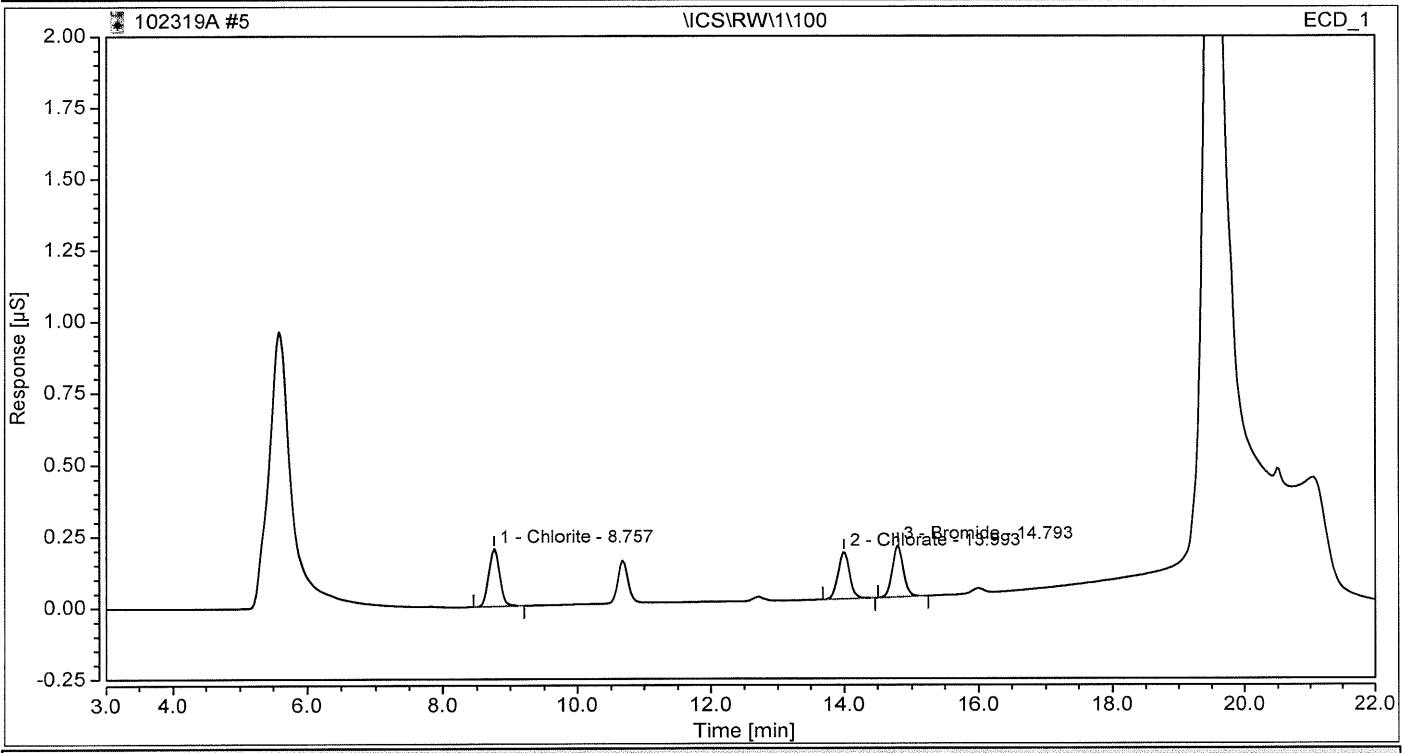
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ppb
1	Chlorite	8.753	0.017	0.093	34.80	35.79	47.8490
2	Chlorate	13.993	0.015	0.079	30.90	30.27	49.4358
3	Bromide	14.793	0.017	0.088	34.31	33.94	49.8638
Total:			**0.050**	**0.260**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\ICS\RW\1\100**	*Run Time (min):*	**25.00**
Vial Number:	**G5**	*Injection Volume:*	**100.00**
Injection Type:	**Calibration Standard**	*Channel:*	**ECD_1**
Calibration Level:	**05**	*Wavelength:*	**n.a.**
Instrument Method:	**AS19 4mm**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19 4mm**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Oct/19 17:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

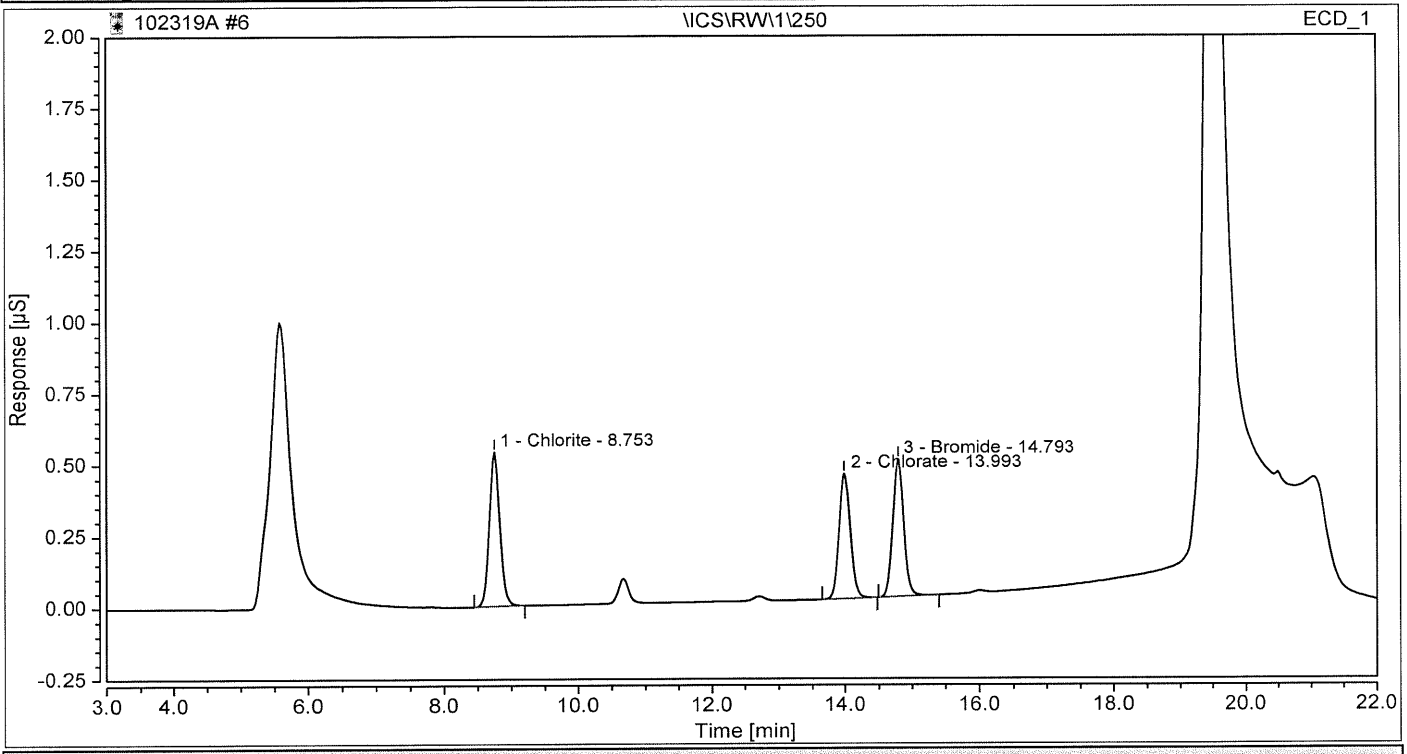
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ppb
1	Chlorite	8.757	0.037	0.202	35.83	36.82	97.2236
2	Chlorate	13.993	0.032	0.165	30.70	30.05	96.0920
3	Bromide	14.793	0.035	0.182	33.47	33.13	96.0438
Total:			**0.105**	**0.549**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\ICS\RW\1\250**	*Run Time (min):*	**25.00**
Vial Number:	**G6**	*Injection Volume:*	**100.00**
Injection Type:	**Calibration Standard**	*Channel:*	**ECD_1**
Calibration Level:	**06**	*Wavelength:*	**n.a.**
Instrument Method:	**AS19 4mm**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19 4mm**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Oct/19 17:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

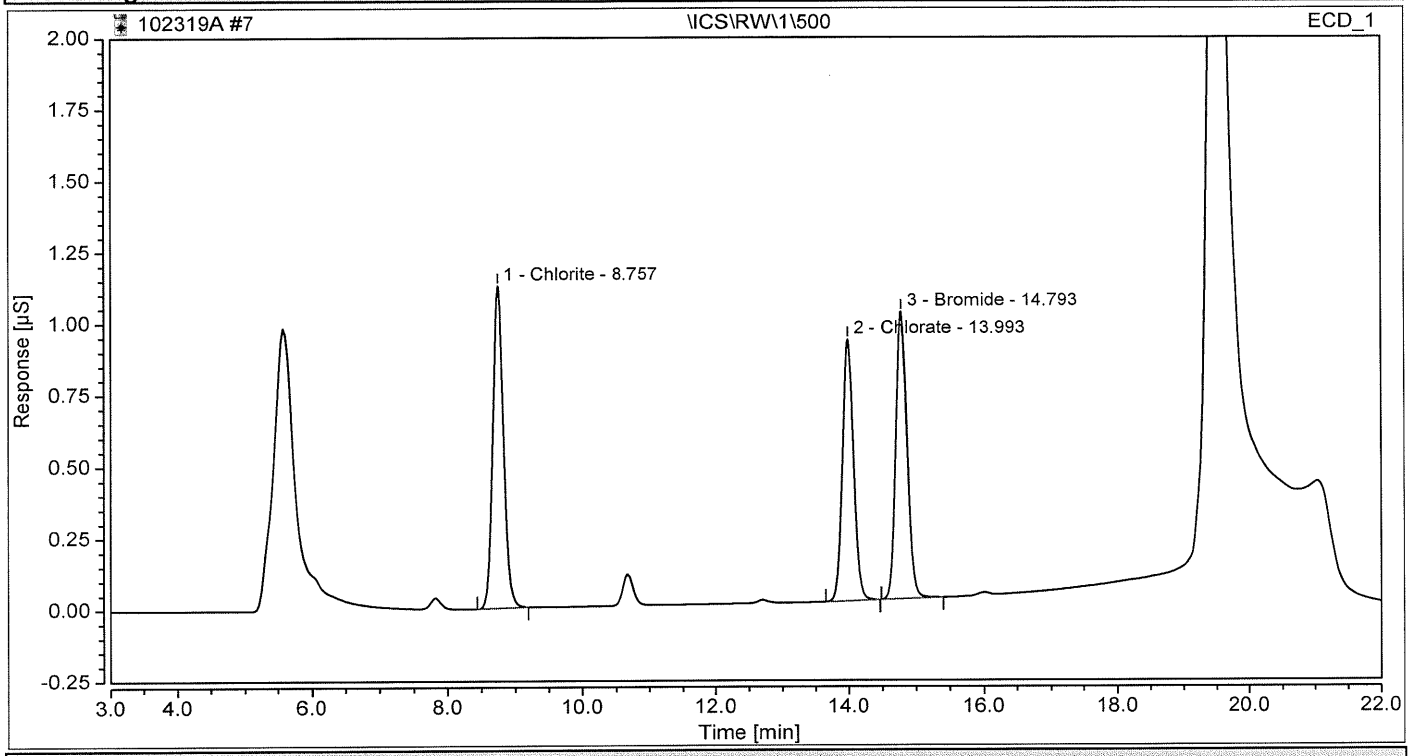
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ppb
1	Chlorite	8.753	0.100	0.540	36.10	37.05	251.3443
2	Chlorate	13.993	0.085	0.436	30.61	29.96	243.9872
3	Bromide	14.793	0.092	0.481	33.28	33.00	244.2244
Total:			**0.277**	**1.457**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\ICS\RW\1\500**	*Run Time (min):*	**25.00**
Vial Number:	**G7**	*Injection Volume:*	**100.00**
Injection Type:	**Calibration Standard**	*Channel:*	**ECD_1**
Calibration Level:	**07**	*Wavelength:*	**n.a.**
Instrument Method:	**AS19 4mm**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19 4mm**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Oct/19 18:22**	*Sample Weight:*	**1.0000**

Chromatogram



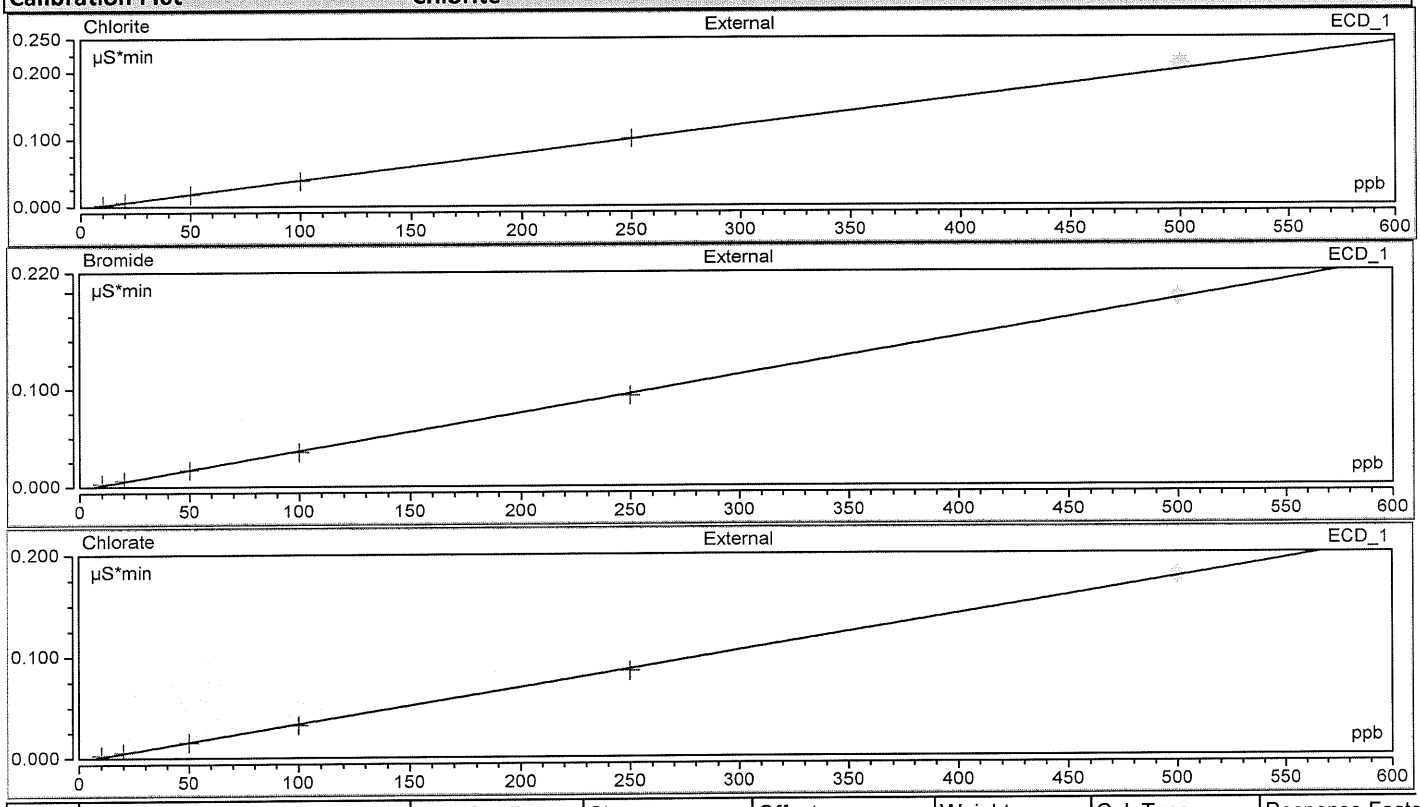
Integration Results

No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ppb
1	Chlorite	8.757	0.211	1.125	36.26	37.01	523.1204
2	Chlorate	13.993	0.178	0.913	30.58	30.03	503.6570
3	Bromide	14.793	0.193	1.002	33.16	32.96	503.5160
Total:			**0.581**	**3.040**	**100.00**	**100.00**	

Calibration

Calibration Details	Chlorite		
Calibration Type	Lin, WithOffset	*Offset (C0)*	-0.0021
Evaluation Type	Area	*Slope (C1)*	0.0004
Number of Calibration Points	5	*Curve (C2)*	0.0000
Number of disabled Calibration Points	1	*R-Square*	0.9995

Calibration Plot **Chlorite**



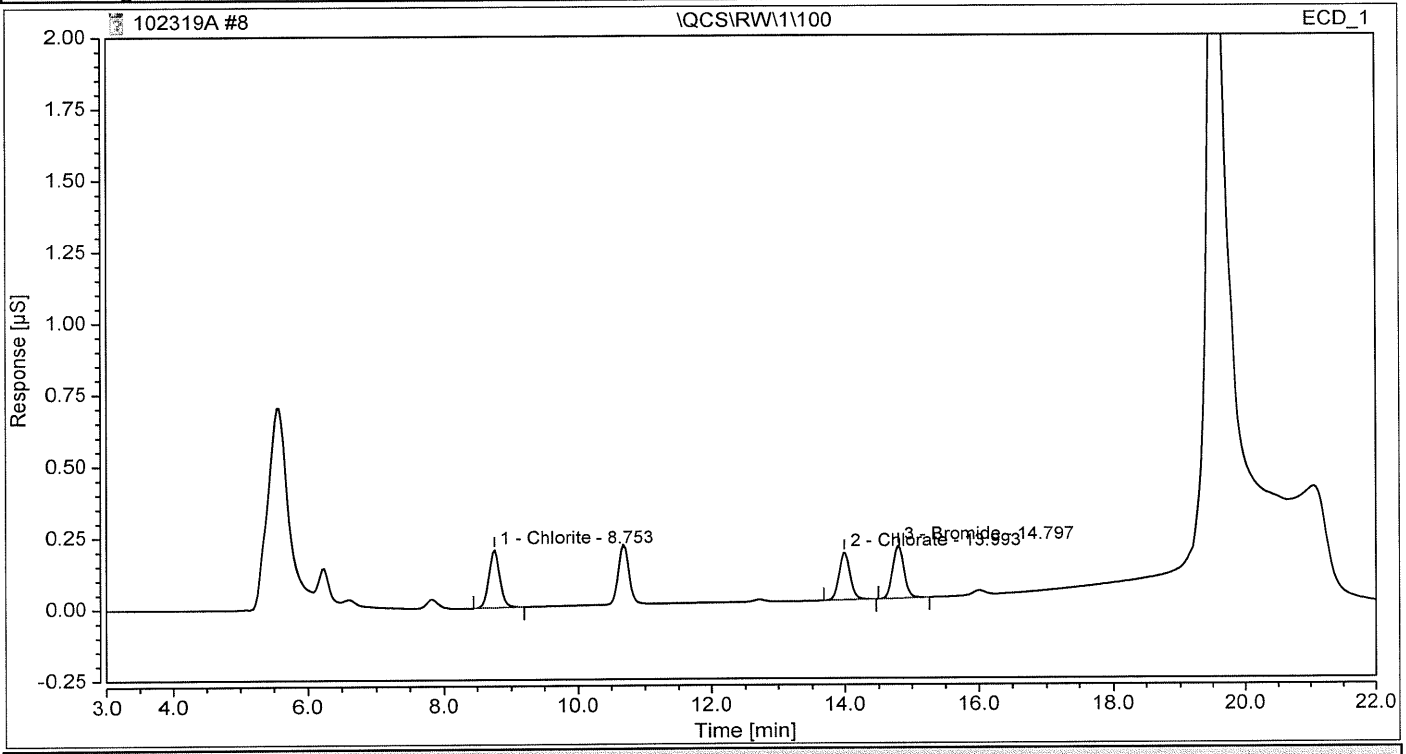
No.	Peak Name	Corr.Coeff.	Slope	Offset	Weights	Cal. Type	Response Factor
		%					
1	Chlorite	99.973	2459.92	-0.002	No Weighting	Lin, WithOffset	1.0000
2	Chlorate	99.975	2801.41	-0.002	No Weighting	Lin, WithOffset	1.0000
3	Bromide	99.977	2586.44	-0.002	No Weighting	Lin, WithOffset	1.0000

Chromatogram and Results

Injection Details

Injection Name:	**\QCS\RW\1\100**	*Run Time (min):*	**25.00**
Vial Number:	**G8**	*Injection Volume:*	**100.00**
Injection Type:	**Unknown**	*Channel:*	**ECD_1**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**AS19 4mm**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19 4mm**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Oct/19 18:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

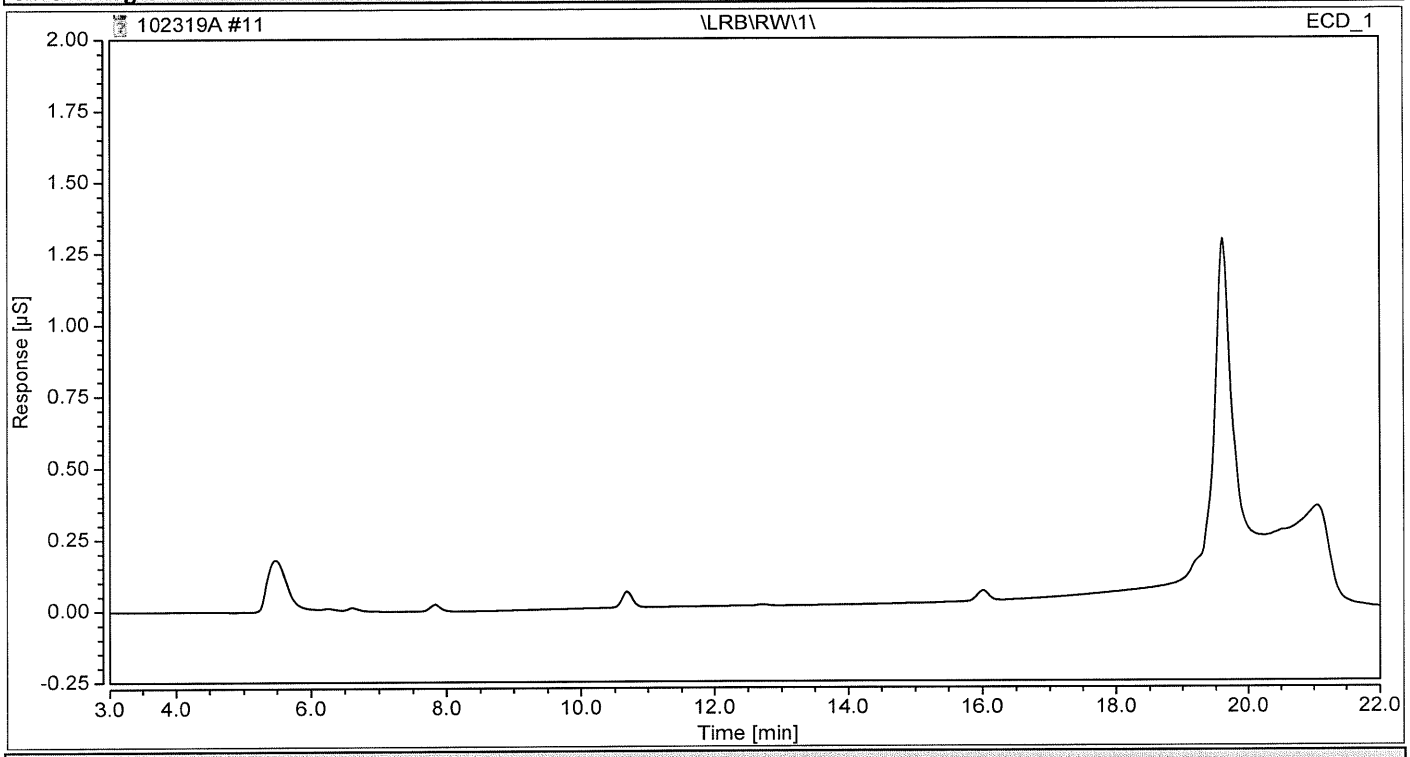
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ppb
1	Chlorite	8.753	0.038	0.203	35.53	36.59	97.6120
2	Chlorate	13.993	0.033	0.167	30.87	30.15	97.7340
3	Bromide	14.797	0.036	0.184	33.61	33.26	97.5552
Total:			**0.106**	**0.553**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\LRB\RW\1**	*Run Time (min):*	**25.00**
Vial Number:	**GA2**	*Injection Volume:*	**100.00**
Injection Type:	**Unknown**	*Channel:*	**ECD_1**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**AS19 4mm**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19 4mm**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Oct/19 20:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

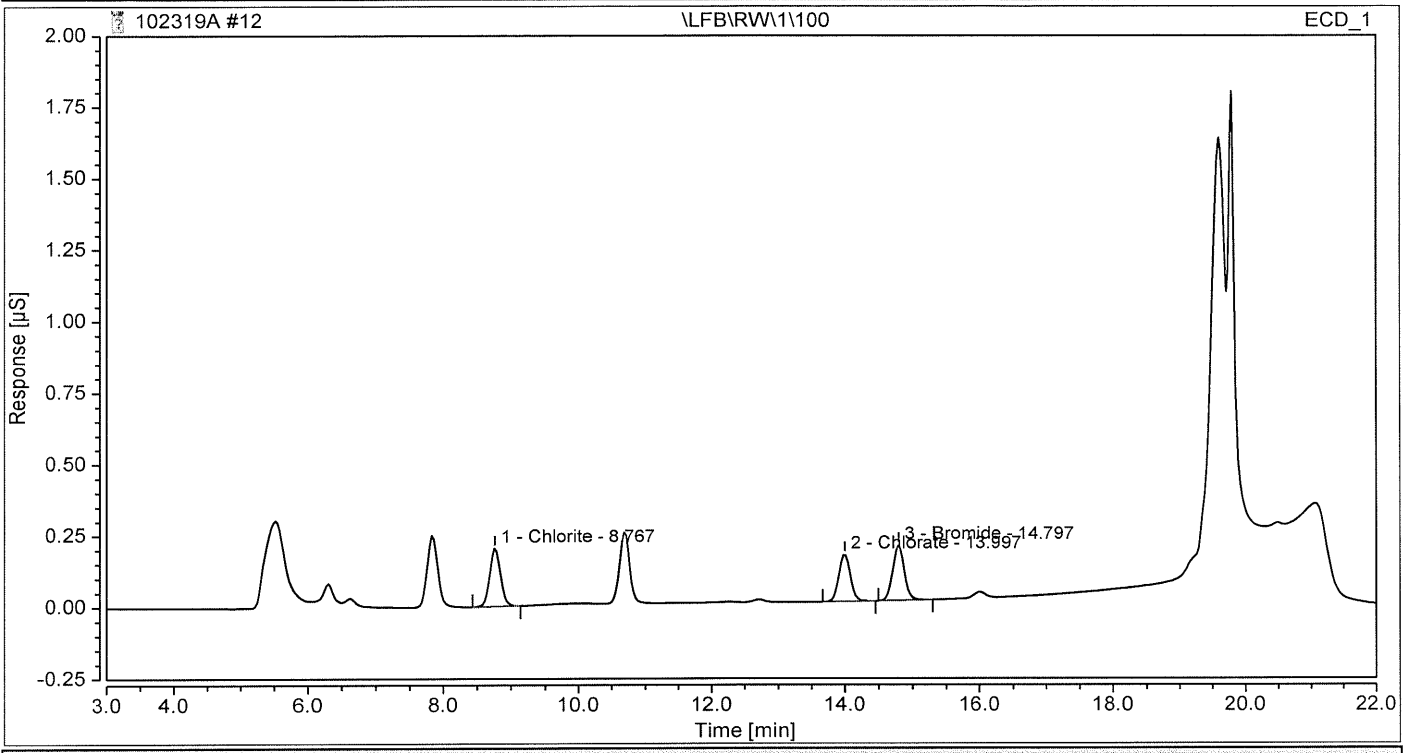
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\LFB\RW\1\100**	*Run Time (min):*	**25.00**
Vial Number:	**GA3**	*Injection Volume:*	**100.00**
Injection Type:	**Unknown**	*Channel:*	**ECD_1**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**AS19 4mm**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19 4mm**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Oct/19 20:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

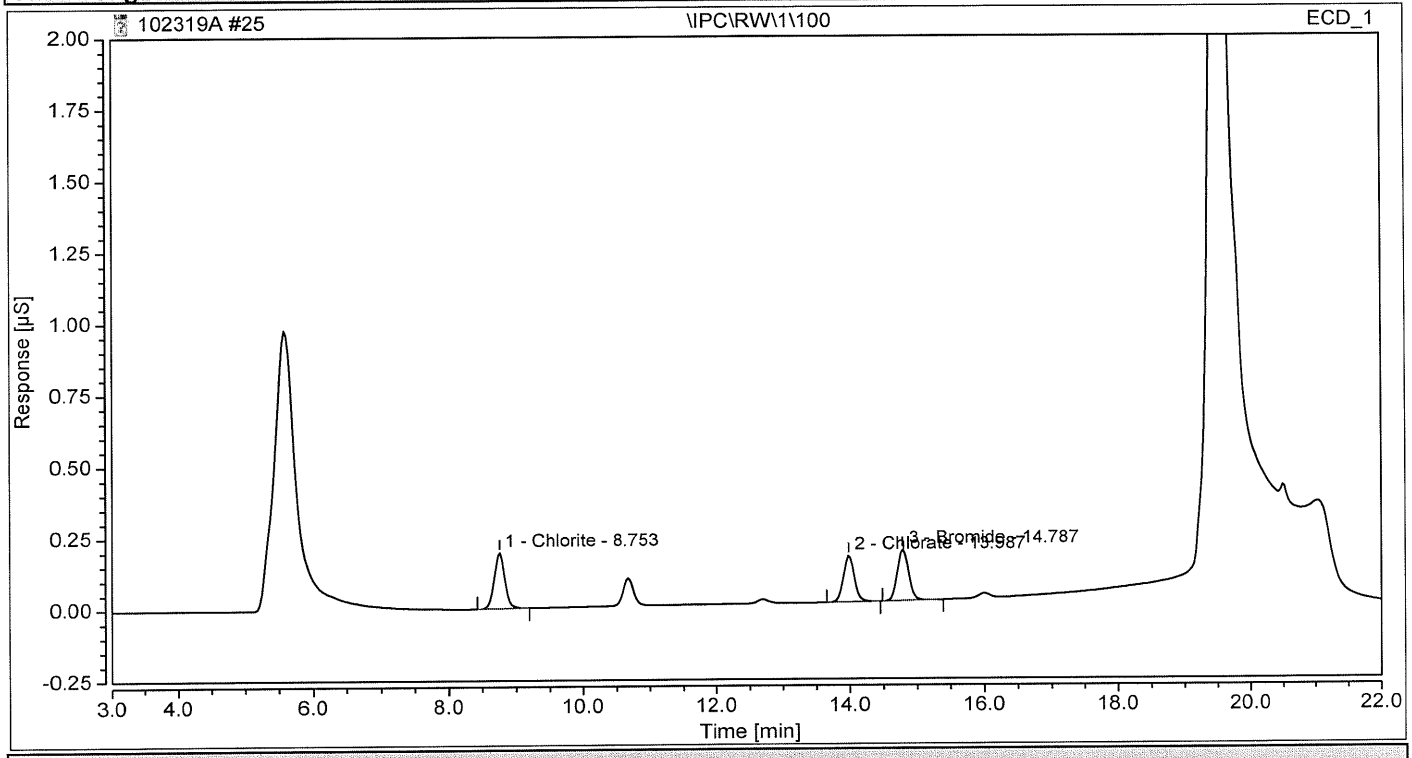
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ppb
1	Chlorite	8.767	0.038	0.204	35.19	36.23	98.0721
2	Chlorate	13.997	0.032	0.165	29.78	29.34	95.8207
3	Bromide	14.797	0.038	0.193	35.03	34.42	102.8620
Total:			**0.107**	**0.562**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\IPC\RW\1\100**	*Run Time (min):*	**25.00**
Vial Number:	**G5**	*Injection Volume:*	**100.00**
Injection Type:	**Unknown**	*Channel:*	**ECD_1**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**AS19 4mm**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19 4mm**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Oct/19 03:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

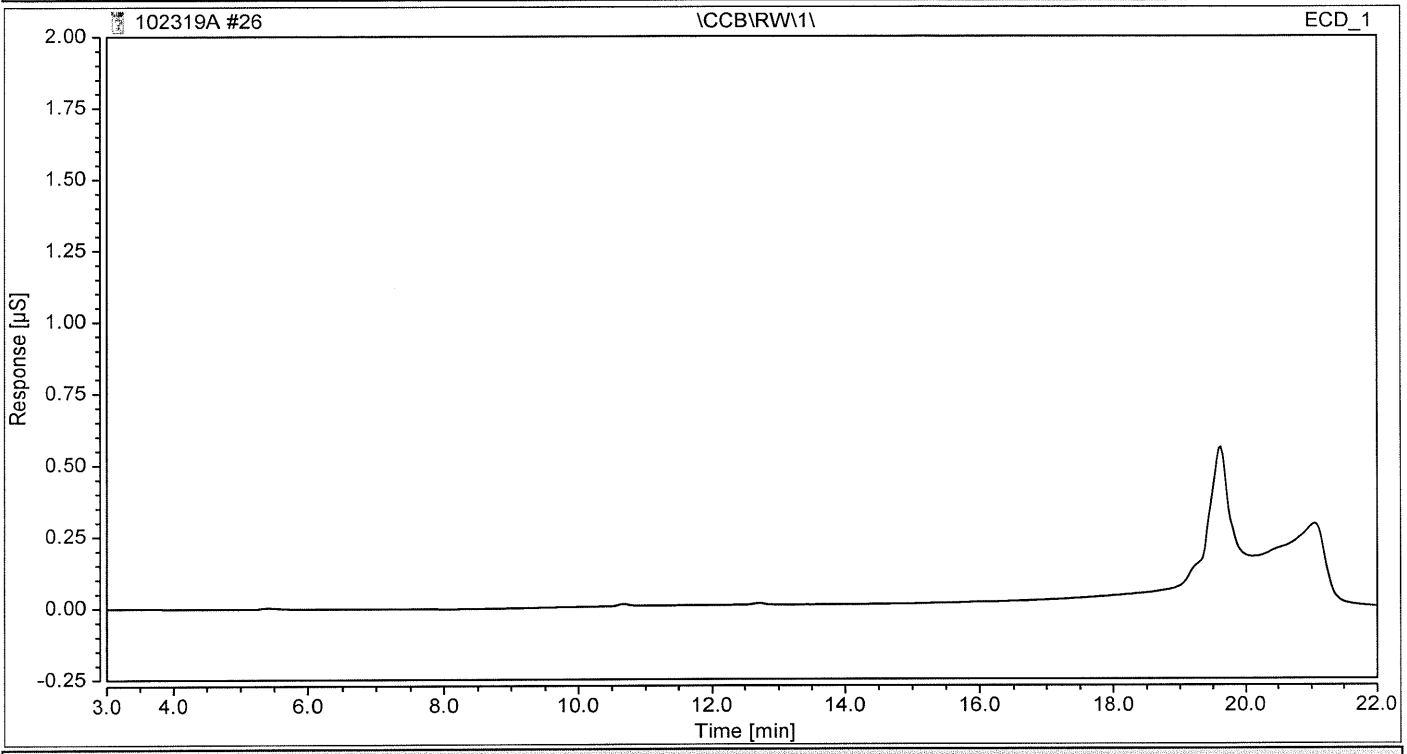
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ppb
1	Chlorite	8.753	0.036	0.196	35.35	36.42	93.8223
2	Chlorate	13.987	0.032	0.162	30.88	30.23	94.4802
3	Bromide	14.787	0.034	0.179	33.77	33.35	94.6810
Total:			**0.102**	**0.537**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\CCB\RW\1**	*Run Time (min):*	**25.00**
Vial Number:	**G1**	*Injection Volume:*	**100.00**
Injection Type:	**Unknown**	*Channel:*	**ECD_1**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**AS19 4mm**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19 4mm**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Oct/19 03:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

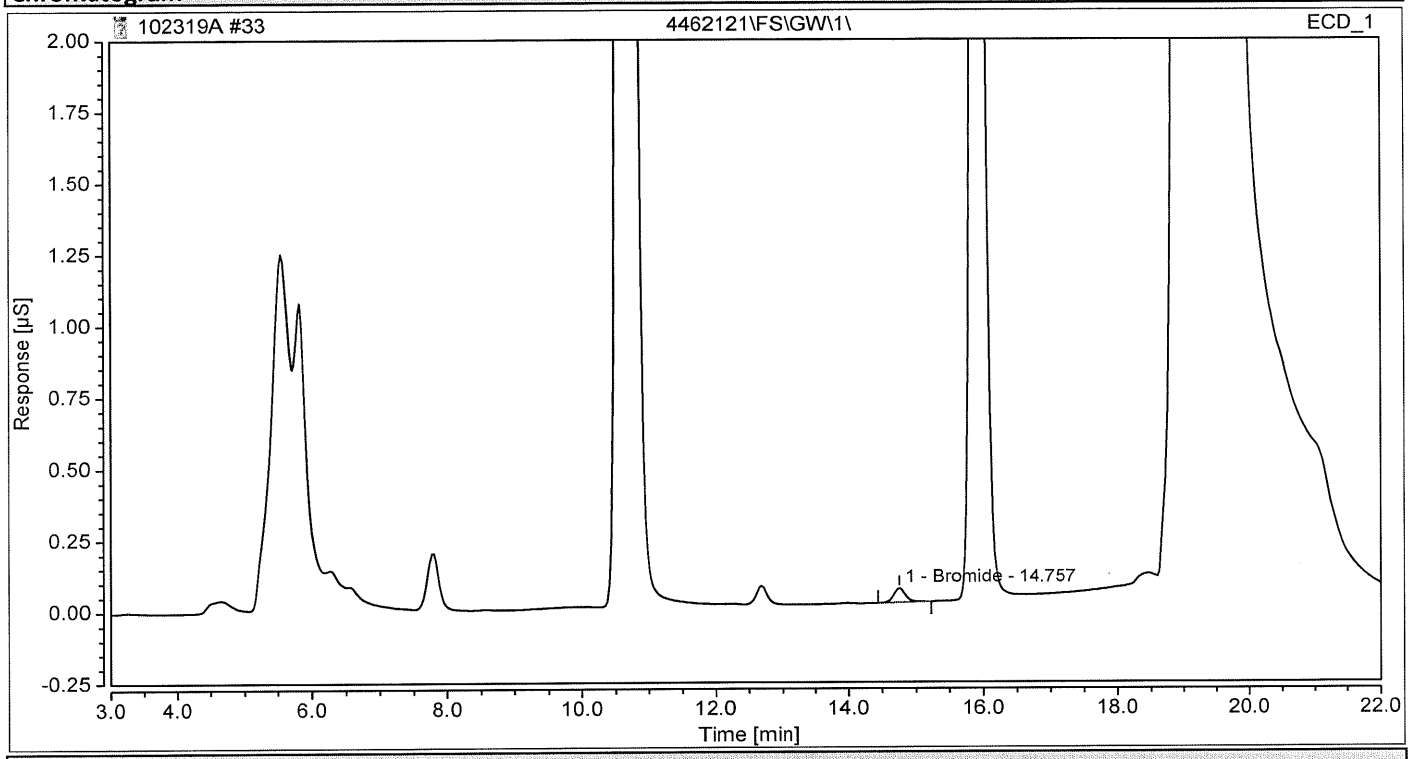
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**4462121\FS\GW\1**	*Run Time (min):*	**25.00**
Vial Number:	**GC6**	*Injection Volume:*	**100.00**
Injection Type:	**Unknown**	*Channel:*	**ECD_1**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**AS19 4mm**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19 4mm**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Oct/19 06:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

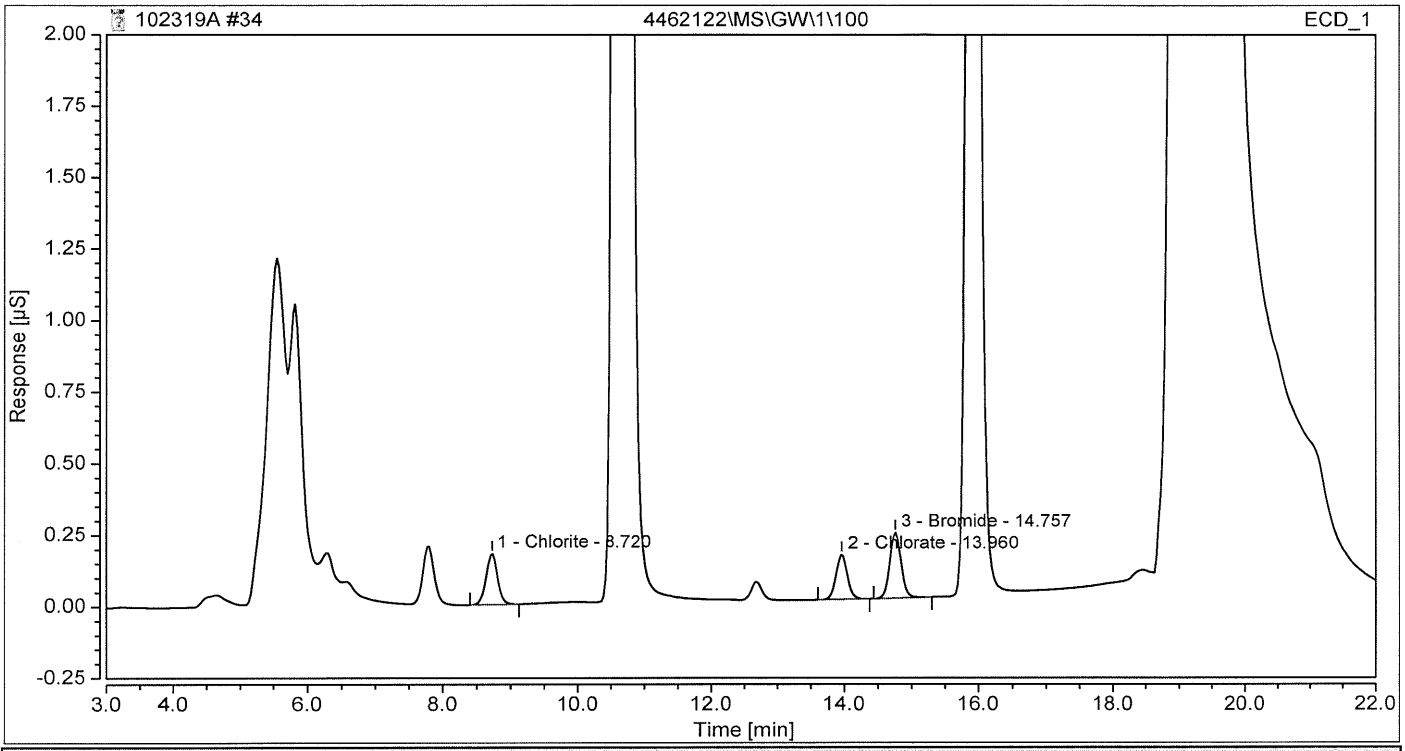
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ppb
1	Bromide	14.757	0.010	0.050	100.00	100.00	31.5184
Total:			**0.010**	**0.050**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**4462122\MS\GW\1\100**	*Run Time (min):*	**25.00**
Vial Number:	**GC7**	*Injection Volume:*	**100.00**
Injection Type:	**Unknown**	*Channel:*	**ECD_1**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**AS19 4mm**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19 4mm**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Oct/19 07:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

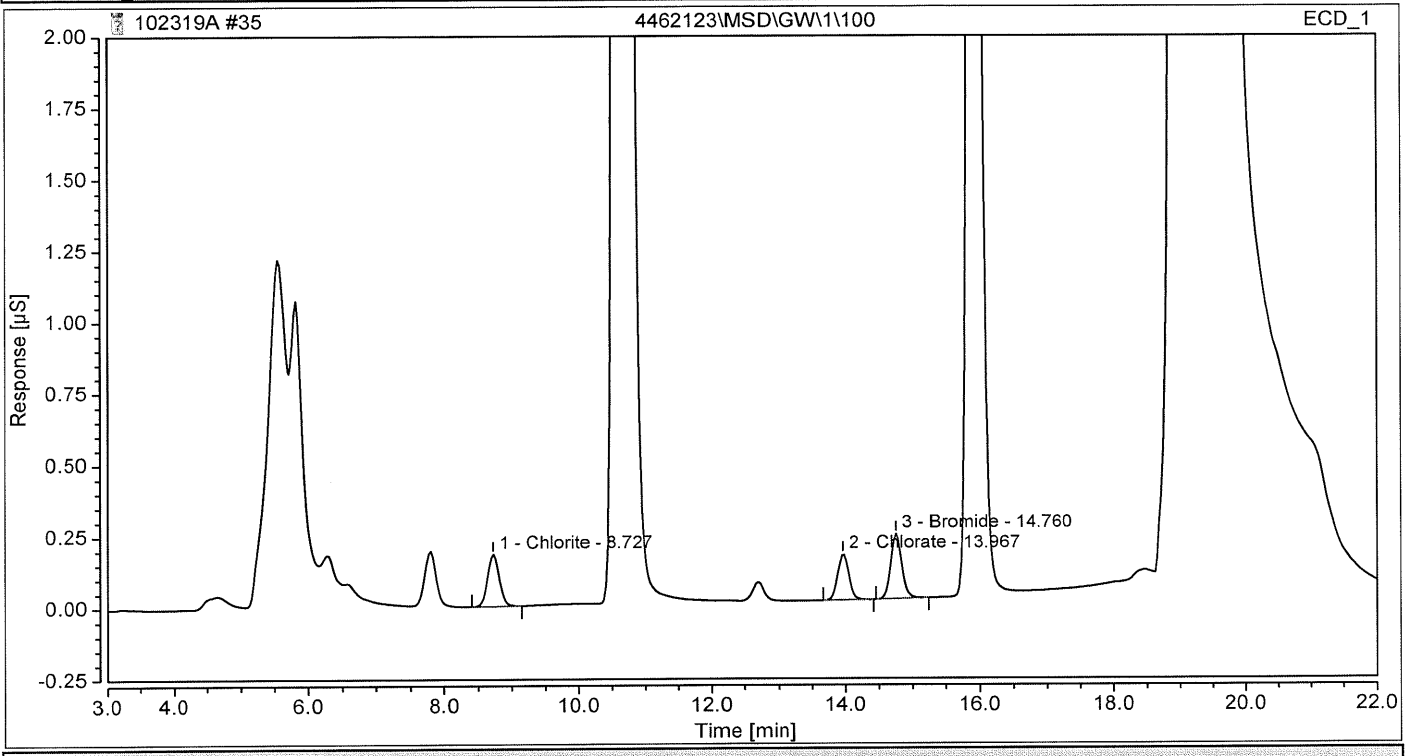
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ppb
1	Chlorite	8.720	0.036	0.178	32.19	31.54	92.4137
2	Chlorate	13.960	0.030	0.158	27.61	27.90	91.5005
3	Bromide	14.757	0.044	0.229	40.19	40.56	120.1905
Total:			**0.110**	**0.566**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**4462123\MSD\GW\1\100**	*Run Time (min):*	**25.00**
Vial Number:	**GC8**	*Injection Volume:*	**100.00**
Injection Type:	**Unknown**	*Channel:*	**ECD_1**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**AS19 4mm**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19 4mm**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Oct/19 07:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

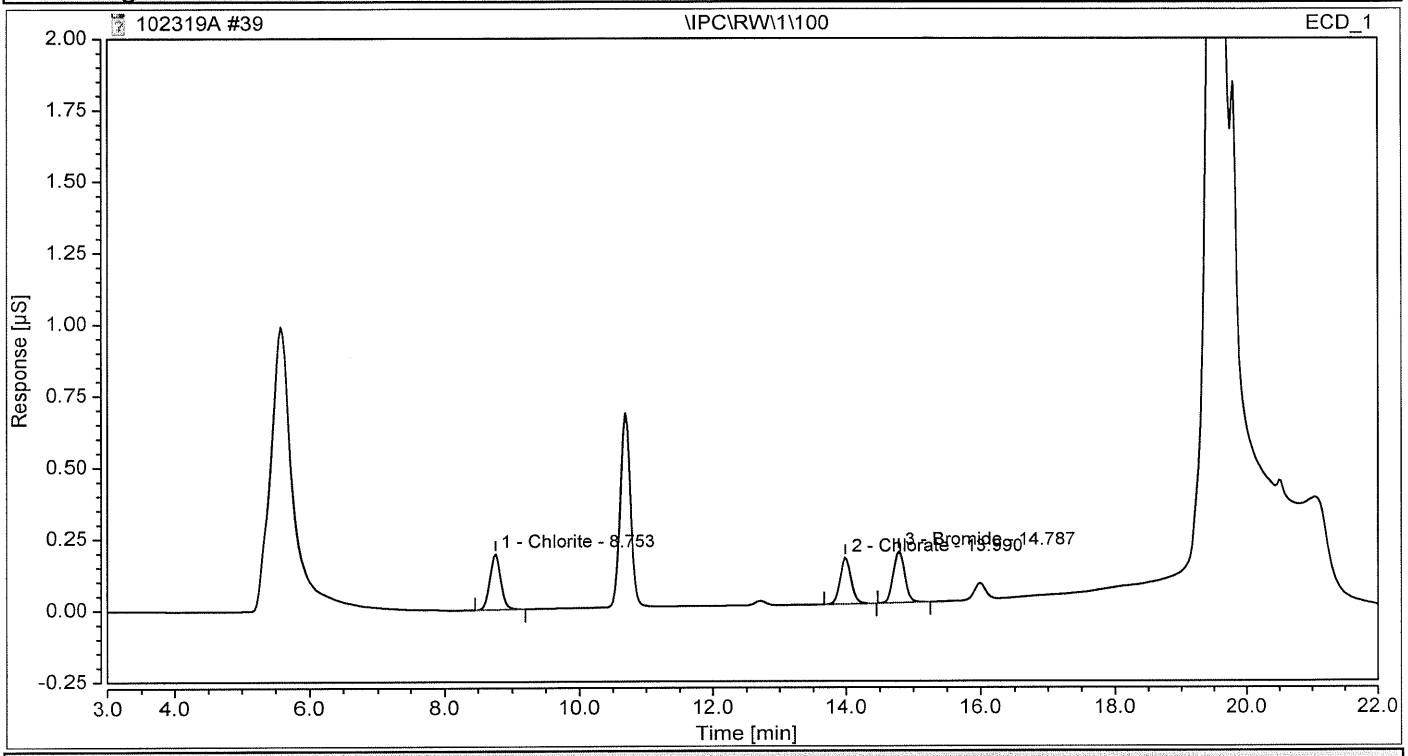
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ppb
1	Chlorite	8.727	0.036	0.182	32.64	31.90	93.9747
2	Chlorate	13.967	0.031	0.161	28.00	28.21	93.0241
3	Bromide	14.760	0.044	0.227	39.37	39.89	118.2671
Total:			**0.111**	**0.569**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\IPC\RW\1\100**	*Run Time (min):*	**25.00**
Vial Number:	**G5**	*Injection Volume:*	**100.00**
Injection Type:	**Unknown**	*Channel:*	**ECD_1**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**AS19 4mm**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19 4mm**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Oct/19 09:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

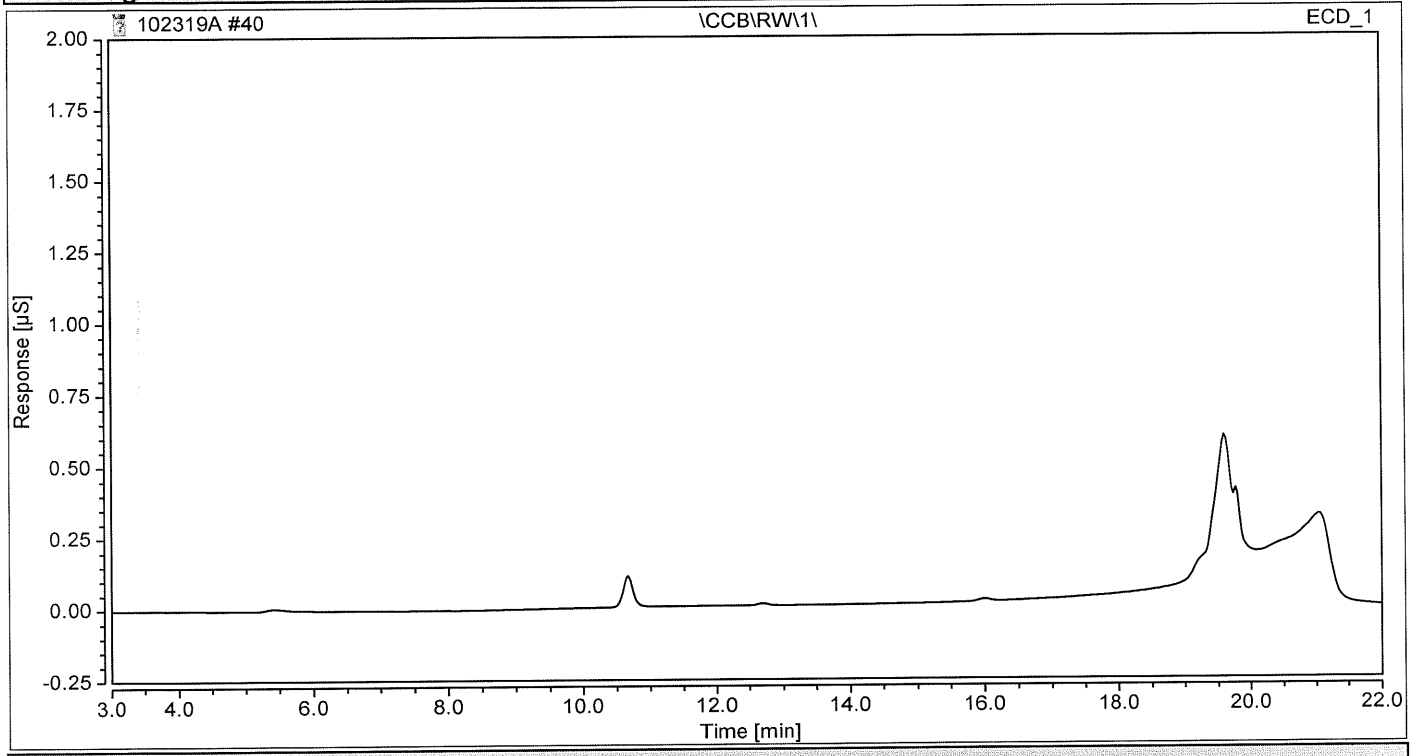
No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount ppb
1	Chlorite	8.753	0.036	0.196	35.35	36.36	94.0386
2	Chlorate	13.990	0.032	0.163	30.86	30.20	94.6336
3	Bromide	14.787	0.035	0.180	33.78	33.43	94.9095
Total:			**0.102**	**0.540**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**\CCB\RW\1**	*Run Time (min):*	**25.00**
Vial Number:	**G1**	*Injection Volume:*	**100.00**
Injection Type:	**Unknown**	*Channel:*	**ECD_1**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**AS19 4mm**	*Bandwidth:*	**n.a.**
Processing Method:	**AS19 4mm**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Oct/19 10:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area µS*min	Height µS	Relative Area %	Relative Height %	Amount n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

QA - Method Detection Limit Study

Method:	300.0 B	Analyzed by:	Multiple	Approved by:	Jon Werbianskyj	Effective Date:	5/22/2019
Instrument:	CQ	Prepped by:	Multiple	Comments:	*LOD will be updated from the FT MDL sheet from 7/11/19 - JW 07/24/19*		
Units:	ug/L						
Matrix Type:	RW			**Number of months next study due:**	6		
				Date Submittted:	5/22/2019		

Earliest Analysis date	Parameter	# of Pts	df	t(n-1,1-α=0.99)	mean	sd	Calculated MDL_s	MDL_b	New Instrument MDL	Old / Current LOD
4/8/2018	Bromide	15	14	2.6245	12.74279993	2.192545353	5.754335279	7.294379	7.294379	8.2
4/8/2018	Chlorate	15	14	2.6245	12.882	1.808076365	4.745296421	7.09247962	7.09247962	8.2
4/8/2018	Chlorite	15	14	2.6245	12.58733333	2.398143766	6.293928315	6.30272	6.30272	7.7

CHAIN OF CUSTODY,
PM CONFIRMATION
AND
SAMPLE CONDITION FORMS
DOCUMENTS

Rev. 02/2017

CHAIN OF CUSTODY

Page 1 of 1

Company: Weston Solutions
Project Contact: Tony Pace
Telephone: 757-819-5310
Project Name: Radford AAP
Project #: SWMU-54
Location: Radford, VA
Sampled By: B. Bounds / P. Taylor

1230 Lange Court, Baraboo, WI 53913
608-356-2760 Fax 608-356-2766
www.ctlaboratories.com

Folder #: ~~148990~~ 149018
Company: WESTON SOLUTIONS,
Project: RADFORD AAP
Logged By: JLS PM: BM

Program:
QSM RCRA SDWA NPDES
Solid Waste Other _____

PO #

Report To:
EMAIL: Anthony.Pace@WestonSolutions.com
Company: Weston Solutions
Address: 2 Eaton St, Ste. 603 Hampton, VA 23669

Invoice To:*
EMAIL:
Company: Same
Address:

*Party listed is responsible for payment of invoice as per CT Laboratories' terms and conditions

Client Special Instructions

Matrix:
GW – groundwater SW - surface water WW - wastewater DW - drinking water
S - soil/sediment SL - sludge A - air M - misc/waste

Turnaround Time
Normal RUSH*
Date Needed: Std.
Rush analysis requires prior CT Laboratories' approval
Surcharges:
24 hr 200%
2-3 days 100%
4-9 days 50%

2019 Collection Date	Time	Matrix	Grab/ Comp	Sample #	Sample ID Description	Filtered? Y/N	Explosives 8330B	Chlorate/Chlorite 300.1	Anions (C,N,S) 9056A	TOC 9060A	TIC 9060A	Perchlorate 6850	COD 410.4	pH 9040C	Total Metals 6010C/7470A						Total # Containers	Designated MS/MSD	CT Lab ID # (Lab use only)
							Fill in Spaces with Bottles per Test																	
10/14	1025	GW	G	1	54MW13	N	2	1	1	1	3	1										9		343788
10/14	1025	GW	G		54TW13	N	2	1	1	1	3	1										9		343836
10/14	1215	GW	G		54MW10	N	2	1	1	1	3	1										9		343838
10/14	1325	GW	G		54MW12	N	6	3	3	3	9	3										27	X	343840
10/19	1510	GW	G		54MW1	N	2	1	1	1	3	1										9		343842
10/14	1600	GW	G		54IDW	N							1	1	1							3		343844

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	10/17/2019 1000	Fedex	10/17/2019 1650
Received by: [signature]	Date/Time 10/18/19 1210	Received for Laboratory by: [signature]	Date/Time 10/18/19 1600

Lab Use Only
Ice Present (Yes) No
Temp 23.9 IR Gun 28
Cooler # 4 coolers

Page 813

Cooler Receipt Form

Ice Present (YES) NO

Temperature 3.9

IR Gun # 28

Initials TL

Date 10/18/19 Time 12:10

Cooler #: 6407

Cooler Receipt Form

Ice Present (YES) NO

Temperature 3.5

IR Gun # 28

Initials

Date 10/18/19 Time 12:10

Cooler #: 6408

Cooler Receipt Form

Ice Present (YES) NO

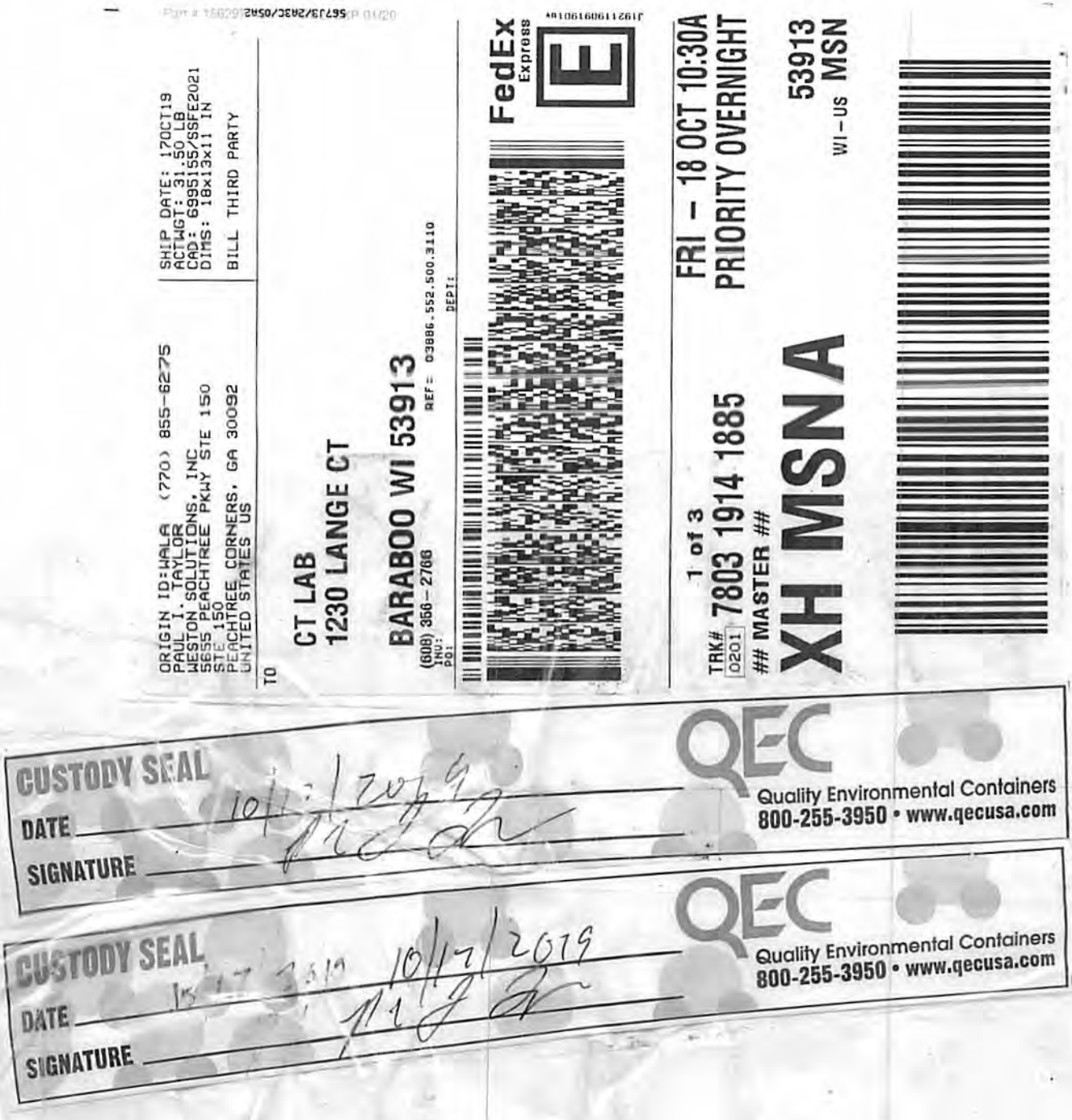
Temperature 2.9

IR Gun # 28

Initials M

Date 10/18/19 Time 12:10

Cooler #: 6205



FORM #: FPM3-02
Rev. #: 1.0
Effective Date: 05/27/2014
Page 1 of 1

Cooler Receipt Form

Ice Present (YES) NO

Temperature 2.4

IR Gun # 28

Initials DL

Date 10/18/19 Time 12:10

Cooler #: 5838

CUSTODY SEAL
DATE 10/17/2019
SIGNATURE

QEC
Quality Environmental Containers
800-255-3950 • www.qecusa.com

CUSTODY SEAL
DATE 10/17/2019
SIGNATURE

QEC
Quality Environmental Containers
800-255-3950 • www.qecusa.com

Folder #: 149018

PM LOGIN CONFIRMATION

Contract #: 3313

Company: WESTON SOLUTIONS, INC. **Project:** RADFORD AAP SWMU-54 **Proj #:**

Project Phase: RADFORD, VA **PO Number:** **Invoice #:** 149652

Project Manager: *BMS* **Date Received:** 10/18/19 **Log Date:** 10/21/2019

Report To: ANTHONY PACE CC:
2 EATON STREET
SUITE 603
HAMPTON, VA 23669
Phone: 757-819-5310: Fax:
Rep. E-Mail anthony.pace@westonsolutions.com

Invoice To :ACCOUNTS PAYABLE CC:
1400 WESTON WAY, BLDG 5-1
WEST CHESTER, PA 19380
Phone: Fax:
EMail:

Collected By:
Collector's Phone: 757-819-5310

Arrival Temperature: 3.9 oC

SAMPLE #: 343788 DESCR: 54MW13 **PRIMARY / DETAILED MATRIX:** AQUEOUS / GROUND WATER **SAMPLED: 10/14/2019 Time: 1025**

CLIENT SAMPLE #: **DETAILED SITE/POINT ID INFORMATION:**

TEST#	TEST	TEST METHOD	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
759	CARBON, INORG & ORG	(EPA 9060A)				10/28/2019	10/30/2019		Entered
1227	ANIONS IC QSM 5.0	(EPA 9056A)				10/16/2019	10/30/2019		Logged
			Chloride						
			Nitrate Nitrogen						
			Sulfate						
1230	ORGAN CARBON T QSM 5.(	EPA 9060A)				11/11/2019	10/30/2019		Logged
1279	SUB CHLORATE/CHLORITE	(300.1)					10/30/2019		Logged

SAMPLE #: 343836 DESCR: 54TW13 **PRIMARY / DETAILED MATRIX:** AQUEOUS / GROUND WATER **SAMPLED: 10/14/2019 Time: 1025**

CLIENT SAMPLE #: **DETAILED SITE/POINT ID INFORMATION:**

TEST#	TEST	TEST METHOD	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
759	CARBON, INORG & ORG	(EPA 9060A)				10/28/2019	10/30/2019		Entered
1227	ANIONS IC QSM 5.0	(EPA 9056A)				10/16/2019	10/30/2019		Logged

Folder #: 149018 **Company:** *WESTON SOLUTIONS, INC.* **Project:** RADFORD AAP SWMU-54

SAMPLE #: 343836 **DESCR:** 54TW13 **PRIMARY / DETAILED MATRIX:** AQUEOUS / GROUND WATER **SAMPLED:** 10/14/2019 **Time:** 1025

CLIENT SAMPLE #: **DETAILED SITE/POINT ID INFORMATION:**

TEST#	TEST	TEST METHOD	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
			Chloride						
			Nitrate Nitrogen						
			Sulfate						
1230	ORGAN CARBON T QSM 5.0	(EPA 9060A)				11/11/2019	10/30/2019		Logged
1279	SUB CHLORATE/CHLORITE	(300.1)					10/30/2019		Logged

SAMPLE #: 343838 **DESCR:** 54MW10 **PRIMARY / DETAILED MATRIX:** AQUEOUS / GROUND WATER **SAMPLED:** 10/14/2019 **Time:** 1215

CLIENT SAMPLE #: **DETAILED SITE/POINT ID INFORMATION:**

TEST#	TEST	TEST METHOD	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
759	CARBON, INORG & ORG	(EPA 9060A)				10/28/2019	10/30/2019		Entered
1227	ANIONS IC QSM 5.0	(EPA 9056A)				10/16/2019	10/30/2019		Logged
			Chloride						
			Nitrate Nitrogen						
			Sulfate						
1230	ORGAN CARBON T QSM 5.0	(EPA 9060A)				11/11/2019	10/30/2019		Logged
1279	SUB CHLORATE/CHLORITE	(300.1)					10/30/2019		Logged

SAMPLE #: 343840 **DESCR:** 54MW12 **PRIMARY / DETAILED MATRIX:** AQUEOUS / GROUND WATER **SAMPLED:** 10/14/2019 **Time:** 1325

CLIENT SAMPLE #: **DETAILED SITE/POINT ID INFORMATION:**

TEST#	TEST	TEST METHOD	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
759	CARBON, INORG & ORG	(EPA 9060A)			***DESIGNATED MATRIX SPIKE***	10/28/2019	10/30/2019		Entered
1227	ANIONS IC QSM 5.0	(EPA 9056A)			***DESIGNATED MATRIX SPIKE***	10/16/2019	10/30/2019		Logged
			Chloride						
			Nitrate Nitrogen						
			Sulfate						
1230	ORGAN CARBON T QSM 5.0	(EPA 9060A)			***DESIGNATED MATRIX SPIKE***	11/11/2019	10/30/2019		Logged
1279	SUB CHLORATE/CHLORITE	(300.1)			***DESIGNATED MATRIX SPIKE***		10/30/2019		Logged

Folder #: 149018 **Company:** *WESTON SOLUTIONS, INC.* **Project:** RADFORD AAP SWMU-54

SAMPLE #: 343842 **DESCR:** 54MW1 **PRIMARY / DETAILED MATRIX:** AQUEOUS / GROUND WATER **SAMPLED:** 10/14/2019 **Time:** 1510

CLIENT SAMPLE #: **DETAILED SITE/POINT ID INFORMATION:**

TEST#	TEST	TEST METHOD	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
759	CARBON, INORG & ORG	(EPA 9060A)				10/28/2019	10/30/2019		Entered
1227	ANIONS IC QSM 5.0	(EPA 9056A)				10/16/2019	10/30/2019		Logged
			Chloride						
			Nitrate Nitrogen						
			Sulfate						
1230	ORGAN CARBON T QSM 5.0	(EPA 9060A)				11/11/2019	10/30/2019		Logged
1279	SUB CHLORATE/CHLORITE	(300.1)					10/30/2019		Logged

SAMPLE #: 343844 **DESCR:** 54IDW **PRIMARY / DETAILED MATRIX:** AQUEOUS / GROUND WATER **SAMPLED:** 10/14/2019 **Time:** 1600

CLIENT SAMPLE #: **DETAILED SITE/POINT ID INFORMATION:**

TEST#	TEST	TEST METHOD	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
203	PH	(EPA 9040C)					10/30/2019		Logged
989	COD QSM	(EPA 410.4)				11/11/2019	10/30/2019		NeedPrep
1183	ICP K TOTAL QSM 5.0	(EPA 6010C)				04/11/2020	10/30/2019		NeedPrep
1190	ICP NA TOTAL QSM 5.0	(EPA 6010C)				04/11/2020	10/30/2019		NeedPrep
1200	ICP TOTAL QSM 5.0	(EPA 6010C)				04/11/2020	10/30/2019		NeedPrep
			Total Aluminum						
			Total Antimony						
			Total Arsenic						
			Total Barium						
			Total Beryllium						
			Total Cadmium						
			Total Calcium						
			Total Chromium						
			Total Cobalt						
			Total Copper						
			Total Iron						

SAMPLE #: 343844 **DESCR:** 54IDW **PRIMARY / DETAILED MATRIX:** AQUEOUS / GROUND WATER **SAMPLED:** 10/14/2019 **Time:** 1600

CLIENT SAMPLE #: **DETAILED SITE/POINT ID INFORMATION:**

TEST#	TEST	TEST METHOD	ANALYTE	TEST GROUP	SPECIAL REQUIREMENTS	HOLD DATE	ANALYSIS DUE	RUSH	STATUS
			Total Lead						
			Total Magnesium						
			Total Manganese						
			Total Nickel						
			Total Selenium						
			Total Silver						
			Total Thallium						
			Total Vanadium						
			Total Zinc						
1208	MERCURY TOTAL QSM 5.0(EPA 7470A)					11/11/2019	10/30/2019		NeedPrep

Folder #: 149018 **Company:** *WESTON SOLUTIONS, INC.* **Project:** RADFORD AAP SWMU-54

Invoice Number: 149652 **Preliminary Invoice Estimate:** $ 1,402.00

Item	Matrix	Quantity	Price	Expedited TAT Surcharge	Total
ANIONS IC QSM 5.0 Chloride	GROUND WATER	7	$ 12.00	0.00	$ 84.00
ANIONS IC QSM 5.0 Nitrate Nitrogen	GROUND WATER	7	$ 12.00	0.00	$ 84.00
ANIONS IC QSM 5.0 Sulfate	GROUND WATER	7	$ 12.00	0.00	$ 84.00
CARBON, INORG & ORG	GROUND WATER	7	$ 28.00	0.00	$ 196.00
COD QSM	GROUND WATER	1	$ 18.00	0.00	$ 18.00
ICP K TOTAL QSM 5.0	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP NA TOTAL QSM 5.0	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Aluminum	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Antimony	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Arsenic	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Barium	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Beryllium	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Cadmium	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Calcium	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Chromium	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Cobalt	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Copper	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Iron	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Lead	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Magnesium	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Manganese	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Nickel	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Selenium	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Silver	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Thallium	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Vanadium	GROUND WATER	1	$ 3.50	0.00	$ 3.50
ICP TOTAL QSM 5.0 Total Zinc	GROUND WATER	1	$ 3.50	0.00	$ 3.50
MERCURY TOTAL QSM 5.0	GROUND WATER	1	$ 23.00	0.00	$ 23.00
ORGAN CARBON T QSM 5.0	GROUND WATER	7	$ 28.00	0.00	$ 196.00

PH	GROUND WATER	1	$ 10.00	0.00	$ 10.00
SUB CHLORATE/CHLORITE	GROUND WATER	7	$ 90.00	0.00	$ 630.00
Temporary Fuel Surcharge on lab supplies and services (if applicable):					$ 0.00

Bottle Information

Container	# Containers	Tests

CT LABORATORIES
delivering more than data from your environmental analyses

Sample Condition Report

Folder #: 149018
Client: WESTON SOLUTIONS, INC.

Print Date / Time: 10/18/2019 16:16
Received Date / Time / By: 10/18/2019 12:10 JLS

Project Name: RADFORD AAP SWMU-54
Project Phase: RADFORD, VA

Log-In Date / Time / By: 10/18/2019 16:00 JLS
Project #: PM: BMS

Coolers: 6407,6408,6205,5838
Custody Seals Present : **Y**

Temperature: <3.9 C On Ice: **Y**
COC Present:? **Y** Complete? **Y**

Seal Intact? **Y**
Ship Method: FEDEX EX[RESS
Adequate Packaging: **Y**

Numbers: DATED AND SIGNED
Tracking Number: 780319141885
Temp Blank Enclosed? **Y**

Notes: THE SAMPLES WERE RECEIVED ON ICE.

ONE CUSTODY SEAL WAS PRESENT AND INTACT ON EACH COOLER UPON RECEIPT – ALL WERE DATED 10/17/2019 & SIGNED

ALL SAMPLES WERE RECEIVED PAST-HOLD FOR NITRATE ANALYSIS. THE CLIENT ADVISED THE LAB TO PROCEED WITH THE ANALYSIS OF THE SAMPLES.

THE BOTTLES FOR EXPLOSIVES (INCLUDING THE RDX BREAKDOWN PRODUCTS) AND PERCHLORATE WERE SHIPPED TO SGS-ORLANDO. WESTON WILL CONTRACT DIRECTLY WITH SGS FOR THESE ANALYSES.

Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
343788 54MW13				
	UNPRES PL	1	/	Anions
	Total # of Containers of Type	(***UNPRES PL***) = **1**		
343788 54MW13				
	MISC	1	/	SUB
	Total # of Containers of Type	(***MISC***) = **1**		
343788 54MW13				
	VOA	1	/	TIC
	VOA	1	/	TIC
	VOA	1	/	TIC
	Total # of Containers of Type	(***VOA***) = **3**		
343788 54MW13				
	H2SO4 PL	1	Y /	TOC
	Total # of Containers of Type	(***H2SO4 PL***) = **1**		

Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
343836 54TW13				
	UNPRES PL	1	/	Anions
	Total # of Containers of Type	(***UNPRES PL***) = **1**		
343836 54TW13				
	MISC	1	/	SUB
	Total # of Containers of Type	(***MISC***) = **1**		
343836 54TW13				
	VOA	1	/	TIC
	VOA	1	/	TIC
	VOA	1	/	TIC

148990

		Total # of Containers of Type	(***VOA***) = **3**		

Sample ID / Description		**Container Type**	**Cond. Code**	**pH OK?/Filtered?**	**Tests**
343836	54TW13				
		H2SO4 PL	1	Y /	TOC
		Total # of Containers of Type	(***H2SO4 PL***) = **1**		
343838	54MW10				
		UNPRES PL	1	/	Anions
		Total # of Containers of Type	(***UNPRES PL***) = **1**		
343838	54MW10				
		MISC	1	/	SUB
		Total # of Containers of Type	(***MISC***) = **1**		
343838	54MW10				
		VOA	1	/	TIC
		VOA	1	/	TIC
		VOA	1	/	TIC
		Total # of Containers of Type	(***VOA***) = **3**		
343838	54MW10				
		H2SO4 PL	1	Y /	TOC
		Total # of Containers of Type	(***H2SO4 PL***) = **1**		
343840	54MW12				
		UNPRES PL	1	/	ANIONS
		UNPRES PL	1	/	ANIONS
		UNPRES PL	1	/	Anions
		Total # of Containers of Type	(***UNPRES PL***) = **3**		
343840	54MW12				
		MISC	1	/	SUB
		Total # of Containers of Type	(***MISC***) = **1**		
343840	54MW12				
		VOA	1	/	TIC
		VOA	1	/	TIC
		VOA	1	/	TIC
		VOA	1	/	TIC
		VOA	1	/	TIC
		VOA	1	/	TIC
		VOA	1	/	TIC
		VOA	1	/	TIC
		VOA	1	/	TIC
		Total # of Containers of Type	(***VOA***) = **9**		
343840	54MW12				
		H2SO4 PL	1	/	TOC
		H2SO4 PL	1	/	TOC
		H2SO4 PL	1	/	TOC
		H2SO4 PL	1	/	TOC
		H2SO4 PL	1	Y /	TOC
		Total # of Containers of Type	(***H2SO4 PL***) = **5**		
343842	54MW1				
		UNPRES PL	1	/	Anions
		Total # of Containers of Type	(***UNPRES PL***) = **1**		

343842	54MW1				
		MISC	1	/	SUB
		Total # of Containers of Type	(***MISC***) = **1**		
343842	54MW1				
		VOA	1	/	TIC
		VOA	1	/	TIC
		VOA	1	/	TIC
		Total # of Containers of Type	(***VOA***) = **3**		
343842	54MW1				
		H2SO4 PL	1	Y /	TOC
		Total # of Containers of Type	(***H2SO4 PL***) = **1**		

Sample ID / Description	**Container Type**	**Cond. Code**	**pH OK?/Filtered?**	**Tests**
343844 54IDW				
	H2SO4 PL	1	Y /	COD
	Total # of Containers of Type	(***H2SO4 PL***) = **1**		
343844 54IDW				
	HNO3	1	Y /	HG,ICP,K,NA
	Total # of Containers of Type	(***HNO3***) = **1**		
343844 54IDW				
	UNPRES PL	1	/	pH
	Total # of Containers of Type	(***UNPRES PL***) = **1**		

Condition Code	*Condition Description*
1	Sample Received OK

148990

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

Weston Solutions, Inc

Radford AAP; VA

SGS Job Number: FA72036

Sampling Date: 01/27/20

Report to:

Weston Solutions, Inc
2 Eaton St Suite 603
Hampton, VA 23669
pacea@westonsolutions.com

ATTN: Tony Pace

Total number of pages in report: **530**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Caitlin Brice, M.S.
General Manager

Client Service contact: Andrea Colby 407-425-6700

Certifications: FL(E83510), LA(03051), KS(E-10327), IL(200063), NC(573), NJ(FL002), NY(12022), SC(96038001) DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177), AK, AR, IA, KY, MA, MS, ND, NH, NV, OK, OR, UT, WA, WV

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Test results relate only to samples analyzed.

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SGS North America Inc.

Sample Summary

Weston Solutions, Inc

Radford AAP; VA

Job No: FA72036

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
FA72036-1	01/27/20	10:35	WBPT	01/28/20	AQ	Ground Water	54MW10
FA72036-2	01/27/20	12:05	WBPT	01/28/20	AQ	Ground Water	54MW13
FA72036-3	01/27/20	12:05	WBPT	01/28/20	AQ	Ground Water	54TW13
FA72036-4	01/27/20	13:30	WBPT	01/28/20	AQ	Ground Water	54MW12
FA72036-4D	01/27/20	13:30	WBPT	01/28/20	AQ	Water Dup/MSD	54MW12
FA72036-4S	01/27/20	13:30	WBPT	01/28/20	AQ	Water Matrix Spike	54MW12
FA72036-5	01/27/20	15:05	WBPT	01/28/20	AQ	Ground Water	54MW1

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: Weston Solutions, Inc **Job No:** FA72036

Site: Radford AAP; VA **Report Date** 2/10/2020 2:31:52

5 Samples were collected on 01/27/2020 and were received at SGS North America Inc - Orlando on 01/28/2020 properly preserved, at 2.3 Deg. C and intact. These Samples received an SGS Orlando job number of FA72036. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section. Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

MS Semi-volatiles By Method SW846 6850

Matrix: AQ **Batch ID:** OP78776

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

Sample(s) FA72036-4MSD, FA72036-4MS were used as the QC samples indicated.

All method blanks for this batch meet method specific criteria.

Matrix Spike Recovery(s) for Perchlorate are outside control limits. Outside control limits due to high level in sample relative to spike amount.

Matrix Spike Duplicate Recovery(s) for Perchlorate are outside control limits. Probable cause is due to matrix interference.

GC/LC Semi-volatiles By Method SW846 8330B

Matrix: AQ **Batch ID:** OP78763

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) FA72036-4MS, FA72036-4MSD were used as the QC samples indicated.

Blank Spike Recovery(s) for PETN are outside control limits.

Matrix Spike Recovery(s) for PETN are outside control limits. Probable cause is due to matrix interference.

Matrix Spike Duplicate Recovery(s) for 2,6-Dinitrotoluene, PETN are outside control limits. Probable cause is due to matrix interference.

RPD(s) for MSD for 2,6-Dinitrotoluene are outside control limits for sample OP78763-MSD. Probable cause is due to sample non-homogeneity.

FA72036-1 for 3,5-Dinitroaniline: Primary and confirmation results differ by more than 40%.

FA72036-1 for PETN: Associated CCV outside of DoD control limits high, sample was ND.

FA72036-1: All hits confirmed by reanalysis on a dissimilar column.

FA72036-1: Confirmation run.

FA72036-2 for 3,5-Dinitroaniline: Primary and confirmation results differ by more than 40%.

FA72036-2 for PETN: Associated CCV outside of DoD control limits high, sample was ND.

FA72036-2: All hits confirmed by reanalysis on a dissimilar column.

FA72036-2: Confirmation run.

FA72036-3 for 3,5-Dinitroaniline: Primary and confirmation results differ by more than 40%.

FA72036-3 for PETN: Associated CCV outside of DoD control limits high, sample was ND.

FA72036-3: All hits confirmed by reanalysis on a dissimilar column.

FA72036-3: Confirmation run.

FA72036-4 for 3,5-Dinitroaniline: Primary and confirmation results differ by more than 40%.

FA72036-4 for PETN: Associated CCV outside of DoD control limits high, sample was ND.

FA72036-4: All hits confirmed by reanalysis on a dissimilar column.

FA72036-4: Confirmation run.

FA72036-5 for PETN: Associated CCV outside of DoD control limits high, sample was ND.

SGS Orlando certifies that this report meets the project requirements for analytical data produced for the samples as received at SGS Orlando and as stated on the COC. SGS Orlando certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the SGS Orlando Quality Manual except as noted above. This report is to be used in its entirety. SGS Orlando is not responsible for any assumptions of data quality if partial data packages are used.

Narrative prepared by:

_____

Ariel Hartney, Client Services *(Signature on File)*

Summary of Hits

Job Number: FA72036
Account: Weston Solutions, Inc
Project: Radford AAP; VA
Collected: 01/27/20

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
FA72036-1	**54MW10**					
Perchlorate		0.25	0.20	0.10	ug/l	SW846 6850
HMX [a]		5.5	0.19	0.095	ug/l	SW846 8330B
RDX [a]		1.9	0.19	0.095	ug/l	SW846 8330B
3,5-Dinitroaniline [b]		0.45	0.19	0.095	ug/l	SW846 8330B
2-amino-4,6-Dinitrotoluene [a]		2.8	0.19	0.095	ug/l	SW846 8330B
4-amino-2,6-Dinitrotoluene [b]		2.3	0.19	0.095	ug/l	SW846 8330B
1,3,5-Trinitrobenzene [a]		3.8	0.19	0.095	ug/l	SW846 8330B
2,4,6-Trinitrotoluene [a]		8.4	0.19	0.095	ug/l	SW846 8330B
FA72036-2	**54MW13**					
Perchlorate		0.26	0.20	0.10	ug/l	SW846 6850
HMX [a]		4.4	0.19	0.096	ug/l	SW846 8330B
RDX [a]		0.55	0.19	0.096	ug/l	SW846 8330B
3,5-Dinitroaniline [b]		0.51	0.19	0.096	ug/l	SW846 8330B
2-amino-4,6-Dinitrotoluene [a]		1.4	0.19	0.096	ug/l	SW846 8330B
4-amino-2,6-Dinitrotoluene [b]		1.0	0.19	0.096	ug/l	SW846 8330B
1,3,5-Trinitrobenzene [a]		7.2	0.19	0.096	ug/l	SW846 8330B
2,4,6-Trinitrotoluene [a]		4.1	0.19	0.096	ug/l	SW846 8330B
FA72036-3	**54TW13**					
Perchlorate		0.27	0.20	0.10	ug/l	SW846 6850
HMX [a]		4.3	0.19	0.094	ug/l	SW846 8330B
RDX [a]		0.48	0.19	0.094	ug/l	SW846 8330B
3,5-Dinitroaniline [b]		0.45	0.19	0.094	ug/l	SW846 8330B
2-amino-4,6-Dinitrotoluene [a]		1.1	0.19	0.094	ug/l	SW846 8330B
4-amino-2,6-Dinitrotoluene [a]		0.67	0.19	0.094	ug/l	SW846 8330B
1,3,5-Trinitrobenzene [a]		6.9	0.19	0.094	ug/l	SW846 8330B
2,4,6-Trinitrotoluene [a]		3.8	0.19	0.094	ug/l	SW846 8330B
FA72036-4	**54MW12**					
Perchlorate		0.49	0.20	0.10	ug/l	SW846 6850
HMX [a]		13.1	0.19	0.094	ug/l	SW846 8330B
RDX [a]		0.56	0.19	0.094	ug/l	SW846 8330B
3,5-Dinitroaniline [b]		0.31	0.19	0.094	ug/l	SW846 8330B
2-amino-4,6-Dinitrotoluene [a]		4.3	0.19	0.094	ug/l	SW846 8330B
4-amino-2,6-Dinitrotoluene [b]		2.2	0.19	0.094	ug/l	SW846 8330B
1,3,5-Trinitrobenzene [a]		17.3	0.19	0.094	ug/l	SW846 8330B
2,4,6-Trinitrotoluene [a]		10.2	0.19	0.094	ug/l	SW846 8330B

Summary of Hits

Job Number: FA72036
Account: Weston Solutions, Inc
Project: Radford AAP; VA
Collected: 01/27/20

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
FA72036-5	**54MW1**					

No hits reported in this sample.

(a) All hits confirmed by reanalysis on a dissimilar column.
(b) All hits confirmed by reanalysis on a dissimilar column. Primary and confirmation results differ by more than 40%.

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

Client Sample ID: 54MW10
Lab Sample ID: FA72036-1
Matrix: AQ - Ground Water
Method: SW846 6850 SW846 6850
Project: Radford AAP; VA

Date Sampled: 01/27/20
Date Received: 01/28/20
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Q67313.D	1	02/02/20 17:48	NAF	02/02/20 11:00	OP78776	SQ1519
Run #2							

	Initial Volume	Final Volume
Run #1	10.0 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
14797-73-0	Perchlorate	0.25	0.20	0.10	0.050	ug/l	

U = Not detected LOD = Limit of Detection
LOQ = Limit of Quantitation DL = Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID: 54MW10
Lab Sample ID: FA72036-1
Matrix: AQ - Ground Water
Method: SW846 8330B SW846 3535A
Project: Radford AAP; VA

Date Sampled: 01/27/20
Date Received: 01/28/20
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB067857.D	1	02/03/20 17:19	WH	01/31/20 09:00	OP78763	GBB1981
Run #2 [b]	GG618372.D	1	02/04/20 19:50	WH	01/31/20 09:00	OP78763	GGG2806

	Initial Volume	Final Volume
Run #1	1050 ml	10.0 ml
Run #2	1050 ml	10.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	5.5	0.19	0.095	0.076	ug/l	
121-82-4	RDX	1.9	0.19	0.095	0.076	ug/l	
	DNX	0.095 U	0.19	0.095	0.076	ug/l	
	MNX	0.095 U	0.19	0.095	0.076	ug/l	
	TNX	0.095 U	0.19	0.095	0.076	ug/l	
618-87-1	3,5-Dinitroaniline [c]	0.45	0.19	0.095	0.076	ug/l	
99-65-0	1,3-Dinitrobenzene	0.095 U	0.19	0.095	0.076	ug/l	
606-20-2	2,6-Dinitrotoluene	0.095 U	0.19	0.095	0.076	ug/l	
121-14-2	2,4-Dinitrotoluene	0.095 U	0.19	0.095	0.076	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	2.8	0.19	0.095	0.076	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene [c]	2.3	0.19	0.095	0.076	ug/l	
98-95-3	Nitrobenzene	0.095 U	0.19	0.095	0.092	ug/l	
88-72-2	o-Nitrotoluene	0.095 U	0.19	0.095	0.076	ug/l	
99-08-1	m-Nitrotoluene	0.095 U	0.19	0.095	0.076	ug/l	
99-99-0	p-Nitrotoluene	0.095 U	0.19	0.095	0.076	ug/l	
479-45-8	Tetryl	0.095 U	0.19	0.095	0.076	ug/l	
99-35-4	1,3,5-Trinitrobenzene	3.8	0.19	0.095	0.094	ug/l	
118-96-7	2,4,6-Trinitrotoluene	8.4	0.19	0.095	0.076	ug/l	
55-63-0	Nitroglycerine	0.95 U	1.9	0.95	0.48	ug/l	
78-11-5	PETN [d]	0.95 U	1.9	0.95	0.48	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
610-39-9	3,4-Dinitrotoluene	118%	132%	70-136%

(a) All hits confirmed by reanalysis on a dissimilar column.
(b) Confirmation run.
(c) Primary and confirmation results differ by more than 40%.
(d) Associated CCV outside of DoD control limits high, sample was ND.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW13		
Lab Sample ID:	FA72036-2	**Date Sampled:**	01/27/20
Matrix:	AQ - Ground Water	**Date Received:**	01/28/20
Method:	SW846 6850 SW846 6850	**Percent Solids:**	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Q67314.D	1	02/02/20 17:57	NAF	02/02/20 11:00	OP78776	SQ1519
Run #2							

	Initial Volume	Final Volume
Run #1	10.0 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
14797-73-0	Perchlorate	0.26	0.20	0.10	0.050	ug/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID: 54MW13
Lab Sample ID: FA72036-2
Matrix: AQ - Ground Water
Method: SW846 8330B SW846 3535A
Project: Radford AAP; VA

Date Sampled: 01/27/20
Date Received: 01/28/20
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB067860.D	1	02/03/20 18:48	WH	01/31/20 09:00	OP78763	GBB1981
Run #2 [b]	GG618373.D	1	02/04/20 20:19	WH	01/31/20 09:00	OP78763	GGG2806

	Initial Volume	Final Volume
Run #1	1040 ml	10.0 ml
Run #2	1040 ml	10.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	4.4	0.19	0.096	0.077	ug/l	
121-82-4	RDX	0.55	0.19	0.096	0.077	ug/l	
	DNX	0.096 U	0.19	0.096	0.077	ug/l	
	MNX	0.096 U	0.19	0.096	0.077	ug/l	
	TNX	0.096 U	0.19	0.096	0.077	ug/l	
618-87-1	3,5-Dinitroaniline [c]	0.51	0.19	0.096	0.077	ug/l	
99-65-0	1,3-Dinitrobenzene	0.096 U	0.19	0.096	0.077	ug/l	
606-20-2	2,6-Dinitrotoluene	0.096 U	0.19	0.096	0.077	ug/l	
121-14-2	2,4-Dinitrotoluene	0.096 U	0.19	0.096	0.077	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	1.4	0.19	0.096	0.077	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene [c]	1.0	0.19	0.096	0.077	ug/l	
98-95-3	Nitrobenzene	0.096 U	0.19	0.096	0.093	ug/l	
88-72-2	o-Nitrotoluene	0.096 U	0.19	0.096	0.077	ug/l	
99-08-1	m-Nitrotoluene	0.096 U	0.19	0.096	0.077	ug/l	
99-99-0	p-Nitrotoluene	0.096 U	0.19	0.096	0.077	ug/l	
479-45-8	Tetryl	0.096 U	0.19	0.096	0.077	ug/l	
99-35-4	1,3,5-Trinitrobenzene	7.2	0.19	0.096	0.095	ug/l	
118-96-7	2,4,6-Trinitrotoluene	4.1	0.19	0.096	0.077	ug/l	
55-63-0	Nitroglycerine	0.96 U	1.9	0.96	0.48	ug/l	
78-11-5	PETN [d]	0.96 U	1.9	0.96	0.48	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
610-39-9	3,4-Dinitrotoluene	116%	128%	70-136%

(a) All hits confirmed by reanalysis on a dissimilar column.
(b) Confirmation run.
(c) Primary and confirmation results differ by more than 40%.
(d) Associated CCV outside of DoD control limits high, sample was ND.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID: 54TW13
Lab Sample ID: FA72036-3
Matrix: AQ - Ground Water
Method: SW846 6850 SW846 6850
Project: Radford AAP; VA

Date Sampled: 01/27/20
Date Received: 01/28/20
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Q67315.D	1	02/02/20 18:06	NAF	02/02/20 11:00	OP78776	SQ1519
Run #2							

	Initial Volume	Final Volume
Run #1	10.0 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
14797-73-0	Perchlorate	0.27	0.20	0.10	0.050	ug/l	

U = Not detected LOD = Limit of Detection
LOQ = Limit of Quantitation DL = Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID: 54TW13
Lab Sample ID: FA72036-3
Matrix: AQ - Ground Water
Method: SW846 8330B SW846 3535A
Project: Radford AAP; VA

Date Sampled: 01/27/20
Date Received: 01/28/20
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB067861.D	1	02/03/20 19:18	WH	01/31/20 09:00	OP78763	GBB1981
Run #2 [b]	GG618384.D	1	02/05/20 11:37	WH	01/31/20 09:00	OP78763	GGG2807

	Initial Volume	Final Volume
Run #1	1060 ml	10.0 ml
Run #2	1060 ml	10.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	4.3	0.19	0.094	0.075	ug/l	
121-82-4	RDX	0.48	0.19	0.094	0.075	ug/l	
	DNX	0.094 U	0.19	0.094	0.075	ug/l	
	MNX	0.094 U	0.19	0.094	0.075	ug/l	
	TNX	0.094 U	0.19	0.094	0.075	ug/l	
618-87-1	3,5-Dinitroaniline [c]	0.45	0.19	0.094	0.075	ug/l	
99-65-0	1,3-Dinitrobenzene	0.094 U	0.19	0.094	0.075	ug/l	
606-20-2	2,6-Dinitrotoluene	0.094 U	0.19	0.094	0.075	ug/l	
121-14-2	2,4-Dinitrotoluene	0.094 U	0.19	0.094	0.075	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	1.1	0.19	0.094	0.075	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene	0.67	0.19	0.094	0.075	ug/l	
98-95-3	Nitrobenzene	0.094 U	0.19	0.094	0.092	ug/l	
88-72-2	o-Nitrotoluene	0.094 U	0.19	0.094	0.075	ug/l	
99-08-1	m-Nitrotoluene	0.094 U	0.19	0.094	0.075	ug/l	
99-99-0	p-Nitrotoluene	0.094 U	0.19	0.094	0.075	ug/l	
479-45-8	Tetryl	0.094 U	0.19	0.094	0.075	ug/l	
99-35-4	1,3,5-Trinitrobenzene	6.9	0.19	0.094	0.093	ug/l	
118-96-7	2,4,6-Trinitrotoluene	3.8	0.19	0.094	0.075	ug/l	
55-63-0	Nitroglycerine	0.94 U	1.9	0.94	0.47	ug/l	
78-11-5	PETN [d]	0.94 U	1.9	0.94	0.47	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
610-39-9	3,4-Dinitrotoluene	113%	129%	70-136%

(a) All hits confirmed by reanalysis on a dissimilar column.
(b) Confirmation run.
(c) Primary and confirmation results differ by more than 40%.
(d) Associated CCV outside of DoD control limits high, sample was ND.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW12		
Lab Sample ID:	FA72036-4	**Date Sampled:**	01/27/20
Matrix:	AQ - Ground Water	**Date Received:**	01/28/20
Method:	SW846 6850 SW846 6850	**Percent Solids:**	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Q67316.D	1	02/02/20 18:16	NAF	02/02/20 11:00	OP78776	SQ1519
Run #2							

	Initial Volume	Final Volume
Run #1	10.0 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
14797-73-0	Perchlorate	0.49	0.20	0.10	0.050	ug/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID: 54MW12
Lab Sample ID: FA72036-4
Matrix: AQ - Ground Water
Method: SW846 8330B SW846 3535A
Project: Radford AAP; VA

Date Sampled: 01/27/20
Date Received: 01/28/20
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB067850.D	1	02/03/20 13:49	WH	01/31/20 09:00	OP78763	GBB1981
Run #2 [b]	GG618385.D	1	02/05/20 12:06	WH	01/31/20 09:00	OP78763	GGG2807

	Initial Volume	Final Volume
Run #1	1060 ml	10.0 ml
Run #2	1060 ml	10.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	13.1	0.19	0.094	0.075	ug/l	
121-82-4	RDX	0.56	0.19	0.094	0.075	ug/l	
	DNX	0.094 U	0.19	0.094	0.075	ug/l	
	MNX	0.094 U	0.19	0.094	0.075	ug/l	
	TNX	0.094 U	0.19	0.094	0.075	ug/l	
618-87-1	3,5-Dinitroaniline [c]	0.31	0.19	0.094	0.075	ug/l	
99-65-0	1,3-Dinitrobenzene	0.094 U	0.19	0.094	0.075	ug/l	
606-20-2	2,6-Dinitrotoluene	0.094 U	0.19	0.094	0.075	ug/l	
121-14-2	2,4-Dinitrotoluene	0.094 U	0.19	0.094	0.075	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	4.3	0.19	0.094	0.075	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene [c]	2.2	0.19	0.094	0.075	ug/l	
98-95-3	Nitrobenzene	0.094 U	0.19	0.094	0.092	ug/l	
88-72-2	o-Nitrotoluene	0.094 U	0.19	0.094	0.075	ug/l	
99-08-1	m-Nitrotoluene	0.094 U	0.19	0.094	0.075	ug/l	
99-99-0	p-Nitrotoluene	0.094 U	0.19	0.094	0.075	ug/l	
479-45-8	Tetryl	0.094 U	0.19	0.094	0.075	ug/l	
99-35-4	1,3,5-Trinitrobenzene	17.3	0.19	0.094	0.093	ug/l	
118-96-7	2,4,6-Trinitrotoluene	10.2	0.19	0.094	0.075	ug/l	
55-63-0	Nitroglycerine	0.94 U	1.9	0.94	0.47	ug/l	
78-11-5	PETN [d]	0.94 U	1.9	0.94	0.47	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
610-39-9	3,4-Dinitrotoluene	110%	129%	70-136%

(a) All hits confirmed by reanalysis on a dissimilar column.
(b) Confirmation run.
(c) Primary and confirmation results differ by more than 40%.
(d) Associated CCV outside of DoD control limits high, sample was ND.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW1		
Lab Sample ID:	FA72036-5	**Date Sampled:**	01/27/20
Matrix:	AQ - Ground Water	**Date Received:**	01/28/20
Method:	SW846 6850 SW846 6850	**Percent Solids:**	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Q67319.D	1	02/02/20 18:44	NAF	02/02/20 11:00	OP78776	SQ1519
Run #2							

	Initial Volume	Final Volume
Run #1	10.0 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
14797-73-0	Perchlorate	0.10 U	0.20	0.10	0.050	ug/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID: 54MW1
Lab Sample ID: FA72036-5
Matrix: AQ - Ground Water
Method: SW846 8330B SW846 3535A
Project: Radford AAP; VA

Date Sampled: 01/27/20
Date Received: 01/28/20
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BB067862.D	1	02/03/20 19:48	WH	01/31/20 09:00	OP78763	GBB1981
Run #2							

	Initial Volume	Final Volume
Run #1	1050 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	0.095 U	0.19	0.095	0.076	ug/l	
121-82-4	RDX	0.095 U	0.19	0.095	0.076	ug/l	
	DNX	0.095 U	0.19	0.095	0.076	ug/l	
	MNX	0.095 U	0.19	0.095	0.076	ug/l	
	TNX	0.095 U	0.19	0.095	0.076	ug/l	
618-87-1	3,5-Dinitroaniline	0.095 U	0.19	0.095	0.076	ug/l	
99-65-0	1,3-Dinitrobenzene	0.095 U	0.19	0.095	0.076	ug/l	
606-20-2	2,6-Dinitrotoluene	0.095 U	0.19	0.095	0.076	ug/l	
121-14-2	2,4-Dinitrotoluene	0.095 U	0.19	0.095	0.076	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	0.095 U	0.19	0.095	0.076	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene	0.095 U	0.19	0.095	0.076	ug/l	
98-95-3	Nitrobenzene	0.095 U	0.19	0.095	0.092	ug/l	
88-72-2	o-Nitrotoluene	0.095 U	0.19	0.095	0.076	ug/l	
99-08-1	m-Nitrotoluene	0.095 U	0.19	0.095	0.076	ug/l	
99-99-0	p-Nitrotoluene	0.095 U	0.19	0.095	0.076	ug/l	
479-45-8	Tetryl	0.095 U	0.19	0.095	0.076	ug/l	
99-35-4	1,3,5-Trinitrobenzene	0.095 U	0.19	0.095	0.094	ug/l	
118-96-7	2,4,6-Trinitrotoluene	0.095 U	0.19	0.095	0.076	ug/l	
55-63-0	Nitroglycerine	0.95 U	1.9	0.95	0.48	ug/l	
78-11-5	PETN [a]	0.95 U	1.9	0.95	0.48	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
610-39-9	3,4-Dinitrotoluene	112%		70-136%

(a) Associated CCV outside of DoD control limits high, sample was ND.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- QC Evaluation: DOD QSM5.x Limits

SGS North America Inc - Orlando

Chain of Custody

FA72036

SGS - ORLANDO JOB # : PAGE 1 OF 1

4405 Vineland Road, Suite C-15 Orlando, Fl 32811
TEL. 407-425-6700 FAX: 407-425-0707
www.sgs.com

SGS - ORLANDO Quote # | SKIFF #

Client / Reporting Information

Company Name: Weston Solutions, Inc.
Address: 2 Eaton St. Ste. 603
City: Hampton State: VA Zip: 23669
Project Contact: Tony Pace Email: Tony.Pace@WestonSolutions.com
Phone #: 757-819-5310
Sampler(s) Name(s) (Printed)
Sampler 1: W. Bounds Sampler 2: P. Taylor

Project Information

Project Name: Radford AAP - SWMU 54
Street
City Radford State VA
Project #
Fax #
Client Purchase Order #

Analytical Information

Explosives + DNX, MNX, TNX (8330B) | Perchlorate (6850)

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL - Sludge
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid

SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION DATE 2020	TIME	SAMPLED BY:	MATRIX	TOTAL # OF BOTTLES	CONTAINER INFORMATION: OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NACH3ZNAC	DI WATER	MEOH	Explosives + DNX, MNX, TNX (8330B)	Perchlorate (6850)	LAB USE ONLY
1	~~54MW13~~ 54MW10	1/27	1035	WB/PT	GW	3		X								2	1	
2	54MW13	1/27	1205	WB/PT	GW	3		X								2	1	
3	~~54MW10~~ 54TW13	1/27	1205	WB/PT	GW	3		X								2	1	
4	54MW12	1/27	1330	WB/PT	GW	9		X								6	3	MS/MSD
5	54MW1	1/27	1505	WB/PT	GW	3		X								2	1	

Turnaround Time (Business days)

10 Day (Business) Approved By: / Date:
7 Day
5 Day
3 Day *RUSH*
2 Day *RUSH*
1 Day *RUSH* 14 day
Other
Rush T/A Data Available VIA Email or Lablink

Data Deliverable Information

- [ ] COMMERCIAL "A" (RESULTS ONLY)
- [ ] COMMERCIAL "B" (RESULTS PLUS QC)
- [ ] REDT1 (EPA LEVEL 3)
- [x] FULLT1 (EPA LEVEL 4)
- [ ] EDD'S

Comments / Remarks

2 coolers
~~COC #~~ Custody Seals #:
16327 & 16328

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
1 Weston	1/27/20 1730	2 Fedex	3 FAX	1/28/20 9:0	4
5		6	7		8

Lab Use Only: Cooler Temperature (s) Celsius (corrected): 1.9

http://www.sgs.com/en/terms-and-conditions

ORLD-SMT-0001-03-FORM-COC (1) Rev 031318

SGS Sample Receipt Summary

Job Number: FA72036 **Client:** WESTON SOLUTIONS INC. **Project:** RADFORD AAP - SWMU 54

Date / Time Received: 1/28/2020 9:00:00 AM **Delivery Method:** FED EX **Airbill #'s:**

Therm ID: IR 1; **Therm CF:** -0.8; **# of Coolers:** 1

Cooler Temps (Raw Measured) °C: Cooler 2: (3.1); Cooler 1: (2.7);

Cooler Temps (Corrected) °C: Cooler 2: (2.3); Cooler 1: (1.9);

Cooler Information	Y	or	N
1. Custody Seals Present	☑		☐
2. Custody Seals Intact	☑		☐
3. Temp criteria achieved	☑		☐
4. Cooler temp verification	IR Gun		
5. Cooler media	Ice (Bag)		

Trip Blank Information	Y	or	N	N/A
1. Trip Blank present / cooler	☐		☐	☑
2. Trip Blank listed on COC	☐		☐	☑

	W	or	S	N/A
3. Type Of TB Received	☐		☐	☑

Sample Information	Y	or	N	N/A
1. Sample labels present on bottles	☑		☐	
2. Samples preserved properly	☑		☐	
3. Sufficient volume/containers recvd for analysis:	☑		☐	
4. Condition of sample	Intact			
5. Sample recvd within HT	☑		☐	
6. Dates/Times/IDs on COC match Sample Label	☑		☐	
7. VOCs have headspace	☐		☐	☑
8. Bottles received for unspecified tests	☐		☑	
9. Compositing instructions clear	☐		☐	☑
10. Voa Soil Kits/Jars received past 48hrs?	☐		☐	☑
11. % Solids Jar received?	☐		☐	☑
12. Residual Chlorine Present?	☐		☐	☑

Misc. Information

Number of Encores: 25-Gram _____ 5-Gram _____ Number of 5035 Field Kits: _____ Number of Lab Filtered Metals: _____

Test Strip Lot #s: pH 0-3 230315 pH 10-12 219813A Other: (Specify) _____ _____

Residual Chlorine Test Strip Lot #: _____

Comments

SM001
Rev. Date 05/24/17

Technician: TRINITYM Date: 1/28/2020 9:00:00 AM Reviewer: _____ Date: _____

QC Evaluation: DOD QSM5.x Limits

Job Number: FA72036
Account: Weston Solutions, Inc
Project: Radford AAP; VA
Collected: 01/27/20

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
OP78776	SW846 6850						
OP78776-BS	14797-73-0	Perchlorate	BSP	REC	90	%	84-119
OP78776-BS	14797-73-0	Perchlorate	BSP	REC	90	%	84-119
OP78776-MS	14797-73-0	Perchlorate	MS	REC	55 [a]	%	84-119
OP78776-MSD	14797-73-0	Perchlorate	MSD	REC	55 [a]	%	84-119
OP78776-MSD	14797-73-0	Perchlorate	MSD	RPD	0	%	15
OP78763	SW846 8330B						
OP78763-BS	2691-41-0	HMX	BSP	REC	108	%	65-135
OP78763-BS	121-82-4	RDX	BSP	REC	100	%	68-130
OP78763-BS		DNX	BSP	REC	100	%	66-119
OP78763-BS		MNX	BSP	REC	104	%	57-132
OP78763-BS	618-87-1	3,5-Dinitroaniline	BSP	REC	100	%	71-117
OP78763-BS	99-65-0	1,3-Dinitrobenzene	BSP	REC	104	%	78-120
OP78763-BS	606-20-2	2,6-Dinitrotoluene	BSP	REC	108	%	77-127
OP78763-BS	121-14-2	2,4-Dinitrotoluene	BSP	REC	106	%	78-120
OP78763-BS	35572-78-2	2-amino-4,6-Dinitrotoluene	BSP	REC	104	%	79-120
OP78763-BS	19406-51-0	4-amino-2,6-Dinitrotoluene	BSP	REC	102	%	76-125
OP78763-BS	98-95-3	Nitrobenzene	BSP	REC	98	%	65-134
OP78763-BS	88-72-2	o-Nitrotoluene	BSP	REC	98	%	70-127
OP78763-BS	99-08-1	m-Nitrotoluene	BSP	REC	102	%	73-125
OP78763-BS	99-99-0	p-Nitrotoluene	BSP	REC	100	%	71-127
OP78763-BS	479-45-8	Tetryl	BSP	REC	106	%	64-128
OP78763-BS	99-35-4	1,3,5-Trinitrobenzene	BSP	REC	108	%	73-125
OP78763-BS	118-96-7	2,4,6-Trinitrotoluene	BSP	REC	106	%	71-123
OP78763-BS	55-63-0	Nitroglycerine	BSP	REC	110	%	74-127
OP78763-BS	78-11-5	PETN	BSP	REC	234	%	73-127
OP78763-MS	2691-41-0	HMX	MS	REC	103	%	65-135
OP78763-MS	121-82-4	RDX	MS	REC	96	%	68-130
OP78763-MS		DNX	MS	REC	100	%	66-119
OP78763-MS		MNX	MS	REC	97	%	57-132
OP78763-MS	618-87-1	3,5-Dinitroaniline	MS	REC	99	%	71-117
OP78763-MS	99-65-0	1,3-Dinitrobenzene	MS	REC	102	%	78-120
OP78763-MS	606-20-2	2,6-Dinitrotoluene	MS	REC	124	%	77-127
OP78763-MS	121-14-2	2,4-Dinitrotoluene	MS	REC	107	%	78-120
OP78763-MS	35572-78-2	2-amino-4,6-Dinitrotoluene	MS	REC	101	%	79-120
OP78763-MS	19406-51-0	4-amino-2,6-Dinitrotoluene	MS	REC	100	%	76-125
OP78763-MS	98-95-3	Nitrobenzene	MS	REC	96	%	65-134
OP78763-MS	88-72-2	o-Nitrotoluene	MS	REC	109	%	70-127
OP78763-MS	99-08-1	m-Nitrotoluene	MS	REC	96	%	73-125
OP78763-MS	99-99-0	p-Nitrotoluene	MS	REC	105	%	71-127
OP78763-MS	479-45-8	Tetryl	MS	REC	102	%	64-128

* Sample used for QC is not from job FA72036

QC Evaluation: DOD QSM5.x Limits

Job Number: FA72036
Account: Weston Solutions, Inc
Project: Radford AAP; VA
Collected: 01/27/20

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
OP78763-MS	99-35-4	1,3,5-Trinitrobenzene	MS	REC	110	%	73-125
OP78763-MS	118-96-7	2,4,6-Trinitrotoluene	MS	REC	101	%	71-123
OP78763-MS	55-63-0	Nitroglycerine	MS	REC	107	%	74-127
OP78763-MS	78-11-5	PETN	MS	REC	218	%	73-127
OP78763-MSD	2691-41-0	HMX	MSD	REC	104	%	65-135
OP78763-MSD	2691-41-0	HMX	MSD	RPD	0	%	20
OP78763-MSD	121-82-4	RDX	MSD	REC	96	%	68-130
OP78763-MSD	121-82-4	RDX	MSD	RPD	0	%	20
OP78763-MSD		DNX	MSD	REC	100	%	66-119
OP78763-MSD		DNX	MSD	RPD	0	%	20
OP78763-MSD		MNX	MSD	REC	97	%	57-132
OP78763-MSD		MNX	MSD	RPD	0	%	20
OP78763-MSD	618-87-1	3,5-Dinitroaniline	MSD	REC	99	%	71-117
OP78763-MSD	618-87-1	3,5-Dinitroaniline	MSD	RPD	0	%	20
OP78763-MSD	99-65-0	1,3-Dinitrobenzene	MSD	REC	102	%	78-120
OP78763-MSD	99-65-0	1,3-Dinitrobenzene	MSD	RPD	0	%	20
OP78763-MSD	606-20-2	2,6-Dinitrotoluene	MSD	REC	151	%	77-127
OP78763-MSD	606-20-2	2,6-Dinitrotoluene	MSD	RPD	20	%	20
OP78763-MSD	121-14-2	2,4-Dinitrotoluene	MSD	REC	110	%	78-120
OP78763-MSD	121-14-2	2,4-Dinitrotoluene	MSD	RPD	3	%	20
OP78763-MSD	35572-78-2	2-amino-4,6-Dinitrotoluene	MSD	REC	103	%	79-120
OP78763-MSD	35572-78-2	2-amino-4,6-Dinitrotoluene	MSD	RPD	1	%	20
OP78763-MSD	19406-51-0	4-amino-2,6-Dinitrotoluene	MSD	REC	104	%	76-125
OP78763-MSD	19406-51-0	4-amino-2,6-Dinitrotoluene	MSD	RPD	3	%	20
OP78763-MSD	98-95-3	Nitrobenzene	MSD	REC	98	%	65-134
OP78763-MSD	98-95-3	Nitrobenzene	MSD	RPD	2	%	20
OP78763-MSD	88-72-2	o-Nitrotoluene	MSD	REC	107	%	70-127
OP78763-MSD	88-72-2	o-Nitrotoluene	MSD	RPD	2	%	20
OP78763-MSD	99-08-1	m-Nitrotoluene	MSD	REC	97	%	73-125
OP78763-MSD	99-08-1	m-Nitrotoluene	MSD	RPD	1	%	20
OP78763-MSD	99-99-0	p-Nitrotoluene	MSD	REC	105	%	71-127
OP78763-MSD	99-99-0	p-Nitrotoluene	MSD	RPD	0	%	20
OP78763-MSD	479-45-8	Tetryl	MSD	REC	105	%	64-128
OP78763-MSD	479-45-8	Tetryl	MSD	RPD	3	%	20
OP78763-MSD	99-35-4	1,3,5-Trinitrobenzene	MSD	REC	111	%	73-125
OP78763-MSD	99-35-4	1,3,5-Trinitrobenzene	MSD	RPD	0	%	20
OP78763-MSD	118-96-7	2,4,6-Trinitrotoluene	MSD	REC	102	%	71-123
OP78763-MSD	118-96-7	2,4,6-Trinitrotoluene	MSD	RPD	1	%	20
OP78763-MSD	55-63-0	Nitroglycerine	MSD	REC	109	%	74-127
OP78763-MSD	55-63-0	Nitroglycerine	MSD	RPD	2	%	20
OP78763-MSD	78-11-5	PETN	MSD	REC	210	%	73-127
OP78763-MSD	78-11-5	PETN	MSD	RPD	4	%	20

(a) Outside control limits due to high level in sample relative to spike amount.

* Sample used for QC is not from job FA72036

MS Semi-volatiles

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QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Internal Standard Area Summaries
- Initial and Continuing Calibration Summaries
- Run Sequence Reports

Method Blank Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP78776-MB	Q67304.D	1	02/02/20	NAF	02/02/20	OP78776	SQ1519

The QC reported here applies to the following samples: **Method:** SW846 6850

FA72036-1, FA72036-2, FA72036-3, FA72036-4, FA72036-5

CAS No.	Compound	Result	RL	MDL	Units	Q
14797-73-0	Perchlorate	ND	0.20	0.050	ug/l	

Method Blank Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP78776-MB	Q67360.D	1	02/03/20	NAF	02/02/20	OP78776	SQ1520

The QC reported here applies to the following samples: **Method:** SW846 6850

FA72036-1, FA72036-2, FA72036-3, FA72036-4, FA72036-5

CAS No.	Compound	Result	RL	MDL	Units	Q
14797-73-0	Perchlorate	ND	0.20	0.050	ug/l	

Blank Spike Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP78776-BS	Q67303.D	1	02/02/20	NAF	02/02/20	OP78776	SQ1519

The QC reported here applies to the following samples: **Method:** SW846 6850

FA72036-1, FA72036-2, FA72036-3, FA72036-4, FA72036-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
14797-73-0	Perchlorate	0.2	0.18	90	80-120

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP78776-BS	Q67359.D	1	02/03/20	NAF	02/02/20	OP78776	SQ1520

The QC reported here applies to the following samples: **Method:** SW846 6850

FA72036-1, FA72036-2, FA72036-3, FA72036-4, FA72036-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
14797-73-0	Perchlorate	0.2	0.18	90	80-120

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP78776-MS	Q67317.D	1	02/02/20	NAF	02/02/20	OP78776	SQ1519
OP78776-MSD	Q67318.D	1	02/02/20	NAF	02/02/20	OP78776	SQ1519
FA72036-4	Q67316.D	1	02/02/20	NAF	02/02/20	OP78776	SQ1519

The QC reported here applies to the following samples: **Method:** SW846 6850

FA72036-1, FA72036-2, FA72036-3, FA72036-4, FA72036-5

CAS No.	Compound	FA72036-4 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
14797-73-0	Perchlorate	0.49		0.2	0.60	55* [a]	0.2	0.60	55* [a]	0	80-120/15

(a) Outside control limits due to high level in sample relative to spike amount.

* = Outside of Control Limits.

Internal Standard Area Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Check Std:	SQ1519-ICC1519	**Injection Date:**	02/02/20
Lab File ID:	Q67296.D	**Injection Time:**	15:09
Instrument ID:	GCMSQ	**Method:**	SW846 6850

	IS 1 AREA	RT
Initial Cal [a]	189592	6.78
Check Std [b]	184718	6.78
Upper Limit [c]	284388	8.78
Lower Limit [d]	94796	4.78

Lab Sample ID	IS 1 AREA	RT
OP78776-BS	209887	6.76
OP78776-MB	206261	6.81
ZZZZZZ	130884	6.45
ZZZZZZ	121990	6.46
ZZZZZZ	113902	6.46

IS 1 = Cl18O4 (ISTD)

(a) Initial Cal is: SQ1519-ICC1519 Q67296.D 02/02/20 15:09. Area is AVERAGE of initial cal points.
(b) Check Std Limit = -50 to + 50% of initial cal area.
(c) Upper Limit = + 50% of initial standard area; Retention time + 2 minutes of check standard.
(d) Lower Limit = -50% of initial standard area; Retention time -2 minutes of check standard.

Internal Standard Area Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Check Std:	SQ1519-CC1519	**Injection Date:**	02/02/20
Lab File ID:	Q67310.D	**Injection Time:**	17:20
Instrument ID:	GCMSQ	**Method:**	SW846 6850

	IS 1 AREA	RT
Initial Cal [a]	189592	6.78
Check Std [b]	187695	6.75
Upper Limit [c]	284388	8.75
Lower Limit [d]	94796	4.75

Lab Sample ID	IS 1 AREA	RT
FA72036-1	144425	6.33
FA72036-2	156644	6.38
FA72036-3	179545	6.39
FA72036-4	146028	6.35
OP78776-MS	185055	6.36
OP78776-MSD	177459	6.36
FA72036-5	178608	6.39

IS 1 = Cl18O4 (ISTD)

(a) Initial Cal is: SQ1519-ICC1519 Q67296.D 02/02/20 15:09. Area is AVERAGE of initial cal points.
(b) Check Std Limit = -50 to + 50% of initial cal area.
(c) Upper Limit = + 50% of initial standard area; Retention time + 2 minutes of check standard.
(d) Lower Limit = -50% of initial standard area; Retention time -2 minutes of check standard.

Internal Standard Area Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Check Std:	SQ1520-CC1519	**Injection Date:**	02/03/20
Lab File ID:	Q67356.D	**Injection Time:**	09:16
Instrument ID:	GCMSQ	**Method:**	SW846 6850

	IS 1 AREA	RT
Initial Cal [a]	189592	6.78
Check Std [b]	179872	6.73
Upper Limit [c]	284388	8.73
Lower Limit [d]	94796	4.73

Lab Sample ID	IS 1 AREA	RT
OP78776-BS	175752	6.75
OP78776-MB	174986	6.74
ZZZZZZ	134037	6.57
ZZZZZZ	174713	6.70
ZZZZZZ	162350	6.68
ZZZZZZ	168330	6.70
ZZZZZZ	168713	6.68
ZZZZZZ	168542	6.72
ZZZZZZ	173866	6.71

IS 1 = Cl18O4 (ISTD)

(a) Initial Cal is: SQ1519-ICC1519 Q67296.D 02/02/20 15:09. Area is AVERAGE of initial cal points.
(b) Check Std Limit = -50 to + 50% of initial cal area.
(c) Upper Limit = + 50% of initial standard area; Retention time + 2 minutes of check standard.
(d) Lower Limit = -50% of initial standard area; Retention time -2 minutes of check standard.

Initial Calibration Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: SQ1519-ICC1519
Lab FileID: Q67296.D

Initial Calibration Report

Method Path	D:\MassHunter\Methods
Method File	6850_0202_SQ1519.quantmethod.xml
Batch Name	D:\MassHunter\Data\0202_6850_SQ1519\QuantResults\sq1519.batch.bin
Last Calib Update	2/3/2020 7:57:50 AM

Level Name	Calibration Files	Acq. Date-Time	Level Last Update Time
1	D:\MassHunter\Data\0202_6850_SQ1519\Q67293.d	2/2/2020 2:41:01 PM	2/3/2020 7:57:50 AM
2	D:\MassHunter\Data\0202_6850_SQ1519\Q67294.d	2/2/2020 2:50:22 PM	2/3/2020 7:57:50 AM
4	D:\MassHunter\Data\0202_6850_SQ1519\Q67296.d	2/2/2020 3:09:04 PM	2/3/2020 7:57:50 AM
5	D:\MassHunter\Data\0202_6850_SQ1519\Q67297.d	2/2/2020 3:18:25 PM	2/3/2020 7:57:50 AM
6	D:\MassHunter\Data\0202_6850_SQ1519\Q67298.d	2/2/2020 3:27:46 PM	2/3/2020 7:57:50 AM
7	D:\MassHunter\Data\0202_6850_SQ1519\Q67299.d	2/2/2020 3:37:07 PM	2/3/2020 7:57:50 AM
8	D:\MassHunter\Data\0202_6850_SQ1519\Q67300.d	2/2/2020 3:46:28 PM	2/3/2020 7:57:50 AM

Compound	Curve Fit	1	2	4	5	6	7	8	Avg RF	%RSD
I Cl18O4				---------- ISTD ----------						
T Perchlorate	Quadratic	1.1616	1.1518	1.1701	1.2568	1.3626	1.4226	1.4813	1.2867	10.544

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Generated at 7:58 AM on 2/3/2020

Initial Calibration Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: SQ1519-ICC1519
Lab FileID: Q67296.D

Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	Curve Fit R2
T Perchlorate	Quadratic	y = 0.014181 * x ^ 2 + 1.340667 * x	0.999897

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Generated at 7:58 AM on 2/3/2020

Initial Calibration Verification

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: SQ1519-ICV1519
Lab FileID: Q67301.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0202_6850_SQ1519\sq1519.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0202_6850_SQ1519\Q67293.d
2:D:\MassHunter\Data\0202_6850_SQ1519\Q67294.d
3:D:\MassHunter\Data\0202_6850_SQ1519\Q67295.d
4:D:\MassHunter\Data\0202_6850_SQ1519\Q67296.d
5:D:\MassHunter\Data\0202_6850_SQ1519\Q67297.d
6:D:\MassHunter\Data\0202_6850_SQ1519\Q67298.d
7:D:\MassHunter\Data\0202_6850_SQ1519\Q67299.d
8:D:\MassHunter\Data\0202_6850_SQ1519\Q67300.d

Data File: Q67301
Type : QC
Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
Cl18O4	---	--ISTD--		
Perchlorate	2.000	1.743	-12.9	87.1

CC Criteria: +/- 15%

Continuing Calibration Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: SQ1519-CC1519
Lab FileID: Q67310.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0202_6850_SQ1519\sq1519.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0202_6850_SQ1519\Q67293.d
2:D:\MassHunter\Data\0202_6850_SQ1519\Q67294.d
3:D:\MassHunter\Data\0202_6850_SQ1519\Q67295.d
4:D:\MassHunter\Data\0202_6850_SQ1519\Q67296.d
5:D:\MassHunter\Data\0202_6850_SQ1519\Q67297.d
6:D:\MassHunter\Data\0202_6850_SQ1519\Q67298.d
7:D:\MassHunter\Data\0202_6850_SQ1519\Q67299.d
8:D:\MassHunter\Data\0202_6850_SQ1519\Q67300.d

Data File: Q67310
Type : QC
Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
Cl18O4	---	--ISTD--		
Perchlorate	2.000	1.737	-13.2	86.8

CC Criteria: +/- 15%

Continuing Calibration Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: SQ1519-CC1519
Lab FileID: Q67311.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0202_6850_SQ1519\sq1519.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0202_6850_SQ1519\Q67293.d
2:D:\MassHunter\Data\0202_6850_SQ1519\Q67294.d
3:D:\MassHunter\Data\0202_6850_SQ1519\Q67295.d
4:D:\MassHunter\Data\0202_6850_SQ1519\Q67296.d
5:D:\MassHunter\Data\0202_6850_SQ1519\Q67297.d
6:D:\MassHunter\Data\0202_6850_SQ1519\Q67298.d
7:D:\MassHunter\Data\0202_6850_SQ1519\Q67299.d
8:D:\MassHunter\Data\0202_6850_SQ1519\Q67300.d

Data File: Q67311
Type : QC
Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
Cl18O4	---	--ISTD--		
Perchlorate	0.200	0.178	-10.9	89.1

CC Criteria: +/- 15%

Continuing Calibration Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: SQ1519-CC1519
Lab FileID: Q67320.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0202_6850_SQ1519\sq1519.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0202_6850_SQ1519\Q67293.d
2:D:\MassHunter\Data\0202_6850_SQ1519\Q67294.d
3:D:\MassHunter\Data\0202_6850_SQ1519\Q67295.d
4:D:\MassHunter\Data\0202_6850_SQ1519\Q67296.d
5:D:\MassHunter\Data\0202_6850_SQ1519\Q67297.d
6:D:\MassHunter\Data\0202_6850_SQ1519\Q67298.d
7:D:\MassHunter\Data\0202_6850_SQ1519\Q67299.d
8:D:\MassHunter\Data\0202_6850_SQ1519\Q67300.d

Data File: Q67320
Type : QC
Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
Cl18O4	---	--ISTD--		
Perchlorate	2.000	1.709	-14.5	85.5

CC Criteria: +/- 15%

Continuing Calibration Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: SQ1519-CC1519
Lab FileID: Q67321.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0202_6850_SQ1519\sq1519.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0202_6850_SQ1519\Q67293.d
2:D:\MassHunter\Data\0202_6850_SQ1519\Q67294.d
3:D:\MassHunter\Data\0202_6850_SQ1519\Q67295.d
4:D:\MassHunter\Data\0202_6850_SQ1519\Q67296.d
5:D:\MassHunter\Data\0202_6850_SQ1519\Q67297.d
6:D:\MassHunter\Data\0202_6850_SQ1519\Q67298.d
7:D:\MassHunter\Data\0202_6850_SQ1519\Q67299.d
8:D:\MassHunter\Data\0202_6850_SQ1519\Q67300.d

Data File: Q67321
Type : QC
Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
Cl18O4	---	--ISTD--		
Perchlorate	0.200	0.173	-13.5	86.5

CC Criteria: +/- 15%

Continuing Calibration Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: SQ1520-CC1519
Lab FileID: Q67356.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0203_6850_SQ1520\sq1520.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0202_6850_SQ1519\Q67293.d
2:D:\MassHunter\Data\0202_6850_SQ1519\Q67294.d
3:D:\MassHunter\Data\0202_6850_SQ1519\Q67295.d
4:D:\MassHunter\Data\0202_6850_SQ1519\Q67296.d
5:D:\MassHunter\Data\0202_6850_SQ1519\Q67297.d
6:D:\MassHunter\Data\0202_6850_SQ1519\Q67298.d
7:D:\MassHunter\Data\0202_6850_SQ1519\Q67299.d
8:D:\MassHunter\Data\0202_6850_SQ1519\Q67300.d

Data File: Q67356
Type : QC
Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
Cl18O4	---	--ISTD--		
Perchlorate	2.000	1.768	-11.6	88.4

CC Criteria: +/- 15%

Continuing Calibration Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: SQ1520-CC1519
Lab FileID: Q67357.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0203_6850_SQ1520\sq1520.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0202_6850_SQ1519\Q67293.d
2:D:\MassHunter\Data\0202_6850_SQ1519\Q67294.d
3:D:\MassHunter\Data\0202_6850_SQ1519\Q67295.d
4:D:\MassHunter\Data\0202_6850_SQ1519\Q67296.d
5:D:\MassHunter\Data\0202_6850_SQ1519\Q67297.d
6:D:\MassHunter\Data\0202_6850_SQ1519\Q67298.d
7:D:\MassHunter\Data\0202_6850_SQ1519\Q67299.d
8:D:\MassHunter\Data\0202_6850_SQ1519\Q67300.d

Data File: Q67357
Type : QC
Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
Cl18O4	---	--ISTD--		
Perchlorate	0.200	0.181	-9.5	90.5

CC Criteria: +/- 15%

Continuing Calibration Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: SQ1520-CC1519
Lab FileID: Q67368.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0203_6850_SQ1520\sq1520.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0202_6850_SQ1519\Q67293.d
2:D:\MassHunter\Data\0202_6850_SQ1519\Q67294.d
3:D:\MassHunter\Data\0202_6850_SQ1519\Q67295.d
4:D:\MassHunter\Data\0202_6850_SQ1519\Q67296.d
5:D:\MassHunter\Data\0202_6850_SQ1519\Q67297.d
6:D:\MassHunter\Data\0202_6850_SQ1519\Q67298.d
7:D:\MassHunter\Data\0202_6850_SQ1519\Q67299.d
8:D:\MassHunter\Data\0202_6850_SQ1519\Q67300.d

Data File: Q67368
Type : QC
Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
Cl18O4	---	--ISTD--		
Perchlorate	2.000	1.771	-11.5	88.5

CC Criteria: +/- 15%

Continuing Calibration Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: SQ1520-CC1519
Lab FileID: Q67369.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0203_6850_SQ1520\sq1520.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0202_6850_SQ1519\Q67293.d
2:D:\MassHunter\Data\0202_6850_SQ1519\Q67294.d
3:D:\MassHunter\Data\0202_6850_SQ1519\Q67295.d
4:D:\MassHunter\Data\0202_6850_SQ1519\Q67296.d
5:D:\MassHunter\Data\0202_6850_SQ1519\Q67297.d
6:D:\MassHunter\Data\0202_6850_SQ1519\Q67298.d
7:D:\MassHunter\Data\0202_6850_SQ1519\Q67299.d
8:D:\MassHunter\Data\0202_6850_SQ1519\Q67300.d

Data File: Q67369
Type : QC
Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
Cl18O4	---	--ISTD--		
Perchlorate	0.200	0.173	-13.5	86.5

CC Criteria: +/- 15%

Run Sequence Report

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Run ID: SQ1519	**Method:** SW846 6850	**Instrument ID:** GCMSQ

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
SQ1519-IC1519	Q67293.D	02/02/20 14:41	n/a	Initial cal 0.2
SQ1519-IC1519	Q67294.D	02/02/20 14:50	n/a	Initial cal 0.5
SQ1519-IC1519	Q67295.D	02/02/20 14:59	n/a	Initial cal 1.0
SQ1519-ICC1519	Q67296.D	02/02/20 15:09	n/a	Initial cal 2.0
SQ1519-IC1519	Q67297.D	02/02/20 15:18	n/a	Initial cal 5.0
SQ1519-IC1519	Q67298.D	02/02/20 15:27	n/a	Initial cal 10
SQ1519-IC1519	Q67299.D	02/02/20 15:37	n/a	Initial cal 25
SQ1519-IC1519	Q67300.D	02/02/20 15:46	n/a	Initial cal 50
SQ1519-ICV1519	Q67301.D	02/02/20 15:55	n/a	Initial cal verification 2.0
OP78776-BS	Q67303.D	02/02/20 16:14	OP78776	Blank Spike
OP78776-MB	Q67304.D	02/02/20 16:23	OP78776	Method Blank
ZZZZZZ	Q67306.D	02/02/20 16:42	OP78776	(unrelated sample)
ZZZZZZ	Q67307.D	02/02/20 16:51	OP78776	(unrelated sample)
ZZZZZZ	Q67308.D	02/02/20 17:01	OP78776	(unrelated sample)
SQ1519-CC1519	Q67310.D	02/02/20 17:20	n/a	Continuing cal 2.0
SQ1519-CC1519	Q67311.D	02/02/20 17:29	n/a	Continuing cal 0.2
FA72036-1	Q67313.D	02/02/20 17:48	OP78776	54MW10
FA72036-2	Q67314.D	02/02/20 17:57	OP78776	54MW13
FA72036-3	Q67315.D	02/02/20 18:06	OP78776	54TW13
FA72036-4	Q67316.D	02/02/20 18:16	OP78776	54MW12
OP78776-MS	Q67317.D	02/02/20 18:25	OP78776	Matrix Spike
OP78776-MSD	Q67318.D	02/02/20 18:34	OP78776	Matrix Spike Duplicate
FA72036-5	Q67319.D	02/02/20 18:44	OP78776	54MW1
SQ1519-CC1519	Q67320.D	02/02/20 18:53	n/a	Continuing cal 2.0
SQ1519-CC1519	Q67321.D	02/02/20 19:02	n/a	Continuing cal 0.2
OP78777-BS	Q67323.D	02/02/20 19:21	OP78777	Blank Spike
OP78777-MB	Q67324.D	02/02/20 19:30	OP78777	Method Blank
ZZZZZZ	Q67325.D	02/02/20 19:40	OP78777	(unrelated sample)
ZZZZZZ	Q67326.D	02/02/20 19:49	OP78777	(unrelated sample)
SQ1519-CC1519	Q67332.D	02/02/20 20:45	n/a	Continuing cal 2.0
SQ1519-CC1519	Q67333.D	02/02/20 20:55	n/a	Continuing cal 0.2
FA72167-8F	Q67335.D	02/02/20 21:13	OP78777	(used for QC only; not part of job FA72036)
OP78777-MS	Q67336.D	02/02/20 21:23	OP78777	Matrix Spike
OP78777-MSD	Q67337.D	02/02/20 21:32	OP78777	Matrix Spike Duplicate
ZZZZZZ	Q67338.D	02/02/20 21:41	OP78777	(unrelated sample)
ZZZZZZ	Q67339.D	02/02/20 21:51	OP78777	(unrelated sample)
ZZZZZZ	Q67341.D	02/02/20 22:10	OP78777	(unrelated sample)
ZZZZZZ	Q67342.D	02/02/20 22:19	OP78777	(unrelated sample)
ZZZZZZ	Q67343.D	02/02/20 22:28	OP78777	(unrelated sample)
SQ1519-CC1519	Q67345.D	02/02/20 22:47	n/a	Continuing cal 2.0
SQ1519-CC1519	Q67346.D	02/02/20 22:56	n/a	Continuing cal 0.2
ZZZZZZ	Q67349.D	02/02/20 23:24	OP78777	(unrelated sample)
SQ1519-CC1519	Q67350.D	02/02/20 23:34	n/a	Continuing cal 2.0
SQ1519-ECC1519	Q67351.D	02/02/20 23:43	n/a	Ending cal 0.2

Run Sequence Report

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Run ID: SQ1520 **Method:** SW846 6850 **Instrument ID:** GCMSQ

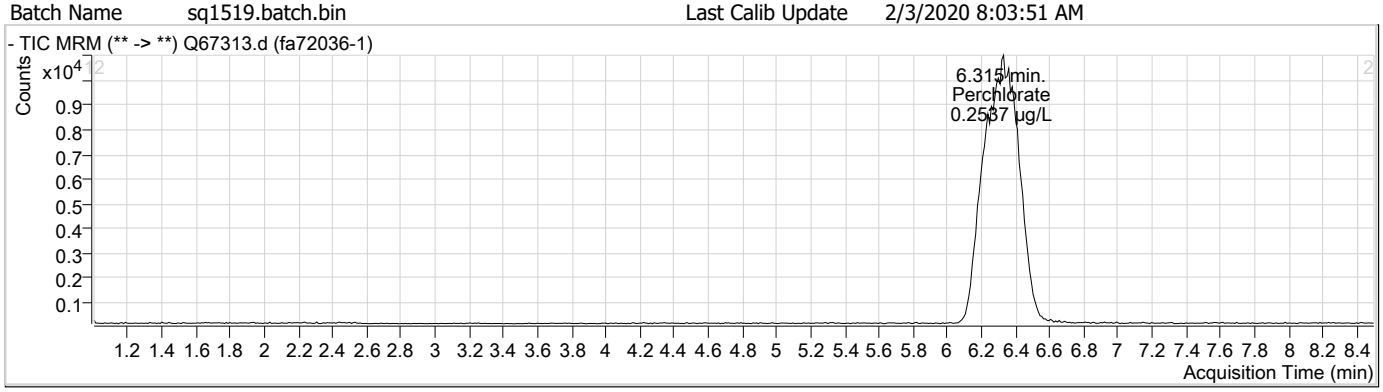
Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
SQ1520-CC1519	Q67356.D	02/03/20 09:16	n/a	Continuing cal 2.0
SQ1520-CC1519	Q67357.D	02/03/20 09:26	n/a	Continuing cal 0.2
OP78776-BS	Q67359.D	02/03/20 09:58	OP78776	Blank Spike
OP78776-MB	Q67360.D	02/03/20 10:07	OP78776	Method Blank
ZZZZZZ	Q67361.D	02/03/20 10:17	OP78776	(unrelated sample)
ZZZZZZ	Q67362.D	02/03/20 10:33	OP78776	(unrelated sample)
ZZZZZZ	Q67363.D	02/03/20 10:43	OP78777	(unrelated sample)
ZZZZZZ	Q67364.D	02/03/20 10:53	OP78777	(unrelated sample)
ZZZZZZ	Q67365.D	02/03/20 11:03	OP78777	(unrelated sample)
ZZZZZZ	Q67366.D	02/03/20 11:12	OP78777	(unrelated sample)
ZZZZZZ	Q67367.D	02/03/20 11:22	OP78777	(unrelated sample)
SQ1520-CC1519	Q67368.D	02/03/20 11:31	n/a	Continuing cal 2.0
SQ1520-CC1519	Q67369.D	02/03/20 11:40	n/a	Continuing cal 0.2
ZZZZZZ	Q67371.D	02/03/20 11:59	OP78777	(unrelated sample)
SQ1520-CC1519	Q67375.D	02/03/20 12:37	n/a	Continuing cal 2.0
SQ1520-CC1519	Q67376.D	02/03/20 12:46	n/a	Continuing cal 0.2
ZZZZZZ	Q67378.D	02/03/20 13:21	OP78777	(unrelated sample)
ZZZZZZ	Q67380.D	02/03/20 13:49	OP78777	(unrelated sample)
SQ1520-CC1519	Q67381.D	02/03/20 14:13	n/a	Continuing cal 2.0
SQ1520-ECC1519	Q67382.D	02/03/20 14:22	n/a	Ending cal 0.2

MS Semi-volatiles

Raw Data

Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q67313.d	Operator	NANCYF
Acq. Method	Perchlorate2.m	Acq. Date-Time	2/2/2020 5:48:06 PM
Sample Name	fa72036-1	Instrument	Instrument 1
Vial	Vial 19	Multiplier	1.00
DA Method File	6850_0202_SQ1519.quantmethod.xml	Comment	
Batch Name	sq1519.batch.bin	Last Calib Update	2/3/2020 8:03:51 AM

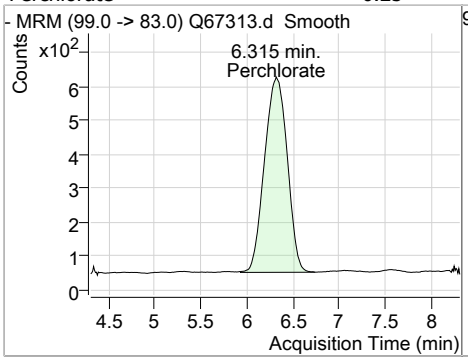


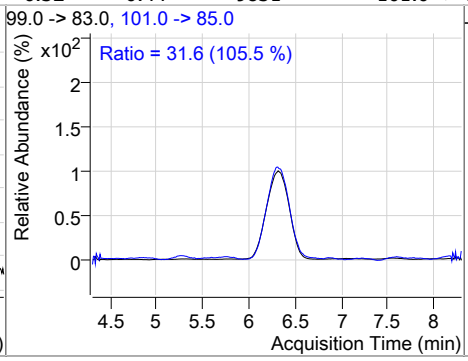
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.329	107.0 -> 89.0	144425	NoQ	5.00	µg/L	-0.448
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.315	99.0 -> 83.0	9831	3.2	0.25	µg/L	97

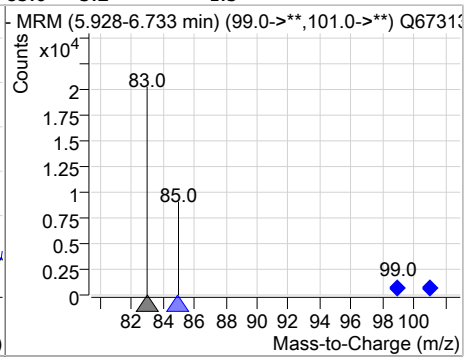
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.25	6.32	-0.44	9831	101.0 -> 85.0	3.2	1.5	

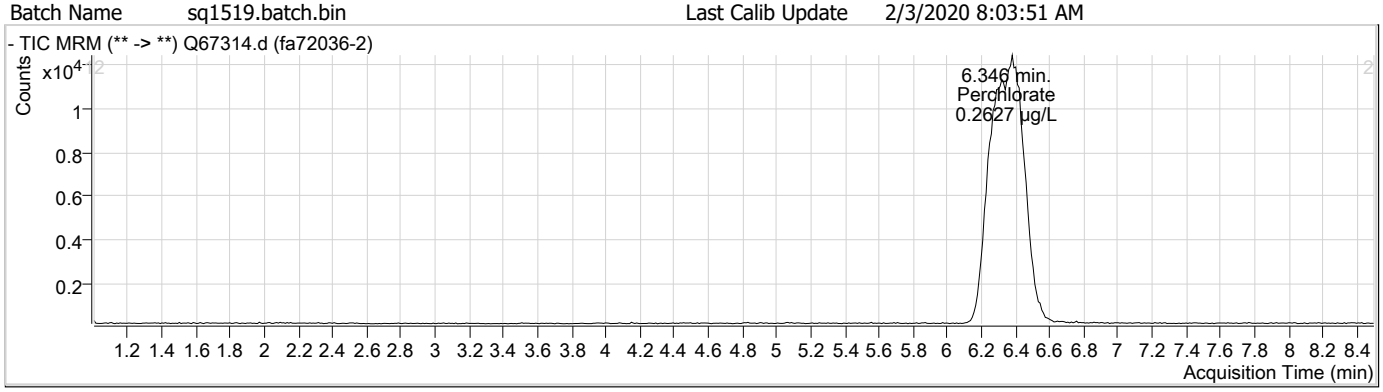






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q67314.d	Operator	NANCYF
Acq. Method	Perchlorate2.m	Acq. Date-Time	2/2/2020 5:57:27 PM
Sample Name	fa72036-2	Instrument	Instrument 1
Vial	Vial 20	Multiplier	1.00
DA Method File	6850_0202_SQ1519.quantmethod.xml	Comment	
Batch Name	sq1519.batch.bin	Last Calib Update	2/3/2020 8:03:51 AM

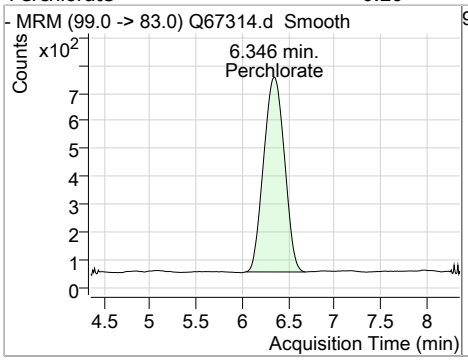


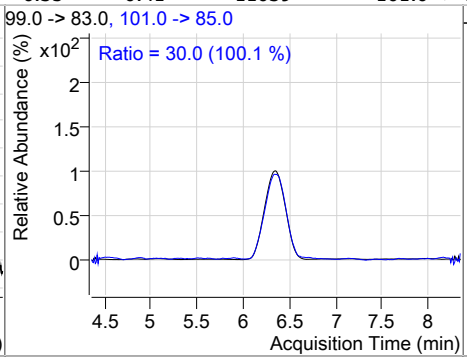
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.380	107.0 -> 89.0	156644	NoQ	5.00	µg/L	-0.397
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.346	99.0 -> 83.0	11039	3.3	0.26	µg/L	100

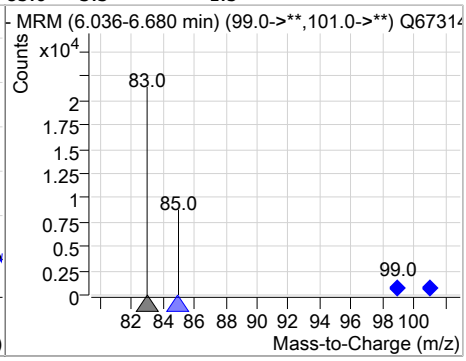
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.26	6.35	-0.41	11039	101.0 -> 85.0	3.3	1.5	

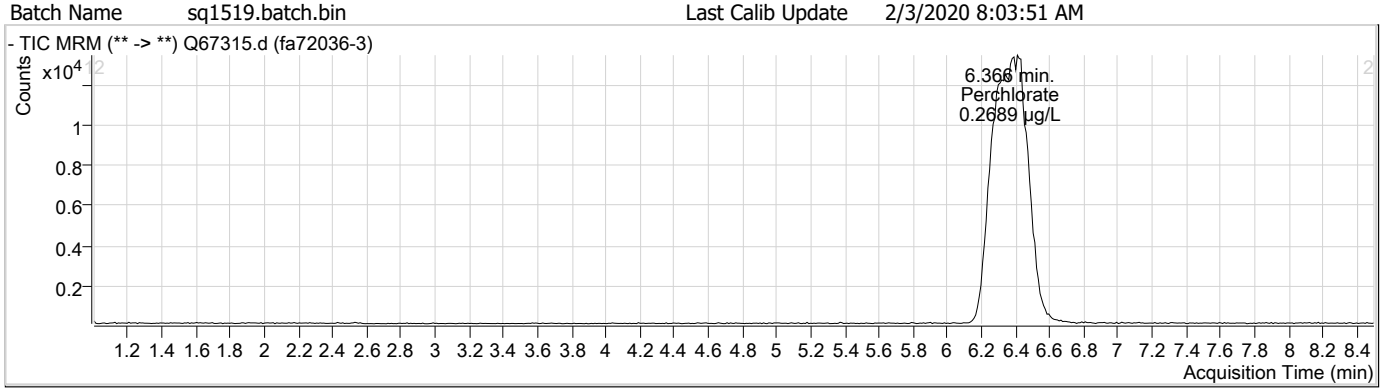






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q67315.d	Operator	NANCYF
Acq. Method	Perchlorate2.m	Acq. Date-Time	2/2/2020 6:06:49 PM
Sample Name	fa72036-3	Instrument	Instrument 1
Vial	Vial 21	Multiplier	1.00
DA Method File	6850_0202_SQ1519.quantmethod.xml	Comment	
Batch Name	sq1519.batch.bin	Last Calib Update	2/3/2020 8:03:51 AM

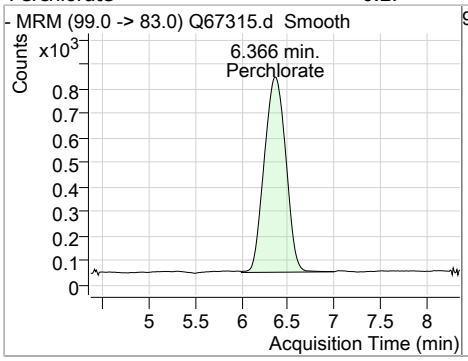


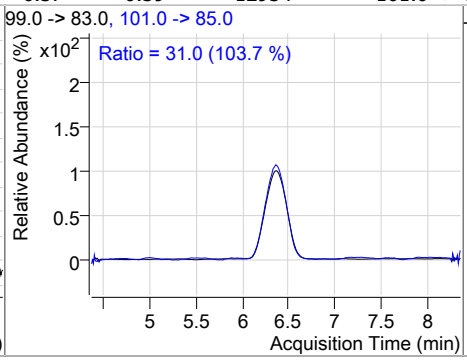
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.390	107.0 -> 89.0	179545	NoQ	5.00	µg/L	-0.387
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.366	99.0 -> 83.0	12954	3.2	0.27	µg/L	98

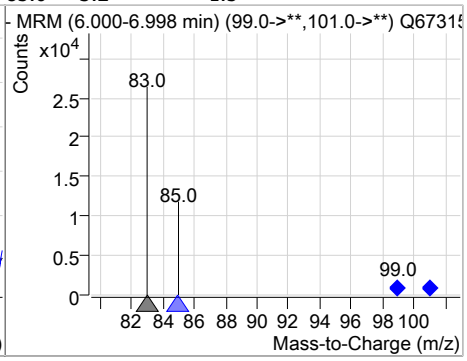
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.27	6.37	-0.39	12954	101.0 -> 85.0	3.2	1.5	

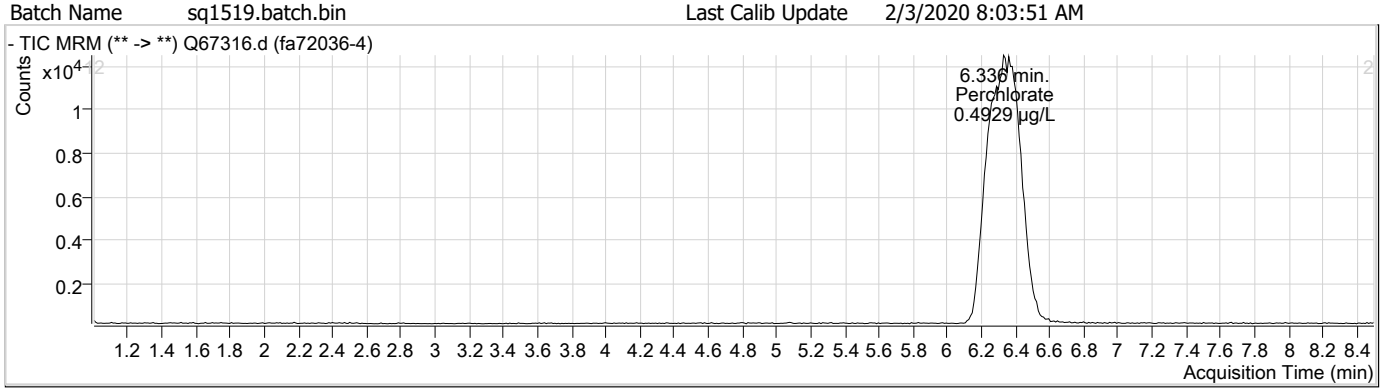






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q67316.d	Operator	NANCYF
Acq. Method	Perchlorate2.m	Acq. Date-Time	2/2/2020 6:16:10 PM
Sample Name	fa72036-4	Instrument	Instrument 1
Vial	Vial 22	Multiplier	1.00
DA Method File	6850_0202_SQ1519.quantmethod.xml	Comment	
Batch Name	sq1519.batch.bin	Last Calib Update	2/3/2020 8:03:51 AM

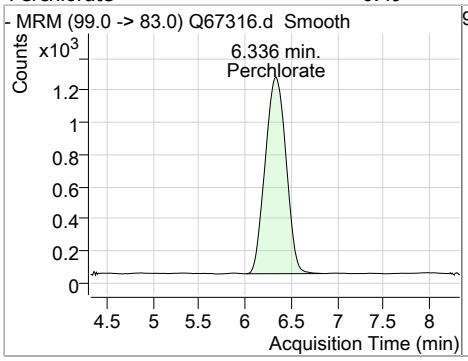


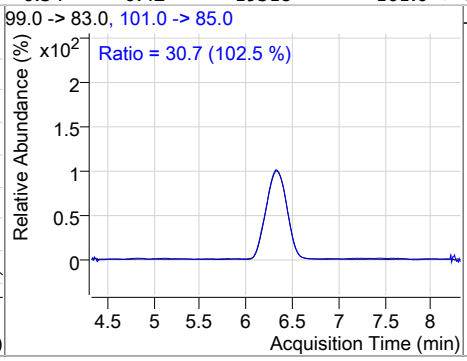
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.349	107.0 -> 89.0	146028	NoQ	5.00	µg/L	-0.428
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.336	99.0 -> 83.0	19318	3.3	0.49	µg/L	99

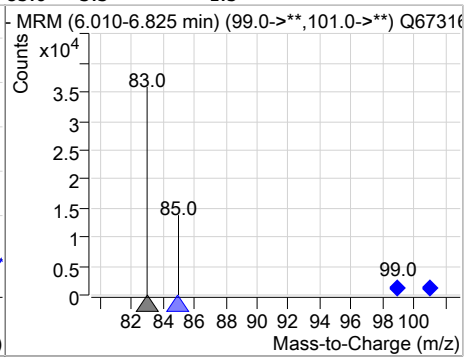
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.49	6.34	-0.42	19318	101.0 -> 85.0	3.3	1.5	

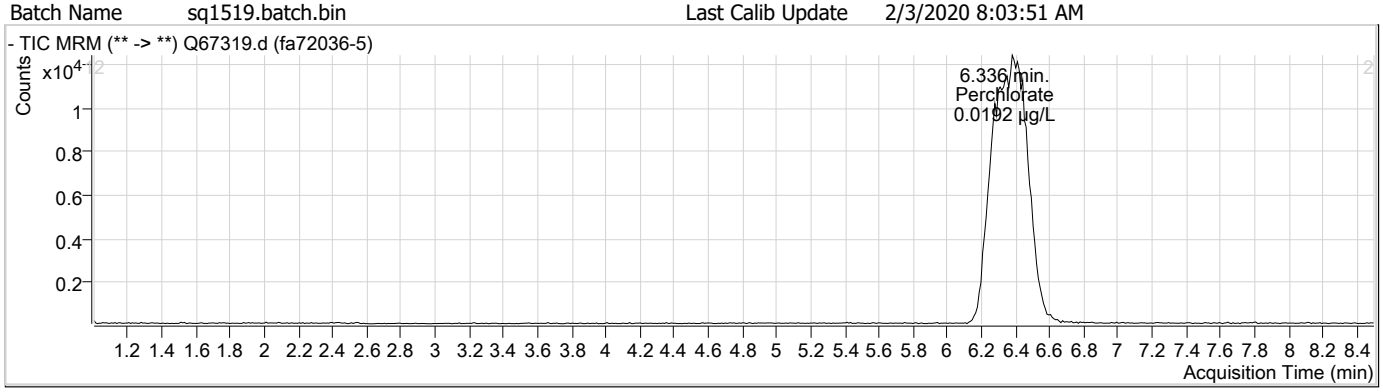






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q67319.d	Operator	NANCYF
Acq. Method	Perchlorate2.m	Acq. Date-Time	2/2/2020 6:44:14 PM
Sample Name	fa72036-5	Instrument	Instrument 1
Vial	Vial 25	Multiplier	1.00
DA Method File	6850_0202_SQ1519.quantmethod.xml	Comment	
Batch Name	sq1519.batch.bin	Last Calib Update	2/3/2020 8:03:51 AM

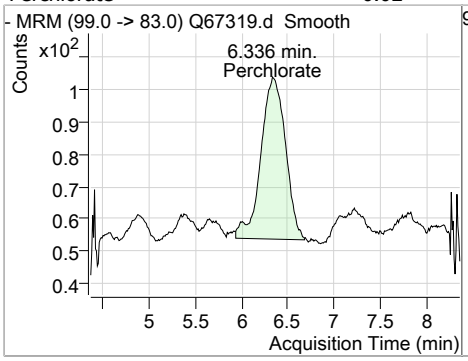


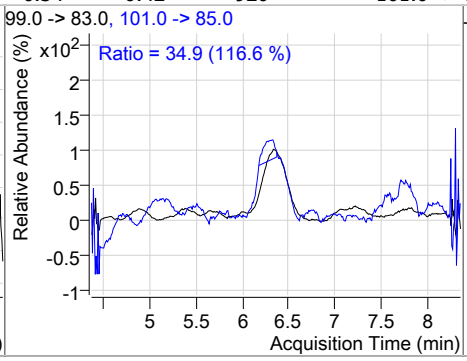
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.390	107.0 -> 89.0	178608	NoQ	5.00	µg/L	-0.387
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.336	99.0 -> 83.0	920	2.9	0.02	µg/L	91

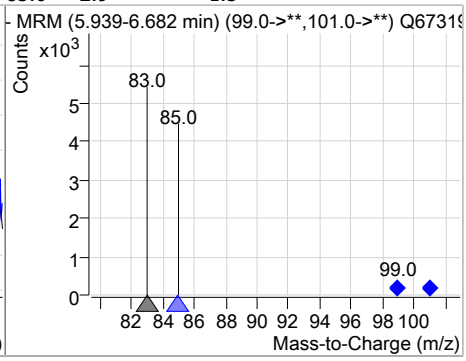
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.02	6.34	-0.42	920	101.0 -> 85.0	2.9	1.5	

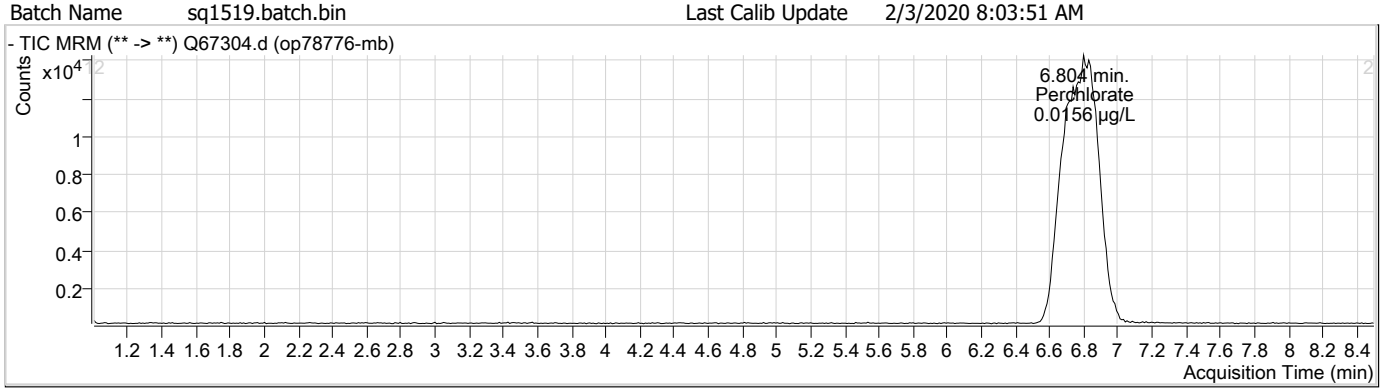






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q67304.d	Operator	NANCYF
Acq. Method	Perchlorate2.m	Acq. Date-Time	2/2/2020 4:23:54 PM
Sample Name	op78776-mb	Instrument	Instrument 1
Vial	Vial 13	Multiplier	1.00
DA Method File	6850_0202_SQ1519.quantmethod.xml	Comment	
Batch Name	sq1519.batch.bin	Last Calib Update	2/3/2020 8:03:51 AM

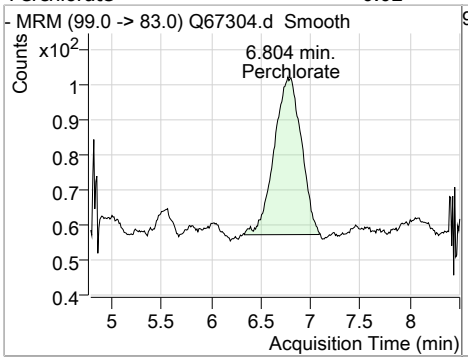


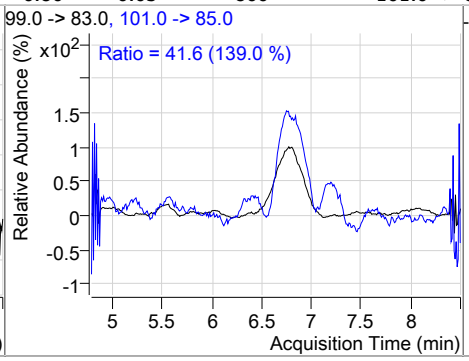
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.808	107.0 -> 89.0	206261	NoQ	5.00	µg/L	0.031
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.804	99.0 -> 83.0	860	2.4	0.02	µg/L	78

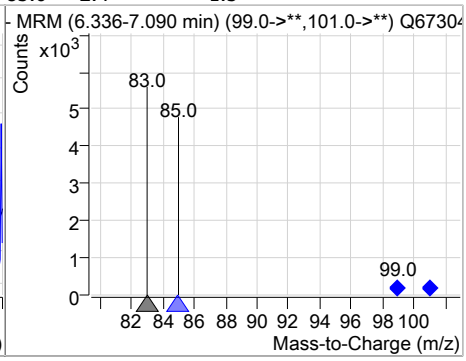
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.02	6.80	0.05	860	101.0 -> 85.0	2.4	1.5	

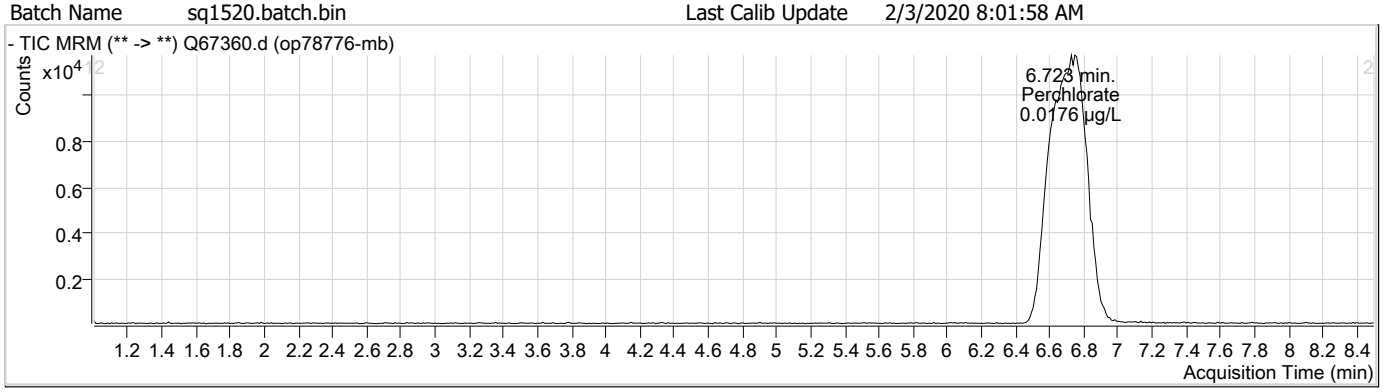






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q67360.d	Operator	NANCYF
Acq. Method	Perchlorate2.m	Acq. Date-Time	2/3/2020 10:07:50 AM
Sample Name	op78776-mb	Instrument	Instrument 1
Vial	Vial 13	Multiplier	1.00
DA Method File	6850_0202_SQ1519.quantmethod.xml	Comment	
Batch Name	sq1520.batch.bin	Last Calib Update	2/3/2020 8:01:58 AM

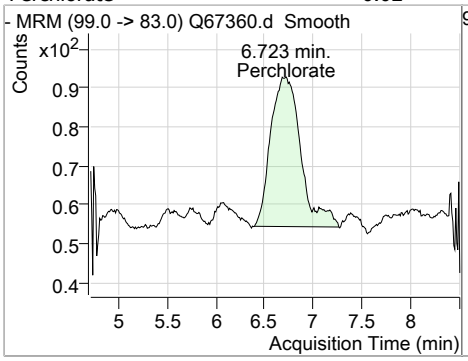


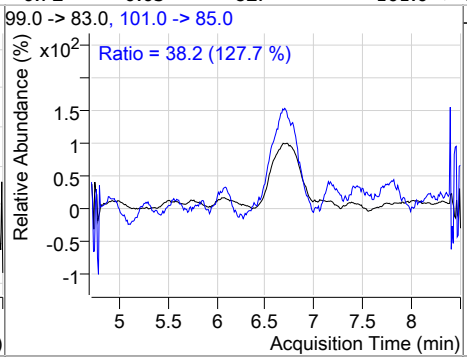
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.736	107.0 -> 89.0	174986	NoQ	5.00	µg/L	-0.041
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.723	99.0 -> 83.0	827	2.6	0.02	µg/L	85

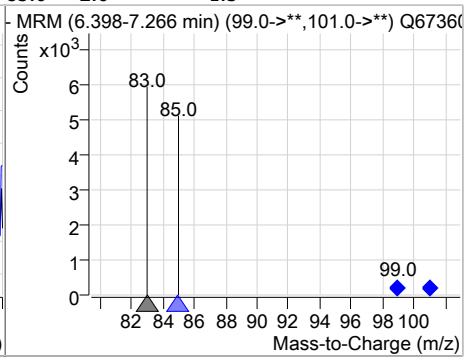
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.02	6.72	-0.03	827	101.0 -> 85.0	2.6	1.5	

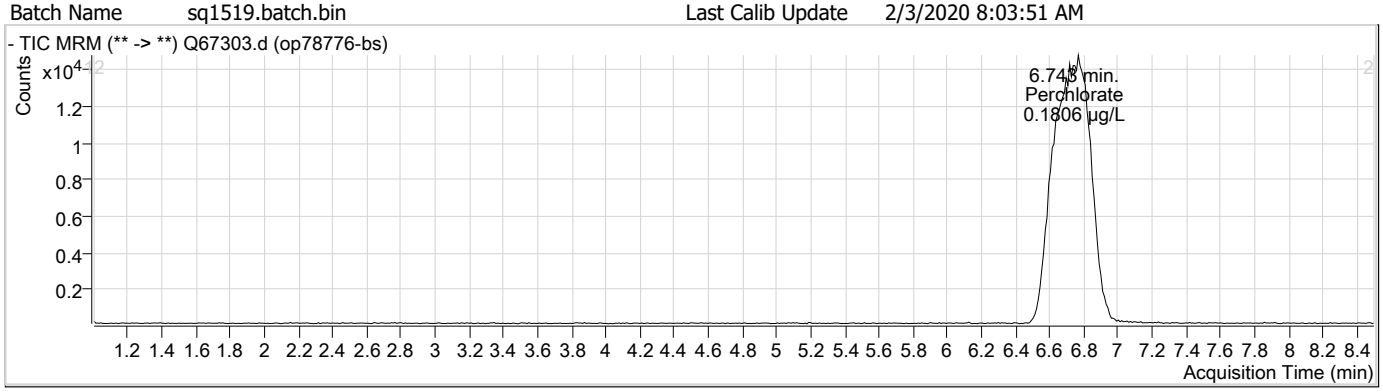






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q67303.d	Operator	NANCYF
Acq. Method	Perchlorate2.m	Acq. Date-Time	2/2/2020 4:14:32 PM
Sample Name	op78776-bs	Instrument	Instrument 1
Vial	Vial 12	Multiplier	1.00
DA Method File	6850_0202_SQ1519.quantmethod.xml	Comment	
Batch Name	sq1519.batch.bin	Last Calib Update	2/3/2020 8:03:51 AM

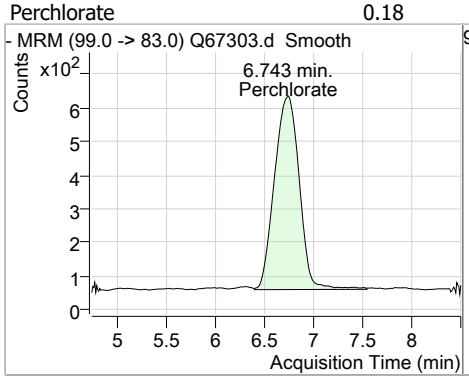


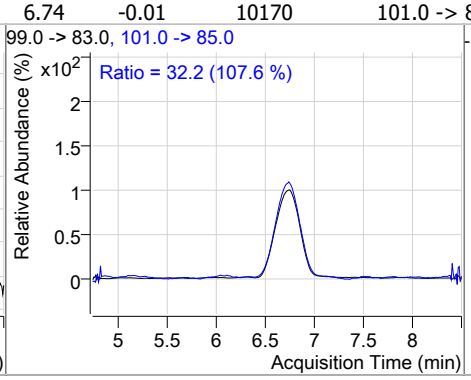
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.757	107.0 -> 89.0	209887	NoQ	5.00	µg/L	-0.020
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.743	99.0 -> 83.0	10170	3.1	0.18	µg/L	96

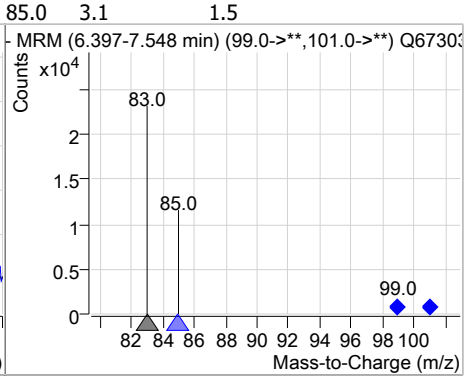
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.18	6.74	-0.01	10170	101.0 -> 85.0	3.1	1.5	

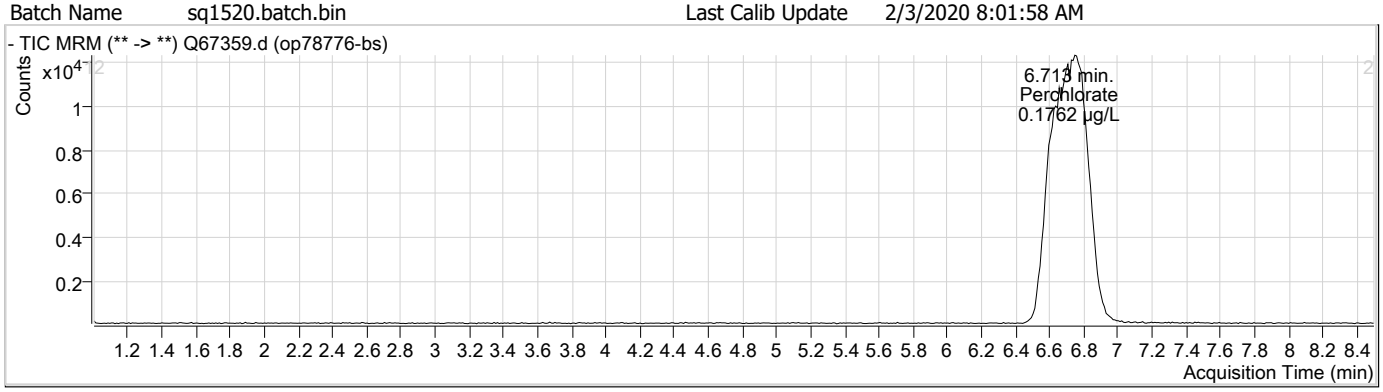






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q67359.d	Operator	NANCYF
Acq. Method	Perchlorate2.m	Acq. Date-Time	2/3/2020 9:58:28 AM
Sample Name	op78776-bs	Instrument	Instrument 1
Vial	Vial 12	Multiplier	1.00
DA Method File	6850_0202_SQ1519.quantmethod.xml	Comment	
Batch Name	sq1520.batch.bin	Last Calib Update	2/3/2020 8:01:58 AM

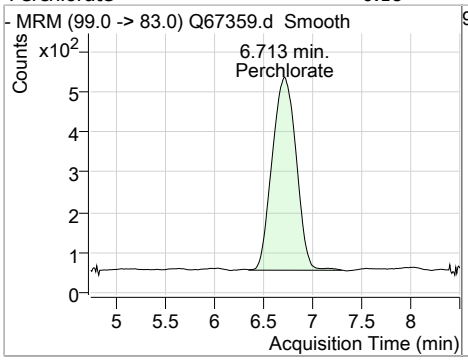


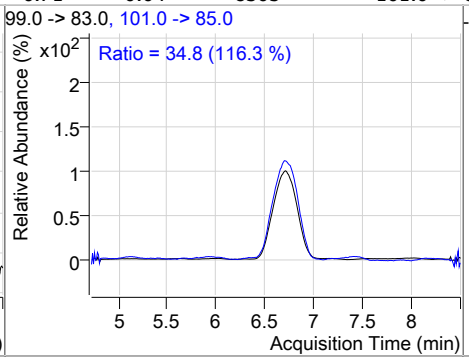
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.747	107.0 -> 89.0	175752	NoQ	5.00	µg/L	-0.031
System Monitoring Compounds							
Target Compounds							**QValue**
Perchlorate	6.713	99.0 -> 83.0	8305	2.9	0.18	µg/L	91

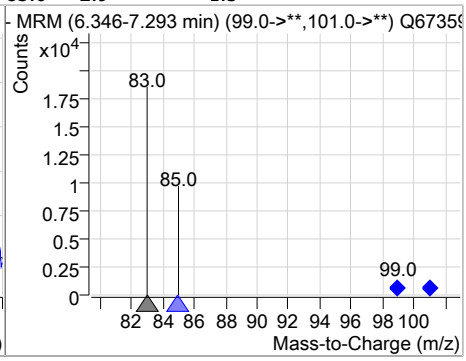
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.18	6.71	-0.04	8305	101.0 -> 85.0	2.9	1.5	

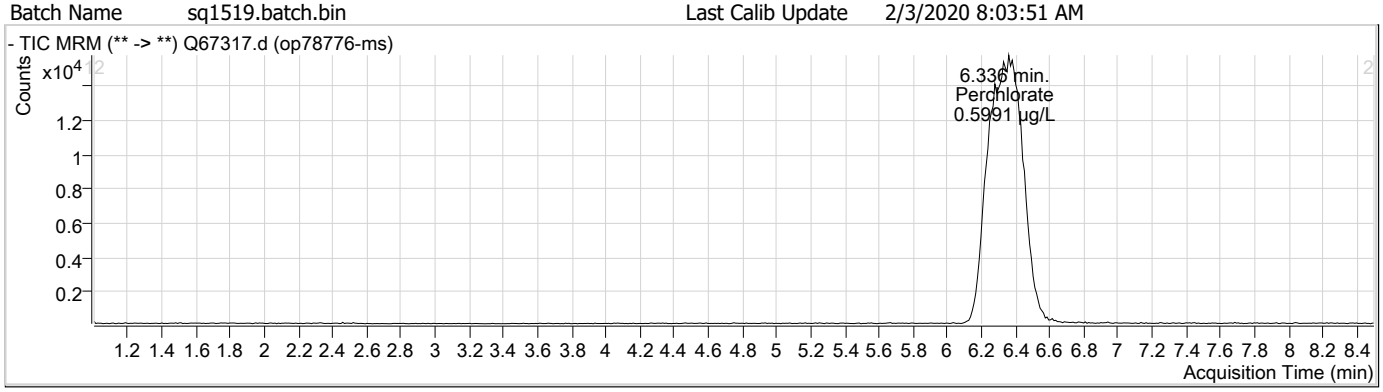






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q67317.d	Operator	NANCYF
Acq. Method	Perchlorate2.m	Acq. Date-Time	2/2/2020 6:25:31 PM
Sample Name	op78776-ms	Instrument	Instrument 1
Vial	Vial 23	Multiplier	1.00
DA Method File	6850_0202_SQ1519.quantmethod.xml	Comment	
Batch Name	sq1519.batch.bin	Last Calib Update	2/3/2020 8:03:51 AM

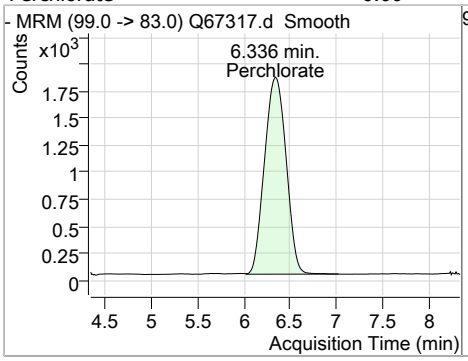


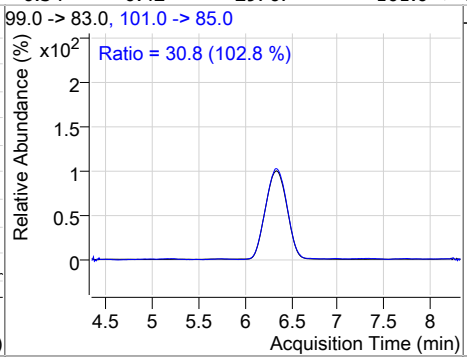
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.360	107.0 -> 89.0	185055	NoQ	5.00	µg/L	-0.418
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.336	99.0 -> 83.0	29767	3.3	0.60	µg/L	98

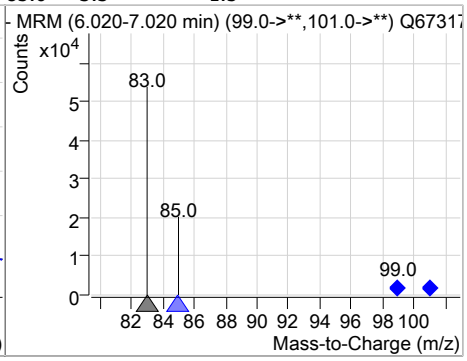
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.60	6.34	-0.42	29767	101.0 -> 85.0	3.3	1.5	

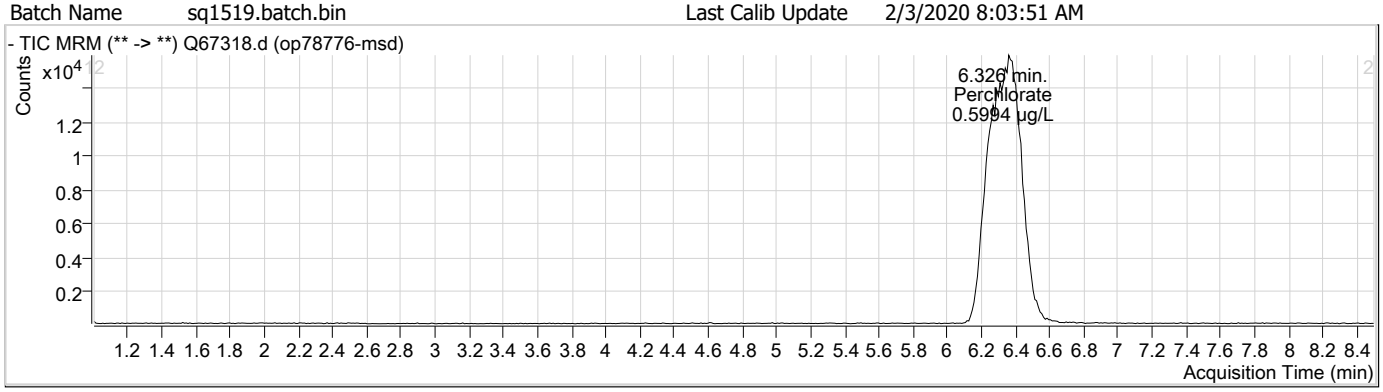






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q67318.d	Operator	NANCYF
Acq. Method	Perchlorate2.m	Acq. Date-Time	2/2/2020 6:34:52 PM
Sample Name	op78776-msd	Instrument	Instrument 1
Vial	Vial 24	Multiplier	1.00
DA Method File	6850_0202_SQ1519.quantmethod.xml	Comment	
Batch Name	sq1519.batch.bin	Last Calib Update	2/3/2020 8:03:51 AM

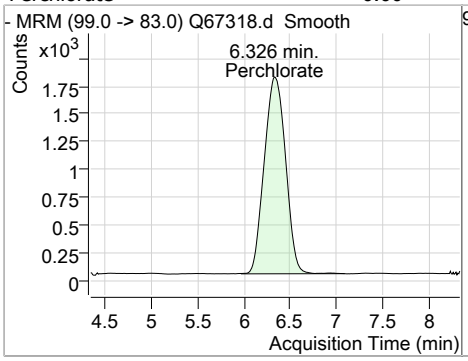


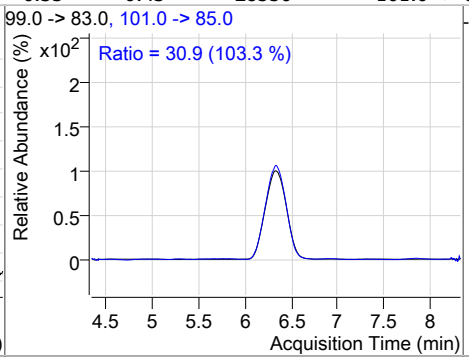
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.360	107.0 -> 89.0	177459	NoQ	5.00	µg/L	-0.418
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.326	99.0 -> 83.0	28556	3.2	0.60	µg/L	98

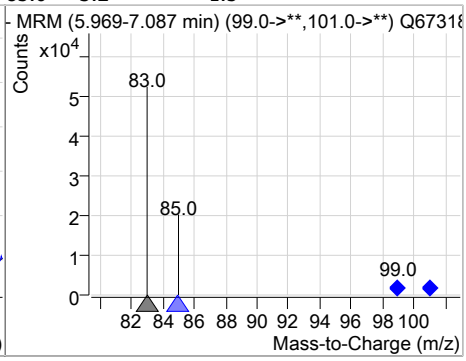
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.60	6.33	-0.43	28556	101.0 -> 85.0	3.2	1.5	

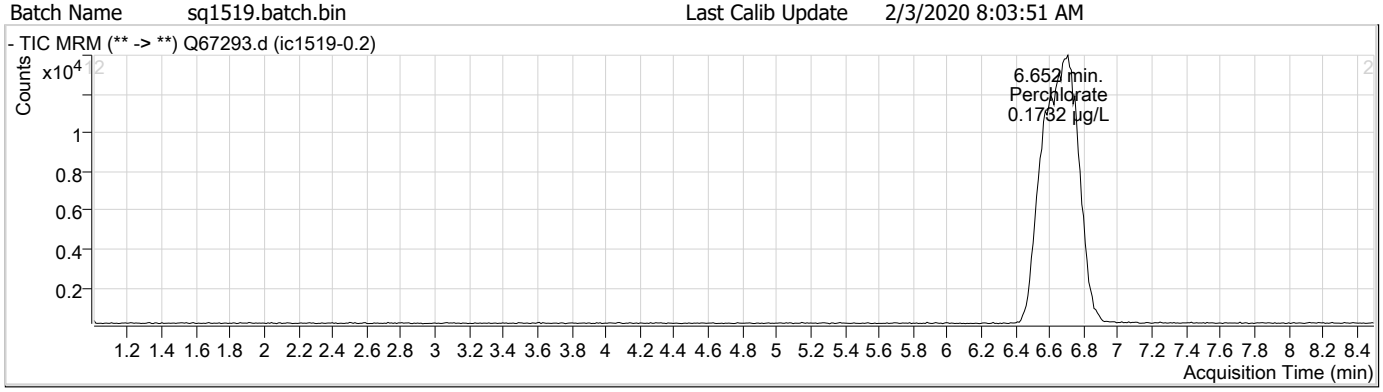






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q67293.d	Operator	NANCYF
Acq. Method	Perchlorate2.m	Acq. Date-Time	2/2/2020 2:41:01 PM
Sample Name	ic1519-0.2	Instrument	Instrument 1
Vial	Vial 2	Multiplier	1.00
DA Method File	6850_0202_SQ1519.quantmethod.xml	Comment	
Batch Name	sq1519.batch.bin	Last Calib Update	2/3/2020 8:03:51 AM

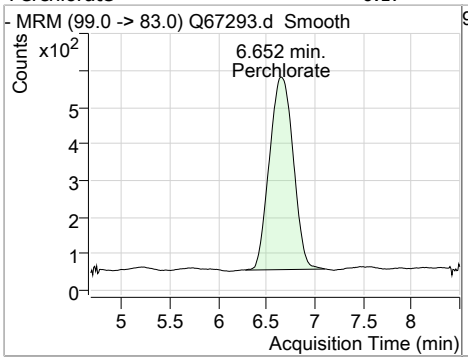


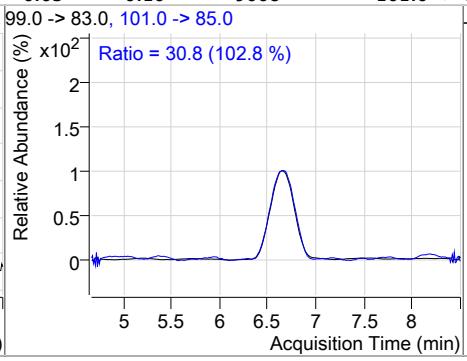
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.696	107.0 -> 89.0	195164	NoQ	5.00	µg/L	-0.081
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.652	99.0 -> 83.0	9068	3.3	0.17	µg/L	98

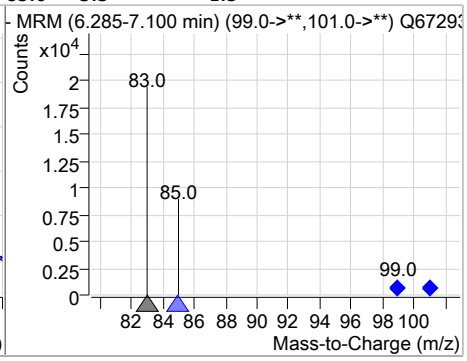
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.17	6.65	-0.10	9068	101.0 -> 85.0	3.3	1.5	

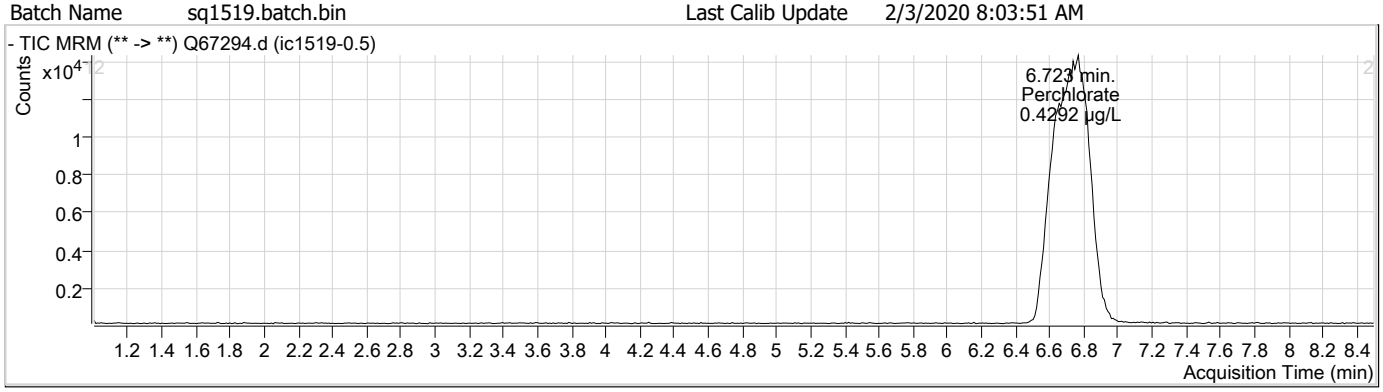






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q67294.d	Operator	NANCYF
Acq. Method	Perchlorate2.m	Acq. Date-Time	2/2/2020 2:50:22 PM
Sample Name	ic1519-0.5	Instrument	Instrument 1
Vial	Vial 3	Multiplier	1.00
DA Method File	6850_0202_SQ1519.quantmethod.xml	Comment	
Batch Name	sq1519.batch.bin	Last Calib Update	2/3/2020 8:03:51 AM

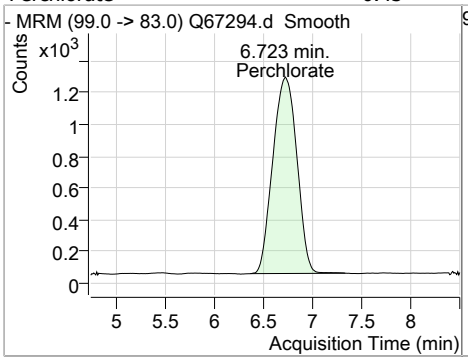


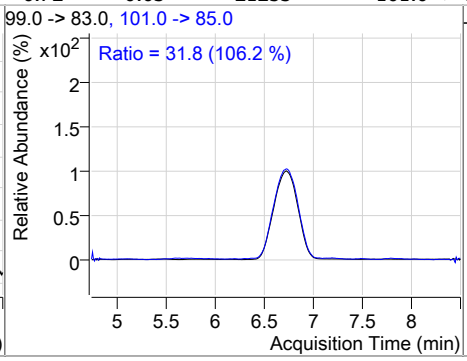
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.757	107.0 -> 89.0	184520	NoQ	5.00	µg/L	-0.020
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.723	99.0 -> 83.0	21253	3.1	0.43	µg/L	97

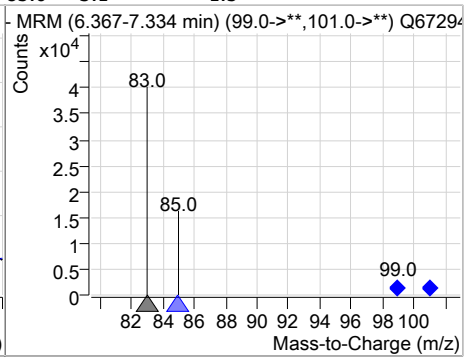
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.43	6.72	-0.03	21253	101.0 -> 85.0	3.1	1.5	

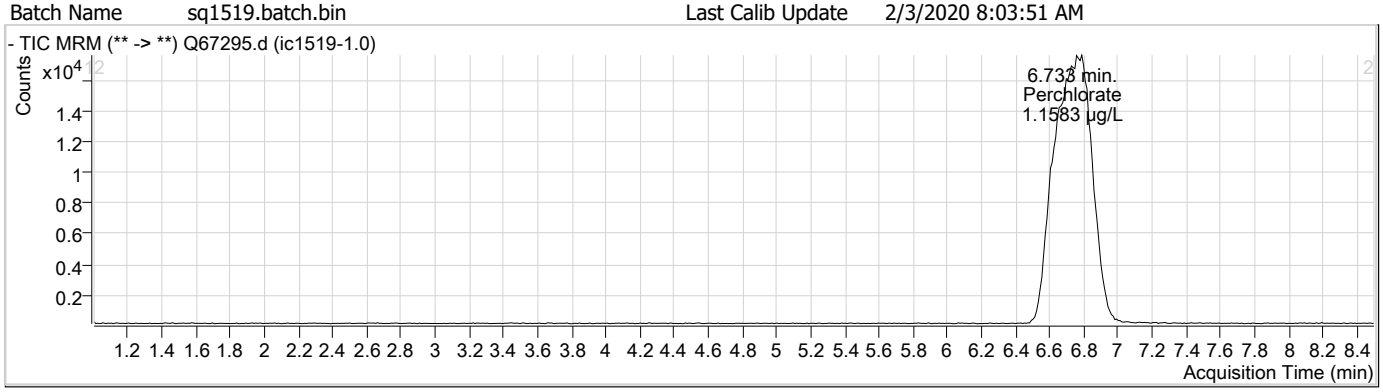






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q67295.d	Operator	NANCYF
Acq. Method	Perchlorate2.m	Acq. Date-Time	2/2/2020 2:59:43 PM
Sample Name	ic1519-1.0	Instrument	Instrument 1
Vial	Vial 4	Multiplier	1.00
DA Method File	6850_0202_SQ1519.quantmethod.xml	Comment	
Batch Name	sq1519.batch.bin	Last Calib Update	2/3/2020 8:03:51 AM

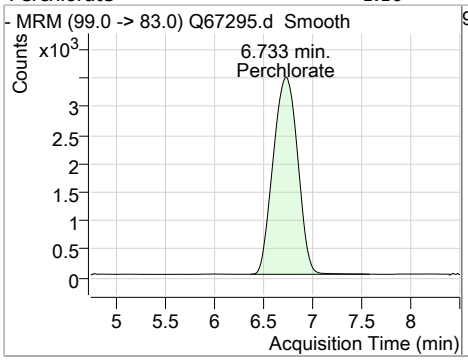


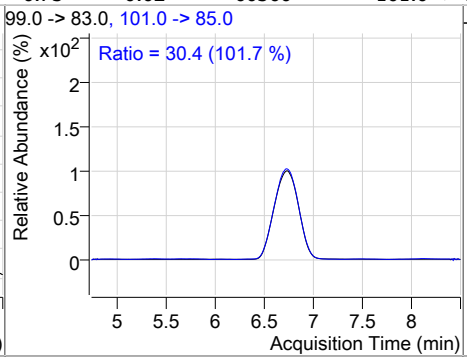
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.767	107.0 -> 89.0	193867	NoQ	5.00	µg/L	-0.010
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.733	99.0 -> 83.0	60360	3.3	1.16	µg/L	99

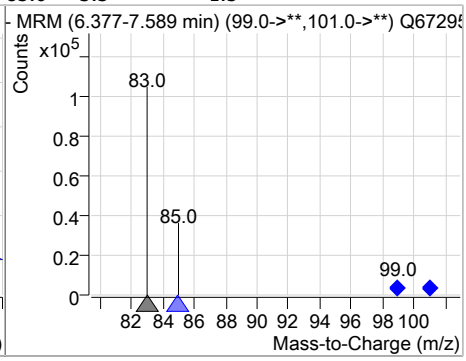
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	1.16	6.73	-0.02	60360	101.0 -> 85.0	3.3	1.5	

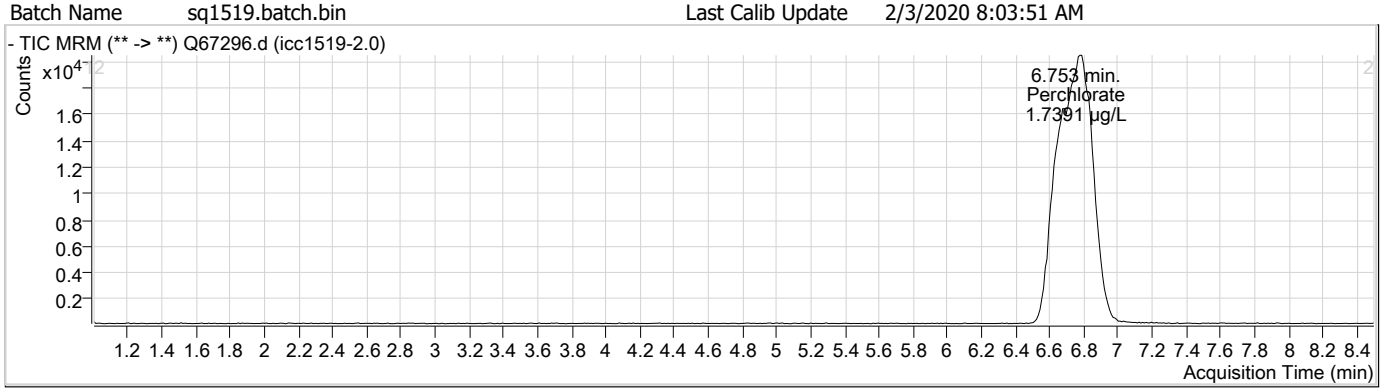






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q67296.d	Operator	NANCYF
Acq. Method	Perchlorate2.m	Acq. Date-Time	2/2/2020 3:09:04 PM
Sample Name	icc1519-2.0	Instrument	Instrument 1
Vial	Vial 5	Multiplier	1.00
DA Method File	6850_0202_SQ1519.quantmethod.xml	Comment	
Batch Name	sq1519.batch.bin	Last Calib Update	2/3/2020 8:03:51 AM

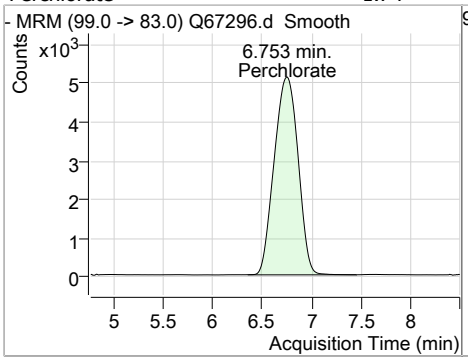


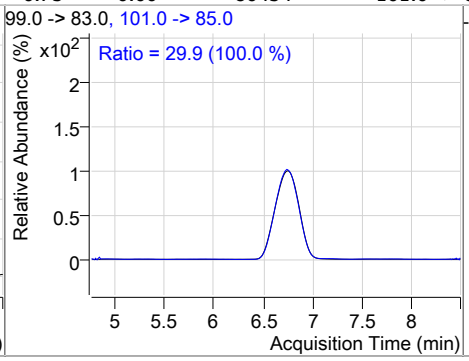
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.777	107.0 -> 89.0	184718	NoQ	5.00	µg/L	0.000
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.753	99.0 -> 83.0	86454	3.3	1.74	µg/L	100

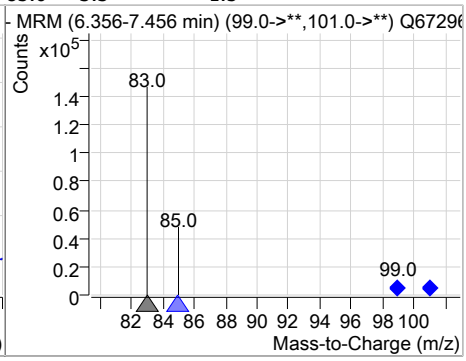
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	1.74	6.75	0.00	86454	101.0 -> 85.0	3.3	1.5	

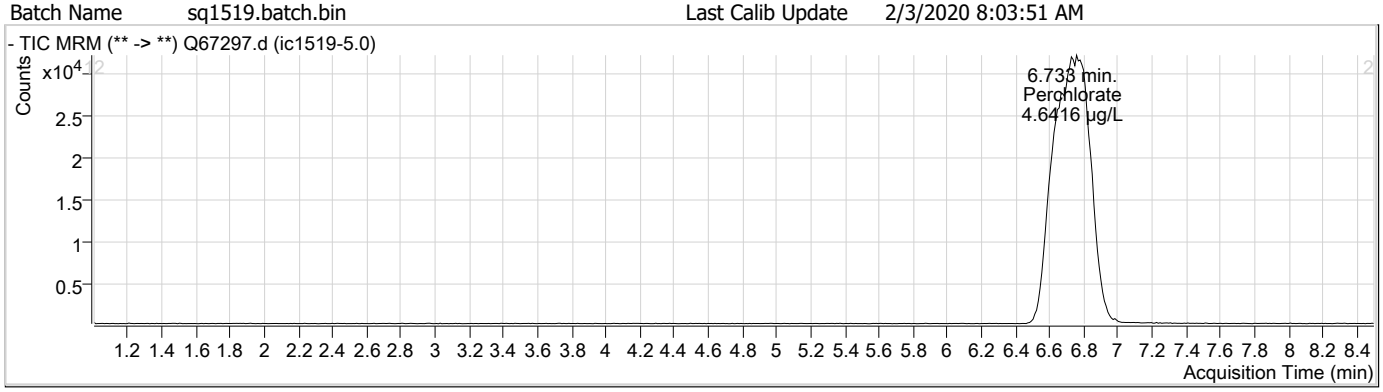






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q67297.d	Operator	NANCYF
Acq. Method	Perchlorate2.m	Acq. Date-Time	2/2/2020 3:18:25 PM
Sample Name	ic1519-5.0	Instrument	Instrument 1
Vial	Vial 6	Multiplier	1.00
DA Method File	6850_0202_SQ1519.quantmethod.xml	Comment	
Batch Name	sq1519.batch.bin	Last Calib Update	2/3/2020 8:03:51 AM

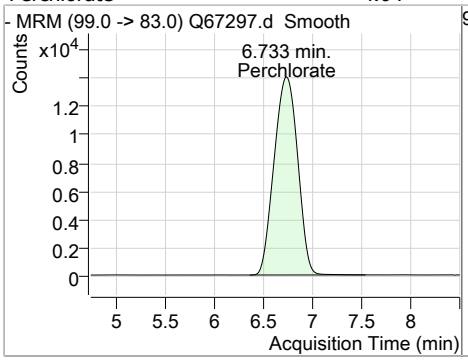


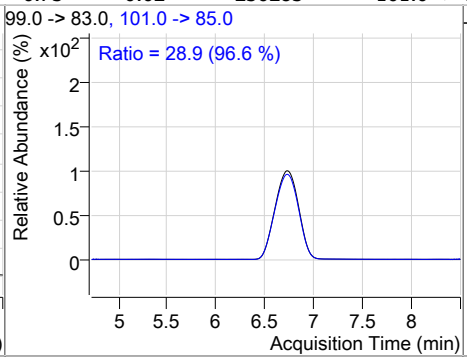
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.747	107.0 -> 89.0	188004	NoQ	5.00	µg/L	-0.031
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.733	99.0 -> 83.0	236283	3.5	4.64	µg/L	98

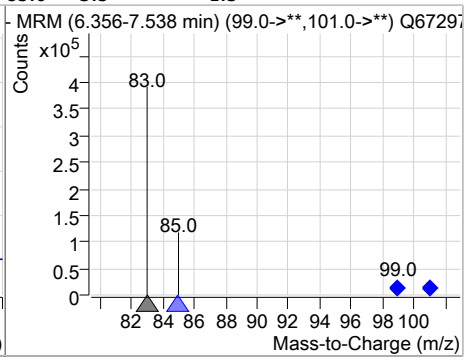
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	4.64	6.73	-0.02	236283	101.0 -> 85.0	3.5	1.5	





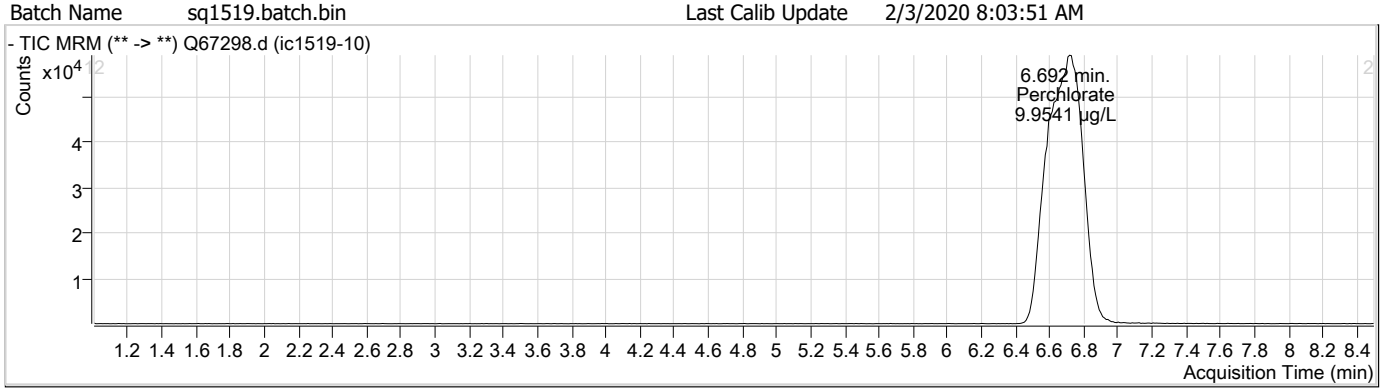


7.5.5

7

Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q67298.d	Operator	NANCYF
Acq. Method	Perchlorate2.m	Acq. Date-Time	2/2/2020 3:27:46 PM
Sample Name	ic1519-10	Instrument	Instrument 1
Vial	Vial 7	Multiplier	1.00
DA Method File	6850_0202_SQ1519.quantmethod.xml	Comment	
Batch Name	sq1519.batch.bin	Last Calib Update	2/3/2020 8:03:51 AM

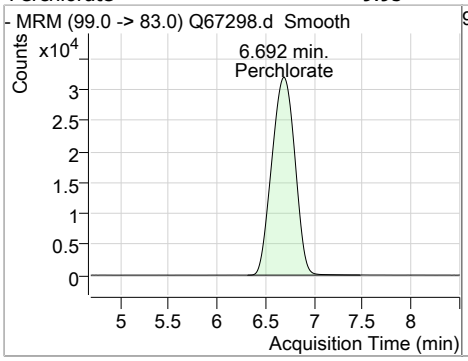


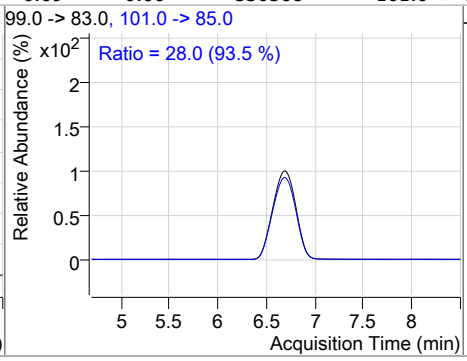
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.716	107.0 -> 89.0	194688	NoQ	5.00	µg/L	-0.061
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.692	99.0 -> 83.0	530568	3.6	9.95	µg/L	96

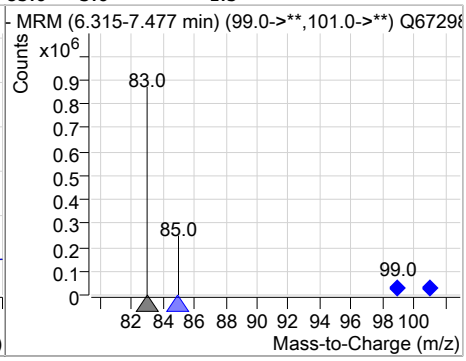
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	9.95	6.69	-0.06	530568	101.0 -> 85.0	3.6	1.5	

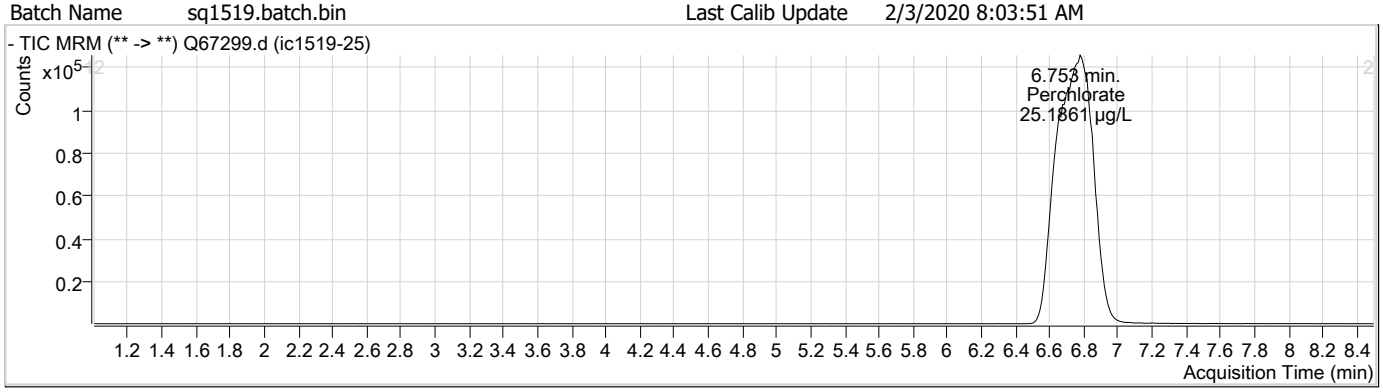






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q67299.d	Operator	NANCYF
Acq. Method	Perchlorate2.m	Acq. Date-Time	2/2/2020 3:37:07 PM
Sample Name	ic1519-25	Instrument	Instrument 1
Vial	Vial 8	Multiplier	1.00
DA Method File	6850_0202_SQ1519.quantmethod.xml	Comment	
Batch Name	sq1519.batch.bin	Last Calib Update	2/3/2020 8:03:51 AM

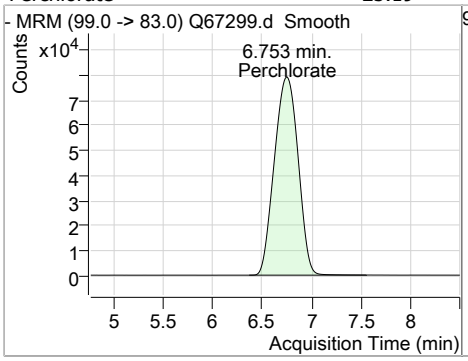


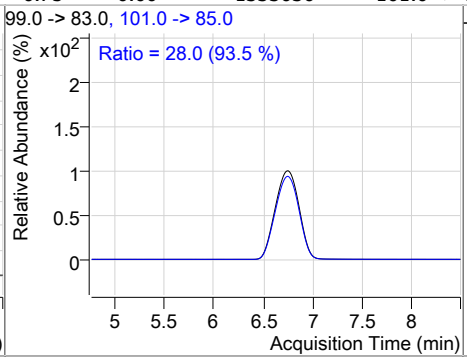
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.777	107.0 -> 89.0	187491	NoQ	5.00	µg/L	0.000
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.753	99.0 -> 83.0	1333636	3.6	25.19	µg/L	96

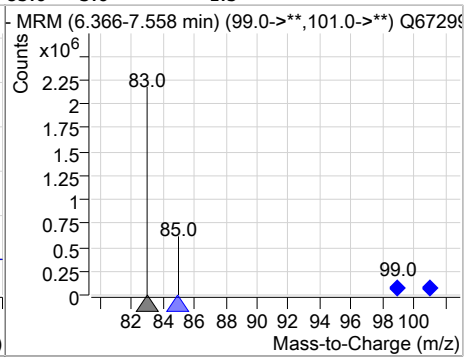
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	25.19	6.75	0.00	1333636	101.0 -> 85.0	3.6	1.5	

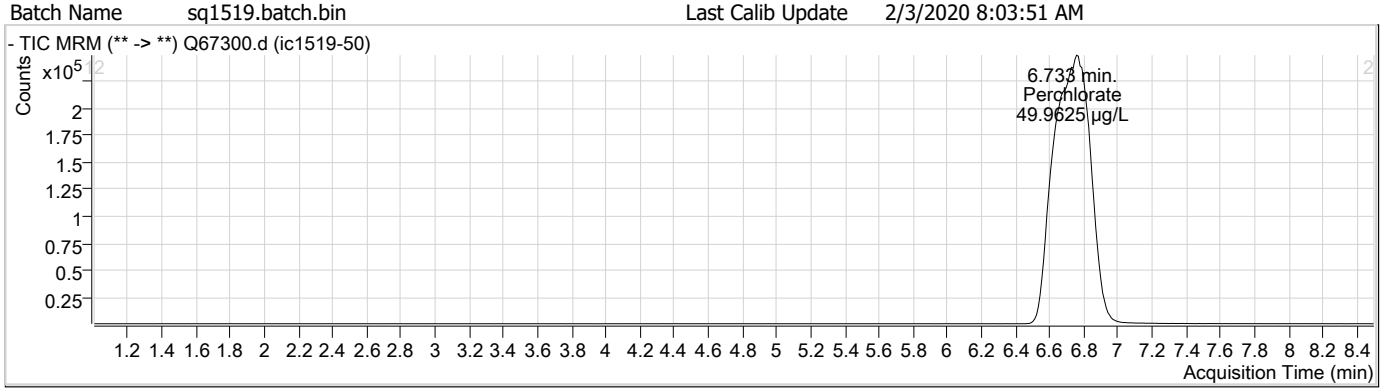






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q67300.d	Operator	NANCYF
Acq. Method	Perchlorate2.m	Acq. Date-Time	2/2/2020 3:46:28 PM
Sample Name	ic1519-50	Instrument	Instrument 1
Vial	Vial 9	Multiplier	1.00
DA Method File	6850_0202_SQ1519.quantmethod.xml	Comment	
Batch Name	sq1519.batch.bin	Last Calib Update	2/3/2020 8:03:51 AM

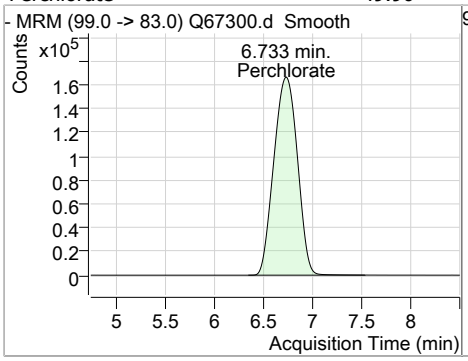


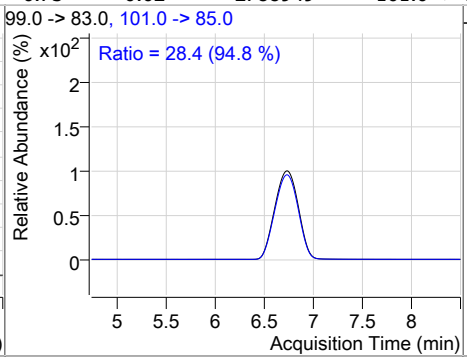
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.757	107.0 -> 89.0	188283	NoQ	5.00	µg/L	-0.020
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.733	99.0 -> 83.0	2788949	3.5	49.96	µg/L	97

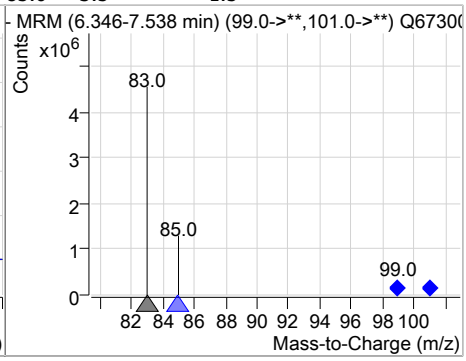
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	49.96	6.73	-0.02	2788949	101.0 -> 85.0	3.5	1.5	

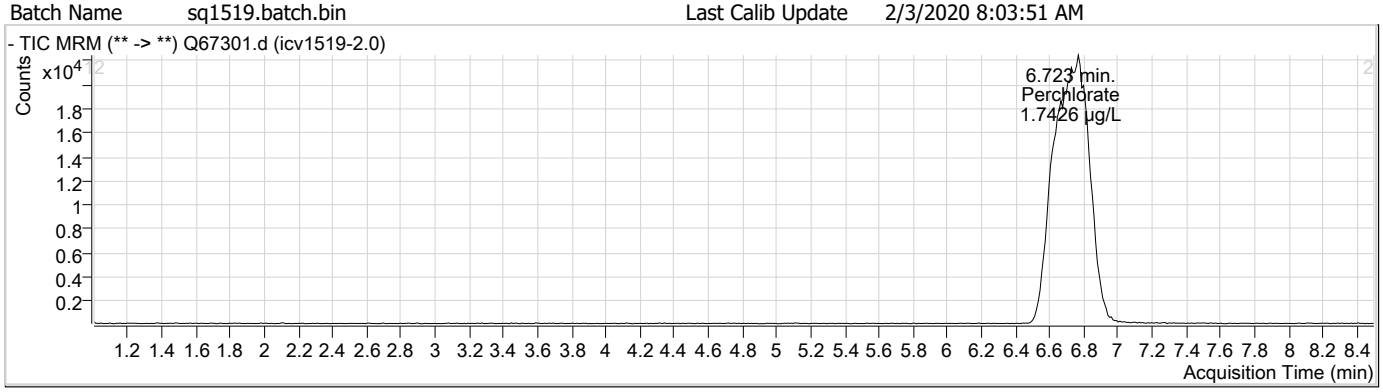






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q67301.d	Operator	NANCYF
Acq. Method	Perchlorate2.m	Acq. Date-Time	2/2/2020 3:55:49 PM
Sample Name	icv1519-2.0	Instrument	Instrument 1
Vial	Vial 10	Multiplier	1.00
DA Method File	6850_0202_SQ1519.quantmethod.xml	Comment	
Batch Name	sq1519.batch.bin	Last Calib Update	2/3/2020 8:03:51 AM

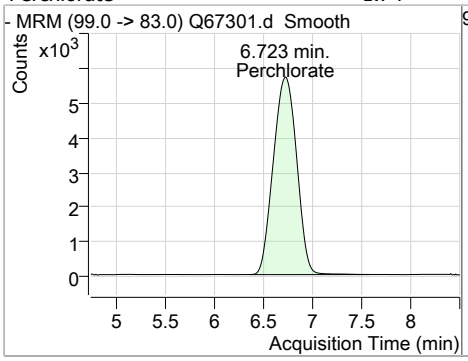


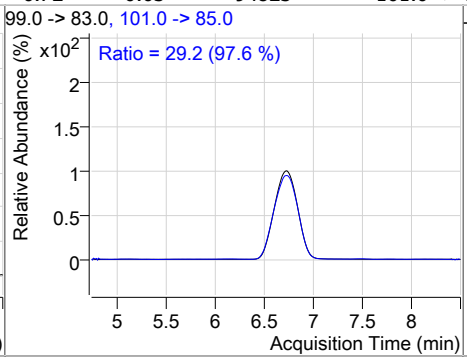
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.757	107.0 -> 89.0	202188	NoQ	5.00	µg/L	-0.020
System Monitoring Compounds							
Target Compounds							**QValue**
Perchlorate	6.723	99.0 -> 83.0	94823	3.4	1.74	µg/L	99

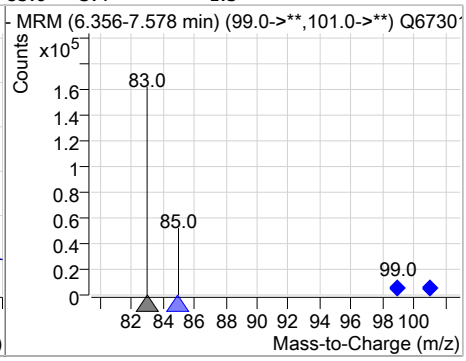
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	1.74	6.72	-0.03	94823	101.0 -> 85.0	3.4	1.5	

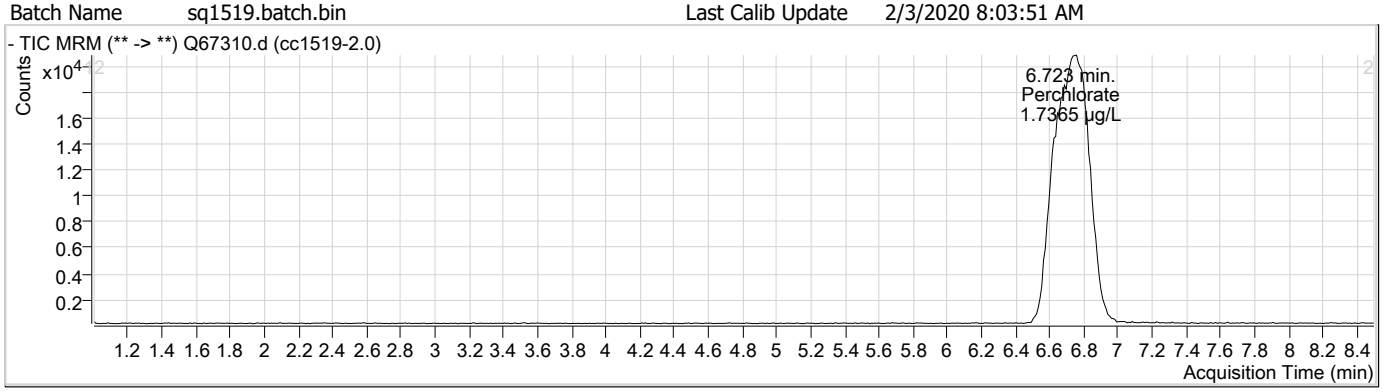






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q67310.d	Operator	NANCYF
Acq. Method	Perchlorate2.m	Acq. Date-Time	2/2/2020 5:20:03 PM
Sample Name	cc1519-2.0	Instrument	Instrument 1
Vial	Vial 5	Multiplier	1.00
DA Method File	6850_0202_SQ1519.quantmethod.xml	Comment	
Batch Name	sq1519.batch.bin	Last Calib Update	2/3/2020 8:03:51 AM

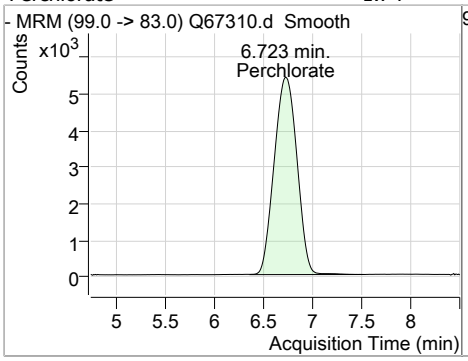


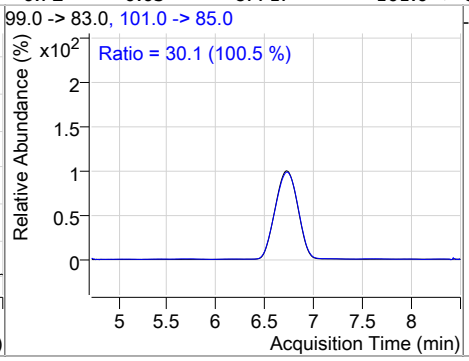
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.747	107.0 -> 89.0	187695	NoQ	5.00	µg/L	-0.031
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.723	99.0 -> 83.0	87717	3.3	1.74	µg/L	100

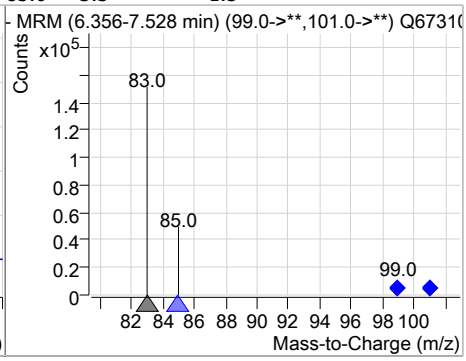
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	1.74	6.72	-0.03	87717	101.0 -> 85.0	3.3	1.5	

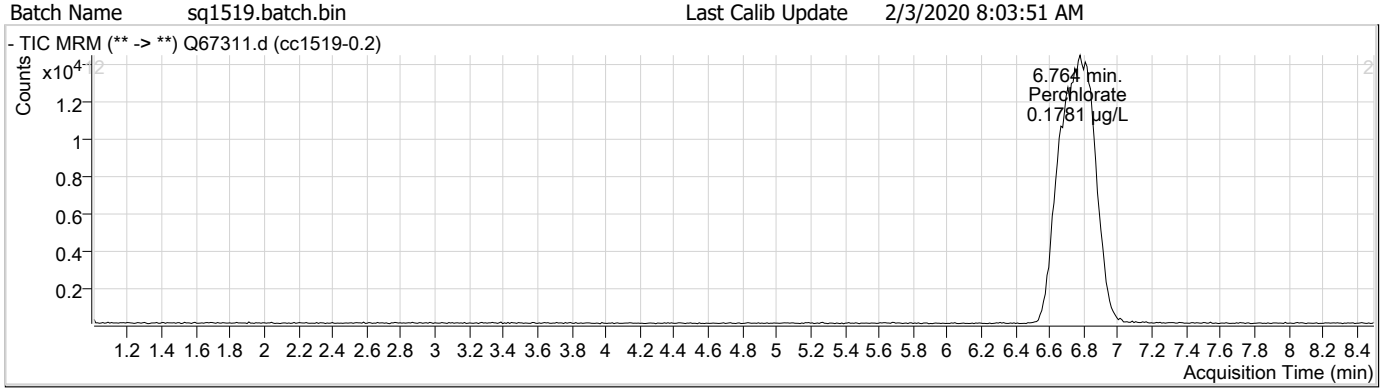






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q67311.d	Operator	NANCYF
Acq. Method	Perchlorate2.m	Acq. Date-Time	2/2/2020 5:29:24 PM
Sample Name	cc1519-0.2	Instrument	Instrument 1
Vial	Vial 2	Multiplier	1.00
DA Method File	6850_0202_SQ1519.quantmethod.xml	Comment	
Batch Name	sq1519.batch.bin	Last Calib Update	2/3/2020 8:03:51 AM

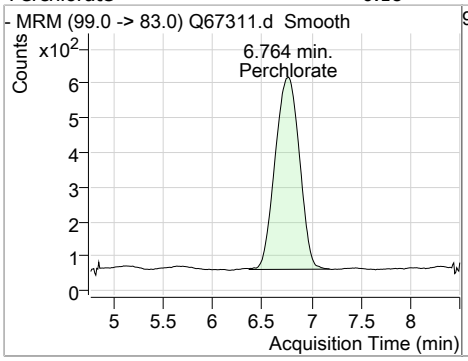


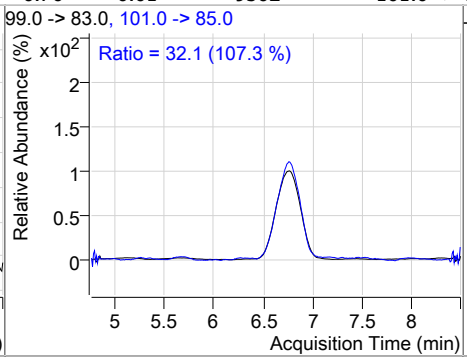
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.777	107.0 -> 89.0	200105	NoQ	5.00	µg/L	0.000
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.764	99.0 -> 83.0	9562	3.1	0.18	µg/L	96

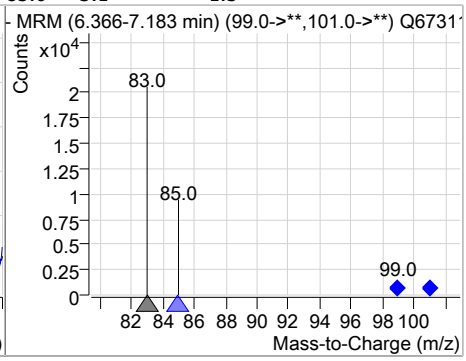
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.18	6.76	0.01	9562	101.0 -> 85.0	3.1	1.5	

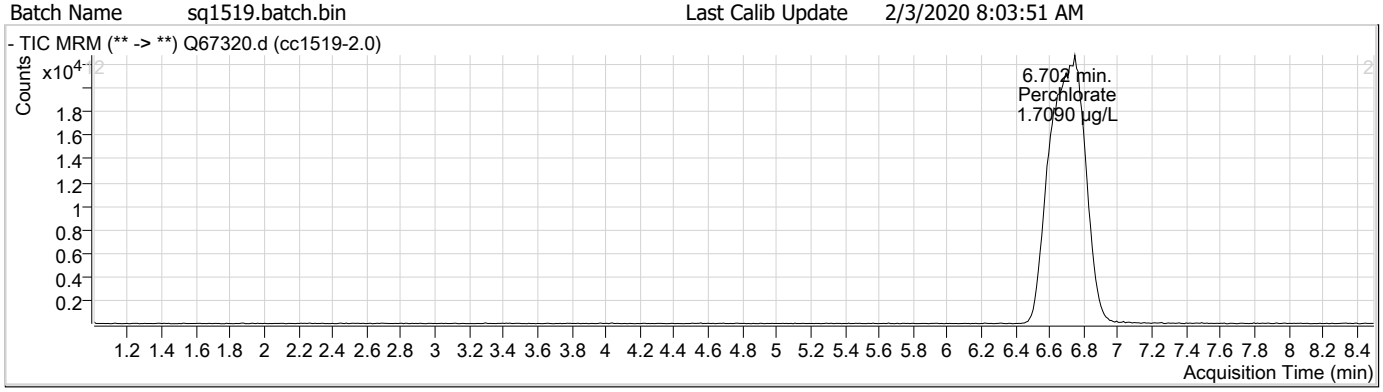






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q67320.d	Operator	NANCYF
Acq. Method	Perchlorate2.m	Acq. Date-Time	2/2/2020 6:53:34 PM
Sample Name	cc1519-2.0	Instrument	Instrument 1
Vial	Vial 5	Multiplier	1.00
DA Method File	6850_0202_SQ1519.quantmethod.xml	Comment	
Batch Name	sq1519.batch.bin	Last Calib Update	2/3/2020 8:03:51 AM

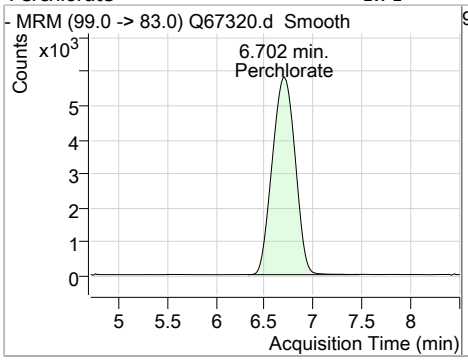


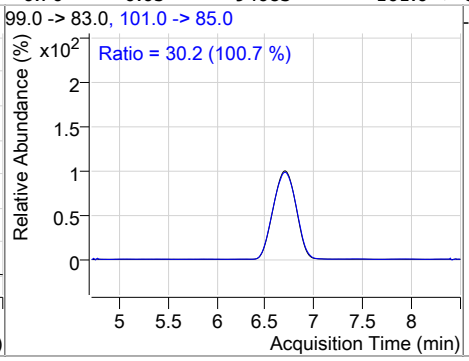
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.736	107.0 -> 89.0	205875	NoQ	5.00	µg/L	-0.041
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.702	99.0 -> 83.0	94683	3.3	1.71	µg/L	100

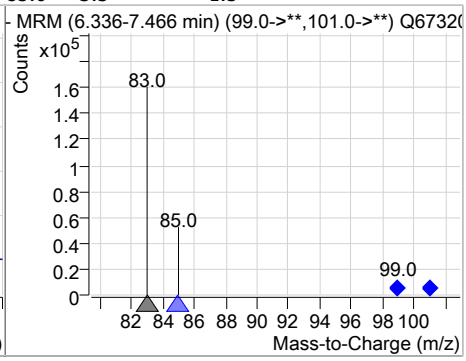
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	1.71	6.70	-0.05	94683	101.0 -> 85.0	3.3	1.5	

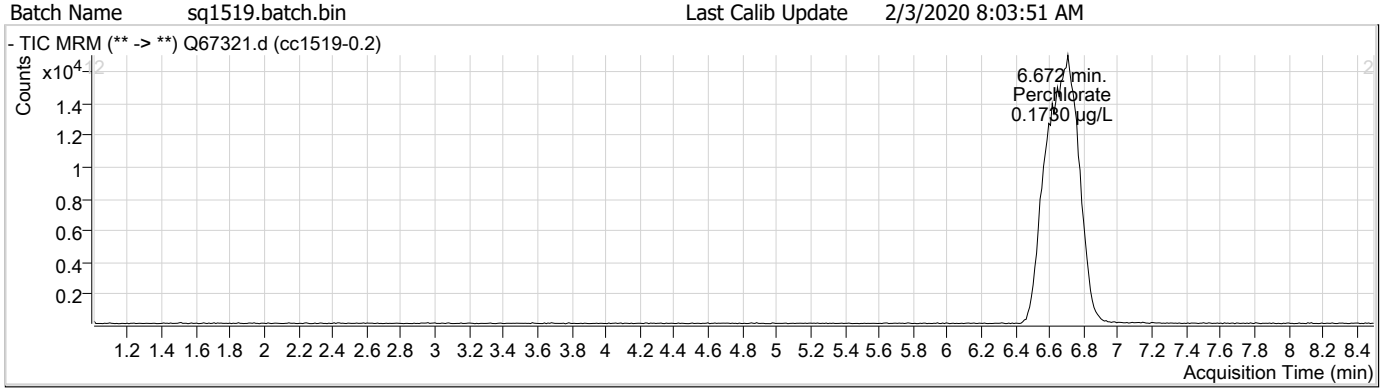






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q67321.d	Operator	NANCYF
Acq. Method	Perchlorate2.m	Acq. Date-Time	2/2/2020 7:02:55 PM
Sample Name	cc1519-0.2	Instrument	Instrument 1
Vial	Vial 2	Multiplier	1.00
DA Method File	6850_0202_SQ1519.quantmethod.xml	Comment	
Batch Name	sq1519.batch.bin	Last Calib Update	2/3/2020 8:03:51 AM

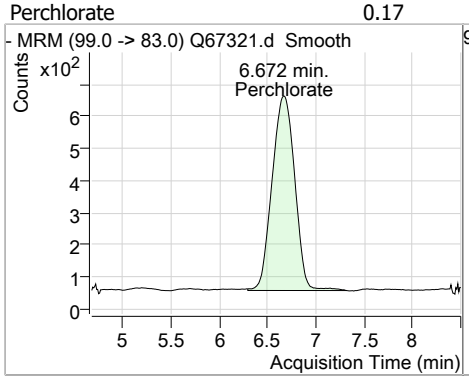


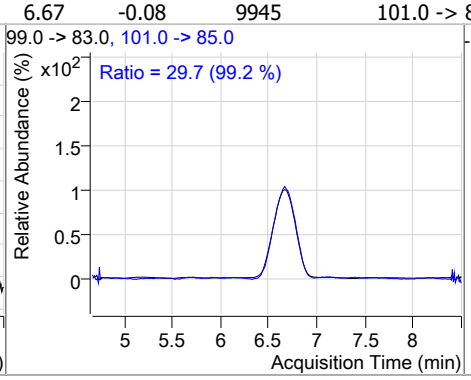
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.696	107.0 -> 89.0	214271	NoQ	5.00	µg/L	-0.081
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.672	99.0 -> 83.0	9945	3.4	0.17	µg/L	100

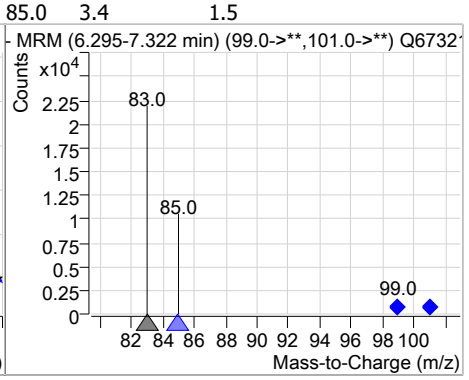
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.17	6.67	-0.08	9945	101.0 -> 85.0	3.4	1.5	

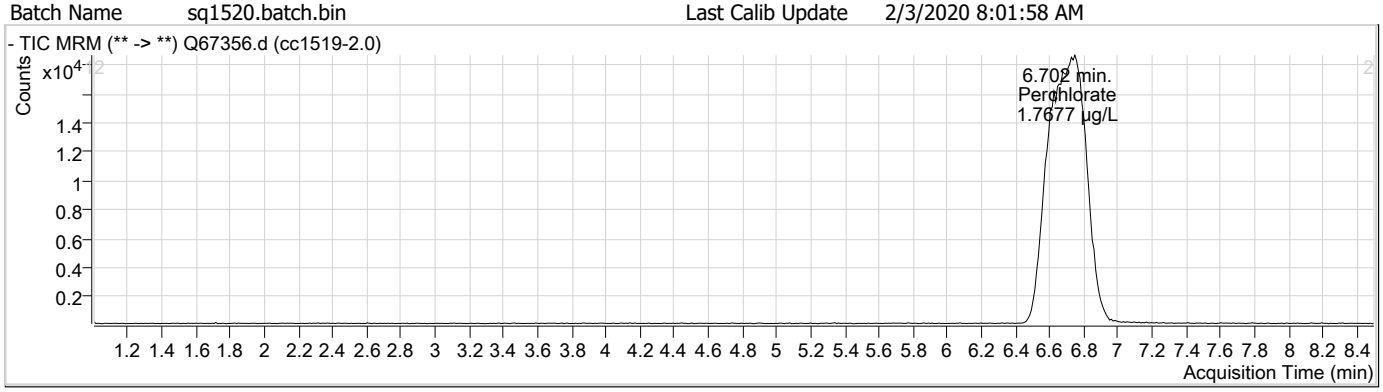






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q67356.d	Operator	NANCYF
Acq. Method	Perchlorate2.m	Acq. Date-Time	2/3/2020 9:16:49 AM
Sample Name	cc1519-2.0	Instrument	Instrument 1
Vial	Vial 5	Multiplier	1.00
DA Method File	6850_0202_SQ1519.quantmethod.xml	Comment	
Batch Name	sq1520.batch.bin	Last Calib Update	2/3/2020 8:01:58 AM

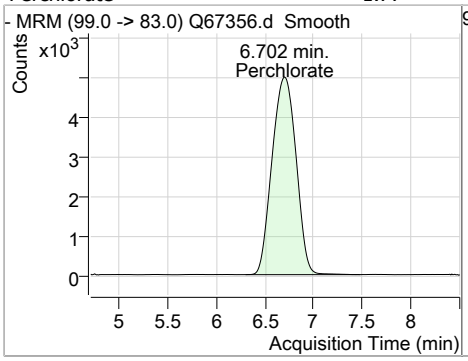


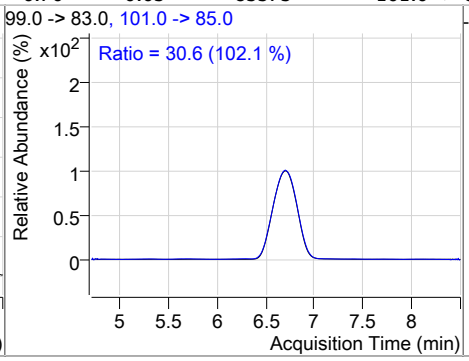
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.726	107.0 -> 89.0	179872	NoQ	5.00	µg/L	-0.051
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.702	99.0 -> 83.0	85575	3.3	1.77	µg/L	99

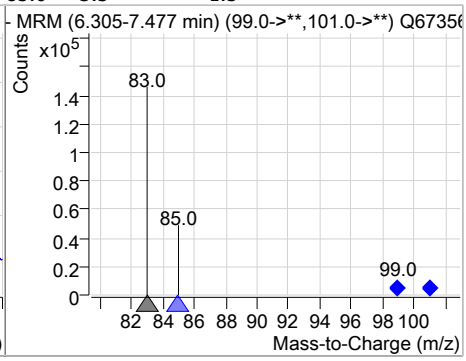
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	1.77	6.70	-0.05	85575	101.0 -> 85.0	3.3	1.5	

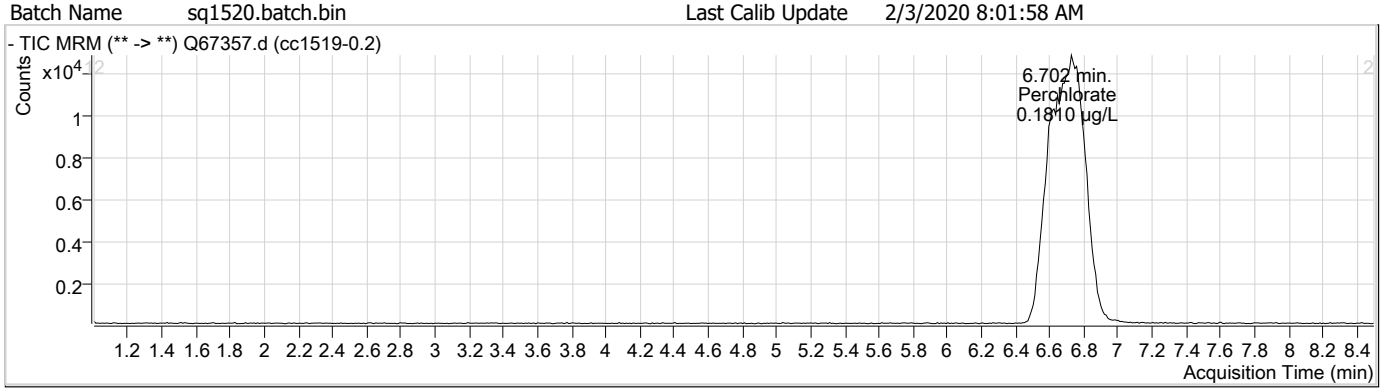






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q67357.d	Operator	NANCYF
Acq. Method	Perchlorate2.m	Acq. Date-Time	2/3/2020 9:26:09 AM
Sample Name	cc1519-0.2	Instrument	Instrument 1
Vial	Vial 2	Multiplier	1.00
DA Method File	6850_0202_SQ1519.quantmethod.xml	Comment	
Batch Name	sq1520.batch.bin	Last Calib Update	2/3/2020 8:01:58 AM

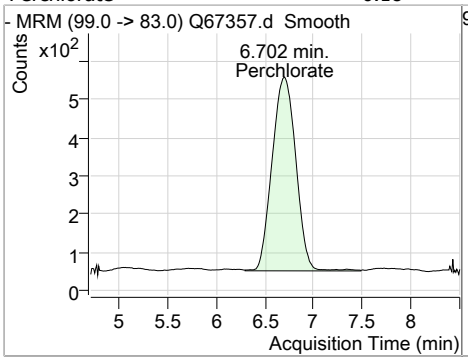


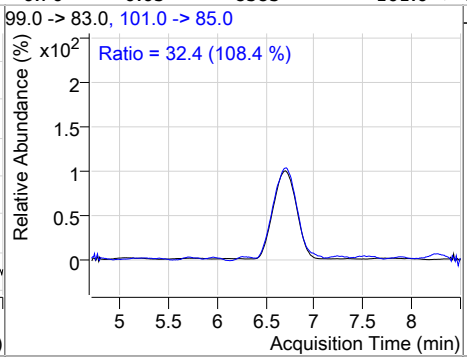
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.726	107.0 -> 89.0	176841	NoQ	5.00	µg/L	-0.051
System Monitoring Compounds							
Target Compounds							**QValue**
Perchlorate	6.702	99.0 -> 83.0	8585	3.1	0.18	µg/L	95

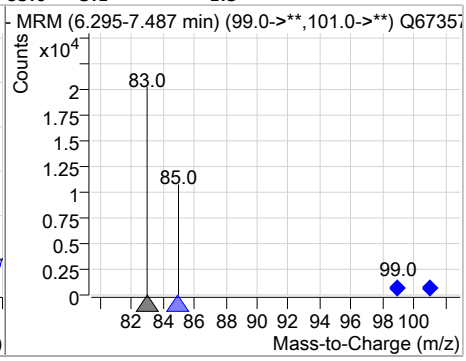
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.18	6.70	-0.05	8585	101.0 -> 85.0	3.1	1.5	

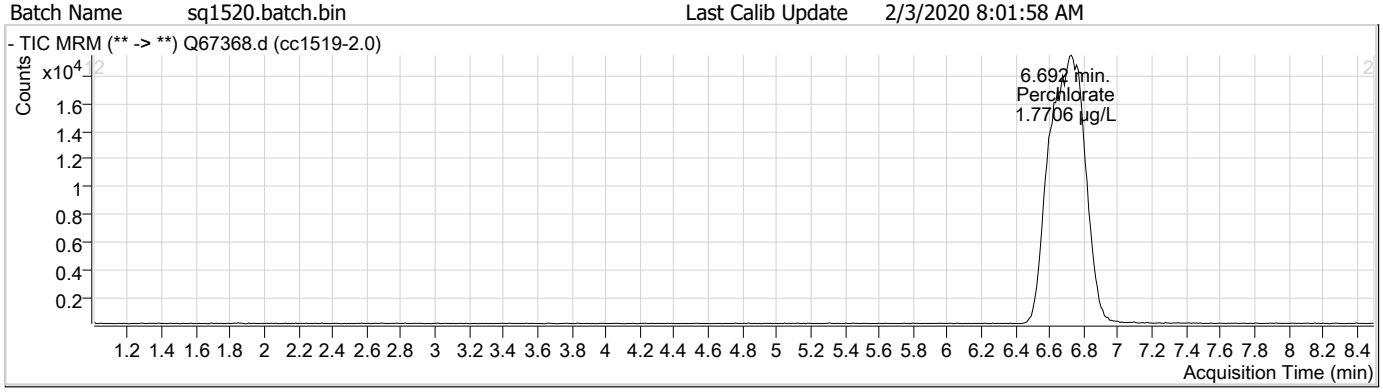






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q67368.d	Operator	NANCYF
Acq. Method	Perchlorate2.m	Acq. Date-Time	2/3/2020 11:31:30 AM
Sample Name	cc1519-2.0	Instrument	Instrument 1
Vial	Vial 5	Multiplier	1.00
DA Method File	6850_0202_SQ1519.quantmethod.xml	Comment	
Batch Name	sq1520.batch.bin	Last Calib Update	2/3/2020 8:01:58 AM

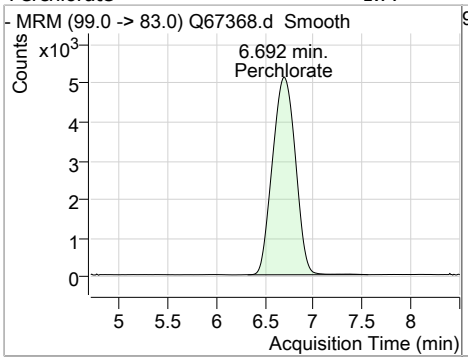


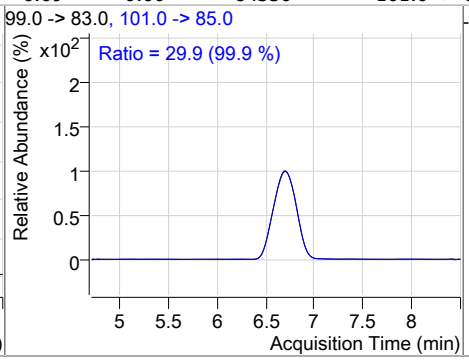
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.726	107.0 -> 89.0	176968	NoQ	5.00	µg/L	-0.051
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.692	99.0 -> 83.0	84330	3.3	1.77	µg/L	100

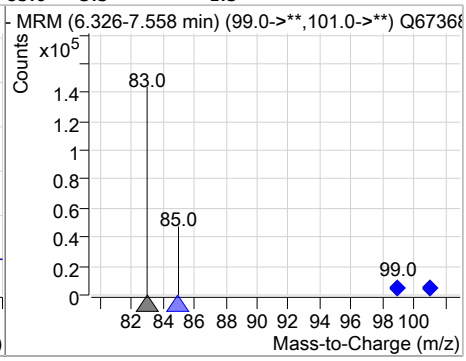
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	1.77	6.69	-0.06	84330	101.0 -> 85.0	3.3	1.5	

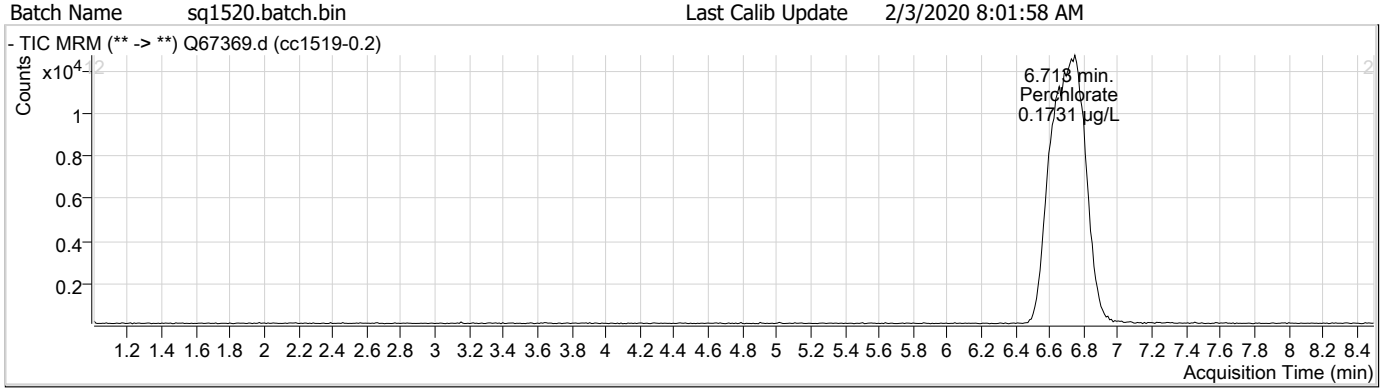






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q67369.d	Operator	NANCYF
Acq. Method	Perchlorate2.m	Acq. Date-Time	2/3/2020 11:40:51 AM
Sample Name	cc1519-0.2	Instrument	Instrument 1
Vial	Vial 2	Multiplier	1.00
DA Method File	6850_0202_SQ1519.quantmethod.xml	Comment	
Batch Name	sq1520.batch.bin	Last Calib Update	2/3/2020 8:01:58 AM

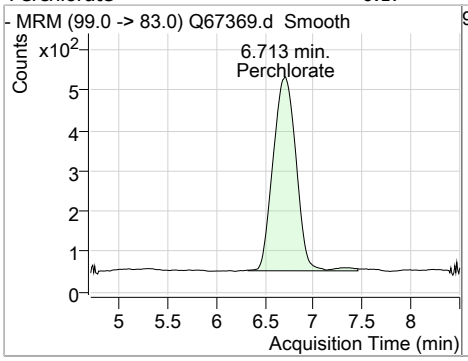


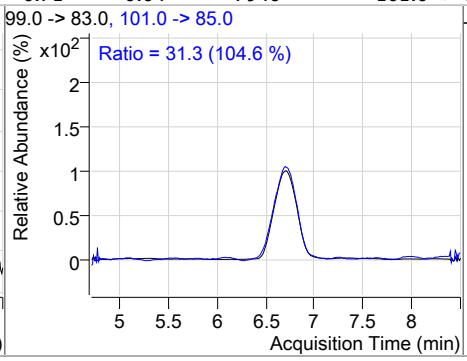
Compound	RT	QIon	Resp.	Q-ratio	Conc. Units	Dev(Min)
Internal Standards						
Cl18O4	6.726	107.0 -> 89.0	171171	NoQ	5.00 µg/L	-0.051
System Monitoring Compounds						
Target Compounds						**QValue**
Perchlorate	6.713	99.0 -> 83.0	7946	3.2	0.17 µg/L	97

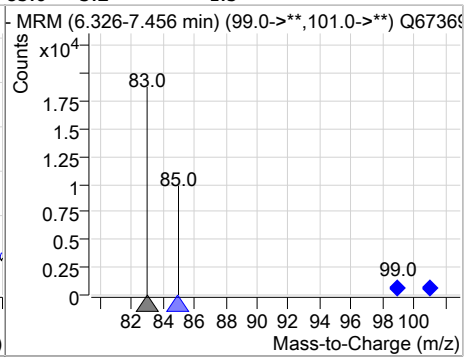
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.17	6.71	-0.04	7946	101.0 -> 85.0	3.2	1.5	







SGS ORLANDO

LCMS1-Q ANALYSIS LOG

DATE:	02/02/20
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 ul
INSTRUMENT:	LCMS1-Q

METHODS:	6850_PERCHLORATE
PROC. METH:	6850_020220_SQ1519
CAL DATE:	02/02/20
ANALYST:	NAS
RUN BATCH:	SQ1519

ELUENT A LOT #:	197123 W/0.1% AA
ELUENT B LOT #:	196044 W/0.1% AA
IC/CC STD LOT #:	LCMS1412
ICV STD LOT #:	LCMS1413
ISTD/ID STD LOT #:	9681

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	Q67264.d	Vial 1	CCB	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
2	Q67265.d	Vial 1	CCB	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
3	Q67266.d	Vial 1	CCB	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
4	Q67267.d	Vial 11	cond	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
5	Q67268.d	Vial 1	ccb	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
6	Q67269.d	Vial 1	ccb	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
7	Q67270.d	Vial 2	cond	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
8	Q67271.d	Vial 3	cond	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
9	Q67272.d	Vial 10	cond	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
10	Q67273.d	Vial 14	ccb	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
11	Q67274.d	Vial 1	ccb	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
12	Q67275.d	Vial 1	ccb	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
13	Q67276.d	Vial 13	cond	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
14	Q67277.d	Vial 1	ccb	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
15	Q67278.d	Vial 14	ccb	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
16	Q67279.d	Vial 91	old ccb	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
17	Q67280.d	Vial 1	ccb	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
18	Q67281.d	Vial 1	ccb	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
19	Q67282.d	Vial 91	ipa	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
20	Q67283.d	Vial 91	ipa	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
21	Q67284.d	Vial 91	ipa	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
22	Q67285.d	Vial 91	ipa	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
23	Q67286.d	Vial 91	ipa	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
24	Q67287.d	Vial 92	old ccb	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
25	Q67288.d	Vial 92	old ccb	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
26	Q67289.d	Vial 92	old ccb	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
27	Q67290.d	Vial 92	old ccb	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
28	Q67291.d	Vial 92	old ccb	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
29	Q67292.d	Vial 1	ccb	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
30	Q67293.d	Vial 2	ic1519-0.2	Perchlorate2.m	Calibration	0.02/10	OP78776,SQ1519,10,,,10,1,water	✓
31	Q67294.d	Vial 3	ic1519-0.5	Perchlorate2.m	Calibration	0.05/10	OP78776,SQ1519,10,,,10,1,water	✓
32	Q67295.d	Vial 4	ic1519-1.0	Perchlorate2.m	Calibration	0.1/10	OP78776,SQ1519,10,,,10,1,water	drop 116% accruacy
33	Q67296.d	Vial 5	icc1519-2.0	Perchlorate2.m	Calibration	0.2/10	OP78776,SQ1519,10,,,10,1,water	✓
34	Q67297.d	Vial 6	ic1519-5.0	Perchlorate2.m	Calibration	0.5/10	OP78776,SQ1519,10,,,10,1,water	✓
35	Q67298.d	Vial 7	ic1519-10	Perchlorate2.m	Calibration	1.0/10	OP78776,SQ1519,10,,,10,1,water	✓

Printed 2/4/2020 @ 9:51 AM

SGS ORLANDO LCMS1-Q ANALYSIS LOG

36	Q67299.d	Vial 8	ic1519-25	Perchlorate2.m	Calibration	2.5/10	OP78776,SQ1519,10,,,10,1,water	✓
37	Q67300.d	Vial 9	ic1519-50	Perchlorate2.m	Calibration	5.0/10	OP78776,SQ1519,10,,,10,1,water	✓
38	Q67301.d	Vial 10	icv1519-2.0	Perchlorate2.m	QC	0.2/10	OP78776,SQ1519,10,,,10,1,water	pass
39	Q67302.d	Vial 11	ics1519-0.2	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
40	Q67303.d	Vial 12	op78776-bs	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
41	Q67304.d	Vial 13	op78776-mb	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
42	Q67305.d	Vial 14	0.1 ppb	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
43	Q67306.d	Vial 15	la61223-1	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
44	Q67307.d	Vial 16	la61224-1	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
45	Q67308.d	Vial 17	la61225-1	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
46	Q67309.d	Vial 18	la61226-1	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	RUN 20X
47	Q67310.d	Vial 5	cc1519-2.0	Perchlorate2.m	QC	0.2/10	OP78776,SQ1519,10,,,10,1,water	pass
48	Q67311.d	Vial 2	cc1519-0.2	Perchlorate2.m	QC	0.02/10	OP78776,SQ1519,10,,,10,1,water	pass
49	Q67312.d	Vial 1	ccb	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	bdl
50	Q67313.d	Vial 19	fa72036-1	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
51	Q67314.d	Vial 20	fa72036-2	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
52	Q67315.d	Vial 21	fa72036-3	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
53	Q67316.d	Vial 22	fa72036-4	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
54	Q67317.d	Vial 23	op78776-ms	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
55	Q67318.d	Vial 24	op78776-msd	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
56	Q67319.d	Vial 25	fa72036-5	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	✓
57	Q67320.d	Vial 5	cc1519-2.0	Perchlorate2.m	QC	0.2/10	OP78776,SQ1519,10,,,10,1,water	pass
58	Q67321.d	Vial 2	cc1519-0.2	Perchlorate2.m	QC	0.02/10	OP78776,SQ1519,10,,,10,1,water	pass
59	Q67322.d	Vial 1	ccb	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	bdl
60	Q67323.d	Vial 26	op78777-bs	Perchlorate2.m	Sample		OP78777,SQ1519,10,,,10,1,water	✓
61	Q67324.d	Vial 27	op78777-mb	Perchlorate2.m	Sample		OP78777,SQ1519,10,,,10,1,water	✓
62	Q67325.d	Vial 28	fa72167-1f	Perchlorate2.m	Sample		OP78777,SQ1519,10,,,10,1,water	✓
63	Q67326.d	Vial 29	fa72167-2f	Perchlorate2.m	Sample		OP78777,SQ1519,10,,,10,1,water	✓
64	Q67327.d	Vial 30	fa72167-3f	Perchlorate2.m	Sample		OP78777,SQ1519,10,,,10,1,water	RUN 20X
65	Q67328.d	Vial 31	fa72167-4f	Perchlorate2.m	Sample		OP78777,SQ1519,10,,,10,1,water	RUN 20X
66	Q67329.d	Vial 32	fa72167-5f	Perchlorate2.m	Sample		OP78777,SQ1519,10,,,10,1,water	RUN 20X
67	Q67330.d	Vial 33	fa72167-6f	Perchlorate2.m	Sample		OP78777,SQ1519,10,,,10,1,water	RUN 20X
68	Q67331.d	Vial 34	fa72167-7f	Perchlorate2.m	Sample		OP78777,SQ1519,10,,,10,1,water	RUN 20X
69	Q67332.d	Vial 5	cc1519-2.0	Perchlorate2.m	QC	0.2/10	OP78776,SQ1519,10,,,10,1,water	pass
70	Q67333.d	Vial 2	cc1519-0.2	Perchlorate2.m	QC	0.02/10	OP78776,SQ1519,10,,,10,1,water	pass
71	Q67334.d	Vial 1	ccb	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	bdl
72	Q67335.d	Vial 35	fa72167-8f	Perchlorate2.m	Sample		OP78777,SQ1519,10,,,10,1,water	✓
73	Q67336.d	Vial 36	op78777-ms	Perchlorate2.m	Sample		OP78777,SQ1519,10,,,10,1,water	✓
74	Q67337.d	Vial 37	op78777-msd	Perchlorate2.m	Sample		OP78777,SQ1519,10,,,10,1,water	✓
75	Q67338.d	Vial 38	fa72167-9f	Perchlorate2.m	Sample		OP78777,SQ1519,10,,,10,1,water	✓
76	Q67339.d	Vial 39	fa72167-10f	Perchlorate2.m	Sample		OP78777,SQ1519,10,,,10,1,water	✓
77	Q67340.d	Vial 40	fa72167-11f	Perchlorate2.m	Sample		OP78777,SQ1519,10,,,10,1,water	RUN 5X
78	Q67341.d	Vial 41	fa72167-12f	Perchlorate2.m	Sample		OP78777,SQ1519,10,,,10,1,water	✓

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SGS ORLANDO LCMS1-Q ANALYSIS LOG

79	Q67342.d	Vial 42	fa72167-13f	Perchlorate2.m	Sample		OP78777,SQ1519,10,,,10,1,water	✓
80	Q67343.d	Vial 43	fa72167-14f	Perchlorate2.m	Sample		OP78777,SQ1519,10,,,10,1,water	✓
81	Q67344.d	Vial 44	fa72167-15f	Perchlorate2.m	Sample		OP78777,SQ1519,10,,,10,1,water	RUN 100X
82	Q67345.d	Vial 5	cc1519-2.0	Perchlorate2.m	QC	0.2/10	OP78776,SQ1519,10,,,10,1,water	pass
83	Q67346.d	Vial 2	cc1519-0.2	Perchlorate2.m	QC	0.02/10	OP78776,SQ1519,10,,,10,1,water	pass
84	Q67347.d	Vial 1	ccb	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	bdl
85	Q67348.d	Vial 45	fa72167-16f	Perchlorate2.m	Sample		OP78777,SQ1519,10,,,10,1,water	RUN 50X
86	Q67349.d	Vial 46	fa72167-17f	Perchlorate2.m	Sample		OP78777,SQ1519,10,,,10,1,water	✓
87	Q67350.d	Vial 5	cc1519-2.0	Perchlorate2.m	QC	0.2/10	OP78776,SQ1519,10,,,10,1,water	pass
88	Q67351.d	Vial 2	ecc1519-0.2	Perchlorate2.m	QC	0.02/10	OP78776,SQ1519,10,,,10,1,water	pass
89	Q67352.d	Vial 1	ccb	Perchlorate2.m	Sample		OP78776,SQ1519,10,,,10,1,water	bdl

SGS ORLANDO

LCMS1-Q ANALYSIS LOG

DATE:	02/03/20
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 ul
INSTRUMENT:	LCMS1-Q

METHODS:	6850_PERCHLORATE
PROC. METH:	6850_020220_SQ1519
CAL DATE:	02/02/20
ANALYST:	NAS
RUN BATCH:	SQ1520

ELUENT A LOT #:	197123 W/0.1% AA
ELUENT B LOT #:	196044 W/0.1% AA
IC/CC STD LOT #:	LCMS1412
ICV STD LOT #:	LCMS1413
ISTD/ID STD LOT #:	9681

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	Q67353.d	Vial 1	CCB	Perchlorate2.m	Sample		OP78776,SQ1520,10,,,10,1,water	✓
2	Q67354.d	Vial 11	cond	Perchlorate2.m	Sample		OP78776,SQ1520,10,,,10,1,water	✓
3	Q67355.d	Vial 1	ccb	Perchlorate2.m	Sample		OP78776,SQ1520,10,,,10,1,water	BDL
4	Q67356.d	Vial 5	cc1519-2.0	Perchlorate2.m	QC	0.2/10	OP78776,SQ1520,10,,,10,1,water	PASS
5	Q67357.d	Vial 2	cc1519-0.2	Perchlorate2.m	QC	0.02/10	OP78776,SQ1520,10,,,10,1,water	PASS
6	Q67358.d	Vial 11	ics1519-0.2	Perchlorate2.m	Sample		OP78776,SQ1520,10,,,10,1,water	✓
7	Q67359.d	Vial 12	op78076-bs	Perchlorate2.m	Sample		OP78776,SQ1520,10,,,10,1,water	✓
8	Q67360.d	Vial 13	op78076-mb	Perchlorate2.m	Sample		OP78776,SQ1520,10,,,10,1,water	✓
9	Q67361.d	Vial 14	fa72042-2	Perchlorate2.m	Sample		OP78776,SQ1520,10,,,10,1,water	✓
10	Q67362.d	Vial 47	la61226-1	Perchlorate2.m	Sample		OP78776,SQ1520,10,,,10,20,water	✓
11	Q67363.d	Vial 48	fa72167-3	Perchlorate2.m	Sample		OP78777,SQ1520,10,,,10,20,water	✓
12	Q67364.d	Vial 49	fa72167-4	Perchlorate2.m	Sample		OP78777,SQ1520,10,,,10,20,water	✓
13	Q67365.d	Vial 50	fa72167-5	Perchlorate2.m	Sample		OP78777,SQ1520,10,,,10,20,water	✓
14	Q67366.d	Vial 51	fa72167-6	Perchlorate2.m	Sample		OP78777,SQ1520,10,,,10,20,water	✓
15	Q67367.d	Vial 52	fa72167-7	Perchlorate2.m	Sample		OP78777,SQ1520,10,,,10,20,water	✓
16	Q67368.d	Vial 5	cc1519-2.0	Perchlorate2.m	QC	0.2/10	OP78776,SQ1520,10,,,10,1,water	PASS
17	Q67369.d	Vial 2	cc1519-0.2	Perchlorate2.m	QC	0.02/10	OP78776,SQ1520,10,,,10,1,water	PASS
18	Q67370.d	Vial 1	ccb	Perchlorate2.m	Sample		OP78776,SQ1520,10,,,10,1,water	BDL
19	Q67371.d	Vial 53	fa72167-11	Perchlorate2.m	Sample		OP78777,SQ1520,10,,,10,5,water	✓
20	Q67372.d	Vial 54	fa72167-15	Perchlorate2.m	Sample		OP78777,SQ1520,10,,,10,100,water	RUN 200X
21	Q67373.d	Vial 55	fa72167-16	Perchlorate2.m	Sample		OP78777,SQ1520,10,,,10,50,water	? DILUTION RUN 20X
22	Q67374.d	Vial 91	test	Perchlorate2.m	Sample		OP78777,SQ1520,10,,,10,1,water	✓
23	Q67375.d	Vial 5	cc1519-2.0	Perchlorate2.m	QC	0.2/10	OP78776,SQ1520,10,,,10,1,water	✓
24	Q67376.d	Vial 2	cc1519-0.2	Perchlorate2.m	QC	0.02/10	OP78776,SQ1520,10,,,10,1,water	✓
25	Q67377.d	Vial 1	ccb	Perchlorate2.m	Sample		OP78776,SQ1520,10,,,10,1,water	✓
26	Q67378.d	Vial 56	fa72167-15	Perchlorate2.m	Sample		OP78777,SQ1520,10,,,10,200,water	✓
27	Q67379.d	Vial 57	fa72167-16	Perchlorate2.m	Sample		OP78777,SQ1520,10,,,10,20,water	RE MAKE RERUN 100X
28	Q67380.d	Vial 58	fa72167-16	Perchlorate2.m	Sample		OP78777,SQ1520,10,,,10,100,water	✓
29	Q67381.d	Vial 5	cc1519-2.0	Perchlorate2.m	QC	0.2/10	OP78776,SQ1520,10,,,10,1,water	PASS
30	Q67382.d	Vial 2	ecc1519-0.2	Perchlorate2.m	QC	0.02/10	OP78776,SQ1520,10,,,10,1,water	PASS
31	Q67383.d	Vial 1	ccb	Perchlorate2.m	Sample		OP78776,SQ1520,10,,,10,1,water	BDL

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SGS - ORLANDO

LIQUID SAMPLE PREP REPORT

Date/Time: 02-02-20 945
Started {mm/dd/yy 24:00}

Date/Time: 02-02-20 1100
Finished {mm/dd/yy 24:00}

Prep Method: 3510C 3580A or Method (circle)

Analytical Method: 6850

Batch#: OP78776 Ext. By: NAS Conc. By: Vialed By: NAS

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Surrogate Amount	Spike Amount	Final Volume (ml)	Comments
OP 78776 - MB	/	10 ml					10 ml	
OP - BS	/	↓				2ml	↓	
LA61223-1	2	↓				↓	↓	
LA61224-1	↓	↓				↓	↓	
LA61225-1	↓	↓				↓	↓	
LA61226-1	↓	↓				↓	↓	
FA72036-1	3	↓				↓	↓	
-2	↓	↓				↓	↓	
-3	↓	↓				↓	↓	
-4	7	↓				↓	↓	MS/MSD
-5	3	↓				↓	↓	
FA72042-2	-	↓				↓	↓	
011 NAS	-	↓				↓	↓	
					NAS 020220			
0178776 - MS	8	10 ml				2ml	10 ml	FA72023-4
- MSD	9	↓				↓	↓	-4
DUP								

Comments:

Surr. ID: Conc: Exp. Date: Inj. By: Ver. By

Spk. ID: LCMS1413 Conc: 100 ppb Exp. Date: 03-02-20 Inj. By: NAS Ver. By NAS

Initial Bath Temp (Therm ID):
Observed Temp °C: Corr. Temp °C:

Exchange Bath/N-Evap Temp (Therm ID):
Observed Temp °C: Corr. Temp °C:

CH2CL2 Lot #: Hexane Lot #: Na2SO4 Lot#:

Acetonitrile Lot #: Methanol Lot #: Acetone Lot#:

~~Syringe~~ vial Filter Lot# 36535-1 pH Paper #: ~~Reagent~~ water # 196236

Copper Lot #: If Sulfur Cleaning is performed in Extractions (3660B)

Relinquished By: Date: 02-02-20

Accepted By: Date: 02-02-20

ORLD-EXT-0001-1-06-FORM-extwater.xls 032718

GC/LC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- GC Identification Summaries (Explosives)
- Surrogate Recovery Summaries
- GC Surrogate Retention Time Summaries
- Initial and Continuing Calibration Summaries
- Run Sequence Reports

Method Blank Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP78763-MB	BB067849.D	1	02/03/20	WH	01/31/20	OP78763	GBB1981

The QC reported here applies to the following samples: **Method:** SW846 8330B

FA72036-1, FA72036-2, FA72036-3, FA72036-4, FA72036-5

CAS No.	Compound	Result	RL	MDL	Units	Q
2691-41-0	HMX	ND	0.20	0.080	ug/l	
121-82-4	RDX	ND	0.20	0.080	ug/l	
	DNX	ND	0.20	0.080	ug/l	
	MNX	ND	0.20	0.080	ug/l	
	TNX	ND	0.20	0.080	ug/l	
618-87-1	3,5-Dinitroaniline	ND	0.20	0.080	ug/l	
99-65-0	1,3-Dinitrobenzene	ND	0.20	0.080	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	0.20	0.080	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	0.20	0.080	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	ND	0.20	0.080	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene	ND	0.20	0.080	ug/l	
98-95-3	Nitrobenzene	ND	0.20	0.097	ug/l	
88-72-2	o-Nitrotoluene	ND	0.20	0.080	ug/l	
99-08-1	m-Nitrotoluene	ND	0.20	0.080	ug/l	
99-99-0	p-Nitrotoluene	ND	0.20	0.080	ug/l	
479-45-8	Tetryl	ND	0.20	0.080	ug/l	
99-35-4	1,3,5-Trinitrobenzene	ND	0.20	0.099	ug/l	
118-96-7	2,4,6-Trinitrotoluene	ND	0.20	0.080	ug/l	
55-63-0	Nitroglycerine	ND	2.0	0.50	ug/l	
78-11-5	PETN	ND	2.0	0.50	ug/l	

CAS No.	Surrogate Recoveries		Limits
610-39-9	3,4-Dinitrotoluene	116%	70-136%

Method Blank Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP78763-MB	GG618370.D	1	02/04/20	WH	01/31/20	OP78763	GGG2806

The QC reported here applies to the following samples: **Method:** SW846 8330B

FA72036-1, FA72036-2, FA72036-3, FA72036-4, FA72036-5

CAS No.	Compound	Result	RL	MDL	Units	Q
2691-41-0	HMX	ND	0.20	0.080	ug/l	
121-82-4	RDX	ND	0.20	0.080	ug/l	
	DNX	ND	0.20	0.080	ug/l	
	MNX	ND	0.20	0.080	ug/l	
	TNX	ND	0.20	0.080	ug/l	
618-87-1	3,5-Dinitroaniline	ND	0.20	0.080	ug/l	
99-65-0	1,3-Dinitrobenzene	ND	0.20	0.080	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	0.20	0.080	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	0.20	0.080	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	ND	0.20	0.080	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene	ND	0.20	0.080	ug/l	
98-95-3	Nitrobenzene	ND	0.20	0.097	ug/l	
88-72-2	o-Nitrotoluene	ND	0.20	0.080	ug/l	
99-08-1	m-Nitrotoluene	ND	0.20	0.080	ug/l	
99-99-0	p-Nitrotoluene	ND	0.20	0.080	ug/l	
479-45-8	Tetryl	ND	0.20	0.080	ug/l	
99-35-4	1,3,5-Trinitrobenzene	ND	0.20	0.099	ug/l	
118-96-7	2,4,6-Trinitrotoluene	ND	0.20	0.080	ug/l	
55-63-0	Nitroglycerine	ND	2.0	0.50	ug/l	
78-11-5	PETN	ND	2.0	0.50	ug/l	

CAS No.	Surrogate Recoveries		Limits
610-39-9	3,4-Dinitrotoluene	131%	70-136%

Blank Spike Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP78763-BS	BB067848.D	1	02/03/20	WH	01/31/20	OP78763	GBB1981

The QC reported here applies to the following samples: **Method:** SW846 8330B

FA72036-1, FA72036-2, FA72036-3, FA72036-4, FA72036-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
2691-41-0	HMX	5	5.4	108	77-144
121-82-4	RDX	5	5.0	100	77-125
	DNX	5	5.0	100	66-127
	MNX	5	5.2	104	71-137
	TNX	5	4.1	82	60-126
618-87-1	3,5-Dinitroaniline	5	5.0	100	77-115
99-65-0	1,3-Dinitrobenzene	5	5.2	104	79-122
606-20-2	2,6-Dinitrotoluene	5	5.4	108	81-131
121-14-2	2,4-Dinitrotoluene	5	5.3	106	80-123
35572-78-2	2-amino-4,6-Dinitrotoluene	5	5.2	104	81-120
19406-51-0	4-amino-2,6-Dinitrotoluene	5	5.1	102	79-119
98-95-3	Nitrobenzene	5	4.9	98	78-130
88-72-2	o-Nitrotoluene	5	4.9	98	76-131
99-08-1	m-Nitrotoluene	5	5.1	102	78-122
99-99-0	p-Nitrotoluene	5	5.0	100	79-124
479-45-8	Tetryl	5	5.3	106	65-124
99-35-4	1,3,5-Trinitrobenzene	5	5.4	108	79-128
118-96-7	2,4,6-Trinitrotoluene	5	5.3	106	72-112
55-63-0	Nitroglycerine	5	5.5	110	69-123
78-11-5	PETN	5	11.7	234*	73-145

CAS No.	Surrogate Recoveries	BSP	Limits
610-39-9	3,4-Dinitrotoluene	117%	70-136%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP78763-MS	BB067851.D	1	02/03/20	WH	01/31/20	OP78763	GBB1981
OP78763-MSD	BB067852.D	1	02/03/20	WH	01/31/20	OP78763	GBB1981
FA72036-4 [a]	BB067850.D	1	02/03/20	WH	01/31/20	OP78763	GBB1981
FA72036-4 [b]	GG618385.D	1	02/05/20	WH	01/31/20	OP78763	GGG2807

The QC reported here applies to the following samples: **Method:** SW846 8330B

FA72036-1, FA72036-2, FA72036-3, FA72036-4, FA72036-5

CAS No.	Compound	FA72036-4 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
2691-41-0	HMX	13.1		9.62	23.0	103	9.62	23.1	104	0	77-144/21
121-82-4	RDX	0.56		9.62	9.8	96	9.62	9.8	96	0	77-125/19
	DNX	0.19	U	9.62	9.6	100	9.62	9.6	100	0	66-127/25
	MNX	0.19	U	9.62	9.3	97	9.62	9.3	97	0	71-137/20
	TNX	0.19	U	9.62	9.0	94	9.62	8.9	93	1	60-126/18
618-87-1	3,5-Dinitroaniline	0.31		9.62	9.8	99	9.62	9.8	99	0	77-115/19
99-65-0	1,3-Dinitrobenzene	0.19	U	9.62	9.8	102	9.62	9.8	102	0	79-122/17
606-20-2	2,6-Dinitrotoluene	0.19	U	9.62	11.9	124	9.62	14.5	151*	20*	81-131/17
121-14-2	2,4-Dinitrotoluene	0.19	U	9.62	10.3	107	9.62	10.6	110	3	80-123/19
35572-78-2	2-amino-4,6-Dinitrotoluene	4.3		9.62	14.0	101	9.62	14.2	103	1	81-120/19
19406-51-0	4-amino-2,6-Dinitrotoluene	2.2		9.62	11.8	100	9.62	12.2	104	3	79-119/20
98-95-3	Nitrobenzene	0.19	U	9.62	9.2	96	9.62	9.4	98	2	78-130/19
88-72-2	o-Nitrotoluene	0.19	U	9.62	10.5	109	9.62	10.3	107	2	76-131/20
99-08-1	m-Nitrotoluene	0.19	U	9.62	9.2	96	9.62	9.3	97	1	78-122/18
99-99-0	p-Nitrotoluene	0.19	U	9.62	10.1	105	9.62	10.1	105	0	79-124/18
479-45-8	Tetryl	0.19	U	9.62	9.8	102	9.62	10.1	105	3	65-124/20
99-35-4	1,3,5-Trinitrobenzene	17.3		9.62	27.9	110	9.62	28.0	111	0	79-128/16
118-96-7	2,4,6-Trinitrotoluene	10.2		9.62	19.9	101	9.62	20.0	102	1	72-112/16
55-63-0	Nitroglycerine	1.9	U	9.62	10.3	107	9.62	10.5	109	2	69-123/18
78-11-5	PETN	1.9	U	9.62	21.0	218*	9.62	20.2	210*	4	73-145/18

CAS No.	Surrogate Recoveries	MS	MSD	FA72036-4	FA72036-4	Limits
610-39-9	3,4-Dinitrotoluene	119%	124%	110%	129%	70-136%

(a) All hits confirmed by reanalysis on a dissimilar column.
(b) Confirmation run.

* = Outside of Control Limits.

GC Identification Summary (Explosives)

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample ID:	FA72036-1	**Method:**	SW846 8330B
Client ID:	54MW10		

Injection Type	Lab File ID	Dilution	Prep Batch	Inst Batch	Injection Time	Inst ID
Reportable	BB067857.D	1	OP78763	GBB1981	02/03/20 17:19	GCBB
Confirmation	GG618372.D	1	OP78763	GGG2806	02/04/20 19:50	GCGG

Compound	Lab File ID	Dilution	Sig#	Conc	Q	Units	RPD Conc
HMX	BB067857.D	1	1	5.5		ug/l	12.0
HMX	GG618372.D	1	1	6.2		ug/l	
RDX	BB067857.D	1	1	1.9		ug/l	11.1
RDX	GG618372.D	1	1	1.7		ug/l	
3,5-Dinitroaniline [a]	BB067857.D	1	1	.45		ug/l	70.5
3,5-Dinitroaniline	GG618372.D	1	1	.94		ug/l	
2-amino-4,6-Dinitrotoluene	BB067857.D	1	1	2.8		ug/l	11.3
2-amino-4,6-Dinitrotoluene	GG618372.D	1	1	2.5		ug/l	
4-amino-2,6-Dinitrotoluene [a]	BB067857.D	1	1	2.3		ug/l	62.9
4-amino-2,6-Dinitrotoluene	GG618372.D	1	1	1.2		ug/l	
1,3,5-Trinitrobenzene	BB067857.D	1	1	3.8		ug/l	11.1
1,3,5-Trinitrobenzene	GG618372.D	1	1	3.4		ug/l	
2,4,6-Trinitrotoluene	BB067857.D	1	1	8.4		ug/l	16.8
2,4,6-Trinitrotoluene	GG618372.D	1	1	7.1		ug/l	

(a) Primary and confirmation results differ by more than 40%.

GC Identification Summary (Explosives)

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample ID:	FA72036-2	**Method:**	SW846 8330B
Client ID:	54MW13		

Injection Type	Lab File ID	Dilution	Prep Batch	Inst Batch	Injection Time	Inst ID
Reportable	BB067860.D	1	OP78763	GBB1981	02/03/20 18:48	GCBB
Confirmation	GG618373.D	1	OP78763	GGG2806	02/04/20 20:19	GCGG

Compound	Lab File ID	Dilution	Sig#	Conc	Q	Units	RPD Conc
HMX	BB067860.D	1	1	4.4		ug/l	12.8
HMX	GG618373.D	1	1	5		ug/l	
RDX	BB067860.D	1	1	.55		ug/l	7.5
RDX	GG618373.D	1	1	.51		ug/l	
3,5-Dinitroaniline [a]	BB067860.D	1	1	.51		ug/l	93.2
3,5-Dinitroaniline	GG618373.D	1	1	1.4		ug/l	
2-amino-4,6-Dinitrotoluene	BB067860.D	1	1	1.4		ug/l	24.0
2-amino-4,6-Dinitrotoluene	GG618373.D	1	1	1.1		ug/l	
4-amino-2,6-Dinitrotoluene [a]	BB067860.D	1	1	1		ug/l	74.0
4-amino-2,6-Dinitrotoluene	GG618373.D	1	1	.46		ug/l	
1,3,5-Trinitrobenzene	BB067860.D	1	1	7.2		ug/l	10.2
1,3,5-Trinitrobenzene	GG618373.D	1	1	6.5		ug/l	
2,4,6-Trinitrotoluene	BB067860.D	1	1	4.1		ug/l	21.6
2,4,6-Trinitrotoluene	GG618373.D	1	1	3.3		ug/l	

(a) Primary and confirmation results differ by more than 40%.

GC Identification Summary (Explosives)

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample ID:	FA72036-3	**Method:**	SW846 8330B
Client ID:	54TW13		

Injection Type	Lab File ID	Dilution	Prep Batch	Inst Batch	Injection Time	Inst ID
Reportable	BB067861.D	1	OP78763	GBB1981	02/03/20 19:18	GCBB
Confirmation	GG618384.D	1	OP78763	GGG2807	02/05/20 11:37	GCGG

Compound	Lab File ID	Dilution	Sig#	Conc	Q	Units	RPD Conc
HMX	BB067861.D	1	1	4.3		ug/l	6.7
HMX	GG618384.D	1	1	4.6		ug/l	
RDX	BB067861.D	1	1	.48		ug/l	6.1
RDX	GG618384.D	1	1	.51		ug/l	
3,5-Dinitroaniline [a]	BB067861.D	1	1	.45		ug/l	97.1
3,5-Dinitroaniline	GG618384.D	1	1	1.3		ug/l	
2-amino-4,6-Dinitrotoluene	BB067861.D	1	1	1.1		ug/l	0.0
2-amino-4,6-Dinitrotoluene	GG618384.D	1	1	1.1		ug/l	
4-amino-2,6-Dinitrotoluene	BB067861.D	1	1	.67		ug/l	31.0
4-amino-2,6-Dinitrotoluene	GG618384.D	1	1	.49		ug/l	
1,3,5-Trinitrobenzene	BB067861.D	1	1	6.9		ug/l	9.1
1,3,5-Trinitrobenzene	GG618384.D	1	1	6.3		ug/l	
2,4,6-Trinitrotoluene	BB067861.D	1	1	3.8		ug/l	20.3
2,4,6-Trinitrotoluene	GG618384.D	1	1	3.1		ug/l	

(a) Primary and confirmation results differ by more than 40%.

GC Identification Summary (Explosives)

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample ID:	FA72036-4	**Method:**	SW846 8330B
Client ID:	54MW12		

Injection Type	Lab File ID	Dilution	Prep Batch	Inst Batch	Injection Time	Inst ID
Reportable	BB067850.D	1	OP78763	GBB1981	02/03/20 13:49	GCBB
Confirmation	GG618385.D	1	OP78763	GGG2807	02/05/20 12:06	GCGG

Compound	Lab File ID	Dilution	Sig#	Conc	Q	Units	RPD Conc
HMX	BB067850.D	1	1	13.1		ug/l	14.2
HMX	GG618385.D	1	1	15.1		ug/l	
RDX	BB067850.D	1	1	.56		ug/l	10.2
RDX	GG618385.D	1	1	.62		ug/l	
3,5-Dinitroaniline [a]	BB067850.D	1	1	.31		ug/l	104.6
3,5-Dinitroaniline	GG618385.D	1	1	.99		ug/l	
2-amino-4,6-Dinitrotoluene	BB067850.D	1	1	4.3		ug/l	17.7
2-amino-4,6-Dinitrotoluene	GG618385.D	1	1	3.6		ug/l	
4-amino-2,6-Dinitrotoluene [a]	BB067850.D	1	1	2.2		ug/l	58.8
4-amino-2,6-Dinitrotoluene	GG618385.D	1	1	1.2		ug/l	
1,3,5-Trinitrobenzene	BB067850.D	1	1	17.3		ug/l	7.8
1,3,5-Trinitrobenzene	GG618385.D	1	1	16		ug/l	
2,4,6-Trinitrotoluene	BB067850.D	1	1	10.2		ug/l	18.2
2,4,6-Trinitrotoluene	GG618385.D	1	1	8.5		ug/l	

(a) Primary and confirmation results differ by more than 40%.

Surrogate Recovery Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Method: SW846 8330B **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 [a]	S1 [b]
FA72036-1	GG618372.D		132
FA72036-1	BB067857.D		118
FA72036-2	GG618373.D	128	
FA72036-2	BB067860.D	116	
FA72036-3	GG618384.D		129
FA72036-3	BB067861.D		113
FA72036-4	GG618385.D		129
FA72036-4	BB067850.D		110
FA72036-5	BB067862.D		112
OP78763-BS	BB067848.D		117
OP78763-MB	BB067849.D		116
OP78763-MB	GG618370.D		131
OP78763-MS	BB067851.D		119
OP78763-MSD	BB067852.D		124

Surrogate Compounds	Recovery Limits
S1 = 3,4-Dinitrotoluene	70-136%

(a) Recovery from GC signal #2
(b) Recovery from GC signal #1

GC Surrogate Retention Time Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Check Std:	GBB1981-CC1975	**Injection Date:**	02/03/20
Lab File ID:	BB067847.D	**Injection Time:**	12:19
Instrument ID:	GCBB	**Method:**	SW846 8330B

	S1 [a] **RT**
Check Std	11.44

Lab Sample ID	**Lab File ID**	**Date Analyzed**	**Time Analyzed**	**S1** [a] **RT**
OP78763-BS	BB067848.D	02/03/20	12:49	11.37
OP78763-MB	BB067849.D	02/03/20	13:19	11.35
FA72036-4	BB067850.D	02/03/20	13:49	11.35
OP78763-MS	BB067851.D	02/03/20	14:19	11.32
OP78763-MSD	BB067852.D	02/03/20	14:49	11.31
ZZZZZZ	BB067853.D	02/03/20	15:19	11.32
ZZZZZZ	BB067854.D	02/03/20	15:49	11.29
ZZZZZZ	BB067855.D	02/03/20	16:19	11.28
ZZZZZZ	BB067856.D	02/03/20	16:49	11.28
FA72036-1	BB067857.D	02/03/20	17:19	11.27

Surrogate Compounds

S1 = 3,4-Dinitrotoluene

(a) Retention time from GC signal #1

GC Surrogate Retention Time Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Check Std:	GGG2806-CC2769	**Injection Date:**	02/04/20
Lab File ID:	GG618363.D	**Injection Time:**	15:25
Instrument ID:	GCGG	**Method:**	SW846 8330B

	S1 [a] RT	S1 [b] RT
Check Std	13.93	13.97

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT	S1 [b] RT
OP78736-MB	GG618364.D	02/04/20	15:55		13.85
ZZZZZZ	GG618365.D	02/04/20	16:24		13.86
ZZZZZZ	GG618366.D	02/04/20	16:53		14.00
ZZZZZZ	GG618367.D	02/04/20	17:23		13.81
FA72071-1	GG618368.D	02/04/20	17:52		13.82
ZZZZZZ	GG618369.D	02/04/20	18:22		13.81
OP78763-MB	GG618370.D	02/04/20	18:51		13.80
ZZZZZZ	GG618371.D	02/04/20	19:21		13.83
FA72036-1	GG618372.D	02/04/20	19:50		13.83
FA72036-2	GG618373.D	02/04/20	20:19	13.82	
GGG2806-ECC2769	GG618374.D	02/04/20	20:49	13.89	13.96

Surrogate Compounds

S1 = 3,4-Dinitrotoluene

(a) Retention time from GC signal #2
(b) Retention time from GC signal #1

GC Surrogate Retention Time Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Check Std:	GBB1981-CC1975	**Injection Date:**	02/03/20
Lab File ID:	BB067858.D	**Injection Time:**	17:49
Instrument ID:	GCBB	**Method:**	SW846 8330B

	S1 [a] RT	S1 [b] RT
Check Std	11.29	11.29

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT	S1 [b] RT
FA72036-2	BB067860.D	02/03/20	18:48	11.28	
FA72036-3	BB067861.D	02/03/20	19:18		11.26
FA72036-5	BB067862.D	02/03/20	19:48		11.27
ZZZZZZ	BB067863.D	02/03/20	20:18		
OP78780-BS	BB067864.D	02/03/20	20:48		11.25
ZZZZZZ	BB067865.D	02/03/20	21:18		11.24
OP78780-MB	BB067866.D	02/03/20	21:48		11.23
ZZZZZZ	BB067867.D	02/03/20	22:18		11.22
GBB1981-ECC1975	BB067868.D	02/03/20	22:48	11.25	11.25

Surrogate Compounds

S1 = 3,4-Dinitrotoluene

(a) Retention time from GC signal #2
(b) Retention time from GC signal #1

GC Surrogate Retention Time Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Check Std:	GGG2807-CC2769	**Injection Date:**	02/05/20
Lab File ID:	GG618383.D	**Injection Time:**	11:07
Instrument ID:	GCGG	**Method:**	SW846 8330B

	S1 [a] RT	S1 [b] RT
Check Std	13.87	13.93

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT	S1 [b] RT
FA72036-3	GG618384.D	02/05/20	11:37		13.79
FA72036-4	GG618385.D	02/05/20	12:06		13.78
OP78780-MB	GG618386.D	02/05/20	12:36		13.75
ZZZZZZ	GG618387.D	02/05/20	13:05		13.80
ZZZZZZ	GG618388.D	02/05/20	13:34		13.75
GGG2807-ECC2769	GG618389.D	02/05/20	14:04	13.86	13.93

Surrogate Compounds

S1 = 3,4-Dinitrotoluene

(a) Retention time from GC signal #2
(b) Retention time from GC signal #1

Initial Calibration Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GBB1975-ICC1975
Lab FileID: BB067775.D

Response Factor Report G1315B

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:53:52 2020
Response via : Initial Calibration

Calibration Files
20 =BB067770.D 50 =BB067771.D 100 =BB067772.D 200 =BB067773.D
500 =BB067774.D 1000=BB067775.D 2500=BB067776.D 5000=BB067777.D

Compound	20	50	100	200	500	1000	2500	5000	Avg	%RSD
1) TNX	1.336	2.151	2.311	2.332	2.340	2.346	2.386	2.355	2.195 E3	16.14
---- Quadratic regr., Force(0,0) ---- Coefficient = 1.0000										
Response Ratio = 0.00000 + 2388.40593 *A + -0.00646 *A^2										
2) HMX	1.309	1.504	1.618	1.458	1.481	1.603	1.610	1.580	1.520 E3	6.96
3) DNX	1.480	1.514	1.639	1.461	1.415	1.388	1.401	1.390	1.461 E3	5.84
4) MNX	2.376	2.294	2.353	2.314	2.250	2.230	2.232	2.207	2.282 E3	2.71
5) RDX	1.818	2.029	1.984	1.944	1.890	1.879	1.896	1.877	1.915 E3	3.51
6) 1,3,5-Trinit	3.748	3.735	3.957	3.810	3.937	3.906	3.957	3.929	3.872 E3	2.41
7) 1,3-Dinitrob	4.947	5.228	5.311	5.263	5.168	5.149	5.210	5.138	5.177 E3	2.12
8) 3,5-Dinitroa	3.732	3.957	4.111	4.072	3.983	4.000	4.043	3.997	3.987 E3	2.88
9) Nitrobenzene	3.116	3.232	3.194	3.055	3.053	3.094	3.140	3.138	3.128 E3	2.01
10) Nitroglyceri									0.000	-1.00
11) Tetryl	2.633	2.777	2.581	2.563	2.503	2.510	2.561	2.540	2.583 E3	3.42
12) 2,4,6-Trinit	3.317	3.188	3.377	3.298	3.253	3.251	3.360	3.570	3.327 E3	3.49
---- Linear regr., Force(0,0) ---- Coefficient = 0.9991										
Response Ratio = 0.00000 + 3516.89845 *A										
13) 2-Amino-4,6-	3.070	3.380	3.271	3.290	3.259	3.269	3.265	3.026	3.229 E3	3.68
14) 4-Amino-2,6-	2.461	2.255	2.363	2.372	2.322	2.319	2.351	2.332	2.347 E3	2.49
15) 3,4-Dinitrot	1.913	1.898	2.060	1.991	1.962	1.971	2.005	1.996	1.975 E3	2.62
16) 2,4-Dinitrot	4.064	4.193	4.476	4.384	4.358	4.365	4.440	4.461	4.343 E3	3.30
17) 2,6-Dinitrot	2.628	2.422	2.775	2.670	2.595	2.593	2.611	2.548	2.605 E3	3.86
18) o-Nitrotolue	2.398	2.068	2.269	2.173	2.140	2.127	2.131	2.099	2.176 E3	4.95
19) p-Nitrotolue	3.351	3.371	3.455	3.381	3.327	3.346	3.367	3.331	3.366 E3	1.20
20) m-Nitrotolue	3.062	2.845	3.169	3.121	3.071	3.094	3.140	3.102	3.076 E3	3.24
21) PETN									0.000	-1.00

Signal #2

1) TNX	3.058	3.594	3.683	3.672	3.636	3.646	3.698	3.643	3.579 E3	5.95
2) HMX	4.260	4.127	4.563	4.196	4.329	4.339	4.368	4.267	4.306 E3	3.03
3) DNX	3.428	2.924	3.181	2.449	2.322	2.214	2.236	2.225	2.622 E3	18.49
---- Quadratic regr., Force(0,0) ---- Coefficient = 0.9999										
Response Ratio = 0.00000 + 2253.33612 *A + -0.00585 *A^2										
4) MNX	3.529	3.931	3.575	3.640	3.479	3.445	3.439	3.395	3.554 E3	4.84
5) RDX	2.732	3.658	3.297	3.107	3.053	3.010	3.022	2.977	3.107 E3	8.75
6) 1,3,5-Trinit	7.288	7.278	7.560	7.411	7.490	7.509	7.635	7.713	7.486 E3	2.07
7) 1,3-Dinitrob	3.612	3.786	3.741	3.834	3.699	3.597	3.598	3.525	3.674 E3	2.93
8) 3,5-Dinitroa	7.004	6.617	6.941	7.166	6.932	6.808	6.769	6.690	6.866 E3	2.61
9) Nitrobenzene	2.887	3.173	3.241	3.099	3.067	3.049	3.063	3.016	3.074 E3	3.42
10) Nitroglyceri	1.306	1.243	1.210	1.165	1.103	1.095	1.110	1.066	1.162 E3	7.23
11) Tetryl	4.557	4.296	4.350	4.219	4.118	4.104	4.161	4.183	4.249 E3	3.54
12) 2,4,6-Trinit	3.896	3.871	4.063	3.983	3.903	3.899	4.020	4.189	3.978 E3	2.75
---- Linear regr., Force(0,0) ---- Coefficient = 0.9992										
Response Ratio = 0.00000 + 4089.58848 *A										

Initial Calibration Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GBB1975-ICC1975
Lab FileID: BB067775.D

```
13) 2-Amino-4,6- 4.923 4.969 5.043 4.977 4.939 4.955 4.977 4.808 4.949 E3   1.35
14) 4-Amino-2,6- 4.242 4.566 4.783 4.694 4.644 4.644 4.726 4.750 4.631 E3   3.71
15) 3,4-Dinitrot 3.278 3.319 3.504 3.461 3.476 3.480 3.565 3.611 3.462 E3   3.26
16) 2,4-Dinitrot 1.921 2.206 2.592 2.666 2.755 2.801 2.884 2.942 2.596 E3  13.68
            ---- Linear regr., Force(0,0) ----  Coefficient =  0.9999
              Response Ratio = 0.00000 + 2924.73047 *A

17) 2,6-Dinitrot 2.067 2.509 3.354 3.257 3.311 3.346 3.396 3.385 3.078 E3  16.36
            ---- Linear regr., Force(0,0) ----  Coefficient =  1.0000
              Response Ratio = 0.00000 + 3384.95661 *A

18) o-Nitrotolue 2.183 2.751 2.738 2.774 2.951 2.989 3.034 2.992 2.802 E3   9.89
19) p-Nitrotolue 2.185 1.950 2.386 2.581 2.892 2.870 2.929 2.898 2.586 E3  14.58
            ---- Linear regr., Force(0,0) ----  Coefficient =  0.9999
              Response Ratio = 0.00000 + 2902.12162 *A

20) m-Nitrotolue 2.143 2.074 2.770 3.269 3.527 3.570 3.693 3.702 3.094 E3  21.93
            ---- Linear regr., Force(0,0) ----  Coefficient =  1.0000
              Response Ratio = 0.00000 + 3693.89877 *A

21) PETN              4.906 5.007 6.370 6.140 6.325 6.535 6.582 5.981 E2  11.96
--------------------------------------------------------------------------------
(#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          8330B_012120_PLUS.M        Thu Jan 23 14:02:28 2020
```

8.7.1

8

Initial Calibration Verification

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GBB1975-ICV1975
Lab FileID: BB067778.D

Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067778.D\dad1B.ch Vial: 99
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067778.D\dad1A.ch
Acq On : 21-Jan-2020, 18:18:15 Operator: williamh
Sample : icv1975-1000 Inst : G1315B
Misc : op78572,GBB1975,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:53:52 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT Window
1	TNX	1000.000	1094.600	-9.5	111	0.00	1.03- 1.63
2	HMX	1000.000	1133.981	-13.4	108	0.00	1.16- 1.76
3	DNX	1000.000	961.072	3.9	101	0.00	1.40- 2.00
4	MNX	1000.000	980.098	2.0	100	0.00	1.98- 2.58
5	RDX	1000.000	997.927	0.2	102	0.00	2.48- 3.28
6	1,3,5-Trinitrobenzene	1000.000	1022.034	-2.2	101	0.00	4.24- 5.04
7	1,3-Dinitrobenzene	1000.000	1011.967	-1.2	102	0.00	5.39- 6.19
8	3,5-Dinitroaniline	1000.000	1055.112	-5.5	105	0.00	5.73- 6.53
9	Nitrobenzene	1000.000	1001.651	-0.2	101	0.00	6.86- 7.66
10	Nitroglycerin	----------NA----------					
11	Tetryl	1000.000	1112.719	-11.3	115	0.00	8.78- 9.58
12	2,4,6-Trinitrotoluene	1000.000	1097.366	-9.7	119	0.00	9.23-10.03
13	2-Amino-4,6-Dinitrotol	1000.000	1047.346	-4.7	103	0.00	9.50-10.30
14	4-Amino-2,6-Dinitrotol	1000.000	1071.184	-7.1	108	0.00	9.96-10.76
15 S	3,4-Dinitrotoluene	----------NA----------					
16	2,4-Dinitrotoluene	1000.000	1079.103	-7.9	107	0.00	11.06-11.86
17	2,6-Dinitrotoluene	1000.000	1069.503	-7.0	107	0.00	11.50-12.30
18	o-Nitrotoluene	1000.000	1047.422	-4.7	107	-0.01	14.49-15.37
19	p-Nitrotoluene	1000.000	1029.538	-3.0	104	-0.01	14.95-15.95
20	m-Nitrotoluene	1000.000	1072.918	-7.3	107	-0.01	15.84-16.84
21	PETN	----------NA----------					
*****	Signal #2 *****						
1	TNX	1000.000	1127.748	-12.8	111	0.00	1.03- 1.63
2	HMX	1000.000	1088.191	-8.8	108	0.00	1.16- 1.76
3	DNX	1000.000	1009.716	-1.0	102	0.00	1.40- 2.00
4	MNX	1000.000	968.284	3.2	100	0.00	1.98- 2.58
5	RDX	1000.000	982.163	1.8	101	0.00	2.48- 3.28

Initial Calibration Verification

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GBB1975-ICV1975
Lab FileID: BB067778.D

6	1,3,5-Trinitrobenzene	1000.000	982.879	1.7	98	0.00	4.24- 5.04
7	1,3-Dinitrobenzene	1000.000	992.844	0.7	101	0.00	5.39- 6.19
8	3,5-Dinitroaniline	1000.000	1043.802	-4.4	105	0.00	5.73- 6.53
9	Nitrobenzene	1000.000	1014.438	-1.4	102	0.00	6.86- 7.66
10	Nitroglycerin	1000.000	1143.192	-14.3	121	0.00	8.36- 9.36
11	Tetryl	1000.000	1116.037	-11.6	116	0.00	8.78- 9.58
	----------	Amount	Calc.	%Drift			
12	2,4,6-Trinitrotoluene	1000.000	1149.465	-14.9	121	0.00	9.23-10.03
	----------	Amount	Calc.	%Drift			
13	2-Amino-4,6-Dinitrotol	1000.000	1052.484	-5.2	105	0.00	9.50-10.30
14	4-Amino-2,6-Dinitrotol	1000.000	1104.411	-10.4	110	0.00	9.96-10.76
15 S	3,4-Dinitrotoluene	----------NA----------					
	----------	Amount	Calc.	%Drift			
16	2,4-Dinitrotoluene	1000.000	1065.981	-6.6	111	0.00	11.06-11.86
17	2,6-Dinitrotoluene	1000.000	1080.136	-8.0	109	0.00	11.50-12.30
	----------	Amount	Calc.	%Drift			
18	o-Nitrotoluene	1000.000	1136.490	-13.6	107	-0.02	14.37-15.37
	----------	Amount	Calc.	%Drift			
19	p-Nitrotoluene	1000.000	1059.411	-5.9	107	-0.01	14.95-15.95
20	m-Nitrotoluene	1000.000	1038.834	-3.9	107	0.00	15.83-16.83
	----------	Amount	Calc.	%Drift			
21	PETN	1000.000	2384.674	-138.5#	225	-0.01	17.77-18.97

(#) = Out of Range SPCC's out = 0 CCC's out = 0
BB067775.D 8330B_012120_PLUS.M Thu Jan 23 14:02:16 2020

8.7.2

8

Continuing Calibration Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GBB1981-CC1975
Lab FileID: BB067847.D

Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067847.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067847.D\dad1A.ch
Acq On : 03-Feb-2020, 12:19:26 Operator: williamh
Sample : CC1975-1000 Inst : G1315B
Misc : op78736,GBB1981,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT Window
1	TNX	1000.000	983.242	1.7	100	0.02	1.06- 1.66
2	HMX	1000.000	1075.279	-7.5	102	0.01	1.23- 1.83
3	DNX	1000.000	943.783	5.6	99	0.02	1.45- 2.05
4	MNX	1000.000	999.261	0.1	102	0.03	2.06- 2.66
5	RDX	1000.000	1034.528	-3.5	105	0.03	2.60- 3.40
6	1,3,5-Trinitrobenzene	1000.000	1139.441	-13.9	113	0.03	4.42- 5.22
7	1,3-Dinitrobenzene	1000.000	1073.245	-7.3	108	0.04	5.60- 6.40
8	3,5-Dinitroaniline	1000.000	1054.752	-5.5	105	0.06	6.04- 6.84
9	Nitrobenzene	1000.000	1043.686	-4.4	105	0.05	7.10- 7.90
10	Nitroglycerin	----------NA----------					
11	Tetryl	1000.000	1175.525	-17.6	121	0.08	9.26-10.06
12	2,4,6-Trinitrotoluene	1000.000	1147.860	-14.8	124	0.06	9.64-10.44
13	2-Amino-4,6-Dinitrotol	1000.000	1081.585	-8.2	107	0.10	10.14-10.94
14	4-Amino-2,6-Dinitrotol	1000.000	1054.742	-5.5	107	0.10	10.61-11.41
15 S	3,4-Dinitrotoluene	1000.000	1155.212	-15.5	116	0.08	10.97-11.77
16	2,4-Dinitrotoluene	1000.000	1118.807	-11.9	111	0.07	11.60-12.40
17	2,6-Dinitrotoluene	1000.000	1133.181	-13.3	114	0.08	12.02-12.82
18	o-Nitrotoluene	1000.000	1092.291	-9.2	112	0.07	14.99-15.87
19	p-Nitrotoluene	1000.000	1142.207	-14.2	115	0.07	15.46-16.46
20	m-Nitrotoluene	1000.000	1219.024	-21.9#	121	0.06	16.29-17.29
21	PETN	----------NA----------					

***** Signal #2 *****

1	TNX	1000.000	1030.117	-3.0	101	0.02	1.06- 1.66
2	HMX	1000.000	1049.674	-5.0	104	0.01	1.23- 1.83
3	DNX	1000.000	971.836	2.8	99	0.02	1.45- 2.05
4	MNX	1000.000	992.596	0.7	102	0.03	2.06- 2.66
5	RDX	1000.000	1027.726	-2.8	106	0.03	2.60- 3.40

Continuing Calibration Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GBB1981-CC1975
Lab FileID: BB067847.D

6		1,3,5-Trinitrobenzene	1000.000	1083.971	-8.4	108	0.03	4.42- 5.22
7		1,3-Dinitrobenzene	1000.000	1048.846	-4.9	107	0.04	5.60- 6.40
8		3,5-Dinitroaniline	1000.000	1021.855	-2.2	103	0.06	6.04- 6.84
9		Nitrobenzene	1000.000	1048.685	-4.9	106	0.05	7.10- 7.90
10		Nitroglycerin	1000.000	1120.362	-12.0	119	0.04	8.47- 9.47
11		Tetryl	1000.000	1150.167	-15.0	119	0.08	9.26-10.06
		---------- Amount	Calc.	%Drift	----------			
12		2,4,6-Trinitrotoluene	1000.000	1178.156	-17.8	124	0.06	9.64-10.44
		---------- Amount	Calc.	%Drift	----------			
13		2-Amino-4,6-Dinitrotol	1000.000	1018.149	-1.8	102	0.10	10.13-10.93
14		4-Amino-2,6-Dinitrotol	1000.000	1043.448	-4.3	104	0.10	10.61-11.41
15	S	3,4-Dinitrotoluene	1000.000	1127.154	-12.7	112	0.07	10.97-11.77
		---------- Amount	Calc.	%Drift	----------			
16		2,4-Dinitrotoluene	1000.000	1041.268	-4.1	109	0.08	11.60-12.40
17		2,6-Dinitrotoluene	1000.000	1124.223	-12.4	114	0.07	12.02-12.82
		---------- Amount	Calc.	%Drift	----------			
18		o-Nitrotoluene	1000.000	1135.212	-13.5	106	0.07	14.87-15.87
		---------- Amount	Calc.	%Drift	----------			
19		p-Nitrotoluene	1000.000	965.402	3.5	98	0.07	15.46-16.46
20		m-Nitrotoluene	1000.000	1111.626	-11.2	115	0.06	16.29-17.29
		---------- Amount	Calc.	%Drift	----------			
21		PETN	1000.000	2428.900	-142.9#	230	0.02	17.89-19.09

(#) = Out of Range SPCC's out = 0 CCC's out = 0
BB067775.D 8330B_012120_PLUS.M Tue Feb 04 11:31:24 2020

8.7.3

8

Continuing Calibration Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GBB1981-CC1975
Lab FileID: BB067858.D

Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067858.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067858.D\dad1A.ch
Acq On : 03-Feb-2020, 17:49:04 Operator: williamh
Sample : CC1975-1000 Inst : G1315B
Misc : op78763,GBB1981,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT Window
1	TNX	1000.000	978.229	2.2	99	0.00	1.06- 1.66
2	HMX	1000.000	1099.818	-10.0	104	0.00	1.23- 1.83
3	DNX	1000.000	950.358	5.0	100	0.00	1.45- 2.05
4	MNX	1000.000	1000.401	-0.0	102	0.00	2.06- 2.66
5	RDX	1000.000	1030.157	-3.0	105	-0.01	2.60- 3.40
6	1,3,5-Trinitrobenzene	1000.000	1143.123	-14.3	113	-0.01	4.42- 5.22
7	1,3-Dinitrobenzene	1000.000	1072.086	-7.2	108	-0.02	5.60- 6.40
8	3,5-Dinitroaniline	1000.000	1057.338	-5.7	105	-0.04	6.04- 6.84
9	Nitrobenzene	1000.000	1045.788	-4.6	106	-0.02	7.10- 7.90
10	Nitroglycerin	----------NA----------					
11	Tetryl	1000.000	1199.740	-20.0	123	-0.07	9.26-10.06
12	2,4,6-Trinitrotoluene	1000.000	1125.127	-12.5	122	-0.05	9.64-10.44
13	2-Amino-4,6-Dinitrotol	1000.000	1098.338	-9.8	108	-0.09	10.14-10.94
14	4-Amino-2,6-Dinitrotol	1000.000	1085.463	-8.5	110	-0.10	10.61-11.41
15 S	3,4-Dinitrotoluene	1000.000	1125.874	-12.6	113	-0.08	10.97-11.77
16	2,4-Dinitrotoluene	1000.000	1121.097	-12.1	112	-0.08	11.60-12.40
17	2,6-Dinitrotoluene	1000.000	1130.096	-13.0	114	-0.07	12.02-12.82
18	o-Nitrotoluene	1000.000	1054.984	-5.5	108	-0.08	14.99-15.87
19	p-Nitrotoluene	1000.000	1081.547	-8.2	109	-0.08	15.46-16.46
20	m-Nitrotoluene	1000.000	1107.046	-10.7	110	-0.07	16.29-17.29
21	PETN	----------NA----------					

***** Signal #2 *****

1	TNX	1000.000	1020.245	-2.0	100	0.00	1.06- 1.66
2	HMX	1000.000	1079.888	-8.0	107	0.00	1.23- 1.83
3	DNX	1000.000	1001.248	-0.1	102	0.00	1.45- 2.05
4	MNX	1000.000	993.162	0.7	102	0.00	2.06- 2.66
5	RDX	1000.000	1027.502	-2.8	106	-0.01	2.60- 3.40

Continuing Calibration Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GBB1981-CC1975
Lab FileID: BB067858.D

6		1,3,5-Trinitrobenzene	1000.000	1082.031	-8.2	108	-0.02	4.42- 5.22
7		1,3-Dinitrobenzene	1000.000	1037.387	-3.7	106	-0.02	5.60- 6.40
8		3,5-Dinitroaniline	1000.000	1016.216	-1.6	102	-0.05	6.04- 6.84
9		Nitrobenzene	1000.000	1047.478	-4.7	106	-0.02	7.10- 7.90
10		Nitroglycerin	1000.000	1123.496	-12.3	119	-0.01	8.47- 9.47
11		Tetryl	1000.000	1161.451	-16.1	120	-0.07	9.26-10.06
			Amount	Calc.	%Drift			
12		2,4,6-Trinitrotoluene	1000.000	1155.392	-15.5	121	-0.05	9.64-10.44
			Amount	Calc.	%Drift			
13		2-Amino-4,6-Dinitrotol	1000.000	1043.732	-4.4	104	-0.09	10.13-10.93
14		4-Amino-2,6-Dinitrotol	1000.000	1067.120	-6.7	106	-0.10	10.61-11.41
15	S	3,4-Dinitrotoluene	1000.000	1091.475	-9.1	109	-0.08	10.97-11.77
			Amount	Calc.	%Drift			
16		2,4-Dinitrotoluene	1000.000	1050.920	-5.1	110	-0.07	11.60-12.40
17		2,6-Dinitrotoluene	1000.000	1123.232	-12.3	114	-0.08	12.02-12.82
			Amount	Calc.	%Drift			
18		o-Nitrotoluene	1000.000	1007.178	-0.7	94	-0.08	14.87-15.87
			Amount	Calc.	%Drift			
19		p-Nitrotoluene	1000.000	1001.984	-0.2	101	-0.08	15.46-16.46
20		m-Nitrotoluene	1000.000	1113.022	-11.3	115	-0.07	16.29-17.29
			Amount	Calc.	%Drift			
21		PETN	1000.000	2472.727	-147.3#	234	-0.02	17.89-19.09

(#) = Out of Range SPCC's out = 0 CCC's out = 0
BB067775.D 8330B_012120_PLUS.M Tue Feb 04 11:32:01 2020

8.7.4

8

Continuing Calibration Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GBB1981-ECC1975
Lab FileID: BB067868.D

Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067868.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067868.D\dad1A.ch
Acq On : 03-Feb-2020, 22:48:45 Operator: williamh
Sample : ECC1975-1000 Inst : G1315B
Misc : op78780,GBB1981,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT Window
1	TNX	1000.000	973.629	2.6	99	0.00	1.06- 1.66
2	HMX	1000.000	1091.805	-9.2	104	-0.01	1.23- 1.83
3	DNX	1000.000	952.436	4.8	100	0.00	1.45- 2.05
4	MNX	1000.000	1000.915	-0.1	102	-0.01	2.06- 2.66
5	RDX	1000.000	1036.356	-3.6	106	-0.02	2.60- 3.40
6	1,3,5-Trinitrobenzene	1000.000	1139.584	-14.0	113	-0.03	4.42- 5.22
7	1,3-Dinitrobenzene	1000.000	1068.200	-6.8	107	-0.04	5.60- 6.40
8	3,5-Dinitroaniline	1000.000	1062.255	-6.2	106	-0.07	6.04- 6.84
9	Nitrobenzene	1000.000	1041.311	-4.1	105	-0.04	7.10- 7.90
10	Nitroglycerin	----------NA----------					
11	Tetryl	1000.000	1190.198	-19.0	123	-0.10	9.26-10.06
12	2,4,6-Trinitrotoluene	1000.000	1122.103	-12.2	121	-0.08	9.64-10.44
13	2-Amino-4,6-Dinitrotol	1000.000	1099.430	-9.9	109	-0.14	10.14-10.94
14	4-Amino-2,6-Dinitrotol	1000.000	1095.064	-9.5	111	-0.15	10.61-11.41
15 S	3,4-Dinitrotoluene	1000.000	1109.658	-11.0	111	-0.12	10.97-11.77
16	2,4-Dinitrotoluene	1000.000	1121.060	-12.1	112	-0.12	11.60-12.40
17	2,6-Dinitrotoluene	1000.000	1121.493	-12.1	113	-0.11	12.02-12.82
18	o-Nitrotoluene	1000.000	1057.694	-5.8	108	-0.11	14.99-15.87
19	p-Nitrotoluene	1000.000	1078.812	-7.9	109	-0.12	15.46-16.46
20	m-Nitrotoluene	1000.000	1103.698	-10.4	110	-0.10	16.29-17.29
21	PETN	----------NA----------					

***** Signal #2 *****

1	TNX	1000.000	1018.647	-1.9	100	0.00	1.06- 1.66
2	HMX	1000.000	1070.962	-7.1	106	-0.01	1.23- 1.83
3	DNX	1000.000	995.566	0.4	101	0.00	1.45- 2.05
4	MNX	1000.000	993.307	0.7	102	-0.01	2.06- 2.66
5	RDX	1000.000	1026.231	-2.6	106	-0.02	2.60- 3.40

Continuing Calibration Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GBB1981-ECC1975
Lab FileID: BB067868.D

6		1,3,5-Trinitrobenzene	1000.000	1100.127	-10.0	110	-0.03	4.42- 5.22
7		1,3-Dinitrobenzene	1000.000	1033.436	-3.3	106	-0.04	5.60- 6.40
8		3,5-Dinitroaniline	1000.000	1040.741	-4.1	105	-0.07	6.04- 6.84
9		Nitrobenzene	1000.000	1048.431	-4.8	106	-0.04	7.10- 7.90
10		Nitroglycerin	1000.000	1143.393	-14.3	121	-0.03	8.47- 9.47
11		Tetryl	1000.000	1152.960	-15.3	119	-0.10	9.26-10.06
		----------	Amount	Calc.	%Drift	----------		
12		2,4,6-Trinitrotoluene	1000.000	1150.653	-15.1	121	-0.08	9.64-10.44
		----------	Amount	Calc.	%Drift	----------		
13		2-Amino-4,6-Dinitrotol	1000.000	1047.300	-4.7	105	-0.14	10.13-10.93
14		4-Amino-2,6-Dinitrotol	1000.000	1071.973	-7.2	107	-0.15	10.61-11.41
15	S	3,4-Dinitrotoluene	1000.000	1073.789	-7.4	107	-0.12	10.97-11.77
		----------	Amount	Calc.	%Drift	----------		
16		2,4-Dinitrotoluene	1000.000	1045.141	-4.5	109	-0.12	11.60-12.40
17		2,6-Dinitrotoluene	1000.000	1106.432	-10.6	112	-0.12	12.02-12.82
		----------	Amount	Calc.	%Drift	----------		
18		o-Nitrotoluene	1000.000	1166.481	-16.6	109	-0.12	14.87-15.87
		----------	Amount	Calc.	%Drift	----------		
19		p-Nitrotoluene	1000.000	1002.858	-0.3	101	-0.12	15.46-16.46
20		m-Nitrotoluene	1000.000	1105.273	-10.5	114	-0.11	16.29-17.29
		----------	Amount	Calc.	%Drift	----------		
21		PETN	1000.000	2425.933	-142.6#	229	-0.04	17.89-19.09

(#) = Out of Range SPCC's out = 0 CCC's out = 0
BB067775.D 8330B_012120_PLUS.M Tue Feb 04 11:32:02 2020

8.7.5

Initial Calibration Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GGG2769-ICC2769
Lab FileID: GG617752.D

Response Factor Report G1315B

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 15:51:18 2019
Response via : Initial Calibration

Calibration Files
20 =GG617747.D 50 =GG617748.D 100 =GG617749.D 200 =GG617750.D
500 =GG617751.D 1000=GG617752.D 2500=GG617753.D 5000=GG617754.D

Compound	20	50	100	200	500	1000	2500	5000	Avg	%RSD
1) TNX	1.090	0.567	0.627	0.595	0.598	0.602	0.618	0.604	0.663 E4	26.21
---- Quadratic regr., Force(0,0) ---- Coefficient = 0.9999										
Response Ratio = 0.00000 + 6202.12639 *A + -0.03160 *A^2										
2) HMX	3.834	2.496	3.035	2.806	2.719	3.026	2.990	2.931	2.980 E3	13.12
3) DNX	7.384	4.212	4.785	4.214	4.184	4.047	4.321	4.153	4.663 E3	24.06
---- Quadratic regr., Force(0,0) ---- Coefficient = 0.9997										
Response Ratio = 0.00000 + 4333.59625 *A + -0.03462 *A^2										
4) MNX	3.829	4.429	5.498	5.552	5.623	5.735	5.854	5.780	5.288 E3	14.03
5) 1,3,5-Trinit	1.020	0.967	1.069	1.037	1.033	1.043	1.058	1.046	1.034 E4	3.00
6) RDX	4.787	4.788	5.136	5.268	5.146	5.160	5.189	5.085	5.070 E3	3.58
7) 1,3-Dinitrob	1.351	1.340	1.497	1.400	1.385	1.399	1.413	1.396	1.398 E4	3.38
8) Nitrobenzene	9.226	8.494	9.395	8.804	8.737	8.836	8.904	8.831	8.904 E3	3.18
9) 2,4,6-Trinit	1.020	0.934	1.096	1.022	1.018	1.025	1.033	1.011	1.020 E4	4.30
10) Nitroglyceri									0.000	-1.00
11) Tetryl	6.250	6.856	8.642	7.770	7.905	7.927	8.059	7.836	7.656 E3	9.79
12) 3,4-Dinitrot	4.231	4.332	4.810	4.488	4.563	4.591	4.571	4.539	4.515 E3	3.87
13) 2,6-Dinitrot	6.796	6.590	7.679	7.285	7.241	7.352	7.470	7.339	7.219 E3	4.93
14) 2,4-Dinitrot	1.203	1.143	1.329	1.286	1.273	1.291	1.307	1.283	1.265 E4	4.84
15) o-Nitrotolue	4.848	4.544	6.419	6.171	6.103	6.202	6.233	6.005	5.816 E3	12.13
16) 3,5-Dinitroa	0.842	0.938	1.099	1.046	1.049	1.053	1.074	1.060	1.020 E4	8.42
17) p-Nitrotolue	1.096	1.037	1.221	1.174	1.176	1.189	1.207	1.178	1.160 E4	5.33
18) 4-Amino-2,6-	1.069	1.037	1.221	1.174	1.176	1.189	1.207	1.178	1.156 E4	5.74
19) m-Nitrotolue	5.524	5.089	6.330	5.944	5.883	5.955	6.038	5.897	5.833 E3	6.39
20) 2-Amino-4,6-	0.888	0.781	1.024	1.003	0.987	1.000	1.015	0.977	0.960 E4	8.70
21) PETN									0.000	-1.00

Signal #2

1) TNX	1.090	0.571	0.627	0.597	0.595	0.600	0.618	0.604	0.663 E4	26.17
---- Quadratic regr., Force(0,0) ---- Coefficient = 0.9999										
Response Ratio = 0.00000 + 6194.64751 *A + -0.03004 *A^2										
2) HMX	3.693	2.602	3.068	2.854	2.826	3.028	2.990	2.931	2.999 E3	10.55
3) DNX	7.474	4.184	4.889	4.312	4.279	4.063	4.321	4.153	4.709 E3	24.31
---- Quadratic regr., Force(0,0) ---- Coefficient = 0.9997										
Response Ratio = 0.00000 + 4350.00063 *A + -0.03808 *A^2										
4) MNX	3.921	4.420	5.498	5.552	5.623	5.735	5.854	5.780	5.298 E3	13.55
5) 1,3,5-Trinit	1.020	0.967	1.069	1.037	1.033	1.043	1.058	1.046	1.034 E4	3.00
6) RDX	4.787	4.788	5.136	5.268	5.146	5.160	5.189	5.085	5.070 E3	3.58
7) 1,3-Dinitrob	0.883	1.110	1.035	1.044	1.096	1.064	1.072	1.050	1.044 E4	6.70
8) Nitrobenzene	8.764	9.364	8.424	8.090	7.900	8.512	8.398	8.260	8.464 E3	5.30
9) 2,4,6-Trinit	1.186	1.257	1.276	1.460	1.351	1.365	1.361	1.320	1.322 E4	6.27
10) Nitroglyceri			3.766	3.719	3.543	3.333	3.267	3.115	3.457 E3	7.54
11) Tetryl	1.611	1.083	1.444	1.506	1.352	1.423	1.457	1.394	1.409 E4	10.84

Initial Calibration Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GGG2769-ICC2769
Lab FileID: GG617752.D

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12) 3,4-Dinitrot 8.357 6.861 8.685 8.668 8.891 9.056 9.049 9.141 8.588 E3   8.67
13) 2,6-Dinitrot 1.018 1.084 1.206 1.125 1.051 1.077 1.093 1.077 1.091 E4   5.10
            ---- Linear regr., Force(0,0) ----  Coefficient =  0.9999
              Response Ratio = 0.00000 + 10801.53993 *A

14) 2,4-Dinitrot 1.041 0.922 0.797 0.842 0.827 0.883 0.914 0.909 0.892 E4   8.45
15) o-Nitrotolue 6.448 7.957 8.440 8.806 8.347 8.738 8.989 8.884 8.326 E3   9.97
16) 3,5-Dinitroa 1.569 1.678 1.615 1.616 1.642 1.681 1.736 1.743 1.660 E4   3.68
17) p-Nitrotolue 2.824 2.121 2.192 1.990 2.054 2.083 2.153 2.150 2.196 E4  11.91
18) 4-Amino-2,6- 2.824 1.927 2.192 1.990 2.054 2.083 2.153 2.150 2.172 E4  12.80
19) m-Nitrotolue 1.275 0.790 1.070 0.960 0.914 0.946 0.998 1.002 0.994 E4  14.03
20) 2-Amino-4,6- 1.755 1.340 1.389 1.299 1.291 1.344 1.406 1.401 1.403 E4  10.61
21) PETN                     2.339 2.597 2.462 3.079 3.454 3.480 2.902 E3  17.39
            ---- Quadratic regr., Force(0,0) ----  Coefficient =  0.9992
              Response Ratio = 0.00000 + 3195.99600 *A + 0.05906 *A^2

--------------------------------------------------------------------------------
(#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          8330RPB.M_092519.M        Thu Sep 26 16:02:14 2019
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8.7.6

8

Initial Calibration Verification

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GGG2769-ICV2769
Lab FileID: GG617755.D

Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617755.D\dad1B.ch Vial: 10
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617755.D\dad1A.ch
Acq On : 26-Sep-2019, 00:25:58 Operator: williamh
Sample : icv2769-1000 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 15:51:18 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT Window
1	TNX	1000.000	996.081	0.4	102	0.02	4.46- 5.46
2	HMX	1000.000	980.590	1.9	97	0.02	4.87- 5.87
3	DNX	1000.000	957.975	4.2	102	0.02	4.98- 5.98
4	MNX	1000.000	1010.883	-1.1	93	0.03	5.82- 6.82
5	1,3,5-Trinitrobenzene	1000.000	918.511	8.1	91	0.04	6.63- 7.63
6	RDX	1000.000	975.924	2.4	96	0.05	7.05- 8.05
7	1,3-Dinitrobenzene	1000.000	954.196	4.6	95	0.05	9.00-10.00
8	Nitrobenzene	1000.000	968.207	3.2	98	0.06	9.91-10.91
9	2,4,6-Trinitrotoluene	1000.000	995.903	0.4	99	0.07	10.52-11.52
10	Nitroglycerin			NA			
11	Tetryl	1000.000	984.241	1.6	95	0.10	11.62-12.62
12 S	3,4-Dinitrotoluene			NA			
13	2,6-Dinitrotoluene	1000.000	873.993	12.6	86	0.12	13.38-14.38
14	2,4-Dinitrotoluene	1000.000	979.272	2.1	96	0.11	14.08-15.08
15	o-Nitrotoluene	1000.000	1054.033	-5.4	99	0.13	15.56-16.56
16	3,5-Dinitroaniline	1000.000	1041.817	-4.2	101	0.09	14.96-15.96
17	p-Nitrotoluene	1000.000	984.309	1.6	96	0.13	16.60-17.60
18	4-Amino-2,6-Dinitrotol	1000.000	987.195	1.3	96	0.13	16.60-17.60
19	m-Nitrotoluene	1000.000	1018.222	-1.8	100	0.14	17.83-18.83
20	2-Amino-4,6-Dinitrotol	1000.000	960.966	3.9	92	0.14	18.66-19.66
21	PETN			NA			

***** Signal #2 *****

		Amount	Calc.	%Drift			
1	TNX	1000.000	997.042	0.3	102	0.02	4.46- 5.46
2	HMX	1000.000	974.217	2.6	96	0.02	4.87- 5.87
3	DNX	1000.000	955.041	4.5	101	0.02	4.98- 5.98

8.7.7

8

Initial Calibration Verification

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GGG2769-ICV2769
Lab FileID: GG617755.D

			Amount	Calc.	%Drift			
4		MNX	1000.000	1008.886	-0.9	93	0.03	5.82- 6.82
5		1,3,5-Trinitrobenzene	1000.000	918.511	8.1	91	0.04	6.63- 7.63
6		RDX	1000.000	975.924	2.4	96	0.05	7.05- 8.05
7		1,3-Dinitrobenzene	1000.000	986.349	1.4	97	0.05	9.00-10.00
8		Nitrobenzene	1000.000	977.336	2.3	97	0.06	9.91-10.91
9		2,4,6-Trinitrotoluene	1000.000	1026.613	-2.7	99	0.07	10.52-11.52
10		Nitroglycerin	1000.000	999.345	0.1	104	0.09	11.15-12.15
11		Tetryl	1000.000	971.517	2.8	96	0.10	11.62-12.62

			Amount	Calc.	%Drift			
12	S	3,4-Dinitrotoluene	----------NA----------					

			Amount	Calc.	%Drift			
13		2,6-Dinitrotoluene	1000.000	844.042	15.6	85	0.12	13.38-14.38
14		2,4-Dinitrotoluene	1000.000	965.106	3.5	98	0.11	14.08-15.08
15		o-Nitrotoluene	1000.000	1006.127	-0.6	96	0.12	15.56-16.56
16		3,5-Dinitroaniline	1000.000	1029.620	-3.0	102	0.09	14.96-15.96
17		p-Nitrotoluene	1000.000	894.241	10.6	94	0.13	16.60-17.60
18		4-Amino-2,6-Dinitrotol	1000.000	904.219	9.6	94	0.13	16.60-17.60
19		m-Nitrotoluene	1000.000	934.998	6.5	98	0.14	17.83-18.83
20		2-Amino-4,6-Dinitrotol	1000.000	868.472	13.2	91	0.14	18.66-19.66

			Amount	Calc.	%Drift			
21		PETN	1000.000	815.859	18.4	86	0.19	19.78-20.78

(#) = Out of Range SPCC's out = 0 CCC's out = 0
GG617752.D 8330RPB.M_092519.M Thu Sep 26 16:02:40 2019

8.7.7

8

Continuing Calibration Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GGG2806-CC2769
Lab FileID: GG618363.D

Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618363.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618363.D\dad1A.ch
Acq On : 04-Feb-2020, 15:25:39 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : op78736,ggg2806,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT Window
1	TNX	1000.000	971.655	2.8	100	0.00	4.53- 5.53
2	HMX	1000.000	870.695	12.9	86	0.00	5.00- 6.00
3	DNX	1000.000	961.766	3.8	102	0.00	5.07- 6.07
4	MNX	1000.000	1047.432	-4.7	97	0.00	6.00- 7.00
5	1,3,5-Trinitrobenzene	1000.000	1011.241	-1.1	100	0.00	6.75- 7.75
6	RDX	1000.000	944.607	5.5	93	0.00	7.28- 8.28
7	1,3-Dinitrobenzene	1000.000	989.248	1.1	99	0.00	9.17-10.17
8	Nitrobenzene	1000.000	1022.296	-2.2	103	0.00	10.06-11.06
9	2,4,6-Trinitrotoluene	1000.000	970.123	3.0	97	0.00	10.70-11.70
10	Nitroglycerin	----------	NA	----------			
11	Tetryl	1000.000	1025.845	-2.6	99	0.00	11.94-12.94
12 S	3,4-Dinitrotoluene	1000.000	1016.841	-1.7	100	0.00	13.46-14.46
13	2,6-Dinitrotoluene	1000.000	902.425	9.8	89	0.00	13.61-14.61
14	2,4-Dinitrotoluene	1000.000	1000.609	-0.1	98	0.00	14.32-15.32
15	o-Nitrotoluene	1000.000	985.879	1.4	92	0.00	15.74-16.74
16	3,5-Dinitroaniline	1000.000	1043.853	-4.4	101	0.00	15.34-16.34
17	p-Nitrotoluene	1000.000	1007.637	-0.8	98	0.00	17.02-18.02
18	4-Amino-2,6-Dinitrotol	1000.000	1010.591	-1.1	98	0.00	17.02-18.02
19	m-Nitrotoluene	1000.000	1057.928	-5.8	104	0.00	18.00-19.00
20	2-Amino-4,6-Dinitrotol	1000.000	975.677	2.4	94	0.00	19.16-20.16
21	PETN	----------	NA	----------			

***** Signal #2 *****

		Amount	Calc.	%Drift			
1	TNX	1000.000	972.598	2.7	100	0.00	4.53- 5.53
2	HMX	1000.000	1072.078	-7.2	106	0.02	5.00- 6.00
3	DNX	1000.000	1006.889	-0.7	107	0.00	5.07- 6.07

8.7.8

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Continuing Calibration Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GGG2806-CC2769
Lab FileID: GG618363.D

			Amount	Calc.	%Drift			
4		MNX	1000.000	1045.363	-4.5	97	0.00	6.00- 7.00
5		1,3,5-Trinitrobenzene	1000.000	1011.241	-1.1	100	0.00	6.75- 7.75
6		RDX	1000.000	944.607	5.5	93	0.00	7.28- 8.28
7		1,3-Dinitrobenzene	1000.000	1013.037	-1.3	99	0.00	9.17-10.17
8		Nitrobenzene	1000.000	1035.841	-3.6	103	0.00	10.06-11.06
9		2,4,6-Trinitrotoluene	1000.000	1003.178	-0.3	97	0.00	10.70-11.70
10		Nitroglycerin	1000.000	1014.709	-1.5	105	0.00	11.35-12.35
11		Tetryl	1000.000	953.846	4.6	94	0.00	11.94-12.94

			Amount	Calc.	%Drift			
12	S	3,4-Dinitrotoluene	1000.000	1073.452	-7.3	107	0.00	13.42-14.42

			Amount	Calc.	%Drift			
13		2,6-Dinitrotoluene	1000.000	949.786	5.0	96	0.00	13.59-14.59
14		2,4-Dinitrotoluene	1000.000	998.795	0.1	101	0.00	14.32-15.32
15		o-Nitrotoluene	1000.000	1071.189	-7.1	102	0.00	15.73-16.73
16		3,5-Dinitroaniline	1000.000	1068.747	-6.9	106	0.00	15.34-16.34
17		p-Nitrotoluene	1000.000	1006.222	-0.6	106	0.00	17.03-18.03
18		4-Amino-2,6-Dinitrotol	1000.000	1017.449	-1.7	106	0.00	17.03-18.03
19		m-Nitrotoluene	1000.000	1073.558	-7.4	113	0.00	18.00-19.00
20		2-Amino-4,6-Dinitrotol	1000.000	952.752	4.7	100	0.00	19.16-20.16

			Amount	Calc.	%Drift			
21		PETN	1000.000	983.975	1.6	104	0.00	20.02-21.02

(#) = Out of Range SPCC's out = 0 CCC's out = 0
GG617752.D 8330RPB.M_092519.M Wed Feb 05 10:59:50 2020

8.7.8

8

Continuing Calibration Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GGG2806-ECC2769
Lab FileID: GG618374.D

Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618374.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618374.D\dad1A.ch
Acq On : 04-Feb-2020, 20:49:22 Operator: williamh
Sample : ecc2769-1000 Inst : G1315B
Misc : op78736,ggg2806,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT Window
1		TNX	1000.000	964.602	3.5	99	0.00	4.53- 5.53
2		HMX	1000.000	1013.599	-1.4	100	0.00	5.00- 6.00
3		DNX	1000.000	990.918	0.9	105	0.00	5.07- 6.07
4		MNX	1000.000	1049.567	-5.0	97	-0.01	6.00- 7.00
5		1,3,5-Trinitrobenzene	1000.000	1012.281	-1.2	100	-0.01	6.75- 7.75
6		RDX	1000.000	948.605	5.1	93	-0.02	7.28- 8.28
7		1,3-Dinitrobenzene	1000.000	988.275	1.2	99	-0.01	9.17-10.17
8		Nitrobenzene	1000.000	1014.883	-1.5	102	-0.02	10.06-11.06
9		2,4,6-Trinitrotoluene	1000.000	962.500	3.8	96	-0.02	10.70-11.70
10		Nitroglycerin	----------	NA	----------			
11		Tetryl	1000.000	1024.663	-2.5	99	-0.04	11.94-12.94
12	S	3,4-Dinitrotoluene	1000.000	1171.531	-17.2#	115	0.00	13.46-14.46
13		2,6-Dinitrotoluene	1000.000	910.273	9.0	89	-0.02	13.61-14.61
14		2,4-Dinitrotoluene	1000.000	993.347	0.7	97	-0.02	14.32-15.32
15		o-Nitrotoluene	1000.000	957.921	4.2	90	-0.02	15.74-16.74
16		3,5-Dinitroaniline	1000.000	1042.168	-4.2	101	-0.02	15.34-16.34
17		p-Nitrotoluene	1000.000	999.402	0.1	97	-0.03	17.02-18.02
18		4-Amino-2,6-Dinitrotol	1000.000	1002.332	-0.2	97	-0.03	17.02-18.02
19		m-Nitrotoluene	1000.000	1040.291	-4.0	102	-0.01	18.00-19.00
20		2-Amino-4,6-Dinitrotol	1000.000	972.898	2.7	93	-0.02	19.16-20.16
21		PETN	----------	NA	----------			

***** Signal #2 *****

1		TNX	1000.000	965.540	3.4	99	0.00	4.53- 5.53
2		HMX	1000.000	965.880	3.4	96	0.00	5.00- 6.00
3		DNX	1000.000	976.777	2.3	104	0.00	5.07- 6.07

8.7.9

8

Continuing Calibration Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GGG2806-ECC2769
Lab FileID: GG618374.D

			Amount	Calc.	%Drift			
4		MNX	1000.000	1047.494	-4.7	97	-0.01	6.00- 7.00
5		1,3,5-Trinitrobenzene	1000.000	1012.281	-1.2	100	-0.01	6.75- 7.75
6		RDX	1000.000	948.605	5.1	93	-0.02	7.28- 8.28
7		1,3-Dinitrobenzene	1000.000	1021.422	-2.1	100	-0.01	9.17-10.17
8		Nitrobenzene	1000.000	1039.849	-4.0	103	-0.02	10.06-11.06
9		2,4,6-Trinitrotoluene	1000.000	1019.790	-2.0	99	-0.02	10.70-11.70
10		Nitroglycerin	1000.000	1042.482	-4.2	108	-0.03	11.35-12.35
11		Tetryl	1000.000	969.404	3.1	96	-0.04	11.94-12.94
			Amount	Calc.	%Drift			
12	S	3,4-Dinitrotoluene	1000.000	1098.966	-9.9	109	-0.04	13.42-14.42
			Amount	Calc.	%Drift			
13		2,6-Dinitrotoluene	1000.000	930.916	6.9	94	-0.02	13.59-14.59
14		2,4-Dinitrotoluene	1000.000	1037.586	-3.8	105	-0.02	14.32-15.32
15		o-Nitrotoluene	1000.000	1008.004	-0.8	96	-0.01	15.73-16.73
16		3,5-Dinitroaniline	1000.000	1100.487	-10.0	109	-0.02	15.34-16.34
17		p-Nitrotoluene	1000.000	969.499	3.1	102	-0.02	17.03-18.03
18		4-Amino-2,6-Dinitrotol	1000.000	980.317	2.0	102	-0.02	17.03-18.03
19		m-Nitrotoluene	1000.000	1042.689	-4.3	110	-0.01	18.00-19.00
20		2-Amino-4,6-Dinitrotol	1000.000	956.246	4.4	100	-0.02	19.16-20.16
			Amount	Calc.	%Drift			
21		PETN	1000.000	957.616	4.2	101	-0.04	20.02-21.02

(#) = Out of Range SPCC's out = 0 CCC's out = 0
GG617752.D 8330RPB.M_092519.M Wed Feb 05 10:59:51 2020

Continuing Calibration Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GGG2807-CC2769
Lab FileID: GG618383.D

Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\1\DATA\GGG2807\GG618383.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2807\GG618383.D\dad1A.ch
Acq On : 05-Feb-2020, 11:07:54 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : op78763,ggg2807,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT Window
1	TNX	1000.000	968.525	3.1	99	-0.01	4.53- 5.53
2	HMX	1000.000	1062.505	-6.3	105	-0.03	5.00- 6.00
3	DNX	1000.000	973.700	2.6	103	-0.01	5.07- 6.07
4	MNX	1000.000	1068.102	-6.8	98	-0.02	6.00- 7.00
5	1,3,5-Trinitrobenzene	1000.000	1029.050	-2.9	102	-0.02	6.75- 7.75
6	RDX	1000.000	959.600	4.0	94	-0.03	7.28- 8.28
7	1,3-Dinitrobenzene	1000.000	1001.587	-0.2	100	-0.02	9.17-10.17
8	Nitrobenzene	1000.000	1020.659	-2.1	103	-0.02	10.06-11.06
9	2,4,6-Trinitrotoluene	1000.000	947.943	5.2	94	-0.03	10.70-11.70
10	Nitroglycerin	----------	NA	----------			
11	Tetryl	1000.000	1016.733	-1.7	98	-0.05	11.94-12.94
12 S	3,4-Dinitrotoluene	1000.000	1016.351	-1.6	100	-0.04	13.46-14.46
13	2,6-Dinitrotoluene	1000.000	971.883	2.8	95	-0.02	13.61-14.61
14	2,4-Dinitrotoluene	1000.000	1014.221	-1.4	99	-0.03	14.32-15.32
15	o-Nitrotoluene	1000.000	988.482	1.2	93	-0.02	15.74-16.74
16	3,5-Dinitroaniline	1000.000	1062.515	-6.3	103	-0.03	15.34-16.34
17	p-Nitrotoluene	1000.000	1020.105	-2.0	99	-0.05	17.02-18.02
18	4-Amino-2,6-Dinitrotol	1000.000	1023.096	-2.3	99	-0.05	17.02-18.02
19	m-Nitrotoluene	1000.000	1070.249	-7.0	105	-0.02	18.00-19.00
20	2-Amino-4,6-Dinitrotol	1000.000	992.074	0.8	95	-0.04	19.16-20.16
21	PETN	----------	NA	----------			

***** Signal #2 *****

		Amount	Calc.	%Drift			
1	TNX	1000.000	969.466	3.1	100	-0.01	4.53- 5.53
2	HMX	1000.000	951.640	4.8	94	-0.03	5.00- 6.00
3	DNX	1000.000	1035.916	-3.6	110	-0.01	5.07- 6.07

Continuing Calibration Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GGG2807-CC2769
Lab FileID: GG618383.D

			Amount	Calc.	%Drift			
4		MNX	1000.000	1065.992	-6.6	98	-0.02	6.00- 7.00
5		1,3,5-Trinitrobenzene	1000.000	1029.050	-2.9	102	-0.02	6.75- 7.75
6		RDX	1000.000	959.600	4.0	94	-0.03	7.28- 8.28
7		1,3-Dinitrobenzene	1000.000	1052.929	-5.3	103	-0.02	9.17-10.17
8		Nitrobenzene	1000.000	1082.236	-8.2	108	-0.02	10.06-11.06
9		2,4,6-Trinitrotoluene	1000.000	1026.252	-2.6	99	-0.03	10.70-11.70
10		Nitroglycerin	1000.000	1117.743	-11.8	116	-0.04	11.35-12.35
11		Tetryl	1000.000	1003.695	-0.4	99	-0.05	11.94-12.94

			Amount	Calc.	%Drift			
12	S	3,4-Dinitrotoluene	1000.000	1126.108	-12.6	112	-0.05	13.42-14.42

			Amount	Calc.	%Drift			
13		2,6-Dinitrotoluene	1000.000	950.202	5.0	96	0.00	13.59-14.59
14		2,4-Dinitrotoluene	1000.000	1014.999	-1.5	103	-0.03	14.32-15.32
15		o-Nitrotoluene	1000.000	1069.627	-7.0	102	-0.01	15.73-16.73
16		3,5-Dinitroaniline	1000.000	1097.481	-9.7	108	-0.03	15.34-16.34
17		p-Nitrotoluene	1000.000	1006.839	-0.7	106	-0.04	17.03-18.03
18		4-Amino-2,6-Dinitrotol	1000.000	1018.074	-1.8	106	-0.04	17.03-18.03
19		m-Nitrotoluene	1000.000	1046.751	-4.7	110	-0.02	18.00-19.00
20		2-Amino-4,6-Dinitrotol	1000.000	972.088	2.8	102	-0.04	19.16-20.16

			Amount	Calc.	%Drift			
21		PETN	1000.000	1058.635	-5.9	112	-0.08	20.02-21.02

(#) = Out of Range SPCC's out = 0 CCC's out = 0
GG617752.D 8330RPB.M_092519.M Wed Feb 05 15:40:40 2020

8.7.10

8

Continuing Calibration Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GGG2807-ECC2769
Lab FileID: GG618389.D

Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\1\DATA\GGG2807\GG618389.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2807\GG618389.D\dad1A.ch
Acq On : 05-Feb-2020, 14:04:25 Operator: williamh
Sample : ecc2769-1000 Inst : G1315B
Misc : op78780,ggg2807,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT Window
1		TNX	1000.000	990.719	0.9	102	0.00	4.53- 5.53
2		HMX	1000.000	963.997	3.6	95	-0.03	5.00- 6.00
3		DNX	1000.000	1069.219	-6.9	114	-0.01	5.07- 6.07
4		MNX	1000.000	1062.855	-6.3	98	-0.02	6.00- 7.00
5		1,3,5-Trinitrobenzene	1000.000	1028.159	-2.8	102	-0.02	6.75- 7.75
6		RDX	1000.000	962.633	3.7	95	-0.03	7.28- 8.28
7		1,3-Dinitrobenzene	1000.000	1007.080	-0.7	101	-0.02	9.17-10.17
8		Nitrobenzene	1000.000	1038.925	-3.9	105	-0.02	10.06-11.06
9		2,4,6-Trinitrotoluene	1000.000	978.528	2.1	97	-0.03	10.70-11.70
10		Nitroglycerin	----------	NA	----------			
11		Tetryl	1000.000	1048.520	-4.9	101	-0.05	11.94-12.94
12	S	3,4-Dinitrotoluene	1000.000	1118.441	-11.8	110	-0.03	13.46-14.46
13		2,6-Dinitrotoluene	1000.000	992.810	0.7	97	-0.03	13.61-14.61
14		2,4-Dinitrotoluene	1000.000	1018.483	-1.8	100	-0.03	14.32-15.32
15		o-Nitrotoluene	1000.000	1004.242	-0.4	94	-0.02	15.74-16.74
16		3,5-Dinitroaniline	1000.000	1070.970	-7.1	104	-0.06	15.34-16.34
17		p-Nitrotoluene	1000.000	1039.177	-3.9	101	-0.13	17.02-18.02
18		4-Amino-2,6-Dinitrotol	1000.000	1042.224	-4.2	101	-0.13	17.02-18.02
19		m-Nitrotoluene	1000.000	1099.472	-9.9	108	-0.02	18.00-19.00
20		2-Amino-4,6-Dinitrotol	1000.000	1020.672	-2.1	98	-0.08	19.16-20.16
21		PETN	----------	NA	----------			

***** Signal #2 *****

1		TNX	1000.000	991.676	0.8	102	0.00	4.53- 5.53
2		HMX	1000.000	961.326	3.9	95	-0.03	5.00- 6.00
3		DNX	1000.000	1043.676	-4.4	111	-0.01	5.07- 6.07

8.7.11

8

Continuing Calibration Summary

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GGG2807-ECC2769
Lab FileID: GG618389.D

			Amount	Calc.	%Drift			
4		MNX	1000.000	1060.755	-6.1	98	-0.02	6.00- 7.00
5		1,3,5-Trinitrobenzene	1000.000	1028.159	-2.8	102	-0.02	6.75- 7.75
6		RDX	1000.000	962.633	3.7	95	-0.03	7.28- 8.28
7		1,3-Dinitrobenzene	1000.000	1023.782	-2.4	100	-0.02	9.17-10.17
8		Nitrobenzene	1000.000	1068.878	-6.9	106	-0.02	10.06-11.06
9		2,4,6-Trinitrotoluene	1000.000	1016.841	-1.7	98	-0.03	10.70-11.70
10		Nitroglycerin	1000.000	1044.920	-4.5	108	-0.03	11.35-12.35
11		Tetryl	1000.000	998.402	0.2	99	-0.05	11.94-12.94
			Amount	Calc.	%Drift			
12	S	3,4-Dinitrotoluene	1000.000	1177.653	-17.8#	117	-0.06	13.42-14.42
			Amount	Calc.	%Drift			
13		2,6-Dinitrotoluene	1000.000	921.458	7.9	93	-0.02	13.59-14.59
14		2,4-Dinitrotoluene	1000.000	1015.337	-1.5	103	-0.03	14.32-15.32
15		o-Nitrotoluene	1000.000	1058.547	-5.9	101	-0.01	15.73-16.73
16		3,5-Dinitroaniline	1000.000	1097.182	-9.7	108	-0.06	15.34-16.34
17		p-Nitrotoluene	1000.000	1000.871	-0.1	106	-0.10	17.03-18.03
18		4-Amino-2,6-Dinitrotol	1000.000	1012.038	-1.2	106	-0.10	17.03-18.03
19		m-Nitrotoluene	1000.000	1057.417	-5.7	111	-0.03	18.00-19.00
20		2-Amino-4,6-Dinitrotol	1000.000	967.901	3.2	101	-0.08	19.16-20.16
			Amount	Calc.	%Drift			
21		PETN	1000.000	999.608	0.0	106	-0.09	20.02-21.02

(#) = Out of Range SPCC's out = 0 CCC's out = 0
GG617752.D 8330RPB.M_092519.M Wed Feb 05 15:40:41 2020

8.7.11

8

Run Sequence Report

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Run ID: GBB1975	**Method:** SW846 8330A	**Instrument ID:** GCBB

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
GBB1975-IC1975	BB067770.D	01/21/20 14:18	n/a	Initial cal 20
GBB1975-IC1975	BB067771.D	01/21/20 14:48	n/a	Initial cal 50
GBB1975-IC1975	BB067772.D	01/21/20 15:18	n/a	Initial cal 100
GBB1975-IC1975	BB067773.D	01/21/20 15:48	n/a	Initial cal 200
GBB1975-IC1975	BB067774.D	01/21/20 16:18	n/a	Initial cal 500
GBB1975-ICC1975	BB067775.D	01/21/20 16:48	n/a	Initial cal 1000
GBB1975-IC1975	BB067776.D	01/21/20 17:18	n/a	Initial cal 2500
GBB1975-IC1975	BB067777.D	01/21/20 17:48	n/a	Initial cal 5000
GBB1975-ICV1975	BB067778.D	01/21/20 18:18	n/a	Initial cal verification 1000

Run Sequence Report

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Run ID: GBB1981	**Method:** SW846 8330B	**Instrument ID:** GCBB

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
GBB1981-CC1975	BB067847.D	02/03/20 12:19	n/a	Continuing cal 1000
OP78763-BS	BB067848.D	02/03/20 12:49	OP78763	Blank Spike
OP78763-MB	BB067849.D	02/03/20 13:19	OP78763	Method Blank
FA72036-4	BB067850.D	02/03/20 13:49	OP78763	54MW12
OP78763-MS	BB067851.D	02/03/20 14:19	OP78763	Matrix Spike
OP78763-MSD	BB067852.D	02/03/20 14:49	OP78763	Matrix Spike Duplicate
ZZZZZZ	BB067853.D	02/03/20 15:19	OP78763	(unrelated sample)
ZZZZZZ	BB067854.D	02/03/20 15:49	OP78763	(unrelated sample)
ZZZZZZ	BB067855.D	02/03/20 16:19	OP78763	(unrelated sample)
ZZZZZZ	BB067856.D	02/03/20 16:49	OP78763	(unrelated sample)
FA72036-1	BB067857.D	02/03/20 17:19	OP78763	54MW10
GBB1981-CC1975	BB067858.D	02/03/20 17:49	n/a	Continuing cal 1000
FA72036-2	BB067860.D	02/03/20 18:48	OP78763	54MW13
FA72036-3	BB067861.D	02/03/20 19:18	OP78763	54TW13
FA72036-5	BB067862.D	02/03/20 19:48	OP78763	54MW1
ZZZZZZ	BB067863.D	02/03/20 20:18	OP74934	(unrelated sample)
OP78780-BS	BB067864.D	02/03/20 20:48	OP78780	Blank Spike
ZZZZZZ	BB067865.D	02/03/20 21:18	OP78780	(unrelated sample)
OP78780-MB	BB067866.D	02/03/20 21:48	OP78780	Method Blank
ZZZZZZ	BB067867.D	02/03/20 22:18	OP78780	(unrelated sample)
GBB1981-ECC1975	BB067868.D	02/03/20 22:48	n/a	Ending cal 1000

Run Sequence Report

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Run ID: GGG2769 **Method:** SW846 8330A **Instrument ID:** GCGG

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
GGG2769-IC2769	GG617747.D	09/25/19 20:30	n/a	Initial cal 20
GGG2769-IC2769	GG617748.D	09/25/19 20:59	n/a	Initial cal 50
GGG2769-IC2769	GG617749.D	09/25/19 21:29	n/a	Initial cal 100
GGG2769-IC2769	GG617750.D	09/25/19 21:58	n/a	Initial cal 200
GGG2769-IC2769	GG617751.D	09/25/19 22:28	n/a	Initial cal 500
GGG2769-ICC2769	GG617752.D	09/25/19 22:57	n/a	Initial cal 1000
GGG2769-IC2769	GG617753.D	09/25/19 23:27	n/a	Initial cal 2500
GGG2769-IC2769	GG617754.D	09/25/19 23:56	n/a	Initial cal 5000
GGG2769-ICV2769	GG617755.D	09/26/19 00:25	n/a	Initial cal verification 1000
OP76947-MB	GG617756.D	09/26/19 00:55	OP76947	Method Blank
ZZZZZZ	GG617757.D	09/26/19 01:24	OP76947	(unrelated sample)
ZZZZZZ	GG617758.D	09/26/19 01:54	OP76947	(unrelated sample)
ZZZZZZ	GG617759.D	09/26/19 02:23	OP76947	(unrelated sample)
ZZZZZZ	GG617760.D	09/26/19 02:53	OP76947	(unrelated sample)
ZZZZZZ	GG617761.D	09/26/19 03:22	OP76947	(unrelated sample)
ZZZZZZ	GG617762.D	09/26/19 03:51	OP76947	(unrelated sample)
ZZZZZZ	GG617763.D	09/26/19 04:21	OP76947	(unrelated sample)
ZZZZZZ	GG617764.D	09/26/19 04:50	OP76947	(unrelated sample)
ZZZZZZ	GG617765.D	09/26/19 05:20	OP76947	(unrelated sample)
GGG2769-ECC2769	GG617766.D	09/26/19 05:49	n/a	Ending cal 1000

Run Sequence Report

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Run ID: GGG2806 **Method:** SW846 8330A **Instrument ID:** GCGG

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
GGG2806-CC2769	GG618363.D	02/04/20 15:25	n/a	Continuing cal 1000
OP78736-MB	GG618364.D	02/04/20 15:55	OP78736	Method Blank
ZZZZZZ	GG618365.D	02/04/20 16:24	OP78736	(unrelated sample)
ZZZZZZ	GG618366.D	02/04/20 16:53	OP78736	(unrelated sample)
ZZZZZZ	GG618367.D	02/04/20 17:23	OP78736	(unrelated sample)
FA72071-1	GG618368.D	02/04/20 17:52	OP78736	(used for QC only; not part of job FA72036)
ZZZZZZ	GG618369.D	02/04/20 18:22	OP78736	(unrelated sample)
OP78763-MB	GG618370.D	02/04/20 18:51	OP78763	Method Blank
ZZZZZZ	GG618371.D	02/04/20 19:21	OP78763	(unrelated sample)
FA72036-1	GG618372.D	02/04/20 19:50	OP78763	54MW10
FA72036-2	GG618373.D	02/04/20 20:19	OP78763	54MW13
GGG2806-ECC2769	GG618374.D	02/04/20 20:49	n/a	Ending cal 1000

Run Sequence Report

Job Number: FA72036
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Run ID: GGG2807	**Method:** SW846 8330A	**Instrument ID:** GCGG

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
GGG2807-CC2769	GG618383.D	02/05/20 11:07	n/a	Continuing cal 1000
FA72036-3	GG618384.D	02/05/20 11:37	OP78763	54TW13
FA72036-4	GG618385.D	02/05/20 12:06	OP78763	54MW12
OP78780-MB	GG618386.D	02/05/20 12:36	OP78780	Method Blank
ZZZZZZ	GG618387.D	02/05/20 13:05	OP78780	(unrelated sample)
ZZZZZZ	GG618388.D	02/05/20 13:34	OP78780	(unrelated sample)
GGG2807-ECC2769	GG618389.D	02/05/20 14:04	n/a	Ending cal 1000

GC/LC Semi-volatiles

Raw Data

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 02/05/20 12:20

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067857.D\dad1B.ch Vial: 12
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067857.D\dad1A.ch
Acq On : 03-Feb-2020, 17:19:04 Operator: williamh
Sample : FA72036-1 Inst : G1315B
Misc : op78763,GBB1981,1050,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 04 09:30:15 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	11.27	11.27	1167216	1970964	591.118	569.346
	Spiked Amount 500.000	Range 70 - 136		Recovery =		118.22%	113.87%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	1.52	1.52	880893	2387044	579.413	554.332
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D. d	N.D. d
5)	RDX	2.97	2.98	382556	680561	199.803	219.039
6)	1,3,5-Trinitrobe	4.79	4.79	1541027	2887950	397.954	385.796
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D.	N.D.
8)	3,5-Dinitroanili	6.38	6.38	190082	322886	47.677	47.027m
9)	Nitrobenzene	0.00	0.00	0	0	N.D.	N.D.
10)	Nitroglycerin	0.00	0.00	0	0	N.D.	N.D.
11)	Tetryl	0.00	0.00	0	0	N.D.	N.D.
12)	2,4,6-Trinitroto	9.98	9.98	3104405	3703796	882.711	905.665
13)	2-Amino-4,6-Dini	10.41	10.42	950327	1351677	294.328	273.123
14)	4-Amino-2,6-Dini	10.88	10.88	565728	1019428	241.056	220.127
16)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
17)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
18)	o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
19)	p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20)	m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
21)	PETN	0.00	0.00	0	0	N.D. d	N.D. d

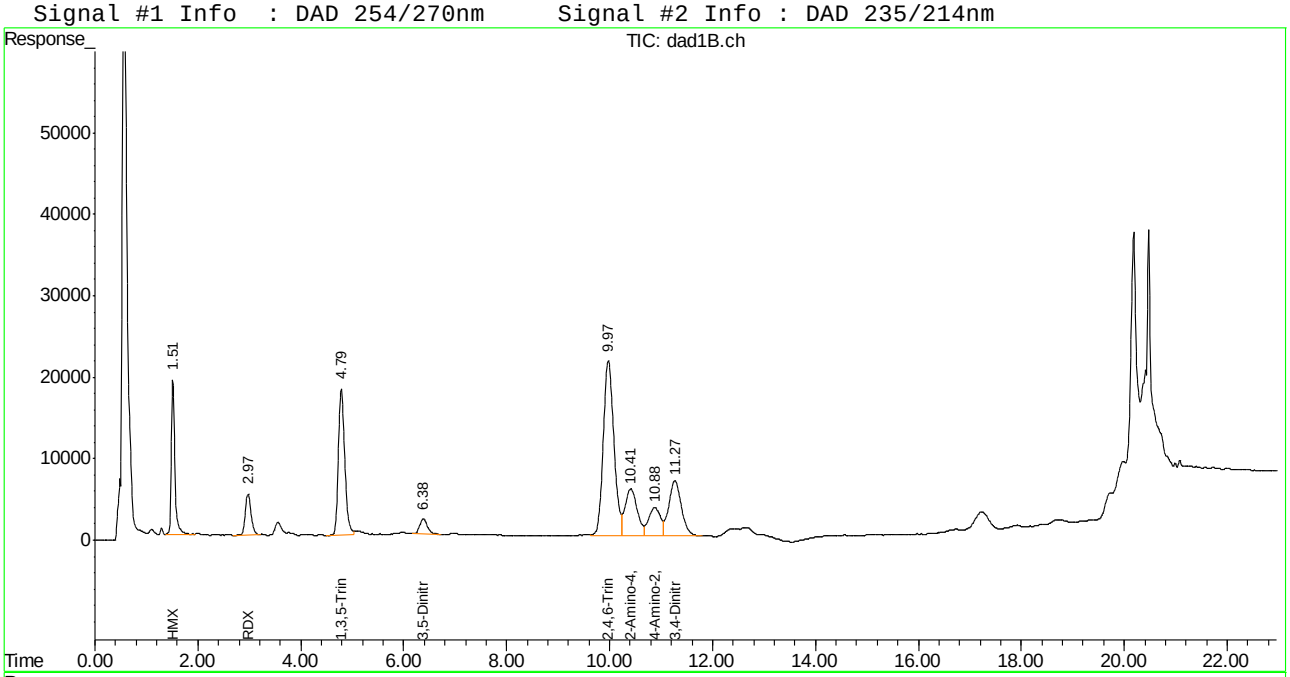
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB067857.D 8330B_012120_PLUS.M Tue Feb 04 11:21:43 2020 Page 1

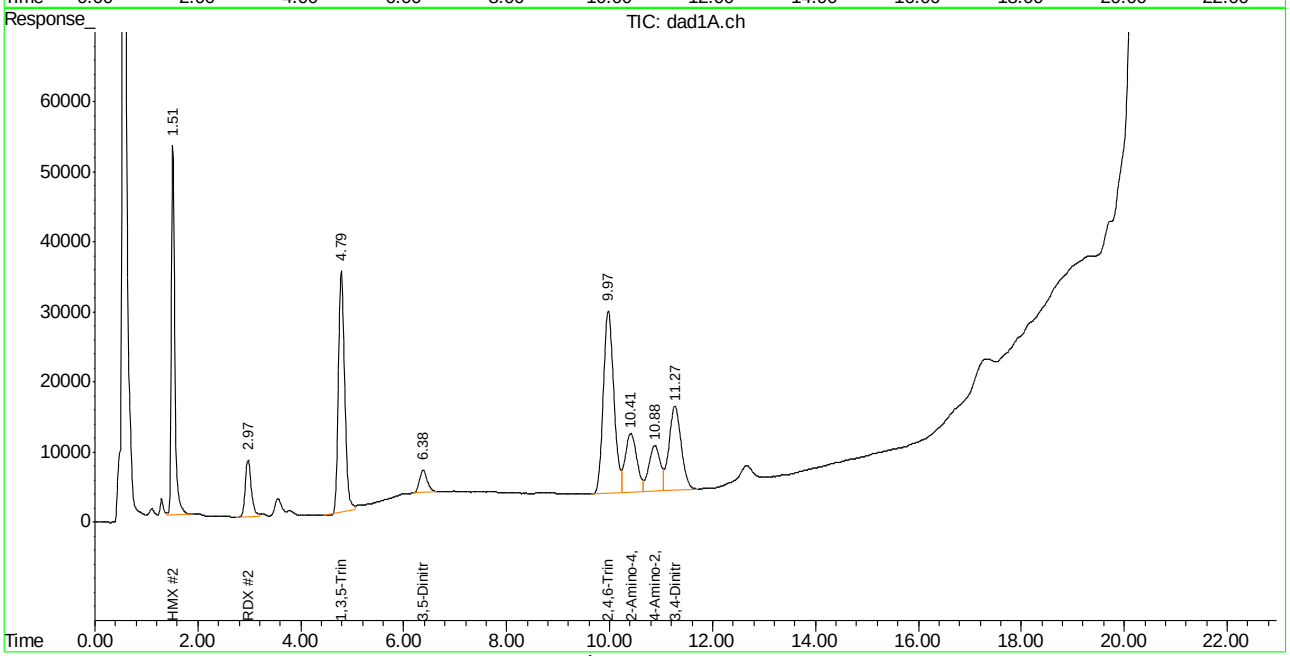
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067857.D\dad1B.ch Vial: 12
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067857.D\dad1A.ch
Acq On : 03-Feb-2020, 17:19:04 Operator: williamh
Sample : FA72036-1 Inst : G1315B
Misc : op78763,GBB1981,1050,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 10:05 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

Sample Number: FA72036-1
Lab FileID: BB067857.D
Injection Time: 02/03/20 17:19

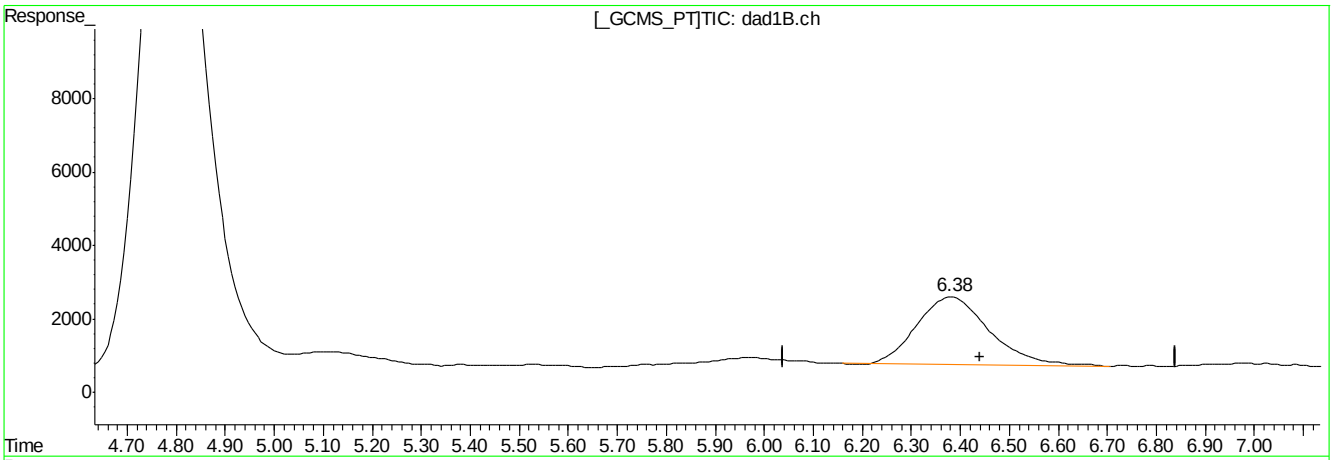
Method: SW846 8330B
Analyst approved: 02/05/20 11:13 William Hustedde
Supervisor approved: 02/05/20 12:20 Naresh Jiawan

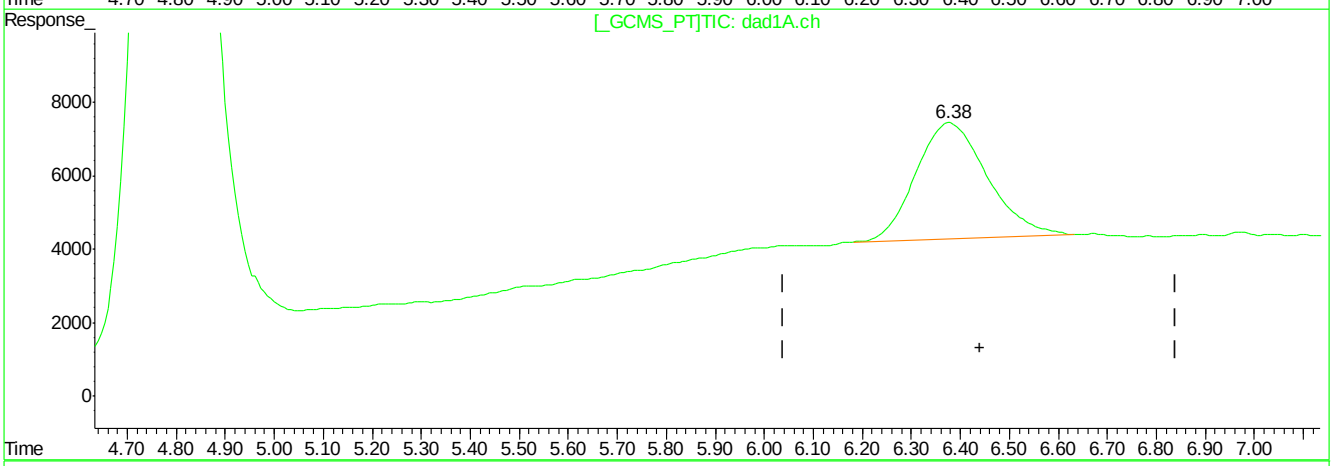
Parameter	CAS	Sig#	R.T. (min.)	Reason
3,5-Dinitroaniline	618-87-1	2	6.38	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067857.D\dad1B.ch Vial: 12
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067857.D\dad1A.ch
Acq On : 03-Feb-2020, 17:19:04 Operator: williamh
Sample : FA72036-1 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.38min 47.677ppb

response 190082

(8) 3,5-Dinitroaniline #2

6.38min 47.027ppb m

response 322886

(+) = Expected Retention Time
BB067857.D 8330B_012120_PLUS.M Tue Feb 04 10:05:20 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 02/05/20 12:20

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618372.D\dad1B.ch Vial: 11
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618372.D\dad1A.ch
Acq On : 04-Feb-2020, 19:50:32 Operator: williamh
Sample : FA72036-1cf Inst : G1315B
Misc : op78763,ggg2805,1050,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 05 10:39:12 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.83	13.82	2975048	5464336	658.868	608.279m
	Spiked Amount 500.000	Range 70 - 136		Recovery =		131.77%	121.66%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	5.46	5.46	1939095	1930745	650.787m	643.774m
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D. d	N.D. d
5)	1,3,5-Trinitrobe	7.22	7.22	3701759	3690382	357.960	356.860
6)	RDX	7.72	7.72	901392	894881	177.794m	176.510m
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D. d	N.D. d
8)	Nitrobenzene	0.00	0.00	0	0	N.D. d	N.D. d
9)	2,4,6-Trinitroto	11.16	11.16	7641781	10132405	749.436	766.532m
10)	Nitroglycerin	0.00	0.00	0	0	N.D. d	N.D. d
11)	Tetryl	0.00	0.00	0	0	N.D. d	N.D. d
13)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
14)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
15)	o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
16)	3,5-Dinitroanili	15.72	15.72	1005316	1721323	98.531m	103.686m
17)	p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
18)	4-Amino-2,6-Dini	17.53	17.52	1404994	2958039	121.514m	136.209m
19)	m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20)	2-Amino-4,6-Dini	19.62	19.62	2478909	3521608	258.336	250.971m
21)	PETN	0.00	0.00	0	0	N.D. d	N.D. d

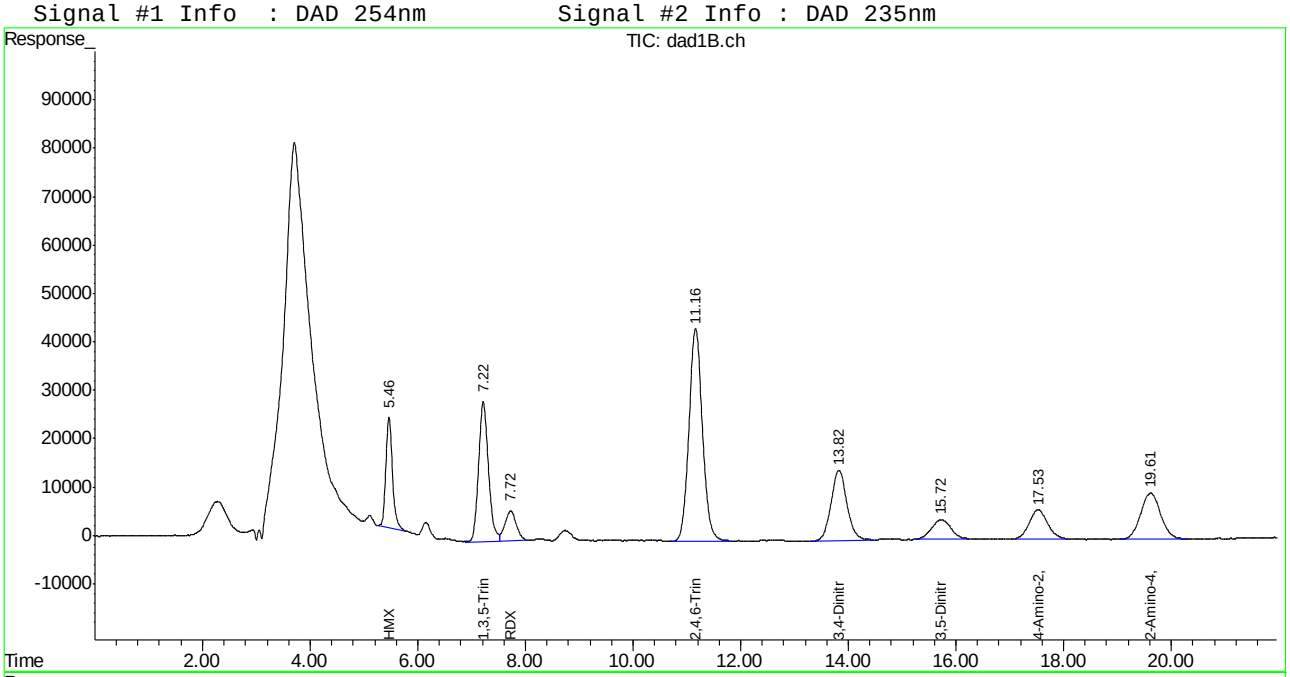
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
GG618372.D 8330RPB.M_092519.M Wed Feb 05 10:59:33 2020 Page 1

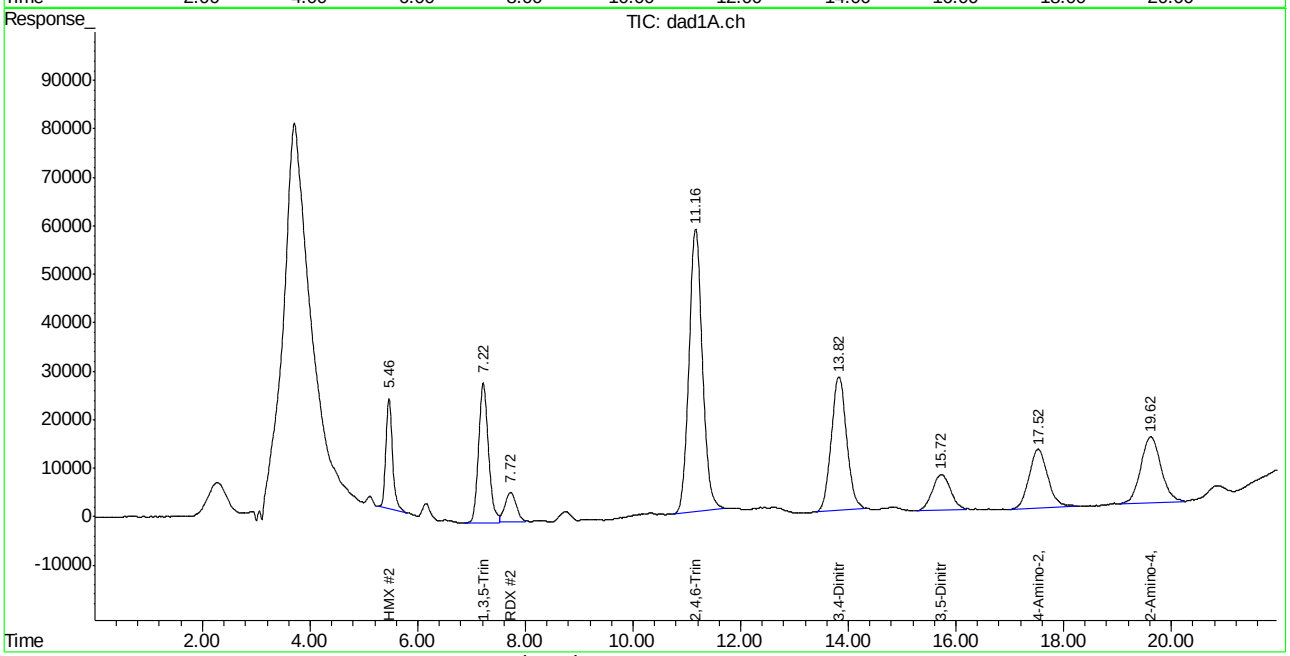
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618372.D\dad1B.ch Vial: 11
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618372.D\dad1A.ch
Acq On : 04-Feb-2020, 19:50:32 Operator: williamh
Sample : FA72036-1cf Inst : G1315B
Misc : op78763,ggg2805,1050,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 10:52 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





GG618372.D 8330RPB.M_092519.M Wed Feb 05 10:59:33 2020 Page 2

Manual Integration Approval Summary

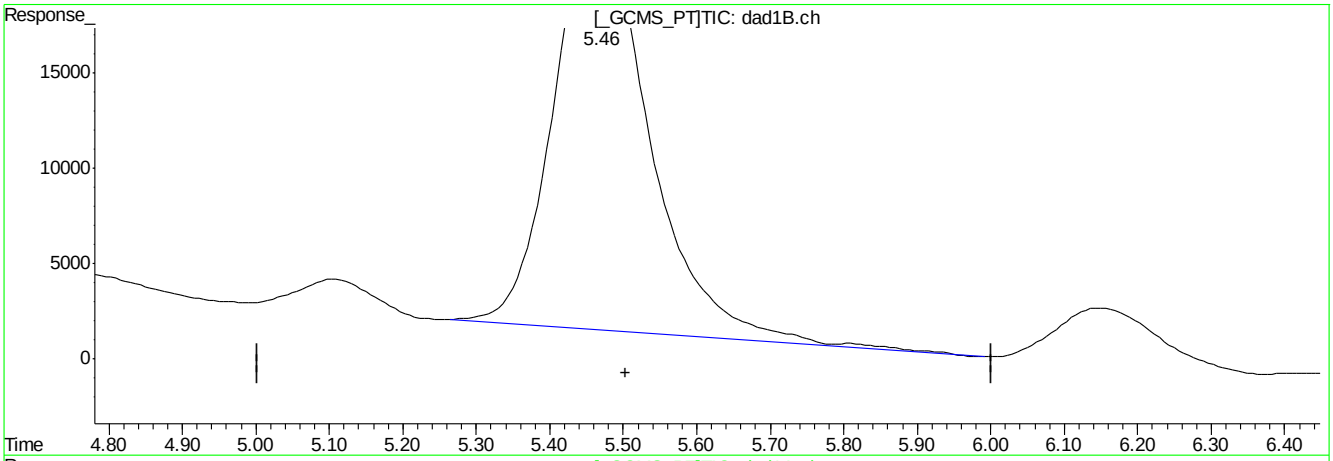
Sample Number: FA72036-1
Lab FileID: GG618372.D
Injection Time: 02/04/20 19:50
Method: SW846 8330B
Analyst approved: 02/05/20 11:13 William Hustedde
Supervisor approved: 02/05/20 12:20 Naresh Jiawan

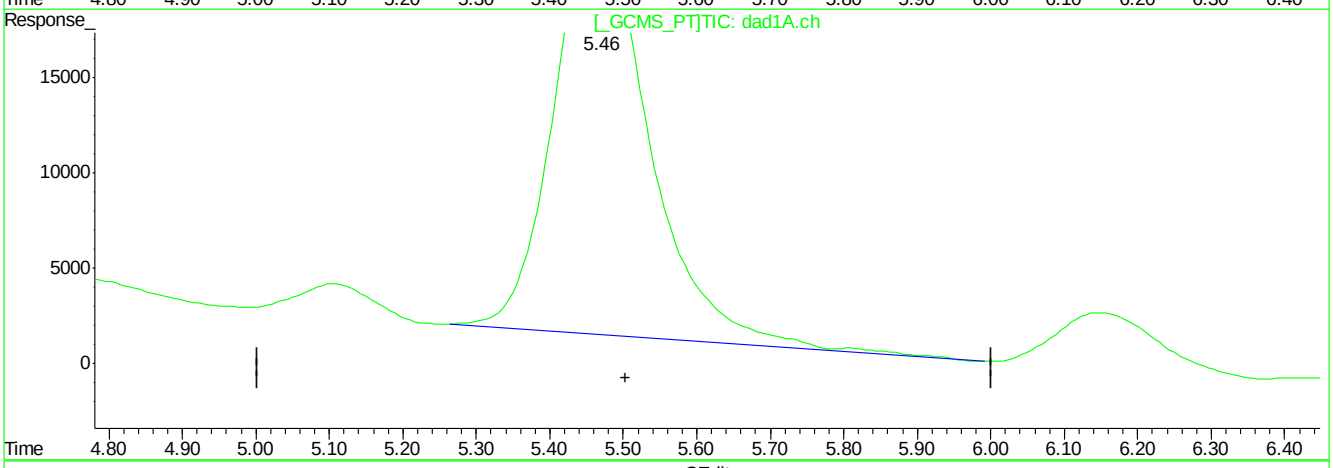
Parameter	CAS	Sig#	R.T. (min.)	Reason
HMX	2691-41-0	1	5.46	Poor instrument integration
HMX	2691-41-0	2	5.46	Poor instrument integration
RDX	121-82-4	1	7.72	Poor instrument integration
RDX	121-82-4	2	7.72	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	2	11.16	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	2	13.82	Poor instrument integration
3,5-Dinitroaniline	618-87-1	1	15.72	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	15.72	Poor instrument integration
4-amino-2,6-Dinitrotoluene	19406-51-0	2	17.52	Poor instrument integration
4-amino-2,6-Dinitrotoluene	19406-51-0	1	17.53	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	2	19.62	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618372.D\dad1B.ch Vial: 11
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618372.D\dad1A.ch
Acq On : 04-Feb-2020, 19:50:32 Operator: williamh
Sample : FA72036-1cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 10:39 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.47min 663.417ppb

response 1976726

(2) HMX #2

5.47min 659.105ppb

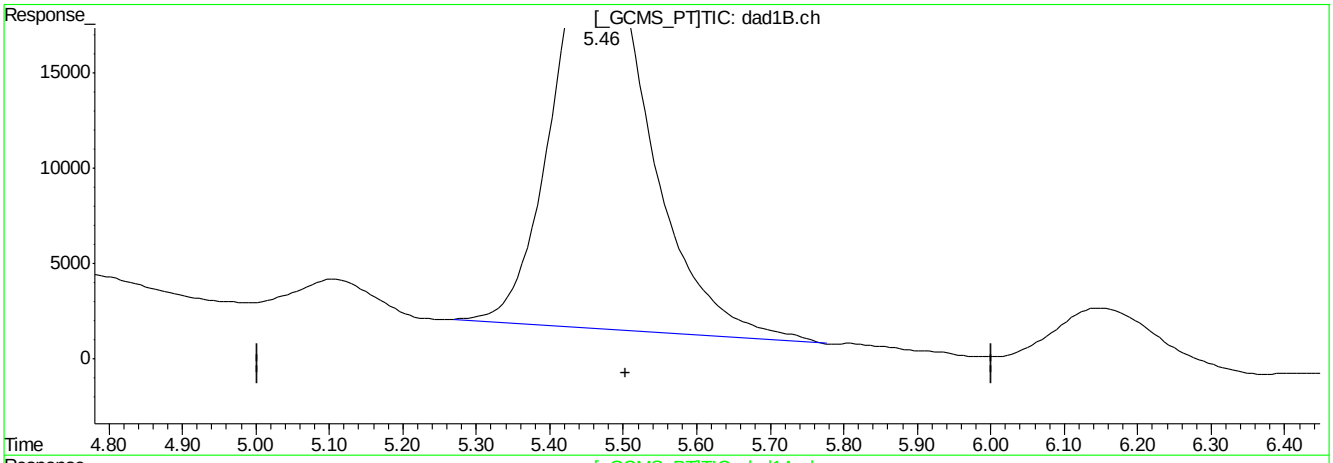
response 1976726

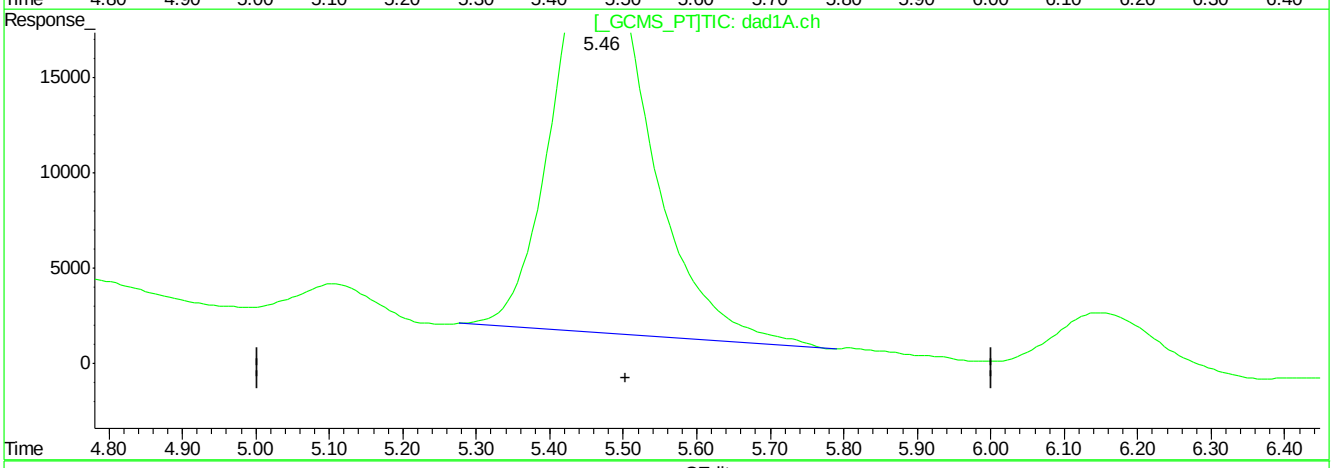
(+) = Expected Retention Time
GG618372.D 8330RPB.M_092519.M Wed Feb 05 10:49:26 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618372.D\dad1B.ch Vial: 11
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618372.D\dad1A.ch
Acq On : 04-Feb-2020, 19:50:32 Operator: williamh
Sample : FA72036-1cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 10:39 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.46min 650.787ppb m

response 1939095

(2) HMX #2

5.46min 643.774ppb m

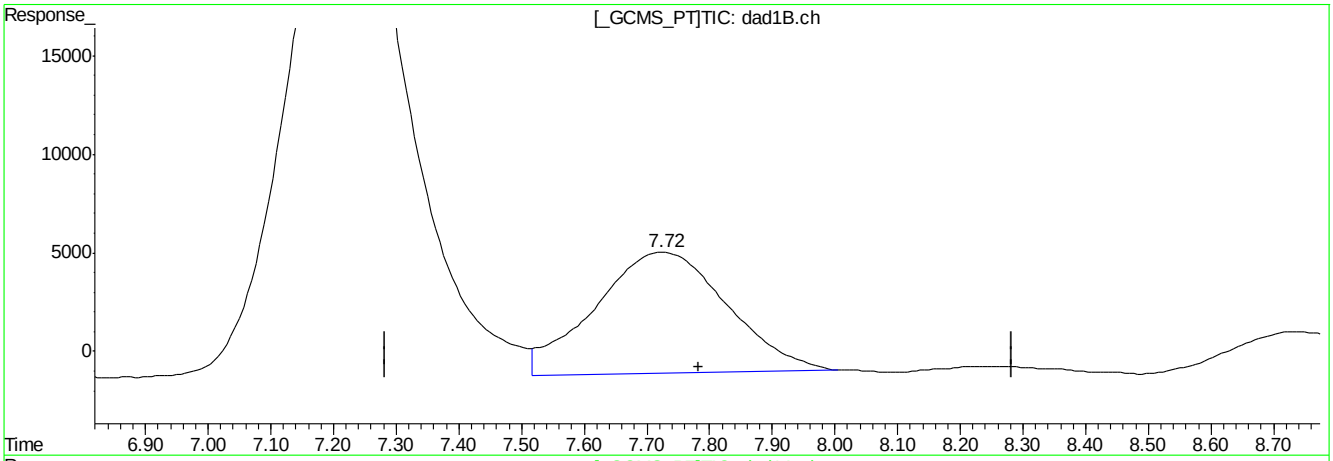
response 1930745

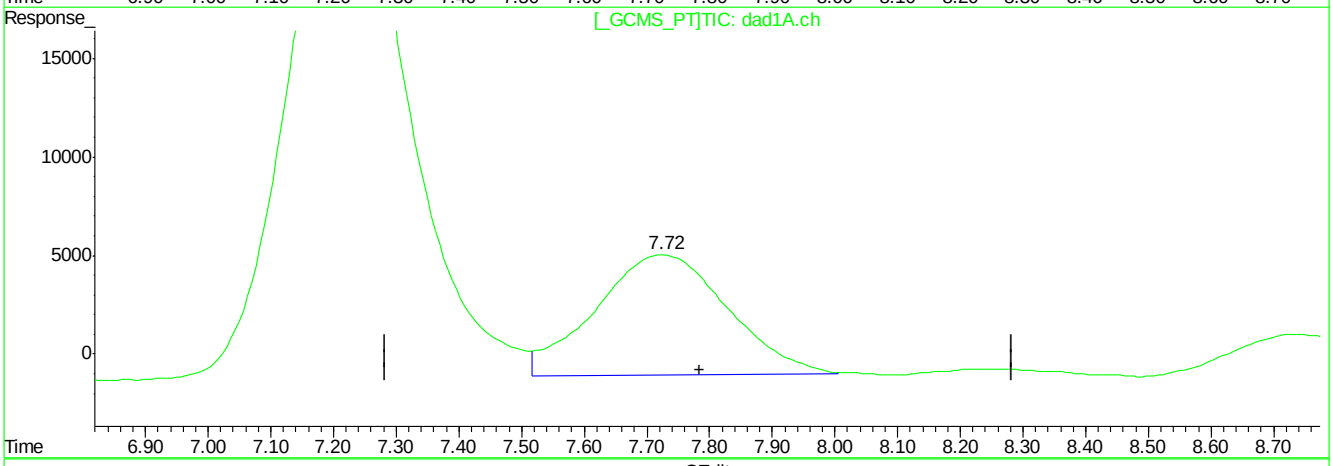
(+) = Expected Retention Time
GG618372.D 8330RPB.M_092519.M Wed Feb 05 10:49:33 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618372.D\dad1B.ch Vial: 11
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618372.D\dad1A.ch
Acq On : 04-Feb-2020, 19:50:32 Operator: williamh
Sample : FA72036-1cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 10:39 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(6) RDX

7.72min 177.794ppb m

response 901392

(6) RDX #2

7.72min 176.510ppb m

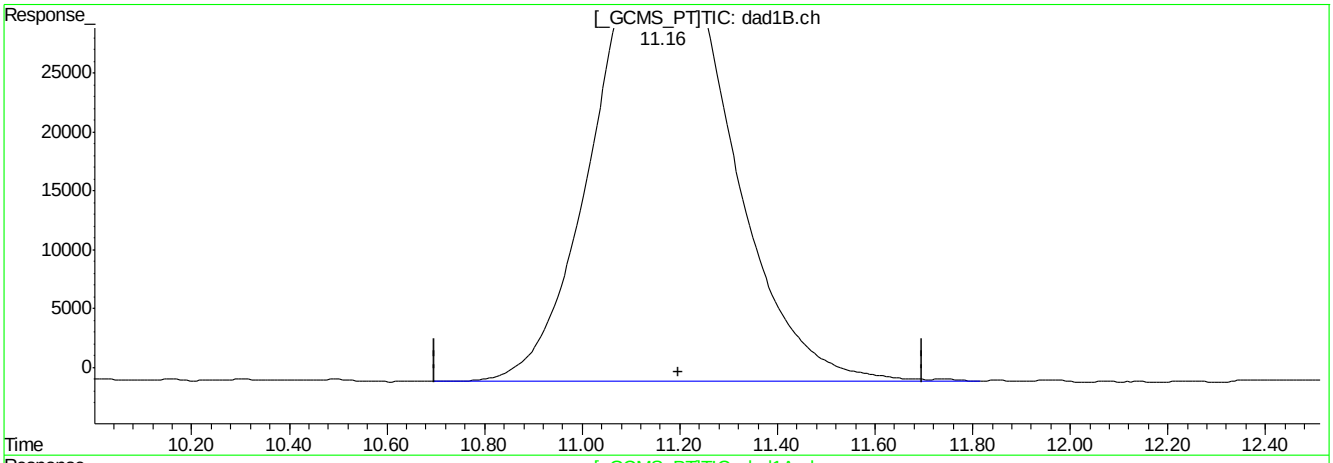
response 894881

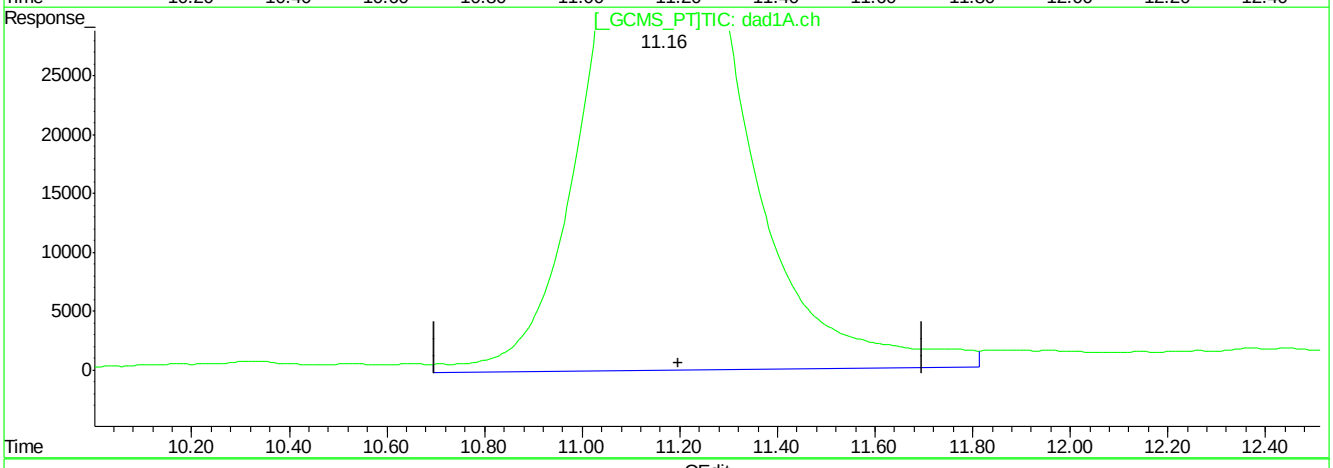
(+) = Expected Retention Time
GG618372.D 8330RPB.M_092519.M Wed Feb 05 10:49:46 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618372.D\dad1B.ch Vial: 11
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618372.D\dad1A.ch
Acq On : 04-Feb-2020, 19:50:32 Operator: williamh
Sample : FA72036-1cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 10:39 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.16min 749.436ppb

response 7641781

(9) 2,4,6-Trinitrotoluene #2

11.16min 825.012ppb

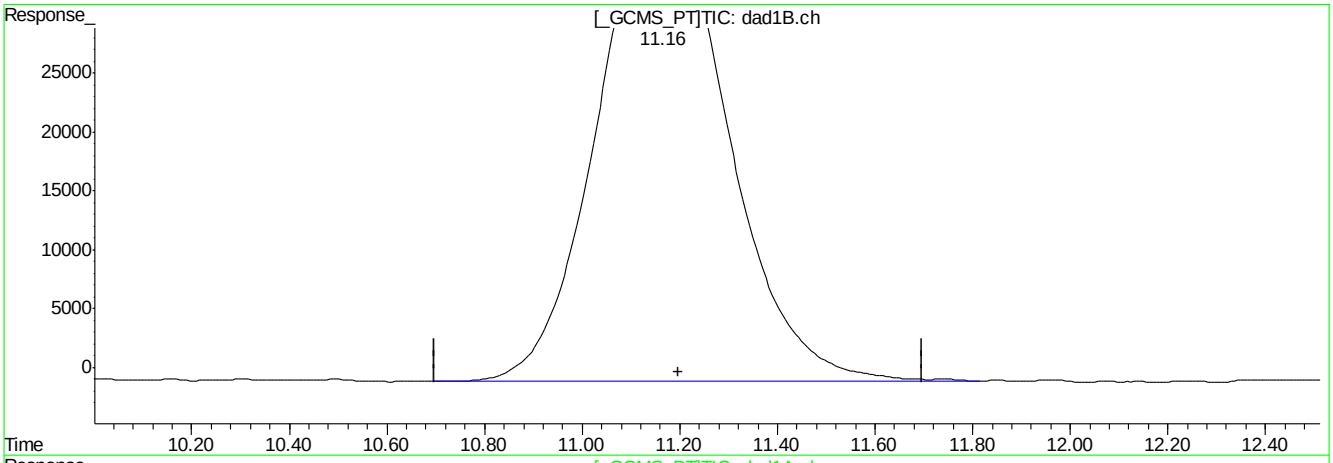
response 10905422

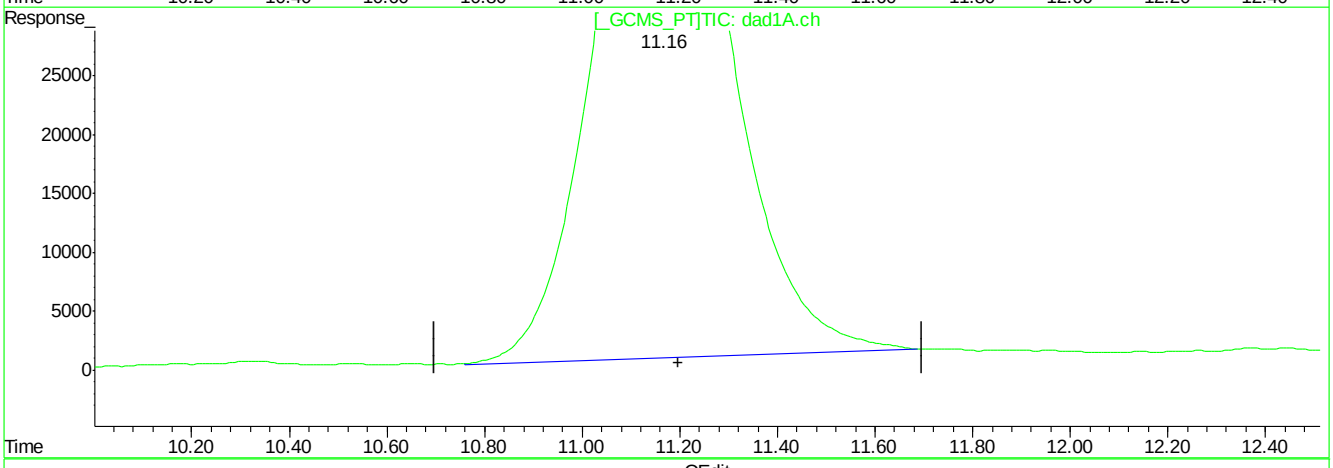
(+) = Expected Retention Time
GG618372.D 8330RPB.M_092519.M Wed Feb 05 10:49:51 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618372.D\dad1B.ch Vial: 11
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618372.D\dad1A.ch
Acq On : 04-Feb-2020, 19:50:32 Operator: williamh
Sample : FA72036-1cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 10:39 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.16min 749.436ppb

response 7641781

(9) 2,4,6-Trinitrotoluene #2

11.16min 766.532ppb m

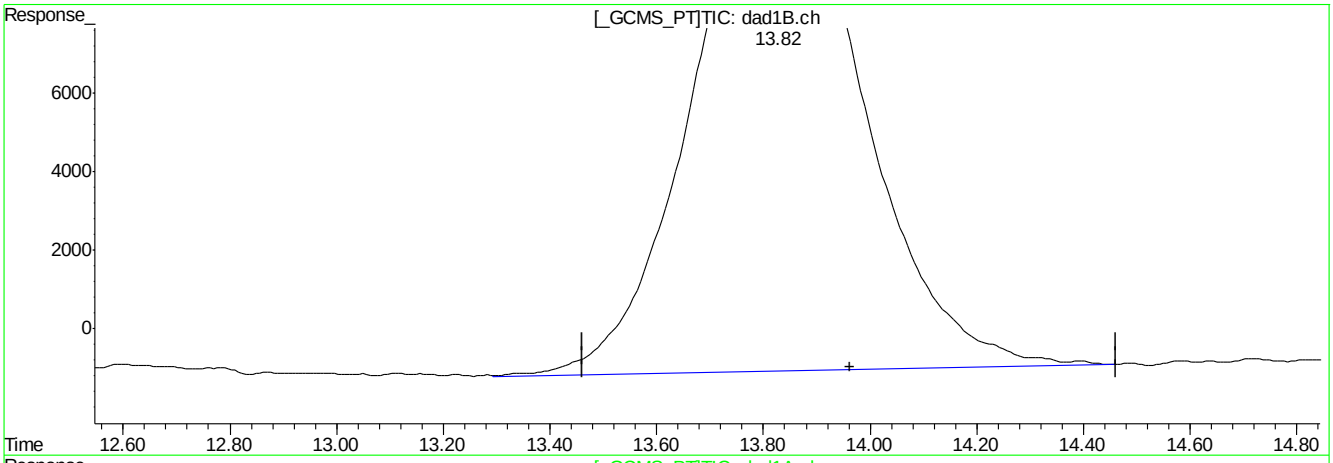
response 10132405

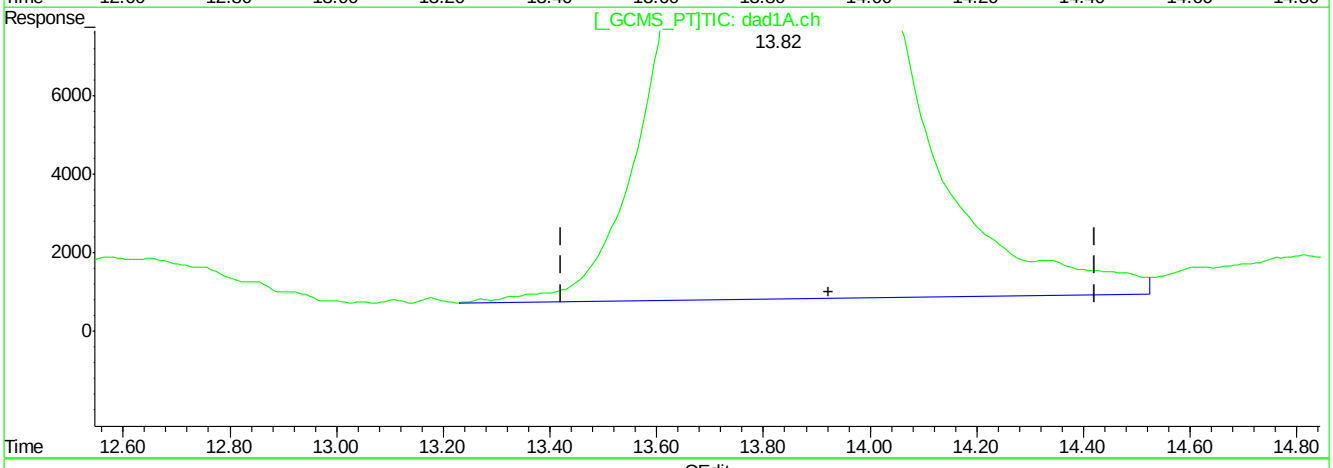
(+) = Expected Retention Time
GG618372.D 8330RPB.M_092519.M Wed Feb 05 10:49:56 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618372.D\dad1B.ch Vial: 11
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618372.D\dad1A.ch
Acq On : 04-Feb-2020, 19:50:32 Operator: williamh
Sample : FA72036-1cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 10:39 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(12) 3,4-Dinitrotoluene (S)

13.83min 658.868ppb

response 2975048

(12) 3,4-Dinitrotoluene #2 (S)

13.83min 648.917ppb

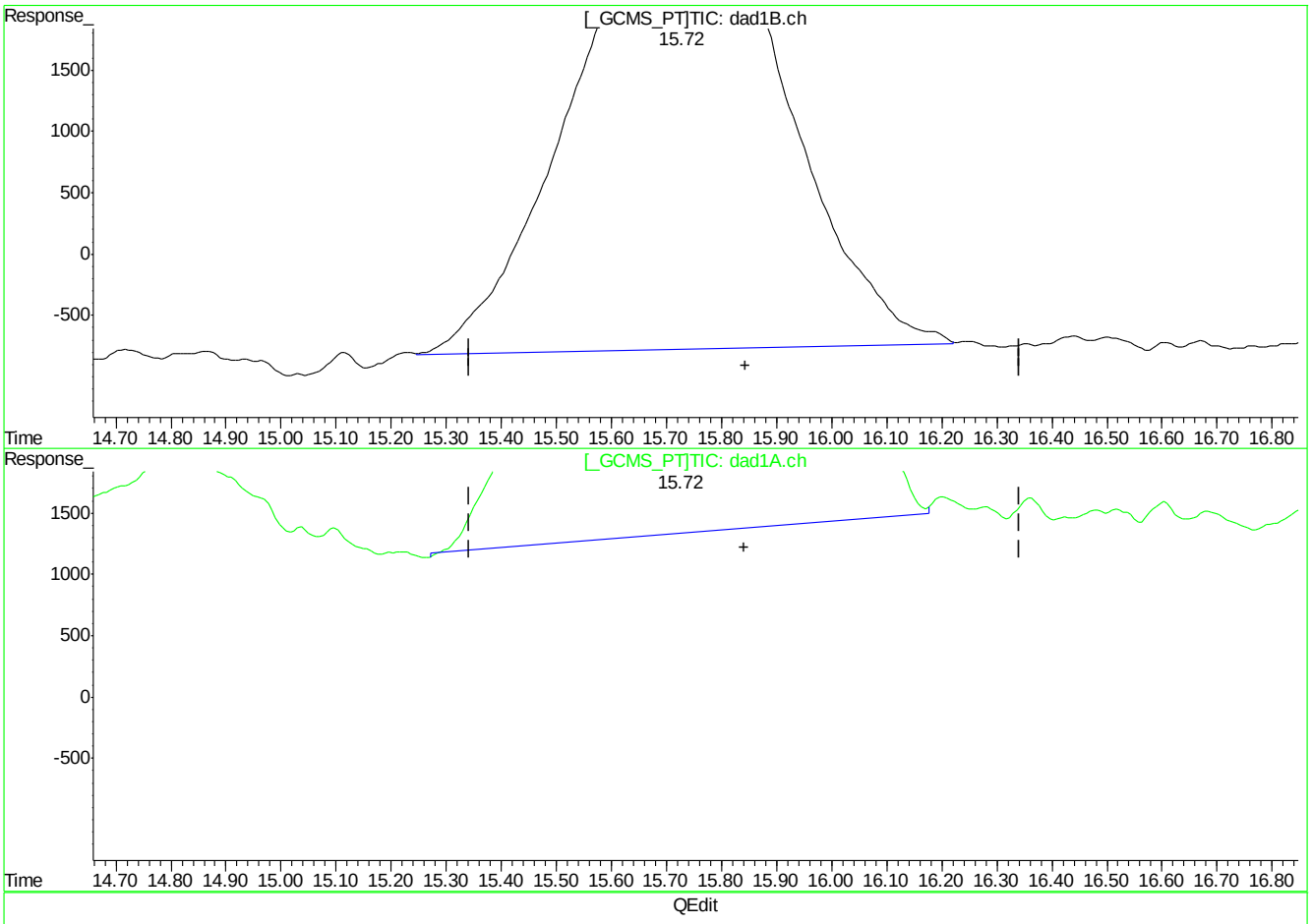
response 5830352

(+) = Expected Retention Time
GG618372.D 8330RPB.M_092519.M Wed Feb 05 10:50:00 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618372.D\dad1B.ch Vial: 11
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618372.D\dad1A.ch
Acq On : 04-Feb-2020, 19:50:32 Operator: williamh
Sample : FA72036-1cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 10:39 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration



(16) 3,5-Dinitroaniline

15.72min 98.531ppb m

response 1005316

(16) 3,5-Dinitroaniline #2

15.72min 103.686ppb m

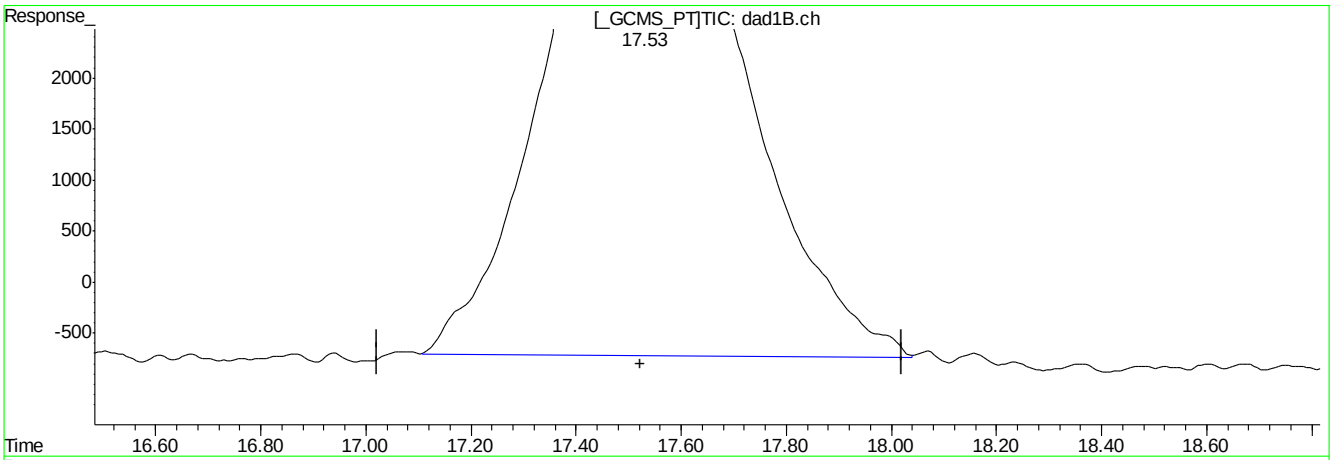
response 1721323

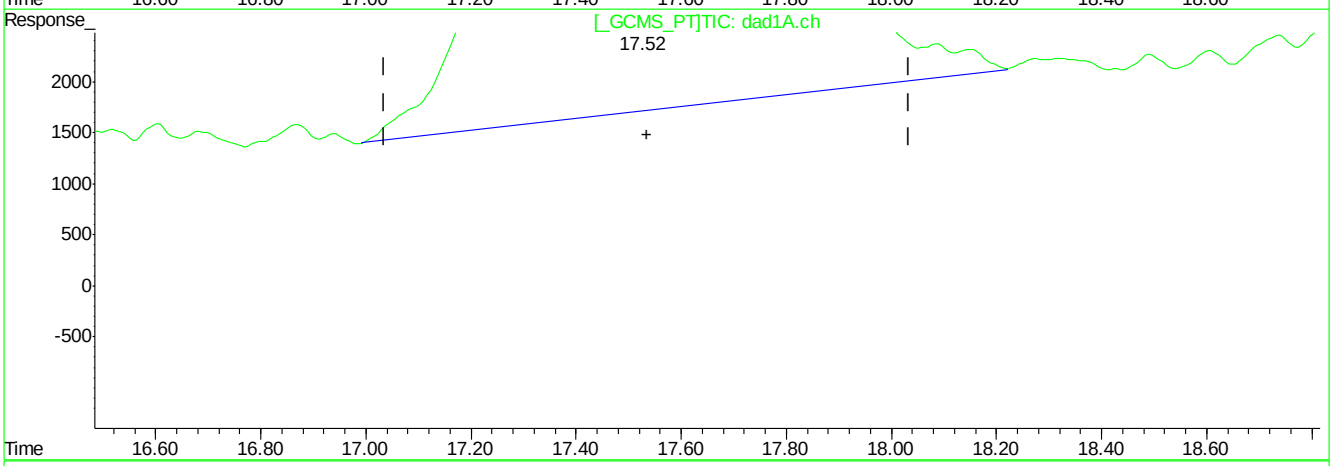
(+) = Expected Retention Time
GG618372.D 8330RPB.M_092519.M Wed Feb 05 10:51:53 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618372.D\dad1B.ch Vial: 11
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618372.D\dad1A.ch
Acq On : 04-Feb-2020, 19:50:32 Operator: williamh
Sample : FA72036-1cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 10:39 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(18) 4-Amino-2,6-Dinitrotoluene

17.53min 121.514ppb m

response 1404994

(18) 4-Amino-2,6-Dinitrotoluene #2

17.52min 136.209ppb m

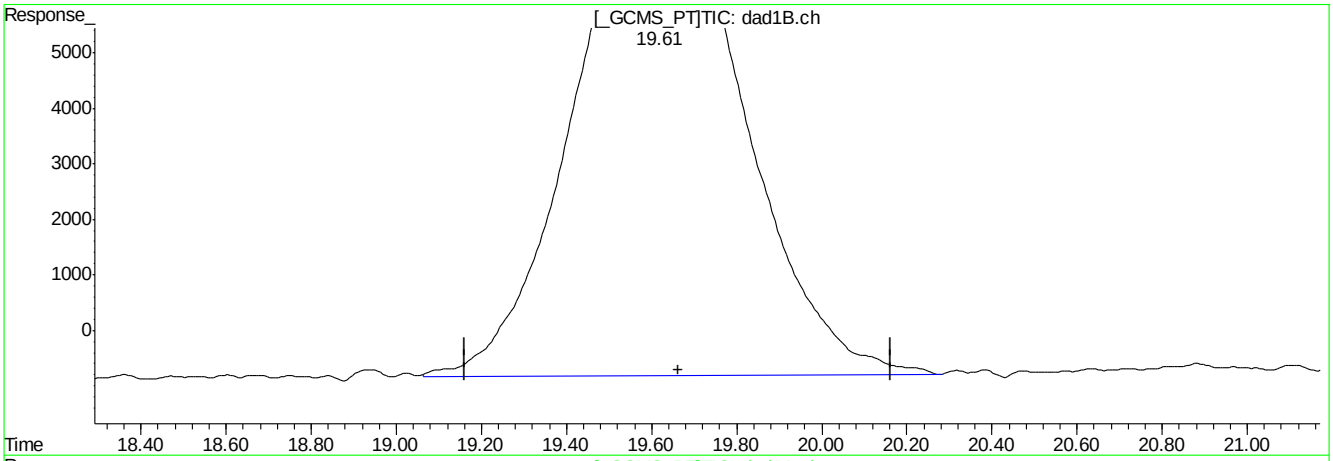
response 2958039

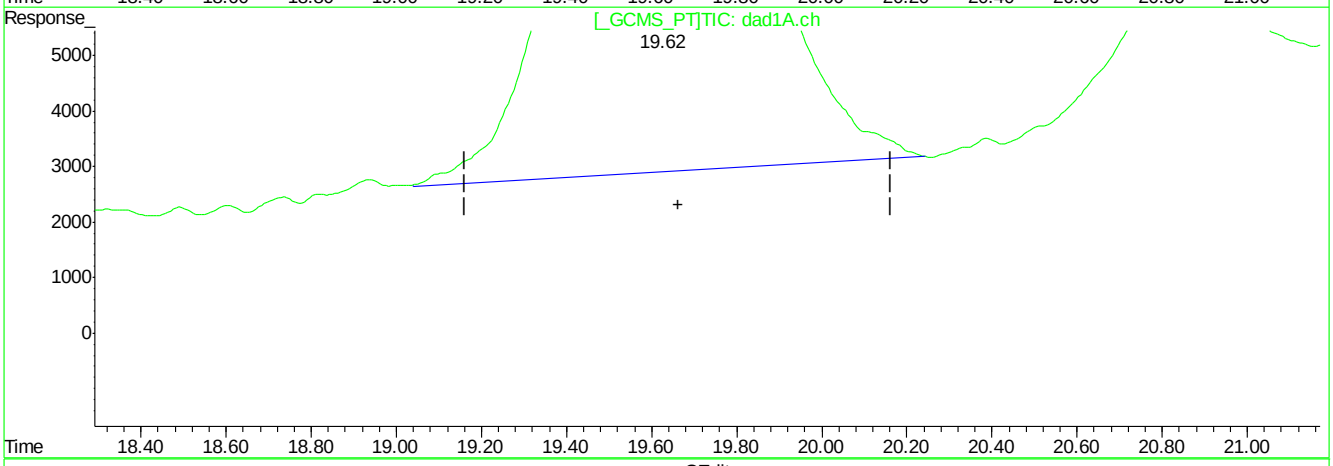
(+) = Expected Retention Time
GG618372.D 8330RPB.M_092519.M Wed Feb 05 10:52:01 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618372.D\dad1B.ch Vial: 11
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618372.D\dad1A.ch
Acq On : 04-Feb-2020, 19:50:32 Operator: williamh
Sample : FA72036-1cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 10:39 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(20) 2-Amino-4,6-Dinitrotoluene

19.62min 258.336ppb

response 2478909

(20) 2-Amino-4,6-Dinitrotoluene #2

19.62min 250.971ppb m

response 3521608

(+) = Expected Retention Time
GG618372.D 8330RPB.M_092519.M Wed Feb 05 10:52:07 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 02/05/20 12:20

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067860.D\dad1B.ch Vial: 13
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067860.D\dad1A.ch
Acq On : 03-Feb-2020, 18:48:58 Operator: williamh
Sample : FA72036-2 Inst : G1315B
Misc : op78763,GBB1981,1040,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 04 09:30:18 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	11.27	11.28	1359695	2015819	688.596	582.303
	Spiked Amount 500.000	Range 70 - 136		Recovery =		137.72%#	116.46%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	1.51	1.51	688370	1986608	452.780m	461.341m
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D. d	N.D. d
5)	RDX	2.98	2.97	109482	192729	57.181	62.030m
6)	1,3,5-Trinitrobe	4.78	4.78	2903454	5602173	749.787m	748.384m
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D.	N.D.
8)	3,5-Dinitroanili	6.38	6.37	211835	326388	53.133	47.537m
9)	Nitrobenzene	0.00	0.00	0	0	N.D.	N.D.
10)	Nitroglycerin	0.00	0.00	0	0	N.D.	N.D.
11)	Tetryl	0.00	0.00	0	0	N.D.	N.D.
12)	2,4,6-Trinitroto	9.98	9.98	1483150	1659952	421.721	405.897
13)	2-Amino-4,6-Dini	10.41	10.42	456434	515236	141.363	104.110
14)	4-Amino-2,6-Dini	10.89	10.88	244502	284095	104.182	61.345 #
16)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
17)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
18)	o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
19)	p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20)	m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
21)	PETN	0.00	0.00	0	0	N.D. d	N.D. d

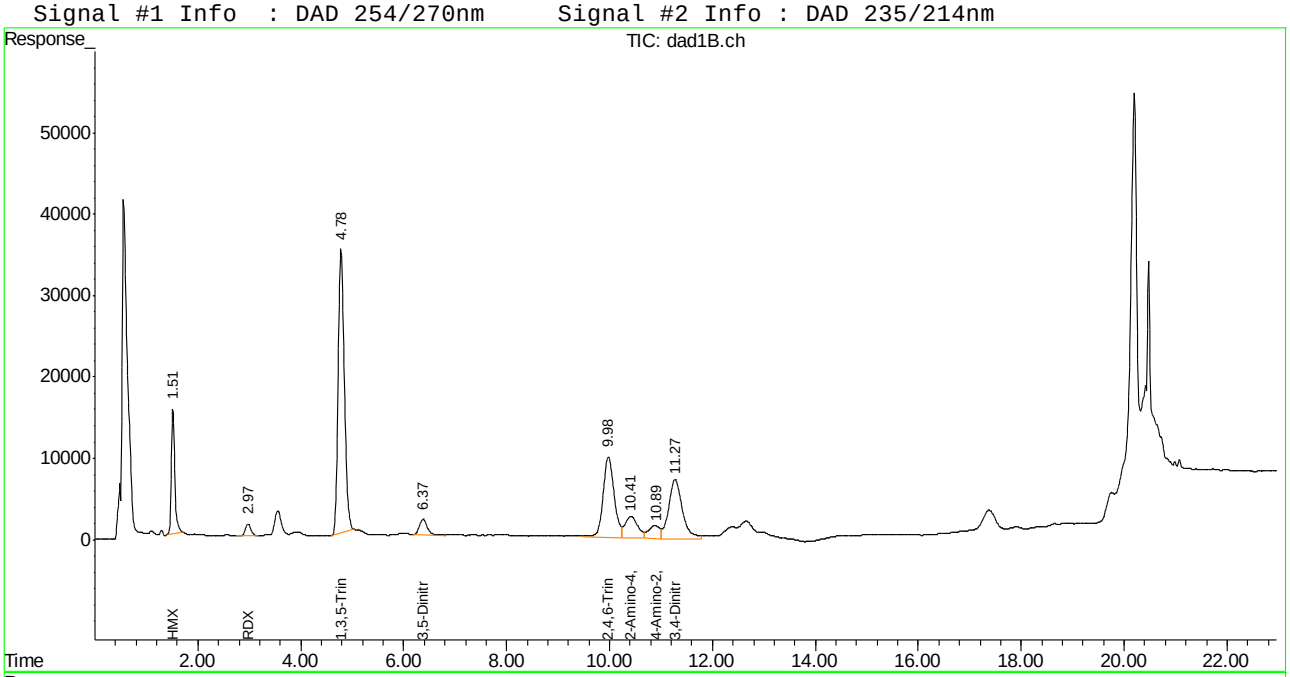
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB067860.D 8330B_012120_PLUS.M Tue Feb 04 11:21:45 2020 Page 1

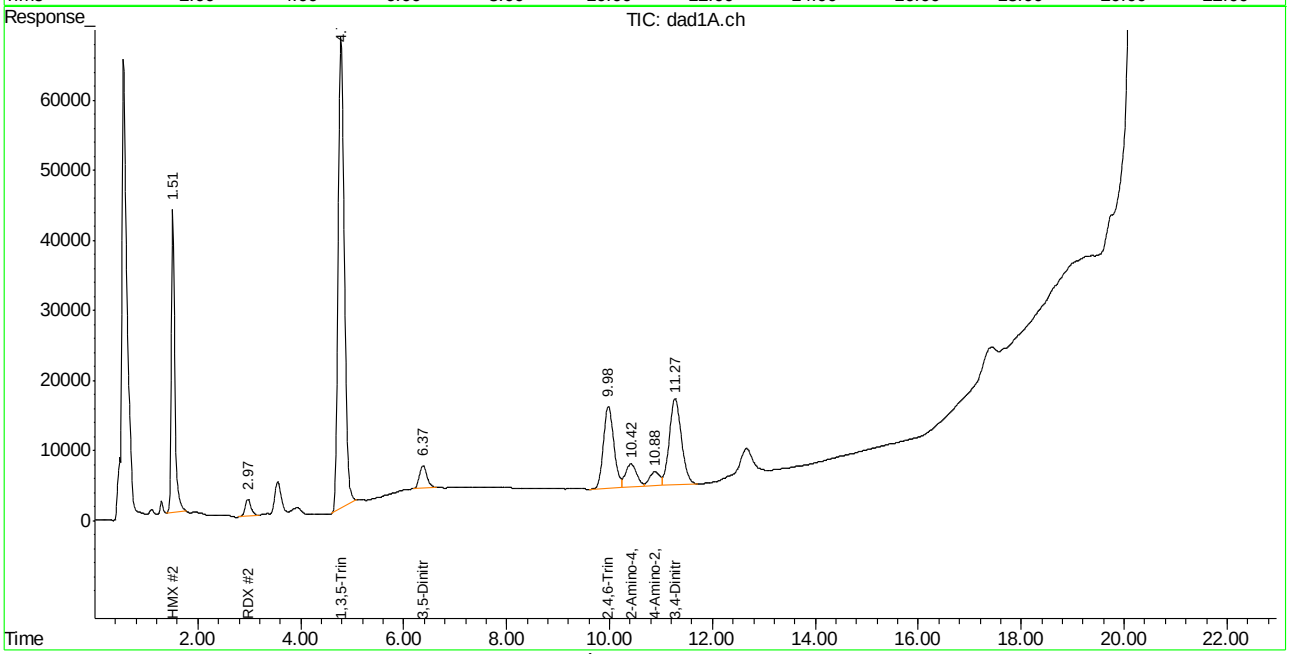
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067860.D\dad1B.ch Vial: 13
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067860.D\dad1A.ch
Acq On : 03-Feb-2020, 18:48:58 Operator: williamh
Sample : FA72036-2 Inst : G1315B
Misc : op78763,GBB1981,1040,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 10:10 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

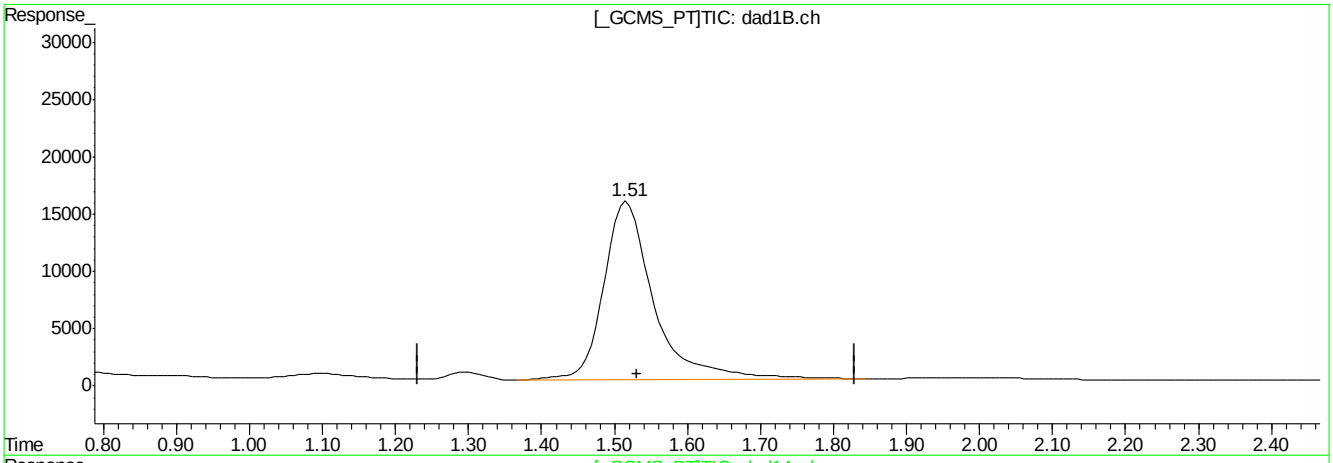
Sample Number: FA72036-2
Lab FileID: BB067860.D
Injection Time: 02/03/20 18:48
Method: SW846 8330B
Analyst approved: 02/05/20 11:14 William Hustedde
Supervisor approved: 02/05/20 12:20 Naresh Jiawan

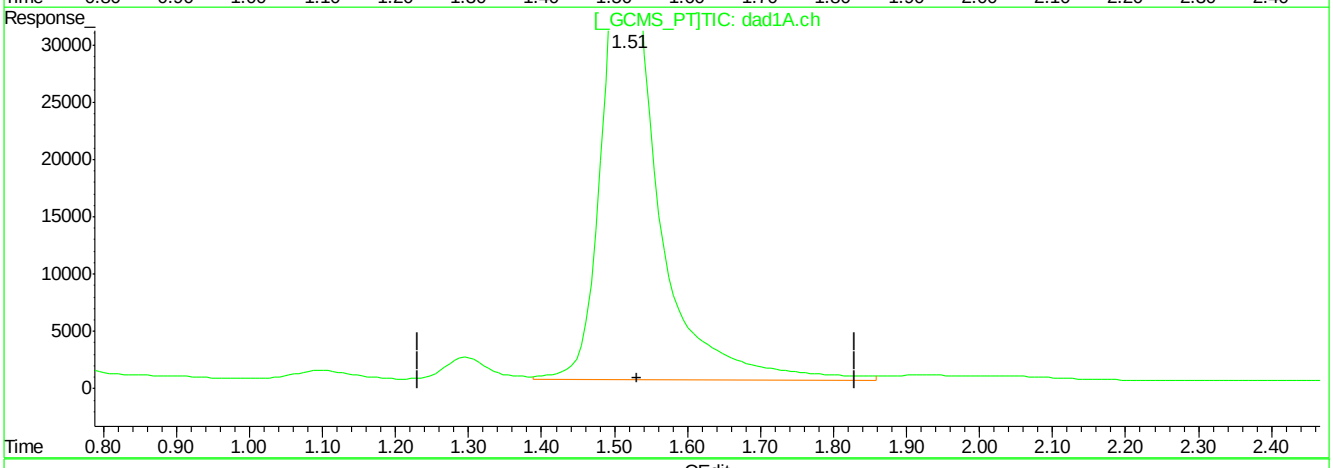
Parameter	CAS	Sig#	R.T. (min.)	Reason
HMX	2691-41-0	1	1.51	Poor instrument integration
HMX	2691-41-0	2	1.51	Poor instrument integration
RDX	121-82-4	2	2.97	Poor instrument integration
1,3,5-Trinitrobenzene	99-35-4	1	4.78	Poor instrument integration
1,3,5-Trinitrobenzene	99-35-4	2	4.78	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	6.37	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067860.D\dad1B.ch Vial: 13
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067860.D\dad1A.ch
Acq On : 03-Feb-2020, 18:48:58 Operator: williamh
Sample : FA72036-2 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(2) HMX

1.52min 491.369ppb

response 747038

(2) HMX #2

1.52min 489.128ppb

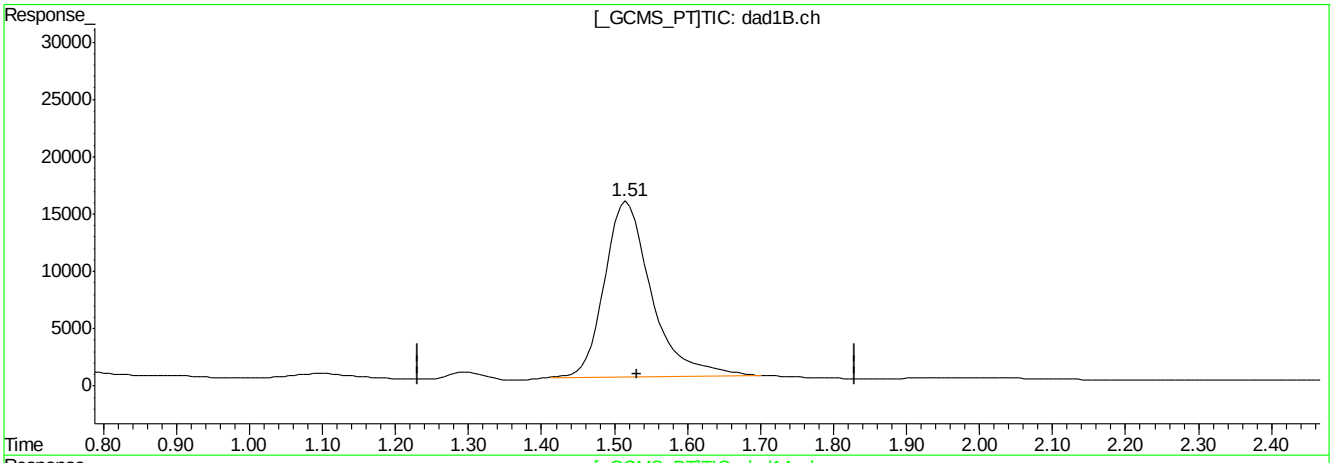
response 2106266

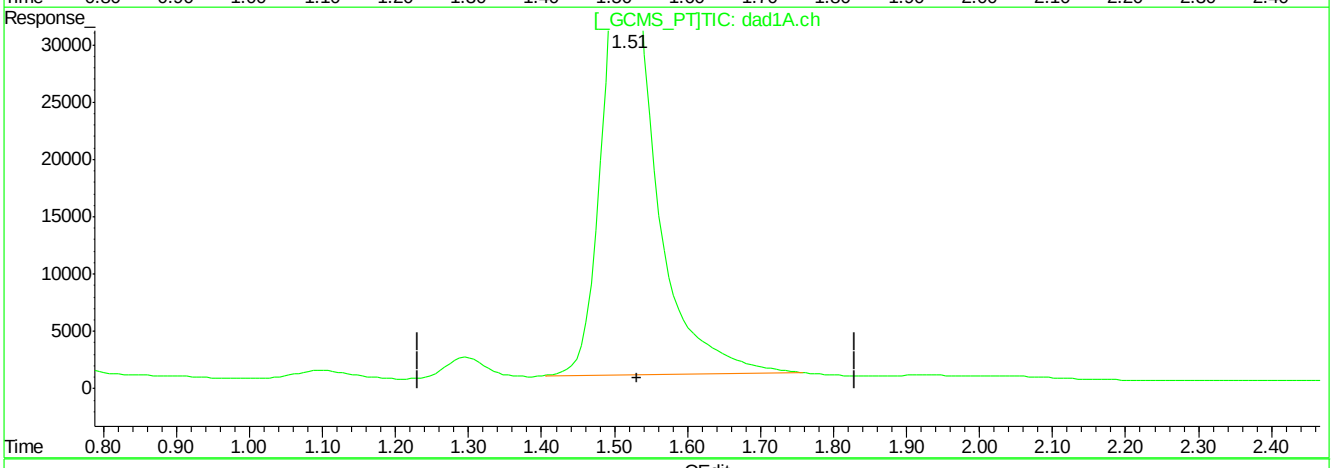
(+) = Expected Retention Time
BB067860.D 8330B_012120_PLUS.M Tue Feb 04 10:08:18 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067860.D\dad1B.ch Vial: 13
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067860.D\dad1A.ch
Acq On : 03-Feb-2020, 18:48:58 Operator: williamh
Sample : FA72036-2 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(2) HMX

1.51min 452.780ppb m

response 688370

(2) HMX #2

1.51min 461.341ppb m

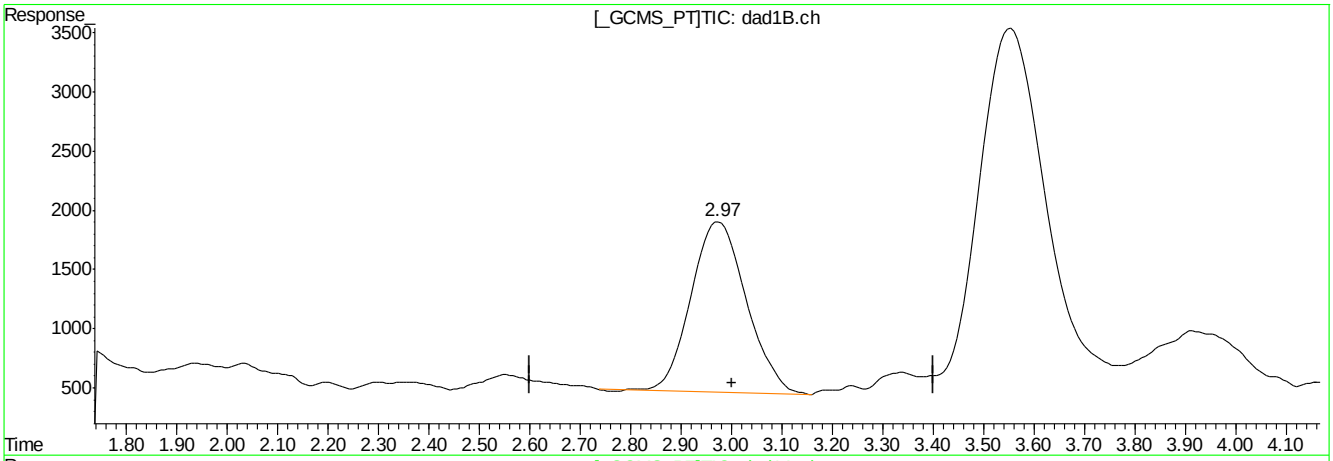
response 1986608

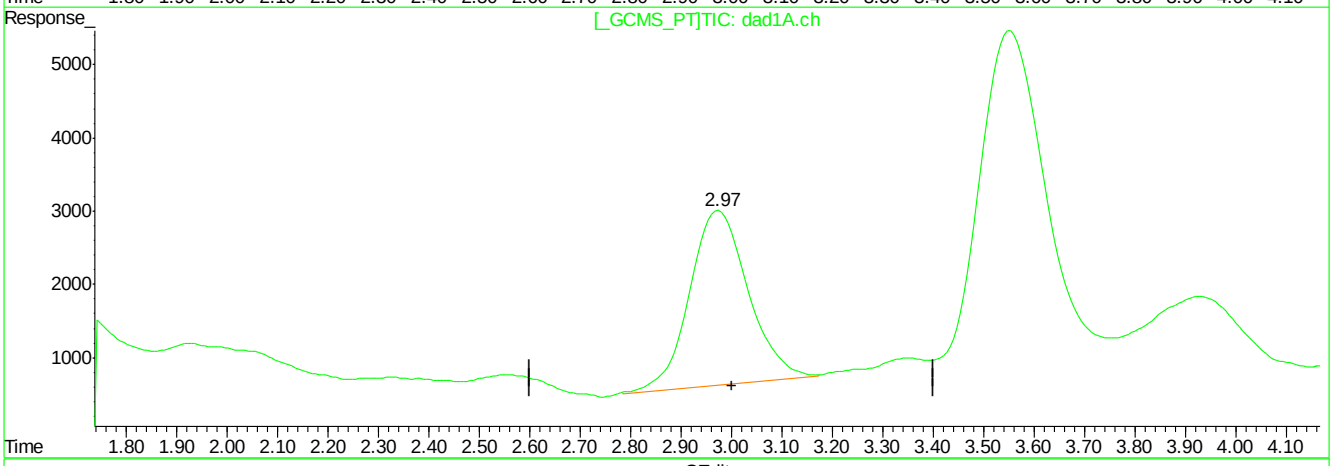
(+) = Expected Retention Time
BB067860.D 8330B_012120_PLUS.M Tue Feb 04 10:08:26 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067860.D\dad1B.ch Vial: 13
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067860.D\dad1A.ch
Acq On : 03-Feb-2020, 18:48:58 Operator: williamh
Sample : FA72036-2 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(5) RDX

2.98min 57.181ppb

response 109482

(5) RDX #2

2.97min 62.030ppb m

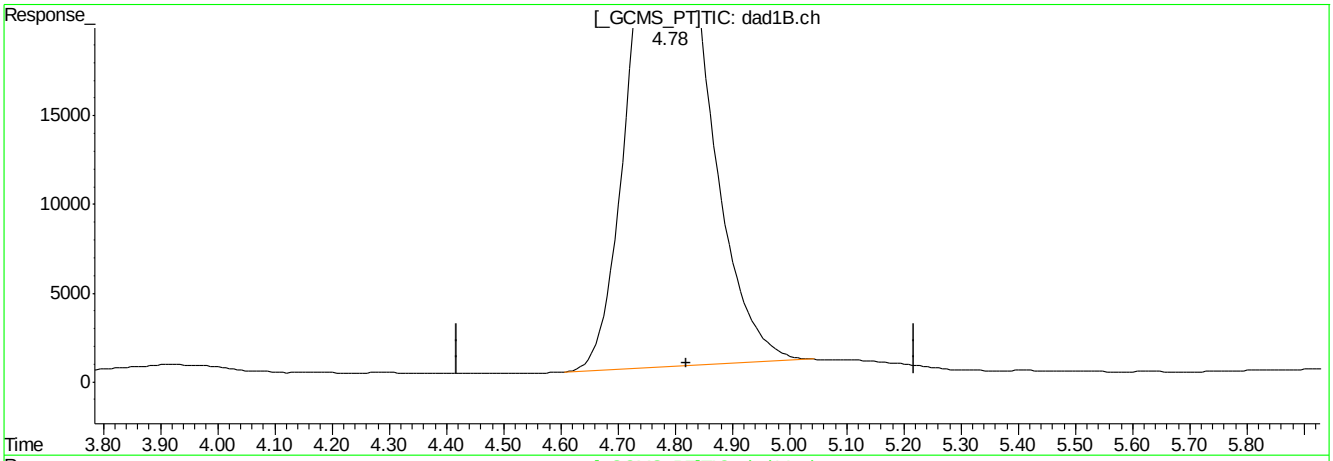
response 192729

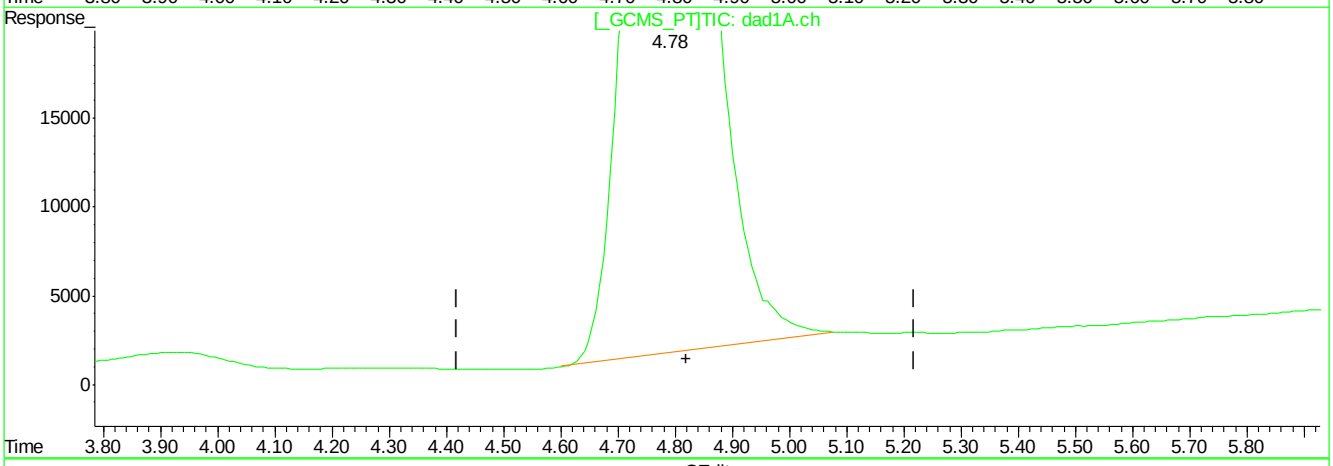
(+) = Expected Retention Time
BB067860.D 8330B_012120_PLUS.M Tue Feb 04 10:08:34 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067860.D\dad1B.ch Vial: 13
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067860.D\dad1A.ch
Acq On : 03-Feb-2020, 18:48:58 Operator: williamh
Sample : FA72036-2 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(6) 1,3,5-Trinitrobenzene

4.78min 749.787ppb m

response 2903454

(6) 1,3,5-Trinitrobenzene #2

4.78min 748.384ppb m

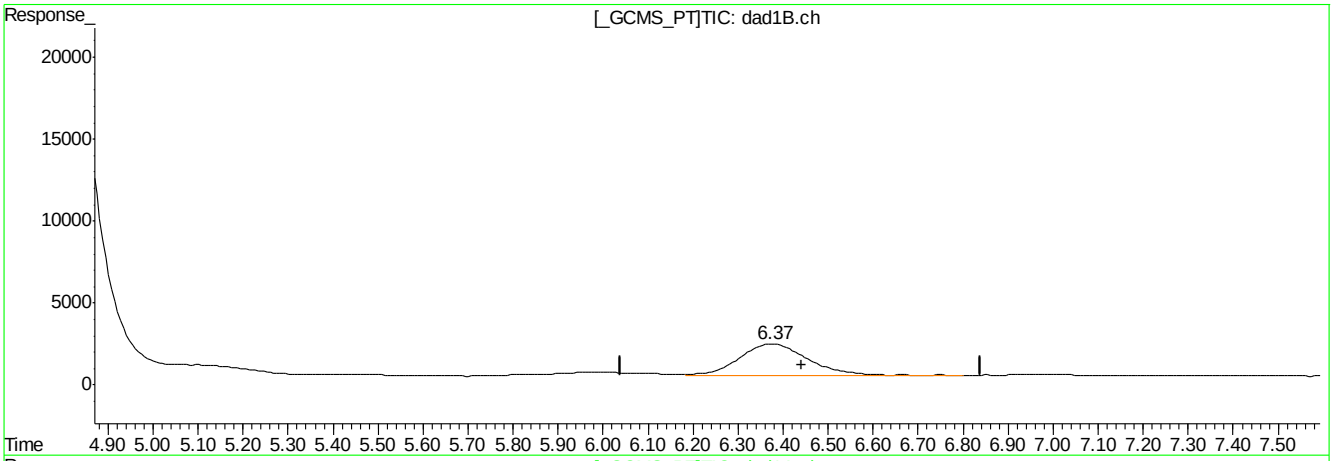
response 5602173

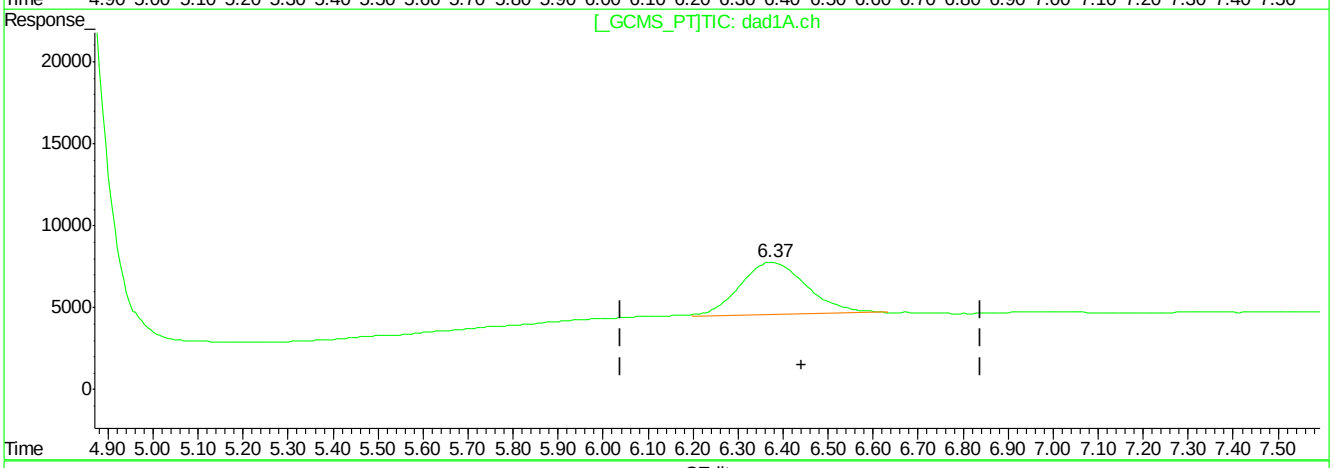
(+) = Expected Retention Time
BB067860.D 8330B_012120_PLUS.M Tue Feb 04 10:08:46 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067860.D\dad1B.ch Vial: 13
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067860.D\dad1A.ch
Acq On : 03-Feb-2020, 18:48:58 Operator: williamh
Sample : FA72036-2 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.38min 53.133ppb

response 211835

(8) 3,5-Dinitroaniline #2

6.37min 47.537ppb m

response 326388

(+) = Expected Retention Time
BB067860.D 8330B_012120_PLUS.M Tue Feb 04 10:10:02 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
02/05/20 12:20

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618373.D\dad1B.ch Vial: 12
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618373.D\dad1A.ch
Acq On : 04-Feb-2020, 20:19:56 Operator: williamh
Sample : FA72036-2cf Inst : G1315B
Misc : op78763,ggg2805,1040,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 05 10:39:13 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.82	13.82	2933384	5733169	649.641m	638.128m
	Spiked Amount 500.000	Range 70 - 136		Recovery =		129.93%	127.63%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	5.46	5.46	1563837	1563751	524.845m	521.406m
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D. d	N.D. d
5)	1,3,5-Trinitrobe	7.21	7.21	7015720	6999635	678.420m	676.865m
6)	RDX	7.72	7.72	267774	267774	52.817	52.817
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D. d	N.D. d
8)	Nitrobenzene	0.00	0.00	0	0	N.D. d	N.D. d
9)	2,4,6-Trinitroto	11.16	11.16	3453687	4712667	338.706	356.521m
10)	Nitroglycerin	0.00	0.00	0	0	N.D. d	N.D. d
11)	Tetryl	0.00	0.00	0	0	N.D. d	N.D. d
13)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
14)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
15)	o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
16)	3,5-Dinitroanili	15.69	15.70	1479517	2506620	145.008m	150.989m
17)	p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
18)	4-Amino-2,6-Dini	17.53	17.51	551998	1063547	47.741m	48.973m
19)	m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20)	2-Amino-4,6-Dini	19.62	19.62	1078802	1516287	112.426	108.060m
21)	PETN	0.00	0.00	0	0	N.D. d	N.D. d

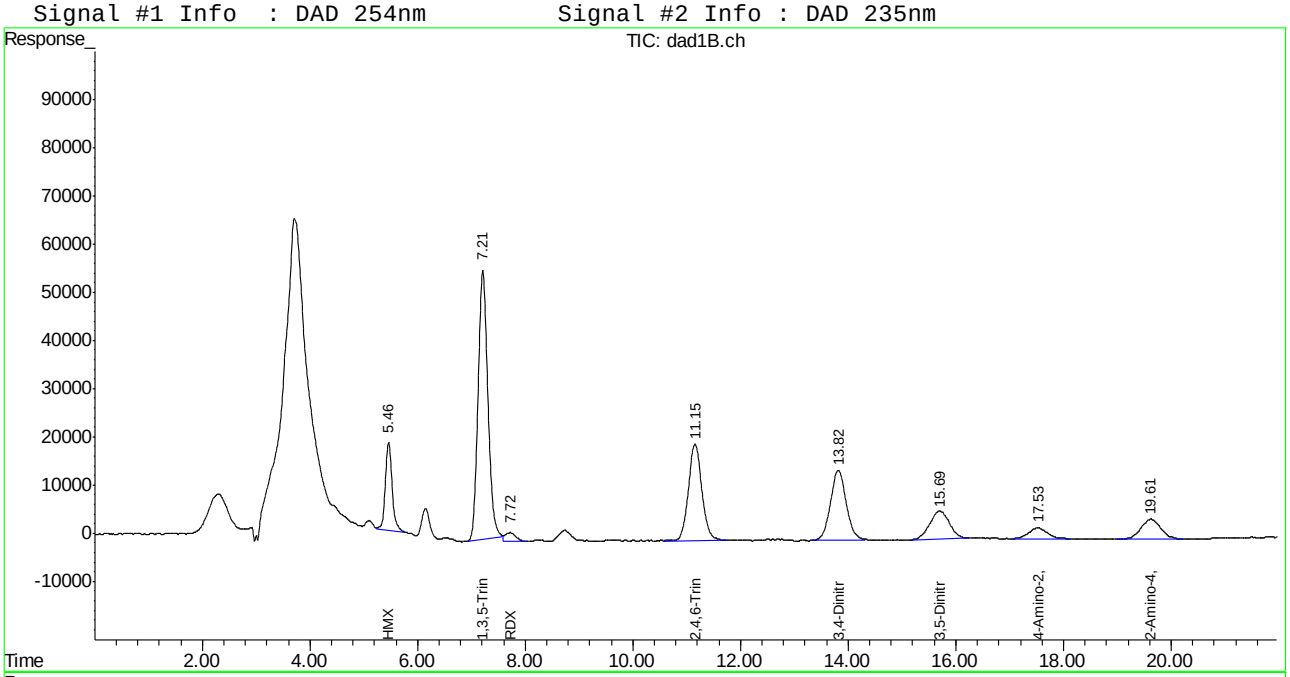
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
GG618373.D 8330RPB.M_092519.M Wed Feb 05 10:59:34 2020 Page 1

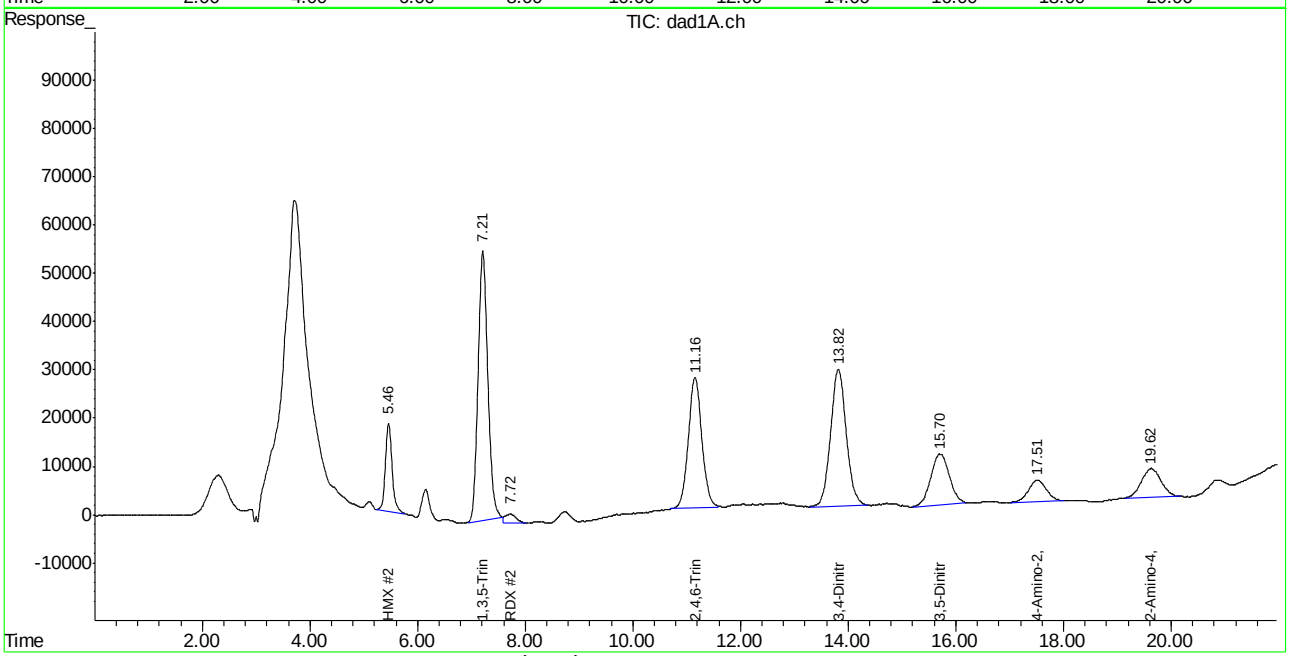
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618373.D\dad1B.ch Vial: 12
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618373.D\dad1A.ch
Acq On : 04-Feb-2020, 20:19:56 Operator: williamh
Sample : FA72036-2cf Inst : G1315B
Misc : op78763,ggg2805,1040,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 10:54 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





GG618373.D 8330RPB.M_092519.M Wed Feb 05 10:59:34 2020 Page 2

Manual Integration Approval Summary

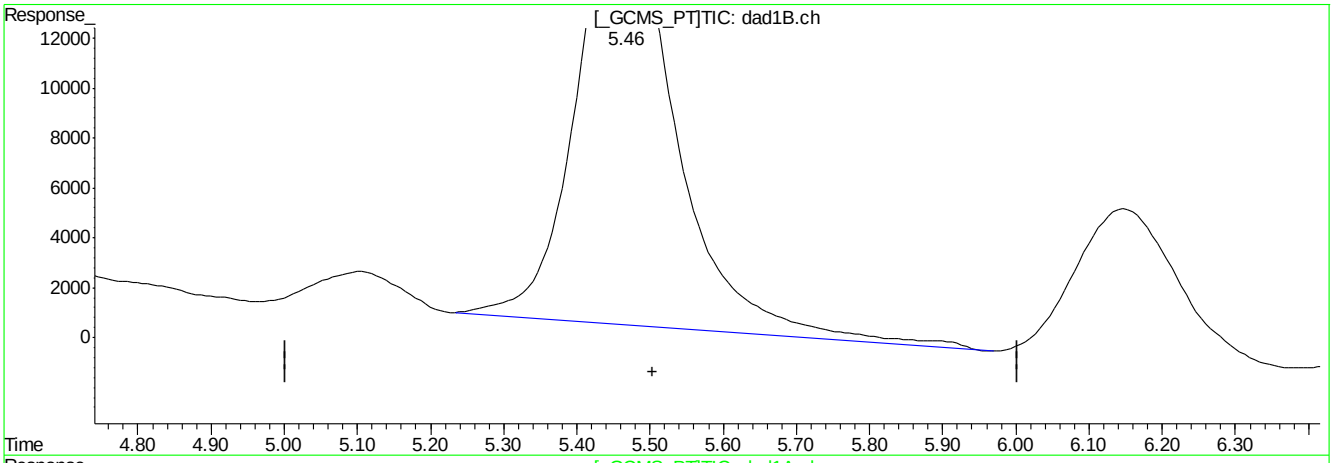
Sample Number: FA72036-2
Lab FileID: GG618373.D
Injection Time: 02/04/20 20:19
Method: SW846 8330B
Analyst approved: 02/05/20 11:14 William Hustedde
Supervisor approved: 02/05/20 12:20 Naresh Jiawan

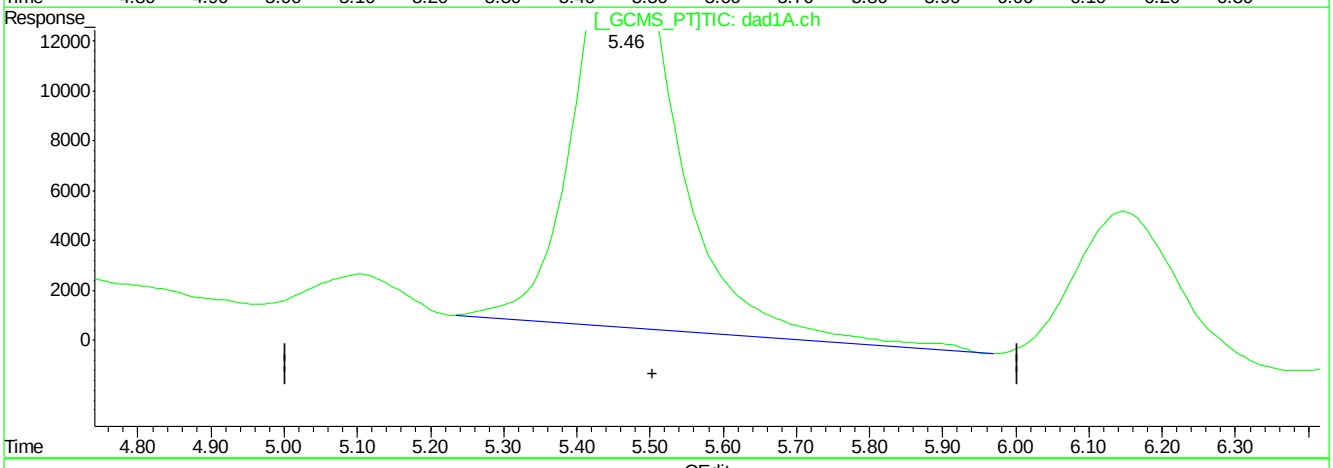
Parameter	CAS	Sig#	R.T. (min.)	Reason
HMX	2691-41-0	1	5.46	Poor instrument integration
HMX	2691-41-0	2	5.46	Poor instrument integration
1,3,5-Trinitrobenzene	99-35-4	1	7.21	Poor instrument integration
1,3,5-Trinitrobenzene	99-35-4	2	7.21	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	2	11.16	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	1	13.82	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	2	13.82	Poor instrument integration
3,5-Dinitroaniline	618-87-1	1	15.69	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	15.70	Poor instrument integration
4-amino-2,6-Dinitrotoluene	19406-51-0	2	17.51	Poor instrument integration
4-amino-2,6-Dinitrotoluene	19406-51-0	1	17.53	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	2	19.62	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618373.D\dad1B.ch Vial: 12
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618373.D\dad1A.ch
Acq On : 04-Feb-2020, 20:19:56 Operator: williamh
Sample : FA72036-2cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 10:39 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.46min 551.950ppb

response 1644598

(2) HMX #2

5.46min 548.363ppb

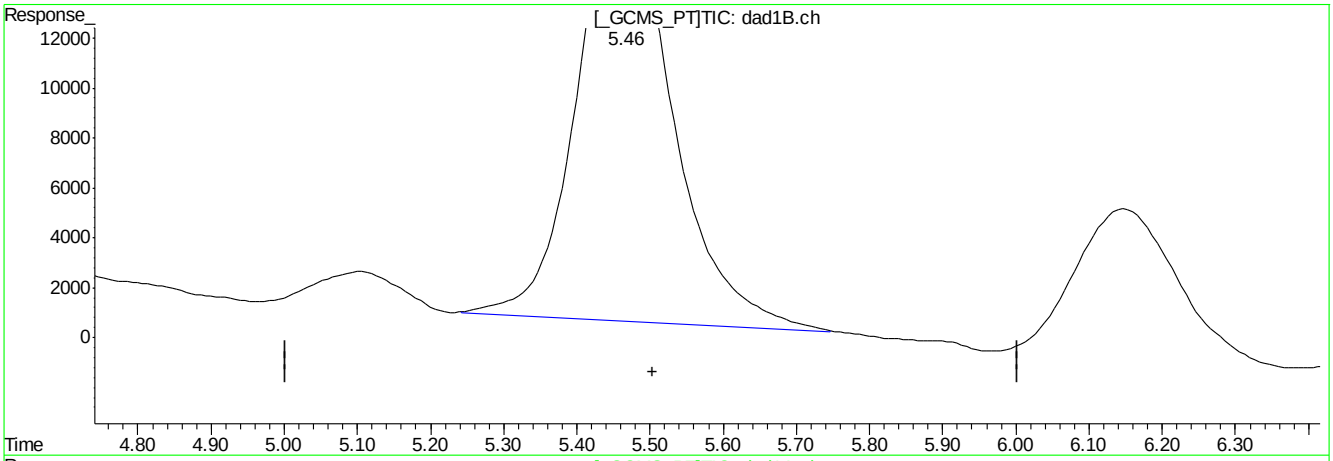
response 1644598

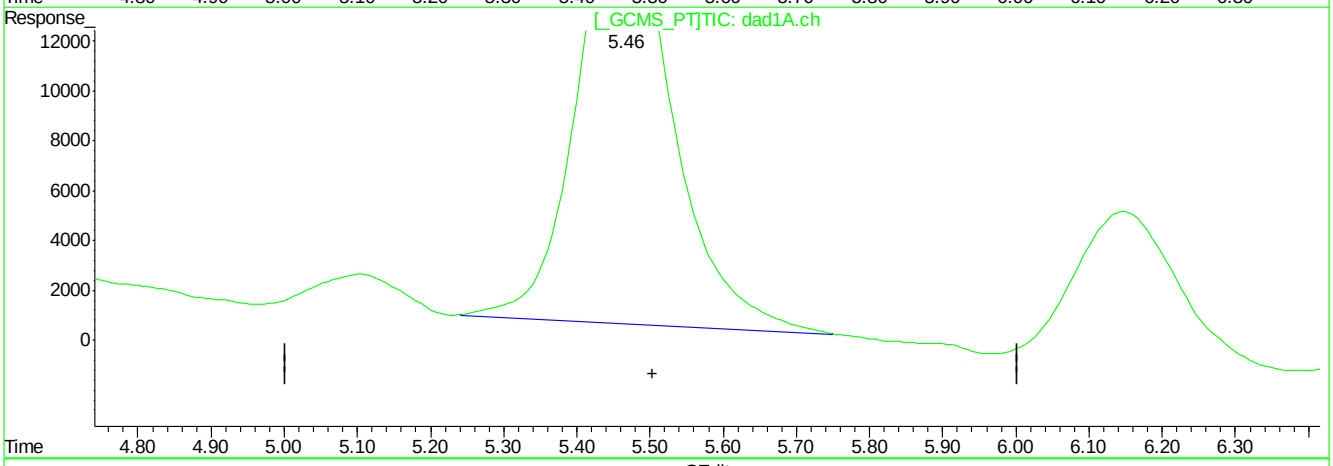
(+) = Expected Retention Time
GG618373.D 8330RPB.M_092519.M Wed Feb 05 10:53:09 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618373.D\dad1B.ch Vial: 12
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618373.D\dad1A.ch
Acq On : 04-Feb-2020, 20:19:56 Operator: williamh
Sample : FA72036-2cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 10:39 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.46min 524.845ppb m

response 1563837

(2) HMX #2

5.46min 521.406ppb m

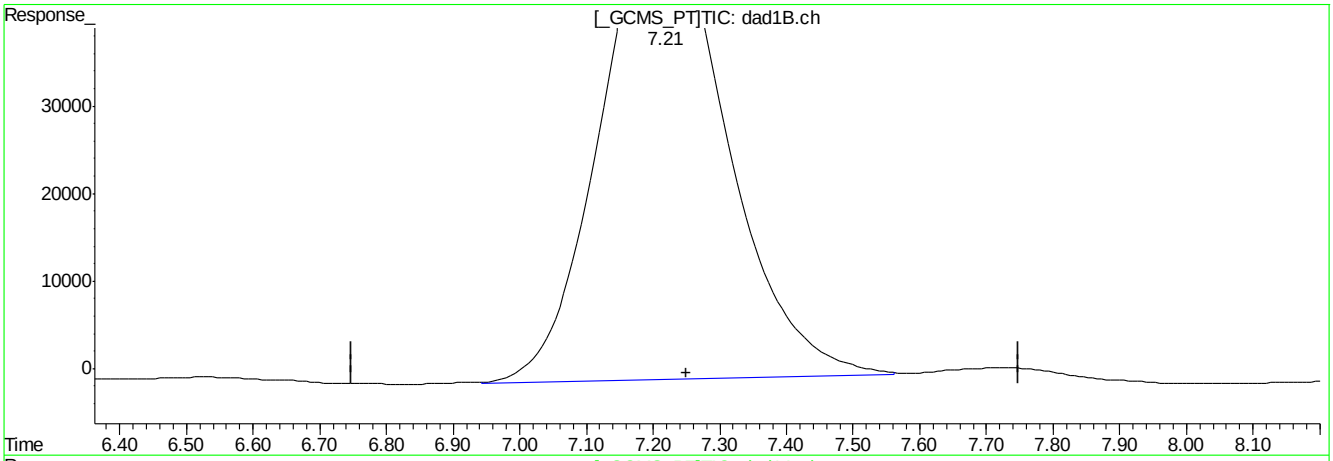
response 1563751

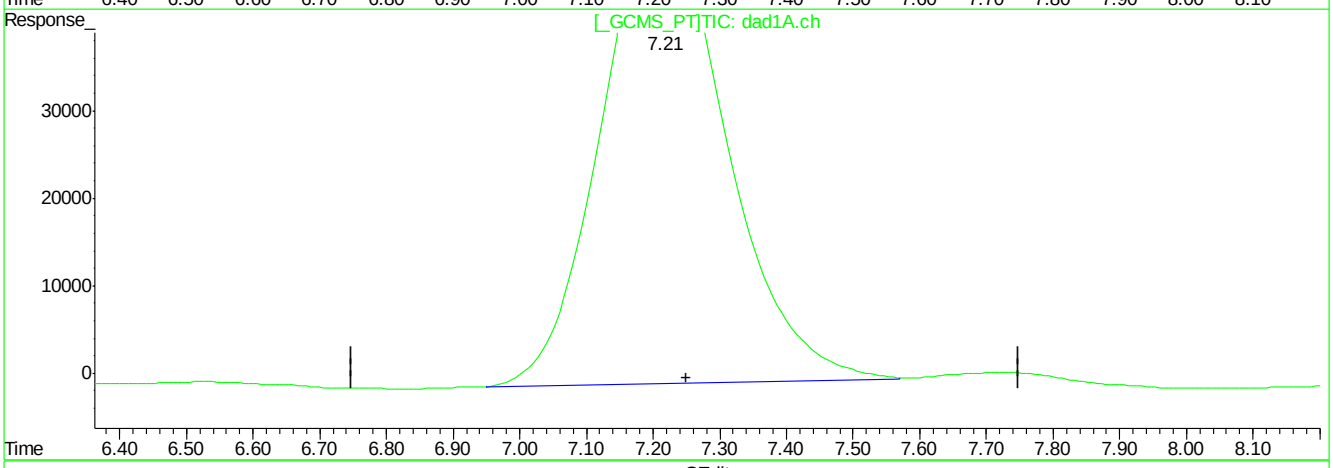
(+) = Expected Retention Time
GG618373.D 8330RPB.M_092519.M Wed Feb 05 10:53:16 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618373.D\dad1B.ch Vial: 12
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618373.D\dad1A.ch
Acq On : 04-Feb-2020, 20:19:56 Operator: williamh
Sample : FA72036-2cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 10:39 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(5) 1,3,5-Trinitrobenzene

7.21min 678.420ppb m

response 7015720

(5) 1,3,5-Trinitrobenzene #2

7.21min 676.865ppb m

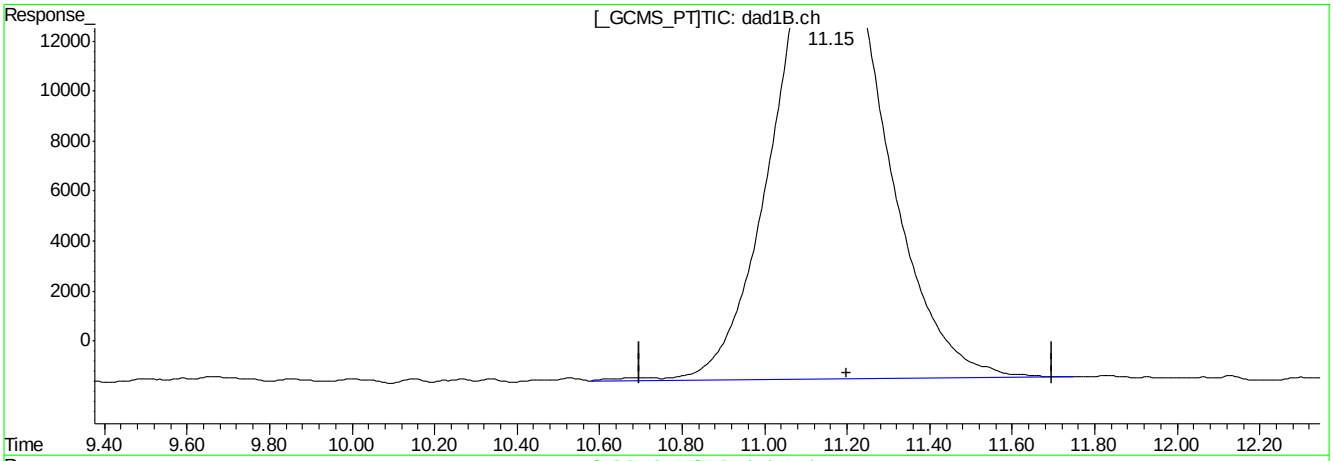
response 6999635

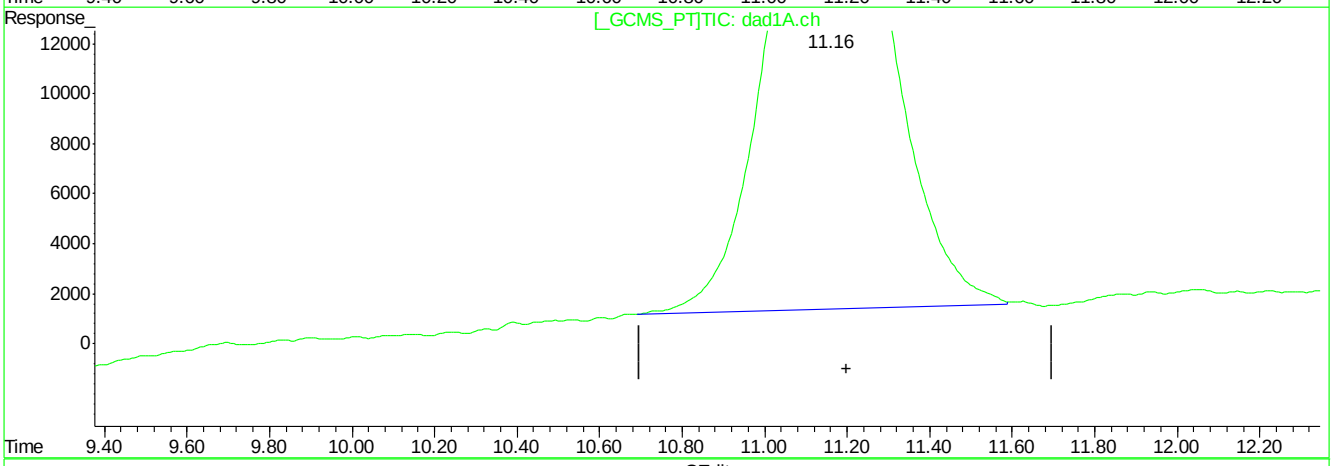
(+) = Expected Retention Time
GG618373.D 8330RPB.M_092519.M Wed Feb 05 10:53:26 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618373.D\dad1B.ch Vial: 12
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618373.D\dad1A.ch
Acq On : 04-Feb-2020, 20:19:56 Operator: williamh
Sample : FA72036-2cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 10:39 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.16min 338.706ppb

response 3453687

(9) 2,4,6-Trinitrotoluene #2

11.16min 356.521ppb m

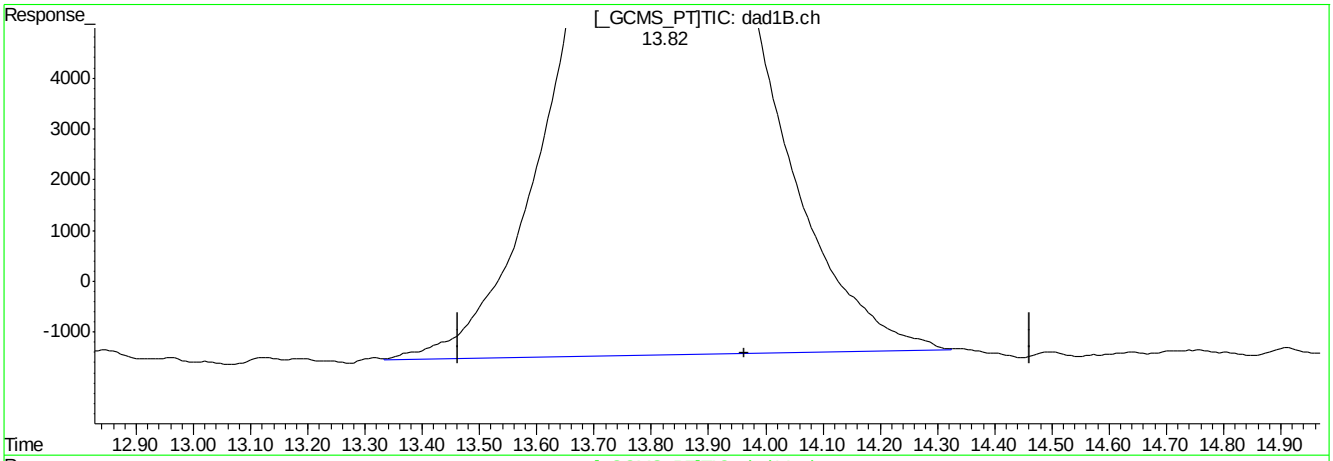
response 4712667

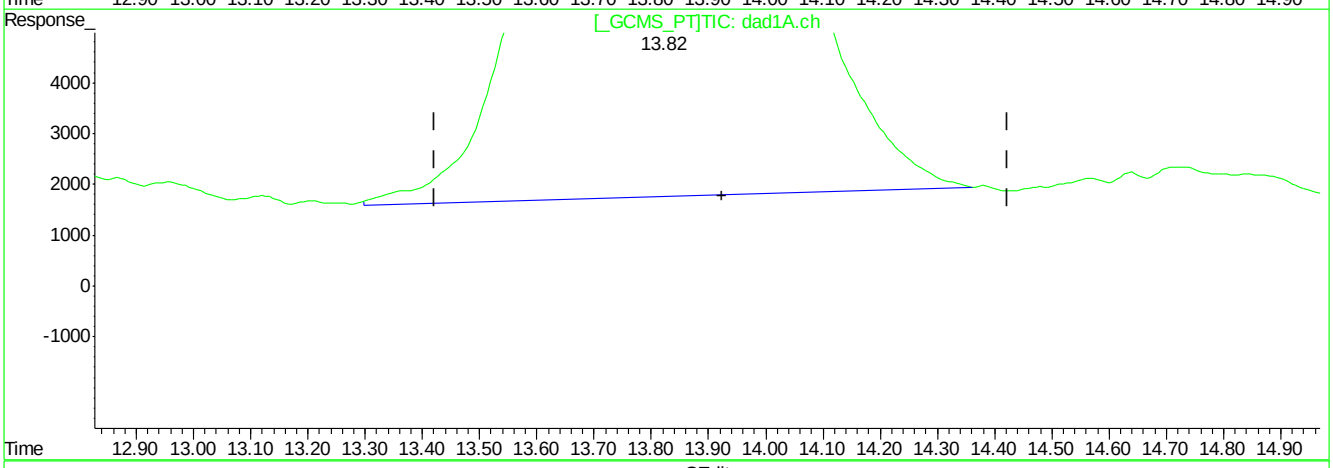
(+) = Expected Retention Time
GG618373.D 8330RPB.M_092519.M Wed Feb 05 10:53:39 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618373.D\dad1B.ch Vial: 12
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618373.D\dad1A.ch
Acq On : 04-Feb-2020, 20:19:56 Operator: williamh
Sample : FA72036-2cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 10:39 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(12) 3,4-Dinitrotoluene (S)

13.82min 649.641ppb m

response 2933384

(12) 3,4-Dinitrotoluene #2 (S)

13.82min 638.128ppb m

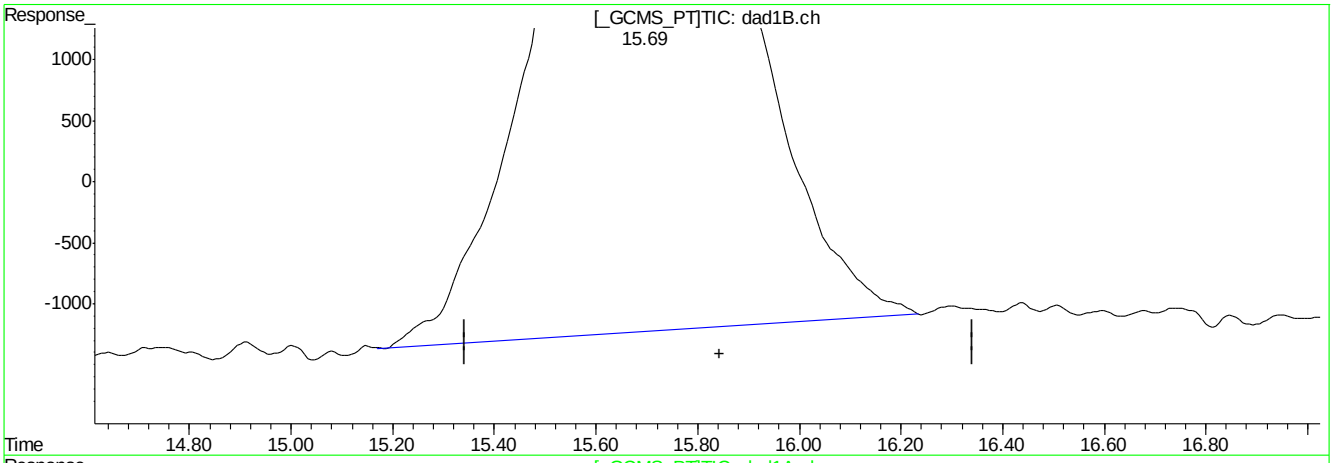
response 5733169

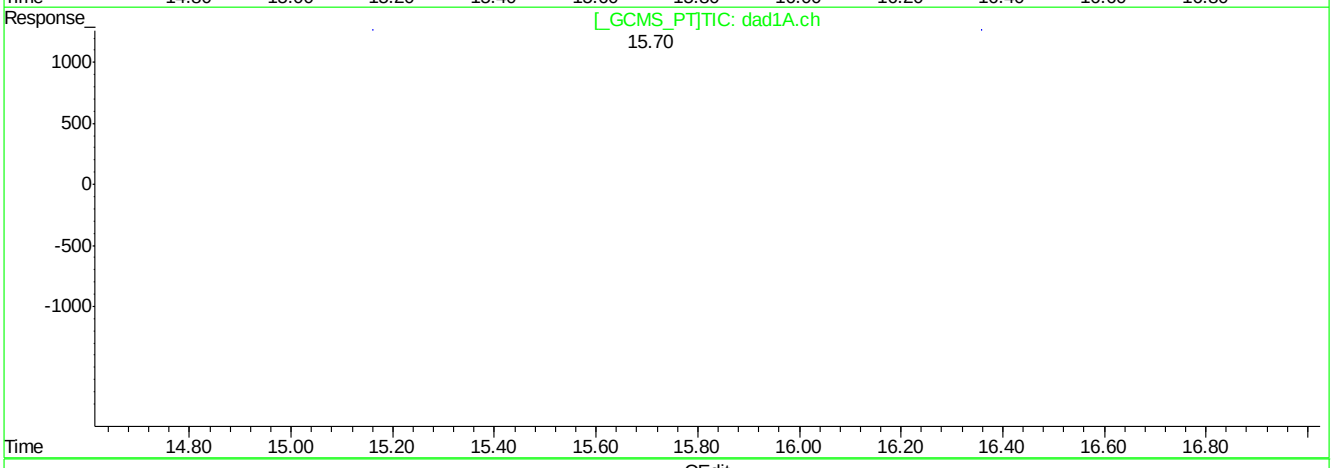
(+) = Expected Retention Time
GG618373.D 8330RPB.M_092519.M Wed Feb 05 10:53:49 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618373.D\dad1B.ch Vial: 12
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618373.D\dad1A.ch
Acq On : 04-Feb-2020, 20:19:56 Operator: williamh
Sample : FA72036-2cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 10:39 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(16) 3,5-Dinitroaniline

15.69min 145.008ppb m

response 1479517

(16) 3,5-Dinitroaniline #2

15.71min 165.939ppb

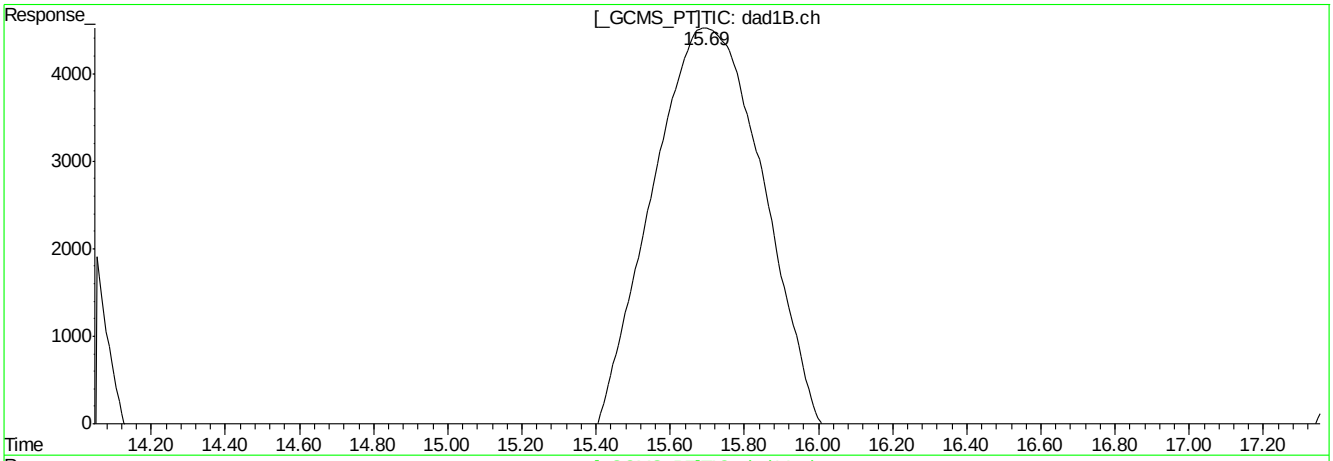
response 2754824

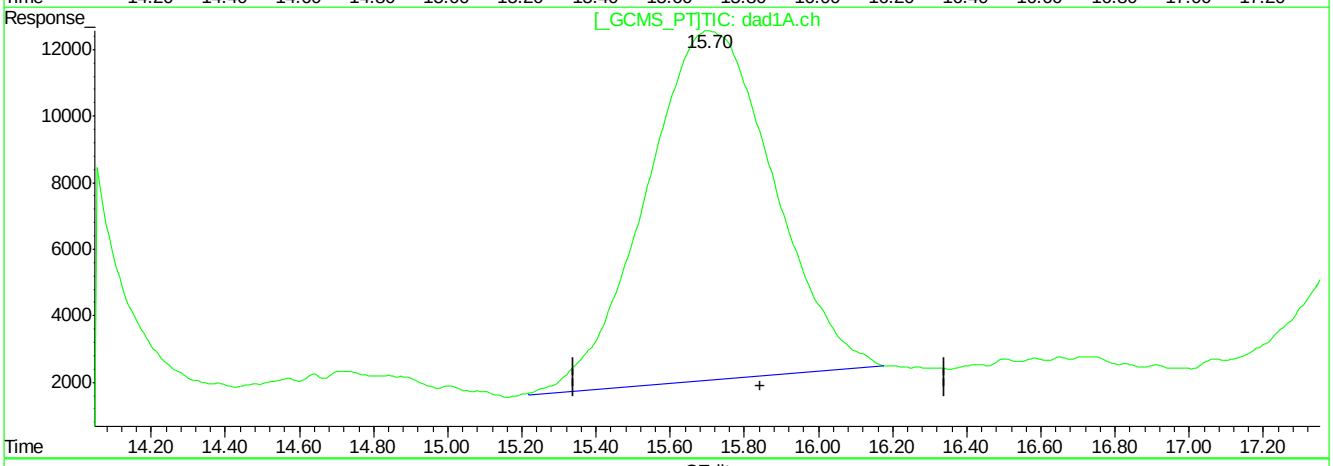
(+) = Expected Retention Time
GG618373.D 8330RPB.M_092519.M Wed Feb 05 10:53:56 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618373.D\dad1B.ch Vial: 12
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618373.D\dad1A.ch
Acq On : 04-Feb-2020, 20:19:56 Operator: williamh
Sample : FA72036-2cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 10:39 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(16) 3,5-Dinitroaniline

15.69min 145.008ppb m

response 1479517

(16) 3,5-Dinitroaniline #2

15.70min 150.989ppb m

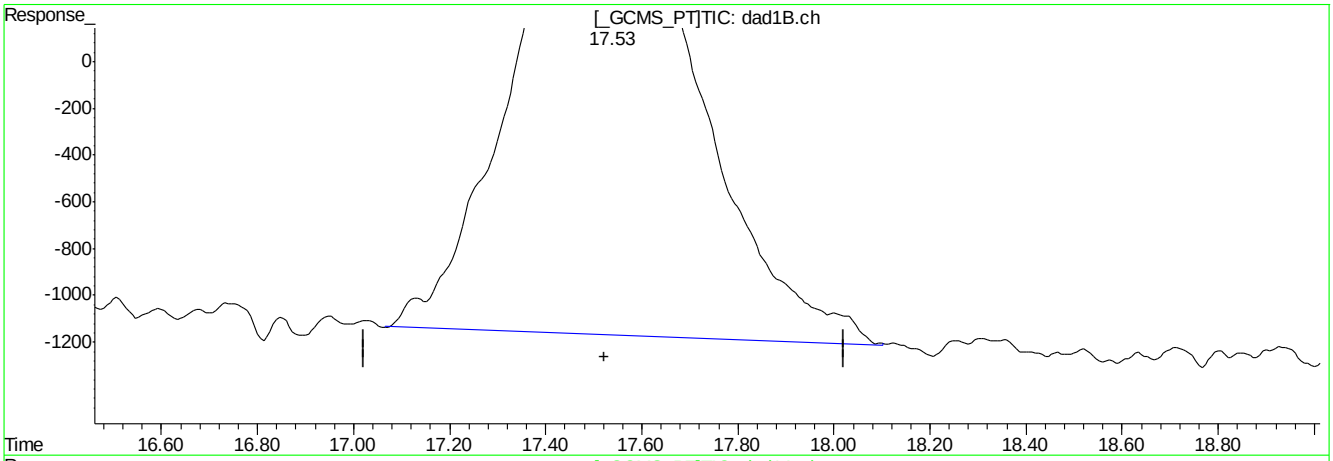
response 2506620

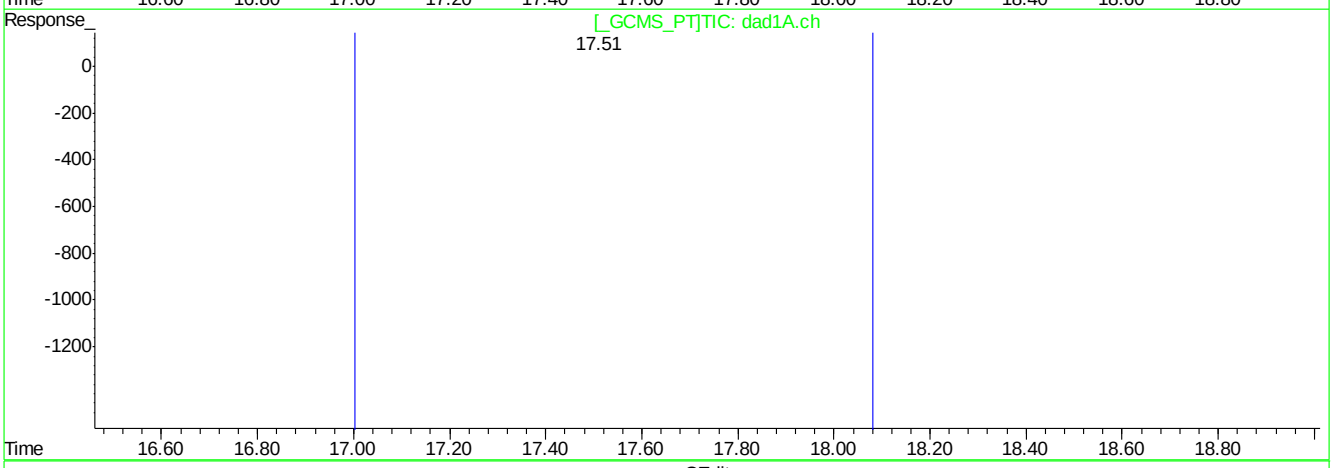
(+) = Expected Retention Time
GG618373.D 8330RPB.M_092519.M Wed Feb 05 10:54:01 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618373.D\dad1B.ch Vial: 12
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618373.D\dad1A.ch
Acq On : 04-Feb-2020, 20:19:56 Operator: williamh
Sample : FA72036-2cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 10:39 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(18) 4-Amino-2,6-Dinitrotoluene

17.53min 47.741ppb m

response 551998

(18) 4-Amino-2,6-Dinitrotoluene #2

17.52min 59.490ppb

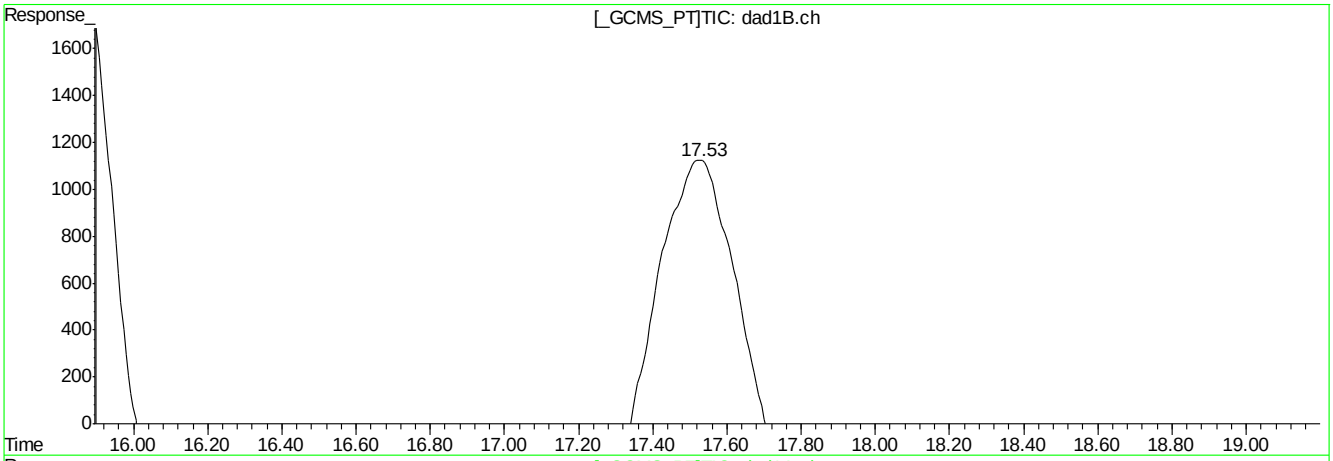
response 1291953

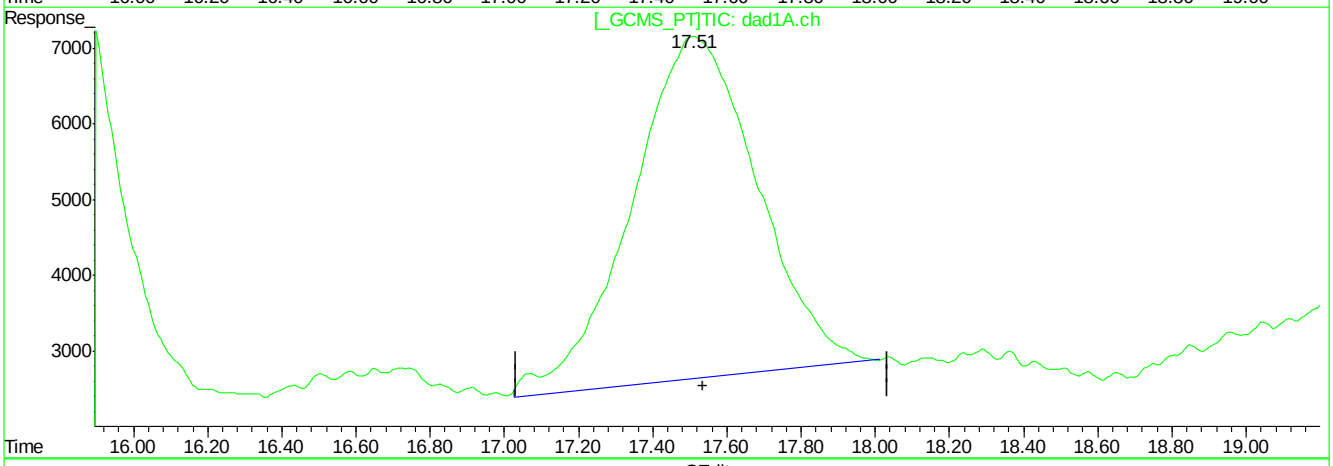
(+) = Expected Retention Time
GG618373.D 8330RPB.M_092519.M Wed Feb 05 10:54:07 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618373.D\dad1B.ch Vial: 12
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618373.D\dad1A.ch
Acq On : 04-Feb-2020, 20:19:56 Operator: williamh
Sample : FA72036-2cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 10:39 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(18) 4-Amino-2,6-Dinitrotoluene

17.53min 47.741ppb m

response 551998

(18) 4-Amino-2,6-Dinitrotoluene #2

17.51min 48.973ppb m

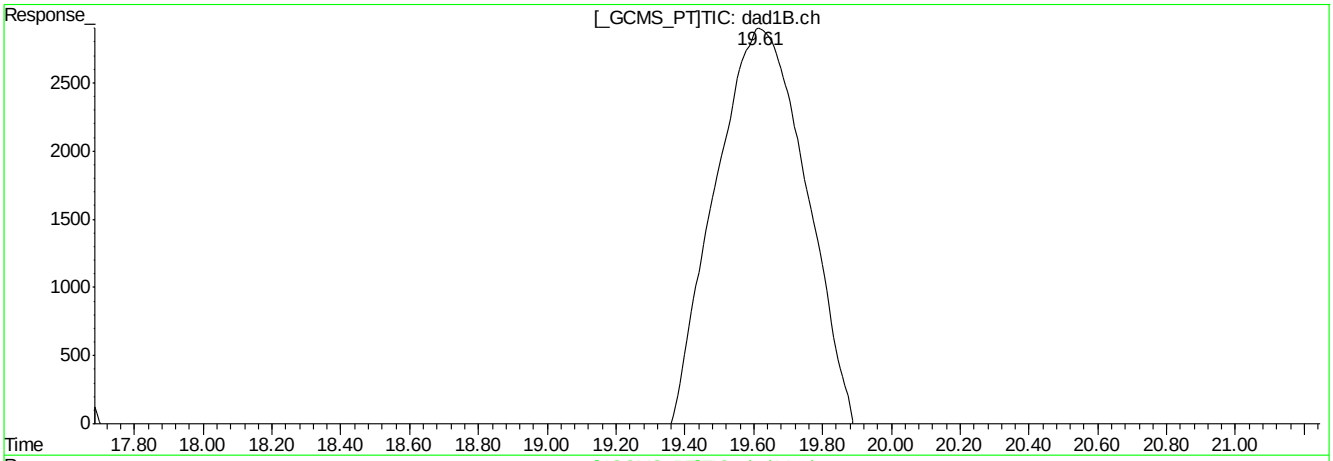
response 1063547

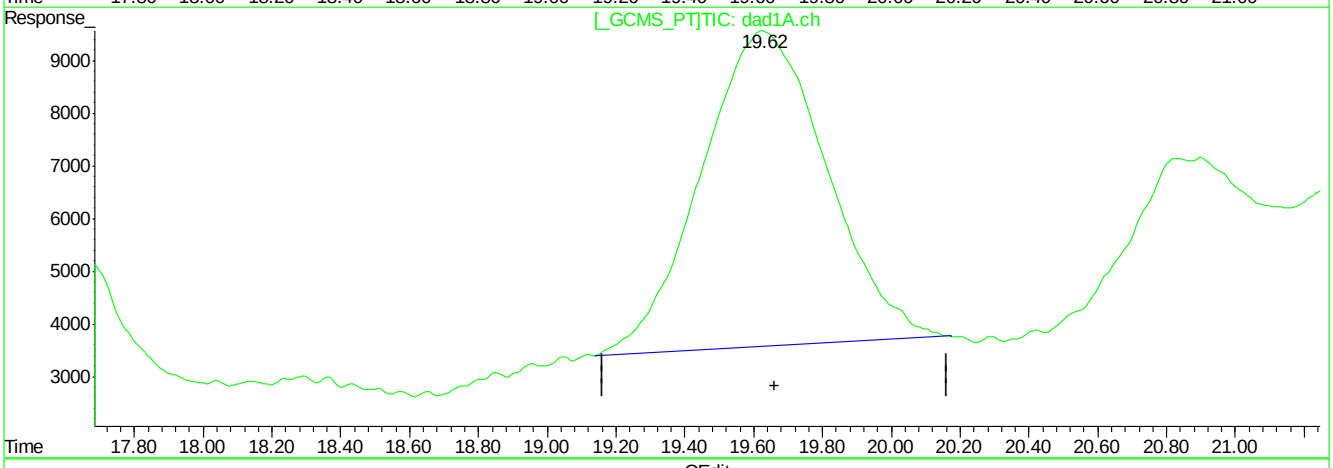
(+) = Expected Retention Time
GG618373.D 8330RPB.M_092519.M Wed Feb 05 10:54:12 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618373.D\dad1B.ch Vial: 12
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618373.D\dad1A.ch
Acq On : 04-Feb-2020, 20:19:56 Operator: williamh
Sample : FA72036-2cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 10:39 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(20) 2-Amino-4,6-Dinitrotoluene

19.62min 112.426ppb

response 1078802

(20) 2-Amino-4,6-Dinitrotoluene #2

19.62min 108.060ppb m

response 1516287

(+) = Expected Retention Time
GG618373.D 8330RPB.M_092519.M Wed Feb 05 10:54:19 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 02/05/20 17:05

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067861.D\dad1B.ch Vial: 14
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067861.D\dad1A.ch
Acq On : 03-Feb-2020, 19:18:57 Operator: williamh
Sample : FA72036-3 Inst : G1315B
Misc : op78763,GBB1981,1060,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 04 09:30:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	11.26	11.26	1110740	1930946	562.517	557.786
	Spiked Amount 500.000	Range 70 - 136		Recovery =		112.50%	111.56%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	1.51	1.51	686986	1883192	451.870	437.325
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D. d	N.D. d
5)	RDX	2.97	2.97	97044	191028	50.685	61.483
6)	1,3,5-Trinitrobe	4.78	4.78	2815487	5379958	727.070m	718.698m
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D.	N.D.
8)	3,5-Dinitroanili	6.37	6.37	190396	319175	47.755	46.487m
9)	Nitrobenzene	0.00	0.00	0	0	N.D.	N.D.
10)	Nitroglycerin	0.00	0.00	0	0	N.D.	N.D.
11)	Tetryl	0.00	0.00	0	0	N.D.	N.D.
12)	2,4,6-Trinitroto	9.97	9.97	1398028	1670046	397.517	408.365
13)	2-Amino-4,6-Dini	10.40	10.40	379360	503482	117.493	101.735
14)	4-Amino-2,6-Dini	10.87	10.87	166007	258088	70.735	55.729
16)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
17)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
18)	o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
19)	p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20)	m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
21)	PETN	0.00	0.00	0	0	N.D. d	N.D. d

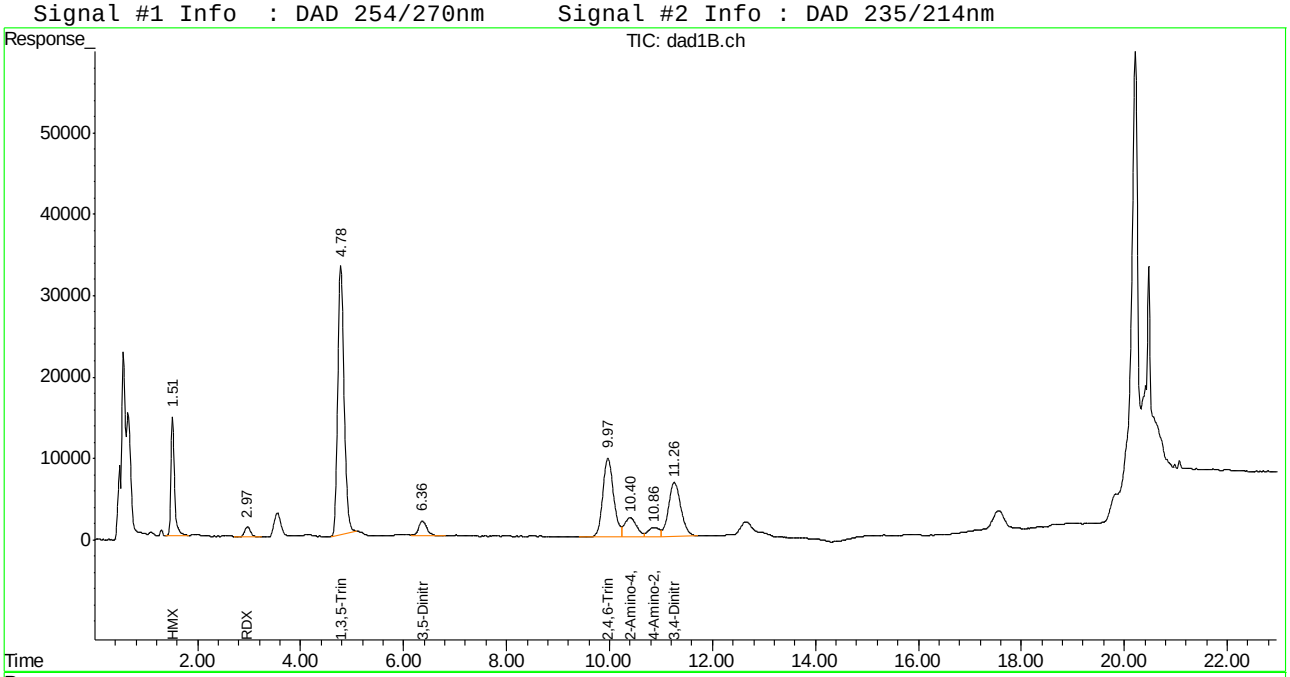
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB067861.D 8330B_012120_PLUS.M Tue Feb 04 11:21:46 2020 Page 1

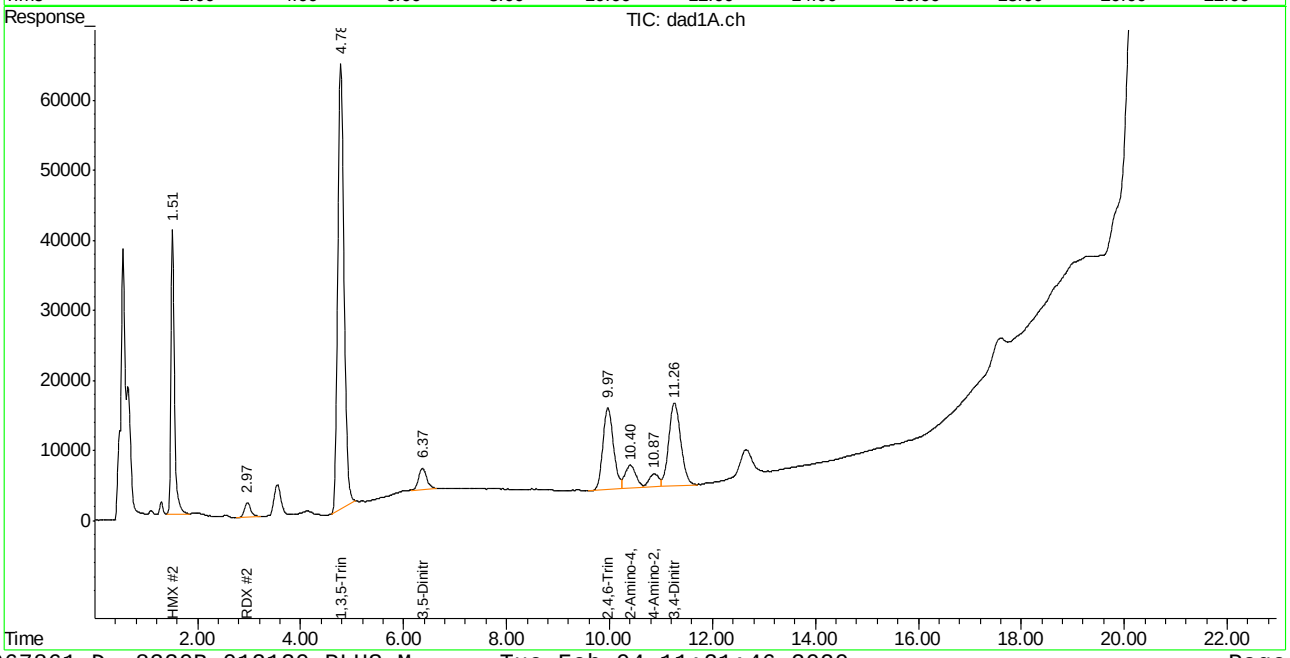
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067861.D\dad1B.ch Vial: 14
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067861.D\dad1A.ch
Acq On : 03-Feb-2020, 19:18:57 Operator: williamh
Sample : FA72036-3 Inst : G1315B
Misc : op78763,GBB1981,1060,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 10:12 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

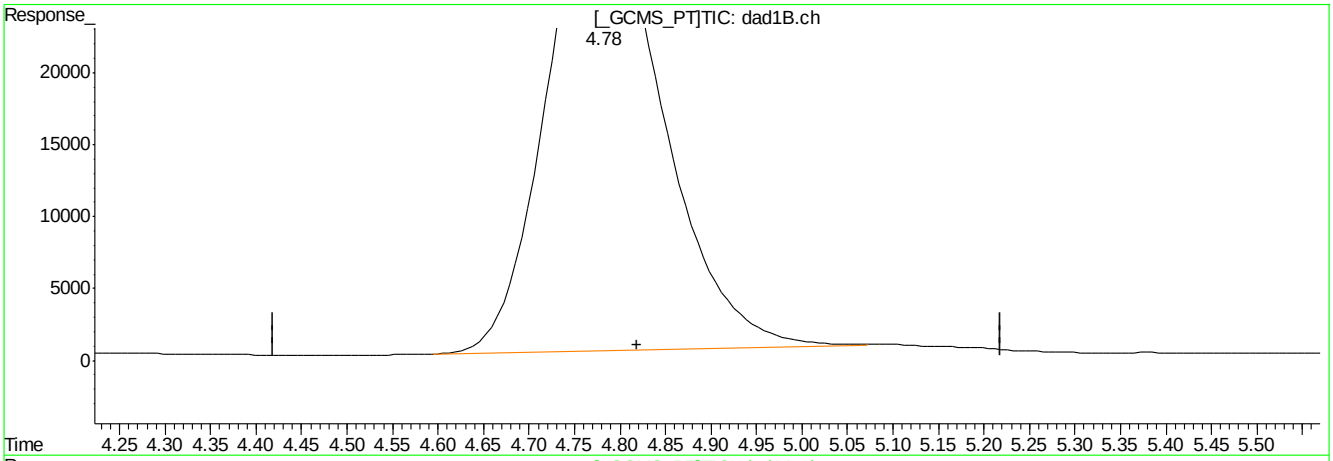
Sample Number: FA72036-3
Lab FileID: BB067861.D
Injection Time: 02/03/20 19:18
Method: SW846 8330B
Analyst approved: 02/05/20 15:48 William Hustedde
Supervisor approved: 02/05/20 17:05 Naresh Jiawan

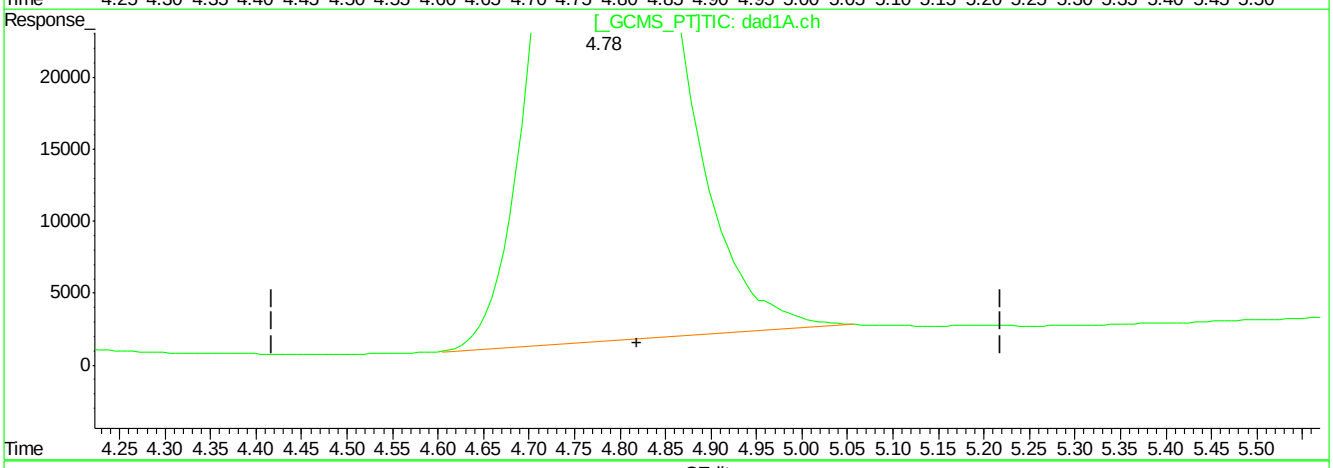
Parameter	CAS	Sig#	R.T. (min.)	Reason
1,3,5-Trinitrobenzene	99-35-4	1	4.78	Poor instrument integration
1,3,5-Trinitrobenzene	99-35-4	2	4.78	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	6.37	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067861.D\dad1B.ch Vial: 14
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067861.D\dad1A.ch
Acq On : 03-Feb-2020, 19:18:57 Operator: williamh
Sample : FA72036-3 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(6) 1,3,5-Trinitrobenzene

4.78min 727.070ppb m

response 2815487

(6) 1,3,5-Trinitrobenzene #2

4.78min 718.698ppb m

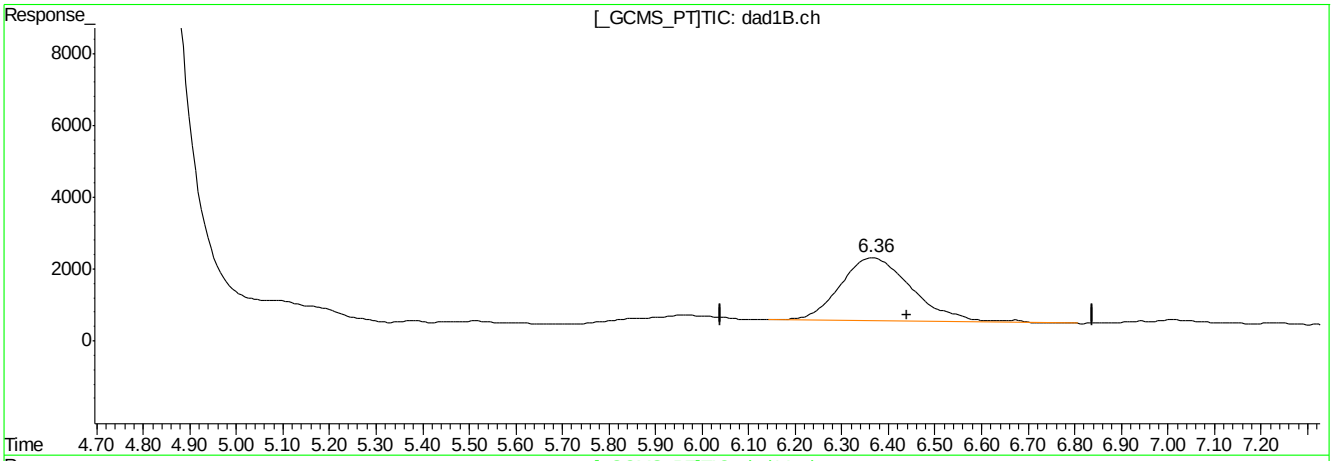
response 5379958

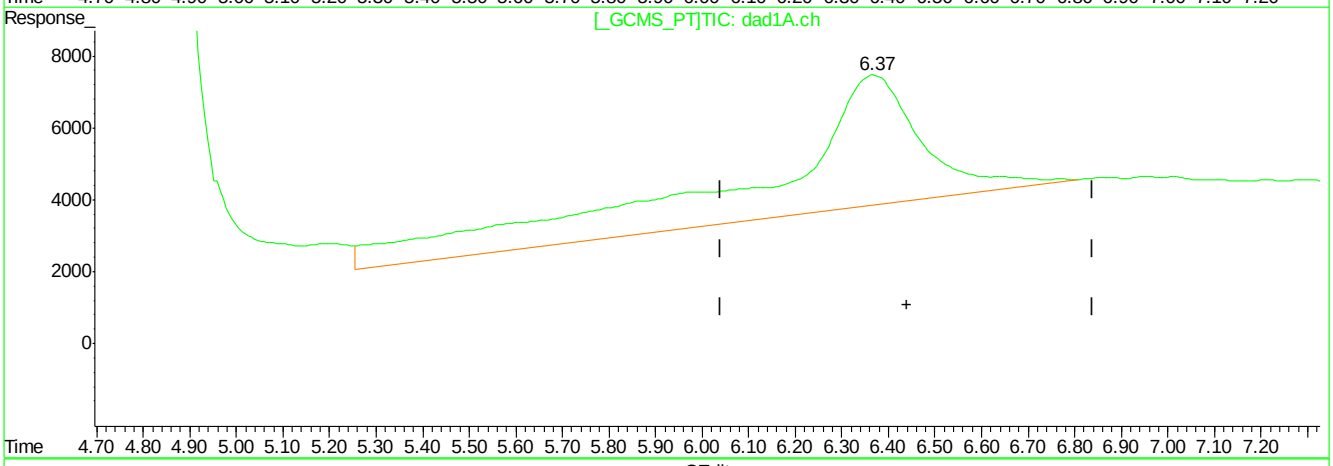
(+) = Expected Retention Time
BB067861.D 8330B_012120_PLUS.M Tue Feb 04 10:12:03 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067861.D\dad1B.ch Vial: 14
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067861.D\dad1A.ch
Acq On : 03-Feb-2020, 19:18:57 Operator: williamh
Sample : FA72036-3 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.37min 47.755ppb

response 190396

(8) 3,5-Dinitroaniline #2

6.37min 134.919ppb

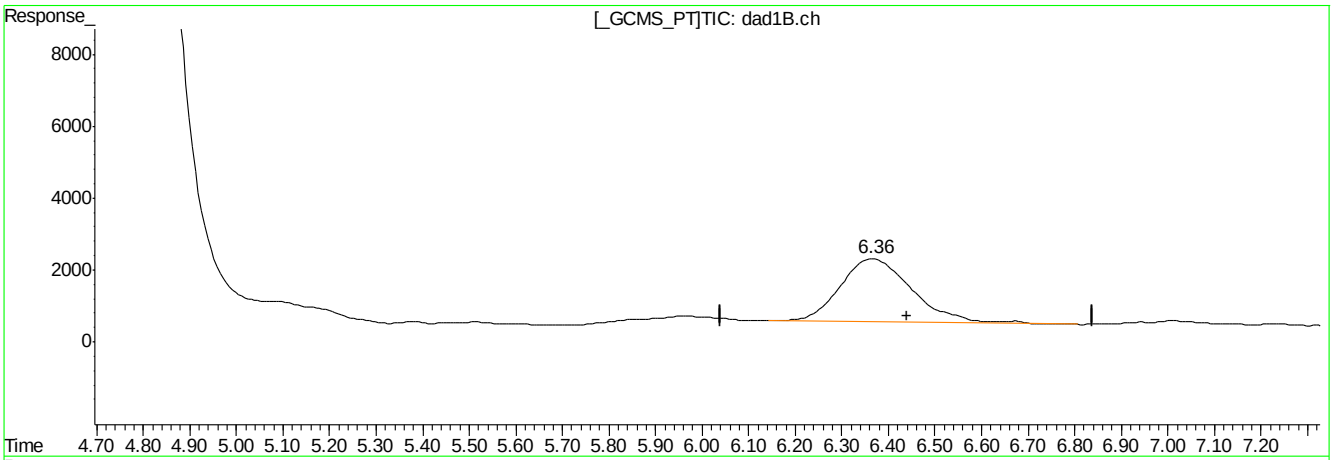
response 926345

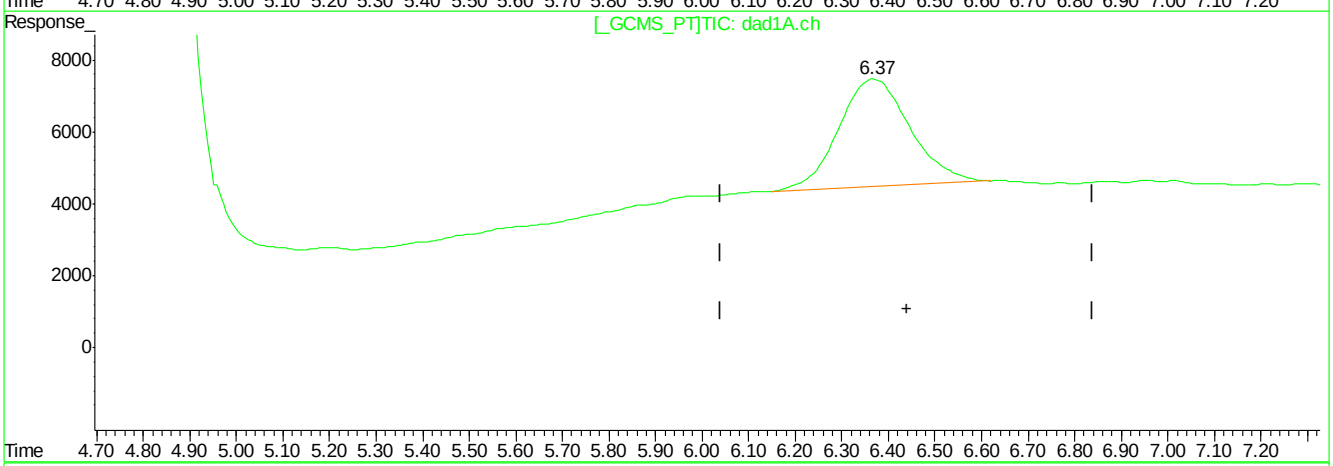
(+) = Expected Retention Time
BB067861.D 8330B_012120_PLUS.M Tue Feb 04 10:12:16 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067861.D\dad1B.ch Vial: 14
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067861.D\dad1A.ch
Acq On : 03-Feb-2020, 19:18:57 Operator: williamh
Sample : FA72036-3 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.37min 47.755ppb

response 190396

(8) 3,5-Dinitroaniline #2

6.37min 46.487ppb m

response 319175

(+) = Expected Retention Time
BB067861.D 8330B_012120_PLUS.M Tue Feb 04 10:12:22 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
02/05/20 17:05

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2807\GG618384.D\dad1B.ch Vial: 13
Signal #2 : C:\HPCHEM\1\DATA\GGG2807\GG618384.D\dad1A.ch
Acq On : 05-Feb-2020, 11:37:19 Operator: williamh
Sample : FA72036-3cf Inst : G1315B
Misc : op78763,ggg2807,1060,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 05 15:06:59 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.79	13.79	2922499	5697591	647.230m	634.178m
	Spiked Amount 500.000	Range 70 - 136		Recovery =		129.45%	126.84%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	5.45	5.45	1440342	1435854	483.399m	478.761m
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D. d	N.D. d
5)	1,3,5-Trinitrobe	7.20	7.20	6872859	6872859	664.606	664.606
6)	RDX	7.70	7.70	272159	272159	53.682	53.682
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D. d	N.D. d
8)	Nitrobenzene	0.00	0.00	0	0	N.D. d	N.D. d
9)	2,4,6-Trinitroto	11.14	11.14	3317348	4460288	325.335	337.428m
10)	Nitroglycerin	0.00	0.00	0	0	N.D. d	N.D. d
11)	Tetryl	0.00	0.00	0	0	N.D. d	N.D. d
13)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
14)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
15)	o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
16)	3,5-Dinitroanili	15.66	15.66	1434345	2495344	140.581m	150.309m
17)	p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
18)	4-Amino-2,6-Dini	17.49	17.50	598344	1075784	51.749	49.536
19)	m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20)	2-Amino-4,6-Dini	19.58	19.57	1090104	1518097	113.604	108.189m
21)	PETN	0.00	0.00	0	0	N.D. d	N.D. d

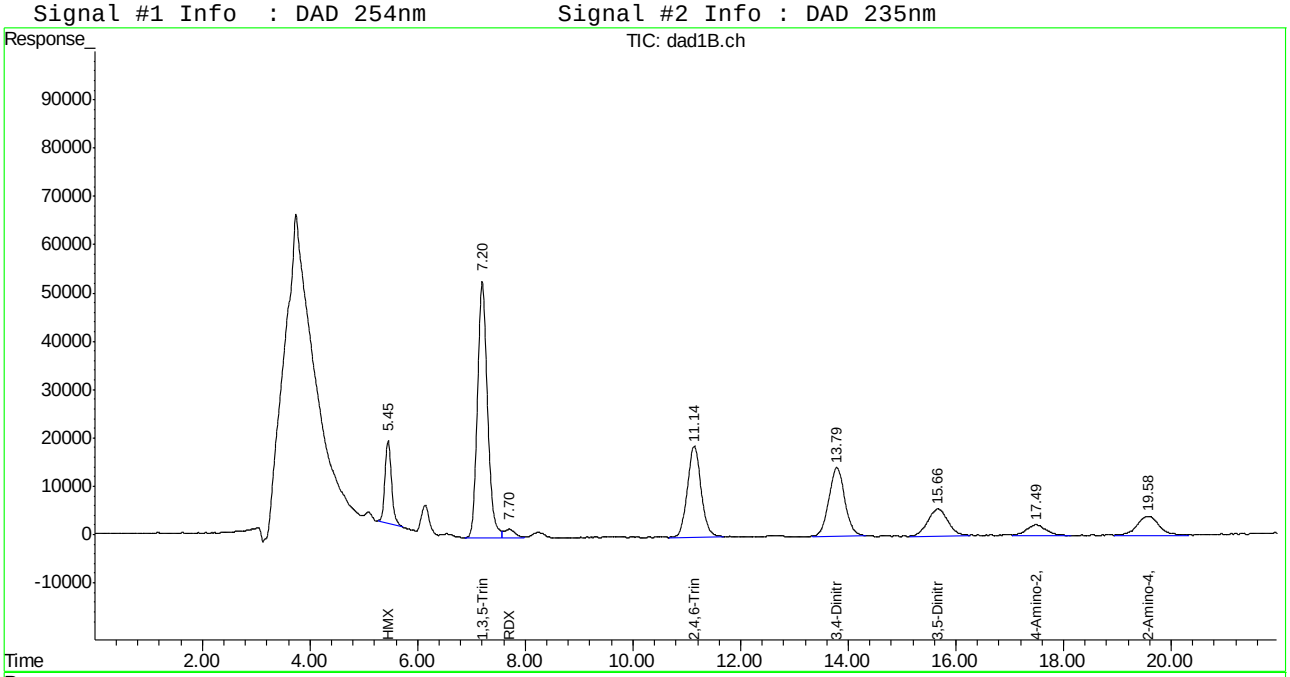
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
GG618384.D 8330RPB.M_092519.M Wed Feb 05 15:40:11 2020 Page 1

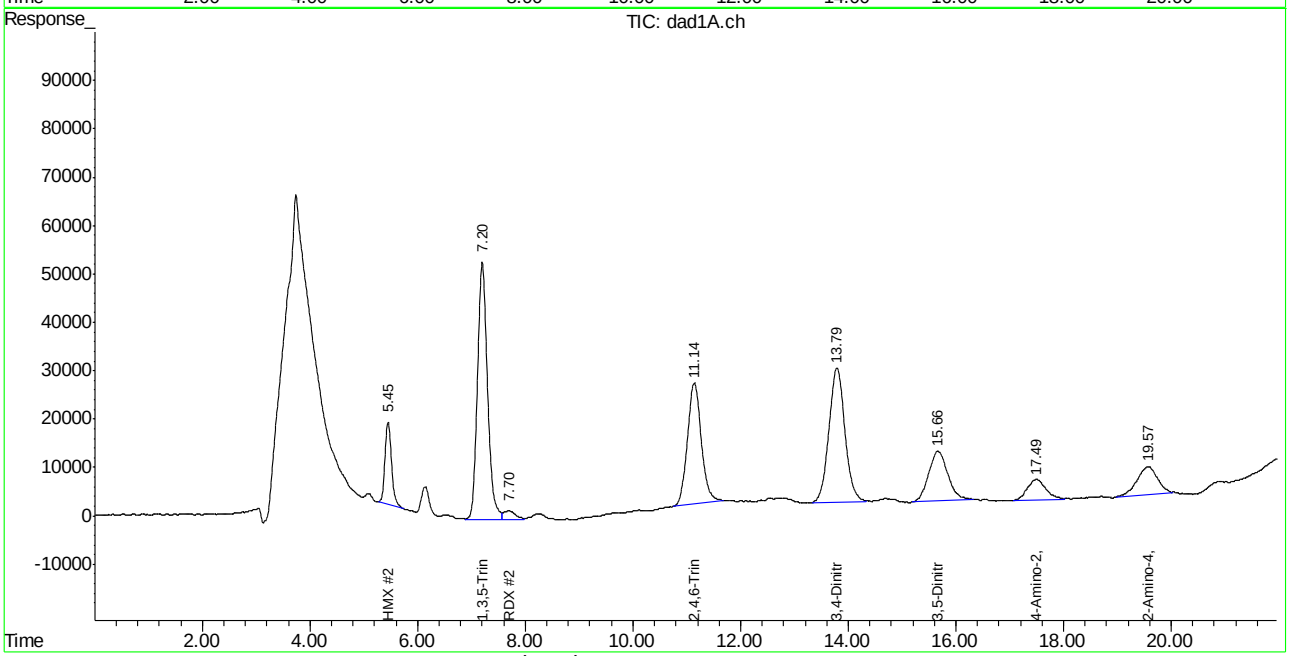
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2807\GG618384.D\dad1B.ch Vial: 13
Signal #2 : C:\HPCHEM\1\DATA\GGG2807\GG618384.D\dad1A.ch
Acq On : 05-Feb-2020, 11:37:19 Operator: williamh
Sample : FA72036-3cf Inst : G1315B
Misc : op78763,ggg2807,1060,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 15:17 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





GG618384.D 8330RPB.M_092519.M Wed Feb 05 15:40:11 2020 Page 2

Manual Integration Approval Summary

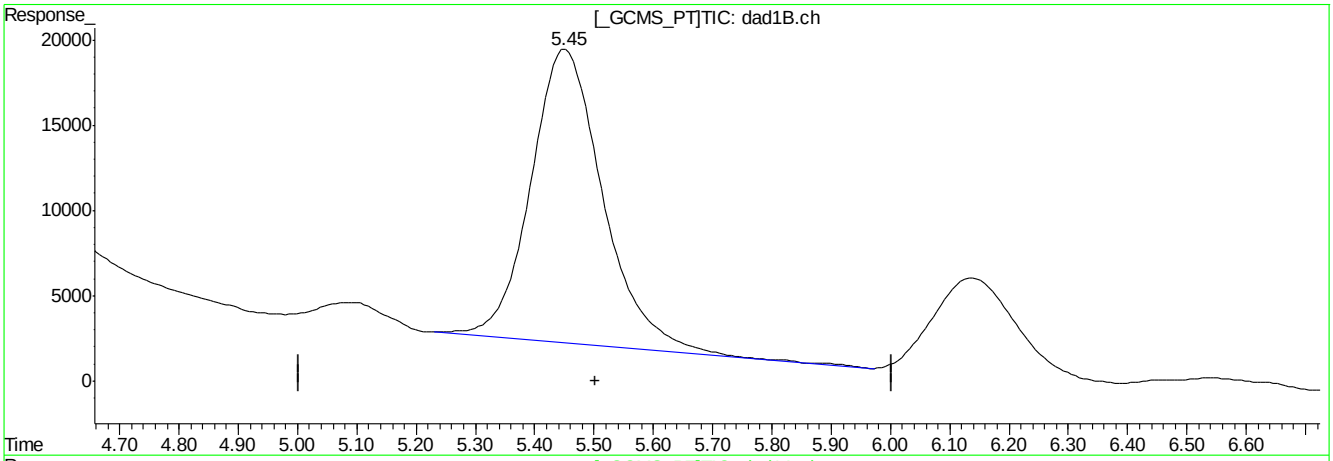
Sample Number: FA72036-3
Lab FileID: GG618384.D
Injection Time: 02/05/20 11:37
Method: SW846 8330B
Analyst approved: 02/05/20 15:48 William Hustedde
Supervisor approved: 02/05/20 17:05 Naresh Jiawan

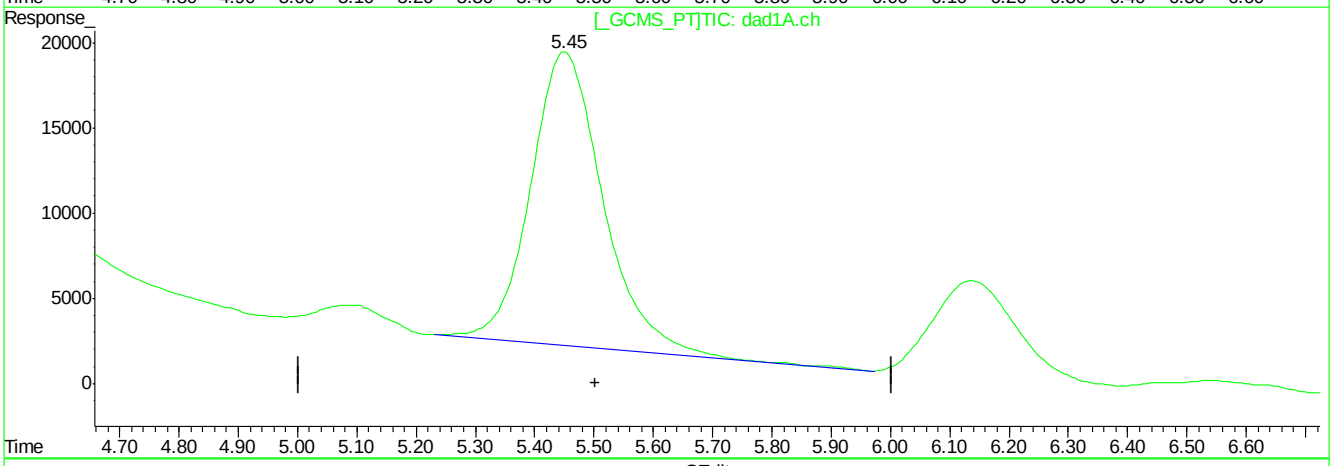
Parameter	CAS	Sig#	R.T. (min.)	Reason
HMX	2691-41-0	1	5.45	Poor instrument integration
HMX	2691-41-0	2	5.45	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	2	11.14	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	1	13.79	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	2	13.79	Poor instrument integration
3,5-Dinitroaniline	618-87-1	1	15.66	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	15.66	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	2	19.57	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2807\GG618384.D\dad1B.ch Vial: 13
Signal #2 : C:\HPCHEM\1\DATA\GGG2807\GG618384.D\dad1A.ch
Acq On : 05-Feb-2020, 11:37:19 Operator: williamh
Sample : FA72036-3cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 15:06 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.45min 493.212ppb

response 1469582

(2) HMX #2

5.45min 490.007ppb

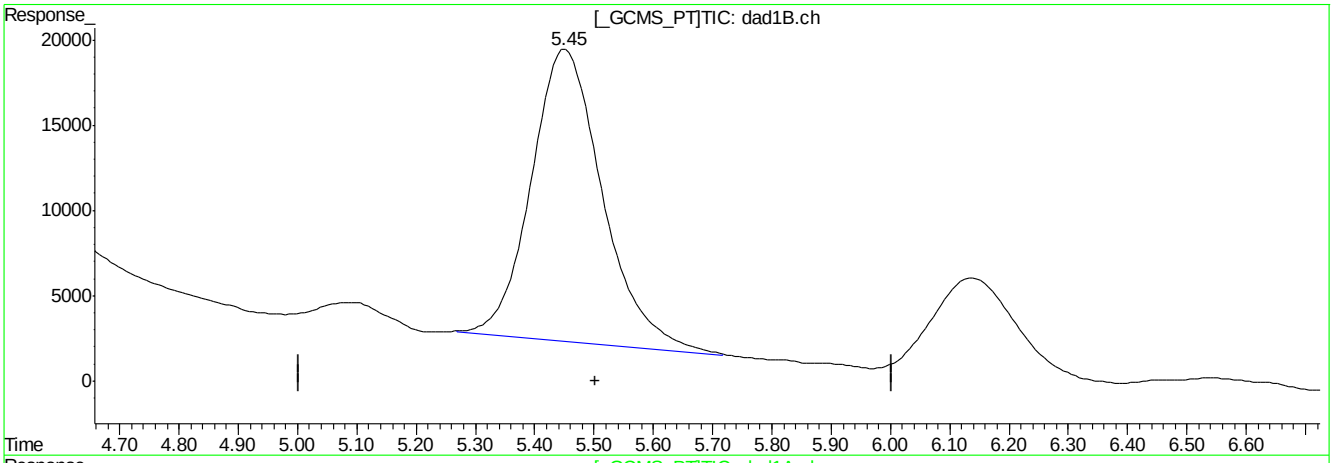
response 1469582

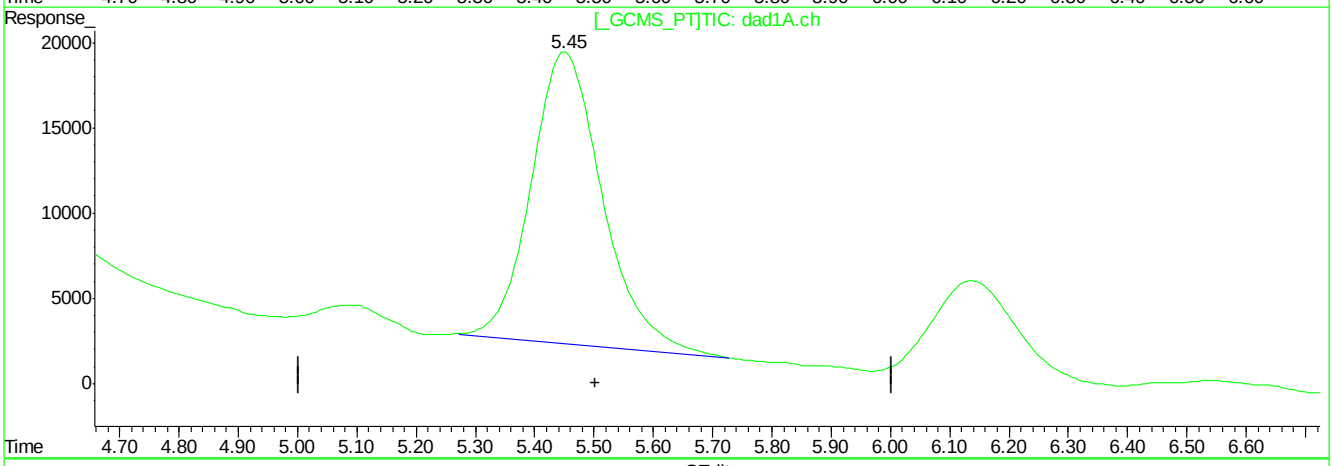
(+) = Expected Retention Time
GG618384.D 8330RPB.M_092519.M Wed Feb 05 15:13:53 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2807\GG618384.D\dad1B.ch Vial: 13
Signal #2 : C:\HPCHEM\1\DATA\GGG2807\GG618384.D\dad1A.ch
Acq On : 05-Feb-2020, 11:37:19 Operator: williamh
Sample : FA72036-3cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 15:06 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.45min 483.399ppb m

response 1440342

(2) HMX #2

5.45min 478.761ppb m

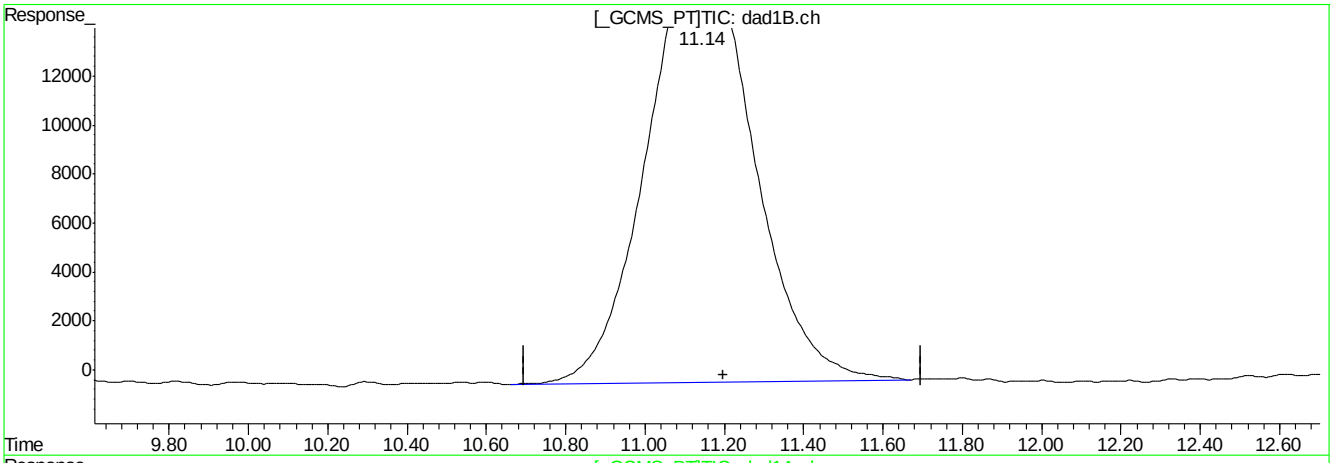
response 1435854

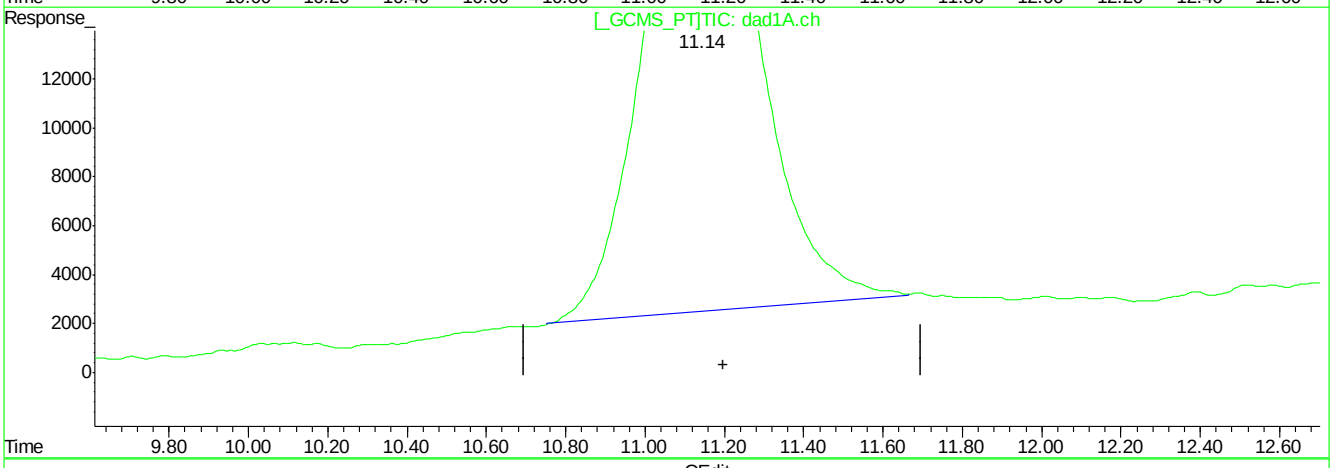
(+) = Expected Retention Time
GG618384.D 8330RPB.M_092519.M Wed Feb 05 15:14:02 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2807\GG618384.D\dad1B.ch Vial: 13
Signal #2 : C:\HPCHEM\1\DATA\GGG2807\GG618384.D\dad1A.ch
Acq On : 05-Feb-2020, 11:37:19 Operator: williamh
Sample : FA72036-3cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 15:06 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.14min 325.335ppb

response 3317348

(9) 2,4,6-Trinitrotoluene #2

11.14min 337.428ppb m

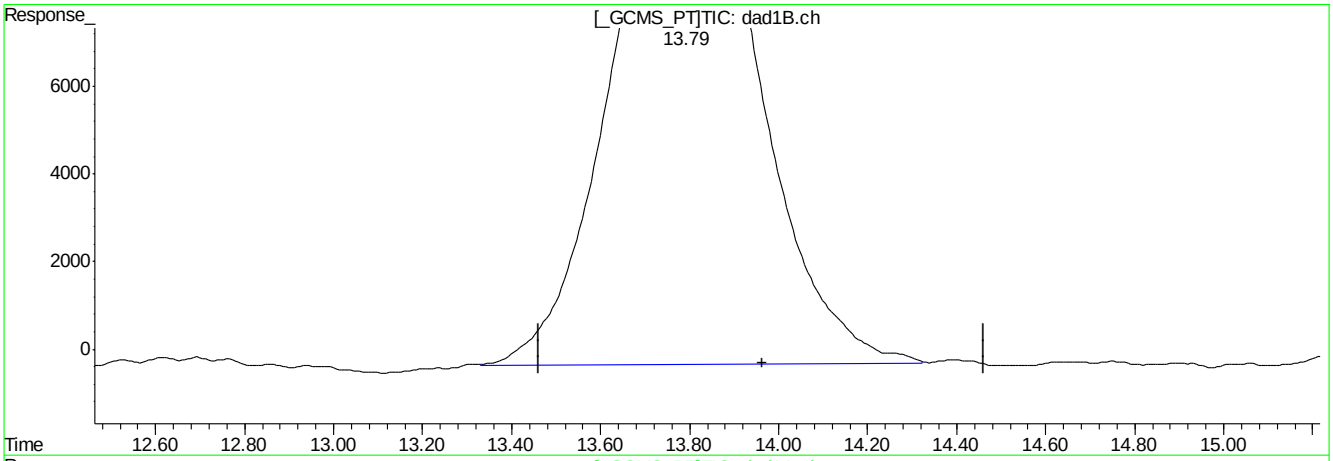
response 4460288

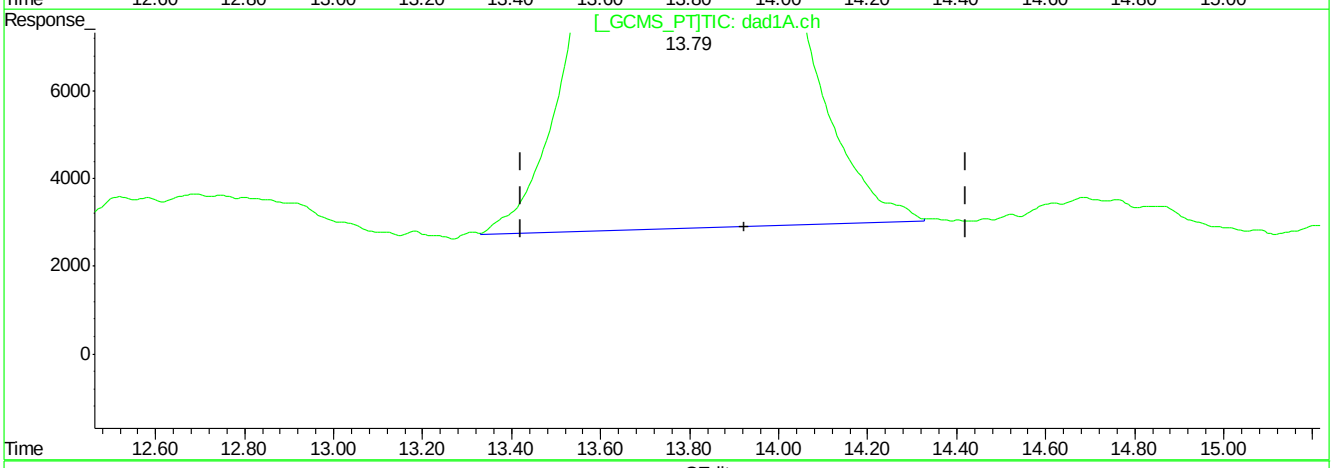
(+) = Expected Retention Time
GG618384.D 8330RPB.M_092519.M Wed Feb 05 15:14:17 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2807\GG618384.D\dad1B.ch Vial: 13
Signal #2 : C:\HPCHEM\1\DATA\GGG2807\GG618384.D\dad1A.ch
Acq On : 05-Feb-2020, 11:37:19 Operator: williamh
Sample : FA72036-3cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 15:06 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(12) 3,4-Dinitrotoluene (S)

13.79min 647.230ppb m

response 2922499

(12) 3,4-Dinitrotoluene #2 (S)

13.79min 634.178ppb m

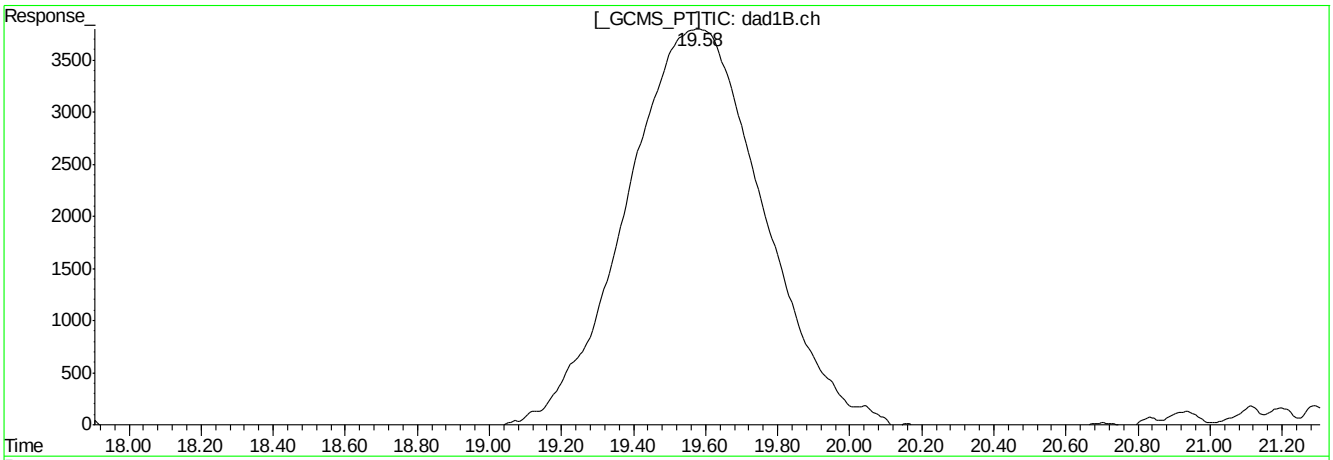
response 5697591

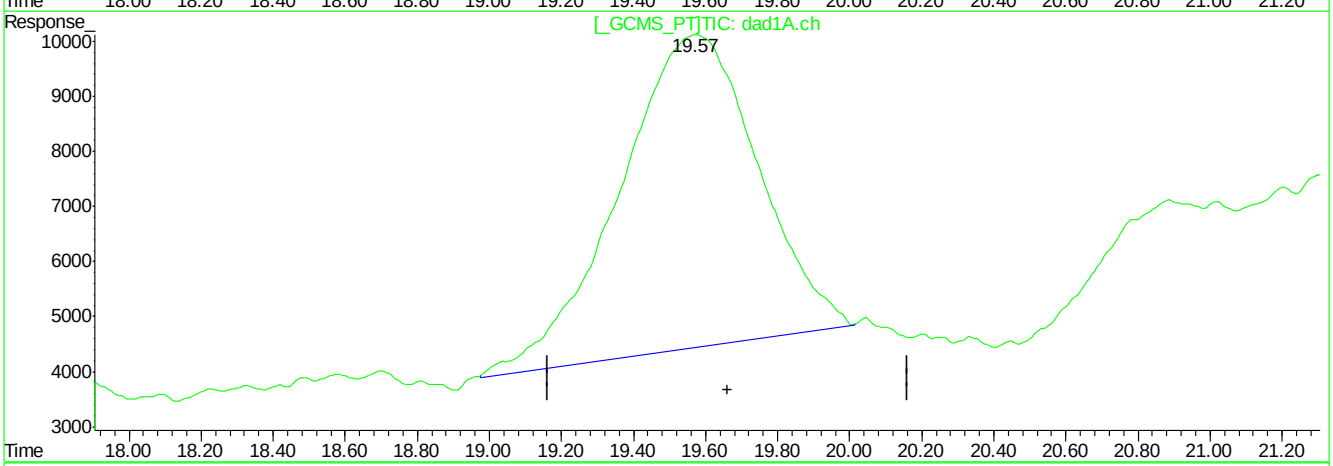
(+) = Expected Retention Time
GG618384.D 8330RPB.M_092519.M Wed Feb 05 15:14:32 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2807\GG618384.D\dad1B.ch Vial: 13
Signal #2 : C:\HPCHEM\1\DATA\GGG2807\GG618384.D\dad1A.ch
Acq On : 05-Feb-2020, 11:37:19 Operator: williamh
Sample : FA72036-3cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 15:06 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(20) 2-Amino-4,6-Dinitrotoluene

19.58min 113.604ppb

response 1090104

(20) 2-Amino-4,6-Dinitrotoluene #2

19.57min 108.189ppb m

response 1518097

(+) = Expected Retention Time
GG618384.D 8330RPB.M_092519.M Wed Feb 05 15:17:59 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 02/05/20 17:05

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067850.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067850.D\dad1A.ch
Acq On : 03-Feb-2020, 13:49:15 Operator: williamh
Sample : FA72036-4 Inst : G1315B
Misc : op78763,GBB1981,1060,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 04 09:30:08 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	11.35	11.35	1087990	1999506	550.995m	577.590
	Spiked Amount 500.000	Range 70 - 136		Recovery =		110.20%	115.52%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	1.53	1.53	2103856	6017456	1383.825	1397.406
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D.	N.D.
5)	RDX	3.00	3.00	114344	217087	59.720	69.869
6)	1,3,5-Trinitrobe	4.81	4.81	7100351	13545584	1833.592m	1809.529m
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D. d	N.D. d
8)	3,5-Dinitroanili	6.42	6.42	129184	204678	32.402	29.811m
9)	Nitrobenzene	0.00	0.00	0	0	N.D.	N.D.
10)	Nitroglycerin	0.00	0.00	0	0	N.D.	N.D.
11)	Tetryl	0.00	0.00	0	0	N.D.	N.D.
12)	2,4,6-Trinitroto	10.04	10.04	3808957	4522706	1083.044	1105.907
13)	2-Amino-4,6-Dini	10.52	10.52	1484022	2037887	459.620	411.780
14)	4-Amino-2,6-Dini	10.98	10.98	555291	875833	236.609	189.120
16)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D.	N.D.
17)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D.	N.D.
18)	o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
19)	p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20)	m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
21)	PETN	0.00	0.00	0	0	N.D. d	N.D. d

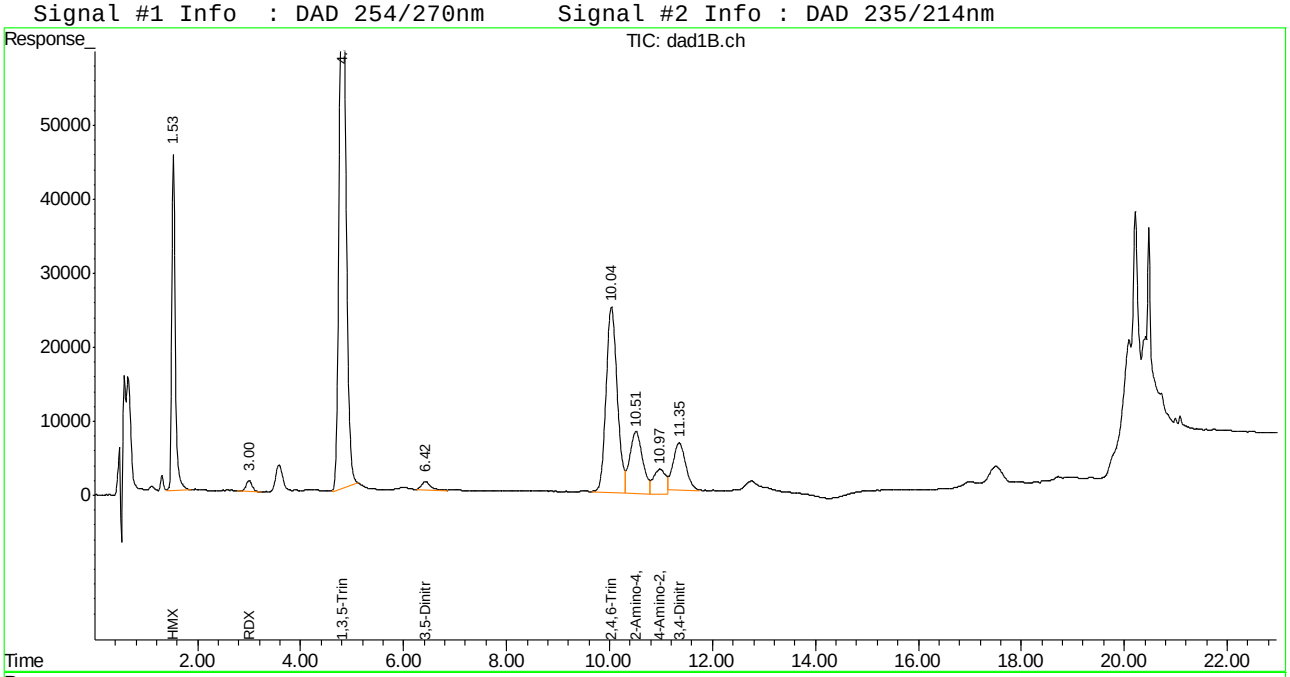
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB067850.D 8330B_012120_PLUS.M Tue Feb 04 11:21:36 2020 Page 1

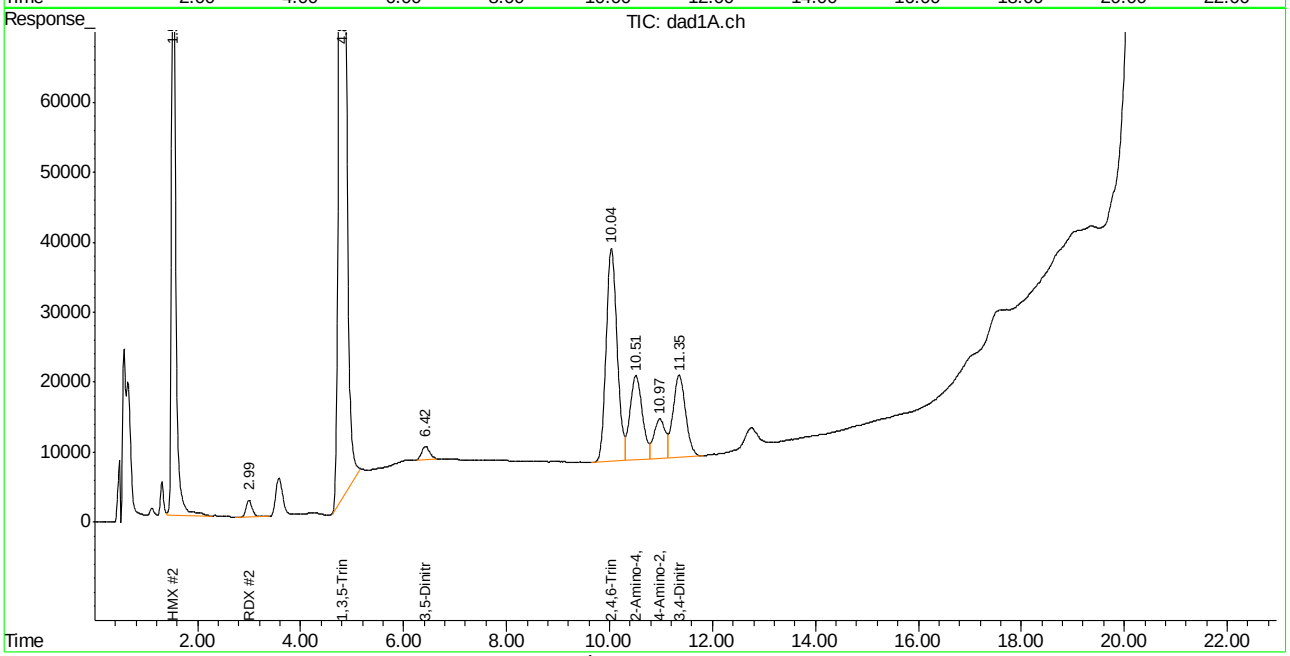
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067850.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067850.D\dad1A.ch
Acq On : 03-Feb-2020, 13:49:15 Operator: williamh
Sample : FA72036-4 Inst : G1315B
Misc : op78763,GBB1981,1060,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:47 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

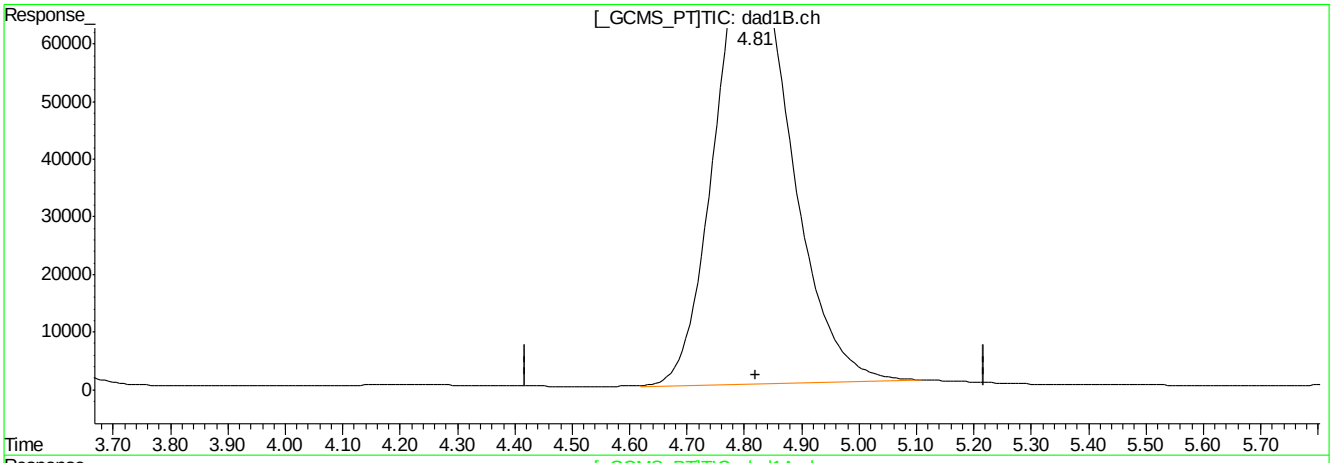
Sample Number: FA72036-4
Lab FileID: BB067850.D
Injection Time: 02/03/20 13:49
Method: SW846 8330B
Analyst approved: 02/05/20 15:49 William Hustedde
Supervisor approved: 02/05/20 17:05 Naresh Jiawan

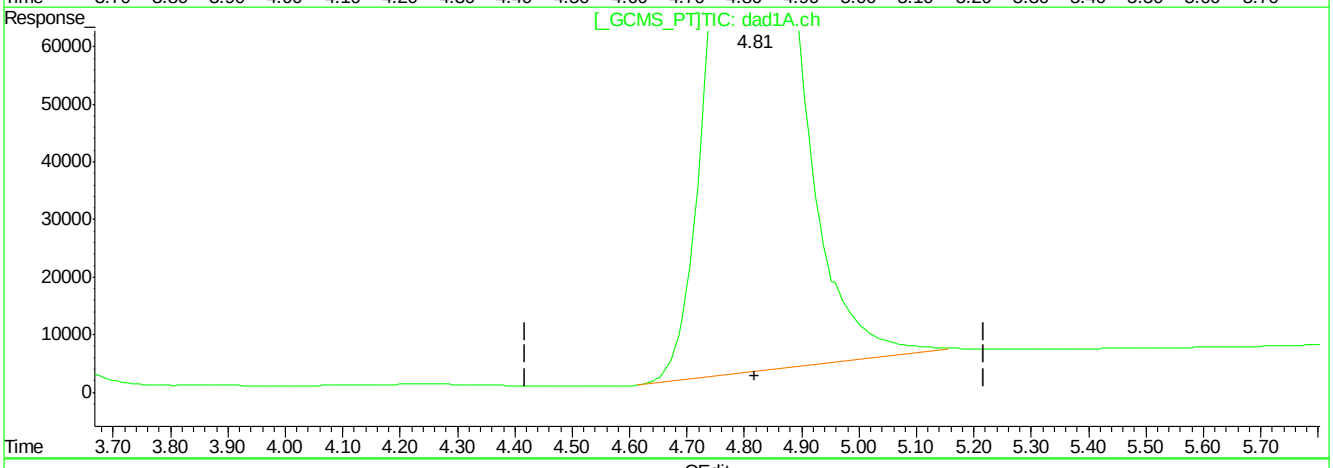
Parameter	CAS	Sig#	R.T. (min.)	Reason
1,3,5-Trinitrobenzene	99-35-4	1	4.81	Poor instrument integration
1,3,5-Trinitrobenzene	99-35-4	2	4.81	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	6.42	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	1	11.35	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067850.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067850.D\dad1A.ch
Acq On : 03-Feb-2020, 13:49:15 Operator: williamh
Sample : FA72036-4 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(6) 1,3,5-Trinitrobenzene

4.81min 1833.592ppb m

response 7100351

(6) 1,3,5-Trinitrobenzene #2

4.81min 1809.529ppb m

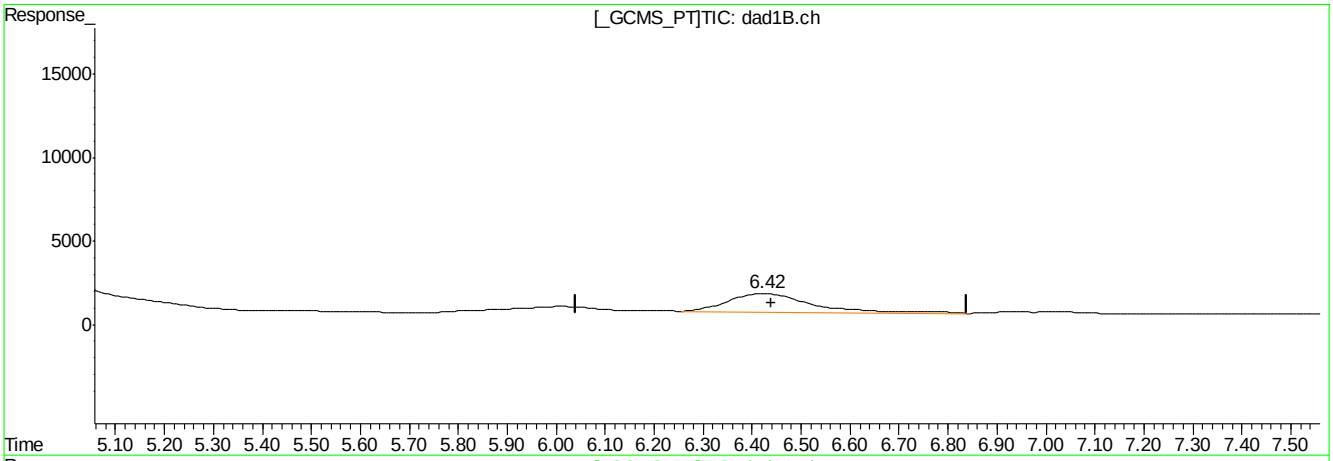
response 13545584

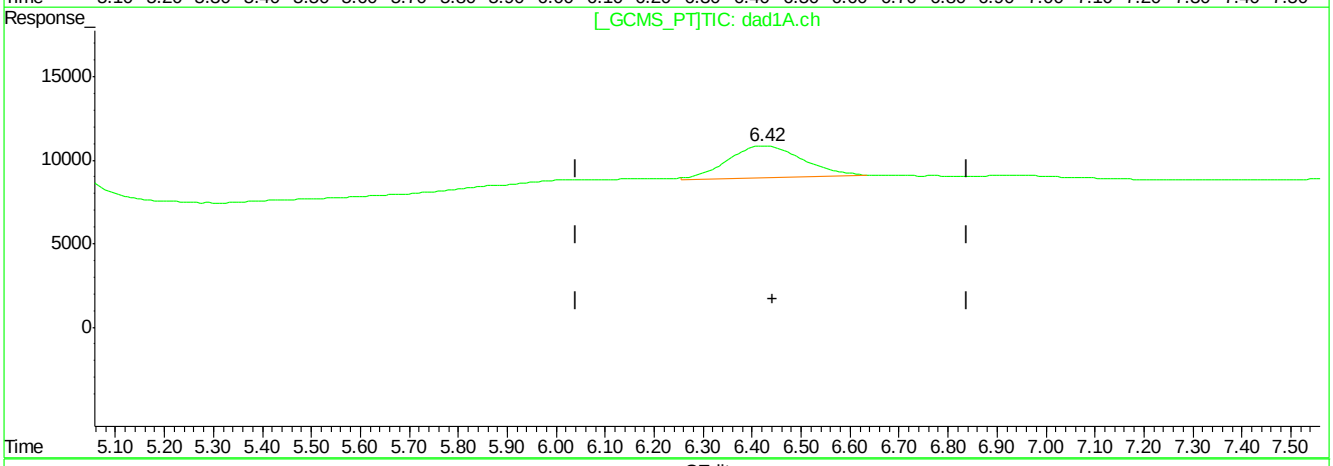
(+) = Expected Retention Time
BB067850.D 8330B_012120_PLUS.M Tue Feb 04 09:46:42 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067850.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067850.D\dad1A.ch
Acq On : 03-Feb-2020, 13:49:15 Operator: williamh
Sample : FA72036-4 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.42min 32.402ppb

response 129184

(8) 3,5-Dinitroaniline #2

6.42min 29.811ppb m

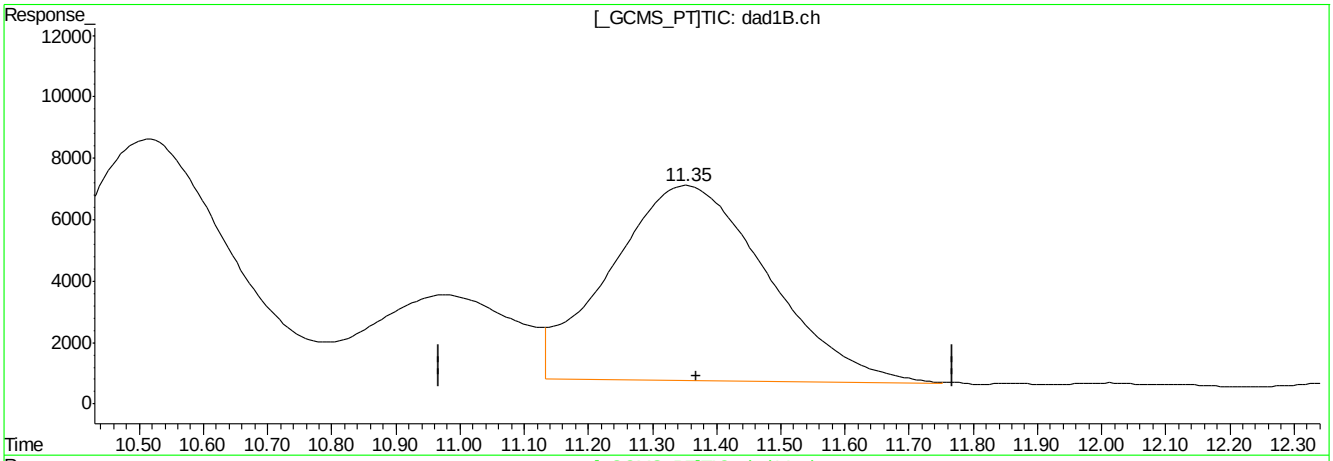
response 204678

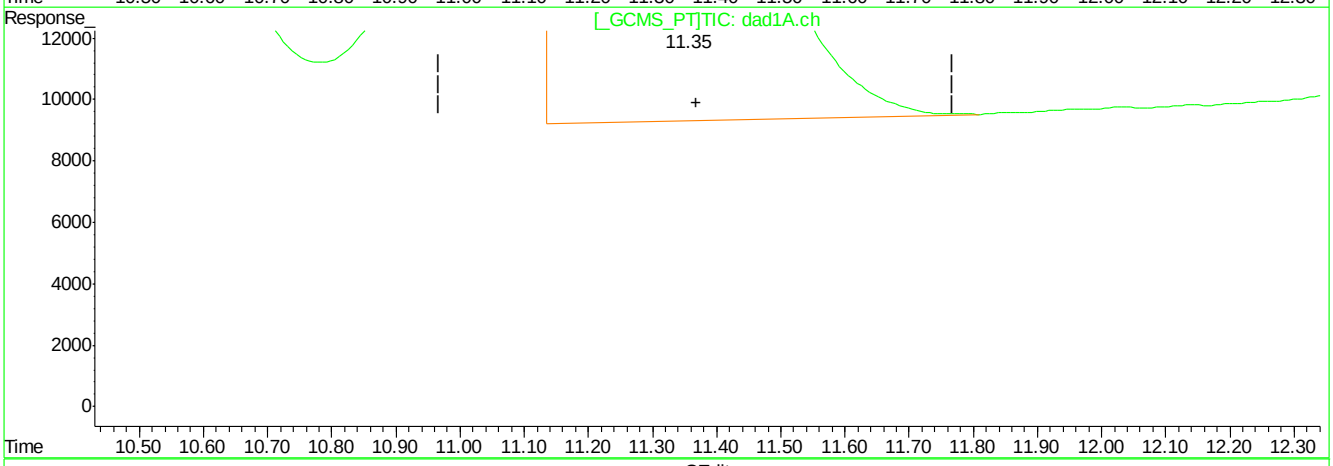
(+) = Expected Retention Time
BB067850.D 8330B_012120_PLUS.M Tue Feb 04 09:46:51 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067850.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067850.D\dad1A.ch
Acq On : 03-Feb-2020, 13:49:15 Operator: williamh
Sample : FA72036-4 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(15) 3,4-Dinitrotoluene (S)

11.35min 550.995ppb m

response 1087990

(15) 3,4-Dinitrotoluene #2 (S)

11.35min 577.590ppb

response 1999506

(+) = Expected Retention Time
BB067850.D 8330B_012120_PLUS.M Tue Feb 04 09:47:04 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
02/05/20 17:05

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2807\GG618385.D\dad1B.ch Vial: 14
Signal #2 : C:\HPCHEM\1\DATA\GGG2807\GG618385.D\dad1A.ch
Acq On : 05-Feb-2020, 12:06:43 Operator: williamh
Sample : FA72036-4cf Inst : G1315B
Misc : op78763,ggg2807,1060,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 05 15:07:00 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.78	13.78	2909777	5621835	644.413m	625.767m
	Spiked Amount 500.000	Range 70 - 136		Recovery =		128.88%	125.15%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	5.45	5.45	4778107	4776957	1603.599m	1592.794m
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D. d	N.D. d
5)	1,3,5-Trinitrobe	7.20	7.20	17524312	17524312	1694.601	1694.601
6)	RDX	7.65	7.65	331576	331576	65.401	65.401
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D. d	N.D. d
8)	Nitrobenzene	0.00	0.00	0	0	N.D. d	N.D. d
9)	2,4,6-Trinitroto	11.14	11.13	9239640	12319274	906.139	931.972m
10)	Nitroglycerin	0.00	0.00	0	0	N.D. d	N.D. d
11)	Tetryl	0.00	0.00	0	0	N.D. d	N.D. d
13)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
14)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
15)	o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
16)	3,5-Dinitroanili	15.65	15.66	1070258	2016496	104.896	121.466
17)	p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
18)	4-Amino-2,6-Dini	17.47	17.47	1429793	2614291	123.659	120.380m
19)	m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20)	2-Amino-4,6-Dini	19.55	19.55	3651974	5153174	380.585	367.246m
21)	PETN	0.00	0.00	0	0	N.D. d	N.D. d

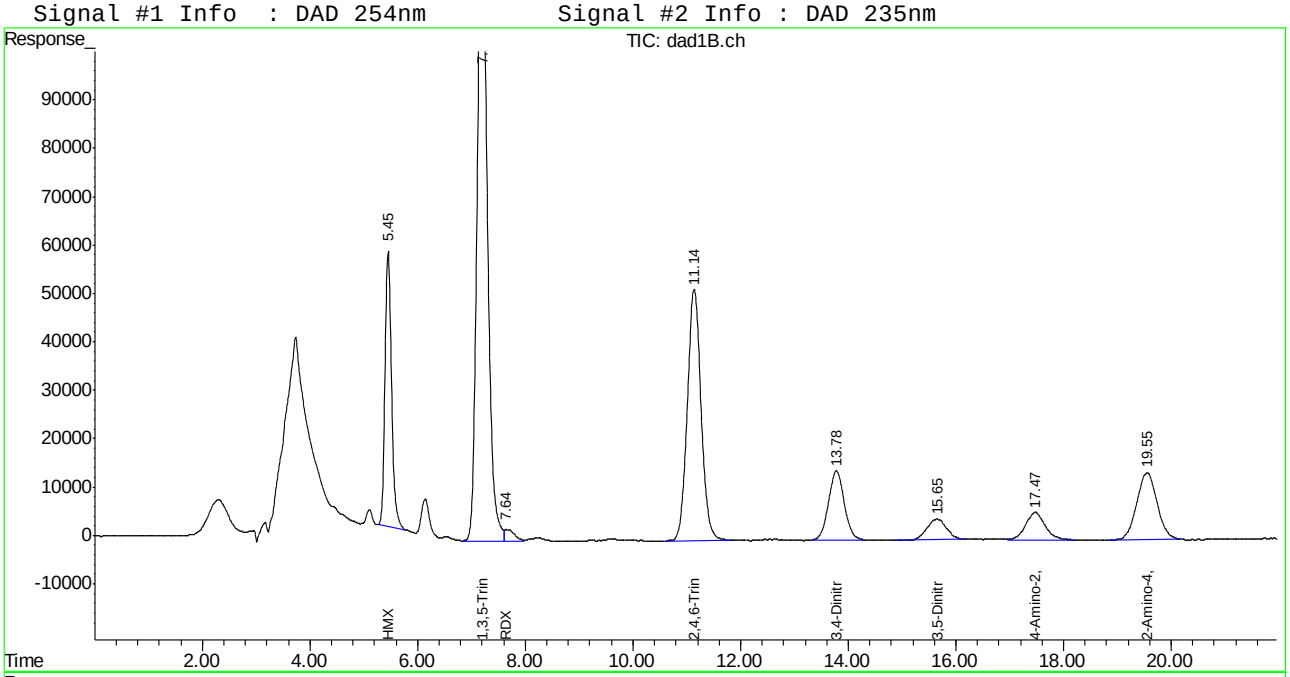
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
GG618385.D 8330RPB.M_092519.M Wed Feb 05 15:40:12 2020 Page 1

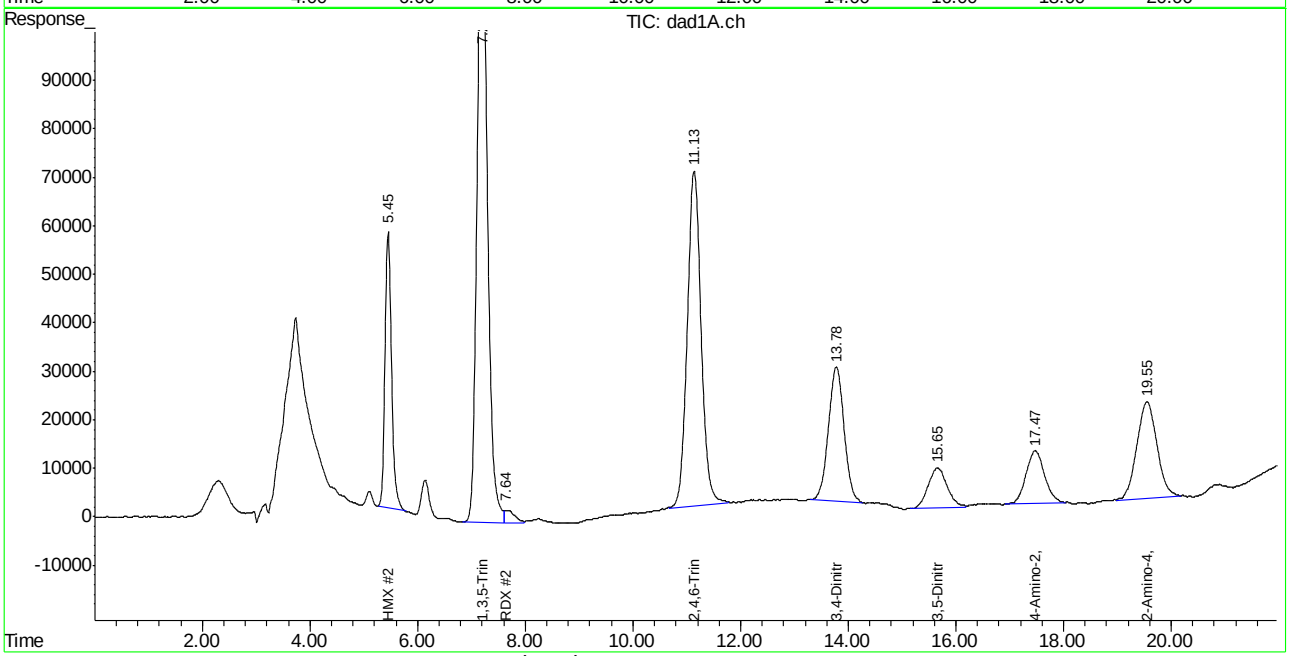
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2807\GG618385.D\dad1B.ch Vial: 14
Signal #2 : C:\HPCHEM\1\DATA\GGG2807\GG618385.D\dad1A.ch
Acq On : 05-Feb-2020, 12:06:43 Operator: williamh
Sample : FA72036-4cf Inst : G1315B
Misc : op78763,ggg2807,1060,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 15:20 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

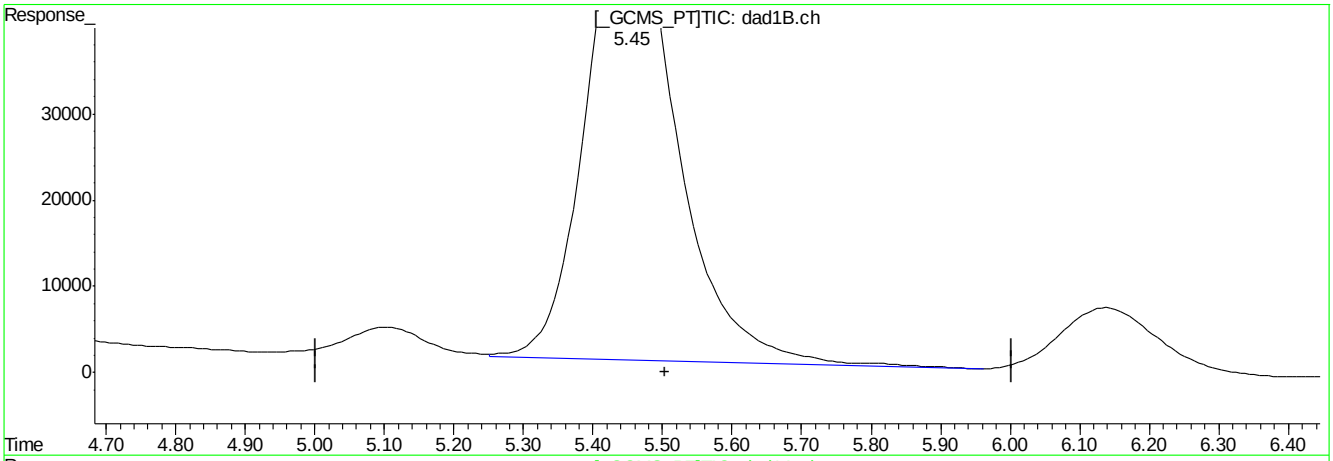
Sample Number: FA72036-4
Lab FileID: GG618385.D
Injection Time: 02/05/20 12:06
Method: SW846 8330B
Analyst approved: 02/05/20 15:49 William Hustedde
Supervisor approved: 02/05/20 17:05 Naresh Jiawan

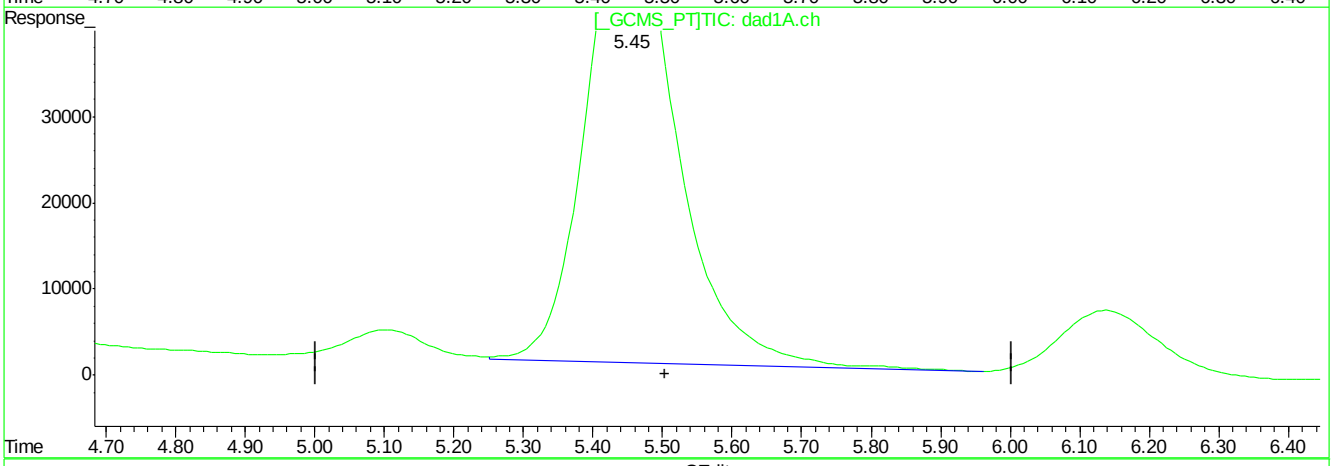
Parameter	CAS	Sig#	R.T. (min.)	Reason
HMX	2691-41-0	1	5.45	Poor instrument integration
HMX	2691-41-0	2	5.45	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	2	11.13	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	1	13.78	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	2	13.78	Poor instrument integration
4-amino-2,6-Dinitrotoluene	19406-51-0	2	17.47	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	2	19.55	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2807\GG618385.D\dad1B.ch Vial: 14
Signal #2 : C:\HPCHEM\1\DATA\GGG2807\GG618385.D\dad1A.ch
Acq On : 05-Feb-2020, 12:06:43 Operator: williamh
Sample : FA72036-4cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 15:07 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.45min 1641.281ppb

response 4890385

(2) HMX #2

5.45min 1630.615ppb

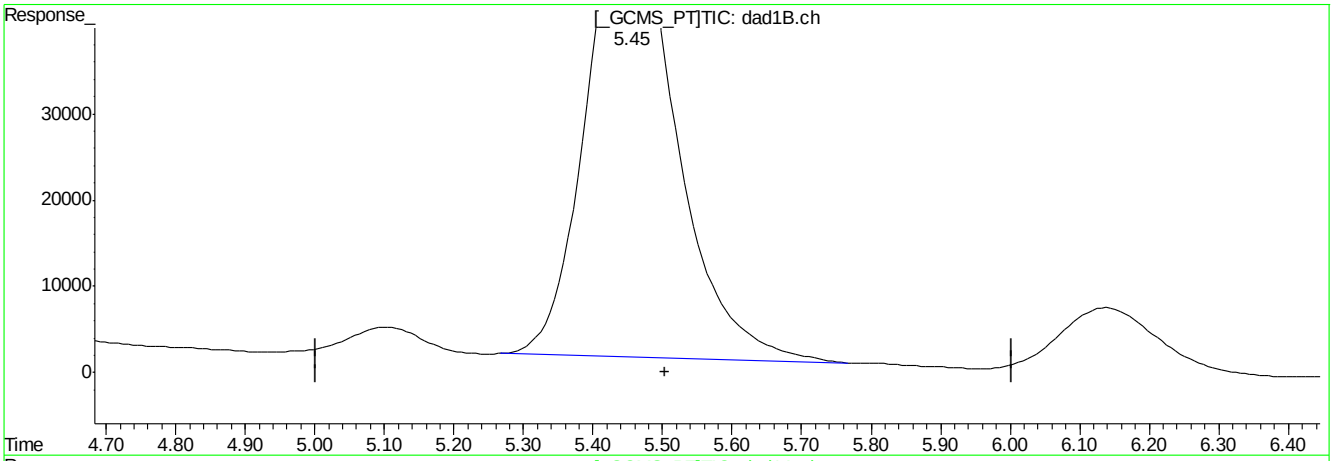
response 4890385

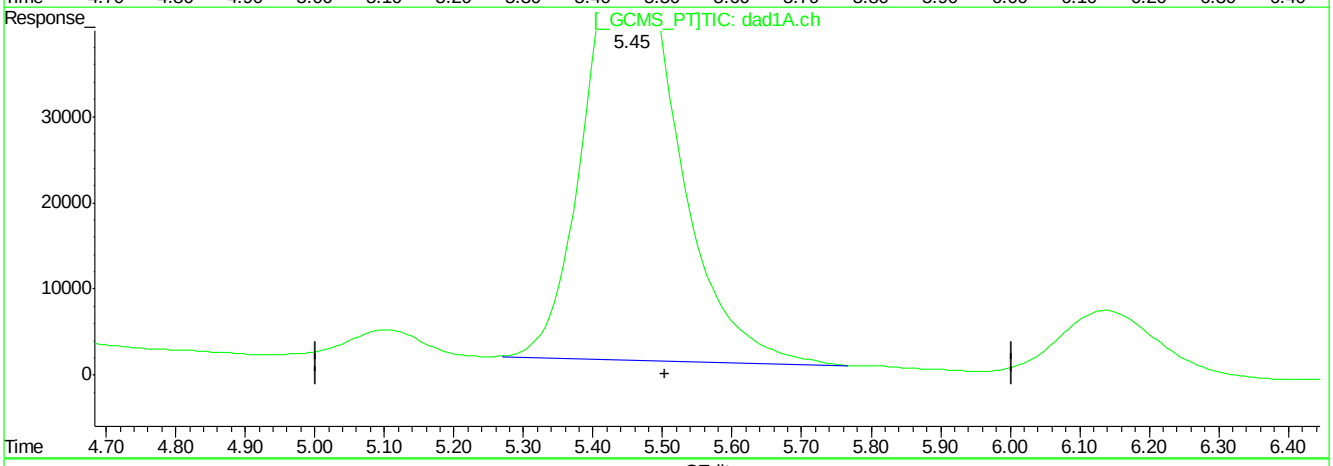
(+) = Expected Retention Time
GG618385.D 8330RPB.M_092519.M Wed Feb 05 15:18:22 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2807\GG618385.D\dad1B.ch Vial: 14
Signal #2 : C:\HPCHEM\1\DATA\GGG2807\GG618385.D\dad1A.ch
Acq On : 05-Feb-2020, 12:06:43 Operator: williamh
Sample : FA72036-4cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 15:07 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.45min 1603.599ppb m

response 4778107

(2) HMX #2

5.45min 1592.794ppb m

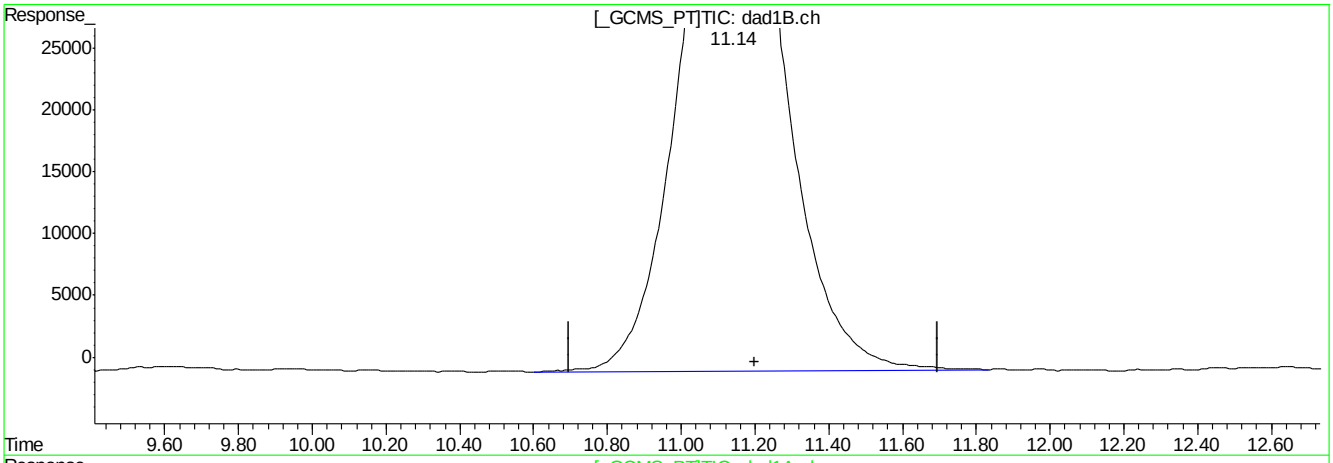
response 4776957

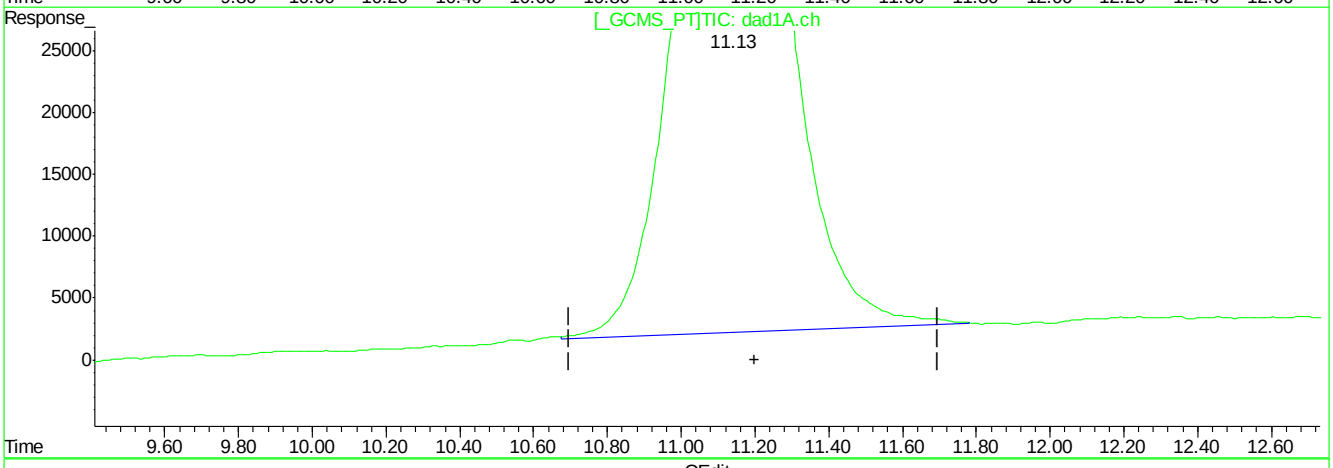
(+) = Expected Retention Time
GG618385.D 8330RPB.M_092519.M Wed Feb 05 15:18:32 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2807\GG618385.D\dad1B.ch Vial: 14
Signal #2 : C:\HPCHEM\1\DATA\GGG2807\GG618385.D\dad1A.ch
Acq On : 05-Feb-2020, 12:06:43 Operator: williamh
Sample : FA72036-4cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 15:07 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.14min 906.139ppb

response 9239640

(9) 2,4,6-Trinitrotoluene #2

11.13min 931.972ppb m

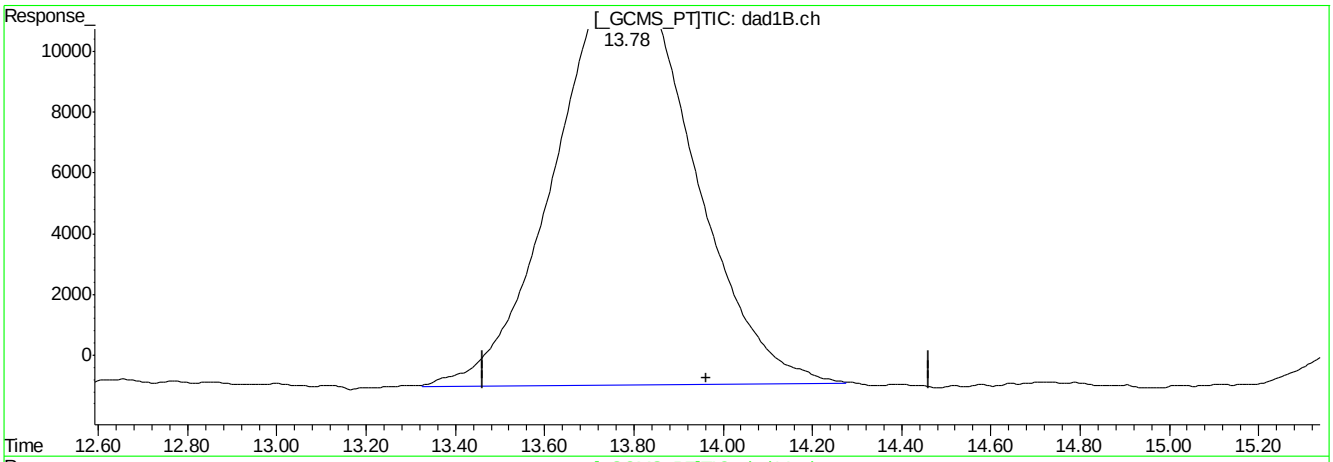
response 12319274

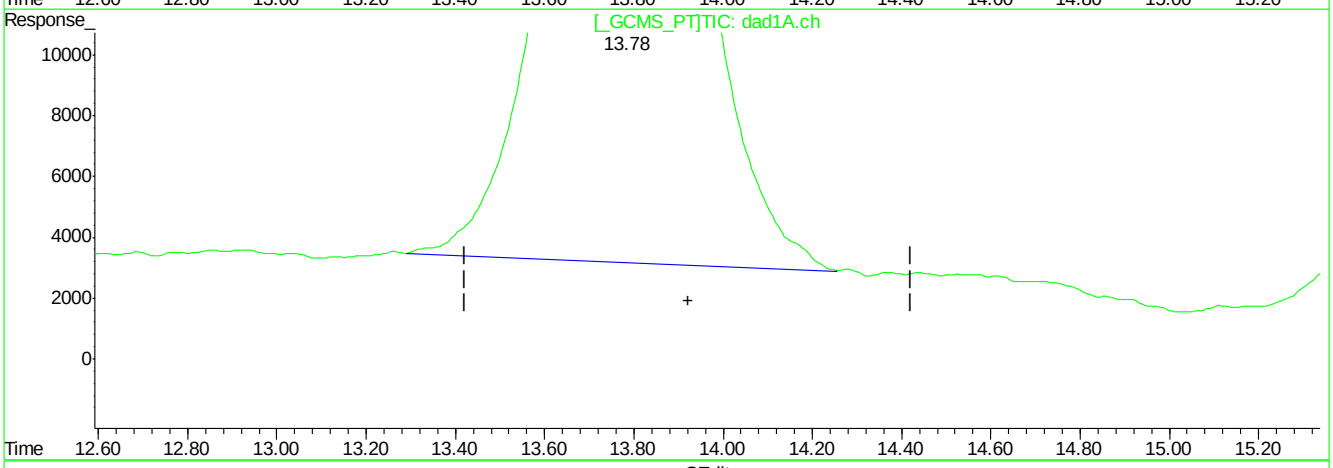
(+) = Expected Retention Time
GG618385.D 8330RPB.M_092519.M Wed Feb 05 15:18:47 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2807\GG618385.D\dad1B.ch Vial: 14
Signal #2 : C:\HPCHEM\1\DATA\GGG2807\GG618385.D\dad1A.ch
Acq On : 05-Feb-2020, 12:06:43 Operator: williamh
Sample : FA72036-4cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 15:07 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(12) 3,4-Dinitrotoluene (S)

13.78min 644.413ppb m

response 2909777

(12) 3,4-Dinitrotoluene #2 (S)

13.78min 625.767ppb m

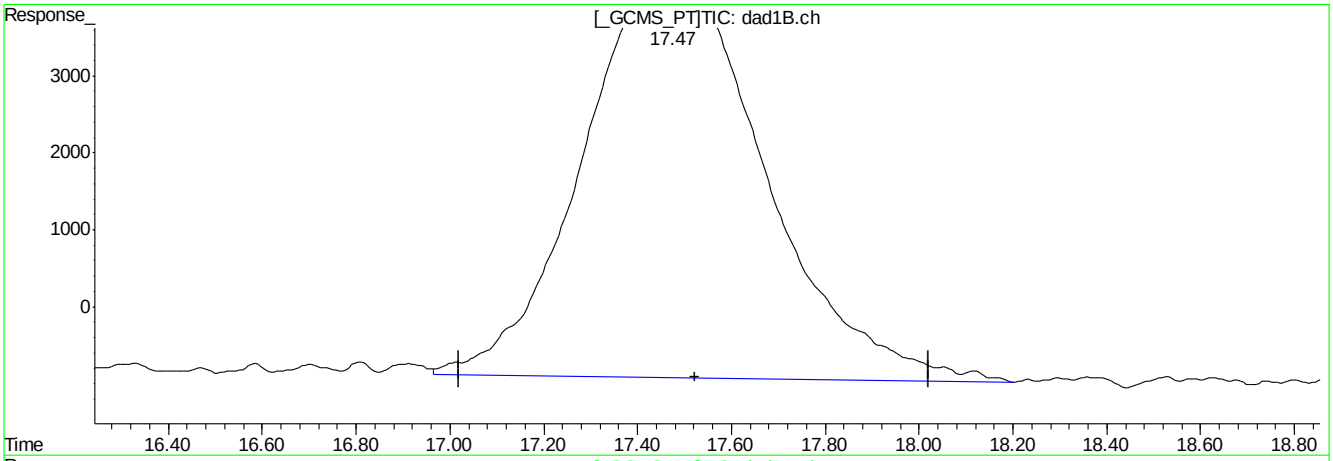
response 5621835

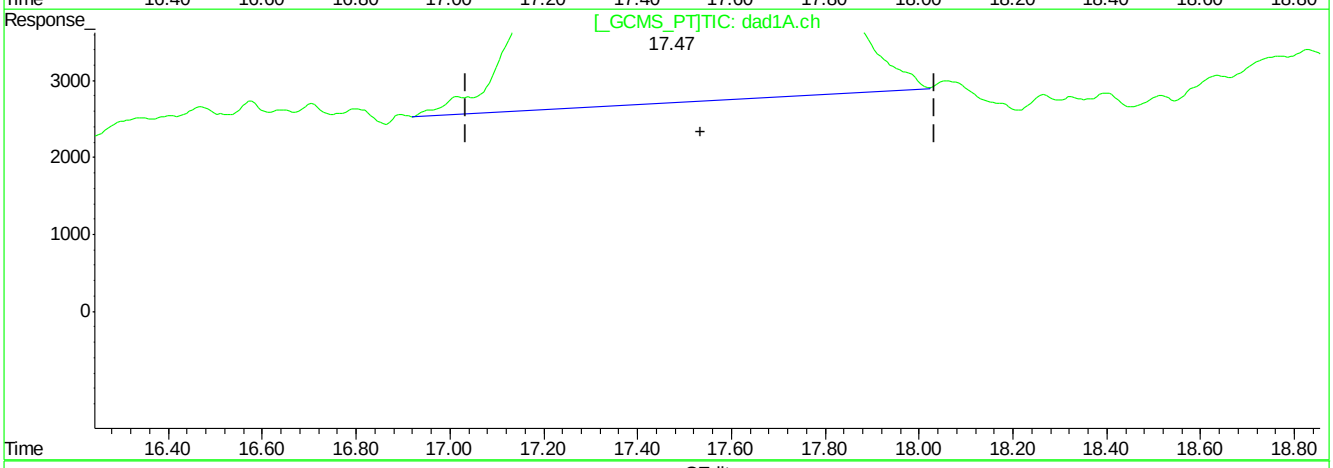
(+) = Expected Retention Time
GG618385.D 8330RPB.M_092519.M Wed Feb 05 15:18:58 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2807\GG618385.D\dad1B.ch Vial: 14
Signal #2 : C:\HPCHEM\1\DATA\GGG2807\GG618385.D\dad1A.ch
Acq On : 05-Feb-2020, 12:06:43 Operator: williamh
Sample : FA72036-4cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 15:07 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(18) 4-Amino-2,6-Dinitrotoluene

17.47min 123.659ppb

response 1429793

(18) 4-Amino-2,6-Dinitrotoluene #2

17.47min 120.380ppb m

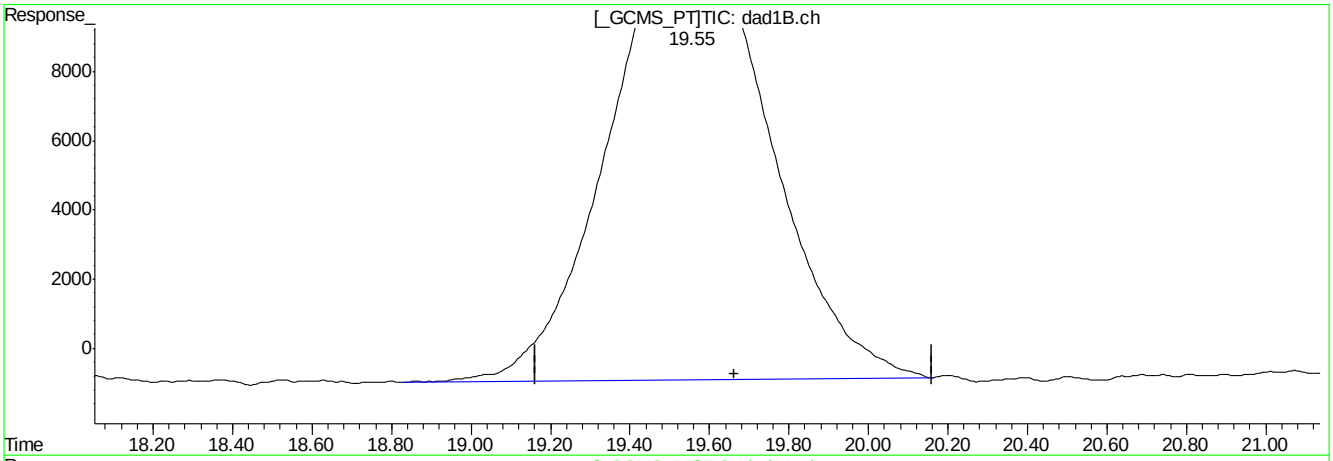
response 2614291

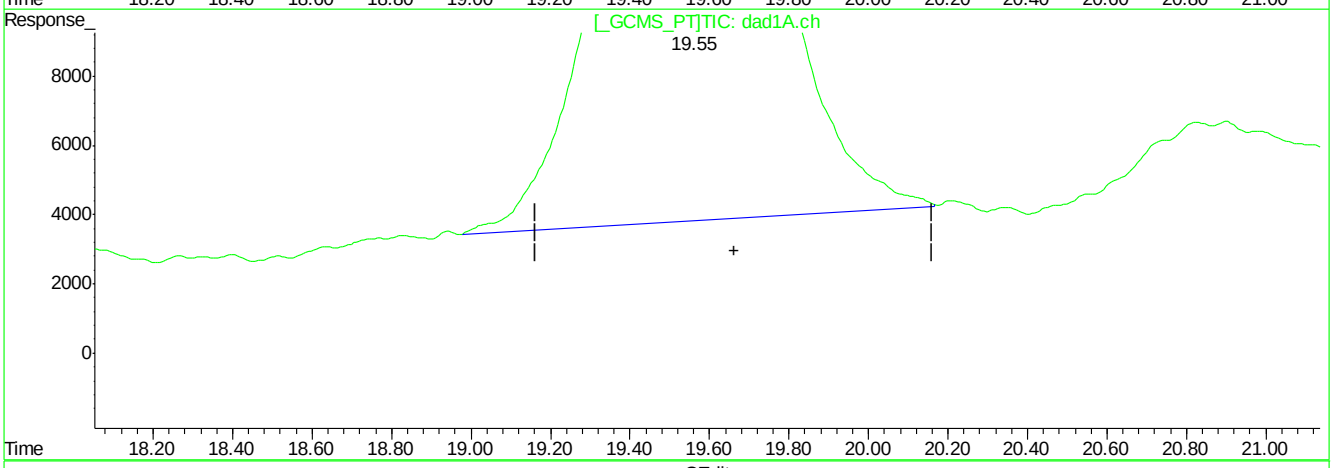
(+) = Expected Retention Time
GG618385.D 8330RPB.M_092519.M Wed Feb 05 15:20:11 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2807\GG618385.D\dad1B.ch Vial: 14
Signal #2 : C:\HPCHEM\1\DATA\GGG2807\GG618385.D\dad1A.ch
Acq On : 05-Feb-2020, 12:06:43 Operator: williamh
Sample : FA72036-4cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 15:07 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(20) 2-Amino-4,6-Dinitrotoluene

19.55min 380.585ppb

response 3651974

(20) 2-Amino-4,6-Dinitrotoluene #2

19.55min 367.246ppb m

response 5153174

(+) = Expected Retention Time
GG618385.D 8330RPB.M_092519.M Wed Feb 05 15:20:18 2020

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067862.D\dad1B.ch Vial: 15
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067862.D\dad1A.ch
Acq On : 03-Feb-2020, 19:48:56 Operator: williamh
Sample : FA72036-5 Inst : G1315B
Misc : op78763,GBB1981,1050,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 04 09:30:20 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	11.27	11.27	1109345	1990688	561.810	575.043
	Spiked Amount 500.000	Range 70 - 136		Recovery =		112.36%	115.01%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	0.00	0.00	0	0	N.D. d	N.D. d
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D. d	N.D. d
5)	RDX	0.00	0.00	0	0	N.D. d	N.D. d
6)	1,3,5-Trinitrobe	0.00	0.00	0	0	N.D. d	N.D. d
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D. d	N.D. d
8)	3,5-Dinitroanili	0.00	0.00	0	0	N.D. d	N.D. d
9)	Nitrobenzene	0.00	0.00	0	0	N.D. d	N.D. d
10)	Nitroglycerin	0.00	0.00	0	0	N.D. d	N.D. d
11)	Tetryl	0.00	0.00	0	0	N.D. d	N.D. d
12)	2,4,6-Trinitroto	0.00	0.00	0	0	N.D. d	N.D. d
13)	2-Amino-4,6-Dini	0.00	0.00	0	0	N.D. d	N.D. d
14)	4-Amino-2,6-Dini	0.00	0.00	0	0	N.D. d	N.D. d
16)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
17)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
18)	o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
19)	p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20)	m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
21)	PETN	0.00	0.00	0	0	N.D. d	N.D. d

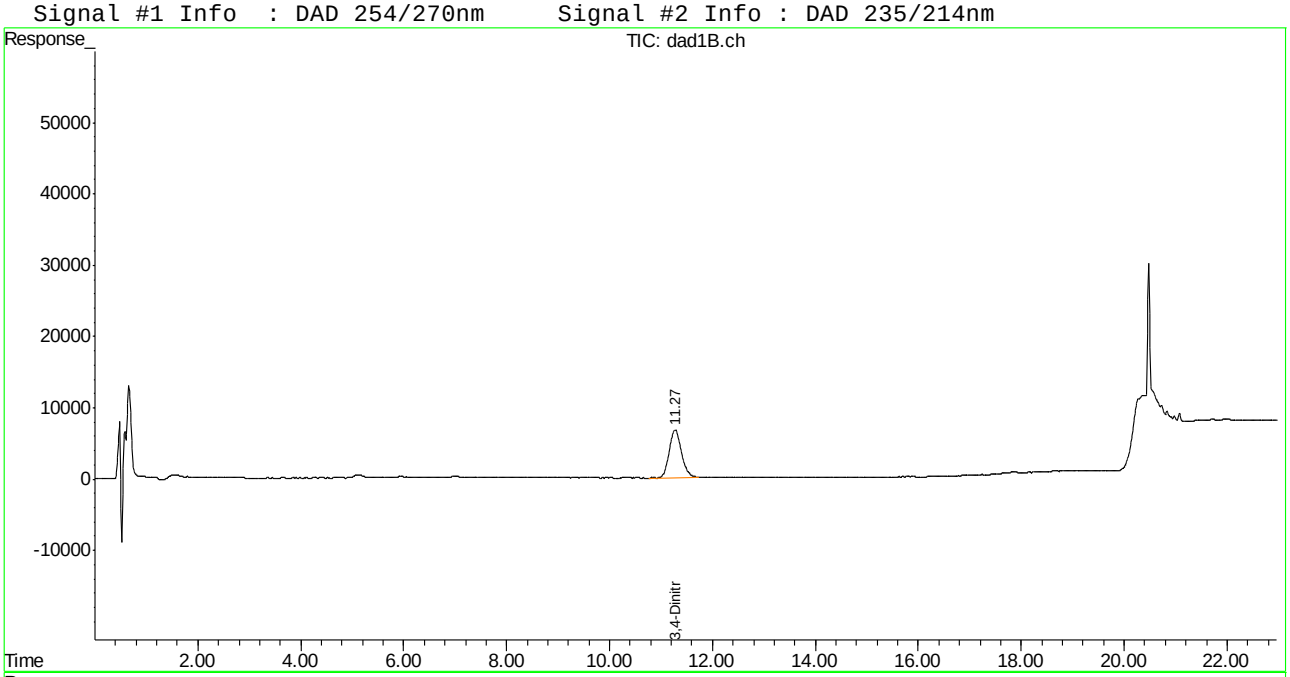
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB067862.D 8330B_012120_PLUS.M Tue Feb 04 11:21:47 2020 Page 1

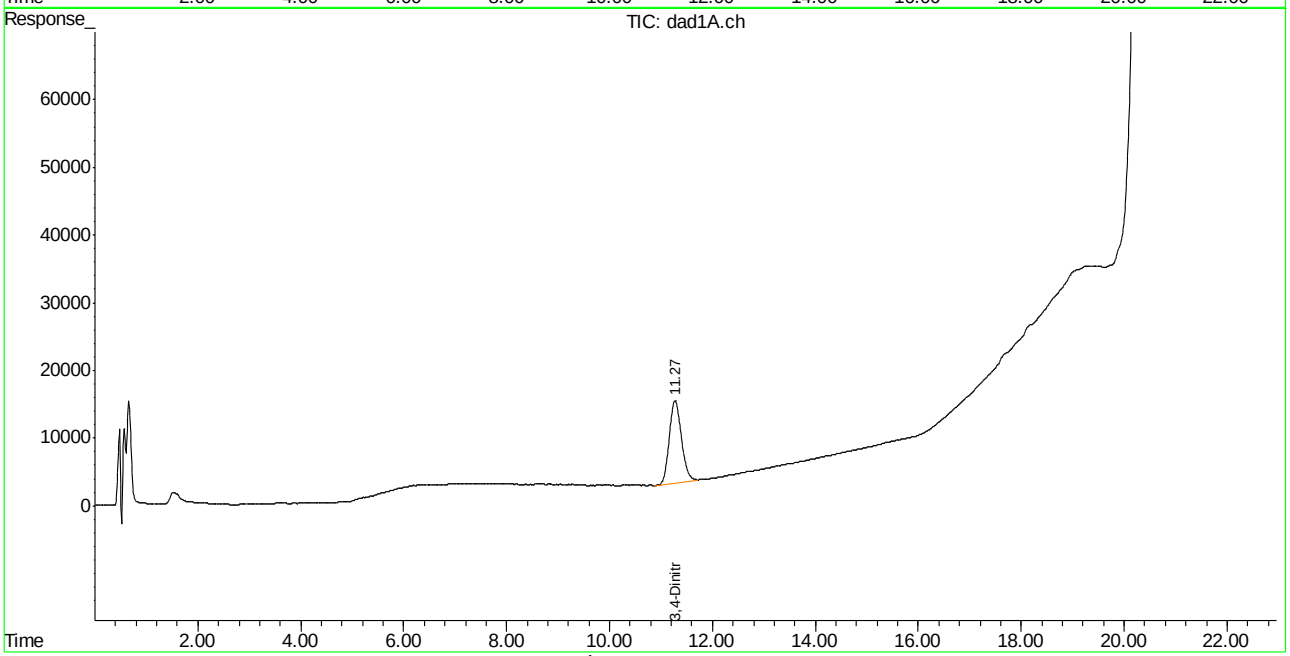
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067862.D\dad1B.ch Vial: 15
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067862.D\dad1A.ch
Acq On : 03-Feb-2020, 19:48:56 Operator: williamh
Sample : FA72036-5 Inst : G1315B
Misc : op78763,GBB1981,1050,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 10:14 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067849.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067849.D\dad1A.ch
Acq On : 03-Feb-2020, 13:19:20 Operator: williamh
Sample : op78763-MB Inst : G1315B
Misc : op78763,GBB1981,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 04 09:30:07 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
System Monitoring Compounds						
15) S 3,4-Dinitrotolue	11.35	11.35	1145199	1968594	579.968	568.661
Spiked Amount 500.000	Range 70 - 136		Recovery =		115.99%	113.73%
Target Compounds						
1) TNX	0.00	0.00	0	0	N.D. d	N.D. d
2) HMX	0.00	0.00	0	0	N.D. d	N.D. d
3) DNX	0.00	0.00	0	0	N.D. d	N.D. d
4) MNX	0.00	0.00	0	0	N.D. d	N.D. d
5) RDX	0.00	0.00	0	0	N.D. d	N.D. d
6) 1,3,5-Trinitrobe	0.00	0.00	0	0	N.D. d	N.D. d
7) 1,3-Dinitrobenze	0.00	0.00	0	0	N.D. d	N.D. d
8) 3,5-Dinitroanili	0.00	0.00	0	0	N.D. d	N.D. d
9) Nitrobenzene	0.00	0.00	0	0	N.D. d	N.D. d
10) Nitroglycerin	0.00	0.00	0	0	N.D. d	N.D. d
11) Tetryl	0.00	0.00	0	0	N.D. d	N.D. d
12) 2,4,6-Trinitroto	0.00	0.00	0	0	N.D. d	N.D. d
13) 2-Amino-4,6-Dini	0.00	0.00	0	0	N.D. d	N.D. d
14) 4-Amino-2,6-Dini	0.00	0.00	0	0	N.D. d	N.D. d
16) 2,4-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
17) 2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
18) o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
19) p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20) m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
21) PETN	0.00	0.00	0	0	N.D. d	N.D. d

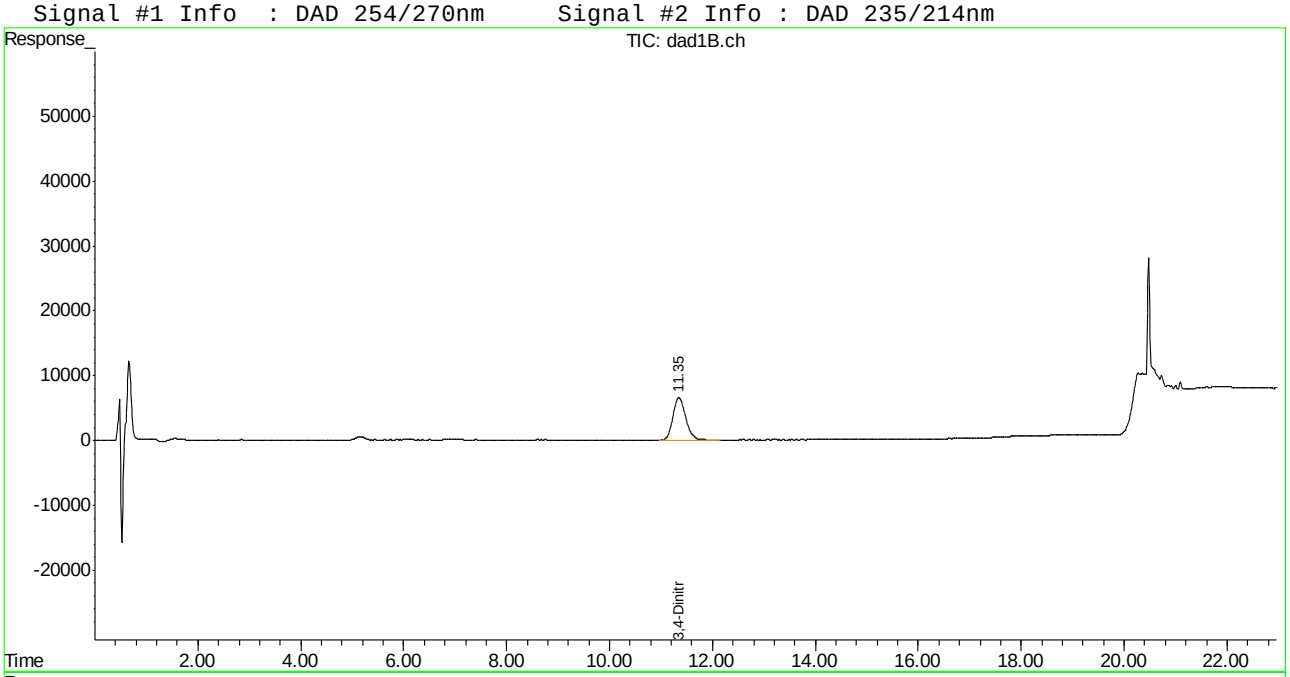
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB067849.D 8330B_012120_PLUS.M Tue Feb 04 11:21:35 2020 Page 1

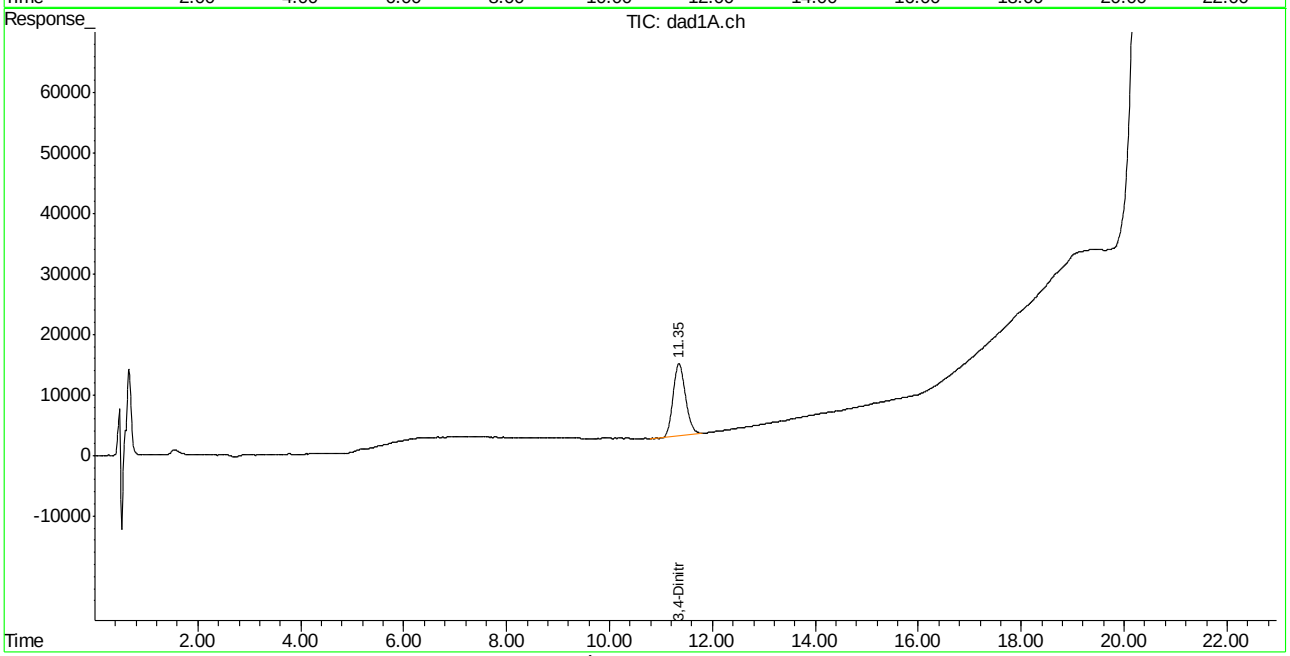
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067849.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067849.D\dad1A.ch
Acq On : 03-Feb-2020, 13:19:20 Operator: williamh
Sample : op78763-MB Inst : G1315B
Misc : op78763,GBB1981,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:46 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618370.D\dad1B.ch Vial: 9
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618370.D\dad1A.ch
Acq On : 04-Feb-2020, 18:51:38 Operator: williamh
Sample : op78763-MB Inst : G1315B
Misc : op78763,ggg2805,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 05 10:39:10 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.80	13.80	2948772	5718403	653.049	636.489
	Spiked Amount 500.000	Range 70 - 136		Recovery =		130.61%	127.30%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	0.00	0.00	0	0	N.D. d	N.D. d
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D. d	N.D. d
5)	1,3,5-Trinitrobe	0.00	0.00	0	0	N.D. d	N.D. d
6)	RDX	0.00	0.00	0	0	N.D. d	N.D. d
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D. d	N.D. d
8)	Nitrobenzene	0.00	0.00	0	0	N.D. d	N.D. d
9)	2,4,6-Trinitroto	0.00	0.00	0	0	N.D. d	N.D. d
10)	Nitroglycerin	0.00	0.00	0	0	N.D. d	N.D. d
11)	Tetryl	0.00	0.00	0	0	N.D. d	N.D. d
13)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
14)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
15)	o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
16)	3,5-Dinitroanili	0.00	0.00	0	0	N.D. d	N.D. d
17)	p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
18)	4-Amino-2,6-Dini	0.00	0.00	0	0	N.D. d	N.D. d
19)	m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20)	2-Amino-4,6-Dini	0.00	0.00	0	0	N.D. d	N.D. d
21)	PETN	0.00	0.00	0	0	N.D. d	N.D. d

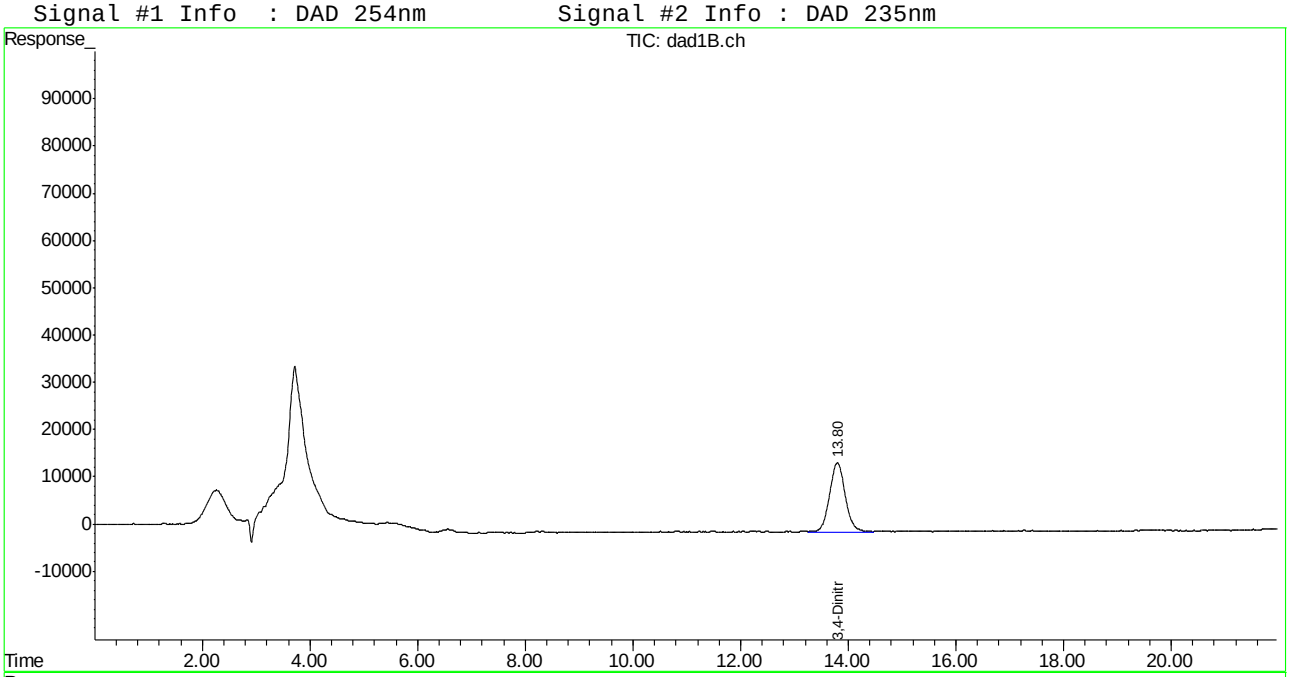
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
GG618370.D 8330RPB.M_092519.M Wed Feb 05 10:59:31 2020 Page 1

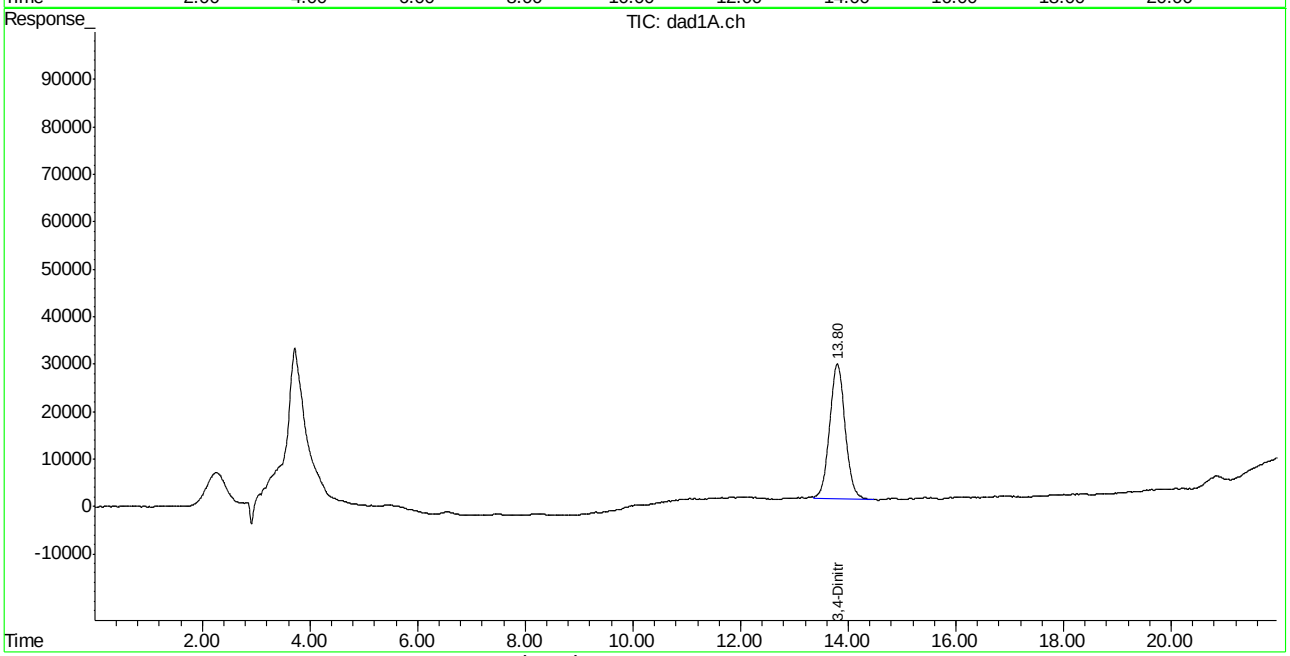
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618370.D\dad1B.ch Vial: 9
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618370.D\dad1A.ch
Acq On : 04-Feb-2020, 18:51:38 Operator: williamh
Sample : op78763-MB Inst : G1315B
Misc : op78763,ggg2805,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 10:45 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
02/05/20 12:18

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067848.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067848.D\dad1A.ch
Acq On : 03-Feb-2020, 12:49:22 Operator: williamh
Sample : op78763-BS Inst : G1315B
Misc : op78763,GBB1981,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 04 09:30:06 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	11.37	11.37	1158651	1849276	586.780	534.194
	Spiked Amount 500.000	Range 70 - 136		Recovery =		117.36%	106.84%
	Target Compounds						
1)	TNX	1.36	1.36	982566	1526729	411.849	426.616
2)	HMX	1.53	1.53	816910	2272390	537.328	527.707
3)	DNX	1.75	1.75	733180	1161755	501.812	516.264
4)	MNX	2.37	2.37	1195022	1818104	523.661	511.552
5)	RDX	3.00	3.00	948817	1529271	495.552	492.196
6)	1,3,5-Trinitrobe	4.82	4.82	2109866	3754528	544.851	501.560m
7)	1,3-Dinitrobenze	6.00	6.00	2679887	1839575	517.690	500.707m
8)	3,5-Dinitroanili	6.44	6.44	2001347	3359956	501.980	489.367m
9)	Nitrobenzene	7.50	7.50	1539333	1531657	492.157	498.250
10)	Nitroglycerin	0.00	8.98	0	634202	N.D.	545.620 #
11)	Tetryl	9.66	9.66	1377819	2148350	533.316	505.664
12)	2,4,6-Trinitroto	10.05	10.05	1847698	2146058	525.377	524.761
13)	2-Amino-4,6-Dini	10.54	10.54	1668394	2295872	516.723	463.909
14)	4-Amino-2,6-Dini	11.01	11.01	1189371	2174413	506.790	469.525
16)	2,4-Dinitrotolue	12.00	12.00	2319427	1343674	534.097	459.418
17)	2,6-Dinitrotolue	12.42	12.43	1409396	1743746	540.965	515.146
18)	o-Nitrotoluene	15.37	15.37	1055537	1492511	485.120	532.747m
19)	p-Nitrotoluene	15.96	15.96	1682379	1203145	499.815	414.574
20)	m-Nitrotoluene	16.79	16.79	1568441	1864138	509.939	504.653m
21)	PETN	0.00	18.49	0	701921	N.D.	1173.653m#

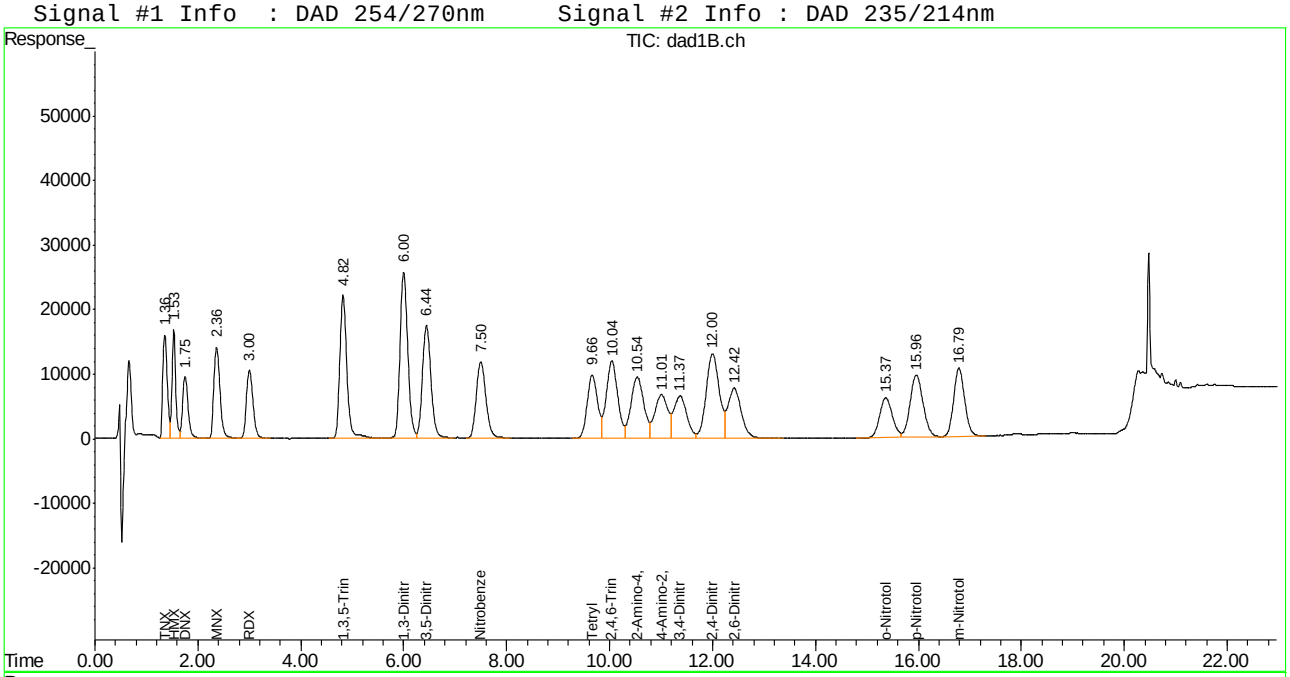
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB067848.D 8330B_012120_PLUS.M Tue Feb 04 11:21:34 2020 Page 1

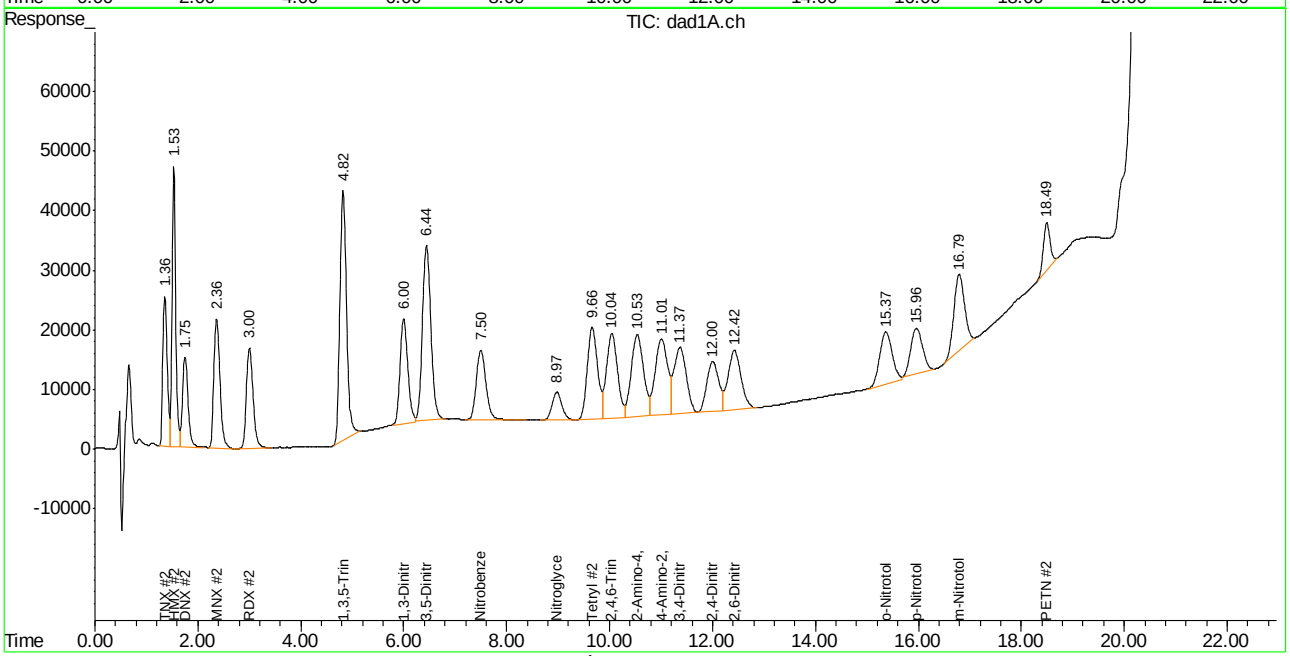
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067848.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067848.D\dad1A.ch
Acq On : 03-Feb-2020, 12:49:22 Operator: williamh
Sample : op78763-BS Inst : G1315B
Misc : op78763,GBB1981,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:45 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

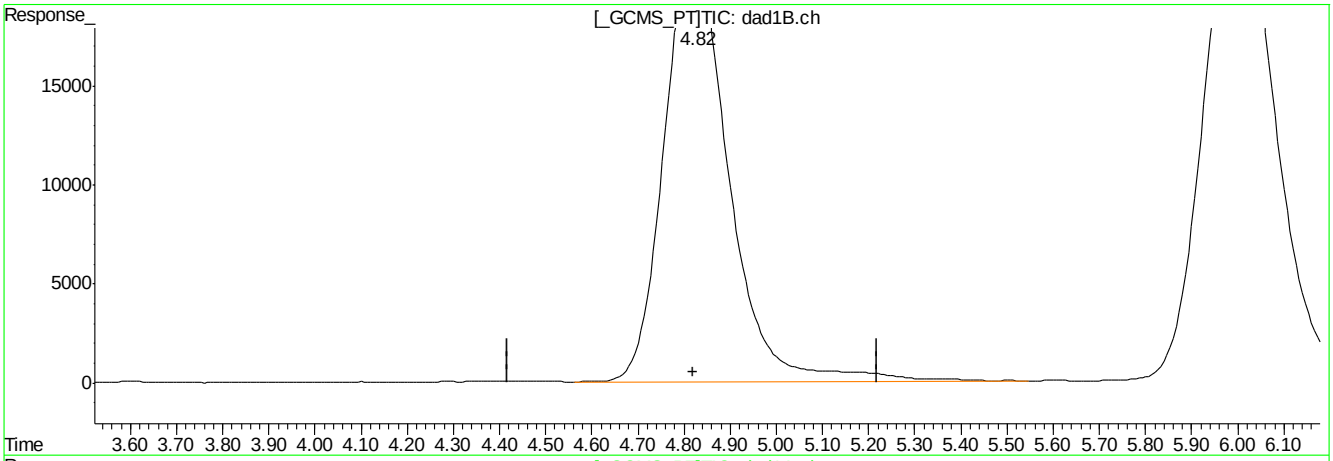
Sample Number: OP78763-BS
Lab FileID: BB067848.D
Injection Time: 02/03/20 12:49
Method: SW846 8330B
Analyst approved: 02/04/20 11:36 William Hustedde
Supervisor approved: 02/05/20 12:18 Naresh Jiawan

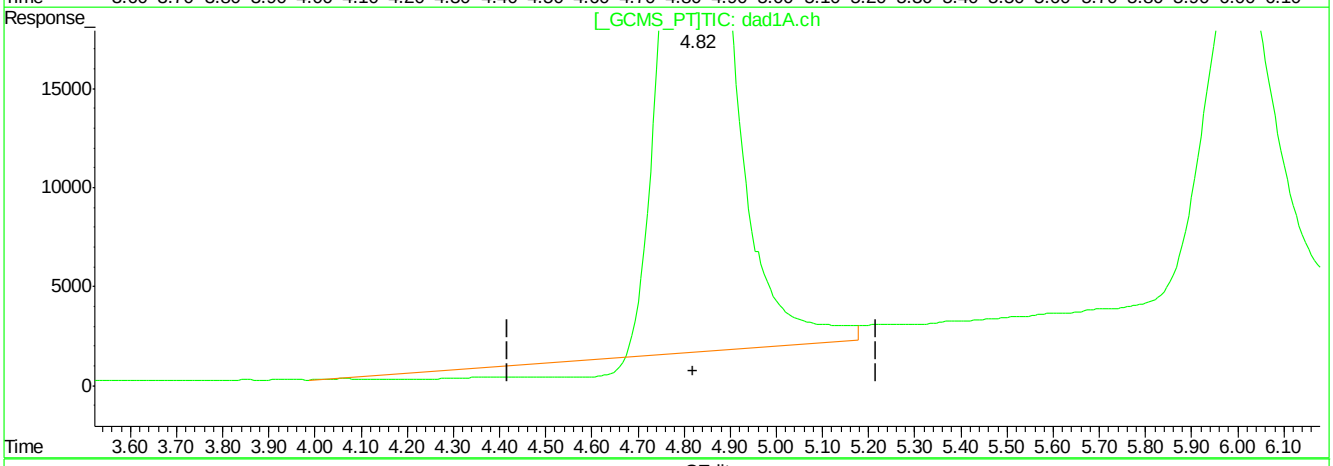
Parameter	CAS	Sig#	R.T. (min.)	Reason
1,3,5-Trinitrobenzene	99-35-4	2	4.82	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	6.00	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	6.44	Poor instrument integration
o-Nitrotoluene	88-72-2	2	15.37	Poor instrument integration
m-Nitrotoluene	99-08-1	2	16.79	Poor instrument integration
PETN	78-11-5	2	18.49	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067848.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067848.D\dad1A.ch
Acq On : 03-Feb-2020, 12:49:22 Operator: williamh
Sample : op78763-BS Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(6) 1,3,5-Trinitrobenzene

4.82min 544.851ppb

response 2109866

(6) 1,3,5-Trinitrobenzene #2

4.82min 478.820ppb

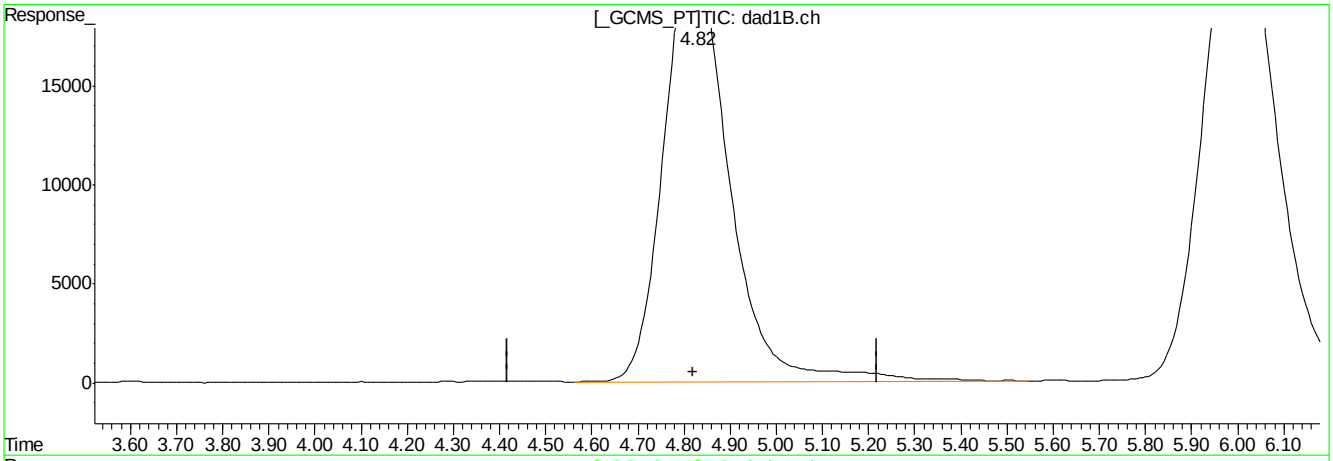
response 3584301

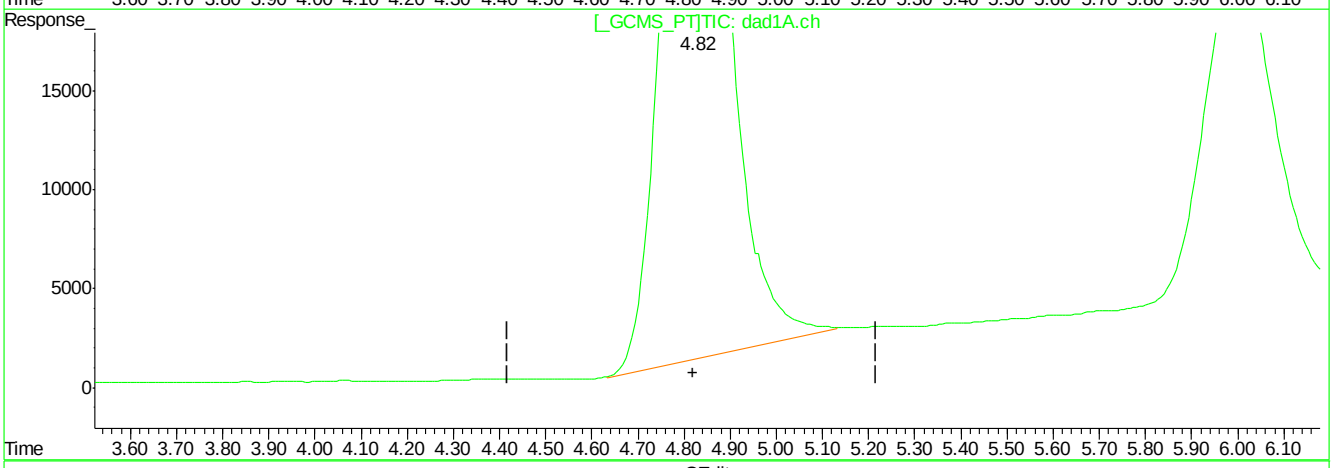
(+) = Expected Retention Time
BB067848.D 8330B_012120_PLUS.M Tue Feb 04 09:43:15 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067848.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067848.D\dad1A.ch
Acq On : 03-Feb-2020, 12:49:22 Operator: williamh
Sample : op78763-BS Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(6) 1,3,5-Trinitrobenzene

4.82min 544.851ppb

response 2109866

(6) 1,3,5-Trinitrobenzene #2

4.82min 501.560ppb m

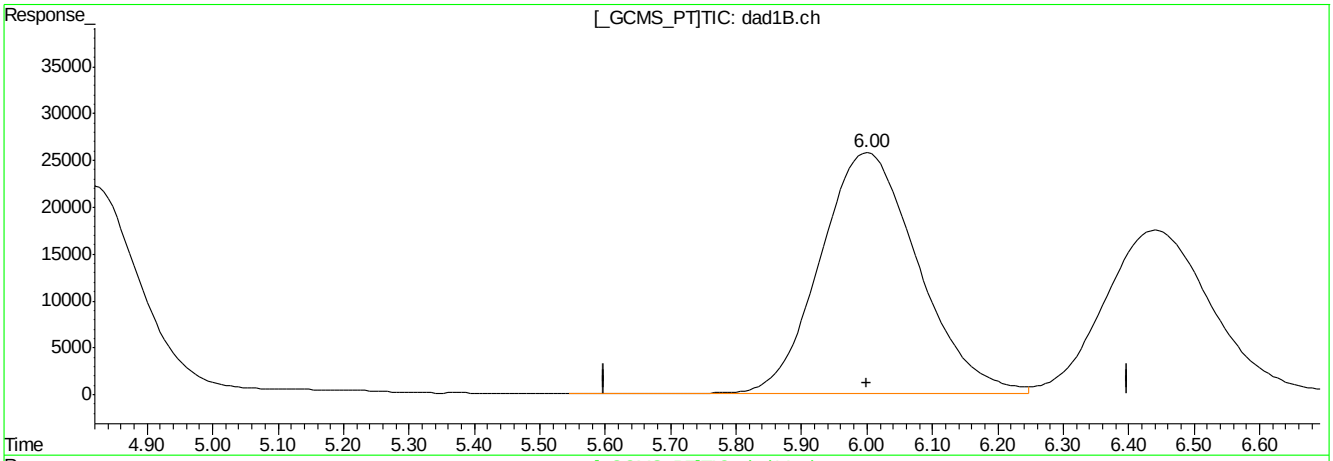
response 3754528

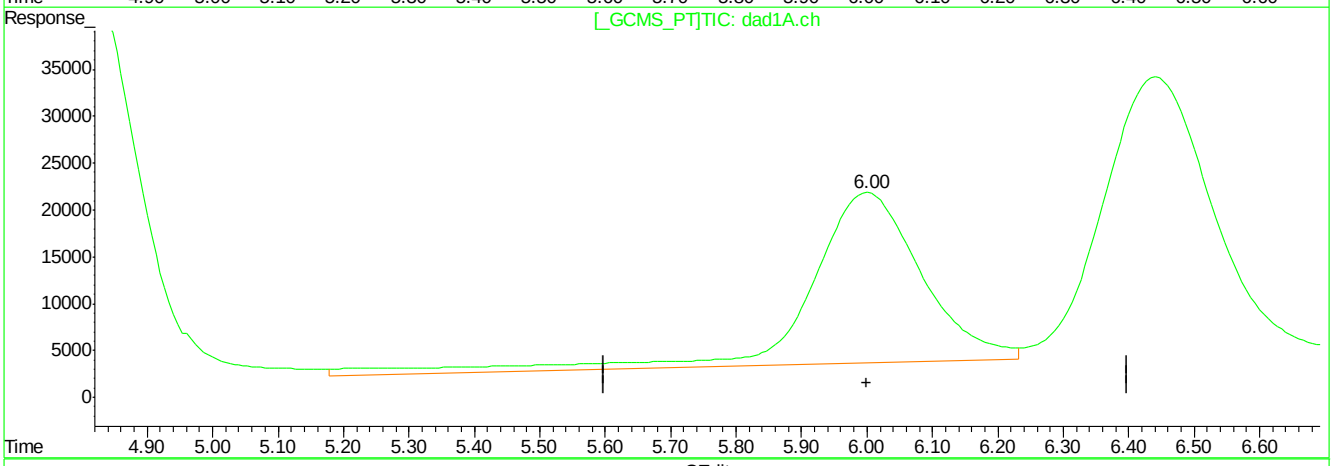
(+) = Expected Retention Time
BB067848.D 8330B_012120_PLUS.M Tue Feb 04 09:43:20 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067848.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067848.D\dad1A.ch
Acq On : 03-Feb-2020, 12:49:22 Operator: williamh
Sample : op78763-BS Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

6.00min 517.690ppb

response 2679887

(7) 1,3-Dinitrobenzene #2

6.00min 606.504ppb

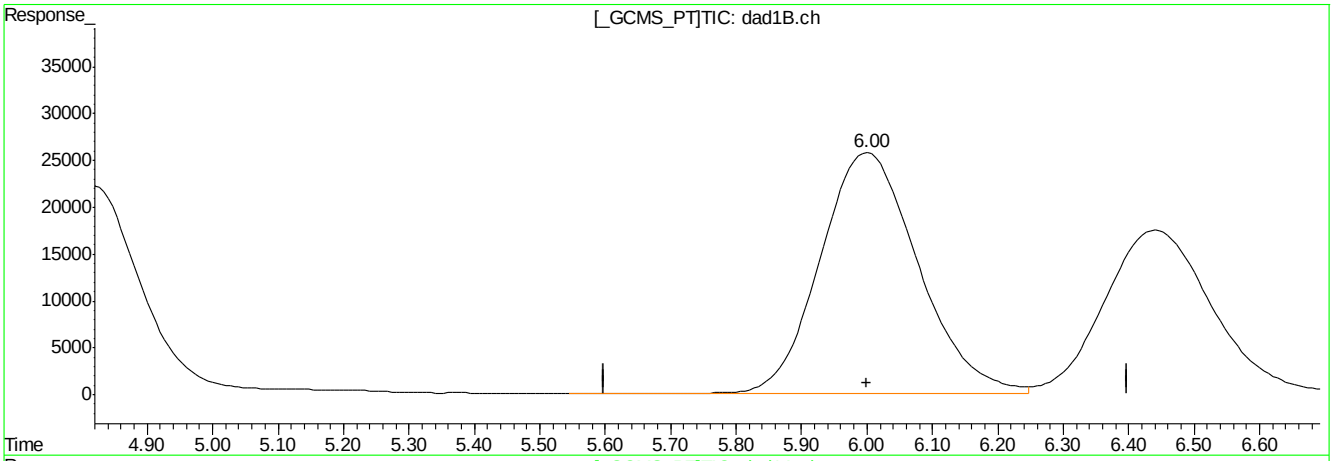
response 2228270

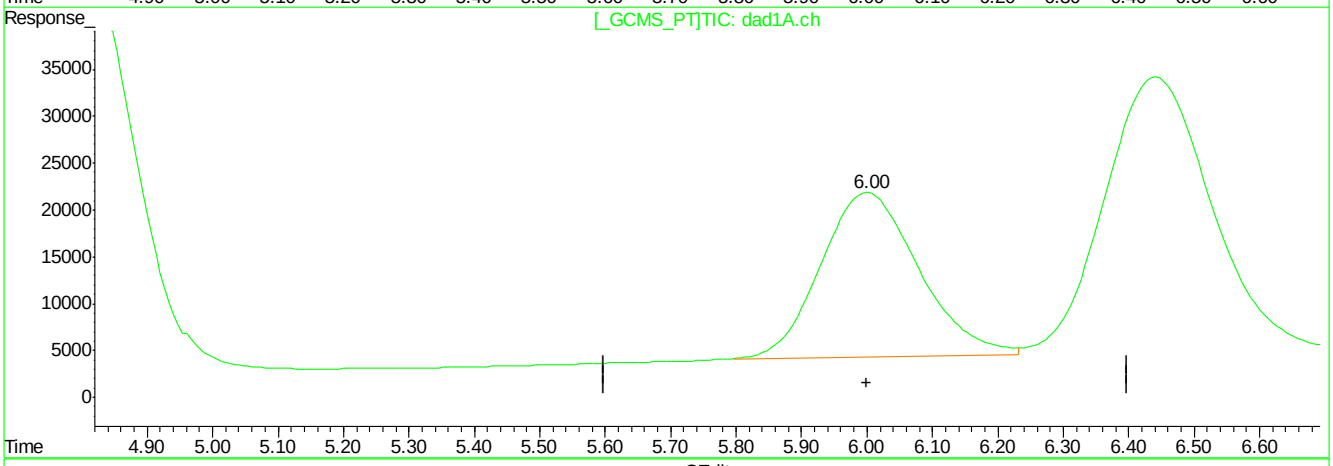
(+) = Expected Retention Time
BB067848.D 8330B_012120_PLUS.M Tue Feb 04 09:43:24 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067848.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067848.D\dad1A.ch
Acq On : 03-Feb-2020, 12:49:22 Operator: williamh
Sample : op78763-BS Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

6.00min 517.690ppb

response 2679887

(7) 1,3-Dinitrobenzene #2

6.00min 500.707ppb m

response 1839575

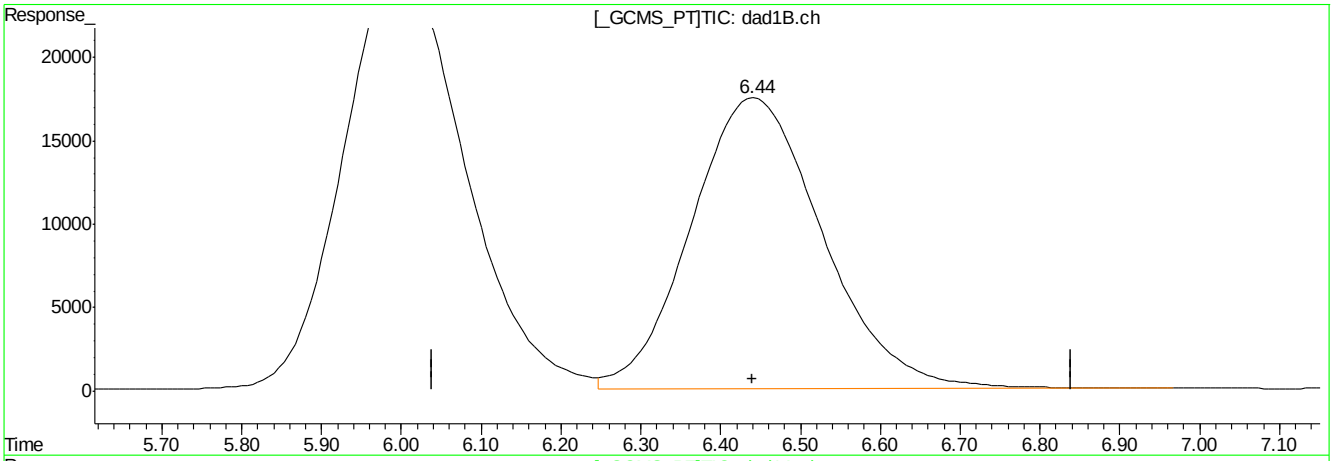
(+) = Expected Retention Time
BB067848.D 8330B_012120_PLUS.M Tue Feb 04 09:43:32 2020

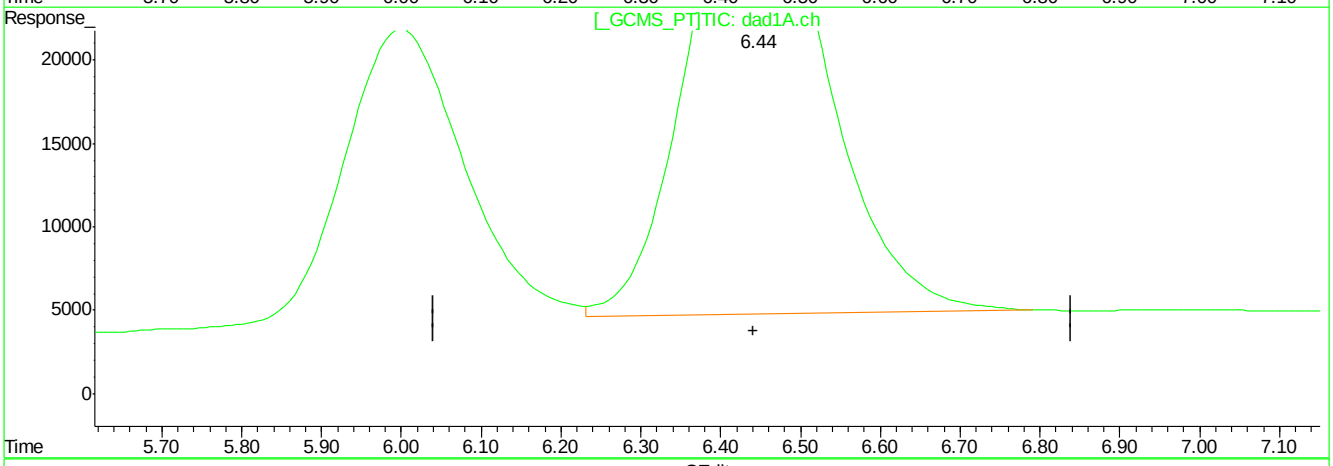
BB067848.D edits: 1,3-Dinitrobenzene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067848.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067848.D\dad1A.ch
Acq On : 03-Feb-2020, 12:49:22 Operator: williamh
Sample : op78763-BS Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.44min 501.980ppb

response 2001347

(8) 3,5-Dinitroaniline #2

6.44min 489.367ppb m

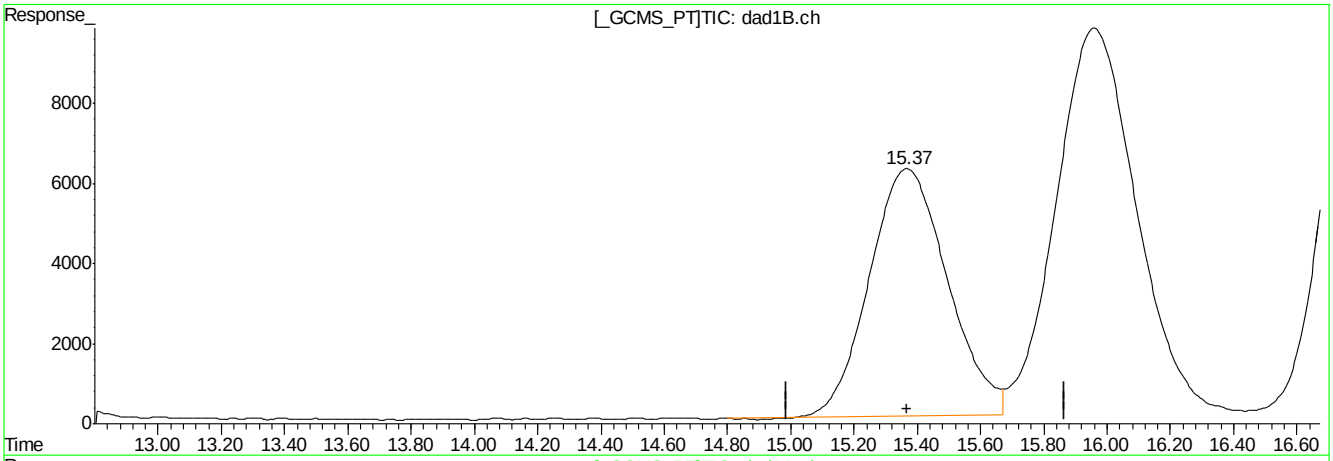
response 3359956

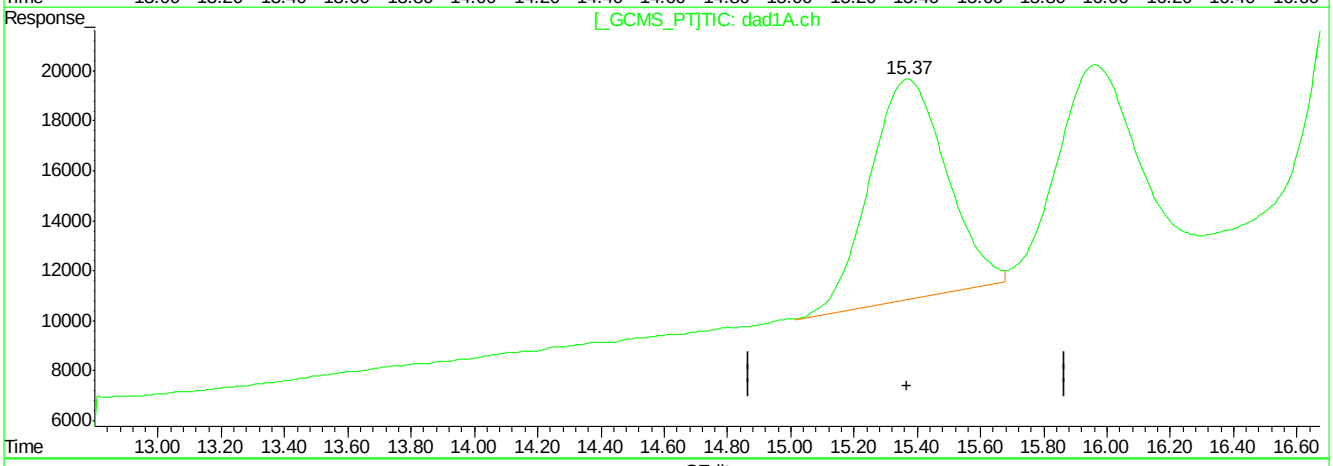
(+) = Expected Retention Time
BB067848.D 8330B_012120_PLUS.M Tue Feb 04 09:43:43 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067848.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067848.D\dad1A.ch
Acq On : 03-Feb-2020, 12:49:22 Operator: williamh
Sample : op78763-BS Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(18) o-Nitrotoluene

15.37min 485.120ppb

response 1055537

(18) o-Nitrotoluene #2

15.37min 532.747ppb m

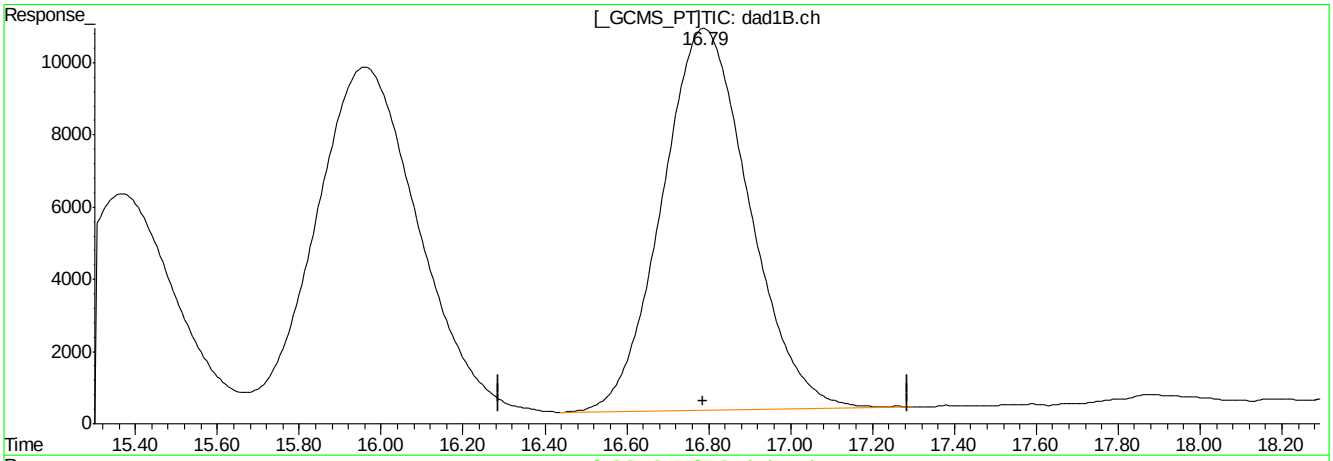
response 1492511

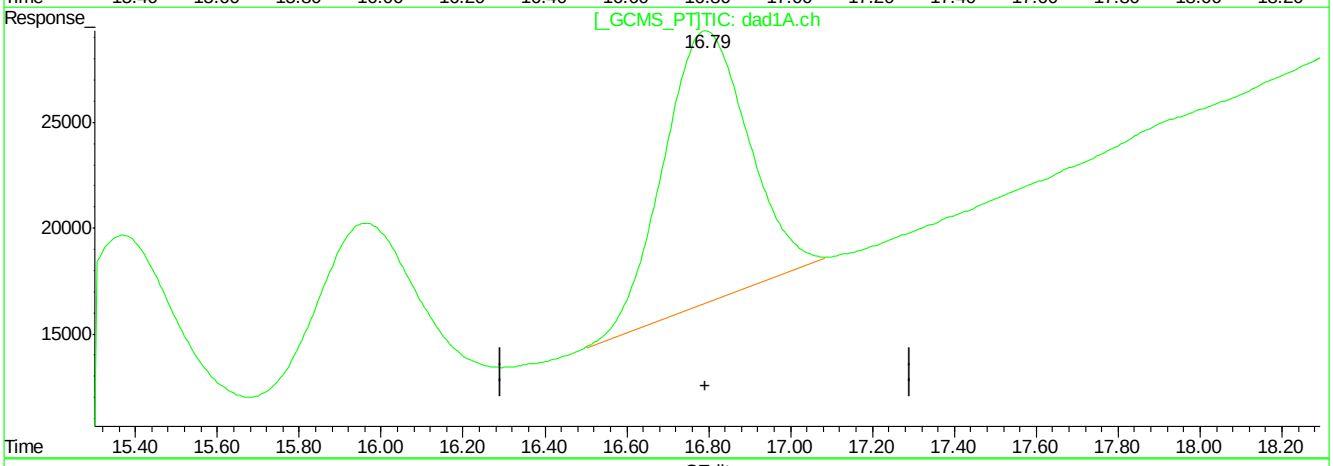
(+) = Expected Retention Time
BB067848.D 8330B_012120_PLUS.M Tue Feb 04 09:45:47 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067848.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067848.D\dad1A.ch
Acq On : 03-Feb-2020, 12:49:22 Operator: williamh
Sample : op78763-BS Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(20) m-Nitrotoluene

16.79min 509.939ppb

response 1568441

(20) m-Nitrotoluene #2

16.79min 504.653ppb m

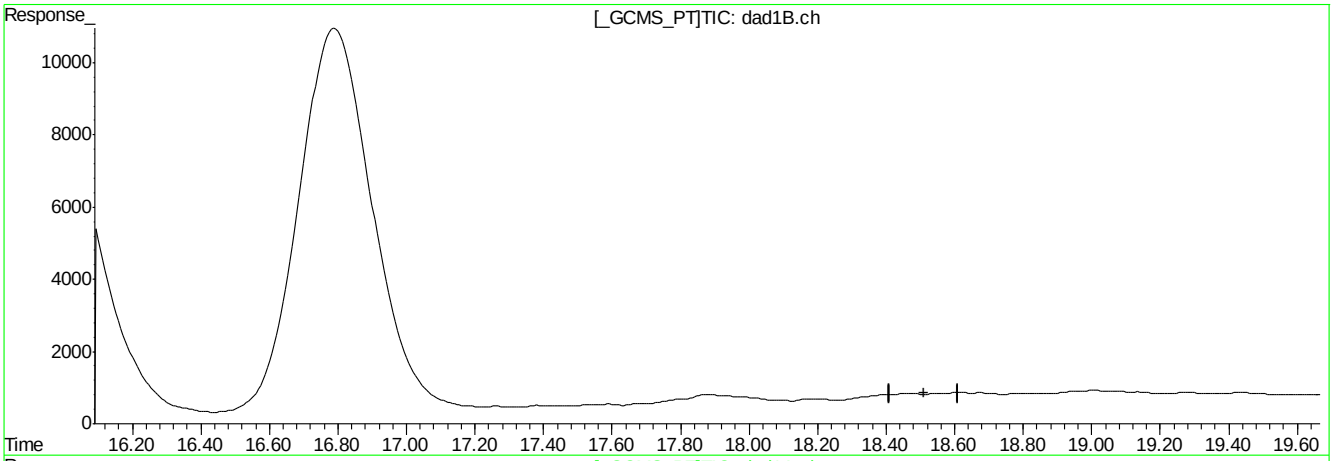
response 1864138

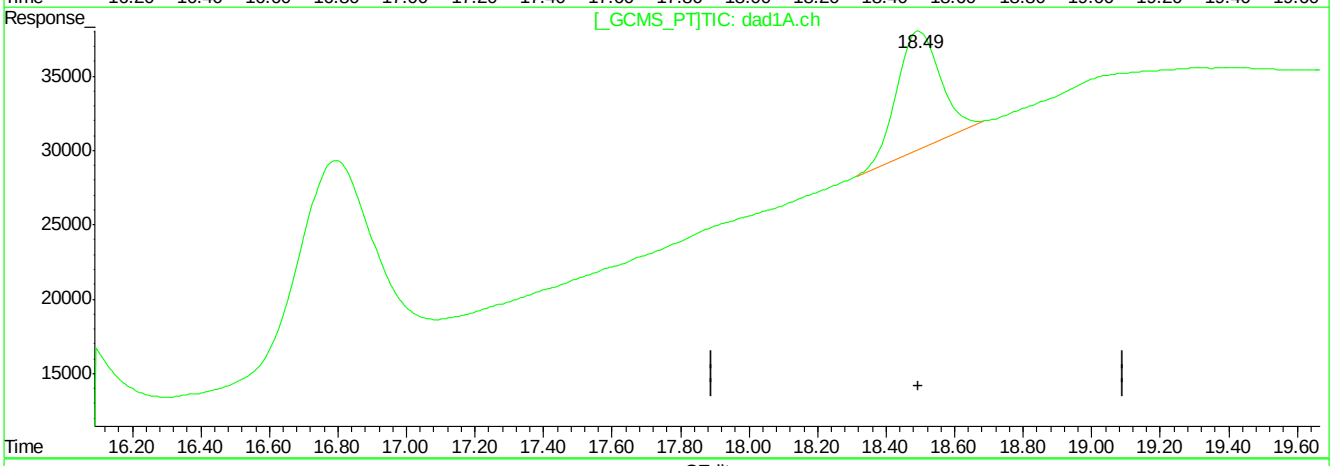
(+) = Expected Retention Time
BB067848.D 8330B_012120_PLUS.M Tue Feb 04 09:45:54 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067848.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067848.D\dad1A.ch
Acq On : 03-Feb-2020, 12:49:22 Operator: williamh
Sample : op78763-BS Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

18.49min 1173.653ppb m

response 701921

(+) = Expected Retention Time
BB067848.D 8330B_012120_PLUS.M Tue Feb 04 09:46:00 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
02/05/20 17:05

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067851.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067851.D\dad1A.ch
Acq On : 03-Feb-2020, 14:19:15 Operator: williamh
Sample : op78763-MS Inst : G1315B
Misc : op78763,GBB1981,520,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 04 09:30:09 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	11.32	11.32	1172294	1851868	593.690	534.943
	Spiked Amount 500.000	Range 70 - 136		Recovery =		118.74%	106.99%
	Target Compounds						
1)	TNX	1.35	1.35	1112425	1753781	466.349	490.061
2)	HMX	1.53	1.53	1817004	4997204	1195.146	1160.477
3)	DNX	1.75	1.74	725906	1173714	496.833	521.585
4)	MNX	2.35	2.35	1107085	1697147	485.127	477.519
5)	RDX	2.99	2.99	974351	1582782	508.888	509.419
6)	1,3,5-Trinitrobe	4.80	4.80	5614282	10240110	1449.830	1367.957m
7)	1,3-Dinitrobenze	5.98	5.98	2640662	1771650	510.113	482.219m
8)	3,5-Dinitroanili	6.42	6.41	2033328	3439517	510.002	500.955m
9)	Nitrobenzene	7.48	7.48	1499790	1492558	479.514	485.531
10)	Nitroglycerin	0.00	8.96	0	624103	N.D.	536.932 #
11)	Tetryl	9.63	9.63	1321249	2069519	511.419	487.110
12)	2,4,6-Trinitroto	10.01	10.01	3637862	4334847	1034.395	1059.971
13)	2-Amino-4,6-Dini	10.48	10.48	2345912	3349747	726.559	676.858
14)	4-Amino-2,6-Dini	10.94	10.95	1445595	2704948	615.967	584.084
16)	2,4-Dinitrotolue	11.95	11.95	2325698	1344632	535.541	459.746
17)	2,6-Dinitrotolue	12.37	12.37	1618414	1953031	621.191	576.974
18)	o-Nitrotoluene	15.31	15.31	1185203	1477094	544.714	527.244m
19)	p-Nitrotoluene	15.91	15.91	1774578	1205033	527.206	415.225
20)	m-Nitrotoluene	16.74	16.74	1475401	1784231	479.690m	483.021m
21)	PETN	0.00	18.48	0	654619	N.D.	1094.562m#

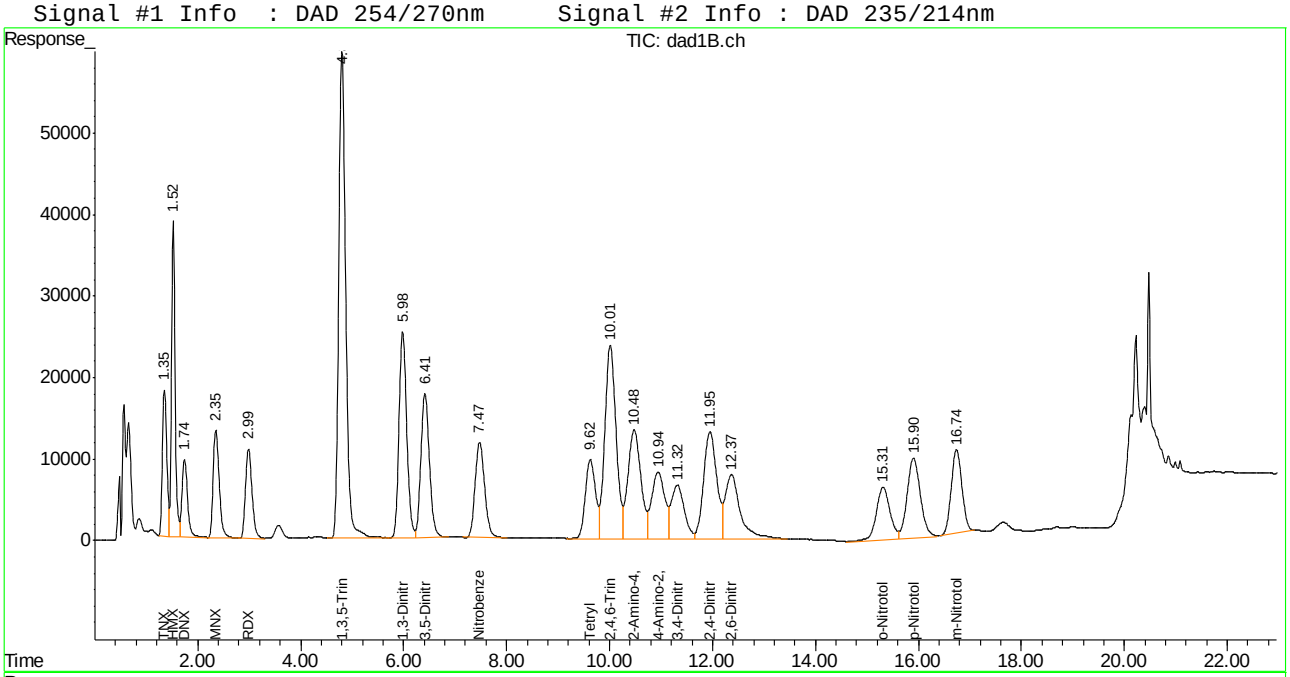
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB067851.D 8330B_012120_PLUS.M Tue Feb 04 11:21:37 2020 Page 1

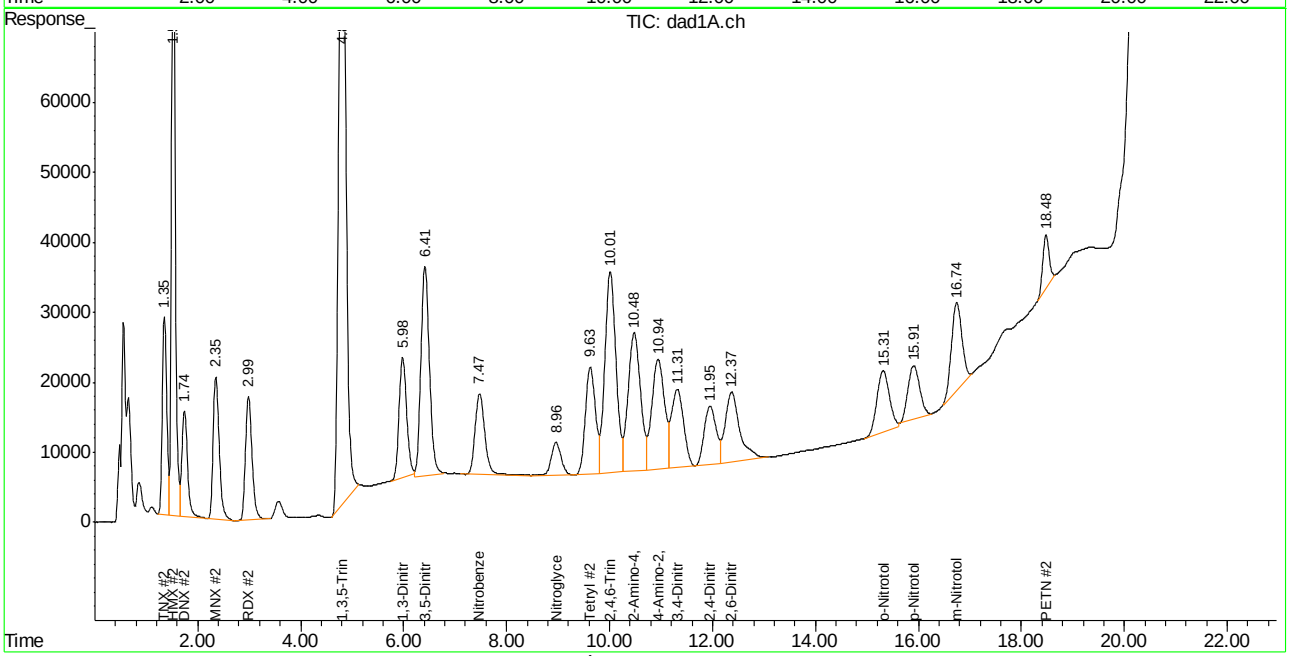
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067851.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067851.D\dad1A.ch
Acq On : 03-Feb-2020, 14:19:15 Operator: williamh
Sample : op78763-MS Inst : G1315B
Misc : op78763,GBB1981,520,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:48 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

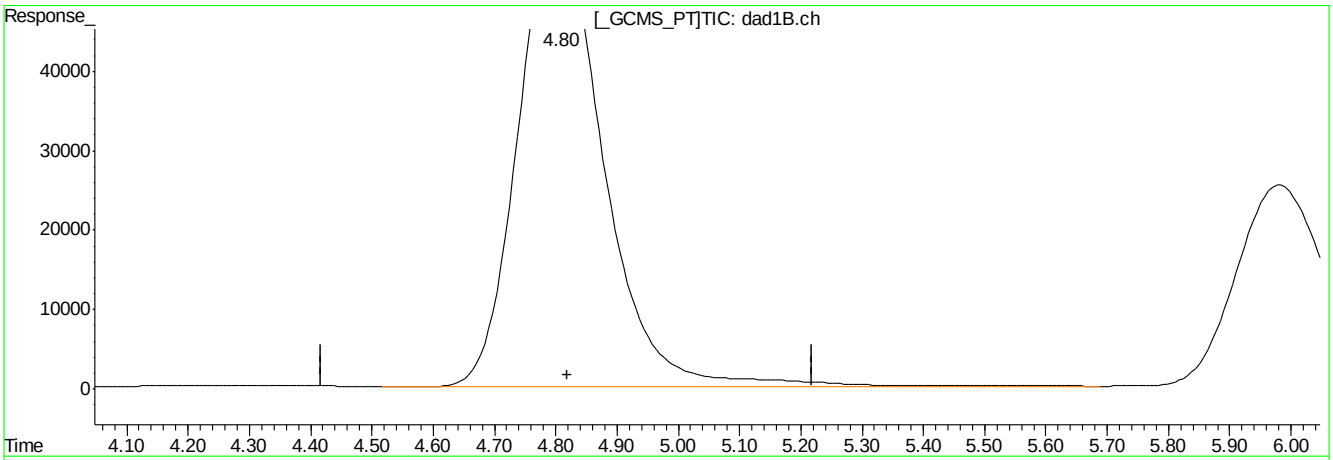
Sample Number: OP78763-MS
Lab FileID: BB067851.D
Injection Time: 02/03/20 14:19
Method: SW846 8330B
Analyst approved: 02/05/20 15:59 William Hustedde
Supervisor approved: 02/05/20 17:05 Naresh Jiawan

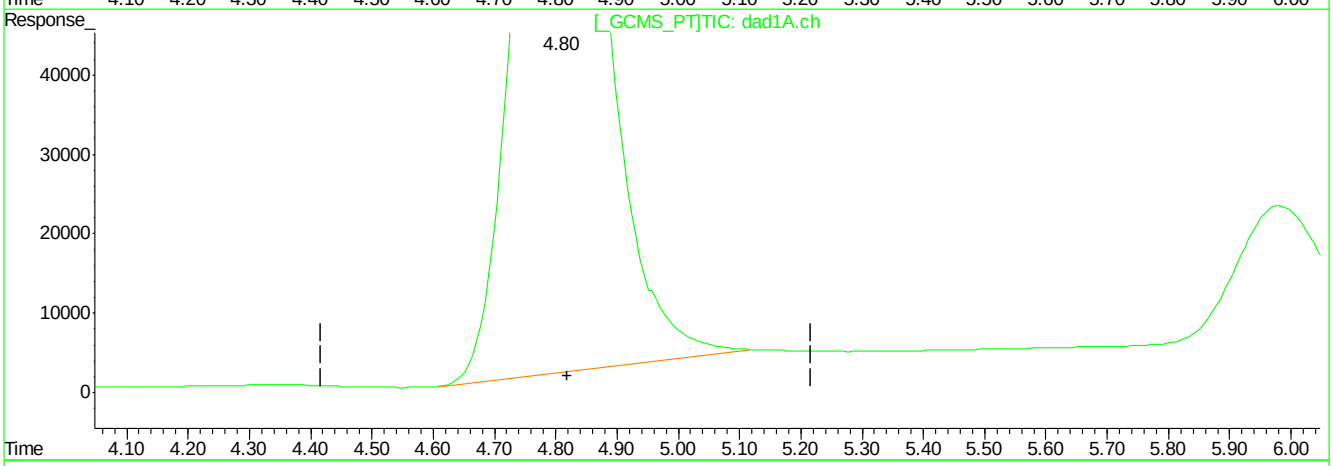
Parameter	CAS	Sig#	R.T. (min.)	Reason
1,3,5-Trinitrobenzene	99-35-4	2	4.80	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	5.98	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	6.41	Poor instrument integration
o-Nitrotoluene	88-72-2	2	15.31	Poor instrument integration
m-Nitrotoluene	99-08-1	1	16.74	Poor instrument integration
m-Nitrotoluene	99-08-1	2	16.74	Poor instrument integration
PETN	78-11-5	2	18.48	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067851.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067851.D\dad1A.ch
Acq On : 03-Feb-2020, 14:19:15 Operator: williamh
Sample : op78763-MS Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(6) 1,3,5-Trinitrobenzene

4.80min 1449.830ppb

response 5614282

(6) 1,3,5-Trinitrobenzene #2

4.80min 1367.957ppb m

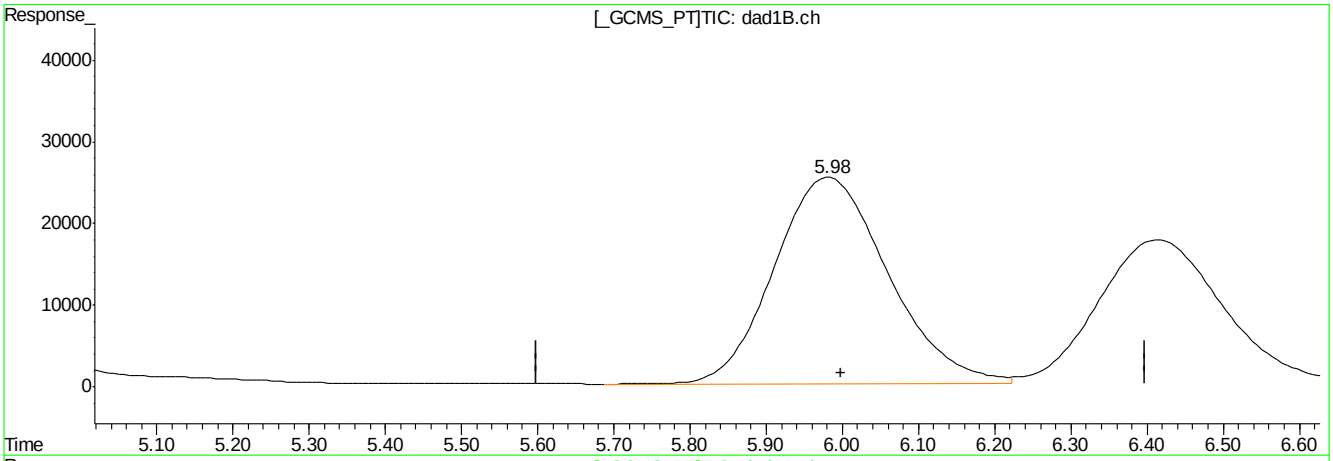
response 10240110

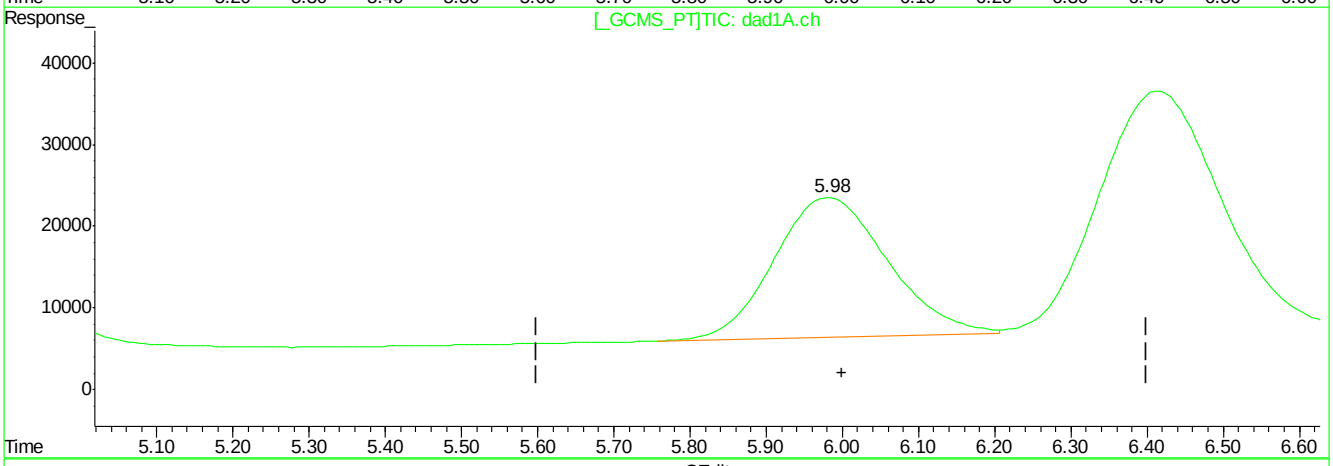
(+) = Expected Retention Time
BB067851.D 8330B_012120_PLUS.M Tue Feb 04 09:47:51 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067851.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067851.D\dad1A.ch
Acq On : 03-Feb-2020, 14:19:15 Operator: williamh
Sample : op78763-MS Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

5.98min 510.113ppb

response 2640662

(7) 1,3-Dinitrobenzene #2

5.98min 482.219ppb m

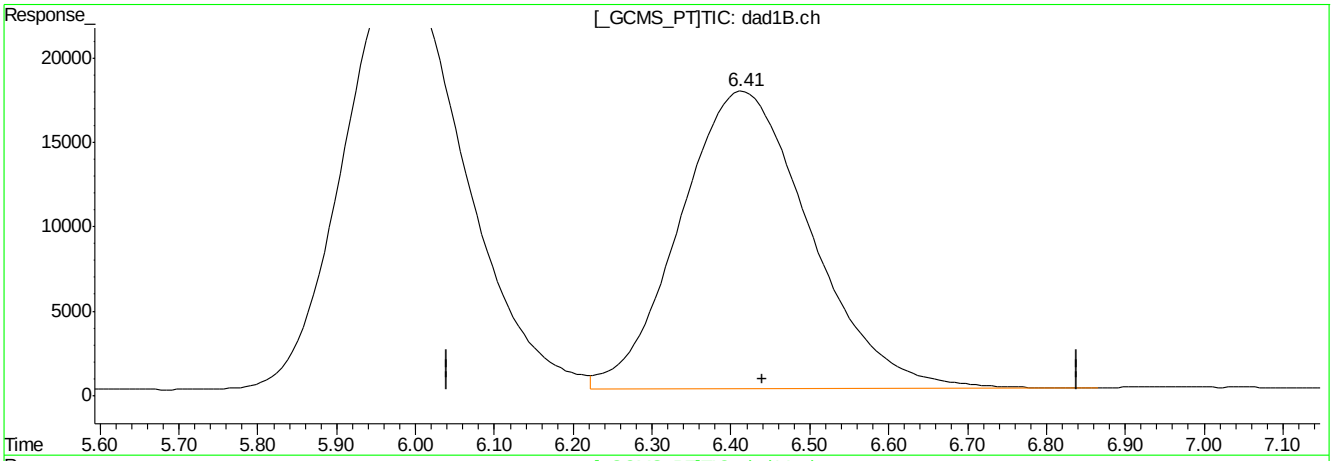
response 1771650

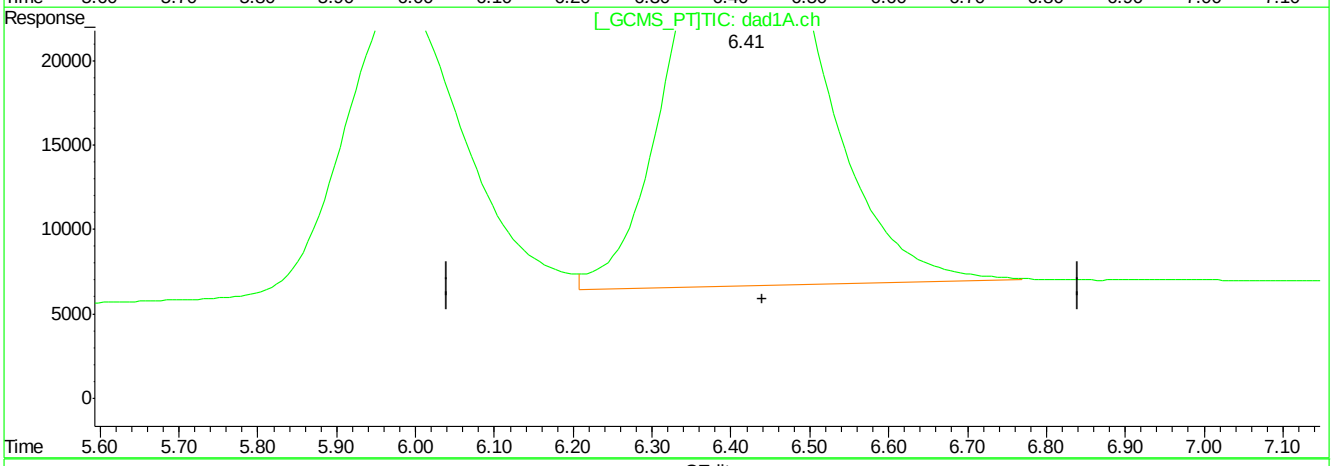
(+) = Expected Retention Time
BB067851.D 8330B_012120_PLUS.M Tue Feb 04 09:47:59 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067851.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067851.D\dad1A.ch
Acq On : 03-Feb-2020, 14:19:15 Operator: williamh
Sample : op78763-MS Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.42min 510.002ppb

response 2033328

(8) 3,5-Dinitroaniline #2

6.41min 500.955ppb m

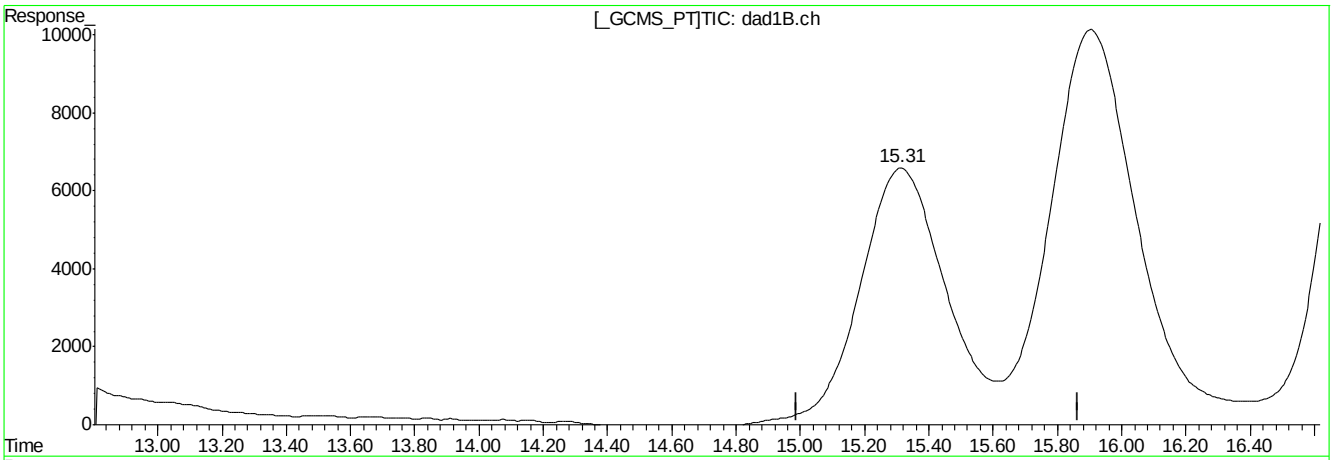
response 3439517

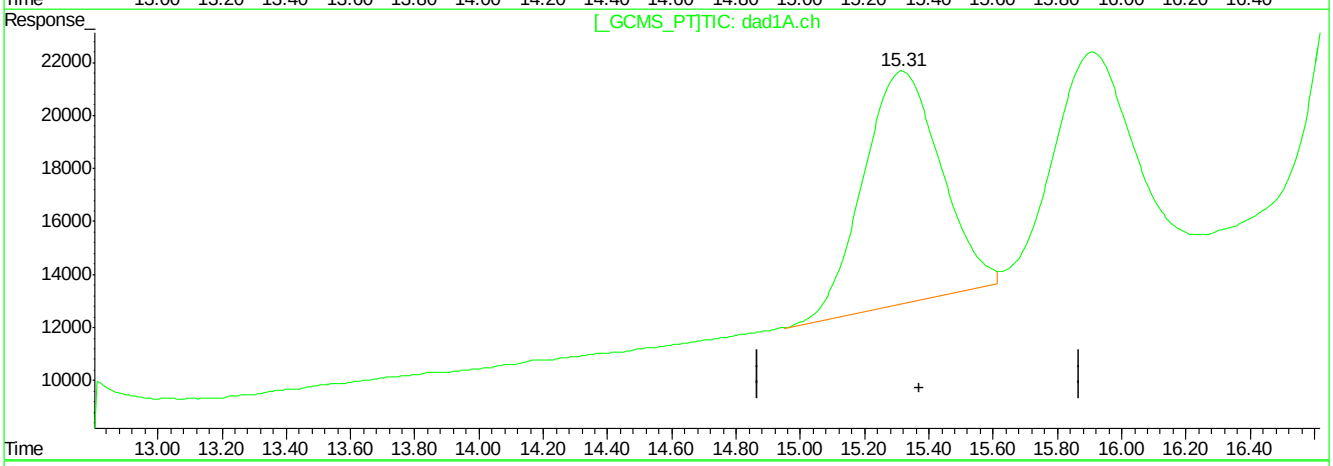
(+) = Expected Retention Time
BB067851.D 8330B_012120_PLUS.M Tue Feb 04 09:48:07 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067851.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067851.D\dad1A.ch
Acq On : 03-Feb-2020, 14:19:15 Operator: williamh
Sample : op78763-MS Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(18) o-Nitrotoluene

15.31min 544.714ppb

response 1185203

(18) o-Nitrotoluene #2

15.31min 527.244ppb m

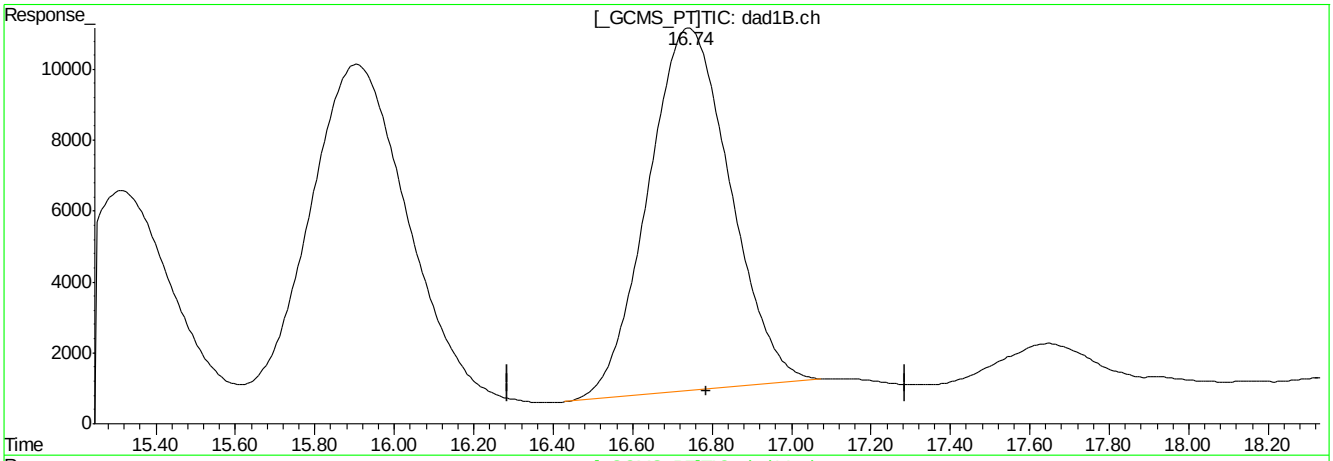
response 1477094

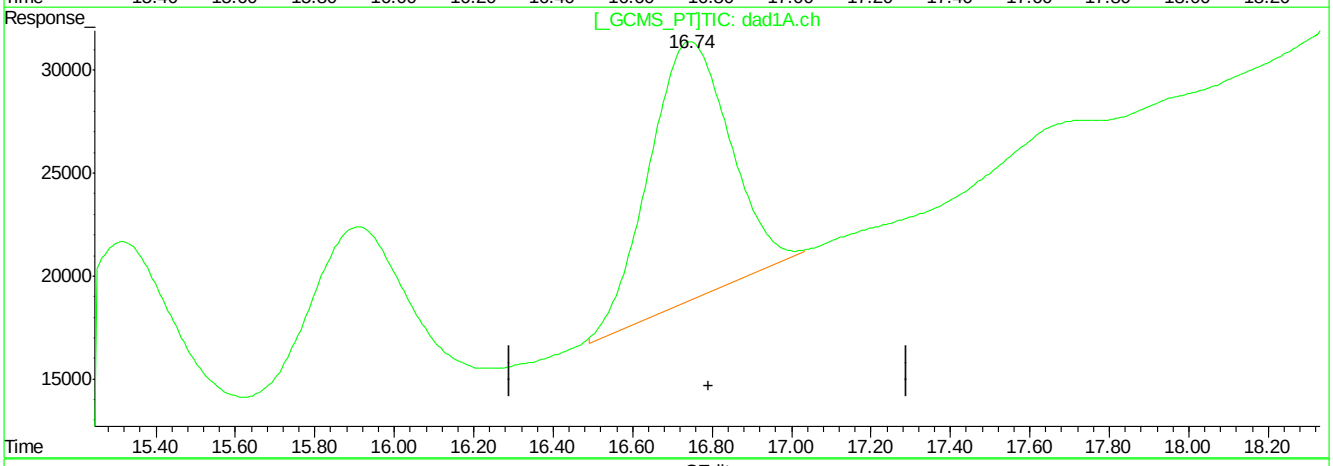
(+) = Expected Retention Time
BB067851.D 8330B_012120_PLUS.M Tue Feb 04 09:48:23 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067851.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067851.D\dad1A.ch
Acq On : 03-Feb-2020, 14:19:15 Operator: williamh
Sample : op78763-MS Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(20) m-Nitrotoluene

16.74min 479.690ppb m

response 1475401

(20) m-Nitrotoluene #2

16.74min 483.021ppb m

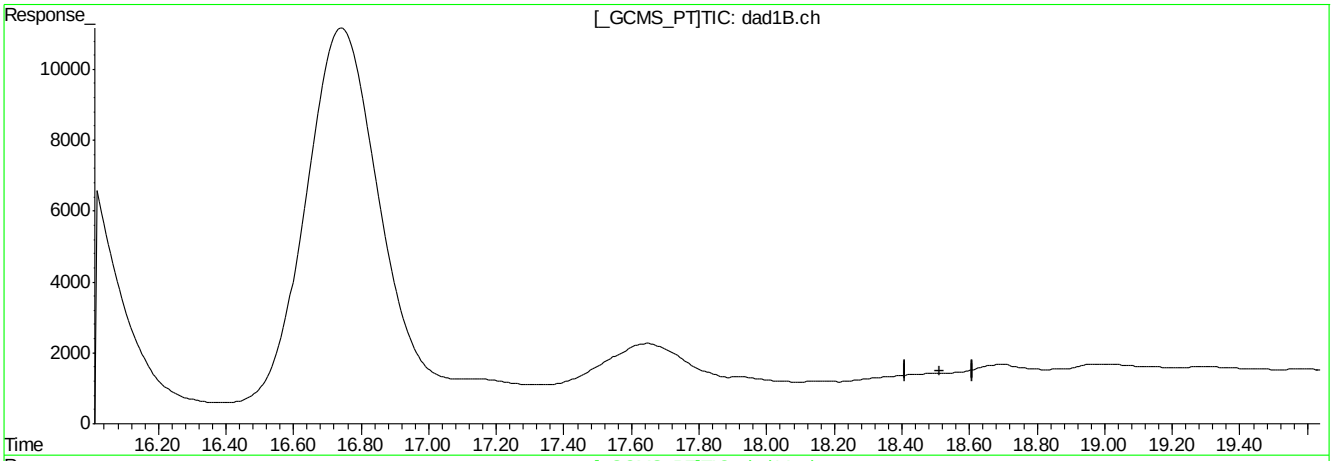
response 1784231

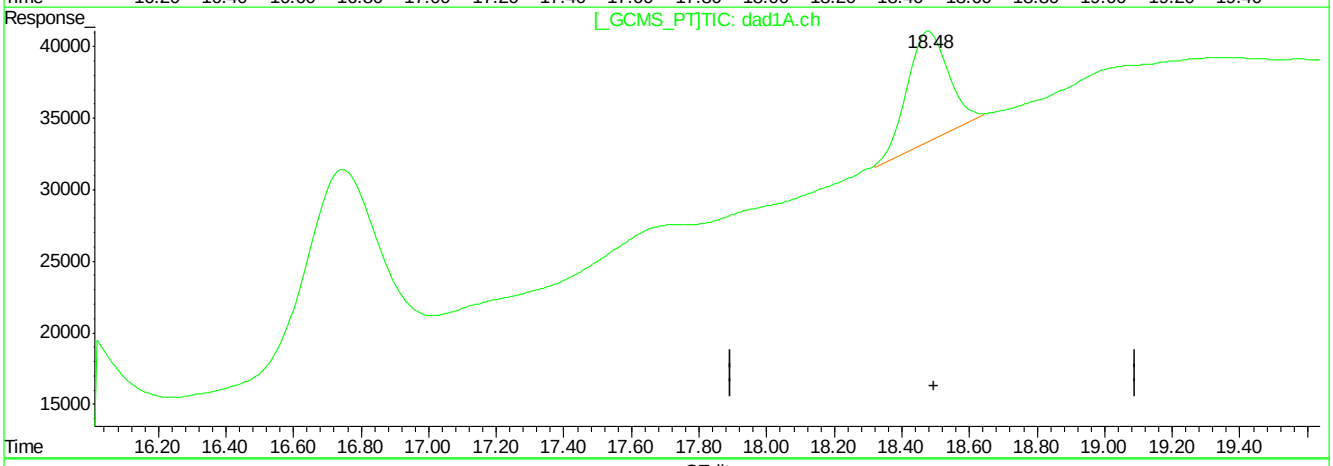
(+) = Expected Retention Time
BB067851.D 8330B_012120_PLUS.M Tue Feb 04 09:48:41 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067851.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067851.D\dad1A.ch
Acq On : 03-Feb-2020, 14:19:15 Operator: williamh
Sample : op78763-MS Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

18.48min 1094.562ppb m

response 654619

(+) = Expected Retention Time
BB067851.D 8330B_012120_PLUS.M Tue Feb 04 09:48:47 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
02/05/20 17:05

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067852.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067852.D\dad1A.ch
Acq On : 03-Feb-2020, 14:49:14 Operator: williamh
Sample : op78763-MSD Inst : G1315B
Misc : op78763,GBB1981,520,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 04 09:30:10 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	11.31	11.31	1220845	1841171	618.277	531.853
	Spiked Amount 500.000	Range 70 - 136		Recovery =		123.66%	106.37%
	Target Compounds						
1)	TNX	1.35	1.35	1105764	1746397	463.553	487.998
2)	HMX	1.52	1.52	1828478	5073276	1202.693	1178.143
3)	DNX	1.74	1.74	730317	1204278	499.852	535.187
4)	MNX	2.35	2.35	1098833	1693938	481.511	476.616
5)	RDX	2.98	2.98	971461	1598542	507.378	514.491
6)	1,3,5-Trinitrobe	4.80	4.79	5636473	10308589	1455.561	1377.105m
7)	1,3-Dinitrobenze	5.98	5.97	2640667	1829522	510.114	497.970m
8)	3,5-Dinitroanili	6.40	6.40	2039233	3452017	511.483	502.776m
9)	Nitrobenzene	7.47	7.47	1526375	1498658	488.014	487.515
10)	Nitroglycerin	0.00	8.96	0	633553	N.D.	545.062 #
11)	Tetryl	9.62	9.62	1352161	2091276	523.385	492.231
12)	2,4,6-Trinitroto	10.01	10.01	3654559	4335710	1039.143	1060.182
13)	2-Amino-4,6-Dini	10.47	10.47	2389780	3365466	740.145	680.034
14)	4-Amino-2,6-Dini	10.93	10.93	1493965	2736604	636.577	590.920
16)	2,4-Dinitrotolue	11.94	11.94	2404643	1353528	553.720	462.787
17)	2,6-Dinitrotolue	12.36	12.37	1966714	1960288	754.878	579.118
18)	o-Nitrotoluene	15.32	15.32	1161759	1466424	533.939	523.435m
19)	p-Nitrotoluene	15.91	15.92	1760960	1191066	523.160	410.412
20)	m-Nitrotoluene	16.74	16.75	1489669	1777091	484.329m	481.088m
21)	PETN	0.00	18.48	0	627941	N.D.	1049.955m#

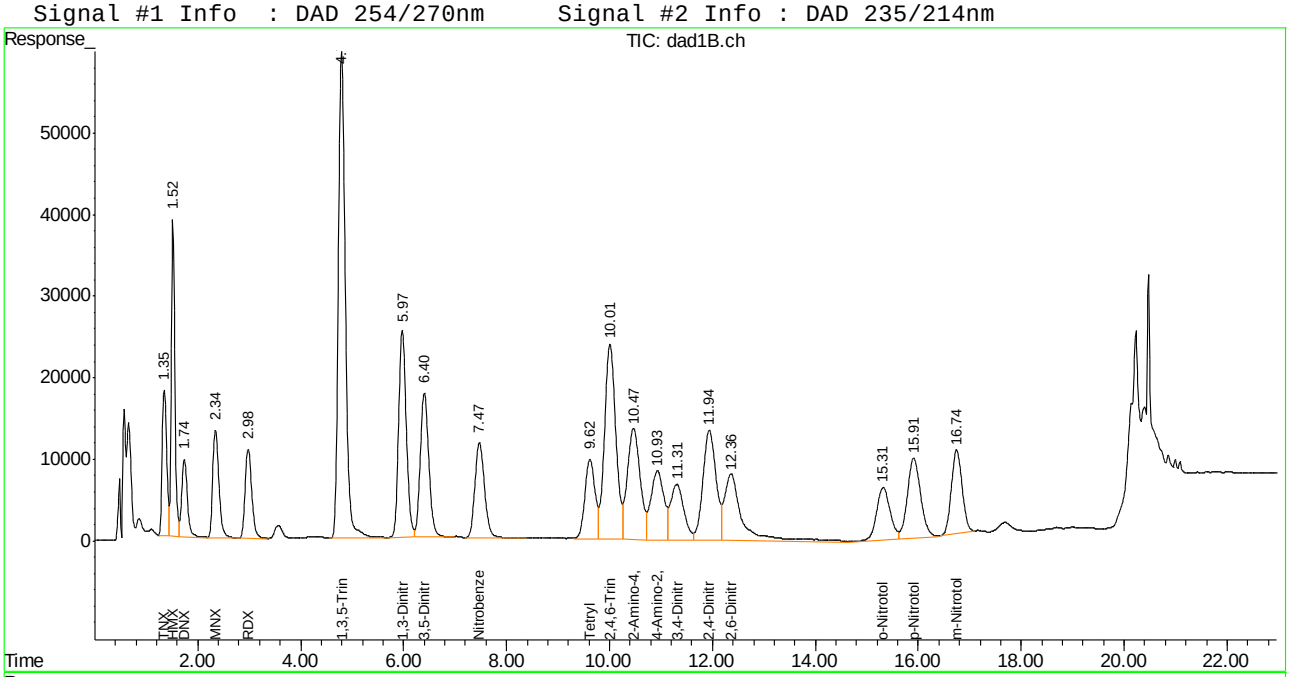
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB067852.D 8330B_012120_PLUS.M Tue Feb 04 11:21:38 2020 Page 1

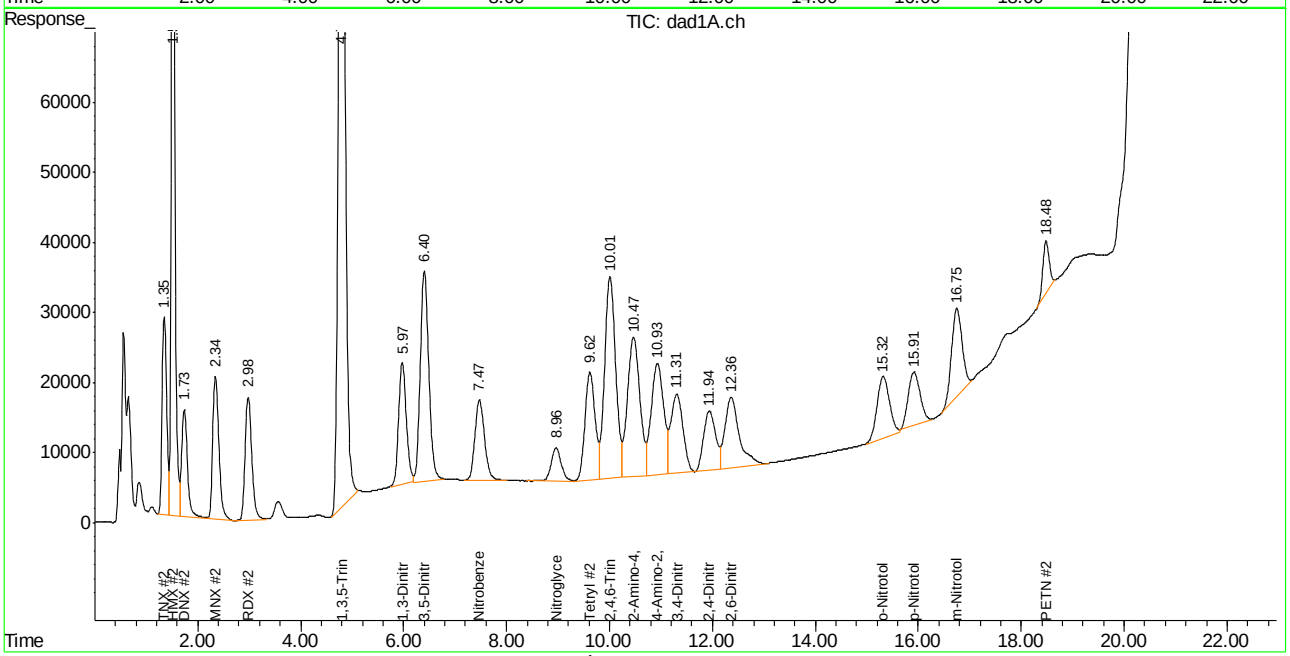
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067852.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067852.D\dad1A.ch
Acq On : 03-Feb-2020, 14:49:14 Operator: williamh
Sample : op78763-MSD Inst : G1315B
Misc : op78763,GBB1981,520,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:50 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

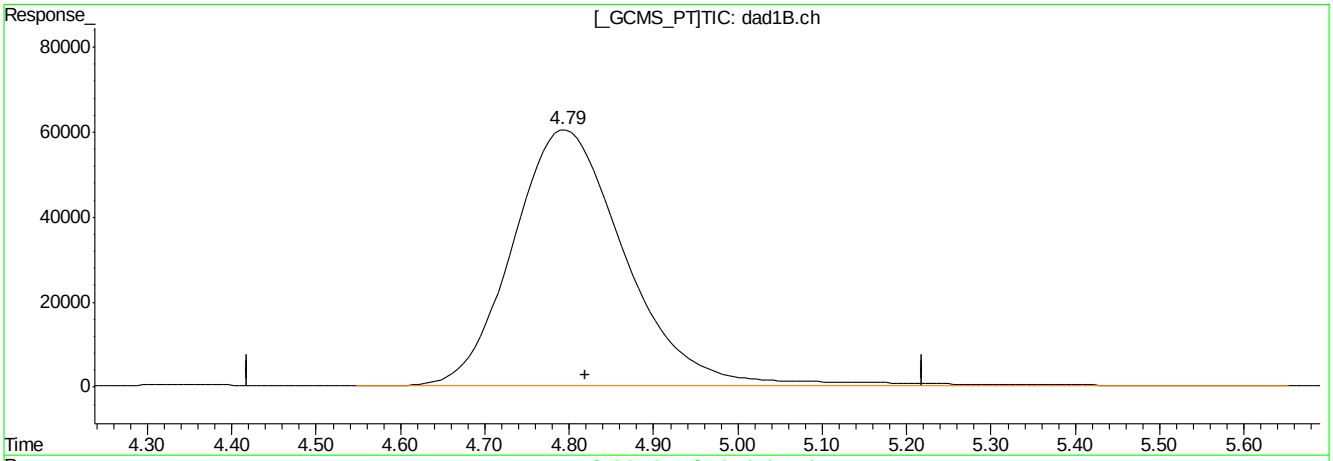
Sample Number: OP78763-MSD
Lab FileID: BB067852.D
Injection Time: 02/03/20 14:49
Method: SW846 8330B
Analyst approved: 02/05/20 15:59 William Hustedde
Supervisor approved: 02/05/20 17:05 Naresh Jiawan

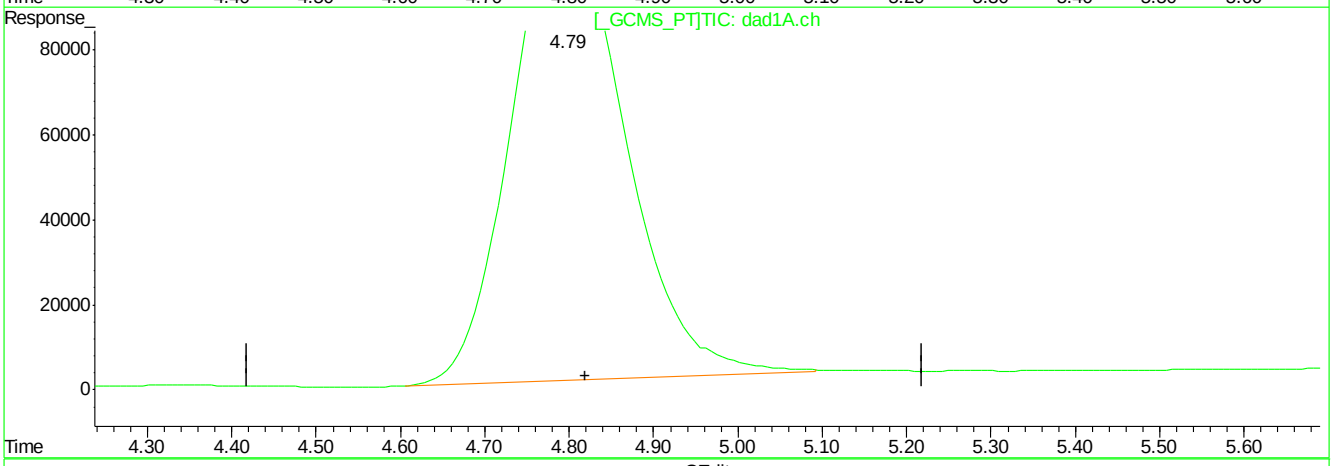
Parameter	CAS	Sig#	R.T. (min.)	Reason
1,3,5-Trinitrobenzene	99-35-4	2	4.79	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	5.97	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	6.40	Poor instrument integration
o-Nitrotoluene	88-72-2	2	15.32	Poor instrument integration
m-Nitrotoluene	99-08-1	1	16.74	Poor instrument integration
m-Nitrotoluene	99-08-1	2	16.75	Poor instrument integration
PETN	78-11-5	2	18.48	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067852.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067852.D\dad1A.ch
Acq On : 03-Feb-2020, 14:49:14 Operator: williamh
Sample : op78763-MSD Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(6) 1,3,5-Trinitrobenzene

4.80min 1455.561ppb

response 5636473

(6) 1,3,5-Trinitrobenzene #2

4.79min 1377.105ppb m

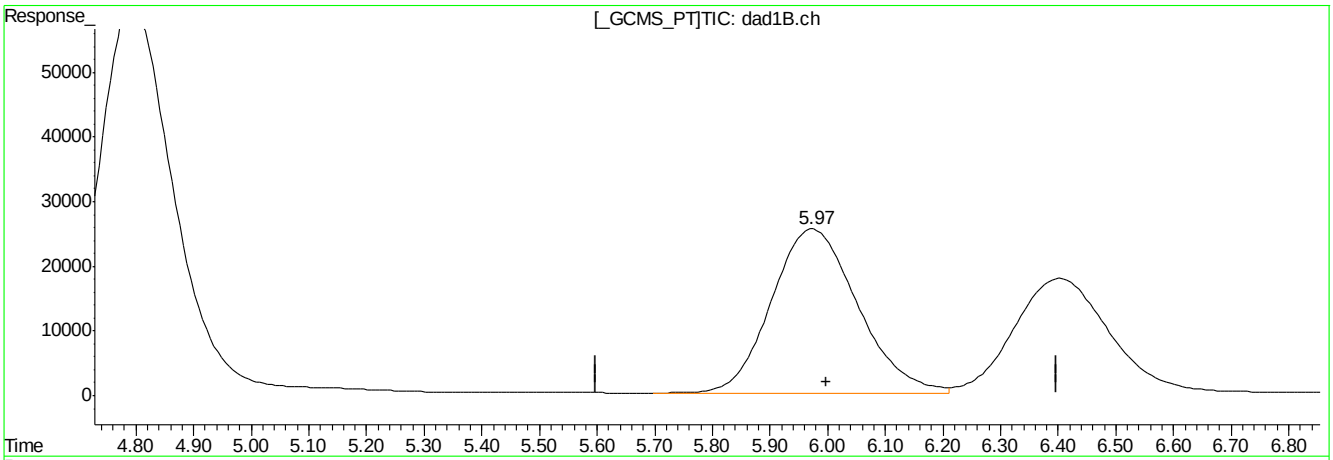
response 10308589

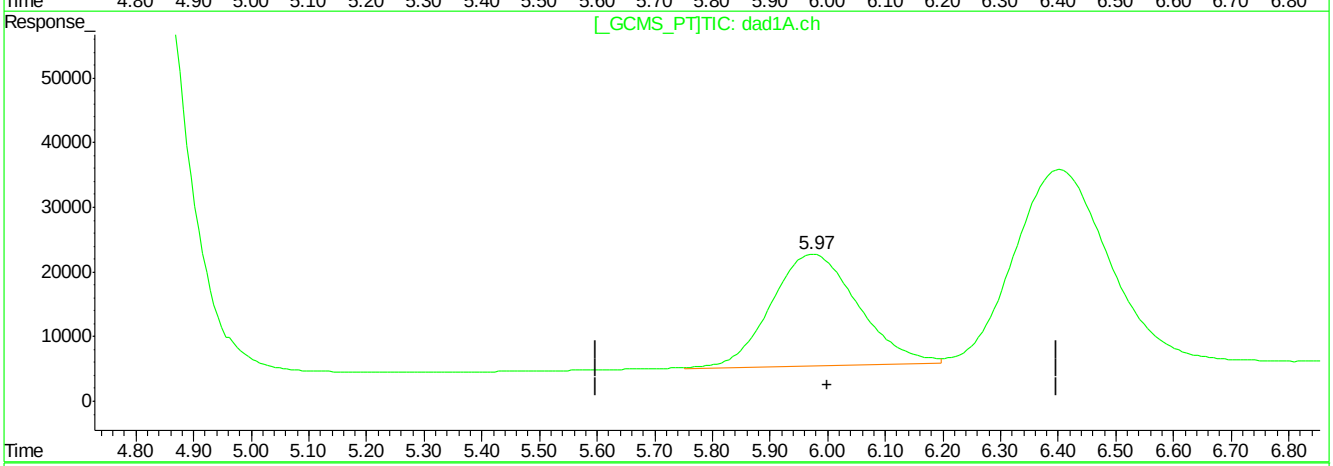
(+) = Expected Retention Time
BB067852.D 8330B_012120_PLUS.M Tue Feb 04 09:49:09 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067852.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067852.D\dad1A.ch
Acq On : 03-Feb-2020, 14:49:14 Operator: williamh
Sample : op78763-MSD Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

5.98min 510.114ppb

response 2640667

(7) 1,3-Dinitrobenzene #2

5.97min 497.970ppb m

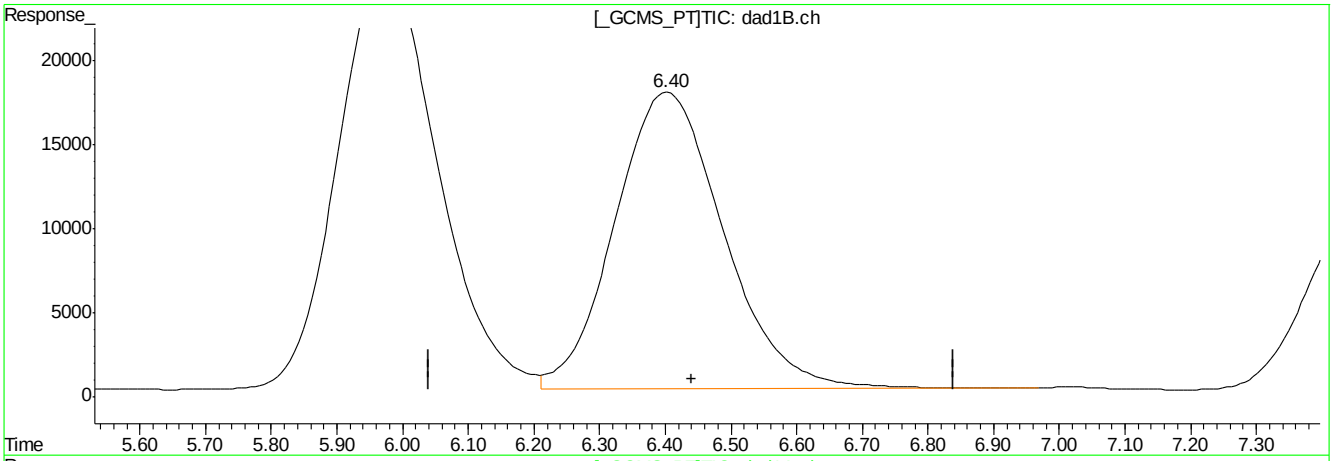
response 1829522

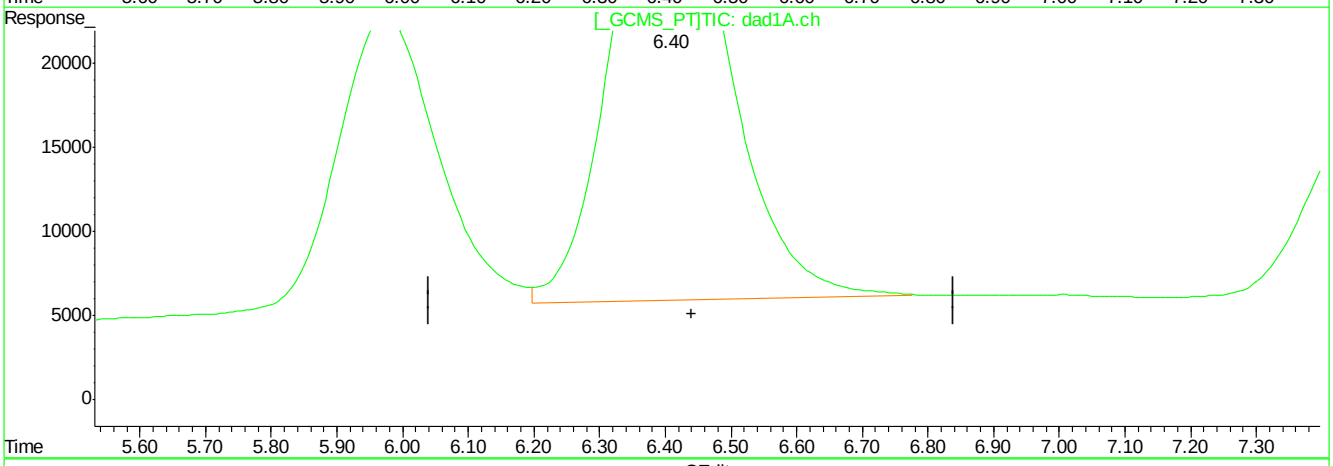
(+) = Expected Retention Time
BB067852.D 8330B_012120_PLUS.M Tue Feb 04 09:49:17 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067852.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067852.D\dad1A.ch
Acq On : 03-Feb-2020, 14:49:14 Operator: williamh
Sample : op78763-MSD Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.40min 511.483ppb

response 2039233

(8) 3,5-Dinitroaniline #2

6.40min 502.776ppb m

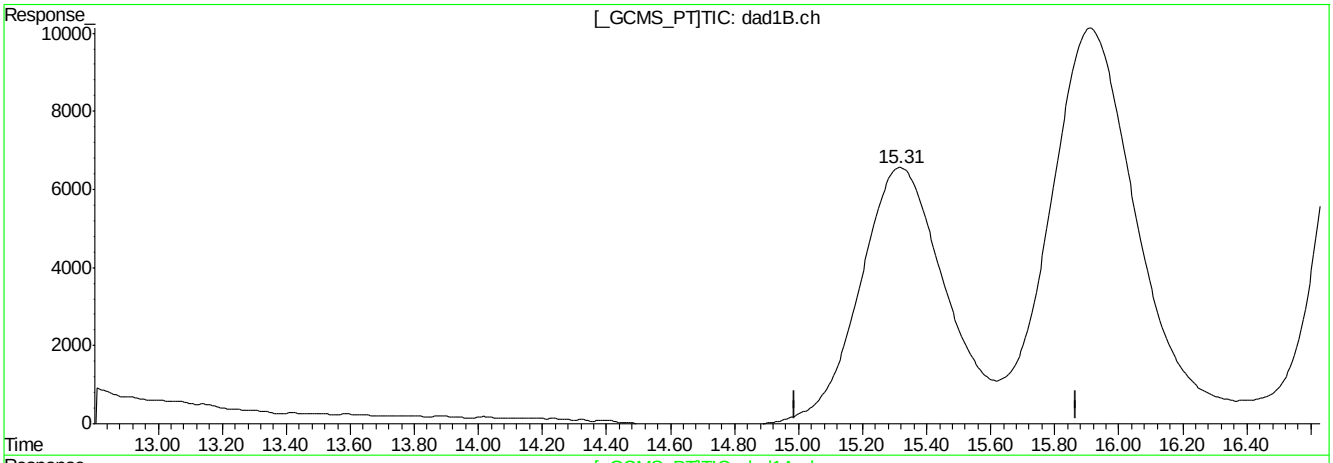
response 3452017

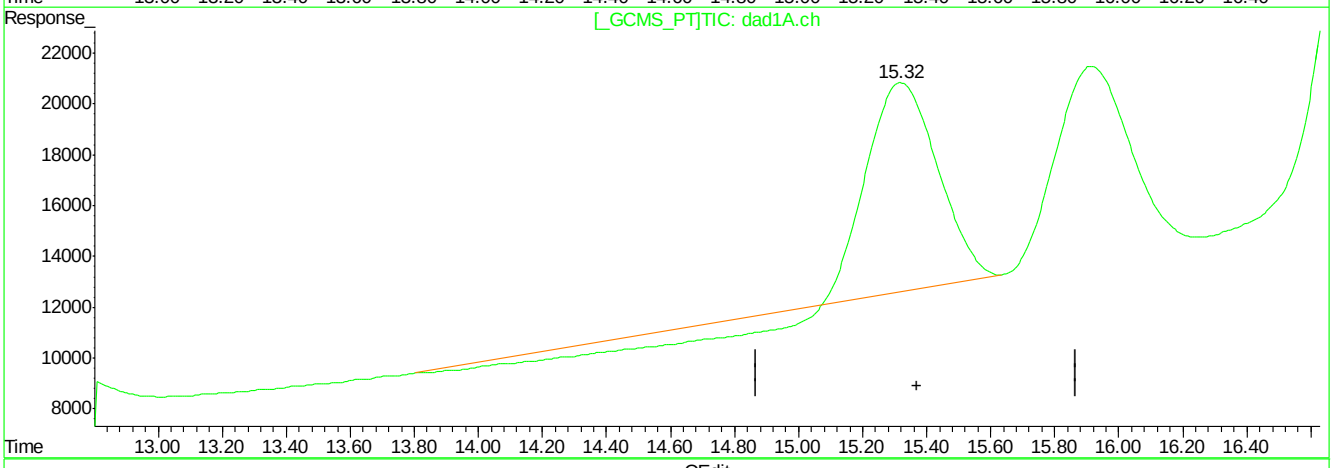
(+) = Expected Retention Time
BB067852.D 8330B_012120_PLUS.M Tue Feb 04 09:49:24 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067852.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067852.D\dad1A.ch
Acq On : 03-Feb-2020, 14:49:14 Operator: williamh
Sample : op78763-MSD Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(18) o-Nitrotoluene

15.32min 533.939ppb

response 1161759

(18) o-Nitrotoluene #2

15.32min 344.686ppb

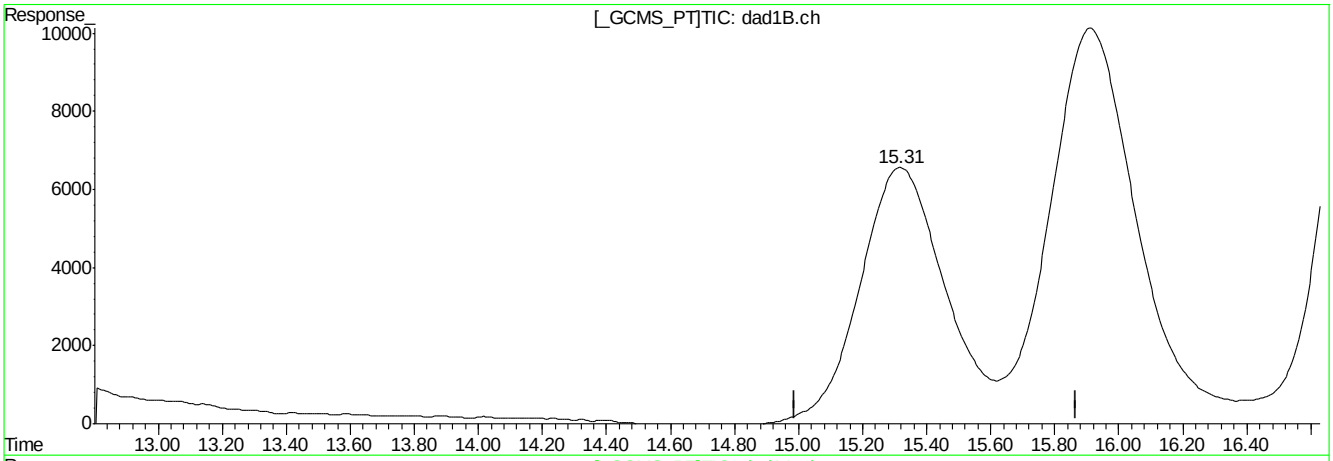
response 965649

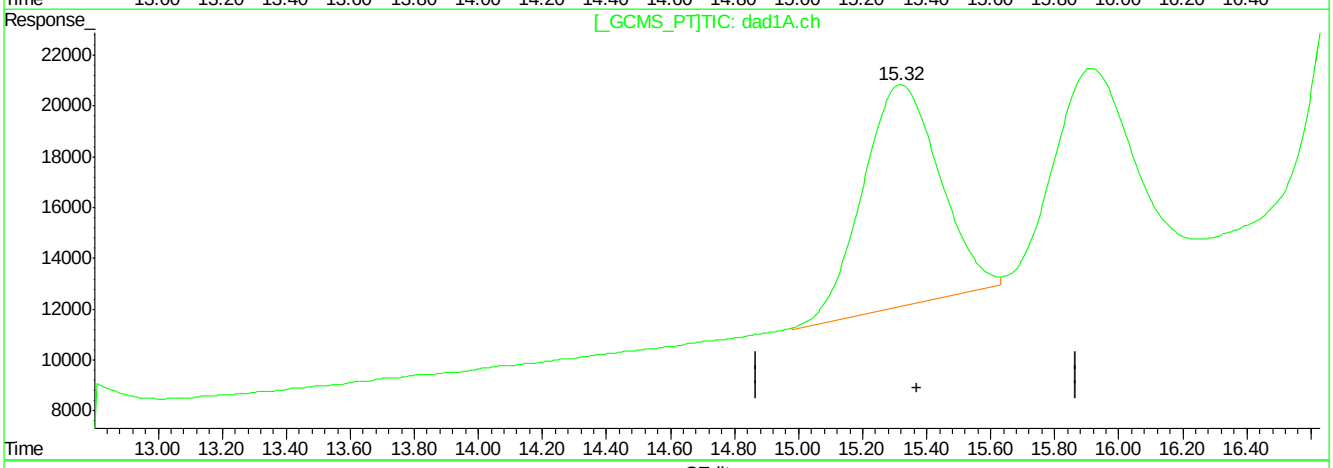
(+) = Expected Retention Time
BB067852.D 8330B_012120_PLUS.M Tue Feb 04 09:49:36 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067852.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067852.D\dad1A.ch
Acq On : 03-Feb-2020, 14:49:14 Operator: williamh
Sample : op78763-MSD Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(18) o-Nitrotoluene

15.32min 533.939ppb

response 1161759

(18) o-Nitrotoluene #2

15.32min 523.435ppb m

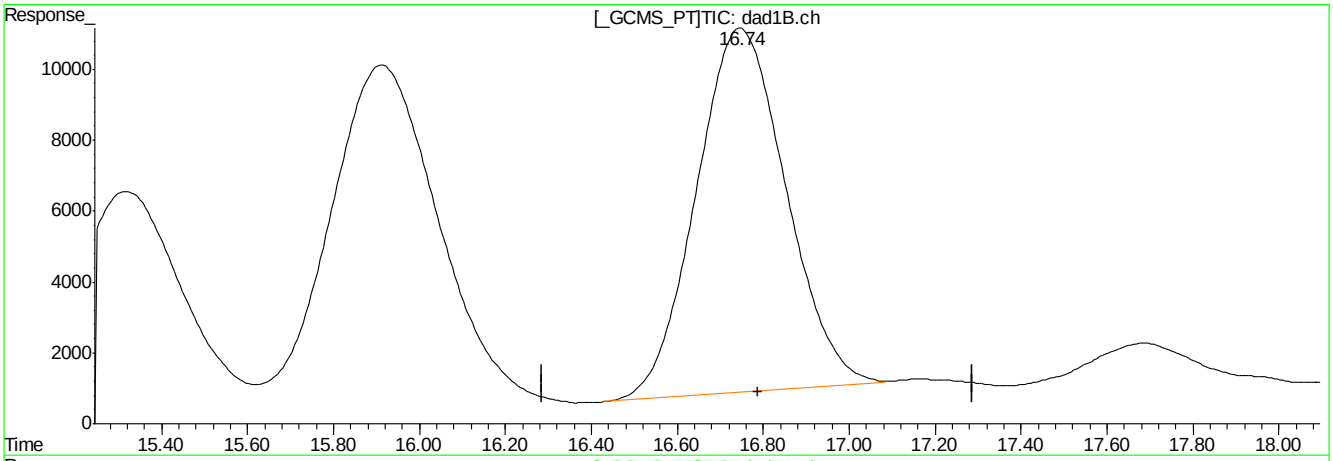
response 1466424

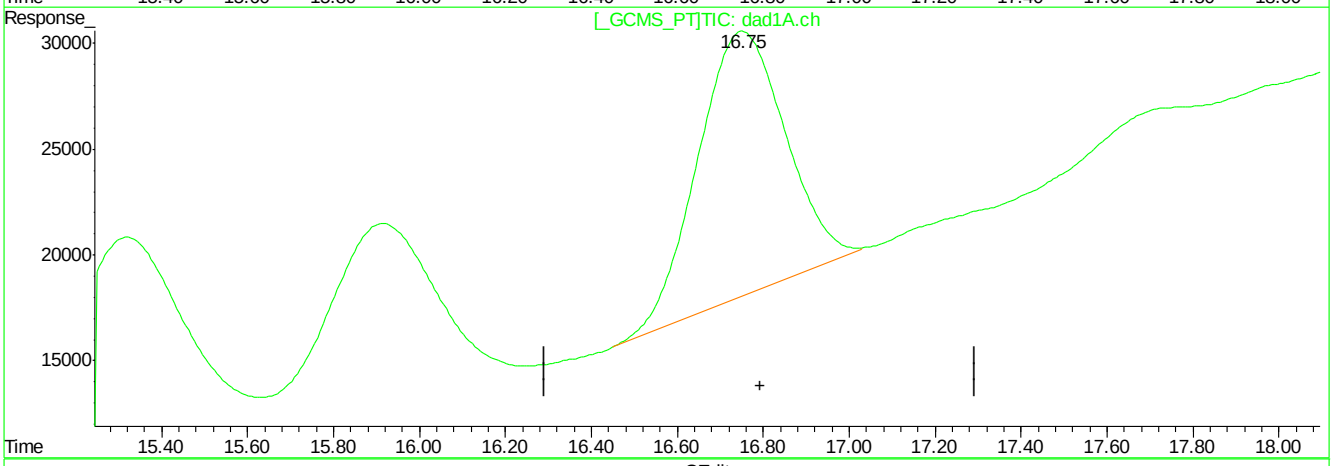
(+) = Expected Retention Time
BB067852.D 8330B_012120_PLUS.M Tue Feb 04 09:49:41 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067852.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067852.D\dad1A.ch
Acq On : 03-Feb-2020, 14:49:14 Operator: williamh
Sample : op78763-MSD Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(20) m-Nitrotoluene

16.74min 484.329ppb m

response 1489669

(20) m-Nitrotoluene #2

16.75min 481.088ppb m

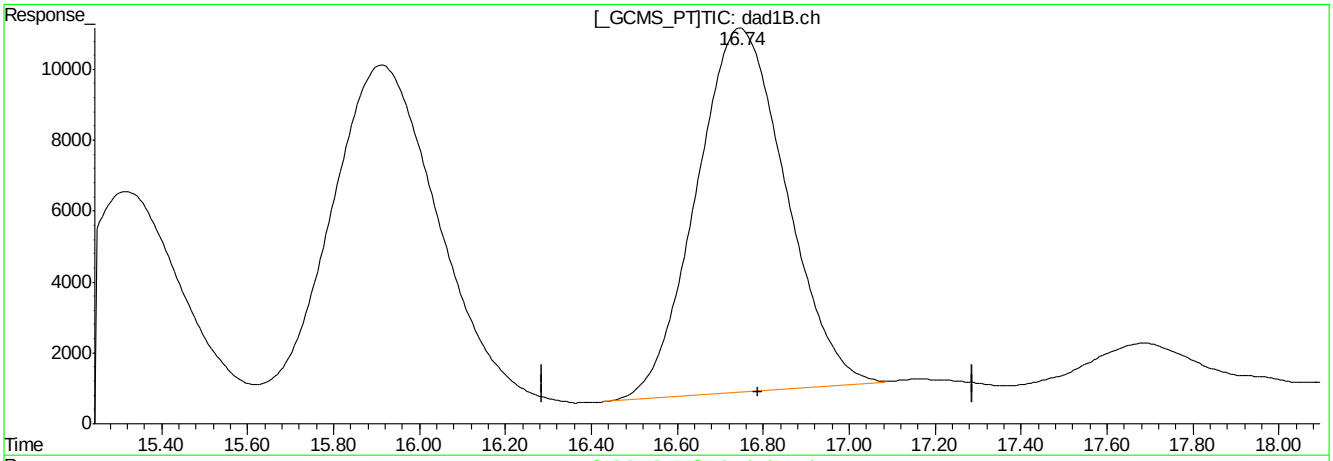
response 1777091

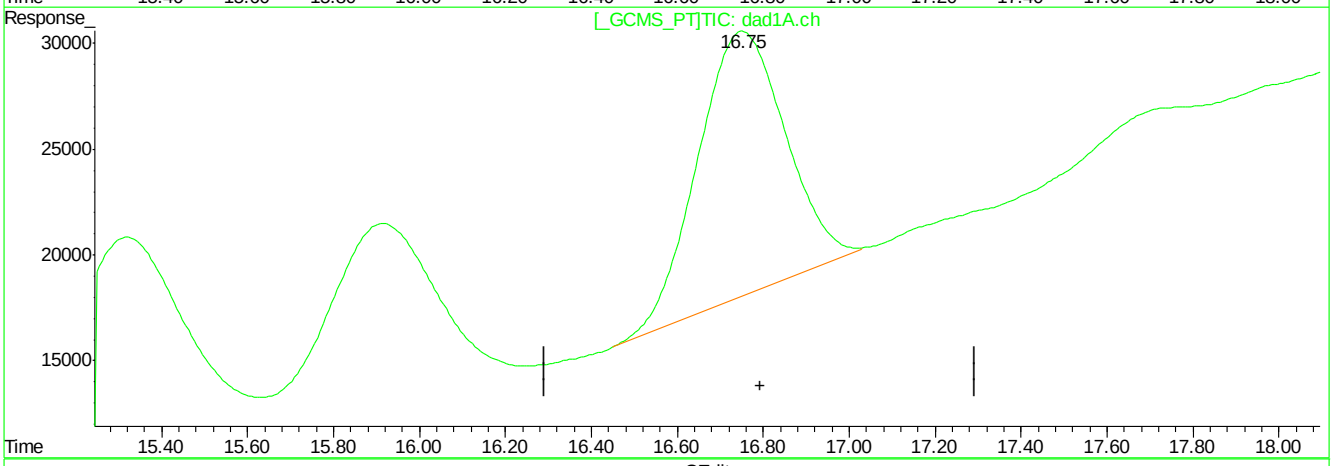
(+) = Expected Retention Time
BB067852.D 8330B_012120_PLUS.M Tue Feb 04 09:49:55 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067852.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067852.D\dad1A.ch
Acq On : 03-Feb-2020, 14:49:14 Operator: williamh
Sample : op78763-MSD Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(20) m-Nitrotoluene

16.74min 484.329ppb m

response 1489669

(20) m-Nitrotoluene #2

16.75min 481.088ppb m

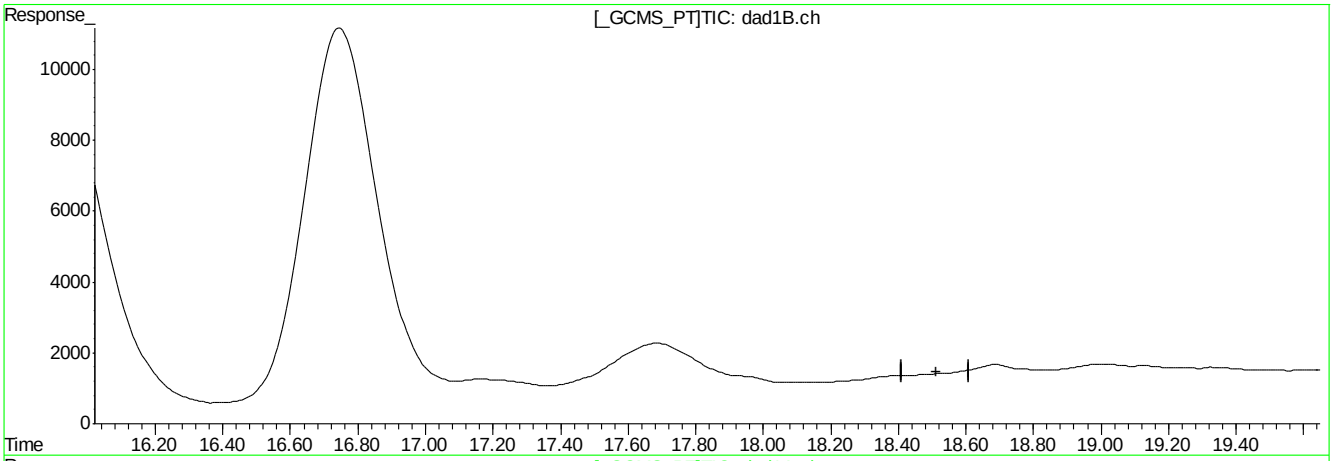
response 1777091

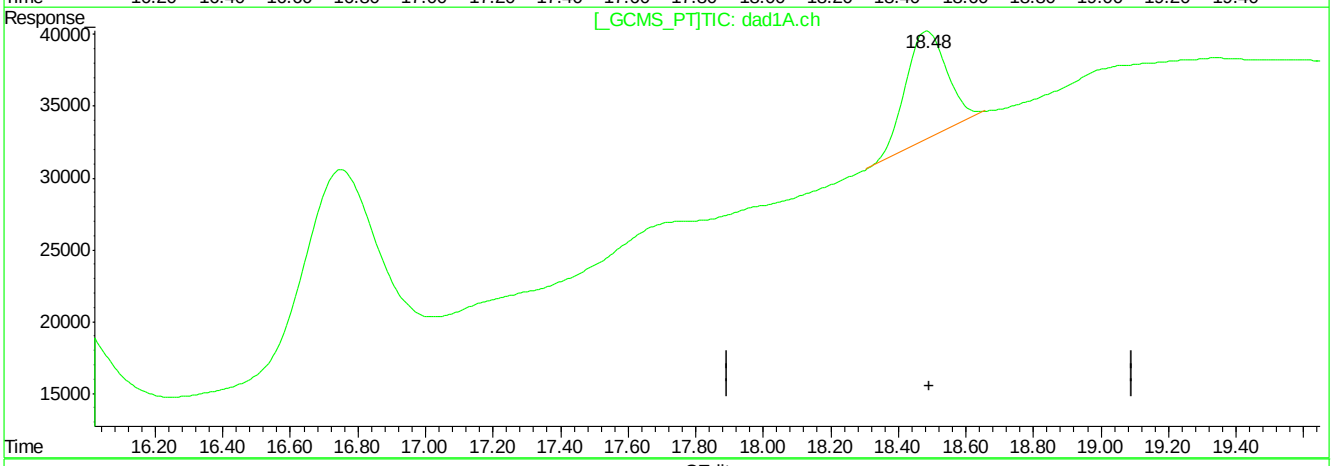
(+) = Expected Retention Time
BB067852.D 8330B_012120_PLUS.M Tue Feb 04 09:50:11 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067852.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067852.D\dad1A.ch
Acq On : 03-Feb-2020, 14:49:14 Operator: williamh
Sample : op78763-MSD Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

18.48min 1049.955ppb m

response 627941

(+) = Expected Retention Time
BB067852.D 8330B_012120_PLUS.M Tue Feb 04 09:50:17 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 01/23/20 18:00

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1B.ch Vial: 91
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1A.ch
Acq On : 21-Jan-2020, 14:18:29 Operator: williamh
Sample : IC1975-20 Inst : G1315B
Misc : op78572,GBB1975,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19:43 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.78	10.78	38268	65560	18.156	18.589
	Spiked Amount 500.000	Range 70 - 136		Recovery =		3.63%#	3.72%#
	Target Compounds						
1)	TNX	1.33	1.33	26715	61150	9.522	13.631 #
2)	HMX	1.45	1.46	26171	85192	15.740m	18.515
3)	DNX	1.70	1.69	29607	68554	21.017m	29.452m#
4)	MNX	2.27	2.27	47511	70587	18.167m	17.590m
5)	RDX	2.87	2.87	36368	54641	18.021m	17.074m
6)	1,3,5-Trinitrobe	4.64	4.63	74966	145769	16.907	17.454m
7)	1,3-Dinitrobenze	5.78	5.79	98939	72241	17.599m	18.844m
8)	3,5-Dinitroanili	6.12	6.12	74635	140084	17.424	18.978m
9)	Nitrobenzene	7.27	7.26	62311	57730	18.342m	17.236m
10)	Nitroglycerin	0.00	8.85	0	26123	N.D.	20.179 #
11)	Tetryl	9.17	9.17	52656	91147	16.451	17.631
12)	2,4,6-Trinitroto	9.61	9.62	66333	77910	16.680	16.438
13)	2-Amino-4,6-Dini	9.87	9.89	61397	98464	17.064	18.363
14)	4-Amino-2,6-Dini	10.34	10.34	49222	84836	18.376	16.243
16)	2,4-Dinitrotolue	11.45	11.45	81288	38417	16.330m	12.412m
17)	2,6-Dinitrotolue	11.87	11.88	52562	41344	17.676m	11.284
18)	o-Nitrotoluene	14.85	14.89	47958	43662	20.095	13.737m
19)	p-Nitrotoluene	15.46	15.53	67012	43698	17.386	14.619m
20)	m-Nitrotoluene	16.32	16.35	61237	42863	17.618	10.762m
21)	PETN	0.00	0.00	0	0	N.D. d	N.D. d

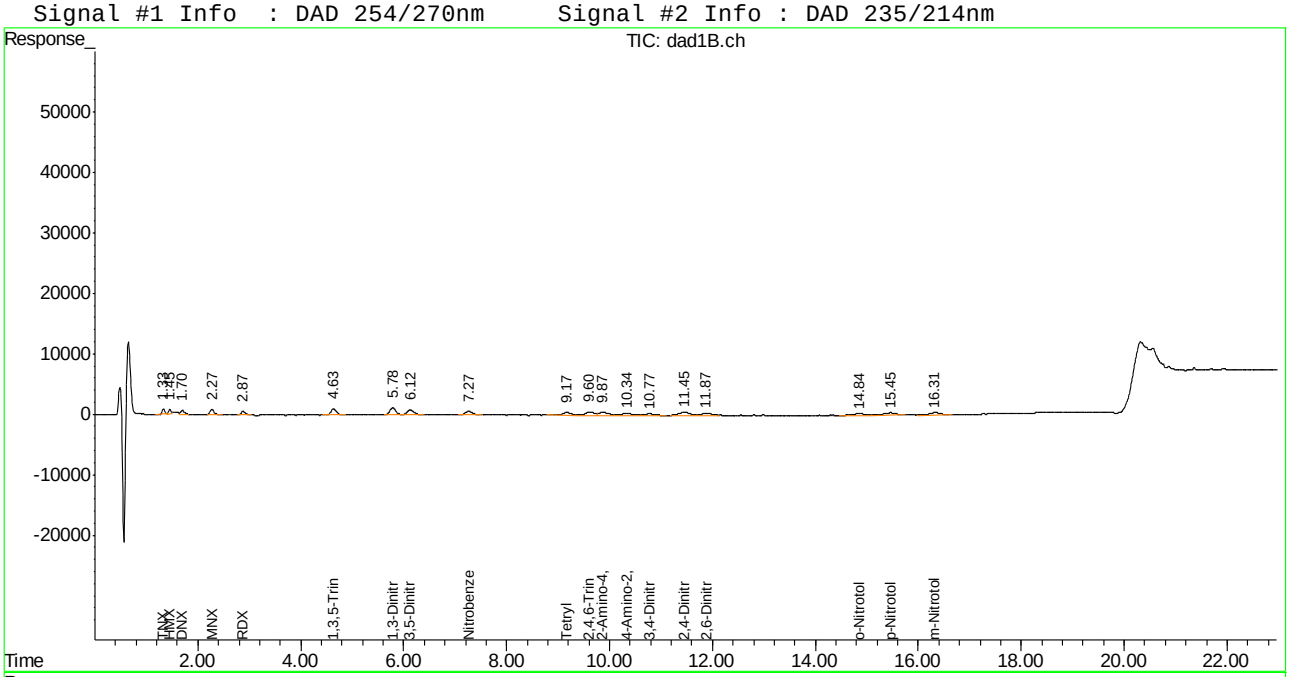
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB067770.D 8330B_012120_PLUS.M Thu Jan 23 14:01:26 2020 Page 1

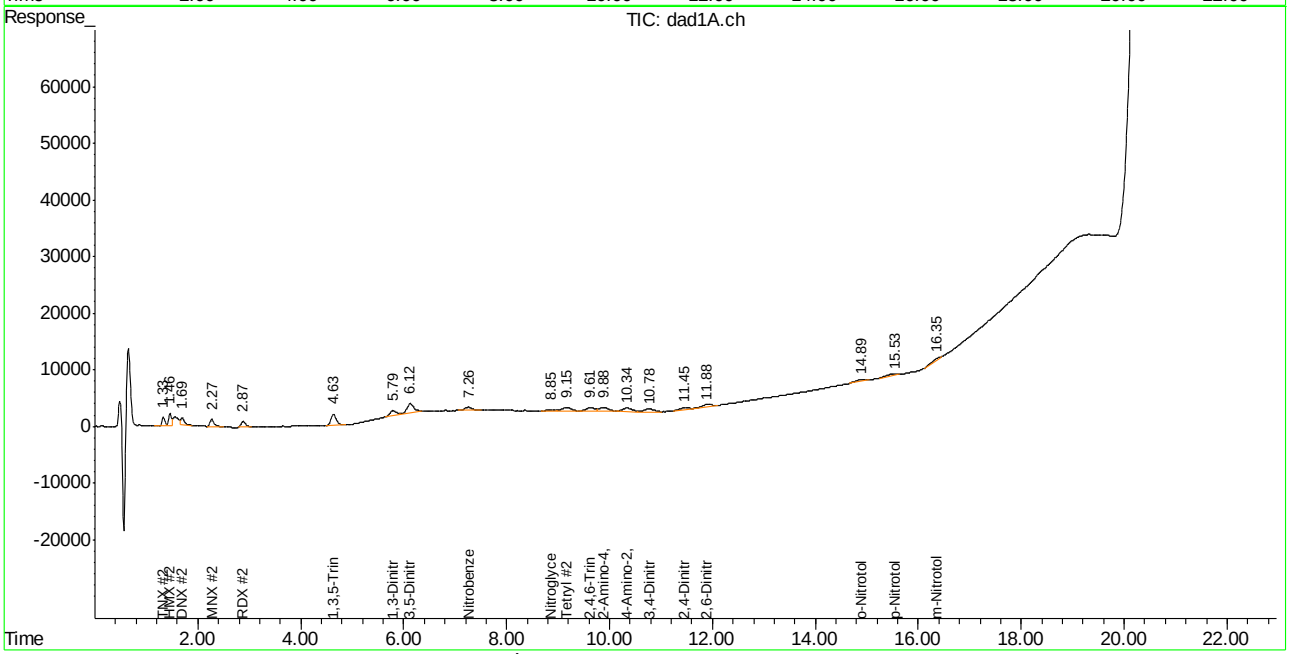
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1B.ch Vial: 91
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1A.ch
Acq On : 21-Jan-2020, 14:18:29 Operator: williamh
Sample : IC1975-20 Inst : G1315B
Misc : op78572,GBB1975,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:27 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

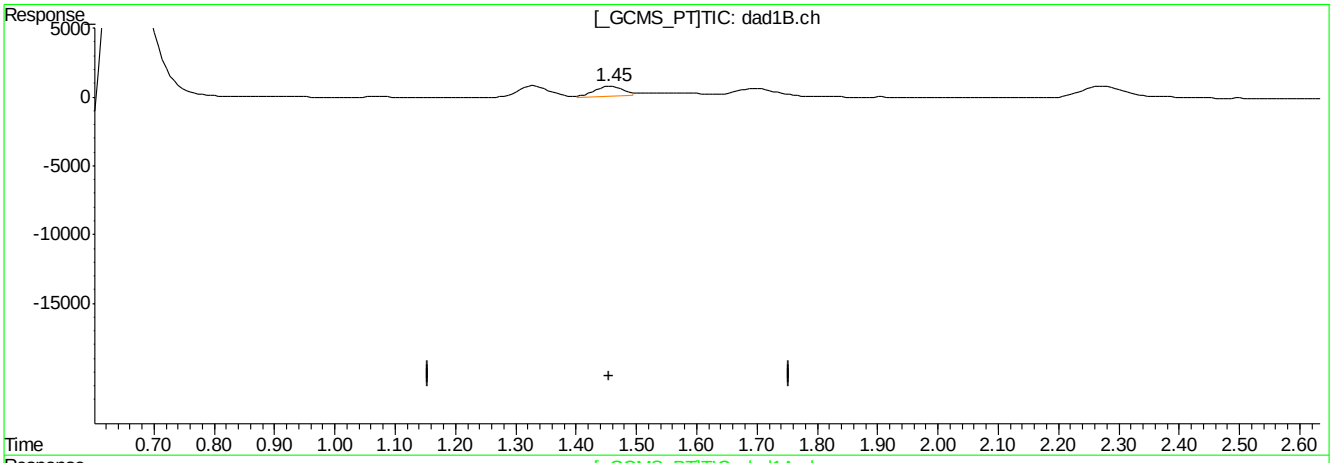
Sample Number: GBB1975-IC1975
Lab FileID: BB067770.D
Injection Time: 01/21/20 14:18
Method: SW846 8330A
Analyst approved: 01/23/20 14:17 William Hustedde
Supervisor approved: 01/23/20 18:00 Naresh Jiawan

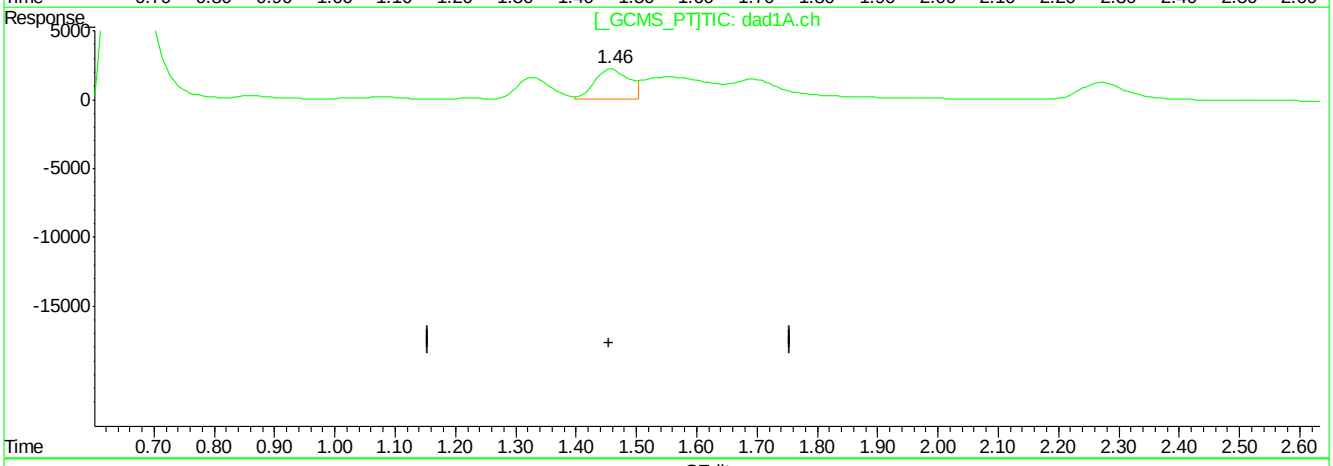
Parameter	CAS	Sig#	R.T. (min.)	Reason
HMX	2691-41-0	1	1.45	Poor instrument integration
DNX		2	1.69	Poor instrument integration
DNX		1	1.70	Poor instrument integration
MNX		1	2.27	Poor instrument integration
MNX		2	2.27	Poor instrument integration
RDX	121-82-4	1	2.87	Poor instrument integration
RDX	121-82-4	2	2.87	Poor instrument integration
1,3,5-Trinitrobenzene	99-35-4	2	4.63	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	1	5.78	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	5.79	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	6.12	Poor instrument integration
Nitrobenzene	98-95-3	2	7.26	Poor instrument integration
Nitrobenzene	98-95-3	1	7.27	Poor instrument integration
2,4-Dinitrotoluene	121-14-2	1	11.45	Poor instrument integration
2,4-Dinitrotoluene	121-14-2	2	11.45	Poor instrument integration
2,6-Dinitrotoluene	606-20-2	1	11.87	Poor instrument integration
o-Nitrotoluene	88-72-2	2	14.89	Poor instrument integration
p-Nitrotoluene	99-99-0	2	15.53	Poor instrument integration
m-Nitrotoluene	99-08-1	2	16.35	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1B.ch Vial: 91
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1A.ch
Acq On : 21-Jan-2020, 14:18:29 Operator: williamh
Sample : IC1975-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(2) HMX

1.45min 15.740ppb m

response 26171

(2) HMX #2

1.46min 18.515ppb

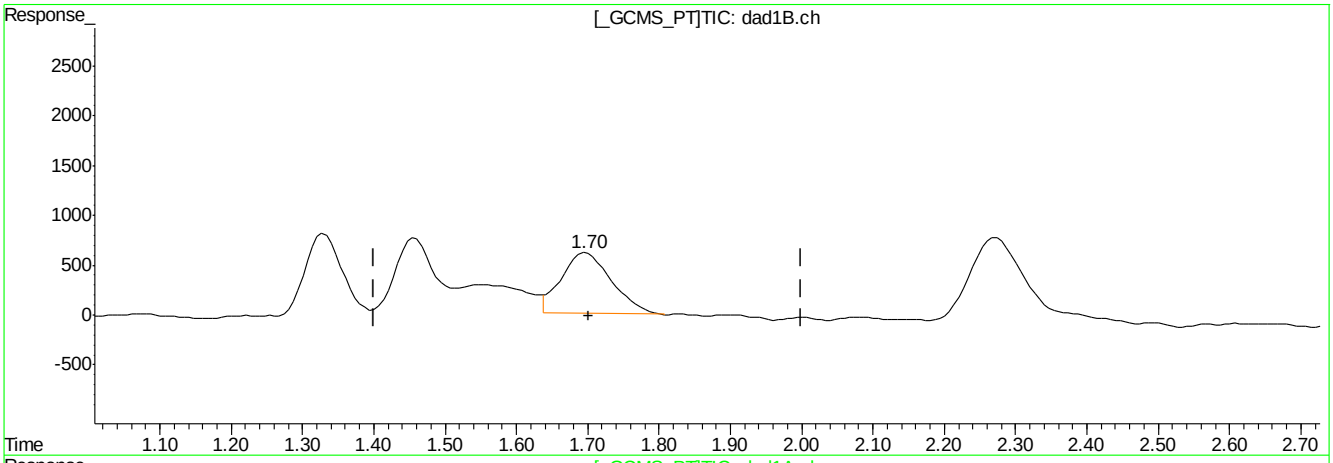
response 85192

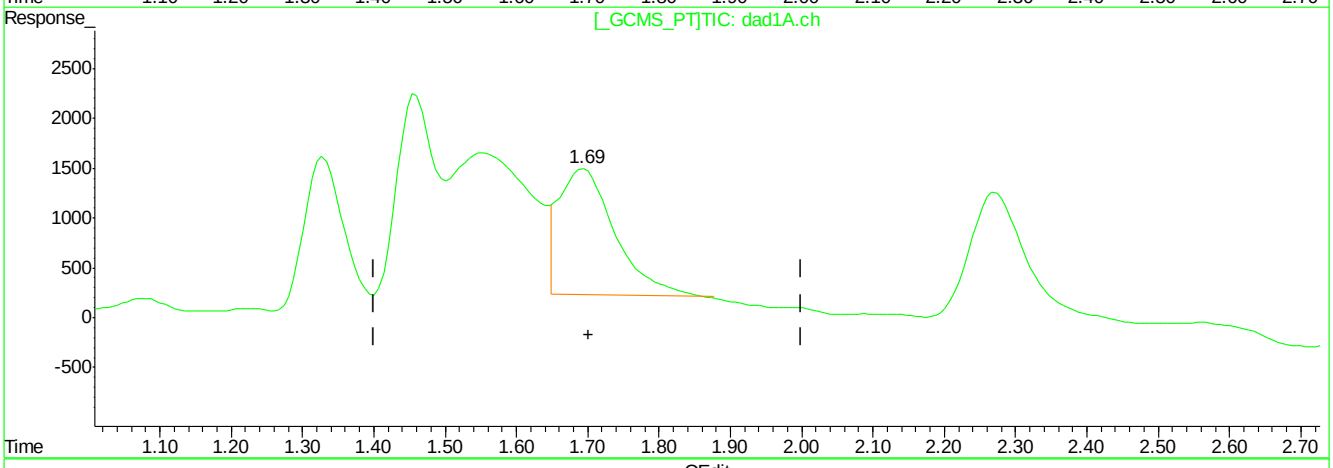
(+) = Expected Retention Time
BB067770.D 8330B_012120_PLUS.M Wed Jan 22 14:23:10 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1B.ch Vial: 91
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1A.ch
Acq On : 21-Jan-2020, 14:18:29 Operator: williamh
Sample : IC1975-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(3) DNX

1.70min 21.017ppb m

response 29607

(3) DNX #2

1.69min 29.452ppb m

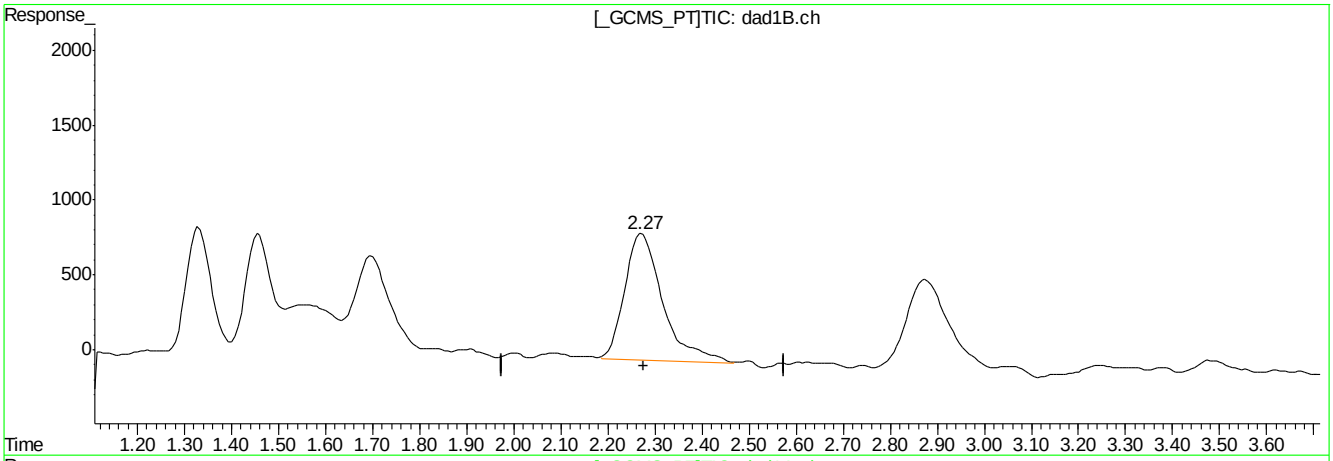
response 68554

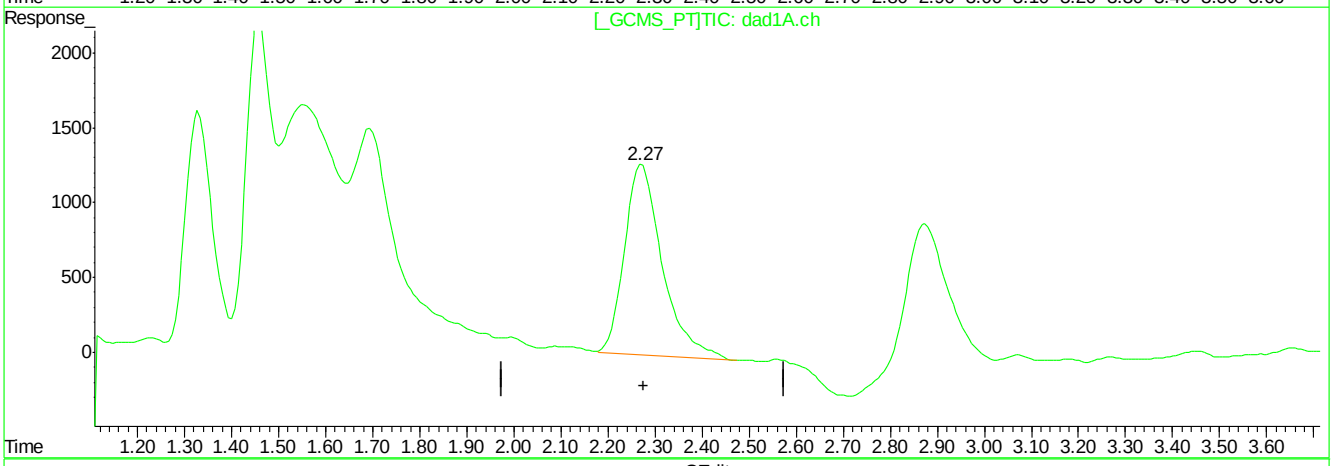
(+) = Expected Retention Time
BB067770.D 8330B_012120_PLUS.M Wed Jan 22 14:23:23 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1B.ch Vial: 91
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1A.ch
Acq On : 21-Jan-2020, 14:18:29 Operator: williamh
Sample : IC1975-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(4) MNX

2.27min 18.167ppb m

response 47511

(4) MNX #2

2.27min 17.590ppb m

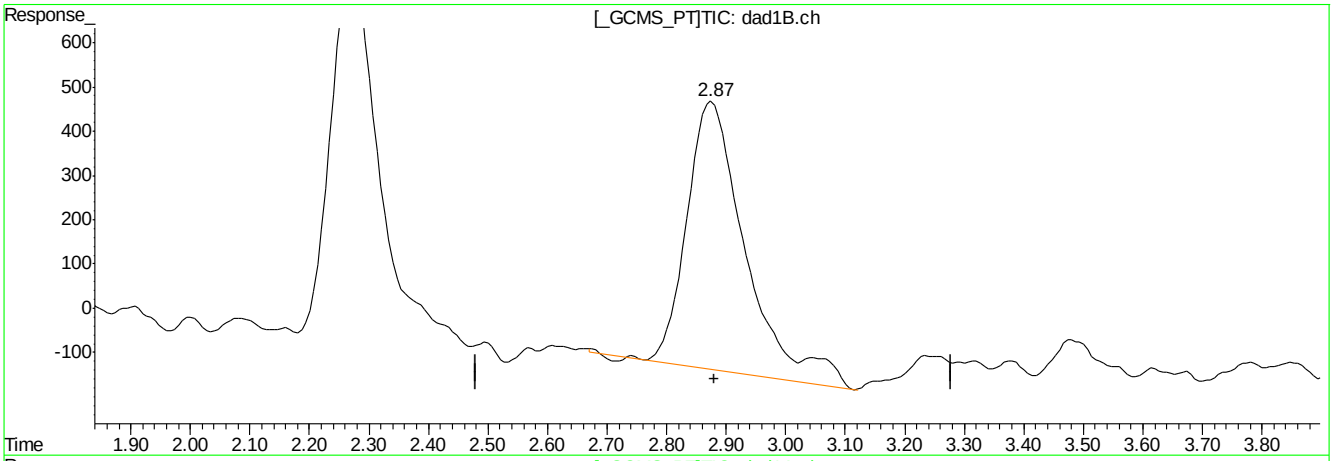
response 70587

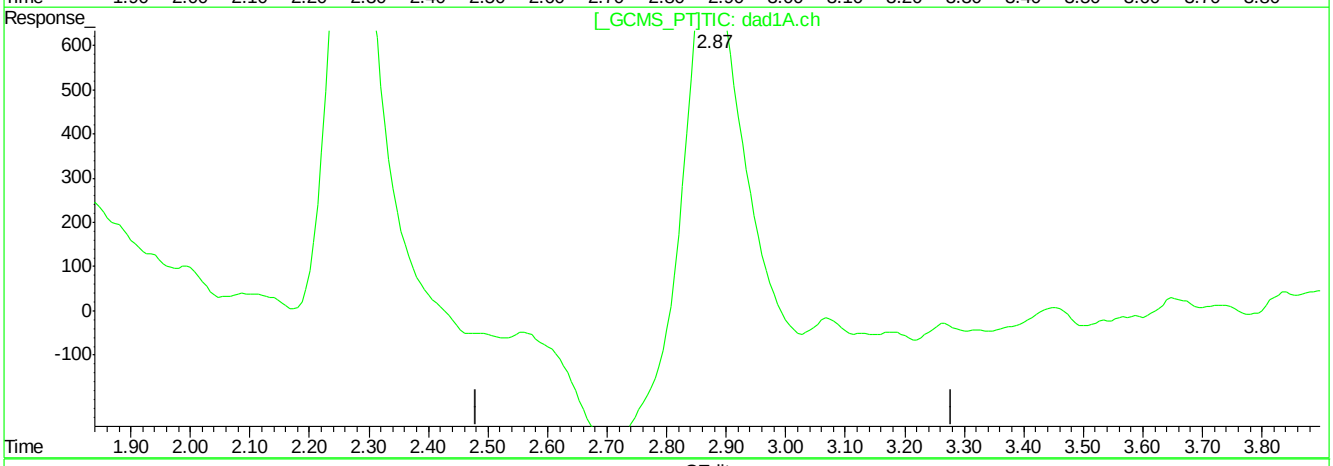
(+) = Expected Retention Time
BB067770.D 8330B_012120_PLUS.M Wed Jan 22 14:23:36 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1B.ch Vial: 91
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1A.ch
Acq On : 21-Jan-2020, 14:18:29 Operator: williamh
Sample : IC1975-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(5) RDX

2.88min 20.604ppb

response 41582

(5) RDX #2

2.88min 24.043ppb

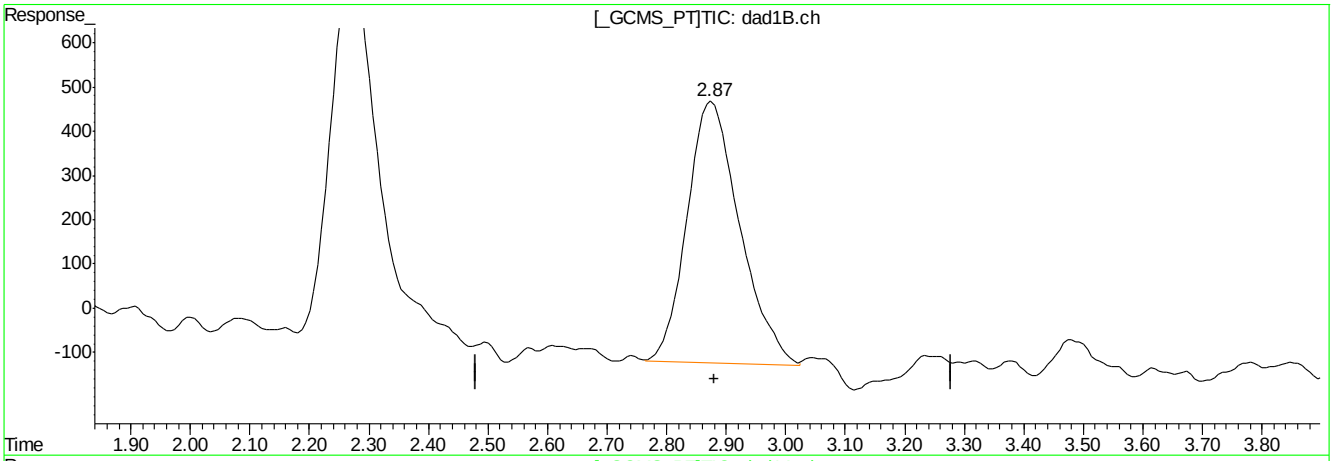
response 76945

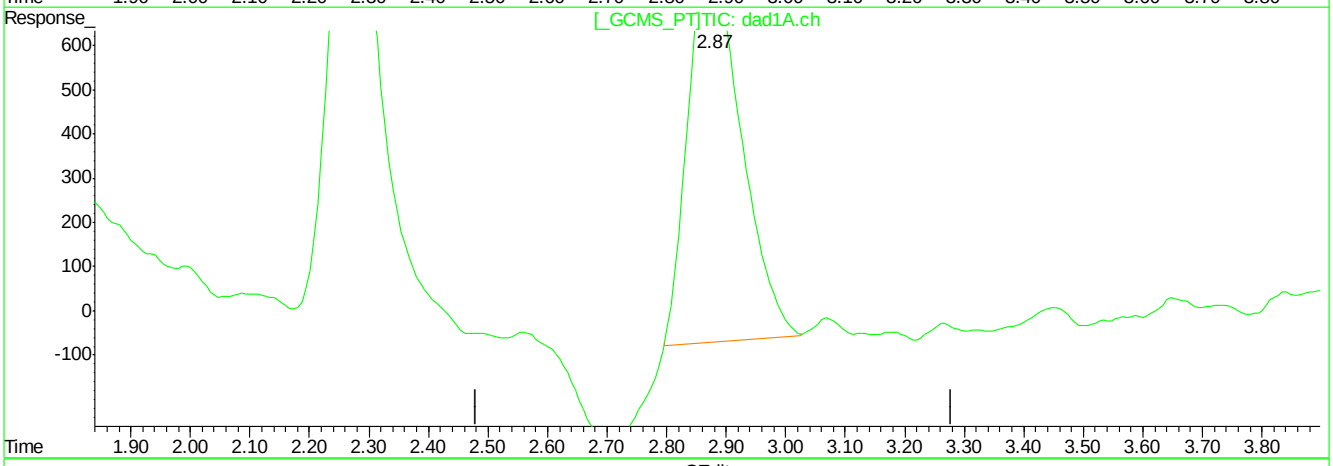
(+) = Expected Retention Time
BB067770.D 8330B_012120_PLUS.M Wed Jan 22 14:23:40 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1B.ch Vial: 91
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1A.ch
Acq On : 21-Jan-2020, 14:18:29 Operator: williamh
Sample : IC1975-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(5) RDX

2.87min 18.021ppb m

response 36368

(5) RDX #2

2.87min 17.074ppb m

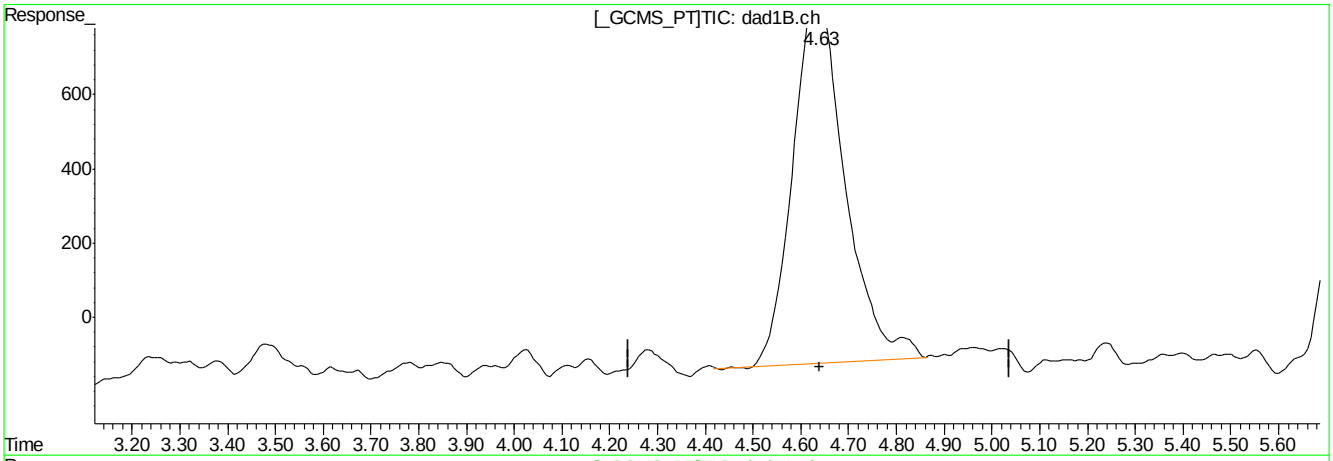
response 54641

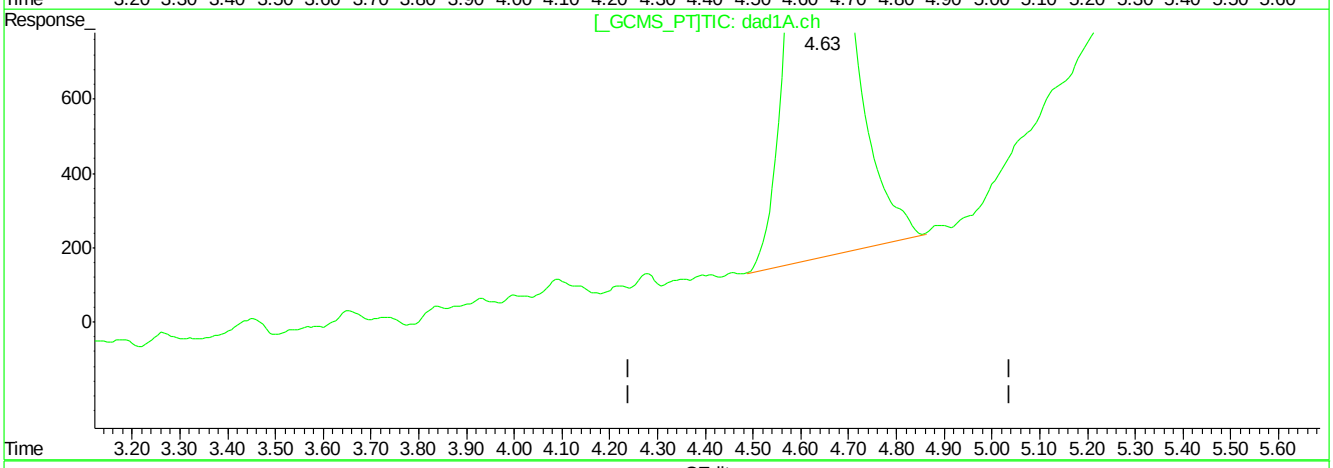
(+) = Expected Retention Time
BB067770.D 8330B_012120_PLUS.M Wed Jan 22 14:23:48 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1B.ch Vial: 91
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1A.ch
Acq On : 21-Jan-2020, 14:18:29 Operator: williamh
Sample : IC1975-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(6) 1,3,5-Trinitrobenzene

4.64min 16.907ppb

response 74966

(6) 1,3,5-Trinitrobenzene #2

4.63min 17.454ppb m

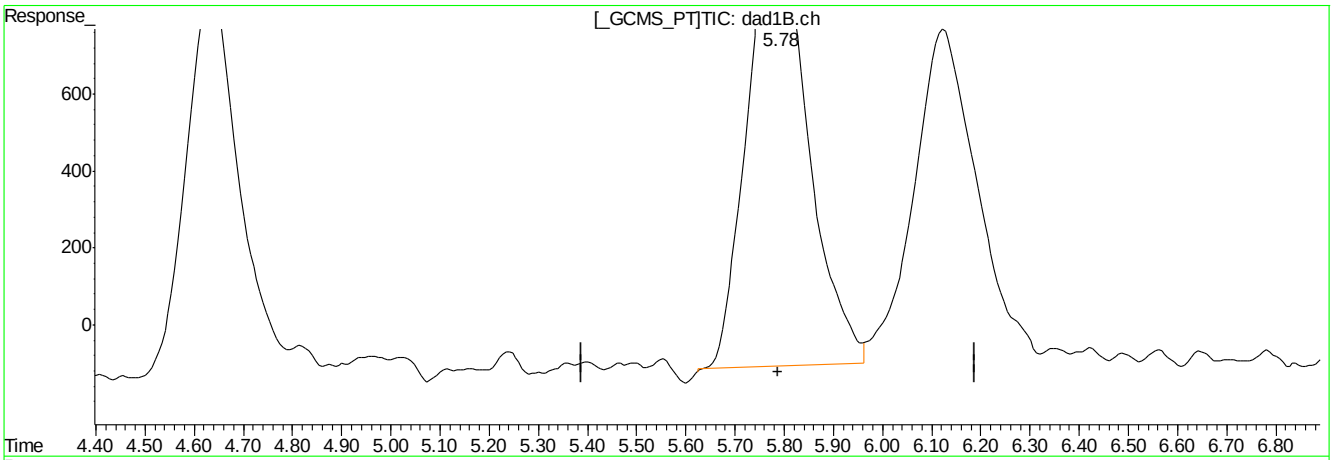
response 145769

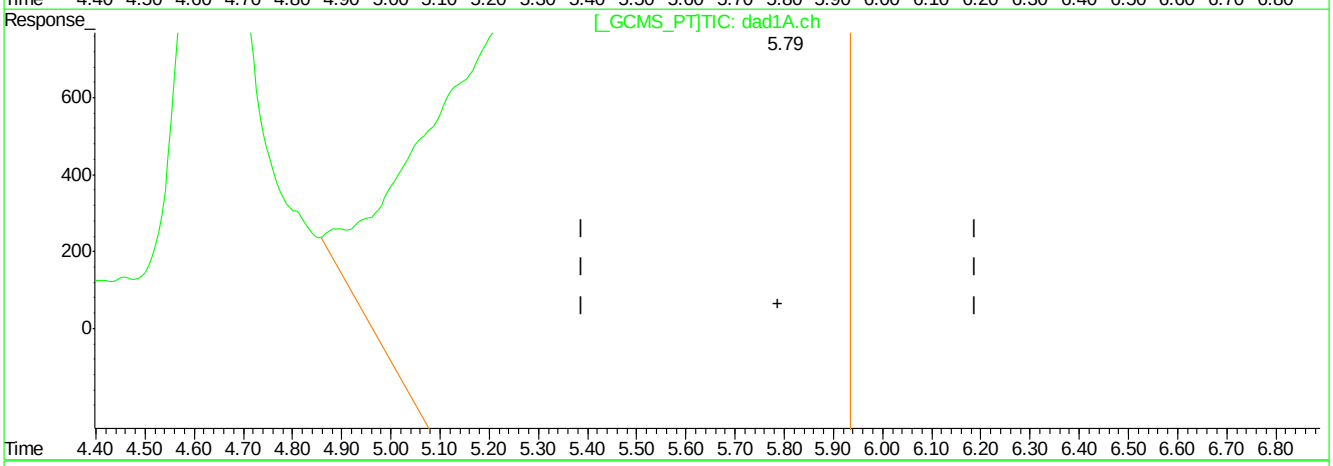
(+) = Expected Retention Time
BB067770.D 8330B_012120_PLUS.M Wed Jan 22 14:23:57 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1B.ch Vial: 91
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1A.ch
Acq On : 21-Jan-2020, 14:18:29 Operator: williamh
Sample : IC1975-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

5.78min 17.599ppb m

response 98939

(7) 1,3-Dinitrobenzene #2

5.79min 33.680ppb

response 129118

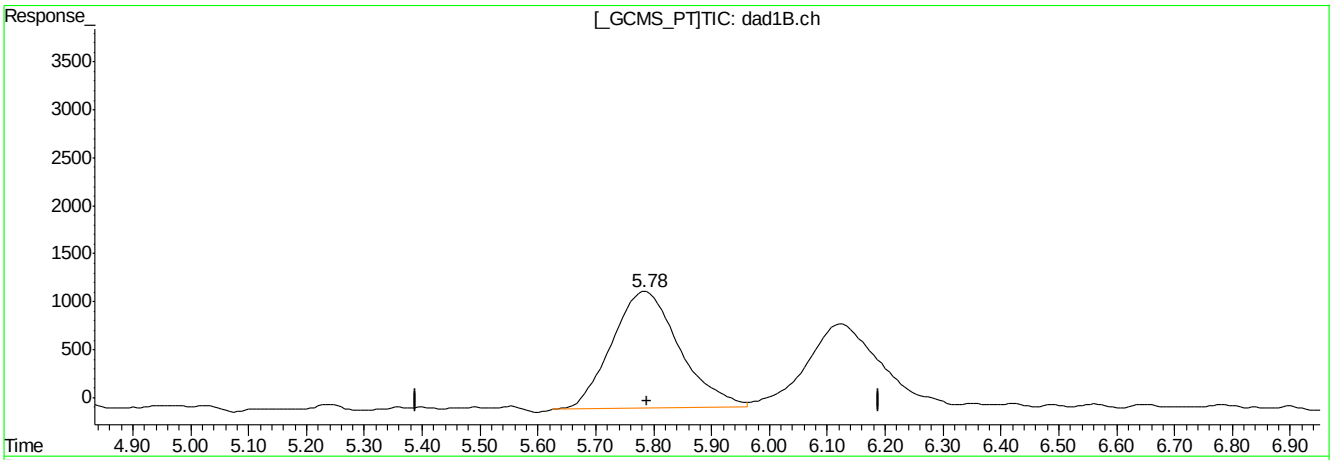
(+) = Expected Retention Time
BB067770.D 8330B_012120_PLUS.M Wed Jan 22 14:24:22 2020

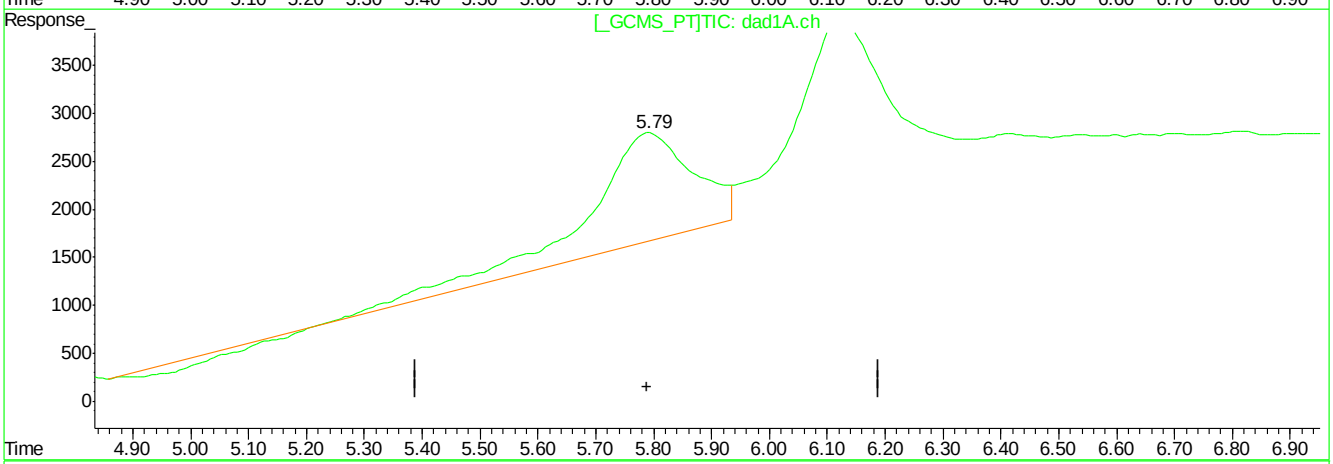
BB067770.D edits: 1,3-Dinitrobenzene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1B.ch Vial: 91
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1A.ch
Acq On : 21-Jan-2020, 14:18:29 Operator: williamh
Sample : IC1975-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

5.78min 17.599ppb m

response 98939

(7) 1,3-Dinitrobenzene #2

5.79min 33.680ppb

response 129118

(+) = Expected Retention Time
BB067770.D 8330B_012120_PLUS.M Wed Jan 22 14:24:26 2020

9.5.19

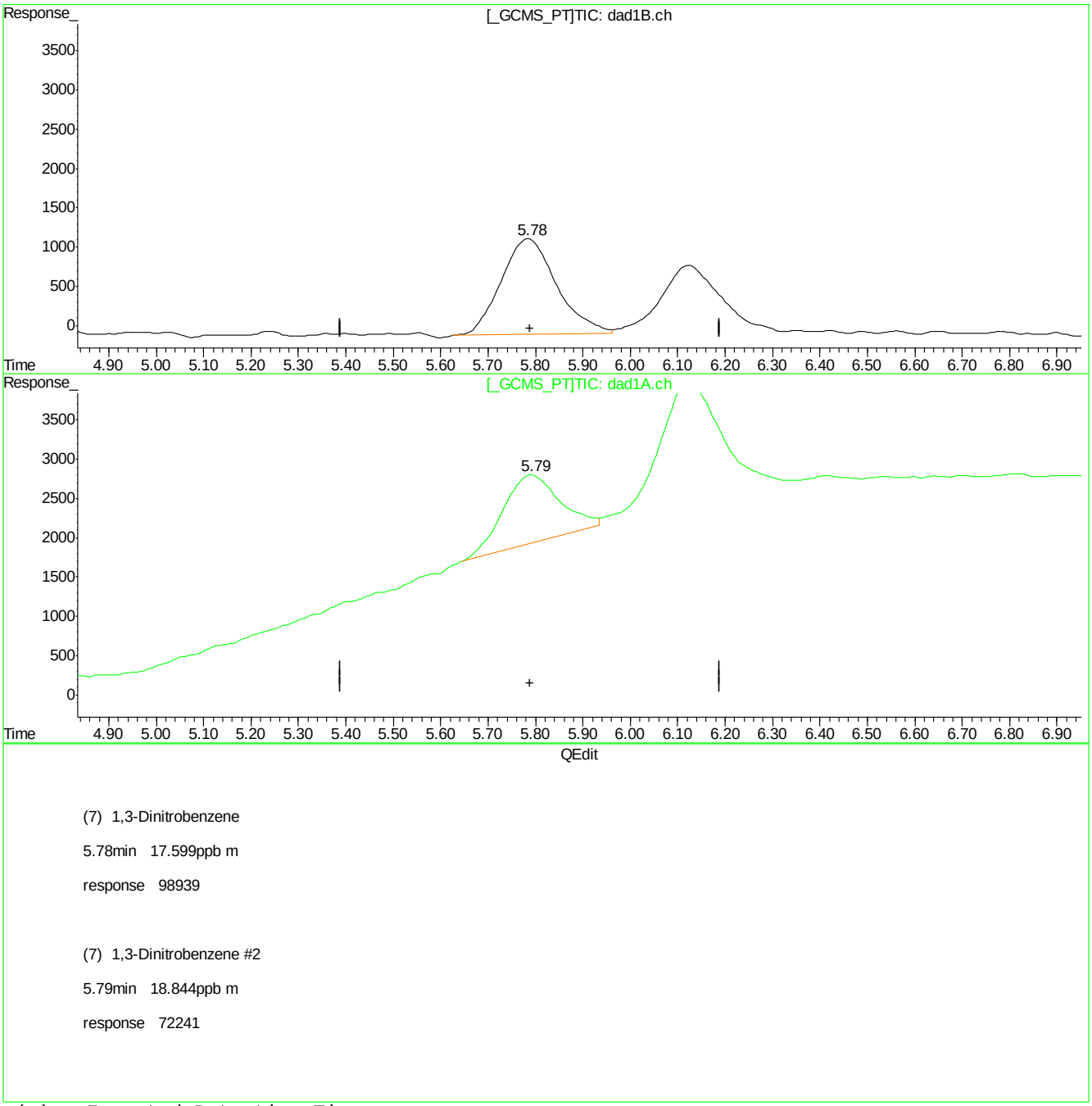
9

BB067770.D edits: 1,3-Dinitrobenzene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1B.ch Vial: 91
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1A.ch
Acq On : 21-Jan-2020, 14:18:29 Operator: williamh
Sample : IC1975-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration



(7) 1,3-Dinitrobenzene

5.78min 17.599ppb m

response 98939

(7) 1,3-Dinitrobenzene #2

5.79min 18.844ppb m

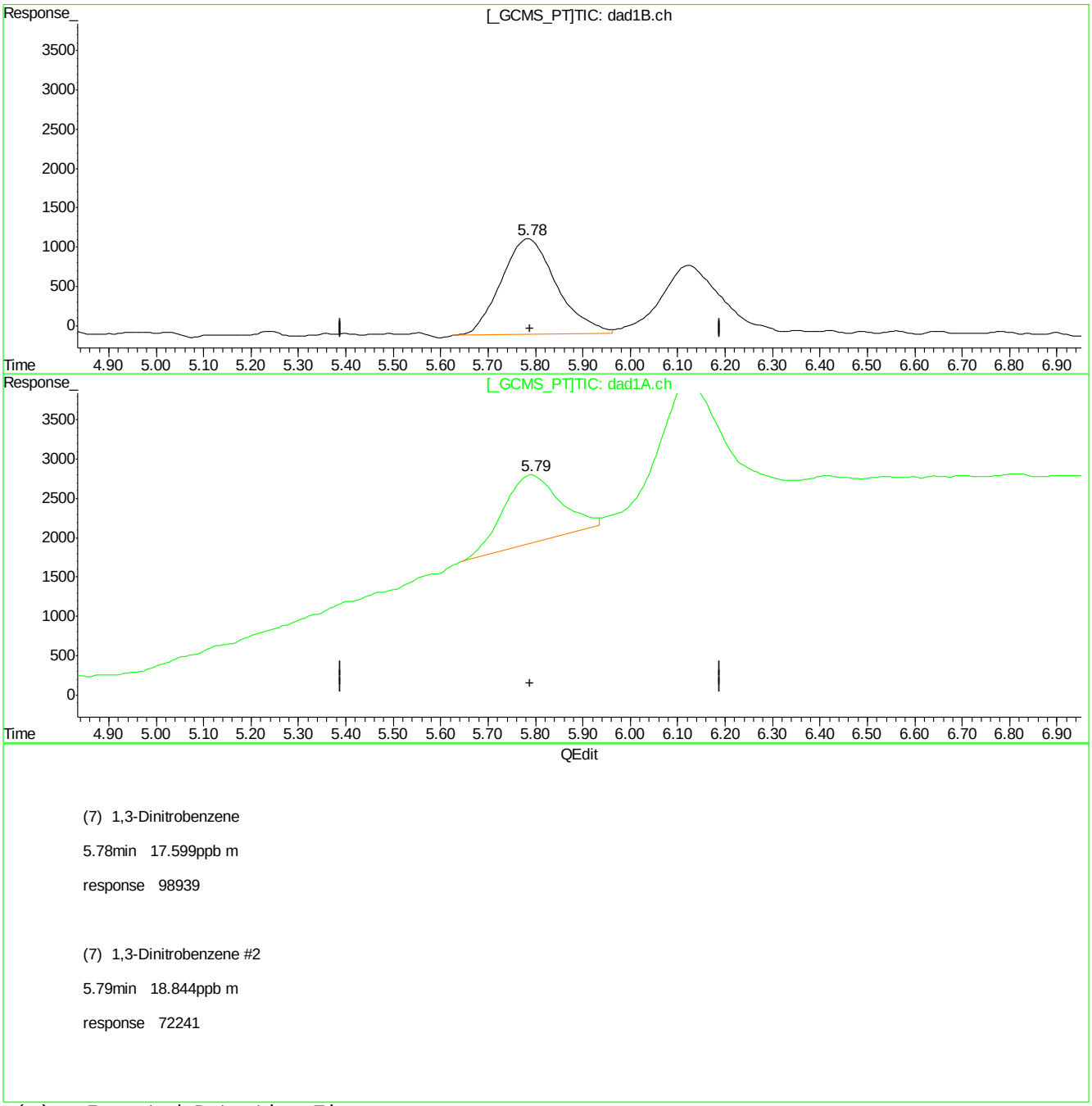
response 72241

(+) = Expected Retention Time
BB067770.D 8330B_012120_PLUS.M Wed Jan 22 14:24:31 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1B.ch Vial: 91
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1A.ch
Acq On : 21-Jan-2020, 14:18:29 Operator: williamh
Sample : IC1975-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration

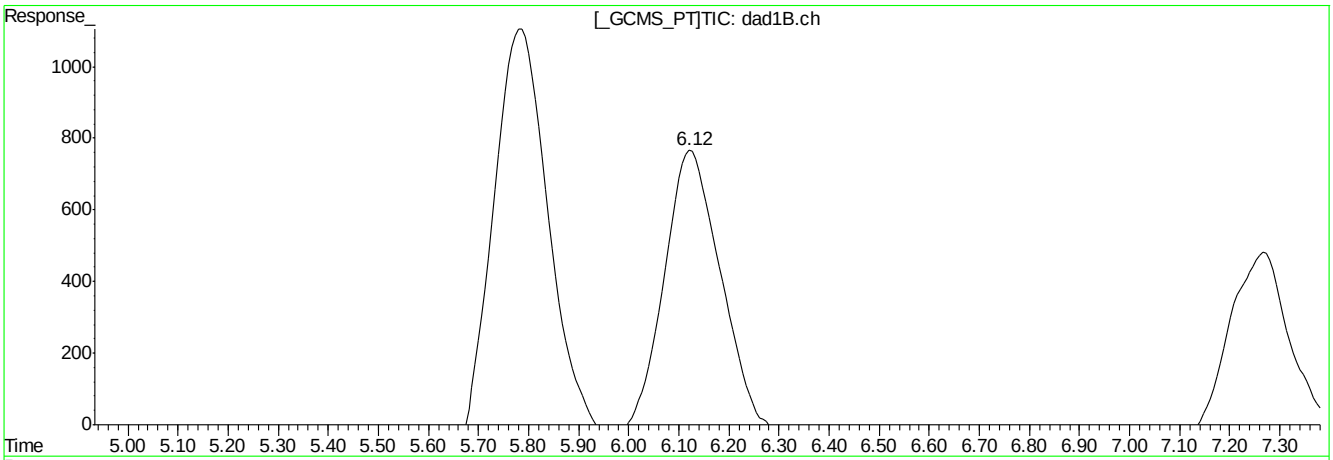


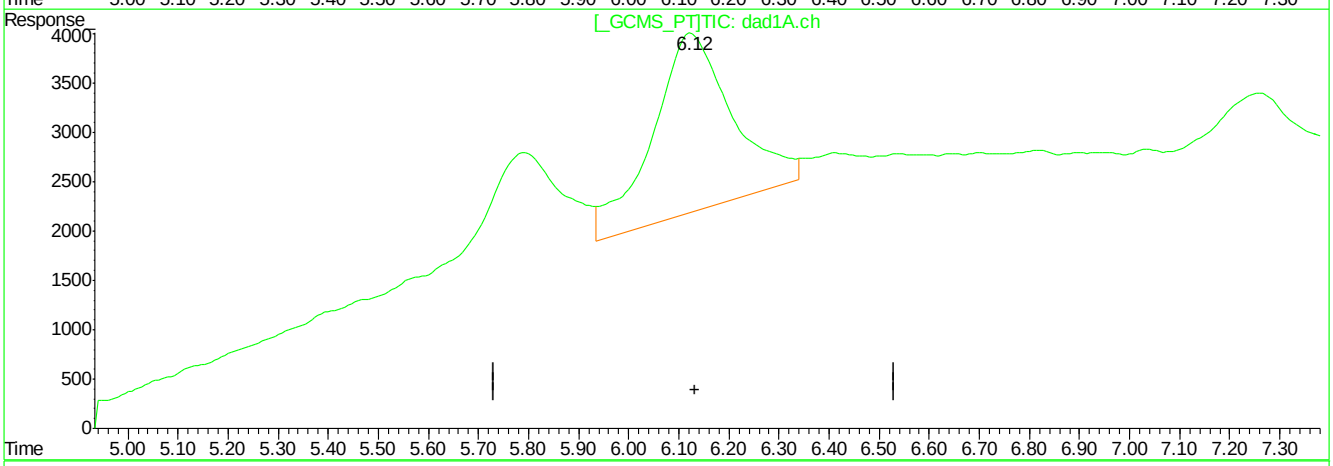
(+) = Expected Retention Time
BB067770.D 8330B_012120_PLUS.M Wed Jan 22 14:25:13 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1B.ch Vial: 91
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1A.ch
Acq On : 21-Jan-2020, 14:18:29 Operator: williamh
Sample : IC1975-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.12min 17.424ppb

response 74635

(8) 3,5-Dinitroaniline #2

6.13min 27.056ppb

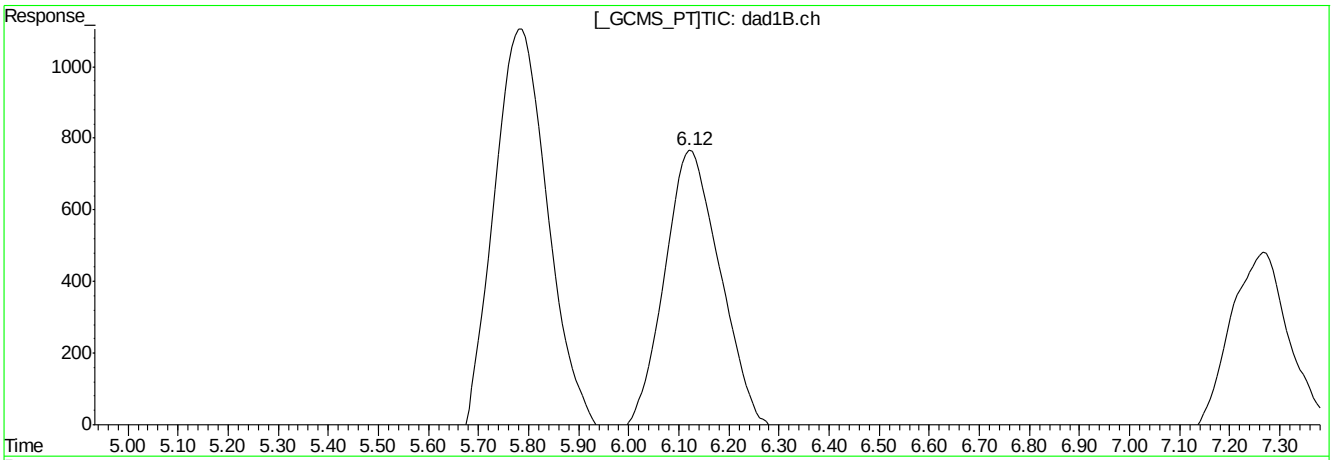
response 199710

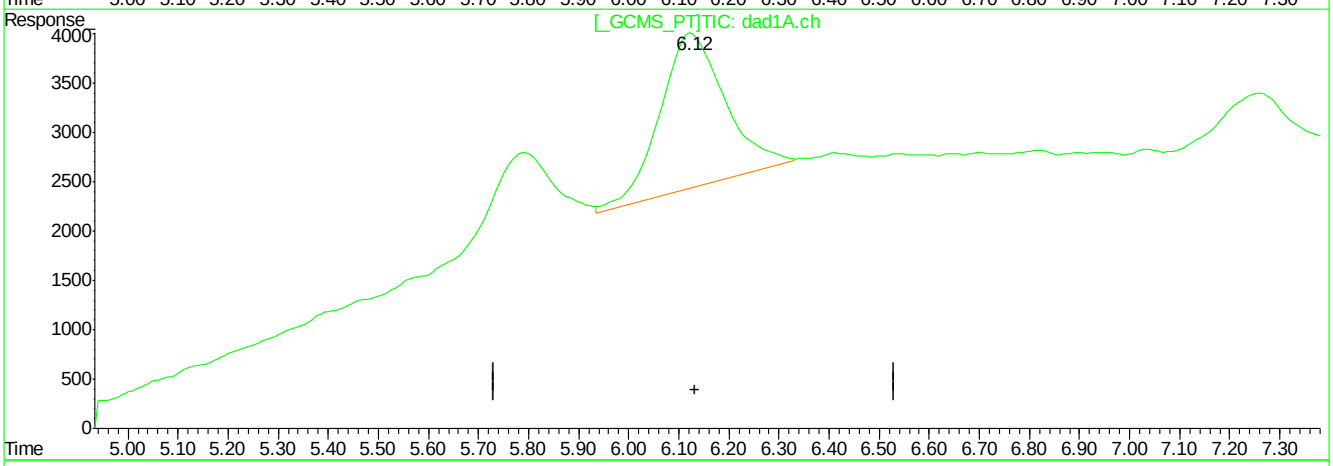
(+) = Expected Retention Time
BB067770.D 8330B_012120_PLUS.M Wed Jan 22 14:25:20 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1B.ch Vial: 91
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1A.ch
Acq On : 21-Jan-2020, 14:18:29 Operator: williamh
Sample : IC1975-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.12min 17.424ppb

response 74635

(8) 3,5-Dinitroaniline #2

6.12min 18.978ppb m

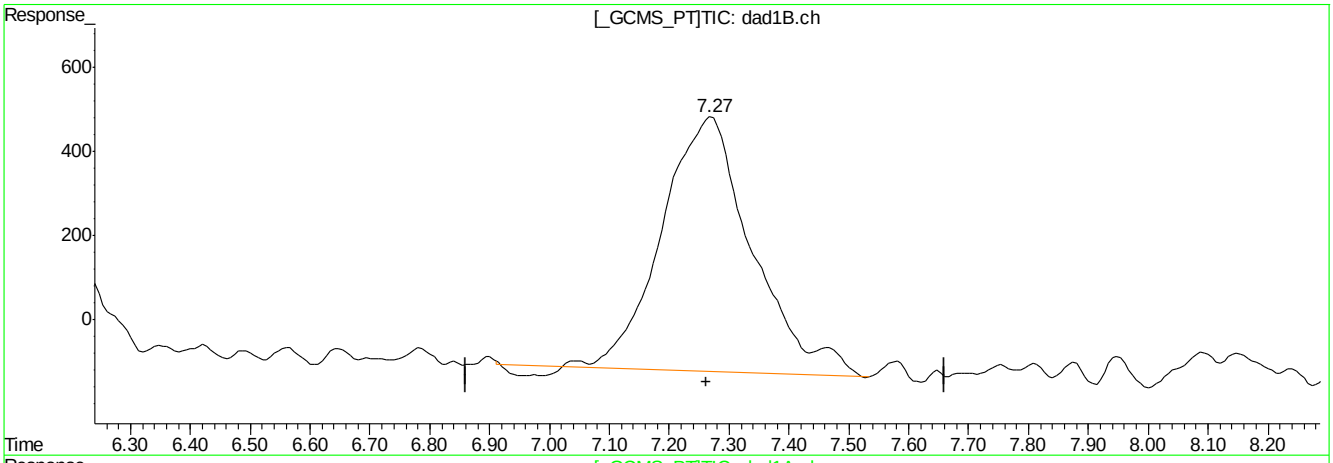
response 140084

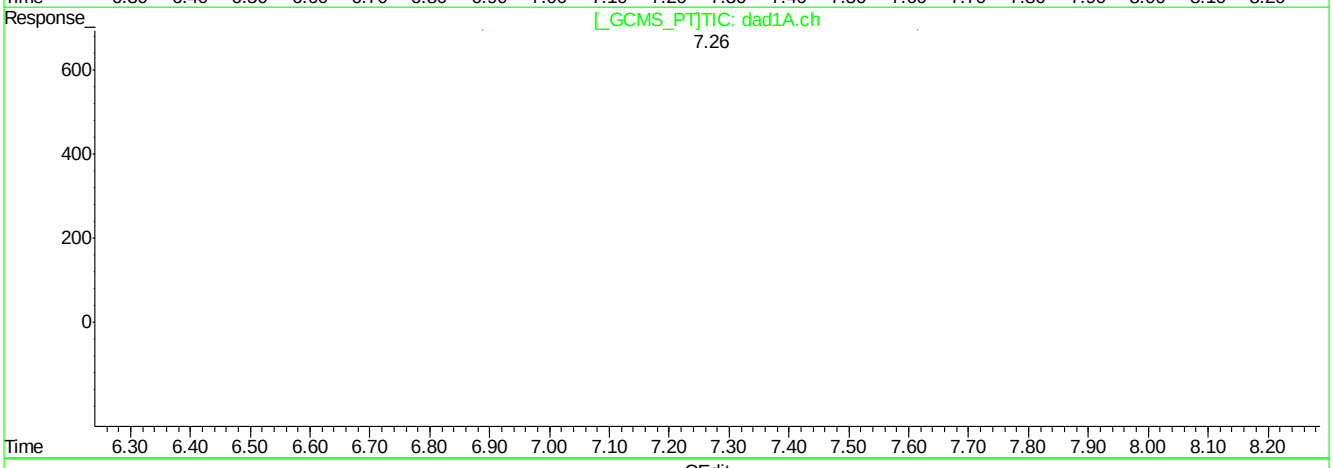
(+) = Expected Retention Time
BB067770.D 8330B_012120_PLUS.M Wed Jan 22 14:25:26 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1B.ch Vial: 91
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1A.ch
Acq On : 21-Jan-2020, 14:18:29 Operator: williamh
Sample : IC1975-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(9) Nitrobenzene

7.27min 18.611ppb

response 63226

(9) Nitrobenzene #2

7.26min 19.548ppb

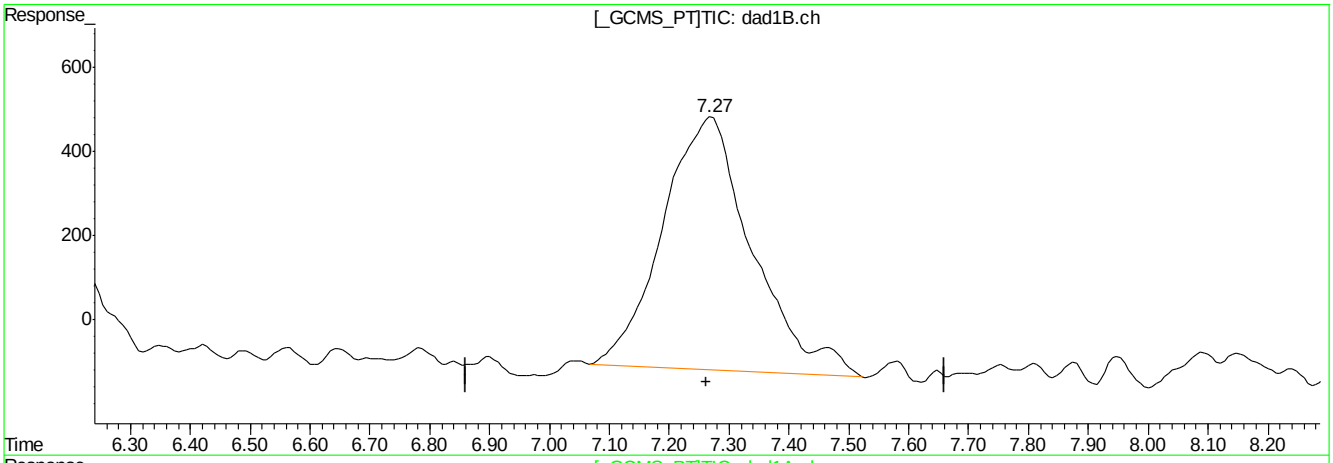
response 65471

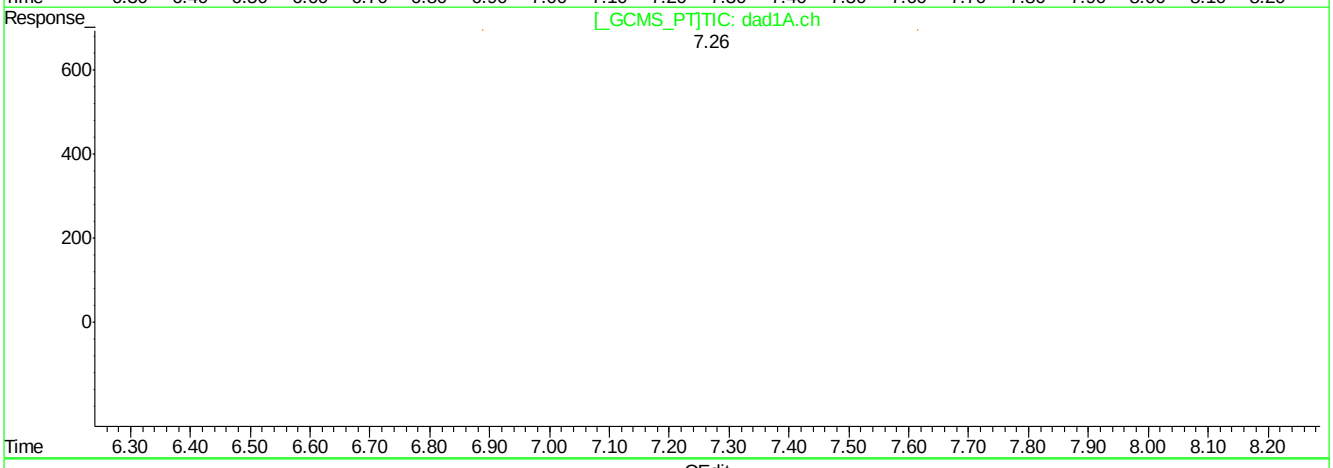
(+) = Expected Retention Time
BB067770.D 8330B_012120_PLUS.M Wed Jan 22 14:25:30 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1B.ch Vial: 91
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1A.ch
Acq On : 21-Jan-2020, 14:18:29 Operator: williamh
Sample : IC1975-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(9) Nitrobenzene

7.27min 18.342ppb m

response 62311

(9) Nitrobenzene #2

7.26min 19.548ppb

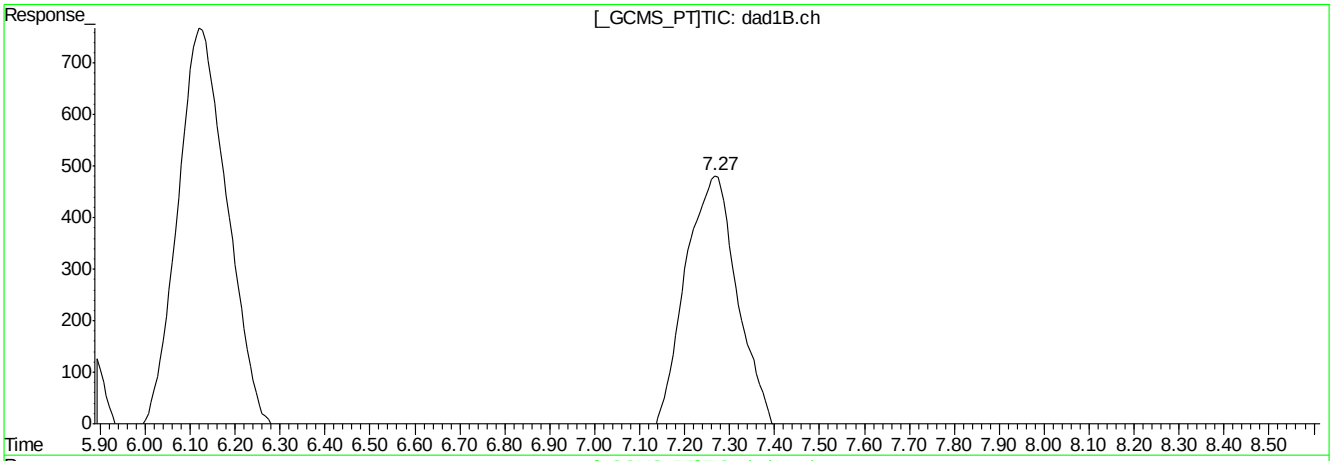
response 65471

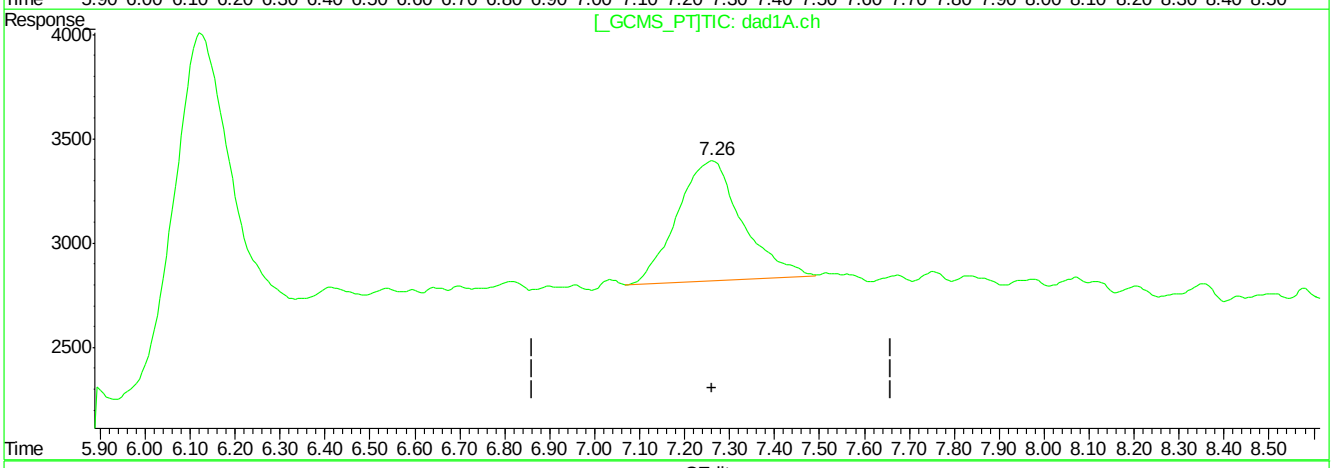
(+) = Expected Retention Time
BB067770.D 8330B_012120_PLUS.M Wed Jan 22 14:25:35 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1B.ch Vial: 91
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1A.ch
Acq On : 21-Jan-2020, 14:18:29 Operator: williamh
Sample : IC1975-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(9) Nitrobenzene

7.27min 18.342ppb m

response 62311

(9) Nitrobenzene #2

7.26min 17.236ppb m

response 57730

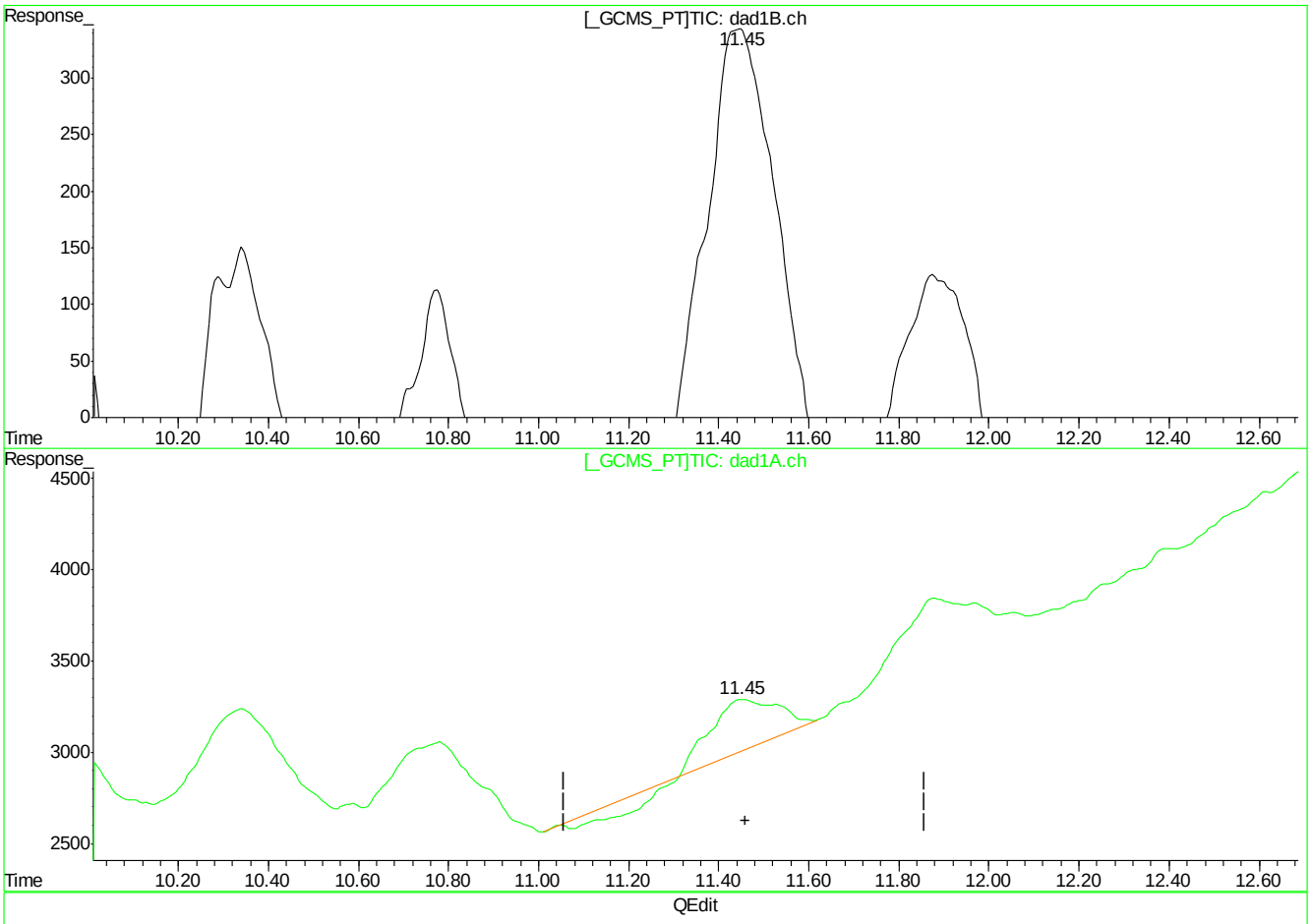
(+) = Expected Retention Time
BB067770.D 8330B_012120_PLUS.M Wed Jan 22 14:25:41 2020

BB067770.D edits: Nitrobenzene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1B.ch Vial: 91
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1A.ch
Acq On : 21-Jan-2020, 14:18:29 Operator: williamh
Sample : IC1975-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration



(16) 2,4-Dinitrotoluene

11.44min 15.992ppb

response 79604

(16) 2,4-Dinitrotoluene #2

11.46min 6.373ppb

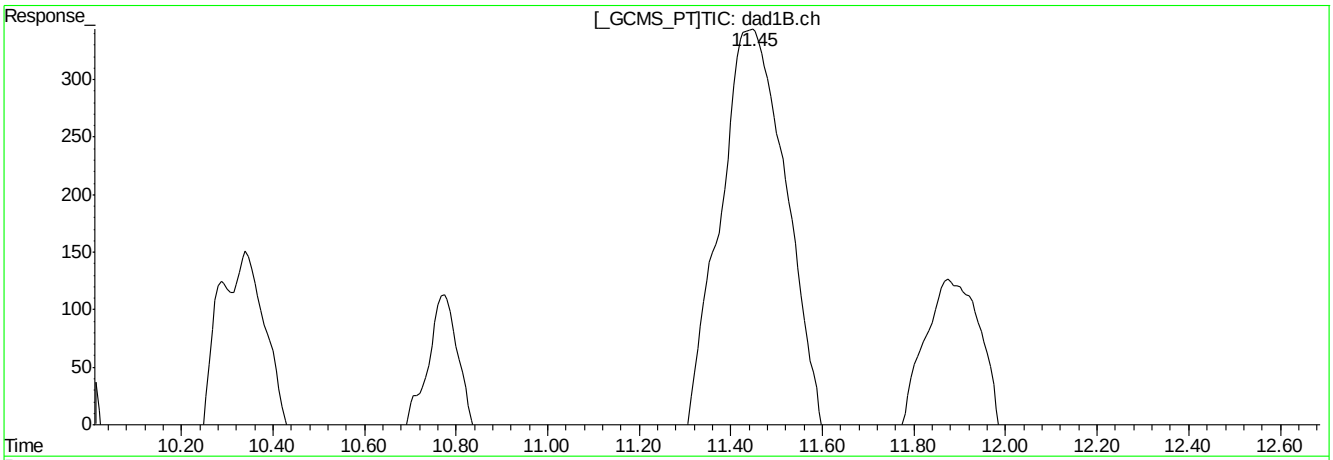
response 19726

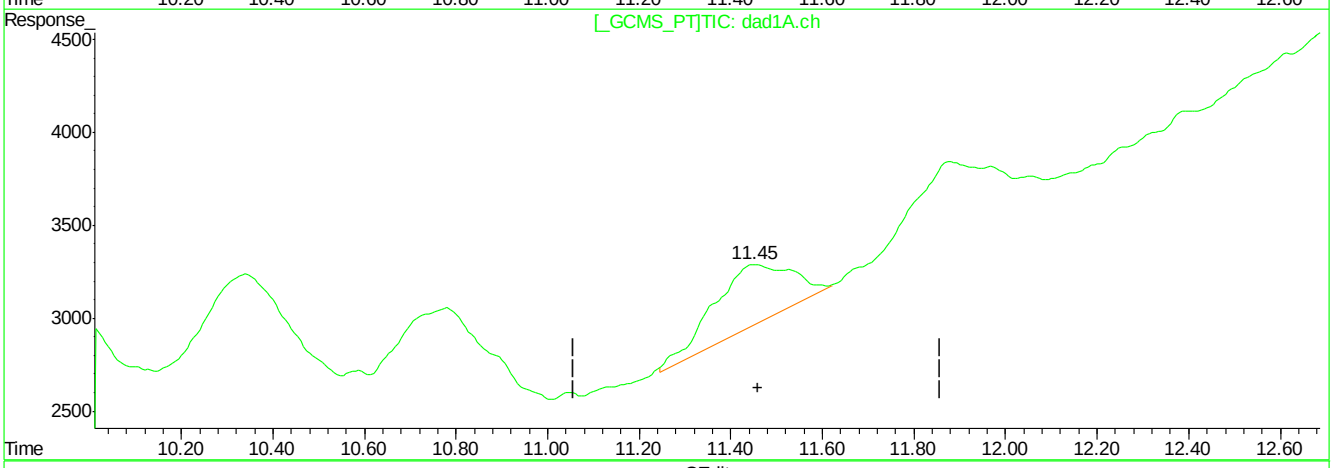
(+) = Expected Retention Time
BB067770.D 8330B_012120_PLUS.M Wed Jan 22 14:26:24 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1B.ch Vial: 91
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1A.ch
Acq On : 21-Jan-2020, 14:18:29 Operator: williamh
Sample : IC1975-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(16) 2,4-Dinitrotoluene

11.44min 15.992ppb

response 79604

(16) 2,4-Dinitrotoluene #2

11.45min 12.412ppb m

response 38417

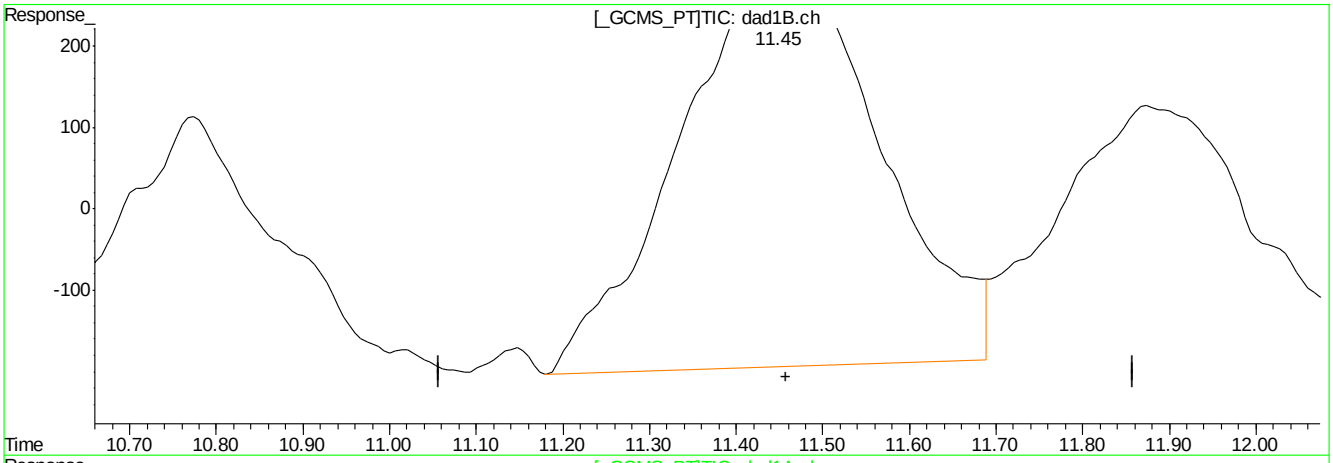
(+) = Expected Retention Time
BB067770.D 8330B_012120_PLUS.M Wed Jan 22 14:26:29 2020

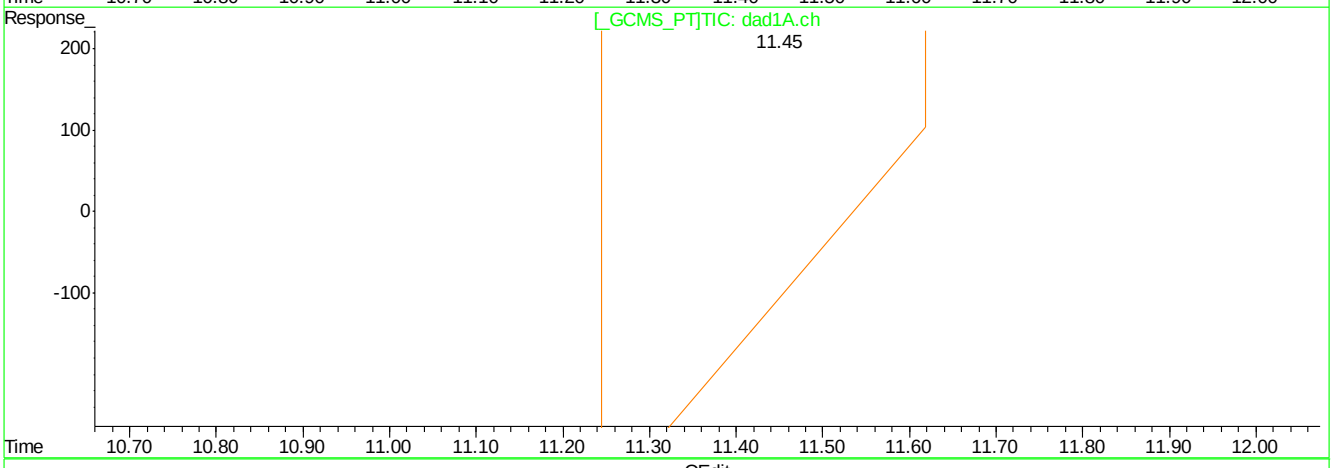
BB067770.D edits: 2,4-Dinitrotoluene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1B.ch Vial: 91
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1A.ch
Acq On : 21-Jan-2020, 14:18:29 Operator: williamh
Sample : IC1975-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(16) 2,4-Dinitrotoluene

11.45min 16.330ppb m

response 81288

(16) 2,4-Dinitrotoluene #2

11.45min 12.412ppb m

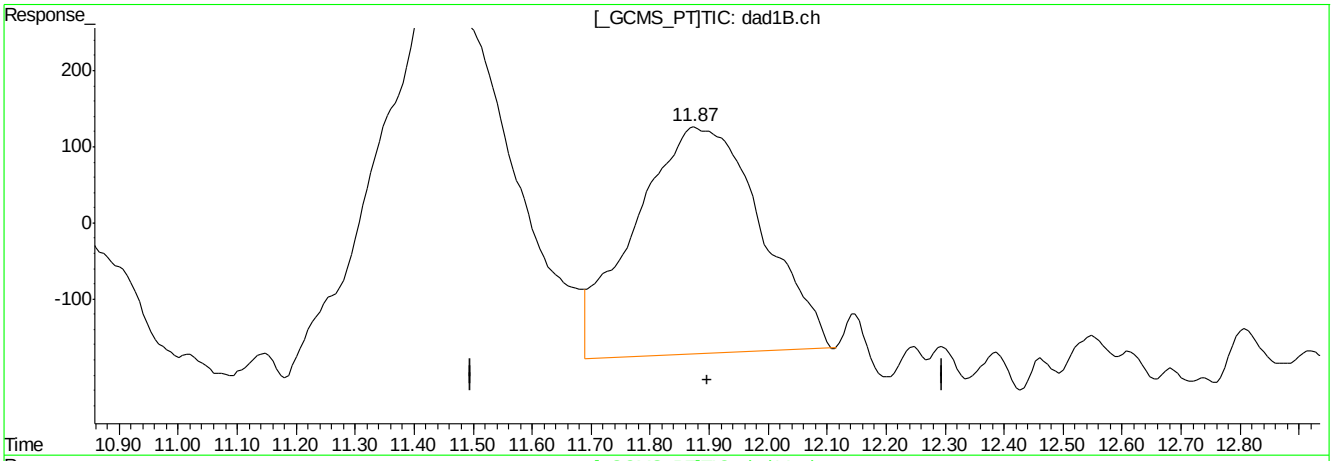
response 38417

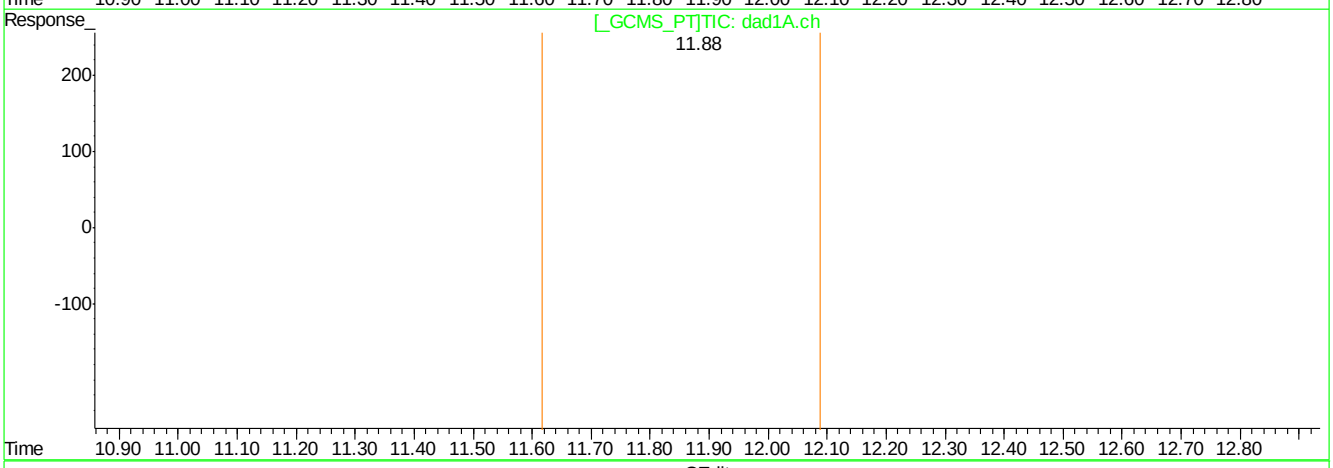
(+) = Expected Retention Time
BB067770.D 8330B_012120_PLUS.M Wed Jan 22 14:26:35 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1B.ch Vial: 91
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1A.ch
Acq On : 21-Jan-2020, 14:18:29 Operator: williamh
Sample : IC1975-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(17) 2,6-Dinitrotoluene

11.88min 15.069ppb

response 44811

(17) 2,6-Dinitrotoluene #2

11.88min 11.284ppb

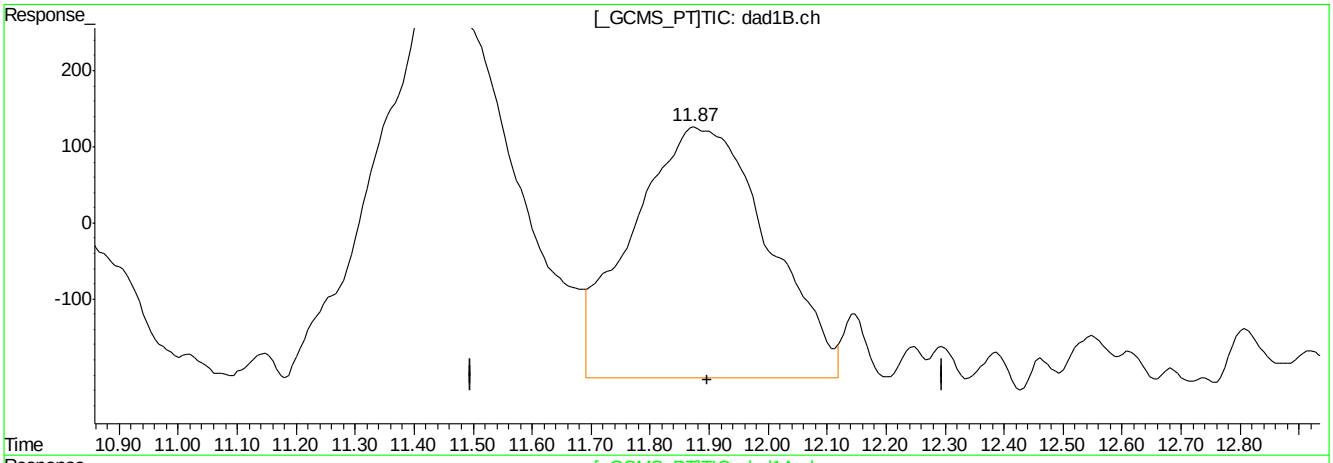
response 41344

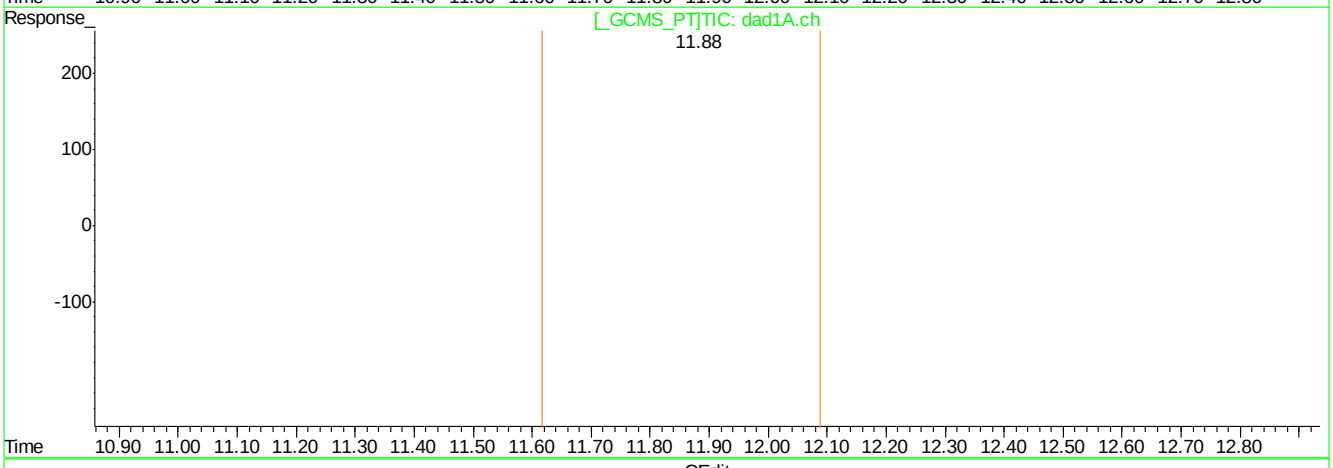
(+) = Expected Retention Time
BB067770.D 8330B_012120_PLUS.M Wed Jan 22 14:26:39 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1B.ch Vial: 91
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1A.ch
Acq On : 21-Jan-2020, 14:18:29 Operator: williamh
Sample : IC1975-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(17) 2,6-Dinitrotoluene

11.87min 17.676ppb m

response 52562

(17) 2,6-Dinitrotoluene #2

11.88min 11.284ppb

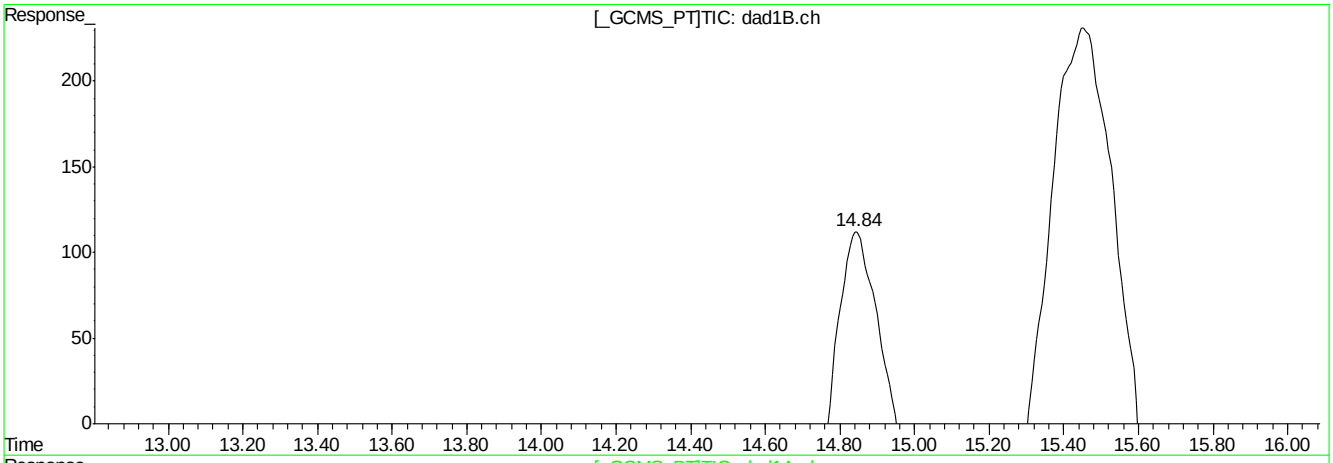
response 41344

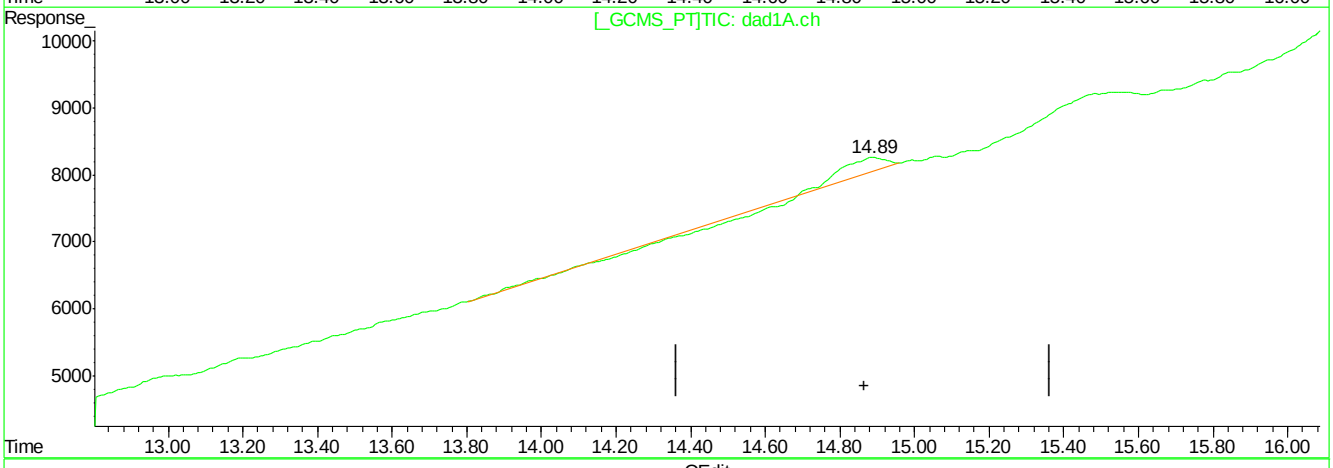
(+) = Expected Retention Time
BB067770.D 8330B_012120_PLUS.M Wed Jan 22 14:26:47 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1B.ch Vial: 91
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1A.ch
Acq On : 21-Jan-2020, 14:18:29 Operator: williamh
Sample : IC1975-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(18) o-Nitrotoluene

14.85min 20.095ppb

response 47958

(18) o-Nitrotoluene #2

14.89min 0.682ppb

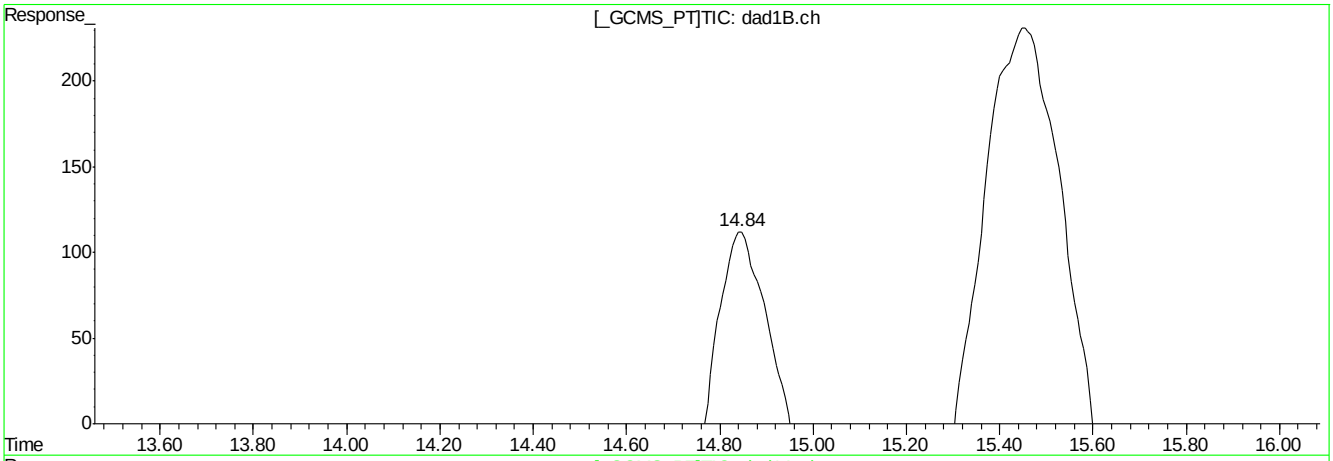
response 2169

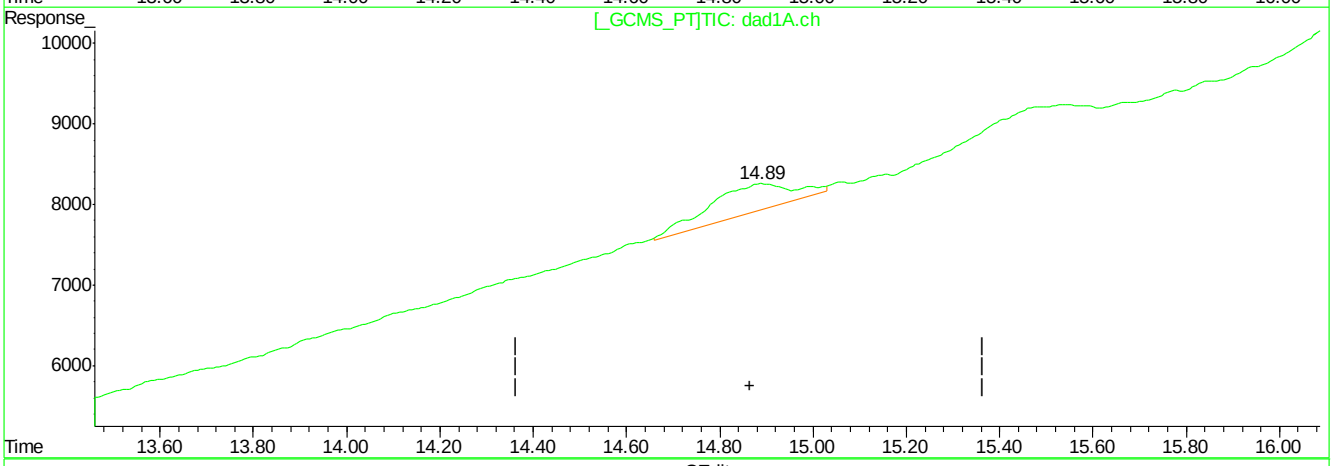
(+) = Expected Retention Time
BB067770.D 8330B_012120_PLUS.M Wed Jan 22 14:26:56 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1B.ch Vial: 91
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1A.ch
Acq On : 21-Jan-2020, 14:18:29 Operator: williamh
Sample : IC1975-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(18) o-Nitrotoluene

14.85min 20.095ppb

response 47958

(18) o-Nitrotoluene #2

14.89min 13.737ppb m

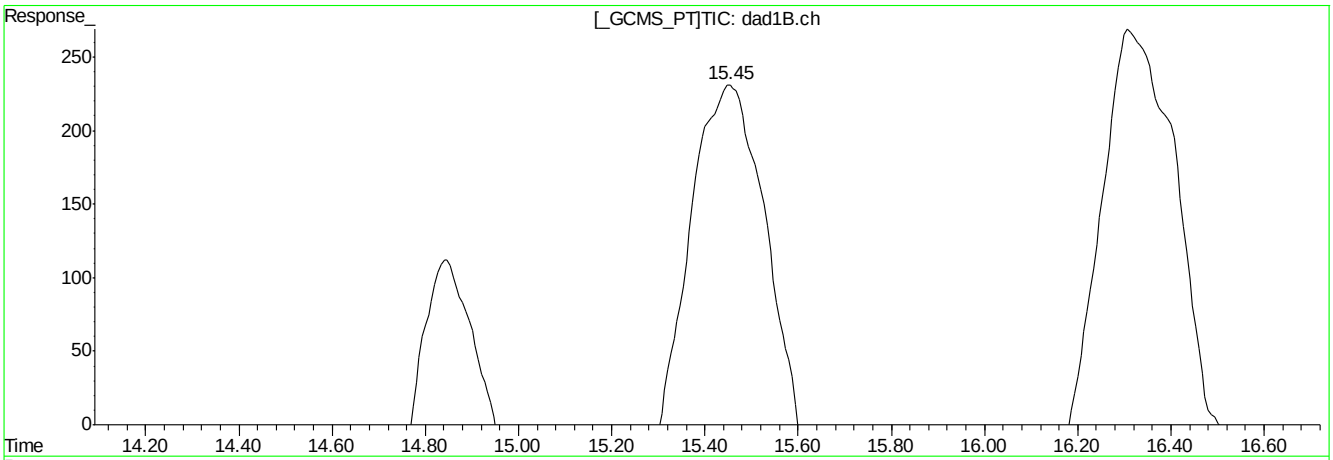
response 43662

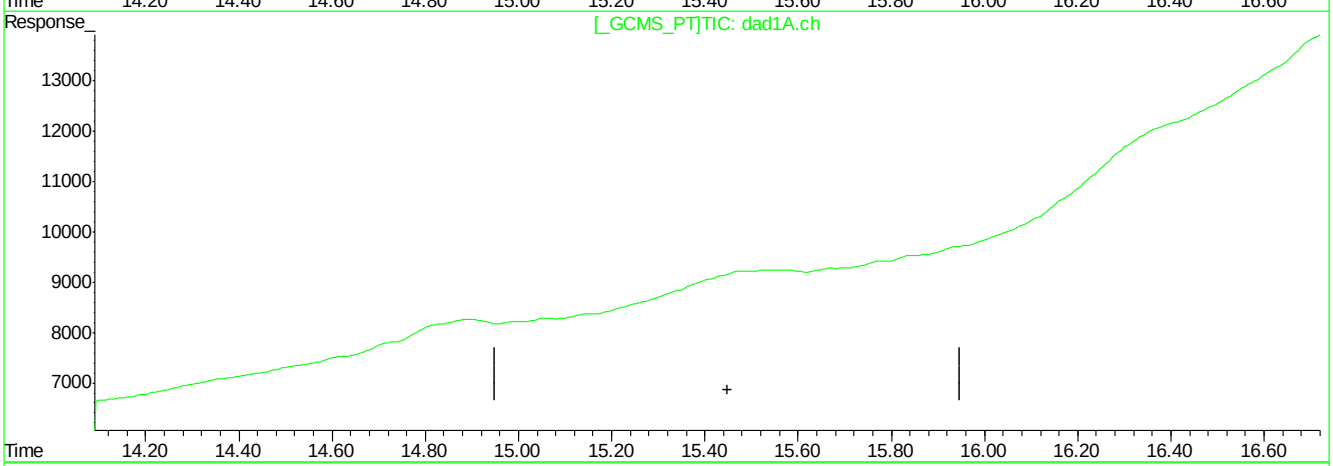
(+) = Expected Retention Time
BB067770.D 8330B_012120_PLUS.M Wed Jan 22 14:27:04 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1B.ch Vial: 91
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1A.ch
Acq On : 21-Jan-2020, 14:18:29 Operator: williamh
Sample : IC1975-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(19) p-Nitrotoluene

15.46min 17.386ppb

response 67012

(19) p-Nitrotoluene #2

0.00min 0.000ppb

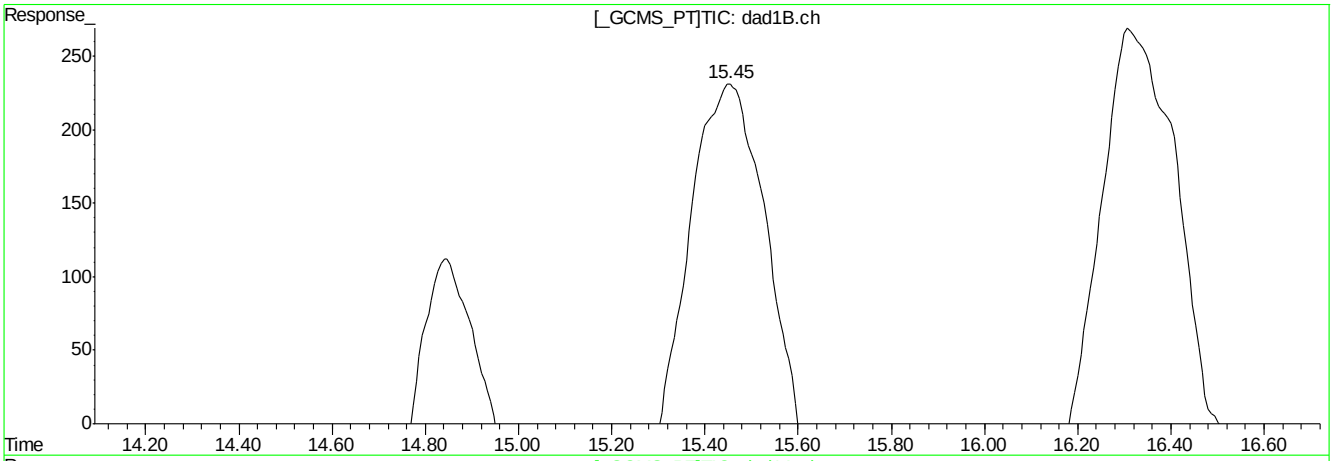
response 0

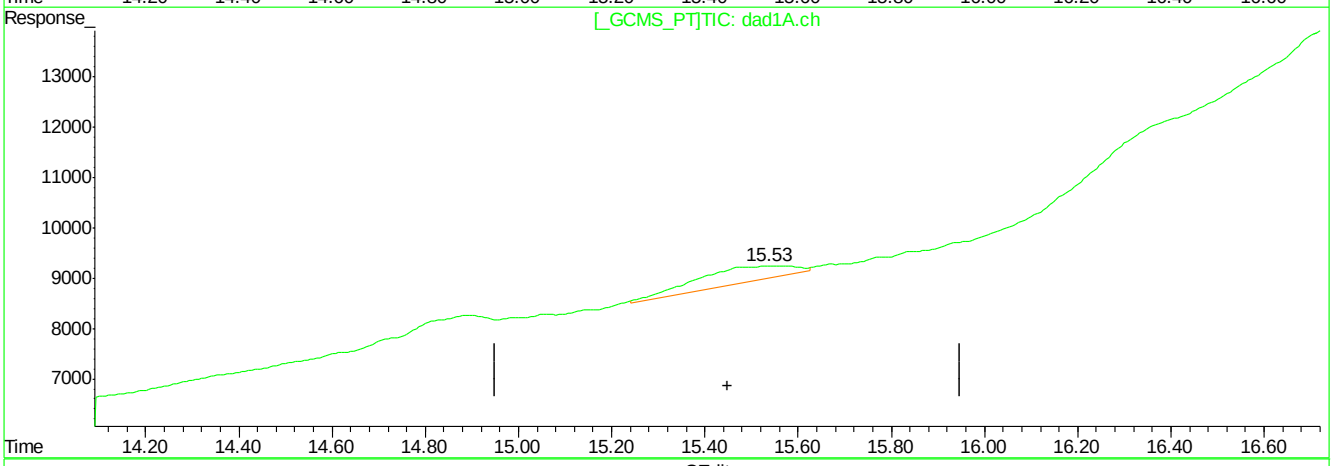
(+) = Expected Retention Time
BB067770.D 8330B_012120_PLUS.M Wed Jan 22 14:27:08 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1B.ch Vial: 91
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1A.ch
Acq On : 21-Jan-2020, 14:18:29 Operator: williamh
Sample : IC1975-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(19) p-Nitrotoluene

15.46min 17.386ppb

response 67012

(19) p-Nitrotoluene #2

15.53min 14.619ppb m

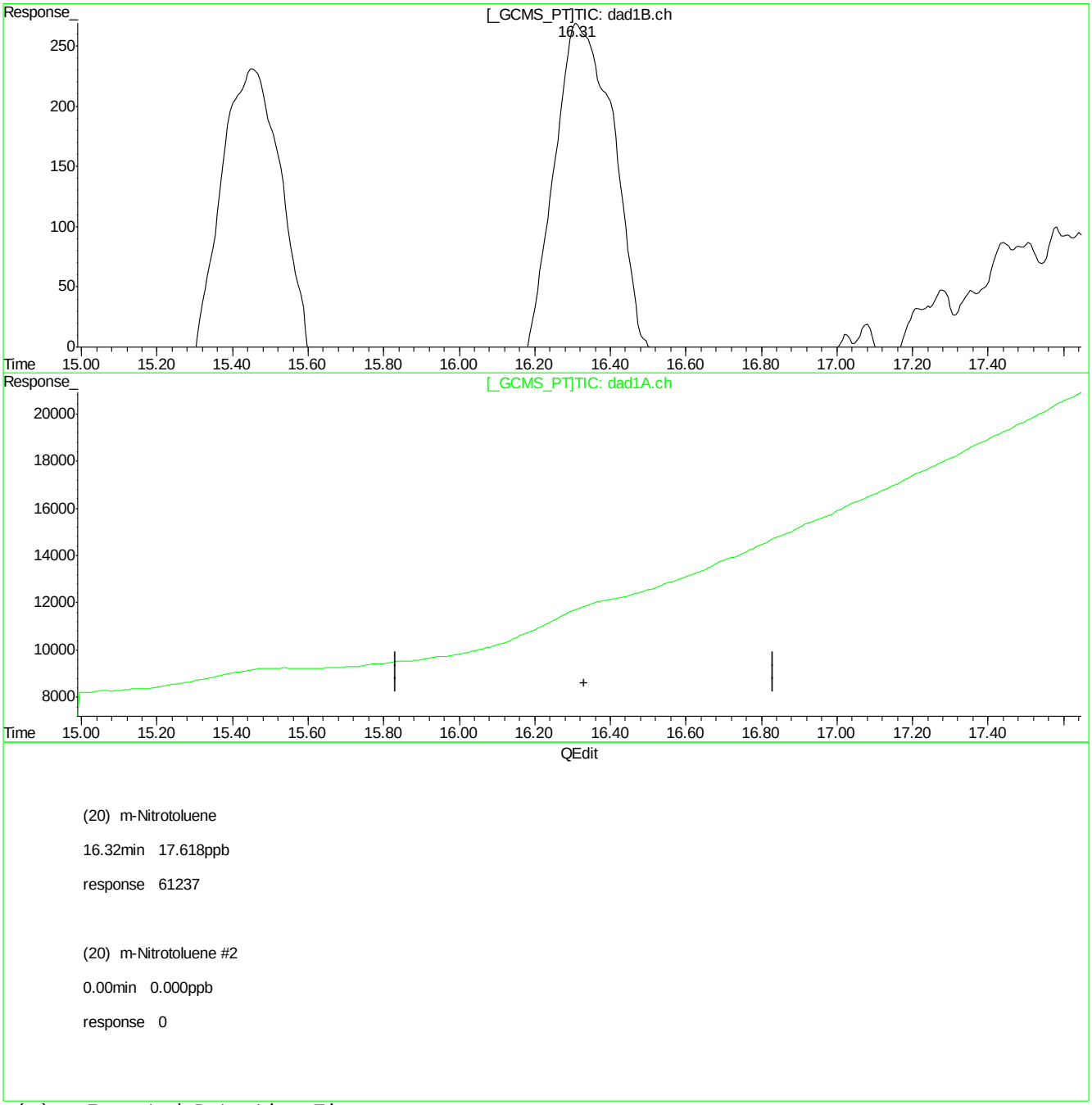
response 43698

(+) = Expected Retention Time
BB067770.D 8330B_012120_PLUS.M Wed Jan 22 14:27:14 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1B.ch Vial: 91
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1A.ch
Acq On : 21-Jan-2020, 14:18:29 Operator: williamh
Sample : IC1975-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration

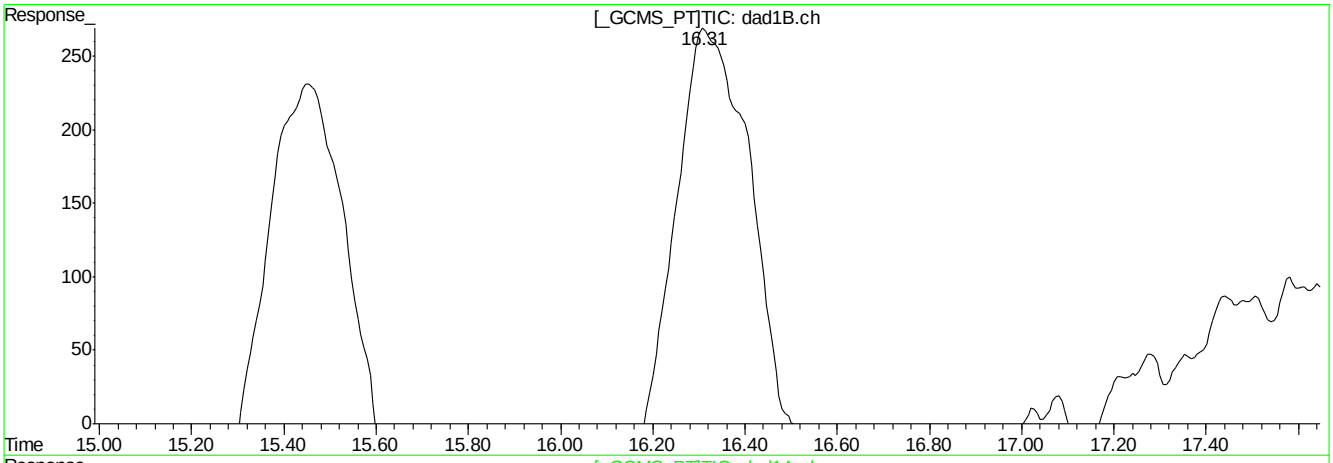


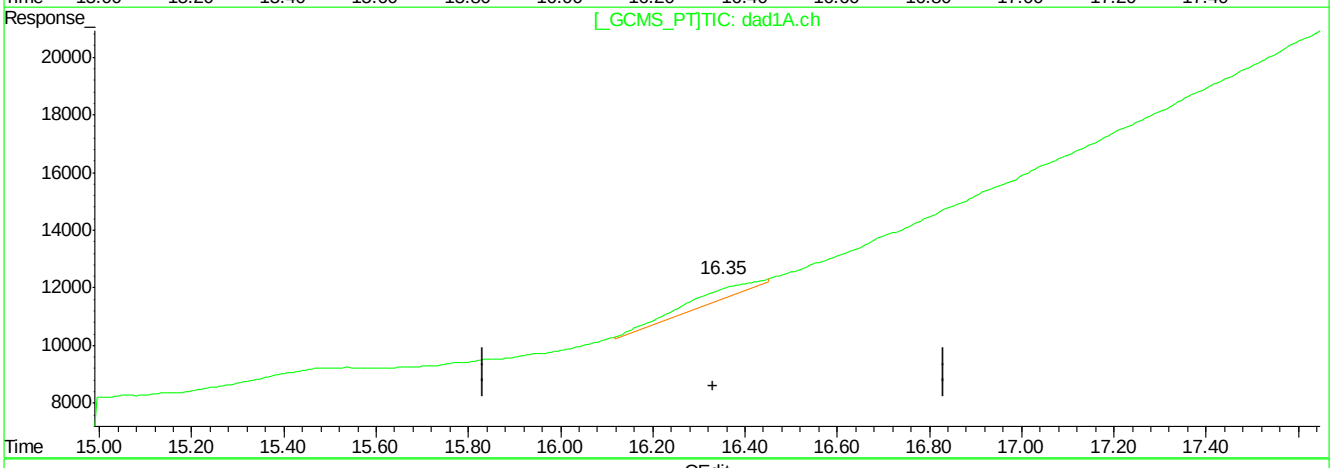
(+) = Expected Retention Time
BB067770.D 8330B_012120_PLUS.M Wed Jan 22 14:27:18 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1B.ch Vial: 91
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067770.D\dad1A.ch
Acq On : 21-Jan-2020, 14:18:29 Operator: williamh
Sample : IC1975-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(20) m-Nitrotoluene

16.32min 17.618ppb

response 61237

(20) m-Nitrotoluene #2

16.35min 10.762ppb m

response 42863

(+) = Expected Retention Time
BB067770.D 8330B_012120_PLUS.M Wed Jan 22 14:27:24 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
01/23/20 18:00

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067771.D\dad1B.ch Vial: 92
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067771.D\dad1A.ch
Acq On : 21-Jan-2020, 14:48:26 Operator: williamh
Sample : IC1975-50 Inst : G1315B
Misc : op78572,GBB1975,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19:44 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.79	10.78	94910	165973	45.030	47.060
	Spiked Amount 500.000	Range 70 - 136		Recovery =		9.01%#	9.41%#
	Target Compounds						
1)	TNX	1.33	1.33	107541	179694	38.331	40.055
2)	HMX	1.46	1.46	75191	206370	45.222m	44.851m
3)	DNX	1.70	1.70	75697	146190	53.735	62.826
4)	MNX	2.28	2.28	114721	196557	43.866	48.980
5)	RDX	2.88	2.88	101431	182912	50.260	57.155
6)	1,3,5-Trinitrobe	4.64	4.64	186765	363916	42.121	43.576
7)	1,3-Dinitrobenze	5.79	5.79	261420	189311	46.501	49.381m
8)	3,5-Dinitroanili	6.13	6.13	197844	330840	46.187	44.821m
9)	Nitrobenzene	7.26	7.27	161586	158638	47.563	47.364
10)	Nitroglycerin	0.00	8.85	0	62157	N.D.	48.015 #
11)	Tetryl	9.18	9.18	138868	214811	43.386	41.551
12)	2,4,6-Trinitroto	9.63	9.64	159386	193526	40.080	40.830
13)	2-Amino-4,6-Dini	9.90	9.90	169009	248426	46.972	46.329
14)	4-Amino-2,6-Dini	10.37	10.36	112769	228321	42.100	43.716
16)	2,4-Dinitrotolue	11.47	11.47	209668	110321	42.121	35.642m
17)	2,6-Dinitrotolue	11.91	11.91	121112	125444	40.728	34.237
18)	o-Nitrotoluene	14.87	14.89	103421	137568	43.334	43.282m
19)	p-Nitrotoluene	15.45	15.47	168527	97494	43.723	32.615
20)	m-Nitrotoluene	16.34	16.43	142239	103717	40.922m	26.037m
21)	PETN	0.00	18.35	0	24529	N.D. d	17.563m

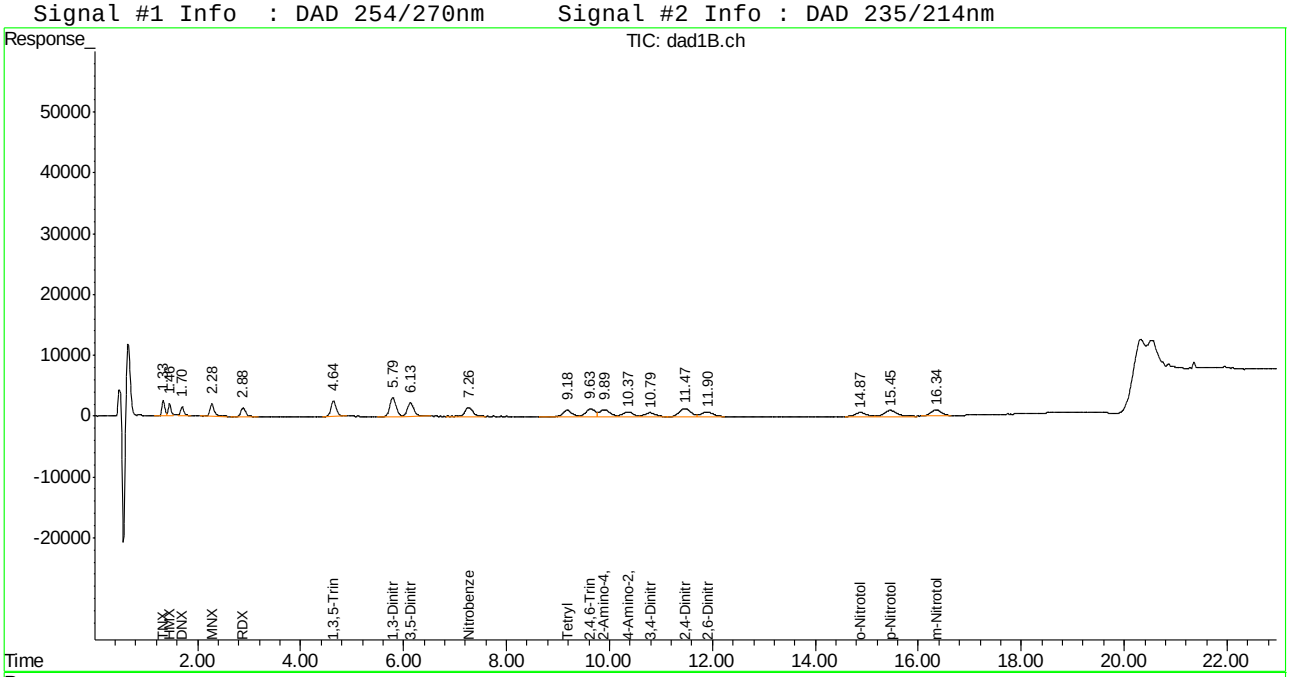
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB067771.D 8330B_012120_PLUS.M Thu Jan 23 14:01:27 2020 Page 1

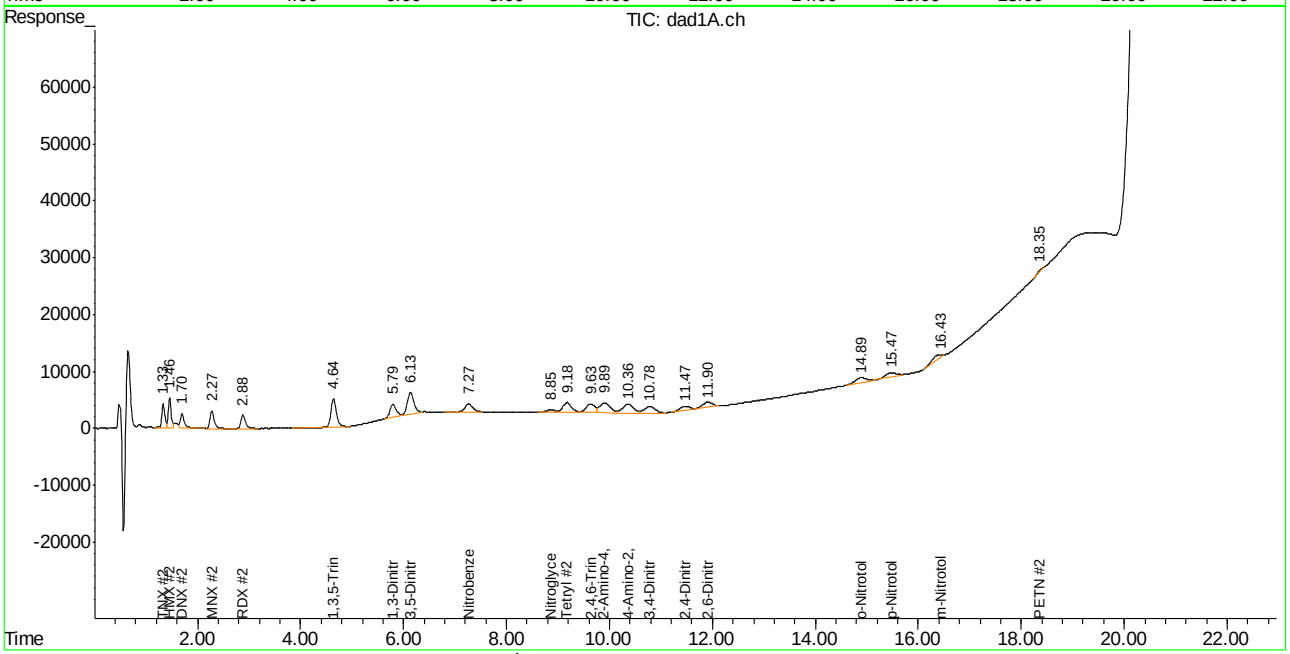
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067771.D\dad1B.ch Vial: 92
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067771.D\dad1A.ch
Acq On : 21-Jan-2020, 14:48:26 Operator: williamh
Sample : IC1975-50 Inst : G1315B
Misc : op78572,GBB1975,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:29 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

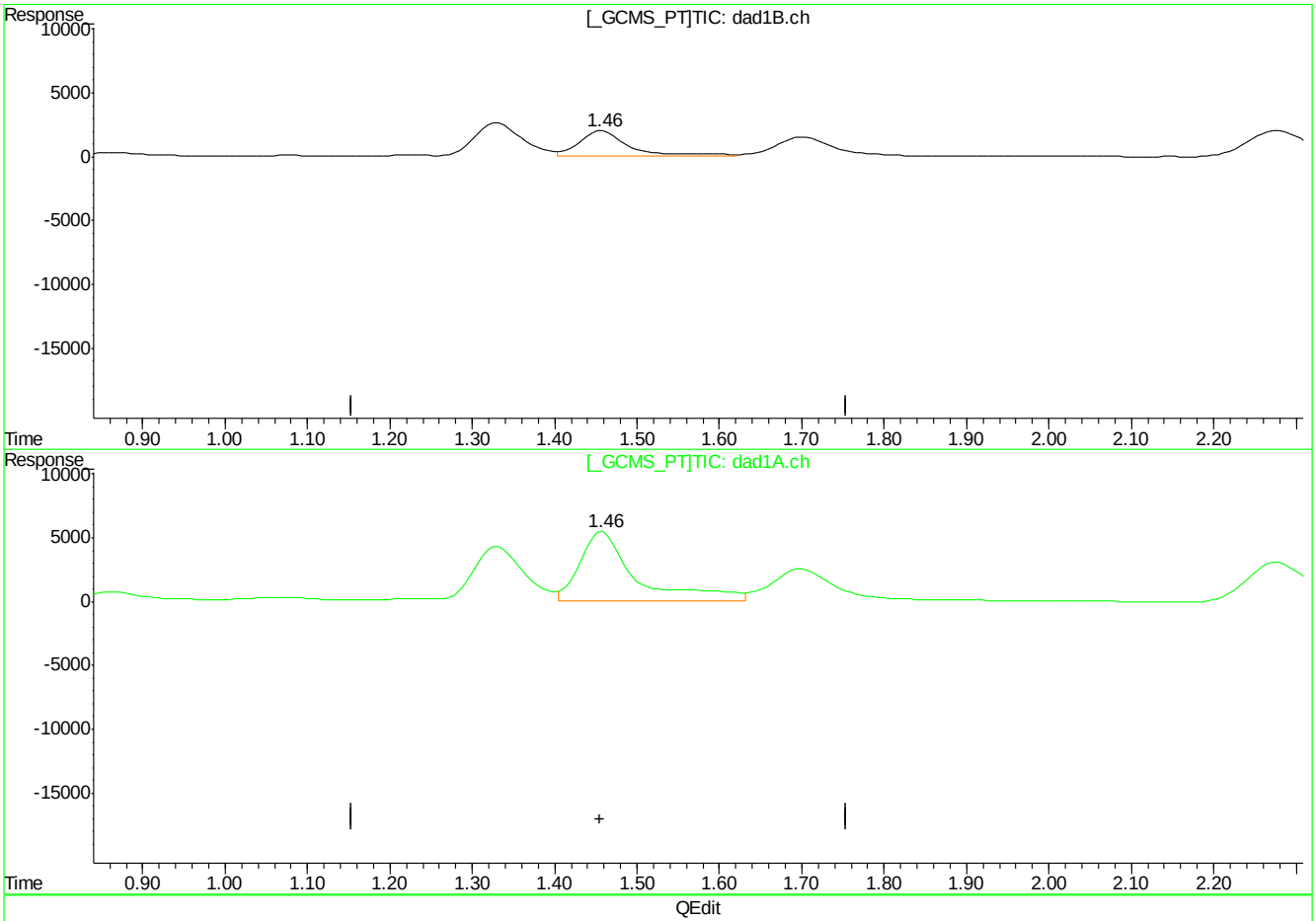
Sample Number: GBB1975-IC1975
Lab FileID: BB067771.D
Injection Time: 01/21/20 14:48
Method: SW846 8330A
Analyst approved: 01/23/20 14:17 William Hustedde
Supervisor approved: 01/23/20 18:00 Naresh Jiawan

Parameter	CAS	Sig#	R.T. (min.)	Reason
HMX	2691-41-0	1	1.46	Poor instrument integration
HMX	2691-41-0	2	1.46	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	5.79	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	6.13	Poor instrument integration
2,4-Dinitrotoluene	121-14-2	2	11.47	Poor instrument integration
o-Nitrotoluene	88-72-2	2	14.89	Poor instrument integration
m-Nitrotoluene	99-08-1	1	16.34	Poor instrument integration
m-Nitrotoluene	99-08-1	2	16.43	Poor instrument integration
PETN	78-11-5	2	18.35	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067771.D\dad1B.ch Vial: 92
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067771.D\dad1A.ch
Acq On : 21-Jan-2020, 14:48:26 Operator: williamh
Sample : IC1975-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration



QEdit

(2) HMX

1.46min 52.776ppb

response 87752

(2) HMX #2

1.46min 55.718ppb

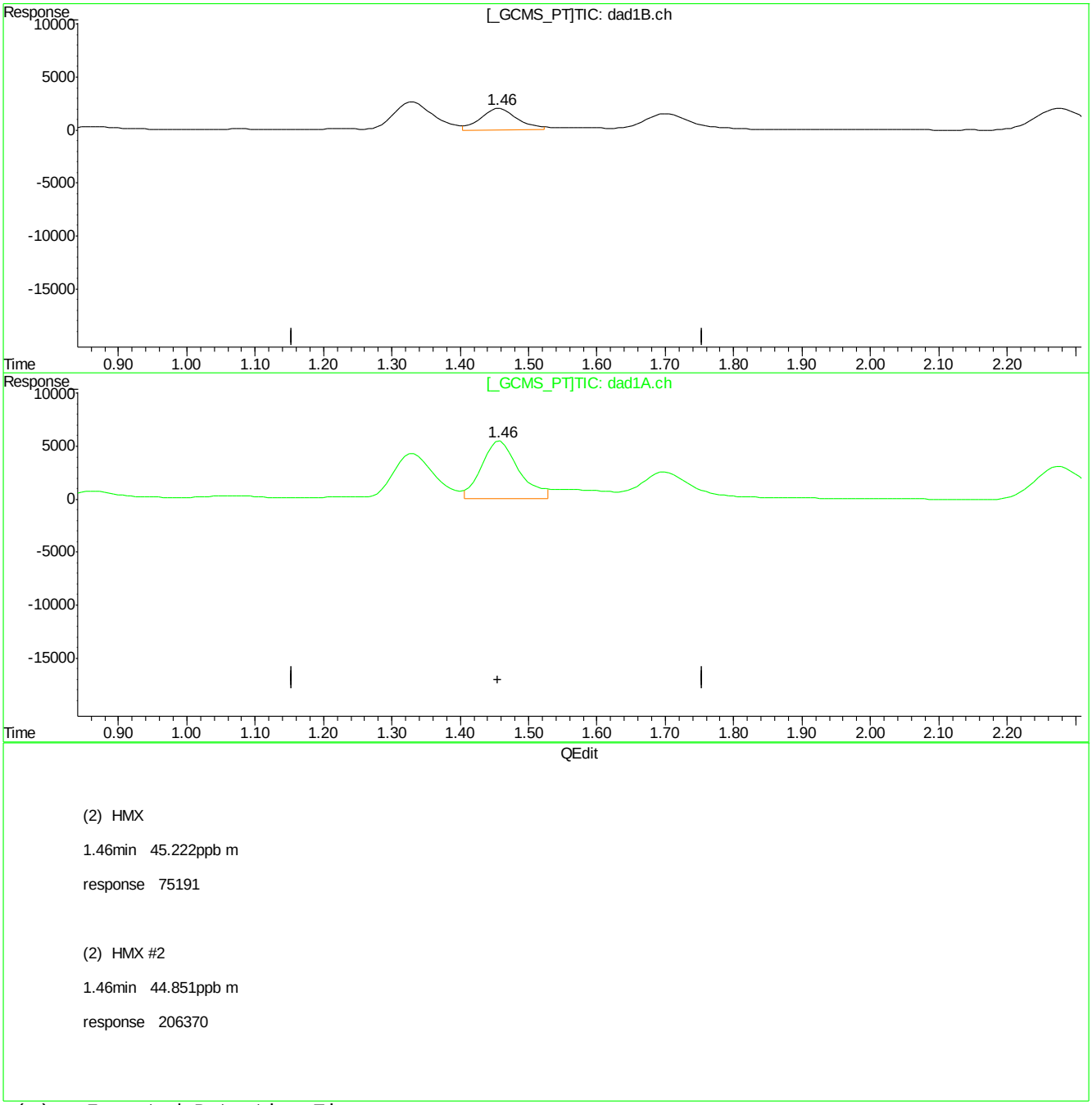
response 256368

(+) = Expected Retention Time
BB067771.D 8330B_012120_PLUS.M Wed Jan 22 14:27:42 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067771.D\dad1B.ch Vial: 92
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067771.D\dad1A.ch
Acq On : 21-Jan-2020, 14:48:26 Operator: williamh
Sample : IC1975-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration

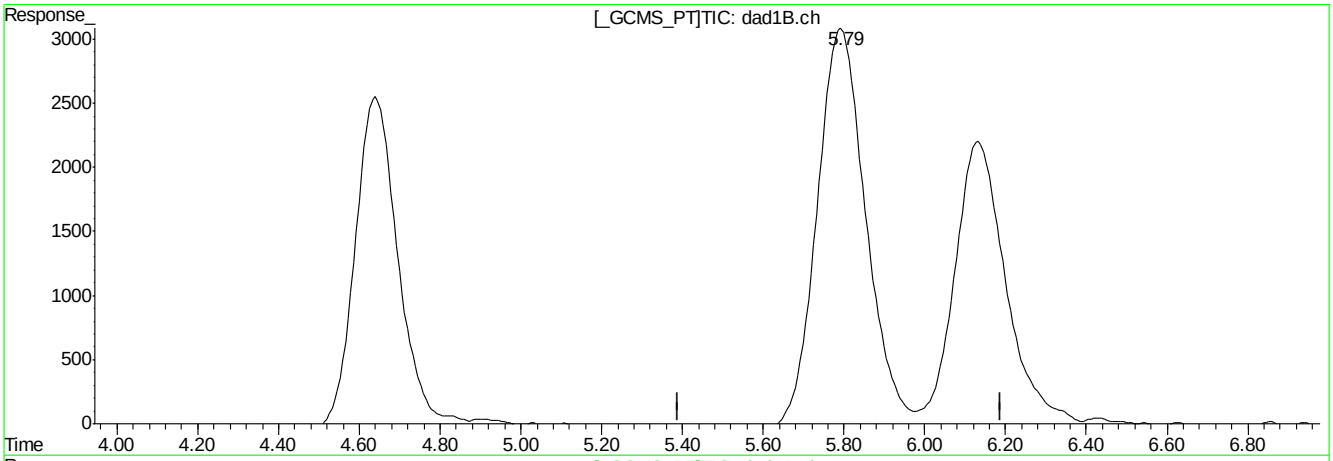


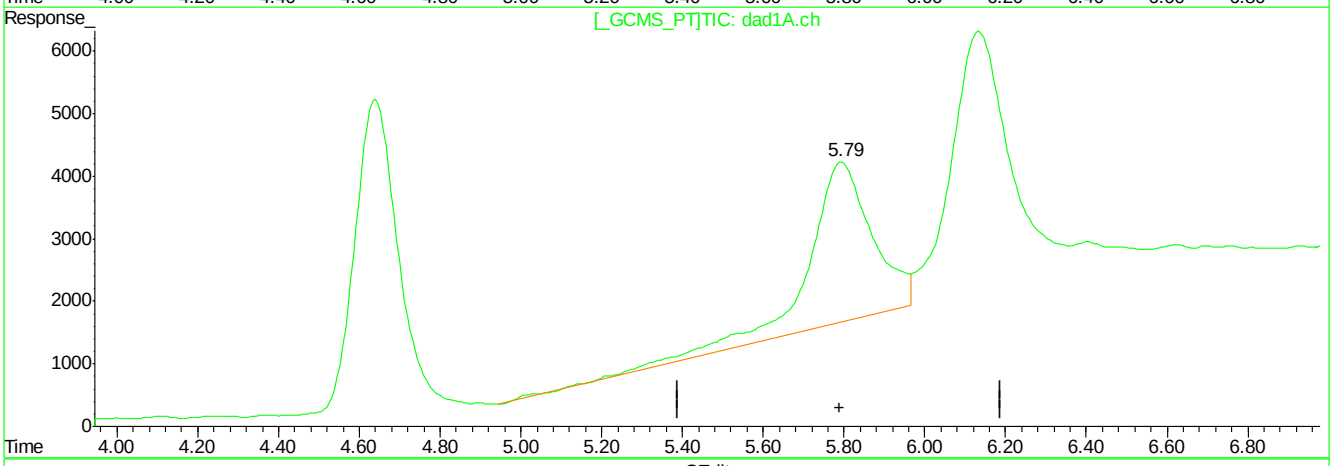
(+) = Expected Retention Time
BB067771.D 8330B_012120_PLUS.M Wed Jan 22 14:27:51 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067771.D\dad1B.ch Vial: 92
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067771.D\dad1A.ch
Acq On : 21-Jan-2020, 14:48:26 Operator: williamh
Sample : IC1975-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

5.79min 46.501ppb

response 261420

(7) 1,3-Dinitrobenzene #2

5.80min 72.905ppb

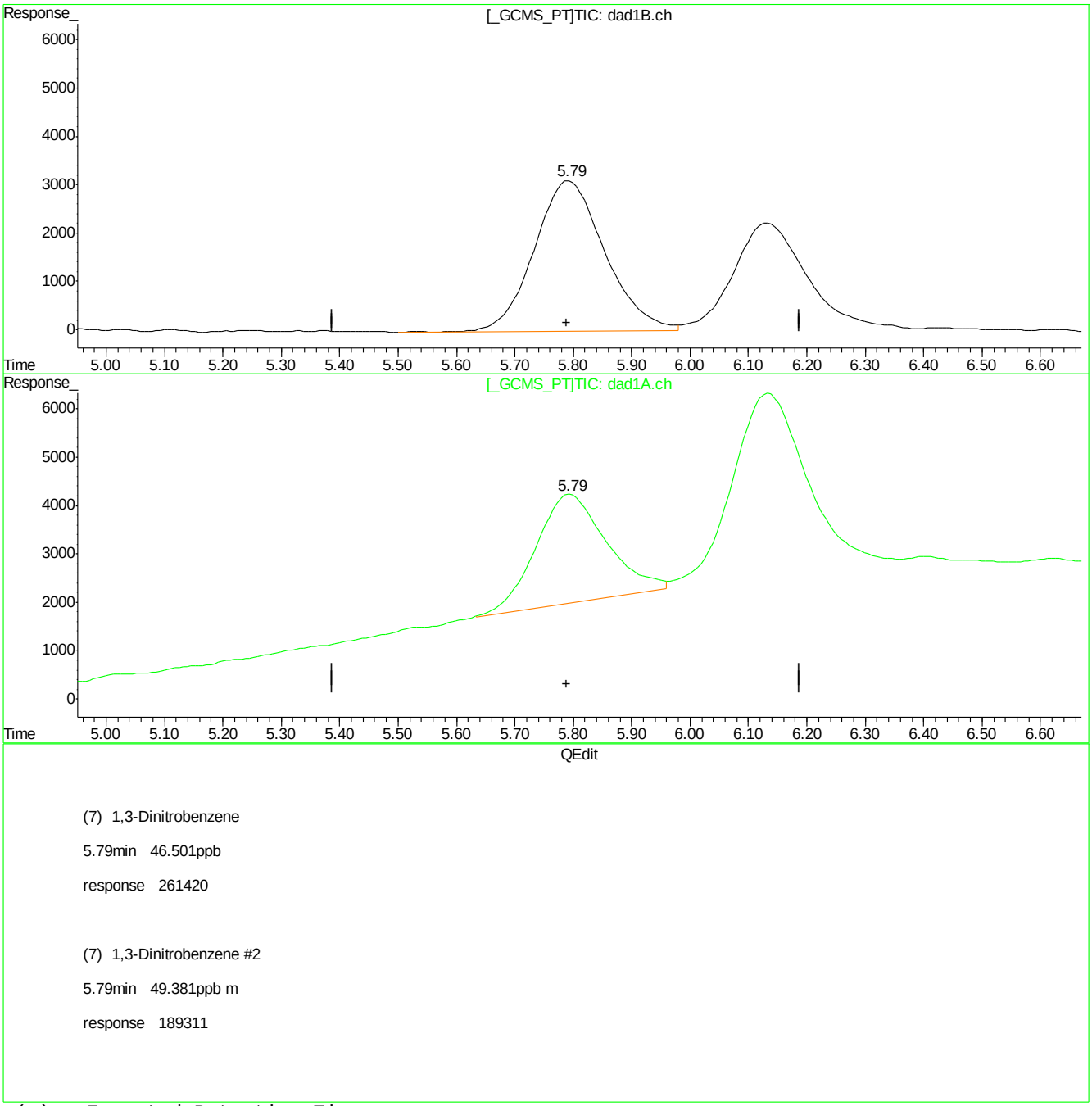
response 279494

(+) = Expected Retention Time
BB067771.D 8330B_012120_PLUS.M Wed Jan 22 14:27:59 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067771.D\dad1B.ch Vial: 92
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067771.D\dad1A.ch
Acq On : 21-Jan-2020, 14:48:26 Operator: williamh
Sample : IC1975-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration

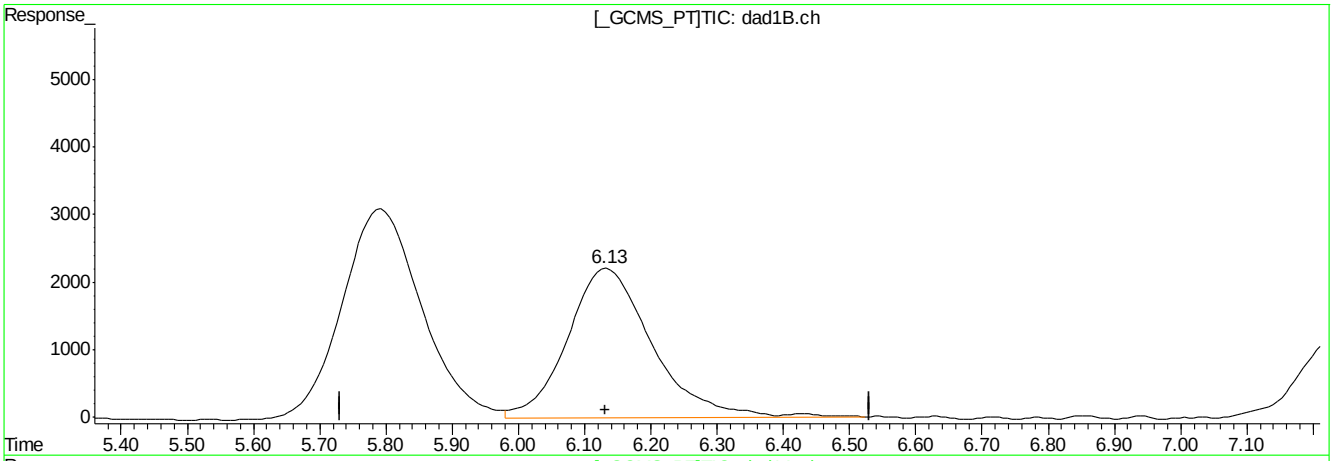


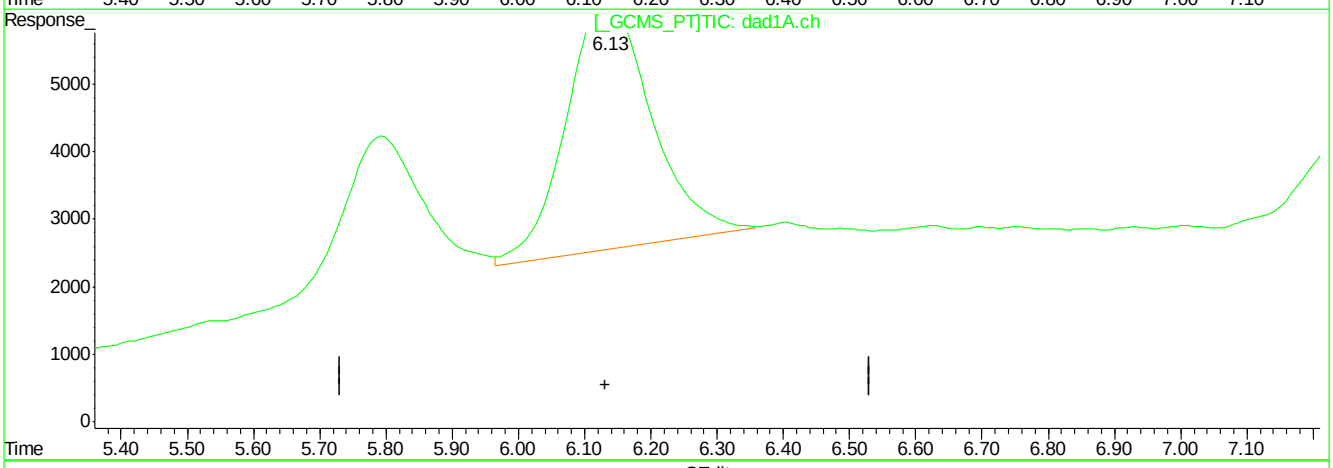
(+) = Expected Retention Time
BB067771.D 8330B_012120_PLUS.M Wed Jan 22 14:28:08 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067771.D\dad1B.ch Vial: 92
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067771.D\dad1A.ch
Acq On : 21-Jan-2020, 14:48:26 Operator: williamh
Sample : IC1975-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.13min 46.187ppb

response 197844

(8) 3,5-Dinitroaniline #2

6.13min 44.821ppb m

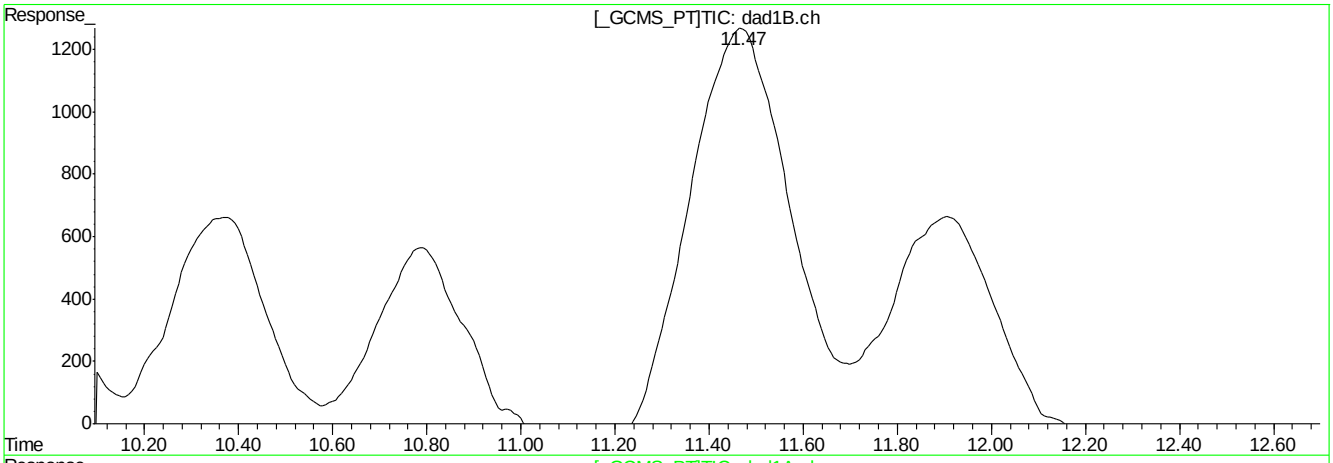
response 330840

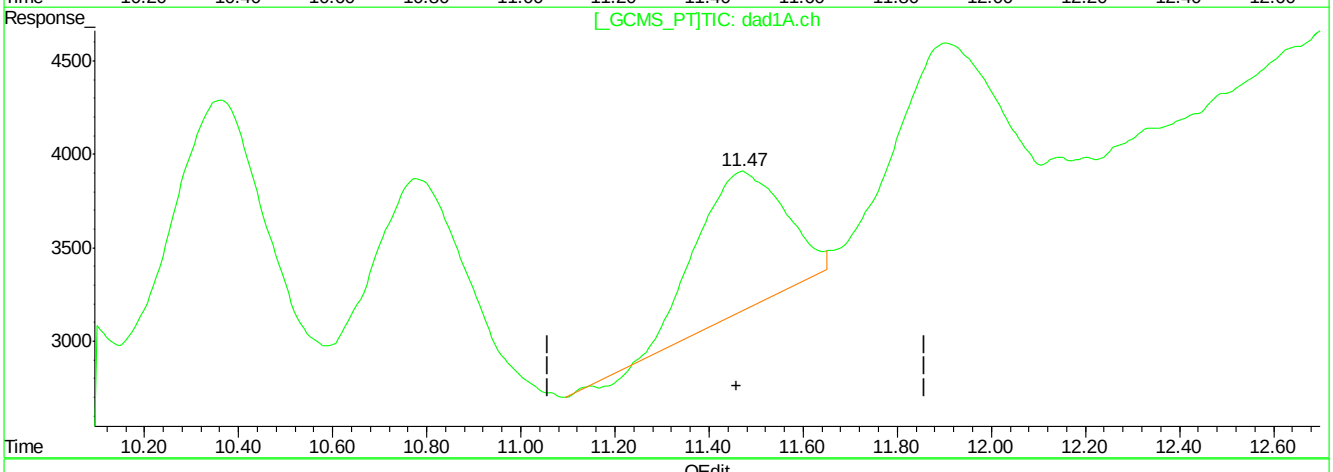
(+) = Expected Retention Time
BB067771.D 8330B_012120_PLUS.M Wed Jan 22 14:28:19 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067771.D\dad1B.ch Vial: 92
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067771.D\dad1A.ch
Acq On : 21-Jan-2020, 14:48:26 Operator: williamh
Sample : IC1975-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(16) 2,4-Dinitrotoluene

11.47min 42.121ppb

response 209668

(16) 2,4-Dinitrotoluene #2

11.47min 30.913ppb

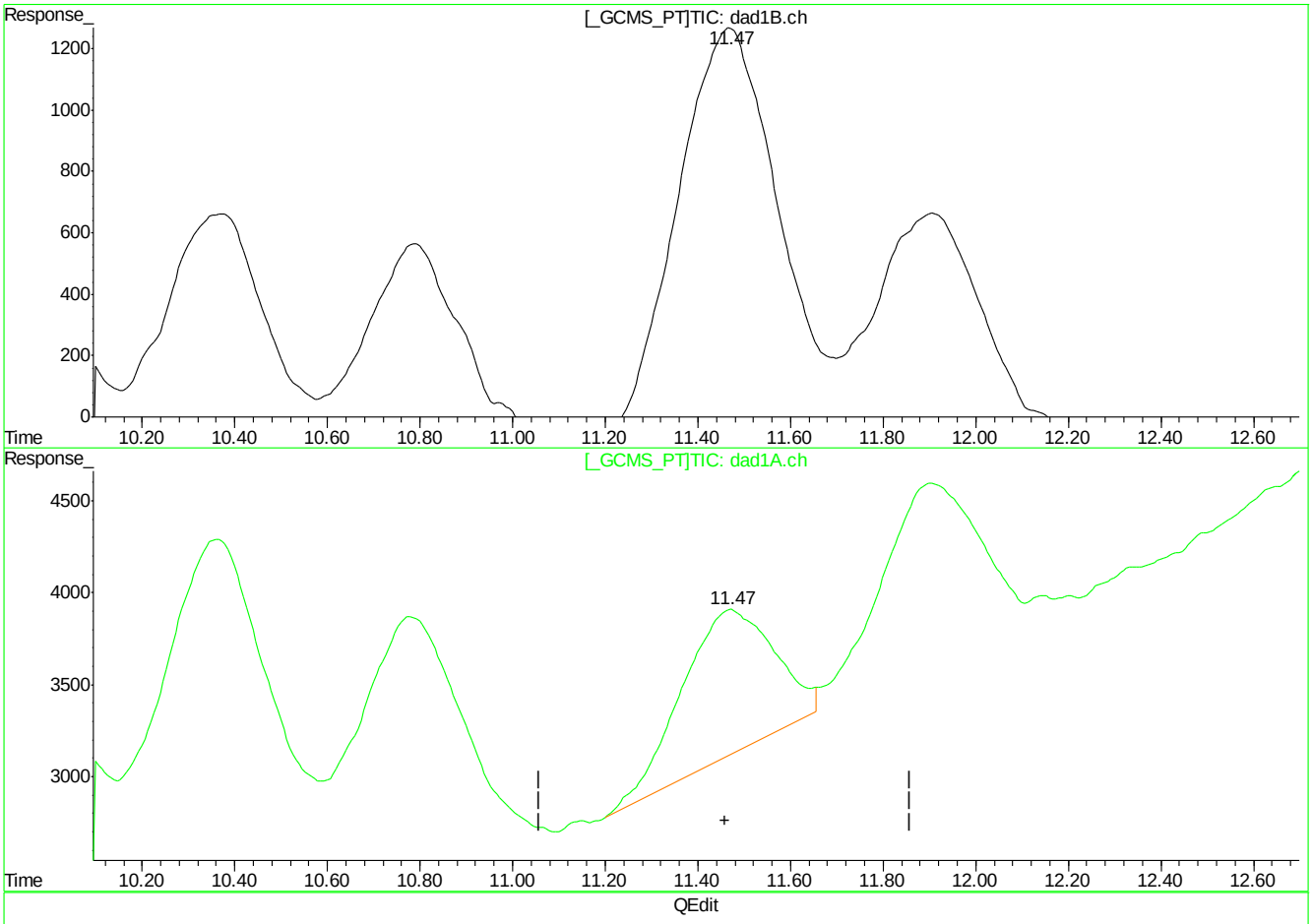
response 95683

(+) = Expected Retention Time
BB067771.D 8330B_012120_PLUS.M Wed Jan 22 14:28:27 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067771.D\dad1B.ch Vial: 92
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067771.D\dad1A.ch
Acq On : 21-Jan-2020, 14:48:26 Operator: williamh
Sample : IC1975-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration



(16) 2,4-Dinitrotoluene

11.47min 42.121ppb

response 209668

(16) 2,4-Dinitrotoluene #2

11.47min 35.642ppb m

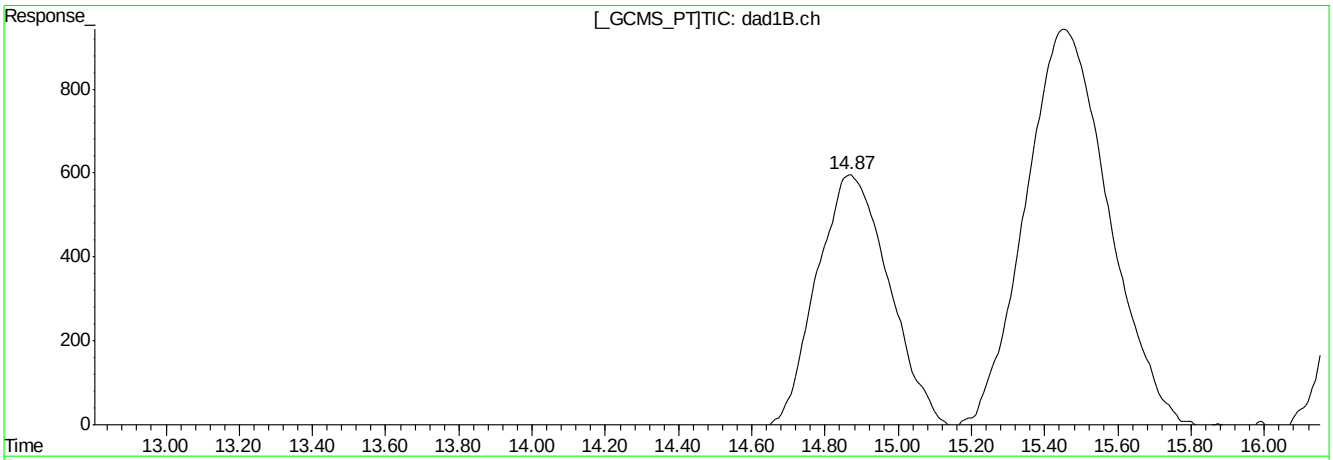
response 110321

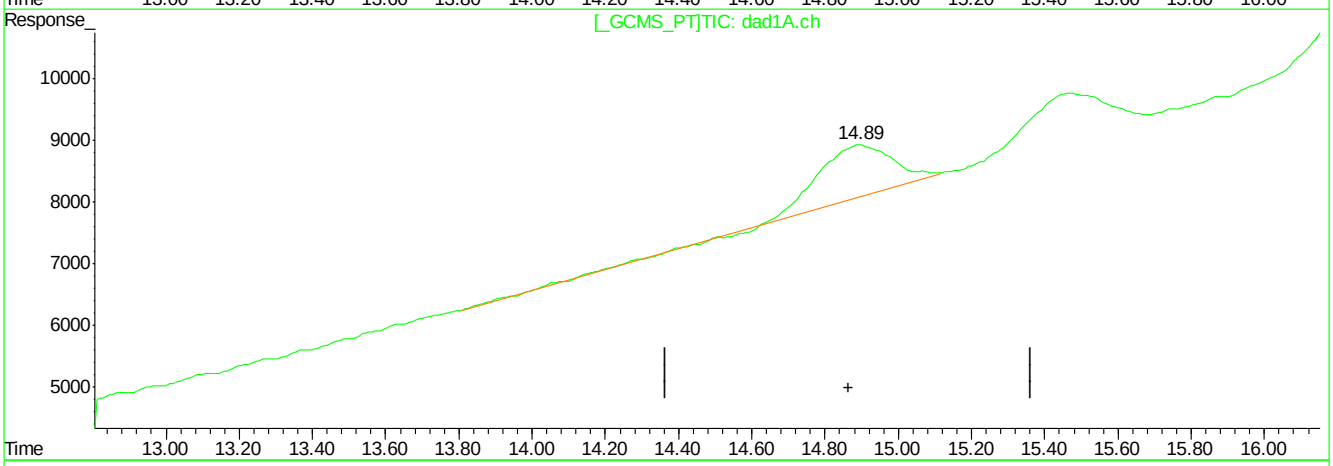
(+) = Expected Retention Time
BB067771.D 8330B_012120_PLUS.M Wed Jan 22 14:28:32 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067771.D\dad1B.ch Vial: 92
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067771.D\dad1A.ch
Acq On : 21-Jan-2020, 14:48:26 Operator: williamh
Sample : IC1975-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(18) o-Nitrotoluene

14.87min 43.334ppb

response 103421

(18) o-Nitrotoluene #2

14.90min 35.600ppb

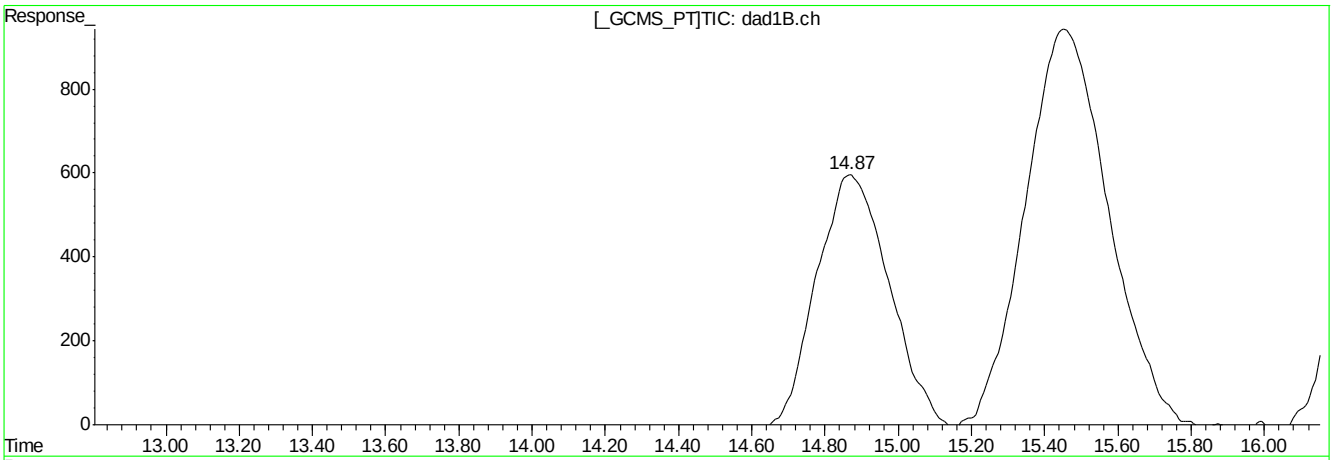
response 113154

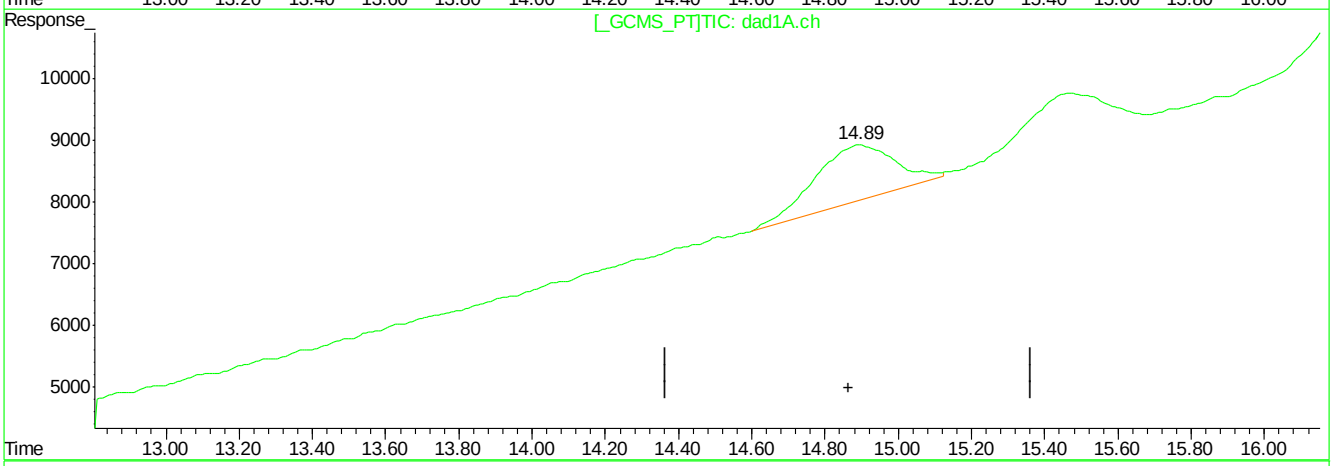
(+) = Expected Retention Time
BB067771.D 8330B_012120_PLUS.M Wed Jan 22 14:28:39 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067771.D\dad1B.ch Vial: 92
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067771.D\dad1A.ch
Acq On : 21-Jan-2020, 14:48:26 Operator: williamh
Sample : IC1975-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(18) o-Nitrotoluene

14.87min 43.334ppb

response 103421

(18) o-Nitrotoluene #2

14.89min 43.282ppb m

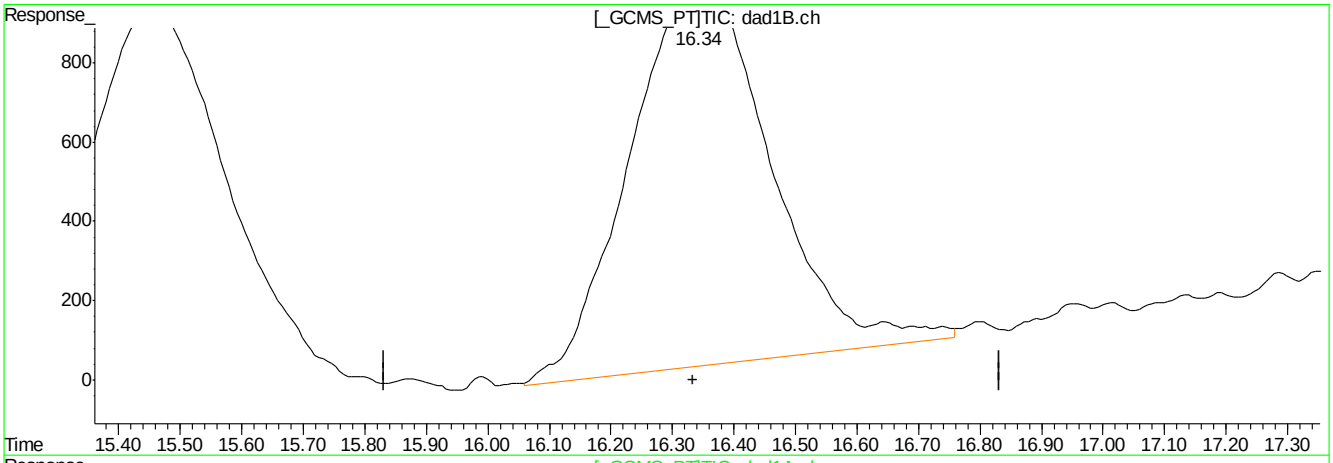
response 137568

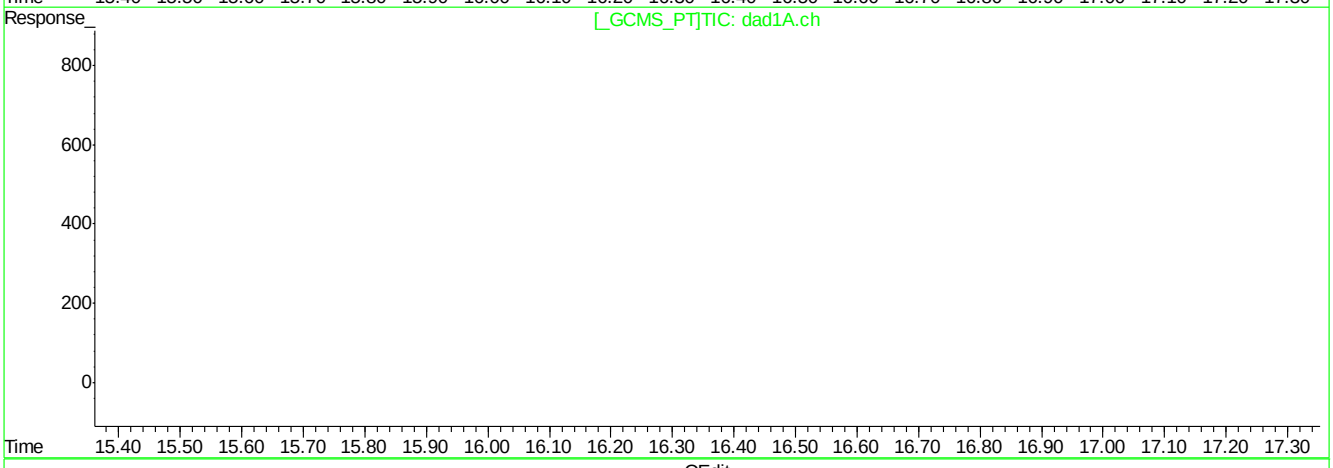
(+) = Expected Retention Time
BB067771.D 8330B_012120_PLUS.M Wed Jan 22 14:28:44 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067771.D\dad1B.ch Vial: 92
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067771.D\dad1A.ch
Acq On : 21-Jan-2020, 14:48:26 Operator: williamh
Sample : IC1975-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(20) m-Nitrotoluene

16.35min 44.096ppb

response 153271

(20) m-Nitrotoluene #2

0.00min 0.000ppb

response 0

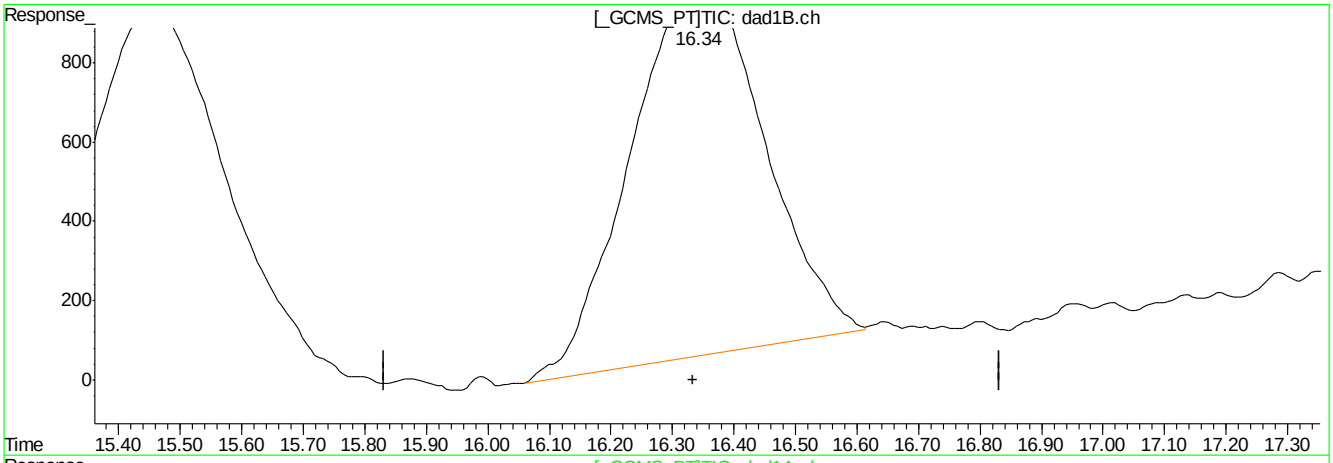
(+) = Expected Retention Time
BB067771.D 8330B_012120_PLUS.M Wed Jan 22 14:28:54 2020

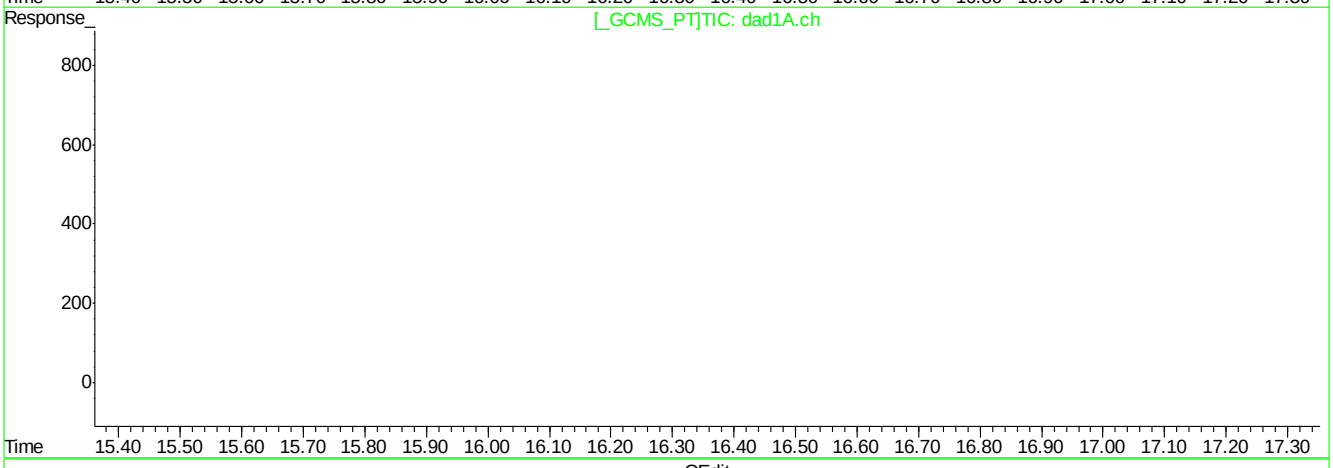
BB067771.D edits: m-Nitrotoluene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067771.D\dad1B.ch Vial: 92
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067771.D\dad1A.ch
Acq On : 21-Jan-2020, 14:48:26 Operator: williamh
Sample : IC1975-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(20) m-Nitrotoluene

16.34min 40.922ppb m

response 142239

(20) m-Nitrotoluene #2

0.00min 0.000ppb

response 0

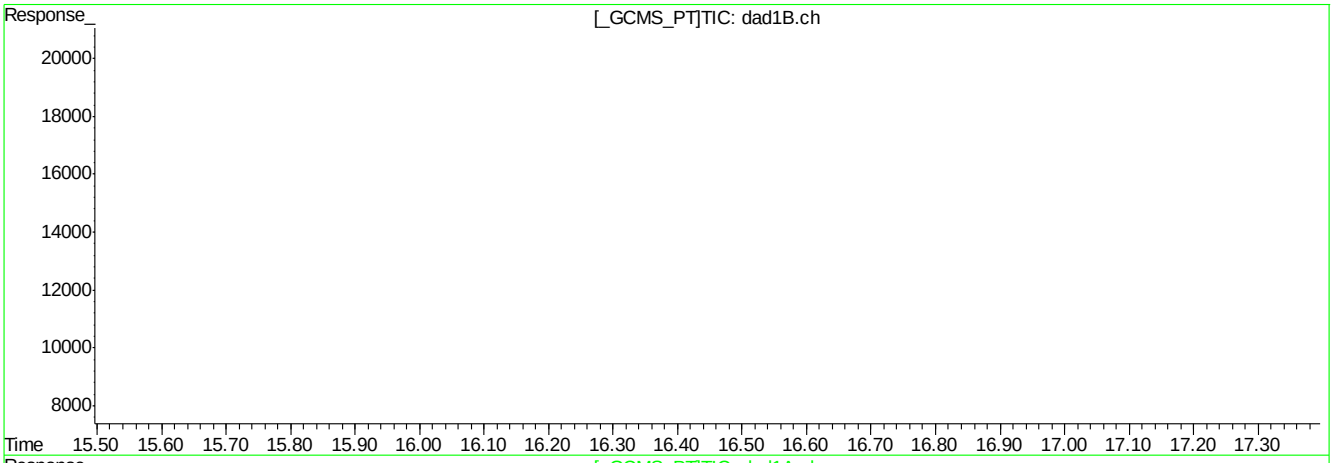
(+) = Expected Retention Time
BB067771.D 8330B_012120_PLUS.M Wed Jan 22 14:28:59 2020

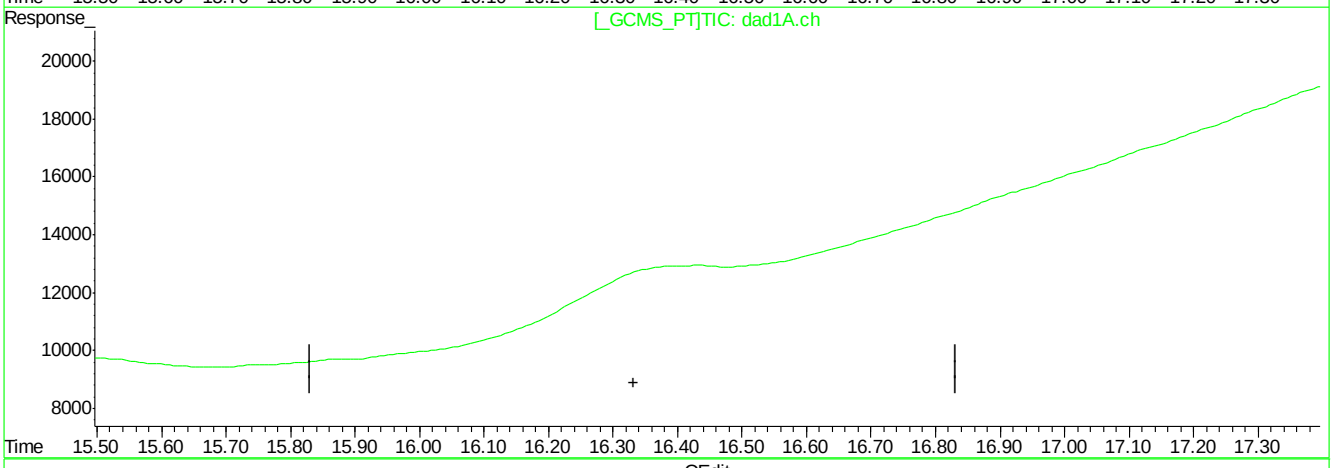
BB067771.D edits: m-Nitrotoluene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067771.D\dad1B.ch Vial: 92
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067771.D\dad1A.ch
Acq On : 21-Jan-2020, 14:48:26 Operator: williamh
Sample : IC1975-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(20) m-Nitrotoluene

16.34min 40.922ppb m

response 142239

(20) m-Nitrotoluene #2

0.00min 0.000ppb

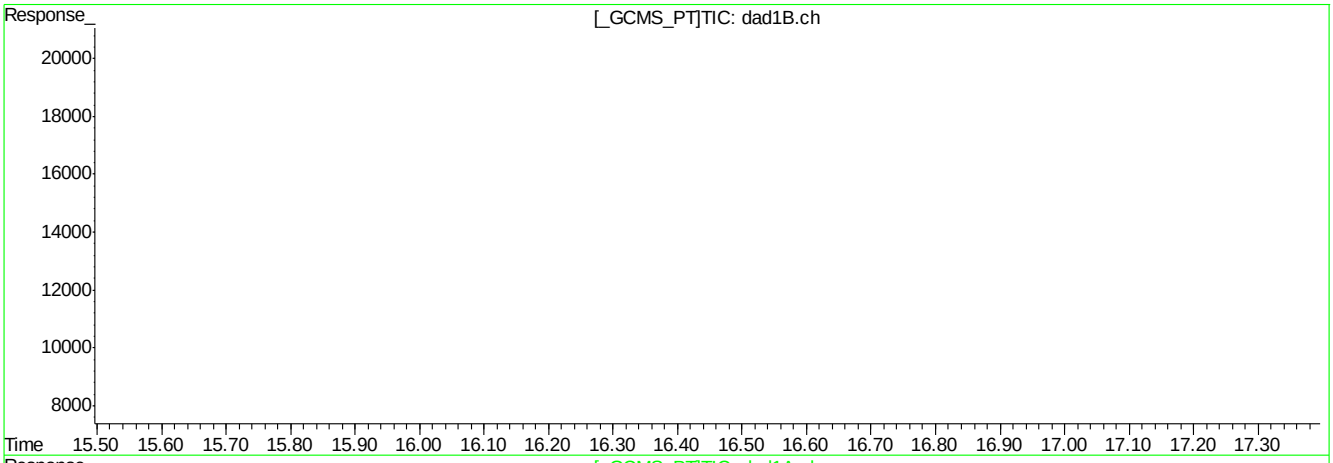
response 0

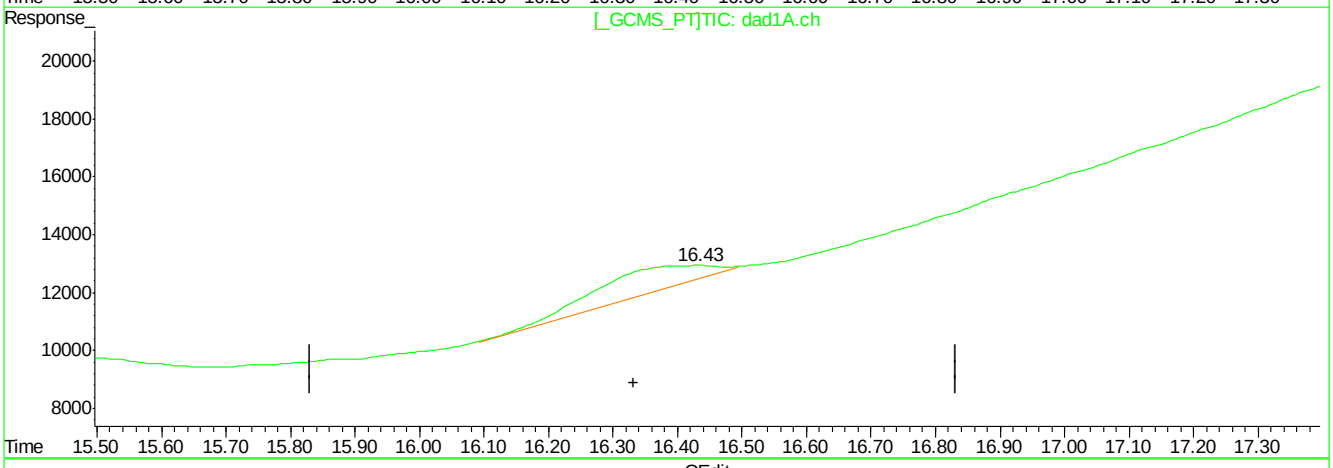
(+) = Expected Retention Time
BB067771.D 8330B_012120_PLUS.M Wed Jan 22 14:29:02 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067771.D\dad1B.ch Vial: 92
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067771.D\dad1A.ch
Acq On : 21-Jan-2020, 14:48:26 Operator: williamh
Sample : IC1975-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(20) m-Nitrotoluene

16.34min 40.922ppb m

response 142239

(20) m-Nitrotoluene #2

16.43min 26.037ppb m

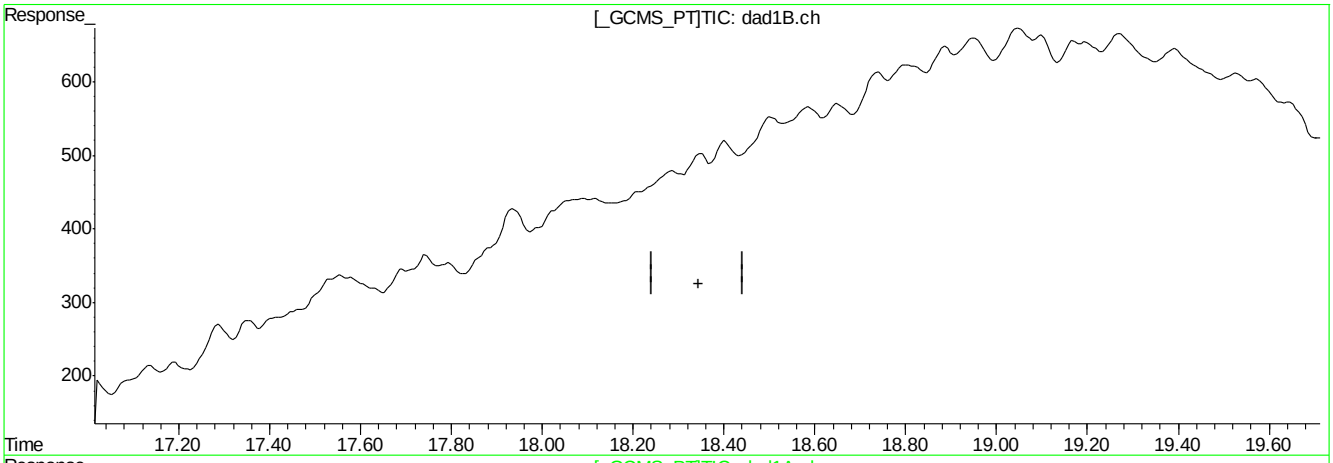
response 103717

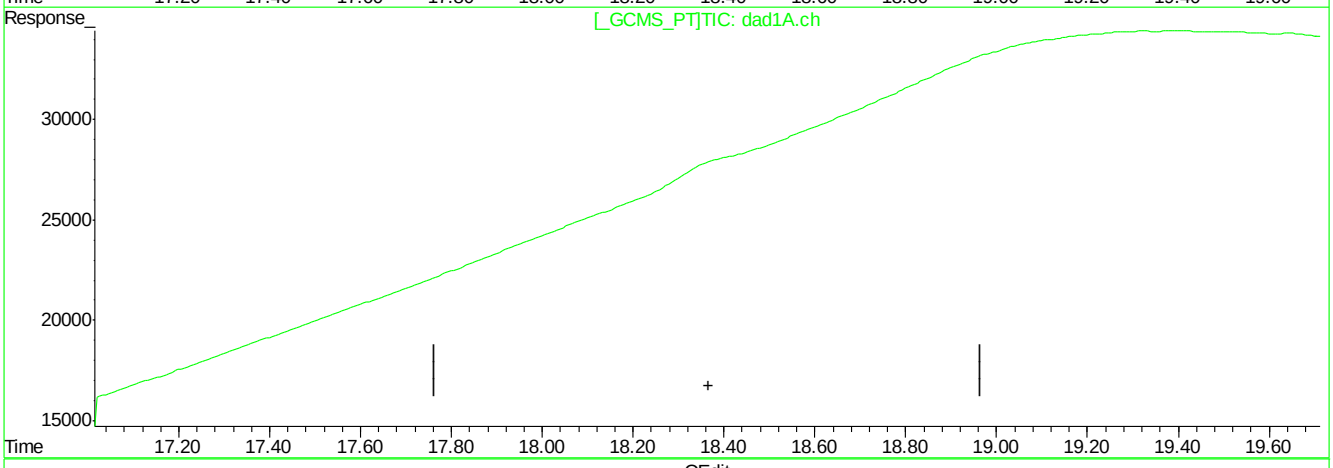
(+) = Expected Retention Time
BB067771.D 8330B_012120_PLUS.M Wed Jan 22 14:29:08 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067771.D\dad1B.ch Vial: 92
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067771.D\dad1A.ch
Acq On : 21-Jan-2020, 14:48:26 Operator: williamh
Sample : IC1975-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb d

response 0

(21) PETN #2

0.00min 0.000ppb

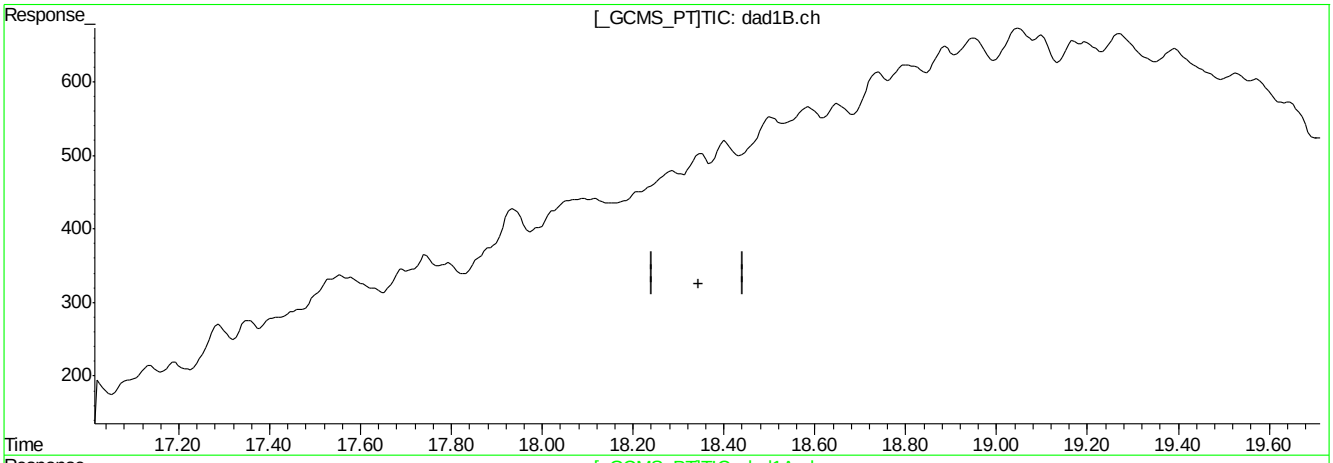
response 0

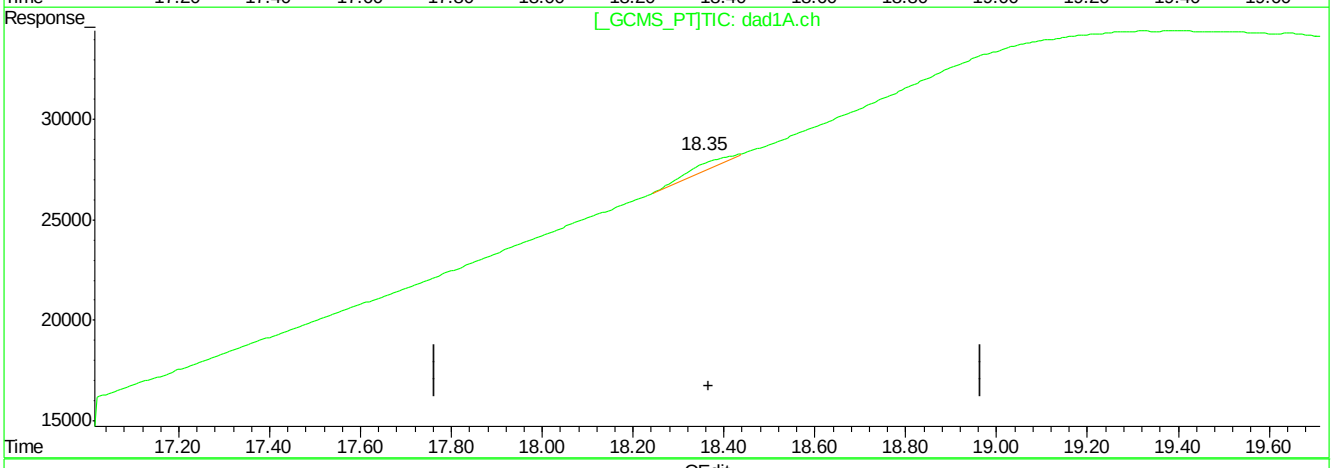
(+) = Expected Retention Time
BB067771.D 8330B_012120_PLUS.M Wed Jan 22 14:29:13 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067771.D\dad1B.ch Vial: 92
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067771.D\dad1A.ch
Acq On : 21-Jan-2020, 14:48:26 Operator: williamh
Sample : IC1975-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb d

response 0

(21) PETN #2

18.35min 17.563ppb m

response 24529

(+) = Expected Retention Time
BB067771.D 8330B_012120_PLUS.M Wed Jan 22 14:29:18 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 01/23/20 18:00

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067772.D\dad1B.ch Vial: 93
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067772.D\dad1A.ch
Acq On : 21-Jan-2020, 15:18:25 Operator: williamh
Sample : IC1975-100 Inst : G1315B
Misc : op78572,GBB1975,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19:45 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.78	10.78	205985	350380	97.729	99.347
Spiked Amount	500.000	Range	70 - 136	Recovery	=	19.55%#	19.87%#
	Target Compounds						
1)	TNX	1.33	1.33	231065	368266	82.359	82.089
2)	HMX	1.46	1.46	161776	456293	97.297m	99.168m
3)	DNX	1.70	1.70	163924	318083	116.366	136.798
4)	MNX	2.28	2.27	235298	357502	89.971	89.087m
5)	RDX	2.88	2.88	198415	329725	98.316	103.030
6)	1,3,5-Trinitrobe	4.64	4.64	395704	756021	89.243	90.527m
7)	1,3-Dinitrobenze	5.79	5.79	531115	374100	94.474	97.582m
8)	3,5-Dinitroanili	6.13	6.13	411140	694113	95.981	94.036m
9)	Nitrobenzene	7.27	7.27	319370	324088	94.008	96.763
10)	Nitroglycerin	0.00	8.86	0	120980	N.D.	93.455 #
11)	Tetryl	9.18	9.18	258064	435011	80.626	84.144
12)	2,4,6-Trinitroto	9.63	9.64	337744	406335	84.931	85.729
13)	2-Amino-4,6-Dini	9.91	9.90	327079	504313	90.903	94.050
14)	4-Amino-2,6-Dini	10.35	10.36	236302	478321	88.219	91.582
16)	2,4-Dinitrotolue	11.46	11.46	447648	259228	89.930	83.750
17)	2,6-Dinitrotolue	11.90	11.91	277510	335445	93.322	91.553
18)	o-Nitrotoluene	14.87	14.88	226941	273808	95.089	86.145
19)	p-Nitrotoluene	15.46	15.47	345459	238631	89.628	79.831
20)	m-Nitrotoluene	16.34	16.37	316918	277006	91.177	69.510m
21)	PETN	0.00	18.35	0	50065	N.D.	35.846m#

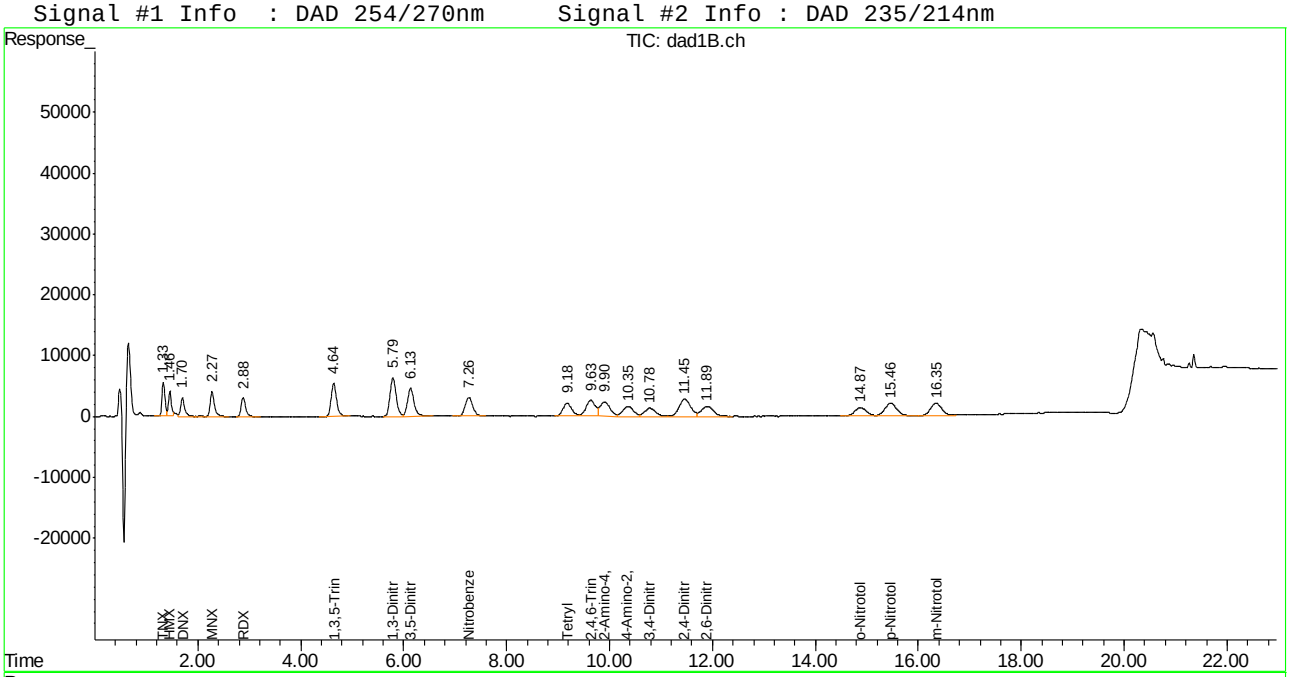
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB067772.D 8330B_012120_PLUS.M Thu Jan 23 14:01:28 2020 Page 1

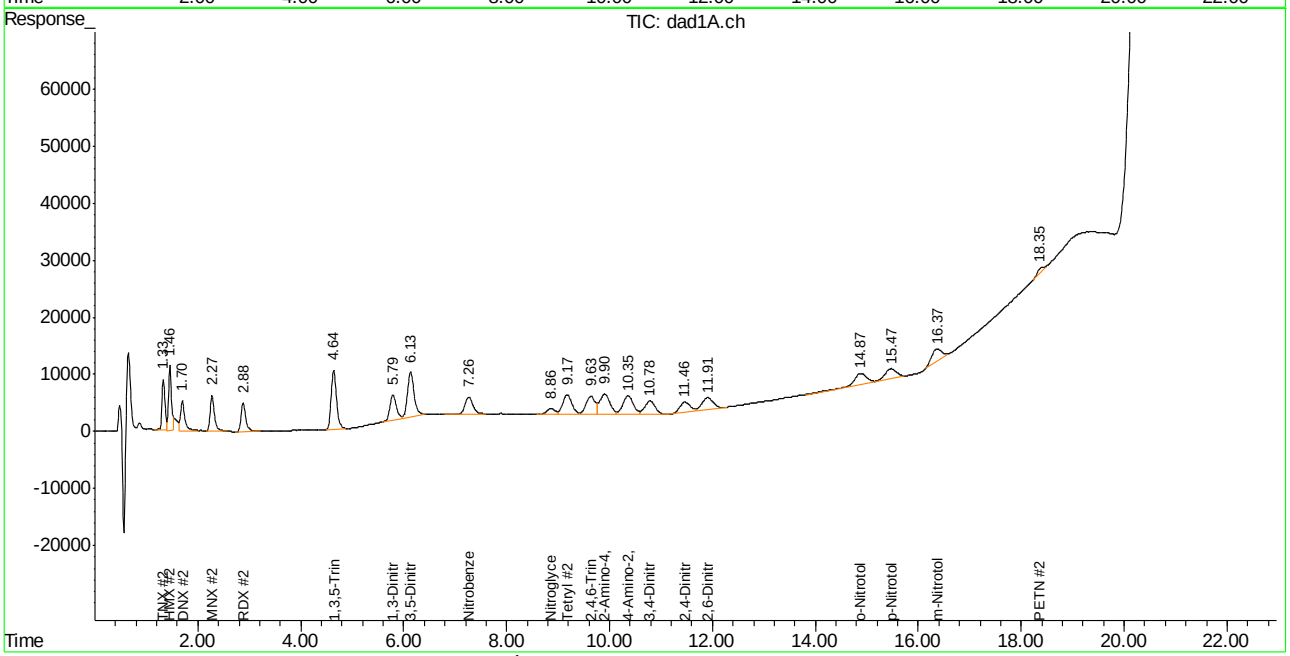
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067772.D\dad1B.ch Vial: 93
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067772.D\dad1A.ch
Acq On : 21-Jan-2020, 15:18:25 Operator: williamh
Sample : IC1975-100 Inst : G1315B
Misc : op78572,GBB1975,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:33 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

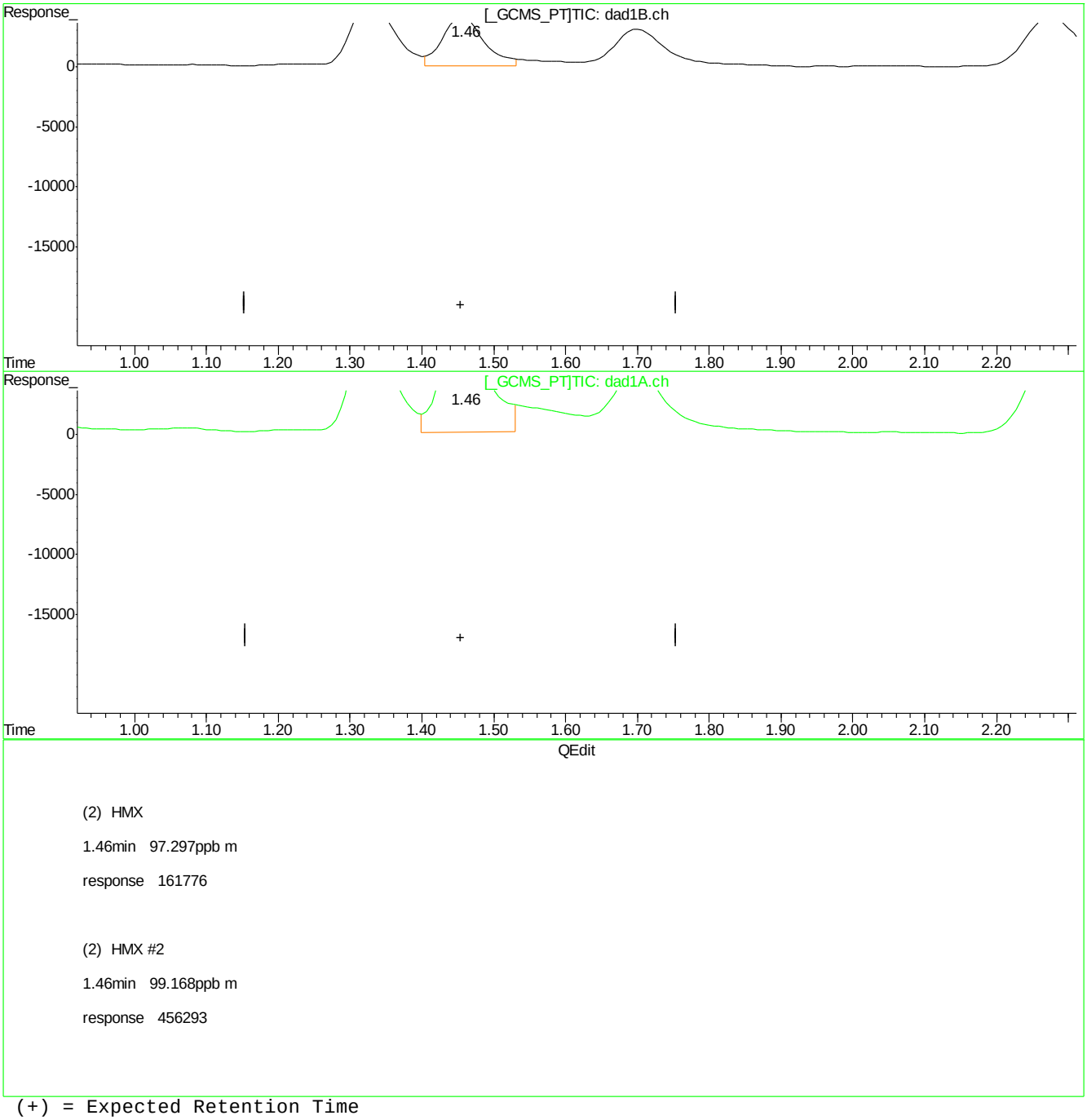
Sample Number: GBB1975-IC1975
Lab FileID: BB067772.D
Injection Time: 01/21/20 15:18
Method: SW846 8330A
Analyst approved: 01/23/20 14:17 William Hustedde
Supervisor approved: 01/23/20 18:00 Naresh Jiawan

Parameter	CAS	Sig#	R.T. (min.)	Reason
HMX	2691-41-0	1	1.46	Poor instrument integration
HMX	2691-41-0	2	1.46	Poor instrument integration
MNX		2	2.27	Poor instrument integration
1,3,5-Trinitrobenzene	99-35-4	2	4.64	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	5.79	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	6.13	Poor instrument integration
m-Nitrotoluene	99-08-1	2	16.37	Poor instrument integration
PETN	78-11-5	2	18.35	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067772.D\dad1B.ch Vial: 93
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067772.D\dad1A.ch
Acq On : 21-Jan-2020, 15:18:25 Operator: williamh
Sample : IC1975-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration

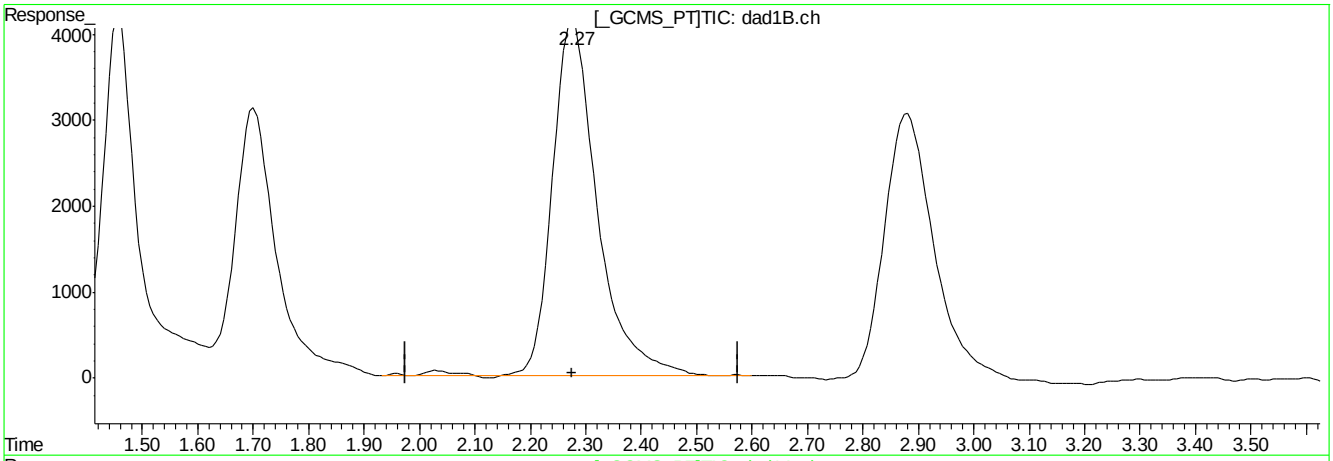


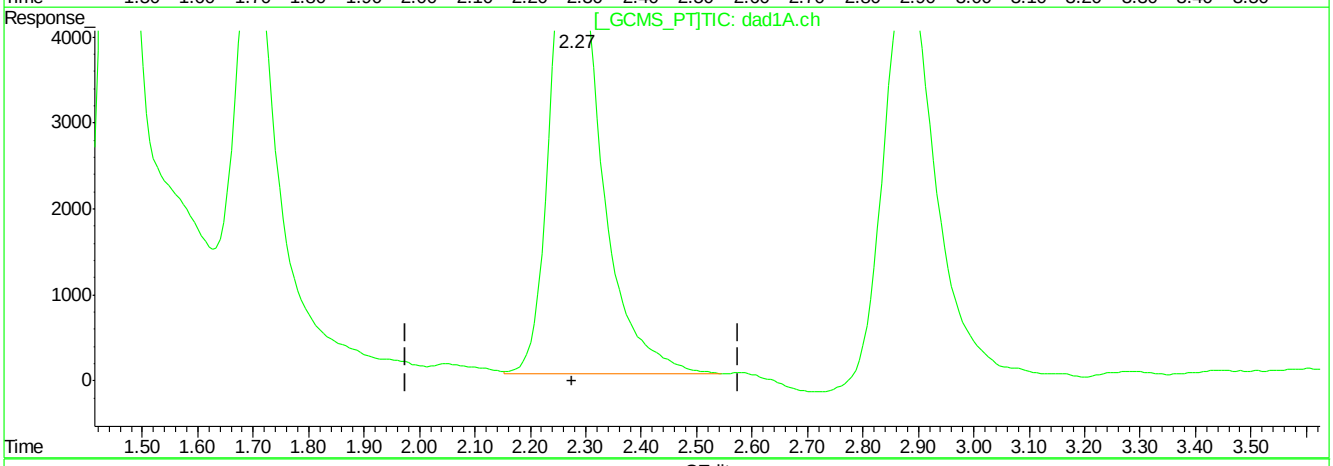
(+) = Expected Retention Time
BB067772.D 8330B_012120_PLUS.M Wed Jan 22 14:32:11 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067772.D\dad1B.ch Vial: 93
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067772.D\dad1A.ch
Acq On : 21-Jan-2020, 15:18:25 Operator: williamh
Sample : IC1975-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(4) MNX

2.28min 89.971ppb

response 235298

(4) MNX #2

2.27min 89.087ppb m

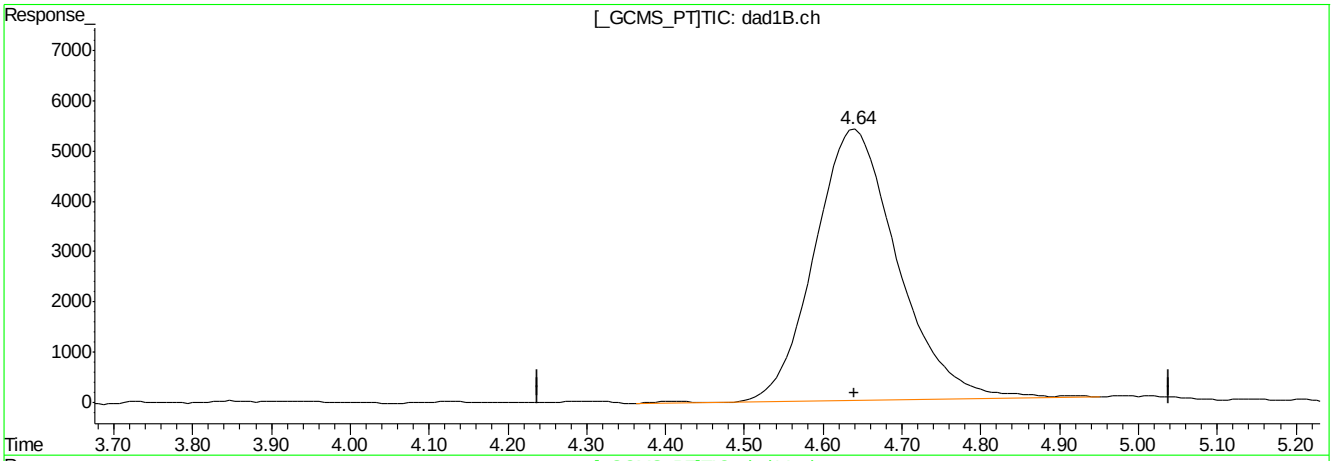
response 357502

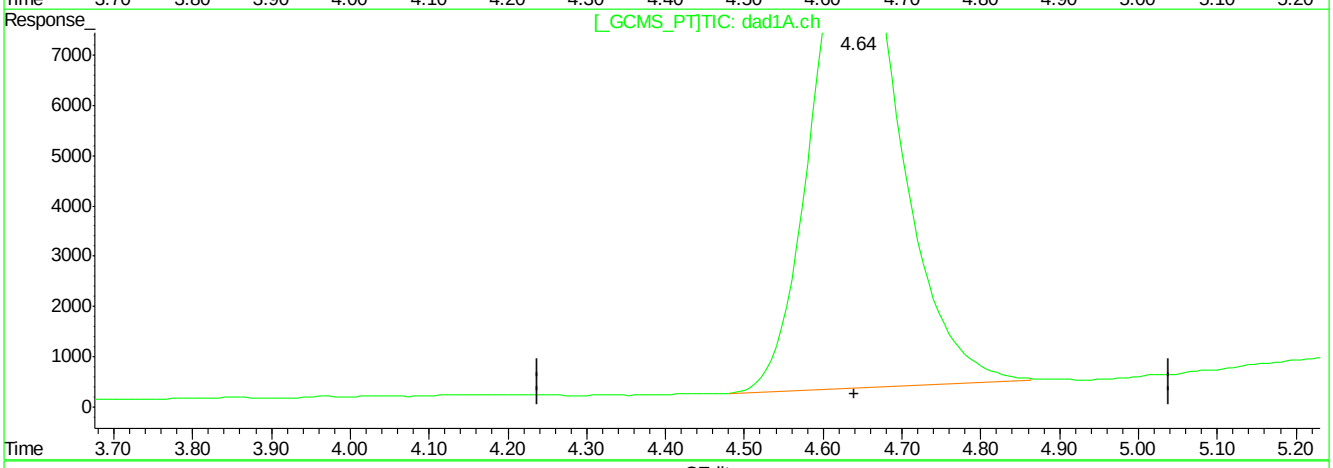
(+) = Expected Retention Time
BB067772.D 8330B_012120_PLUS.M Wed Jan 22 14:32:23 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067772.D\dad1B.ch Vial: 93
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067772.D\dad1A.ch
Acq On : 21-Jan-2020, 15:18:25 Operator: williamh
Sample : IC1975-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(6) 1,3,5-Trinitrobenzene

4.64min 89.243ppb

response 395704

(6) 1,3,5-Trinitrobenzene #2

4.64min 90.527ppb m

response 756021

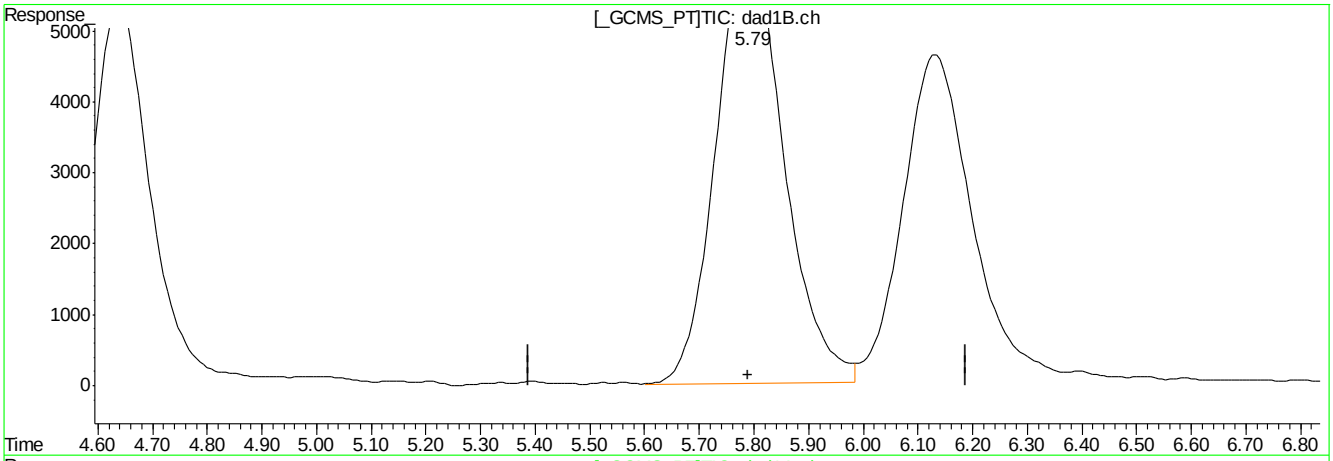
(+) = Expected Retention Time
BB067772.D 8330B_012120_PLUS.M Wed Jan 22 14:32:36 2020

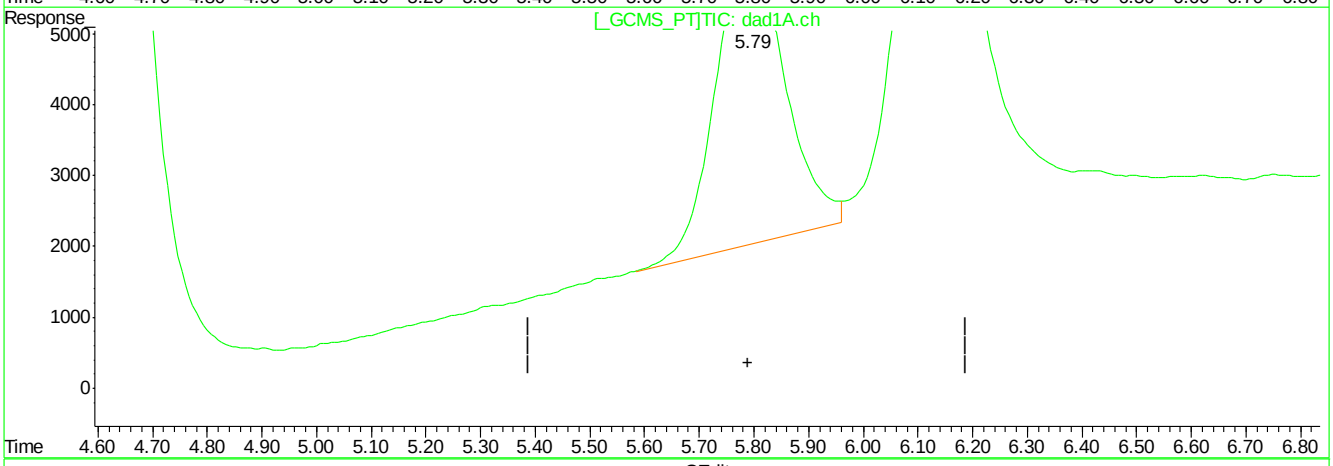
BB067772.D edits: 1,3,5-Trinitrobenzene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067772.D\dad1B.ch Vial: 93
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067772.D\dad1A.ch
Acq On : 21-Jan-2020, 15:18:25 Operator: williamh
Sample : IC1975-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

5.79min 94.474ppb

response 531115

(7) 1,3-Dinitrobenzene #2

5.79min 97.582ppb m

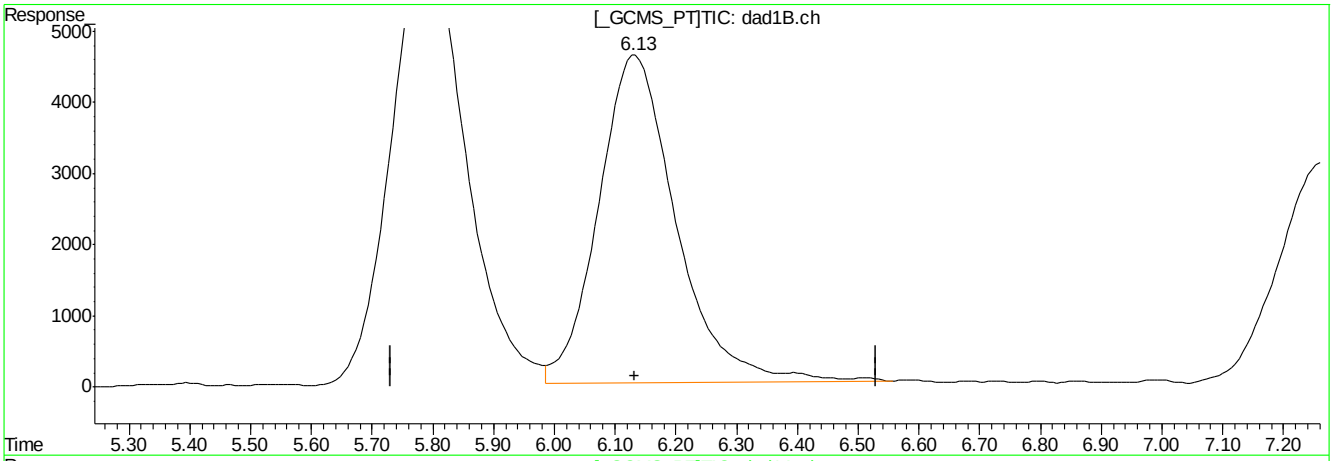
response 374100

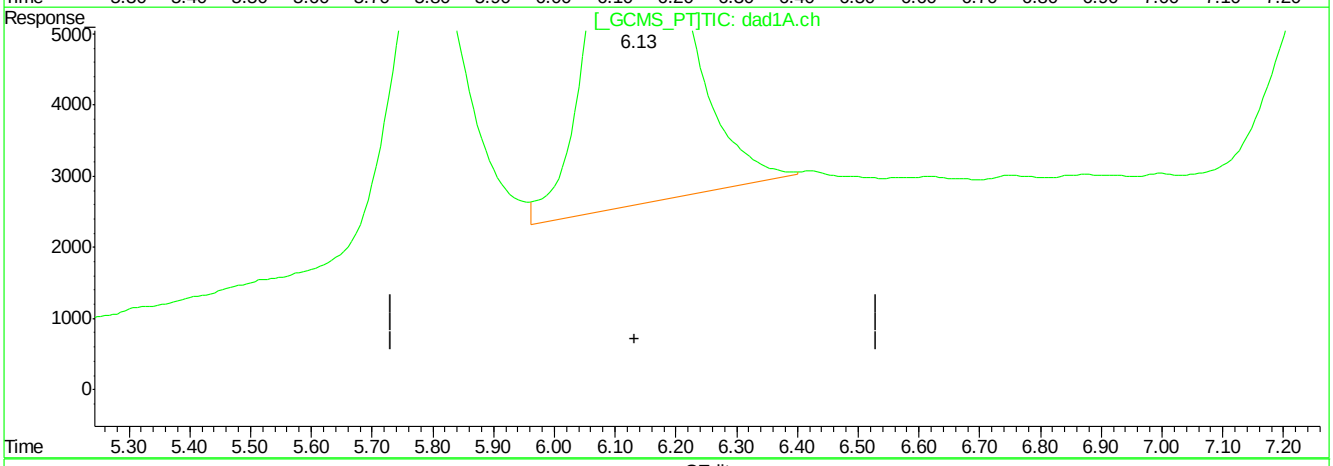
(+) = Expected Retention Time
BB067772.D 8330B_012120_PLUS.M Wed Jan 22 14:32:44 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067772.D\dad1B.ch Vial: 93
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067772.D\dad1A.ch
Acq On : 21-Jan-2020, 15:18:25 Operator: williamh
Sample : IC1975-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.13min 95.981ppb

response 411140

(8) 3,5-Dinitroaniline #2

6.13min 94.036ppb m

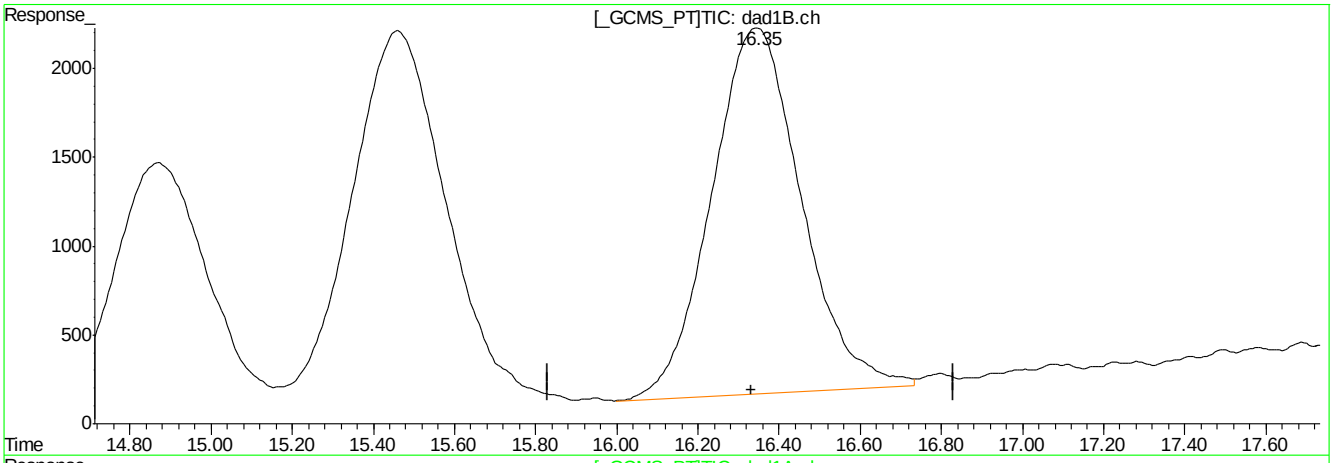
response 694113

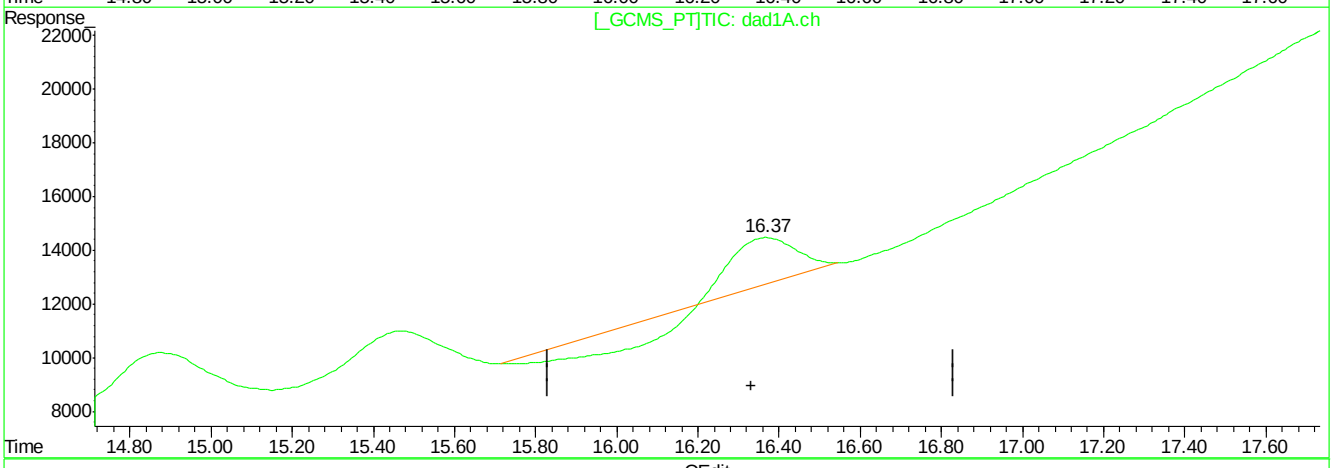
(+) = Expected Retention Time
BB067772.D 8330B_012120_PLUS.M Wed Jan 22 14:32:50 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067772.D\dad1B.ch Vial: 93
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067772.D\dad1A.ch
Acq On : 21-Jan-2020, 15:18:25 Operator: williamh
Sample : IC1975-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(20) m-Nitrotoluene

16.34min 91.177ppb

response 316918

(20) m-Nitrotoluene #2

16.37min 6.590ppb

response 26246

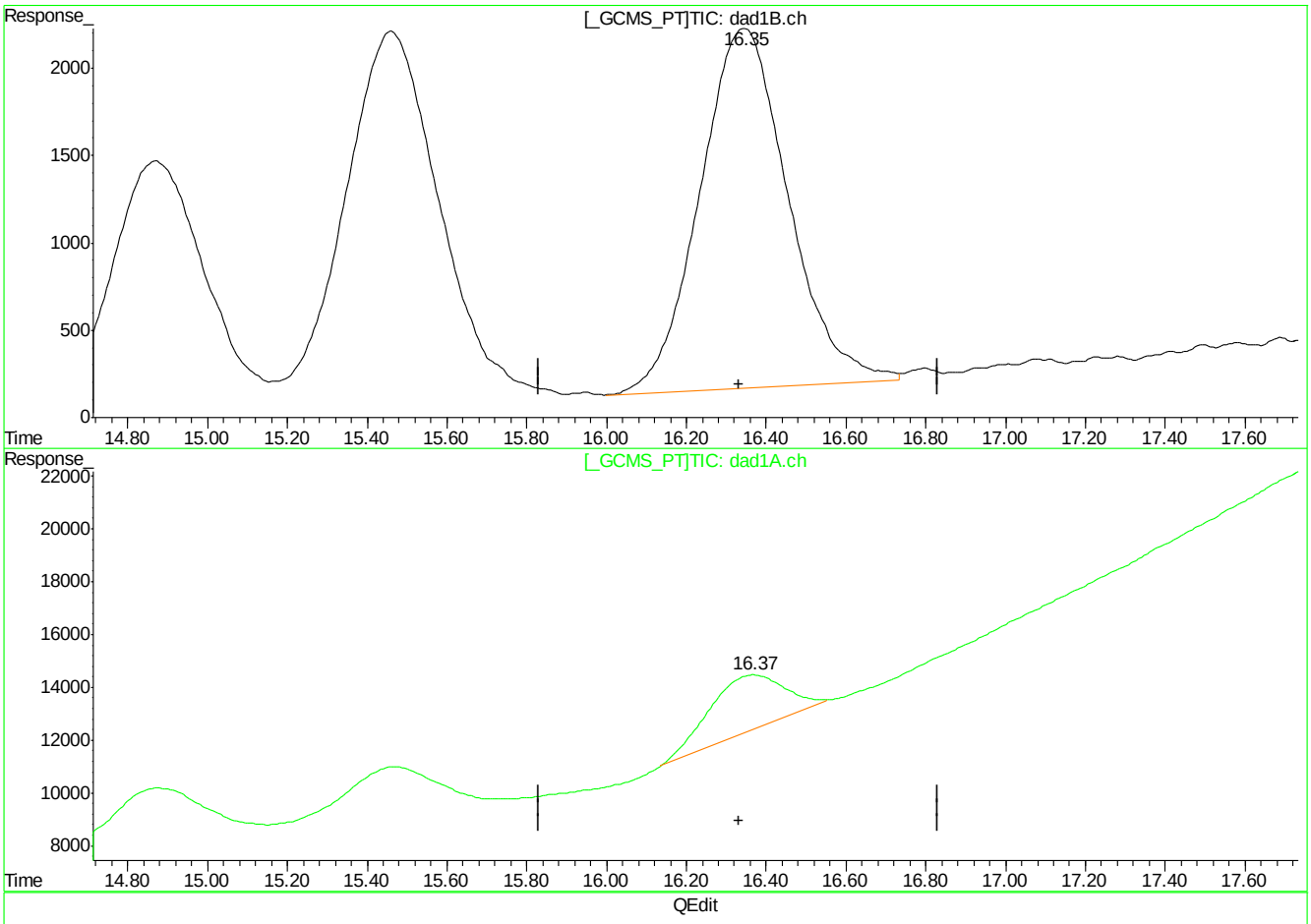
(+) = Expected Retention Time
BB067772.D 8330B_012120_PLUS.M Wed Jan 22 14:33:01 2020

BB067772.D edits: m-Nitrotoluene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067772.D\dad1B.ch Vial: 93
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067772.D\dad1A.ch
Acq On : 21-Jan-2020, 15:18:25 Operator: williamh
Sample : IC1975-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration



(20) m-Nitrotoluene

16.34min 91.177ppb

response 316918

(20) m-Nitrotoluene #2

16.37min 69.510ppb m

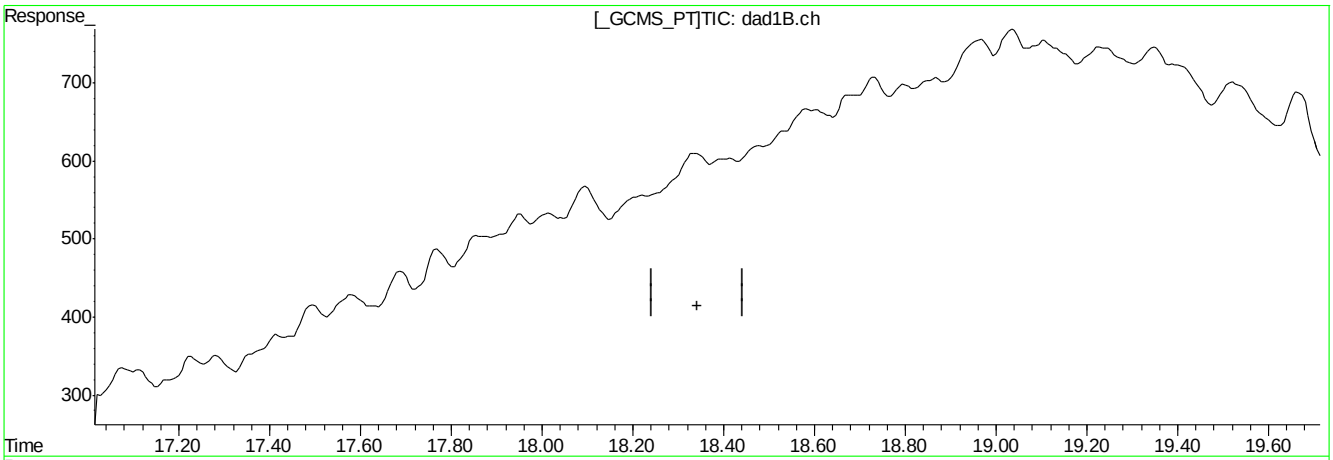
response 277006

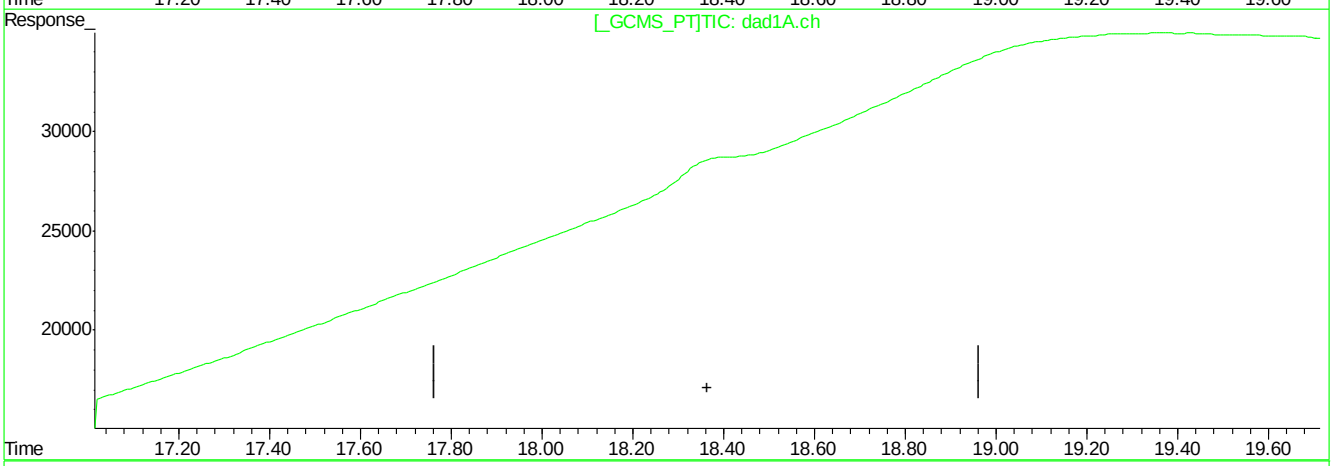
(+) = Expected Retention Time
BB067772.D 8330B_012120_PLUS.M Wed Jan 22 14:33:07 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067772.D\dad1B.ch Vial: 93
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067772.D\dad1A.ch
Acq On : 21-Jan-2020, 15:18:25 Operator: williamh
Sample : IC1975-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

0.00min 0.000ppb

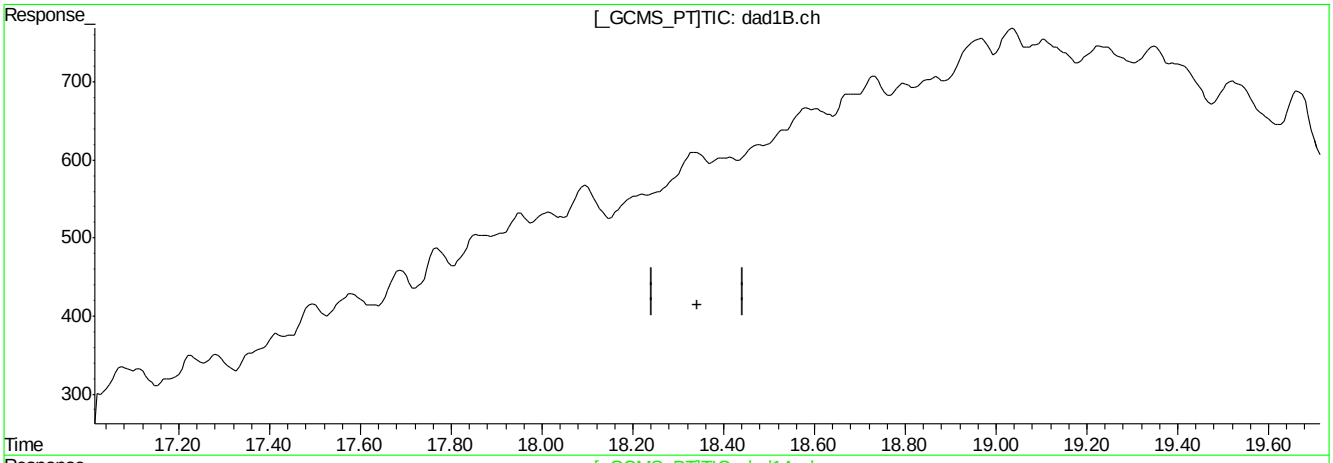
response 0

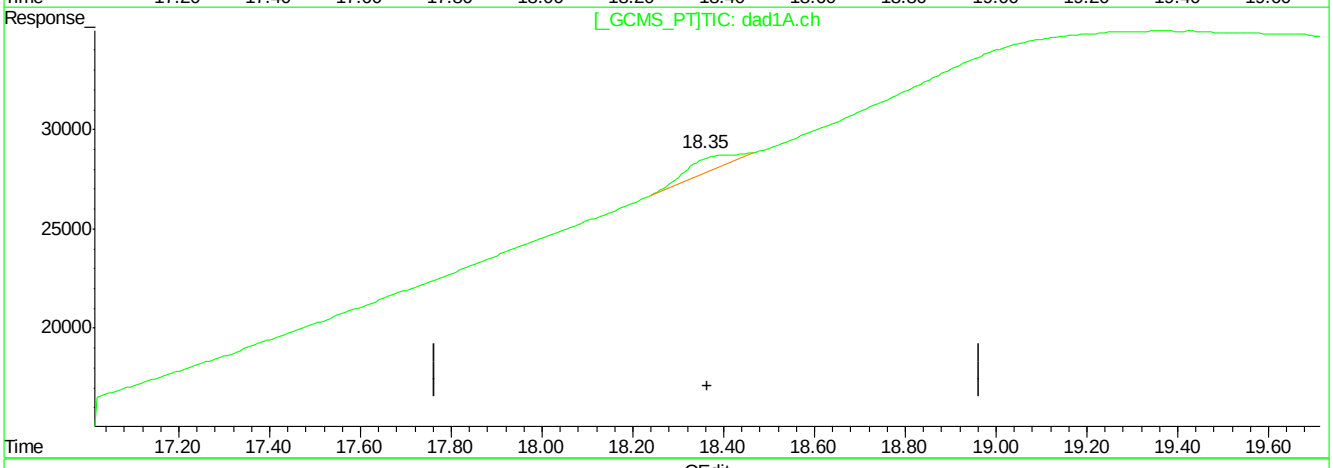
(+) = Expected Retention Time
BB067772.D 8330B_012120_PLUS.M Wed Jan 22 14:33:10 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067772.D\dad1B.ch Vial: 93
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067772.D\dad1A.ch
Acq On : 21-Jan-2020, 15:18:25 Operator: williamh
Sample : IC1975-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

18.35min 35.846ppb m

response 50065

(+) = Expected Retention Time
BB067772.D 8330B_012120_PLUS.M Wed Jan 22 14:33:15 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 01/23/20 18:00

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067773.D\dad1B.ch Vial: 94
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067773.D\dad1A.ch
Acq On : 21-Jan-2020, 15:48:24 Operator: williamh
Sample : IC1975-200 Inst : G1315B
Misc : op78572,GBB1975,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19:46 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.79	10.79	398286	692158	188.965	196.256
	Spiked Amount 500.000	Range 70 - 136		Recovery =		37.79%#	39.25%#
	Target Compounds						
1)	TNX	1.33	1.33	466398	734397	166.239	163.701
2)	HMX	1.46	1.46	291694	839260	175.433m	182.400m
3)	DNX	1.70	1.70	292101	489842	207.355	210.820
4)	MNX	2.28	2.28	462813	728046	176.966	181.423
5)	RDX	2.88	2.88	388892	621360	192.700	194.159
6)	1,3,5-Trinitrobe	4.64	4.64	761931	1482238	171.838	177.485
7)	1,3-Dinitrobenze	5.79	5.80	1052520	766714	187.220	199.993
8)	3,5-Dinitroanili	6.14	6.14	814356	1433269	190.111	194.175
9)	Nitrobenzene	7.27	7.27	610975	619730	179.843	185.032
10)	Nitroglycerin	0.00	8.86	0	232995	N.D.	179.984 #
11)	Tetryl	9.18	9.18	512572	843738	160.141	163.204
12)	2,4,6-Trinitroto	9.64	9.64	659626	796661	165.872	168.080
13)	2-Amino-4,6-Dini	9.91	9.91	658060	995472	182.890	185.647
14)	4-Amino-2,6-Dini	10.36	10.36	474433	938706	177.121	179.730
16)	2,4-Dinitrotolue	11.47	11.47	876718	533138	176.127	172.244
17)	2,6-Dinitrotolue	11.91	11.91	534040	651415	179.589	177.790
18)	o-Nitrotoluene	14.88	14.88	434676	554886	182.131	174.578
19)	p-Nitrotoluene	15.47	15.47	676278	516220	175.456	172.695
20)	m-Nitrotoluene	16.35	16.36	624293	653888	179.608	163.940m
21)	PETN	0.00	18.38	0	127409	N.D.	91.224m#

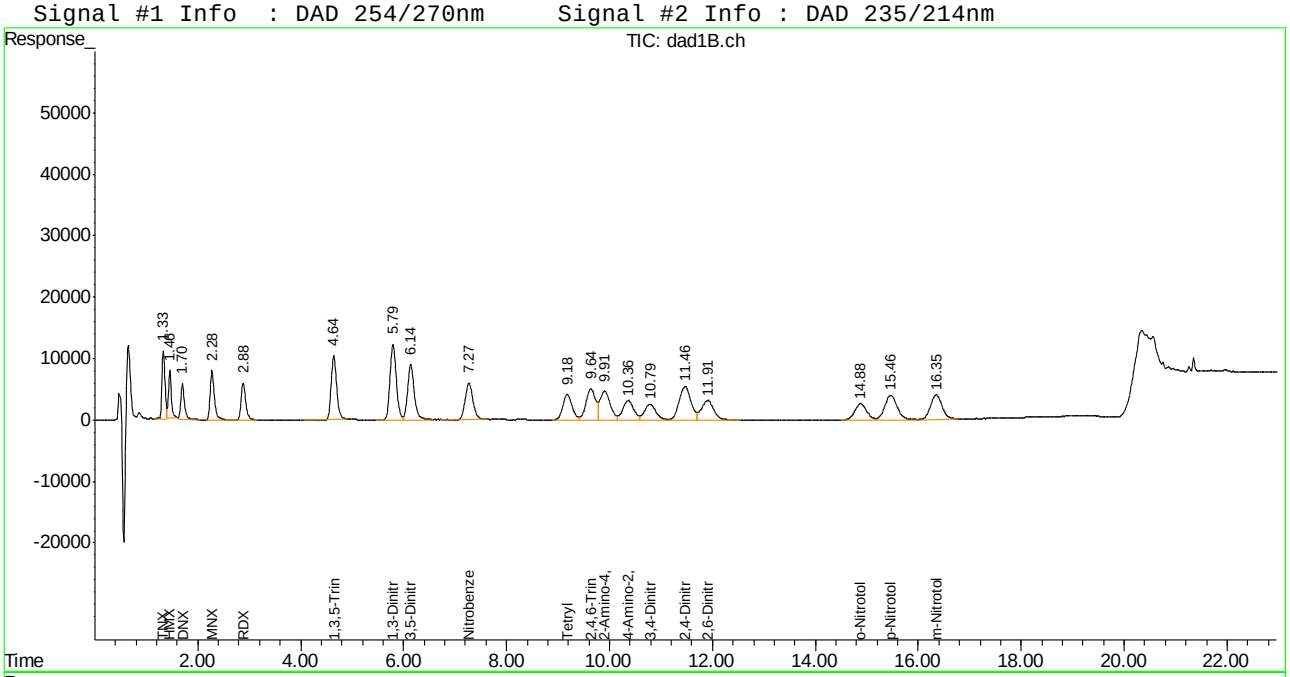
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB067773.D 8330B_012120_PLUS.M Thu Jan 23 14:01:29 2020 Page 1

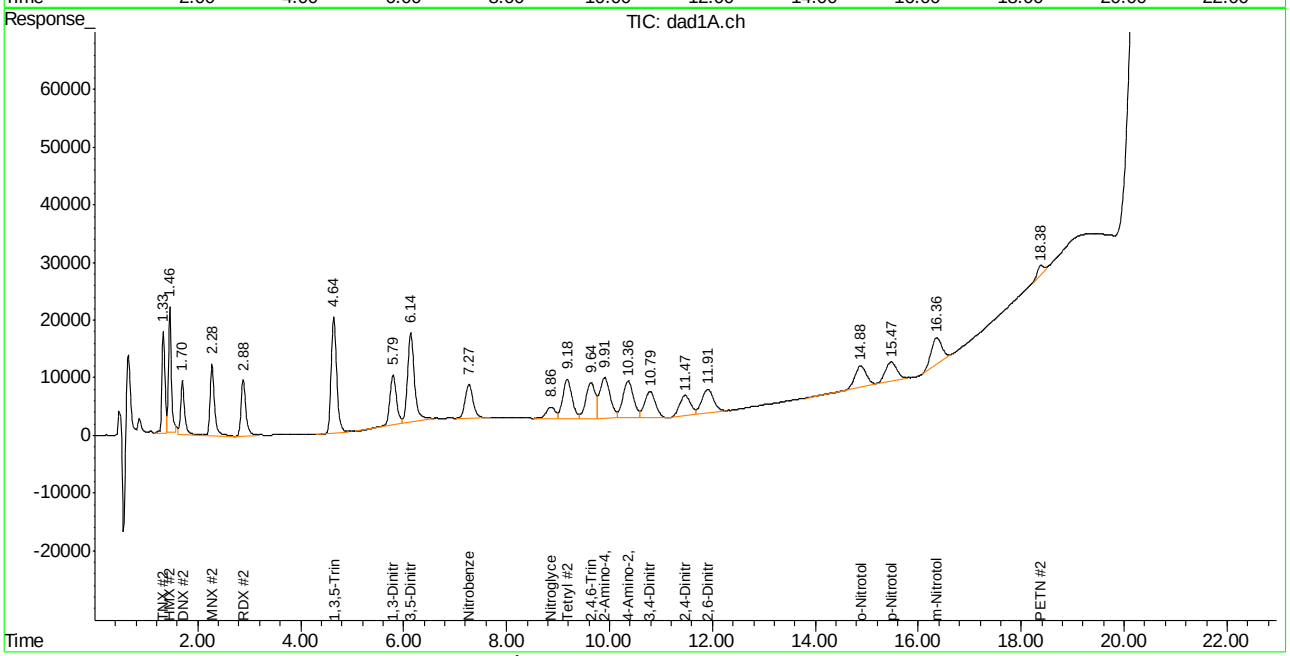
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067773.D\dad1B.ch Vial: 94
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067773.D\dad1A.ch
Acq On : 21-Jan-2020, 15:48:24 Operator: williamh
Sample : IC1975-200 Inst : G1315B
Misc : op78572,GBB1975,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:34 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

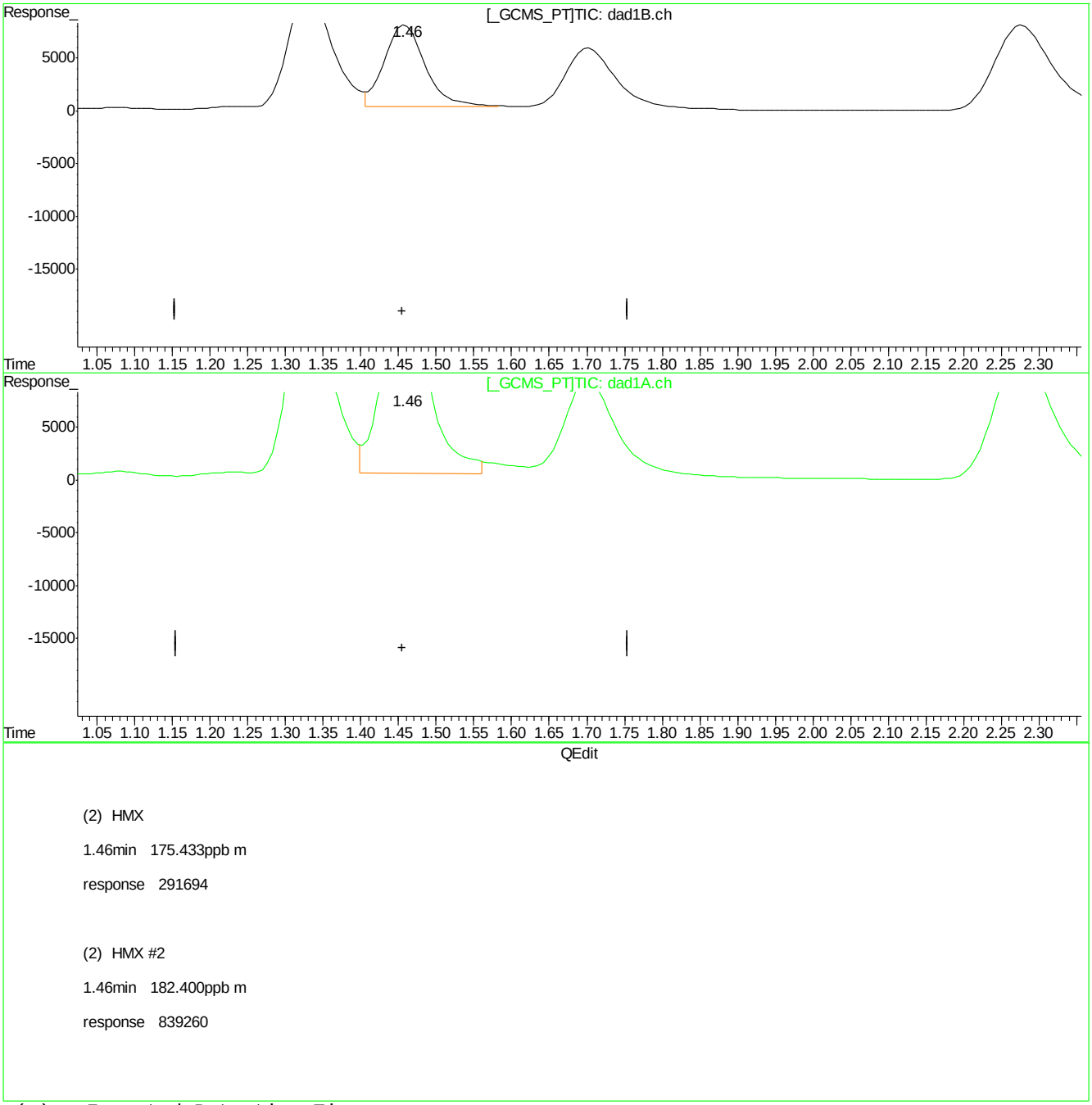
Sample Number: GBB1975-IC1975
Lab FileID: BB067773.D
Injection Time: 01/21/20 15:48
Method: SW846 8330A
Analyst approved: 01/23/20 14:17 William Hustedde
Supervisor approved: 01/23/20 18:00 Naresh Jiawan

Parameter	CAS	Sig#	R.T. (min.)	Reason
HMX	2691-41-0	1	1.46	Poor instrument integration
HMX	2691-41-0	2	1.46	Poor instrument integration
m-Nitrotoluene	99-08-1	2	16.36	Poor instrument integration
PETN	78-11-5	2	18.38	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067773.D\dad1B.ch Vial: 94
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067773.D\dad1A.ch
Acq On : 21-Jan-2020, 15:48:24 Operator: williamh
Sample : IC1975-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration

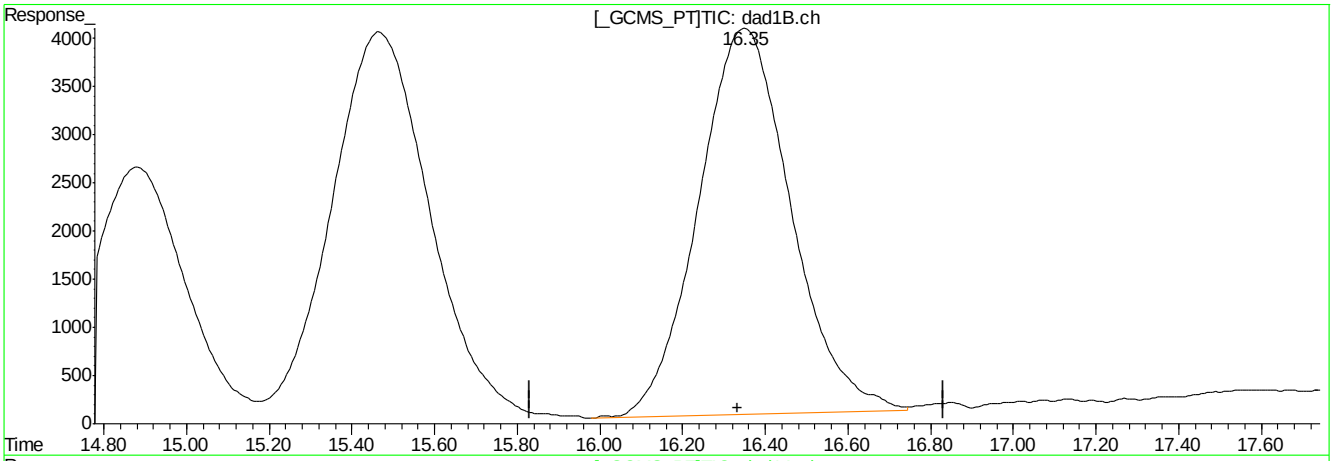


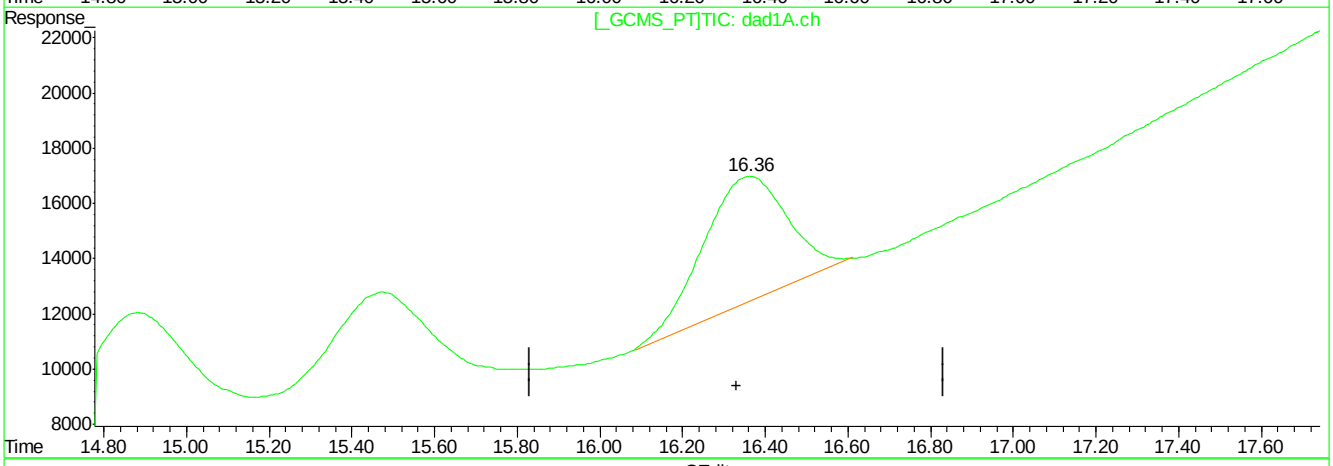
(+) = Expected Retention Time
BB067773.D 8330B_012120_PLUS.M Wed Jan 22 14:33:42 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067773.D\dad1B.ch Vial: 94
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067773.D\dad1A.ch
Acq On : 21-Jan-2020, 15:48:24 Operator: williamh
Sample : IC1975-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(20) m-Nitrotoluene

16.35min 179.608ppb

response 624293

(20) m-Nitrotoluene #2

16.36min 163.940ppb m

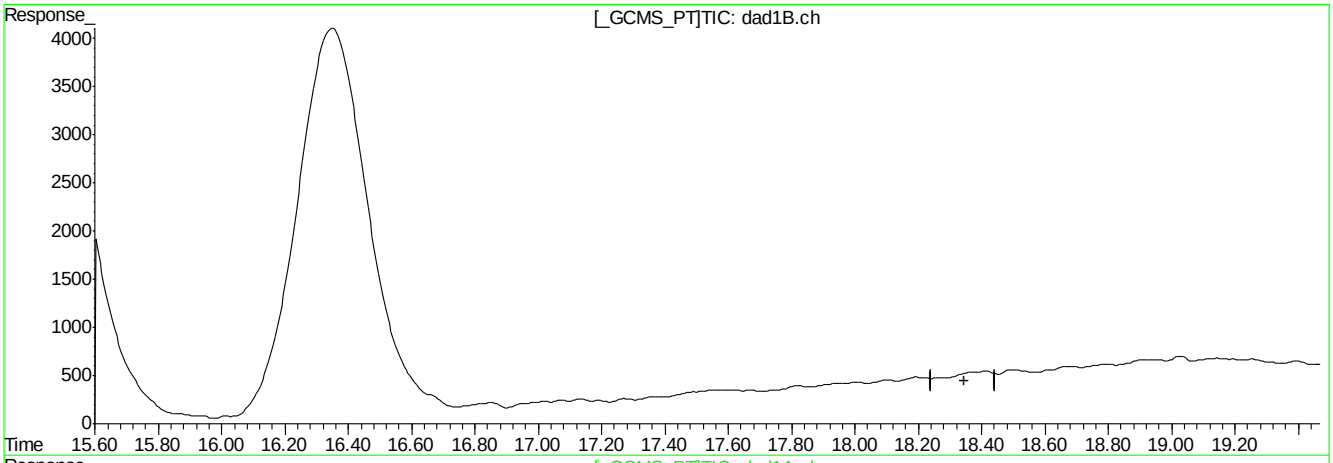
response 653888

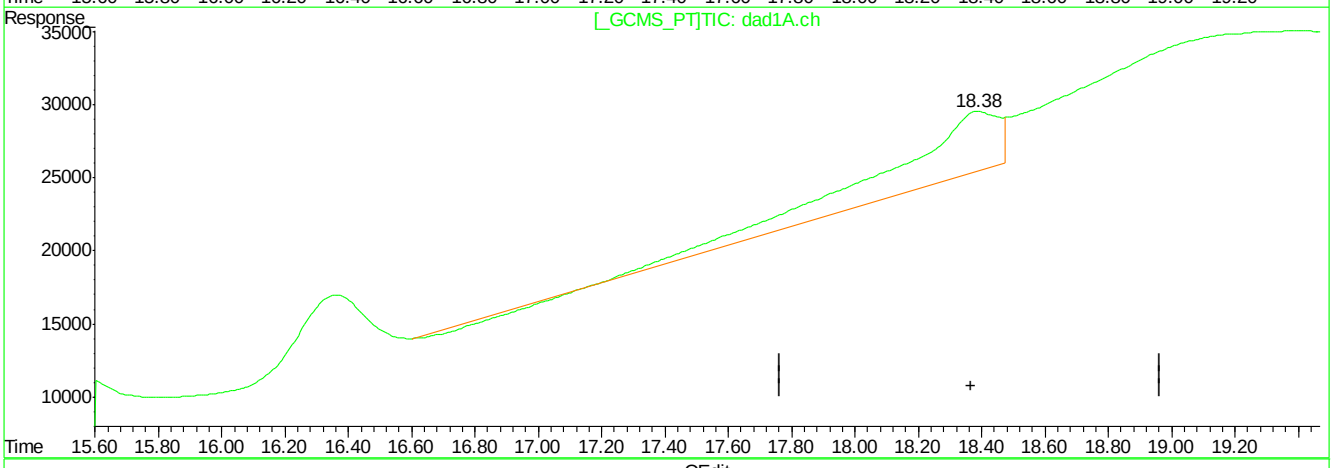
(+) = Expected Retention Time
BB067773.D 8330B_012120_PLUS.M Wed Jan 22 14:34:13 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067773.D\dad1B.ch Vial: 94
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067773.D\dad1A.ch
Acq On : 21-Jan-2020, 15:48:24 Operator: williamh
Sample : IC1975-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

18.39min 706.801ppb

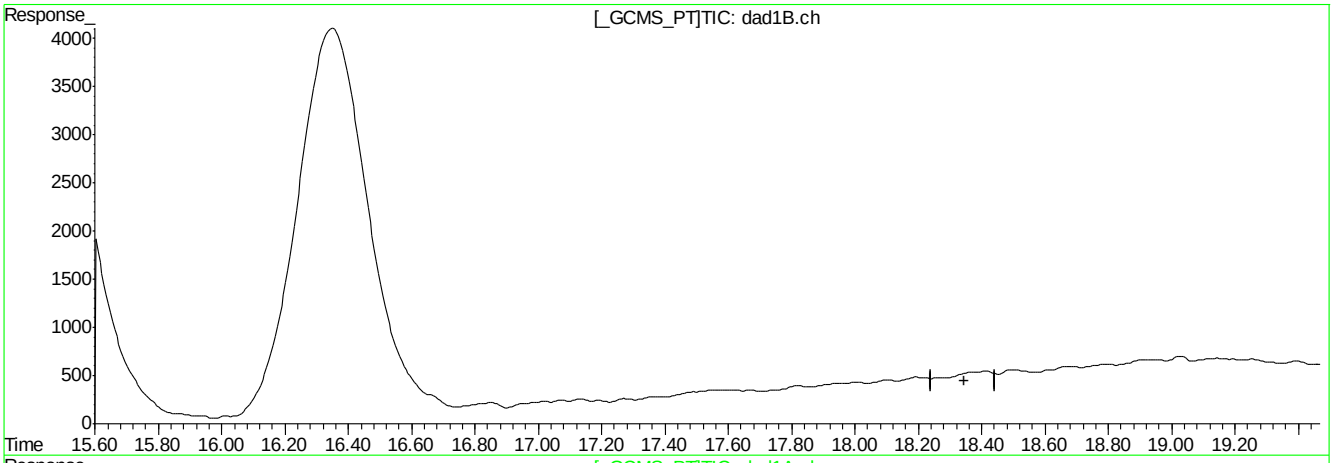
response 987169

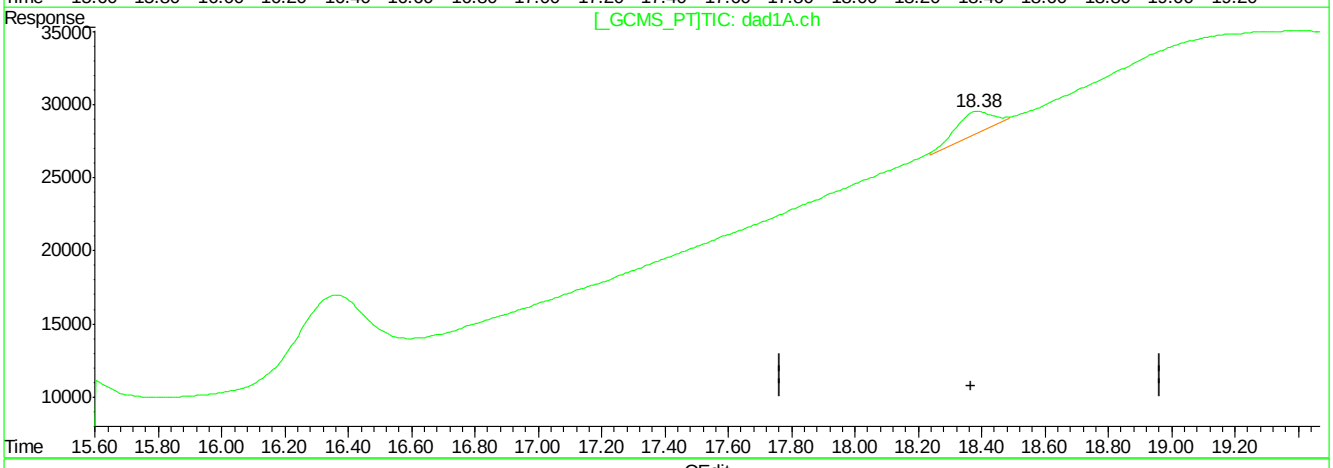
(+) = Expected Retention Time
BB067773.D 8330B_012120_PLUS.M Wed Jan 22 14:34:17 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067773.D\dad1B.ch Vial: 94
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067773.D\dad1A.ch
Acq On : 21-Jan-2020, 15:48:24 Operator: williamh
Sample : IC1975-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

18.38min 91.224ppb m

response 127409

(+) = Expected Retention Time
BB067773.D 8330B_012120_PLUS.M Wed Jan 22 14:34:22 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 01/23/20 18:00

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067774.D\dad1B.ch Vial: 95
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067774.D\dad1A.ch
Acq On : 21-Jan-2020, 16:18:19 Operator: williamh
Sample : IC1975-500 Inst : G1315B
Misc : op78572,GBB1975,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19:47 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.78	10.78	981134	1737988	465.495	492.792
	Spiked Amount 500.000	Range 70 - 136		Recovery =		93.10%	98.56%
	Target Compounds						
1)	TNX	1.33	1.33	1170218	1817789	417.103	405.195
2)	HMX	1.45	1.46	740433	2164333	445.317m	470.385m
3)	DNX	1.70	1.70	707749	1161162	502.413	501.182
4)	MNX	2.28	2.28	1125195	1739464	430.240	433.461
5)	RDX	2.88	2.88	944803	1526525	468.159	477.000
6)	1,3,5-Trinitrobe	4.64	4.64	1968518	3745180	443.961	448.451
7)	1,3-Dinitrobenze	5.79	5.79	2583908	1849400	459.621	482.405
8)	3,5-Dinitroanili	6.13	6.13	1991532	3465792	464.923	469.535
9)	Nitrobenzene	7.26	7.26	1526421	1533358	449.309	457.813
10)	Nitroglycerin	0.00	8.86	0	551646	N.D.	426.135 #
11)	Tetryl	9.18	9.17	1251636	2059010	391.045	398.273
12)	2,4,6-Trinitroto	9.63	9.63	1626316	1951644	408.961	411.760
13)	2-Amino-4,6-Dini	9.90	9.90	1629738	2469748	452.941	460.588
14)	4-Amino-2,6-Dini	10.35	10.36	1161056	2321980	433.458	444.579
16)	2,4-Dinitrotolue	11.46	11.46	2178998	1377631	437.747	445.079
17)	2,6-Dinitrotolue	11.89	11.90	1297628	1655261	436.372	451.769
18)	o-Nitrotoluene	14.87	14.88	1070161	1475496	448.403	464.219
19)	p-Nitrotoluene	15.46	15.46	1663488	1446189	431.583	483.805
20)	m-Nitrotoluene	16.34	16.34	1535727	1763469	441.826	440.997m
21)	PETN	0.00	18.37	0	306979	N.D.	219.793m#

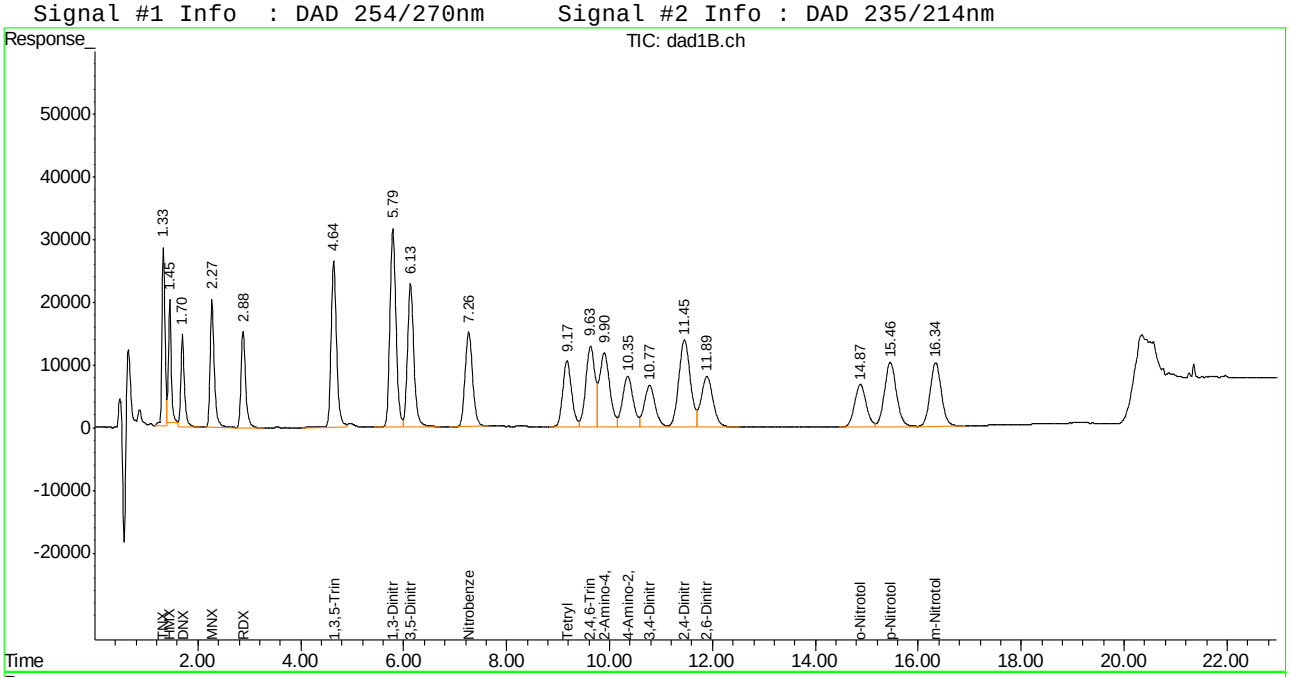
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

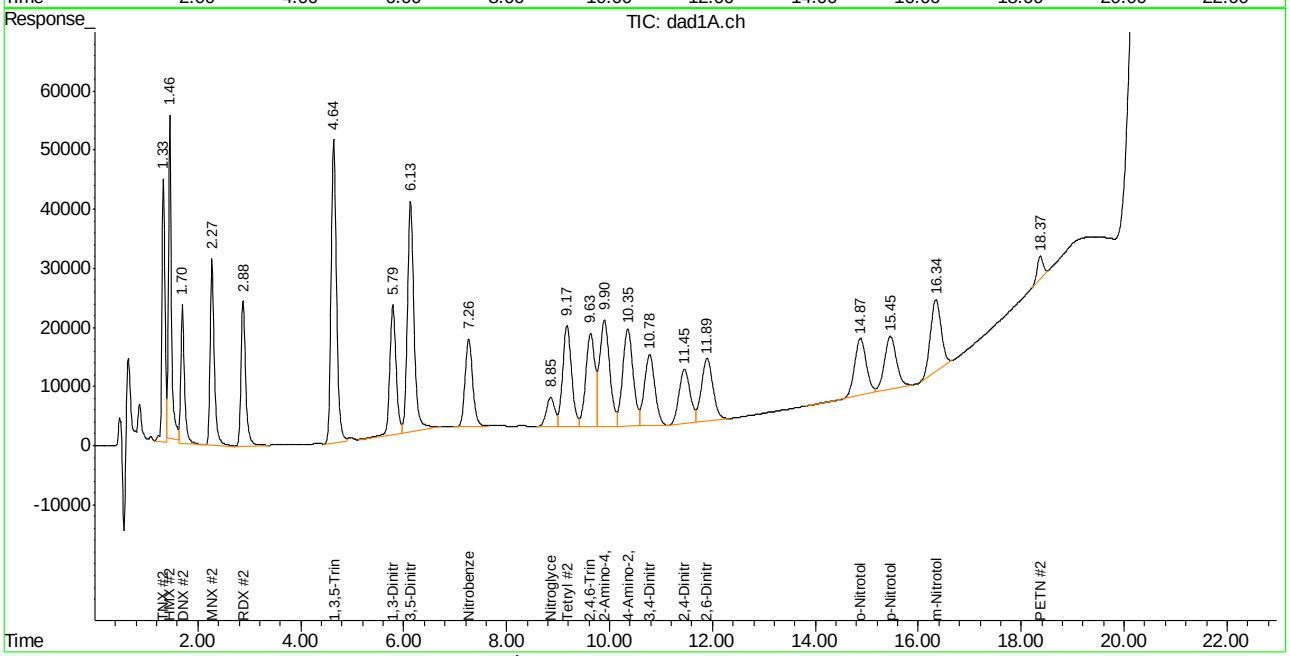
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067774.D\dad1B.ch Vial: 95
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067774.D\dad1A.ch
Acq On : 21-Jan-2020, 16:18:19 Operator: williamh
Sample : IC1975-500 Inst : G1315B
Misc : op78572,GBB1975,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:35 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

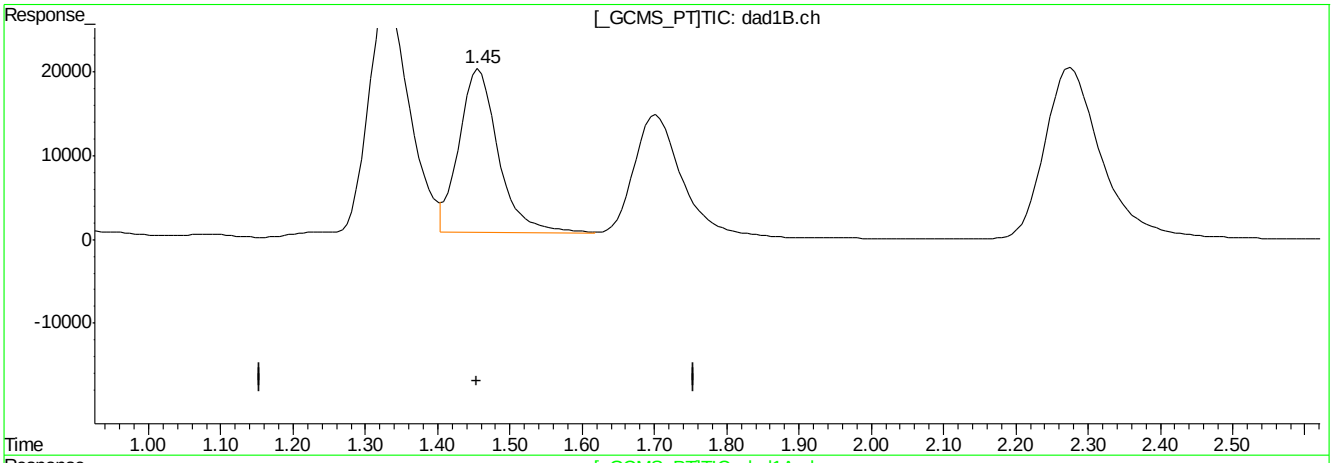
Sample Number: GBB1975-IC1975
Lab FileID: BB067774.D
Injection Time: 01/21/20 16:18
Method: SW846 8330A
Analyst approved: 01/23/20 14:17 William Hustedde
Supervisor approved: 01/23/20 18:00 Naresh Jiawan

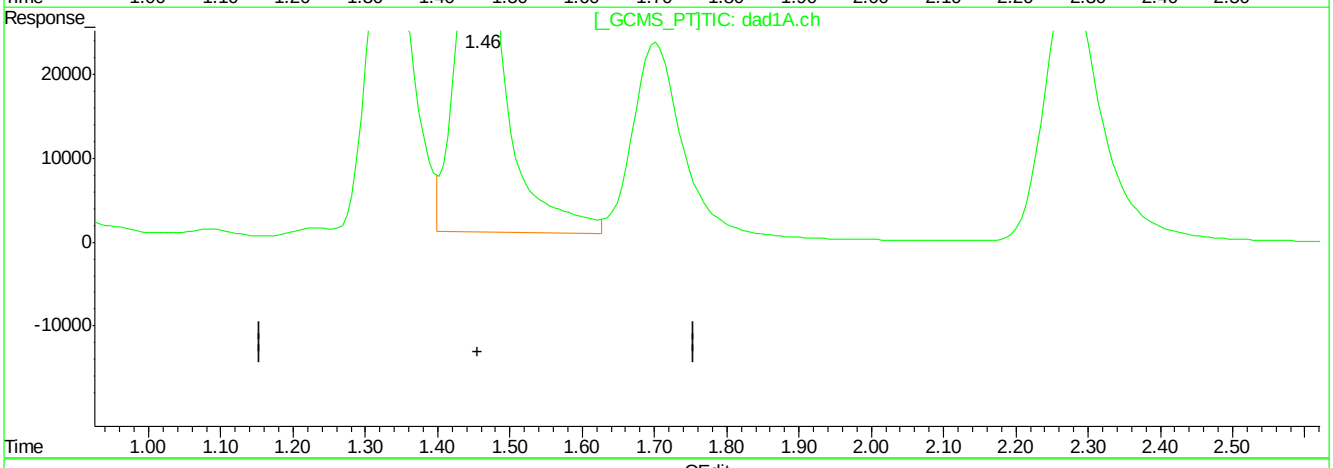
Parameter	CAS	Sig#	R.T. (min.)	Reason
HMX	2691-41-0	1	1.45	Poor instrument integration
HMX	2691-41-0	2	1.46	Poor instrument integration
m-Nitrotoluene	99-08-1	2	16.34	Poor instrument integration
PETN	78-11-5	2	18.37	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067774.D\dad1B.ch Vial: 95
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067774.D\dad1A.ch
Acq On : 21-Jan-2020, 16:18:19 Operator: williamh
Sample : IC1975-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(2) HMX

1.45min 445.317ppb m

response 740433

(2) HMX #2

1.46min 470.385ppb m

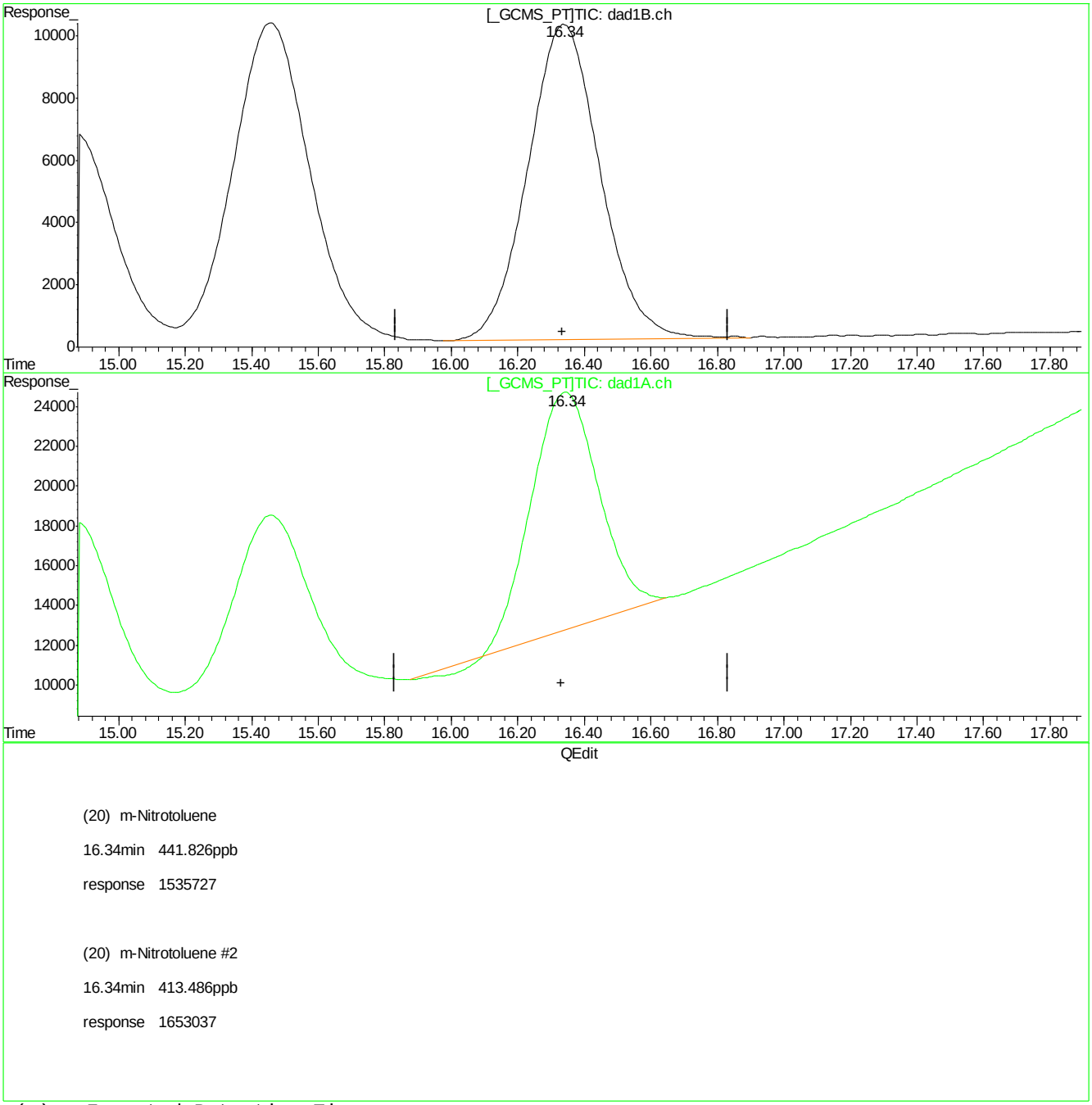
response 2164333

(+) = Expected Retention Time
BB067774.D 8330B_012120_PLUS.M Wed Jan 22 14:35:27 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067774.D\dad1B.ch Vial: 95
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067774.D\dad1A.ch
Acq On : 21-Jan-2020, 16:18:19 Operator: williamh
Sample : IC1975-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration



(20) m-Nitrotoluene

16.34min 441.826ppb

response 1535727

(20) m-Nitrotoluene #2

16.34min 413.486ppb

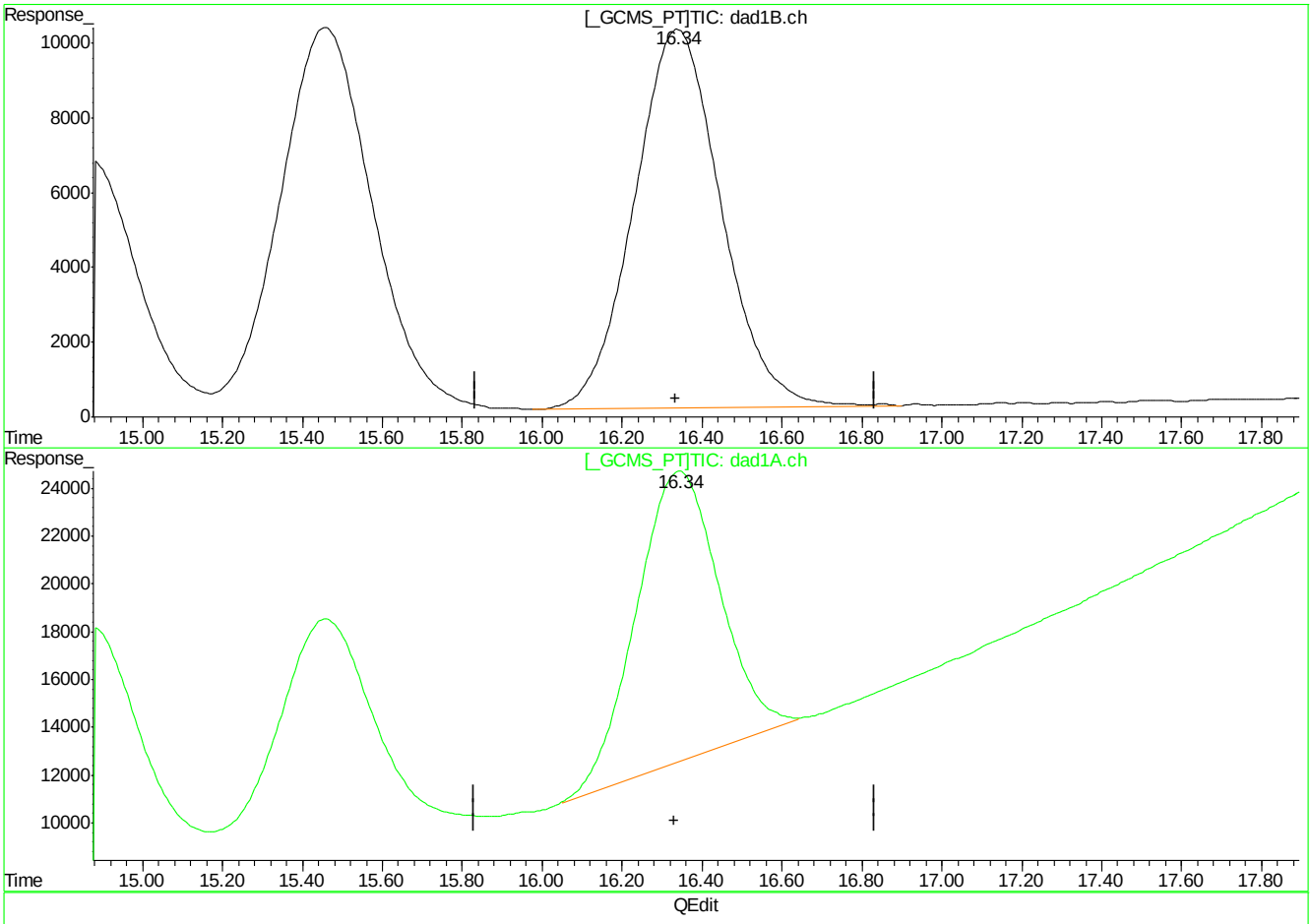
response 1653037

(+) = Expected Retention Time
BB067774.D 8330B_012120_PLUS.M Wed Jan 22 14:35:37 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067774.D\dad1B.ch Vial: 95
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067774.D\dad1A.ch
Acq On : 21-Jan-2020, 16:18:19 Operator: williamh
Sample : IC1975-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration



(20) m-Nitrotoluene

16.34min 441.826ppb

response 1535727

(20) m-Nitrotoluene #2

16.34min 440.997ppb m

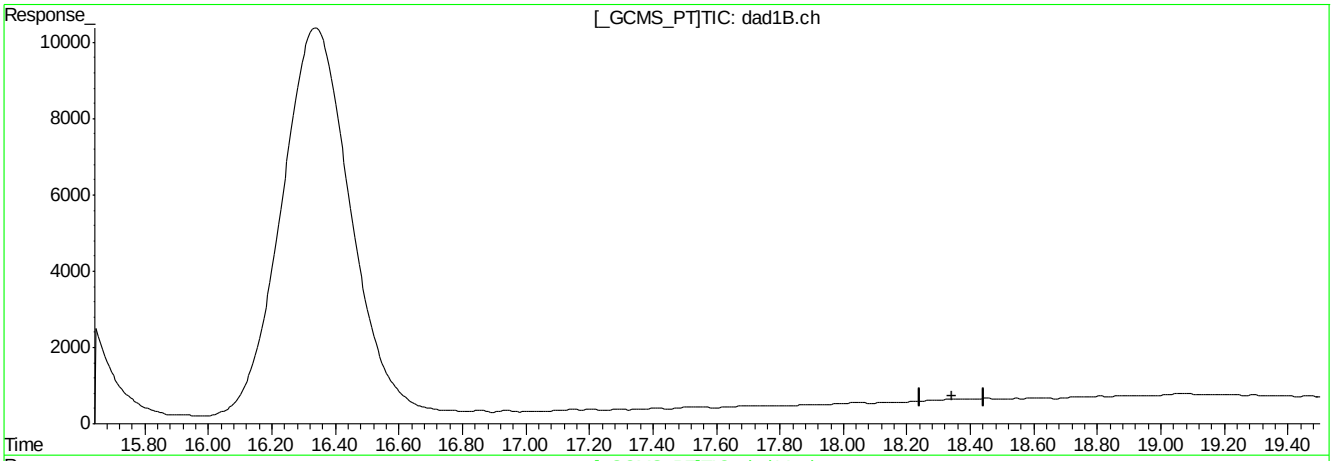
response 1763469

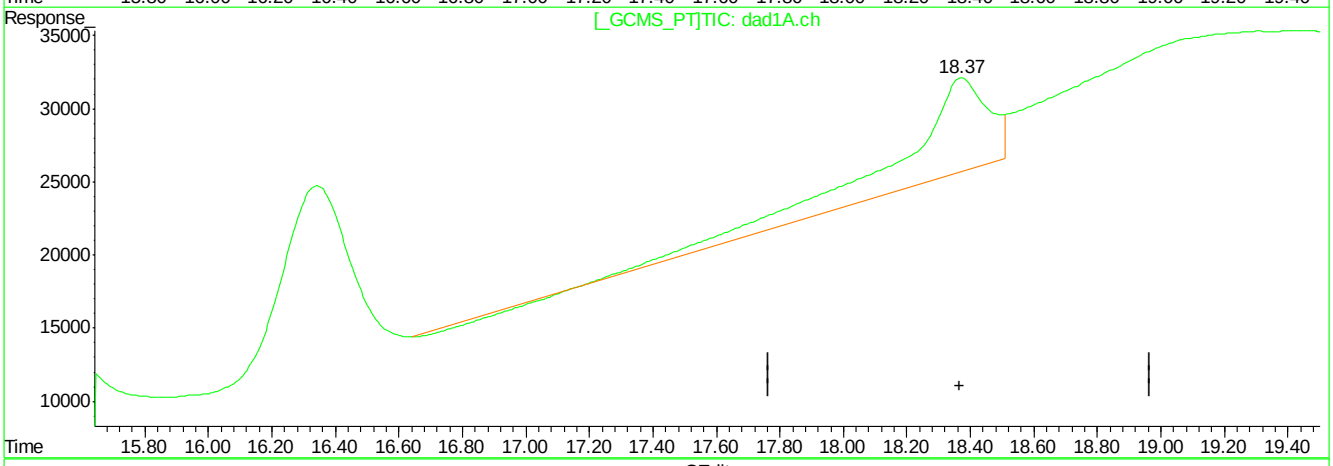
(+) = Expected Retention Time
BB067774.D 8330B_012120_PLUS.M Wed Jan 22 14:35:43 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067774.D\dad1B.ch Vial: 95
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067774.D\dad1A.ch
Acq On : 21-Jan-2020, 16:18:19 Operator: williamh
Sample : IC1975-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

18.38min 889.122ppb

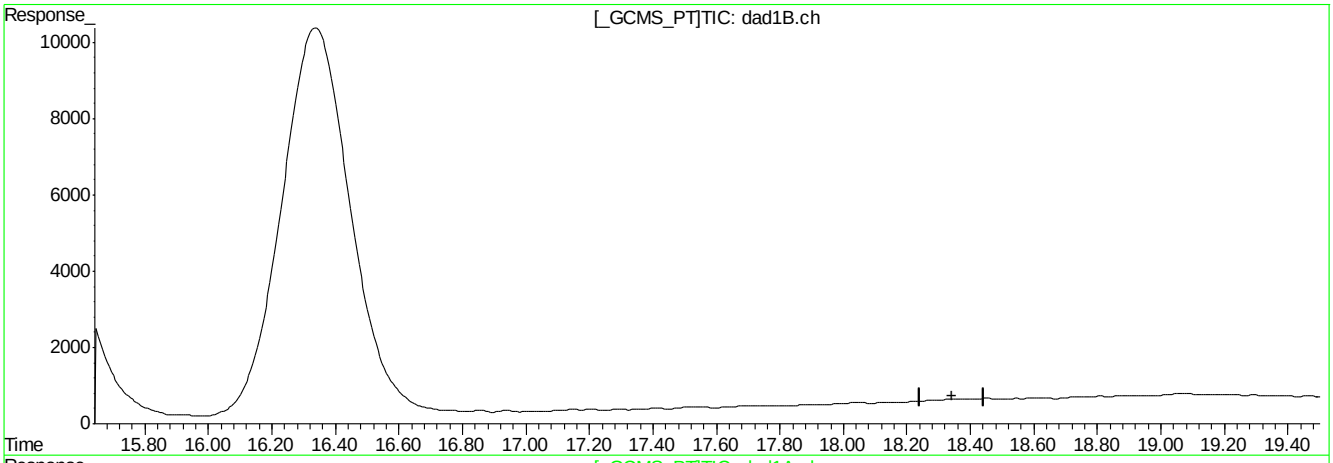
response 1241813

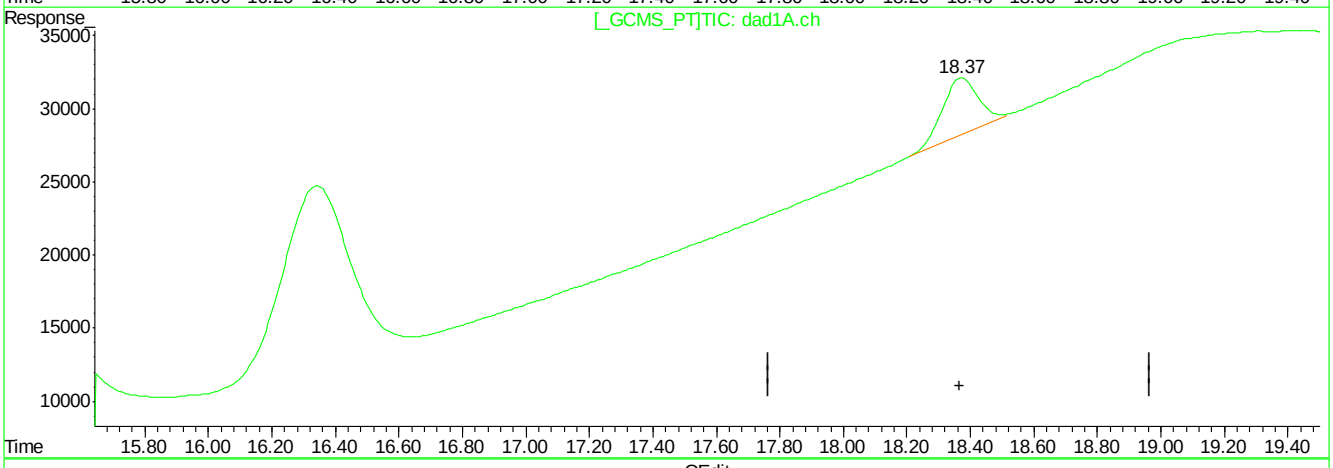
(+) = Expected Retention Time
BB067774.D 8330B_012120_PLUS.M Wed Jan 22 14:35:47 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067774.D\dad1B.ch Vial: 95
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067774.D\dad1A.ch
Acq On : 21-Jan-2020, 16:18:19 Operator: williamh
Sample : IC1975-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

18.37min 219.793ppb m

response 306979

(+) = Expected Retention Time
BB067774.D 8330B_012120_PLUS.M Wed Jan 22 14:35:52 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 01/23/20 18:00

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067775.D\dad1B.ch Vial: 96
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067775.D\dad1A.ch
Acq On : 21-Jan-2020, 16:48:17 Operator: williamh
Sample : ICC1975-1000 Inst : G1315B
Misc : op78572,GBB1975,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19:48 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.78	10.78	1970993	3479661	935.128	986.629
Spiked Amount	500.000	Range	70 - 136	Recovery	=	187.03%#	197.33%#
	Target Compounds						
1)	TNX	1.33	1.33	2346120	3646466	836.233	812.817
2)	HMX	1.46	1.46	1602976	4338715	964.074	942.954
3)	DNX	1.70	1.70	1388003	2214154	985.308	960.037
4)	MNX	2.28	2.28	2230093	3444554	852.719	858.356
5)	RDX	2.88	2.88	1879309	3010074	931.216	940.570
6)	1,3,5-Trinitrobe	4.64	4.64	3905745	7508510	880.864	899.076
7)	1,3-Dinitrobenze	5.79	5.79	5148580	3597413	915.820	938.365
8)	3,5-Dinitroanili	6.13	6.13	4000331	6808172	933.878	922.350
9)	Nitrobenzene	7.26	7.26	3094319	3048908	910.827	910.310
10)	Nitroglycerin	0.00	8.86	0	1094939	N.D.	845.818 #
11)	Tetryl	9.18	9.18	2510060	4103765	784.211	793.789
12)	2,4,6-Trinitroto	9.63	9.63	3251370	3899476	817.604	822.716
13)	2-Amino-4,6-Dini	9.90	9.90	3269017	4954602	908.534	923.993
14)	4-Amino-2,6-Dini	10.36	10.36	2318559	4644311	865.590	889.226
16)	2,4-Dinitrotolue	11.46	11.46	4364886	2800599	876.879	904.805
17)	2,6-Dinitrotolue	11.90	11.90	2592794	3346479	871.916	913.351
18)	o-Nitrotoluene	14.87	14.87	2127165	2988832	891.293	940.343
19)	p-Nitrotoluene	15.45	15.45	3345975	2869843	868.094	960.071
20)	m-Nitrotoluene	16.34	16.33	3094259	3570347	890.212	889.167m
21)	PETN	0.00	18.36	0	632507	N.D. d	452.867m

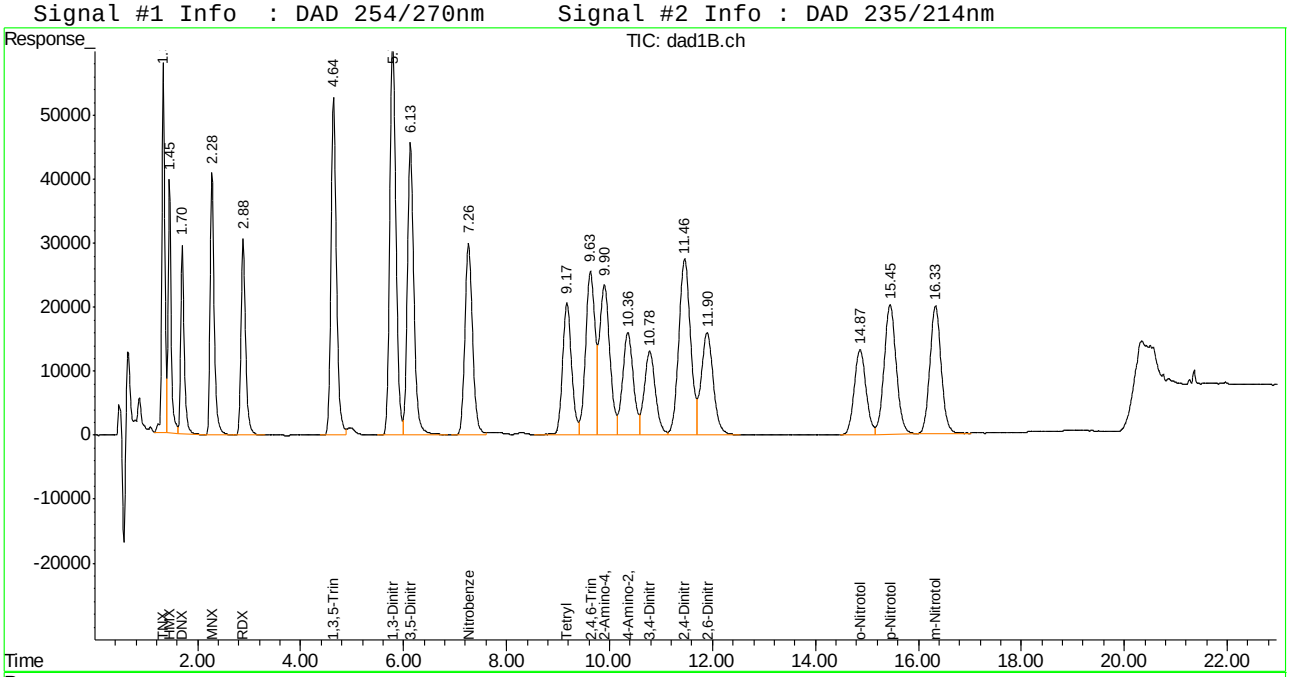
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB067775.D 8330B_012120_PLUS.M Thu Jan 23 14:01:31 2020 Page 1

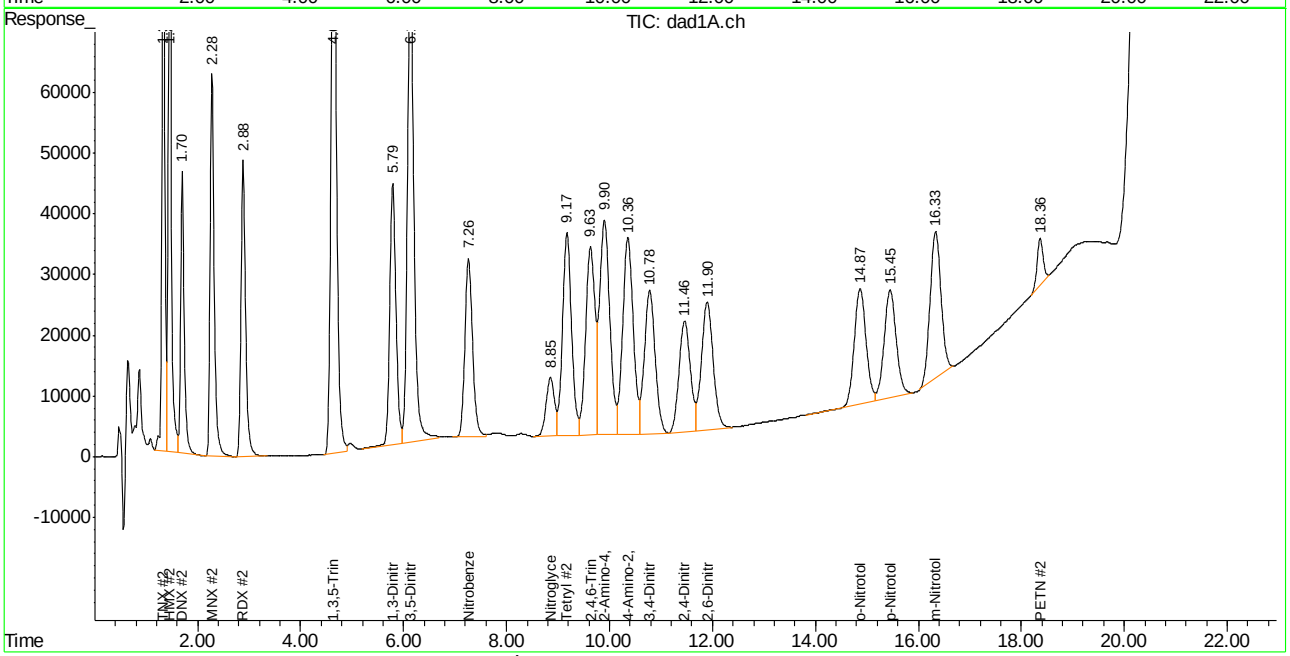
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067775.D\dad1B.ch Vial: 96
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067775.D\dad1A.ch
Acq On : 21-Jan-2020, 16:48:17 Operator: williamh
Sample : ICC1975-1000 Inst : G1315B
Misc : op78572,GBB1975,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:37 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

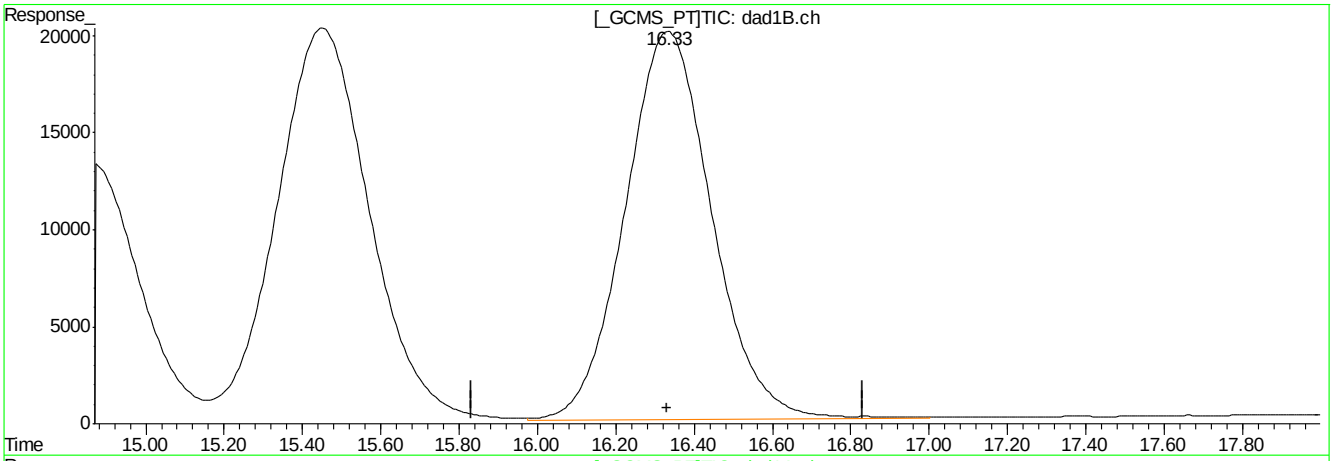
Sample Number: GBB1975-ICC1975 **Method:** SW846 8330A
Lab FileID: BB067775.D **Analyst approved:** 01/23/20 14:17 William Hustedde
Injection Time: 01/21/20 16:48 **Supervisor approved:** 01/23/20 18:00 Naresh Jiawan

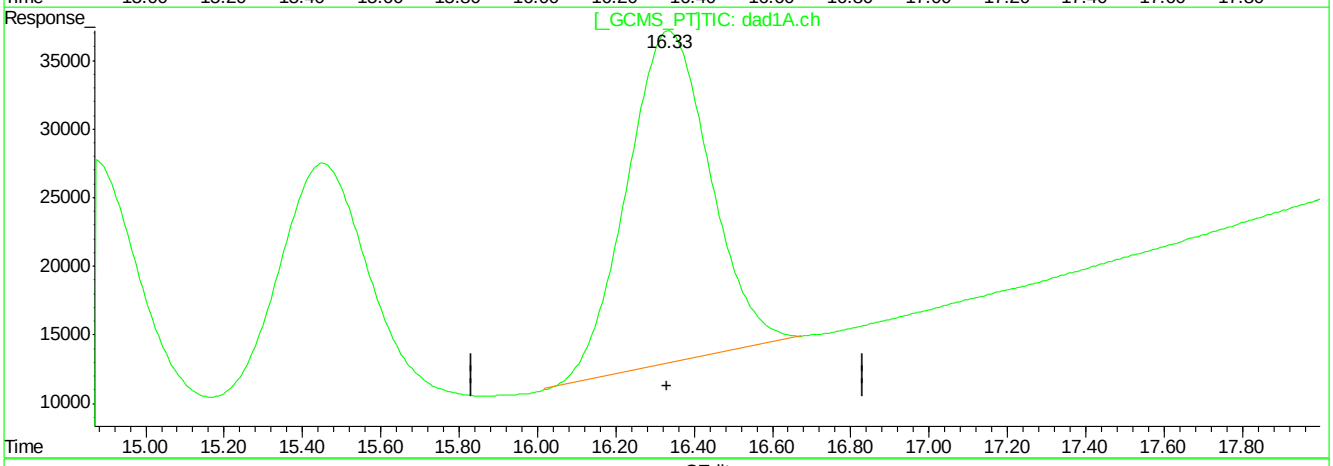
Parameter	CAS	Sig#	R.T. (min.)	Reason
m-Nitrotoluene	99-08-1	2	16.33	Poor instrument integration
PETN	78-11-5	2	18.36	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067775.D\dad1B.ch Vial: 96
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067775.D\dad1A.ch
Acq On : 21-Jan-2020, 16:48:17 Operator: williamh
Sample : IC1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(20) m-Nitrotoluene

16.34min 890.212ppb

response 3094259

(20) m-Nitrotoluene #2

16.33min 889.167ppb m

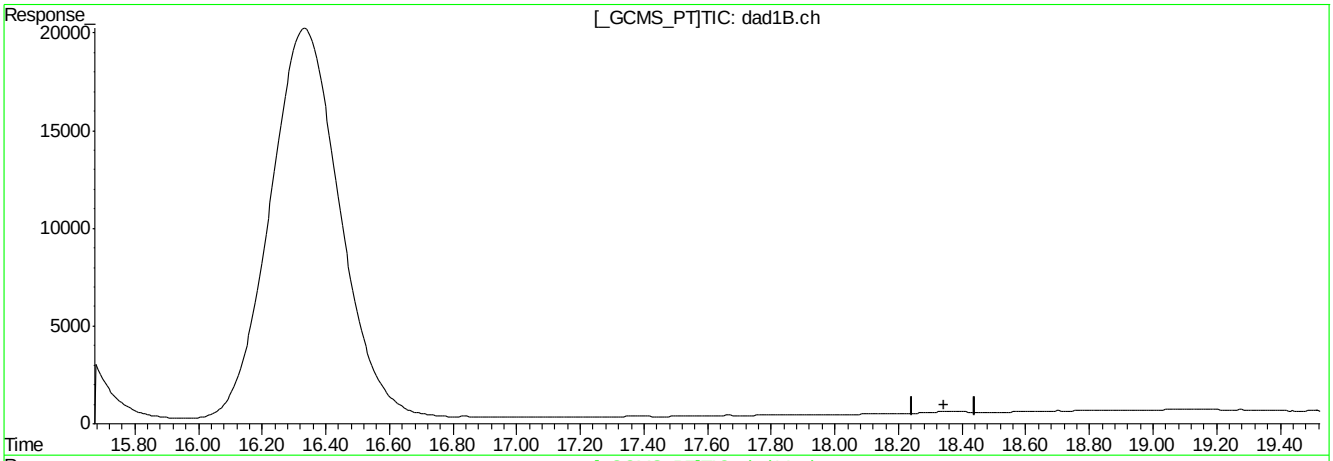
response 3570347

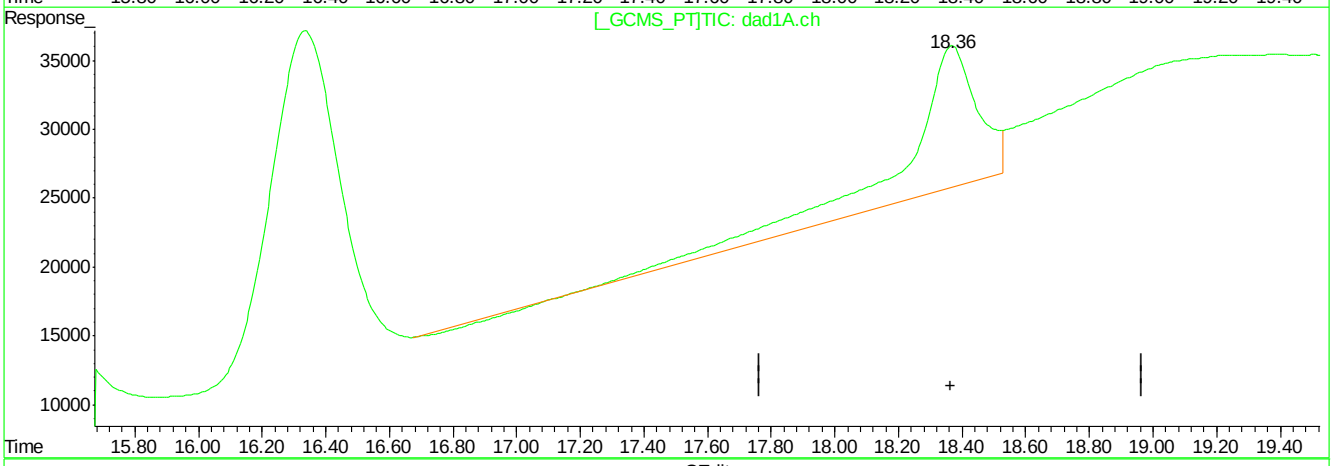
(+) = Expected Retention Time
BB067775.D 8330B_012120_PLUS.M Wed Jan 22 14:37:46 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067775.D\dad1B.ch Vial: 96
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067775.D\dad1A.ch
Acq On : 21-Jan-2020, 16:48:17 Operator: williamh
Sample : IC1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb d

response 0

(21) PETN #2

18.37min 1128.574ppb

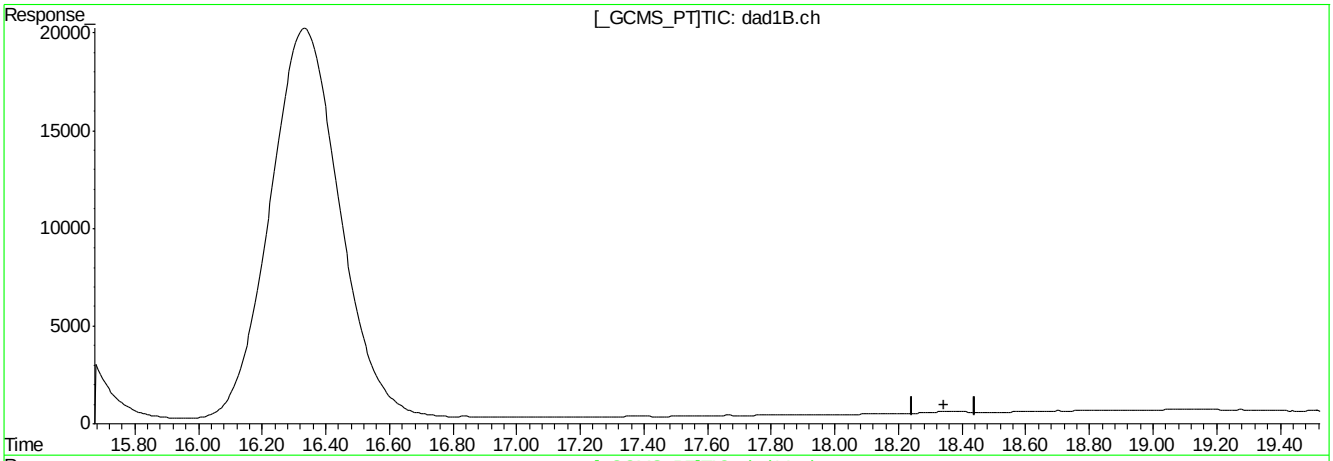
response 1576249

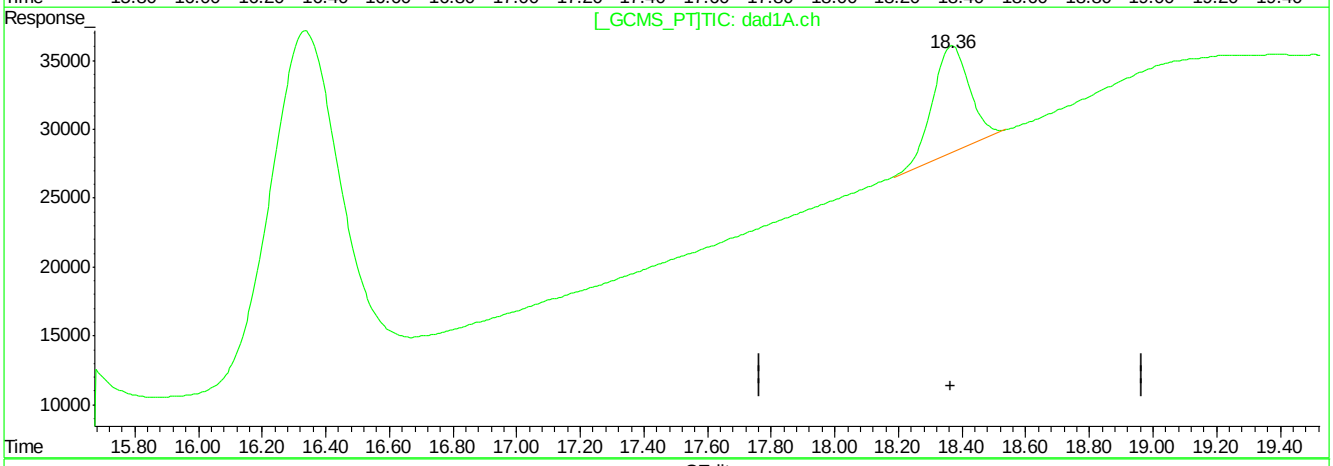
(+) = Expected Retention Time
BB067775.D 8330B_012120_PLUS.M Wed Jan 22 14:37:50 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067775.D\dad1B.ch Vial: 96
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067775.D\dad1A.ch
Acq On : 21-Jan-2020, 16:48:17 Operator: williamh
Sample : IC1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb d

response 0

(21) PETN #2

18.36min 452.867ppb m

response 632507

(+) = Expected Retention Time
BB067775.D 8330B_012120_PLUS.M Wed Jan 22 14:37:53 2020

BB067776.D

Manual Integrations APPROVED (compounds with "m" flag)

Naresh Jiawan 01/23/20 18:00

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067776.D\dad1B.ch Vial: 97
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067776.D\dad1A.ch
Acq On : 21-Jan-2020, 17:18:12 Operator: williamh
Sample : IC1975-2500 Inst : G1315B
Misc : op78572,GBB1975,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19:49 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.76	10.76	5012631	8913667	2378.219	2527.396
	Spiked Amount 500.000	Range 70 - 136		Recovery =		475.64%#	505.48%#
	Target Compounds						
1)	TNX	1.33	1.33	5964748	9245041	2126.029	2060.771
2)	HMX	1.45	1.45	4025133	10920978	2420.826	2373.509
3)	DNX	1.70	1.70	3501271	5590102	2485.464	2460.538
4)	MNX	2.28	2.28	5579562	8597296	2133.454	2142.378
5)	RDX	2.88	2.88	4739151	7555239	2348.296	2360.816
6)	1,3,5-Trinitrobe	4.64	4.64	9893554	19088675	2231.297	2285.696
7)	1,3-Dinitrobenze	5.79	5.79	13024289	8994642	2316.737	2346.201
8)	3,5-Dinitroanili	6.13	6.13	10107859	16922975	2359.681	2292.673
9)	Nitrobenzene	7.26	7.26	7851147	7656484	2311.021	2285.990
10)	Nitroglycerin	0.00	8.84	0	2776209	N.D.	2144.565 #
11)	Tetryl	9.16	9.16	6401835	10403456	2000.107	2012.335
12)	2,4,6-Trinitroto	9.62	9.62	8400811	10049477	2112.505	2120.250
13)	2-Amino-4,6-Dini	9.88	9.88	8161659	12442360	2268.309	2320.398
14)	4-Amino-2,6-Dini	10.33	10.33	5876994	11814178	2194.064	2262.010
16)	2,4-Dinitrotolue	11.44	11.44	11099677	7208779	2229.857	2328.981
17)	2,6-Dinitrotolue	11.88	11.88	6527653	8489504	2195.147	2317.031
18)	o-Nitrotoluene	14.86	14.86	5328728	7584042	2232.763	2386.084
19)	p-Nitrotoluene	15.44	15.44	8416710	7323482	2183.669	2449.982
20)	m-Nitrotoluene	16.33	16.33	7851206	9233176	2258.776	2270.584
21)	PETN	0.00	18.36	0	1633713	N.D. d	1169.717m

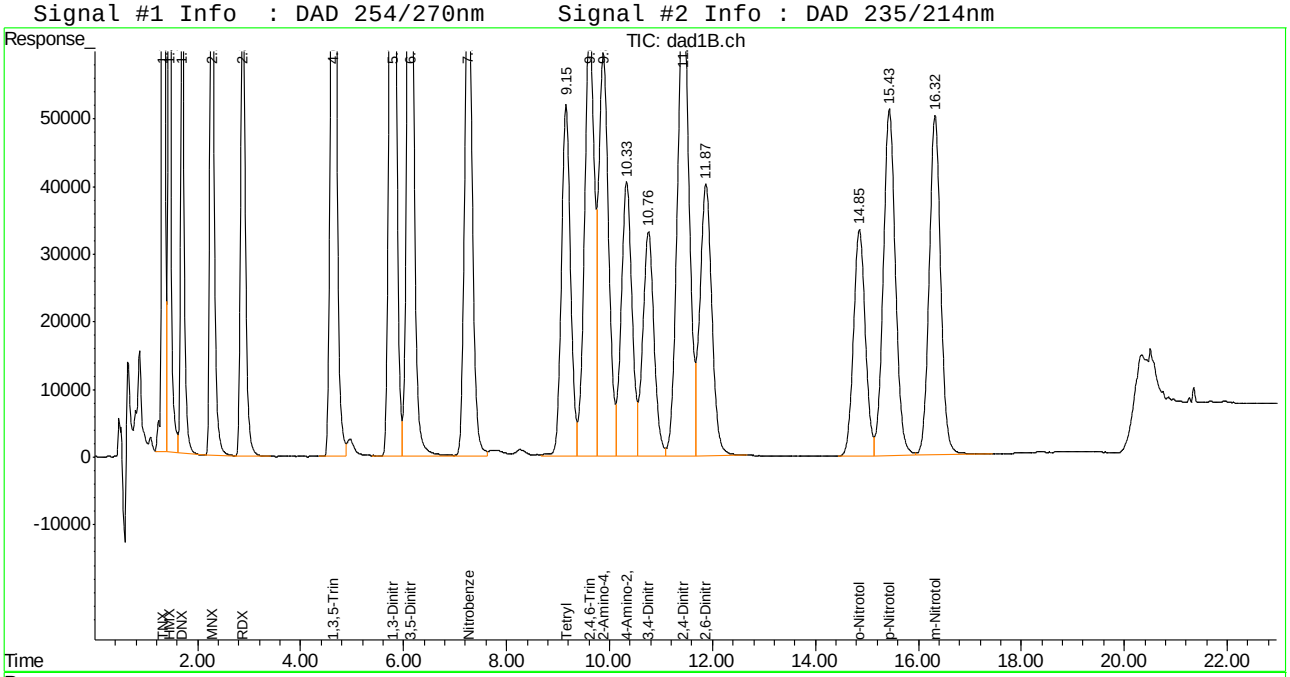
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

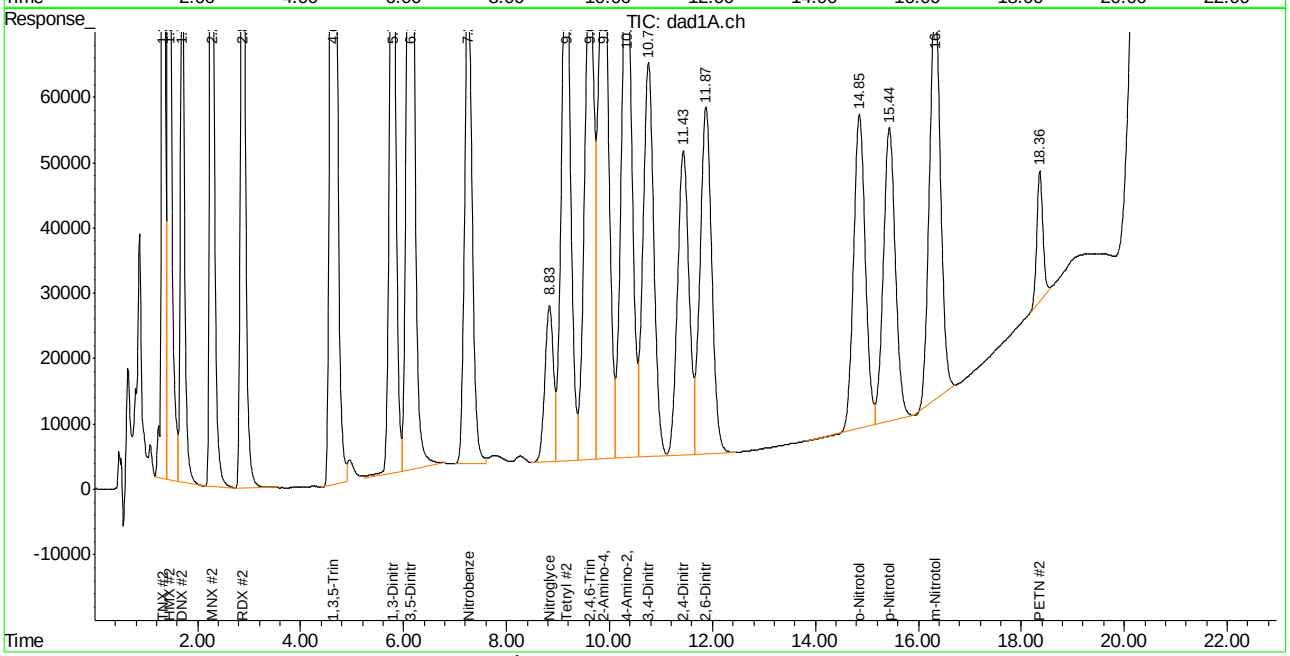
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067776.D\dad1B.ch Vial: 97
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067776.D\dad1A.ch
Acq On : 21-Jan-2020, 17:18:12 Operator: williamh
Sample : IC1975-2500 Inst : G1315B
Misc : op78572,GBB1975,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:40 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

Sample Number: GBB1975-IC1975
Lab FileID: BB067776.D
Injection Time: 01/21/20 17:18

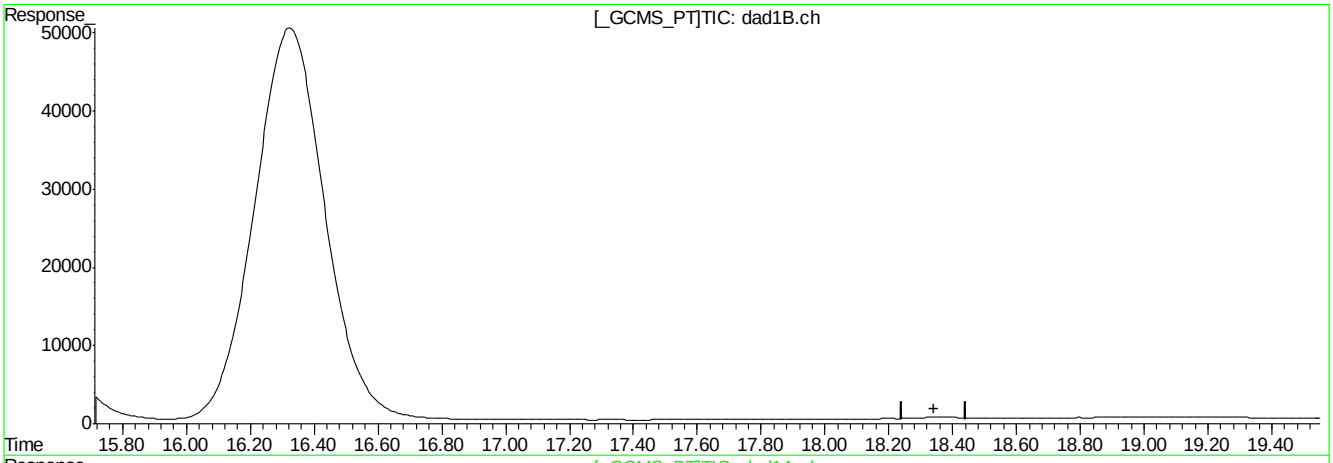
Method: SW846 8330A
Analyst approved: 01/23/20 14:17 William Hustedde
Supervisor approved: 01/23/20 18:00 Naresh Jiawan

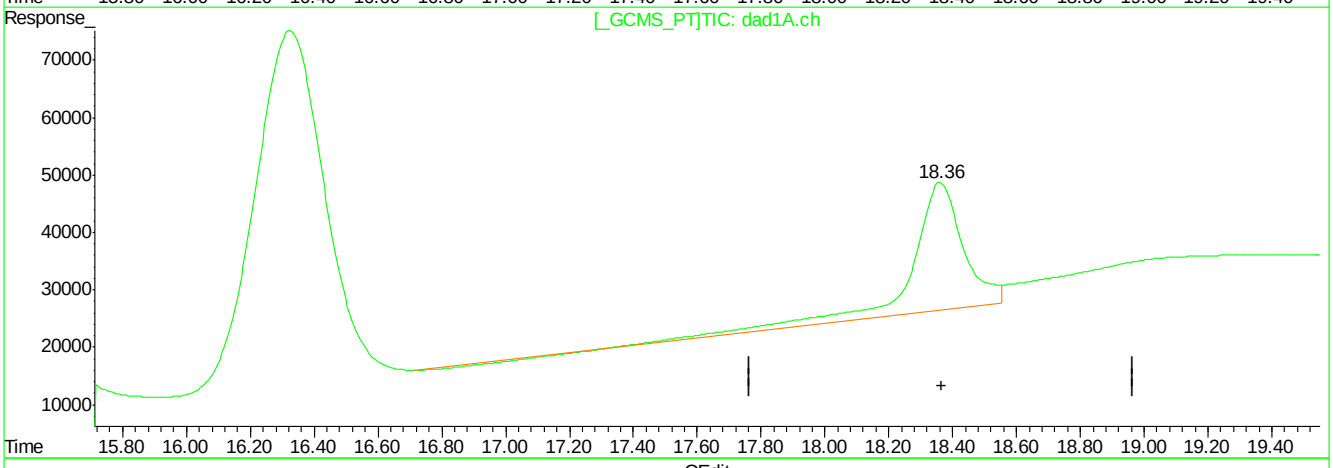
Parameter	CAS	Sig#	R.T. (min.)	Reason
PETN	78-11-5	2	18.36	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067776.D\dad1B.ch Vial: 97
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067776.D\dad1A.ch
Acq On : 21-Jan-2020, 17:18:12 Operator: williamh
Sample : IC1975-2500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb d

response 0

(21) PETN #2

18.36min 1772.055ppb

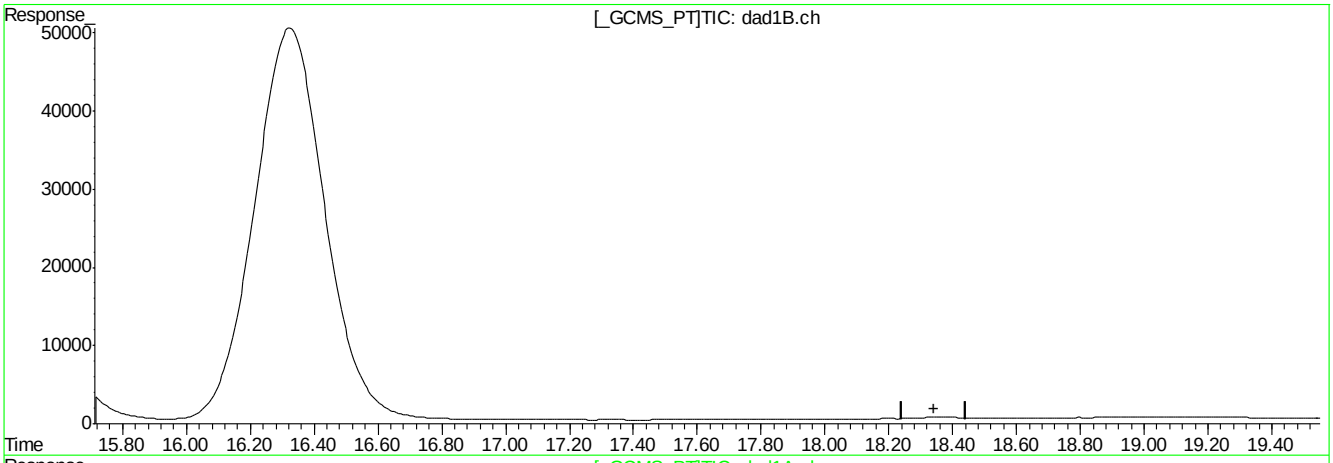
response 2474982

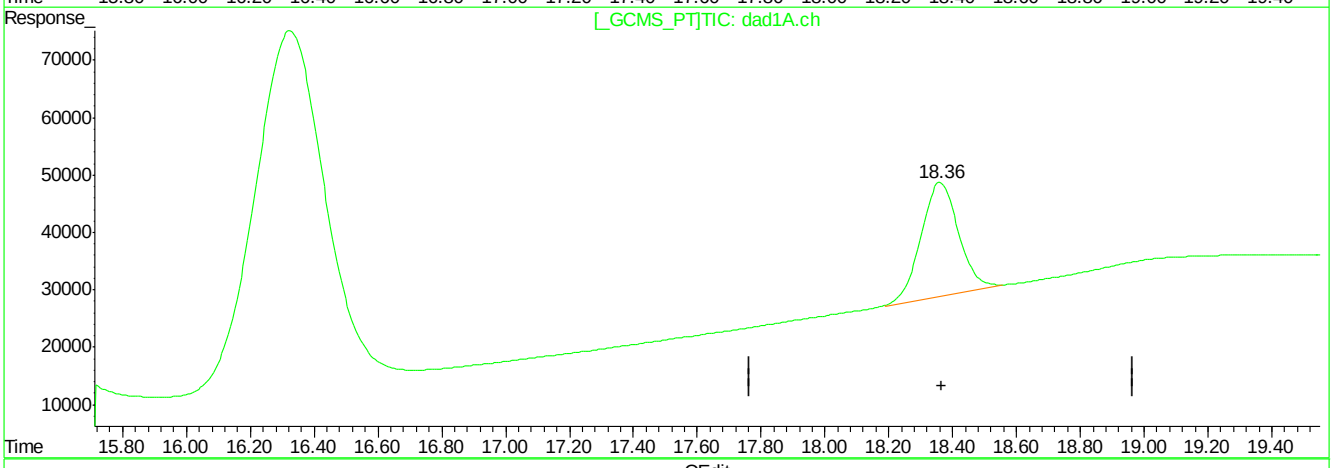
(+) = Expected Retention Time
BB067776.D 8330B_012120_PLUS.M Wed Jan 22 14:40:36 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067776.D\dad1B.ch Vial: 97
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067776.D\dad1A.ch
Acq On : 21-Jan-2020, 17:18:12 Operator: williamh
Sample : IC1975-2500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb d

response 0

(21) PETN #2

18.36min 1169.717ppb m

response 1633713

(+) = Expected Retention Time
BB067776.D 8330B_012120_PLUS.M Wed Jan 22 14:40:41 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 01/23/20 18:00

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067777.D\dad1B.ch Vial: 98
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067777.D\dad1A.ch
Acq On : 21-Jan-2020, 17:48:12 Operator: williamh
Sample : IC1975-5000 Inst : G1315B
Misc : op78572,GBB1975,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19:50 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.66	10.66	9977660	18056329	4733.853	5119.722
	Spiked Amount 500.000	Range 70 - 136		Recovery =		946.77%#	1023.94%#
	Target Compounds						
1)	TNX	1.32	1.32	11773771	18217477	4196.552	4060.776
2)	HMX	1.44	1.44	7900241	21336518	4751.424	4637.169
3)	DNX	1.69	1.69	6952397	11122847	4935.332	5026.015
4)	MNX	2.25	2.25	11035504	16973030	4219.640	4229.544
5)	RDX	2.84	2.84	9385729	14883653	4650.721	4650.755
6)	1,3,5-Trinitrobe	4.59	4.59	19642508	38565430	4429.982	4617.860
7)	1,3-Dinitrobenze	5.74	5.74	25688809	17623666	4569.478	4597.032
8)	3,5-Dinitroanili	6.07	6.07	19984245	33449557	4665.324	4531.644
9)	Nitrobenzene	7.21	7.21	15691827	15077970	4618.960	4501.817
10)	Nitroglycerin	0.00	8.72	0	5330179	N.D.	4117.454 #
11)	Tetryl	9.05	9.05	12701136	20914905	3968.180	4045.559
12)	2,4,6-Trinitroto	9.52	9.53	17848738	20944414	4488.322	4418.875
13)	2-Amino-4,6-Dini	9.78	9.78	15130490	24042299	4205.104	4483.691
14)	4-Amino-2,6-Dini	10.23	10.23	11659184	23749049	4352.734	4547.129
16)	2,4-Dinitrotolue	11.33	11.33	22305460	14711653	4481.031	4752.976
17)	2,6-Dinitrotolue	11.77	11.77	12739760	16924272	4284.181	4619.123
18)	o-Nitrotoluene	14.79	14.79	10492546	14959506	4396.428	4706.545
19)	p-Nitrotoluene	15.38	15.38	16656420	14487596	4321.415	4846.649
20)	m-Nitrotoluene	16.29	16.29	15512275	18509515	4462.850	4462.873
21)	PETN	0.00	18.35	0	3291122	N.D. d	2356.401m

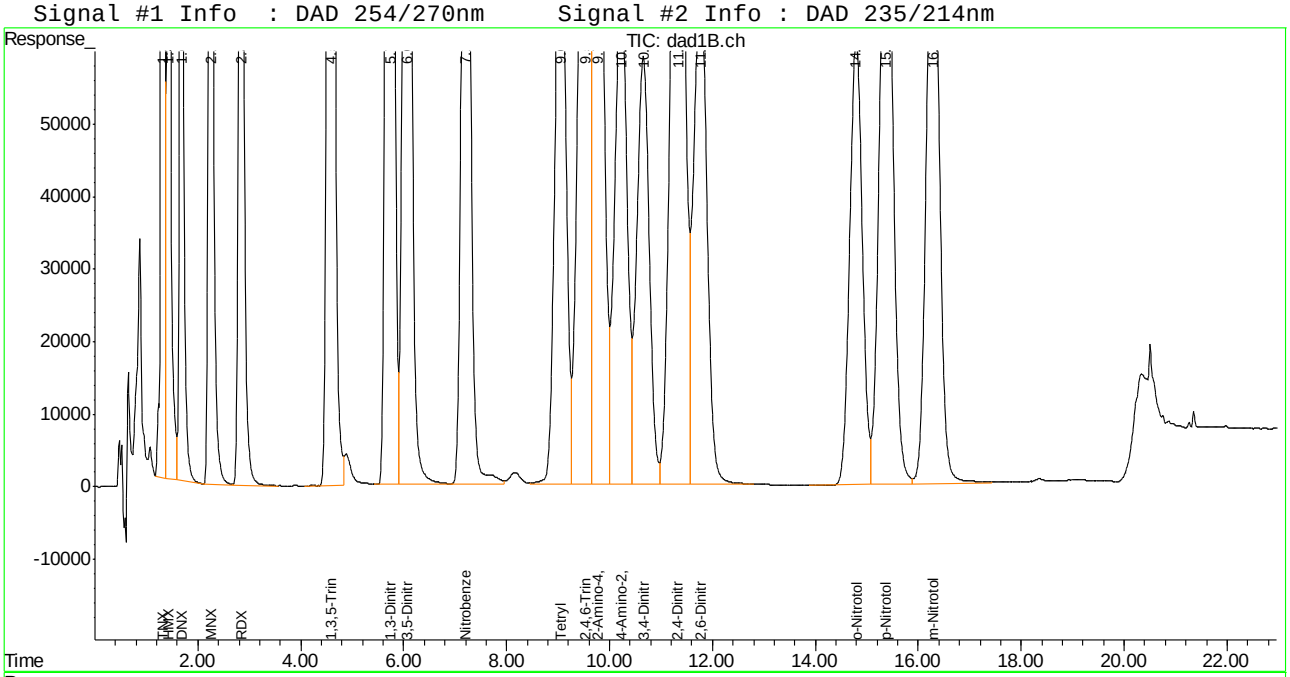
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB067777.D 8330B_012120_PLUS.M Thu Jan 23 14:01:33 2020 Page 1

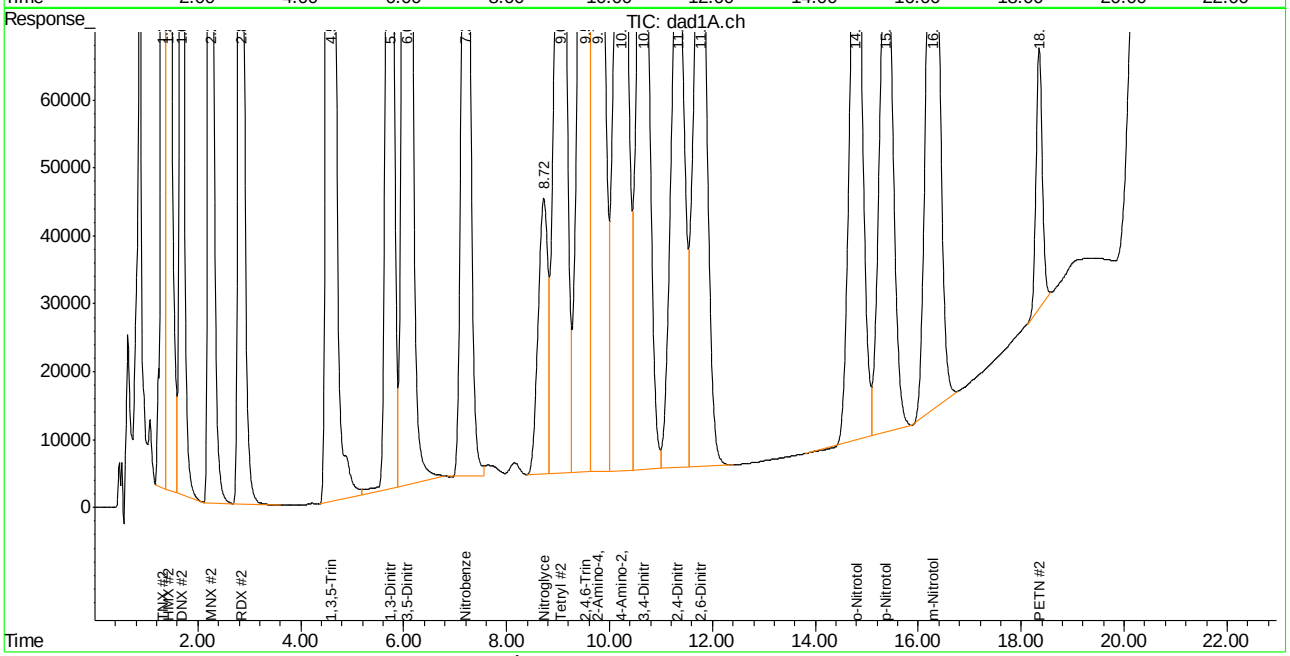
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067777.D\dad1B.ch Vial: 98
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067777.D\dad1A.ch
Acq On : 21-Jan-2020, 17:48:12 Operator: williamh
Sample : IC1975-5000 Inst : G1315B
Misc : op78572,GBB1975,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:40 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

Sample Number: GBB1975-IC1975
Lab FileID: BB067777.D
Injection Time: 01/21/20 17:48

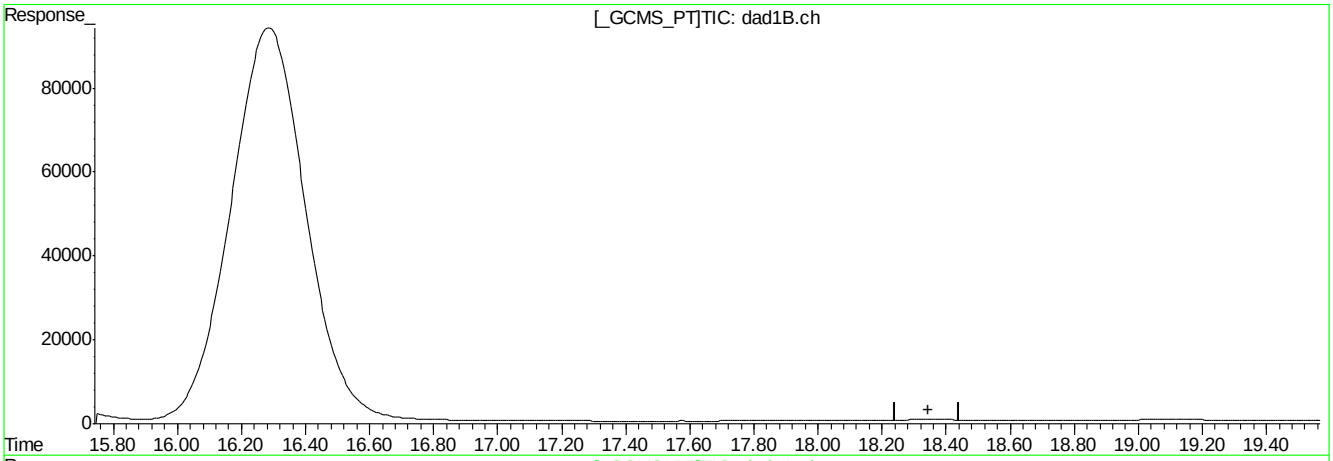
Method: SW846 8330A
Analyst approved: 01/23/20 14:17 William Hustedde
Supervisor approved: 01/23/20 18:00 Naresh Jiawan

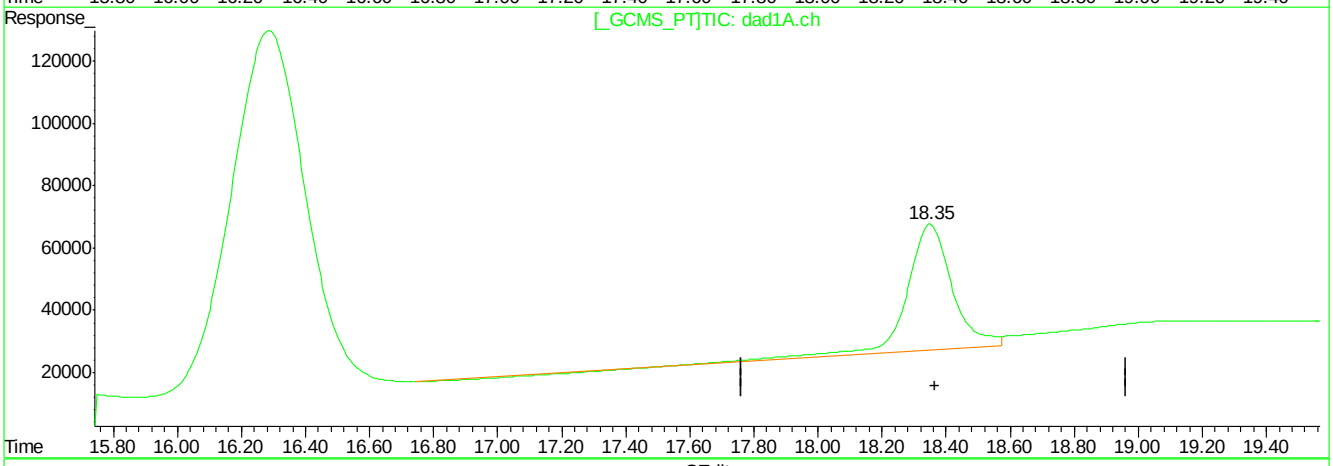
Parameter	CAS	Sig#	R.T. (min.)	Reason
PETN	78-11-5	2	18.35	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067777.D\dad1B.ch Vial: 98
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067777.D\dad1A.ch
Acq On : 21-Jan-2020, 17:48:12 Operator: williamh
Sample : IC1975-5000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb d

response 0

(21) PETN #2

18.35min 2849.112ppb

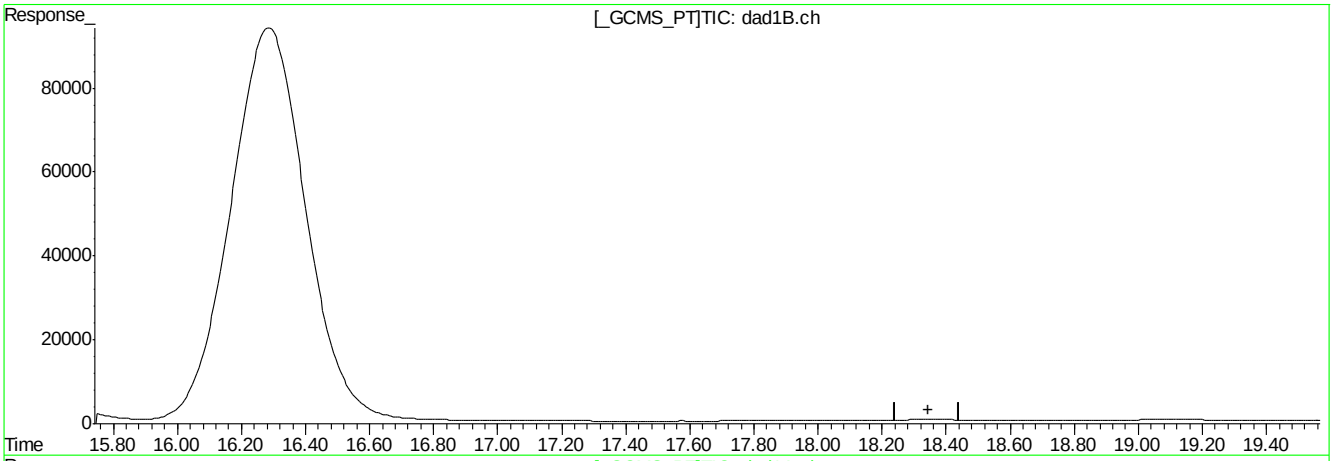
response 3979278

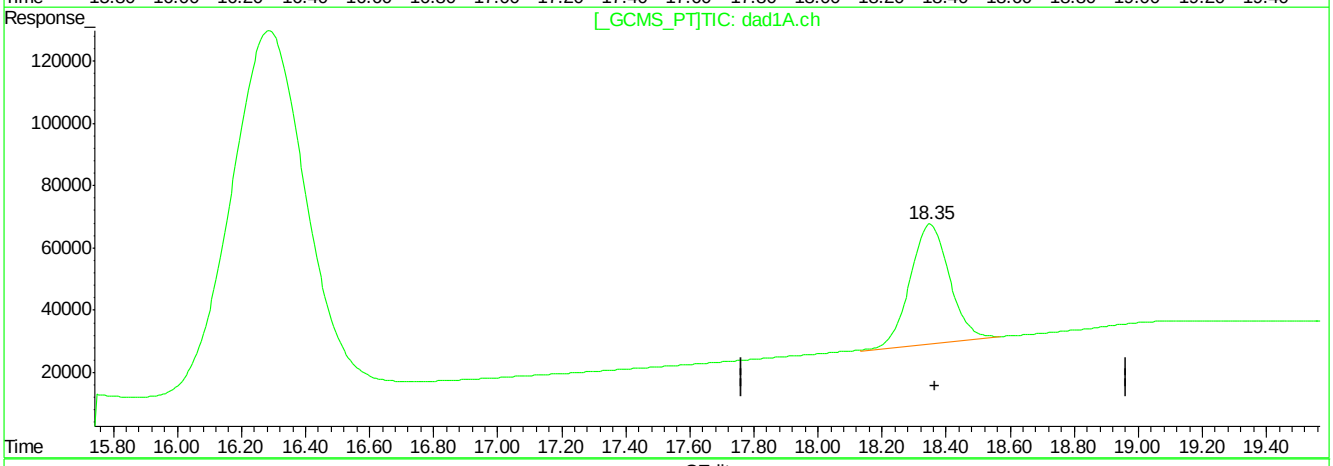
(+) = Expected Retention Time
BB067777.D 8330B_012120_PLUS.M Wed Jan 22 14:40:53 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067777.D\dad1B.ch Vial: 98
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067777.D\dad1A.ch
Acq On : 21-Jan-2020, 17:48:12 Operator: williamh
Sample : IC1975-5000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:19 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:18:19 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb d

response 0

(21) PETN #2

18.35min 2356.401ppb m

response 3291122

(+) = Expected Retention Time
BB067777.D 8330B_012120_PLUS.M Wed Jan 22 14:40:58 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 01/23/20 18:00

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067778.D\dad1B.ch Vial: 99
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067778.D\dad1A.ch
Acq On : 21-Jan-2020, 18:18:15 Operator: williamh
Sample : icv1975-1000 Inst : G1315B
Misc : op78572,GBB1975,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:53:58 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:53:52 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	0.00	0.00	0	0	N.D.	N.D.
	Spiked Amount 500.000	Range 70 - 136		Recovery =		0.00%#	0.00%#
	Target Compounds						
1)	TNX	1.33	1.33	2606613	4035871	1094.600	1127.748
2)	HMX	1.46	1.46	1724013	4685929	1133.981	1088.191
3)	DNX	1.70	1.70	1404190	2269260	961.072	1009.716
4)	MNX	2.28	2.28	2236633	3441371	980.098	968.284
5)	RDX	2.88	2.88	1910699	3051614	997.927	982.163
6)	1,3,5-Trinitrobe	4.64	4.64	3957696	7357531	1022.034	982.879
7)	1,3-Dinitrobenze	5.79	5.79	5238572	3647666	1011.967	992.844
8)	3,5-Dinitroanili	6.13	6.13	4206627	7166656	1055.112	1043.802
9)	Nitrobenzene	7.26	7.26	3132893	3118457	1001.651	1014.438
10)	Nitroglycerin	0.00	8.85	0	1328791	N.D.	1143.192 #
11)	Tetryl	9.17	9.17	2874701	4741559	1112.719	1116.037
12)	2,4,6-Trinitroto	9.63	9.63	3859324	4700839	1097.366	1149.465
13)	2-Amino-4,6-Dini	9.89	9.90	3381670	5208709	1047.346	1052.484
14)	4-Amino-2,6-Dini	10.35	10.35	2513932	5114630	1071.184	1104.411
16)	2,4-Dinitrotolue	11.45	11.45	4686226	3117708	1079.103	1065.981
17)	2,6-Dinitrotolue	11.89	11.89	2786416	3656213	1069.503	1080.136
18)	o-Nitrotoluene	14.86	14.85	2279007	3183918	1047.422	1136.490m
19)	p-Nitrotoluene	15.44	15.44	3465432	3074541	1029.538	1059.411
20)	m-Nitrotoluene	16.32	16.32	3300017	3837348	1072.918	1038.834
21)	PETN	0.00	18.35	0	1426190	N.D. d	2384.674m

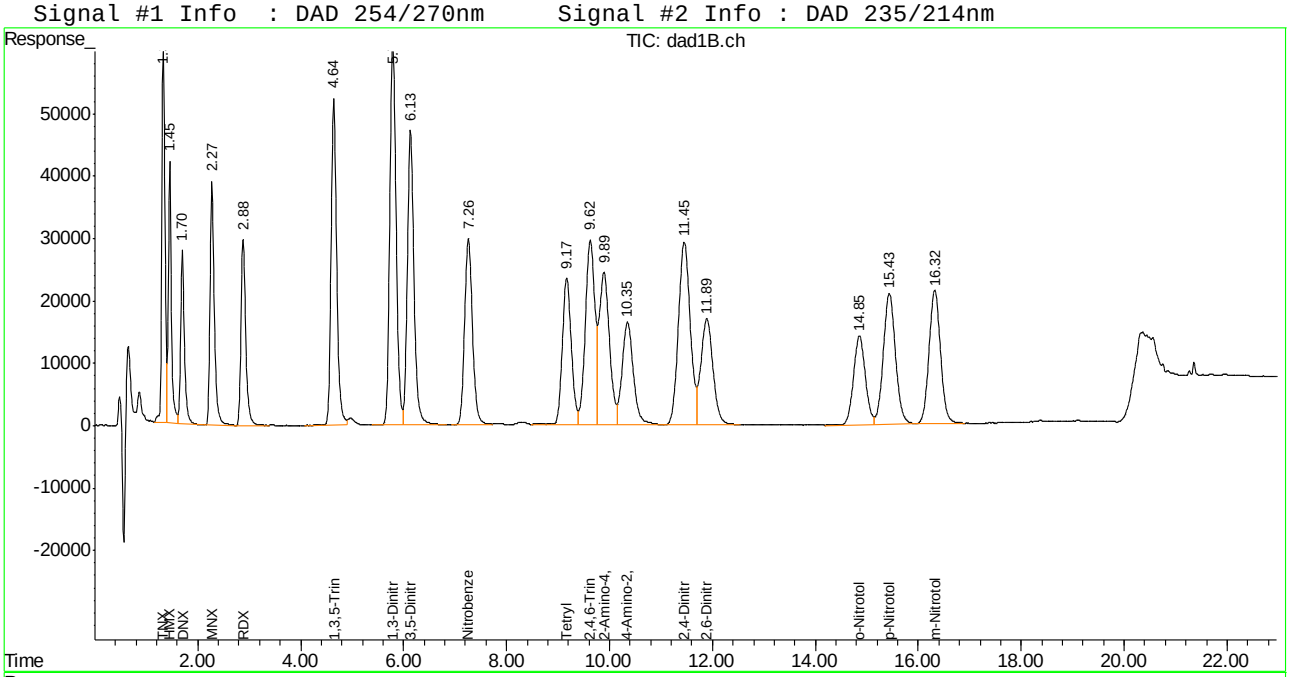
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB067778.D 8330B_012120_PLUS.M Thu Jan 23 14:01:34 2020 Page 1

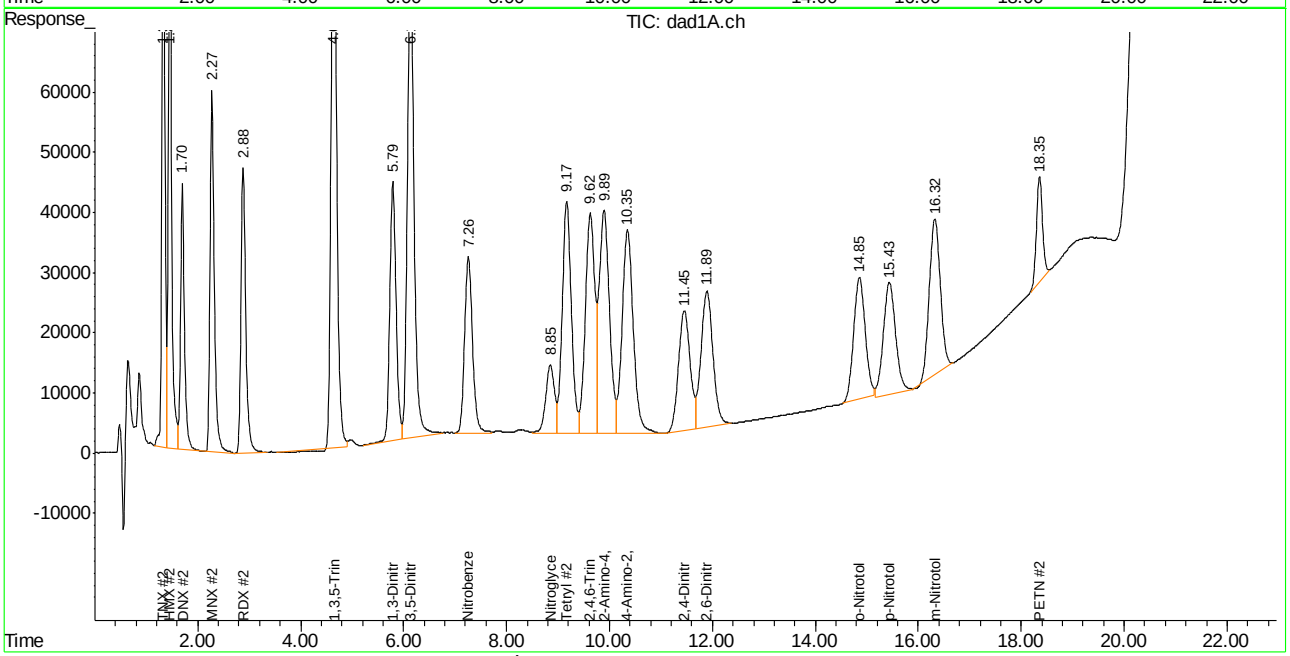
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067778.D\dad1B.ch Vial: 99
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067778.D\dad1A.ch
Acq On : 21-Jan-2020, 18:18:15 Operator: williamh
Sample : icv1975-1000 Inst : G1315B
Misc : op78572,GBB1975,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:55 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:53:52 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

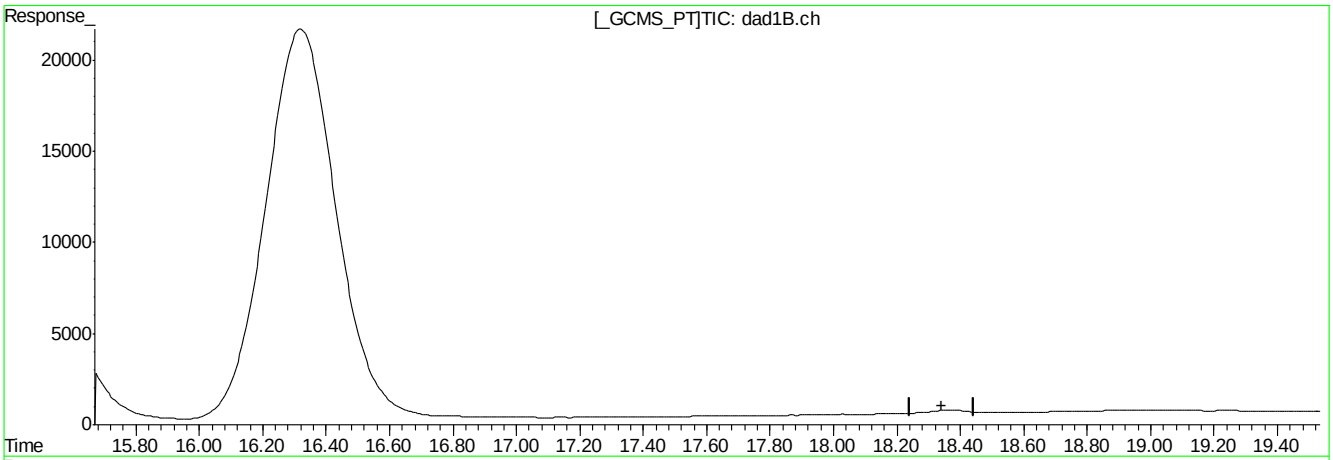
Sample Number: GBB1975-ICV1975 **Method:** SW846 8330A
Lab FileID: BB067778.D **Analyst approved:** 01/23/20 14:17 William Hustedde
Injection Time: 01/21/20 18:18 **Supervisor approved:** 01/23/20 18:00 Naresh Jiawan

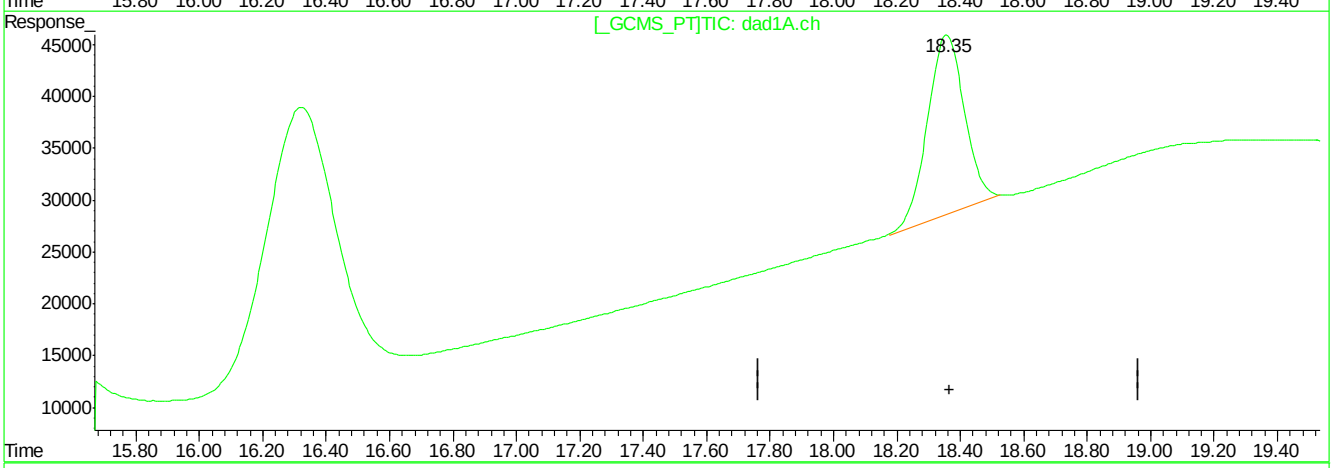
Parameter	CAS	Sig#	R.T. (min.)	Reason
o-Nitrotoluene	88-72-2	2	14.85	Poor instrument integration
PETN	78-11-5	2	18.35	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067778.D\dad1B.ch Vial: 99
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067778.D\dad1A.ch
Acq On : 21-Jan-2020, 18:18:15 Operator: williamh
Sample : icv1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:42 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:42:30 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb d

response 0

(21) PETN #2

18.35min 2336.480ppb m

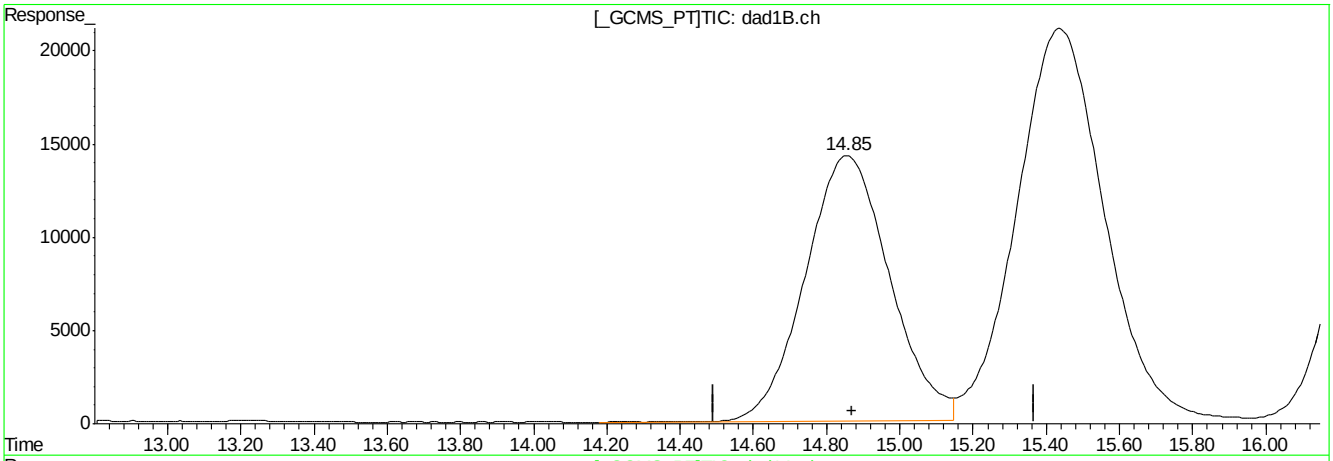
response 1397368

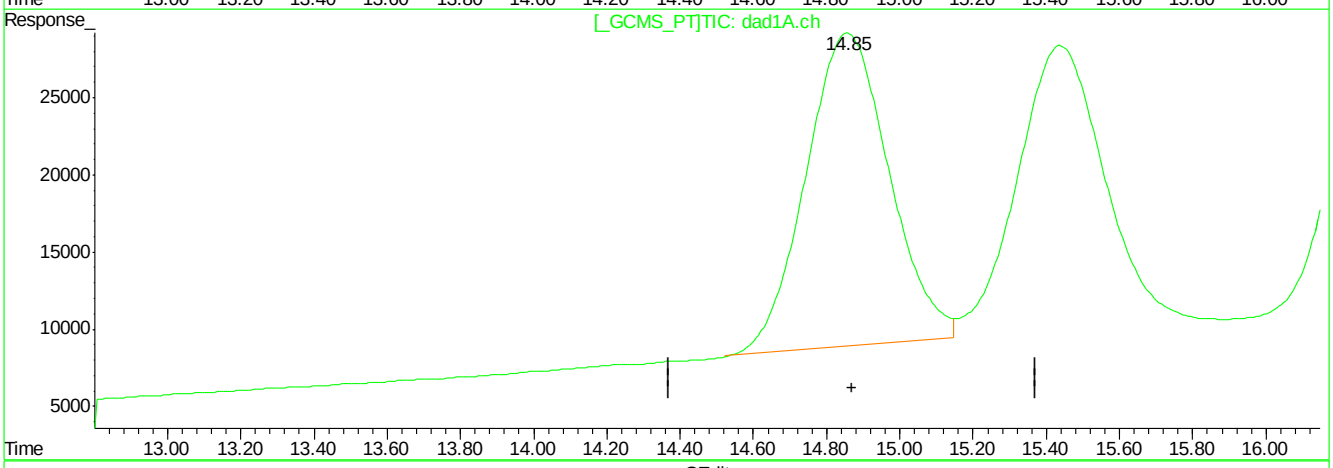
(+) = Expected Retention Time
BB067778.D 8330B_012120_PLUS.M Wed Jan 22 14:43:22 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067778.D\dad1B.ch Vial: 99
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067778.D\dad1A.ch
Acq On : 21-Jan-2020, 18:18:15 Operator: williamh
Sample : icv1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:44 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:44:08 2020
Response via : Multiple Level Calibration





QEdit

(18) o-Nitrotoluene

14.86min 1047.422ppb

response 2279007

(18) o-Nitrotoluene #2

14.85min 1143.242ppb m

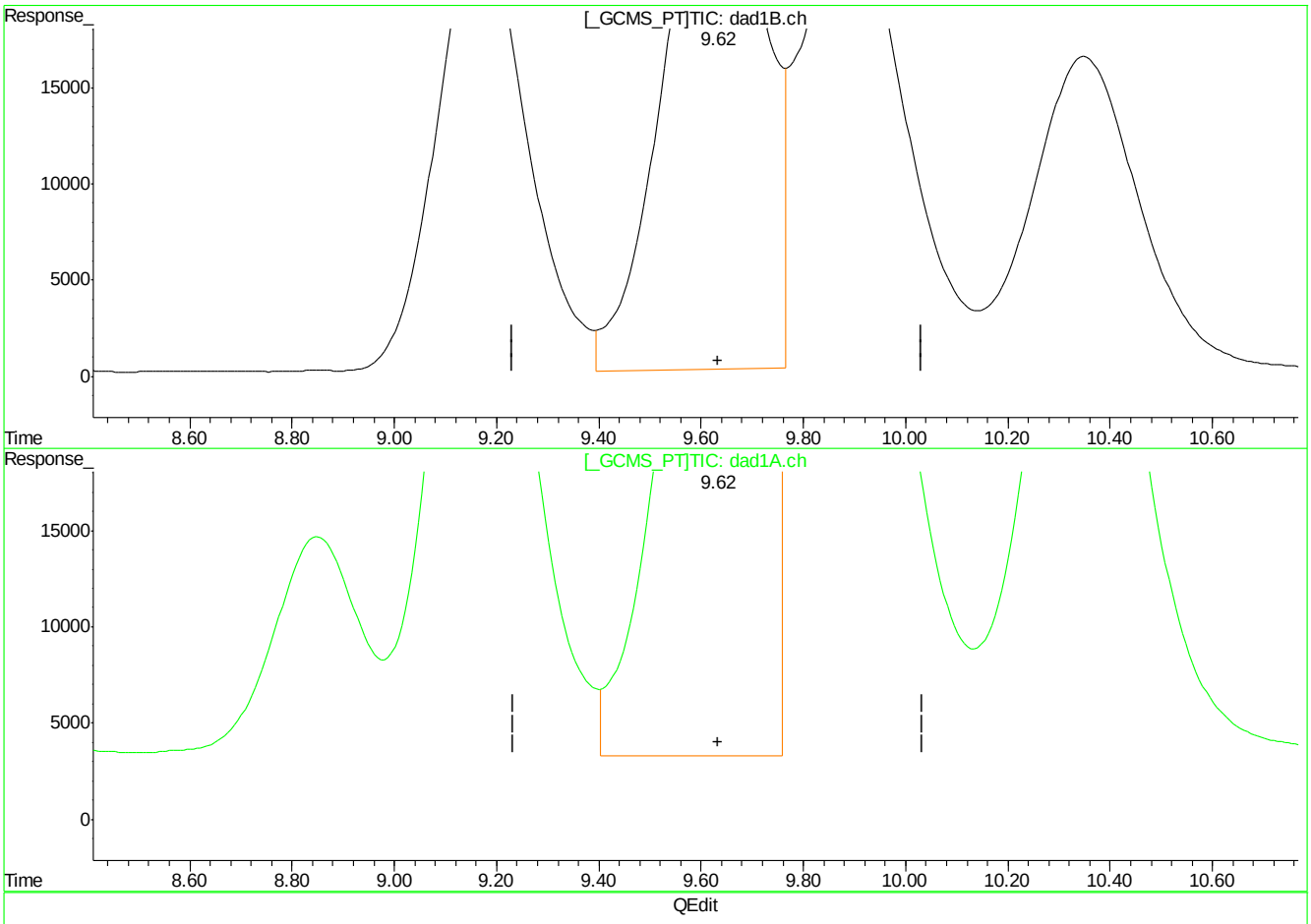
response 3202836

(+) = Expected Retention Time
BB067778.D 8330B_012120_PLUS.M Wed Jan 22 14:44:46 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067778.D\dad1B.ch Vial: 99
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067778.D\dad1A.ch
Acq On : 21-Jan-2020, 18:18:15 Operator: williamh
Sample : icv1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:45 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:45:51 2020
Response via : Multiple Level Calibration



(12) 2,4,6-Trinitrotoluene

9.62min 1141.999ppb m

response 3797323

(12) 2,4,6-Trinitrotoluene #2

9.63min 1191.323ppb

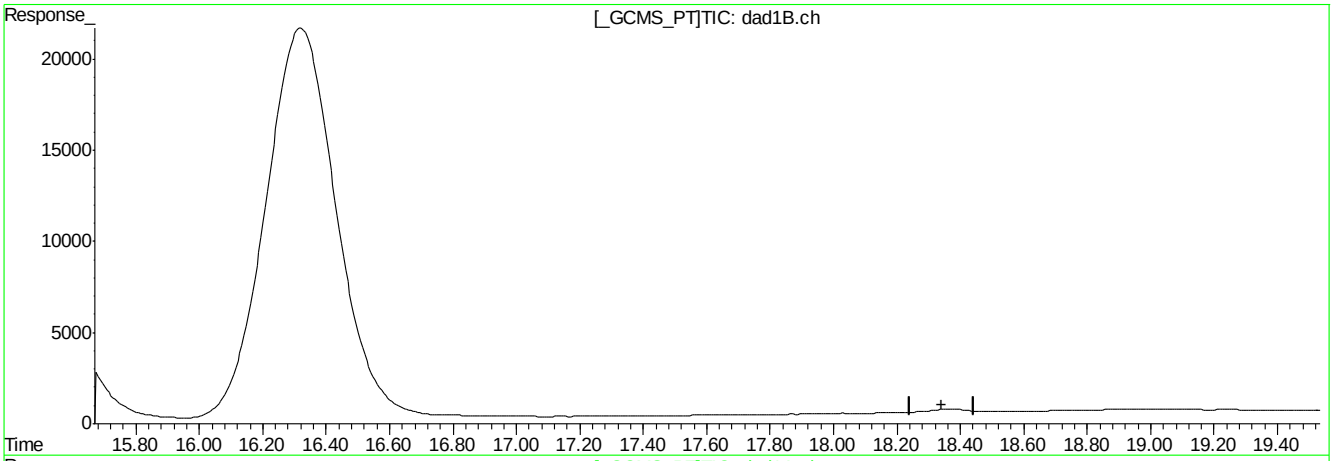
response 4700839

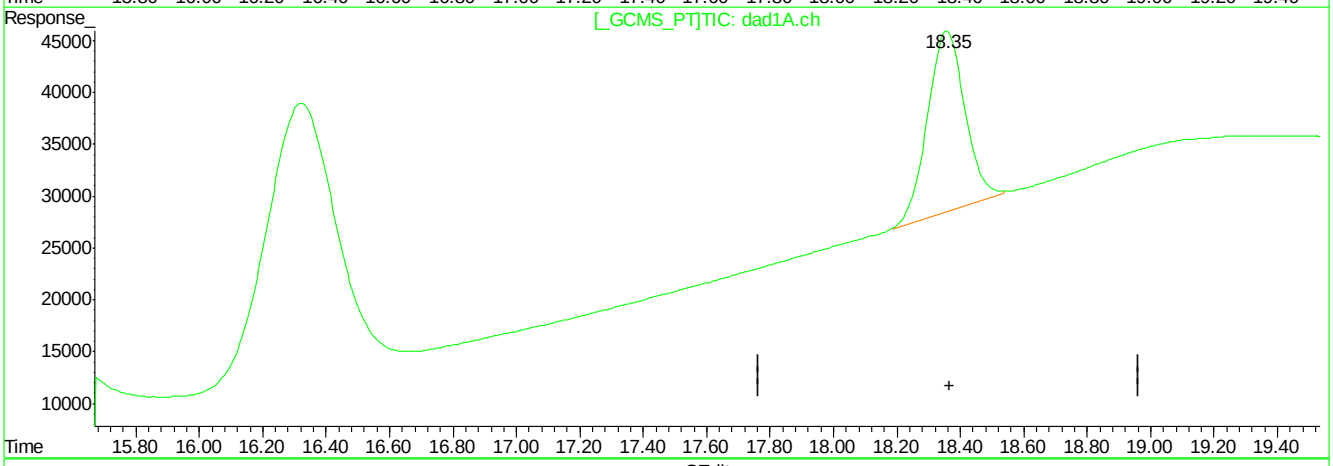
(+) = Expected Retention Time
BB067778.D 8330B_012120_PLUS.M Wed Jan 22 14:46:18 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067778.D\dad1B.ch Vial: 99
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067778.D\dad1A.ch
Acq On : 21-Jan-2020, 18:18:15 Operator: williamh
Sample : icv1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:53 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:53:52 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb d

response 0

(21) PETN #2

18.35min 2383.713ppb m

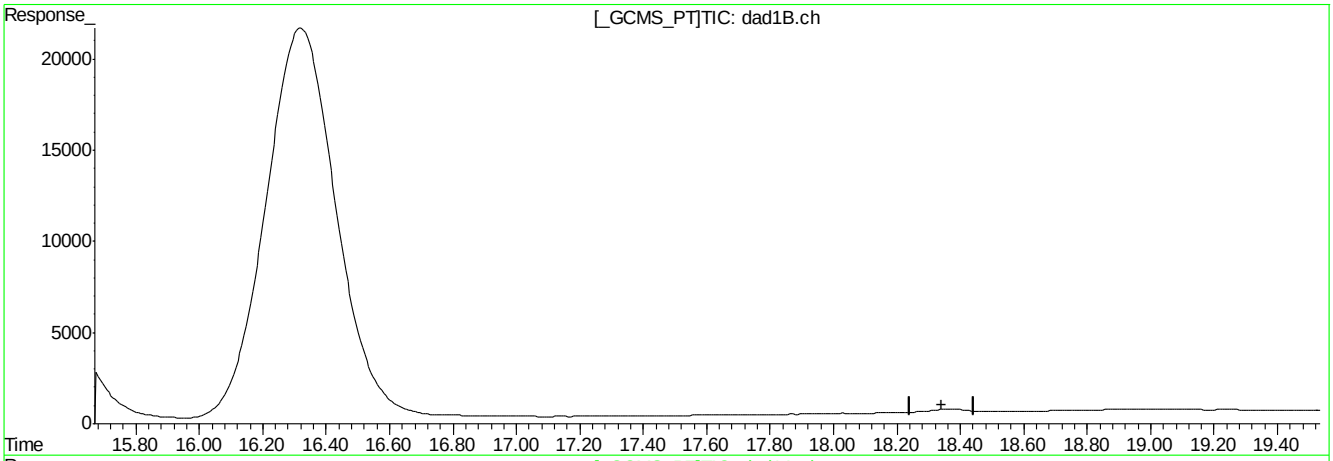
response 1425616

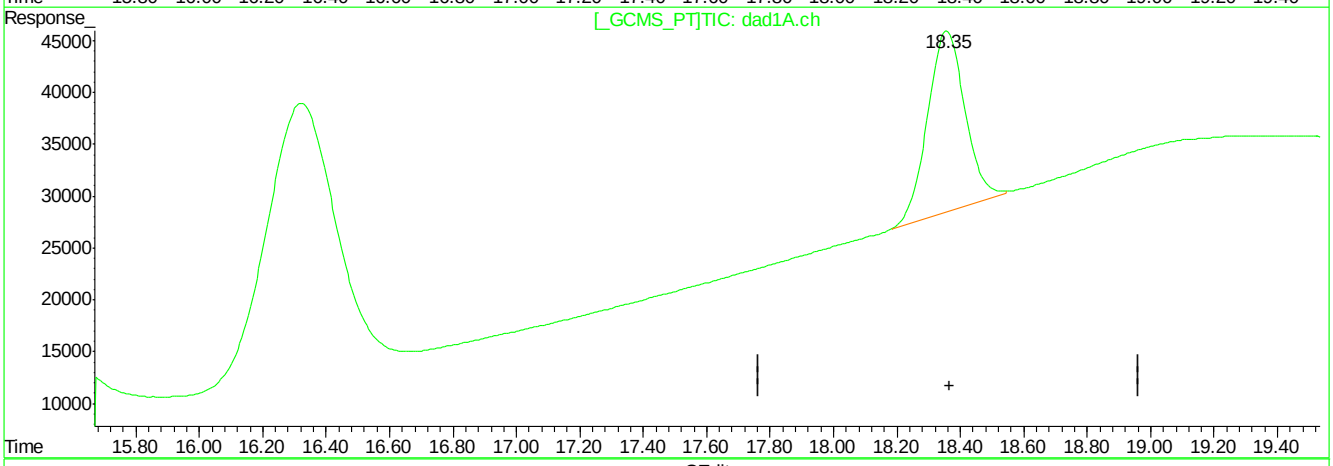
(+) = Expected Retention Time
BB067778.D 8330B_012120_PLUS.M Wed Jan 22 14:54:06 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067778.D\dad1B.ch Vial: 99
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067778.D\dad1A.ch
Acq On : 21-Jan-2020, 18:18:15 Operator: williamh
Sample : icv1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:53 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:53:52 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb d

response 0

(21) PETN #2

18.35min 2384.674ppb m

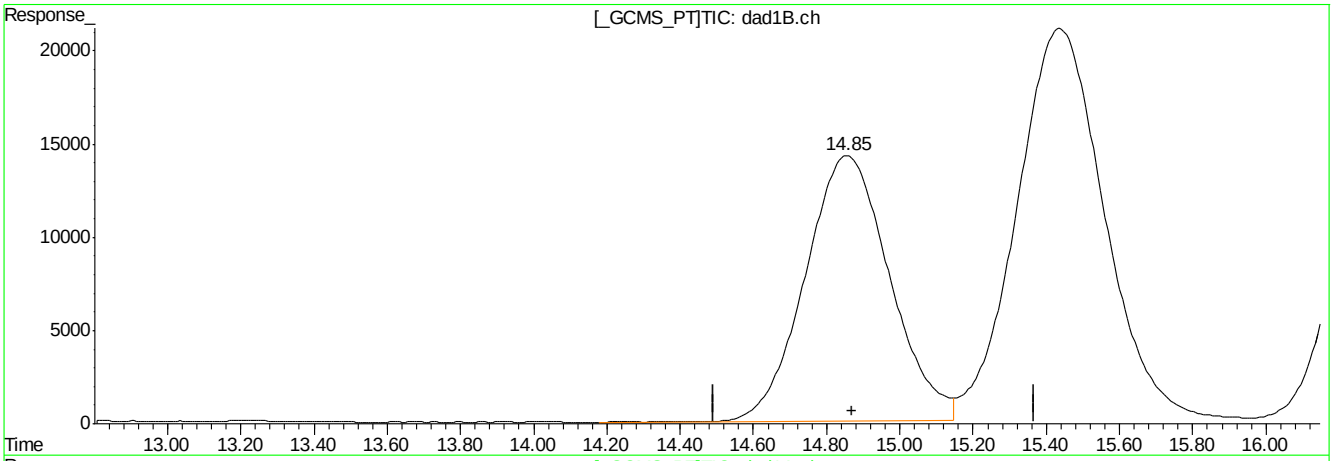
response 1426190

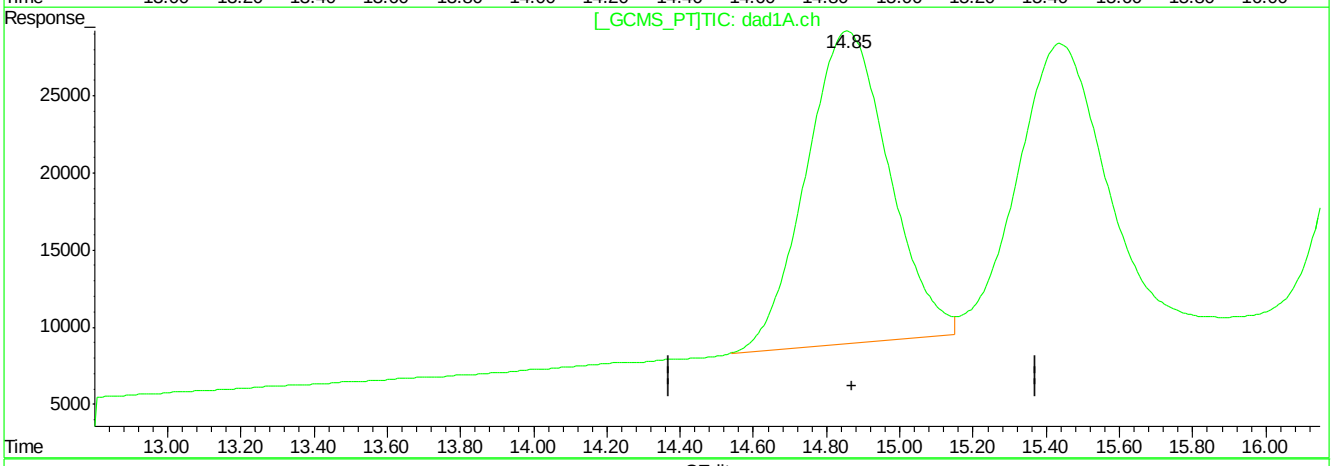
(+) = Expected Retention Time
BB067778.D 8330B_012120_PLUS.M Wed Jan 22 14:54:22 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1975\BB067778.D\dad1B.ch Vial: 99
Signal #2 : C:\HPCHEM\2\DATA\GBB1975\BB067778.D\dad1A.ch
Acq On : 21-Jan-2020, 18:18:15 Operator: williamh
Sample : icv1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jan 22 14:54 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jan 22 14:53:52 2020
Response via : Multiple Level Calibration





QEdit

(18) o-Nitrotoluene

14.86min 1047.422ppb

response 2279007

(18) o-Nitrotoluene #2

14.85min 1136.490ppb m

response 3183918

(+) = Expected Retention Time
BB067778.D 8330B_012120_PLUS.M Wed Jan 22 14:55:10 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 02/05/20 12:18

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067847.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067847.D\dad1A.ch
Acq On : 03-Feb-2020, 12:19:26 Operator: williamh
Sample : CC1975-1000 Inst : G1315B
Misc : op78736,GBB1981,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 04 09:30:05 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	11.44	11.44	2281072	3901987	1155.212	1127.154
	Spiked Amount 500.000	Range 70 - 136		Recovery =		231.04%#	225.43%#
	Target Compounds						
1)	TNX	1.38	1.38	2342138	3686479	983.242	1030.117
2)	HMX	1.54	1.54	1634768	4520067	1075.279	1049.674
3)	DNX	1.77	1.77	1378930	2184345	943.783	971.836
4)	MNX	2.39	2.39	2280364	3527780	999.261	992.596
5)	RDX	3.04	3.04	1980777	3193180	1034.528	1027.726
6)	1,3,5-Trinitrobe	4.85	4.85	4412340	8114277	1139.441	1083.971m
7)	1,3-Dinitrobenze	6.04	6.04	5555785	3853414	1073.245	1048.846m
8)	3,5-Dinitroanili	6.50	6.50	4205193	7015971	1054.752	1021.855m
9)	Nitrobenzene	7.55	7.55	3264366	3223735	1043.686	1048.685
10)	Nitroglycerin	0.00	9.01	0	1302255	N.D. d	1120.362
11)	Tetryl	9.74	9.74	3036961	4886564	1175.525	1150.167
12)	2,4,6-Trinitroto	10.11	10.10	4036906	4818172	1147.860	1178.156
13)	2-Amino-4,6-Dini	10.64	10.64	3492221	5038783	1081.585	1018.149
14)	4-Amino-2,6-Dini	11.11	11.11	2475345	4832305	1054.742	1043.448
16)	2,4-Dinitrotolue	12.07	12.08	4858651	3045428	1118.807	1041.268
17)	2,6-Dinitrotolue	12.50	12.50	2952319	3805445	1133.181	1124.223
18)	o-Nitrotoluene	15.44	15.44	2376634	3180338	1092.291	1135.212m
19)	p-Nitrotoluene	16.03	16.03	3844674	2801713	1142.207	965.402
20)	m-Nitrotoluene	16.85	16.85	3749403	4106233	1219.024	1111.626
21)	PETN	0.00	18.51	0	1452641	N.D. d	2428.900m

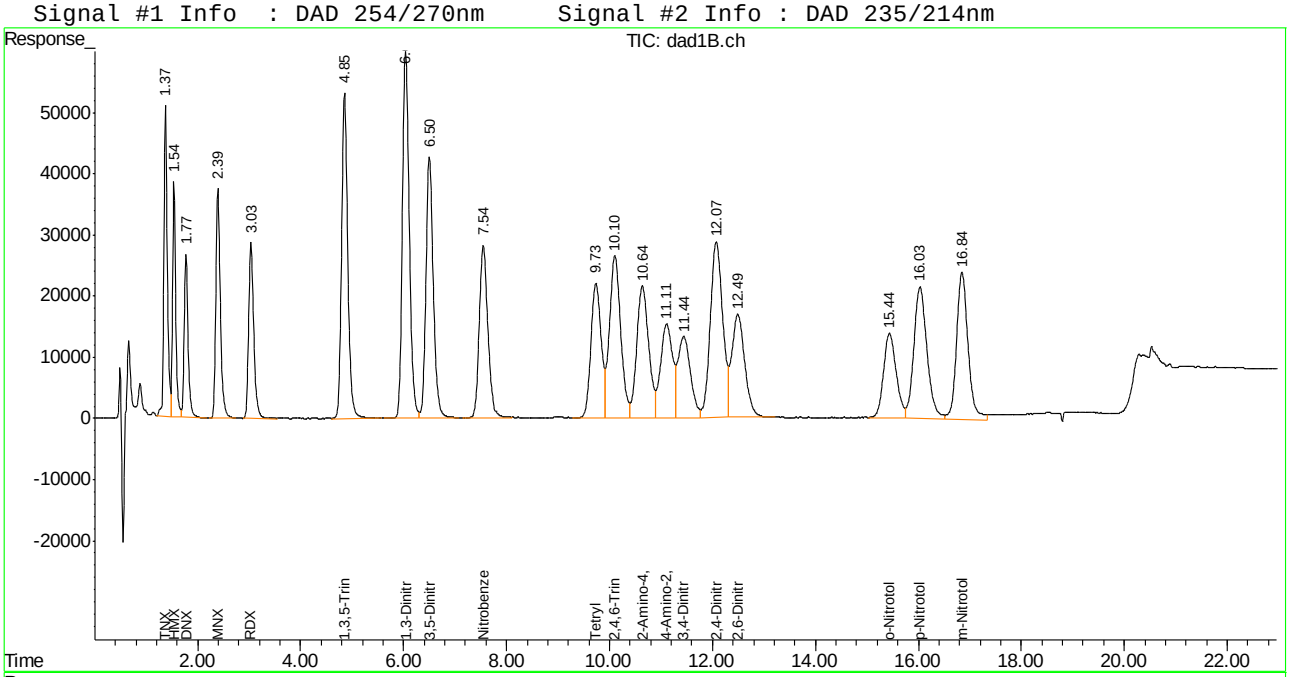
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB067847.D 8330B_012120_PLUS.M Tue Feb 04 11:21:33 2020 Page 1

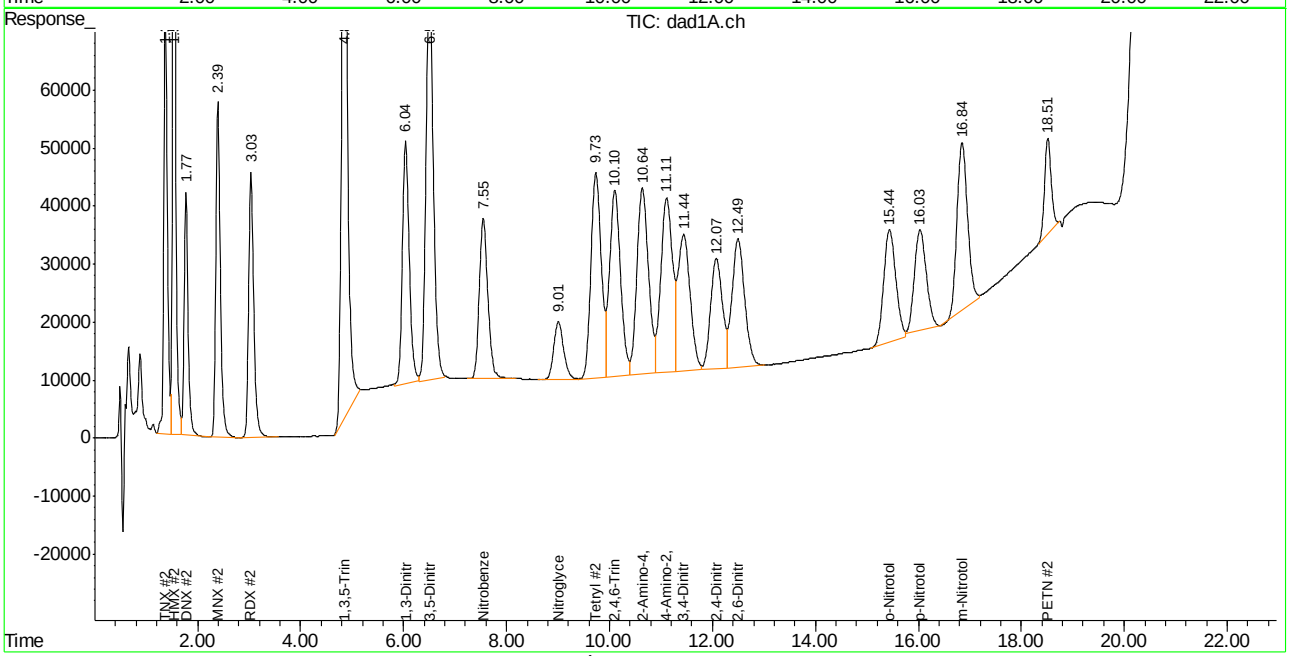
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067847.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067847.D\dad1A.ch
Acq On : 03-Feb-2020, 12:19:26 Operator: williamh
Sample : CC1975-1000 Inst : G1315B
Misc : op78736,GBB1981,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:37 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

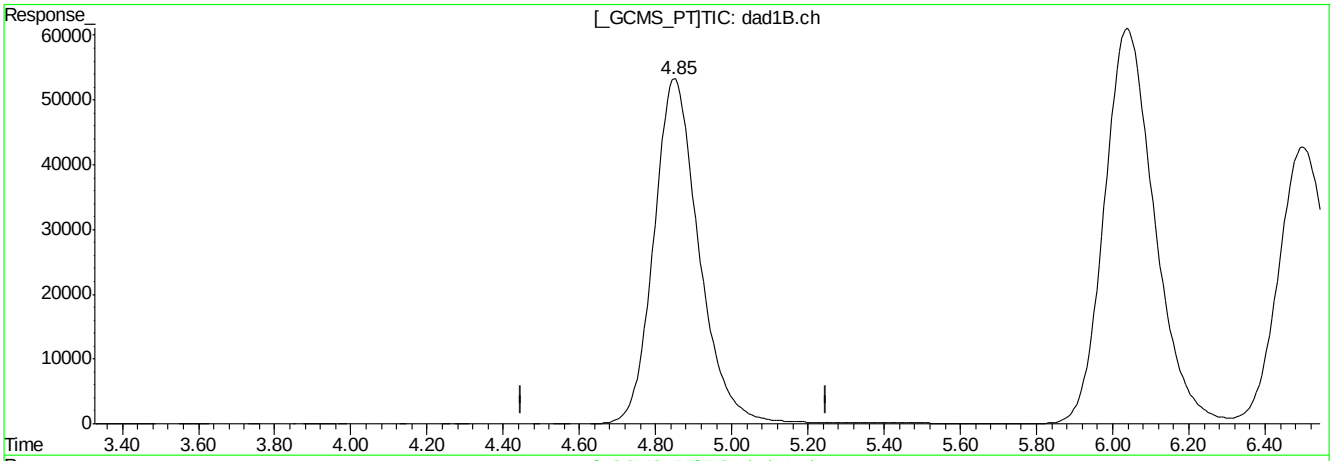
Sample Number: GBB1981-CC1975
Lab FileID: BB067847.D
Injection Time: 02/03/20 12:19
Method: SW846 8330A
Analyst approved: 02/04/20 11:36 William Hustedde
Supervisor approved: 02/05/20 12:18 Naresh Jiawan

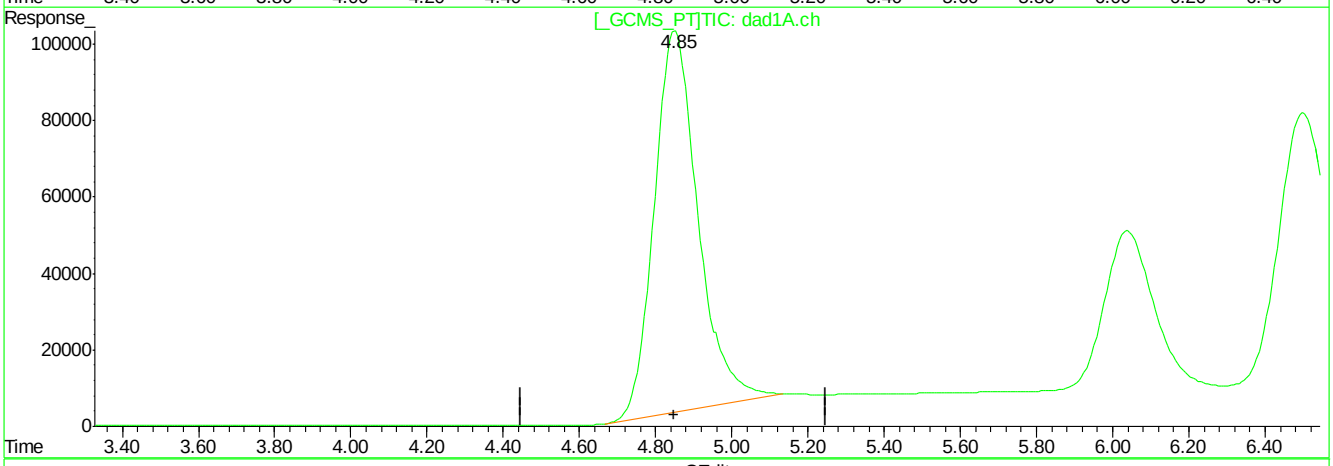
Parameter	CAS	Sig#	R.T. (min.)	Reason
1,3,5-Trinitrobenzene	99-35-4	2	4.85	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	6.04	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	6.50	Poor instrument integration
o-Nitrotoluene	88-72-2	2	15.44	Poor instrument integration
PETN	78-11-5	2	18.51	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067847.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067847.D\dad1A.ch
Acq On : 03-Feb-2020, 12:19:26 Operator: williamh
Sample : CC1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 3 15:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Feb 03 15:30:40 2020
Response via : Multiple Level Calibration





QEdit

(6) 1,3,5-Trinitrobenzene

4.85min 1139.441ppb

response 4412340

(6) 1,3,5-Trinitrobenzene #2

4.85min 1069.249ppb m

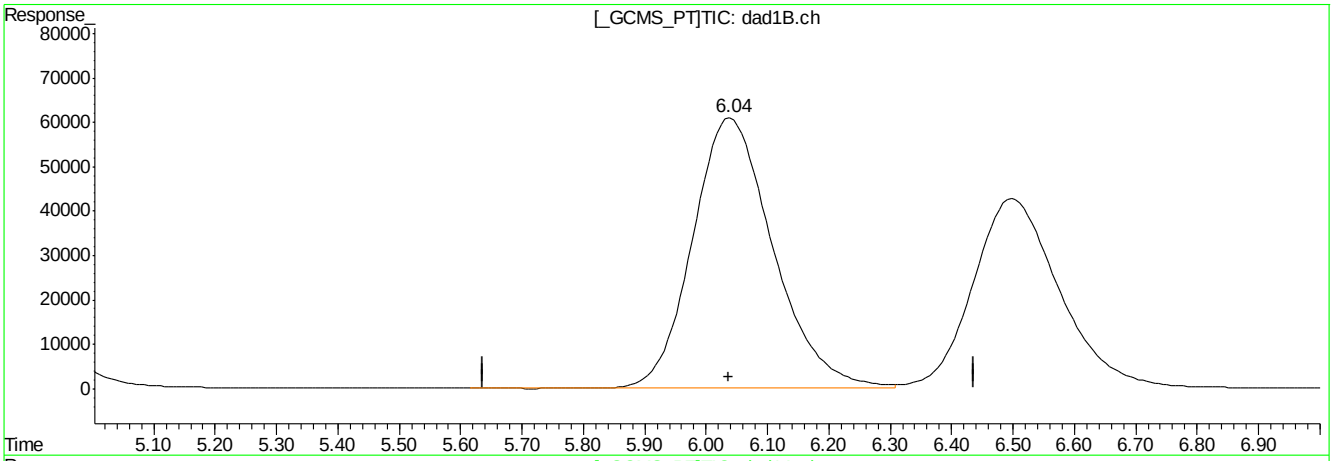
response 8004075

(+) = Expected Retention Time
BB067847.D 8330B_012120_PLUS.M Mon Feb 03 15:31:07 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067847.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067847.D\dad1A.ch
Acq On : 03-Feb-2020, 12:19:26 Operator: williamh
Sample : CC1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 3 15:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Feb 03 15:30:40 2020
Response via : Multiple Level Calibration



(7) 1,3-Dinitrobenzene

6.04min 1073.245ppb

response 5555785

(7) 1,3-Dinitrobenzene #2

6.04min 1015.782ppb m

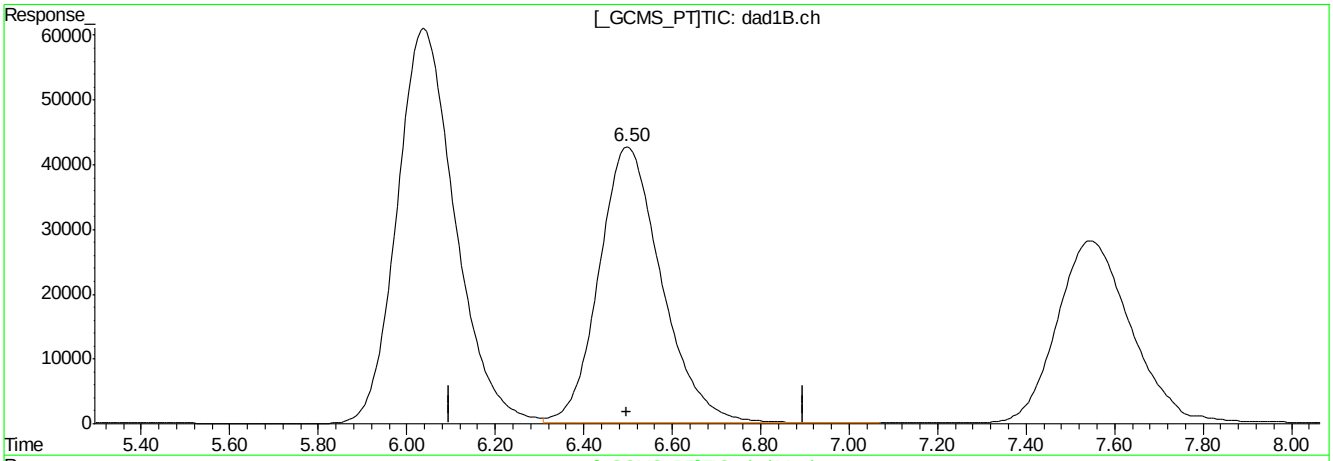
response 3731938

(+) = Expected Retention Time
BB067847.D 8330B_012120_PLUS.M Mon Feb 03 15:31:15 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067847.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067847.D\dad1A.ch
Acq On : 03-Feb-2020, 12:19:26 Operator: williamh
Sample : CC1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 3 15:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Feb 03 15:30:40 2020
Response via : Multiple Level Calibration



(8) 3,5-Dinitroaniline

6.50min 1054.752ppb

response 4205193

(8) 3,5-Dinitroaniline #2

6.50min 1013.546ppb m

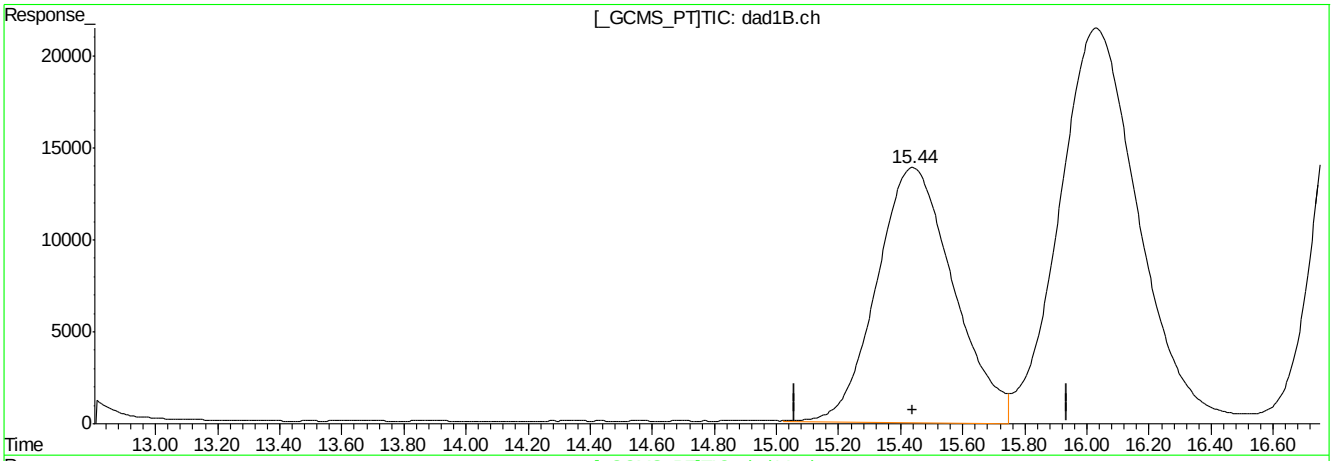
response 6958923

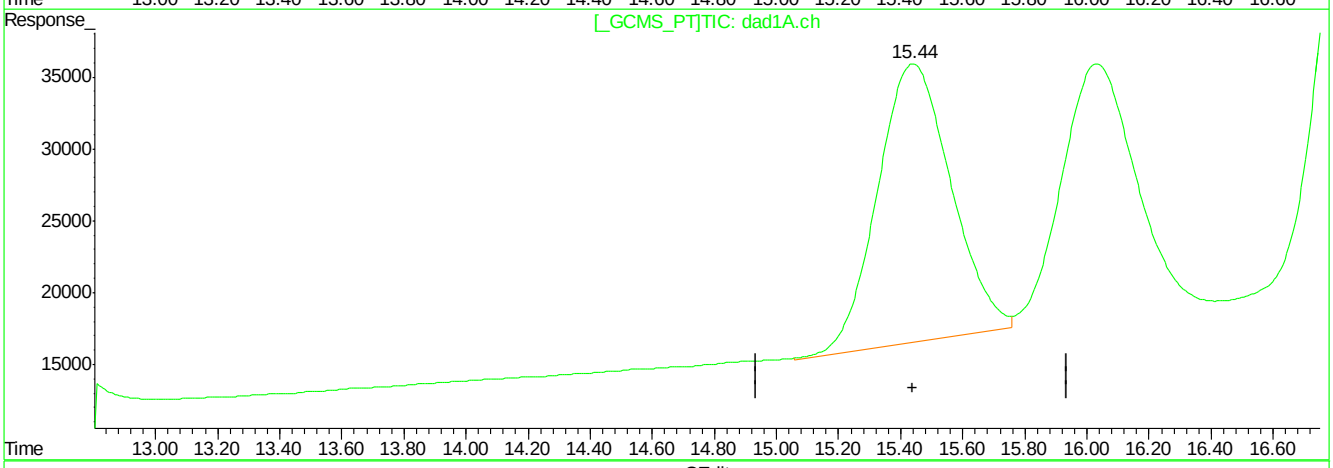
(+) = Expected Retention Time
BB067847.D 8330B_012120_PLUS.M Mon Feb 03 15:31:20 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067847.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067847.D\dad1A.ch
Acq On : 03-Feb-2020, 12:19:26 Operator: williamh
Sample : CC1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 3 15:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Feb 03 15:30:40 2020
Response via : Multiple Level Calibration





QEdit

(18) o-Nitrotoluene

15.44min 1092.291ppb

response 2376634

(18) o-Nitrotoluene #2

15.44min 1138.608ppb m

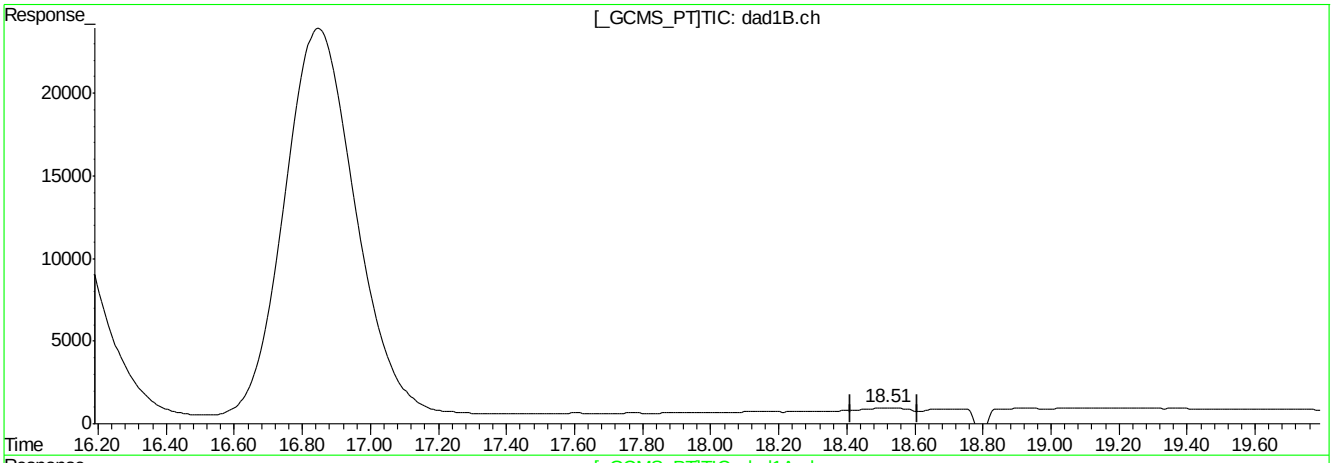
response 3189853

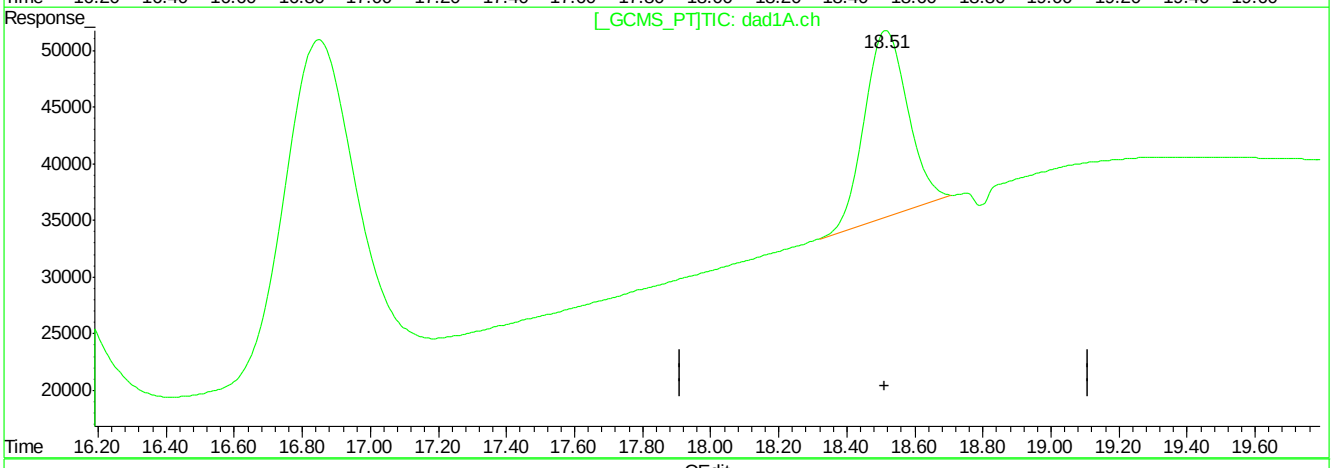
(+) = Expected Retention Time
BB067847.D 8330B_012120_PLUS.M Mon Feb 03 15:31:40 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067847.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067847.D\dad1A.ch
Acq On : 03-Feb-2020, 12:19:26 Operator: williamh
Sample : CC1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 3 15:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Feb 03 15:30:40 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

18.52min 0.000ppb

response 838198

(21) PETN #2

18.51min 2422.352ppb m

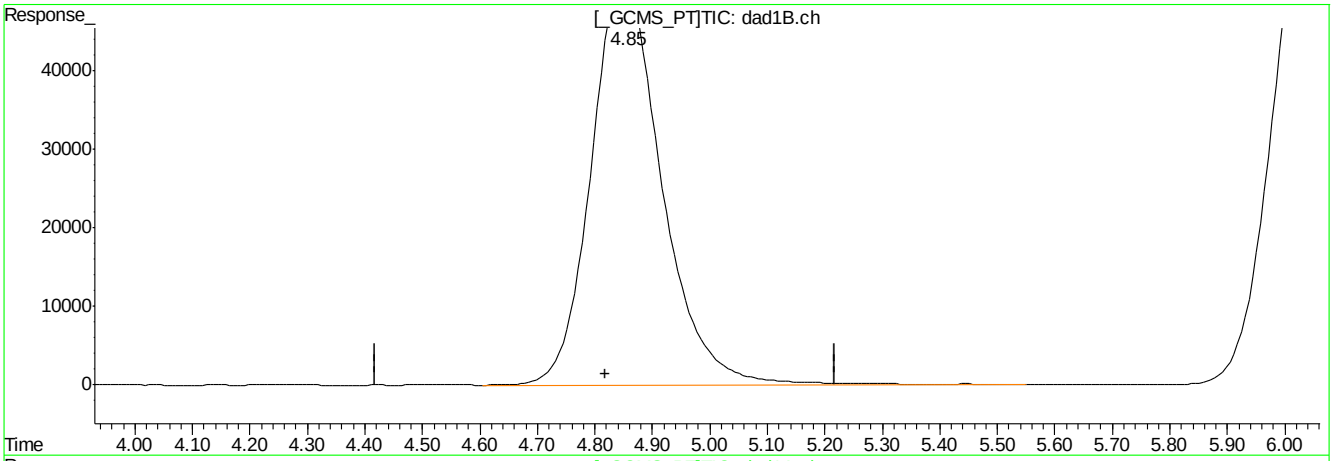
response 1448725

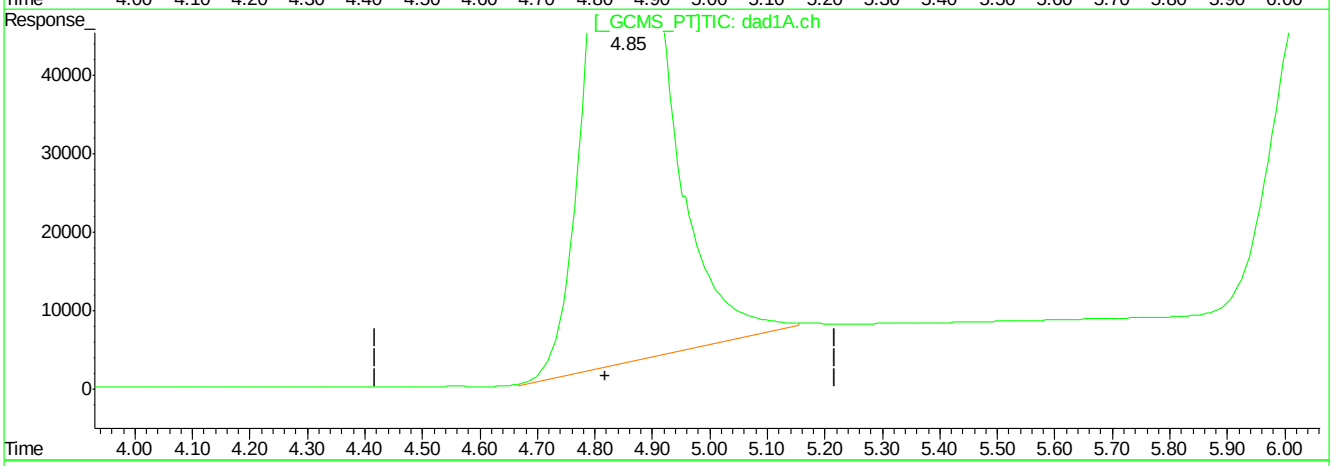
(+) = Expected Retention Time
BB067847.D 8330B_012120_PLUS.M Mon Feb 03 15:31:49 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067847.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067847.D\dad1A.ch
Acq On : 03-Feb-2020, 12:19:26 Operator: williamh
Sample : CC1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(6) 1,3,5-Trinitrobenzene

4.85min 1139.441ppb

response 4412340

(6) 1,3,5-Trinitrobenzene #2

4.85min 1083.971ppb m

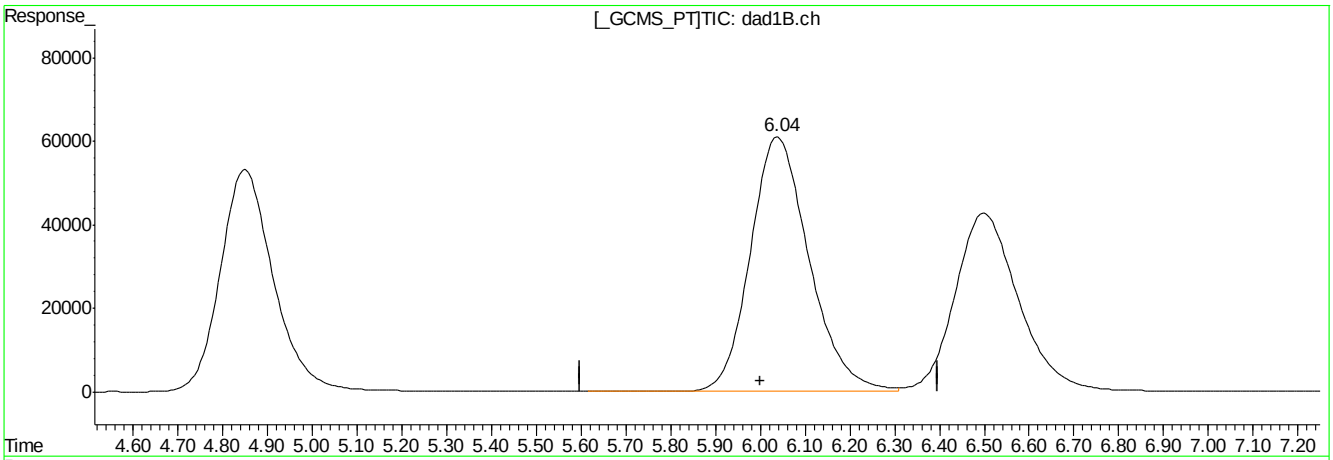
response 8114277

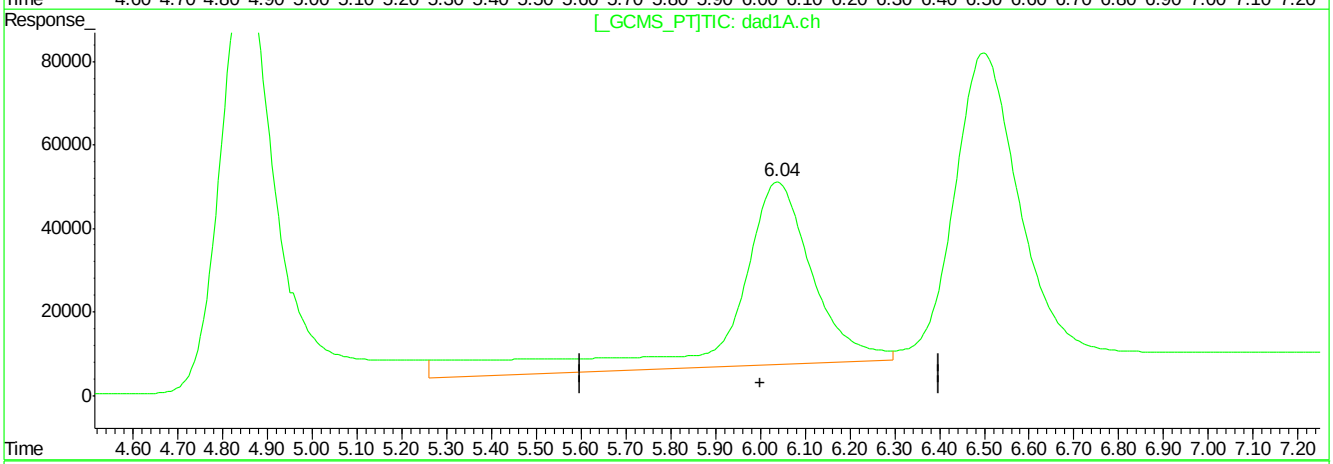
(+) = Expected Retention Time
BB067847.D 8330B_012120_PLUS.M Tue Feb 04 09:36:09 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067847.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067847.D\dad1A.ch
Acq On : 03-Feb-2020, 12:19:26 Operator: williamh
Sample : CC1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

6.04min 1073.245ppb

response 5555785

(7) 1,3-Dinitrobenzene #2

6.04min 1497.719ppb

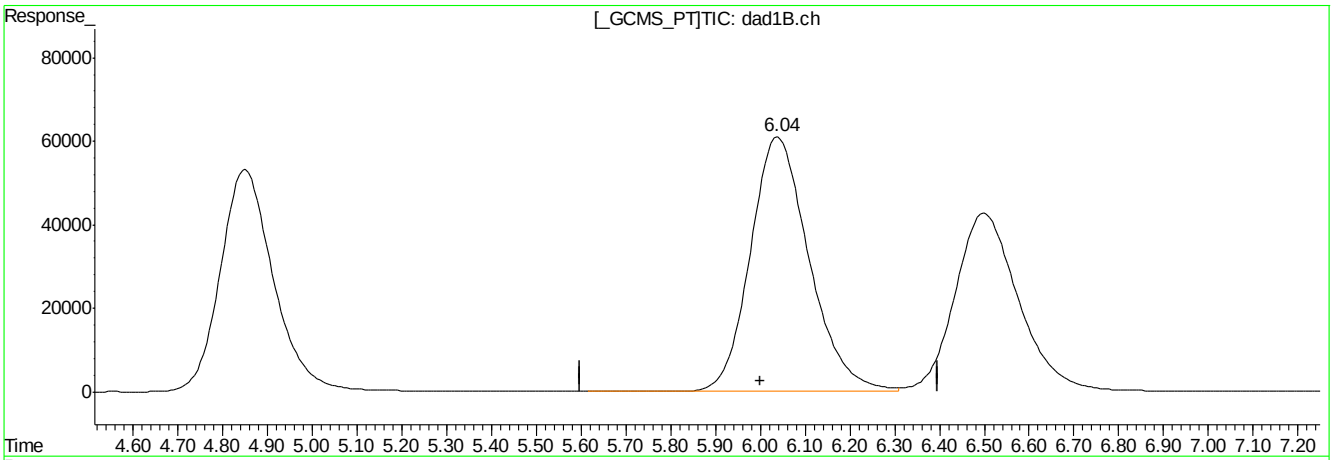
response 5502557

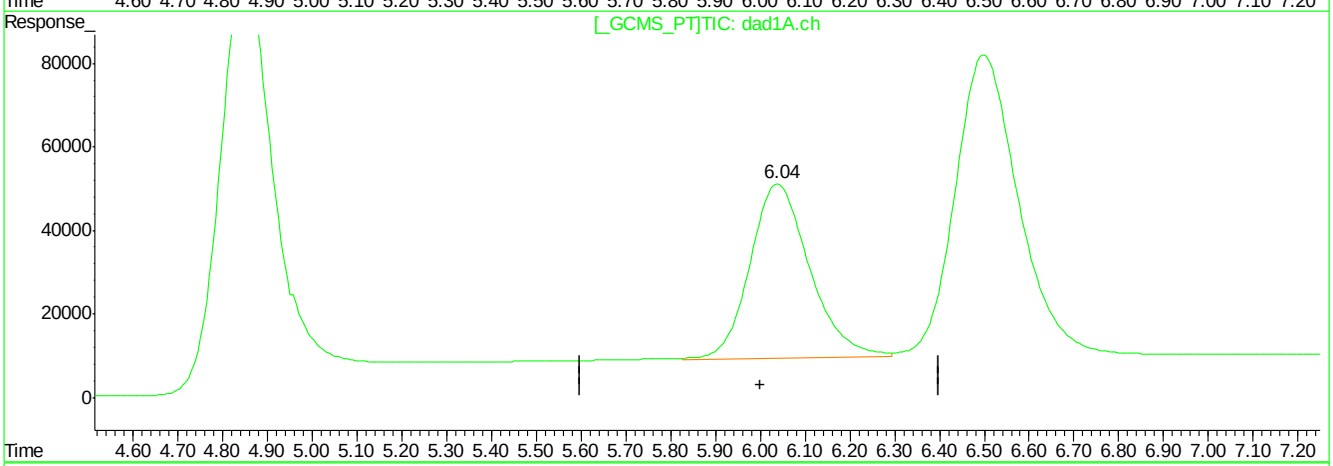
(+) = Expected Retention Time
BB067847.D 8330B_012120_PLUS.M Tue Feb 04 09:36:14 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067847.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067847.D\dad1A.ch
Acq On : 03-Feb-2020, 12:19:26 Operator: williamh
Sample : CC1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

6.04min 1073.245ppb

response 5555785

(7) 1,3-Dinitrobenzene #2

6.04min 1048.846ppb m

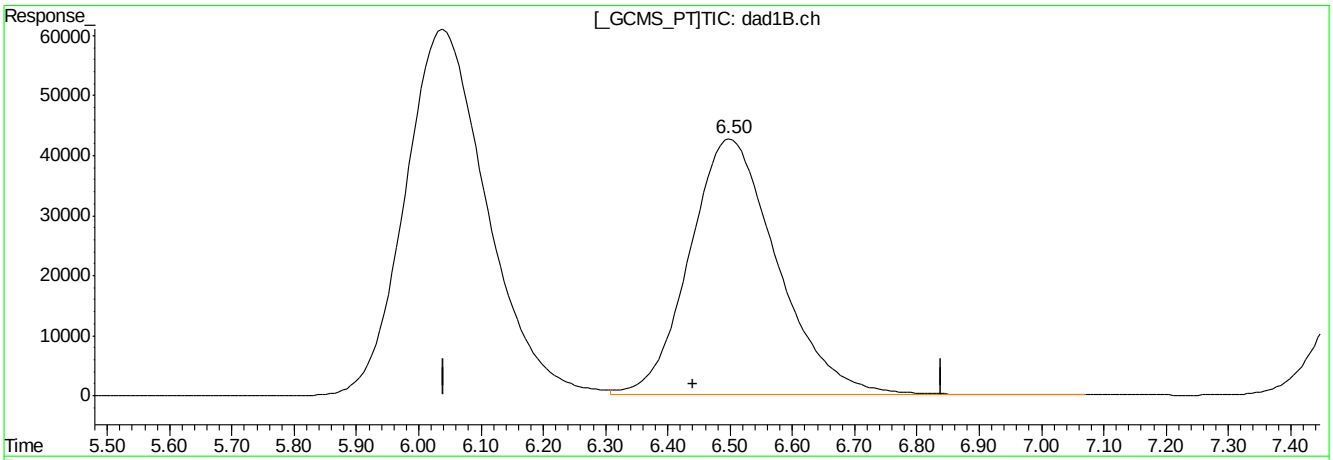
response 3853414

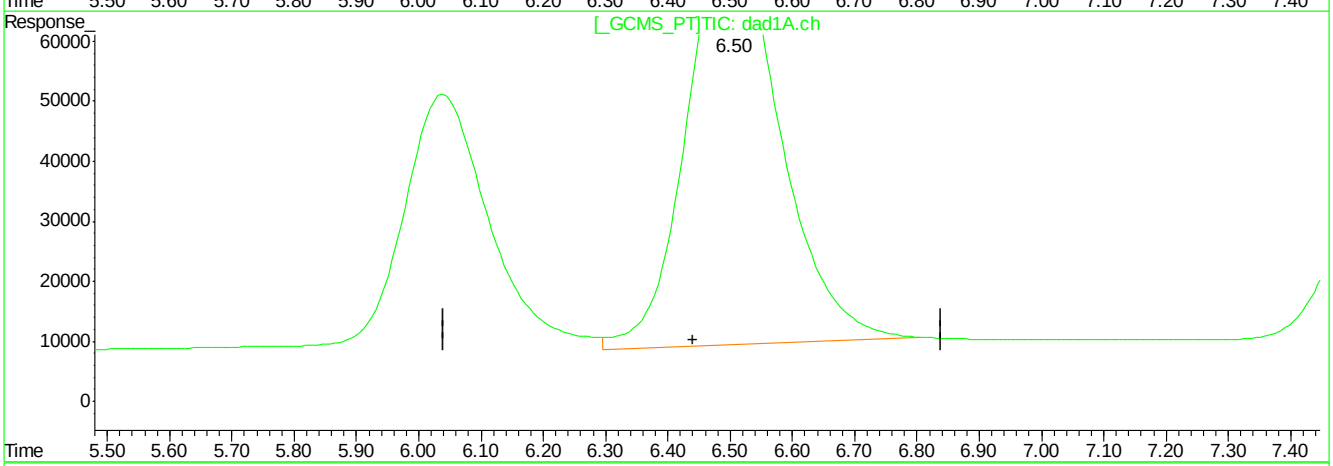
(+) = Expected Retention Time
BB067847.D 8330B_012120_PLUS.M Tue Feb 04 09:36:21 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067847.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067847.D\dad1A.ch
Acq On : 03-Feb-2020, 12:19:26 Operator: williamh
Sample : CC1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.50min 1054.752ppb

response 4205193

(8) 3,5-Dinitroaniline #2

6.50min 1046.636ppb

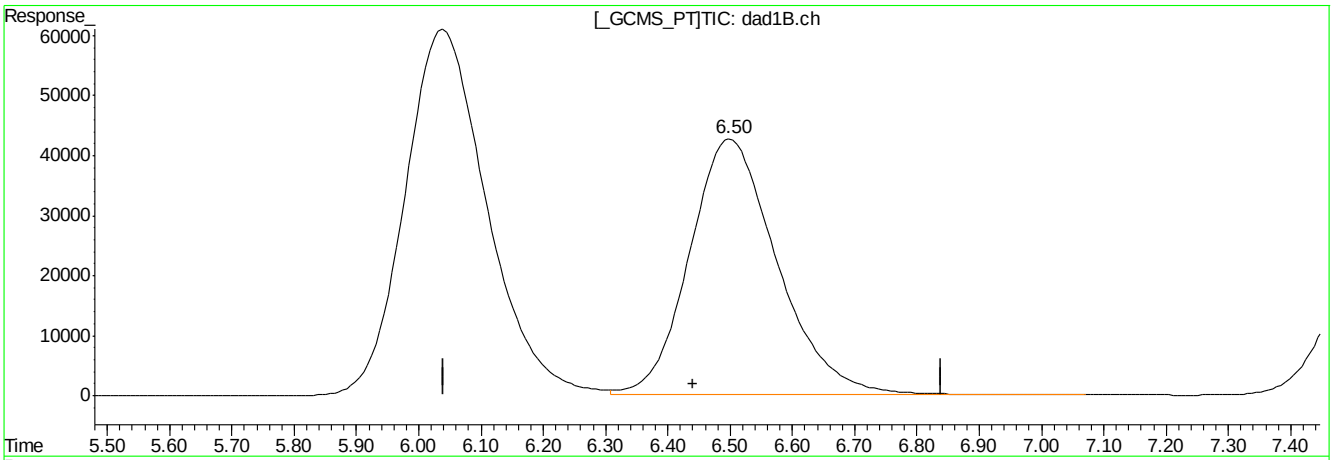
response 7186112

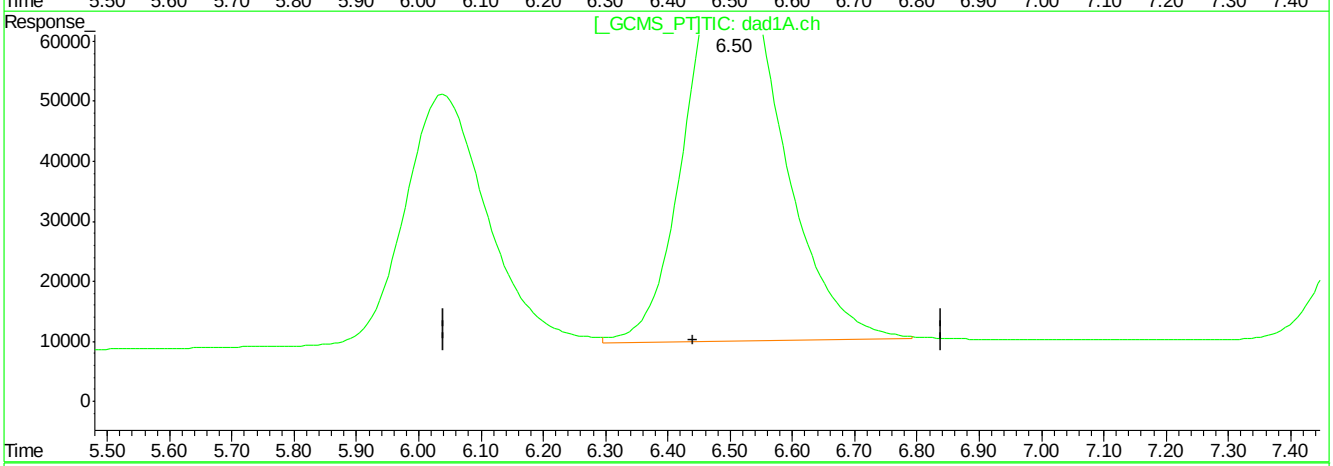
(+) = Expected Retention Time
BB067847.D 8330B_012120_PLUS.M Tue Feb 04 09:36:27 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067847.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067847.D\dad1A.ch
Acq On : 03-Feb-2020, 12:19:26 Operator: williamh
Sample : CC1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.50min 1054.752ppb

response 4205193

(8) 3,5-Dinitroaniline #2

6.50min 1021.855ppb m

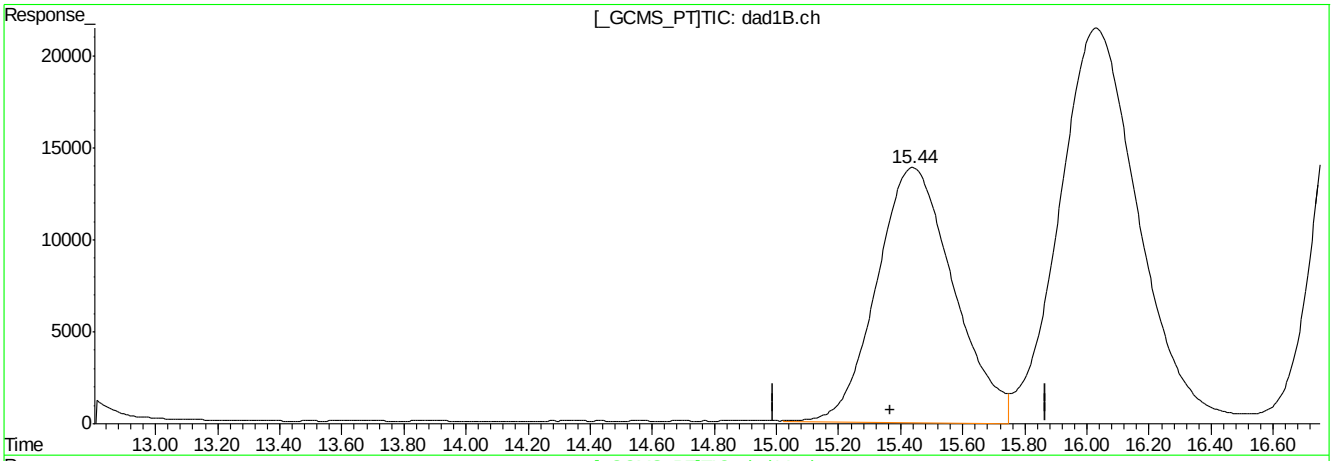
response 7015971

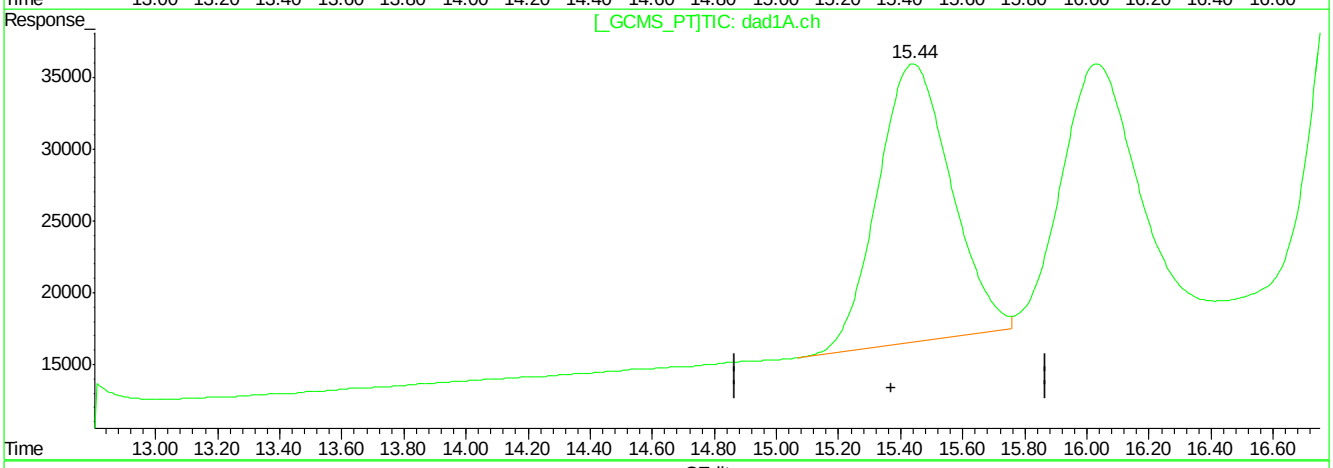
(+) = Expected Retention Time
BB067847.D 8330B_012120_PLUS.M Tue Feb 04 09:36:32 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067847.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067847.D\dad1A.ch
Acq On : 03-Feb-2020, 12:19:26 Operator: williamh
Sample : CC1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(18) o-Nitrotoluene

15.44min 1092.291ppb

response 2376634

(18) o-Nitrotoluene #2

15.44min 1135.212ppb m

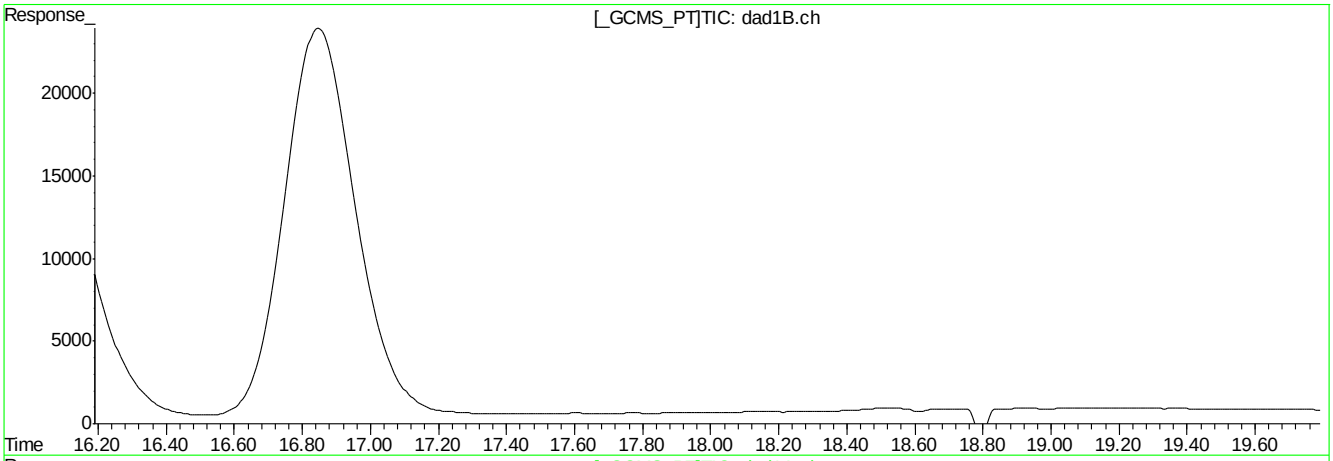
response 3180338

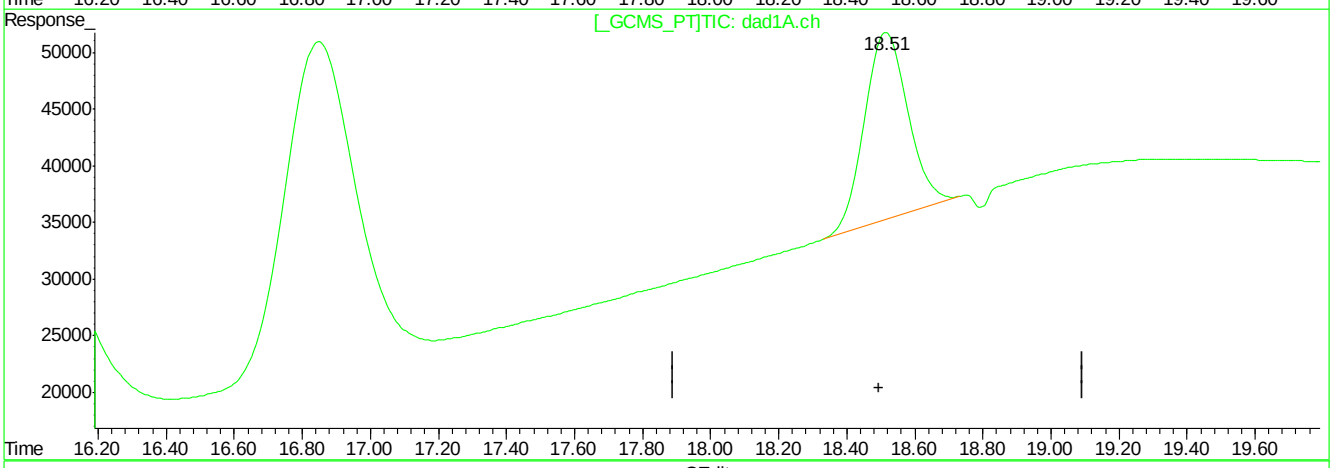
(+) = Expected Retention Time
BB067847.D 8330B_012120_PLUS.M Tue Feb 04 09:37:28 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067847.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067847.D\dad1A.ch
Acq On : 03-Feb-2020, 12:19:26 Operator: williamh
Sample : CC1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb d

response 0

(21) PETN #2

18.51min 2428.900ppb m

response 1452641

(+) = Expected Retention Time
BB067847.D 8330B_012120_PLUS.M Tue Feb 04 09:37:38 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
02/05/20 12:18

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067858.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067858.D\dad1A.ch
Acq On : 03-Feb-2020, 17:49:04 Operator: williamh
Sample : CC1975-1000 Inst : G1315B
Misc : op78763,GBB1981,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 04 09:30:16 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	11.29	11.29	2223139	3778474	1125.874	1091.475
	Spiked Amount 500.000	Range 70 - 136		Recovery =		225.17%#	218.29%#
	Target Compounds						
1)	TNX	1.37	1.37	2330228	3651148	978.229	1020.245
2)	HMX	1.52	1.52	1672076	4650174	1099.818	1079.888
3)	DNX	1.75	1.75	1388536	2250278	950.358	1001.248
4)	MNX	2.36	2.36	2282966	3529789	1000.401	993.162
5)	RDX	2.99	2.99	1972409	3192485	1030.157	1027.502
6)	1,3,5-Trinitrobe	4.80	4.80	4426599	8099753	1143.123	1082.031m
7)	1,3-Dinitrobenze	5.98	5.98	5549786	3811316	1072.086	1037.387m
8)	3,5-Dinitroanili	6.40	6.39	4215502	6977255	1057.338	1016.216m
9)	Nitrobenzene	7.47	7.47	3270941	3220025	1045.788	1047.478
10)	Nitroglycerin	0.00	8.96	0	1305897	N.D.	1123.496 #
11)	Tetryl	9.60	9.60	3099520	4934505	1199.740	1161.451
12)	2,4,6-Trinitroto	10.00	10.00	3956957	4725079	1125.127	1155.392
13)	2-Amino-4,6-Dini	10.44	10.44	3546313	5165394	1098.338	1043.732
14)	4-Amino-2,6-Dini	10.91	10.91	2547445	4941929	1085.463	1067.120
16)	2,4-Dinitrotolue	11.92	11.93	4868596	3073659	1121.097	1050.920
17)	2,6-Dinitrotolue	12.35	12.35	2944281	3802092	1130.096	1123.232
18)	o-Nitrotoluene	15.29	15.29	2295462	2821645	1054.984	1007.178
19)	p-Nitrotoluene	15.88	15.88	3640493	2907878	1081.547	1001.984
20)	m-Nitrotoluene	16.72	16.72	3404987	4111392	1107.046	1113.022m
21)	PETN	0.00	18.47	0	1478852	N.D. d	2472.727m

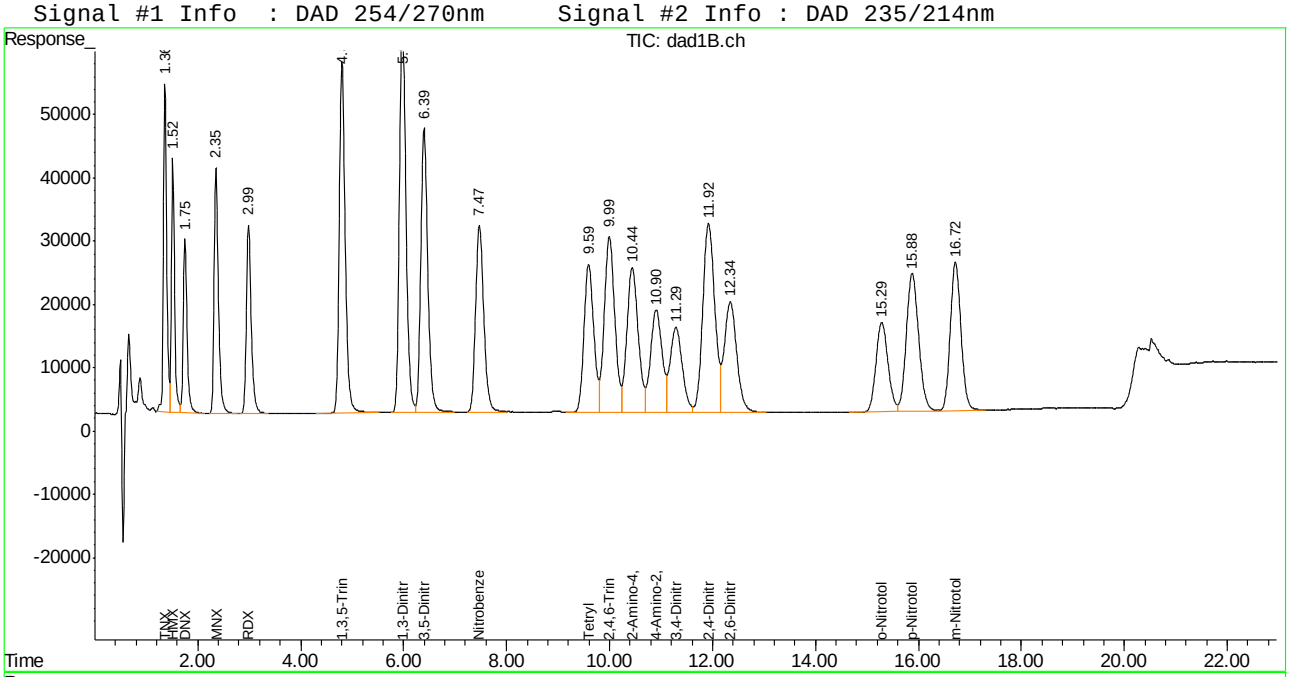
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB067858.D 8330B_012120_PLUS.M Tue Feb 04 11:21:44 2020 Page 1

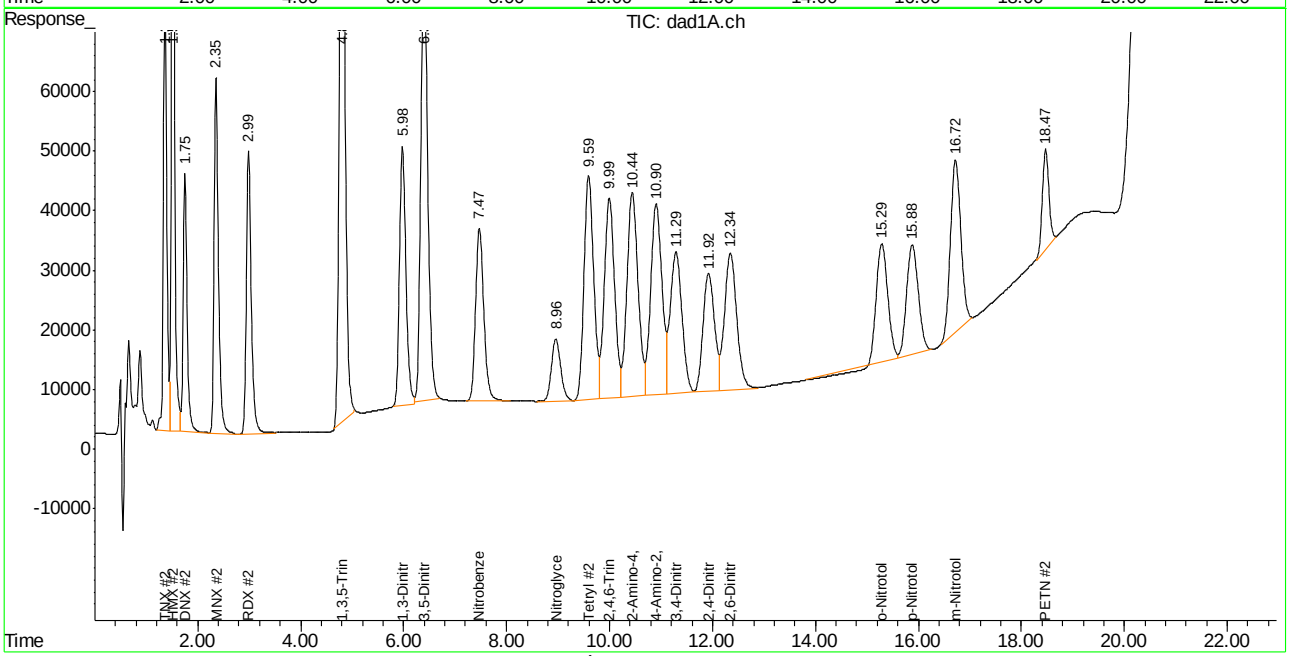
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067858.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067858.D\dad1A.ch
Acq On : 03-Feb-2020, 17:49:04 Operator: williamh
Sample : CC1975-1000 Inst : G1315B
Misc : op78763,GBB1981,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:39 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

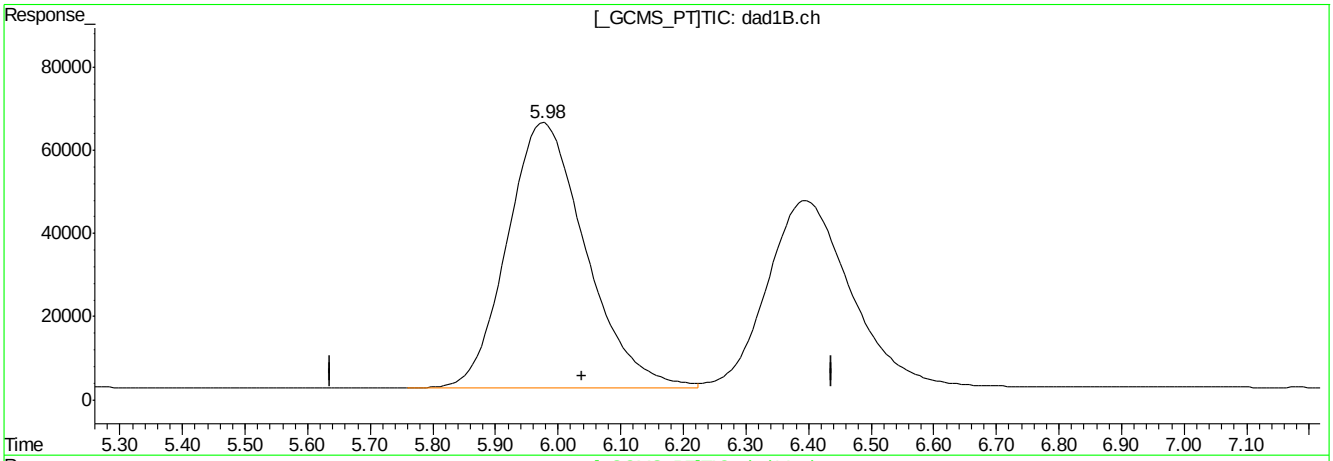
Sample Number: GBB1981-CC1975
Lab FileID: BB067858.D
Injection Time: 02/03/20 17:49
Method: SW846 8330B
Analyst approved: 02/04/20 11:36 William Hustedde
Supervisor approved: 02/05/20 12:18 Naresh Jiawan

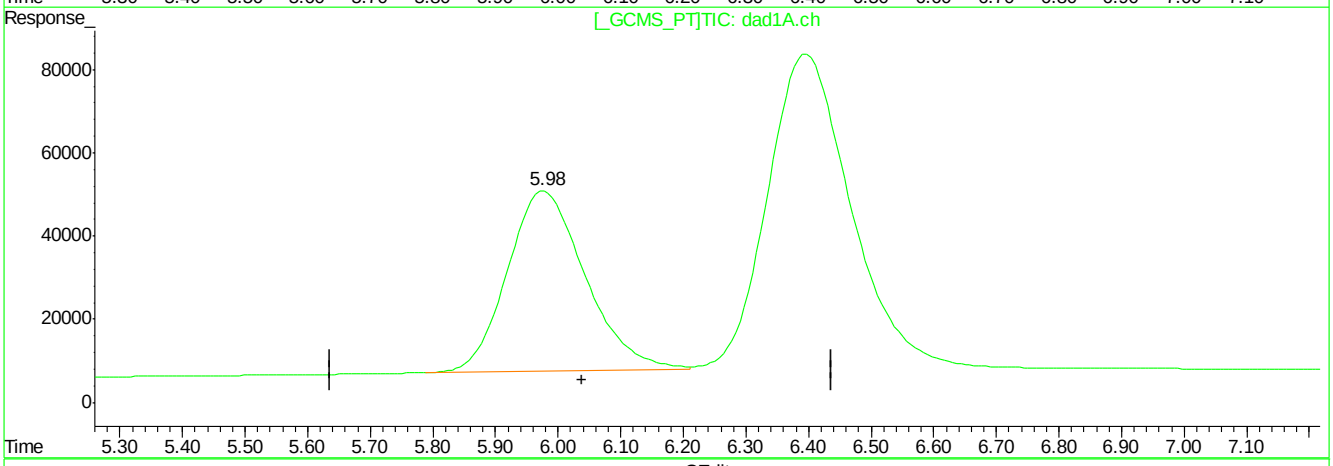
Parameter	CAS	Sig#	R.T. (min.)	Reason
1,3,5-Trinitrobenzene	99-35-4	2	4.80	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	5.98	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	6.39	Poor instrument integration
m-Nitrotoluene	99-08-1	2	16.72	Poor instrument integration
PETN	78-11-5	2	18.47	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067858.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067858.D\dad1A.ch
Acq On : 03-Feb-2020, 17:49:04 Operator: williamh
Sample : CC1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:13 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Feb 03 15:30:40 2020
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

5.98min 1072.086ppb

response 5549786

(7) 1,3-Dinitrobenzene #2

5.98min 1024.664ppb m

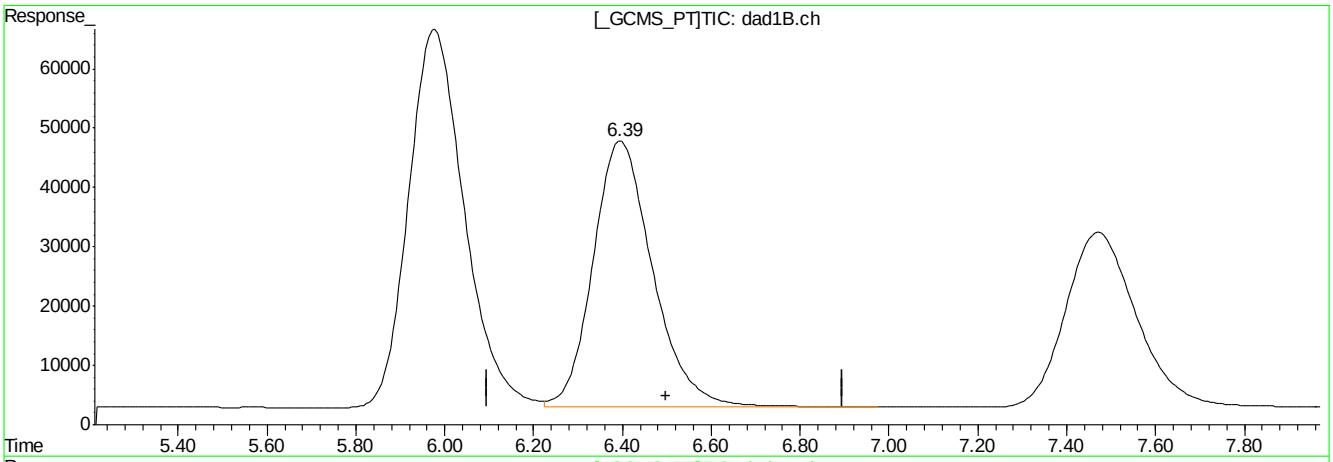
response 3764570

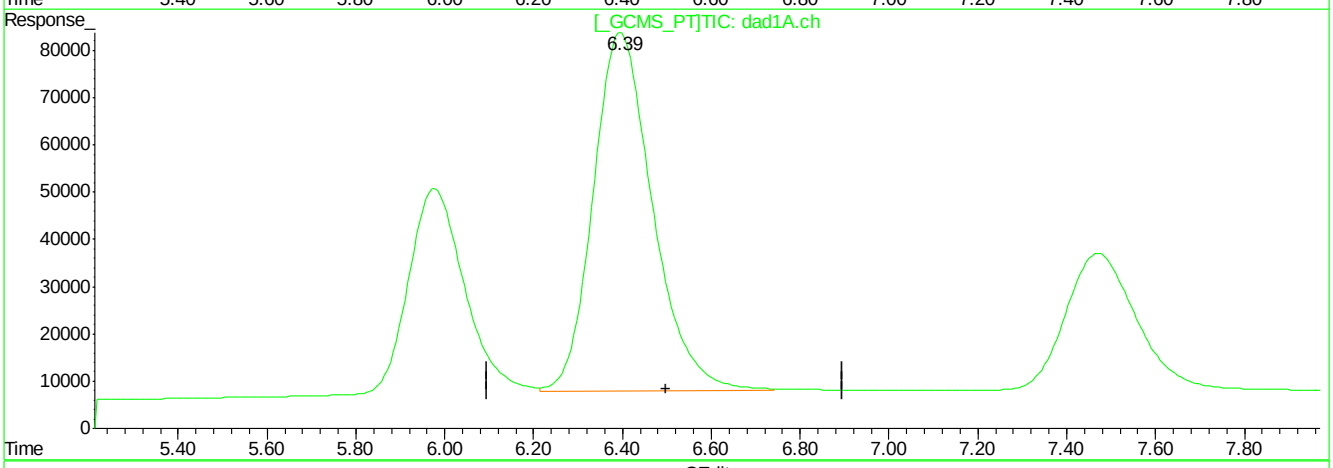
(+) = Expected Retention Time
BB067858.D 8330B_012120_PLUS.M Tue Feb 04 09:21:35 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067858.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067858.D\dad1A.ch
Acq On : 03-Feb-2020, 17:49:04 Operator: williamh
Sample : CC1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:13 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Feb 03 15:30:40 2020
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.40min 1057.338ppb

response 4215502

(8) 3,5-Dinitroaniline #2

6.39min 1023.195ppb m

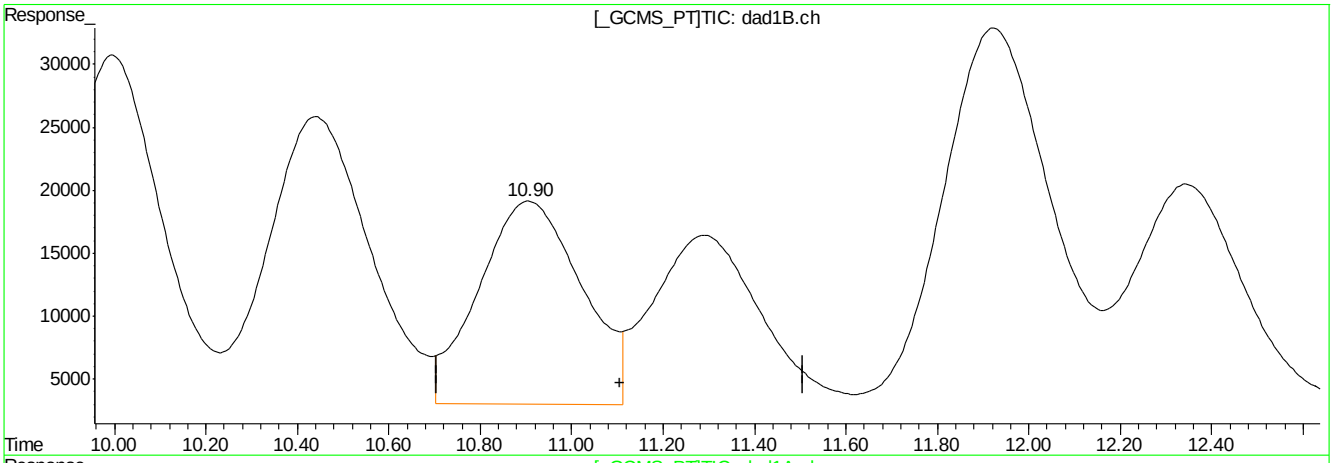
response 7025173

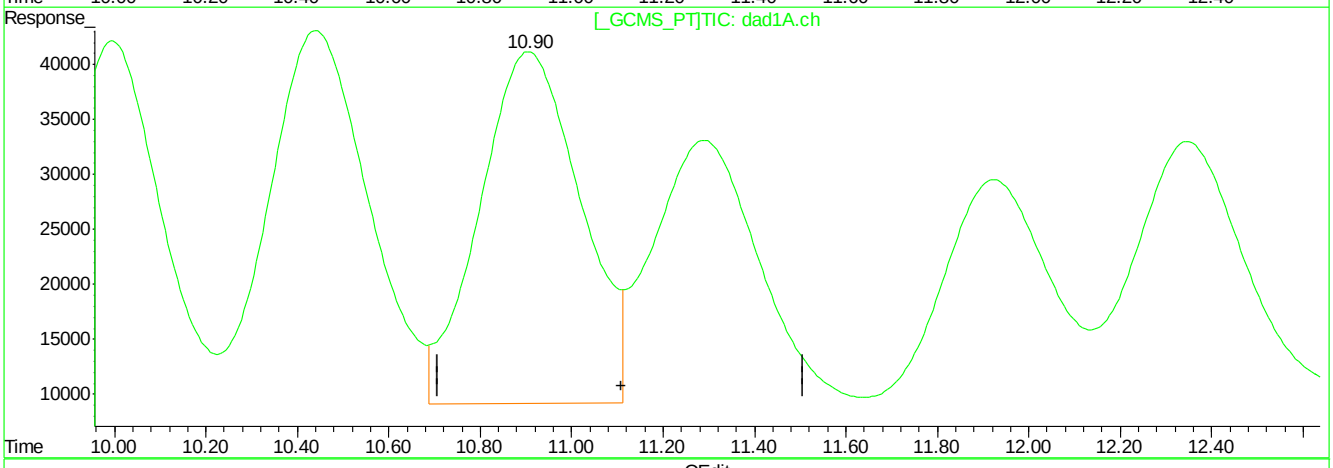
(+) = Expected Retention Time
BB067858.D 8330B_012120_PLUS.M Tue Feb 04 09:21:52 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067858.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067858.D\dad1A.ch
Acq On : 03-Feb-2020, 17:49:04 Operator: williamh
Sample : CC1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:13 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Feb 03 15:30:40 2020
Response via : Multiple Level Calibration





QEdit

(14) 4-Amino-2,6-Dinitrotoluene

10.90min 1084.512ppb m

response 2545212

(14) 4-Amino-2,6-Dinitrotoluene #2

10.90min 1065.724ppb m

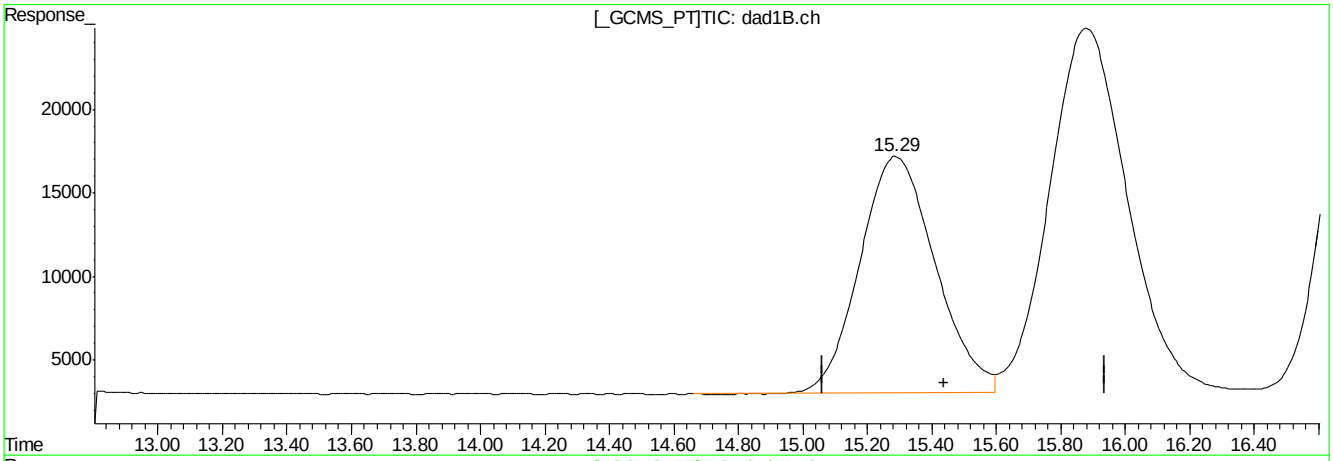
response 4935468

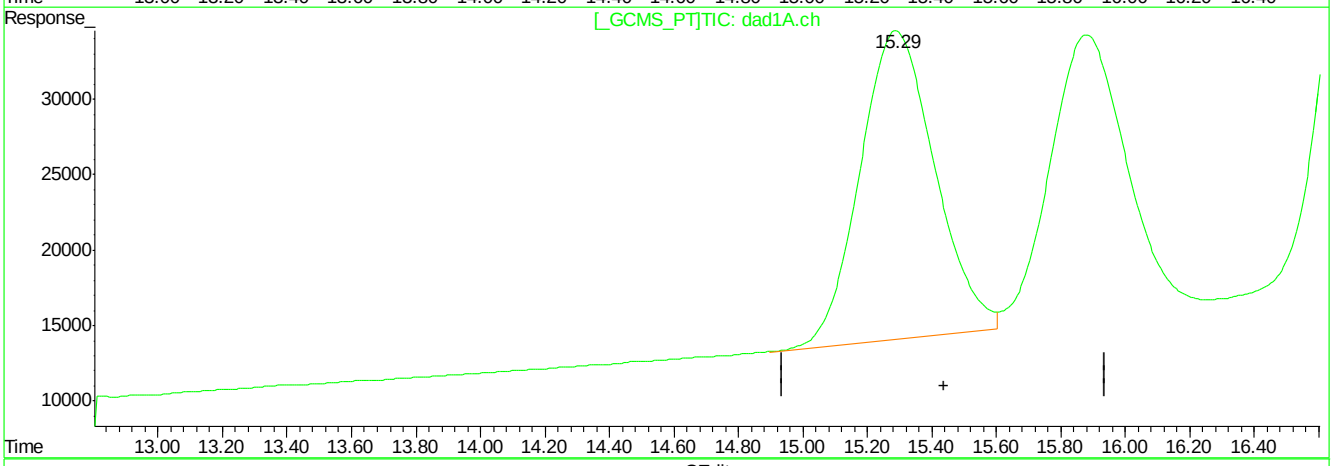
(+) = Expected Retention Time
BB067858.D 8330B_012120_PLUS.M Tue Feb 04 09:22:14 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067858.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067858.D\dad1A.ch
Acq On : 03-Feb-2020, 17:49:04 Operator: williamh
Sample : CC1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:13 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Feb 03 15:30:40 2020
Response via : Multiple Level Calibration





QEdit

(18) o-Nitrotoluene

15.29min 1054.984ppb

response 2295462

(18) o-Nitrotoluene #2

15.29min 1177.928ppb m

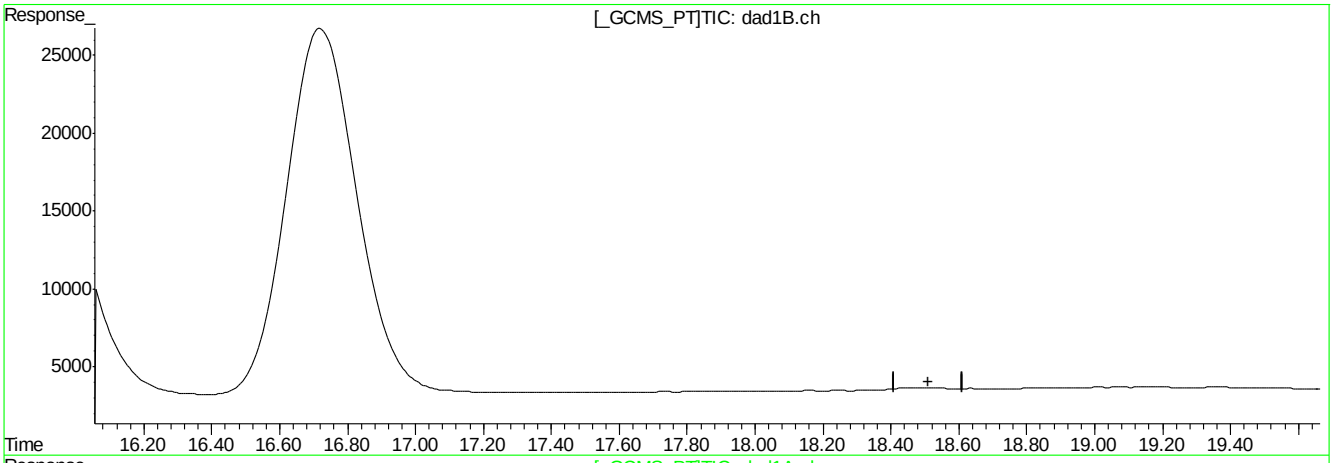
response 3300009

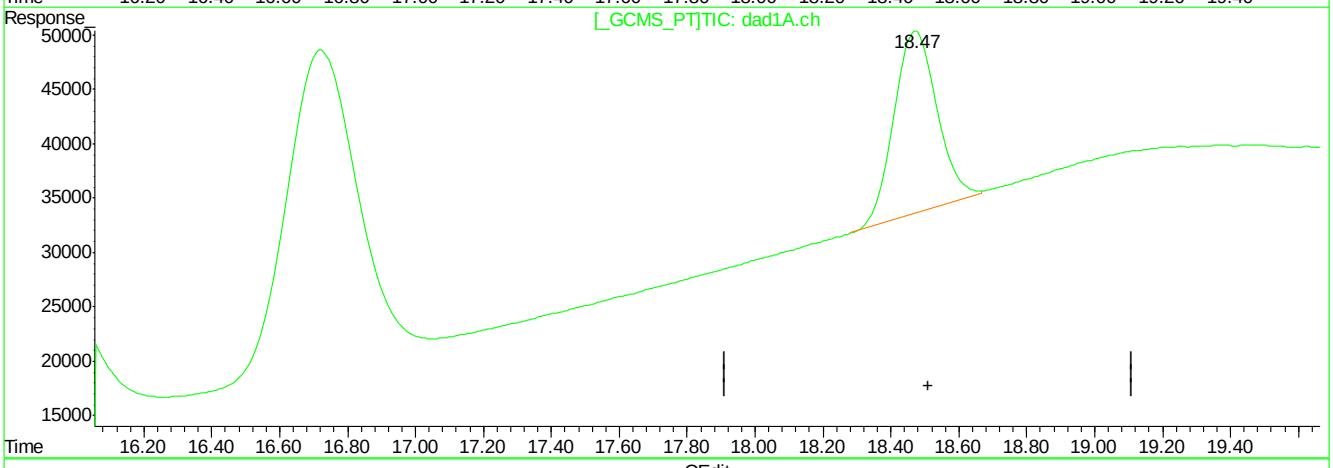
(+) = Expected Retention Time
BB067858.D 8330B_012120_PLUS.M Tue Feb 04 09:22:25 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067858.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067858.D\dad1A.ch
Acq On : 03-Feb-2020, 17:49:04 Operator: williamh
Sample : CC1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:13 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Feb 03 15:30:40 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb d

response 0

(21) PETN #2

18.47min 2434.239ppb m

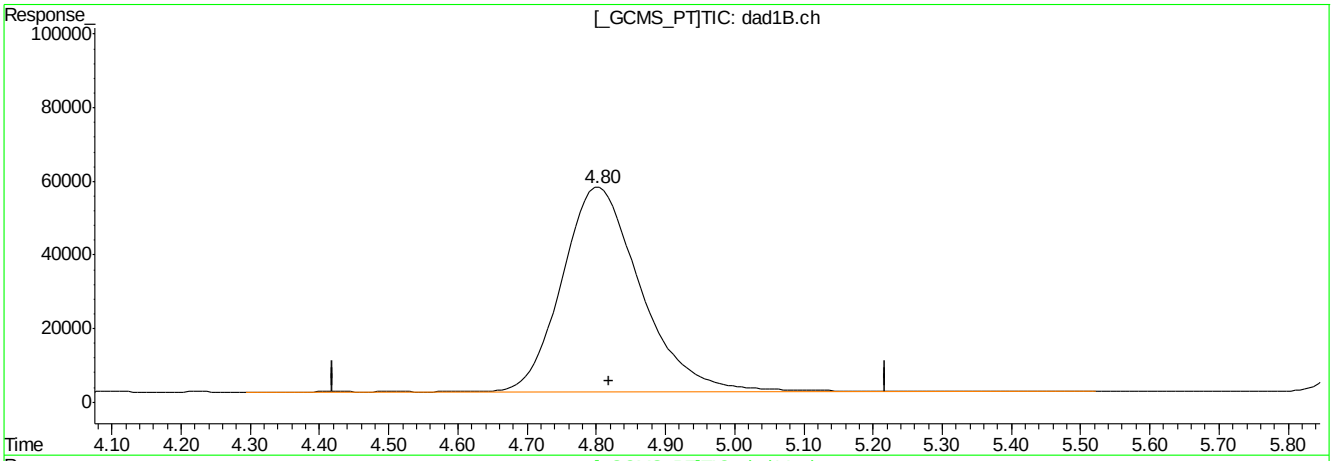
response 1455834

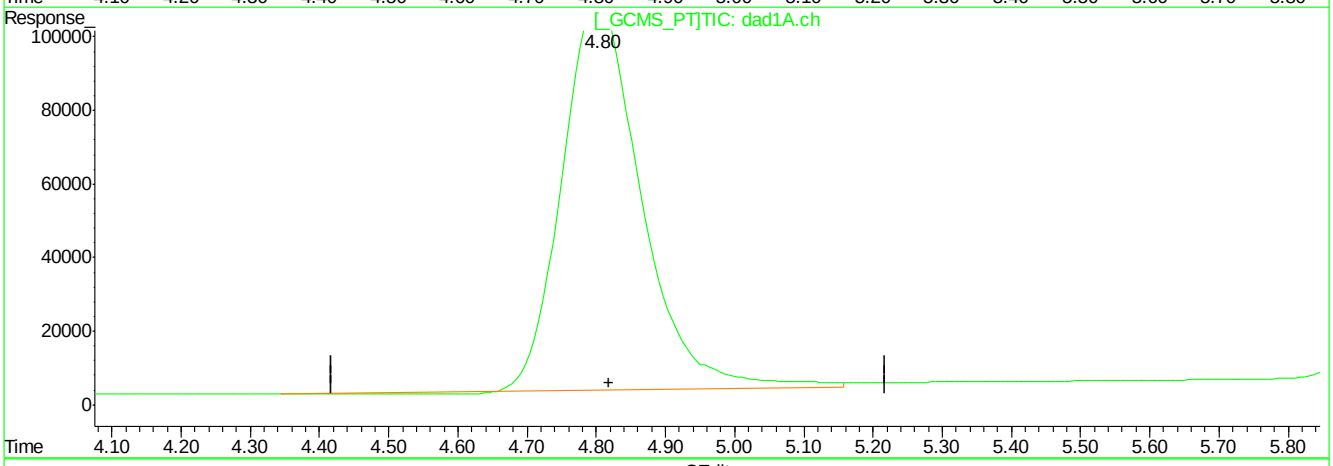
(+) = Expected Retention Time
BB067858.D 8330B_012120_PLUS.M Tue Feb 04 09:22:33 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067858.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067858.D\dad1A.ch
Acq On : 03-Feb-2020, 17:49:04 Operator: williamh
Sample : CC1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(6) 1,3,5-Trinitrobenzene

4.80min 1143.123ppb

response 4426599

(6) 1,3,5-Trinitrobenzene #2

4.80min 1118.177ppb

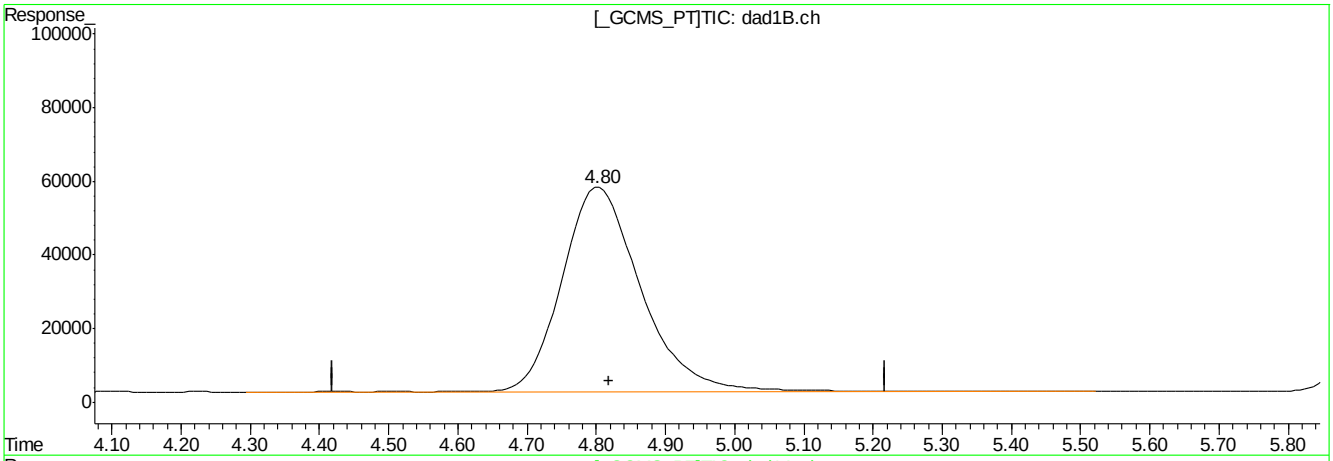
response 8370335

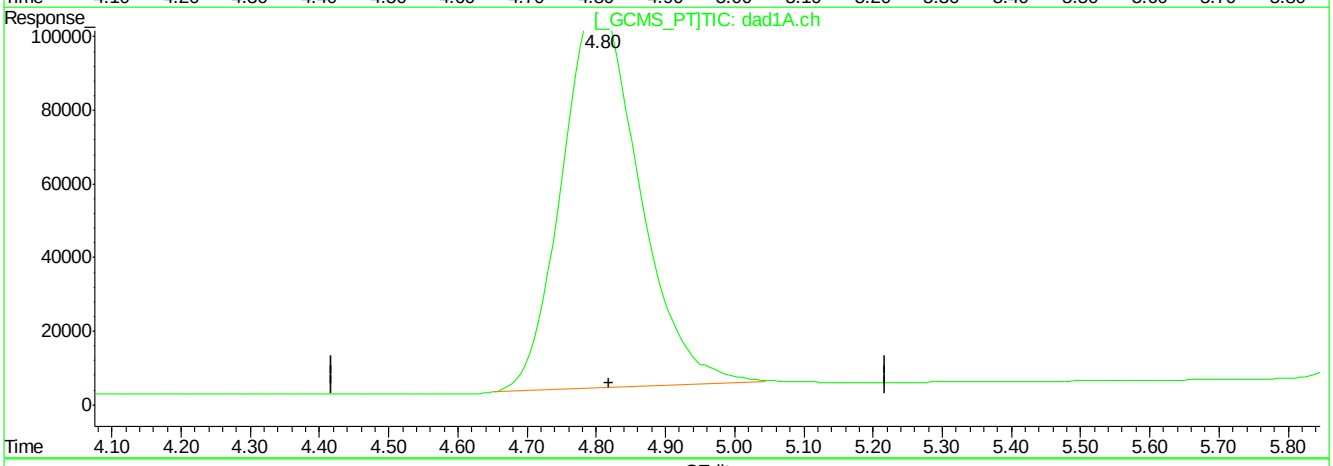
(+) = Expected Retention Time
BB067858.D 8330B_012120_PLUS.M Tue Feb 04 09:38:12 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067858.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067858.D\dad1A.ch
Acq On : 03-Feb-2020, 17:49:04 Operator: williamh
Sample : CC1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(6) 1,3,5-Trinitrobenzene

4.80min 1143.123ppb

response 4426599

(6) 1,3,5-Trinitrobenzene #2

4.80min 1082.031ppb m

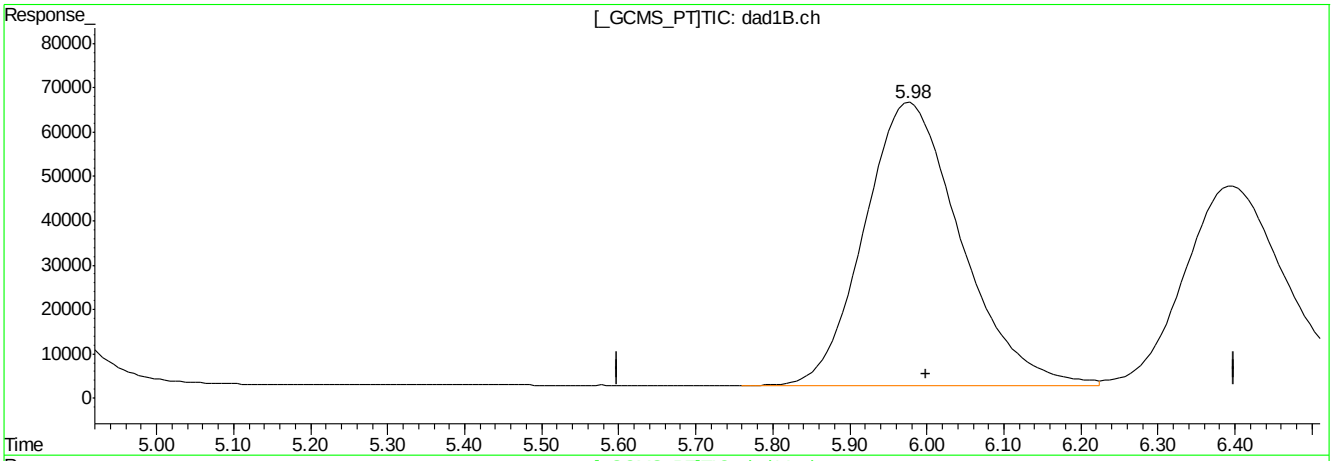
response 8099753

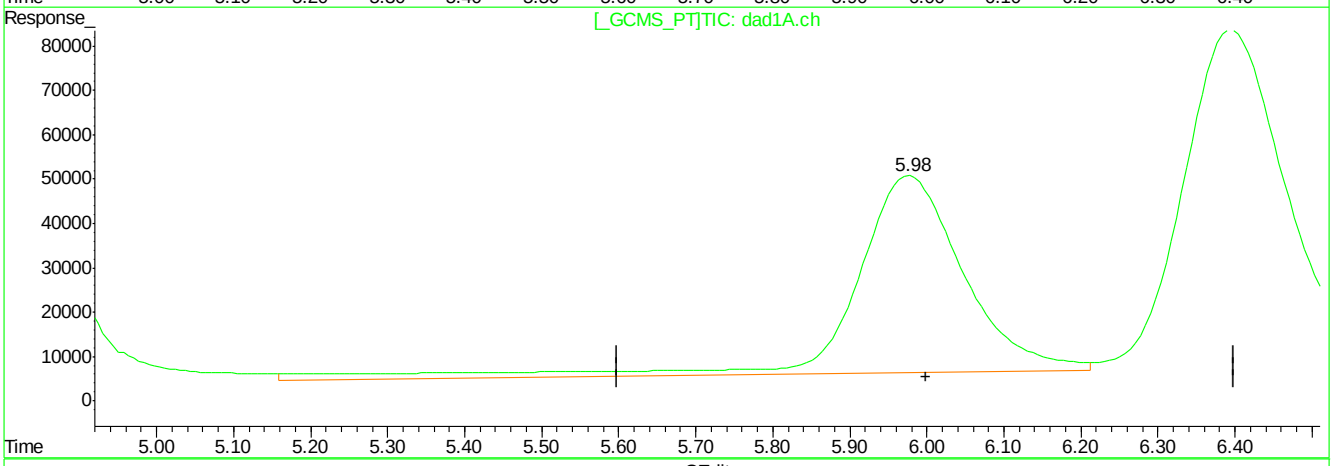
(+) = Expected Retention Time
BB067858.D 8330B_012120_PLUS.M Tue Feb 04 09:38:17 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067858.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067858.D\dad1A.ch
Acq On : 03-Feb-2020, 17:49:04 Operator: williamh
Sample : CC1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

5.98min 1072.086ppb

response 5549786

(7) 1,3-Dinitrobenzene #2

5.98min 1209.827ppb

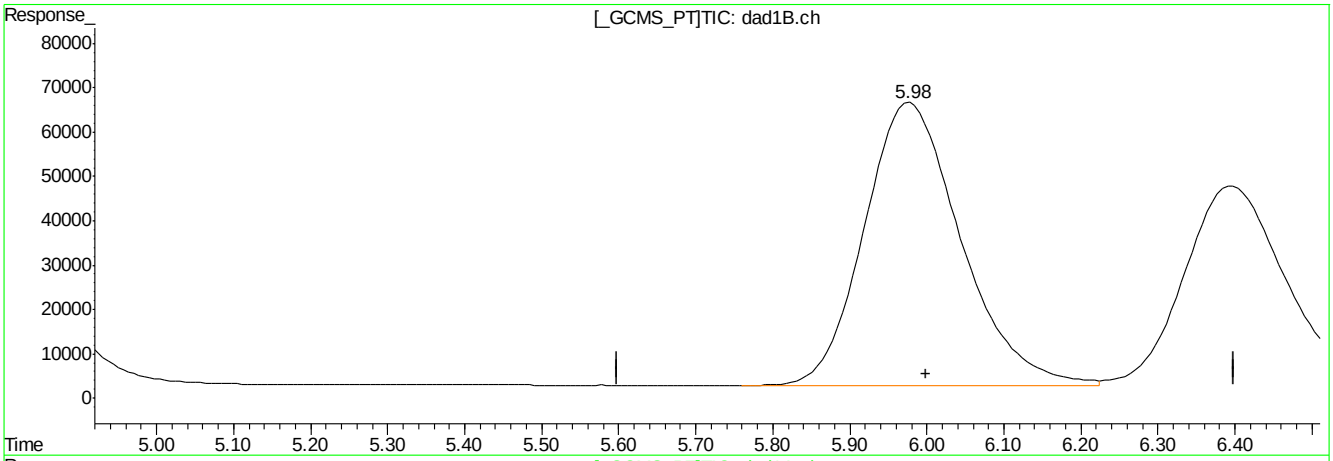
response 4444851

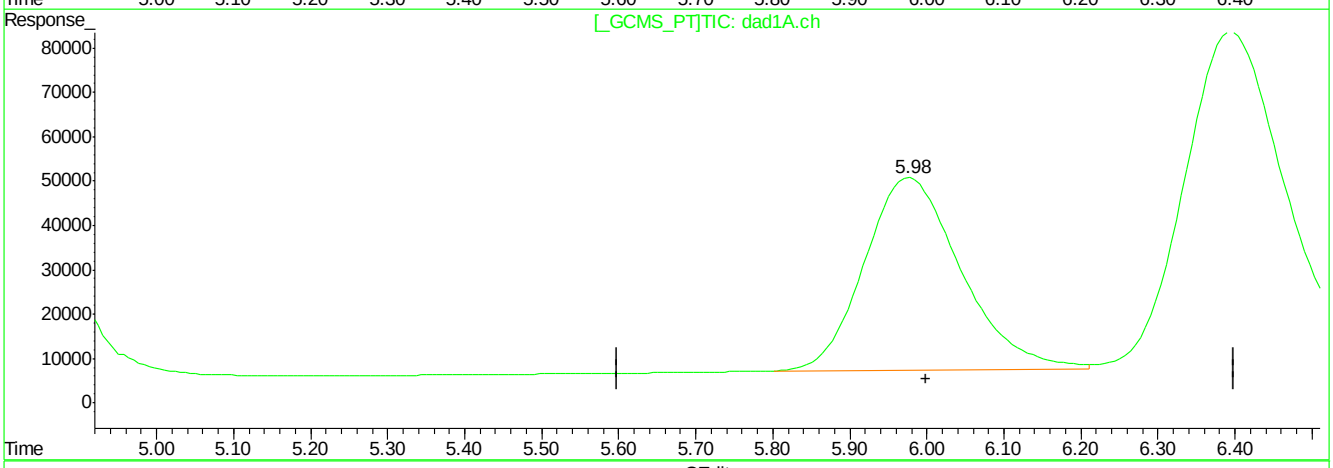
(+) = Expected Retention Time
BB067858.D 8330B_012120_PLUS.M Tue Feb 04 09:38:21 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067858.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067858.D\dad1A.ch
Acq On : 03-Feb-2020, 17:49:04 Operator: williamh
Sample : CC1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

5.98min 1072.086ppb

response 5549786

(7) 1,3-Dinitrobenzene #2

5.98min 1037.387ppb m

response 3811316

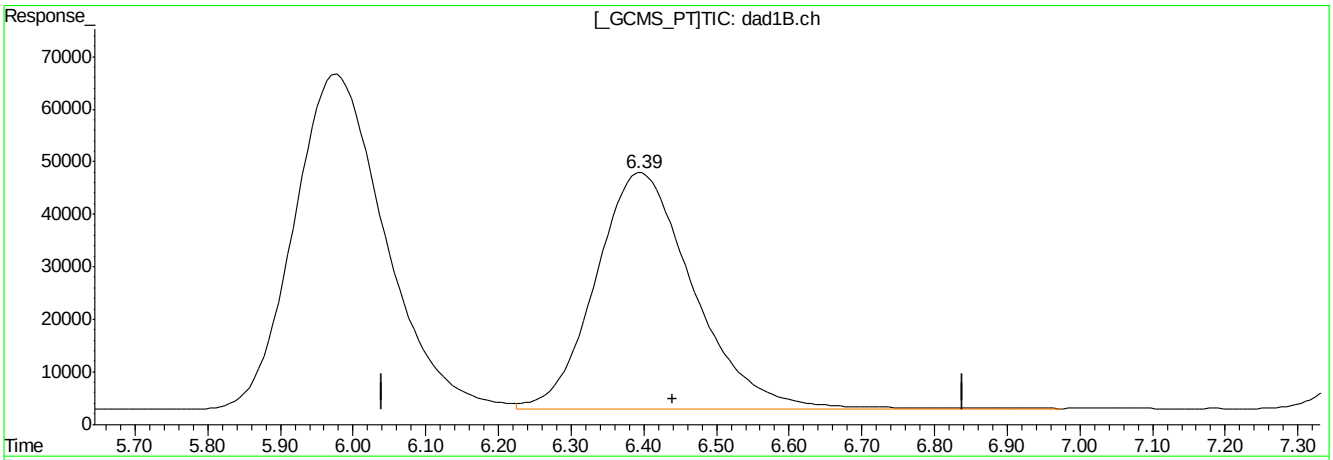
(+) = Expected Retention Time
BB067858.D 8330B_012120_PLUS.M Tue Feb 04 09:38:29 2020

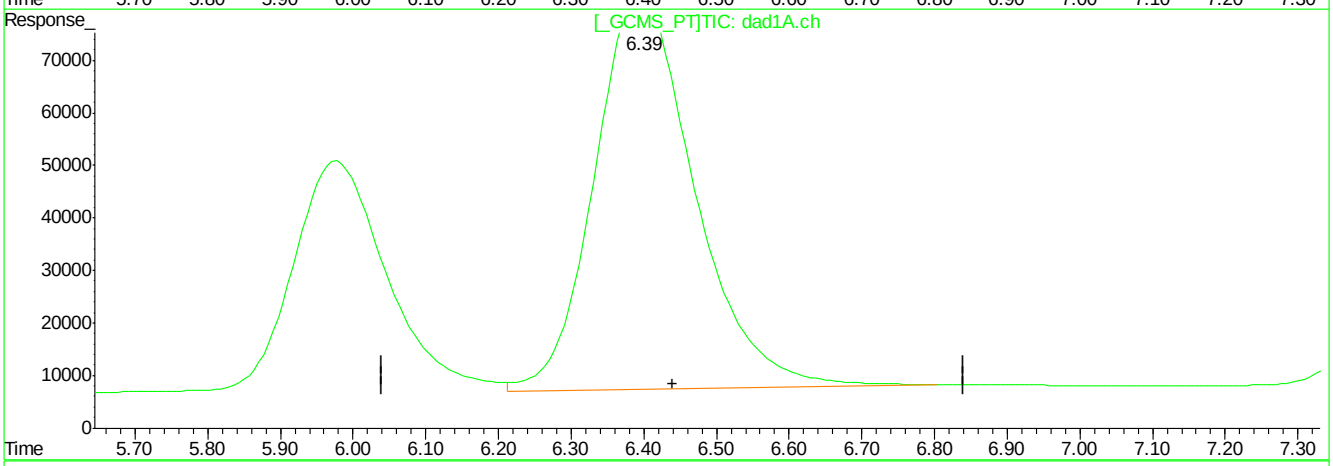
BB067858.D edits: 1,3-Dinitrobenzene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067858.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067858.D\dad1A.ch
Acq On : 03-Feb-2020, 17:49:04 Operator: williamh
Sample : CC1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.40min 1057.338ppb

response 4215502

(8) 3,5-Dinitroaniline #2

6.40min 1046.990ppb

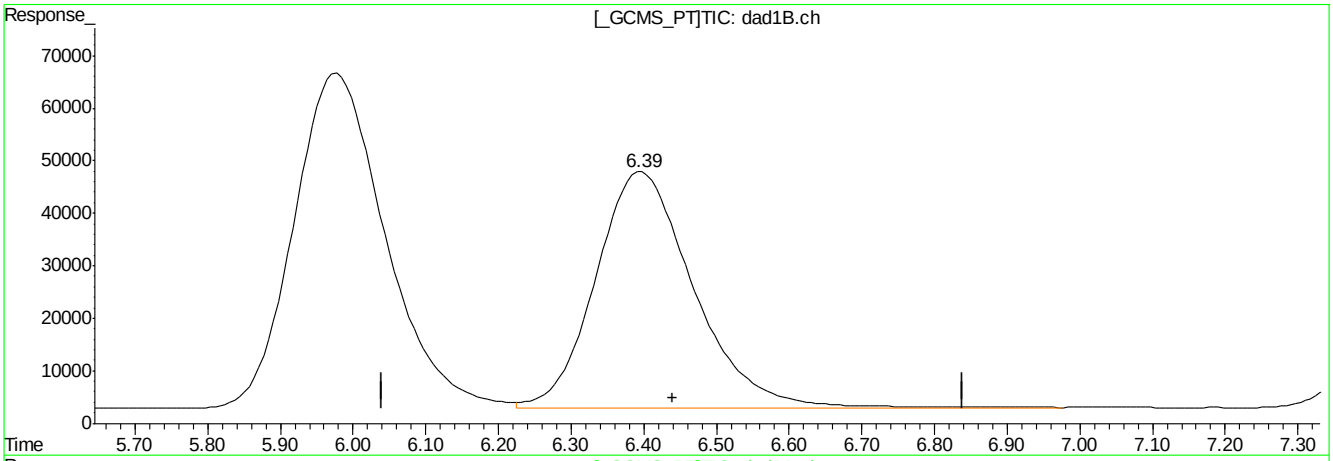
response 7188547

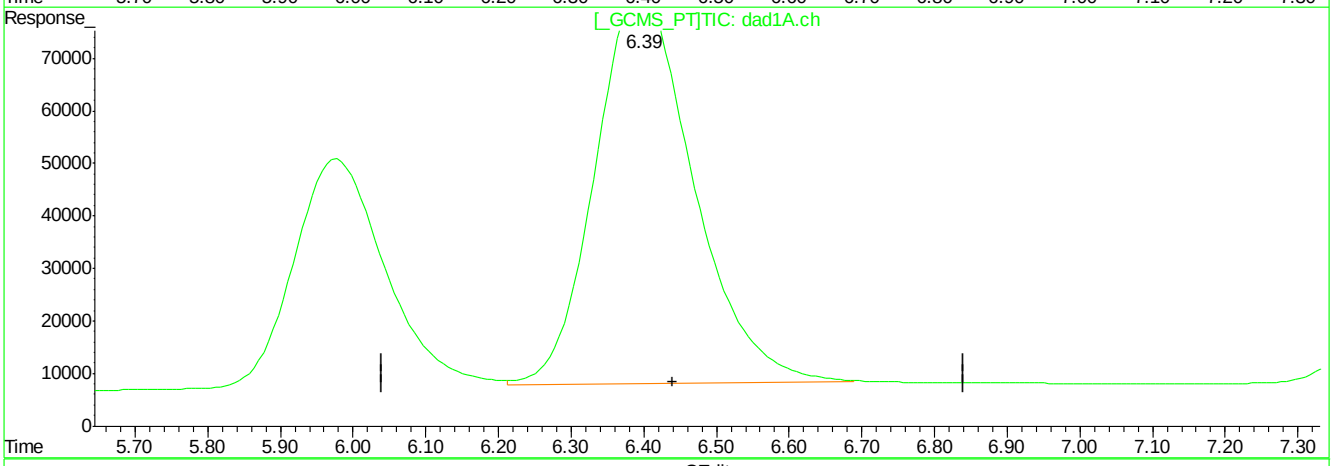
(+) = Expected Retention Time
BB067858.D 8330B_012120_PLUS.M Tue Feb 04 09:38:33 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067858.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067858.D\dad1A.ch
Acq On : 03-Feb-2020, 17:49:04 Operator: williamh
Sample : CC1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.40min 1057.338ppb

response 4215502

(8) 3,5-Dinitroaniline #2

6.39min 1016.216ppb m

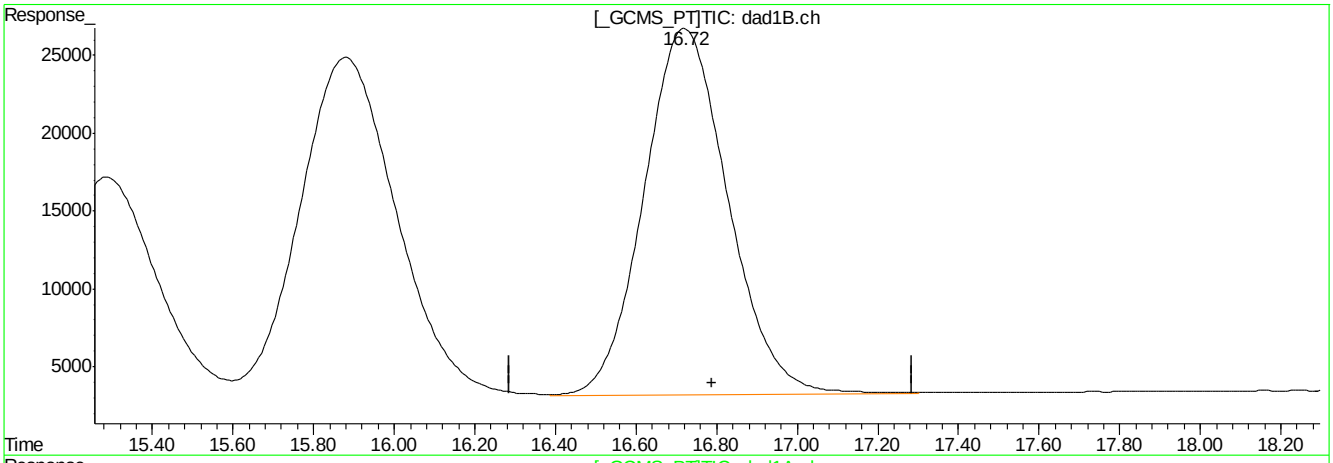
response 6977255

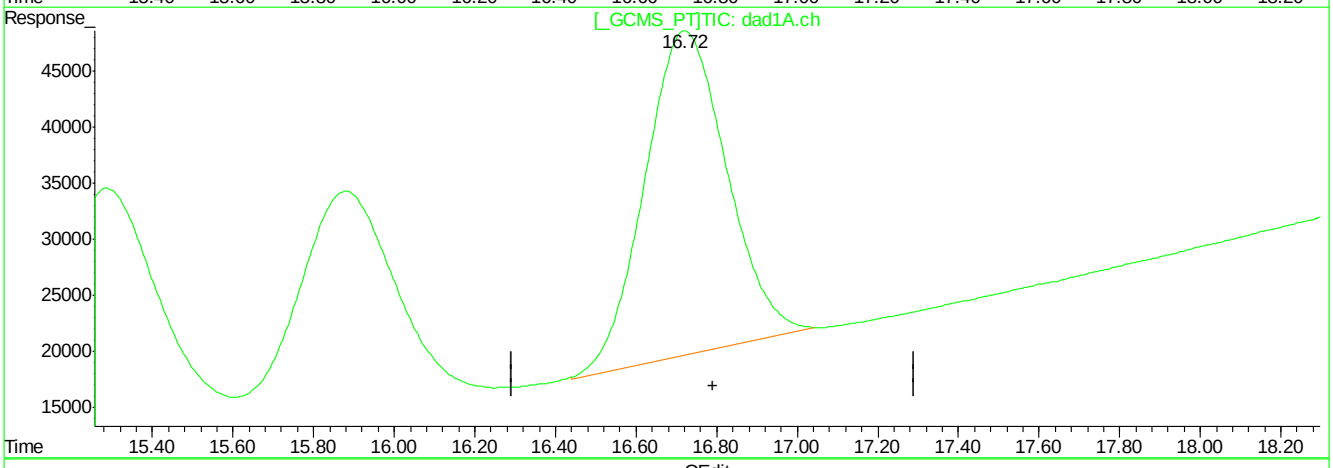
(+) = Expected Retention Time
BB067858.D 8330B_012120_PLUS.M Tue Feb 04 09:38:44 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067858.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067858.D\dad1A.ch
Acq On : 03-Feb-2020, 17:49:04 Operator: williamh
Sample : CC1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(20) m-Nitrotoluene

16.72min 1107.046ppb

response 3404987

(20) m-Nitrotoluene #2

16.72min 1113.022ppb m

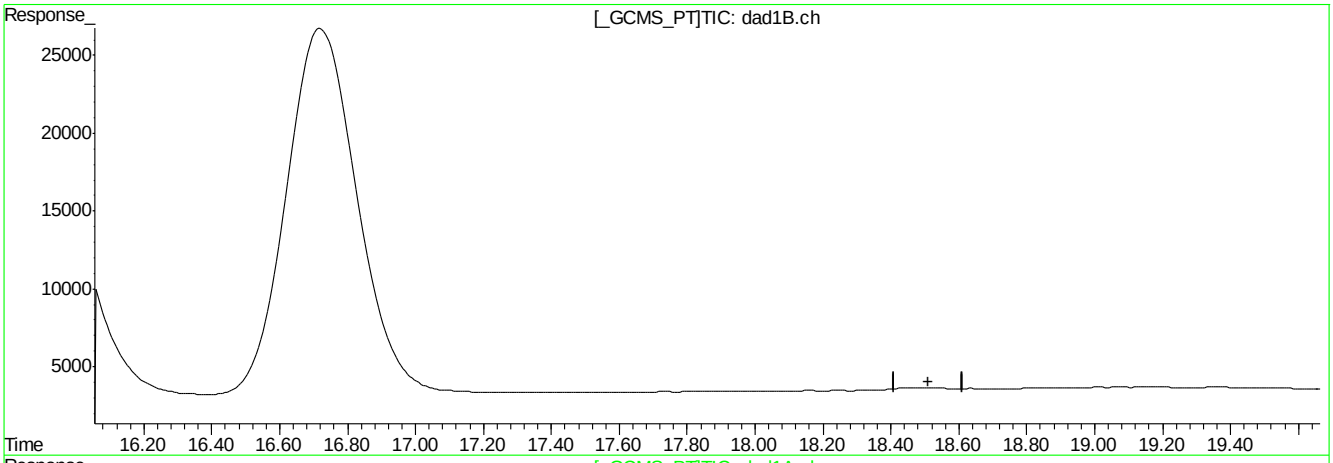
response 4111392

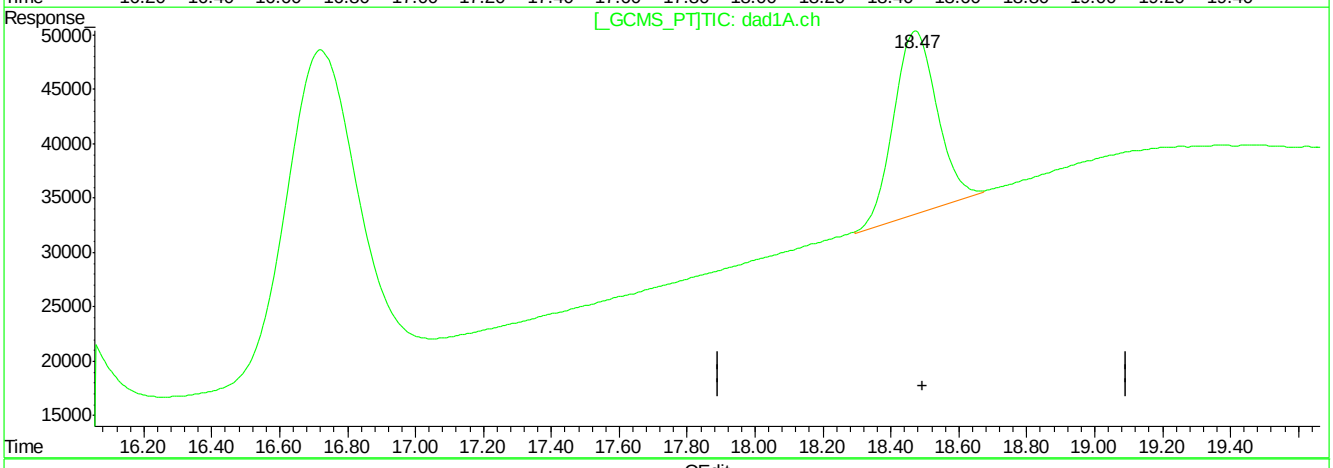
(+) = Expected Retention Time
BB067858.D 8330B_012120_PLUS.M Tue Feb 04 09:39:10 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067858.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067858.D\dad1A.ch
Acq On : 03-Feb-2020, 17:49:04 Operator: williamh
Sample : CC1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb d

response 0

(21) PETN #2

18.47min 2472.727ppb m

response 1478852

(+) = Expected Retention Time
BB067858.D 8330B_012120_PLUS.M Tue Feb 04 09:39:17 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 02/05/20 12:18

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067868.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067868.D\dad1A.ch
Acq On : 03-Feb-2020, 22:48:45 Operator: williamh
Sample : ECC1975-1000 Inst : G1315B
Misc : op78780,GBB1981,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 04 09:30:26 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	11.25	11.25	2191121	3717249	1109.658	1073.789
	Spiked Amount 500.000	Range 70 - 136		Recovery =		221.93%#	214.76%#
	Target Compounds						
1)	TNX	1.36	1.36	2319300	3645431	973.629	1018.647
2)	HMX	1.52	1.52	1659893	4611736	1091.805	1070.962
3)	DNX	1.75	1.75	1391573	2237541	952.436	995.566
4)	MNX	2.35	2.35	2284138	3530306	1000.915	993.307
5)	RDX	2.98	2.98	1984278	3188536	1036.356	1026.231
6)	1,3,5-Trinitrobe	4.79	4.79	4412895	8235217	1139.584	1100.127m
7)	1,3-Dinitrobenze	5.96	5.96	5529670	3796800	1068.200	1033.436m
8)	3,5-Dinitroanili	6.37	6.37	4235107	7145640	1062.255	1040.741
9)	Nitrobenzene	7.45	7.45	3256937	3222955	1041.311	1048.431
10)	Nitroglycerin	0.00	8.94	0	1329024	N.D.	1143.393 #
11)	Tetryl	9.56	9.56	3074868	4898431	1190.198	1152.960
12)	2,4,6-Trinitroto	9.97	9.96	3946322	4705696	1122.103	1150.653
13)	2-Amino-4,6-Dini	10.39	10.39	3549839	5183054	1099.430	1047.300
14)	4-Amino-2,6-Dini	10.86	10.86	2569976	4964405	1095.064	1071.973
16)	2,4-Dinitrotolue	11.88	11.88	4868433	3056756	1121.060	1045.141
17)	2,6-Dinitrotolue	12.31	12.31	2921869	3745224	1121.493	1106.432
18)	o-Nitrotoluene	15.25	15.25	2301357	3267940	1057.694	1166.481m
19)	p-Nitrotoluene	15.84	15.84	3631286	2910417	1078.812	1002.858
20)	m-Nitrotoluene	16.68	16.68	3394688	4082768	1103.698	1105.273m
21)	PETN	0.00	18.46	0	1450866	N.D. d	2425.933m

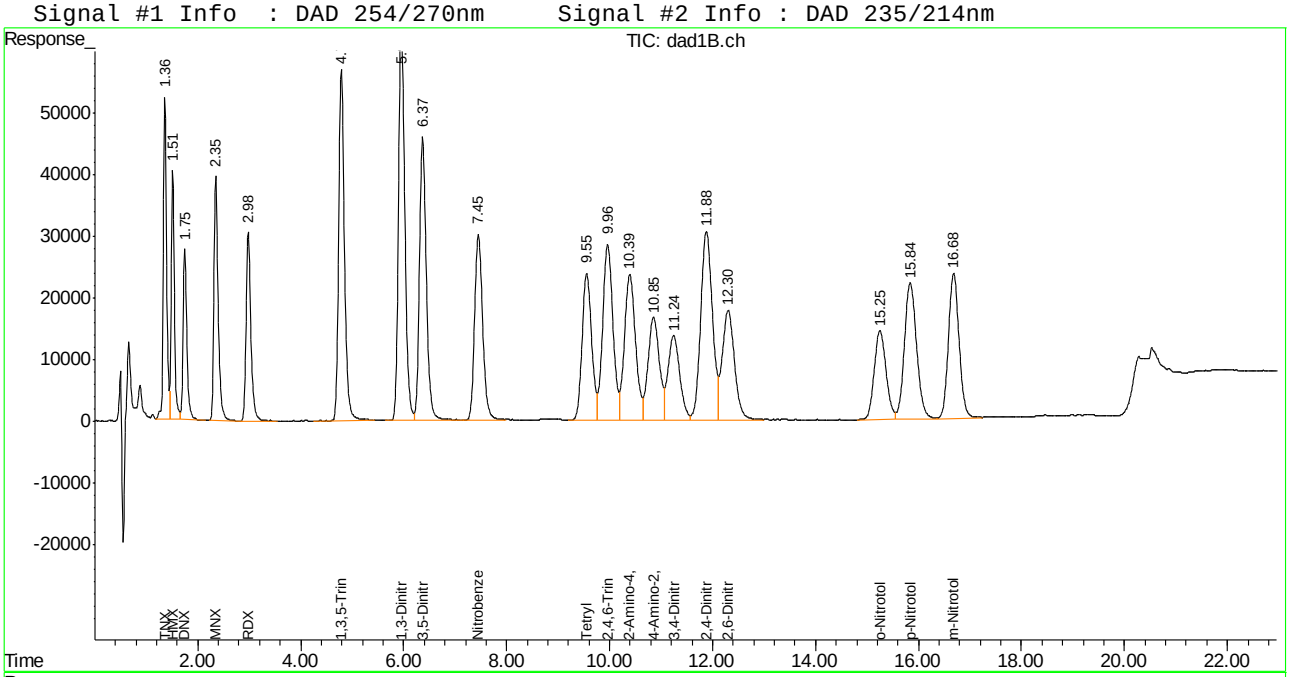
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB067868.D 8330B_012120_PLUS.M Tue Feb 04 11:21:53 2020 Page 1

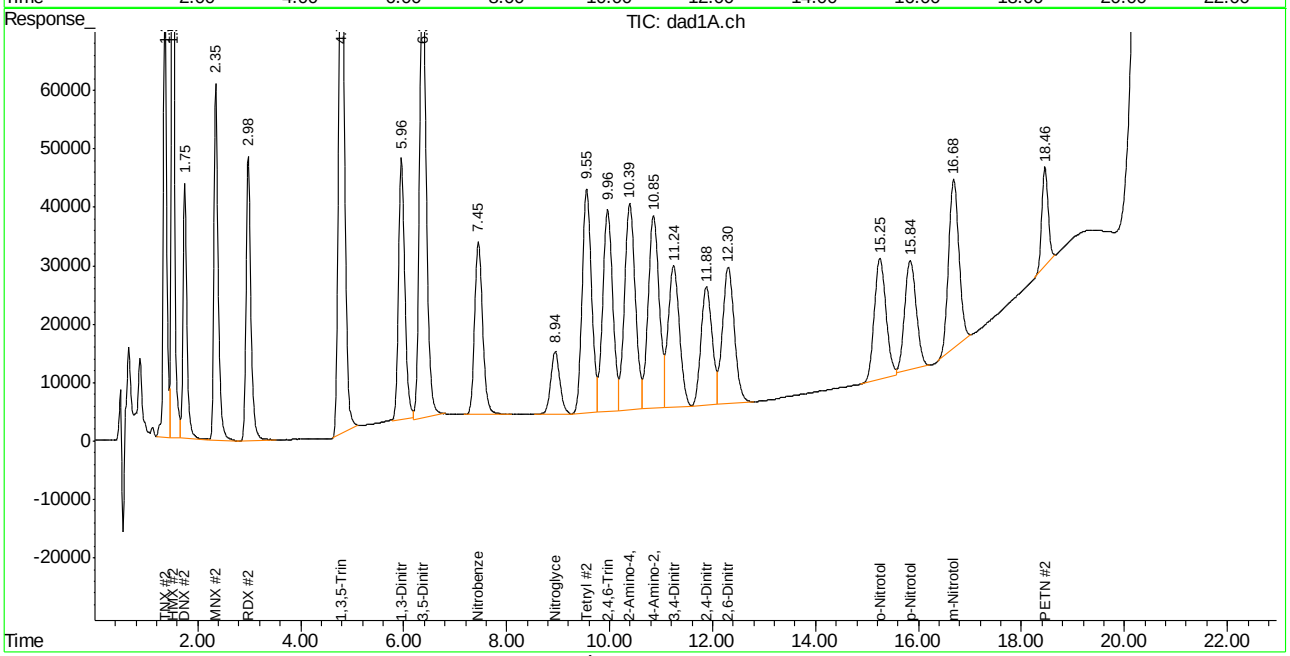
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067868.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067868.D\dad1A.ch
Acq On : 03-Feb-2020, 22:48:45 Operator: williamh
Sample : ECC1975-1000 Inst : G1315B
Misc : op78780,GBB1981,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:42 2020 Quant Results File: 8330B_012120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

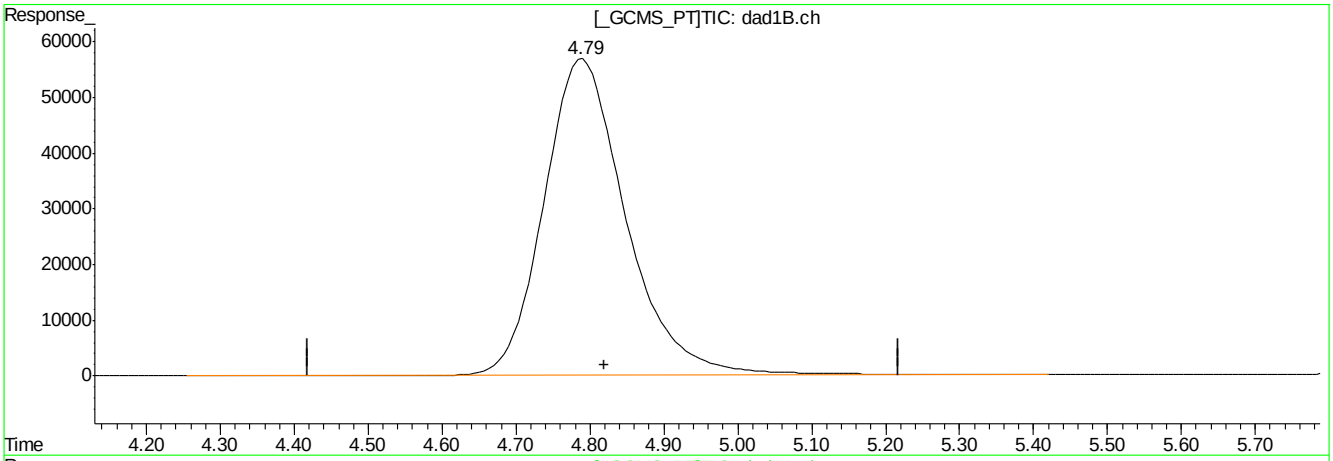
Sample Number: GBB1981-ECC1975 **Method:** SW846 8330A
Lab FileID: BB067868.D **Analyst approved:** 02/04/20 11:36 William Hustedde
Injection Time: 02/03/20 22:48 **Supervisor approved:** 02/05/20 12:18 Naresh Jiawan

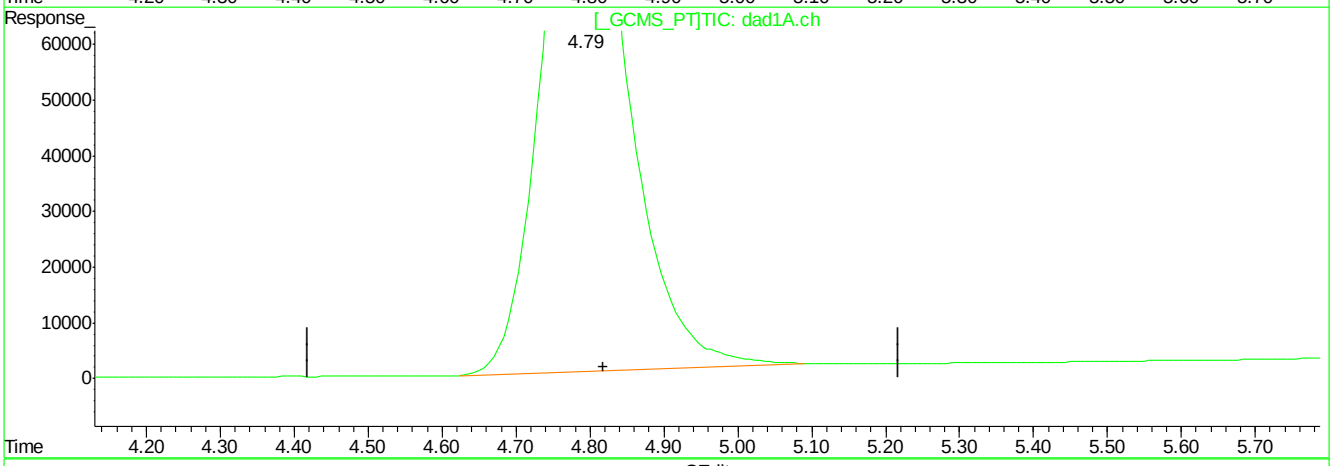
Parameter	CAS	Sig#	R.T. (min.)	Reason
1,3,5-Trinitrobenzene	99-35-4	2	4.79	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	5.96	Poor instrument integration
o-Nitrotoluene	88-72-2	2	15.25	Poor instrument integration
m-Nitrotoluene	99-08-1	2	16.68	Poor instrument integration
PETN	78-11-5	2	18.46	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067868.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067868.D\dad1A.ch
Acq On : 03-Feb-2020, 22:48:45 Operator: williamh
Sample : ECC1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(6) 1,3,5-Trinitrobenzene

4.79min 1139.584ppb

response 4412895

(6) 1,3,5-Trinitrobenzene #2

4.79min 1100.127ppb m

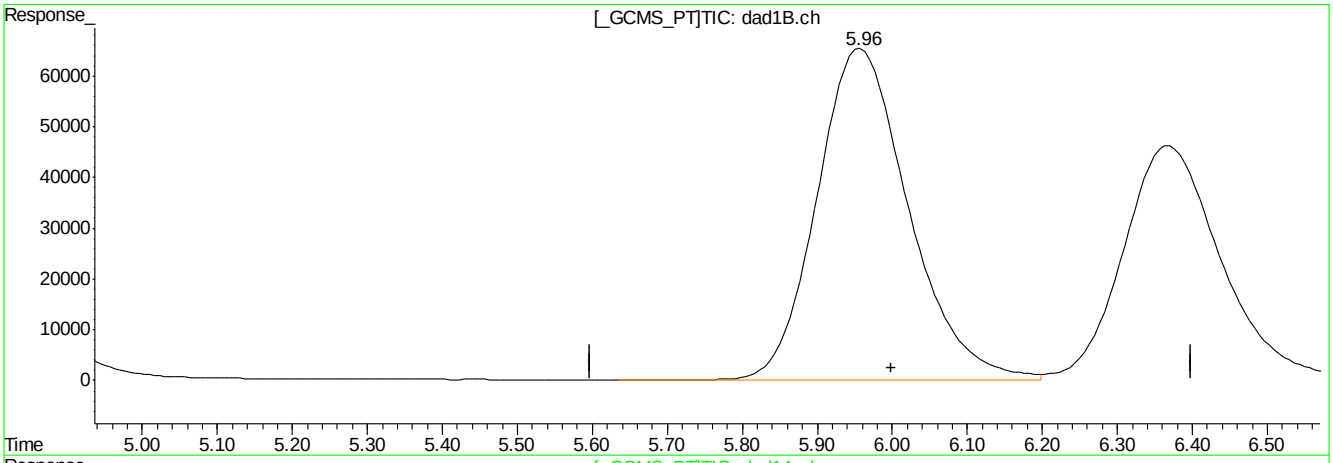
response 8235217

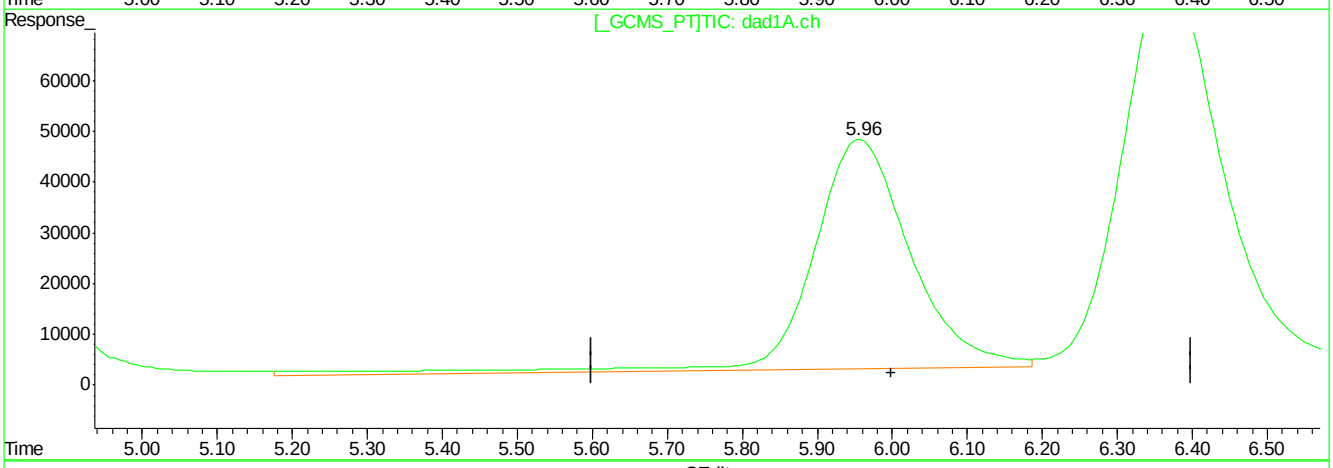
(+) = Expected Retention Time
BB067868.D 8330B_012120_PLUS.M Tue Feb 04 09:40:38 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067868.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067868.D\dad1A.ch
Acq On : 03-Feb-2020, 22:48:45 Operator: williamh
Sample : ECC1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

5.96min 1068.200ppb

response 5529670

(7) 1,3-Dinitrobenzene #2

5.96min 1132.502ppb

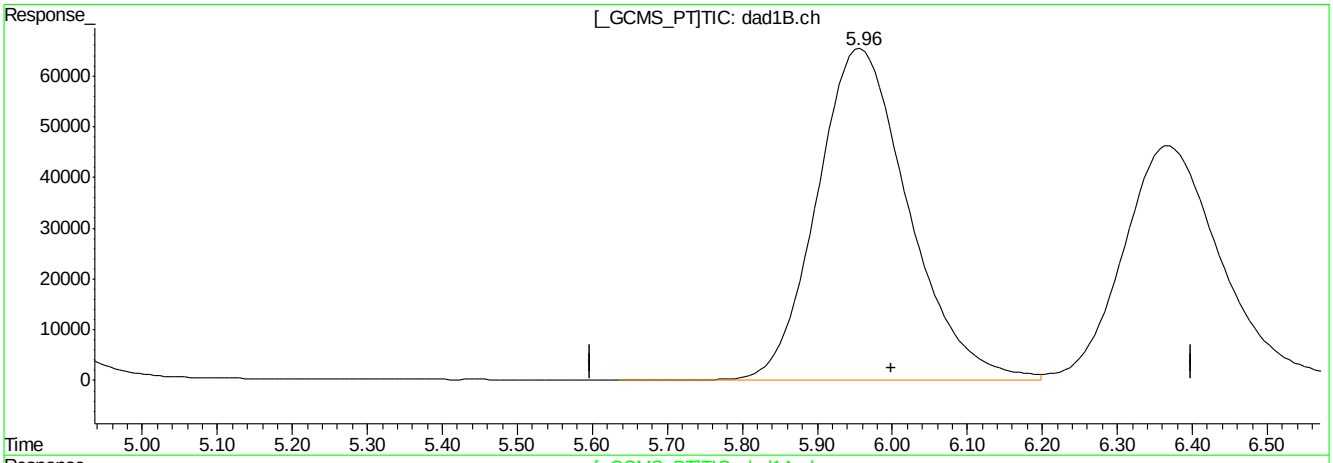
response 4160763

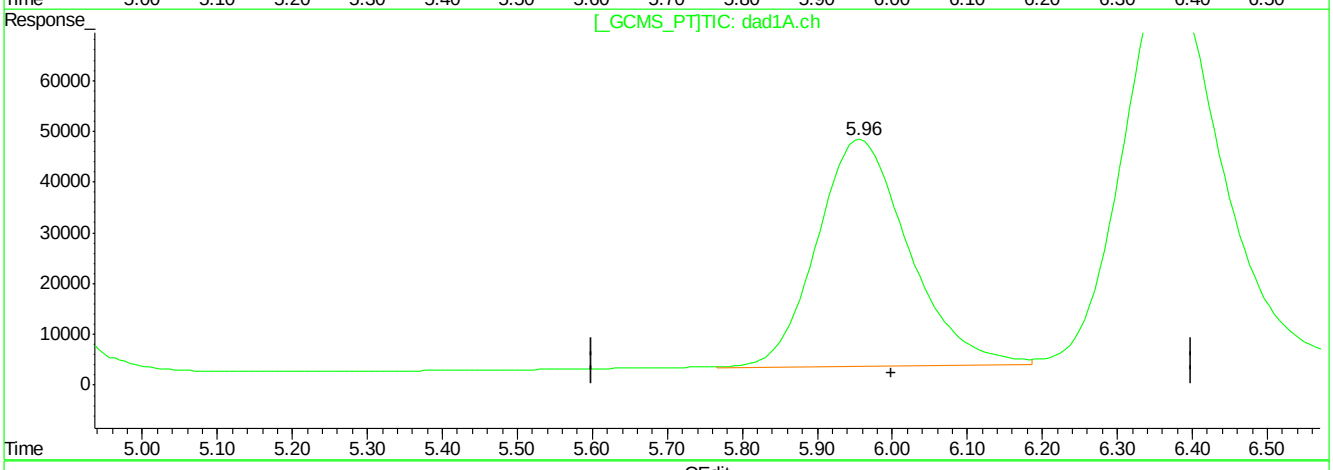
(+) = Expected Retention Time
BB067868.D 8330B_012120_PLUS.M Tue Feb 04 09:41:43 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067868.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067868.D\dad1A.ch
Acq On : 03-Feb-2020, 22:48:45 Operator: williamh
Sample : ECC1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

5.96min 1068.200ppb

response 5529670

(7) 1,3-Dinitrobenzene #2

5.96min 1033.436ppb m

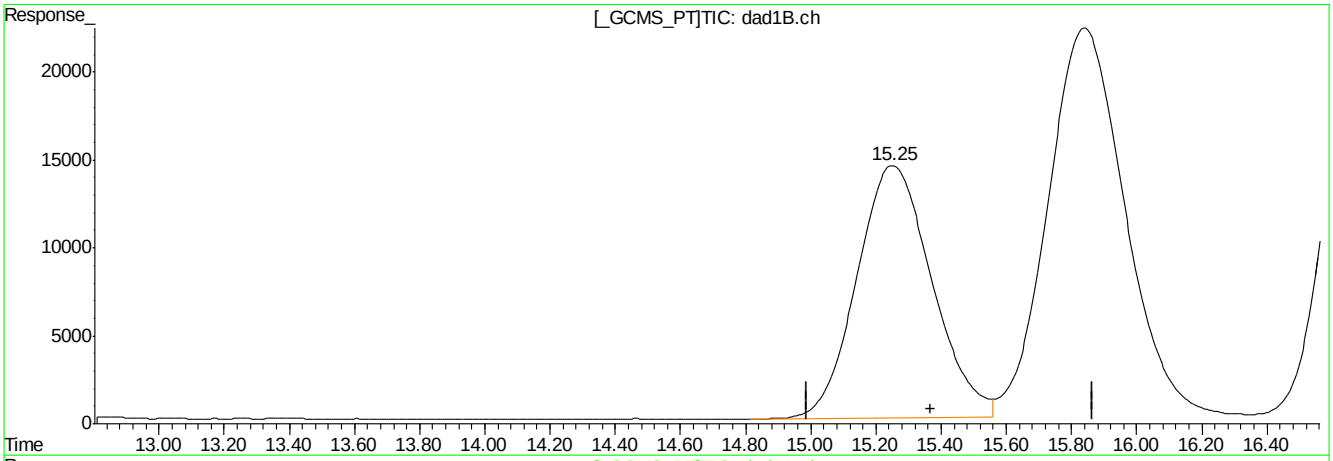
response 3796800

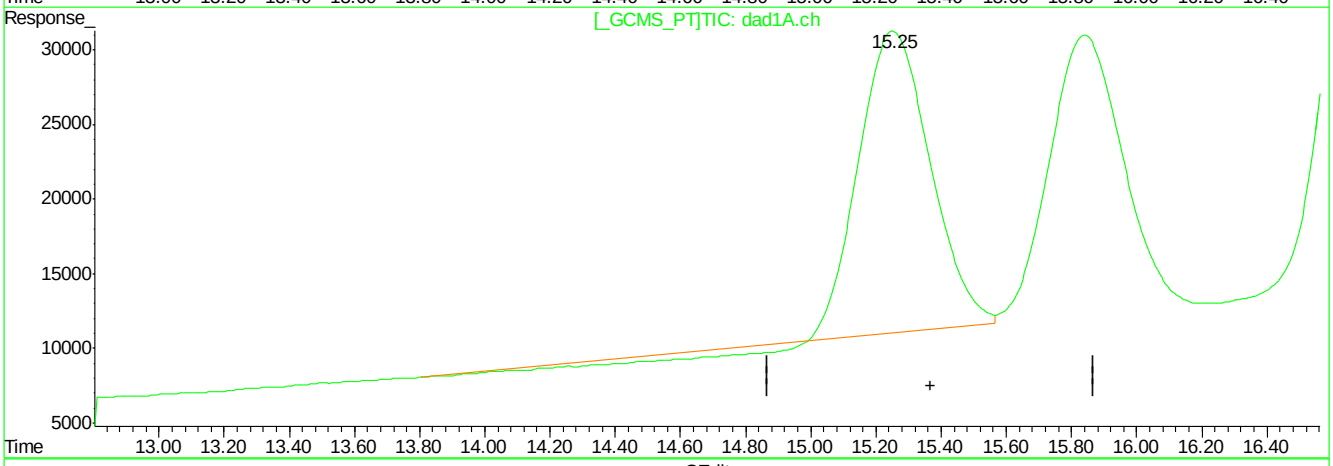
(+) = Expected Retention Time
BB067868.D 8330B_012120_PLUS.M Tue Feb 04 09:41:51 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067868.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067868.D\dad1A.ch
Acq On : 03-Feb-2020, 22:48:45 Operator: williamh
Sample : ECC1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(18) o-Nitrotoluene

15.25min 1057.694ppb

response 2301357

(18) o-Nitrotoluene #2

15.25min 1033.925ppb

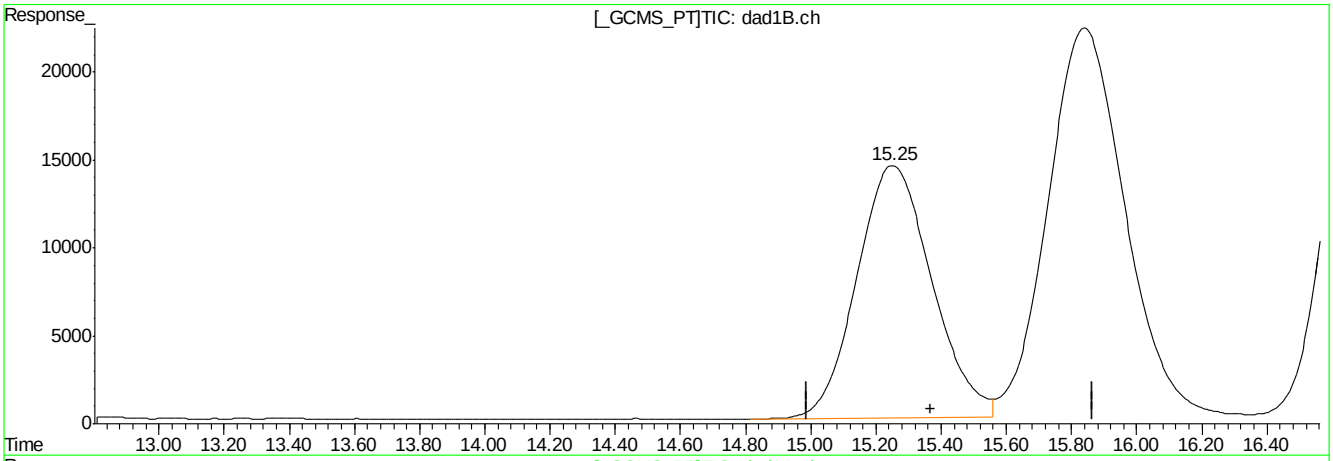
response 2896580

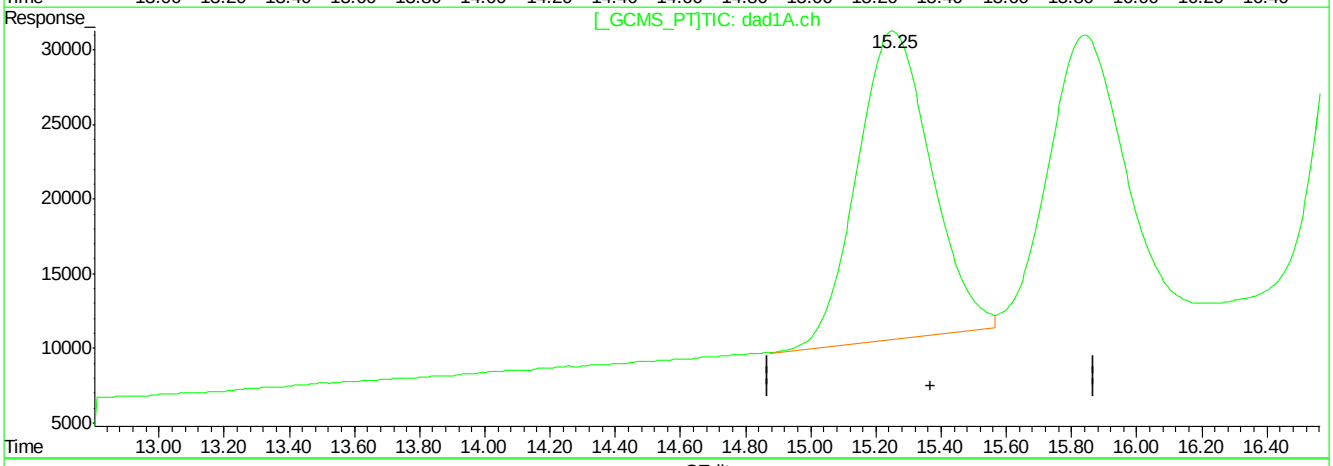
(+) = Expected Retention Time
BB067868.D 8330B_012120_PLUS.M Tue Feb 04 09:42:10 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067868.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067868.D\dad1A.ch
Acq On : 03-Feb-2020, 22:48:45 Operator: williamh
Sample : ECC1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(18) o-Nitrotoluene

15.25min 1057.694ppb

response 2301357

(18) o-Nitrotoluene #2

15.25min 1166.481ppb m

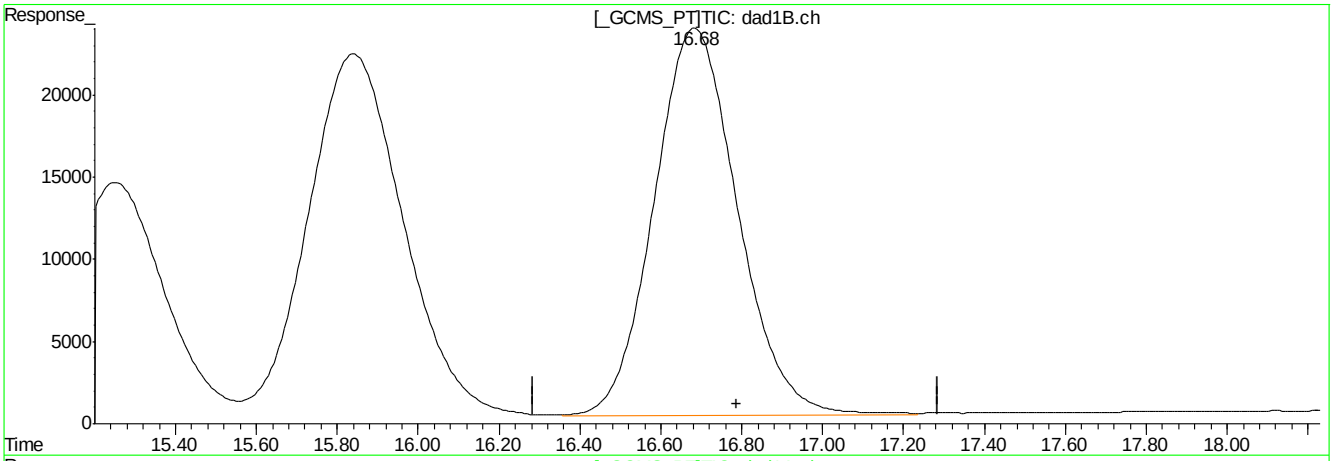
response 3267940

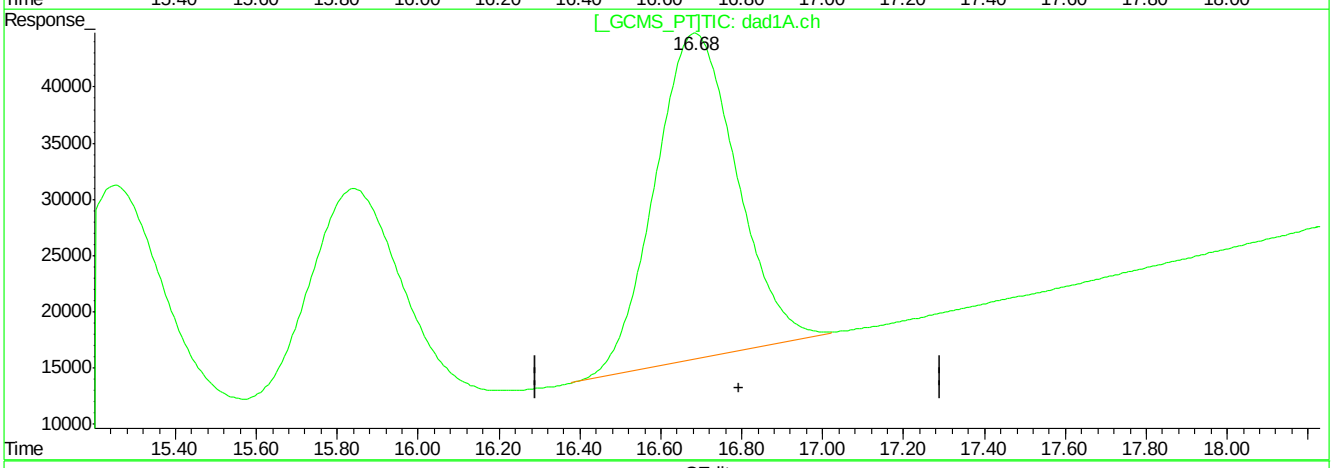
(+) = Expected Retention Time
BB067868.D 8330B_012120_PLUS.M Tue Feb 04 09:42:16 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067868.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067868.D\dad1A.ch
Acq On : 03-Feb-2020, 22:48:45 Operator: williamh
Sample : ECC1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(20) m-Nitrotoluene

16.68min 1103.698ppb

response 3394688

(20) m-Nitrotoluene #2

16.68min 1105.273ppb m

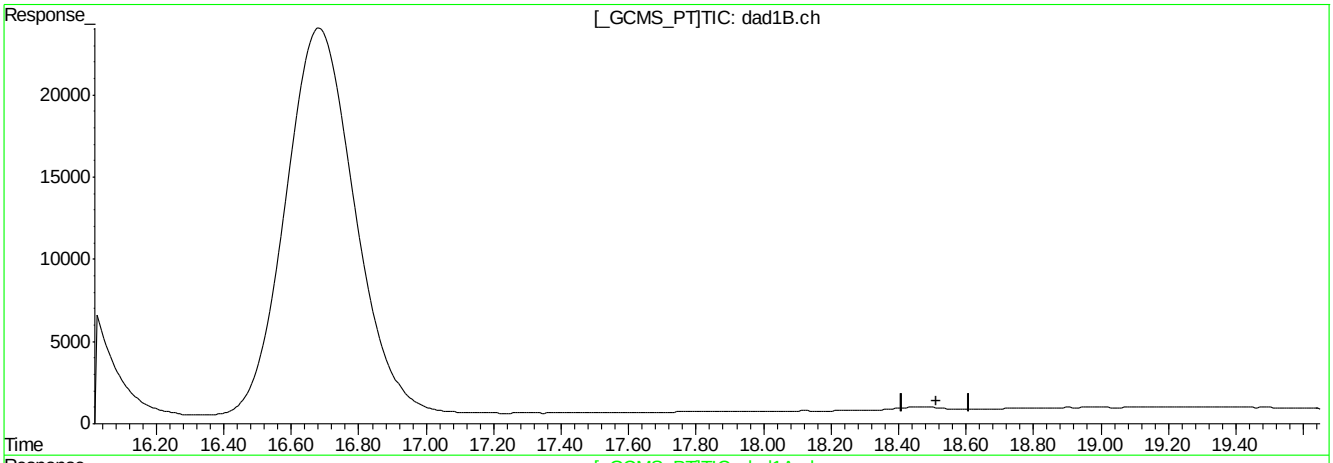
response 4082768

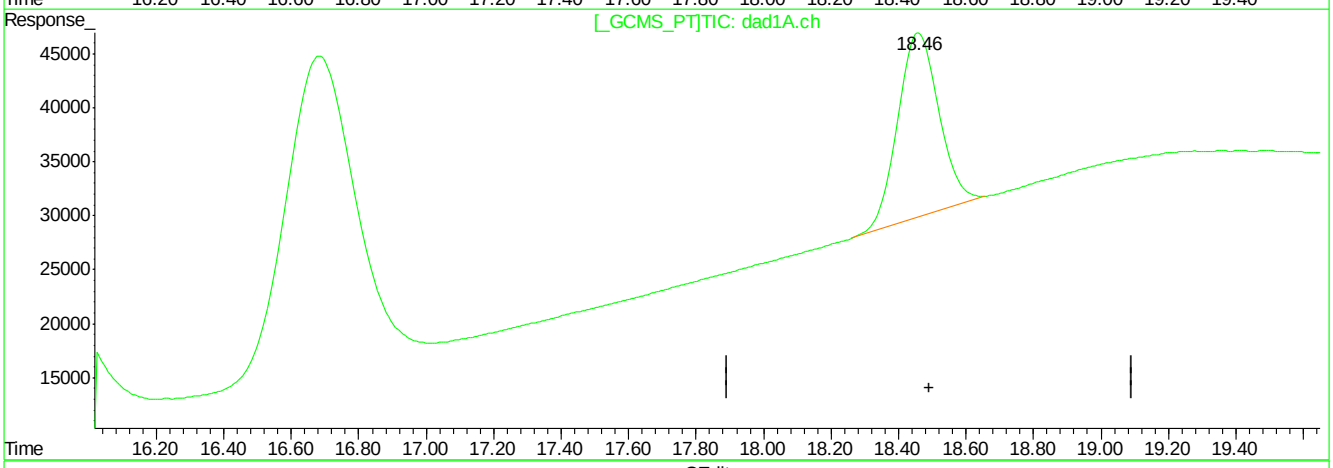
(+) = Expected Retention Time
BB067868.D 8330B_012120_PLUS.M Tue Feb 04 09:42:28 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1981\BB067868.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1981\BB067868.D\dad1A.ch
Acq On : 03-Feb-2020, 22:48:45 Operator: williamh
Sample : ECC1975-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Feb 4 9:30 2020 Quant Results File: 8330B_012120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_012120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Feb 04 09:26:50 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb d

response 0

(21) PETN #2

18.46min 2425.933ppb m

response 1450866

(+) = Expected Retention Time
BB067868.D 8330B_012120_PLUS.M Tue Feb 04 09:42:35 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
09/26/19 16:28

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12:33 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.56	13.55	84611	167134	16.252m	16.532m
	Spiked Amount 500.000	Range 70 - 136		Recovery =		3.25%#	3.31%#
	Target Compounds						
1)	TNX	4.97	4.97	218003	218003	38.377	38.296
2)	HMX	5.43	5.43	76671	73869	20.769m	20.035m
3)	DNX	5.49	5.49	147671	149475	27.214m	27.859m
4)	MNX	6.35	6.35	76584	78430	13.122m	13.439m
5)	1,3,5-Trinitrobe	7.16	7.16	204014	204014	21.442	21.506
6)	RDX	7.60	7.60	95749	95749	20.715	20.867
7)	1,3-Dinitrobenze	9.52	9.54	270208	176613	20.183m	17.415m
8)	Nitrobenzene	10.45	10.46	184518	175282	21.751	20.700m
9)	2,4,6-Trinitroto	11.07	11.07	203967	237191	21.926	19.902
10)	Nitroglycerin	0.00	0.00	0	0	N.D.	N.D.
11)	Tetryl	12.18	12.14	124995	322243	18.121	24.454m
13)	2,6-Dinitrotolue	13.94	13.91	135925	203654	21.731m	21.420
14)	2,4-Dinitrotolue	14.64	14.59	240621	208217	19.818	23.705m
15)	o-Nitrotoluene	16.13	16.11	96951	128957	17.328	12.789
16)	3,5-Dinitroanili	15.48	15.48	168483	313790	15.490	16.606
17)	p-Nitrotoluene	17.17	17.17	219157	564760	19.281m	27.186 #
18)	4-Amino-2,6-Dini	17.17	17.17	213733	564760	18.804m	27.184 #
19)	m-Nitrotoluene	18.37	18.36	110487	255019	19.272m	24.421m
20)	2-Amino-4,6-Dini	19.18	19.28	177657	351021	20.592	28.276
21)	PETN	0.00	0.00	0	0	N.D.	N.D. d

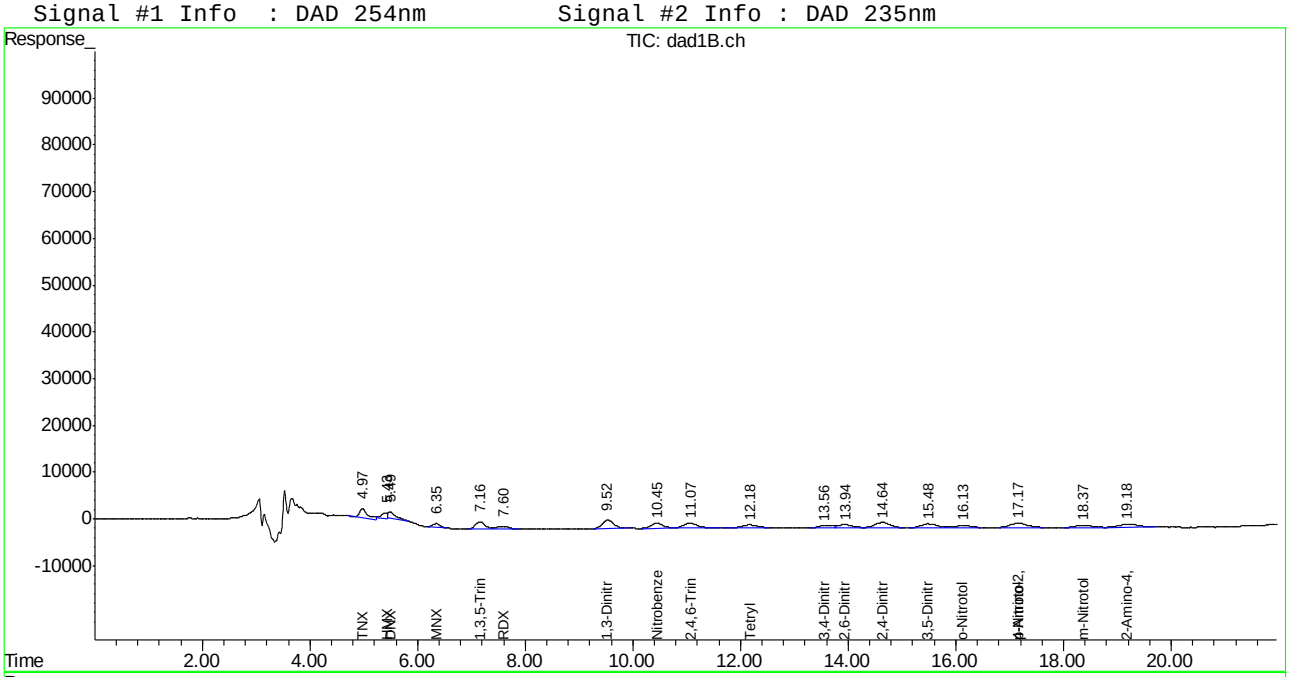
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

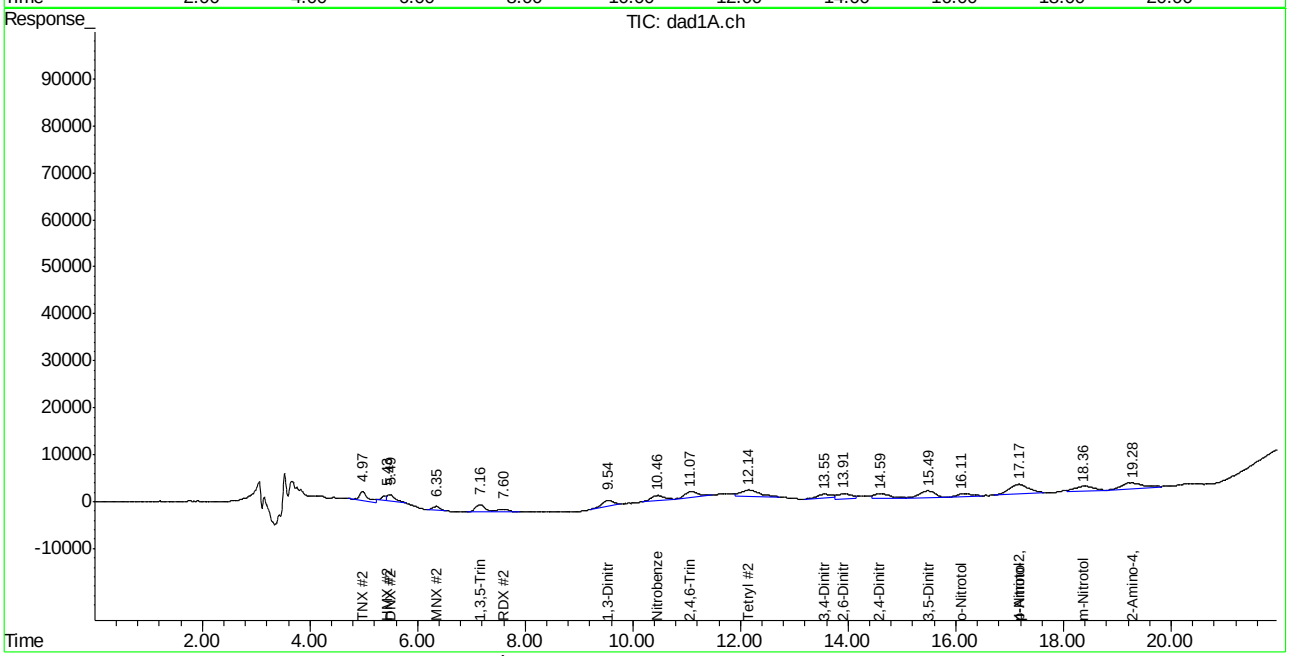
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:18 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

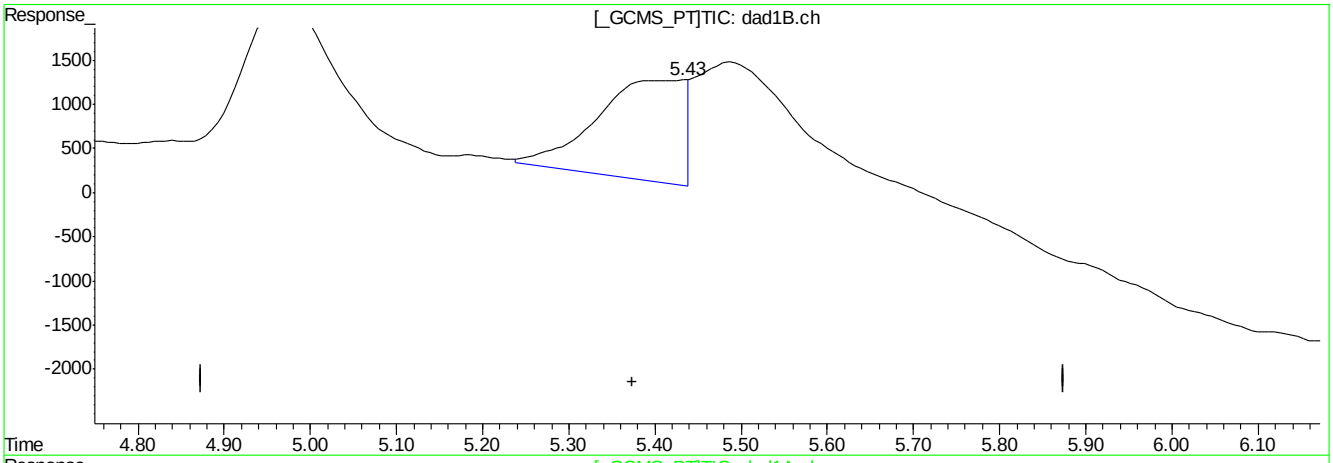
Sample Number: GGG2769-IC2769
Lab FileID: GG617747.D
Injection Time: 09/25/19 20:30
Method: SW846 8330B
Analyst approved: 09/26/19 16:07 William Hustedde
Supervisor approved: 09/26/19 16:28 Naresh Jiawan

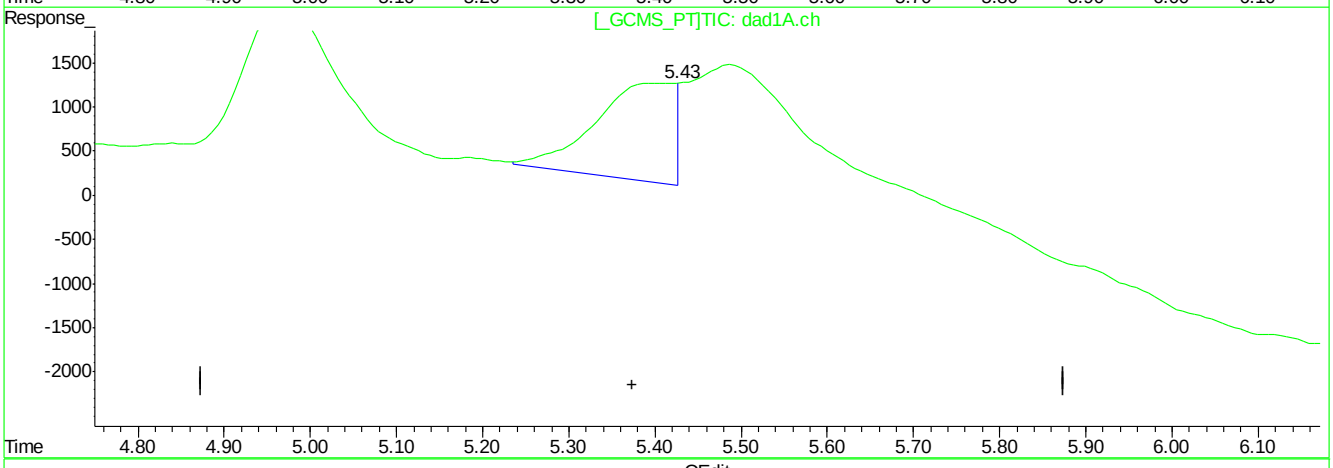
Parameter	CAS	Sig#	R.T. (min.)	Reason
HMX	2691-41-0	1	5.43	Poor instrument integration
HMX	2691-41-0	2	5.43	Poor instrument integration
DNX		1	5.49	Poor instrument integration
DNX		2	5.49	Poor instrument integration
MNX		1	6.35	Poor instrument integration
MNX		2	6.35	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	1	9.52	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	9.54	Poor instrument integration
Nitrobenzene	98-95-3	2	10.46	Poor instrument integration
Tetryl	479-45-8	2	12.14	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	2	13.55	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	1	13.56	Poor instrument integration
2,6-Dinitrotoluene	606-20-2	1	13.94	Poor instrument integration
2,4-Dinitrotoluene	121-14-2	2	14.59	Poor instrument integration
4-amino-2,6-Dinitrotoluene	19406-51-0	1	17.17	Poor instrument integration
p-Nitrotoluene	99-99-0	1	17.17	Poor instrument integration
m-Nitrotoluene	99-08-1	2	18.36	Poor instrument integration
m-Nitrotoluene	99-08-1	1	18.37	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.43min 20.769ppb m

response 76671

(2) HMX #2

5.43min 20.035ppb m

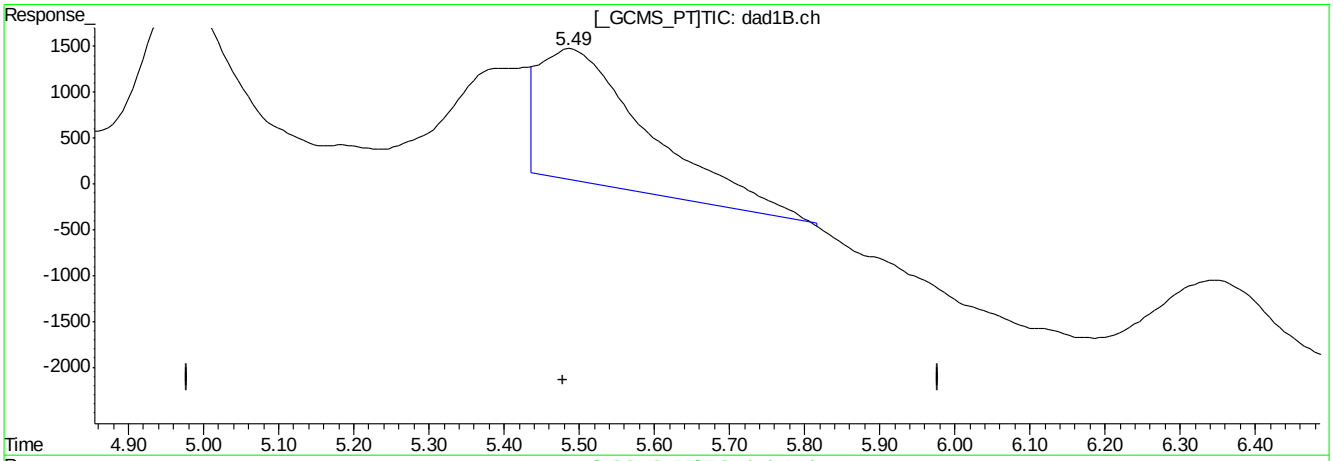
response 73869

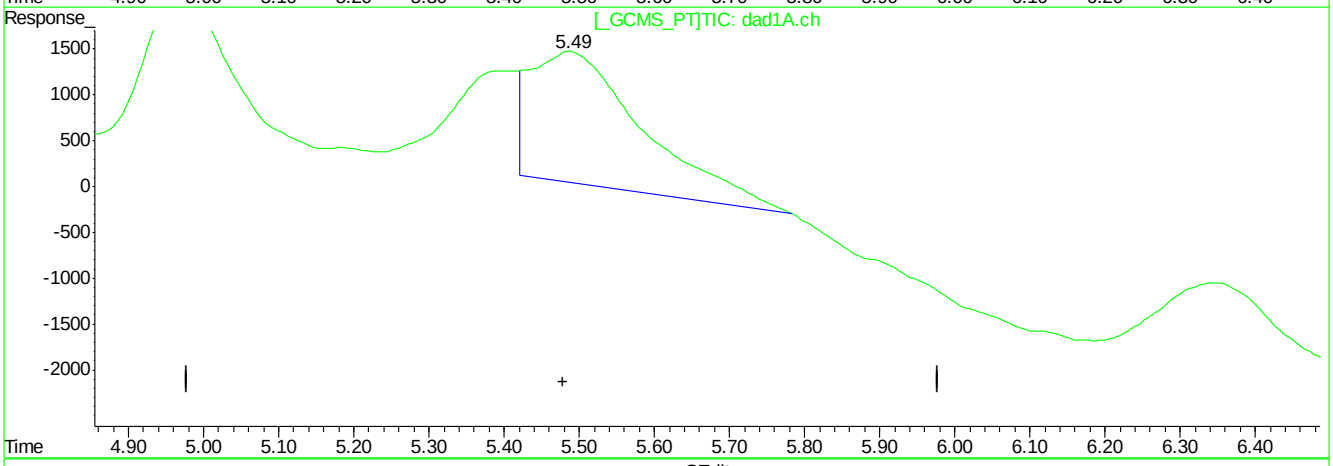
(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:16:26 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(3) DNX

5.49min 27.214ppb m

response 147671

(3) DNX #2

5.49min 27.859ppb m

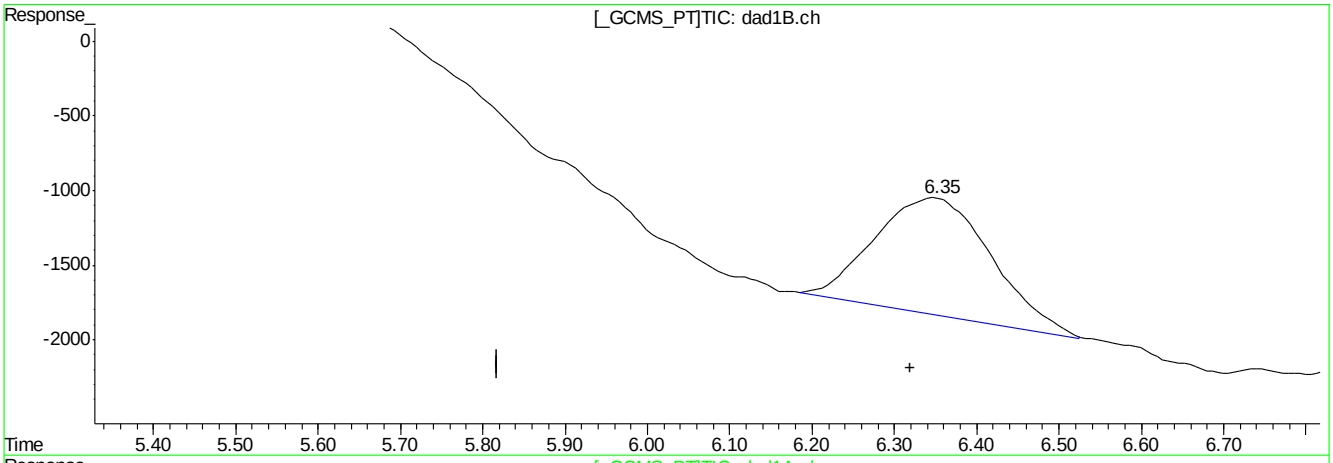
response 149475

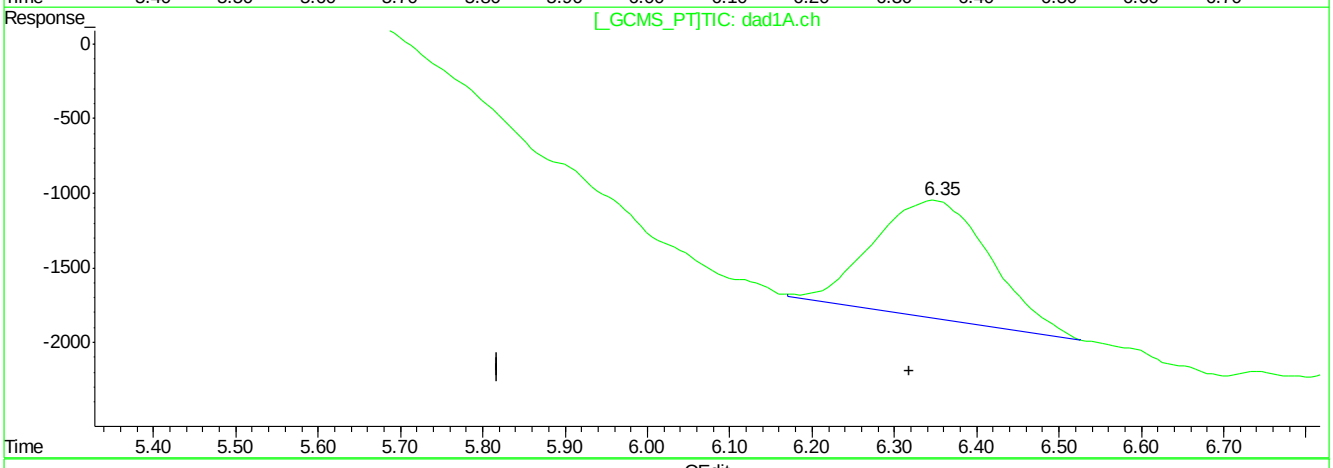
(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:16:36 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(4) MNX

6.35min 13.122ppb m

response 76584

(4) MNX #2

6.35min 13.439ppb m

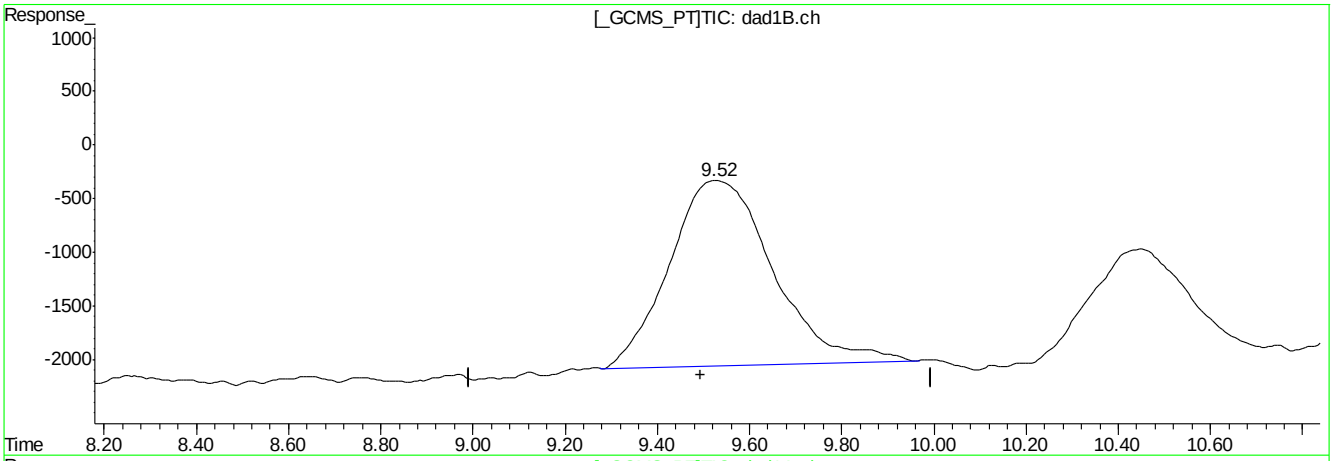
response 78430

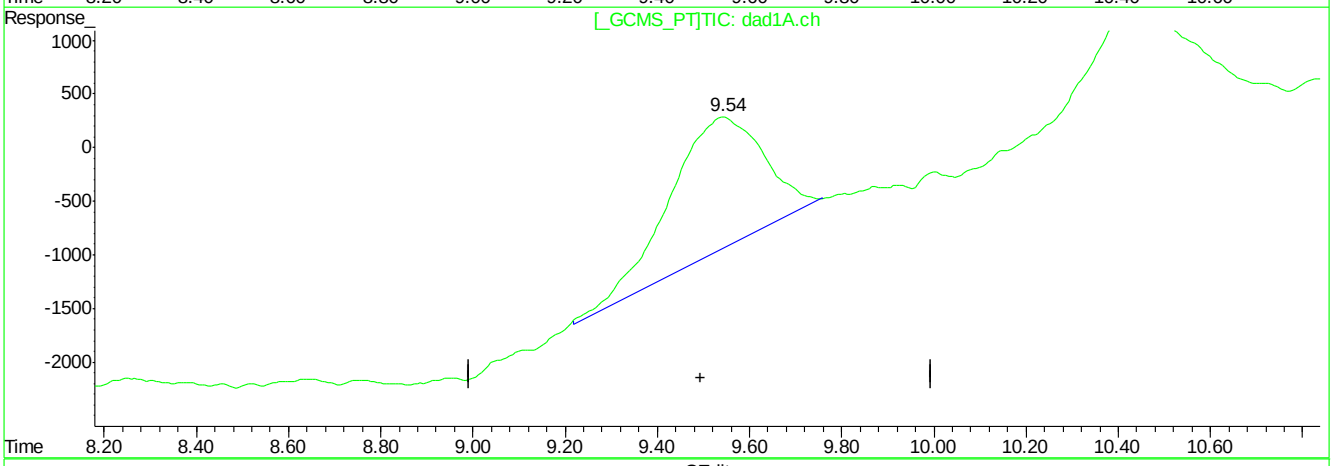
(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:16:43 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

9.52min 20.183ppb m

response 270208

(7) 1,3-Dinitrobenzene #2

9.54min 17.415ppb m

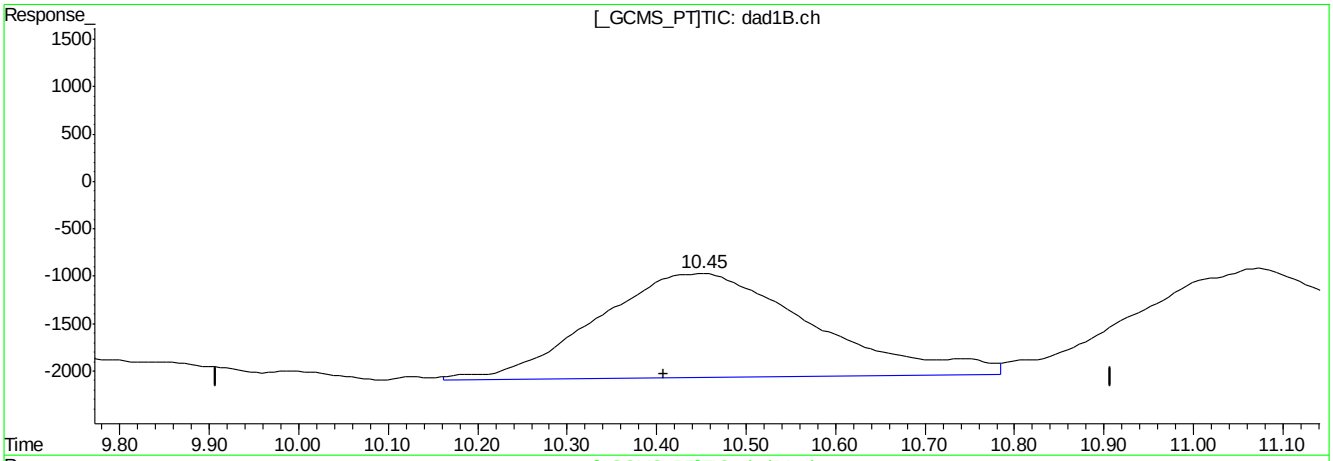
response 176613

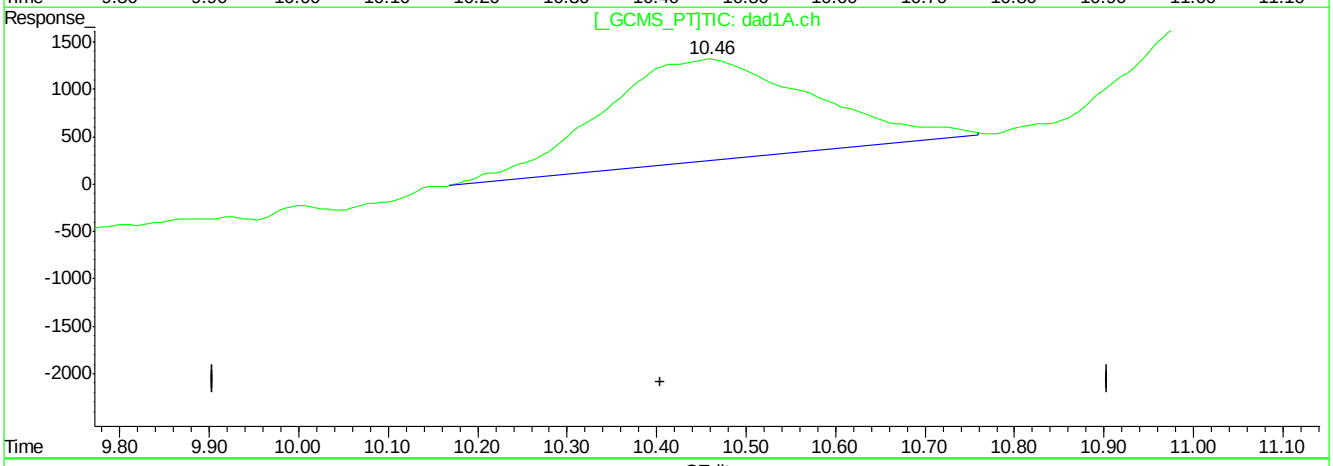
(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:16:59 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(8) Nitrobenzene

10.45min 21.751ppb

response 184518

(8) Nitrobenzene #2

10.46min 20.700ppb m

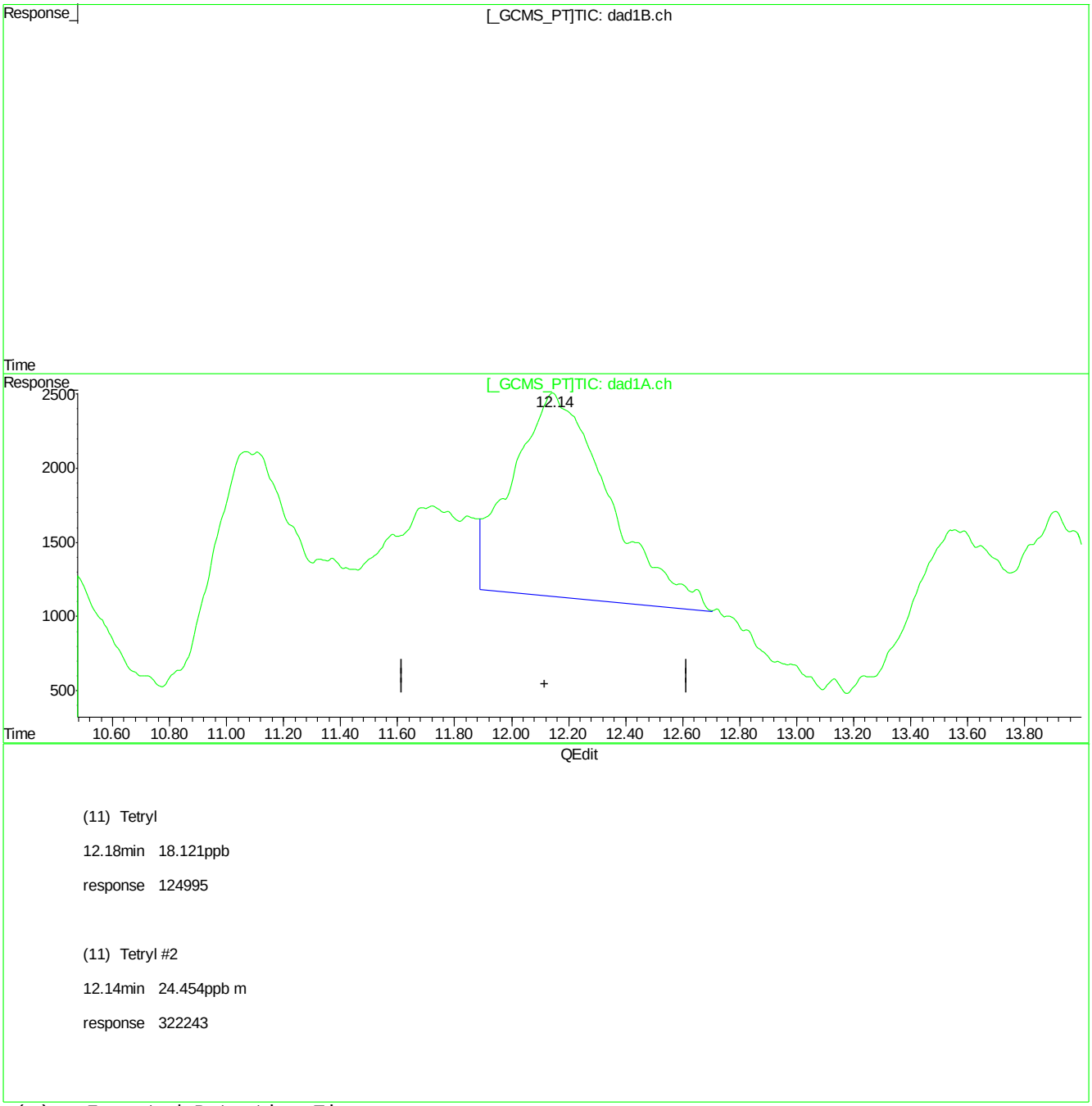
response 175282

(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:17:09 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(11) Tetryl

12.18min 18.121ppb

response 124995

(11) Tetryl #2

12.14min 24.454ppb m

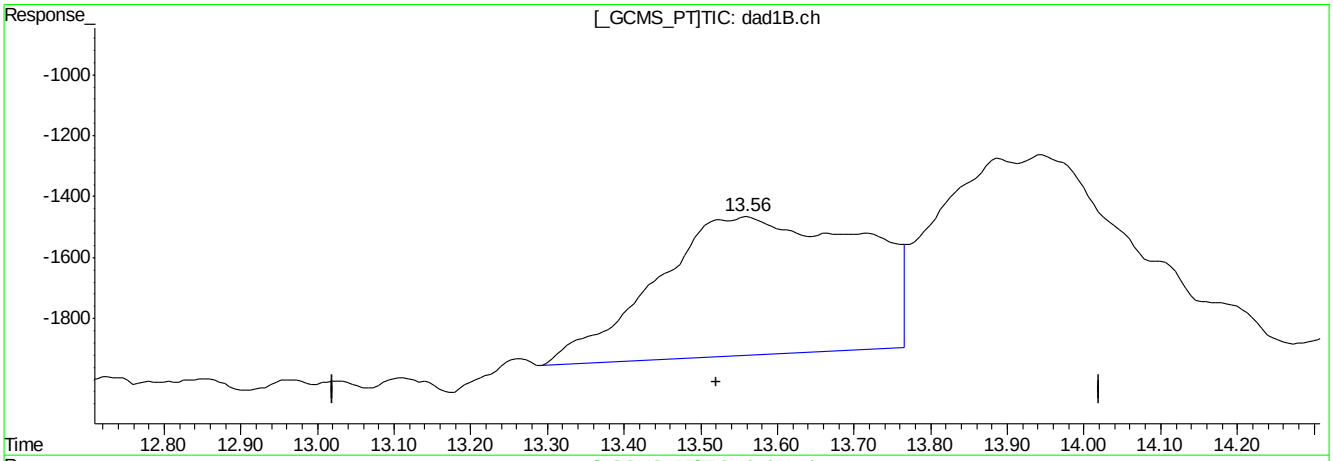
response 322243

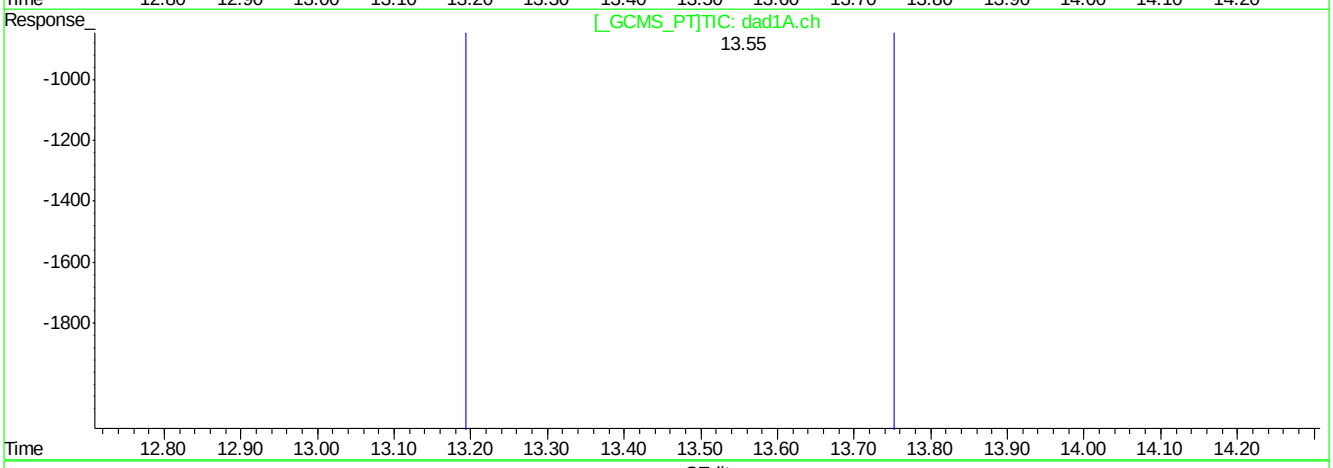
(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:17:27 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(12) 3,4-Dinitrotoluene (S)

13.56min 16.252ppb m

response 84611

(12) 3,4-Dinitrotoluene #2 (S)

13.55min 16.532ppb m

response 167134

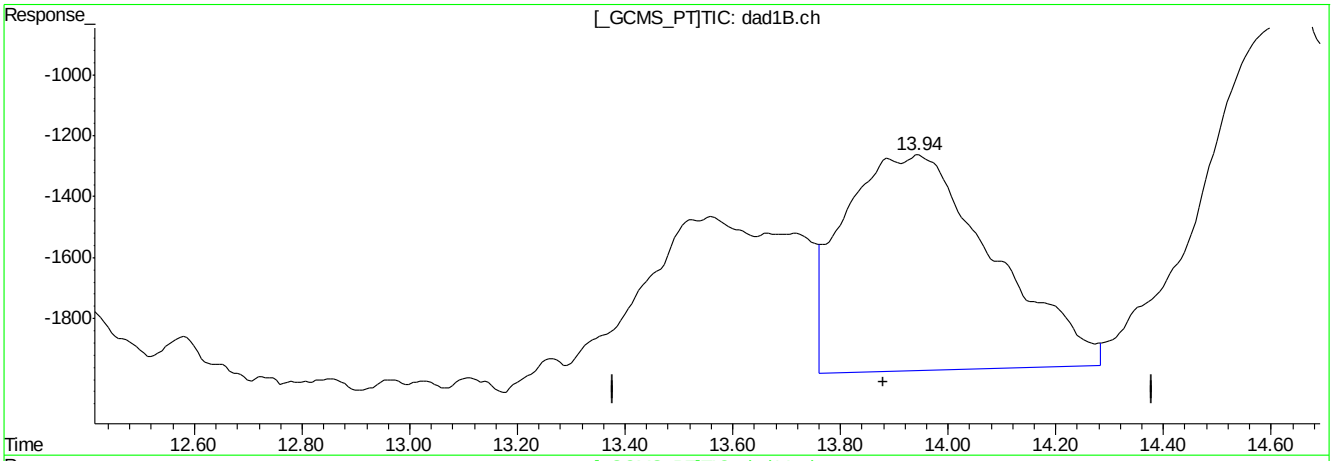
(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:17:37 2019

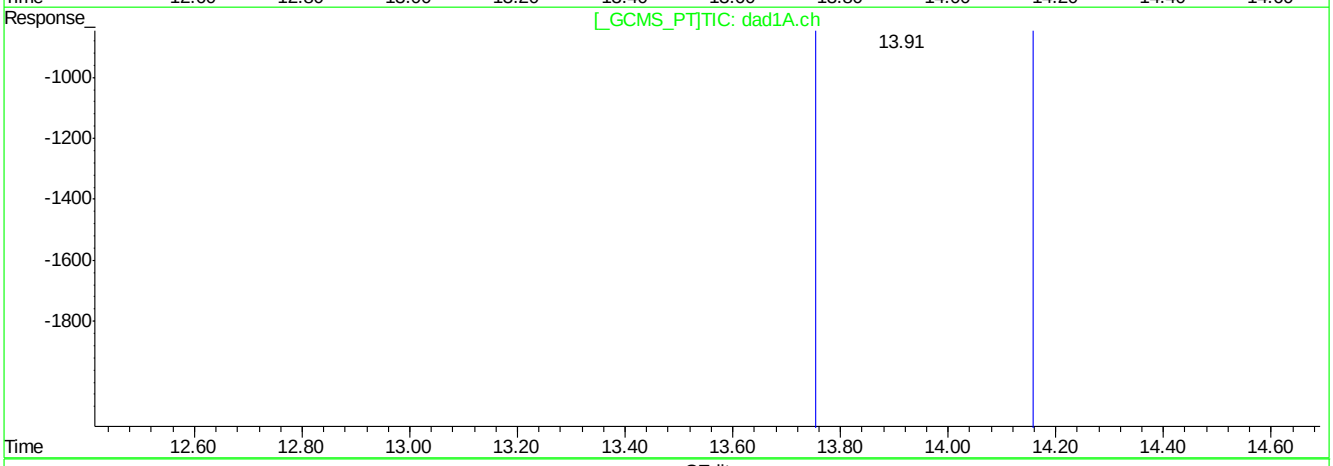
GG617747.D edits: 3,4-Dinitrotoluene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(13) 2,6-Dinitrotoluene

13.94min 21.731ppb m

response 135925

(13) 2,6-Dinitrotoluene #2

13.91min 21.420ppb

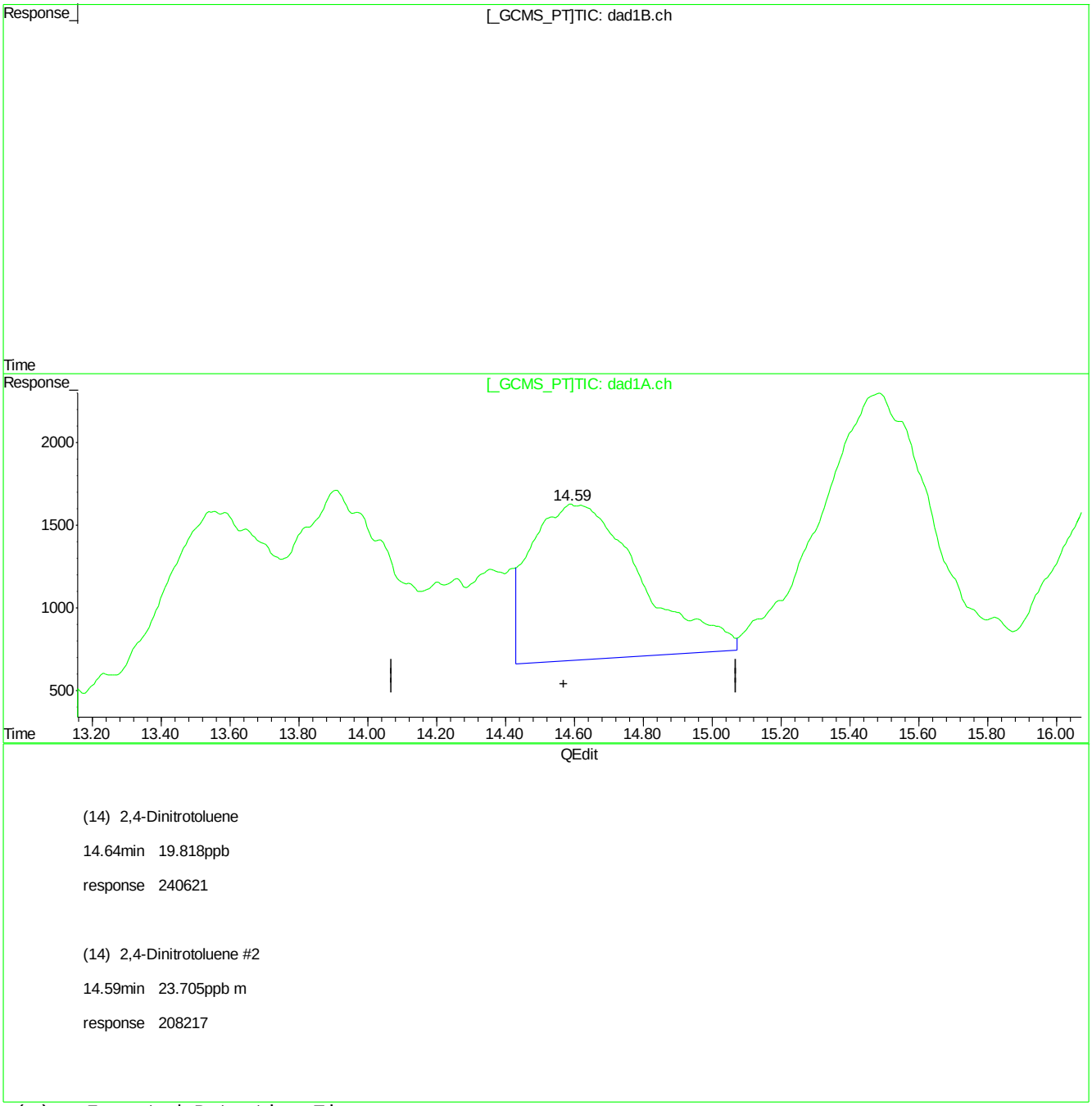
response 203654

(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:17:45 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(14) 2,4-Dinitrotoluene

14.64min 19.818ppb

response 240621

(14) 2,4-Dinitrotoluene #2

14.59min 23.705ppb m

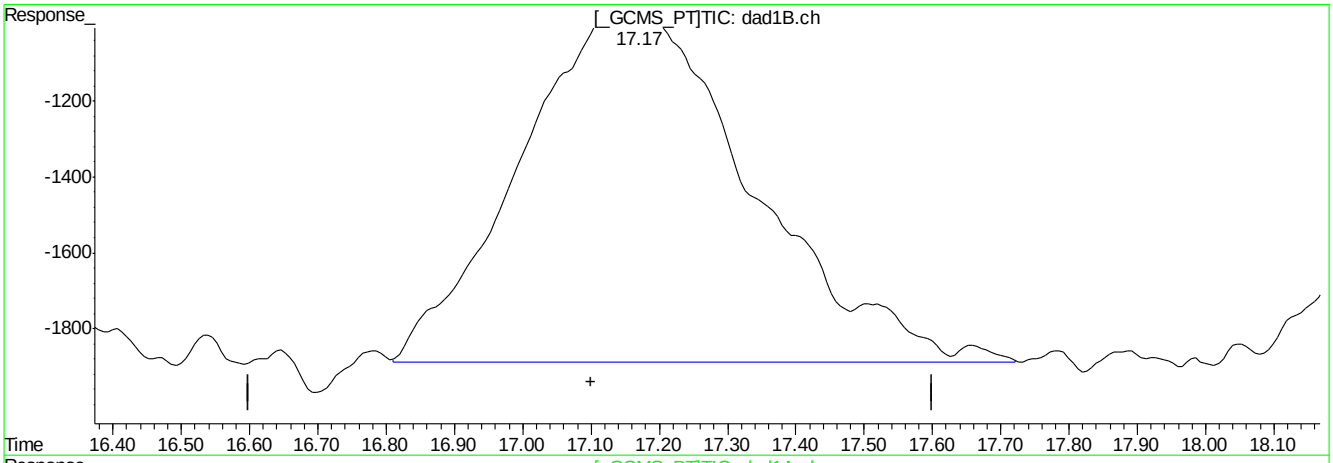
response 208217

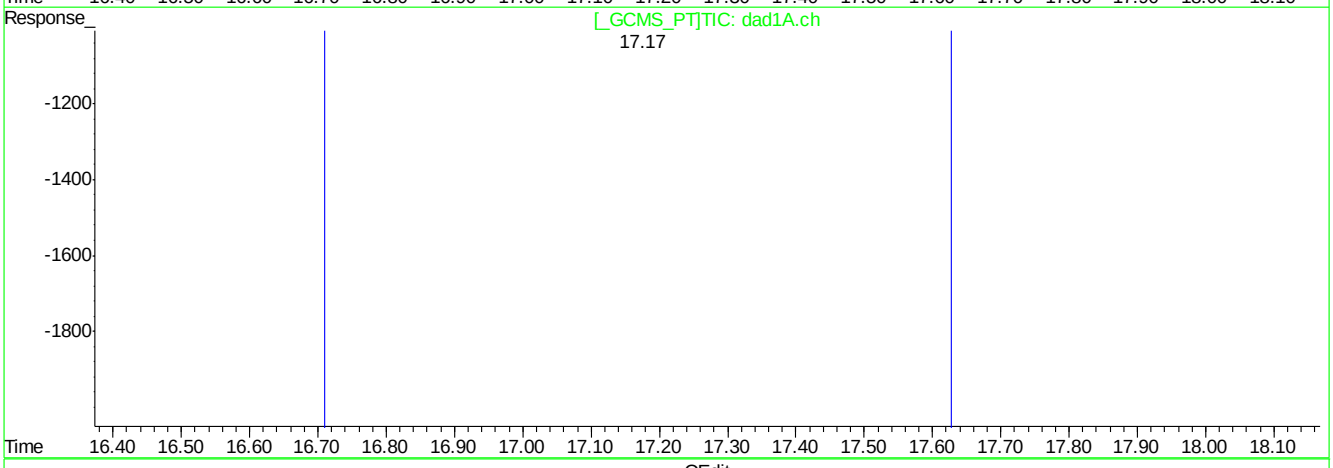
(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:17:52 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(17) p-Nitrotoluene

17.17min 19.281ppb m

response 219157

(17) p-Nitrotoluene #2

17.17min 27.186ppb

response 564760

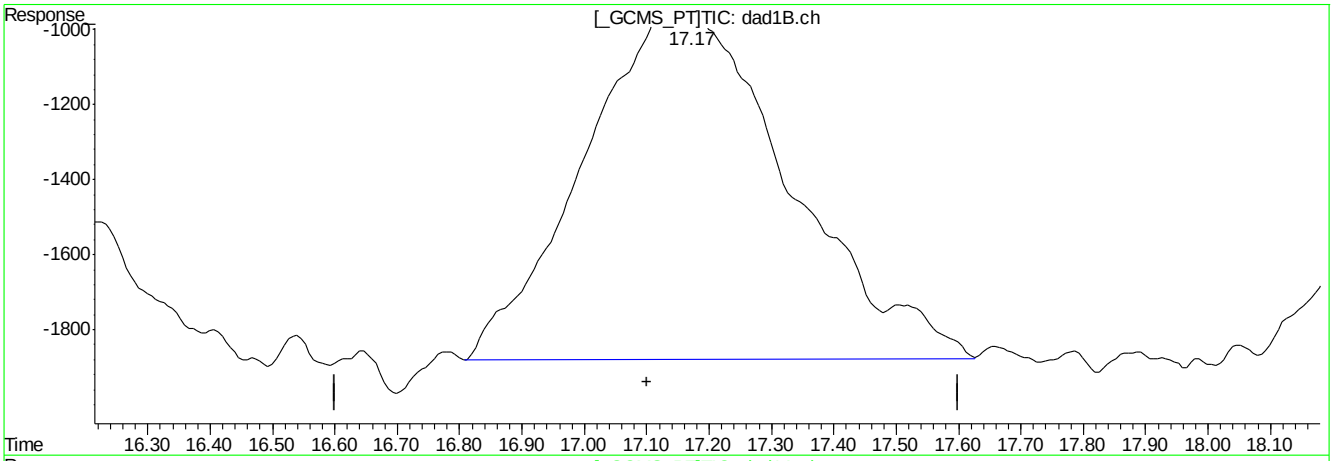
(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:18:05 2019

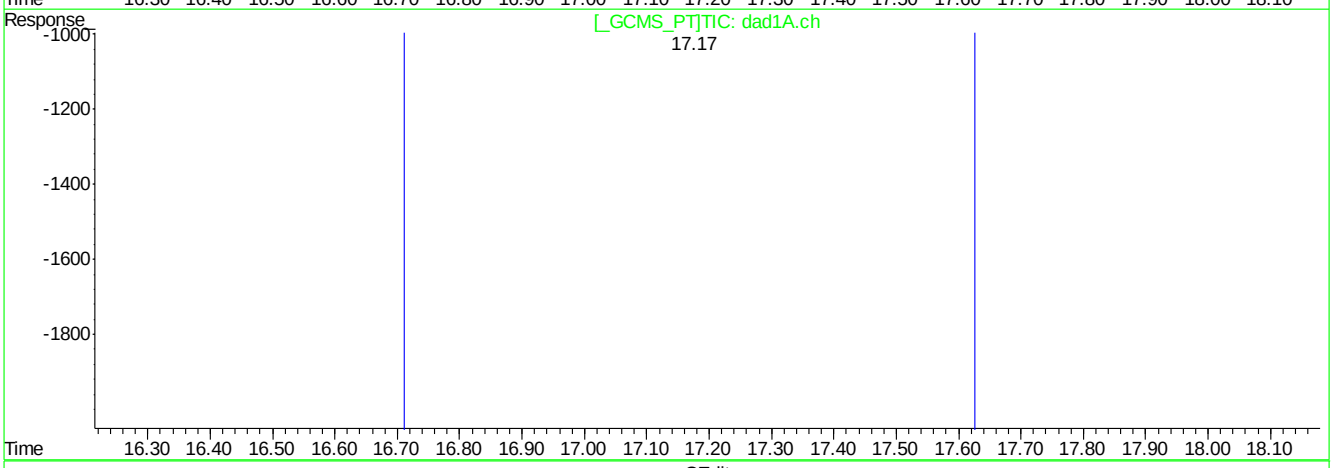
GG617747.D edits: p-Nitrotoluene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(18) 4-Amino-2,6-Dinitrotoluene

17.17min 18.804ppb m

response 213733

(18) 4-Amino-2,6-Dinitrotoluene #2

17.17min 27.184ppb

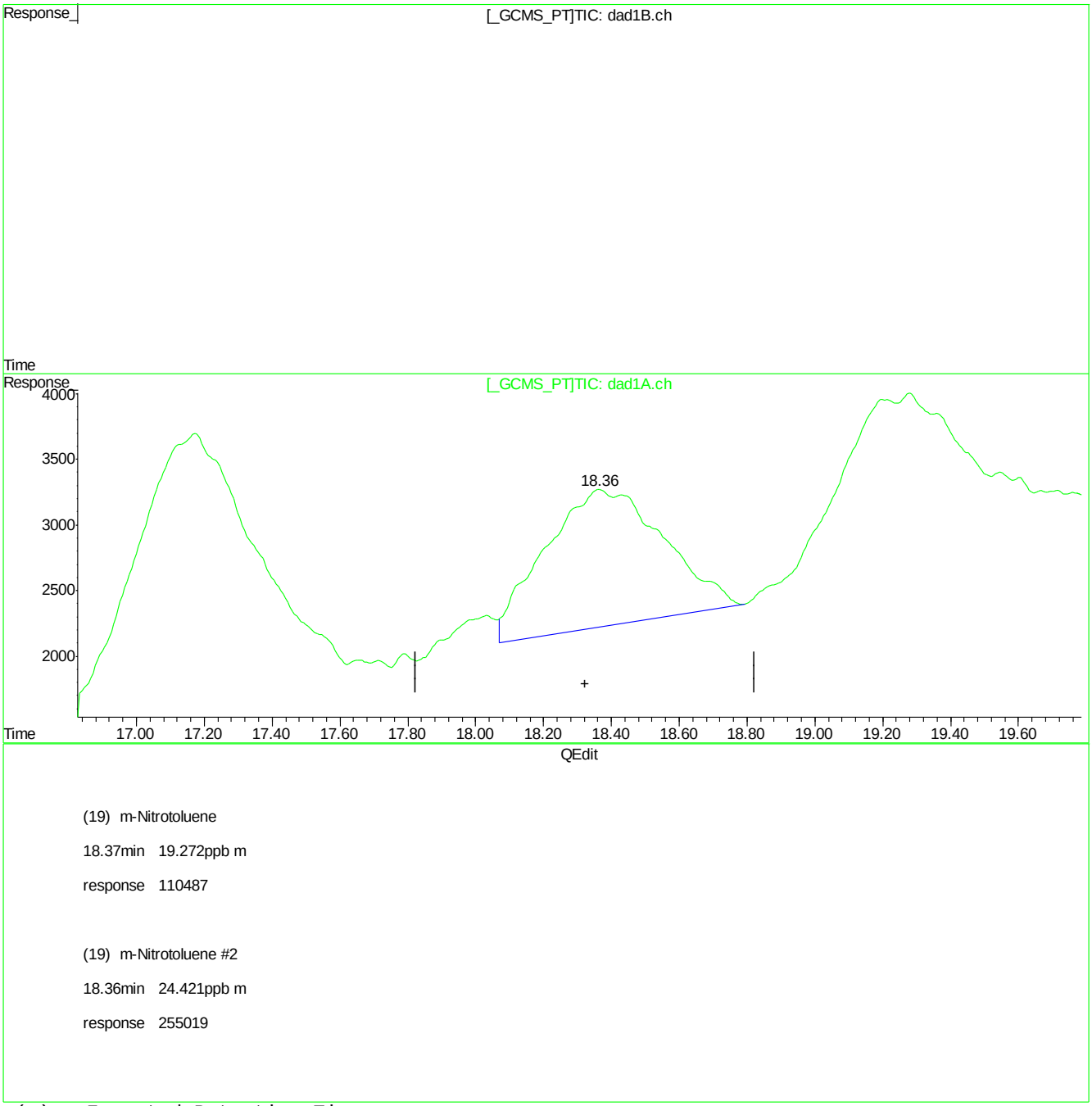
response 564760

(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:18:12 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(19) m-Nitrotoluene

18.37min 19.272ppb m

response 110487

(19) m-Nitrotoluene #2

18.36min 24.421ppb m

response 255019

(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:18:24 2019

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
09/26/19 16:28

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12:34 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.55	13.52	216587	343039	41.601	33.928m
	Spiked Amount 500.000	Range 70 - 136		Recovery =		8.32%#	6.79%#
	Target Compounds						
1)	TNX	4.96	4.96	283262	285743	49.866m	50.196m
2)	HMX	5.41	5.41	124790	130111	33.819m	35.307m
3)	DNX	5.48	5.48	210608	209215	38.829m	39.007m
4)	MNX	6.32	6.32	221441	221012	37.947m	37.875m
5)	1,3,5-Trinitrobe	7.14	7.14	483501	483501	50.816	50.968
6)	RDX	7.56	7.56	239398	239398	51.793	52.174
7)	1,3-Dinitrobenze	9.50	9.50	670221	555145	50.061m	54.739m
8)	Nitrobenzene	10.42	10.41	424717	468190	50.067	55.327m
9)	2,4,6-Trinitroto	11.03	11.03	466855	628341	50.186	52.723m
10)	Nitroglycerin	0.00	0.00	0	0	N.D.	N.D. d
11)	Tetryl	12.13	12.12	342824	541733	49.699	41.127m
13)	2,6-Dinitrotolue	13.89	13.87	329483	542159	52.677	57.034
14)	2,4-Dinitrotolue	14.58	14.60	571403	460842	47.062	52.465
15)	o-Nitrotoluene	16.06	16.06	227215	397827	40.609	39.455
16)	3,5-Dinitroanili	15.46	15.46	469052	839109	43.124	44.407
17)	p-Nitrotoluene	17.08	17.09	518543	1060606	45.620	51.055m
18)	4-Amino-2,6-Dini	17.08	17.09	518543	963679	45.620	46.386m
19)	m-Nitrotoluene	18.31	18.31	254437	395224	44.382	37.847m
20)	2-Amino-4,6-Dini	19.17	19.19	390617	670153	45.277	53.984
21)	PETN	0.00	20.26	0	223792	N.D.	88.985 #

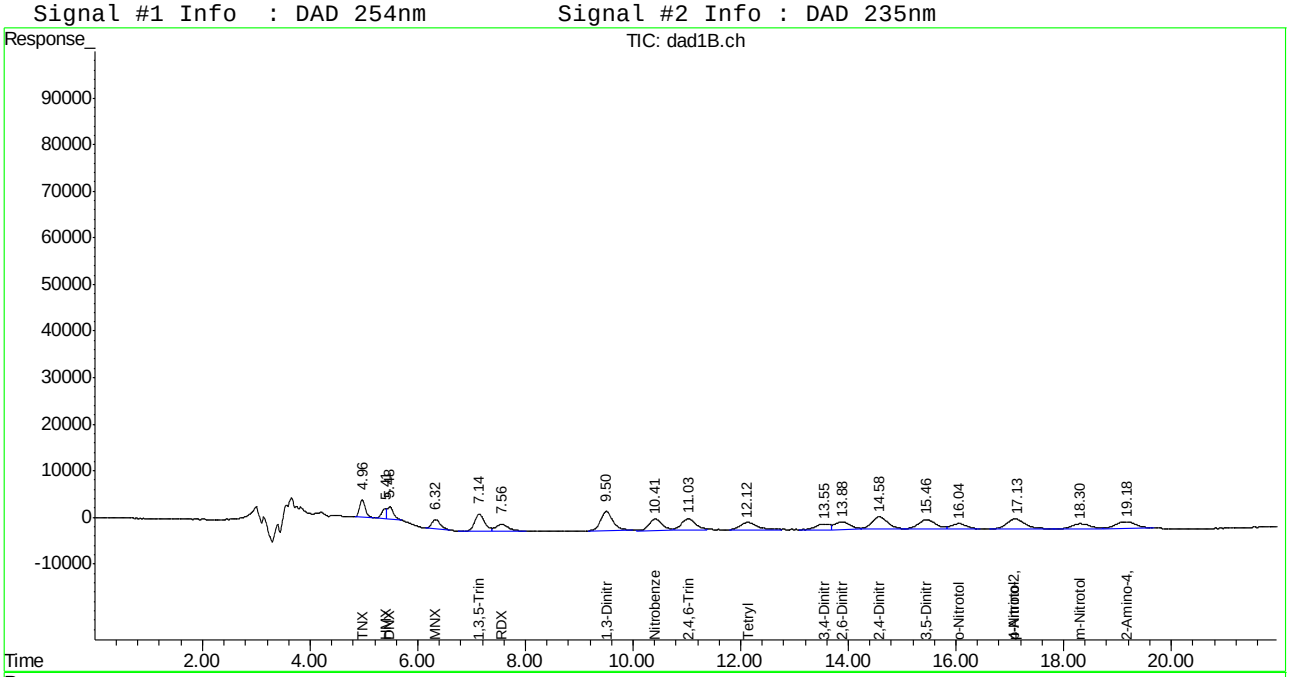
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

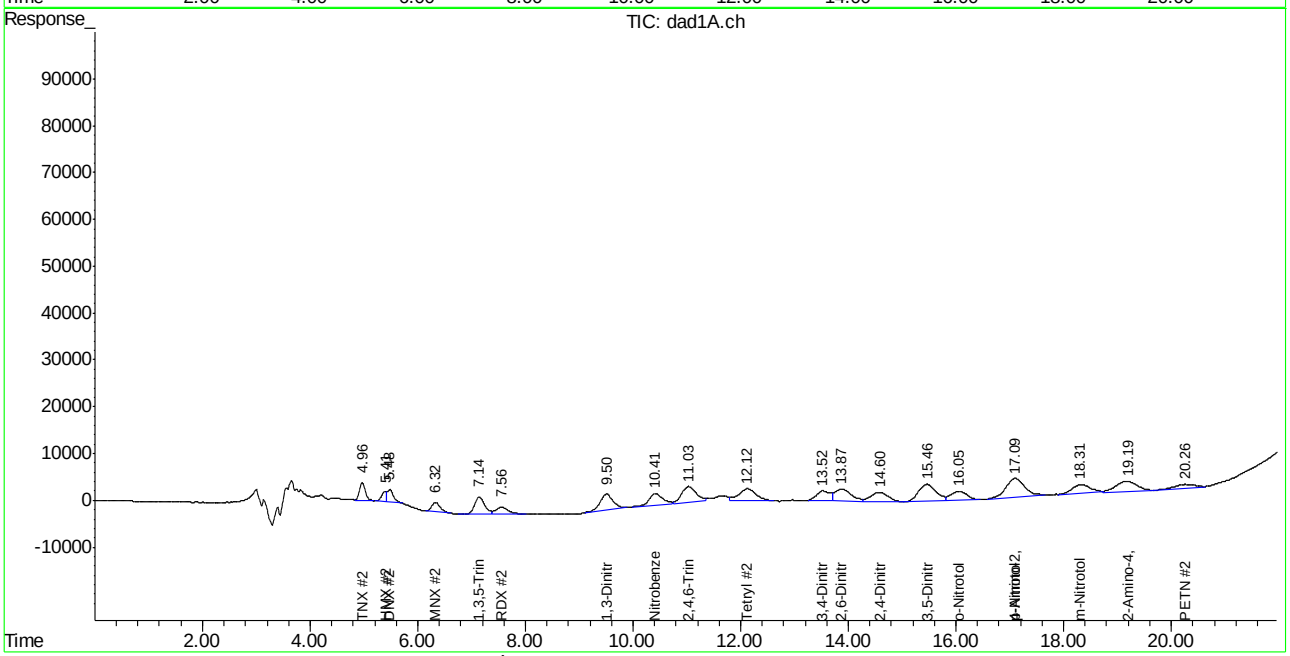
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:36 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

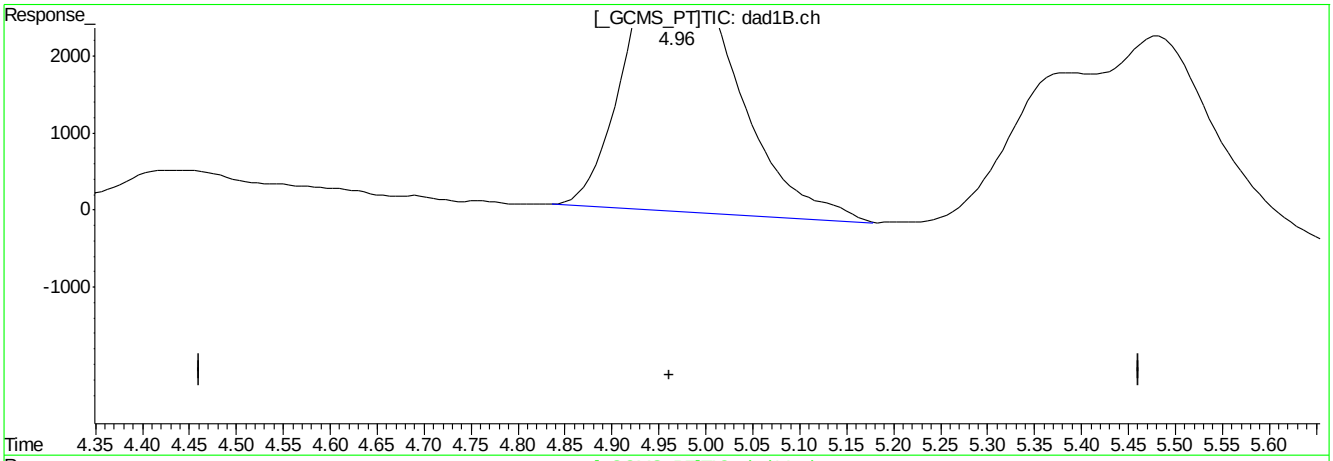
Sample Number: GGG2769-IC2769
Lab FileID: GG617748.D
Injection Time: 09/25/19 20:59
Method: SW846 8330B
Analyst approved: 09/26/19 16:07 William Hustedde
Supervisor approved: 09/26/19 16:28 Naresh Jiawan

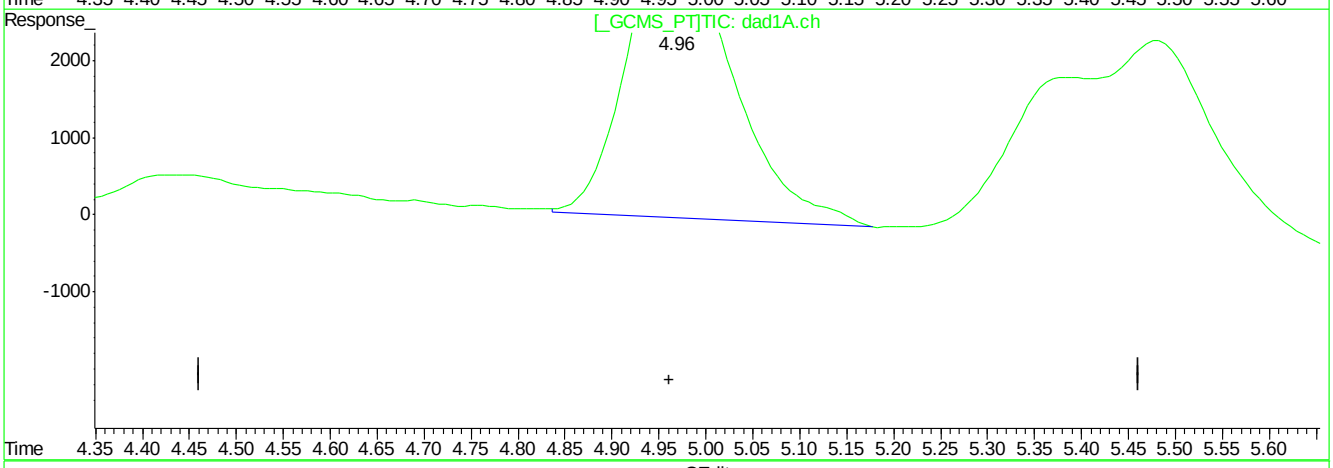
Parameter	CAS	Sig#	R.T. (min.)	Reason
TNX		1	4.96	Poor instrument integration
TNX		2	4.96	Poor instrument integration
HMX	2691-41-0	1	5.41	Poor instrument integration
HMX	2691-41-0	2	5.41	Poor instrument integration
DNX		1	5.48	Poor instrument integration
DNX		2	5.48	Poor instrument integration
MNX		1	6.32	Poor instrument integration
MNX		2	6.32	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	1	9.50	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	9.50	Poor instrument integration
Nitrobenzene	98-95-3	2	10.41	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	2	11.03	Poor instrument integration
Tetryl	479-45-8	2	12.12	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	2	13.52	Poor instrument integration
4-amino-2,6-Dinitrotoluene	19406-51-0	2	17.09	Poor instrument integration
p-Nitrotoluene	99-99-0	2	17.09	Poor instrument integration
m-Nitrotoluene	99-08-1	2	18.31	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(1) TNX

4.96min 49.866ppb m

response 283262

(1) TNX #2

4.96min 50.196ppb m

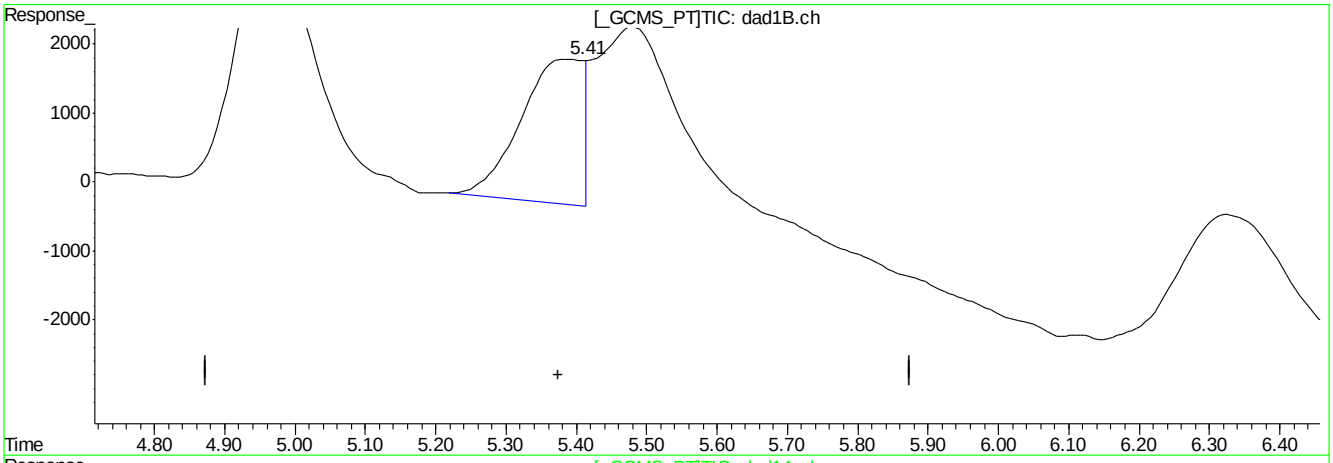
response 285743

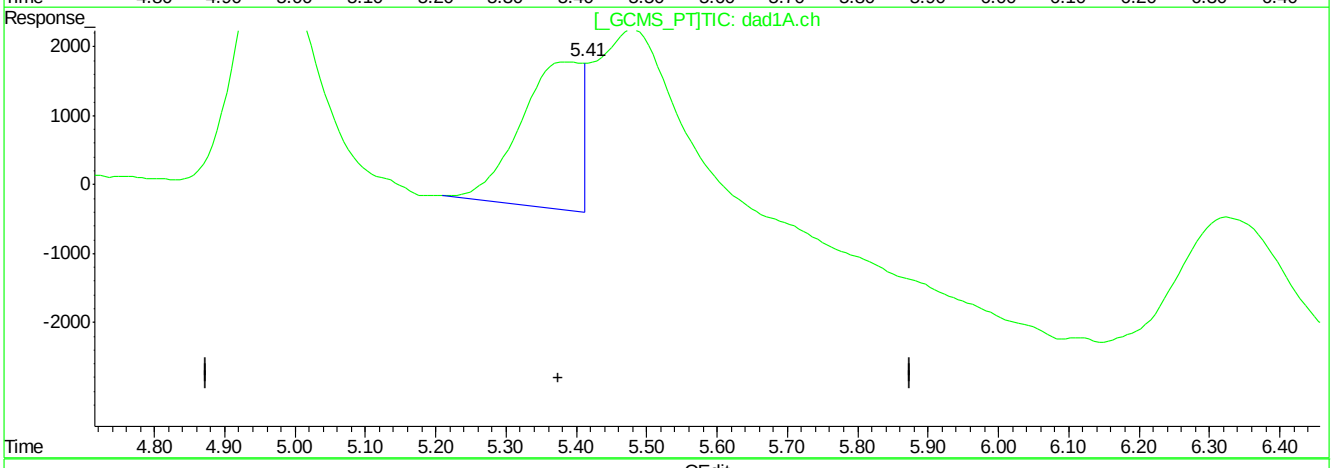
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:18:44 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.41min 33.819ppb m

response 124790

(2) HMX #2

5.41min 35.307ppb m

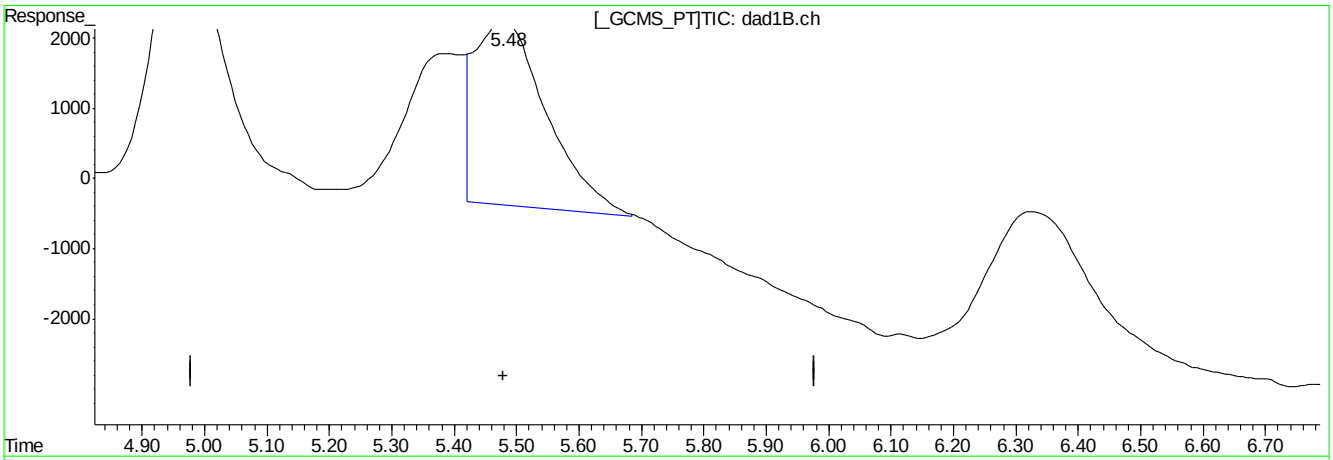
response 130111

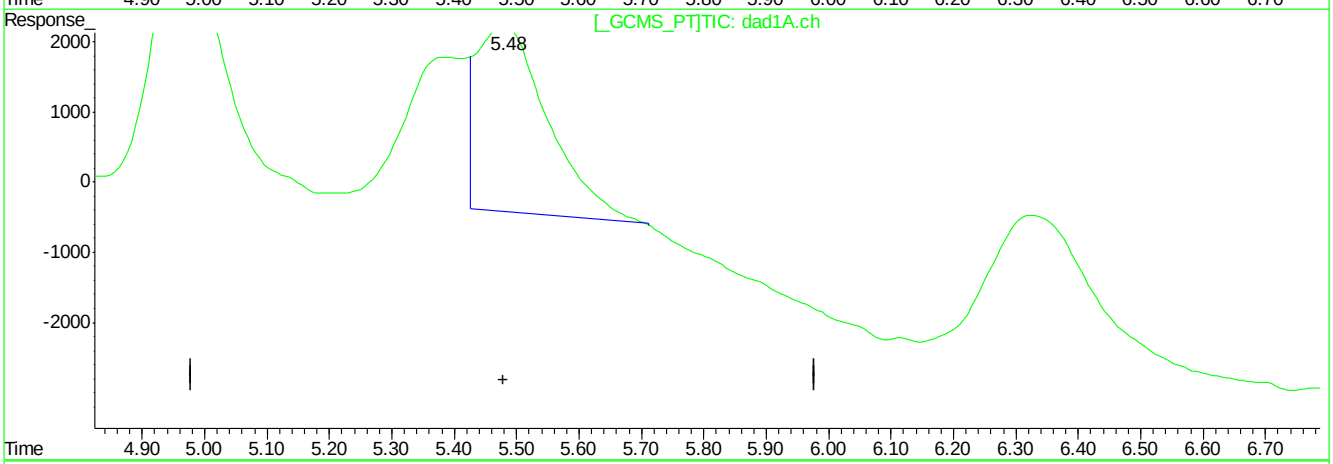
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:18:54 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(3) DNX

5.48min 38.829ppb m

response 210608

(3) DNX #2

5.48min 39.007ppb m

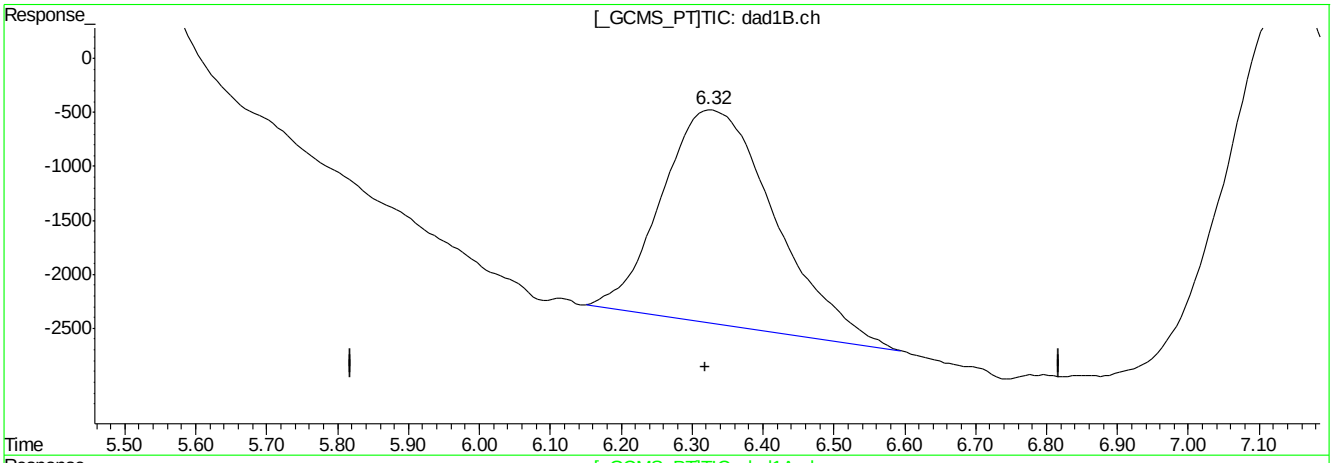
response 209215

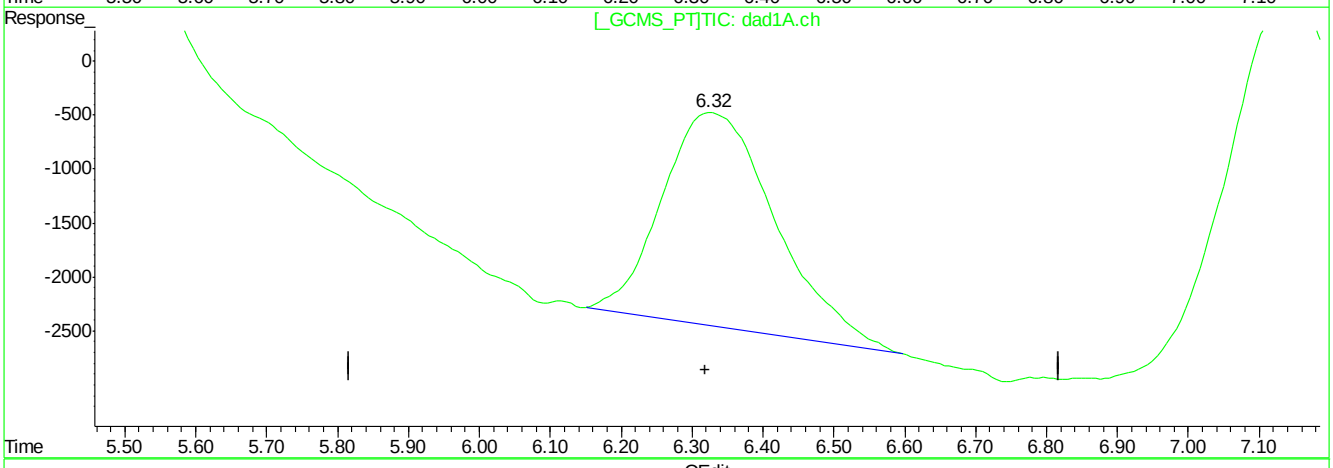
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:19:05 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(4) MNX

6.32min 37.947ppb m

response 221441

(4) MNX #2

6.32min 37.875ppb m

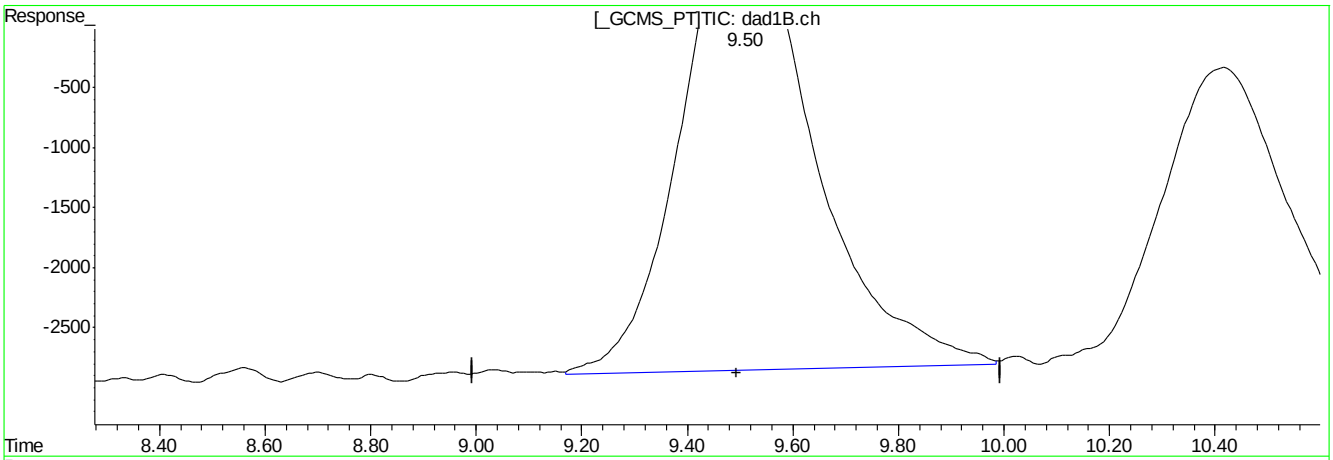
response 221012

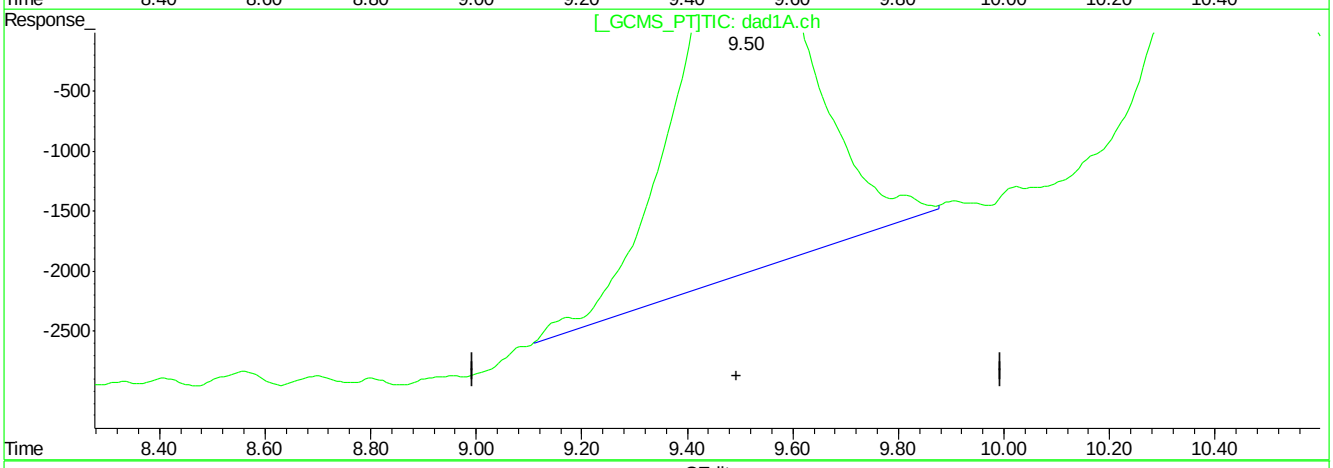
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:19:14 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

9.50min 50.061ppb m

response 670221

(7) 1,3-Dinitrobenzene #2

9.50min 54.739ppb m

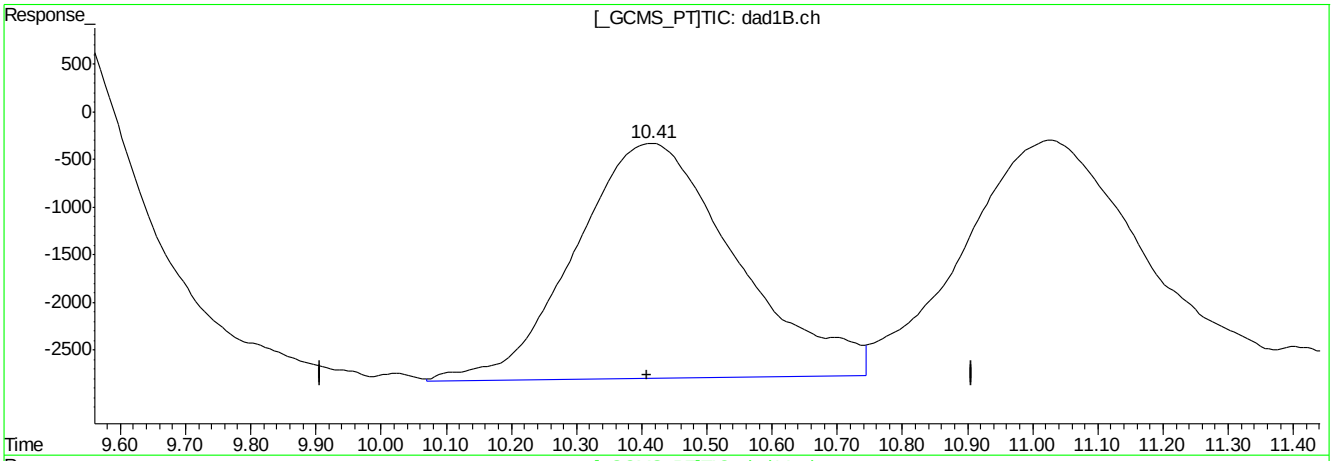
response 555145

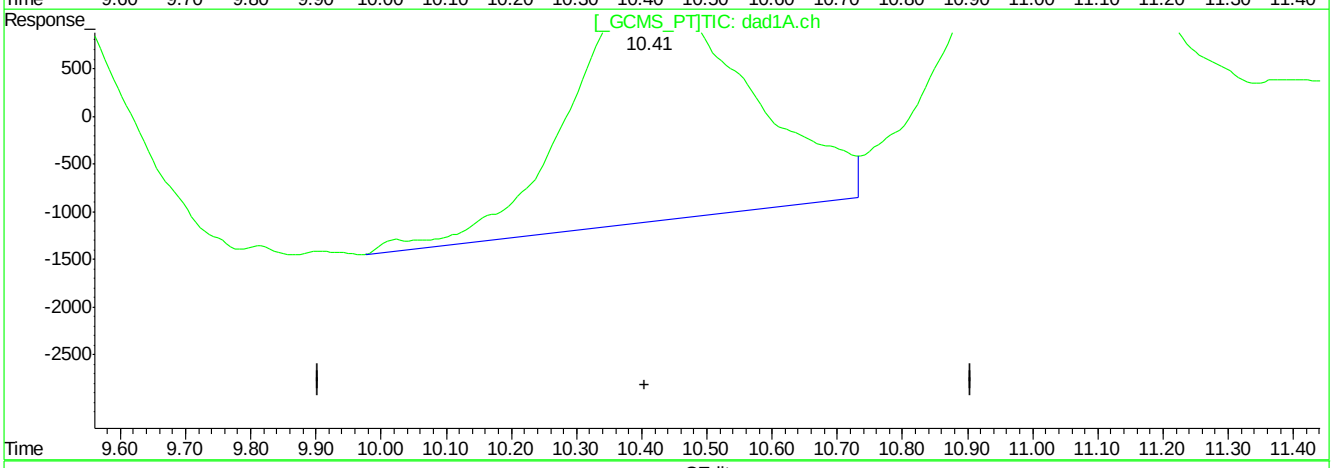
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:19:32 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(8) Nitrobenzene

10.42min 50.067ppb

response 424717

(8) Nitrobenzene #2

10.41min 55.327ppb m

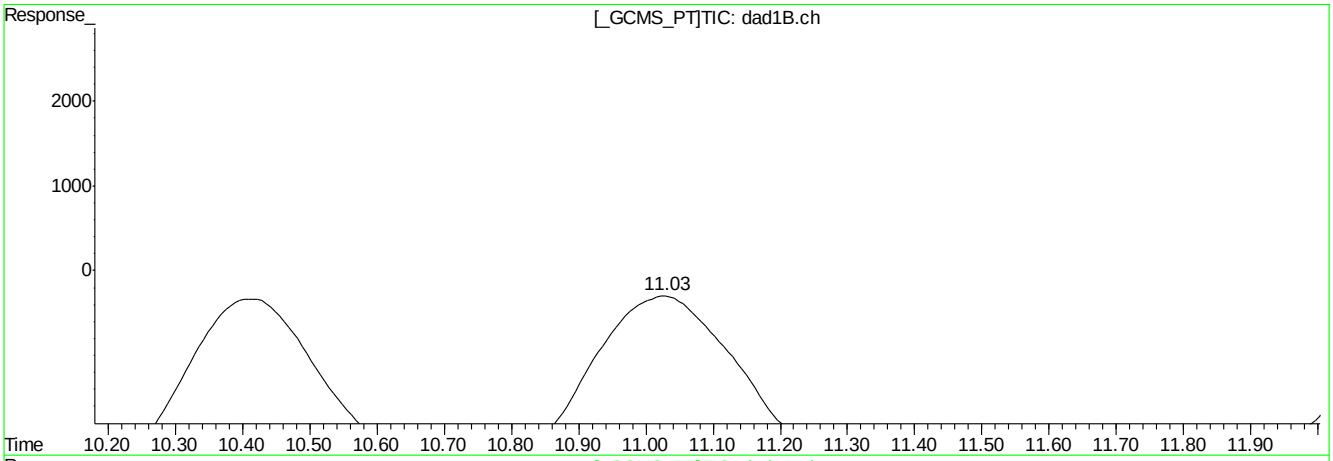
response 468190

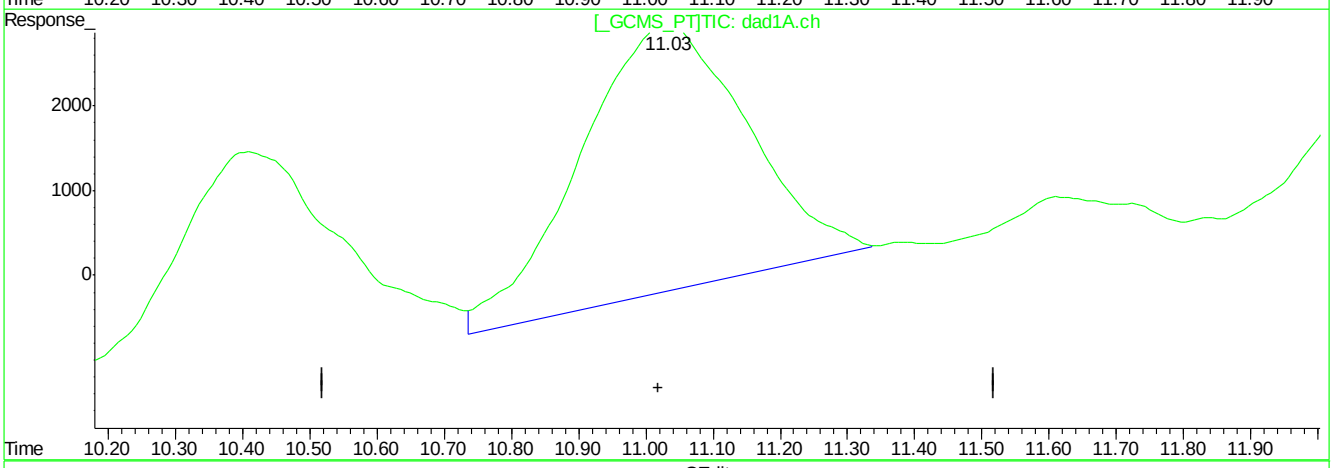
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:19:43 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.03min 50.186ppb

response 466855

(9) 2,4,6-Trinitrotoluene #2

11.03min 45.774ppb m

response 545525

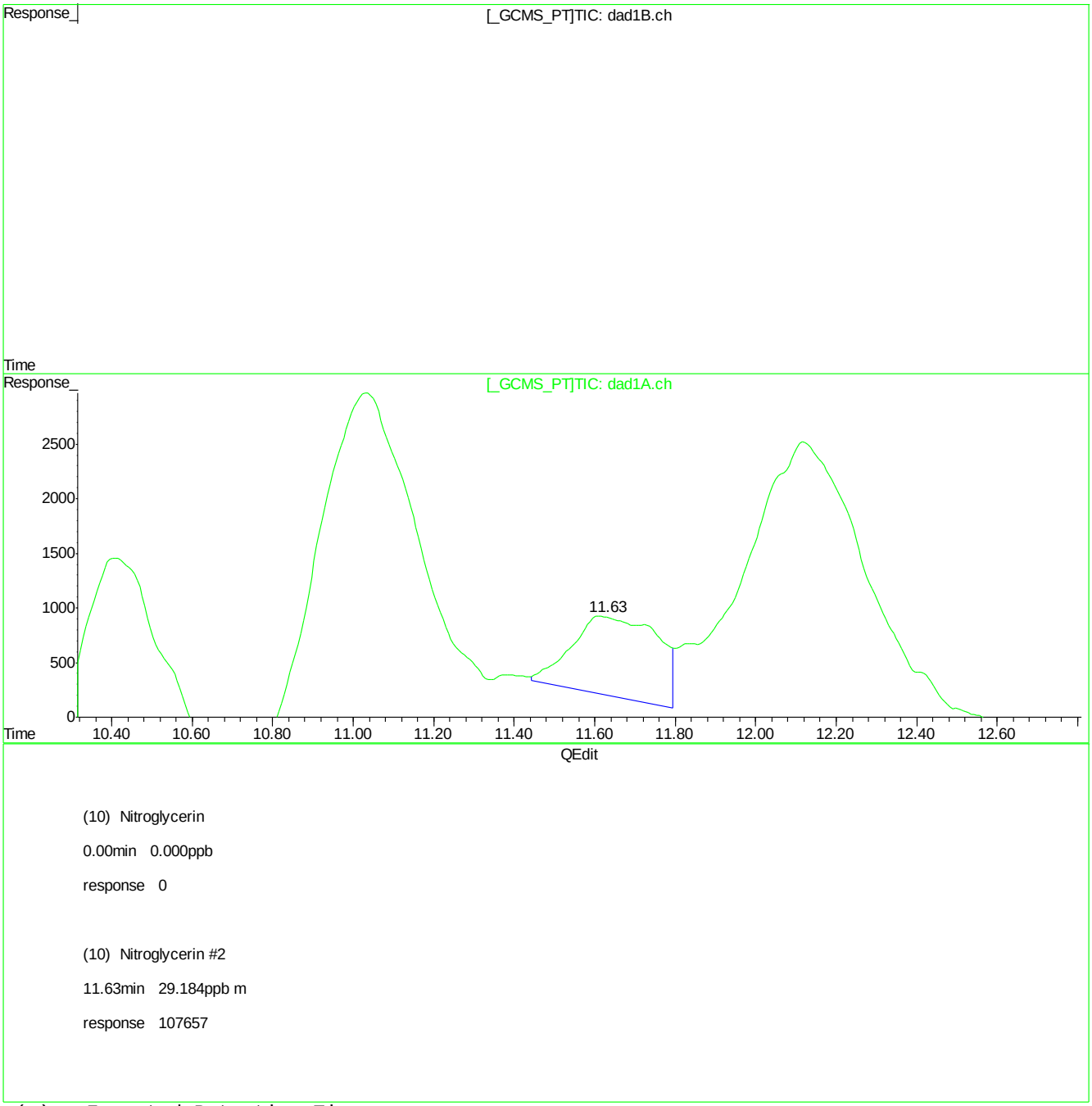
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:19:51 2019

GG617748.D edits: 2,4,6-Trinitrotoluene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration

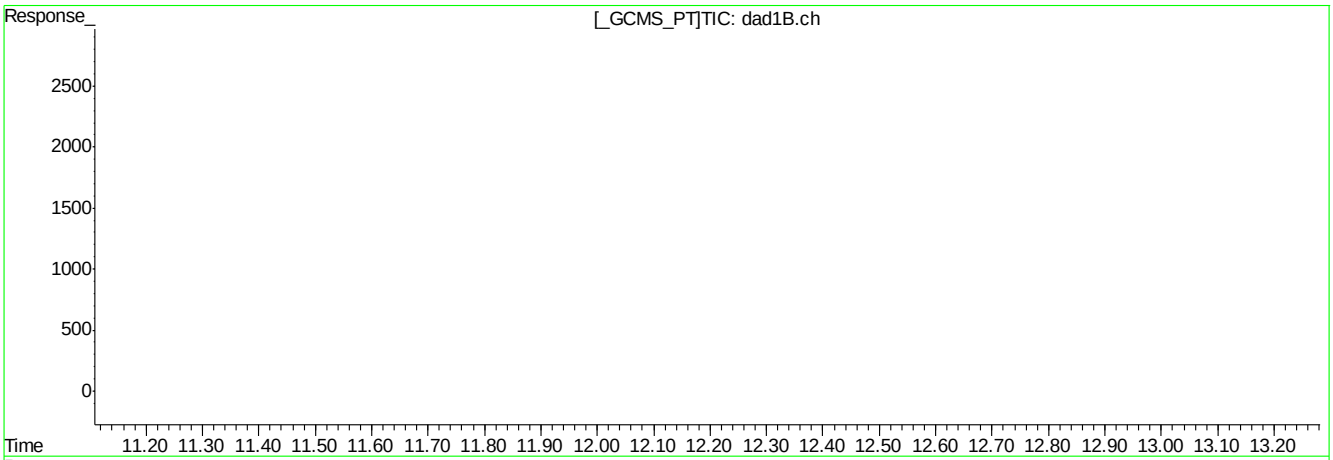


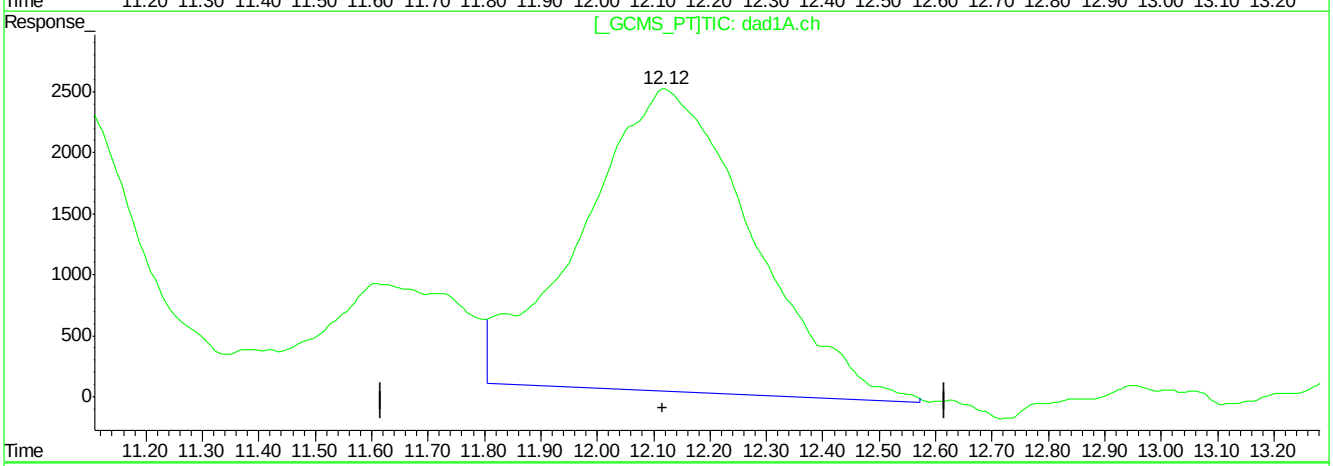
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:20:00 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(11) Tetryl

12.13min 49.699ppb

response 342824

(11) Tetryl #2

12.12min 39.278ppb m

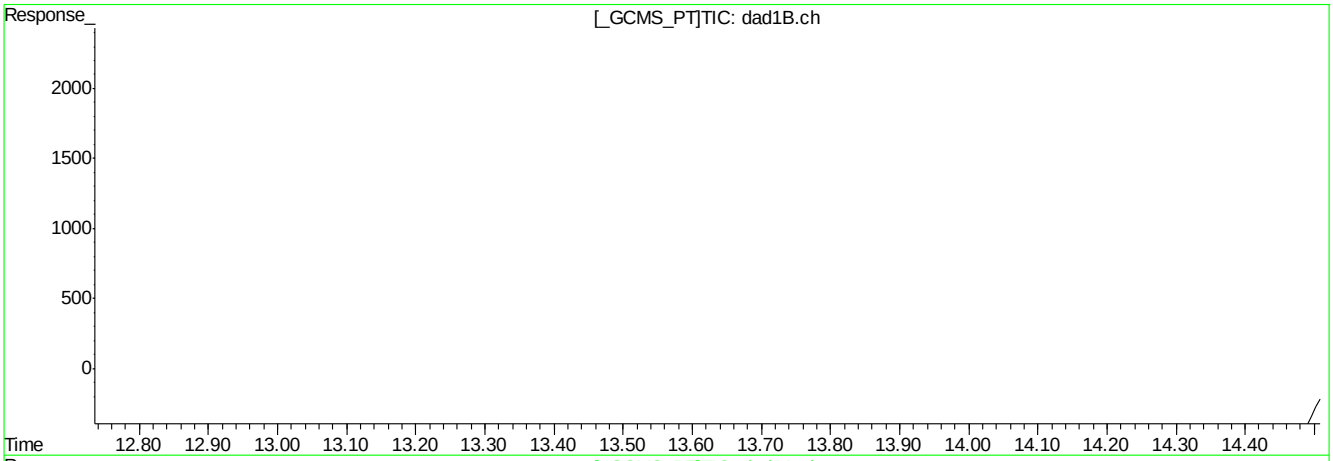
response 517408

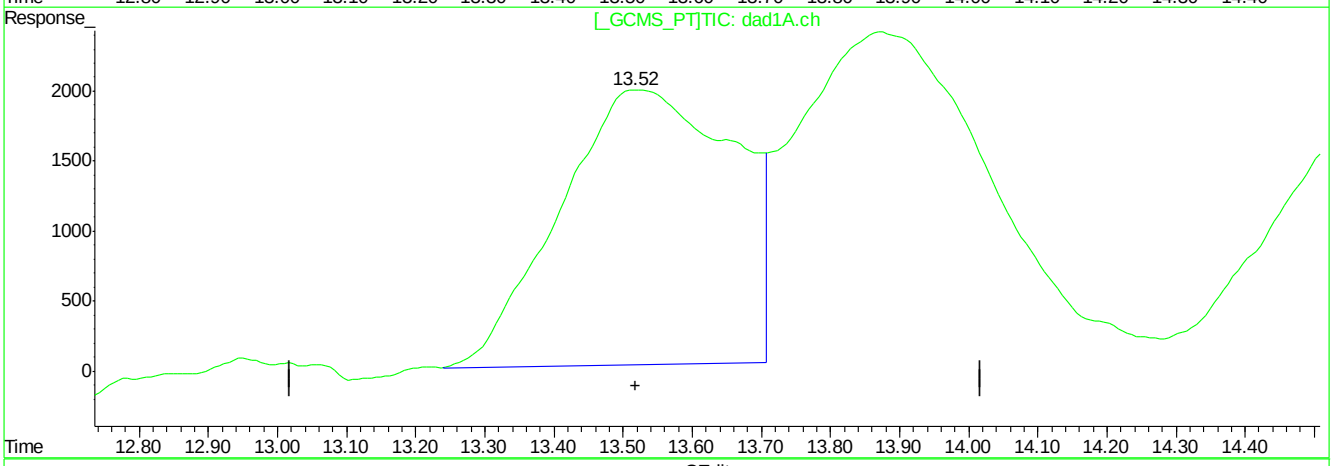
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:20:10 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(12) 3,4-Dinitrotoluene (S)

13.55min 41.601ppb

response 216587

(12) 3,4-Dinitrotoluene #2 (S)

13.52min 33.928ppb m

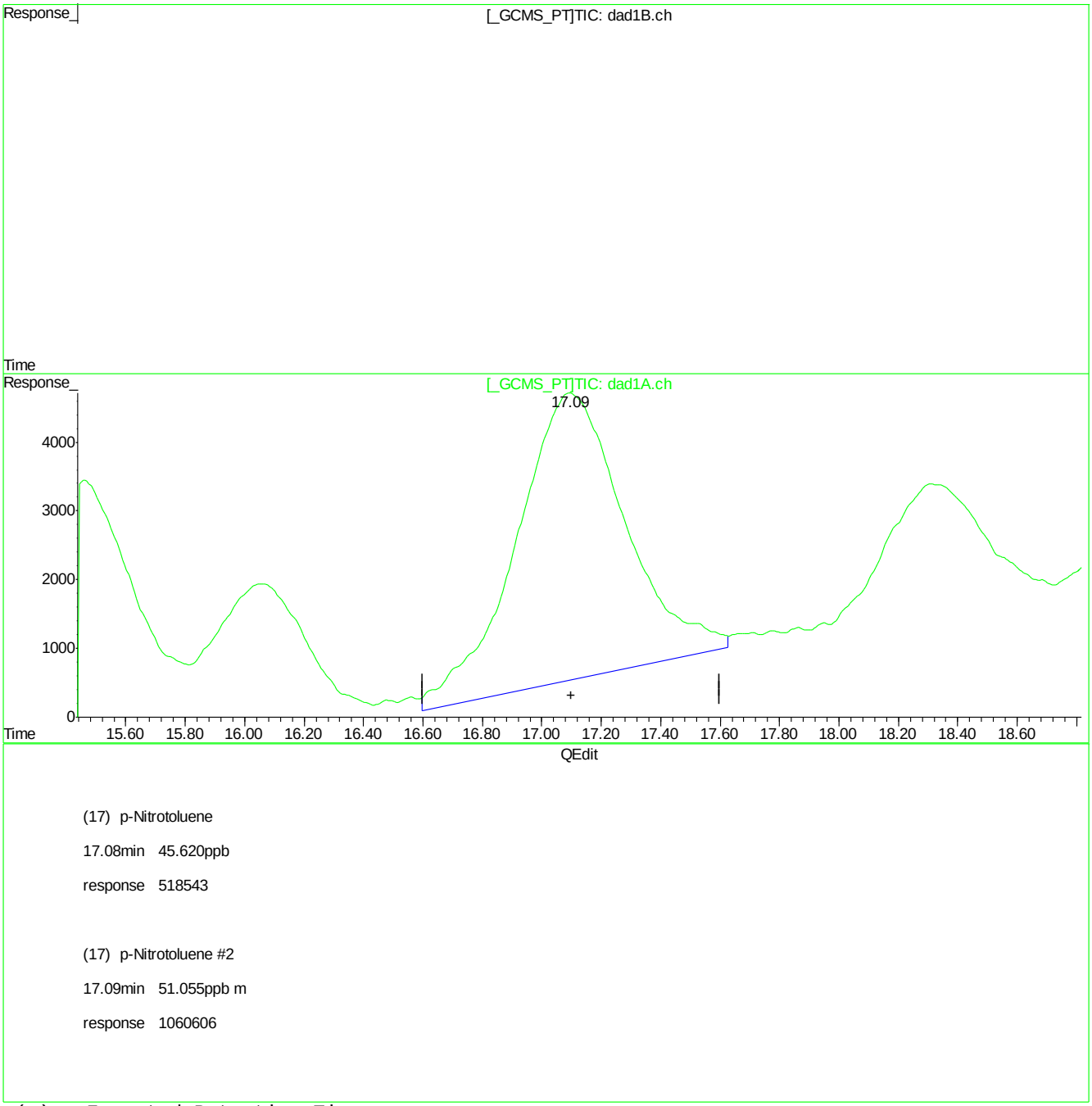
response 343039

(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:20:19 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(17) p-Nitrotoluene

17.08min 45.620ppb

response 518543

(17) p-Nitrotoluene #2

17.09min 51.055ppb m

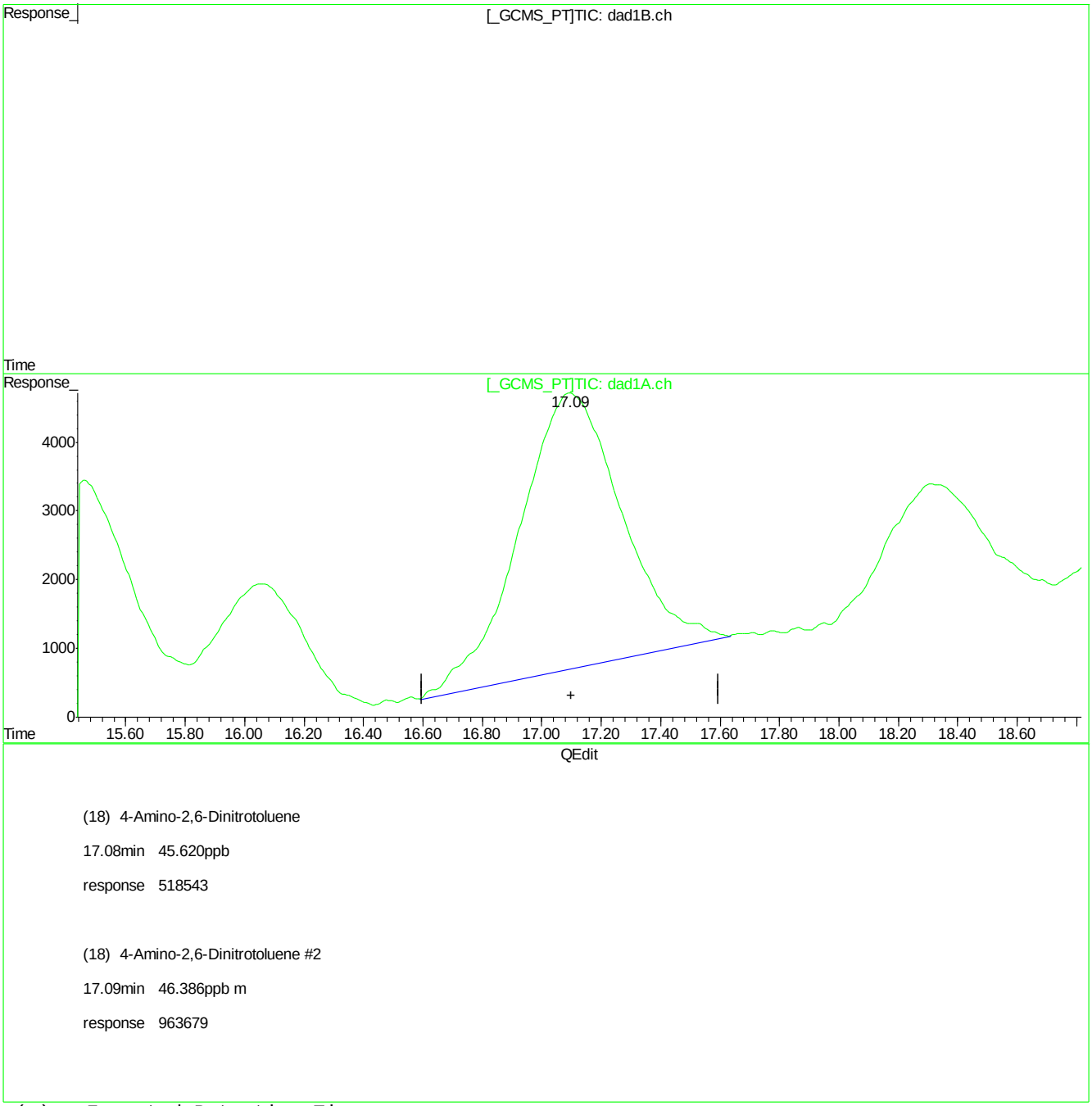
response 1060606

(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:20:39 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(18) 4-Amino-2,6-Dinitrotoluene

17.08min 45.620ppb

response 518543

(18) 4-Amino-2,6-Dinitrotoluene #2

17.09min 46.386ppb m

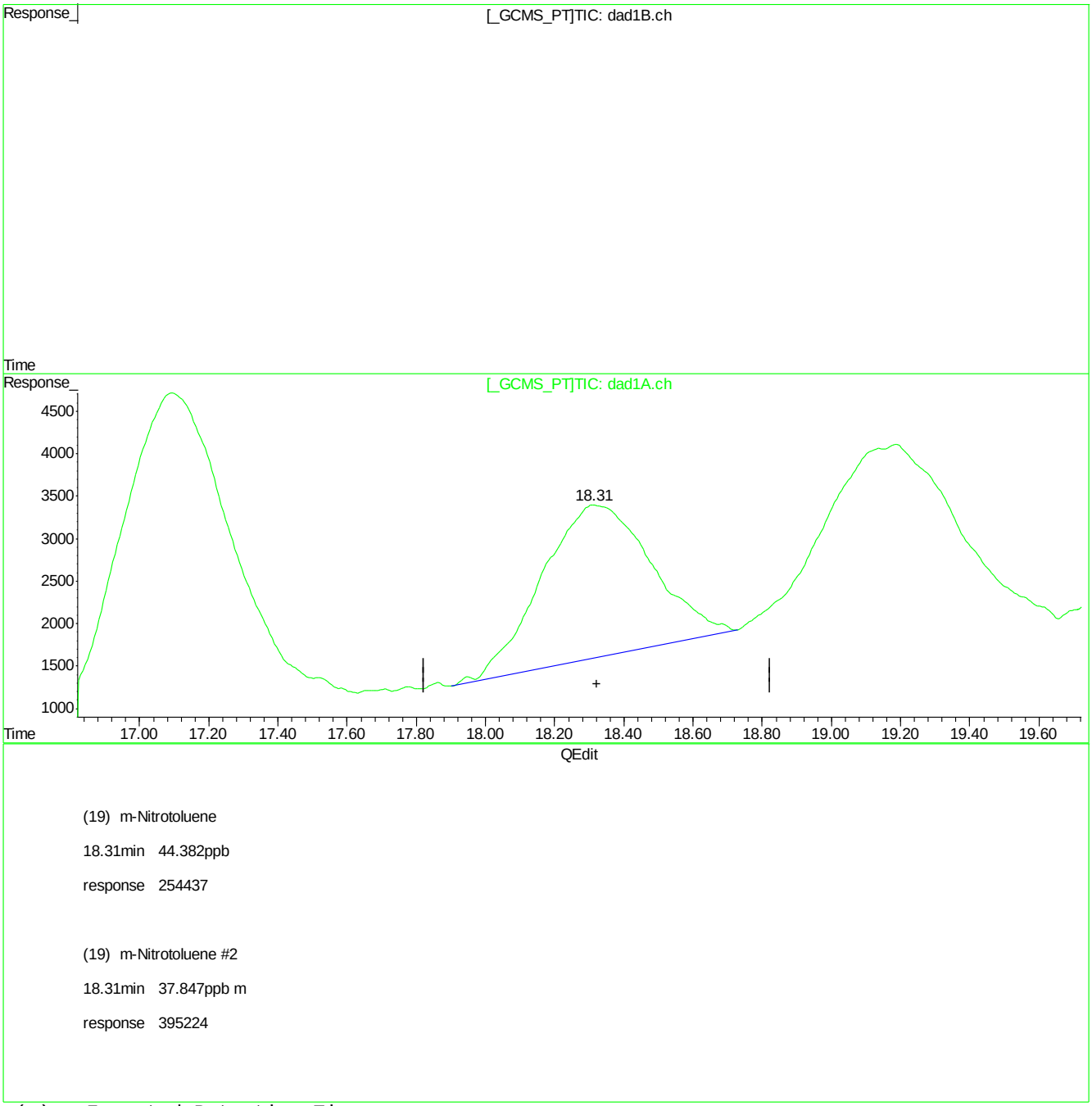
response 963679

(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:20:51 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(19) m-Nitrotoluene

18.31min 44.382ppb

response 254437

(19) m-Nitrotoluene #2

18.31min 37.847ppb m

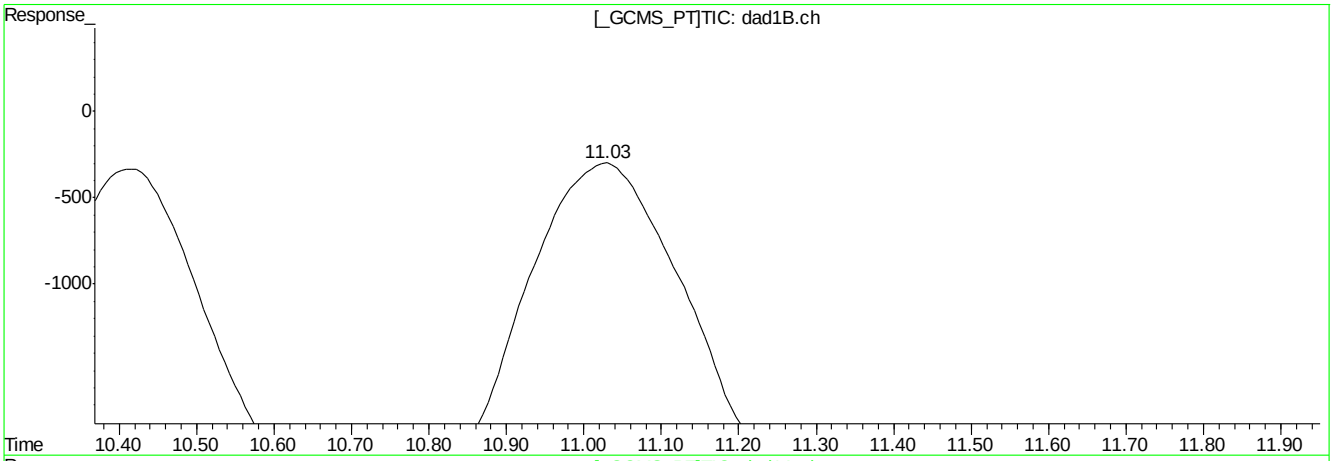
response 395224

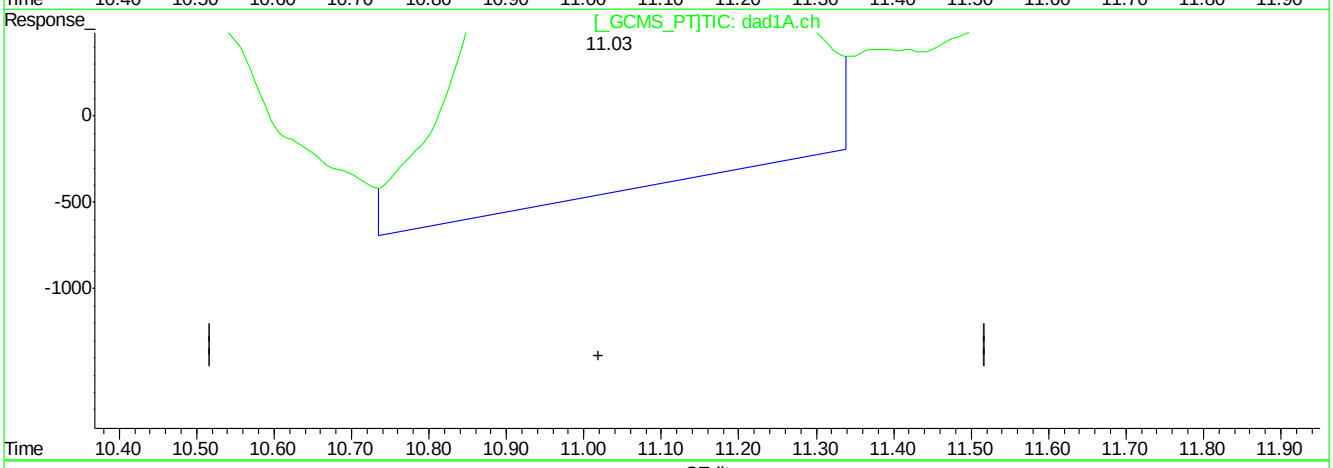
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:20:58 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:20 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.03min 50.186ppb

response 466855

(9) 2,4,6-Trinitrotoluene #2

11.03min 53.838ppb m

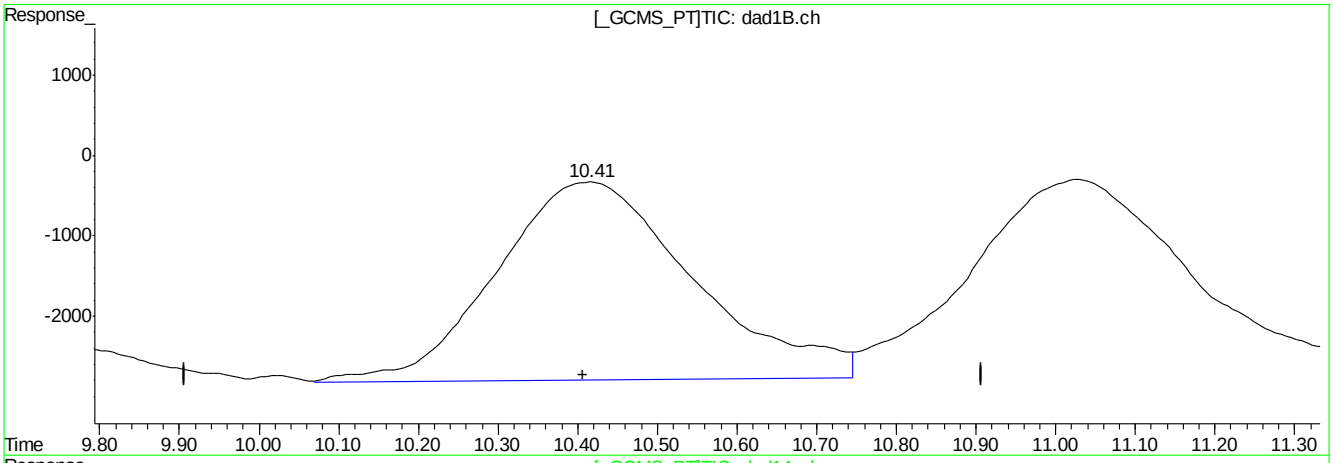
response 641631

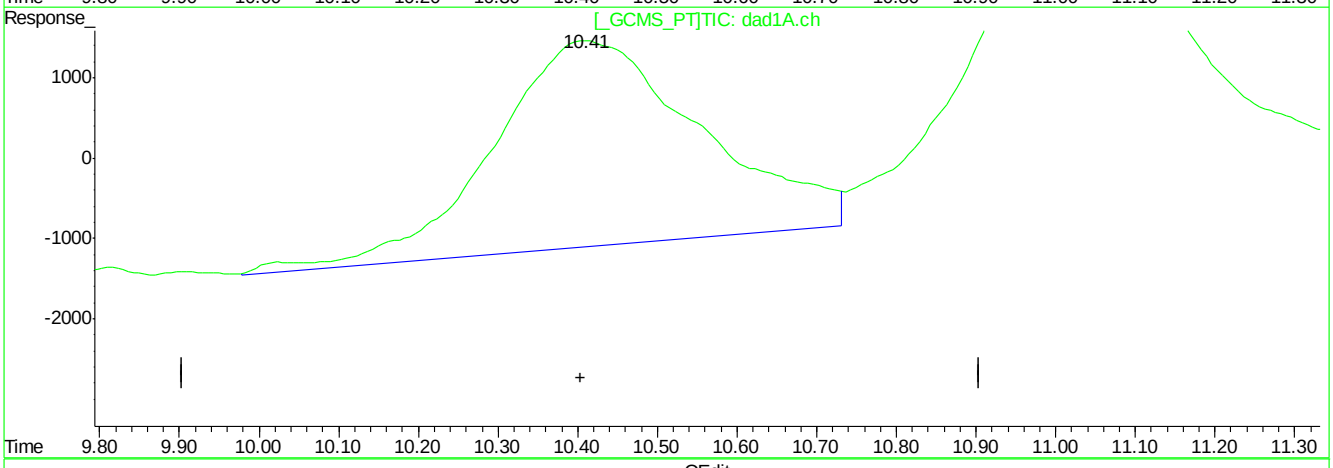
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:35:48 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:20 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(8) Nitrobenzene

10.42min 50.067ppb

response 424717

(8) Nitrobenzene #2

10.41min 55.327ppb m

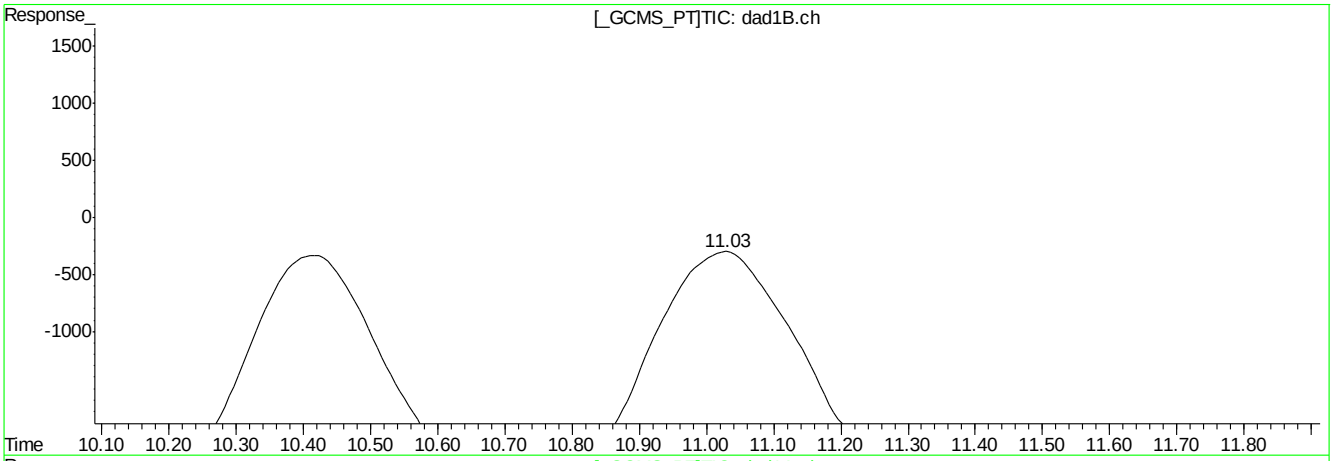
response 468190

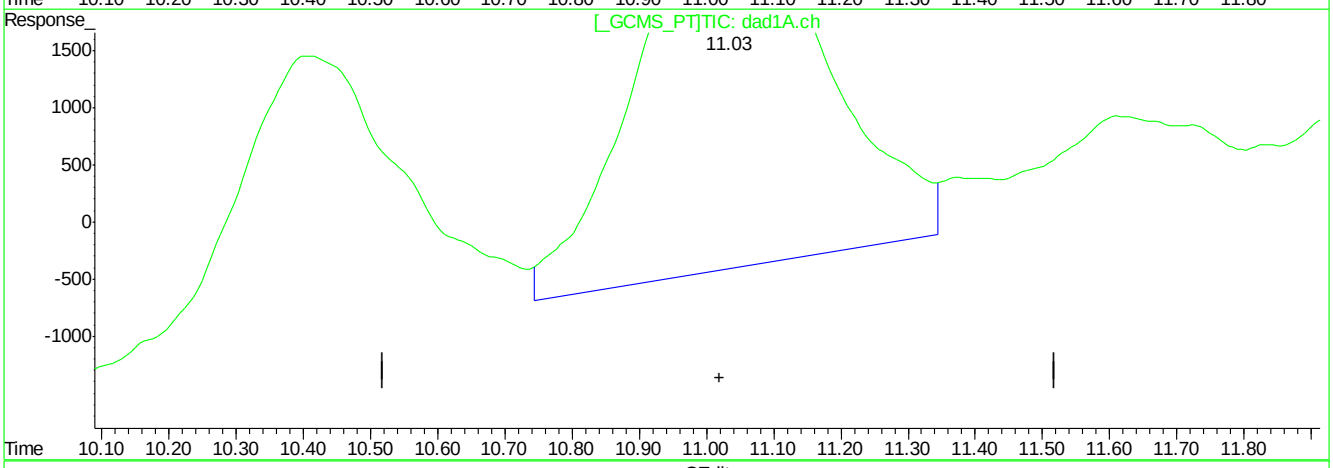
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:35:52 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:20 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.03min 50.186ppb

response 466855

(9) 2,4,6-Trinitrotoluene #2

11.03min 52.723ppb m

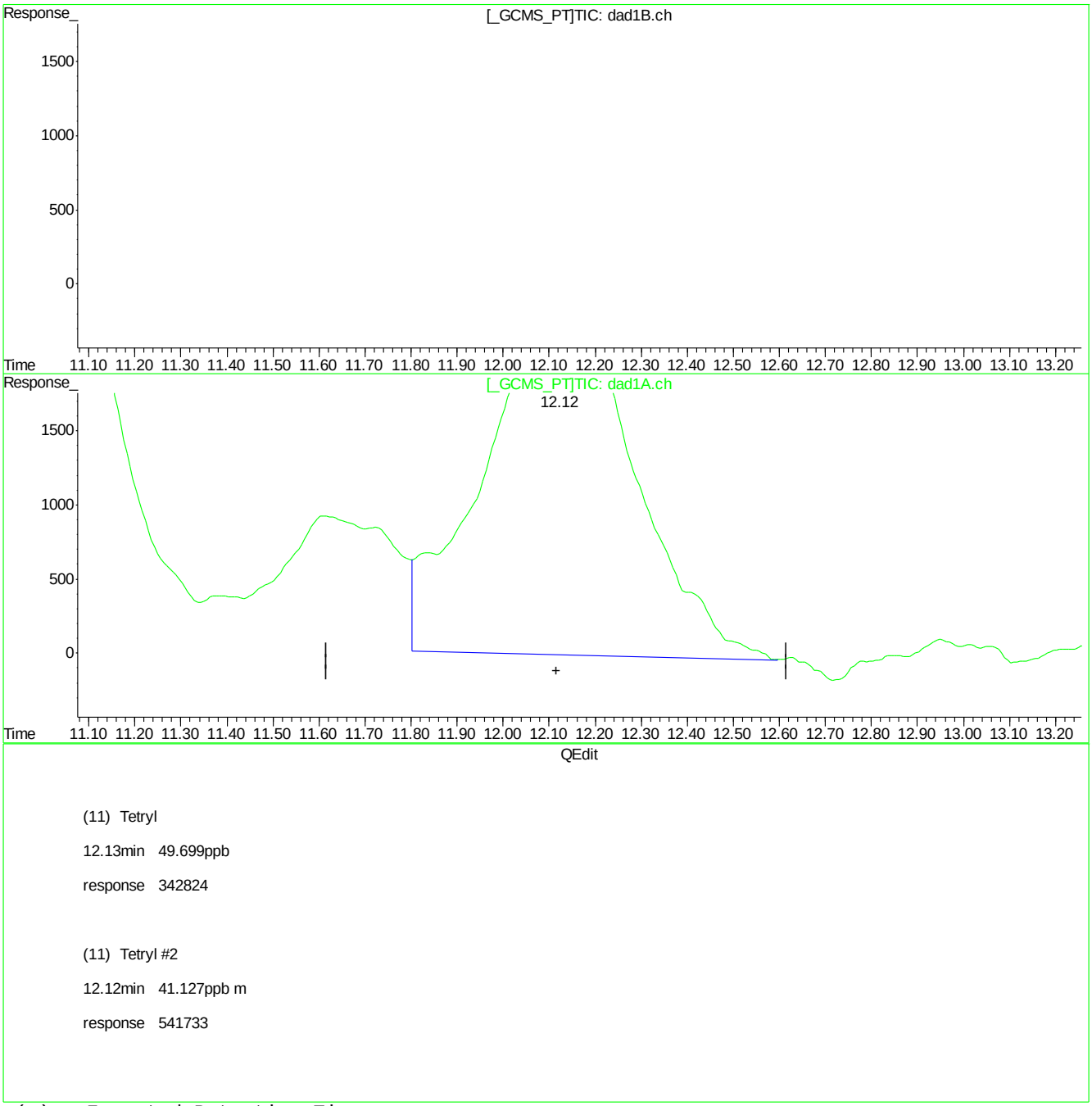
response 628341

(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:36:06 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:20 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(11) Tetryl

12.13min 49.699ppb

response 342824

(11) Tetryl #2

12.12min 41.127ppb m

response 541733

(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:36:14 2019

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
09/26/19 16:28

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12:35 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.54	13.54	480959	868537	92.381	85.881
	Spiked Amount 500.000	Range 70 - 136		Recovery =		18.48%#	17.18%#
	Target Compounds						
1)	TNX	4.96	4.96	627331	626725	110.436m	110.096m
2)	HMX	5.39	5.39	303509	306772	82.387m	83.377m
3)	DNX	5.48	5.48	478533	488896	88.393m	91.309m
4)	MNX	6.34	6.34	549848	549848	94.250	94.253
5)	1,3,5-Trinitrobe	7.14	7.14	1068826	1068826	112.334	112.669
6)	RDX	7.55	7.55	513642	513642	111.124	111.941
7)	1,3-Dinitrobenze	9.51	9.51	1496695	1034767	111.794	102.032m
8)	Nitrobenzene	10.42	10.42	939534	842434	110.754	99.633m
9)	2,4,6-Trinitroto	11.03	11.02	1095538	1275868	117.768	107.055m
10)	Nitroglycerin	0.00	11.66	0	376622	N.D.	102.113m#
11)	Tetryl	12.13	12.11	864235	1444030	125.289	109.804m
13)	2,6-Dinitrotolue	13.89	13.88	767928	1205926	122.774	126.901
14)	2,4-Dinitrotolue	14.58	14.56	1329488	796655	109.499	90.696
15)	o-Nitrotoluene	16.05	16.05	641941	843998	114.731	83.704
16)	3,5-Dinitroanili	15.44	15.45	1099231	1615264	101.063	85.482
17)	p-Nitrotoluene	17.09	17.09	1221156	2192222	107.434	105.529
18)	4-Amino-2,6-Dini	17.09	17.09	1221156	2192222	107.434	105.521
19)	m-Nitrotoluene	18.30	18.31	632999	1070219	110.414	102.486
20)	2-Amino-4,6-Dini	19.13	19.14	1024160	1389255	118.711	111.911
21)	PETN	0.00	20.29	0	233935	N.D.	93.016 #

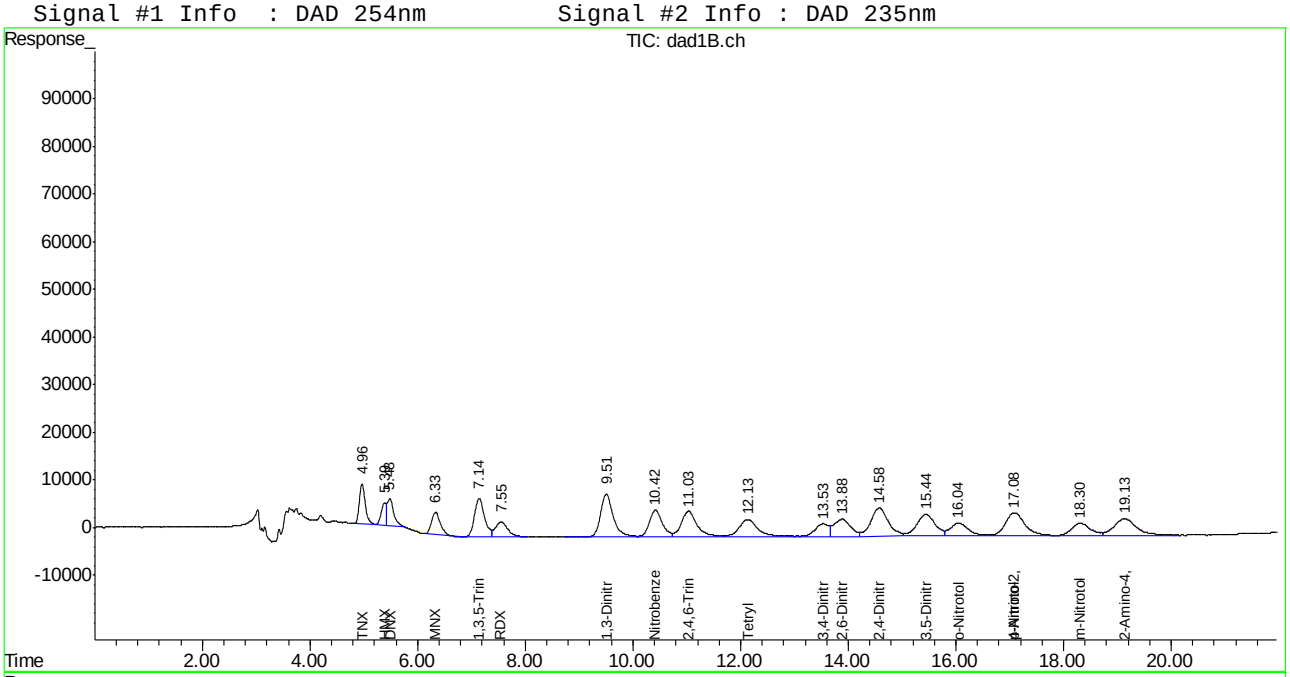
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

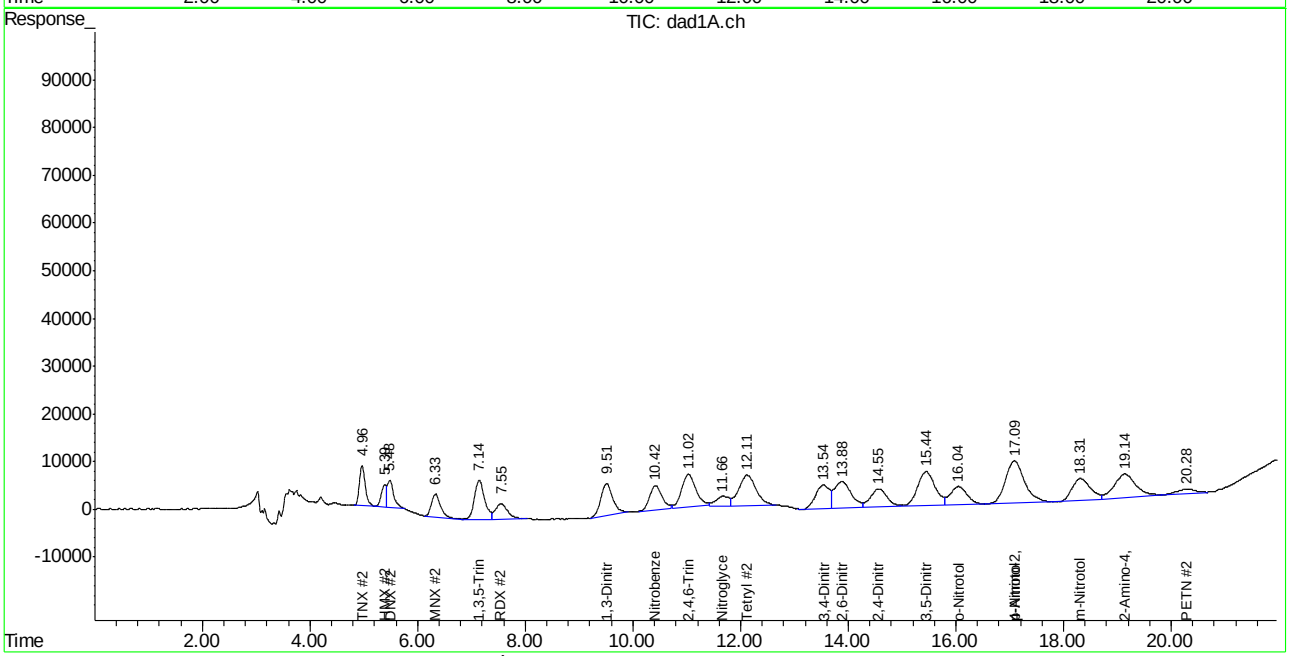
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:35 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

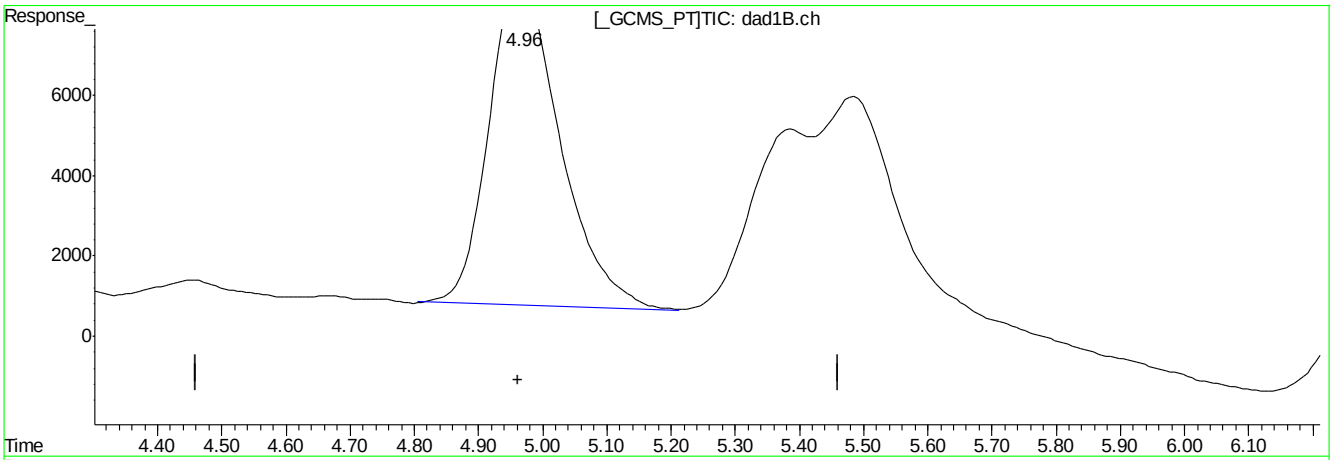
Sample Number: GGG2769-IC2769
Lab FileID: GG617749.D
Injection Time: 09/25/19 21:29
Method: SW846 8330B
Analyst approved: 09/26/19 16:07 William Hustedde
Supervisor approved: 09/26/19 16:28 Naresh Jiawan

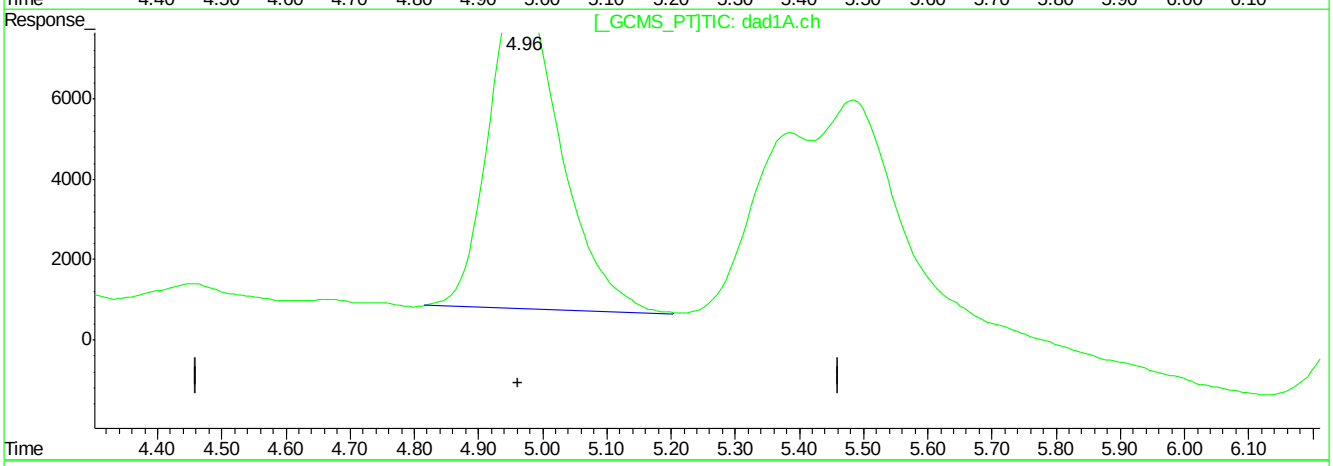
Parameter	CAS	Sig#	R.T. (min.)	Reason
TNX		1	4.96	Poor instrument integration
TNX		2	4.96	Poor instrument integration
HMX	2691-41-0	1	5.39	Poor instrument integration
HMX	2691-41-0	2	5.39	Poor instrument integration
DNX		1	5.48	Poor instrument integration
DNX		2	5.48	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	9.51	Poor instrument integration
Nitrobenzene	98-95-3	2	10.42	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	2	11.02	Poor instrument integration
Nitroglycerine	55-63-0	2	11.66	Poor instrument integration
Tetryl	479-45-8	2	12.11	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(1) TNX

4.96min 110.436ppb m

response 627331

(1) TNX #2

4.96min 110.096ppb m

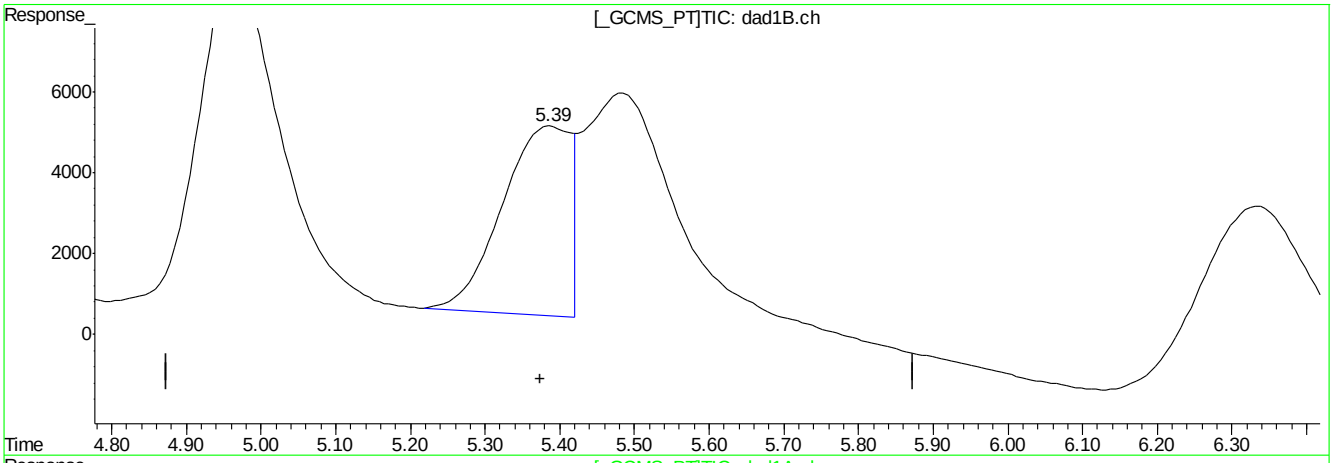
response 626725

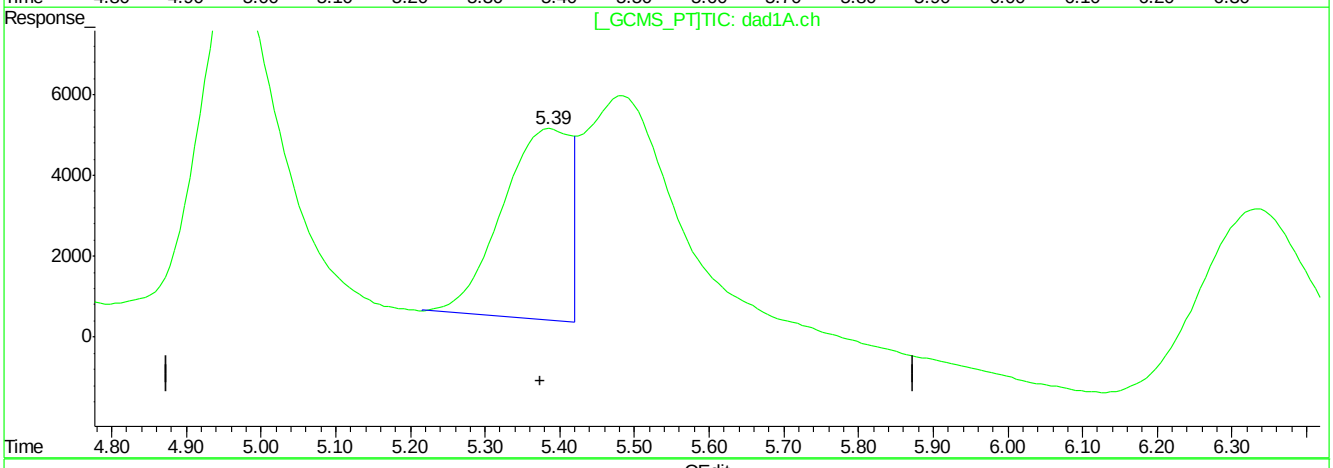
(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:22:45 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.39min 82.387ppb m

response 303509

(2) HMX #2

5.39min 83.377ppb m

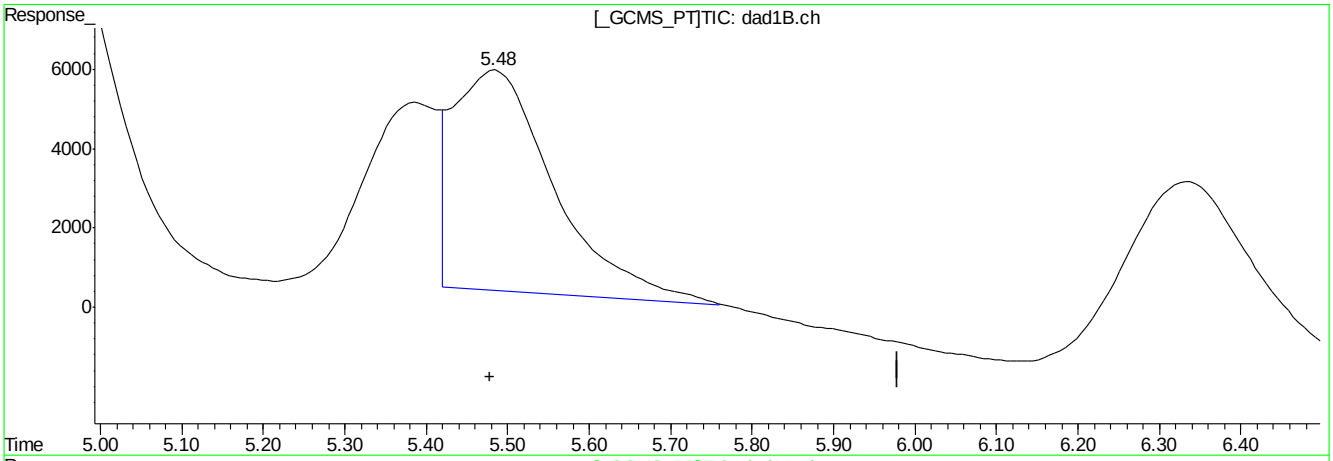
response 306772

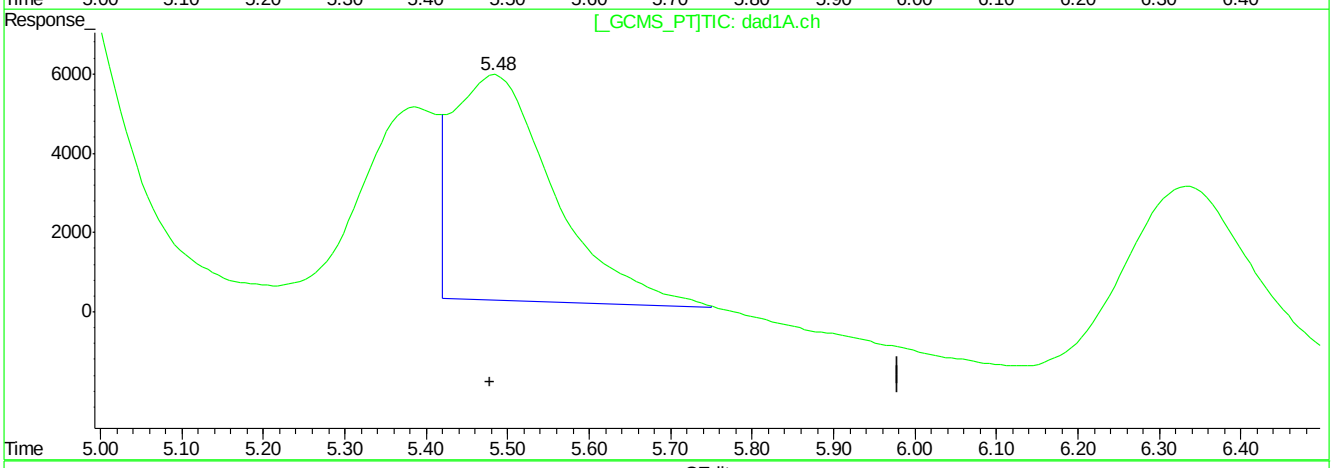
(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:22:54 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(3) DNX

5.48min 88.393ppb m

response 478533

(3) DNX #2

5.48min 91.309ppb m

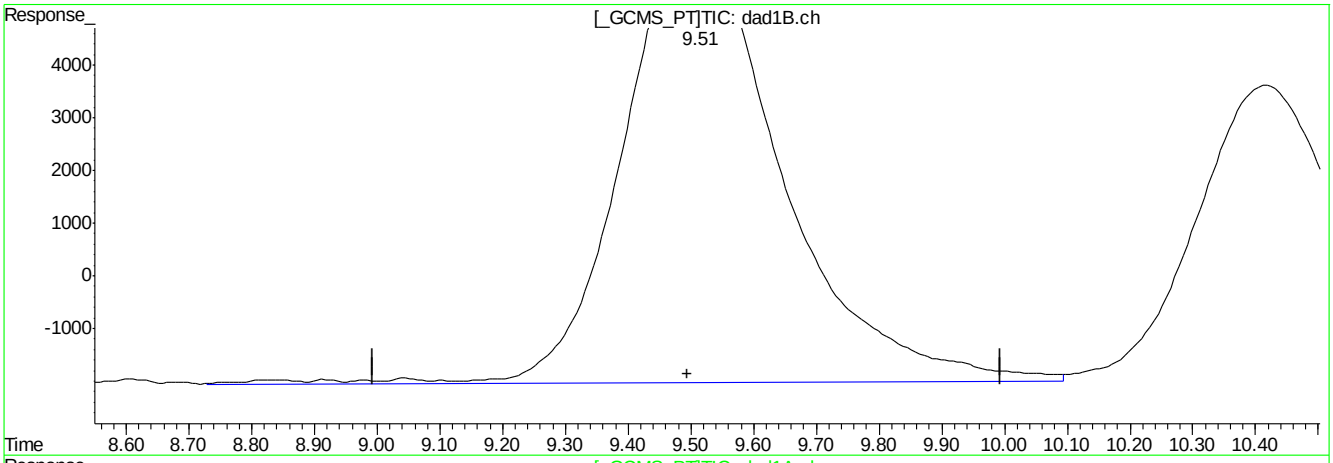
response 488896

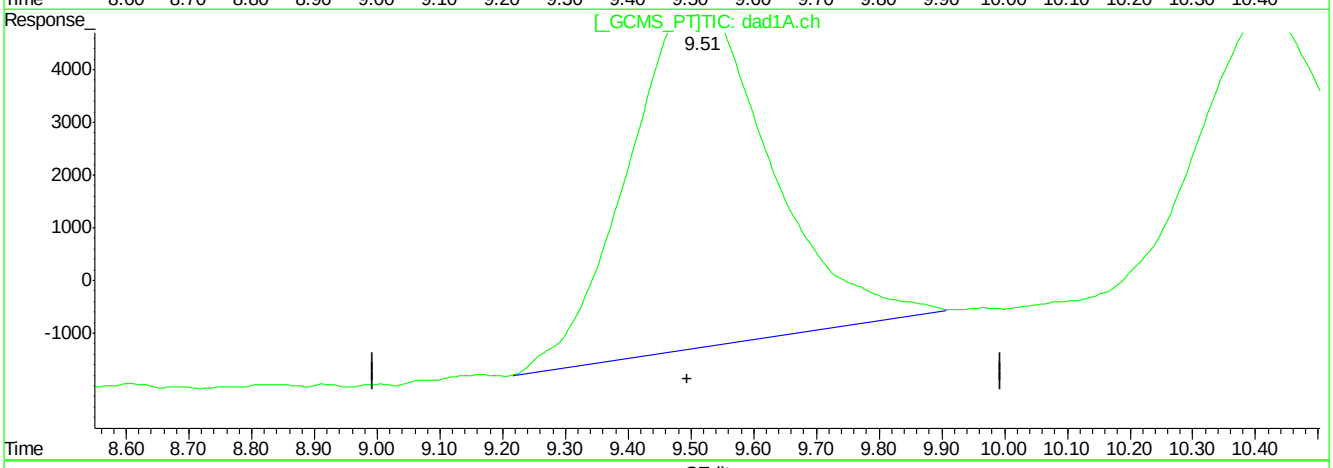
(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:23:04 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

9.51min 111.794ppb

response 1496695

(7) 1,3-Dinitrobenzene #2

9.51min 102.032ppb m

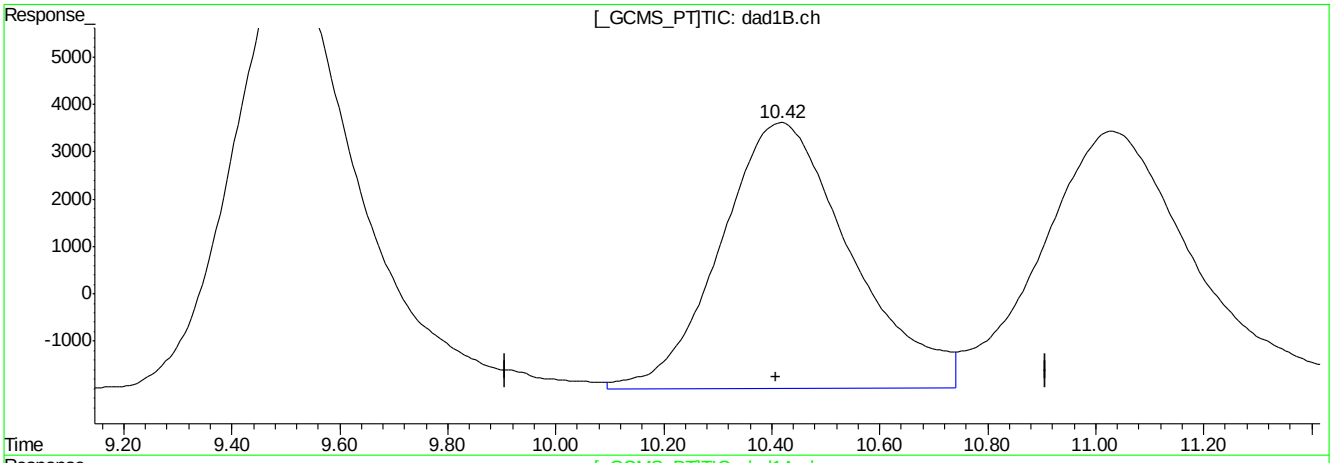
response 1034767

(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:23:17 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(8) Nitrobenzene

10.42min 110.754ppb

response 939534

(8) Nitrobenzene #2

10.42min 93.724ppb m

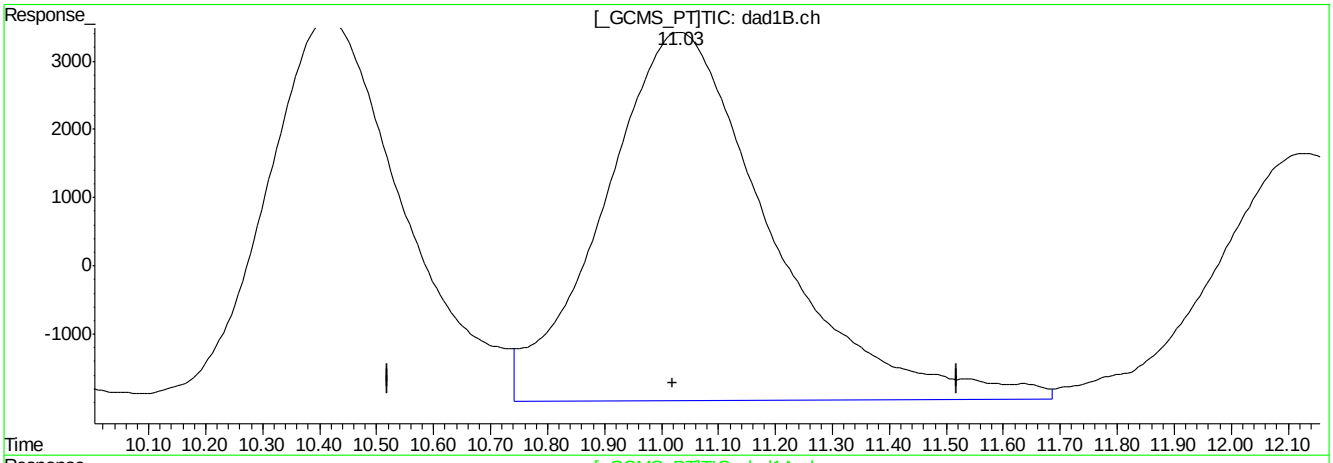
response 792550

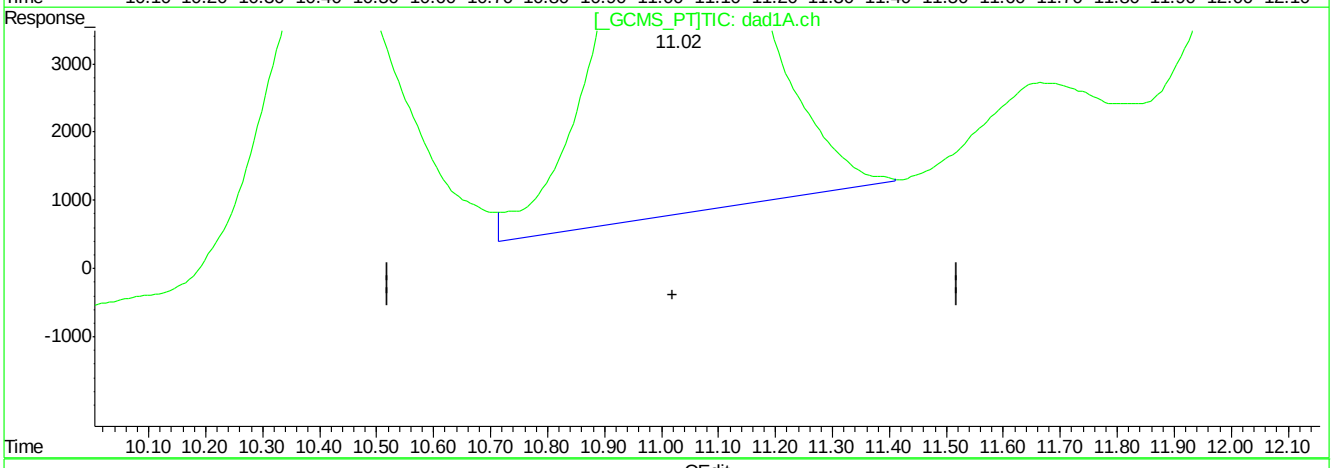
(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:23:25 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.03min 117.768ppb

response 1095538

(9) 2,4,6-Trinitrotoluene #2

11.02min 95.144ppb m

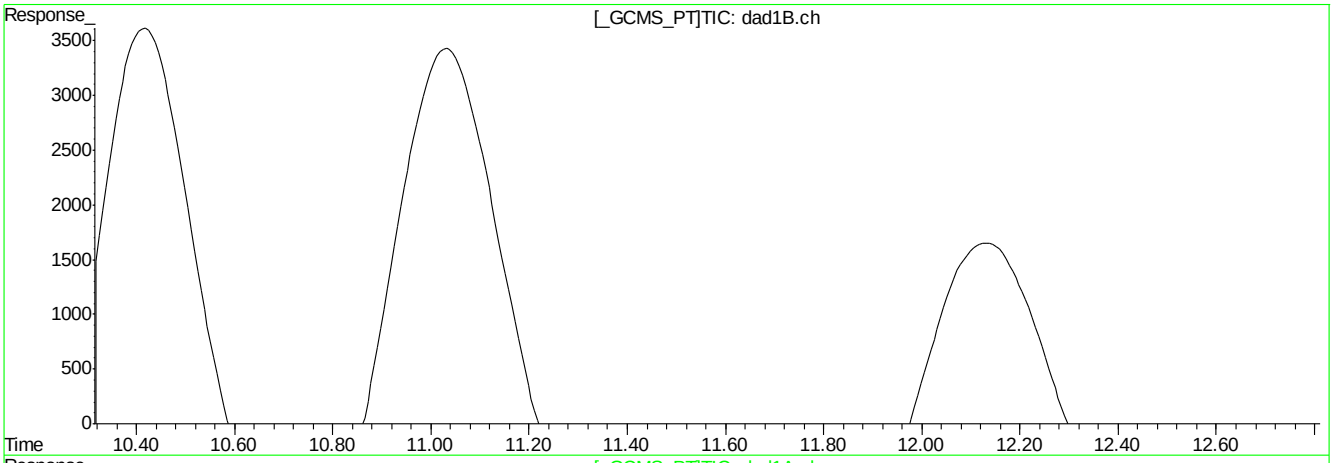
response 1133915

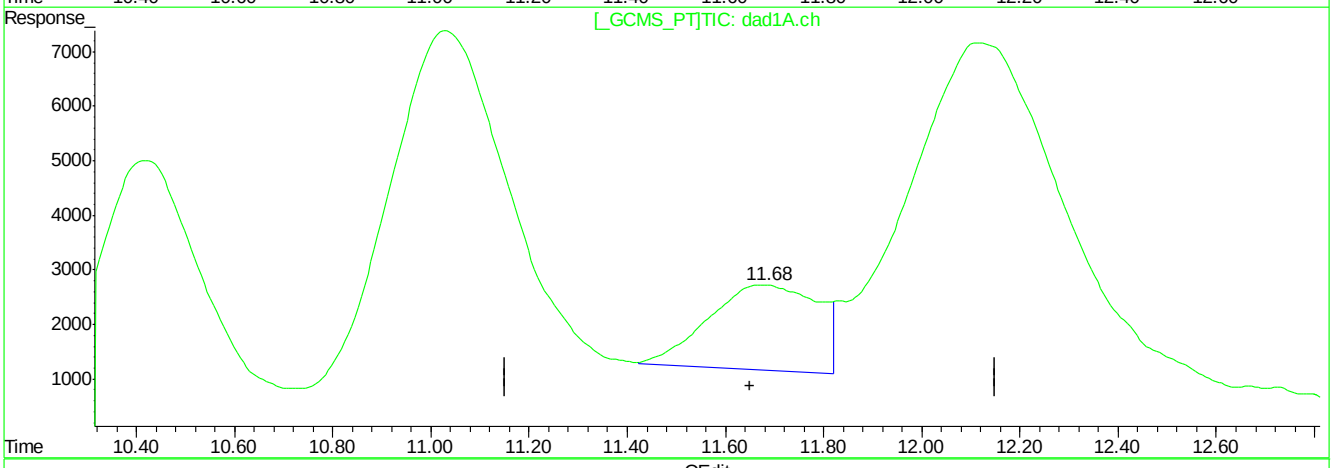
(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:23:32 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(10) Nitroglycerin

0.00min 0.000ppb

response 0

(10) Nitroglycerin #2

11.68min 65.833ppb m

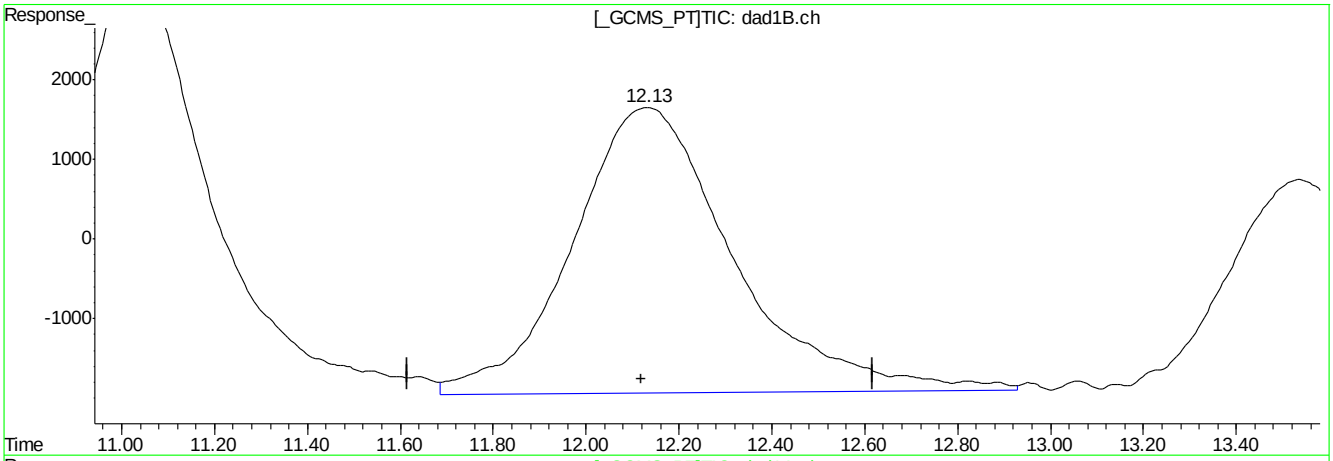
response 242831

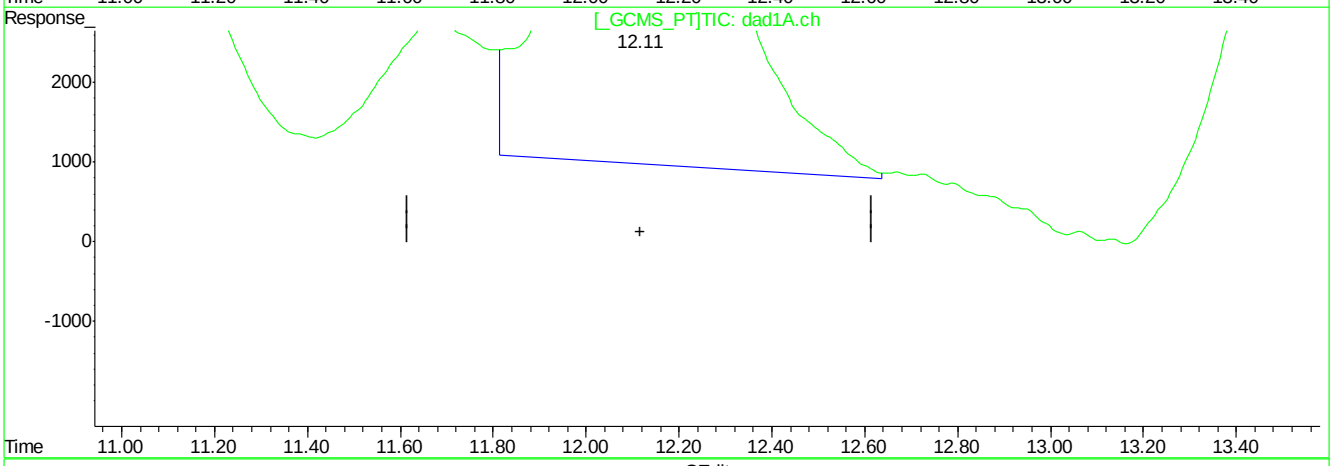
(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:23:43 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(11) Tetryl

12.13min 125.289ppb

response 864235

(11) Tetryl #2

12.11min 104.507ppb m

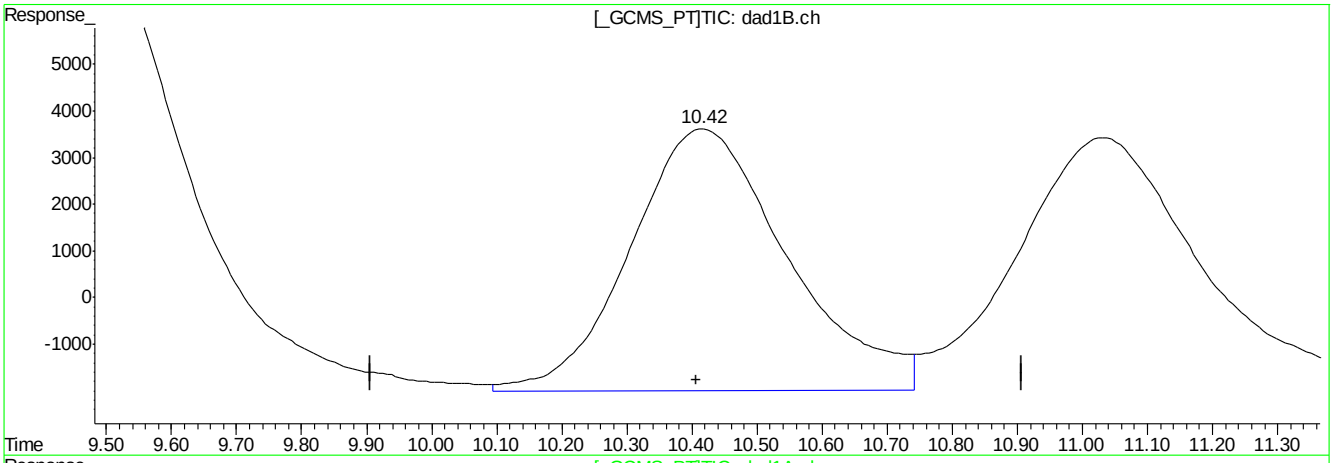
response 1374552

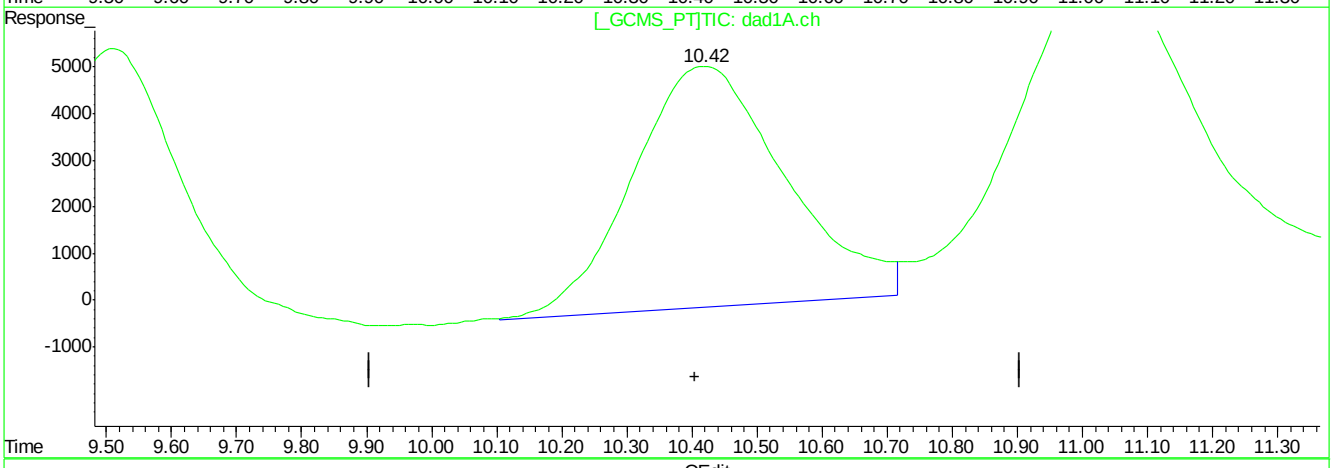
(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:23:50 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:23 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(8) Nitrobenzene

10.42min 110.754ppb

response 939534

(8) Nitrobenzene #2

10.42min 99.633ppb m

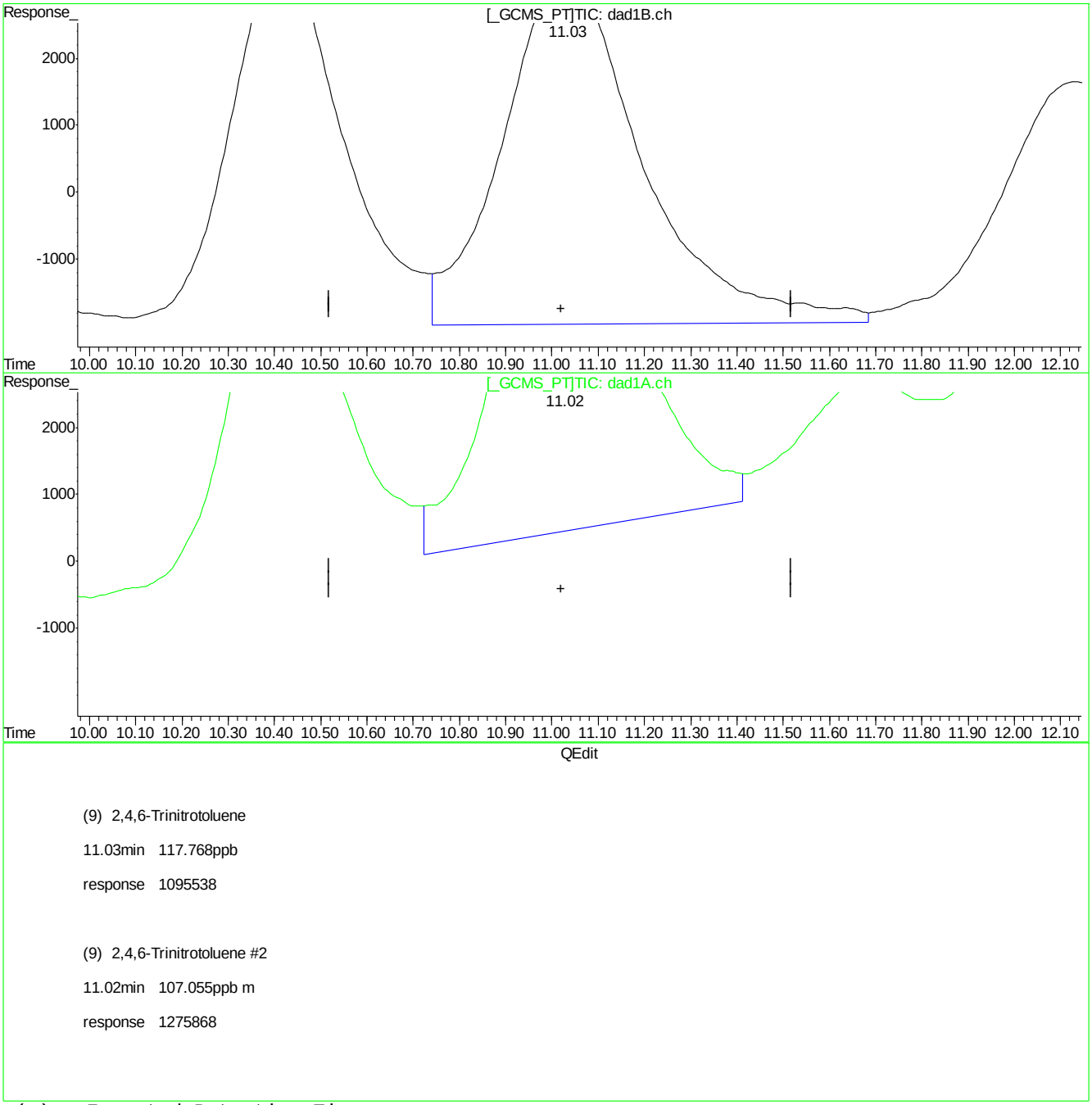
response 842434

(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:35:00 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:23 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(9) 2,4,6-Trinitrotoluene

11.03min 117.768ppb

response 1095538

(9) 2,4,6-Trinitrotoluene #2

11.02min 107.055ppb m

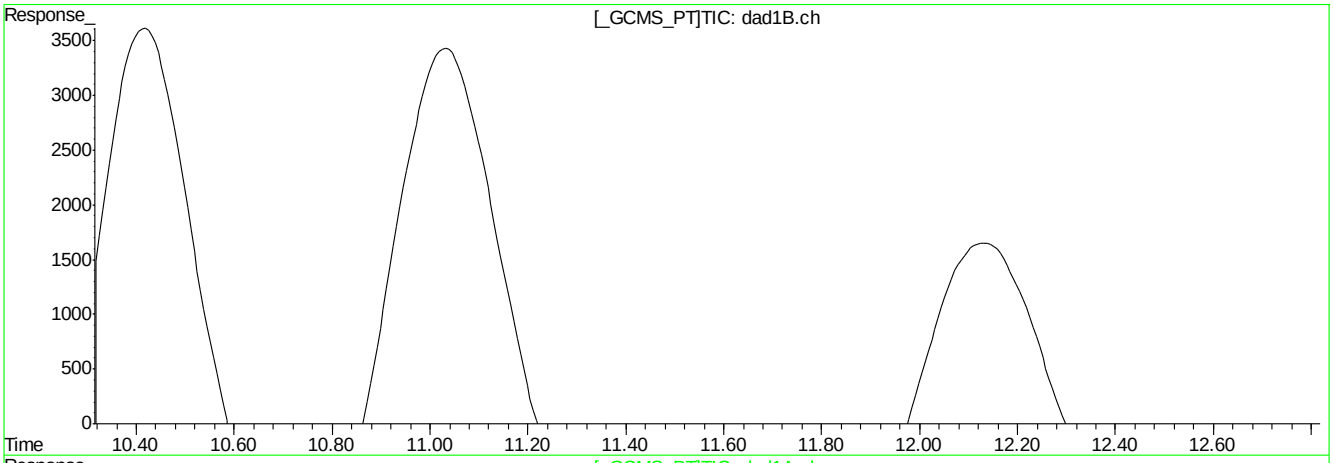
response 1275868

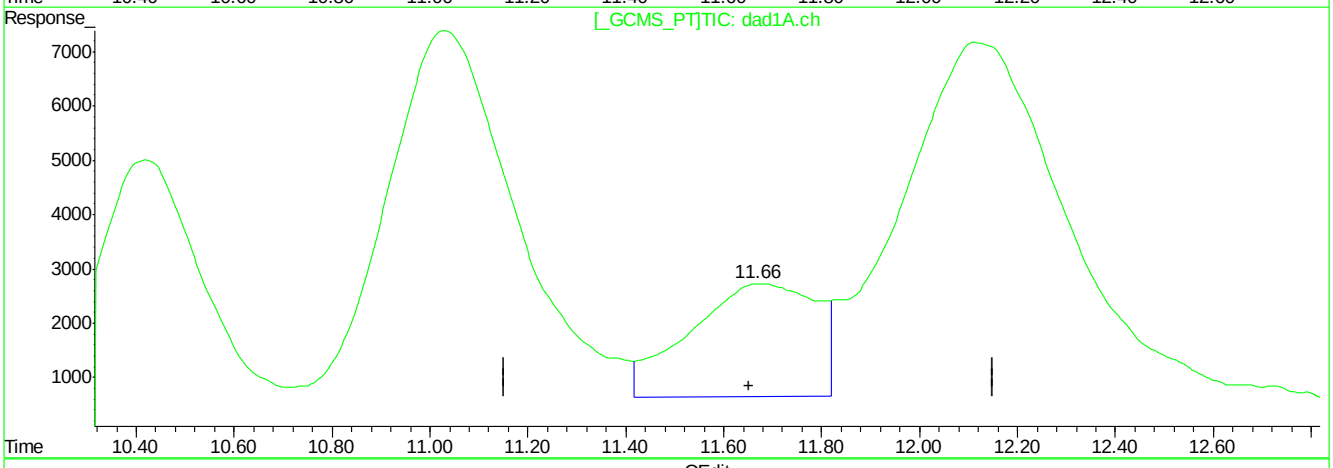
(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:35:07 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:23 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(10) Nitroglycerin

0.00min 0.000ppb

response 0

(10) Nitroglycerin #2

11.66min 102.113ppb m

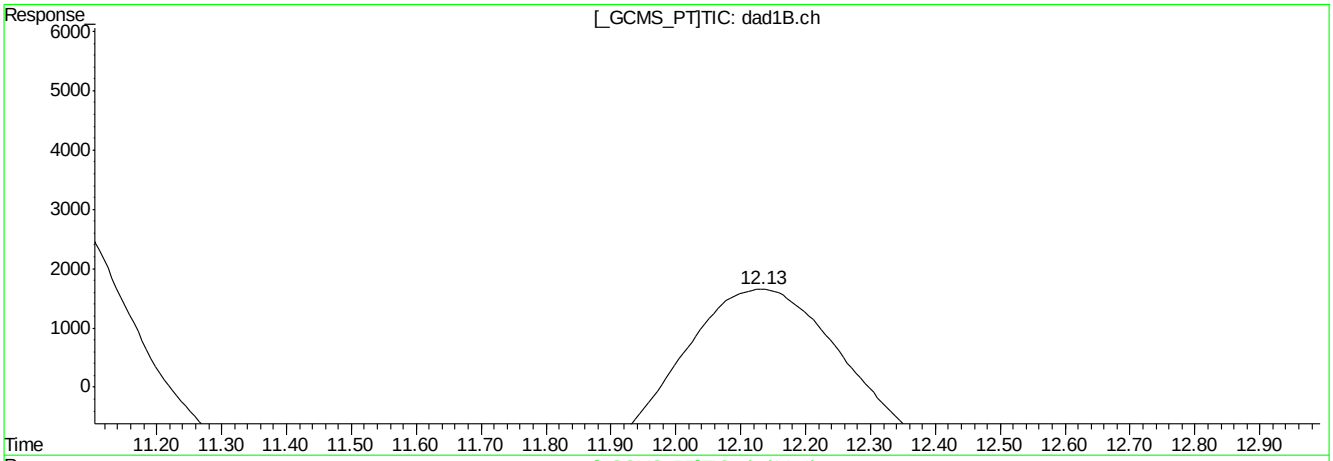
response 376622

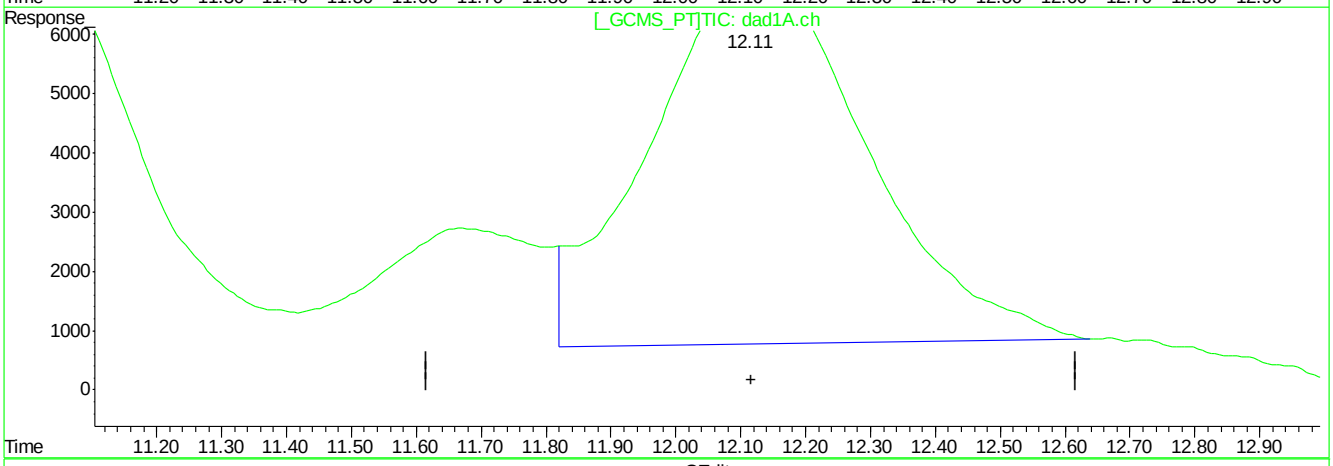
(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:35:14 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:23 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(11) Tetryl

12.13min 125.289ppb

response 864235

(11) Tetryl #2

12.11min 109.804ppb m

response 1444030

(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:35:24 2019

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 09/26/19 16:28

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12:36 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.53	13.53	897500	1733597	172.389	171.349
	Spiked Amount 500.000	Range 70 - 136		Recovery =		34.48%#	34.27%#
	Target Compounds						
1)	TNX	4.96	4.96	1189698	1193239	209.435m	209.615m
2)	HMX	5.38	5.38	561213	570787	152.702m	155.505m
3)	DNX	5.48	5.48	842819	862360	156.087m	161.429m
4)	MNX	6.33	6.33	1110475	1110475	190.435	190.441
5)	1,3,5-Trinitrobe	7.14	7.14	2073386	2073386	217.913	218.564
6)	RDX	7.55	7.55	1053536	1053536	227.927	229.604
7)	1,3-Dinitrobenze	9.50	9.50	2799974	2087611	209.140	205.849m
8)	Nitrobenzene	10.41	10.41	1760848	1617927	207.572	191.675m
9)	2,4,6-Trinitroto	11.03	11.03	2043556	2919500	219.678	244.968m
10)	Nitroglycerin	0.00	11.66	0	743814	N.D.	201.718m#
11)	Tetryl	12.13	12.13	1553902	3011692	225.270	229.656m
13)	2,6-Dinitrotolue	13.88	13.88	1457065	2249189	232.952	236.804
14)	2,4-Dinitrotolue	14.57	14.58	2571728	1683225	211.811	191.628
15)	o-Nitrotoluene	16.05	16.05	1234213	1761233	220.585	174.672
16)	3,5-Dinitroanili	15.43	15.44	2092859	3231411	192.417	171.010
17)	p-Nitrotoluene	17.09	17.09	2347007	3980941	206.483	191.635
18)	4-Amino-2,6-Dini	17.09	17.09	2347007	3980941	206.483	191.620
19)	m-Nitrotoluene	18.32	18.32	1188880	1919756	207.376	183.839
20)	2-Amino-4,6-Dini	19.14	19.14	2006480	2598000	232.572	209.281
21)	PETN	0.00	20.30	0	519437	N.D.	206.419 #

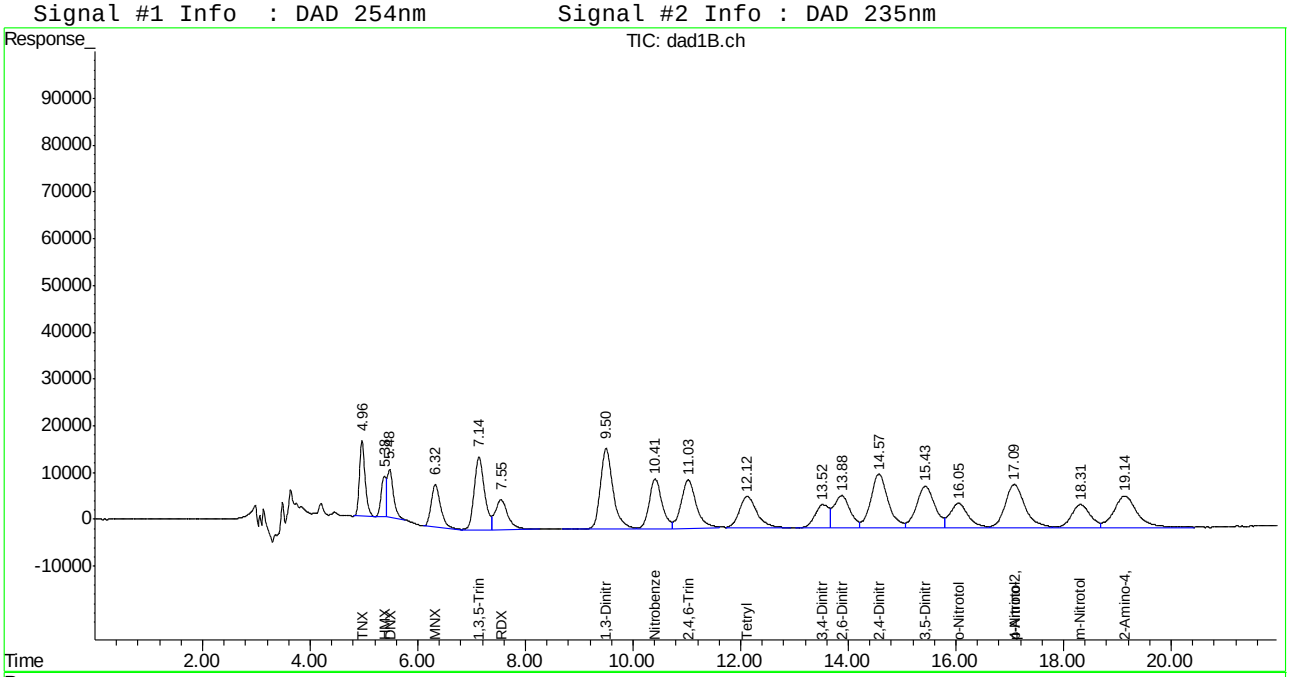
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

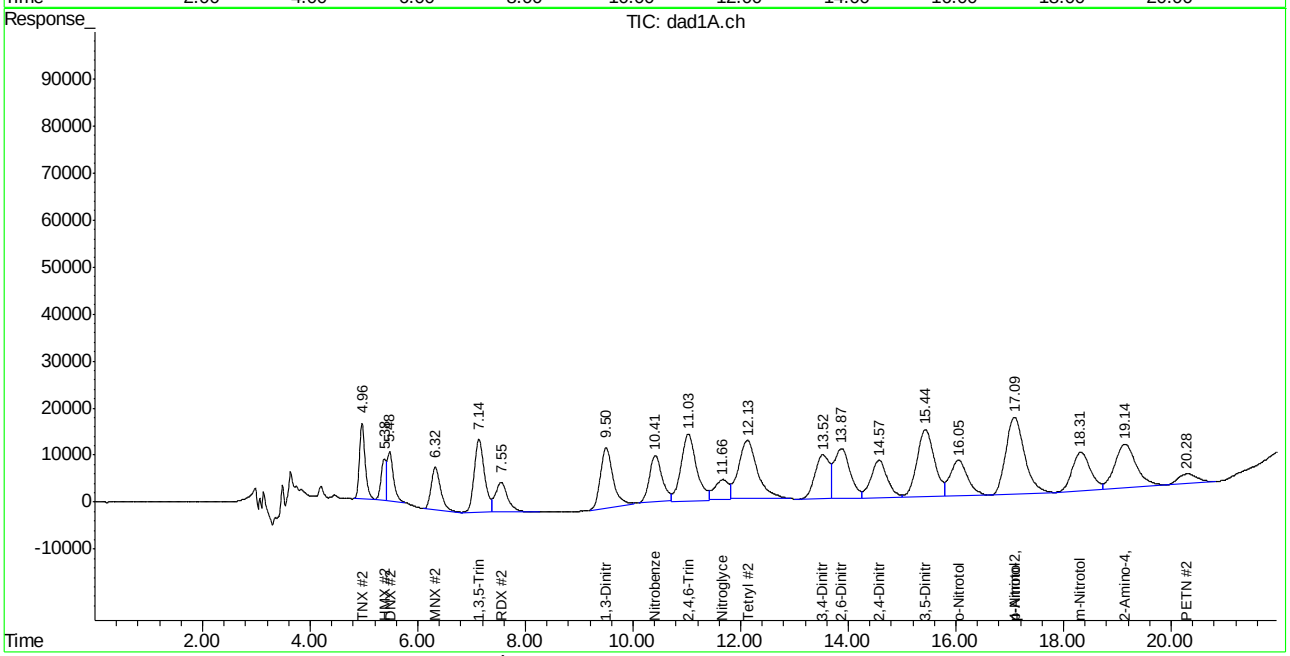
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:34 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

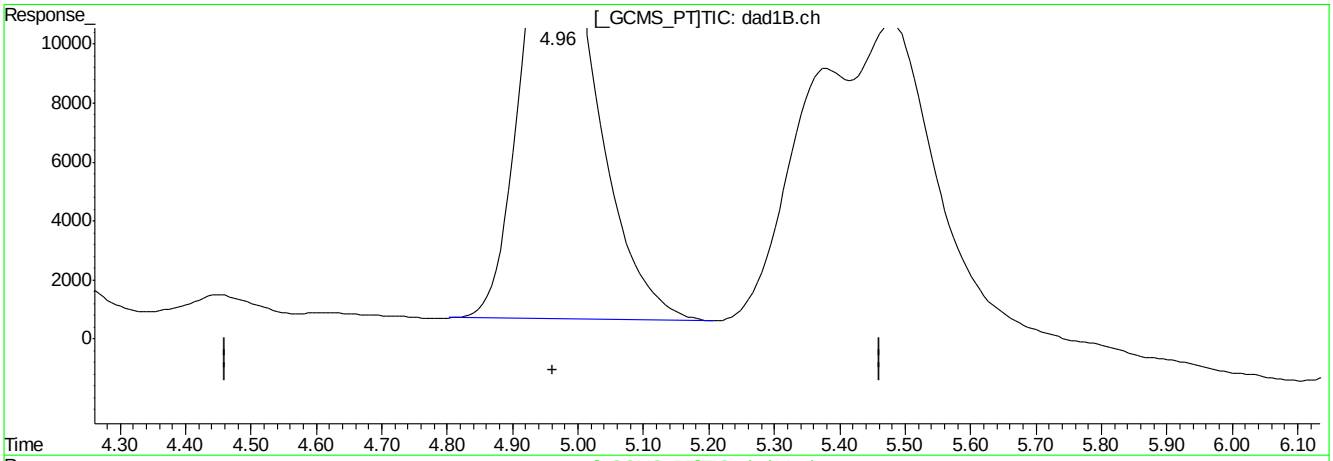
Sample Number: GGG2769-IC2769
Lab FileID: GG617750.D
Injection Time: 09/25/19 21:58
Method: SW846 8330B
Analyst approved: 09/26/19 16:07 William Hustedde
Supervisor approved: 09/26/19 16:28 Naresh Jiawan

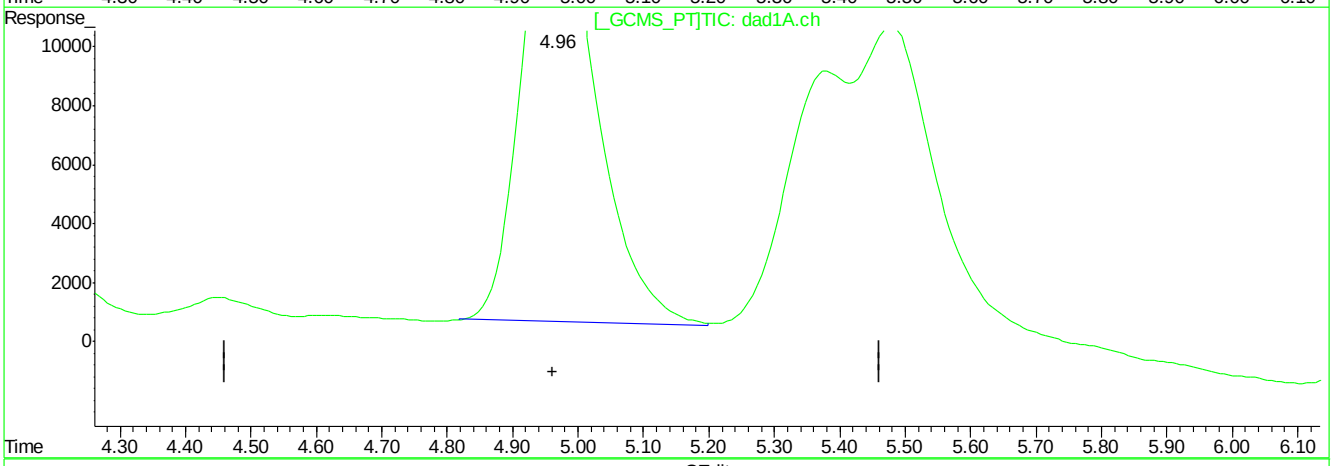
Parameter	CAS	Sig#	R.T. (min.)	Reason
TNX		1	4.96	Poor instrument integration
TNX		2	4.96	Poor instrument integration
HMX	2691-41-0	1	5.38	Poor instrument integration
HMX	2691-41-0	2	5.38	Poor instrument integration
DNX		1	5.48	Poor instrument integration
DNX		2	5.48	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	9.50	Poor instrument integration
Nitrobenzene	98-95-3	2	10.41	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	2	11.03	Poor instrument integration
Nitroglycerine	55-63-0	2	11.66	Poor instrument integration
Tetryl	479-45-8	2	12.13	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(1) TNX

4.96min 209.435ppb m

response 1189698

(1) TNX #2

4.96min 209.615ppb m

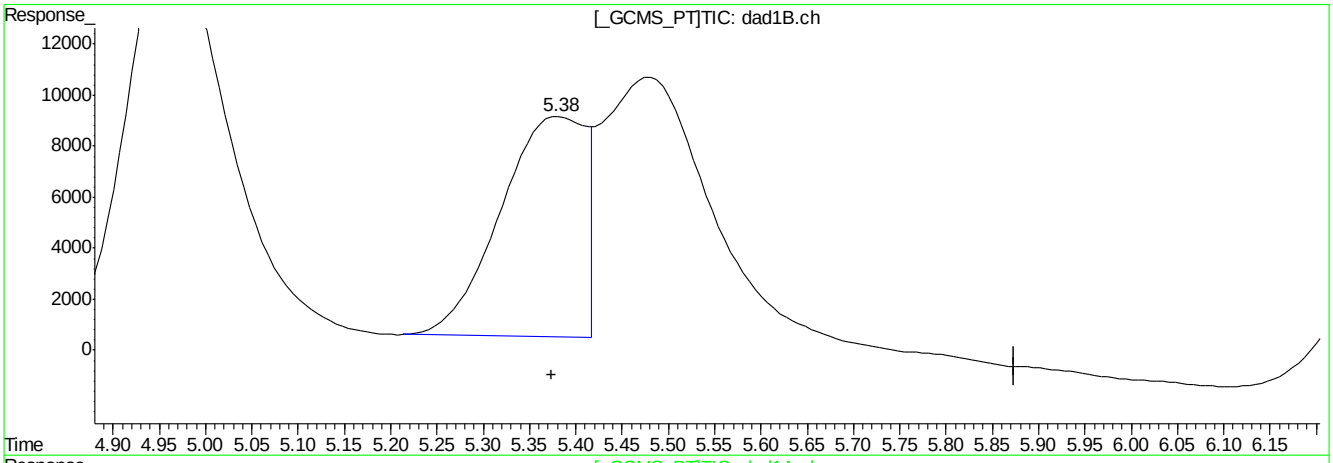
response 1193239

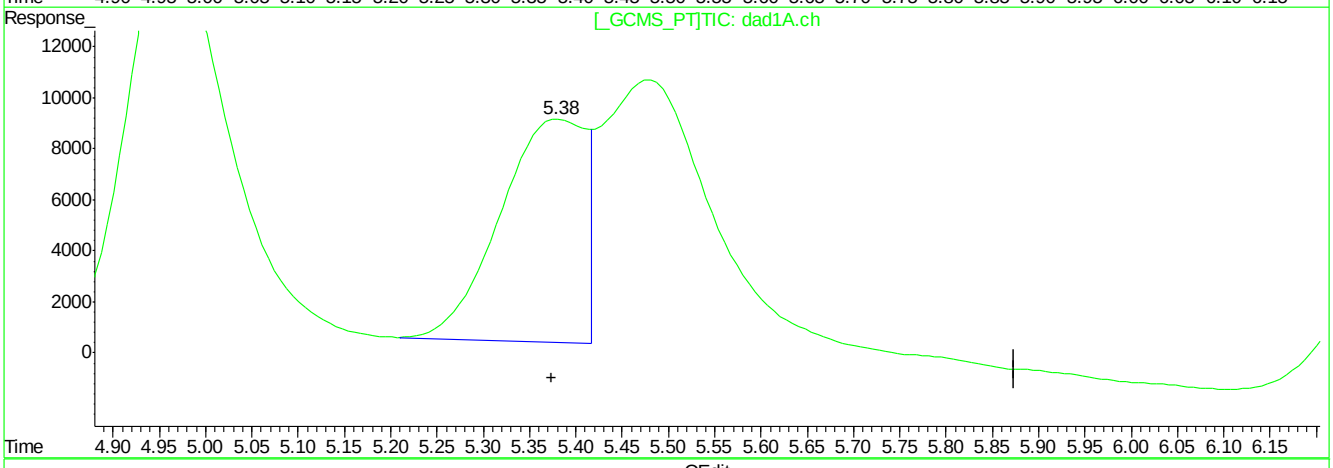
(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:24:22 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.38min 152.702ppb m

response 561213

(2) HMX #2

5.38min 155.505ppb m

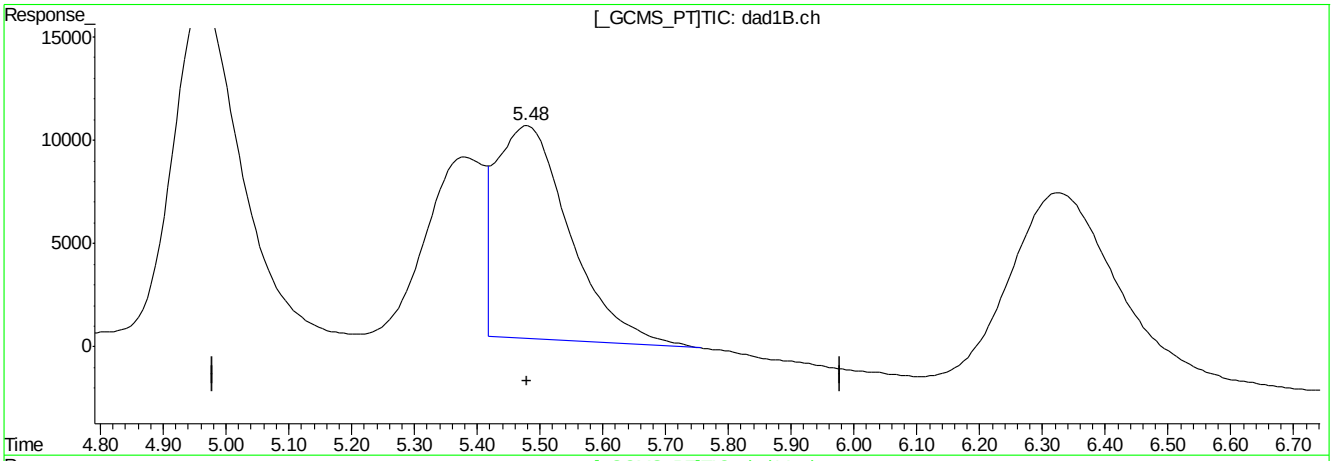
response 570787

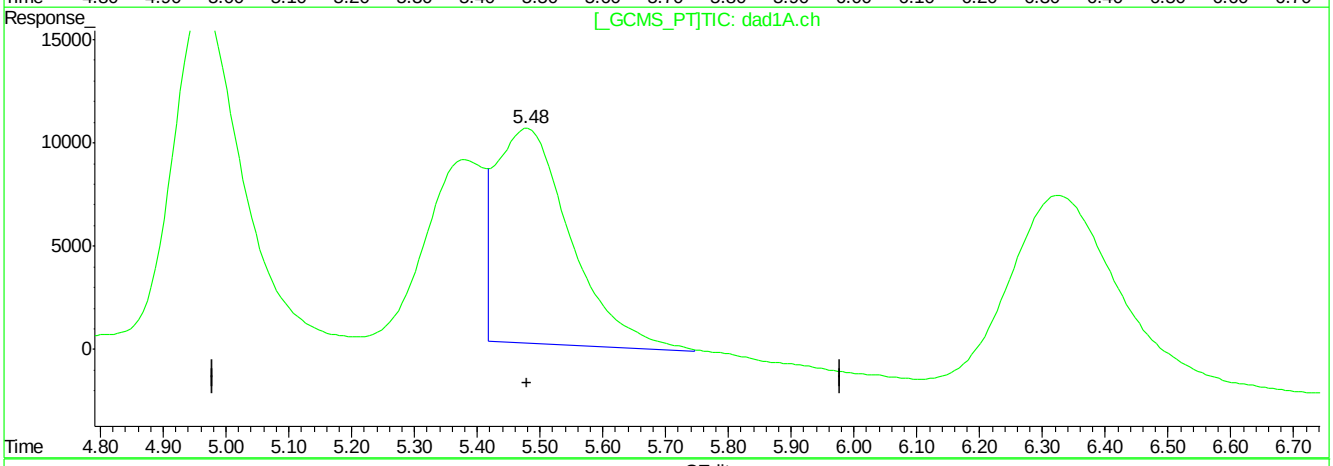
(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:24:32 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(3) DNX

5.48min 156.087ppb m

response 842819

(3) DNX #2

5.48min 161.429ppb m

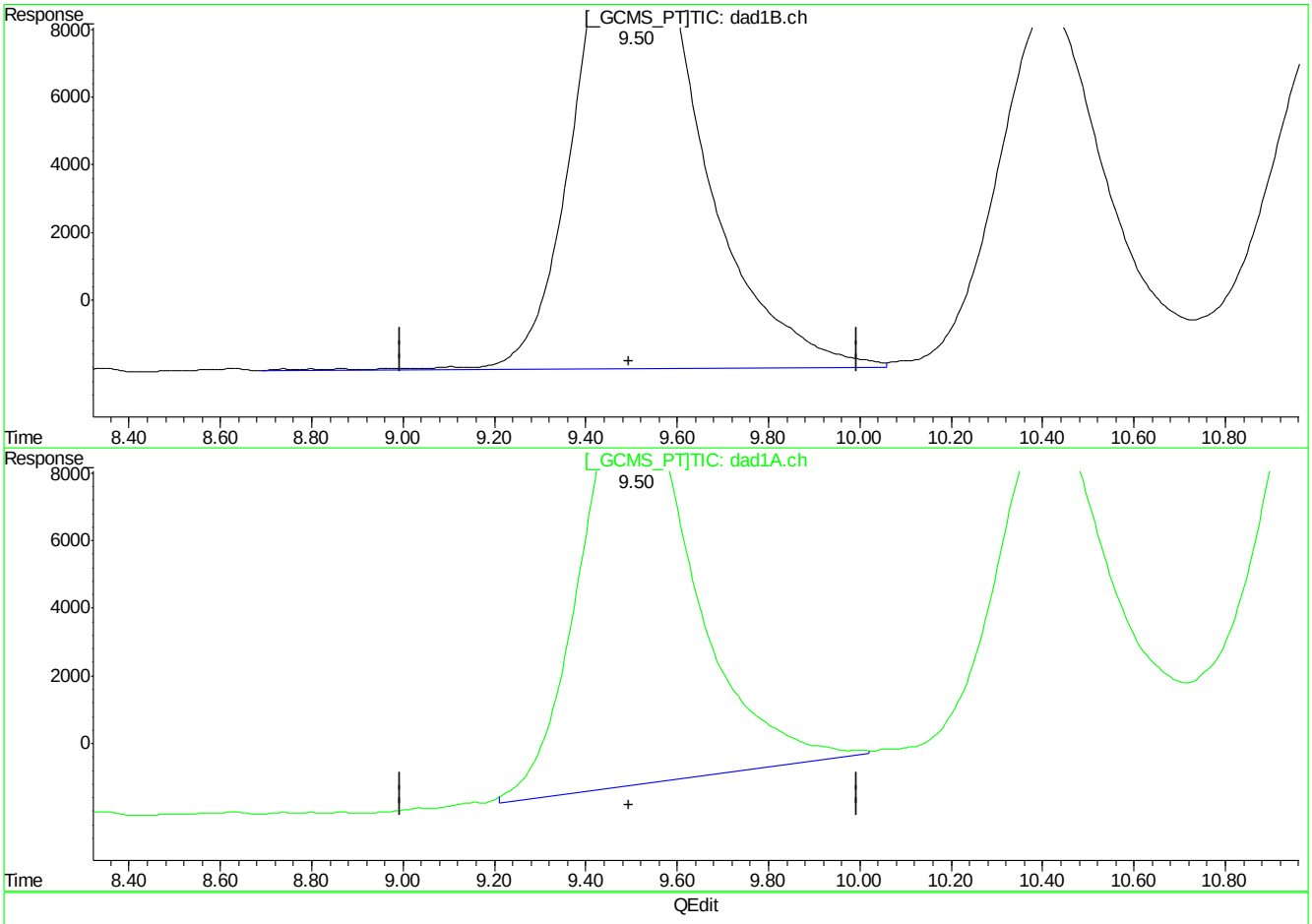
response 862360

(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:24:42 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(7) 1,3-Dinitrobenzene

9.50min 209.140ppb

response 2799974

(7) 1,3-Dinitrobenzene #2

9.50min 205.849ppb m

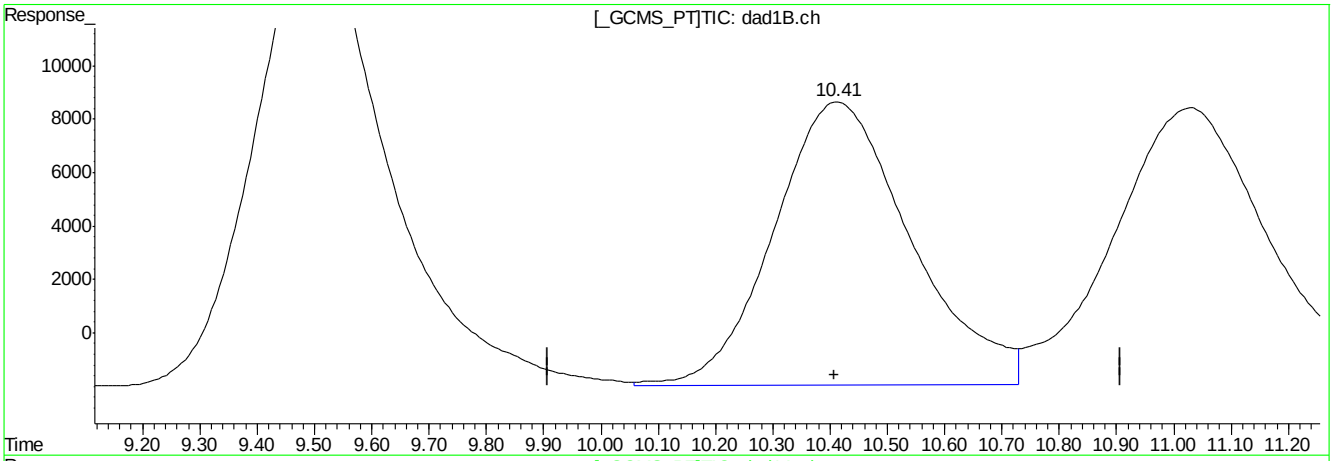
response 2087611

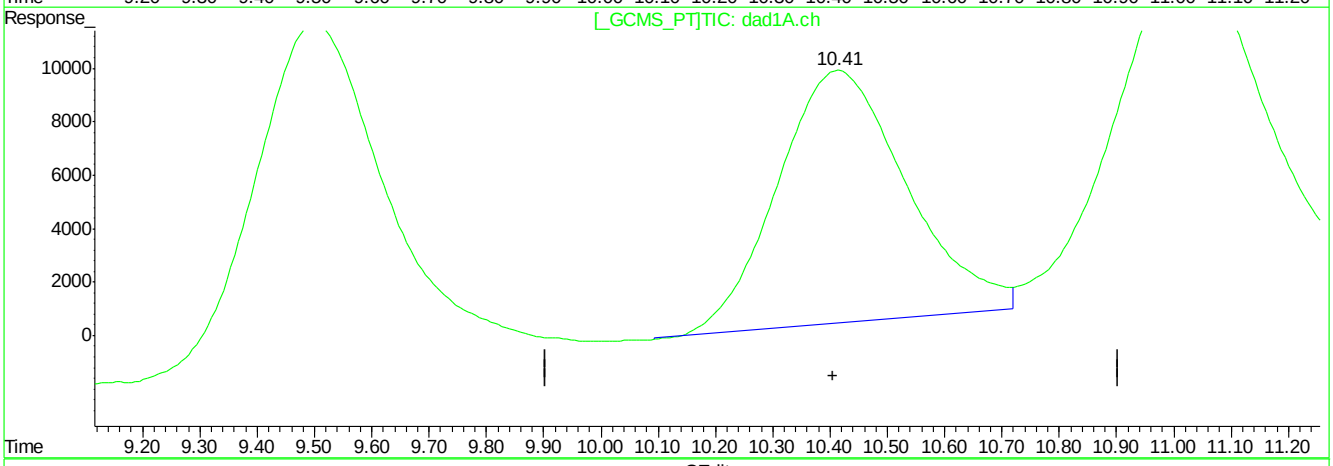
(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:29:27 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(8) Nitrobenzene

10.41min 207.572ppb

response 1760848

(8) Nitrobenzene #2

10.41min 174.329ppb m

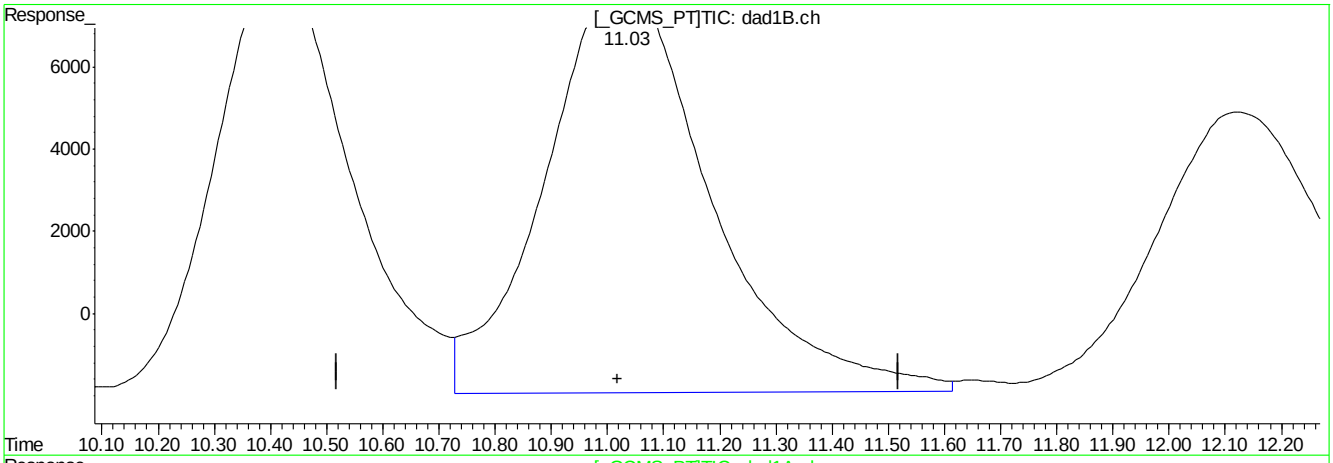
response 1471983

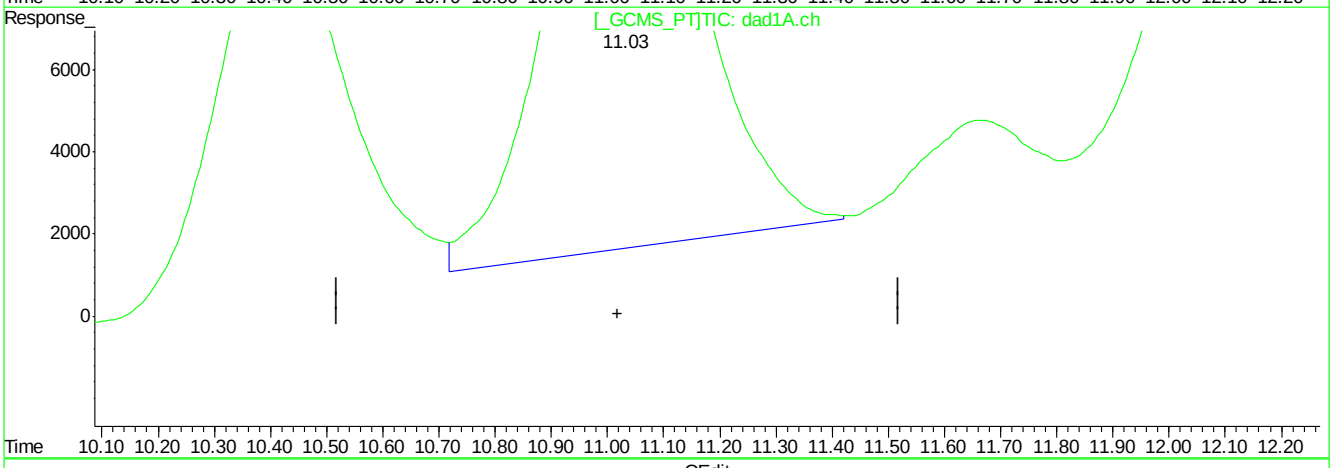
(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:29:34 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.03min 219.678ppb

response 2043556

(9) 2,4,6-Trinitrotoluene #2

11.03min 188.705ppb m

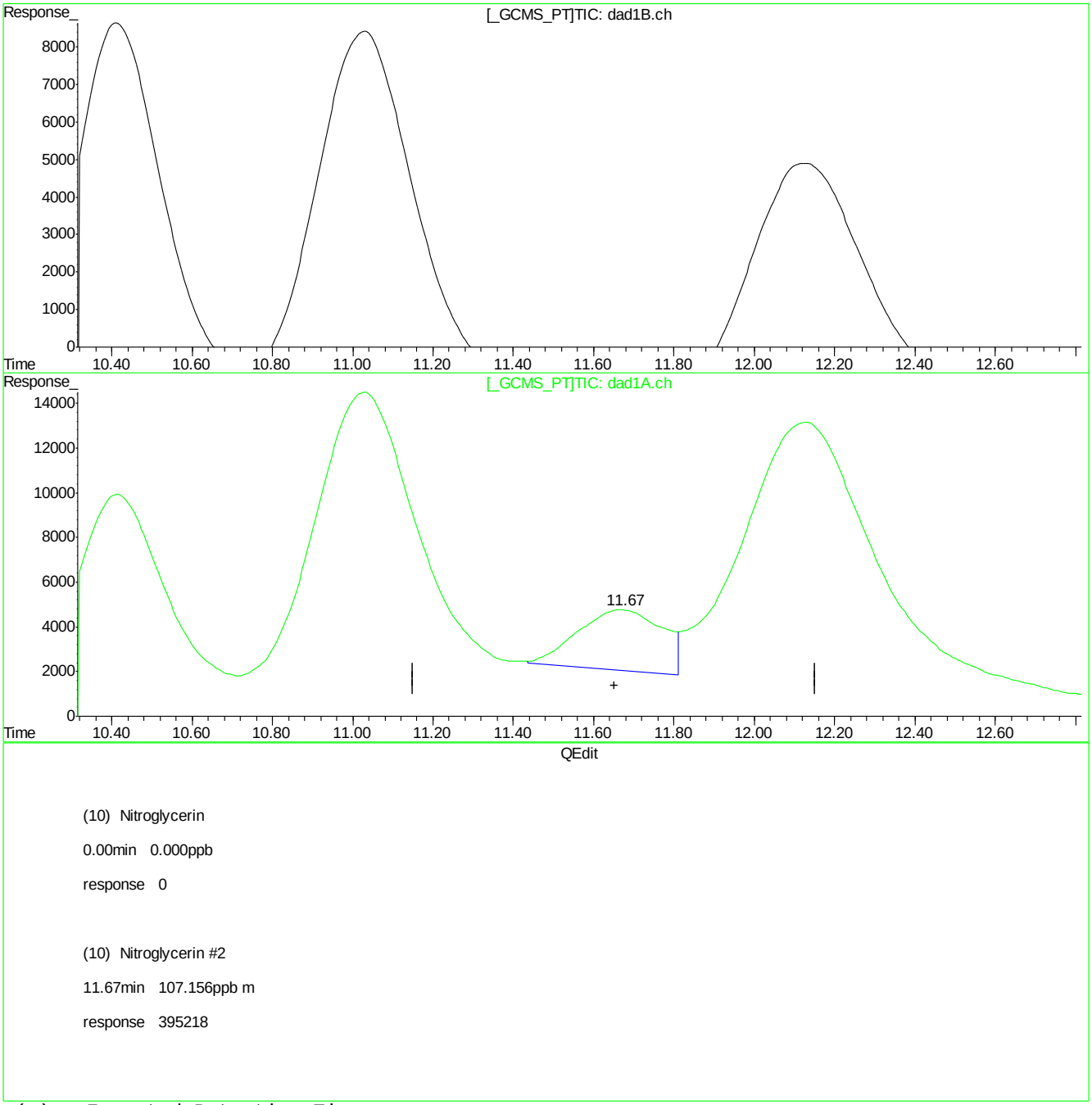
response 2248961

(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:29:40 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(10) Nitroglycerin

0.00min 0.000ppb

response 0

(10) Nitroglycerin #2

11.67min 107.156ppb m

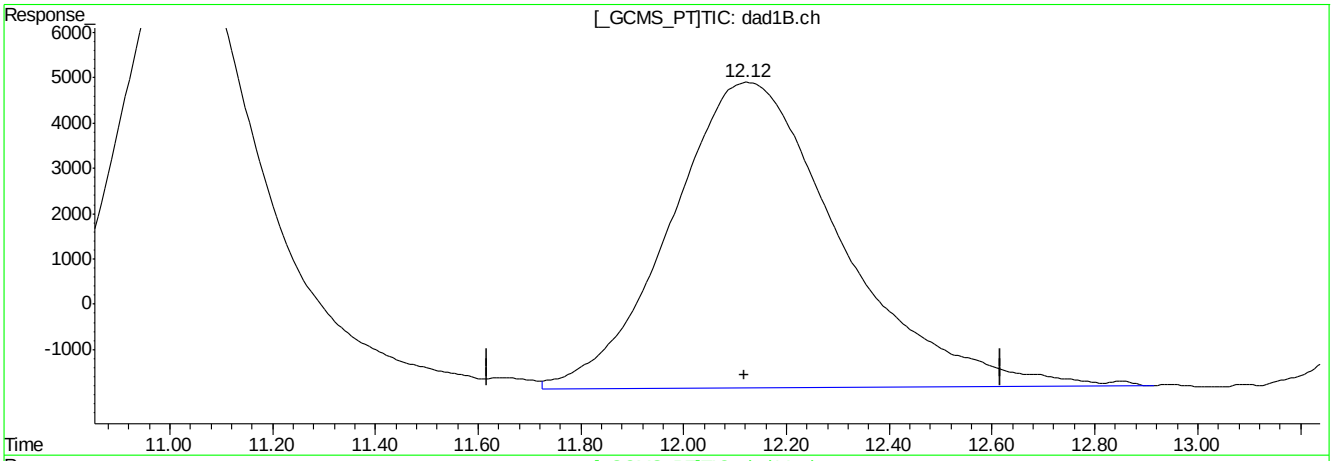
response 395218

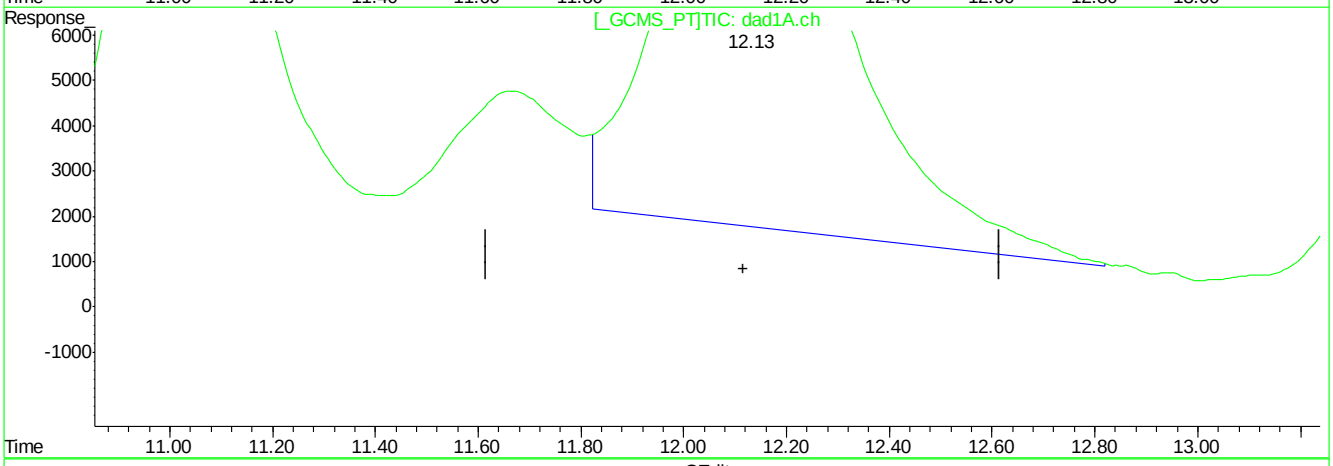
(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:29:47 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(11) Tetryl

12.13min 225.270ppb

response 1553902

(11) Tetryl #2

12.13min 194.190ppb m

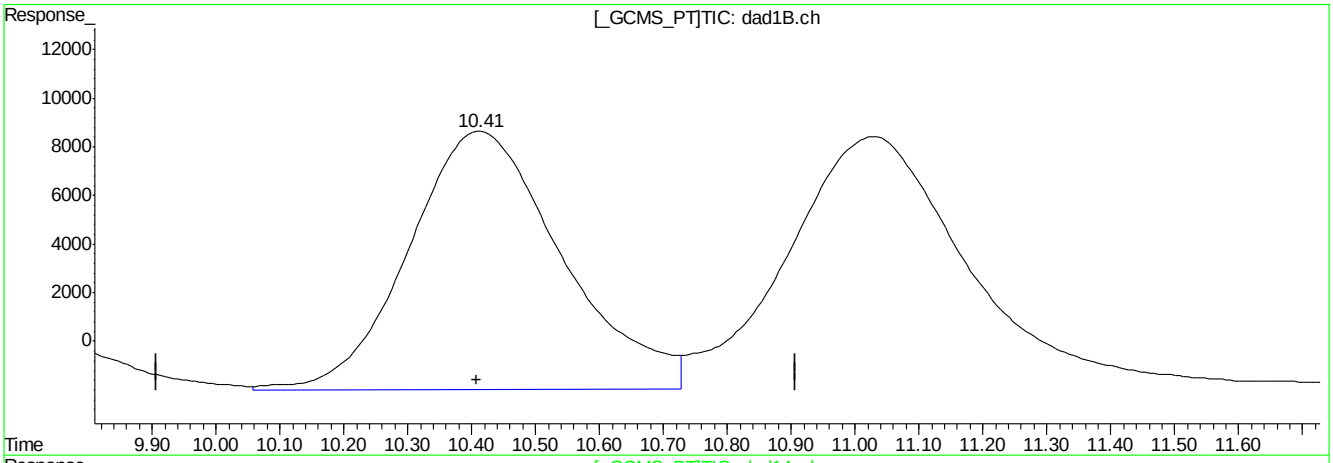
response 2548720

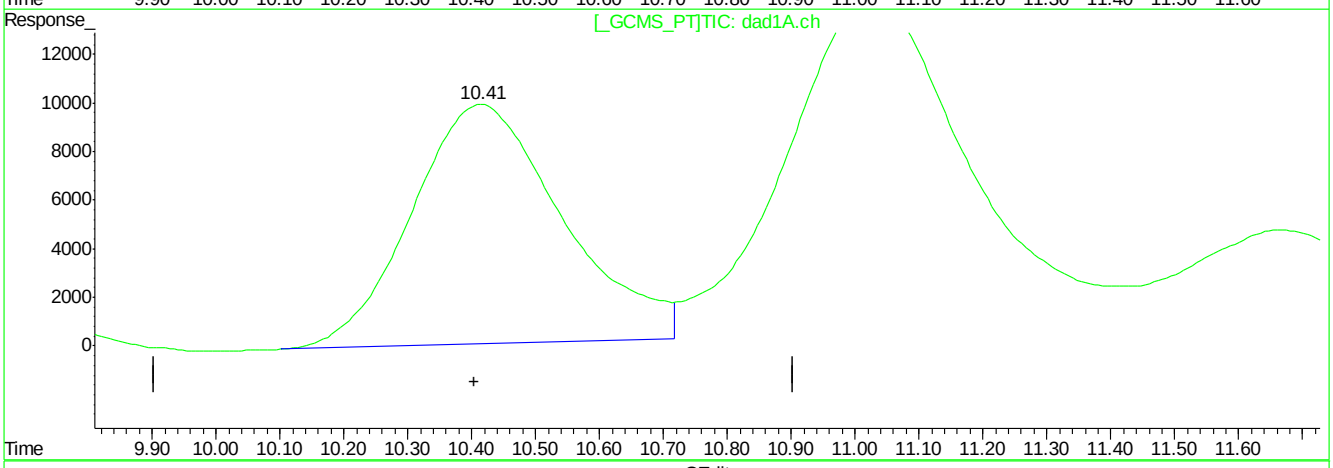
(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:29:53 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:29 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(8) Nitrobenzene

10.41min 207.572ppb

response 1760848

(8) Nitrobenzene #2

10.41min 191.675ppb m

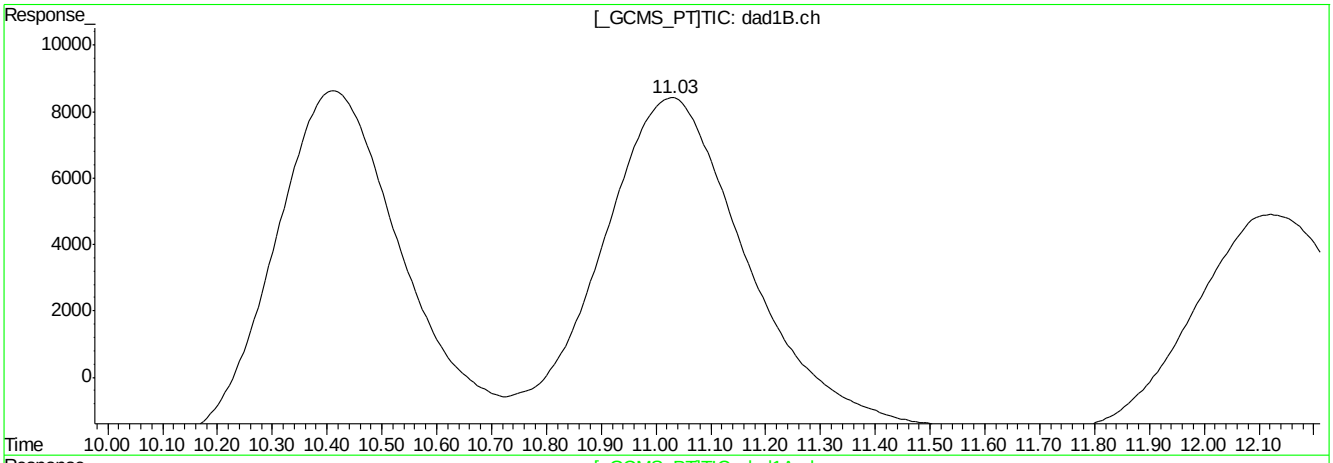
response 1617927

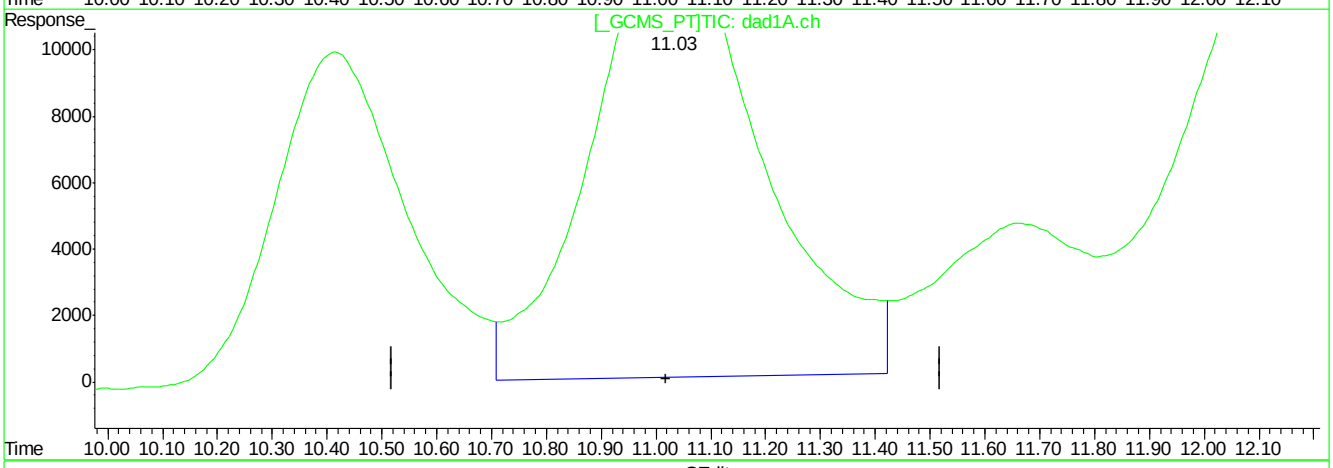
(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:33:44 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:29 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.03min 219.678ppb

response 2043556

(9) 2,4,6-Trinitrotoluene #2

11.03min 244.968ppb m

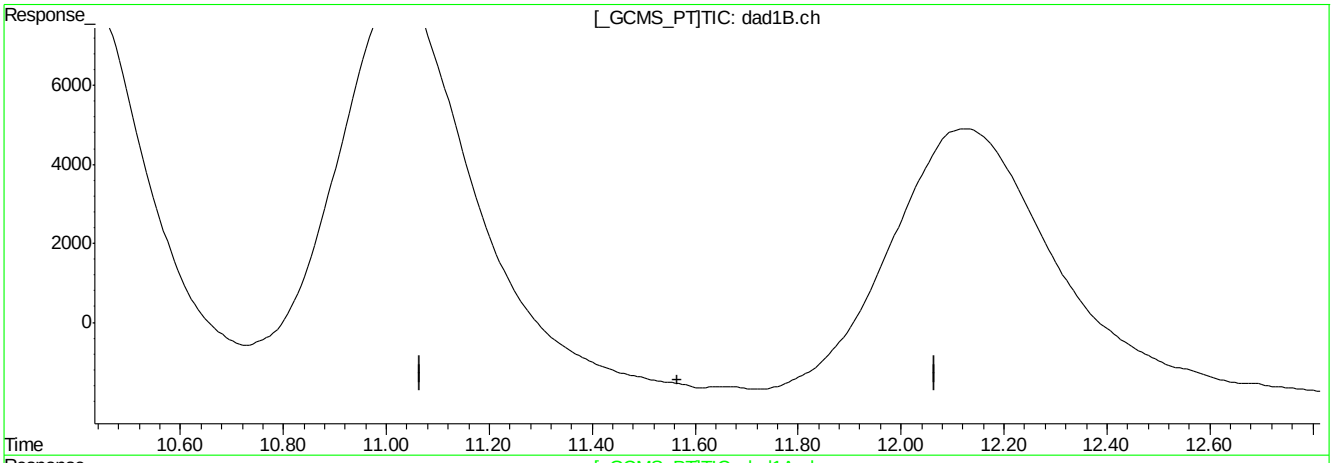
response 2919500

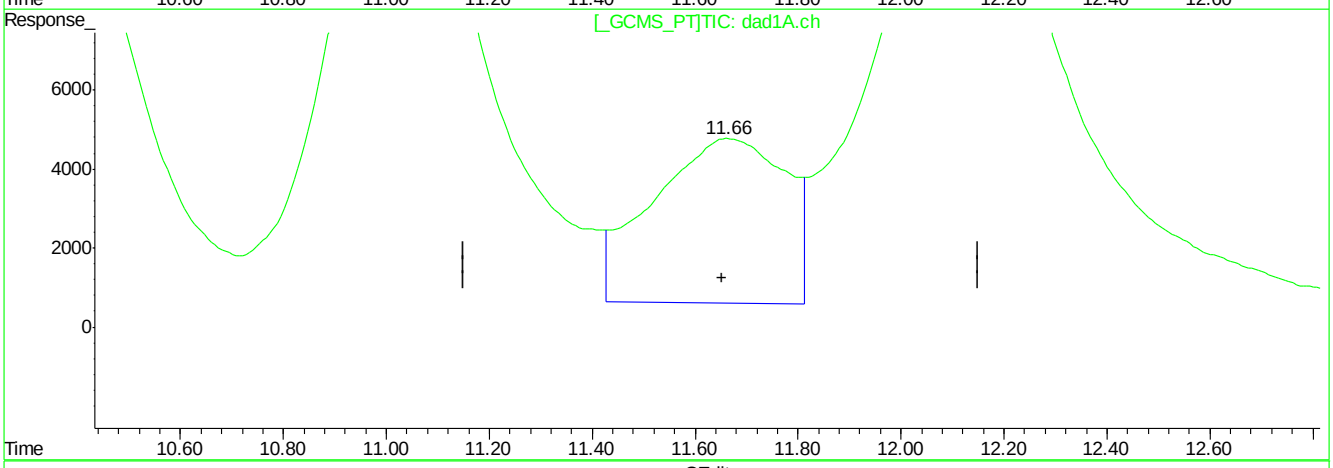
(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:33:54 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:29 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(10) Nitroglycerin

0.00min 0.000ppb

response 0

(10) Nitroglycerin #2

11.66min 201.718ppb m

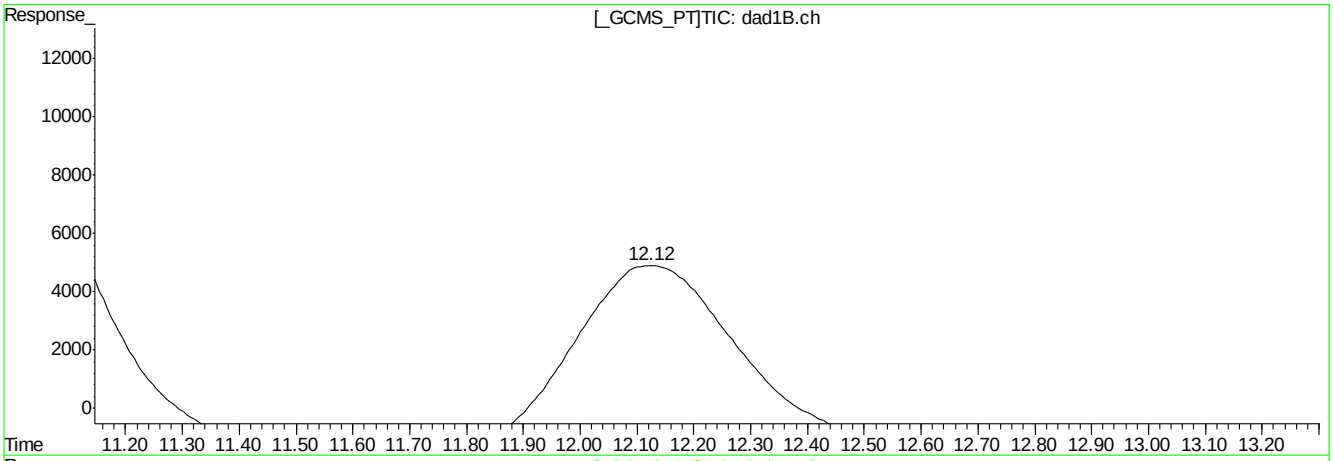
response 743814

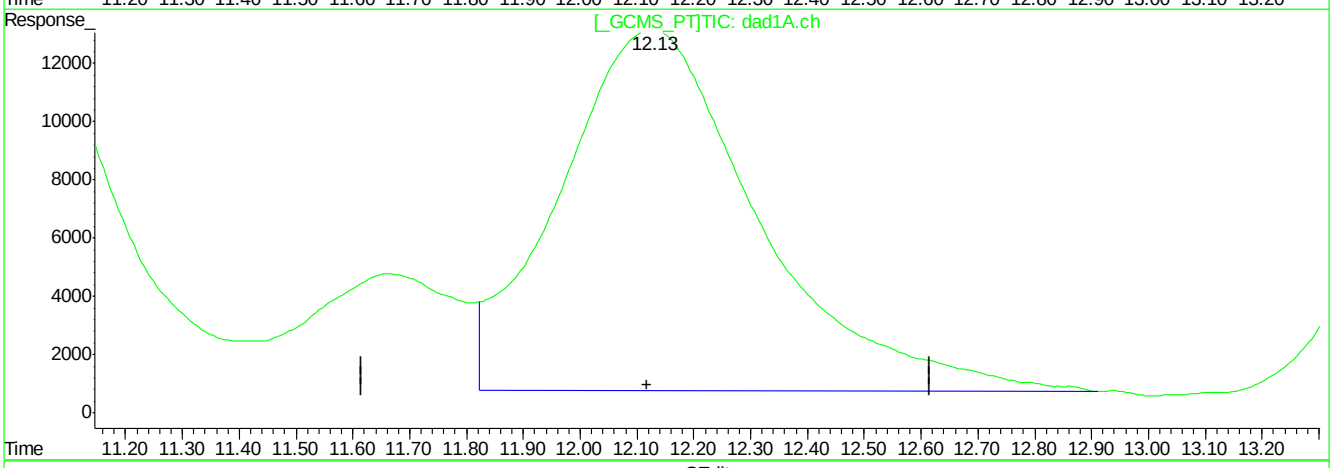
(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:34:01 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:29 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(11) Tetryl

12.13min 225.270ppb

response 1553902

(11) Tetryl #2

12.13min 229.656ppb m

response 3011692

(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:34:09 2019

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
09/26/19 16:28

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12:37 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.54	13.54	2281383	4445619	438.201	438.853
	Spiked Amount 500.000	Range 70 - 136		Recovery =		87.64%	87.77%
	Target Compounds						
1)	TNX	4.96	4.96	2989613	2973307	526.293m	522.317m
2)	HMX	5.38	5.38	1359298	1413019	372.621m	387.947m
3)	DNX	5.48	5.48	2092027	2139504	390.961m	403.713m
4)	MNX	6.33	6.33	2811687	2811687	482.843	482.856
5)	1,3,5-Trinitrobe	7.14	7.14	5164931	5164931	542.835	544.455
6)	RDX	7.55	7.55	2572902	2572902	556.633	560.729
7)	1,3-Dinitrobenze	9.51	9.51	6927186	5479726	517.417	540.348
8)	Nitrobenzene	10.42	10.42	4368356	3949762	514.950	470.342m
9)	2,4,6-Trinitroto	11.03	11.03	5090539	6753482	547.221	566.668m
10)	Nitroglycerin	0.00	11.67	0	1771692	N.D.	480.799m#
11)	Tetryl	12.14	12.13	3952625	6761754	573.014	519.169m
13)	2,6-Dinitrotolue	13.89	13.89	3620560	5255653	578.846	554.142
14)	2,4-Dinitrotolue	14.59	14.59	6366215	4136576	524.331	470.931
15)	o-Nitrotoluene	16.08	16.08	3051584	4173518	545.395	413.912
16)	3,5-Dinitroanili	15.47	15.47	5247298	8209950	482.434	434.481
17)	p-Nitrotoluene	17.12	17.12	5877803	10268368	517.113	494.299
18)	4-Amino-2,6-Dini	17.12	17.12	5877803	10268368	517.113	494.261
19)	m-Nitrotoluene	18.35	18.35	2941670	4567874	513.116	437.428
20)	2-Amino-4,6-Dini	19.20	19.20	4936073	6454657	572.143	519.952
21)	PETN	0.00	20.31	0	1231074	N.D.	488.527 #

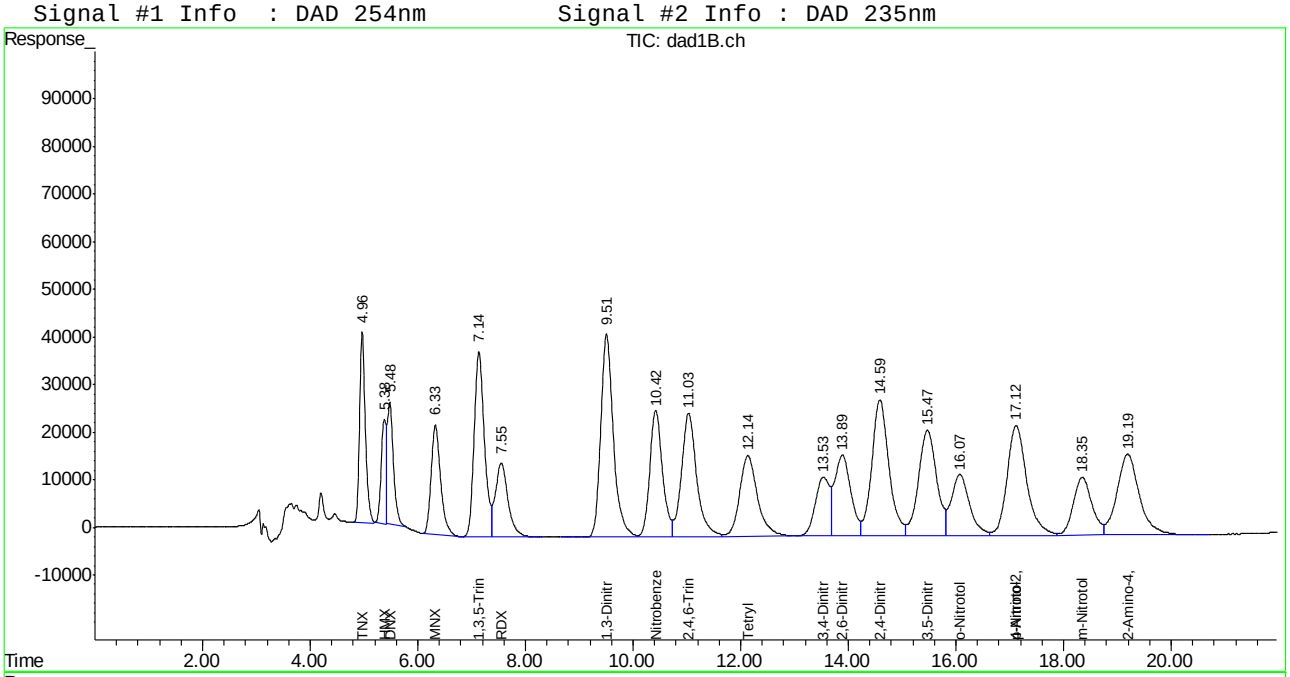
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

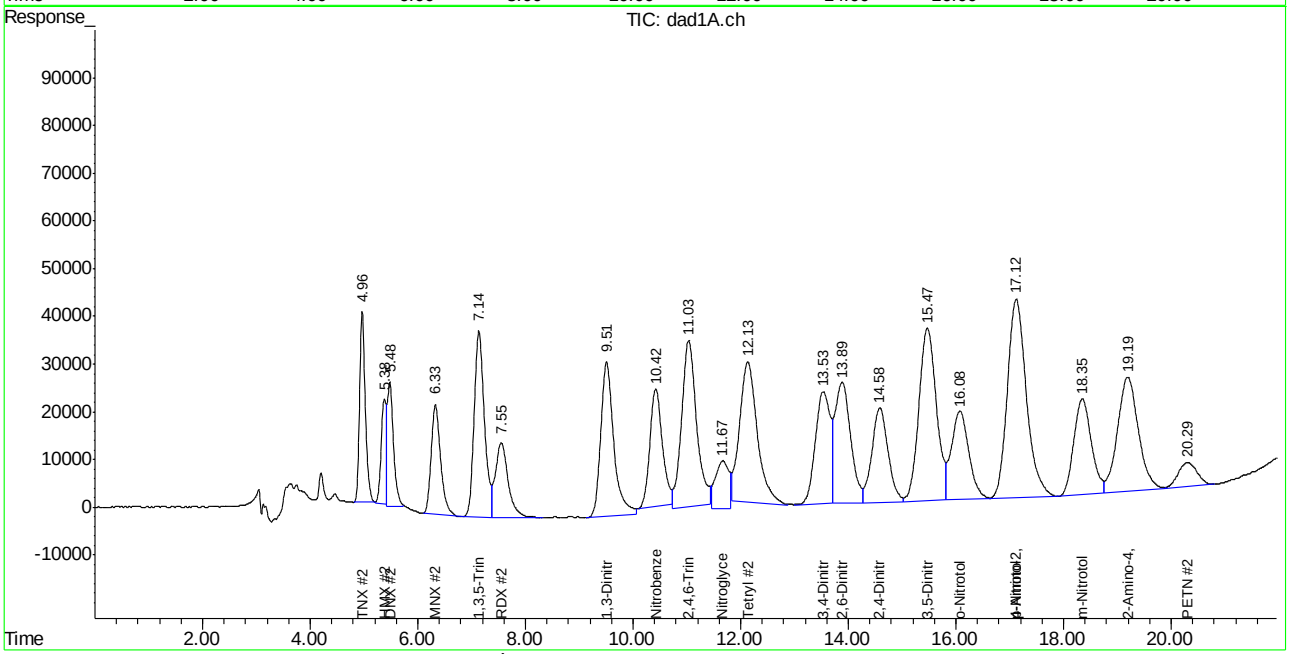
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:33 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

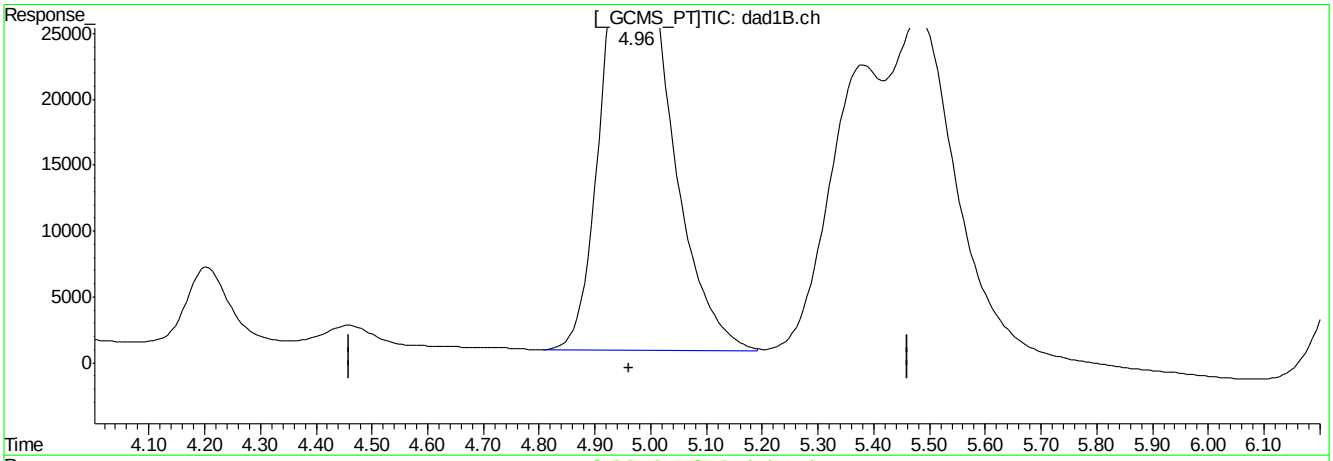
Sample Number: GGG2769-IC2769
Lab FileID: GG617751.D
Injection Time: 09/25/19 22:28
Method: SW846 8330B
Analyst approved: 09/26/19 16:07 William Hustedde
Supervisor approved: 09/26/19 16:28 Naresh Jiawan

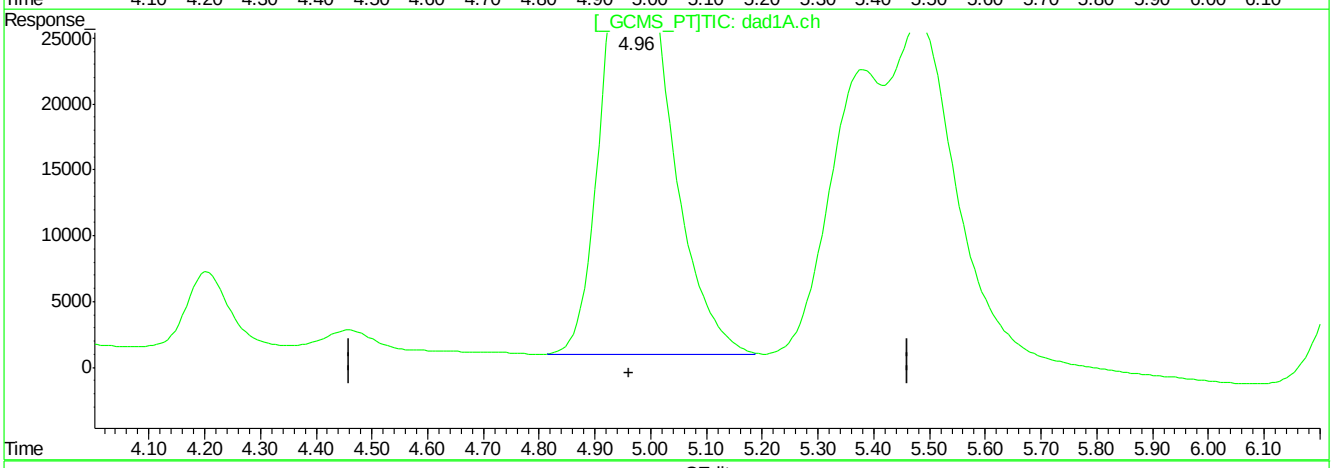
Parameter	CAS	Sig#	R.T. (min.)	Reason
TNX		1	4.96	Poor instrument integration
TNX		2	4.96	Poor instrument integration
HMX	2691-41-0	1	5.38	Poor instrument integration
HMX	2691-41-0	2	5.38	Poor instrument integration
DNX		1	5.48	Poor instrument integration
DNX		2	5.48	Poor instrument integration
Nitrobenzene	98-95-3	2	10.42	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	2	11.03	Poor instrument integration
Nitroglycerine	55-63-0	2	11.67	Poor instrument integration
Tetryl	479-45-8	2	12.13	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(1) TNX

4.96min 526.293ppb m

response 2989613

(1) TNX #2

4.96min 522.317ppb m

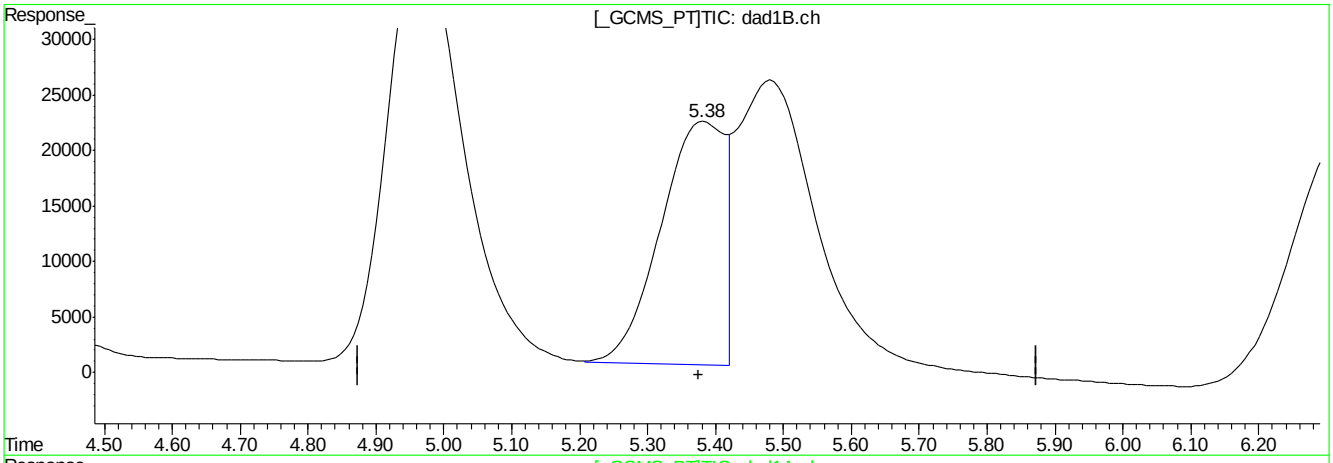
response 2973307

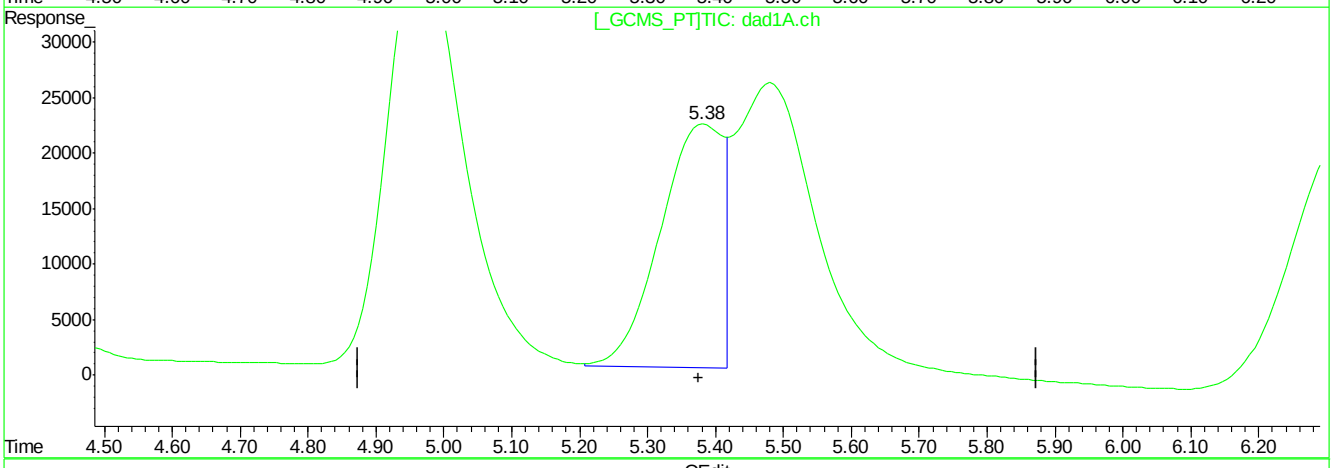
(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:30:29 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.38min 372.621ppb m

response 1359298

(2) HMX #2

5.38min 387.947ppb m

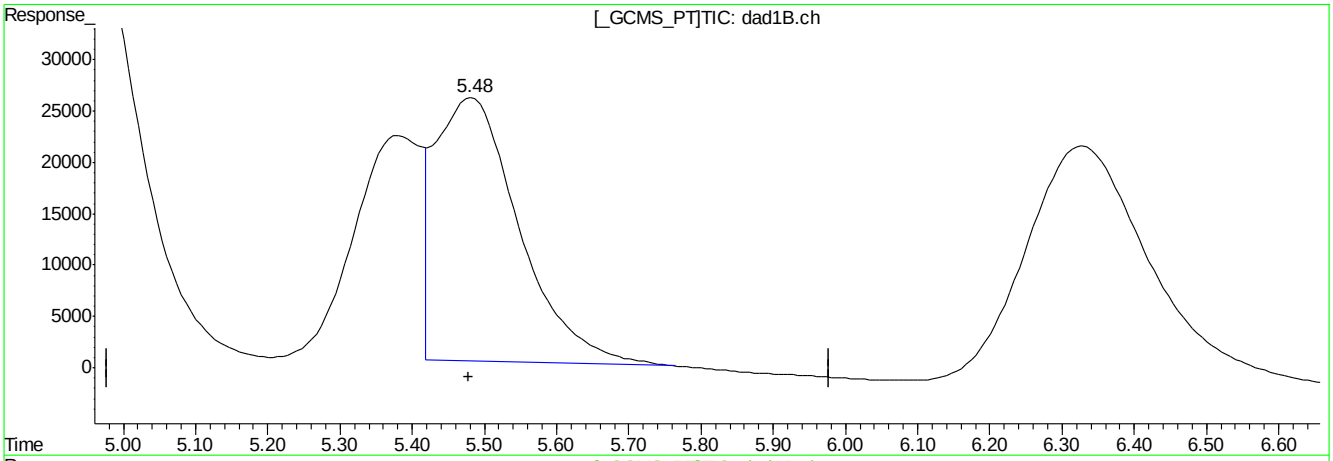
response 1413019

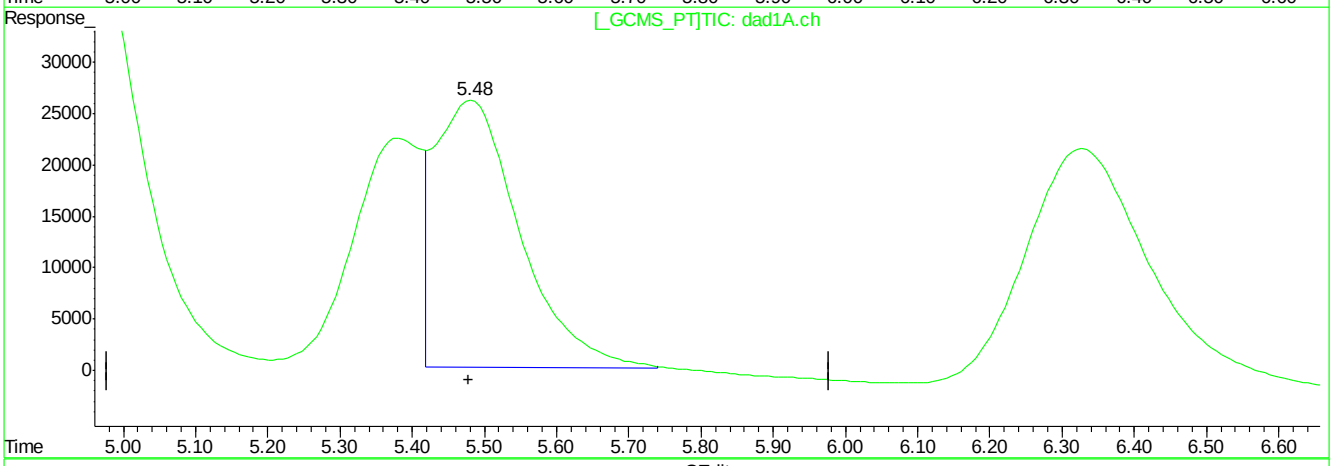
(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:30:37 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(3) DNX

5.48min 390.961ppb m

response 2092027

(3) DNX #2

5.48min 403.713ppb m

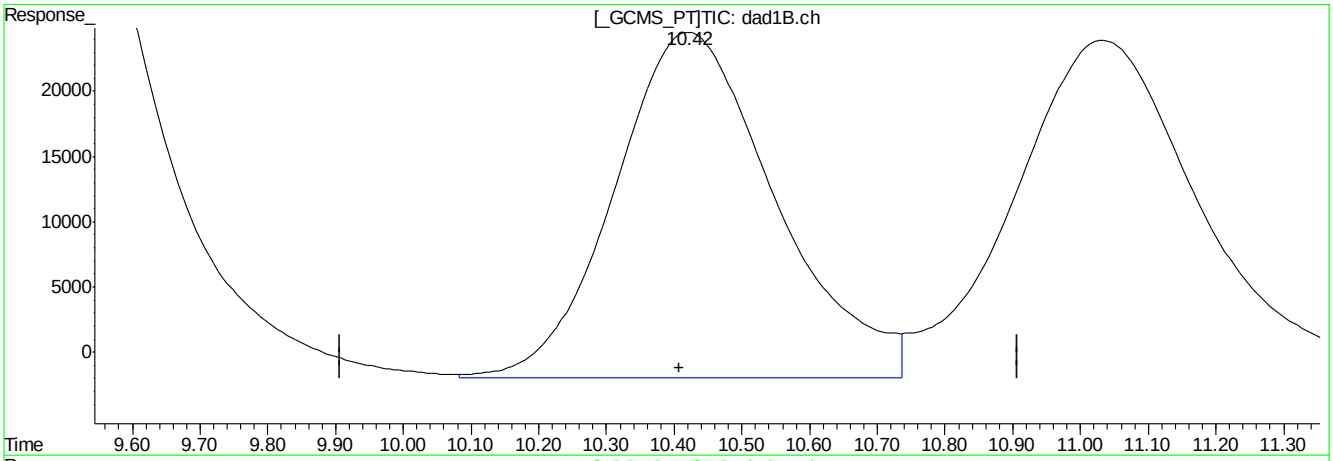
response 2139504

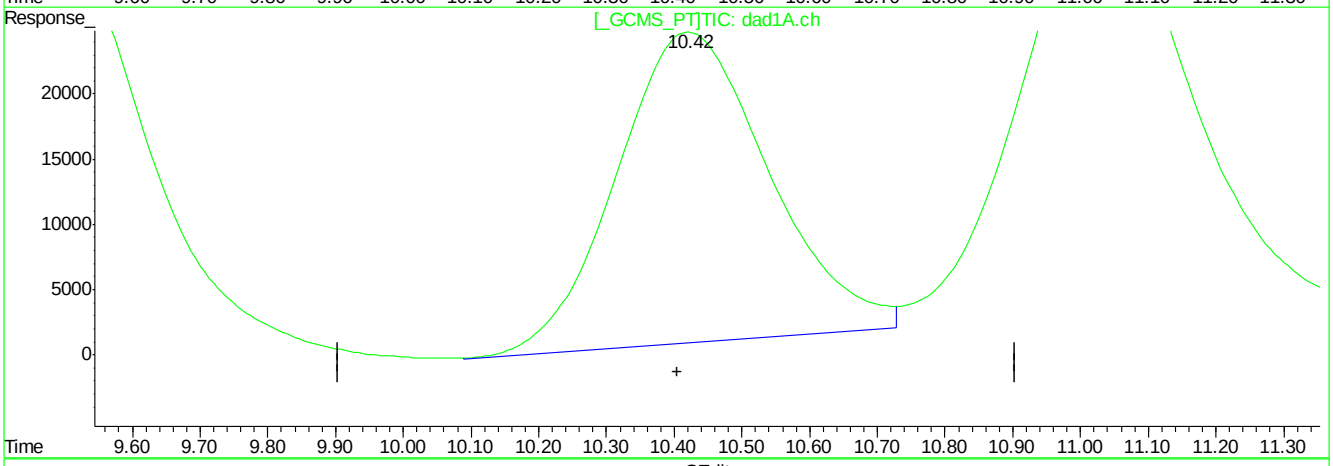
(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:30:46 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(8) Nitrobenzene

10.42min 514.950ppb

response 4368356

(8) Nitrobenzene #2

10.42min 445.545ppb m

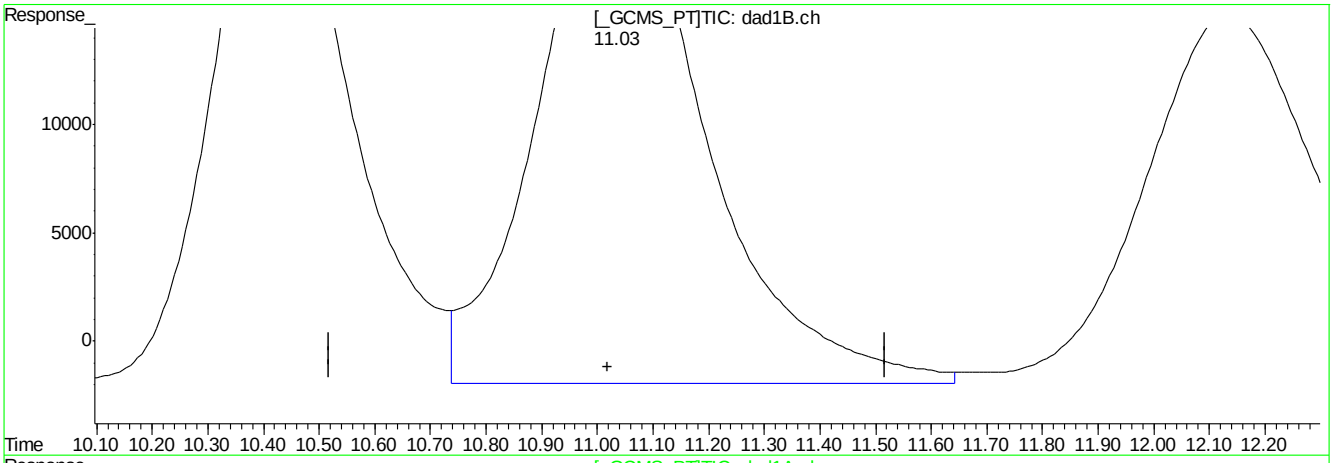
response 3743241

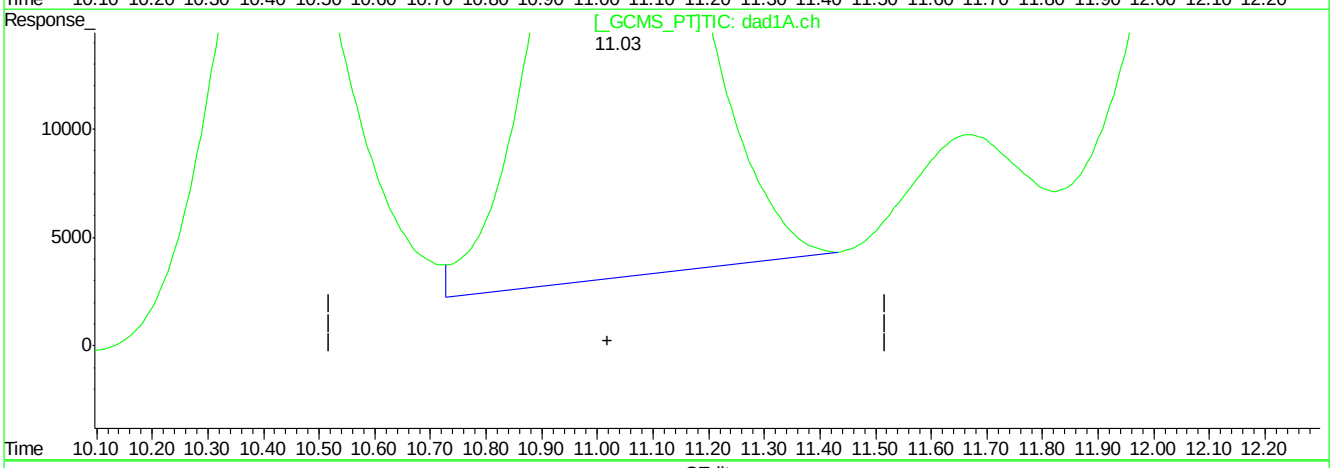
(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:31:04 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.03min 547.221ppb

response 5090539

(9) 2,4,6-Trinitrotoluene #2

11.03min 456.956ppb m

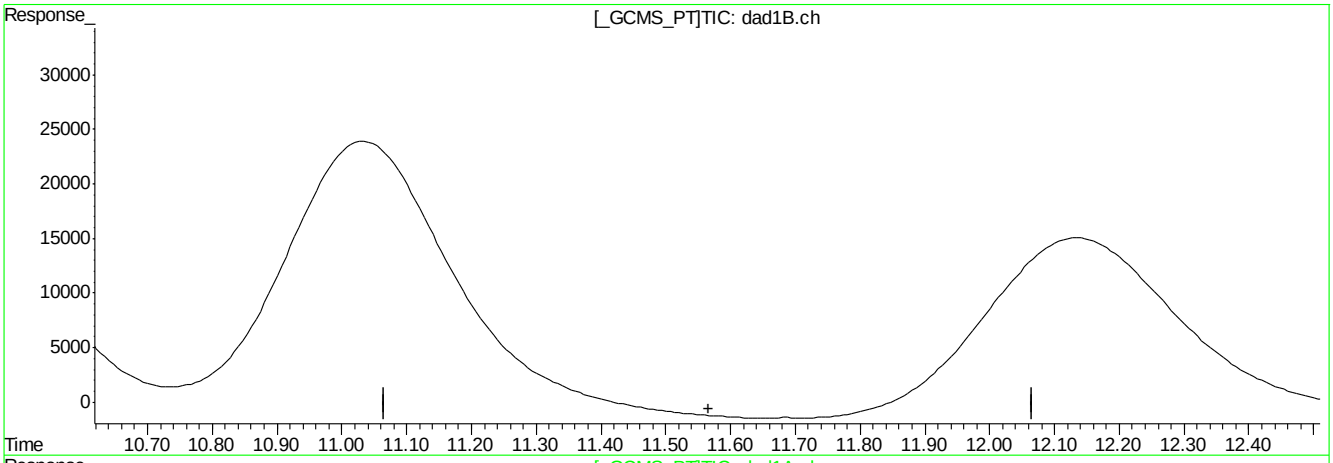
response 5445943

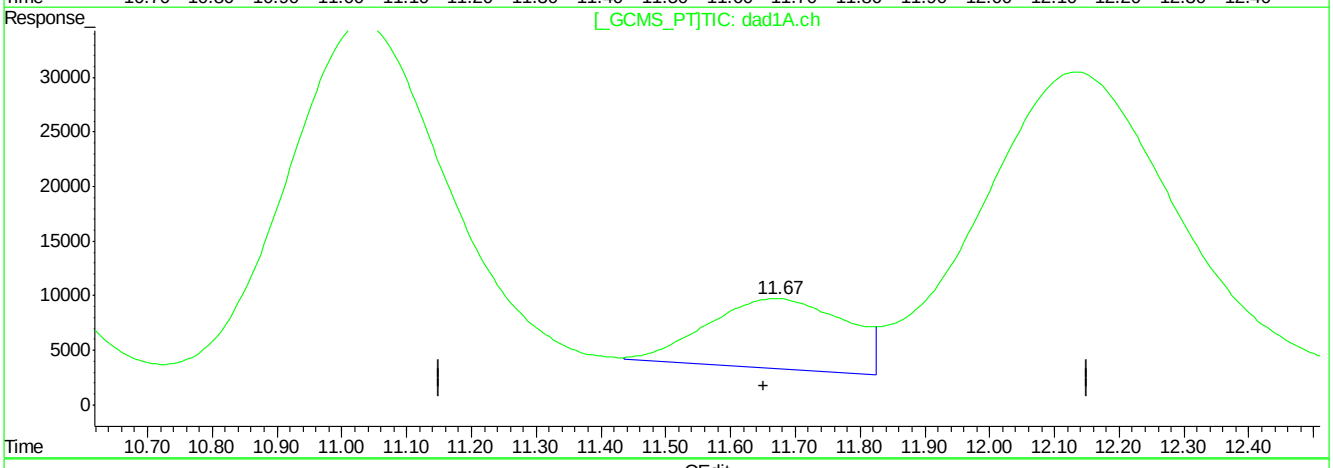
(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:31:10 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(10) Nitroglycerin

0.00min 0.000ppb

response 0

(10) Nitroglycerin #2

11.67min 257.891ppb m

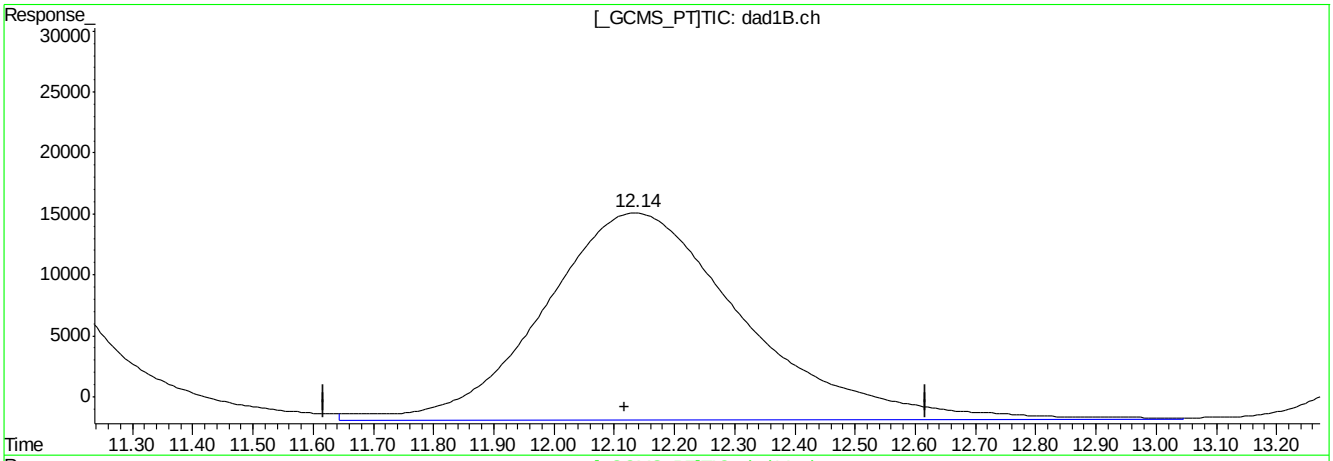
response 950817

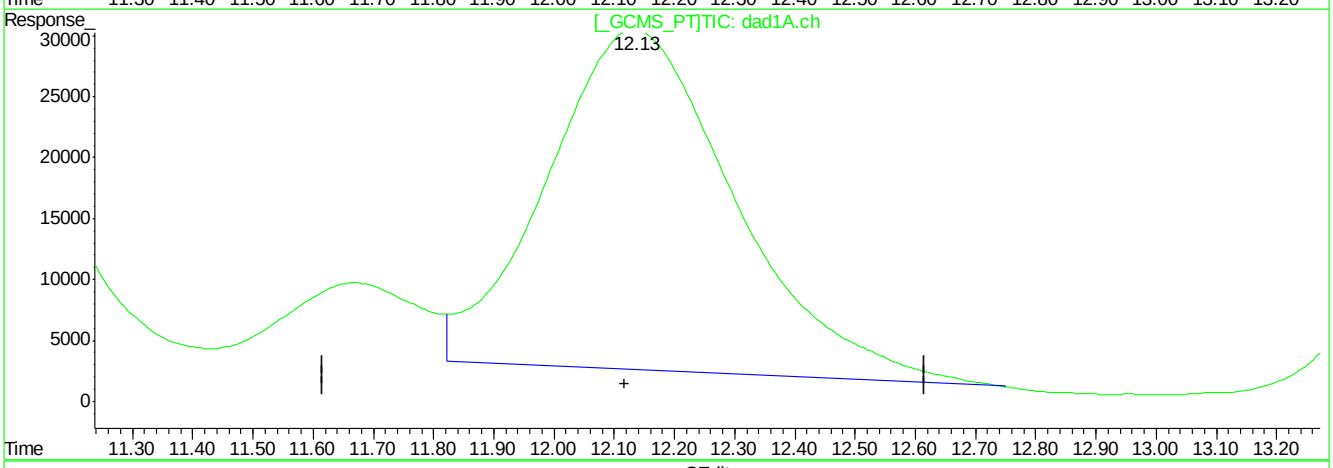
(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:31:19 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(11) Tetryl

12.14min 573.014ppb

response 3952625

(11) Tetryl #2

12.13min 464.205ppb m

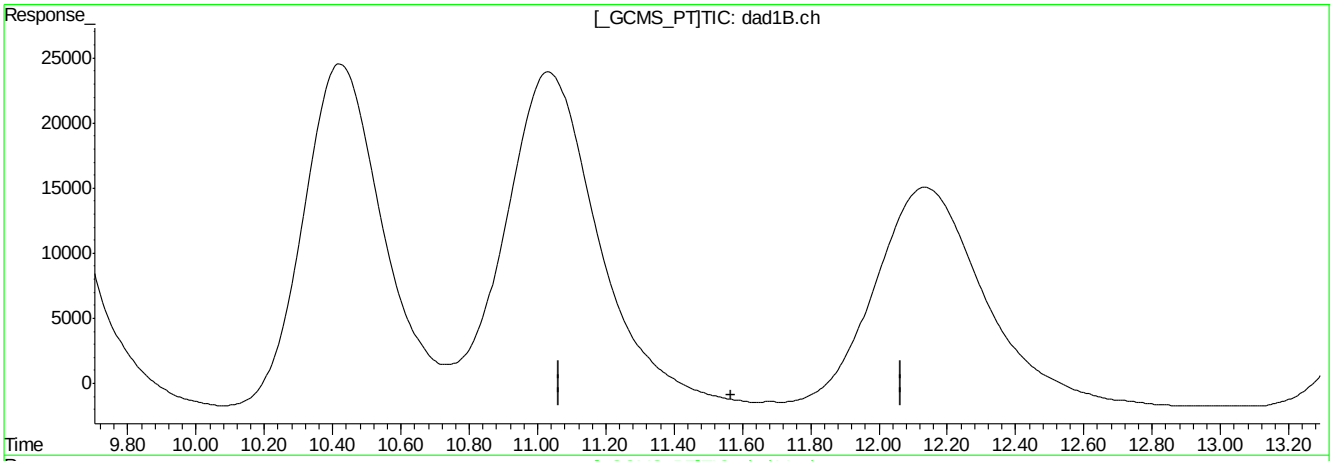
response 6053797

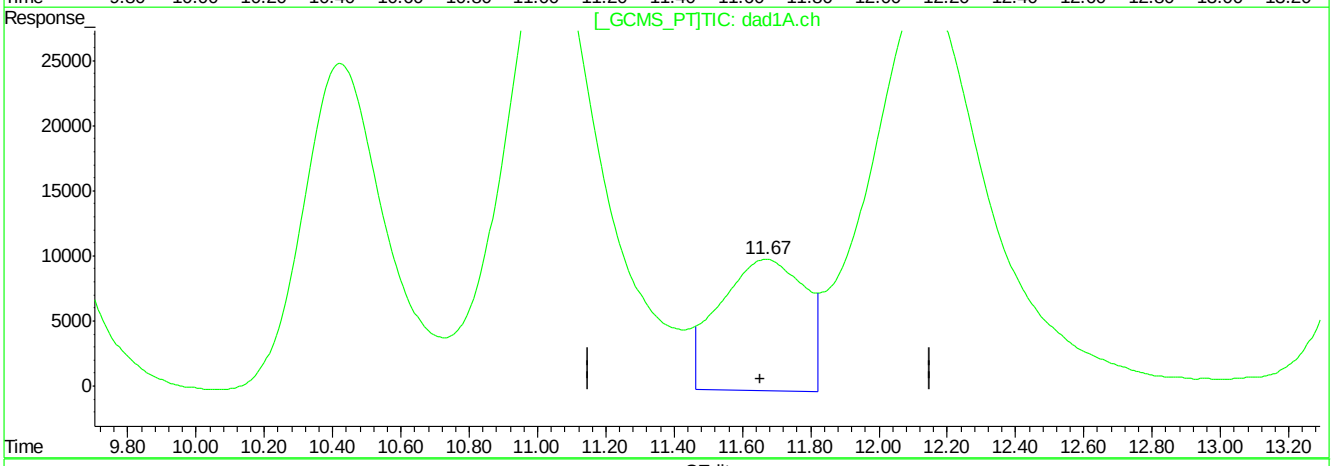
(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:31:24 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:31 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(10) Nitroglycerin

0.00min 0.000ppb

response 0

(10) Nitroglycerin #2

11.67min 480.799ppb m

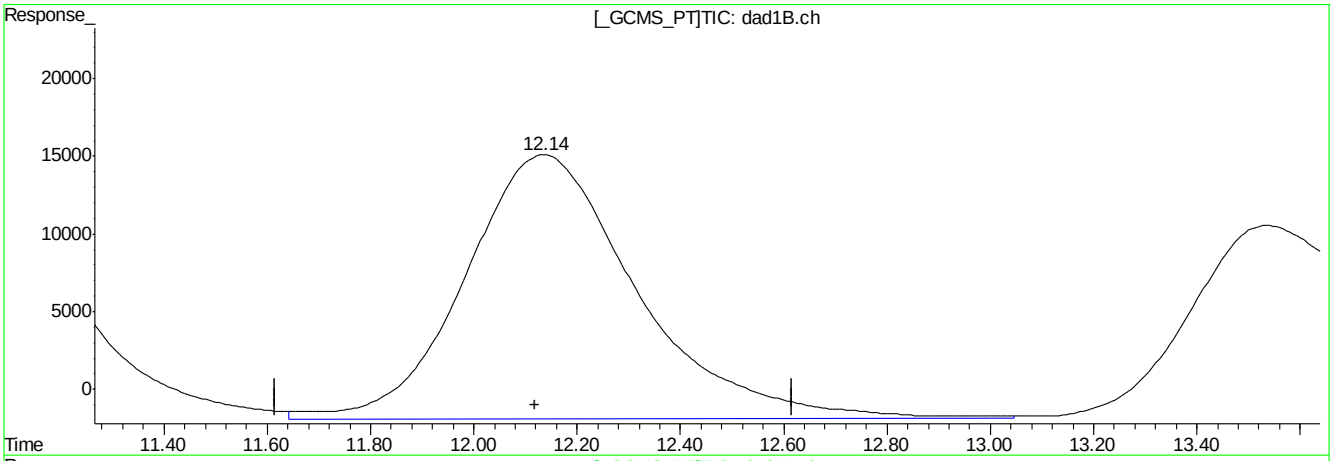
response 1771692

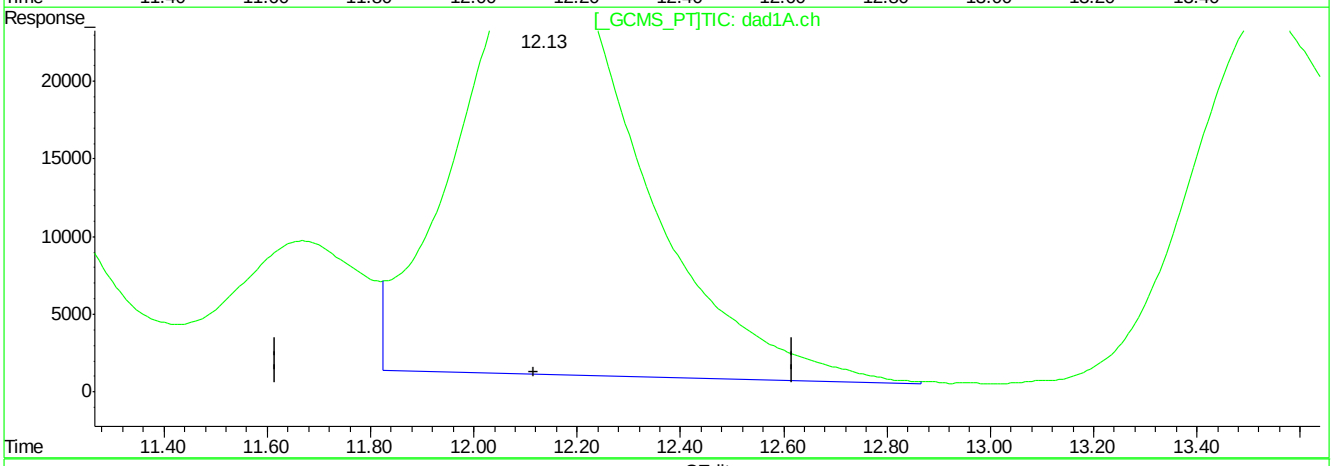
(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:33:01 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:31 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(11) Tetryl

12.14min 573.014ppb

response 3952625

(11) Tetryl #2

12.13min 519.169ppb m

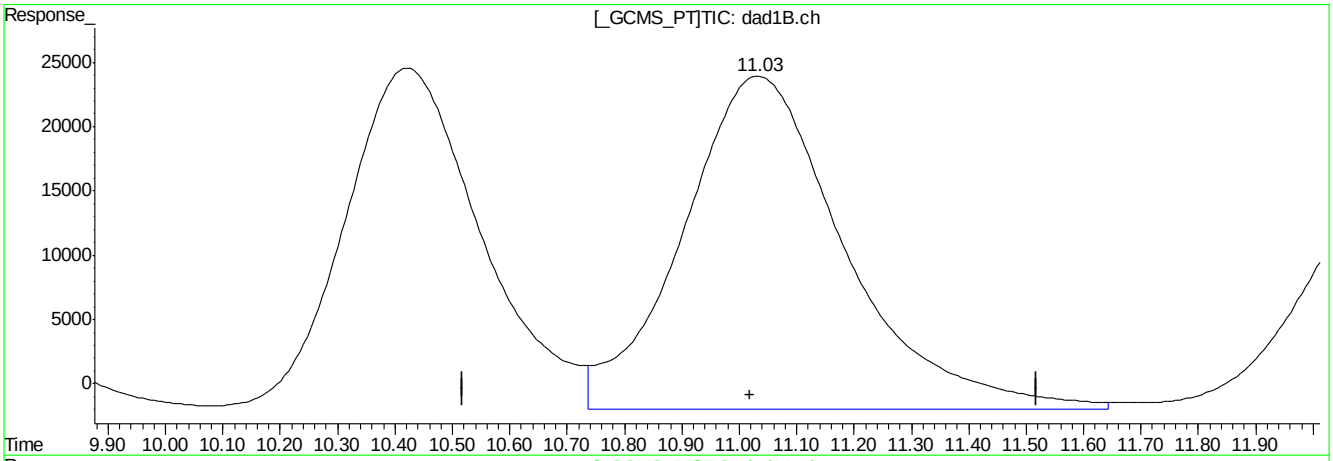
response 6761754

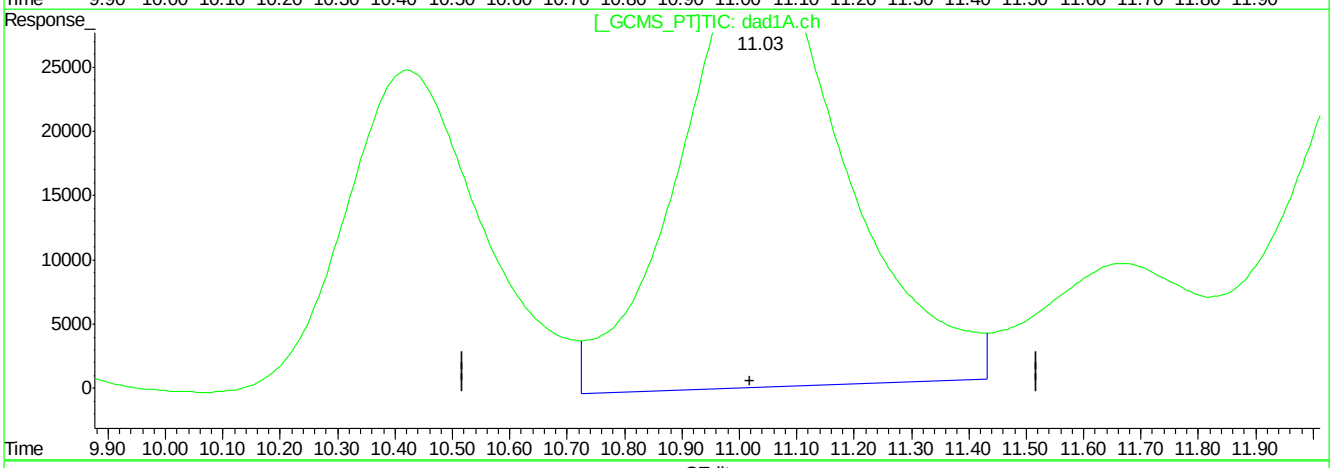
(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:33:10 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:31 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.03min 547.221ppb

response 5090539

(9) 2,4,6-Trinitrotoluene #2

11.03min 566.668ppb m

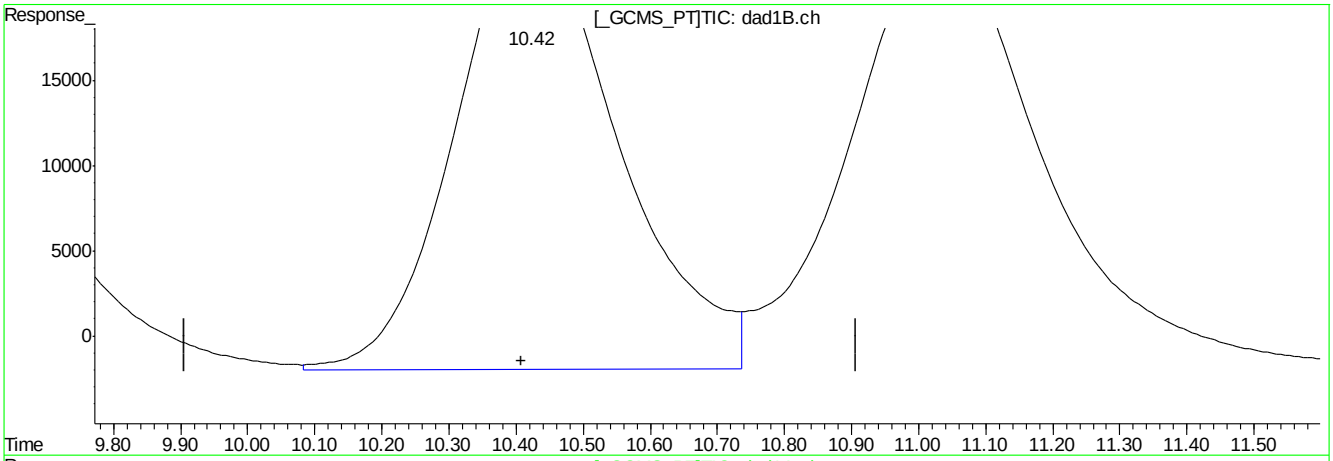
response 6753482

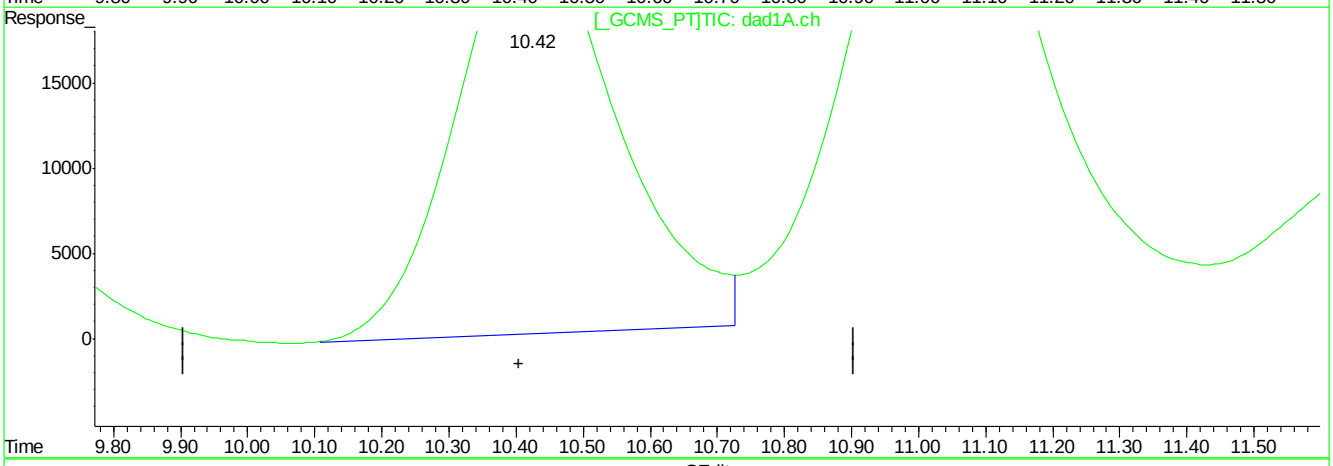
(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:33:18 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:31 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(8) Nitrobenzene

10.42min 514.950ppb

response 4368356

(8) Nitrobenzene #2

10.42min 470.342ppb m

response 3949762

(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:33:24 2019

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
09/26/19 16:28

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617752.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617752.D\dad1A.ch
Acq On : 25-Sep-2019, 22:57:38 Operator: williamh
Sample : icc2769-1000 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12:38 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb	
	System Monitoring Compounds							
12)	S 3,4-Dinitrotolue	13.53	13.52	4591322	9055692	881.888	892.036	
	Spiked Amount 500.000	Range 70 - 136		Recovery =		176.38%#	178.41%#	
	Target Compounds							
1)	TNX	4.96	4.96	6018347	6004425	1059.473m	1054.789m	
2)	HMX	5.37	5.37	3026166	3027841	843.036m	844.146m	
3)	DNX	5.48	5.48	4046919	4062739	767.488m	776.175m	
4)	MNX	6.32	6.32	5734990	5734990	987.214	987.231	
5)	1,3,5-Trinitrobe	7.13	7.13	10428175	10428175	1096.003	1099.274	
6)	RDX	7.55	7.55	5159657	5159657	1116.264	1124.476	
7)	1,3-Dinitrobenze	9.50	9.50	13991520	10641112	1045.078	1049.362	
8)	Nitrobenzene	10.41	10.41	8835617	8512375	1041.560	1024.176	
9)	2,4,6-Trinitroto	11.02	11.02	10246321	13648582	1101.456	1145.220	
10)	Nitroglycerin	0.00	11.65	0	3332958	N.D.	905.425	#
11)	Tetryl	12.12	12.12	7927404	14234017	1149.239	1108.429	
13)	2,6-Dinitrotolue	13.88	13.88	7351863	10767621	1175.396	1138.354	
14)	2,4-Dinitrotolue	14.58	14.58	12909220	8826775	1063.222	1004.890	
15)	o-Nitrotoluene	16.06	16.06	6201909	8738054	1108.438	866.604	
16)	3,5-Dinitroanili	15.46	15.46	10530684	16811687	968.187	889.696	
17)	p-Nitrotoluene	17.10	17.10	11894457	20829522	1046.442	1002.692	
18)	4-Amino-2,6-Dini	17.10	17.10	11894457	20829522	1046.442	1002.615	
19)	m-Nitrotoluene	18.33	18.33	5955214	9462873	1038.768	906.183	
20)	2-Amino-4,6-Dini	19.16	19.16	9999547	13435173	1159.054	1082.265	
21)	PETN	0.00	20.28	0	3078917	N.D.	1217.374	#

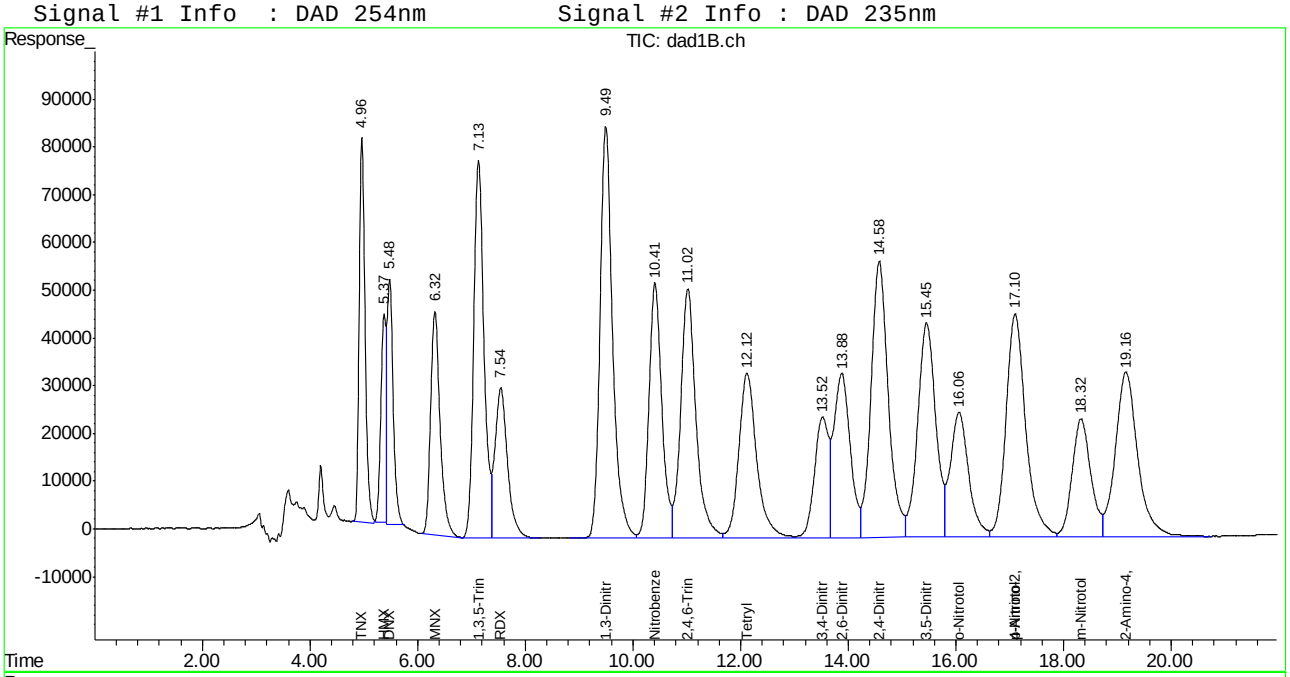
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

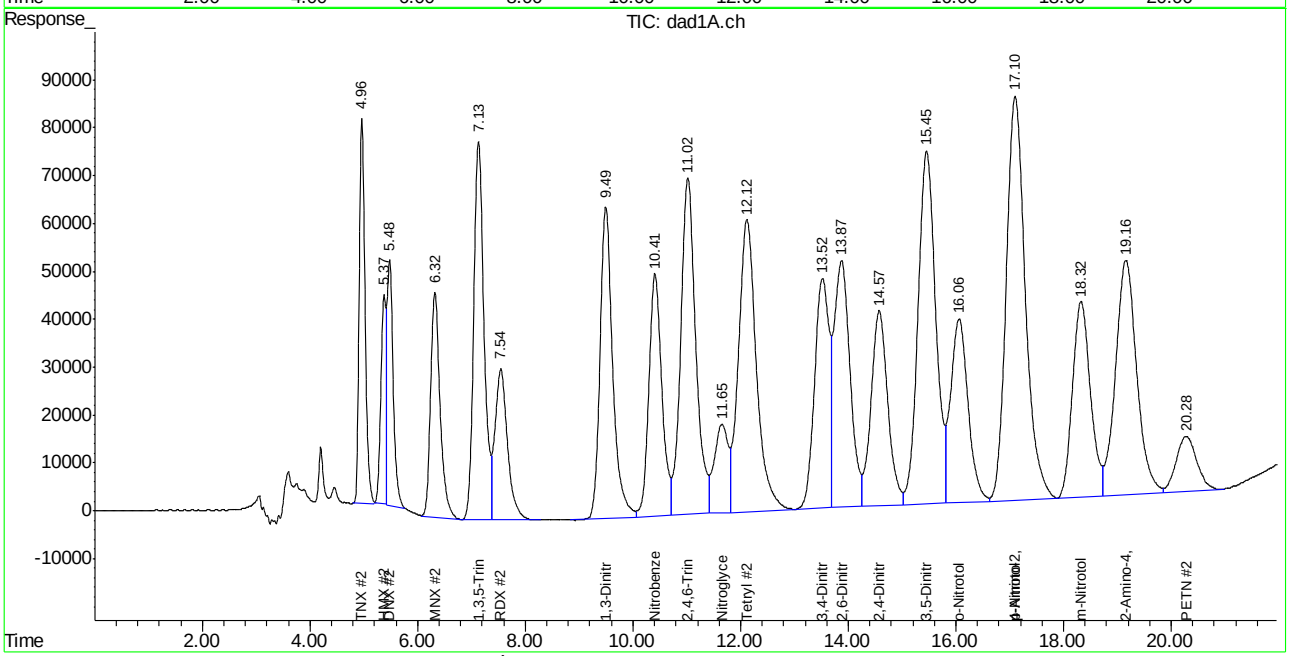
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617752.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617752.D\dad1A.ch
Acq On : 25-Sep-2019, 22:57:38 Operator: williamh
Sample : icc2769-1000 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:32 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

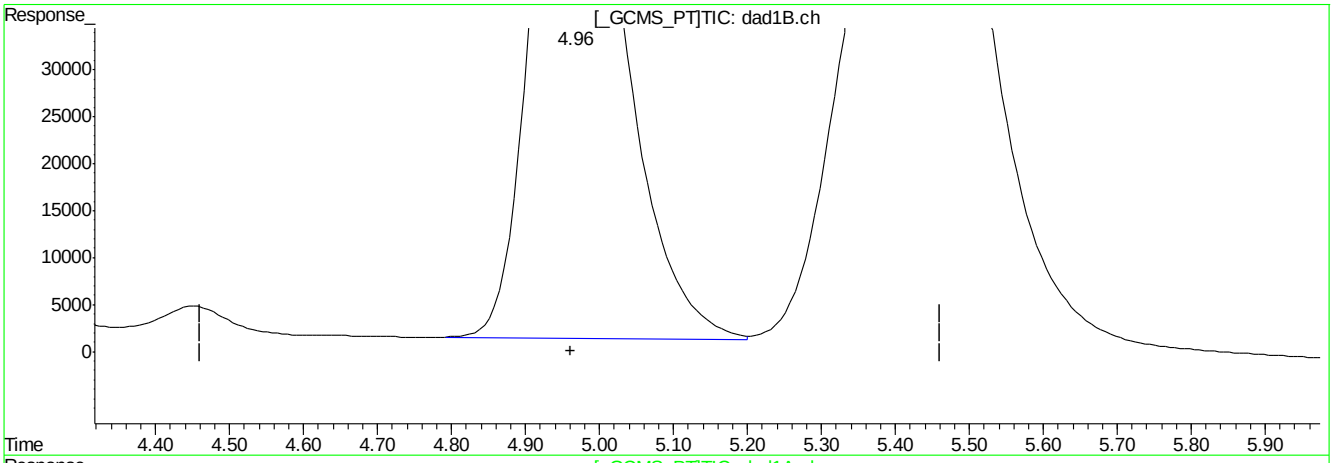
Sample Number: GGG2769-ICC2769 **Method:** SW846 8330B
Lab FileID: GG617752.D **Analyst approved:** 09/26/19 16:07 William Hustedde
Injection Time: 09/25/19 22:57 **Supervisor approved:** 09/26/19 16:28 Naresh Jiawan

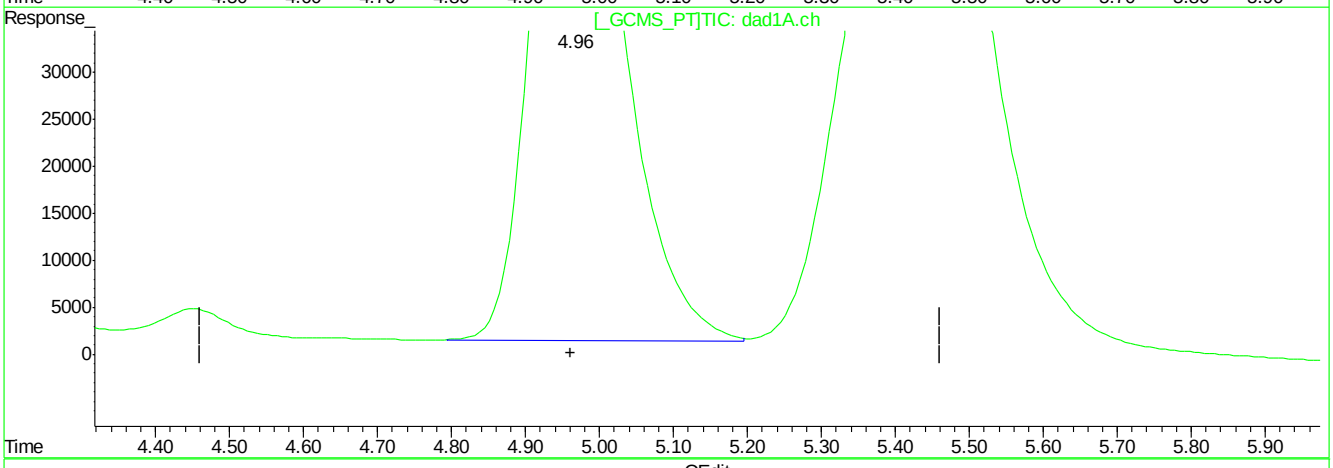
Parameter	CAS	Sig#	R.T. (min.)	Reason
TNX		1	4.96	Poor instrument integration
TNX		2	4.96	Poor instrument integration
HMX	2691-41-0	1	5.37	Poor instrument integration
HMX	2691-41-0	2	5.37	Poor instrument integration
DNX		1	5.48	Poor instrument integration
DNX		2	5.48	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617752.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617752.D\dad1A.ch
Acq On : 25-Sep-2019, 22:57:38 Operator: williamh
Sample : icc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(1) TNX

4.96min 1059.473ppb m

response 6018347

(1) TNX #2

4.96min 1054.789ppb m

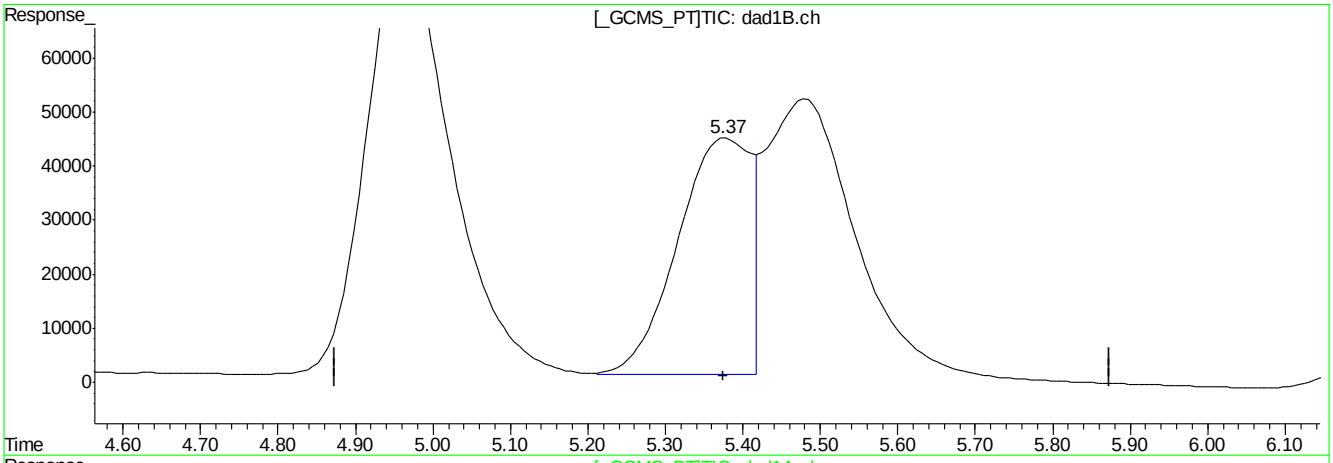
response 6004425

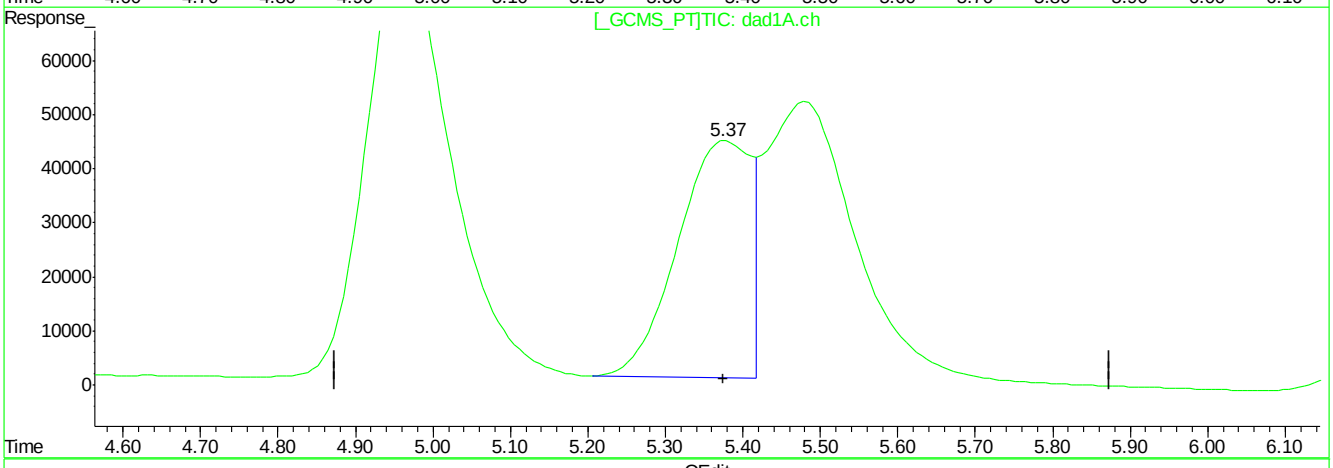
(+) = Expected Retention Time
GG617752.D 8330RPB.M_092519.M Thu Sep 26 11:31:47 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617752.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617752.D\dad1A.ch
Acq On : 25-Sep-2019, 22:57:38 Operator: williamh
Sample : icc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.37min 843.036ppb m

response 3026166

(2) HMX #2

5.37min 844.146ppb m

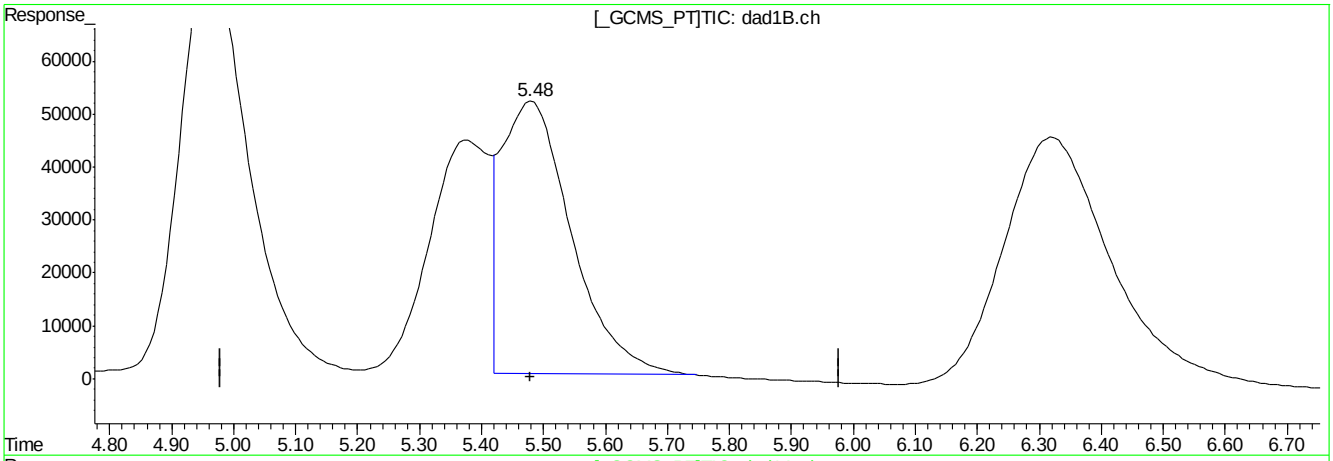
response 3027841

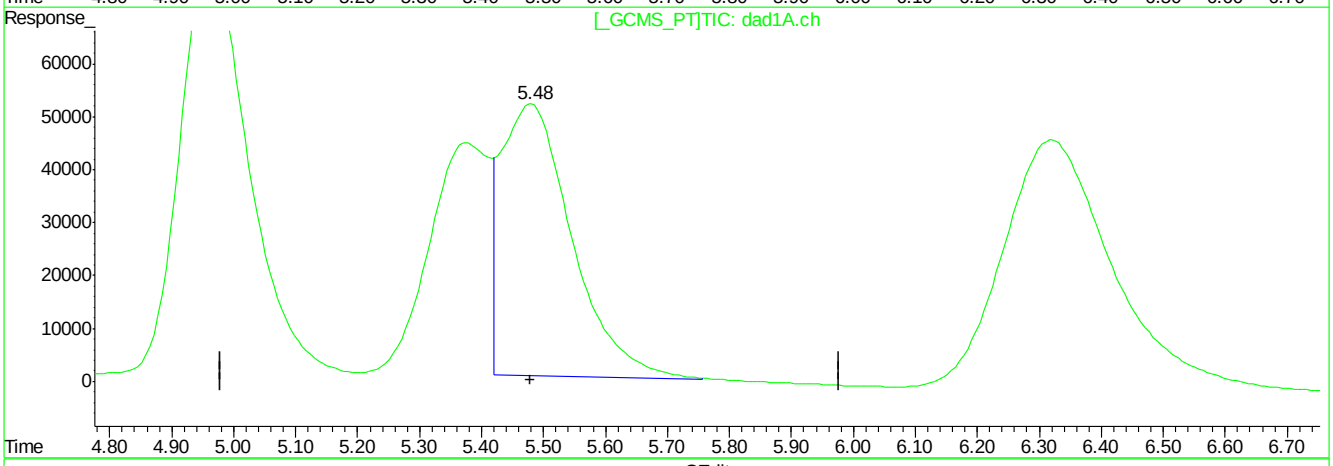
(+) = Expected Retention Time
GG617752.D 8330RPB.M_092519.M Thu Sep 26 11:31:55 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617752.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617752.D\dad1A.ch
Acq On : 25-Sep-2019, 22:57:38 Operator: williamh
Sample : icc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(3) DNX

5.48min 767.488ppb m

response 4046919

(3) DNX #2

5.48min 776.175ppb m

response 4062739

(+) = Expected Retention Time
GG617752.D 8330RPB.M_092519.M Thu Sep 26 11:32:03 2019

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617753.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617753.D\dad1A.ch
Acq On : 25-Sep-2019, 23:27:05 Operator: williamh
Sample : ic2769-2500 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12:39 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.53	13.53	11427135	22622399	2194.891	2214.666
	Spiked Amount 500.000	Range 70 - 136		Recovery =		438.98%#	442.93%#
	Target Compounds						
1)	TNX	4.96	4.96	15449035	15449035	2719.657	2713.910
2)	HMX	5.38	5.38	7476194	7476194	2183.897	2183.383
3)	DNX	5.48	5.48	10801869	10801869	2167.878	2164.227
4)	MNX	6.33	6.33	14634680	14634680	2537.898	2537.865
5)	1,3,5-Trinitrobe	7.14	7.14	26458043	26458043	2780.744	2789.044
6)	RDX	7.55	7.55	12973470	12973470	2806.739	2827.390
7)	1,3-Dinitrobenze	9.50	9.50	35336094	26792304	2639.382	2642.540
8)	Nitrobenzene	10.41	10.41	22261102	20994018	2624.182	2602.867
9)	2,4,6-Trinitroto	11.02	11.03	25828110	34018225	2776.463	2854.388
10)	Nitroglycerin	0.00	11.66	0	8168741	N.D.	2226.244 #
11)	Tetryl	12.12	12.12	20146483	36422079	2920.645	2969.609
13)	2,6-Dinitrotolue	13.88	13.88	18676188	27322720	2985.900	2912.280
14)	2,4-Dinitrotolue	14.57	14.57	32684148	22848017	2691.914	2601.146
15)	o-Nitrotoluene	16.06	16.06	15582462	22472561	2784.979	2228.736
16)	3,5-Dinitroanili	15.43	15.43	26850786	43410142	2468.650	2297.320
17)	p-Nitrotoluene	17.09	17.09	30163703	53830444	2653.720	2591.290
18)	4-Amino-2,6-Dini	17.09	17.09	30163703	53830444	2653.720	2591.091
19)	m-Nitrotoluene	18.32	18.32	15094613	24955421	2632.955	2389.778
20)	2-Amino-4,6-Dini	19.13	19.13	25378119	35158532	2941.594	2832.181
21)	PETN	0.00	20.28	0	8634754	N.D.	3377.775 #

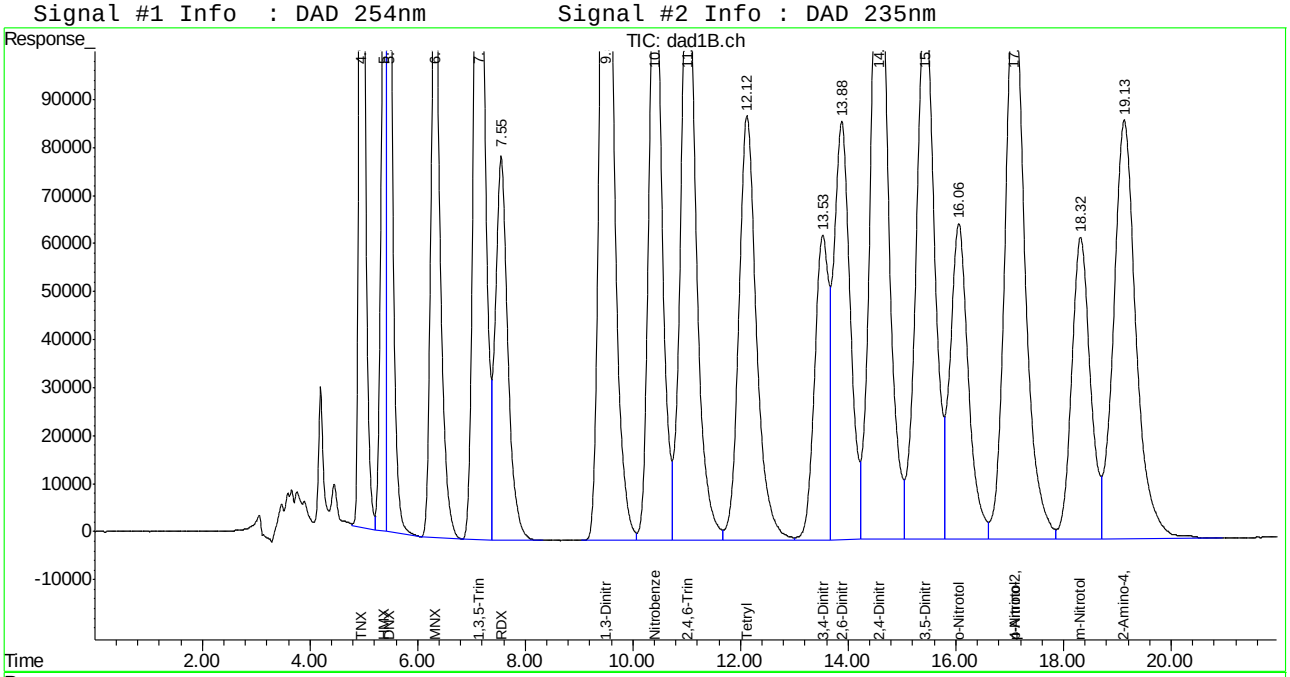
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

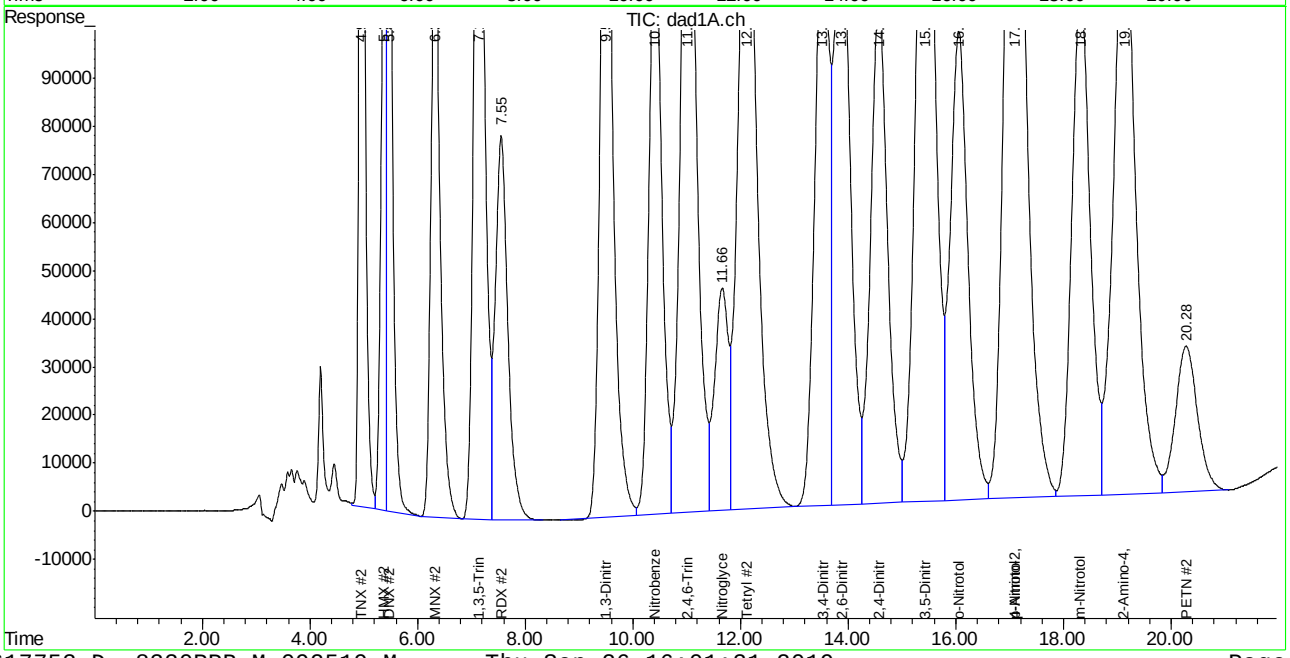
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617753.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617753.D\dad1A.ch
Acq On : 25-Sep-2019, 23:27:05 Operator: williamh
Sample : ic2769-2500 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617754.D\dad1B.ch Vial: 9
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617754.D\dad1A.ch
Acq On : 25-Sep-2019, 23:56:32 Operator: williamh
Sample : ic2769-5000 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12:40 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb	
	System Monitoring Compounds							
12) S	3,4-Dinitrotolue	13.61	13.61	22694012	45704871	4359.001	4428.579	
	Spiked Amount 500.000	Range 70 - 136		Recovery =		871.80%#	885.72%#	
	Target Compounds							
1)	TNX	4.96	4.96	30192410	30192410	5315.089	5303.858	
2)	HMX	5.38	5.38	14655794	14655794	4712.906	4699.865	
3)	DNX	5.48	5.48	20767103	20767103	4647.092	4539.317	
4)	MNX	6.33	6.33	28899678	28899678	5073.270	5072.941	
5)	1,3,5-Trinitrobe	7.15	7.15	52314501	52314501	5498.262	5514.673	
6)	RDX	7.56	7.56	25422911	25422911	5500.108	5540.575	
7)	1,3-Dinitrobenze	9.53	9.53	69786310	52489977	5212.594	5178.510	
8)	Nitrobenzene	10.45	10.45	44157450	41298399	5205.366	5413.898	
9)	2,4,6-Trinitroto	11.08	11.08	50532038	66013038	5432.079	5538.996	
10)	Nitroglycerin	0.00	11.72	0	15575975	N.D.	4266.154	#
11)	Tetryl	12.19	12.19	39181731	69694565	5680.193	6184.772	
13)	2,6-Dinitrotolue	13.95	13.95	36695921	53863518	5866.847	5819.536	
14)	2,4-Dinitrotolue	14.65	14.65	64169582	45461253	5285.100	5175.564	
15)	o-Nitrotoluene	16.15	16.15	30022716	44417557	5365.816	4405.150	
16)	3,5-Dinitroanili	15.50	15.50	52983074	87170322	4871.242	4613.165	
17)	p-Nitrotoluene	17.19	17.19	58898663	107.5E6	5181.743	5174.583	
18)	4-Amino-2,6-Dini	17.19	17.19	58898663	107.5E6	5181.743	5174.185	
19)	m-Nitrotoluene	18.42	18.42	29482656	50105401	5142.662	4798.188	
20)	2-Amino-4,6-Dini	19.24	19.24	48866600	70054734	5664.160	5643.230	
21)	PETN	0.00	20.41	0	17398593	N.D.	6696.595	#

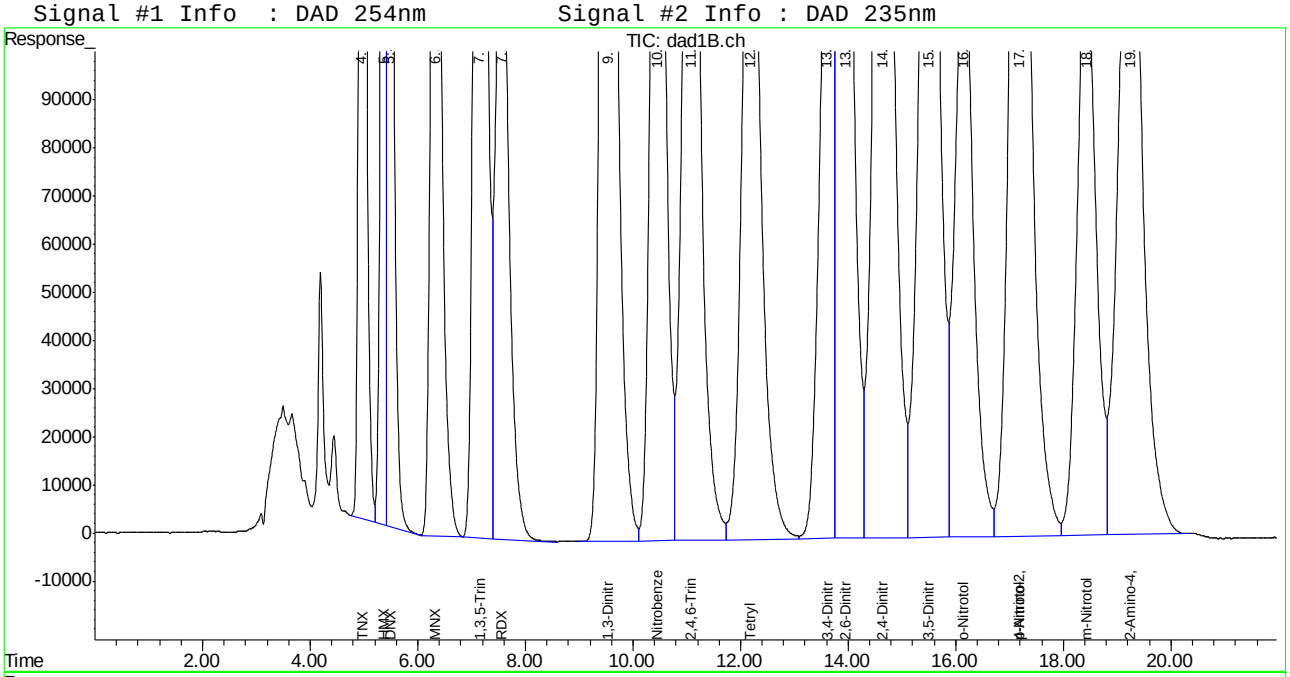
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
GG617754.D 8330RPB.M_092519.M Thu Sep 26 16:01:32 2019 Page 1

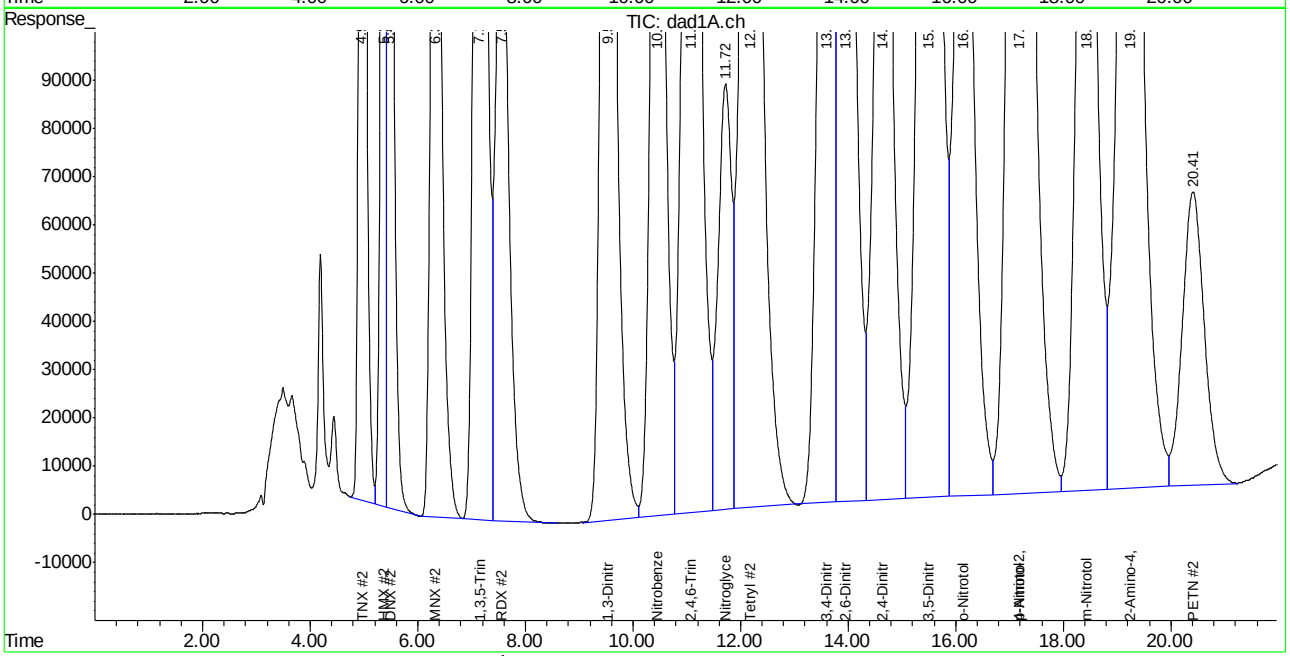
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617754.D\dad1B.ch Vial: 9
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617754.D\dad1A.ch
Acq On : 25-Sep-2019, 23:56:32 Operator: williamh
Sample : ic2769-5000 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
09/26/19 16:28

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617755.D\dad1B.ch Vial: 10
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617755.D\dad1A.ch
Acq On : 26-Sep-2019, 00:25:58 Operator: williamh
Sample : icv2769-1000 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:43:39 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:43:32 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	0.00	0.00	0	0	N.D.	N.D.
	Spiked Amount 500.000	Range 70 - 136		Recovery =		0.00%#	0.00%#
	Target Compounds						
1)	TNX	4.98	4.98	6146461	6146461	996.081	997.042
2)	HMX	5.40	5.40	2921780	2921780	980.590	974.217
3)	DNX	5.50	5.50	4119701	4119701	957.975	955.041
4)	MNX	6.36	6.36	5345176	5345176	1010.883	1008.886
5)	1,3,5-Trinitrobe	7.17	7.17	9498559	9498559	918.511	918.511
6)	RDX	7.59	7.59	4947804	4947804	975.924	975.924
7)	1,3-Dinitrobenze	9.55	9.55	13337178	10299301	954.196	986.349
8)	Nitrobenzene	10.47	10.47	8620445	8272061	968.207	977.336
9)	2,4,6-Trinitroto	11.09	11.09	10154932	13570285	995.903	1026.613
10)	Nitroglycerin	0.00	11.74	0	3455123	N.D.	999.345 #
11)	Tetryl	12.22	12.22	7535068	13687564	984.241	971.517
13)	2,6-Dinitrotolue	14.00	14.00	6309481	9116954	873.993	844.042
14)	2,4-Dinitrotolue	14.69	14.69	12383125	8606538	979.272	965.106
15)	o-Nitrotoluene	16.19	16.19	6129850	8377033	1054.033	1006.127
16)	3,5-Dinitroanili	15.55	15.55	10629658	17093123	1041.817	1029.620
17)	p-Nitrotoluene	17.24	17.24	11414366	19636916	984.309	894.241
18)	4-Amino-2,6-Dini	17.24	17.24	11414366	19636916	987.195	904.219
19)	m-Nitrotoluene	18.47	18.47	5938830	9298354	1018.222	934.998
20)	2-Amino-4,6-Dini	19.30	19.30	9221128	12186345	960.966	868.472
21)	PETN	0.00	20.47	0	2646792	N.D.	815.859m#

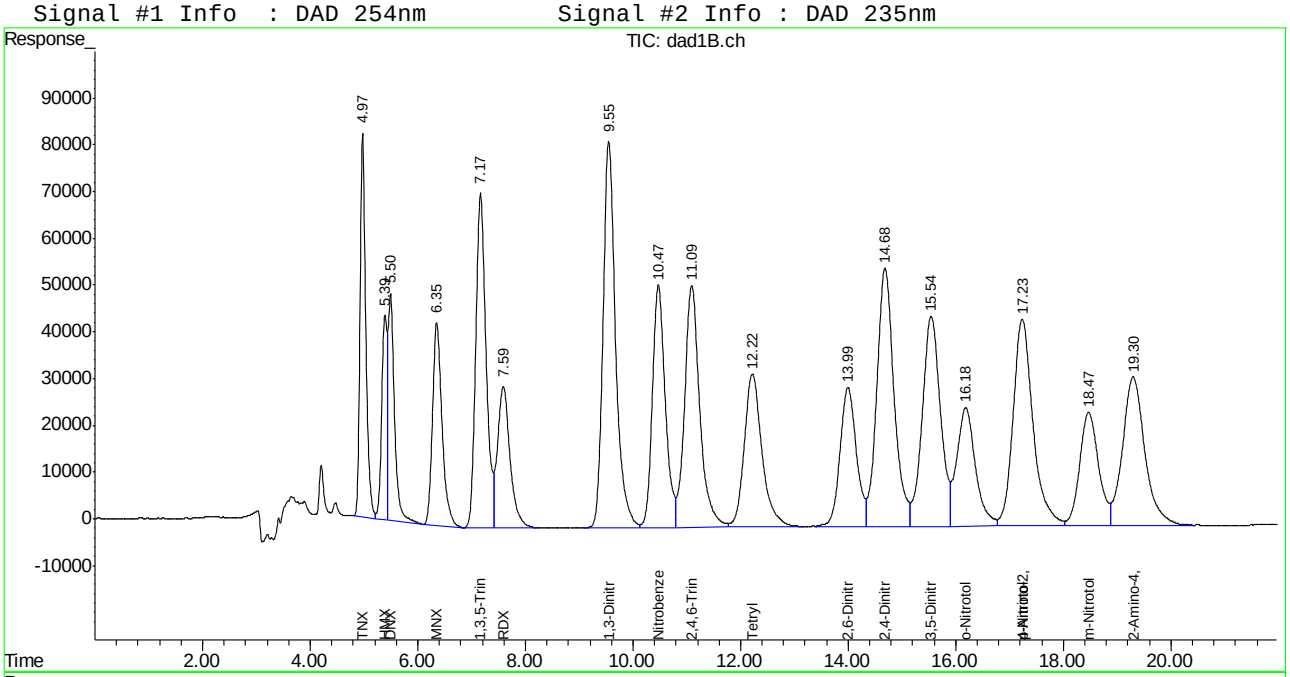
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

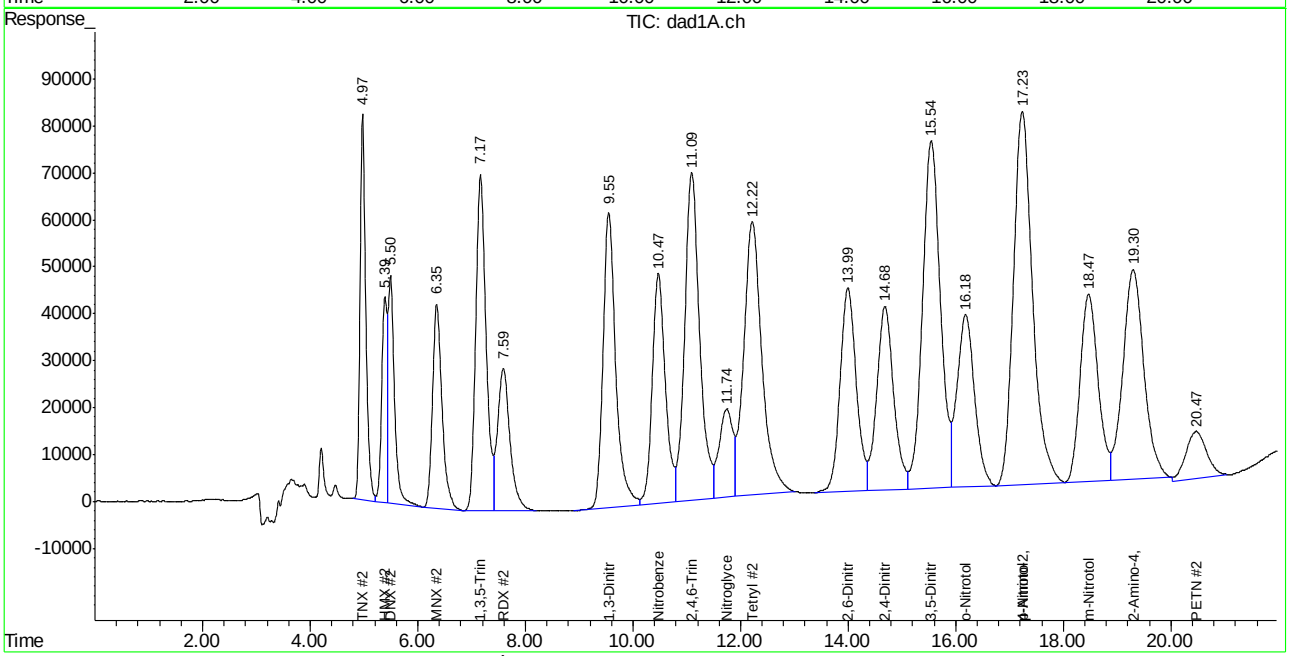
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617755.D\dad1B.ch Vial: 10
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617755.D\dad1A.ch
Acq On : 26-Sep-2019, 00:25:58 Operator: williamh
Sample : icv2769-1000 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:43 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:43:32 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

Sample Number: GGG2769-ICV2769
Lab FileID: GG617755.D
Injection Time: 09/26/19 00:25
Method: SW846 8330B
Analyst approved: 09/26/19 16:07 William Hustedde
Supervisor approved: 09/26/19 16:28 Naresh Jiawan

Parameter	CAS	Sig#	R.T. (min.)	Reason
PETN	78-11-5	2	20.47	Poor instrument integration

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
02/05/20 12:14

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618363.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618363.D\dad1A.ch
Acq On : 04-Feb-2020, 15:25:39 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : op78736,ggg2805,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 05 10:39:03 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb	
	System Monitoring Compounds							
12)	S 3,4-Dinitrotolue	13.97	13.93	4591437	9661055	1016.841m	1073.452	
	Spiked Amount 500.000	Range 70 - 136		Recovery =		203.37%#	214.69%#	
	Target Compounds							
1)	TNX	5.03	5.03	5996491	5996491	971.655	972.598	
2)	HMX	5.51	5.52	2594335	3215275	870.695m	1072.078m	
3)	DNX	5.57	5.57	4135880	4341364	961.766m	1006.889m	
4)	MNX	6.50	6.50	5538432	5538432	1047.432	1045.363	
5)	1,3,5-Trinitrobe	7.25	7.25	10457504	10457504	1011.241	1011.241	
6)	RDX	7.79	7.79	4789032	4789032	944.607	944.607	
7)	1,3-Dinitrobenze	9.68	9.68	13827122	10577974	989.248	1013.037	
8)	Nitrobenzene	10.57	10.57	9102024	8767239	1022.296	1035.841	
9)	2,4,6-Trinitroto	11.20	11.20	9892059	13260505	970.123	1003.178	
10)	Nitroglycerin	0.00	11.85	0	3508242	N.D.	1014.709	#
11)	Tetryl	12.44	12.44	7853580	13438599	1025.845	953.846	
13)	2,6-Dinitrotolue	14.11	14.09	6514733	10365941	902.425m	949.786	
14)	2,4-Dinitrotolue	14.83	14.83	12652935	8906966	1000.609	998.795	
15)	o-Nitrotoluene	16.24	16.24	5733490	8918741	985.879	1071.189	
16)	3,5-Dinitroanili	15.85	15.85	10650436	17742675	1043.853	1068.747	
17)	p-Nitrotoluene	17.52	17.54	11684885	22095929	1007.637	1006.222	
18)	4-Amino-2,6-Dini	17.52	17.54	11684885	22095929	1010.591	1017.449	
19)	m-Nitrotoluene	18.51	18.51	6170421	10676297	1057.928	1073.558	
20)	2-Amino-4,6-Dini	19.66	19.66	9362283	13368956	975.677	952.752	
21)	PETN	0.00	20.53	0	3201960	N.D.	983.975	#

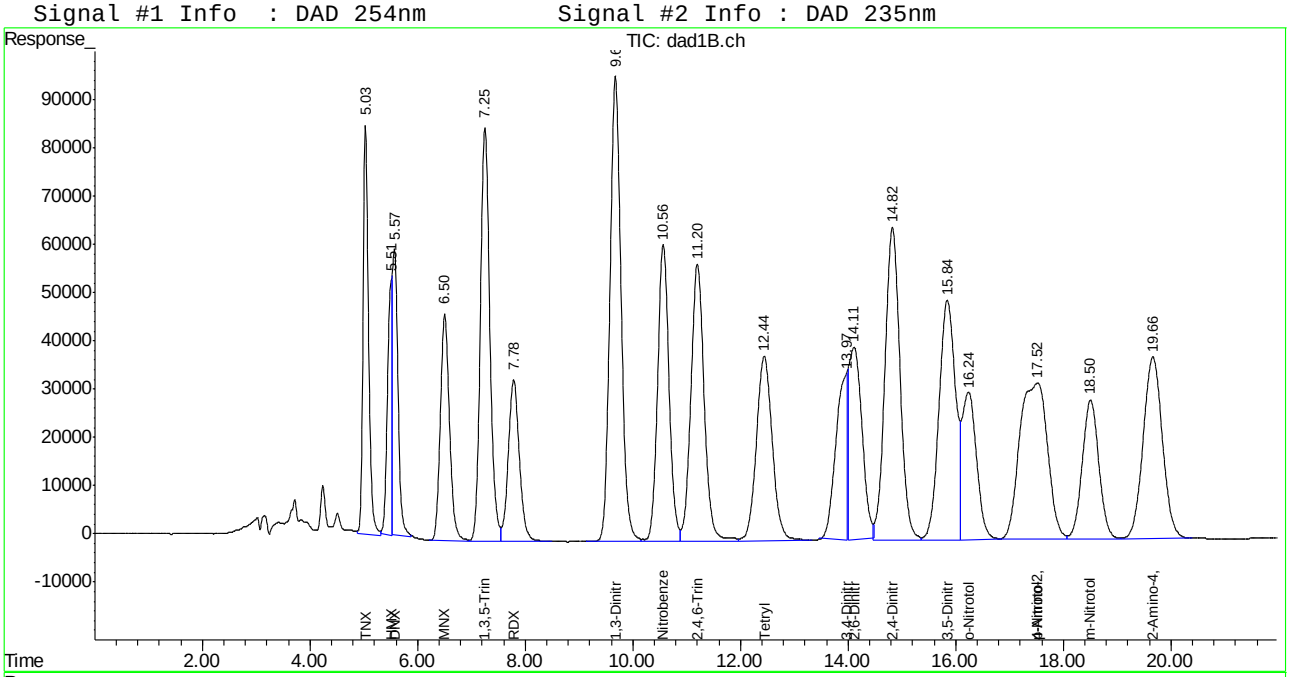
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

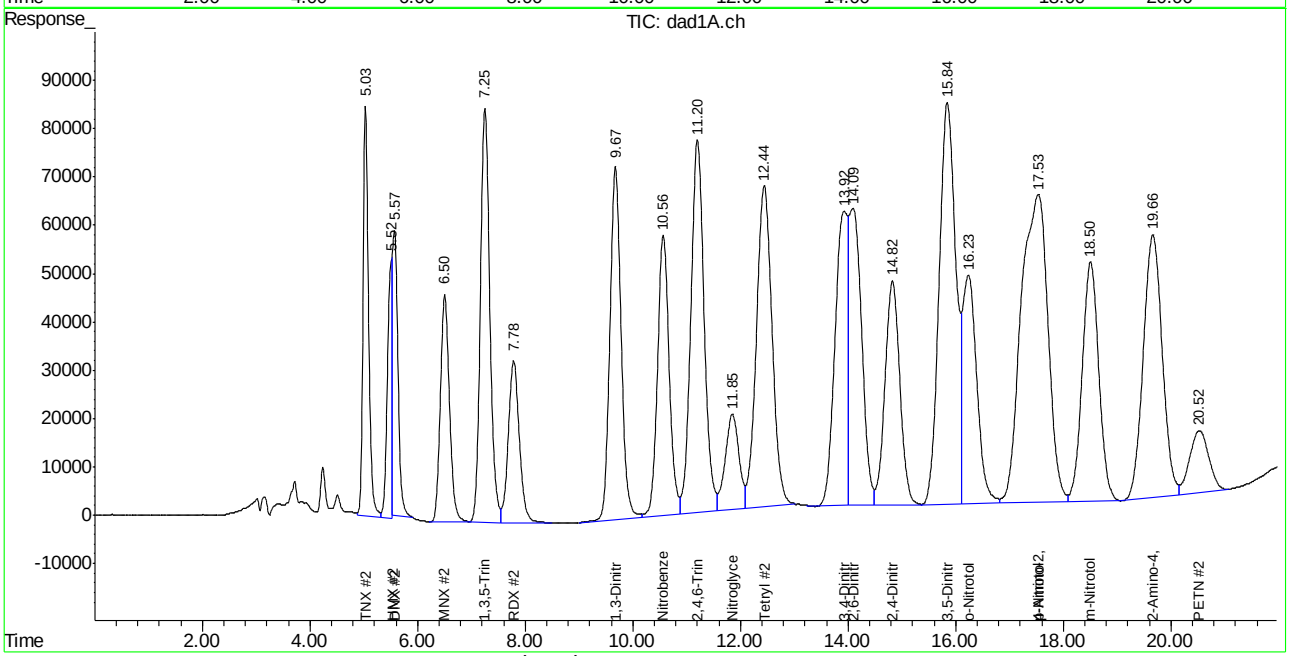
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618363.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618363.D\dad1A.ch
Acq On : 04-Feb-2020, 15:25:39 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : op78736,ggg2805,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 10:42 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

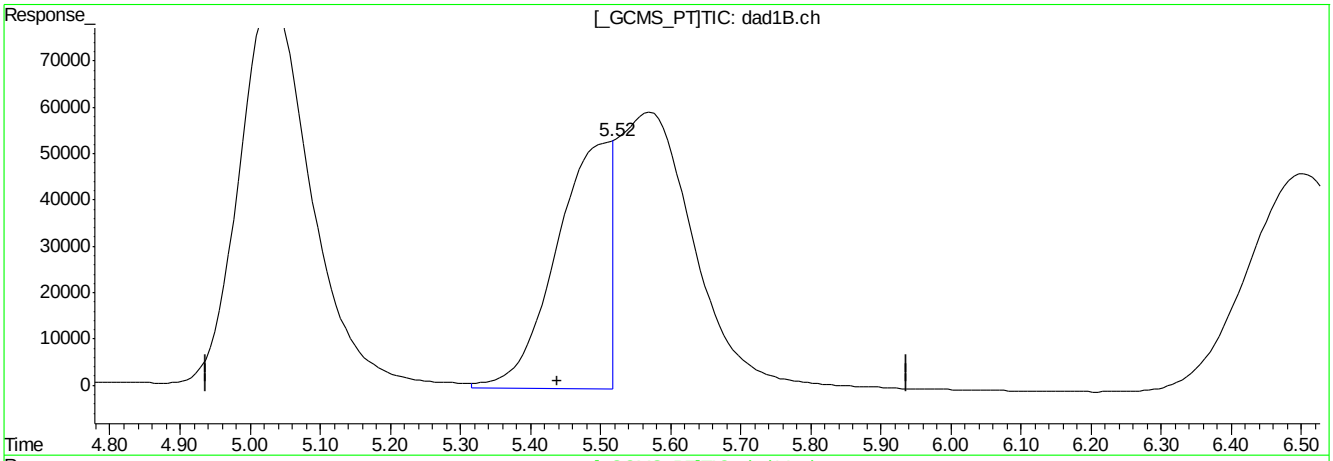
Sample Number: GGG2806-CC2769 **Method:** SW846 8330A
Lab FileID: GG618363.D **Analyst approved:** 02/05/20 11:08 William Hustedde
Injection Time: 02/04/20 15:25 **Supervisor approved:** 02/05/20 12:14 Naresh Jiawan

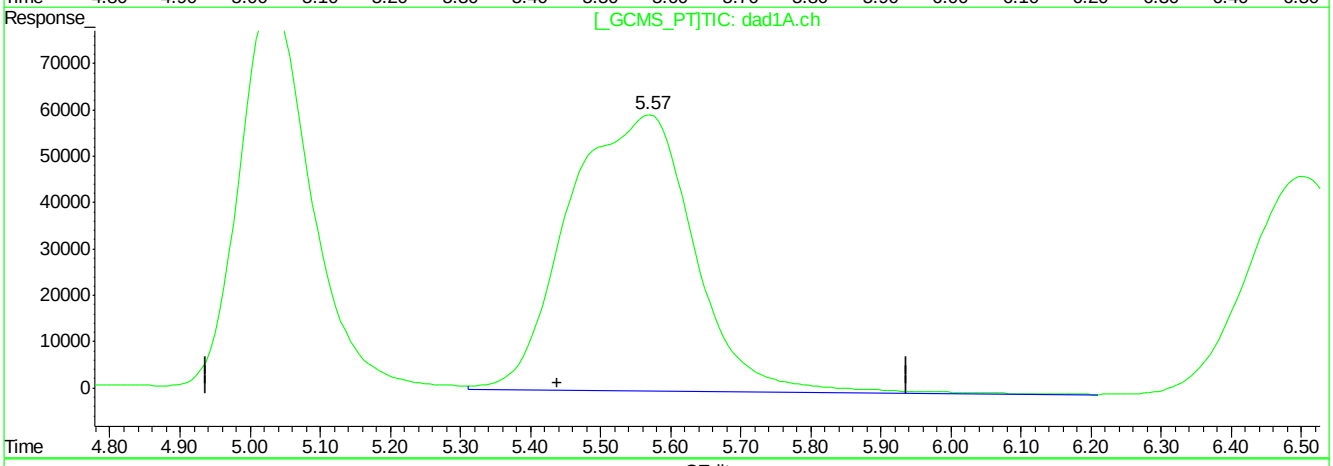
Parameter	CAS	Sig#	R.T. (min.)	Reason
HMX	2691-41-0	1	5.51	Poor instrument integration
HMX	2691-41-0	2	5.52	Poor instrument integration
DNX		1	5.57	Poor instrument integration
DNX		2	5.57	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	1	13.97	Poor instrument integration
2,6-Dinitrotoluene	606-20-2	1	14.11	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618363.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618363.D\dad1A.ch
Acq On : 04-Feb-2020, 15:25:39 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 4 15:59 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Jan 16 13:27:09 2020
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.52min 998.212ppb m

response 2974288

(2) HMX #2

5.57min 2478.795ppb

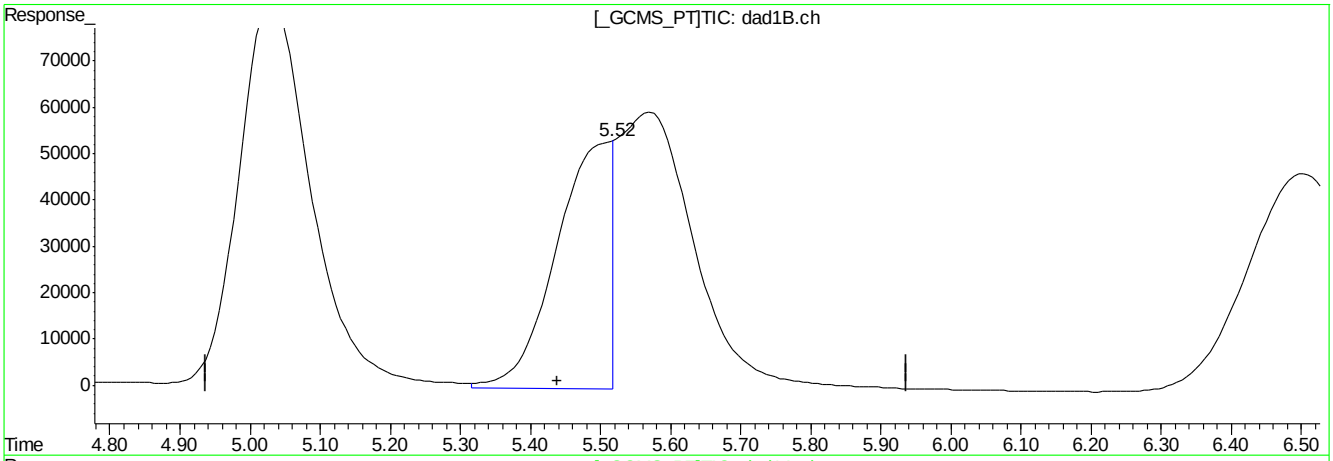
response 7434168

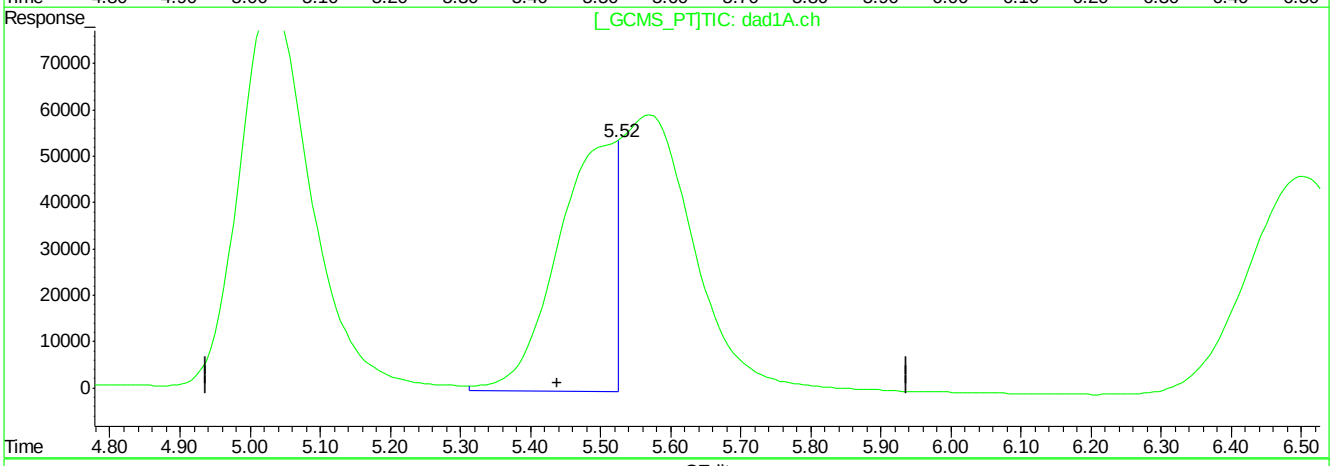
(+) = Expected Retention Time
GG618363.D 8330RPB.M_092519.M Tue Feb 04 16:00:04 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618363.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618363.D\dad1A.ch
Acq On : 04-Feb-2020, 15:25:39 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 4 15:59 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Jan 16 13:27:09 2020
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.52min 998.212ppb m

response 2974288

(2) HMX #2

5.52min 1051.236ppb m

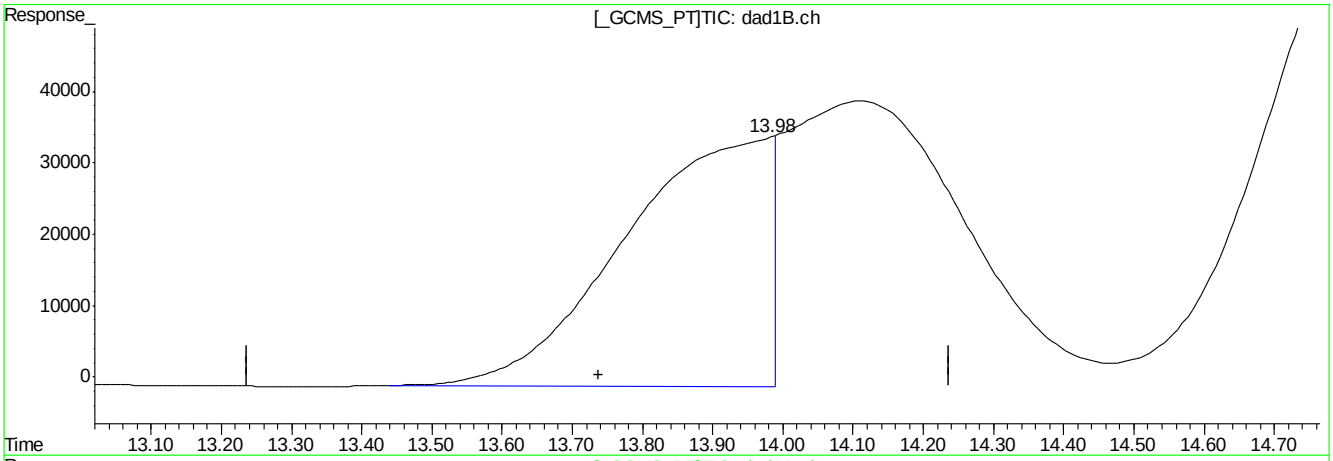
response 3152768

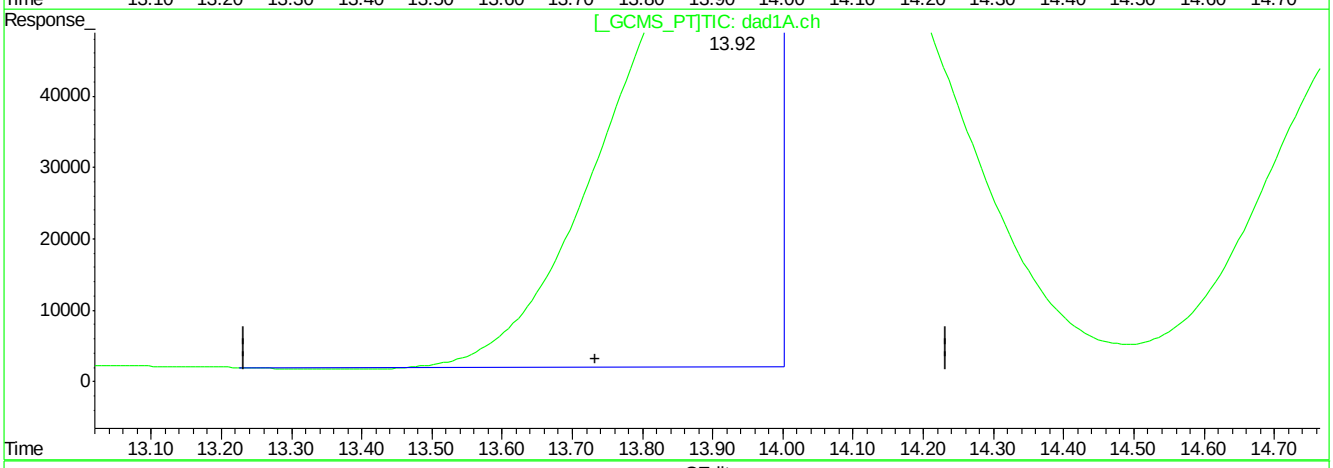
(+) = Expected Retention Time
GG618363.D 8330RPB.M_092519.M Tue Feb 04 16:00:13 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618363.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618363.D\dad1A.ch
Acq On : 04-Feb-2020, 15:25:39 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 4 15:59 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Jan 16 13:27:09 2020
Response via : Multiple Level Calibration





QEdit

(12) 3,4-Dinitrotoluene (S)

13.98min 1087.585ppb m

response 4910874

(12) 3,4-Dinitrotoluene #2 (S)

13.93min 1073.452ppb

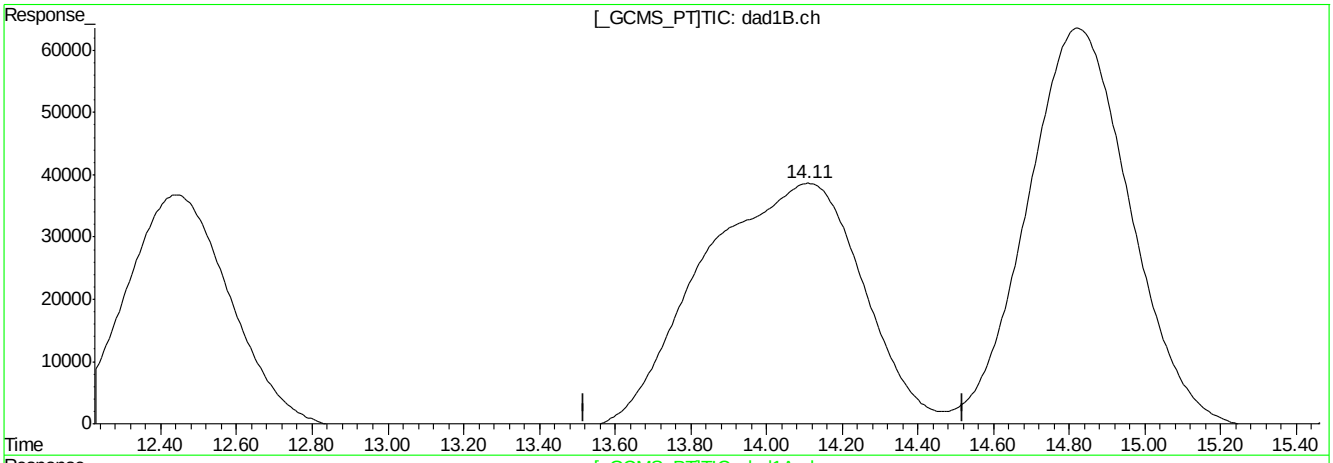
response 9661055

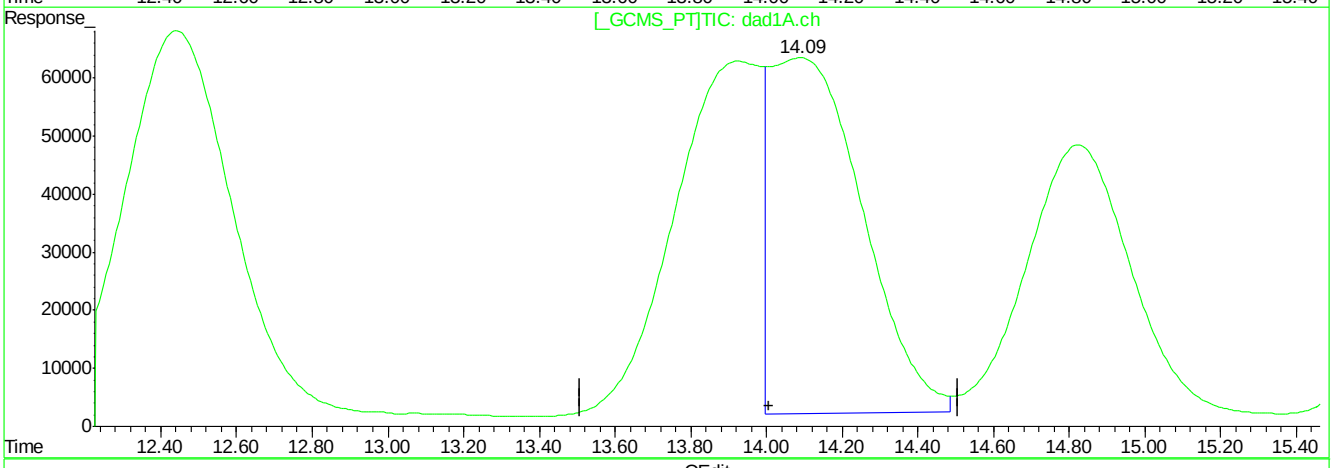
(+) = Expected Retention Time
GG618363.D 8330RPB.M_092519.M Tue Feb 04 16:00:35 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618363.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618363.D\dad1A.ch
Acq On : 04-Feb-2020, 15:25:39 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 4 15:59 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Jan 16 13:27:09 2020
Response via : Multiple Level Calibration





QEdit

(13) 2,6-Dinitrotoluene

14.11min 896.855ppb m

response 6474527

(13) 2,6-Dinitrotoluene #2

14.09min 949.886ppb m

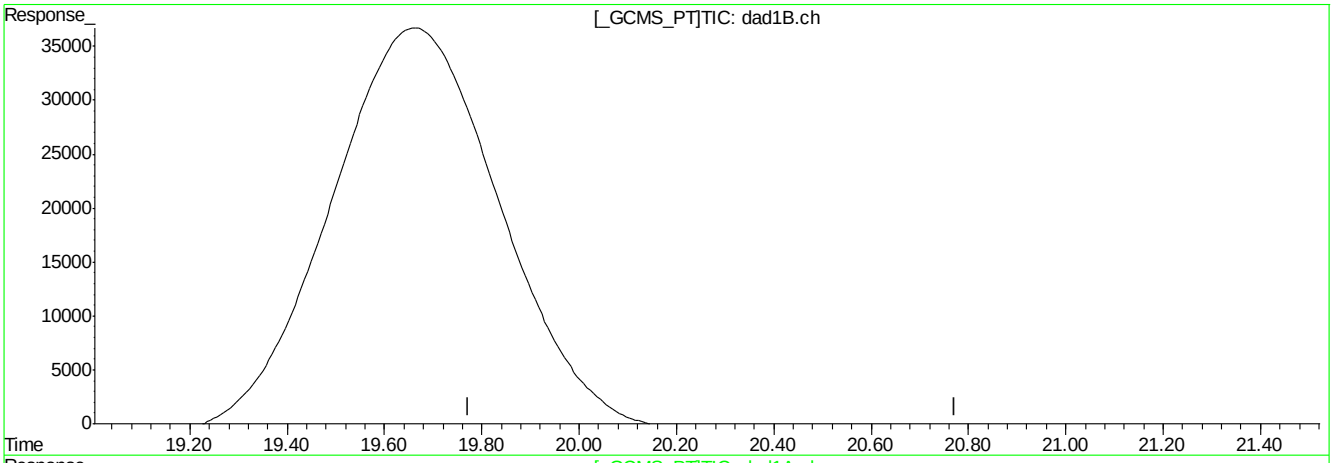
response 10367030

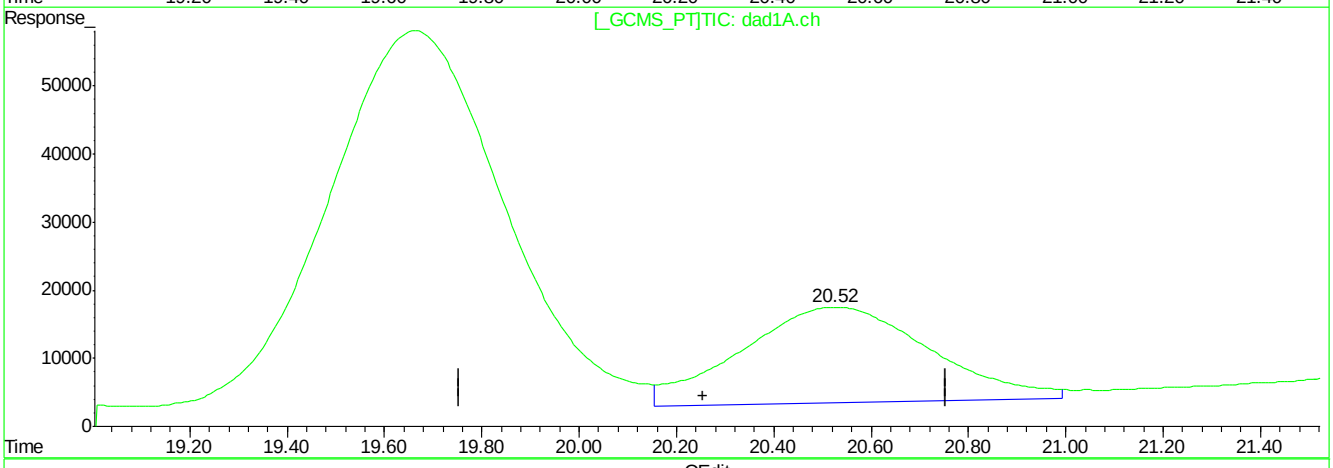
(+) = Expected Retention Time
GG618363.D 8330RPB.M_092519.M Tue Feb 04 16:00:47 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618363.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618363.D\dad1A.ch
Acq On : 04-Feb-2020, 15:25:39 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 4 15:59 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Jan 16 13:27:09 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

20.52min 1165.213ppb m

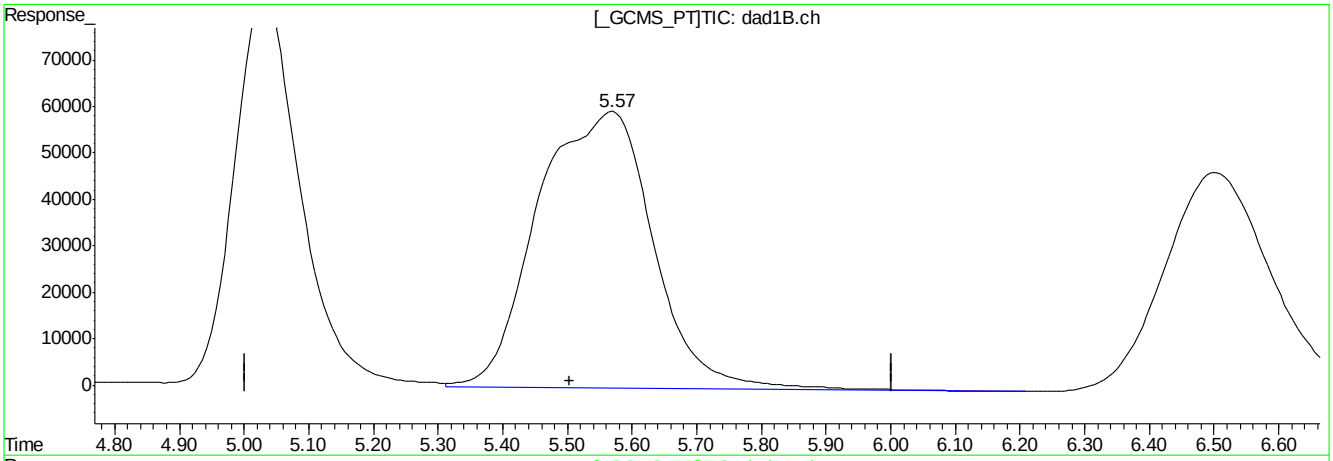
response 3804201

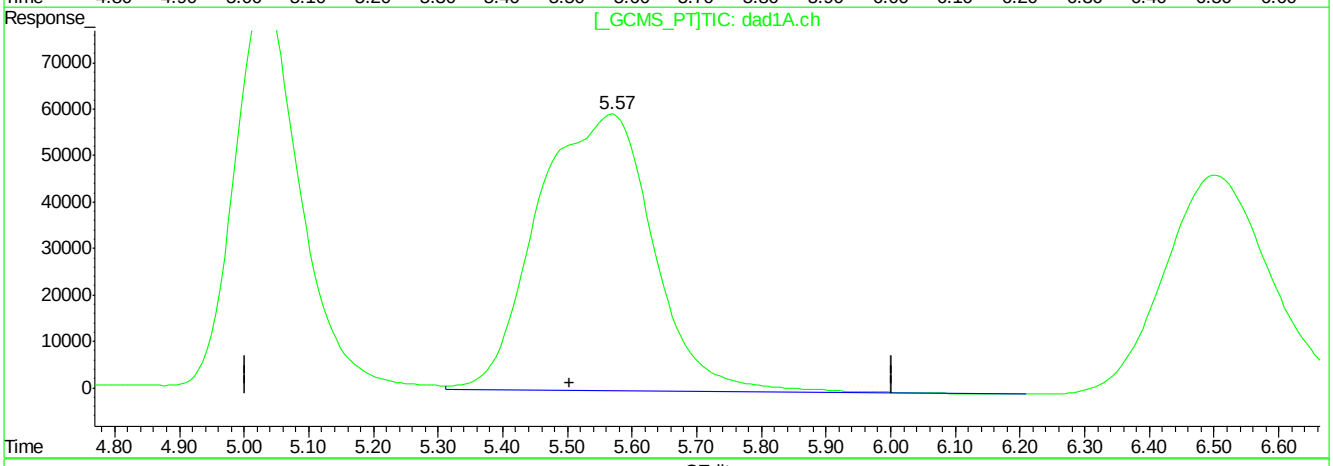
(+) = Expected Retention Time
GG618363.D 8330RPB.M_092519.M Tue Feb 04 16:01:02 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618363.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618363.D\dad1A.ch
Acq On : 04-Feb-2020, 15:25:39 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 10:39 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.57min 2495.010ppb

response 7434168

(2) HMX #2

5.57min 2478.795ppb

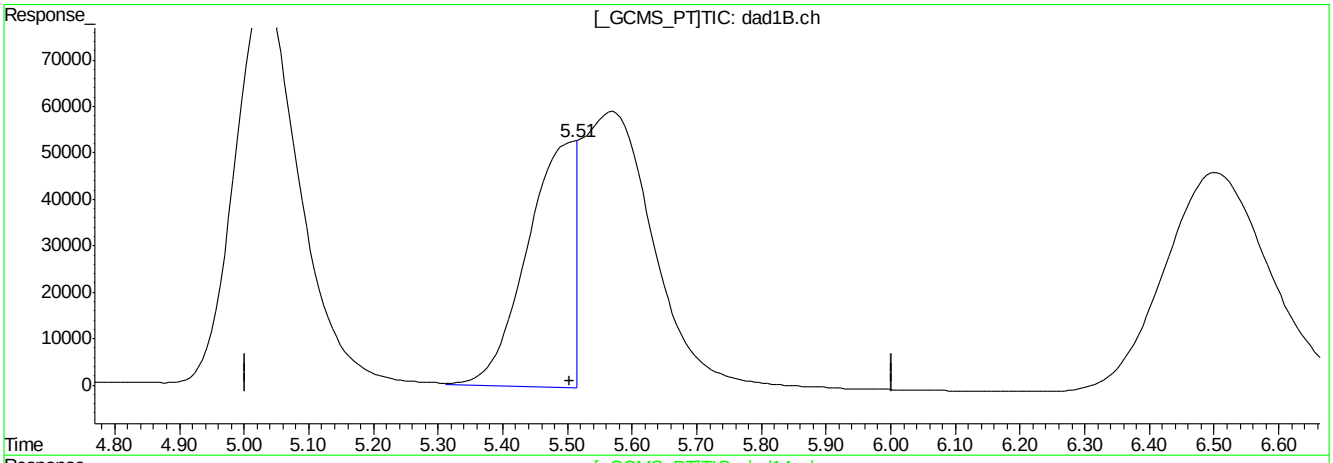
response 7434168

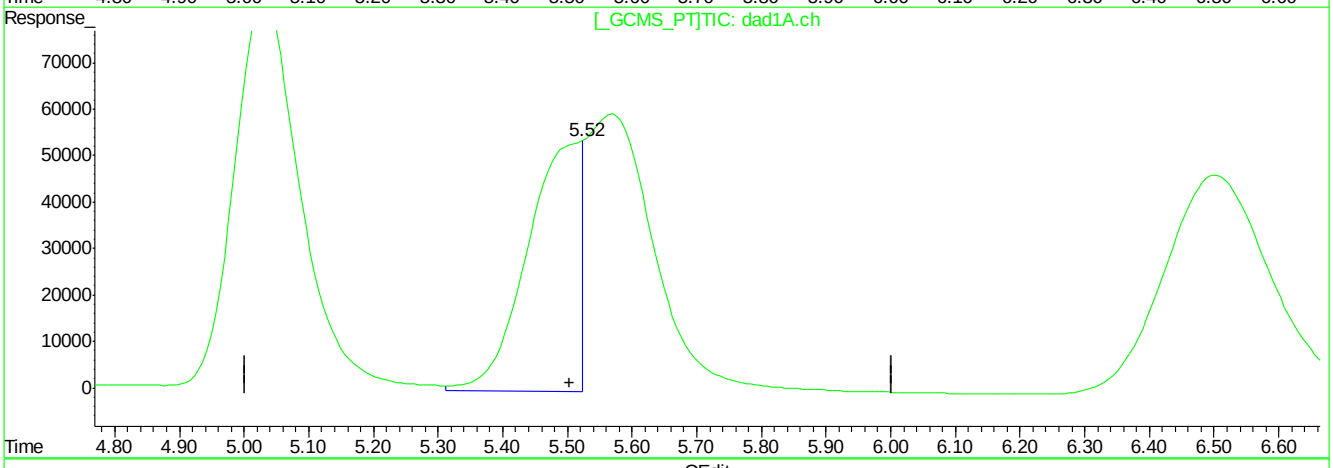
(+) = Expected Retention Time
GG618363.D 8330RPB.M_092519.M Wed Feb 05 10:41:55 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618363.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618363.D\dad1A.ch
Acq On : 04-Feb-2020, 15:25:39 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 10:39 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.51min 870.695ppb m

response 2594335

(2) HMX #2

5.52min 1072.078ppb m

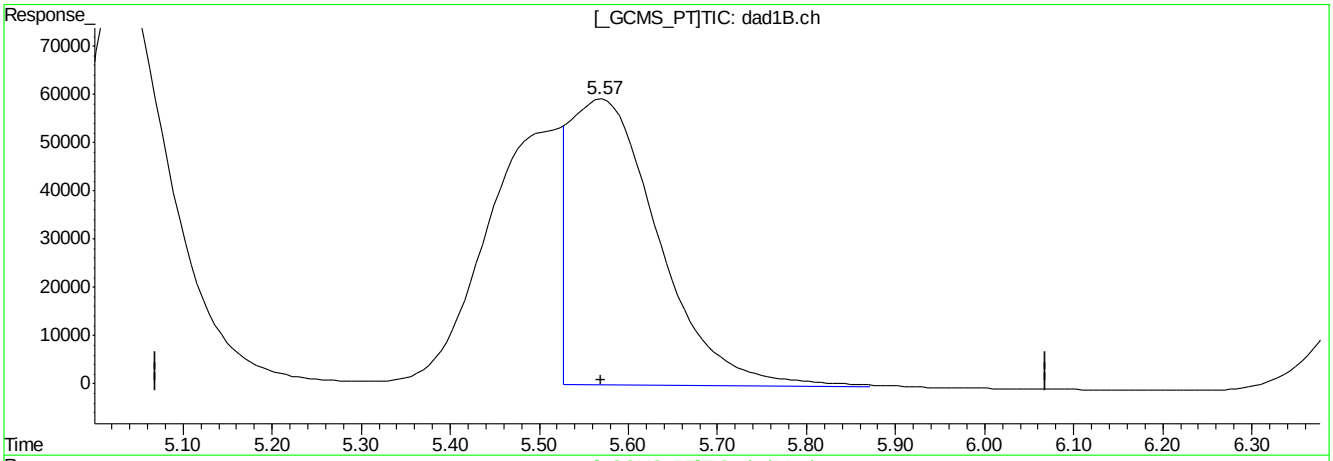
response 3215275

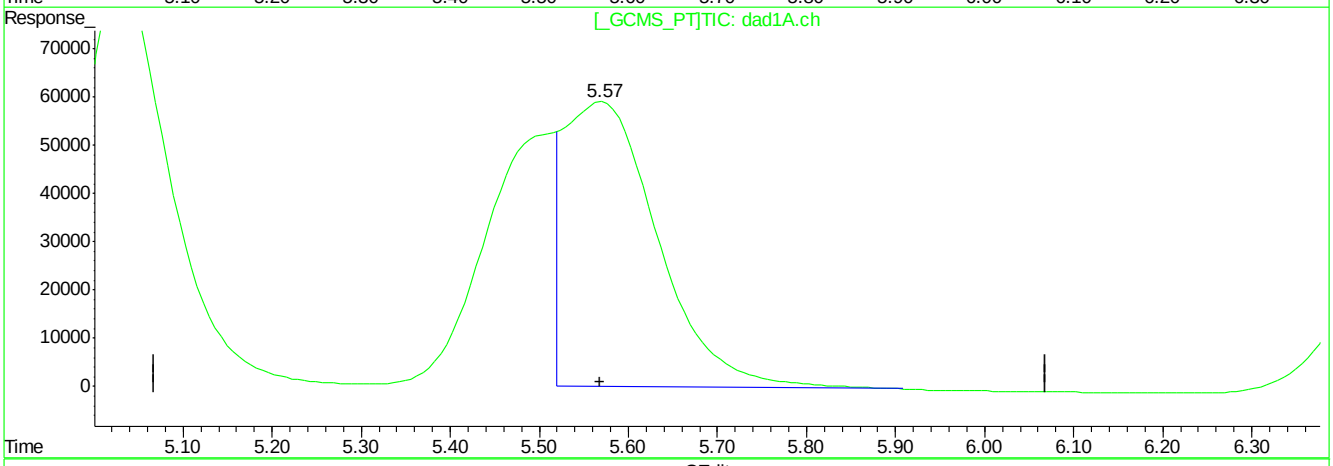
(+) = Expected Retention Time
GG618363.D 8330RPB.M_092519.M Wed Feb 05 10:42:11 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618363.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618363.D\dad1A.ch
Acq On : 04-Feb-2020, 15:25:39 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 10:39 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(3) DNX

5.57min 961.766ppb m

response 4135880

(3) DNX #2

5.57min 1006.889ppb m

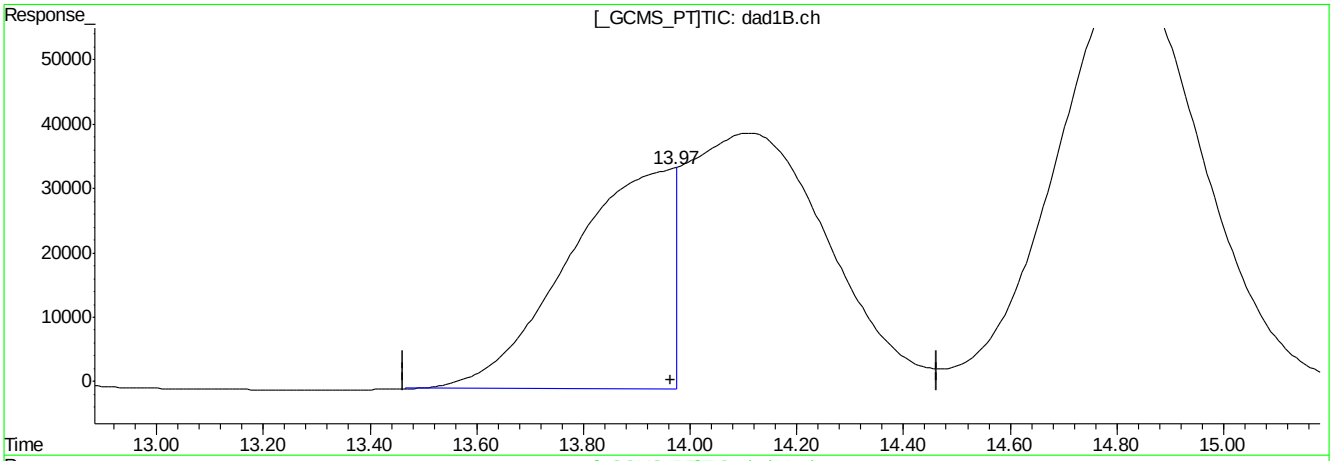
response 4341364

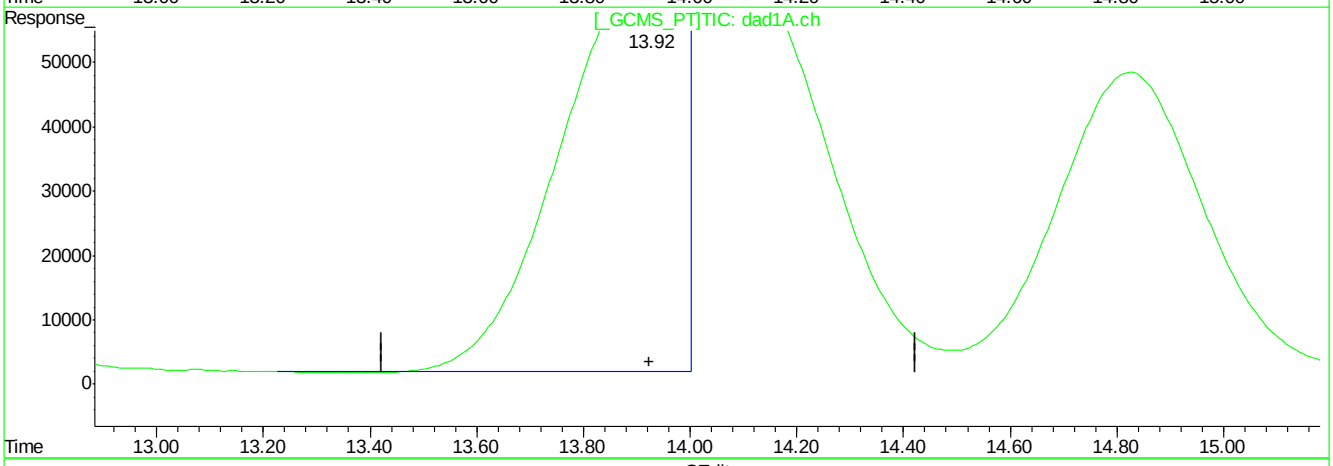
(+) = Expected Retention Time
GG618363.D 8330RPB.M_092519.M Wed Feb 05 10:42:21 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618363.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618363.D\dad1A.ch
Acq On : 04-Feb-2020, 15:25:39 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 10:39 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(12) 3,4-Dinitrotoluene (S)

13.97min 1016.841ppb m

response 4591437

(12) 3,4-Dinitrotoluene #2 (S)

13.93min 1073.452ppb

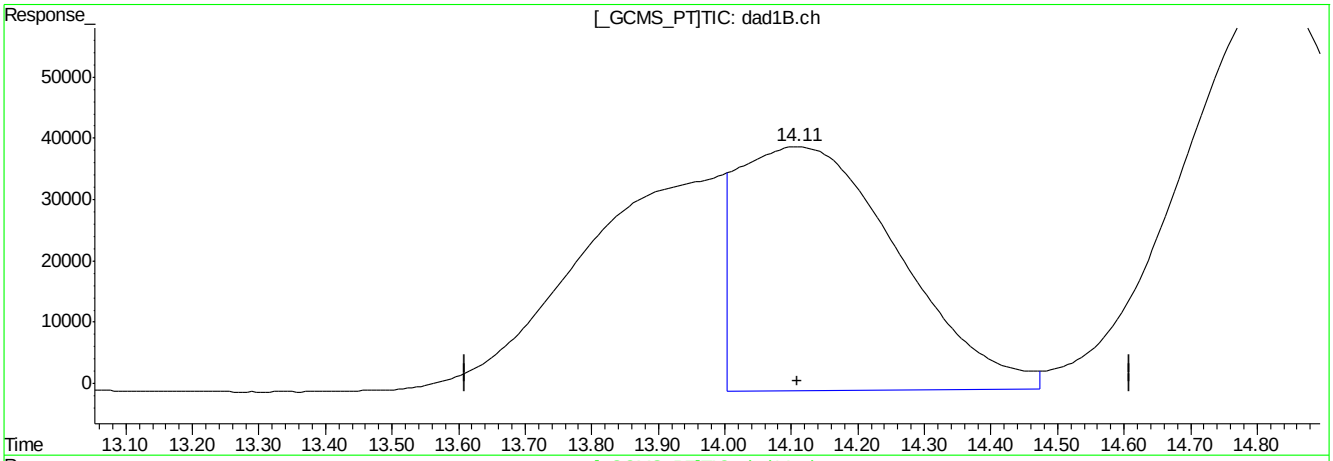
response 9661055

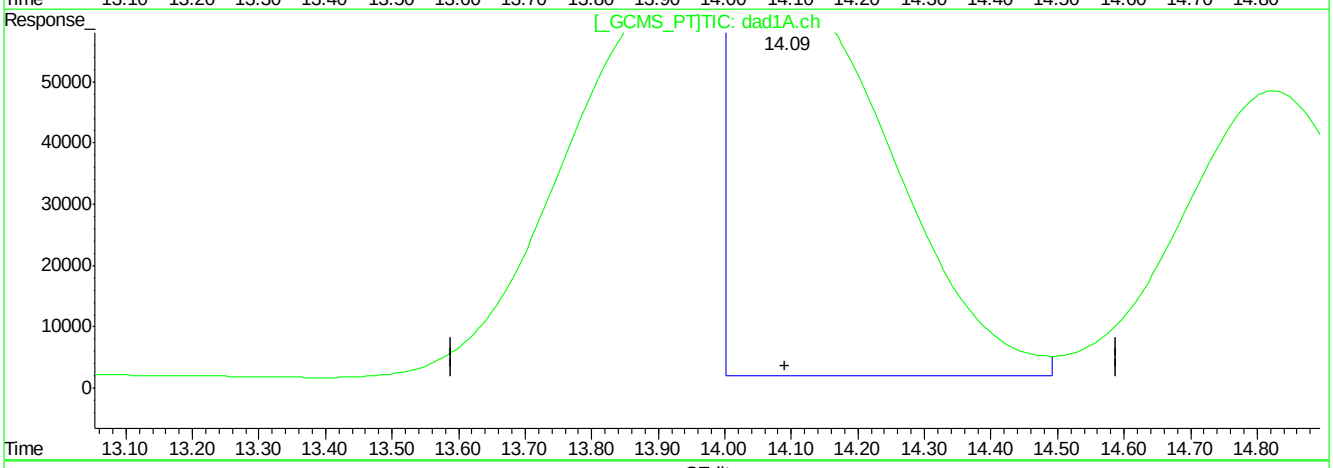
(+) = Expected Retention Time
GG618363.D 8330RPB.M_092519.M Wed Feb 05 10:42:32 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618363.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618363.D\dad1A.ch
Acq On : 04-Feb-2020, 15:25:39 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 10:39 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(13) 2,6-Dinitrotoluene

14.11min 902.425ppb m

response 6514733

(13) 2,6-Dinitrotoluene #2

14.09min 949.786ppb

response 10365941

(+) = Expected Retention Time
GG618363.D 8330RPB.M_092519.M Wed Feb 05 10:42:42 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 02/05/20 12:14

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618374.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618374.D\dad1A.ch
Acq On : 04-Feb-2020, 20:49:22 Operator: williamh
Sample : ecc2769-1000 Inst : G1315B
Misc : op78736,ggg2805,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 05 10:39:14 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb	
	System Monitoring Compounds							
12)	S 3,4-Dinitrotolue	13.96	13.89	5289920	9891684	1171.531m	1098.966	
	Spiked Amount 500.000	Range 70 - 136		Recovery =		234.31%#	219.79%#	
	Target Compounds							
1)	TNX	5.03	5.03	5953178	5953178	964.602	965.540	
2)	HMX	5.51	5.50	3020134	2896777	1013.599m	965.880m	
3)	DNX	5.56	5.56	4260242	4212652	990.918m	976.777m	
4)	MNX	6.49	6.49	5549725	5549725	1049.567	1047.494	
5)	1,3,5-Trinitrobe	7.23	7.23	10468260	10468260	1012.281	1012.281	
6)	RDX	7.76	7.76	4809303	4809303	948.605	948.605	
7)	1,3-Dinitrobenze	9.66	9.66	13813527	10665526	988.275	1021.422	
8)	Nitrobenzene	10.55	10.55	9036018	8801158	1014.883	1039.849	
9)	2,4,6-Trinitroto	11.17	11.17	9814330	13480092	962.500	1019.790	
10)	Nitroglycerin	0.00	11.82	0	3604266	N.D.	1042.482	#
11)	Tetryl	12.40	12.40	7844525	13657798	1024.663	969.404	
13)	2,6-Dinitrotolue	14.09	14.07	6571388	10159991	910.273m	930.916	
14)	2,4-Dinitrotolue	14.80	14.80	12561103	9252899	993.347	1037.586	
15)	o-Nitrotoluene	16.22	16.22	5570898	8392660	957.921	1008.004	
16)	3,5-Dinitroanili	15.82	15.82	10633241	18269602	1042.168	1100.487	
17)	p-Nitrotoluene	17.49	17.51	11589385	21289533	999.402	969.499	
18)	4-Amino-2,6-Dini	17.49	17.51	11589385	21289533	1002.332	980.317	
19)	m-Nitrotoluene	18.49	18.49	6067553	10369309	1040.291	1042.689	
20)	2-Amino-4,6-Dini	19.64	19.64	9335619	13417989	972.898	956.246	
21)	PETN	0.00	20.48	0	3114695	N.D.	957.616	#

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
GG618374.D 8330RPB.M_092519.M Wed Feb 05 10:59:35 2020 Page 1

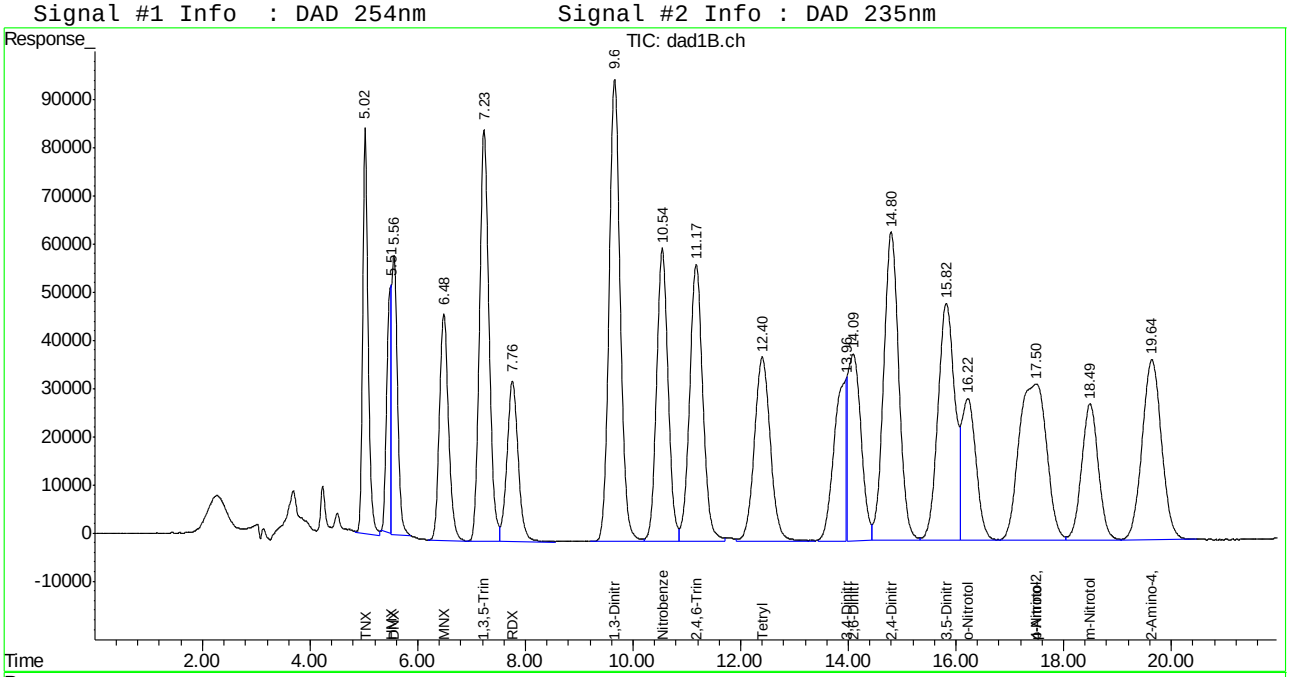
9.5.23
9

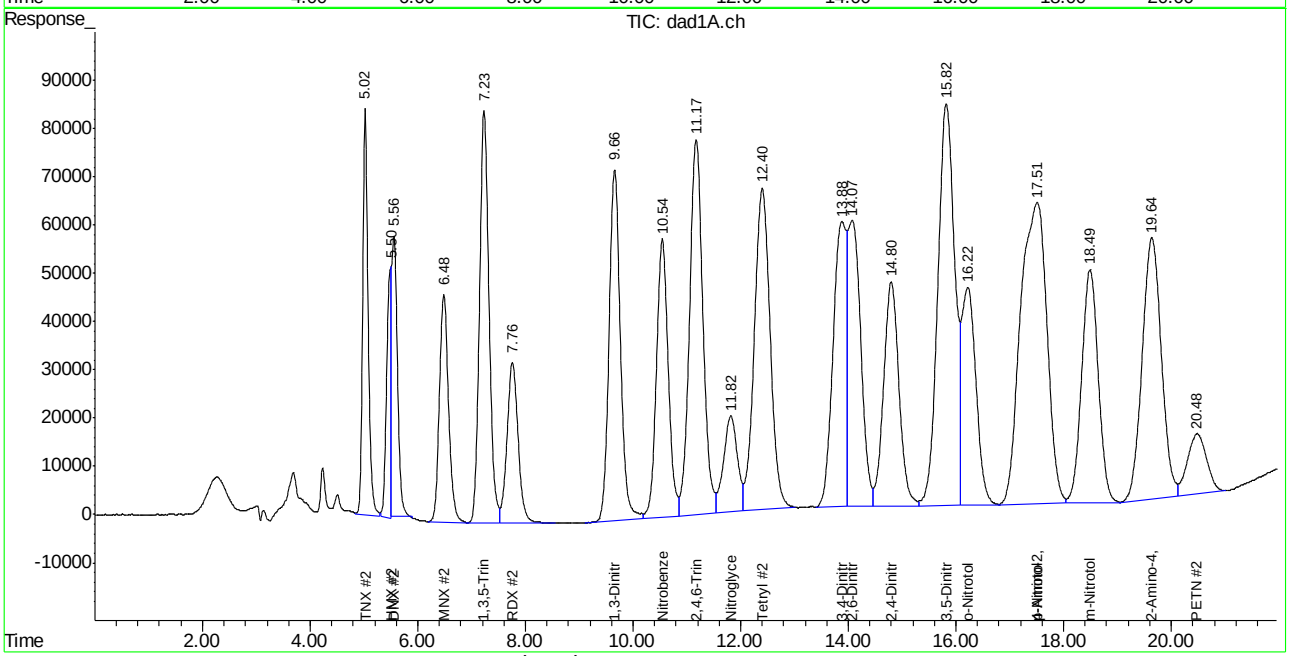
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618374.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618374.D\dad1A.ch
Acq On : 04-Feb-2020, 20:49:22 Operator: williamh
Sample : ecc2769-1000 Inst : G1315B
Misc : op78736,ggg2805,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 10:41 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

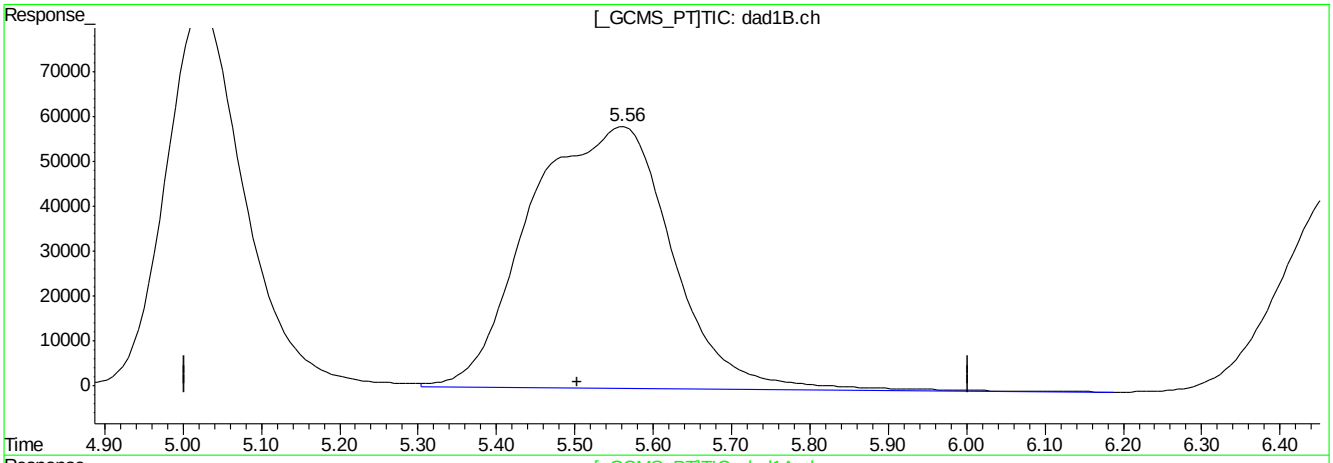
Sample Number: GGG2806-ECC2769 **Method:** SW846 8330A
Lab FileID: GG618374.D **Analyst approved:** 02/05/20 11:08 William Hustedde
Injection Time: 02/04/20 20:49 **Supervisor approved:** 02/05/20 12:14 Naresh Jiawan

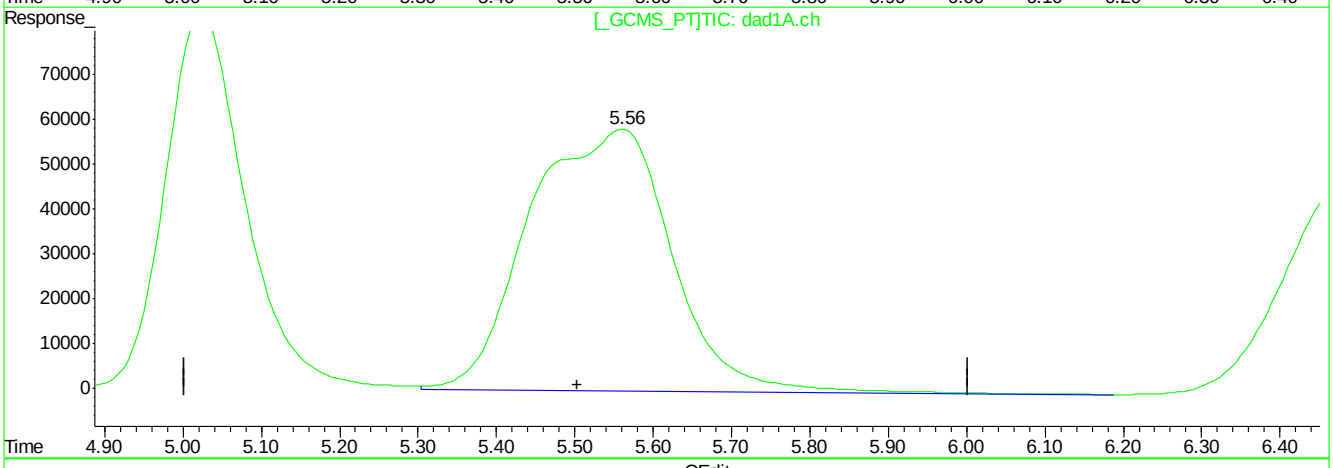
Parameter	CAS	Sig#	R.T. (min.)	Reason
HMX	2691-41-0	2	5.50	Poor instrument integration
HMX	2691-41-0	1	5.51	Poor instrument integration
DNX		1	5.56	Poor instrument integration
DNX		2	5.56	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	1	13.96	Poor instrument integration
2,6-Dinitrotoluene	606-20-2	1	14.09	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618374.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618374.D\dad1A.ch
Acq On : 04-Feb-2020, 20:49:22 Operator: williamh
Sample : ecc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 10:39 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.56min 2478.750ppb

response 7385720

(2) HMX #2

5.56min 2462.641ppb

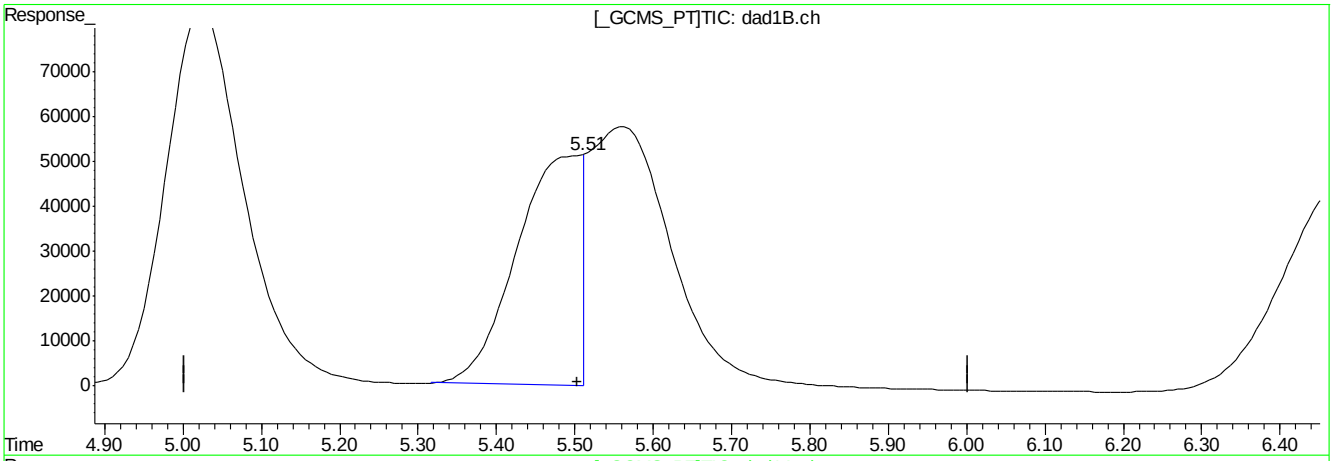
response 7385720

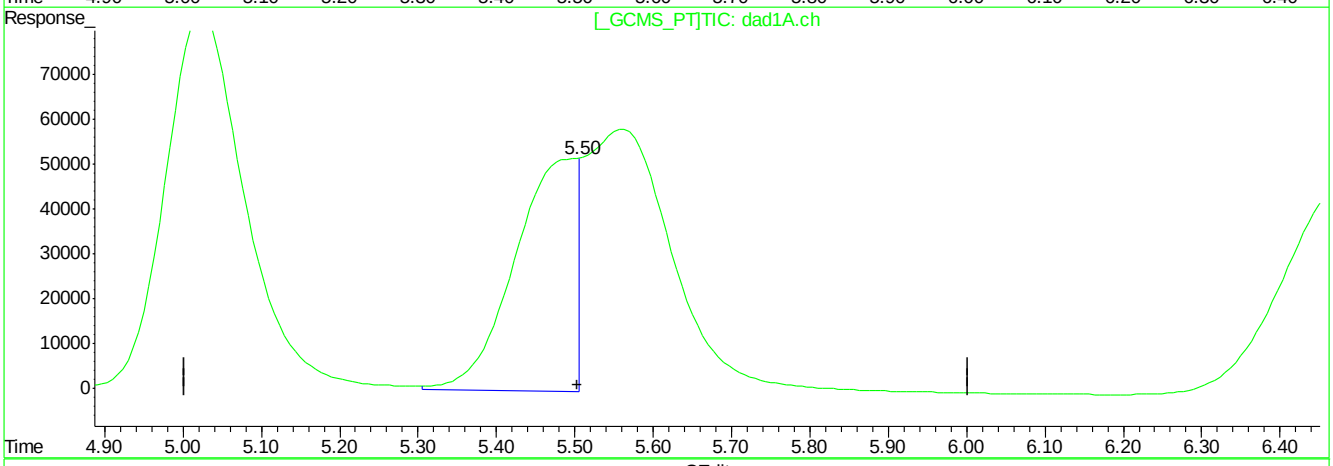
(+) = Expected Retention Time
GG618374.D 8330RPB.M_092519.M Wed Feb 05 10:40:24 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618374.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618374.D\dad1A.ch
Acq On : 04-Feb-2020, 20:49:22 Operator: williamh
Sample : ecc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 10:39 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.51min 1013.599ppb m

response 3020134

(2) HMX #2

5.50min 965.880ppb m

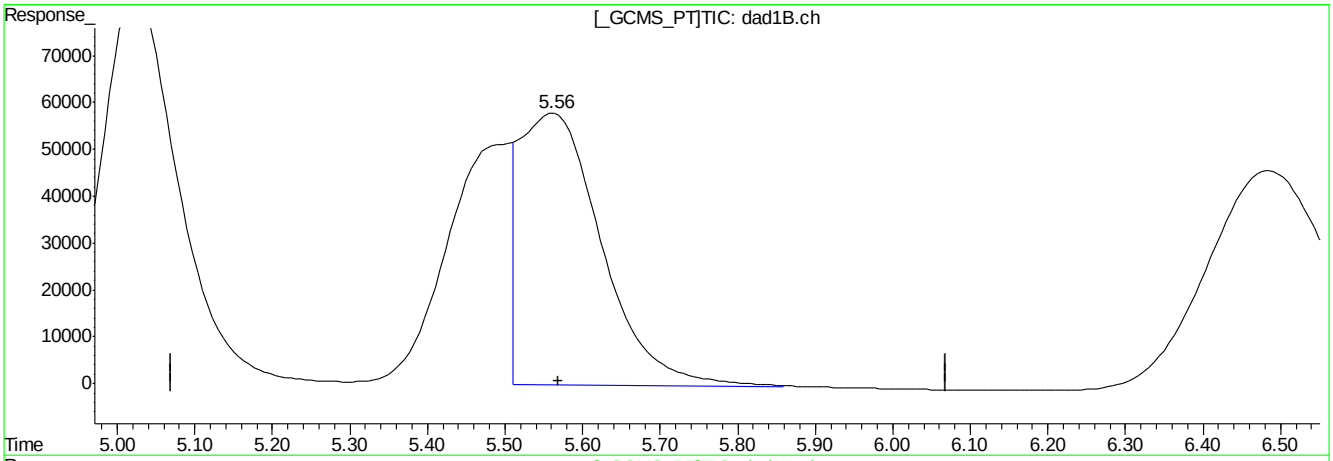
response 2896777

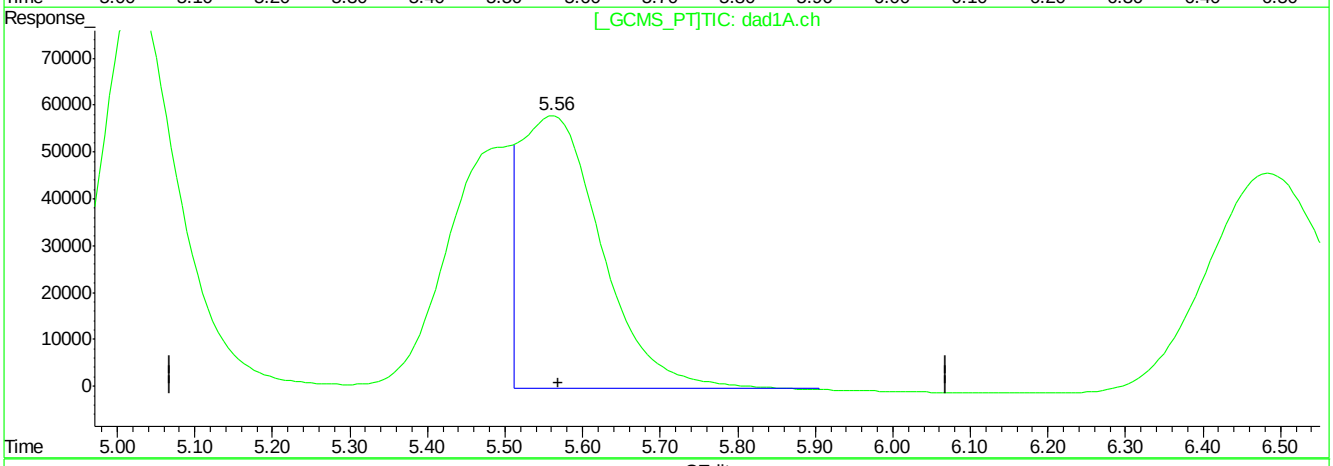
(+) = Expected Retention Time
GG618374.D 8330RPB.M_092519.M Wed Feb 05 10:40:38 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618374.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618374.D\dad1A.ch
Acq On : 04-Feb-2020, 20:49:22 Operator: williamh
Sample : ecc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 10:39 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(3) DNX

5.56min 990.918ppb m

response 4260242

(3) DNX #2

5.56min 976.777ppb m

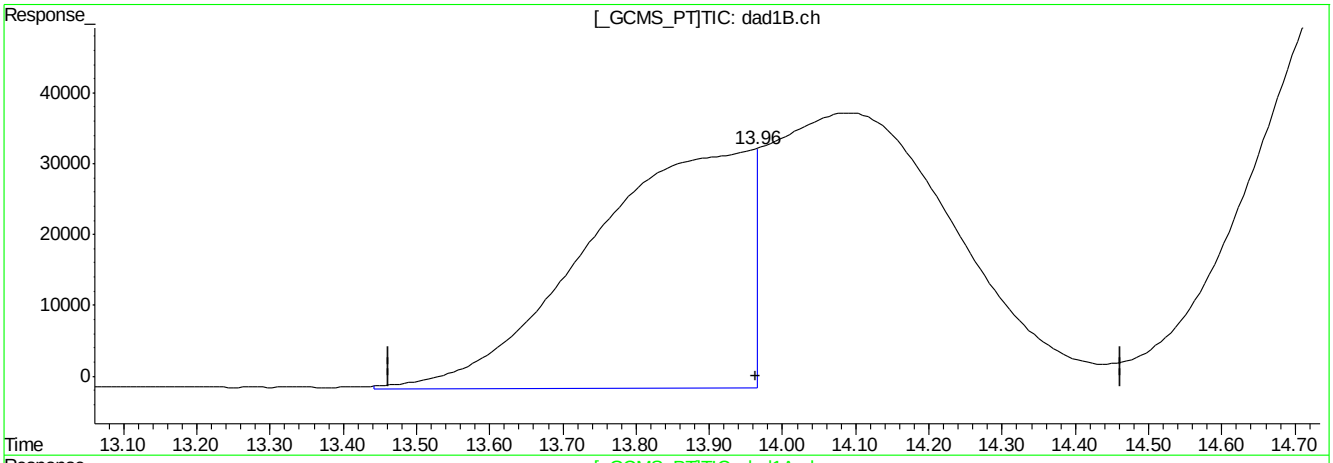
response 4212652

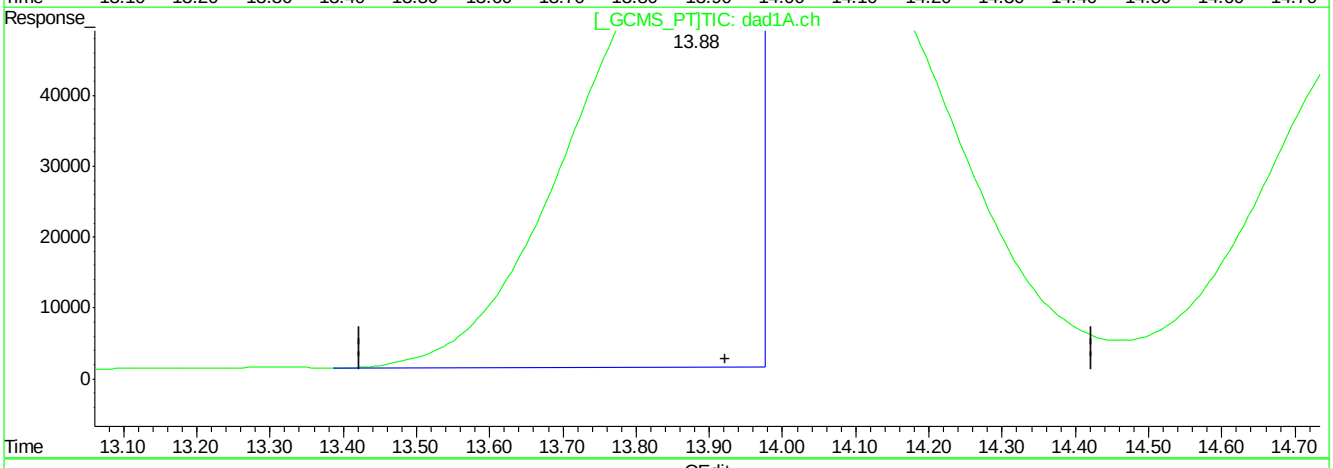
(+) = Expected Retention Time
GG618374.D 8330RPB.M_092519.M Wed Feb 05 10:40:48 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618374.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618374.D\dad1A.ch
Acq On : 04-Feb-2020, 20:49:22 Operator: williamh
Sample : ecc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 10:39 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(12) 3,4-Dinitrotoluene (S)

13.96min 1171.531ppb m

response 5289920

(12) 3,4-Dinitrotoluene #2 (S)

13.89min 1098.966ppb

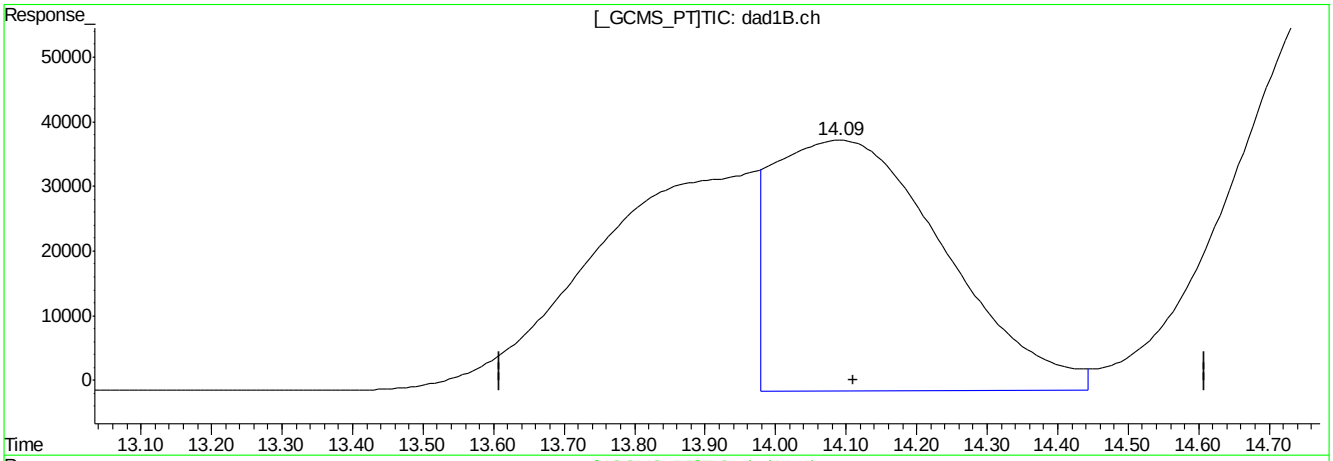
response 9891684

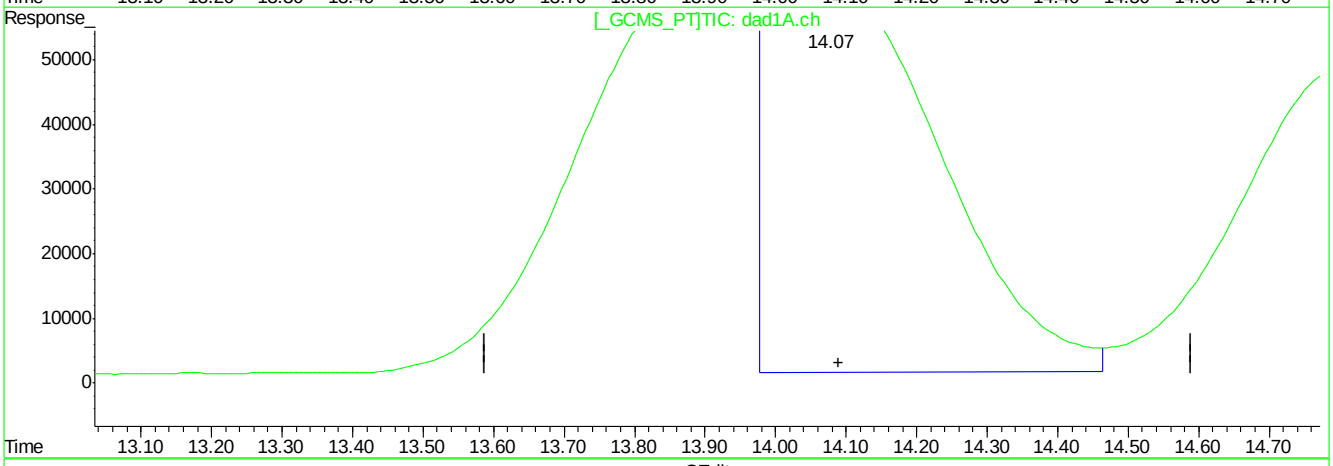
(+) = Expected Retention Time
GG618374.D 8330RPB.M_092519.M Wed Feb 05 10:41:07 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2806\GG618374.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2806\GG618374.D\dad1A.ch
Acq On : 04-Feb-2020, 20:49:22 Operator: williamh
Sample : ecc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 10:39 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(13) 2,6-Dinitrotoluene

14.09min 910.273ppb m

response 6571388

(13) 2,6-Dinitrotoluene #2

14.07min 930.916ppb

response 10159991

(+) = Expected Retention Time
GG618374.D 8330RPB.M_092519.M Wed Feb 05 10:41:14 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
02/05/20 17:05

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2807\GG618383.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2807\GG618383.D\dad1A.ch
Acq On : 05-Feb-2020, 11:07:54 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : op78763,ggg2807,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 05 11:32:02 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.93	13.87	4589221	10137092	1016.351m	1126.108
	Spiked Amount 500.000	Range 70 - 136		Recovery =	203.27%#	225.22%#	
	Target Compounds						
1)	TNX	5.02	5.02	5977267	5977267	968.525	969.466
2)	HMX	5.47	5.47	3165856	2854067	1062.505m	951.640m
3)	DNX	5.55	5.55	4186799	4465375	973.700m	1035.916m
4)	MNX	6.48	6.48	5647727	5647727	1068.102	1065.992
5)	1,3,5-Trinitrobe	7.23	7.23	10641675	10641675	1029.050	1029.050
6)	RDX	7.75	7.75	4865047	4865047	959.600	959.600
7)	1,3-Dinitrobenze	9.65	9.65	13999590	10994525	1001.587	1052.929
8)	Nitrobenzene	10.54	10.54	9087448	9159914	1020.659	1082.236
9)	2,4,6-Trinitroto	11.17	11.17	9665898	13565509	947.943	1026.252
10)	Nitroglycerin	0.00	11.81	0	3864469	N.D.	1117.743 #
11)	Tetryl	12.39	12.39	7783815	14140911	1016.733	1003.695
13)	2,6-Dinitrotolue	14.09	14.08	7016163	10370486	971.883m	950.202
14)	2,4-Dinitrotolue	14.79	14.79	12825059	9051475	1014.221	1014.999
15)	o-Nitrotoluene	16.22	16.22	5748631	8905736	988.482	1069.627
16)	3,5-Dinitroanili	15.81	15.81	10840842	18219711	1062.515	1097.481
17)	p-Nitrotoluene	17.47	17.49	11829467	22109493	1020.105	1006.839
18)	4-Amino-2,6-Dini	17.47	17.49	11829467	22109493	1023.096	1018.074
19)	m-Nitrotoluene	18.48	18.48	6242284	10409707	1070.249	1046.751
20)	2-Amino-4,6-Dini	19.62	19.62	9519627	13640276	992.074	972.088
21)	PETN	0.00	20.44	0	3449578	N.D.	1058.635 #

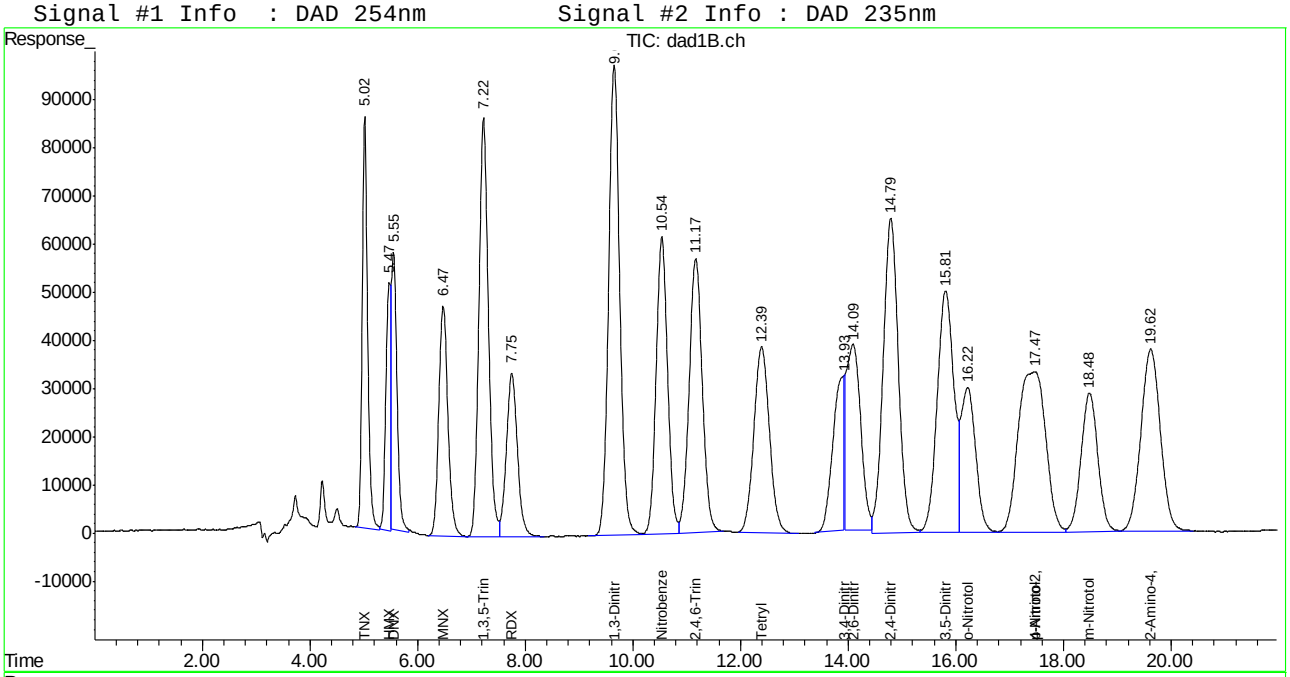
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

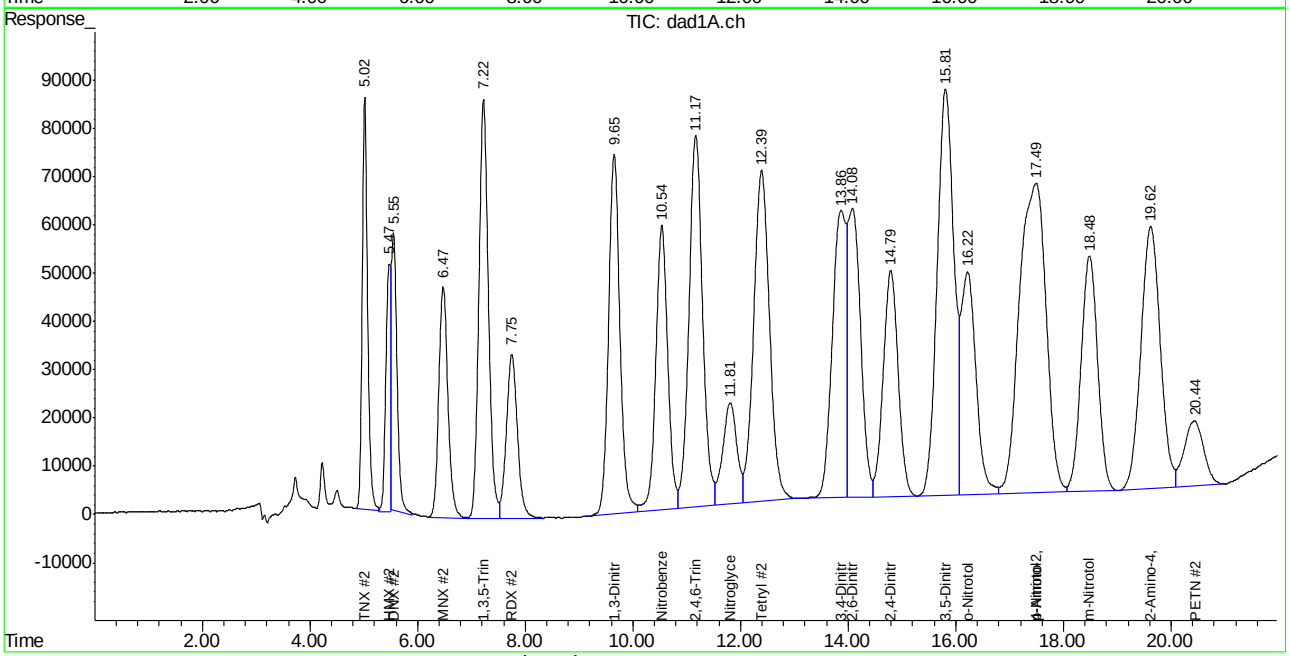
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2807\GG618383.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2807\GG618383.D\dad1A.ch
Acq On : 05-Feb-2020, 11:07:54 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : op78763,ggg2807,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 11:33 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

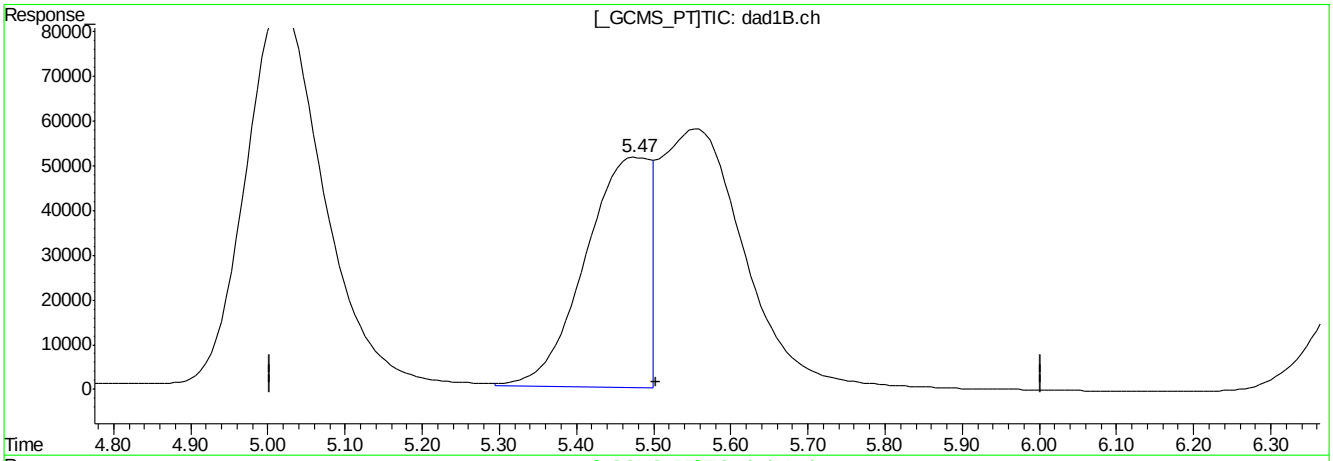
Sample Number: GGG2807-CC2769 **Method:** SW846 8330B
Lab FileID: GG618383.D **Analyst approved:** 02/05/20 15:44 William Hustedde
Injection Time: 02/05/20 11:07 **Supervisor approved:** 02/05/20 17:05 Naresh Jiawan

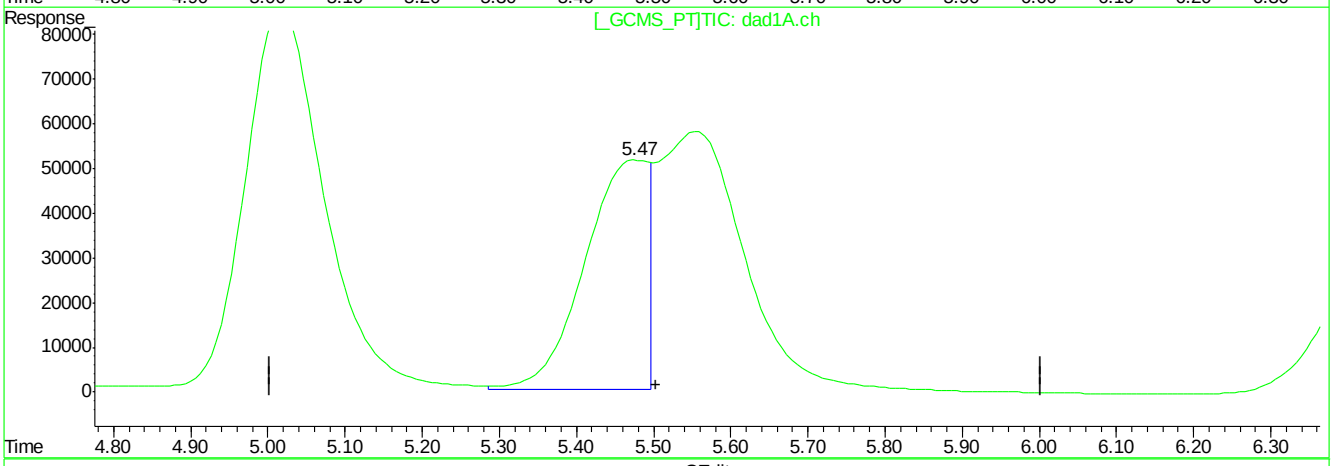
Parameter	CAS	Sig#	R.T. (min.)	Reason
HMX	2691-41-0	1	5.47	Poor instrument integration
HMX	2691-41-0	2	5.47	Poor instrument integration
DNX		1	5.55	Poor instrument integration
DNX		2	5.55	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	1	13.93	Poor instrument integration
2,6-Dinitrotoluene	606-20-2	1	14.09	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2807\GG618383.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2807\GG618383.D\dad1A.ch
Acq On : 05-Feb-2020, 11:07:54 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 11:32 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.47min 1062.505ppb m

response 3165856

(2) HMX #2

5.47min 951.640ppb m

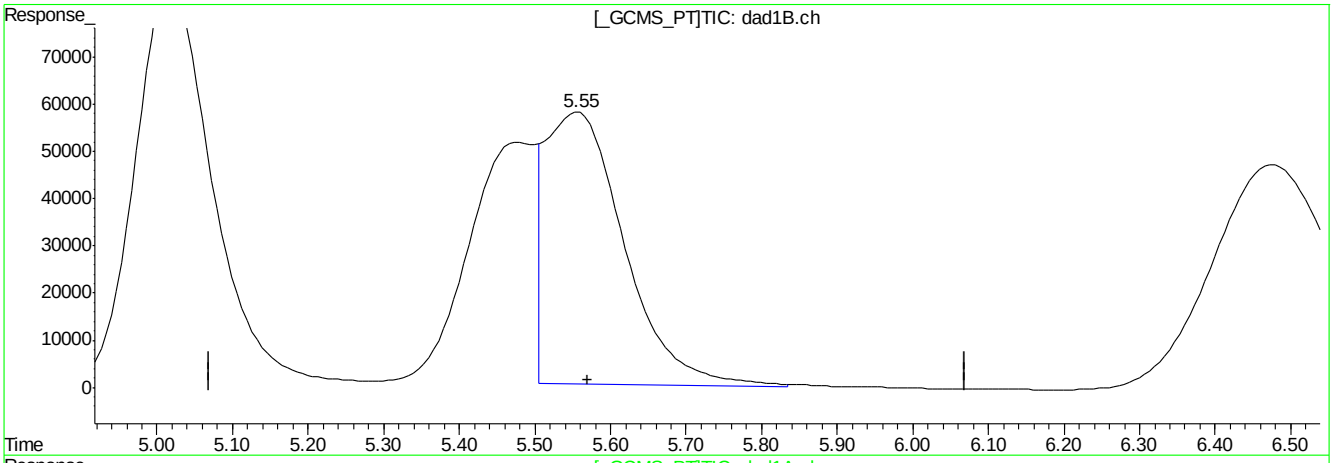
response 2854067

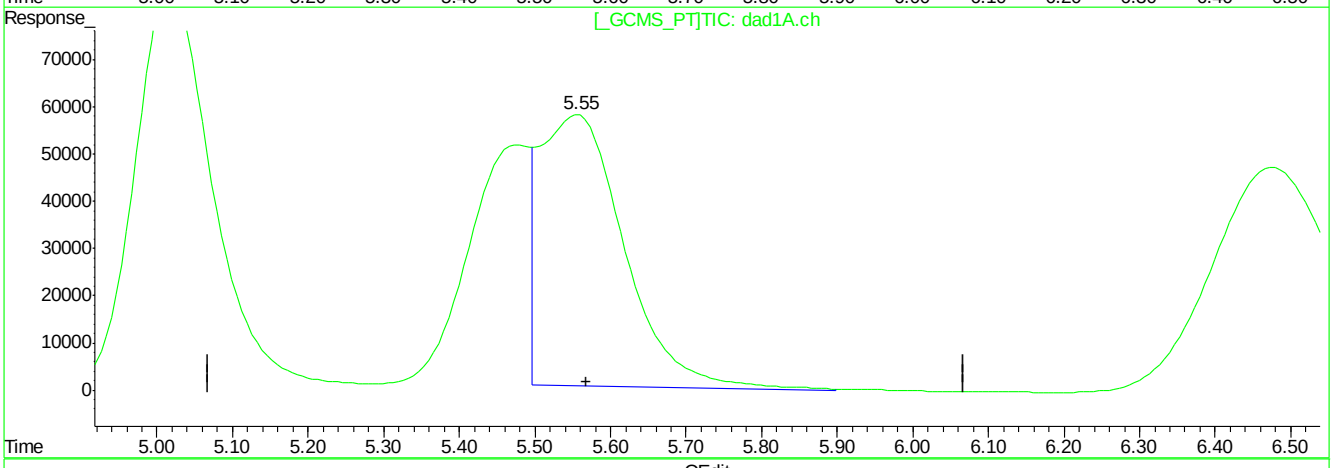
(+) = Expected Retention Time
GG618383.D 8330RPB.M_092519.M Wed Feb 05 11:32:21 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2807\GG618383.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2807\GG618383.D\dad1A.ch
Acq On : 05-Feb-2020, 11:07:54 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 11:32 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(3) DNX

5.55min 973.700ppb m

response 4186799

(3) DNX #2

5.55min 1035.916ppb m

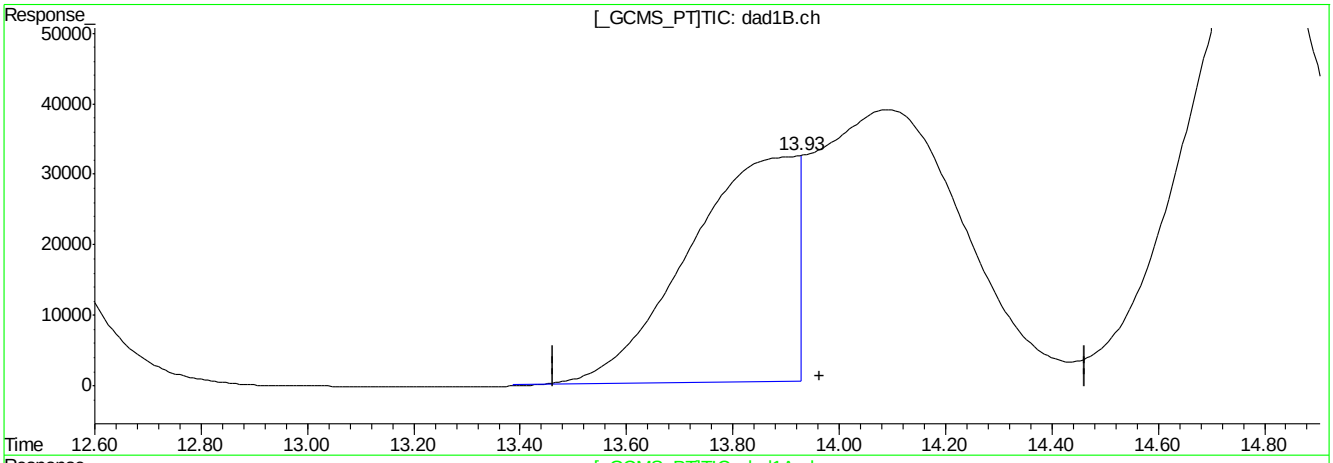
response 4465375

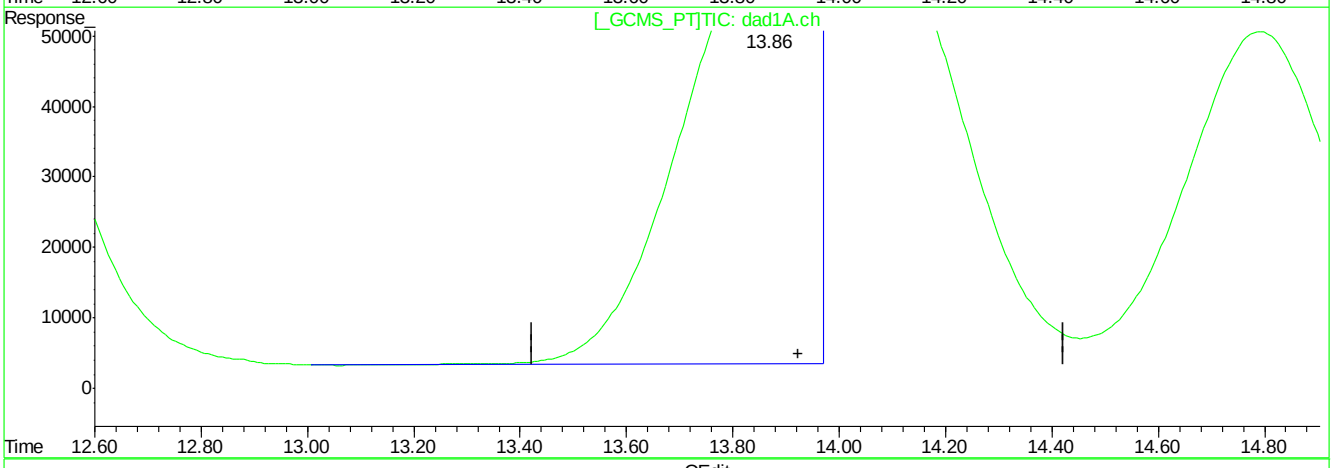
(+) = Expected Retention Time
GG618383.D 8330RPB.M_092519.M Wed Feb 05 11:32:34 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2807\GG618383.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2807\GG618383.D\dad1A.ch
Acq On : 05-Feb-2020, 11:07:54 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 11:32 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(12) 3,4-Dinitrotoluene (S)

13.93min 1016.351ppb m

response 4589221

(12) 3,4-Dinitrotoluene #2 (S)

13.87min 1126.108ppb

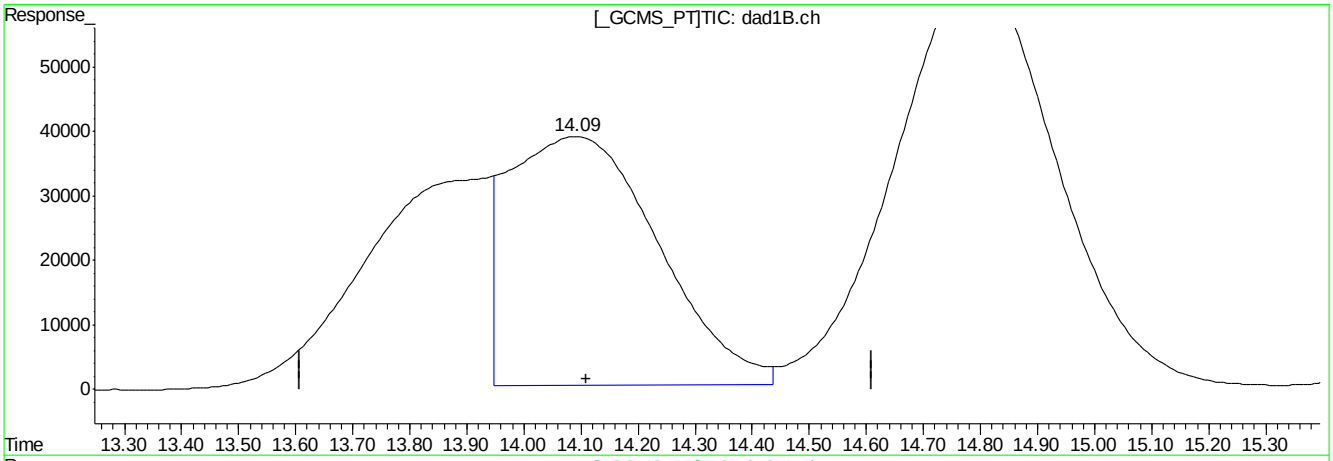
response 10137092

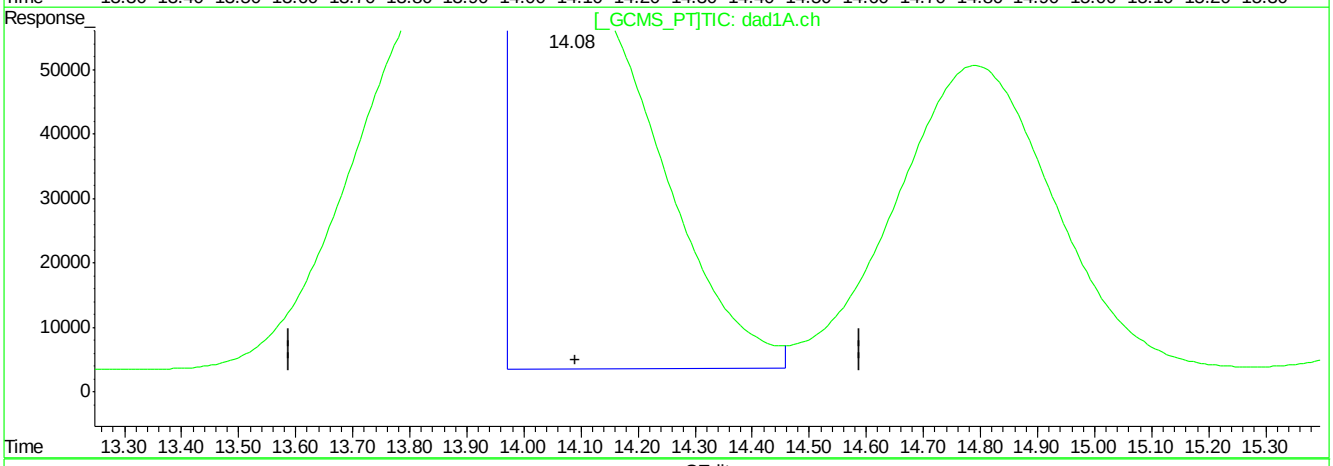
(+) = Expected Retention Time
GG618383.D 8330RPB.M_092519.M Wed Feb 05 11:32:53 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2807\GG618383.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2807\GG618383.D\dad1A.ch
Acq On : 05-Feb-2020, 11:07:54 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 11:32 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(13) 2,6-Dinitrotoluene

14.09min 971.883ppb m

response 7016163

(13) 2,6-Dinitrotoluene #2

14.08min 950.202ppb

response 10370486

(+) = Expected Retention Time
GG618383.D 8330RPB.M_092519.M Wed Feb 05 11:33:05 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
02/05/20 17:05

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2807\GG618389.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2807\GG618389.D\dad1A.ch
Acq On : 05-Feb-2020, 14:04:25 Operator: williamh
Sample : ecc2769-1000 Inst : G1315B
Misc : op78780,ggg2807,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 05 15:07:04 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.93	13.86	5050201	10603270	1118.441m	1177.653
	Spiked Amount 500.000	Range 70 - 136		Recovery =	223.69%#	235.53%#	
	Target Compounds						
1)	TNX	5.02	5.02	6113546	6113546	990.719	991.676
2)	HMX	5.48	5.48	2872340	2883117	963.997m	961.326m
3)	DNX	5.56	5.56	4593982	4498514	1069.219m	1043.676m
4)	MNX	6.48	6.48	5619982	5619982	1062.855	1060.755
5)	1,3,5-Trinitrobe	7.23	7.23	10632464	10632464	1028.159	1028.159
6)	RDX	7.75	7.75	4880421	4880421	962.633	962.633
7)	1,3-Dinitrobenze	9.66	9.66	14076372	10690168	1007.080	1023.782
8)	Nitrobenzene	10.55	10.55	9250082	9046859	1038.925	1068.878
9)	2,4,6-Trinitroto	11.17	11.17	9977767	13441105	978.528	1016.841
10)	Nitroglycerin	0.00	11.81	0	3612692	N.D.	1044.920 #
11)	Tetryl	12.39	12.39	8027171	14066340	1048.520	998.402
13)	2,6-Dinitrotolue	14.08	14.07	7167239	10056768	992.810m	921.458
14)	2,4-Dinitrotolue	14.79	14.79	12878960	9054490	1018.483	1015.337
15)	o-Nitrotoluene	16.22	16.22	5840282	8813481	1004.242	1058.547
16)	3,5-Dinitroanili	15.79	15.79	10927107	18214736	1070.970	1097.182
17)	p-Nitrotoluene	17.39	17.44	12050638	21978425	1039.177	1000.871
18)	4-Amino-2,6-Dini	17.39	17.44	12050638	21978425	1042.224	1012.038
19)	m-Nitrotoluene	18.48	18.48	6412724	10515783	1099.472	1057.417
20)	2-Amino-4,6-Dini	19.58	19.58	9794047	13581526	1020.672	967.901
21)	PETN	0.00	20.43	0	3253754	N.D.	999.608 #

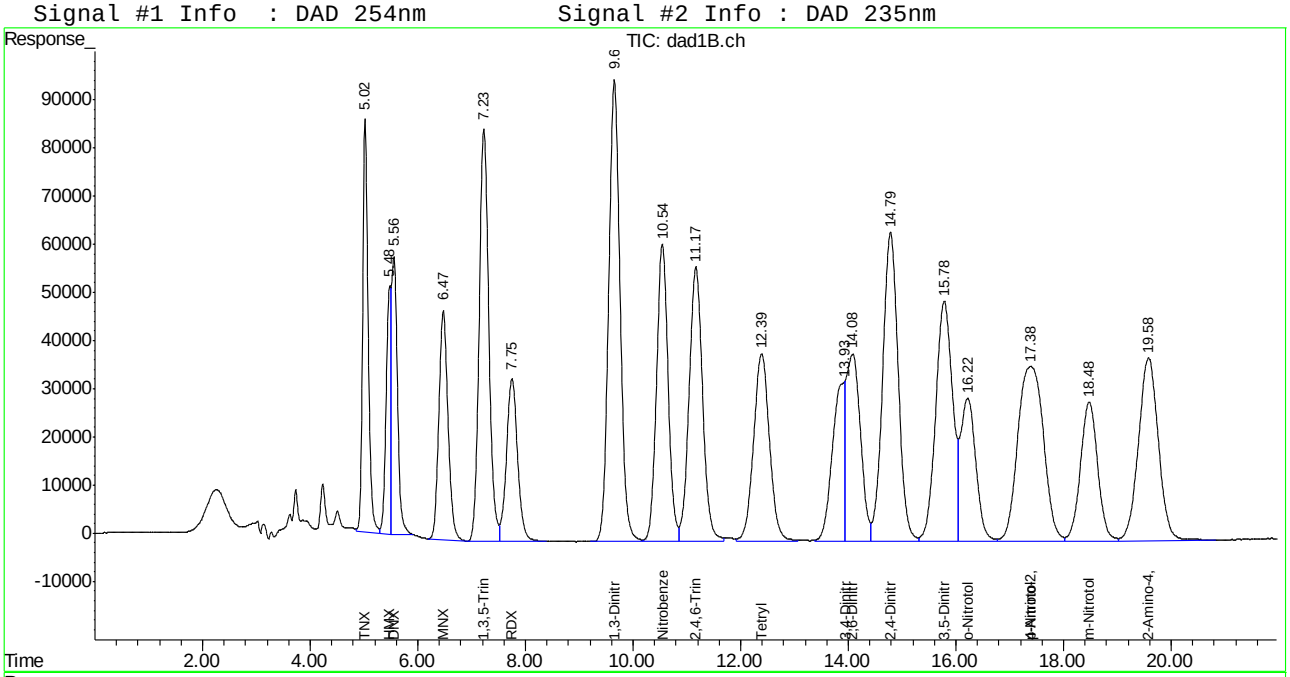
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

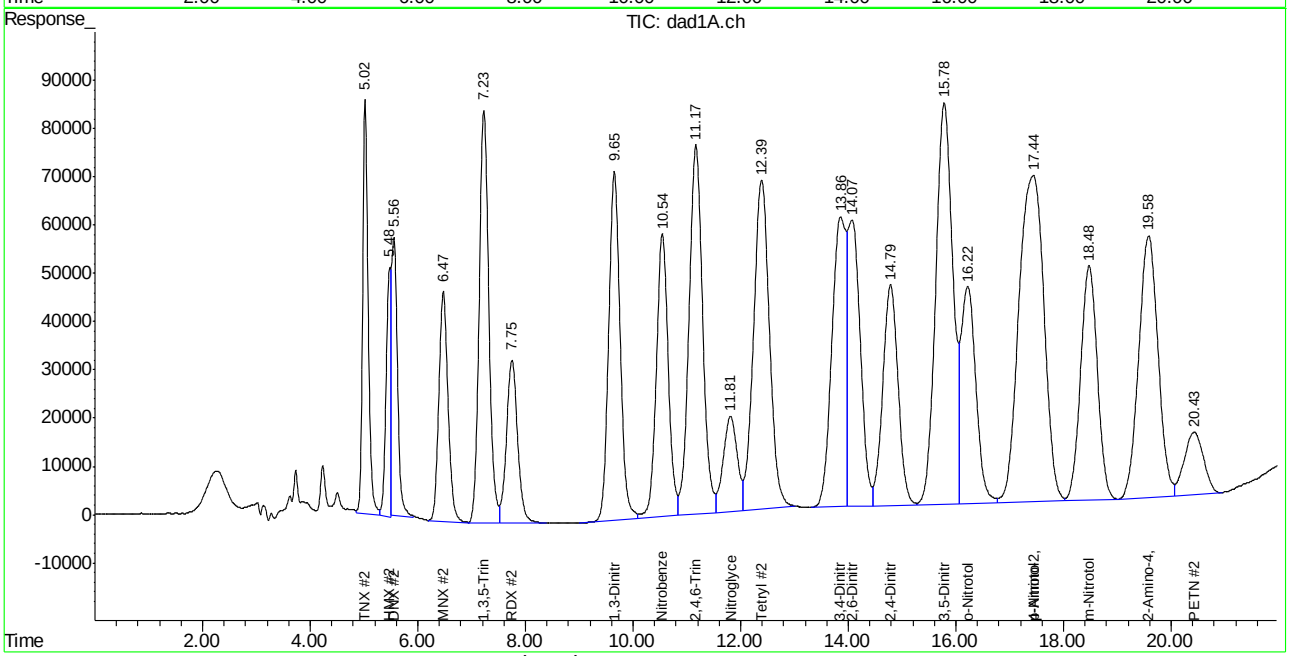
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2807\GG618389.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2807\GG618389.D\dad1A.ch
Acq On : 05-Feb-2020, 14:04:25 Operator: williamh
Sample : ecc2769-1000 Inst : G1315B
Misc : op78780,ggg2807,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 15:12 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

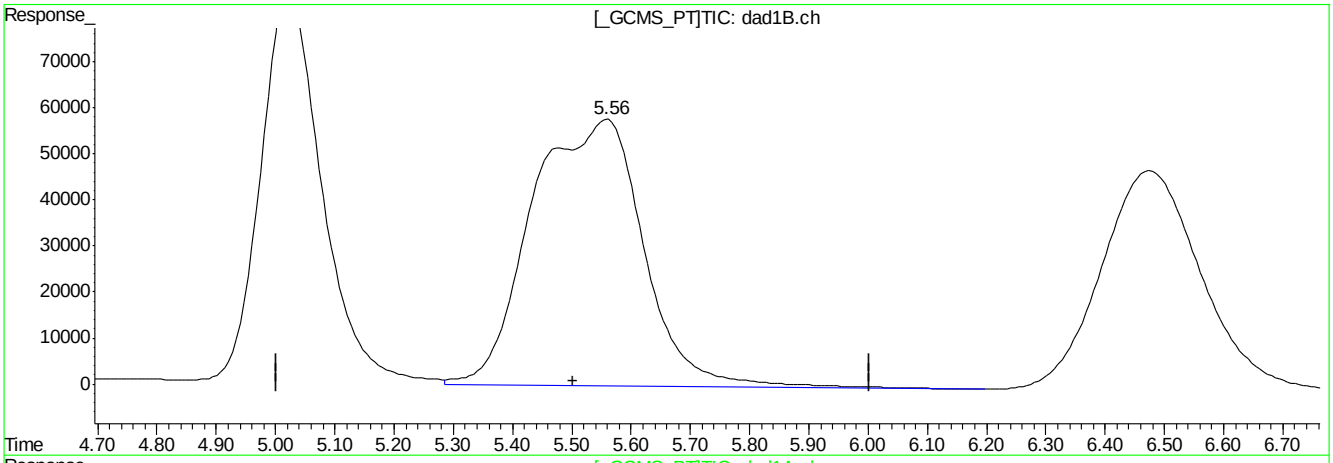
Sample Number: GGG2807-ECC2769 **Method:** SW846 8330A
Lab FileID: GG618389.D **Analyst approved:** 02/05/20 15:44 William Hustedde
Injection Time: 02/05/20 14:04 **Supervisor approved:** 02/05/20 17:05 Naresh Jiawan

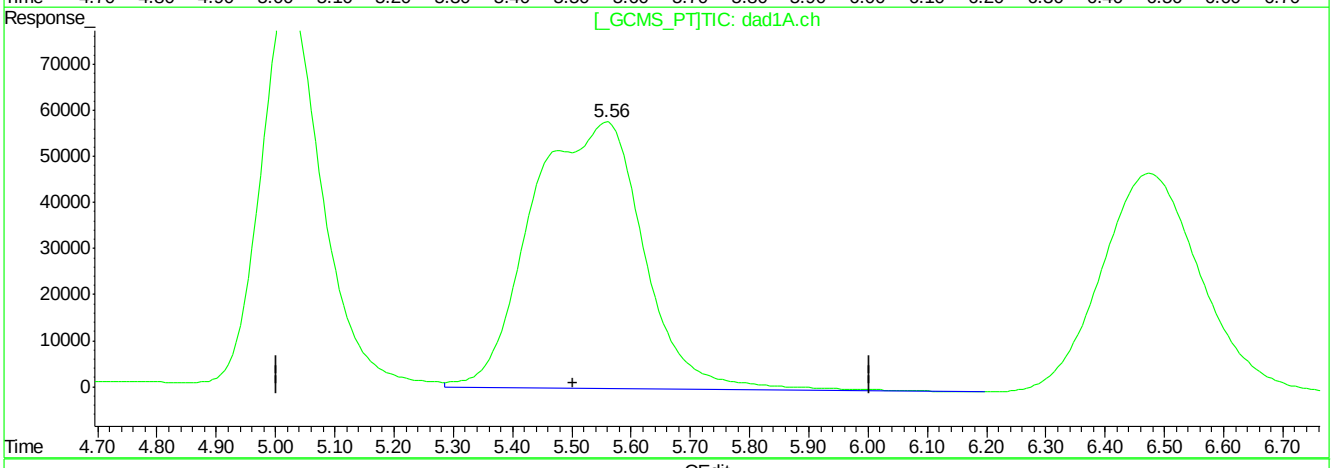
Parameter	CAS	Sig#	R.T. (min.)	Reason
HMX	2691-41-0	1	5.48	Poor instrument integration
HMX	2691-41-0	2	5.48	Poor instrument integration
DNX		1	5.56	Poor instrument integration
DNX		2	5.56	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	1	13.93	Poor instrument integration
2,6-Dinitrotoluene	606-20-2	1	14.08	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2807\GG618389.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2807\GG618389.D\dad1A.ch
Acq On : 05-Feb-2020, 14:04:25 Operator: williamh
Sample : ecc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 15:07 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.56min 2560.158ppb

response 7628284

(2) HMX #2

5.56min 2543.520ppb

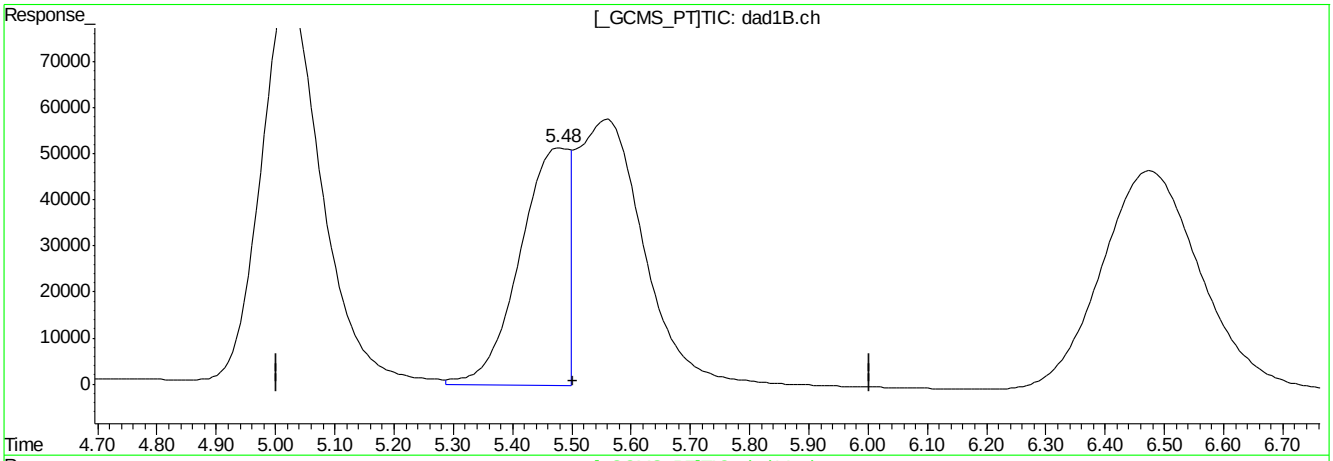
response 7628284

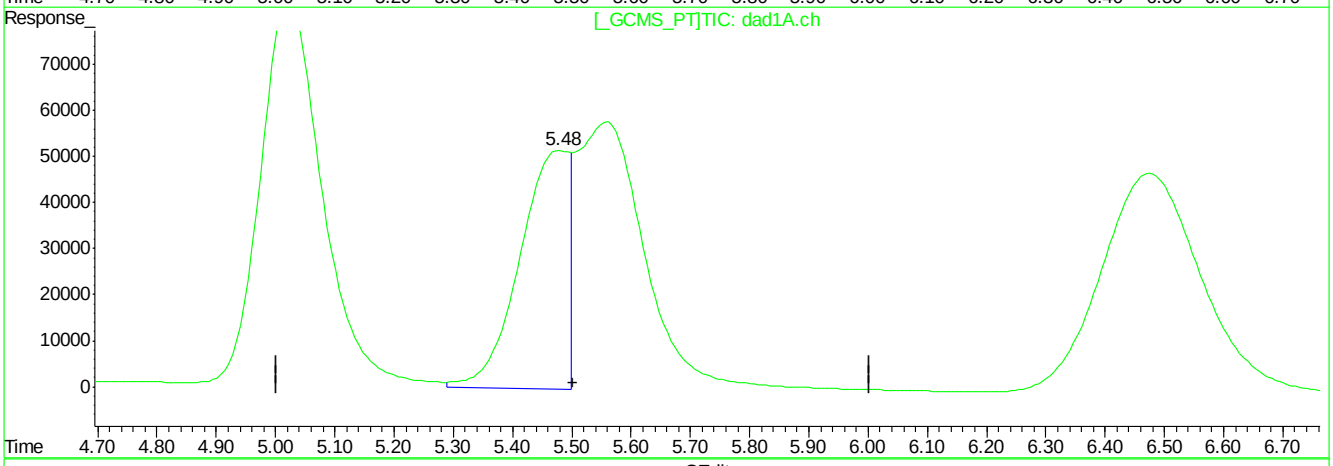
(+) = Expected Retention Time
GG618389.D 8330RPB.M_092519.M Wed Feb 05 15:09:18 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2807\GG618389.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2807\GG618389.D\dad1A.ch
Acq On : 05-Feb-2020, 14:04:25 Operator: williamh
Sample : ecc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 15:07 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.48min 963.997ppb m

response 2872340

(2) HMX #2

5.48min 961.326ppb m

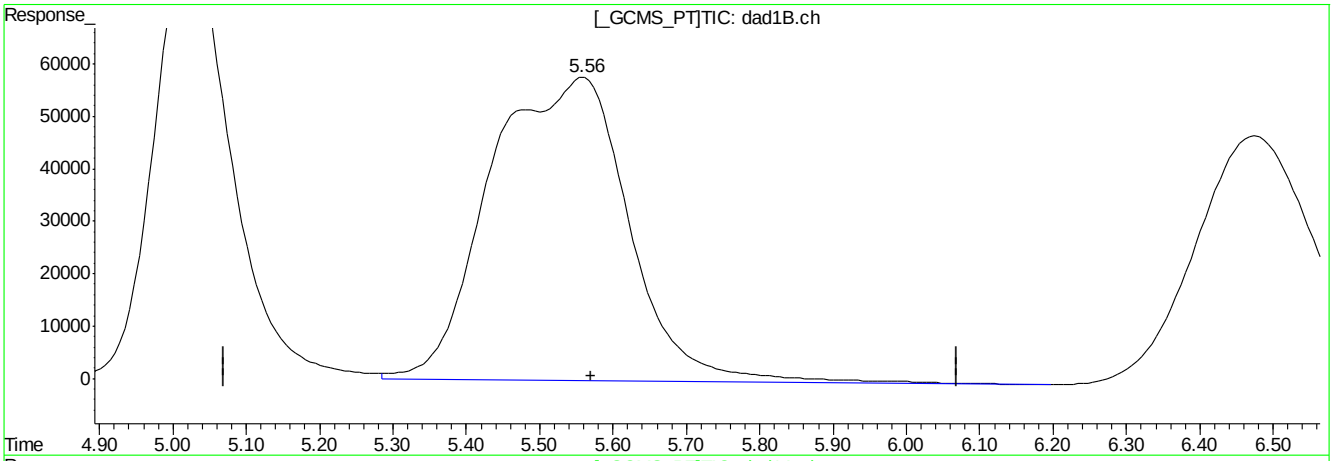
response 2883117

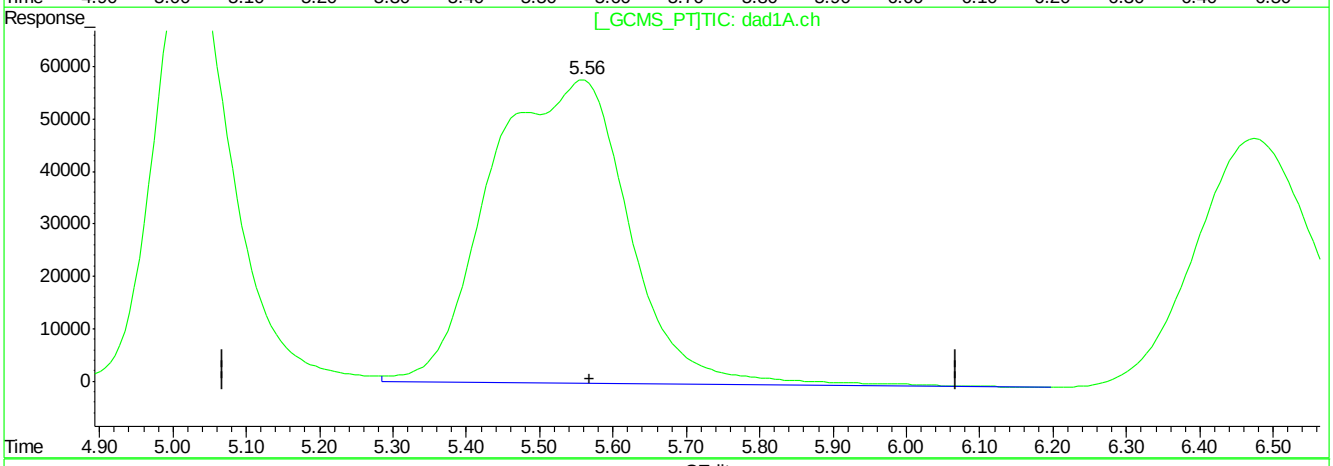
(+) = Expected Retention Time
GG618389.D 8330RPB.M_092519.M Wed Feb 05 15:09:32 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2807\GG618389.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2807\GG618389.D\dad1A.ch
Acq On : 05-Feb-2020, 14:04:25 Operator: williamh
Sample : ecc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 15:07 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(3) DNX

5.56min 1785.744ppb

response 7628284

(3) DNX #2

5.56min 1781.406ppb

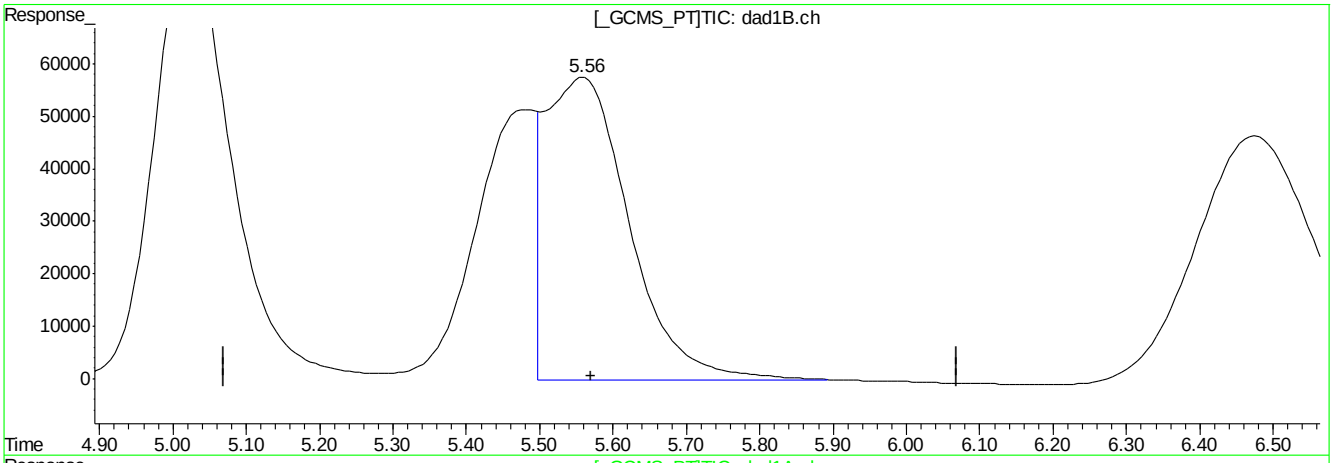
response 7628284

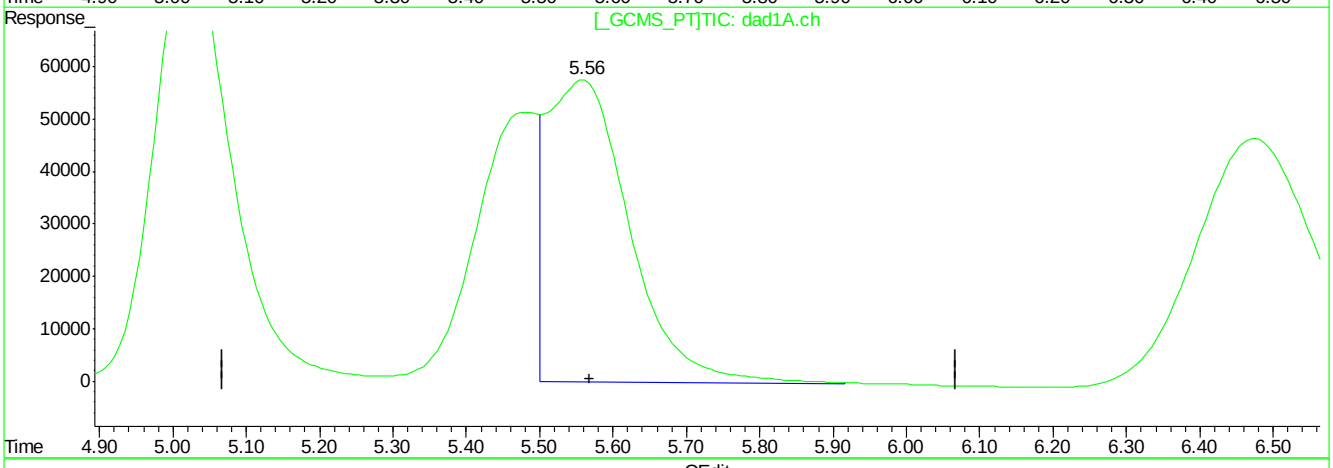
(+) = Expected Retention Time
GG618389.D 8330RPB.M_092519.M Wed Feb 05 15:10:51 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2807\GG618389.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2807\GG618389.D\dad1A.ch
Acq On : 05-Feb-2020, 14:04:25 Operator: williamh
Sample : ecc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 15:07 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(3) DNX

5.56min 1069.219ppb m

response 4593982

(3) DNX #2

5.56min 1043.676ppb m

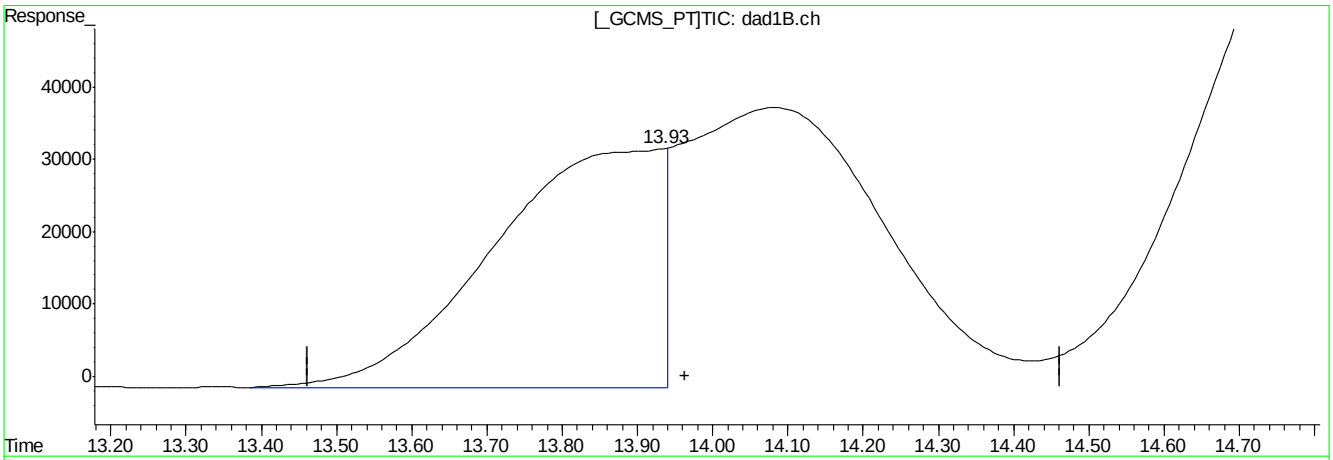
response 4498514

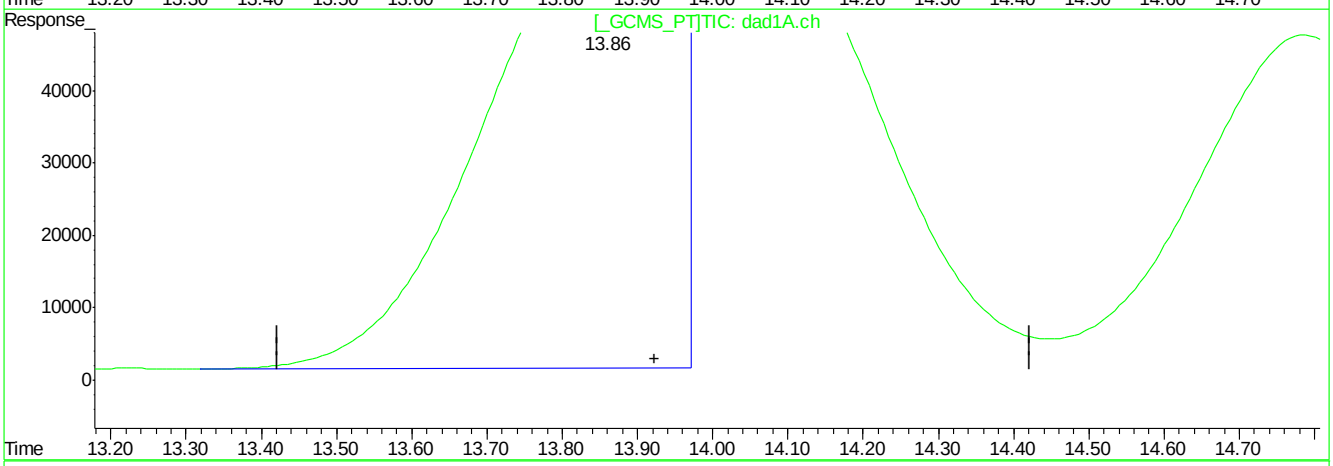
(+) = Expected Retention Time
GG618389.D 8330RPB.M_092519.M Wed Feb 05 15:11:01 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2807\GG618389.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2807\GG618389.D\dad1A.ch
Acq On : 05-Feb-2020, 14:04:25 Operator: williamh
Sample : ecc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 15:07 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(12) 3,4-Dinitrotoluene (S)

13.93min 1118.441ppb m

response 5050201

(12) 3,4-Dinitrotoluene #2 (S)

13.86min 1177.653ppb

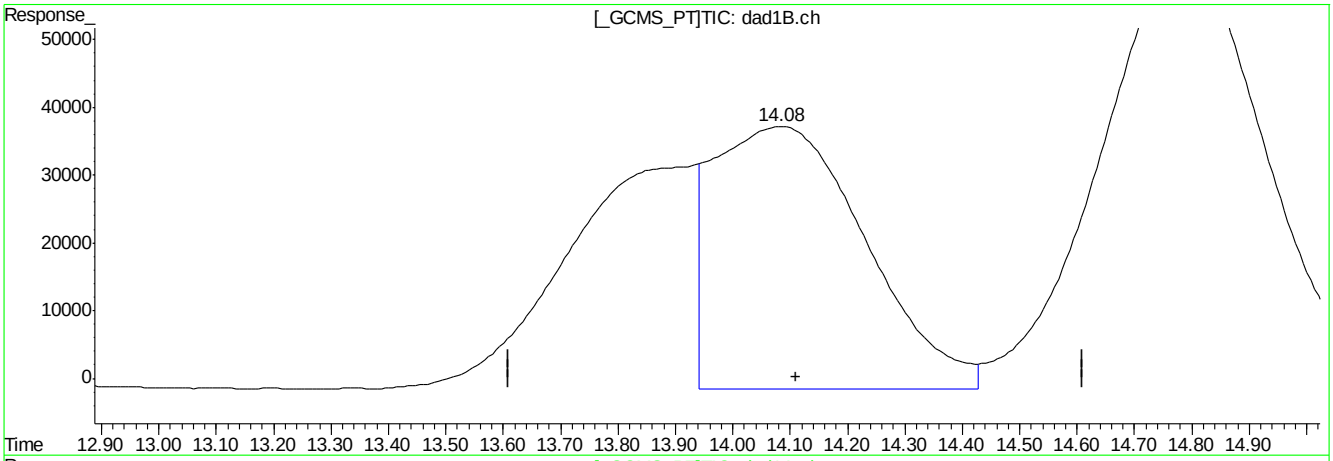
response 10603270

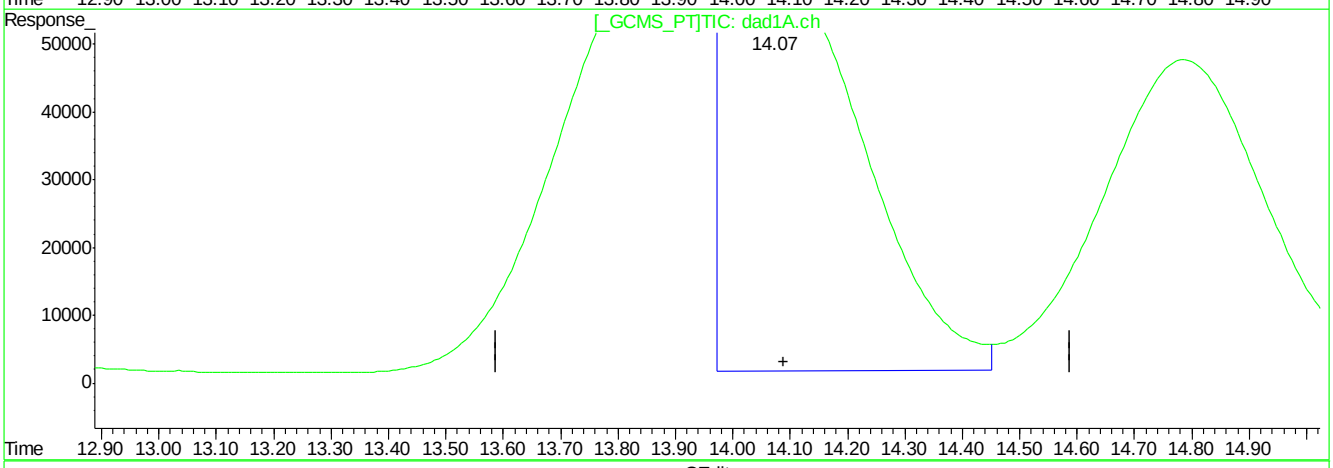
(+) = Expected Retention Time
GG618389.D 8330RPB.M_092519.M Wed Feb 05 15:12:41 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2807\GG618389.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2807\GG618389.D\dad1A.ch
Acq On : 05-Feb-2020, 14:04:25 Operator: williamh
Sample : ecc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Feb 5 15:07 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Feb 05 10:38:47 2020
Response via : Multiple Level Calibration





QEdit

(13) 2,6-Dinitrotoluene

14.08min 992.810ppb m

response 7167239

(13) 2,6-Dinitrotoluene #2

14.07min 921.458ppb

response 10056768

(+) = Expected Retention Time
GG618389.D 8330RPB.M_092519.M Wed Feb 05 15:12:57 2020

SGS ACCUTEST-ORLANDO

DATE:	1/21/2020
COLUMN TYPE:	Extend C18
AMOUNT INJECTED:	100 ul
INSTRUMENT: HPLC5-BB	

HPLC5-BB ANALYSIS LOG

METHODS:	~~8081~~ 8330
ACQ. METHOD:	~~PCB~~ 8330B
PROC. METHOD:	8330B_012120_PLMS.m
CALIB. DATE:	1/21/20
RUN BATCH: GBB	1975

ANALYST:	WFH
ACETONITRILE LOT #:	
MEOH LOT #:	
HEAD PRESSURE:	

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	MANUALLY INTEGRATED PEAKS RATIONALE, PEAK #	COMMENTS
BB 067705	1	ccb	8330				
BB 66	1	ccb					
BB 67	2	cc1466-1000					Tetryl PETN ↓ recal
BB 68	3	op 79596-135					RR
BB 69	4	MB					↓
BB 70	91	ic1475-20		LC1328	4/1000		/
BB 71	92	50			10/1000		/
BB 72	93	100			20/1000		/
BB 73	94	200			40/1000		/
BB 74	95	500			100/1000		/
BB 75	96	1000			200/1000		/
BB 76	97	2500			500/1000		/
BB 77	98	5000			1		/
BB 78	99	icv 1475-1000		LC1330	1		PETN ↑
BB 067779 to BB 067787			mis-sequenced	batch RR			
BB							
BB							
BB							
BB							
BB							

Manual Integration Rationale SOP QA029: **MP** Missed Peak, **OP** Overlapping Peak, **SP** Split Peak, **PDB** Poorly Defined Baseline, **BR** Baseline Ripple, **PII** Poor Instrument Integration
All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

SGS ACCUTEST-ORLANDO

DATE:	2/3/20
COLUMN TYPE:	Extend C18
AMOUNT INJECTED:	100 ul
INSTRUMENT: HPLC5-BB	

HPLC5-BB ANALYSIS LOG

METHODS:	8330
ACQ. METHOD:	8330B
PROC. METHOD:	8330B_012120_PLMS.m
CALIB. DATE:	1/21/20
RUN BATCH: GBB	1981

ANALYST:	WFH
ACETONITRILE LOT #:	
MEOH LOT #:	
HEAD PRESSURE:	

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	MANUALLY INTEGRATED PEAKS RATIONALE, PEAK #	COMMENTS
BB 067846	1	ccb	8330B				
BB 47	2	cc1475-1000		LC1331	100/500		PETN↑ all others pass 8330B
BB 48	3	op78763-BS		op78763	1		✓
BB 49	4	MB			1		✓
BB 50	5	FA72036-4			1		cf HMX TNB TNT RDX DNA 2A4A
BB 51	6	op78763-MS			1		✓
BB 52	7	MSD			1		✓
BB 53	8	LA61223-1			1		✓
BB 54	9	24-1			1		✓
BB 55	10	25-1			1		✓
BB 56	11	26-1			1		cf HMX 4A RDX PETN - recal
BB 57	12	~~cc1475-1000~~ WFH 2/4			1	FA72036-1	cf HMX TNB TNT RDX DNA 2A4A
BB 58	2	~~cc1475-1000 ccb~~		LC1331	10/500	cc1475-1000	PETN↑ TetrA TNTPAS2
BB 59	1	ccb					
BB 60	13	FA72036-2		op78763	1		cf HMX TNB TNT RDX DNA 2A4A
BB 61	14	-3			1		cf HMX TNT TNB RDX DNA 2A4A
BB 62	15	-5			1		✓
BB 63	16	1332 Assay		op74934	1	FA63898-24	✓
BB 64	17	op78780-BS	8330A	op78780	1		✓
BB 65	18	~~MB~~ WFH 2/4			1	FA72098-1	✓ cf HMX RDX

Manual Integration Rationale SOP QA029: **MP** Missed Peak, **OP** Overlapping Peak, **SP** Split Peak, **PDB** Poorly Defined Baseline, **BR** Baseline Ripple, **PII** Poor Instrument Integration
All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

hplc5_bb_log.xls NF rev. 06/16

Analyst's Signature:

SGS ACCUTEST-ORLANDO

DATE:	2/3/20
COLUMN TYPE:	Extend C18
AMOUNT INJECTED:	100 ul
INSTRUMENT: HPLC5-BB	

HPLC5-BB ANALYSIS LOG

METHODS:	8330
ACQ. METHOD:	8330B
PROC. METHOD:	8330B_012120_PLUS_M
CALIB. DATE:	1/21/20
RUN BATCH:	GBB 1981

ANALYST:	WFH
ACETONITRILE LOT #:	
MEOH LOT #:	
HEAD PRESSURE:	

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	MANUALLY INTEGRATED PEAKS RATIONALE, PEAK #	COMMENTS
BB 067866	19	~~FA72098-1~~ WFH 2/4	8330	op 78780	1	op 78780-MB	/
BB 67	20	FA72123-7	"	"	1		/
BB 68	2	ecc1975-1000	"	LC1331	100/500		PETN↑, TetNA, 2NT TNT↑ AS2
BB							
BB							
BB							
BB							
BB							
BB							
BB							
BB							
BB							
BB							
BB							
BB							
BB							
BB							
BB							
BB							
BB							
BB							
BB							

Manual Integration Rationale SOP QA029: **MP** Missed Peak, **OP** Overlapping Peak, **SP** Split Peak, **PDB** Poorly Defined Baseline, **BR** Baseline Ripple, **PII** Poor Instrument Integration
All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

Analyst's Signature: _____

SGS ACCUTEST-ORLANDO

DATE:	9/25/19
COLUMN TYPE:	Bonus-RP
AMOUNT INJECTED:	100 ul
INSTRUMENT: HPLC3-GG	

HPLC3-GG ANALYSIS LOG

METHODS:	8330
ACQ. METHOD:	8330 KPB3
PROC. METHOD:	8330 RPB, M_092519.M
CALIB. DATE:	9/25/19
RUN BATCH: GGG	2769

ANALYST:	WTH
ACETONITRILE LOT #:	
MEOH LOT #:	
HEAD PRESSURE:	

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	MANUALLY INTEGRATED PEAKS RATIONALE, PEAK #	COMMENTS
GG 617743	1	ccb	8330				
GG 44	1	"	"				
GG 45	1	"	"				
GG 46	1	"	"				
GG 47	2	ic 2769-20	"	LC1300	2/500		✓
GG 48	3	-50	"	"	5/500		✓
GG 49	4	-100	"	"	"		✓
GG 50	5	-200	"	"	"		✓
GG 51	6	-500	"	"	"		✓
GG 52	7	icc -1000	"	"	"		✓
GG 53	8	-2500	"	"	"		✓
GG 54	9	-5000	"	"	"		✓
GG 55	10	icv -1000	"	"	"	RETN	26.52 8330A
GG 56	11	op 71947-MB	"	op 76947	1		✓
GG 57	12	FA68129-1	"	"	1		✓
GG 58	13	-2	"	"	1		✓
GG 59	14	FA68182-2	"	"	1		✓
GG 60	15	FA68238-1	"	"	1		✓
GG 61	16	-1,10	"	"	10		✓
GG 62	17	-2	"	"	1		✓

Manual Integration Rationale SOP QA029: **MP** Missed Peak, **OP** Overlapping Peak, **SP** Split Peak, **PDB** Poorly Defined Baseline, **BR** Baseline Ripple, **PII** Poor Instrument Integration
All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

hplc3_gg_log.xls NF rev. 06/16

Analyst's Signature:

SGS ACCUTEST-ORLANDO

DATE:	9/25/19
COLUMN TYPE:	Bonus-rp
AMOUNT INJECTED:	100 ul
INSTRUMENT: HPLC3-GG	

HPLC3-GG ANALYSIS LOG

METHODS:	8330
ACQ. METHOD:	8330RPB3
PROC. METHOD:	8330RPB_M_092519
CALIB. DATE:	9/25/19
RUN BATCH: GGG	2769

ANALYST:	WFY
ACETONITRILE LOT #:	
MEOH LOT #:	
HEAD PRESSURE:	

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	MANUALLY INTEGRATED PEAKS RATIONALE, PEAK #	COMMENTS
GG 617763	18	FA68238-2 10	8330	op76947	10		⌐
GG 64	19	-3	"	"	1		⌐
GG 65	20	FA68275-6	"	"	1		/
GG 66	7	ccc 2769-1000	"	LC1200	100/500		poles
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							

Manual Integration Rationale SOP QA029: **MP** Missed Peak, **OP** Overlapping Peak, **SP** Split Peak, **PDB** Poorly Defined Baseline, **BR** Baseline Ripple, **PII** Poor Instrument Integration
All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

hplc3_gg_log.xls NF rev. 06/16

Analyst's Signature:

SGS ACCUTEST-ORLANDO

DATE:	2/4/20
COLUMN TYPE:	Bonus-rp
AMOUNT INJECTED:	100 ul
INSTRUMENT:	HPLC3-GG

HPLC3-GG ANALYSIS LOG

METHODS:	8330
ACQ. METHOD:	8330RPB3
PROC. METHOD:	8330.RPB.m_092519.m
CALIB. DATE:	9/25/20
RUN BATCH:	GGG 2806

ANALYST:	WFH
ACETONITRILE LOT #:	
MEOH LOT #:	
HEAD PRESSURE:	

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	MANUALLY INTEGRATED PEAKS RATIONALE, PEAK #	COMMENTS
GG 618354	to	GG618362 -	poor chromatography				
GG 618363	2	ccc2769-1000	8330	LC1331	100/500		~~DNXT~~ PETNT wm 2/5
GG 64	3	op78736-MB		op78736	1		/
GG 65	4	FA72054-1			1		/
GG 66	5	2			1		/
GG 67	6	3			1		/
GG 68	7	FA72071-1			1		/
GG 69	8	2			1		/
GG 70	9	op78763-MB		op78763	1		/
GG 71	10	LA61226-1			1		XPETN
GG 72	11	FA72036-1			1		/
GG 73	12	2			1		/
GG 74	2	ecc2769-1000		LC1331	100/500		pmc
GG 618375 to GG 618381		no ecc					pmcs
GG							
GG							
GG							
GG							
GG							
GG							

Manual Integration Rationale SOP QA029: **MP** Missed Peak, **OP** Overlapping Peak, **SP** Split Peak, **PDB** Poorly Defined Baseline, **BR** Baseline Ripple, **PII** Poor Instrument Integration
All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

SGS ACCUTEST-ORLANDO

DATE:	2/5/20
COLUMN TYPE:	Bonus-rp
AMOUNT INJECTED:	100 ul
INSTRUMENT:	HPLC3-GG

HPLC3-GG ANALYSIS LOG

METHODS:	8330
ACQ. METHOD:	8330RPB3
PROC. METHOD:	8330RPB.m-092519.m
CALIB. DATE:	9/25/19
RUN BATCH:	GGG 2807

ANALYST:	WFH
ACETONITRILE LOT #:	
MEOH LOT #:	
HEAD PRESSURE:	

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	MANUALLY INTEGRATED PEAKS RATIONALE, PEAK #	COMMENTS
GG 618382	1	ccb	8330				
GG 83	2	cc2769-1000		LC1331	100/500		pass
GG 84	3	FA72031-3		op78763	1		/
GG 85	4	-4		1	1		/
GG 86	5	op78780 MB		op78780	1		/
GG 87	6	FA72098-1		1	1		/
GG 88	7	FA72123-7		1	1		/
GG 89	2	ccc 2769-1000		LC1331	100/500		pass
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							

Manual Integration Rationale SOP QA029: **MP** Missed Peak, **OP** Overlapping Peak, **SP** Split Peak, **PDB** Poorly Defined Baseline, **BR** Baseline Ripple, **PII** Poor Instrument Integration
All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

hplc3_gg_log.xls NF rev. 06/16

Analyst's Signature:

SGS - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time: 01/31/2020 0900 Started {mm/dd/yy 24:00}

Prep Method: (3535A) or 537 or 537MOD (circle)

Date/Time: 01/31/2020 1600 Finished {mm/dd/yy 24:00}

Analytical Method: 8330B

Batch#: OP 78763 Ext. By: MB Conc. By: — Vialed By: MB

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Surrogate Amount	Spike Amount	Final Volume (ml)	Manifold ID	Comments
OP 78763 MB	X	1000	6	N/A	250ul		10ml	AT-1	
OP 78763 BS	X	1000				200 + 250ul			
LA61223-1	1	990							
LA61224-1	1	1000							
LA61225-1	1	1000						AT-2	
LA61226-1	1	980							
FA72036-1	1	1050							
-2	1	1040							
-3	1	1060							
-4	1	1060							
-5	1	1050						AT-1	
				MB	01/31/2020				
FA72036-4 MS	2	520	6	N/A	250ul	200 + 250ul	10ml	AT-1	
-4 MSD	2	520	↓	↓	↓	↓	↓	↓	
DUP									

Comments:

Surr.1 ID: LC1319 Conc: 20ppm Exp. Date: 06/02/20 Inj. By: MB Ver. By MB

Spk.1 ID: LC1329 Conc: 20ppm Exp. Date: 02/20/20 Inj. By: MB Ver. By MB

Spk.2 ID: LC1289 Conc: 25ppm Exp. Date: 02/20/20 Inj. By: MB Ver. By MB

Spk.3 ID: — Conc: — Exp. Date: — Inj. By: — Ver. By —

TurboVap Temp (Therm ID): — N-Evap Temp (Therm ID): —

Observed Temp °C: — Corr. Temp °C: — Observed Temp °C: — Corr. Temp °C: —

Methanol Lot #: — SPE Lot #: 321-0093 pH Paper #: 2016/9

Acetonitrile Lot #: 194117 Syringe filter Lot #: — Reagent #: —

Water Lot#: DI H20 Pre-filter Lot#: — Reagent #: —

Solvent#: — Carbon Lot#: — Other —

Relinquished By: MB Date: 01/31/20

Accepted By: Date: 2/3/20

ORLD-EXT-0001-3-08-FORM-extwater_spe.xls 032718

9

9.7.1

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

Weston Solutions, Inc

Radford AAP; VA

SGS Job Number: FA74617

Sampling Date: 04/28/20

Report to:

Weston Solutions, Inc
2 Eaton St Suite 603
Hampton, VA 23669
pacea@westonsolutions.com

ATTN: Tony Pace

Total number of pages in report: **516**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Caitlin Brice, M.S.
General Manager

Client Service contact: Andrea Colby 407-425-6700

Certifications: FL(E83510), LA(03051), KS(E-10327), IL(200063), NC(573), NJ(FL002), NY(12022), SC(96038001) DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177), AK, AR, IA, KY, MA, MS, ND, NH, NV, OK, OR, UT, WA, WV

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EHS.US.CustomerCare@sgs.com

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SGS North America Inc.

Sample Summary

Weston Solutions, Inc

Radford AAP; VA

Job No: FA74617

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
FA74617-1	04/28/20	10:00	WBPT	04/29/20	AQ	Ground Water	54MW13
FA74617-2	04/28/20	10:00	WBPT	04/29/20	AQ	Ground Water	54TW13
FA74617-3	04/28/20	11:30	WBPT	04/29/20	AQ	Ground Water	54MW10
FA74617-4	04/28/20	12:45	WBPT	04/29/20	AQ	Ground Water	54MW12
FA74617-4D	04/28/20	12:45	WBPT	04/29/20	AQ	Water Dup/MSD	54MW12
FA74617-4S	04/28/20	12:45	WBPT	04/29/20	AQ	Water Matrix Spike	54MW12
FA74617-5	04/28/20	14:20	WBPT	04/29/20	AQ	Ground Water	54MW1

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: Weston Solutions, Inc **Job No:** FA74617

Site: Radford AAP; VA **Report Date** 5/13/2020 2:34:12 PM

5 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were collected on 04/28/2020 and were received at SGS North America Inc - Orlando on 04/29/2020 properly preserved, at 4.2 Deg. C and intact. These Samples received an SGS Orlando job number of FA74617. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section. Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

MS Semi-volatiles By Method SW846 6850

Matrix: AQ **Batch ID:** OP80016

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) FA74617-4MSD, FA74617-4MS were used as the QC samples indicated.

Matrix Spike Recovery(s) for Perchlorate are outside control limits. Outside control limits due to high level in sample relative to spike amount.

Matrix Spike Duplicate Recovery(s) for Perchlorate are outside control limits. Probable cause is due to matrix interference.

GC/LC Semi-volatiles By Method SW846 8330B

Matrix: AQ **Batch ID:** OP80038

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) FA74617-4MS, FA74617-4MSD were used as the QC samples indicated.

Matrix Spike Recovery(s) for 2,6-Dinitrotoluene are outside control limits. Probable cause is due to matrix interference.

Matrix Spike Duplicate Recovery(s) for 2,6-Dinitrotoluene are outside control limits. Probable cause is due to matrix interference.

FA74617-1: All hits confirmed by reanalysis on a dissimilar column.

FA74617-1: Confirmation run.

FA74617-1 for 2,6-Dinitrotoluene: Associated CCV outside of DoD control limits high, sample was ND.

FA74617-1 for 3,5-Dinitroaniline: Primary and confirmation results differ by more than 40%.

FA74617-2 for 2,6-Dinitrotoluene: Associated CCV outside of DoD control limits high, sample was ND.

FA74617-2 for 3,5-Dinitroaniline: Primary and confirmation results differ by more than 40%.

FA74617-2: All hits confirmed by reanalysis on a dissimilar column.

FA74617-2: Confirmation run.

FA74617-3: All hits confirmed by reanalysis on a dissimilar column.

FA74617-3: Confirmation run.

FA74617-3 for 2,6-Dinitrotoluene: Associated CCV outside of DoD control limits high, sample was ND.

FA74617-3 for 2-amino-4,6-Dinitrotoluene: Primary and confirmation results differ by more than 40%. Dilution required due to high levels of TNT in the sample.

FA74617-3 for 3,5-Dinitroaniline: Primary and confirmation results differ by more than 40%.

FA74617-4: All hits confirmed by reanalysis on a dissimilar column.

FA74617-4: Confirmation run.

FA74617-4 for 3,5-Dinitroaniline: Primary and confirmation results differ by more than 40%.

FA74617-4 for 2,6-Dinitrotoluene: Associated CCV outside of DoD control limits high, sample was ND.

FA74617-5 for 2,6-Dinitrotoluene: Associated CCV outside of DoD control limits high, sample was ND.

SGS Orlando certifies that this report meets the project requirements for analytical data produced for the samples as received at SGS Orlando and as stated on the COC. SGS Orlando certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the SGS Orlando Quality Manual except as noted above. This report is to be used in its entirety. SGS Orlando is not responsible for any assumptions of data quality if partial data packages are used.

Narrative prepared by:

_____

Ariel Hartney, Client Services (signature on file)

Summary of Hits

Job Number: FA74617
Account: Weston Solutions, Inc
Project: Radford AAP; VA
Collected: 04/28/20

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
FA74617-1	**54MW13**					
Perchlorate		0.34	0.20	0.10	ug/l	SW846 6850
HMX [a]		2.8	0.19	0.096	ug/l	SW846 8330B
RDX [a]		1.5	0.19	0.096	ug/l	SW846 8330B
3,5-Dinitroaniline [b]		0.34	0.19	0.096	ug/l	SW846 8330B
2-amino-4,6-Dinitrotoluene [a]		1.1	0.19	0.096	ug/l	SW846 8330B
4-amino-2,6-Dinitrotoluene [b]		0.66	0.19	0.096	ug/l	SW846 8330B
1,3,5-Trinitrobenzene [a]		4.1	0.19	0.096	ug/l	SW846 8330B
2,4,6-Trinitrotoluene [a]		5.5	0.19	0.096	ug/l	SW846 8330B
FA74617-2	**54TW13**					
Perchlorate		0.34	0.20	0.10	ug/l	SW846 6850
HMX [a]		2.5	0.19	0.095	ug/l	SW846 8330B
RDX [a]		1.1	0.19	0.095	ug/l	SW846 8330B
3,5-Dinitroaniline [b]		0.32	0.19	0.095	ug/l	SW846 8330B
2-amino-4,6-Dinitrotoluene [a]		0.91	0.19	0.095	ug/l	SW846 8330B
4-amino-2,6-Dinitrotoluene [a]		0.53	0.19	0.095	ug/l	SW846 8330B
1,3,5-Trinitrobenzene [a]		3.1	0.19	0.095	ug/l	SW846 8330B
2,4,6-Trinitrotoluene [a]		4.1	0.19	0.095	ug/l	SW846 8330B
FA74617-3	**54MW10**					
Perchlorate		0.61	0.20	0.10	ug/l	SW846 6850
HMX [a]		5.1	0.19	0.096	ug/l	SW846 8330B
RDX [a]		5.1	0.19	0.096	ug/l	SW846 8330B
3,5-Dinitroaniline [b]		0.39	0.19	0.096	ug/l	SW846 8330B
2-amino-4,6-Dinitrotoluene [c]		4.2	0.38	0.19	ug/l	SW846 8330B
4-amino-2,6-Dinitrotoluene [b]		1.5	0.19	0.096	ug/l	SW846 8330B
1,3,5-Trinitrobenzene [a]		8.4	0.19	0.096	ug/l	SW846 8330B
2,4,6-Trinitrotoluene [a]		20.5	0.19	0.096	ug/l	SW846 8330B
FA74617-4	**54MW12**					
Perchlorate		0.73	0.20	0.10	ug/l	SW846 6850
HMX [a]		12.7	0.19	0.094	ug/l	SW846 8330B
RDX [a]		0.17 J	0.19	0.094	ug/l	SW846 8330B
3,5-Dinitroaniline [b]		0.24	0.19	0.094	ug/l	SW846 8330B
2-amino-4,6-Dinitrotoluene [a]		4.0	0.19	0.094	ug/l	SW846 8330B
4-amino-2,6-Dinitrotoluene [b]		2.5	0.19	0.094	ug/l	SW846 8330B
1,3,5-Trinitrobenzene [a]		9.5	0.19	0.094	ug/l	SW846 8330B
2,4,6-Trinitrotoluene [a]		8.3	0.19	0.094	ug/l	SW846 8330B

Summary of Hits

Job Number: FA74617
Account: Weston Solutions, Inc
Project: Radford AAP; VA
Collected: 04/28/20

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
FA74617-5	**54MW1**					

No hits reported in this sample.

(a) All hits confirmed by reanalysis on a dissimilar column.
(b) All hits confirmed by reanalysis on a dissimilar column. Primary and confirmation results differ by more than 40%.
(c) All hits confirmed by reanalysis on a dissimilar column. Primary and confirmation results differ by more than 40%. Dilution required due to high levels of TNT in the sample.

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW13		
Lab Sample ID:	FA74617-1	**Date Sampled:**	04/28/20
Matrix:	AQ - Ground Water	**Date Received:**	04/29/20
Method:	SW846 6850 SW846 6850	**Percent Solids:**	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Q69819.D	1	04/30/20 20:20	MRE	04/30/20 13:00	OP80016	SQ1575
Run #2							

	Initial Volume	Final Volume
Run #1	10.0 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
14797-73-0	Perchlorate	0.34	0.20	0.10	0.050	ug/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID: 54MW13
Lab Sample ID: FA74617-1
Matrix: AQ - Ground Water
Method: SW846 8330B SW846 3535A
Project: Radford AAP; VA

Date Sampled: 04/28/20
Date Received: 04/29/20
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	PP386868.D	1	05/04/20 17:14	WH	05/02/20 08:30	OP80038	GPP2268
Run #2 [b]	GG618849.D	1	05/06/20 15:29	WH	05/02/20 08:30	OP80038	GGG2834

	Initial Volume	Final Volume
Run #1	1040 ml	10.0 ml
Run #2	1040 ml	10.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	2.8	0.19	0.096	0.077	ug/l	
121-82-4	RDX	1.5	0.19	0.096	0.077	ug/l	
	DNX	0.096 U	0.19	0.096	0.077	ug/l	
	MNX	0.096 U	0.19	0.096	0.077	ug/l	
	TNX	0.096 U	0.19	0.096	0.077	ug/l	
618-87-1	3,5-Dinitroaniline [c]	0.34	0.19	0.096	0.077	ug/l	
99-65-0	1,3-Dinitrobenzene	0.096 U	0.19	0.096	0.077	ug/l	
606-20-2	2,6-Dinitrotoluene [d]	0.096 U	0.19	0.096	0.077	ug/l	
121-14-2	2,4-Dinitrotoluene	0.096 U	0.19	0.096	0.077	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	1.1	0.19	0.096	0.077	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene [c]	0.66	0.19	0.096	0.077	ug/l	
98-95-3	Nitrobenzene	0.096 U	0.19	0.096	0.093	ug/l	
88-72-2	o-Nitrotoluene	0.096 U	0.19	0.096	0.077	ug/l	
99-08-1	m-Nitrotoluene	0.096 U	0.19	0.096	0.077	ug/l	
99-99-0	p-Nitrotoluene	0.096 U	0.19	0.096	0.077	ug/l	
479-45-8	Tetryl	0.096 U	0.19	0.096	0.077	ug/l	
99-35-4	1,3,5-Trinitrobenzene	4.1	0.19	0.096	0.095	ug/l	
118-96-7	2,4,6-Trinitrotoluene	5.5	0.19	0.096	0.077	ug/l	
55-63-0	Nitroglycerine	0.96 U	1.9	0.96	0.48	ug/l	
78-11-5	PETN	0.96 U	1.9	0.96	0.48	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
610-39-9	3,4-Dinitrotoluene	107%	123%	70-136%

(a) All hits confirmed by reanalysis on a dissimilar column.
(b) Confirmation run.
(c) Primary and confirmation results differ by more than 40%.
(d) Associated CCV outside of DoD control limits high, sample was ND.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54TW13		
Lab Sample ID:	FA74617-2	**Date Sampled:**	04/28/20
Matrix:	AQ - Ground Water	**Date Received:**	04/29/20
Method:	SW846 6850 SW846 6850	**Percent Solids:**	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Q69820.D	1	04/30/20 20:29	MRE	04/30/20 13:00	OP80016	SQ1575
Run #2							

	Initial Volume	Final Volume
Run #1	10.0 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
14797-73-0	Perchlorate	0.34	0.20	0.10	0.050	ug/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID: 54TW13
Lab Sample ID: FA74617-2
Matrix: AQ - Ground Water
Method: SW846 8330B SW846 3535A
Project: Radford AAP; VA

Date Sampled: 04/28/20
Date Received: 04/29/20
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	PP386869.D	1	05/04/20 17:45	WH	05/02/20 08:30	OP80038	GPP2268
Run #2 [b]	GG618850.D	1	05/06/20 15:58	WH	05/02/20 08:30	OP80038	GGG2834

	Initial Volume	Final Volume
Run #1	1050 ml	10.0 ml
Run #2	1050 ml	10.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	2.5	0.19	0.095	0.076	ug/l	
121-82-4	RDX	1.1	0.19	0.095	0.076	ug/l	
	DNX	0.095 U	0.19	0.095	0.076	ug/l	
	MNX	0.095 U	0.19	0.095	0.076	ug/l	
	TNX	0.095 U	0.19	0.095	0.076	ug/l	
618-87-1	3,5-Dinitroaniline [c]	0.32	0.19	0.095	0.076	ug/l	
99-65-0	1,3-Dinitrobenzene	0.095 U	0.19	0.095	0.076	ug/l	
606-20-2	2,6-Dinitrotoluene [d]	0.095 U	0.19	0.095	0.076	ug/l	
121-14-2	2,4-Dinitrotoluene	0.095 U	0.19	0.095	0.076	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	0.91	0.19	0.095	0.076	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene	0.53	0.19	0.095	0.076	ug/l	
98-95-3	Nitrobenzene	0.095 U	0.19	0.095	0.092	ug/l	
88-72-2	o-Nitrotoluene	0.095 U	0.19	0.095	0.076	ug/l	
99-08-1	m-Nitrotoluene	0.095 U	0.19	0.095	0.076	ug/l	
99-99-0	p-Nitrotoluene	0.095 U	0.19	0.095	0.076	ug/l	
479-45-8	Tetryl	0.095 U	0.19	0.095	0.076	ug/l	
99-35-4	1,3,5-Trinitrobenzene	3.1	0.19	0.095	0.094	ug/l	
118-96-7	2,4,6-Trinitrotoluene	4.1	0.19	0.095	0.076	ug/l	
55-63-0	Nitroglycerine	0.95 U	1.9	0.95	0.48	ug/l	
78-11-5	PETN	0.95 U	1.9	0.95	0.48	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
610-39-9	3,4-Dinitrotoluene	104%	125%	70-136%

(a) All hits confirmed by reanalysis on a dissimilar column.
(b) Confirmation run.
(c) Primary and confirmation results differ by more than 40%.
(d) Associated CCV outside of DoD control limits high, sample was ND.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW10		
Lab Sample ID:	FA74617-3	**Date Sampled:**	04/28/20
Matrix:	AQ - Ground Water	**Date Received:**	04/29/20
Method:	SW846 6850 SW846 6850	**Percent Solids:**	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Q69821.D	1	04/30/20 20:38	MRE	04/30/20 13:00	OP80016	SQ1575
Run #2							

	Initial Volume	Final Volume
Run #1	10.0 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
14797-73-0	Perchlorate	0.61	0.20	0.10	0.050	ug/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID: 54MW10
Lab Sample ID: FA74617-3
Matrix: AQ - Ground Water
Method: SW846 8330B SW846 3535A
Project: Radford AAP; VA

Date Sampled: 04/28/20
Date Received: 04/29/20
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	PP386872.D	1	05/04/20 19:18	WH	05/02/20 08:30	OP80038	GPP2268
Run #2 [b]	GG618851.D	1	05/06/20 16:27	WH	05/02/20 08:30	OP80038	GGG2834
Run #3 [a]	PP386885.D	2	05/05/20 15:18	WH	05/02/20 08:30	OP80038	GPP2269
Run #4 [b]	GG618852.D	2	05/06/20 16:57	WH	05/02/20 08:30	OP80038	GGG2834

	Initial Volume	Final Volume
Run #1	1040 ml	10.0 ml
Run #2	1040 ml	10.0 ml
Run #3	1040 ml	10.0 ml
Run #4	1040 ml	10.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	5.1	0.19	0.096	0.077	ug/l	
121-82-4	RDX	5.1	0.19	0.096	0.077	ug/l	
	DNX	0.096 U	0.19	0.096	0.077	ug/l	
	MNX	0.096 U	0.19	0.096	0.077	ug/l	
	TNX	0.096 U	0.19	0.096	0.077	ug/l	
618-87-1	3,5-Dinitroaniline [c]	0.39	0.19	0.096	0.077	ug/l	
99-65-0	1,3-Dinitrobenzene	0.096 U	0.19	0.096	0.077	ug/l	
606-20-2	2,6-Dinitrotoluene [d]	0.096 U	0.19	0.096	0.077	ug/l	
121-14-2	2,4-Dinitrotoluene	0.096 U	0.19	0.096	0.077	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene [e]	4.2 [f]	0.38	0.19	0.15	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene [c]	1.5	0.19	0.096	0.077	ug/l	
98-95-3	Nitrobenzene	0.096 U	0.19	0.096	0.093	ug/l	
88-72-2	o-Nitrotoluene	0.096 U	0.19	0.096	0.077	ug/l	
99-08-1	m-Nitrotoluene	0.096 U	0.19	0.096	0.077	ug/l	
99-99-0	p-Nitrotoluene	0.096 U	0.19	0.096	0.077	ug/l	
479-45-8	Tetryl	0.096 U	0.19	0.096	0.077	ug/l	
99-35-4	1,3,5-Trinitrobenzene	8.4	0.19	0.096	0.095	ug/l	
118-96-7	2,4,6-Trinitrotoluene	20.5	0.19	0.096	0.077	ug/l	
55-63-0	Nitroglycerine	0.96 U	1.9	0.96	0.48	ug/l	
78-11-5	PETN	0.96 U	1.9	0.96	0.48	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Run# 4	Limits
610-39-9	3,4-Dinitrotoluene	114%	123%	111%	124%	70-136%

(a) All hits confirmed by reanalysis on a dissimilar column.
(b) Confirmation run.
(c) Primary and confirmation results differ by more than 40%.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	54MW10		
Lab Sample ID:	FA74617-3	**Date Sampled:**	04/28/20
Matrix:	AQ - Ground Water	**Date Received:**	04/29/20
Method:	SW846 8330B SW846 3535A	**Percent Solids:**	n/a
Project:	Radford AAP; VA		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q

(d) Associated CCV outside of DoD control limits high, sample was ND.
(e) Primary and confirmation results differ by more than 40%. Dilution required due to high levels of TNT in the sample.
(f) Result is from Run# 3

U = Not detected LOD = Limit of Detection
LOQ = Limit of Quantitation DL = Detection Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW12		
Lab Sample ID:	FA74617-4	**Date Sampled:**	04/28/20
Matrix:	AQ - Ground Water	**Date Received:**	04/29/20
Method:	SW846 6850 SW846 6850	**Percent Solids:**	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Q69822.D	1	04/30/20 20:47	MRE	04/30/20 13:00	OP80016	SQ1575
Run #2							

	Initial Volume	Final Volume
Run #1	10.0 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
14797-73-0	Perchlorate	0.73	0.20	0.10	0.050	ug/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID: 54MW12
Lab Sample ID: FA74617-4
Matrix: AQ - Ground Water
Method: SW846 8330B SW846 3535A
Project: Radford AAP; VA

Date Sampled: 04/28/20
Date Received: 04/29/20
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	PP386873.D	1	05/04/20 19:49	WH	05/02/20 08:30	OP80038	GPP2268
Run #2 [b]	GG618853.D	1	05/06/20 17:26	WH	05/02/20 08:30	OP80038	GGG2834

	Initial Volume	Final Volume
Run #1	1060 ml	10.0 ml
Run #2	1060 ml	10.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	12.7	0.19	0.094	0.075	ug/l	
121-82-4	RDX	0.17	0.19	0.094	0.075	ug/l	J
	DNX	0.094 U	0.19	0.094	0.075	ug/l	
	MNX	0.094 U	0.19	0.094	0.075	ug/l	
	TNX	0.094 U	0.19	0.094	0.075	ug/l	
618-87-1	3,5-Dinitroaniline [c]	0.24	0.19	0.094	0.075	ug/l	
99-65-0	1,3-Dinitrobenzene	0.094 U	0.19	0.094	0.075	ug/l	
606-20-2	2,6-Dinitrotoluene [d]	0.094 U	0.19	0.094	0.075	ug/l	
121-14-2	2,4-Dinitrotoluene	0.094 U	0.19	0.094	0.075	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	4.0	0.19	0.094	0.075	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene [c]	2.5	0.19	0.094	0.075	ug/l	
98-95-3	Nitrobenzene	0.094 U	0.19	0.094	0.092	ug/l	
88-72-2	o-Nitrotoluene	0.094 U	0.19	0.094	0.075	ug/l	
99-08-1	m-Nitrotoluene	0.094 U	0.19	0.094	0.075	ug/l	
99-99-0	p-Nitrotoluene	0.094 U	0.19	0.094	0.075	ug/l	
479-45-8	Tetryl	0.094 U	0.19	0.094	0.075	ug/l	
99-35-4	1,3,5-Trinitrobenzene	9.5	0.19	0.094	0.093	ug/l	
118-96-7	2,4,6-Trinitrotoluene	8.3	0.19	0.094	0.075	ug/l	
55-63-0	Nitroglycerine	0.94 U	1.9	0.94	0.47	ug/l	
78-11-5	PETN	0.94 U	1.9	0.94	0.47	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
610-39-9	3,4-Dinitrotoluene	121%	124%	70-136%

(a) All hits confirmed by reanalysis on a dissimilar column.
(b) Confirmation run.
(c) Primary and confirmation results differ by more than 40%.
(d) Associated CCV outside of DoD control limits high, sample was ND.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW1		
Lab Sample ID:	FA74617-5	**Date Sampled:**	04/28/20
Matrix:	AQ - Ground Water	**Date Received:**	04/29/20
Method:	SW846 6850 SW846 6850	**Percent Solids:**	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Q69828.D	1	04/30/20 21:41	MRE	04/30/20 13:00	OP80016	SQ1575
Run #2							

	Initial Volume	Final Volume
Run #1	10.0 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
14797-73-0	Perchlorate	0.10 U	0.20	0.10	0.050	ug/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID: 54MW1
Lab Sample ID: FA74617-5
Matrix: AQ - Ground Water
Method: SW846 8330B SW846 3535A
Project: Radford AAP; VA

Date Sampled: 04/28/20
Date Received: 04/29/20
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	PP386874.D	1	05/04/20 20:20	WH	05/02/20 08:30	OP80038	GPP2268
Run #2							

	Initial Volume	Final Volume
Run #1	1040 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	0.096 U	0.19	0.096	0.077	ug/l	
121-82-4	RDX	0.096 U	0.19	0.096	0.077	ug/l	
	DNX	0.096 U	0.19	0.096	0.077	ug/l	
	MNX	0.096 U	0.19	0.096	0.077	ug/l	
	TNX	0.096 U	0.19	0.096	0.077	ug/l	
618-87-1	3,5-Dinitroaniline	0.096 U	0.19	0.096	0.077	ug/l	
99-65-0	1,3-Dinitrobenzene	0.096 U	0.19	0.096	0.077	ug/l	
606-20-2	2,6-Dinitrotoluene [a]	0.096 U	0.19	0.096	0.077	ug/l	
121-14-2	2,4-Dinitrotoluene	0.096 U	0.19	0.096	0.077	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	0.096 U	0.19	0.096	0.077	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene	0.096 U	0.19	0.096	0.077	ug/l	
98-95-3	Nitrobenzene	0.096 U	0.19	0.096	0.093	ug/l	
88-72-2	o-Nitrotoluene	0.096 U	0.19	0.096	0.077	ug/l	
99-08-1	m-Nitrotoluene	0.096 U	0.19	0.096	0.077	ug/l	
99-99-0	p-Nitrotoluene	0.096 U	0.19	0.096	0.077	ug/l	
479-45-8	Tetryl	0.096 U	0.19	0.096	0.077	ug/l	
99-35-4	1,3,5-Trinitrobenzene	0.096 U	0.19	0.096	0.095	ug/l	
118-96-7	2,4,6-Trinitrotoluene	0.096 U	0.19	0.096	0.077	ug/l	
55-63-0	Nitroglycerine	0.96 U	1.9	0.96	0.48	ug/l	
78-11-5	PETN	0.96 U	1.9	0.96	0.48	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
610-39-9	3,4-Dinitrotoluene	103%		70-136%

(a) Associated CCV outside of DoD control limits high, sample was ND.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- QC Evaluation: DOD QSM5.x Limits

SGS North America Inc - Orlando

Chain of Custody

4405 Vineland Road, Suite C-15 Orlando, Fl 32811
TEL. 407-425-6700 FAX: 407-425-0707
www.sgs.com

SGS - ORLANDO JOB # : FA74617

PAGE 1 OF 1

SGS - ORLANDO Quote # | SKIFF #

Client / Reporting Information

Company Name: Weston Solutions, Inc.
Address: 2 Eaton St. Ste. 603
City: Hampton State: VA Zip: 23669
Project Contact: Tony Pace Email: Tony.Pace@WestonSolutions.com
Phone #: 757-819-5310
Sampler(s) Name(s) (Printed) Sampler 1: W. Bounds Sampler 2: P. Taylor

Project Information

Project Name: Radford AAP - SWMU 54
Street
City: Radford State: VA
Project #
Fax #
Client Purchase Order #

Analytical Information

Explosives + DNX, MNX, TNX 8330B
Perchlorate 6850

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid

SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION DATE 2020	TIME	SAMPLED BY:	MATRIX	TOTAL # OF BOTTLES	CONTAINER INFORMATION: OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NaOH+ZnAc	DI WATER	MEOH	LAB USE ONLY
1	54MW13	4/28	1000	WB/PT	GW	3		X								2 / 1
2	54TW13	4/28	1000	WB/PT	GW	3		X								2 / 1
3	54MW10	4/28	1130	WB/PT	GW	3		X								2 / 1
4	54MW12	4/28	1245	WB/PT	GW	9		X								6 / 3 MS/MSD
5	54MW1	4/28	1420	WB/PT	GW	3		X								2 / 1

Turnaround Time (Business days)

Approved By: / Date:

- 10 Day (Business)
- 7 Day
- 5 Day
- 3 Day *RUSH*
- 2 Day *RUSH*
- 1 Day *RUSH*
- Other 14 Day

Rush T/A Data Available VIA Email or Lablink

Data Deliverable Information

- ☐ COMMERCIAL "A" (RESULTS ONLY)
- ☐ COMMERCIAL "B" (RESULTS PLUS QC)
- ☐ REDT1 (EPA LEVEL 3)
- ☑ FULLT1 (EPA LEVEL 4)
- ☐ EDD'S

INITIAL ASESSMENT SP
LABEL VERIFICATION SP

Comments / Remarks

Shipped in 2 Coolers
Custody Seal #s:
19691 + 19692

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
1		4/28/20 1600	FedEx	3 FX		4 PCHT 4/29/20 930
5	Relinquished By/Affiliation	Date Time:	6 Received By/Affiliation	7 Relinquished By/Affiliation	Date Time:	8 Received By/Affiliation

Lab Use Only : Cooler Temperature (s) Celsius (corrected): 4.2, 3.7

http://www.sgs.com/en/terms-and-conditions

ORLD-SMT-0001-03-FORM-COC (1) Rev 031318

SGS Sample Receipt Summary

Job Number: FA74617 **Client:** WESTON SOLUTIONS **Project:** RADFORD AAP

Date / Time Received: 4/29/2020 9:30:00 AM **Delivery Method:** FX **Airbill #'s:** 3923 3062 2332

Therm ID: IR 1; **Therm CF:** -0.8; **# of Coolers:** 2

Cooler Temps (Raw Measured) °C: Cooler 1: (5.0); Cooler 2: (4.5);

Cooler Temps (Corrected) °C: Cooler 1: (4.2); Cooler 2: (3.7);

Cooler Information	Y	N
1. Custody Seals Present	☑	☐
2. Custody Seals Intact	☑	☐
3. Temp criteria achieved	☑	☐
4. Cooler temp verification	IR Gun	
5. Cooler media	Ice (Bag)	

Trip Blank Information	Y	N	N/A
1. Trip Blank present / cooler	☐	☐	☑
2. Trip Blank listed on COC	☐	☐	☑

	W	S	N/A
3. Type Of TB Received	☐	☐	☑

Sample Information	Y	N	N/A
1. Sample labels present on bottles	☑	☐	
2. Samples preserved properly	☑	☐	
3. Sufficient volume/containers recvd for analysis:	☑	☐	
4. Condition of sample	Intact		
5. Sample recvd within HT	☑	☐	
6. Dates/Times/IDs on COC match Sample Label	☑	☐	
7. VOCs have headspace	☐	☐	☑
8. Bottles received for unspecified tests	☐	☑	
9. Compositing instructions clear	☐	☐	☑
10. Voa Soil Kits/Jars received past 48hrs?	☐	☐	☑
11. % Solids Jar received?	☐	☐	☑
12. Residual Chlorine Present?	☐	☐	☑

Misc. Information

Number of Encores: 25-Gram _____ 5-Gram _____ Number of 5035 Field Kits: _____ Number of Lab Filtered Metals: _____

Test Strip Lot #s: pH 0-3 230315 pH 10-12 219813A Other: (Specify) _____ _____

Residual Chlorine Test Strip Lot #: _____

Comments

SM001
Rev. Date 05/24/17

Technician: PETERH Date: 4/29/2020 9:30:00 AM Reviewer: _____ Date: _____

FA74617: Chain of Custody
Page 2 of 2

QC Evaluation: DOD QSM5.x Limits

Job Number: FA74617
Account: Weston Solutions, Inc
Project: Radford AAP; VA
Collected: 04/28/20

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
OP80016	SW846 6850						
OP80016-BS	14797-73-0	Perchlorate	BSP	REC	90	%	84-119
OP80016-MS2	14797-73-0	Perchlorate	MS	REC	70 [a]	%	84-119
OP80016-MSD2	14797-73-0	Perchlorate	MSD	REC	60 [a]	%	84-119
OP80016-MSD2	14797-73-0	Perchlorate	MSD	RPD	2	%	15
OP80038	SW846 8330B						
OP80038-BS	2691-41-0	HMX	BSP	REC	96	%	65-135
OP80038-BS	121-82-4	RDX	BSP	REC	90	%	68-130
OP80038-BS		DNX	BSP	REC	98	%	66-119
OP80038-BS		MNX	BSP	REC	92	%	57-132
OP80038-BS	618-87-1	3,5-Dinitroaniline	BSP	REC	92	%	71-117
OP80038-BS	99-65-0	1,3-Dinitrobenzene	BSP	REC	92	%	78-120
OP80038-BS	606-20-2	2,6-Dinitrotoluene	BSP	REC	106	%	77-127
OP80038-BS	121-14-2	2,4-Dinitrotoluene	BSP	REC	88	%	78-120
OP80038-BS	35572-78-2	2-amino-4,6-Dinitrotoluene	BSP	REC	94	%	79-120
OP80038-BS	19406-51-0	4-amino-2,6-Dinitrotoluene	BSP	REC	90	%	76-125
OP80038-BS	98-95-3	Nitrobenzene	BSP	REC	92	%	65-134
OP80038-BS	88-72-2	o-Nitrotoluene	BSP	REC	84	%	70-127
OP80038-BS	99-08-1	m-Nitrotoluene	BSP	REC	90	%	73-125
OP80038-BS	99-99-0	p-Nitrotoluene	BSP	REC	90	%	71-127
OP80038-BS	479-45-8	Tetryl	BSP	REC	82	%	64-128
OP80038-BS	99-35-4	1,3,5-Trinitrobenzene	BSP	REC	90	%	73-125
OP80038-BS	118-96-7	2,4,6-Trinitrotoluene	BSP	REC	88	%	71-123
OP80038-BS	55-63-0	Nitroglycerine	BSP	REC	86	%	74-127
OP80038-BS	78-11-5	PETN	BSP	REC	102	%	73-127
OP80038-MS	2691-41-0	HMX	MS	REC	106	%	65-135
OP80038-MS	121-82-4	RDX	MS	REC	93	%	68-130
OP80038-MS		DNX	MS	REC	106	%	66-119
OP80038-MS		MNX	MS	REC	97	%	57-132
OP80038-MS	618-87-1	3,5-Dinitroaniline	MS	REC	96	%	71-117
OP80038-MS	99-65-0	1,3-Dinitrobenzene	MS	REC	95	%	78-120
OP80038-MS	606-20-2	2,6-Dinitrotoluene	MS	REC	144	%	77-127
OP80038-MS	121-14-2	2,4-Dinitrotoluene	MS	REC	87	%	78-120
OP80038-MS	35572-78-2	2-amino-4,6-Dinitrotoluene	MS	REC	100	%	79-120
OP80038-MS	19406-51-0	4-amino-2,6-Dinitrotoluene	MS	REC	97	%	76-125
OP80038-MS	98-95-3	Nitrobenzene	MS	REC	90	%	65-134
OP80038-MS	88-72-2	o-Nitrotoluene	MS	REC	77	%	70-127
OP80038-MS	99-08-1	m-Nitrotoluene	MS	REC	95	%	73-125
OP80038-MS	99-99-0	p-Nitrotoluene	MS	REC	90	%	71-127
OP80038-MS	479-45-8	Tetryl	MS	REC	77	%	64-128
OP80038-MS	99-35-4	1,3,5-Trinitrobenzene	MS	REC	98	%	73-125

* Sample used for QC is not from job FA74617

QC Evaluation: DOD QSM5.x Limits

Job Number: FA74617
Account: Weston Solutions, Inc
Project: Radford AAP; VA
Collected: 04/28/20

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
OP80038-MS	118-96-7	2,4,6-Trinitrotoluene	MS	REC	96	%	71-123
OP80038-MS	55-63-0	Nitroglycerine	MS	REC	82	%	74-127
OP80038-MS	78-11-5	PETN	MS	REC	107	%	73-127
OP80038-MSD	2691-41-0	HMX	MSD	REC	107	%	65-135
OP80038-MSD	2691-41-0	HMX	MSD	RPD	0	%	20
OP80038-MSD	121-82-4	RDX	MSD	REC	94	%	68-130
OP80038-MSD	121-82-4	RDX	MSD	RPD	1	%	20
OP80038-MSD		DNX	MSD	REC	107	%	66-119
OP80038-MSD		DNX	MSD	RPD	1	%	20
OP80038-MSD		MNX	MSD	REC	98	%	57-132
OP80038-MSD		MNX	MSD	RPD	1	%	20
OP80038-MSD	618-87-1	3,5-Dinitroaniline	MSD	REC	96	%	71-117
OP80038-MSD	618-87-1	3,5-Dinitroaniline	MSD	RPD	0	%	20
OP80038-MSD	99-65-0	1,3-Dinitrobenzene	MSD	REC	96	%	78-120
OP80038-MSD	99-65-0	1,3-Dinitrobenzene	MSD	RPD	1	%	20
OP80038-MSD	606-20-2	2,6-Dinitrotoluene	MSD	REC	145	%	77-127
OP80038-MSD	606-20-2	2,6-Dinitrotoluene	MSD	RPD	1	%	20
OP80038-MSD	121-14-2	2,4-Dinitrotoluene	MSD	REC	89	%	78-120
OP80038-MSD	121-14-2	2,4-Dinitrotoluene	MSD	RPD	2	%	20
OP80038-MSD	35572-78-2	2-amino-4,6-Dinitrotoluene	MSD	REC	101	%	79-120
OP80038-MSD	35572-78-2	2-amino-4,6-Dinitrotoluene	MSD	RPD	1	%	20
OP80038-MSD	19406-51-0	4-amino-2,6-Dinitrotoluene	MSD	REC	97	%	76-125
OP80038-MSD	19406-51-0	4-amino-2,6-Dinitrotoluene	MSD	RPD	0	%	20
OP80038-MSD	98-95-3	Nitrobenzene	MSD	REC	89	%	65-134
OP80038-MSD	98-95-3	Nitrobenzene	MSD	RPD	1	%	20
OP80038-MSD	88-72-2	o-Nitrotoluene	MSD	REC	80	%	70-127
OP80038-MSD	88-72-2	o-Nitrotoluene	MSD	RPD	4	%	20
OP80038-MSD	99-08-1	m-Nitrotoluene	MSD	REC	100	%	73-125
OP80038-MSD	99-08-1	m-Nitrotoluene	MSD	RPD	5	%	20
OP80038-MSD	99-99-0	p-Nitrotoluene	MSD	REC	93	%	71-127
OP80038-MSD	99-99-0	p-Nitrotoluene	MSD	RPD	2	%	20
OP80038-MSD	479-45-8	Tetryl	MSD	REC	83	%	64-128
OP80038-MSD	479-45-8	Tetryl	MSD	RPD	8	%	20
OP80038-MSD	99-35-4	1,3,5-Trinitrobenzene	MSD	REC	101	%	73-125
OP80038-MSD	99-35-4	1,3,5-Trinitrobenzene	MSD	RPD	2	%	20
OP80038-MSD	118-96-7	2,4,6-Trinitrotoluene	MSD	REC	99	%	71-123
OP80038-MSD	118-96-7	2,4,6-Trinitrotoluene	MSD	RPD	2	%	20
OP80038-MSD	55-63-0	Nitroglycerine	MSD	REC	75	%	74-127
OP80038-MSD	55-63-0	Nitroglycerine	MSD	RPD	9	%	20
OP80038-MSD	78-11-5	PETN	MSD	REC	99	%	73-127
OP80038-MSD	78-11-5	PETN	MSD	RPD	8	%	20

(a) Outside control limits due to high level in sample relative to spike amount.

* Sample used for QC is not from job FA74617

MS Semi-volatiles

6

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Internal Standard Area Summaries
- Initial and Continuing Calibration Summaries
- Run Sequence Reports

Method Blank Summary

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP80016-MB	Q69803.D	1	04/30/20	MRE	04/30/20	OP80016	SQ1575

The QC reported here applies to the following samples: **Method:** SW846 6850

FA74617-1, FA74617-2, FA74617-3, FA74617-4, FA74617-5

CAS No.	Compound	Result	RL	MDL	Units	Q
14797-73-0	Perchlorate	ND	0.20	0.050	ug/l	

Blank Spike Summary

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP80016-BS	Q69802.D	1	04/30/20	MRE	04/30/20	OP80016	SQ1575

The QC reported here applies to the following samples: **Method:** SW846 6850

FA74617-1, FA74617-2, FA74617-3, FA74617-4, FA74617-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
14797-73-0	Perchlorate	0.2	0.18	90	80-120

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP80016-MS2	Q69823.D	1	04/30/20	MRE	04/30/20	OP80016	SQ1575
OP80016-MSD2	Q69824.D	1	04/30/20	MRE	04/30/20	OP80016	SQ1575
FA74617-4	Q69822.D	1	04/30/20	MRE	04/30/20	OP80016	SQ1575

The QC reported here applies to the following samples: **Method:** SW846 6850

FA74617-1, FA74617-2, FA74617-3, FA74617-4, FA74617-5

CAS No.	Compound	FA74617-4 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
14797-73-0	Perchlorate	0.73		0.2	0.87	70* [a]	0.2	0.85	60* [a]	2	80-120/15

(a) Outside control limits due to high level in sample relative to spike amount.

* = Outside of Control Limits.

Internal Standard Area Summary

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Check Std:	SQ1575-ICC1575	**Injection Date:**	04/30/20
Lab File ID:	Q69795.D	**Injection Time:**	16:45
Instrument ID:	GCMSQ	**Method:**	SW846 6850

	IS 1 AREA	RT
Initial Cal [a]	132156	6.43
Check Std [b]	137090	6.43
Upper Limit [c]	198234	8.43
Lower Limit [d]	66078	4.43

Lab Sample ID	IS 1 AREA	RT
OP80016-BS	145868	6.44
OP80016-MB	136125	6.44
FA74450-3	94320	6.02
OP80016-MS1	110721	5.97
OP80016-MSD1	113592	5.97
ZZZZZZ	121379	6.00
ZZZZZZ	127103	6.00
ZZZZZZ	114774	5.99

IS 1 = Cl18O4 (ISTD)

(a) Initial Cal is: SQ1575-ICC1575 Q69795.D 04/30/20 16:45. Area is AVERAGE of initial cal points.
(b) Check Std Limit = -50 to + 50% of initial cal area.
(c) Upper Limit = + 50% of initial standard area; Retention time + 2 minutes of check standard.
(d) Lower Limit = -50% of initial standard area; Retention time -2 minutes of check standard.

Internal Standard Area Summary

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Check Std:	SQ1575-CC1575	**Injection Date:**	04/30/20
Lab File ID:	Q69812.D	**Injection Time:**	19:18
Instrument ID:	GCMSQ	**Method:**	SW846 6850

	IS 1 AREA	RT
Initial Cal [a]	132156	6.43
Check Std [b]	178285	6.40
Upper Limit [c]	198234	8.40
Lower Limit [d]	66078	4.40

Lab Sample ID	IS 1 AREA	RT
ZZZZZZ	111221	6.23
ZZZZZZ	117045	6.11
ZZZZZZ	119108	6.06
ZZZZZZ	90413	5.75
FA74617-1	131160	6.12
FA74617-2	125636	6.12
FA74617-3	119193	5.99
FA74617-4	115134	6.03
OP80016-MS2	123443	6.03
OP80016-MSD2	125084	6.03

IS 1 = Cl18O4 (ISTD)

(a) Initial Cal is: SQ1575-ICC1575 Q69795.D 04/30/20 16:45. Area is AVERAGE of initial cal points.
(b) Check Std Limit = -50 to + 50% of initial cal area.
(c) Upper Limit = + 50% of initial standard area; Retention time + 2 minutes of check standard.
(d) Lower Limit = -50% of initial standard area; Retention time -2 minutes of check standard.

Internal Standard Area Summary

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Check Std:	SQ1575-CC1575	**Injection Date:**	04/30/20
Lab File ID:	Q69825.D	**Injection Time:**	21:14
Instrument ID:	GCMSQ	**Method:**	SW846 6850

	IS 1 AREA	RT
Initial Cal [a]	132156	6.43
Check Std [b]	141606	6.37
Upper Limit [c]	198234	8.37
Lower Limit [d]	66078	4.37

Lab Sample ID	IS 1 AREA	RT
FA74617-5	100140	6.05
ZZZZZZ	128836	6.08

IS 1 = Cl18O4 (ISTD)

(a) Initial Cal is: SQ1575-ICC1575 Q69795.D 04/30/20 16:45. Area is AVERAGE of initial cal points.
(b) Check Std Limit = -50 to + 50% of initial cal area.
(c) Upper Limit = + 50% of initial standard area; Retention time + 2 minutes of check standard.
(d) Lower Limit = -50% of initial standard area; Retention time -2 minutes of check standard.

Initial Calibration Summary

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: SQ1575-ICC1575
Lab FileID: Q69795.D

Initial Calibration Report

Method Path	D:\MassHunter\Methods
Method File	6850_040920_SQ1564.quantmethod.xml
Batch Name	D:\MassHunter\Data\0430_6850_SQ1575\QuantResults\sq1575.batch.bin
Last Calib Update	5/1/2020 9:56:21 AM

Level Name	Calibration Files	Acq. Date-Time	Level Last Update Time
1	D:\MassHunter\Data\0430_6850_SQ1575\Q69792.d	4/30/2020 4:18:43 PM	5/1/2020 9:56:21 AM
2	D:\MassHunter\Data\0430_6850_SQ1575\Q69793.d	4/30/2020 4:27:40 PM	5/1/2020 9:56:21 AM
3	D:\MassHunter\Data\0430_6850_SQ1575\Q69794.d	4/30/2020 4:36:37 PM	5/1/2020 9:56:21 AM
4	D:\MassHunter\Data\0430_6850_SQ1575\Q69795.d	4/30/2020 4:45:34 PM	5/1/2020 9:56:21 AM
5	D:\MassHunter\Data\0430_6850_SQ1575\Q69796.d	4/30/2020 4:54:32 PM	5/1/2020 9:56:21 AM
6	D:\MassHunter\Data\0430_6850_SQ1575\Q69797.d	4/30/2020 5:03:29 PM	5/1/2020 9:56:21 AM
7	D:\MassHunter\Data\0430_6850_SQ1575\Q69798.d	4/30/2020 5:12:28 PM	5/1/2020 9:56:21 AM
8	D:\MassHunter\Data\0430_6850_SQ1575\Q69799.d	4/30/2020 5:21:28 PM	5/1/2020 9:56:21 AM

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I Cl18O4		---------- ISTD ----------									
T Perchlorate	Quadratic	1.3178	1.2657	1.2492	1.2908	1.3541	1.4590	1.4514	1.5201	1.3635	7.410

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Generated at 9:57 AM on 5/1/2020

Initial Calibration Summary

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: SQ1575-ICC1575
Lab FileID: Q69795.D

Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	Curve Fit R2
T Perchlorate	Quadratic	y = 0.012689 * x ^ 2 + 1.392823 * x	0.999936

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Generated at 9:57 AM on 5/1/2020

Initial Calibration Verification

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: SQ1575-ICV1575
Lab FileID: Q69800.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0430_6850_SQ1575\sq1575.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0430_6850_SQ1575\Q69792.d
2:D:\MassHunter\Data\0430_6850_SQ1575\Q69793.d
3:D:\MassHunter\Data\0430_6850_SQ1575\Q69794.d
4:D:\MassHunter\Data\0430_6850_SQ1575\Q69795.d
5:D:\MassHunter\Data\0430_6850_SQ1575\Q69796.d
6:D:\MassHunter\Data\0430_6850_SQ1575\Q69797.d
7:D:\MassHunter\Data\0430_6850_SQ1575\Q69798.d
8:D:\MassHunter\Data\0430_6850_SQ1575\Q69799.d

Data File: Q69800
Type : QC
Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
Cl18O4	---	--ISTD--		
Perchlorate	2.000	1.856	-7.2	92.8

CC Criteria: +/- 15%

Continuing Calibration Summary

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: SQ1575-CC1575
Lab FileID: Q69812.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0430_6850_SQ1575\sq1575.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0430_6850_SQ1575\Q69792.d
2:D:\MassHunter\Data\0430_6850_SQ1575\Q69793.d
3:D:\MassHunter\Data\0430_6850_SQ1575\Q69794.d
4:D:\MassHunter\Data\0430_6850_SQ1575\Q69795.d
5:D:\MassHunter\Data\0430_6850_SQ1575\Q69796.d
6:D:\MassHunter\Data\0430_6850_SQ1575\Q69797.d
7:D:\MassHunter\Data\0430_6850_SQ1575\Q69798.d
8:D:\MassHunter\Data\0430_6850_SQ1575\Q69799.d

Data File: Q69812
Type : QC
Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
Cl18O4	---	--ISTD--		
Perchlorate	2.000	1.839	-8.0	92.0

CC Criteria: +/- 15%

Continuing Calibration Summary

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: SQ1575-CC1575
Lab FileID: Q69813.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0430_6850_SQ1575\sq1575.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0430_6850_SQ1575\Q69792.d
2:D:\MassHunter\Data\0430_6850_SQ1575\Q69793.d
3:D:\MassHunter\Data\0430_6850_SQ1575\Q69794.d
4:D:\MassHunter\Data\0430_6850_SQ1575\Q69795.d
5:D:\MassHunter\Data\0430_6850_SQ1575\Q69796.d
6:D:\MassHunter\Data\0430_6850_SQ1575\Q69797.d
7:D:\MassHunter\Data\0430_6850_SQ1575\Q69798.d
8:D:\MassHunter\Data\0430_6850_SQ1575\Q69799.d

Data File: Q69813
Type : QC
Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
Cl18O4	---	--ISTD--		
Perchlorate	0.200	0.184	-8.2	91.8

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: SQ1575-CC1575
Lab FileID: Q69825.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0430_6850_SQ1575\sq1575.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0430_6850_SQ1575\Q69792.d
2:D:\MassHunter\Data\0430_6850_SQ1575\Q69793.d
3:D:\MassHunter\Data\0430_6850_SQ1575\Q69794.d
4:D:\MassHunter\Data\0430_6850_SQ1575\Q69795.d
5:D:\MassHunter\Data\0430_6850_SQ1575\Q69796.d
6:D:\MassHunter\Data\0430_6850_SQ1575\Q69797.d
7:D:\MassHunter\Data\0430_6850_SQ1575\Q69798.d
8:D:\MassHunter\Data\0430_6850_SQ1575\Q69799.d

Data File: Q69825
Type : QC
Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
Cl18O4	---	--ISTD--		
Perchlorate	2.000	1.830	-8.5	91.5

CC Criteria: +/- 15%

Continuing Calibration Summary

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: SQ1575-CC1575
Lab FileID: Q69826.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0430_6850_SQ1575\sq1575.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0430_6850_SQ1575\Q69792.d
2:D:\MassHunter\Data\0430_6850_SQ1575\Q69793.d
3:D:\MassHunter\Data\0430_6850_SQ1575\Q69794.d
4:D:\MassHunter\Data\0430_6850_SQ1575\Q69795.d
5:D:\MassHunter\Data\0430_6850_SQ1575\Q69796.d
6:D:\MassHunter\Data\0430_6850_SQ1575\Q69797.d
7:D:\MassHunter\Data\0430_6850_SQ1575\Q69798.d
8:D:\MassHunter\Data\0430_6850_SQ1575\Q69799.d

Data File: Q69826
Type : QC
Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
Cl18O4	---	--ISTD--		
Perchlorate	0.200	0.182	-9.1	90.9

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: SQ1575-CC1575
Lab FileID: Q69830.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0430_6850_SQ1575\sq1575.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0430_6850_SQ1575\Q69792.d
2:D:\MassHunter\Data\0430_6850_SQ1575\Q69793.d
3:D:\MassHunter\Data\0430_6850_SQ1575\Q69794.d
4:D:\MassHunter\Data\0430_6850_SQ1575\Q69795.d
5:D:\MassHunter\Data\0430_6850_SQ1575\Q69796.d
6:D:\MassHunter\Data\0430_6850_SQ1575\Q69797.d
7:D:\MassHunter\Data\0430_6850_SQ1575\Q69798.d
8:D:\MassHunter\Data\0430_6850_SQ1575\Q69799.d

Data File: Q69830
Type : QC
Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
Cl18O4	---	--ISTD--		
Perchlorate	2.000	1.847	-7.7	92.3

CC Criteria: +/- 15%

Run Sequence Report

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Run ID: SQ1575	**Method:** SW846 6850	**Instrument ID:** GCMSQ

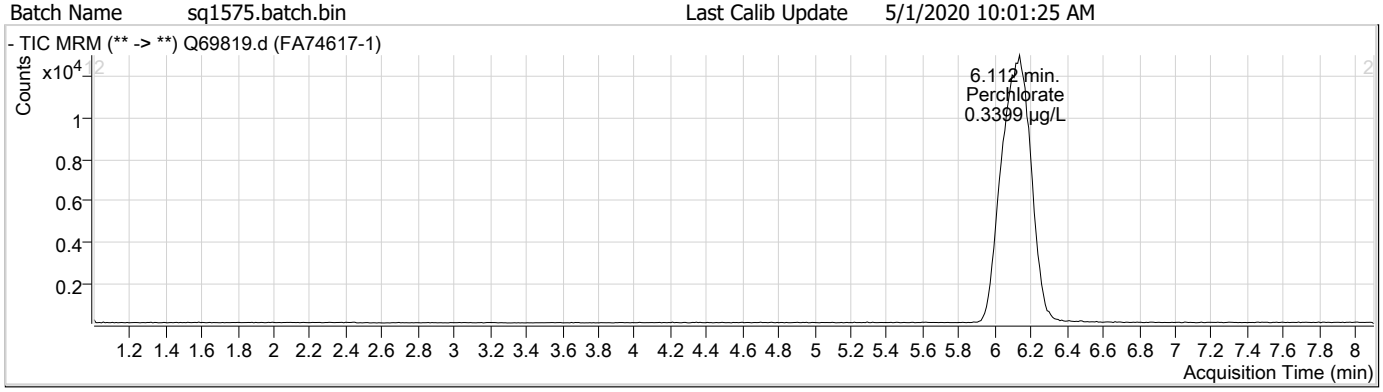
Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
SQ1575-IC1575	Q69792.D	04/30/20 16:18	n/a	Initial cal 0.2
SQ1575-IC1575	Q69793.D	04/30/20 16:27	n/a	Initial cal 0.5
SQ1575-IC1575	Q69794.D	04/30/20 16:36	n/a	Initial cal 1.0
SQ1575-ICC1575	Q69795.D	04/30/20 16:45	n/a	Initial cal 2.0
SQ1575-IC1575	Q69796.D	04/30/20 16:54	n/a	Initial cal 5
SQ1575-IC1575	Q69797.D	04/30/20 17:03	n/a	Initial cal 10
SQ1575-IC1575	Q69798.D	04/30/20 17:12	n/a	Initial cal 25
SQ1575-IC1575	Q69799.D	04/30/20 17:21	n/a	Initial cal 50
SQ1575-ICV1575	Q69800.D	04/30/20 17:30	n/a	Initial cal verification 2
OP80016-BS	Q69802.D	04/30/20 17:48	OP80016	Blank Spike
OP80016-MB	Q69803.D	04/30/20 17:57	OP80016	Method Blank
FA74450-3	Q69804.D	04/30/20 18:06	OP80016	(used for QC only; not part of job FA74617)
OP80016-MS1	Q69805.D	04/30/20 18:15	OP80016	Matrix Spike
OP80016-MSD1	Q69806.D	04/30/20 18:24	OP80016	Matrix Spike Duplicate
ZZZZZZ	Q69807.D	04/30/20 18:33	OP80016	(unrelated sample)
ZZZZZZ	Q69808.D	04/30/20 18:42	OP80016	(unrelated sample)
ZZZZZZ	Q69811.D	04/30/20 19:09	OP80016	(unrelated sample)
SQ1575-CC1575	Q69812.D	04/30/20 19:18	n/a	Continuing cal 2.0
SQ1575-CC1575	Q69813.D	04/30/20 19:27	n/a	Continuing cal 0.2
ZZZZZZ	Q69815.D	04/30/20 19:44	OP80016	(unrelated sample)
ZZZZZZ	Q69816.D	04/30/20 19:53	OP80016	(unrelated sample)
ZZZZZZ	Q69817.D	04/30/20 20:02	OP80016	(unrelated sample)
ZZZZZZ	Q69818.D	04/30/20 20:11	OP80016	(unrelated sample)
FA74617-1	Q69819.D	04/30/20 20:20	OP80016	54MW13
FA74617-2	Q69820.D	04/30/20 20:29	OP80016	54TW13
FA74617-3	Q69821.D	04/30/20 20:38	OP80016	54MW10
FA74617-4	Q69822.D	04/30/20 20:47	OP80016	54MW12
OP80016-MS2	Q69823.D	04/30/20 20:56	OP80016	Matrix Spike
OP80016-MSD2	Q69824.D	04/30/20 21:05	OP80016	Matrix Spike Duplicate
SQ1575-CC1575	Q69825.D	04/30/20 21:14	n/a	Continuing cal 2.0
SQ1575-CC1575	Q69826.D	04/30/20 21:23	n/a	Continuing cal 0.2
FA74617-5	Q69828.D	04/30/20 21:41	OP80016	54MW1
ZZZZZZ	Q69829.D	04/30/20 21:50	OP80016	(unrelated sample)
SQ1575-CC1575	Q69830.D	04/30/20 21:59	n/a	Continuing cal 2.0
SQ1575-ECC1575	Q69831.D	04/30/20 22:08	n/a	Ending cal 0.2

MS Semi-volatiles

Raw Data

Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q69819.d	Operator	MIKEE
Acq. Method	Perchlorate2.m	Acq. Date-Time	4/30/2020 8:20:51 PM
Sample Name	FA74617-1	Instrument	Instrument 1
Vial	Vial 26	Multiplier	1.00
DA Method File	6850_040920_SQ1564.quantmethod.xml	Comment	
Batch Name	sq1575.batch.bin	Last Calib Update	5/1/2020 10:01:25 AM

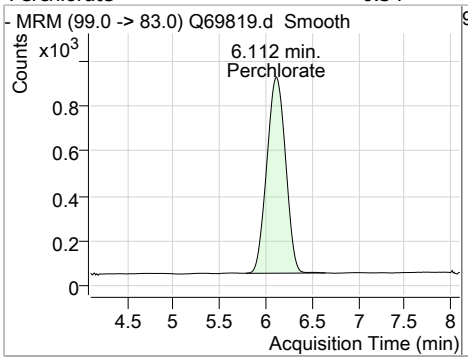


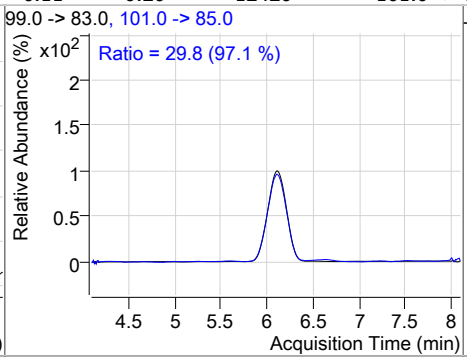
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.125	107.0 -> 89.0	131160	NoQ	5.00	µg/L	-0.275
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.112	99.0 -> 83.0	12426	3.4	0.34	µg/L	98

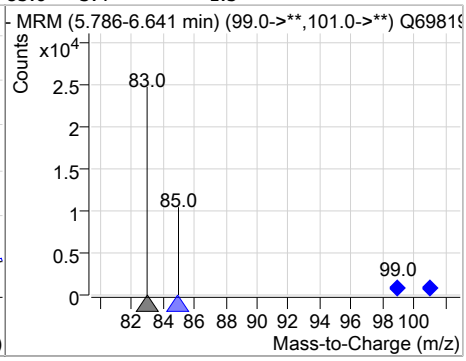
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.34	6.11	-0.26	12426	101.0 -> 85.0	3.4	1.5	

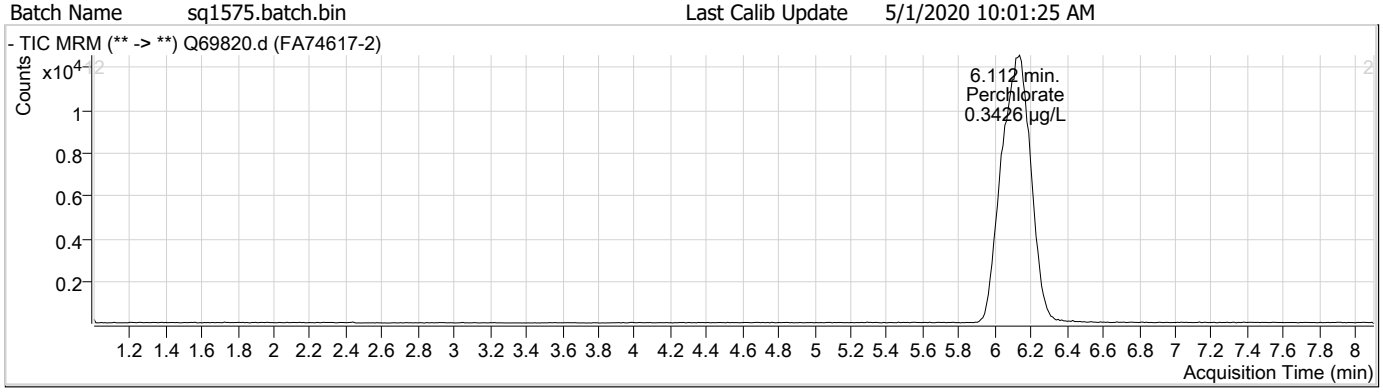






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q69820.d	Operator	MIKEE
Acq. Method	Perchlorate2.m	Acq. Date-Time	4/30/2020 8:29:50 PM
Sample Name	FA74617-2	Instrument	Instrument 1
Vial	Vial 27	Multiplier	1.00
DA Method File	6850_040920_SQ1564.quantmethod.xml	Comment	
Batch Name	sq1575.batch.bin	Last Calib Update	5/1/2020 10:01:25 AM

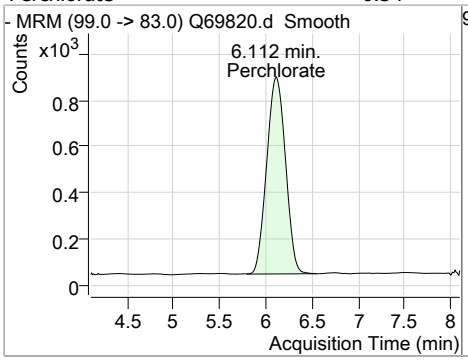


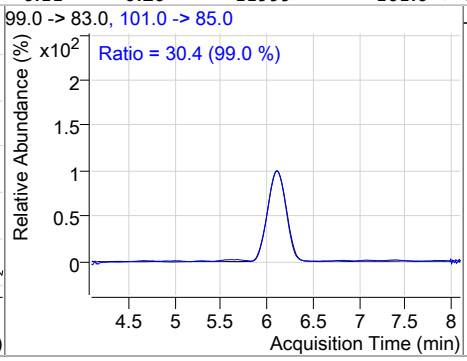
Compound	RT	QIon	Resp.	Q-ratio	Conc. Units	Dev(Min)
Internal Standards						
Cl18O4	6.125	107.0 -> 89.0	125636	NoQ	5.00 µg/L	-0.275
System Monitoring Compounds						
Target Compounds						**QValue**
Perchlorate	6.112	99.0 -> 83.0	11999	3.3	0.34 µg/L	99

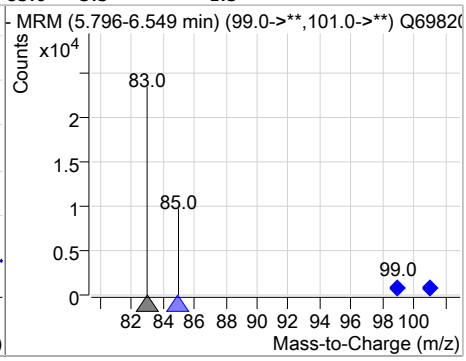
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.34	6.11	-0.26	11999	101.0 -> 85.0	3.3	1.5	

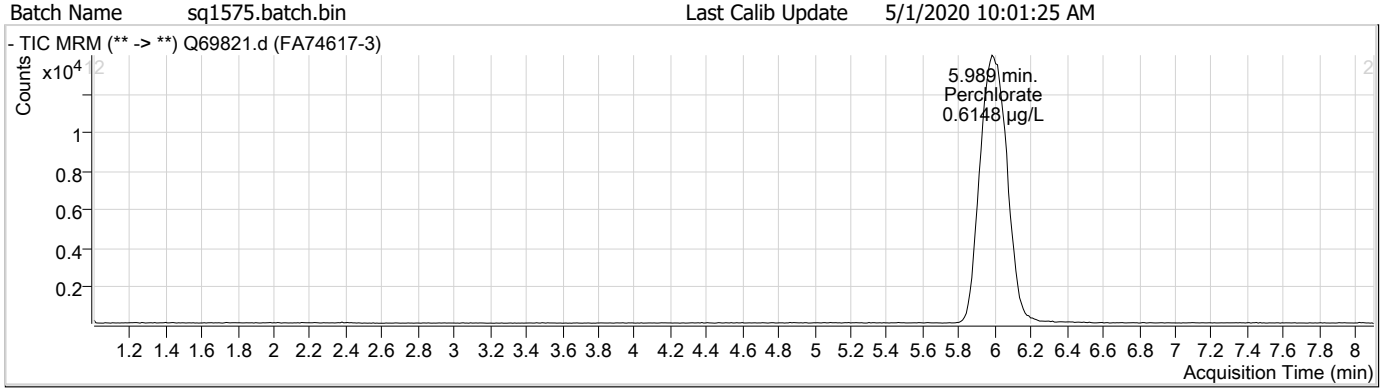






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q69821.d	Operator	MIKEE
Acq. Method	Perchlorate2.m	Acq. Date-Time	4/30/2020 8:38:48 PM
Sample Name	FA74617-3	Instrument	Instrument 1
Vial	Vial 28	Multiplier	1.00
DA Method File	6850_040920_SQ1564.quantmethod.xml	Comment	
Batch Name	sq1575.batch.bin	Last Calib Update	5/1/2020 10:01:25 AM

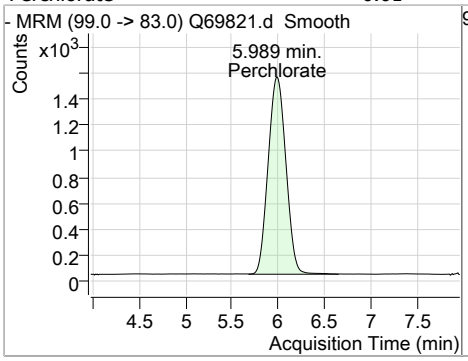


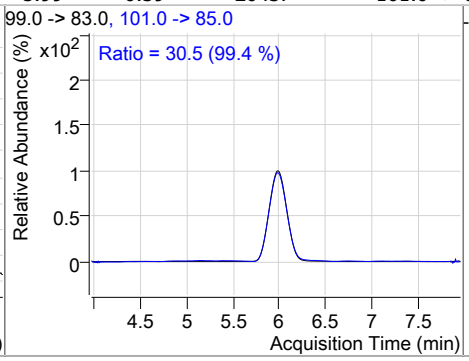
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	5.993	107.0 -> 89.0	119193	NoQ	5.00	µg/L	-0.407
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	5.989	99.0 -> 83.0	20437	3.3	0.61	µg/L	100

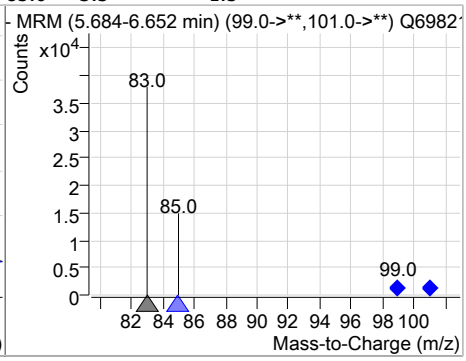
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.61	5.99	-0.39	20437	101.0 -> 85.0	3.3	1.5	

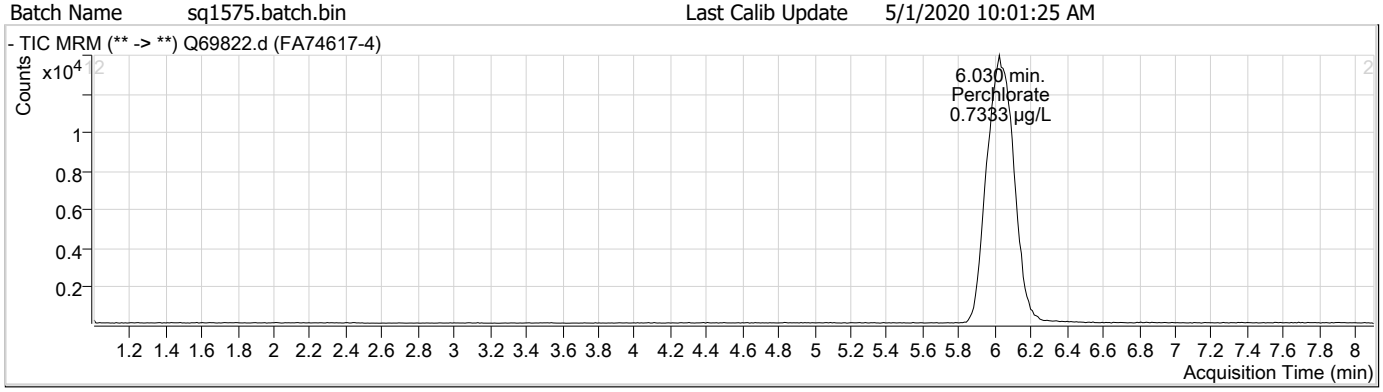






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q69822.d	Operator	MIKEE
Acq. Method	Perchlorate2.m	Acq. Date-Time	4/30/2020 8:47:48 PM
Sample Name	FA74617-4	Instrument	Instrument 1
Vial	Vial 29	Multiplier	1.00
DA Method File	6850_040920_SQ1564.quantmethod.xml	Comment	
Batch Name	sq1575.batch.bin	Last Calib Update	5/1/2020 10:01:25 AM

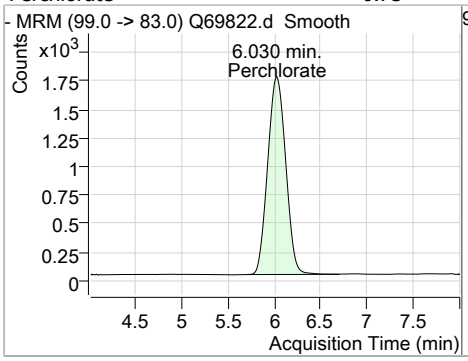


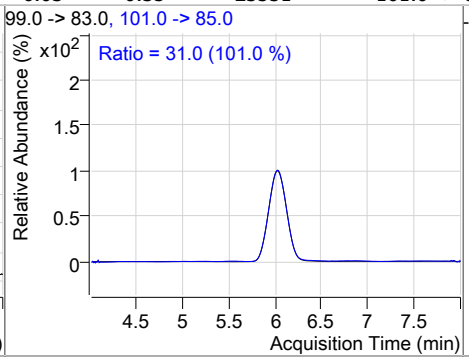
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.034	107.0 -> 89.0	115134	NoQ	5.00	µg/L	-0.367
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.030	99.0 -> 83.0	23551	3.2	0.73	µg/L	99

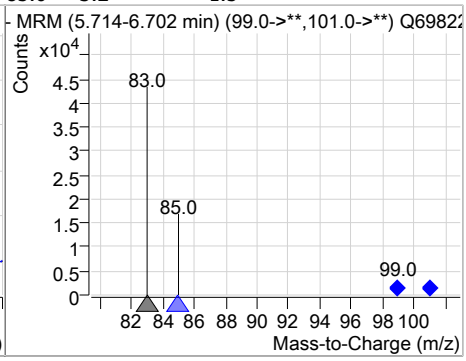
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.73	6.03	-0.35	23551	101.0 -> 85.0	3.2	1.5	

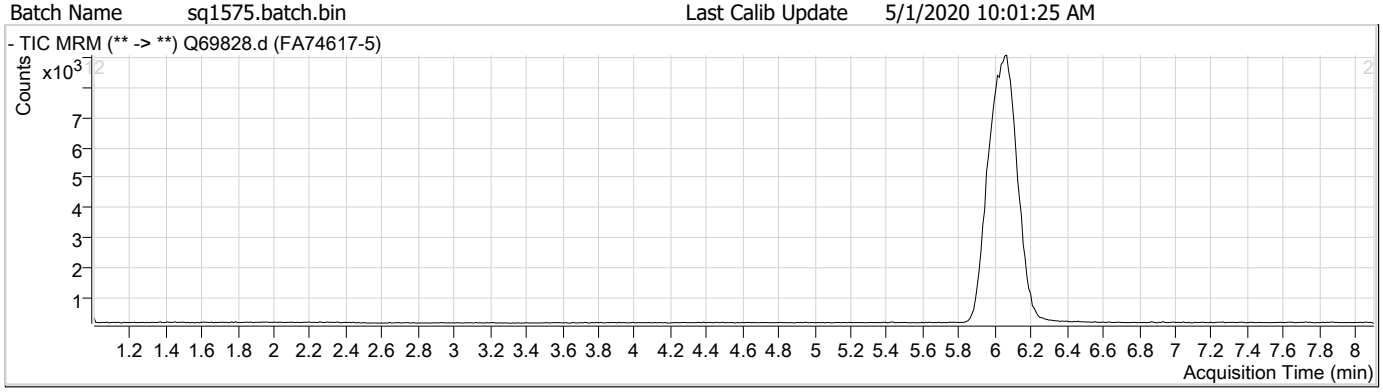






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q69828.d	Operator	MIKEE
Acq. Method	Perchlorate2.m	Acq. Date-Time	4/30/2020 9:41:32 PM
Sample Name	FA74617-5	Instrument	Instrument 1
Vial	Vial 32	Multiplier	1.00
DA Method File	6850_040920_SQ1564.quantmethod.xml	Comment	
Batch Name	sq1575.batch.bin	Last Calib Update	5/1/2020 10:01:25 AM

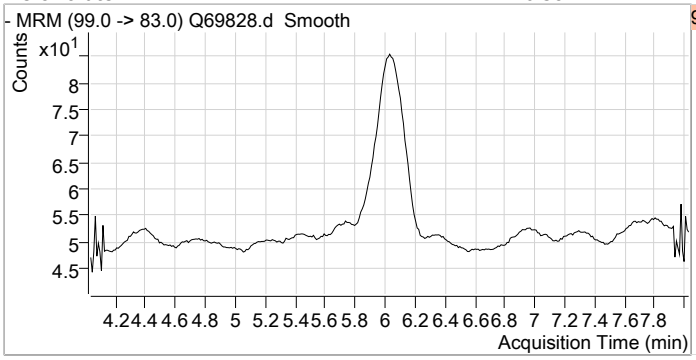


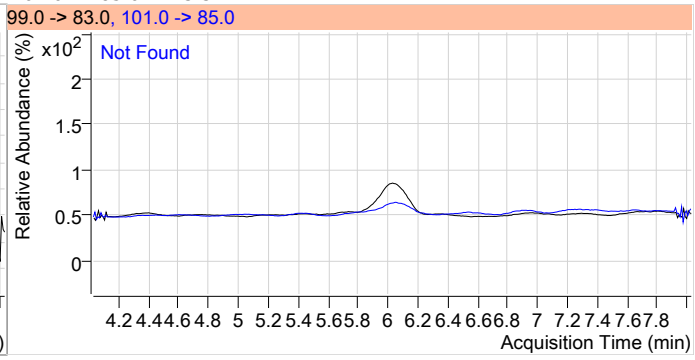
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.054	107.0 -> 89.0	100140	NoQ	5.00	µg/L	-0.346
System Monitoring Compounds							
Target Compounds							**QValue**
Perchlorate	-	99.0 -> 83.0		-	N.D.		

(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

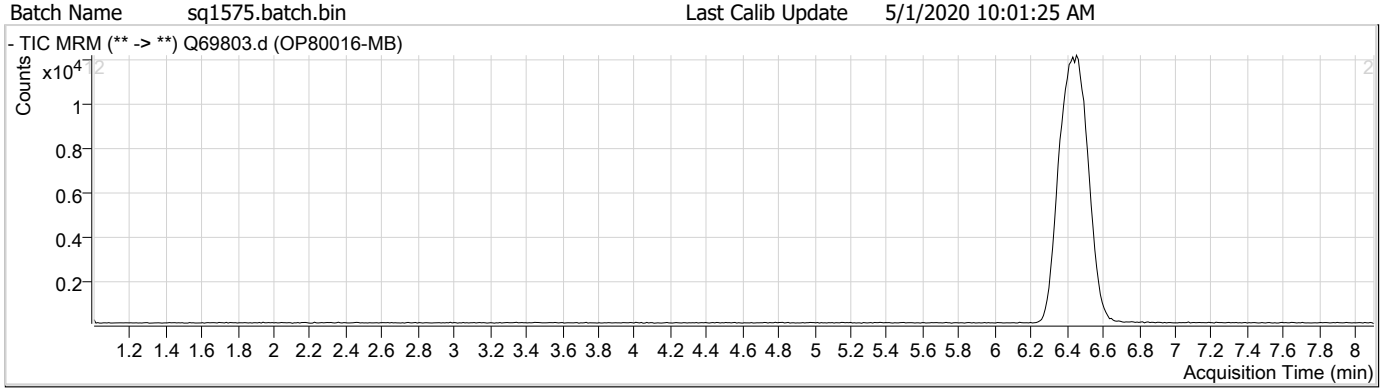
Compound	Conc.	Exp RT	QIon	Exp Ratio
Perchlorate	N.D.	6.38	101.0 -> 85.0	3.3





Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q69803.d	Operator	MIKEE
Acq. Method	Perchlorate2.m	Acq. Date-Time	4/30/2020 5:57:21 PM
Sample Name	OP80016-MB	Instrument	Instrument 1
Vial	Vial 13	Multiplier	1.00
DA Method File	6850_040920_SQ1564.quantmethod.xml	Comment	
Batch Name	sq1575.batch.bin	Last Calib Update	5/1/2020 10:01:25 AM

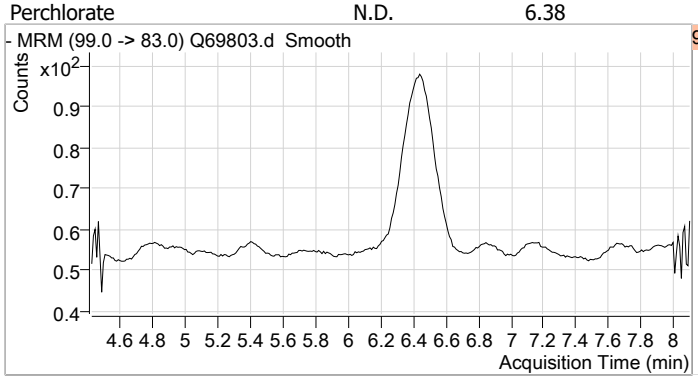


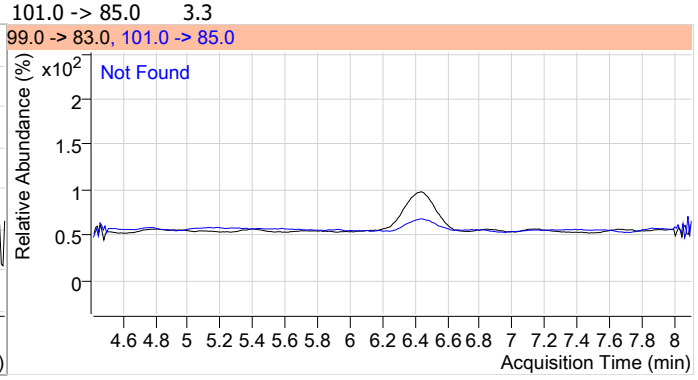
Compound	RT	QIon	Resp.	Q-ratio	Conc. Units	Dev(Min)
Internal Standards						
Cl18O4	6.441	107.0 -> 89.0	136125	NoQ	5.00 µg/L	0.041
System Monitoring Compounds						
Target Compounds						**QValue**
Perchlorate	-	99.0 -> 83.0		-	N.D.	

(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

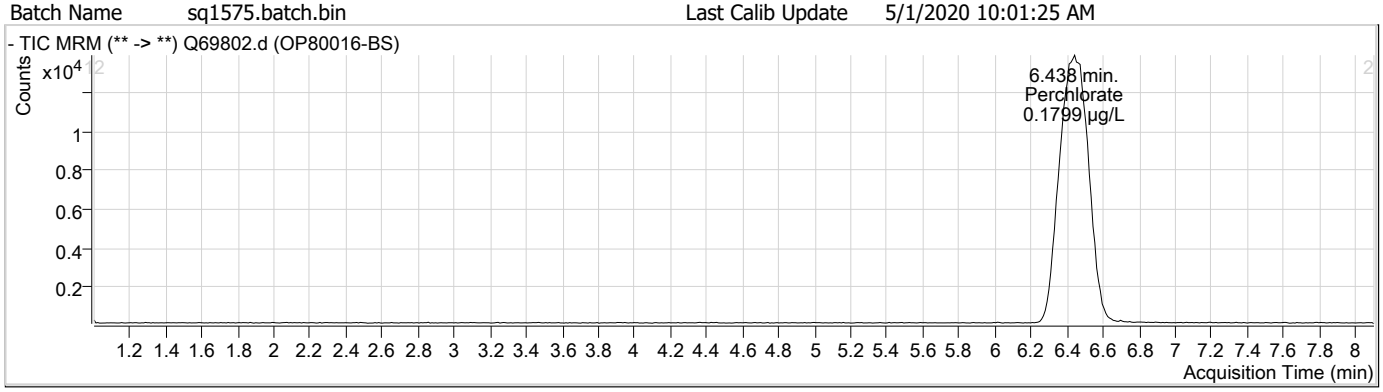
Compound	Conc.	Exp RT	QIon	Exp Ratio
Perchlorate	N.D.	6.38	101.0 -> 85.0	3.3





Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q69802.d	Operator	MIKEE
Acq. Method	Perchlorate2.m	Acq. Date-Time	4/30/2020 5:48:22 PM
Sample Name	OP80016-BS	Instrument	Instrument 1
Vial	Vial 12	Multiplier	1.00
DA Method File	6850_040920_SQ1564.quantmethod.xml	Comment	
Batch Name	sq1575.batch.bin	Last Calib Update	5/1/2020 10:01:25 AM

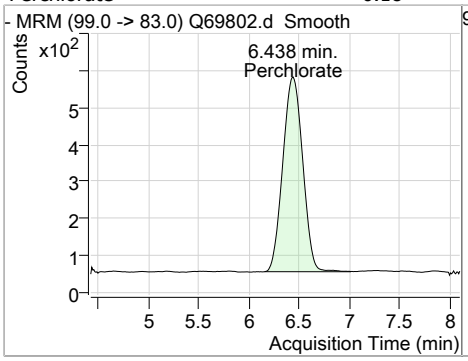


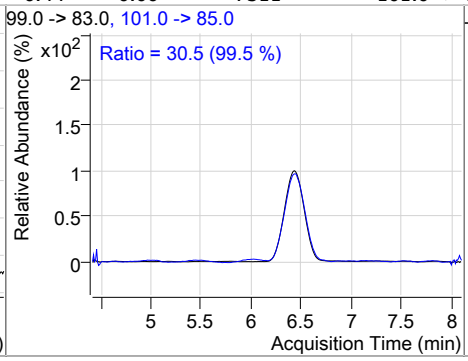
Compound	RT	QIon	Resp.	Q-ratio	Conc. Units	Dev(Min)
Internal Standards						
Cl18O4	6.441	107.0 -> 89.0	145868	NoQ	5.00 µg/L	0.041
System Monitoring Compounds						
Target Compounds						**QValue**
Perchlorate	6.438	99.0 -> 83.0	7311	3.3	0.18 µg/L	100

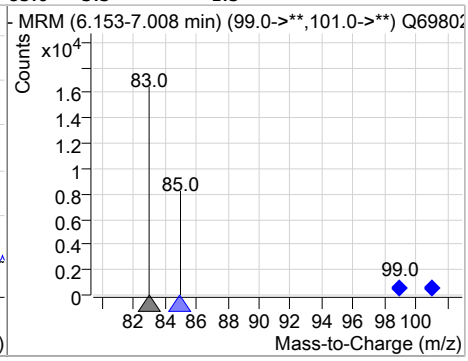
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.18	6.44	0.06	7311	101.0 -> 85.0	3.3	1.5	

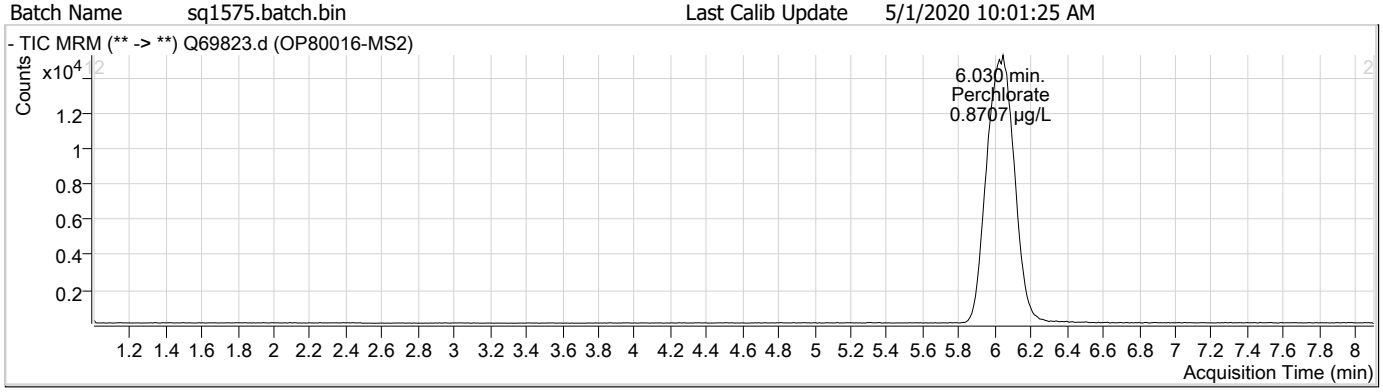






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q69823.d	Operator	MIKEE
Acq. Method	Perchlorate2.m	Acq. Date-Time	4/30/2020 8:56:45 PM
Sample Name	OP80016-MS2	Instrument	Instrument 1
Vial	Vial 30	Multiplier	1.00
DA Method File	6850_040920_SQ1564.quantmethod.xml	Comment	
Batch Name	sq1575.batch.bin	Last Calib Update	5/1/2020 10:01:25 AM

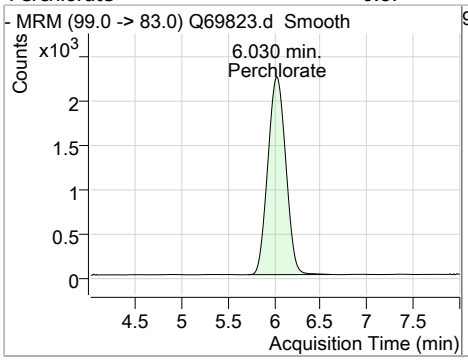


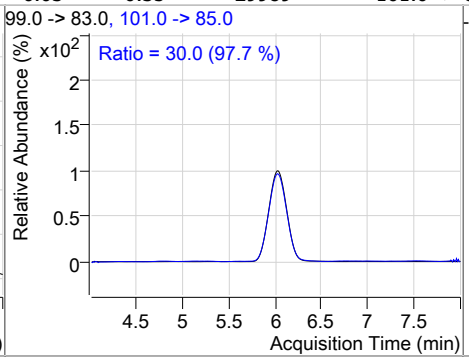
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.034	107.0 -> 89.0	123443	NoQ	5.00	µg/L	-0.367
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.030	99.0 -> 83.0	29989	3.3	0.87	µg/L	99

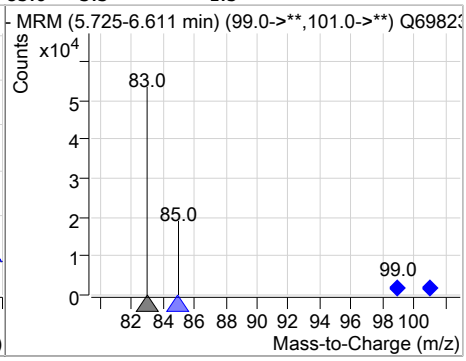
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.87	6.03	-0.35	29989	101.0 -> 85.0	3.3	1.5	

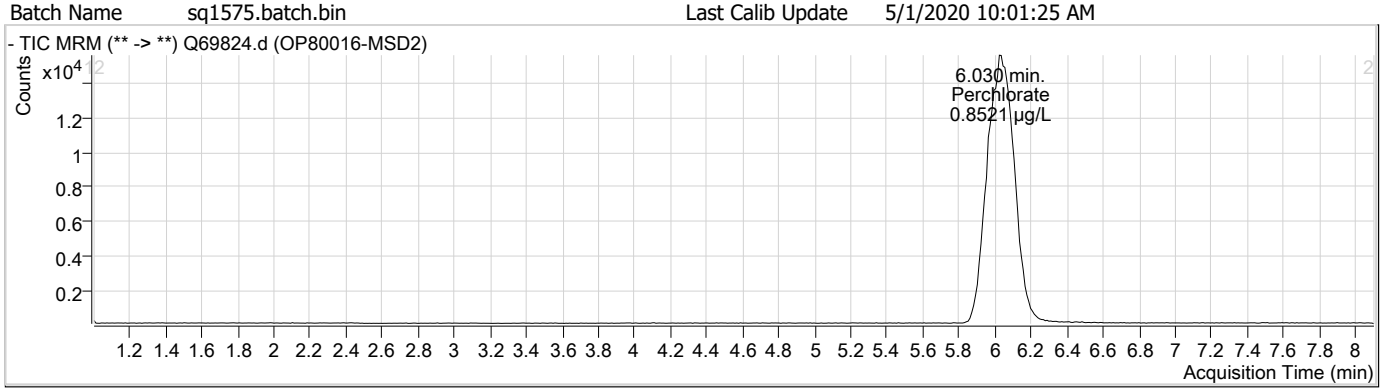






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q69824.d	Operator	MIKEE
Acq. Method	Perchlorate2.m	Acq. Date-Time	4/30/2020 9:05:44 PM
Sample Name	OP80016-MSD2	Instrument	Instrument 1
Vial	Vial 31	Multiplier	1.00
DA Method File	6850_040920_SQ1564.quantmethod.xml	Comment	
Batch Name	sq1575.batch.bin	Last Calib Update	5/1/2020 10:01:25 AM

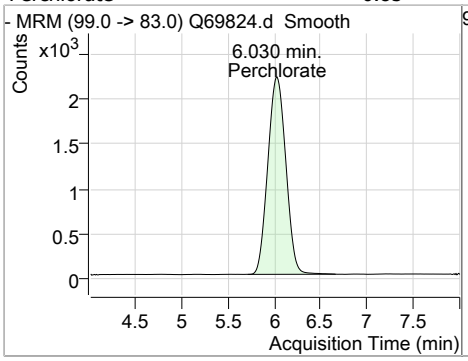


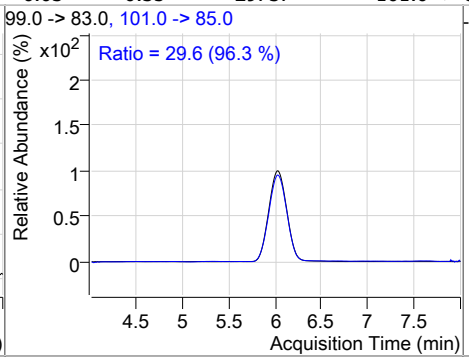
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.034	107.0 -> 89.0	125084	NoQ	5.00	µg/L	-0.367
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.030	99.0 -> 83.0	29737	3.4	0.85	µg/L	98

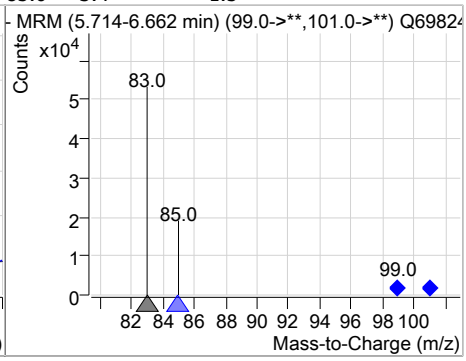
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.85	6.03	-0.35	29737	101.0 -> 85.0	3.4	1.5	

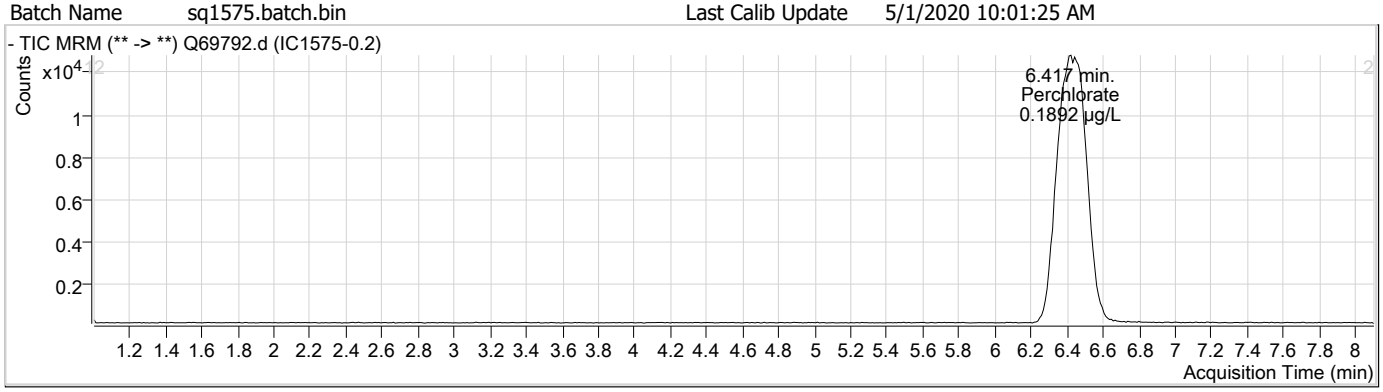






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q69792.d	Operator	MIKEE
Acq. Method	Perchlorate2.m	Acq. Date-Time	4/30/2020 4:18:43 PM
Sample Name	IC1575-0.2	Instrument	Instrument 1
Vial	Vial 2	Multiplier	1.00
DA Method File	6850_040920_SQ1564.quantmethod.xml	Comment	
Batch Name	sq1575.batch.bin	Last Calib Update	5/1/2020 10:01:25 AM

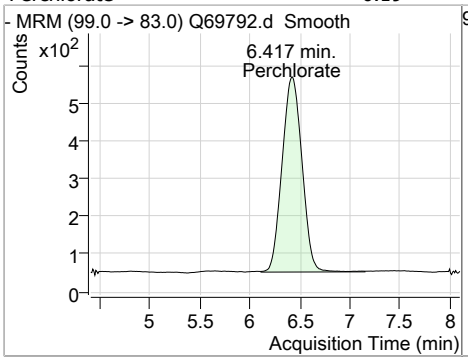


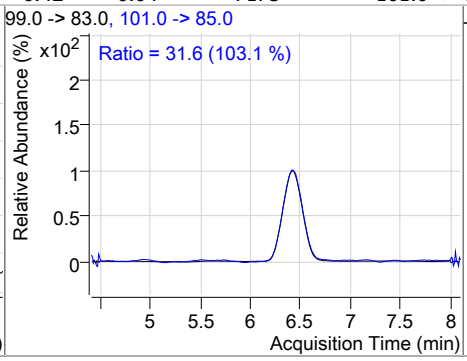
Compound	RT	QIon	Resp.	Q-ratio	Conc. Units	Dev(Min)
Internal Standards						
Cl18O4	6.431	107.0 -> 89.0	136110	NoQ	5.00 µg/L	0.031
System Monitoring Compounds						
Target Compounds						**QValue**
Perchlorate	6.417	99.0 -> 83.0	7175	3.2	0.19 µg/L	98

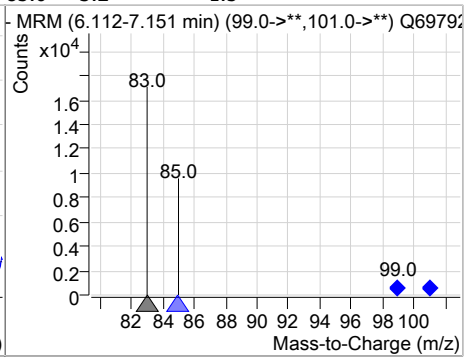
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.19	6.42	0.04	7175	101.0 -> 85.0	3.2	1.5	

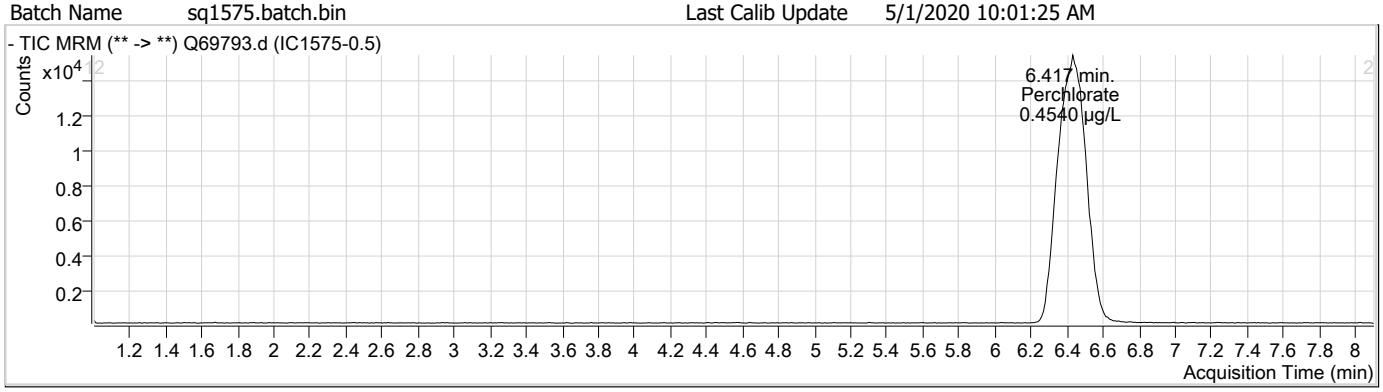






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q69793.d	Operator	MIKEE
Acq. Method	Perchlorate2.m	Acq. Date-Time	4/30/2020 4:27:40 PM
Sample Name	IC1575-0.5	Instrument	Instrument 1
Vial	Vial 3	Multiplier	1.00
DA Method File	6850_040920_SQ1564.quantmethod.xml	Comment	
Batch Name	sq1575.batch.bin	Last Calib Update	5/1/2020 10:01:25 AM

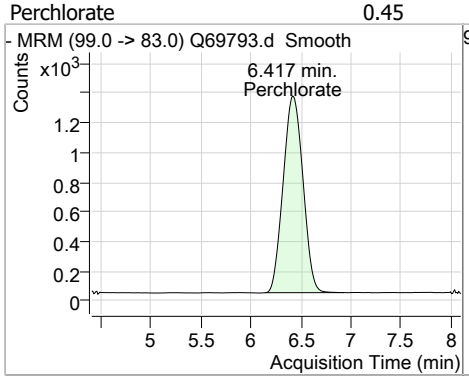


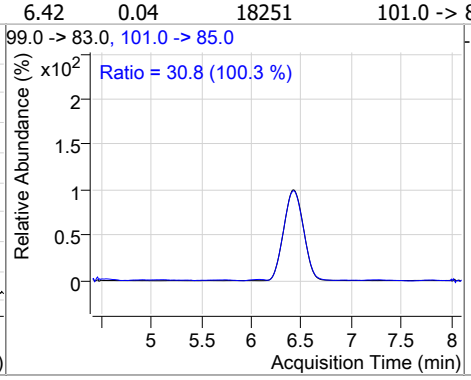
Compound	RT	QIon	Resp.	Q-ratio	Conc. Units	Dev(Min)
Internal Standards						
Cl18O4	6.431	107.0 -> 89.0	144200	NoQ	5.00 µg/L	0.031
System Monitoring Compounds						
Target Compounds						**QValue**
Perchlorate	6.417	99.0 -> 83.0	18251	3.2	0.45 µg/L	100

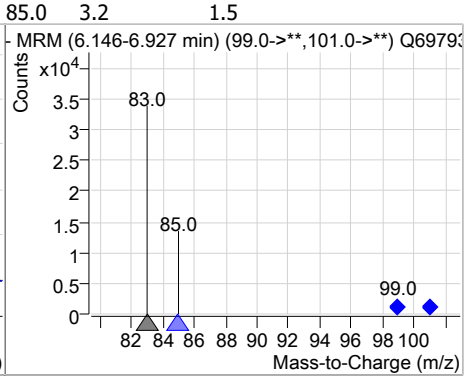
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.45	6.42	0.04	18251	101.0 -> 85.0	3.2	1.5	

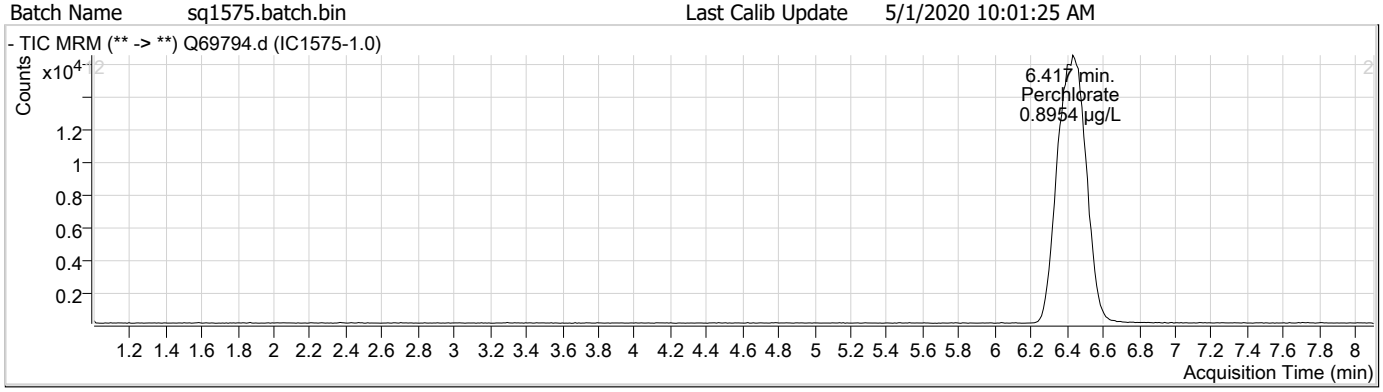






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q69794.d	Operator	MIKEE
Acq. Method	Perchlorate2.m	Acq. Date-Time	4/30/2020 4:36:37 PM
Sample Name	IC1575-1.0	Instrument	Instrument 1
Vial	Vial 4	Multiplier	1.00
DA Method File	6850_040920_SQ1564.quantmethod.xml	Comment	
Batch Name	sq1575.batch.bin	Last Calib Update	5/1/2020 10:01:25 AM

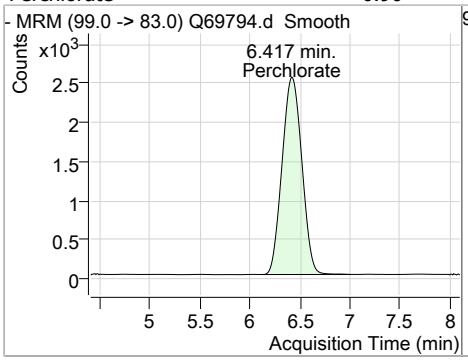


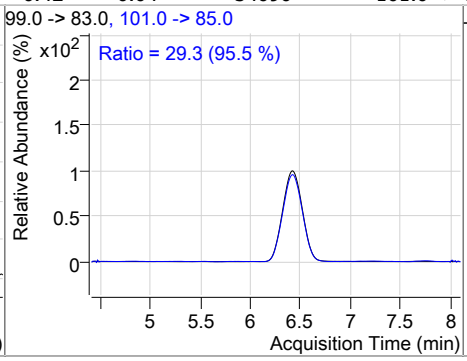
Compound	RT	QIon	Resp.	Q-ratio	Conc. Units	Dev(Min)
Internal Standards						
Cl18O4	6.431	107.0 -> 89.0	138847	NoQ	5.00 µg/L	0.031
System Monitoring Compounds						
Target Compounds						**QValue**
Perchlorate	6.417	99.0 -> 83.0	34690	3.4	0.90 µg/L	97

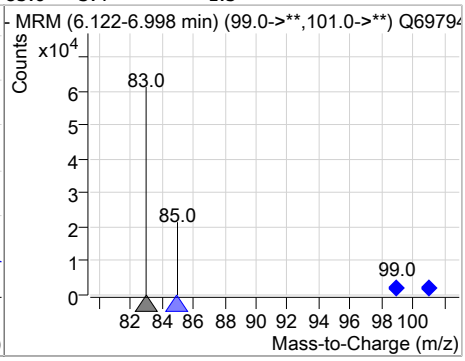
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.90	6.42	0.04	34690	101.0 -> 85.0	3.4	1.5	

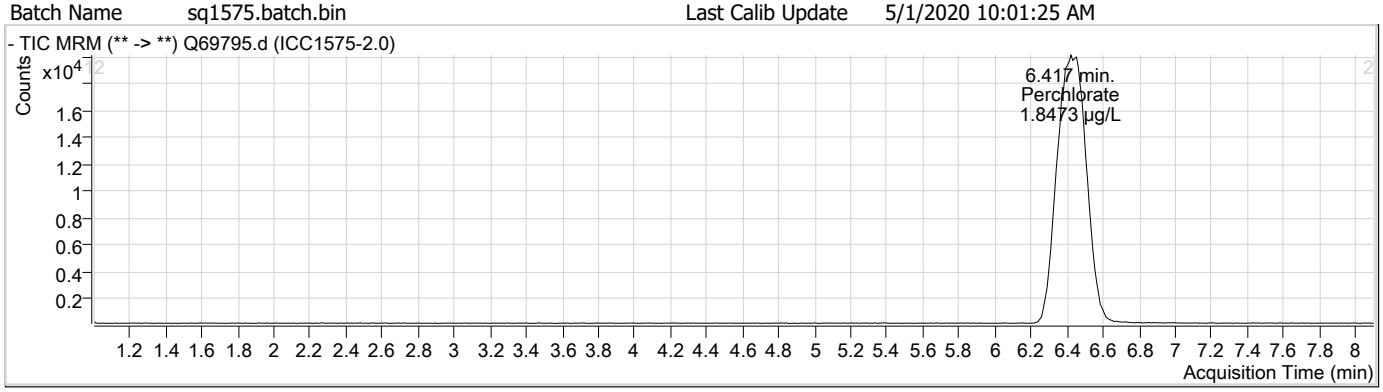






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q69795.d	Operator	MIKEE
Acq. Method	Perchlorate2.m	Acq. Date-Time	4/30/2020 4:45:34 PM
Sample Name	ICC1575-2.0	Instrument	Instrument 1
Vial	Vial 5	Multiplier	1.00
DA Method File	6850_040920_SQ1564.quantmethod.xml	Comment	
Batch Name	sq1575.batch.bin	Last Calib Update	5/1/2020 10:01:25 AM

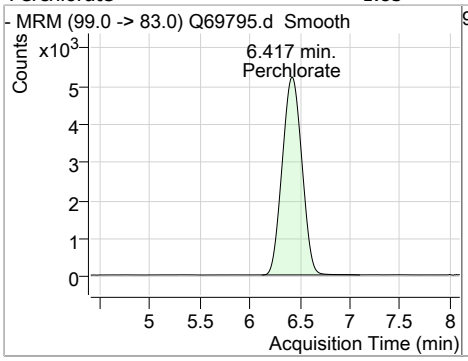


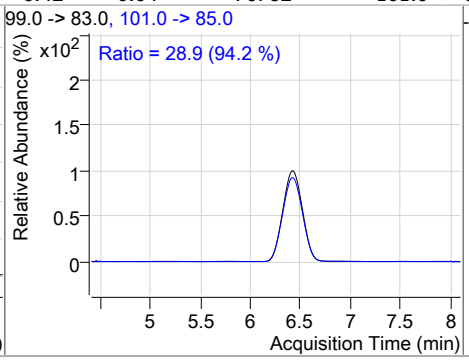
Compound	RT	QIon	Resp.	Q-ratio	Conc. Units	Dev(Min)
Internal Standards						
Cl18O4	6.431	107.0 -> 89.0	137090	NoQ	5.00 µg/L	0.031
System Monitoring Compounds						
Target Compounds						**QValue**
Perchlorate	6.417	99.0 -> 83.0	70782	3.5	1.85 µg/L	97

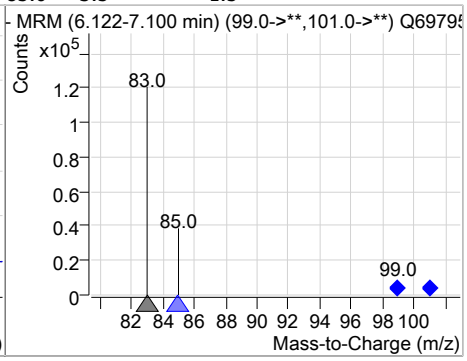
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	1.85	6.42	0.04	70782	101.0 -> 85.0	3.5	1.5	

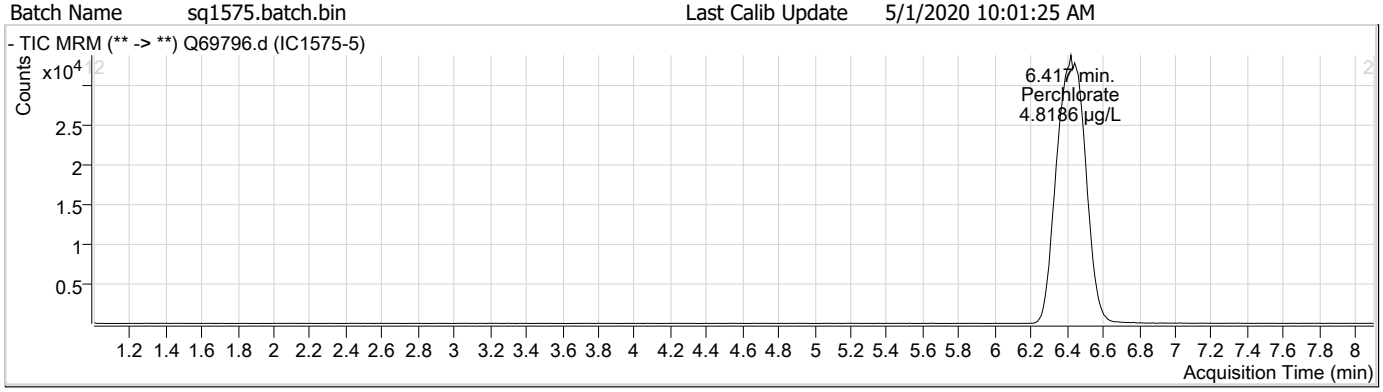






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q69796.d	Operator	MIKEE
Acq. Method	Perchlorate2.m	Acq. Date-Time	4/30/2020 4:54:32 PM
Sample Name	IC1575-5	Instrument	Instrument 1
Vial	Vial 6	Multiplier	1.00
DA Method File	6850_040920_SQ1564.quantmethod.xml	Comment	
Batch Name	sq1575.batch.bin	Last Calib Update	5/1/2020 10:01:25 AM

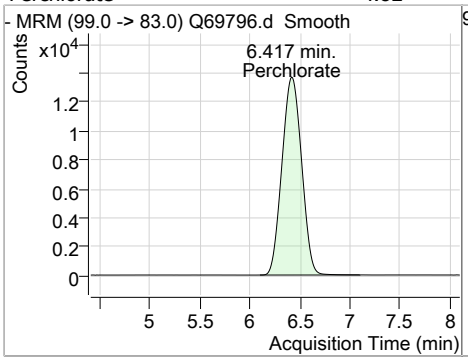


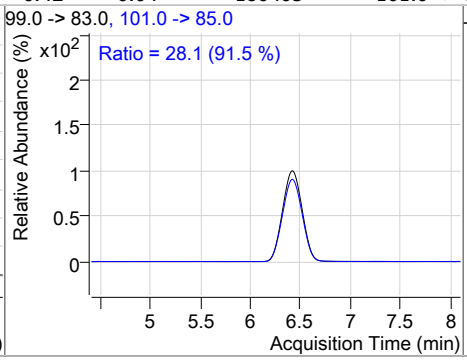
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.431	107.0 -> 89.0	137663	NoQ	5.00	µg/L	0.031
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.417	99.0 -> 83.0	186405	3.6	4.82	µg/L	95

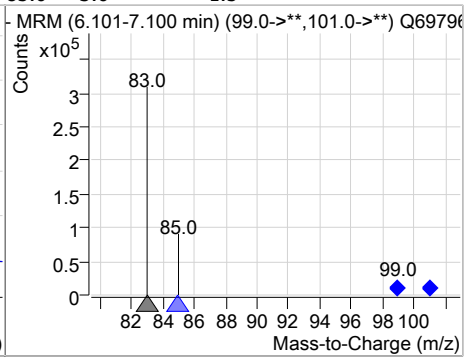
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	4.82	6.42	0.04	186405	101.0 -> 85.0	3.6	1.5	

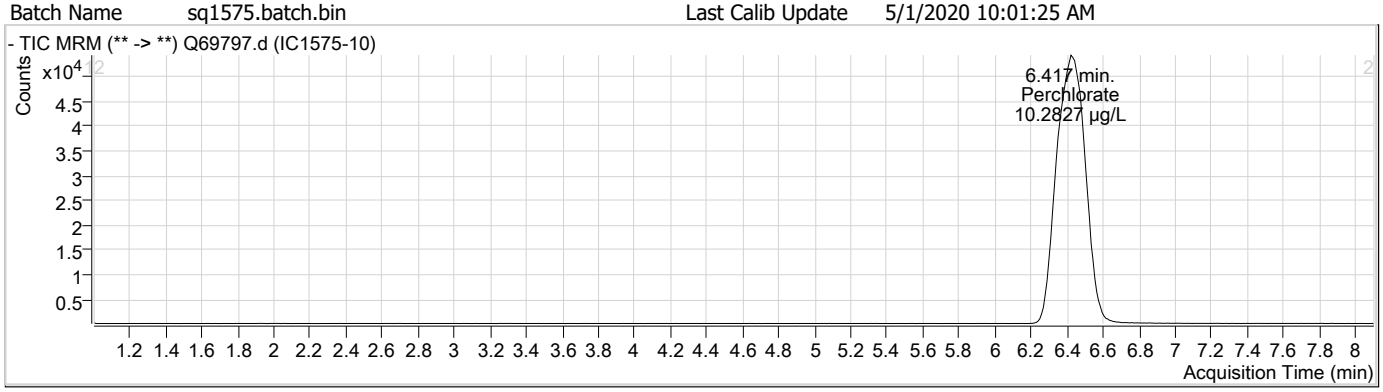






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q69797.d	Operator	MIKEE
Acq. Method	Perchlorate2.m	Acq. Date-Time	4/30/2020 5:03:29 PM
Sample Name	IC1575-10	Instrument	Instrument 1
Vial	Vial 7	Multiplier	1.00
DA Method File	6850_040920_SQ1564.quantmethod.xml	Comment	
Batch Name	sq1575.batch.bin	Last Calib Update	5/1/2020 10:01:25 AM

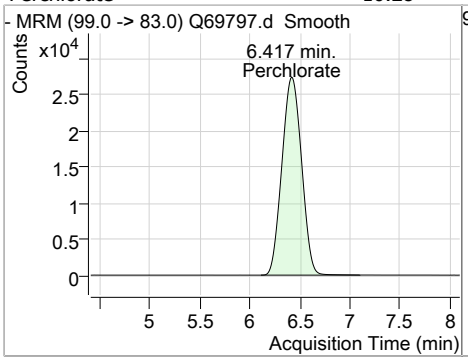


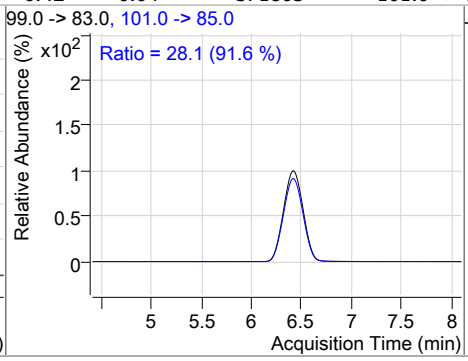
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.431	107.0 -> 89.0	127414	NoQ	5.00	µg/L	0.031
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.417	99.0 -> 83.0	371803	3.6	10.28	µg/L	95

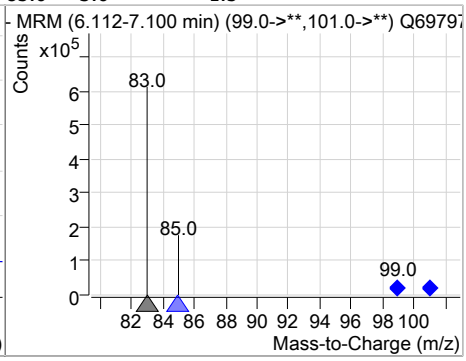
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	10.28	6.42	0.04	371803	101.0 -> 85.0	3.6	1.5	

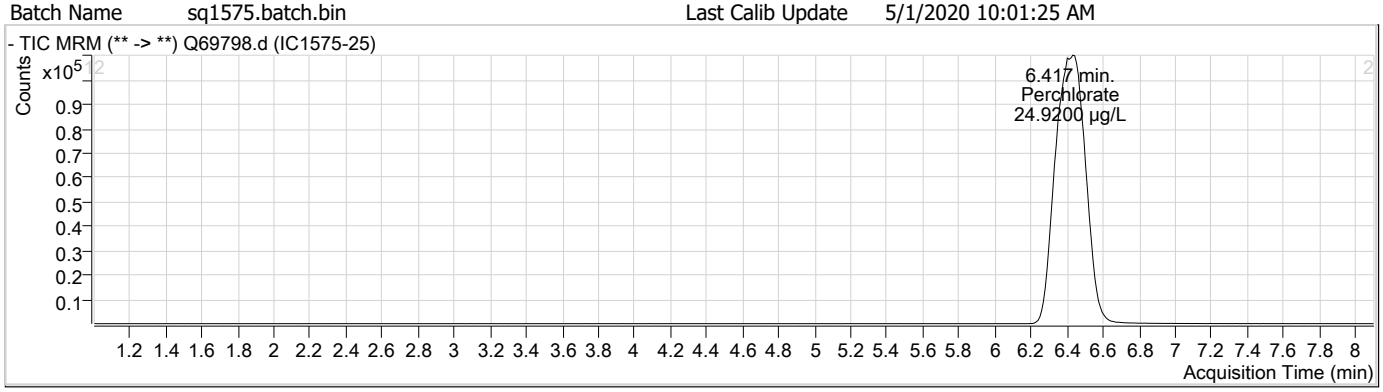






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q69798.d	Operator	MIKEE
Acq. Method	Perchlorate2.m	Acq. Date-Time	4/30/2020 5:12:28 PM
Sample Name	IC1575-25	Instrument	Instrument 1
Vial	Vial 8	Multiplier	1.00
DA Method File	6850_040920_SQ1564.quantmethod.xml	Comment	
Batch Name	sq1575.batch.bin	Last Calib Update	5/1/2020 10:01:25 AM

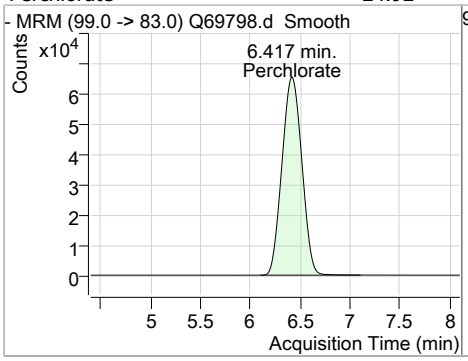


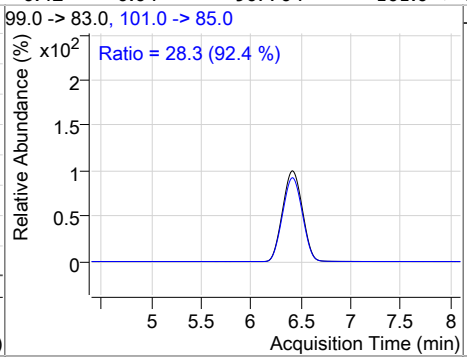
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.421	107.0 -> 89.0	125079	NoQ	5.00	µg/L	0.020
System Monitoring Compounds							
Target Compounds							**QValue**
Perchlorate	6.417	99.0 -> 83.0	907704	3.5	24.92	µg/L	96

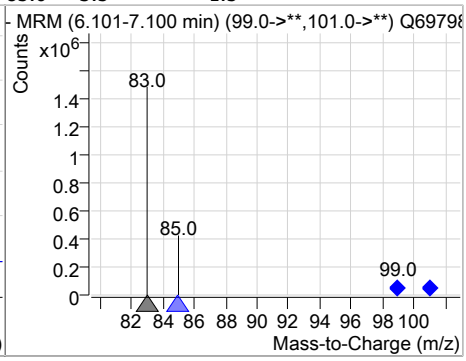
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	24.92	6.42	0.04	907704	101.0 -> 85.0	3.5	1.5	

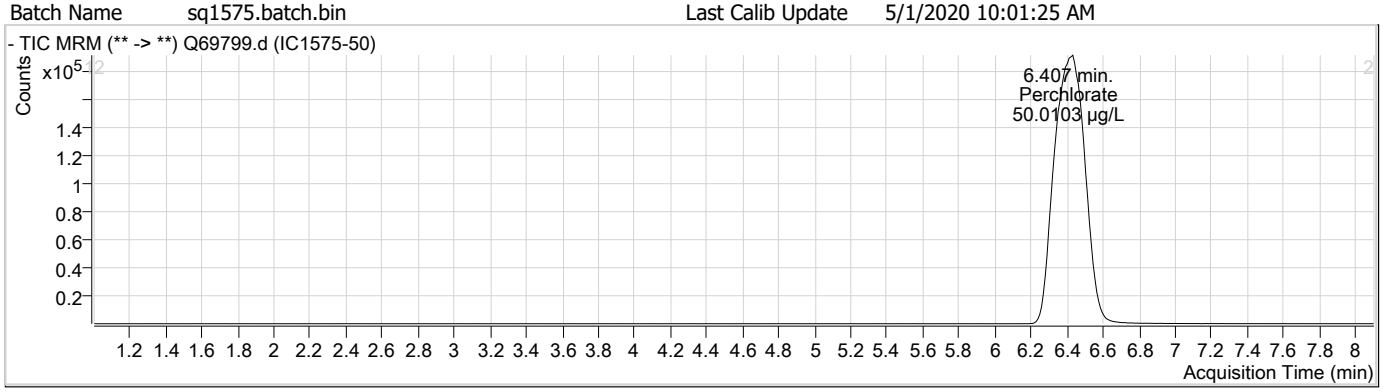






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q69799.d	Operator	MIKEE
Acq. Method	Perchlorate2.m	Acq. Date-Time	4/30/2020 5:21:28 PM
Sample Name	IC1575-50	Instrument	Instrument 1
Vial	Vial 9	Multiplier	1.00
DA Method File	6850_040920_SQ1564.quantmethod.xml	Comment	
Batch Name	sq1575.batch.bin	Last Calib Update	5/1/2020 10:01:25 AM

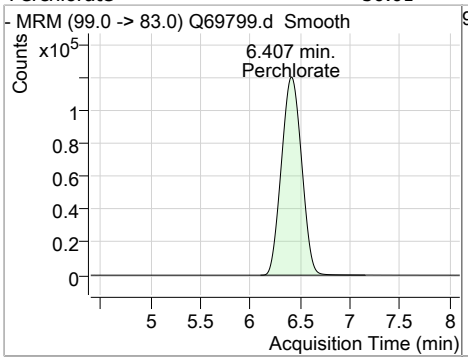


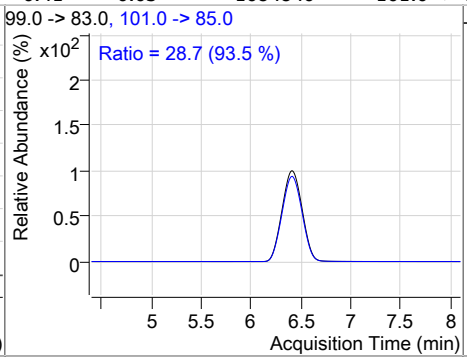
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.421	107.0 -> 89.0	110841	NoQ	5.00	µg/L	0.020
System Monitoring Compounds							
Target Compounds							**QValue**
Perchlorate	6.407	99.0 -> 83.0	1684840	3.5	50.01	µg/L	96

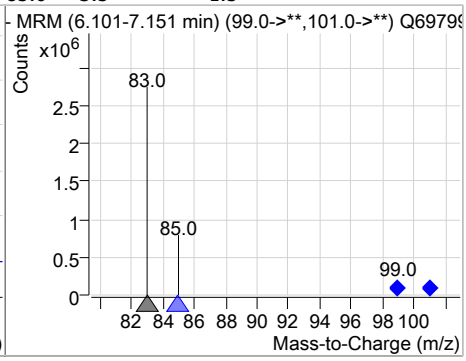
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	50.01	6.41	0.03	1684840	101.0 -> 85.0	3.5	1.5	

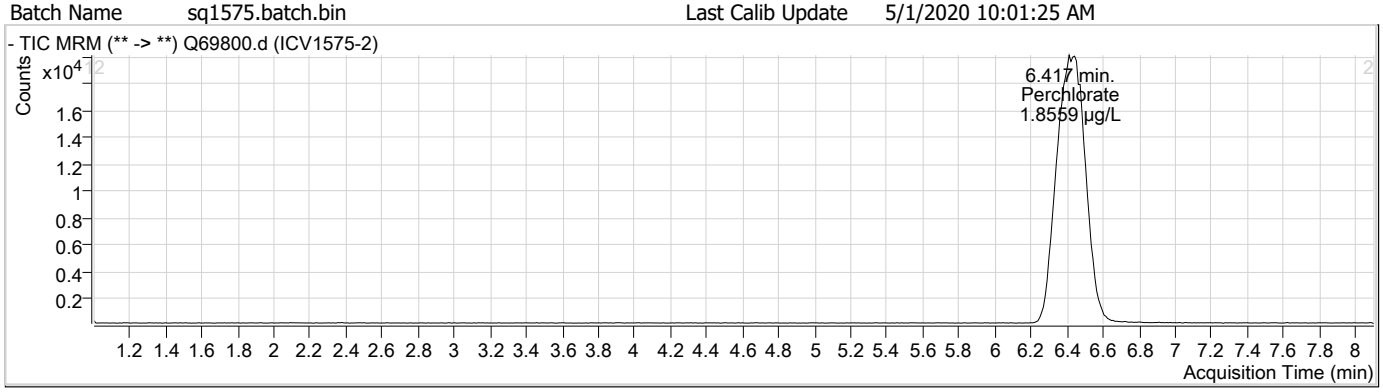






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q69800.d	Operator	MIKEE
Acq. Method	Perchlorate2.m	Acq. Date-Time	4/30/2020 5:30:27 PM
Sample Name	ICV1575-2	Instrument	Instrument 1
Vial	Vial 10	Multiplier	1.00
DA Method File	6850_040920_SQ1564.quantmethod.xml	Comment	
Batch Name	sq1575.batch.bin	Last Calib Update	5/1/2020 10:01:25 AM

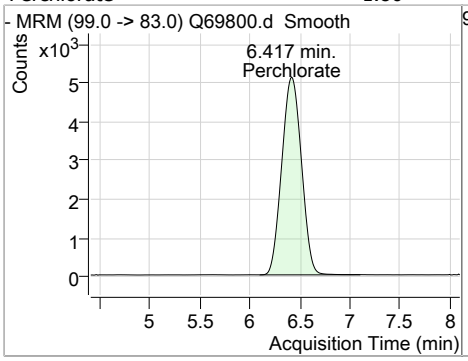


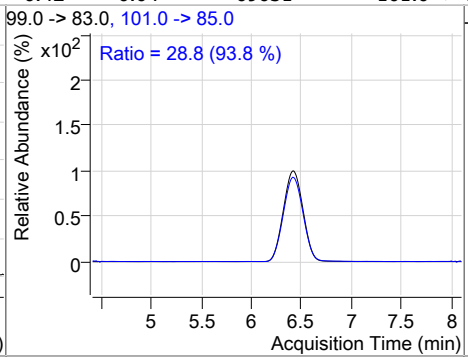
Compound	RT	QIon	Resp.	Q-ratio	Conc. Units	Dev(Min)
Internal Standards						
Cl18O4	6.431	107.0 -> 89.0	134232	NoQ	5.00 µg/L	0.031
System Monitoring Compounds						
Target Compounds						**QValue**
Perchlorate	6.417	99.0 -> 83.0	69631	3.5	1.86 µg/L	96

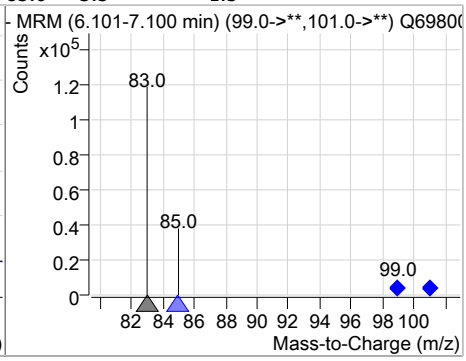
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	1.86	6.42	0.04	69631	101.0 -> 85.0	3.5	1.5	

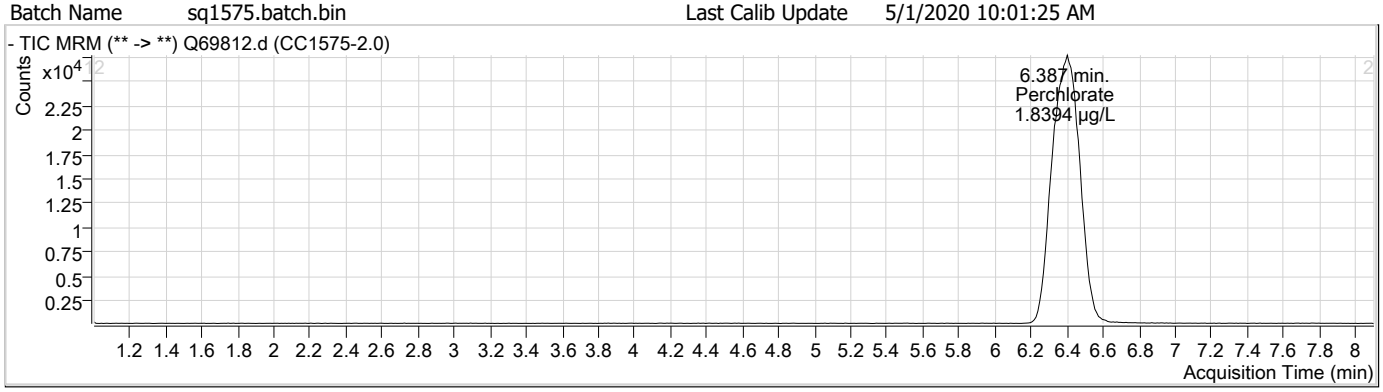






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q69812.d	Operator	MIKEE
Acq. Method	Perchlorate2.m	Acq. Date-Time	4/30/2020 7:18:05 PM
Sample Name	CC1575-2.0	Instrument	Instrument 1
Vial	Vial 5	Multiplier	1.00
DA Method File	6850_040920_SQ1564.quantmethod.xml	Comment	
Batch Name	sq1575.batch.bin	Last Calib Update	5/1/2020 10:01:25 AM

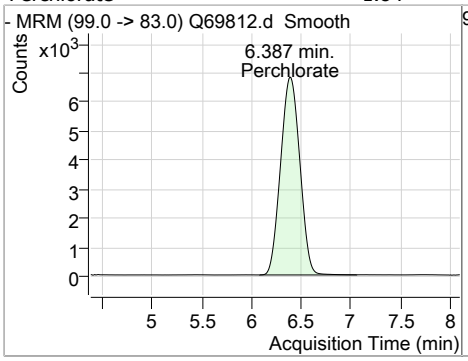


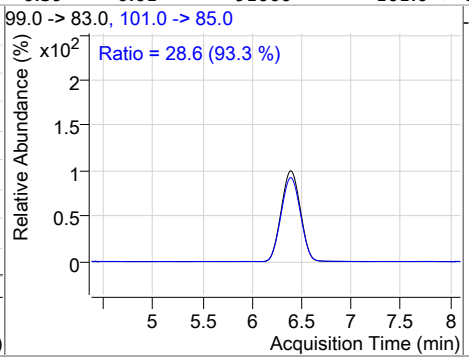
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.400	107.0 -> 89.0	178285	NoQ	5.00	µg/L	0.000
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.387	99.0 -> 83.0	91660	3.5	1.84	µg/L	96

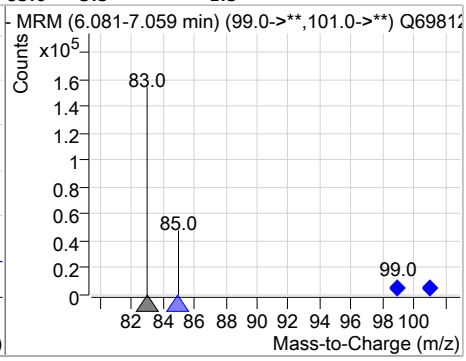
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	1.84	6.39	0.01	91660	101.0 -> 85.0	3.5	1.5	

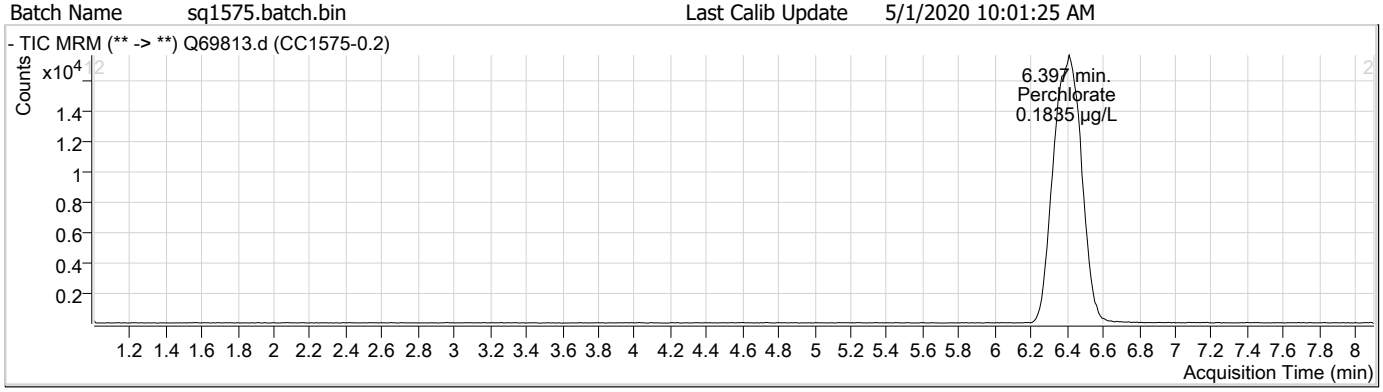






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q69813.d	Operator	MIKEE
Acq. Method	Perchlorate2.m	Acq. Date-Time	4/30/2020 7:27:04 PM
Sample Name	CC1575-0.2	Instrument	Instrument 1
Vial	Vial 2	Multiplier	1.00
DA Method File	6850_040920_SQ1564.quantmethod.xml	Comment	
Batch Name	sq1575.batch.bin	Last Calib Update	5/1/2020 10:01:25 AM

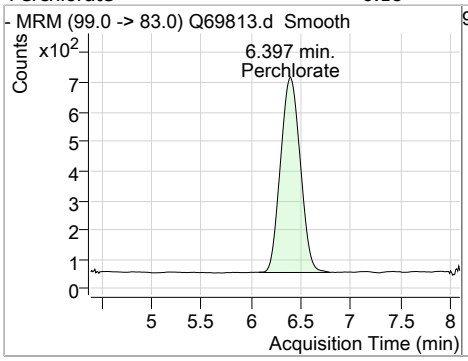


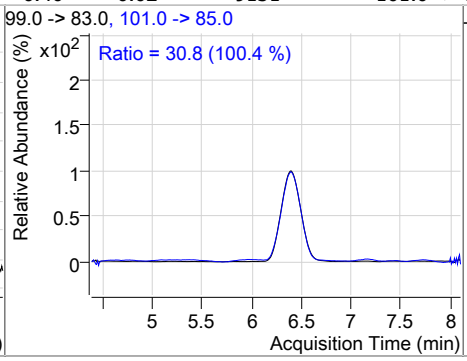
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.410	107.0 -> 89.0	178541	NoQ	5.00	µg/L	0.010
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.397	99.0 -> 83.0	9131	3.2	0.18	µg/L	100

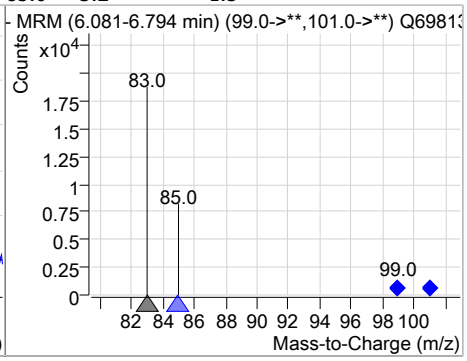
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.18	6.40	0.02	9131	101.0 -> 85.0	3.2	1.5	

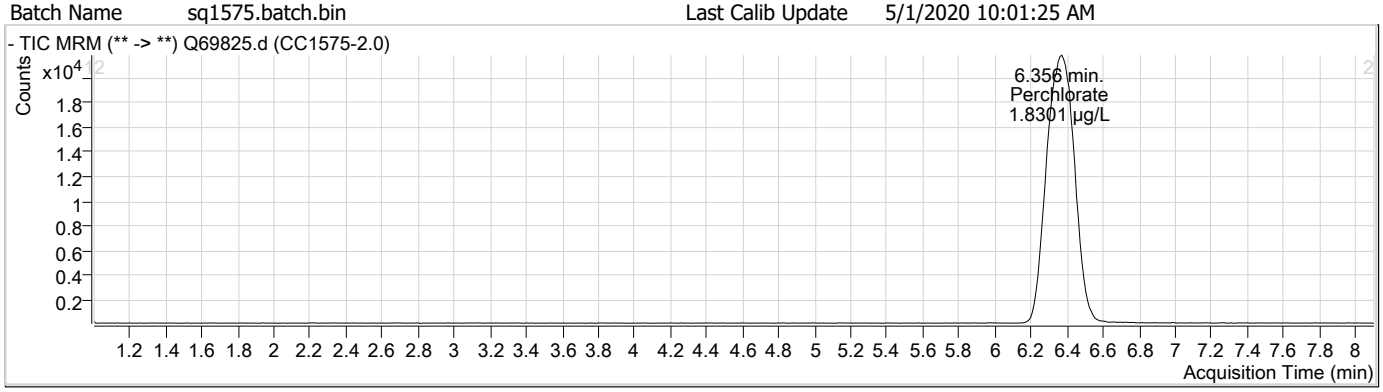






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q69825.d	Operator	MIKEE
Acq. Method	Perchlorate2.m	Acq. Date-Time	4/30/2020 9:14:41 PM
Sample Name	CC1575-2.0	Instrument	Instrument 1
Vial	Vial 5	Multiplier	1.00
DA Method File	6850_040920_SQ1564.quantmethod.xml	Comment	
Batch Name	sq1575.batch.bin	Last Calib Update	5/1/2020 10:01:25 AM

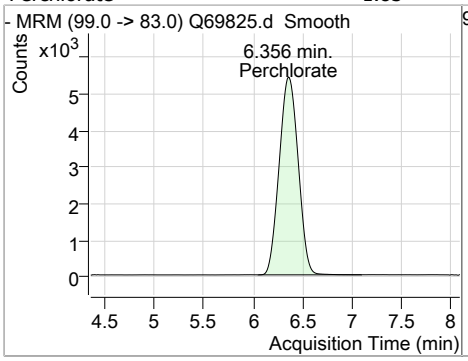


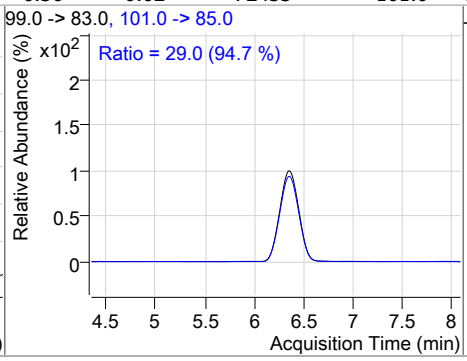
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.370	107.0 -> 89.0	141606	NoQ	5.00	µg/L	-0.031
System Monitoring Compounds							
Target Compounds							**QValue**
Perchlorate	6.356	99.0 -> 83.0	72433	3.4	1.83	µg/L	97

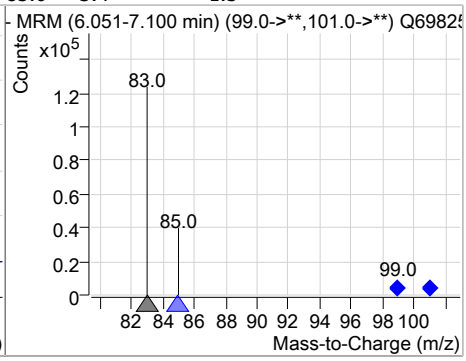
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	1.83	6.36	-0.02	72433	101.0 -> 85.0	3.4	1.5	

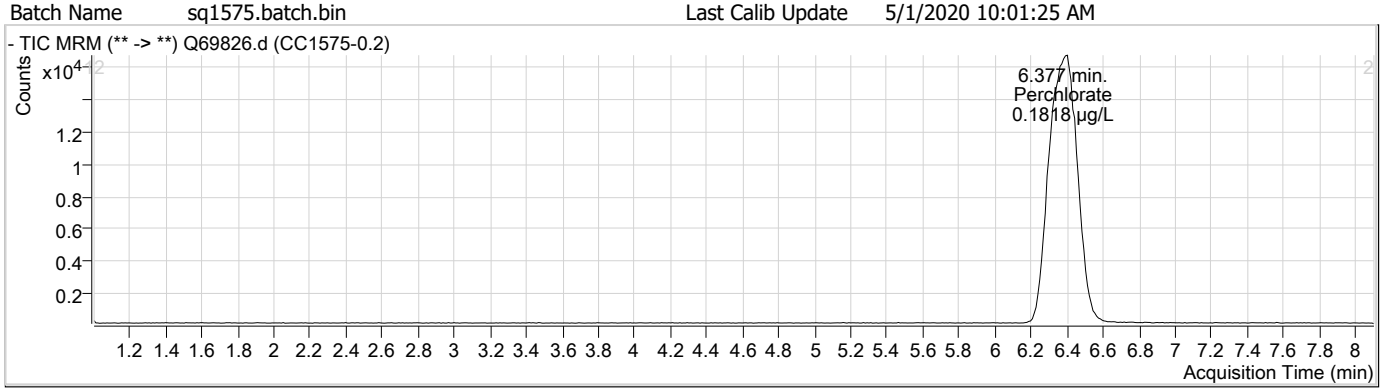






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q69826.d	Operator	MIKEE
Acq. Method	Perchlorate2.m	Acq. Date-Time	4/30/2020 9:23:39 PM
Sample Name	CC1575-0.2	Instrument	Instrument 1
Vial	Vial 2	Multiplier	1.00
DA Method File	6850_040920_SQ1564.quantmethod.xml	Comment	
Batch Name	sq1575.batch.bin	Last Calib Update	5/1/2020 10:01:25 AM

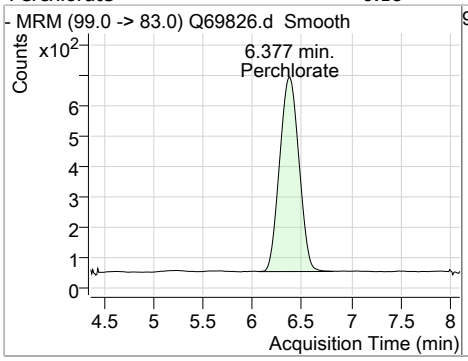


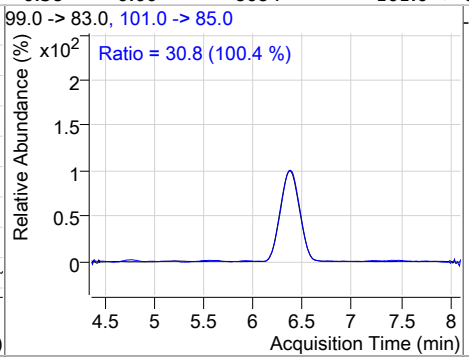
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.380	107.0 -> 89.0	171417	NoQ	5.00	µg/L	-0.020
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.377	99.0 -> 83.0	8684	3.2	0.18	µg/L	100

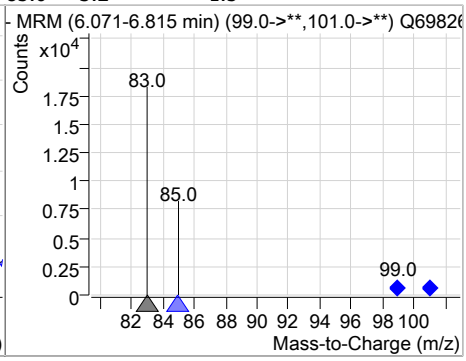
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.18	6.38	0.00	8684	101.0 -> 85.0	3.2	1.5	

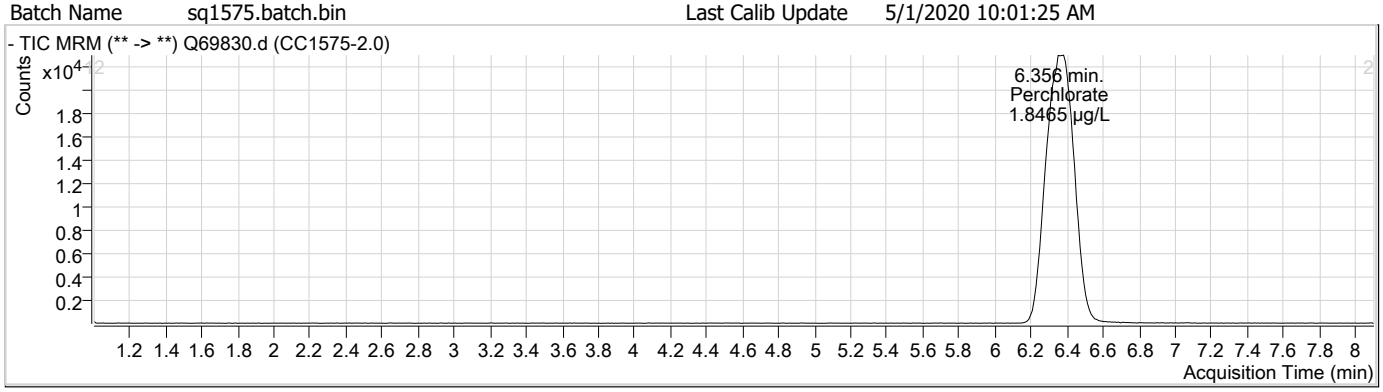






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q69830.d	Operator	MIKEE
Acq. Method	Perchlorate2.m	Acq. Date-Time	4/30/2020 9:59:28 PM
Sample Name	CC1575-2.0	Instrument	Instrument 1
Vial	Vial 5	Multiplier	1.00
DA Method File	6850_040920_SQ1564.quantmethod.xml	Comment	
Batch Name	sq1575.batch.bin	Last Calib Update	5/1/2020 10:01:25 AM

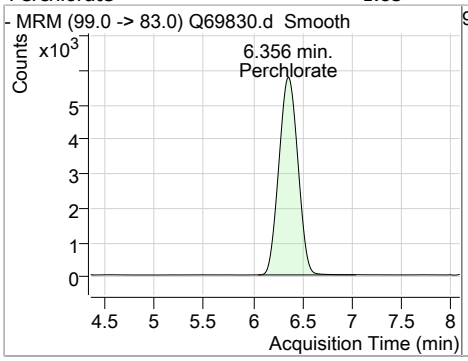


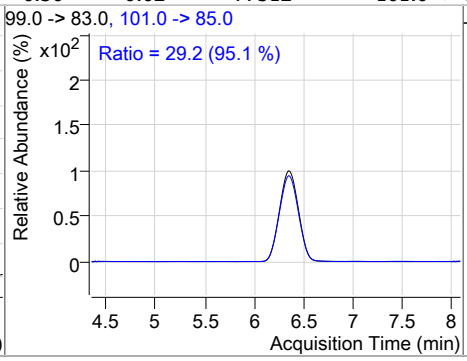
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.370	107.0 -> 89.0	149799	NoQ	5.00	µg/L	-0.031
System Monitoring Compounds							
Target Compounds							**QValue**
Perchlorate	6.356	99.0 -> 83.0	77312	3.4	1.85	µg/L	97

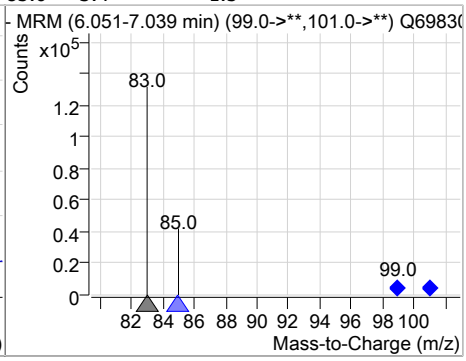
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	1.85	6.36	-0.02	77312	101.0 -> 85.0	3.4	1.5	







SGS ORLANDO

LCMS1-Q ANALYSIS LOG

DATE:	04/30/20
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 ul
INSTRUMENT:	LCMS1-Q

METHODS:	SW846 6850
PROC. METH:	6850_043020_SQ1575
CAL DATE:	04/30/20
ANALYST:	MRE NAS
RUN BATCH:	SQ1575

ELUENT A LOT #:	200373 W/0.1% AA
ELUENT B LOT #:	192368 W/0.1% AA
IC/CC STD LOT #:	LCMS1412
ICV STD LOT #:	LCMS1413
ISTD/ID STD LOT #:	9855

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	Q69780.d	Vial 1	CCB	Perchlorate2.m	Sample		OP79746,SQ1575,10,,,10,1,water	bdl
2	Q69781.d	Vial 1	CCB	Perchlorate2.m	Sample		OP79746,SQ1575,10,,,10,1,water	bdl
3	Q69782.d	Vial 1	CCB	Perchlorate2.m	Sample		OP79746,SQ1575,10,,,10,1,water	bdl
4	Q69783.d	Vial 1	CCB	Perchlorate2.m	Sample		OP79746,SQ1575,10,,,10,1,water	bdl
5	Q69784.d	Vial 1	CCB	Perchlorate2.m	Sample		OP79746,SQ1575,10,,,10,1,water	bdl
6	Q69785.d	Vial 1	CCB	Perchlorate2.m	Sample		OP79746,SQ1575,10,,,10,1,water	bdl
7	Q69786.d	Vial 1	CCB	Perchlorate2.m	Sample		OP79746,SQ1575,10,,,10,1,water	bdl
8	Q69787.d	Vial 41	mb wipe test	Perchlorate2.m	Sample		OP79746,SQ1575,10,,,10,1,water	hit
9	Q69788.d	Vial 42	bs wipe test	Perchlorate2.m	Sample		OP79746,SQ1575,10,,,10,1,water	hit
10	Q69789.d	Vial 43	mb wipe test 15ml tube	Perchlorate2.m	Sample		OP79746,SQ1575,10,,,10,1,water	hit
11	Q69790.d	Vial 44	50ml blank tube	Perchlorate2.m	Sample		OP79746,SQ1575,10,,,10,1,water	bdl
12	Q69791.d	Vial 45	new wipe	Perchlorate2.m	Sample		OP79746,SQ1575,10,,,10,1,water	bdl
13	Q69792.d	Vial 2	IC1575-0.2	Perchlorate2.m	Calibration	0.02/10	OP79746,SQ1575,10,,,10,1,water	✓
14	Q69793.d	Vial 3	IC1575-0.5	Perchlorate2.m	Calibration	0.05/10	OP79746,SQ1575,10,,,10,1,water	✓
15	Q69794.d	Vial 4	IC1575-1.0	Perchlorate2.m	Calibration	0.1/10	OP79746,SQ1575,10,,,10,1,water	✓
16	Q69795.d	Vial 5	ICC1575-2.0	Perchlorate2.m	Calibration	0.2/10	OP79746,SQ1575,10,,,10,1,water	✓
17	Q69796.d	Vial 6	IC1575-5	Perchlorate2.m	Calibration	0.5/10	OP79746,SQ1575,10,,,10,1,water	✓
18	Q69797.d	Vial 7	IC1575-10	Perchlorate2.m	Calibration	1.0/10	OP79746,SQ1575,10,,,10,1,water	✓
19	Q69798.d	Vial 8	IC1575-25	Perchlorate2.m	Calibration	2.5/10	OP79746,SQ1575,10,,,10,1,water	✓
20	Q69799.d	Vial 9	IC1575-50	Perchlorate2.m	Calibration	5.0/10	OP79746,SQ1575,10,,,10,1,water	✓
21	Q69800.d	Vial 10	ICV1575-2	Perchlorate2.m	QC	0.2/10	OP79746,SQ1575,10,,,10,1,water	pass
22	Q69801.d	Vial 11	ICS1575-0.2	Perchlorate2.m	Sample		OP80016,SQ1575,10,,,10,1,water	✓
23	Q69802.d	Vial 12	OP80016-BS	Perchlorate2.m	Sample		OP80016,SQ1575,10,,,10,1,water	✓
24	Q69803.d	Vial 13	OP80016-MB	Perchlorate2.m	Sample		OP80016,SQ1575,10,,,10,1,water	bdl
25	Q69804.d	Vial 14	FA74450-3	Perchlorate2.m	Sample		OP80016,SQ1575,10,,,10,1,water	✓
26	Q69805.d	Vial 15	OP80016-MS1	Perchlorate2.m	Sample		OP80016,SQ1575,10,,,10,1,water	✓
27	Q69806.d	Vial 16	OP80016-MSD1	Perchlorate2.m	Sample		OP80016,SQ1575,10,,,10,1,water	✓
28	Q69807.d	Vial 17	FA74450-4	Perchlorate2.m	Sample		OP80016,SQ1575,10,,,10,1,water	✓
29	Q69808.d	Vial 18	FA74450-5	Perchlorate2.m	Sample		OP80016,SQ1575,10,,,10,1,water	✓
30	Q69809.d	Vial 19	FA74450-6	Perchlorate2.m	Sample		OP80016,SQ1575,10,,,10,1,water	✓ istd low rr
31	Q69810.d	Vial 20	FA74450-7	Perchlorate2.m	Sample		OP80016,SQ1575,10,,,10,1,water	✓ istd low rr
32	Q69811.d	Vial 21	FA74450-8	Perchlorate2.m	Sample		OP80016,SQ1575,10,,,10,1,water	✓
33	Q69812.d	Vial 5	CC1575-2.0	Perchlorate2.m	QC	0.2/10	OP80016,SQ1575,10,,,10,1,water	pass
34	Q69813.d	Vial 2	CC1575-0.2	Perchlorate2.m	QC	0.02/10	OP80016,SQ1575,10,,,10,1,water	pass
35	Q69814.d	Vial 1	CCB	Perchlorate2.m	Sample		OP80016,SQ1575,10,,,10,1,water	bdl

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36	Q69815.d	Vial 22	FA74450-9	Perchlorate2.m	Sample		OP80016,SQ1575,10,,,10,1,water	✓
37	Q69816.d	Vial 23	FA74450-10	Perchlorate2.m	Sample		OP80016,SQ1575,10,,,10,1,water	✓
38	Q69817.d	Vial 24	FA74450-11	Perchlorate2.m	Sample		OP80016,SQ1575,10,,,10,1,water	✓
39	Q69818.d	Vial 25	FA74450-12	Perchlorate2.m	Sample		OP80016,SQ1575,10,,,10,1,water	✓
40	Q69819.d	Vial 26	FA74617-1	Perchlorate2.m	Sample		OP80016,SQ1575,10,,,10,1,water	✓
41	Q69820.d	Vial 27	FA74617-2	Perchlorate2.m	Sample		OP80016,SQ1575,10,,,10,1,water	✓
42	Q69821.d	Vial 28	FA74617-3	Perchlorate2.m	Sample		OP80016,SQ1575,10,,,10,1,water	✓
43	Q69822.d	Vial 29	FA74617-4	Perchlorate2.m	Sample		OP80016,SQ1575,10,,,10,1,water	✓
44	Q69823.d	Vial 30	OP80016-MS2	Perchlorate2.m	Sample		OP80016,SQ1575,10,,,10,1,water	✓
45	Q69824.d	Vial 31	OP80016-MSD2	Perchlorate2.m	Sample		OP80016,SQ1575,10,,,10,1,water	✓
46	Q69825.d	Vial 5	CC1575-2.0	Perchlorate2.m	QC	0.2/10	OP80016,SQ1575,10,,,10,1,water	pass
47	Q69826.d	Vial 2	CC1575-0.2	Perchlorate2.m	QC	0.02/10	OP80016,SQ1575,10,,,10,1,water	pass
48	Q69827.d	Vial 1	CCB	Perchlorate2.m	Sample		OP80016,SQ1575,10,,,10,1,water	bdl
49	Q69828.d	Vial 32	FA74617-5	Perchlorate2.m	Sample		OP80016,SQ1575,10,,,10,1,water	✓
50	Q69829.d	Vial 33	FA74510-1	Perchlorate2.m	Sample		OP80016,SQ1575,10,,,10,1,water	✓
51	Q69830.d	Vial 5	CC1575-2.0	Perchlorate2.m	QC	0.2/10	OP80016,SQ1575,10,,,10,1,water	pass
52	Q69831.d	Vial 2	ECC1575-0.2	Perchlorate2.m	QC	0.02/10	OP80016,SQ1575,10,,,10,1,water	pass
53	Q69832.d	Vial 1	CCB	Perchlorate2.m	Sample		OP80016,SQ1575,10,,,10,1,water	bdl

SGS - ORLANDO

LIQUID SAMPLE PREP REPORT

Date/Time: 04-30-20 1300 Started {mm/dd/yy 24:00}

Date/Time: 04-30-20 1400 Finished {mm/dd/yy 24:00}

Prep Method: 3510C 3580A or Method (circle)

Analytical Method: 6BTO

Batch#: OP80016 Ext. By: NAS Conc. By: — Vialed By: NAS

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Surrogate Amount	Spike Amount	Final Volume (ml)	Comments
OP 80016 - MB		10					10	
OP 80016 - BS					2	20uL		
FA74450-3	1							MS/MSD
-4								
-5								
-6								
-7								
-8								
-9								
-10								
-11								
-12								
FA74617-1								
-2								
-3								
-4								MS2 / MSD2
-5								
FA74510-1								
OP80016-MS	1	10				20uL		FA74450-3
- MSD								-3
- MS2 ~~MSD~~								FA74617-4
- MS2 ~~DUP~~								-4

MS043020

Comments:

Surr. ID: — Conc: — Exp. Date: — Inj. By: — Ver. By —

Spk. ID: LCMS1413 Conc: 100ppb Exp. Date: 08-02-20 Inj. By: NAS Ver. By NAS

Initial Bath Temp (Therm ID): _____ Observed Temp °C: _____ Corr. Temp °C: _____

Exchange Bath/N-Evap Temp (Therm ID): _____ Observed Temp °C: _____ Corr. Temp °C: _____

CH2CL2 Lot # — Hexane Lot # — Na2SO4 Lot# —

Acetonitrile Lot # — Methanol Lot # — Acetone Lot# —

~~Syringe~~ vial Filter Lot# P7444-0203 pH Paper # — Reagent # —

Copper Lot # _____ If Sulfur Cleaning is performed in Extractions (3660B)

Relinquished By: _____ Date: 04-30-20

Accepted By: _____ Date: 04-30-20

ORLD-EXT-0001-1-06-FORM-extwater.xls 032718

7.7.1

7

GC/LC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- GC Identification Summaries (Explosives)
- Surrogate Recovery Summaries
- GC Surrogate Retention Time Summaries
- Initial and Continuing Calibration Summaries
- Run Sequence Reports

Method Blank Summary

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP80038-MB	PP386867.D	1	05/04/20	WH	05/02/20	OP80038	GPP2268

The QC reported here applies to the following samples: **Method:** SW846 8330B

FA74617-1, FA74617-2, FA74617-3, FA74617-4, FA74617-5

CAS No.	Compound	Result	RL	MDL	Units	Q
2691-41-0	HMX	ND	0.20	0.080	ug/l	
121-82-4	RDX	ND	0.20	0.080	ug/l	
	DNX	ND	0.20	0.080	ug/l	
	MNX	ND	0.20	0.080	ug/l	
	TNX	ND	0.20	0.080	ug/l	
618-87-1	3,5-Dinitroaniline	ND	0.20	0.080	ug/l	
99-65-0	1,3-Dinitrobenzene	ND	0.20	0.080	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	0.20	0.080	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	0.20	0.080	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	ND	0.20	0.080	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene	ND	0.20	0.080	ug/l	
98-95-3	Nitrobenzene	ND	0.20	0.097	ug/l	
88-72-2	o-Nitrotoluene	ND	0.20	0.080	ug/l	
99-08-1	m-Nitrotoluene	ND	0.20	0.080	ug/l	
99-99-0	p-Nitrotoluene	ND	0.20	0.080	ug/l	
479-45-8	Tetryl	ND	0.20	0.080	ug/l	
99-35-4	1,3,5-Trinitrobenzene	ND	0.20	0.099	ug/l	
118-96-7	2,4,6-Trinitrotoluene	ND	0.20	0.080	ug/l	
55-63-0	Nitroglycerine	ND	2.0	0.50	ug/l	
78-11-5	PETN	ND	2.0	0.50	ug/l	

CAS No.	Surrogate Recoveries		Limits
610-39-9	3,4-Dinitrotoluene	102%	70-136%

Method Blank Summary

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP80038-MB	GG618848.D	1	05/06/20	WH	05/02/20	OP80038	GGG2834

The QC reported here applies to the following samples: **Method:** SW846 8330B

FA74617-1, FA74617-2, FA74617-3, FA74617-4, FA74617-5

CAS No.	Compound	Result	RL	MDL	Units	Q
2691-41-0	HMX	ND	0.20	0.080	ug/l	
121-82-4	RDX	ND	0.20	0.080	ug/l	
	DNX	ND	0.20	0.080	ug/l	
	MNX	ND	0.20	0.080	ug/l	
	TNX	ND	0.20	0.080	ug/l	
618-87-1	3,5-Dinitroaniline	ND	0.20	0.080	ug/l	
99-65-0	1,3-Dinitrobenzene	ND	0.20	0.080	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	0.20	0.080	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	0.20	0.080	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	ND	0.20	0.080	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene	ND	0.20	0.080	ug/l	
98-95-3	Nitrobenzene	ND	0.20	0.097	ug/l	
88-72-2	o-Nitrotoluene	ND	0.20	0.080	ug/l	
99-08-1	m-Nitrotoluene	ND	0.20	0.080	ug/l	
99-99-0	p-Nitrotoluene	ND	0.20	0.080	ug/l	
479-45-8	Tetryl	ND	0.20	0.080	ug/l	
99-35-4	1,3,5-Trinitrobenzene	ND	0.20	0.099	ug/l	
118-96-7	2,4,6-Trinitrotoluene	ND	0.20	0.080	ug/l	
55-63-0	Nitroglycerine	ND	2.0	0.50	ug/l	
78-11-5	PETN	ND	2.0	0.50	ug/l	

CAS No.	Surrogate Recoveries		Limits
610-39-9	3,4-Dinitrotoluene	116%	70-136%

Blank Spike Summary

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP80038-BS	PP386866.D	1	05/04/20	WH	05/02/20	OP80038	GPP2268

The QC reported here applies to the following samples: **Method:** SW846 8330B

FA74617-1, FA74617-2, FA74617-3, FA74617-4, FA74617-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
2691-41-0	HMX	5	4.8	96	77-144
121-82-4	RDX	5	4.5	90	77-125
	DNX	5	4.9	98	66-127
	MNX	5	4.6	92	71-137
	TNX	5	3.5	70	60-126
618-87-1	3,5-Dinitroaniline	5	4.6	92	77-115
99-65-0	1,3-Dinitrobenzene	5	4.6	92	79-122
606-20-2	2,6-Dinitrotoluene	5	5.3	106	81-131
121-14-2	2,4-Dinitrotoluene	5	4.4	88	80-123
35572-78-2	2-amino-4,6-Dinitrotoluene	5	4.7	94	81-120
19406-51-0	4-amino-2,6-Dinitrotoluene	5	4.5	90	79-119
98-95-3	Nitrobenzene	5	4.6	92	78-130
88-72-2	o-Nitrotoluene	5	4.2	84	76-131
99-08-1	m-Nitrotoluene	5	4.5	90	78-122
99-99-0	p-Nitrotoluene	5	4.5	90	79-124
479-45-8	Tetryl	5	4.1	82	65-124
99-35-4	1,3,5-Trinitrobenzene	5	4.5	90	79-128
118-96-7	2,4,6-Trinitrotoluene	5	4.4	88	72-112
55-63-0	Nitroglycerine	5	4.3	86	69-123
78-11-5	PETN	5	5.1	102	73-145

CAS No.	Surrogate Recoveries	BSP	Limits
610-39-9	3,4-Dinitrotoluene	112%	70-136%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP80038-MS	PP386875.D	1	05/04/20	WH	05/02/20	OP80038	GPP2268
OP80038-MSD	PP386876.D	1	05/04/20	WH	05/02/20	OP80038	GPP2268
FA74617-4 [a]	PP386873.D	1	05/04/20	WH	05/02/20	OP80038	GPP2268
FA74617-4 [b]	GG618853.D	1	05/06/20	WH	05/02/20	OP80038	GGG2834

The QC reported here applies to the following samples: **Method:** SW846 8330B

FA74617-1, FA74617-2, FA74617-3, FA74617-4, FA74617-5

CAS No.	Compound	FA74617-4 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
2691-41-0	HMX	12.7		9.62	22.9	106	9.62	23.0	107	0	77-144/21
121-82-4	RDX	0.17	J	9.62	9.1	93	9.62	9.2	94	1	77-125/19
	DNX	0.19 U		9.62	10.2	106	9.62	10.3	107	1	66-127/25
	MNX	0.19 U		9.62	9.3	97	9.62	9.4	98	1	71-137/20
	TNX	0.19 U		9.62	8.7	90	9.62	8.7	90	0	60-126/18
618-87-1	3,5-Dinitroaniline	0.24		9.62	9.5	96	9.62	9.5	96	0	77-115/19
99-65-0	1,3-Dinitrobenzene	0.19 U		9.62	9.1	95	9.62	9.2	96	1	79-122/17
606-20-2	2,6-Dinitrotoluene	0.19 U		9.62	13.8	144*	9.62	13.9	145*	1	81-131/17
121-14-2	2,4-Dinitrotoluene	0.19 U		9.62	8.4	87	9.62	8.6	89	2	80-123/19
35572-78-2	2-amino-4,6-Dinitrotoluene	4.0		9.62	13.6	100	9.62	13.7	101	1	81-120/19
19406-51-0	4-amino-2,6-Dinitrotoluene	2.5		9.62	11.8	97	9.62	11.8	97	0	79-119/20
98-95-3	Nitrobenzene	0.19 U		9.62	8.7	90	9.62	8.6	89	1	78-130/19
88-72-2	o-Nitrotoluene	0.19 U		9.62	7.4	77	9.62	7.7	80	4	76-131/20
99-08-1	m-Nitrotoluene	0.19 U		9.62	9.1	95	9.62	9.6	100	5	78-122/18
99-99-0	p-Nitrotoluene	0.19 U		9.62	8.7	90	9.62	8.9	93	2	79-124/18
479-45-8	Tetryl	0.19 U		9.62	7.4	77	9.62	8.0	83	8	65-124/20
99-35-4	1,3,5-Trinitrobenzene	9.5		9.62	18.9	98	9.62	19.2	101	2	79-128/16
118-96-7	2,4,6-Trinitrotoluene	8.3		9.62	17.5	96	9.62	17.8	99	2	72-112/16
55-63-0	Nitroglycerine	1.9 U		9.62	7.9	82	9.62	7.2	75	9	69-123/18
78-11-5	PETN	1.9 U		9.62	10.3	107	9.62	9.5	99	8	73-145/18

CAS No.	Surrogate Recoveries	MS	MSD	FA74617-4	FA74617-4	Limits
610-39-9	3,4-Dinitrotoluene	115%	118%	121%	124%	70-136%

(a) All hits confirmed by reanalysis on a dissimilar column.
(b) Confirmation run.

* = Outside of Control Limits.

GC Identification Summary (Explosives)

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample ID:	FA74617-1	**Method:**	SW846 8330B
Client ID:	54MW13		

Injection Type	Lab File ID	Dilution	Prep Batch	Inst Batch	Injection Time	Inst ID
Reportable	PP386868.D	1	OP80038	GPP2268	05/04/20 17:14	GCPP
Confirmation	GG618849.D	1	OP80038	GGG2834	05/06/20 15:29	GCGG

Compound	Lab File ID	Dilution	Sig#	Conc	Q	Units	RPD Conc
HMX	PP386868.D	1	1	2.8		ug/l	16.4
HMX	GG618849.D	1	2	3.3		ug/l	
RDX	PP386868.D	1	1	1.5		ug/l	6.5
RDX	GG618849.D	1	1	1.6		ug/l	
3,5-Dinitroaniline [a]	PP386868.D	1	1	.34		ug/l	105.6
3,5-Dinitroaniline	GG618849.D	1	1	1.1		ug/l	
2-amino-4,6-Dinitrotoluene	PP386868.D	1	1	1.1		ug/l	24.5
2-amino-4,6-Dinitrotoluene	GG618849.D	1	1	.86		ug/l	
4-amino-2,6-Dinitrotoluene [a]	PP386868.D	1	1	.66		ug/l	56.3
4-amino-2,6-Dinitrotoluene	GG618849.D	1	1	.37		ug/l	
1,3,5-Trinitrobenzene	PP386868.D	1	1	4.1		ug/l	4.8
1,3,5-Trinitrobenzene	GG618849.D	1	1	4.3		ug/l	
2,4,6-Trinitrotoluene	PP386868.D	1	1	5.5		ug/l	3.7
2,4,6-Trinitrotoluene	GG618849.D	1	1	5.3		ug/l	

(a) Primary and confirmation results differ by more than 40%.

GC Identification Summary (Explosives)

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample ID:	FA74617-2	**Method:**	SW846 8330B
Client ID:	54TW13		

Injection Type	Lab File ID	Dilution	Prep Batch	Inst Batch	Injection Time	Inst ID
Reportable	PP386869.D	1	OP80038	GPP2268	05/04/20 17:45	GCPP
Confirmation	GG618850.D	1	OP80038	GGG2834	05/06/20 15:58	GCGG

Compound	Lab File ID	Dilution	Sig#	Conc	Q	Units	RPD Conc
HMX	PP386869.D	1	1	2.5		ug/l	7.7
HMX	GG618850.D	1	2	2.7		ug/l	
RDX	PP386869.D	1	1	1.1		ug/l	0.0
RDX	GG618850.D	1	1	1.1		ug/l	
3,5-Dinitroaniline [a]	PP386869.D	1	1	.32		ug/l	98.4
3,5-Dinitroaniline	GG618850.D	1	1	.94		ug/l	
2-amino-4,6-Dinitrotoluene	PP386869.D	1	1	.91		ug/l	15.4
2-amino-4,6-Dinitrotoluene	GG618850.D	1	1	.78		ug/l	
4-amino-2,6-Dinitrotoluene	PP386869.D	1	1	.53		ug/l	35.6
4-amino-2,6-Dinitrotoluene	GG618850.D	1	1	.37		ug/l	
1,3,5-Trinitrobenzene	PP386869.D	1	1	3.1		ug/l	6.2
1,3,5-Trinitrobenzene	GG618850.D	1	1	3.3		ug/l	
2,4,6-Trinitrotoluene	PP386869.D	1	1	4.1		ug/l	0.0
2,4,6-Trinitrotoluene	GG618850.D	1	1	4.1		ug/l	

(a) Primary and confirmation results differ by more than 40%.

GC Identification Summary (Explosives)

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample ID: FA74617-3 **Method:** SW846 8330B
Client ID: 54MW10

Injection Type	Lab File ID	Dilution	Prep Batch	Inst Batch	Injection Time	Inst ID
Reportable	PP386872.D	1	OP80038	GPP2268	05/04/20 19:18	GCPP
Reportable	PP386885.D	2	OP80038	GPP2269	05/05/20 15:18	GCPP
Confirmation	GG618851.D	1	OP80038	GGG2834	05/06/20 16:27	GCGG
Confirmation	GG618852.D	2	OP80038	GGG2834	05/06/20 16:57	GCGG

Compound	Lab File ID	Dilution	Sig#	Conc	Q	Units	RPD Conc
HMX	PP386872.D	1	1	5.1		ug/l	14.5
HMX	GG618851.D	1	2	5.9		ug/l	
RDX	PP386872.D	1	1	5.1		ug/l	0.0
RDX	GG618851.D	1	1	5.1		ug/l	
3,5-Dinitroaniline [a]	PP386872.D	1	1	.39		ug/l	79.1
3,5-Dinitroaniline	GG618851.D	1	1	.9		ug/l	
2-amino-4,6-Dinitrotoluene [b]	PP386885.D	2	1	4.2		ug/l	75.4
2-amino-4,6-Dinitrotoluene	GG618852.D	2	1	1.9		ug/l	
4-amino-2,6-Dinitrotoluene [a]	PP386872.D	1	1	1.5		ug/l	45.9
4-amino-2,6-Dinitrotoluene	GG618851.D	1	1	.94		ug/l	
1,3,5-Trinitrobenzene	PP386872.D	1	1	8.4		ug/l	3.6
1,3,5-Trinitrobenzene	GG618851.D	1	1	8.1		ug/l	
2,4,6-Trinitrotoluene	PP386872.D	1	1	20.5		ug/l	16.9
2,4,6-Trinitrotoluene	GG618851.D	1	1	17.3		ug/l	

(a) Primary and confirmation results differ by more than 40%.
(b) Primary and confirmation results differ by more than 40%. Dilution required due to high levels of TNT in the sample.

GC Identification Summary (Explosives)

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample ID:	FA74617-4	**Method:**	SW846 8330B
Client ID:	54MW12		

Injection Type	Lab File ID	Dilution	Prep Batch	Inst Batch	Injection Time	Inst ID
Reportable	PP386873.D	1	OP80038	GPP2268	05/04/20 19:49	GCPP
Confirmation	GG618853.D	1	OP80038	GGG2834	05/06/20 17:26	GCGG

Compound	Lab File ID	Dilution	Sig#	Conc	Q	Units	RPD Conc
HMX	PP386873.D	1	1	12.7		ug/l	20.5
HMX	GG618853.D	1	2	15.6		ug/l	
RDX	PP386873.D	1	1	.17	J	ug/l	25.6
RDX	GG618853.D	1	1	.22		ug/l	
3,5-Dinitroaniline [a]	PP386873.D	1	1	.24		ug/l	144.8
3,5-Dinitroaniline	GG618853.D	1	1	1.5		ug/l	
2-amino-4,6-Dinitrotoluene	PP386873.D	1	1	4		ug/l	13.3
2-amino-4,6-Dinitrotoluene	GG618853.D	1	1	3.5		ug/l	
4-amino-2,6-Dinitrotoluene [a]	PP386873.D	1	1	2.5		ug/l	50.0
4-amino-2,6-Dinitrotoluene	GG618853.D	1	1	1.5		ug/l	
1,3,5-Trinitrobenzene	PP386873.D	1	1	9.5		ug/l	2.1
1,3,5-Trinitrobenzene	GG618853.D	1	1	9.7		ug/l	
2,4,6-Trinitrotoluene	PP386873.D	1	1	8.3		ug/l	3.6
2,4,6-Trinitrotoluene	GG618853.D	1	1	8.6		ug/l	

(a) Primary and confirmation results differ by more than 40%.

Surrogate Recovery Summary

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Method: SW846 8330B **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 [a]
FA74617-1	GG618849.D	123
FA74617-1	PP386868.D	107
FA74617-2	GG618850.D	125
FA74617-2	PP386869.D	104
FA74617-3	GG618851.D	123
FA74617-3	GG618852.D	124
FA74617-3	PP386872.D	114
FA74617-3	PP386885.D	111
FA74617-4	PP386873.D	121
FA74617-4	GG618853.D	124
FA74617-5	PP386874.D	103
OP80038-BS	PP386866.D	112
OP80038-MB	PP386867.D	102
OP80038-MB	GG618848.D	116
OP80038-MS	PP386875.D	115
OP80038-MSD	PP386876.D	118

Surrogate Compounds	Recovery Limits
S1 = 3,4-Dinitrotoluene	70-136%

(a) Recovery from GC signal #1

GC Surrogate Retention Time Summary

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Check Std:	GGG2834-CC2769	**Injection Date:**	05/06/20
Lab File ID:	GG618847.D	**Injection Time:**	14:30
Instrument ID:	GCGG	**Method:**	SW846 8330B

	S1 [a] **RT**
Check Std	13.64

Lab Sample ID	**Lab File ID**	**Date Analyzed**	**Time Analyzed**	**S1** [a] **RT**
OP80038-MB	GG618848.D	05/06/20	14:59	13.49
FA74617-1	GG618849.D	05/06/20	15:29	13.52
FA74617-2	GG618850.D	05/06/20	15:58	13.50
FA74617-3	GG618851.D	05/06/20	16:27	13.52
FA74617-3	GG618852.D	05/06/20	16:57	13.55
FA74617-4	GG618853.D	05/06/20	17:26	13.56
OP80057-MB	GG618854.D	05/06/20	17:56	13.53
ZZZZZZ	GG618855.D	05/06/20	18:25	13.52
ZZZZZZ	GG618856.D	05/06/20	18:55	13.54
ZZZZZZ	GG618857.D	05/06/20	19:24	13.57

Surrogate Compounds

S1 = 3,4-Dinitrotoluene

(a) Retention time from GC signal #1

GC Surrogate Retention Time Summary

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Check Std:	GPP2268-CC2262	**Injection Date:**	05/04/20
Lab File ID:	PP386859.D	**Injection Time:**	12:36
Instrument ID:	GCPP	**Method:**	SW846 8330B

	S1 [a] **RT**
Check Std	11.05

Lab Sample ID	**Lab File ID**	**Date Analyzed**	**Time Analyzed**	**S1** [a] **RT**
ZZZZZZ	PP386860.D	05/04/20	13:06	11.05
ZZZZZZ	PP386861.D	05/04/20	13:37	11.04
ZZZZZZ	PP386862.D	05/04/20	14:08	11.22
ZZZZZZ	PP386863.D	05/04/20	14:39	11.24
ZZZZZZ	PP386864.D	05/04/20	15:10	0.00
ZZZZZZ	PP386865.D	05/04/20	15:41	11.10
OP80038-BS	PP386866.D	05/04/20	16:12	11.06
OP80038-MB	PP386867.D	05/04/20	16:43	11.07
FA74617-1	PP386868.D	05/04/20	17:14	11.09
FA74617-2	PP386869.D	05/04/20	17:45	11.09

Surrogate Compounds

S1 = 3,4-Dinitrotoluene

(a) Retention time from GC signal #1

GC Surrogate Retention Time Summary

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Check Std:	GPP2269-CC2262	**Injection Date:**	05/05/20
Lab File ID:	PP386879.D	**Injection Time:**	12:13
Instrument ID:	GCPP	**Method:**	SW846 8330B

	S1 [a] RT	S1 [b] RT
Check Std	10.99	11.00

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT	S1 [b] RT
OP80050-BS	PP386880.D	05/05/20	12:44		11.03
OP80050-MB	PP386881.D	05/05/20	13:15		11.05
JD6296-2	PP386882.D	05/05/20	13:46	11.06	
OP80050-MS	PP386883.D	05/05/20	14:17	10.97	
OP80050-MSD	PP386884.D	05/05/20	14:47	10.99	
FA74617-3	PP386885.D	05/05/20	15:18		11.01
OP80045-MB	PP386887.D	05/05/20	16:20		11.03
ZZZZZZ	PP386888.D	05/05/20	16:51		11.09
ZZZZZZ	PP386889.D	05/05/20	17:22		11.09

Surrogate Compounds

S1 = 3,4-Dinitrotoluene

(a) Retention time from GC signal #2
(b) Retention time from GC signal #1

GC Surrogate Retention Time Summary

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Check Std:	GPP2268-CC2262	**Injection Date:**	05/04/20
Lab File ID:	PP386870.D	**Injection Time:**	18:16
Instrument ID:	GCPP	**Method:**	SW846 8330B

	S1 [a] RT	S1 [b] RT
Check Std	11.09	11.09

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT	S1 [b] RT
FA74617-3	PP386872.D	05/04/20	19:18		11.08
FA74617-4	PP386873.D	05/04/20	19:49		11.08
FA74617-5	PP386874.D	05/04/20	20:20		11.10
OP80038-MS	PP386875.D	05/04/20	20:50		11.06
OP80038-MSD	PP386876.D	05/04/20	21:21		11.06
GPP2268-ECC2262	PP386877.D	05/04/20	21:52	11.07	11.07

Surrogate Compounds

S1 = 3,4-Dinitrotoluene

(a) Retention time from GC signal #2
(b) Retention time from GC signal #1

Initial Calibration Summary

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GGG2769-ICC2769
Lab FileID: GG617752.D

Response Factor Report G1315B

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 15:51:18 2019
Response via : Initial Calibration

Calibration Files
20 =GG617747.D 50 =GG617748.D 100 =GG617749.D 200 =GG617750.D
500 =GG617751.D 1000=GG617752.D 2500=GG617753.D 5000=GG617754.D

Compound	20	50	100	200	500	1000	2500	5000	Avg	%RSD
1) TNX	1.090	0.567	0.627	0.595	0.598	0.602	0.618	0.604	0.663 E4	26.21
---- Quadratic regr., Force(0,0) ---- Coefficient = 0.9999										
Response Ratio = 0.00000 + 6202.12639 *A + -0.03160 *A^2										
2) HMX	3.834	2.496	3.035	2.806	2.719	3.026	2.990	2.931	2.980 E3	13.12
3) DNX	7.384	4.212	4.785	4.214	4.184	4.047	4.321	4.153	4.663 E3	24.06
---- Quadratic regr., Force(0,0) ---- Coefficient = 0.9997										
Response Ratio = 0.00000 + 4333.59625 *A + -0.03462 *A^2										
4) MNX	3.829	4.429	5.498	5.552	5.623	5.735	5.854	5.780	5.288 E3	14.03
5) 1,3,5-Trinit	1.020	0.967	1.069	1.037	1.033	1.043	1.058	1.046	1.034 E4	3.00
6) RDX	4.787	4.788	5.136	5.268	5.146	5.160	5.189	5.085	5.070 E3	3.58
7) 1,3-Dinitrob	1.351	1.340	1.497	1.400	1.385	1.399	1.413	1.396	1.398 E4	3.38
8) Nitrobenzene	9.226	8.494	9.395	8.804	8.737	8.836	8.904	8.831	8.904 E3	3.18
9) 2,4,6-Trinit	1.020	0.934	1.096	1.022	1.018	1.025	1.033	1.011	1.020 E4	4.30
10) Nitroglyceri									0.000	-1.00
11) Tetryl	6.250	6.856	8.642	7.770	7.905	7.927	8.059	7.836	7.656 E3	9.79
12) 3,4-Dinitrot	4.231	4.332	4.810	4.488	4.563	4.591	4.571	4.539	4.515 E3	3.87
13) 2,6-Dinitrot	6.796	6.590	7.679	7.285	7.241	7.352	7.470	7.339	7.219 E3	4.93
14) 2,4-Dinitrot	1.203	1.143	1.329	1.286	1.273	1.291	1.307	1.283	1.265 E4	4.84
15) o-Nitrotolue	4.848	4.544	6.419	6.171	6.103	6.202	6.233	6.005	5.816 E3	12.13
16) 3,5-Dinitroa	0.842	0.938	1.099	1.046	1.049	1.053	1.074	1.060	1.020 E4	8.42
17) p-Nitrotolue	1.096	1.037	1.221	1.174	1.176	1.189	1.207	1.178	1.160 E4	5.33
18) 4-Amino-2,6-	1.069	1.037	1.221	1.174	1.176	1.189	1.207	1.178	1.156 E4	5.74
19) m-Nitrotolue	5.524	5.089	6.330	5.944	5.883	5.955	6.038	5.897	5.833 E3	6.39
20) 2-Amino-4,6-	0.888	0.781	1.024	1.003	0.987	1.000	1.015	0.977	0.960 E4	8.70
21) PETN									0.000	-1.00

Signal #2

1) TNX	1.090	0.571	0.627	0.597	0.595	0.600	0.618	0.604	0.663 E4	26.17
---- Quadratic regr., Force(0,0) ---- Coefficient = 0.9999										
Response Ratio = 0.00000 + 6194.64751 *A + -0.03004 *A^2										
2) HMX	3.693	2.602	3.068	2.854	2.826	3.028	2.990	2.931	2.999 E3	10.55
3) DNX	7.474	4.184	4.889	4.312	4.279	4.063	4.321	4.153	4.709 E3	24.31
---- Quadratic regr., Force(0,0) ---- Coefficient = 0.9997										
Response Ratio = 0.00000 + 4350.00063 *A + -0.03808 *A^2										
4) MNX	3.921	4.420	5.498	5.552	5.623	5.735	5.854	5.780	5.298 E3	13.55
5) 1,3,5-Trinit	1.020	0.967	1.069	1.037	1.033	1.043	1.058	1.046	1.034 E4	3.00
6) RDX	4.787	4.788	5.136	5.268	5.146	5.160	5.189	5.085	5.070 E3	3.58
7) 1,3-Dinitrob	0.883	1.110	1.035	1.044	1.096	1.064	1.072	1.050	1.044 E4	6.70
8) Nitrobenzene	8.764	9.364	8.424	8.090	7.900	8.512	8.398	8.260	8.464 E3	5.30
9) 2,4,6-Trinit	1.186	1.257	1.276	1.460	1.351	1.365	1.361	1.320	1.322 E4	6.27
10) Nitroglyceri			3.766	3.719	3.543	3.333	3.267	3.115	3.457 E3	7.54
11) Tetryl	1.611	1.083	1.444	1.506	1.352	1.423	1.457	1.394	1.409 E4	10.84

Initial Calibration Summary

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GGG2769-ICC2769
Lab FileID: GG617752.D

```
12) 3,4-Dinitrot 8.357 6.861 8.685 8.668 8.891 9.056 9.049 9.141 8.588 E3   8.67
13) 2,6-Dinitrot 1.018 1.084 1.206 1.125 1.051 1.077 1.093 1.077 1.091 E4   5.10
            ---- Linear regr., Force(0,0) ----  Coefficient =  0.9999
              Response Ratio = 0.00000 + 10801.53993 *A

14) 2,4-Dinitrot 1.041 0.922 0.797 0.842 0.827 0.883 0.914 0.909 0.892 E4   8.45
15) o-Nitrotolue 6.448 7.957 8.440 8.806 8.347 8.738 8.989 8.884 8.326 E3   9.97
16) 3,5-Dinitroa 1.569 1.678 1.615 1.616 1.642 1.681 1.736 1.743 1.660 E4   3.68
17) p-Nitrotolue 2.824 2.121 2.192 1.990 2.054 2.083 2.153 2.150 2.196 E4  11.91
18) 4-Amino-2,6- 2.824 1.927 2.192 1.990 2.054 2.083 2.153 2.150 2.172 E4  12.80
19) m-Nitrotolue 1.275 0.790 1.070 0.960 0.914 0.946 0.998 1.002 0.994 E4  14.03
20) 2-Amino-4,6- 1.755 1.340 1.389 1.299 1.291 1.344 1.406 1.401 1.403 E4  10.61
21) PETN                    2.339 2.597 2.462 3.079 3.454 3.480 2.902 E3  17.39
            ---- Quadratic regr., Force(0,0) ----  Coefficient =  0.9992
              Response Ratio = 0.00000 + 3195.99600 *A + 0.05906 *A^2

------------------------------------------------------------------------------
(#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          8330RPB.M_092519.M        Thu Sep 26 16:02:14 2019
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8.7.1

8

Initial Calibration Verification

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GGG2769-ICV2769
Lab FileID: GG617755.D

Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617755.D\dad1B.ch Vial: 10
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617755.D\dad1A.ch
Acq On : 26-Sep-2019, 00:25:58 Operator: williamh
Sample : icv2769-1000 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 15:51:18 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT Window
1	TNX	1000.000	996.081	0.4	102	0.02	4.46- 5.46
2	HMX	1000.000	980.590	1.9	97	0.02	4.87- 5.87
3	DNX	1000.000	957.975	4.2	102	0.02	4.98- 5.98
4	MNX	1000.000	1010.883	-1.1	93	0.03	5.82- 6.82
5	1,3,5-Trinitrobenzene	1000.000	918.511	8.1	91	0.04	6.63- 7.63
6	RDX	1000.000	975.924	2.4	96	0.05	7.05- 8.05
7	1,3-Dinitrobenzene	1000.000	954.196	4.6	95	0.05	9.00-10.00
8	Nitrobenzene	1000.000	968.207	3.2	98	0.06	9.91-10.91
9	2,4,6-Trinitrotoluene	1000.000	995.903	0.4	99	0.07	10.52-11.52
10	Nitroglycerin			NA			
11	Tetryl	1000.000	984.241	1.6	95	0.10	11.62-12.62
12 S	3,4-Dinitrotoluene			NA			
13	2,6-Dinitrotoluene	1000.000	873.993	12.6	86	0.12	13.38-14.38
14	2,4-Dinitrotoluene	1000.000	979.272	2.1	96	0.11	14.08-15.08
15	o-Nitrotoluene	1000.000	1054.033	-5.4	99	0.13	15.56-16.56
16	3,5-Dinitroaniline	1000.000	1041.817	-4.2	101	0.09	14.96-15.96
17	p-Nitrotoluene	1000.000	984.309	1.6	96	0.13	16.60-17.60
18	4-Amino-2,6-Dinitrotol	1000.000	987.195	1.3	96	0.13	16.60-17.60
19	m-Nitrotoluene	1000.000	1018.222	-1.8	100	0.14	17.83-18.83
20	2-Amino-4,6-Dinitrotol	1000.000	960.966	3.9	92	0.14	18.66-19.66
21	PETN			NA			

***** Signal #2 *****

		Amount	Calc.	%Drift			
1	TNX	1000.000	997.042	0.3	102	0.02	4.46- 5.46
2	HMX	1000.000	974.217	2.6	96	0.02	4.87- 5.87
3	DNX	1000.000	955.041	4.5	101	0.02	4.98- 5.98

Initial Calibration Verification

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GGG2769-ICV2769
Lab FileID: GG617755.D

			Amount	Calc.	%Drift			
4		MNX	1000.000	1008.886	-0.9	93	0.03	5.82- 6.82
5		1,3,5-Trinitrobenzene	1000.000	918.511	8.1	91	0.04	6.63- 7.63
6		RDX	1000.000	975.924	2.4	96	0.05	7.05- 8.05
7		1,3-Dinitrobenzene	1000.000	986.349	1.4	97	0.05	9.00-10.00
8		Nitrobenzene	1000.000	977.336	2.3	97	0.06	9.91-10.91
9		2,4,6-Trinitrotoluene	1000.000	1026.613	-2.7	99	0.07	10.52-11.52
10		Nitroglycerin	1000.000	999.345	0.1	104	0.09	11.15-12.15
11		Tetryl	1000.000	971.517	2.8	96	0.10	11.62-12.62

			Amount	Calc.	%Drift			
12	S	3,4-Dinitrotoluene	----------NA----------					

			Amount	Calc.	%Drift			
13		2,6-Dinitrotoluene	1000.000	844.042	15.6	85	0.12	13.38-14.38
14		2,4-Dinitrotoluene	1000.000	965.106	3.5	98	0.11	14.08-15.08
15		o-Nitrotoluene	1000.000	1006.127	-0.6	96	0.12	15.56-16.56
16		3,5-Dinitroaniline	1000.000	1029.620	-3.0	102	0.09	14.96-15.96
17		p-Nitrotoluene	1000.000	894.241	10.6	94	0.13	16.60-17.60
18		4-Amino-2,6-Dinitrotol	1000.000	904.219	9.6	94	0.13	16.60-17.60
19		m-Nitrotoluene	1000.000	934.998	6.5	98	0.14	17.83-18.83
20		2-Amino-4,6-Dinitrotol	1000.000	868.472	13.2	91	0.14	18.66-19.66

			Amount	Calc.	%Drift			
21		PETN	1000.000	815.859	18.4	86	0.19	19.78-20.78

(#) = Out of Range SPCC's out = 0 CCC's out = 0
GG617752.D 8330RPB.M_092519.M Thu Sep 26 16:02:40 2019

8.7.2

8

Continuing Calibration Summary

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GGG2834-CC2769
Lab FileID: GG618847.D

Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618847.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618847.D\dad1A.ch
Acq On : 06-May-2020, 14:30:09 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : op80057,GGG2834,1050,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT Window
1		TNX	1000.000	1062.592	-6.3	109	0.00	4.50- 5.50
2		HMX	1000.000	1200.436	-20.0#	118	0.00	4.91- 5.91
3		DNX	1000.000	757.353	24.3#	81	0.00	5.02- 6.02
4		MNX	1000.000	1009.660	-1.0	93	0.00	5.87- 6.87
5		1,3,5-Trinitrobenzene	1000.000	1078.796	-7.9	107	0.00	6.60- 7.60
6		RDX	1000.000	1020.203	-2.0	100	0.00	7.08- 8.08
7		1,3-Dinitrobenzene	1000.000	1069.193	-6.9	107	0.00	8.98- 9.98
8		Nitrobenzene	1000.000	1079.272	-7.9	109	0.00	9.86-10.86
9		2,4,6-Trinitrotoluene	1000.000	1033.474	-3.3	103	0.00	10.43-11.43
10		Nitroglycerin	----------NA----------					
11		Tetryl	1000.000	1046.386	-4.6	101	0.02	11.55-12.55
12	S	3,4-Dinitrotoluene	1000.000	1094.591	-9.5	108	0.10	13.04-14.04
13		2,6-Dinitrotoluene	1000.000	1007.595	-0.8	99	0.00	13.28-14.28
14		2,4-Dinitrotoluene	1000.000	1080.234	-8.0	106	0.01	13.96-14.96
15		o-Nitrotoluene	1000.000	1061.441	-6.1	100	0.00	15.39-16.39
16		3,5-Dinitroaniline	1000.000	1120.686	-12.1	109	0.01	14.87-15.87
17		p-Nitrotoluene	1000.000	1087.947	-8.8	106	0.02	16.47-17.47
18		4-Amino-2,6-Dinitrotol	1000.000	1091.137	-9.1	106	0.02	16.47-17.47
19		m-Nitrotoluene	1000.000	1163.503	-16.4#	114	0.00	17.60-18.60
20		2-Amino-4,6-Dinitrotol	1000.000	1076.336	-7.6	103	0.04	18.57-19.57
21		PETN	----------NA----------					

***** Signal #2 *****

1		TNX	1000.000	1063.600	-6.4	109	0.00	4.50- 5.50
2		HMX	1000.000	1105.448	-10.5	109	0.00	4.91- 5.91
3		DNX	1000.000	765.921	23.4#	81	0.00	5.02- 6.02

Continuing Calibration Summary

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GGG2834-CC2769
Lab FileID: GG618847.D

			Amount	Calc.	%Drift			
4		MNX	1000.000	1007.666	-0.8	93	0.00	5.87- 6.87
5		1,3,5-Trinitrobenzene	1000.000	1078.796	-7.9	107	0.00	6.60- 7.60
6		RDX	1000.000	1020.203	-2.0	100	0.00	7.08- 8.08
7		1,3-Dinitrobenzene	1000.000	1088.239	-8.8	107	0.00	8.98- 9.98
8		Nitrobenzene	1000.000	1085.785	-8.6	108	0.00	9.86-10.86
9		2,4,6-Trinitrotoluene	1000.000	1065.476	-6.5	103	0.00	10.43-11.43
10		Nitroglycerin	1000.000	1044.933	-4.5	108	0.01	11.05-12.05
11		Tetryl	1000.000	1005.324	-0.5	100	0.02	11.55-12.55

			Amount	Calc.	%Drift			
12	S	3,4-Dinitrotoluene	1000.000	1051.460	-5.1	104	0.03	13.02-14.02

			Amount	Calc.	%Drift			
13		2,6-Dinitrotoluene	1000.000	1020.320	-2.0	103	0.00	13.28-14.28
14		2,4-Dinitrotoluene	1000.000	1125.709	-12.6	114	0.02	13.96-14.96
15		o-Nitrotoluene	1000.000	1070.981	-7.1	102	0.00	15.39-16.39
16		3,5-Dinitroaniline	1000.000	1145.167	-14.5	113	0.02	14.86-15.86
17		p-Nitrotoluene	1000.000	1031.422	-3.1	109	0.02	16.48-17.48
18		4-Amino-2,6-Dinitrotol	1000.000	1042.930	-4.3	109	0.02	16.48-17.48
19		m-Nitrotoluene	1000.000	1123.478	-12.3	118	0.00	17.60-18.60
20		2-Amino-4,6-Dinitrotol	1000.000	1037.232	-3.7	108	0.04	18.57-19.57

			Amount	Calc.	%Drift			
21		PETN	1000.000	1091.073	-9.1	116	0.07	19.39-20.39

(#) = Out of Range SPCC's out = 0 CCC's out = 0
GG617752.D 8330RPB.M_092519.M Thu May 07 16:04:11 2020

8.7.3

8

Continuing Calibration Summary

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GGG2834-CC2769
Lab FileID: GG618858.D

Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618858.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618858.D\dad1A.ch
Acq On : 06-May-2020, 19:53:55 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : op80057,GGG2834,1050,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT Window
1	TNX	1000.000	1073.624	-7.4	110	0.00	4.50- 5.50
2	HMX	1000.000	1074.354	-7.4	106	0.02	4.91- 5.91
3	DNX	1000.000	751.848	24.8#	80	0.00	5.02- 6.02
4	MNX	1000.000	1014.933	-1.5	94	0.03	5.87- 6.87
5	1,3,5-Trinitrobenzene	1000.000	1077.216	-7.7	107	0.02	6.60- 7.60
6	RDX	1000.000	1014.388	-1.4	100	0.03	7.08- 8.08
7	1,3-Dinitrobenzene	1000.000	1064.063	-6.4	106	0.03	8.98- 9.98
8	Nitrobenzene	1000.000	1064.997	-6.5	107	0.03	9.86-10.86
9	2,4,6-Trinitrotoluene	1000.000	1021.645	-2.2	102	0.04	10.43-11.43
10	Nitroglycerin	----------	NA	----------			
11	Tetryl	1000.000	1024.360	-2.4	99	0.07	11.55-12.55
12 S	3,4-Dinitrotoluene	1000.000	996.290	0.4	98	0.12	13.04-14.04
13	2,6-Dinitrotoluene	1000.000	1045.266	-4.5	103	0.05	13.28-14.28
14	2,4-Dinitrotoluene	1000.000	1072.320	-7.2	105	0.06	13.96-14.96
15	o-Nitrotoluene	1000.000	1031.637	-3.2	97	0.06	15.39-16.39
16	3,5-Dinitroaniline	1000.000	1118.209	-11.8	108	0.08	14.87-15.87
17	p-Nitrotoluene	1000.000	1076.808	-7.7	105	0.09	16.47-17.47
18	4-Amino-2,6-Dinitrotol	1000.000	1079.965	-8.0	105	0.09	16.47-17.47
19	m-Nitrotoluene	1000.000	1143.273	-14.3	112	0.08	17.60-18.60
20	2-Amino-4,6-Dinitrotol	1000.000	1067.645	-6.8	102	0.12	18.57-19.57
21	PETN	----------	NA	----------			

***** Signal #2 *****

		Amount	Calc.	%Drift			
1	TNX	1000.000	1074.640	-7.5	110	0.00	4.50- 5.50
2	HMX	1000.000	1096.389	-9.6	109	0.02	4.91- 5.91
3	DNX	1000.000	744.390	25.6#	79	0.00	5.02- 6.02

Continuing Calibration Summary

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GGG2834-CC2769
Lab FileID: GG618858.D

			Amount	Calc.	%Drift			
4		MNX	1000.000	1012.928	-1.3	94	0.03	5.87- 6.87
5		1,3,5-Trinitrobenzene	1000.000	1077.216	-7.7	107	0.02	6.60- 7.60
6		RDX	1000.000	1014.388	-1.4	100	0.03	7.08- 8.08
7		1,3-Dinitrobenzene	1000.000	1096.723	-9.7	108	0.03	8.98- 9.98
8		Nitrobenzene	1000.000	1082.927	-8.3	108	0.03	9.86-10.86
9		2,4,6-Trinitrotoluene	1000.000	1068.526	-6.9	103	0.04	10.43-11.43
10		Nitroglycerin	1000.000	1084.466	-8.4	112	0.05	11.05-12.05
11		Tetryl	1000.000	1005.876	-0.6	100	0.07	11.55-12.55

			Amount	Calc.	%Drift			
12	S	3,4-Dinitrotoluene	1000.000	1035.554	-3.6	103	0.09	13.02-14.02

			Amount	Calc.	%Drift			
13		2,6-Dinitrotoluene	1000.000	1055.174	-5.5	107	0.05	13.28-14.28
14		2,4-Dinitrotoluene	1000.000	1108.528	-10.9	112	0.07	13.96-14.96
15		o-Nitrotoluene	1000.000	1054.647	-5.5	100	0.06	15.39-16.39
16		3,5-Dinitroaniline	1000.000	1138.504	-13.9	112	0.08	14.86-15.86
17		p-Nitrotoluene	1000.000	1033.704	-3.4	109	0.10	16.48-17.48
18		4-Amino-2,6-Dinitrotol	1000.000	1045.238	-4.5	109	0.10	16.48-17.48
19		m-Nitrotoluene	1000.000	1131.158	-13.1	119	0.08	17.60-18.60
20		2-Amino-4,6-Dinitrotol	1000.000	1034.181	-3.4	108	0.12	18.57-19.57

			Amount	Calc.	%Drift			
21		PETN	1000.000	1094.155	-9.4	116	0.13	19.39-20.39

(#) = Out of Range SPCC's out = 0 CCC's out = 0
GG617752.D 8330RPB.M_092519.M Thu May 07 16:04:12 2020

Initial Calibration Summary

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GPP2262-ICC2262
Lab FileID: PP386578.D

Response Factor Report G1315B

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Initial Calibration

Calibration Files
20 =PP386573.D 50 =PP386574.D 100 =PP386575.D 200 =PP386576.D
500 =PP386577.D 1000=PP386578.D 2500=PP386579.D 5000=PP386580.D

Compound	20	50	100	200	500	1000	2500	5000	Avg	%RSD
1) TNX	1.707	1.855	2.233	2.404	2.430	2.436	2.436	2.442	2.243 E3	13.19
2) HMX	1.442	1.527	1.647	1.559	1.698	1.662	1.642	1.636	1.602 E3	5.30
3) DNX	1.137	1.068	1.092	1.134	1.185	1.172	1.161	1.157	1.138 E3	3.54
4) MNX	2.288	2.300	2.315	2.255	2.224	2.217	2.206	2.214	2.252 E3	1.92
5) RDX	2.164	1.888	2.056	1.974	1.946	1.951	1.947	1.955	1.985 E3	4.33
6) 1,3,5-Trinit	4.120	3.952	4.066	4.020	3.983	4.017	4.191	4.219	4.071 E3	2.39
7) 1,3-Dinitrob	5.665	5.302	5.617	5.512	5.462	5.463	5.472	5.499	5.499 E3	1.99
8) 3,5-Dinitroa	4.364	4.067	4.295	4.195	4.149	4.131	4.137	4.161	4.187 E3	2.31
9) Nitrobenzene	3.512	3.153	3.409	3.308	3.269	3.265	3.281	3.294	3.311 E3	3.23
10) Nitroglyceri									0.000	-1.00
11) Tetryl	2.927	2.745	2.987	2.893	2.844	2.848	2.832	2.873	2.869 E3	2.48
12) 2,4,6-Trinit	3.796	3.617	3.990	3.791	3.771	3.769	3.767	3.791	3.787 E3	2.67
13) 2-Amino-4,6-	3.521	3.332	3.766	3.669	3.564	3.545	3.536	3.574	3.563 E3	3.50
14) 4-Amino-2,6-	3.179	2.608	2.895	2.662	2.594	2.568	2.555	2.576	2.705 E3	8.18
15) 3,4-Dinitrot	1.838	1.851		2.074	2.043	2.029	2.031	2.061	1.990 E3	5.04
16) 2,4-Dinitrot	4.811	4.396	5.015	4.838	4.773	4.767	4.778	4.806	4.773 E3	3.60
17) 2,6-Dinitrot	2.966	2.867	3.174	2.992	2.968	2.950	2.949	2.968	2.979 E3	2.92
18) o-Nitrotolue	2.874	2.188	2.419	2.318	2.259	2.267	2.275	2.283	2.360 E3	9.21
19) p-Nitrotolue	4.326	3.752	3.868	3.792	3.643	3.668	3.698	3.715	3.808 E3	5.81
20) m-Nitrotolue	3.484	3.302	3.599	3.782	3.451	3.474	3.506	3.521	3.515 E3	3.88
21) PETN									0.000	-1.00

Signal #2

1) TNX	3.689	2.987	3.560	3.840	3.842	3.832	3.829	3.834	3.677 E3	8.06
2) HMX	7.278	5.295	5.568	4.752	4.921	4.733	4.629	4.604	5.222 E3	17.18

---- Quadratic regr., Force(0,0) ---- Coefficient = 1.0000
Response Ratio = 0.00000 + 4716.26956 *A + -0.02307 *A^2

3) DNX	2.496	1.900	1.778	1.786	1.999	1.875	1.842	1.832	1.939 E3	12.17
4) MNX	3.566	3.387	3.536	3.479	3.546	3.473	3.445	3.442	3.484 E3	1.76
5) RDX	3.535	3.005	3.429	3.275	3.189	3.173	3.150	3.148	3.238 E3	5.26
6) 1,3,5-Trinit	7.853	7.370	7.852	7.667	7.813	7.885	8.089	8.242	7.846 E3	3.33
7) 1,3-Dinitrob	3.404	4.303	3.906	3.946	3.983	3.923	3.818	3.946	3.904 E3	6.32
8) 3,5-Dinitroa	8.647	7.519	8.013	7.465	7.270	7.064	7.138	7.089	7.526 E3	7.31
9) Nitrobenzene	3.476	3.148	3.351	3.197	3.161	3.171	3.167	3.231	3.238 E3	3.60
10) Nitroglyceri	0.969	1.127	1.105	1.109	1.149	1.173	1.223	1.245	1.138 E3	7.46
11) Tetryl	4.392	4.097	4.592	4.603	4.627	4.646	4.734	4.781	4.559 E3	4.81
12) 2,4,6-Trinit	3.712	3.705	4.266	4.325	4.450	4.496	4.611	4.652	4.277 E3	8.74
13) 2-Amino-4,6-	4.329	4.239	4.924	5.091	5.197	5.220	5.360	5.444	4.975 E3	9.16
14) 4-Amino-2,6-	3.438	3.694	4.680	4.855	5.020	5.075	5.256	5.338	4.670 E3	15.32

---- Quadratic regr., Force(0,0) ---- Coefficient = 1.0000
Response Ratio = 0.00000 + 5104.54671 *A + 0.04747 *A^2

15) 3,4-Dinitrot	1.418	2.000	2.891	3.102	3.307	3.373	3.632	3.756	2.935 E3	27.90

---- Quadratic regr., Force(0,0) ---- Coefficient = 0.9999
Response Ratio = 0.00000 + 3412.56015 *A + 0.06960 *A^2

Initial Calibration Summary

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA
Sample: GPP2262-ICC2262
Lab FileID: PP386578.D

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16) 2,4-Dinitrot 2.327 2.411 2.892 2.776 2.843 2.864 3.035 3.110 2.782 E3   9.97
17) 2,6-Dinitrot 2.080 3.575 3.601 3.797 3.772 3.798 3.887 3.943 3.557 E3  17.14
            ---- Quadratic regr., Force(0,0) ----  Coefficient =  1.0000
              Response Ratio = 0.00000 + 3803.38989 *A + 0.02826 *A^2

18) o-Nitrotolue 2.866 2.436 2.830 2.854 3.070 3.131 3.246 3.295 2.966 E3   9.41
19) p-Nitrotolue 2.022 1.760 1.851 2.384 2.586 2.856 3.045 3.125 2.454 E3  21.87
            ---- Quadratic regr., Force(0,0) ----  Coefficient =  0.9998
              Response Ratio = 0.00000 + 2864.11613 *A + 0.05329 *A^2

20) m-Nitrotolue 3.217 2.429 3.252 3.804 3.933 4.138 4.141 4.193 3.638 E3  17.11
            ---- Quadratic regr., Force(0,0) ----  Coefficient =  1.0000
              Response Ratio = 0.00000 + 4072.28403 *A + 0.02436 *A^2

21) PETN         1.316 1.092 1.034 1.303 1.350 1.390 1.437 1.417 1.292 E3  11.59
------------------------------------------------------------------------------
(#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          GPP2262_041620PRI.M        Fri Apr 17 13:42:35 2020
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8.7.5

8

Initial Calibration Verification

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GPP2262-ICV2262
Lab FileID: PP386581.D

Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386581.D\dad1B.ch Vial: 10
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386581.D\dad1A.ch
Acq On : 16-Apr-2020, 17:27:36 Operator: williamh
Sample : icv2262-1000 Inst : G1315B
Misc : op79816,GPP2262,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT Window
1		TNX	1000.000	1184.722	-18.5#	109	0.00	1.04- 1.64
2		HMX	1000.000	1096.369	-9.6	106	0.00	1.17- 1.77
3		DNX	1000.000	1070.045	-7.0	104	0.00	1.42- 2.02
4		MNX	1000.000	1039.789	-4.0	106	0.00	2.02- 2.62
5		RDX	1000.000	1030.934	-3.1	105	0.00	2.54- 3.34
6		1,3,5-Trinitrobenzene	1000.000	989.822	1.0	100	0.00	4.31- 5.11
7		1,3-Dinitrobenzene	1000.000	1023.620	-2.4	103	0.00	5.51- 6.32
8		3,5-Dinitroaniline	1000.000	999.239	0.1	101	0.00	5.88- 6.68
9		Nitrobenzene	1000.000	1013.562	-1.4	103	0.00	7.06- 7.86
10		Nitroglycerin			----------NA----------			
11		Tetryl	1000.000	1043.226	-4.3	105	0.00	8.96- 9.76
12		2,4,6-Trinitrotoluene	1000.000	1093.377	-9.3	110	0.00	9.39-10.19
13		2-Amino-4,6-Dinitrotol	1000.000	1020.200	-2.0	103	0.00	9.80-10.60
14		4-Amino-2,6-Dinitrotol	1000.000	1008.090	-0.8	106	0.00	10.24-11.04
15	S	3,4-Dinitrotoluene			----------NA----------			
16		2,4-Dinitrotoluene	1000.000	1038.998	-3.9	104	0.00	11.39-12.19
17		2,6-Dinitrotoluene	1000.000	1043.404	-4.3	105	0.00	11.71-12.61
18		o-Nitrotoluene	1000.000	990.462	1.0	103	0.00	14.76-15.76
19		p-Nitrotoluene	1000.000	988.455	1.2	103	0.00	15.31-16.31
20		m-Nitrotoluene	1000.000	999.490	0.1	101	0.00	16.17-17.17
21		PETN			----------NA----------			

***** Signal #2 *****

1		TNX	1000.000	1112.751	-11.3	107	0.00	1.04- 1.64
		---------- Amount	Calc.	%Drift	----------			
2		HMX	1000.000	1063.336	-6.3	105	0.00	1.17- 1.77
		---------- Amount	Calc.	%Drift	----------			
3		DNX	1000.000	1001.354	-0.1	104	0.00	1.42- 2.02
4		MNX	1000.000	1051.628	-5.2	106	0.00	2.02- 2.62
5		RDX	1000.000	1025.155	-2.5	105	0.00	2.54- 3.34
6		1,3,5-Trinitrobenzene	1000.000	1004.767	-0.5	100	0.00	4.31- 5.11
7		1,3-Dinitrobenzene	1000.000	1018.513	-1.9	101	0.00	5.52- 6.32
8		3,5-Dinitroaniline	1000.000	963.445	3.7	103	0.00	5.88- 6.67
9		Nitrobenzene	1000.000	1003.606	-0.4	102	0.00	7.05- 7.85
10		Nitroglycerin	1000.000	1073.733	-7.4	104	0.00	8.39- 9.39
11		Tetryl	1000.000	1079.831	-8.0	106	0.00	8.96- 9.76
12		2,4,6-Trinitrotoluene	1000.000	1140.285	-14.0	108	0.00	9.39-10.19
13		2-Amino-4,6-Dinitrotol	1000.000	1112.702	-11.3	106	0.00	9.80-10.60

Initial Calibration Verification

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GPP2262-ICV2262
Lab FileID: PP386581.D

			Amount	Calc.	%Drift			
14		4-Amino-2,6-Dinitrotol	1000.000	1040.332	-4.0	106	0.00	10.24-11.05
15	S	3,4-Dinitrotoluene		----------NA----------				
			Amount	Calc.	%Drift			
16		2,4-Dinitrotoluene	1000.000	1155.774	-15.6#	112	0.00	10.59-12.19
			Amount	Calc.	%Drift			
17		2,6-Dinitrotoluene	1000.000	1076.745	-7.7	109	0.00	10.89-12.62
			Amount	Calc.	%Drift			
18		o-Nitrotoluene	1000.000	1116.560	-11.7	106	0.00	12.95-15.75
			Amount	Calc.	%Drift			
19		p-Nitrotoluene	1000.000	1008.041	-0.8	103	0.00	13.27-16.32
20		m-Nitrotoluene	1000.000	990.134	1.0	98	0.00	16.17-17.17
			Amount	Calc.	%Drift			
21		PETN	1000.000	1091.517	-9.2	101	0.00	14.69-18.81

(#) = Out of Range SPCC's out = 0 CCC's out = 0
PP386578.D GPP2262_041620PRI.M Fri Apr 17 13:42:01 2020

8.7.6

8

Continuing Calibration Summary

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GPP2268-CC2262
Lab FileID: PP386859.D

Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386859.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386859.D\dad1A.ch
Acq On : 04-May-2020, 12:36:04 Operator: williamh
Sample : cc2262-1000 Inst : G1315B
Misc : op80030,GPP2268,1040,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT Window
1	TNX	1000.000	1100.018	-10.0	101	0.00	1.04- 1.64
2	HMX	1000.000	1148.810	-14.9	111	0.00	1.17- 1.77
3	DNX	1000.000	1024.864	-2.5	100	0.00	1.42- 2.02
4	MNX	1000.000	981.851	1.8	100	-0.01	2.02- 2.62
5	RDX	1000.000	1058.433	-5.8	108	-0.01	2.54- 3.34
6	1,3,5-Trinitrobenzene	1000.000	1123.043	-12.3	114	-0.02	4.31- 5.11
7	1,3-Dinitrobenzene	1000.000	1071.908	-7.2	108	-0.03	5.51- 6.32
8	3,5-Dinitroaniline	1000.000	1073.609	-7.4	109	-0.03	5.88- 6.68
9	Nitrobenzene	1000.000	1060.200	-6.0	108	-0.04	7.06- 7.86
10	Nitroglycerin	----------	NA	----------			
11	Tetryl	1000.000	982.935	1.7	99	-0.04	8.96- 9.76
12	2,4,6-Trinitrotoluene	1000.000	1046.570	-4.7	105	-0.04	9.39-10.19
13	2-Amino-4,6-Dinitrotol	1000.000	1091.618	-9.2	110	-0.05	9.80-10.60
14	4-Amino-2,6-Dinitrotol	1000.000	1044.987	-4.5	110	-0.06	10.24-11.04
15 S	3,4-Dinitrotoluene	1000.000	1061.647	-6.2	104	-0.06	10.71-11.51
16	2,4-Dinitrotoluene	1000.000	1030.691	-3.1	103	-0.05	11.39-12.19
17	2,6-Dinitrotoluene	1000.000	1153.894	-15.4#	117	-0.07	11.71-12.61
18	o-Nitrotoluene	1000.000	995.978	0.4	104	-0.06	14.76-15.76
19	p-Nitrotoluene	1000.000	1052.492	-5.2	109	-0.06	15.31-16.31
20	m-Nitrotoluene	1000.000	1062.526	-6.3	107	-0.05	16.17-17.17
21	PETN	----------	NA	----------			

***** Signal #2 *****

1	TNX	1000.000	1047.250	-4.7	100	0.00	1.04- 1.64
	----------	Amount	Calc.	%Drift	----------		
2	HMX	1000.000	1090.311	-9.0	108	0.00	1.17- 1.77
	----------	Amount	Calc.	%Drift	----------		
3	DNX	1000.000	956.695	4.3	99	0.00	1.42- 2.02
4	MNX	1000.000	995.016	0.5	100	-0.01	2.02- 2.62
5	RDX	1000.000	1051.071	-5.1	107	-0.01	2.54- 3.34
6	1,3,5-Trinitrobenzene	1000.000	1095.092	-9.5	109	-0.02	4.31- 5.11
7	1,3-Dinitrobenzene	1000.000	1071.495	-7.1	107	-0.03	5.52- 6.32
8	3,5-Dinitroaniline	1000.000	1034.796	-3.5	110	-0.02	5.88- 6.67
9	Nitrobenzene	1000.000	1039.591	-4.0	106	-0.03	7.05- 7.85
10	Nitroglycerin	1000.000	1087.955	-8.8	106	-0.03	8.39- 9.39
11	Tetryl	1000.000	1029.642	-3.0	101	-0.04	8.96- 9.76
12	2,4,6-Trinitrotoluene	1000.000	1105.743	-10.6	105	-0.04	9.39-10.19
13	2-Amino-4,6-Dinitrotol	1000.000	1139.555	-14.0	109	-0.05	9.80-10.60

Continuing Calibration Summary

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GPP2268-CC2262
Lab FileID: PP386859.D

			Amount	Calc.	%Drift			
14		4-Amino-2,6-Dinitrotol	1000.000	1085.572	-8.6	110	-0.06	10.24-11.05
15	S	3,4-Dinitrotoluene	1000.000	1007.974	-0.8	104	-0.06	10.71-11.51
16		2,4-Dinitrotoluene	1000.000	1036.042	-3.6	101	-0.05	10.59-12.19
17		2,6-Dinitrotoluene	1000.000	1125.967	-12.6	114	-0.06	10.89-12.62
18		o-Nitrotoluene	1000.000	1101.029	-10.1	104	-0.06	12.95-15.75
19		p-Nitrotoluene	1000.000	1057.081	-5.7	108	-0.06	13.27-16.32
20		m-Nitrotoluene	1000.000	1034.366	-3.4	102	-0.04	16.17-17.17
21		PETN	1000.000	1139.108	-13.9	106	-0.02	14.69-18.81

(#) = Out of Range SPCC's out = 0 CCC's out = 0
PP386578.D GPP2262_041620PRI.M Tue May 05 13:38:27 2020

8.7.7

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Continuing Calibration Summary

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GPP2268-CC2262
Lab FileID: PP386870.D

Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386870.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386870.D\dad1A.ch
Acq On : 04-May-2020, 18:16:19 Operator: williamh
Sample : cc2262-1000 Inst : G1315B
Misc : op80038,GPP2268,1060,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT Window
1	TNX	1000.000	1102.682	-10.3	102	0.00	1.04- 1.64
2	HMX	1000.000	1111.745	-11.2	107	0.00	1.17- 1.77
3	DNX	1000.000	994.611	0.5	97	0.00	1.42- 2.02
4	MNX	1000.000	987.029	1.3	100	0.00	2.02- 2.62
5	RDX	1000.000	1059.947	-6.0	108	0.00	2.54- 3.34
6	1,3,5-Trinitrobenzene	1000.000	1082.257	-8.2	110	0.00	4.31- 5.11
7	1,3-Dinitrobenzene	1000.000	1072.498	-7.2	108	0.00	5.51- 6.32
8	3,5-Dinitroaniline	1000.000	1072.313	-7.2	109	0.00	5.88- 6.68
9	Nitrobenzene	1000.000	1059.838	-6.0	108	-0.01	7.06- 7.86
10	Nitroglycerin	----------	NA	----------			
11	Tetryl	1000.000	978.444	2.2	99	0.00	8.96- 9.76
12	2,4,6-Trinitrotoluene	1000.000	1056.350	-5.6	106	0.00	9.39-10.19
13	2-Amino-4,6-Dinitrotol	1000.000	1085.913	-8.6	109	-0.01	9.80-10.60
14	4-Amino-2,6-Dinitrotol	1000.000	1044.789	-4.5	110	-0.01	10.24-11.04
15 S	3,4-Dinitrotoluene	1000.000	1062.715	-6.3	104	-0.02	10.71-11.51
16	2,4-Dinitrotoluene	1000.000	1035.837	-3.6	104	-0.01	11.39-12.19
17	2,6-Dinitrotoluene	1000.000	1154.832	-15.5#	117	-0.03	11.71-12.61
18	o-Nitrotoluene	1000.000	995.496	0.5	104	-0.01	14.76-15.76
19	p-Nitrotoluene	1000.000	1053.965	-5.4	109	-0.02	15.31-16.31
20	m-Nitrotoluene	1000.000	1059.542	-6.0	107	-0.01	16.17-17.17
21	PETN	----------	NA	----------			

***** Signal #2 *****

1	TNX	1000.000	1050.788	-5.1	101	0.00	1.04- 1.64
	----------	Amount	Calc.	%Drift	----------		
2	HMX	1000.000	1057.336	-5.7	105	0.00	1.17- 1.77
	----------	Amount	Calc.	%Drift	----------		
3	DNX	1000.000	914.470	8.6	95	0.00	1.42- 2.02
4	MNX	1000.000	996.234	0.4	100	0.00	2.02- 2.62
5	RDX	1000.000	1053.893	-5.4	108	0.00	2.54- 3.34
6	1,3,5-Trinitrobenzene	1000.000	1108.849	-10.9	110	0.00	4.31- 5.11
7	1,3-Dinitrobenzene	1000.000	1039.987	-4.0	103	-0.01	5.52- 6.32
8	3,5-Dinitroaniline	1000.000	1036.393	-3.6	110	0.00	5.88- 6.67
9	Nitrobenzene	1000.000	1040.160	-4.0	106	0.00	7.05- 7.85
10	Nitroglycerin	1000.000	1077.666	-7.8	105	0.00	8.39- 9.39
11	Tetryl	1000.000	1021.817	-2.2	100	0.00	8.96- 9.76
12	2,4,6-Trinitrotoluene	1000.000	1113.100	-11.3	106	-0.01	9.39-10.19
13	2-Amino-4,6-Dinitrotol	1000.000	1131.853	-13.2	108	-0.01	9.80-10.60

Continuing Calibration Summary

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GPP2268-CC2262
Lab FileID: PP386870.D

			Amount	Calc.	%Drift			
14		4-Amino-2,6-Dinitrotol	1000.000	1080.097	-8.0	110	-0.01	10.24-11.05
15	S	3,4-Dinitrotoluene	1000.000	1005.644	-0.6	104	-0.02	10.71-11.51
16		2,4-Dinitrotoluene	1000.000	1037.176	-3.7	101	0.00	10.59-12.19
17		2,6-Dinitrotoluene	1000.000	1123.985	-12.4	114	-0.02	10.89-12.62
18		o-Nitrotoluene	1000.000	1113.675	-11.4	105	-0.01	12.95-15.75
19		p-Nitrotoluene	1000.000	1047.538	-4.8	107	-0.02	13.27-16.32
20		m-Nitrotoluene	1000.000	1038.728	-3.9	103	0.00	16.17-17.17
21		PETN	1000.000	1109.596	-11.0	103	0.00	14.69-18.81

(#) = Out of Range SPCC's out = 0 CCC's out = 0
PP386578.D GPP2262_041620PRI.M Tue May 05 13:38:28 2020

8.7.8

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Continuing Calibration Summary

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GPP2268-ECC2262
Lab FileID: PP386877.D

Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386877.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386877.D\dad1A.ch
Acq On : 04-May-2020, 21:52:46 Operator: williamh
Sample : ecc2262-1000 Inst : G1315B
Misc : op80038,GPP2268,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT Window
1	TNX	1000.000	1095.582	-9.6	101	0.00	1.04- 1.64
2	HMX	1000.000	1097.792	-9.8	106	0.00	1.17- 1.77
3	DNX	1000.000	991.222	0.9	96	0.00	1.42- 2.02
4	MNX	1000.000	983.683	1.6	100	0.00	2.02- 2.62
5	RDX	1000.000	1059.615	-6.0	108	0.00	2.54- 3.34
6	1,3,5-Trinitrobenzene	1000.000	1129.222	-12.9	114	0.00	4.31- 5.11
7	1,3-Dinitrobenzene	1000.000	1066.202	-6.6	107	-0.01	5.51- 6.32
8	3,5-Dinitroaniline	1000.000	1080.488	-8.0	110	-0.01	5.88- 6.68
9	Nitrobenzene	1000.000	1054.991	-5.5	107	-0.02	7.06- 7.86
10	Nitroglycerin	----------	NA	----------			
11	Tetryl	1000.000	924.894	7.5	93	0.00	8.96- 9.76
12	2,4,6-Trinitrotoluene	1000.000	1045.845	-4.6	105	-0.02	9.39-10.19
13	2-Amino-4,6-Dinitrotol	1000.000	1084.762	-8.5	109	-0.02	9.80-10.60
14	4-Amino-2,6-Dinitrotol	1000.000	1052.491	-5.2	111	-0.03	10.24-11.04
15 S	3,4-Dinitrotoluene	1000.000	1084.954	-8.5	106	-0.04	10.71-11.51
16	2,4-Dinitrotoluene	1000.000	1007.715	-0.8	101	-0.02	11.39-12.19
17	2,6-Dinitrotoluene	1000.000	1201.962	-20.2#	121	-0.06	11.71-12.61
18	o-Nitrotoluene	1000.000	967.759	3.2	101	-0.02	14.76-15.76
19	p-Nitrotoluene	1000.000	1080.926	-8.1	112	-0.02	15.31-16.31
20	m-Nitrotoluene	1000.000	1088.448	-8.8	110	-0.02	16.17-17.17
21	PETN	----------	NA	----------			

***** Signal #2 *****

1	TNX	1000.000	1041.693	-4.2	100	0.00	1.04- 1.64
	----------	Amount	Calc.	%Drift	----------		
2	HMX	1000.000	1046.970	-4.7	104	0.00	1.17- 1.77
	----------	Amount	Calc.	%Drift	----------		
3	DNX	1000.000	902.910	9.7	93	0.00	1.42- 2.02
4	MNX	1000.000	992.587	0.7	100	0.00	2.02- 2.62
5	RDX	1000.000	1051.298	-5.1	107	0.00	2.54- 3.34
6	1,3,5-Trinitrobenzene	1000.000	1093.200	-9.3	109	-0.01	4.31- 5.11
7	1,3-Dinitrobenzene	1000.000	1054.436	-5.4	105	-0.01	5.52- 6.32
8	3,5-Dinitroaniline	1000.000	1040.196	-4.0	111	0.00	5.88- 6.67
9	Nitrobenzene	1000.000	1052.829	-5.3	108	-0.01	7.05- 7.85
10	Nitroglycerin	1000.000	1052.937	-5.3	102	-0.01	8.39- 9.39
11	Tetryl	1000.000	988.458	1.2	97	0.00	8.96- 9.76
12	2,4,6-Trinitrotoluene	1000.000	1100.888	-10.1	105	-0.02	9.39-10.19
13	2-Amino-4,6-Dinitrotol	1000.000	1121.160	-12.1	107	-0.02	9.80-10.60

Continuing Calibration Summary

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GPP2268-ECC2262
Lab FileID: PP386877.D

			Amount	Calc.	%Drift			
14		4-Amino-2,6-Dinitrotol	1000.000	1091.505	-9.2	111	-0.03	10.24-11.05
15	S	3,4-Dinitrotoluene	1000.000	1036.562	-3.7	107	-0.04	10.71-11.51
16		2,4-Dinitrotoluene	1000.000	967.933	3.2	94	-0.01	10.59-12.19
17		2,6-Dinitrotoluene	1000.000	1165.143	-16.5#	118	-0.03	10.89-12.62
18		o-Nitrotoluene	1000.000	1061.353	-6.1	101	-0.02	12.95-15.75
19		p-Nitrotoluene	1000.000	1029.894	-3.0	105	-0.02	13.27-16.32
20		m-Nitrotoluene	1000.000	1023.755	-2.4	101	-0.01	16.17-17.17
21		PETN	1000.000	1129.376	-12.9	105	0.00	14.69-18.81

(#) = Out of Range SPCC's out = 0 CCC's out = 0
PP386578.D GPP2262_041620PRI.M Tue May 05 13:38:29 2020

8.7.9

8

Continuing Calibration Summary

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GPP2269-CC2262
Lab FileID: PP386879.D

Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\2\DATA\GPP2269\PP386879.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2269\PP386879.D\dad1A.ch
Acq On : 05-May-2020, 12:13:22 Operator: williamh
Sample : cc2262-1000 Inst : G1315B
Misc : op80050,GPP2269,2,,,20,1,Soil Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT Window
1	TNX	1000.000	1094.795	-9.5	101	0.00	1.04- 1.64
2	HMX	1000.000	1102.165	-10.2	106	-0.01	1.17- 1.77
3	DNX	1000.000	1021.374	-2.1	99	-0.01	1.42- 2.02
4	MNX	1000.000	982.134	1.8	100	-0.01	2.02- 2.62
5	RDX	1000.000	1060.104	-6.0	108	-0.02	2.54- 3.34
6	1,3,5-Trinitrobenzene	1000.000	1133.483	-13.3	115	-0.03	4.31- 5.11
7	1,3-Dinitrobenzene	1000.000	1056.647	-5.7	106	-0.04	5.51- 6.32
8	3,5-Dinitroaniline	1000.000	1092.111	-9.2	111	-0.04	5.88- 6.68
9	Nitrobenzene	1000.000	1061.157	-6.1	108	-0.05	7.06- 7.86
10	Nitroglycerin	----------	NA	----------			
11	Tetryl	1000.000	886.153	11.4	89	-0.06	8.96- 9.76
12	2,4,6-Trinitrotoluene	1000.000	1025.353	-2.5	103	-0.07	9.39-10.19
13	2-Amino-4,6-Dinitrotol	1000.000	1097.619	-9.8	110	-0.09	9.80-10.60
14	4-Amino-2,6-Dinitrotol	1000.000	1072.849	-7.3	113	-0.11	10.24-11.04
15 S	3,4-Dinitrotoluene	1000.000	1122.194	-12.2	110	-0.11	10.71-11.51
16	2,4-Dinitrotoluene	1000.000	964.432	3.6	97	-0.07	11.39-12.19
17	2,6-Dinitrotoluene	1000.000	1290.697	-29.1#	130	-0.13	11.71-12.61
18	o-Nitrotoluene	1000.000	936.521	6.3	98	-0.07	14.76-15.76
19	p-Nitrotoluene	1000.000	1106.494	-10.6	115	-0.08	15.31-16.31
20	m-Nitrotoluene	1000.000	1100.935	-10.1	111	-0.06	16.17-17.17
21	PETN	----------	NA	----------			

***** Signal #2 *****

1	TNX	1000.000	1036.446	-3.6	99	0.00	1.04- 1.64
	----------	Amount	Calc.	%Drift	----------		
2	HMX	1000.000	1066.865	-6.7	106	-0.01	1.17- 1.77
	----------	Amount	Calc.	%Drift	----------		
3	DNX	1000.000	929.433	7.1	96	-0.01	1.42- 2.02
4	MNX	1000.000	994.077	0.6	100	-0.01	2.02- 2.62
5	RDX	1000.000	1050.072	-5.0	107	-0.02	2.54- 3.34
6	1,3,5-Trinitrobenzene	1000.000	1088.893	-8.9	108	-0.03	4.31- 5.11
7	1,3-Dinitrobenzene	1000.000	1034.968	-3.5	103	-0.04	5.52- 6.32
8	3,5-Dinitroaniline	1000.000	1053.806	-5.4	112	-0.03	5.88- 6.67
9	Nitrobenzene	1000.000	1041.147	-4.1	106	-0.04	7.05- 7.85
10	Nitroglycerin	1000.000	1002.789	-0.3	97	-0.05	8.39- 9.39
11	Tetryl	1000.000	960.148	4.0	94	-0.06	8.96- 9.76
12	2,4,6-Trinitrotoluene	1000.000	1087.873	-8.8	103	-0.08	9.39-10.19
13	2-Amino-4,6-Dinitrotol	1000.000	1123.761	-12.4	107	-0.09	9.80-10.60

Continuing Calibration Summary

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GPP2269-CC2262
Lab FileID: PP386879.D

			Amount	Calc.	%Drift			
14		4-Amino-2,6-Dinitrotol	1000.000	1102.849	-10.3	112	-0.09	10.24-11.05
15	S	3,4-Dinitrotoluene	1000.000	1082.593	-8.3	112	-0.12	10.71-11.51
16		2,4-Dinitrotoluene	1000.000	922.616	7.7	90	-0.07	10.59-12.19
17		2,6-Dinitrotoluene	1000.000	1213.450	-21.3#	123	-0.10	10.89-12.62
18		o-Nitrotoluene	1000.000	1028.853	-2.9	97	-0.07	12.95-15.75
19		p-Nitrotoluene	1000.000	1041.354	-4.1	106	-0.08	13.27-16.32
20		m-Nitrotoluene	1000.000	1019.237	-1.9	101	-0.05	16.17-17.17
21		PETN	1000.000	1080.409	-8.0	100	-0.03	14.69-18.81

(#) = Out of Range SPCC's out = 0 CCC's out = 0
PP386578.D GPP2262_041620PRI.M Wed May 06 12:46:26 2020

8.7.10

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Continuing Calibration Summary

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GPP2269-CC2262
Lab FileID: PP386890.D

Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\2\DATA\GPP2269\PP386890.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2269\PP386890.D\dad1A.ch
Acq On : 05-May-2020, 17:53:45 Operator: williamh
Sample : cc2262-1000 Inst : G1315B
Misc : op80045,GPP2269,1050,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT Window
1	TNX	1000.000	1089.374	-8.9	100	0.00	1.04- 1.64
2	HMX	1000.000	1167.097	-16.7#	112	0.00	1.17- 1.77
3	DNX	1000.000	1023.933	-2.4	99	0.00	1.42- 2.02
4	MNX	1000.000	983.511	1.6	100	0.00	2.02- 2.62
5	RDX	1000.000	1055.720	-5.6	107	-0.01	2.54- 3.34
6	1,3,5-Trinitrobenzene	1000.000	1126.312	-12.6	114	-0.02	4.31- 5.11
7	1,3-Dinitrobenzene	1000.000	1044.784	-4.5	105	-0.03	5.51- 6.32
8	3,5-Dinitroaniline	1000.000	1098.742	-9.9	111	-0.03	5.88- 6.68
9	Nitrobenzene	1000.000	1056.081	-5.6	107	-0.04	7.06- 7.86
10	Nitroglycerin	----------	NA	----------			
11	Tetryl	1000.000	858.984	14.1	87	-0.04	8.96- 9.76
12	2,4,6-Trinitrotoluene	1000.000	1004.469	-0.4	101	-0.06	9.39-10.19
13	2-Amino-4,6-Dinitrotol	1000.000	1101.832	-10.2	111	-0.07	9.80-10.60
14	4-Amino-2,6-Dinitrotol	1000.000	1093.635	-9.4	115	-0.08	10.24-11.04
15 S	3,4-Dinitrotoluene	1000.000	1141.178	-14.1	112	-0.08	10.71-11.51
16	2,4-Dinitrotoluene	1000.000	915.910	8.4	92	-0.05	11.39-12.19
17	2,6-Dinitrotoluene	1000.000	1380.891	-38.1#	139	-0.09	11.71-12.61
18	o-Nitrotoluene	1000.000	907.830	9.2	95	-0.05	14.76-15.76
19	p-Nitrotoluene	1000.000	1116.047	-11.6	116	-0.06	15.31-16.31
20	m-Nitrotoluene	1000.000	1096.358	-9.6	111	-0.04	16.17-17.17
21	PETN	----------	NA	----------			

***** Signal #2 *****

1	TNX	1000.000	1030.644	-3.1	99	0.00	1.04- 1.64
	----------	Amount	Calc.	%Drift	----------		
2	HMX	1000.000	1108.769	-10.9	110	0.00	1.17- 1.77
	----------	Amount	Calc.	%Drift	----------		
3	DNX	1000.000	958.560	4.1	99	0.00	1.42- 2.02
4	MNX	1000.000	990.264	1.0	99	0.00	2.02- 2.62
5	RDX	1000.000	1048.490	-4.8	107	-0.01	2.54- 3.34
6	1,3,5-Trinitrobenzene	1000.000	1083.787	-8.4	108	-0.03	4.31- 5.11
7	1,3-Dinitrobenzene	1000.000	1005.810	-0.6	100	-0.03	5.52- 6.32
8	3,5-Dinitroaniline	1000.000	1051.650	-5.2	112	-0.03	5.88- 6.67
9	Nitrobenzene	1000.000	1051.996	-5.2	107	-0.03	7.05- 7.85
10	Nitroglycerin	1000.000	979.352	2.1	95	-0.04	8.39- 9.39
11	Tetryl	1000.000	925.072	7.5	91	-0.04	8.96- 9.76
12	2,4,6-Trinitrotoluene	1000.000	1078.595	-7.9	103	-0.06	9.39-10.19
13	2-Amino-4,6-Dinitrotol	1000.000	1113.772	-11.4	106	-0.07	9.80-10.60

Continuing Calibration Summary

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GPP2269-CC2262
Lab FileID: PP386890.D

			Amount	Calc.	%Drift			
14		4-Amino-2,6-Dinitrotol	1000.000	1091.117	-9.1	111	-0.07	10.24-11.05
15	S	3,4-Dinitrotoluene	1000.000	1108.849	-10.9	115	-0.08	10.71-11.51
16		2,4-Dinitrotoluene	1000.000	896.154	10.4	87	-0.05	10.59-12.19
17		2,6-Dinitrotoluene	1000.000	1230.400	-23.0#	124	-0.07	10.89-12.62
18		o-Nitrotoluene	1000.000	1001.586	-0.2	95	-0.05	12.95-15.75
19		p-Nitrotoluene	1000.000	1084.777	-8.5	111	-0.07	13.27-16.32
20		m-Nitrotoluene	1000.000	994.700	0.5	98	-0.03	16.17-17.17
21		PETN	1000.000	1125.127	-12.5	105	-0.02	14.69-18.81

(#) = Out of Range SPCC's out = 0 CCC's out = 0
PP386578.D GPP2262_041620PRI.M Wed May 06 12:46:27 2020

8.7.11

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Run Sequence Report

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Run ID: GGG2769 **Method:** SW846 8330A **Instrument ID:** GCGG

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
GGG2769-IC2769	GG617747.D	09/25/19 20:30	n/a	Initial cal 20
GGG2769-IC2769	GG617748.D	09/25/19 20:59	n/a	Initial cal 50
GGG2769-IC2769	GG617749.D	09/25/19 21:29	n/a	Initial cal 100
GGG2769-IC2769	GG617750.D	09/25/19 21:58	n/a	Initial cal 200
GGG2769-IC2769	GG617751.D	09/25/19 22:28	n/a	Initial cal 500
GGG2769-ICC2769	GG617752.D	09/25/19 22:57	n/a	Initial cal 1000
GGG2769-IC2769	GG617753.D	09/25/19 23:27	n/a	Initial cal 2500
GGG2769-IC2769	GG617754.D	09/25/19 23:56	n/a	Initial cal 5000
GGG2769-ICV2769	GG617755.D	09/26/19 00:25	n/a	Initial cal verification 1000
OP76947-MB	GG617756.D	09/26/19 00:55	OP76947	Method Blank
ZZZZZZ	GG617757.D	09/26/19 01:24	OP76947	(unrelated sample)
ZZZZZZ	GG617758.D	09/26/19 01:54	OP76947	(unrelated sample)
ZZZZZZ	GG617759.D	09/26/19 02:23	OP76947	(unrelated sample)
ZZZZZZ	GG617760.D	09/26/19 02:53	OP76947	(unrelated sample)
ZZZZZZ	GG617761.D	09/26/19 03:22	OP76947	(unrelated sample)
ZZZZZZ	GG617762.D	09/26/19 03:51	OP76947	(unrelated sample)
ZZZZZZ	GG617763.D	09/26/19 04:21	OP76947	(unrelated sample)
ZZZZZZ	GG617764.D	09/26/19 04:50	OP76947	(unrelated sample)
ZZZZZZ	GG617765.D	09/26/19 05:20	OP76947	(unrelated sample)
GGG2769-ECC2769	GG617766.D	09/26/19 05:49	n/a	Ending cal 1000

Run Sequence Report

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Run ID: GGG2834 **Method:** SW846 8330A **Instrument ID:** GCGG

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
GGG2834-CC2769	GG618847.D	05/06/20 14:30	n/a	Continuing cal 1000
OP80038-MB	GG618848.D	05/06/20 14:59	OP80038	Method Blank
FA74617-1	GG618849.D	05/06/20 15:29	OP80038	54MW13
FA74617-2	GG618850.D	05/06/20 15:58	OP80038	54TW13
FA74617-3	GG618851.D	05/06/20 16:27	OP80038	54MW10
FA74617-3	GG618852.D	05/06/20 16:57	OP80038	54MW10
FA74617-4	GG618853.D	05/06/20 17:26	OP80038	54MW12
OP80057-MB	GG618854.D	05/06/20 17:56	OP80057	Method Blank
ZZZZZZ	GG618855.D	05/06/20 18:25	OP80057	(unrelated sample)
ZZZZZZ	GG618856.D	05/06/20 18:55	OP80057	(unrelated sample)
ZZZZZZ	GG618857.D	05/06/20 19:24	OP80057	(unrelated sample)
GGG2834-CC2769	GG618858.D	05/06/20 19:53	n/a	Continuing cal 1000
ZZZZZZ	GG618860.D	05/06/20 20:52	OP80057	(unrelated sample)
ZZZZZZ	GG618861.D	05/06/20 21:22	OP80057	(unrelated sample)
ZZZZZZ	GG618862.D	05/06/20 21:51	OP80057	(unrelated sample)
ZZZZZZ	GG618863.D	05/06/20 22:21	OP80057	(unrelated sample)
FA74690-3	GG618865.D	05/06/20 23:19	OP80057	(used for QC only; not part of job FA74617)
ZZZZZZ	GG618866.D	05/06/20 23:49	OP80057	(unrelated sample)
ZZZZZZ	GG618867.D	05/07/20 00:18	OP80057	(unrelated sample)
ZZZZZZ	GG618868.D	05/07/20 00:48	OP80057	(unrelated sample)
ZZZZZZ	GG618869.D	05/07/20 01:17	OP80057	(unrelated sample)
GGG2834-CC2769	GG618870.D	05/07/20 01:47	n/a	Continuing cal 1000
ZZZZZZ	GG618872.D	05/07/20 02:45	OP80057	(unrelated sample)
GGG2834-ECC2769	GG618873.D	05/07/20 03:15	n/a	Ending cal 1000

Run Sequence Report

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Run ID: GPP2262 **Method:** SW846 8330A **Instrument ID:** GCPP

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
GPP2262-IC2262	PP386573.D	04/16/20 13:20	n/a	Initial cal 20
GPP2262-IC2262	PP386574.D	04/16/20 13:51	n/a	Initial cal 50
GPP2262-IC2262	PP386575.D	04/16/20 14:22	n/a	Initial cal 100
GPP2262-IC2262	PP386576.D	04/16/20 14:52	n/a	Initial cal 200
GPP2262-IC2262	PP386577.D	04/16/20 15:23	n/a	Initial cal 500
GPP2262-ICC2262	PP386578.D	04/16/20 15:54	n/a	Initial cal 1000
GPP2262-IC2262	PP386579.D	04/16/20 16:25	n/a	Initial cal 2500
GPP2262-IC2262	PP386580.D	04/16/20 16:56	n/a	Initial cal 5000
GPP2262-ICV2262	PP386581.D	04/16/20 17:27	n/a	Initial cal verification 1000
OP79816-BS	PP386582.D	04/16/20 17:58	OP79816	Blank Spike
OP79816-MB	PP386583.D	04/16/20 18:29	OP79816	Method Blank
FA74211-1	PP386584.D	04/16/20 19:00	OP79816	(used for QC only; not part of job FA74617)
OP79816-MS	PP386585.D	04/16/20 19:31	OP79816	Matrix Spike
OP79816-MSD	PP386586.D	04/16/20 20:02	OP79816	Matrix Spike Duplicate
OP79787-BS	PP386587.D	04/16/20 20:33	OP79787	Blank Spike
OP79787-MB	PP386588.D	04/16/20 21:04	OP79787	Method Blank
FA74169-1	PP386589.D	04/16/20 21:35	OP79787	(used for QC only; not part of job FA74617)
OP79787-MS	PP386590.D	04/16/20 22:05	OP79787	Matrix Spike
OP79787-MSD	PP386591.D	04/16/20 22:36	OP79787	Matrix Spike Duplicate
GPP2262-CC2262	PP386592.D	04/16/20 23:07	n/a	Continuing cal 1000
ZZZZZZ	PP386594.D	04/17/20 00:09	OP79787	(unrelated sample)
ZZZZZZ	PP386595.D	04/17/20 00:40	OP79787	(unrelated sample)
ZZZZZZ	PP386596.D	04/17/20 01:11	OP79787	(unrelated sample)
ZZZZZZ	PP386597.D	04/17/20 01:42	OP79787	(unrelated sample)
ZZZZZZ	PP386598.D	04/17/20 02:13	OP79787	(unrelated sample)
ZZZZZZ	PP386599.D	04/17/20 02:44	OP79787	(unrelated sample)
ZZZZZZ	PP386600.D	04/17/20 03:15	OP79787	(unrelated sample)
ZZZZZZ	PP386601.D	04/17/20 03:46	OP79787	(unrelated sample)
ZZZZZZ	PP386602.D	04/17/20 04:17	OP79787	(unrelated sample)
ZZZZZZ	PP386603.D	04/17/20 04:48	OP79787	(unrelated sample)
GPP2262-CC2262	PP386604.D	04/17/20 05:19	n/a	Continuing cal 1000
ZZZZZZ	PP386606.D	04/17/20 06:21	OP79787	(unrelated sample)
OP79802-BS	PP386607.D	04/17/20 06:51	OP79802	Blank Spike
OP79802-MB	PP386608.D	04/17/20 07:22	OP79802	Method Blank
FA74170-2	PP386609.D	04/17/20 07:53	OP79802	(used for QC only; not part of job FA74617)
FA74171-13	PP386610.D	04/17/20 08:24	OP79802	(used for QC only; not part of job FA74617)
ZZZZZZ	PP386611.D	04/17/20 08:55	OP79802	(unrelated sample)
OP79802-MS1	PP386612.D	04/17/20 09:26	OP79802	Matrix Spike
OP79802-MSD1	PP386613.D	04/17/20 09:57	OP79802	Matrix Spike Duplicate
OP79802-MS2	PP386614.D	04/17/20 10:28	OP79802	Matrix Spike
OP79802-MSD2	PP386615.D	04/17/20 10:59	OP79802	Matrix Spike Duplicate
GPP2262-CC2262	PP386616.D	04/17/20 11:30	n/a	Continuing cal 1000
ZZZZZZ	PP386618.D	04/17/20 12:32	OP79787	(unrelated sample)
OP79828-BS	PP386620.D	04/17/20 13:34	OP79828	Blank Spike
OP79828-MB	PP386621.D	04/17/20 14:05	OP79828	Method Blank
FA74267-1	PP386622.D	04/17/20 14:36	OP79828	(used for QC only; not part of job FA74617)

Run Sequence Report

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Run ID: GPP2262	**Method:** SW846 8330A	**Instrument ID:** GCPP

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
ZZZZZZ	PP386623.D	04/17/20 15:07	OP79828	(unrelated sample)
OP79828-MS	PP386624.D	04/17/20 15:38	OP79828	Matrix Spike
OP79828-MSD	PP386625.D	04/17/20 16:08	OP79828	Matrix Spike Duplicate
GPP2262-ECC2262	PP386626.D	04/17/20 16:39	n/a	Ending cal 1000

Run Sequence Report

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Run ID: GPP2268 **Method:** SW846 8330B **Instrument ID:** GCPP

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
GPP2268-CC2262	PP386859.D	05/04/20 12:36	n/a	Continuing cal 1000
ZZZZZZ	PP386860.D	05/04/20 13:06	OP80030	(unrelated sample)
ZZZZZZ	PP386861.D	05/04/20 13:37	OP80030	(unrelated sample)
ZZZZZZ	PP386862.D	05/04/20 14:08	OP80030	(unrelated sample)
ZZZZZZ	PP386863.D	05/04/20 14:39	OP80030	(unrelated sample)
ZZZZZZ	PP386864.D	05/04/20 15:10	OP80030	(unrelated sample)
ZZZZZZ	PP386865.D	05/04/20 15:41	OP80030	(unrelated sample)
OP80038-BS	PP386866.D	05/04/20 16:12	OP80038	Blank Spike
OP80038-MB	PP386867.D	05/04/20 16:43	OP80038	Method Blank
FA74617-1	PP386868.D	05/04/20 17:14	OP80038	54MW13
FA74617-2	PP386869.D	05/04/20 17:45	OP80038	54TW13
GPP2268-CC2262	PP386870.D	05/04/20 18:16	n/a	Continuing cal 1000
FA74617-3	PP386872.D	05/04/20 19:18	OP80038	54MW10
FA74617-4	PP386873.D	05/04/20 19:49	OP80038	54MW12
FA74617-5	PP386874.D	05/04/20 20:20	OP80038	54MW1
OP80038-MS	PP386875.D	05/04/20 20:50	OP80038	Matrix Spike
OP80038-MSD	PP386876.D	05/04/20 21:21	OP80038	Matrix Spike Duplicate
GPP2268-ECC2262	PP386877.D	05/04/20 21:52	n/a	Ending cal 1000

Run Sequence Report

Job Number: FA74617
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Run ID: GPP2269 **Method:** SW846 8330A **Instrument ID:** GCPP

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
GPP2269-CC2262	PP386879.D	05/05/20 12:13	n/a	Continuing cal 1000
OP80050-BS	PP386880.D	05/05/20 12:44	OP80050	Blank Spike
OP80050-MB	PP386881.D	05/05/20 13:15	OP80050	Method Blank
JD6296-2	PP386882.D	05/05/20 13:46	OP80050	(used for QC only; not part of job FA74617)
OP80050-MS	PP386883.D	05/05/20 14:17	OP80050	Matrix Spike
OP80050-MSD	PP386884.D	05/05/20 14:47	OP80050	Matrix Spike Duplicate
FA74617-3	PP386885.D	05/05/20 15:18	OP80038	54MW10
OP80045-MB	PP386887.D	05/05/20 16:20	OP80045	Method Blank
ZZZZZZ	PP386888.D	05/05/20 16:51	OP80045	(unrelated sample)
ZZZZZZ	PP386889.D	05/05/20 17:22	OP80045	(unrelated sample)
GPP2269-CC2262	PP386890.D	05/05/20 17:53	n/a	Continuing cal 1000
ZZZZZZ	PP386892.D	05/05/20 18:55	OP80045	(unrelated sample)
ZZZZZZ	PP386893.D	05/05/20 19:26	OP80045	(unrelated sample)
ZZZZZZ	PP386894.D	05/05/20 19:57	OP80045	(unrelated sample)
JD6576-3	PP386895.D	05/05/20 20:28	OP80045	(used for QC only; not part of job FA74617)
ZZZZZZ	PP386896.D	05/05/20 20:59	OP80045	(unrelated sample)
ZZZZZZ	PP386897.D	05/05/20 21:30	OP80045	(unrelated sample)
ZZZZZZ	PP386898.D	05/05/20 22:01	OP80045	(unrelated sample)
ZZZZZZ	PP386899.D	05/05/20 22:32	OP80045	(unrelated sample)
OP80045-MS	PP386900.D	05/05/20 23:02	OP80045	Matrix Spike
OP80045-MSD	PP386901.D	05/05/20 23:33	OP80045	Matrix Spike Duplicate
GPP2269-ECC2262	PP386902.D	05/06/20 00:04	n/a	Ending cal 1000

GC/LC Semi-volatiles

Raw Data

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
05/08/20 16:41

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386868.D\dad1B.ch Vial: 11
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386868.D\dad1A.ch
Acq On : 04-May-2020, 17:14:28 Operator: williamh
Sample : FA74617-1 Inst : G1315B
Misc : op80038,GPP2268,1040,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 05 11:04:39 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Initial Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	11.09	11.09	1061018	1770927	533.291	513.565
	Spiked Amount 500.000	Range 70 - 136		Recovery =		106.66%	102.71%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	1.47	1.47	472757	1421177	295.171	301.781
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D.	N.D.
5)	RDX	2.93	2.93	312158	518510	157.235	160.127
6)	1,3,5-Trinitrobe	4.70	4.70	1725271	3395262	423.793	432.720
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D.	N.D.
8)	3,5-Dinitroanili	6.27	6.26	146988	269108	35.102	35.759m
9)	Nitrobenzene	0.00	0.00	0	0	N.D.	N.D.
10)	Nitroglycerin	0.00	0.00	0	0	N.D.	N.D.
11)	Tetryl	0.00	0.00	0	0	N.D.	N.D.
12)	2,4,6-Trinitroto	9.77	9.77	2159645	2663938	570.344m	622.841m
13)	2-Amino-4,6-Dini	10.05	10.05	419838	547639	117.820m	110.068m
14)	4-Amino-2,6-Dini	10.61	10.61	186275	287826	68.870	56.357
16)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D.	N.D.
17)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D.	N.D.
18)	o-Nitrotoluene	0.00	0.00	0	0	N.D.	N.D.
19)	p-Nitrotoluene	0.00	0.00	0	0	N.D.	N.D.
20)	m-Nitrotoluene	0.00	0.00	0	0	N.D.	N.D.
21)	PETN	0.00	0.00	0	0	N.D.	N.D.

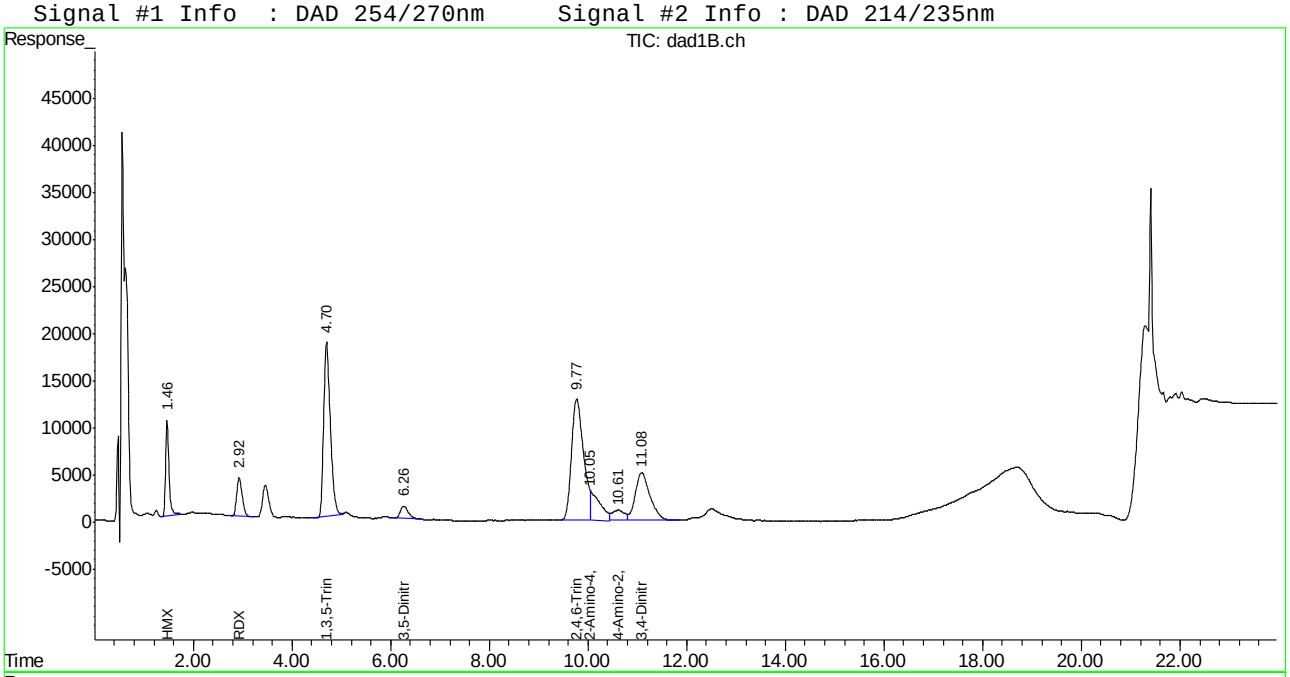
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

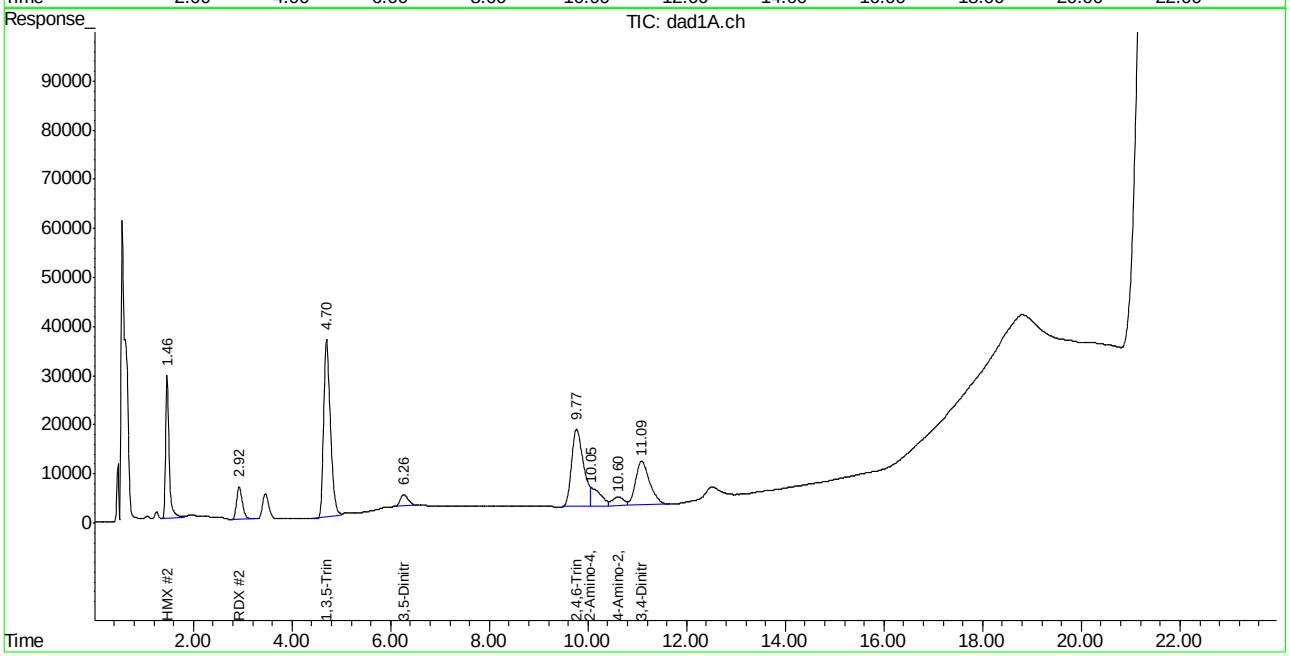
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386868.D\dad1B.ch Vial: 11
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386868.D\dad1A.ch
Acq On : 04-May-2020, 17:14:28 Operator: williamh
Sample : FA74617-1 Inst : G1315B
Misc : op80038,GPP2268,1040,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 13:14 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm





Manual Integration Approval Summary

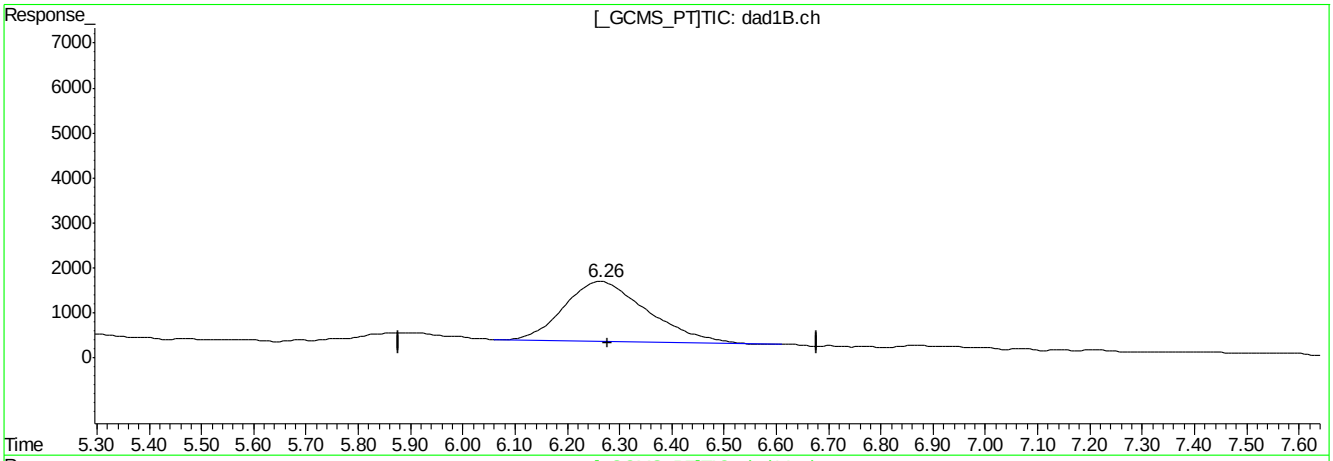
Sample Number: FA74617-1
Lab FileID: PP386868.D
Injection Time: 05/04/20 17:14
Method: SW846 8330B
Analyst approved: 05/07/20 16:19 William Hustedde
Supervisor approved: 05/08/20 16:41 Naresh Jiawan

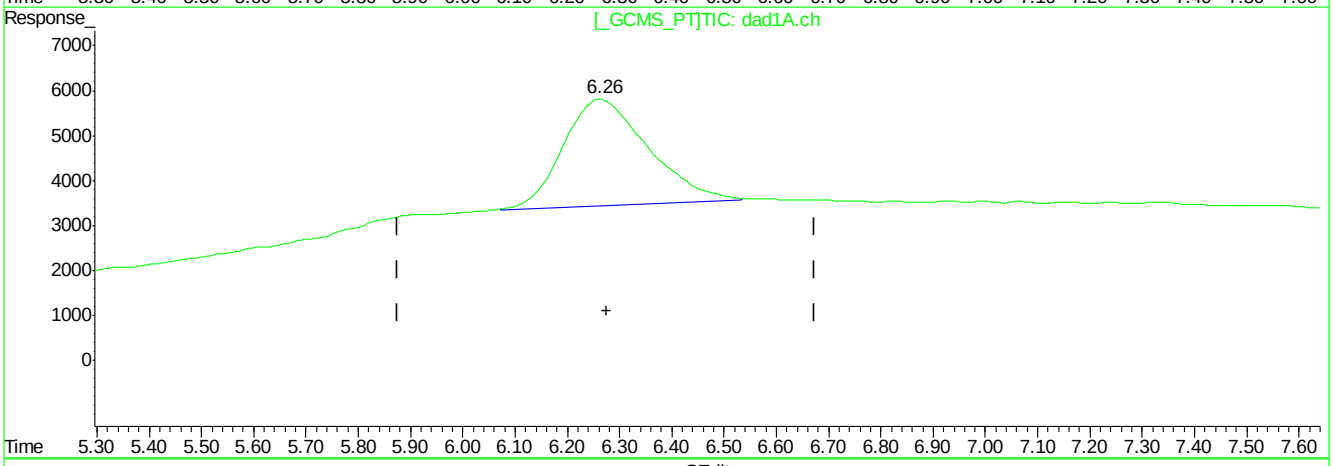
Parameter	CAS	Sig#	R.T. (min.)	Reason
3,5-Dinitroaniline	618-87-1	2	6.26	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	1	9.77	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	2	9.77	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	1	10.05	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	2	10.05	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386868.D\dad1B.ch Vial: 11
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386868.D\dad1A.ch
Acq On : 04-May-2020, 17:14:28 Operator: williamh
Sample : FA74617-1 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 11:04 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.27min 35.102ppb

response 146988

(8) 3,5-Dinitroaniline #2

6.26min 35.759ppb m

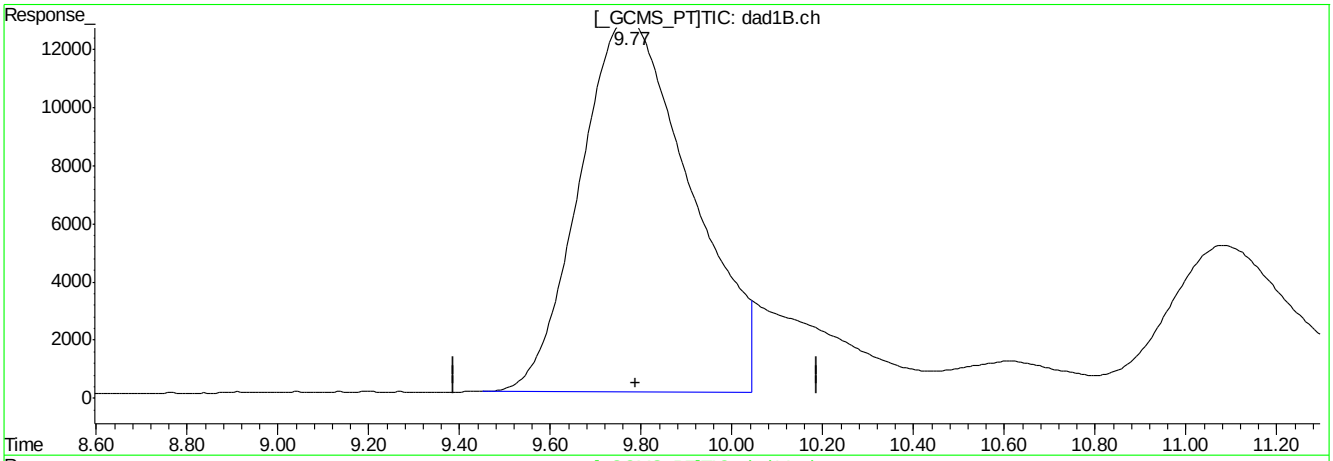
response 269108

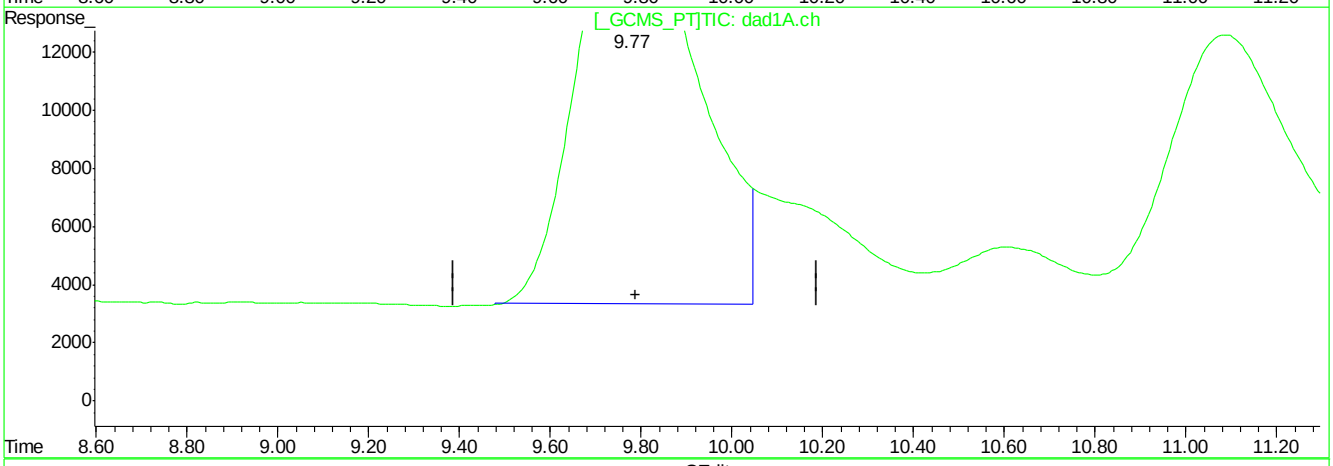
(+) = Expected Retention Time
PP386868.D GPP2262_041620PRI.M Tue May 05 13:14:11 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386868.D\dad1B.ch Vial: 11
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386868.D\dad1A.ch
Acq On : 04-May-2020, 17:14:28 Operator: williamh
Sample : FA74617-1 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 11:04 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(12) 2,4,6-Trinitrotoluene

9.77min 570.344ppb m

response 2159645

(12) 2,4,6-Trinitrotoluene #2

9.77min 622.841ppb m

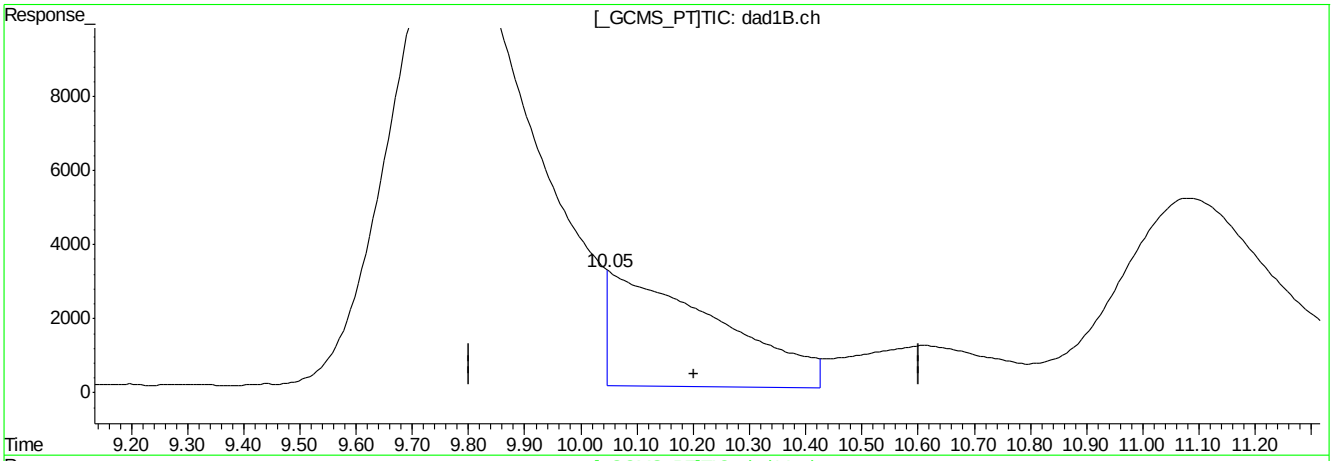
response 2663938

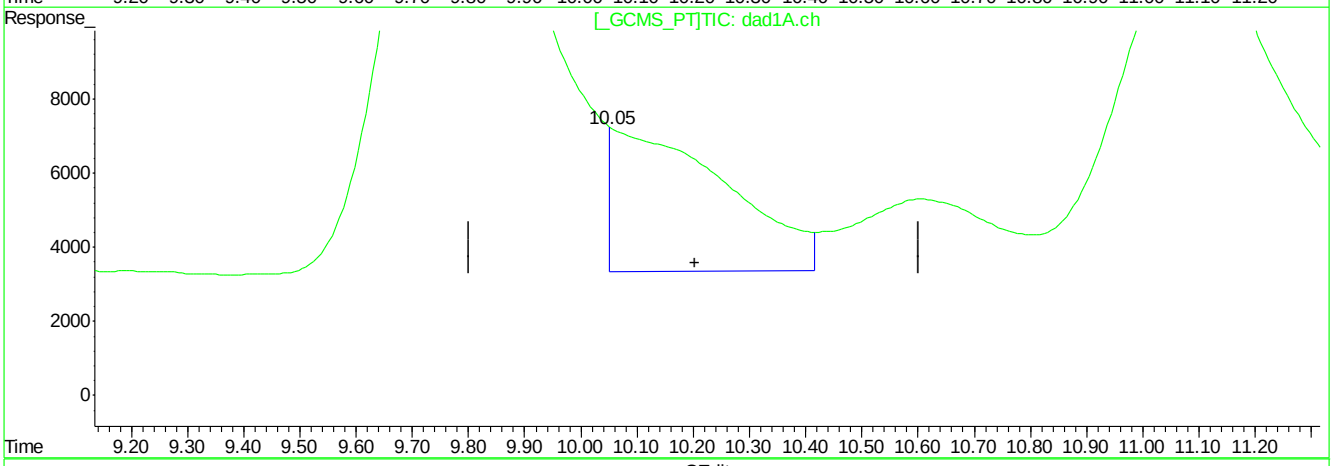
(+) = Expected Retention Time
PP386868.D GPP2262_041620PRI.M Tue May 05 13:14:23 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386868.D\dad1B.ch Vial: 11
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386868.D\dad1A.ch
Acq On : 04-May-2020, 17:14:28 Operator: williamh
Sample : FA74617-1 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 11:04 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(13) 2-Amino-4,6-Dinitrotoluene

10.05min 117.820ppb m

response 419838

(13) 2-Amino-4,6-Dinitrotoluene #2

10.05min 110.068ppb m

response 547639

(+) = Expected Retention Time
PP386868.D GPP2262_041620PRI.M Tue May 05 13:14:39 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
05/08/20 16:41

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618849.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618849.D\dad1A.ch
Acq On : 06-May-2020, 15:29:00 Operator: williamh
Sample : FA74617-1cf Inst : G1315B
Misc : op80038,GGG2834,1040,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 07 14:45:31 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.52	13.52	2774172	5240363	614.381m	583.404m
	Spiked Amount 500.000	Range 70 - 136		Recovery =		122.88%	116.68%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	5.42	5.42	1018902	1030162	341.958m	343.490m
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D. d	N.D. d
5)	1,3,5-Trinitrobe	7.12	7.12	4581252	4581252	443.007	443.007
6)	RDX	7.59	7.59	840069	840069	165.698	165.698
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D. d	N.D. d
8)	Nitrobenzene	0.00	0.00	0	0	N.D. d	N.D. d
9)	2,4,6-Trinitroto	10.95	10.95	5670959	7581741	556.156m	573.571m
10)	Nitroglycerin	0.00	0.00	0	0	N.D. d	N.D. d
11)	Tetryl	0.00	0.00	0	0	N.D. d	N.D. d
13)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
14)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
15)	o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
16)	3,5-Dinitroanili	15.33	15.34	1138001	2005335	111.536m	120.793
17)	p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
18)	4-Amino-2,6-Dini	17.07	17.06	445355	1075011	38.517m	49.501
19)	m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20)	2-Amino-4,6-Dini	19.11	19.11	862787	1324143	89.914m	94.366m
21)	PETN	0.00	0.00	0	0	N.D. d	N.D. d

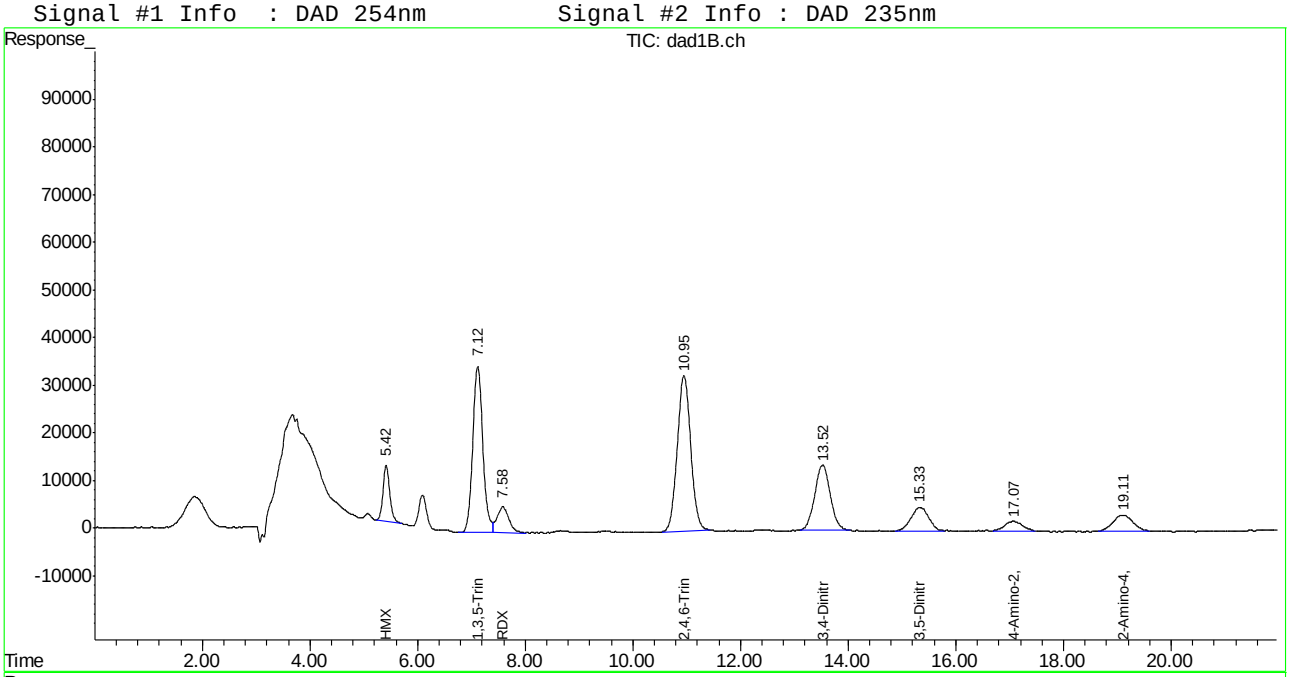
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
GG618849.D 8330RPB.M_092519.M Thu May 07 16:03:13 2020 Page 1

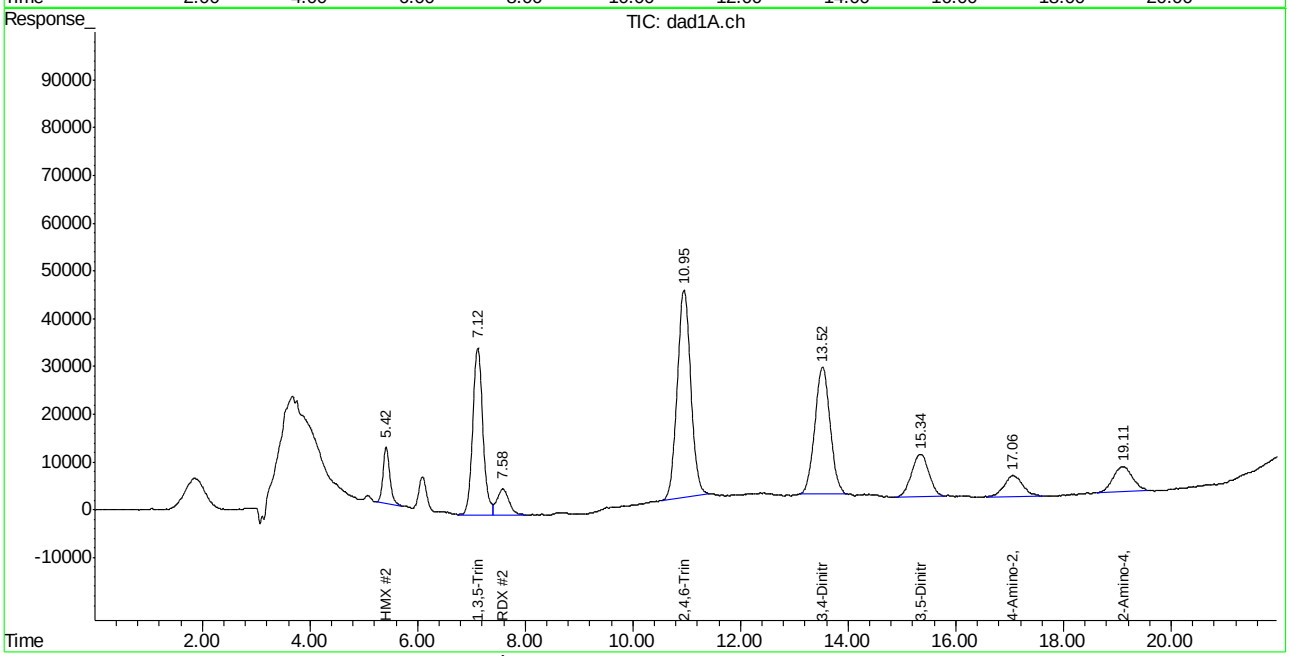
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618849.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618849.D\dad1A.ch
Acq On : 06-May-2020, 15:29:00 Operator: williamh
Sample : FA74617-1cf Inst : G1315B
Misc : op80038,GGG2834,1040,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 15:31 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

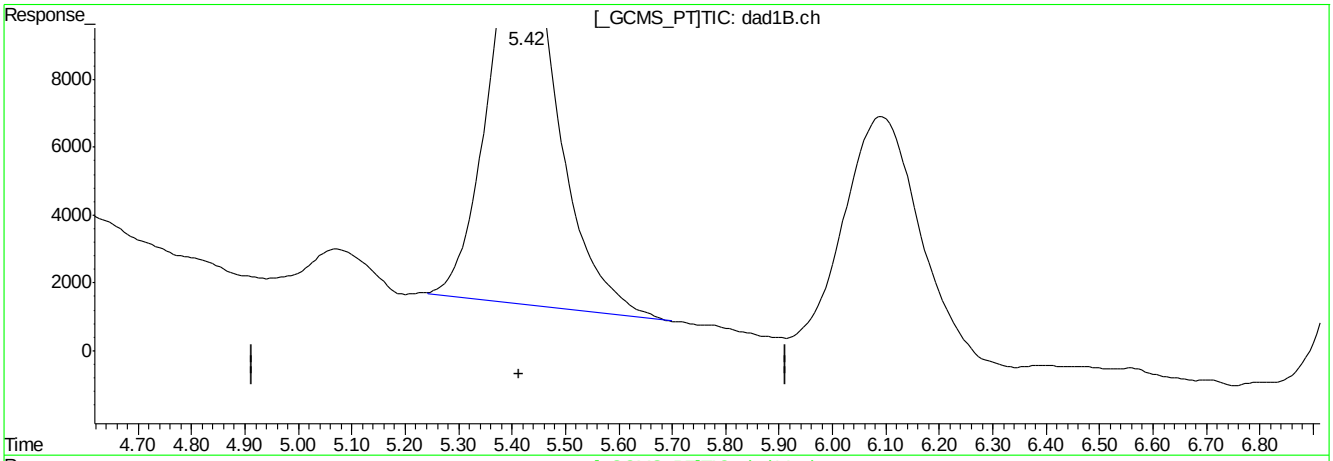
Sample Number: FA74617-1
Lab FileID: GG618849.D
Injection Time: 05/06/20 15:29
Method: SW846 8330B
Analyst approved: 05/07/20 16:19 William Hustedde
Supervisor approved: 05/08/20 16:41 Naresh Jiawan

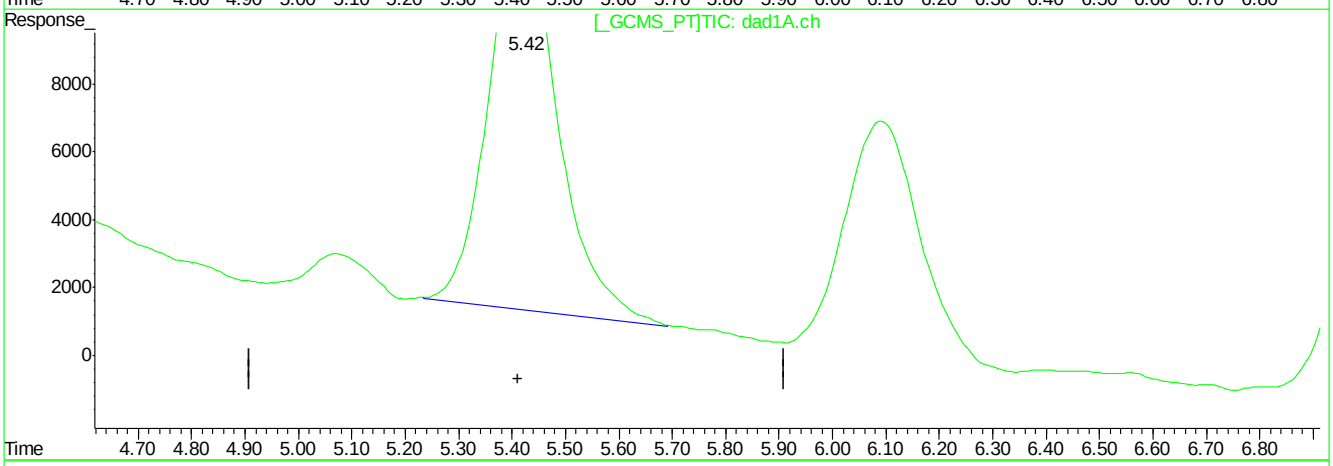
Parameter	CAS	Sig#	R.T. (min.)	Reason
HMX	2691-41-0	1	5.42	Poor instrument integration
HMX	2691-41-0	2	5.42	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	1	10.95	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	2	10.95	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	1	13.52	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	2	13.52	Poor instrument integration
3,5-Dinitroaniline	618-87-1	1	15.33	Poor instrument integration
4-amino-2,6-Dinitrotoluene	19406-51-0	1	17.07	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	1	19.11	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	2	19.11	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618849.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618849.D\dad1A.ch
Acq On : 06-May-2020, 15:29:00 Operator: williamh
Sample : FA74617-1cf Inst : G1315B
Misc : op80038,GGG2834,1040,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 14:45 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.42min 341.958ppb m

response 1018902

(2) HMX #2

5.42min 343.490ppb m

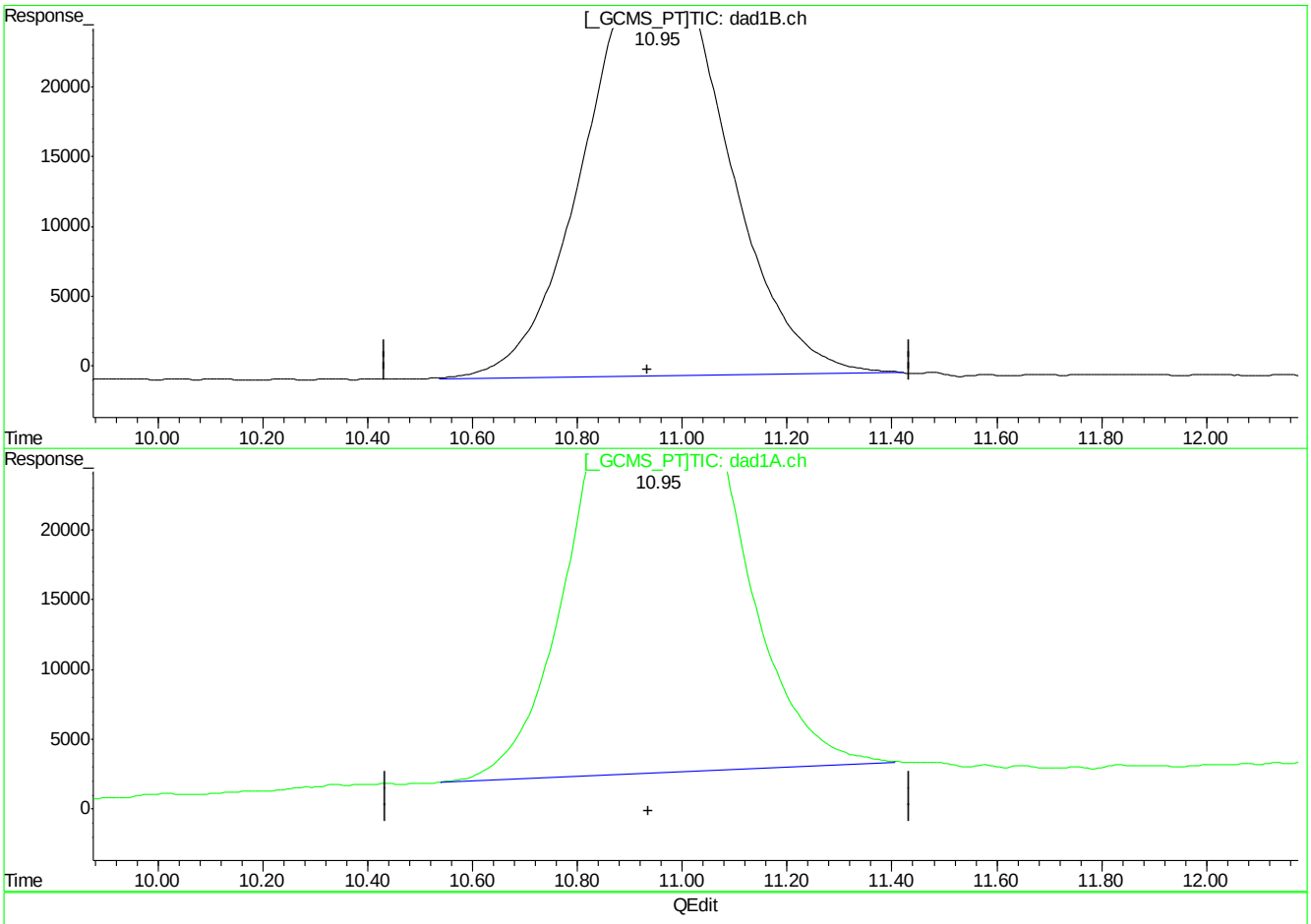
response 1030162

(+) = Expected Retention Time
GG618849.D 8330RPB.M_092519.M Thu May 07 15:30:12 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618849.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618849.D\dad1A.ch
Acq On : 06-May-2020, 15:29:00 Operator: williamh
Sample : FA74617-1cf Inst : G1315B
Misc : op80038,GGG2834,1040,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 14:45 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration



(9) 2,4,6-Trinitrotoluene

10.95min 556.156ppb m

response 5670959

(9) 2,4,6-Trinitrotoluene #2

10.95min 573.571ppb m

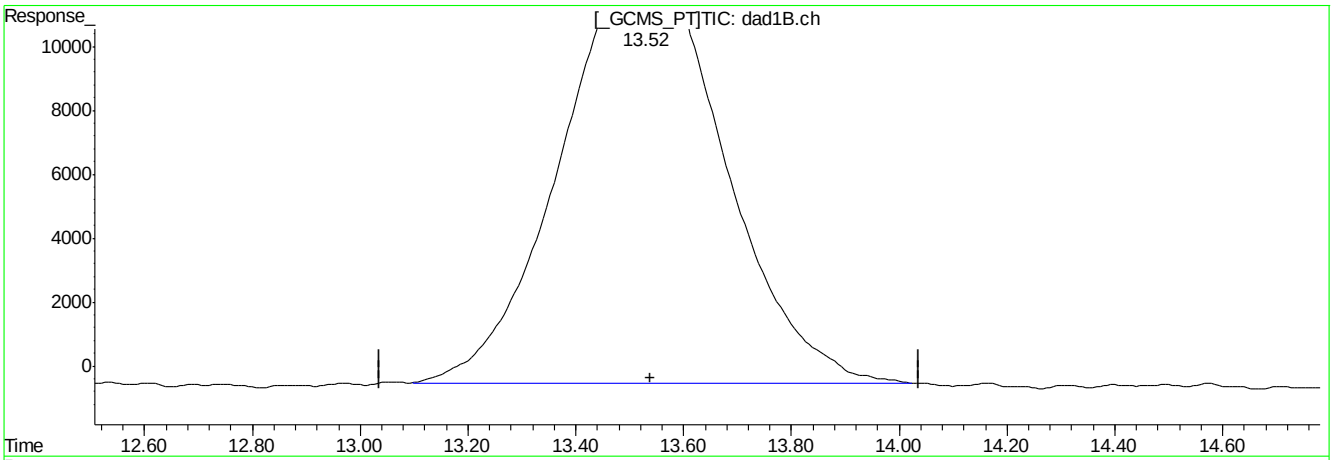
response 7581741

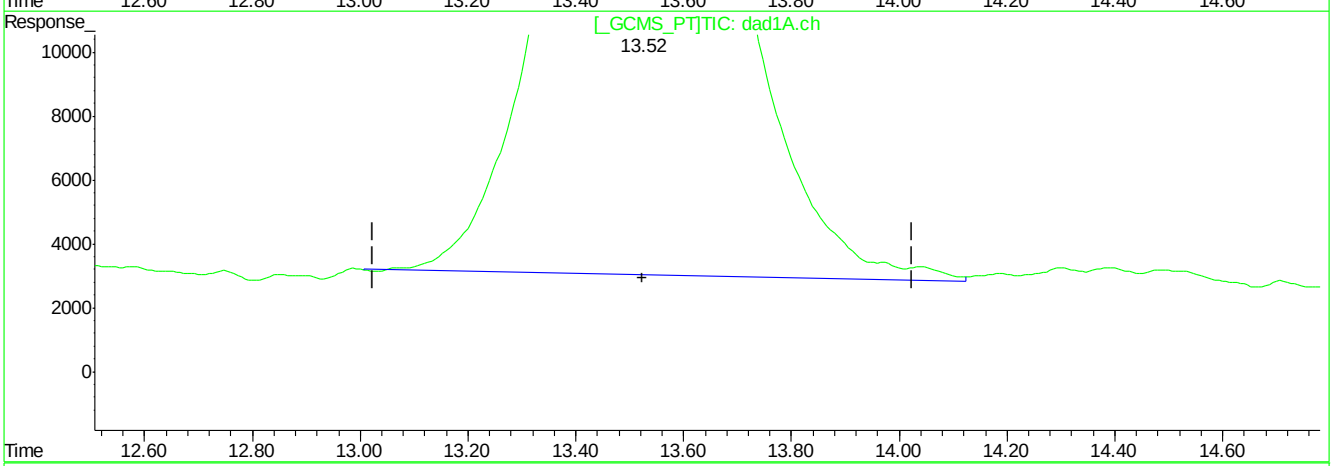
(+) = Expected Retention Time
GG618849.D 8330RPB.M_092519.M Thu May 07 15:30:29 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618849.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618849.D\dad1A.ch
Acq On : 06-May-2020, 15:29:00 Operator: williamh
Sample : FA74617-1cf Inst : G1315B
Misc : op80038,GGG2834,1040,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 14:45 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration





QEdit

(12) 3,4-Dinitrotoluene (S)

13.52min 614.381ppb m

response 2774172

(12) 3,4-Dinitrotoluene #2 (S)

13.53min 605.564ppb

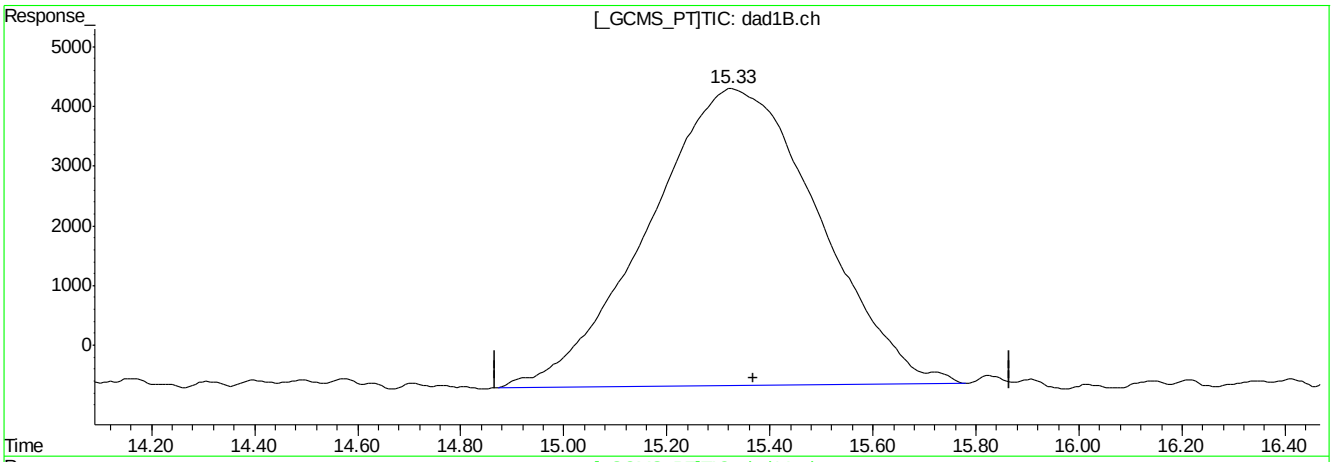
response 5439890

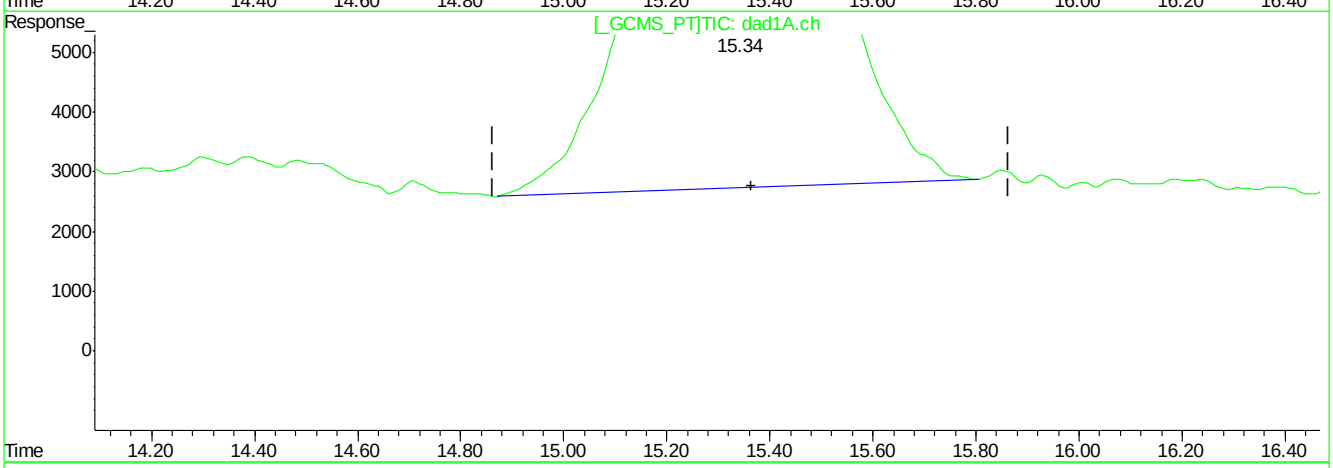
(+) = Expected Retention Time
GG618849.D 8330RPB.M_092519.M Thu May 07 15:30:37 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618849.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618849.D\dad1A.ch
Acq On : 06-May-2020, 15:29:00 Operator: williamh
Sample : FA74617-1cf Inst : G1315B
Misc : op80038,GGG2834,1040,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 14:45 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration





QEdit

(16) 3,5-Dinitroaniline

15.33min 111.536ppb m

response 1138001

(16) 3,5-Dinitroaniline #2

15.34min 120.793ppb

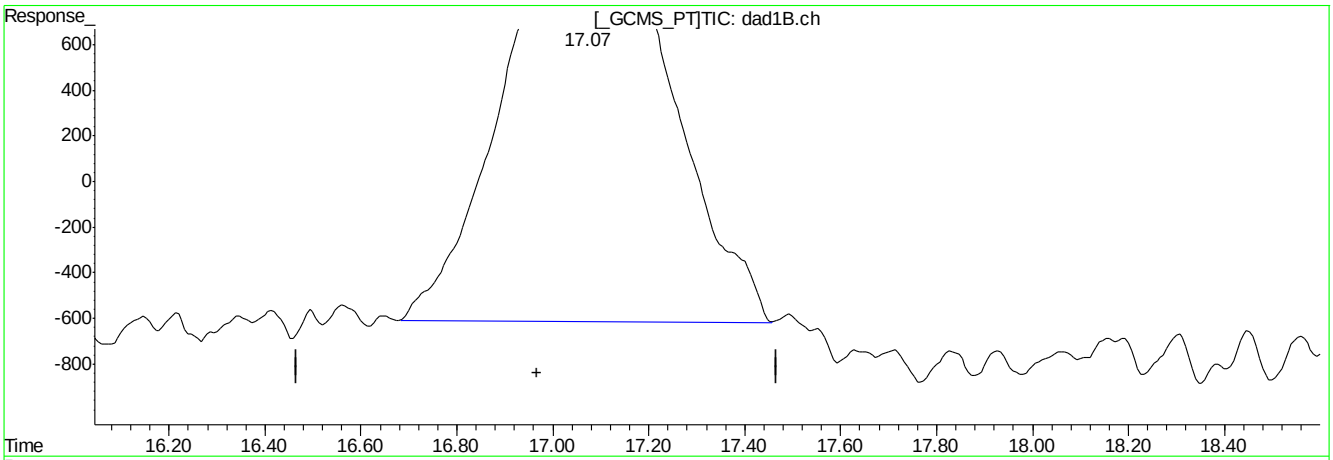
response 2005335

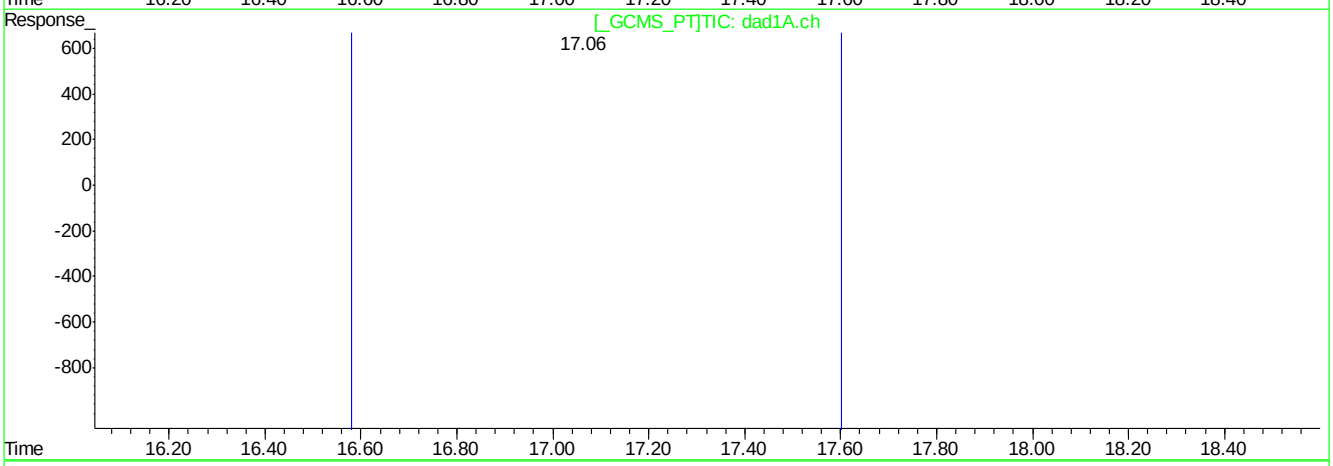
(+) = Expected Retention Time
GG618849.D 8330RPB.M_092519.M Thu May 07 15:30:46 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618849.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618849.D\dad1A.ch
Acq On : 06-May-2020, 15:29:00 Operator: williamh
Sample : FA74617-1cf Inst : G1315B
Misc : op80038,GGG2834,1040,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 14:45 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration





QEdit

(18) 4-Amino-2,6-Dinitrotoluene

17.07min 38.517ppb m

response 445355

(18) 4-Amino-2,6-Dinitrotoluene #2

17.06min 49.501ppb

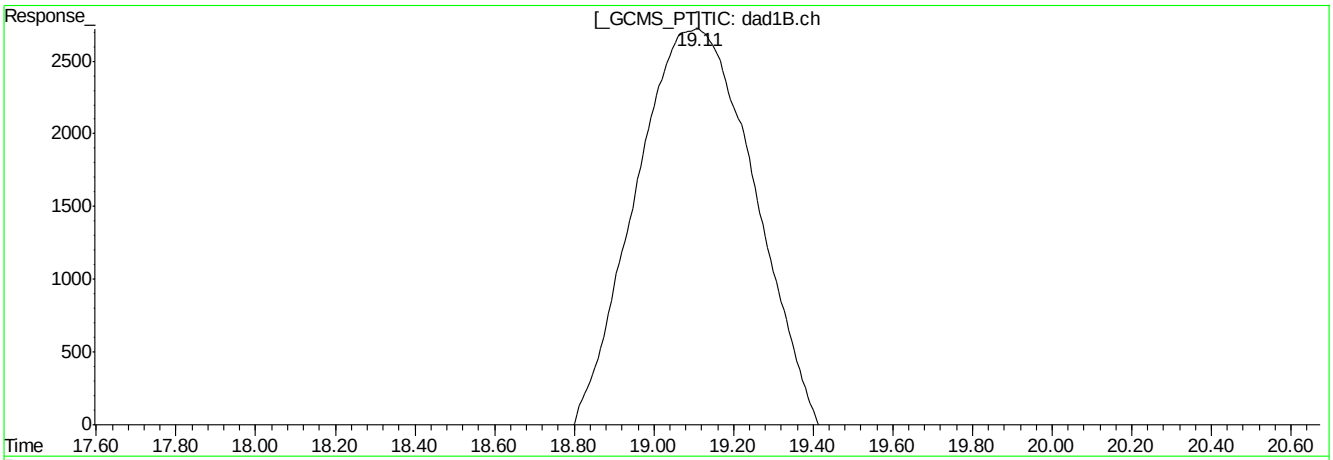
response 1075011

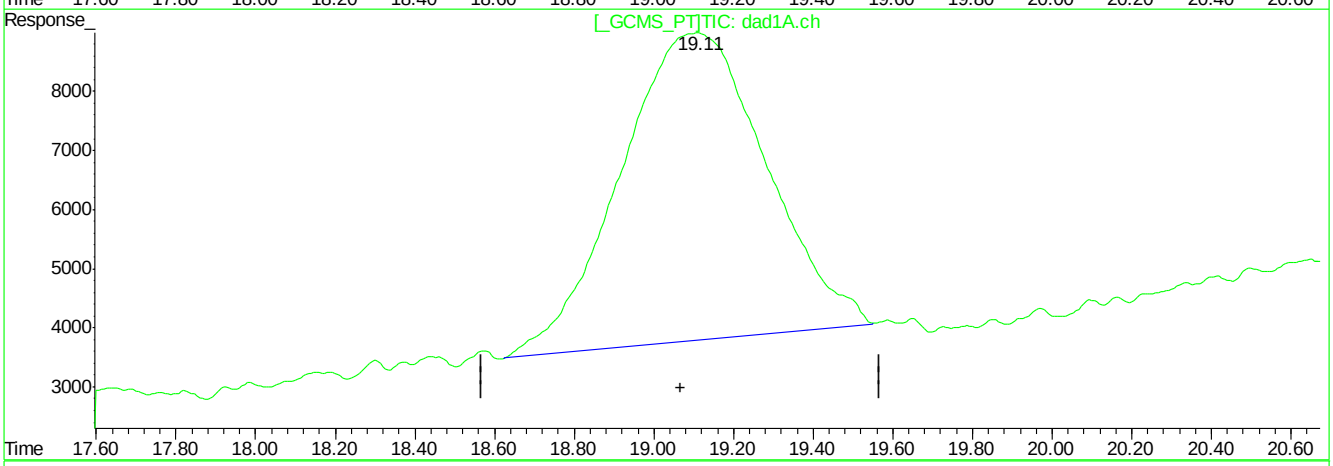
(+) = Expected Retention Time
GG618849.D 8330RPB.M_092519.M Thu May 07 15:30:53 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618849.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618849.D\dad1A.ch
Acq On : 06-May-2020, 15:29:00 Operator: williamh
Sample : FA74617-1cf Inst : G1315B
Misc : op80038,GGG2834,1040,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 14:45 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration





QEdit

(20) 2-Amino-4,6-Dinitrotoluene

19.11min 89.914ppb m

response 862787

(20) 2-Amino-4,6-Dinitrotoluene #2

19.11min 94.366ppb m

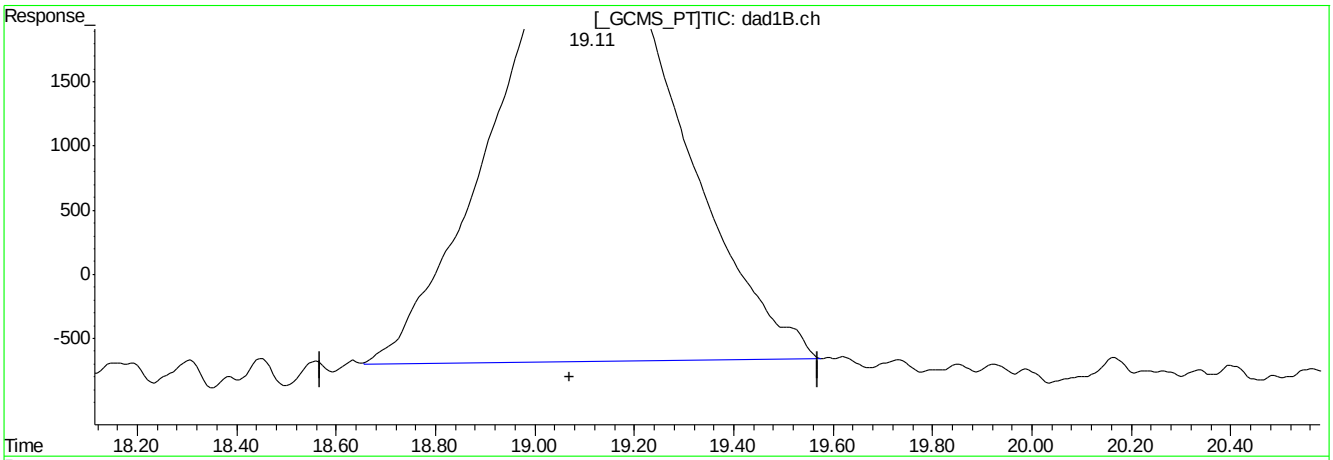
response 1324143

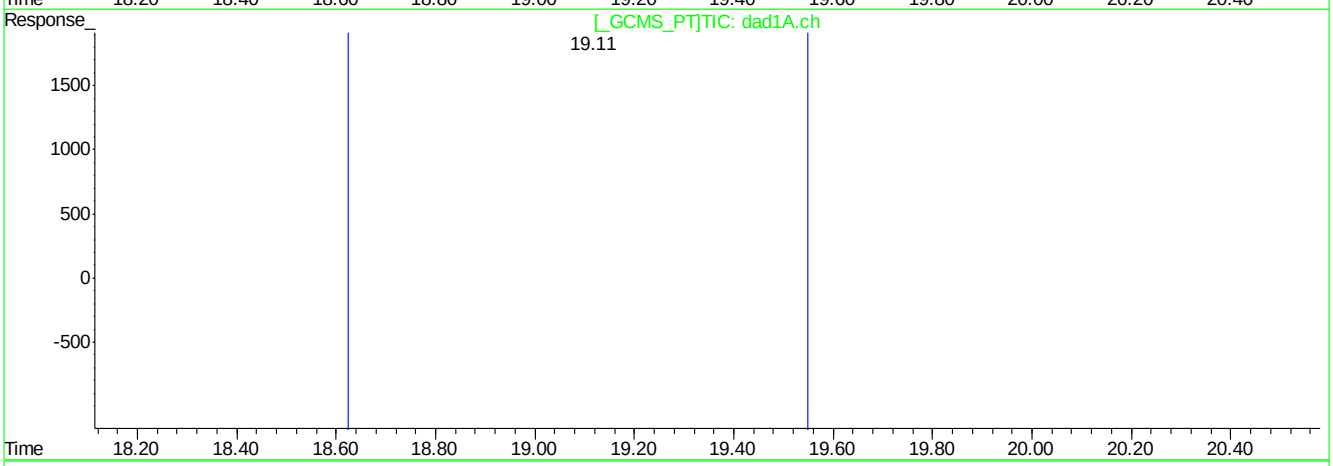
(+) = Expected Retention Time
GG618849.D 8330RPB.M_092519.M Thu May 07 15:31:04 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618849.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618849.D\dad1A.ch
Acq On : 06-May-2020, 15:29:00 Operator: williamh
Sample : FA74617-1cf Inst : G1315B
Misc : op80038,GGG2834,1040,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 14:45 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration





QEdit

(20) 2-Amino-4,6-Dinitrotoluene

19.11min 89.914ppb m

response 862787

(20) 2-Amino-4,6-Dinitrotoluene #2

19.11min 94.366ppb m

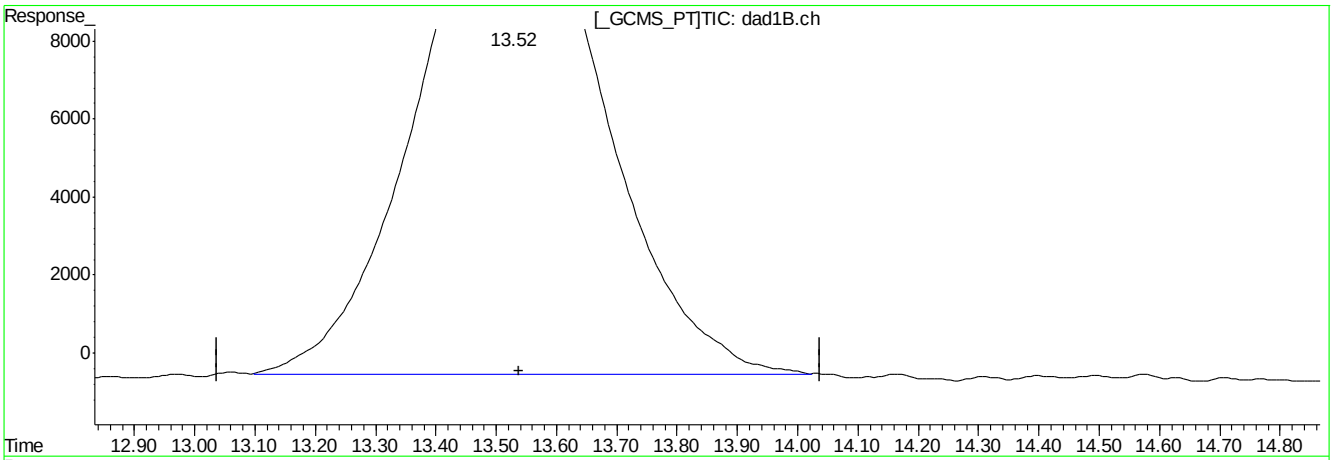
response 1324143

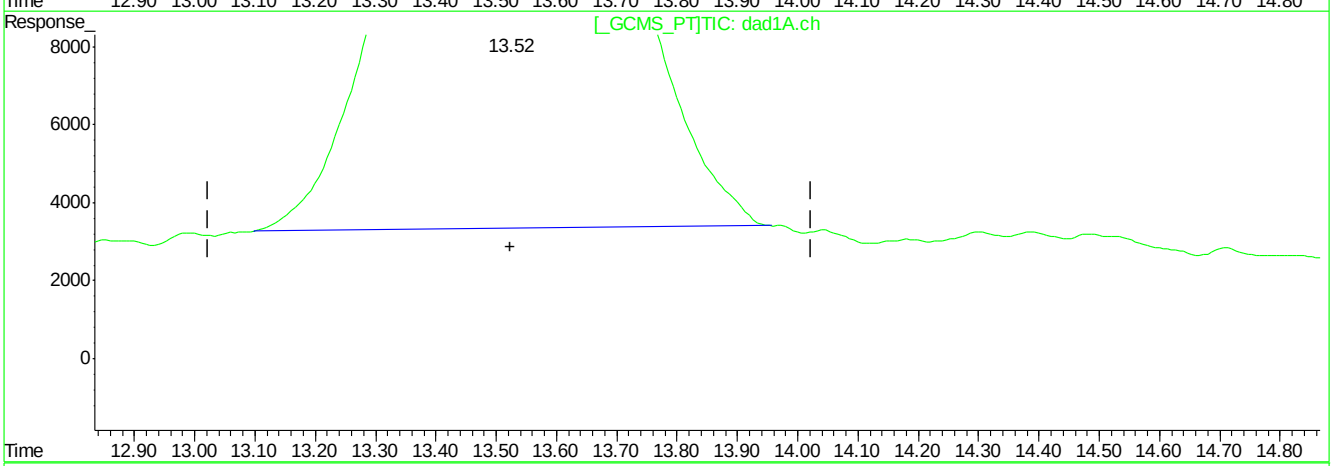
(+) = Expected Retention Time
GG618849.D 8330RPB.M_092519.M Thu May 07 15:31:07 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618849.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618849.D\dad1A.ch
Acq On : 06-May-2020, 15:29:00 Operator: williamh
Sample : FA74617-1cf Inst : G1315B
Misc : op80038,GGG2834,1040,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 14:45 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration





QEdit

(12) 3,4-Dinitrotoluene (S)

13.52min 614.381ppb m

response 2774172

(12) 3,4-Dinitrotoluene #2 (S)

13.52min 583.404ppb m

response 5240363

(+) = Expected Retention Time
GG618849.D 8330RPB.M_092519.M Thu May 07 15:31:19 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
05/08/20 16:42

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386869.D\dad1B.ch Vial: 12
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386869.D\dad1A.ch
Acq On : 04-May-2020, 17:45:24 Operator: williamh
Sample : FA74617-2 Inst : G1315B
Misc : op80038,GPP2268,1050,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 05 11:04:40 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Initial Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	11.09	11.09	1037296	1752801	521.368	508.362
	Spiked Amount 500.000	Range 70 - 136		Recovery =		104.27%	101.67%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	1.47	1.47	417505	1233952	260.674	261.973
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D.	N.D.
5)	RDX	2.92	2.93	233320	389202	117.524m	120.194
6)	1,3,5-Trinitrobe	4.70	4.70	1339396	2643718	329.007	336.937
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D.	N.D.
8)	3,5-Dinitroanili	6.26	6.26	139467	251934	33.306	33.477m
9)	Nitrobenzene	0.00	0.00	0	0	N.D.	N.D.
10)	Nitroglycerin	0.00	0.00	0	0	N.D.	N.D.
11)	Tetryl	0.00	0.00	0	0	N.D.	N.D.
12)	2,4,6-Trinitroto	9.77	9.77	1641961	2014593	433.628m	471.021m
13)	2-Amino-4,6-Dini	10.06	10.06	340939	460308	95.678m	92.516m
14)	4-Amino-2,6-Dini	10.60	10.62	150748	220522	55.735m	43.184
16)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D.	N.D.
17)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D.	N.D.
18)	o-Nitrotoluene	0.00	0.00	0	0	N.D.	N.D.
19)	p-Nitrotoluene	0.00	0.00	0	0	N.D.	N.D.
20)	m-Nitrotoluene	0.00	0.00	0	0	N.D.	N.D.
21)	PETN	0.00	0.00	0	0	N.D.	N.D.

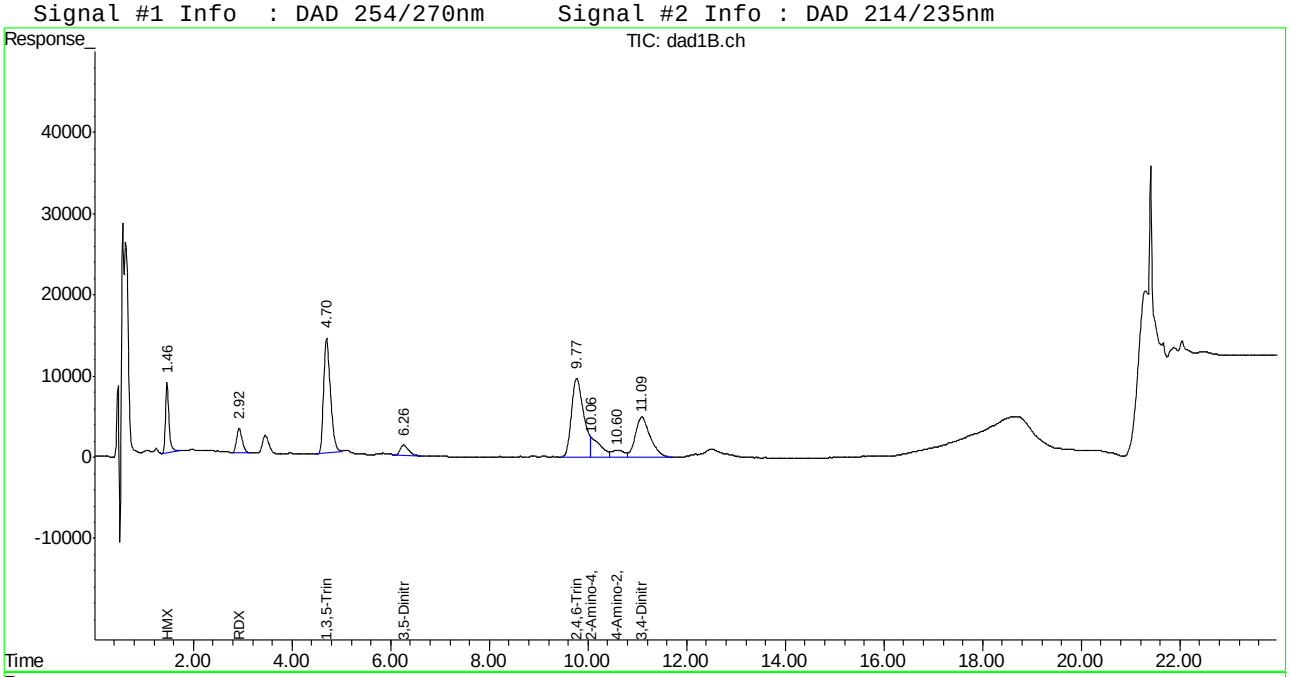
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
PP386869.D GPP2262_041620PRI.M Tue May 05 13:36:12 2020 Page 1

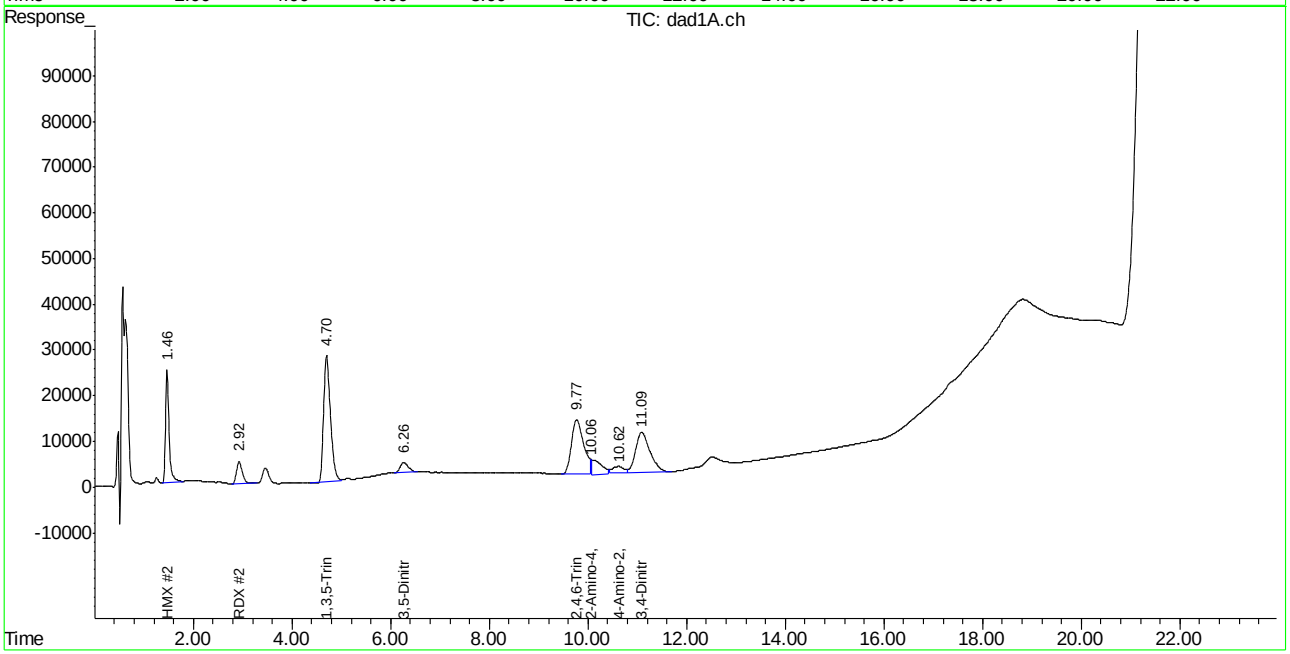
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386869.D\dad1B.ch Vial: 12
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386869.D\dad1A.ch
Acq On : 04-May-2020, 17:45:24 Operator: williamh
Sample : FA74617-2 Inst : G1315B
Misc : op80038,GPP2268,1050,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 13:21 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm





Manual Integration Approval Summary

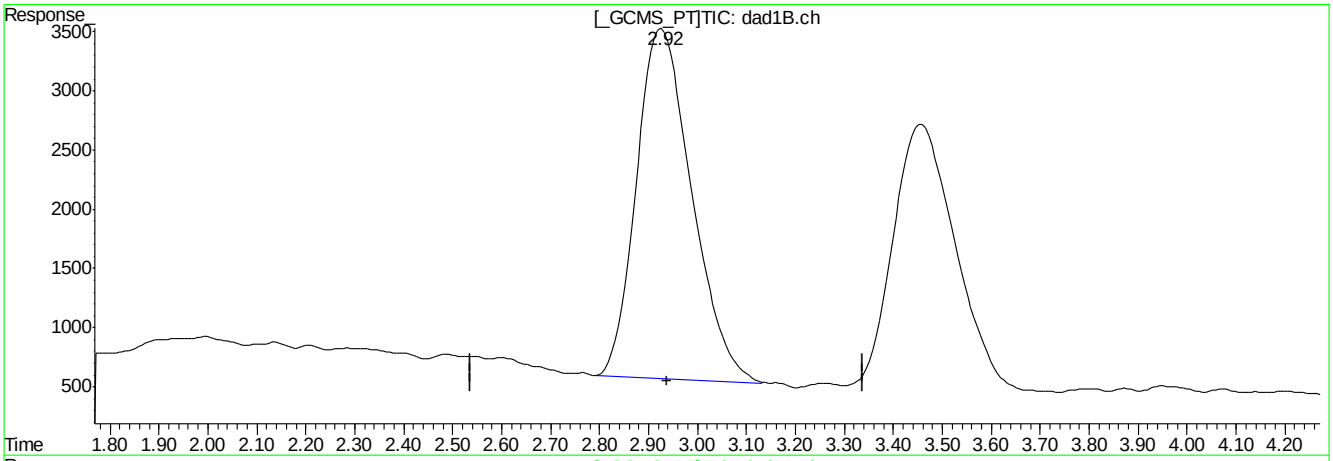
Sample Number: FA74617-2
Lab FileID: PP386869.D
Injection Time: 05/04/20 17:45
Method: SW846 8330B
Analyst approved: 05/07/20 16:20 William Hustedde
Supervisor approved: 05/08/20 16:42 Naresh Jiawan

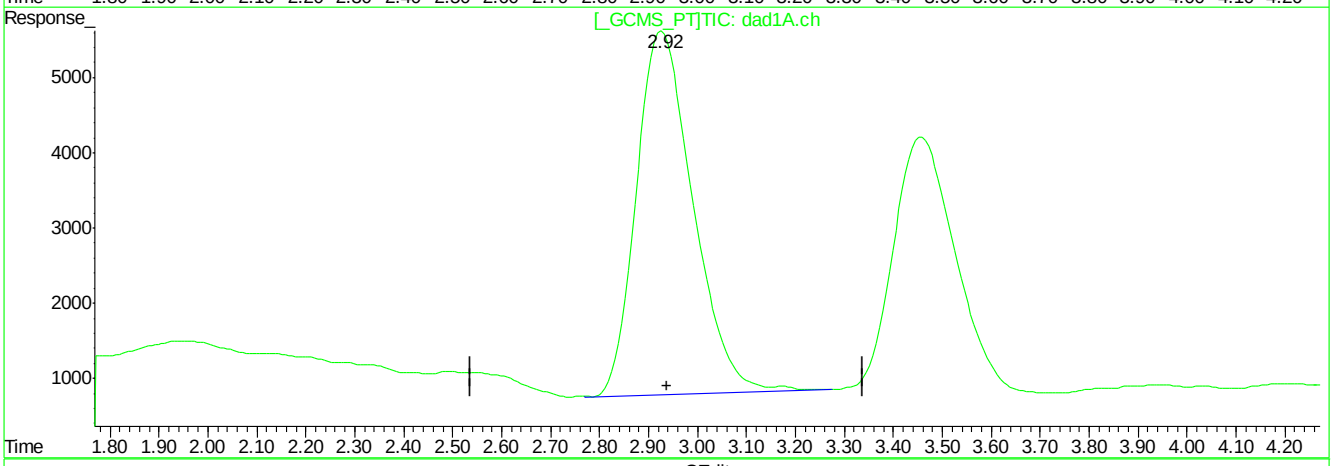
Parameter	CAS	Sig#	R.T. (min.)	Reason
RDX	121-82-4	1	2.92	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	6.26	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	1	9.77	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	2	9.77	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	1	10.06	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	2	10.06	Poor instrument integration
4-amino-2,6-Dinitrotoluene	19406-51-0	1	10.60	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386869.D\dad1B.ch Vial: 12
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386869.D\dad1A.ch
Acq On : 04-May-2020, 17:45:24 Operator: williamh
Sample : FA74617-2 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 11:04 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(5) RDX

2.92min 117.524ppb m

response 233320

(5) RDX #2

2.93min 120.194ppb

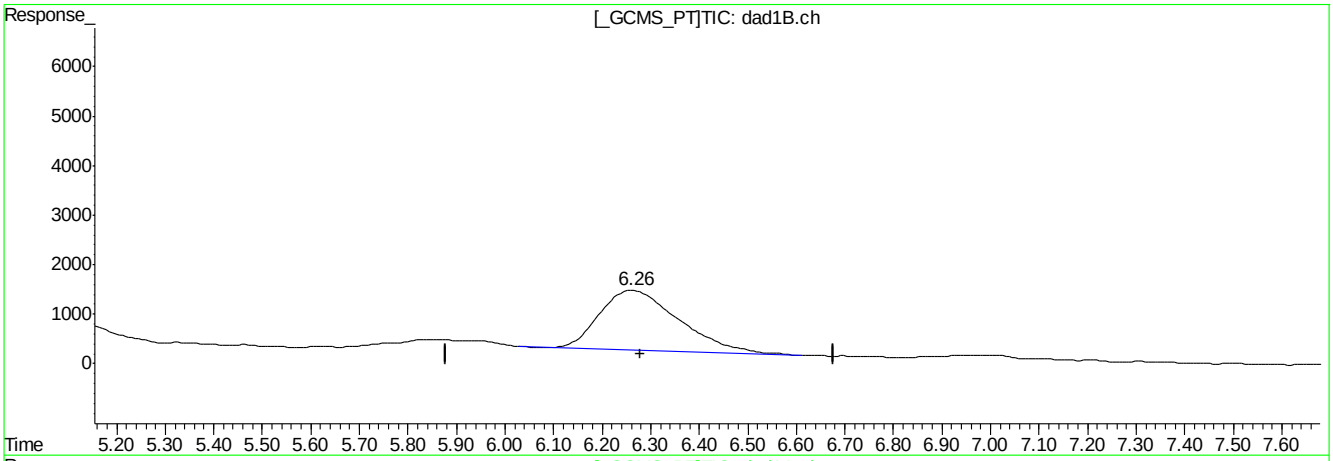
response 389202

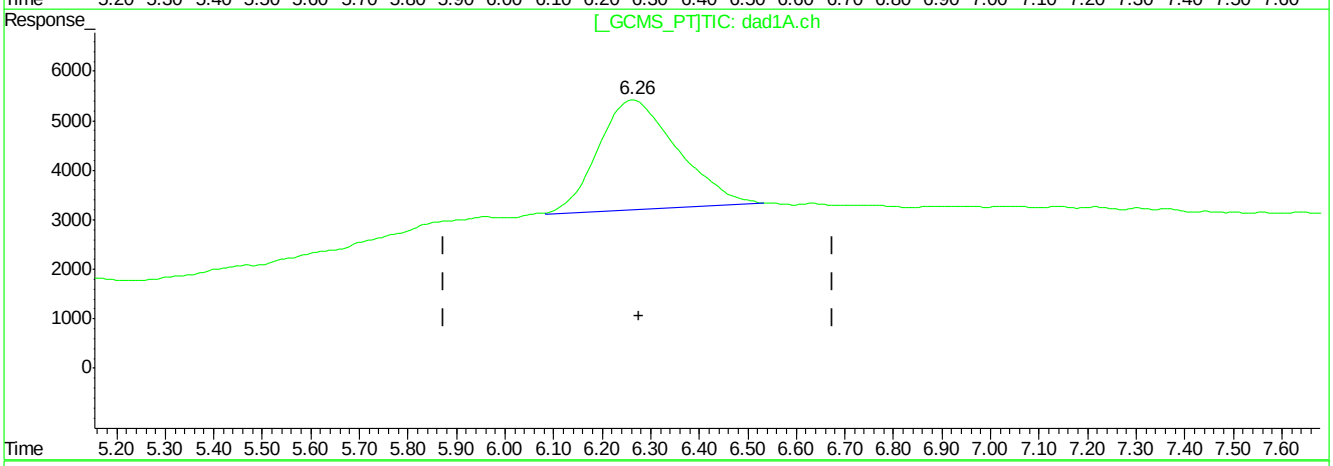
(+) = Expected Retention Time
PP386869.D GPP2262_041620PRI.M Tue May 05 13:20:57 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386869.D\dad1B.ch Vial: 12
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386869.D\dad1A.ch
Acq On : 04-May-2020, 17:45:24 Operator: williamh
Sample : FA74617-2 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 11:04 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.26min 33.306ppb

response 139467

(8) 3,5-Dinitroaniline #2

6.26min 33.477ppb m

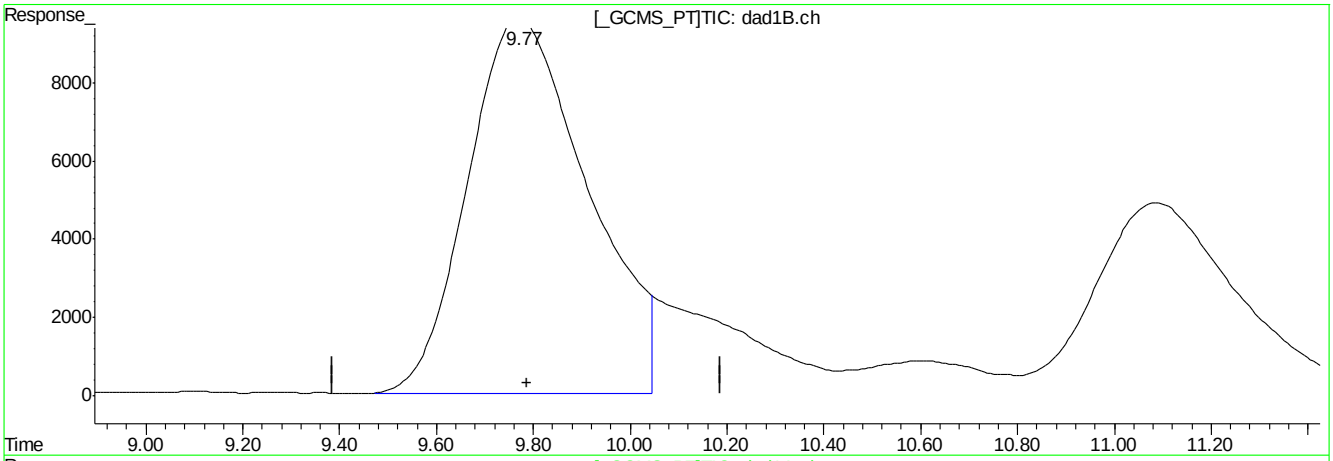
response 251934

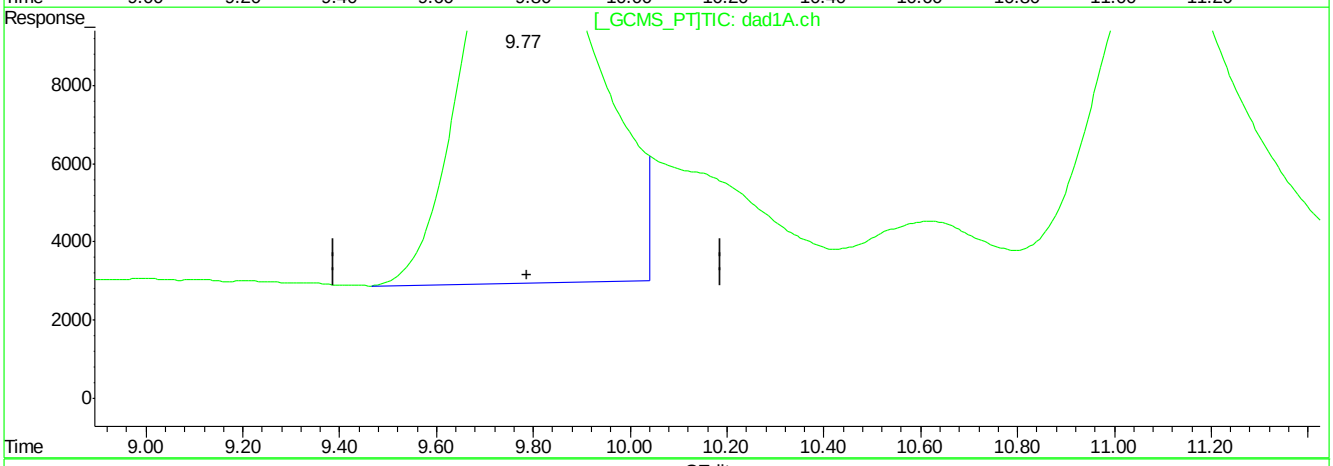
(+) = Expected Retention Time
PP386869.D GPP2262_041620PRI.M Tue May 05 13:21:06 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386869.D\dad1B.ch Vial: 12
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386869.D\dad1A.ch
Acq On : 04-May-2020, 17:45:24 Operator: williamh
Sample : FA74617-2 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 11:04 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(12) 2,4,6-Trinitrotoluene

9.77min 433.628ppb m

response 1641961

(12) 2,4,6-Trinitrotoluene #2

9.77min 471.021ppb m

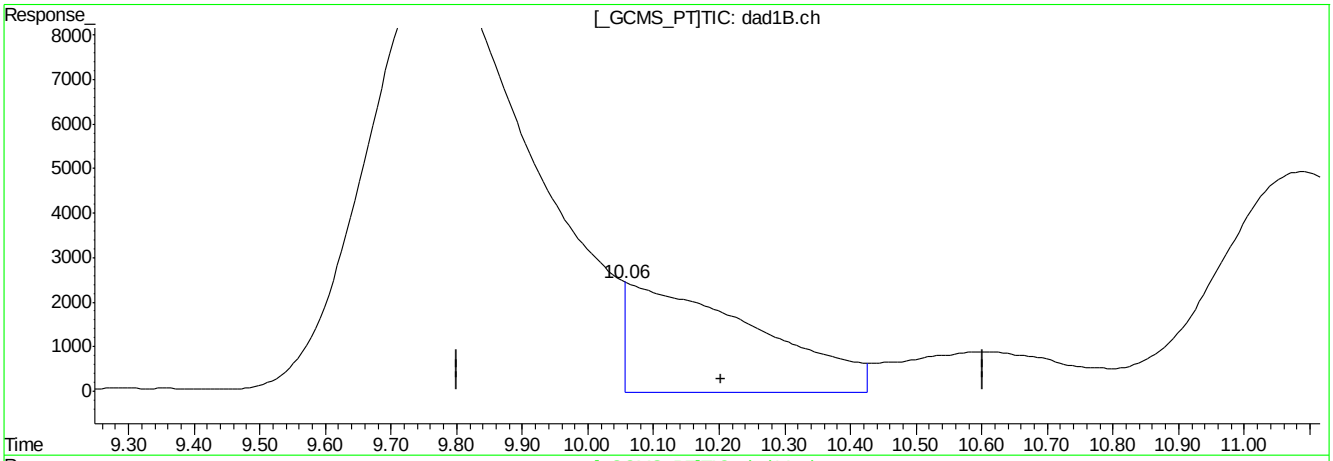
response 2014593

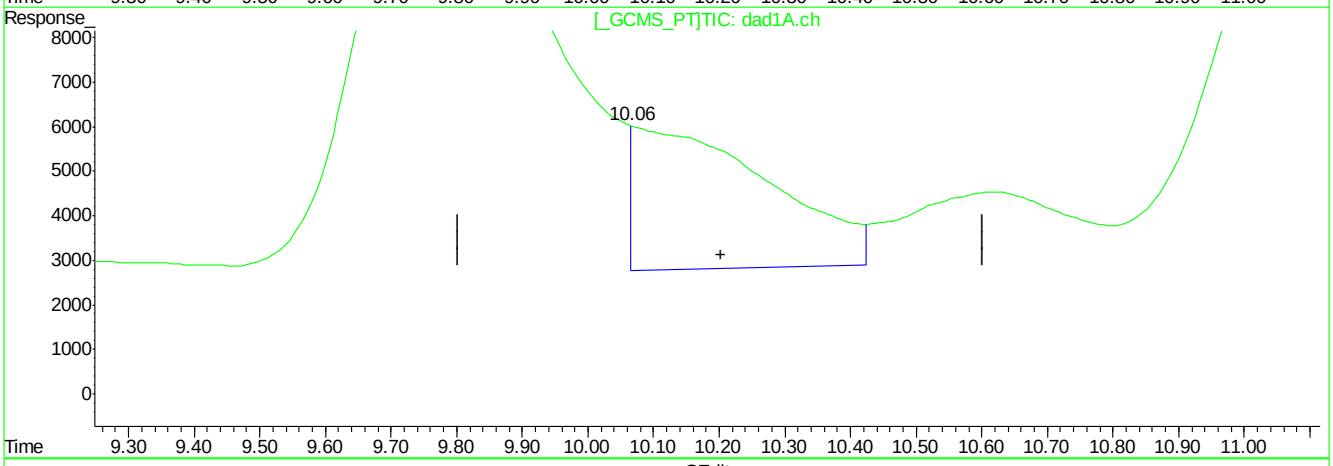
(+) = Expected Retention Time
PP386869.D GPP2262_041620PRI.M Tue May 05 13:21:18 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386869.D\dad1B.ch Vial: 12
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386869.D\dad1A.ch
Acq On : 04-May-2020, 17:45:24 Operator: williamh
Sample : FA74617-2 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 11:04 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(13) 2-Amino-4,6-Dinitrotoluene

10.06min 95.678ppb m

response 340939

(13) 2-Amino-4,6-Dinitrotoluene #2

10.06min 92.516ppb m

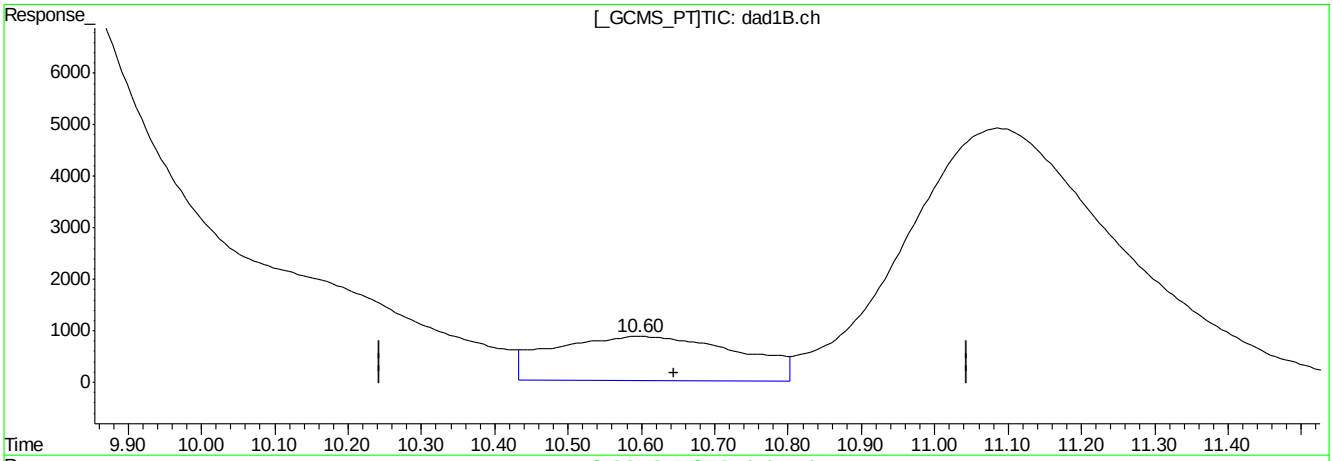
response 460308

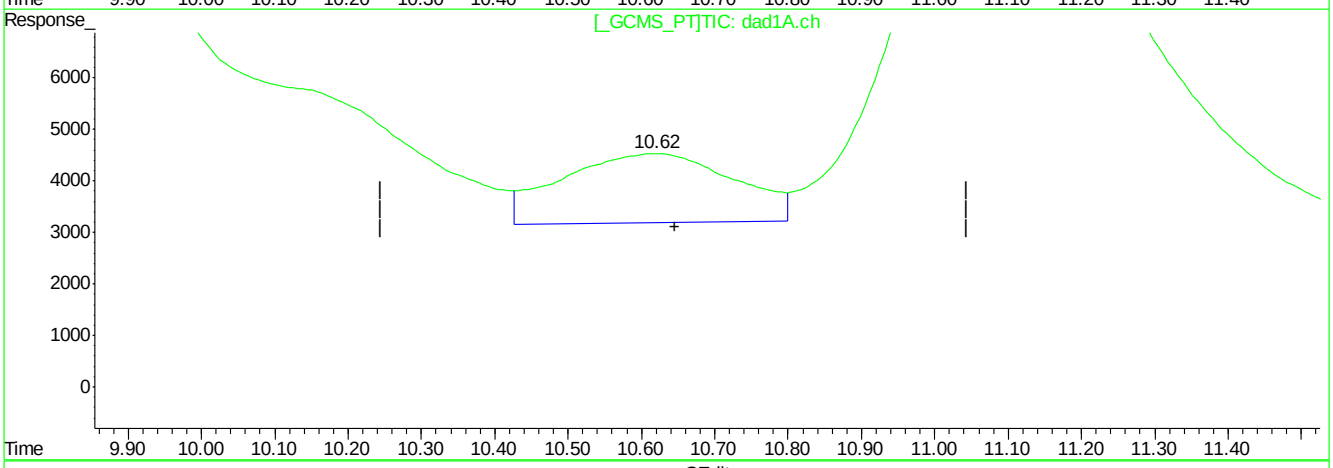
(+) = Expected Retention Time
PP386869.D GPP2262_041620PRI.M Tue May 05 13:21:35 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386869.D\dad1B.ch Vial: 12
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386869.D\dad1A.ch
Acq On : 04-May-2020, 17:45:24 Operator: williamh
Sample : FA74617-2 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 11:04 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(14) 4-Amino-2,6-Dinitrotoluene

10.60min 55.735ppb m

response 150748

(14) 4-Amino-2,6-Dinitrotoluene #2

10.62min 43.184ppb

response 220522

(+) = Expected Retention Time
PP386869.D GPP2262_041620PRI.M Tue May 05 13:21:43 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
05/08/20 16:42

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618850.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618850.D\dad1A.ch
Acq On : 06-May-2020, 15:58:25 Operator: williamh
Sample : FA74617-2cf Inst : G1315B
Misc : op80038,GGG2834,1050,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 07 14:45:32 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.50	13.50	2815607	5399182	623.558	601.043
	Spiked Amount 500.000	Range 70 - 136		Recovery =		124.71%	120.21%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	5.41	5.41	830586	852311	278.756m	284.188m
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D. d	N.D. d
5)	1,3,5-Trinitrobe	7.11	7.11	3568596	3568596	345.083	345.083
6)	RDX	7.57	7.57	578863	569810	114.177m	112.391m
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D. d	N.D. d
8)	Nitrobenzene	0.00	0.00	0	0	N.D. d	N.D. d
9)	2,4,6-Trinitroto	10.94	10.93	4377650	5674057	429.320	429.251m
10)	Nitroglycerin	0.00	0.00	0	0	N.D. d	N.D. d
11)	Tetryl	0.00	0.00	0	0	N.D. d	N.D. d
13)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
14)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
15)	o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
16)	3,5-Dinitroanili	15.32	15.34	1002465	1851646	98.252	111.536
17)	p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
18)	4-Amino-2,6-Dini	17.07	17.07	443822	905915	38.385	41.715
19)	m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20)	2-Amino-4,6-Dini	19.11	19.10	790083	1165738	82.337m	83.077m
21)	PETN	0.00	0.00	0	0	N.D. d	N.D. d

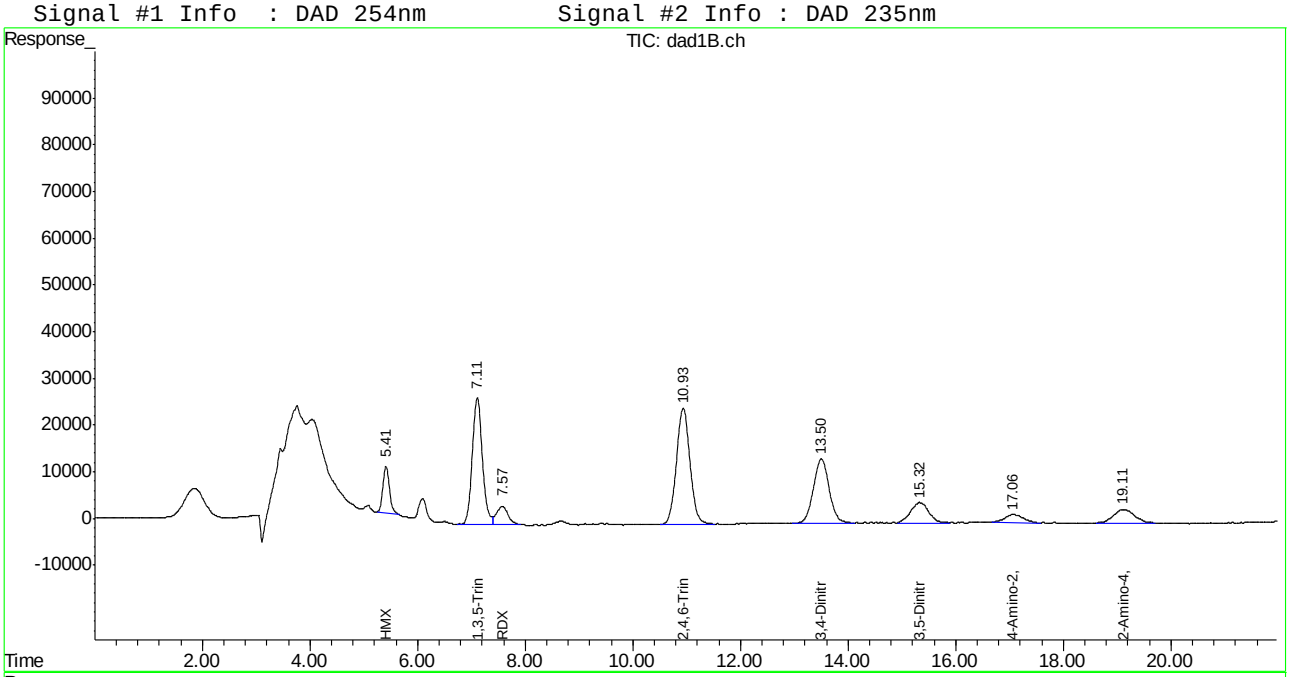
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

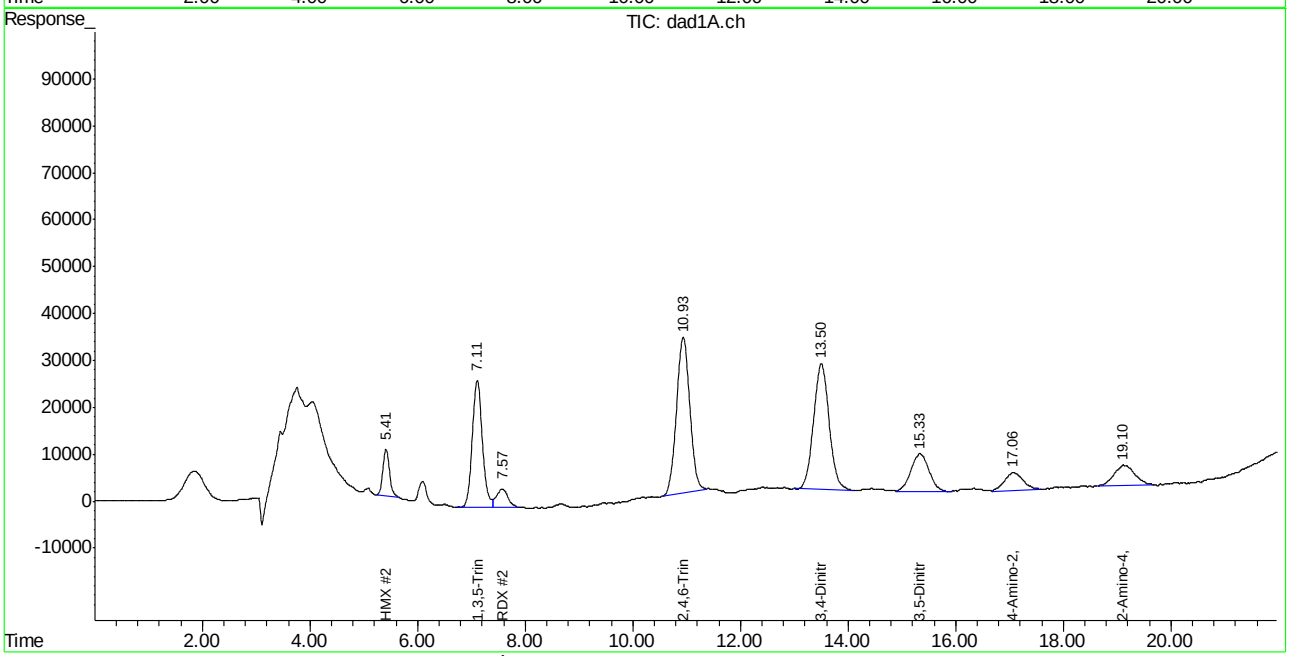
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618850.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618850.D\dad1A.ch
Acq On : 06-May-2020, 15:58:25 Operator: williamh
Sample : FA74617-2cf Inst : G1315B
Misc : op80038,GGG2834,1050,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 15:32 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

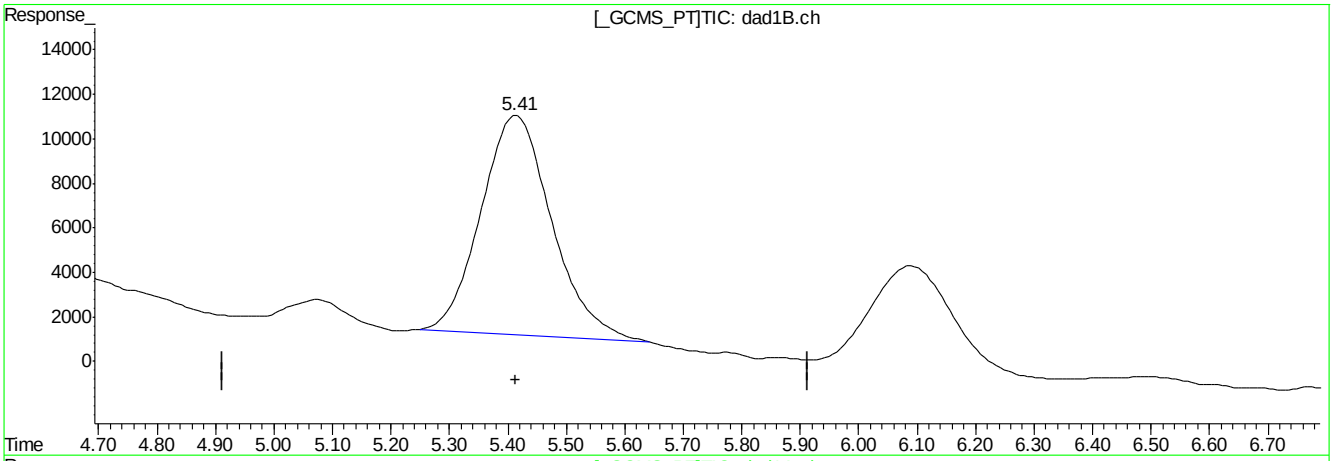
Sample Number: FA74617-2
Lab FileID: GG618850.D
Injection Time: 05/06/20 15:58
Method: SW846 8330B
Analyst approved: 05/07/20 16:20 William Hustedde
Supervisor approved: 05/08/20 16:42 Naresh Jiawan

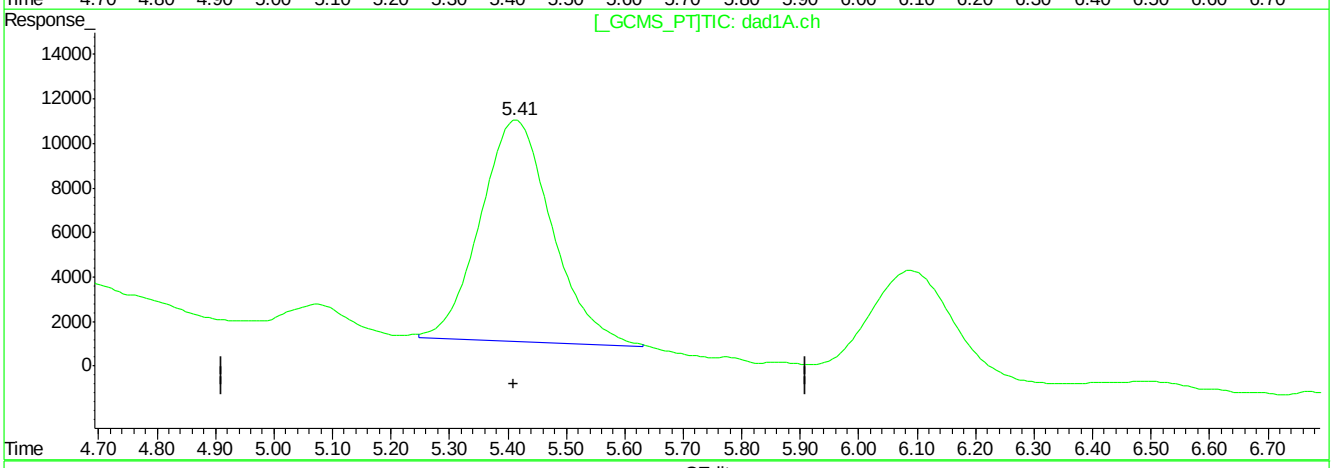
Parameter	CAS	Sig#	R.T. (min.)	Reason
HMX	2691-41-0	1	5.41	Poor instrument integration
HMX	2691-41-0	2	5.41	Poor instrument integration
RDX	121-82-4	1	7.57	Poor instrument integration
RDX	121-82-4	2	7.57	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	2	10.93	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	2	19.10	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	1	19.11	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618850.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618850.D\dad1A.ch
Acq On : 06-May-2020, 15:58:25 Operator: williamh
Sample : FA74617-2cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 14:45 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.41min 278.756ppb m

response 830586

(2) HMX #2

5.41min 284.188ppb m

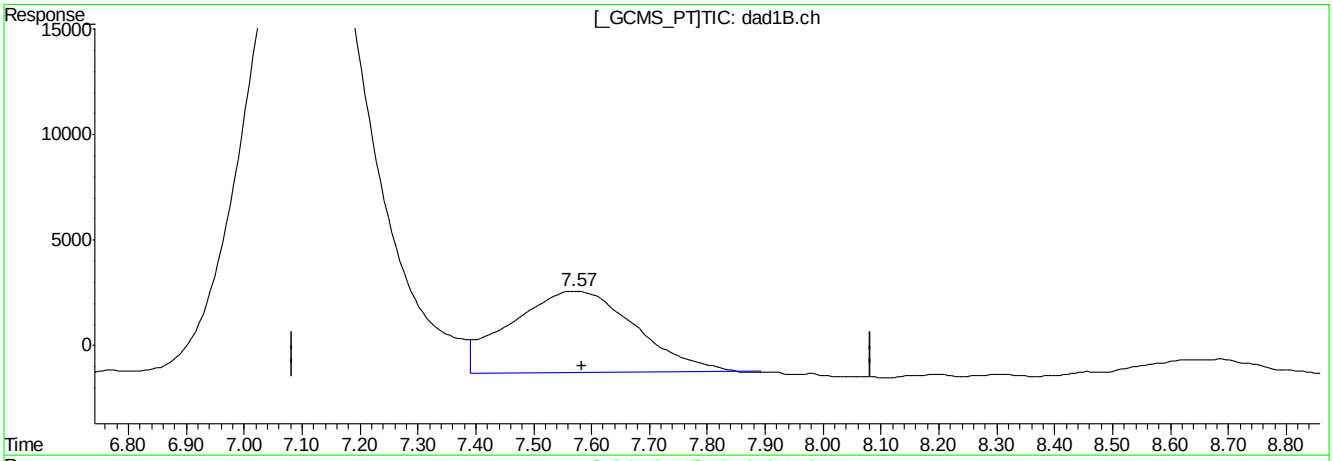
response 852311

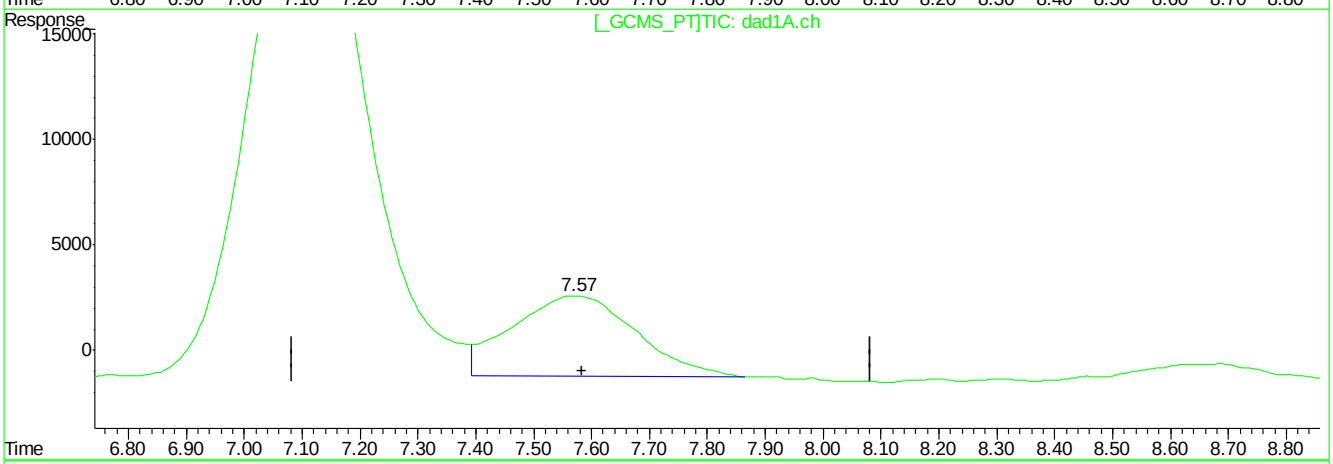
(+) = Expected Retention Time
GG618850.D 8330RPB.M_092519.M Thu May 07 15:31:43 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618850.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618850.D\dad1A.ch
Acq On : 06-May-2020, 15:58:25 Operator: williamh
Sample : FA74617-2cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 14:45 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration





QEdit

(6) RDX

7.57min 114.177ppb m

response 578863

(6) RDX #2

7.57min 112.391ppb m

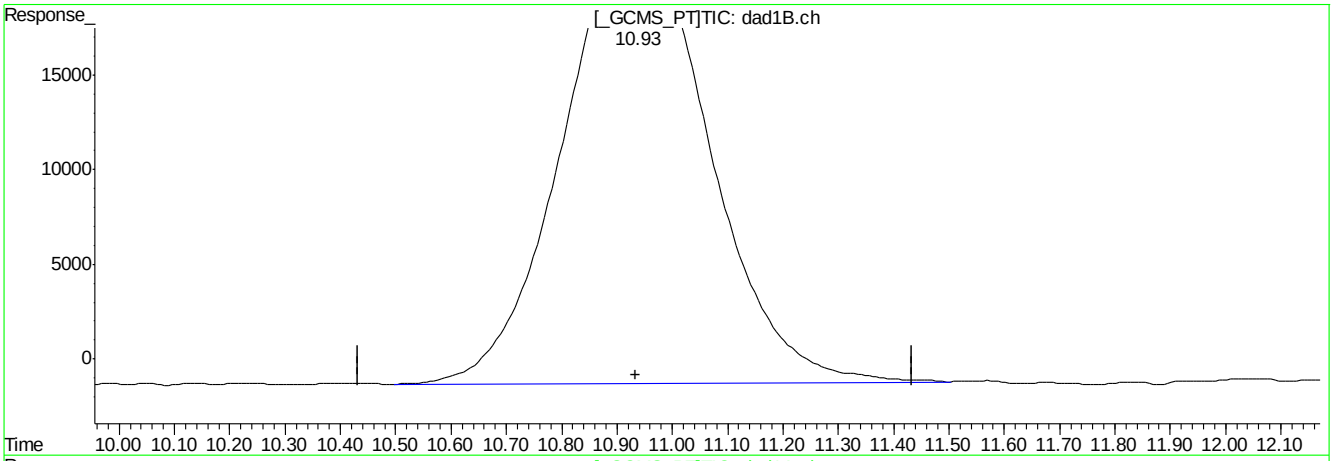
response 569810

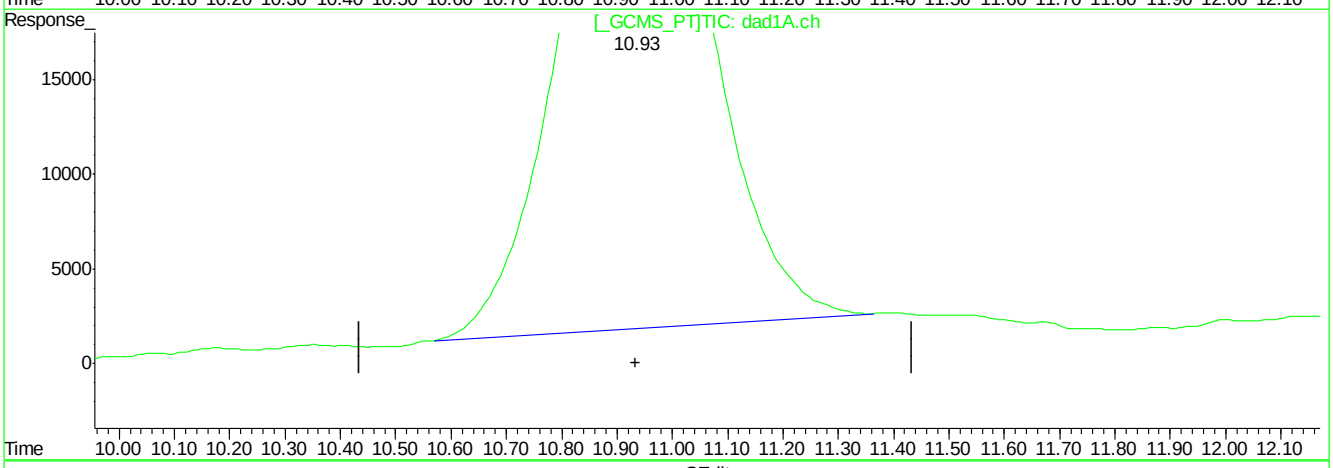
(+) = Expected Retention Time
GG618850.D 8330RPB.M_092519.M Thu May 07 15:31:58 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618850.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618850.D\dad1A.ch
Acq On : 06-May-2020, 15:58:25 Operator: williamh
Sample : FA74617-2cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 14:45 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

10.94min 429.320ppb

response 4377650

(9) 2,4,6-Trinitrotoluene #2

10.93min 429.251ppb m

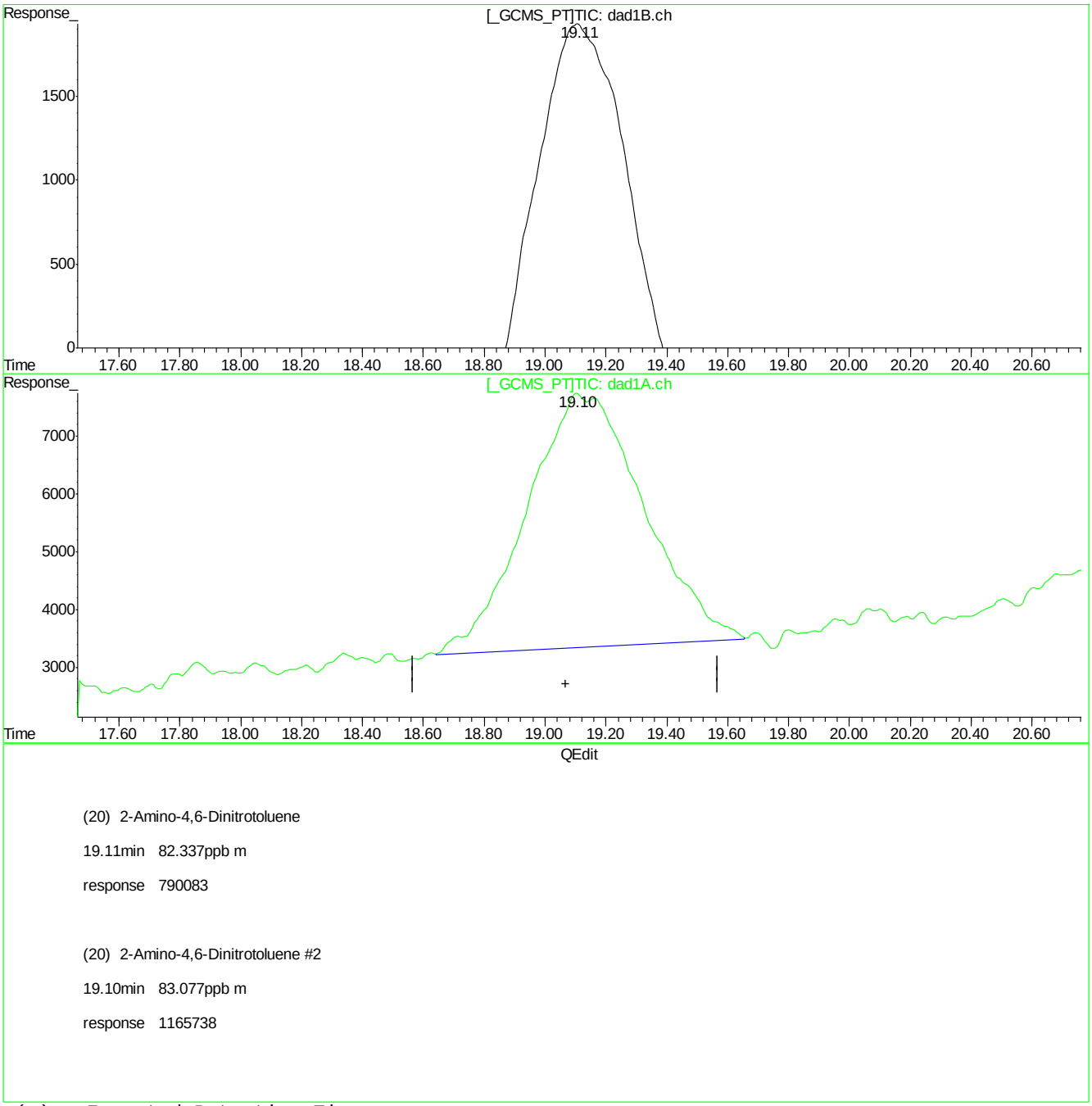
response 5674057

(+) = Expected Retention Time
GG618850.D 8330RPB.M_092519.M Thu May 07 15:32:07 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618850.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618850.D\dad1A.ch
Acq On : 06-May-2020, 15:58:25 Operator: williamh
Sample : FA74617-2cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 14:45 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration



(20) 2-Amino-4,6-Dinitrotoluene

19.11min 82.337ppb m

response 790083

(20) 2-Amino-4,6-Dinitrotoluene #2

19.10min 83.077ppb m

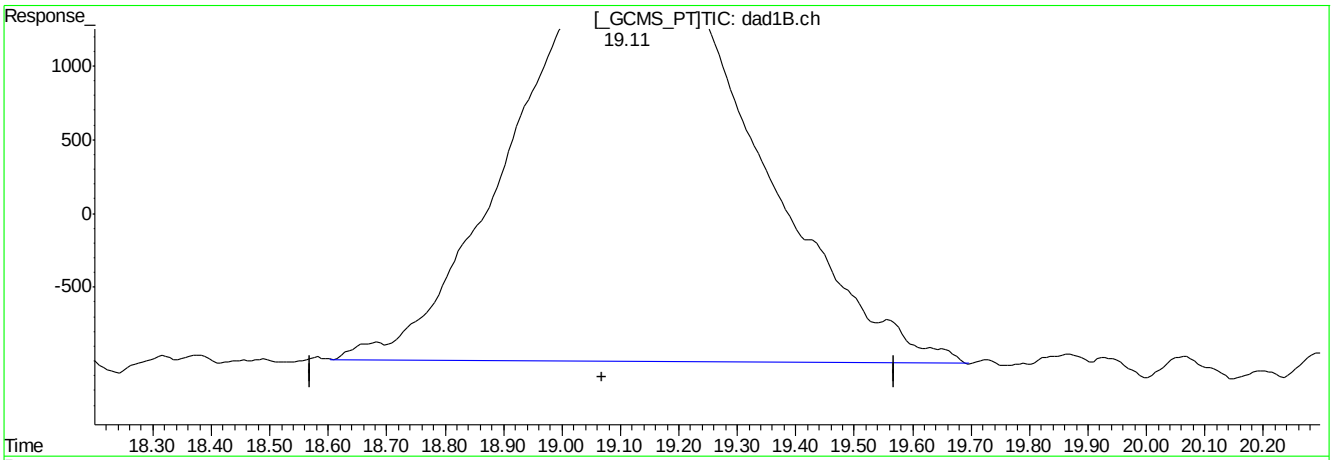
response 1165738

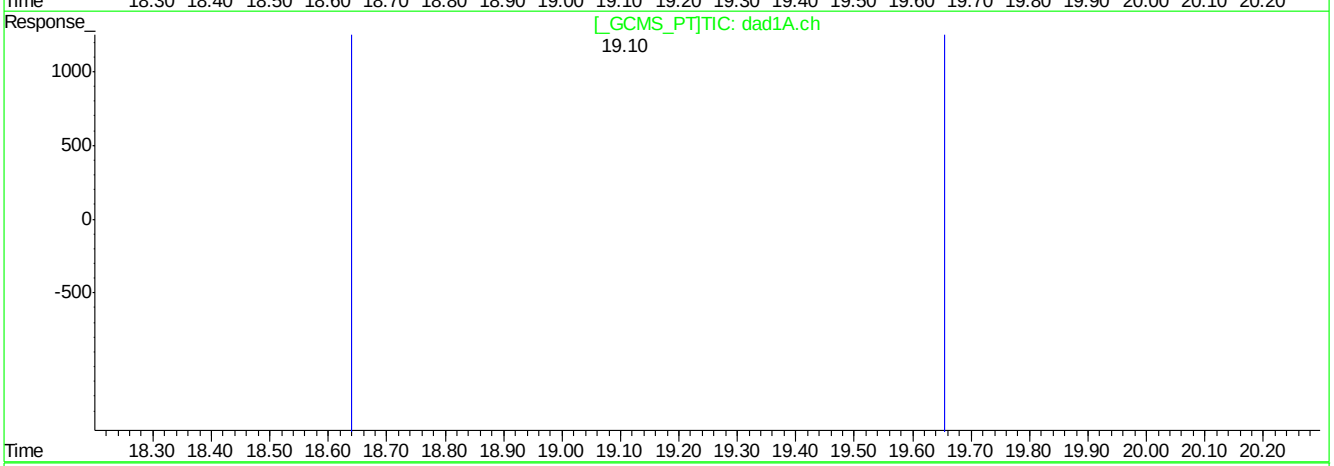
(+) = Expected Retention Time
GG618850.D 8330RPB.M_092519.M Thu May 07 15:32:28 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618850.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618850.D\dad1A.ch
Acq On : 06-May-2020, 15:58:25 Operator: williamh
Sample : FA74617-2cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 14:45 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration





QEdit

(20) 2-Amino-4,6-Dinitrotoluene

19.11min 82.337ppb m

response 790083

(20) 2-Amino-4,6-Dinitrotoluene #2

19.10min 83.077ppb m

response 1165738

(+) = Expected Retention Time
GG618850.D 8330RPB.M_092519.M Thu May 07 15:32:31 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
05/08/20 16:58

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386872.D\dad1B.ch Vial: 13
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386872.D\dad1A.ch
Acq On : 04-May-2020, 19:18:09 Operator: williamh
Sample : FA74617-3 Inst : G1315B
Misc : op80038,GPP2268,1040,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 05 11:04:43 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Initial Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	11.08	11.09	1130953	1842483	568.442	534.095
	Spiked Amount 500.000	Range 70 - 136		Recovery =		113.69%	106.82%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	1.47	1.47	842794	2438103	526.208	518.270
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D.	N.D.
5)	RDX	2.93	2.93	1045868	1673315	526.807	516.756
6)	1,3,5-Trinitrobe	4.70	4.70	3546855	6658979	871.243	848.675
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D.	N.D.
8)	3,5-Dinitroanili	6.26	6.26	168176	299555	40.162	39.805m
9)	Nitrobenzene	0.00	0.00	0	0	N.D.	N.D.
10)	Nitroglycerin	0.00	0.00	0	0	N.D.	N.D.
11)	Tetryl	0.00	0.00	0	0	N.D.	N.D.
12)	2,4,6-Trinitroto	9.77	9.77	8068584	10005383	2130.846	2339.305
13)	2-Amino-4,6-Dini	0.00	0.00	0	0	N.D.	N.D.
14)	4-Amino-2,6-Dini	10.59	10.61	413597	747529	152.916	146.245
16)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D.	N.D.
17)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D.	N.D.
18)	o-Nitrotoluene	0.00	0.00	0	0	N.D.	N.D.
19)	p-Nitrotoluene	0.00	0.00	0	0	N.D.	N.D.
20)	m-Nitrotoluene	0.00	0.00	0	0	N.D.	N.D.
21)	PETN	0.00	0.00	0	0	N.D.	N.D.

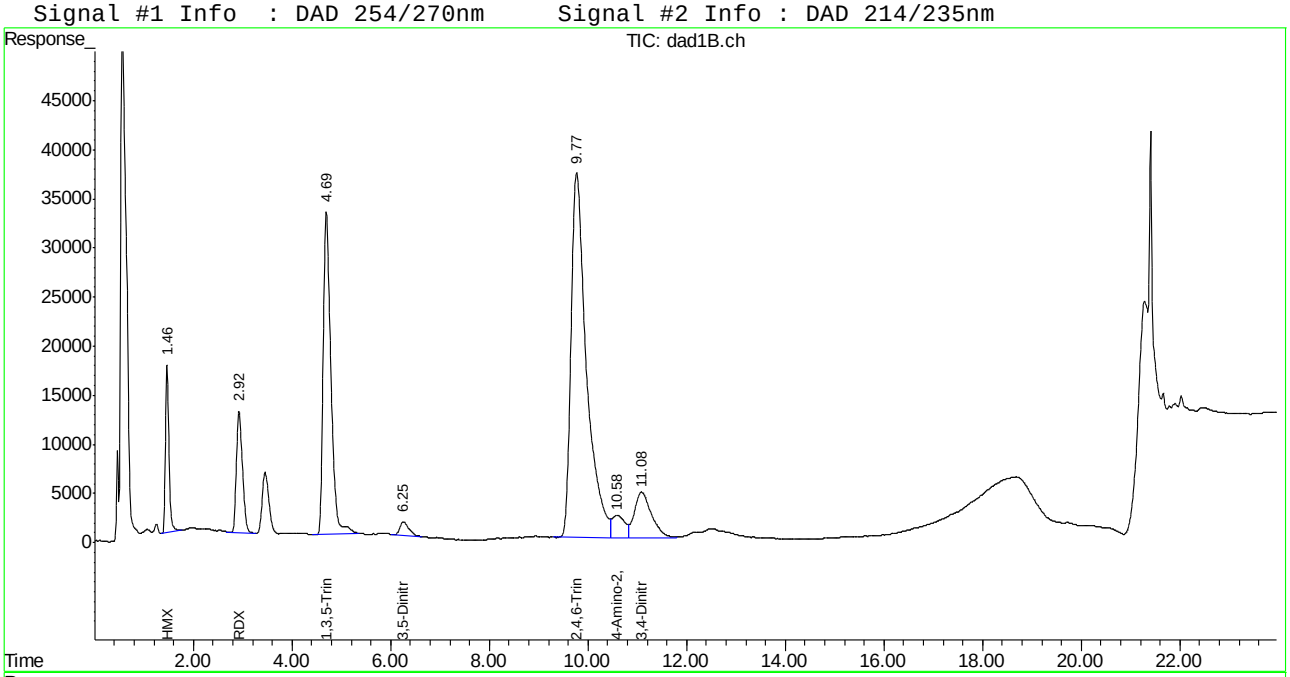
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
PP386872.D GPP2262_041620PRI.M Tue May 05 13:36:14 2020 Page 1

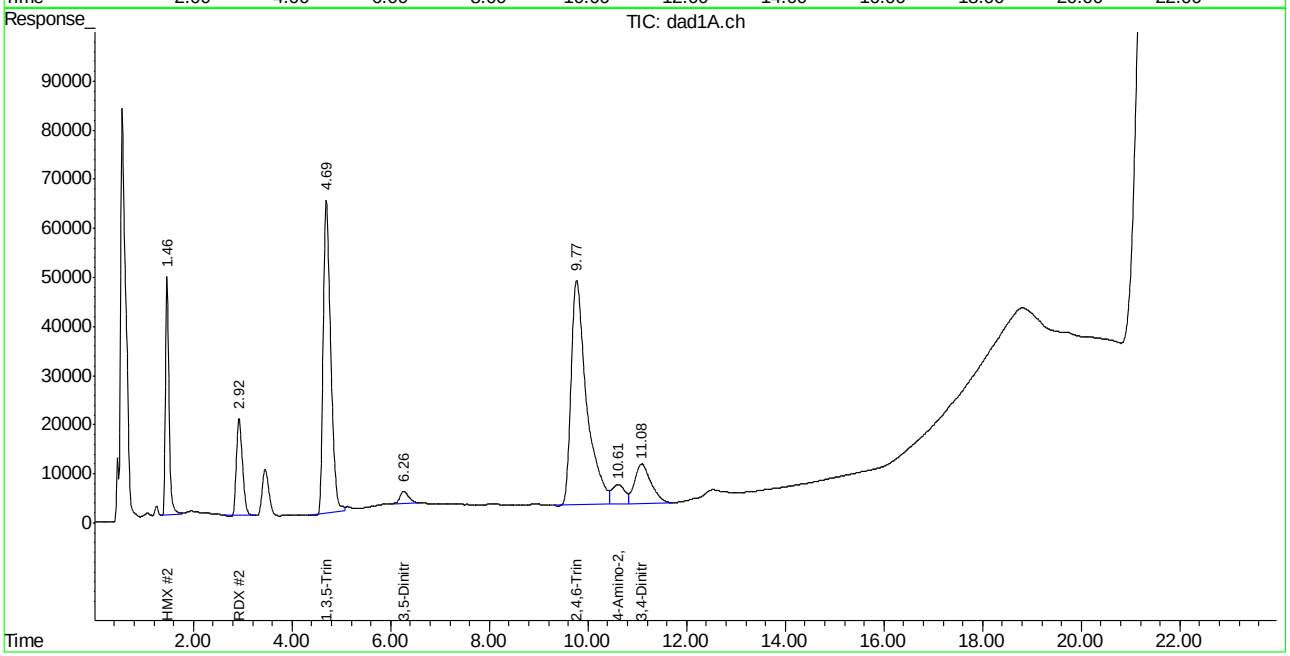
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386872.D\dad1B.ch Vial: 13
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386872.D\dad1A.ch
Acq On : 04-May-2020, 19:18:09 Operator: williamh
Sample : FA74617-3 Inst : G1315B
Misc : op80038,GPP2268,1040,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 13:22 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm





Manual Integration Approval Summary

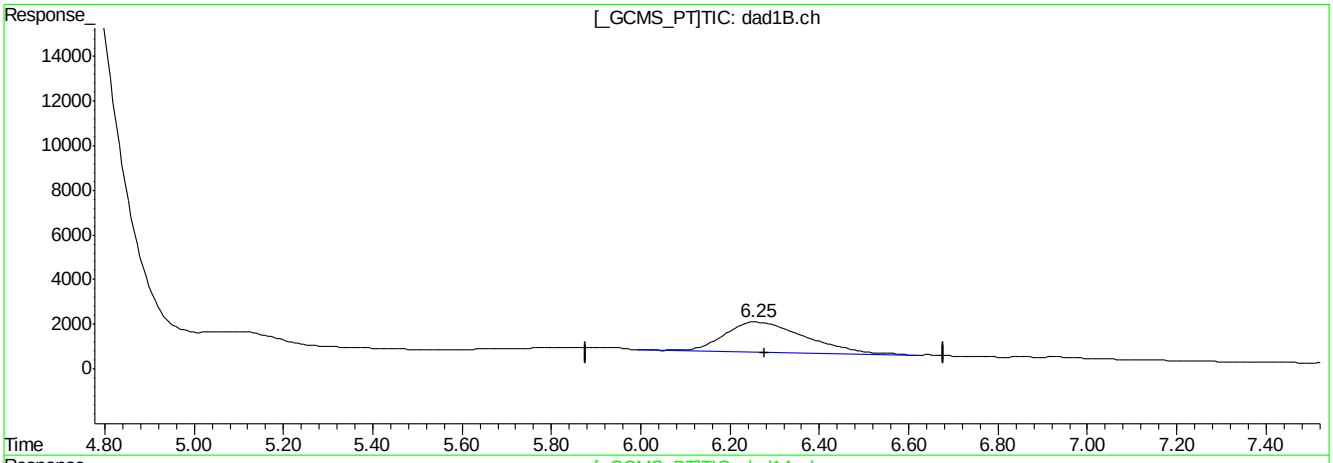
Sample Number: FA74617-3
Lab FileID: PP386872.D
Injection Time: 05/04/20 19:18
Method: SW846 8330B
Analyst approved: 05/07/20 16:21 William Hustedde
Supervisor approved: 05/08/20 16:58 Naresh Jiawan

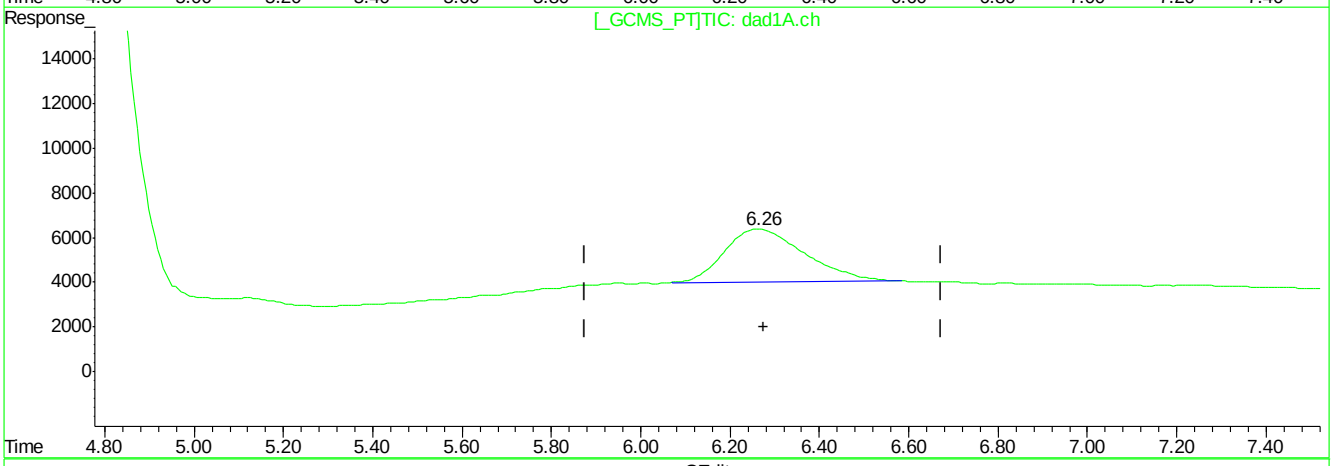
Parameter	CAS	Sig#	R.T. (min.)	Reason
3,5-Dinitroaniline	618-87-1	2	6.26	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386872.D\dad1B.ch Vial: 13
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386872.D\dad1A.ch
Acq On : 04-May-2020, 19:18:09 Operator: williamh
Sample : FA74617-3 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 11:04 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.26min 40.162ppb

response 168176

(8) 3,5-Dinitroaniline #2

6.26min 39.805ppb m

response 299555

(+) = Expected Retention Time
PP386872.D GPP2262_041620PRI.M Tue May 05 13:22:26 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
05/08/20 16:58

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2269\PP386885.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\2\DATA\GPP2269\PP386885.D\dad1A.ch
Acq On : 05-May-2020, 15:18:57 Operator: williamh
Sample : FA74617-3,2 Inst : G1315B
Misc : op80038,GPP2269,1040,,,10,2,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 08 16:41:23 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri May 08 16:41:15 2020
Response via : Initial Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	11.01	11.01	554537	804849	278.723	234.725
Spiked Amount	500.000	Range	70 - 136	Recovery	=	55.74%#	46.95%#
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	1.46	1.46	434485	1287345	271.276	273.324
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D.	N.D.
5)	RDX	2.92	2.92	512574	824470	258.185	254.614
6)	1,3,5-Trinitrobe	4.68	4.68	1777338	3184615	436.582	405.873
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D.	N.D.
8)	3,5-Dinitroanili	6.24	6.23	75648	139947	18.066m	18.596m
9)	Nitrobenzene	0.00	0.00	0	0	N.D.	N.D.
10)	Nitroglycerin	0.00	0.00	0	0	N.D.	N.D.
11)	Tetryl	0.00	0.00	0	0	N.D.	N.D.
12)	2,4,6-Trinitroto	9.71	9.71	3040586	3785760	802.994m	885.128m
13)	2-Amino-4,6-Dini	10.01	10.01	778170	1100404	218.380m	221.166m
14)	4-Amino-2,6-Dini	10.43	10.50	219431	311151	81.128m	60.921
16)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D.	N.D.
17)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D.	N.D.
18)	o-Nitrotoluene	0.00	0.00	0	0	N.D.	N.D.
19)	p-Nitrotoluene	0.00	0.00	0	0	N.D.	N.D.
20)	m-Nitrotoluene	0.00	0.00	0	0	N.D.	N.D.
21)	PETN	0.00	0.00	0	0	N.D.	N.D.

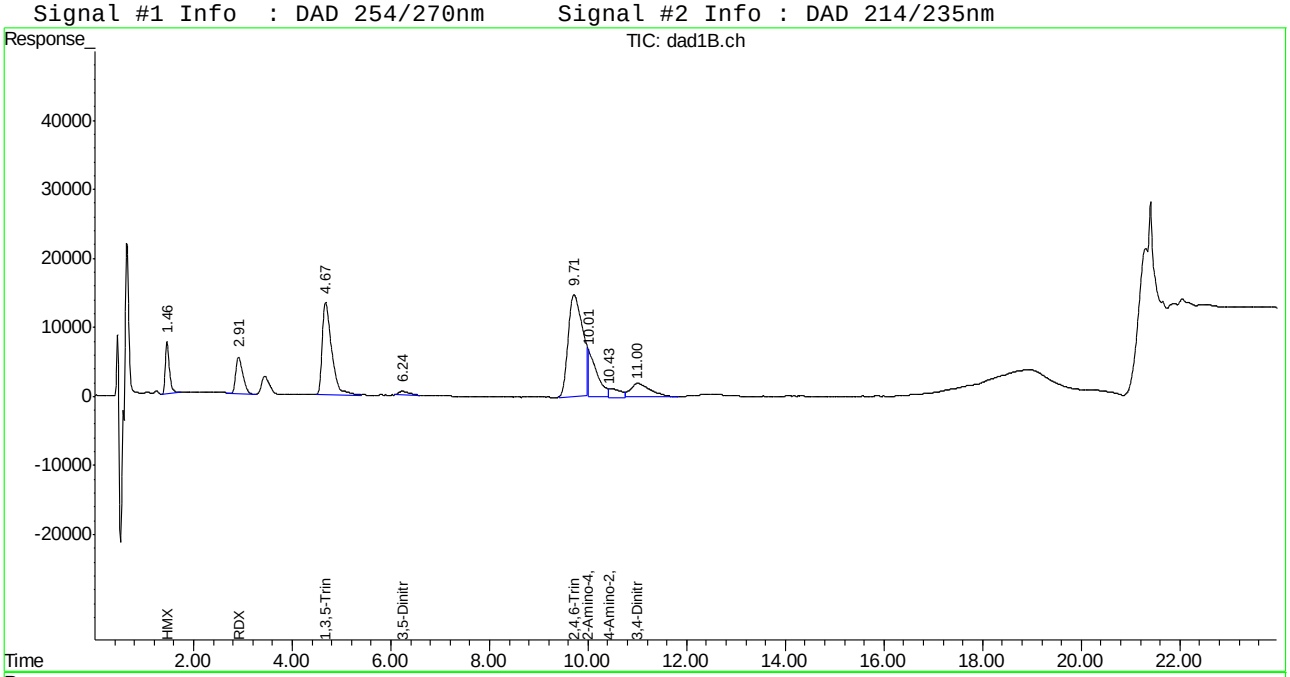
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
PP386885.D GPP2262_041620PRI.M Fri May 08 16:46:36 2020 Page 1

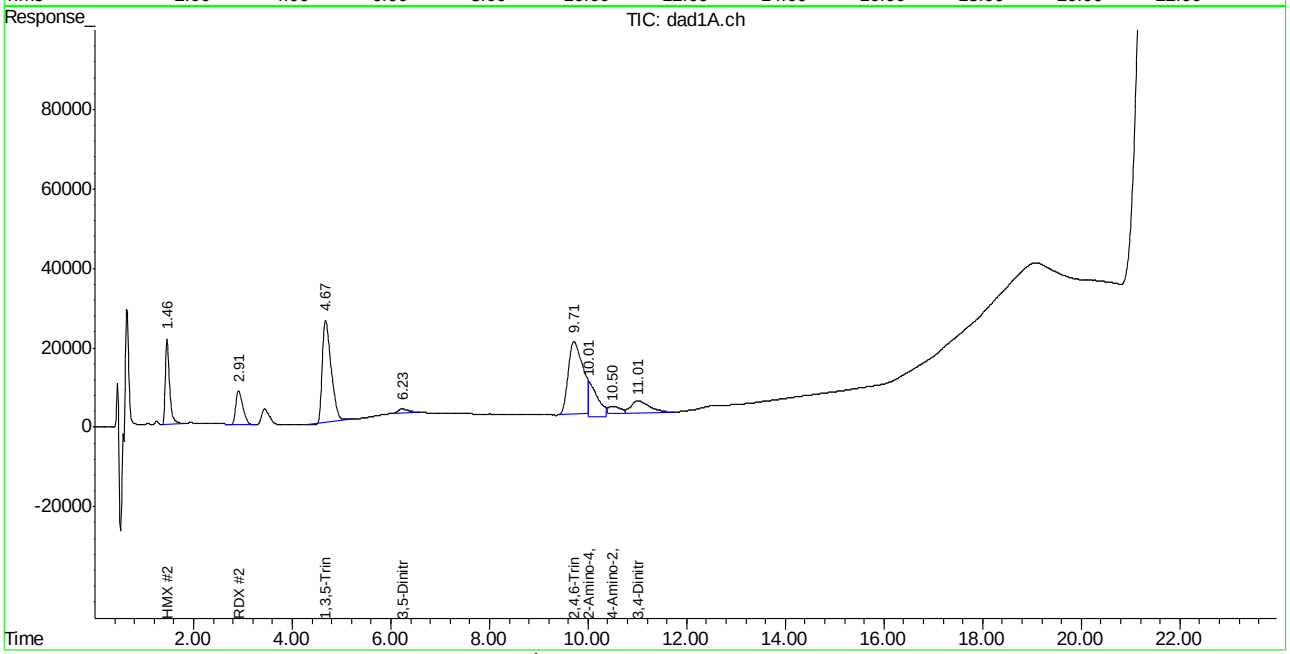
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2269\PP386885.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\2\DATA\GPP2269\PP386885.D\dad1A.ch
Acq On : 05-May-2020, 15:18:57 Operator: williamh
Sample : FA74617-3,2 Inst : G1315B
Misc : op80038,GPP2269,1040,,,10,2,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 8 16:42 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri May 08 16:41:15 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm





Manual Integration Approval Summary

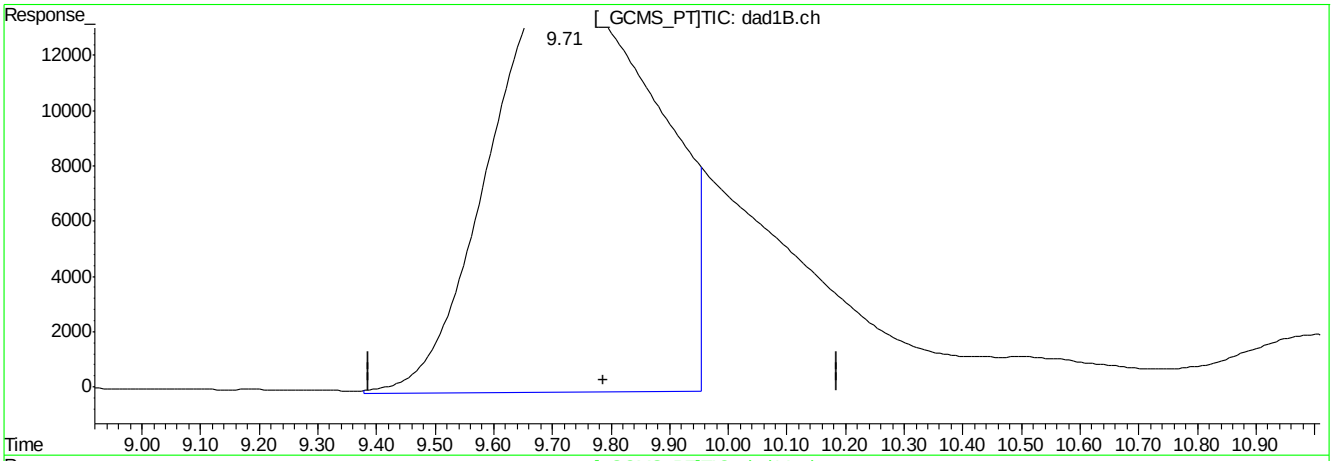
Sample Number: FA74617-3
Lab FileID: PP386885.D
Injection Time: 05/05/20 15:18
Method: SW846 8330B
Analyst approved: 05/08/20 16:43 William Hustedde
Supervisor approved: 05/08/20 16:58 Naresh Jiawan

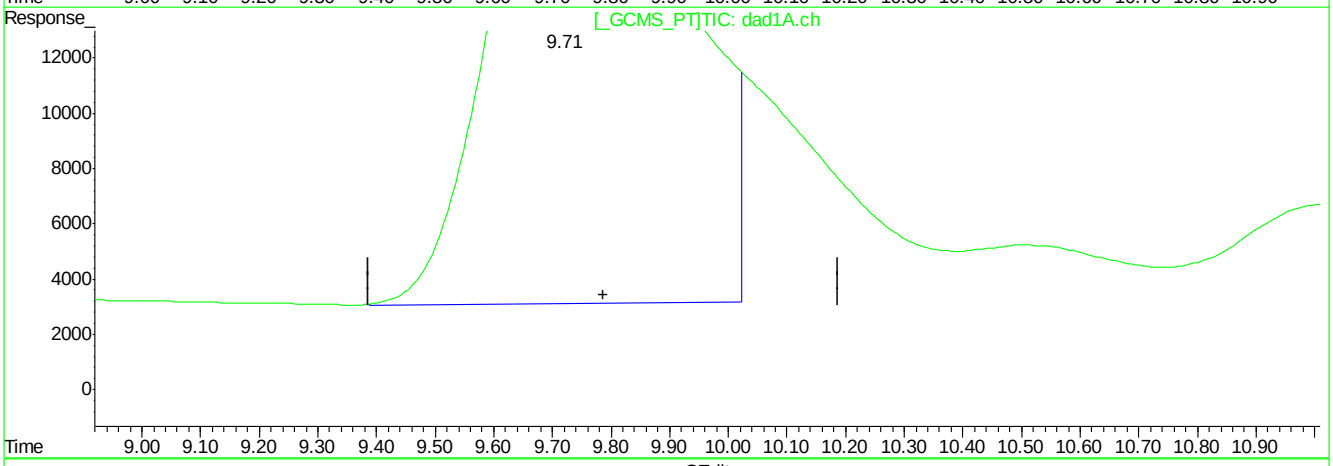
Parameter	CAS	Sig#	R.T. (min.)	Reason
3,5-Dinitroaniline	618-87-1	2	6.23	Poor instrument integration
3,5-Dinitroaniline	618-87-1	1	6.24	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	1	9.71	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	2	9.71	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	1	10.01	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	2	10.01	Poor instrument integration
4-amino-2,6-Dinitrotoluene	19406-51-0	1	10.43	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2269\PP386885.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\2\DATA\GPP2269\PP386885.D\dad1A.ch
Acq On : 05-May-2020, 15:18:57 Operator: williamh
Sample : FA74617-3 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 15:50 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(12) 2,4,6-Trinitrotoluene

9.71min 782.897ppb m

response 2964490

(12) 2,4,6-Trinitrotoluene #2

9.71min 930.648ppb m

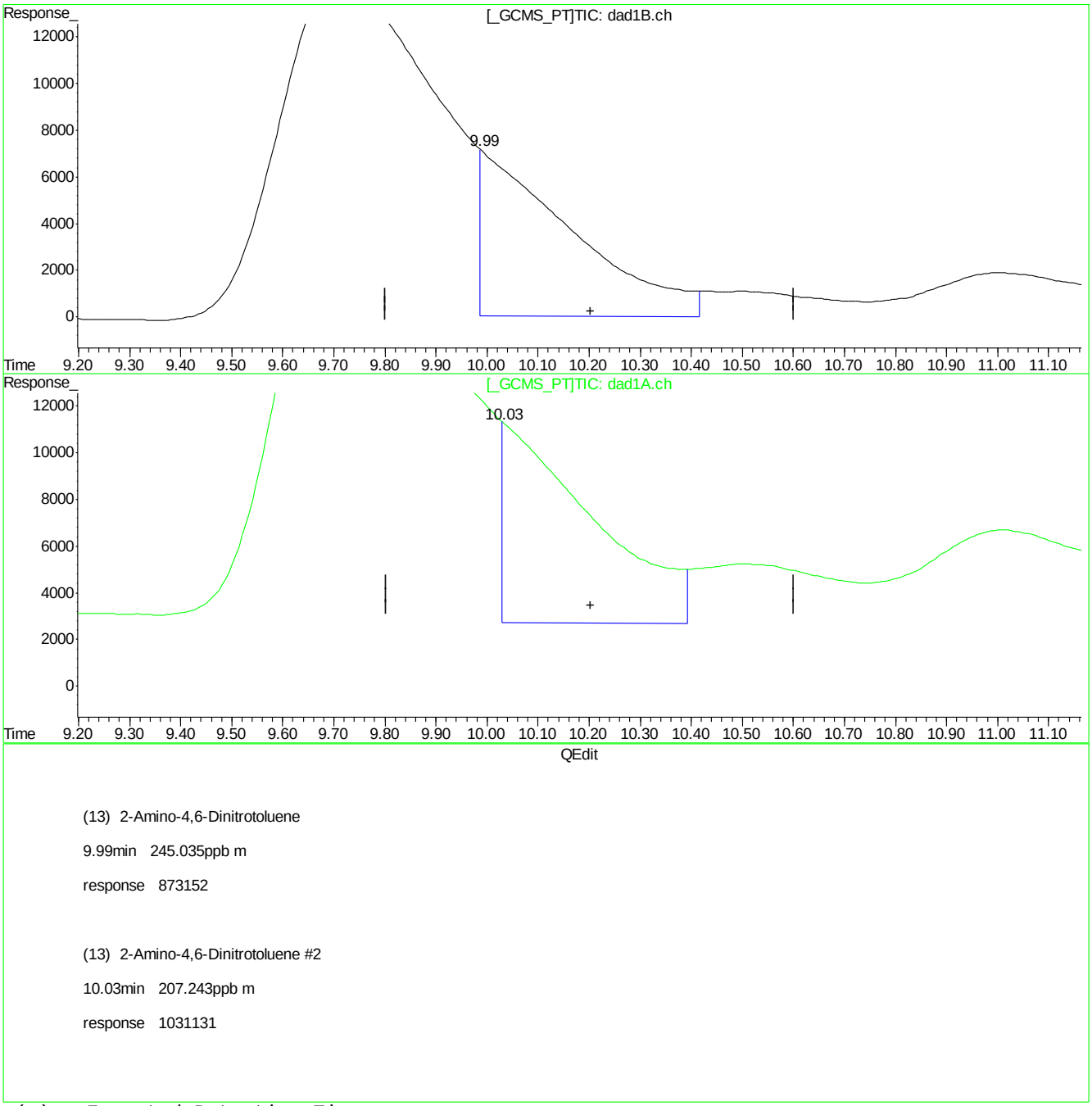
response 3980451

(+) = Expected Retention Time
PP386885.D GPP2262_041620PRI.M Tue May 05 15:55:07 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2269\PP386885.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\2\DATA\GPP2269\PP386885.D\dad1A.ch
Acq On : 05-May-2020, 15:18:57 Operator: williamh
Sample : FA74617-3 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 15:50 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration

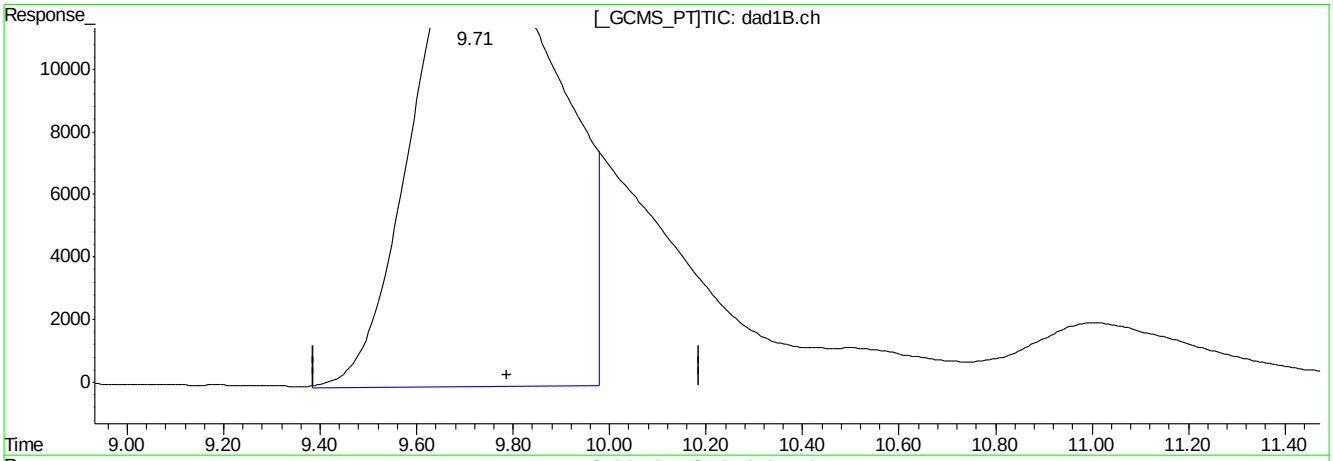


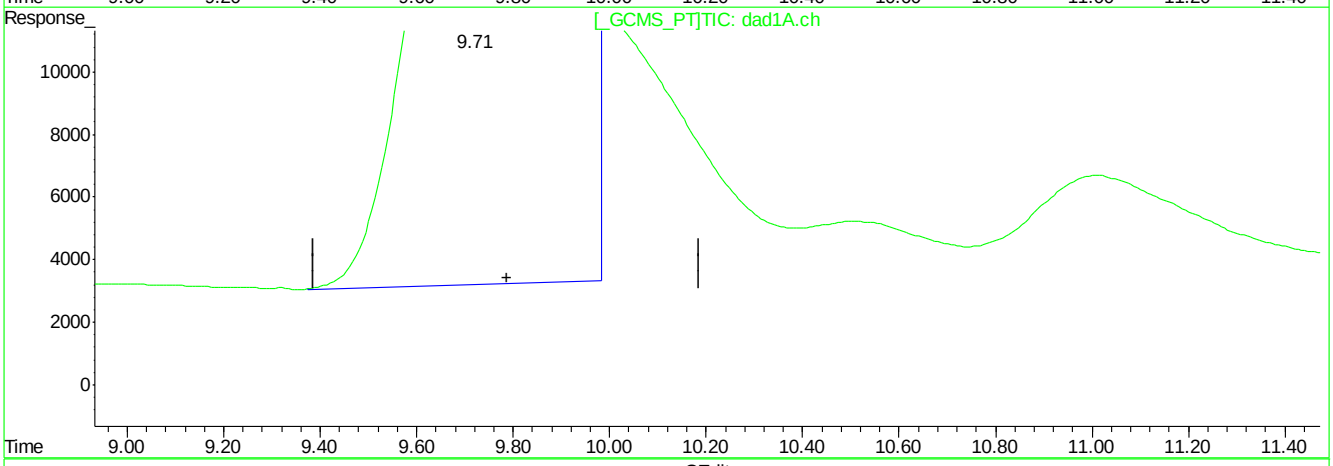
(+) = Expected Retention Time
PP386885.D GPP2262_041620PRI.M Tue May 05 15:55:17 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2269\PP386885.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\2\DATA\GPP2269\PP386885.D\dad1A.ch
Acq On : 05-May-2020, 15:18:57 Operator: williamh
Sample : FA74617-3,2 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 15:50 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(12) 2,4,6-Trinitrotoluene

9.71min 798.125ppb m

response 3022153

(12) 2,4,6-Trinitrotoluene #2

9.71min 874.641ppb m

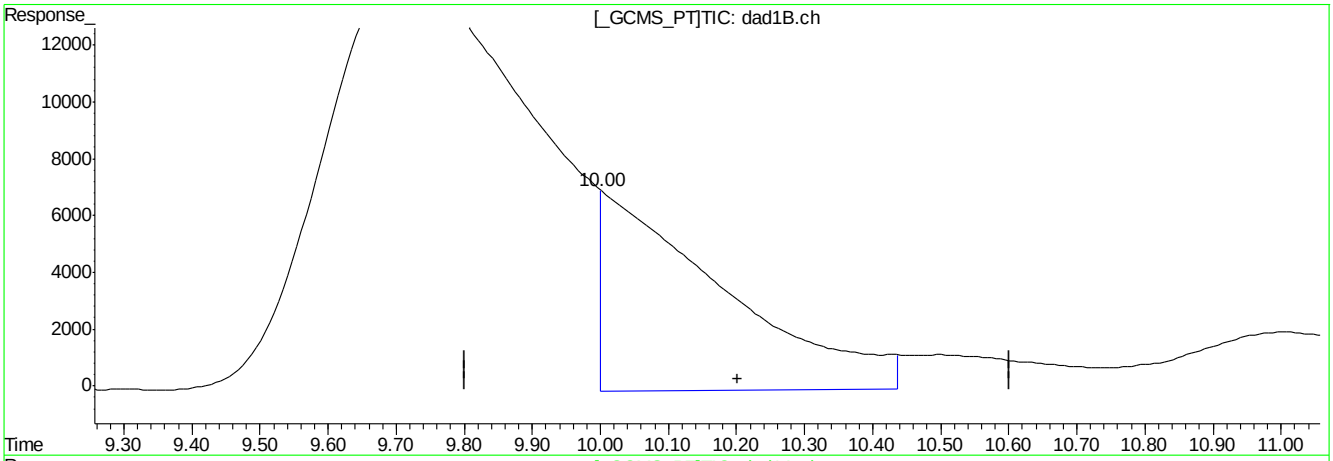
response 3740906

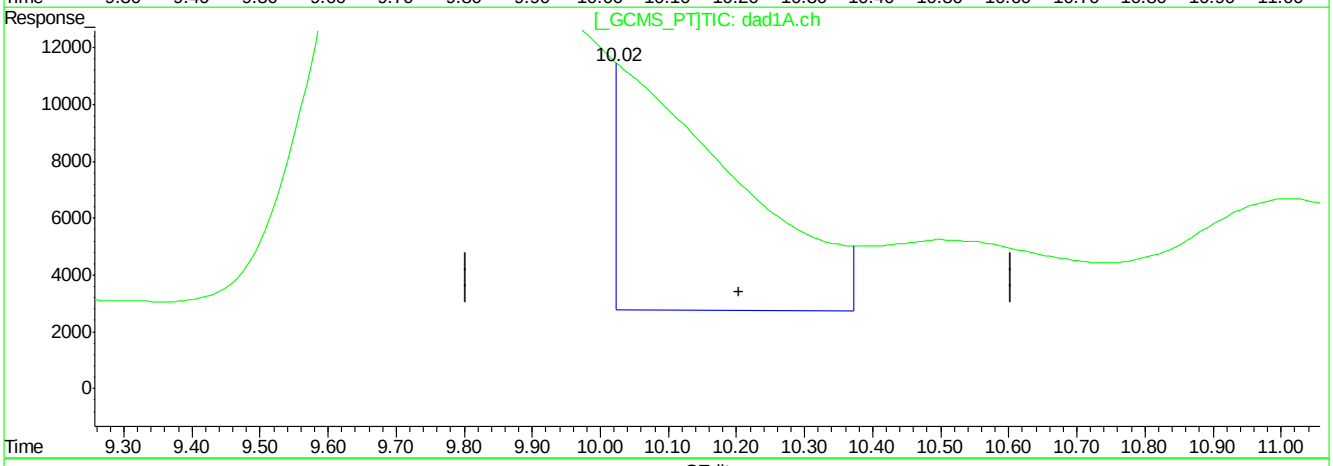
(+) = Expected Retention Time
PP386885.D GPP2262_041620PRI.M Wed May 06 12:16:19 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2269\PP386885.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\2\DATA\GPP2269\PP386885.D\dad1A.ch
Acq On : 05-May-2020, 15:18:57 Operator: williamh
Sample : FA74617-3,2 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 15:50 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(13) 2-Amino-4,6-Dinitrotoluene

10.00min 246.898ppb m

response 879793

(13) 2-Amino-4,6-Dinitrotoluene #2

10.02min 206.029ppb m

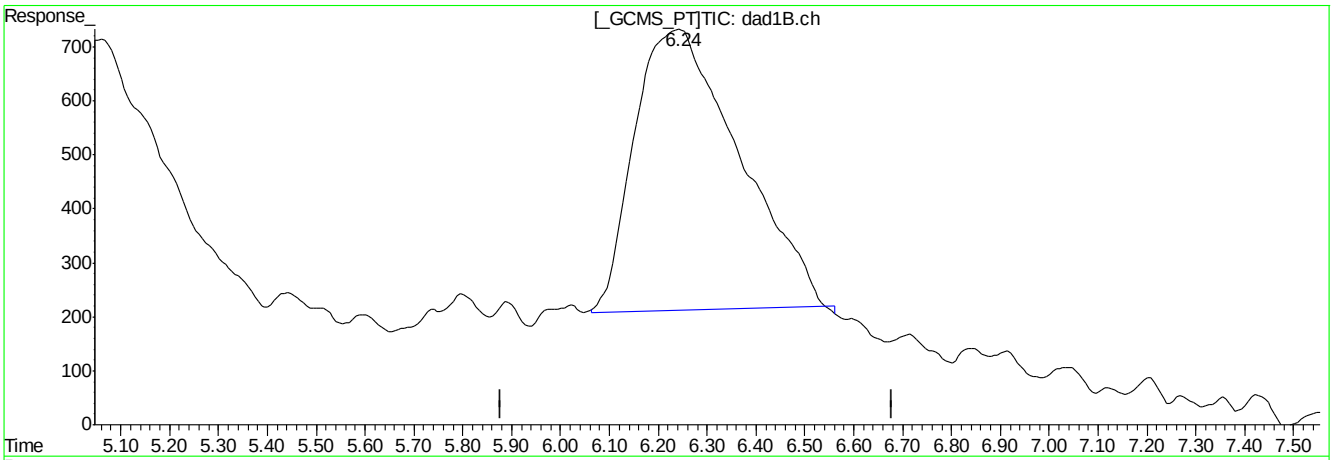
response 1025089

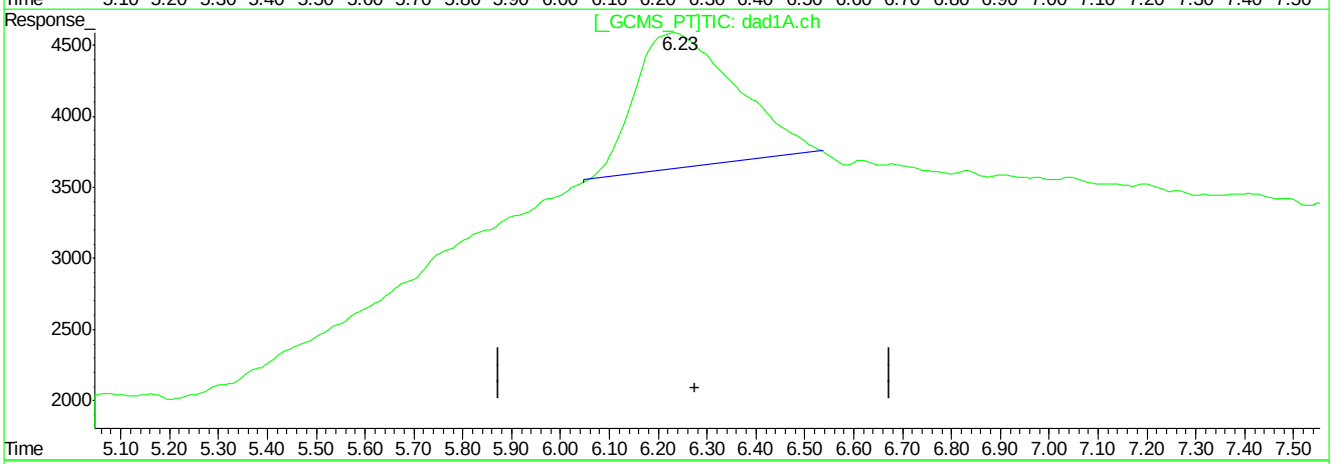
(+) = Expected Retention Time
PP386885.D GPP2262_041620PRI.M Wed May 06 12:16:54 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2269\PP386885.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\2\DATA\GPP2269\PP386885.D\dad1A.ch
Acq On : 05-May-2020, 15:18:57 Operator: williamh
Sample : FA74617-3,2 Inst : G1315B
Misc : op80038,GPP2269,1040,,,10,2,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 6 12:16 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Wed May 06 13:16:27 2020
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.24min 18.493ppb m

response 77437

(8) 3,5-Dinitroaniline #2

6.23min 18.005ppb m

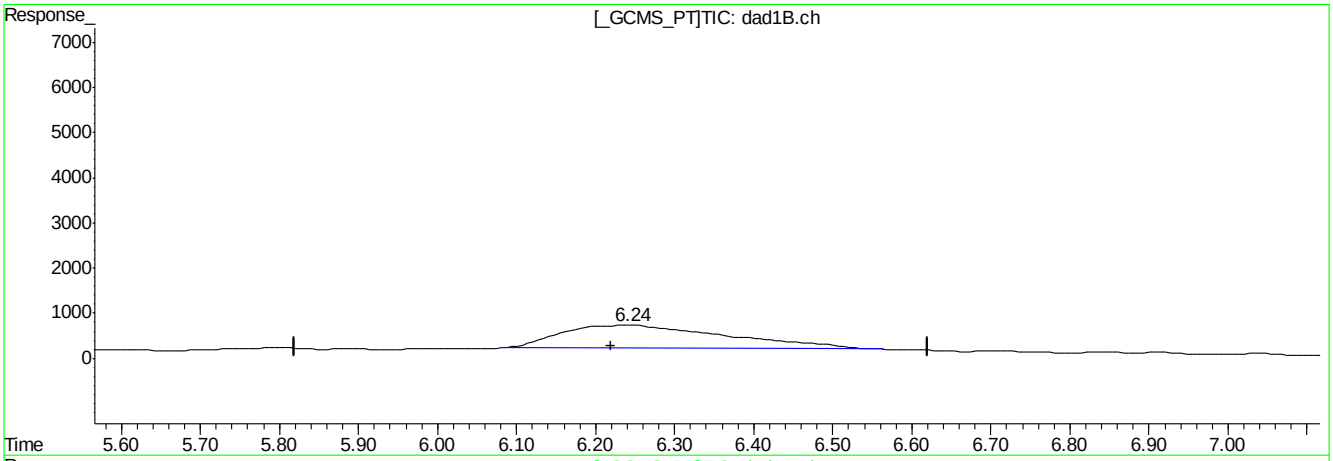
response 135496

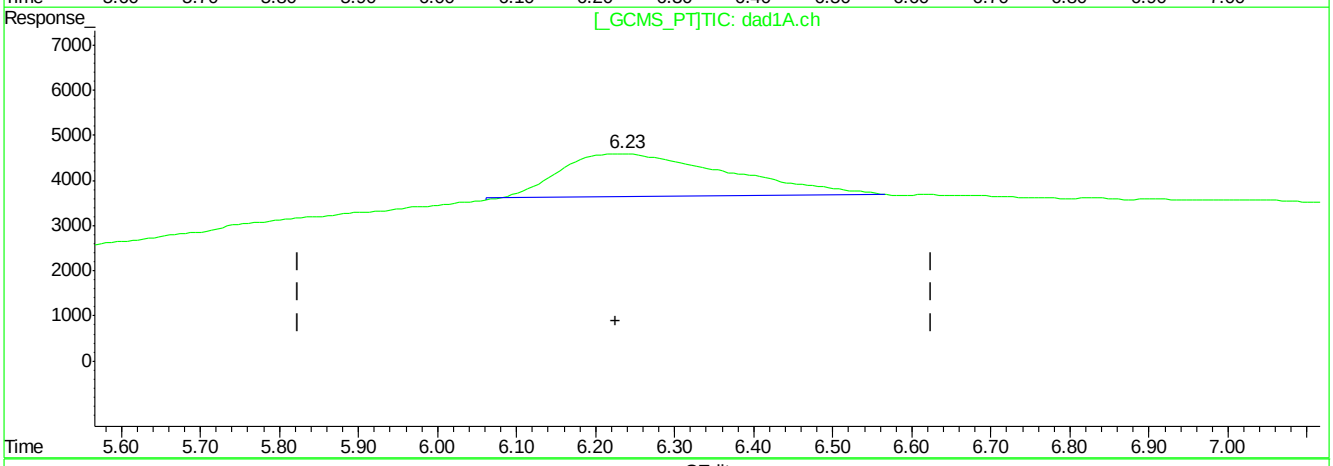
(+) = Expected Retention Time
PP386885.D GPP2262_041620PRI.M Wed May 06 16:34:12 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2269\PP386885.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\2\DATA\GPP2269\PP386885.D\dad1A.ch
Acq On : 05-May-2020, 15:18:57 Operator: williamh
Sample : FA74617-3,2 Inst : G1315B
Misc : op80038,GPP2269,1040,,,10,2,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 8 16:41 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri May 08 16:41:15 2020
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.24min 18.066ppb m

response 75648

(8) 3,5-Dinitroaniline #2

6.23min 18.596ppb m

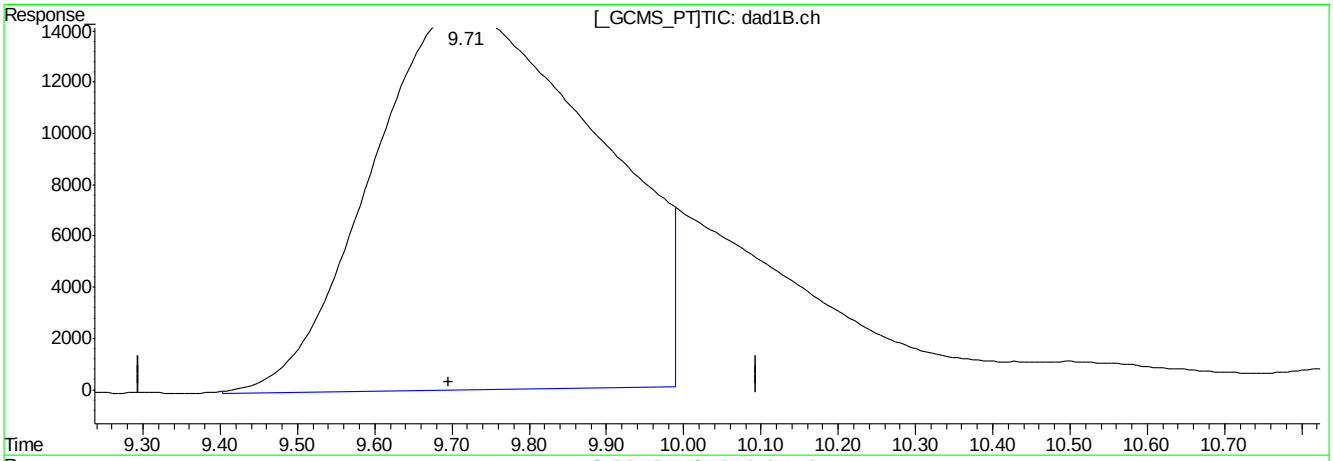
response 139947

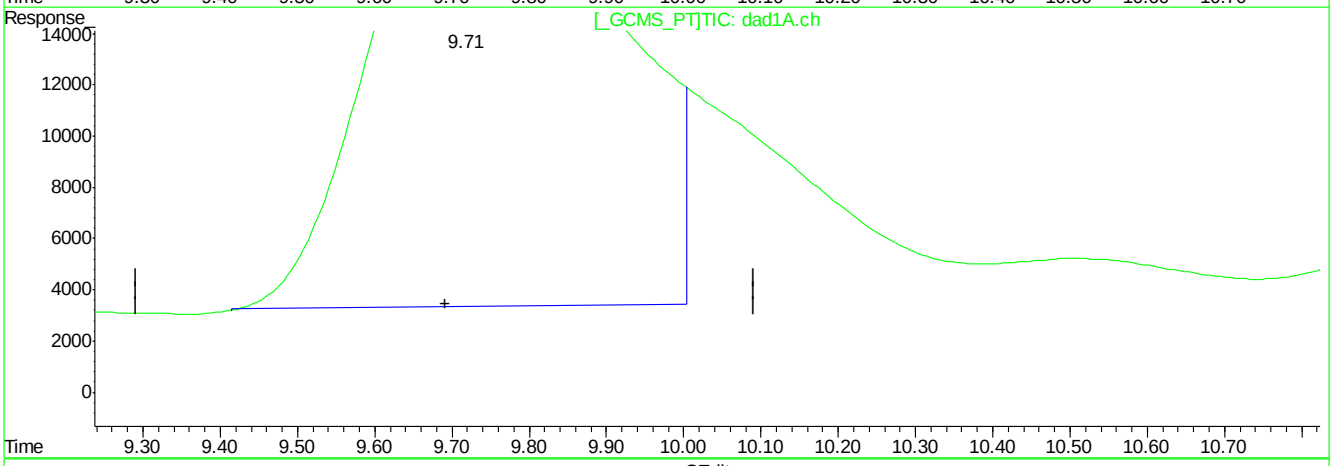
(+) = Expected Retention Time
PP386885.D GPP2262_041620PRI.M Fri May 08 16:42:10 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2269\PP386885.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\2\DATA\GPP2269\PP386885.D\dad1A.ch
Acq On : 05-May-2020, 15:18:57 Operator: williamh
Sample : FA74617-3,2 Inst : G1315B
Misc : op80038,GPP2269,1040,,,10,2,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 8 16:41 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri May 08 16:41:15 2020
Response via : Multiple Level Calibration





QEdit

(12) 2,4,6-Trinitrotoluene

9.71min 802.994ppb m

response 3040586

(12) 2,4,6-Trinitrotoluene #2

9.71min 885.128ppb m

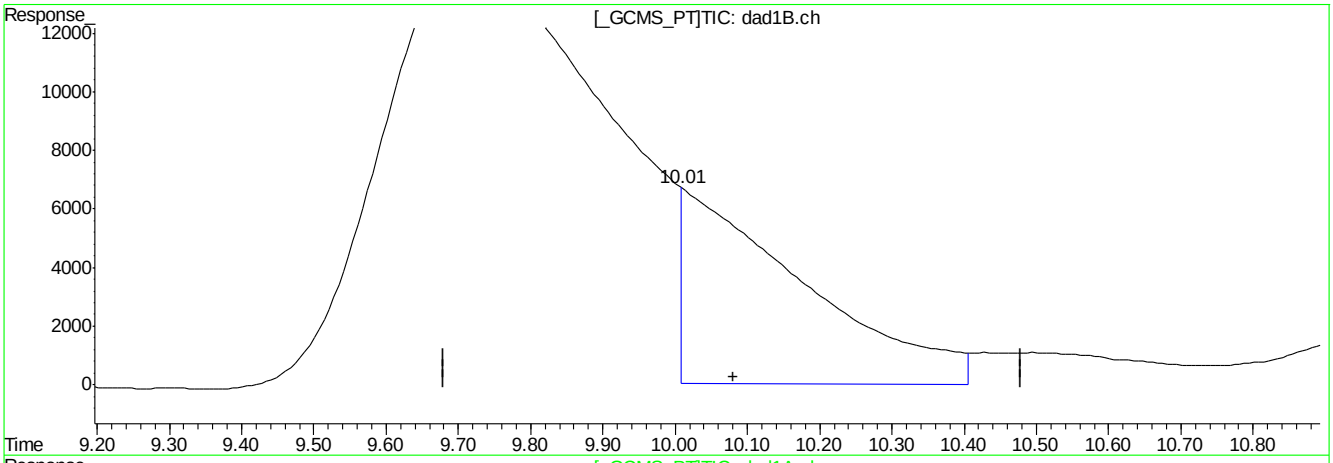
response 3785760

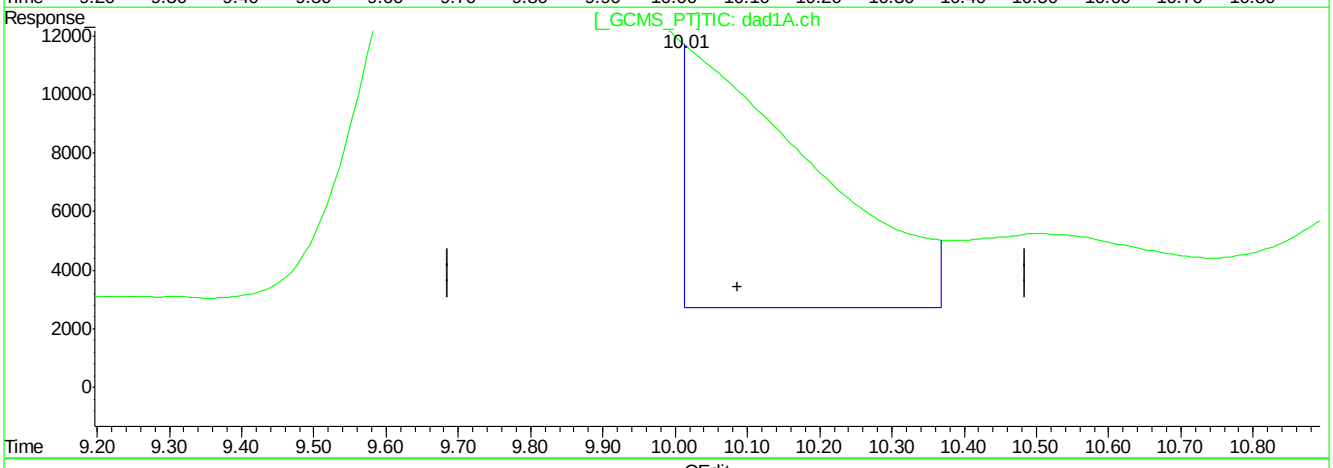
(+) = Expected Retention Time
PP386885.D GPP2262_041620PRI.M Fri May 08 16:42:19 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2269\PP386885.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\2\DATA\GPP2269\PP386885.D\dad1A.ch
Acq On : 05-May-2020, 15:18:57 Operator: williamh
Sample : FA74617-3,2 Inst : G1315B
Misc : op80038,GPP2269,1040,,,10,2,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 8 16:41 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri May 08 16:41:15 2020
Response via : Multiple Level Calibration





QEdit

(13) 2-Amino-4,6-Dinitrotoluene

10.01min 218.380ppb m

response 778170

(13) 2-Amino-4,6-Dinitrotoluene #2

10.01min 221.166ppb m

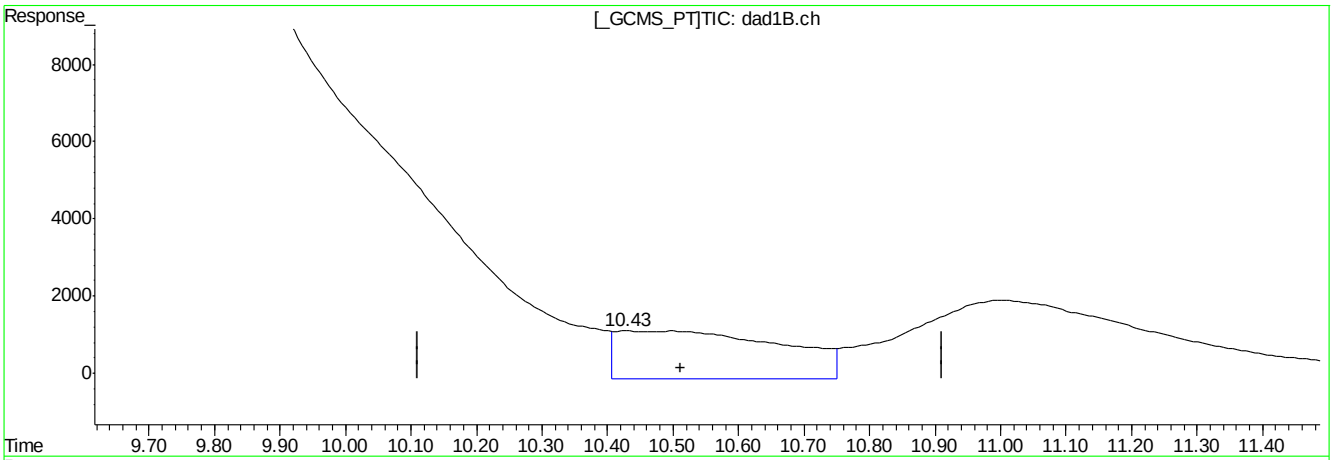
response 1100404

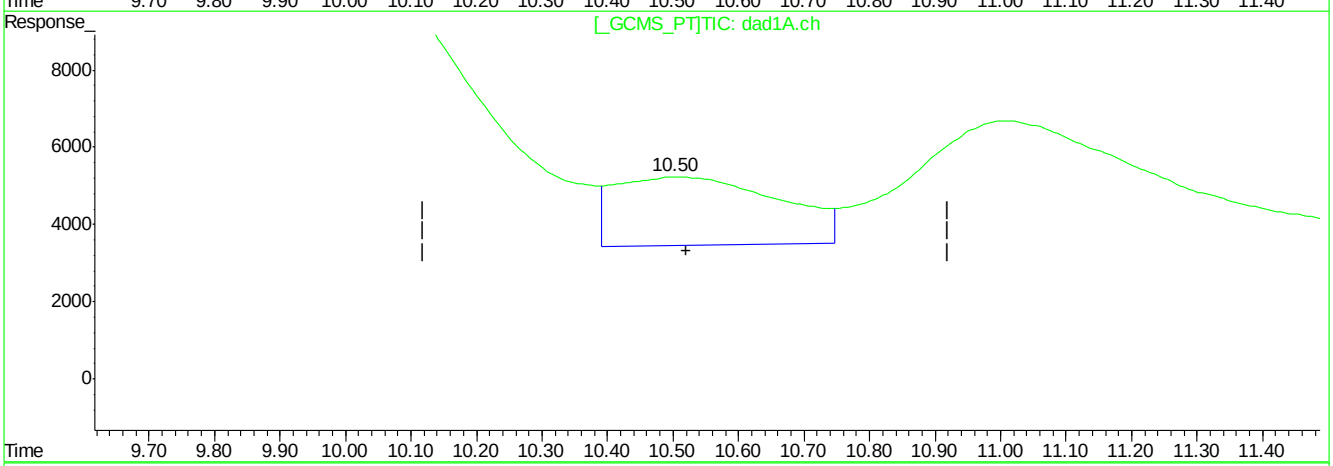
(+) = Expected Retention Time
PP386885.D GPP2262_041620PRI.M Fri May 08 16:42:38 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2269\PP386885.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\2\DATA\GPP2269\PP386885.D\dad1A.ch
Acq On : 05-May-2020, 15:18:57 Operator: williamh
Sample : FA74617-3,2 Inst : G1315B
Misc : op80038,GPP2269,1040,,,10,2,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 8 16:41 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri May 08 16:41:15 2020
Response via : Multiple Level Calibration





QEdit

(14) 4-Amino-2,6-Dinitrotoluene

10.43min 81.128ppb m

response 219431

(14) 4-Amino-2,6-Dinitrotoluene #2

10.50min 60.921ppb

response 311151

(+) = Expected Retention Time
PP386885.D GPP2262_041620PRI.M Fri May 08 16:42:46 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
05/08/20 16:58

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618851.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618851.D\dad1A.ch
Acq On : 06-May-2020, 16:27:51 Operator: williamh
Sample : FA74617-3cf Inst : G1315B
Misc : op80038,GGG2834,1040,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 07 14:45:33 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.52	13.52	2771826	5312835	613.862m	591.454
	Spiked Amount 500.000	Range 70 - 136		Recovery =		122.77%	118.29%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	5.42	5.42	1845793	1831590	619.474m	610.712m
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D. d	N.D. d
5)	1,3,5-Trinitrobe	7.12	7.12	8665510	8665510	837.955	837.955
6)	RDX	7.59	7.59	2663841	2663841	525.426	525.426
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D. d	N.D. d
8)	Nitrobenzene	0.00	0.00	0	0	N.D. d	N.D. d
9)	2,4,6-Trinitroto	10.95	10.95	18363754	24154747	1800.949	1827.344m
10)	Nitroglycerin	0.00	0.00	0	0	N.D. d	N.D. d
11)	Tetryl	0.00	0.00	0	0	N.D. d	N.D. d
13)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
14)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
15)	o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
16)	3,5-Dinitroanili	15.36	15.37	956198	1583331	93.717	95.373m
17)	p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
18)	4-Amino-2,6-Dini	17.11	17.10	1129846	2361668	97.717	108.747m
19)	m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20)	2-Amino-4,6-Dini	19.15	19.15	2075757	2875148	216.322	204.900m
21)	PETN	0.00	0.00	0	0	N.D. d	N.D. d

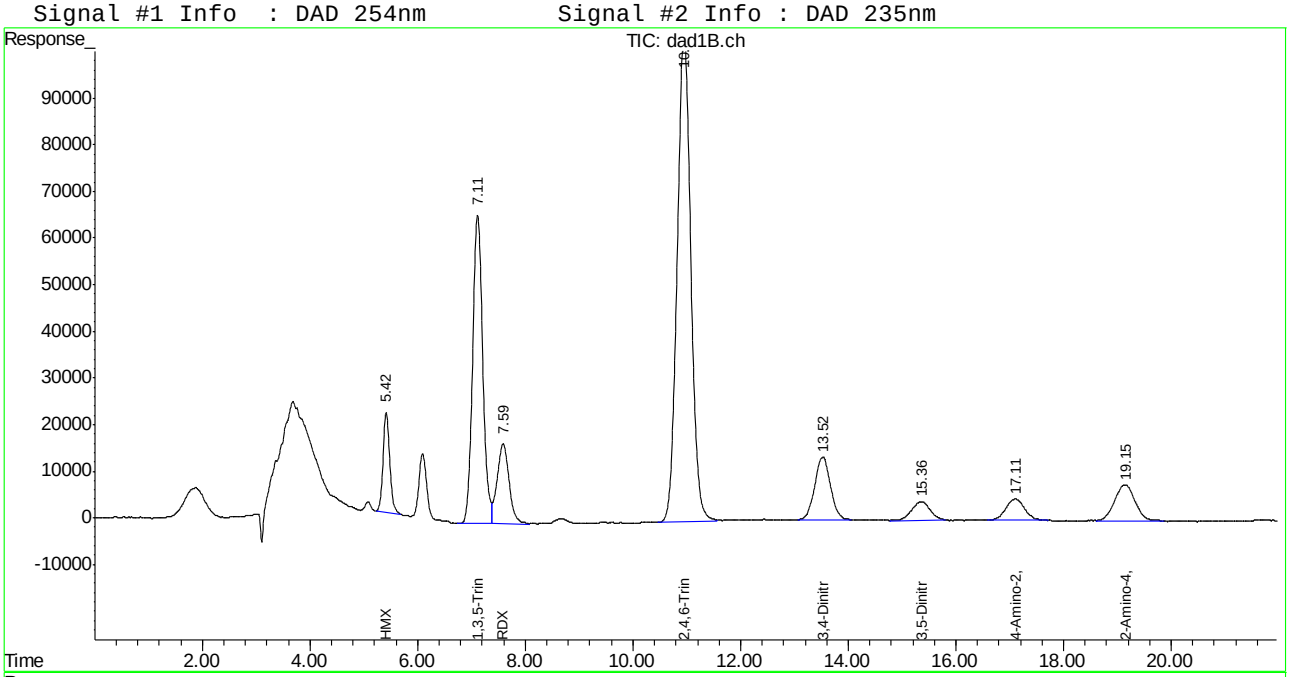
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
GG618851.D 8330RPB.M_092519.M Thu May 07 16:03:15 2020 Page 1

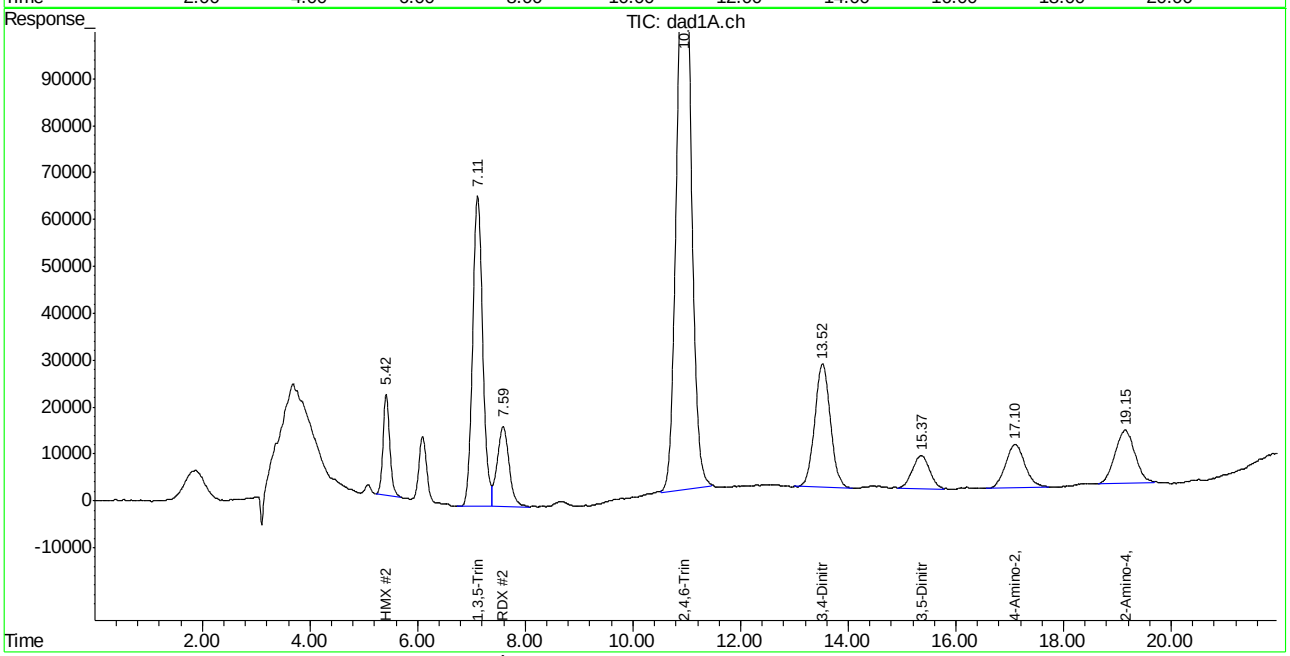
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618851.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618851.D\dad1A.ch
Acq On : 06-May-2020, 16:27:51 Operator: williamh
Sample : FA74617-3cf Inst : G1315B
Misc : op80038,GGG2834,1040,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 15:33 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

Sample Number: FA74617-3
Lab FileID: GG618851.D
Injection Time: 05/06/20 16:27

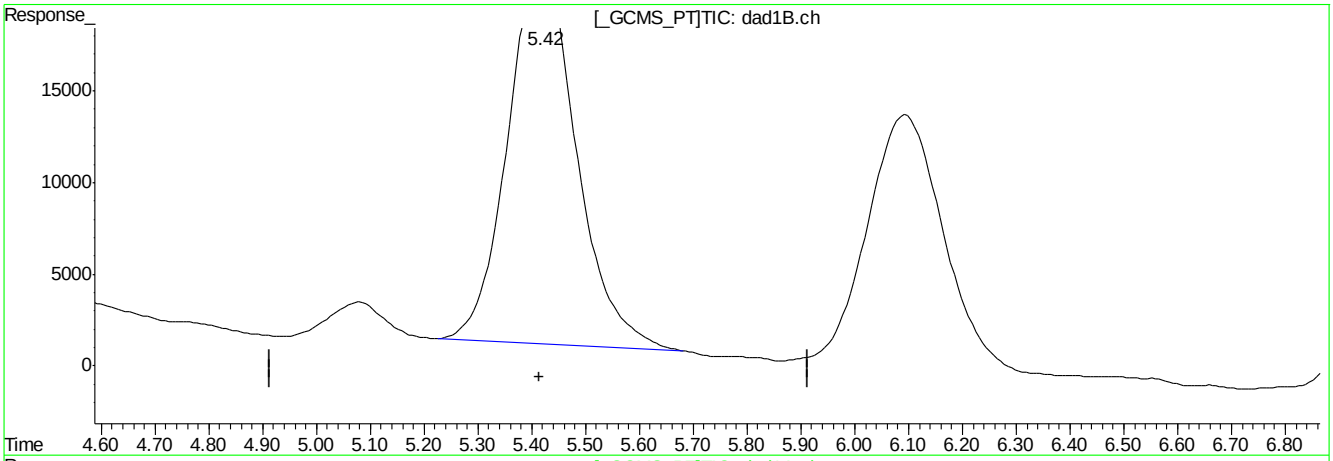
Method: SW846 8330B
Analyst approved: 05/07/20 16:21 William Hustedde
Supervisor approved: 05/08/20 16:58 Naresh Jiawan

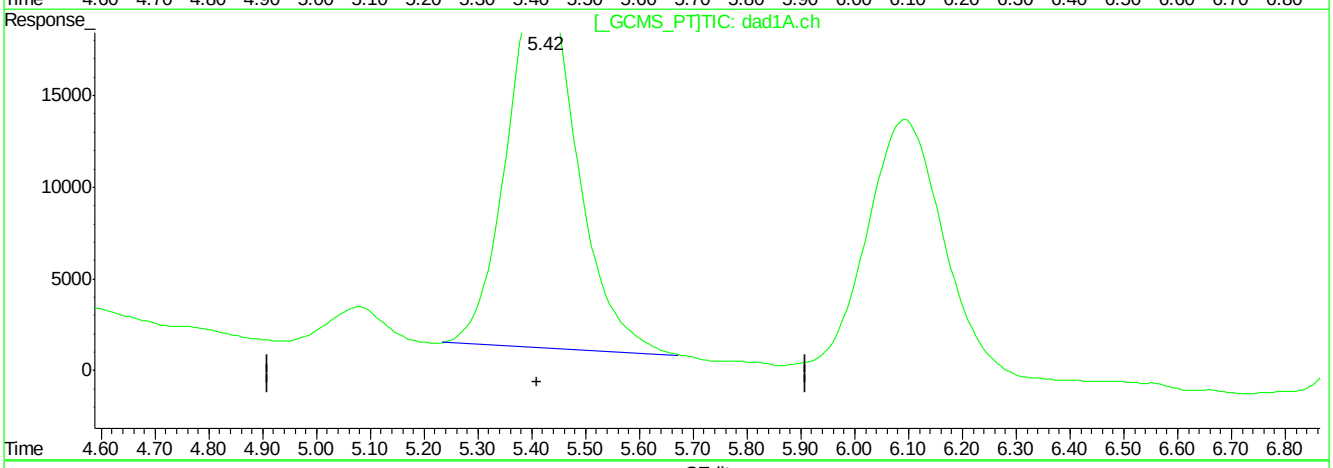
Parameter	CAS	Sig#	R.T. (min.)	Reason
HMX	2691-41-0	1	5.42	Poor instrument integration
HMX	2691-41-0	2	5.42	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	2	10.95	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	1	13.52	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	15.37	Poor instrument integration
4-amino-2,6-Dinitrotoluene	19406-51-0	2	17.10	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	2	19.15	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618851.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618851.D\dad1A.ch
Acq On : 06-May-2020, 16:27:51 Operator: williamh
Sample : FA74617-3cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 14:45 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.42min 619.474ppb m

response 1845793

(2) HMX #2

5.42min 610.712ppb m

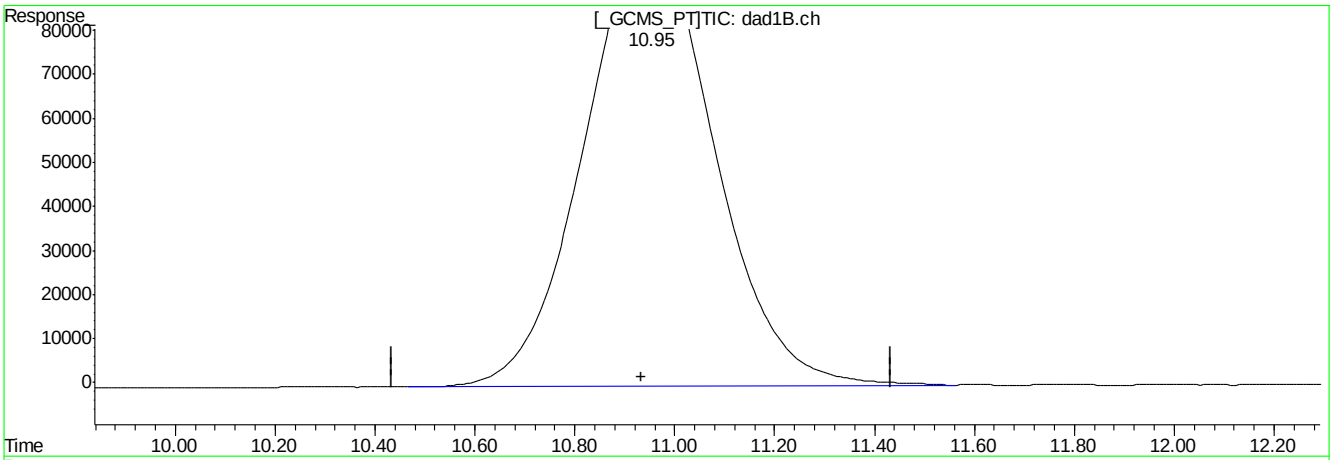
response 1831590

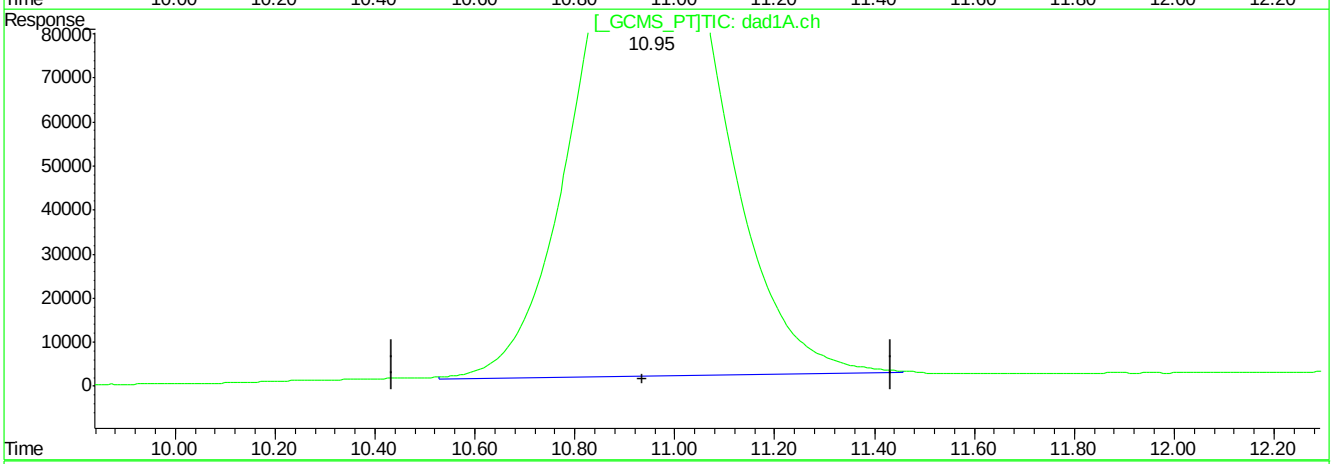
(+) = Expected Retention Time
GG618851.D 8330RPB.M_092519.M Thu May 07 15:33:02 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618851.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618851.D\dad1A.ch
Acq On : 06-May-2020, 16:27:51 Operator: williamh
Sample : FA74617-3cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 14:45 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

10.95min 1800.949ppb

response 18363754

(9) 2,4,6-Trinitrotoluene #2

10.95min 1827.344ppb m

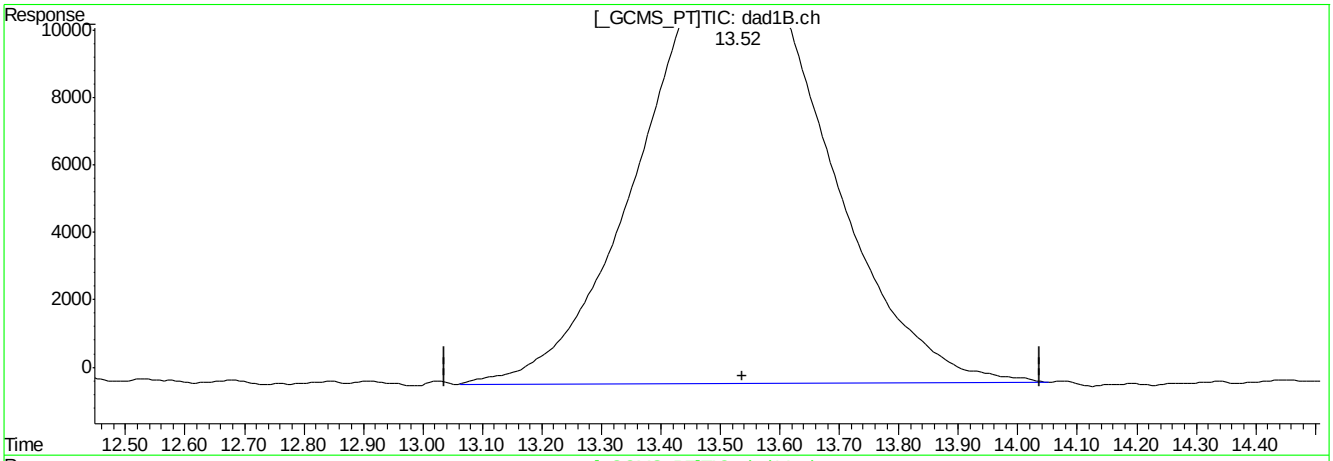
response 24154747

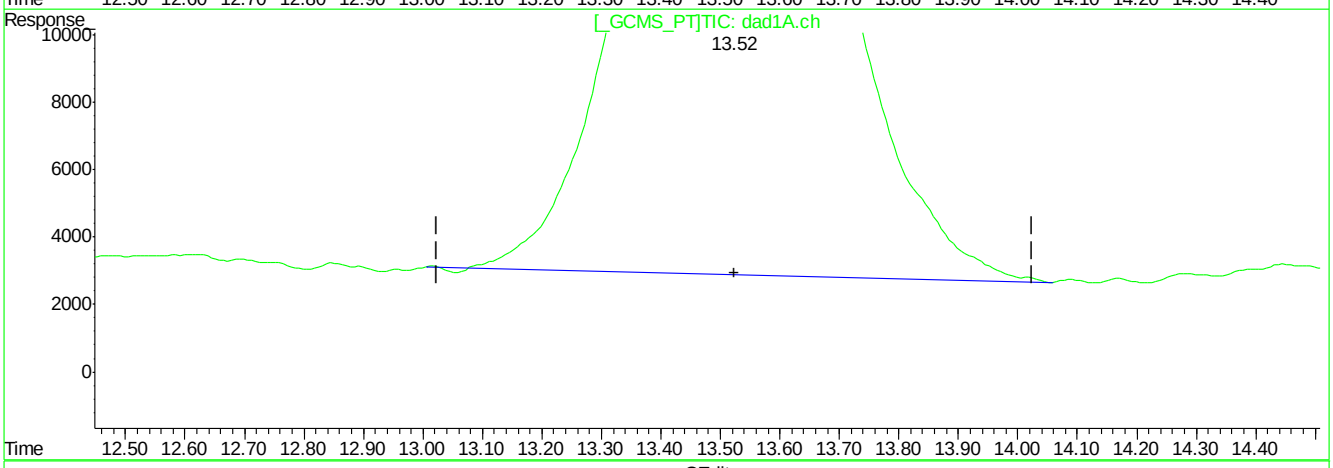
(+) = Expected Retention Time
GG618851.D 8330RPB.M_092519.M Thu May 07 15:33:17 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618851.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618851.D\dad1A.ch
Acq On : 06-May-2020, 16:27:51 Operator: williamh
Sample : FA74617-3cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 14:45 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration





QEdit

(12) 3,4-Dinitrotoluene (S)

13.52min 613.862ppb m

response 2771826

(12) 3,4-Dinitrotoluene #2 (S)

13.52min 591.454ppb

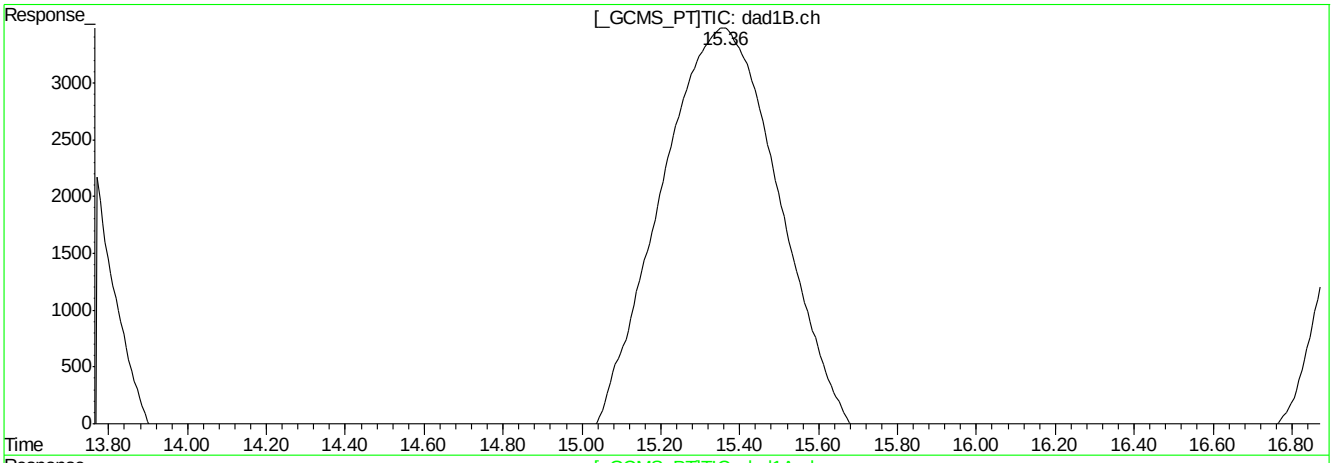
response 5312835

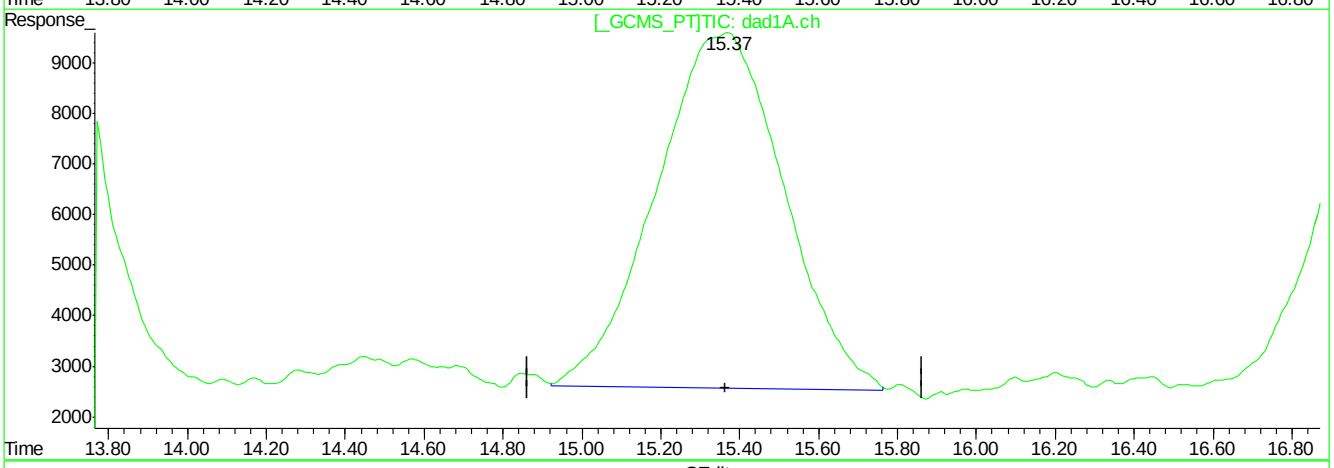
(+) = Expected Retention Time
GG618851.D 8330RPB.M_092519.M Thu May 07 15:33:25 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618851.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618851.D\dad1A.ch
Acq On : 06-May-2020, 16:27:51 Operator: williamh
Sample : FA74617-3cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 14:45 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration





QEdit

(16) 3,5-Dinitroaniline

15.36min 93.717ppb

response 956198

(16) 3,5-Dinitroaniline #2

15.37min 95.373ppb m

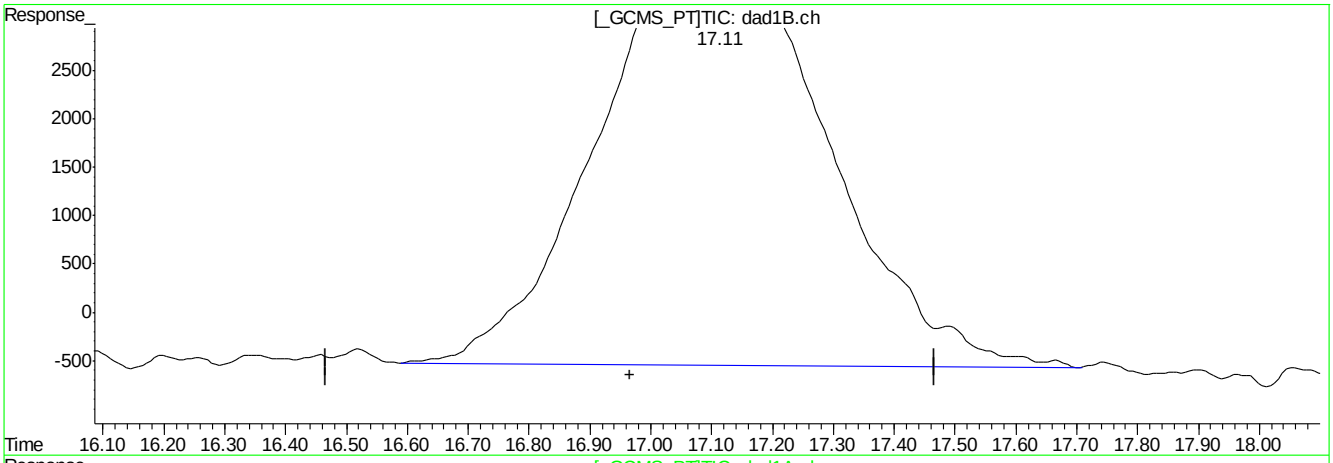
response 1583331

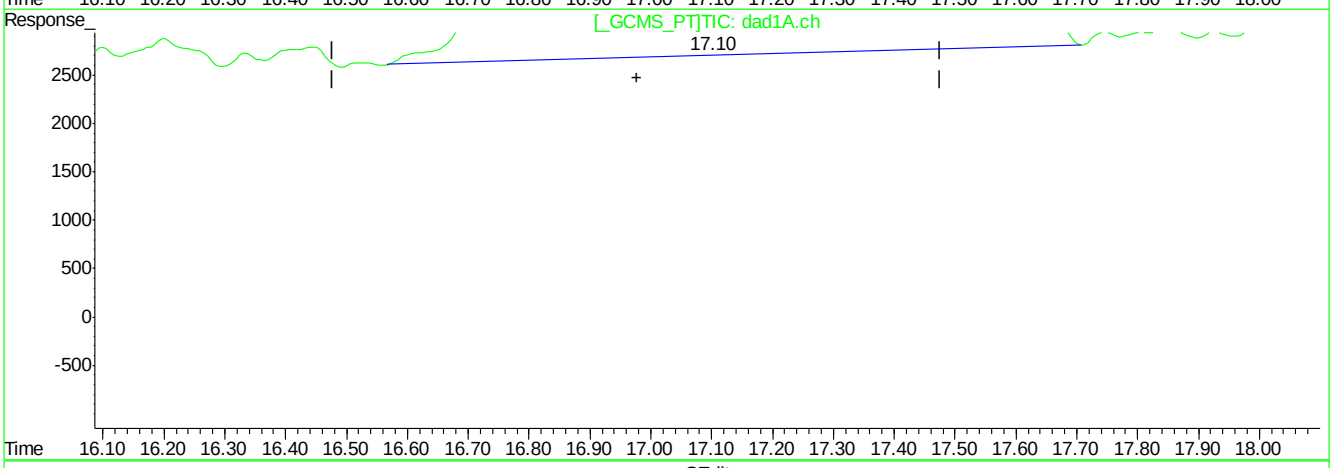
(+) = Expected Retention Time
GG618851.D 8330RPB.M_092519.M Thu May 07 15:33:37 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618851.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618851.D\dad1A.ch
Acq On : 06-May-2020, 16:27:51 Operator: williamh
Sample : FA74617-3cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 14:45 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration





QEdit

(18) 4-Amino-2,6-Dinitrotoluene

17.11min 97.717ppb

response 1129846

(18) 4-Amino-2,6-Dinitrotoluene #2

17.10min 108.747ppb m

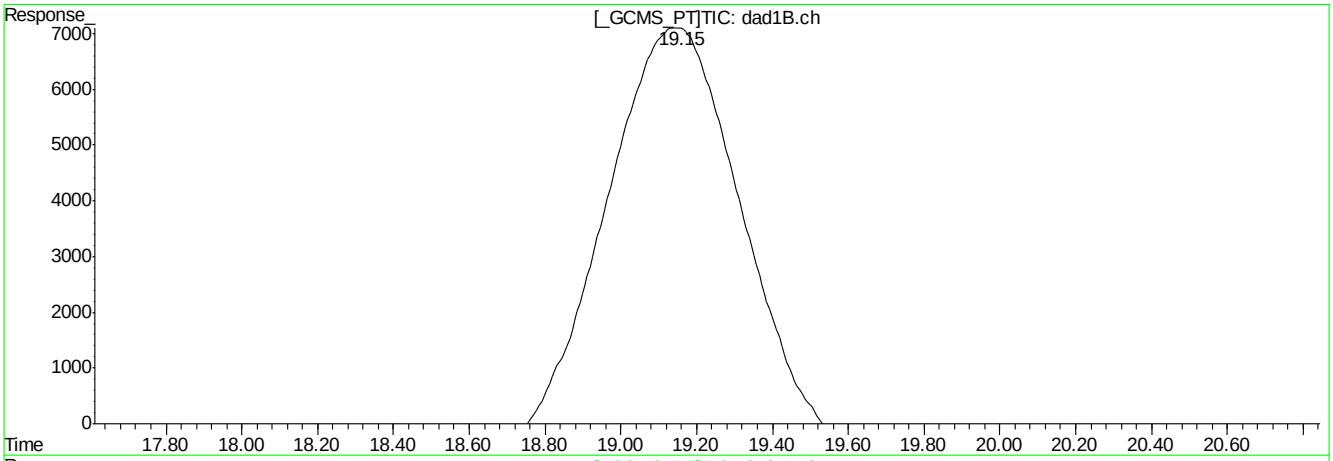
response 2361668

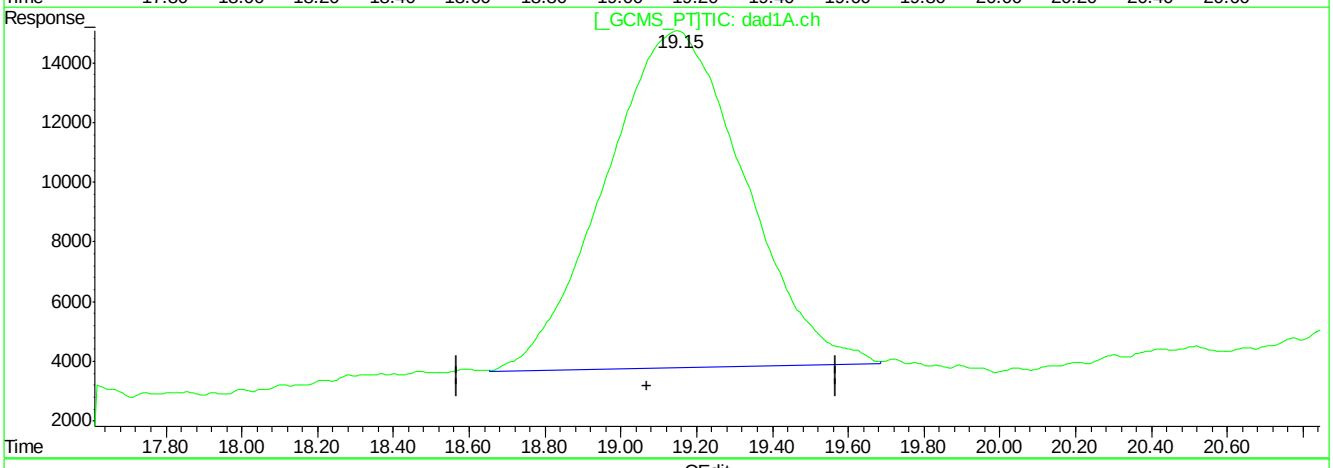
(+) = Expected Retention Time
GG618851.D 8330RPB.M_092519.M Thu May 07 15:33:45 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618851.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618851.D\dad1A.ch
Acq On : 06-May-2020, 16:27:51 Operator: williamh
Sample : FA74617-3cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 14:45 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration





QEdit

(20) 2-Amino-4,6-Dinitrotoluene

19.15min 216.322ppb

response 2075757

(20) 2-Amino-4,6-Dinitrotoluene #2

19.15min 204.900ppb m

response 2875148

(+) = Expected Retention Time
GG618851.D 8330RPB.M_092519.M Thu May 07 15:33:54 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 05/08/20 16:58

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618852.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618852.D\dad1A.ch
Acq On : 06-May-2020, 16:57:17 Operator: williamh
Sample : FA74617-3cf,2 Inst : G1315B
Misc : op80038,GGG2834,1040,,,10,2,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 07 14:45:34 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.55	13.55	1405161	2672232	311.194m	297.837m
	Spiked Amount 500.000	Range 70 - 136		Recovery =		62.24%#	59.57%#
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	0.00	0.00	0	0	N.D. d	N.D. d
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D. d	N.D. d
5)	1,3,5-Trinitrobe	0.00	0.00	0	0	N.D. d	N.D. d
6)	RDX	0.00	0.00	0	0	N.D. d	N.D. d
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D. d	N.D. d
8)	Nitrobenzene	0.00	0.00	0	0	N.D. d	N.D. d
9)	2,4,6-Trinitroto	0.00	0.00	0	0	N.D. d	N.D. d
10)	Nitroglycerin	0.00	0.00	0	0	N.D. d	N.D. d
11)	Tetryl	0.00	0.00	0	0	N.D. d	N.D. d
13)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
14)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
15)	o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
16)	3,5-Dinitroanili	0.00	0.00	0	0	N.D. d	N.D. d
17)	p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
18)	4-Amino-2,6-Dini	0.00	0.00	0	0	N.D. d	N.D. d
19)	m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20)	2-Amino-4,6-Dini	19.13	19.21	944690	1693811	98.449m	120.711m
21)	PETN	0.00	0.00	0	0	N.D.	N.D.

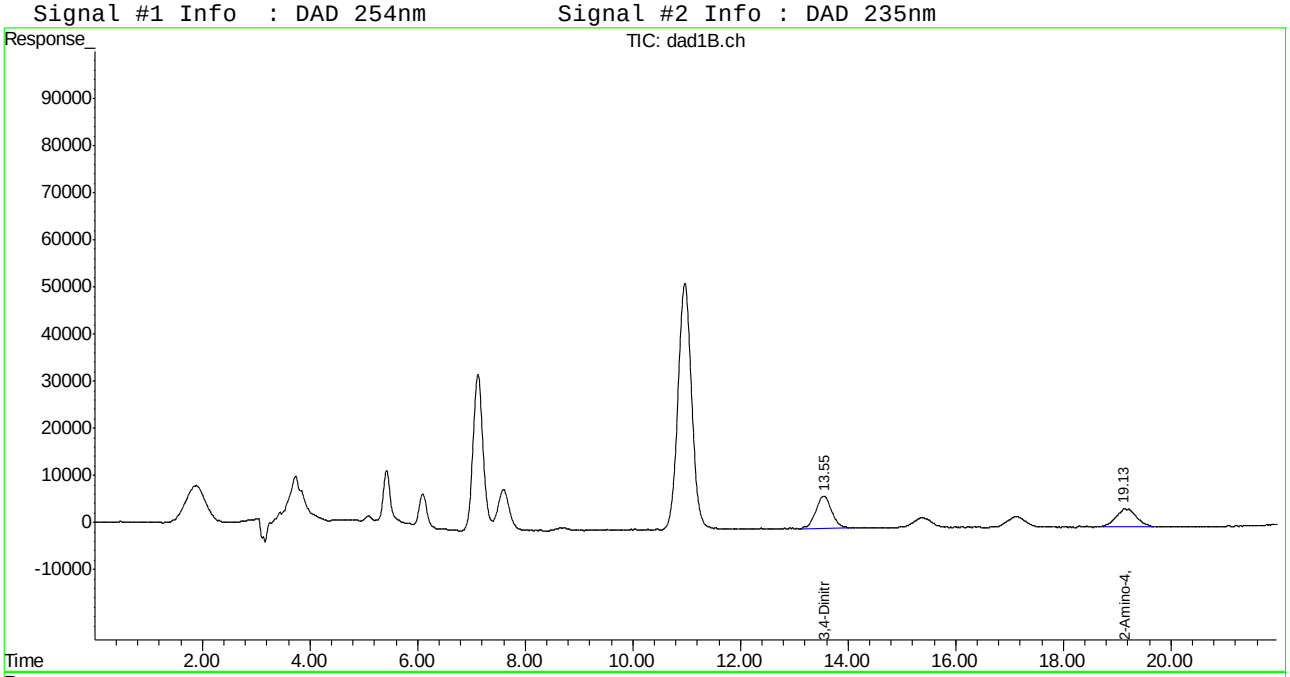
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
GG618852.D 8330RPB.M_092519.M Thu May 07 16:03:16 2020 Page 1

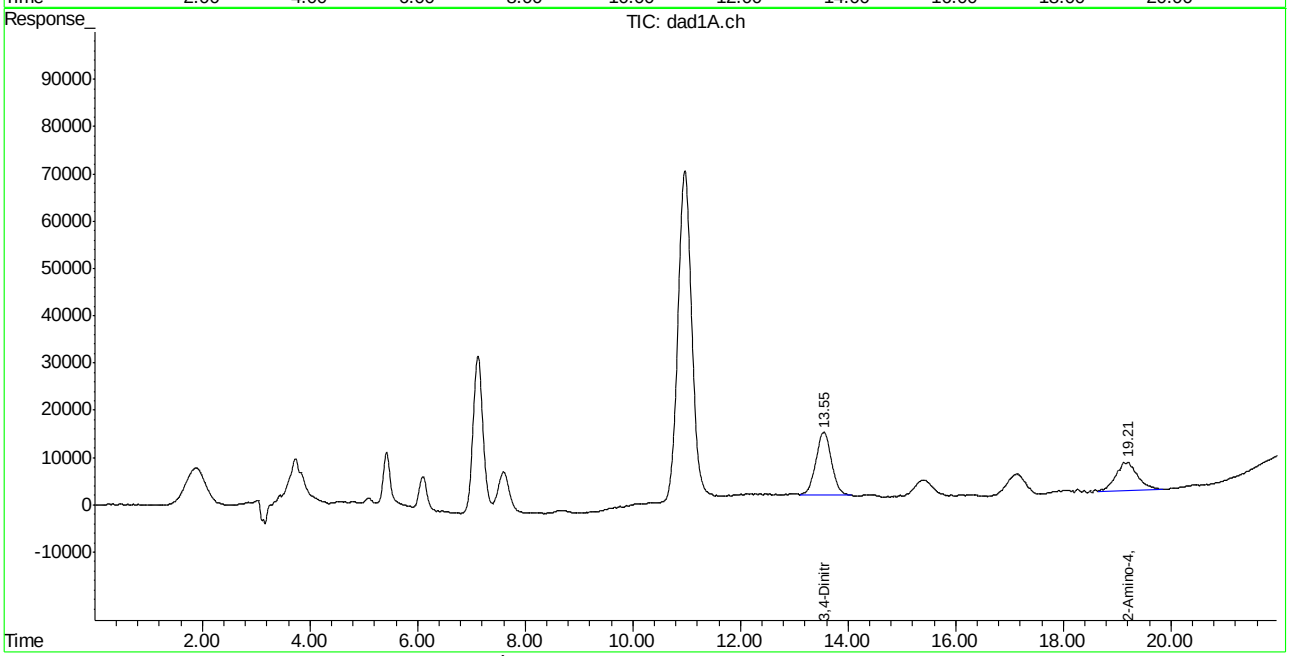
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618852.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618852.D\dad1A.ch
Acq On : 06-May-2020, 16:57:17 Operator: williamh
Sample : FA74617-3cf,2 Inst : G1315B
Misc : op80038,GGG2834,1040,,,10,2,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 15:34 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

Sample Number: FA74617-3
Lab FileID: GG618852.D
Injection Time: 05/06/20 16:57

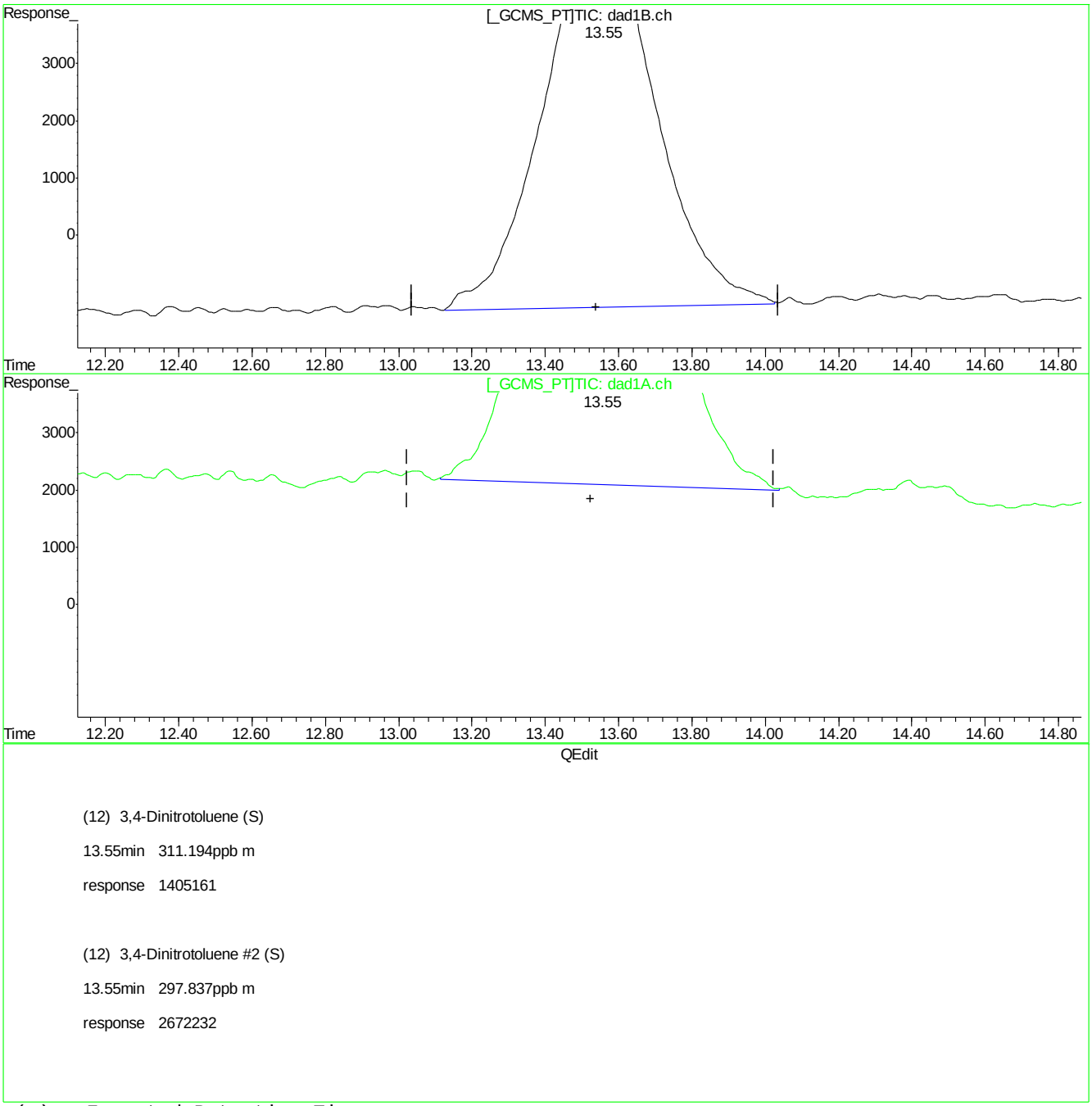
Method: SW846 8330B
Analyst approved: 05/07/20 16:21 William Hustedde
Supervisor approved: 05/08/20 16:58 Naresh Jiawan

Parameter	CAS	Sig#	R.T. (min.)	Reason
3,4-Dinitrotoluene	610-39-9	1	13.55	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	2	13.55	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	1	19.13	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	2	19.21	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618852.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618852.D\dad1A.ch
Acq On : 06-May-2020, 16:57:17 Operator: williamh
Sample : FA74617-3cf,10 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 14:45 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration



(12) 3,4-Dinitrotoluene (S)

13.55min 311.194ppb m

response 1405161

(12) 3,4-Dinitrotoluene #2 (S)

13.55min 297.837ppb m

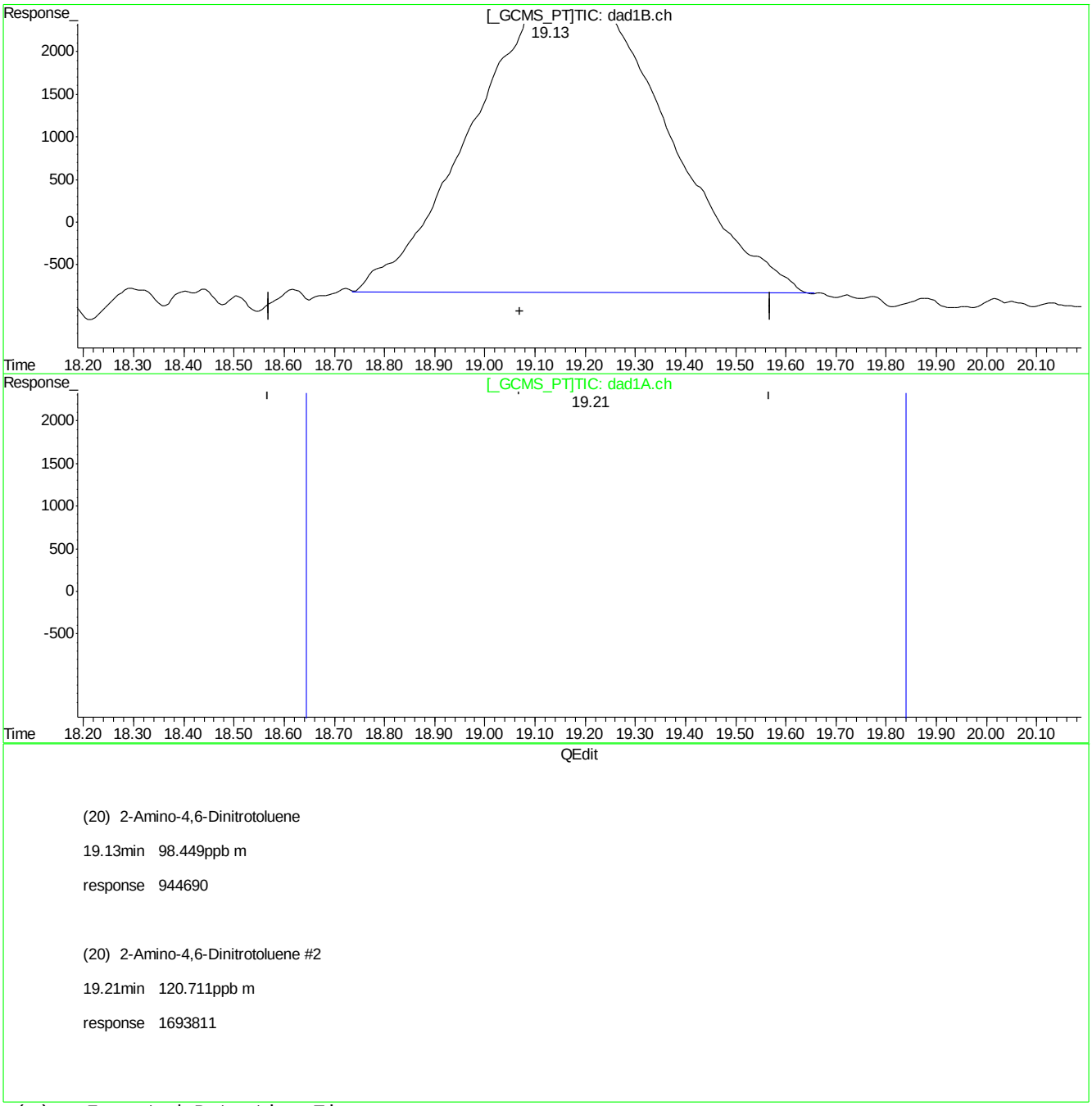
response 2672232

(+) = Expected Retention Time
GG618852.D 8330RPB.M_092519.M Thu May 07 15:34:28 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618852.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618852.D\dad1A.ch
Acq On : 06-May-2020, 16:57:17 Operator: williamh
Sample : FA74617-3cf,10 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 14:45 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration



(20) 2-Amino-4,6-Dinitrotoluene

19.13min 98.449ppb m

response 944690

(20) 2-Amino-4,6-Dinitrotoluene #2

19.21min 120.711ppb m

response 1693811

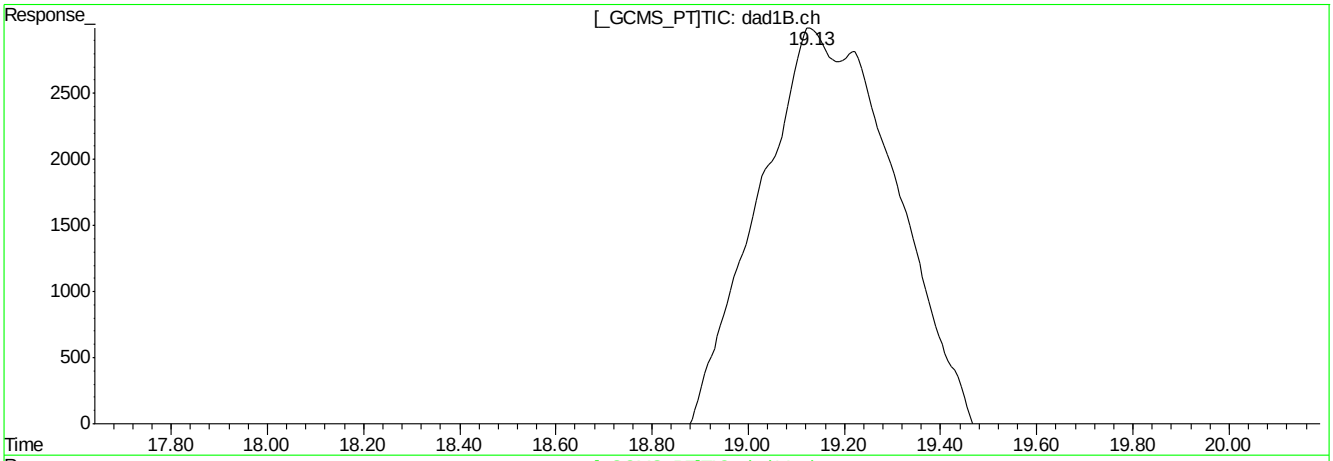
(+) = Expected Retention Time
GG618852.D 8330RPB.M_092519.M Thu May 07 15:34:37 2020

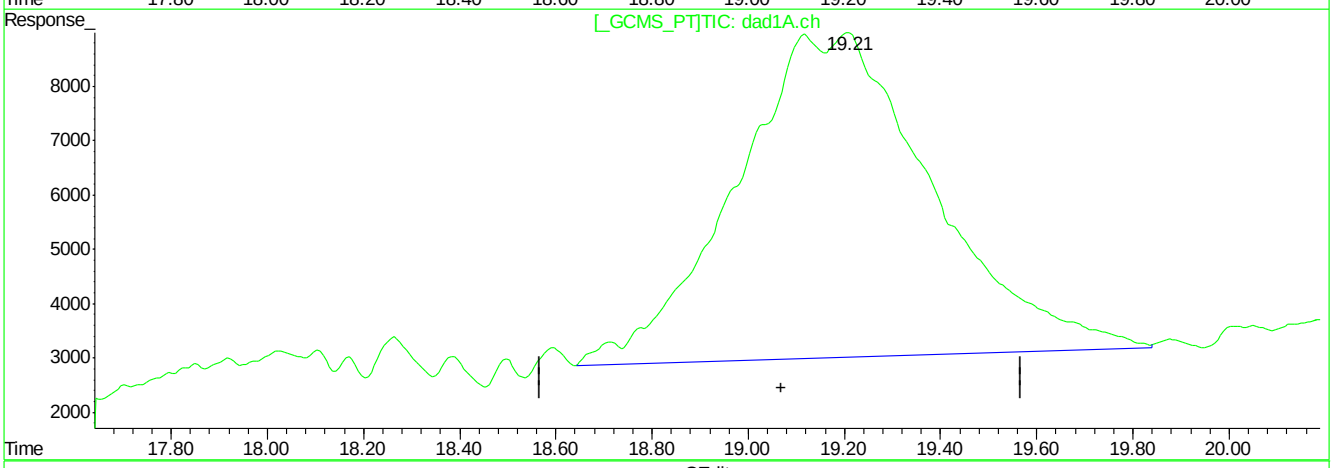
GG618852.D edits: 2-Amino-4,6-Dinitrotoluene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618852.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618852.D\dad1A.ch
Acq On : 06-May-2020, 16:57:17 Operator: williamh
Sample : FA74617-3cf,10 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 14:45 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration





QEdit

(20) 2-Amino-4,6-Dinitrotoluene

19.13min 98.449ppb m

response 944690

(20) 2-Amino-4,6-Dinitrotoluene #2

19.21min 120.711ppb m

response 1693811

(+) = Expected Retention Time
GG618852.D 8330RPB.M_092519.M Thu May 07 15:34:42 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 05/08/20 16:42

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386873.D\dad1B.ch Vial: 14
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386873.D\dad1A.ch
Acq On : 04-May-2020, 19:49:03 Operator: williamh
Sample : FA74617-4 Inst : G1315B
Misc : op80038,GPP2268,1060,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 05 11:04:44 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Initial Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	11.08	11.08	1199116	1944120	602.702	563.226
	Spiked Amount 500.000	Range 70 - 136		Recovery =		120.54%	112.65%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	1.47	1.47	2157352	6184553	1346.969	1319.845
3)	DNX	0.00	0.00	0	0	N.D.	N.D.
4)	MNX	0.00	0.00	0	0	N.D. d	N.D. d
5)	RDX	2.93	2.93	34990	72401	17.625m	22.359
6)	1,3,5-Trinitrobe	4.70	4.70	4096781	8053943	1006.326m	1026.460m
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D.	N.D.
8)	3,5-Dinitroanili	6.27	6.27	107971	188326	25.785m	25.025m
9)	Nitrobenzene	0.00	0.00	0	0	N.D.	N.D.
10)	Nitroglycerin	0.00	0.00	0	0	N.D.	N.D.
11)	Tetryl	0.00	0.00	0	0	N.D.	N.D.
12)	2,4,6-Trinitroto	9.77	9.78	3332802	4068279	880.165m	951.182
13)	2-Amino-4,6-Dini	10.03	10.14	1521709	2228659	427.041m	447.930
14)	4-Amino-2,6-Dini	10.58	10.60	722514	1398260	267.130	273.230
16)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D.	N.D.
17)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D.	N.D.
18)	o-Nitrotoluene	0.00	0.00	0	0	N.D.	N.D.
19)	p-Nitrotoluene	0.00	0.00	0	0	N.D.	N.D.
20)	m-Nitrotoluene	0.00	0.00	0	0	N.D.	N.D.
21)	PETN	18.43	0.00	5613095	0	NoCal	N.D.

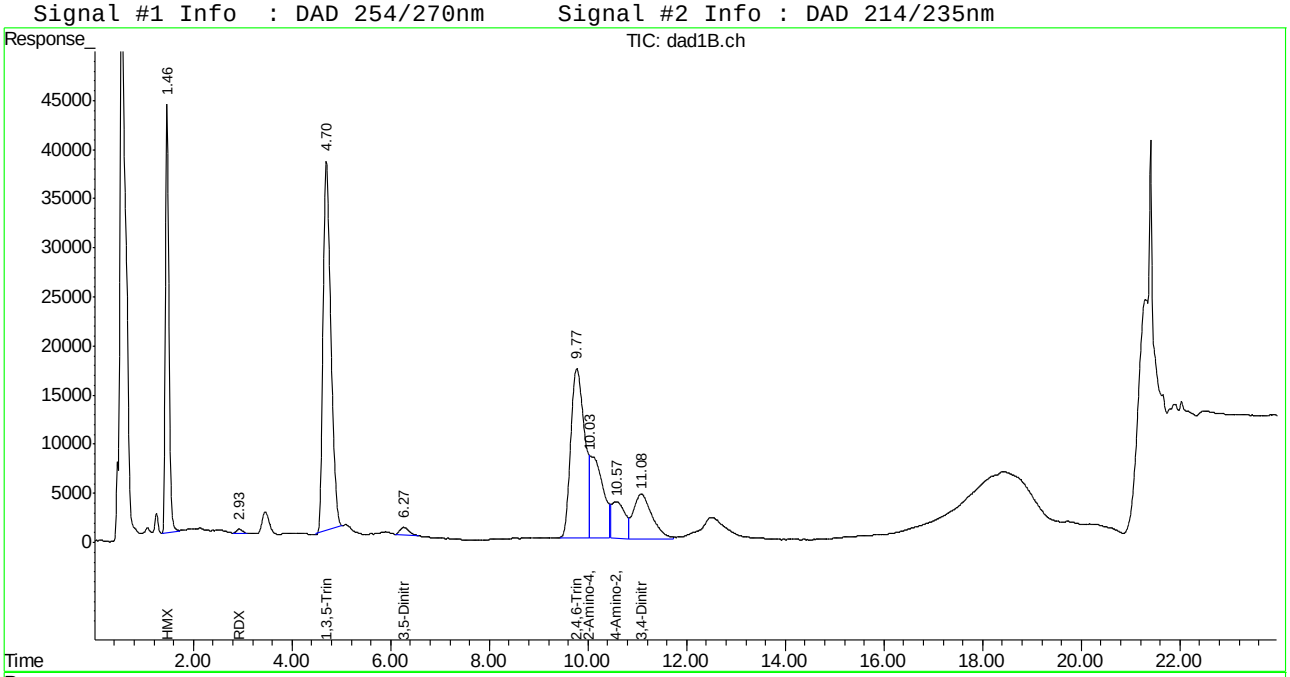
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
PP386873.D GPP2262_041620PRI.M Wed May 06 16:35:39 2020 Page 1

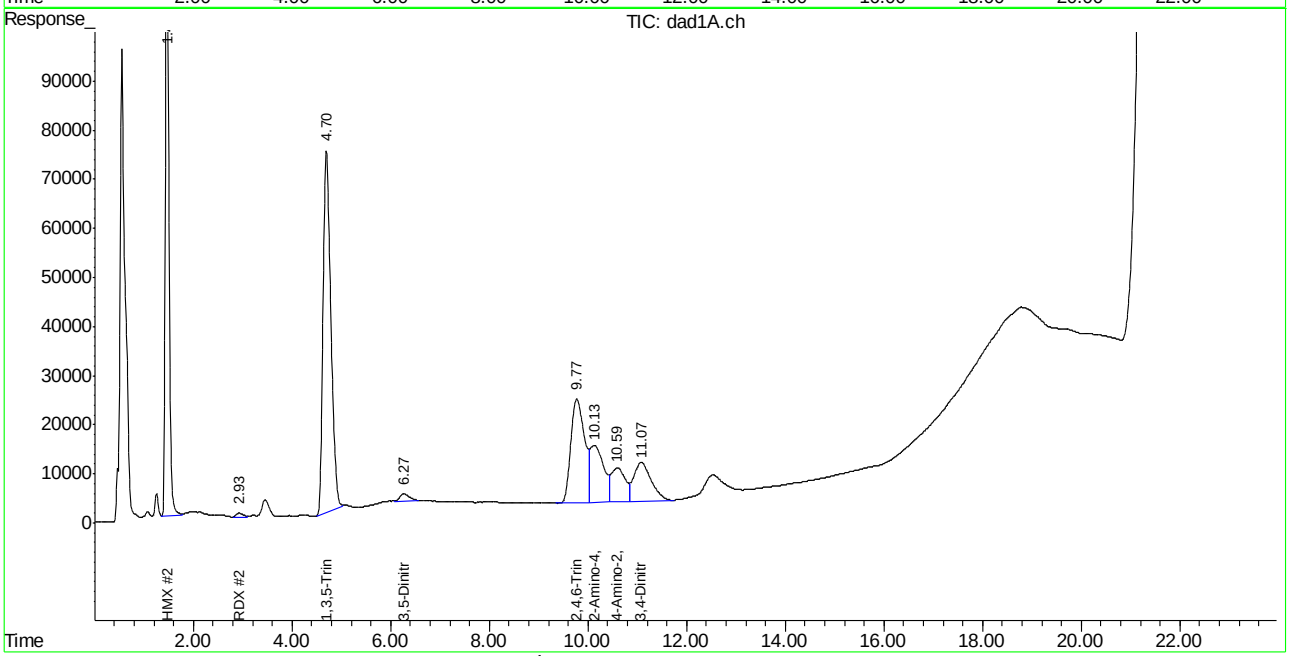
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386873.D\dad1B.ch Vial: 14
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386873.D\dad1A.ch
Acq On : 04-May-2020, 19:49:03 Operator: williamh
Sample : FA74617-4 Inst : G1315B
Misc : op80038,GPP2268,1060,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 6 16:35 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm





Manual Integration Approval Summary

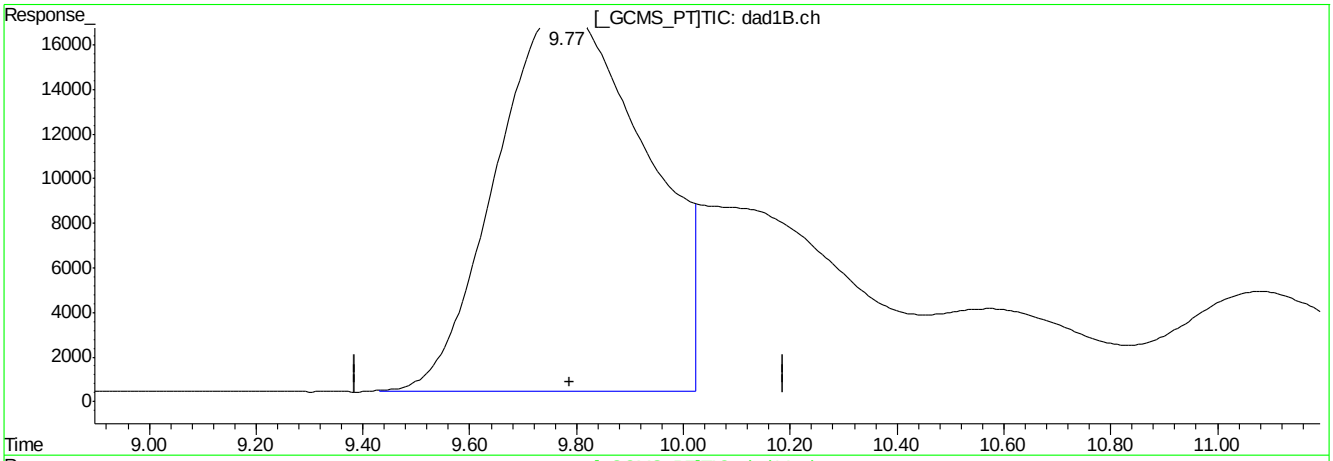
Sample Number: FA74617-4
Lab FileID: PP386873.D
Injection Time: 05/04/20 19:49
Method: SW846 8330B
Analyst approved: 05/07/20 16:36 William Hustedde
Supervisor approved: 05/08/20 16:42 Naresh Jiawan

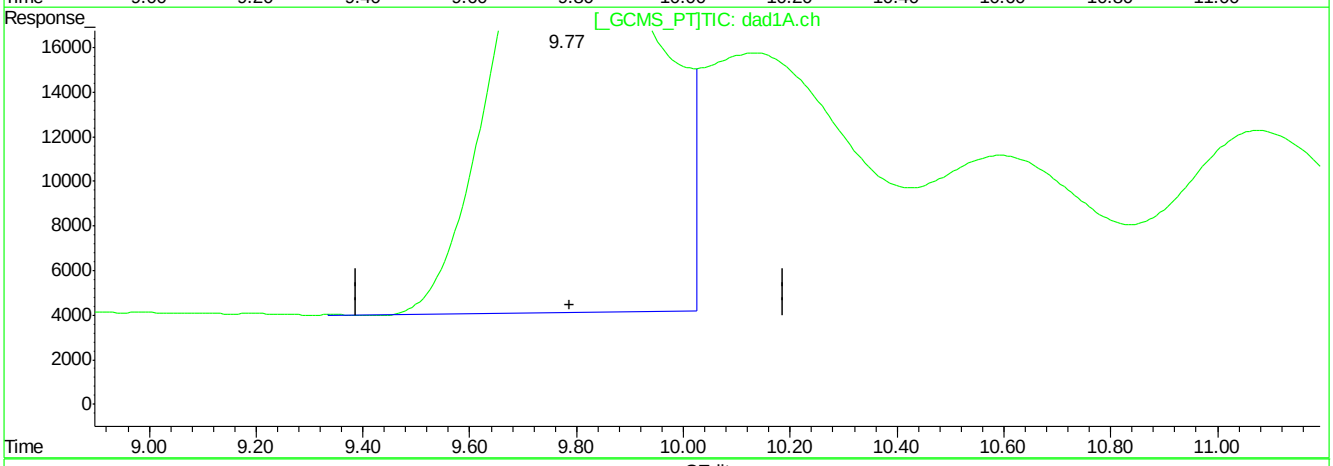
Parameter	CAS	Sig#	R.T. (min.)	Reason
RDX	121-82-4	1	2.93	Poor instrument integration
1,3,5-Trinitrobenzene	99-35-4	1	4.70	Poor instrument integration
1,3,5-Trinitrobenzene	99-35-4	2	4.70	Poor instrument integration
3,5-Dinitroaniline	618-87-1	1	6.27	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	6.27	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	1	9.77	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	1	10.03	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386873.D\dad1B.ch Vial: 14
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386873.D\dad1A.ch
Acq On : 04-May-2020, 19:49:03 Operator: williamh
Sample : FA74617-4 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 11:04 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(12) 2,4,6-Trinitrotoluene

9.77min 880.165ppb m

response 3332802

(12) 2,4,6-Trinitrotoluene #2

9.78min 951.182ppb

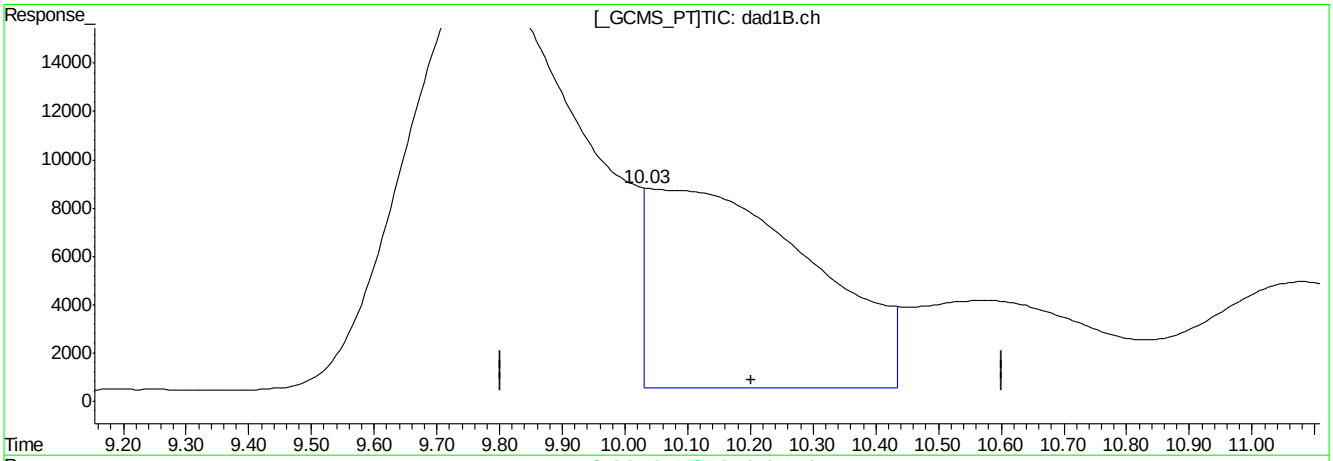
response 4068279

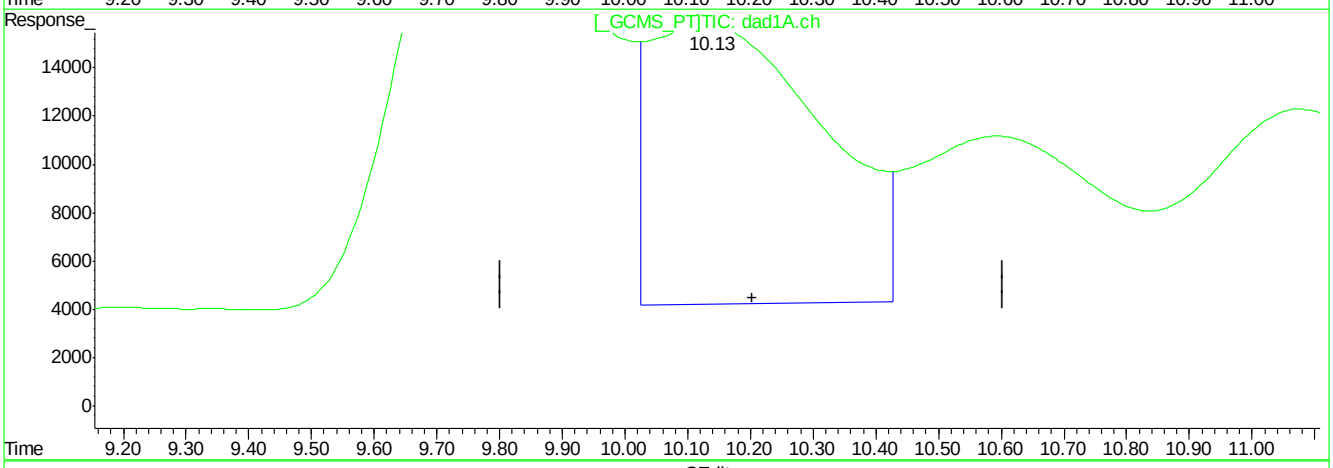
(+) = Expected Retention Time
PP386873.D GPP2262_041620PRI.M Tue May 05 13:23:11 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386873.D\dad1B.ch Vial: 14
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386873.D\dad1A.ch
Acq On : 04-May-2020, 19:49:03 Operator: williamh
Sample : FA74617-4 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 11:04 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(13) 2-Amino-4,6-Dinitrotoluene

10.03min 427.041ppb m

response 1521709

(13) 2-Amino-4,6-Dinitrotoluene #2

10.14min 447.930ppb

response 2228659

(+) = Expected Retention Time
PP386873.D GPP2262_041620PRI.M Tue May 05 13:23:21 2020

9.1.93.3

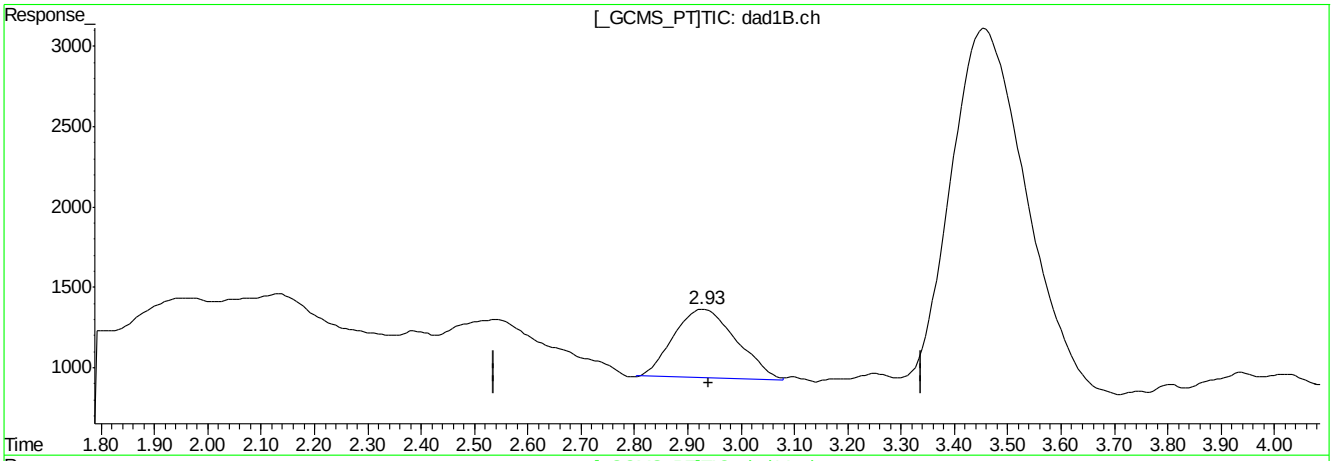
9

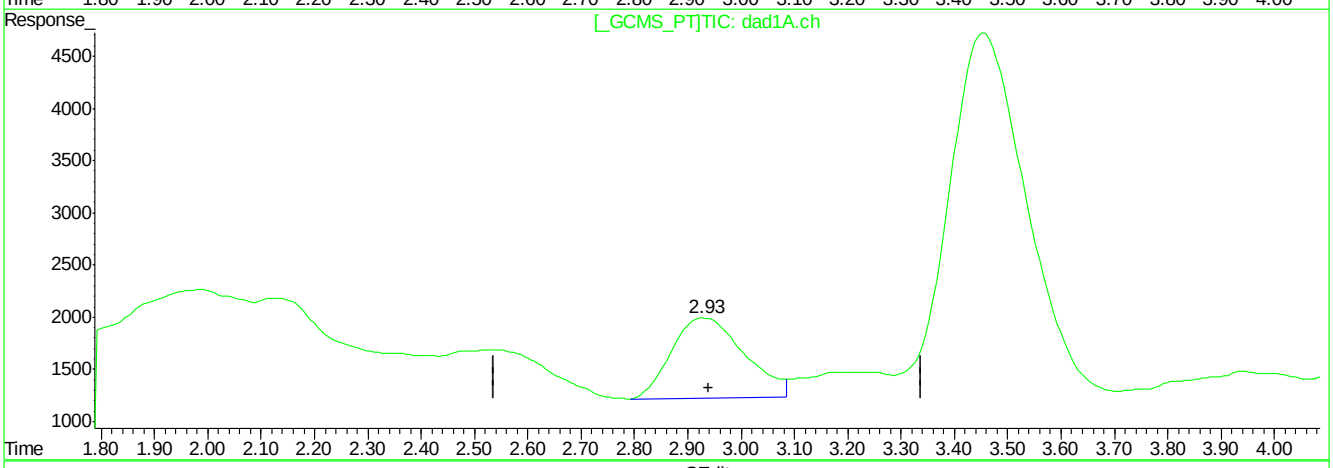
PP386873.D edits: 2-Amino-4,6-Dinitrotoluene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386873.D\dad1B.ch Vial: 14
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386873.D\dad1A.ch
Acq On : 04-May-2020, 19:49:03 Operator: williamh
Sample : FA74617-4 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 11:04 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(5) RDX

2.93min 17.625ppb m

response 34990

(5) RDX #2

2.93min 22.359ppb

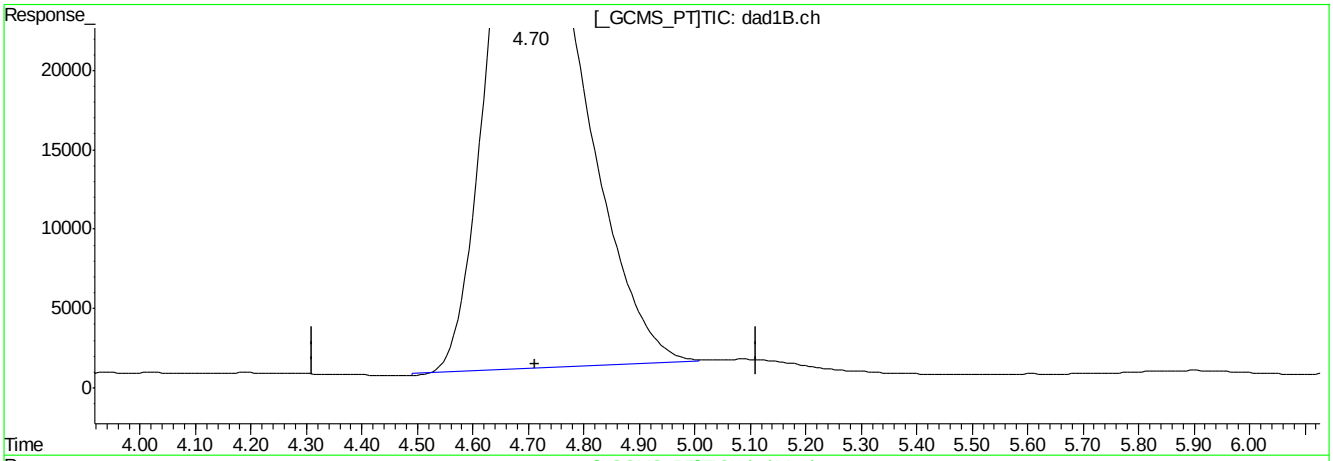
response 72401

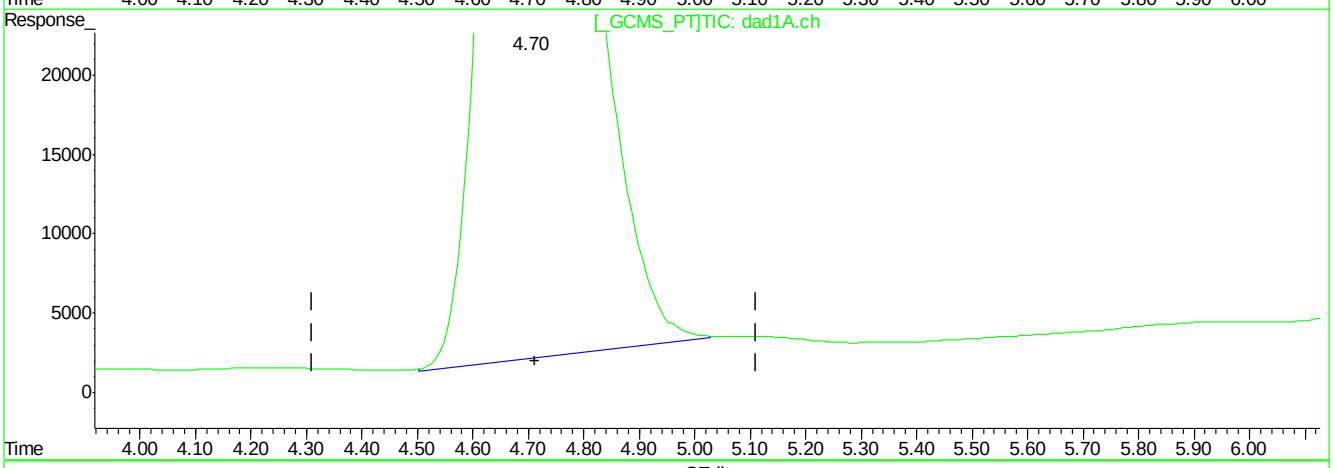
(+) = Expected Retention Time
PP386873.D GPP2262_041620PRI.M Tue May 05 13:23:32 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386873.D\dad1B.ch Vial: 14
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386873.D\dad1A.ch
Acq On : 04-May-2020, 19:49:03 Operator: williamh
Sample : FA74617-4 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 11:04 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(6) 1,3,5-Trinitrobenzene

4.70min 1006.326ppb m

response 4096781

(6) 1,3,5-Trinitrobenzene #2

4.70min 1026.460ppb m

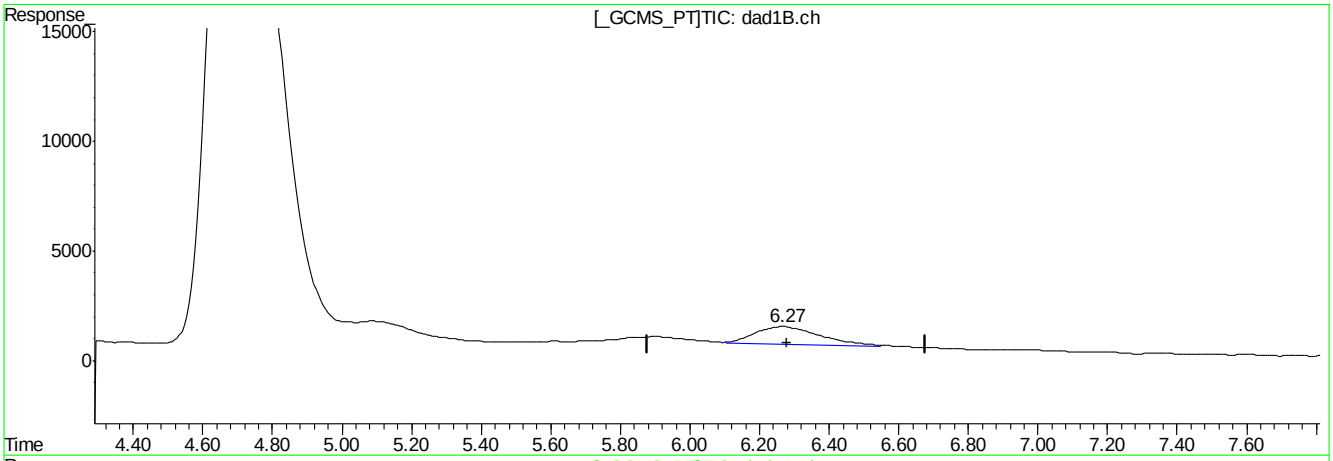
response 8053943

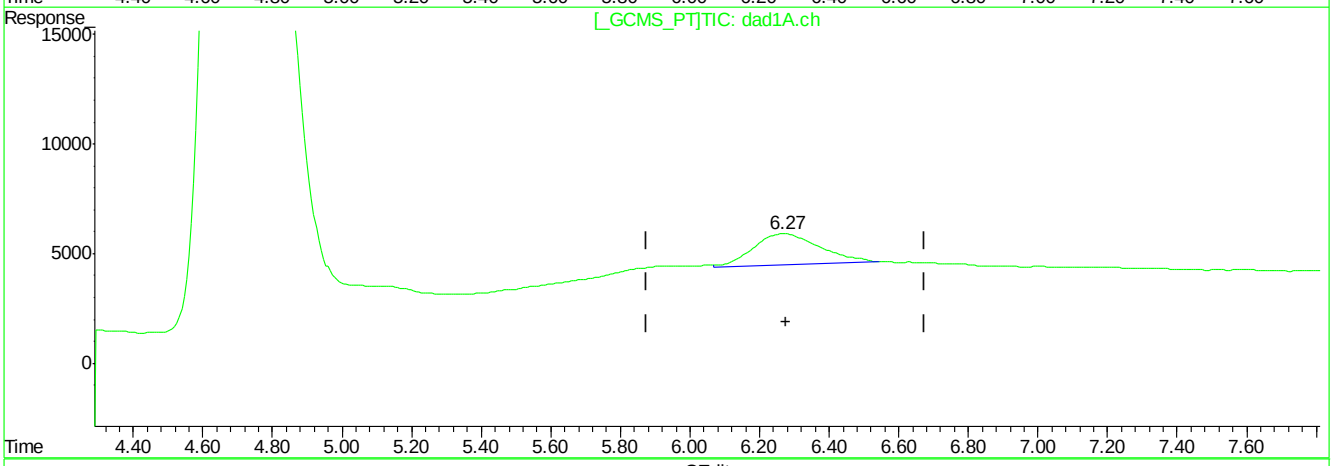
(+) = Expected Retention Time
PP386873.D GPP2262_041620PRI.M Tue May 05 13:23:44 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386873.D\dad1B.ch Vial: 14
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386873.D\dad1A.ch
Acq On : 04-May-2020, 19:49:03 Operator: williamh
Sample : FA74617-4 Inst : G1315B
Misc : op80038,GPP2268,1060,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 13:23 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Wed May 06 13:16:27 2020
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.27min 25.785ppb m

response 107971

(8) 3,5-Dinitroaniline #2

6.27min 25.025ppb m

response 188326

(+) = Expected Retention Time
PP386873.D GPP2262_041620PRI.M Wed May 06 16:35:22 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 05/08/20 16:42

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618853.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618853.D\dad1A.ch
Acq On : 06-May-2020, 17:26:44 Operator: williamh
Sample : FA74617-4cf Inst : G1315B
Misc : op80038,GGG2834,1060,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 07 14:45:35 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.56	13.56	2805034	5368777	621.216m	597.667m
	Spiked Amount 500.000	Range 70 - 136		Recovery =		124.24%	119.53%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	5.42	5.42	4975601	4973542	1669.881m	1658.342m
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D. d	N.D. d
5)	1,3,5-Trinitrobe	7.12	7.12	10680963	10735292	1032.849m	1038.103m
6)	RDX	7.53	7.52	116787	108096	23.035m	21.321m
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D. d	N.D. d
8)	Nitrobenzene	0.00	0.00	0	0	N.D. d	N.D. d
9)	2,4,6-Trinitroto	10.97	10.97	9336520	11730119	915.640	887.402m
10)	Nitroglycerin	0.00	0.00	0	0	N.D. d	N.D. d
11)	Tetryl	0.00	0.00	0	0	N.D. d	N.D. d
13)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
14)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
15)	o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
16)	3,5-Dinitroanili	15.37	15.38	1675629	3156974	164.229m	190.163m
17)	p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
18)	4-Amino-2,6-Dini	17.14	17.14	1847704	3828564	159.803m	176.293m
19)	m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20)	2-Amino-4,6-Dini	19.18	19.18	3595674	5459841	374.718m	389.101m
21)	PETN	0.00	0.00	0	0	N.D. d	N.D. d

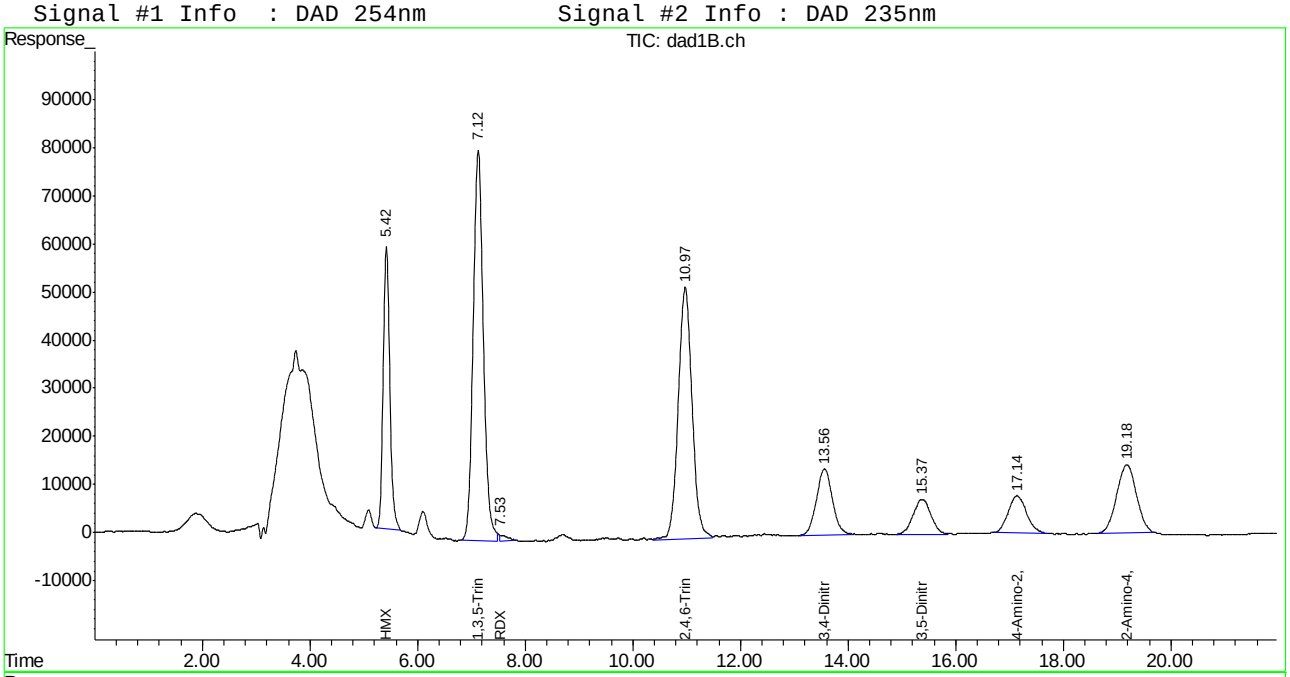
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
GG618853.D 8330RPB.M_092519.M Thu May 07 16:22:25 2020 Page 1

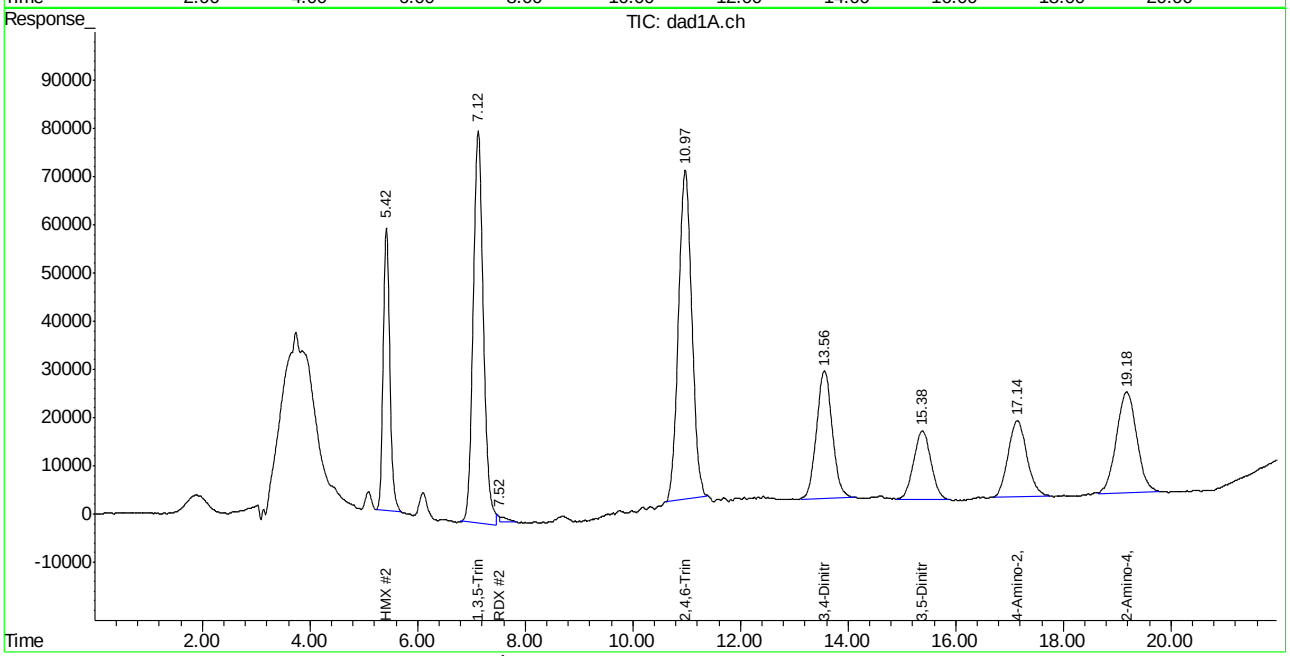
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618853.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618853.D\dad1A.ch
Acq On : 06-May-2020, 17:26:44 Operator: williamh
Sample : FA74617-4cf Inst : G1315B
Misc : op80038,GGG2834,1060,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 16:22 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

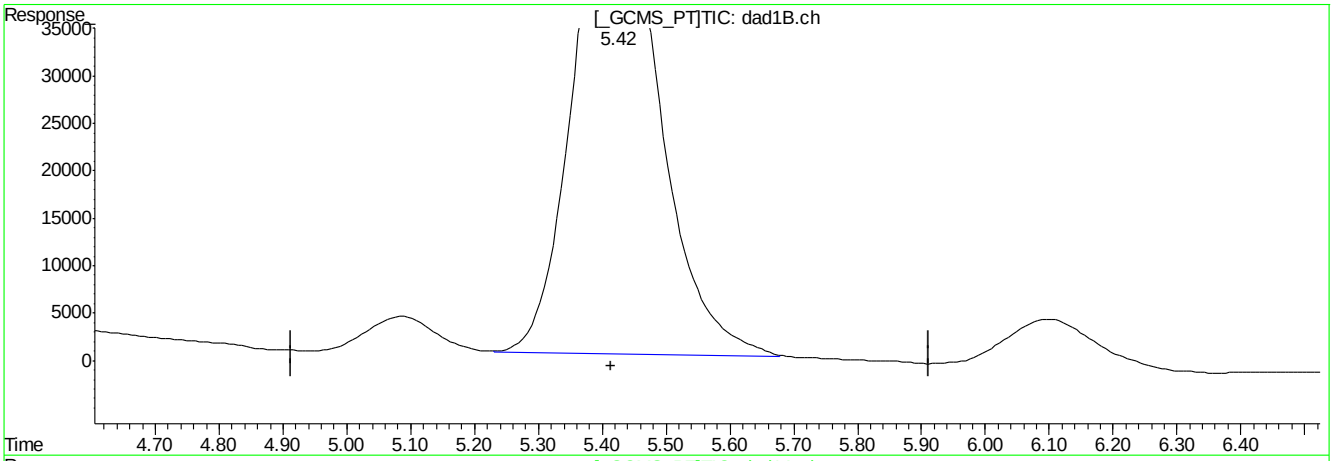
Sample Number: FA74617-4
Lab FileID: GG618853.D
Injection Time: 05/06/20 17:26
Method: SW846 8330B
Analyst approved: 05/07/20 16:35 William Hustedde
Supervisor approved: 05/08/20 16:42 Naresh Jiawan

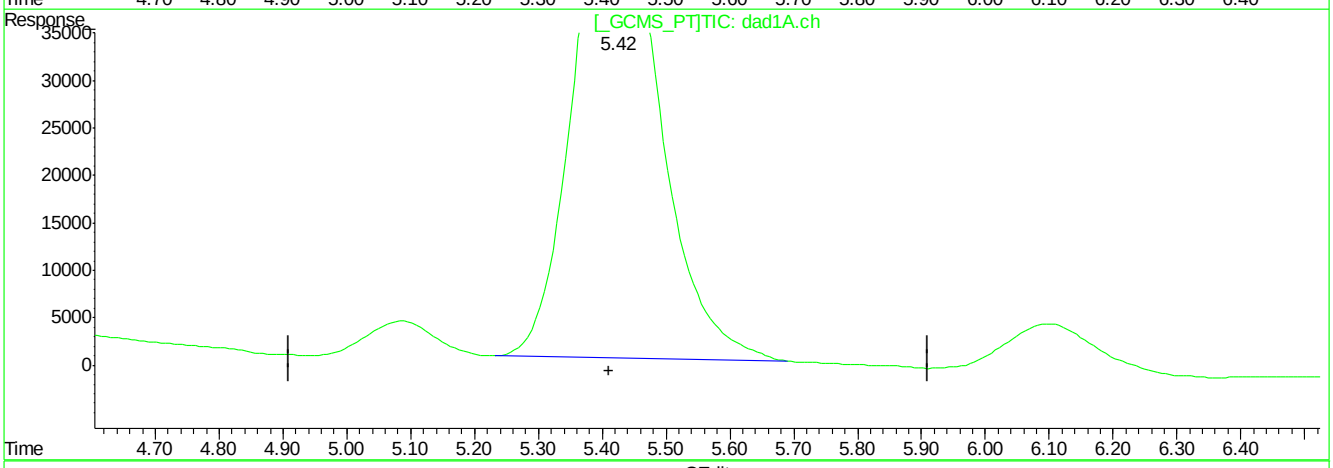
Parameter	CAS	Sig#	R.T. (min.)	Reason
HMX	2691-41-0	1	5.42	Poor instrument integration
HMX	2691-41-0	2	5.42	Poor instrument integration
1,3,5-Trinitrobenzene	99-35-4	1	7.12	Poor instrument integration
1,3,5-Trinitrobenzene	99-35-4	2	7.12	Poor instrument integration
RDX	121-82-4	2	7.52	Poor instrument integration
RDX	121-82-4	1	7.53	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	2	10.97	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	1	13.56	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	2	13.56	Poor instrument integration
3,5-Dinitroaniline	618-87-1	1	15.37	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	15.38	Poor instrument integration
4-amino-2,6-Dinitrotoluene	19406-51-0	1	17.14	Poor instrument integration
4-amino-2,6-Dinitrotoluene	19406-51-0	2	17.14	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	1	19.18	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	2	19.18	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618853.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618853.D\dad1A.ch
Acq On : 06-May-2020, 17:26:44 Operator: williamh
Sample : FA74617-4cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 14:45 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.42min 1669.881ppb m

response 4975601

(2) HMX #2

5.42min 1658.342ppb m

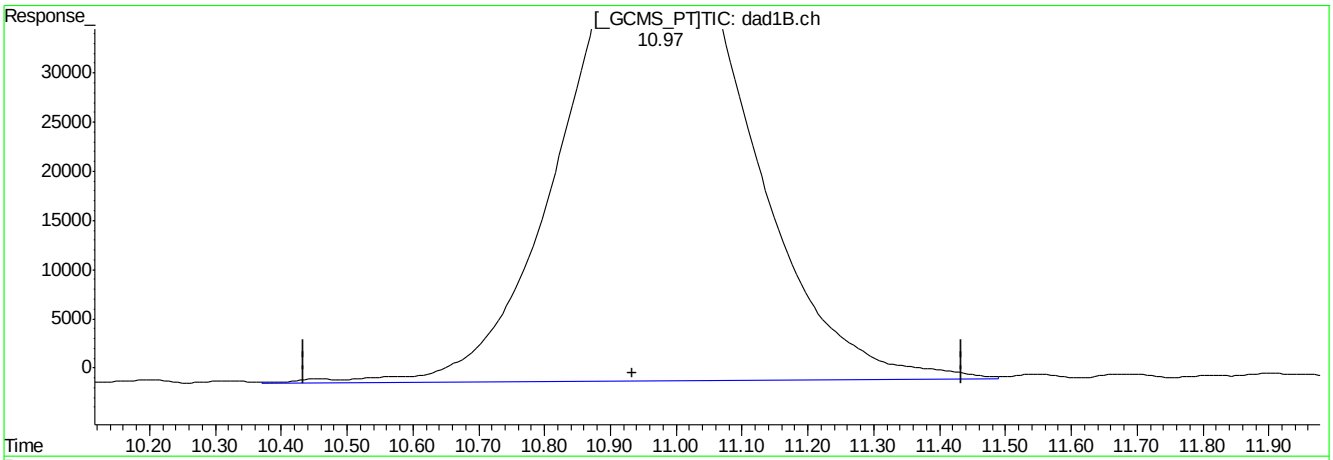
response 4973542

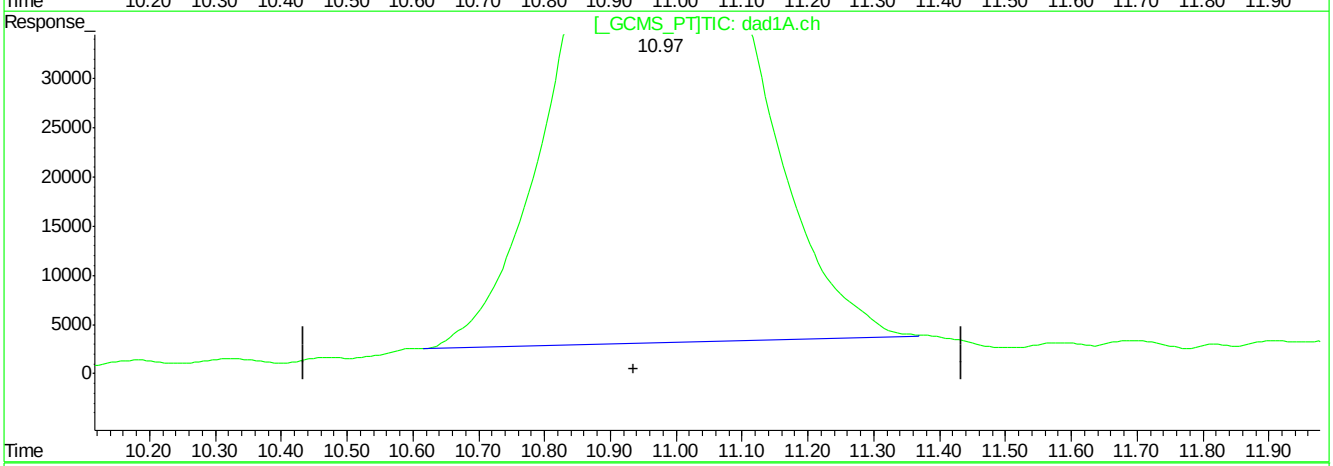
(+) = Expected Retention Time
GG618853.D 8330RPB.M_092519.M Thu May 07 15:35:37 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618853.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618853.D\dad1A.ch
Acq On : 06-May-2020, 17:26:44 Operator: williamh
Sample : FA74617-4cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 14:45 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

10.97min 915.640ppb

response 9336520

(9) 2,4,6-Trinitrotoluene #2

10.97min 887.402ppb m

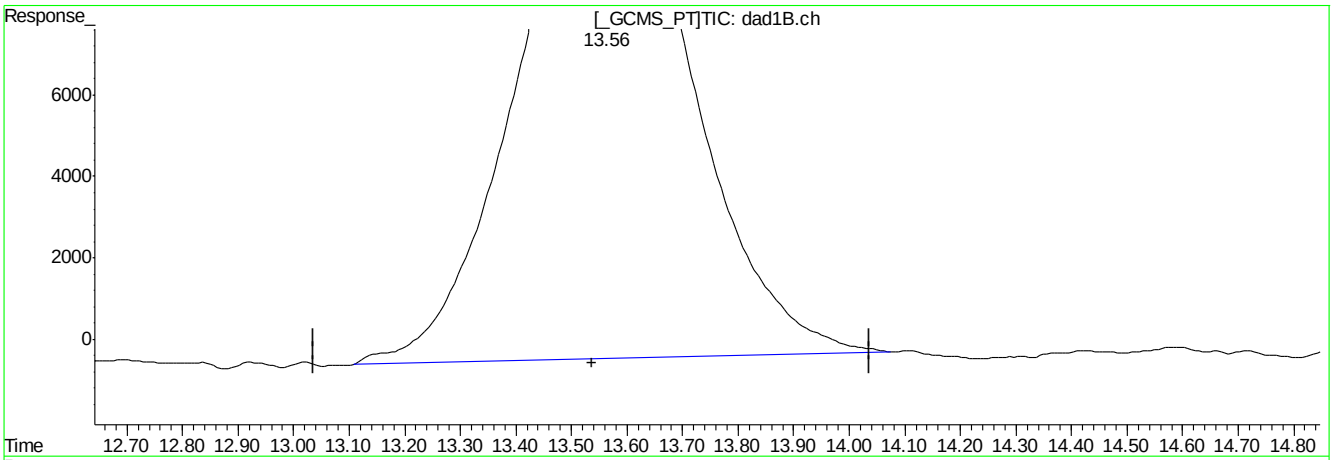
response 11730119

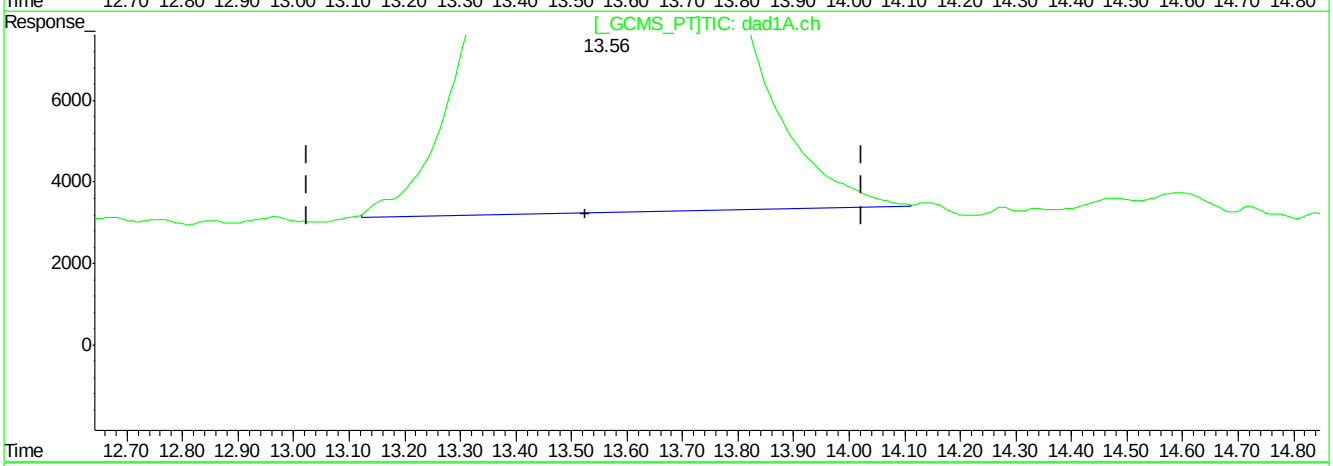
(+) = Expected Retention Time
GG618853.D 8330RPB.M_092519.M Thu May 07 15:35:51 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618853.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618853.D\dad1A.ch
Acq On : 06-May-2020, 17:26:44 Operator: williamh
Sample : FA74617-4cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 14:45 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration





QEdit

(12) 3,4-Dinitrotoluene (S)

13.56min 621.216ppb m

response 2805034

(12) 3,4-Dinitrotoluene #2 (S)

13.56min 597.667ppb m

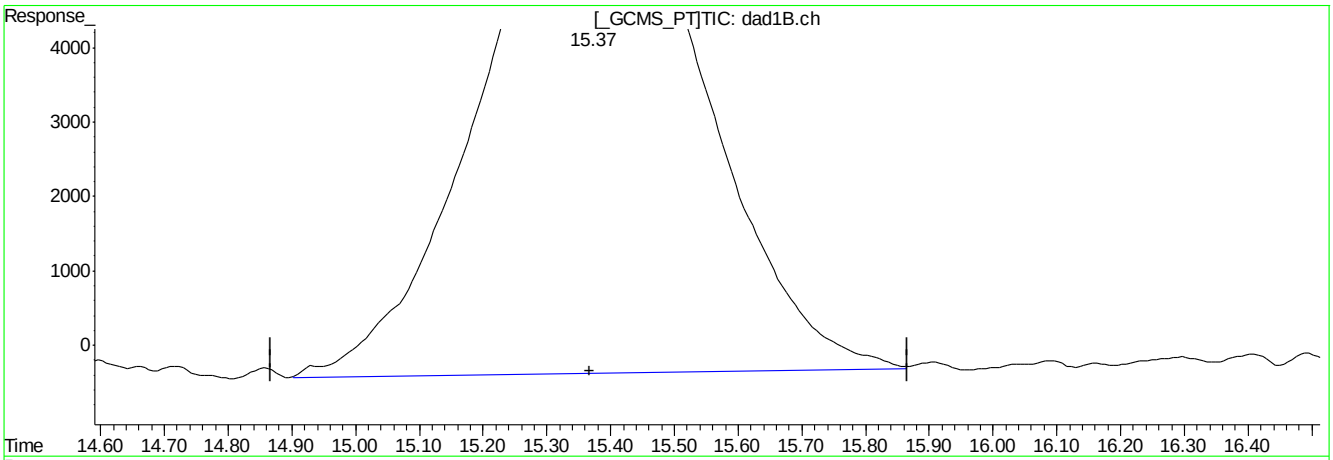
response 5368777

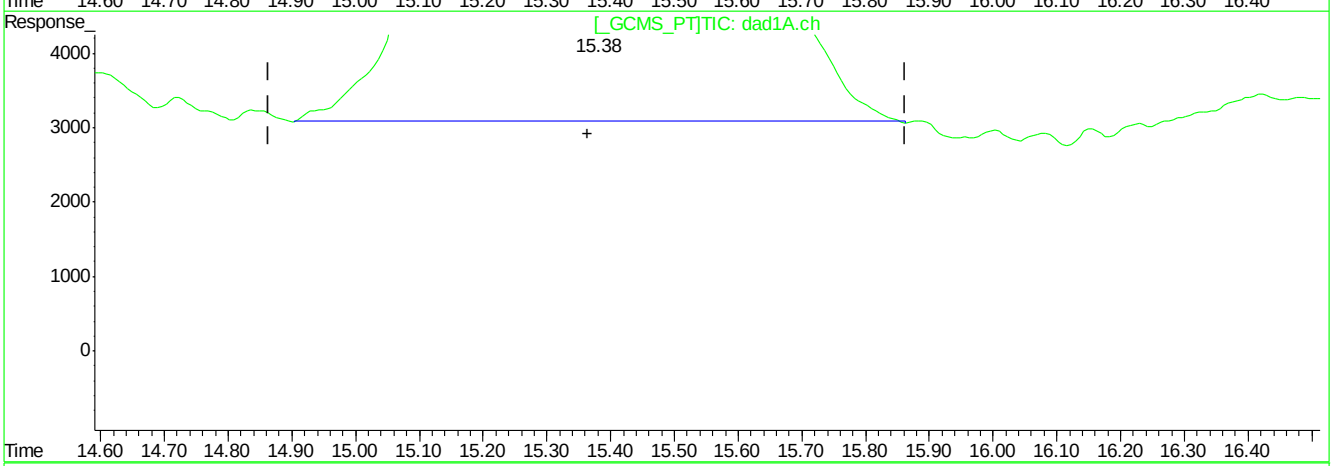
(+) = Expected Retention Time
GG618853.D 8330RPB.M_092519.M Thu May 07 15:36:03 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618853.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618853.D\dad1A.ch
Acq On : 06-May-2020, 17:26:44 Operator: williamh
Sample : FA74617-4cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 14:45 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration





QEdit

(16) 3,5-Dinitroaniline

15.37min 164.229ppb m

response 1675629

(16) 3,5-Dinitroaniline #2

15.38min 190.163ppb m

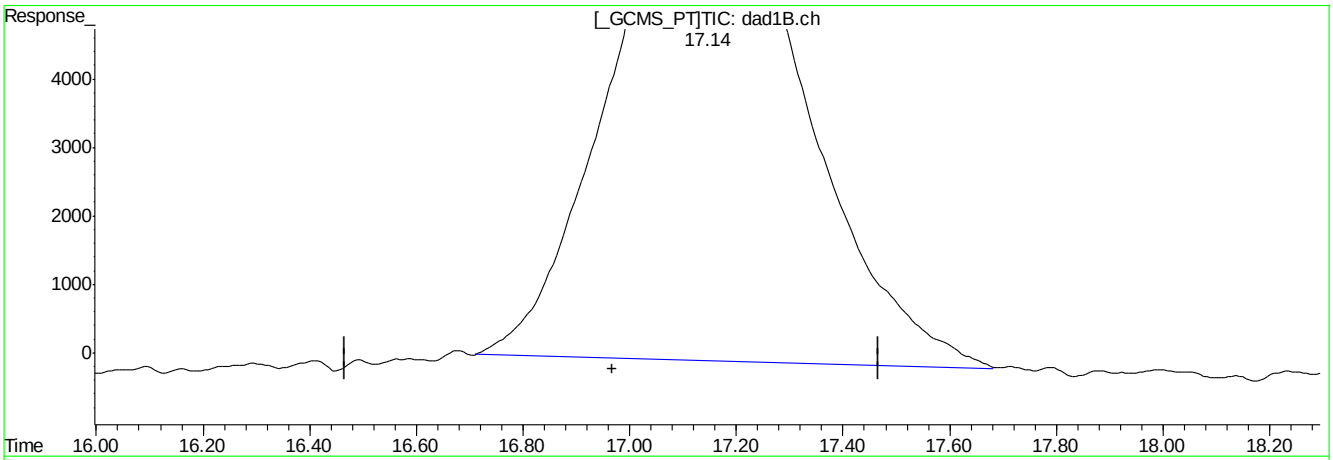
response 3156974

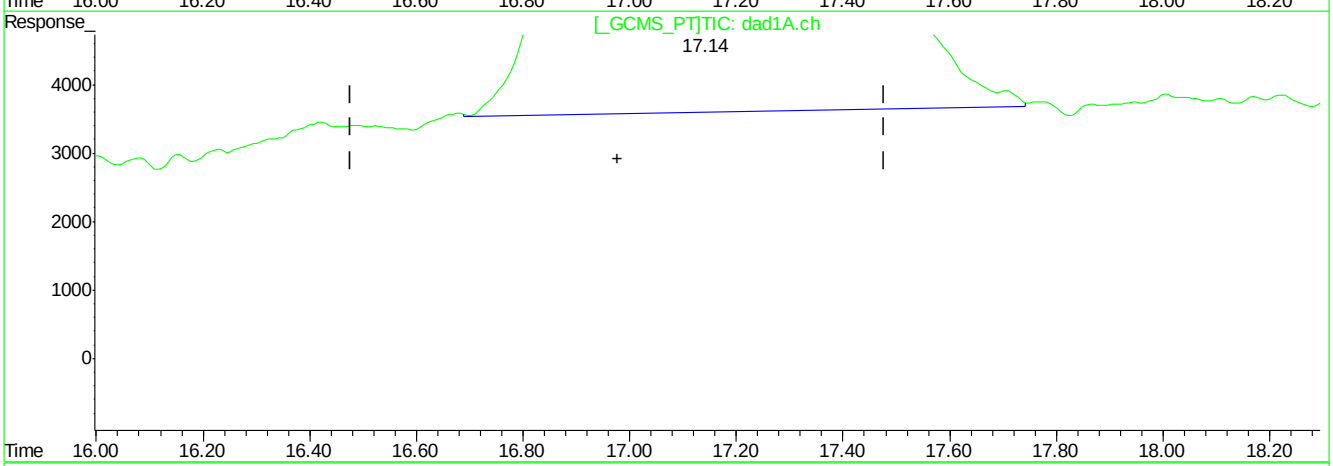
(+) = Expected Retention Time
GG618853.D 8330RPB.M_092519.M Thu May 07 15:36:14 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618853.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618853.D\dad1A.ch
Acq On : 06-May-2020, 17:26:44 Operator: williamh
Sample : FA74617-4cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 14:45 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration





QEdit

(18) 4-Amino-2,6-Dinitrotoluene

17.14min 159.803ppb m

response 1847704

(18) 4-Amino-2,6-Dinitrotoluene #2

17.14min 176.293ppb m

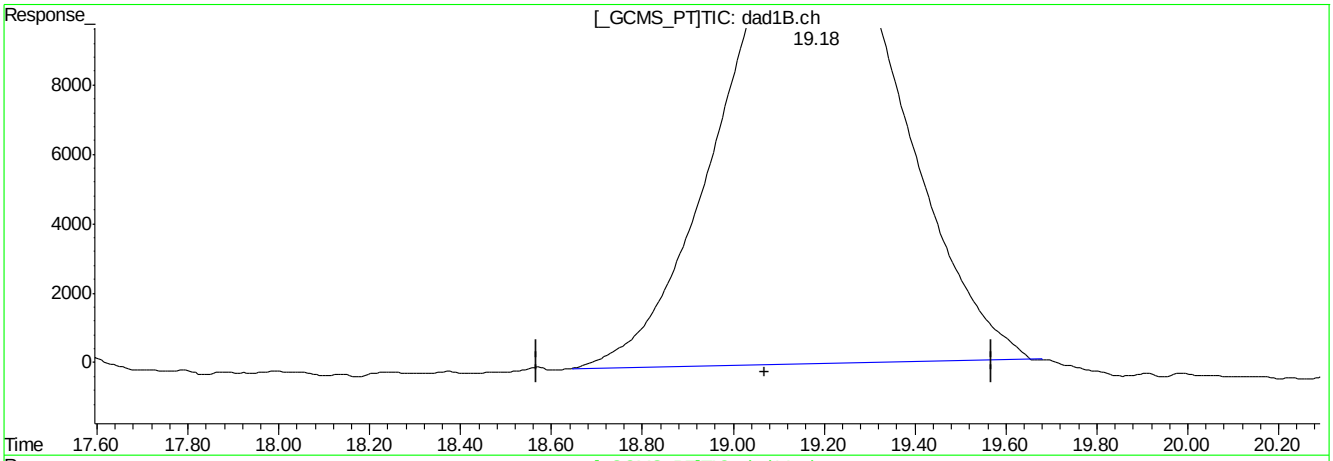
response 3828564

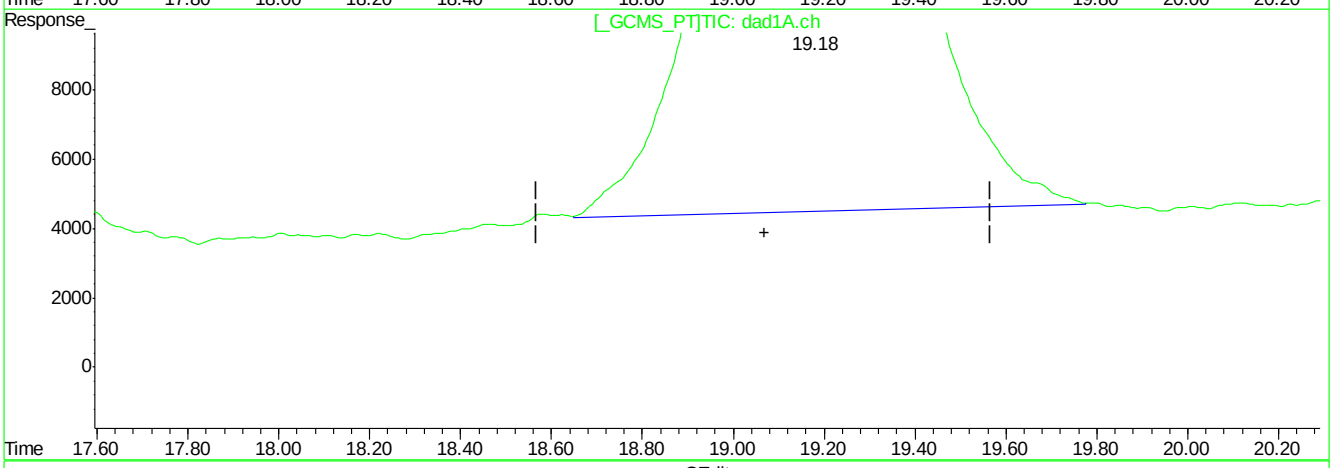
(+) = Expected Retention Time
GG618853.D 8330RPB.M_092519.M Thu May 07 15:36:25 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618853.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618853.D\dad1A.ch
Acq On : 06-May-2020, 17:26:44 Operator: williamh
Sample : FA74617-4cf Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 14:45 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration





QEdit

(20) 2-Amino-4,6-Dinitrotoluene

19.18min 374.718ppb m

response 3595674

(20) 2-Amino-4,6-Dinitrotoluene #2

19.18min 389.101ppb m

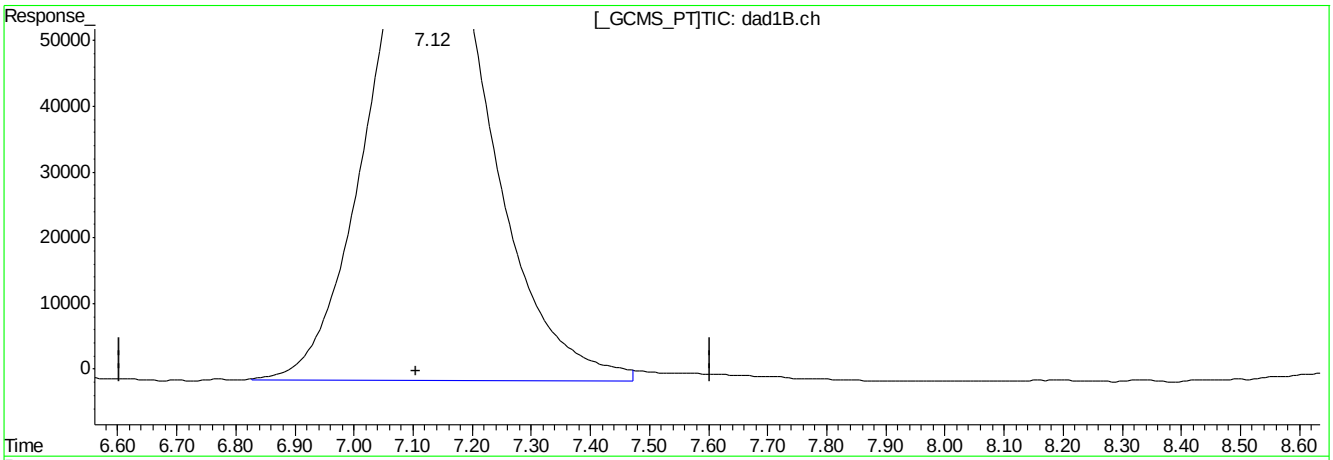
response 5459841

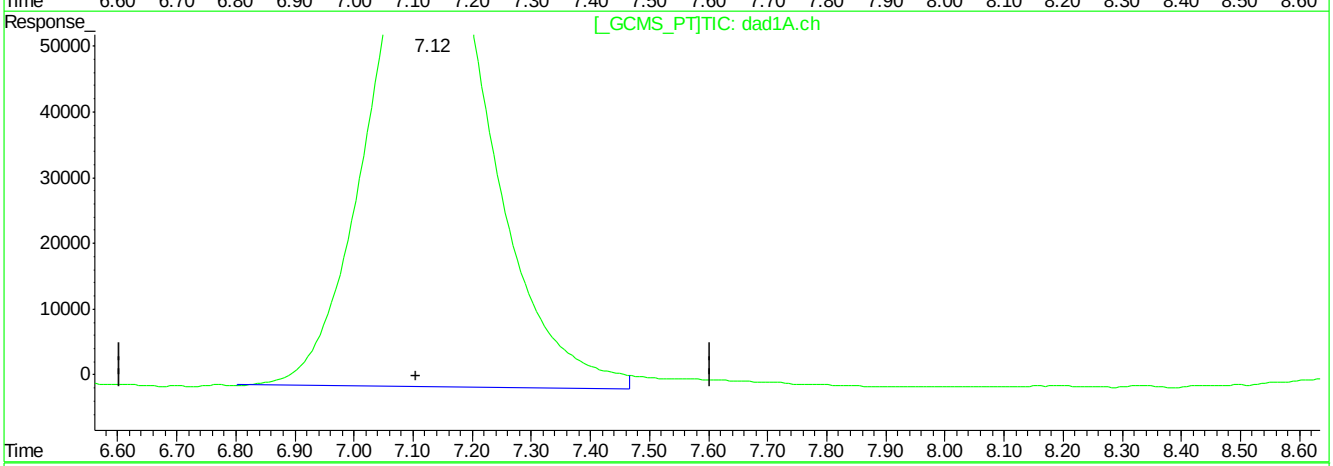
(+) = Expected Retention Time
GG618853.D 8330RPB.M_092519.M Thu May 07 15:36:34 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618853.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618853.D\dad1A.ch
Acq On : 06-May-2020, 17:26:44 Operator: williamh
Sample : FA74617-4cf Inst : G1315B
Misc : op80038,GGG2834,1060,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 15:36 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration





QEdit

(5) 1,3,5-Trinitrobenzene

7.12min 1032.849ppb m

response 10680963

(5) 1,3,5-Trinitrobenzene #2

7.12min 1038.103ppb m

response 10735292

(+) = Expected Retention Time
GG618853.D 8330RPB.M_092519.M Thu May 07 16:22:13 2020

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386874.D\dad1B.ch Vial: 15
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386874.D\dad1A.ch
Acq On : 04-May-2020, 20:20:00 Operator: williamh
Sample : FA74617-5 Inst : G1315B
Misc : op80038,GPP2268,1040,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 05 11:04:45 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Initial Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	11.10	11.10	1022531	1748361	513.947	507.087
	Spiked Amount 500.000	Range 70 - 136		Recovery =		102.79%	101.42%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	0.00	0.00	0	0	N.D. d	N.D. d
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D. d	N.D. d
5)	RDX	0.00	0.00	0	0	N.D. d	N.D. d
6)	1,3,5-Trinitrobe	0.00	0.00	0	0	N.D. d	N.D. d
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D. d	N.D. d
8)	3,5-Dinitroanili	0.00	0.00	0	0	N.D. d	N.D. d
9)	Nitrobenzene	0.00	0.00	0	0	N.D. d	N.D. d
10)	Nitroglycerin	0.00	0.00	0	0	N.D. d	N.D. d
11)	Tetryl	0.00	0.00	0	0	N.D. d	N.D. d
12)	2,4,6-Trinitroto	0.00	0.00	0	0	N.D. d	N.D. d
13)	2-Amino-4,6-Dini	0.00	0.00	0	0	N.D. d	N.D. d
14)	4-Amino-2,6-Dini	0.00	0.00	0	0	N.D. d	N.D. d
16)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
17)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
18)	o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
19)	p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20)	m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
21)	PETN	0.00	0.00	0	0	N.D. d	N.D. d

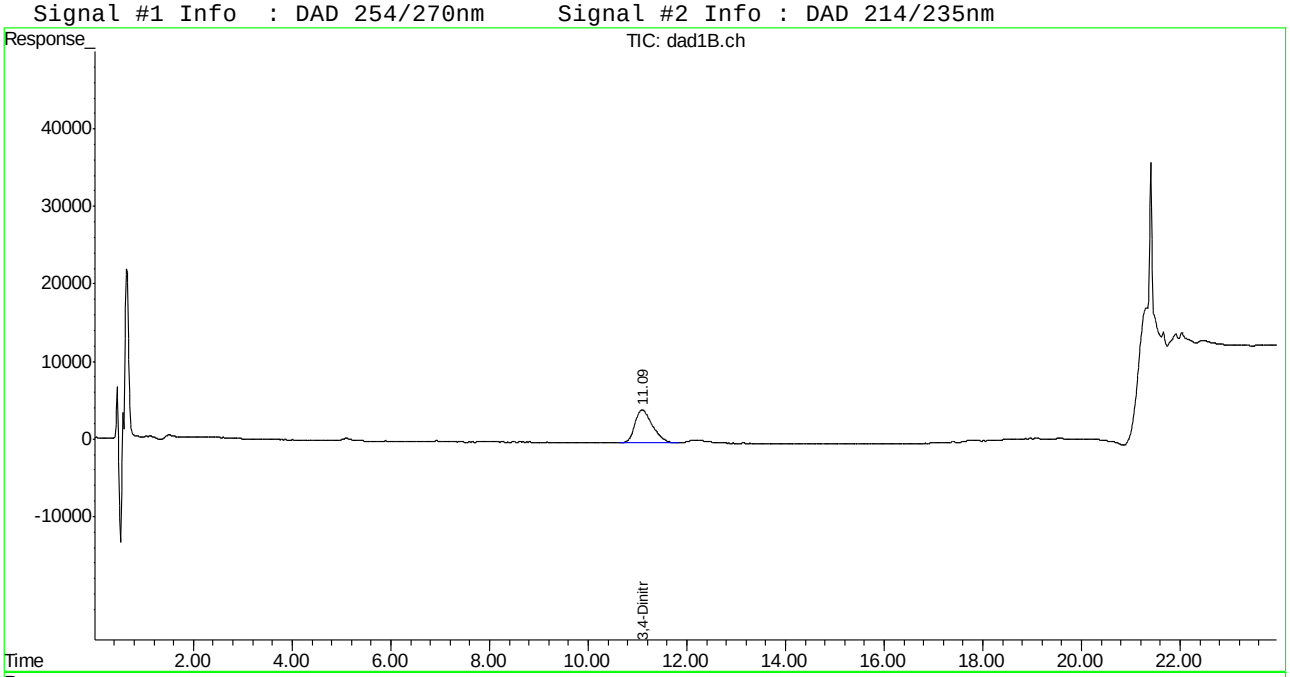
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
PP386874.D GPP2262_041620PRI.M Tue May 05 13:36:16 2020 Page 1

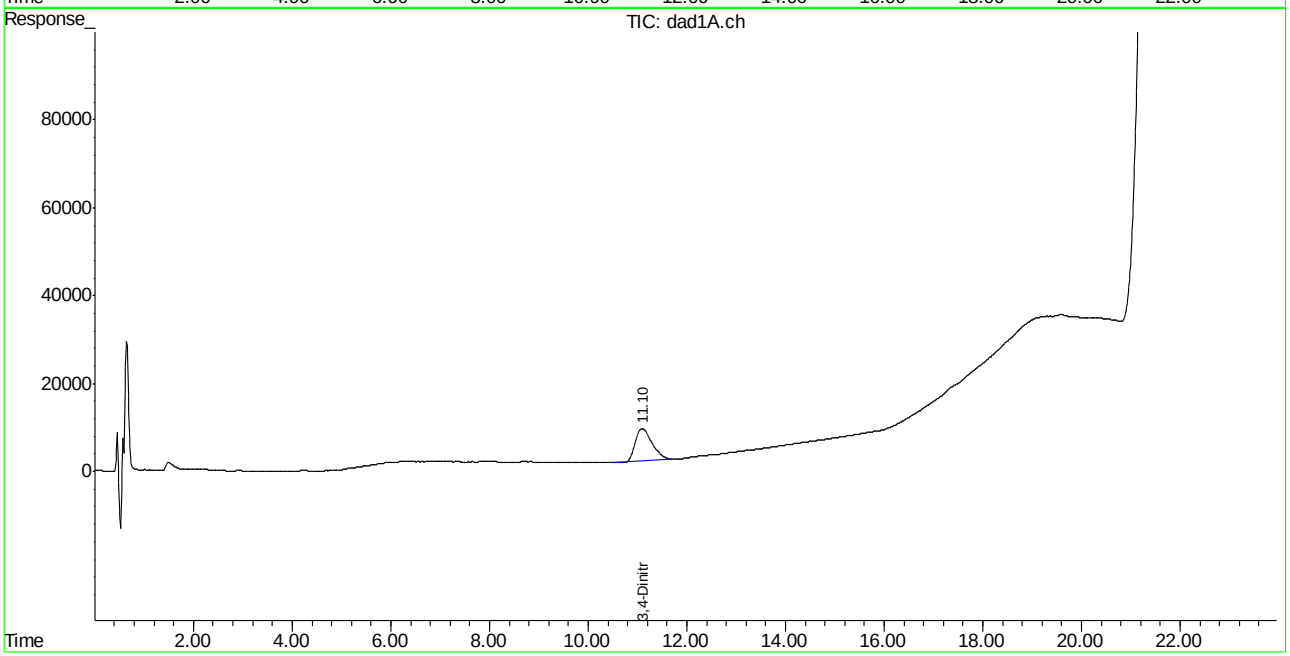
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386874.D\dad1B.ch Vial: 15
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386874.D\dad1A.ch
Acq On : 04-May-2020, 20:20:00 Operator: williamh
Sample : FA74617-5 Inst : G1315B
Misc : op80038,GPP2268,1040,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 13:24 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm





Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
05/05/20 17:24

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386867.D\dad1B.ch Vial: 10
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386867.D\dad1A.ch
Acq On : 04-May-2020, 16:43:27 Operator: williamh
Sample : op80038-MB Inst : G1315B
Misc : op80038,GPP2268,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 05 11:04:38 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Initial Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	11.07	11.07	1011234	1773207	508.269	514.219m
	Spiked Amount 500.000	Range 70 - 136		Recovery =		101.65%	102.84%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	0.00	0.00	0	0	N.D. d	N.D. d
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D. d	N.D. d
5)	RDX	0.00	0.00	0	0	N.D. d	N.D. d
6)	1,3,5-Trinitrobe	0.00	0.00	0	0	N.D. d	N.D. d
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D. d	N.D. d
8)	3,5-Dinitroanili	0.00	0.00	0	0	N.D. d	N.D. d
9)	Nitrobenzene	0.00	0.00	0	0	N.D. d	N.D. d
10)	Nitroglycerin	0.00	0.00	0	0	N.D. d	N.D. d
11)	Tetryl	0.00	0.00	0	0	N.D. d	N.D. d
12)	2,4,6-Trinitroto	0.00	0.00	0	0	N.D. d	N.D. d
13)	2-Amino-4,6-Dini	0.00	0.00	0	0	N.D. d	N.D. d
14)	4-Amino-2,6-Dini	0.00	0.00	0	0	N.D. d	N.D. d
16)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
17)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
18)	o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
19)	p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20)	m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
21)	PETN	0.00	0.00	0	0	N.D. d	N.D. d

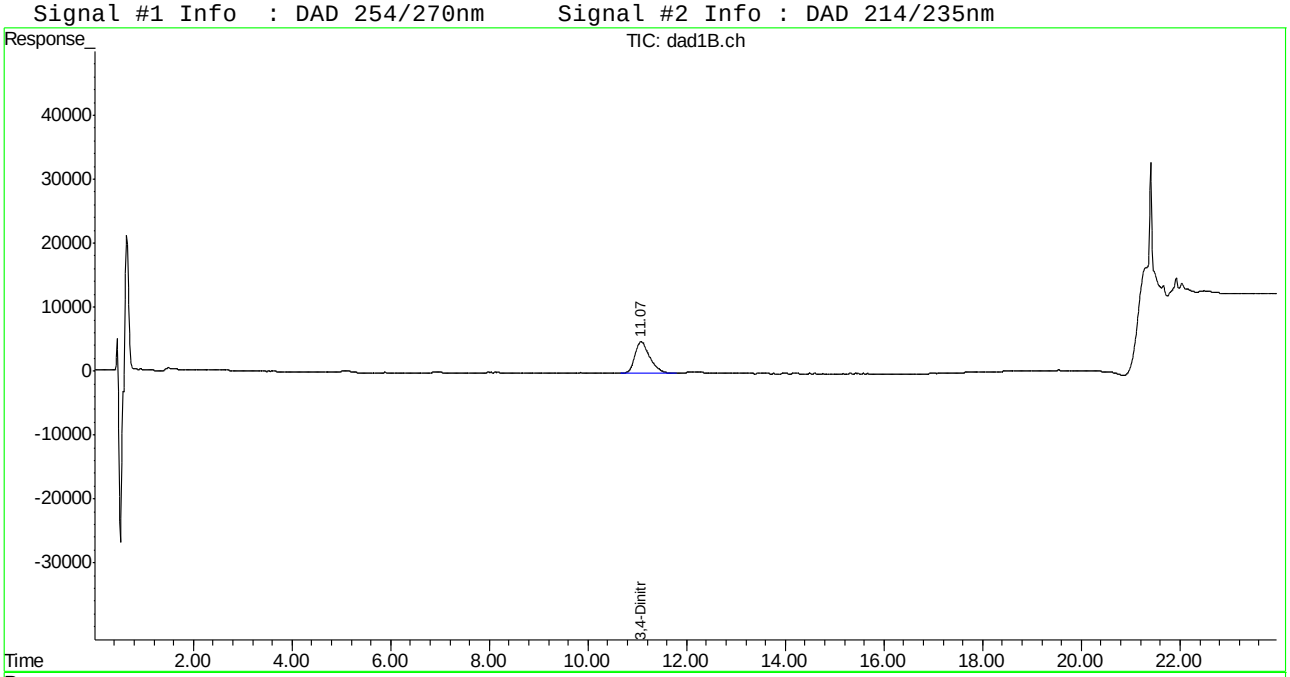
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
PP386867.D GPP2262_041620PRI.M Tue May 05 15:13:42 2020 Page 1

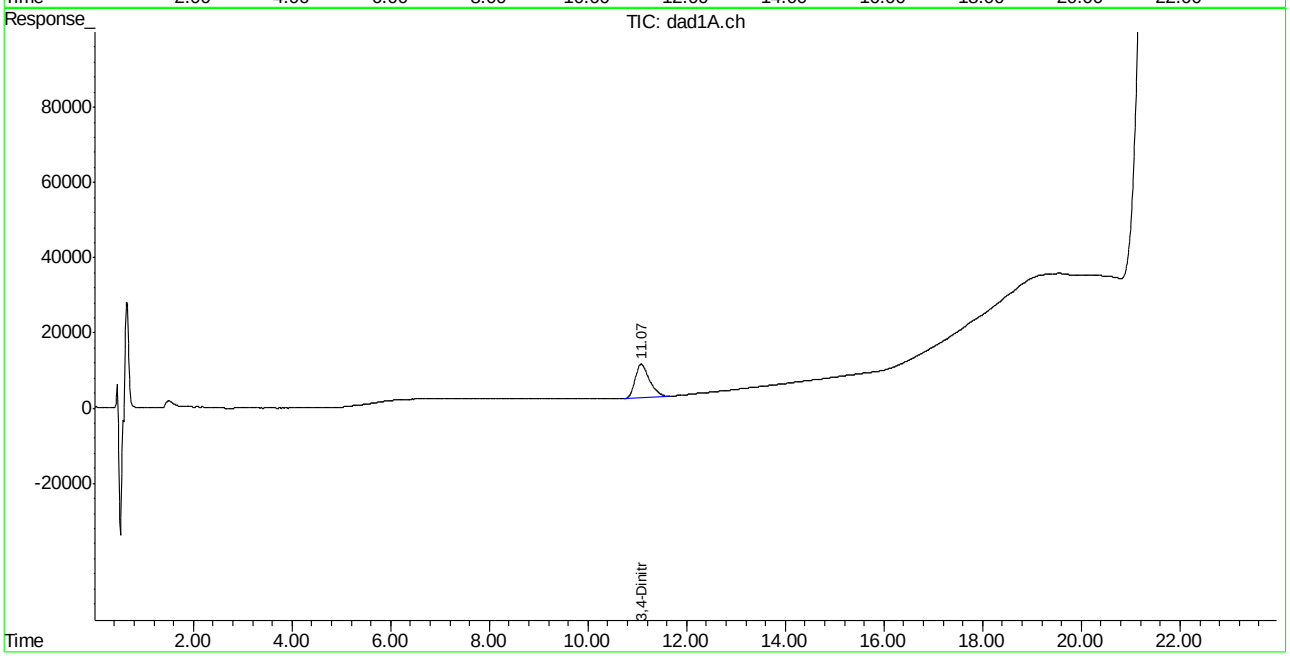
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386867.D\dad1B.ch Vial: 10
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386867.D\dad1A.ch
Acq On : 04-May-2020, 16:43:27 Operator: williamh
Sample : op80038-MB Inst : G1315B
Misc : op80038,GPP2268,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 15:13 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm





Manual Integration Approval Summary

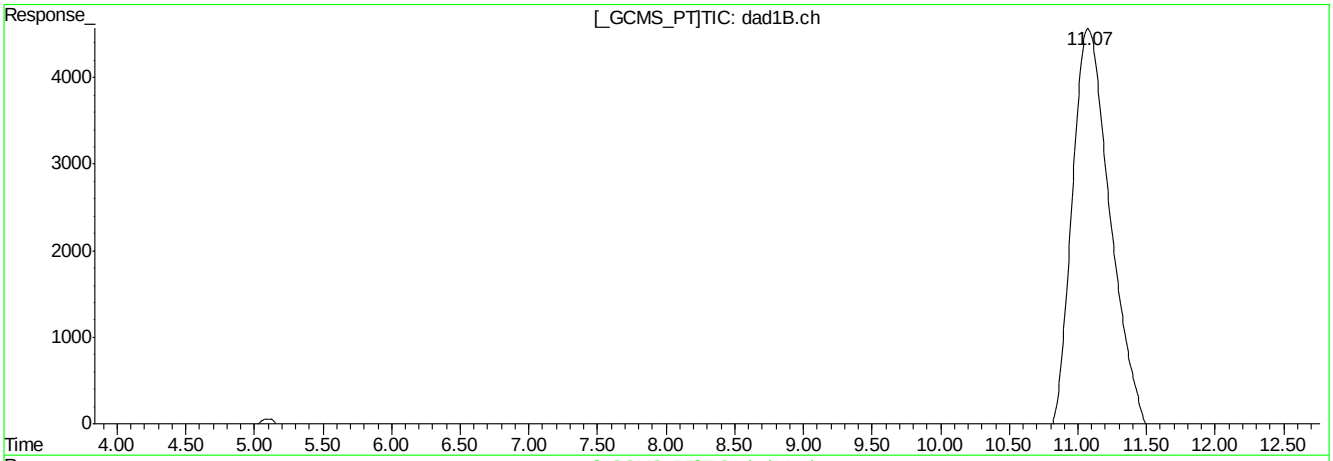
Sample Number: OP80038-MB
Lab FileID: PP386867.D
Injection Time: 05/04/20 16:43
Method: SW846 8330B
Analyst approved: 05/05/20 15:14 William Hustedde
Supervisor approved: 05/05/20 17:24 Naresh Jiawan

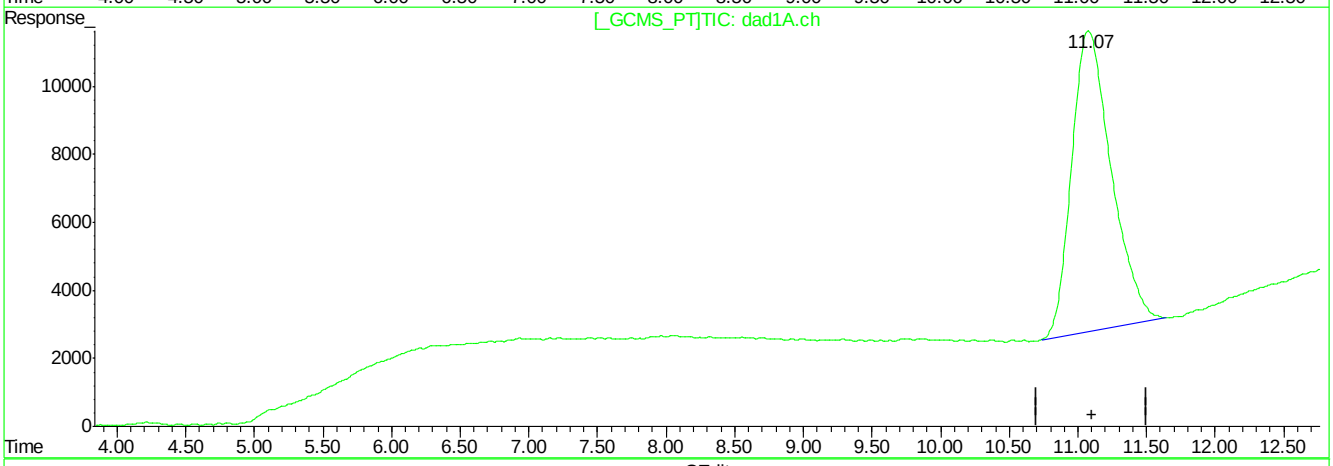
Parameter	CAS	Sig#	R.T. (min.)	Reason
3,4-Dinitrotoluene	610-39-9	2	11.07	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386867.D\dad1B.ch Vial: 10
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386867.D\dad1A.ch
Acq On : 04-May-2020, 16:43:27 Operator: williamh
Sample : op80038-MB Inst : G1315B
Misc : op80038,GPP2268,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 13:13 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(15) 3,4-Dinitrotoluene (S)

11.07min 508.269ppb

response 1011234

(15) 3,4-Dinitrotoluene #2 (S)

11.07min 514.219ppb m

response 1773207

(+) = Expected Retention Time
PP386867.D GPP2262_041620PRI.M Tue May 05 15:13:30 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
05/08/20 16:40

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618848.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618848.D\dad1A.ch
Acq On : 06-May-2020, 14:59:34 Operator: williamh
Sample : op80038-MB Inst : G1315B
Misc : op80038,GGG2834,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 07 14:45:30 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.49	13.49	2620940	5158795	580.446m	574.344
	Spiked Amount 500.000	Range 70 - 136		Recovery =		116.09%	114.87%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	0.00	0.00	0	0	N.D. d	N.D. d
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D. d	N.D. d
5)	1,3,5-Trinitrobe	0.00	0.00	0	0	N.D. d	N.D. d
6)	RDX	0.00	0.00	0	0	N.D. d	N.D. d
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D. d	N.D. d
8)	Nitrobenzene	0.00	0.00	0	0	N.D. d	N.D. d
9)	2,4,6-Trinitroto	0.00	0.00	0	0	N.D. d	N.D. d
10)	Nitroglycerin	0.00	0.00	0	0	N.D. d	N.D. d
11)	Tetryl	0.00	0.00	0	0	N.D. d	N.D. d
13)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
14)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
15)	o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
16)	3,5-Dinitroanili	0.00	0.00	0	0	N.D. d	N.D. d
17)	p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
18)	4-Amino-2,6-Dini	0.00	0.00	0	0	N.D. d	N.D. d
19)	m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20)	2-Amino-4,6-Dini	0.00	0.00	0	0	N.D. d	N.D. d
21)	PETN	0.00	0.00	0	0	N.D. d	N.D. d

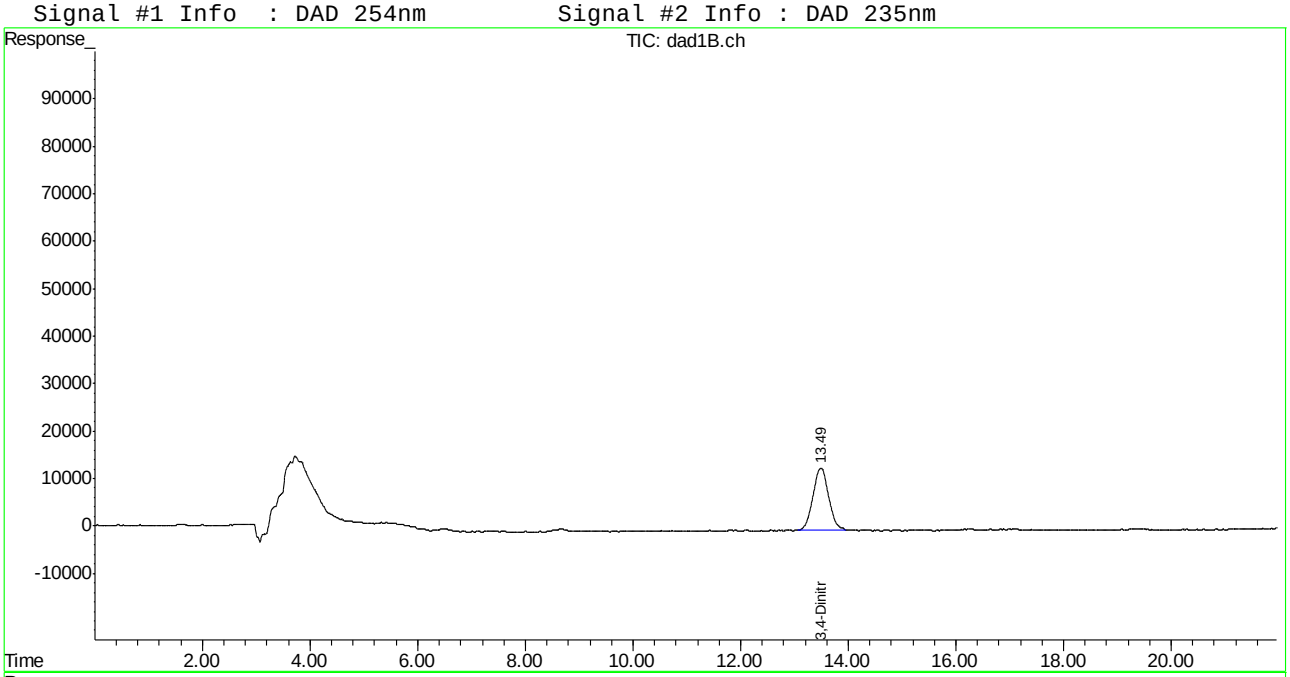
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
GG618848.D 8330RPB.M_092519.M Thu May 07 16:03:12 2020 Page 1

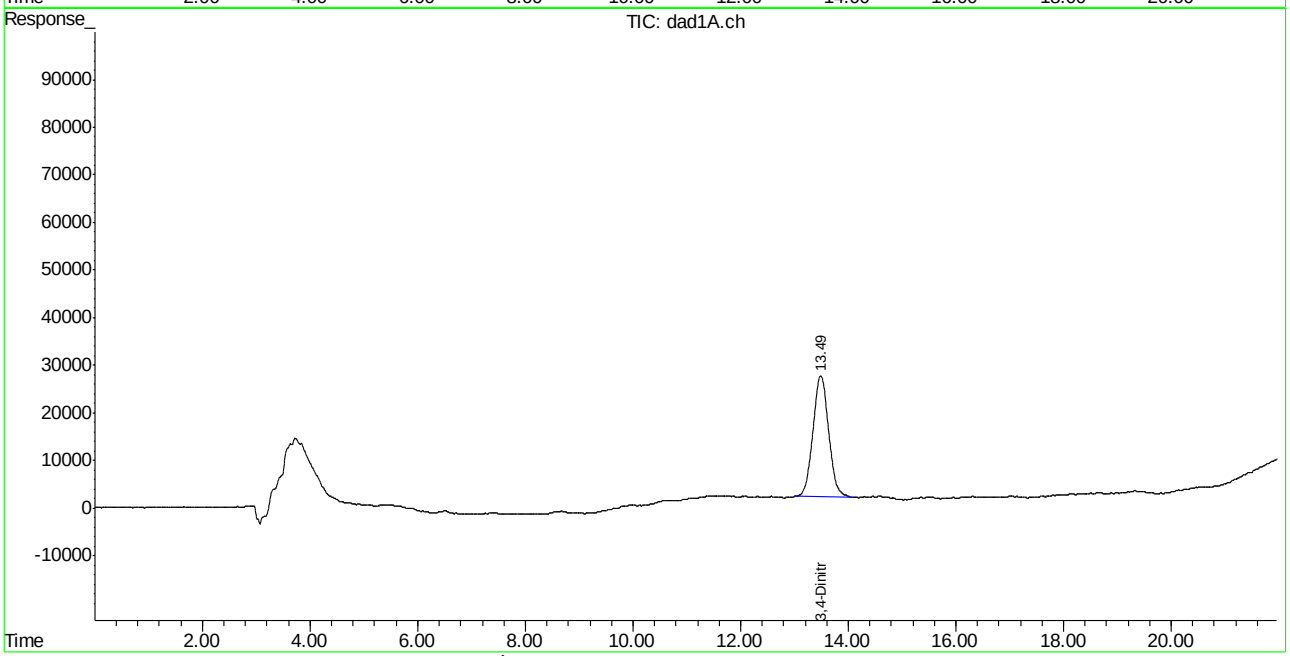
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618848.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618848.D\dad1A.ch
Acq On : 06-May-2020, 14:59:34 Operator: williamh
Sample : op80038-MB Inst : G1315B
Misc : op80038,GGG2834,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 15:27 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

Sample Number: OP80038-MB
Lab FileID: GG618848.D
Injection Time: 05/06/20 14:59

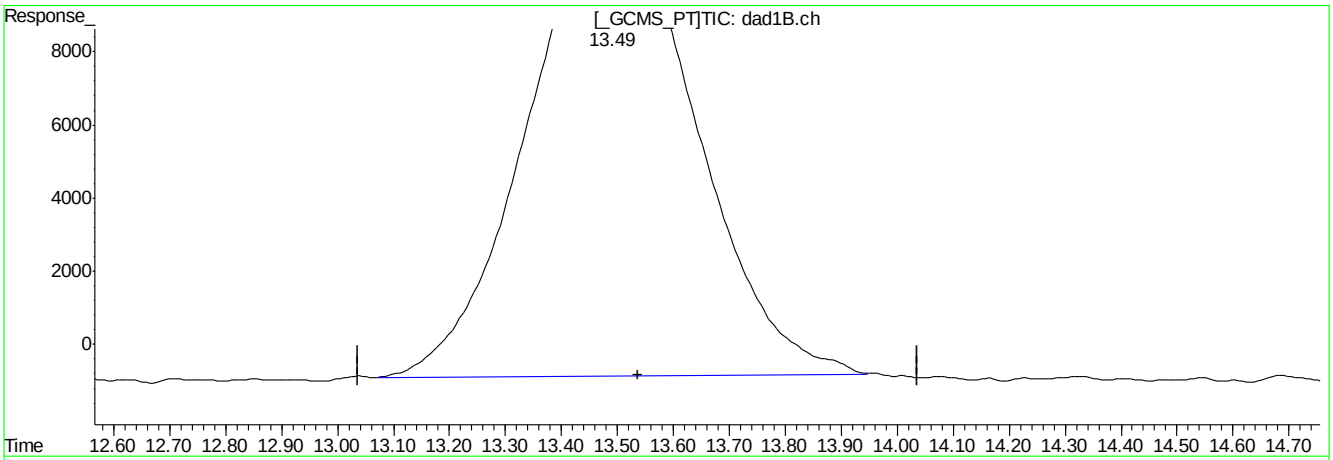
Method: SW846 8330B
Analyst approved: 05/07/20 16:18 William Hustedde
Supervisor approved: 05/08/20 16:40 Naresh Jiawan

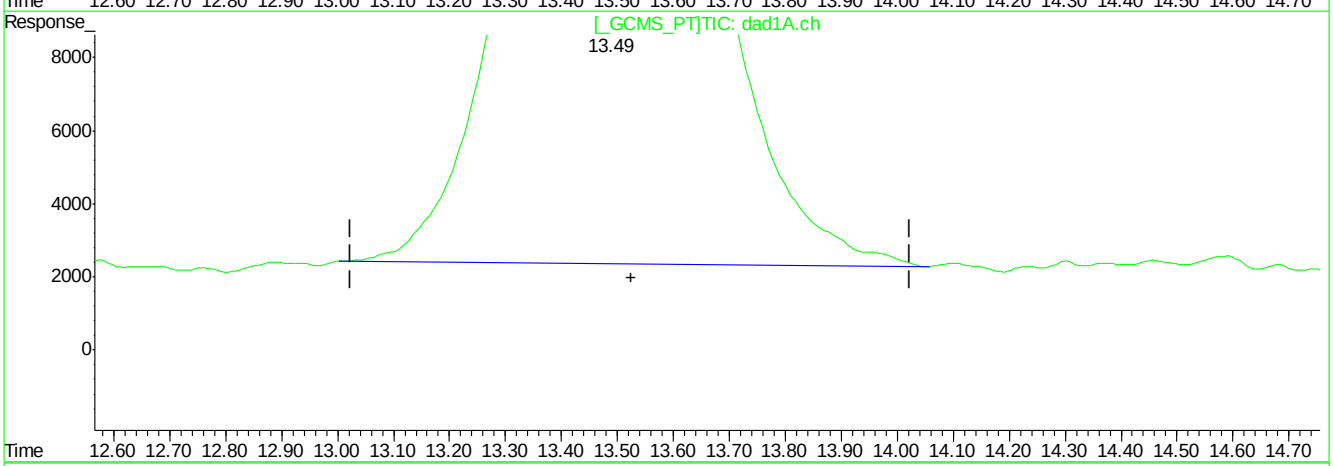
Parameter	CAS	Sig#	R.T. (min.)	Reason
3,4-Dinitrotoluene	610-39-9	1	13.49	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618848.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618848.D\dad1A.ch
Acq On : 06-May-2020, 14:59:34 Operator: williamh
Sample : op80038-MB Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 14:45 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration





QEdit

(12) 3,4-Dinitrotoluene (S)

13.49min 580.446ppb m

response 2620940

(12) 3,4-Dinitrotoluene #2 (S)

13.49min 574.344ppb

response 5158795

(+) = Expected Retention Time
GG618848.D 8330RPB.M_092519.M Thu May 07 15:27:54 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
05/05/20 17:24

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386866.D\dad1B.ch Vial: 9
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386866.D\dad1A.ch
Acq On : 04-May-2020, 16:12:32 Operator: williamh
Sample : op80038-BS Inst : G1315B
Misc : op80038,GPP2268,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 05 11:04:37 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Initial Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	11.06	11.06	1110599	1586373	558.212	460.538
	Spiked Amount 500.000	Range 70 - 136		Recovery =		111.64%	92.11%
	Target Compounds						
1)	TNX	1.32	1.32	796067	1252865	354.915	340.760
2)	HMX	1.46	1.46	766589	2225692	478.629	473.013
3)	DNX	1.71	1.71	559132	927019	491.249	478.172
4)	MNX	2.30	2.30	1025224	1615811	455.166	463.756
5)	RDX	2.92	2.92	884276	1441071	445.413	445.034
6)	1,3,5-Trinitrobe	4.69	4.69	1844605	3623600	453.106m	461.821m
7)	1,3-Dinitrobenze	5.89	5.89	2522711	1762015	458.768	451.372m
8)	3,5-Dinitroanili	6.25	6.25	1932407	3278319	461.479	435.623m
9)	Nitrobenzene	7.42	7.42	1512287	1471812	456.683	454.578m
10)	Nitroglycerin	0.00	8.86	0	489784	N.D.	430.536 #
11)	Tetryl	9.33	9.33	1167196	1852617	406.870	406.374
12)	2,4,6-Trinitroto	9.75	9.75	1649767	1883583	435.690	440.390
13)	2-Amino-4,6-Dini	10.15	10.15	1691359	2327036	474.650	467.703
14)	4-Amino-2,6-Dini	10.59	10.59	1216705	2195515	449.843	428.403
16)	2,4-Dinitrotolue	11.75	11.75	2103049	1074207	440.609	386.110
17)	2,6-Dinitrotolue	12.15	12.17	1565047	1770999	525.297	464.037
18)	o-Nitrotoluene	15.22	15.22	1000959	1350225	424.086	455.233m
19)	p-Nitrotoluene	15.77	15.78	1714710	1179967	450.318	408.872
20)	m-Nitrotoluene	16.63	16.64	1585451	1823632	451.071	446.622
21)	PETN	0.00	18.31	0	661144	N.D.	511.527m#

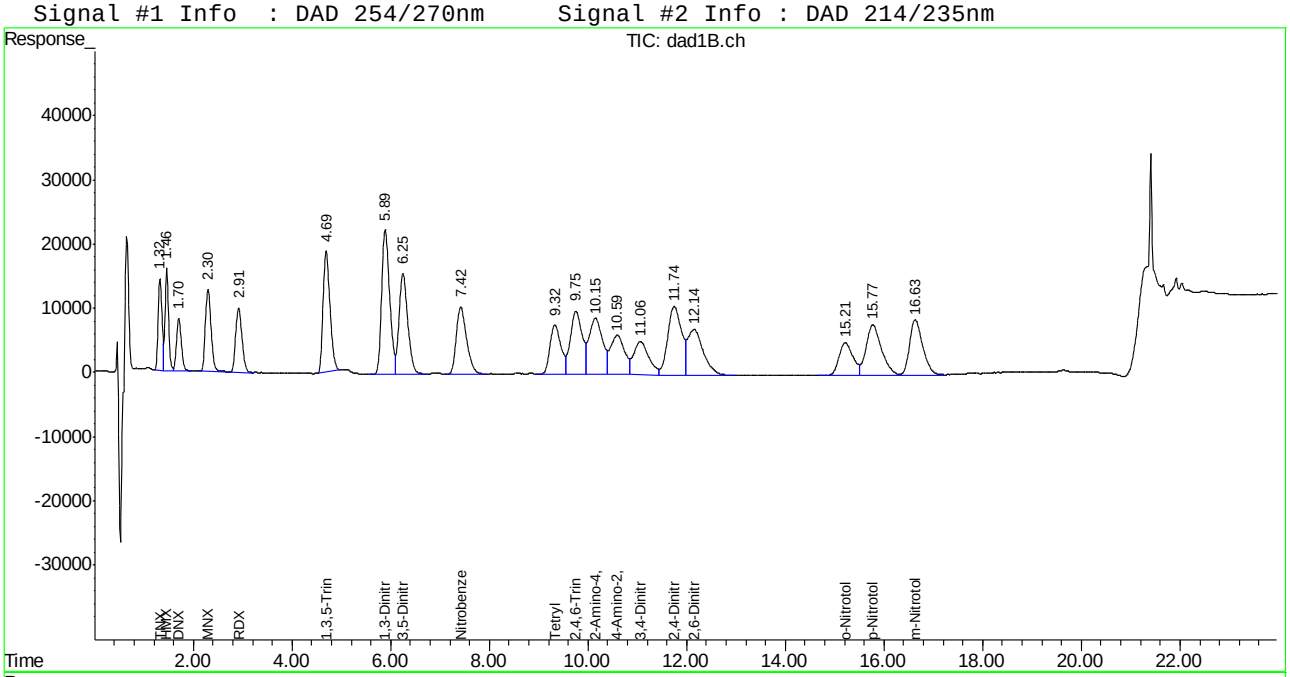
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
PP386866.D GPP2262_041620PRI.M Tue May 05 13:36:09 2020 Page 1

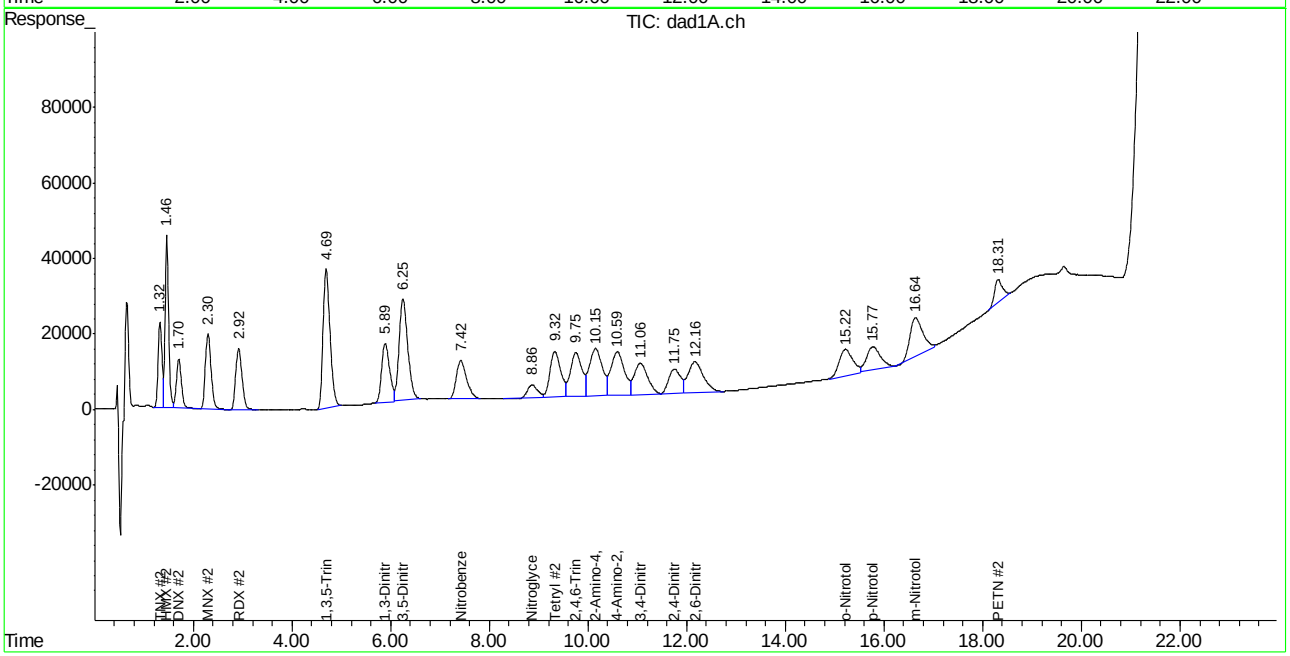
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386866.D\dad1B.ch Vial: 9
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386866.D\dad1A.ch
Acq On : 04-May-2020, 16:12:32 Operator: williamh
Sample : op80038-BS Inst : G1315B
Misc : op80038,GPP2268,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 13:13 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm





Manual Integration Approval Summary

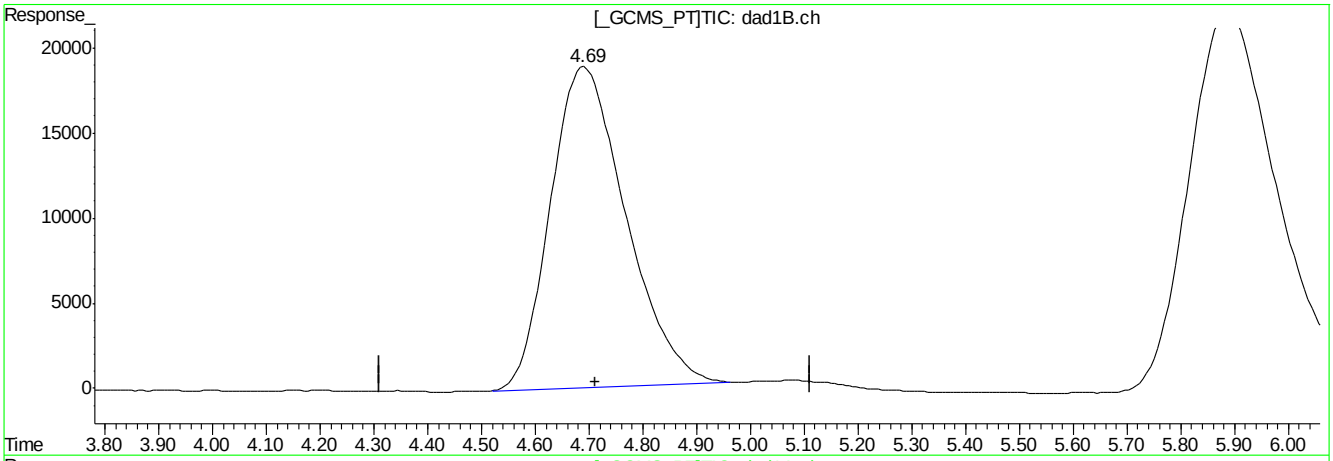
Sample Number: OP80038-BS
Lab FileID: PP386866.D
Injection Time: 05/04/20 16:12
Method: SW846 8330B
Analyst approved: 05/05/20 15:14 William Hustedde
Supervisor approved: 05/05/20 17:24 Naresh Jiawan

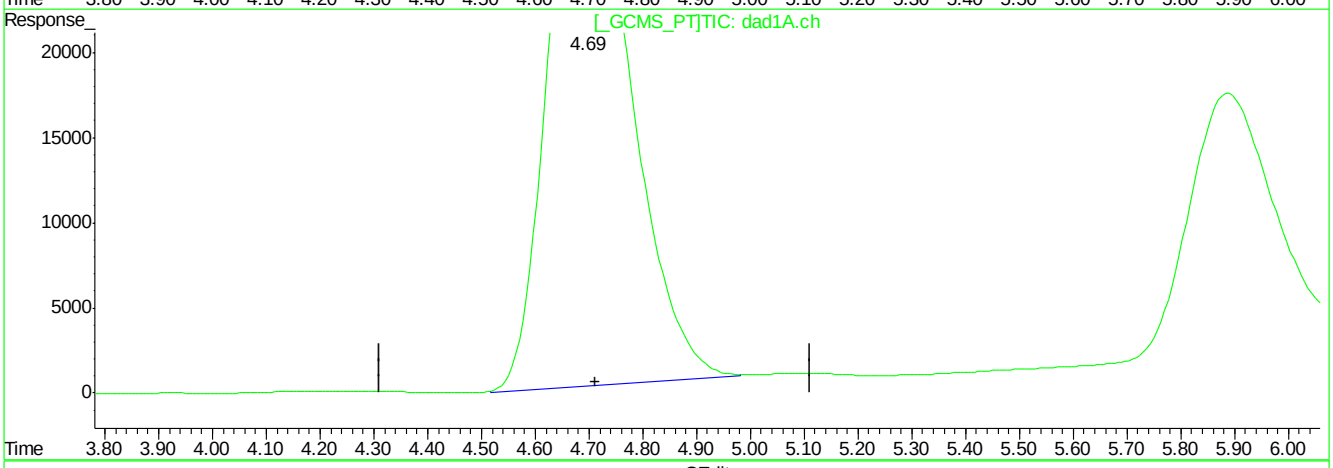
Parameter	CAS	Sig#	R.T. (min.)	Reason
1,3,5-Trinitrobenzene	99-35-4	1	4.69	Poor instrument integration
1,3,5-Trinitrobenzene	99-35-4	2	4.69	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	5.89	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	6.25	Poor instrument integration
Nitrobenzene	98-95-3	2	7.42	Poor instrument integration
o-Nitrotoluene	88-72-2	2	15.22	Poor instrument integration
PETN	78-11-5	2	18.31	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386866.D\dad1B.ch Vial: 9
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386866.D\dad1A.ch
Acq On : 04-May-2020, 16:12:32 Operator: williamh
Sample : op80038-BS Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 11:04 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(6) 1,3,5-Trinitrobenzene

4.69min 453.106ppb m

response 1844605

(6) 1,3,5-Trinitrobenzene #2

4.69min 461.821ppb m

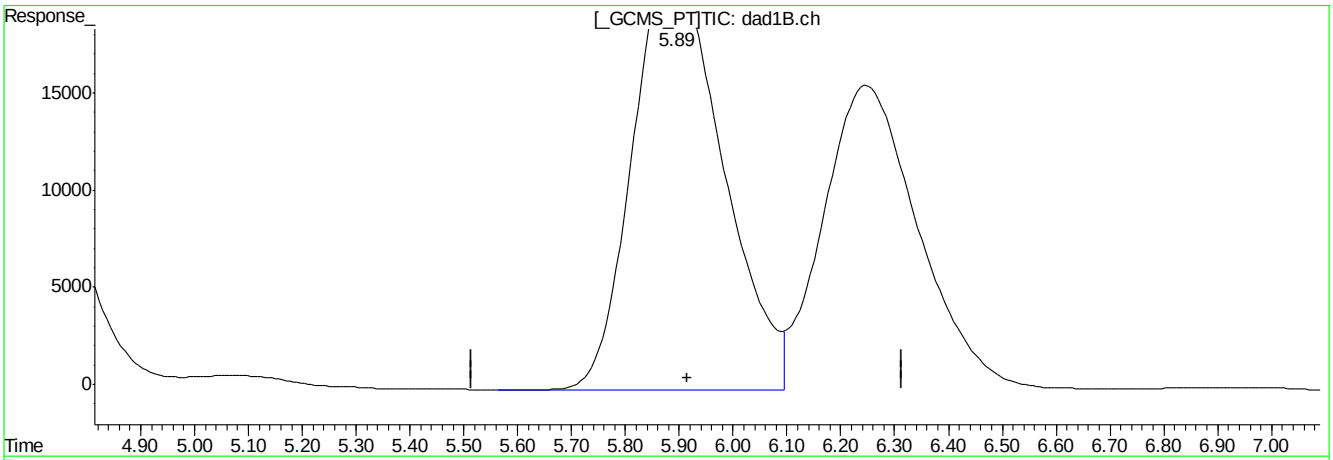
response 3623600

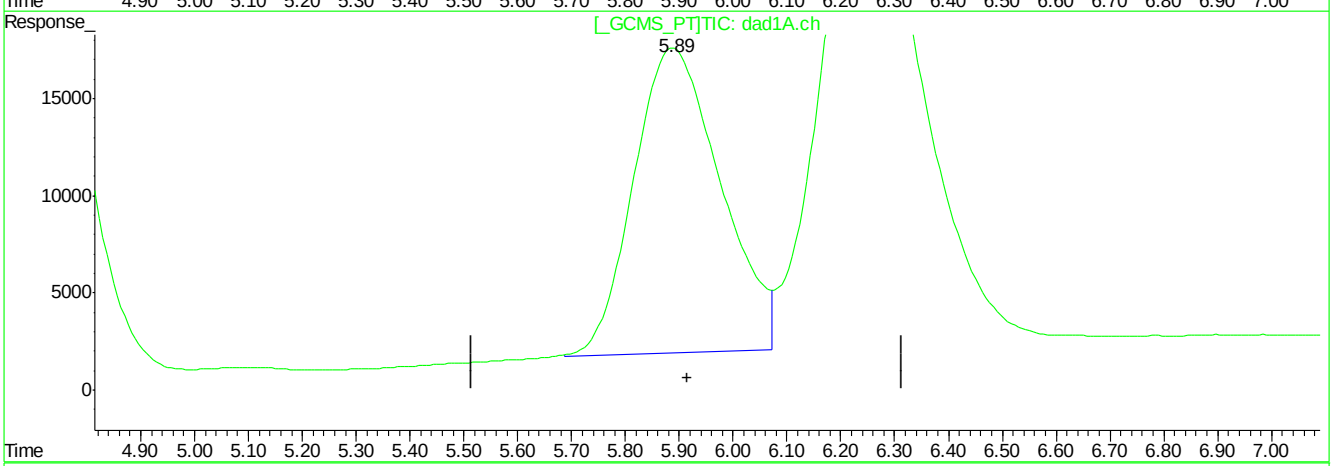
(+) = Expected Retention Time
PP386866.D GPP2262_041620PRI.M Tue May 05 13:12:14 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386866.D\dad1B.ch Vial: 9
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386866.D\dad1A.ch
Acq On : 04-May-2020, 16:12:32 Operator: williamh
Sample : op80038-BS Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 11:04 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

5.89min 458.768ppb

response 2522711

(7) 1,3-Dinitrobenzene #2

5.89min 451.372ppb m

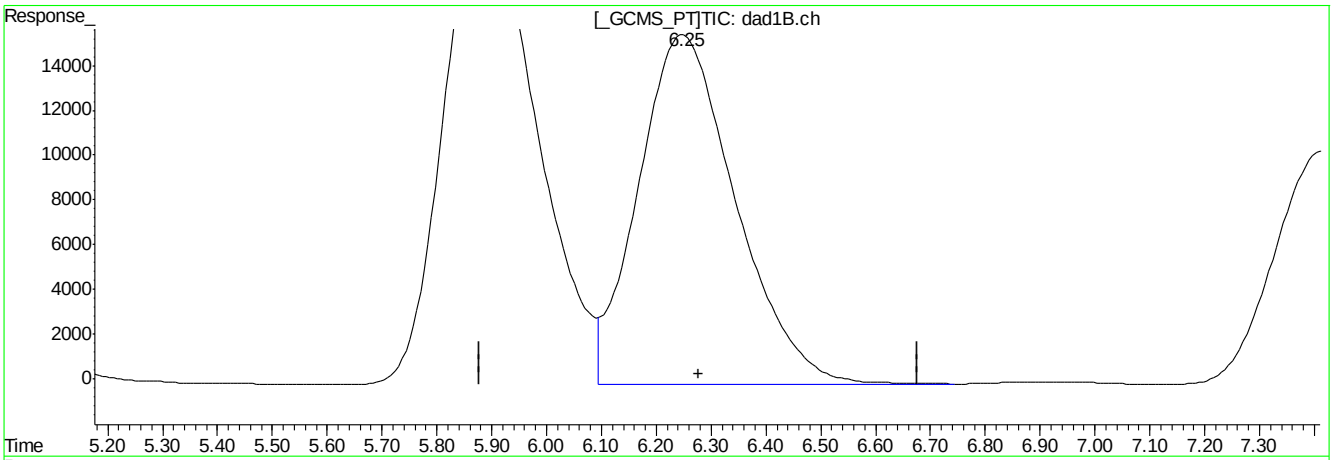
response 1762015

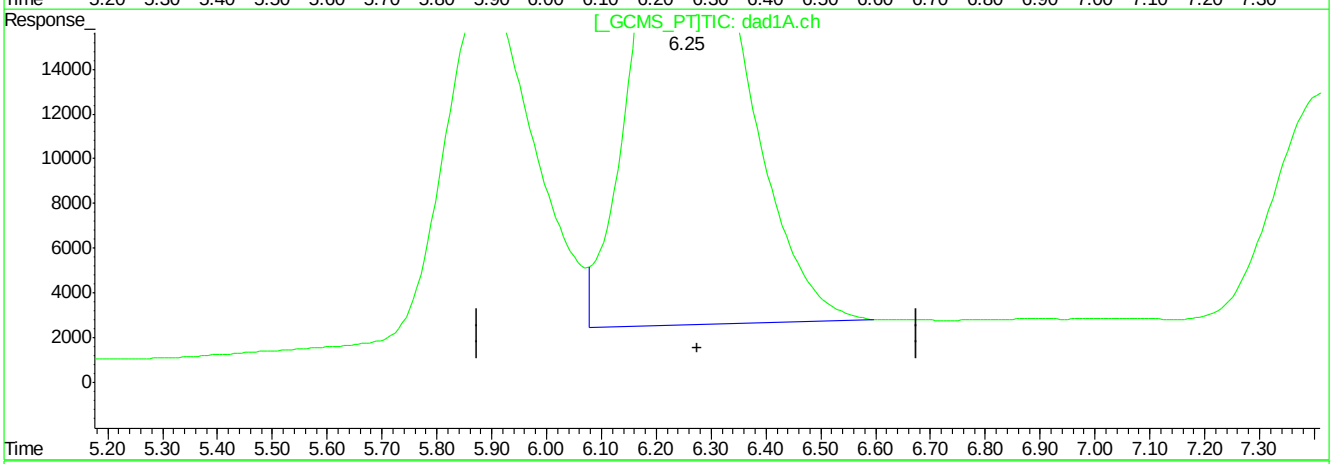
(+) = Expected Retention Time
PP386866.D GPP2262_041620PRI.M Tue May 05 13:12:21 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386866.D\dad1B.ch Vial: 9
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386866.D\dad1A.ch
Acq On : 04-May-2020, 16:12:32 Operator: williamh
Sample : op80038-BS Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 11:04 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.25min 461.479ppb

response 1932407

(8) 3,5-Dinitroaniline #2

6.25min 435.623ppb m

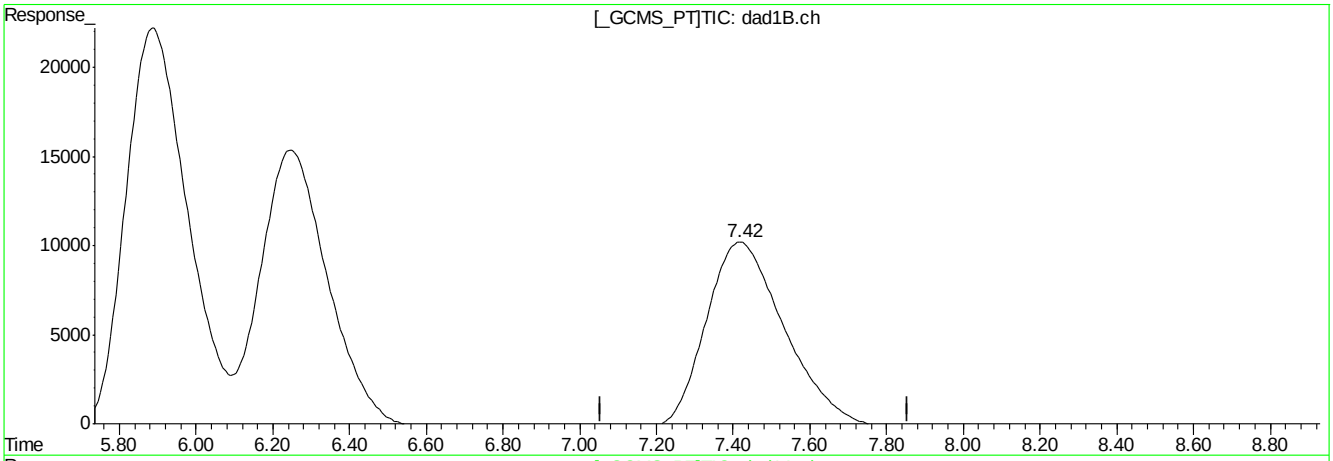
response 3278319

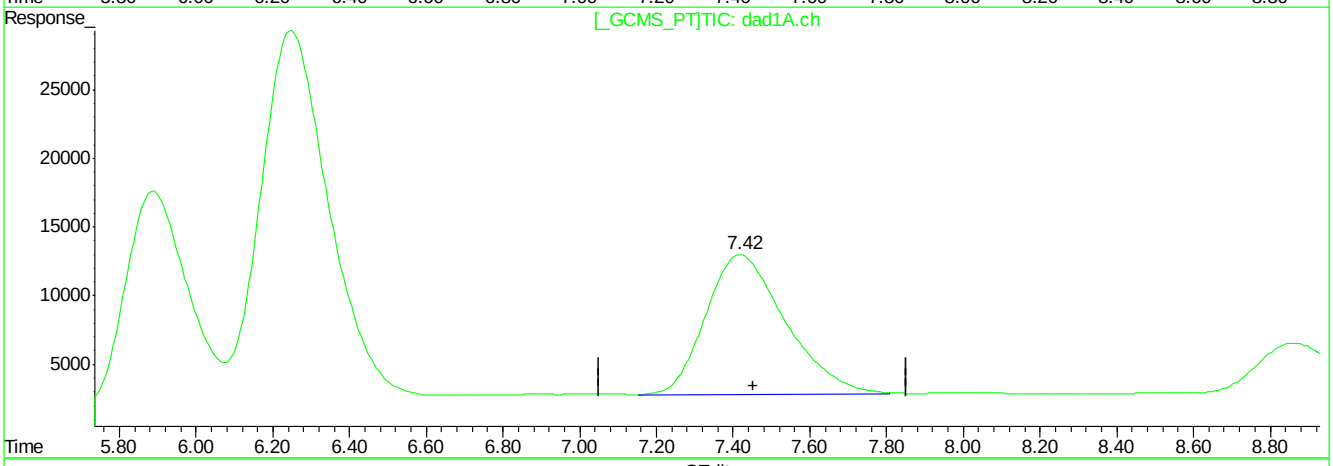
(+) = Expected Retention Time
PP386866.D GPP2262_041620PRI.M Tue May 05 13:13:15 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386866.D\dad1B.ch Vial: 9
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386866.D\dad1A.ch
Acq On : 04-May-2020, 16:12:32 Operator: williamh
Sample : op80038-BS Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 11:04 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(9) Nitrobenzene

7.42min 456.683ppb

response 1512287

(9) Nitrobenzene #2

7.42min 454.578ppb m

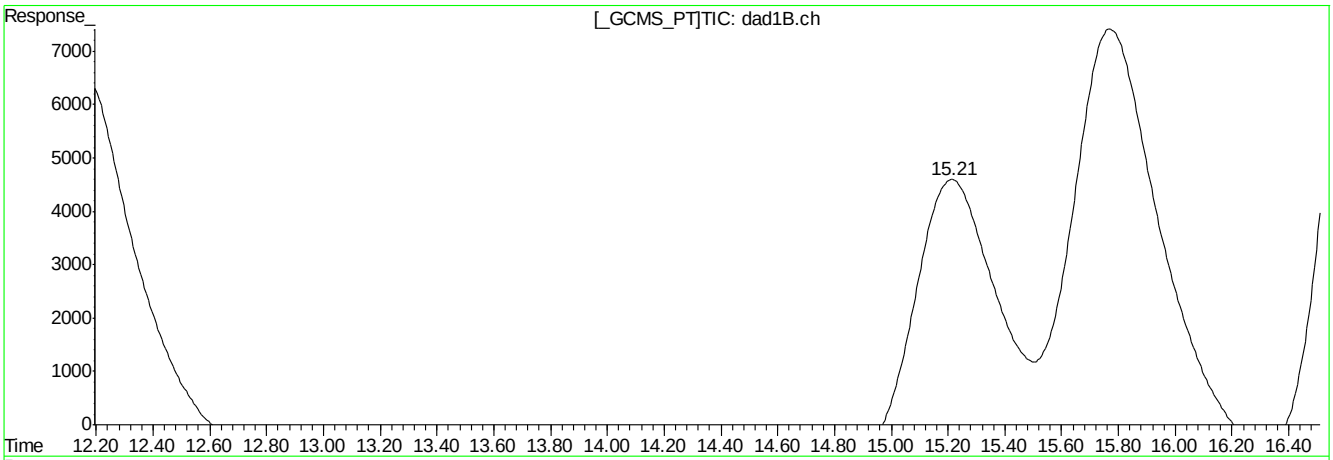
response 1471812

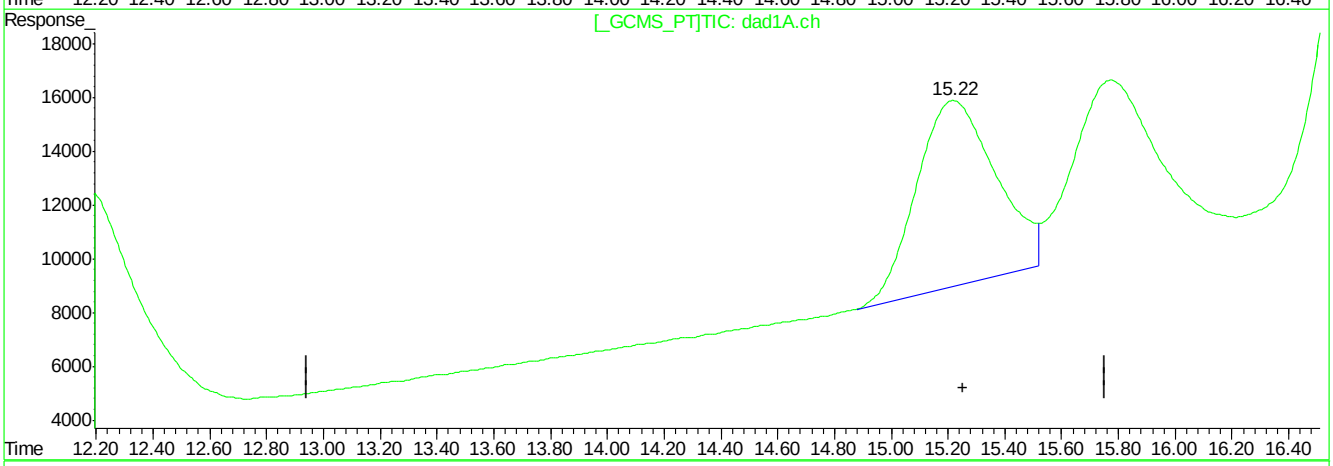
(+) = Expected Retention Time
PP386866.D GPP2262_041620PRI.M Tue May 05 13:13:22 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386866.D\dad1B.ch Vial: 9
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386866.D\dad1A.ch
Acq On : 04-May-2020, 16:12:32 Operator: williamh
Sample : op80038-BS Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 11:04 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(18) o-Nitrotoluene

15.22min 424.086ppb

response 1000959

(18) o-Nitrotoluene #2

15.22min 455.233ppb m

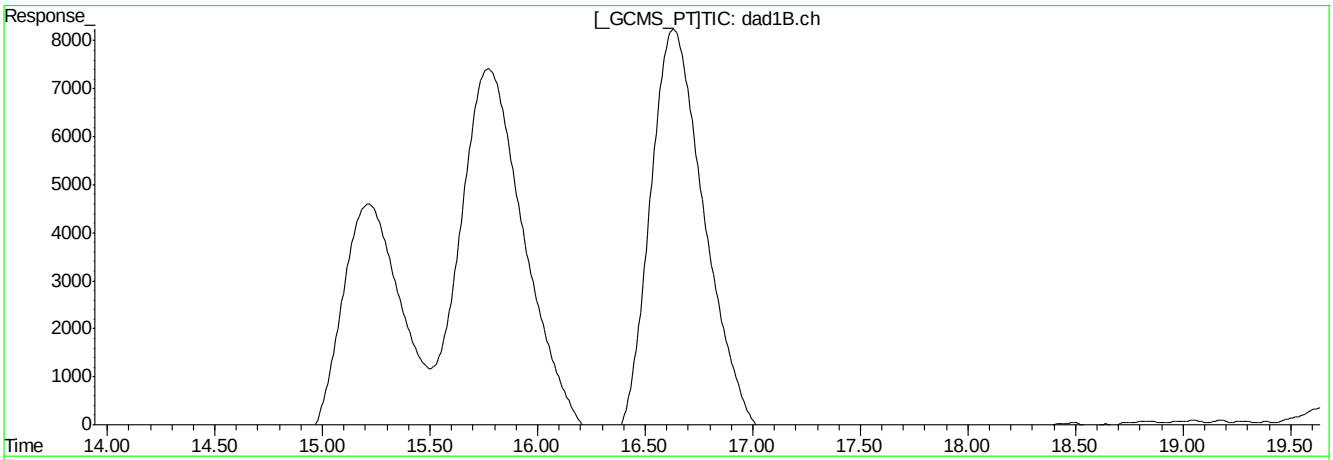
response 1350225

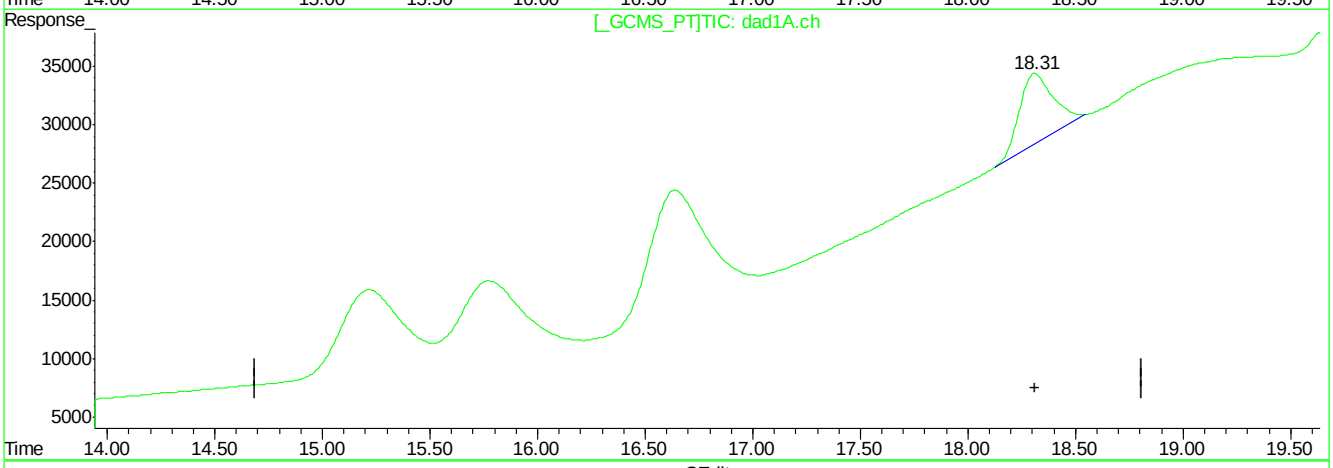
(+) = Expected Retention Time
PP386866.D GPP2262_041620PRI.M Tue May 05 13:13:35 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386866.D\dad1B.ch Vial: 9
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386866.D\dad1A.ch
Acq On : 04-May-2020, 16:12:32 Operator: williamh
Sample : op80038-BS Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 11:04 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

18.31min 511.527ppb m

response 661144

(+) = Expected Retention Time
PP386866.D GPP2262_041620PRI.M Tue May 05 13:13:42 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
05/08/20 16:59

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386875.D\dad1B.ch Vial: 16
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386875.D\dad1A.ch
Acq On : 04-May-2020, 20:50:53 Operator: williamh
Sample : op80038-MS Inst : G1315B
Misc : op80038,GPP2268,520,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 05 11:04:46 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Initial Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	11.06	11.05	1145937	1589610	575.974	461.469
	Spiked Amount 500.000	Range 70 - 136		Recovery =		115.19%	92.29%
	Target Compounds						
1)	TNX	1.33	1.33	1009385	1613889	450.020	438.953
2)	HMX	1.47	1.47	1907641	5442765	1191.059	1160.630
3)	DNX	1.72	1.72	606490	1053927	532.857	543.633
4)	MNX	2.31	2.31	1089071	1736640	483.512	498.436
5)	RDX	2.93	2.93	941413	1561674	474.193	482.279
6)	1,3,5-Trinitrobe	4.70	4.70	4004325	8186217	983.616	1043.318
7)	1,3-Dinitrobenze	5.90	5.90	2608732	2078947	474.412	532.560
8)	3,5-Dinitroanili	6.26	6.26	2072977	3732952	495.049	496.034
9)	Nitrobenzene	7.43	7.43	1498446	1468347	452.503	453.507
10)	Nitroglycerin	0.00	8.88	0	469311	N.D.	412.540 #
11)	Tetryl	9.35	9.35	1100720	1770212	383.697	388.298
12)	2,4,6-Trinitroto	9.77	9.77	3440913	3984075	908.717	931.495
13)	2-Amino-4,6-Dini	10.15	10.16	2525240	3491597	708.663	701.763
14)	4-Amino-2,6-Dini	10.59	10.61	1656002	3058572	612.262	595.884
16)	2,4-Dinitrotolue	11.77	11.78	2091439	913078	438.176	328.194
17)	2,6-Dinitrotolue	12.14	12.19	2130449	2265620	715.071	593.071
18)	o-Nitrotoluene	15.24	15.24	912037	1246699	386.412	420.328m
19)	p-Nitrotoluene	15.80	15.80	1717521	1062181	451.056	368.334
20)	m-Nitrotoluene	16.66	16.67	1670025	1634536	475.132	400.421
21)	PETN	0.00	18.32	0	691907	N.D. d	535.329m

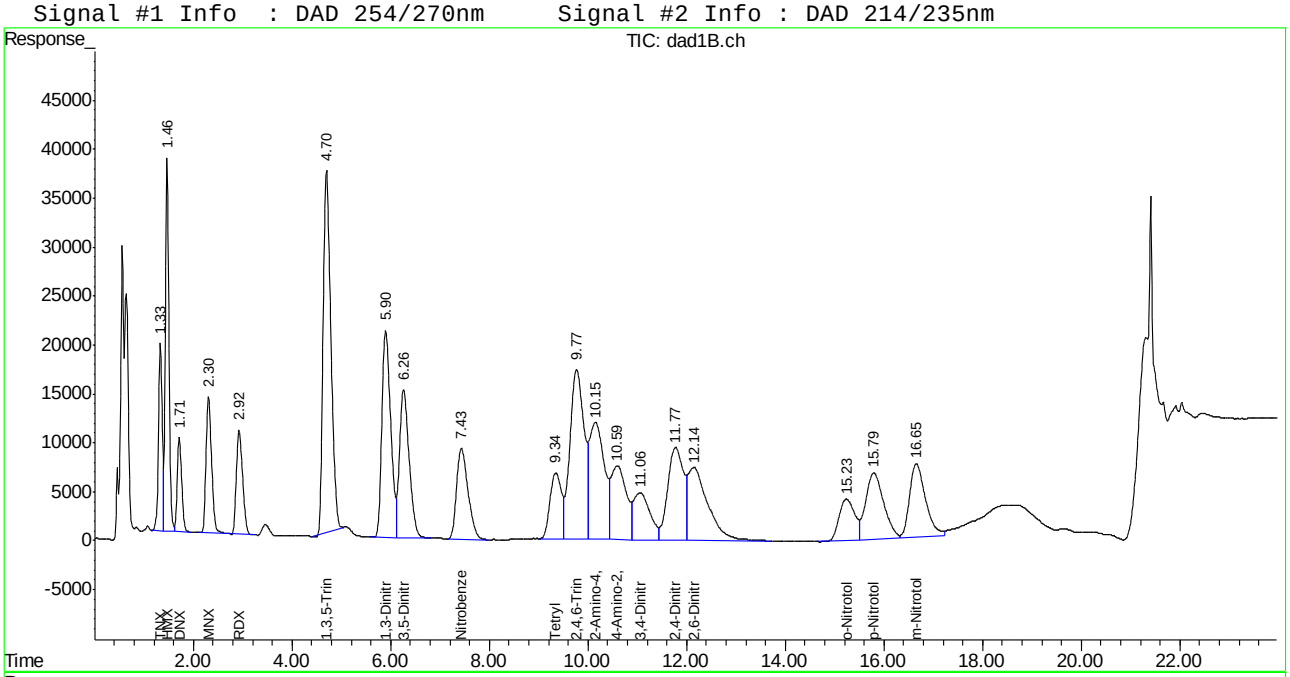
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

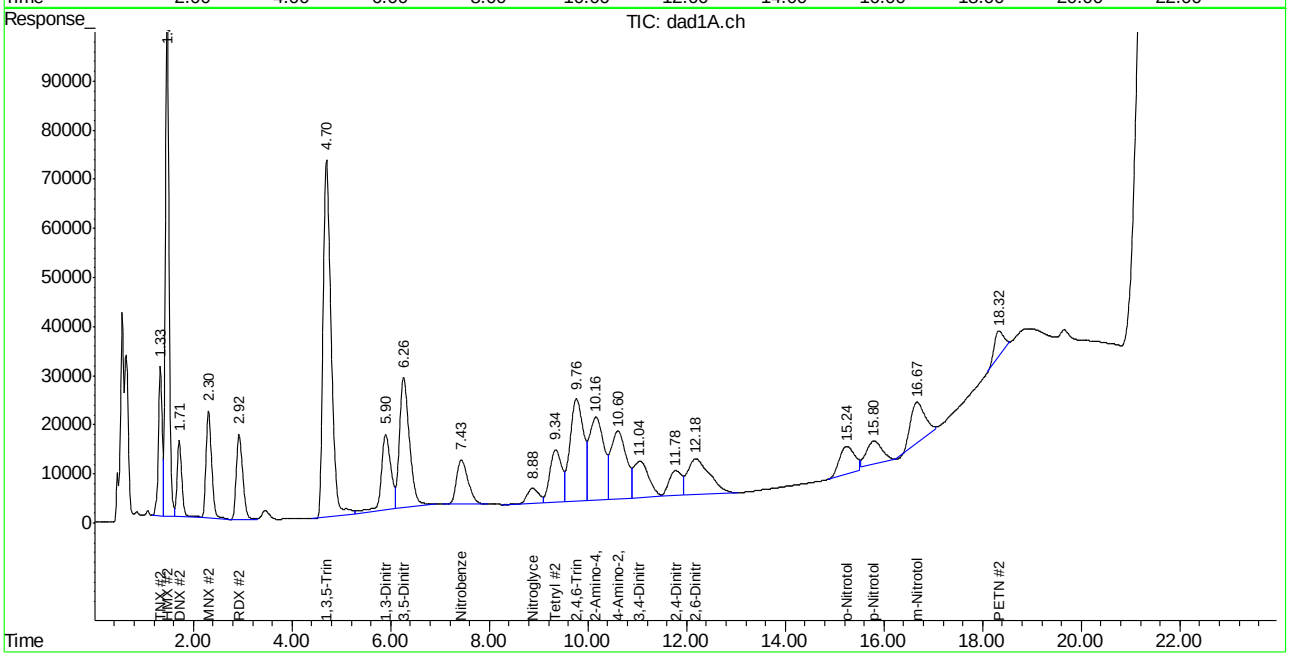
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386875.D\dad1B.ch Vial: 16
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386875.D\dad1A.ch
Acq On : 04-May-2020, 20:50:53 Operator: williamh
Sample : op80038-MS Inst : G1315B
Misc : op80038,GPP2268,520,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 13:24 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm





Manual Integration Approval Summary

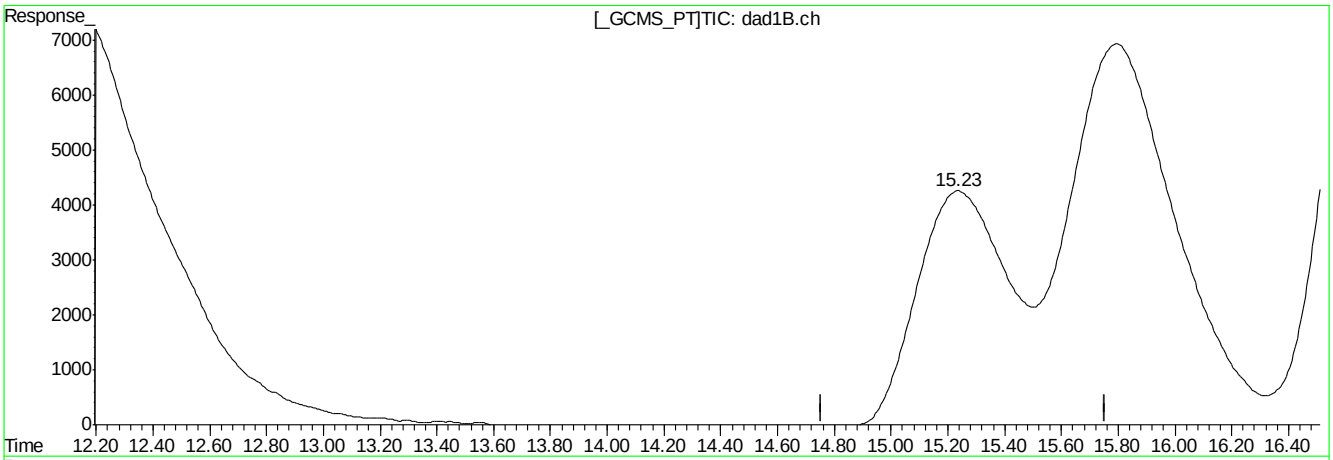
Sample Number:	OP80038-MS	**Method:**	SW846 8330B
Lab FileID:	PP386875.D	**Analyst approved:**	05/07/20 16:36 William Hustedde
Injection Time:	05/04/20 20:50	**Supervisor approved:**	05/08/20 16:59 Naresh Jiawan

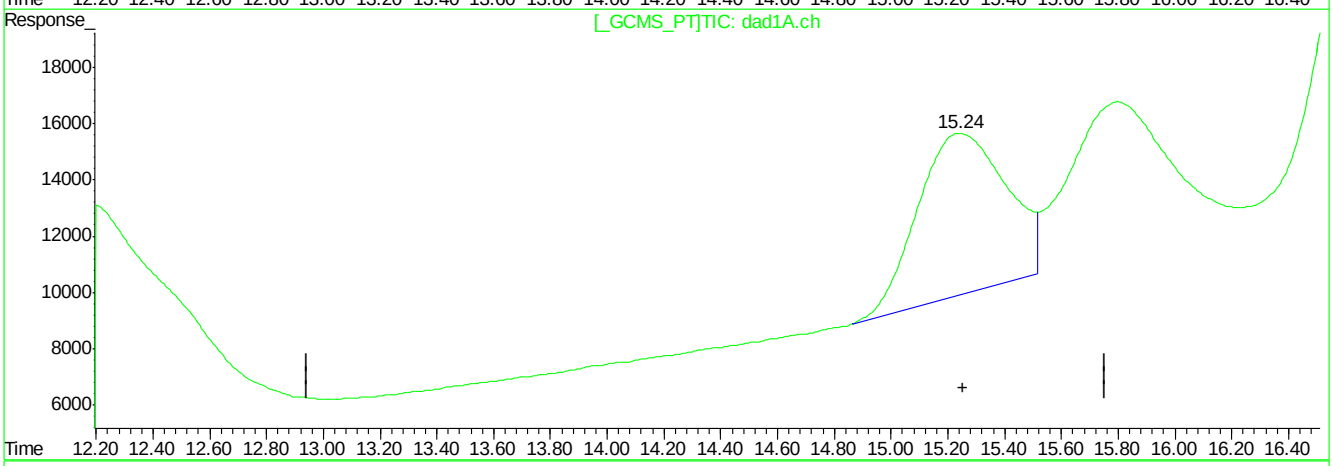
Parameter	CAS	Sig#	R.T. (min.)	Reason
o-Nitrotoluene	88-72-2	2	15.24	Poor instrument integration
PETN	78-11-5	2	18.32	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386875.D\dad1B.ch Vial: 16
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386875.D\dad1A.ch
Acq On : 04-May-2020, 20:50:53 Operator: williamh
Sample : op80038-MS Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 11:04 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(18) o-Nitrotoluene

15.24min 386.412ppb

response 912037

(18) o-Nitrotoluene #2

15.24min 420.328ppb m

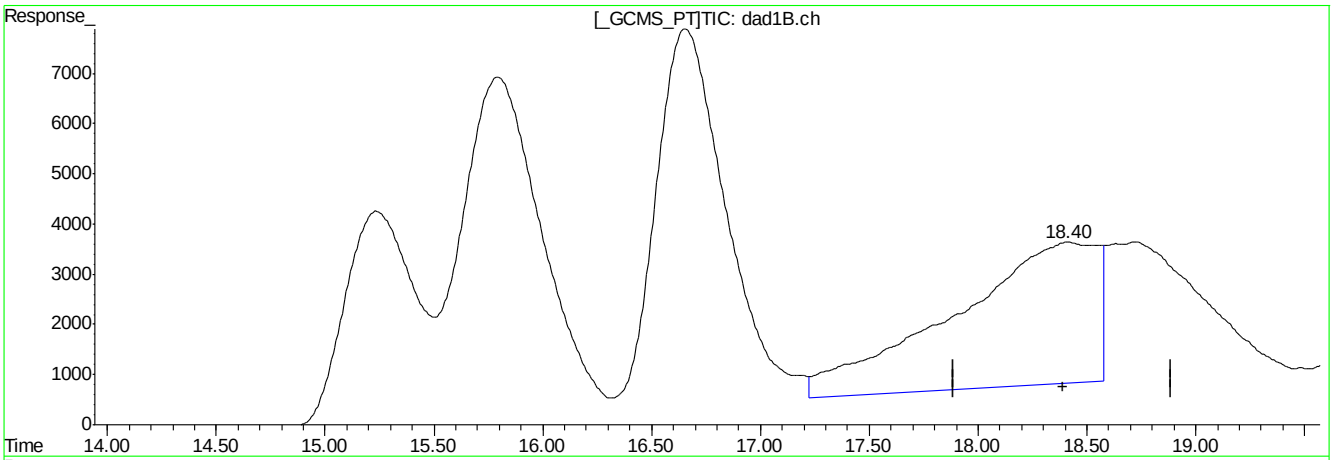
response 1246699

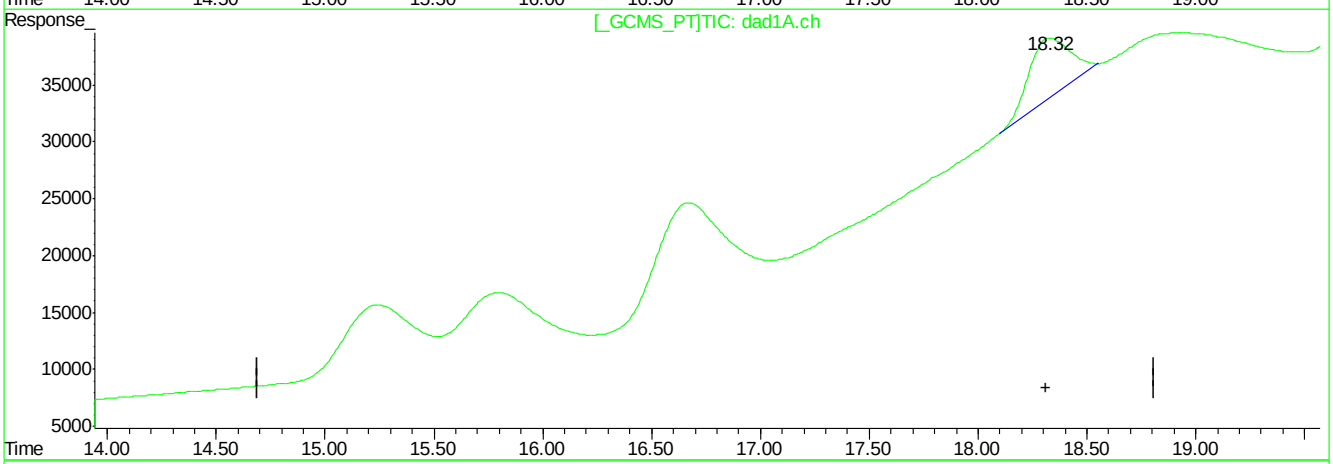
(+) = Expected Retention Time
PP386875.D GPP2262_041620PRI.M Tue May 05 13:24:30 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386875.D\dad1B.ch Vial: 16
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386875.D\dad1A.ch
Acq On : 04-May-2020, 20:50:53 Operator: williamh
Sample : op80038-MS Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 11:04 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

18.41min 0.000ppb

response 1305778

(21) PETN #2

18.32min 535.329ppb m

response 691907

(+) = Expected Retention Time
PP386875.D GPP2262_041620PRI.M Tue May 05 13:24:50 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
05/08/20 16:59

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386876.D\dad1B.ch Vial: 17
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386876.D\dad1A.ch
Acq On : 04-May-2020, 21:21:49 Operator: williamh
Sample : op80038-MSD Inst : G1315B
Misc : op80038,GPP2268,520,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 05 11:04:47 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Initial Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	11.06	11.05	1168968	1544198	587.549	448.404
	Spiked Amount 500.000	Range 70 - 136		Recovery =		117.51%	89.68%
	Target Compounds						
1)	TNX	1.33	1.33	1016690	1631231	453.276	443.670
2)	HMX	1.47	1.47	1912013	5461352	1193.788	1164.616
3)	DNX	1.72	1.71	608755	1066884	534.847	550.316
4)	MNX	2.31	2.31	1105128	1749986	490.641	502.266
5)	RDX	2.93	2.93	950633	1573153	478.837	485.824
6)	1,3,5-Trinitrobe	4.70	4.70	4053950	8012768	995.806	1021.213
7)	1,3-Dinitrobenze	5.90	5.90	2630742	1920095	478.414	491.867
8)	3,5-Dinitroanili	6.26	6.26	2073994	3738830	495.291	496.815
9)	Nitrobenzene	7.43	7.43	1488821	1445264	449.596	446.378
10)	Nitroglycerin	0.00	8.87	0	427076	N.D.	375.414 #
11)	Tetryl	9.34	9.34	1188557	1783463	414.316	391.205
12)	2,4,6-Trinitroto	9.77	9.77	3511295	4019123	927.304	939.689
13)	2-Amino-4,6-Dini	10.16	10.16	2538878	3470188	712.491	697.461
14)	4-Amino-2,6-Dini	10.59	10.60	1655838	3024764	612.201	589.333
16)	2,4-Dinitrotolue	11.77	11.77	2141249	928402	448.612	333.702
17)	2,6-Dinitrotolue	12.14	12.18	2159340	2236623	724.768	585.513
18)	o-Nitrotoluene	15.23	15.23	948437	1243224	401.834	419.157m
19)	p-Nitrotoluene	15.79	15.79	1760881	1101628	462.443	381.917
20)	m-Nitrotoluene	16.65	16.66	1757051	1963877	499.892	480.871
21)	PETN	0.00	18.32	0	638060	N.D. d	493.667m

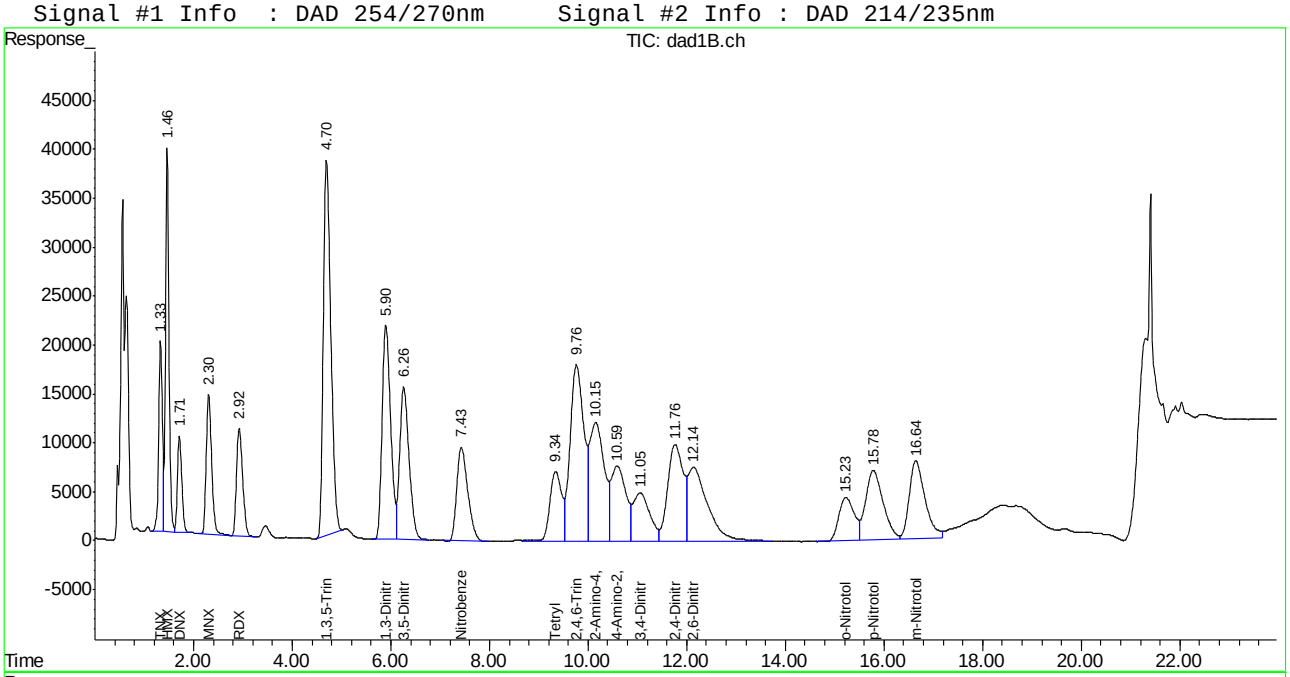
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
PP386876.D GPP2262_041620PRI.M Tue May 05 13:57:58 2020 Page 1

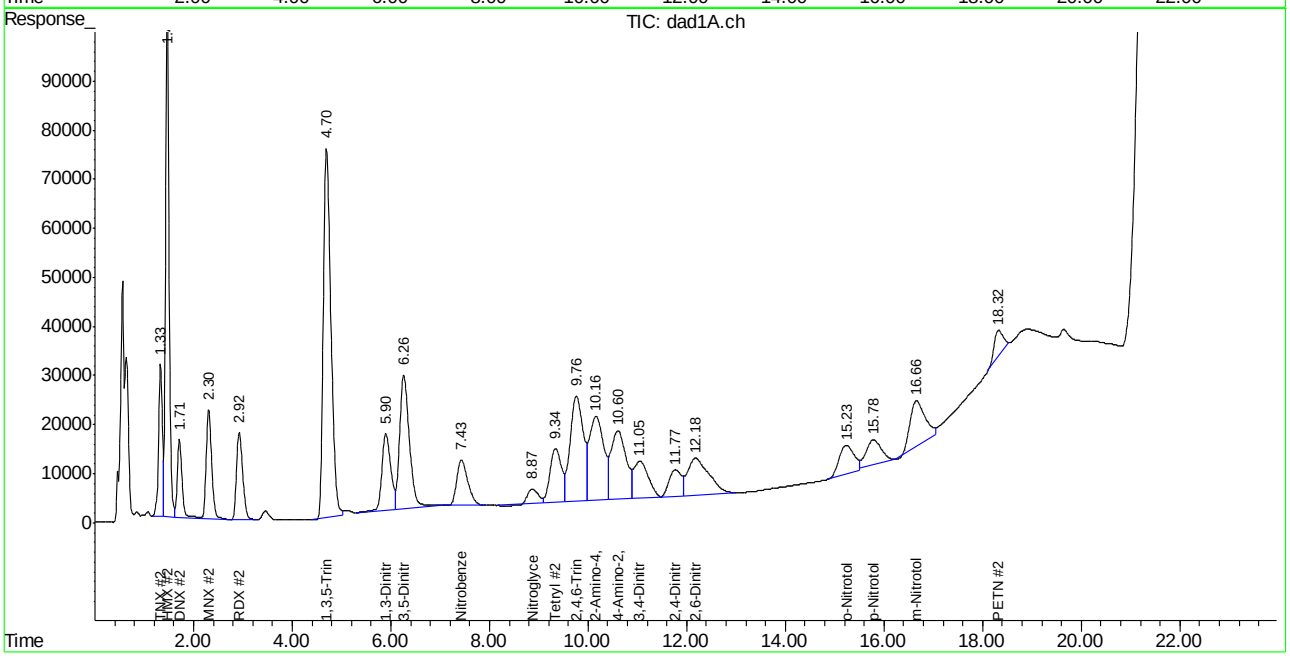
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386876.D\dad1B.ch Vial: 17
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386876.D\dad1A.ch
Acq On : 04-May-2020, 21:21:49 Operator: williamh
Sample : op80038-MSD Inst : G1315B
Misc : op80038,GPP2268,520,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 13:25 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm





Manual Integration Approval Summary

Sample Number: OP80038-MSD
Lab FileID: PP386876.D
Injection Time: 05/04/20 21:21

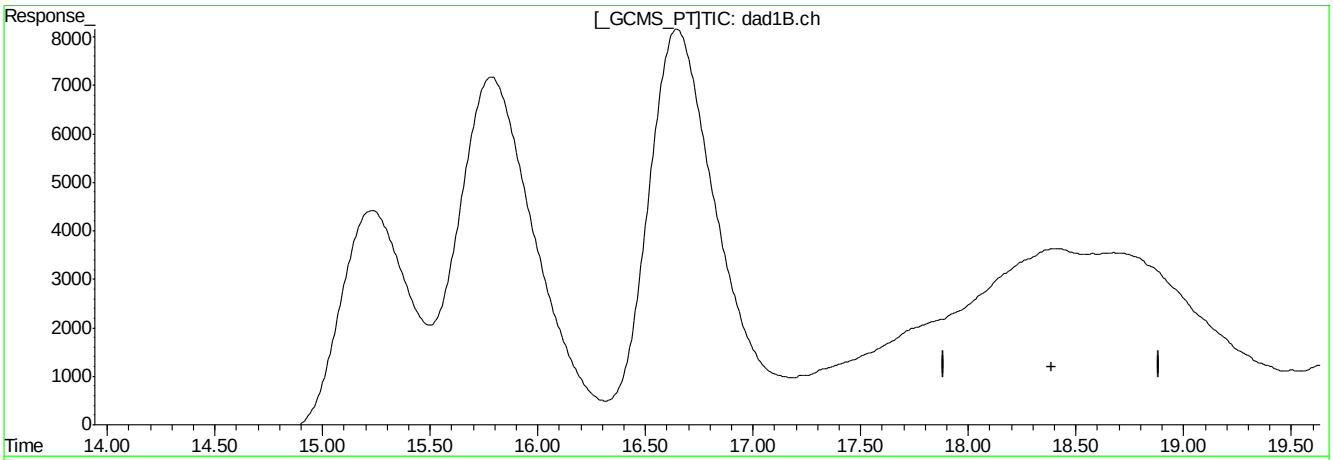
Method: SW846 8330B
Analyst approved: 05/07/20 16:36 William Hustedde
Supervisor approved: 05/08/20 16:59 Naresh Jiawan

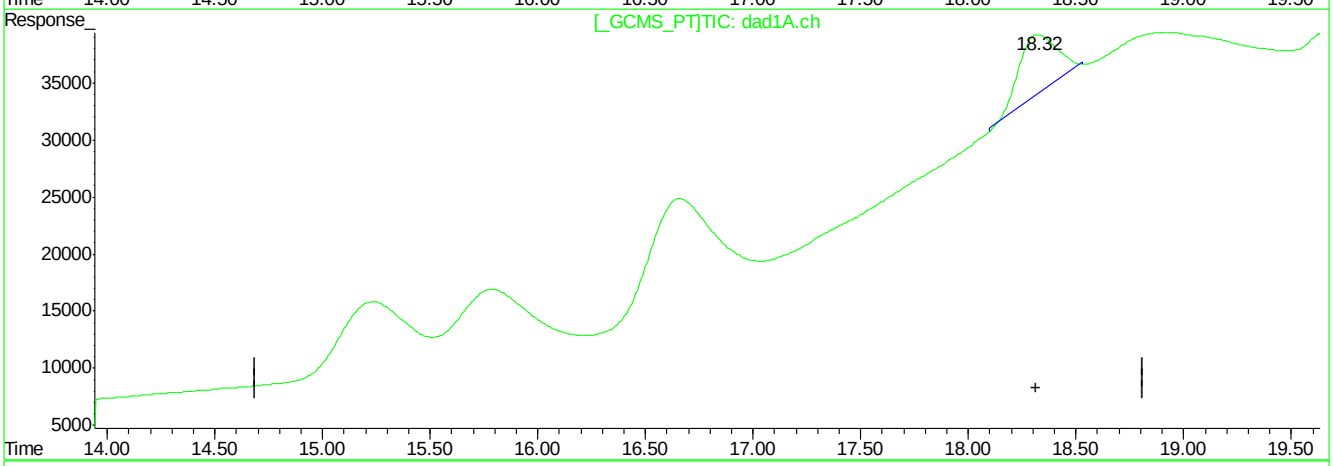
Parameter	CAS	Sig#	R.T. (min.)	Reason
o-Nitrotoluene	88-72-2	2	15.23	Poor instrument integration
PETN	78-11-5	2	18.32	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386876.D\dad1B.ch Vial: 17
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386876.D\dad1A.ch
Acq On : 04-May-2020, 21:21:49 Operator: williamh
Sample : op80038-MSD Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 11:04 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb d

response 0

(21) PETN #2

18.32min 493.667ppb m

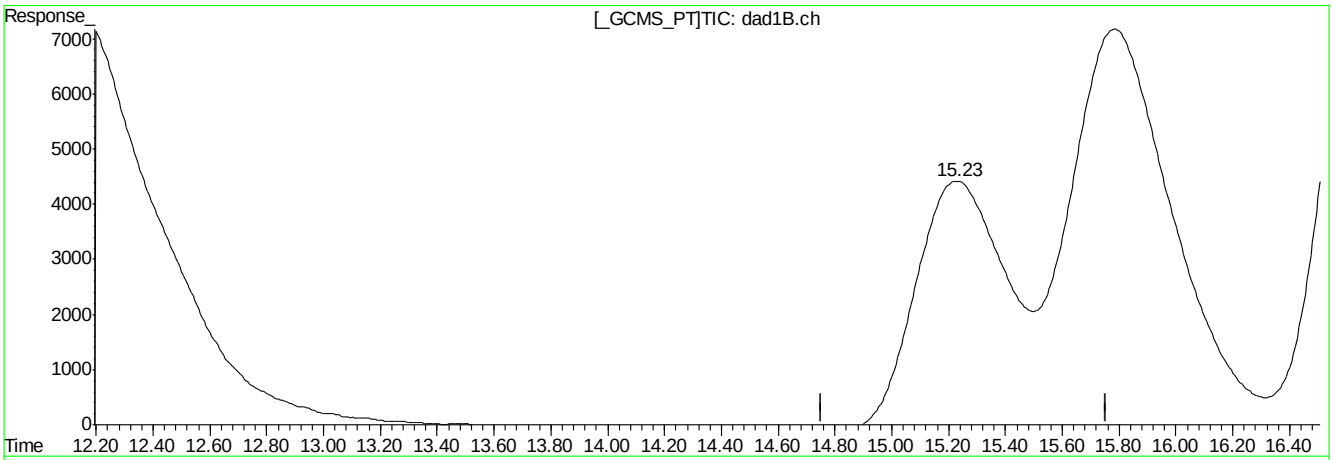
response 638060

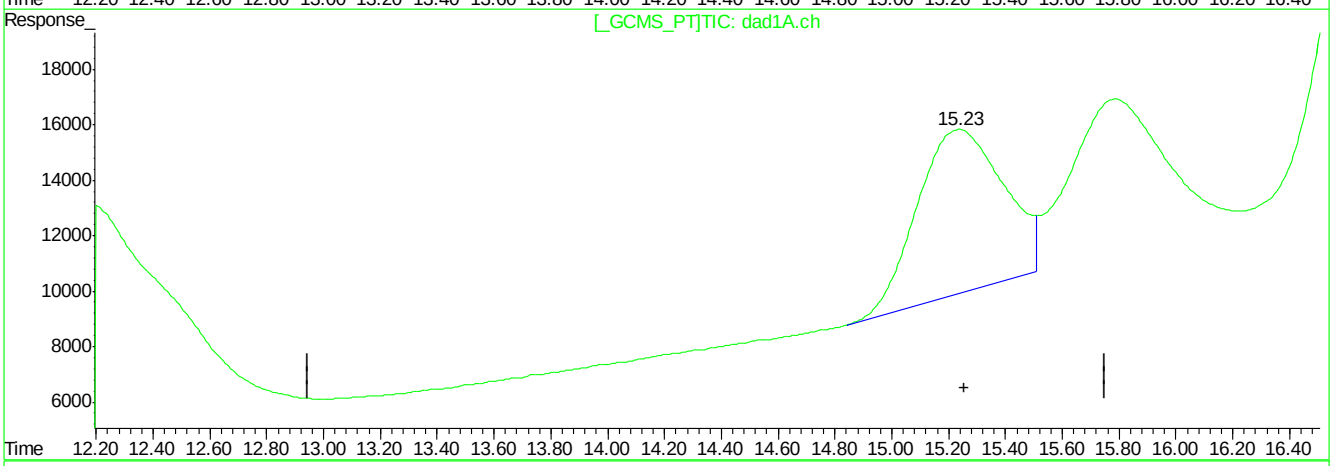
(+) = Expected Retention Time
PP386876.D GPP2262_041620PRI.M Tue May 05 13:25:09 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386876.D\dad1B.ch Vial: 17
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386876.D\dad1A.ch
Acq On : 04-May-2020, 21:21:49 Operator: williamh
Sample : op80038-MSD Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 11:04 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(18) o-Nitrotoluene

15.23min 401.834ppb

response 948437

(18) o-Nitrotoluene #2

15.23min 419.157ppb m

response 1243224

(+) = Expected Retention Time
PP386876.D GPP2262_041620PRI.M Tue May 05 13:25:55 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
09/26/19 16:28

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12:33 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.56	13.55	84611	167134	16.252m	16.532m
	Spiked Amount 500.000	Range 70 - 136		Recovery =		3.25%#	3.31%#
	Target Compounds						
1)	TNX	4.97	4.97	218003	218003	38.377	38.296
2)	HMX	5.43	5.43	76671	73869	20.769m	20.035m
3)	DNX	5.49	5.49	147671	149475	27.214m	27.859m
4)	MNX	6.35	6.35	76584	78430	13.122m	13.439m
5)	1,3,5-Trinitrobe	7.16	7.16	204014	204014	21.442	21.506
6)	RDX	7.60	7.60	95749	95749	20.715	20.867
7)	1,3-Dinitrobenze	9.52	9.54	270208	176613	20.183m	17.415m
8)	Nitrobenzene	10.45	10.46	184518	175282	21.751	20.700m
9)	2,4,6-Trinitroto	11.07	11.07	203967	237191	21.926	19.902
10)	Nitroglycerin	0.00	0.00	0	0	N.D.	N.D.
11)	Tetryl	12.18	12.14	124995	322243	18.121	24.454m
13)	2,6-Dinitrotolue	13.94	13.91	135925	203654	21.731m	21.420
14)	2,4-Dinitrotolue	14.64	14.59	240621	208217	19.818	23.705m
15)	o-Nitrotoluene	16.13	16.11	96951	128957	17.328	12.789
16)	3,5-Dinitroanili	15.48	15.48	168483	313790	15.490	16.606
17)	p-Nitrotoluene	17.17	17.17	219157	564760	19.281m	27.186 #
18)	4-Amino-2,6-Dini	17.17	17.17	213733	564760	18.804m	27.184 #
19)	m-Nitrotoluene	18.37	18.36	110487	255019	19.272m	24.421m
20)	2-Amino-4,6-Dini	19.18	19.28	177657	351021	20.592	28.276
21)	PETN	0.00	0.00	0	0	N.D.	N.D. d

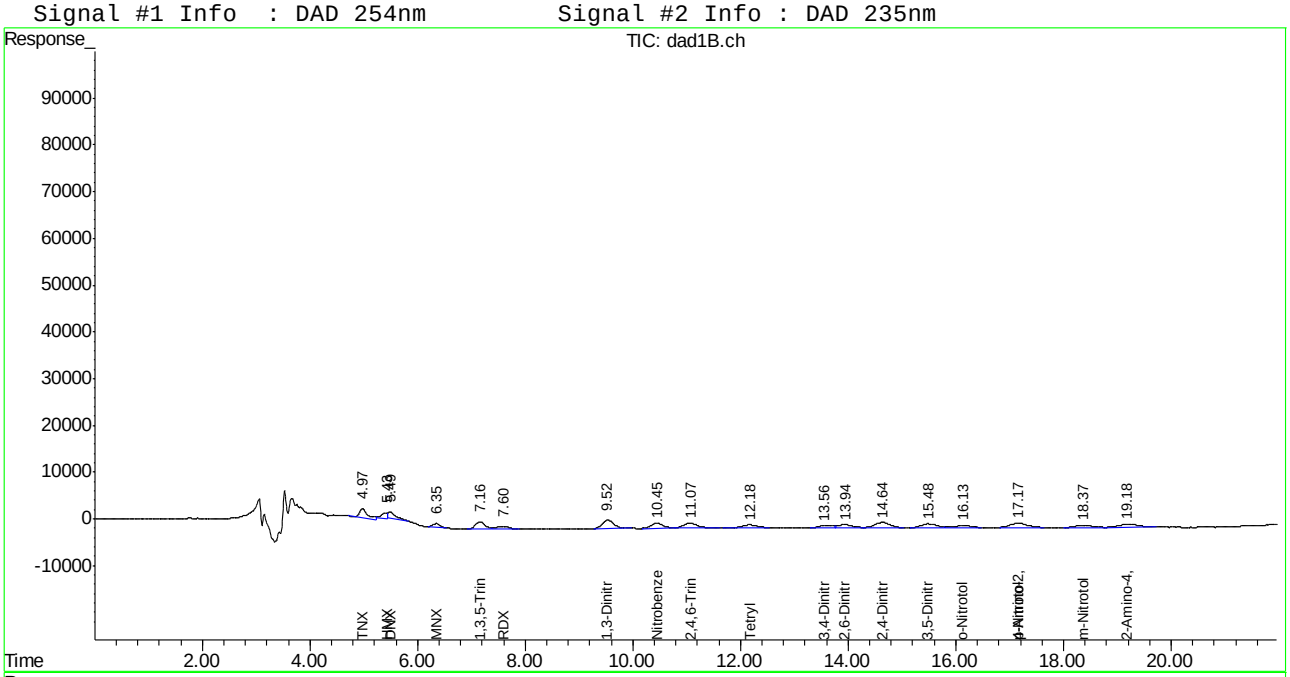
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

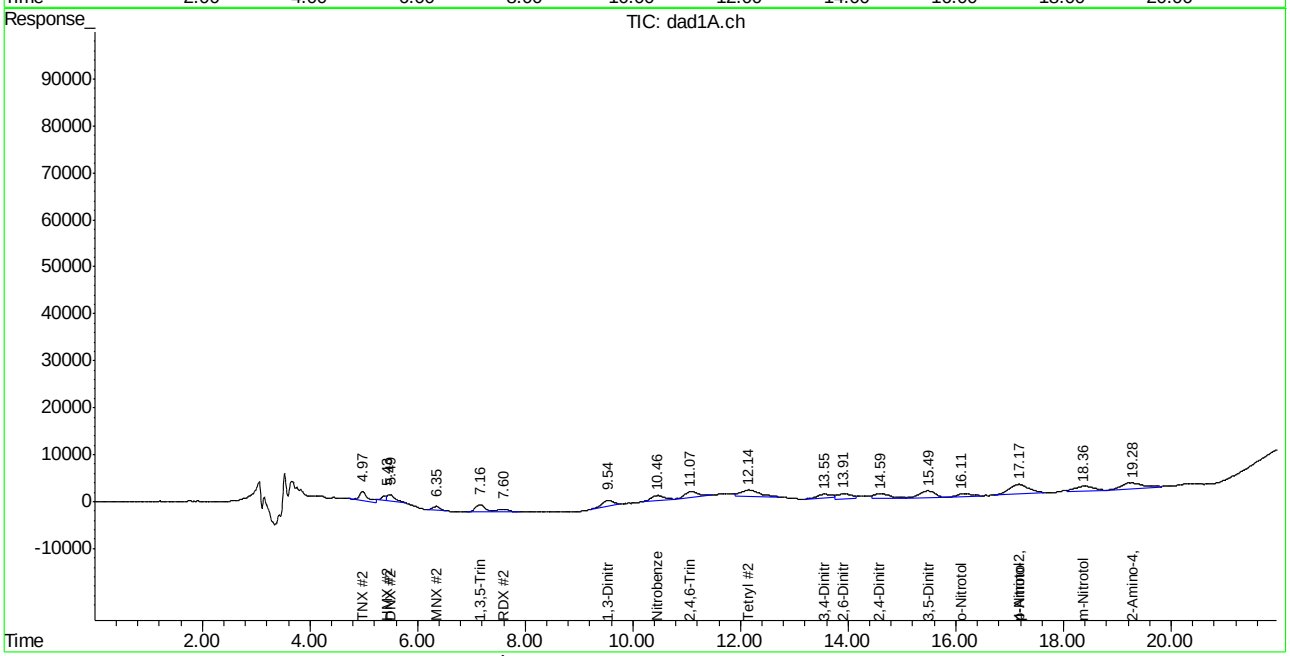
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:18 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

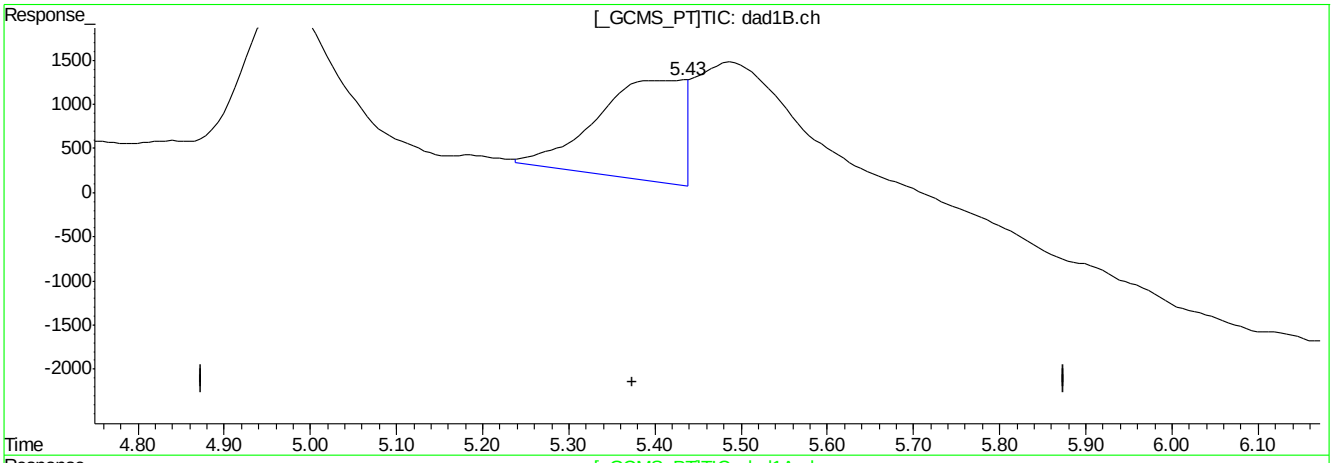
Sample Number: GGG2769-IC2769
Lab FileID: GG617747.D
Injection Time: 09/25/19 20:30
Method: SW846 8330B
Analyst approved: 09/26/19 16:07 William Hustedde
Supervisor approved: 09/26/19 16:28 Naresh Jiawan

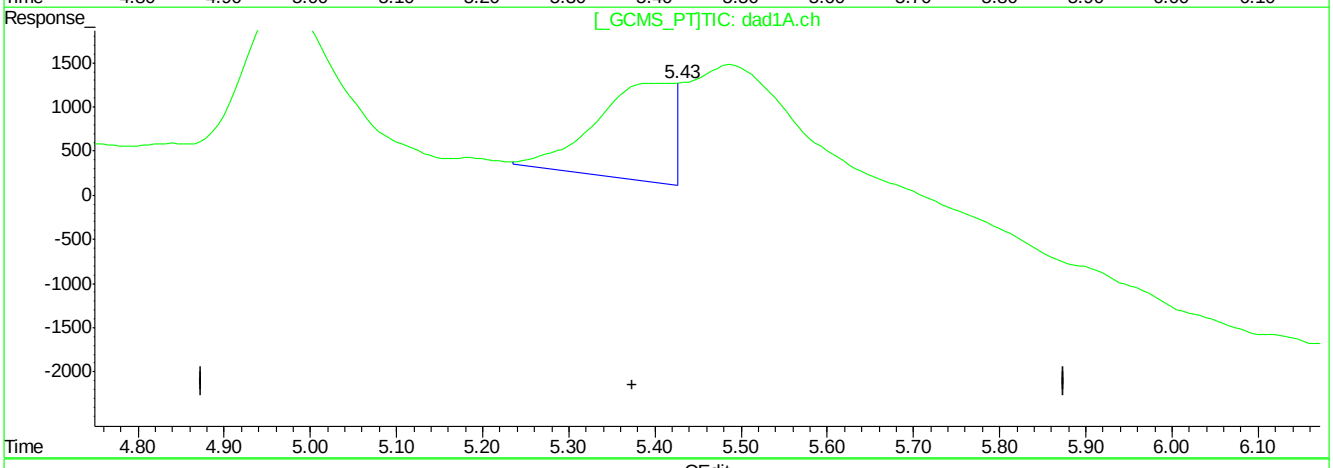
Parameter	CAS	Sig#	R.T. (min.)	Reason
HMX	2691-41-0	1	5.43	Poor instrument integration
HMX	2691-41-0	2	5.43	Poor instrument integration
DNX		1	5.49	Poor instrument integration
DNX		2	5.49	Poor instrument integration
MNX		1	6.35	Poor instrument integration
MNX		2	6.35	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	1	9.52	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	9.54	Poor instrument integration
Nitrobenzene	98-95-3	2	10.46	Poor instrument integration
Tetryl	479-45-8	2	12.14	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	2	13.55	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	1	13.56	Poor instrument integration
2,6-Dinitrotoluene	606-20-2	1	13.94	Poor instrument integration
2,4-Dinitrotoluene	121-14-2	2	14.59	Poor instrument integration
4-amino-2,6-Dinitrotoluene	19406-51-0	1	17.17	Poor instrument integration
p-Nitrotoluene	99-99-0	1	17.17	Poor instrument integration
m-Nitrotoluene	99-08-1	2	18.36	Poor instrument integration
m-Nitrotoluene	99-08-1	1	18.37	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.43min 20.769ppb m

response 76671

(2) HMX #2

5.43min 20.035ppb m

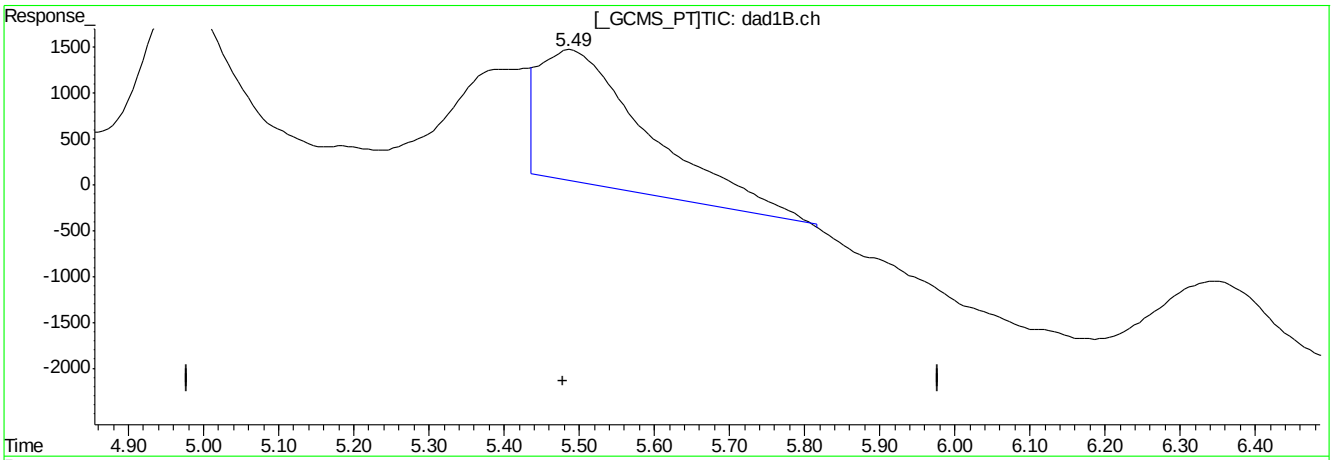
response 73869

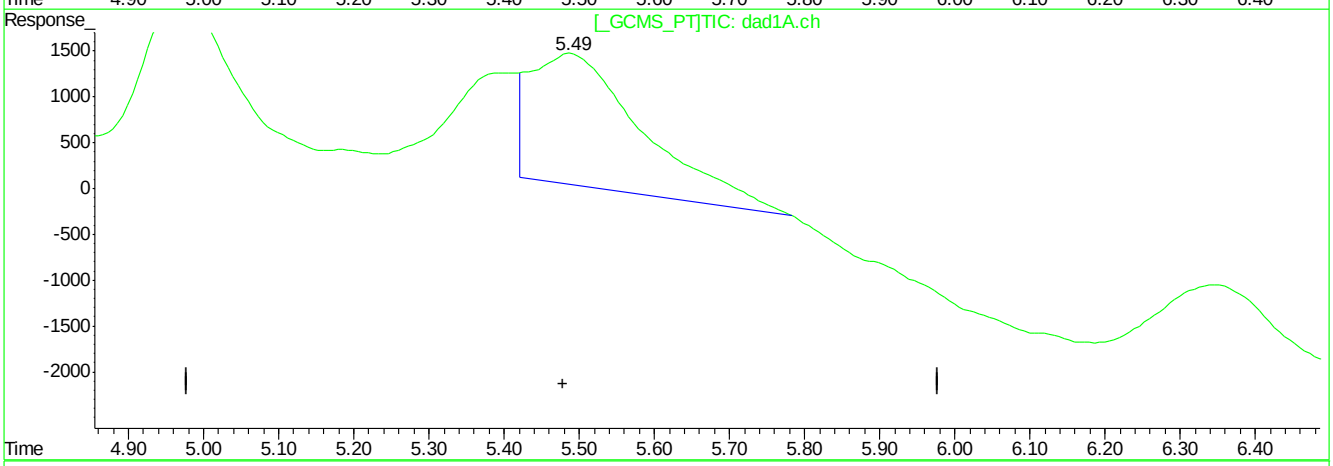
(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:16:26 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(3) DNX

5.49min 27.214ppb m

response 147671

(3) DNX #2

5.49min 27.859ppb m

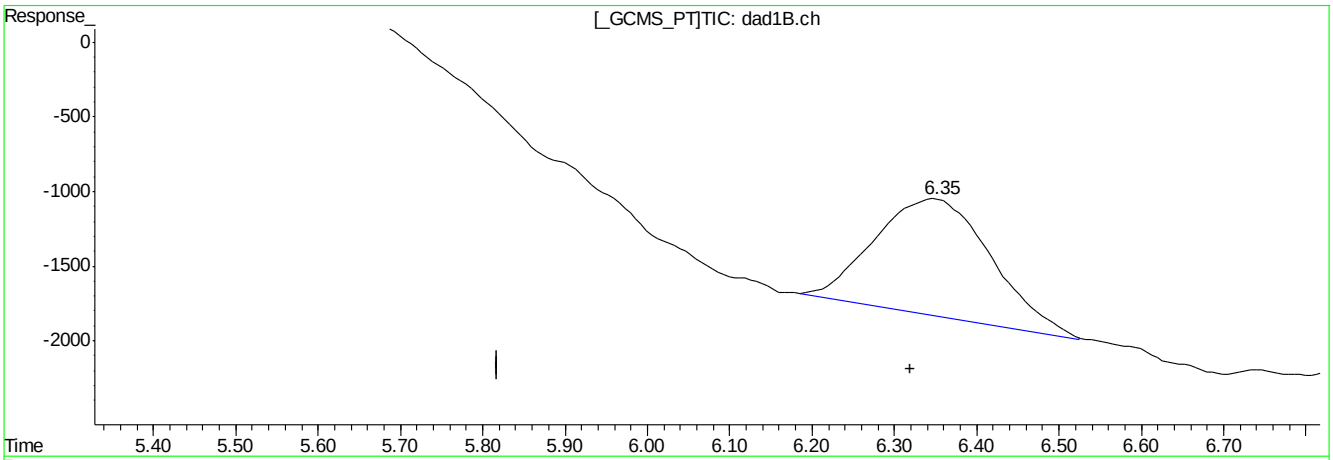
response 149475

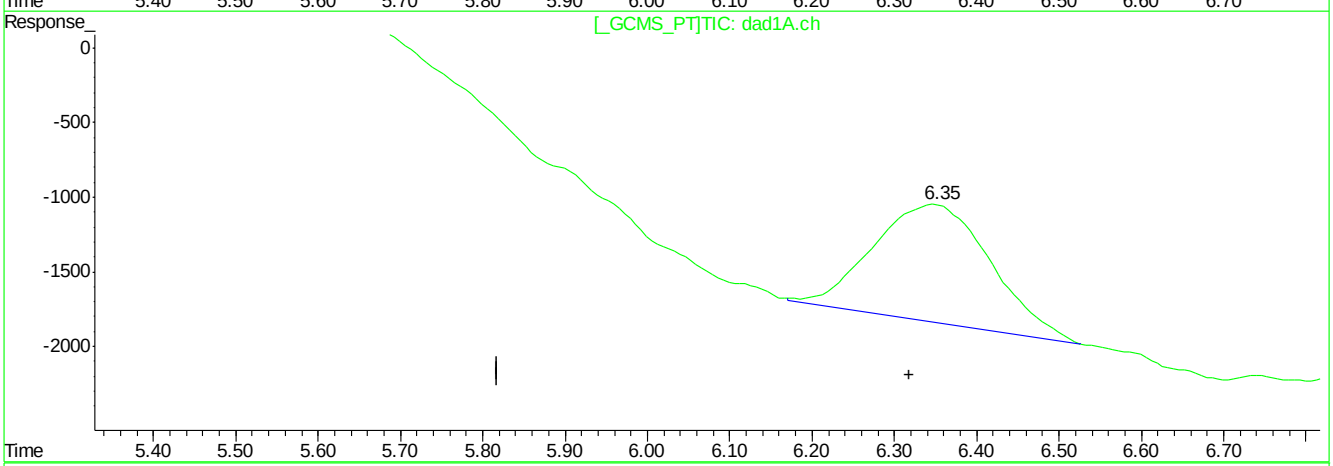
(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:16:36 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(4) MNX

6.35min 13.122ppb m

response 76584

(4) MNX #2

6.35min 13.439ppb m

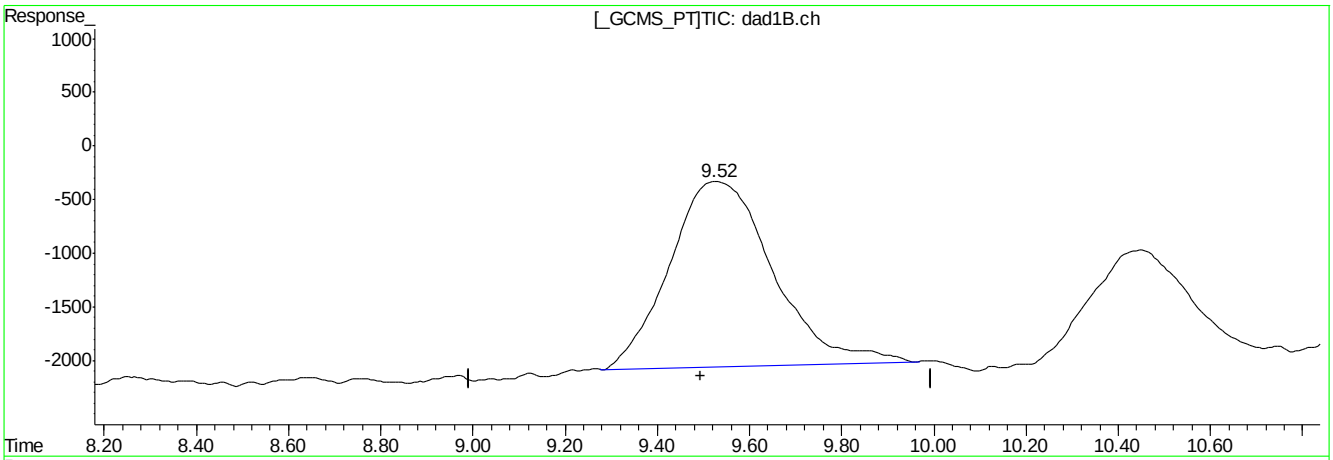
response 78430

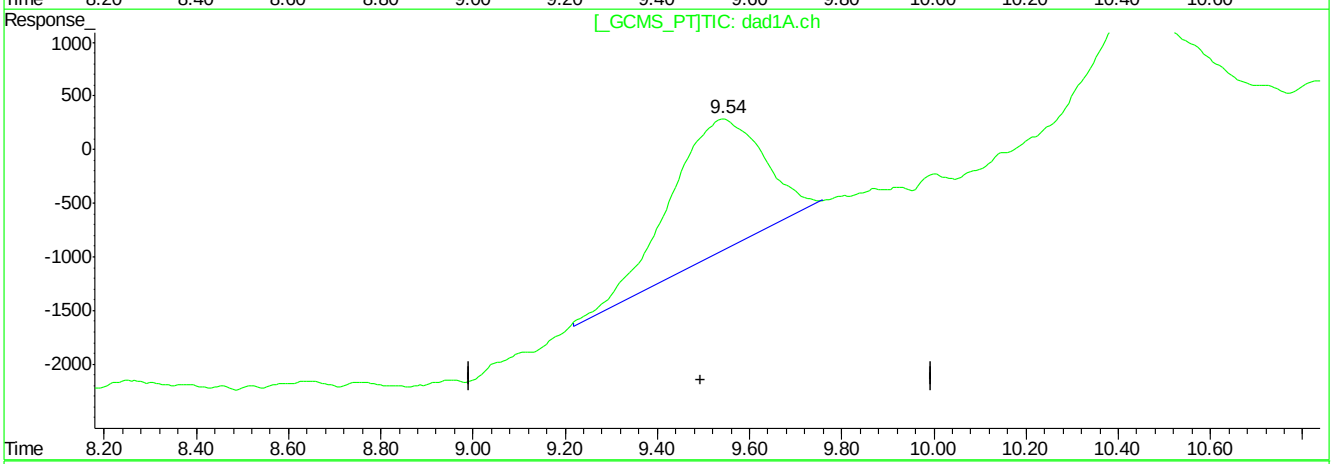
(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:16:43 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

9.52min 20.183ppb m

response 270208

(7) 1,3-Dinitrobenzene #2

9.54min 17.415ppb m

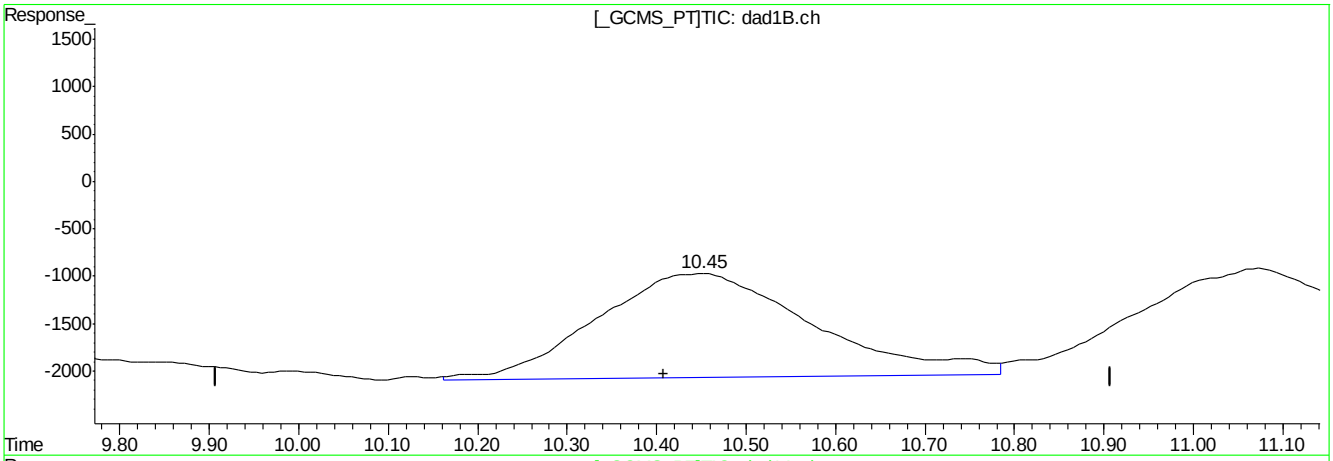
response 176613

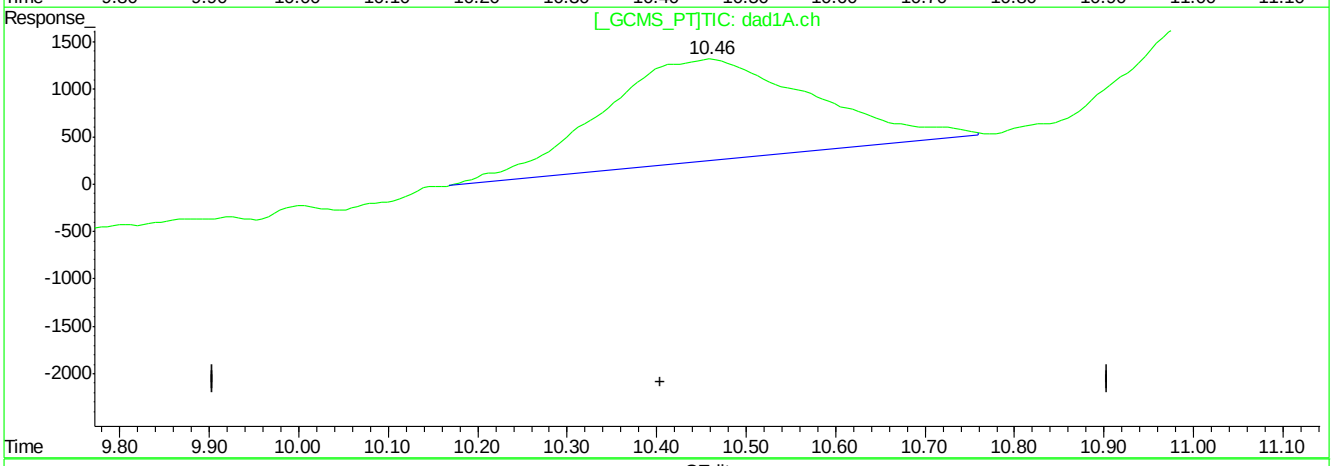
(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:16:59 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(8) Nitrobenzene

10.45min 21.751ppb

response 184518

(8) Nitrobenzene #2

10.46min 20.700ppb m

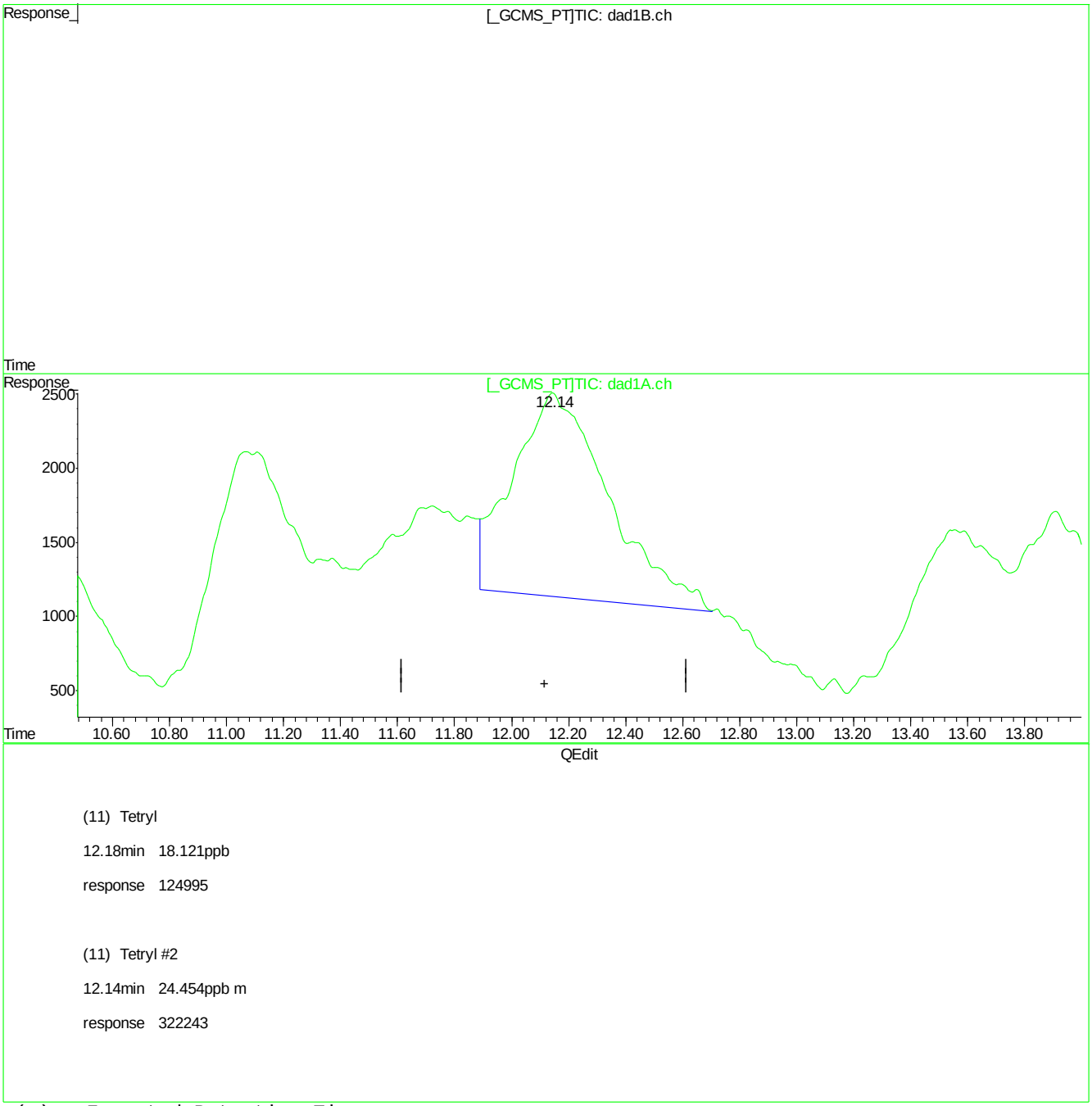
response 175282

(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:17:09 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(11) Tetryl

12.18min 18.121ppb

response 124995

(11) Tetryl #2

12.14min 24.454ppb m

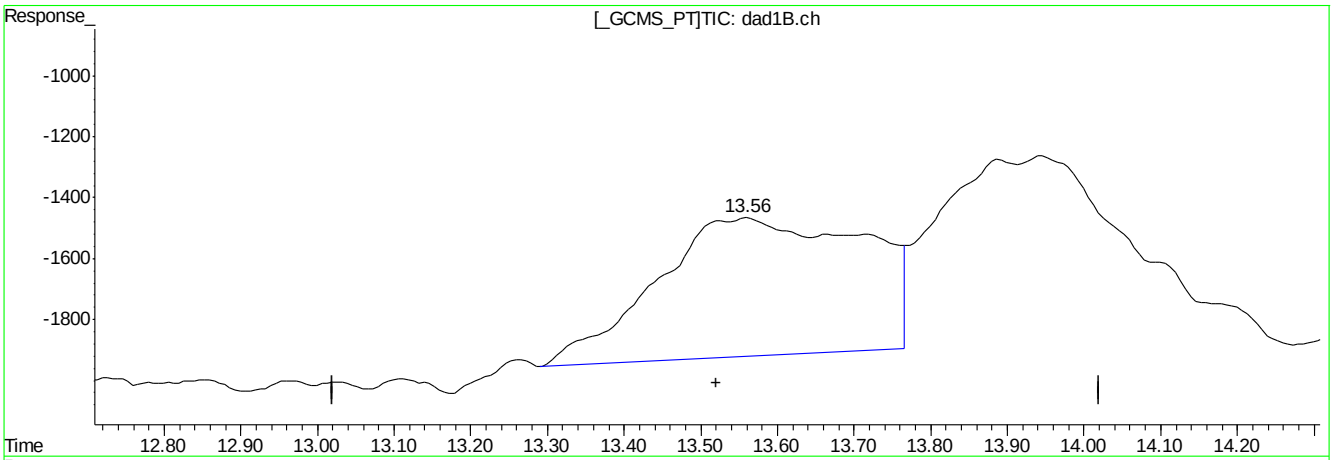
response 322243

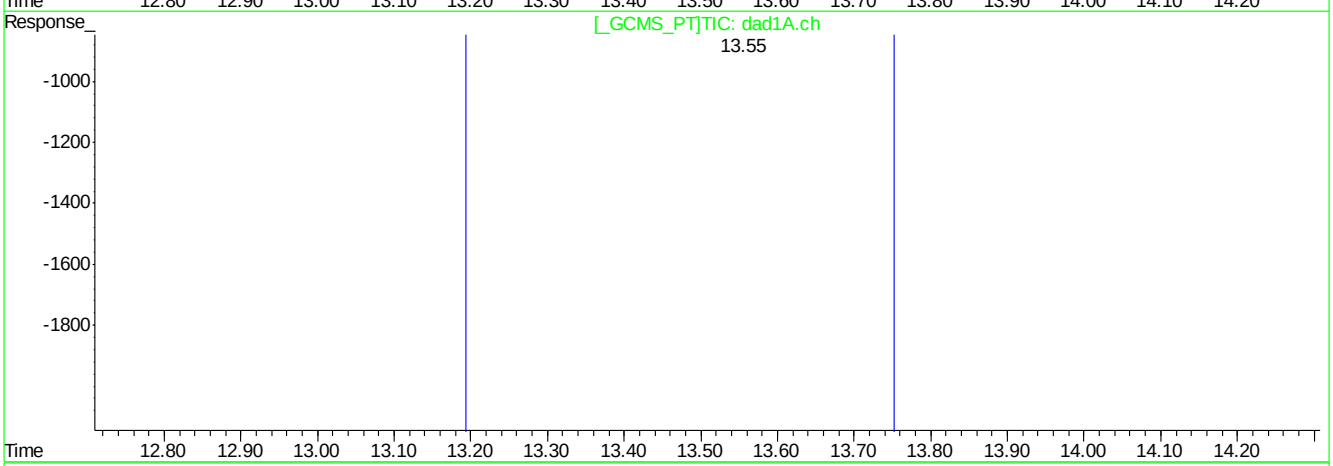
(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:17:27 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(12) 3,4-Dinitrotoluene (S)

13.56min 16.252ppb m

response 84611

(12) 3,4-Dinitrotoluene #2 (S)

13.55min 16.532ppb m

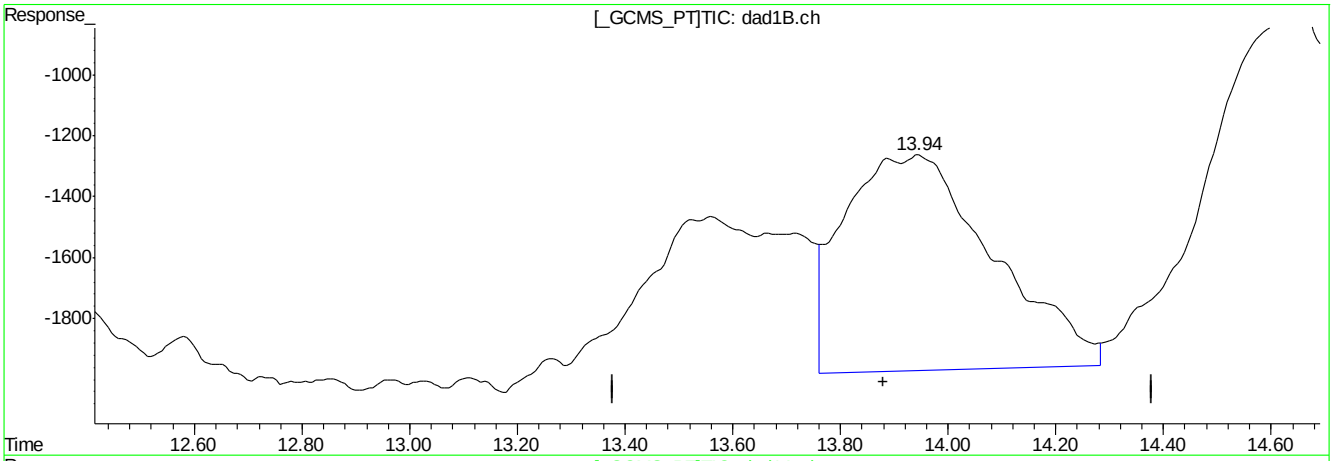
response 167134

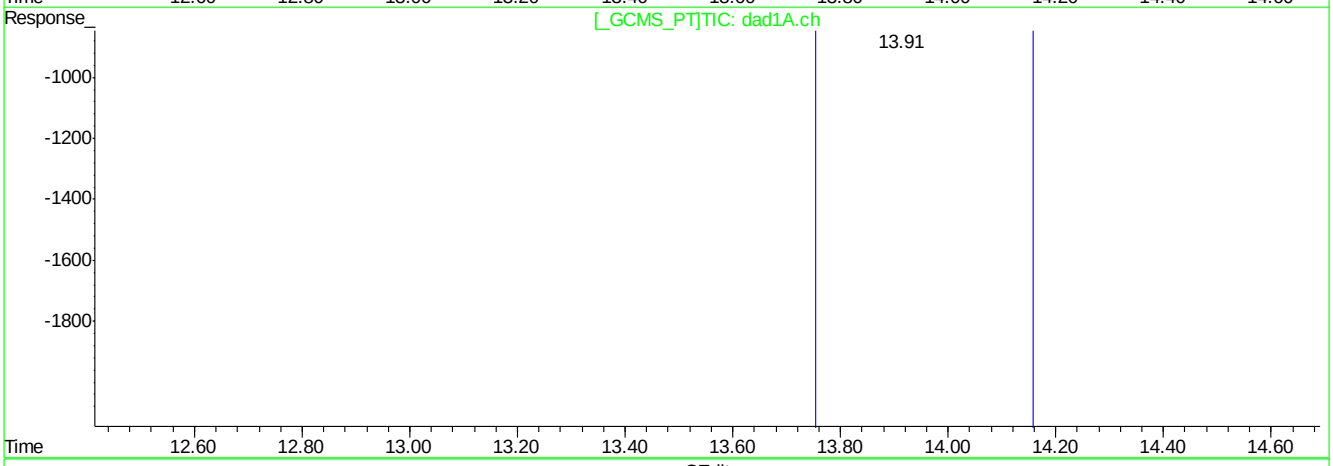
(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:17:37 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(13) 2,6-Dinitrotoluene

13.94min 21.731ppb m

response 135925

(13) 2,6-Dinitrotoluene #2

13.91min 21.420ppb

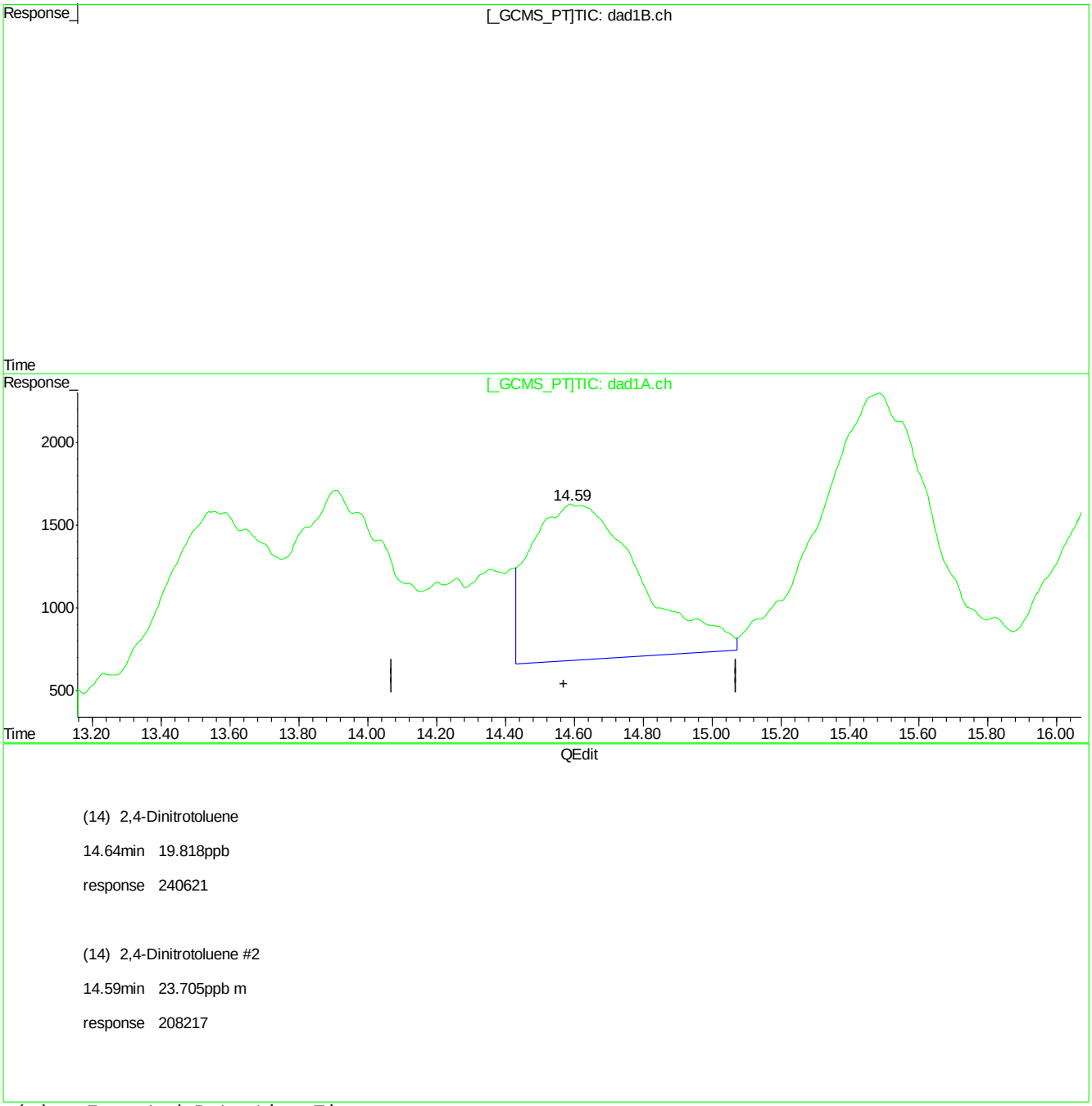
response 203654

(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:17:45 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(14) 2,4-Dinitrotoluene

14.64min 19.818ppb

response 240621

(14) 2,4-Dinitrotoluene #2

14.59min 23.705ppb m

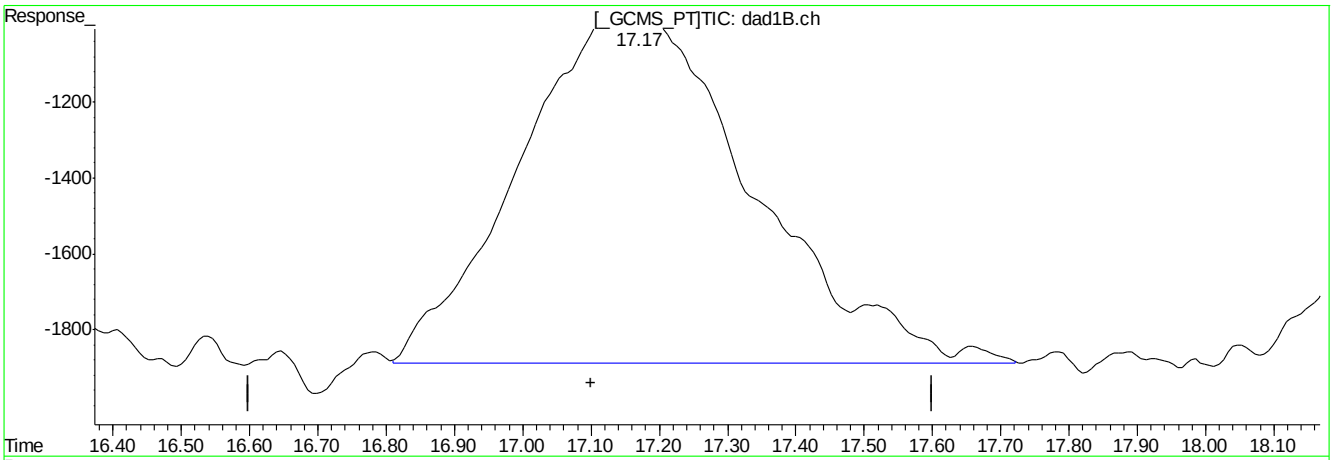
response 208217

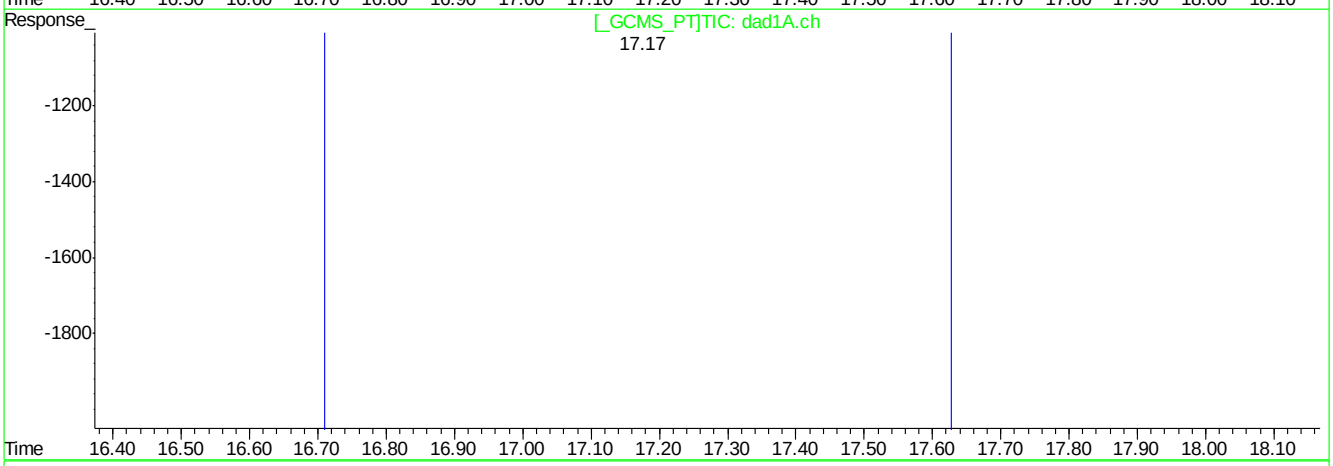
(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:17:52 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(17) p-Nitrotoluene

17.17min 19.281ppb m

response 219157

(17) p-Nitrotoluene #2

17.17min 27.186ppb

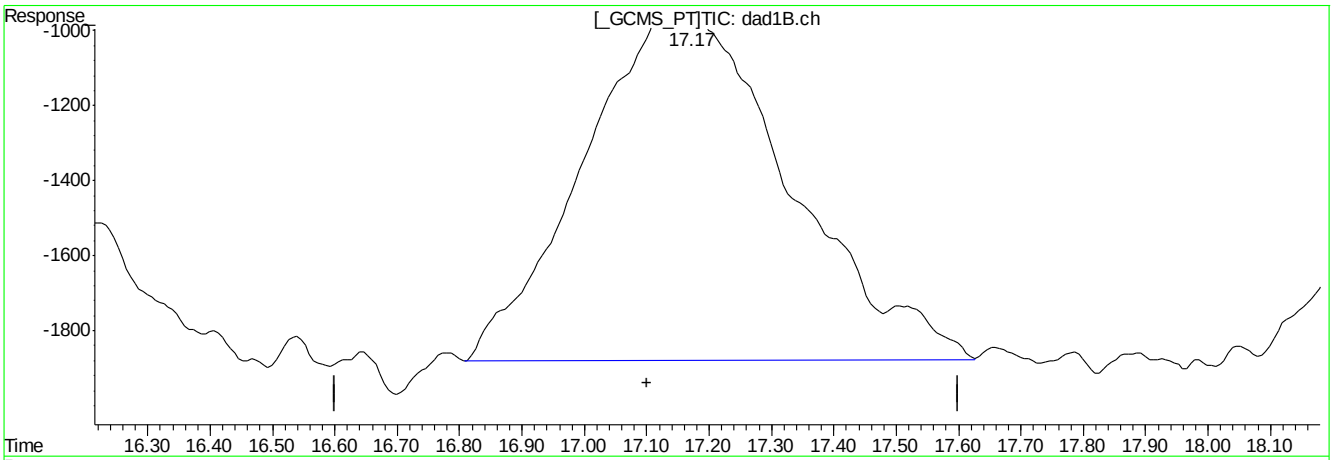
response 564760

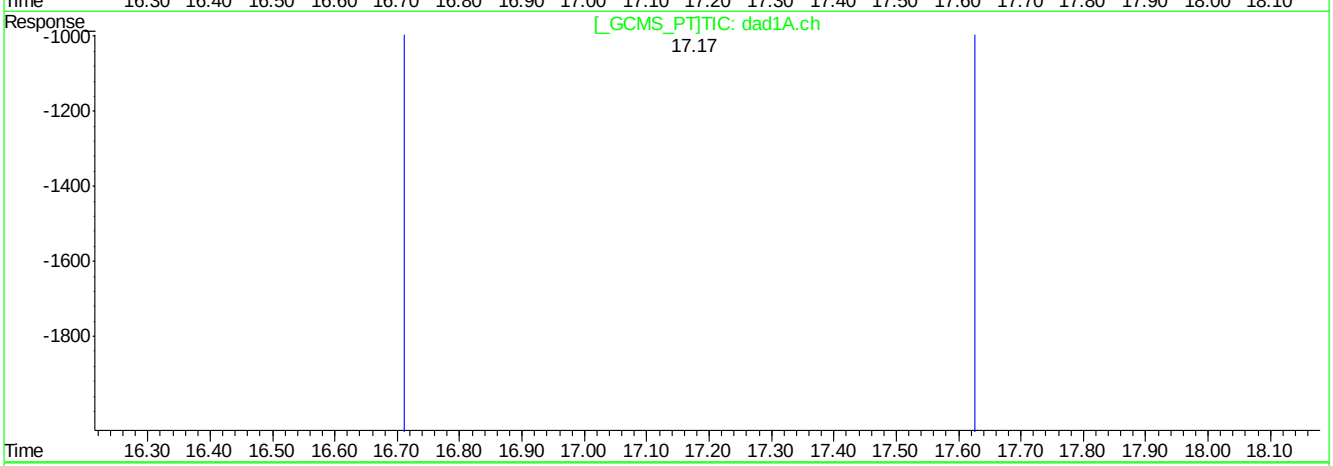
(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:18:05 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(18) 4-Amino-2,6-Dinitrotoluene

17.17min 18.804ppb m

response 213733

(18) 4-Amino-2,6-Dinitrotoluene #2

17.17min 27.184ppb

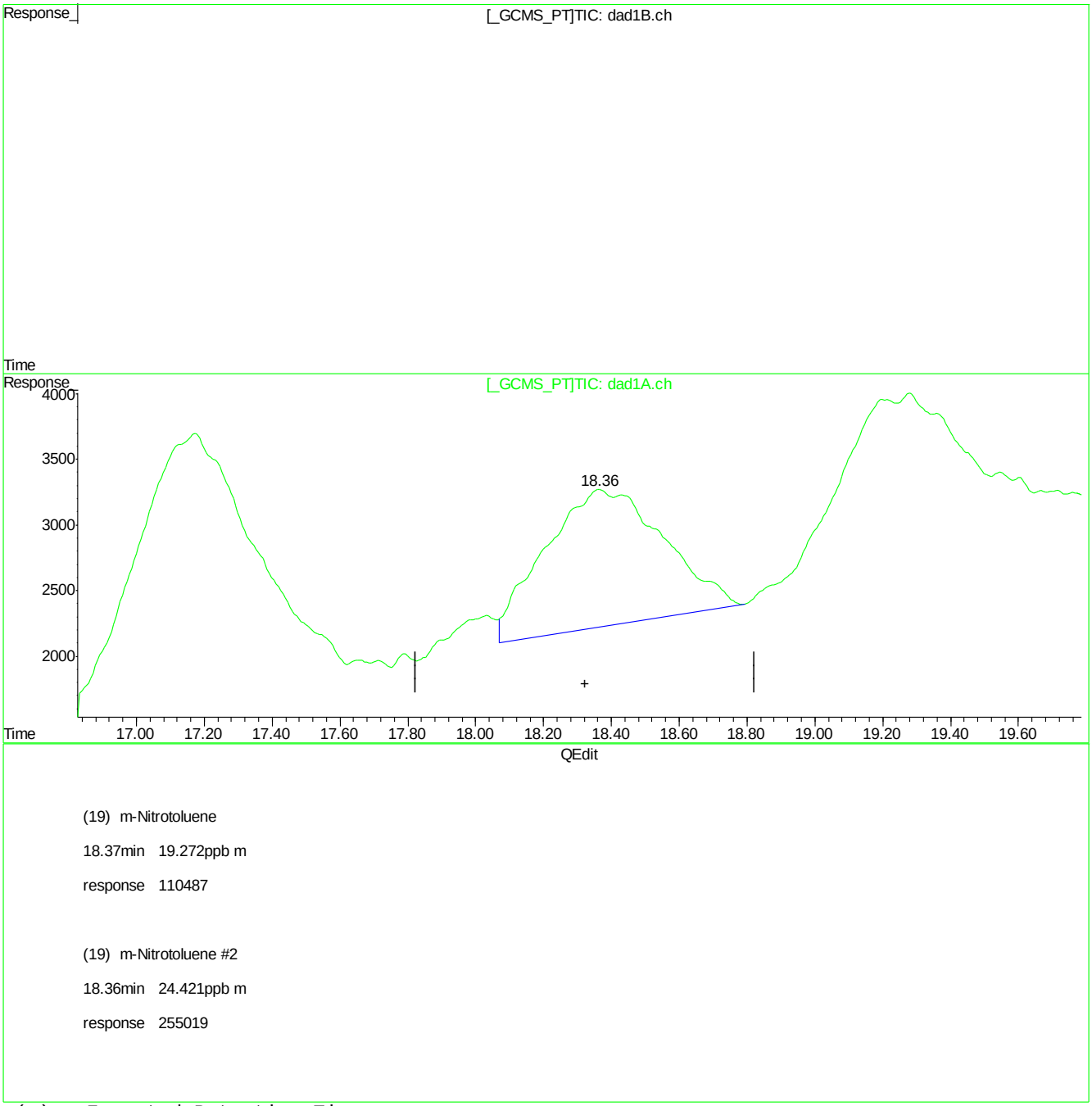
response 564760

(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:18:12 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(19) m-Nitrotoluene

18.37min 19.272ppb m

response 110487

(19) m-Nitrotoluene #2

18.36min 24.421ppb m

response 255019

(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:18:24 2019

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
09/26/19 16:28

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12:34 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.55	13.52	216587	343039	41.601	33.928m
	Spiked Amount 500.000	Range 70 - 136		Recovery =		8.32%#	6.79%#
	Target Compounds						
1)	TNX	4.96	4.96	283262	285743	49.866m	50.196m
2)	HMX	5.41	5.41	124790	130111	33.819m	35.307m
3)	DNX	5.48	5.48	210608	209215	38.829m	39.007m
4)	MNX	6.32	6.32	221441	221012	37.947m	37.875m
5)	1,3,5-Trinitrobe	7.14	7.14	483501	483501	50.816	50.968
6)	RDX	7.56	7.56	239398	239398	51.793	52.174
7)	1,3-Dinitrobenze	9.50	9.50	670221	555145	50.061m	54.739m
8)	Nitrobenzene	10.42	10.41	424717	468190	50.067	55.327m
9)	2,4,6-Trinitroto	11.03	11.03	466855	628341	50.186	52.723m
10)	Nitroglycerin	0.00	0.00	0	0	N.D.	N.D. d
11)	Tetryl	12.13	12.12	342824	541733	49.699	41.127m
13)	2,6-Dinitrotolue	13.89	13.87	329483	542159	52.677	57.034
14)	2,4-Dinitrotolue	14.58	14.60	571403	460842	47.062	52.465
15)	o-Nitrotoluene	16.06	16.06	227215	397827	40.609	39.455
16)	3,5-Dinitroanili	15.46	15.46	469052	839109	43.124	44.407
17)	p-Nitrotoluene	17.08	17.09	518543	1060606	45.620	51.055m
18)	4-Amino-2,6-Dini	17.08	17.09	518543	963679	45.620	46.386m
19)	m-Nitrotoluene	18.31	18.31	254437	395224	44.382	37.847m
20)	2-Amino-4,6-Dini	19.17	19.19	390617	670153	45.277	53.984
21)	PETN	0.00	20.26	0	223792	N.D.	88.985 #

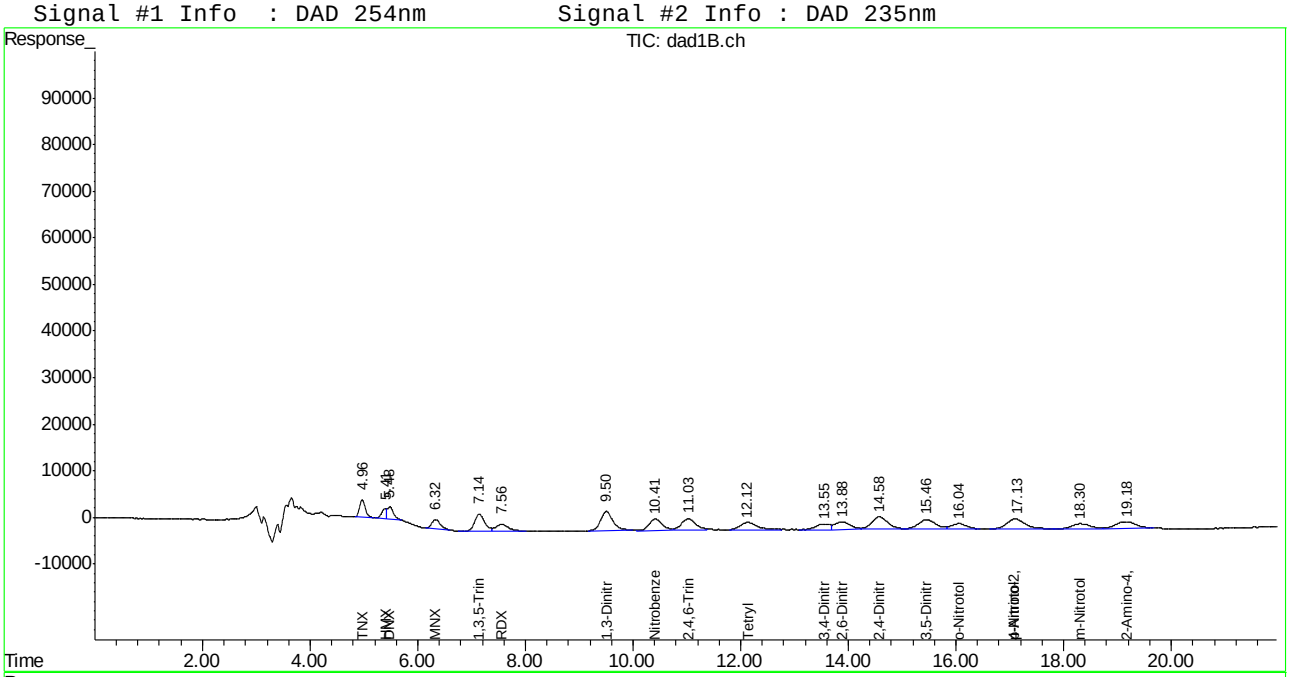
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

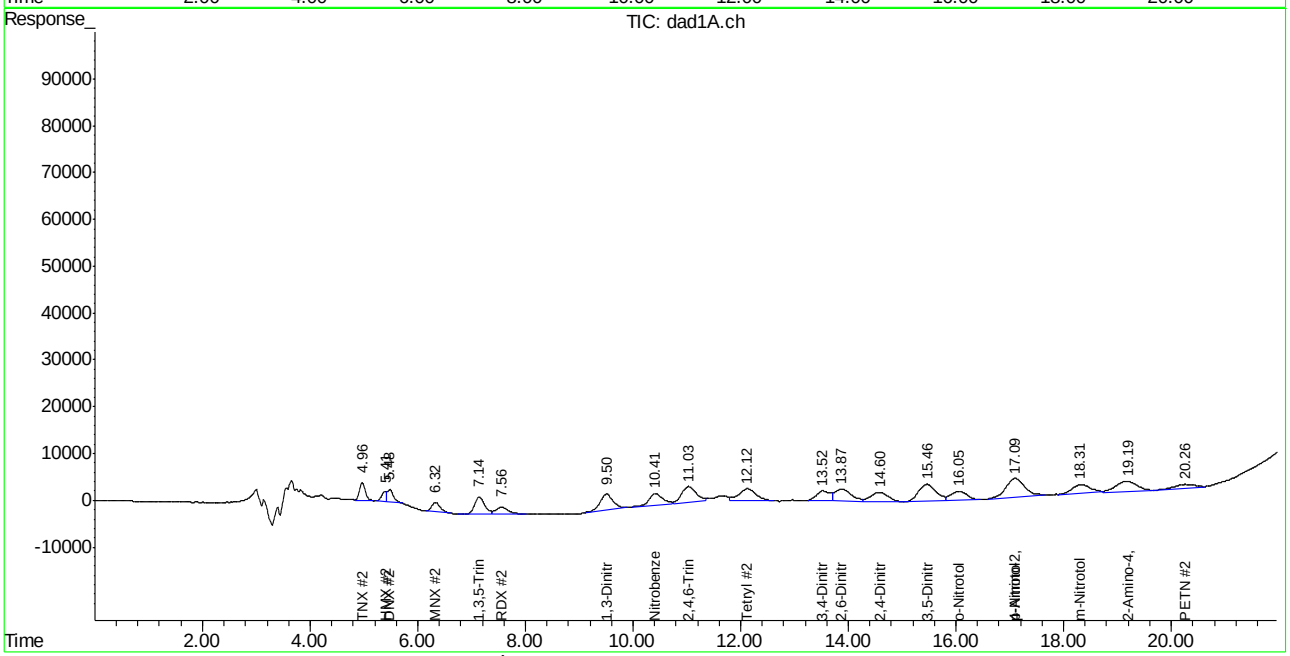
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:36 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

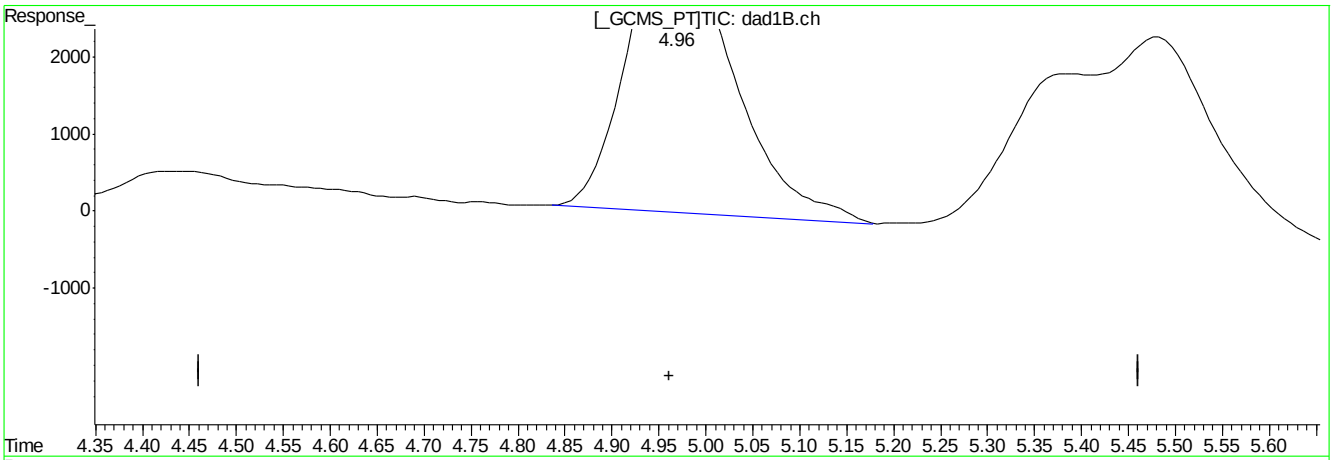
Sample Number: GGG2769-IC2769
Lab FileID: GG617748.D
Injection Time: 09/25/19 20:59
Method: SW846 8330B
Analyst approved: 09/26/19 16:07 William Hustedde
Supervisor approved: 09/26/19 16:28 Naresh Jiawan

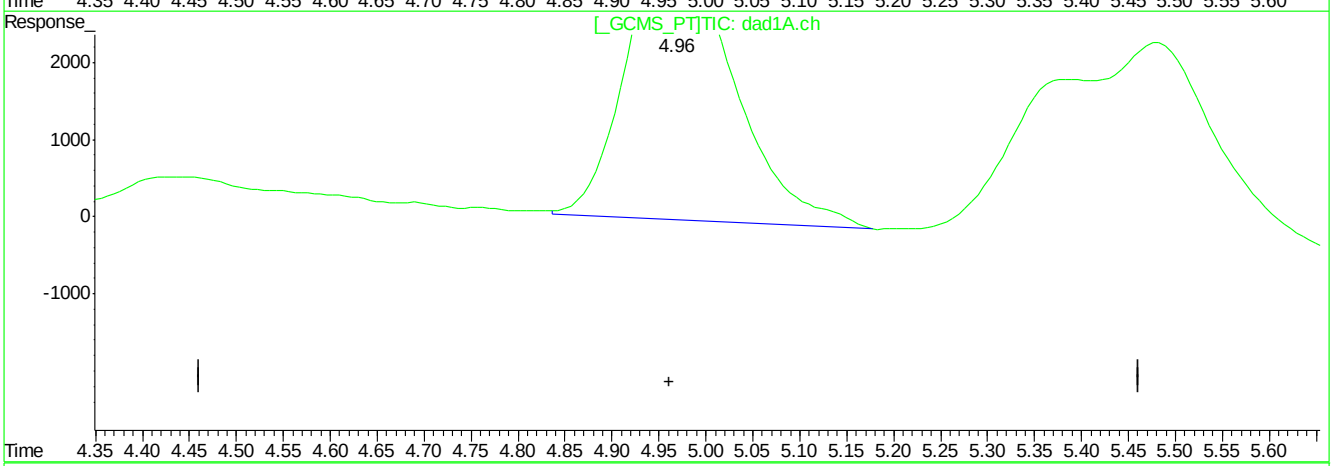
Parameter	CAS	Sig#	R.T. (min.)	Reason
TNX		1	4.96	Poor instrument integration
TNX		2	4.96	Poor instrument integration
HMX	2691-41-0	1	5.41	Poor instrument integration
HMX	2691-41-0	2	5.41	Poor instrument integration
DNX		1	5.48	Poor instrument integration
DNX		2	5.48	Poor instrument integration
MNX		1	6.32	Poor instrument integration
MNX		2	6.32	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	1	9.50	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	9.50	Poor instrument integration
Nitrobenzene	98-95-3	2	10.41	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	2	11.03	Poor instrument integration
Tetryl	479-45-8	2	12.12	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	2	13.52	Poor instrument integration
4-amino-2,6-Dinitrotoluene	19406-51-0	2	17.09	Poor instrument integration
p-Nitrotoluene	99-99-0	2	17.09	Poor instrument integration
m-Nitrotoluene	99-08-1	2	18.31	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(1) TNX

4.96min 49.866ppb m

response 283262

(1) TNX #2

4.96min 50.196ppb m

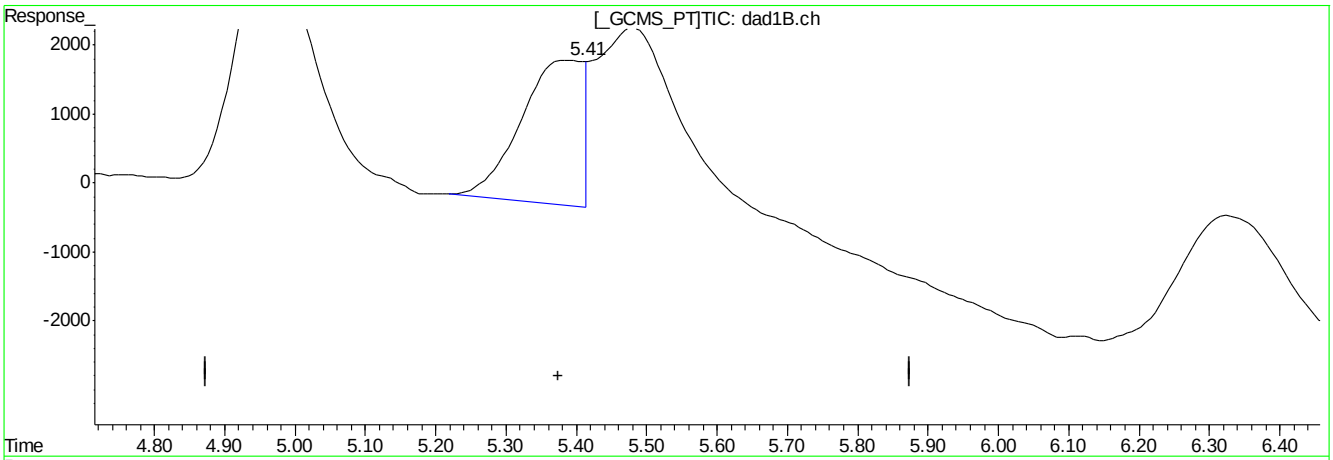
response 285743

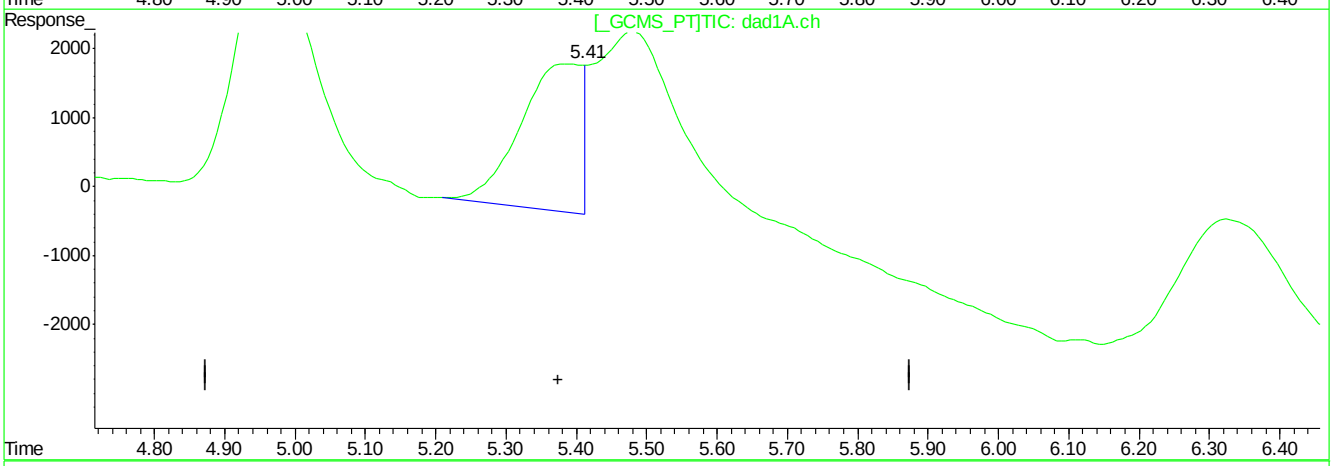
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:18:44 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.41min 33.819ppb m

response 124790

(2) HMX #2

5.41min 35.307ppb m

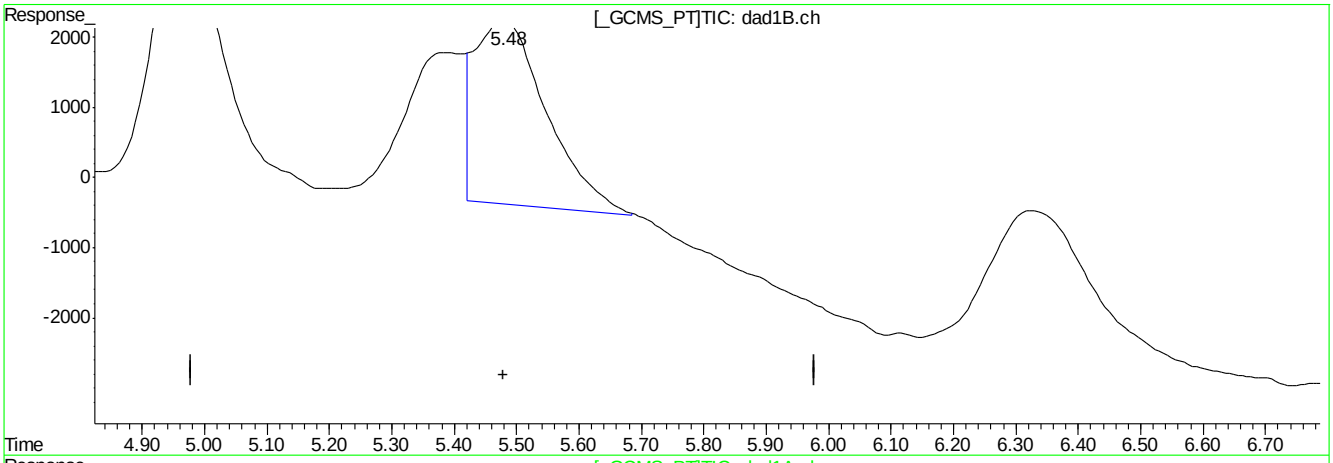
response 130111

(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:18:54 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(3) DNX

5.48min 38.829ppb m

response 210608

(3) DNX #2

5.48min 39.007ppb m

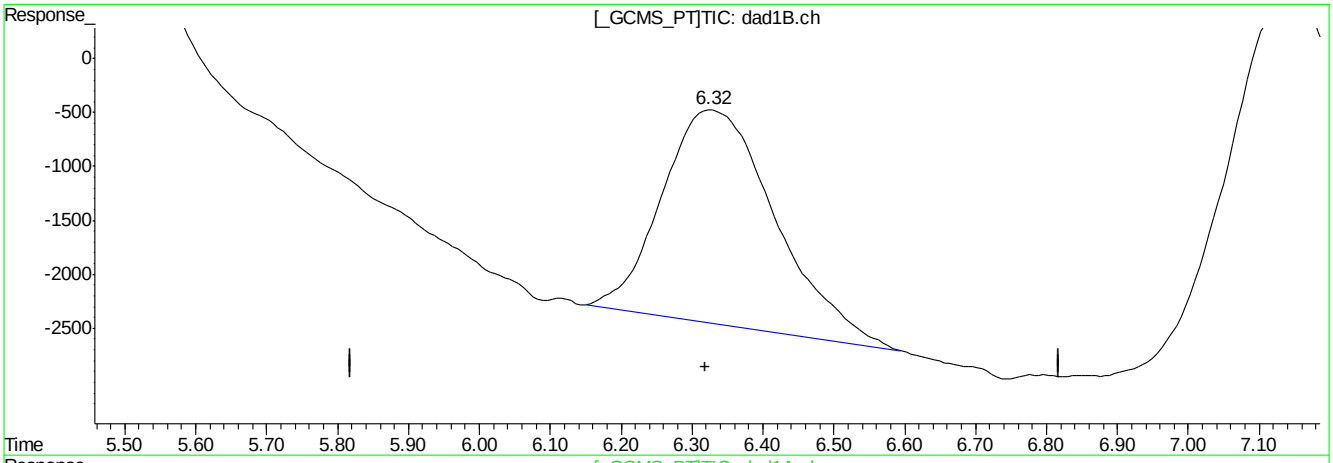
response 209215

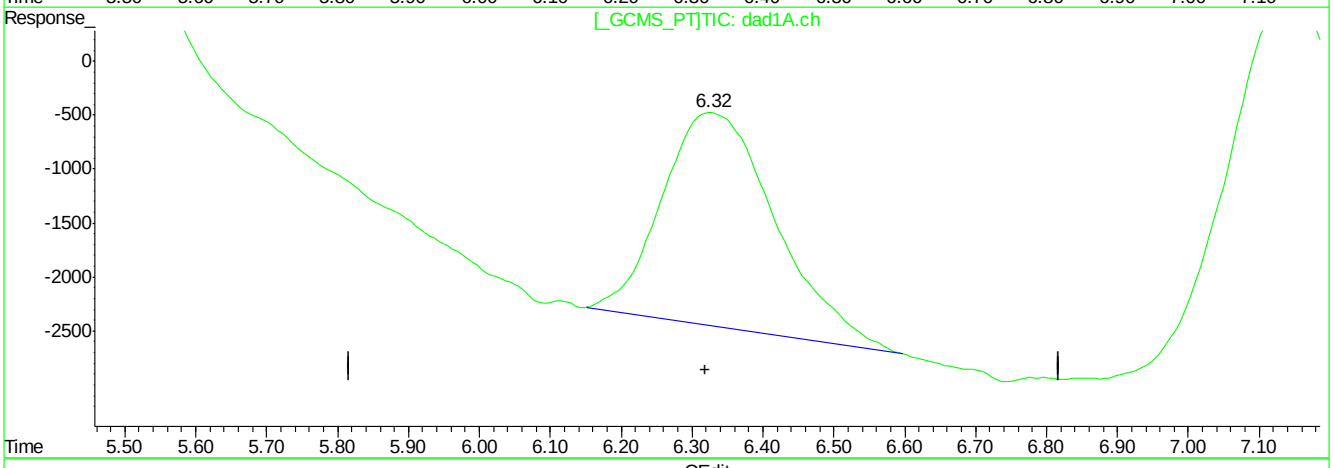
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:19:05 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(4) MNX

6.32min 37.947ppb m

response 221441

(4) MNX #2

6.32min 37.875ppb m

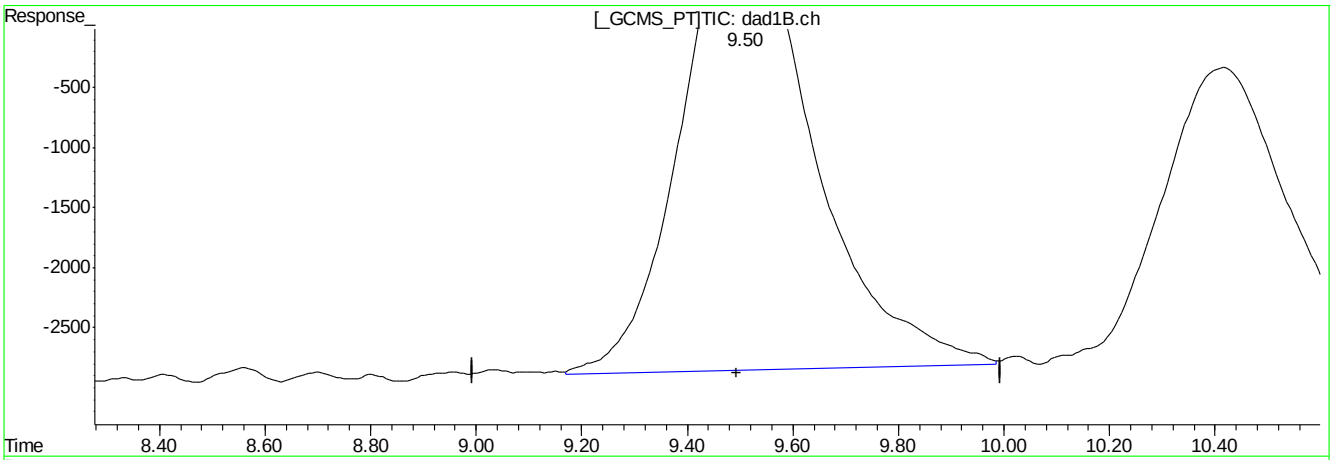
response 221012

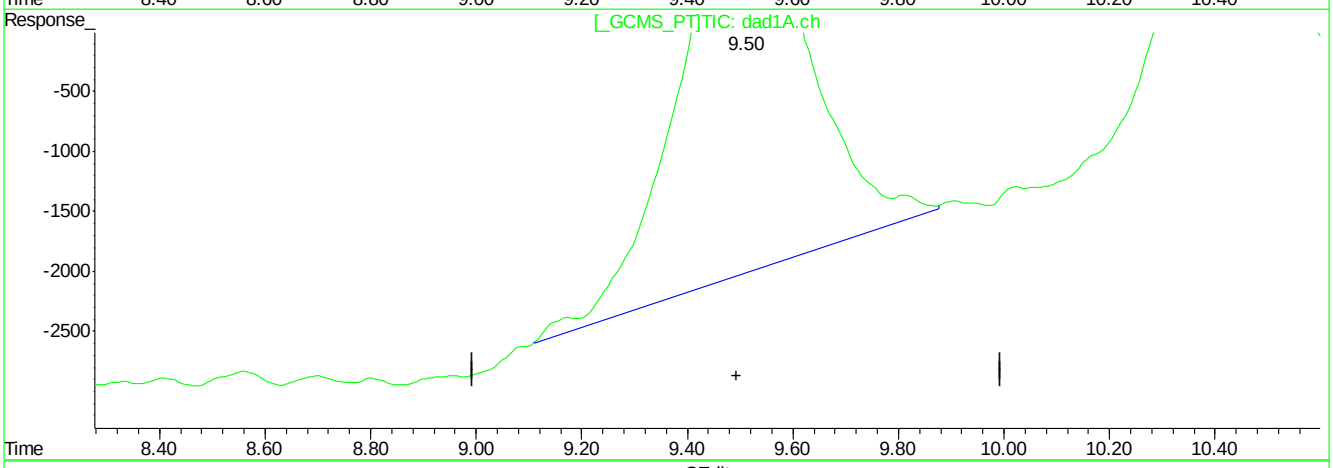
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:19:14 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

9.50min 50.061ppb m

response 670221

(7) 1,3-Dinitrobenzene #2

9.50min 54.739ppb m

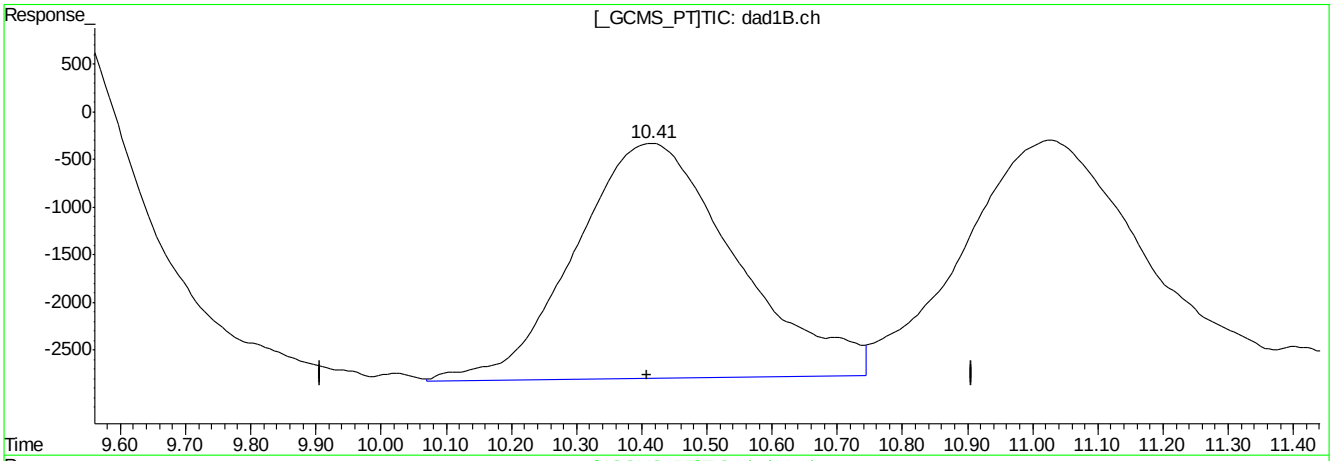
response 555145

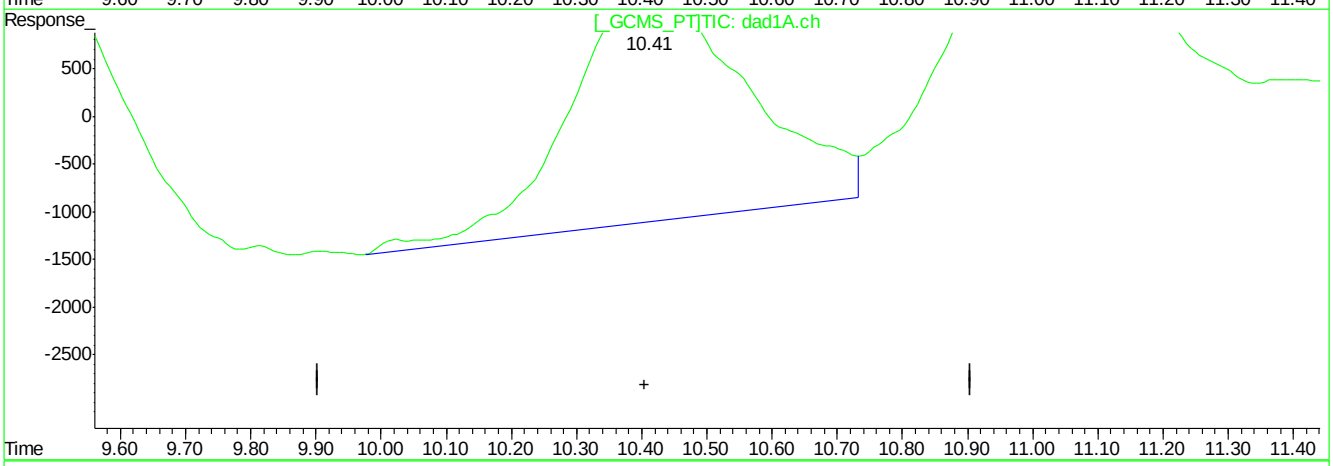
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:19:32 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(8) Nitrobenzene

10.42min 50.067ppb

response 424717

(8) Nitrobenzene #2

10.41min 55.327ppb m

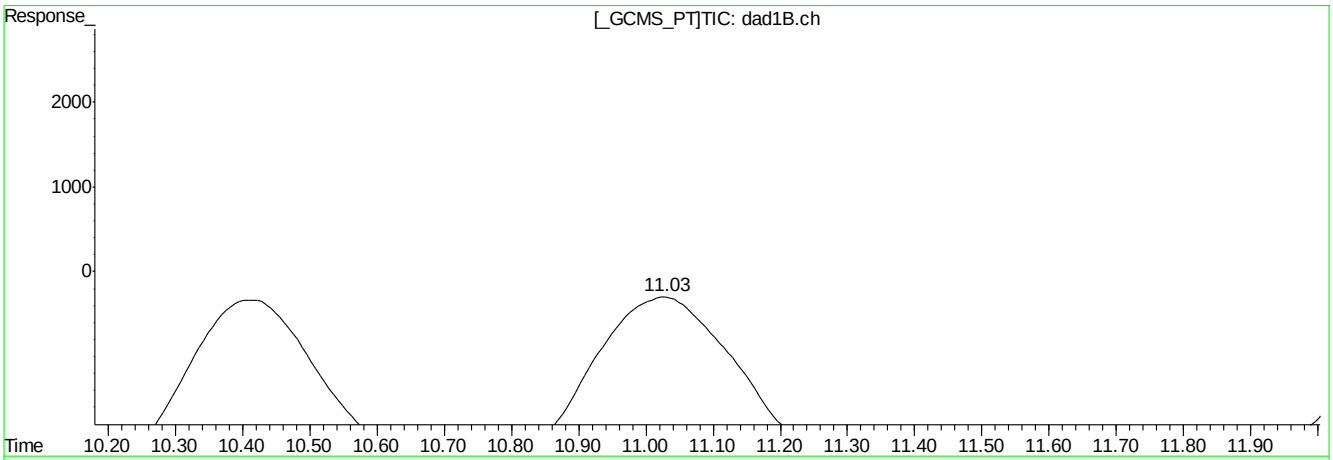
response 468190

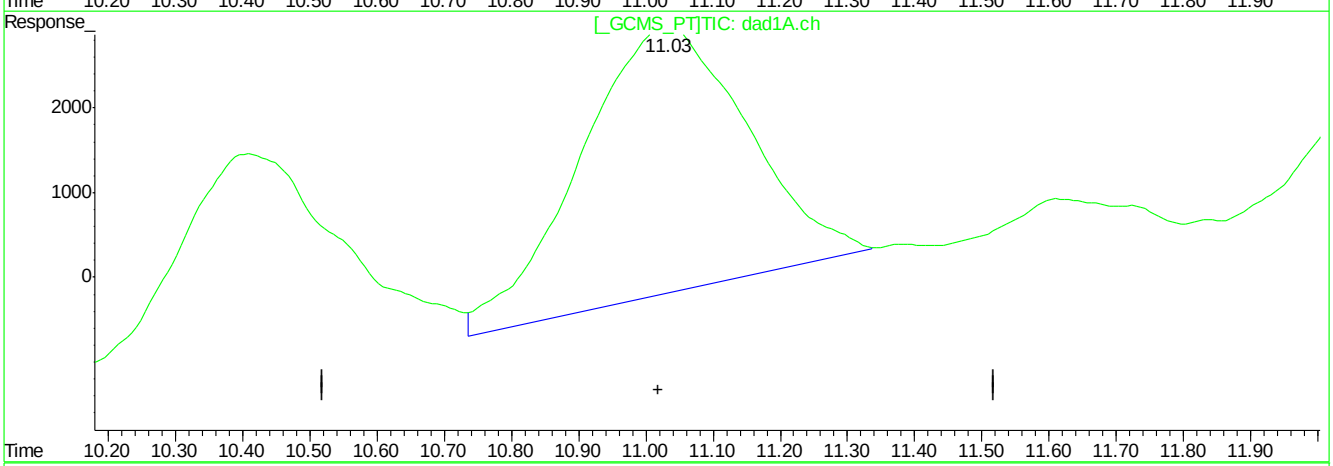
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:19:43 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.03min 50.186ppb

response 466855

(9) 2,4,6-Trinitrotoluene #2

11.03min 45.774ppb m

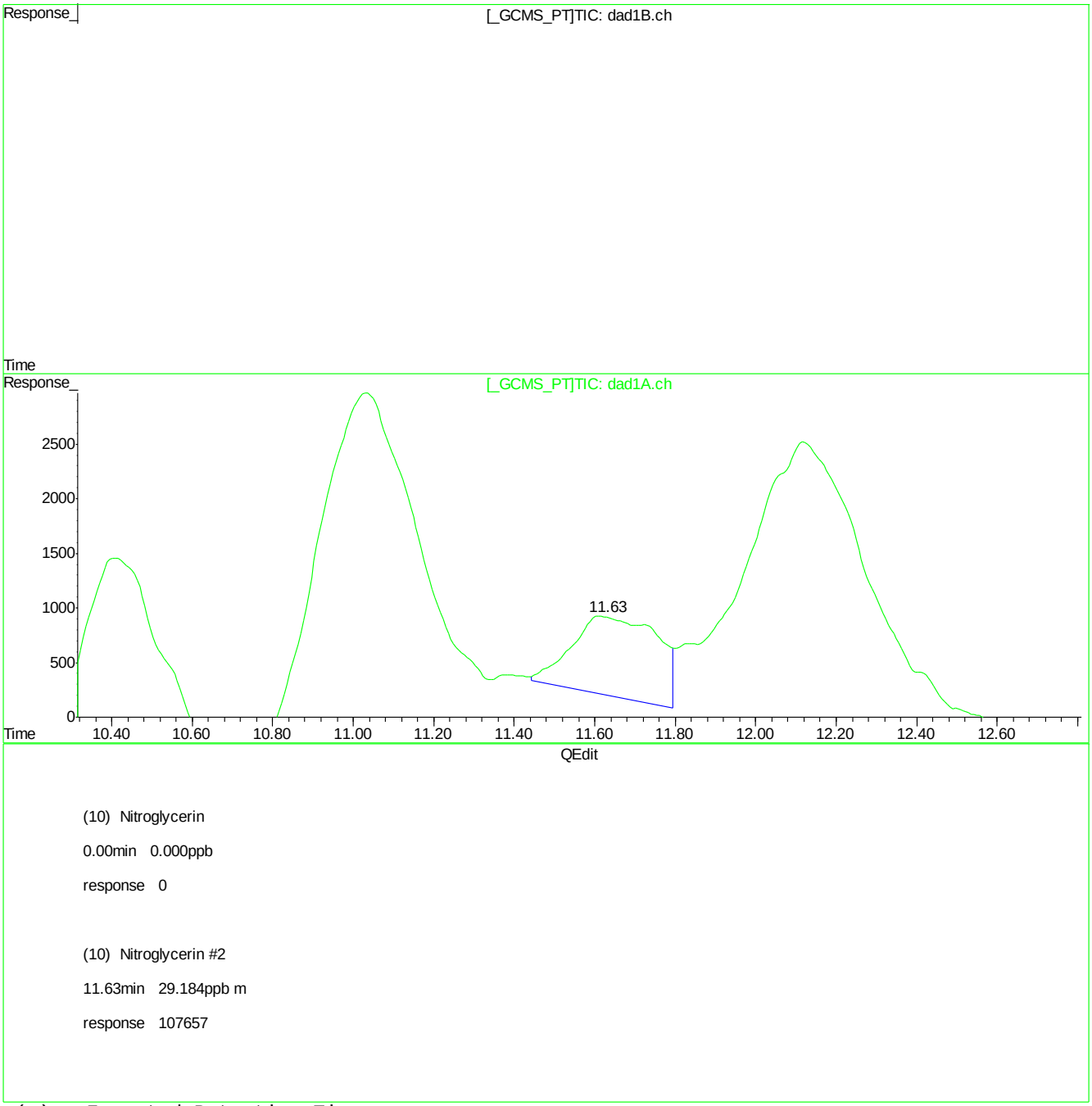
response 545525

(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:19:51 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration

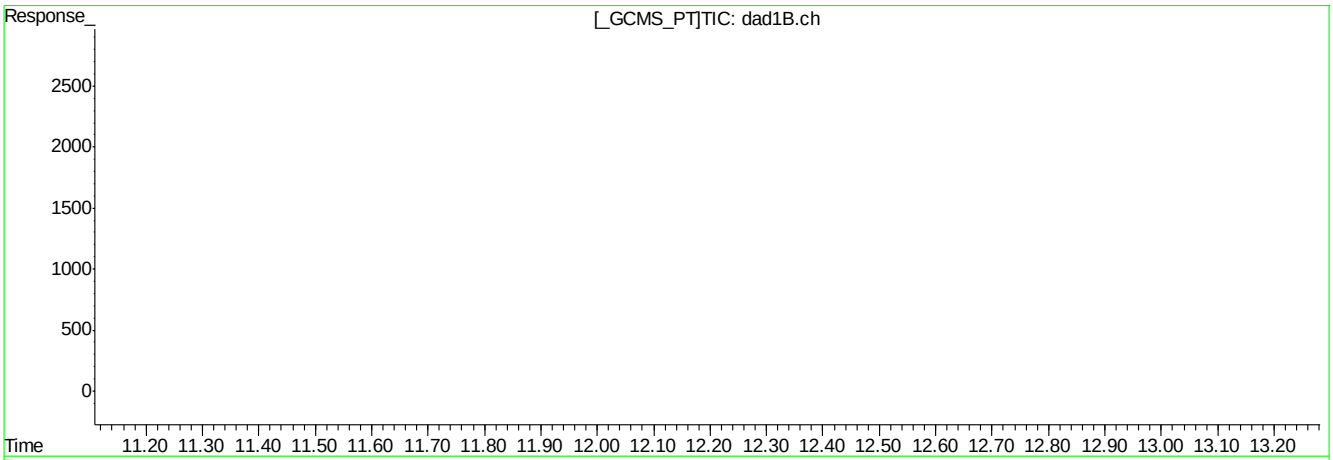


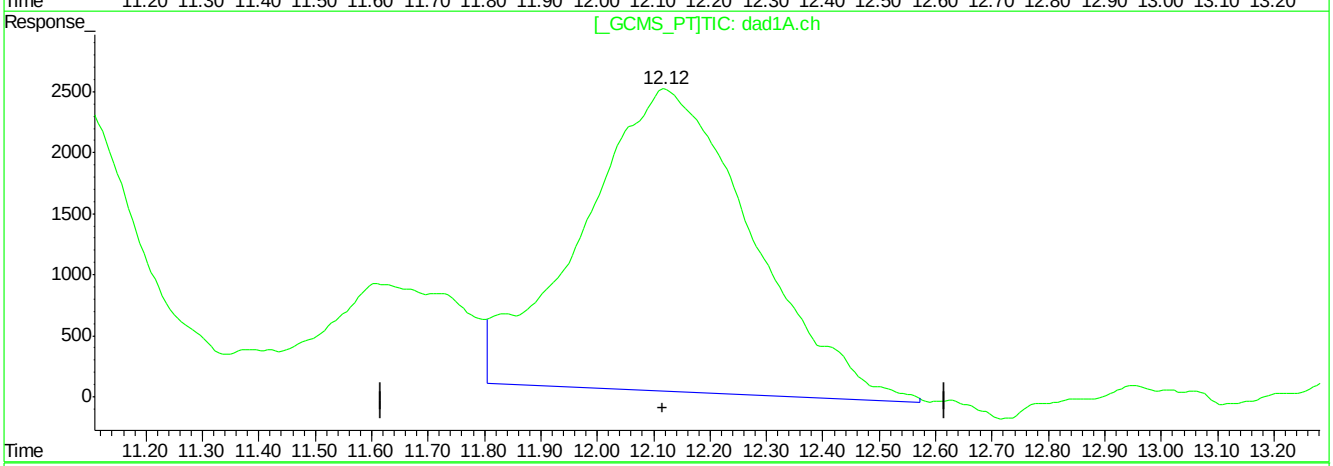
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:20:00 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(11) Tetryl

12.13min 49.699ppb

response 342824

(11) Tetryl #2

12.12min 39.278ppb m

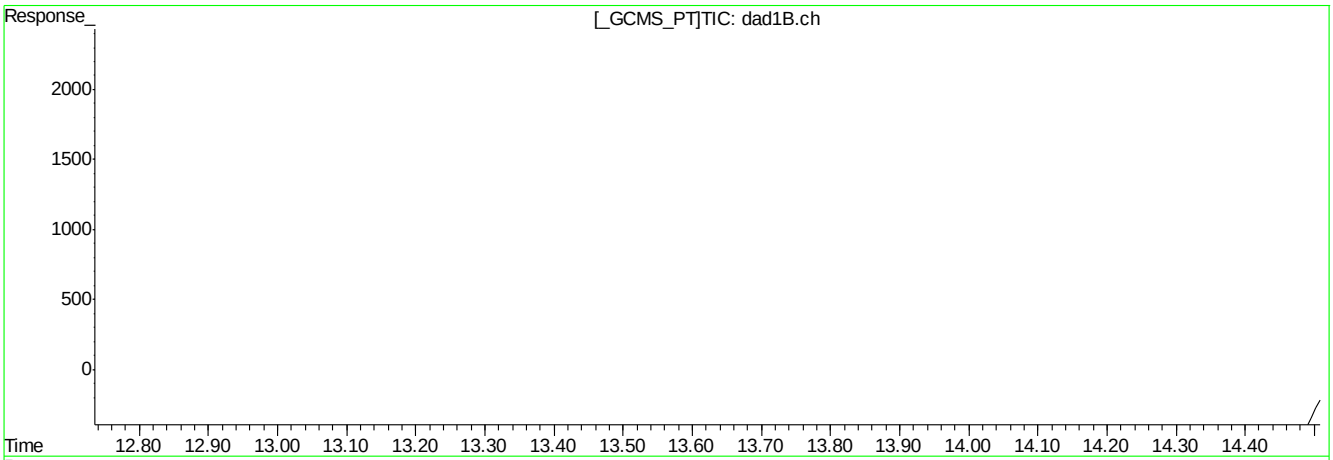
response 517408

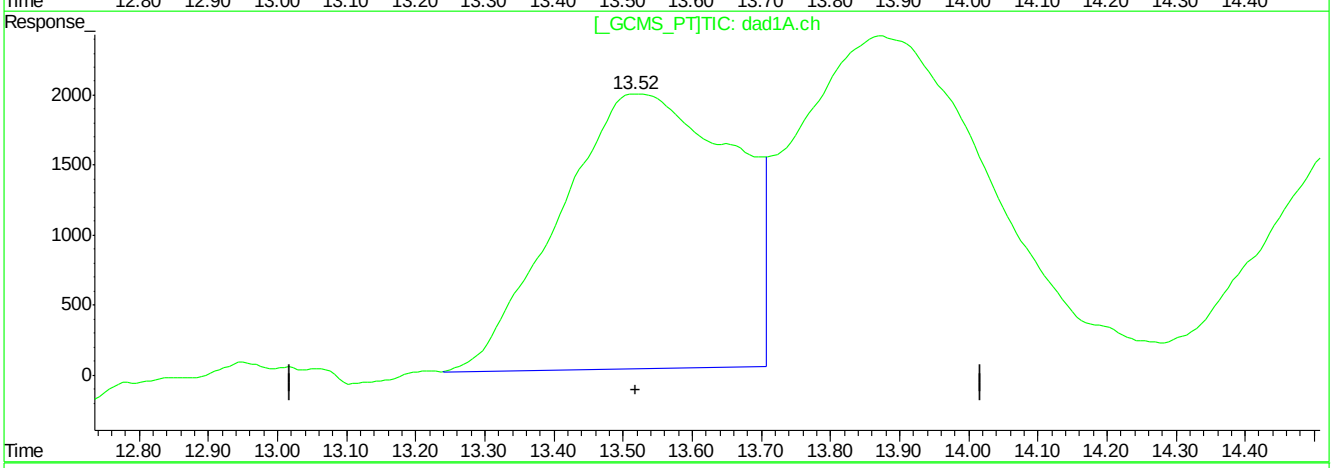
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:20:10 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(12) 3,4-Dinitrotoluene (S)

13.55min 41.601ppb

response 216587

(12) 3,4-Dinitrotoluene #2 (S)

13.52min 33.928ppb m

response 343039

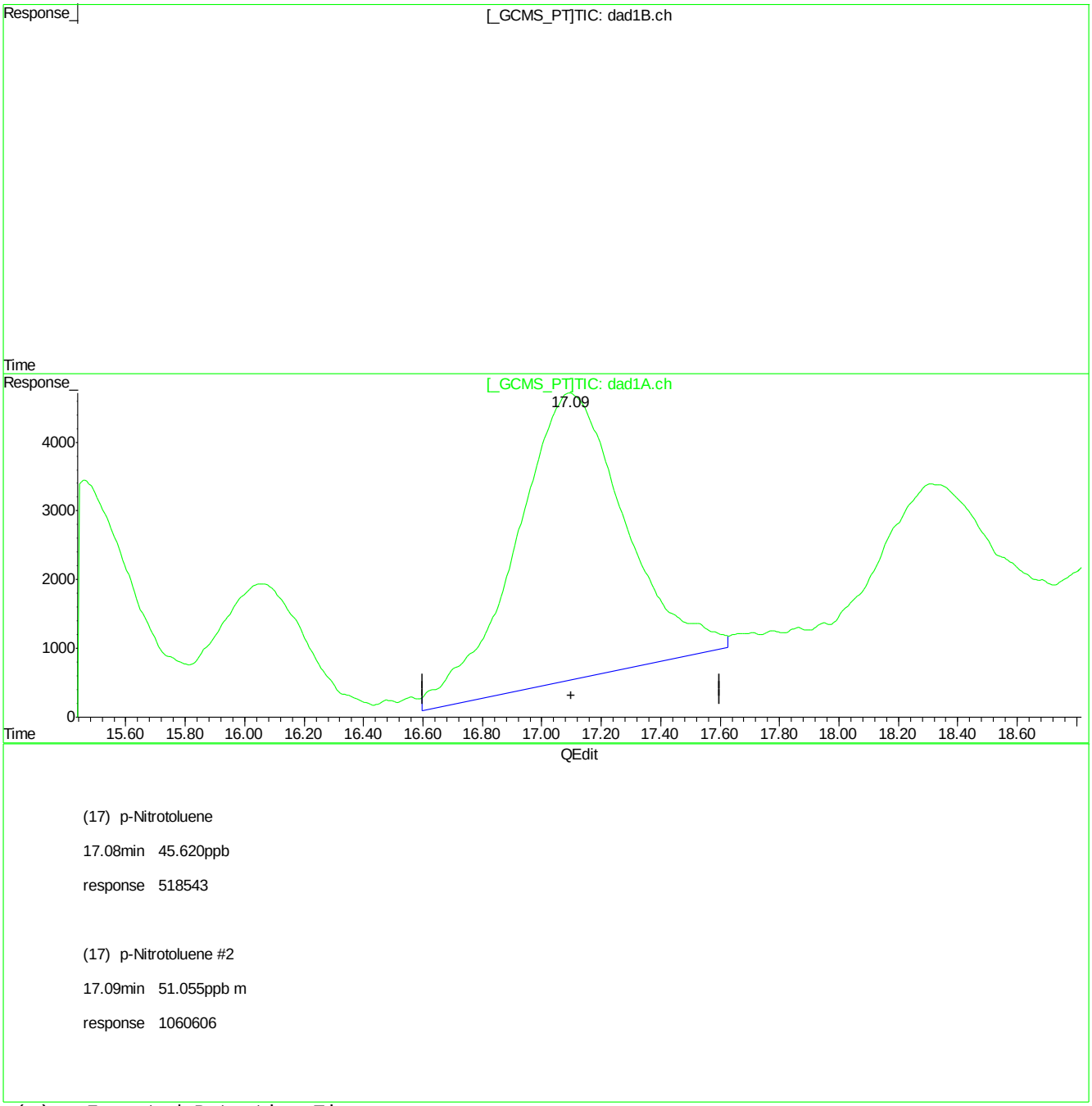
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:20:19 2019

GG617748.D edits: 3,4-Dinitrotoluene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(17) p-Nitrotoluene

17.08min 45.620ppb

response 518543

(17) p-Nitrotoluene #2

17.09min 51.055ppb m

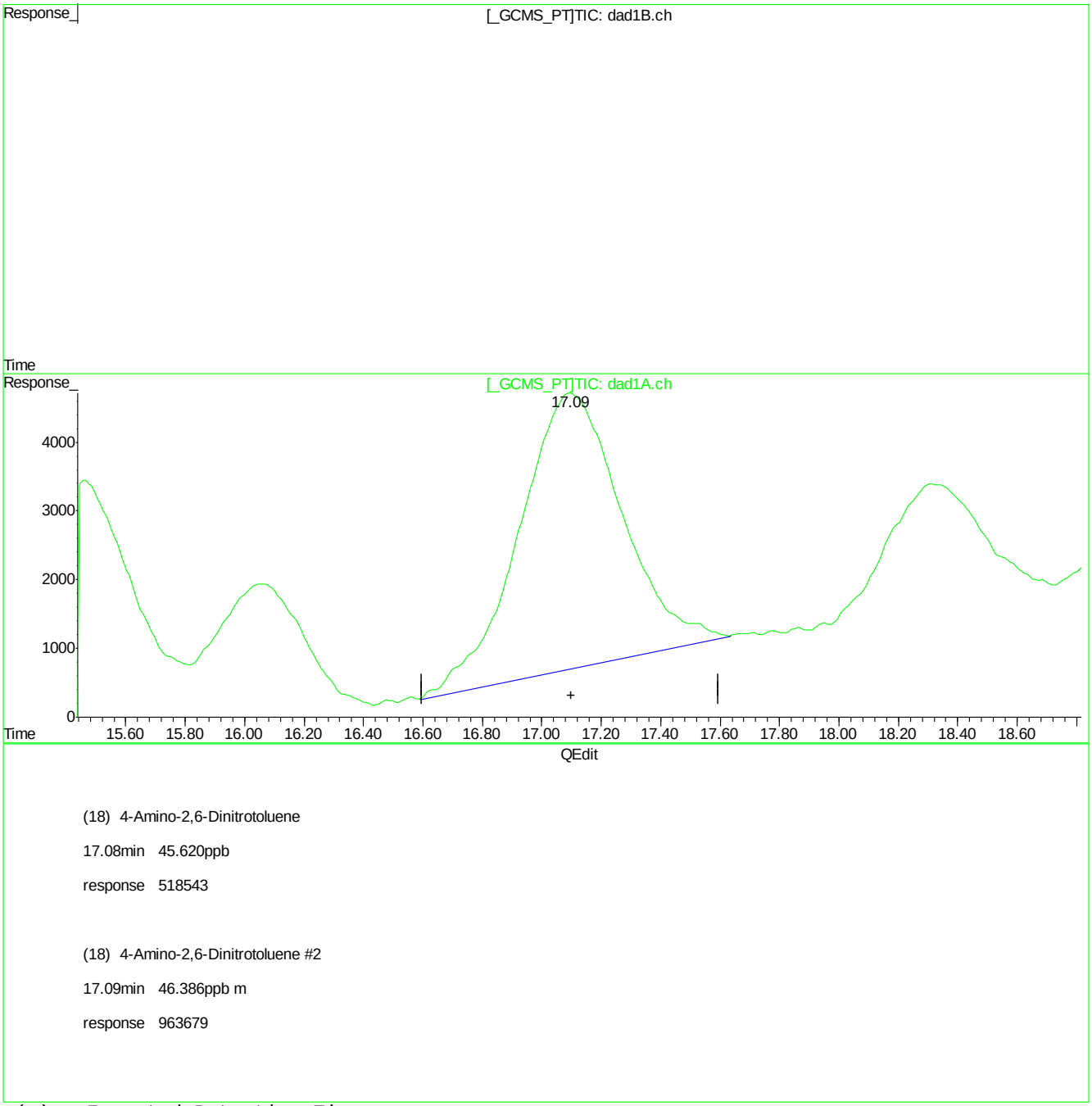
response 1060606

(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:20:39 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(18) 4-Amino-2,6-Dinitrotoluene

17.08min 45.620ppb

response 518543

(18) 4-Amino-2,6-Dinitrotoluene #2

17.09min 46.386ppb m

response 963679

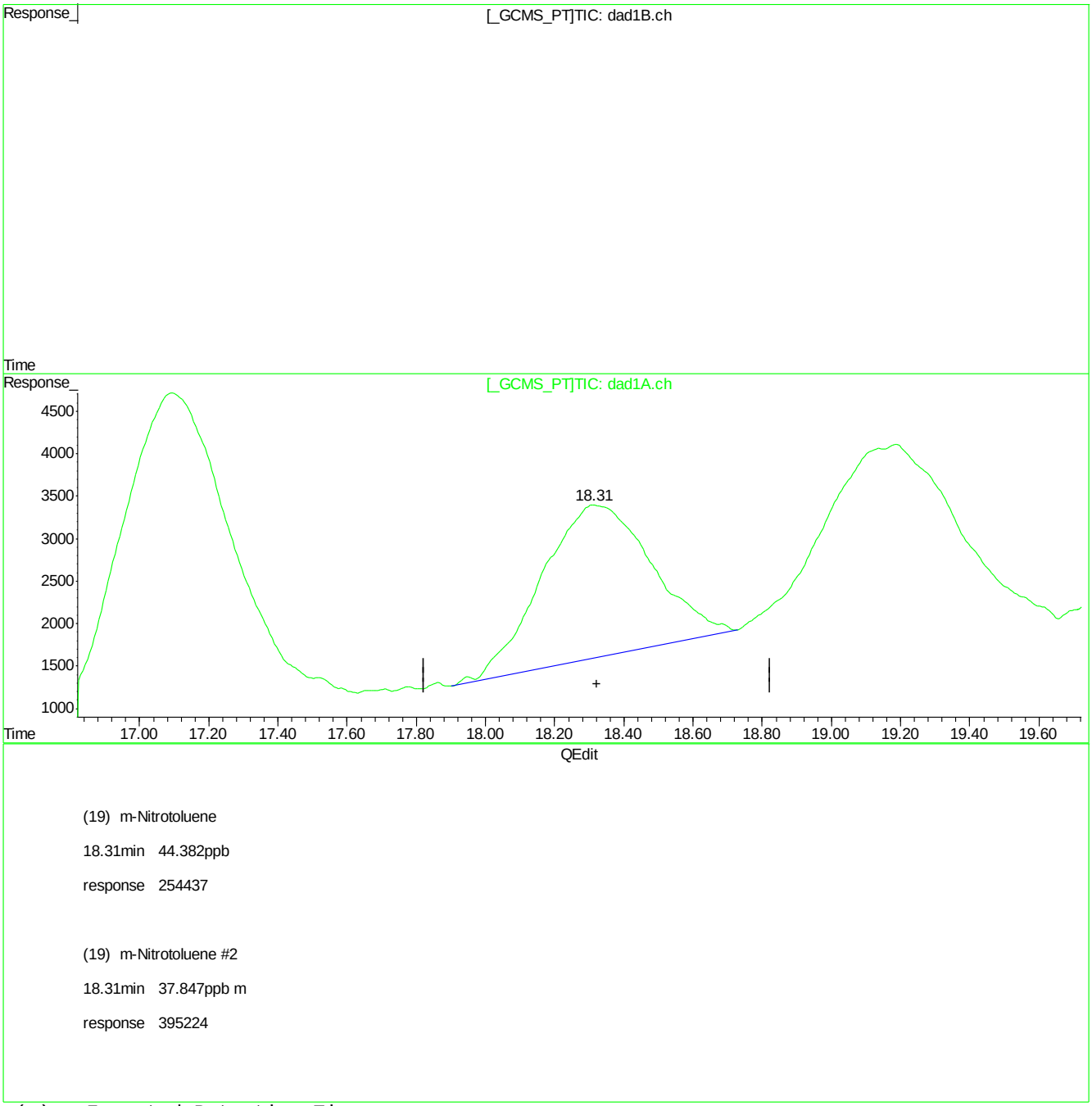
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:20:51 2019

GG617748.D edits: 4-Amino-2,6-Dinitrotoluene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(19) m-Nitrotoluene

18.31min 44.382ppb

response 254437

(19) m-Nitrotoluene #2

18.31min 37.847ppb m

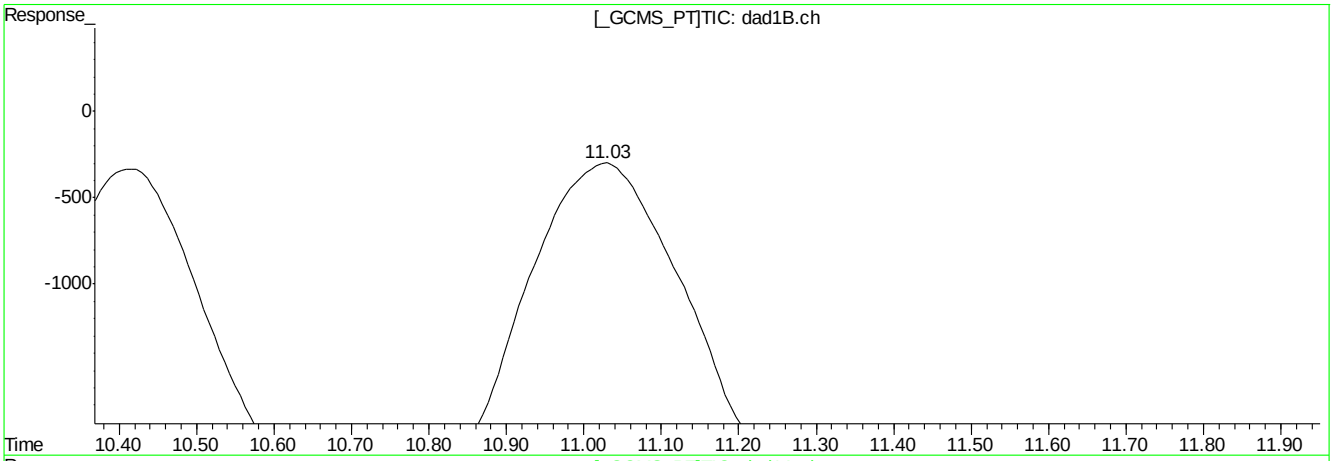
response 395224

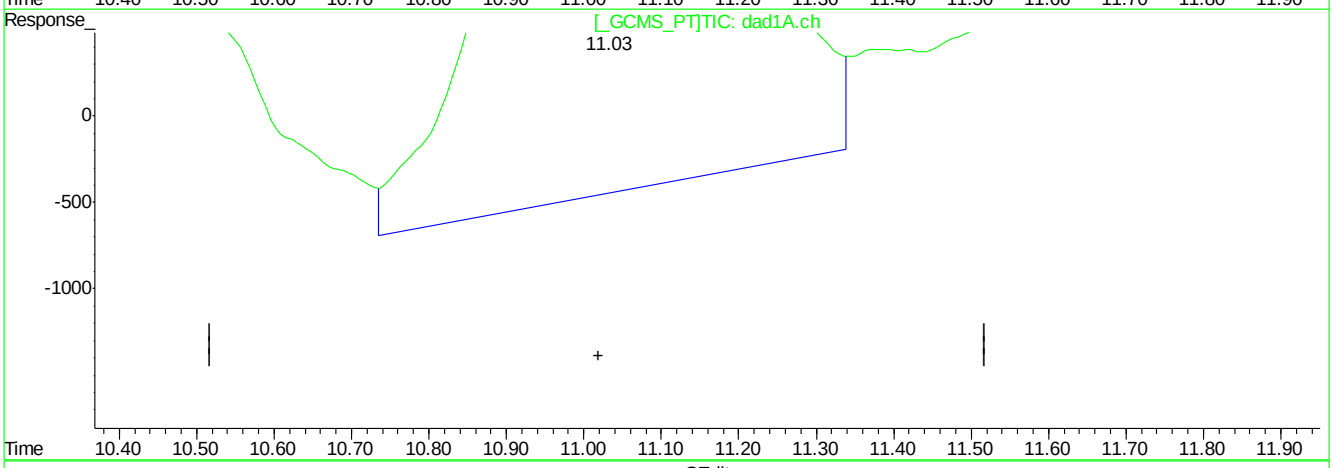
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:20:58 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:20 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.03min 50.186ppb

response 466855

(9) 2,4,6-Trinitrotoluene #2

11.03min 53.838ppb m

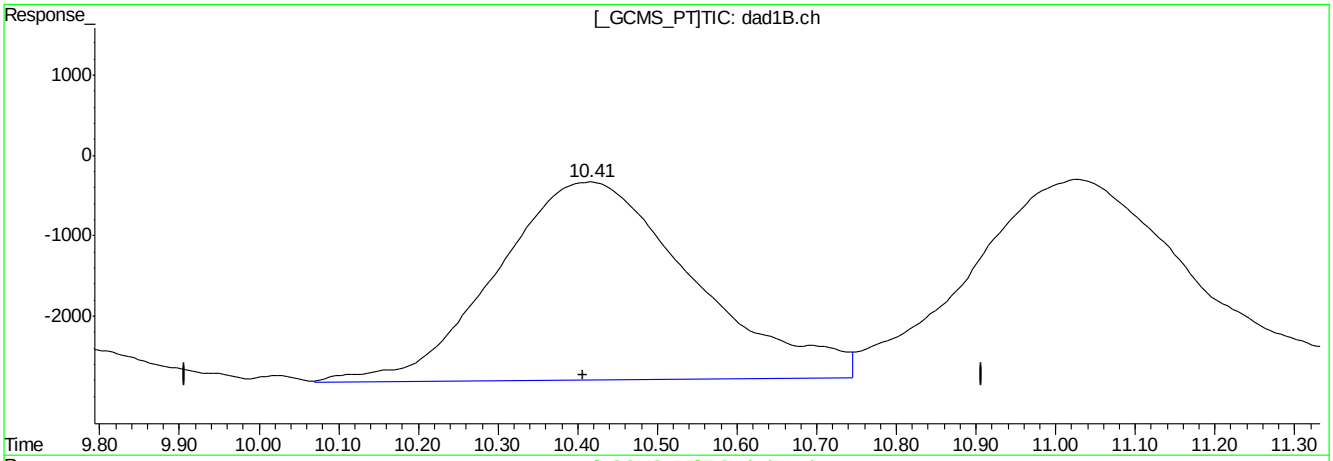
response 641631

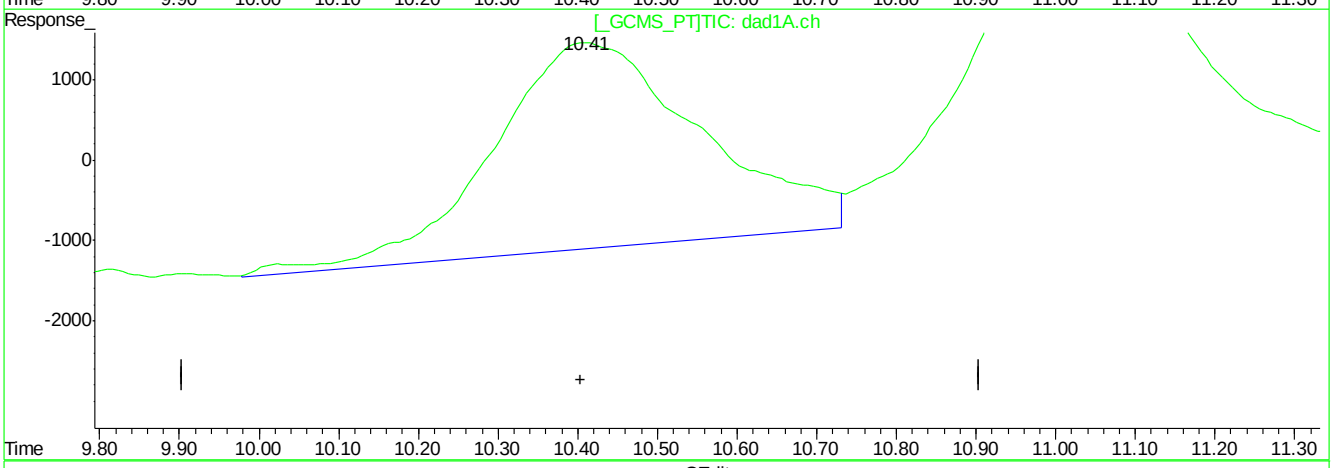
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:35:48 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:20 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(8) Nitrobenzene

10.42min 50.067ppb

response 424717

(8) Nitrobenzene #2

10.41min 55.327ppb m

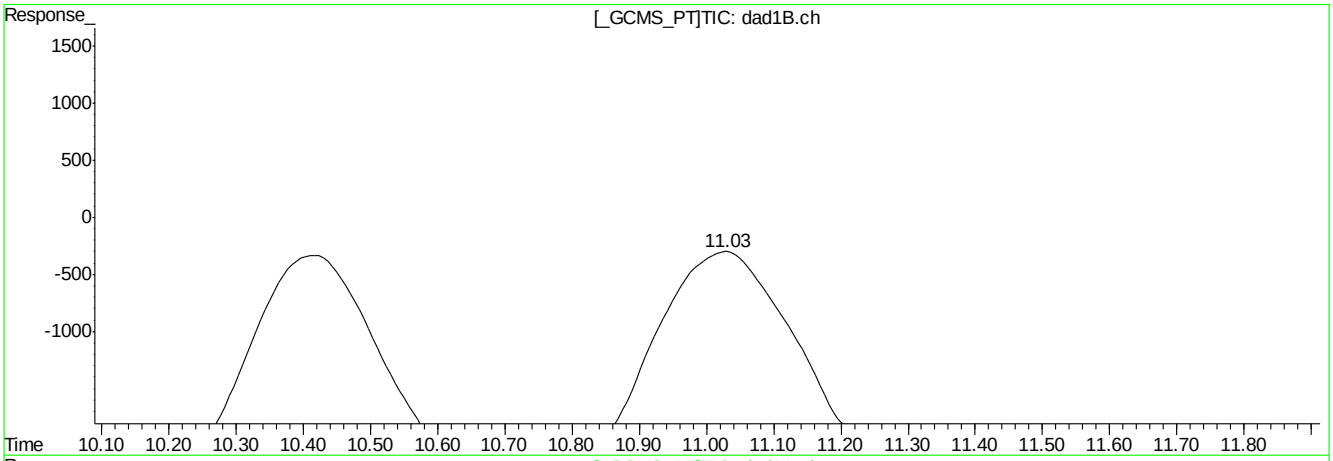
response 468190

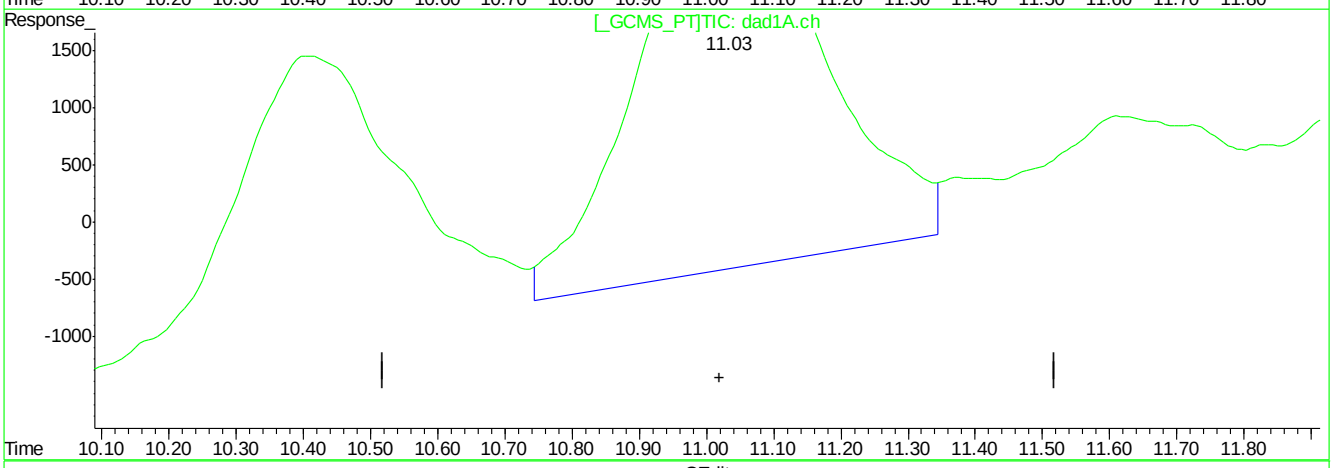
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:35:52 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:20 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.03min 50.186ppb

response 466855

(9) 2,4,6-Trinitrotoluene #2

11.03min 52.723ppb m

response 628341

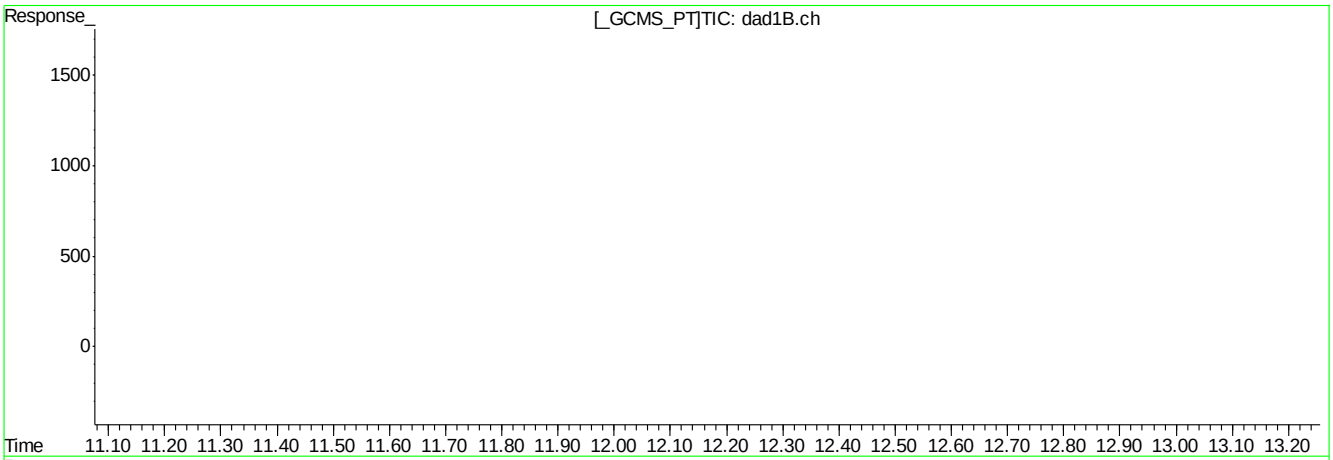
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:36:06 2019

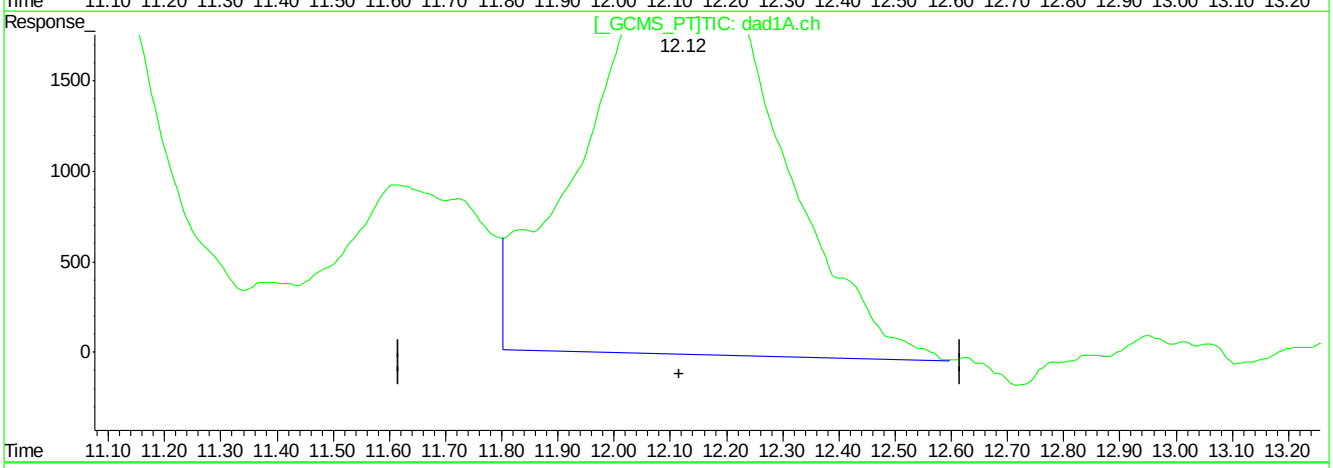
GG617748.D edits: 2,4,6-Trinitrotoluene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:20 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(11) Tetryl

12.13min 49.699ppb

response 342824

(11) Tetryl #2

12.12min 41.127ppb m

response 541733

(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:36:14 2019

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
09/26/19 16:28

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12:35 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.54	13.54	480959	868537	92.381	85.881
	Spiked Amount 500.000	Range 70 - 136		Recovery =		18.48%#	17.18%#
	Target Compounds						
1)	TNX	4.96	4.96	627331	626725	110.436m	110.096m
2)	HMX	5.39	5.39	303509	306772	82.387m	83.377m
3)	DNX	5.48	5.48	478533	488896	88.393m	91.309m
4)	MNX	6.34	6.34	549848	549848	94.250	94.253
5)	1,3,5-Trinitrobe	7.14	7.14	1068826	1068826	112.334	112.669
6)	RDX	7.55	7.55	513642	513642	111.124	111.941
7)	1,3-Dinitrobenze	9.51	9.51	1496695	1034767	111.794	102.032m
8)	Nitrobenzene	10.42	10.42	939534	842434	110.754	99.633m
9)	2,4,6-Trinitroto	11.03	11.02	1095538	1275868	117.768	107.055m
10)	Nitroglycerin	0.00	11.66	0	376622	N.D.	102.113m#
11)	Tetryl	12.13	12.11	864235	1444030	125.289	109.804m
13)	2,6-Dinitrotolue	13.89	13.88	767928	1205926	122.774	126.901
14)	2,4-Dinitrotolue	14.58	14.56	1329488	796655	109.499	90.696
15)	o-Nitrotoluene	16.05	16.05	641941	843998	114.731	83.704
16)	3,5-Dinitroanili	15.44	15.45	1099231	1615264	101.063	85.482
17)	p-Nitrotoluene	17.09	17.09	1221156	2192222	107.434	105.529
18)	4-Amino-2,6-Dini	17.09	17.09	1221156	2192222	107.434	105.521
19)	m-Nitrotoluene	18.30	18.31	632999	1070219	110.414	102.486
20)	2-Amino-4,6-Dini	19.13	19.14	1024160	1389255	118.711	111.911
21)	PETN	0.00	20.29	0	233935	N.D.	93.016 #

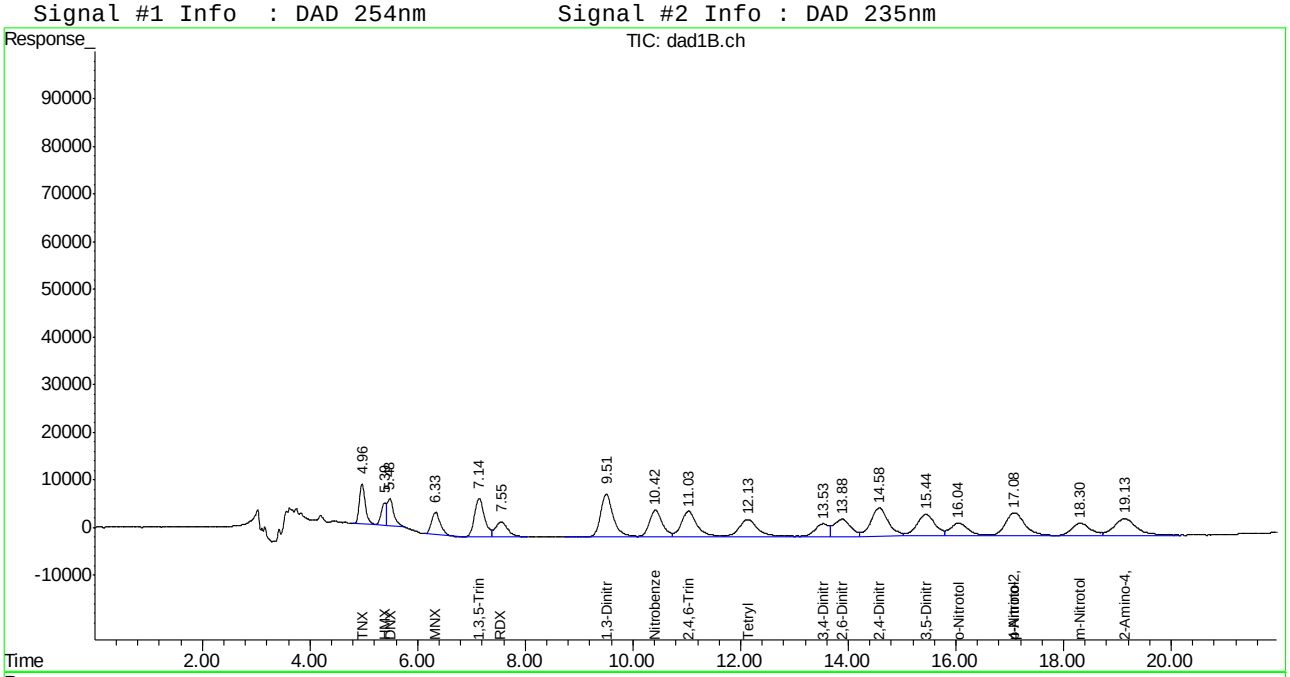
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

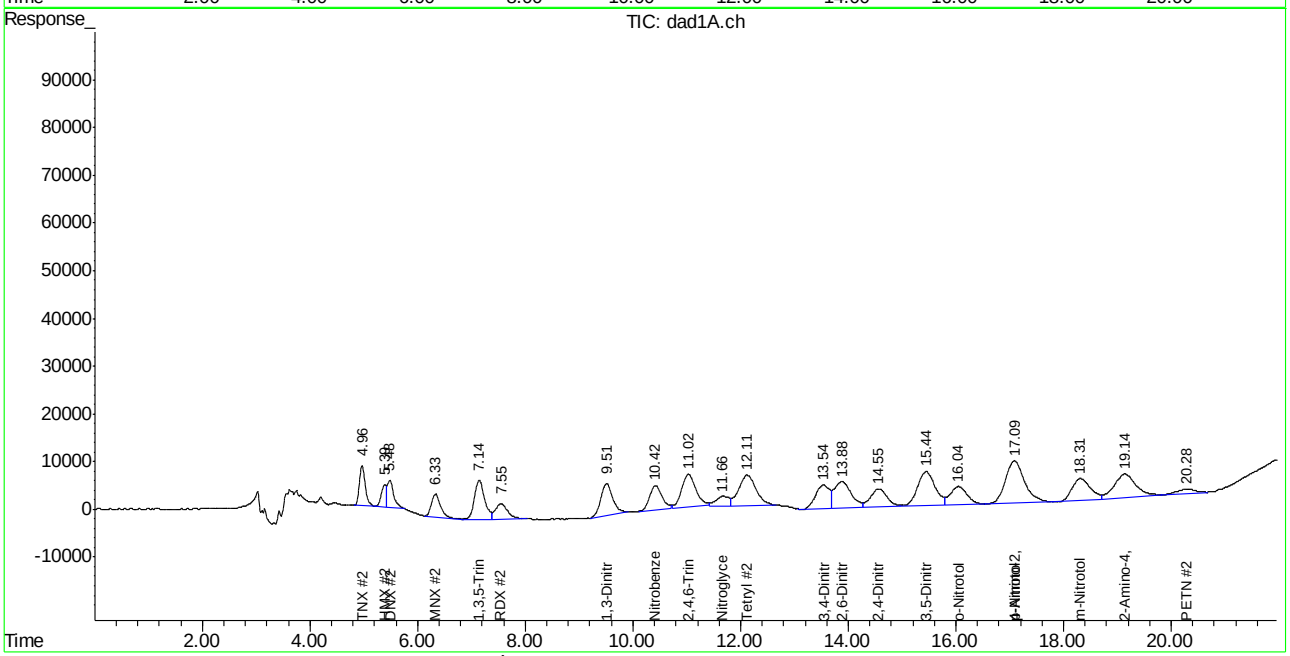
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:35 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

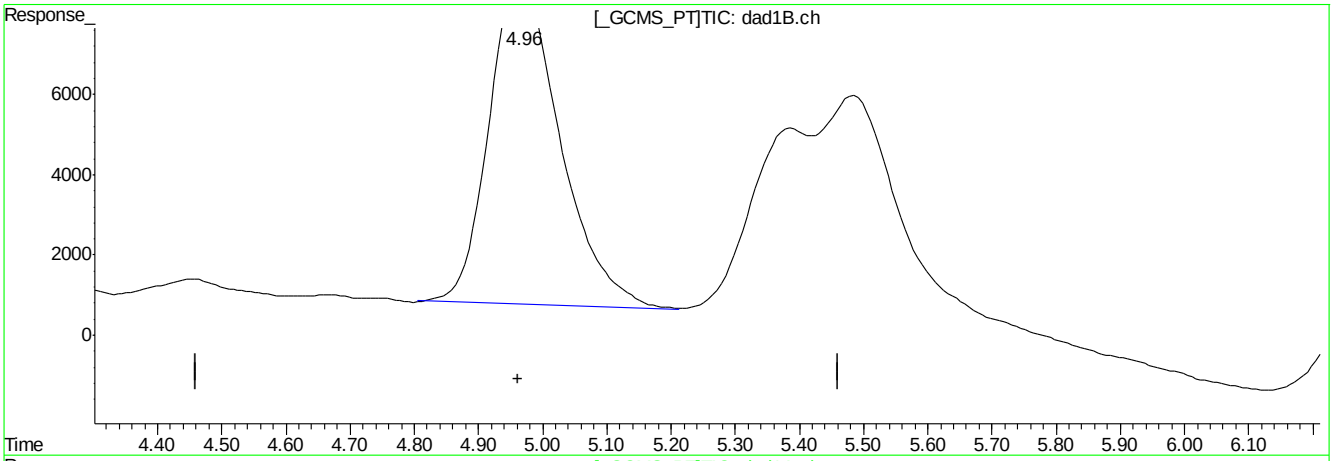
Sample Number: GGG2769-IC2769
Lab FileID: GG617749.D
Injection Time: 09/25/19 21:29
Method: SW846 8330B
Analyst approved: 09/26/19 16:07 William Hustedde
Supervisor approved: 09/26/19 16:28 Naresh Jiawan

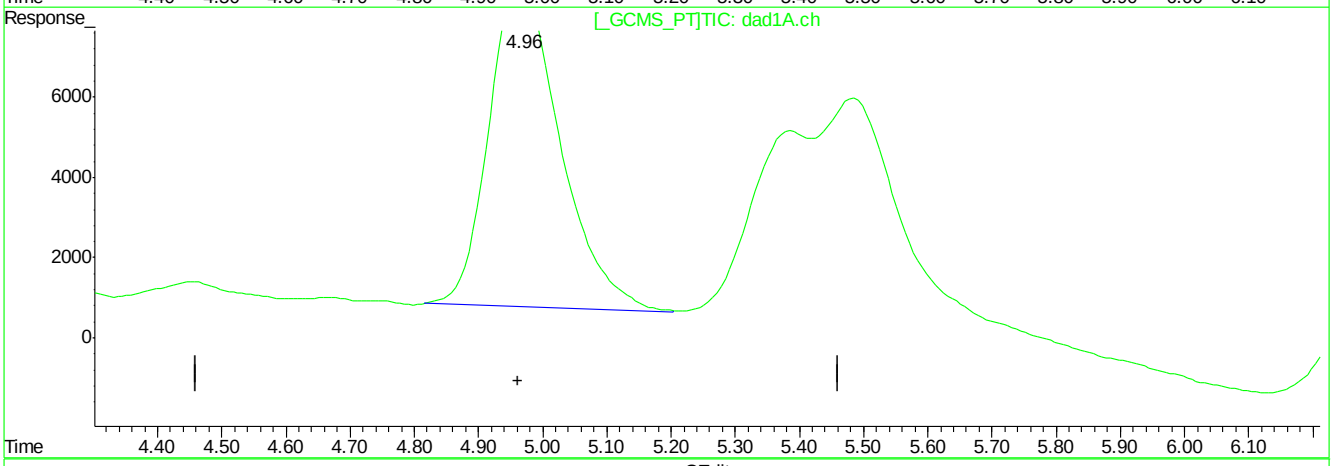
Parameter	CAS	Sig#	R.T. (min.)	Reason
TNX		1	4.96	Poor instrument integration
TNX		2	4.96	Poor instrument integration
HMX	2691-41-0	1	5.39	Poor instrument integration
HMX	2691-41-0	2	5.39	Poor instrument integration
DNX		1	5.48	Poor instrument integration
DNX		2	5.48	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	9.51	Poor instrument integration
Nitrobenzene	98-95-3	2	10.42	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	2	11.02	Poor instrument integration
Nitroglycerine	55-63-0	2	11.66	Poor instrument integration
Tetryl	479-45-8	2	12.11	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(1) TNX

4.96min 110.436ppb m

response 627331

(1) TNX #2

4.96min 110.096ppb m

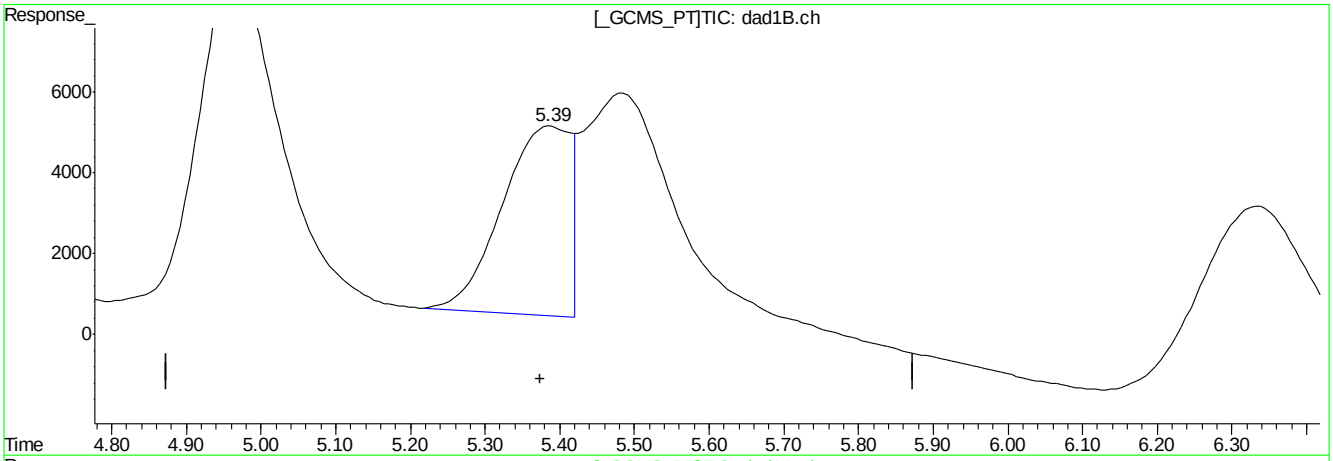
response 626725

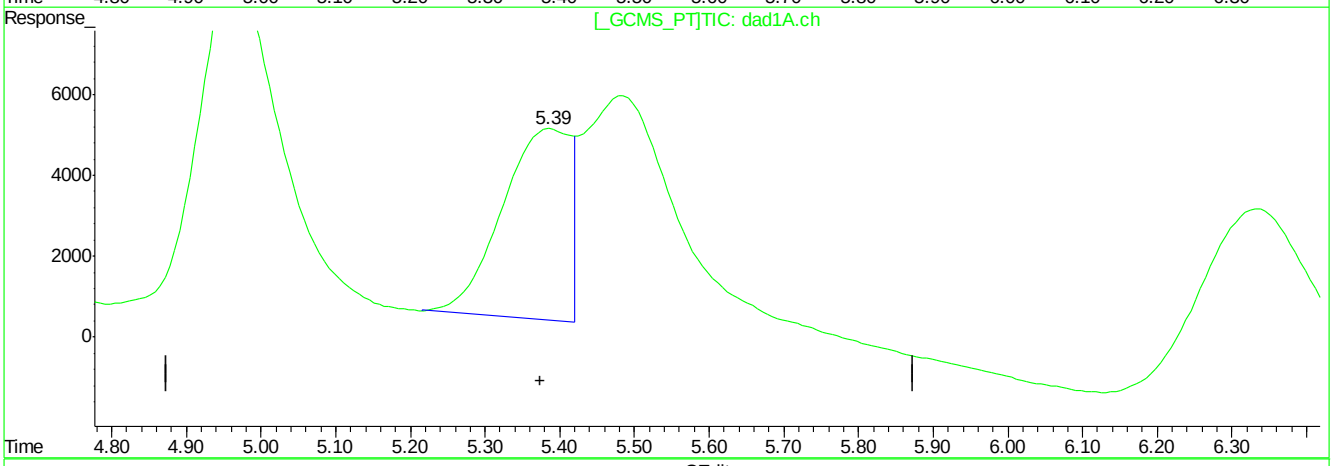
(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:22:45 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.39min 82.387ppb m

response 303509

(2) HMX #2

5.39min 83.377ppb m

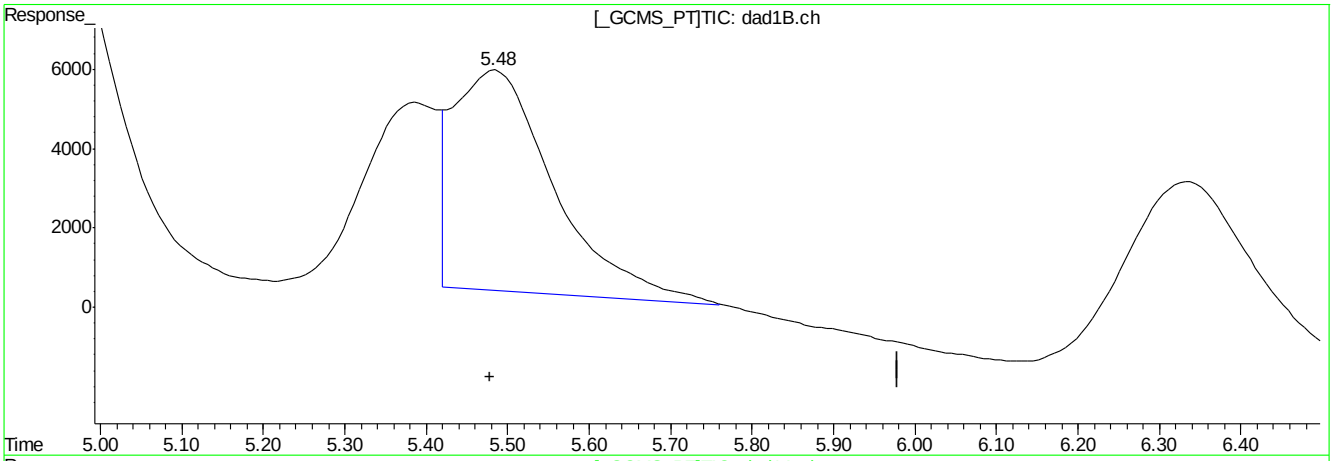
response 306772

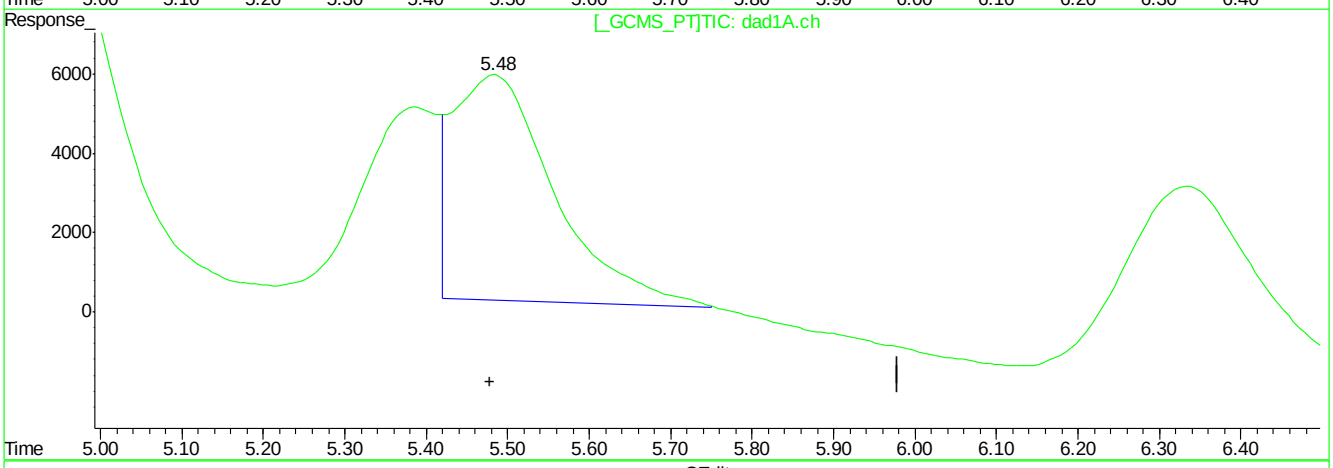
(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:22:54 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(3) DNX

5.48min 88.393ppb m

response 478533

(3) DNX #2

5.48min 91.309ppb m

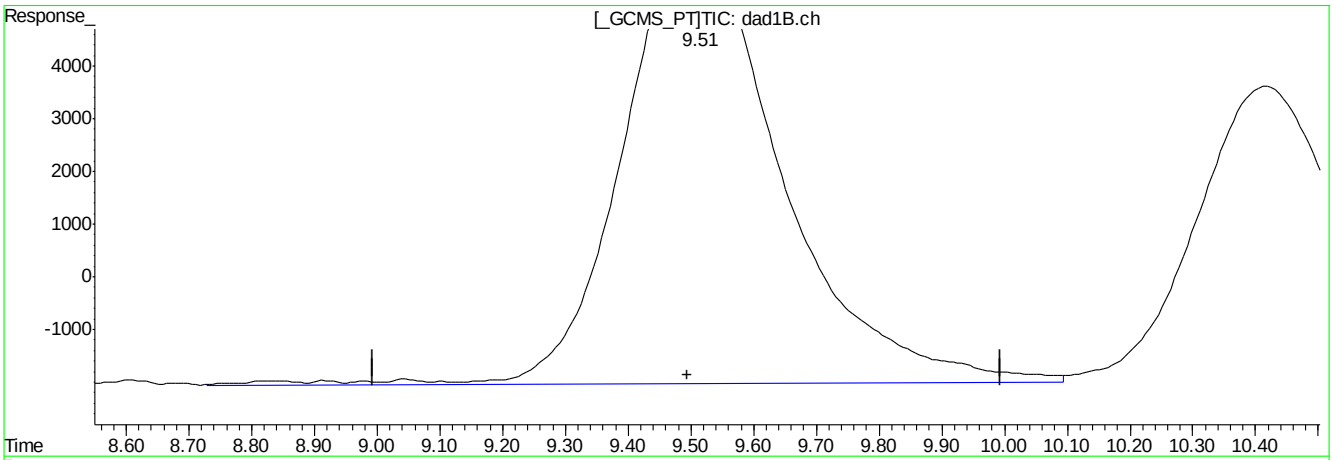
response 488896

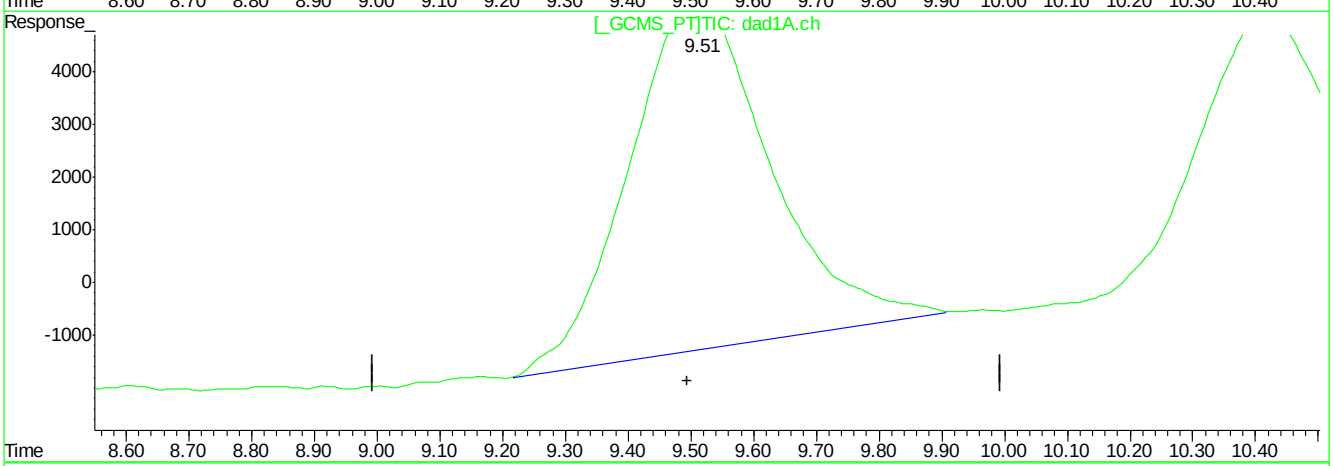
(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:23:04 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

9.51min 111.794ppb

response 1496695

(7) 1,3-Dinitrobenzene #2

9.51min 102.032ppb m

response 1034767

(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:23:17 2019

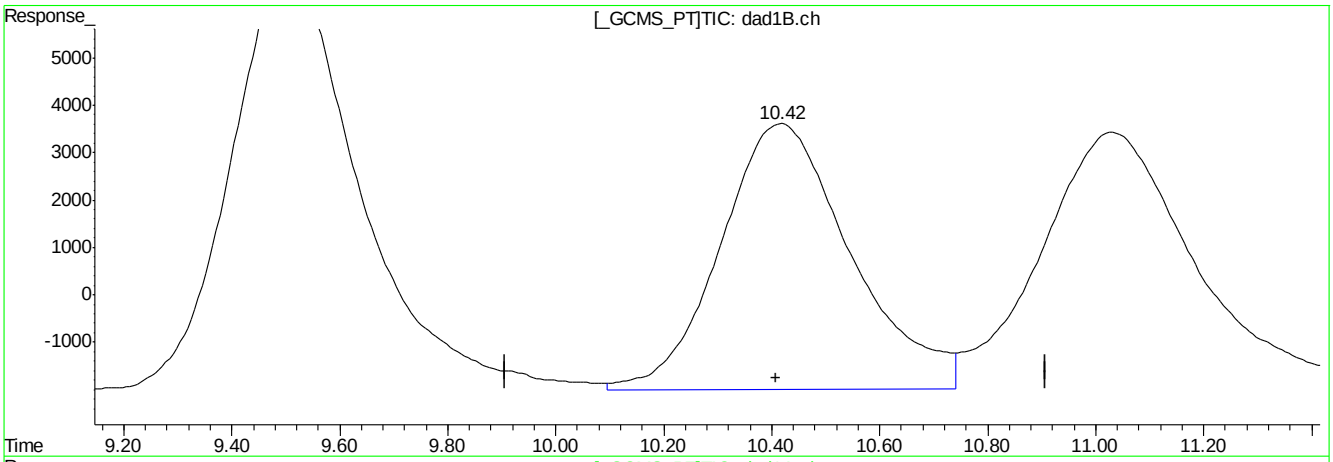
9.5.3.5

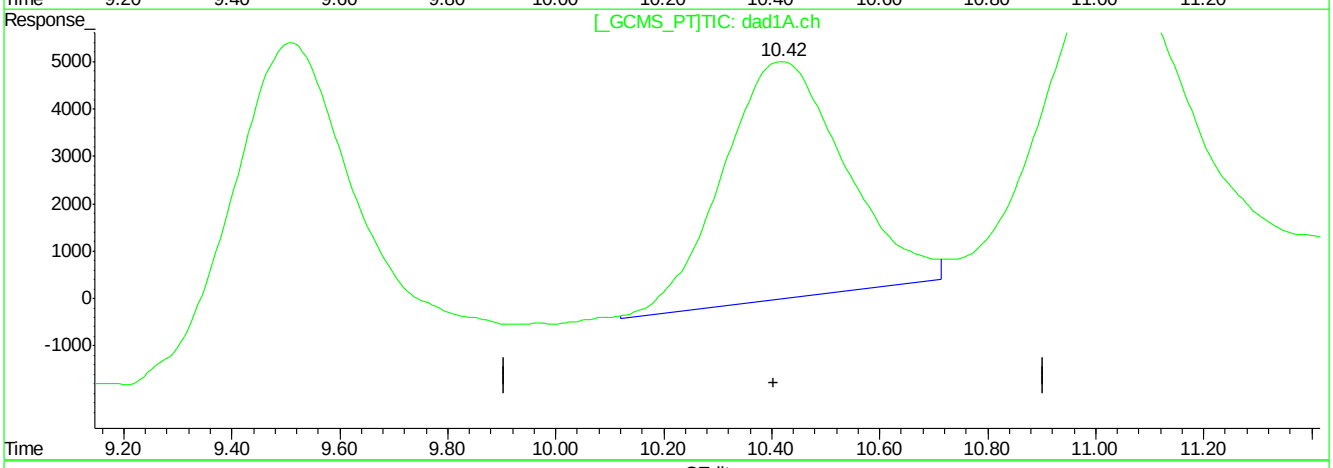
9

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(8) Nitrobenzene

10.42min 110.754ppb

response 939534

(8) Nitrobenzene #2

10.42min 93.724ppb m

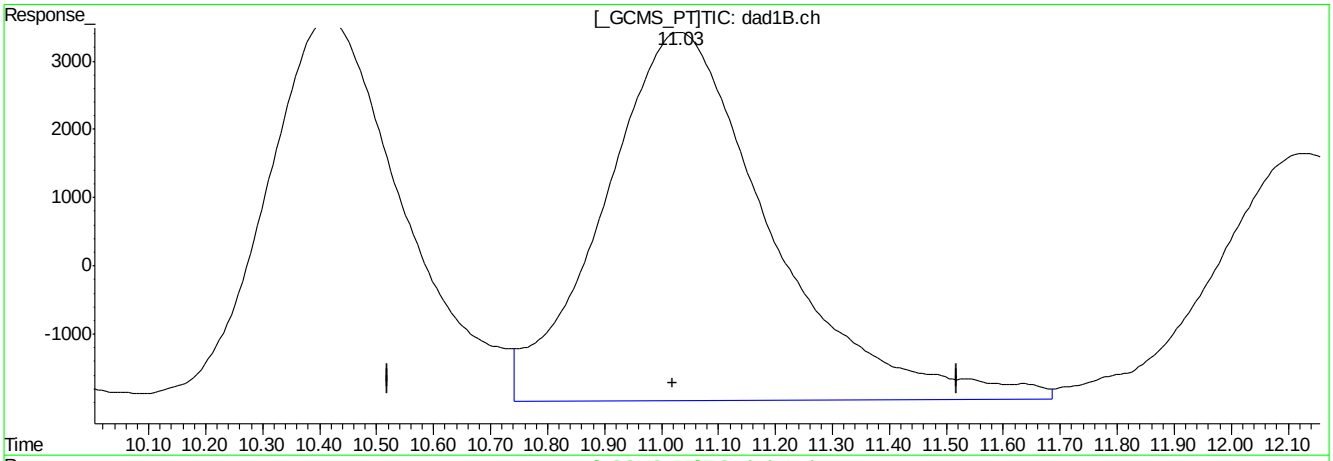
response 792550

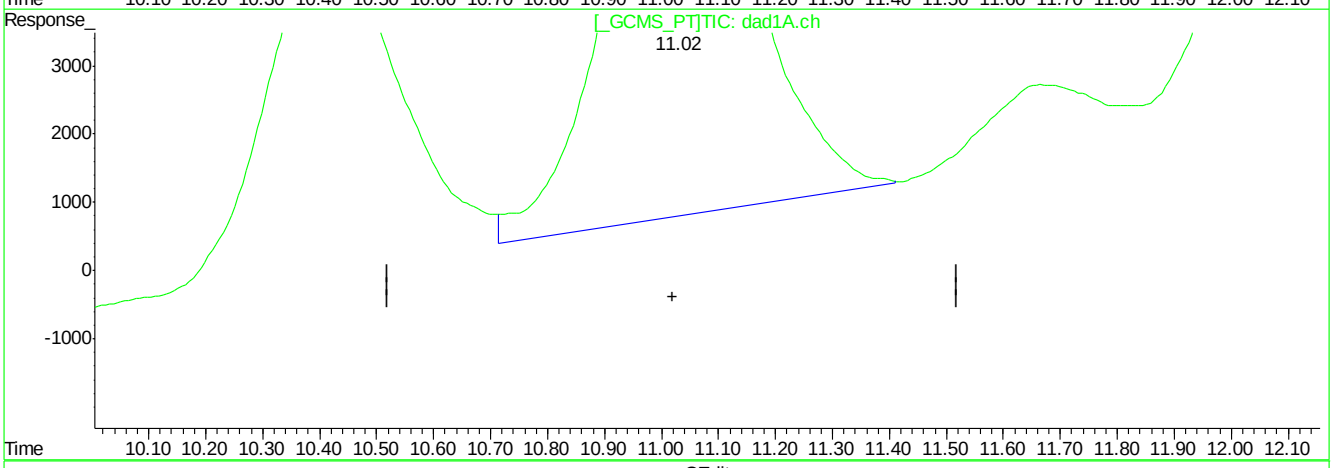
(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:23:25 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.03min 117.768ppb

response 1095538

(9) 2,4,6-Trinitrotoluene #2

11.02min 95.144ppb m

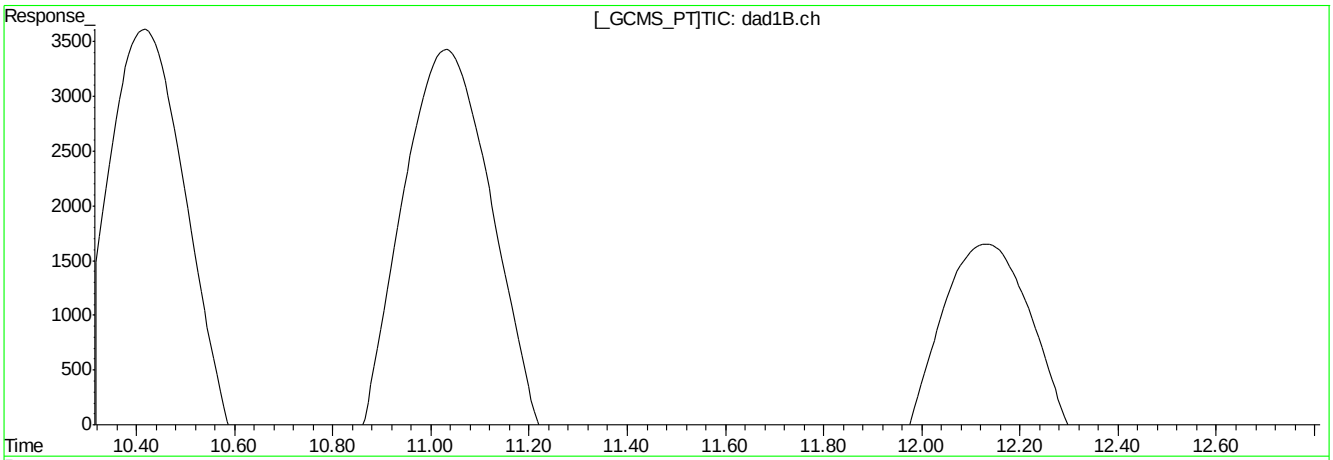
response 1133915

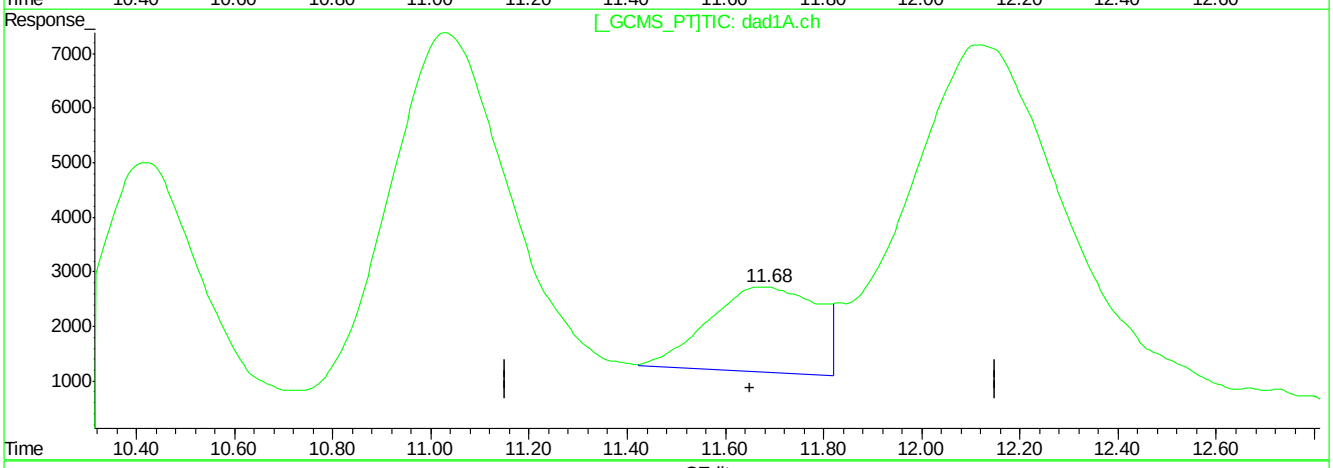
(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:23:32 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(10) Nitroglycerin

0.00min 0.000ppb

response 0

(10) Nitroglycerin #2

11.68min 65.833ppb m

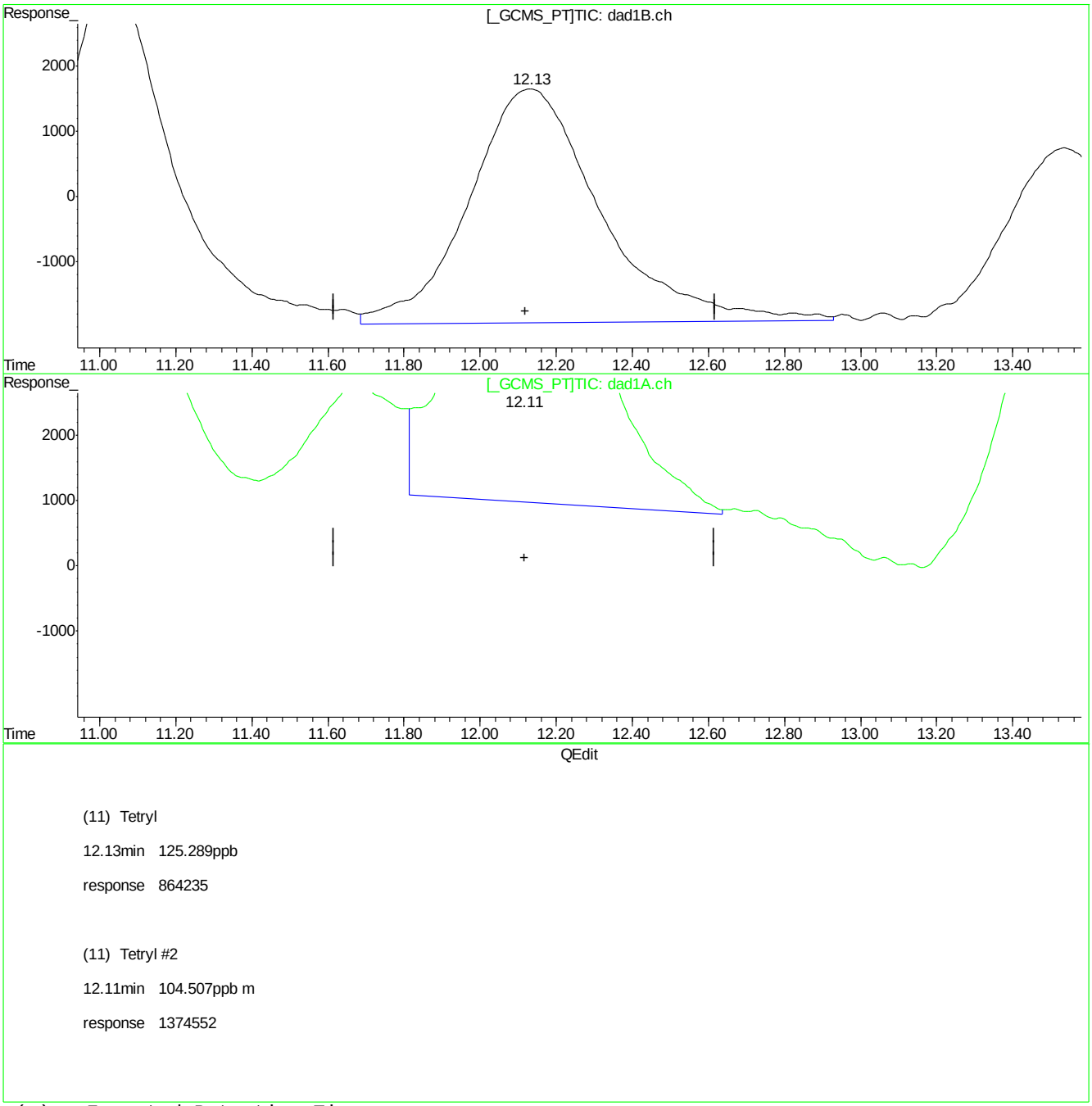
response 242831

(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:23:43 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(11) Tetryl

12.13min 125.289ppb

response 864235

(11) Tetryl #2

12.11min 104.507ppb m

response 1374552

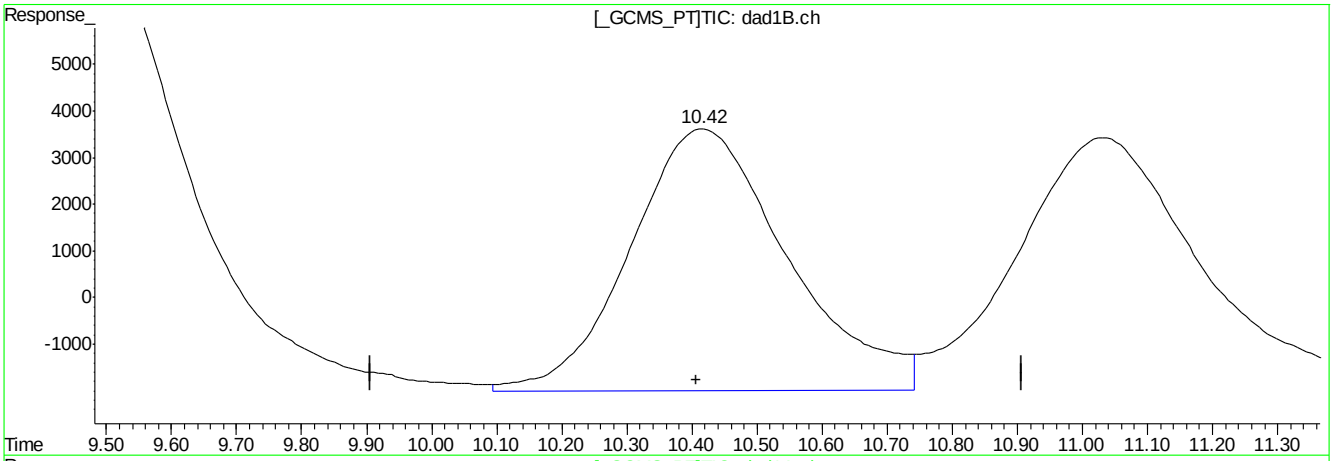
(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:23:50 2019

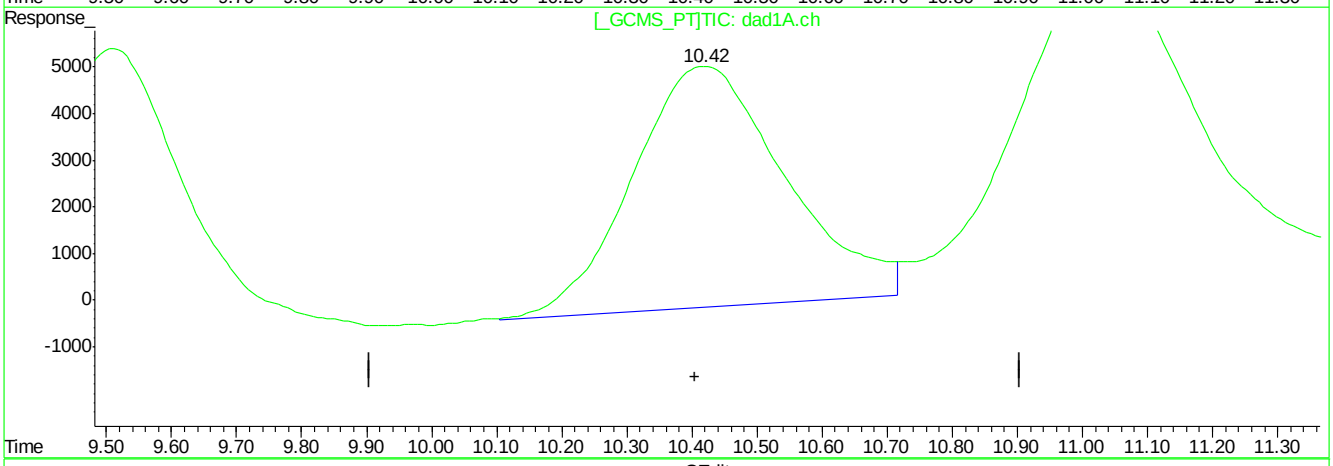
GG617749.D edits: Tetryl

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:23 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(8) Nitrobenzene

10.42min 110.754ppb

response 939534

(8) Nitrobenzene #2

10.42min 99.633ppb m

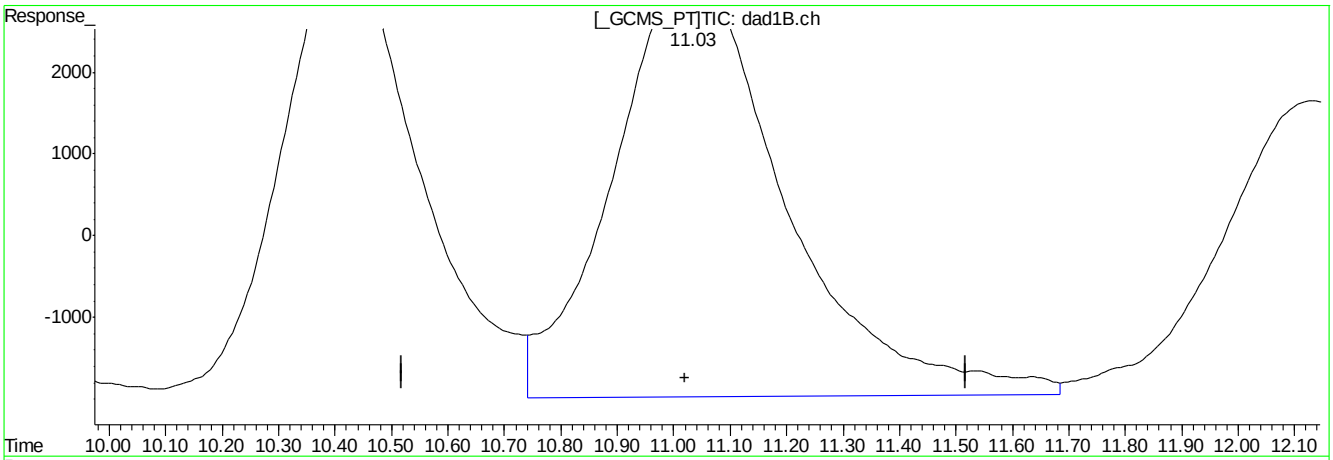
response 842434

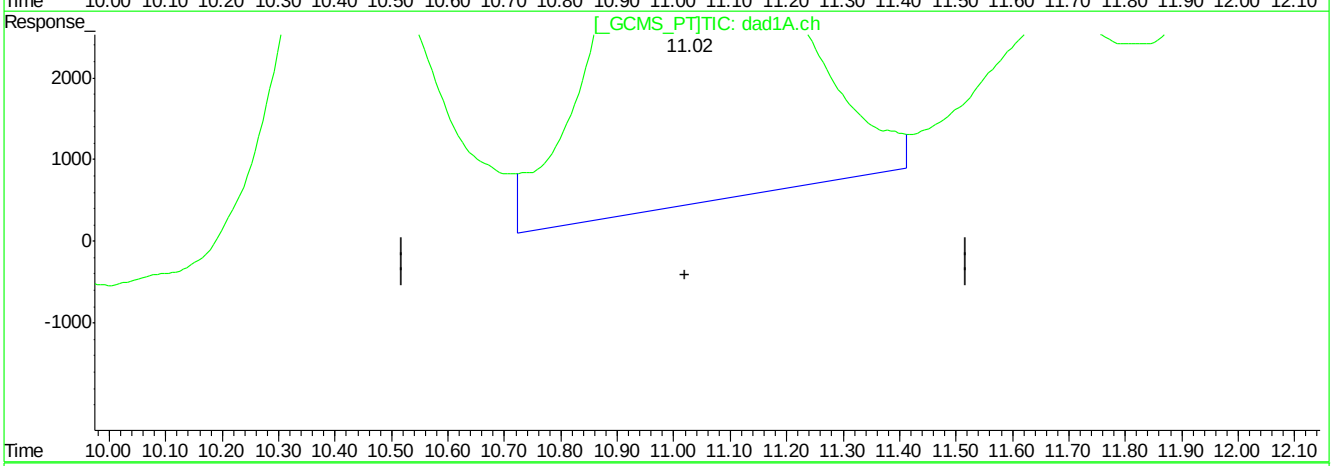
(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:35:00 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:23 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.03min 117.768ppb

response 1095538

(9) 2,4,6-Trinitrotoluene #2

11.02min 107.055ppb m

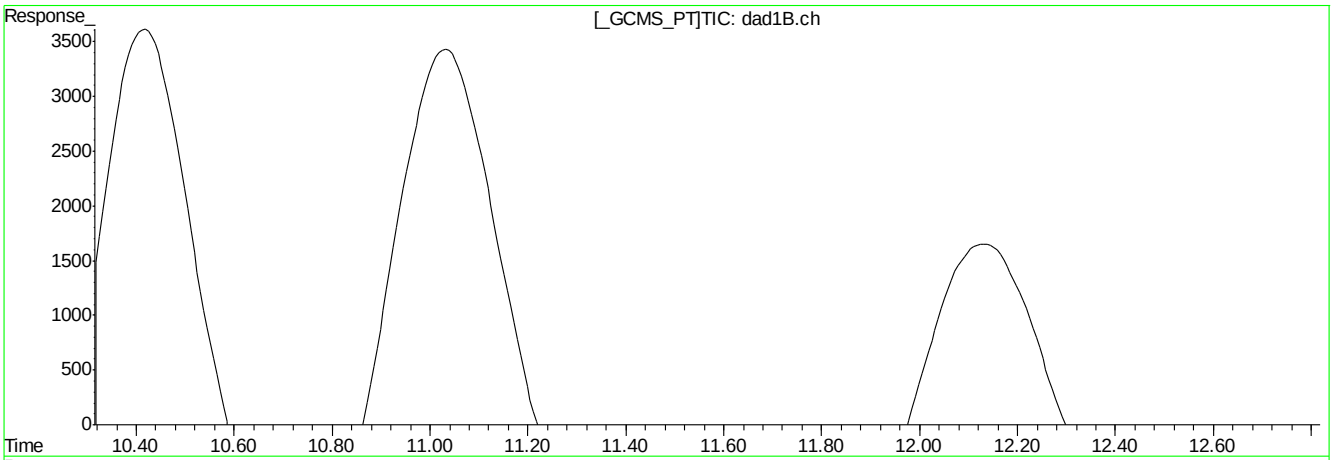
response 1275868

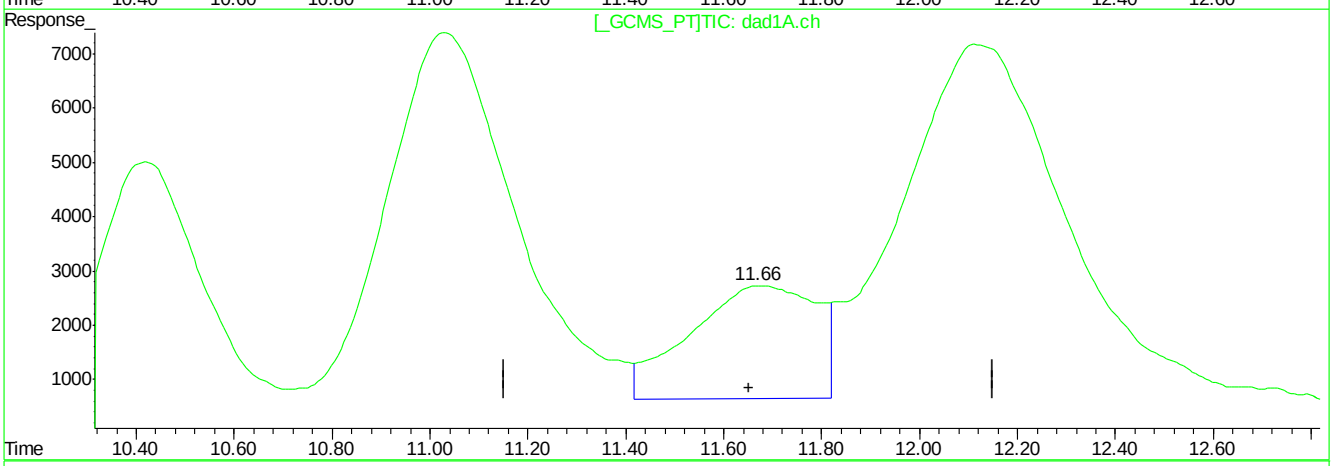
(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:35:07 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:23 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(10) Nitroglycerin

0.00min 0.000ppb

response 0

(10) Nitroglycerin #2

11.66min 102.113ppb m

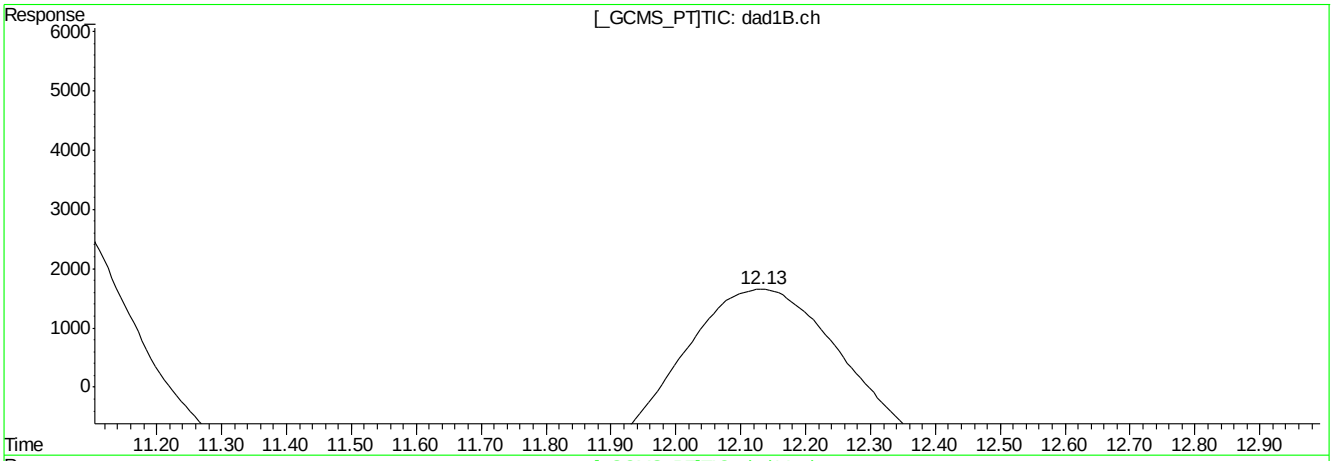
response 376622

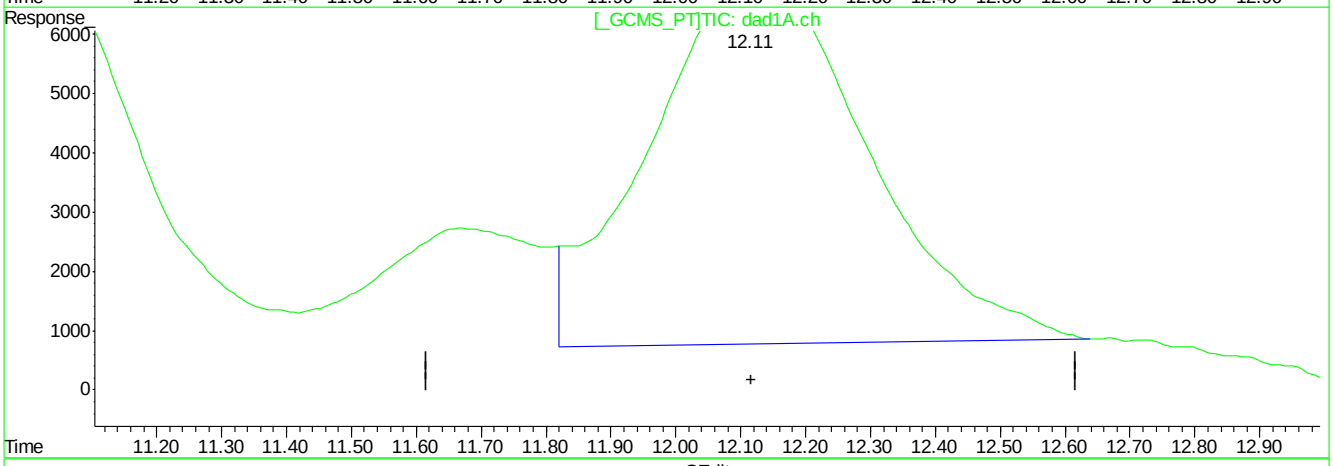
(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:35:14 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:23 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(11) Tetryl

12.13min 125.289ppb

response 864235

(11) Tetryl #2

12.11min 109.804ppb m

response 1444030

(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:35:24 2019

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
09/26/19 16:28

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12:36 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.53	13.53	897500	1733597	172.389	171.349
	Spiked Amount 500.000	Range 70 - 136		Recovery =		34.48%#	34.27%#
	Target Compounds						
1)	TNX	4.96	4.96	1189698	1193239	209.435m	209.615m
2)	HMX	5.38	5.38	561213	570787	152.702m	155.505m
3)	DNX	5.48	5.48	842819	862360	156.087m	161.429m
4)	MNX	6.33	6.33	1110475	1110475	190.435	190.441
5)	1,3,5-Trinitrobe	7.14	7.14	2073386	2073386	217.913	218.564
6)	RDX	7.55	7.55	1053536	1053536	227.927	229.604
7)	1,3-Dinitrobenze	9.50	9.50	2799974	2087611	209.140	205.849m
8)	Nitrobenzene	10.41	10.41	1760848	1617927	207.572	191.675m
9)	2,4,6-Trinitroto	11.03	11.03	2043556	2919500	219.678	244.968m
10)	Nitroglycerin	0.00	11.66	0	743814	N.D.	201.718m#
11)	Tetryl	12.13	12.13	1553902	3011692	225.270	229.656m
13)	2,6-Dinitrotolue	13.88	13.88	1457065	2249189	232.952	236.804
14)	2,4-Dinitrotolue	14.57	14.58	2571728	1683225	211.811	191.628
15)	o-Nitrotoluene	16.05	16.05	1234213	1761233	220.585	174.672
16)	3,5-Dinitroanili	15.43	15.44	2092859	3231411	192.417	171.010
17)	p-Nitrotoluene	17.09	17.09	2347007	3980941	206.483	191.635
18)	4-Amino-2,6-Dini	17.09	17.09	2347007	3980941	206.483	191.620
19)	m-Nitrotoluene	18.32	18.32	1188880	1919756	207.376	183.839
20)	2-Amino-4,6-Dini	19.14	19.14	2006480	2598000	232.572	209.281
21)	PETN	0.00	20.30	0	519437	N.D.	206.419 #

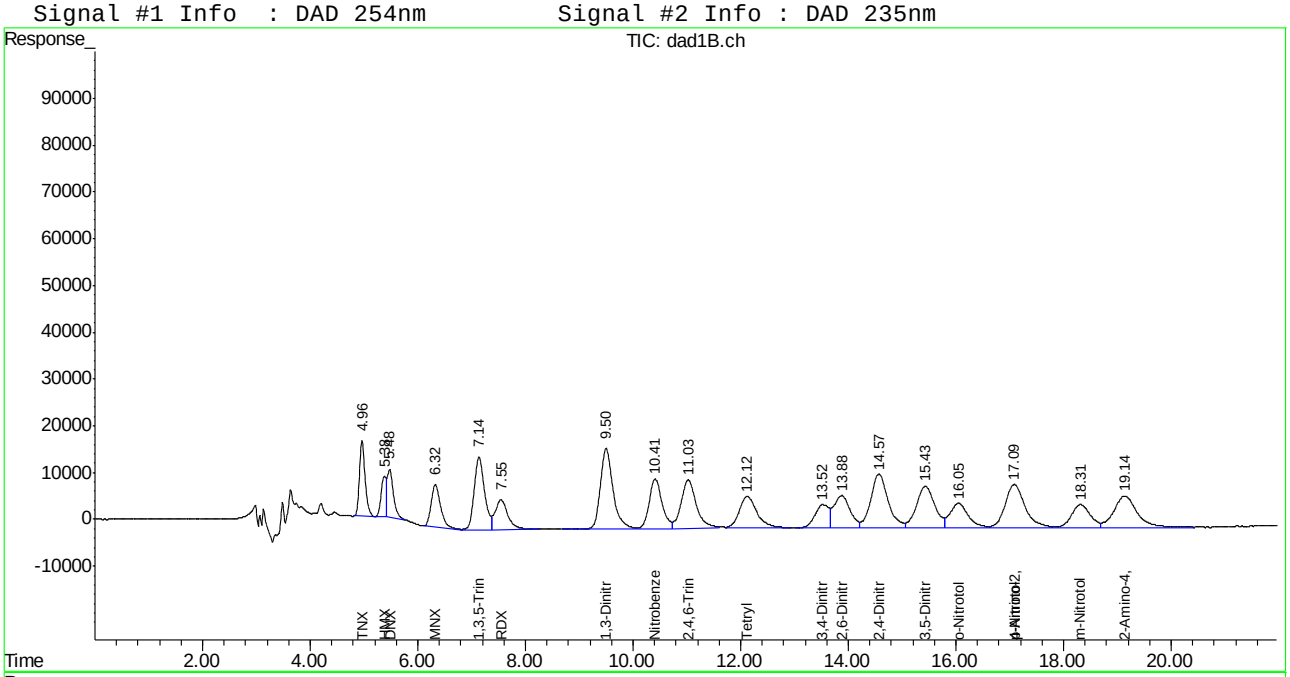
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

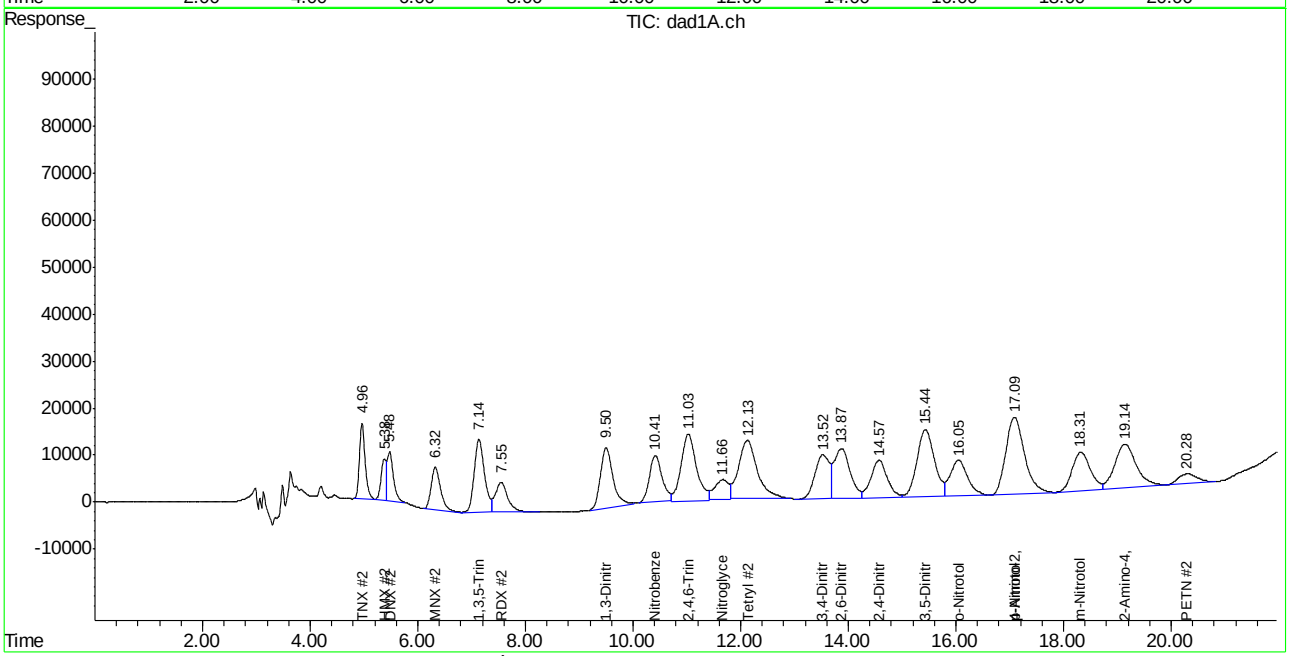
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:34 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

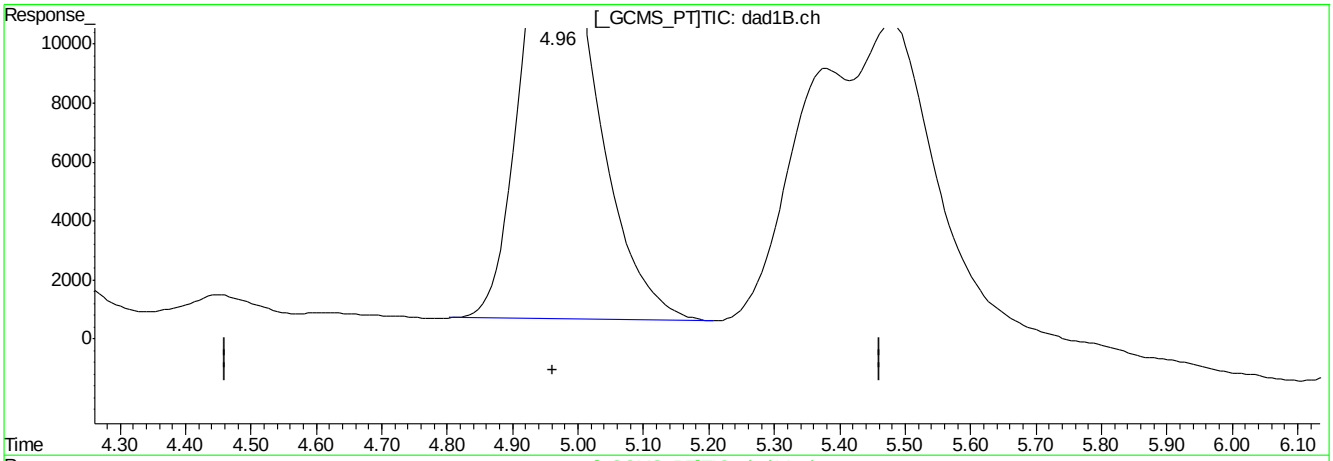
Sample Number: GGG2769-IC2769
Lab FileID: GG617750.D
Injection Time: 09/25/19 21:58
Method: SW846 8330B
Analyst approved: 09/26/19 16:07 William Hustedde
Supervisor approved: 09/26/19 16:28 Naresh Jiawan

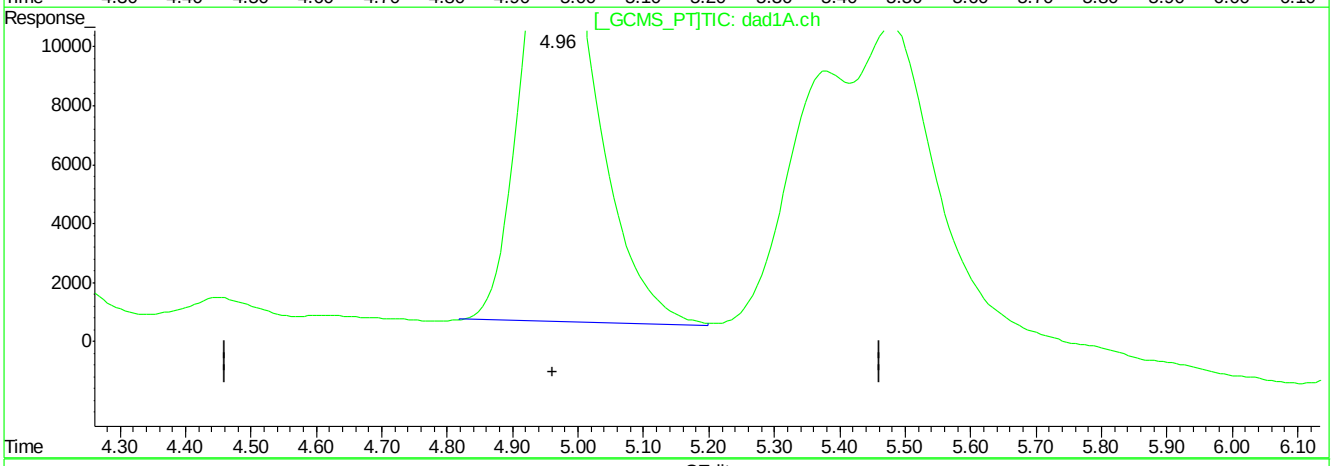
Parameter	CAS	Sig#	R.T. (min.)	Reason
TNX		1	4.96	Poor instrument integration
TNX		2	4.96	Poor instrument integration
HMX	2691-41-0	1	5.38	Poor instrument integration
HMX	2691-41-0	2	5.38	Poor instrument integration
DNX		1	5.48	Poor instrument integration
DNX		2	5.48	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	9.50	Poor instrument integration
Nitrobenzene	98-95-3	2	10.41	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	2	11.03	Poor instrument integration
Nitroglycerine	55-63-0	2	11.66	Poor instrument integration
Tetryl	479-45-8	2	12.13	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(1) TNX

4.96min 209.435ppb m

response 1189698

(1) TNX #2

4.96min 209.615ppb m

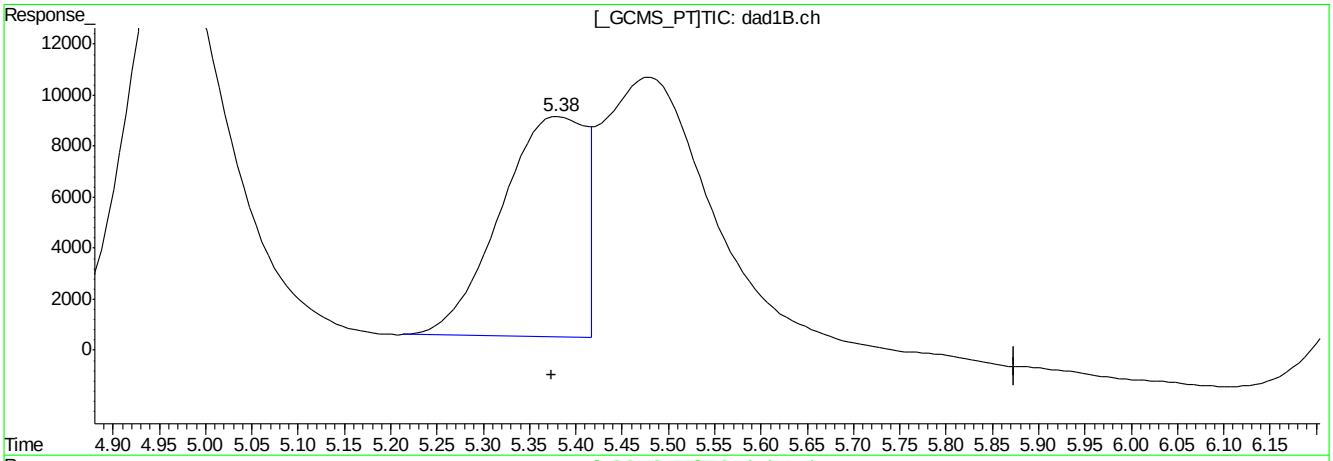
response 1193239

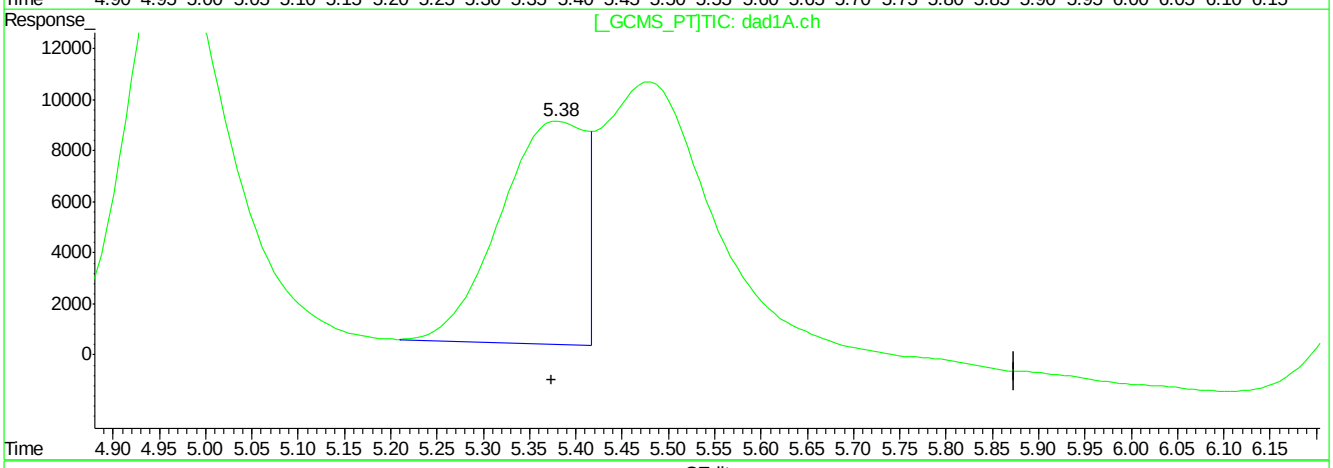
(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:24:22 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.38min 152.702ppb m

response 561213

(2) HMX #2

5.38min 155.505ppb m

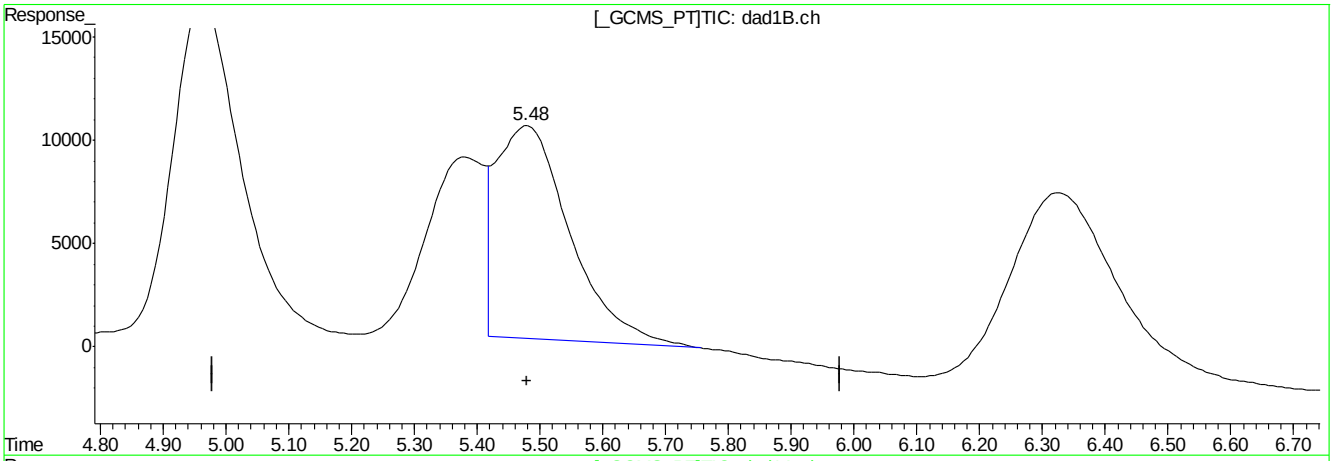
response 570787

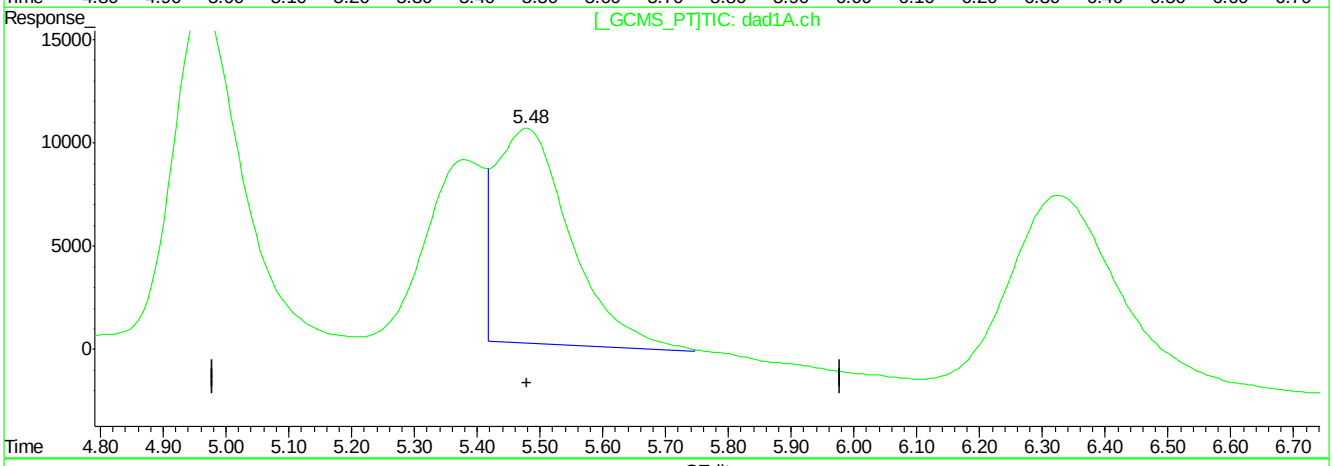
(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:24:32 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(3) DNX

5.48min 156.087ppb m

response 842819

(3) DNX #2

5.48min 161.429ppb m

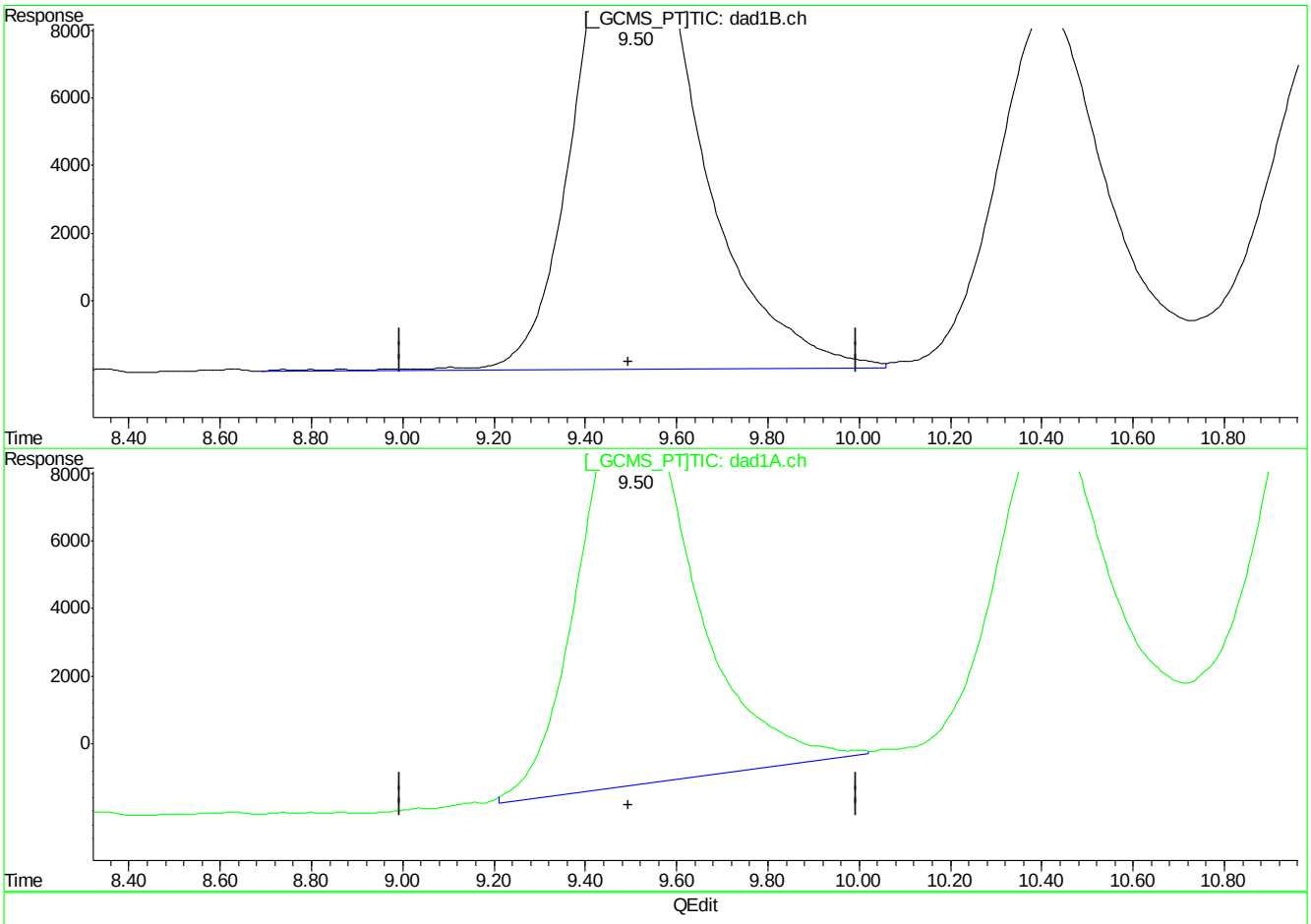
response 862360

(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:24:42 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(7) 1,3-Dinitrobenzene

9.50min 209.140ppb

response 2799974

(7) 1,3-Dinitrobenzene #2

9.50min 205.849ppb m

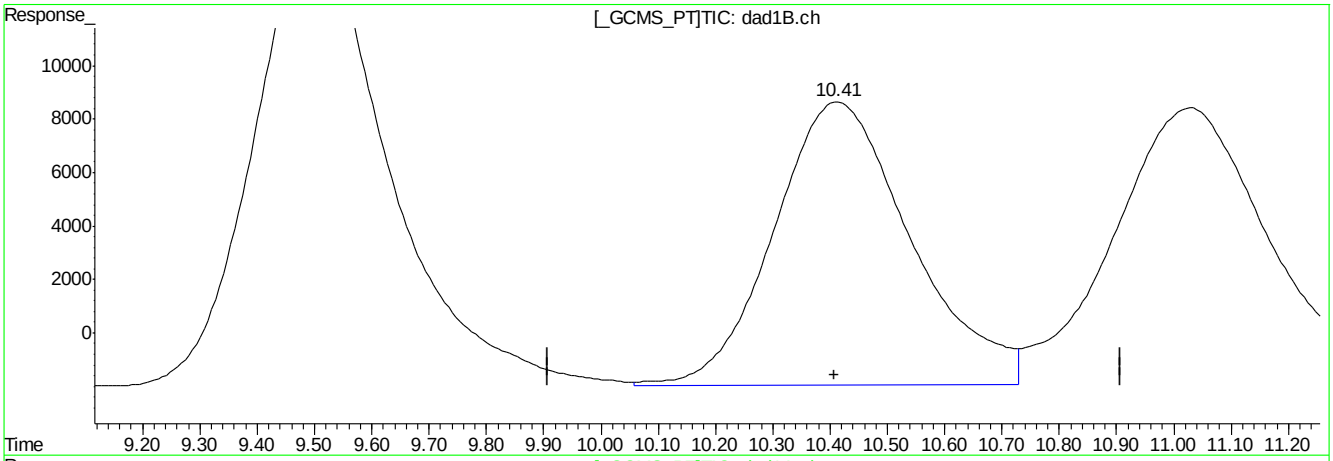
response 2087611

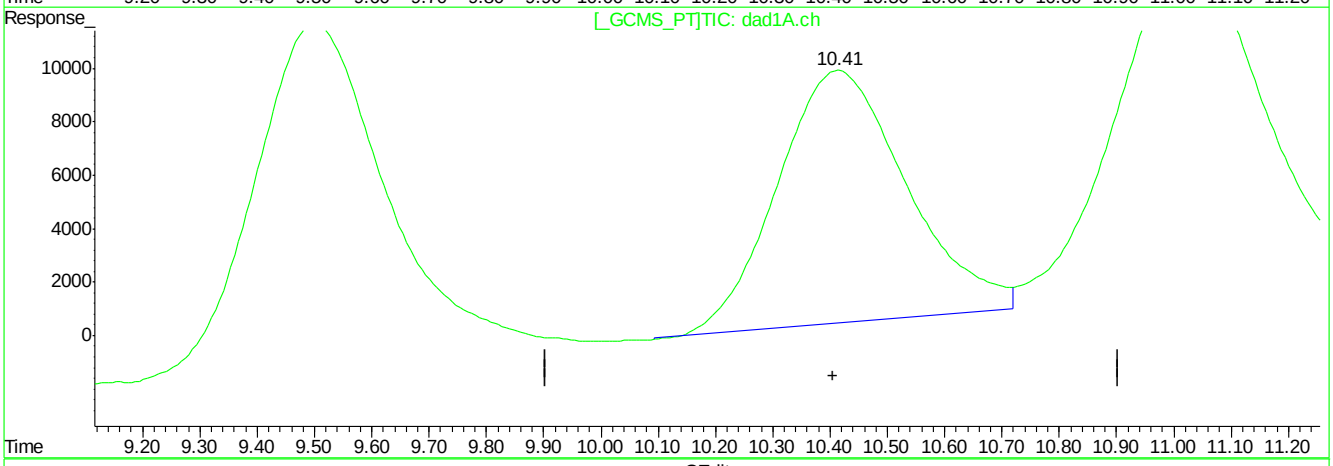
(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:29:27 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(8) Nitrobenzene

10.41min 207.572ppb

response 1760848

(8) Nitrobenzene #2

10.41min 174.329ppb m

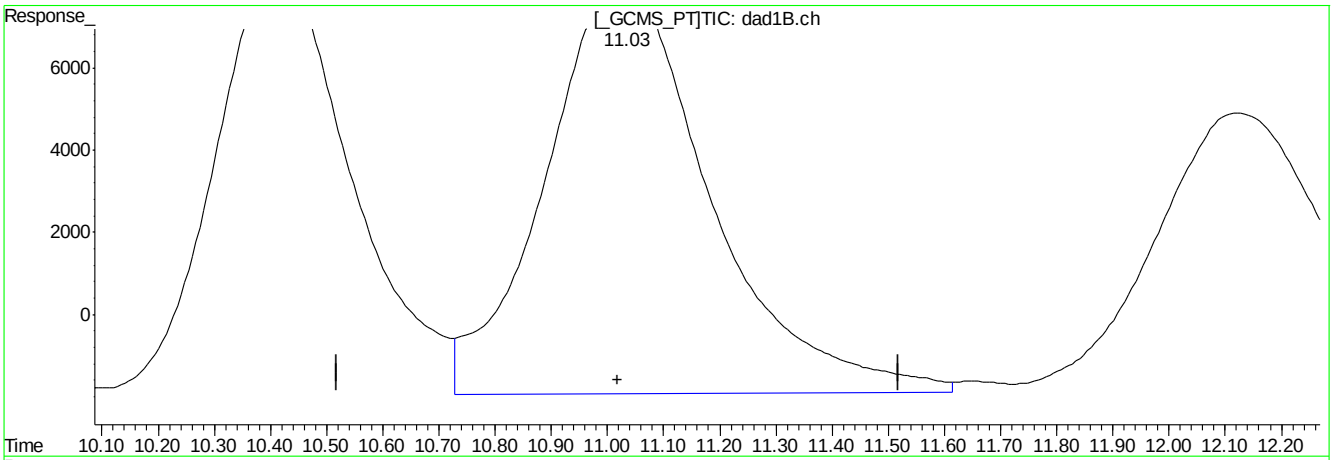
response 1471983

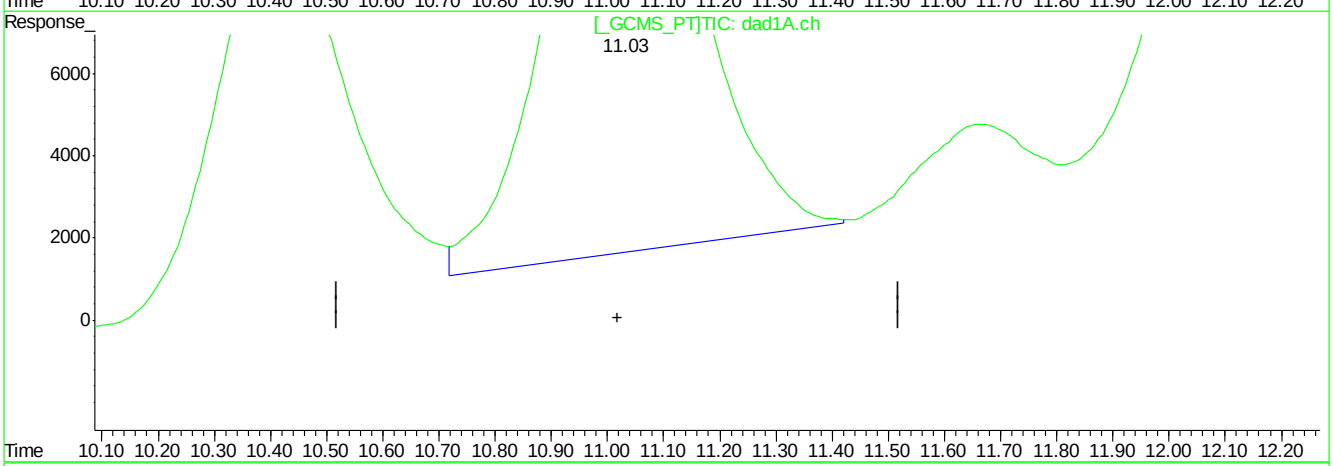
(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:29:34 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.03min 219.678ppb

response 2043556

(9) 2,4,6-Trinitrotoluene #2

11.03min 188.705ppb m

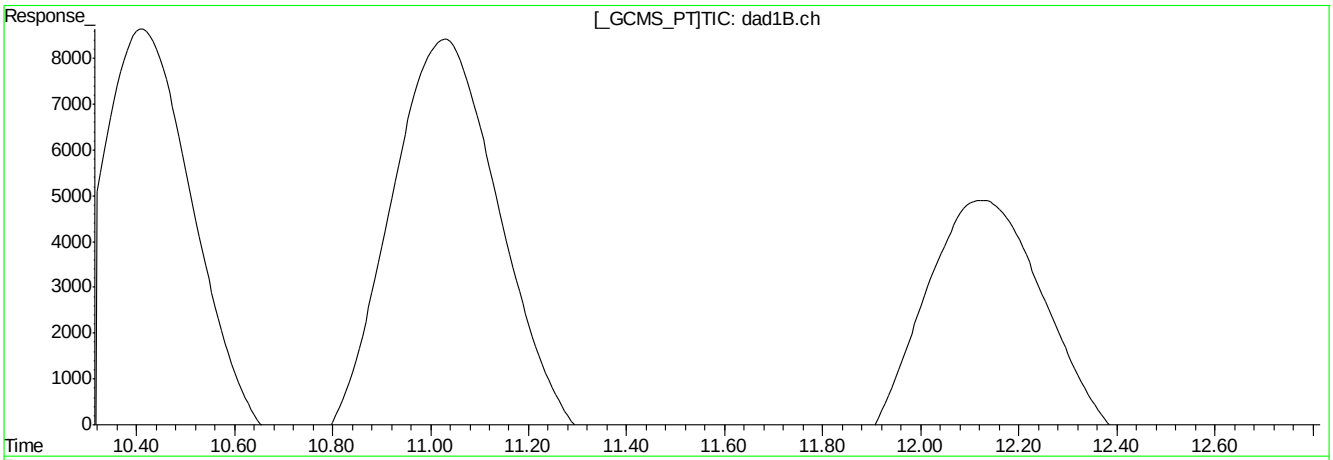
response 2248961

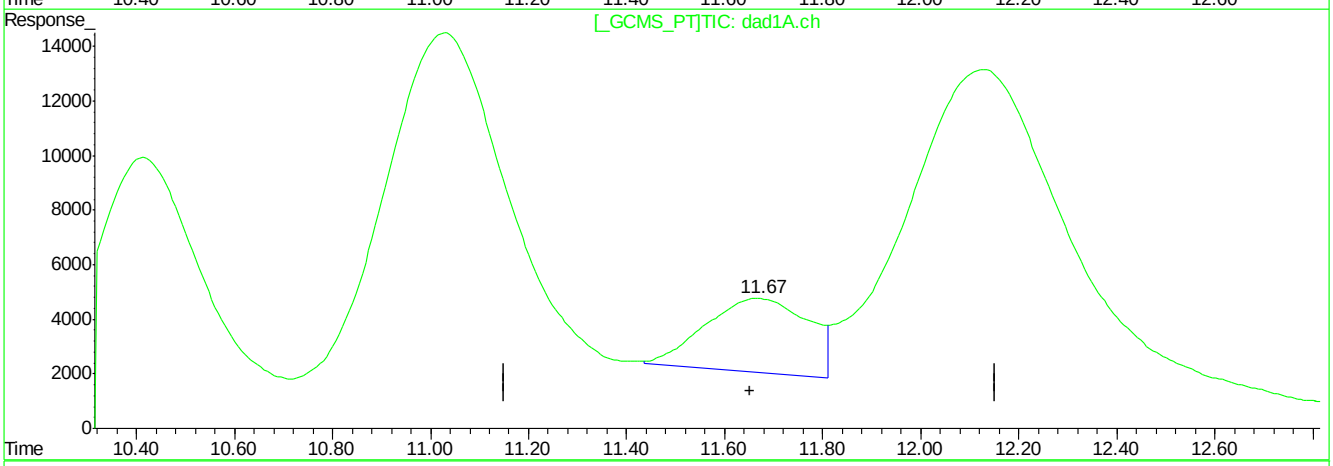
(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:29:40 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(10) Nitroglycerin

0.00min 0.000ppb

response 0

(10) Nitroglycerin #2

11.67min 107.156ppb m

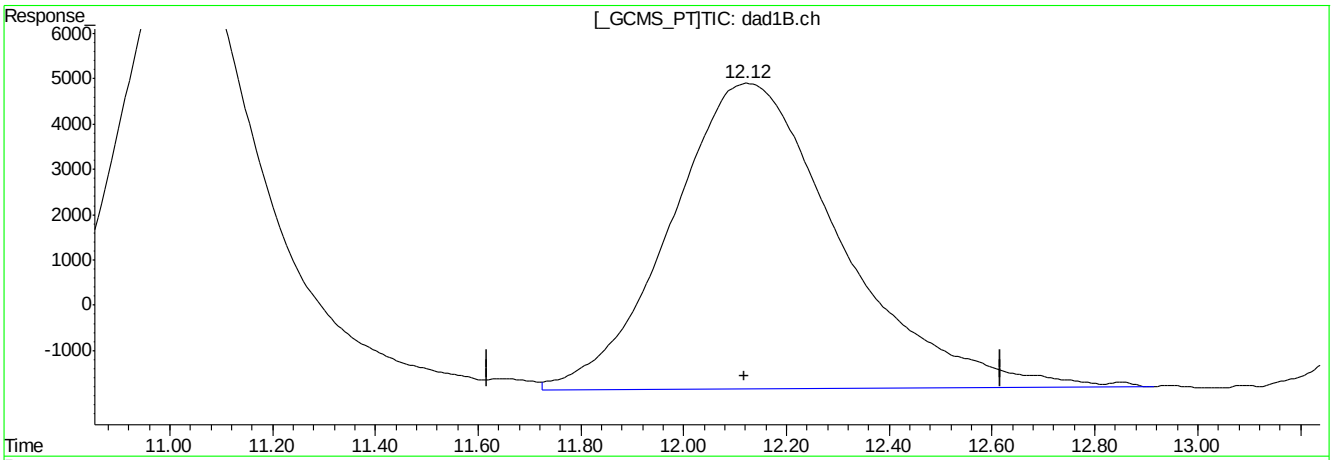
response 395218

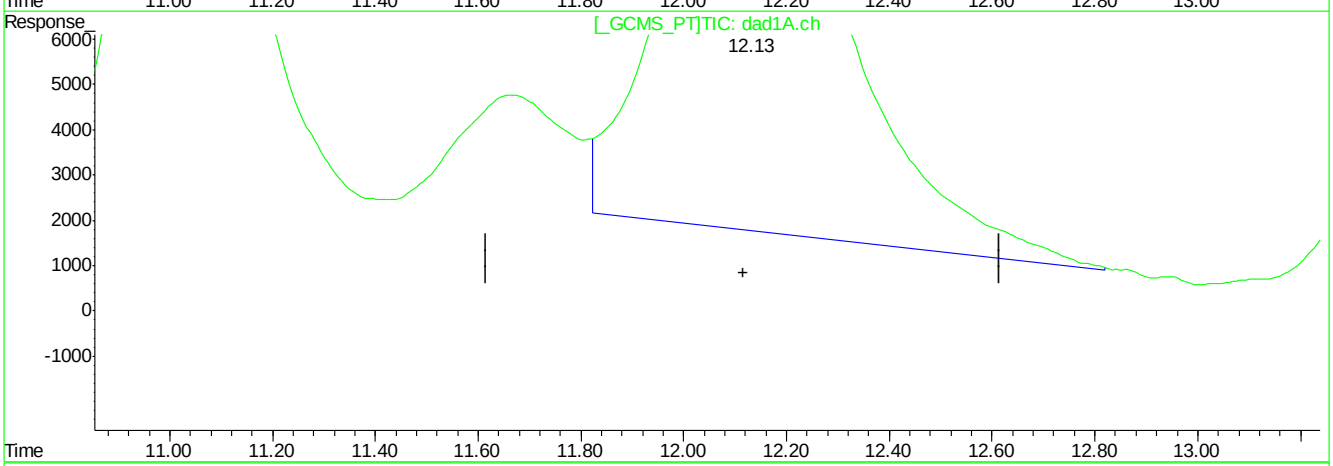
(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:29:47 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(11) Tetryl

12.13min 225.270ppb

response 1553902

(11) Tetryl #2

12.13min 194.190ppb m

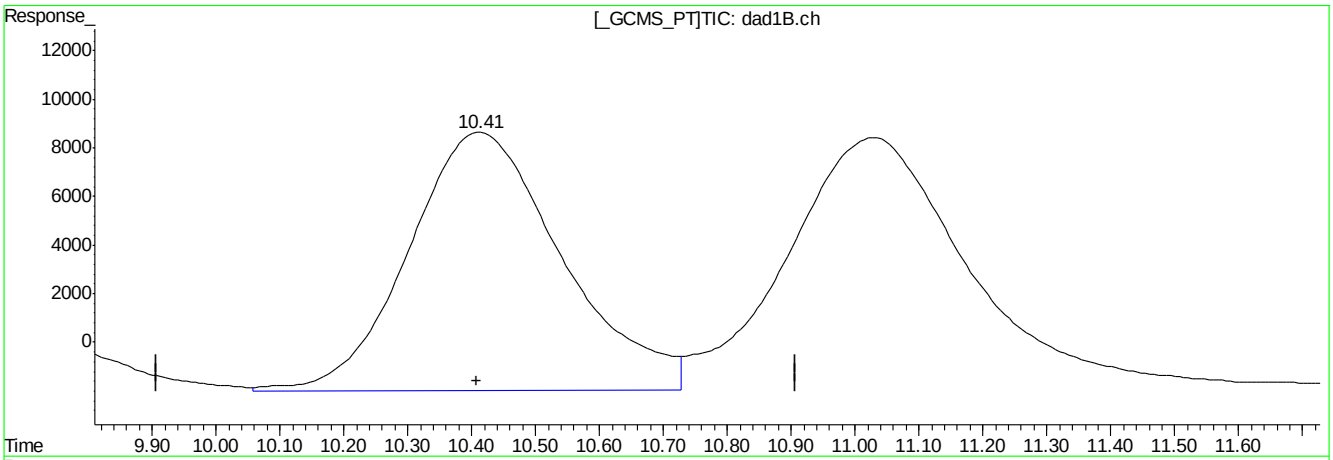
response 2548720

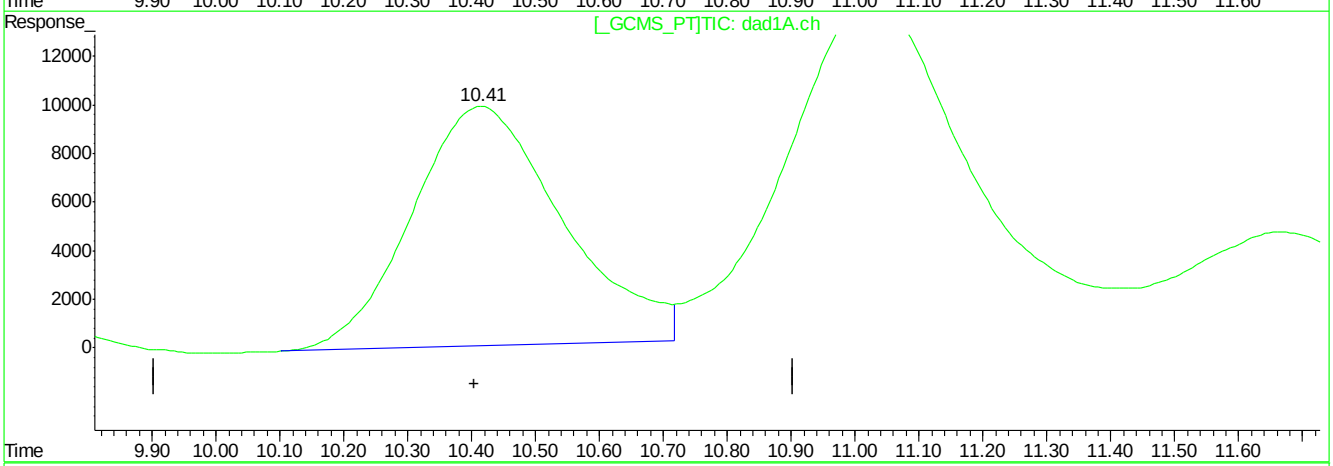
(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:29:53 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:29 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(8) Nitrobenzene

10.41min 207.572ppb

response 1760848

(8) Nitrobenzene #2

10.41min 191.675ppb m

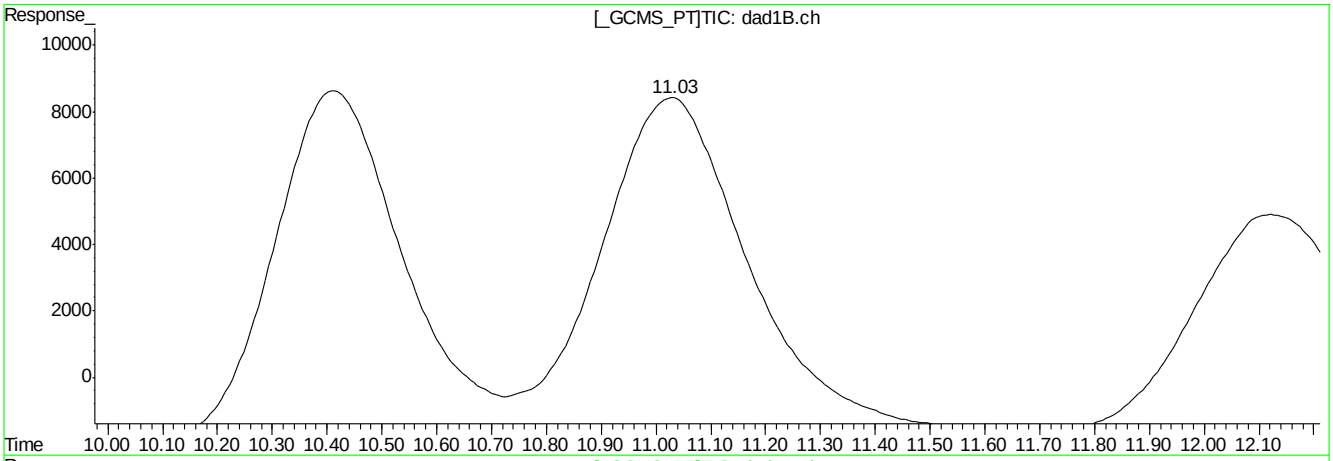
response 1617927

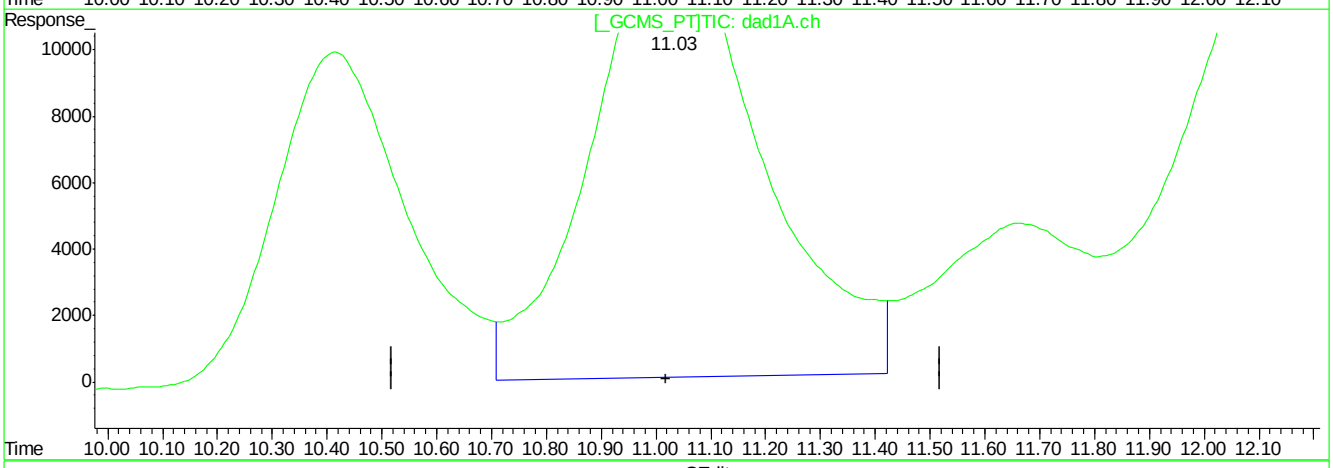
(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:33:44 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:29 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.03min 219.678ppb

response 2043556

(9) 2,4,6-Trinitrotoluene #2

11.03min 244.968ppb m

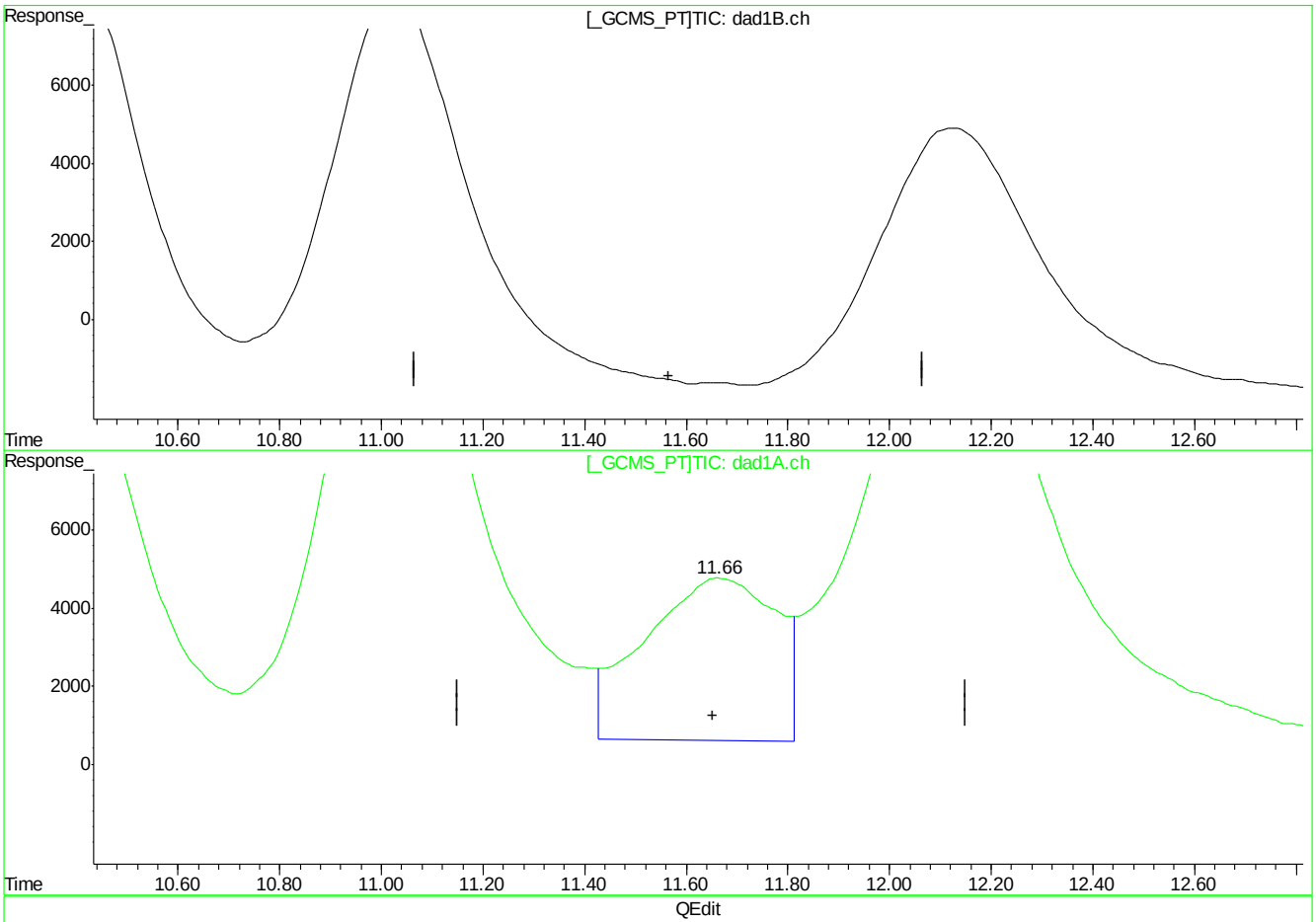
response 2919500

(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:33:54 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:29 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



QEdit

(10) Nitroglycerin

0.00min 0.000ppb

response 0

(10) Nitroglycerin #2

11.66min 201.718ppb m

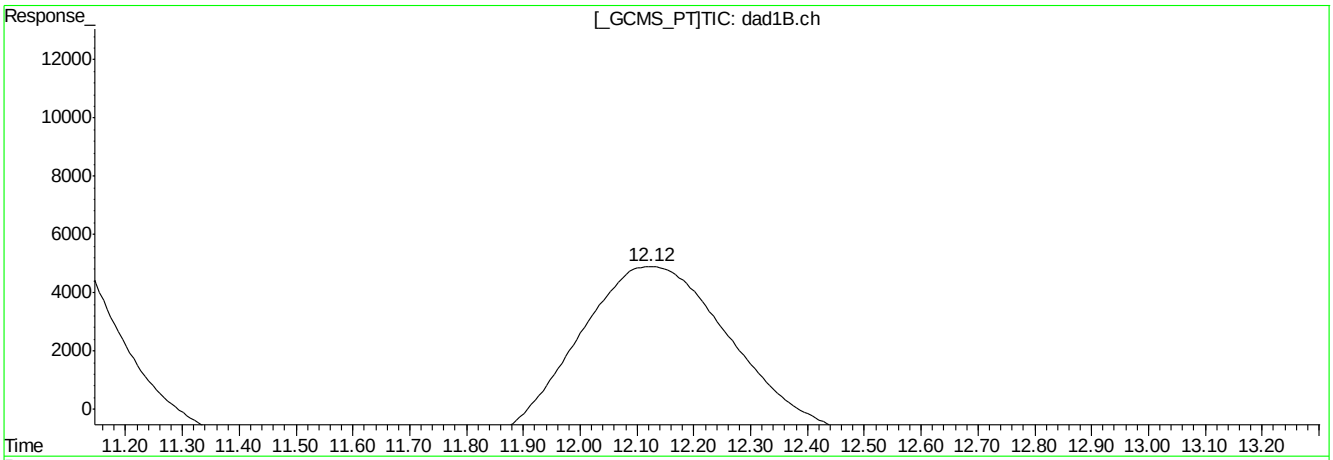
response 743814

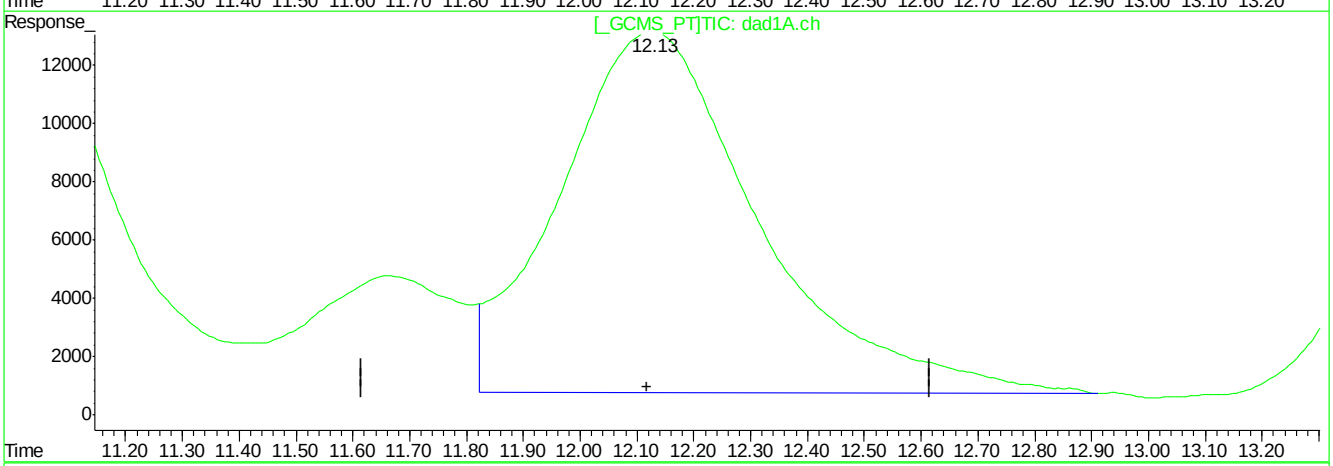
(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:34:01 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:29 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(11) Tetryl

12.13min 225.270ppb

response 1553902

(11) Tetryl #2

12.13min 229.656ppb m

response 3011692

(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:34:09 2019

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 09/26/19 16:28

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12:37 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.54	13.54	2281383	4445619	438.201	438.853
	Spiked Amount 500.000	Range 70 - 136		Recovery =		87.64%	87.77%
	Target Compounds						
1)	TNX	4.96	4.96	2989613	2973307	526.293m	522.317m
2)	HMX	5.38	5.38	1359298	1413019	372.621m	387.947m
3)	DNX	5.48	5.48	2092027	2139504	390.961m	403.713m
4)	MNX	6.33	6.33	2811687	2811687	482.843	482.856
5)	1,3,5-Trinitrobe	7.14	7.14	5164931	5164931	542.835	544.455
6)	RDX	7.55	7.55	2572902	2572902	556.633	560.729
7)	1,3-Dinitrobenze	9.51	9.51	6927186	5479726	517.417	540.348
8)	Nitrobenzene	10.42	10.42	4368356	3949762	514.950	470.342m
9)	2,4,6-Trinitroto	11.03	11.03	5090539	6753482	547.221	566.668m
10)	Nitroglycerin	0.00	11.67	0	1771692	N.D.	480.799m#
11)	Tetryl	12.14	12.13	3952625	6761754	573.014	519.169m
13)	2,6-Dinitrotolue	13.89	13.89	3620560	5255653	578.846	554.142
14)	2,4-Dinitrotolue	14.59	14.59	6366215	4136576	524.331	470.931
15)	o-Nitrotoluene	16.08	16.08	3051584	4173518	545.395	413.912
16)	3,5-Dinitroanili	15.47	15.47	5247298	8209950	482.434	434.481
17)	p-Nitrotoluene	17.12	17.12	5877803	10268368	517.113	494.299
18)	4-Amino-2,6-Dini	17.12	17.12	5877803	10268368	517.113	494.261
19)	m-Nitrotoluene	18.35	18.35	2941670	4567874	513.116	437.428
20)	2-Amino-4,6-Dini	19.20	19.20	4936073	6454657	572.143	519.952
21)	PETN	0.00	20.31	0	1231074	N.D.	488.527 #

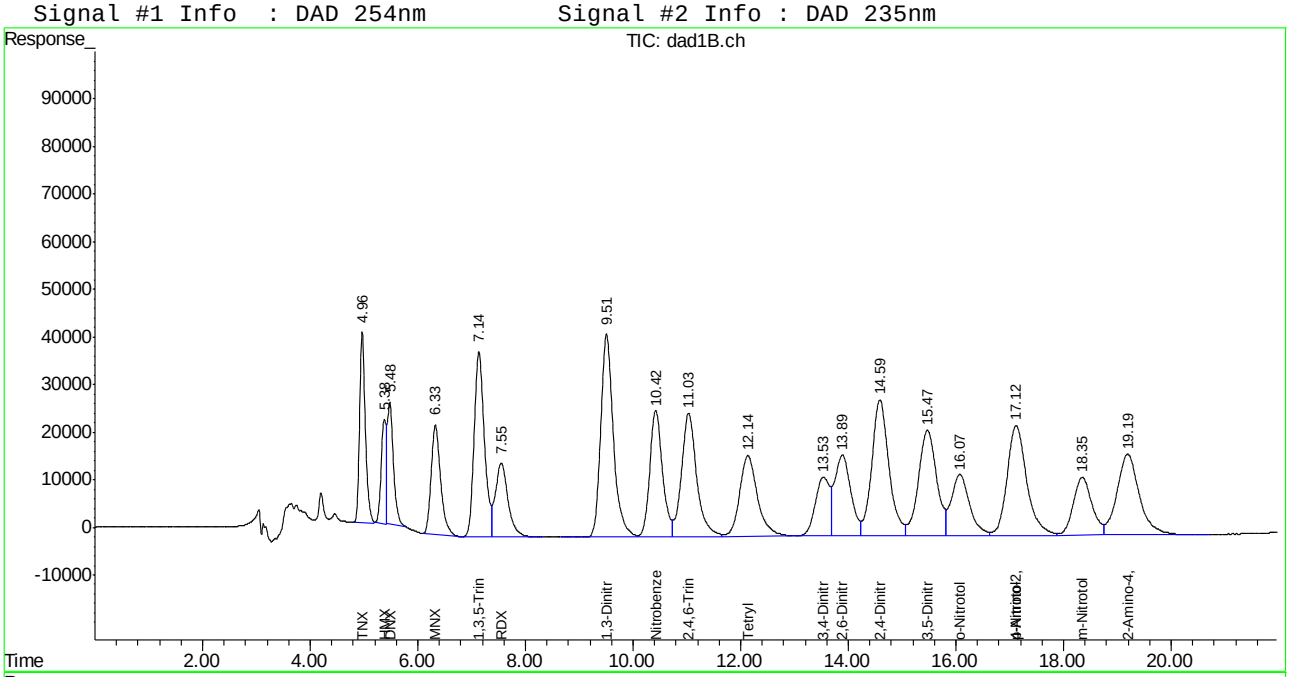
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

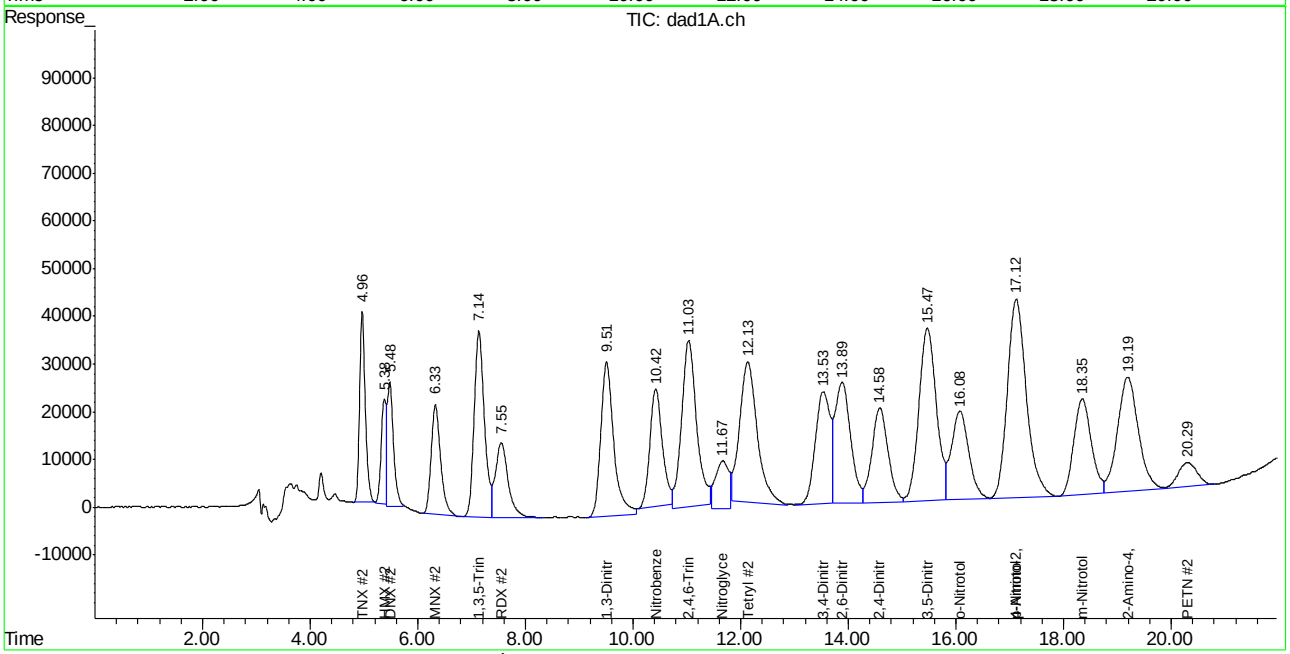
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:33 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

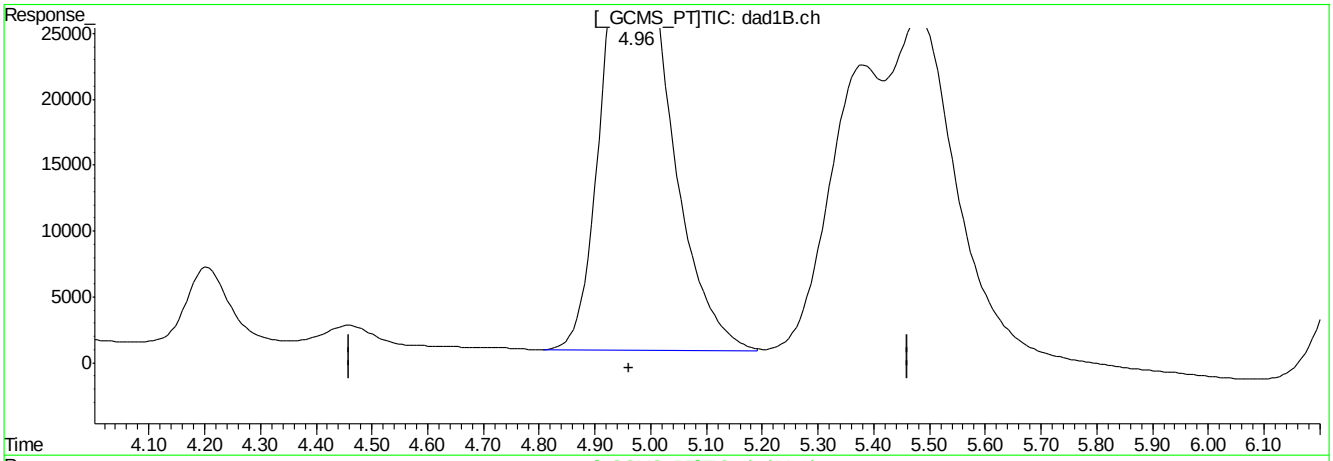
Sample Number: GGG2769-IC2769
Lab FileID: GG617751.D
Injection Time: 09/25/19 22:28
Method: SW846 8330B
Analyst approved: 09/26/19 16:07 William Hustedde
Supervisor approved: 09/26/19 16:28 Naresh Jiawan

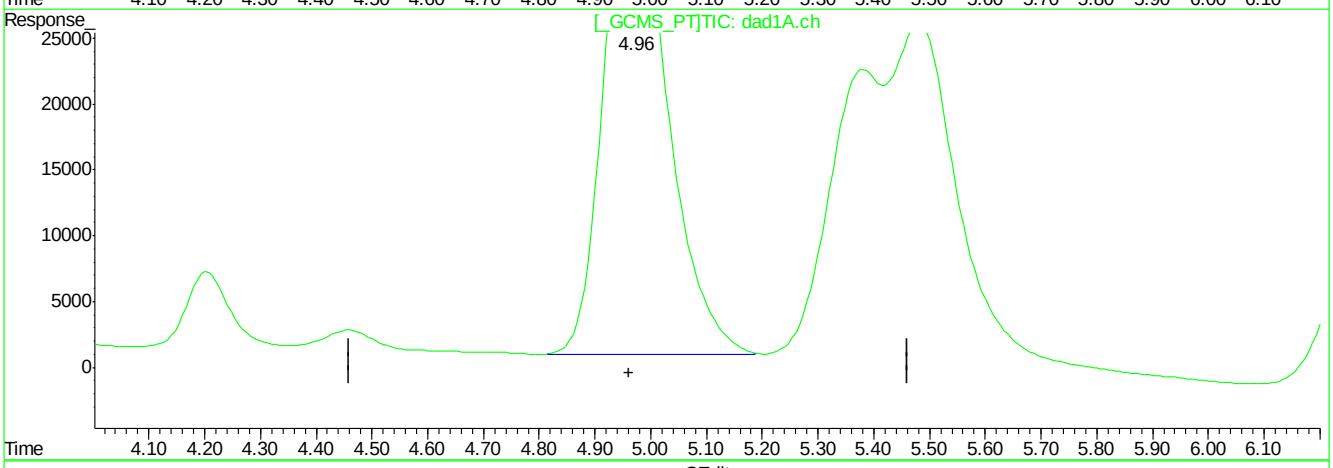
Parameter	CAS	Sig#	R.T. (min.)	Reason
TNX		1	4.96	Poor instrument integration
TNX		2	4.96	Poor instrument integration
HMX	2691-41-0	1	5.38	Poor instrument integration
HMX	2691-41-0	2	5.38	Poor instrument integration
DNX		1	5.48	Poor instrument integration
DNX		2	5.48	Poor instrument integration
Nitrobenzene	98-95-3	2	10.42	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	2	11.03	Poor instrument integration
Nitroglycerine	55-63-0	2	11.67	Poor instrument integration
Tetryl	479-45-8	2	12.13	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(1) TNX

4.96min 526.293ppb m

response 2989613

(1) TNX #2

4.96min 522.317ppb m

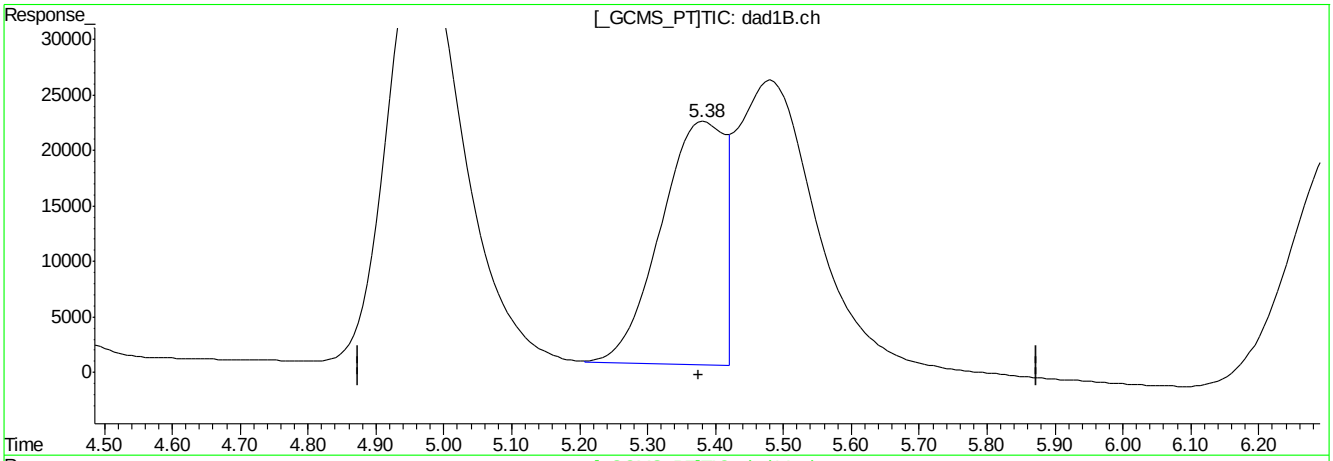
response 2973307

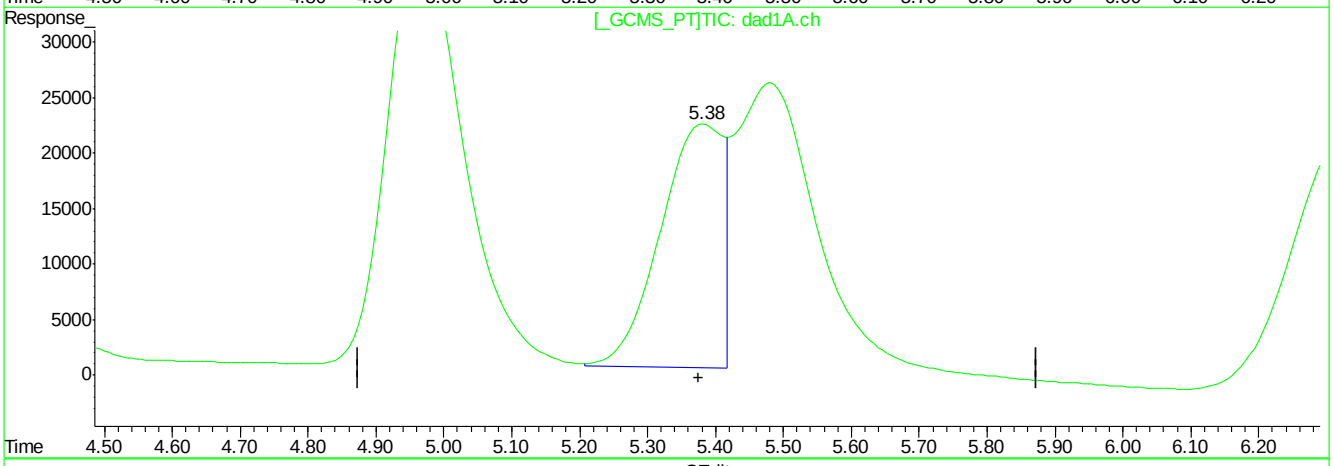
(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:30:29 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.38min 372.621ppb m

response 1359298

(2) HMX #2

5.38min 387.947ppb m

response 1413019

(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:30:37 2019

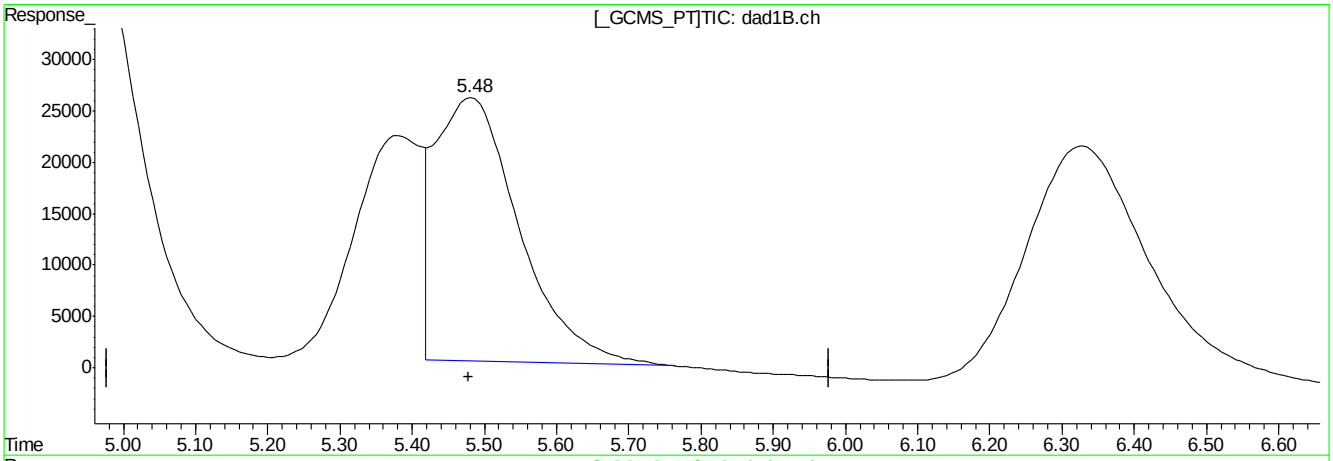
9.5.5.3

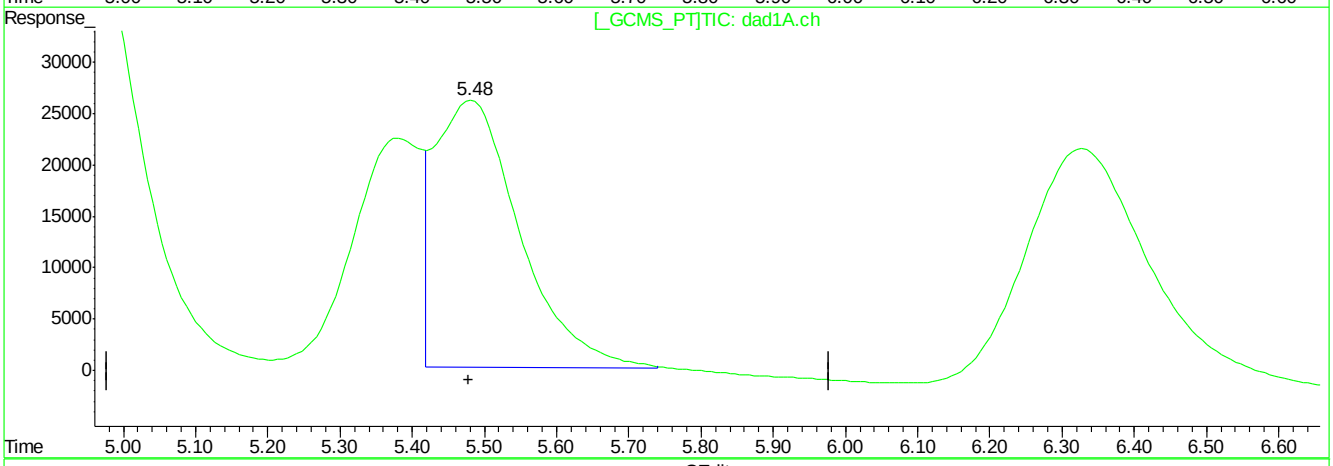
9

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(3) DNX

5.48min 390.961ppb m

response 2092027

(3) DNX #2

5.48min 403.713ppb m

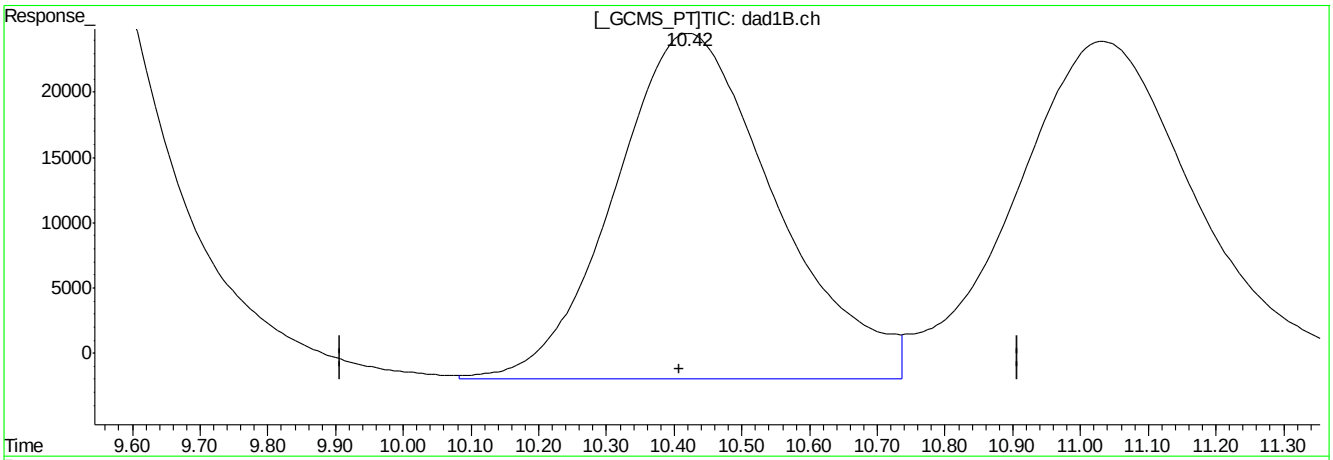
response 2139504

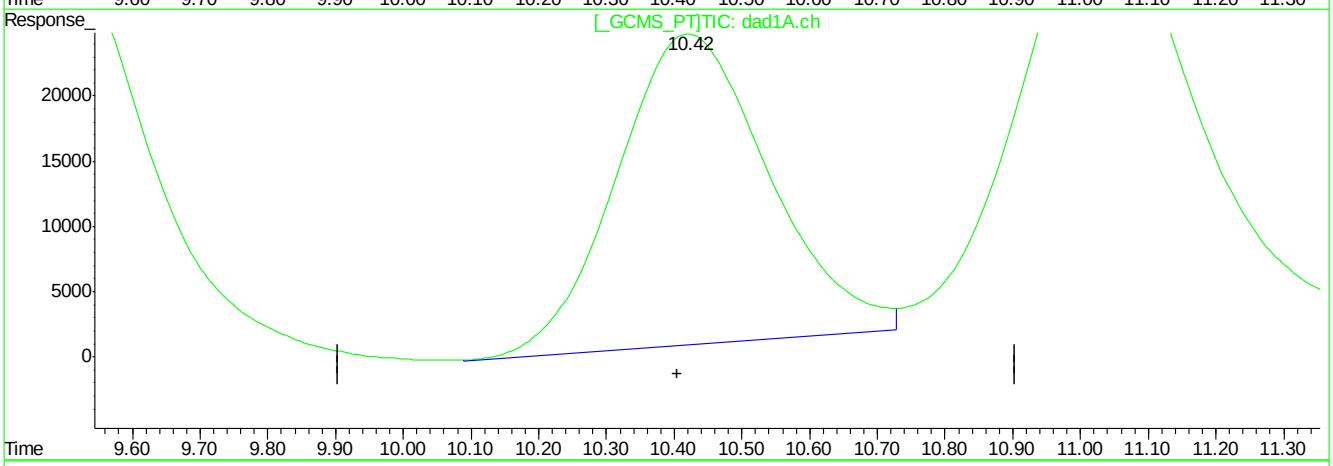
(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:30:46 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(8) Nitrobenzene

10.42min 514.950ppb

response 4368356

(8) Nitrobenzene #2

10.42min 445.545ppb m

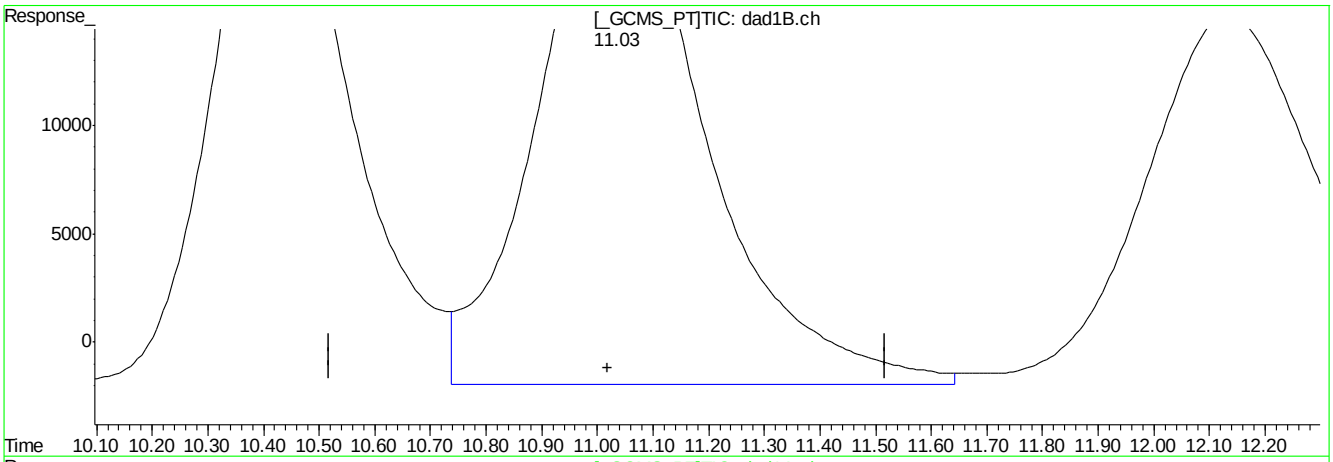
response 3743241

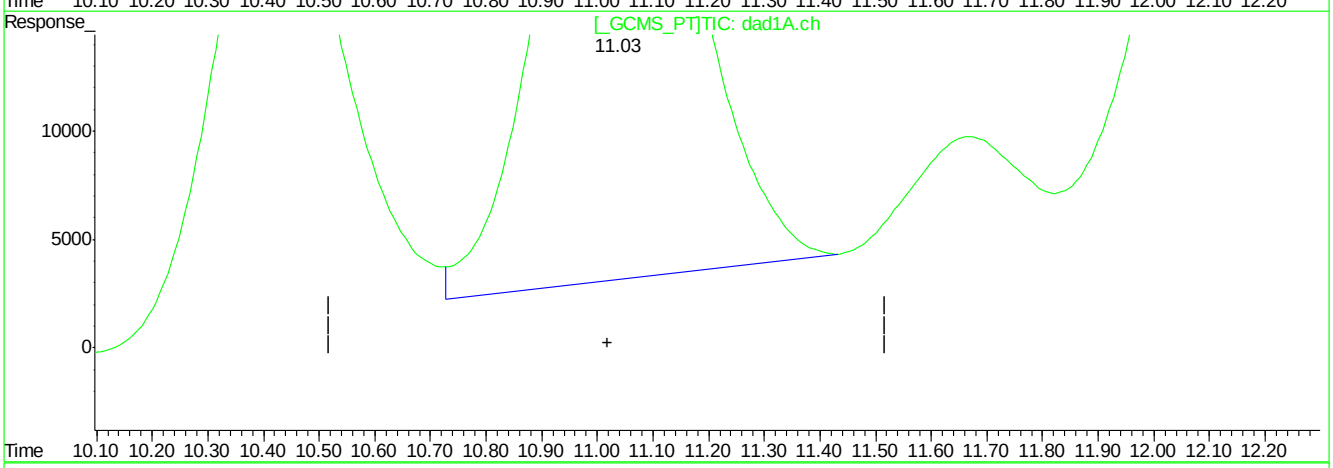
(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:31:04 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.03min 547.221ppb

response 5090539

(9) 2,4,6-Trinitrotoluene #2

11.03min 456.956ppb m

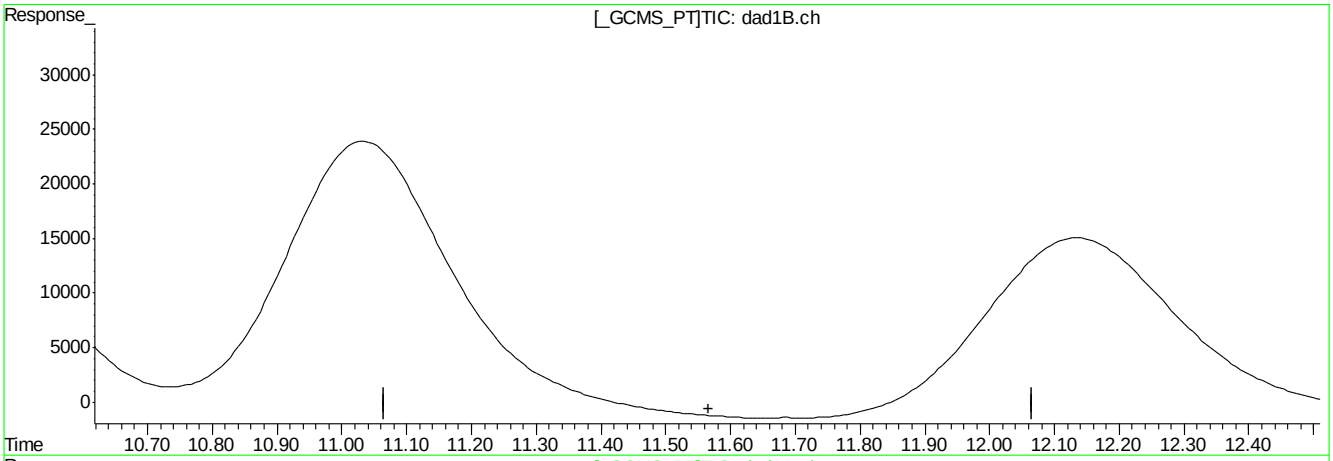
response 5445943

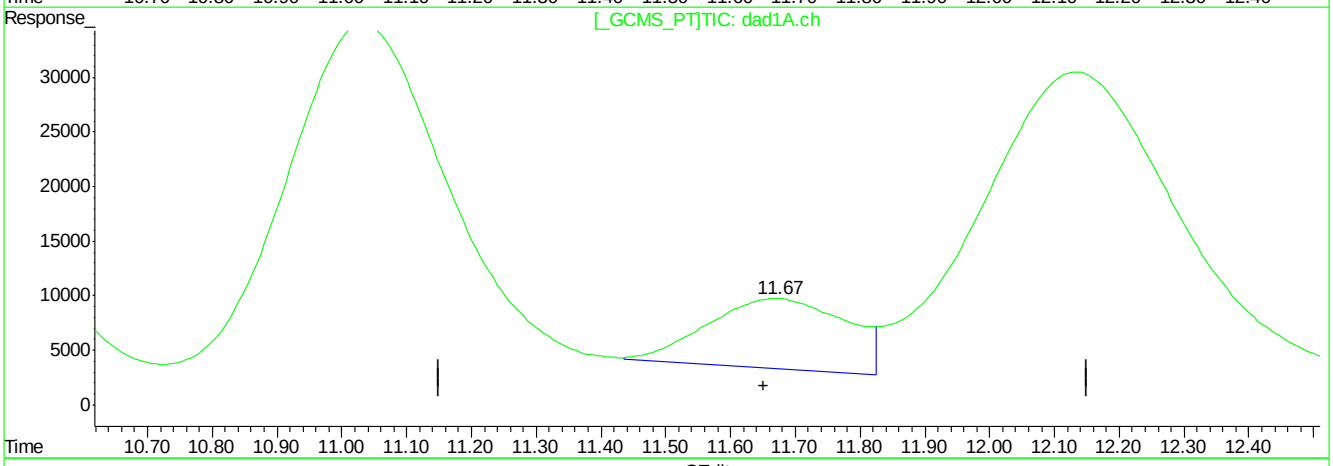
(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:31:10 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(10) Nitroglycerin

0.00min 0.000ppb

response 0

(10) Nitroglycerin #2

11.67min 257.891ppb m

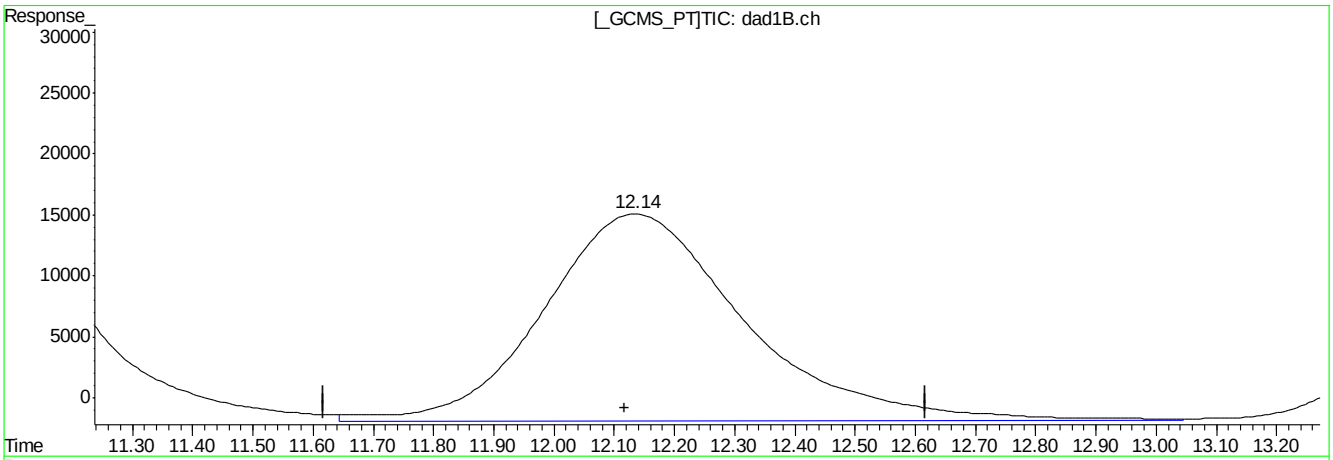
response 950817

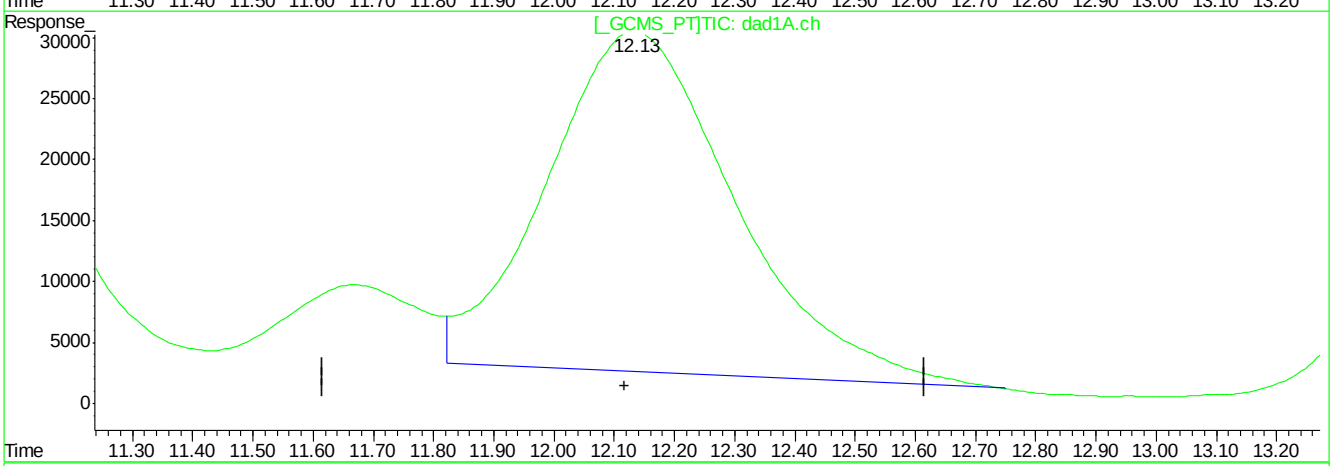
(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:31:19 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(11) Tetryl

12.14min 573.014ppb

response 3952625

(11) Tetryl #2

12.13min 464.205ppb m

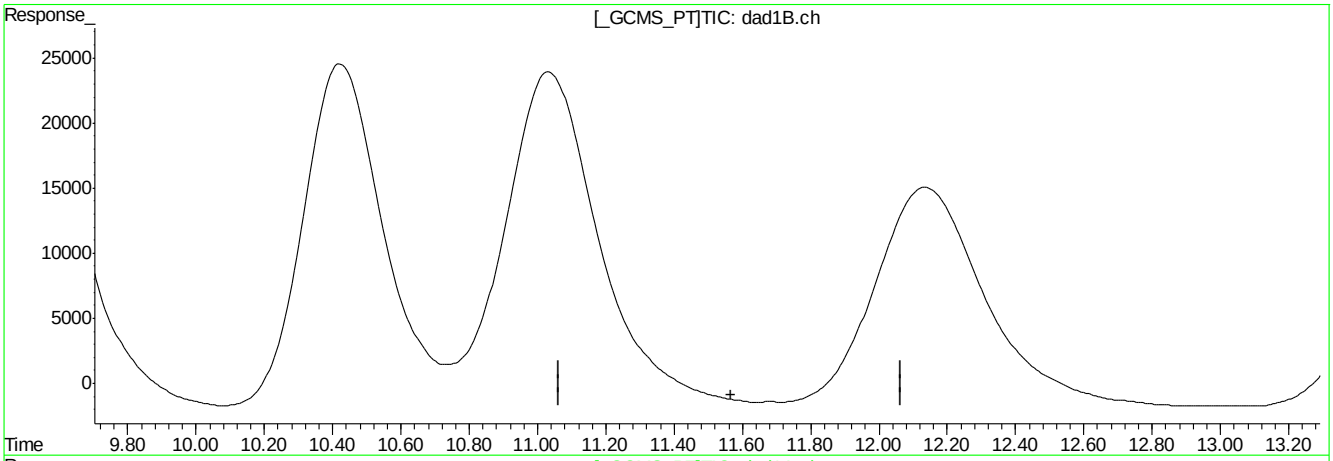
response 6053797

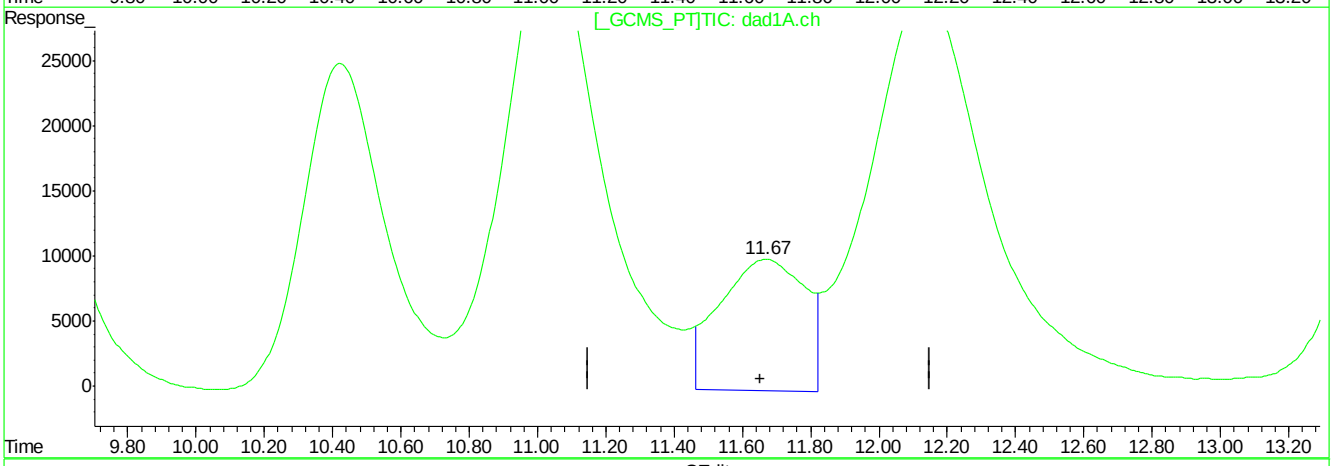
(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:31:24 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:31 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(10) Nitroglycerin

0.00min 0.000ppb

response 0

(10) Nitroglycerin #2

11.67min 480.799ppb m

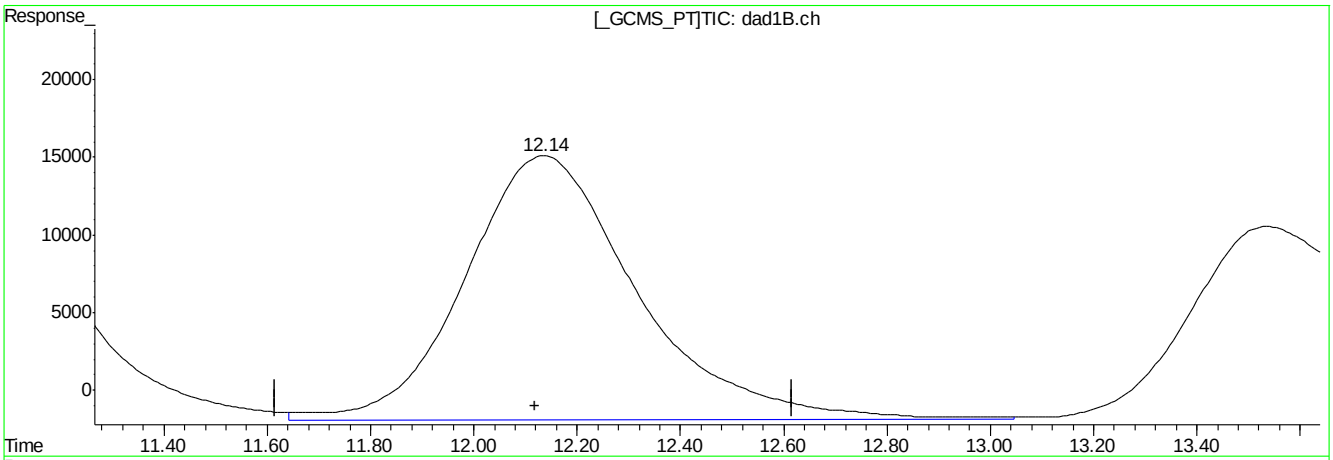
response 1771692

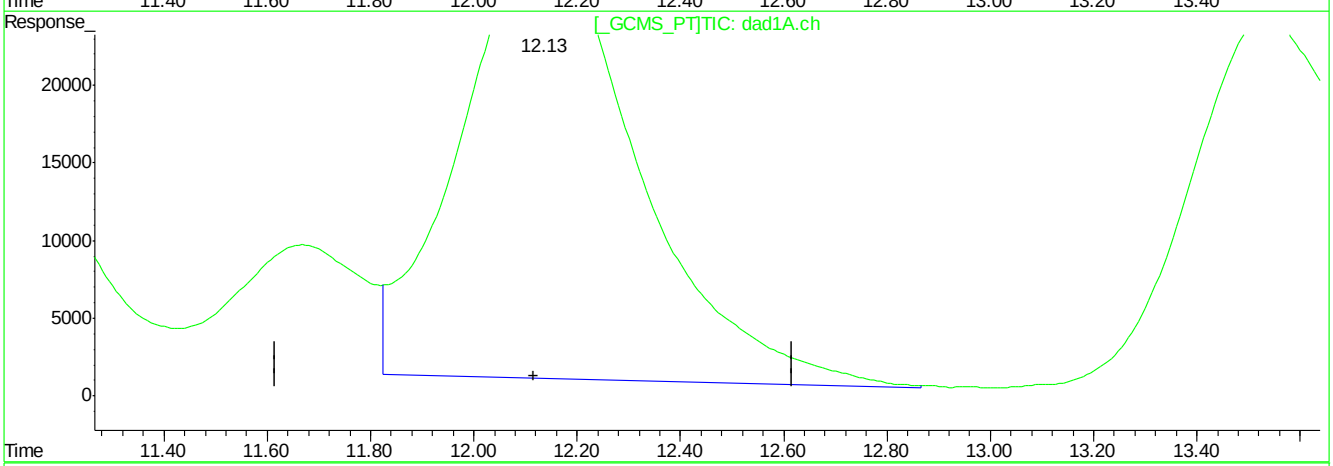
(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:33:01 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:31 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(11) Tetryl

12.14min 573.014ppb

response 3952625

(11) Tetryl #2

12.13min 519.169ppb m

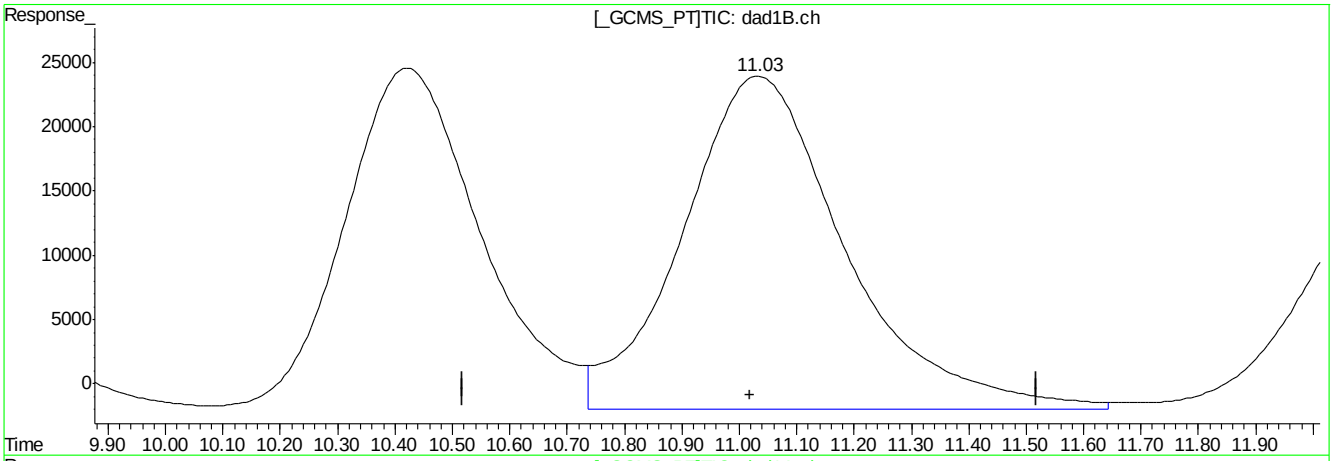
response 6761754

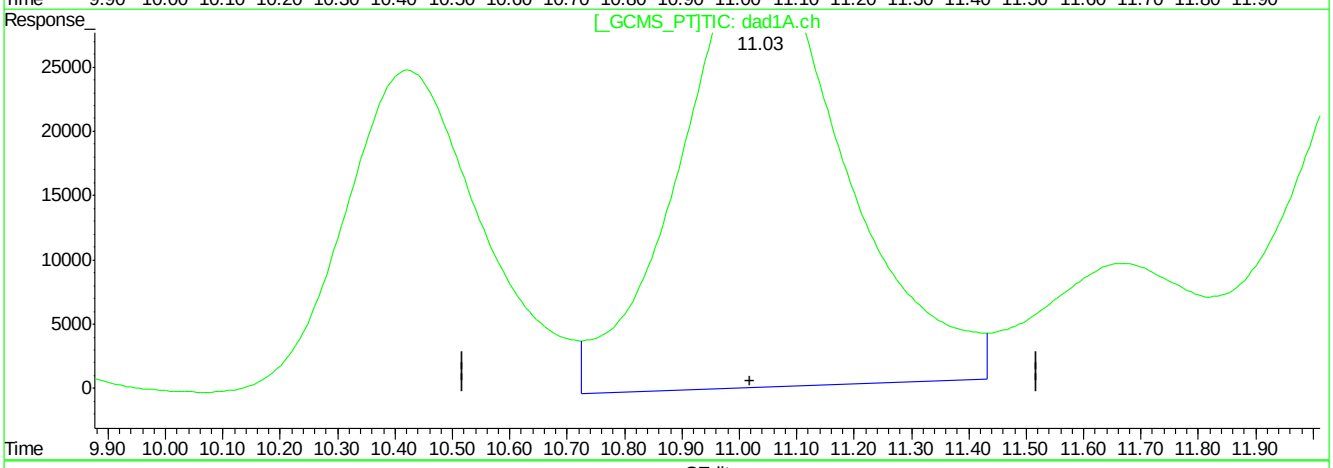
(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:33:10 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:31 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.03min 547.221ppb

response 5090539

(9) 2,4,6-Trinitrotoluene #2

11.03min 566.668ppb m

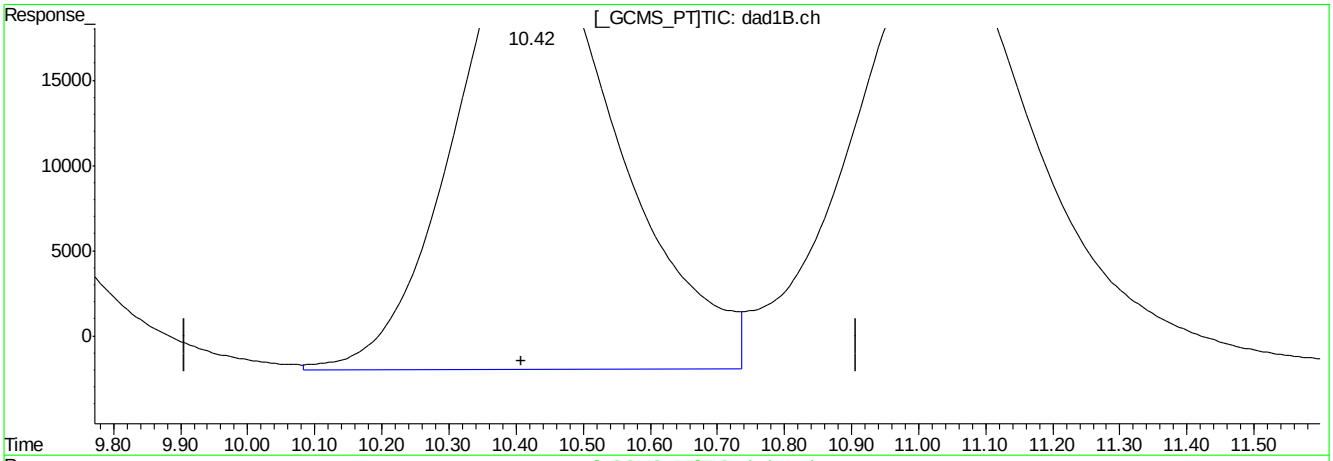
response 6753482

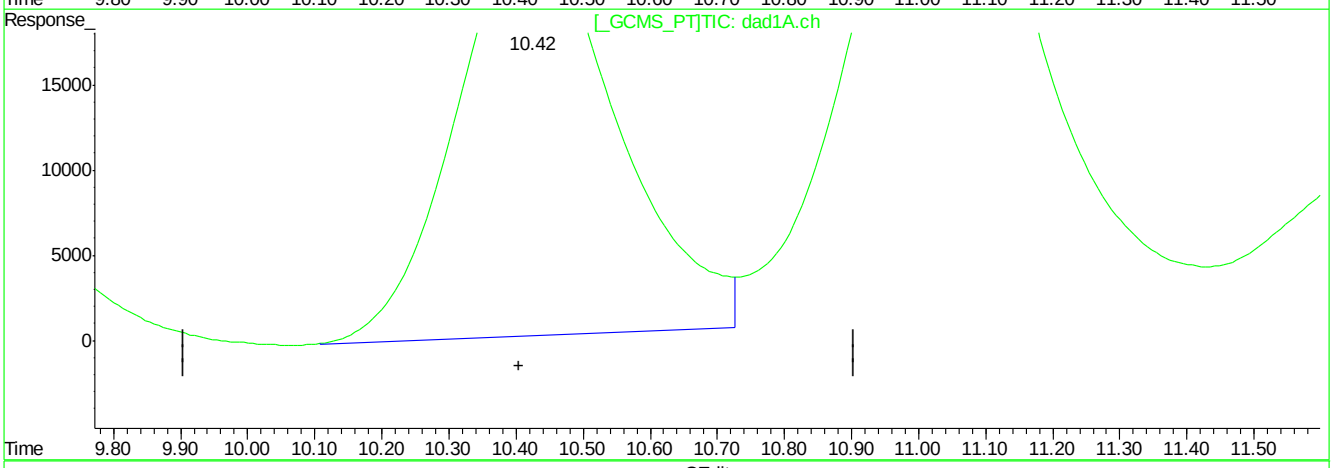
(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:33:18 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:31 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(8) Nitrobenzene

10.42min 514.950ppb

response 4368356

(8) Nitrobenzene #2

10.42min 470.342ppb m

response 3949762

(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:33:24 2019

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
09/26/19 16:28

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617752.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617752.D\dad1A.ch
Acq On : 25-Sep-2019, 22:57:38 Operator: williamh
Sample : icc2769-1000 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12:38 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb	
	System Monitoring Compounds							
12)	S 3,4-Dinitrotolue	13.53	13.52	4591322	9055692	881.888	892.036	
	Spiked Amount 500.000	Range 70 - 136		Recovery =		176.38%#	178.41%#	
	Target Compounds							
1)	TNX	4.96	4.96	6018347	6004425	1059.473m	1054.789m	
2)	HMX	5.37	5.37	3026166	3027841	843.036m	844.146m	
3)	DNX	5.48	5.48	4046919	4062739	767.488m	776.175m	
4)	MNX	6.32	6.32	5734990	5734990	987.214	987.231	
5)	1,3,5-Trinitrobe	7.13	7.13	10428175	10428175	1096.003	1099.274	
6)	RDX	7.55	7.55	5159657	5159657	1116.264	1124.476	
7)	1,3-Dinitrobenze	9.50	9.50	13991520	10641112	1045.078	1049.362	
8)	Nitrobenzene	10.41	10.41	8835617	8512375	1041.560	1024.176	
9)	2,4,6-Trinitroto	11.02	11.02	10246321	13648582	1101.456	1145.220	
10)	Nitroglycerin	0.00	11.65	0	3332958	N.D.	905.425	#
11)	Tetryl	12.12	12.12	7927404	14234017	1149.239	1108.429	
13)	2,6-Dinitrotolue	13.88	13.88	7351863	10767621	1175.396	1138.354	
14)	2,4-Dinitrotolue	14.58	14.58	12909220	8826775	1063.222	1004.890	
15)	o-Nitrotoluene	16.06	16.06	6201909	8738054	1108.438	866.604	
16)	3,5-Dinitroanili	15.46	15.46	10530684	16811687	968.187	889.696	
17)	p-Nitrotoluene	17.10	17.10	11894457	20829522	1046.442	1002.692	
18)	4-Amino-2,6-Dini	17.10	17.10	11894457	20829522	1046.442	1002.615	
19)	m-Nitrotoluene	18.33	18.33	5955214	9462873	1038.768	906.183	
20)	2-Amino-4,6-Dini	19.16	19.16	9999547	13435173	1159.054	1082.265	
21)	PETN	0.00	20.28	0	3078917	N.D.	1217.374	#

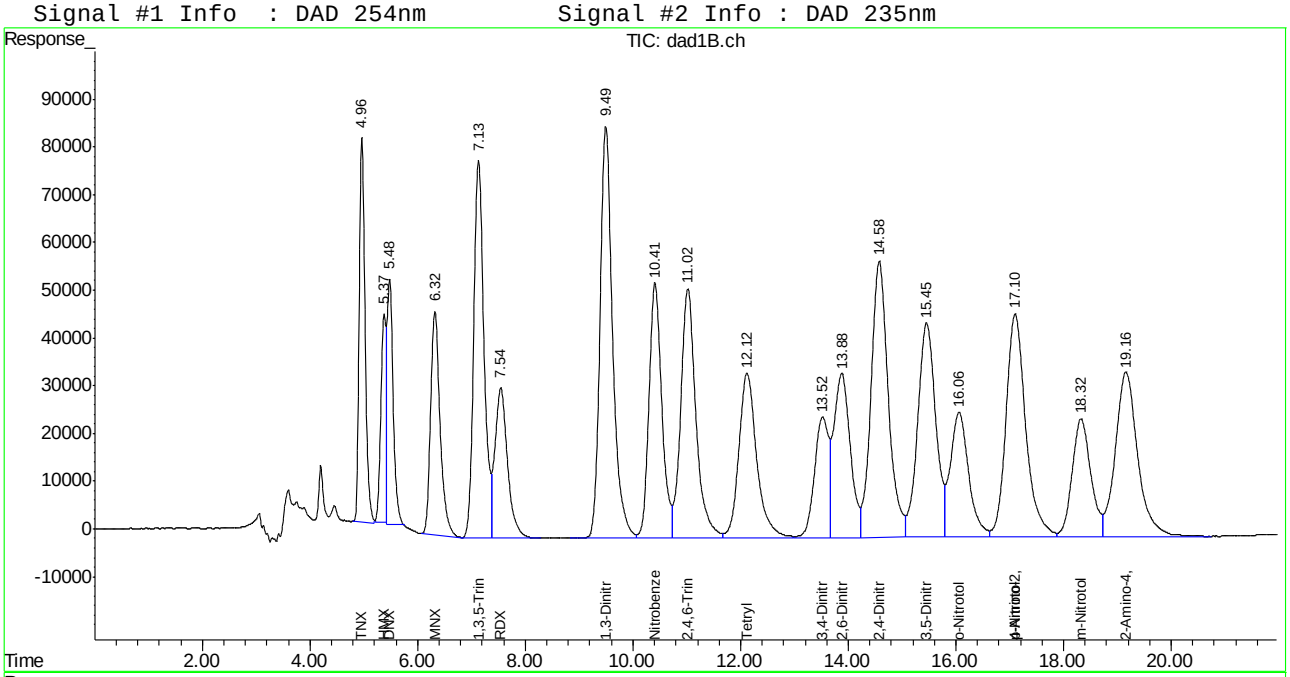
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

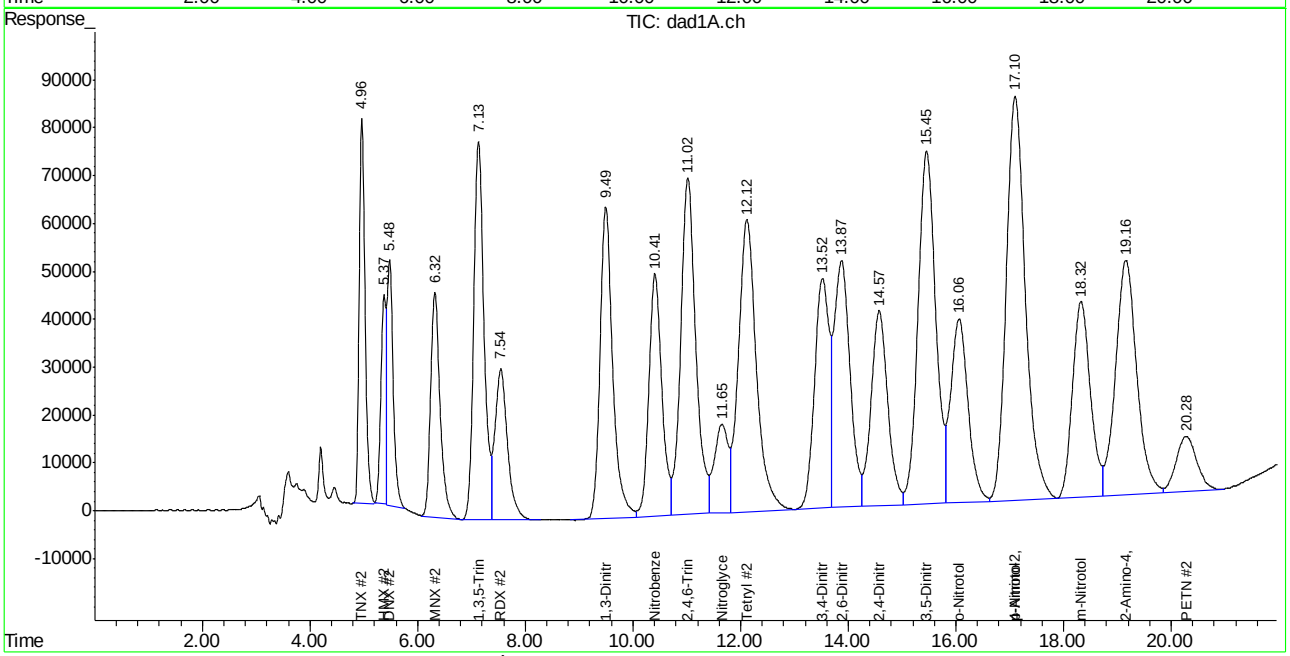
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617752.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617752.D\dad1A.ch
Acq On : 25-Sep-2019, 22:57:38 Operator: williamh
Sample : icc2769-1000 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:32 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

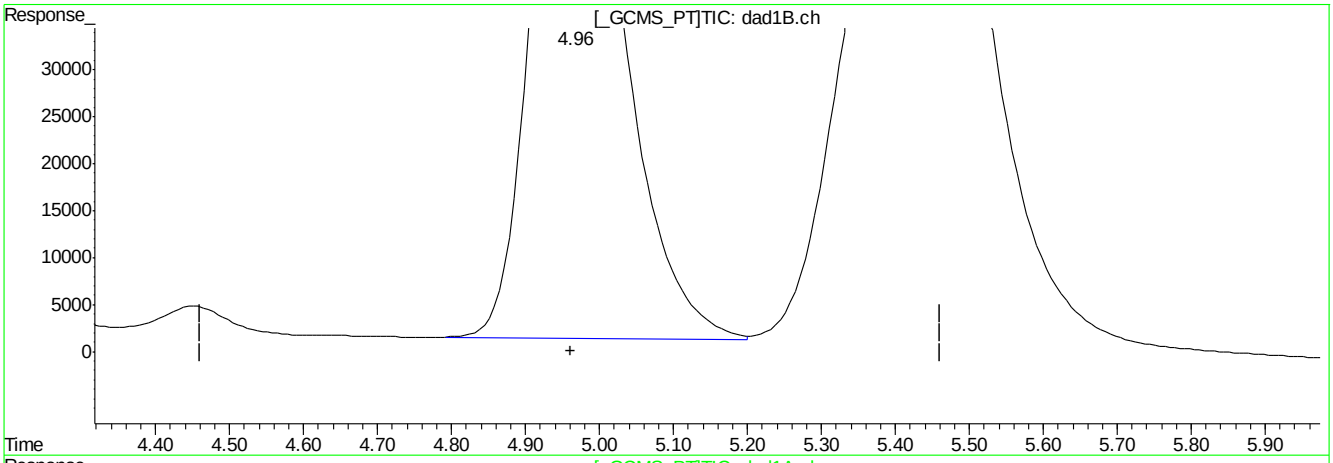
Sample Number: GGG2769-ICC2769 **Method:** SW846 8330B
Lab FileID: GG617752.D **Analyst approved:** 09/26/19 16:07 William Hustedde
Injection Time: 09/25/19 22:57 **Supervisor approved:** 09/26/19 16:28 Naresh Jiawan

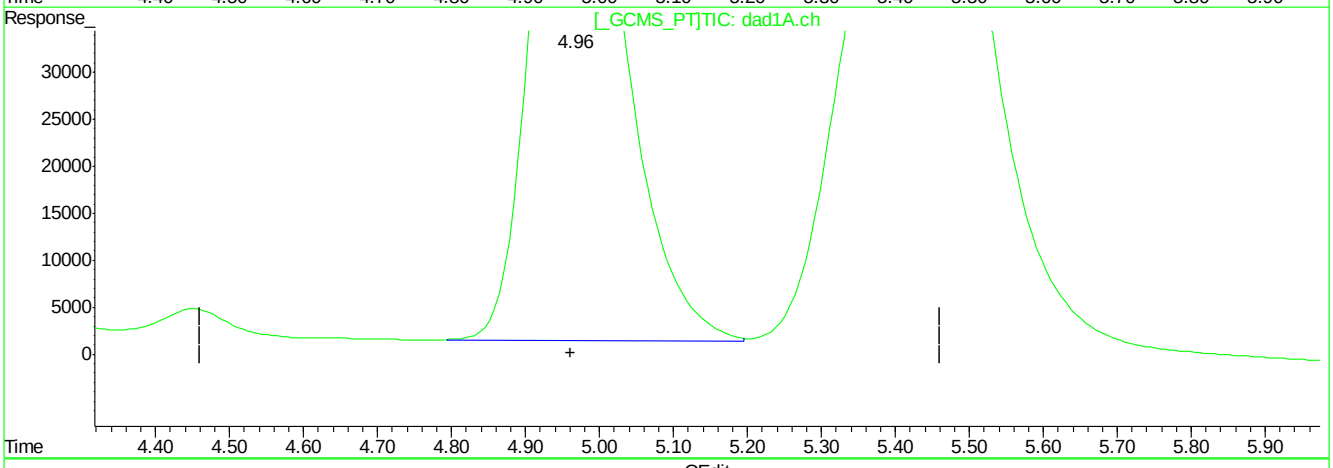
Parameter	CAS	Sig#	R.T. (min.)	Reason
TNX		1	4.96	Poor instrument integration
TNX		2	4.96	Poor instrument integration
HMX	2691-41-0	1	5.37	Poor instrument integration
HMX	2691-41-0	2	5.37	Poor instrument integration
DNX		1	5.48	Poor instrument integration
DNX		2	5.48	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617752.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617752.D\dad1A.ch
Acq On : 25-Sep-2019, 22:57:38 Operator: williamh
Sample : icc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(1) TNX

4.96min 1059.473ppb m

response 6018347

(1) TNX #2

4.96min 1054.789ppb m

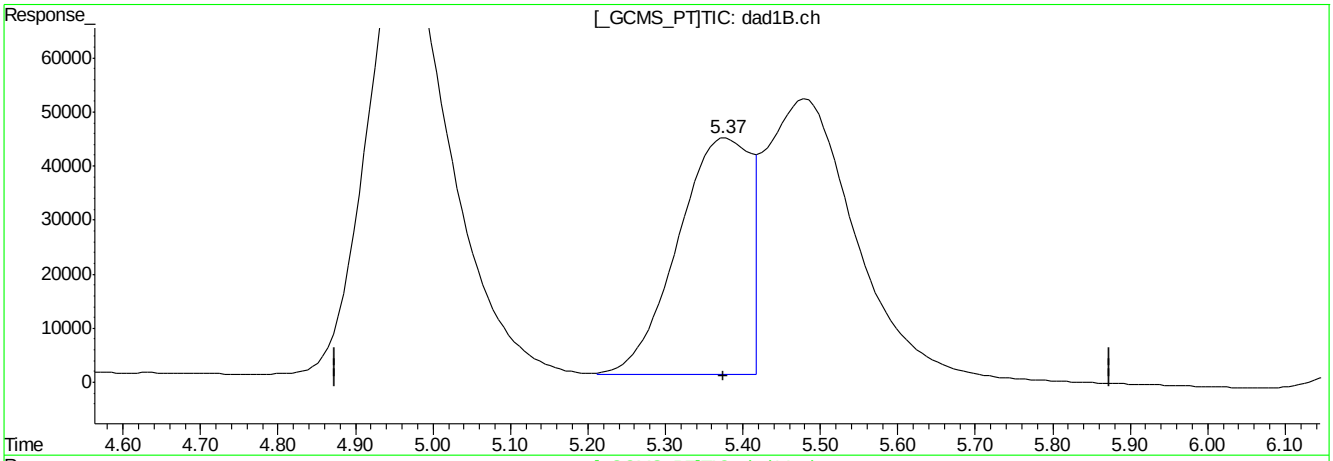
response 6004425

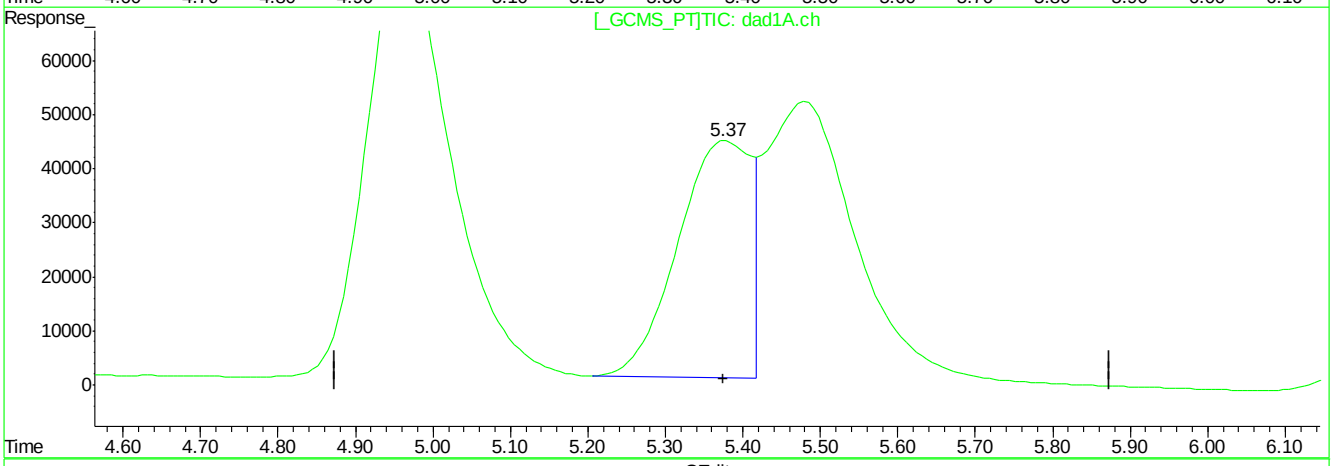
(+) = Expected Retention Time
GG617752.D 8330RPB.M_092519.M Thu Sep 26 11:31:47 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617752.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617752.D\dad1A.ch
Acq On : 25-Sep-2019, 22:57:38 Operator: williamh
Sample : icc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.37min 843.036ppb m

response 3026166

(2) HMX #2

5.37min 844.146ppb m

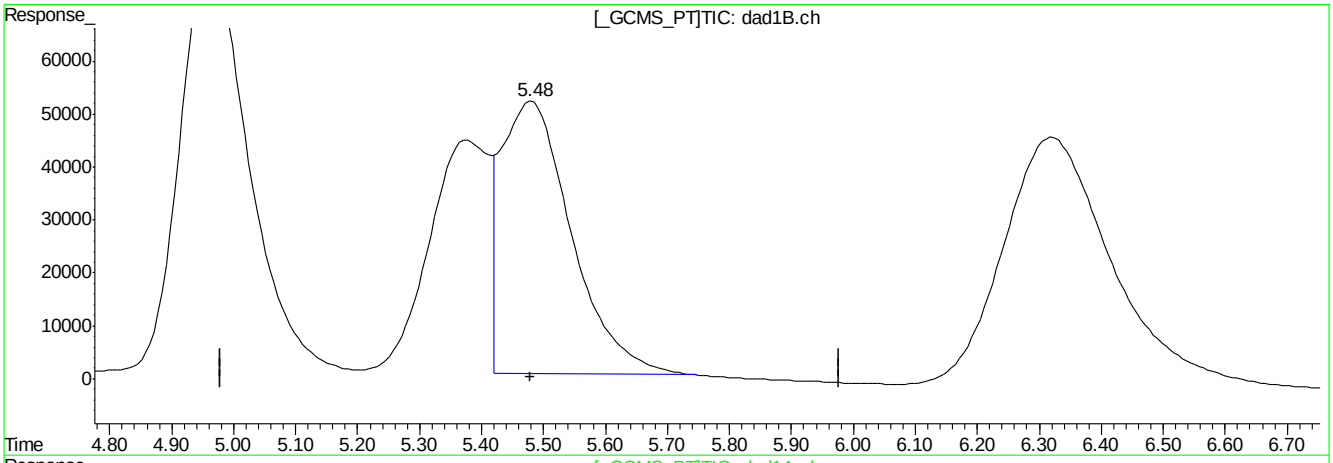
response 3027841

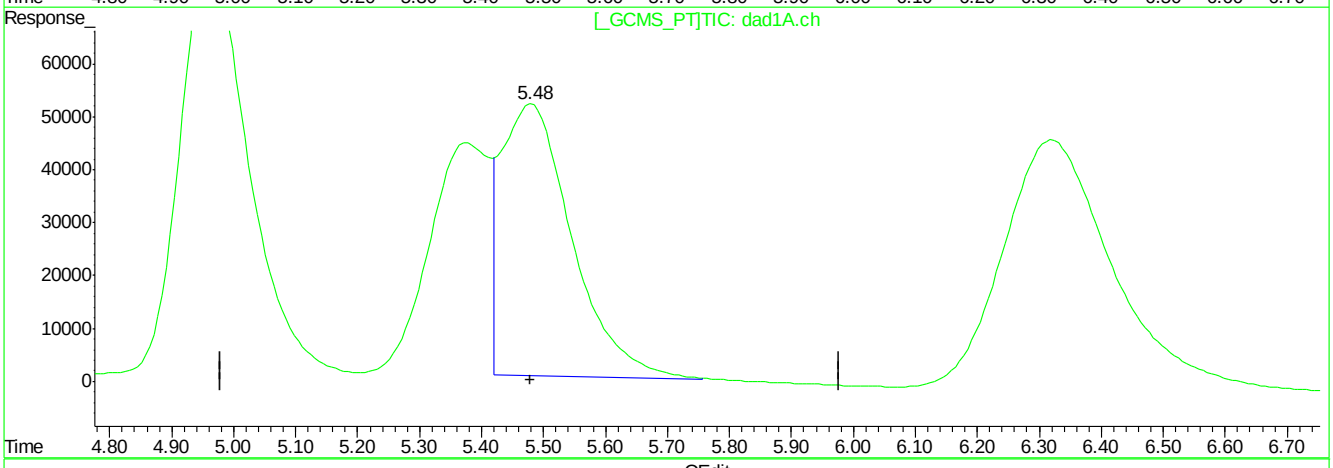
(+) = Expected Retention Time
GG617752.D 8330RPB.M_092519.M Thu Sep 26 11:31:55 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617752.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617752.D\dad1A.ch
Acq On : 25-Sep-2019, 22:57:38 Operator: williamh
Sample : icc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(3) DNX

5.48min 767.488ppb m

response 4046919

(3) DNX #2

5.48min 776.175ppb m

response 4062739

(+) = Expected Retention Time
GG617752.D 8330RPB.M_092519.M Thu Sep 26 11:32:03 2019

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617753.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617753.D\dad1A.ch
Acq On : 25-Sep-2019, 23:27:05 Operator: williamh
Sample : ic2769-2500 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12:39 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb	
	System Monitoring Compounds							
12) S	3,4-Dinitrotolue	13.53	13.53	11427135	22622399	2194.891	2214.666	
	Spiked Amount 500.000	Range 70 - 136		Recovery =		438.98%#	442.93%#	
	Target Compounds							
1)	TNX	4.96	4.96	15449035	15449035	2719.657	2713.910	
2)	HMX	5.38	5.38	7476194	7476194	2183.897	2183.383	
3)	DNX	5.48	5.48	10801869	10801869	2167.878	2164.227	
4)	MNX	6.33	6.33	14634680	14634680	2537.898	2537.865	
5)	1,3,5-Trinitrobe	7.14	7.14	26458043	26458043	2780.744	2789.044	
6)	RDX	7.55	7.55	12973470	12973470	2806.739	2827.390	
7)	1,3-Dinitrobenze	9.50	9.50	35336094	26792304	2639.382	2642.540	
8)	Nitrobenzene	10.41	10.41	22261102	20994018	2624.182	2602.867	
9)	2,4,6-Trinitroto	11.02	11.03	25828110	34018225	2776.463	2854.388	
10)	Nitroglycerin	0.00	11.66	0	8168741	N.D.	2226.244	#
11)	Tetryl	12.12	12.12	20146483	36422079	2920.645	2969.609	
13)	2,6-Dinitrotolue	13.88	13.88	18676188	27322720	2985.900	2912.280	
14)	2,4-Dinitrotolue	14.57	14.57	32684148	22848017	2691.914	2601.146	
15)	o-Nitrotoluene	16.06	16.06	15582462	22472561	2784.979	2228.736	
16)	3,5-Dinitroanili	15.43	15.43	26850786	43410142	2468.650	2297.320	
17)	p-Nitrotoluene	17.09	17.09	30163703	53830444	2653.720	2591.290	
18)	4-Amino-2,6-Dini	17.09	17.09	30163703	53830444	2653.720	2591.091	
19)	m-Nitrotoluene	18.32	18.32	15094613	24955421	2632.955	2389.778	
20)	2-Amino-4,6-Dini	19.13	19.13	25378119	35158532	2941.594	2832.181	
21)	PETN	0.00	20.28	0	8634754	N.D.	3377.775	#

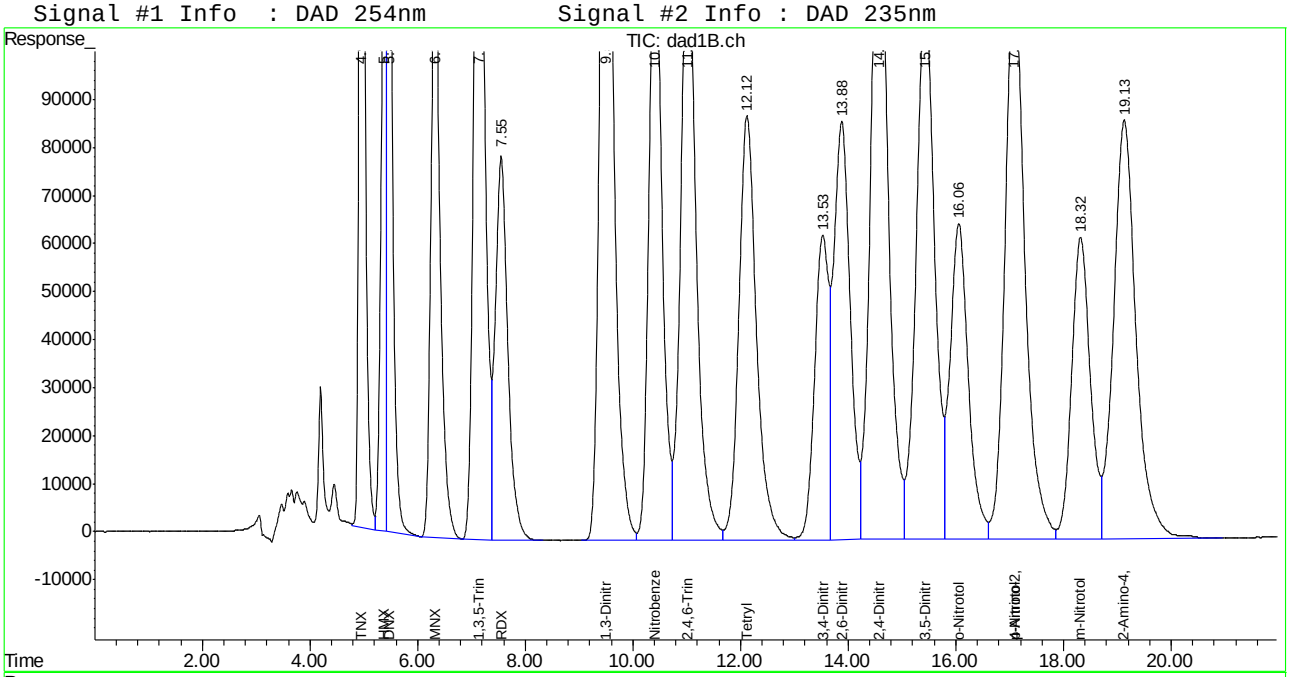
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

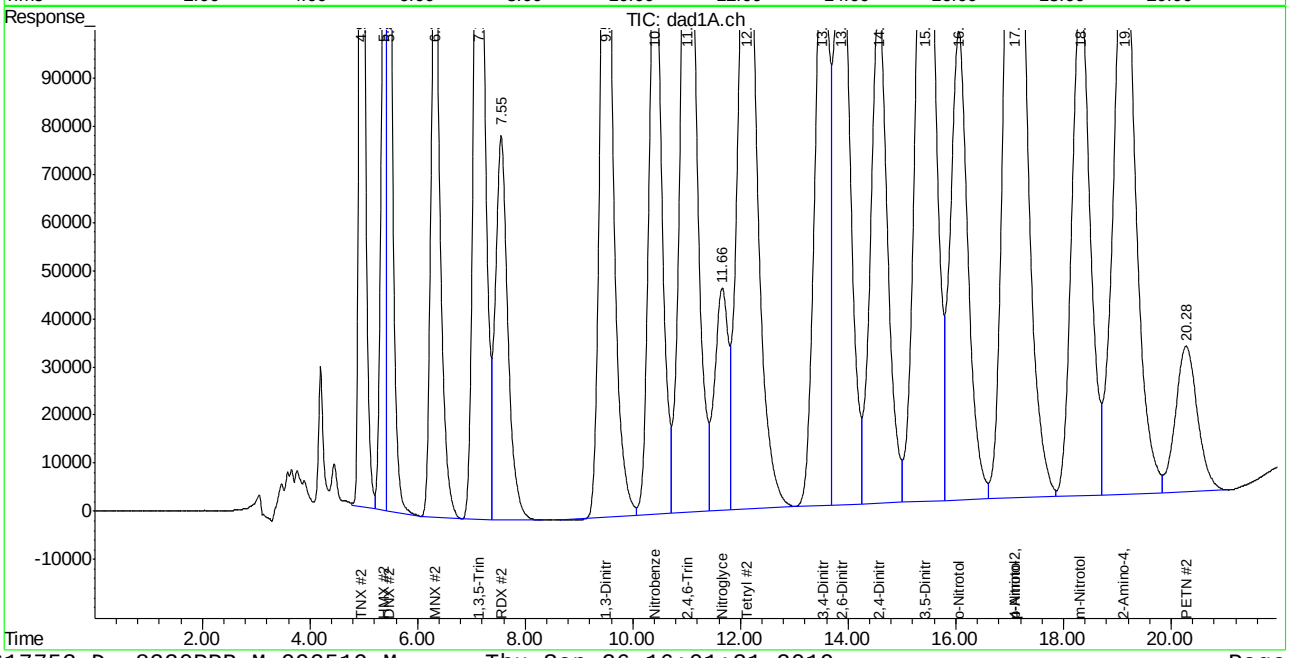
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617753.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617753.D\dad1A.ch
Acq On : 25-Sep-2019, 23:27:05 Operator: williamh
Sample : ic2769-2500 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617754.D\dad1B.ch Vial: 9
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617754.D\dad1A.ch
Acq On : 25-Sep-2019, 23:56:32 Operator: williamh
Sample : ic2769-5000 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12:40 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb	
	System Monitoring Compounds							
12) S	3,4-Dinitrotolue	13.61	13.61	22694012	45704871	4359.001	4428.579	
	Spiked Amount 500.000	Range 70 - 136		Recovery =		871.80%#	885.72%#	
	Target Compounds							
1)	TNX	4.96	4.96	30192410	30192410	5315.089	5303.858	
2)	HMX	5.38	5.38	14655794	14655794	4712.906	4699.865	
3)	DNX	5.48	5.48	20767103	20767103	4647.092	4539.317	
4)	MNX	6.33	6.33	28899678	28899678	5073.270	5072.941	
5)	1,3,5-Trinitrobe	7.15	7.15	52314501	52314501	5498.262	5514.673	
6)	RDX	7.56	7.56	25422911	25422911	5500.108	5540.575	
7)	1,3-Dinitrobenze	9.53	9.53	69786310	52489977	5212.594	5178.510	
8)	Nitrobenzene	10.45	10.45	44157450	41298399	5205.366	5413.898	
9)	2,4,6-Trinitroto	11.08	11.08	50532038	66013038	5432.079	5538.996	
10)	Nitroglycerin	0.00	11.72	0	15575975	N.D.	4266.154	#
11)	Tetryl	12.19	12.19	39181731	69694565	5680.193	6184.772	
13)	2,6-Dinitrotolue	13.95	13.95	36695921	53863518	5866.847	5819.536	
14)	2,4-Dinitrotolue	14.65	14.65	64169582	45461253	5285.100	5175.564	
15)	o-Nitrotoluene	16.15	16.15	30022716	44417557	5365.816	4405.150	
16)	3,5-Dinitroanili	15.50	15.50	52983074	87170322	4871.242	4613.165	
17)	p-Nitrotoluene	17.19	17.19	58898663	107.5E6	5181.743	5174.583	
18)	4-Amino-2,6-Dini	17.19	17.19	58898663	107.5E6	5181.743	5174.185	
19)	m-Nitrotoluene	18.42	18.42	29482656	50105401	5142.662	4798.188	
20)	2-Amino-4,6-Dini	19.24	19.24	48866600	70054734	5664.160	5643.230	
21)	PETN	0.00	20.41	0	17398593	N.D.	6696.595	#

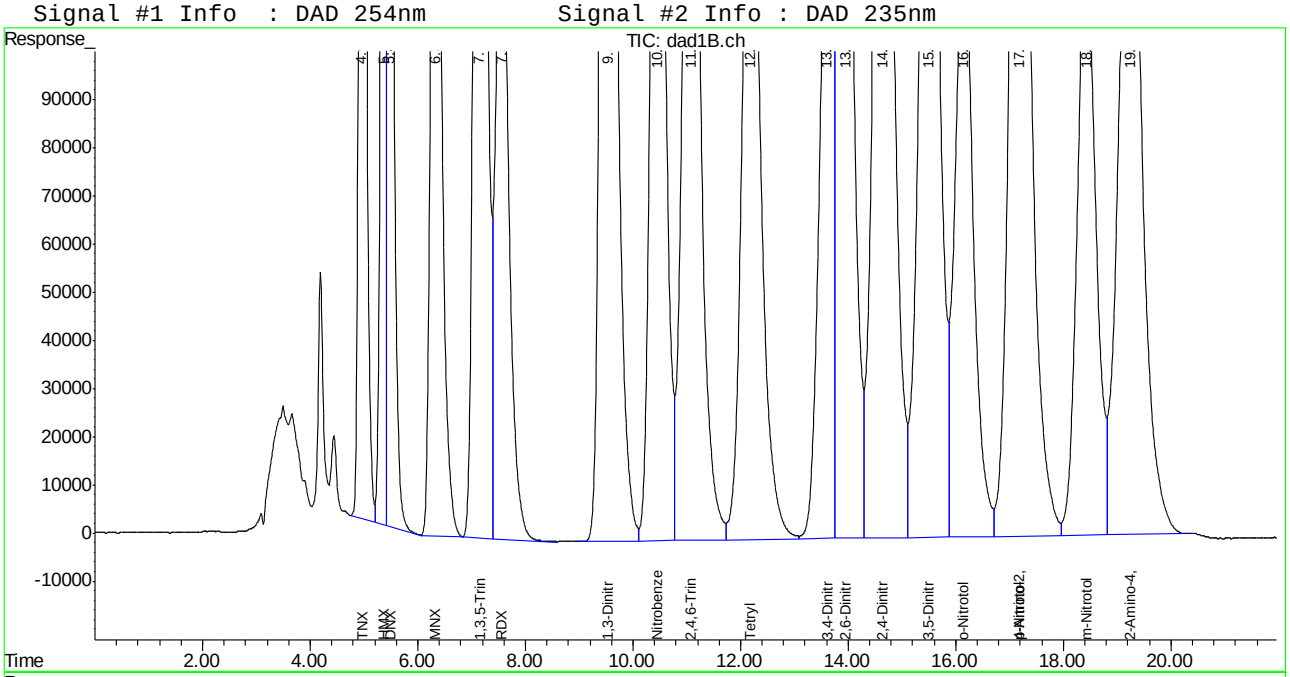
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
GG617754.D 8330RPB.M_092519.M Thu Sep 26 16:01:32 2019 Page 1

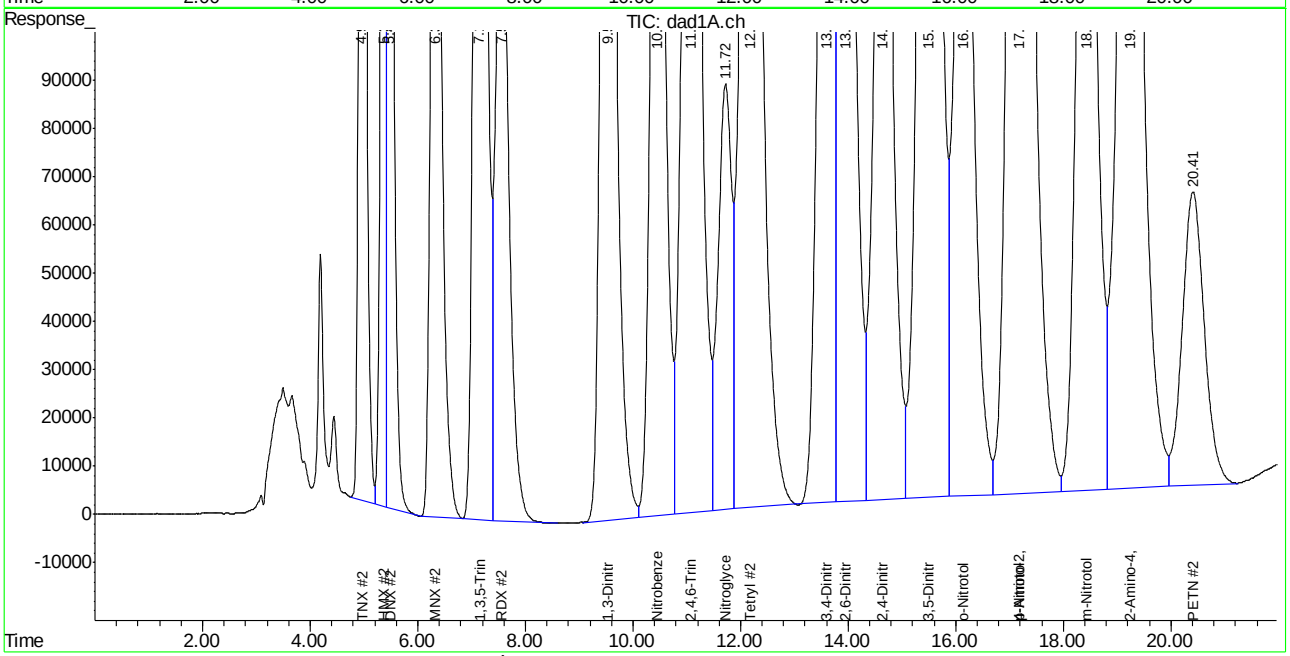
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617754.D\dad1B.ch Vial: 9
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617754.D\dad1A.ch
Acq On : 25-Sep-2019, 23:56:32 Operator: williamh
Sample : ic2769-5000 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
09/26/19 16:28

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617755.D\dad1B.ch Vial: 10
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617755.D\dad1A.ch
Acq On : 26-Sep-2019, 00:25:58 Operator: williamh
Sample : icv2769-1000 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:43:39 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:43:32 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	0.00	0.00	0	0	N.D.	N.D.
	Spiked Amount 500.000	Range 70 - 136		Recovery =		0.00%#	0.00%#
	Target Compounds						
1)	TNX	4.98	4.98	6146461	6146461	996.081	997.042
2)	HMX	5.40	5.40	2921780	2921780	980.590	974.217
3)	DNX	5.50	5.50	4119701	4119701	957.975	955.041
4)	MNX	6.36	6.36	5345176	5345176	1010.883	1008.886
5)	1,3,5-Trinitrobe	7.17	7.17	9498559	9498559	918.511	918.511
6)	RDX	7.59	7.59	4947804	4947804	975.924	975.924
7)	1,3-Dinitrobenze	9.55	9.55	13337178	10299301	954.196	986.349
8)	Nitrobenzene	10.47	10.47	8620445	8272061	968.207	977.336
9)	2,4,6-Trinitroto	11.09	11.09	10154932	13570285	995.903	1026.613
10)	Nitroglycerin	0.00	11.74	0	3455123	N.D.	999.345 #
11)	Tetryl	12.22	12.22	7535068	13687564	984.241	971.517
13)	2,6-Dinitrotolue	14.00	14.00	6309481	9116954	873.993	844.042
14)	2,4-Dinitrotolue	14.69	14.69	12383125	8606538	979.272	965.106
15)	o-Nitrotoluene	16.19	16.19	6129850	8377033	1054.033	1006.127
16)	3,5-Dinitroanili	15.55	15.55	10629658	17093123	1041.817	1029.620
17)	p-Nitrotoluene	17.24	17.24	11414366	19636916	984.309	894.241
18)	4-Amino-2,6-Dini	17.24	17.24	11414366	19636916	987.195	904.219
19)	m-Nitrotoluene	18.47	18.47	5938830	9298354	1018.222	934.998
20)	2-Amino-4,6-Dini	19.30	19.30	9221128	12186345	960.966	868.472
21)	PETN	0.00	20.47	0	2646792	N.D.	815.859m#

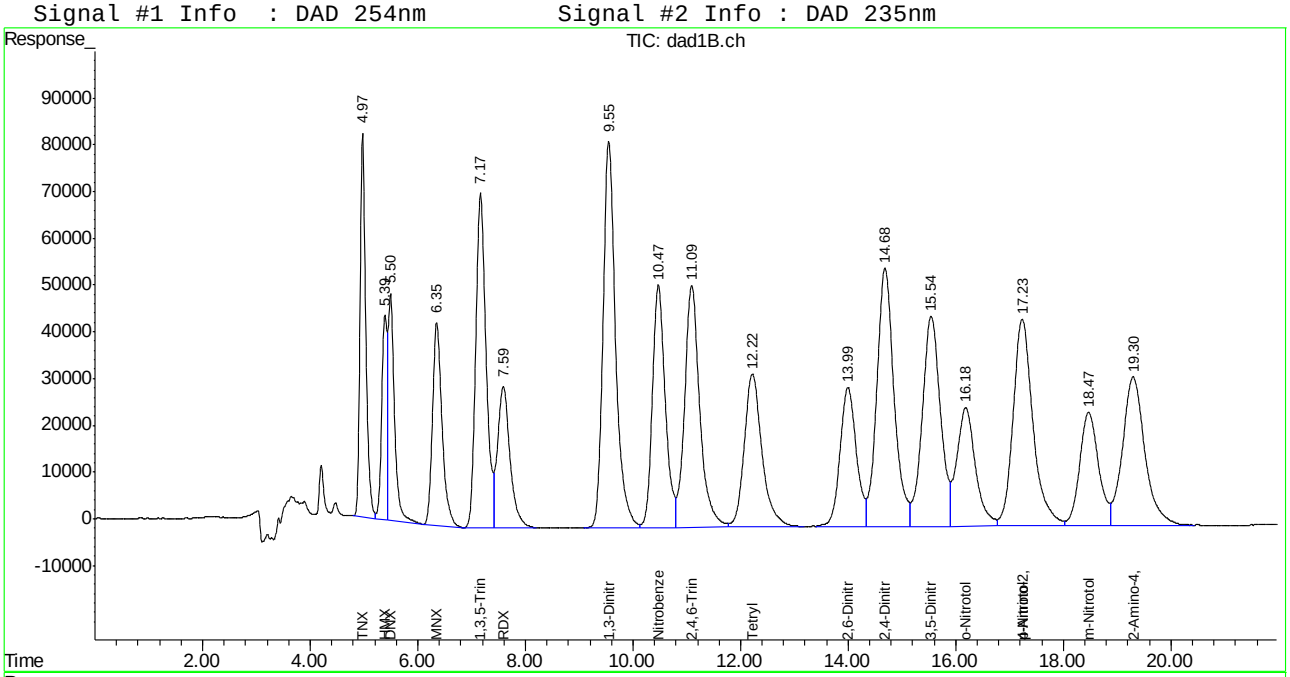
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

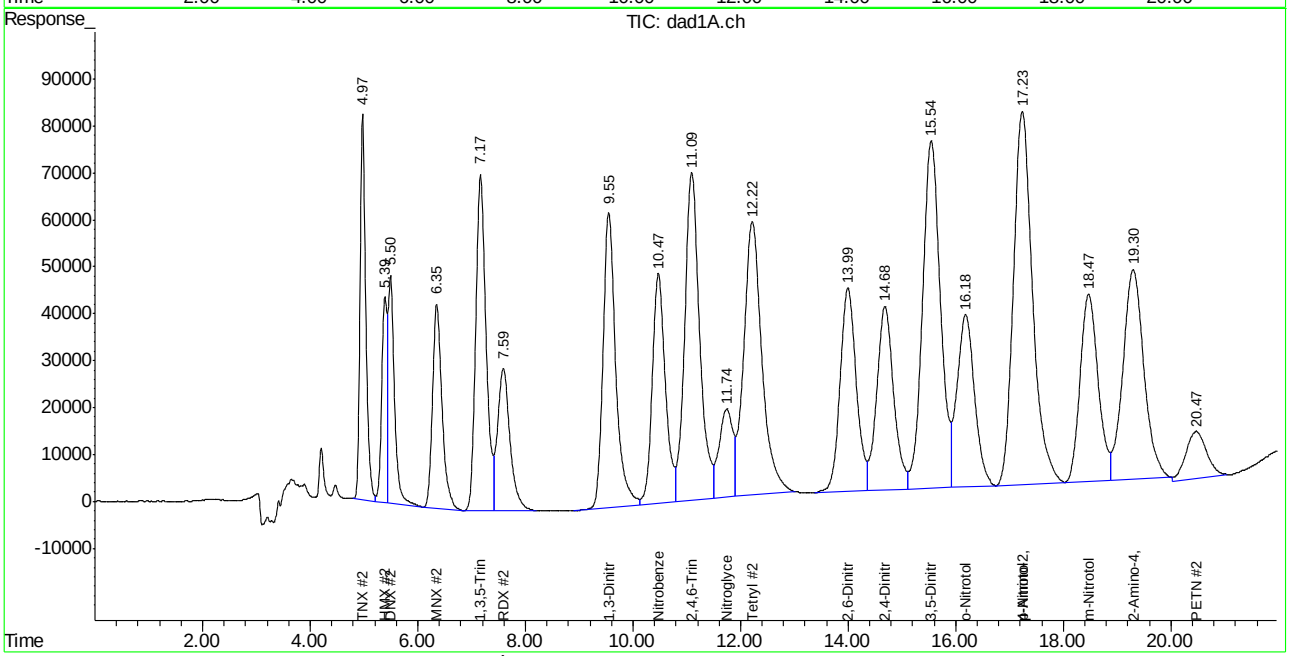
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617755.D\dad1B.ch Vial: 10
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617755.D\dad1A.ch
Acq On : 26-Sep-2019, 00:25:58 Operator: williamh
Sample : icv2769-1000 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:43 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:43:32 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

Sample Number:	GGG2769-ICV2769	**Method:**	SW846 8330B
Lab FileID:	GG617755.D	**Analyst approved:**	09/26/19 16:07 William Hustedde
Injection Time:	09/26/19 00:25	**Supervisor approved:**	09/26/19 16:28 Naresh Jiawan

Parameter	CAS	Sig#	R.T. (min.)	Reason
PETN	78-11-5	2	20.47	Poor instrument integration

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
05/08/20 16:40

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618847.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618847.D\dad1A.ch
Acq On : 06-May-2020, 14:30:09 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : op80057,GGG2834,1050,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 07 14:45:29 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.64	13.55	4942508	9462293	1094.591m	1051.460
	Spiked Amount 500.000	Range 70 - 136		Recovery =		218.92%#	210.29%#
	Target Compounds						
1)	TNX	5.00	5.00	6554646	6554646	1062.592	1063.600
2)	HMX	5.42	5.42	3576836	3315356	1200.436m	1105.448m
3)	DNX	5.52	5.52	3262202	3309419	757.353m	765.921m
4)	MNX	6.37	6.37	5338709	5338709	1009.660	1007.666
5)	1,3,5-Trinitrobe	7.11	7.11	11156106	11156106	1078.796	1078.796
6)	RDX	7.58	7.58	5172296	5172296	1020.203	1020.203
7)	1,3-Dinitrobenze	9.48	9.48	14944548	11363225	1069.193	1088.239
8)	Nitrobenzene	10.35	10.35	9609310	9189953	1079.272	1085.785
9)	2,4,6-Trinitroto	10.94	10.94	10538037	14083990	1033.474	1065.476
10)	Nitroglycerin	0.00	11.56	0	3612738	N.D.	1044.933 #
11)	Tetryl	12.07	12.07	8010831	14163872	1046.386	1005.324
13)	2,6-Dinitrotolue	13.79	13.78	7273974	11135752	1007.595m	1020.320
14)	2,4-Dinitrotolue	14.48	14.48	13659815	10038757	1080.234	1125.709
15)	o-Nitrotoluene	15.89	15.89	6172932	8917007	1061.441	1070.981
16)	3,5-Dinitroanili	15.38	15.38	11434359	19011359	1120.686	1145.167
17)	p-Nitrotoluene	16.98	17.00	12616183	22649308	1087.947	1031.422
18)	4-Amino-2,6-Dini	16.98	17.00	12616183	22649308	1091.137	1042.930
19)	m-Nitrotoluene	18.11	18.11	6786190	11172742	1163.503	1123.478
20)	2-Amino-4,6-Dini	19.11	19.10	10328183	14554379	1076.336	1037.232
21)	PETN	0.00	19.96	0	3557370	N.D.	1091.073 #

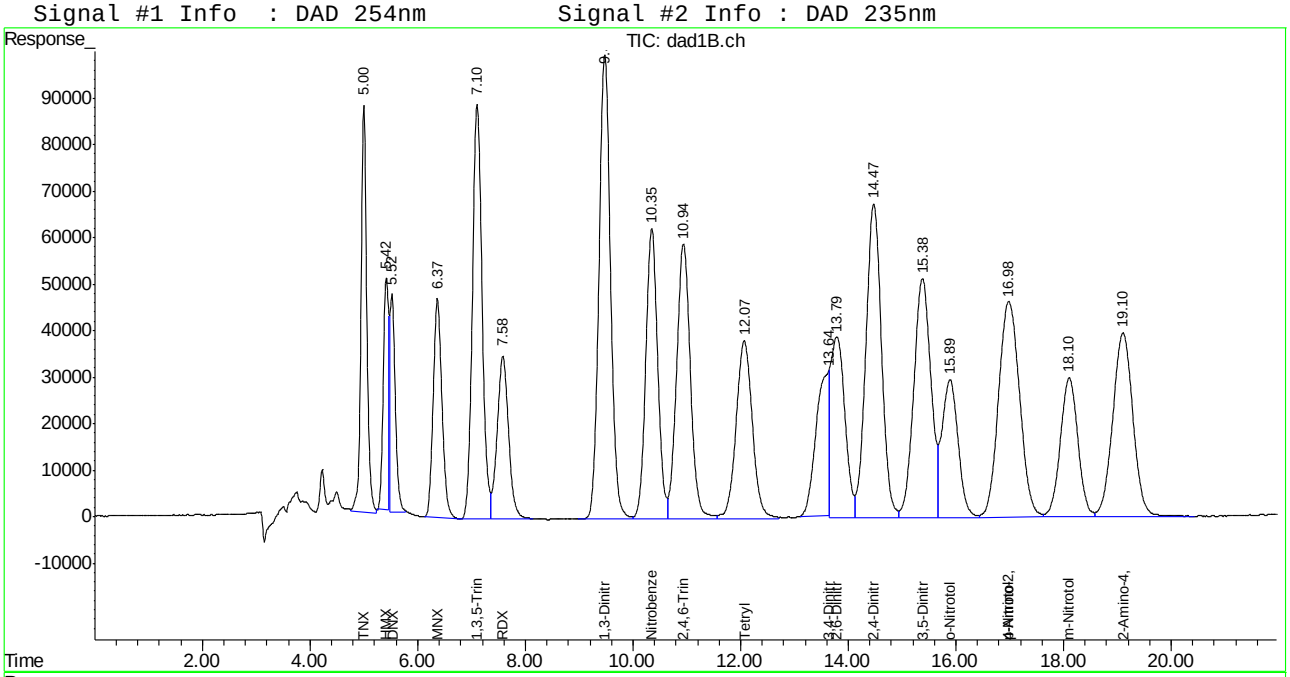
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

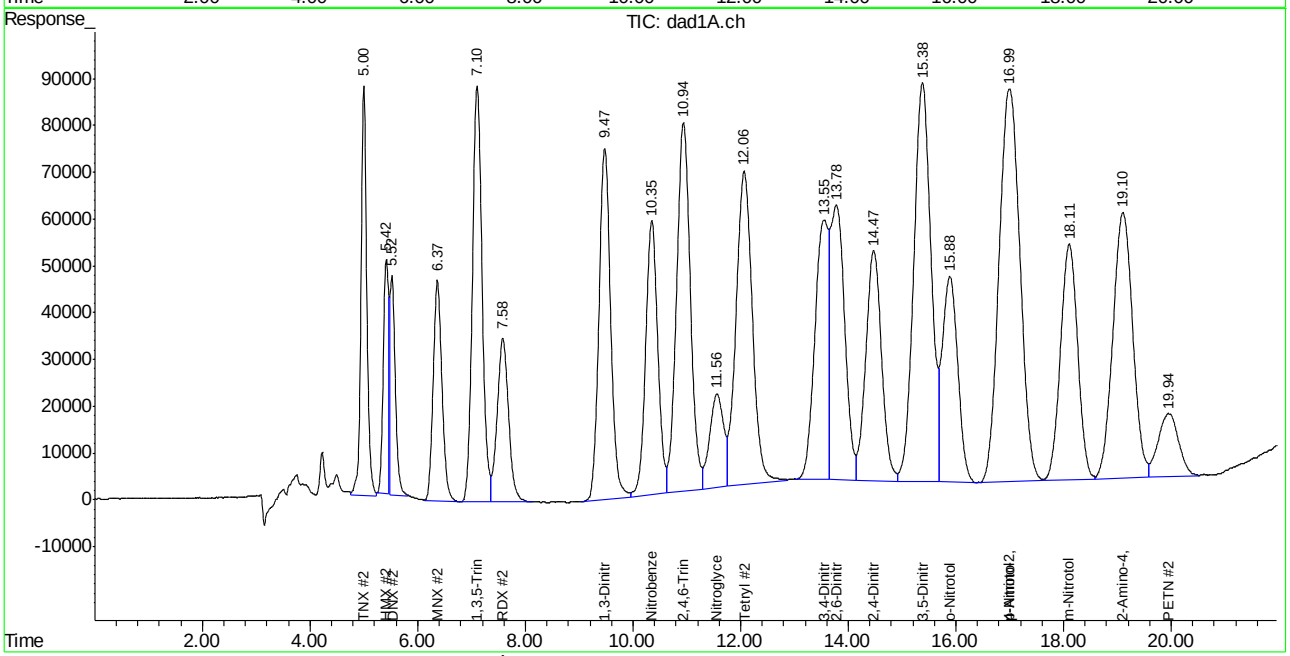
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618847.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618847.D\dad1A.ch
Acq On : 06-May-2020, 14:30:09 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : op80057,GGG2834,1050,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 15:20 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

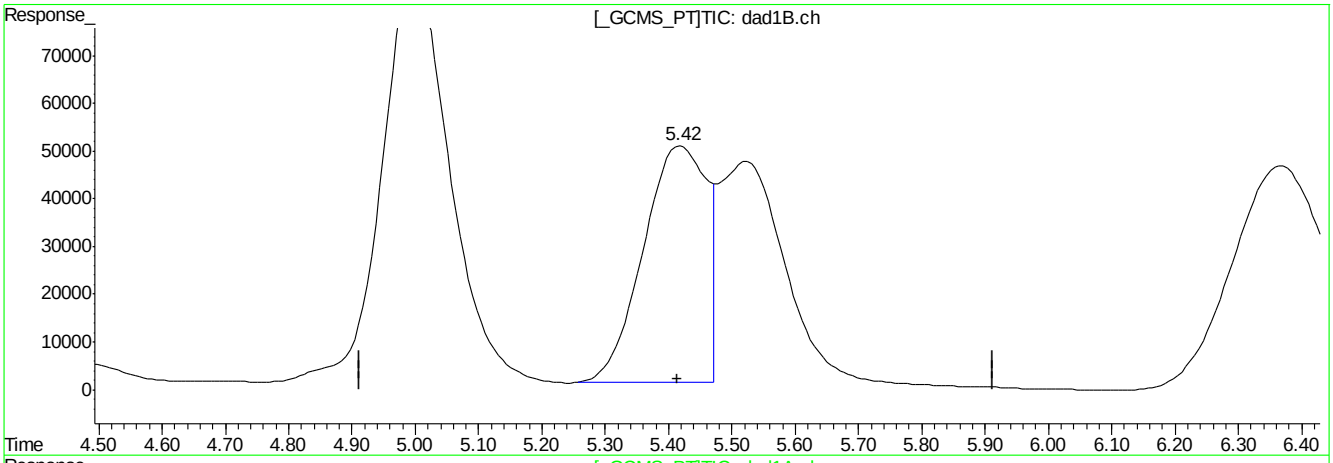
Sample Number: GGG2834-CC2769 **Method:** SW846 8330A
Lab FileID: GG618847.D **Analyst approved:** 05/07/20 16:18 William Hustedde
Injection Time: 05/06/20 14:30 **Supervisor approved:** 05/08/20 16:40 Naresh Jiawan

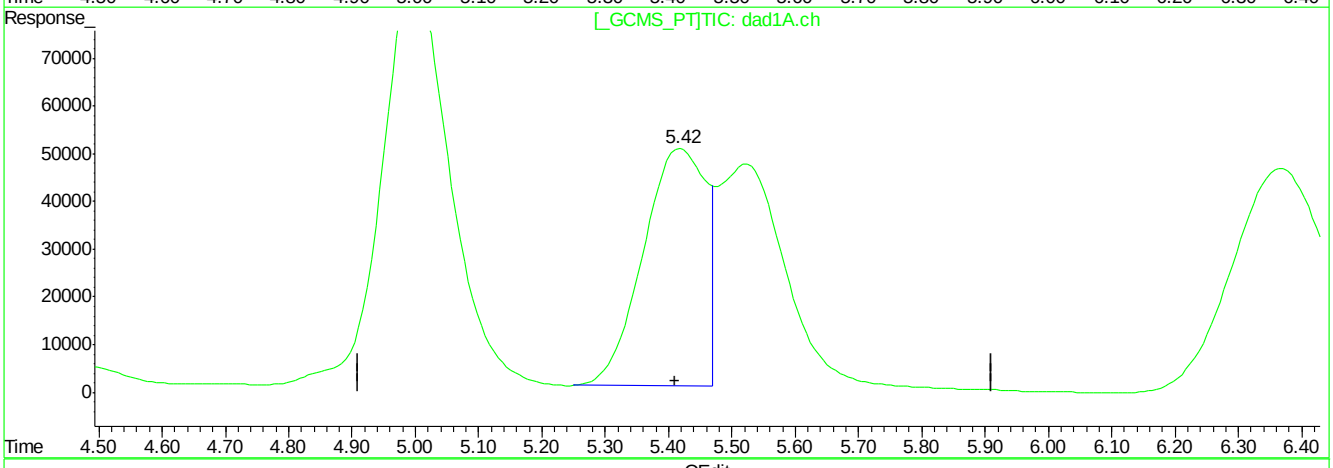
Parameter	CAS	Sig#	R.T. (min.)	Reason
HMX	2691-41-0	1	5.42	Poor instrument integration
HMX	2691-41-0	2	5.42	Poor instrument integration
DNX		1	5.52	Poor instrument integration
DNX		2	5.52	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	1	13.64	Poor instrument integration
2,6-Dinitrotoluene	606-20-2	1	13.79	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618847.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618847.D\dad1A.ch
Acq On : 06-May-2020, 14:30:09 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 14:45 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.42min 1200.436ppb m

response 3576836

(2) HMX #2

5.42min 1105.448ppb m

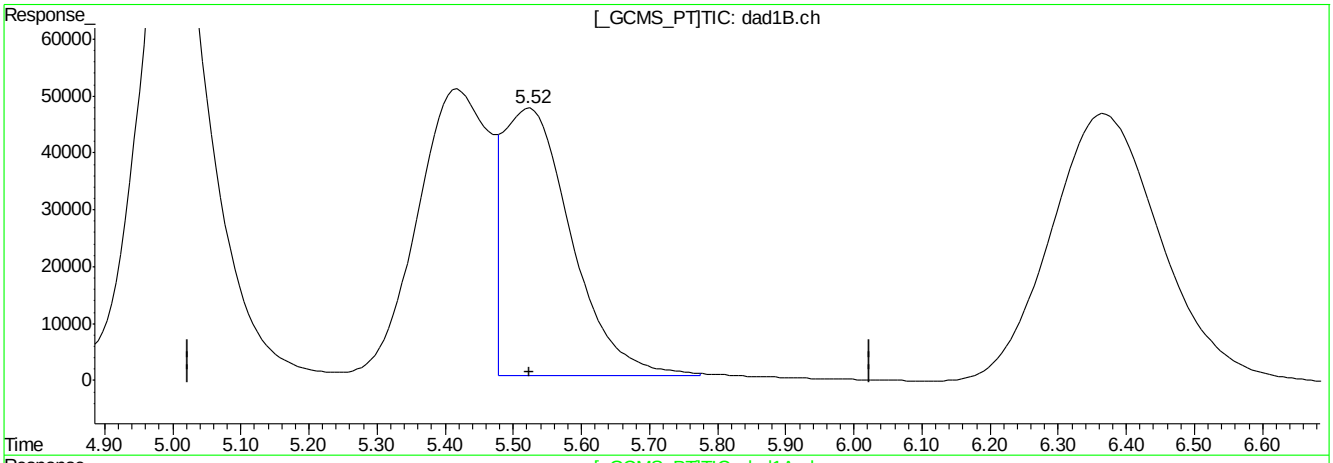
response 3315356

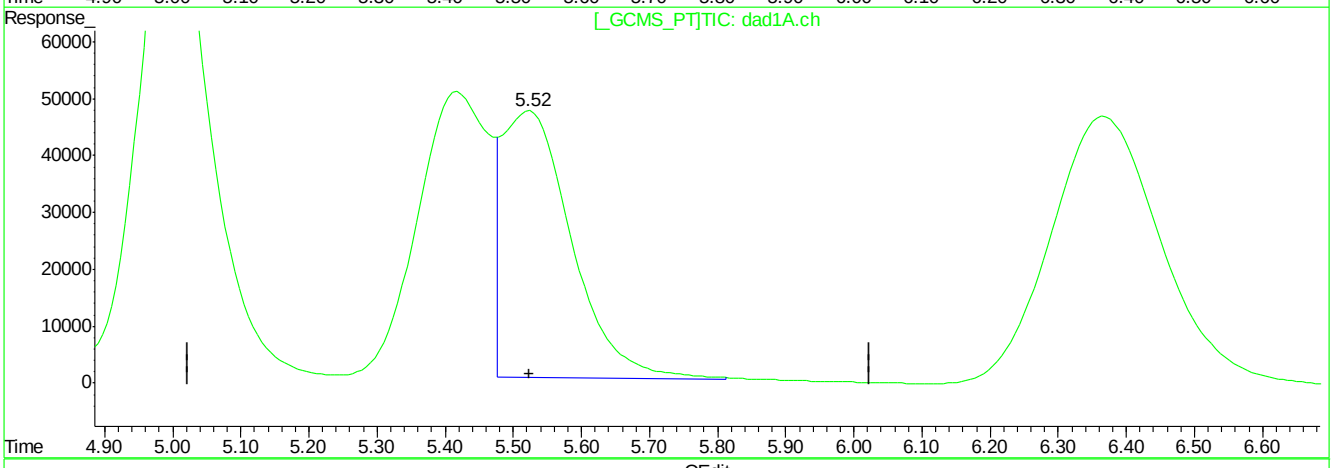
(+) = Expected Retention Time
GG618847.D 8330RPB.M_092519.M Thu May 07 15:19:34 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618847.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618847.D\dad1A.ch
Acq On : 06-May-2020, 14:30:09 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 14:45 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration





QEdit

(3) DNX

5.52min 757.353ppb m

response 3262202

(3) DNX #2

5.52min 765.921ppb m

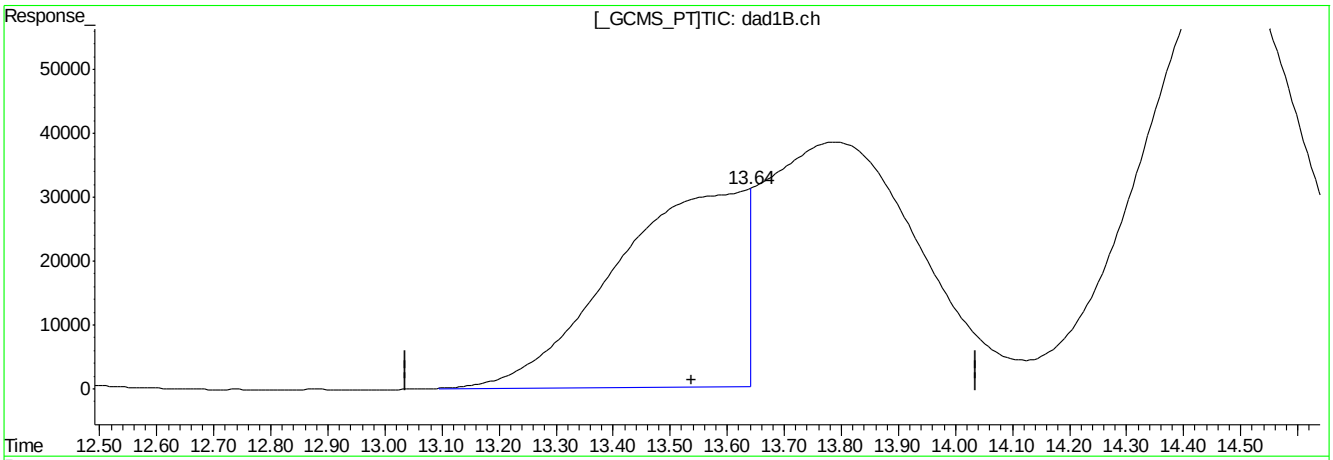
response 3309419

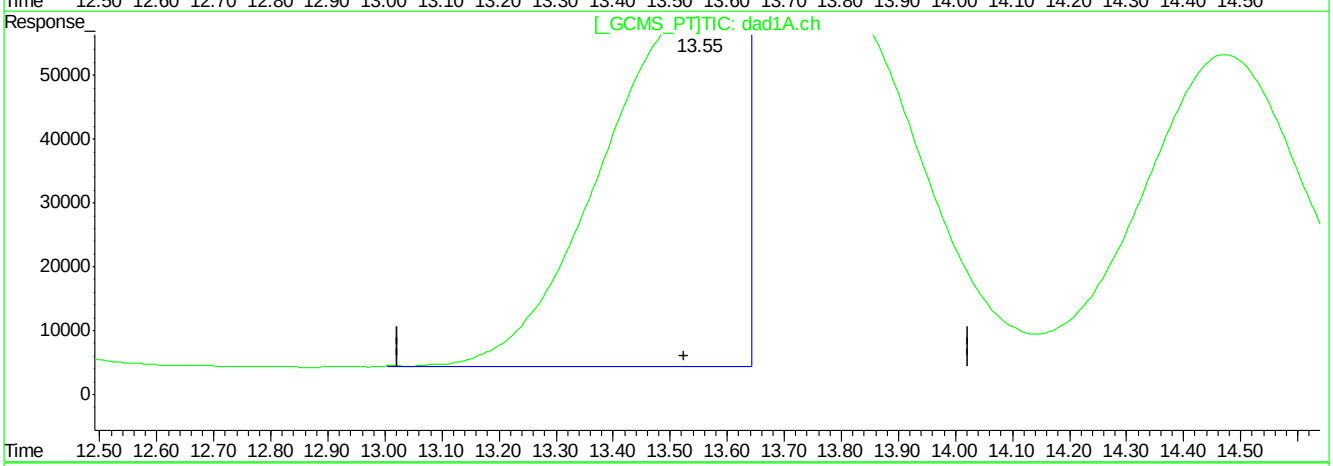
(+) = Expected Retention Time
GG618847.D 8330RPB.M_092519.M Thu May 07 15:19:46 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618847.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618847.D\dad1A.ch
Acq On : 06-May-2020, 14:30:09 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 14:45 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration





QEdit

(12) 3,4-Dinitrotoluene (S)

13.64min 1094.591ppb m

response 4942508

(12) 3,4-Dinitrotoluene #2 (S)

13.55min 1051.460ppb

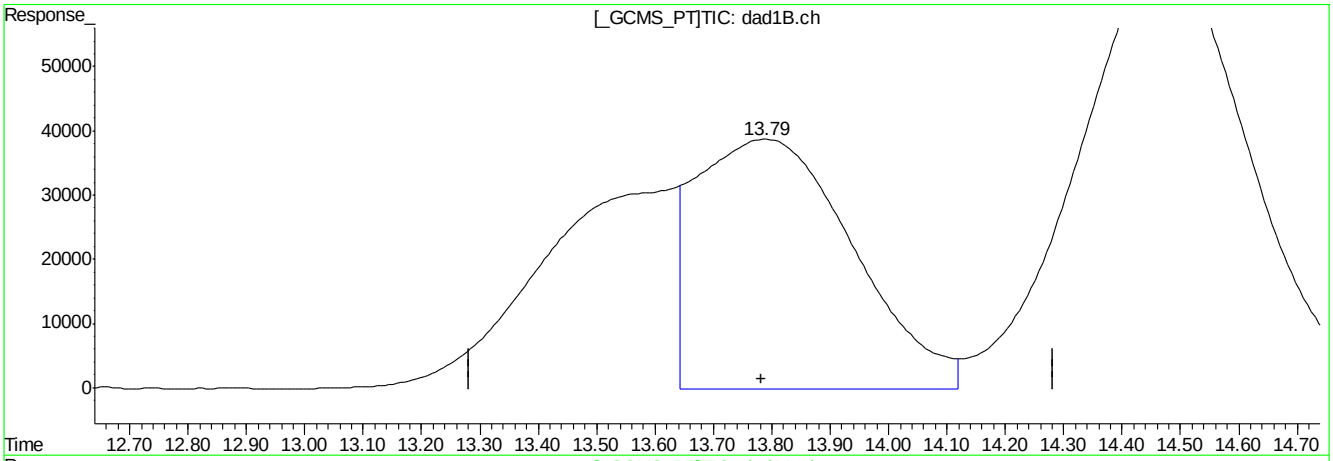
response 9462293

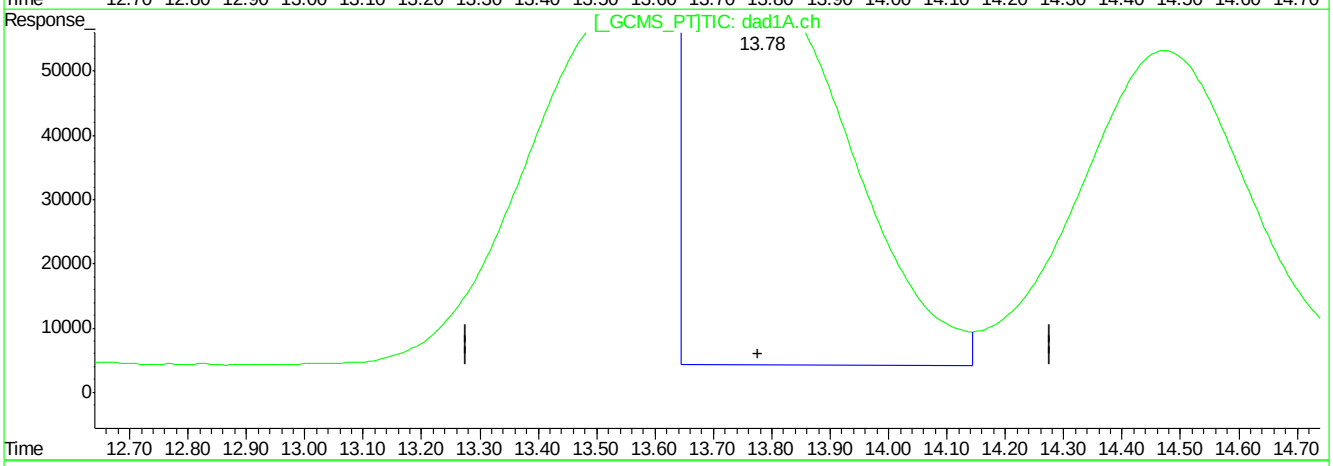
(+) = Expected Retention Time
GG618847.D 8330RPB.M_092519.M Thu May 07 15:20:04 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618847.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618847.D\dad1A.ch
Acq On : 06-May-2020, 14:30:09 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 14:45 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration





QEdit

(13) 2,6-Dinitrotoluene

13.79min 1007.595ppb m

response 7273974

(13) 2,6-Dinitrotoluene #2

13.78min 1020.320ppb

response 11135752

(+) = Expected Retention Time
GG618847.D 8330RPB.M_092519.M Thu May 07 15:20:12 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
05/08/20 16:40

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618858.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618858.D\dad1A.ch
Acq On : 06-May-2020, 19:53:55 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : op80057,GGG2834,1050,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 07 14:45:40 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.66	13.61	4498638	9318561	996.290m	1035.554
	Spiked Amount 500.000	Range 70 - 136		Recovery =		199.26%#	207.11%#
	Target Compounds						
1)	TNX	5.01	5.01	6622325	6622325	1073.624	1074.640
2)	HMX	5.43	5.43	3201161	3288186	1074.354m	1096.389m
3)	DNX	5.53	5.53	3238632	3216997	751.848m	744.390m
4)	MNX	6.39	6.39	5366590	5366590	1014.933	1012.928
5)	1,3,5-Trinitrobe	7.13	7.13	11139771	11139771	1077.216	1077.216
6)	RDX	7.61	7.61	5142812	5142812	1014.388	1014.388
7)	1,3-Dinitrobenze	9.51	9.51	14872843	11451812	1064.063	1096.723
8)	Nitrobenzene	10.38	10.38	9482213	9165770	1064.997	1082.927
9)	2,4,6-Trinitroto	10.97	10.97	10417413	14124308	1021.645	1068.526
10)	Nitroglycerin	0.00	11.60	0	3749420	N.D.	1084.466 #
11)	Tetryl	12.12	12.12	7842211	14171637	1024.360	1005.876
13)	2,6-Dinitrotolue	13.84	13.83	7545925	11516141	1045.266m	1055.174
14)	2,4-Dinitrotolue	14.53	14.53	13559740	9885537	1072.320	1108.528
15)	o-Nitrotoluene	15.95	15.95	5999600	8781008	1031.637	1054.647
16)	3,5-Dinitroanili	15.45	15.45	11409087	18900748	1118.209	1138.504
17)	p-Nitrotoluene	17.06	17.07	12487013	22699425	1076.808	1033.704
18)	4-Amino-2,6-Dini	17.06	17.07	12487013	22699425	1079.965	1045.238
19)	m-Nitrotoluene	18.17	18.18	6668197	11249122	1143.273	1131.158
20)	2-Amino-4,6-Dini	19.19	19.19	10244787	14511571	1067.645	1034.181
21)	PETN	0.00	20.02	0	3567616	N.D.	1094.155 #

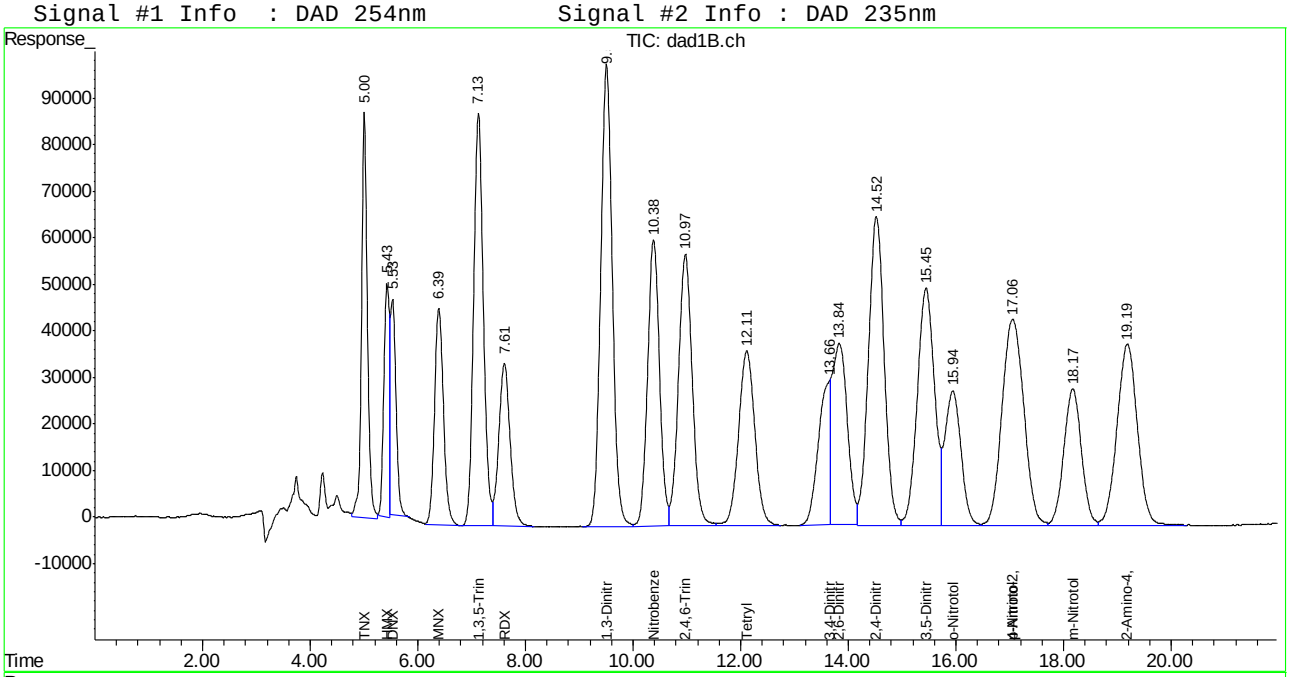
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

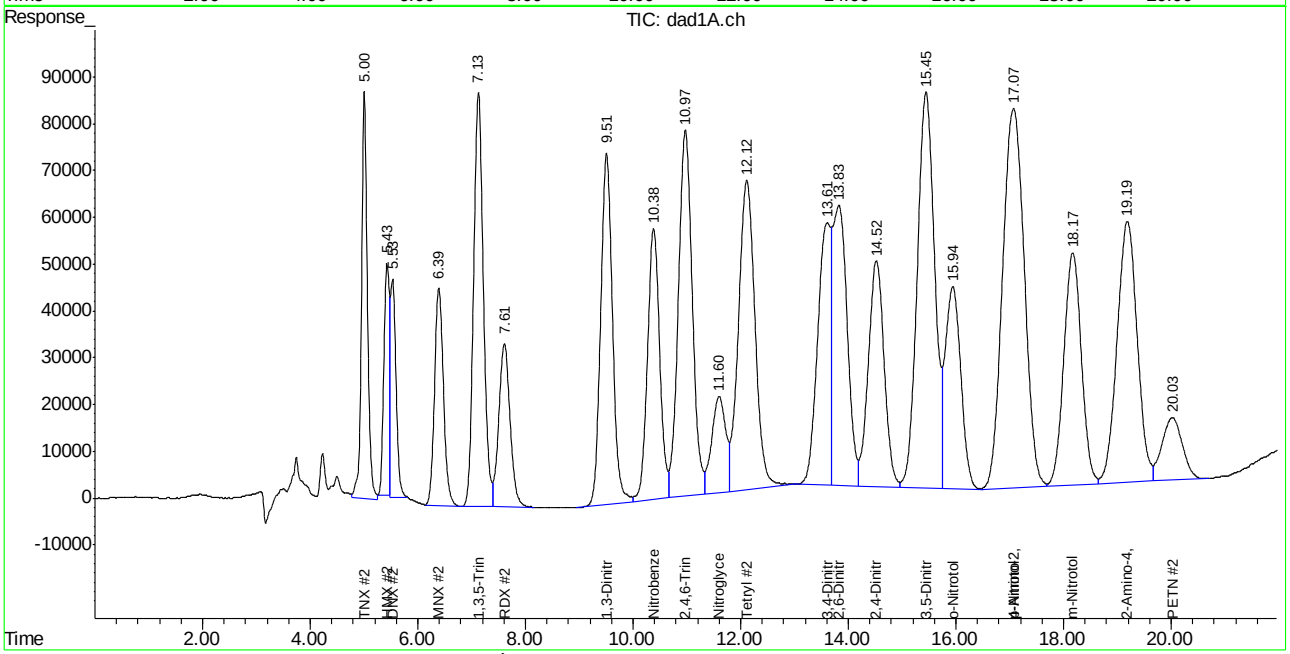
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618858.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618858.D\dad1A.ch
Acq On : 06-May-2020, 19:53:55 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : op80057,GGG2834,1050,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 15:22 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

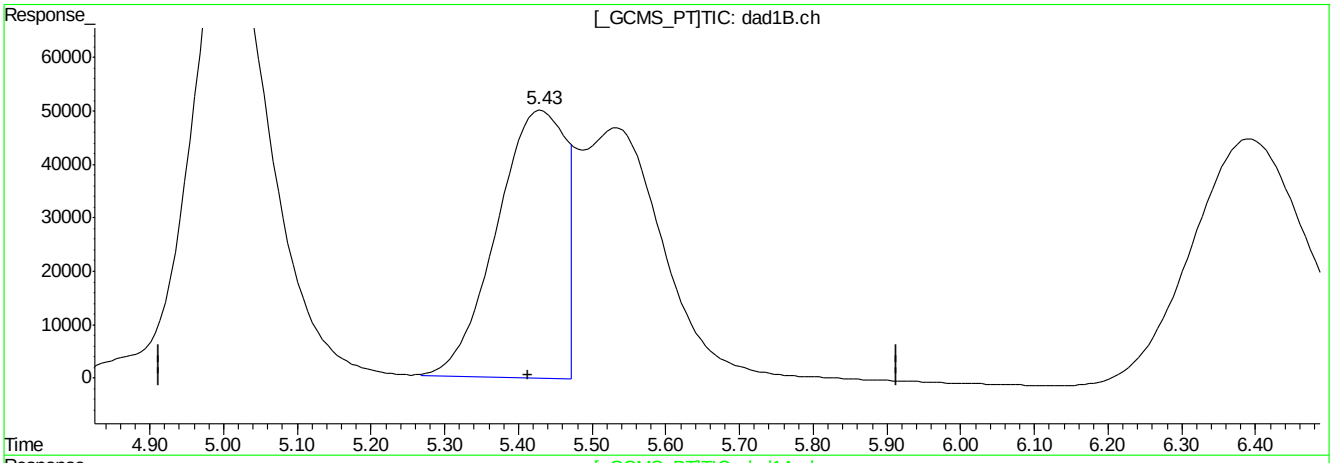
Sample Number: GGG2834-CC2769
Lab FileID: GG618858.D
Injection Time: 05/06/20 19:53
Method: SW846 8330A
Analyst approved: 05/07/20 16:18 William Hustedde
Supervisor approved: 05/08/20 16:40 Naresh Jiawan

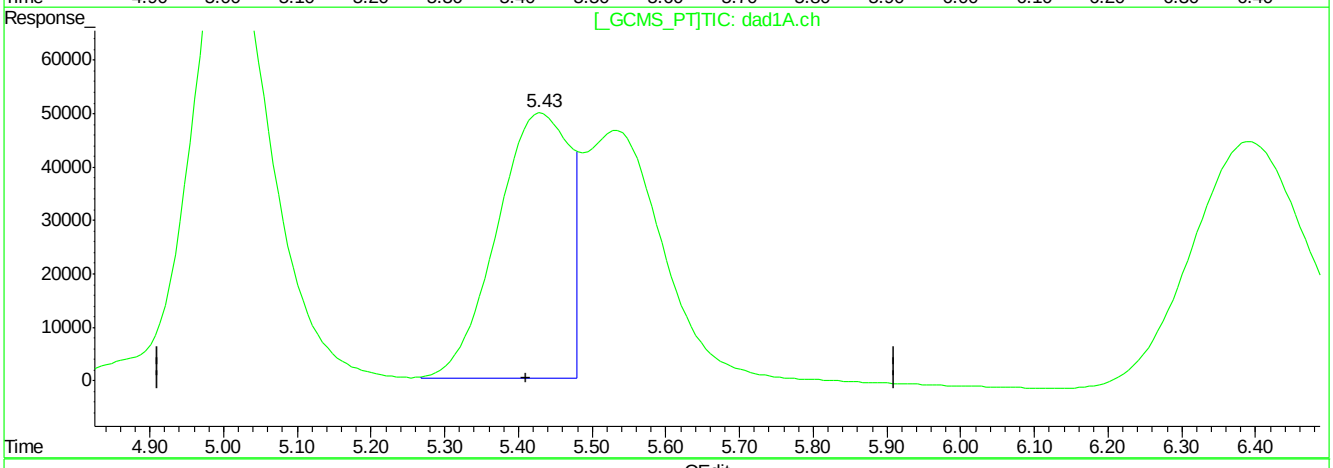
Parameter	CAS	Sig#	R.T. (min.)	Reason
HMX	2691-41-0	1	5.43	Poor instrument integration
HMX	2691-41-0	2	5.43	Poor instrument integration
DNX		1	5.53	Poor instrument integration
DNX		2	5.53	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	1	13.66	Poor instrument integration
2,6-Dinitrotoluene	606-20-2	1	13.84	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618858.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618858.D\dad1A.ch
Acq On : 06-May-2020, 19:53:55 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 14:45 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.43min 1074.354ppb m

response 3201161

(2) HMX #2

5.43min 1096.389ppb m

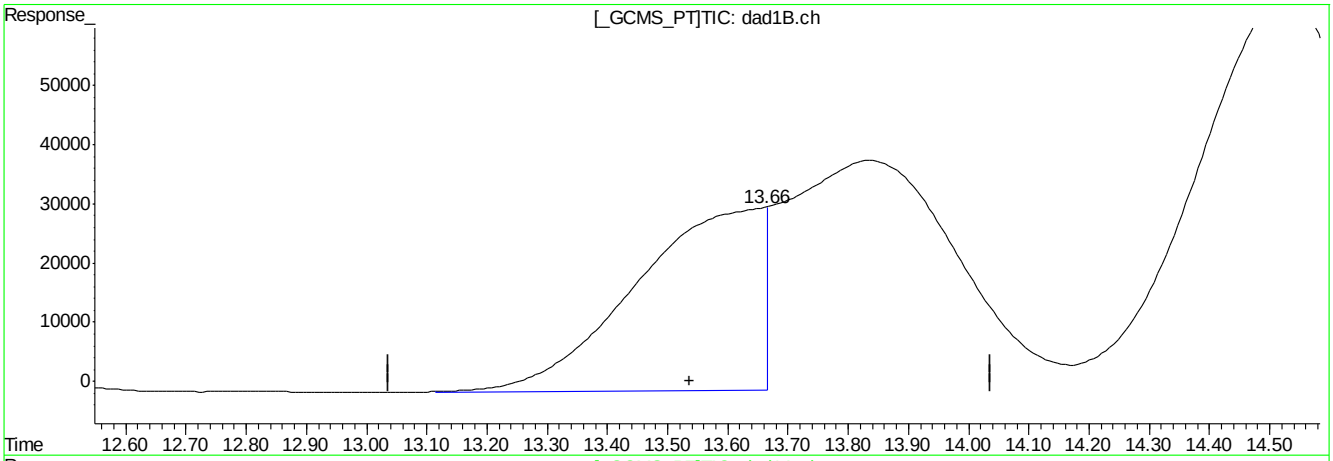
response 3288186

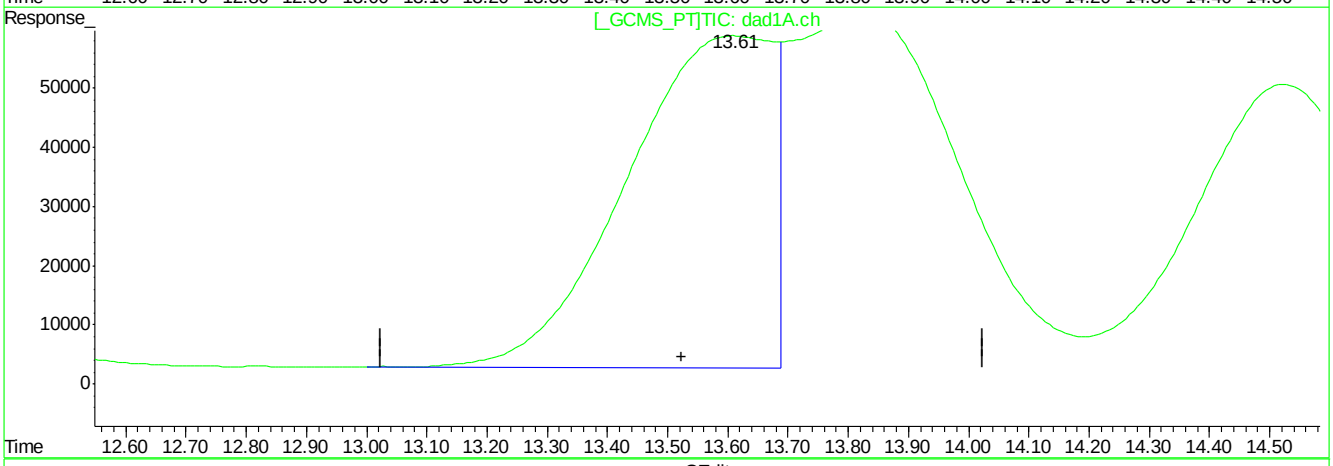
(+) = Expected Retention Time
GG618858.D 8330RPB.M_092519.M Thu May 07 15:22:17 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618858.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618858.D\dad1A.ch
Acq On : 06-May-2020, 19:53:55 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 14:45 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration





QEdit

(12) 3,4-Dinitrotoluene (S)

13.66min 996.290ppb m

response 4498638

(12) 3,4-Dinitrotoluene #2 (S)

13.61min 1035.554ppb

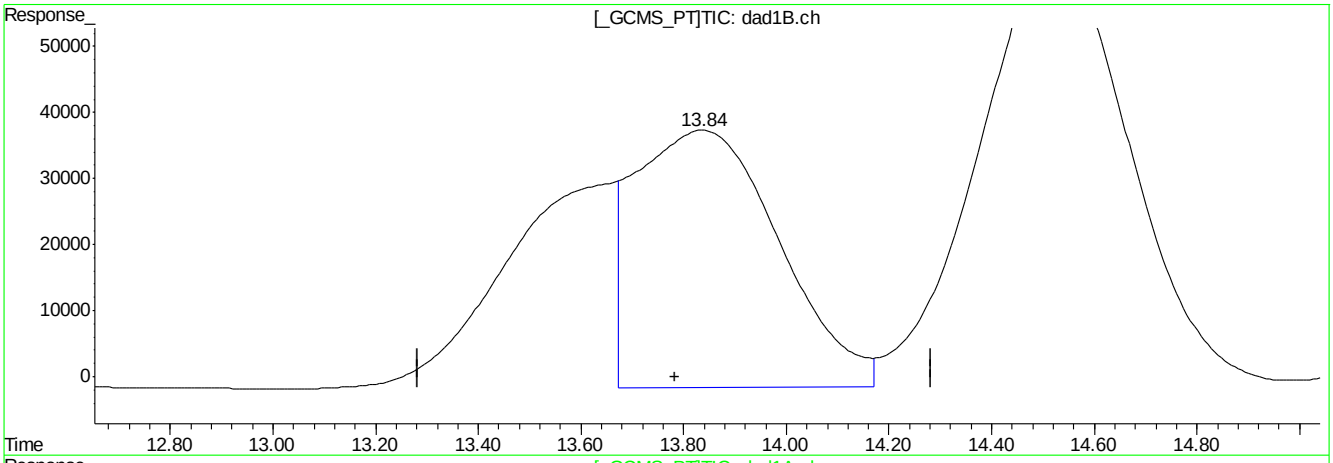
response 9318561

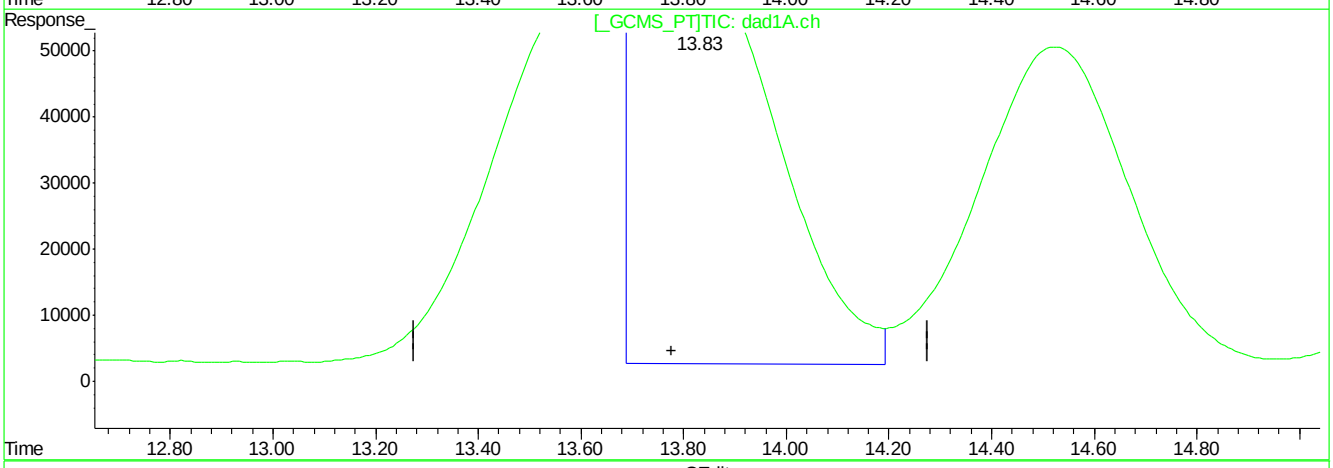
(+) = Expected Retention Time
GG618858.D 8330RPB.M_092519.M Thu May 07 15:22:29 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2834\GG618858.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2834\GG618858.D\dad1A.ch
Acq On : 06-May-2020, 19:53:55 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: May 7 14:45 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri May 01 13:39:12 2020
Response via : Multiple Level Calibration





QEdit

(13) 2,6-Dinitrotoluene

13.84min 1045.266ppb m

response 7545925

(13) 2,6-Dinitrotoluene #2

13.83min 1055.174ppb

response 11516141

(+) = Expected Retention Time
GG618858.D 8330RPB.M_092519.M Thu May 07 15:22:36 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 04/17/20 14:46

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1A.ch
Acq On : 16-Apr-2020, 13:20:11 Operator: williamh
Sample : ic2262-20 Inst : G1315B
Misc : op79816,GPP2262,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11:24 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Initial Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	11.07	11.10	36765	28361	18.924m	9.644m#
Spiked Amount	500.000	Range	70 - 136	Recovery	=	3.78%#	1.93%#
	Target Compounds						
1)	TNX	1.34	1.34	34147	73777	14.796	19.431
2)	HMX	1.46	1.46	28844	145554	16.609m	30.695m#
3)	DNX	1.71	1.71	22736	49928	19.153m	25.590m
4)	MNX	2.30	2.30	45766	71321	21.117m	21.067m
5)	RDX	2.92	2.92	43285	70707	22.929m	22.894m
6)	1,3,5-Trinitrobe	4.70	4.70	82406	157057	21.297	20.523m
7)	1,3-Dinitrobenze	5.90	5.90	113291	68083	21.487m	17.069m
8)	3,5-Dinitroanili	6.26	6.25	87287	172937	21.872	24.573m
9)	Nitrobenzene	7.44	7.44	70246	69527	21.995m	22.619m
10)	Nitroglycerin	0.00	8.86	0	19386	N.D.	17.617m#
11)	Tetryl	9.30	9.30	58534	87844	21.149m	18.942m
12)	2,4,6-Trinitroto	9.76	9.73	75917	74249	20.652m	17.250m
13)	2-Amino-4,6-Dini	10.15	10.16	70411	86574	20.553m	17.782m
14)	4-Amino-2,6-Dini	10.62	10.61	63582	68760	25.698m	15.410 #
16)	2,4-Dinitrotolue	11.74	11.92	96224	46543	19.464m	17.371m
17)	2,6-Dinitrotolue	12.15	12.20	59325	41608	21.205m	11.631m#
18)	o-Nitrotoluene	15.19	15.36	57476	57325	25.970m	19.075m
19)	p-Nitrotoluene	15.77	15.92	86519	40449	24.179m	16.613m
20)	m-Nitrotoluene	16.66	16.65	69686	64350	19.360m	17.476m
21)	PETN	0.00	18.28	0	26312	N.D.	19.915m#

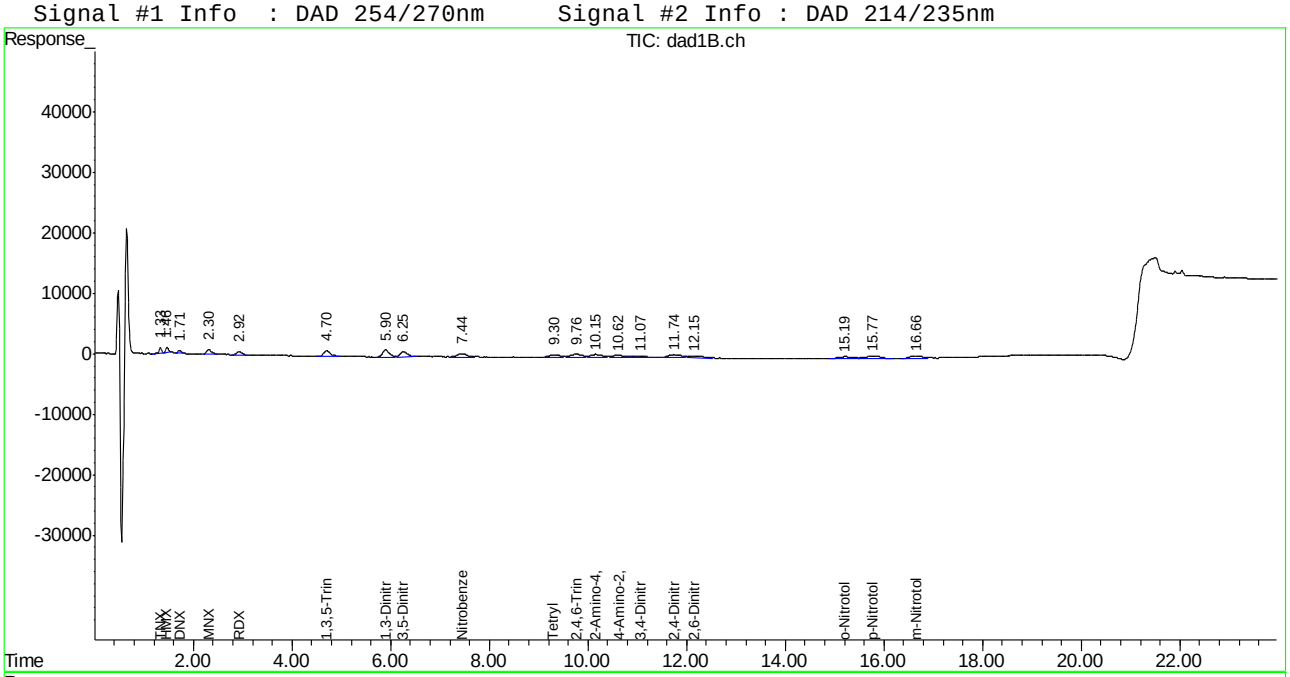
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
PP386573.D GPP2262_041620PRI.M Fri Apr 17 13:39:27 2020 Page 1

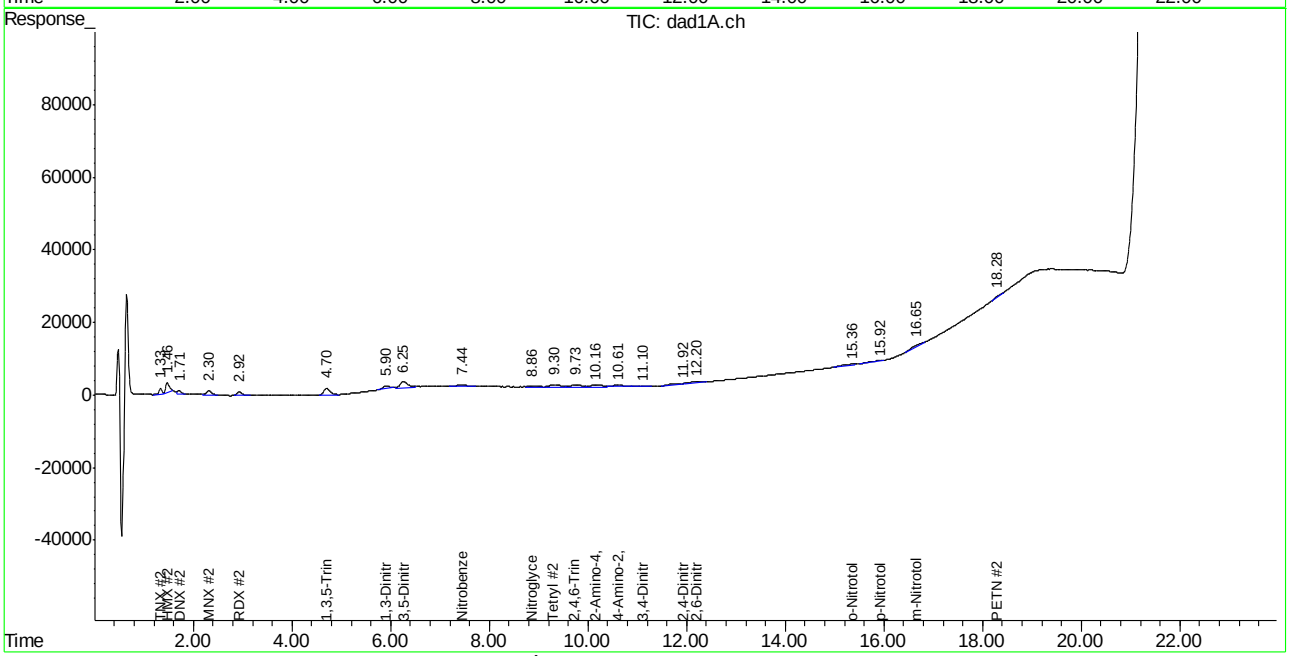
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1A.ch
Acq On : 16-Apr-2020, 13:20:11 Operator: williamh
Sample : ic2262-20 Inst : G1315B
Misc : op79816,GPP2262,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 12:09 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm





Manual Integration Approval Summary

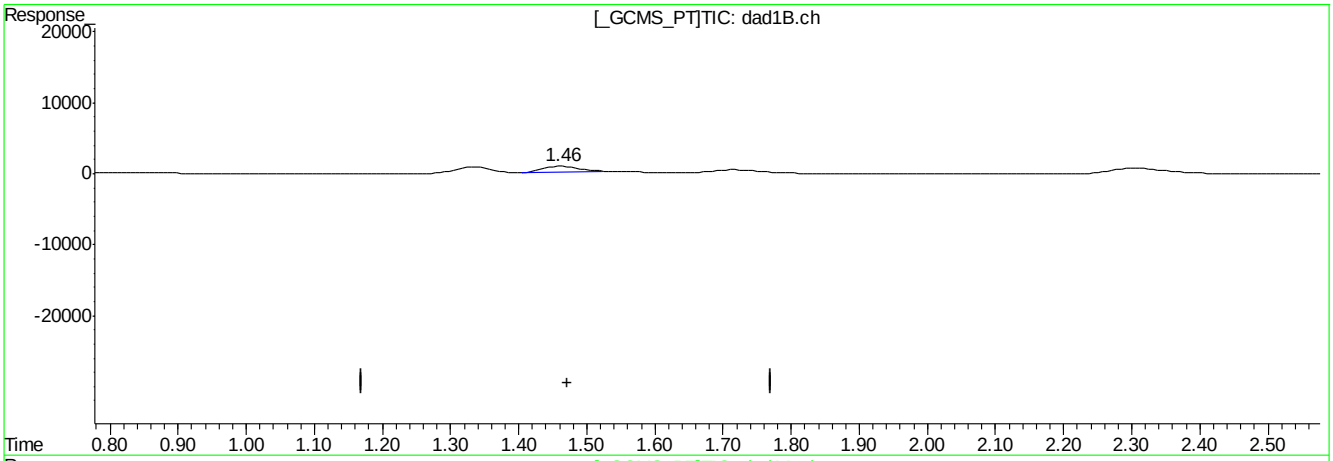
Sample Number: GPP2262-IC2262 **Method:** SW846 8330A
Lab FileID: PP386573.D **Analyst approved:** 04/17/20 13:46 William Hustedde
Injection Time: 04/16/20 13:20 **Supervisor approved:** 04/17/20 14:46 Naresh Jiawan

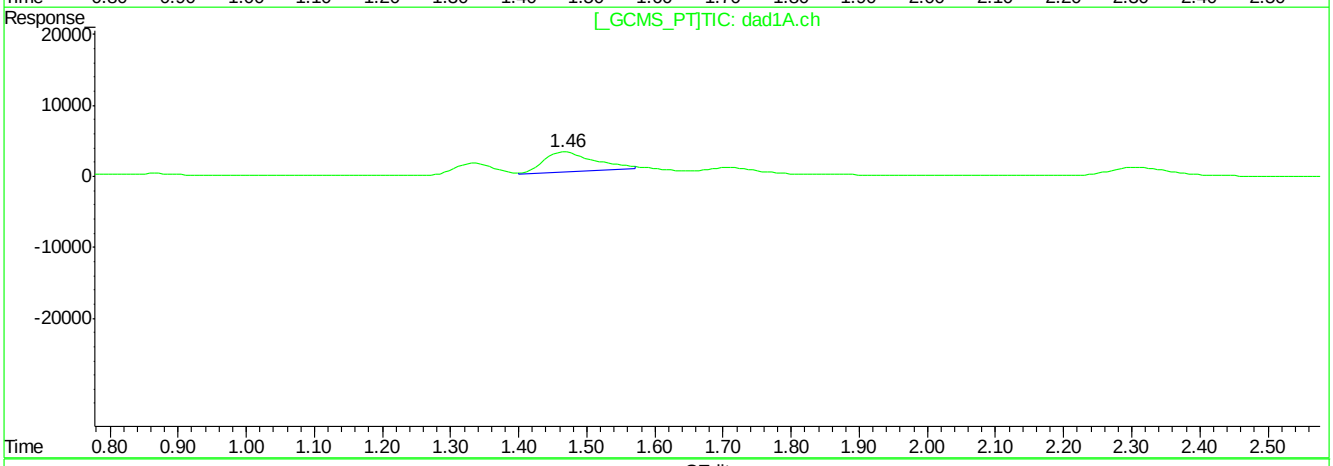
Parameter	CAS	Sig#	R.T. (min.)	Reason
HMX	2691-41-0	1	1.46	Poor instrument integration
HMX	2691-41-0	2	1.46	Poor instrument integration
DNX		1	1.71	Poor instrument integration
DNX		2	1.71	Poor instrument integration
MNX		1	2.30	Poor instrument integration
MNX		2	2.30	Poor instrument integration
RDX	121-82-4	1	2.92	Poor instrument integration
RDX	121-82-4	2	2.92	Poor instrument integration
1,3,5-Trinitrobenzene	99-35-4	2	4.70	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	1	5.90	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	5.90	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	6.25	Poor instrument integration
Nitrobenzene	98-95-3	1	7.44	Poor instrument integration
Nitrobenzene	98-95-3	2	7.44	Poor instrument integration
Nitroglycerine	55-63-0	2	8.86	Poor instrument integration
Tetryl	479-45-8	1	9.30	Poor instrument integration
Tetryl	479-45-8	2	9.30	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	2	9.73	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	1	9.76	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	1	10.15	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	2	10.16	Poor instrument integration
4-amino-2,6-Dinitrotoluene	19406-51-0	1	10.62	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	1	11.07	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	2	11.10	Poor instrument integration
2,4-Dinitrotoluene	121-14-2	1	11.74	Poor instrument integration
2,4-Dinitrotoluene	121-14-2	2	11.92	Poor instrument integration
2,6-Dinitrotoluene	606-20-2	1	12.15	Poor instrument integration
2,6-Dinitrotoluene	606-20-2	2	12.20	Poor instrument integration
o-Nitrotoluene	88-72-2	1	15.19	Poor instrument integration
o-Nitrotoluene	88-72-2	2	15.36	Poor instrument integration
p-Nitrotoluene	99-99-0	1	15.77	Poor instrument integration
p-Nitrotoluene	99-99-0	2	15.92	Poor instrument integration
m-Nitrotoluene	99-08-1	2	16.65	Poor instrument integration
m-Nitrotoluene	99-08-1	1	16.66	Poor instrument integration
PETN	78-11-5	2	18.28	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1A.ch
Acq On : 16-Apr-2020, 13:20:11 Operator: williamh
Sample : ic2262-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(2) HMX

1.46min 16.609ppb m

response 28844

(2) HMX #2

1.46min 30.695ppb m

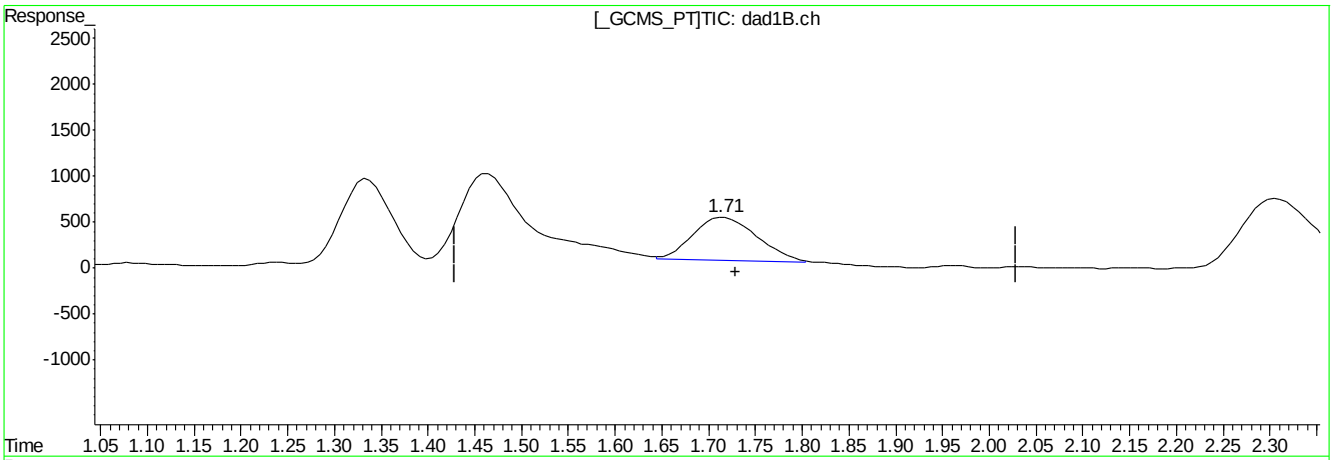
response 145554

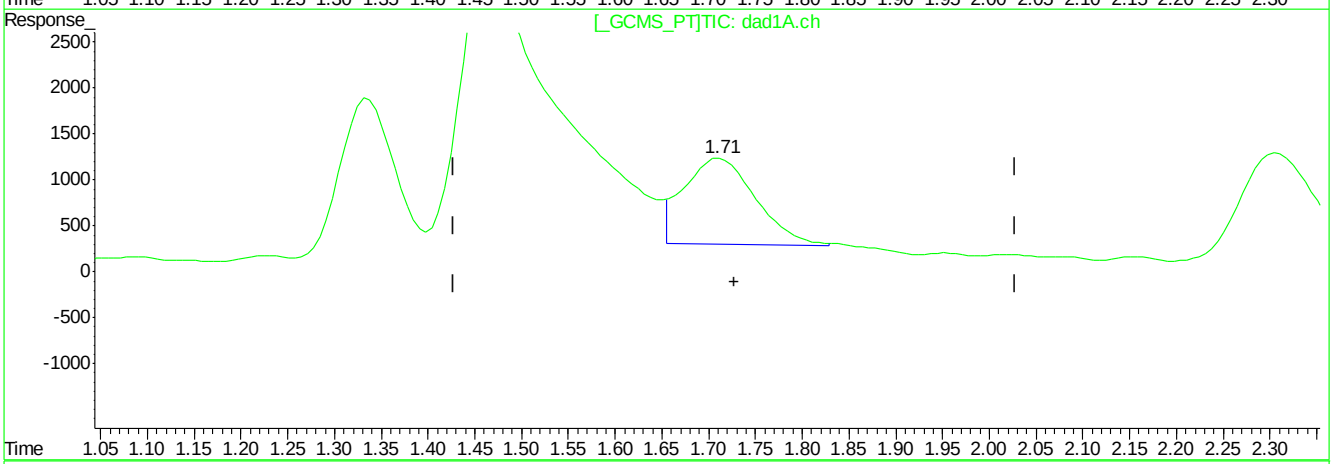
(+) = Expected Retention Time
PP386573.D GPP2262_041620PRI.M Fri Apr 17 12:06:24 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1A.ch
Acq On : 16-Apr-2020, 13:20:11 Operator: williamh
Sample : ic2262-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(3) DNX

1.71min 19.153ppb m

response 22736

(3) DNX #2

1.71min 25.590ppb m

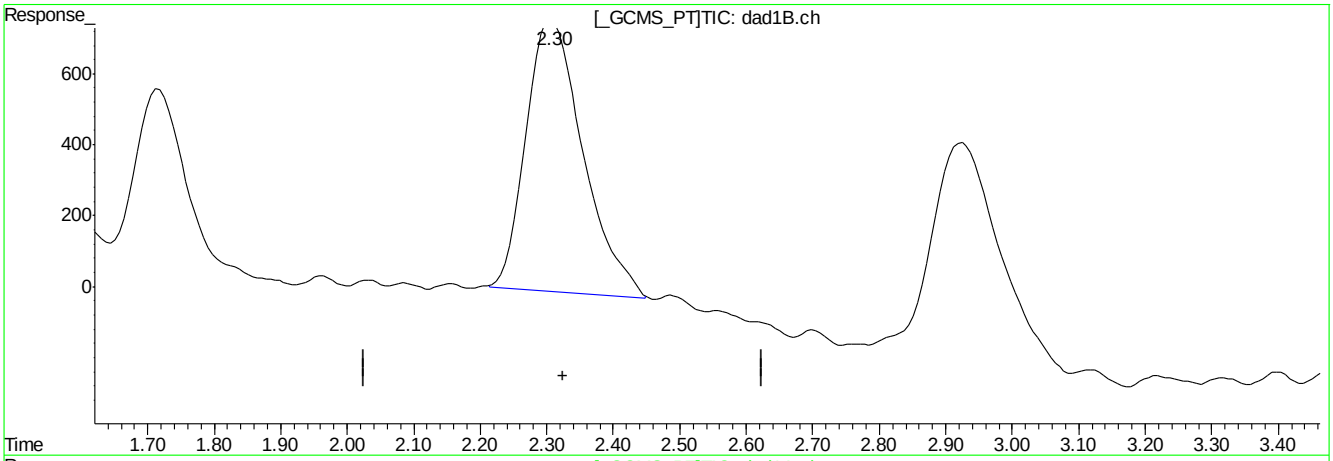
response 49928

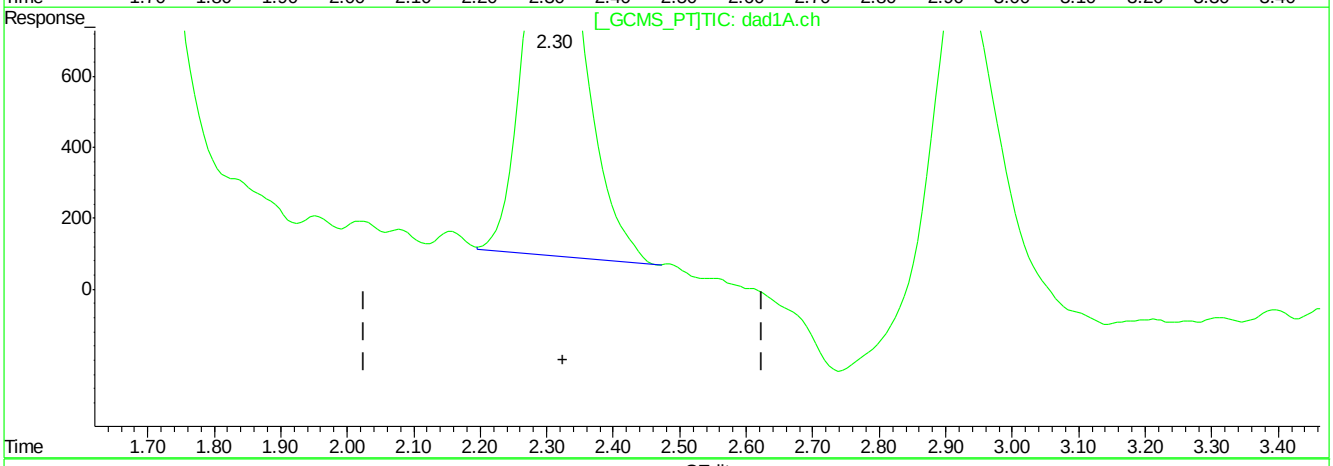
(+) = Expected Retention Time
PP386573.D GPP2262_041620PRI.M Fri Apr 17 12:06:32 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1A.ch
Acq On : 16-Apr-2020, 13:20:11 Operator: williamh
Sample : ic2262-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(4) MNX

2.30min 21.117ppb m

response 45766

(4) MNX #2

2.30min 21.067ppb m

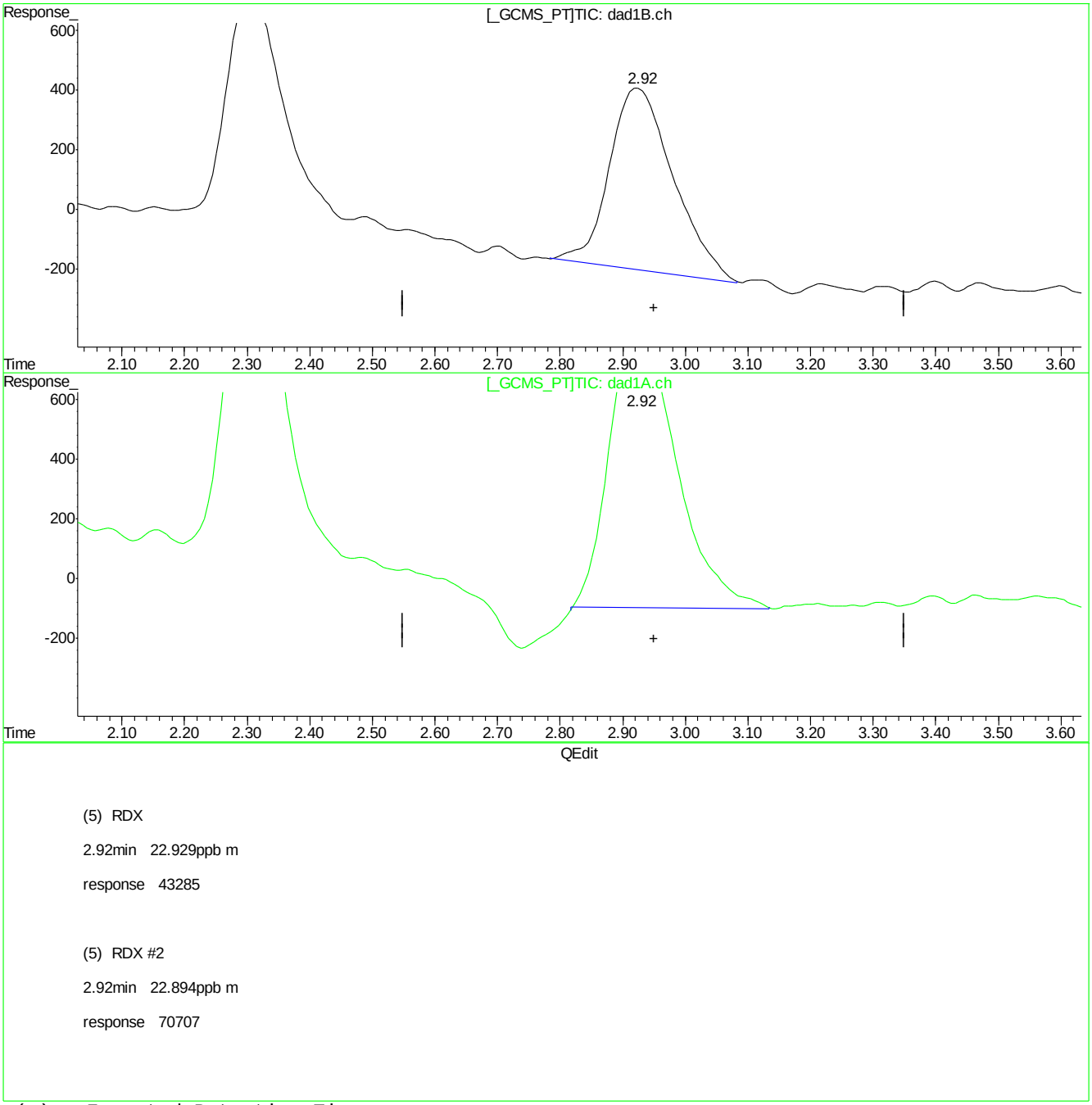
response 71321

(+) = Expected Retention Time
PP386573.D GPP2262_041620PRI.M Fri Apr 17 12:06:41 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1A.ch
Acq On : 16-Apr-2020, 13:20:11 Operator: williamh
Sample : ic2262-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration



(5) RDX

2.92min 22.929ppb m

response 43285

(5) RDX #2

2.92min 22.894ppb m

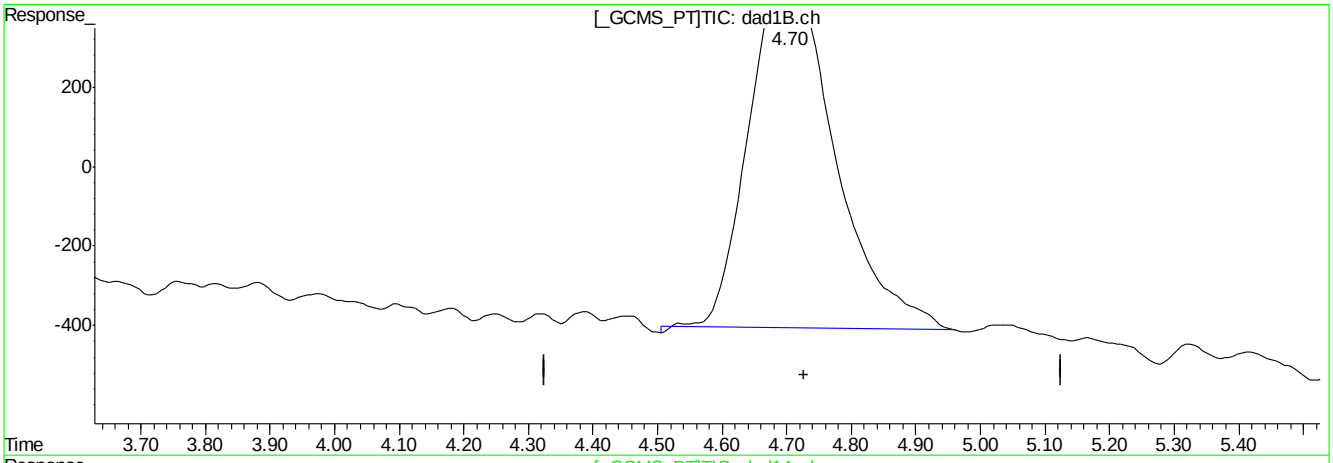
response 70707

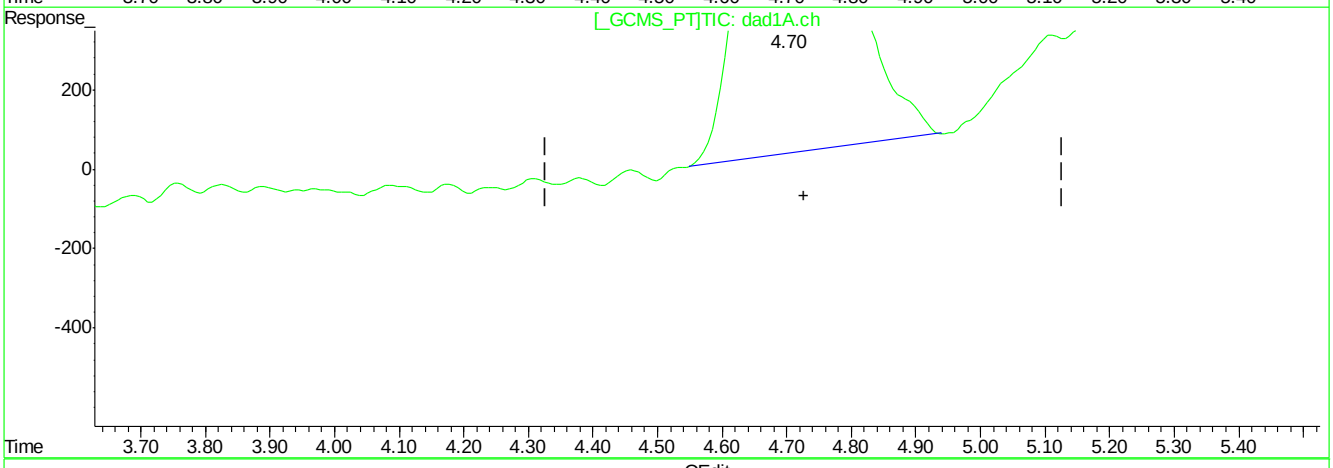
(+) = Expected Retention Time
PP386573.D GPP2262_041620PRI.M Fri Apr 17 12:06:51 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1A.ch
Acq On : 16-Apr-2020, 13:20:11 Operator: williamh
Sample : ic2262-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(6) 1,3,5-Trinitrobenzene

4.70min 21.297ppb

response 82406

(6) 1,3,5-Trinitrobenzene #2

4.70min 20.523ppb m

response 157057

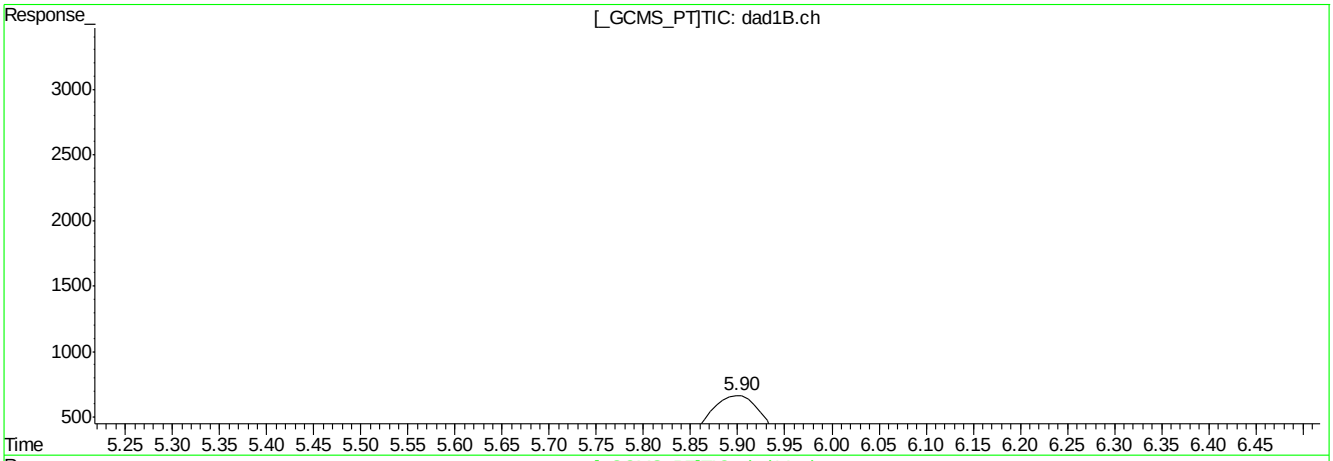
(+) = Expected Retention Time
PP386573.D GPP2262_041620PRI.M Fri Apr 17 12:06:57 2020

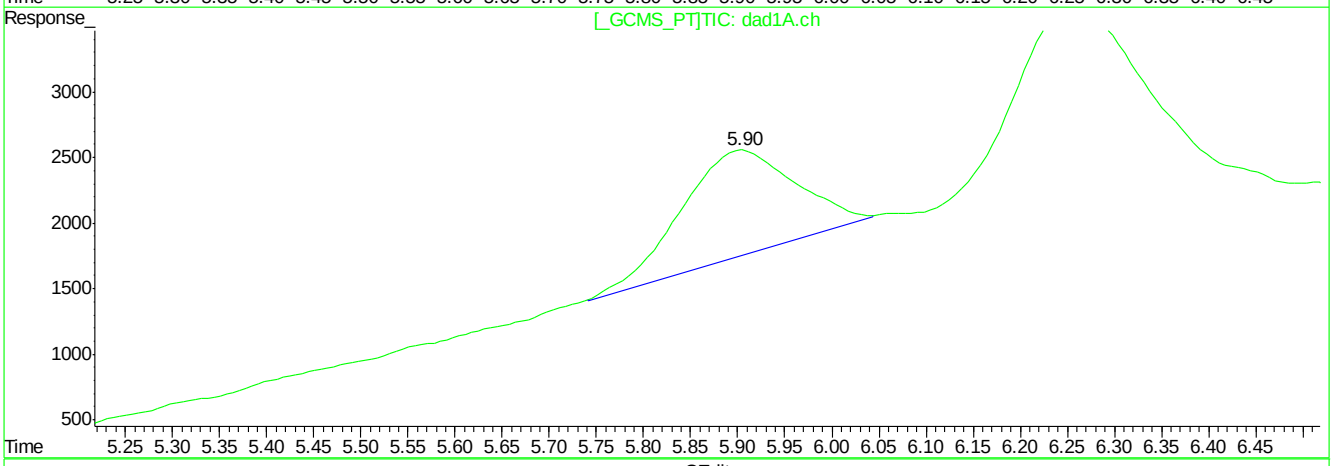
PP386573.D edits: 1,3,5-Trinitrobenzene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1A.ch
Acq On : 16-Apr-2020, 13:20:11 Operator: williamh
Sample : ic2262-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

5.90min 21.040ppb

response 110938

(7) 1,3-Dinitrobenzene #2

5.90min 17.069ppb m

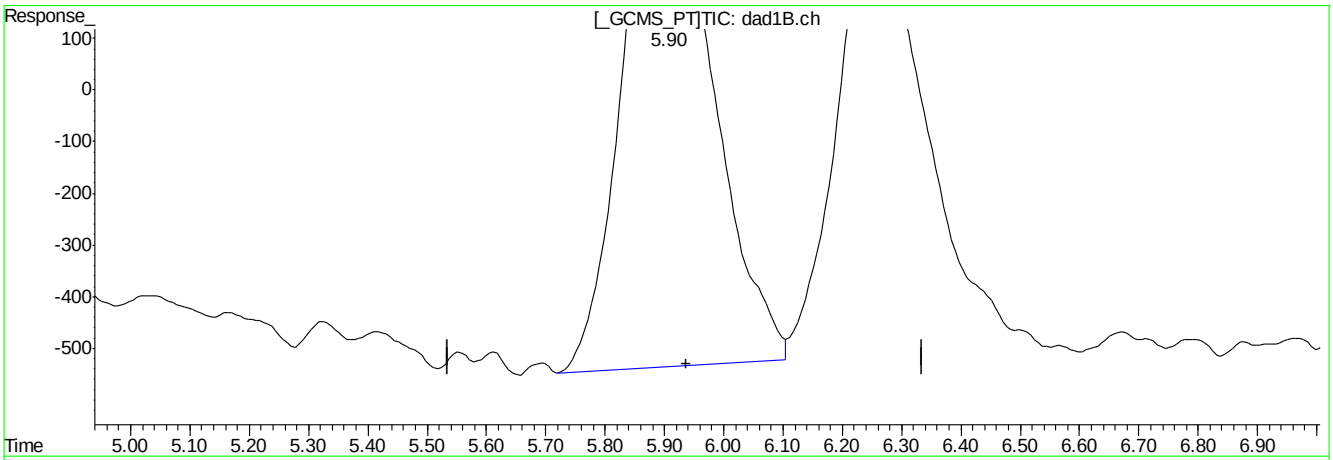
response 68083

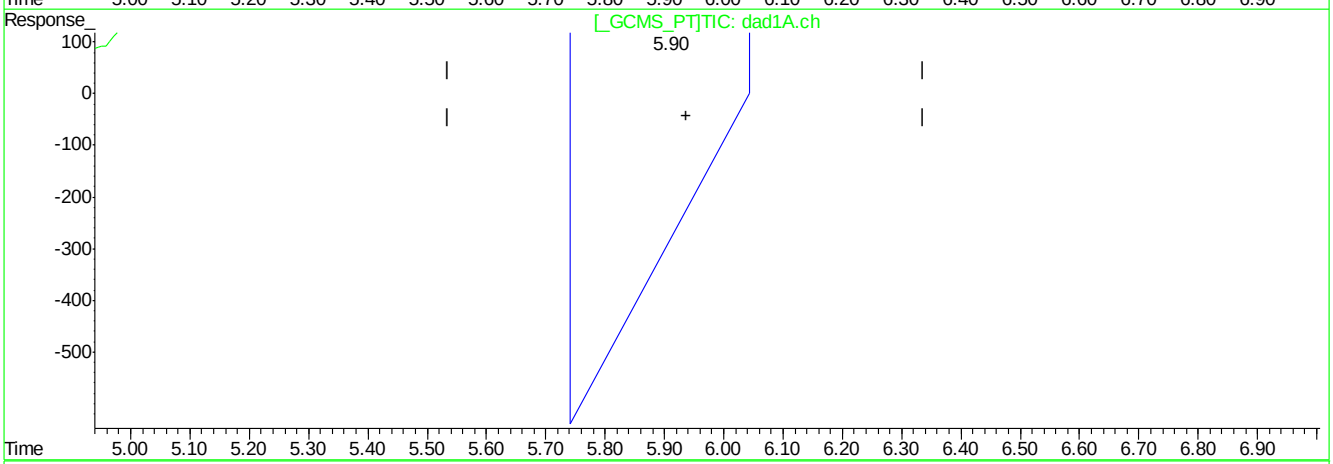
(+) = Expected Retention Time
PP386573.D GPP2262_041620PRI.M Fri Apr 17 12:07:07 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1A.ch
Acq On : 16-Apr-2020, 13:20:11 Operator: williamh
Sample : ic2262-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

5.90min 21.487ppb m

response 113291

(7) 1,3-Dinitrobenzene #2

5.90min 17.069ppb m

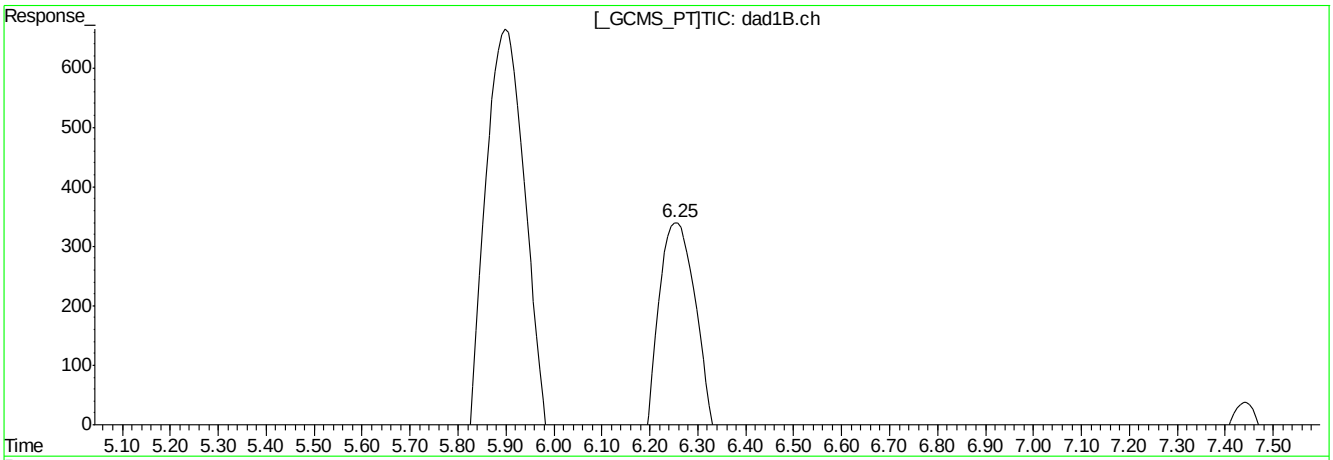
response 68083

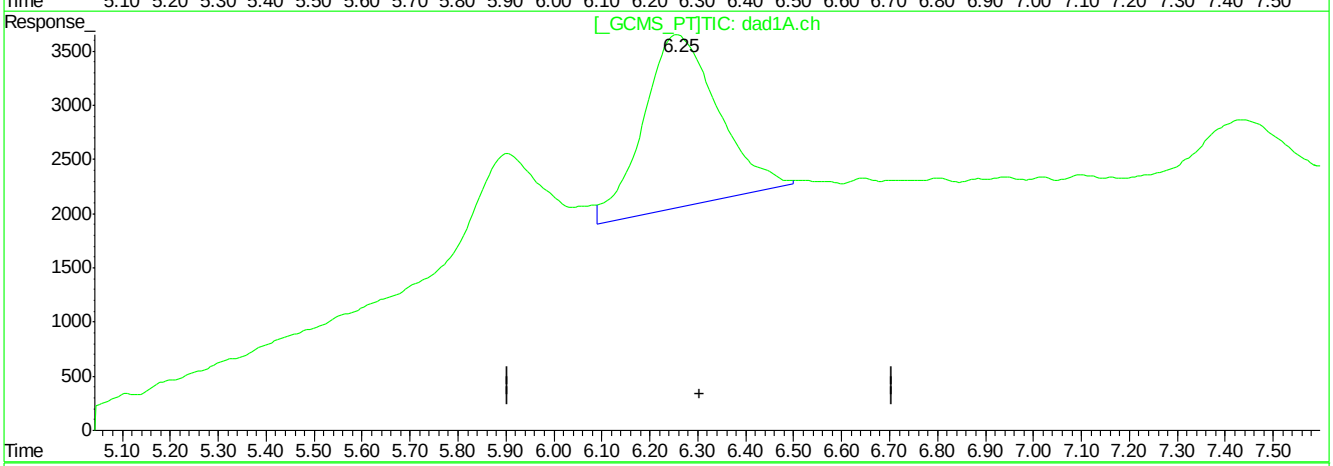
(+) = Expected Retention Time
PP386573.D GPP2262_041620PRI.M Fri Apr 17 12:07:15 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1A.ch
Acq On : 16-Apr-2020, 13:20:11 Operator: williamh
Sample : ic2262-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.26min 21.872ppb

response 87287

(8) 3,5-Dinitroaniline #2

6.25min 24.573ppb m

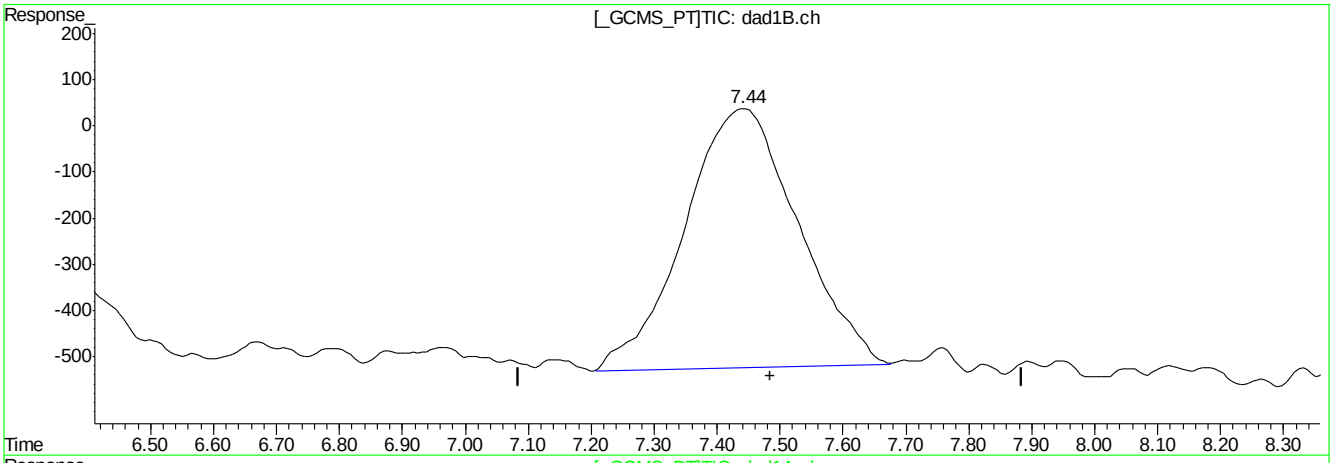
response 172937

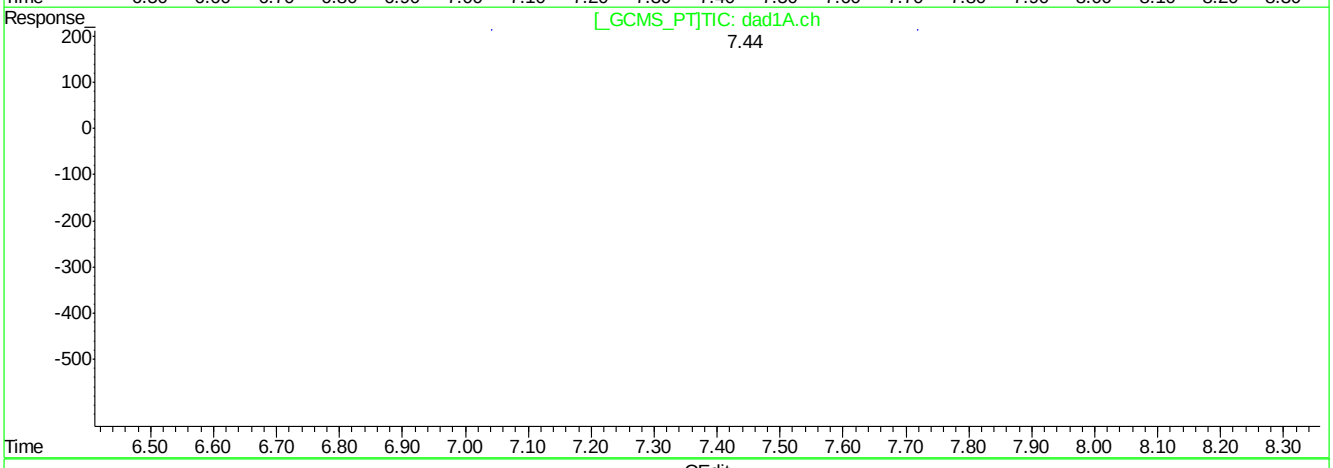
(+) = Expected Retention Time
PP386573.D GPP2262_041620PRI.M Fri Apr 17 12:07:26 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1A.ch
Acq On : 16-Apr-2020, 13:20:11 Operator: williamh
Sample : ic2262-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(9) Nitrobenzene

7.44min 21.995ppb m

response 70246

(9) Nitrobenzene #2

7.44min 23.420ppb

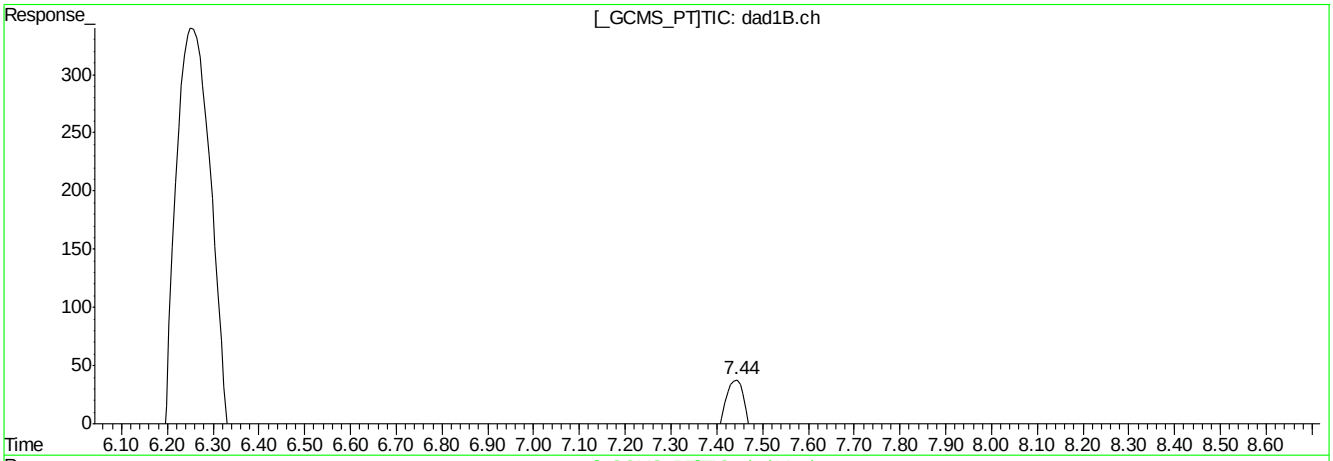
response 71989

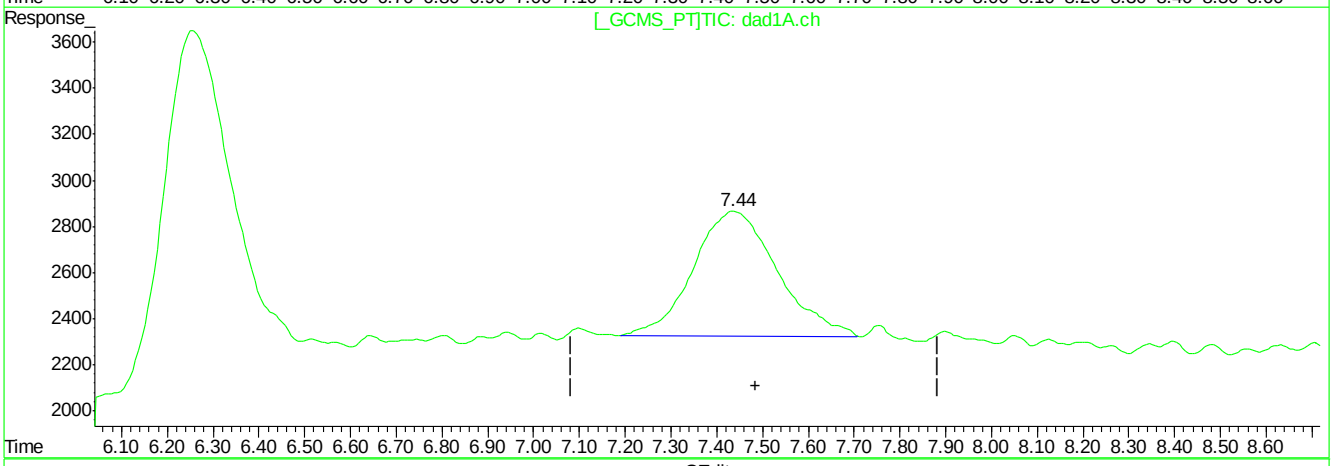
(+) = Expected Retention Time
PP386573.D GPP2262_041620PRI.M Fri Apr 17 12:07:34 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1A.ch
Acq On : 16-Apr-2020, 13:20:11 Operator: williamh
Sample : ic2262-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(9) Nitrobenzene

7.44min 21.995ppb m

response 70246

(9) Nitrobenzene #2

7.44min 22.619ppb m

response 69527

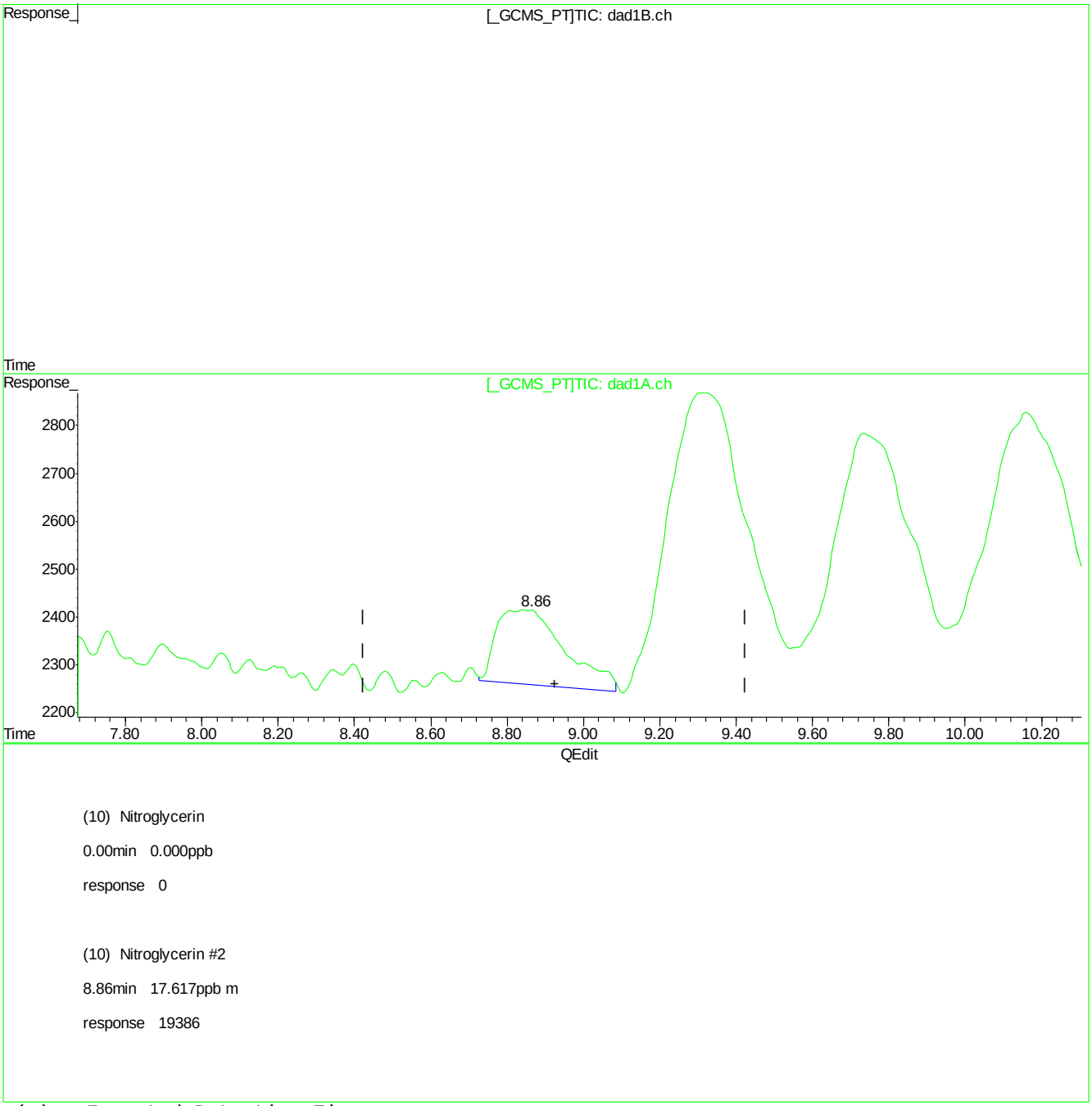
(+) = Expected Retention Time
PP386573.D GPP2262_041620PRI.M Fri Apr 17 12:07:41 2020

PP386573.D edits: Nitrobenzene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1A.ch
Acq On : 16-Apr-2020, 13:20:11 Operator: williamh
Sample : ic2262-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration



(10) Nitroglycerin

0.00min 0.000ppb

response 0

(10) Nitroglycerin #2

8.86min 17.617ppb m

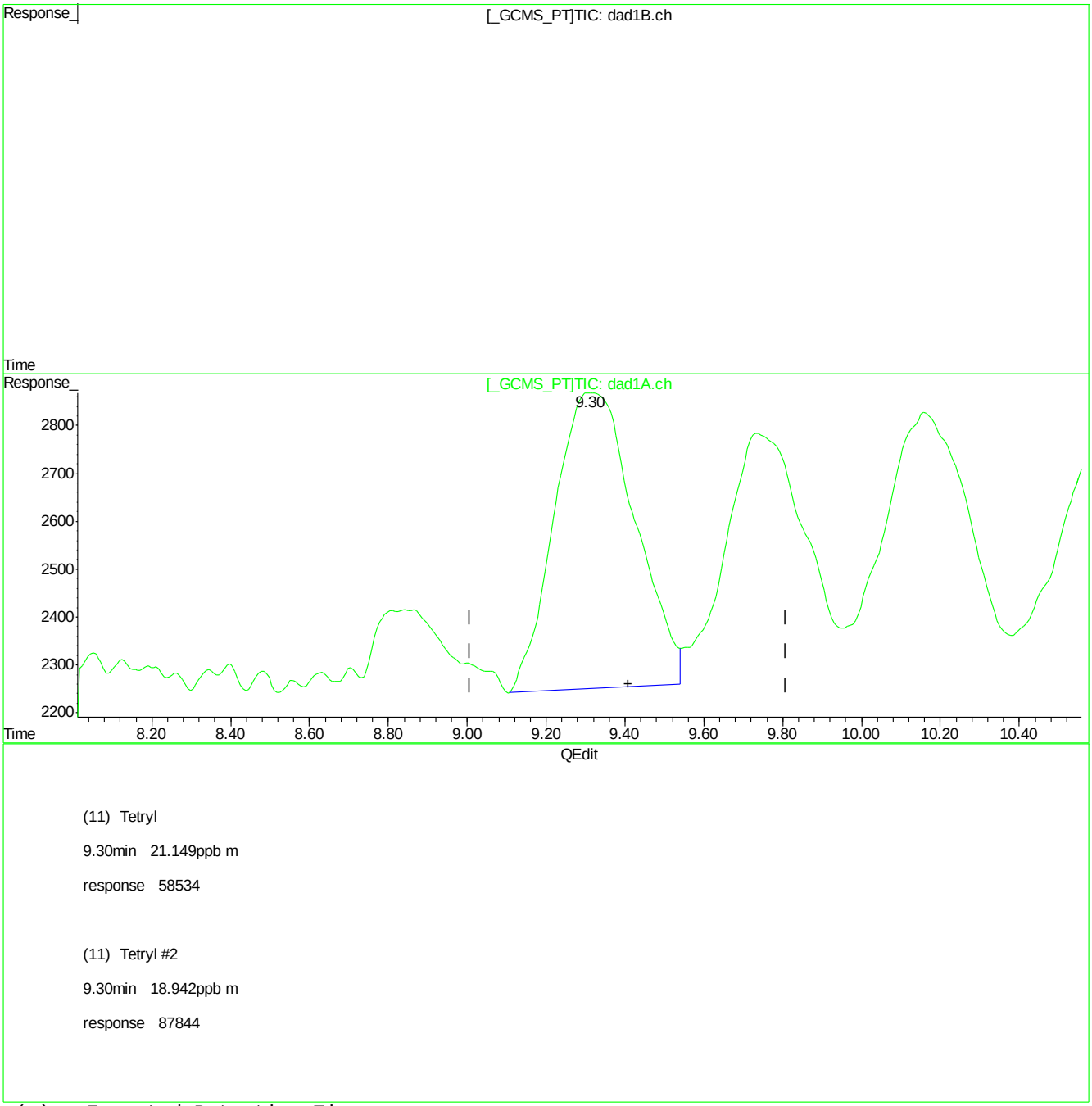
response 19386

(+) = Expected Retention Time
PP386573.D GPP2262_041620PRI.M Fri Apr 17 12:07:48 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1A.ch
Acq On : 16-Apr-2020, 13:20:11 Operator: williamh
Sample : ic2262-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration



(11) Tetryl

9.30min 21.149ppb m

response 58534

(11) Tetryl #2

9.30min 18.942ppb m

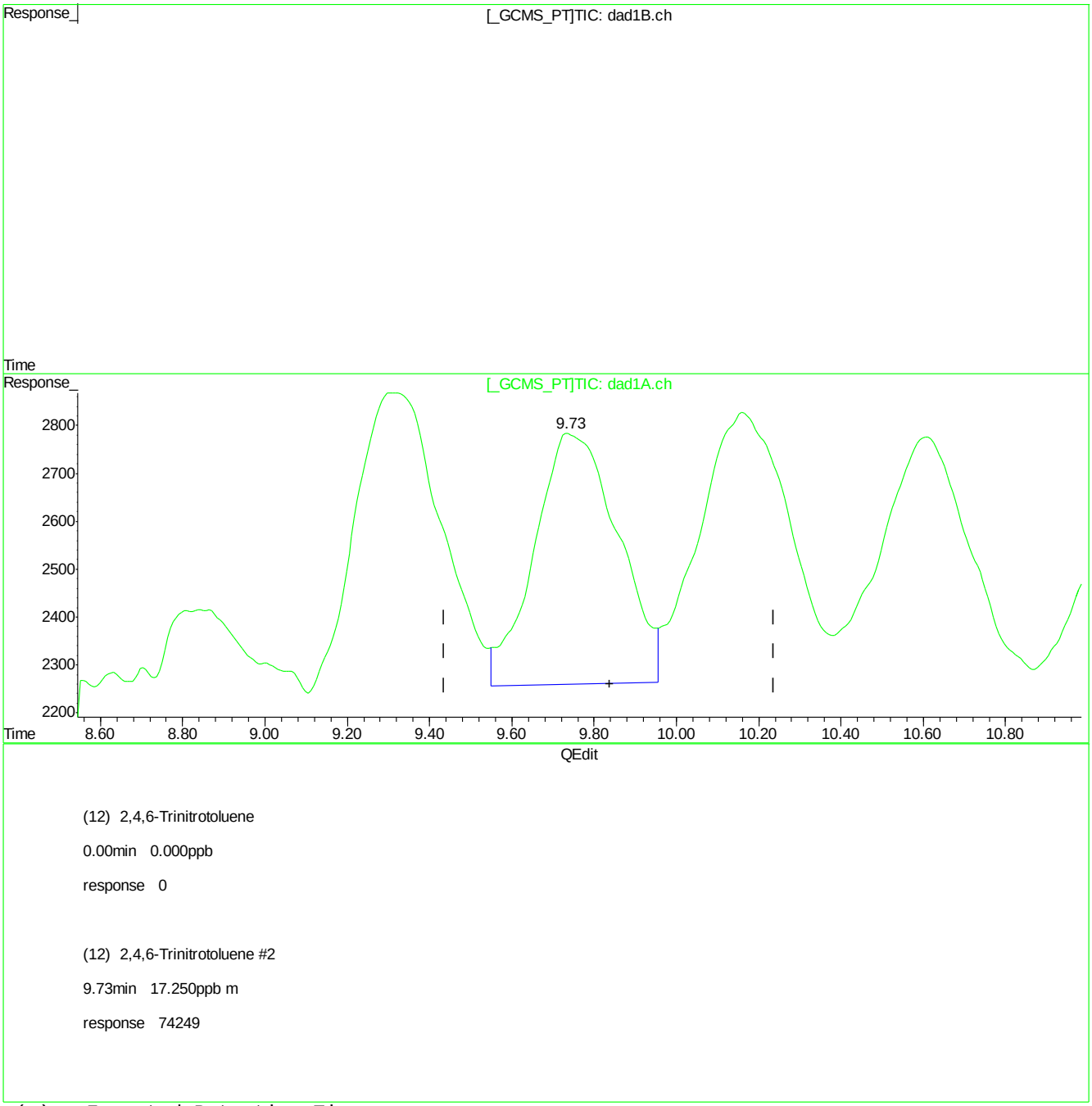
response 87844

(+) = Expected Retention Time
PP386573.D GPP2262_041620PRI.M Fri Apr 17 12:07:59 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1A.ch
Acq On : 16-Apr-2020, 13:20:11 Operator: williamh
Sample : ic2262-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration



(12) 2,4,6-Trinitrotoluene

0.00min 0.000ppb

response 0

(12) 2,4,6-Trinitrotoluene #2

9.73min 17.250ppb m

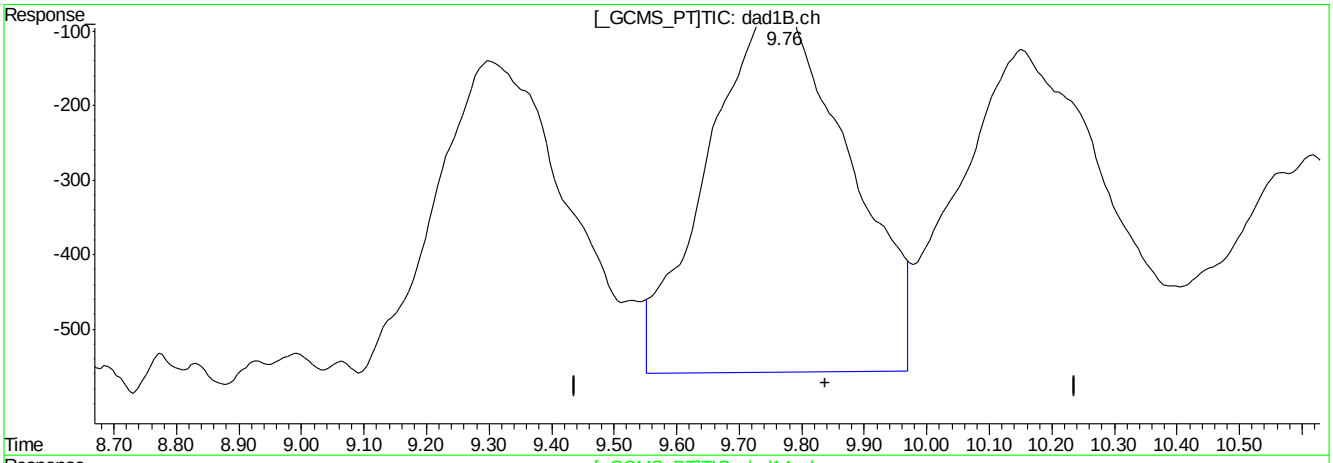
response 74249

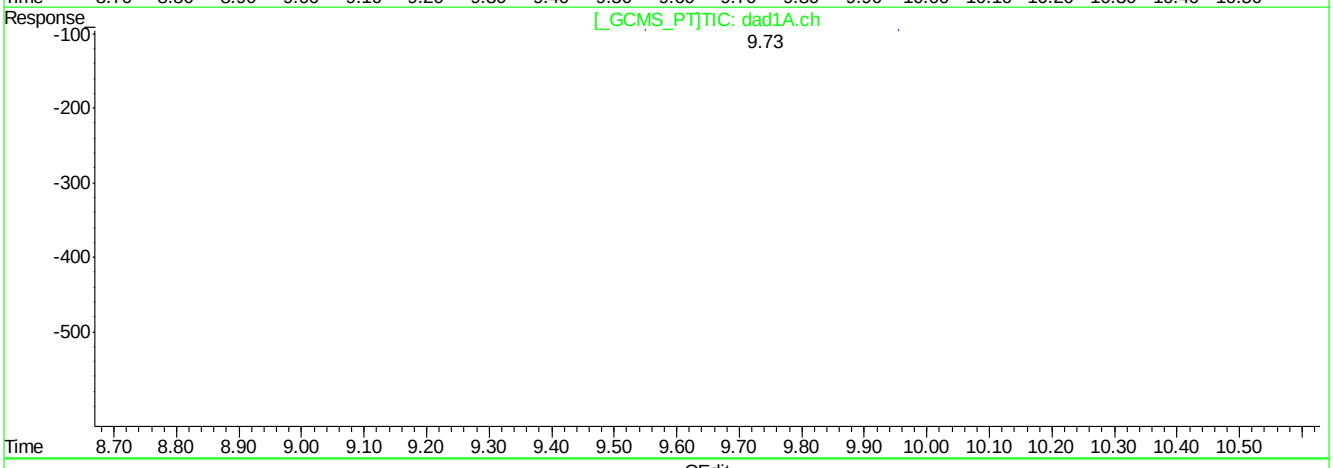
(+) = Expected Retention Time
PP386573.D GPP2262_041620PRI.M Fri Apr 17 12:08:05 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1A.ch
Acq On : 16-Apr-2020, 13:20:11 Operator: williamh
Sample : ic2262-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(12) 2,4,6-Trinitrotoluene

9.76min 20.652ppb m

response 75917

(12) 2,4,6-Trinitrotoluene #2

9.73min 17.250ppb m

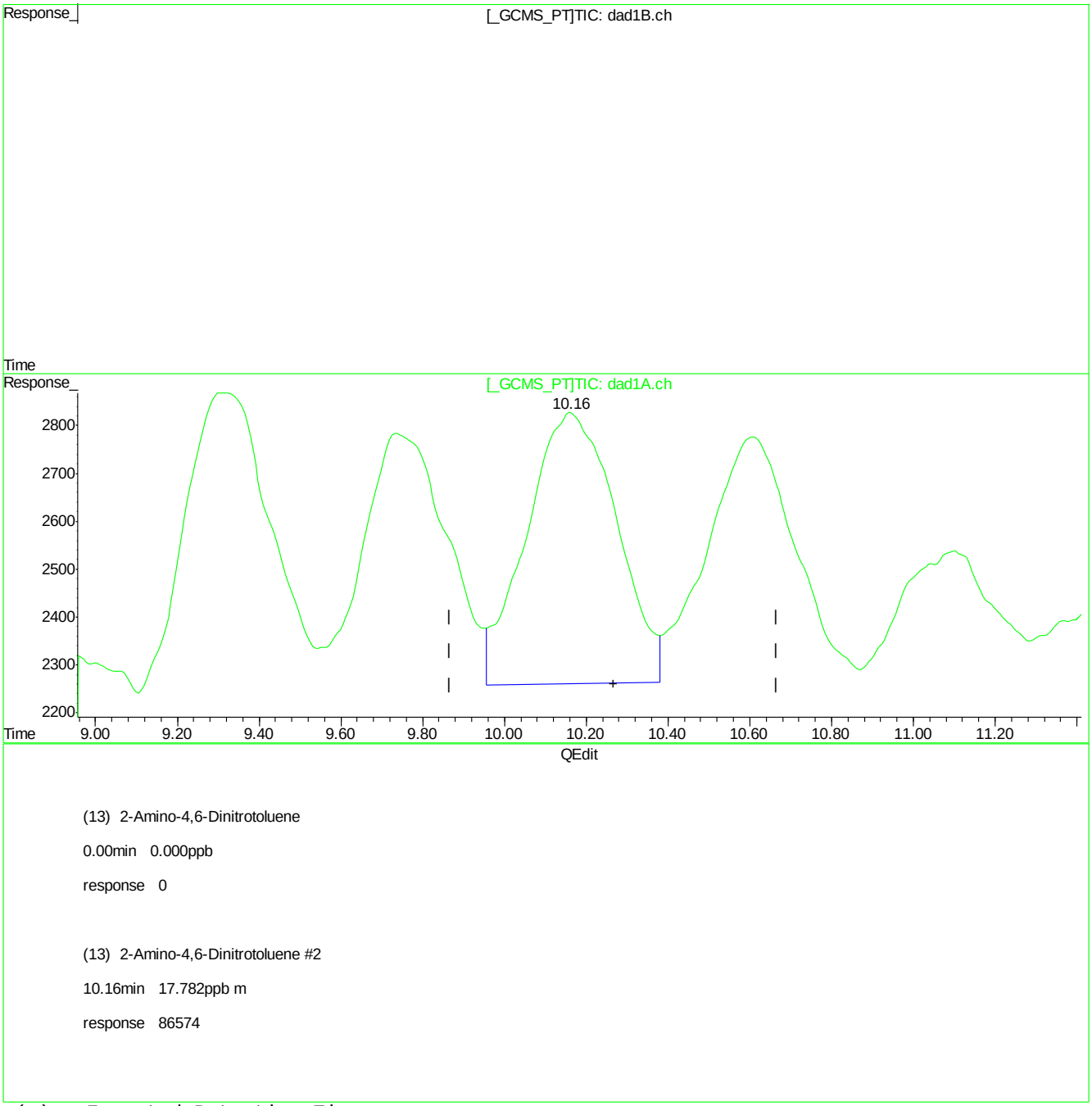
response 74249

(+) = Expected Retention Time
PP386573.D GPP2262_041620PRI.M Fri Apr 17 12:08:10 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1A.ch
Acq On : 16-Apr-2020, 13:20:11 Operator: williamh
Sample : ic2262-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration



(13) 2-Amino-4,6-Dinitrotoluene

0.00min 0.000ppb

response 0

(13) 2-Amino-4,6-Dinitrotoluene #2

10.16min 17.782ppb m

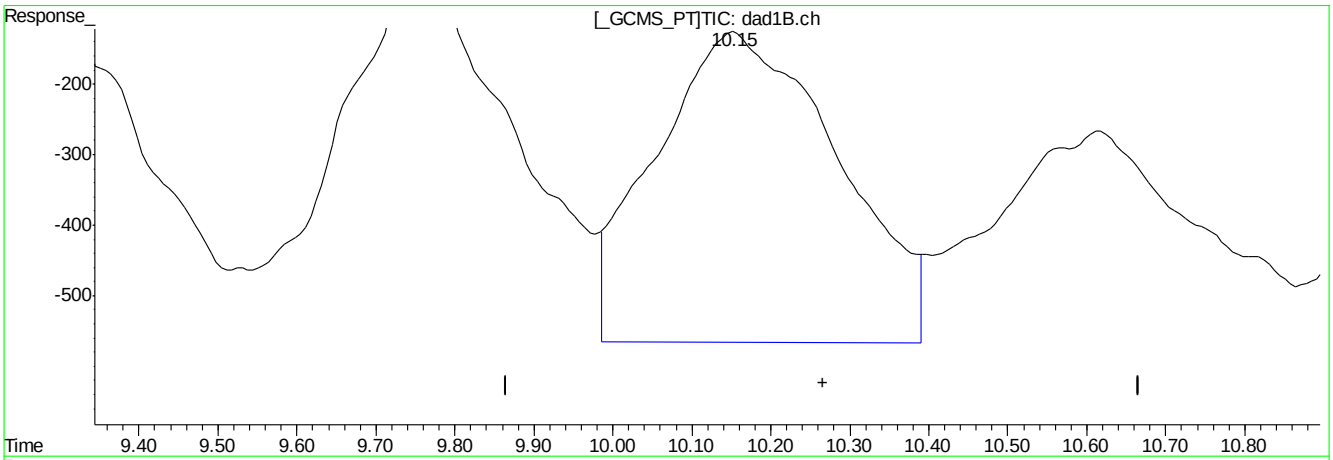
response 86574

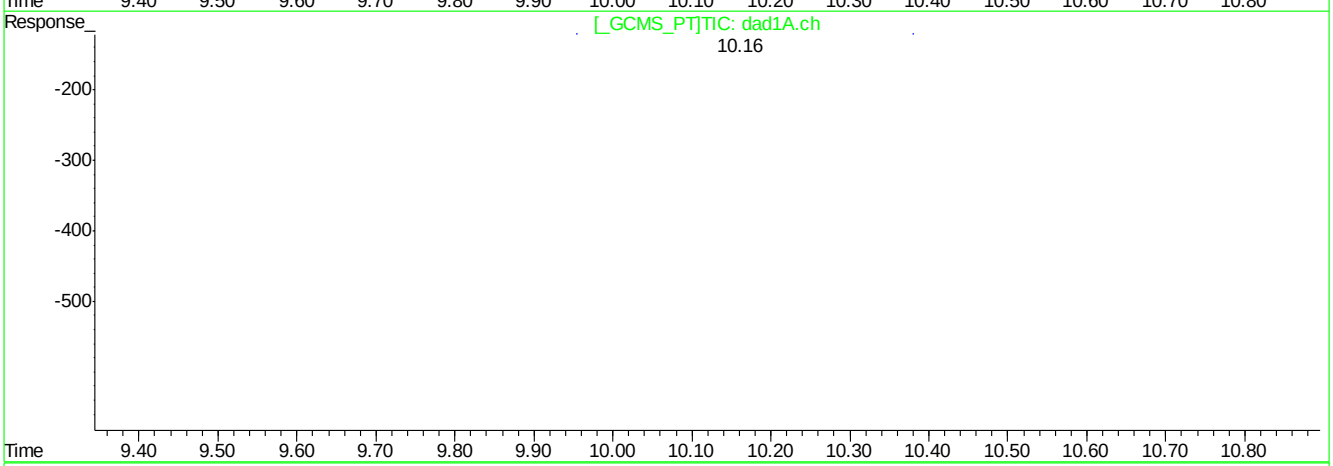
(+) = Expected Retention Time
PP386573.D GPP2262_041620PRI.M Fri Apr 17 12:08:17 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1A.ch
Acq On : 16-Apr-2020, 13:20:11 Operator: williamh
Sample : ic2262-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(13) 2-Amino-4,6-Dinitrotoluene

10.15min 20.553ppb m

response 70411

(13) 2-Amino-4,6-Dinitrotoluene #2

10.16min 17.782ppb m

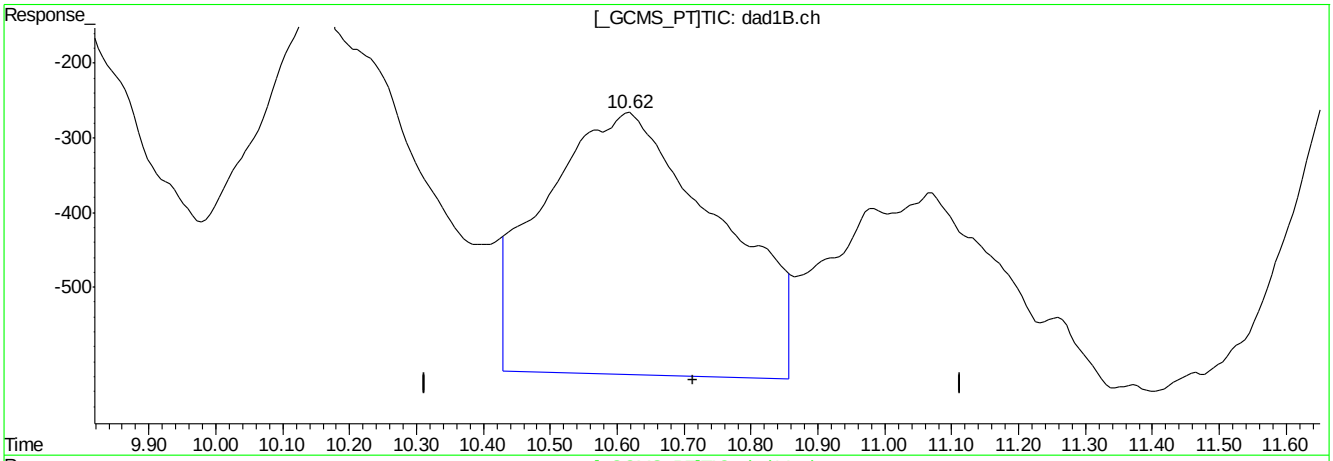
response 86574

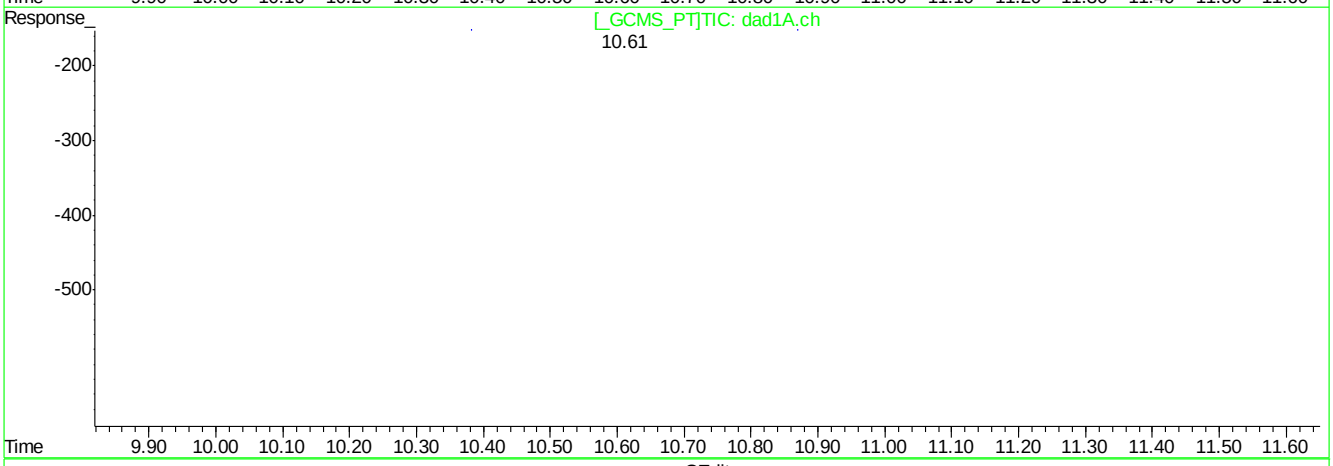
(+) = Expected Retention Time
PP386573.D GPP2262_041620PRI.M Fri Apr 17 12:08:22 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1A.ch
Acq On : 16-Apr-2020, 13:20:11 Operator: williamh
Sample : ic2262-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(14) 4-Amino-2,6-Dinitrotoluene

10.62min 25.698ppb m

response 63582

(14) 4-Amino-2,6-Dinitrotoluene #2

10.61min 15.410ppb

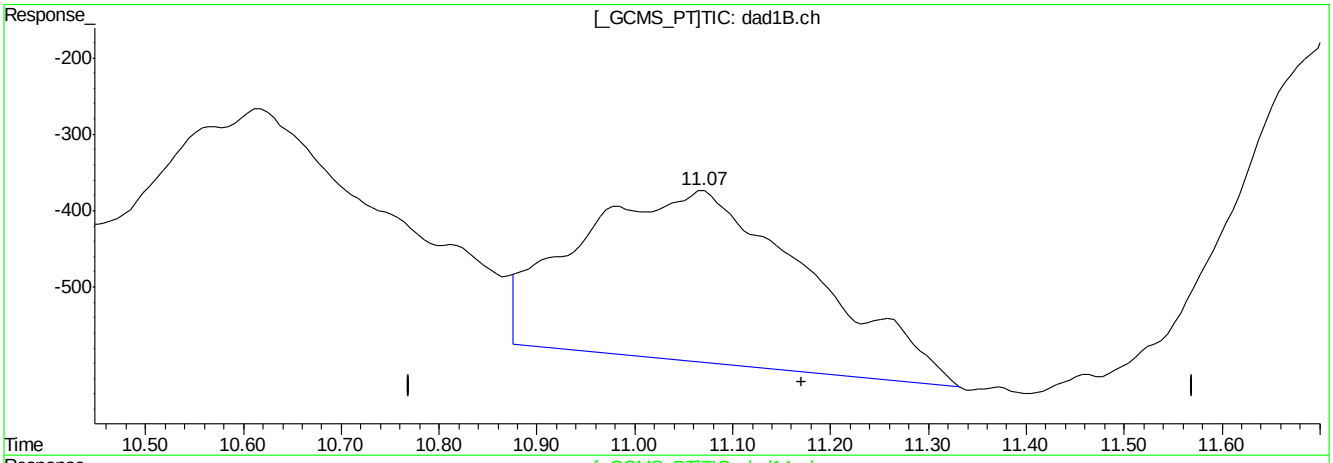
response 68760

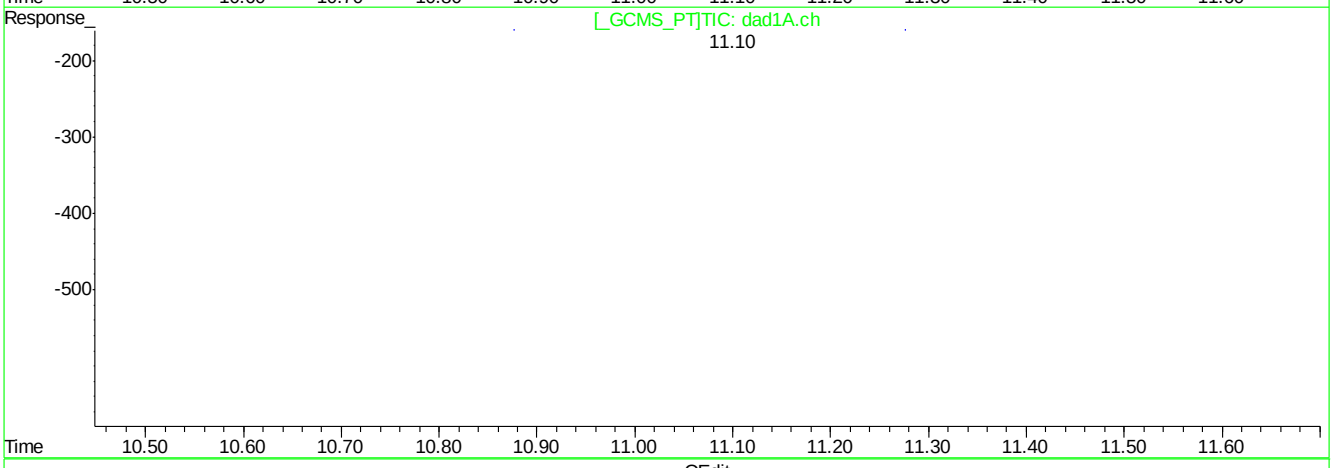
(+) = Expected Retention Time
PP386573.D GPP2262_041620PRI.M Fri Apr 17 12:08:29 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1A.ch
Acq On : 16-Apr-2020, 13:20:11 Operator: williamh
Sample : ic2262-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(15) 3,4-Dinitrotoluene (S)

11.07min 18.924ppb m

response 36765

(15) 3,4-Dinitrotoluene #2 (S)

11.10min 9.644ppb m

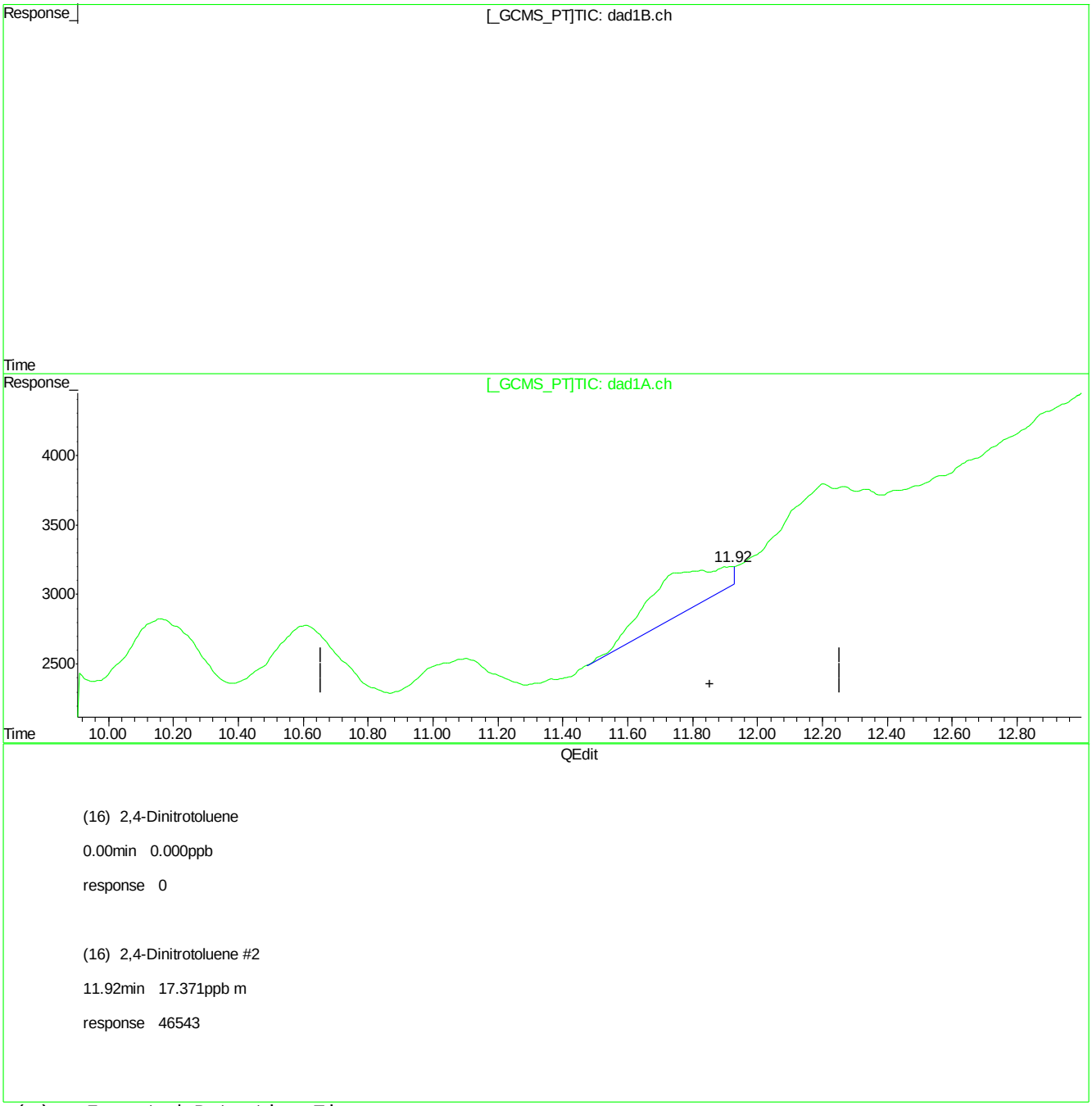
response 28361

(+) = Expected Retention Time
PP386573.D GPP2262_041620PRI.M Fri Apr 17 12:08:42 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1A.ch
Acq On : 16-Apr-2020, 13:20:11 Operator: williamh
Sample : ic2262-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration



(16) 2,4-Dinitrotoluene

0.00min 0.000ppb

response 0

(16) 2,4-Dinitrotoluene #2

11.92min 17.371ppb m

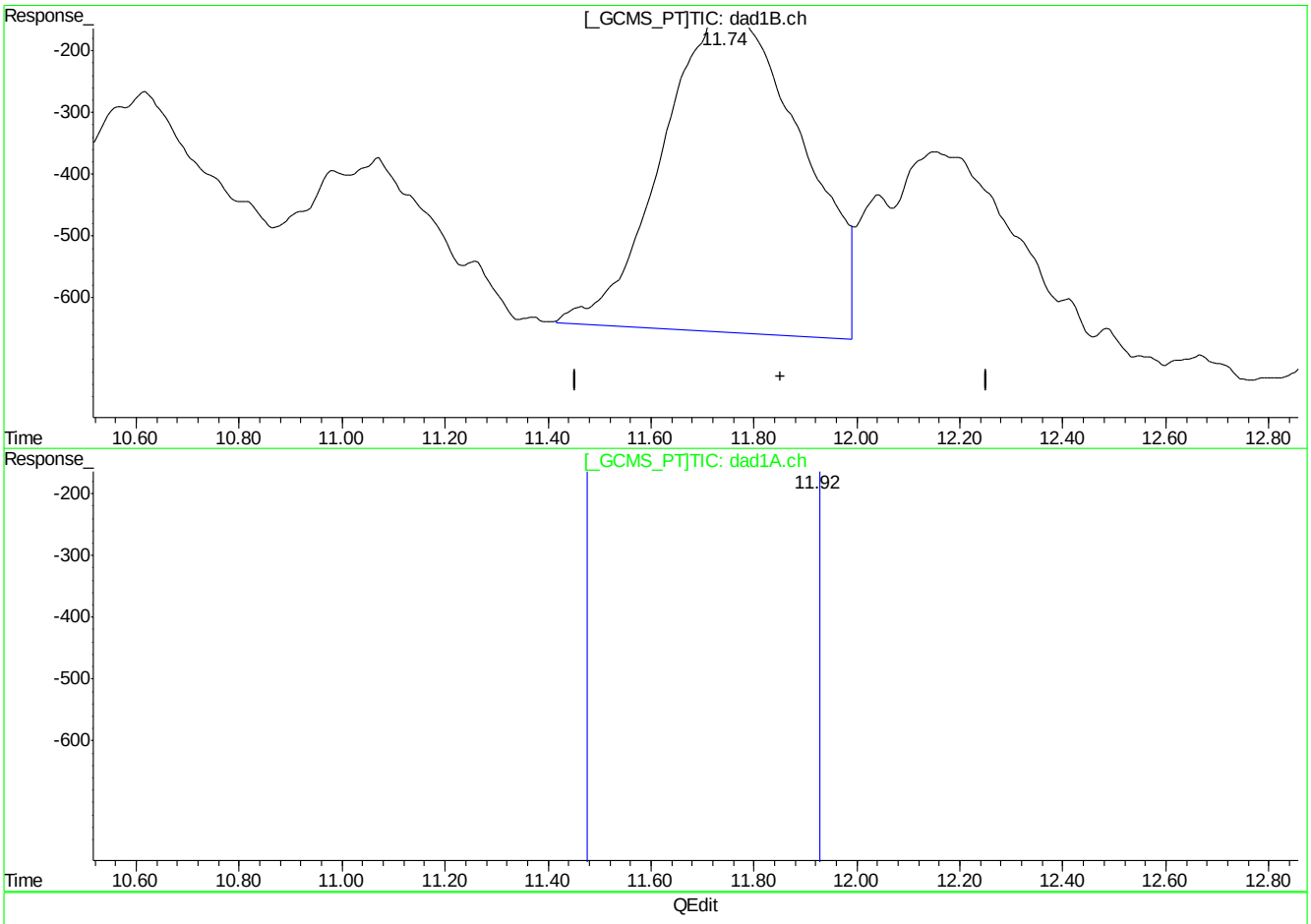
response 46543

(+) = Expected Retention Time
PP386573.D GPP2262_041620PRI.M Fri Apr 17 12:08:50 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1A.ch
Acq On : 16-Apr-2020, 13:20:11 Operator: williamh
Sample : ic2262-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration



(16) 2,4-Dinitrotoluene

11.74min 19.464ppb m

response 96224

(16) 2,4-Dinitrotoluene #2

11.92min 17.371ppb m

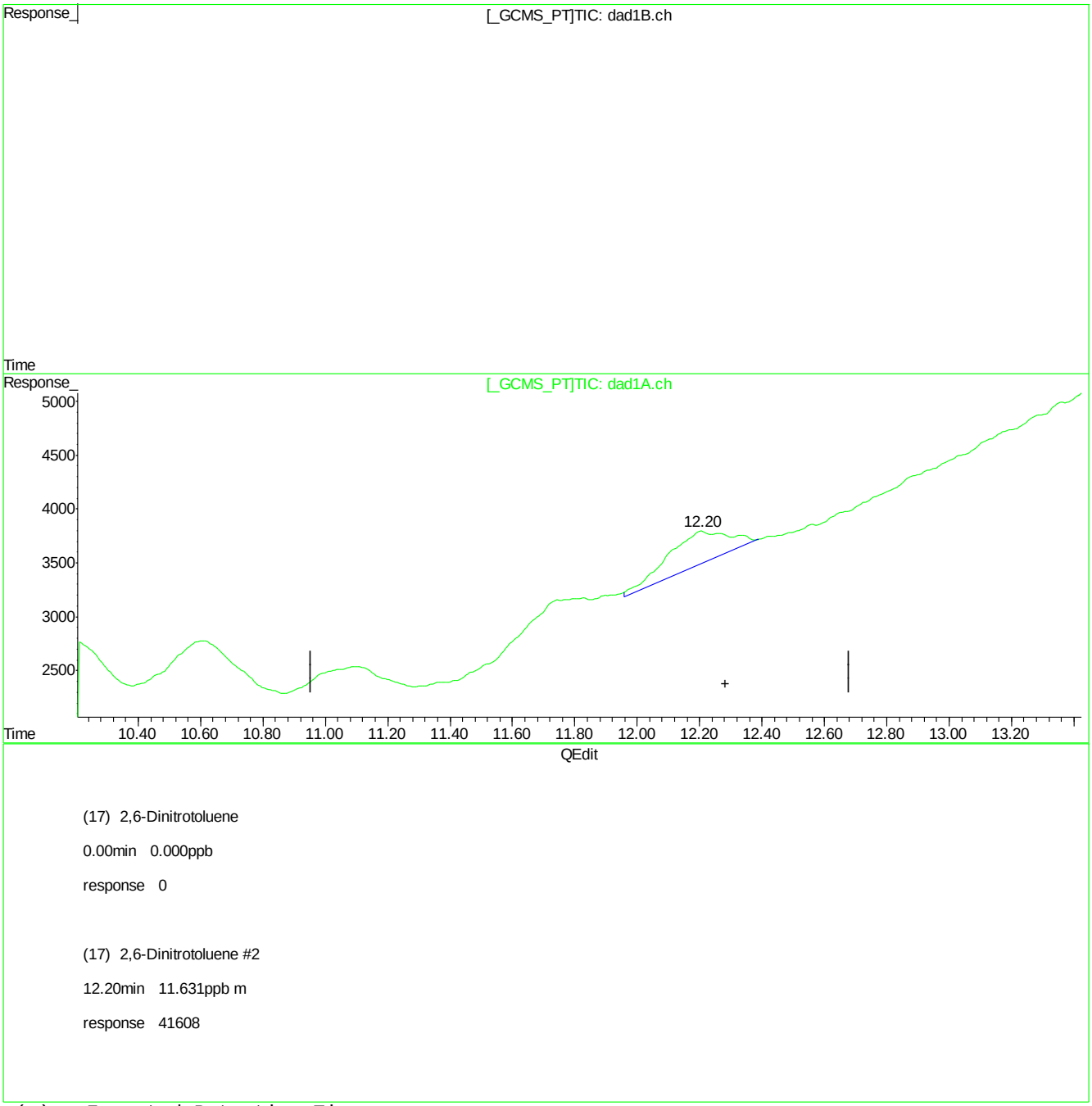
response 46543

(+) = Expected Retention Time
PP386573.D GPP2262_041620PRI.M Fri Apr 17 12:08:55 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1A.ch
Acq On : 16-Apr-2020, 13:20:11 Operator: williamh
Sample : ic2262-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration



(17) 2,6-Dinitrotoluene

0.00min 0.000ppb

response 0

(17) 2,6-Dinitrotoluene #2

12.20min 11.631ppb m

response 41608

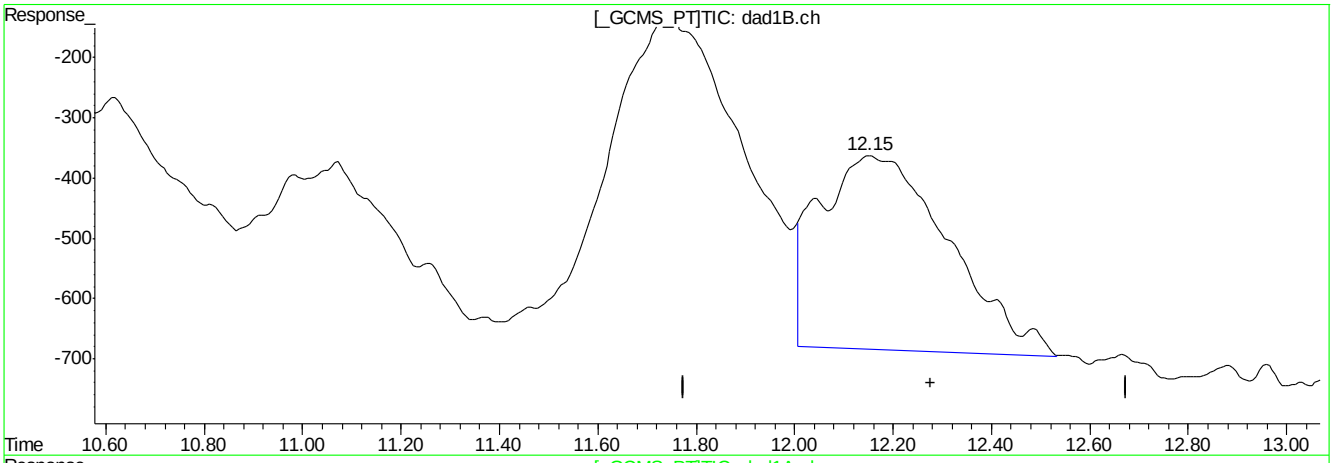
(+) = Expected Retention Time
PP386573.D GPP2262_041620PRI.M Fri Apr 17 12:09:01 2020

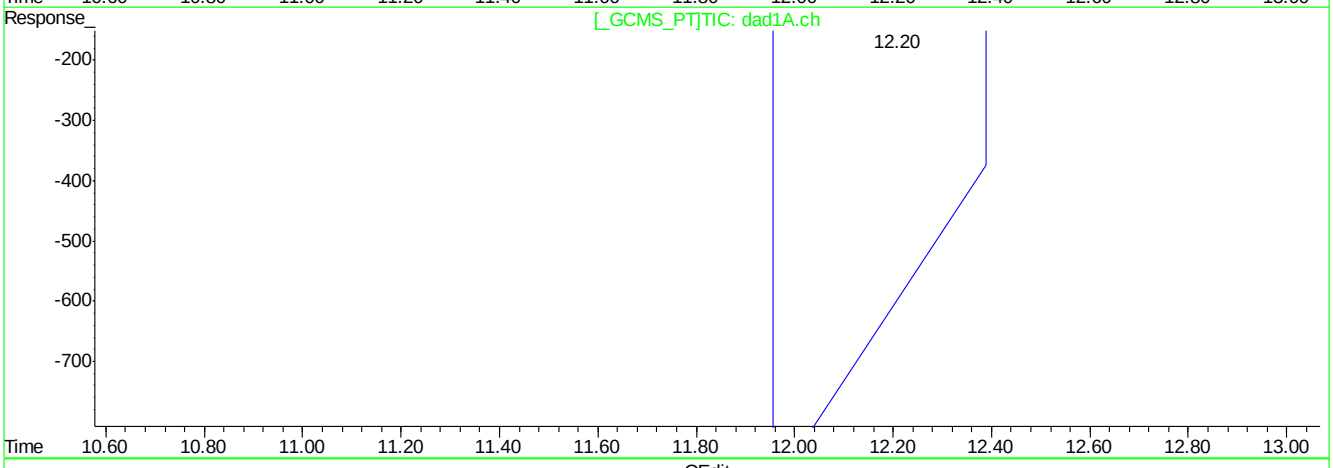
PP386573.D edits: 2,6-Dinitrotoluene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1A.ch
Acq On : 16-Apr-2020, 13:20:11 Operator: williamh
Sample : ic2262-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(17) 2,6-Dinitrotoluene

12.15min 21.205ppb m

response 59325

(17) 2,6-Dinitrotoluene #2

12.20min 11.631ppb m

response 41608

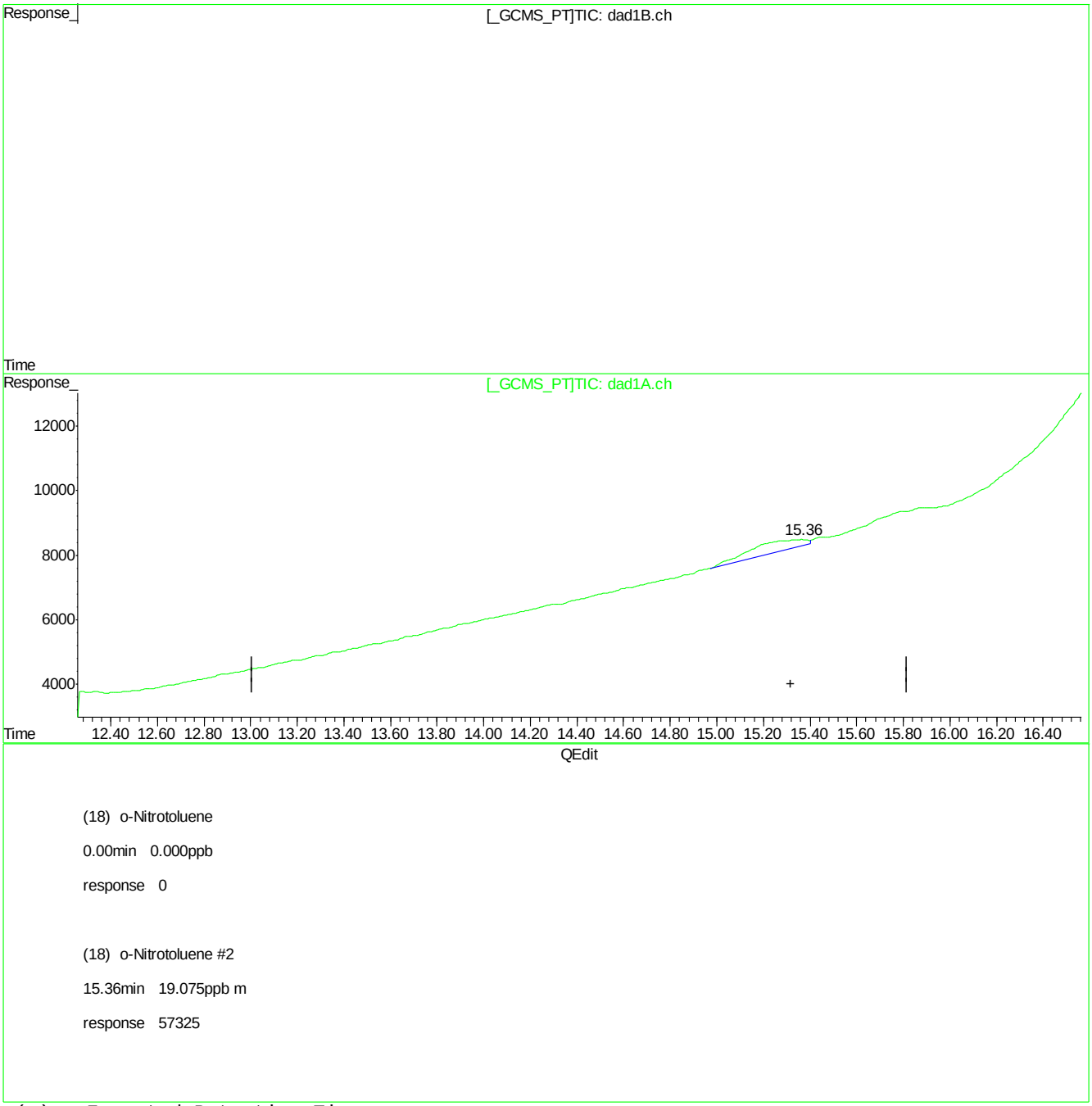
(+) = Expected Retention Time
PP386573.D GPP2262_041620PRI.M Fri Apr 17 12:09:09 2020

PP386573.D edits: 2,6-Dinitrotoluene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1A.ch
Acq On : 16-Apr-2020, 13:20:11 Operator: williamh
Sample : ic2262-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration



(18) o-Nitrotoluene

0.00min 0.000ppb

response 0

(18) o-Nitrotoluene #2

15.36min 19.075ppb m

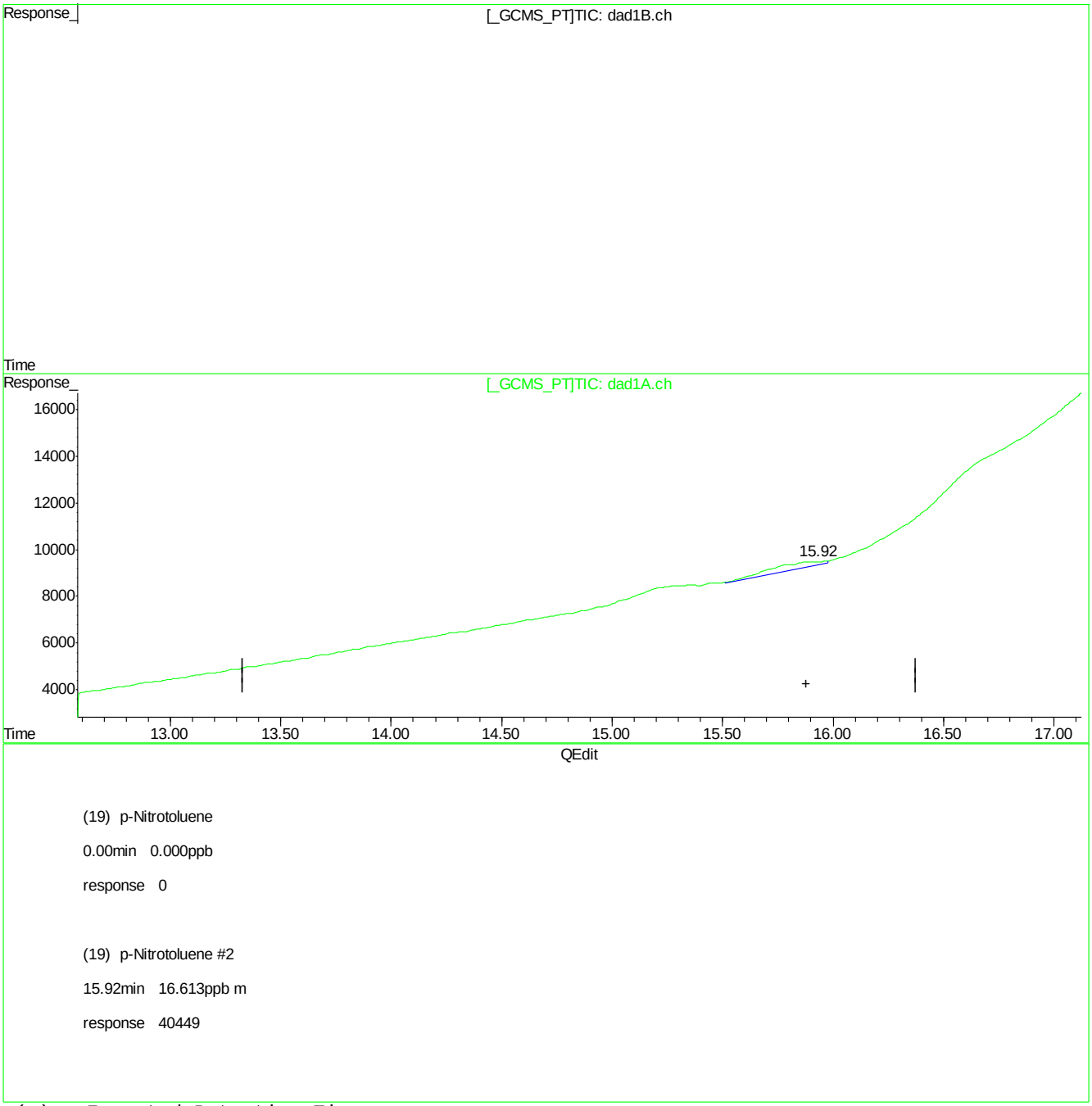
response 57325

(+) = Expected Retention Time
PP386573.D GPP2262_041620PRI.M Fri Apr 17 12:09:16 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1A.ch
Acq On : 16-Apr-2020, 13:20:11 Operator: williamh
Sample : ic2262-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration



(19) p-Nitrotoluene

0.00min 0.000ppb

response 0

(19) p-Nitrotoluene #2

15.92min 16.613ppb m

response 40449

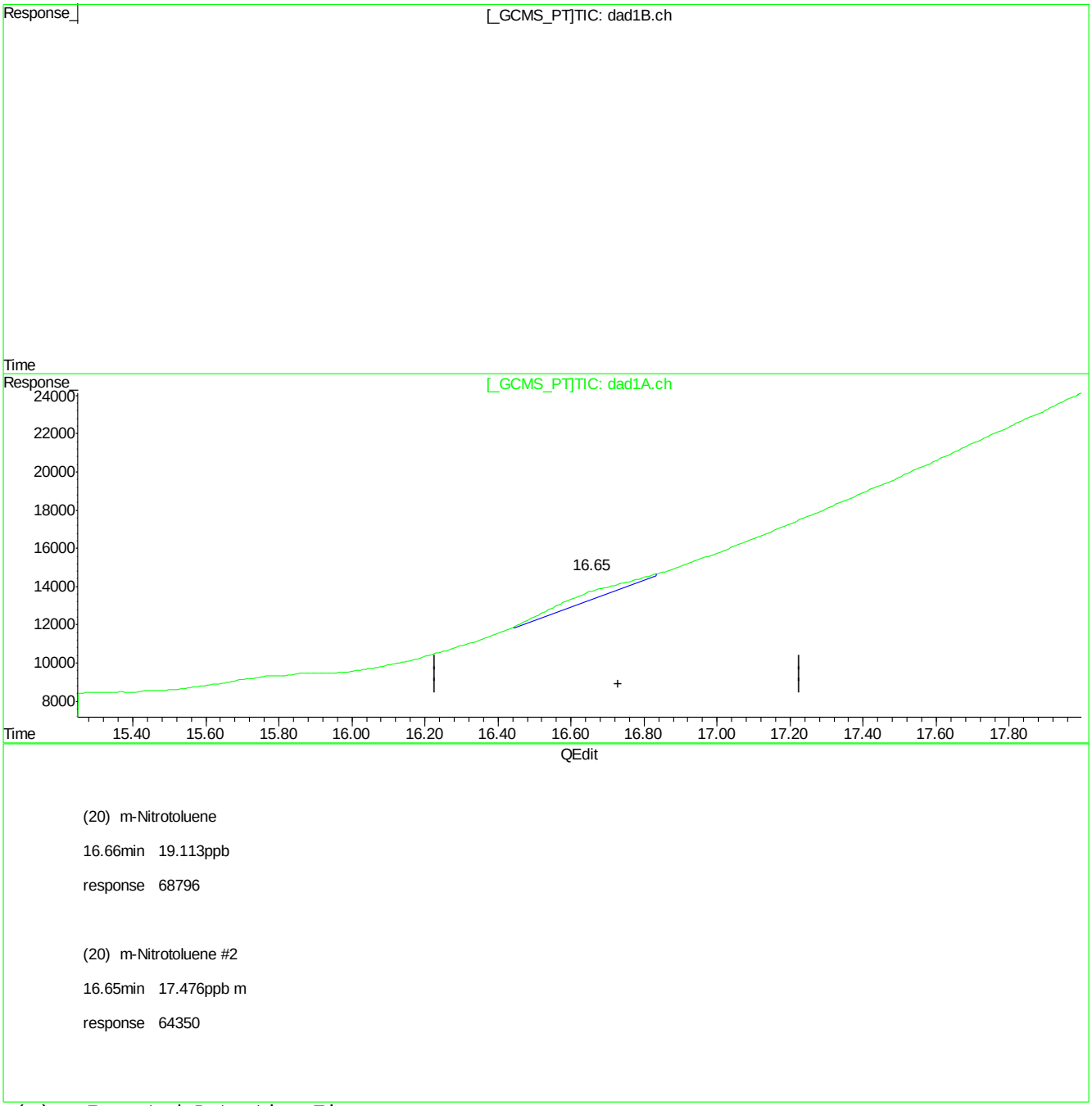
(+) = Expected Retention Time
PP386573.D GPP2262_041620PRI.M Fri Apr 17 12:09:22 2020

PP386573.D edits: p-Nitrotoluene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1A.ch
Acq On : 16-Apr-2020, 13:20:11 Operator: williamh
Sample : ic2262-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration



(20) m-Nitrotoluene

16.66min 19.113ppb

response 68796

(20) m-Nitrotoluene #2

16.65min 17.476ppb m

response 64350

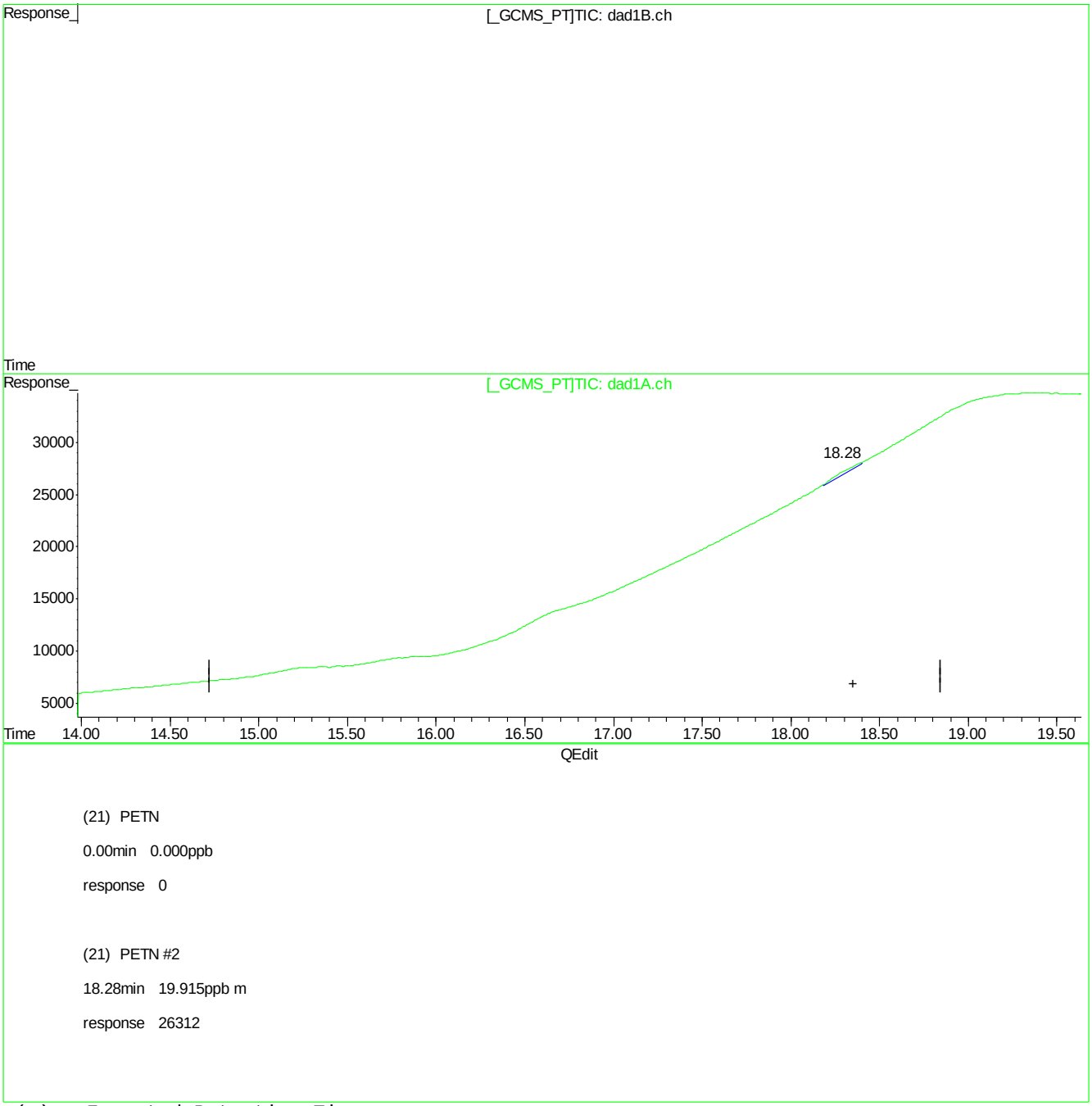
(+) = Expected Retention Time
PP386573.D GPP2262_041620PRI.M Fri Apr 17 12:09:28 2020

PP386573.D edits: m-Nitrotoluene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1A.ch
Acq On : 16-Apr-2020, 13:20:11 Operator: williamh
Sample : ic2262-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration

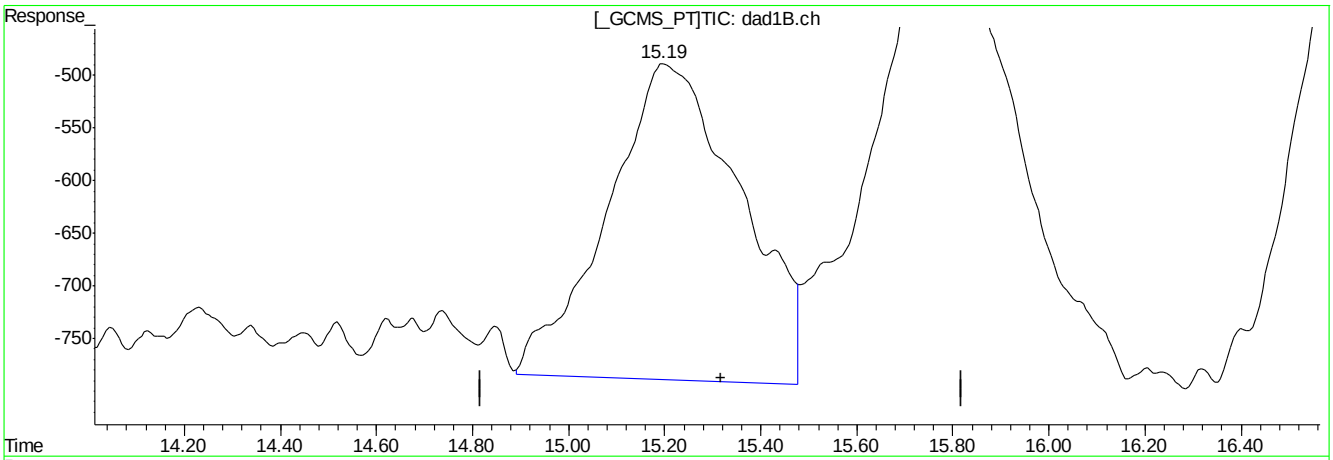


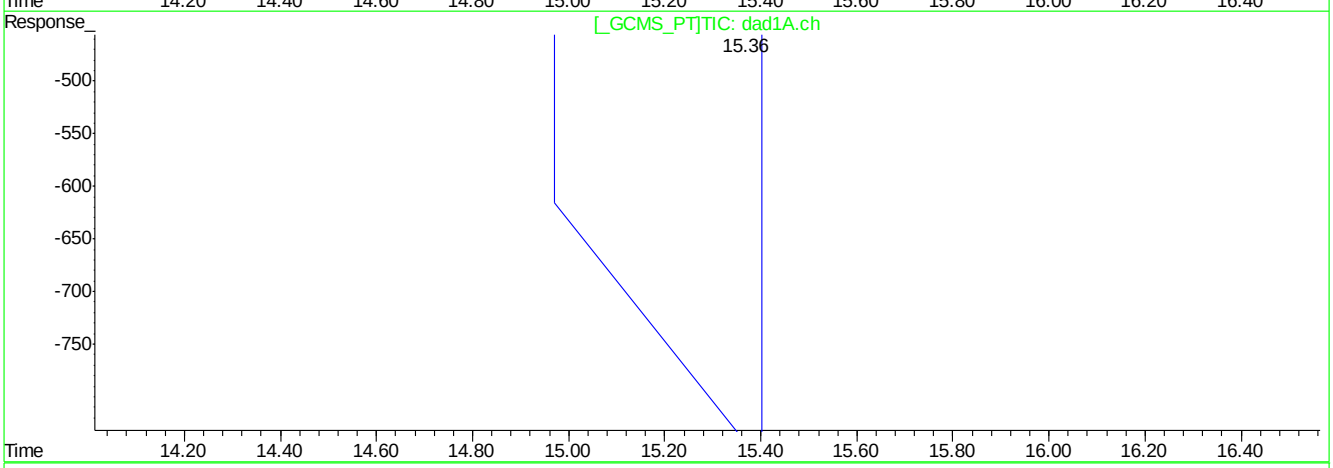
(+) = Expected Retention Time
PP386573.D GPP2262_041620PRI.M Fri Apr 17 12:09:36 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1A.ch
Acq On : 16-Apr-2020, 13:20:11 Operator: williamh
Sample : ic2262-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(18) o-Nitrotoluene

15.19min 25.970ppb m

response 57476

(18) o-Nitrotoluene #2

15.36min 19.075ppb m

response 57325

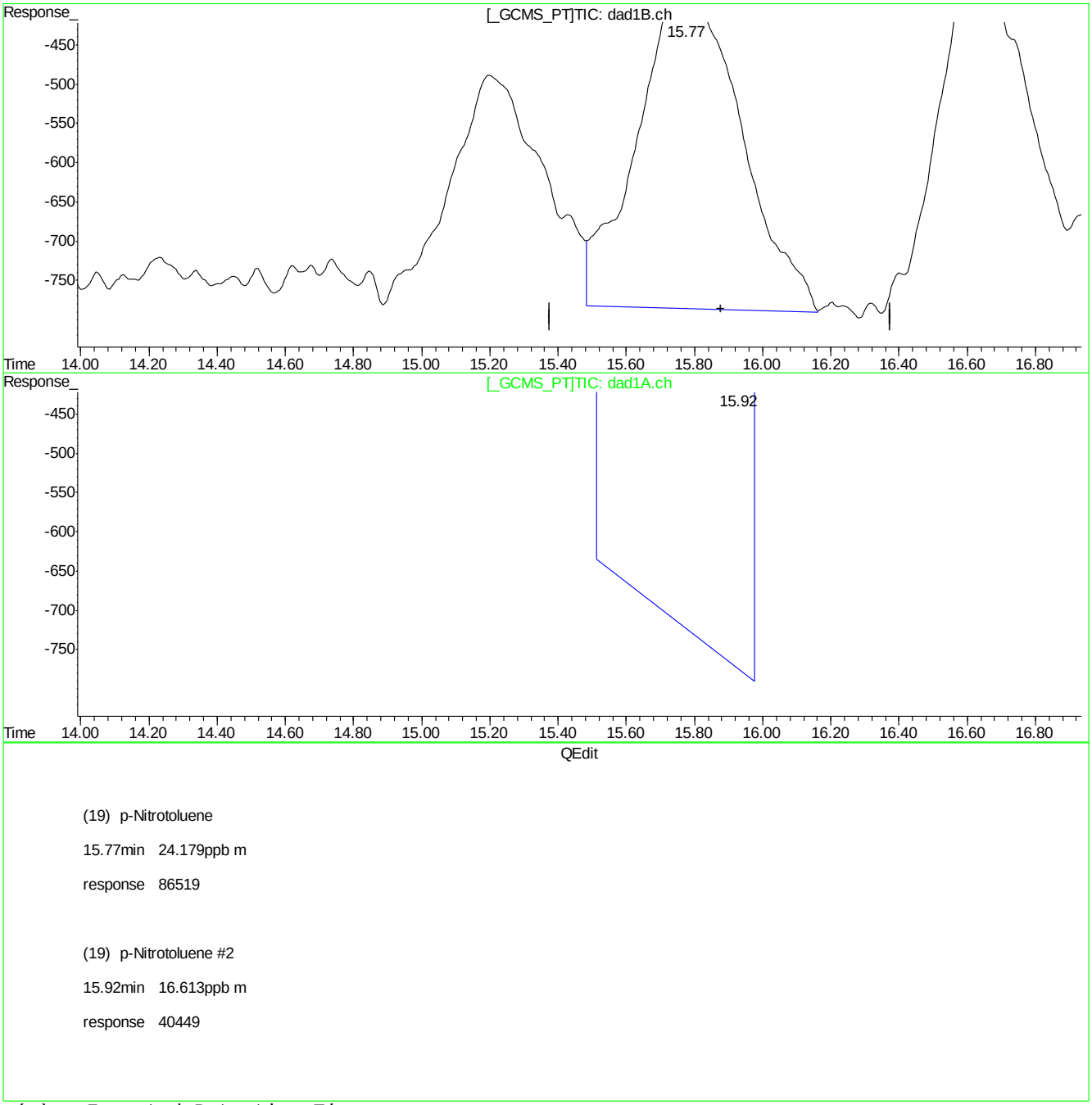
(+) = Expected Retention Time
PP386573.D GPP2262_041620PRI.M Fri Apr 17 12:09:43 2020

PP386573.D edits: o-Nitrotoluene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1A.ch
Acq On : 16-Apr-2020, 13:20:11 Operator: williamh
Sample : ic2262-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration



(19) p-Nitrotoluene

15.77min 24.179ppb m

response 86519

(19) p-Nitrotoluene #2

15.92min 16.613ppb m

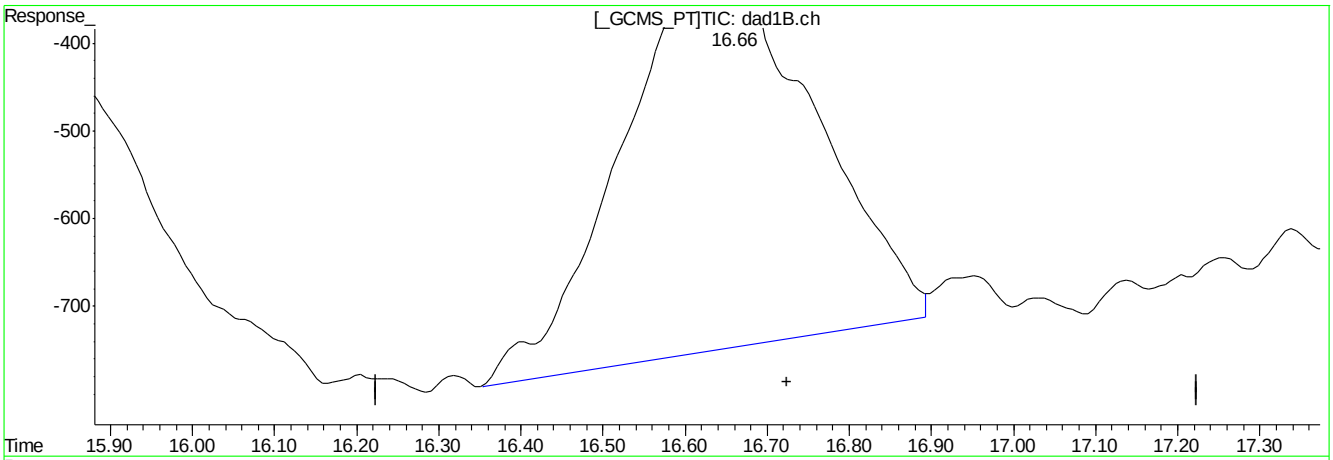
response 40449

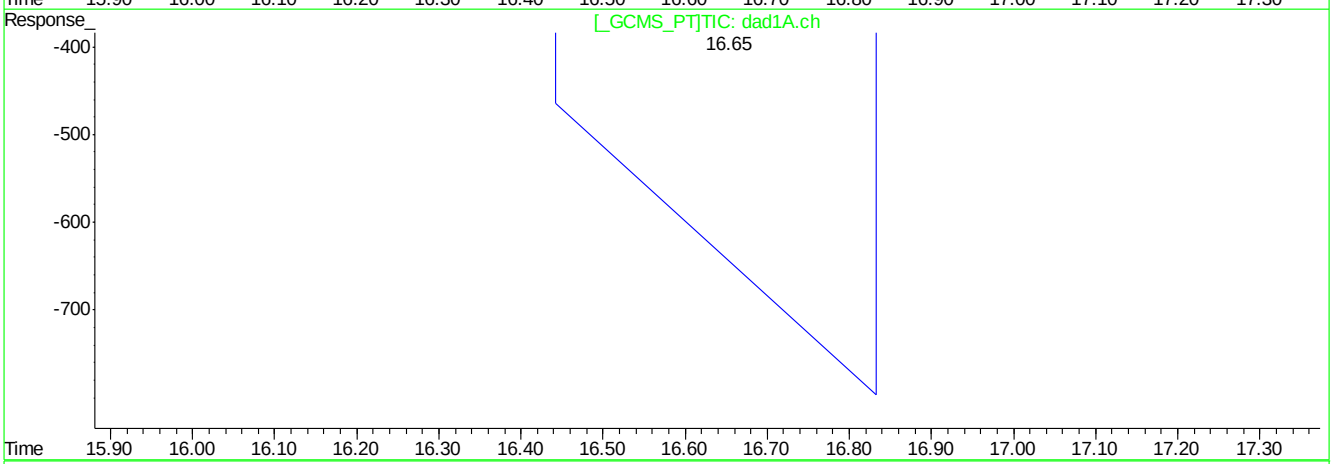
(+) = Expected Retention Time
PP386573.D GPP2262_041620PRI.M Fri Apr 17 12:09:50 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386573.D\dad1A.ch
Acq On : 16-Apr-2020, 13:20:11 Operator: williamh
Sample : ic2262-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(20) m-Nitrotoluene

16.66min 19.360ppb m

response 69686

(20) m-Nitrotoluene #2

16.65min 17.476ppb m

response 64350

(+) = Expected Retention Time
PP386573.D GPP2262_041620PRI.M Fri Apr 17 12:09:58 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 04/17/20 14:46

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1A.ch
Acq On : 16-Apr-2020, 13:51:06 Operator: williamh
Sample : ic2262-50 Inst : G1315B
Misc : op79816,GPP2262,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11:25 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Initial Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	11.08	11.08	92549	99999	47.638m	33.944
Spiked Amount	500.000	Range	70 - 136	Recovery	=	9.53%#	6.79%#
	Target Compounds						
1)	TNX	1.34	1.34	92762	149367	40.193m	39.339m
2)	HMX	1.46	1.46	76350	264735	43.963m	55.859m
3)	DNX	1.72	1.72	53379	94977	44.967m	48.679m
4)	MNX	2.31	2.31	114980	169327	53.060	50.023m
5)	RDX	2.93	2.93	94376	150254	49.991m	48.655m
6)	1,3,5-Trinitrobe	4.71	4.70	197596	368487	51.031	48.133m
7)	1,3-Dinitrobenze	5.91	5.91	265077	215137	50.270	53.935m
8)	3,5-Dinitroanili	6.27	6.27	203342	375940	50.948	53.426m
9)	Nitrobenzene	7.45	7.44	157667	157424	49.367	51.215
10)	Nitroglycerin	0.00	8.87	0	56363	N.D.	51.153m#
11)	Tetryl	9.34	9.34	137275	204859	49.597m	44.174
12)	2,4,6-Trinitroto	9.77	9.77	180859	185248	49.194m	43.039
13)	2-Amino-4,6-Dini	10.18	10.18	166593	211945	48.628m	43.532
14)	4-Amino-2,6-Dini	10.63	10.64	130418	184685	52.713m	41.391
16)	2,4-Dinitrotolue	11.77	11.80	219808	120572	44.463m	44.938
17)	2,6-Dinitrotolue	12.21	12.22	143372	178733	51.247m	49.961
18)	o-Nitrotoluene	15.24	15.26	109409	121815	49.438	40.522m
19)	p-Nitrotoluene	15.80	15.82	187612	88010	52.434	36.094m
20)	m-Nitrotoluene	16.67	16.64	165077	121449	45.862	32.965m
21)	PETN	0.00	18.31	0	54609	N.D.	41.314m#

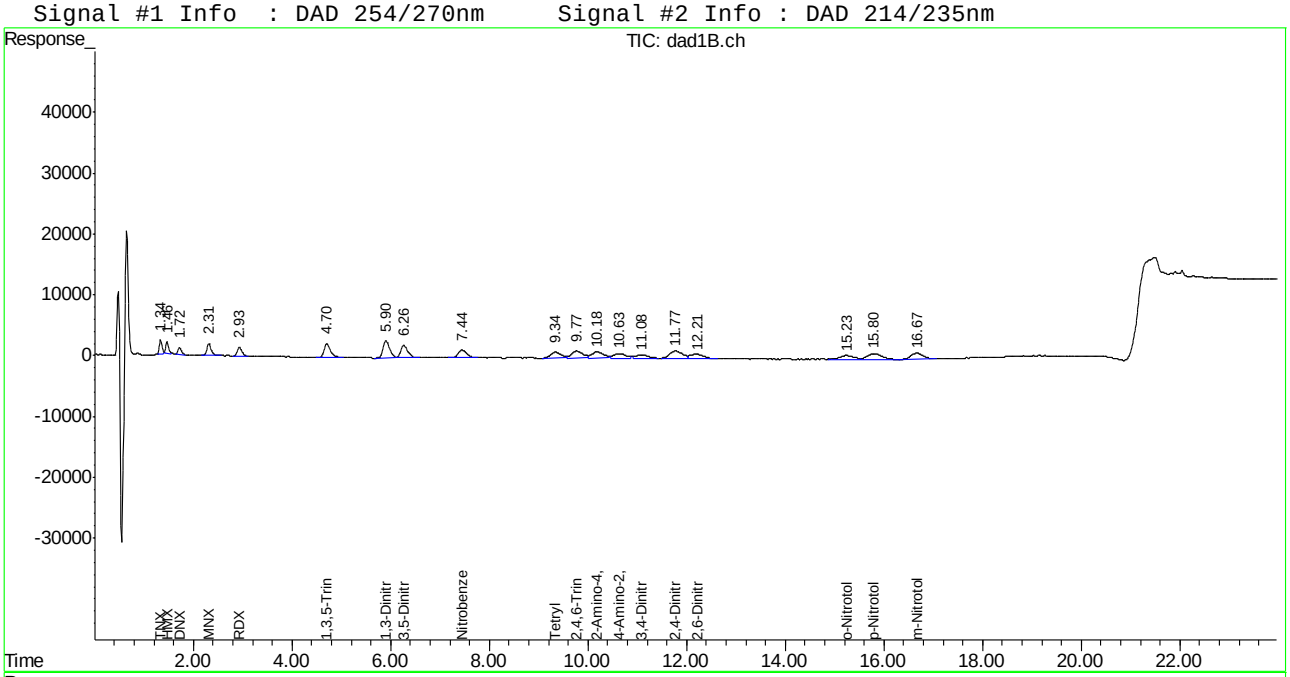
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
PP386574.D GPP2262_041620PRI.M Fri Apr 17 13:39:28 2020 Page 1

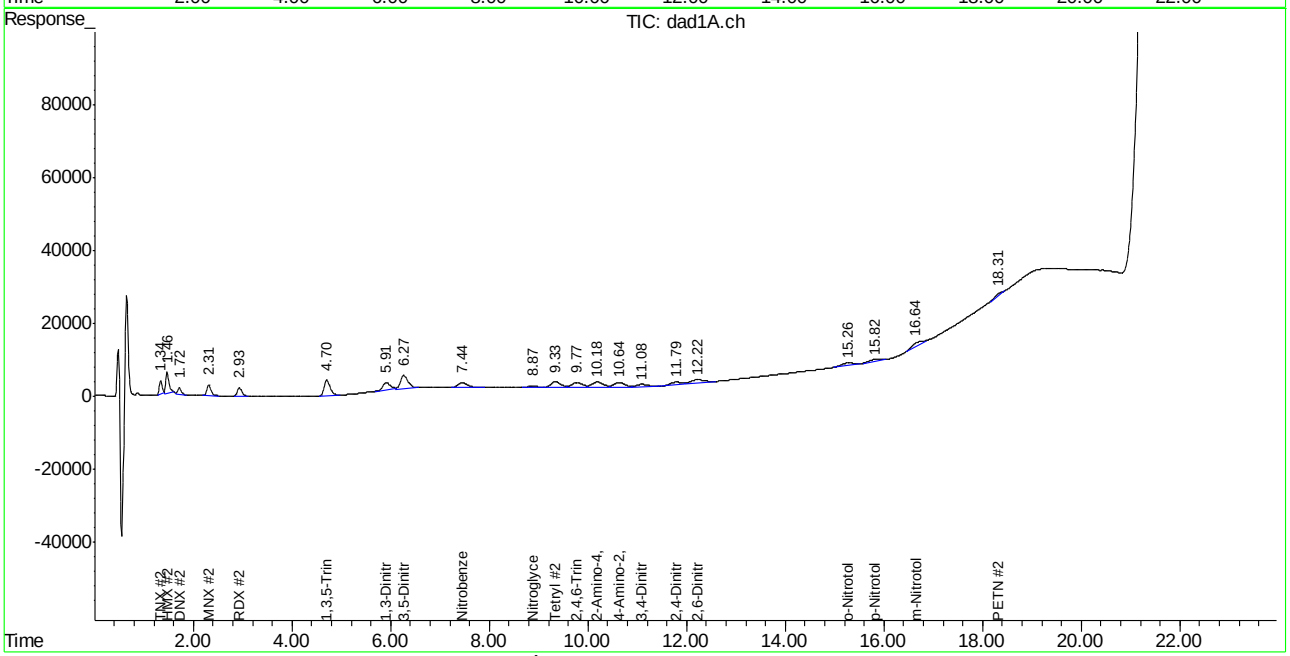
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1A.ch
Acq On : 16-Apr-2020, 13:51:06 Operator: williamh
Sample : ic2262-50 Inst : G1315B
Misc : op79816,GPP2262,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 12:13 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm





Manual Integration Approval Summary

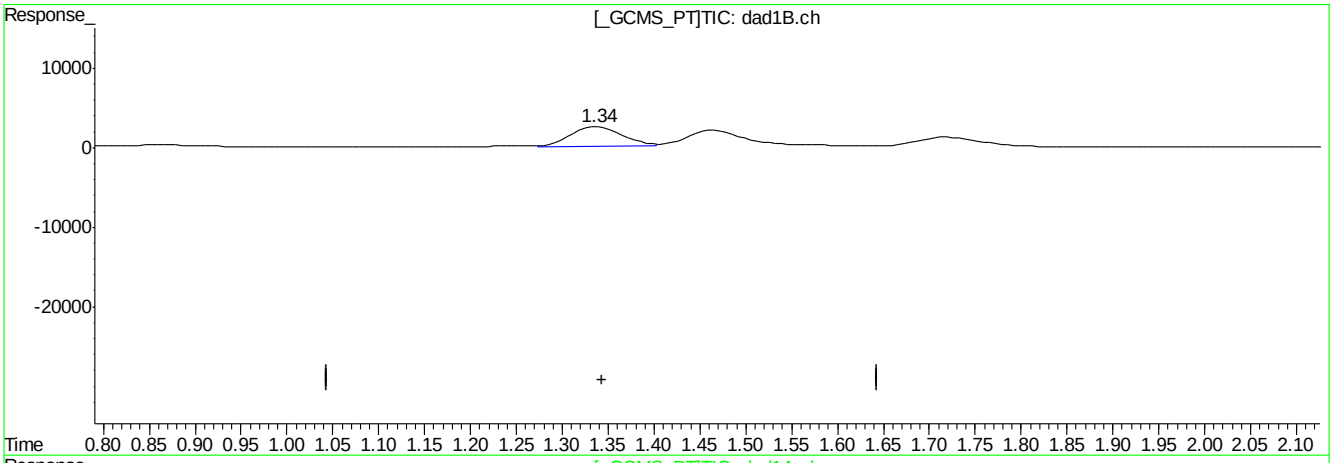
Sample Number: GPP2262-IC2262 **Method:** SW846 8330A
Lab FileID: PP386574.D **Analyst approved:** 04/17/20 13:46 William Hustedde
Injection Time: 04/16/20 13:51 **Supervisor approved:** 04/17/20 14:46 Naresh Jiawan

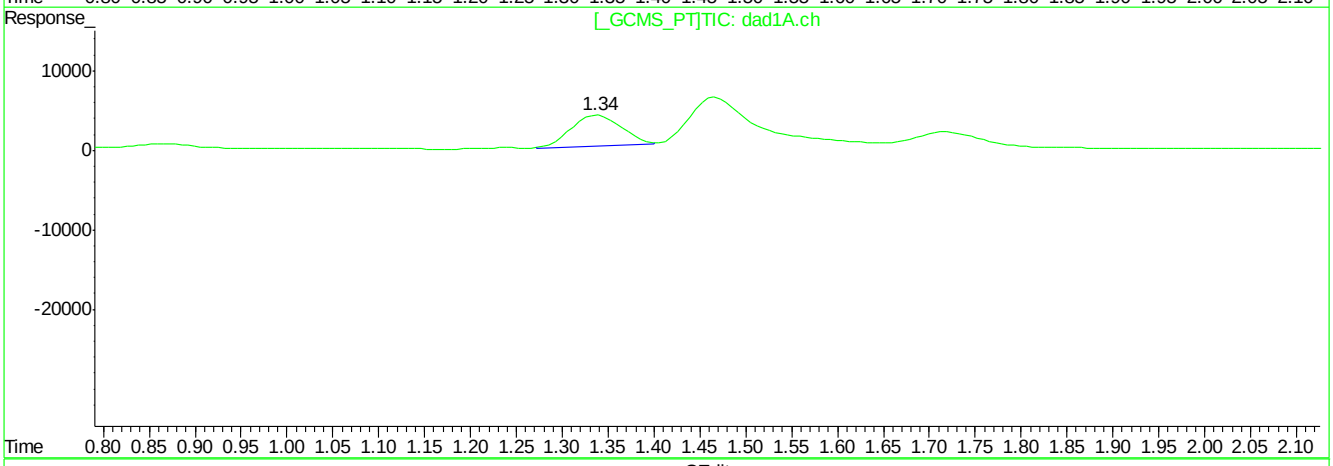
Parameter	CAS	Sig#	R.T. (min.)	Reason
TNX		1	1.34	Poor instrument integration
TNX		2	1.34	Poor instrument integration
HMX	2691-41-0	1	1.46	Poor instrument integration
HMX	2691-41-0	2	1.46	Poor instrument integration
DNX		1	1.72	Poor instrument integration
DNX		2	1.72	Poor instrument integration
MNX		2	2.31	Poor instrument integration
RDX	121-82-4	1	2.93	Poor instrument integration
RDX	121-82-4	2	2.93	Poor instrument integration
1,3,5-Trinitrobenzene	99-35-4	2	4.70	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	5.91	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	6.27	Poor instrument integration
Nitroglycerine	55-63-0	2	8.87	Poor instrument integration
Tetryl	479-45-8	1	9.34	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	1	9.77	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	1	10.18	Poor instrument integration
4-amino-2,6-Dinitrotoluene	19406-51-0	1	10.63	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	1	11.08	Poor instrument integration
2,4-Dinitrotoluene	121-14-2	1	11.77	Poor instrument integration
2,6-Dinitrotoluene	606-20-2	1	12.21	Poor instrument integration
o-Nitrotoluene	88-72-2	2	15.26	Poor instrument integration
p-Nitrotoluene	99-99-0	2	15.82	Poor instrument integration
m-Nitrotoluene	99-08-1	2	16.64	Poor instrument integration
PETN	78-11-5	2	18.31	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1A.ch
Acq On : 16-Apr-2020, 13:51:06 Operator: williamh
Sample : ic2262-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(1) TNX

1.34min 40.193ppb m

response 92762

(1) TNX #2

1.34min 39.339ppb m

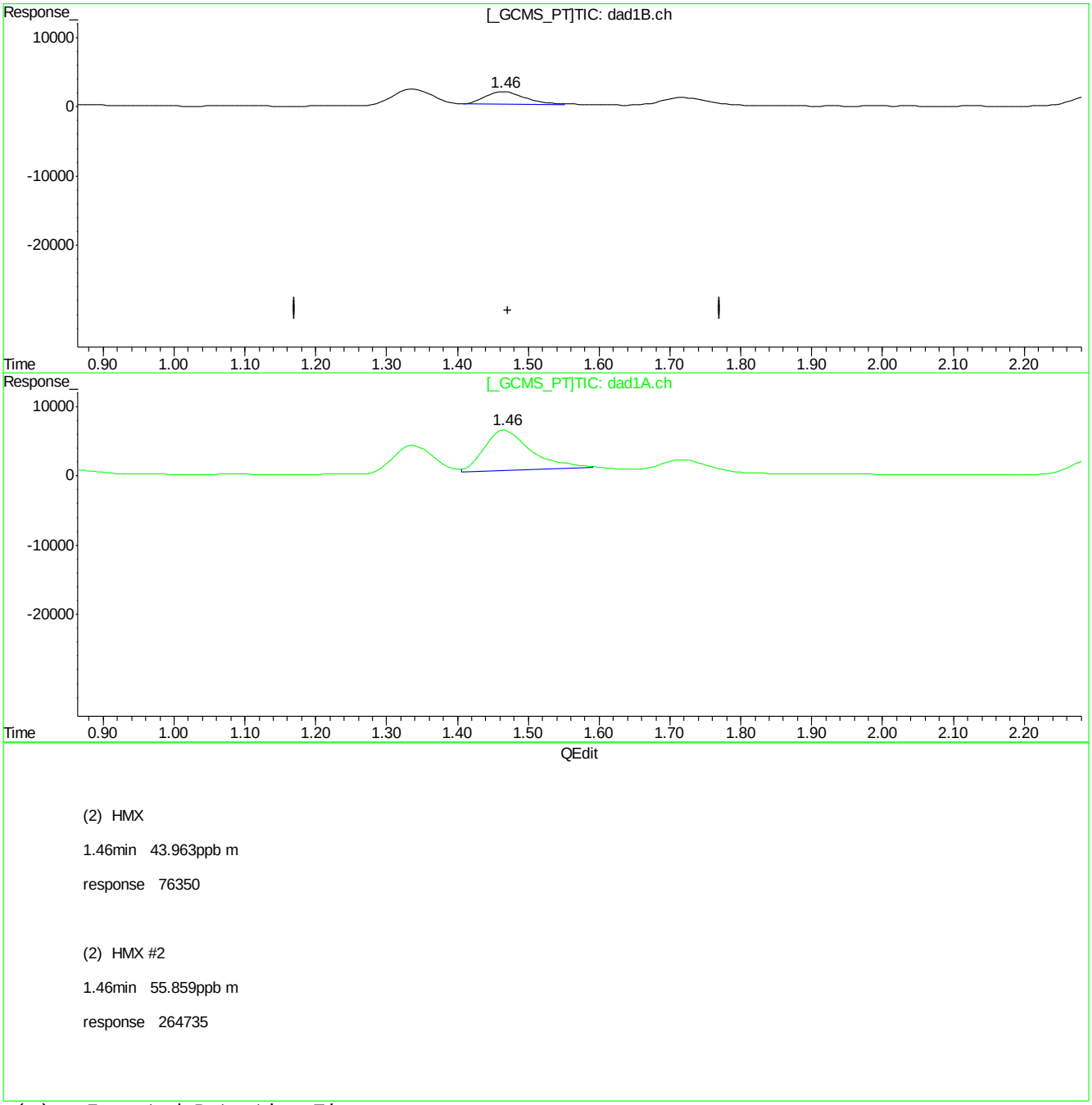
response 149367

(+) = Expected Retention Time
PP386574.D GPP2262_041620PRI.M Fri Apr 17 12:10:23 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1A.ch
Acq On : 16-Apr-2020, 13:51:06 Operator: williamh
Sample : ic2262-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration

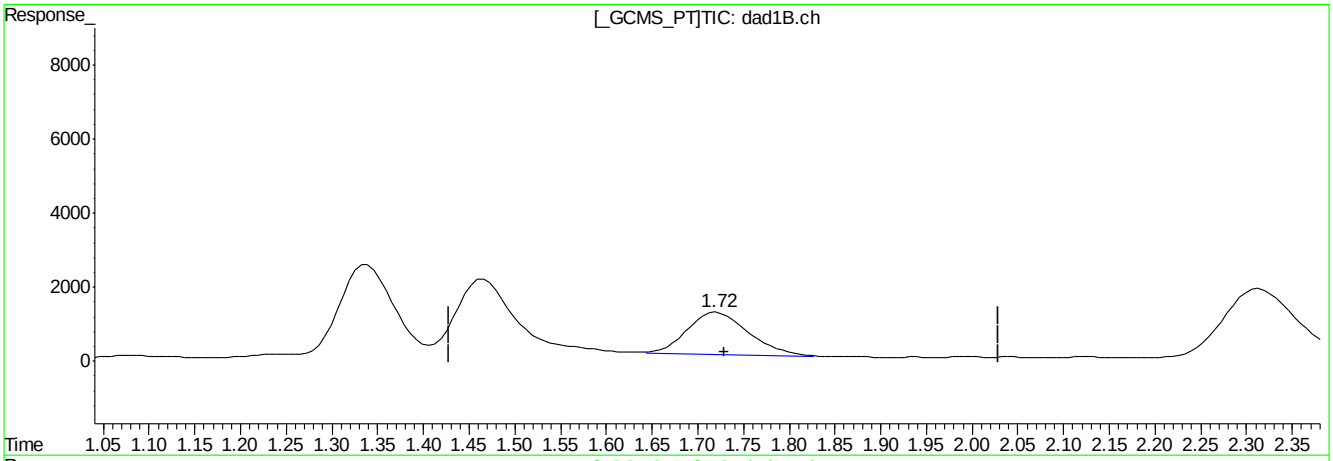


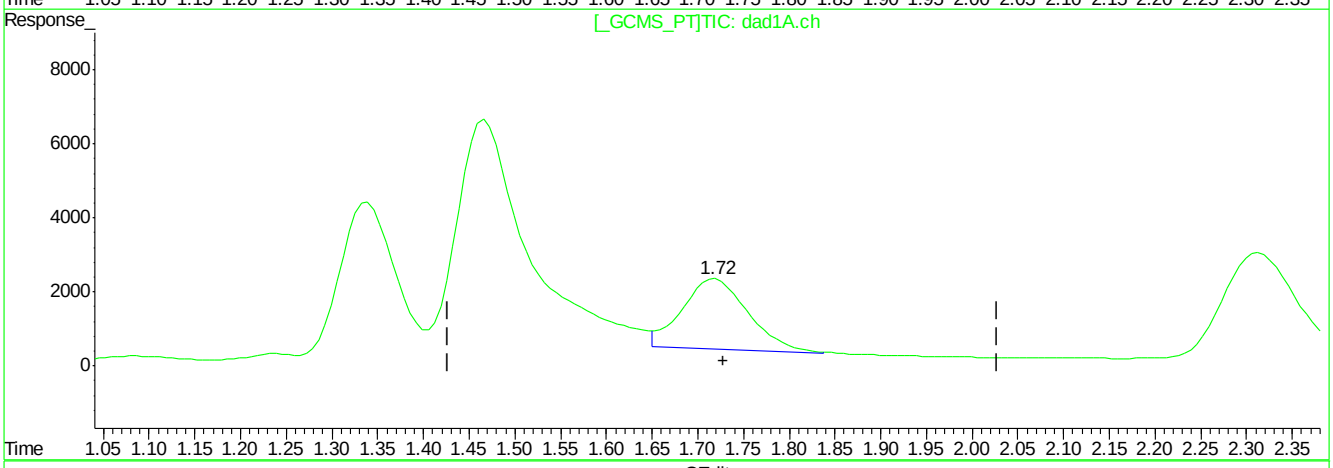
(+) = Expected Retention Time
PP386574.D GPP2262_041620PRI.M Fri Apr 17 12:10:32 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1A.ch
Acq On : 16-Apr-2020, 13:51:06 Operator: williamh
Sample : ic2262-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(3) DNX

1.72min 44.967ppb m

response 53379

(3) DNX #2

1.72min 48.679ppb m

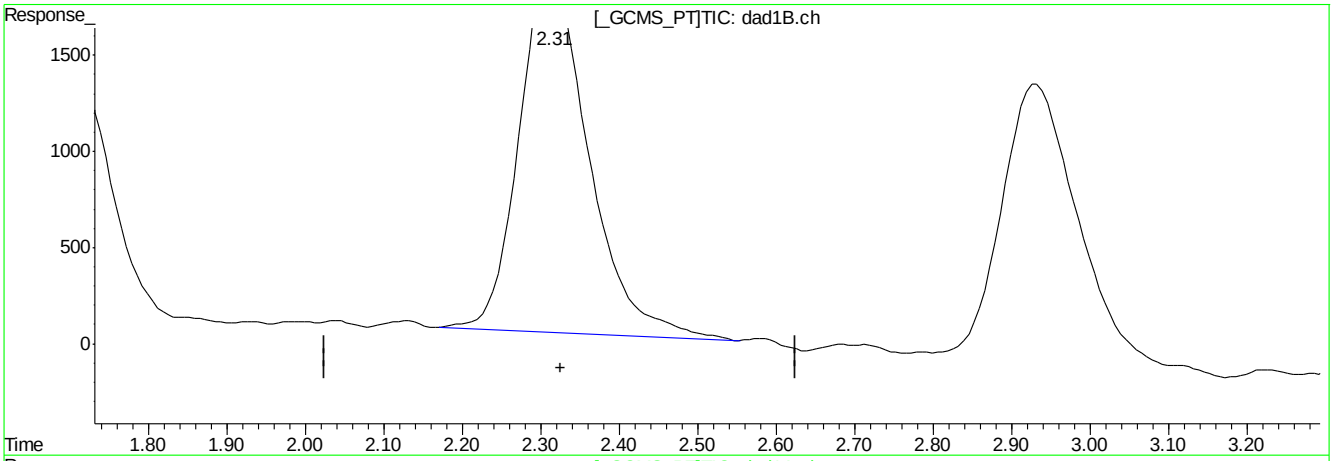
response 94977

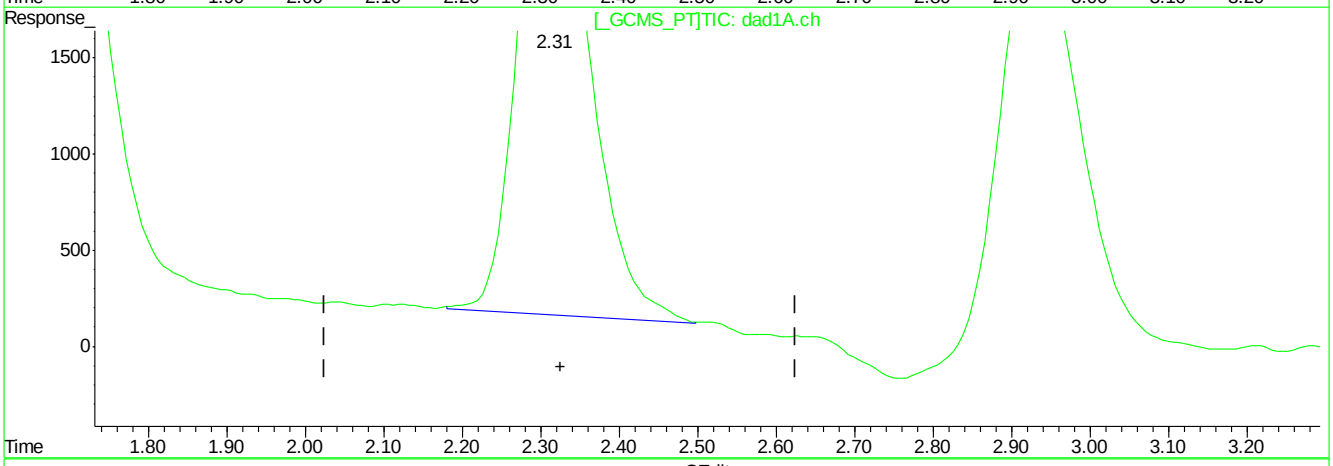
(+) = Expected Retention Time
PP386574.D GPP2262_041620PRI.M Fri Apr 17 12:10:42 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1A.ch
Acq On : 16-Apr-2020, 13:51:06 Operator: williamh
Sample : ic2262-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(4) MNX

2.31min 53.060ppb

response 114980

(4) MNX #2

2.31min 50.023ppb m

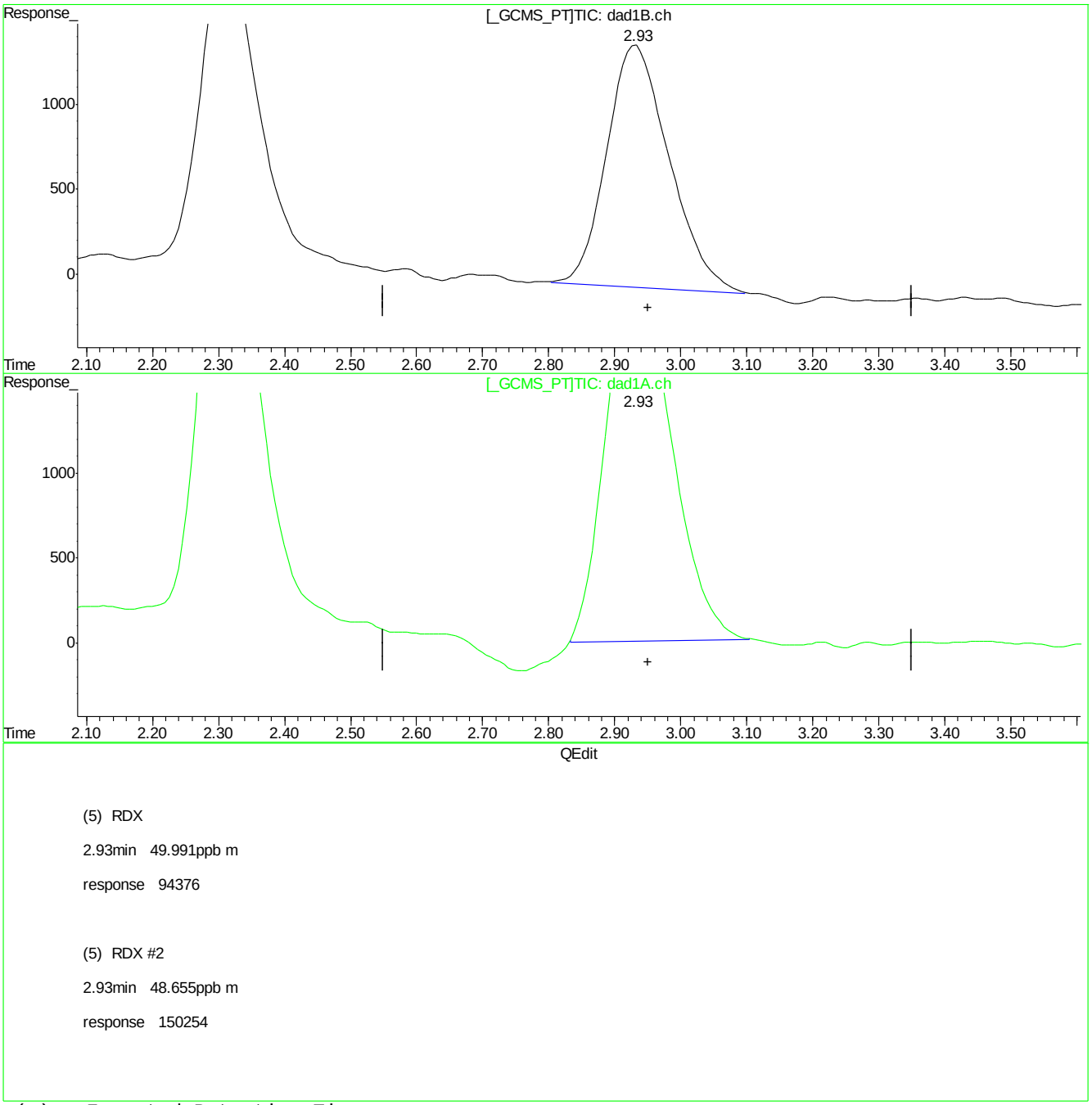
response 169327

(+) = Expected Retention Time
PP386574.D GPP2262_041620PRI.M Fri Apr 17 12:10:50 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1A.ch
Acq On : 16-Apr-2020, 13:51:06 Operator: williamh
Sample : ic2262-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration



(5) RDX

2.93min 49.991ppb m

response 94376

(5) RDX #2

2.93min 48.655ppb m

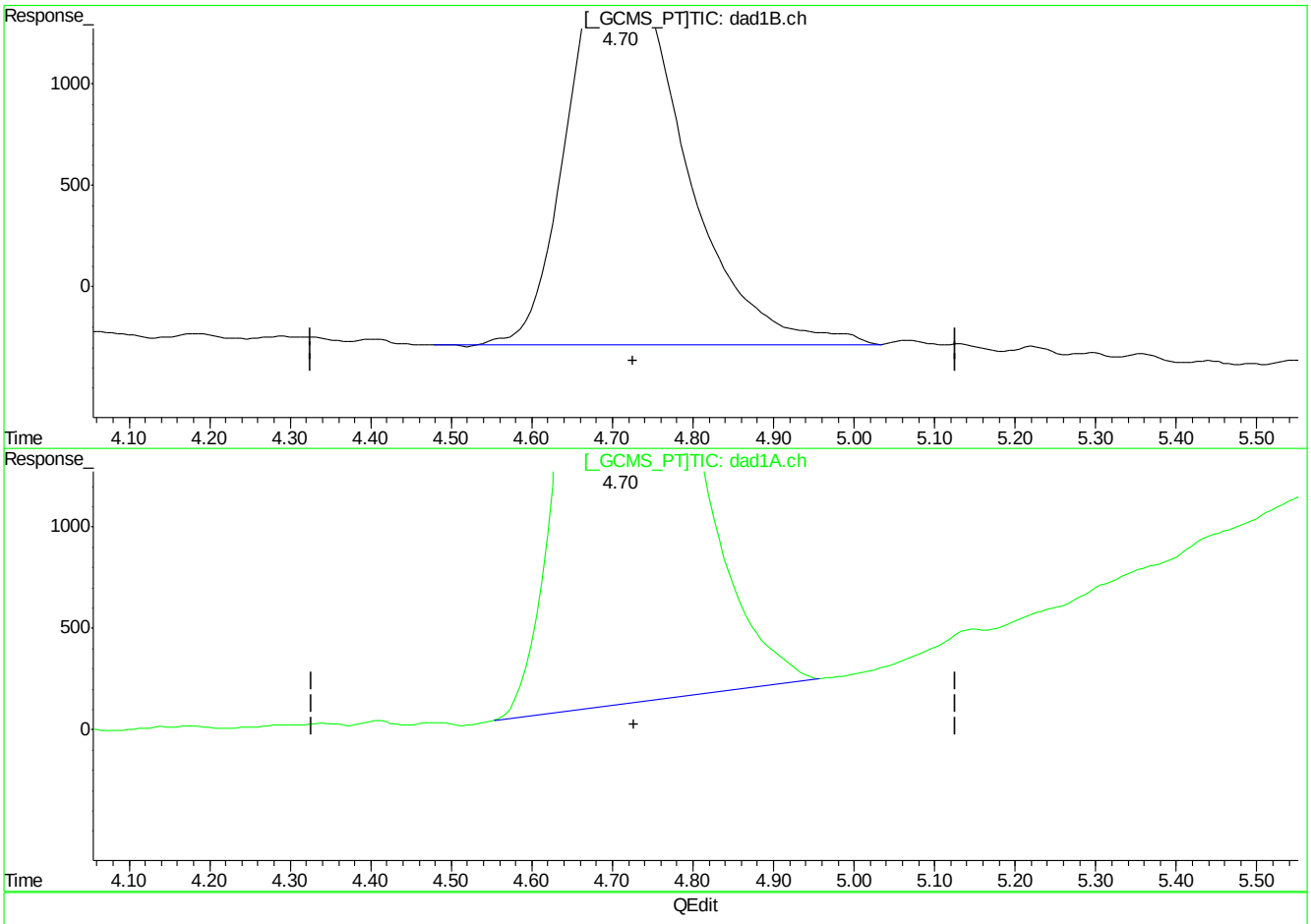
response 150254

(+) = Expected Retention Time
PP386574.D GPP2262_041620PRI.M Fri Apr 17 12:11:00 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1A.ch
Acq On : 16-Apr-2020, 13:51:06 Operator: williamh
Sample : ic2262-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration



(6) 1,3,5-Trinitrobenzene

4.71min 51.031ppb

response 197596

(6) 1,3,5-Trinitrobenzene #2

4.70min 48.133ppb m

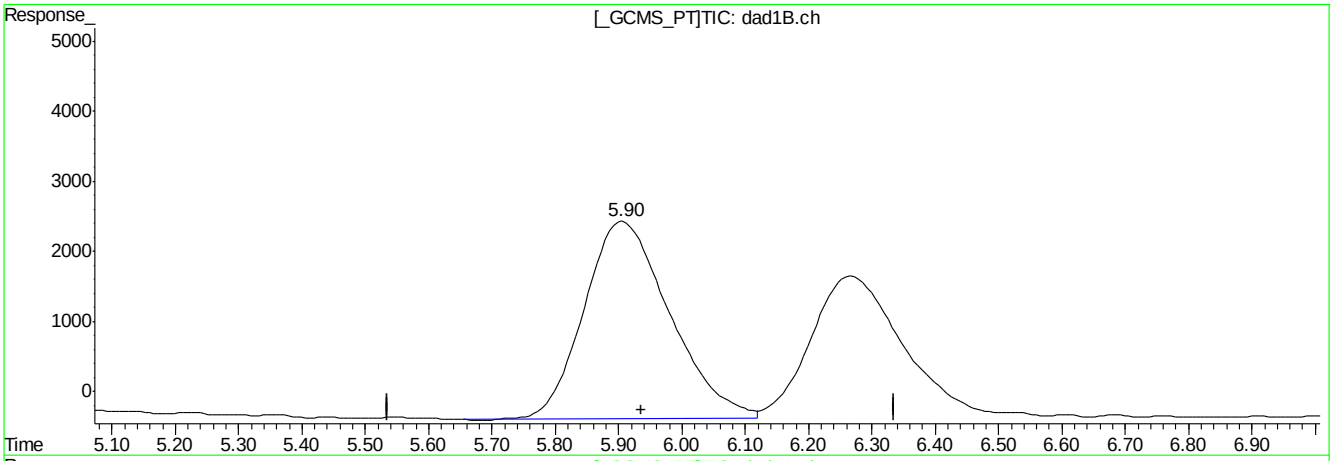
response 368487

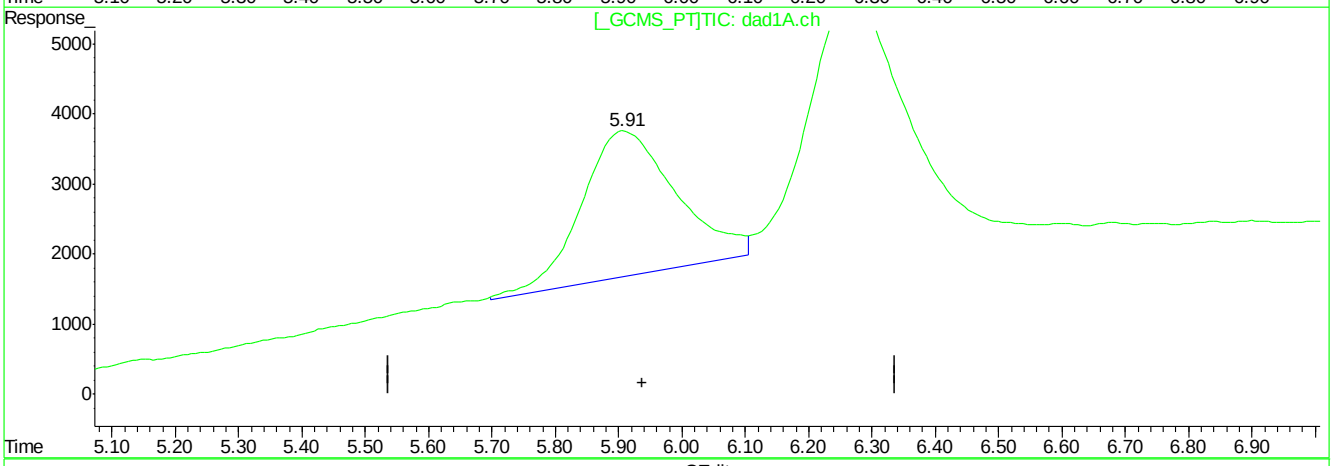
(+) = Expected Retention Time
PP386574.D GPP2262_041620PRI.M Fri Apr 17 12:11:08 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1A.ch
Acq On : 16-Apr-2020, 13:51:06 Operator: williamh
Sample : ic2262-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

5.91min 50.270ppb

response 265077

(7) 1,3-Dinitrobenzene #2

5.91min 53.935ppb m

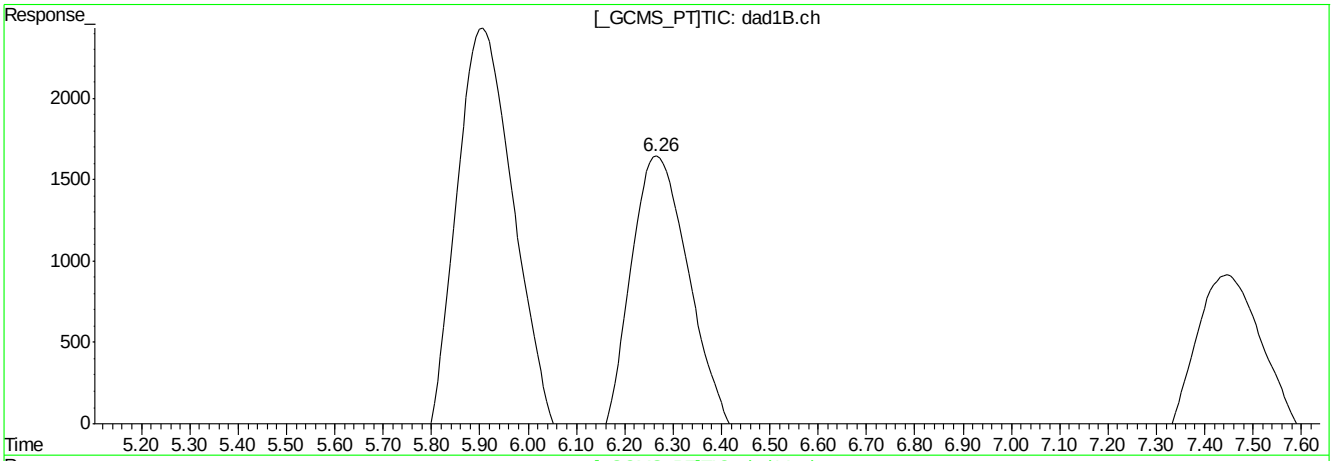
response 215137

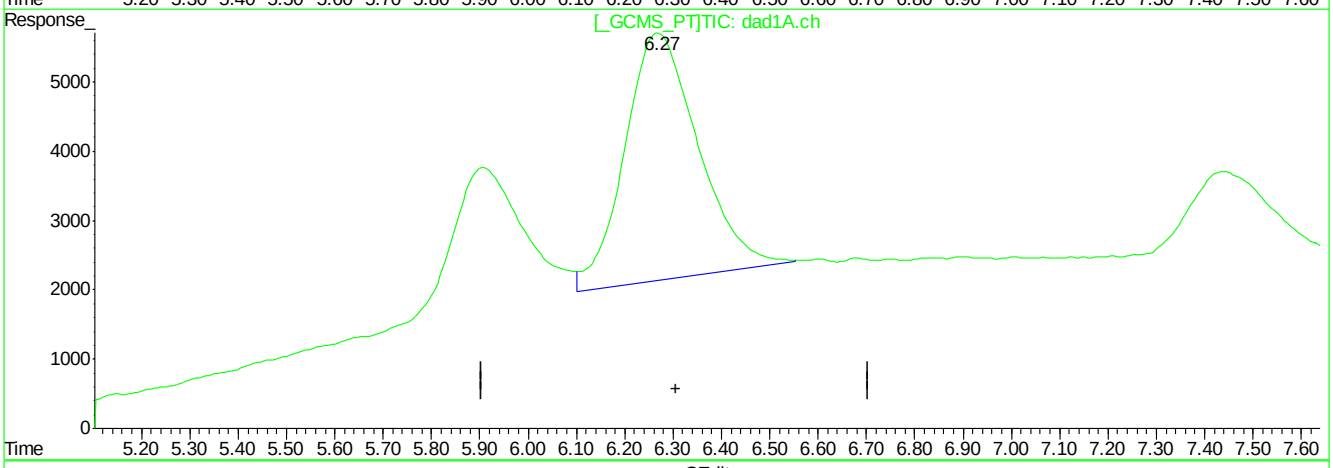
(+) = Expected Retention Time
PP386574.D GPP2262_041620PRI.M Fri Apr 17 12:11:21 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1A.ch
Acq On : 16-Apr-2020, 13:51:06 Operator: williamh
Sample : ic2262-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.27min 50.948ppb

response 203342

(8) 3,5-Dinitroaniline #2

6.27min 53.426ppb m

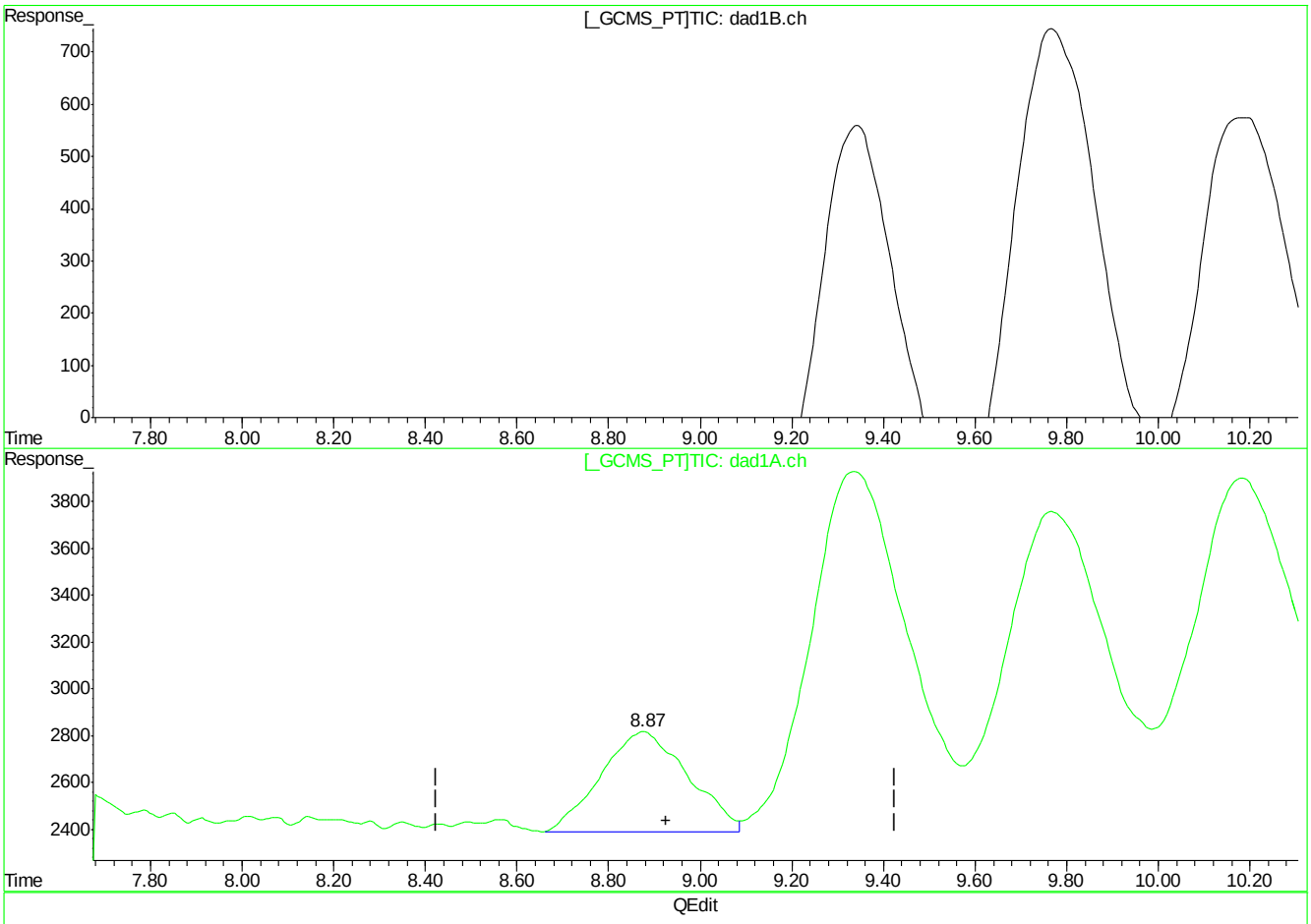
response 375940

(+) = Expected Retention Time
PP386574.D GPP2262_041620PRI.M Fri Apr 17 12:11:32 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1A.ch
Acq On : 16-Apr-2020, 13:51:06 Operator: williamh
Sample : ic2262-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration



(10) Nitroglycerin

0.00min 0.000ppb

response 0

(10) Nitroglycerin #2

8.87min 51.153ppb m

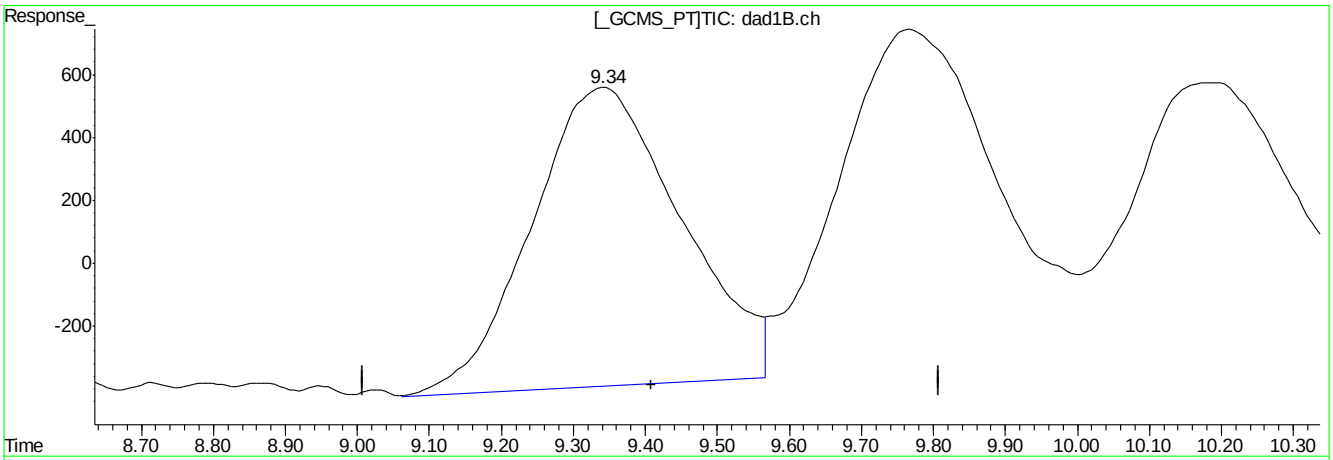
response 56363

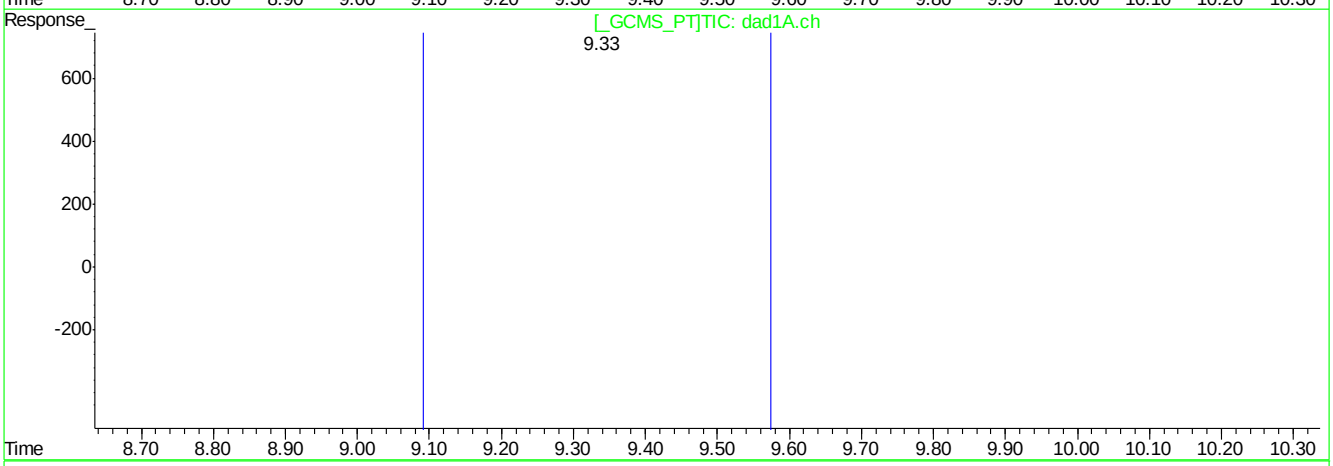
(+) = Expected Retention Time
PP386574.D GPP2262_041620PRI.M Fri Apr 17 12:11:44 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1A.ch
Acq On : 16-Apr-2020, 13:51:06 Operator: williamh
Sample : ic2262-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(11) Tetryl

9.34min 49.597ppb m

response 137275

(11) Tetryl #2

9.34min 44.174ppb

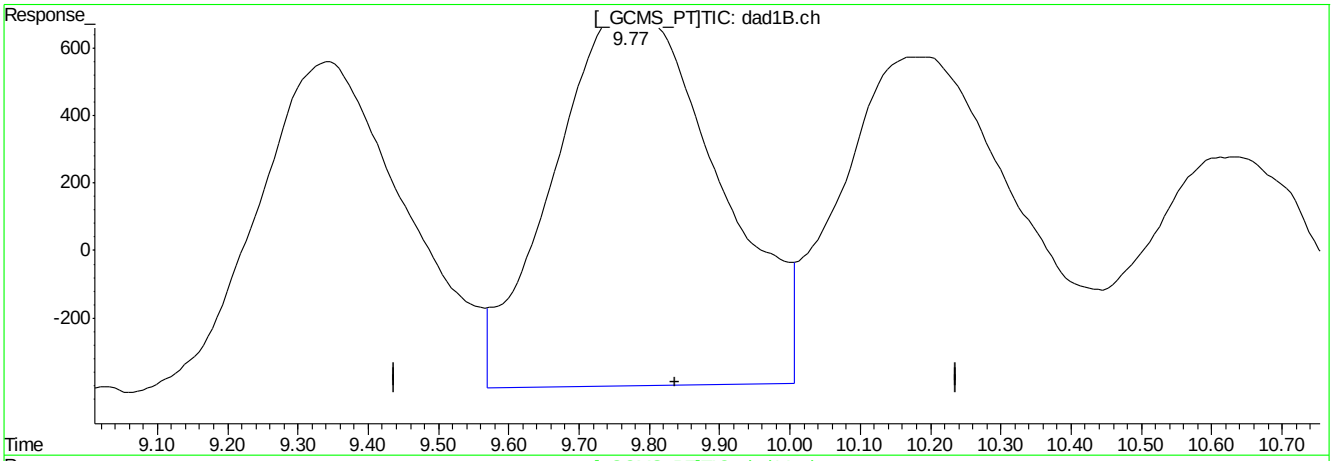
response 204859

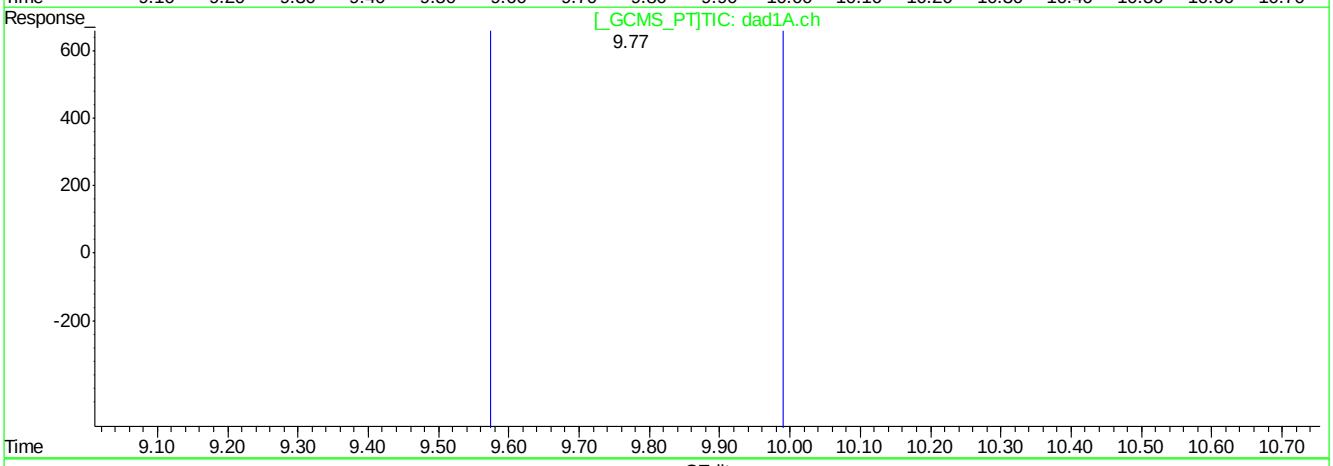
(+) = Expected Retention Time
PP386574.D GPP2262_041620PRI.M Fri Apr 17 12:11:52 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1A.ch
Acq On : 16-Apr-2020, 13:51:06 Operator: williamh
Sample : ic2262-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(12) 2,4,6-Trinitrotoluene

9.77min 49.194ppb m

response 180859

(12) 2,4,6-Trinitrotoluene #2

9.77min 43.039ppb

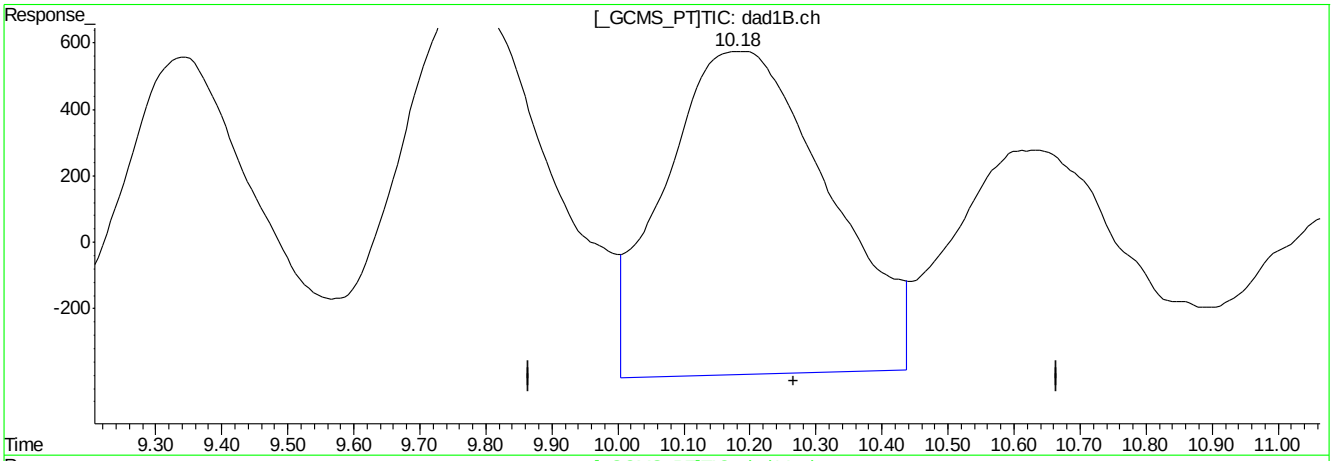
response 185248

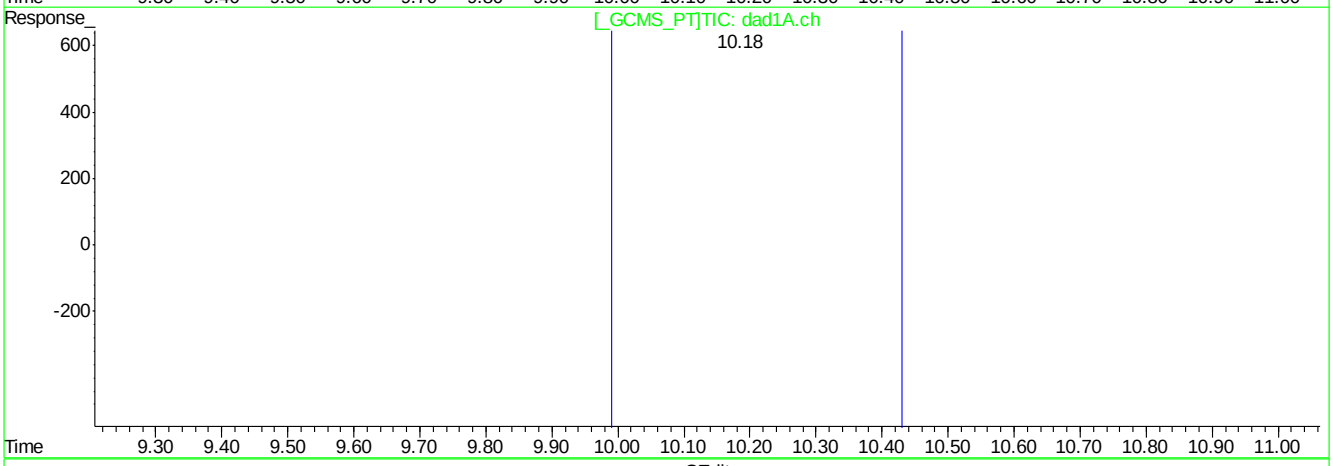
(+) = Expected Retention Time
PP386574.D GPP2262_041620PRI.M Fri Apr 17 12:11:59 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1A.ch
Acq On : 16-Apr-2020, 13:51:06 Operator: williamh
Sample : ic2262-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(13) 2-Amino-4,6-Dinitrotoluene

10.18min 48.628ppb m

response 166593

(13) 2-Amino-4,6-Dinitrotoluene #2

10.18min 43.532ppb

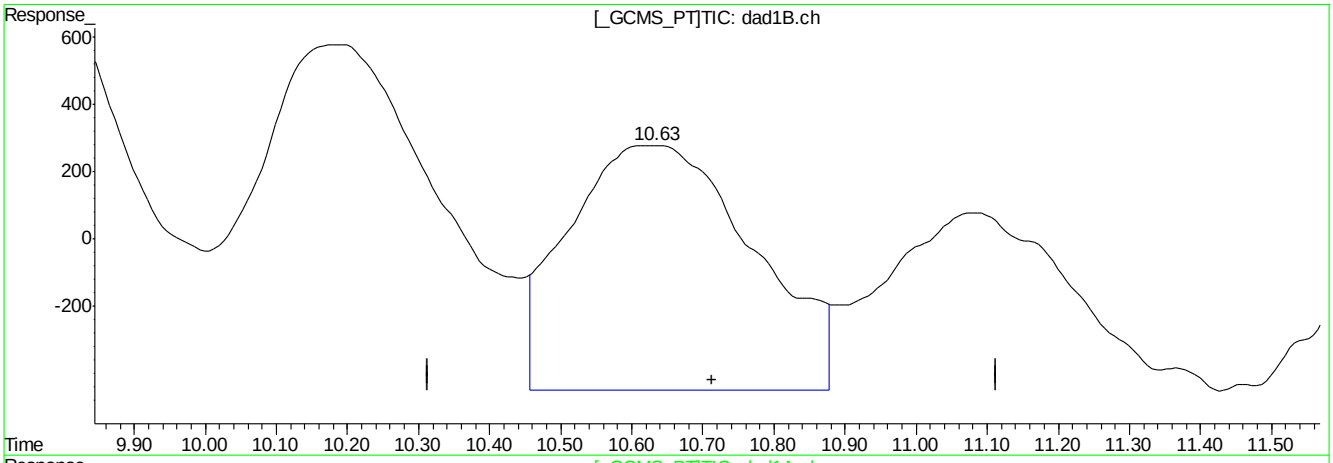
response 211945

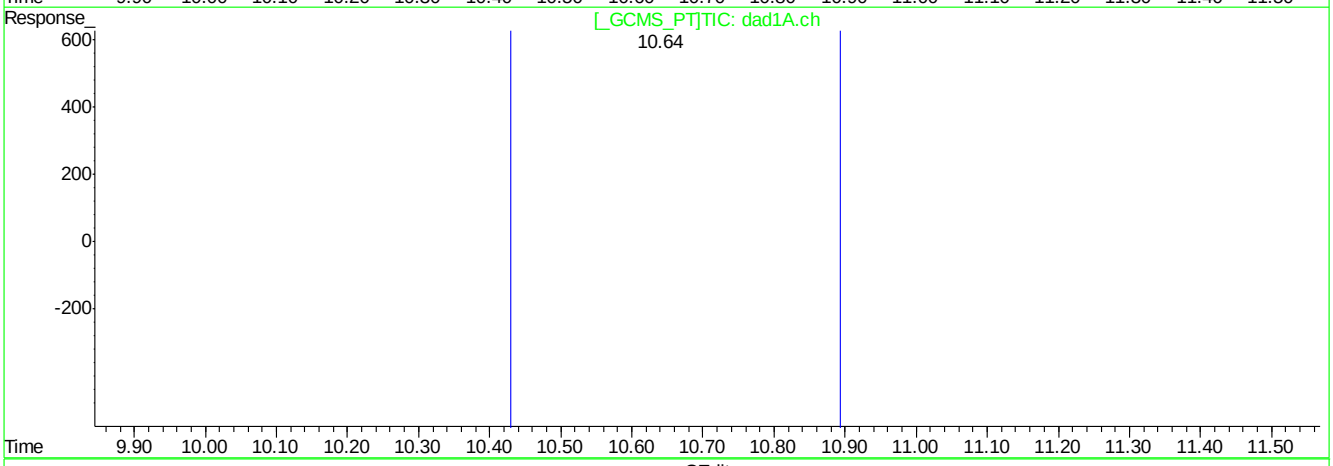
(+) = Expected Retention Time
PP386574.D GPP2262_041620PRI.M Fri Apr 17 12:12:07 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1A.ch
Acq On : 16-Apr-2020, 13:51:06 Operator: williamh
Sample : ic2262-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(14) 4-Amino-2,6-Dinitrotoluene

10.63min 52.713ppb m

response 130418

(14) 4-Amino-2,6-Dinitrotoluene #2

10.64min 41.391ppb

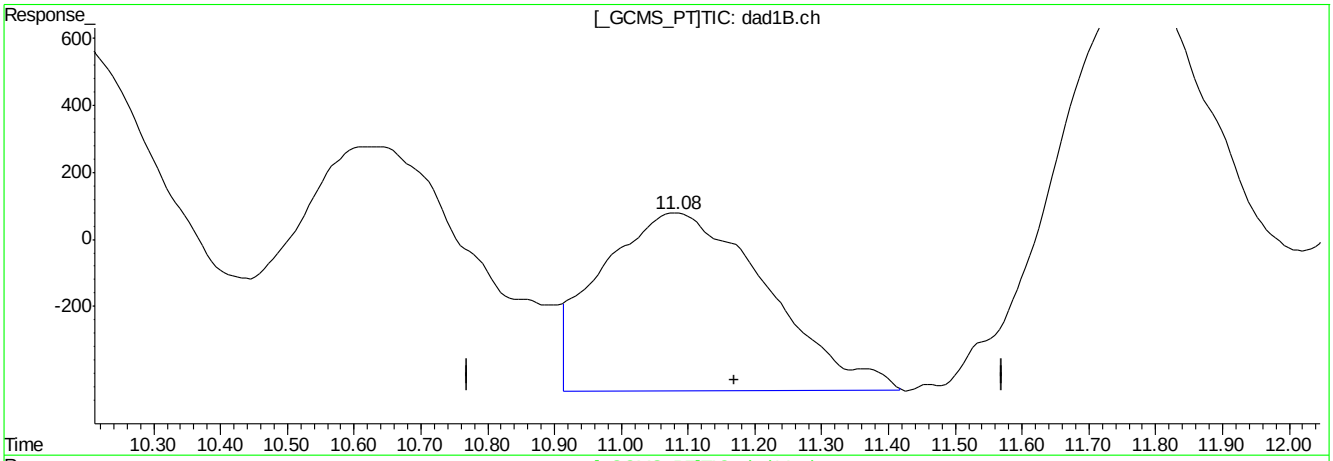
response 184685

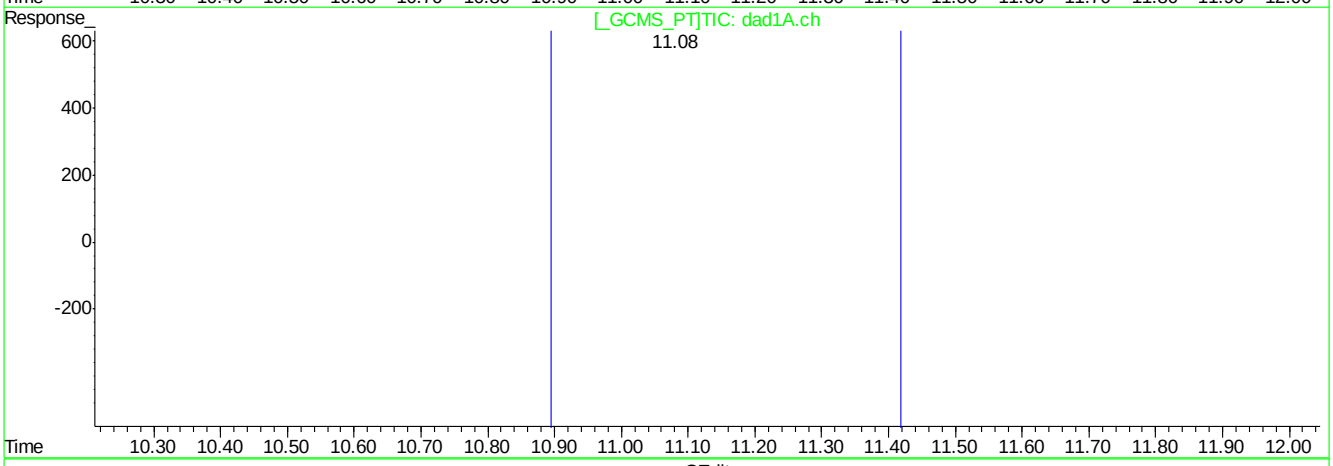
(+) = Expected Retention Time
PP386574.D GPP2262_041620PRI.M Fri Apr 17 12:12:14 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1A.ch
Acq On : 16-Apr-2020, 13:51:06 Operator: williamh
Sample : ic2262-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(15) 3,4-Dinitrotoluene (S)

11.08min 47.638ppb m

response 92549

(15) 3,4-Dinitrotoluene #2 (S)

11.08min 33.944ppb

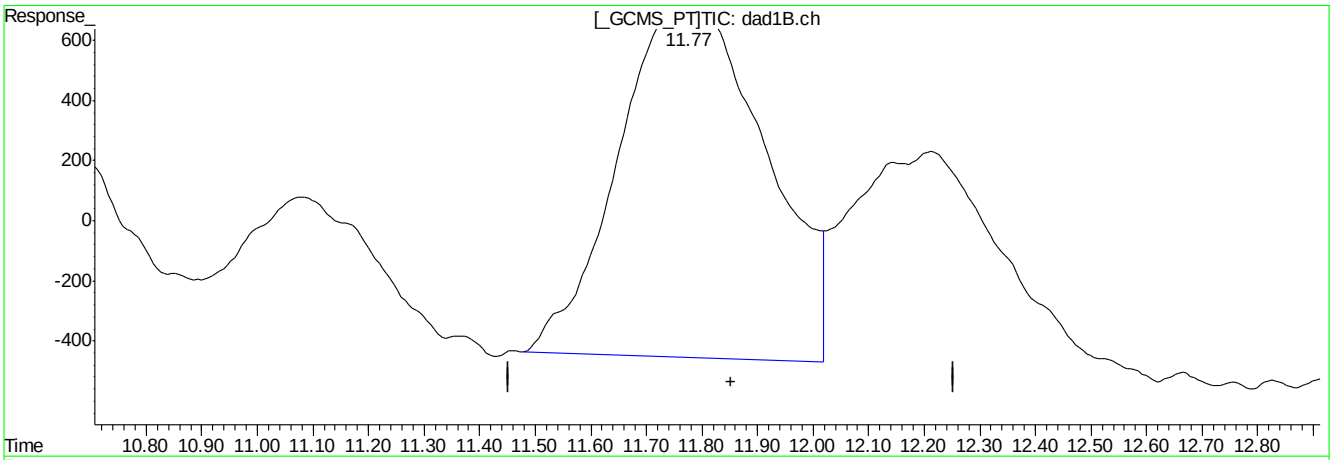
response 99999

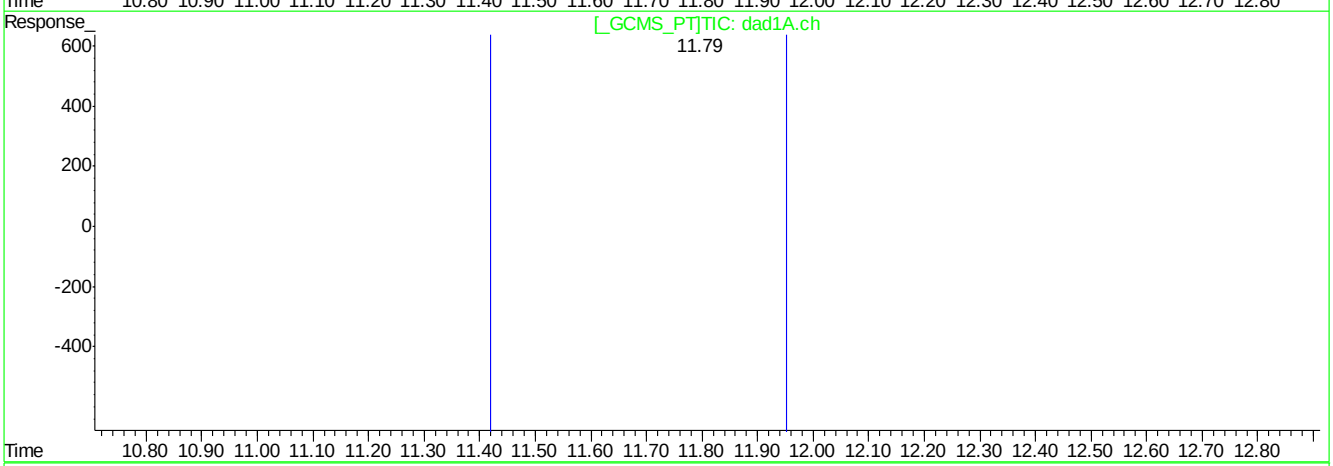
(+) = Expected Retention Time
PP386574.D GPP2262_041620PRI.M Fri Apr 17 12:12:20 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1A.ch
Acq On : 16-Apr-2020, 13:51:06 Operator: williamh
Sample : ic2262-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(16) 2,4-Dinitrotoluene

11.77min 44.463ppb m

response 219808

(16) 2,4-Dinitrotoluene #2

11.80min 44.938ppb

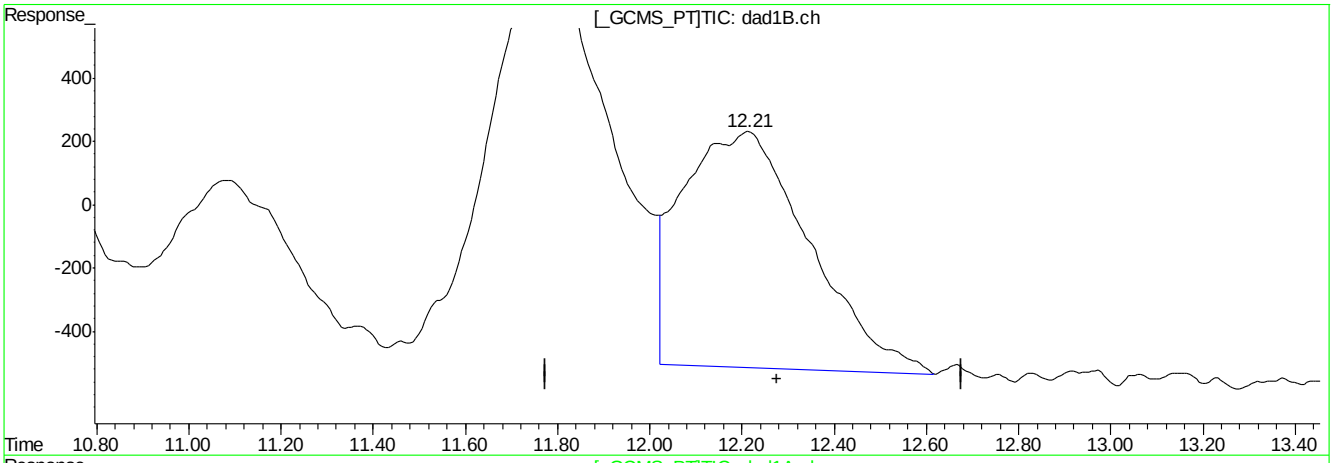
response 120572

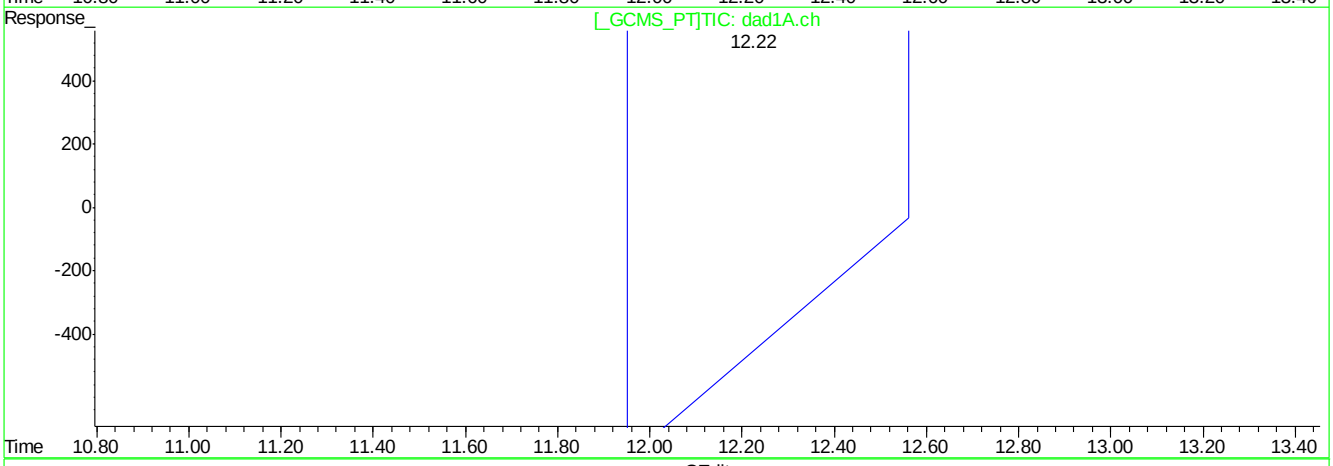
(+) = Expected Retention Time
PP386574.D GPP2262_041620PRI.M Fri Apr 17 12:12:27 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1A.ch
Acq On : 16-Apr-2020, 13:51:06 Operator: williamh
Sample : ic2262-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(17) 2,6-Dinitrotoluene

12.21min 51.247ppb m

response 143372

(17) 2,6-Dinitrotoluene #2

12.22min 49.961ppb

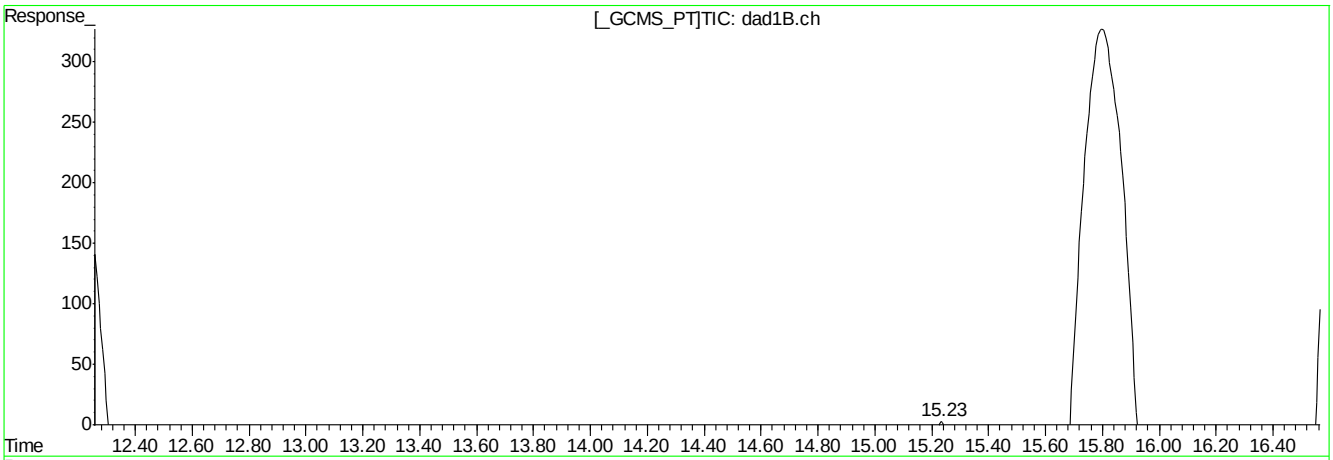
response 178733

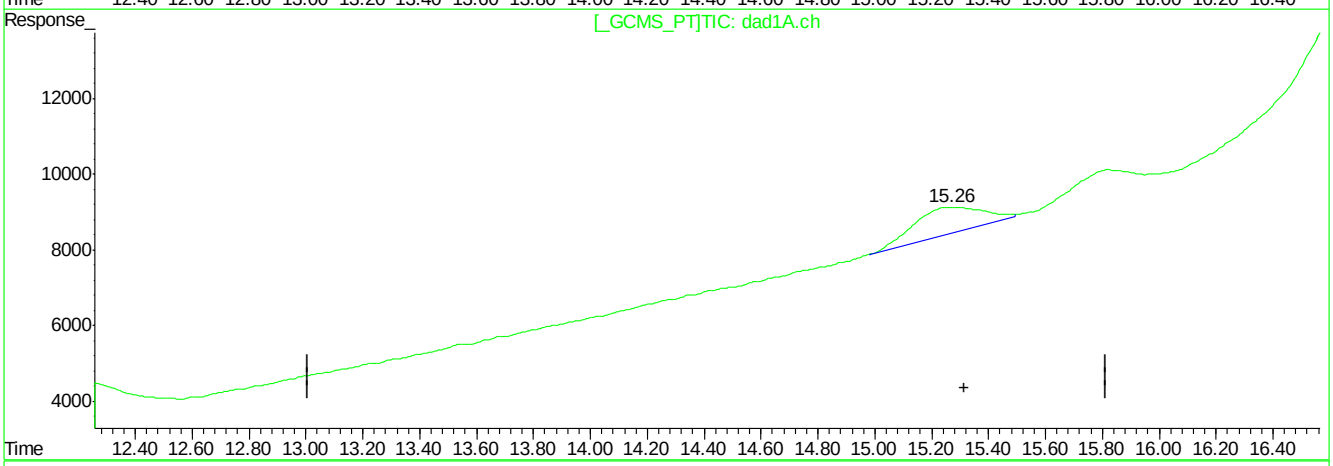
(+) = Expected Retention Time
PP386574.D GPP2262_041620PRI.M Fri Apr 17 12:12:42 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1A.ch
Acq On : 16-Apr-2020, 13:51:06 Operator: williamh
Sample : ic2262-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(18) o-Nitrotoluene

15.24min 49.438ppb

response 109409

(18) o-Nitrotoluene #2

15.26min 40.522ppb m

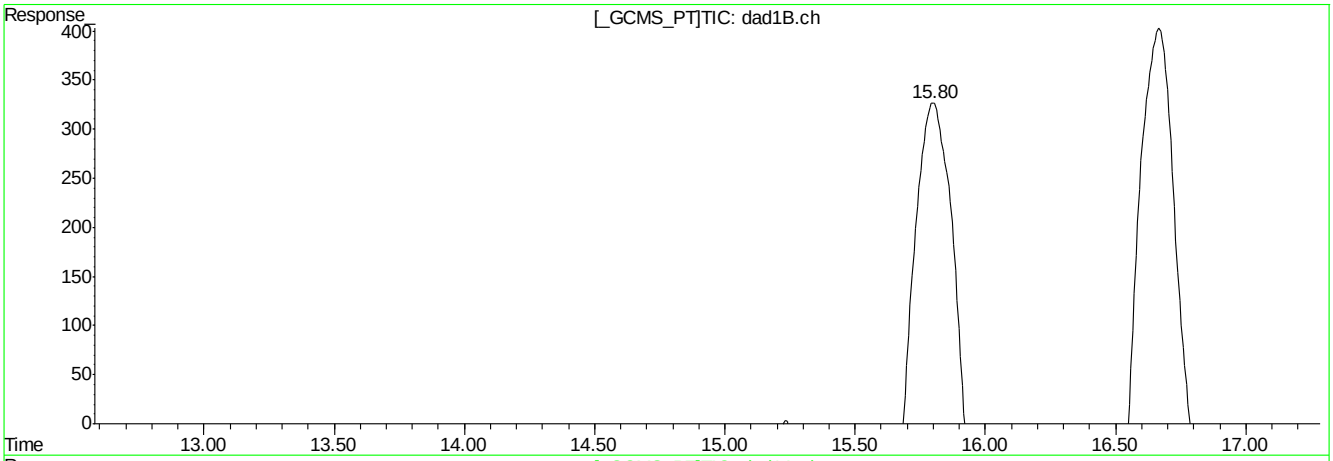
response 121815

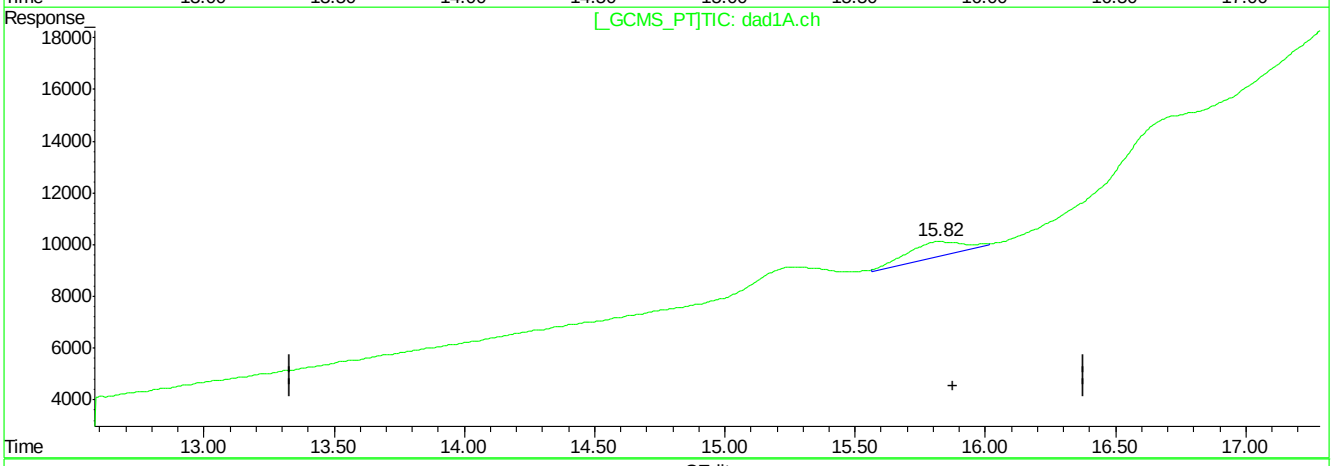
(+) = Expected Retention Time
PP386574.D GPP2262_041620PRI.M Fri Apr 17 12:12:48 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1A.ch
Acq On : 16-Apr-2020, 13:51:06 Operator: williamh
Sample : ic2262-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(19) p-Nitrotoluene

15.80min 52.434ppb

response 187612

(19) p-Nitrotoluene #2

15.82min 36.094ppb m

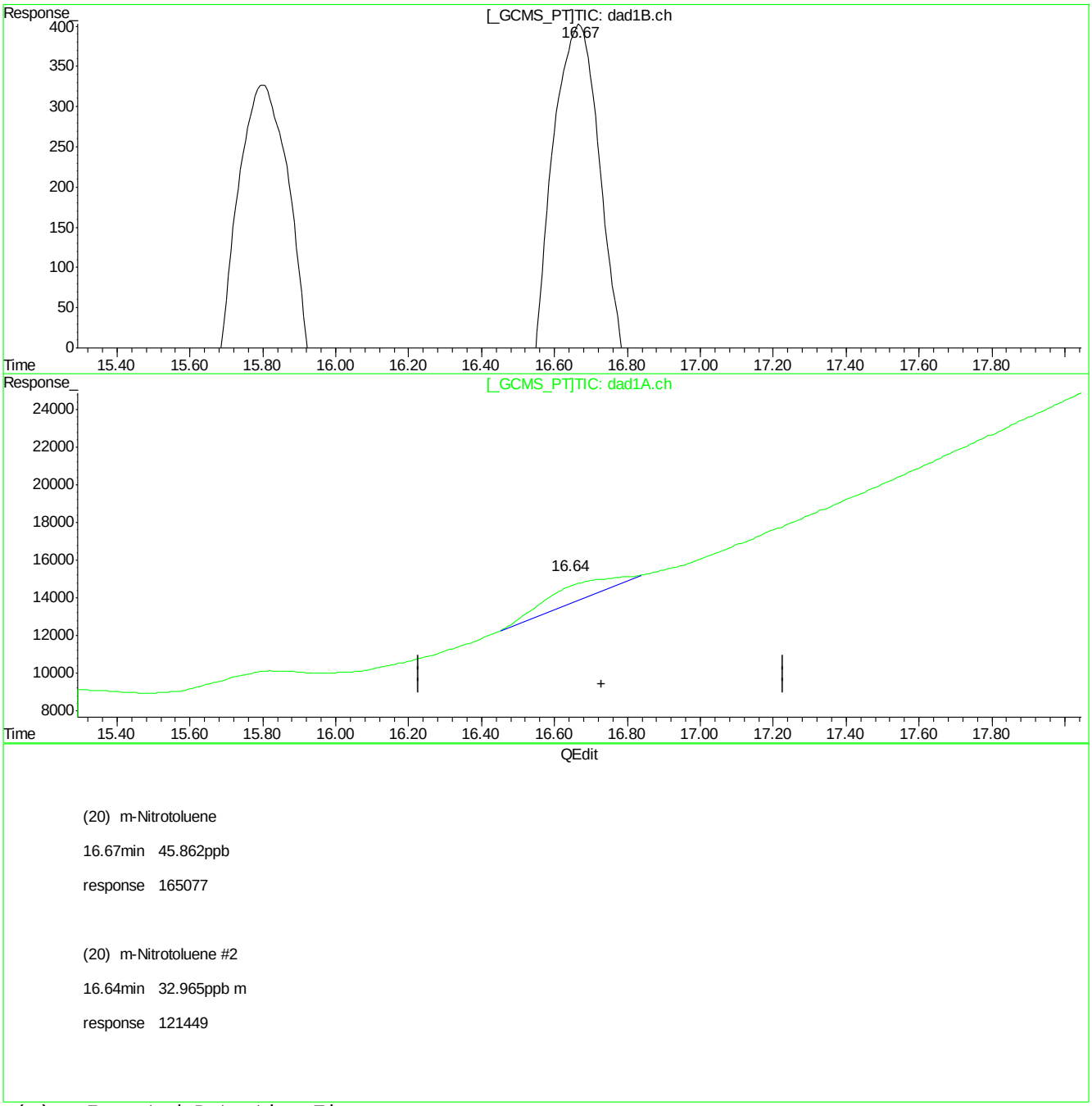
response 88010

(+) = Expected Retention Time
PP386574.D GPP2262_041620PRI.M Fri Apr 17 12:12:59 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1A.ch
Acq On : 16-Apr-2020, 13:51:06 Operator: williamh
Sample : ic2262-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration



(20) m-Nitrotoluene

16.67min 45.862ppb

response 165077

(20) m-Nitrotoluene #2

16.64min 32.965ppb m

response 121449

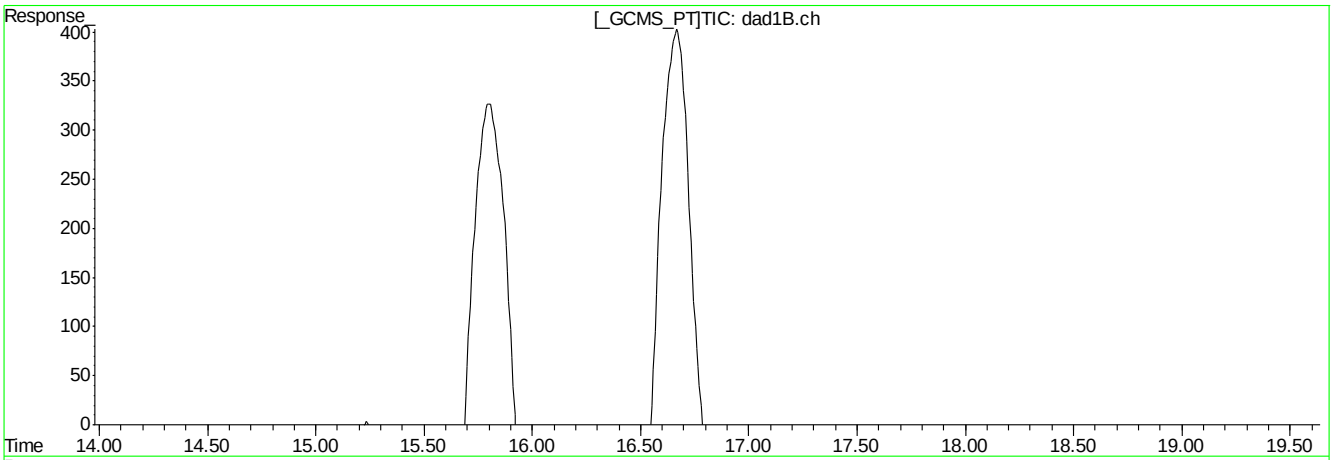
(+) = Expected Retention Time
PP386574.D GPP2262_041620PRI.M Fri Apr 17 12:13:05 2020

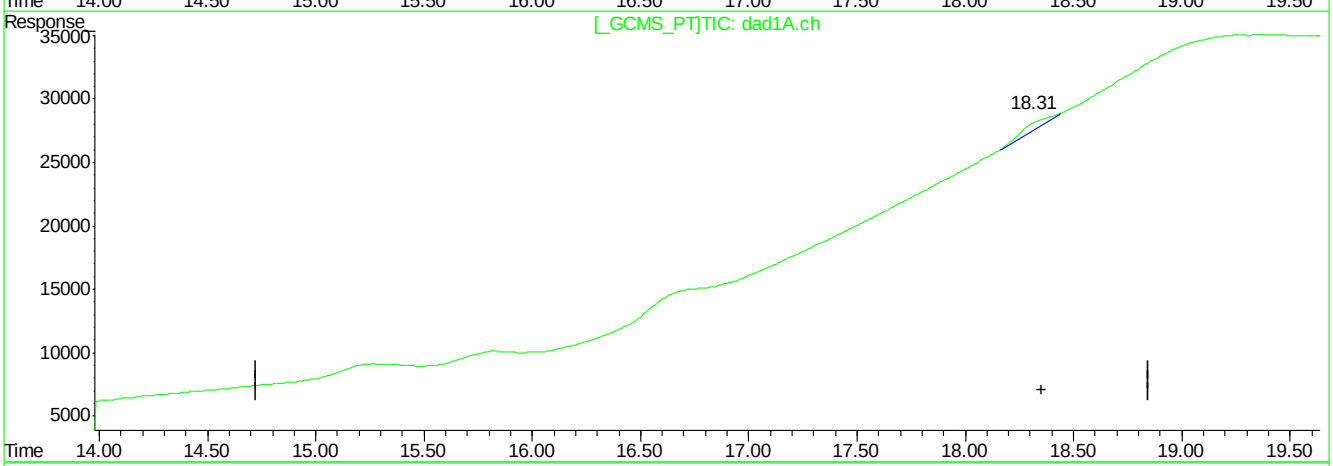
PP386574.D edits: m-Nitrotoluene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386574.D\dad1A.ch
Acq On : 16-Apr-2020, 13:51:06 Operator: williamh
Sample : ic2262-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

18.31min 41.314ppb m

response 54609

(+) = Expected Retention Time
PP386574.D GPP2262_041620PRI.M Fri Apr 17 12:13:14 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 04/17/20 14:46

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386575.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386575.D\dad1A.ch
Acq On : 16-Apr-2020, 14:22:00 Operator: williamh
Sample : ic2262-100 Inst : G1315B
Misc : op79816,GPP2262,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11:26 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Initial Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	0.00	11.08	0	289067	N.D.	97.675 #
	Spiked Amount 500.000	Range 70 - 136		Recovery =		0.00%#	19.54%#
	Target Compounds						
1)	TNX	1.34	1.34	223327	356014	96.766m	93.765m
2)	HMX	1.46	1.46	164668	556806	94.818m	117.644m
3)	DNX	1.72	1.72	109162	177802	91.959m	91.129m
4)	MNX	2.31	2.31	231479	353638	106.843	104.498m
5)	RDX	2.94	2.94	205623	342946	108.910	111.076
6)	1,3,5-Trinitrobe	4.71	4.70	406622	785166	104.882	102.486m
7)	1,3-Dinitrobenze	5.91	5.91	561674	390632	106.503	97.931m
8)	3,5-Dinitroanili	6.27	6.27	429531	801261	107.602	113.909
9)	Nitrobenzene	7.45	7.45	340892	335148	106.737	109.043
10)	Nitroglycerin	0.00	8.87	0	110527	N.D.	100.122 #
11)	Tetryl	9.34	9.34	298721	459157	107.917	99.009
12)	2,4,6-Trinitroto	9.77	9.77	399045	426596	108.511	99.113
13)	2-Amino-4,6-Dini	10.18	10.18	376617	492395	109.932	101.134
14)	4-Amino-2,6-Dini	10.62	10.62	289534	468008	117.036	104.889
16)	2,4-Dinitrotolue	11.77	11.78	501465	289150	101.436	107.430
17)	2,6-Dinitrotolue	12.19	12.21	317444	360063	113.467	100.648
18)	o-Nitrotoluene	15.25	15.25	241873	283016	109.303	94.079m
19)	p-Nitrotoluene	15.80	15.81	386784	185056	108.112	75.664
20)	m-Nitrotoluene	16.66	16.68	359876	325218	99.981	88.104m
21)	PETN	0.00	18.39	0	103380	N.D.	78.148m#

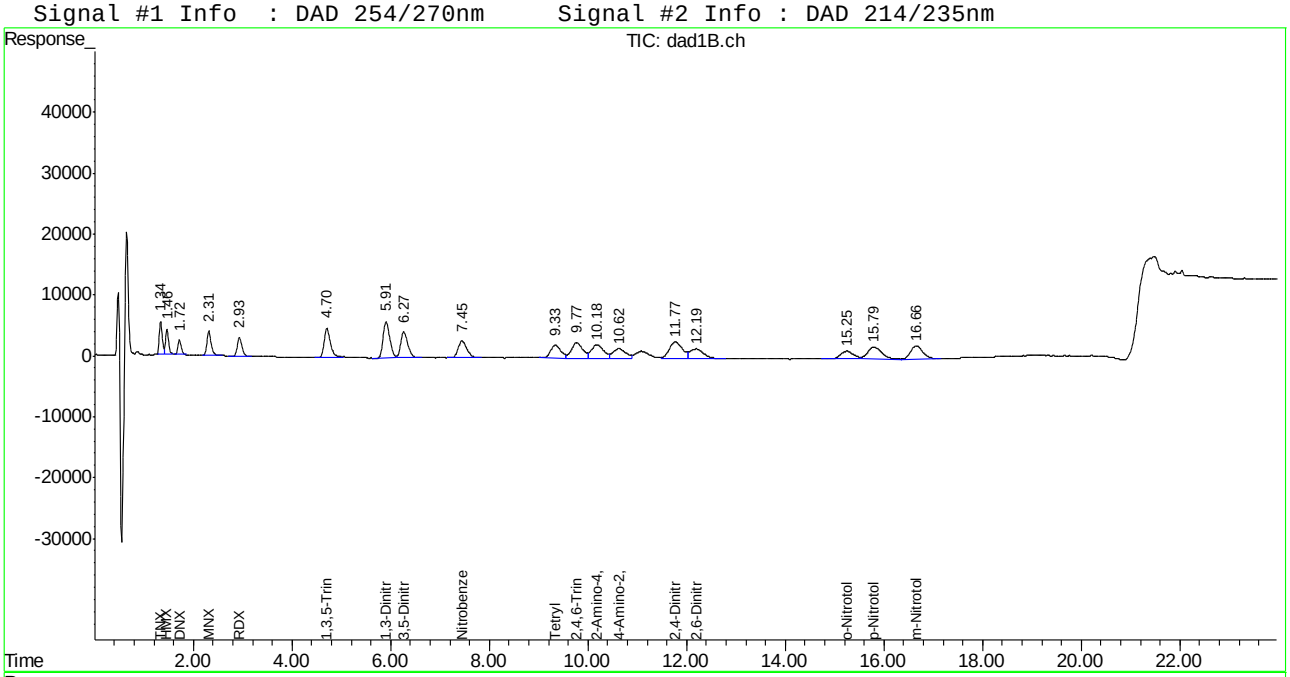
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
PP386575.D GPP2262_041620PRI.M Fri Apr 17 13:39:29 2020 Page 1

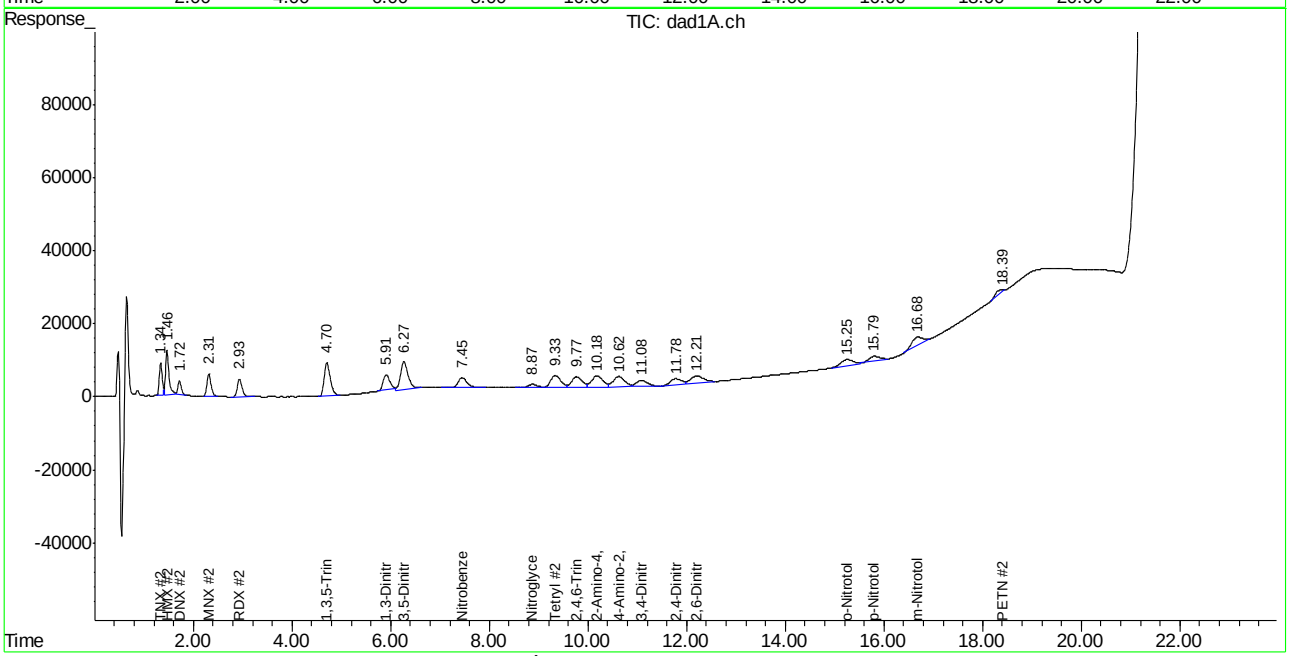
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386575.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386575.D\dad1A.ch
Acq On : 16-Apr-2020, 14:22:00 Operator: williamh
Sample : ic2262-100 Inst : G1315B
Misc : op79816,GPP2262,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 12:15 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm





Manual Integration Approval Summary

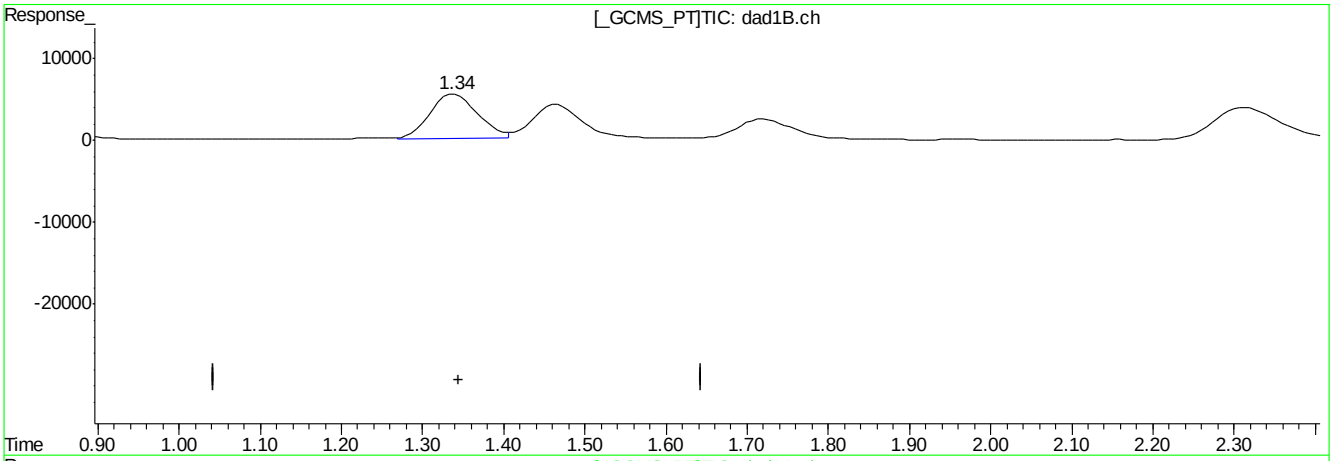
Sample Number: GPP2262-IC2262
Lab FileID: PP386575.D
Injection Time: 04/16/20 14:22
Method: SW846 8330A
Analyst approved: 04/17/20 13:46 William Hustedde
Supervisor approved: 04/17/20 14:46 Naresh Jiawan

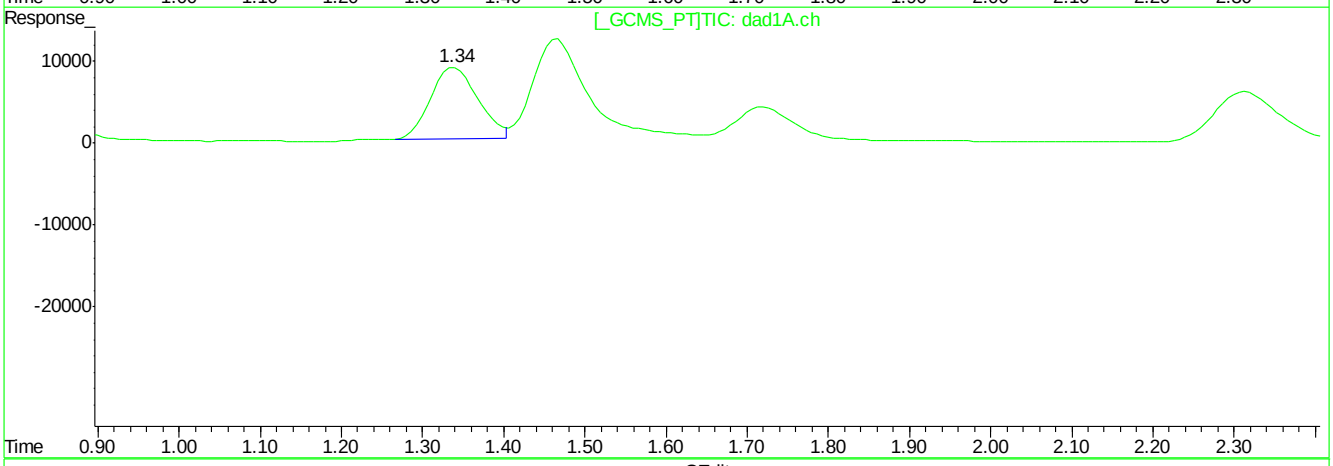
Parameter	CAS	Sig#	R.T. (min.)	Reason
TNX		1	1.34	Poor instrument integration
TNX		2	1.34	Poor instrument integration
HMX	2691-41-0	1	1.46	Poor instrument integration
HMX	2691-41-0	2	1.46	Poor instrument integration
DNX		1	1.72	Poor instrument integration
DNX		2	1.72	Poor instrument integration
MNX		2	2.31	Poor instrument integration
1,3,5-Trinitrobenzene	99-35-4	2	4.70	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	5.91	Poor instrument integration
o-Nitrotoluene	88-72-2	2	15.25	Poor instrument integration
m-Nitrotoluene	99-08-1	2	16.68	Poor instrument integration
PETN	78-11-5	2	18.39	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386575.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386575.D\dad1A.ch
Acq On : 16-Apr-2020, 14:22:00 Operator: williamh
Sample : ic2262-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(1) TNX

1.34min 96.766ppb m

response 223327

(1) TNX #2

1.34min 93.765ppb m

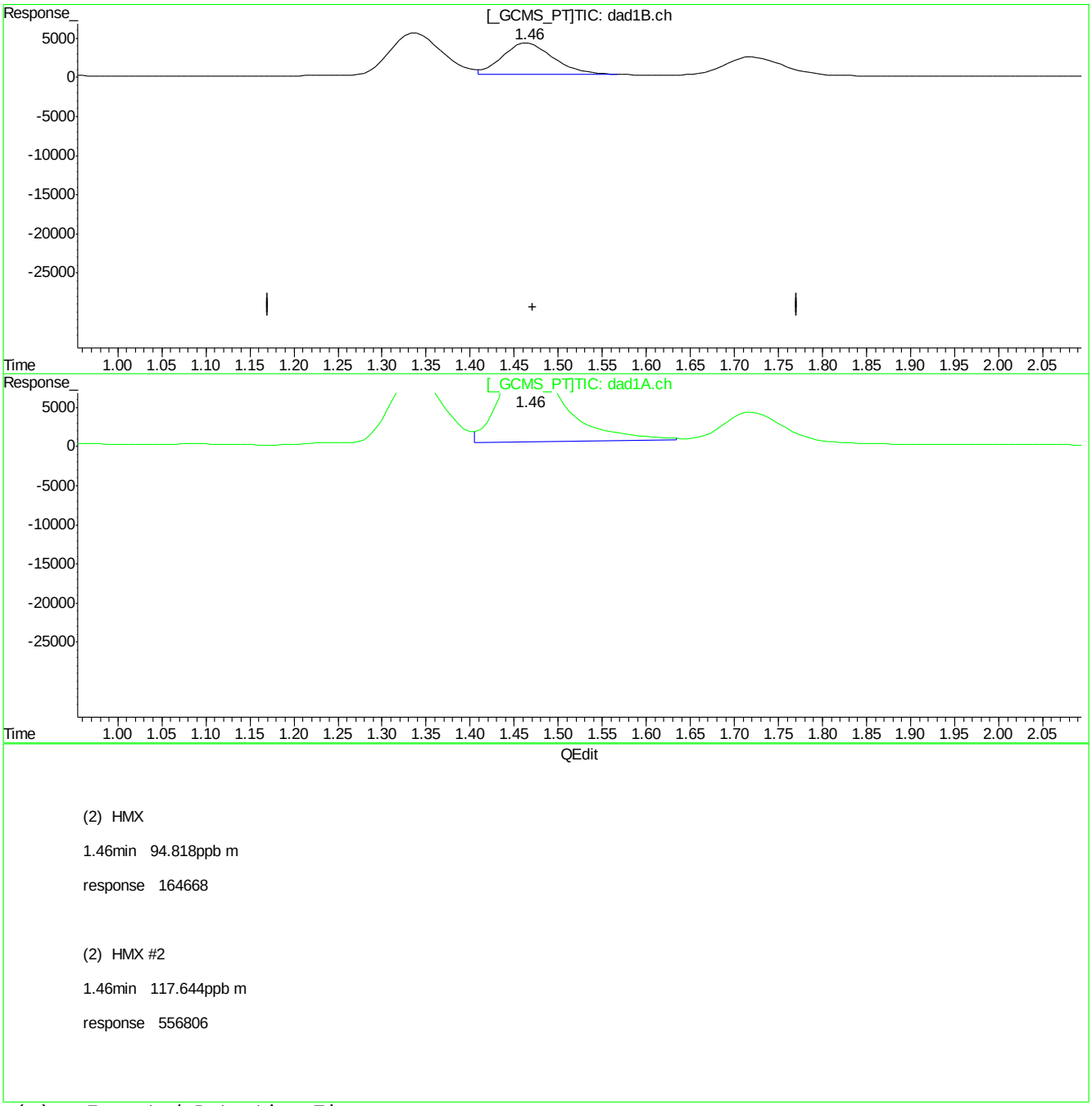
response 356014

(+) = Expected Retention Time
PP386575.D GPP2262_041620PRI.M Fri Apr 17 12:13:32 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386575.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386575.D\dad1A.ch
Acq On : 16-Apr-2020, 14:22:00 Operator: williamh
Sample : ic2262-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration

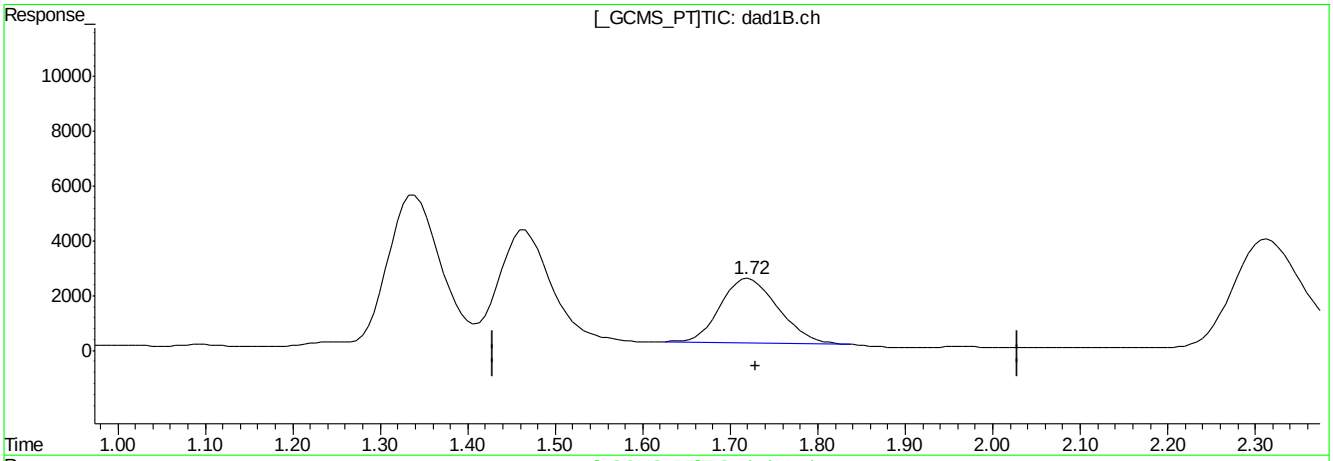


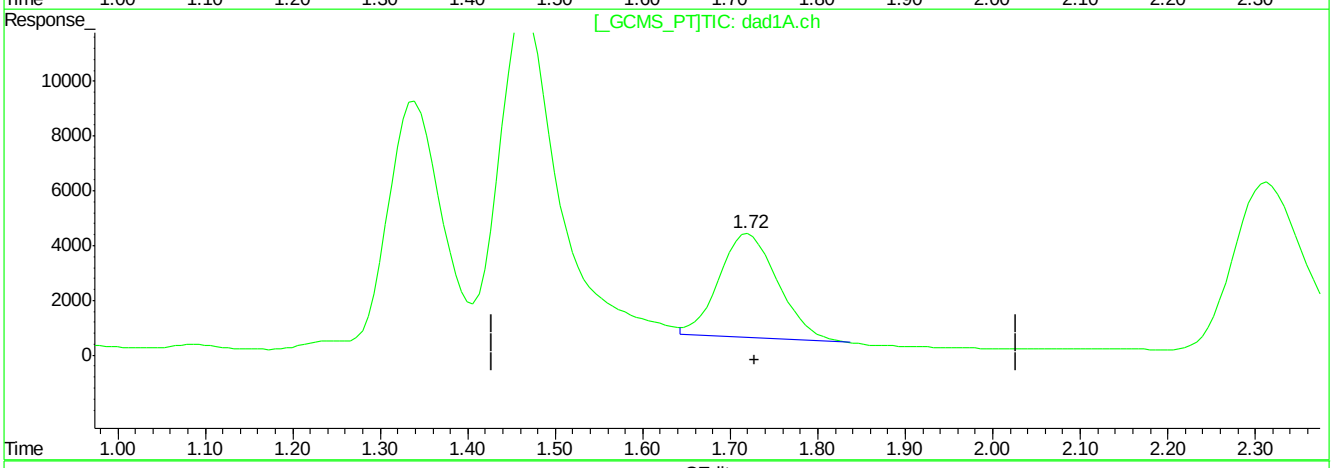
(+) = Expected Retention Time
PP386575.D GPP2262_041620PRI.M Fri Apr 17 12:13:44 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386575.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386575.D\dad1A.ch
Acq On : 16-Apr-2020, 14:22:00 Operator: williamh
Sample : ic2262-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(3) DNX

1.72min 91.959ppb m

response 109162

(3) DNX #2

1.72min 91.129ppb m

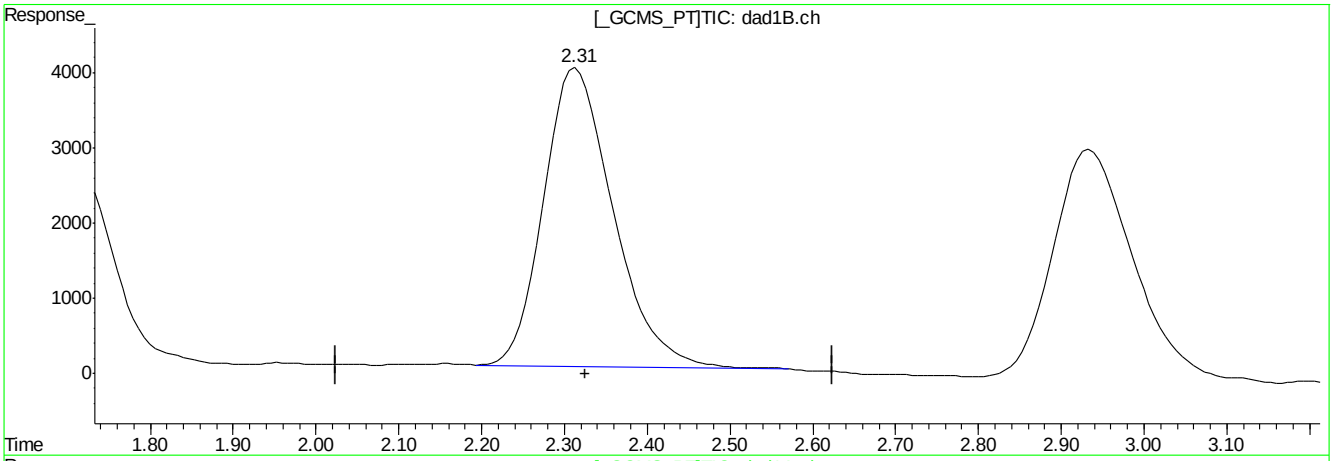
response 177802

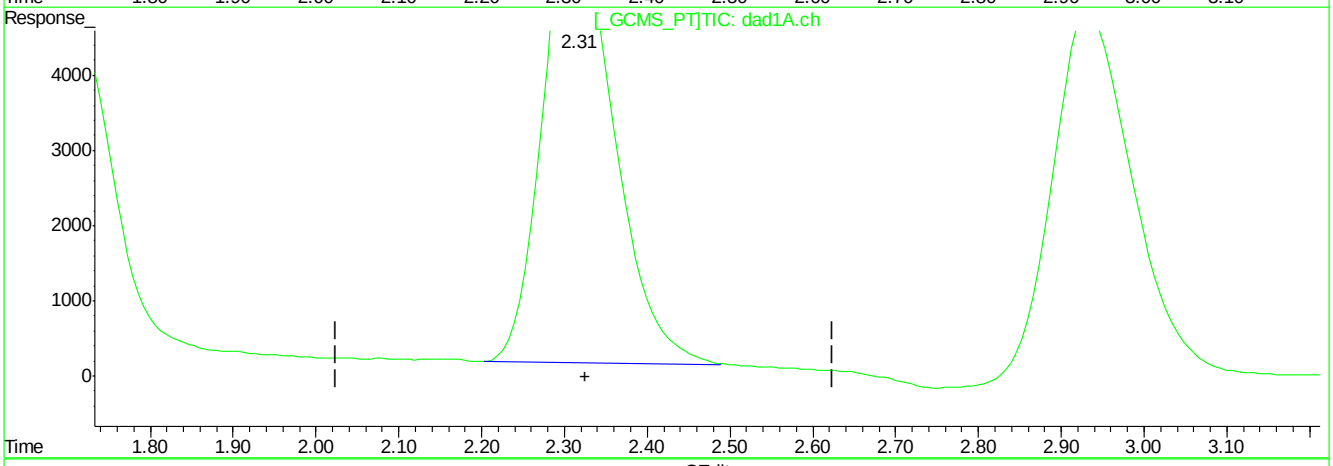
(+) = Expected Retention Time
PP386575.D GPP2262_041620PRI.M Fri Apr 17 12:14:01 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386575.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386575.D\dad1A.ch
Acq On : 16-Apr-2020, 14:22:00 Operator: williamh
Sample : ic2262-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(4) MNX

2.31min 106.843ppb

response 231479

(4) MNX #2

2.31min 104.498ppb m

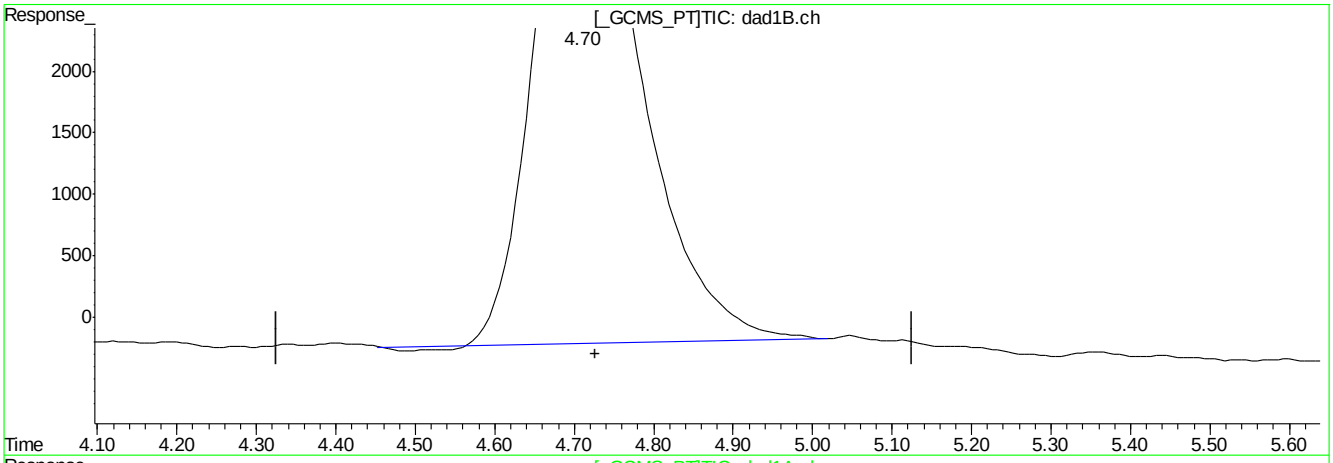
response 353638

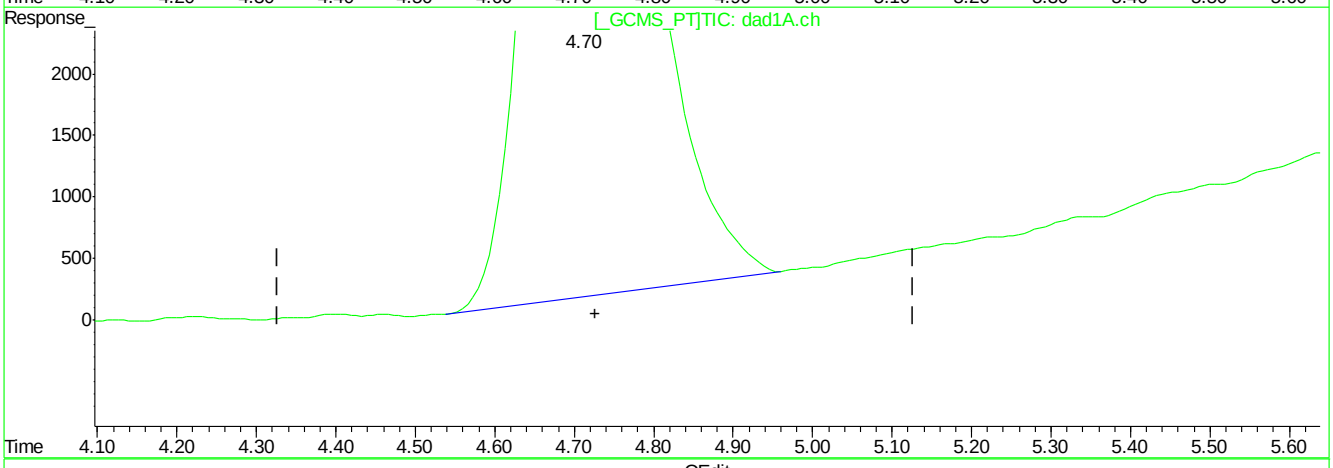
(+) = Expected Retention Time
PP386575.D GPP2262_041620PRI.M Fri Apr 17 12:14:08 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386575.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386575.D\dad1A.ch
Acq On : 16-Apr-2020, 14:22:00 Operator: williamh
Sample : ic2262-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(6) 1,3,5-Trinitrobenzene

4.71min 104.882ppb

response 406622

(6) 1,3,5-Trinitrobenzene #2

4.70min 102.486ppb m

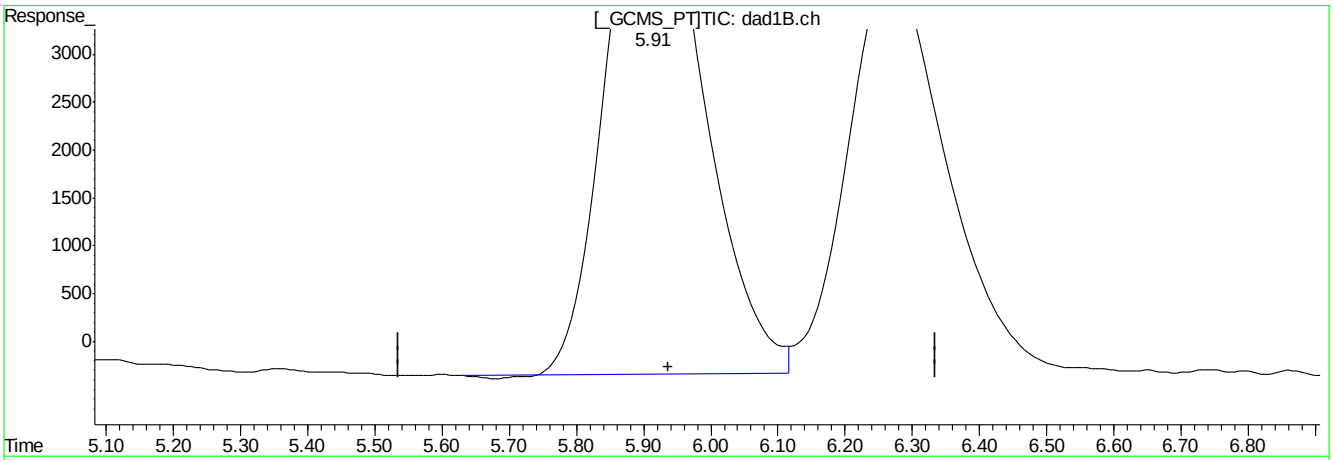
response 785166

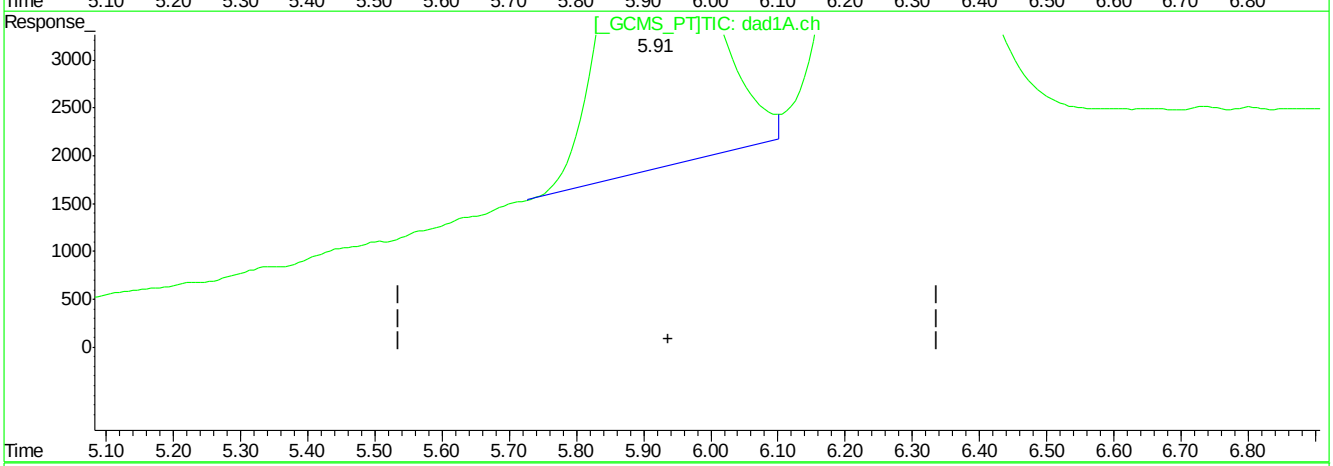
(+) = Expected Retention Time
PP386575.D GPP2262_041620PRI.M Fri Apr 17 12:14:19 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386575.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386575.D\dad1A.ch
Acq On : 16-Apr-2020, 14:22:00 Operator: williamh
Sample : ic2262-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

5.91min 106.503ppb

response 561674

(7) 1,3-Dinitrobenzene #2

5.91min 97.931ppb m

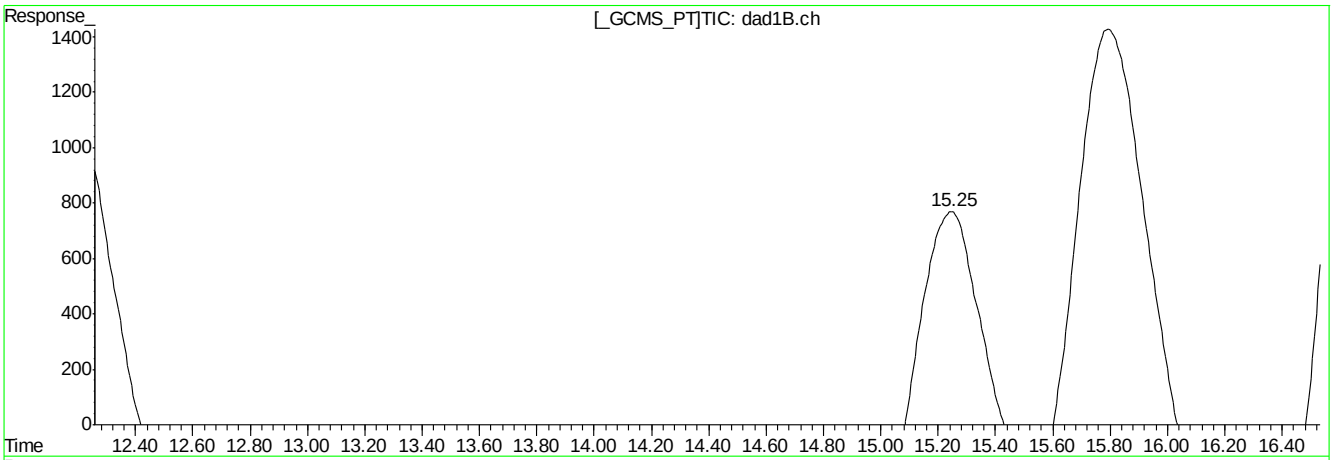
response 390632

(+) = Expected Retention Time
PP386575.D GPP2262_041620PRI.M Fri Apr 17 12:14:30 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386575.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386575.D\dad1A.ch
Acq On : 16-Apr-2020, 14:22:00 Operator: williamh
Sample : ic2262-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration



(18) o-Nitrotoluene

15.25min 109.303ppb

response 241873

(18) o-Nitrotoluene #2

15.25min 94.079ppb m

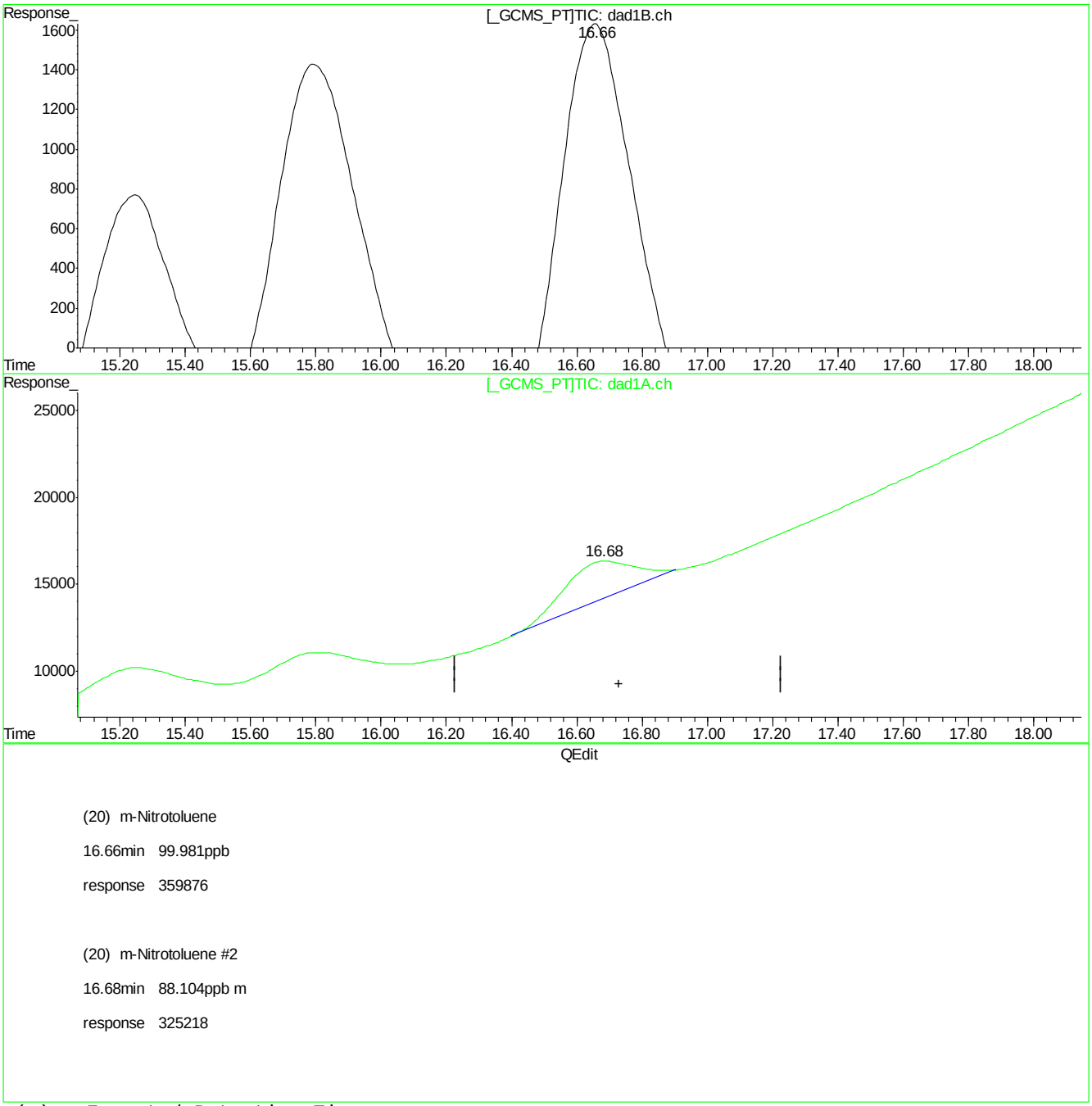
response 283016

(+) = Expected Retention Time
PP386575.D GPP2262_041620PRI.M Fri Apr 17 12:14:49 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386575.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386575.D\dad1A.ch
Acq On : 16-Apr-2020, 14:22:00 Operator: williamh
Sample : ic2262-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration



(20) m-Nitrotoluene

16.66min 99.981ppb

response 359876

(20) m-Nitrotoluene #2

16.68min 88.104ppb m

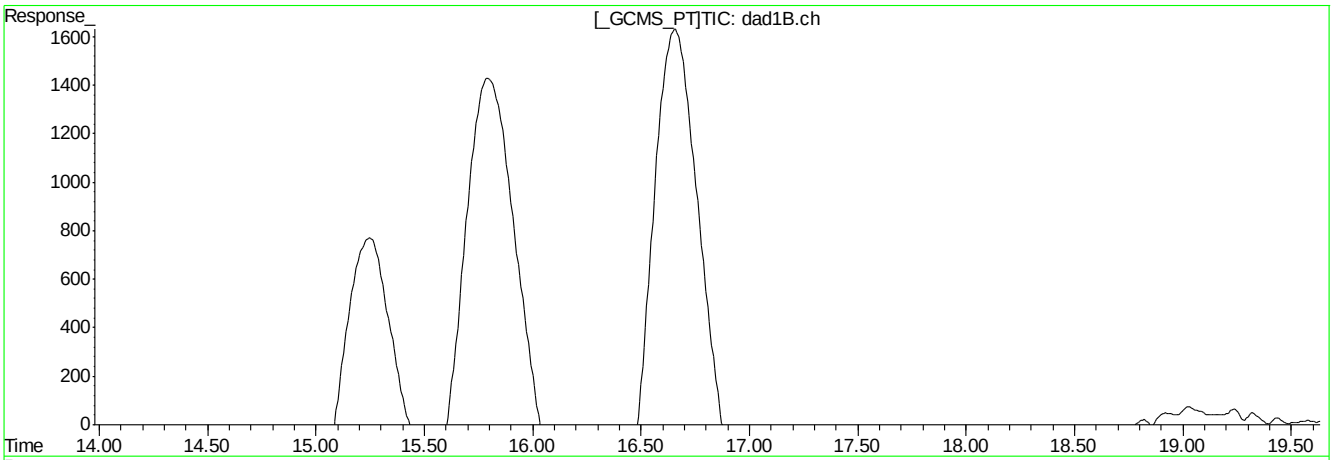
response 325218

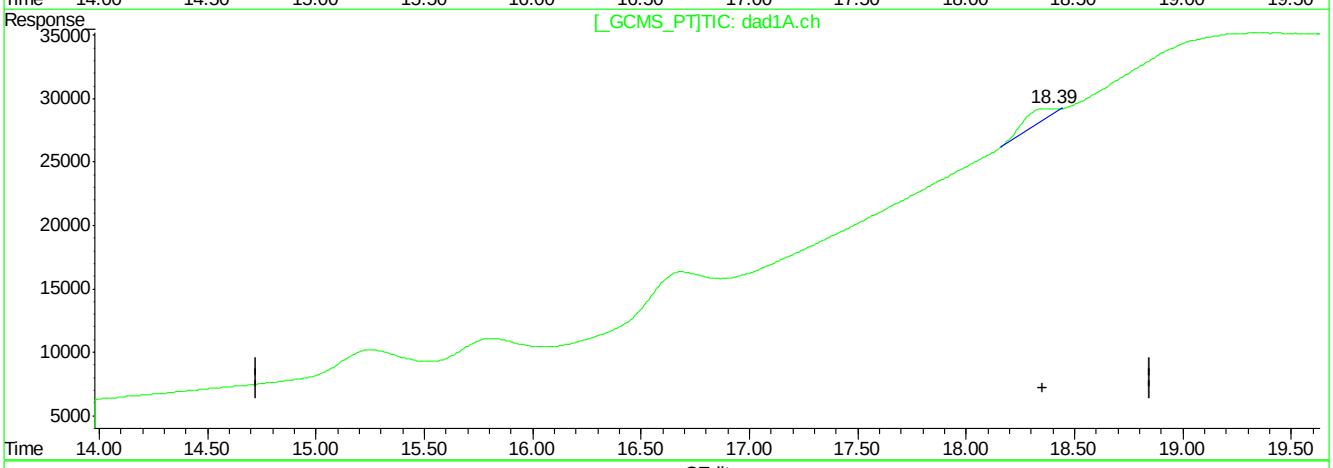
(+) = Expected Retention Time
PP386575.D GPP2262_041620PRI.M Fri Apr 17 12:14:59 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386575.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386575.D\dad1A.ch
Acq On : 16-Apr-2020, 14:22:00 Operator: williamh
Sample : ic2262-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

18.39min 78.148ppb m

response 103380

(+) = Expected Retention Time
PP386575.D GPP2262_041620PRI.M Fri Apr 17 12:15:05 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 04/17/20 14:46

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386576.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386576.D\dad1A.ch
Acq On : 16-Apr-2020, 14:52:56 Operator: williamh
Sample : ic2262-200 Inst : G1315B
Misc : op79816,GPP2262,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11:27 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Initial Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	11.08	11.09	414725	620324	213.454	207.962
Spiked Amount	500.000	Range	70 - 136	Recovery	=	42.69%#	41.59%#
	Target Compounds						
1)	TNX	1.34	1.34	480772	768044	208.316	202.283
2)	HMX	1.46	1.46	311895	950436	179.594m	201.176m
3)	DNX	1.72	1.72	226832	357224	191.084m	183.090m
4)	MNX	2.31	2.31	451093	695888	208.289	205.724m
5)	RDX	2.93	2.93	394854	655093	209.110	212.251
6)	1,3,5-Trinitrobe	4.71	4.71	803949	1533440	206.872	199.896
7)	1,3-Dinitrobenze	5.91	5.91	1102438	789270	208.986	197.870m
8)	3,5-Dinitroanili	6.27	6.27	838951	1493035	210.103	212.373
9)	Nitrobenzene	7.45	7.45	661588	639306	207.150	208.028
10)	Nitroglycerin	0.00	8.88	0	221878	N.D.	200.217 #
11)	Tetryl	9.34	9.34	578627	920527	209.002	198.494
12)	2,4,6-Trinitroto	9.77	9.77	758185	864947	206.076	200.956
13)	2-Amino-4,6-Dini	10.19	10.19	733826	1018166	214.190	209.123
14)	4-Amino-2,6-Dini	10.63	10.63	532456	971025	215.261	217.623
16)	2,4-Dinitrotolue	11.78	11.78	967596	555106	195.725	205.232
17)	2,6-Dinitrotolue	12.19	12.21	598412	759328	213.896	212.253
18)	o-Nitrotoluene	15.24	15.25	463620	570821	209.541	189.514m
19)	p-Nitrotoluene	15.80	15.81	758468	476785	212.048	193.203m
20)	m-Nitrotoluene	16.66	16.67	756336	760721	210.126	205.242m
21)	PETN	0.00	18.33	0	260674	N.D.	196.553m#

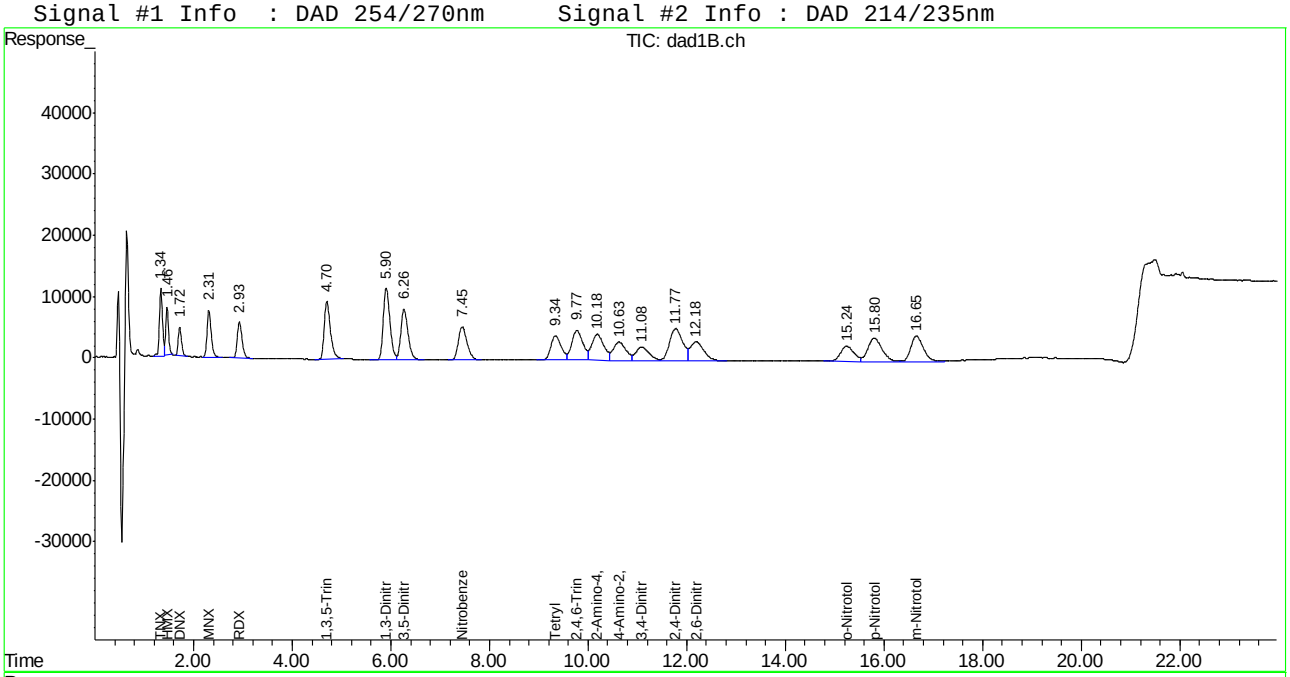
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
PP386576.D GPP2262_041620PRI.M Fri Apr 17 13:39:30 2020 Page 1

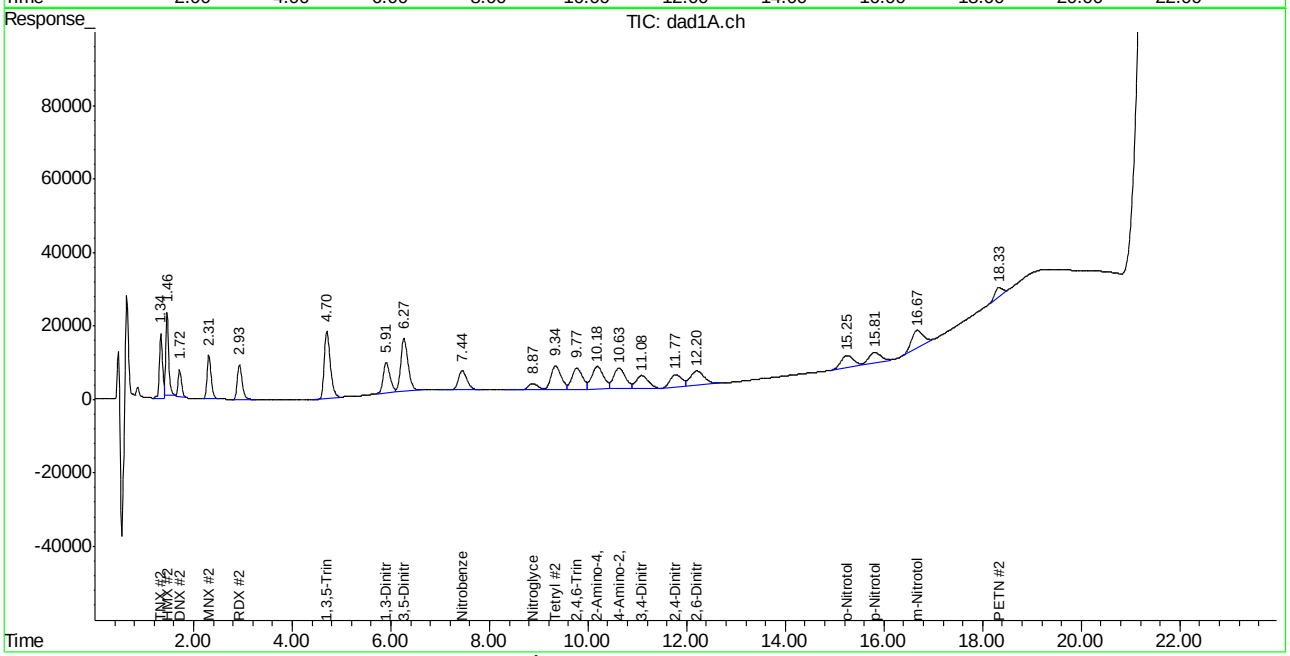
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386576.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386576.D\dad1A.ch
Acq On : 16-Apr-2020, 14:52:56 Operator: williamh
Sample : ic2262-200 Inst : G1315B
Misc : op79816,GPP2262,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 12:16 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm





Manual Integration Approval Summary

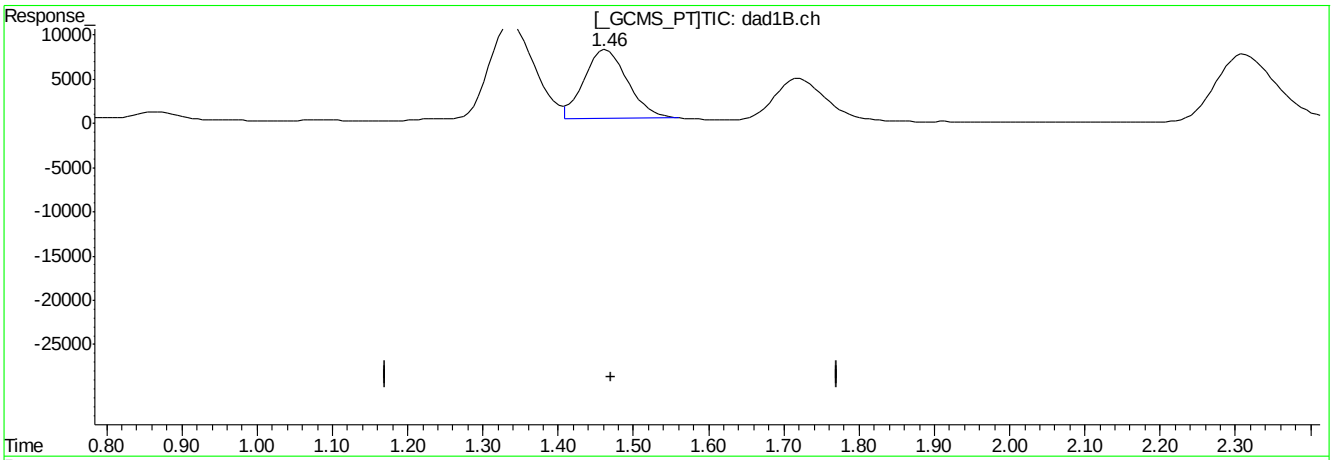
Sample Number: GPP2262-IC2262
Lab FileID: PP386576.D
Injection Time: 04/16/20 14:52
Method: SW846 8330A
Analyst approved: 04/17/20 13:46 William Hustedde
Supervisor approved: 04/17/20 14:46 Naresh Jiawan

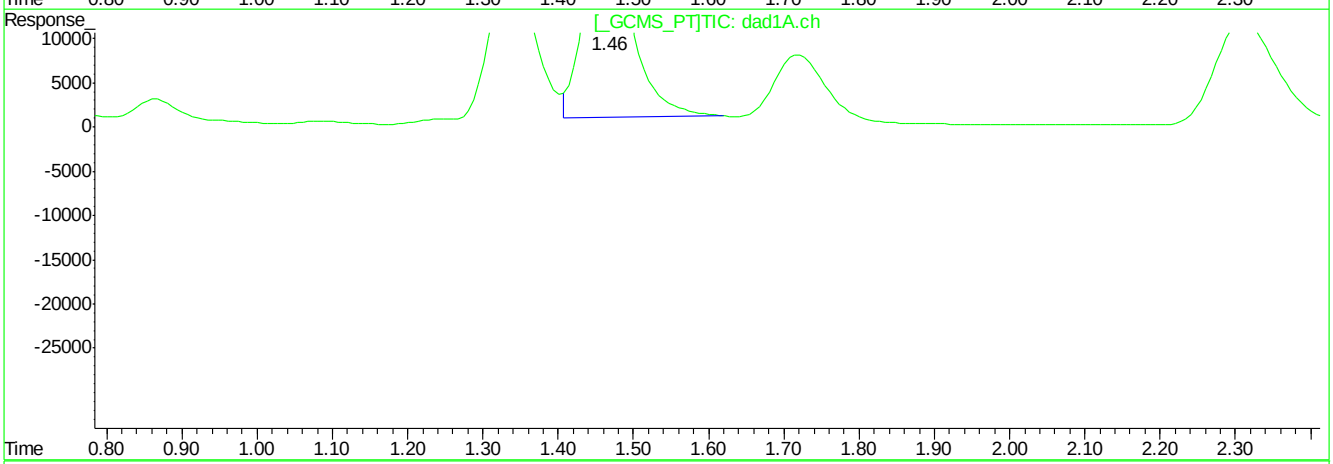
Parameter	CAS	Sig#	R.T. (min.)	Reason
HMX	2691-41-0	1	1.46	Poor instrument integration
HMX	2691-41-0	2	1.46	Poor instrument integration
DNX		1	1.72	Poor instrument integration
DNX		2	1.72	Poor instrument integration
MNX		2	2.31	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	5.91	Poor instrument integration
o-Nitrotoluene	88-72-2	2	15.25	Poor instrument integration
p-Nitrotoluene	99-99-0	2	15.81	Poor instrument integration
m-Nitrotoluene	99-08-1	2	16.67	Poor instrument integration
PETN	78-11-5	2	18.33	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386576.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386576.D\dad1A.ch
Acq On : 16-Apr-2020, 14:52:56 Operator: williamh
Sample : ic2262-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(2) HMX

1.46min 179.594ppb m

response 311895

(2) HMX #2

1.46min 201.176ppb m

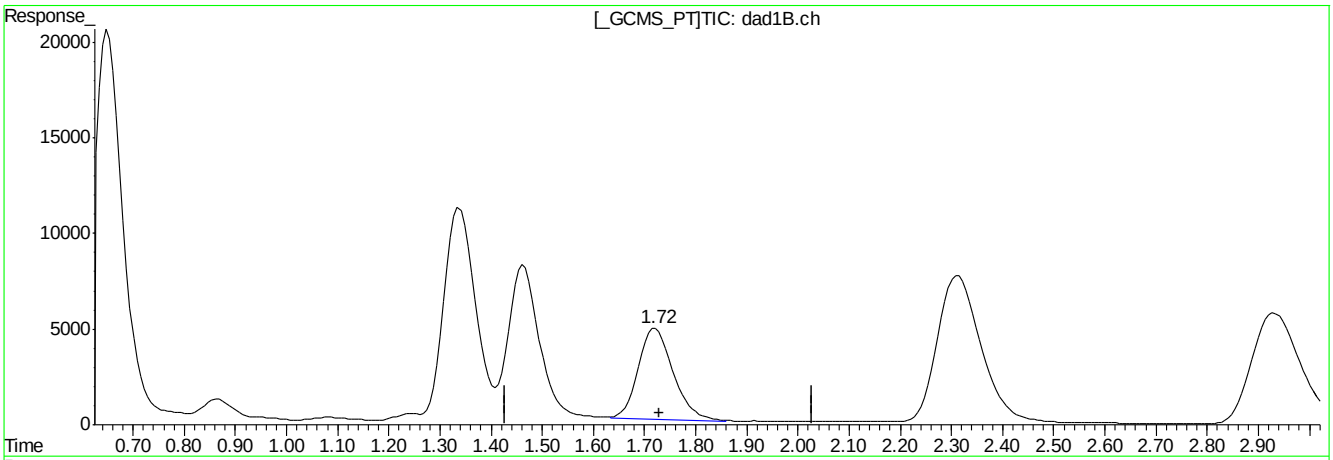
response 950436

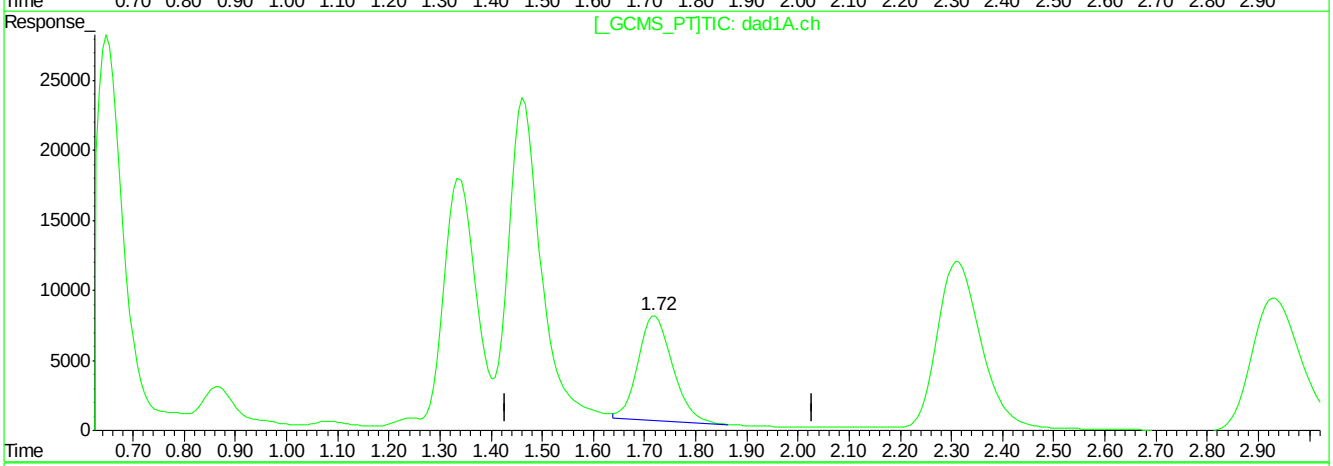
(+) = Expected Retention Time
PP386576.D GPP2262_041620PRI.M Fri Apr 17 12:15:23 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386576.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386576.D\dad1A.ch
Acq On : 16-Apr-2020, 14:52:56 Operator: williamh
Sample : ic2262-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(3) DNX

1.72min 191.084ppb m

response 226832

(3) DNX #2

1.72min 183.090ppb m

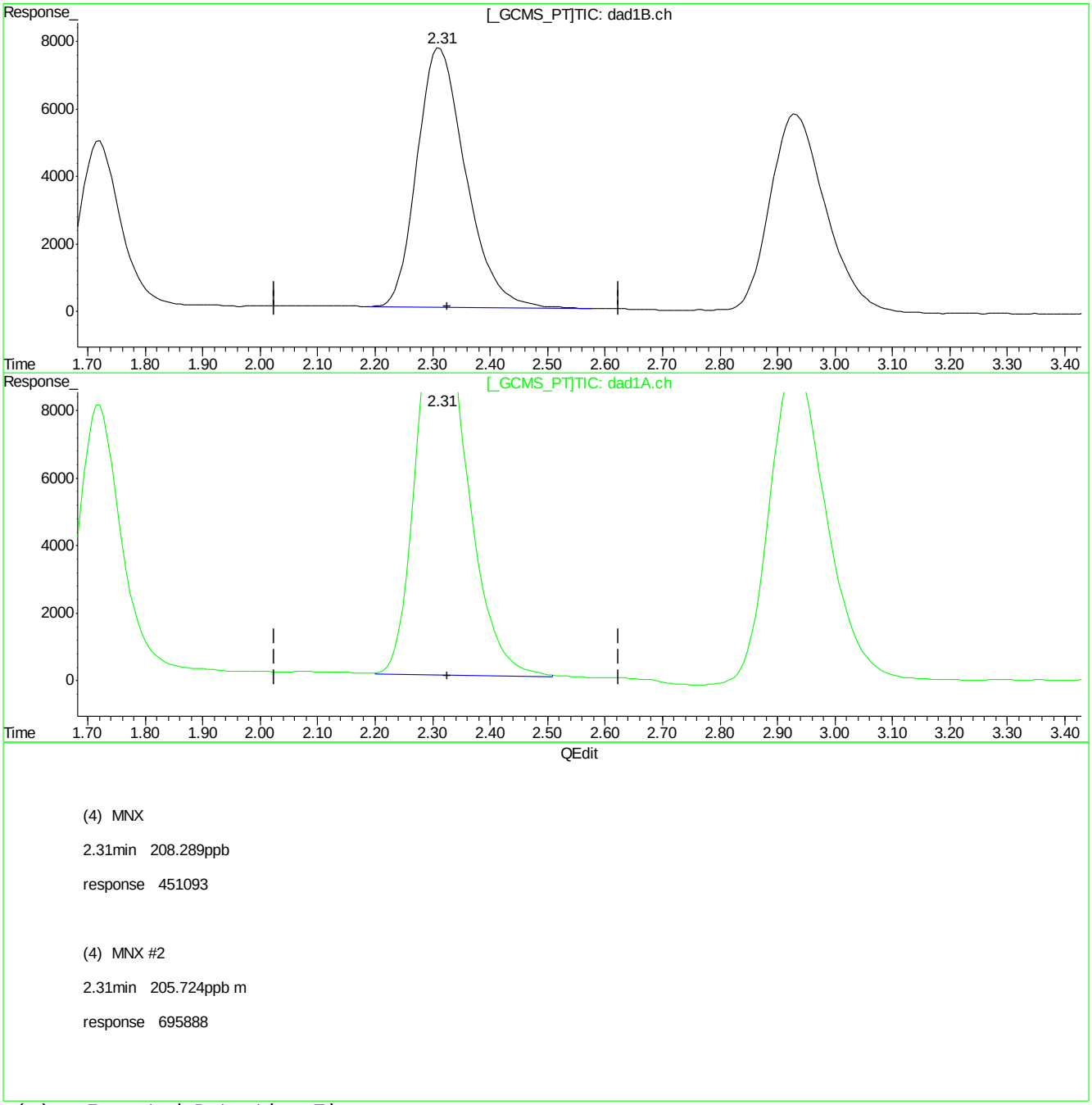
response 357224

(+) = Expected Retention Time
PP386576.D GPP2262_041620PRI.M Fri Apr 17 12:15:34 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386576.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386576.D\dad1A.ch
Acq On : 16-Apr-2020, 14:52:56 Operator: williamh
Sample : ic2262-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration

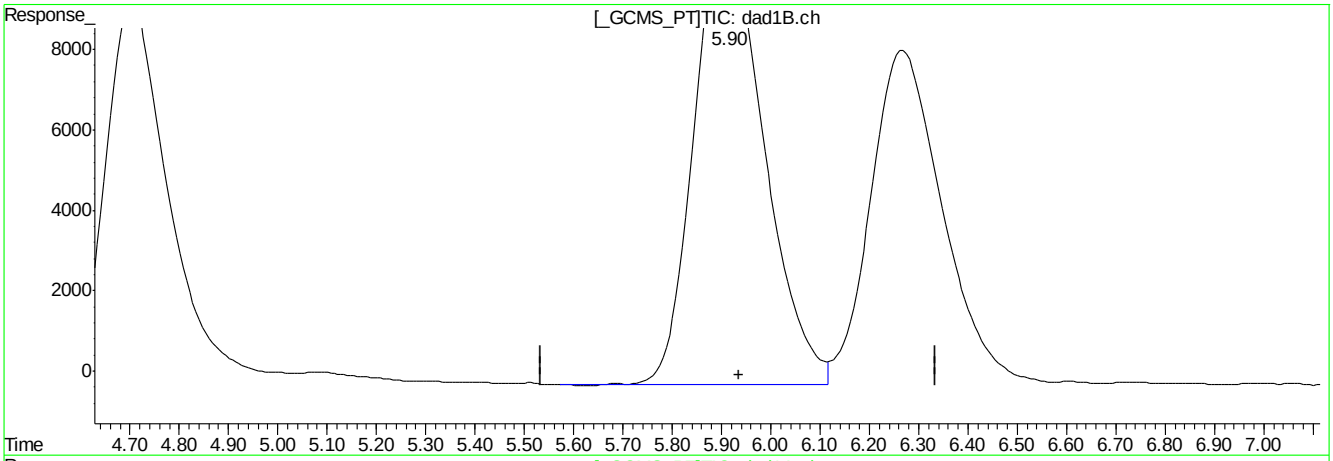


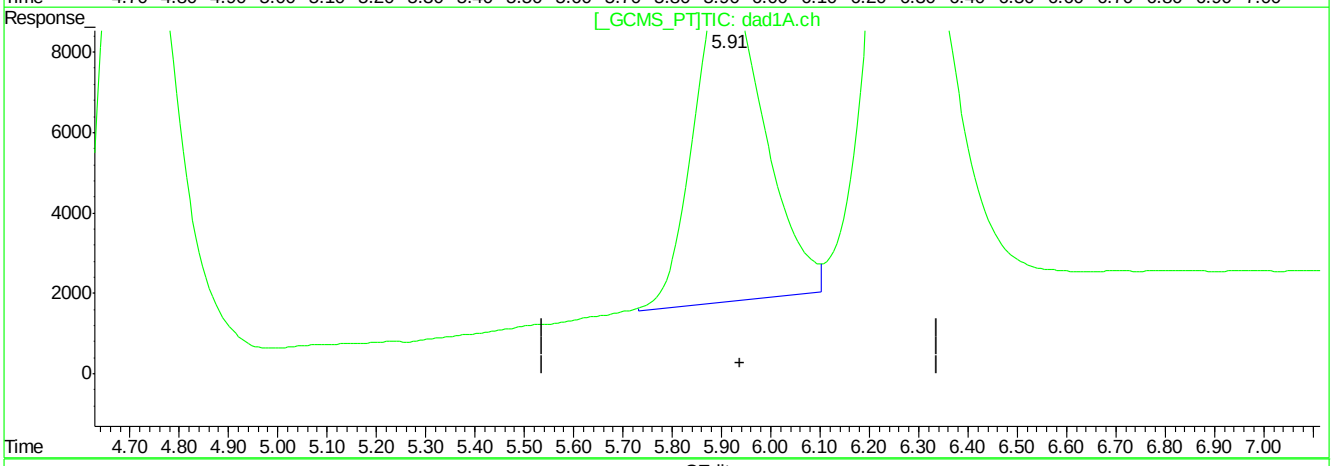
(+) = Expected Retention Time
PP386576.D GPP2262_041620PRI.M Fri Apr 17 12:15:42 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386576.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386576.D\dad1A.ch
Acq On : 16-Apr-2020, 14:52:56 Operator: williamh
Sample : ic2262-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

5.91min 208.986ppb

response 1102438

(7) 1,3-Dinitrobenzene #2

5.91min 197.870ppb m

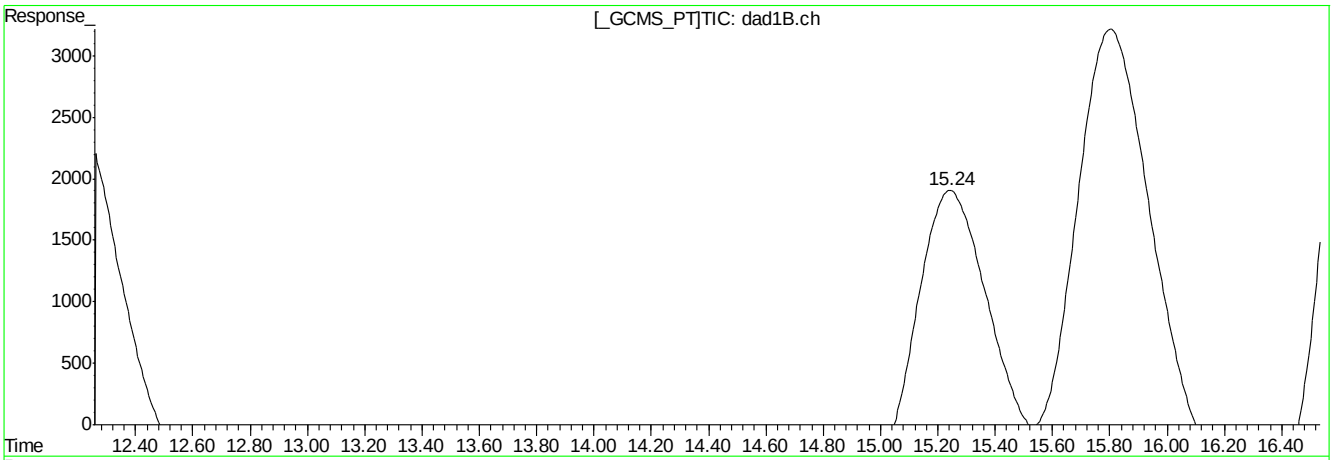
response 789270

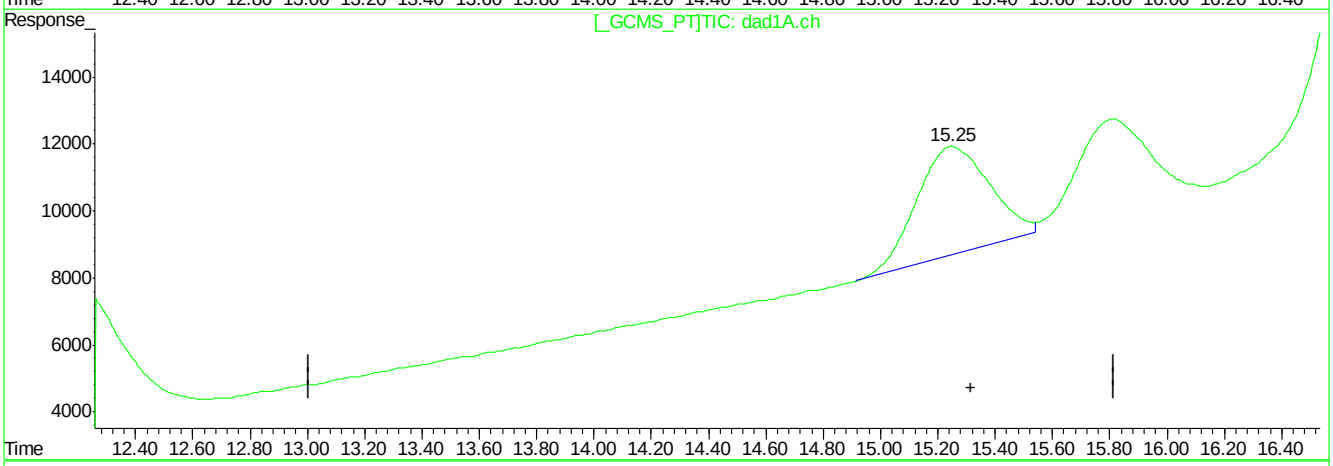
(+) = Expected Retention Time
PP386576.D GPP2262_041620PRI.M Fri Apr 17 12:15:55 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386576.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386576.D\dad1A.ch
Acq On : 16-Apr-2020, 14:52:56 Operator: williamh
Sample : ic2262-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(18) o-Nitrotoluene

15.24min 209.541ppb

response 463620

(18) o-Nitrotoluene #2

15.25min 189.514ppb m

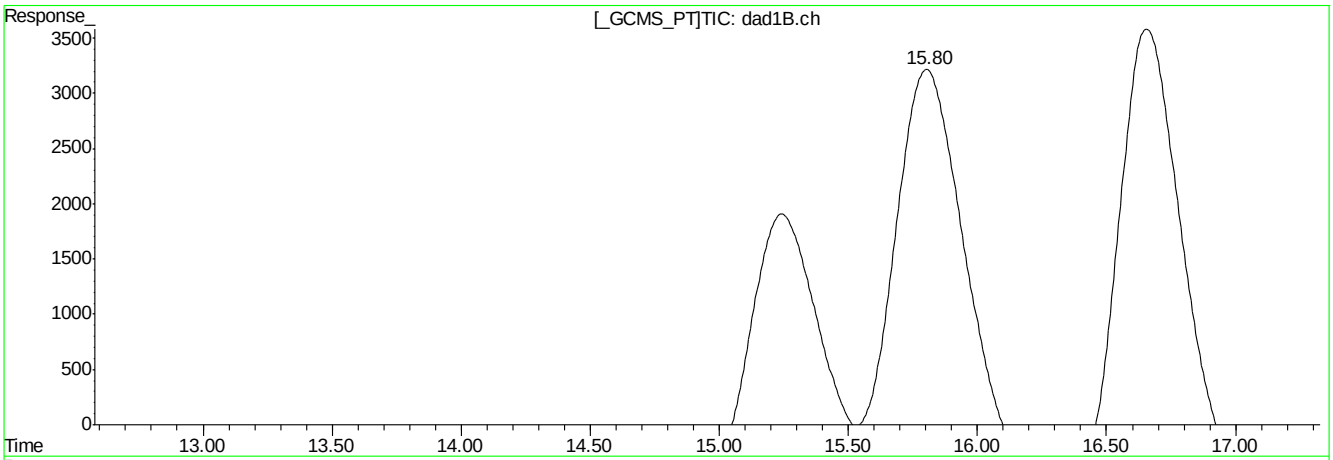
response 570821

(+) = Expected Retention Time
PP386576.D GPP2262_041620PRI.M Fri Apr 17 12:16:14 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386576.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386576.D\dad1A.ch
Acq On : 16-Apr-2020, 14:52:56 Operator: williamh
Sample : ic2262-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration



(19) p-Nitrotoluene

15.80min 212.048ppb

response 758468

(19) p-Nitrotoluene #2

15.81min 193.203ppb m

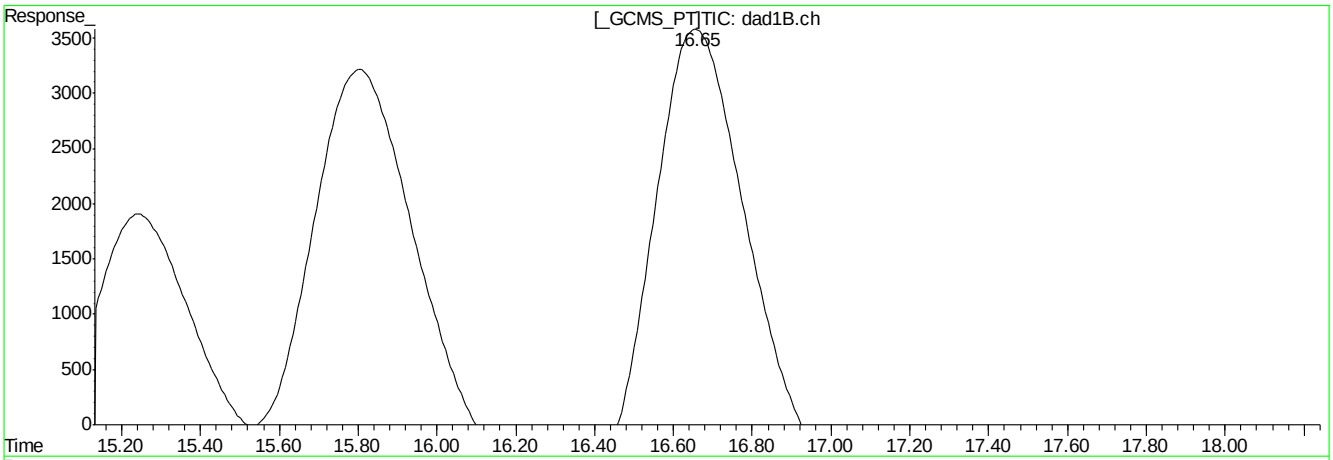
response 476785

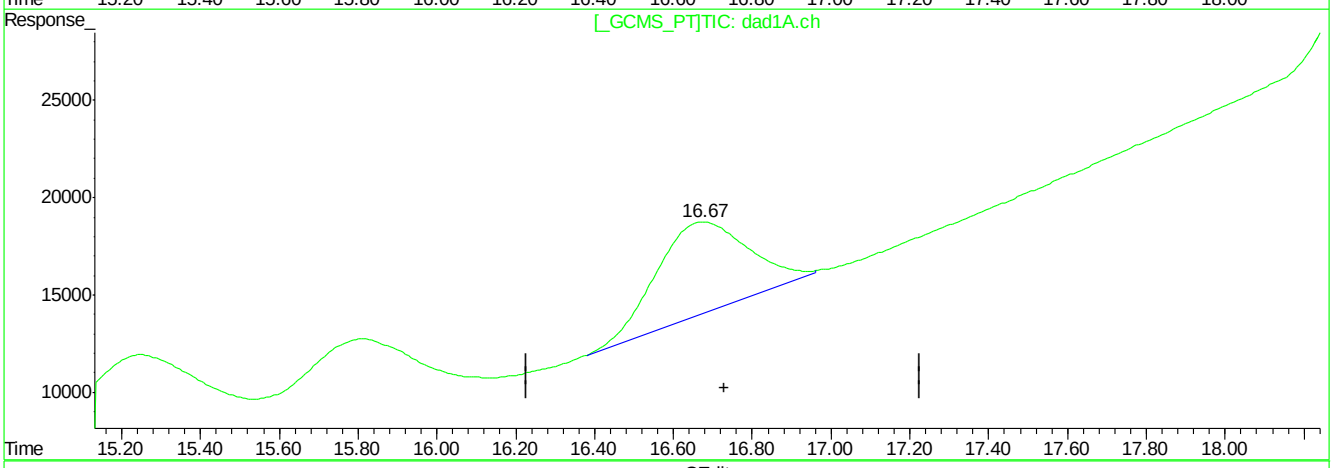
(+) = Expected Retention Time
PP386576.D GPP2262_041620PRI.M Fri Apr 17 12:16:20 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386576.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386576.D\dad1A.ch
Acq On : 16-Apr-2020, 14:52:56 Operator: williamh
Sample : ic2262-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(20) m-Nitrotoluene

16.66min 210.126ppb

response 756336

(20) m-Nitrotoluene #2

16.67min 205.242ppb m

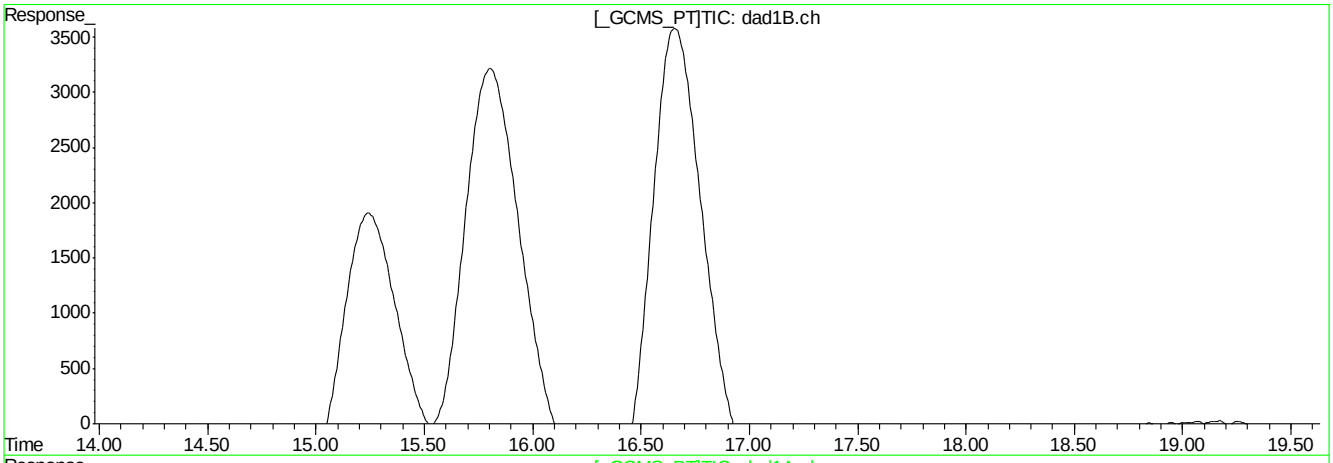
response 760721

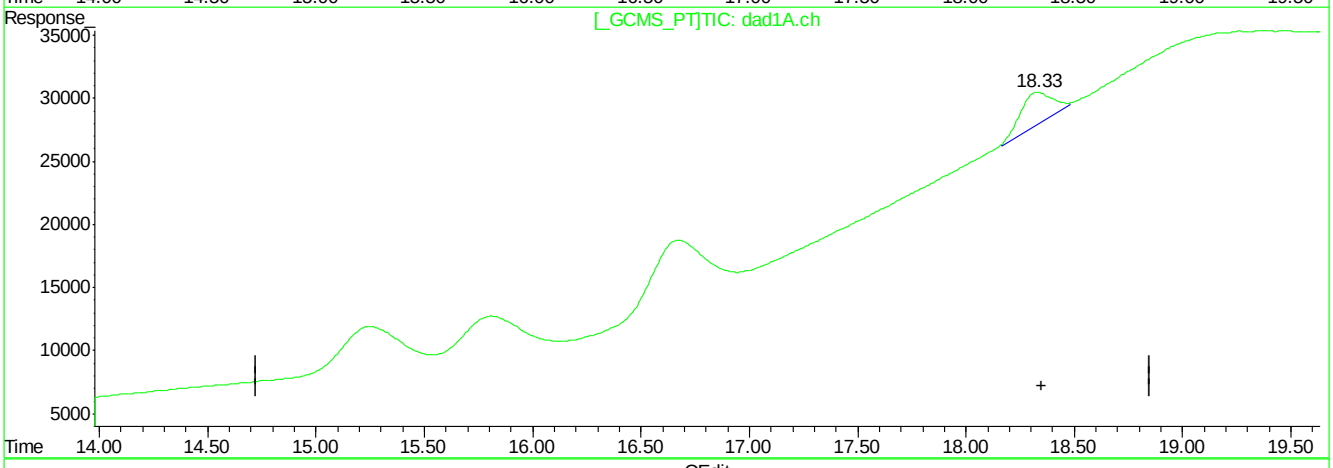
(+) = Expected Retention Time
PP386576.D GPP2262_041620PRI.M Fri Apr 17 12:16:27 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386576.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386576.D\dad1A.ch
Acq On : 16-Apr-2020, 14:52:56 Operator: williamh
Sample : ic2262-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

18.33min 196.553ppb m

response 260674

(+) = Expected Retention Time
PP386576.D GPP2262_041620PRI.M Fri Apr 17 12:16:34 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 04/17/20 14:46

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386577.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386577.D\dad1A.ch
Acq On : 16-Apr-2020, 15:23:50 Operator: williamh
Sample : ic2262-500 Inst : G1315B
Misc : op79816,GPP2262,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11:28 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Initial Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	11.10	11.10	1021715	1653476	525.779	541.485
Spiked Amount	500.000	Range	70 - 136	Recovery	=	105.16%	108.30%
	Target Compounds						
1)	TNX	1.34	1.34	1215200	1920859	526.539	505.903
2)	HMX	1.47	1.47	848807	2460510	488.755	524.495
3)	DNX	1.72	1.72	592284	999493	498.942	512.275
4)	MNX	2.32	2.32	1112005	1772856	514.061	524.863
5)	RDX	2.94	2.94	973187	1594403	515.181	517.137
6)	1,3,5-Trinitrobe	4.71	4.71	1991485	3906280	508.853m	507.138m
7)	1,3-Dinitrobenze	5.91	5.91	2731196	1991415	517.334	499.247
8)	3,5-Dinitroanili	6.28	6.28	2074353	3634895	519.021	517.946
9)	Nitrobenzene	7.45	7.45	1634688	1580346	511.838	514.434
10)	Nitroglycerin	0.00	8.88	0	574669	N.D.	512.426 #
11)	Tetryl	9.35	9.35	1422202	2313352	513.448	498.831
12)	2,4,6-Trinitroto	9.78	9.78	1885595	2225250	511.763	517.000
13)	2-Amino-4,6-Dini	10.20	10.20	1781914	2598409	520.047	533.693
14)	4-Amino-2,6-Dini	10.64	10.64	1297003	2510193	524.586	562.578
16)	2,4-Dinitrotolue	11.78	11.79	2386729	1421264	482.788	517.375
17)	2,6-Dinitrotolue	12.20	12.21	1483761	1885932	530.355	527.171
18)	o-Nitrotoluene	15.25	15.25	1129672	1535139	510.793	507.555m
19)	p-Nitrotoluene	15.81	15.81	1821694	1293024	509.613	511.599
20)	m-Nitrotoluene	16.66	16.67	1725498	1966422	479.380	524.678m
21)	PETN	0.00	18.32	0	675139	N.D.	505.730m#

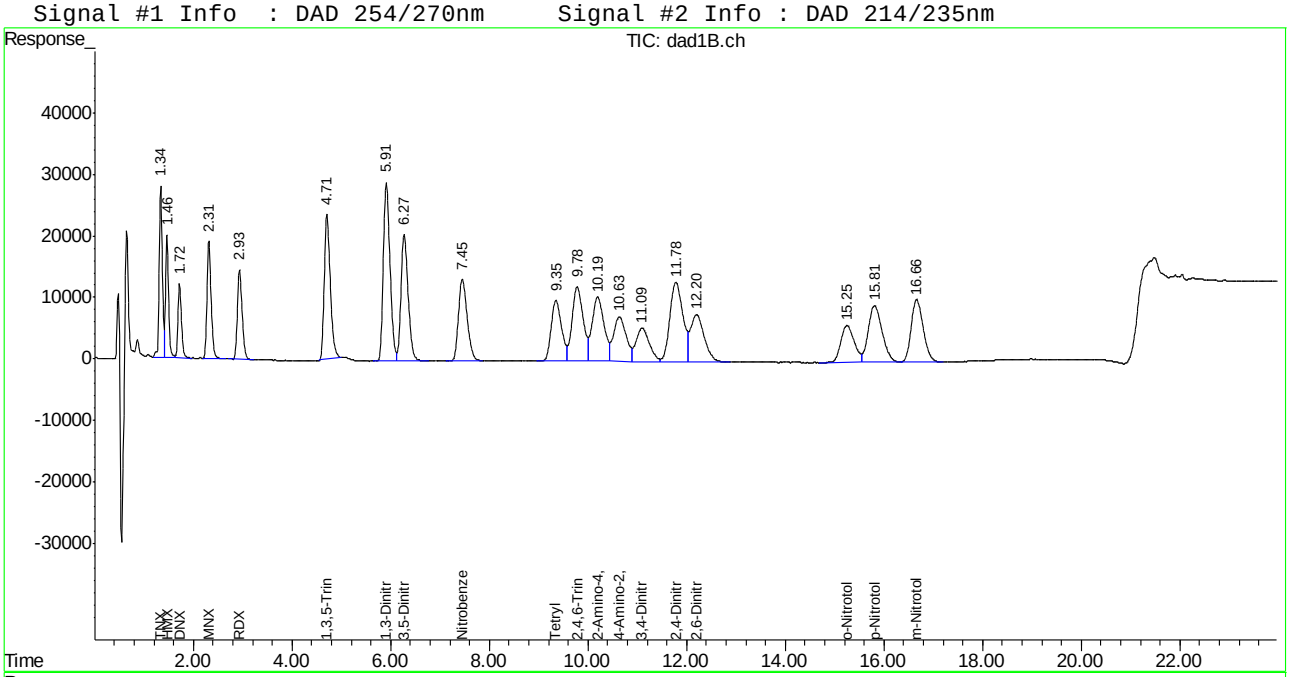
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

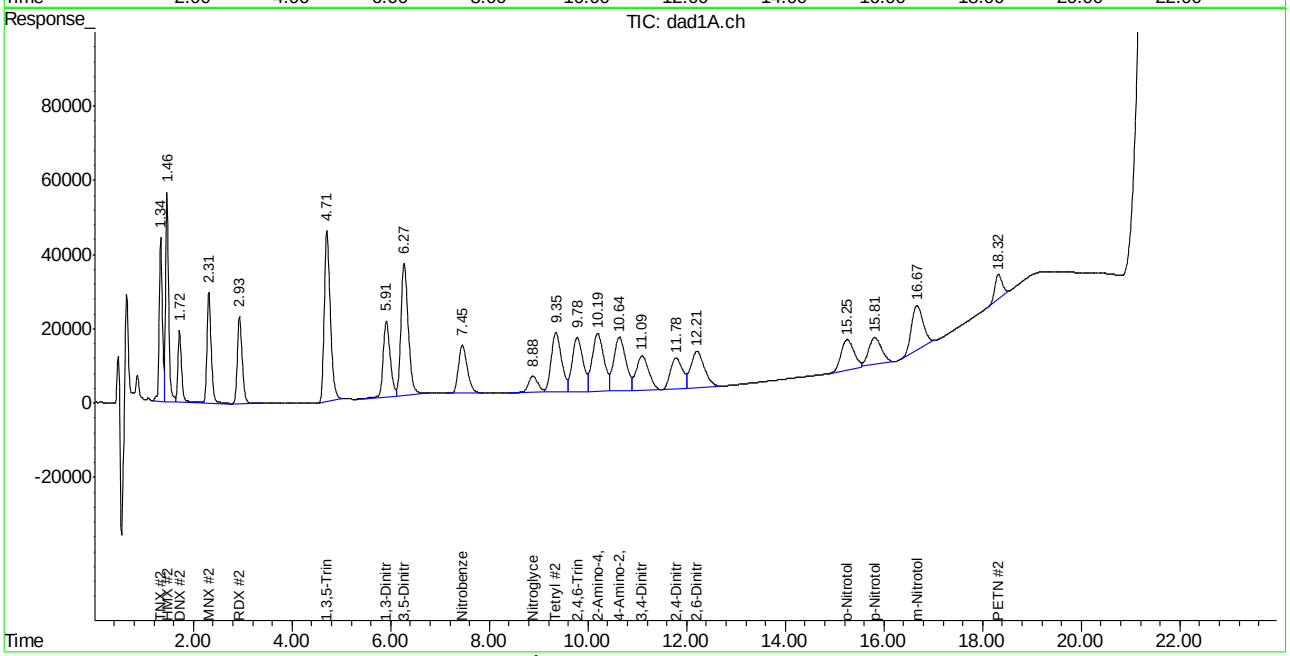
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386577.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386577.D\dad1A.ch
Acq On : 16-Apr-2020, 15:23:50 Operator: williamh
Sample : ic2262-500 Inst : G1315B
Misc : op79816,GPP2262,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 12:17 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm





Manual Integration Approval Summary

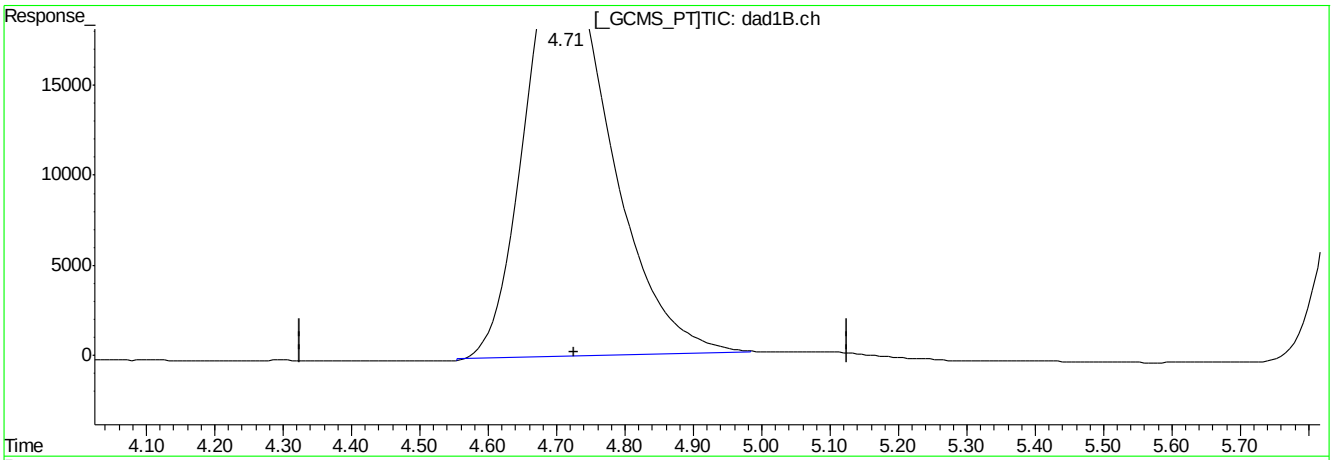
Sample Number: GPP2262-IC2262 **Method:** SW846 8330A
Lab FileID: PP386577.D **Analyst approved:** 04/17/20 13:46 William Hustedde
Injection Time: 04/16/20 15:23 **Supervisor approved:** 04/17/20 14:46 Naresh Jiawan

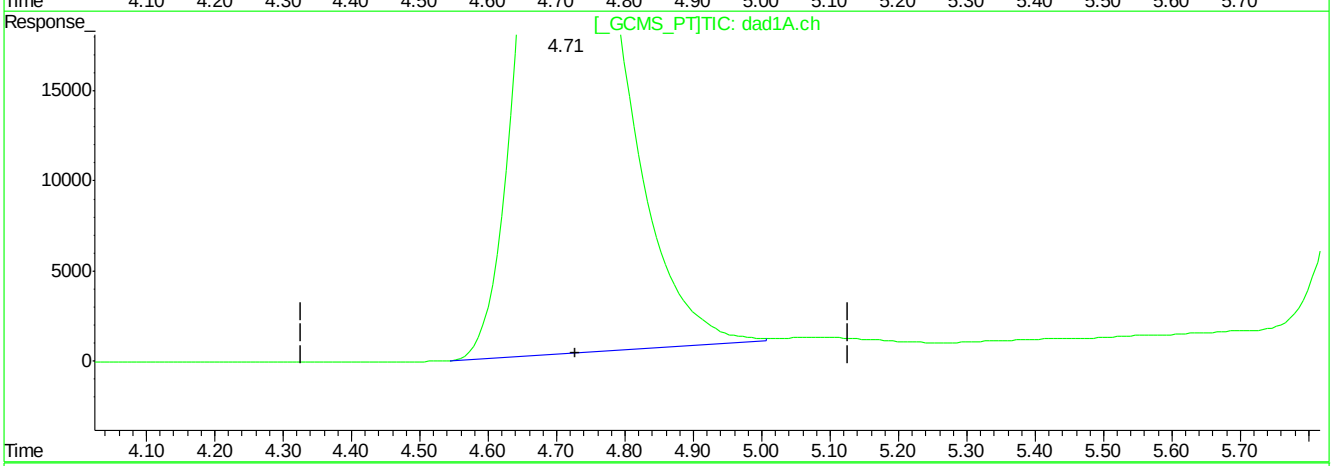
Parameter	CAS	Sig#	R.T. (min.)	Reason
1,3,5-Trinitrobenzene	99-35-4	1	4.71	Poor instrument integration
1,3,5-Trinitrobenzene	99-35-4	2	4.71	Poor instrument integration
o-Nitrotoluene	88-72-2	2	15.25	Poor instrument integration
m-Nitrotoluene	99-08-1	2	16.67	Poor instrument integration
PETN	78-11-5	2	18.32	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386577.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386577.D\dad1A.ch
Acq On : 16-Apr-2020, 15:23:50 Operator: williamh
Sample : ic2262-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(6) 1,3,5-Trinitrobenzene

4.71min 508.853ppb m

response 1991485

(6) 1,3,5-Trinitrobenzene #2

4.71min 507.138ppb m

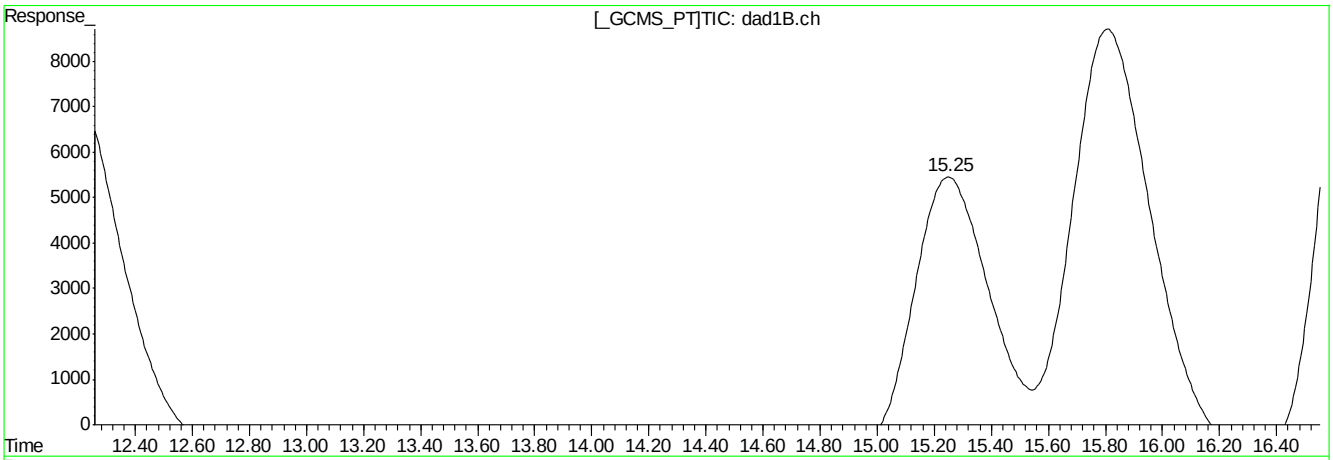
response 3906280

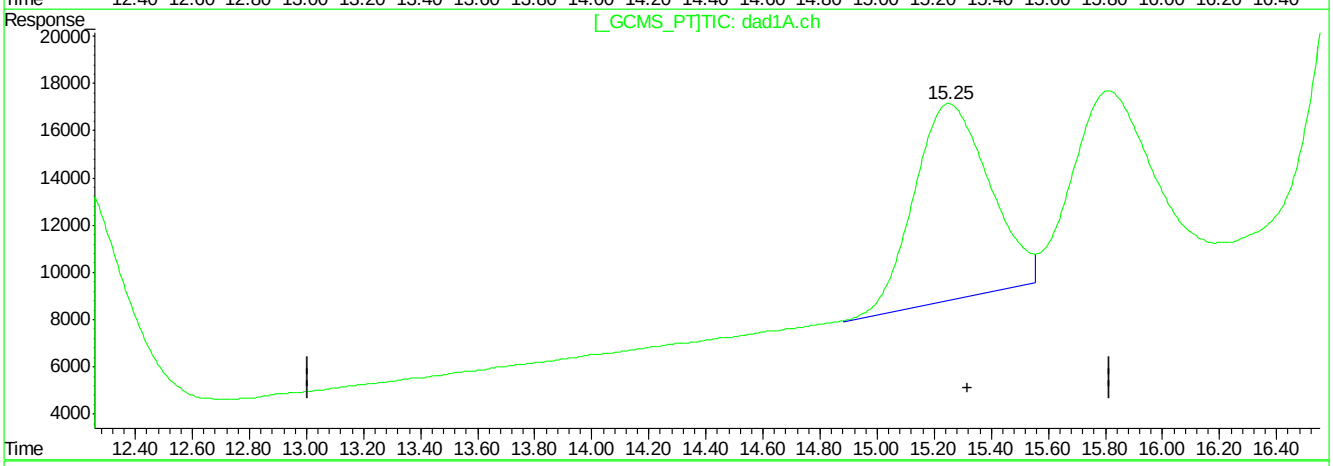
(+) = Expected Retention Time
PP386577.D GPP2262_041620PRI.M Fri Apr 17 12:16:53 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386577.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386577.D\dad1A.ch
Acq On : 16-Apr-2020, 15:23:50 Operator: williamh
Sample : ic2262-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(18) o-Nitrotoluene

15.25min 510.793ppb

response 1129672

(18) o-Nitrotoluene #2

15.25min 507.555ppb m

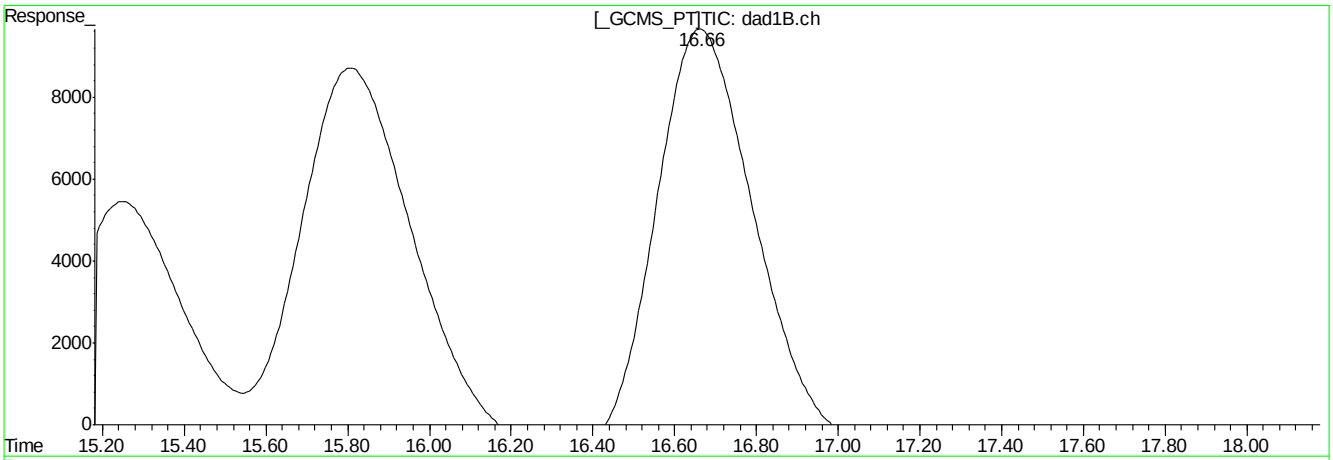
response 1535139

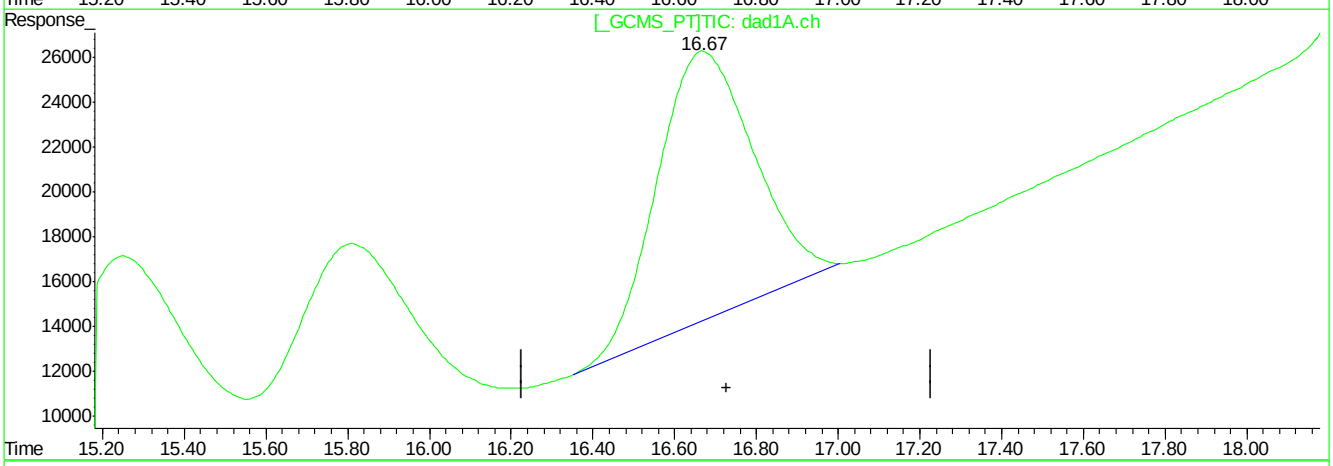
(+) = Expected Retention Time
PP386577.D GPP2262_041620PRI.M Fri Apr 17 12:17:09 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386577.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386577.D\dad1A.ch
Acq On : 16-Apr-2020, 15:23:50 Operator: williamh
Sample : ic2262-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(20) m-Nitrotoluene

16.66min 479.380ppb

response 1725498

(20) m-Nitrotoluene #2

16.67min 524.678ppb m

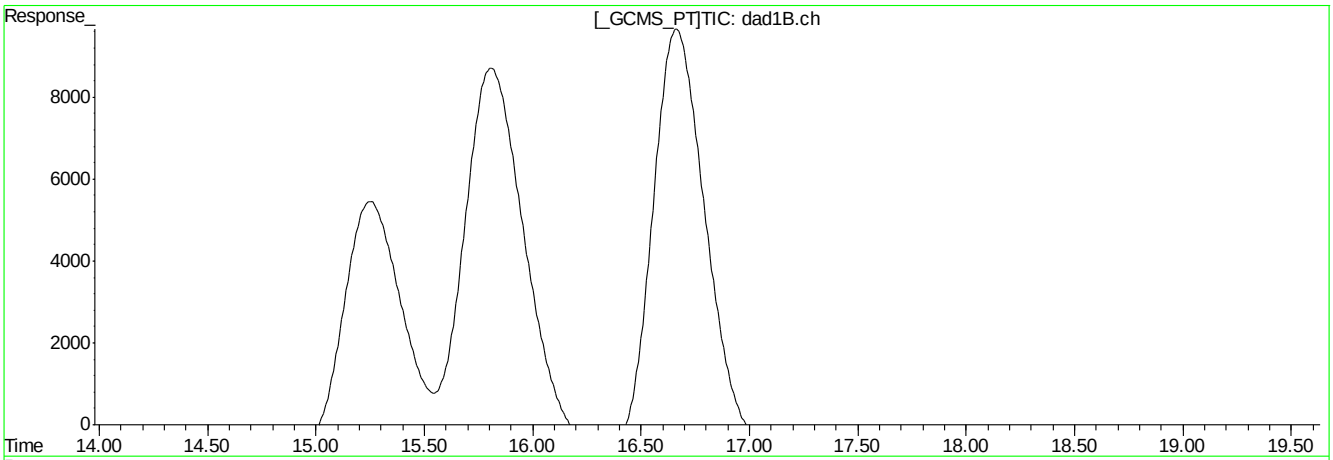
response 1966422

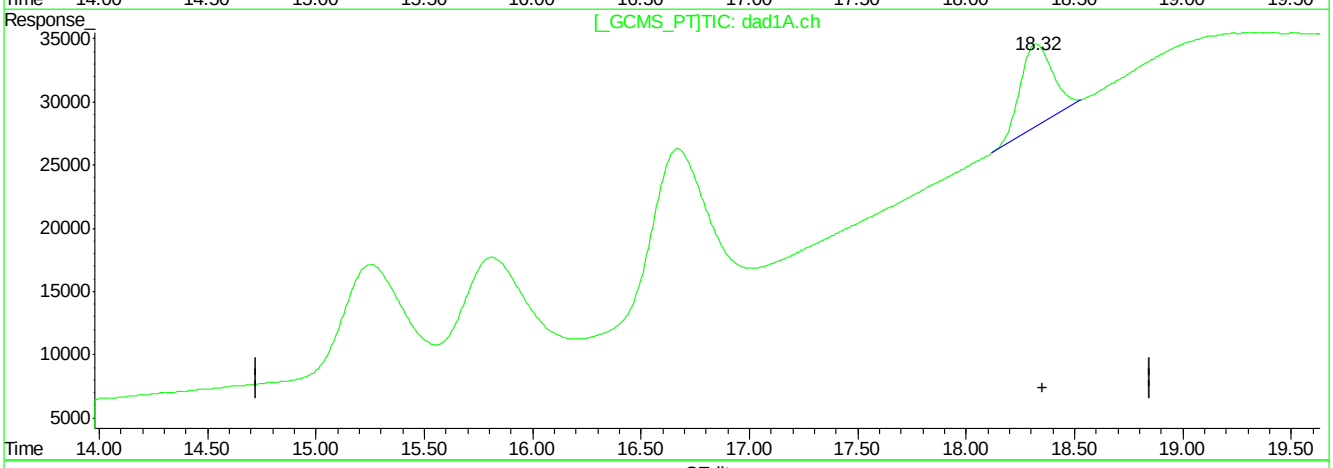
(+) = Expected Retention Time
PP386577.D GPP2262_041620PRI.M Fri Apr 17 12:17:16 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386577.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386577.D\dad1A.ch
Acq On : 16-Apr-2020, 15:23:50 Operator: williamh
Sample : ic2262-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

18.32min 505.730ppb m

response 675139

(+) = Expected Retention Time
PP386577.D GPP2262_041620PRI.M Fri Apr 17 12:17:23 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 04/17/20 14:46

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386578.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386578.D\dad1A.ch
Acq On : 16-Apr-2020, 15:54:46 Operator: williamh
Sample : icc2262-1000 Inst : G1315B
Misc : op79816,GPP2262,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11:29 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Initial Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	11.11	11.11	2029131	3372545	1043.915	1065.664
	Spiked Amount 500.000	Range 70 - 136		Recovery =		208.78%#	213.13%#
	Target Compounds						
1)	TNX	1.34	1.34	2435507	3832155	1055.292	1009.288
2)	HMX	1.47	1.47	1662409	4732866	957.239	1019.947
3)	DNX	1.72	1.72	1171920	1875492	987.229	961.254
4)	MNX	2.32	2.32	2217146	3472880	1026.962	1030.518
5)	RDX	2.94	2.94	1951397	3173059	1032.318	1031.012
6)	1,3,5-Trinitrobe	4.71	4.71	4017042	7885470	1014.494	1016.861
7)	1,3-Dinitrobenze	5.92	5.92	5462578	3923417	1033.332	983.599
8)	3,5-Dinitroanili	6.28	6.28	4131202	7064192	1032.111	1009.449m
9)	Nitrobenzene	7.46	7.45	3264648	3170962	1022.197	1032.869m
10)	Nitroglycerin	0.00	8.89	0	1172863	N.D.	1025.850 #
11)	Tetryl	9.36	9.36	2847900	4645980	1027.293	1001.818
12)	2,4,6-Trinitroto	9.79	9.79	3768871	4495790	1020.431	1044.523
13)	2-Amino-4,6-Dini	10.20	10.20	3544856	5219849	1034.354	1072.117
14)	4-Amino-2,6-Dini	10.64	10.65	2568105	5075401	1039.471	1137.485
16)	2,4-Dinitrotolue	11.79	11.79	4767402	2864052	964.350	1017.483
17)	2,6-Dinitrotolue	12.21	12.22	2950188	3797840	1054.514	1061.603
18)	o-Nitrotoluene	15.26	15.25	2266602	3130981	1025.622	1028.200m
19)	p-Nitrotoluene	15.81	15.82	3667556	2856036	1027.087	1084.039
20)	m-Nitrotoluene	16.67	16.67	3474482	4137665	965.284	1083.090m
21)	PETN	0.00	18.31	0	1390474	N.D.	1030.112m#

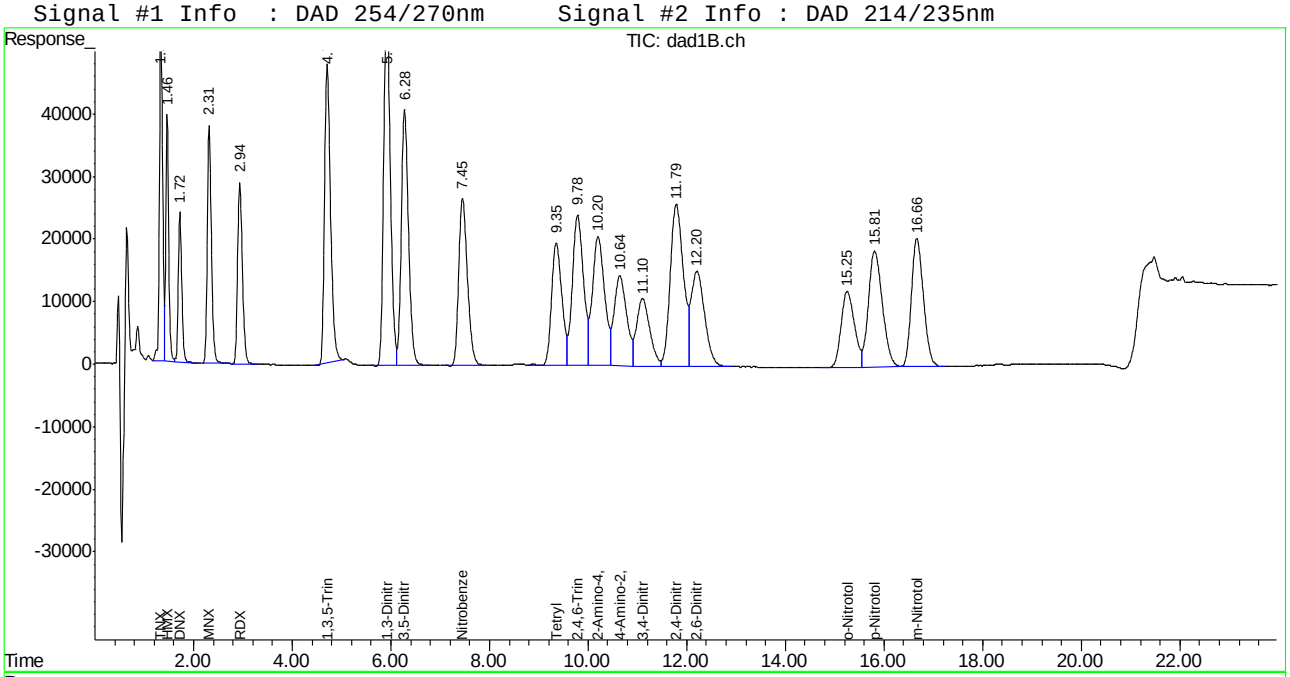
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
PP386578.D GPP2262_041620PRI.M Fri Apr 17 13:39:32 2020 Page 1

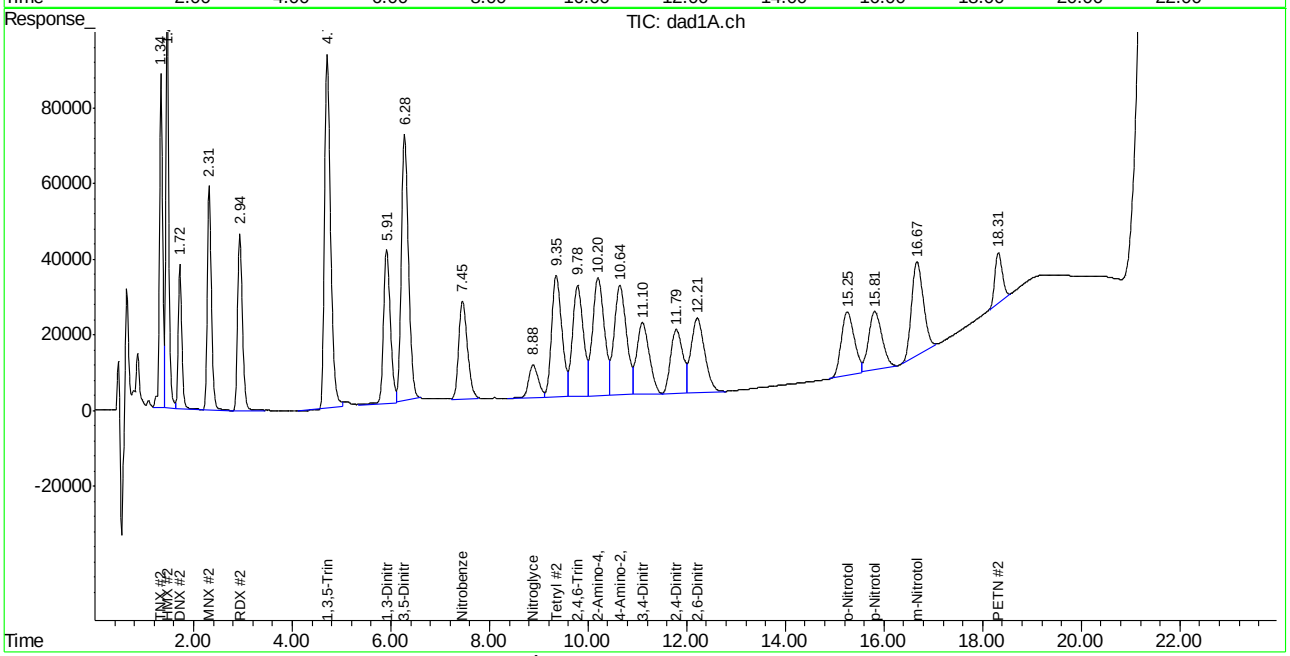
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386578.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386578.D\dad1A.ch
Acq On : 16-Apr-2020, 15:54:46 Operator: williamh
Sample : icc2262-1000 Inst : G1315B
Misc : op79816,GPP2262,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 12:18 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm





Manual Integration Approval Summary

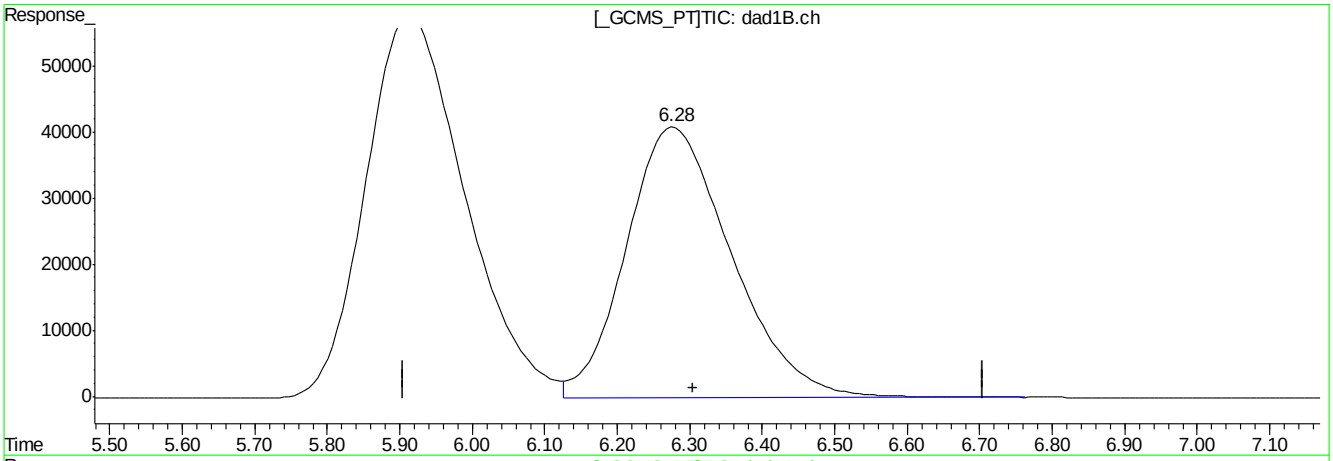
Sample Number: GPP2262-ICC2262 **Method:** SW846 8330A
Lab FileID: PP386578.D **Analyst approved:** 04/17/20 13:46 William Hustedde
Injection Time: 04/16/20 15:54 **Supervisor approved:** 04/17/20 14:46 Naresh Jiawan

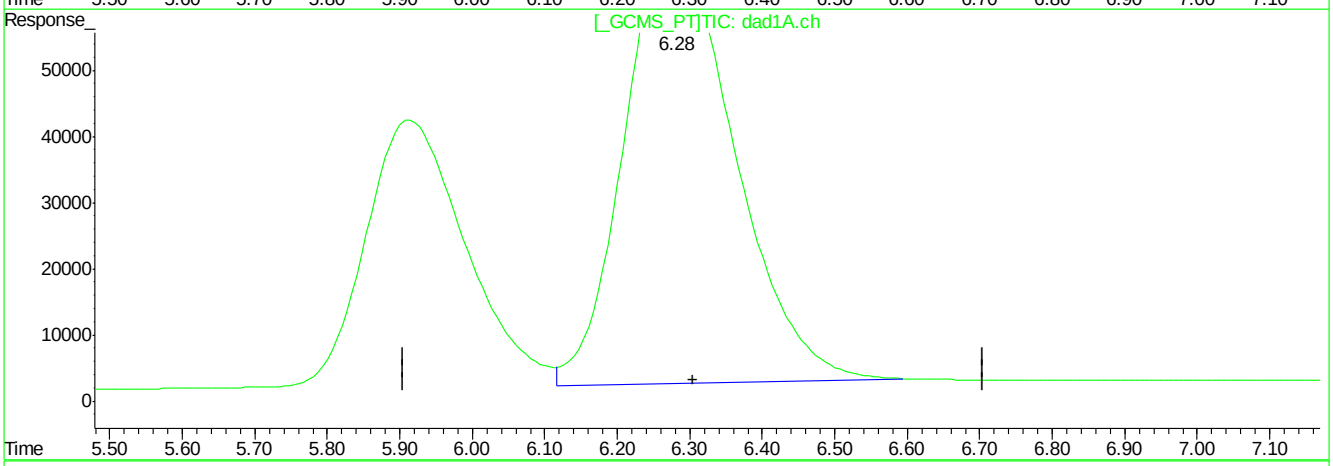
Parameter	CAS	Sig#	R.T. (min.)	Reason
3,5-Dinitroaniline	618-87-1	2	6.28	Poor instrument integration
Nitrobenzene	98-95-3	2	7.45	Poor instrument integration
o-Nitrotoluene	88-72-2	2	15.25	Poor instrument integration
m-Nitrotoluene	99-08-1	2	16.67	Poor instrument integration
PETN	78-11-5	2	18.31	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386578.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386578.D\dad1A.ch
Acq On : 16-Apr-2020, 15:54:46 Operator: williamh
Sample : icc2262-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.28min 1032.111ppb

response 4131202

(8) 3,5-Dinitroaniline #2

6.28min 1009.449ppb m

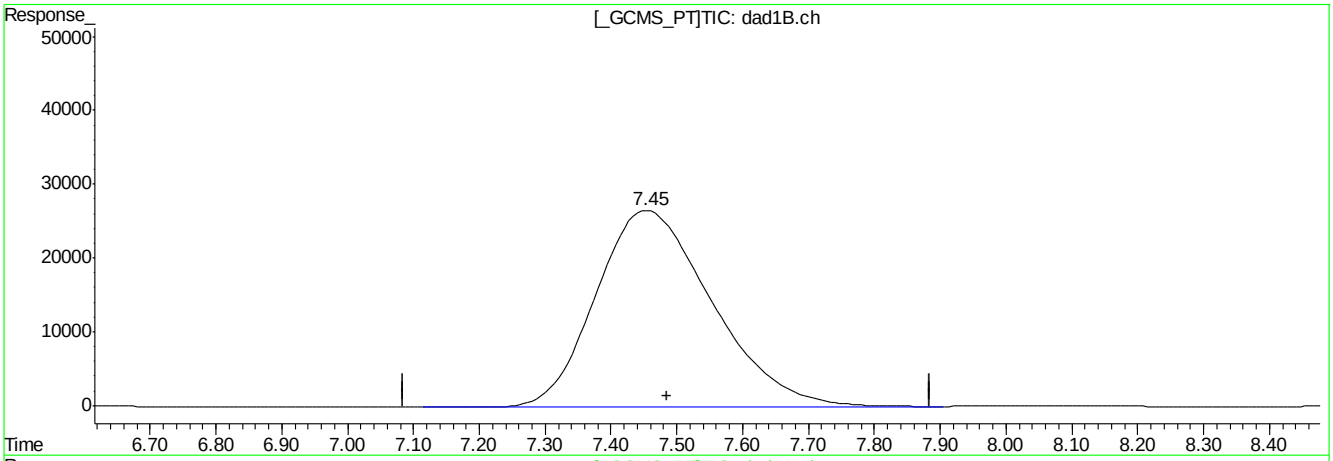
response 7064192

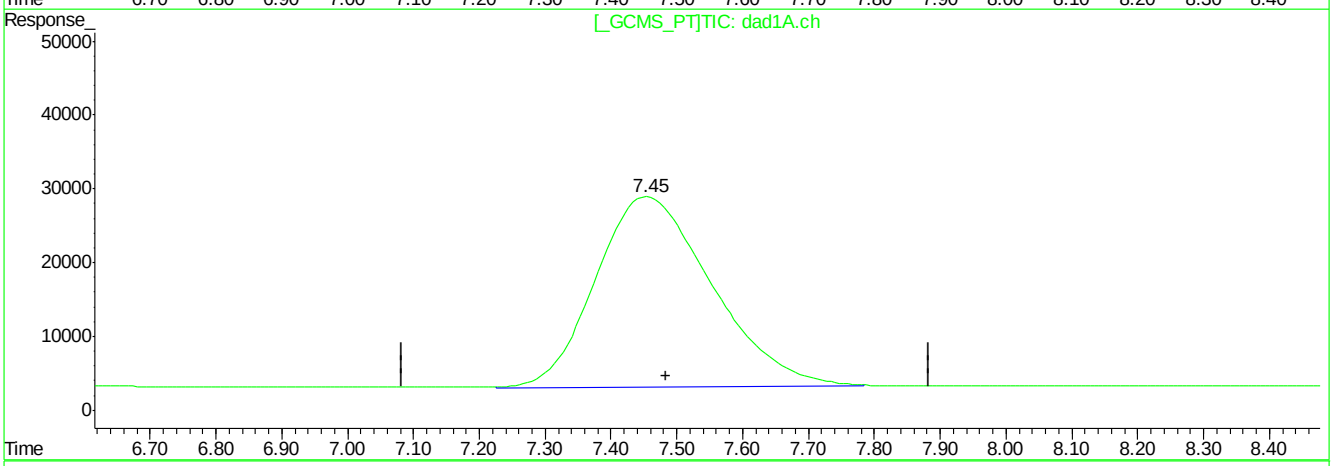
(+) = Expected Retention Time
PP386578.D GPP2262_041620PRI.M Fri Apr 17 12:17:49 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386578.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386578.D\dad1A.ch
Acq On : 16-Apr-2020, 15:54:46 Operator: williamh
Sample : icc2262-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(9) Nitrobenzene

7.46min 1022.197ppb

response 3264648

(9) Nitrobenzene #2

7.45min 1032.869ppb m

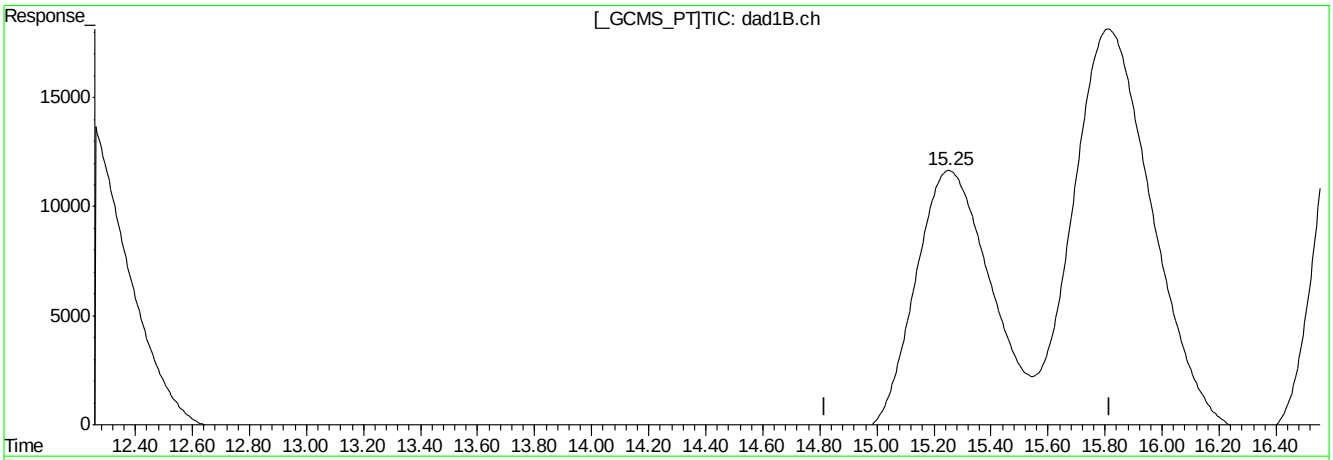
response 3170962

(+) = Expected Retention Time
PP386578.D GPP2262_041620PRI.M Fri Apr 17 12:17:58 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386578.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386578.D\dad1A.ch
Acq On : 16-Apr-2020, 15:54:46 Operator: williamh
Sample : icc2262-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration



(18) o-Nitrotoluene

15.26min 1025.622ppb

response 2266602

(18) o-Nitrotoluene #2

15.25min 1028.200ppb m

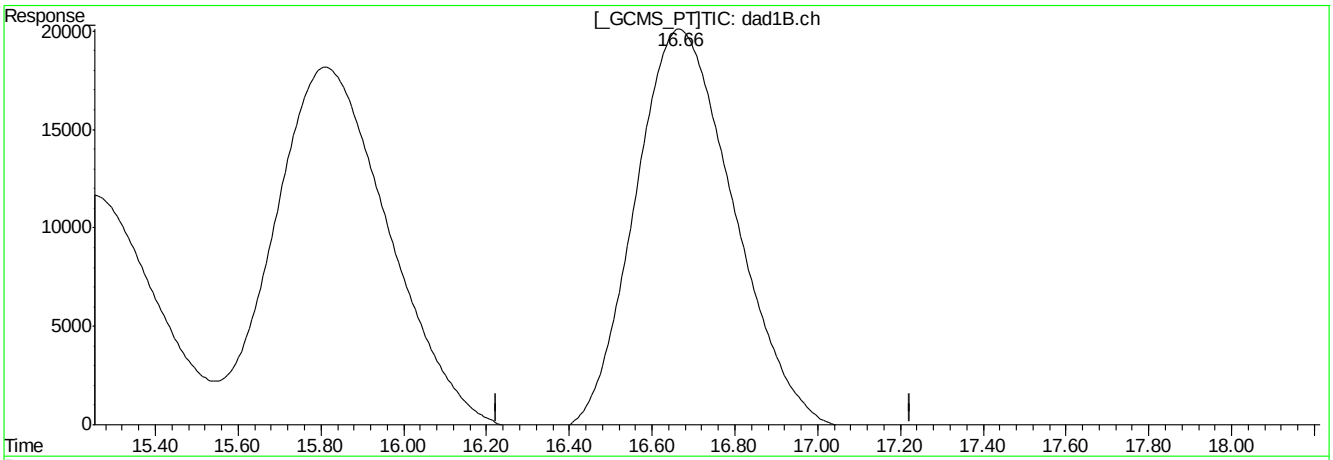
response 3130981

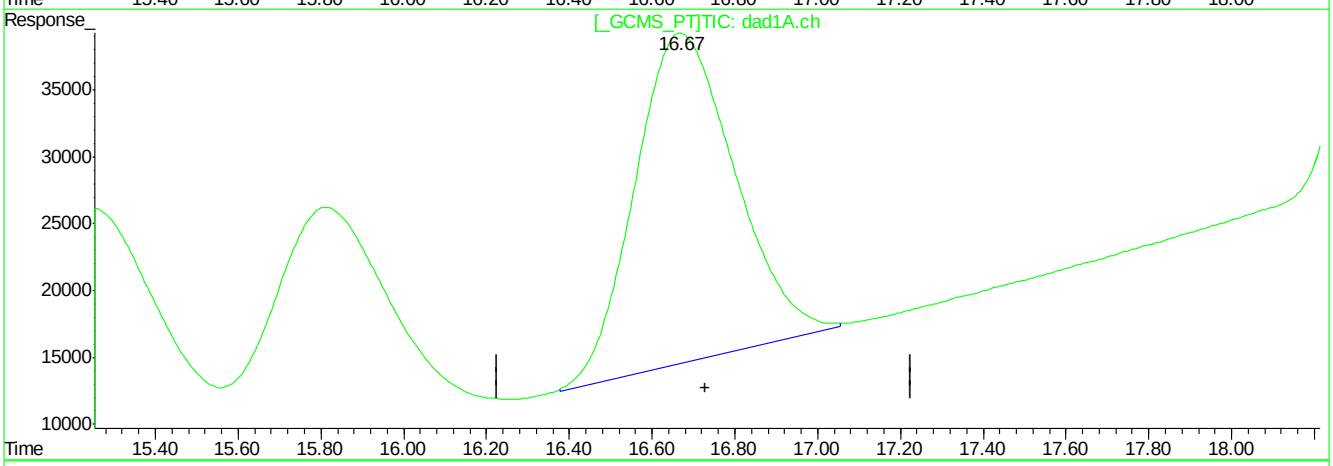
(+) = Expected Retention Time
PP386578.D GPP2262_041620PRI.M Fri Apr 17 12:18:11 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386578.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386578.D\dad1A.ch
Acq On : 16-Apr-2020, 15:54:46 Operator: williamh
Sample : icc2262-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(20) m-Nitrotoluene

16.67min 965.284ppb

response 3474482

(20) m-Nitrotoluene #2

16.67min 1083.090ppb m

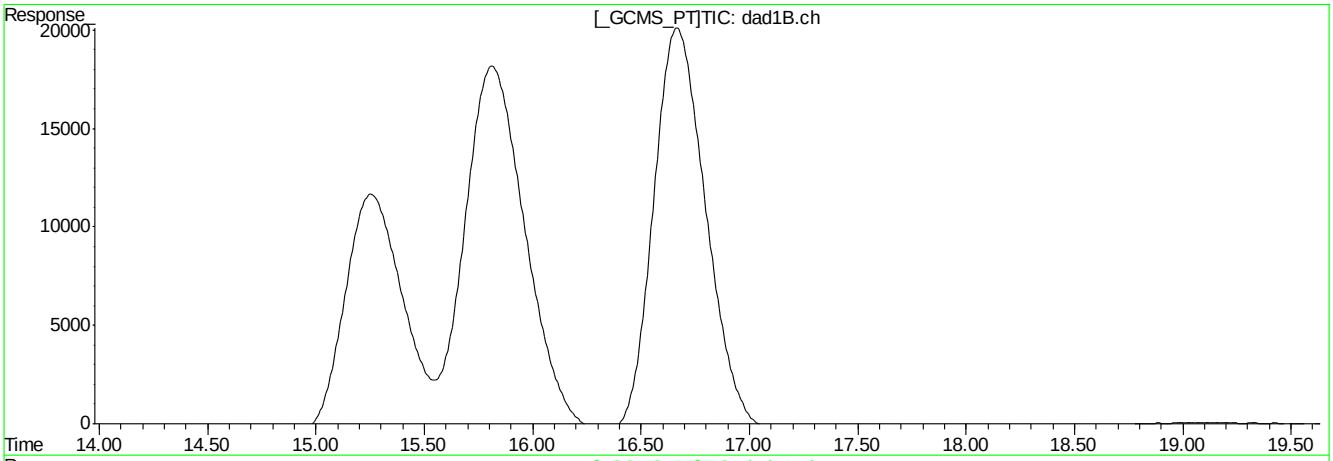
response 4137665

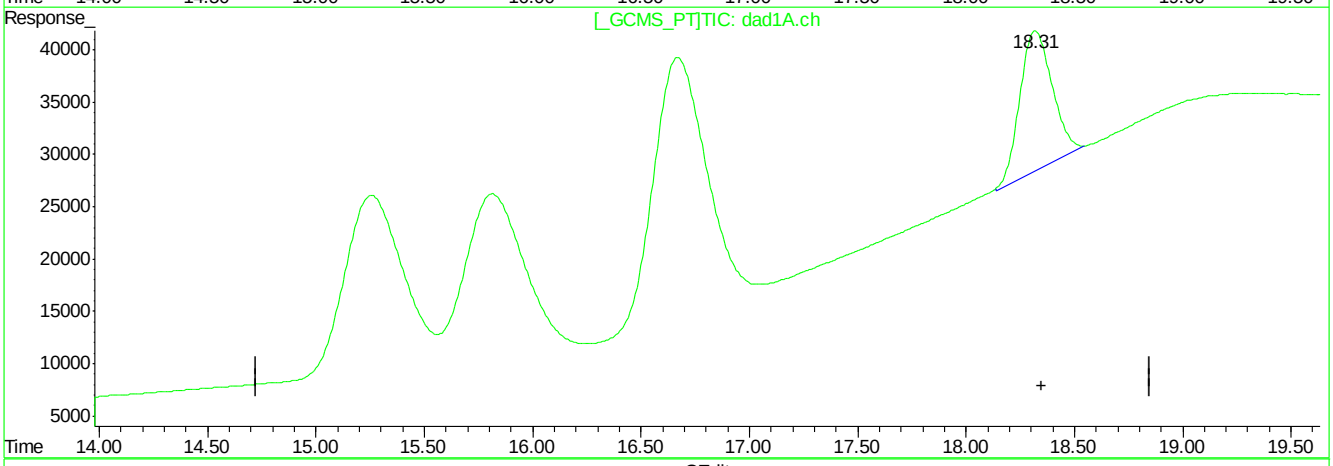
(+) = Expected Retention Time
PP386578.D GPP2262_041620PRI.M Fri Apr 17 12:18:23 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386578.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386578.D\dad1A.ch
Acq On : 16-Apr-2020, 15:54:46 Operator: williamh
Sample : icc2262-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

18.31min 1030.112ppb m

response 1390474

(+) = Expected Retention Time
PP386578.D GPP2262_041620PRI.M Fri Apr 17 12:18:29 2020

PP386579.D

Manual Integrations APPROVED (compounds with "m" flag)

Naresh Jiawan 04/17/20 14:46

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386579.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386579.D\dad1A.ch
Acq On : 16-Apr-2020, 16:25:44 Operator: williamh
Sample : ic2262-2500 Inst : G1315B
Misc : op79816,GPP2262,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11:30 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Initial Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	11.10	11.10	5076348	9079362	2609.452	2601.289
Spiked Amount	500.000	Range	70 - 136	Recovery	=	521.89%#	520.26%#
	Target Compounds						
1)	TNX	1.34	1.34	6090391	9572656	2638.933	2521.184
2)	HMX	1.47	1.47	4103818	11572252	2363.038	2583.247
3)	DNX	1.72	1.72	2903564	4606189	2445.971	2360.830
4)	MNX	2.32	2.32	5515340	8611825	2569.834	2573.402
5)	RDX	2.94	2.94	4867428	7875350	2569.750	2572.754
6)	1,3,5-Trinitrobe	4.71	4.71	10476975	20222763	2555.502	2555.925
7)	1,3-Dinitrobenze	5.91	5.91	13679985	9545436	2577.564	2393.037m
8)	3,5-Dinitroanili	6.28	6.28	10342841	17845298	2572.397	2573.242
9)	Nitrobenzene	7.45	7.45	8201713	7916398	2568.046	2583.520
10)	Nitroglycerin	0.00	8.88	0	3056770	N.D.	2531.761 #
11)	Tetryl	9.35	9.35	7080298	11835172	2547.652	2552.032
12)	2,4,6-Trinitroto	9.79	9.79	9418307	11526736	2531.896	2678.047
13)	2-Amino-4,6-Dini	10.20	10.20	8840674	13400430	2578.104	2752.346
14)	4-Amino-2,6-Dini	10.64	10.64	6387651	13141153	2591.305	2945.160
16)	2,4-Dinitrotolue	11.79	11.79	11944184	7587734	2416.070	2514.414
17)	2,6-Dinitrotolue	12.21	12.21	7373396	9717937	2635.543	2716.437
18)	o-Nitrotoluene	15.25	15.25	5687280	8113757	2579.181	2610.999m
19)	p-Nitrotoluene	15.81	15.81	9244398	7613033	2597.318	2607.291
20)	m-Nitrotoluene	16.67	16.67	8764108	10352376	2434.854	2578.988
21)	PETN	0.00	18.32	0	3591866	N.D. d	2577.329m

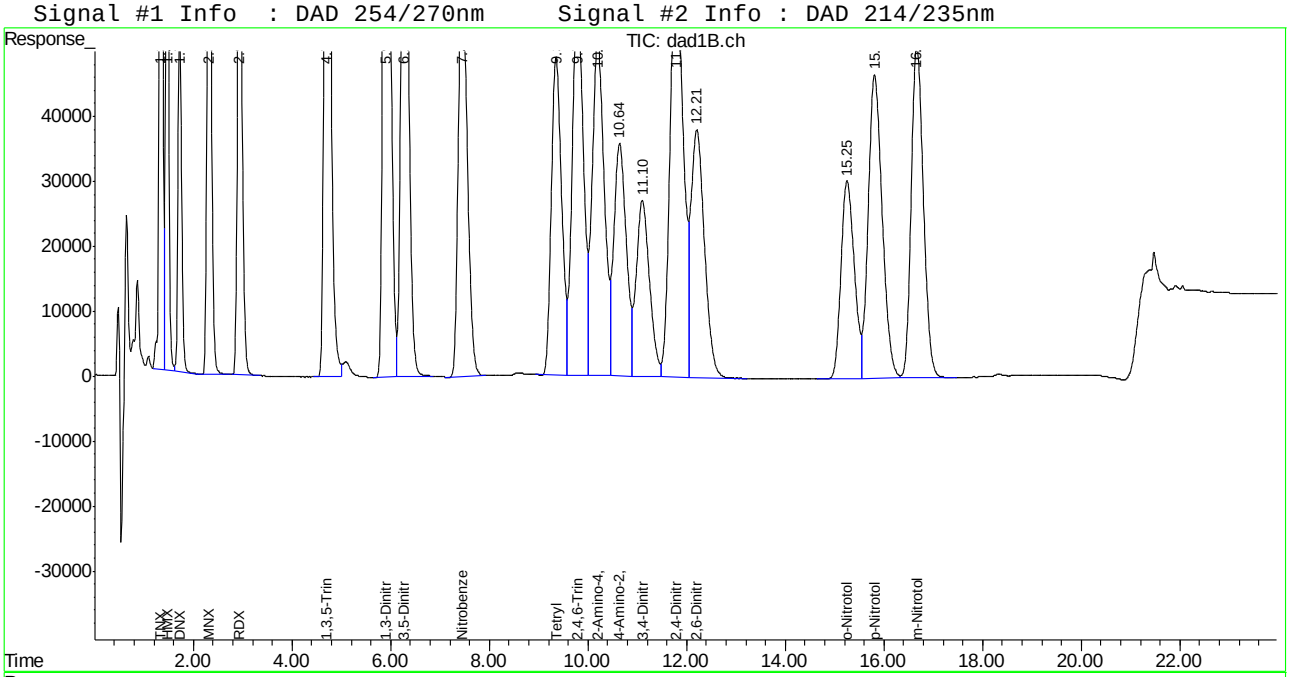
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
PP386579.D GPP2262_041620PRI.M Fri Apr 17 13:39:33 2020 Page 1

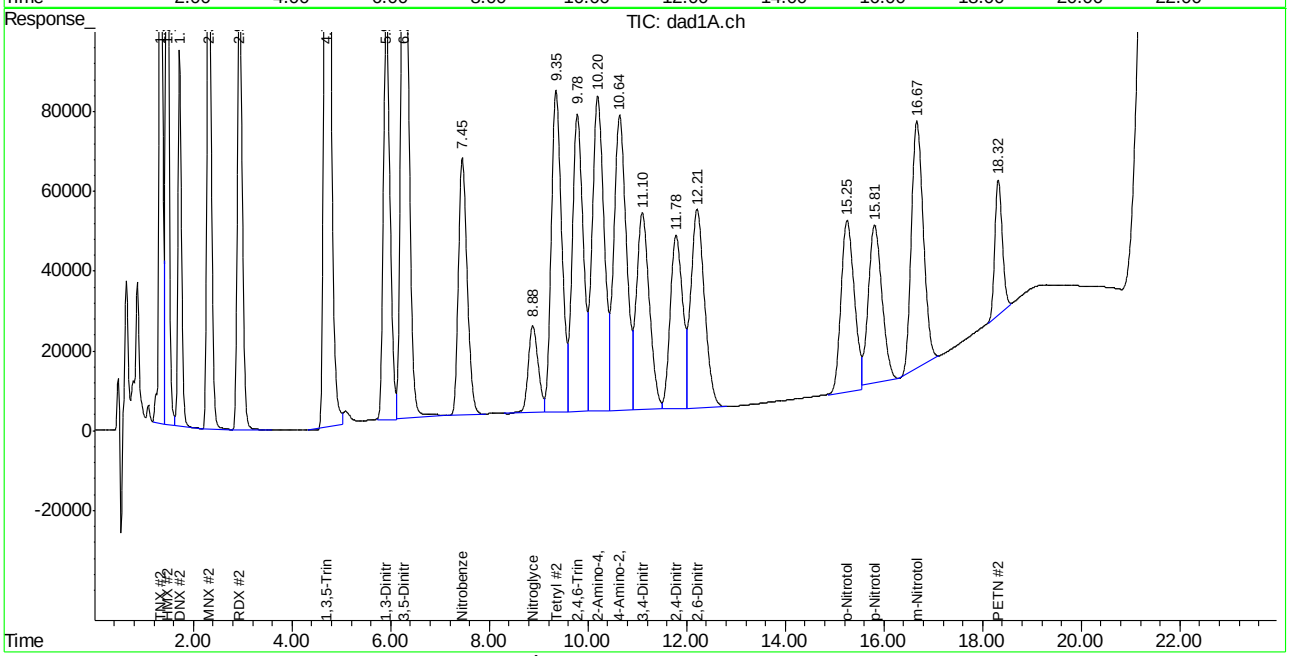
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386579.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386579.D\dad1A.ch
Acq On : 16-Apr-2020, 16:25:44 Operator: williamh
Sample : ic2262-2500 Inst : G1315B
Misc : op79816,GPP2262,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 12:19 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm





Manual Integration Approval Summary

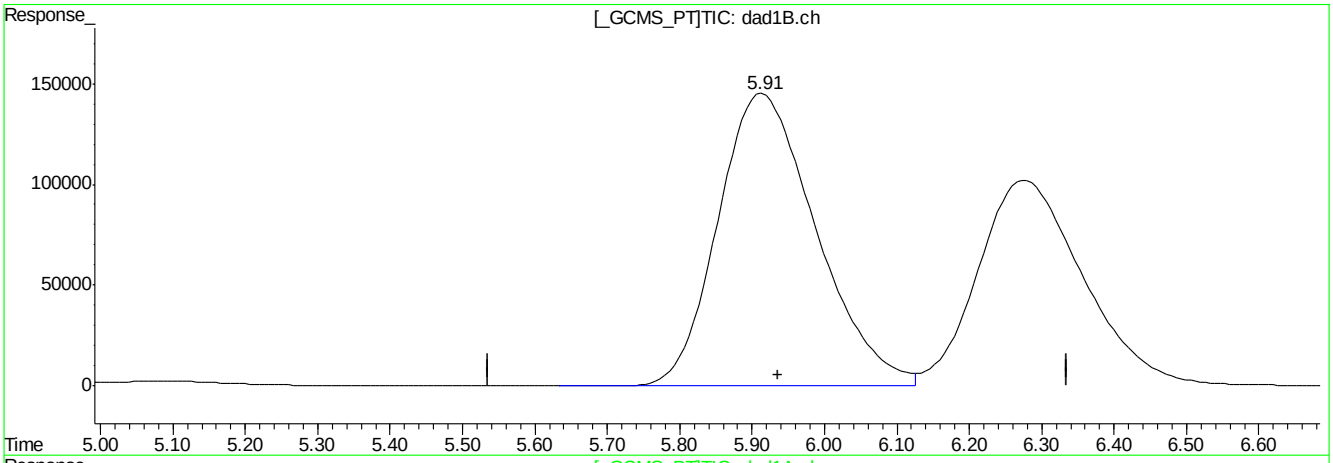
Sample Number: GPP2262-IC2262
Lab FileID: PP386579.D
Injection Time: 04/16/20 16:25
Method: SW846 8330A
Analyst approved: 04/17/20 13:46 William Hustedde
Supervisor approved: 04/17/20 14:46 Naresh Jiawan

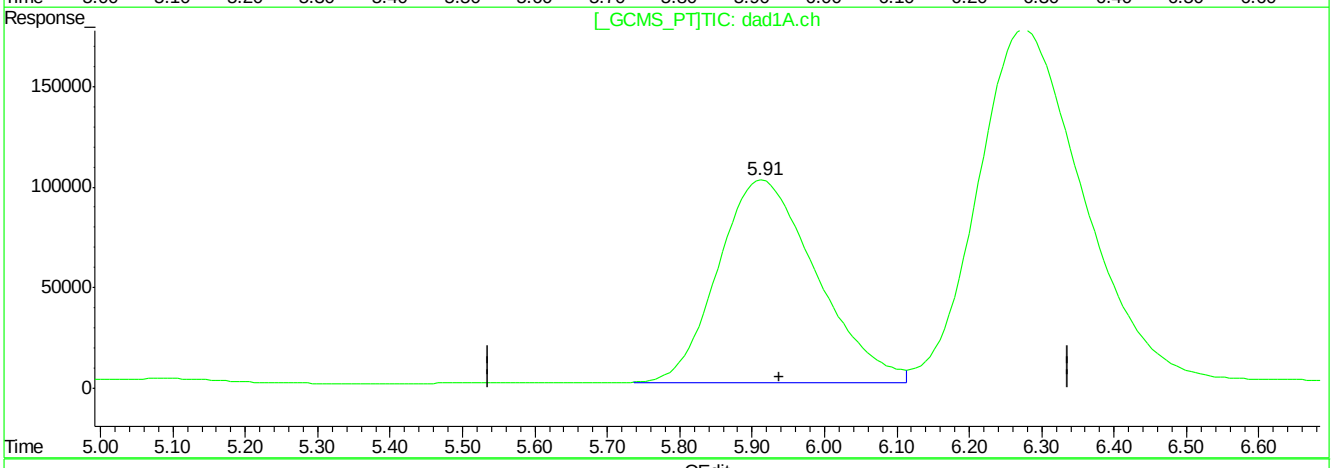
Parameter	CAS	Sig#	R.T. (min.)	Reason
1,3-Dinitrobenzene	99-65-0	2	5.91	Poor instrument integration
o-Nitrotoluene	88-72-2	2	15.25	Poor instrument integration
PETN	78-11-5	2	18.32	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386579.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386579.D\dad1A.ch
Acq On : 16-Apr-2020, 16:25:44 Operator: williamh
Sample : ic2262-2500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

5.91min 2577.564ppb

response 13679985

(7) 1,3-Dinitrobenzene #2

5.91min 2393.037ppb m

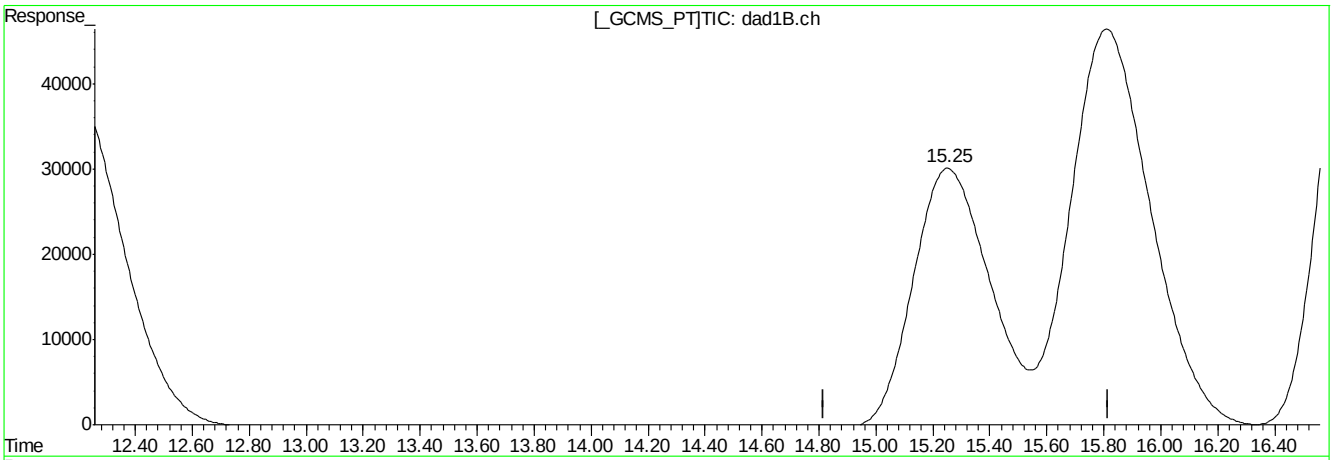
response 9545436

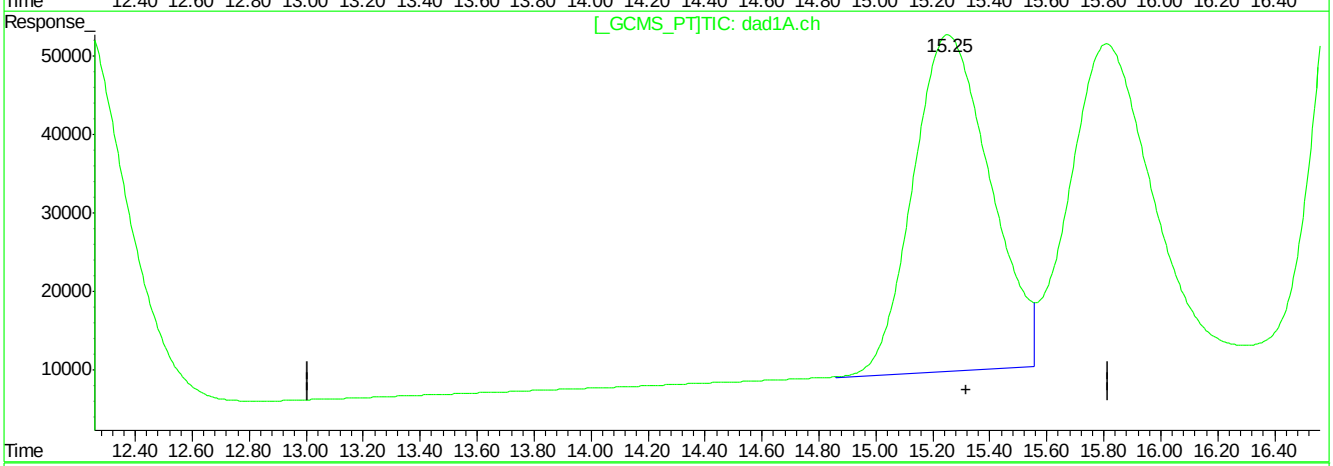
(+) = Expected Retention Time
PP386579.D GPP2262_041620PRI.M Fri Apr 17 12:18:50 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386579.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386579.D\dad1A.ch
Acq On : 16-Apr-2020, 16:25:44 Operator: williamh
Sample : ic2262-2500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(18) o-Nitrotoluene

15.25min 2579.181ppb

response 5687280

(18) o-Nitrotoluene #2

15.25min 2610.999ppb m

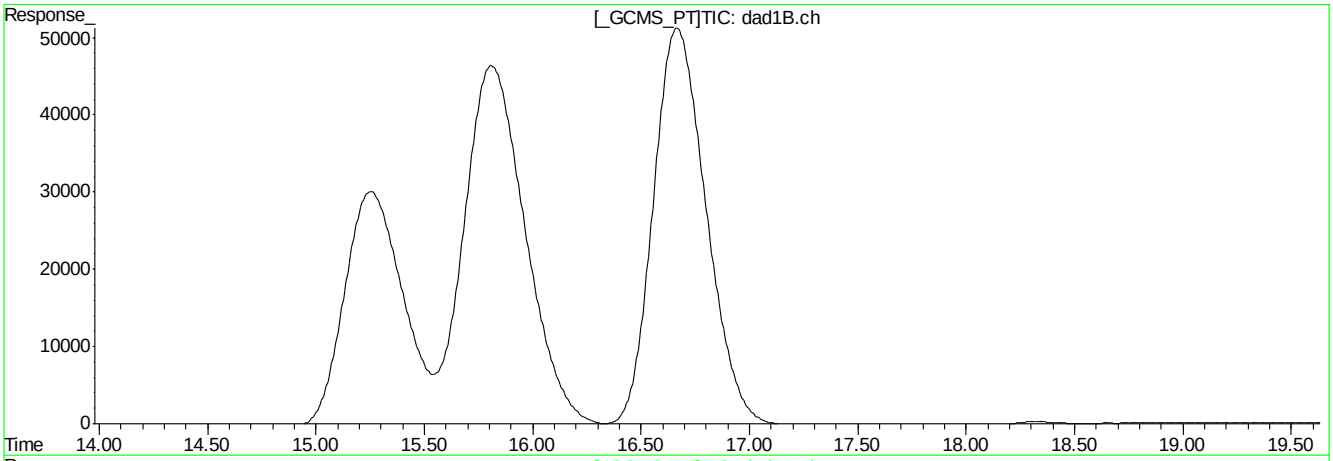
response 8113757

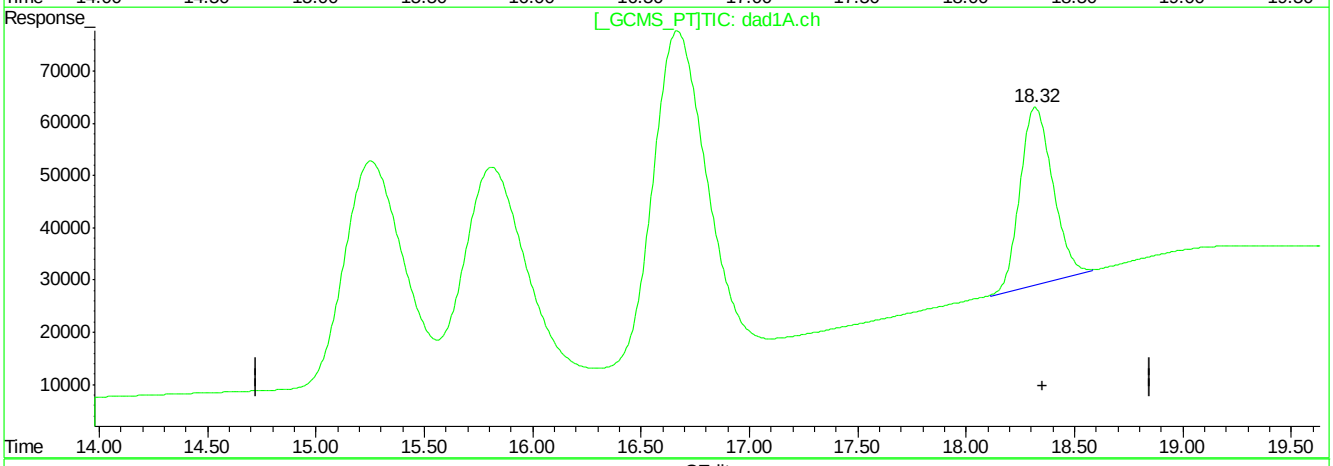
(+) = Expected Retention Time
PP386579.D GPP2262_041620PRI.M Fri Apr 17 12:19:02 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386579.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386579.D\dad1A.ch
Acq On : 16-Apr-2020, 16:25:44 Operator: williamh
Sample : ic2262-2500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb d

response 0

(21) PETN #2

18.32min 2577.329ppb m

response 3591866

(+) = Expected Retention Time
PP386579.D GPP2262_041620PRI.M Fri Apr 17 12:19:13 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 04/17/20 14:46

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386580.D\dad1B.ch Vial: 9
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386580.D\dad1A.ch
Acq On : 16-Apr-2020, 16:56:40 Operator: williamh
Sample : ic2262-5000 Inst : G1315B
Misc : op79816,GPP2262,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11:31 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Initial Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	11.11	11.11	10305010	18779659	5289.755	4757.371
	Spiked Amount 500.000	Range 70 - 136		Recovery =		1057.95%#	951.47%#
	Target Compounds						
1)	TNX	1.34	1.34	12210320	19169860	5290.664	5048.833
2)	HMX	1.47	1.47	8180929	23020395	4710.698	5508.201
3)	DNX	1.72	1.72	5787023	9161771	4875.006	4695.723
4)	MNX	2.32	2.32	11069379	17208571	5210.691	5204.783
5)	RDX	2.94	2.94	9776738	15737778	5144.242	5188.916
6)	1,3,5-Trinitrobe	4.71	4.71	21096167	41210187	4892.162	5046.082
7)	1,3-Dinitrobenze	5.91	5.91	27495162	19727544	5146.784	4945.687
8)	3,5-Dinitroanili	6.28	6.27	20805418	35445942	5136.241	5190.259m
9)	Nitrobenzene	7.45	7.45	16472406	16154981	5157.690	5289.845
10)	Nitroglycerin	0.00	8.88	0	6223869	N.D.	4777.007 #
11)	Tetryl	9.35	9.35	14364058	23904143	5146.649	5154.478
12)	2,4,6-Trinitroto	9.79	9.79	18953630	23257730	5035.921	5403.550
13)	2-Amino-4,6-Dini	10.19	10.19	17872116	27222257	5206.622	5591.243
14)	4-Amino-2,6-Dini	10.64	10.64	12877798	26692400	5244.397	5982.229
16)	2,4-Dinitrotolue	11.79	11.79	24029623	15548507	4860.714	4693.247
17)	2,6-Dinitrotolue	12.21	12.22	14837864	19716769	5303.639	5511.392
18)	o-Nitrotoluene	15.25	15.25	11412622	16472501	5195.085	5136.235m
19)	p-Nitrotoluene	15.81	15.81	18575755	15627200	5247.998	4714.691
20)	m-Nitrotoluene	16.67	16.67	17607411	20964801	4891.709	4863.914
21)	PETN	0.00	18.31	0	7087433	N.D. d	4860.134m

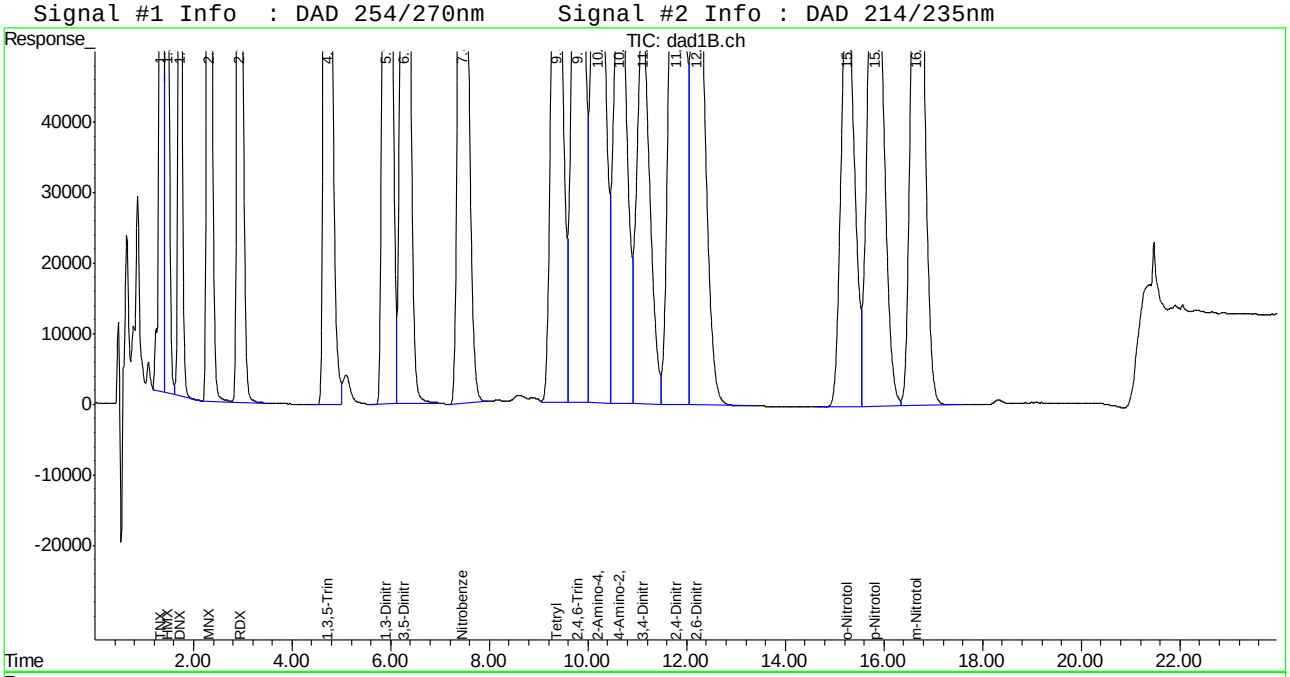
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
PP386580.D GPP2262_041620PRI.M Fri Apr 17 13:39:34 2020 Page 1

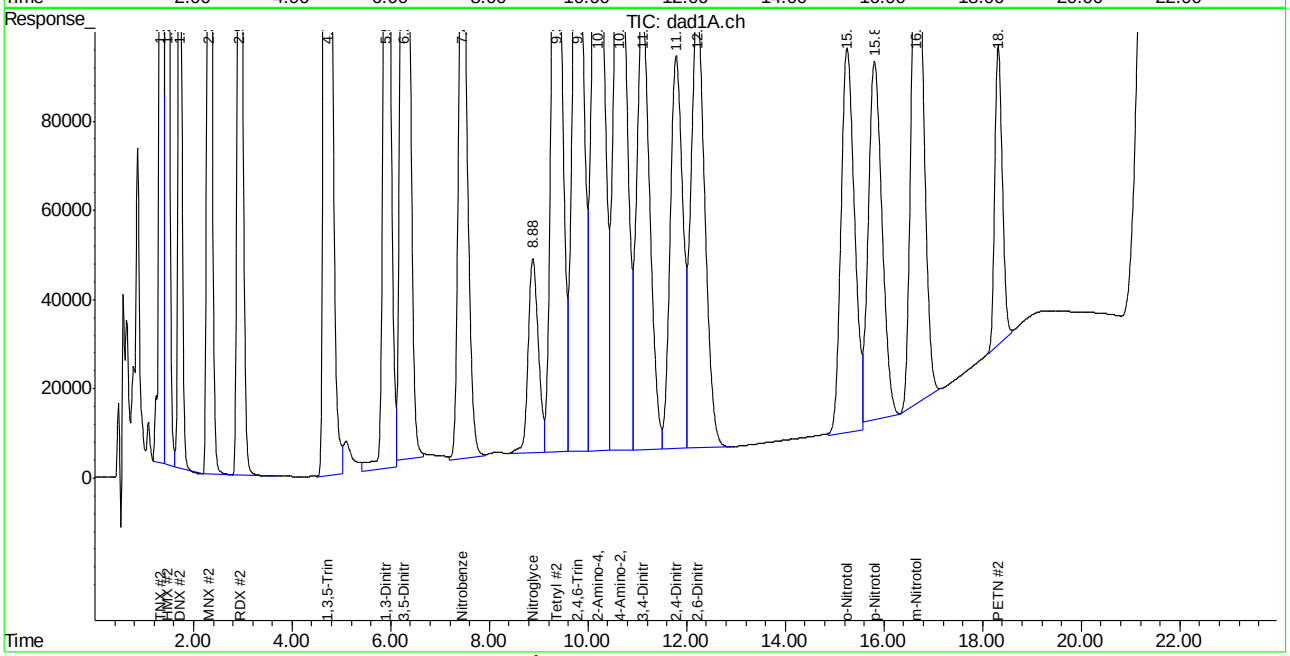
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386580.D\dad1B.ch Vial: 9
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386580.D\dad1A.ch
Acq On : 16-Apr-2020, 16:56:40 Operator: williamh
Sample : ic2262-5000 Inst : G1315B
Misc : op79816,GPP2262,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 12:20 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm





Manual Integration Approval Summary

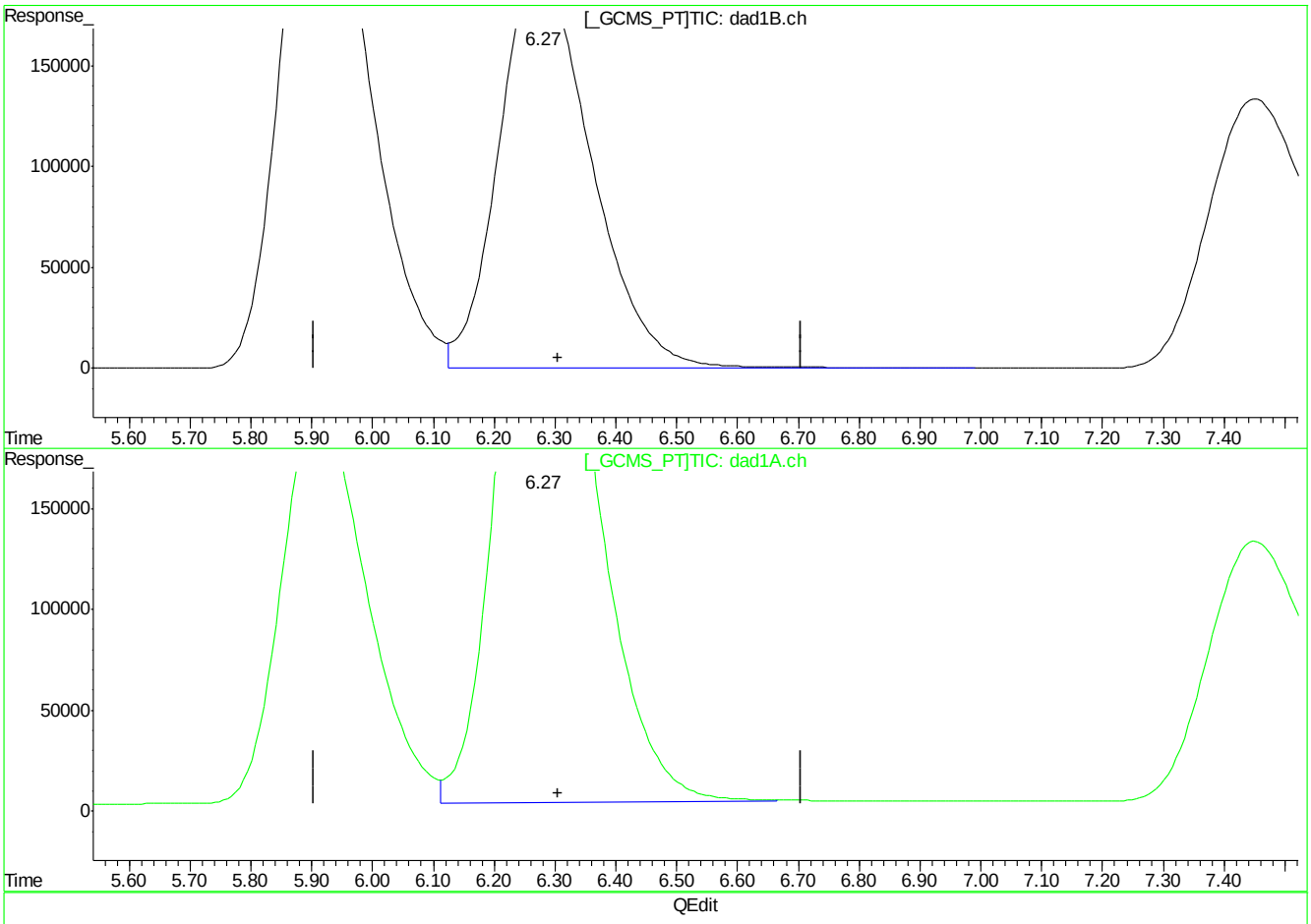
Sample Number: GPP2262-IC2262
Lab FileID: PP386580.D
Injection Time: 04/16/20 16:56
Method: SW846 8330A
Analyst approved: 04/17/20 13:46 William Hustedde
Supervisor approved: 04/17/20 14:46 Naresh Jiawan

Parameter	CAS	Sig#	R.T. (min.)	Reason
3,5-Dinitroaniline	618-87-1	2	6.27	Poor instrument integration
o-Nitrotoluene	88-72-2	2	15.25	Poor instrument integration
PETN	78-11-5	2	18.31	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386580.D\dad1B.ch Vial: 9
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386580.D\dad1A.ch
Acq On : 16-Apr-2020, 16:56:40 Operator: williamh
Sample : ic2262-5000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration



QEdit

(8) 3,5-Dinitroaniline

6.28min 5136.241ppb

response 20805418

(8) 3,5-Dinitroaniline #2

6.27min 5190.259ppb m

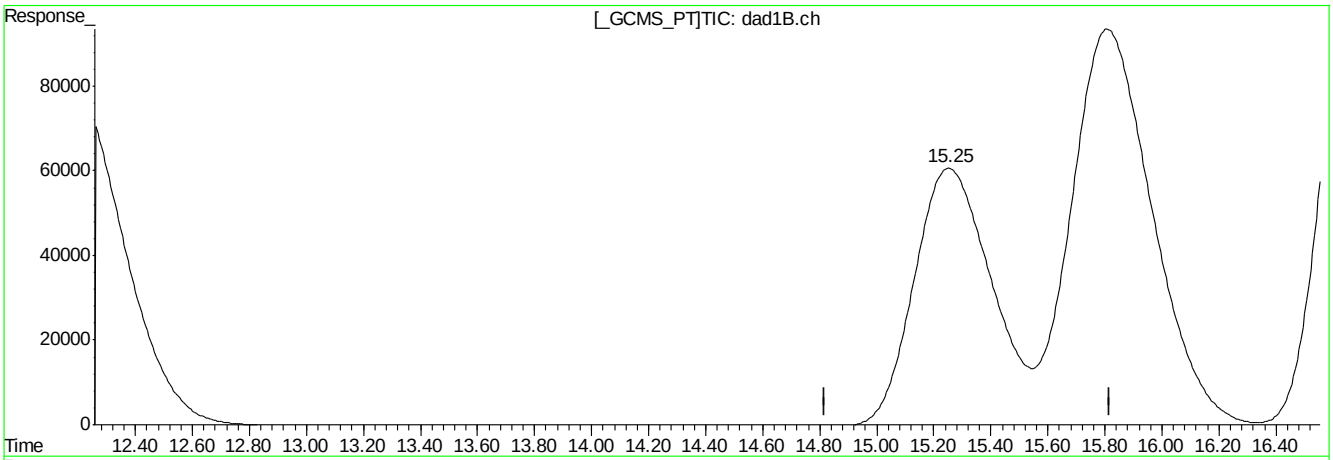
response 35445942

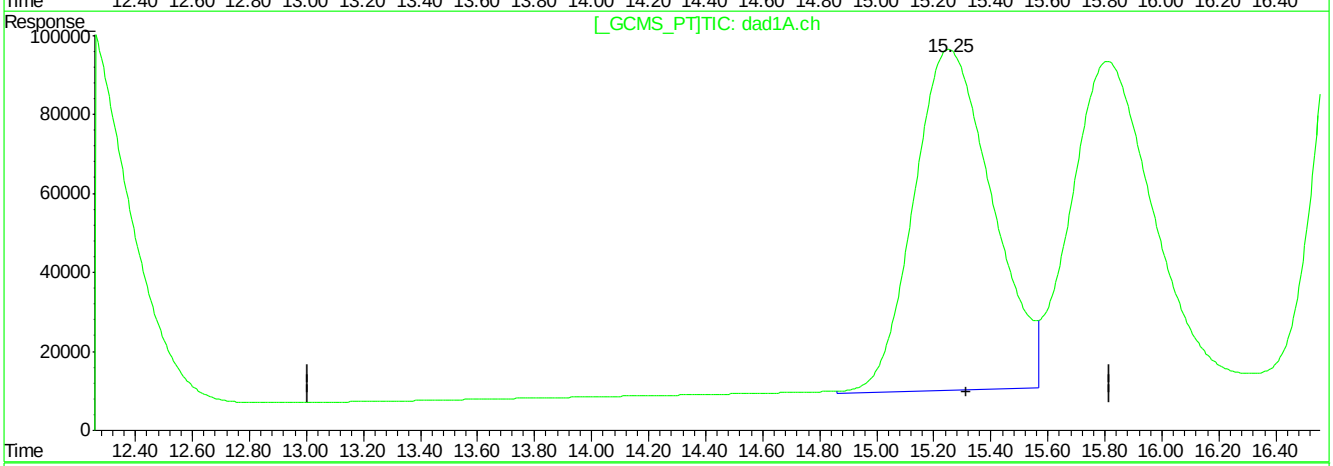
(+) = Expected Retention Time
PP386580.D GPP2262_041620PRI.M Fri Apr 17 12:19:36 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386580.D\dad1B.ch Vial: 9
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386580.D\dad1A.ch
Acq On : 16-Apr-2020, 16:56:40 Operator: williamh
Sample : ic2262-5000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration





QEdit

(18) o-Nitrotoluene

15.25min 5195.085ppb

response 11412622

(18) o-Nitrotoluene #2

15.25min 5136.235ppb m

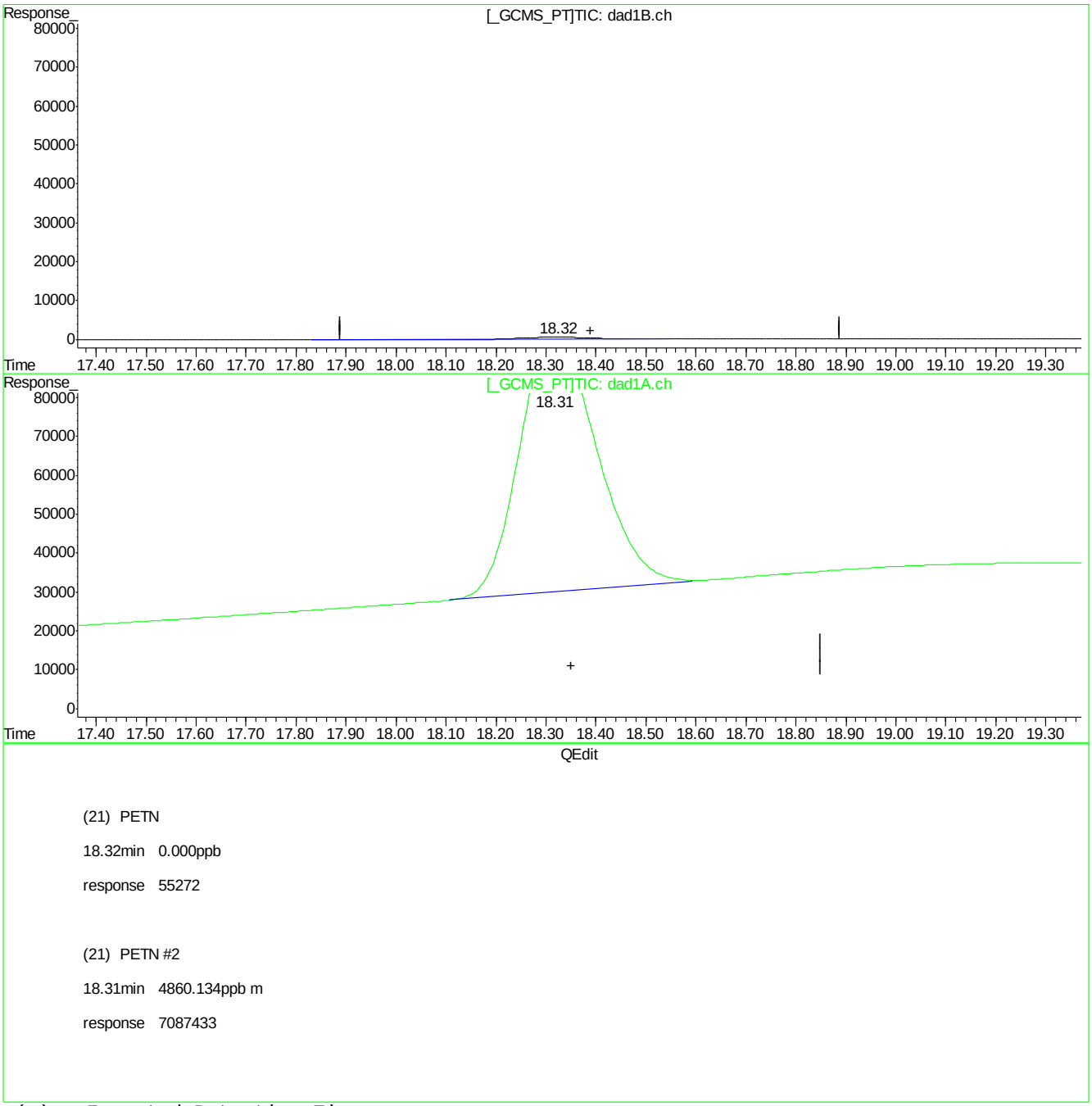
response 16472501

(+) = Expected Retention Time
PP386580.D GPP2262_041620PRI.M Fri Apr 17 12:19:58 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386580.D\dad1B.ch Vial: 9
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386580.D\dad1A.ch
Acq On : 16-Apr-2020, 16:56:40 Operator: williamh
Sample : ic2262-5000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 11:11 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Thu Apr 16 13:09:59 2020
Response via : Multiple Level Calibration



(21) PETN

18.32min 0.000ppb

response 55272

(21) PETN #2

18.31min 4860.134ppb m

response 7087433

(+) = Expected Retention Time
PP386580.D GPP2262_041620PRI.M Fri Apr 17 12:20:11 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 04/17/20 14:46

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386581.D\dad1B.ch Vial: 10
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386581.D\dad1A.ch
Acq On : 16-Apr-2020, 17:27:36 Operator: williamh
Sample : icv2262-1000 Inst : G1315B
Misc : op79816,GPP2262,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 12:22:35 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Initial Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	0.00	0.00	0	0	N.D.	N.D.
	Spiked Amount 500.000	Range 70 - 136		Recovery =		0.00%#	0.00%#
	Target Compounds						
1)	TNX	1.34	1.34	2657308	4091231	1184.722m	1112.751m
2)	HMX	1.47	1.47	1755982	4988894	1096.369	1063.336
3)	DNX	1.72	1.72	1217909	1941298	1070.045	1001.354
4)	MNX	2.32	2.32	2342037	3664062	1039.789	1051.628
5)	RDX	2.94	2.94	2046710	3319566	1030.934	1025.155
6)	1,3,5-Trinitrobe	4.71	4.71	4029592	7883728	989.822	1004.767
7)	1,3-Dinitrobenze	5.92	5.92	5628760	3975959	1023.620	1018.513
8)	3,5-Dinitroanili	6.28	6.28	4184233	7250495	999.239	963.445
9)	Nitrobenzene	7.46	7.46	3356371	3249431	1013.562	1003.606
10)	Nitroglycerin	0.00	8.89	0	1221494	N.D.	1073.733m#
11)	Tetryl	9.36	9.35	2992725	4922839	1043.226	1079.831m
12)	2,4,6-Trinitroto	9.79	9.79	4140142	4877085	1093.377	1140.285m
13)	2-Amino-4,6-Dini	10.20	10.20	3635363	5536205	1020.200	1112.702m
14)	4-Amino-2,6-Dini	10.65	10.65	2726610	5361799	1008.090	1040.332m
16)	2,4-Dinitrotolue	11.79	11.79	4959194	3215511	1038.998	1155.774m
17)	2,6-Dinitrotolue	12.21	12.22	3108673	4128042	1043.404	1076.745
18)	o-Nitrotoluene	15.26	15.25	2337758	3311729	990.462	1116.560m
19)	p-Nitrotoluene	15.82	15.82	3763817	2941302	988.455	1008.041
20)	m-Nitrotoluene	16.67	16.67	3513072	4055989	999.490	990.134
21)	PETN	0.00	18.32	0	1410776	N.D.	1091.517m#

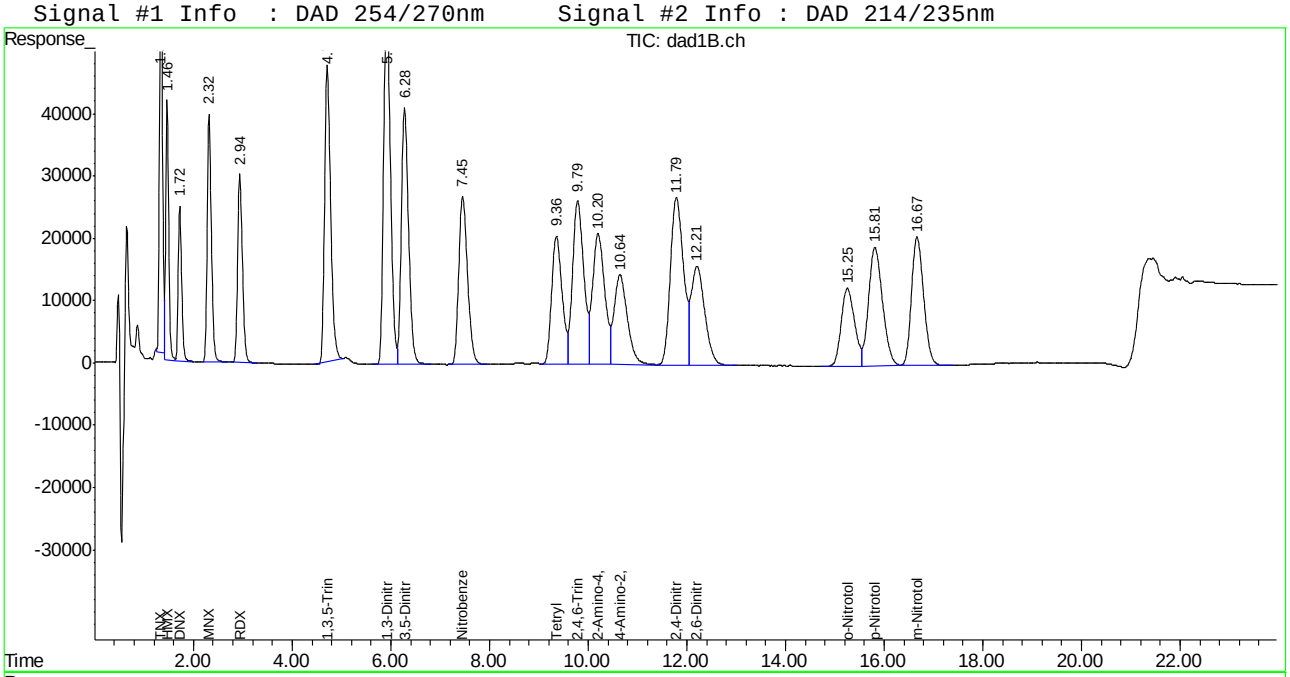
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
PP386581.D GPP2262_041620PRI.M Fri Apr 17 13:39:35 2020 Page 1

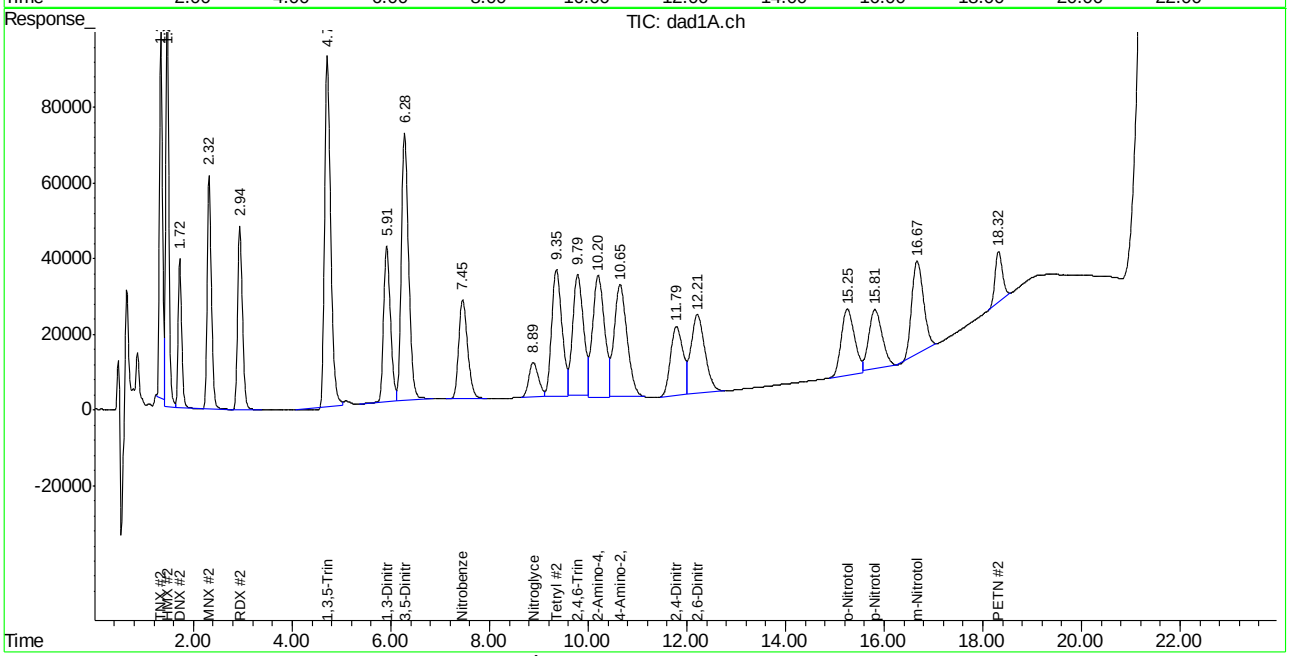
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386581.D\dad1B.ch Vial: 10
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386581.D\dad1A.ch
Acq On : 16-Apr-2020, 17:27:36 Operator: williamh
Sample : icv2262-1000 Inst : G1315B
Misc : op79816,GPP2262,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 12:24 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm





Manual Integration Approval Summary

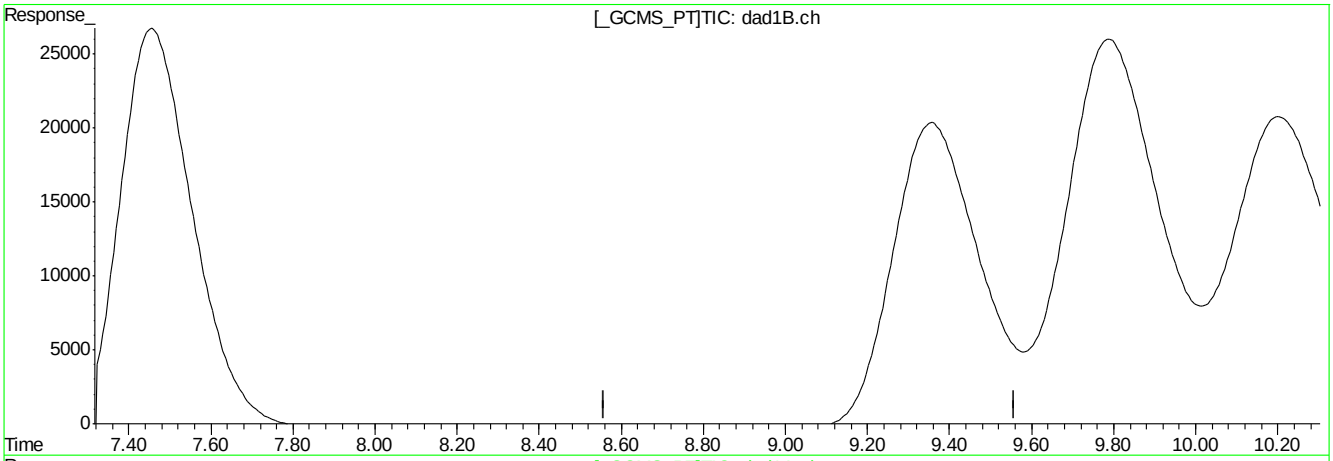
Sample Number: GPP2262-ICV2262 **Method:** SW846 8330A
Lab FileID: PP386581.D **Analyst approved:** 04/17/20 13:46 William Hustedde
Injection Time: 04/16/20 17:27 **Supervisor approved:** 04/17/20 14:46 Naresh Jiawan

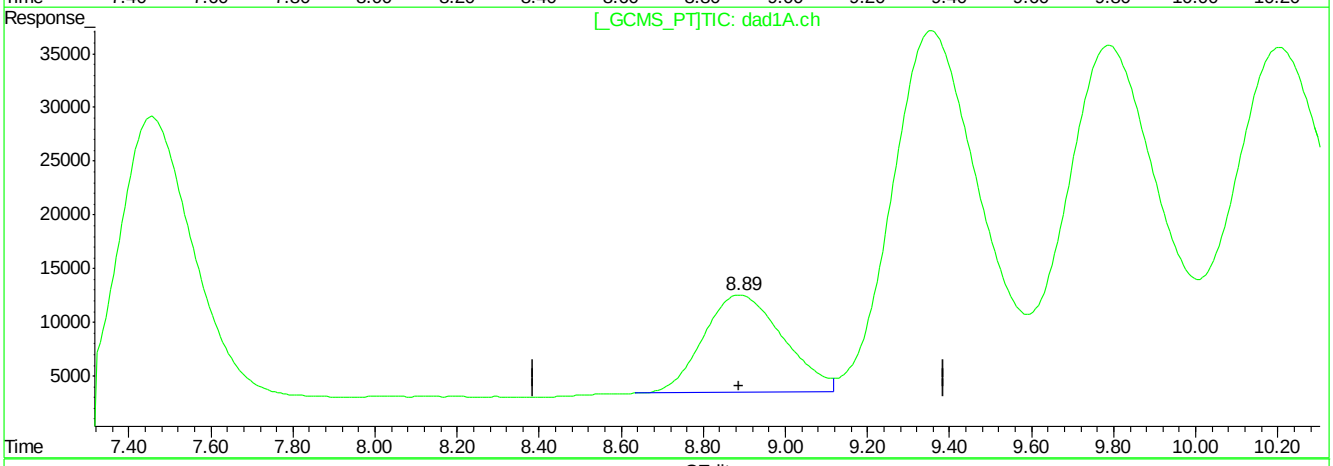
Parameter	CAS	Sig#	R.T. (min.)	Reason
TNX		1	1.34	Poor instrument integration
TNX		2	1.34	Poor instrument integration
Nitroglycerine	55-63-0	2	8.89	Poor instrument integration
Tetryl	479-45-8	2	9.35	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	2	9.79	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	2	10.20	Poor instrument integration
4-amino-2,6-Dinitrotoluene	19406-51-0	2	10.65	Poor instrument integration
2,4-Dinitrotoluene	121-14-2	2	11.79	Poor instrument integration
o-Nitrotoluene	88-72-2	2	15.25	Poor instrument integration
PETN	78-11-5	2	18.32	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386581.D\dad1B.ch Vial: 10
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386581.D\dad1A.ch
Acq On : 16-Apr-2020, 17:27:36 Operator: williamh
Sample : icv2262-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 12:22 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(10) Nitroglycerin

0.00min 0.000ppb

response 0

(10) Nitroglycerin #2

8.89min 1073.733ppb m

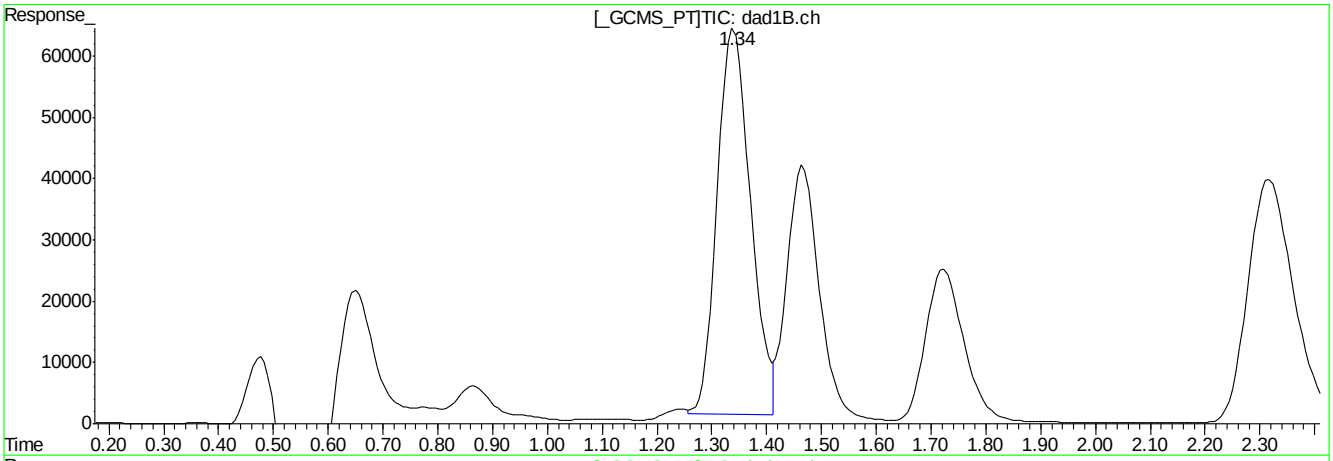
response 1221494

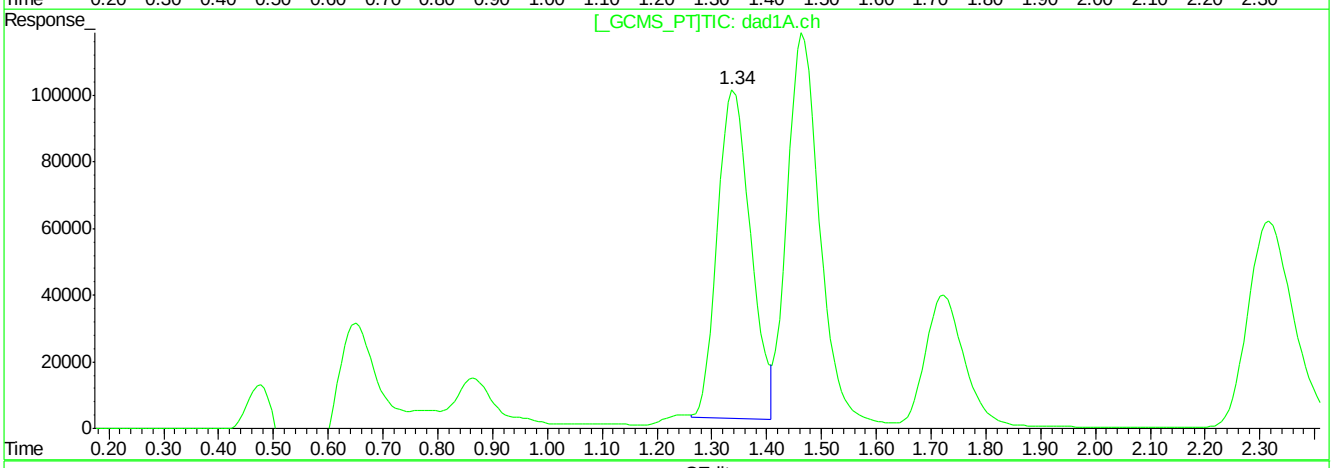
(+) = Expected Retention Time
PP386581.D GPP2262_041620PRI.M Fri Apr 17 12:22:52 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386581.D\dad1B.ch Vial: 10
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386581.D\dad1A.ch
Acq On : 16-Apr-2020, 17:27:36 Operator: williamh
Sample : icv2262-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 12:22 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(1) TNX

1.34min 1184.722ppb m

response 2657308

(1) TNX #2

1.34min 1112.751ppb m

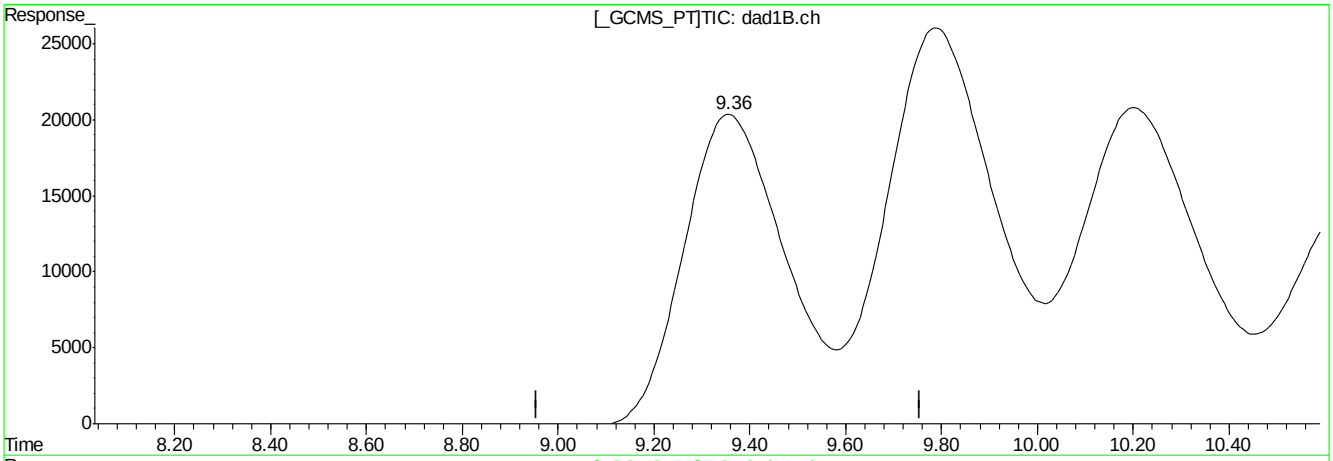
response 4091231

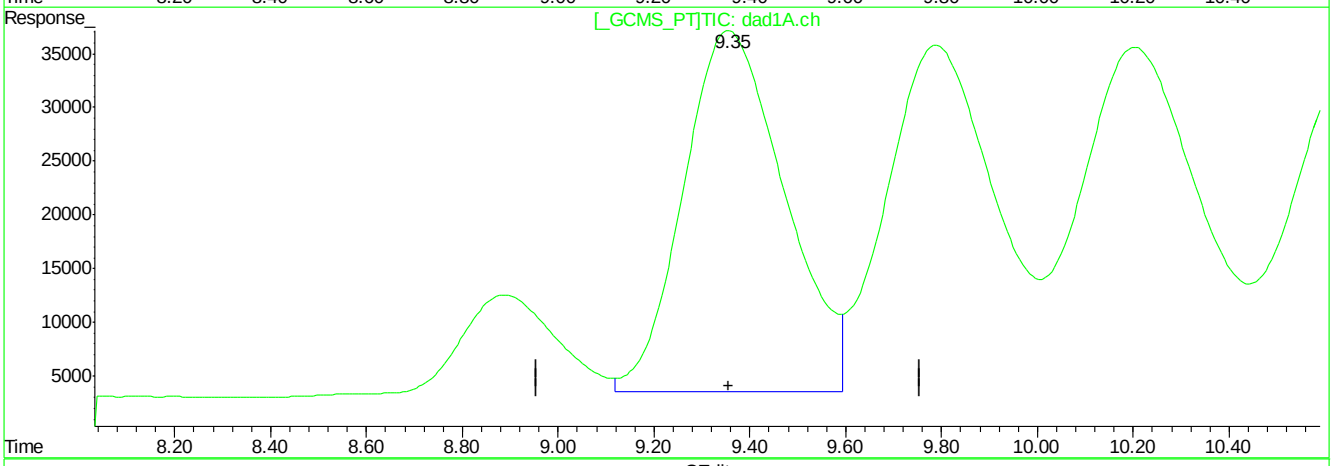
(+) = Expected Retention Time
PP386581.D GPP2262_041620PRI.M Fri Apr 17 12:23:11 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386581.D\dad1B.ch Vial: 10
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386581.D\dad1A.ch
Acq On : 16-Apr-2020, 17:27:36 Operator: williamh
Sample : icv2262-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 12:22 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(11) Tetryl

9.36min 1043.226ppb

response 2992725

(11) Tetryl #2

9.35min 1079.831ppb m

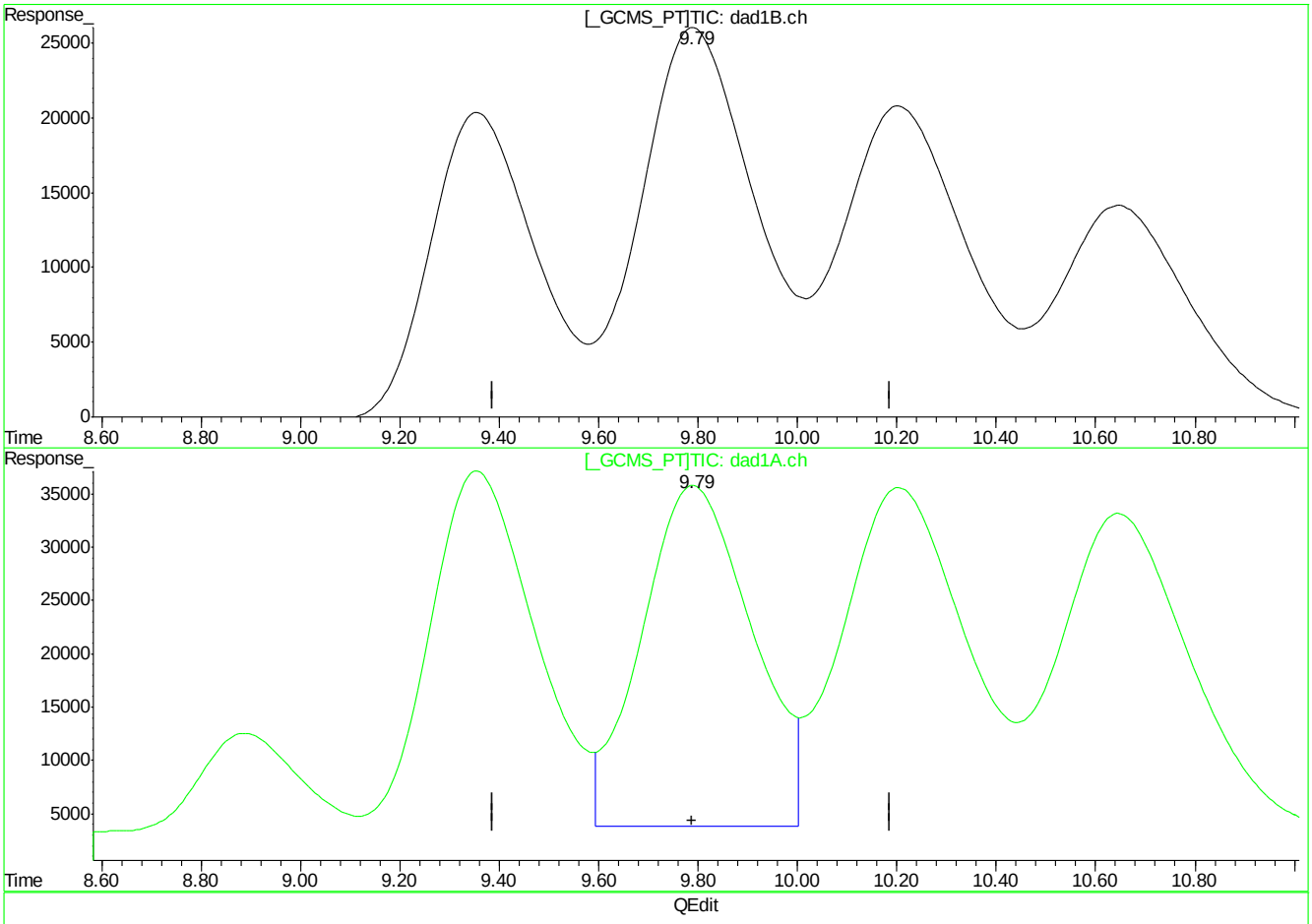
response 4922839

(+) = Expected Retention Time
PP386581.D GPP2262_041620PRI.M Fri Apr 17 12:23:32 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386581.D\dad1B.ch Vial: 10
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386581.D\dad1A.ch
Acq On : 16-Apr-2020, 17:27:36 Operator: williamh
Sample : icv2262-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 12:22 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration



(12) 2,4,6-Trinitrotoluene

9.79min 1093.377ppb

response 4140142

(12) 2,4,6-Trinitrotoluene #2

9.79min 1140.285ppb m

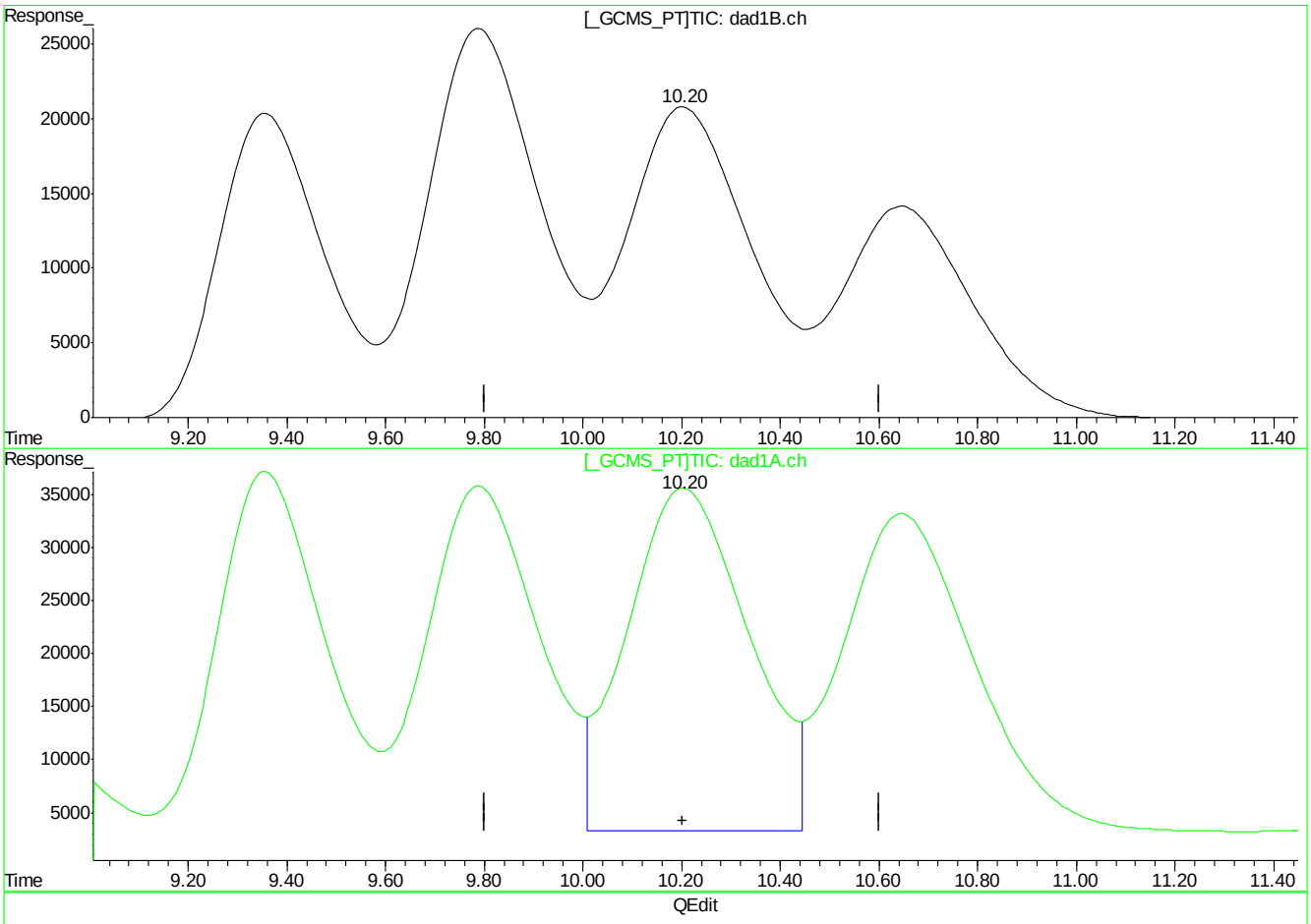
response 4877085

(+) = Expected Retention Time
PP386581.D GPP2262_041620PRI.M Fri Apr 17 12:23:51 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386581.D\dad1B.ch Vial: 10
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386581.D\dad1A.ch
Acq On : 16-Apr-2020, 17:27:36 Operator: williamh
Sample : icv2262-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 12:22 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration



(13) 2-Amino-4,6-Dinitrotoluene

10.20min 1020.200ppb

response 3635363

(13) 2-Amino-4,6-Dinitrotoluene #2

10.20min 1112.702ppb m

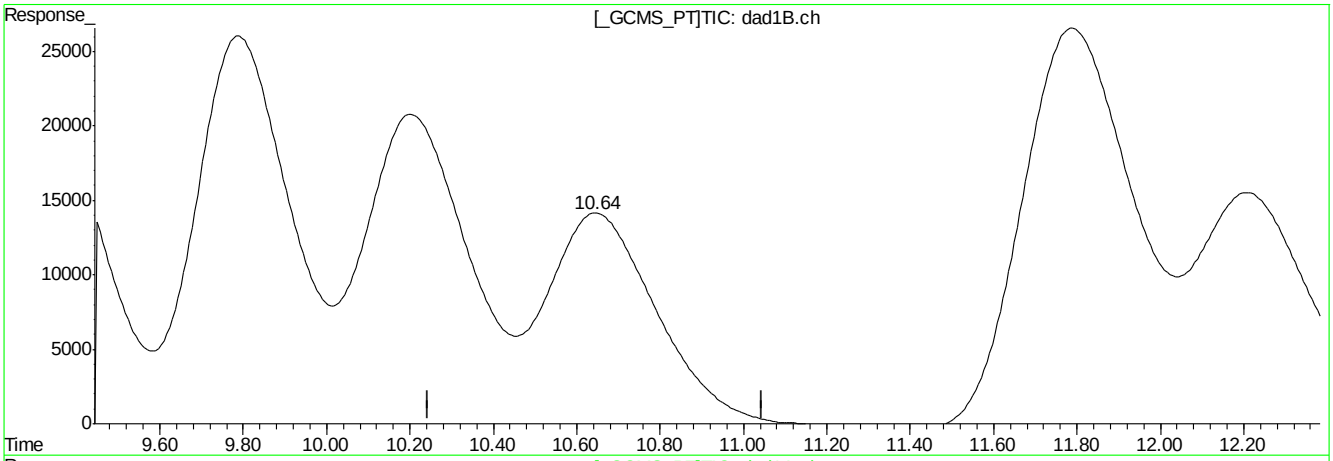
response 5536205

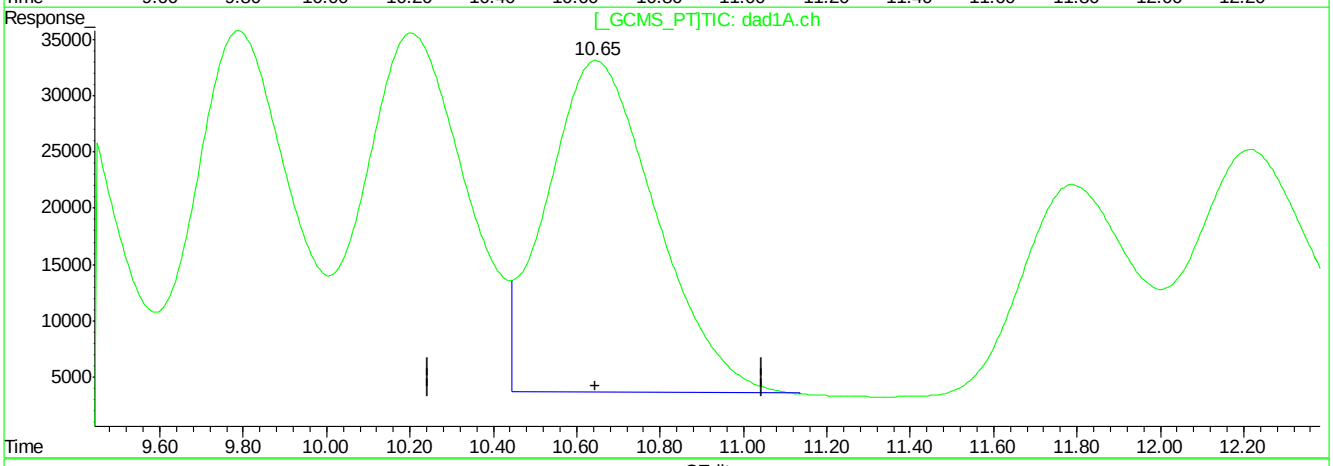
(+) = Expected Retention Time
PP386581.D GPP2262_041620PRI.M Fri Apr 17 12:24:00 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386581.D\dad1B.ch Vial: 10
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386581.D\dad1A.ch
Acq On : 16-Apr-2020, 17:27:36 Operator: williamh
Sample : icv2262-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 12:22 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(14) 4-Amino-2,6-Dinitrotoluene

10.65min 1008.090ppb

response 2726610

(14) 4-Amino-2,6-Dinitrotoluene #2

10.65min 1040.332ppb m

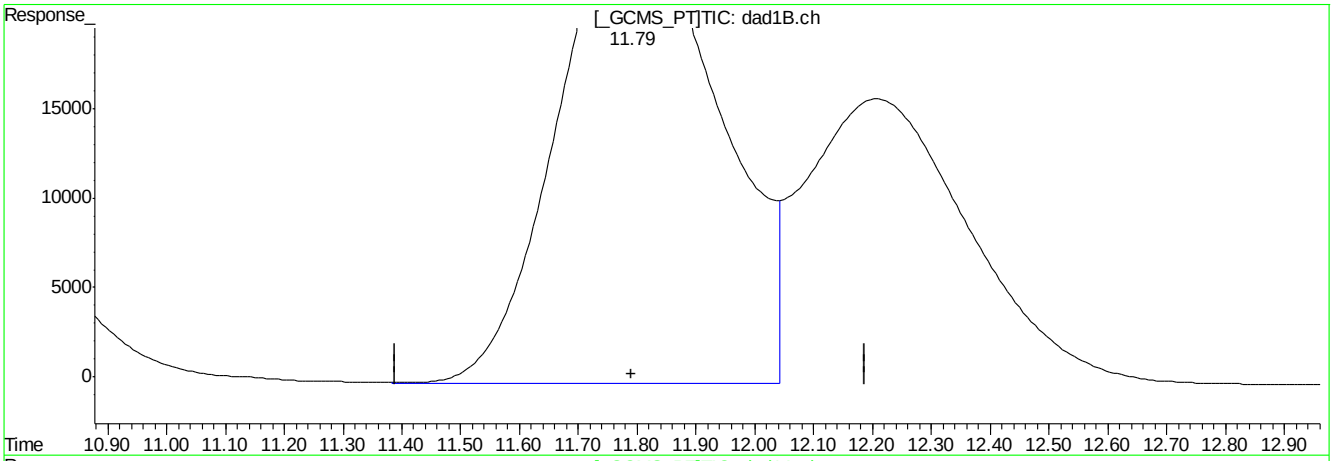
response 5361799

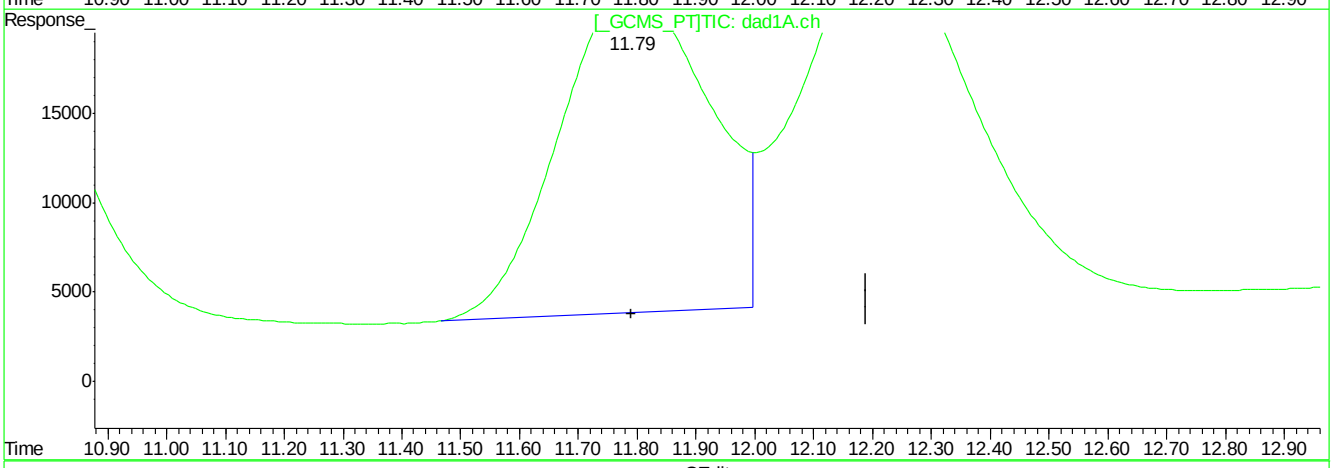
(+) = Expected Retention Time
PP386581.D GPP2262_041620PRI.M Fri Apr 17 12:24:06 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386581.D\dad1B.ch Vial: 10
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386581.D\dad1A.ch
Acq On : 16-Apr-2020, 17:27:36 Operator: williamh
Sample : icv2262-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 12:22 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(16) 2,4-Dinitrotoluene

11.79min 1038.998ppb

response 4959194

(16) 2,4-Dinitrotoluene #2

11.79min 1155.774ppb m

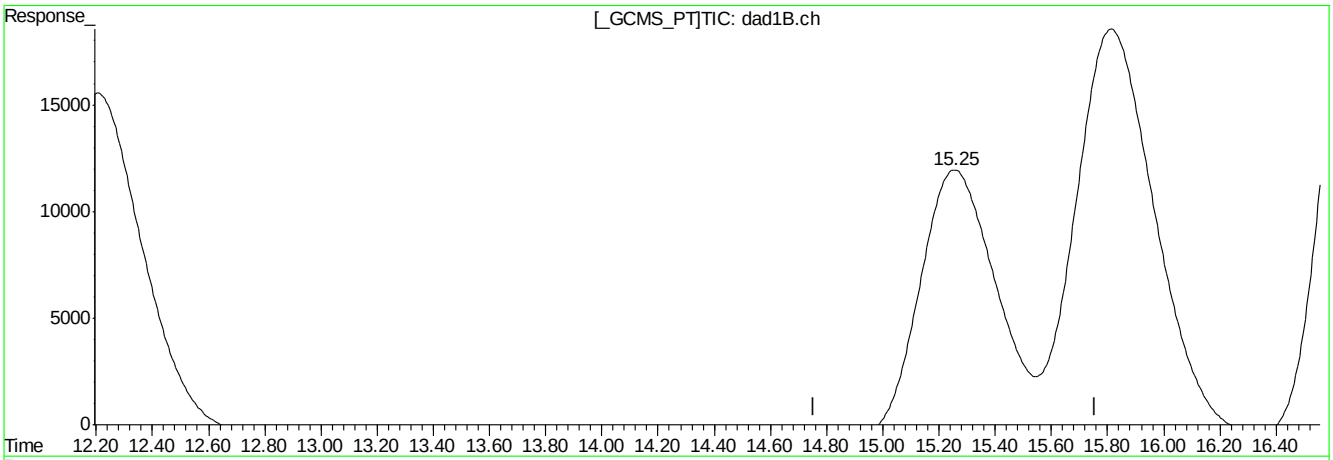
response 3215511

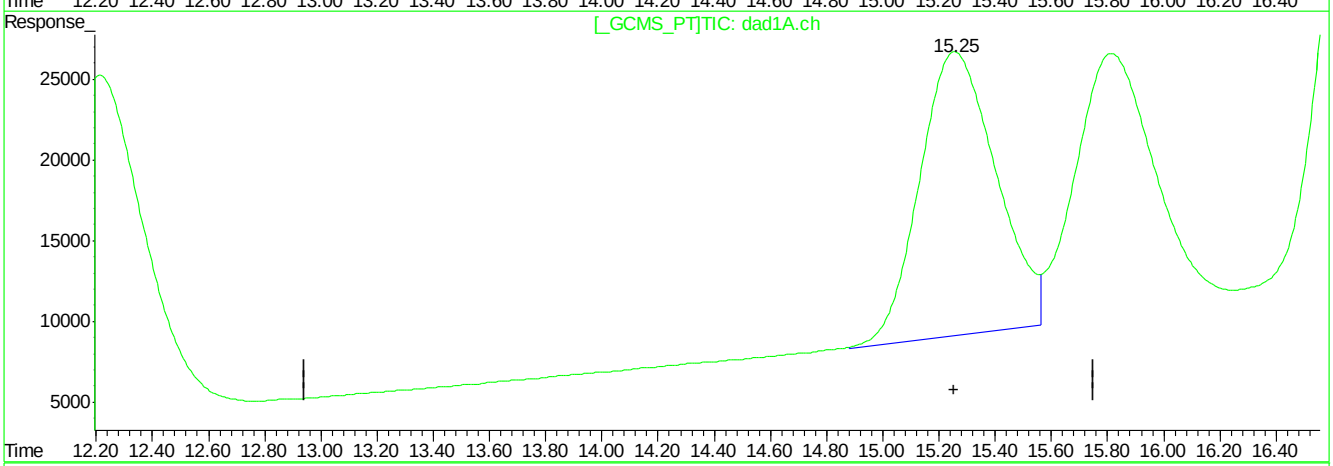
(+) = Expected Retention Time
PP386581.D GPP2262_041620PRI.M Fri Apr 17 12:24:18 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386581.D\dad1B.ch Vial: 10
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386581.D\dad1A.ch
Acq On : 16-Apr-2020, 17:27:36 Operator: williamh
Sample : icv2262-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 12:22 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(18) o-Nitrotoluene

15.26min 990.462ppb

response 2337758

(18) o-Nitrotoluene #2

15.25min 1116.560ppb m

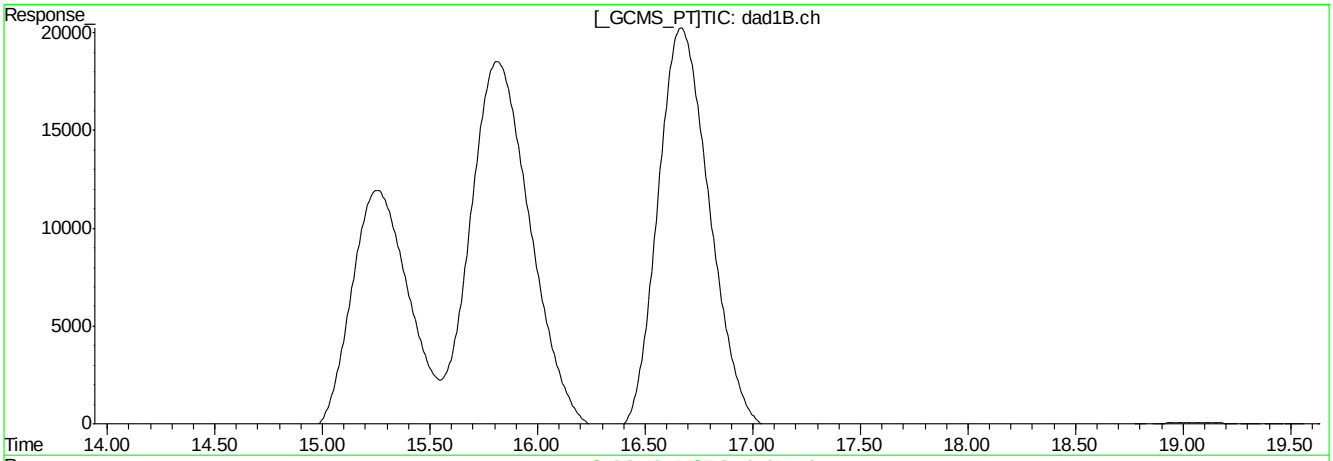
response 3311729

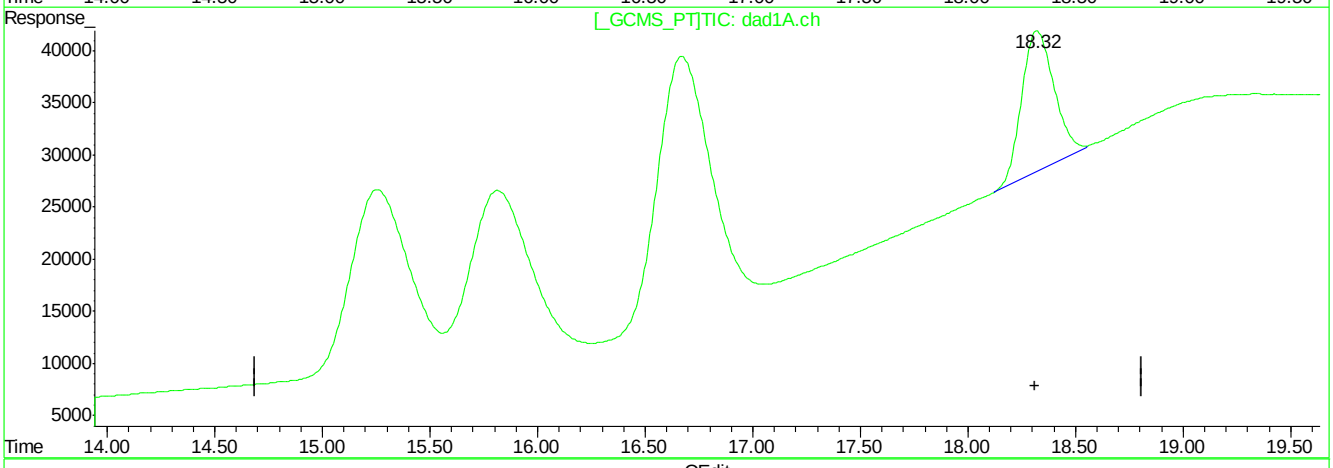
(+) = Expected Retention Time
PP386581.D GPP2262_041620PRI.M Fri Apr 17 12:24:26 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2262\PP386581.D\dad1B.ch Vial: 10
Signal #2 : C:\HPCHEM\2\DATA\GPP2262\PP386581.D\dad1A.ch
Acq On : 16-Apr-2020, 17:27:36 Operator: williamh
Sample : icv2262-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: Apr 17 12:22 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

18.32min 1091.517ppb m

response 1410776

(+) = Expected Retention Time
PP386581.D GPP2262_041620PRI.M Fri Apr 17 12:24:33 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
05/05/20 17:24

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386859.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386859.D\dad1A.ch
Acq On : 04-May-2020, 12:36:04 Operator: williamh
Sample : cc2262-1000 Inst : G1315B
Misc : op80030,GPP2268,1040,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 04 14:07:32 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Initial Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	11.05	11.04	2112217	3510481	1061.647	1007.974
	Spiked Amount 500.000	Range 70 - 136		Recovery =		212.33%#	201.59%#
	Target Compounds						
1)	TNX	1.33	1.34	2467319	3850404	1100.018	1047.250
2)	HMX	1.46	1.46	1839975	5114775	1148.810	1090.311
3)	DNX	1.72	1.72	1166484	1854719	1024.864	956.695
4)	MNX	2.31	2.31	2211538	3466818	981.851	995.016
5)	RDX	2.92	2.92	2101302	3403486	1058.433	1051.071
6)	1,3,5-Trinitrobe	4.69	4.69	4571939	8592446	1123.043	1095.092
7)	1,3-Dinitrobenze	5.89	5.89	5894289	4182783	1071.908	1071.495
8)	3,5-Dinitroanili	6.25	6.25	4495652	7787451	1073.609	1034.796
9)	Nitrobenzene	7.42	7.42	3510810	3365942	1060.200	1039.591
10)	Nitroglycerin	0.00	8.85	0	1237673	N.D.	1087.955 #
11)	Tetryl	9.31	9.31	2819766	4694031	982.935	1029.642
12)	2,4,6-Trinitroto	9.74	9.74	3962902	4729348	1046.570	1105.743
13)	2-Amino-4,6-Dini	10.15	10.15	3889852	5669811	1091.618	1139.555
14)	4-Amino-2,6-Dini	10.59	10.59	2826409	5597294	1044.987	1085.572
16)	2,4-Dinitrotolue	11.74	11.74	4919546	2882401	1030.691	1036.042
17)	2,6-Dinitrotolue	12.14	12.15	3437861	4318316	1153.894	1125.967
18)	o-Nitrotoluene	15.20	15.20	2350778	3265663	995.978	1101.029m
19)	p-Nitrotoluene	15.76	15.76	4007655	3087153	1052.492	1057.081
20)	m-Nitrotoluene	16.62	16.62	3734635	4238297	1062.526	1034.366
21)	PETN	0.00	18.29	0	1472286	N.D.	1139.108m#

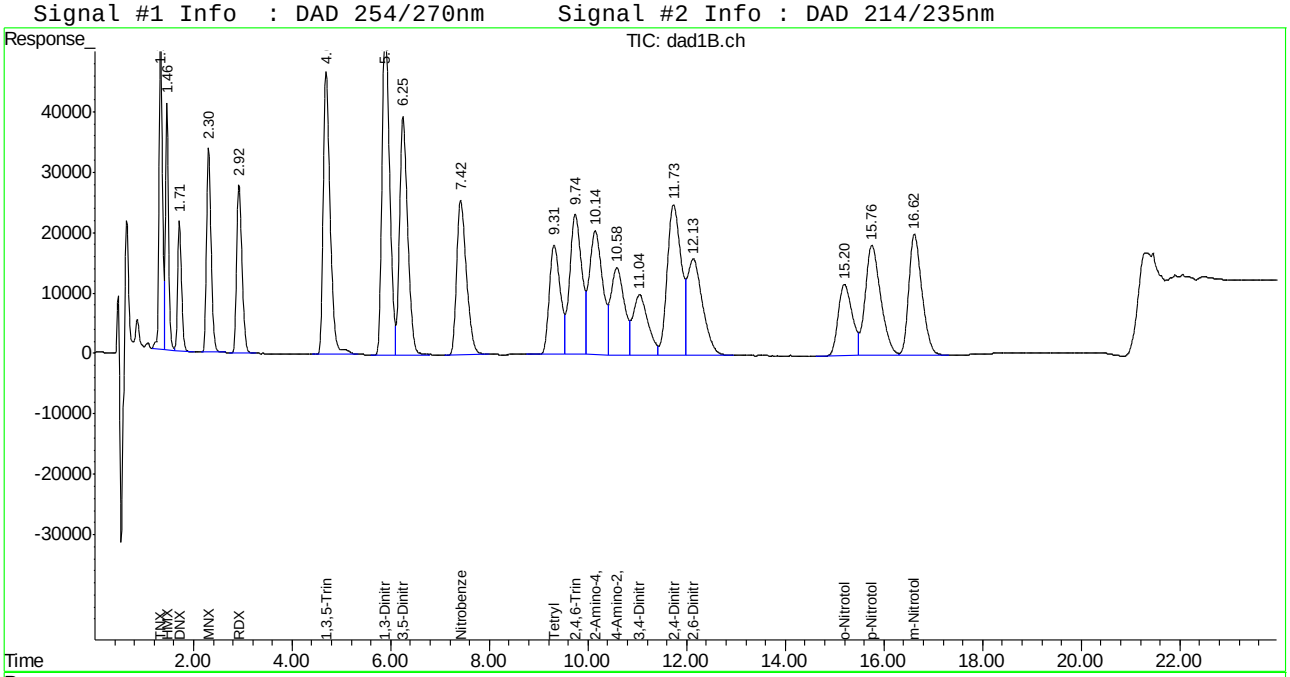
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
PP386859.D GPP2262_041620PRI.M Tue May 05 13:36:02 2020 Page 1

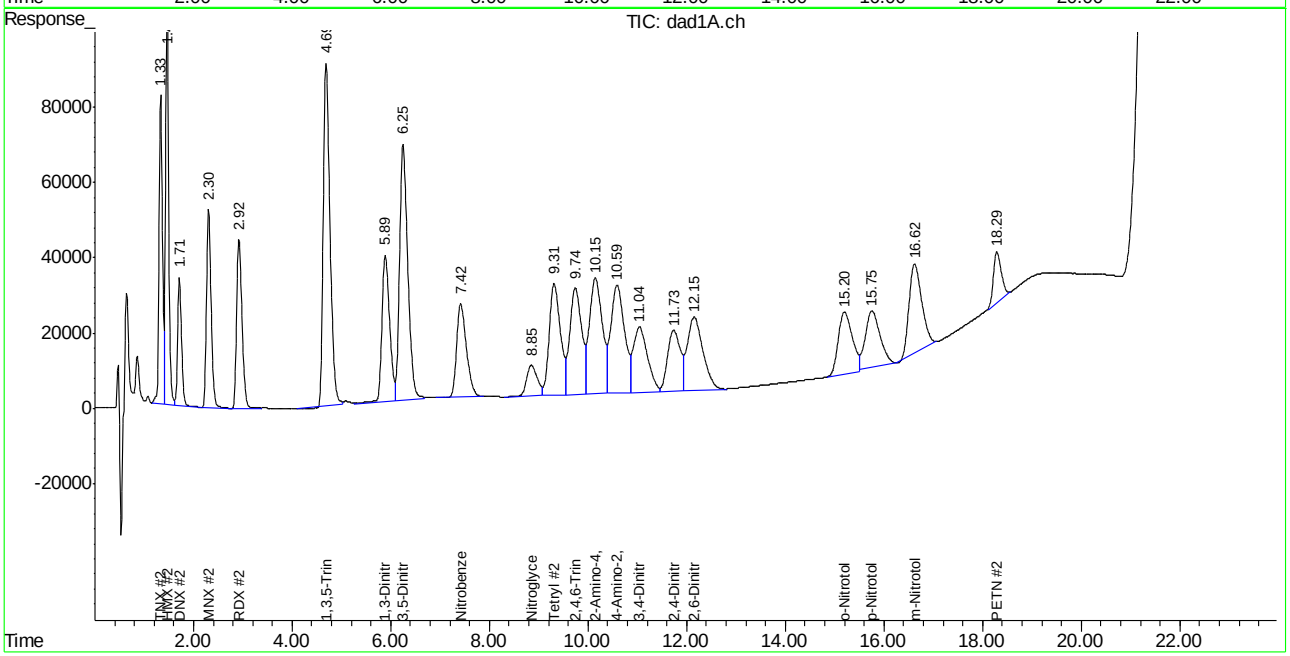
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386859.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386859.D\dad1A.ch
Acq On : 04-May-2020, 12:36:04 Operator: williamh
Sample : cc2262-1000 Inst : G1315B
Misc : op80030,GPP2268,1040,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 12:57 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm





Manual Integration Approval Summary

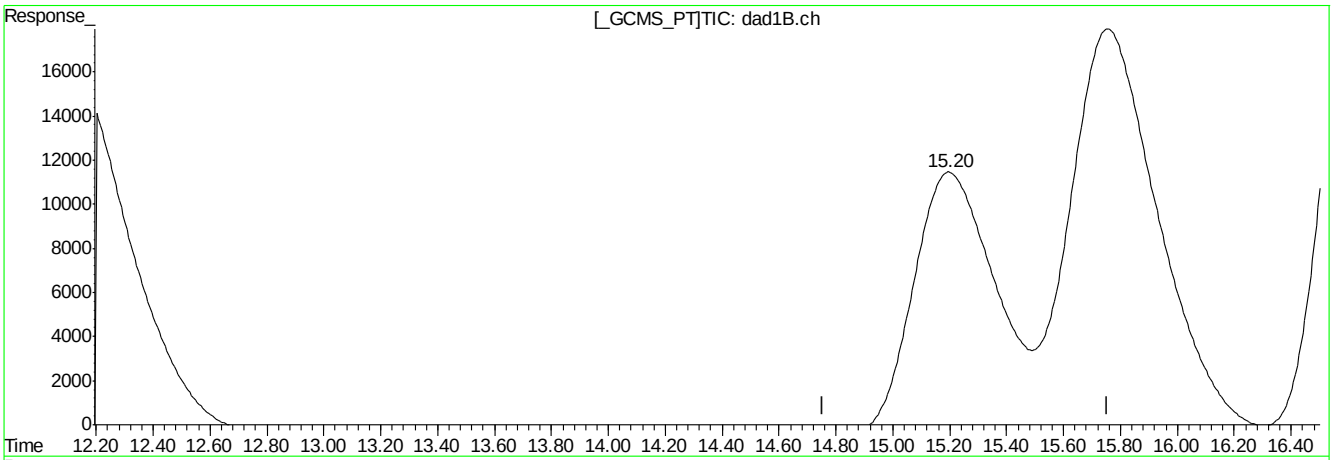
Sample Number: GPP2268-CC2262
Lab FileID: PP386859.D
Injection Time: 05/04/20 12:36
Method: SW846 8330A
Analyst approved: 05/05/20 13:57 William Hustedde
Supervisor approved: 05/05/20 17:24 Naresh Jiawan

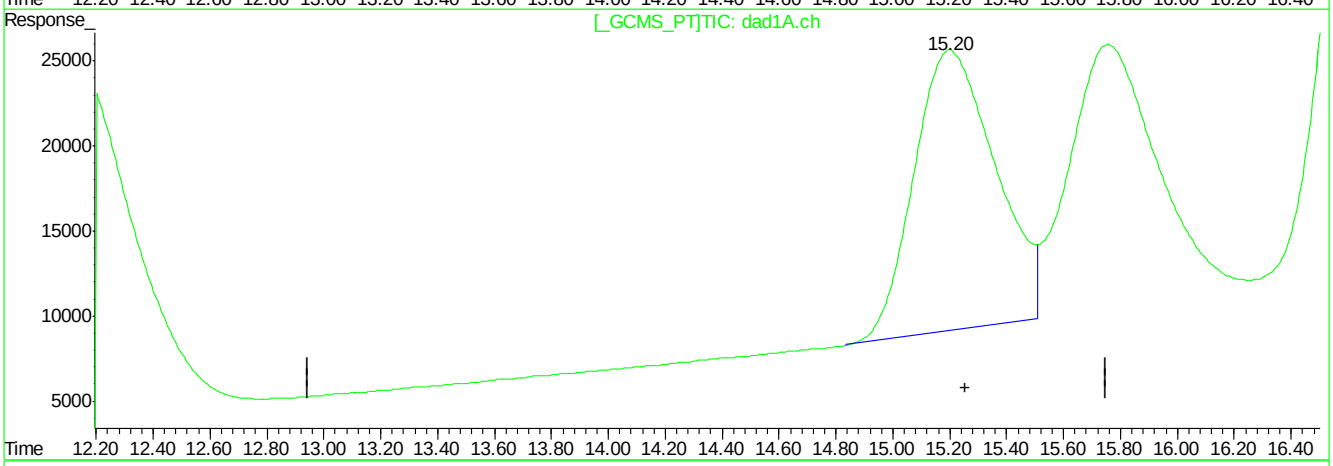
Parameter	CAS	Sig#	R.T. (min.)	Reason
o-Nitrotoluene	88-72-2	2	15.20	Poor instrument integration
PETN	78-11-5	2	18.29	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386859.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386859.D\dad1A.ch
Acq On : 04-May-2020, 12:36:04 Operator: williamh
Sample : cc2262-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 4 14:07 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(18) o-Nitrotoluene

15.20min 995.978ppb

response 2350778

(18) o-Nitrotoluene #2

15.20min 1101.029ppb m

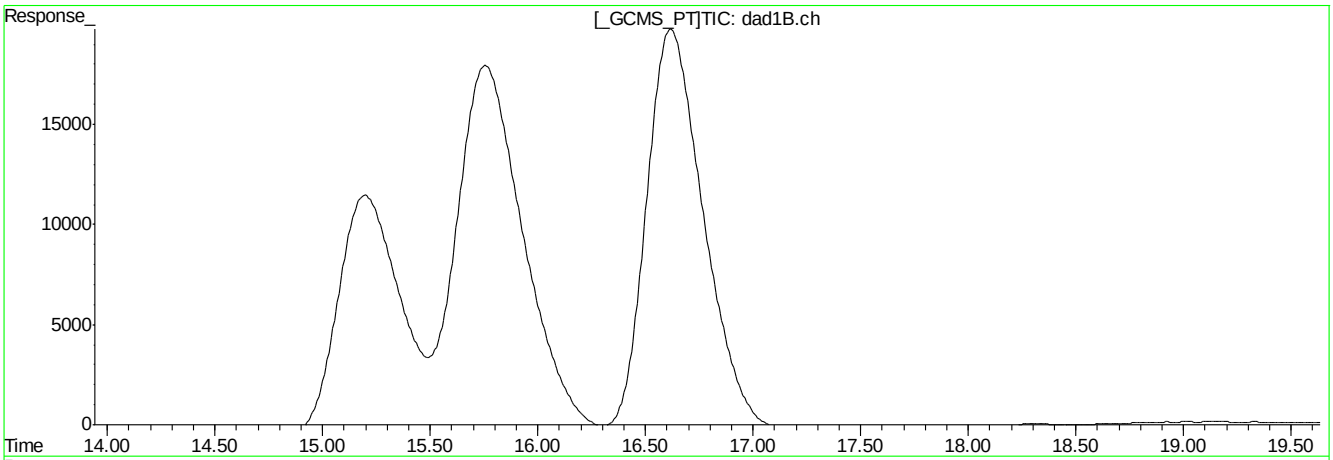
response 3265663

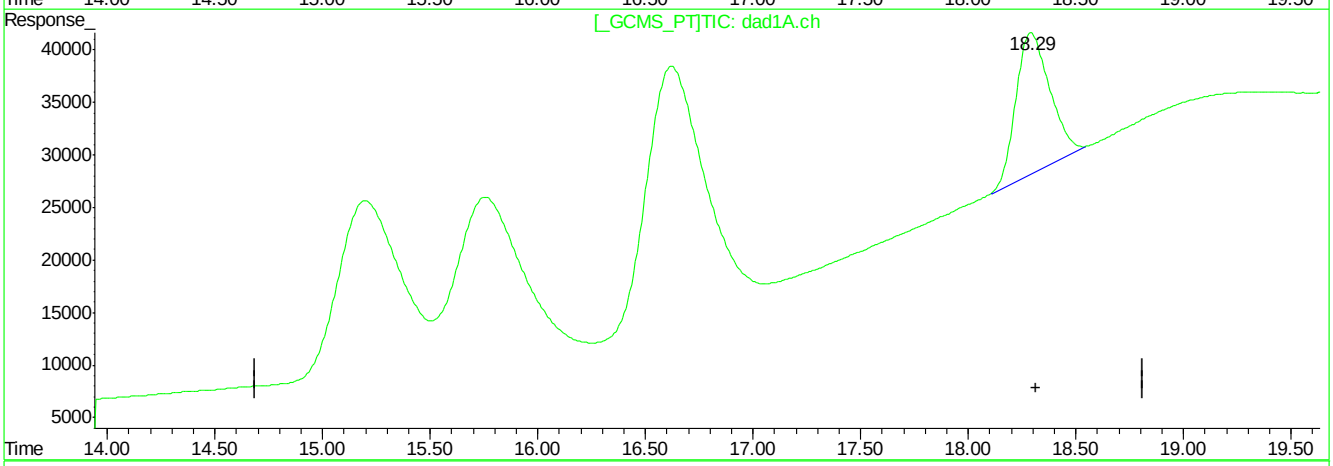
(+) = Expected Retention Time
PP386859.D GPP2262_041620PRI.M Tue May 05 12:57:32 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386859.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386859.D\dad1A.ch
Acq On : 04-May-2020, 12:36:04 Operator: williamh
Sample : cc2262-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 4 14:07 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

18.29min 1139.108ppb m

response 1472286

(+) = Expected Retention Time
PP386859.D GPP2262_041620PRI.M Tue May 05 12:57:39 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
05/05/20 17:24

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386870.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386870.D\dad1A.ch
Acq On : 04-May-2020, 18:16:19 Operator: williamh
Sample : cc2262-1000 Inst : G1315B
Misc : op80038,GPP2268,1060,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 05 11:04:41 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Initial Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	11.09	11.09	2114341	3502204	1062.715	1005.644
	Spiked Amount 500.000	Range 70 - 136		Recovery =		212.54%#	201.13%#
	Target Compounds						
1)	TNX	1.34	1.34	2473294	3863411	1102.682	1050.788
2)	HMX	1.46	1.46	1780610	4960887	1111.745m	1057.336m
3)	DNX	1.72	1.72	1132052	1772859	994.611m	914.470m
4)	MNX	2.31	2.31	2223200	3471061	987.029	996.234
5)	RDX	2.93	2.93	2104307	3412626	1059.947	1053.893
6)	1,3,5-Trinitrobe	4.70	4.71	4405894	8700389	1082.257m	1108.849
7)	1,3-Dinitrobenze	5.91	5.91	5897533	4059785	1072.498	1039.987m
8)	3,5-Dinitroanili	6.27	6.27	4490225	7799472	1072.313	1036.393
9)	Nitrobenzene	7.44	7.44	3509614	3367784	1059.838	1040.160
10)	Nitroglycerin	0.00	8.88	0	1225968	N.D.	1077.666 #
11)	Tetryl	9.35	9.35	2806882	4658356	978.444	1021.817
12)	2,4,6-Trinitroto	9.78	9.78	3999938	4760812	1056.350	1113.100
13)	2-Amino-4,6-Dini	10.19	10.19	3869524	5631492	1085.913	1131.853
14)	4-Amino-2,6-Dini	10.63	10.63	2825872	5568785	1044.789	1080.097
16)	2,4-Dinitrotolue	11.78	11.78	4944108	2885555	1035.837	1037.176
17)	2,6-Dinitrotolue	12.18	12.20	3440654	4310654	1154.832	1123.985
18)	o-Nitrotoluene	15.24	15.24	2349641	3303171	995.496	1113.675m
19)	p-Nitrotoluene	15.80	15.80	4013264	3058752	1053.965	1047.538
20)	m-Nitrotoluene	16.65	16.66	3724147	4256279	1059.542	1038.728
21)	PETN	0.00	18.31	0	1434142	N.D.	1109.596m#

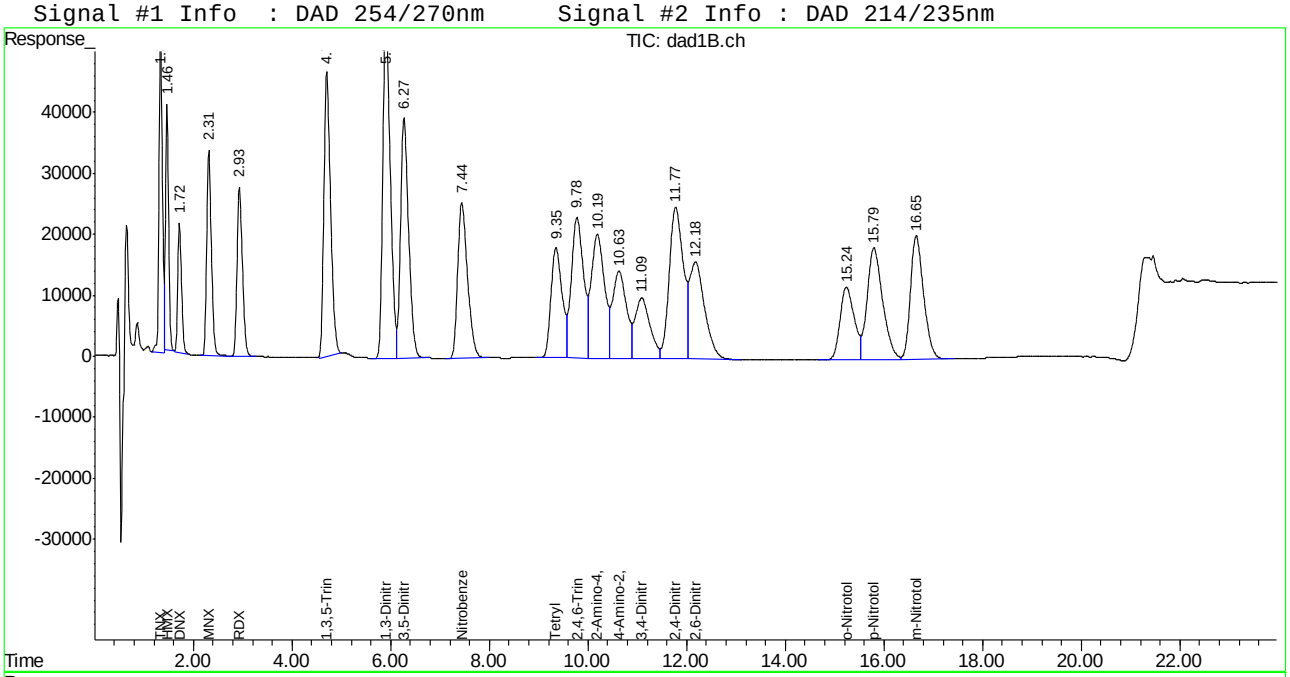
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

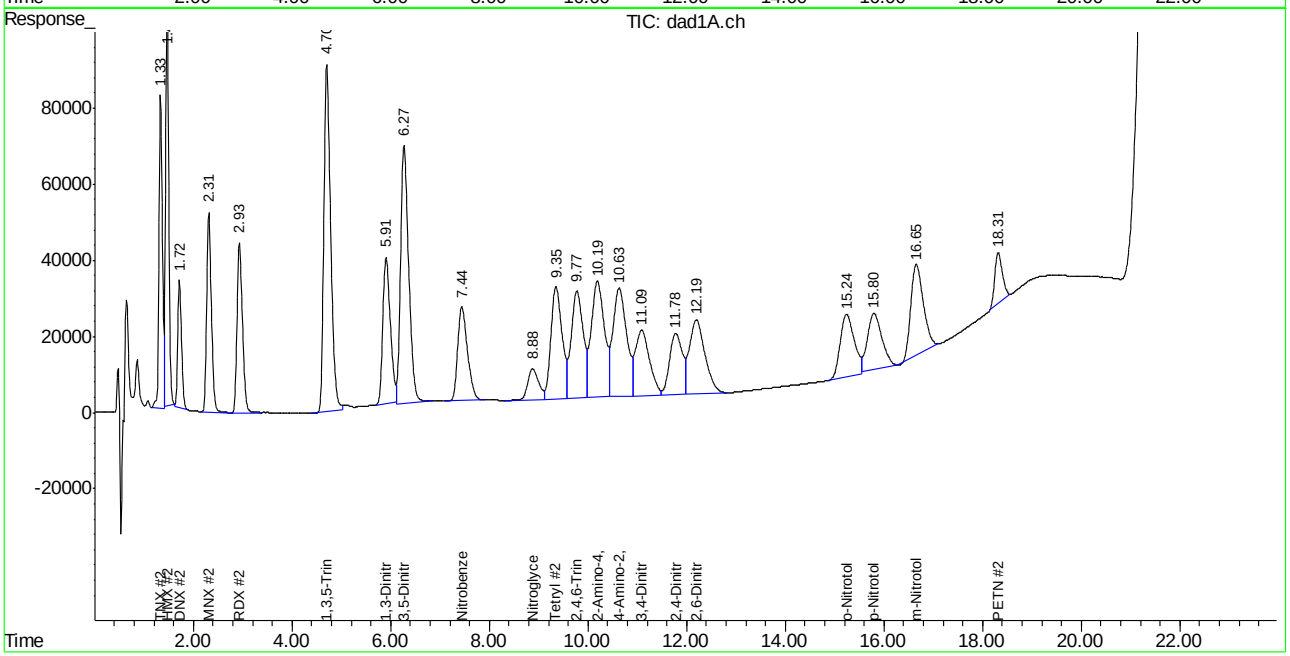
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386870.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386870.D\dad1A.ch
Acq On : 04-May-2020, 18:16:19 Operator: williamh
Sample : cc2262-1000 Inst : G1315B
Misc : op80038,GPP2268,1060,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 13:01 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm





Manual Integration Approval Summary

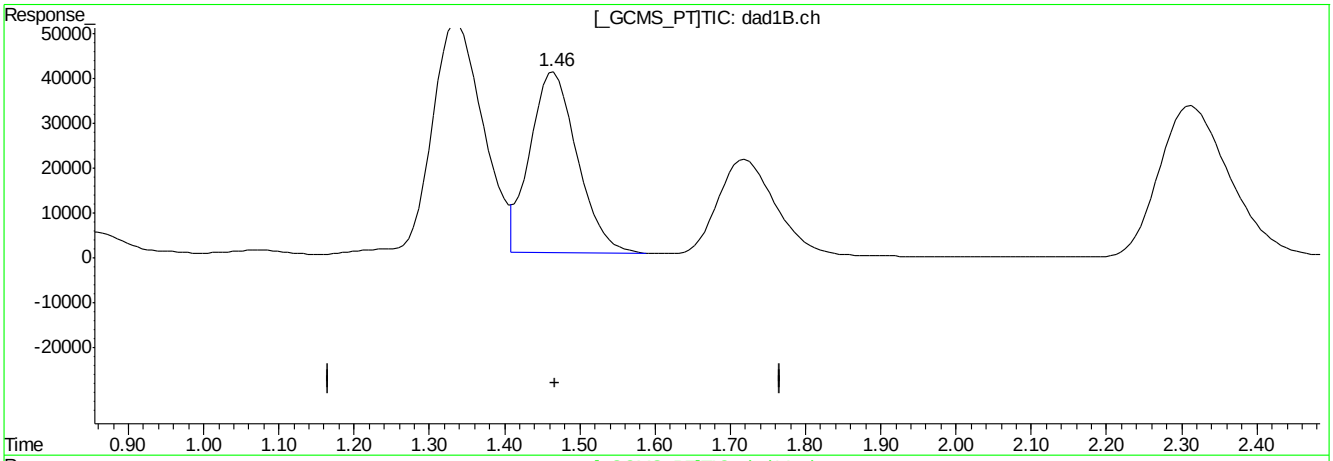
Sample Number: GPP2268-CC2262 **Method:** SW846 8330B
Lab FileID: PP386870.D **Analyst approved:** 05/05/20 13:57 William Hustedde
Injection Time: 05/04/20 18:16 **Supervisor approved:** 05/05/20 17:24 Naresh Jiawan

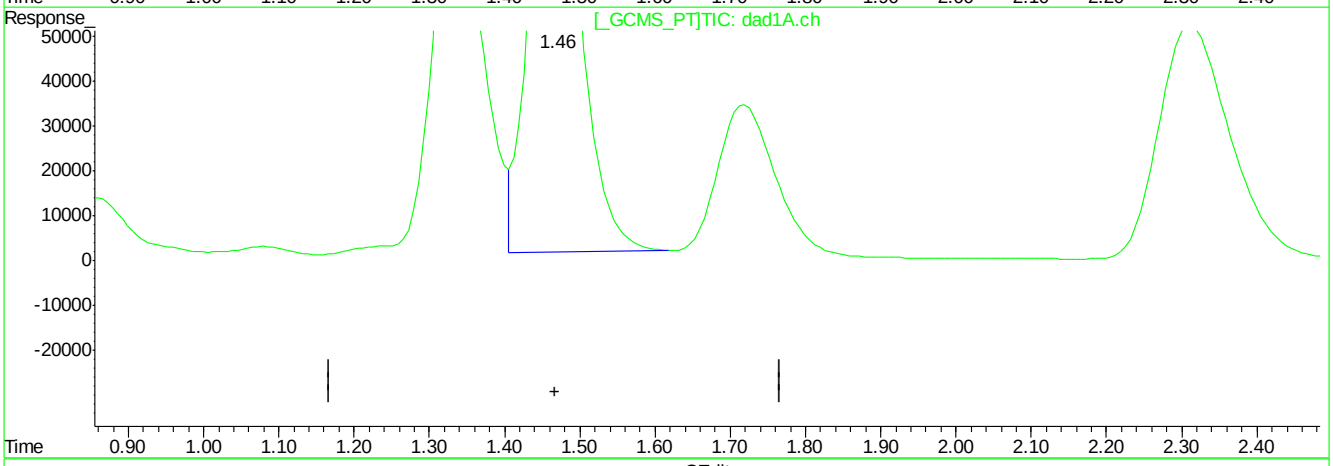
Parameter	CAS	Sig#	R.T. (min.)	Reason
HMX	2691-41-0	1	1.46	Poor instrument integration
HMX	2691-41-0	2	1.46	Poor instrument integration
DNX		1	1.72	Poor instrument integration
DNX		2	1.72	Poor instrument integration
1,3,5-Trinitrobenzene	99-35-4	1	4.70	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	5.91	Poor instrument integration
o-Nitrotoluene	88-72-2	2	15.24	Poor instrument integration
PETN	78-11-5	2	18.31	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386870.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386870.D\dad1A.ch
Acq On : 04-May-2020, 18:16:19 Operator: williamh
Sample : cc2262-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 11:04 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(2) HMX

1.46min 1111.745ppb m

response 1780610

(2) HMX #2

1.46min 1057.336ppb m

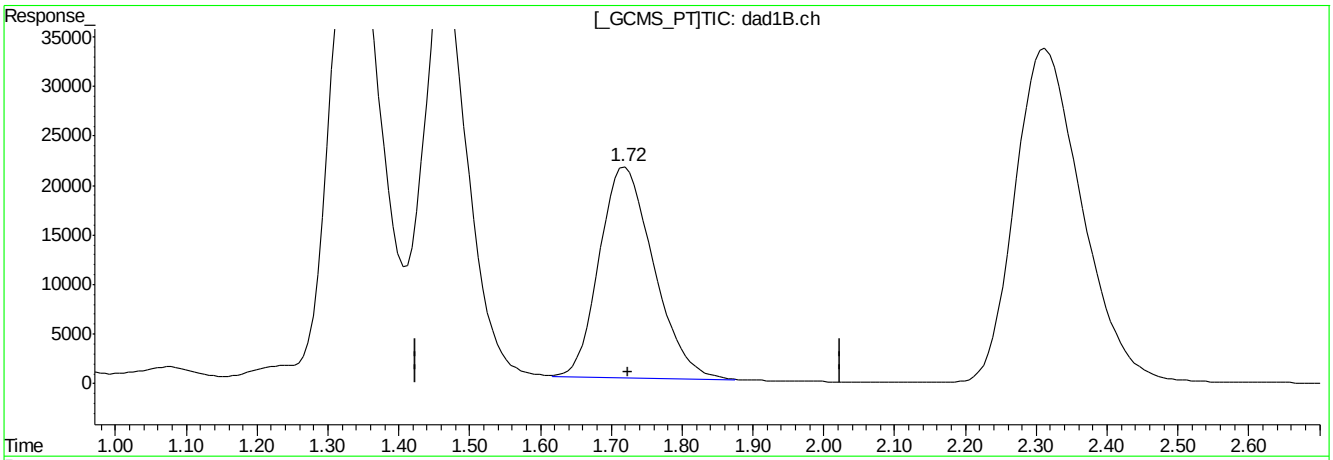
response 4960887

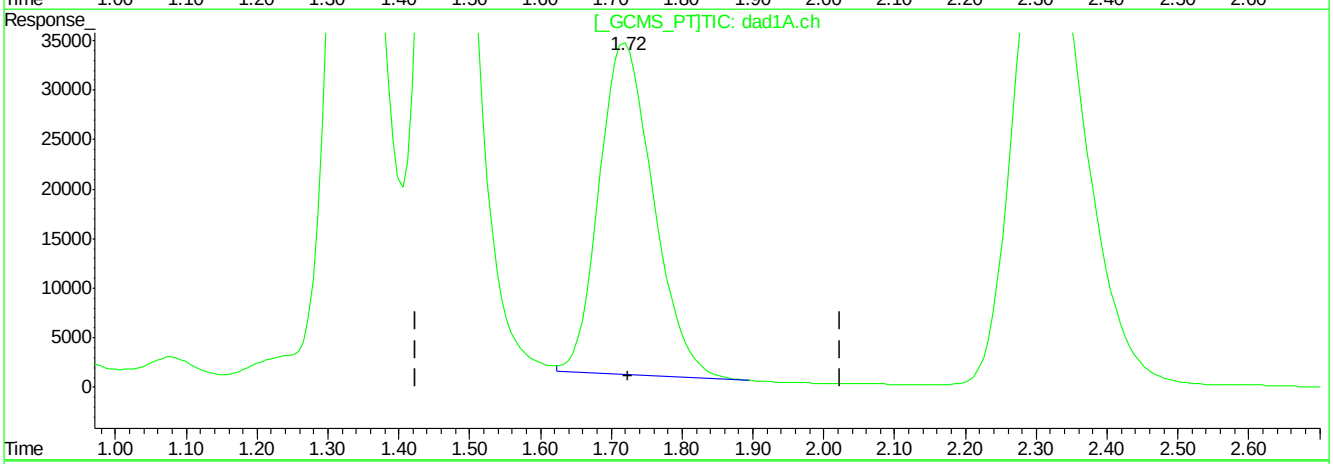
(+) = Expected Retention Time
PP386870.D GPP2262_041620PRI.M Tue May 05 12:58:28 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386870.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386870.D\dad1A.ch
Acq On : 04-May-2020, 18:16:19 Operator: williamh
Sample : cc2262-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 11:04 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(3) DNX

1.72min 994.611ppb m

response 1132052

(3) DNX #2

1.72min 914.470ppb m

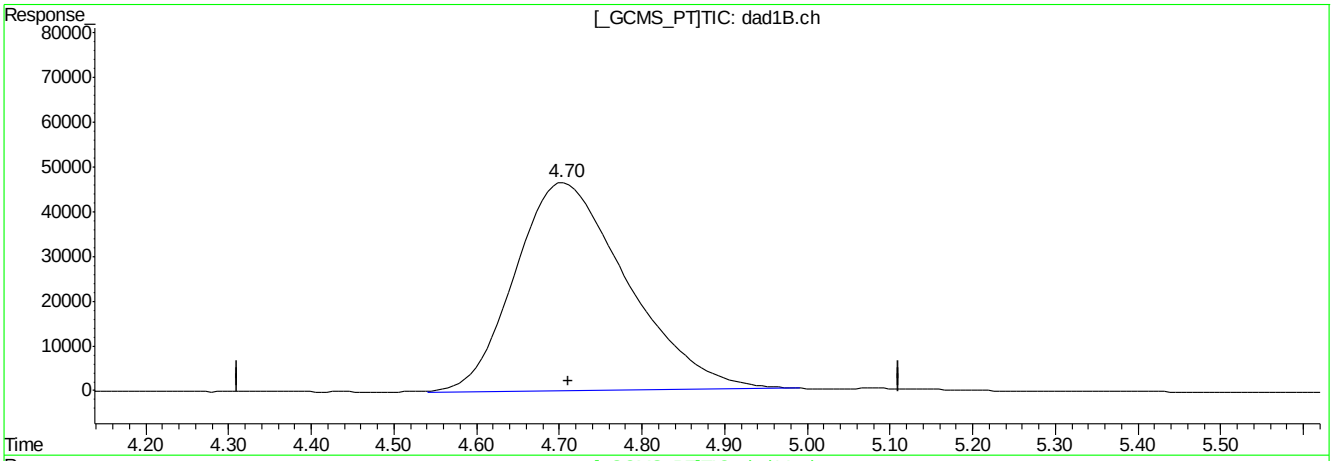
response 1772859

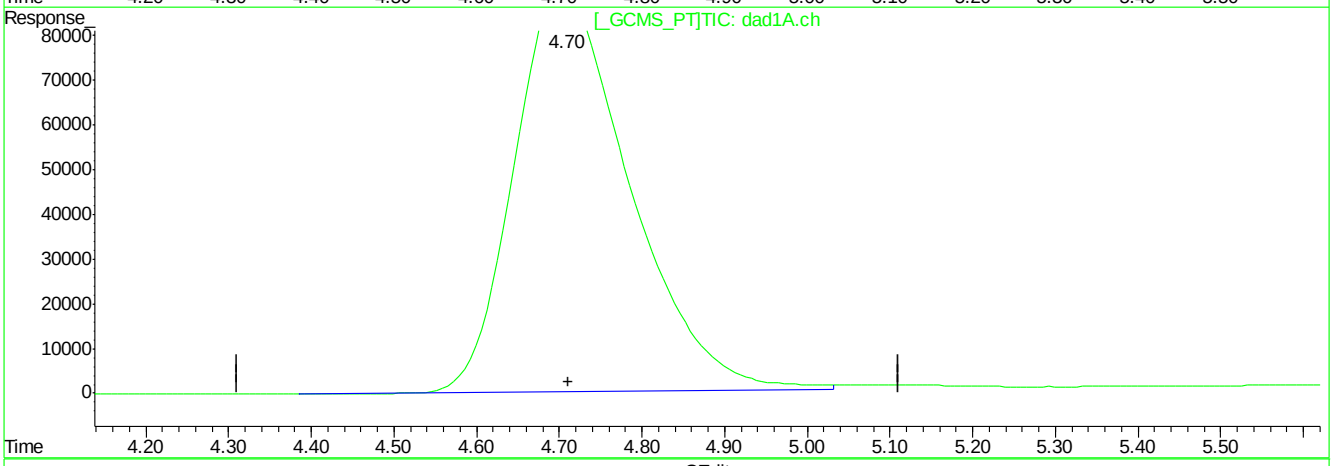
(+) = Expected Retention Time
PP386870.D GPP2262_041620PRI.M Tue May 05 12:58:38 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386870.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386870.D\dad1A.ch
Acq On : 04-May-2020, 18:16:19 Operator: williamh
Sample : cc2262-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 11:04 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(6) 1,3,5-Trinitrobenzene

4.70min 1082.257ppb m

response 4405894

(6) 1,3,5-Trinitrobenzene #2

4.71min 1108.849ppb

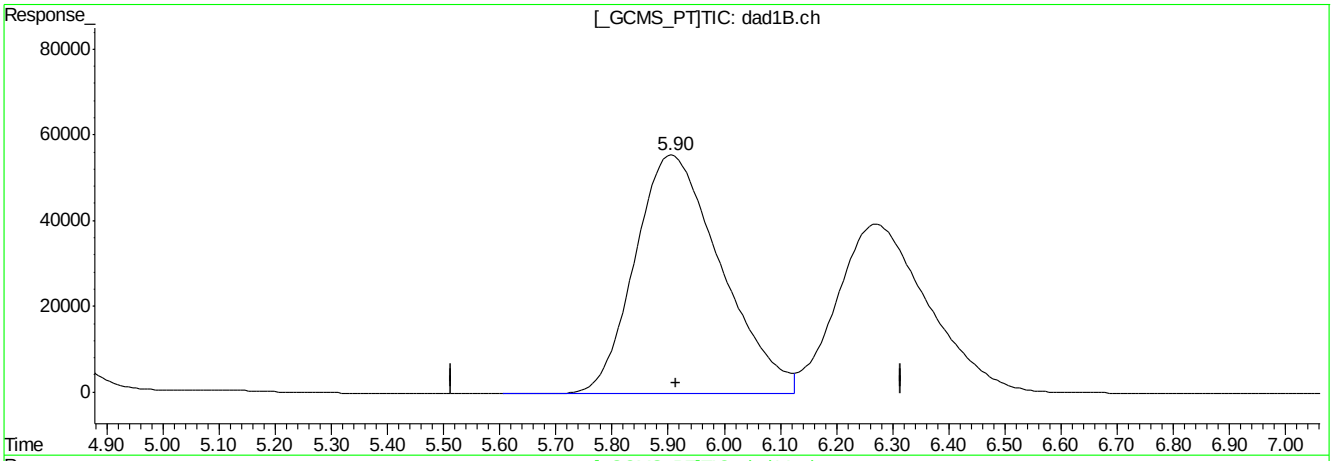
response 8700389

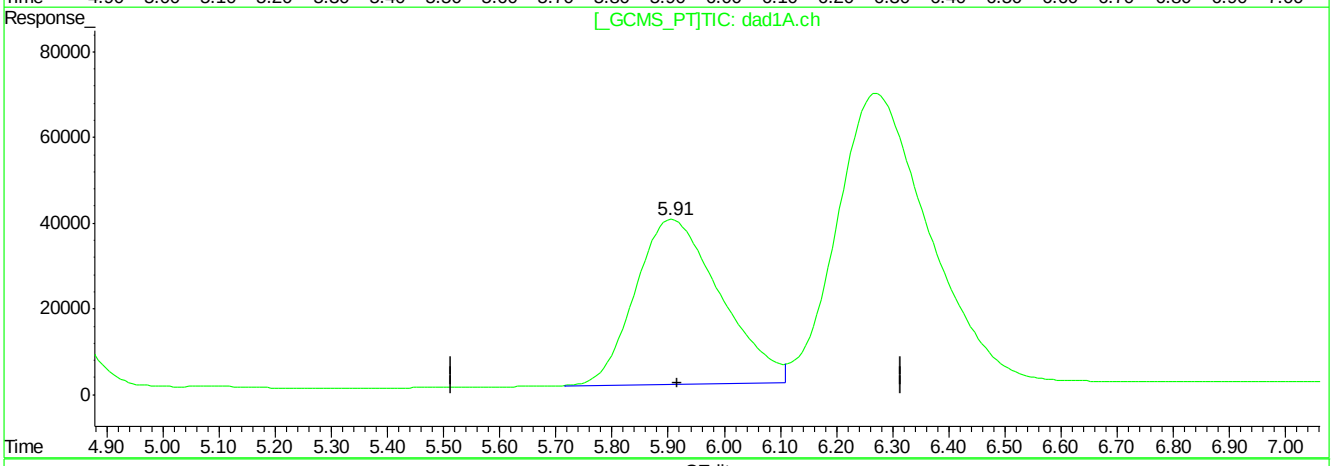
(+) = Expected Retention Time
PP386870.D GPP2262_041620PRI.M Tue May 05 12:58:50 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386870.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386870.D\dad1A.ch
Acq On : 04-May-2020, 18:16:19 Operator: williamh
Sample : cc2262-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 11:04 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

5.91min 1072.498ppb

response 5897533

(7) 1,3-Dinitrobenzene #2

5.91min 1039.987ppb m

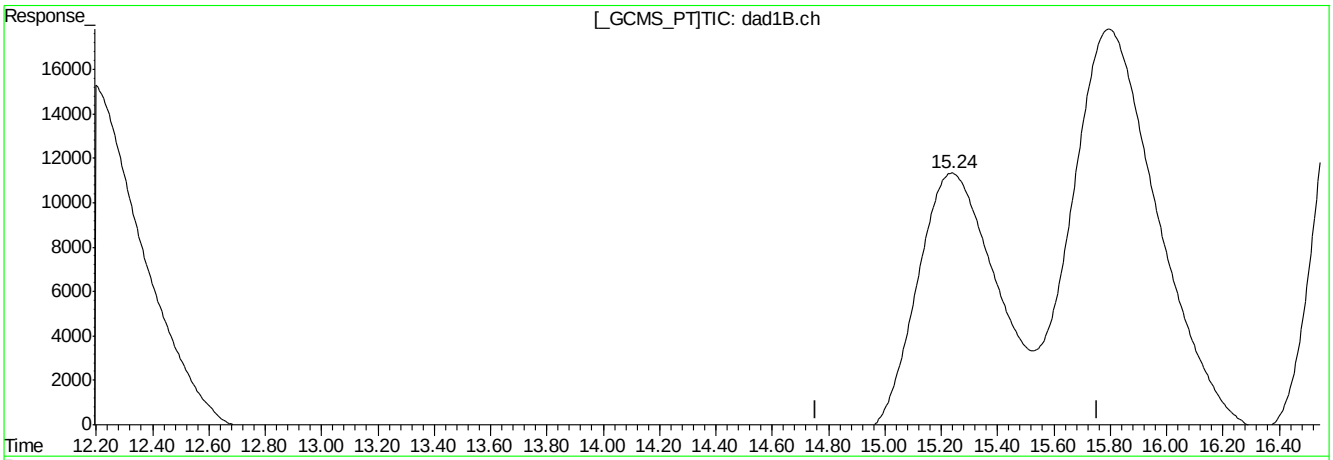
response 4059785

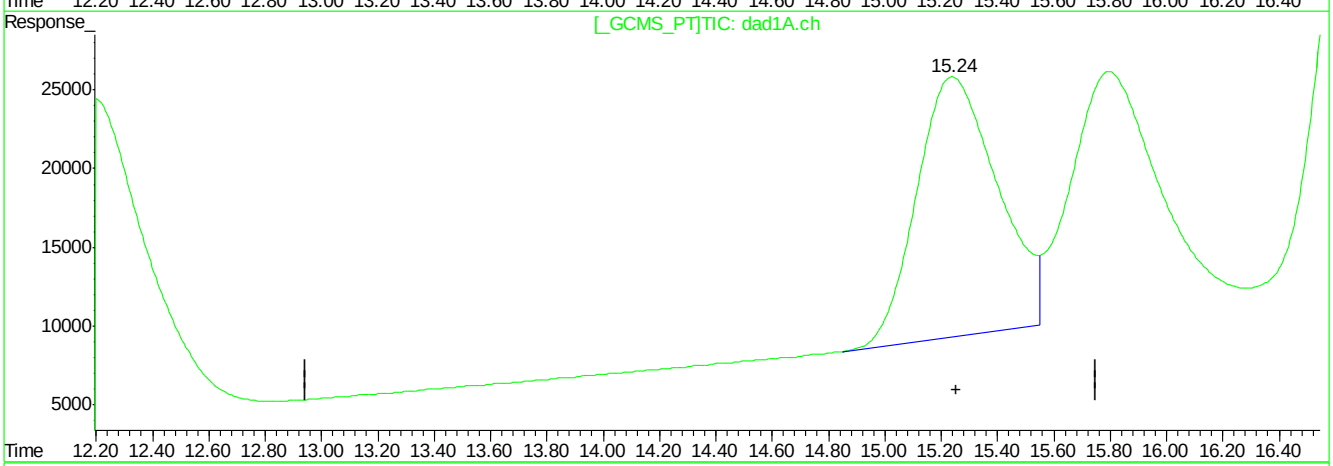
(+) = Expected Retention Time
PP386870.D GPP2262_041620PRI.M Tue May 05 12:59:08 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386870.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386870.D\dad1A.ch
Acq On : 04-May-2020, 18:16:19 Operator: williamh
Sample : cc2262-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 11:04 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(18) o-Nitrotoluene

15.24min 995.496ppb

response 2349641

(18) o-Nitrotoluene #2

15.24min 1113.675ppb m

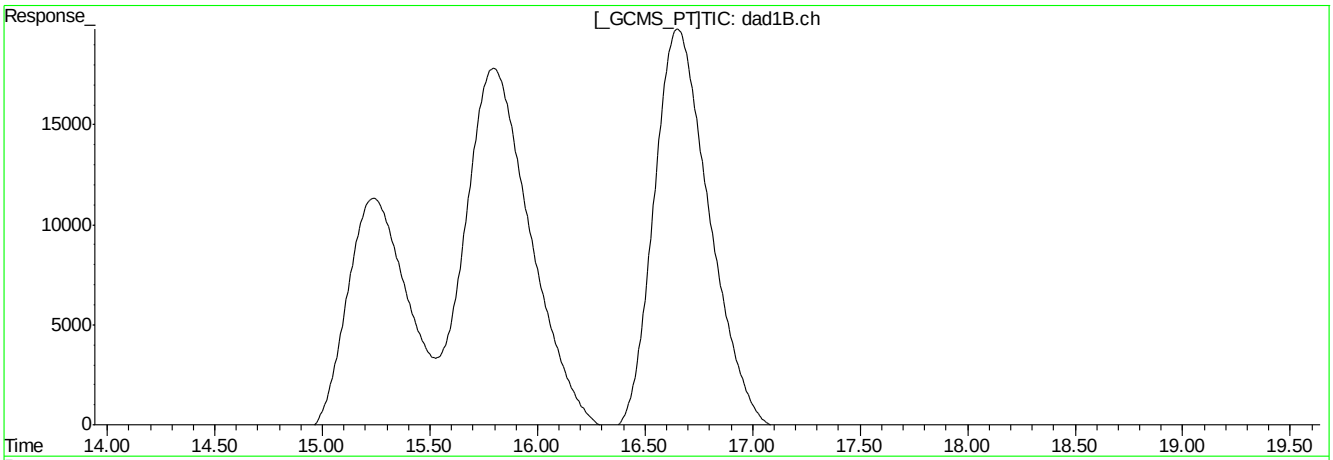
response 3303171

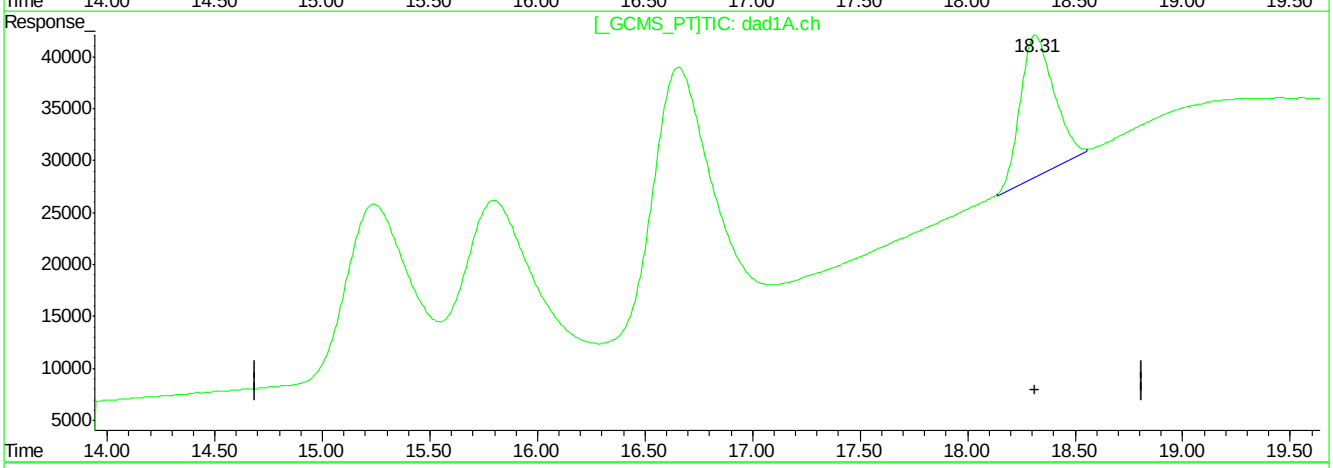
(+) = Expected Retention Time
PP386870.D GPP2262_041620PRI.M Tue May 05 12:59:25 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386870.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386870.D\dad1A.ch
Acq On : 04-May-2020, 18:16:19 Operator: williamh
Sample : cc2262-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 11:04 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

18.31min 1161.043ppb m

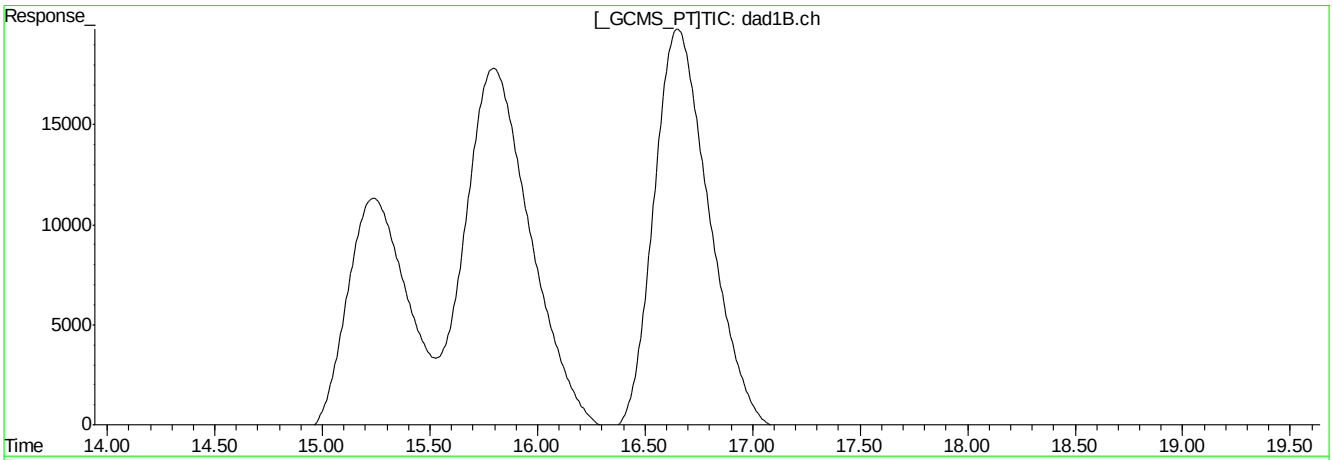
response 1500638

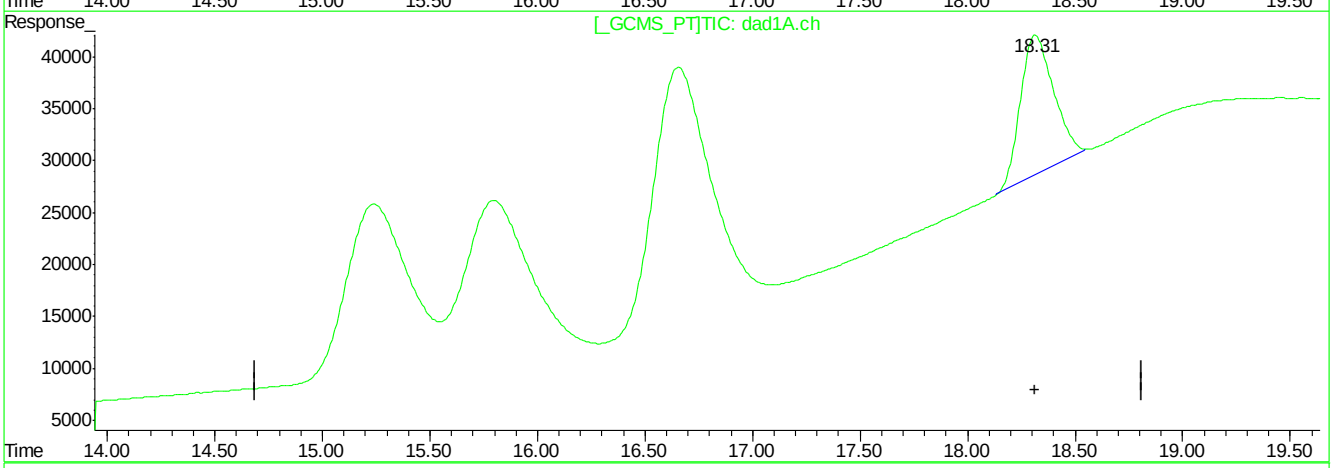
(+) = Expected Retention Time
PP386870.D GPP2262_041620PRI.M Tue May 05 12:59:34 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386870.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386870.D\dad1A.ch
Acq On : 04-May-2020, 18:16:19 Operator: williamh
Sample : cc2262-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 12:59 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

18.31min 1109.596ppb m

response 1434142

(+) = Expected Retention Time
PP386870.D GPP2262_041620PRI.M Tue May 05 13:01:31 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
05/05/20 17:24

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386877.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386877.D\dad1A.ch
Acq On : 04-May-2020, 21:52:46 Operator: williamh
Sample : ecc2262-1000 Inst : G1315B
Misc : op80038,GPP2268,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 05 11:04:48 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Initial Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	11.07	11.07	2158588	3612106	1084.954	1036.562
	Spiked Amount 500.000	Range 70 - 136		Recovery =		216.99%#	207.31%#
	Target Compounds						
1)	TNX	1.34	1.34	2457369	3829974	1095.582	1041.693
2)	HMX	1.46	1.46	1758262	4912504	1097.792m	1046.970m
3)	DNX	1.72	1.72	1128194	1750448	991.222m	902.910m
4)	MNX	2.31	2.31	2215664	3458353	983.683	992.587
5)	RDX	2.93	2.93	2103649	3404221	1059.615	1051.298
6)	1,3,5-Trinitrobe	4.70	4.70	4597093	8577604	1129.222	1093.200m
7)	1,3-Dinitrobenze	5.90	5.90	5862915	4116193	1066.202	1054.436
8)	3,5-Dinitroanili	6.27	6.27	4524461	7828095	1080.488	1040.196
9)	Nitrobenzene	7.44	7.44	3493563	3408804	1054.991	1052.829
10)	Nitroglycerin	0.00	8.87	0	1197836	N.D.	1052.937 #
11)	Tetryl	9.35	9.35	2653263	4506277	924.894	988.458
12)	2,4,6-Trinitroto	9.77	9.77	3960159	4708582	1045.845	1100.888
13)	2-Amino-4,6-Dini	10.18	10.18	3865422	5578287	1084.762	1121.160
14)	4-Amino-2,6-Dini	10.61	10.62	2846704	5628192	1052.491	1091.505
16)	2,4-Dinitrotolue	11.77	11.78	4809877	2692913	1007.715	967.933
17)	2,6-Dinitrotolue	12.15	12.18	3581072	4469856	1201.962	1165.143
18)	o-Nitrotoluene	15.23	15.23	2284173	3147984	967.759	1061.353m
19)	p-Nitrotoluene	15.79	15.79	4115926	3006265	1080.926	1029.894
20)	m-Nitrotoluene	16.65	16.66	3825747	4194553	1088.448	1023.755
21)	PETN	0.00	18.30	0	1459708	N.D.	1129.376m#

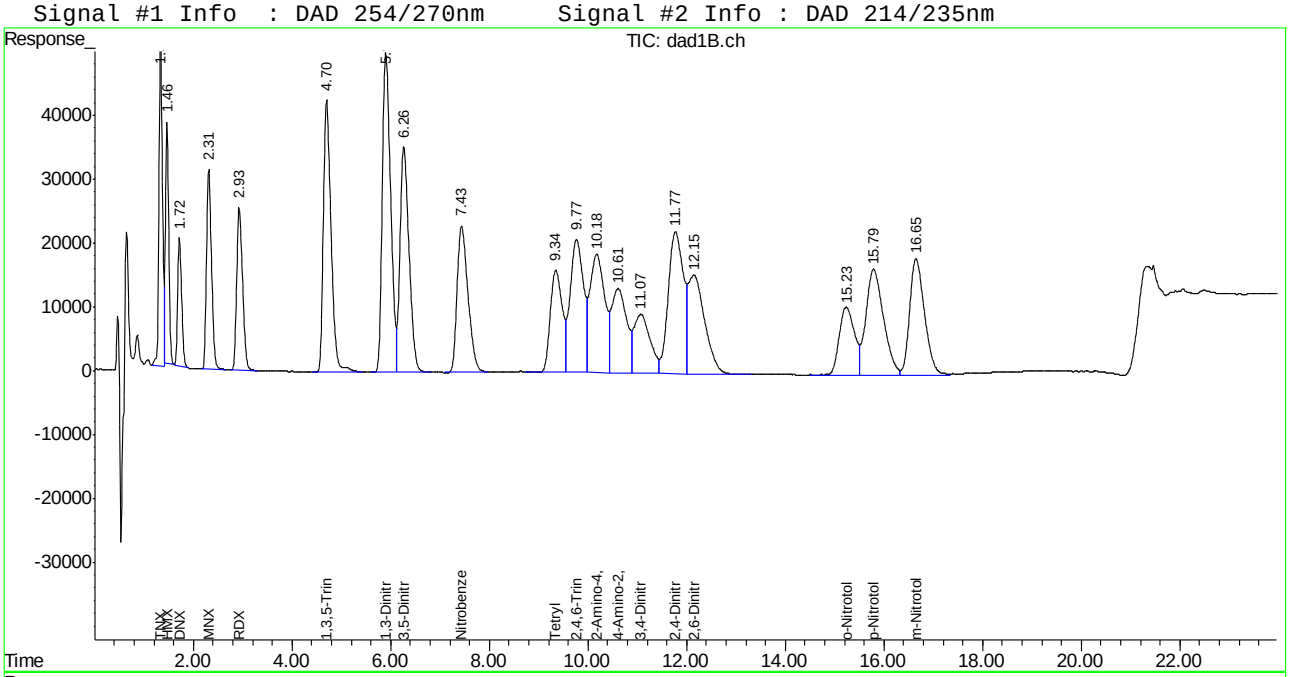
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

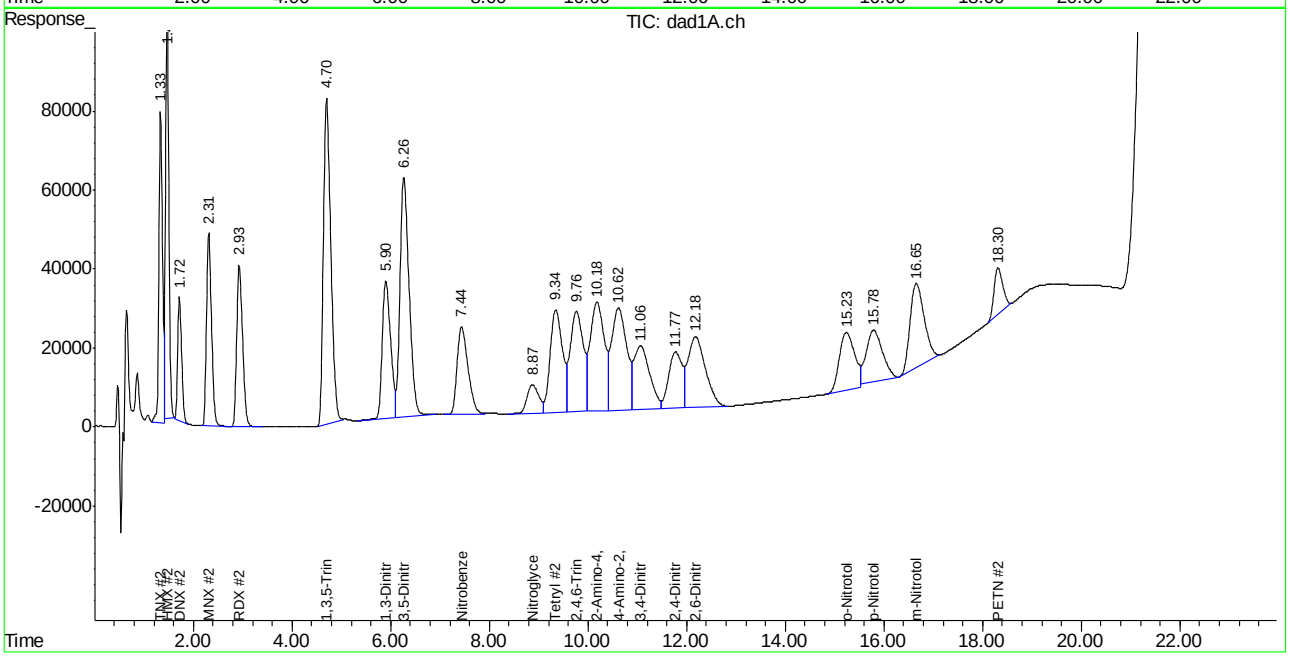
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386877.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386877.D\dad1A.ch
Acq On : 04-May-2020, 21:52:46 Operator: williamh
Sample : ecc2262-1000 Inst : G1315B
Misc : op80038,GPP2268,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 13:03 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm





Manual Integration Approval Summary

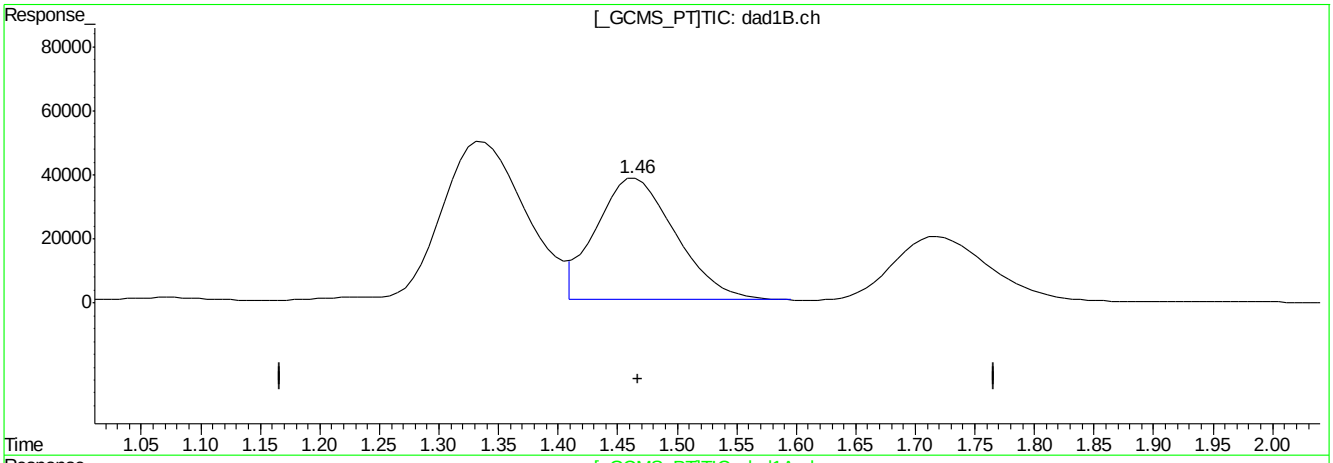
Sample Number: GPP2268-ECC2262 **Method:** SW846 8330B
Lab FileID: PP386877.D **Analyst approved:** 05/05/20 13:57 William Hustedde
Injection Time: 05/04/20 21:52 **Supervisor approved:** 05/05/20 17:24 Naresh Jiawan

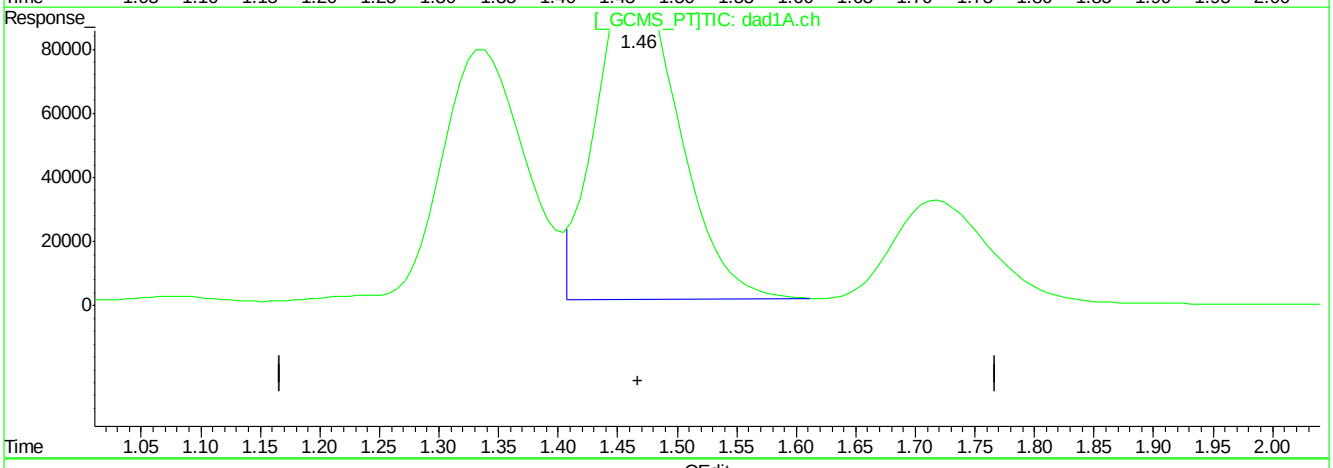
Parameter	CAS	Sig#	R.T. (min.)	Reason
HMX	2691-41-0	1	1.46	Poor instrument integration
HMX	2691-41-0	2	1.46	Poor instrument integration
DNX		1	1.72	Poor instrument integration
DNX		2	1.72	Poor instrument integration
1,3,5-Trinitrobenzene	99-35-4	2	4.70	Poor instrument integration
o-Nitrotoluene	88-72-2	2	15.23	Poor instrument integration
PETN	78-11-5	2	18.30	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386877.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386877.D\dad1A.ch
Acq On : 04-May-2020, 21:52:46 Operator: williamh
Sample : ecc2262-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 11:04 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(2) HMX

1.46min 1097.792ppb m

response 1758262

(2) HMX #2

1.46min 1046.970ppb m

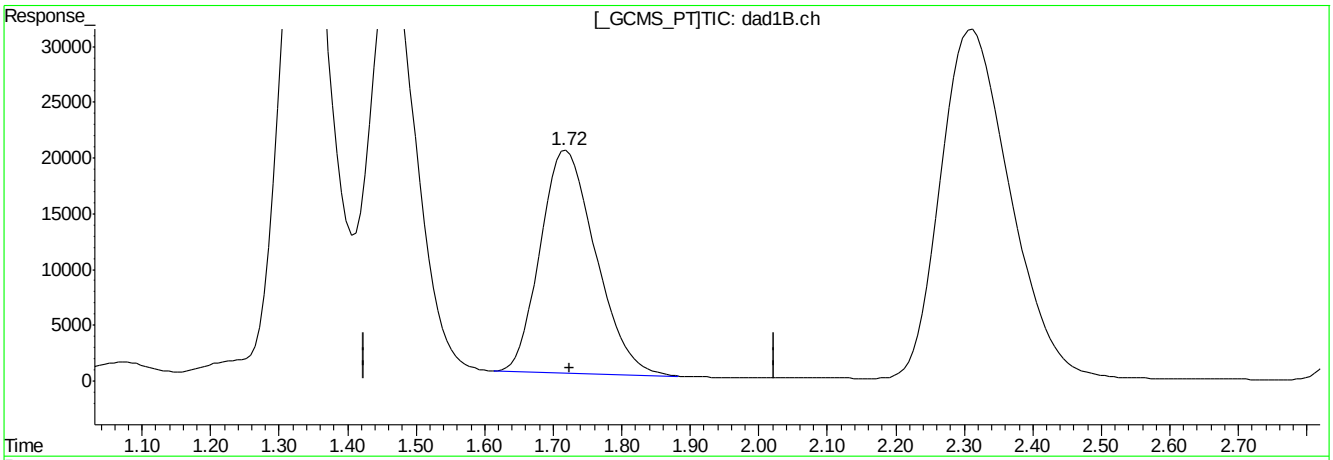
response 4912504

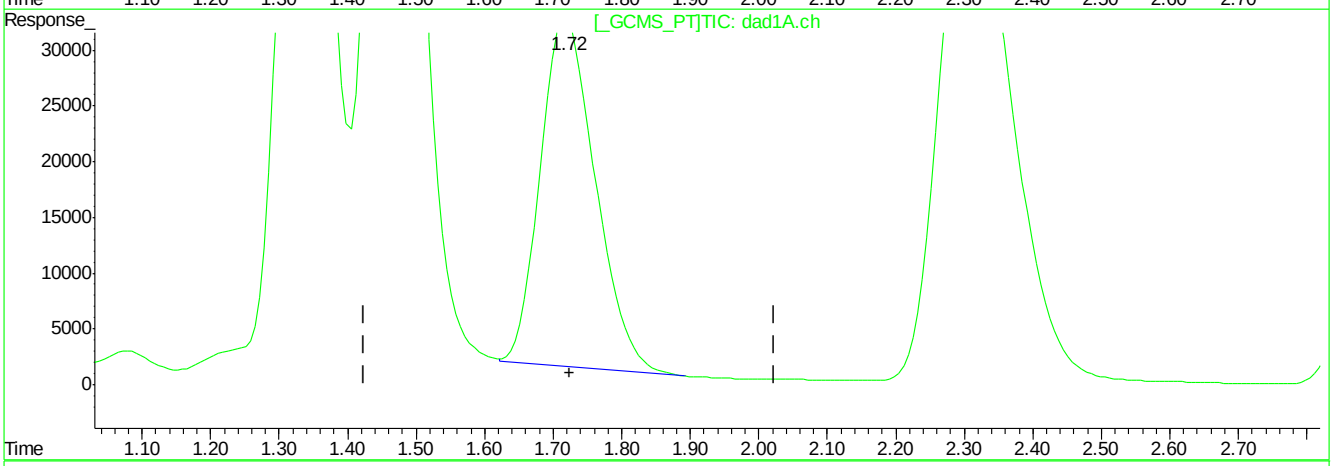
(+) = Expected Retention Time
PP386877.D GPP2262_041620PRI.M Tue May 05 13:02:20 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386877.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386877.D\dad1A.ch
Acq On : 04-May-2020, 21:52:46 Operator: williamh
Sample : ecc2262-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 11:04 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(3) DNX

1.72min 991.222ppb m

response 1128194

(3) DNX #2

1.72min 902.910ppb m

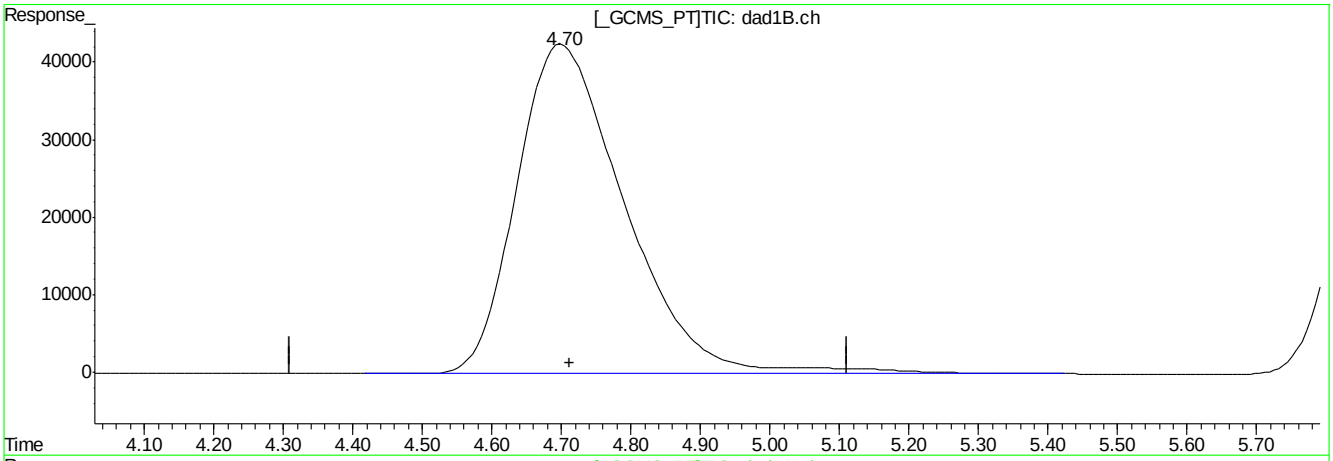
response 1750448

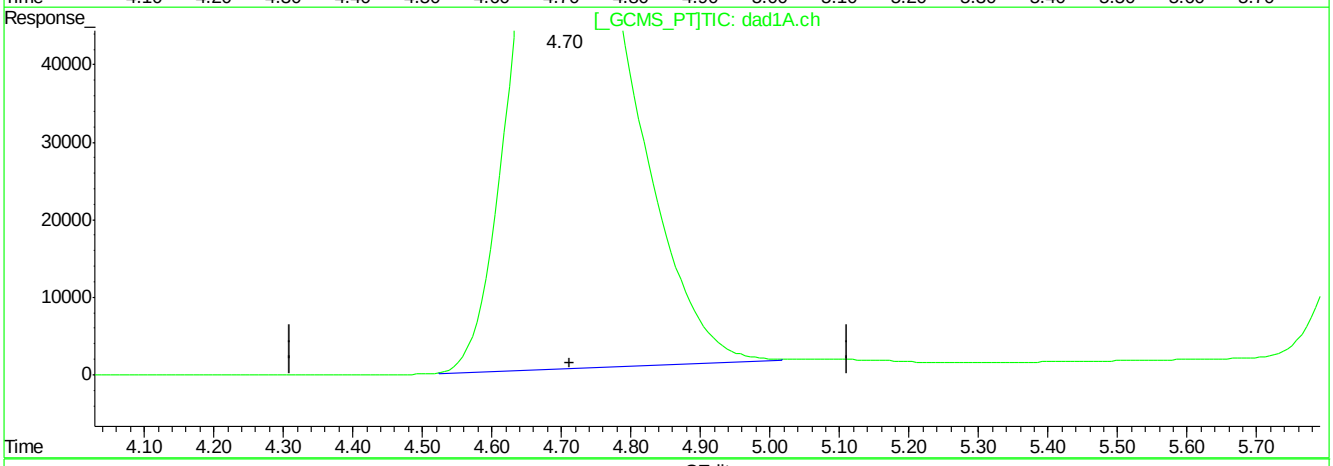
(+) = Expected Retention Time
PP386877.D GPP2262_041620PRI.M Tue May 05 13:02:29 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386877.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386877.D\dad1A.ch
Acq On : 04-May-2020, 21:52:46 Operator: williamh
Sample : ecc2262-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 11:04 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(6) 1,3,5-Trinitrobenzene

4.70min 1129.222ppb

response 4597093

(6) 1,3,5-Trinitrobenzene #2

4.70min 1093.200ppb m

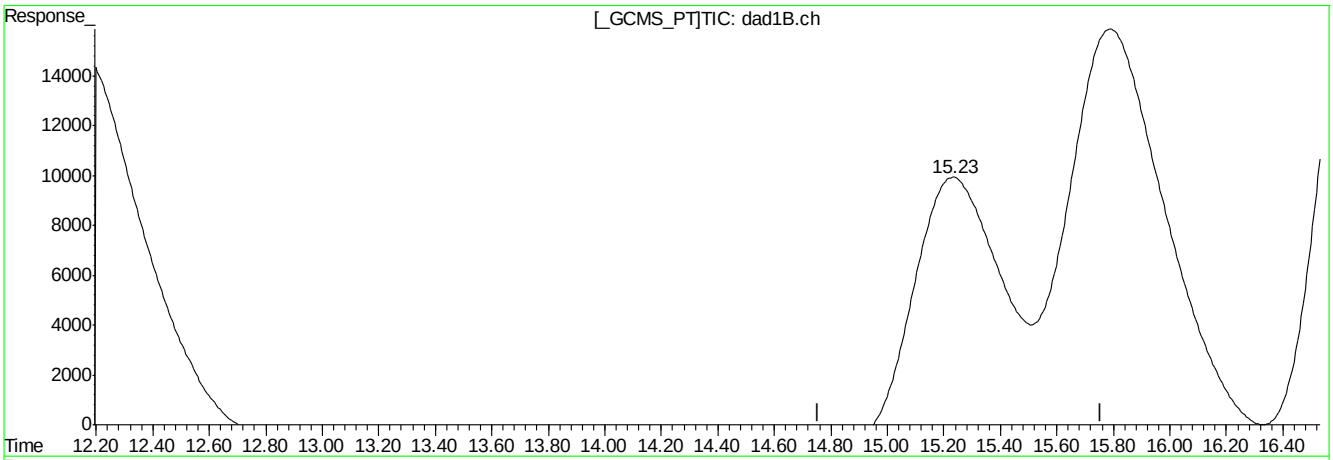
response 8577604

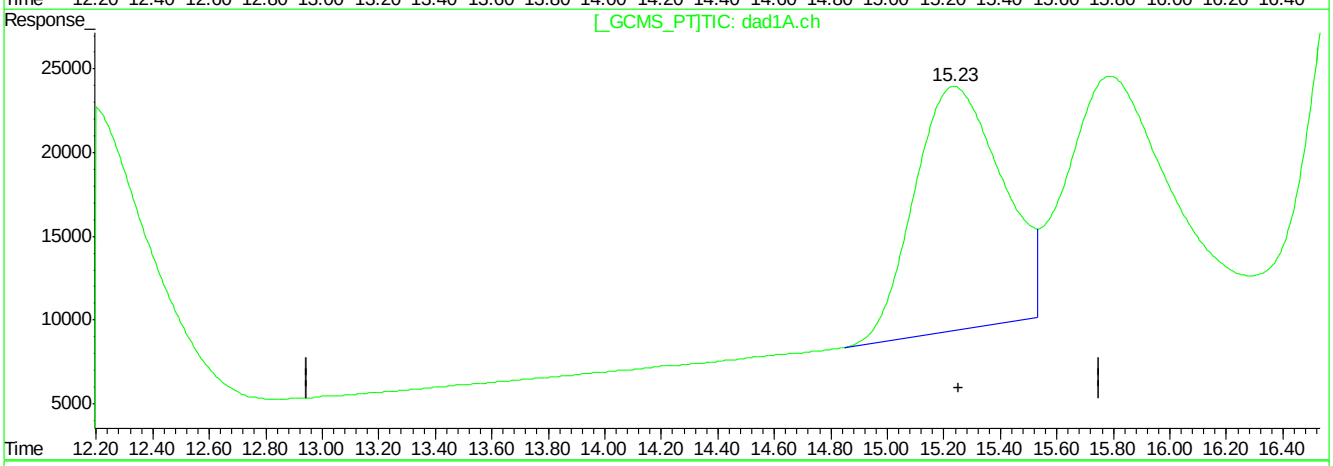
(+) = Expected Retention Time
PP386877.D GPP2262_041620PRI.M Tue May 05 13:02:41 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386877.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386877.D\dad1A.ch
Acq On : 04-May-2020, 21:52:46 Operator: williamh
Sample : ecc2262-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 11:04 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(18) o-Nitrotoluene

15.23min 967.759ppb

response 2284173

(18) o-Nitrotoluene #2

15.23min 1061.353ppb m

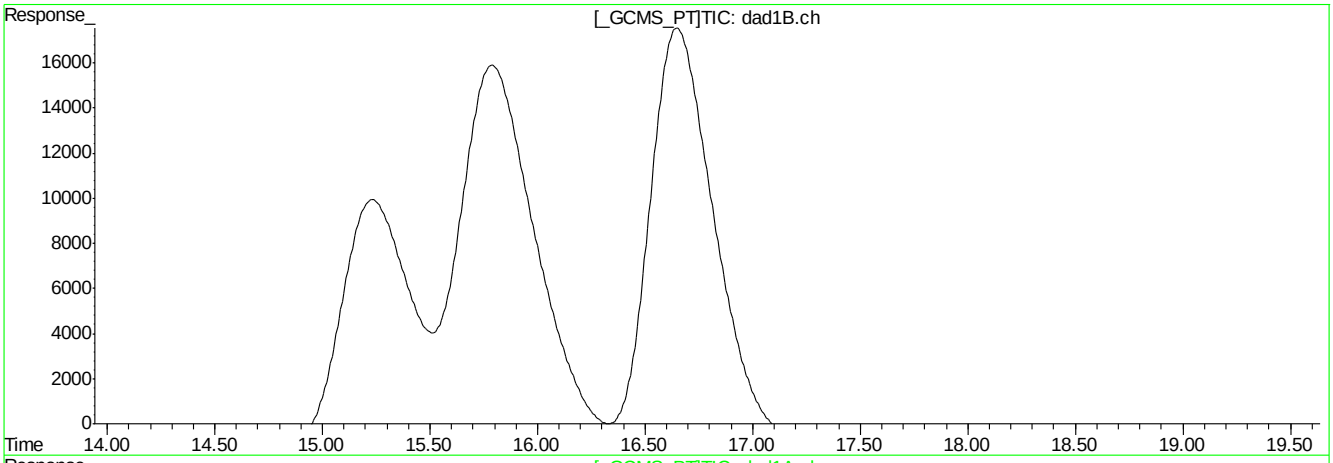
response 3147984

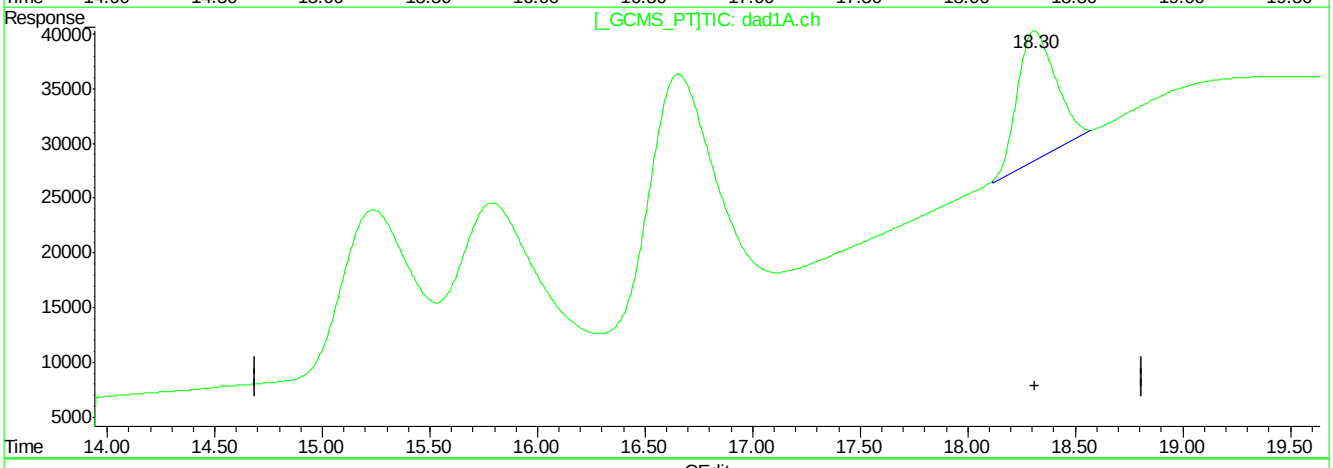
(+) = Expected Retention Time
PP386877.D GPP2262_041620PRI.M Tue May 05 13:02:59 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2268\PP386877.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2268\PP386877.D\dad1A.ch
Acq On : 04-May-2020, 21:52:46 Operator: williamh
Sample : ecc2262-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 11:04 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

18.30min 1129.376ppb m

response 1459708

(+) = Expected Retention Time
PP386877.D GPP2262_041620PRI.M Tue May 05 13:03:09 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
05/06/20 15:51

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2269\PP386879.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2269\PP386879.D\dad1A.ch
Acq On : 05-May-2020, 12:13:22 Operator: williamh
Sample : cc2262-1000 Inst : G1315B
Misc : op80050,GPP2269,2,,,20,1,Soil Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 05 15:49:55 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Initial Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	11.00	10.99	2232679	3775981	1122.194	1082.593
	Spiked Amount 500.000	Range 69 - 134		Recovery =		224.44%#	216.52%#
	Target Compounds						
1)	TNX	1.33	1.33	2455604	3810682	1094.795	1036.446
2)	HMX	1.46	1.46	1765265	5005363	1102.165m	1066.865m
3)	DNX	1.71	1.71	1162512	1801868	1021.374	929.433m
4)	MNX	2.30	2.30	2212174	3463545	982.134	994.077
5)	RDX	2.92	2.92	2104620	3400253	1060.104	1050.072
6)	1,3,5-Trinitrobe	4.68	4.68	4614441	8543810	1133.483	1088.893m
7)	1,3-Dinitrobenze	5.88	5.88	5810370	4040193	1056.647	1034.968m
8)	3,5-Dinitroanili	6.24	6.24	4573131	7930517	1092.111	1053.806
9)	Nitrobenzene	7.41	7.41	3513983	3370979	1061.157	1041.147
10)	Nitroglycerin	0.00	8.83	0	1140788	N.D. d	1002.789
11)	Tetryl	9.30	9.30	2542126	4377213	886.153	960.148
12)	2,4,6-Trinitroto	9.72	9.71	3882564	4652916	1025.353	1087.873
13)	2-Amino-4,6-Dini	10.11	10.12	3911236	5591229	1097.619	1123.761
14)	4-Amino-2,6-Dini	10.54	10.55	2901768	5687279	1072.849	1102.849
16)	2,4-Dinitrotolue	11.72	11.72	4603288	2566835	964.432	922.616
17)	2,6-Dinitrotolue	12.08	12.12	3845445	4656830	1290.697	1213.450
18)	o-Nitrotoluene	15.18	15.18	2210444	3051588	936.521	1028.853m
19)	p-Nitrotoluene	15.74	15.74	4213283	3040352	1106.494	1041.354
20)	m-Nitrotoluene	16.61	16.62	3869637	4175928	1100.935	1019.237
21)	PETN	0.00	18.28	0	1396418	N.D.	1080.409m#

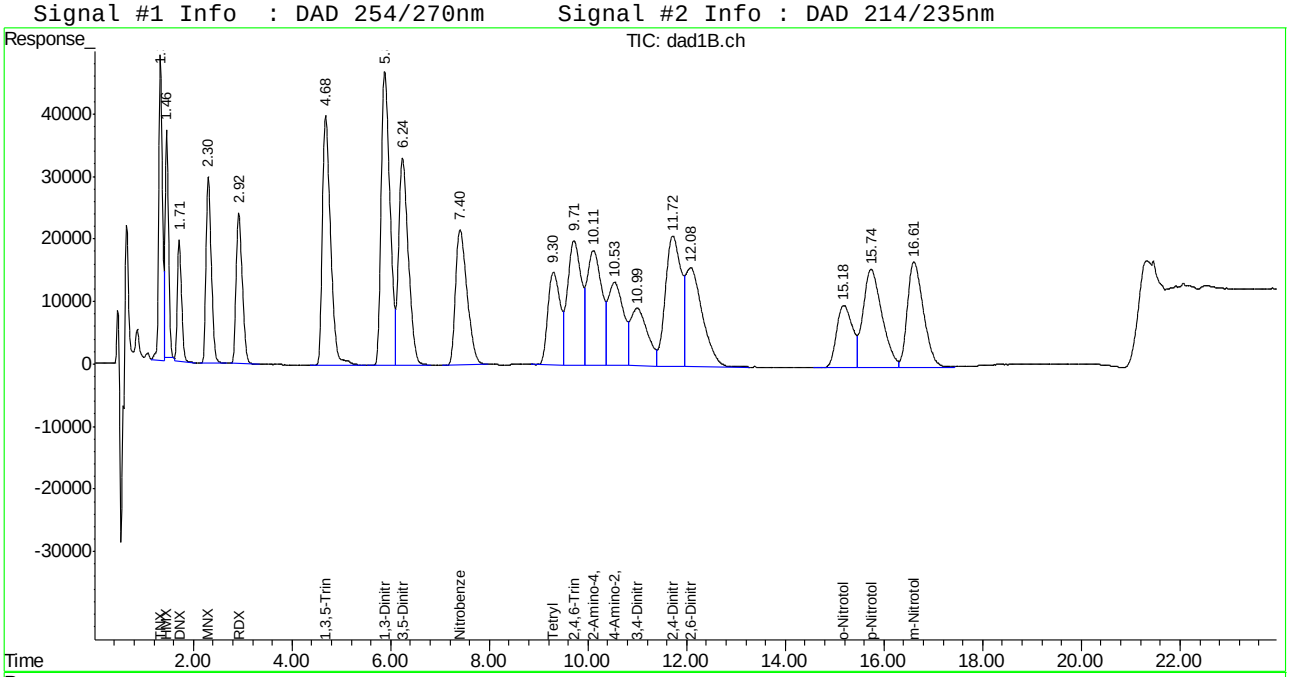
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

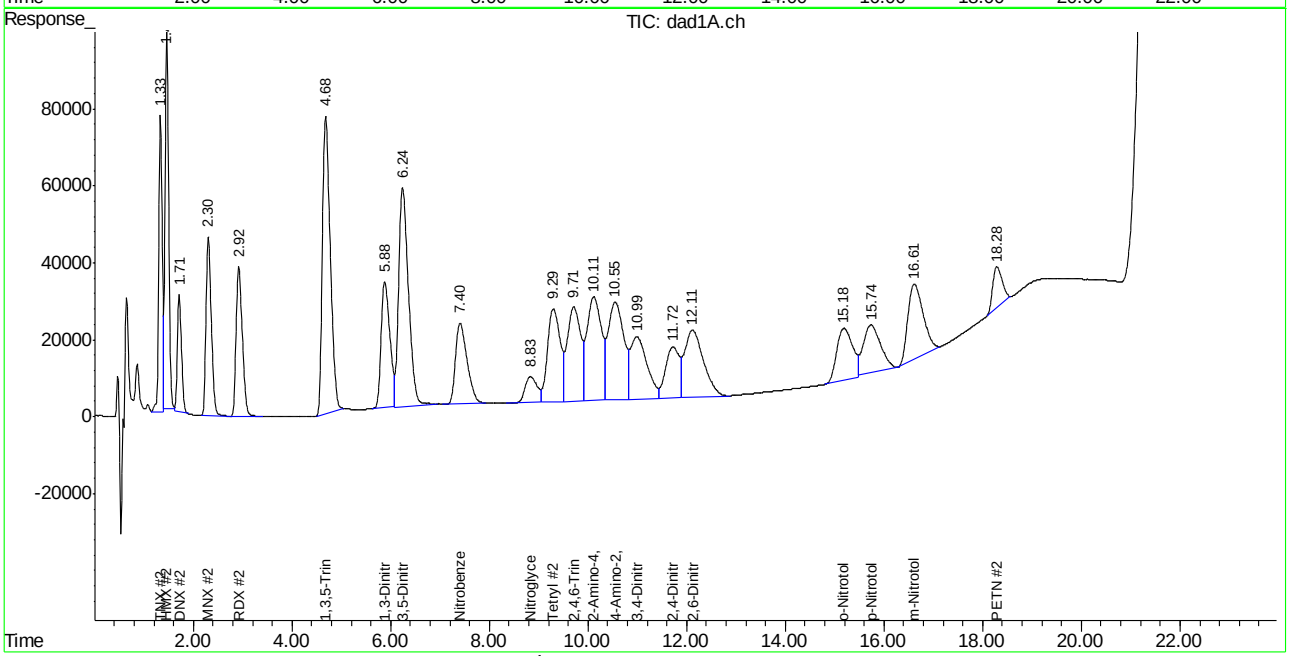
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2269\PP386879.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2269\PP386879.D\dad1A.ch
Acq On : 05-May-2020, 12:13:22 Operator: williamh
Sample : cc2262-1000 Inst : G1315B
Misc : op80050,GPP2269,2,,,20,1,Soil Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 6 12:01 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm





Manual Integration Approval Summary

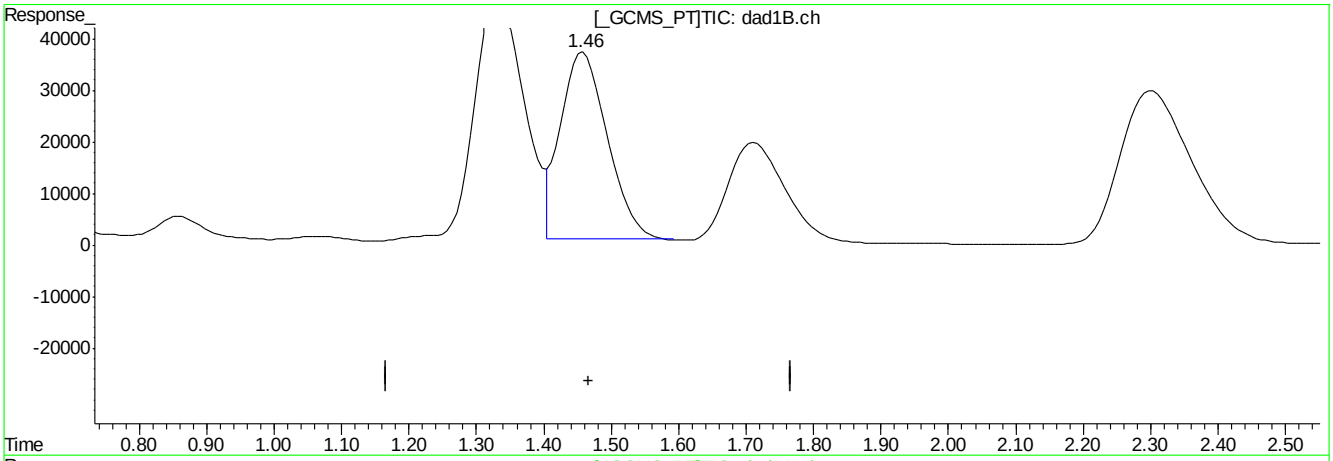
Sample Number: GPP2269-CC2262
Lab FileID: PP386879.D
Injection Time: 05/05/20 12:13
Method: SW846 8330A
Analyst approved: 05/06/20 12:51 William Hustedde
Supervisor approved: 05/06/20 15:51 Naresh Jiawan

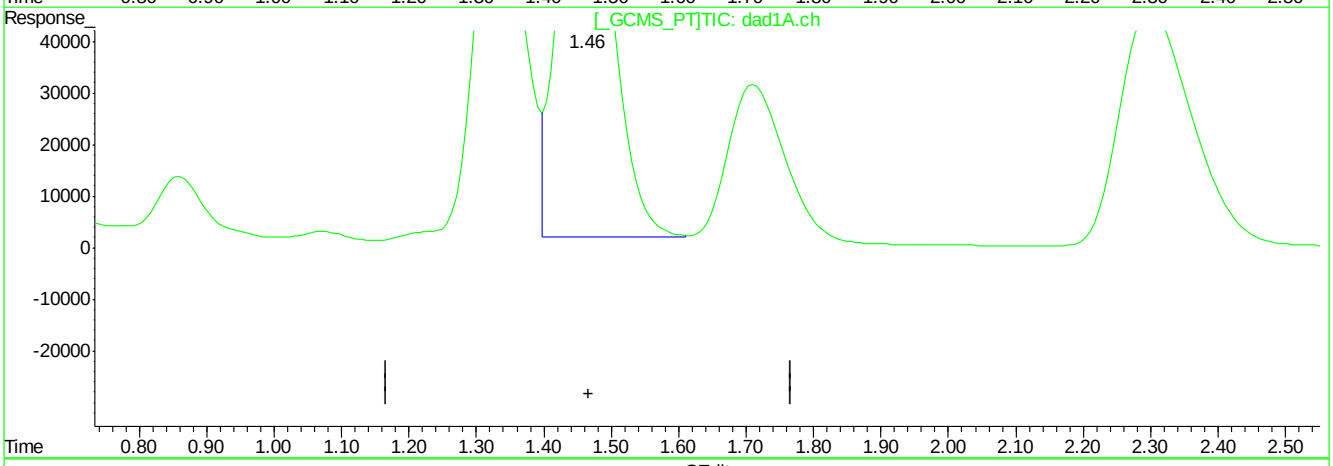
Parameter	CAS	Sig#	R.T. (min.)	Reason
HMX	2691-41-0	1	1.46	Poor instrument integration
HMX	2691-41-0	2	1.46	Poor instrument integration
DNX		2	1.71	Poor instrument integration
1,3,5-Trinitrobenzene	99-35-4	2	4.68	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	5.88	Poor instrument integration
o-Nitrotoluene	88-72-2	2	15.18	Poor instrument integration
PETN	78-11-5	2	18.28	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2269\PP386879.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2269\PP386879.D\dad1A.ch
Acq On : 05-May-2020, 12:13:22 Operator: williamh
Sample : cc2262-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 15:49 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(2) HMX

1.46min 1102.165ppb m

response 1765265

(2) HMX #2

1.46min 1066.865ppb m

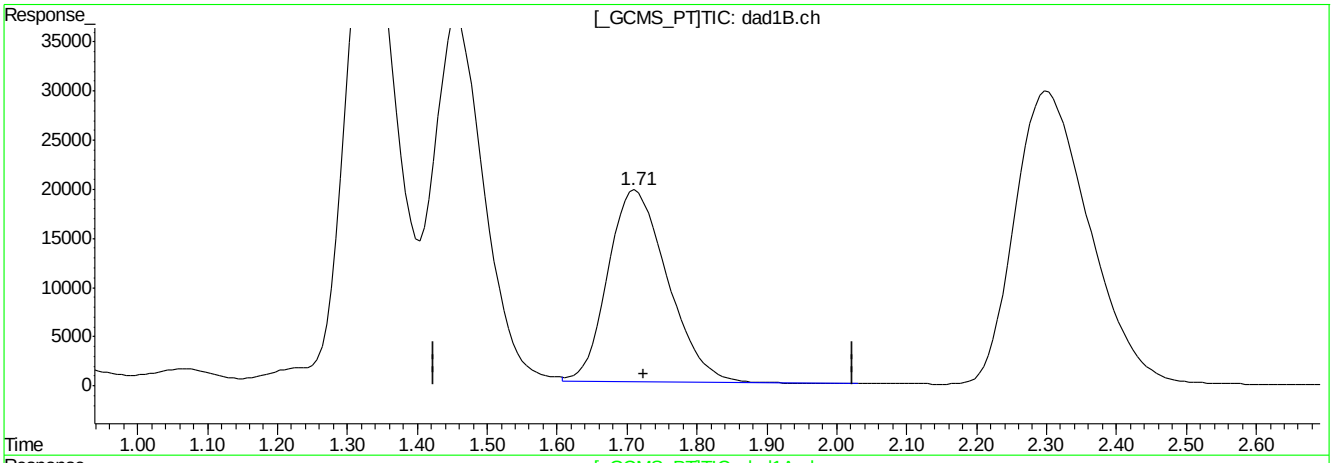
response 5005363

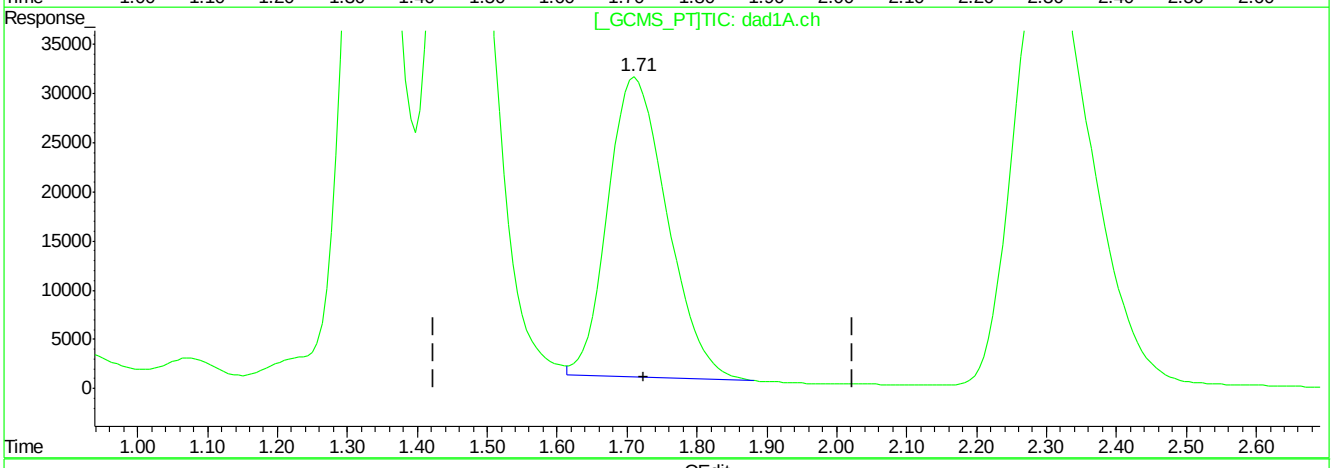
(+) = Expected Retention Time
PP386879.D GPP2262_041620PRI.M Wed May 06 11:50:41 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2269\PP386879.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2269\PP386879.D\dad1A.ch
Acq On : 05-May-2020, 12:13:22 Operator: williamh
Sample : cc2262-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 15:49 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(3) DNX

1.71min 1021.374ppb

response 1162512

(3) DNX #2

1.71min 929.433ppb m

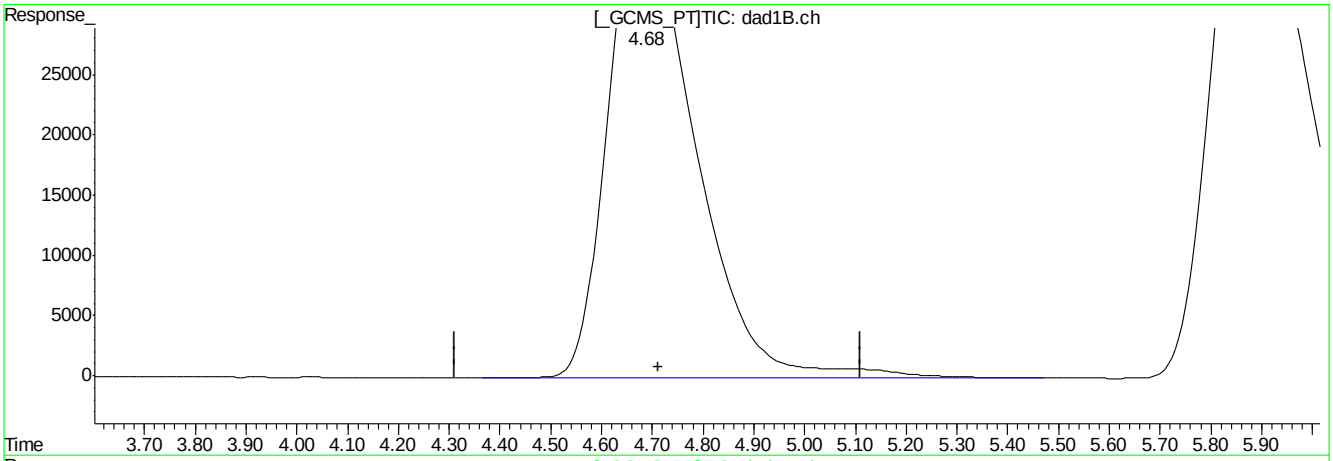
response 1801868

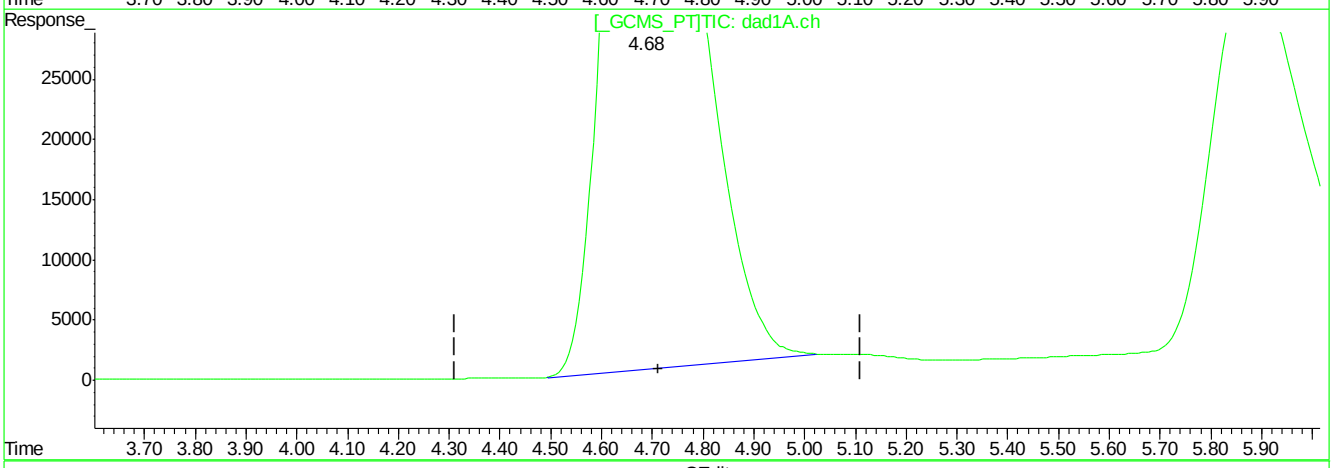
(+) = Expected Retention Time
PP386879.D GPP2262_041620PRI.M Wed May 06 11:50:48 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2269\PP386879.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2269\PP386879.D\dad1A.ch
Acq On : 05-May-2020, 12:13:22 Operator: williamh
Sample : cc2262-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 15:49 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(6) 1,3,5-Trinitrobenzene

4.68min 1133.483ppb

response 4614441

(6) 1,3,5-Trinitrobenzene #2

4.68min 1088.893ppb m

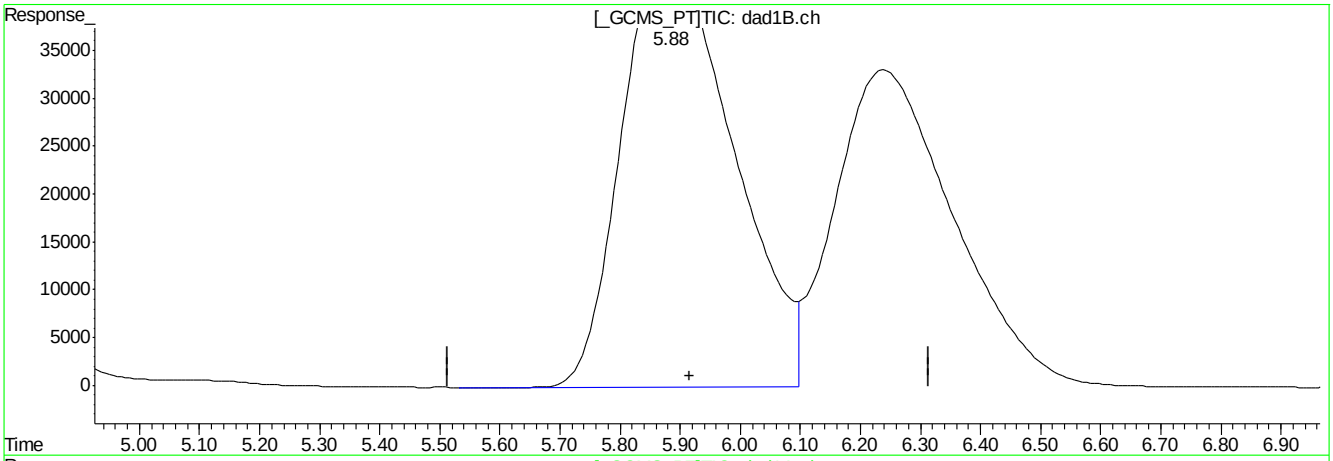
response 8543810

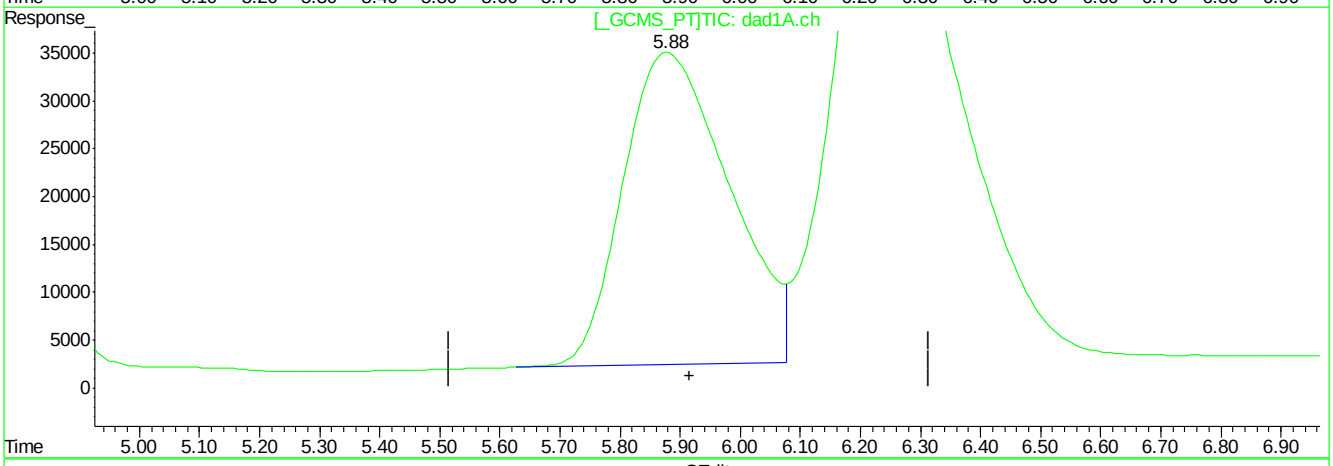
(+) = Expected Retention Time
PP386879.D GPP2262_041620PRI.M Wed May 06 11:52:49 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2269\PP386879.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2269\PP386879.D\dad1A.ch
Acq On : 05-May-2020, 12:13:22 Operator: williamh
Sample : cc2262-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 15:49 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

5.88min 1056.647ppb

response 5810370

(7) 1,3-Dinitrobenzene #2

5.88min 1034.968ppb m

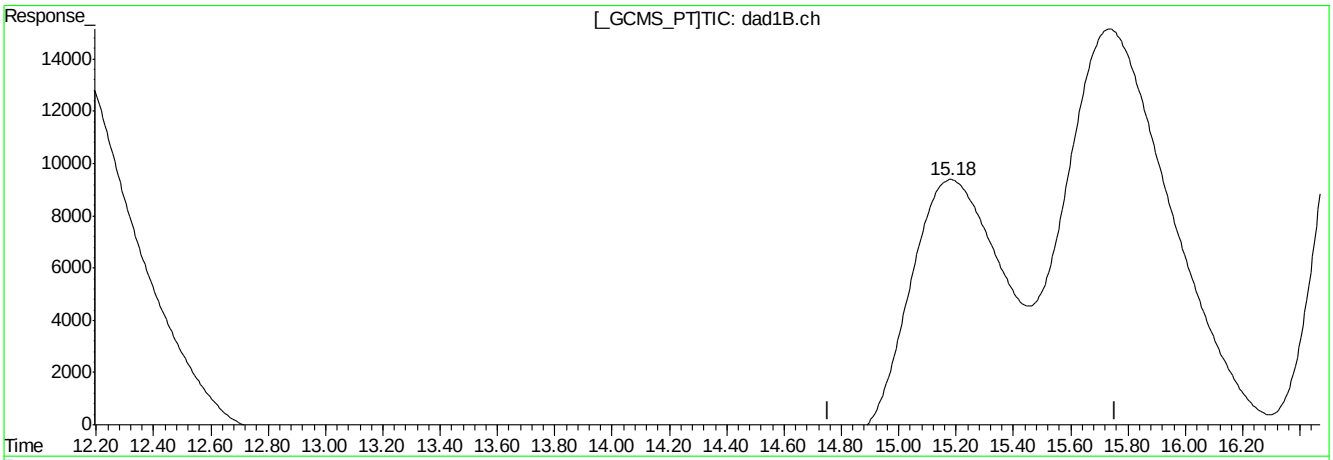
response 4040193

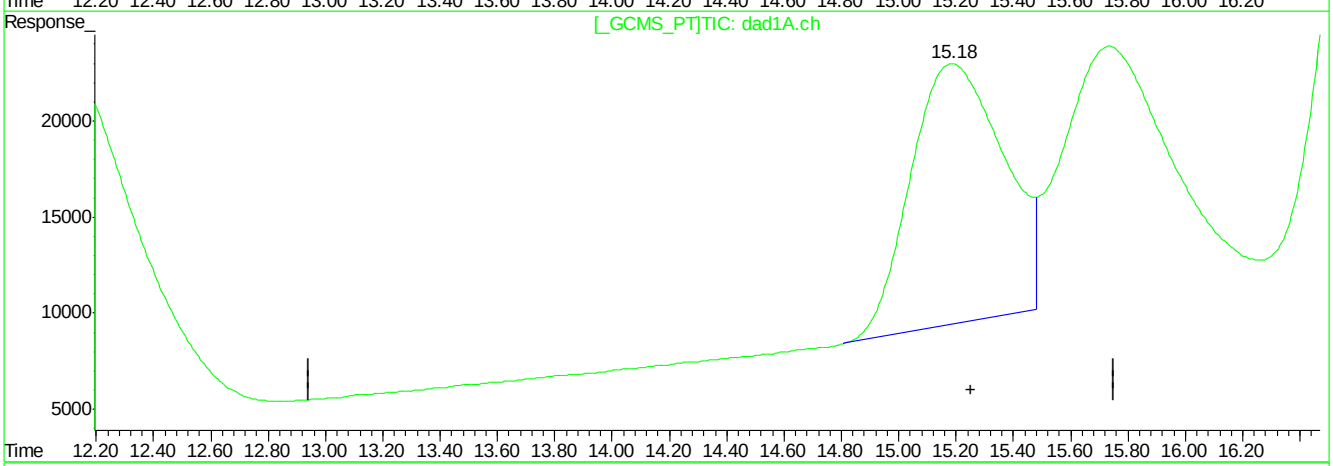
(+) = Expected Retention Time
PP386879.D GPP2262_041620PRI.M Wed May 06 11:54:23 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2269\PP386879.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2269\PP386879.D\dad1A.ch
Acq On : 05-May-2020, 12:13:22 Operator: williamh
Sample : cc2262-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 15:49 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(18) o-Nitrotoluene

15.18min 936.521ppb

response 2210444

(18) o-Nitrotoluene #2

15.18min 1028.853ppb m

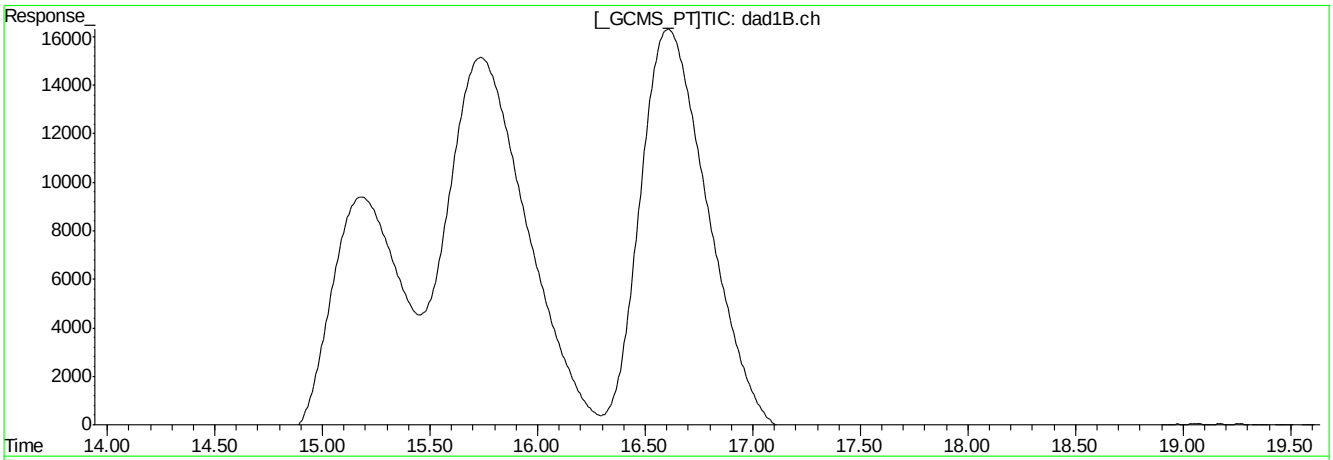
response 3051588

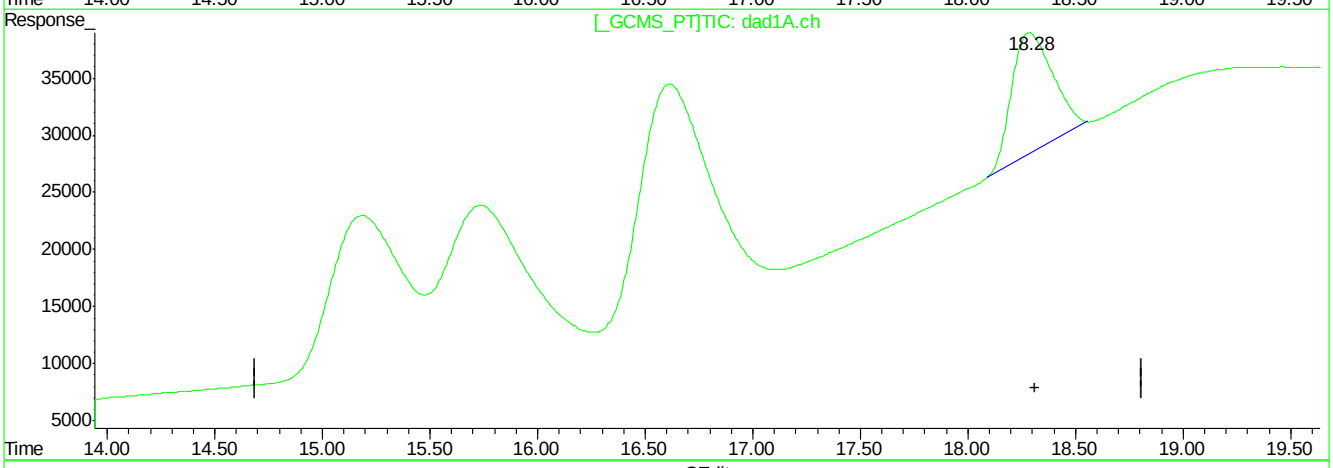
(+) = Expected Retention Time
PP386879.D GPP2262_041620PRI.M Wed May 06 11:59:36 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2269\PP386879.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2269\PP386879.D\dad1A.ch
Acq On : 05-May-2020, 12:13:22 Operator: williamh
Sample : cc2262-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 5 15:49 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

18.28min 1080.409ppb m

response 1396418

(+) = Expected Retention Time
PP386879.D GPP2262_041620PRI.M Wed May 06 12:01:24 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
05/06/20 15:51

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2269\PP386890.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2269\PP386890.D\dad1A.ch
Acq On : 05-May-2020, 17:53:45 Operator: williamh
Sample : cc2262-1000 Inst : G1315B
Misc : op80045,GPP2269,1050,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 06 11:38:28 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Initial Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	11.02	11.02	2270448	3869583	1141.178	1108.849
	Spiked Amount 500.000	Range 70 - 136		Recovery =		228.24%#	221.77%#
	Target Compounds						
1)	TNX	1.34	1.34	2443445	3789350	1089.374	1030.644
2)	HMX	1.46	1.46	1869263	5200891	1167.097	1108.769
3)	DNX	1.72	1.72	1165425	1858335	1023.933	958.560
4)	MNX	2.31	2.31	2215276	3450261	983.511	990.264
5)	RDX	2.93	2.93	2095917	3395130	1055.720	1048.490
6)	1,3,5-Trinitrobe	4.69	4.68	4585247	8503748	1126.312	1083.787m
7)	1,3-Dinitrobenze	5.89	5.88	5745140	3926372	1044.784	1005.810m
8)	3,5-Dinitroanili	6.25	6.24	4600897	7914287	1098.742	1051.650m
9)	Nitrobenzene	7.42	7.42	3497173	3406106	1056.081	1051.996
10)	Nitroglycerin	0.00	8.85	0	1114125	N.D.	979.352 #
11)	Tetryl	9.32	9.31	2464185	4217307	858.984	925.072
12)	2,4,6-Trinitroto	9.73	9.73	3803486	4613232	1004.469	1078.595
13)	2-Amino-4,6-Dini	10.13	10.13	3926250	5541531	1101.832	1113.772
14)	4-Amino-2,6-Dini	10.56	10.57	2957987	5626174	1093.635	1091.117
16)	2,4-Dinitrotolue	11.74	11.74	4371689	2493213	915.910	896.154
17)	2,6-Dinitrotolue	12.11	12.14	4114164	4722471	1380.891	1230.400
18)	o-Nitrotoluene	15.20	15.20	2142724	2970715	907.830	1001.586m
19)	p-Nitrotoluene	15.76	15.75	4249659	3169640	1116.047	1084.777m
20)	m-Nitrotoluene	16.63	16.63	3853550	4074801	1096.358	994.700
21)	PETN	0.00	18.30	0	1454216	N.D.	1125.127m#

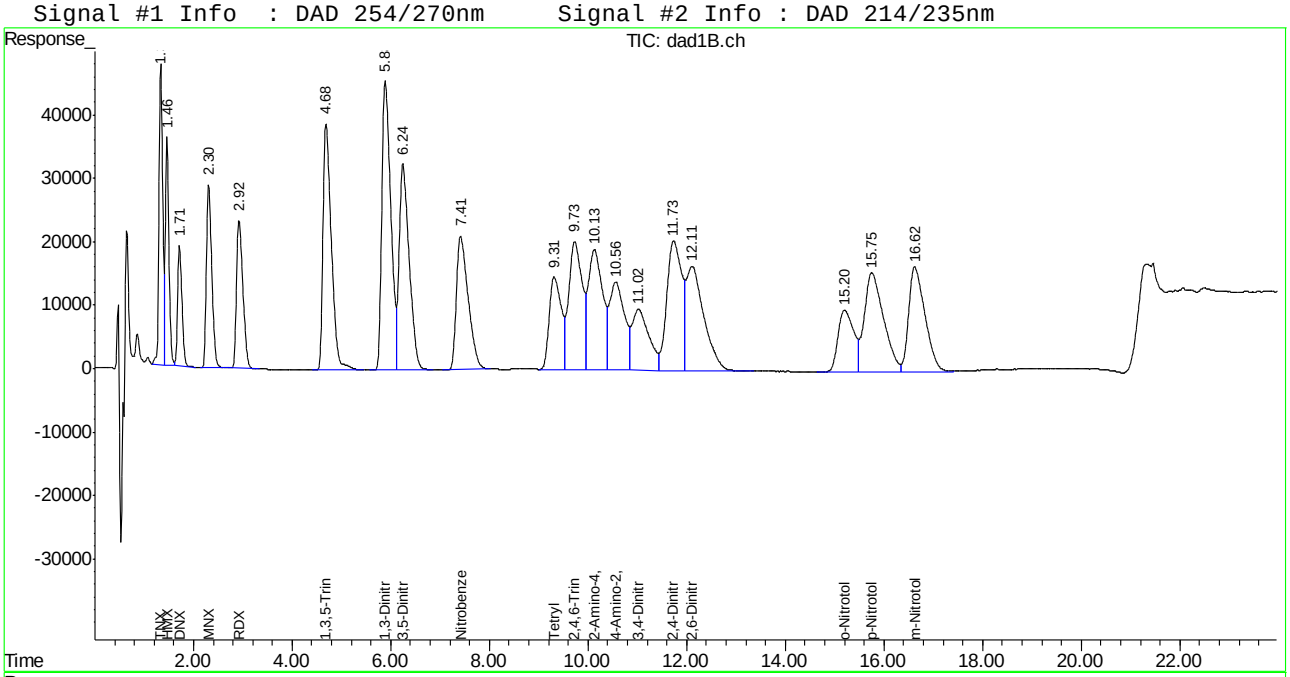
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
PP386890.D GPP2262_041620PRI.M Wed May 06 12:44:22 2020 Page 1

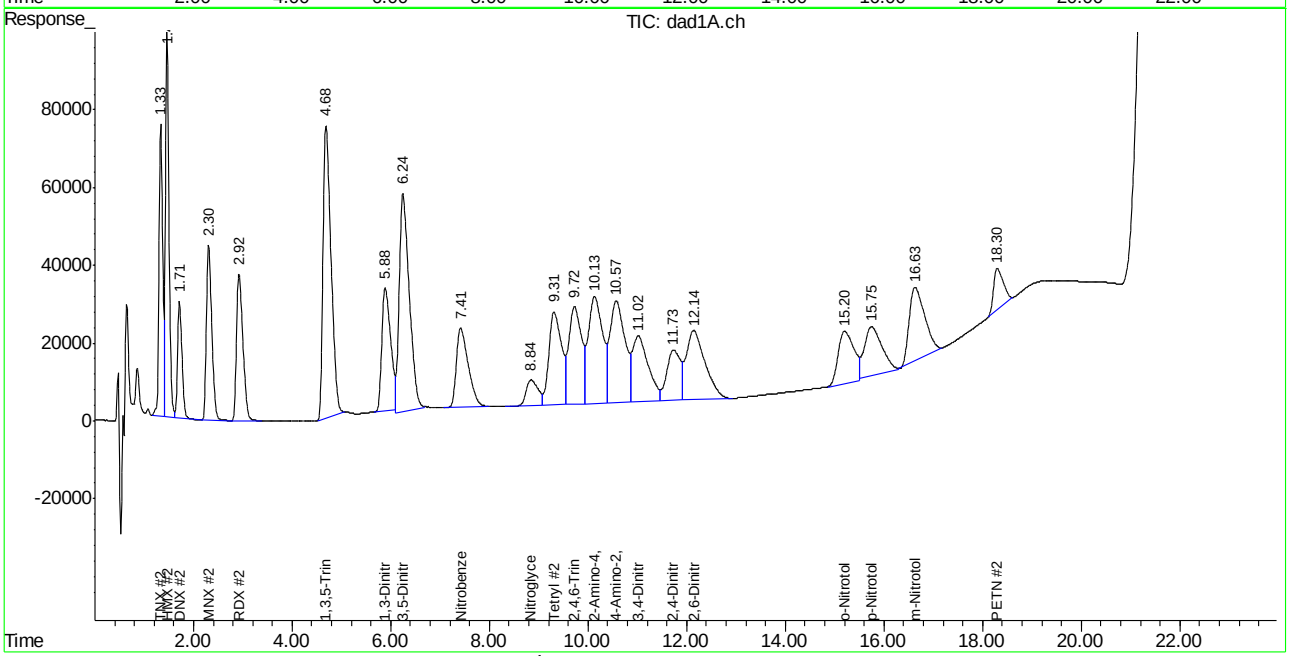
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GPP2269\PP386890.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2269\PP386890.D\dad1A.ch
Acq On : 05-May-2020, 17:53:45 Operator: williamh
Sample : cc2262-1000 Inst : G1315B
Misc : op80045,GPP2269,1050,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 6 12:03 2020 Quant Results File: GPP2262_041620PRI.RES

Quant Method : C:\MSDCHEM\2...\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330BPL.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 214/235nm





Manual Integration Approval Summary

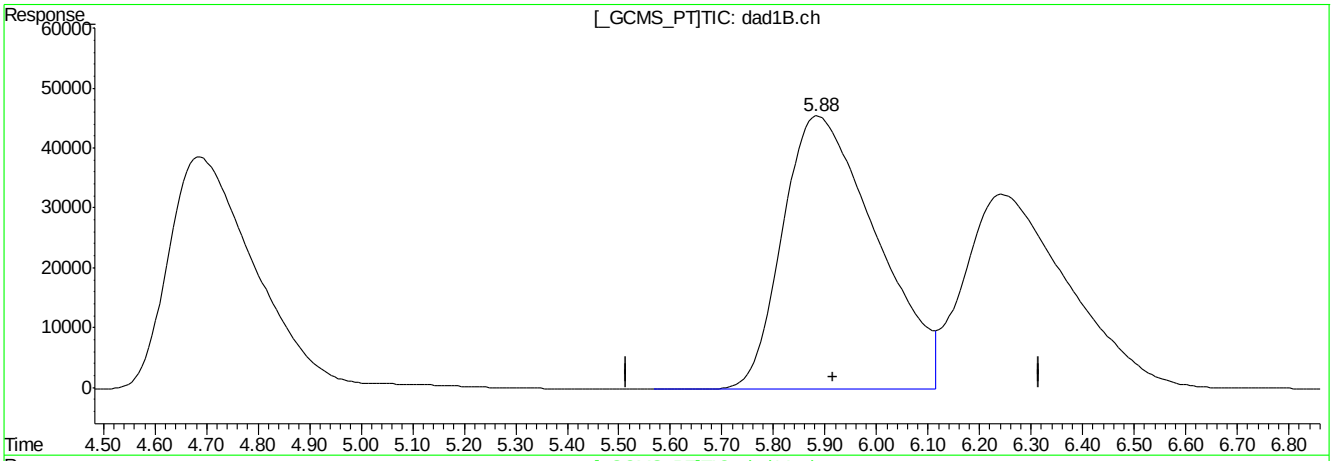
Sample Number: GPP2269-CC2262
Lab FileID: PP386890.D
Injection Time: 05/05/20 17:53
Method: SW846 8330A
Analyst approved: 05/06/20 12:51 William Hustedde
Supervisor approved: 05/06/20 15:51 Naresh Jiawan

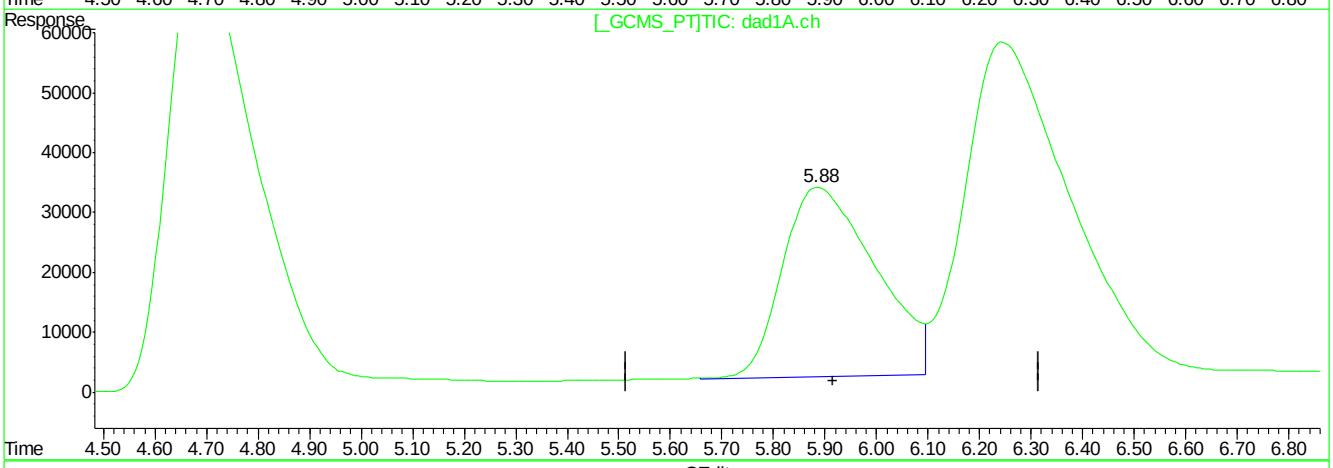
Parameter	CAS	Sig#	R.T. (min.)	Reason
1,3,5-Trinitrobenzene	99-35-4	2	4.68	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	5.88	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	6.24	Poor instrument integration
o-Nitrotoluene	88-72-2	2	15.20	Poor instrument integration
p-Nitrotoluene	99-99-0	2	15.75	Poor instrument integration
PETN	78-11-5	2	18.30	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2269\PP386890.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2269\PP386890.D\dad1A.ch
Acq On : 05-May-2020, 17:53:45 Operator: williamh
Sample : cc2262-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 6 11:38 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

5.89min 1044.784ppb

response 5745140

(7) 1,3-Dinitrobenzene #2

5.88min 1005.810ppb m

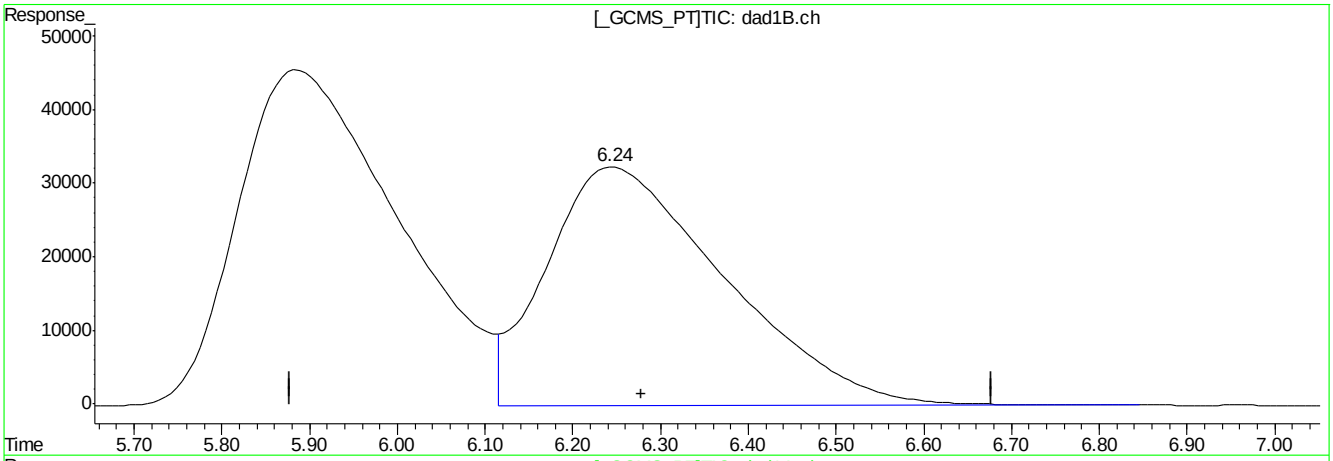
response 3926372

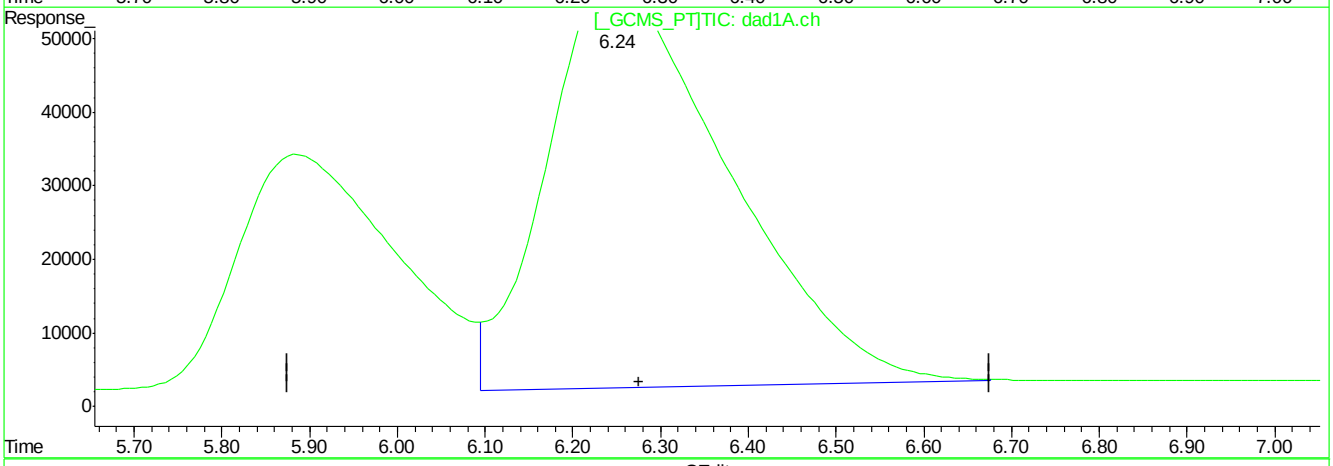
(+) = Expected Retention Time
PP386890.D GPP2262_041620PRI.M Wed May 06 12:02:59 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2269\PP386890.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2269\PP386890.D\dad1A.ch
Acq On : 05-May-2020, 17:53:45 Operator: williamh
Sample : cc2262-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 6 11:38 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.25min 1098.742ppb

response 4600897

(8) 3,5-Dinitroaniline #2

6.24min 1051.650ppb m

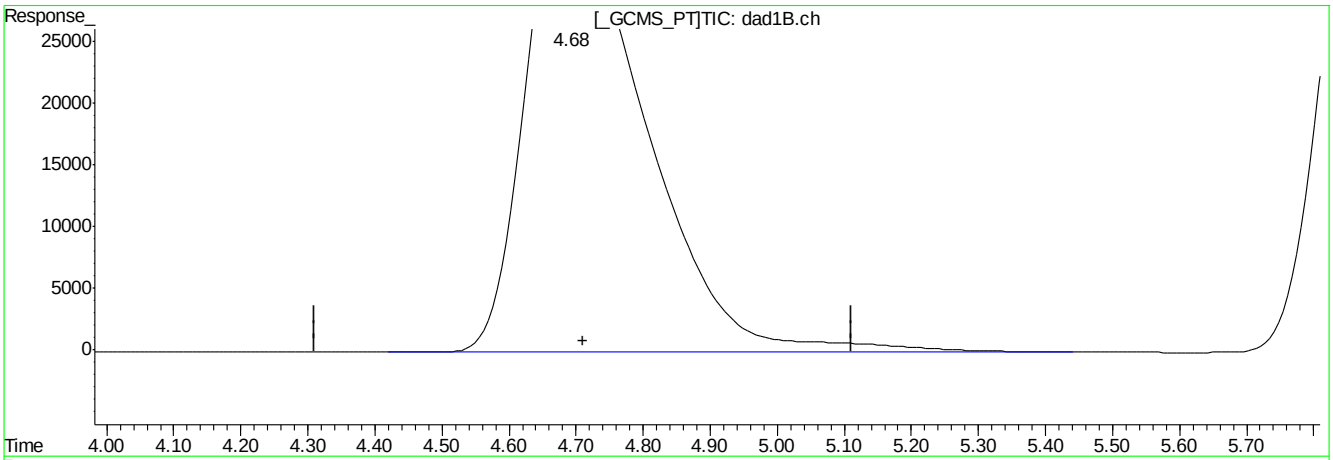
response 7914287

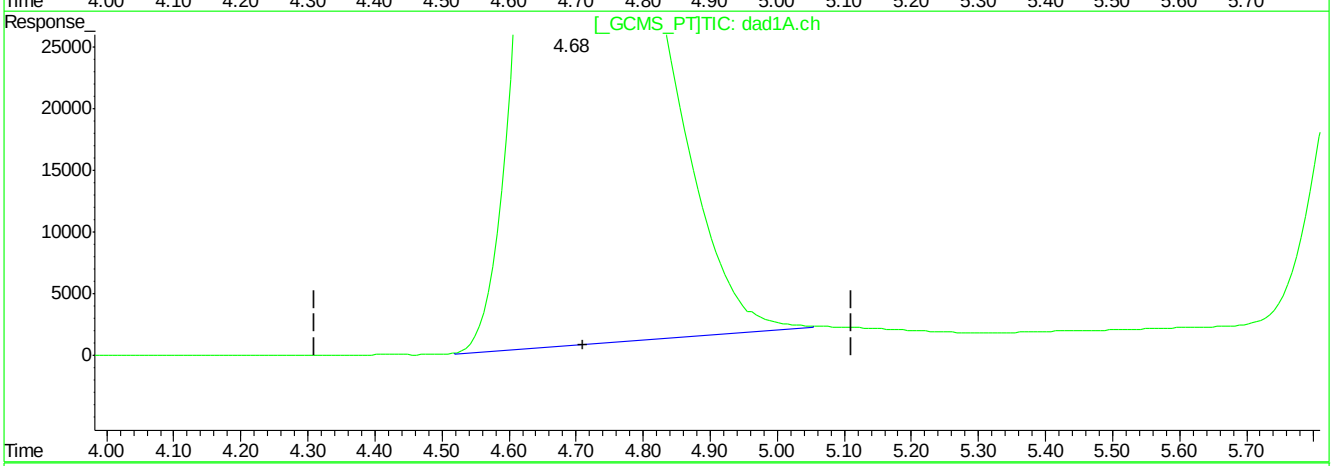
(+) = Expected Retention Time
PP386890.D GPP2262_041620PRI.M Wed May 06 12:03:12 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2269\PP386890.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2269\PP386890.D\dad1A.ch
Acq On : 05-May-2020, 17:53:45 Operator: williamh
Sample : cc2262-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 6 11:38 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(6) 1,3,5-Trinitrobenzene

4.69min 1126.312ppb

response 4585247

(6) 1,3,5-Trinitrobenzene #2

4.68min 1083.787ppb m

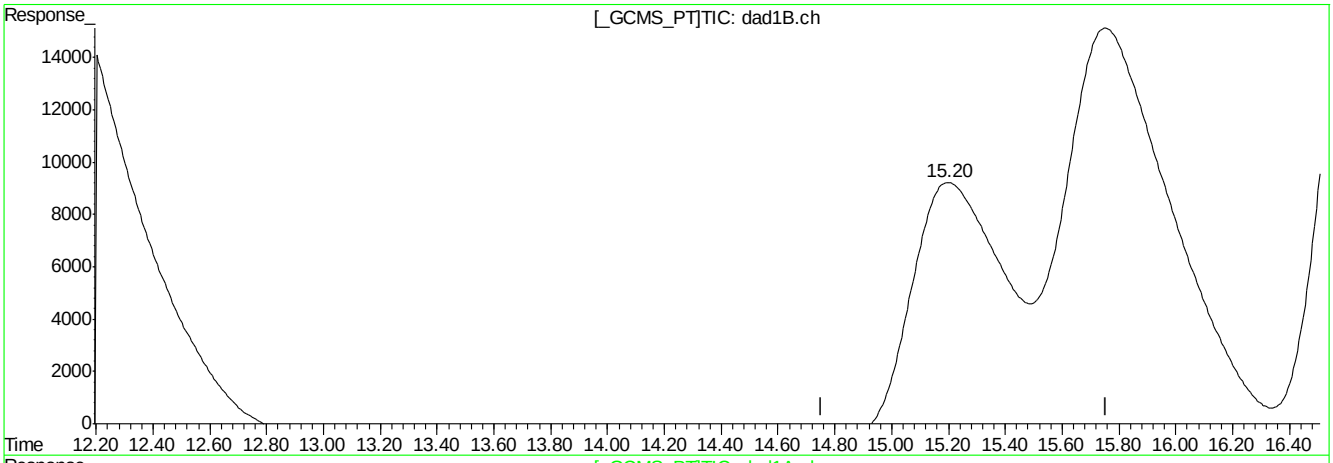
response 8503748

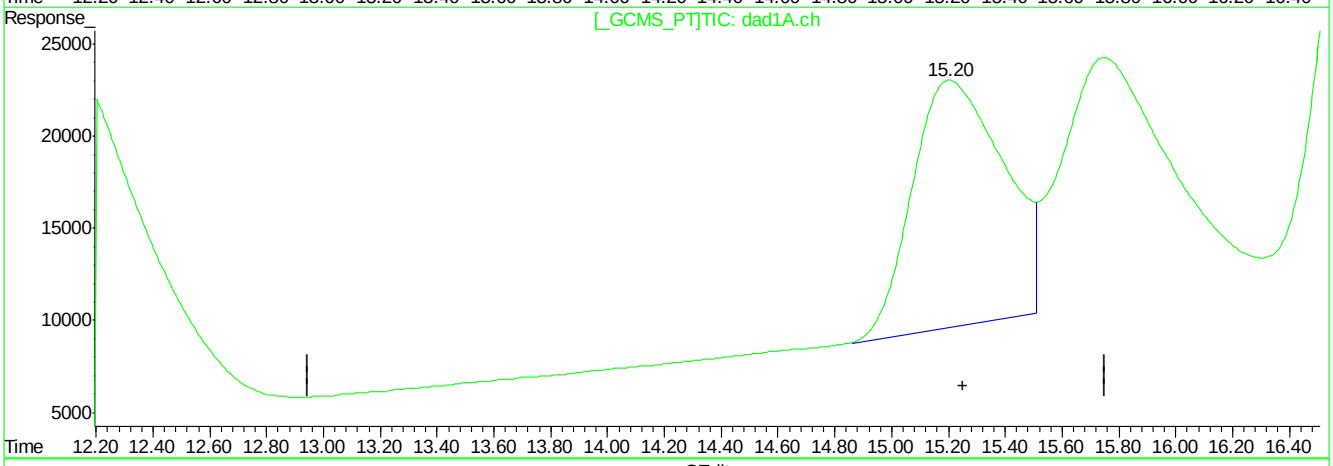
(+) = Expected Retention Time
PP386890.D GPP2262_041620PRI.M Wed May 06 12:03:20 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2269\PP386890.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2269\PP386890.D\dad1A.ch
Acq On : 05-May-2020, 17:53:45 Operator: williamh
Sample : cc2262-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 6 11:38 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(18) o-Nitrotoluene

15.20min 907.830ppb

response 2142724

(18) o-Nitrotoluene #2

15.20min 1001.586ppb m

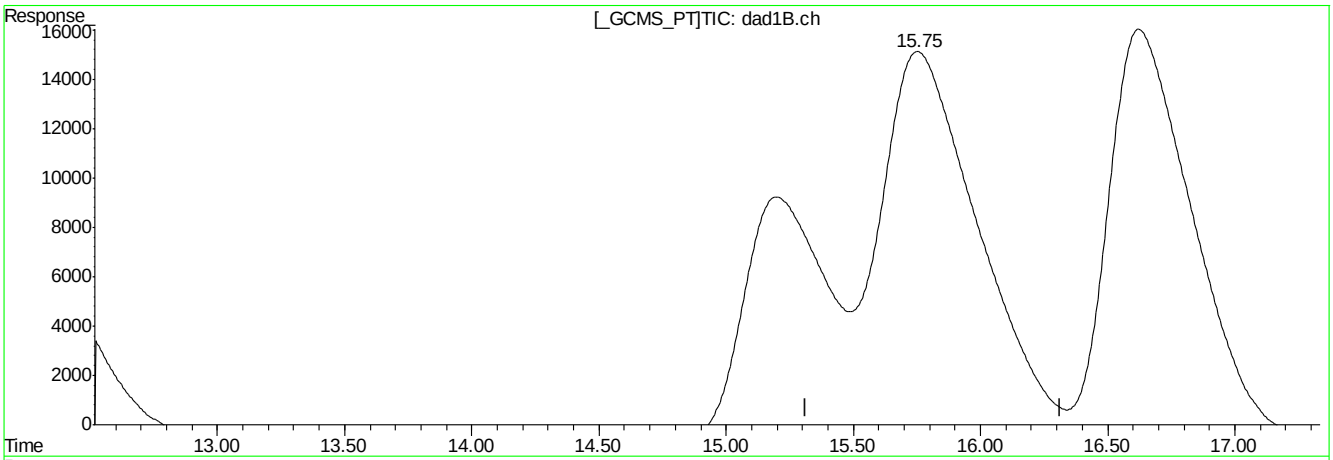
response 2970715

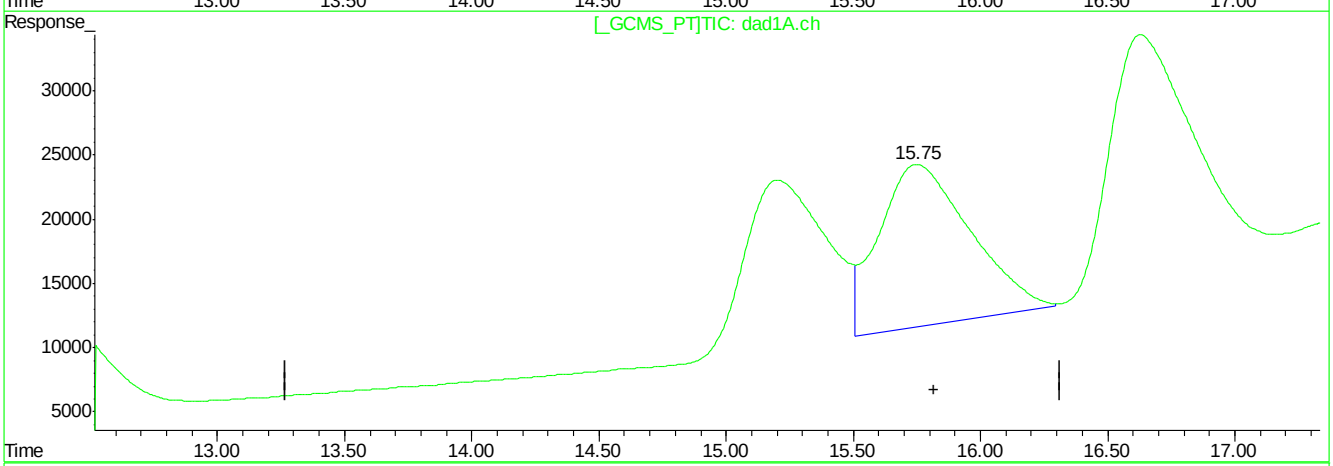
(+) = Expected Retention Time
PP386890.D GPP2262_041620PRI.M Wed May 06 12:03:38 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2269\PP386890.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2269\PP386890.D\dad1A.ch
Acq On : 05-May-2020, 17:53:45 Operator: williamh
Sample : cc2262-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 6 11:38 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(19) p-Nitrotoluene

15.76min 1116.047ppb

response 4249659

(19) p-Nitrotoluene #2

15.75min 1084.777ppb m

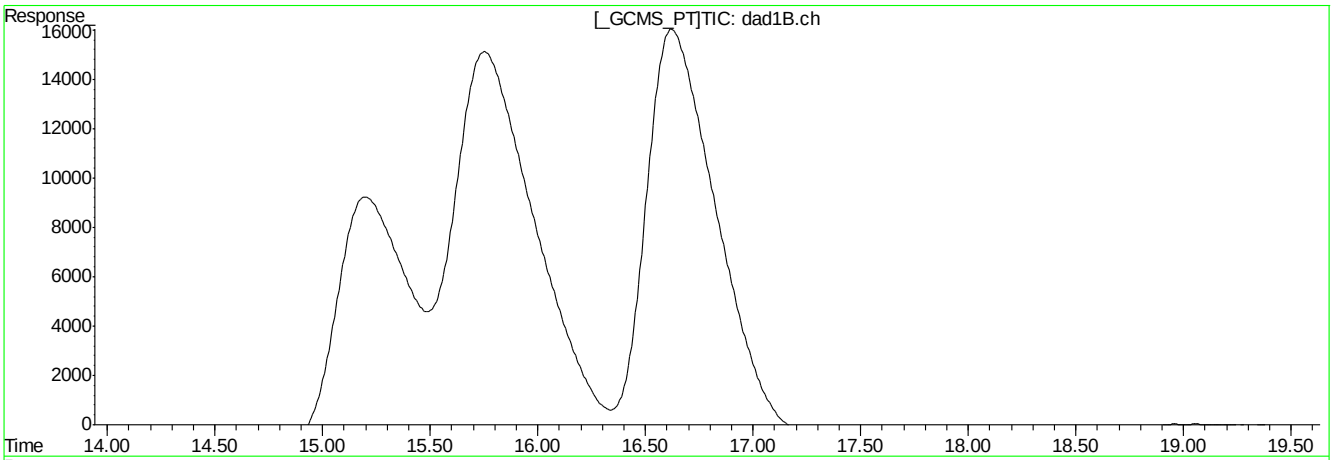
response 3169640

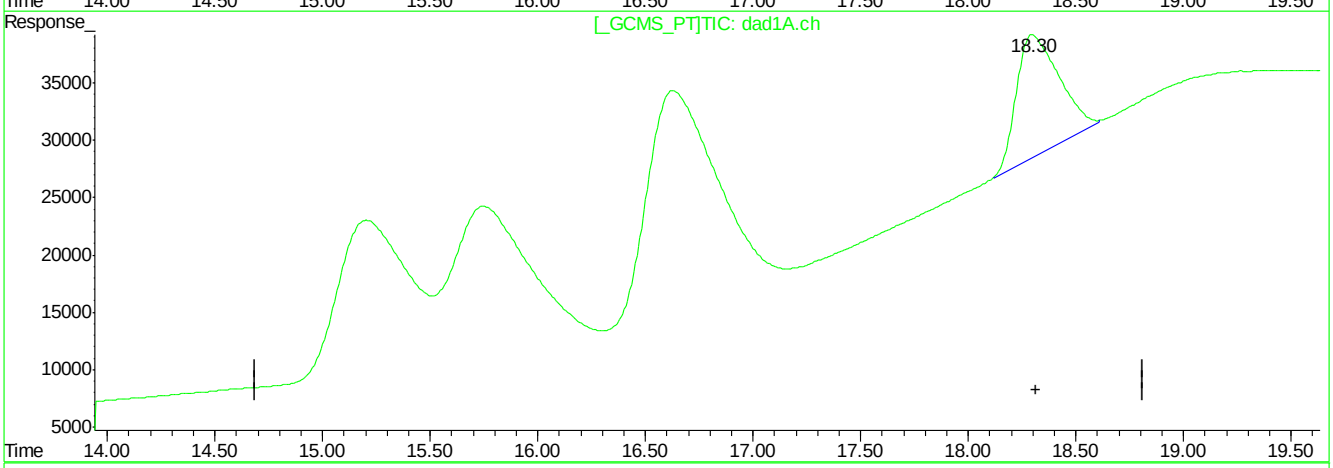
(+) = Expected Retention Time
PP386890.D GPP2262_041620PRI.M Wed May 06 12:03:44 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GPP2269\PP386890.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GPP2269\PP386890.D\dad1A.ch
Acq On : 05-May-2020, 17:53:45 Operator: williamh
Sample : cc2262-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E
Quant Time: May 6 11:38 2020 Quant Results File: GPP2262_041620PRI.RES

Method : C:\MSDCHEM\2\METHODS\GPP2262_041620PRI.M (Chemstation Integrator)
Title : Explosives by 8330A.8330B,8332
Last Update : Fri Apr 17 12:22:26 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

18.30min 1125.127ppb m

response 1454216

(+) = Expected Retention Time
PP386890.D GPP2262_041620PRI.M Wed May 06 12:03:51 2020

SGS ACCUTEST-ORLANDO

DATE:	9/25/19
COLUMN TYPE:	Bonus-RP
AMOUNT INJECTED:	100 ul
INSTRUMENT: HPLC3-GG	

HPLC3-GG ANALYSIS LOG

METHODS:	8330
ACQ. METHOD:	8330 KPB3
PROC. METHOD:	8330 RPB, M_092519.M
CALIB. DATE:	9/25/19
RUN BATCH: GGG	2769

ANALYST:	WTH
ACETONITRILE LOT #:	
MEOH LOT #:	
HEAD PRESSURE:	

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	MANUALLY INTEGRATED PEAKS RATIONALE, PEAK #	COMMENTS
GG 617743	1	ccb	8330				
GG 44	1	"	"				
GG 45	1	"	"				
GG 46	1	"	"				
GG 47	2	lc 2769-20	"	LC1300	2/500		✓
GG 48	3	-50	"	"	5/500		✓
GG 49	4	-100	"	"	"		✓
GG 50	5	-200	"	"	"		✓
GG 51	6	-500	"	"	"		✓
GG 52	7	lcc -1000	"	"	"		✓
GG 53	8	-2500	"	"	"		✓
GG 54	9	-5000	"	"	"		✓
GG 55	10	lcv -1000	"	"	"	RETN	26.52 8330A
GG 56	11	op 71947-MB	"	op 76947	1		✓
GG 57	12	FA68129-1	"	"	1		✓
GG 58	13	-2	"	"	1		✓
GG 59	14	FA68182-2	"	"	1		✓
GG 60	15	FA68238-1	"	"	1		✓
GG 61	16	-1,10	"	"	10		✓
GG 62	17	-2	"	"	1		✓

Manual Integration Rationale SOP QA029: **MP** Missed Peak, **OP** Overlapping Peak, **SP** Split Peak, **PDB** Poorly Defined Baseline, **BR** Baseline Ripple, **PII** Poor Instrument Integration
All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

hplc3_gg_log.xls NF rev. 06/16

Analyst's Signature:

SGS ACCUTEST-ORLANDO

DATE:	9/25/19
COLUMN TYPE:	Bonus-rp
AMOUNT INJECTED:	100 ul
INSTRUMENT: HPLC3-GG	

HPLC3-GG ANALYSIS LOG

METHODS:	8330
ACQ. METHOD:	8330RPB3
PROC. METHOD:	8330RPB_M_092519
CALIB. DATE:	9/25/19
RUN BATCH: GGG	2769

ANALYST:	WFY
ACETONITRILE LOT #:	
MEOH LOT #:	
HEAD PRESSURE:	

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	MANUALLY INTEGRATED PEAKS RATIONALE, PEAK #	COMMENTS
GG 617763	18	FA68238-2 10	8330	op76947	10		⌐
GG 64	19	-3	"	"	1		⌐
GG 65	20	FA68275-6	"	"	1		/
GG 66	7	ccc 2769-1000	"	LC1200	100/500		poles
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							

Manual Integration Rationale SOP QA029: **MP** Missed Peak, **OP** Overlapping Peak, **SP** Split Peak, **PDB** Poorly Defined Baseline, **BR** Baseline Ripple, **PII** Poor Instrument Integration
All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

hplc3_gg_log.xls NF rev. 06/16

Analyst's Signature:

DATE	5/6/2020	**METHODS**	8330	**IC/ICC STD LOT**	**LC1300**
COLUMN TYPE	Bonus-rp	**ACQ. METHOD**	8330RPB3	**ICV STD LOT**	**LC1280**
AMOUNT INJ	100 uL	**PROC. METHOD**	8330RPB.M_092519.M	**SOLVENT**	
INSTRUMENT	HPLC3-GG	**CALIB. DATE**	9/25/2019	**SOLVENT**	
ANALYST	WFH	**RUN BATCH**	GGG2834	**HEAD PRESSURE**	

DATA FILE	ALS	SAMPLE NAME	METHOD	DF	MISC. INFO	COMMENTS
GG618846	1	ccb	8330	1	op80038,GGG2834,1000,,,10,1,Water	
GG618847	2	cc2769-1000	8330	100/500	op80038,GGG2834,1000,,,10,100/500,Water	DNX-FL HMX-FHS1 mNT-FHS2
GG618848	3	op80038-MB	8330	1	op80038,GGG2834,1000,,,10,1,Water	\
GG618849	4	FA74617-1cf	8330	1	op80038,GGG2834,1040,,,10,1,Water	\
GG618850	5	FA74617-2cf	8330	1	op80038,GGG2834,1050,,,10,1,Water	\
GG618851	6	FA74617-3cf	8330	1	op80038,GGG2834,1040,,,10,1,Water	\
GG618852	7	FA74617-3cf,2	8330	2	op80038,GGG2834,1040,,,10,2,Water	\
GG618853	8	FA74617-4cf	8330	1	op80038,GGG2834,1060,,,10,1,Water	\
GG618854	9	op80057-MB	8330	1	op80057,GGG2834,1000,,,10,1,Water	\
GG618855	10	FA74653-1cf	8330	1	op80057,GGG2834,1040,,,10,1,Water	\
GG618856	11	FA74653-2cf	8330	1	op80057,GGG2834,1050,,,10,1,Water	\
GG618857	12	FA74653-2cf,10	8330	10	op80057,GGG2834,1050,,,10,10,Water	\
GG618858	2	cc2769-1000	8330	100/500	op80057,GGG2834,1000,,,10,100/500,Water	DNX-FL
GG618859	1	ccb	8330	1	op80057,GGG2834,1000,,,10,1,Water	
GG618860	13	FA74690-1cf	8330	1	op80057,GGG2834,1050,,,10,1,Water	\
GG618861	14	FA74690-1cf,10	8330	10	op80057,GGG2834,1050,,,10,10,Water	\
GG618862	15	FA74690-2cf	8330	1	op80057,GGG2834,1060,,,10,1,Water	\
GG618863	16	FA74690-2cf,10	8330	10	op80057,GGG2834,1060,,,10,10,Water	\
GG618864	17	FA74690-3cf	8330	1	op80057,GGG2834,1040,,,10,1,Water	\
GG618865	18	FA74690-3cf,10	8330	10	op80057,GGG2834,1040,,,10,10,Water	\
GG618866	19	FA74690-4cf	8330	1	op80057,GGG2834,1050,,,10,1,Water	\
GG618867	20	FA74690-4cf,10	8330	10	op80057,GGG2834,1050,,,10,10,Water	\
GG618868	21	FA74687-1cf	8330	1	op80057,GGG2834,1030,,,10,1,Water	\
GG618869	22	FA74687-2cf	8330	1	op80057,GGG2834,1040,,,10,1,Water	\
GG618870	2	ecc2769-1000	8330	100/500	op80057,GGG2834,1000,,,10,100/500,Water	DNX-FL
GG618871	1	ccb	8330	1	op80057,GGG2834,1000,,,10,1,Water	
GG618872	23	FA74687-3cf	8330	1	op80057,GGG2834,1050,,,10,1,Water	\
GG618873	2	ecc2769-1000	8330	100/500	op80057,GGG2834,1000,,,10,100/500,Water	DNX-FL

DATE	4/16/2020	METHODS	8330	IC/ICC STD LOT	LC1345
COLUMN TYPE	Extend C18	ACQ. METHOD	8330BPL	ICV STD LOT	LC1346
AMOUNT INJ	100 µL	PROC. METHOD	GPP2234_021120PRI.M	SOLVENT	
INSTRUMENT	HPLC4-PP	CALIB. DATE	2/11/2020	SOLVENT	
ANALYST	WFH	RUN BATCH	GPP2262	HEAD PRESSURE	

DATA FILE	ALS	SAMPLE NAME	METHOD	DF	MISC. INFO	COMMENTS
PP386572	1	ccb	8330	1	op79761,GPP2262,1000,,,10,1,Water	
PP386573	2	ic2262-20	8330	2/500	op79761,GPP2262,1000,,,10,2/500,Water	\
PP386574	3	ic2262-50	8330	5/500	op79761,GPP2262,1000,,,10,5/500,Water	\
PP386575	4	ic2262-100	8330	10/500	op79761,GPP2262,1000,,,10,10/500,Water	\
PP386576	5	ic2262-200	8330	20/500	op79761,GPP2262,1000,,,10,20/500,Water	\
PP386577	6	ic2262-500	8330	50/500	op79761,GPP2262,1000,,,10,50/500,Water	\
PP386578	7	icc2262-1000	8330	100/500	op79761,GPP2262,1000,,,10,100/500,Water	\
PP386579	8	ic2262-2500	8330	250/500	op79761,GPP2262,1000,,,10,250/500,Water	\
PP386580	9	ic2262-5000	8330	500/500	op79761,GPP2262,1000,,,10,500/500,Water	\
PP386581	10	icv2262-1000	8330	1	op79761,GPP2262,1000,,,10,1,Water	8330A TNX-FHS1 24-FHS2
PP386582	11	op79816-BS	8330	1	op79816,GPP2262,1000,,,10,1,Water	\
PP386583	12	op79816-MB	8330	1	op79816,GPP2262,1000,,,10,1,Water	\
PP386584	13	FA74211-1	8330	1	op79816,GPP2262,1060,,,10,1,Water	\
PP386585	14	op79816-MS	8330	1	op79816,GPP2262,520,,,10,1,Water	\
PP386586	15	op79816-MSD	8330	1	op79816,GPP2262,520,,,10,1,Water	\
PP386587	16	op79787-BS	8330	1	op79787,GPP2262,1000,,,10,1,Water	\
PP386588	17	op79787-MB	8330	1	op79787,GPP2262,1000,,,10,1,Water	\
PP386589	18	FA74169-1	8330	1	op79787,GPP2262,1040,,,10,1,Water	\
PP386590	19	op79787-MS	8330	1	op79787,GPP2262,520,,,10,1,Water	\
PP386591	20	op79787-MSD	8330	1	op79787,GPP2262,520,,,10,1,Water	\
PP386592	7	cc2262-1000	8330	100/500	op79787,GPP2262,1000,,,10,100/500,Water	pass
PP386593	2	ccb	8330	1	op79787,GPP2262,1000,,,10,1,Water	
PP386594	21	FA74169-2	8330	1	op79787,GPP2262,1050,,,10,1,Water	cf-RDX
PP386595	22	FA74169-3	8330	1	op79787,GPP2262,1050,,,10,1,Water	cf-RDX
PP386596	23	FA74169-4	8330	1	op79787,GPP2262,1060,,,10,1,Water	cf-HMX,RDX,TNT,2A,4A
PP386597	24	FA74169-5	8330	1	op79787,GPP2262,1060,,,10,1,Water	cf-HMX,RDX,TNT,2A,4A
PP386598	25	FA74169-6	8330	1	op79787,GPP2262,1040,,,10,1,Water	cf-HMX,RDX,TNB,TNT
PP386599	26	FA74169-7	8330	1	op79787,GPP2262,1020,,,10,1,Water	cf-HMX,RDX,TNB,TNT,2A,4A
PP386600	27	FA74169-8	8330	1	op79787,GPP2262,1050,,,10,1,Water	10x-RDX cf-HMX,DNA,TNB,TNT,2A,4A
PP386601	28	FA74169-9	8330	1	op79787,GPP2262,1040,,,10,1,Water	\
PP386602	29	FA74169-10	8330	1	op79787,GPP2262,1040,,,10,1,Water	cf-RDX Surr pass
PP386603	30	FA74169-11	8330	1	op79787,GPP2262,1060,,,10,1,Water	cf-RDX,TNT

PP386604	7	cc2262-1000	8330	100/500	op79787,GPP2262,1000,,,10,100/500,Water	pass
PP386605	2	ccb	8330	1	op79787,GPP2262,1000,,,10,1,Water	
PP386606	31	FA74169-12	8330	1	op79787,GPP2262,1060,,,10,1,Water	\
PP386607	32	op79802-BS	8330	1	op79802,GPP2262,1000,,,10,1,Water	\
PP386608	33	op79802-MB	8330	1	op79802,GPP2262,1000,,,10,1,Water	\
PP386609	34	FA74170-2	8330	1	op79802,GPP2262,1050,,,10,1,Water	\
PP386610	35	FA74171-13	8330	1	op79802,GPP2262,1060,,,10,1,Water	cf-oNT
PP386611	36	FA74171-14	8330	1	op79802,GPP2262,1050,,,10,1,Water	cf-oNT
PP386612	37	op79802-MS	8330	1	op79802,GPP2262,520,,,10,1,Water	\
PP386613	38	op79802-MSD	8330	1	op79802,GPP2262,520,,,10,1,Water	\
PP386614	39	op79802-MS2	8330	1	op79802,GPP2262,520,,,10,1,Water	\
PP386615	40	op79802-MSD2	8330	1	op79802,GPP2262,520,,,10,1,Water	\
PP386616	7	cc2262-1000	8330	100/500	op79802,GPP2262,1000,,,10,100/500,Water	pass
PP386617	2	ccb	8330	1	op79802,GPP2262,1000,,,10,1,Water	
PP386618	41	FA74169-8,10	8330	10	op79787,GPP2262,1050,,,10,10,Water	cf-RDX
PP386619	42	Assay	8330	1	op79802,GPP2262,1000,,,10,1,Water	\
PP386620	43	op79828-BS	8330	1	op79828,GPP2262,1000,,,10,1,Water	\
PP386621	44	op79828-MB	8330	1	op79828,GPP2262,1000,,,10,1,Water	\
PP386622	45	FA74267-1	8330	1	op79828,GPP2262,1040,,,10,1,Water	cf-RDX
PP386623	46	FA74267-2	8330	1	op79828,GPP2262,1040,,,10,1,Water	cf-RDX
PP386624	47	op79828-MS	8330	1	op79828,GPP2262,520,,,10,1,Water	\
PP386625	48	op79828-MSD	8330	1	op79828,GPP2262,520,,,10,1,Water	\
PP386626	7	ecc2262-1000	8330	100/500	op79828,GPP2262,1000,,,10,100/500,Water	pass

DATE	5/4/2020	**METHODS**	8330	**IC/ICC STD LOT**	**LC1345**
COLUMN TYPE	Extend C18	**ACQ. METHOD**	8330BPL	**ICV STD LOT**	**LC1346**
AMOUNT INJ	100 µL	**PROC. METHOD**	GPP2234_021120PRI.M	**SOLVENT**	
INSTRUMENT	HPLC4-PP	**CALIB. DATE**	2/11/2020	**SOLVENT**	
ANALYST	WFH	**RUN BATCH**	GPP2268	**HEAD PRESSURE**	

DATA FILE	ALS	SAMPLE NAME	METHOD	DF	MISC. INFO	COMMENTS
PP386858	1	ccb	8330	1	op80030,GPP2268,1000,,,10,1,Water	
PP386859	2	cc2262-1000	8330	100/500	op80030,GPP2268,1000,,,10,100/500,Water	26-FHS1
PP386860	3	FA74620-3,10	8330	10	op80030,GPP2268,1040,,,10,10,Water	cf-RDX
PP386861	4	FA74620-4,10	8330	10	op80030,GPP2268,1040,,,10,10,Water	cf-HMX,RDX
PP386862	5	FA74620-5,10	8330	10	op80030,GPP2268,1060,,,10,10,Water	cf-HMX,MNX,RDX,TNB,TNT,2A,4A
PP386863	6	FA74620-6,10	8330	10	op80030,GPP2268,1050,,,10,10,Water	100x-RDX cf-HMX,MNX,TNB,TNT,2A,4A
PP386864	7	FA74620-6,100	8330	100	op80030,GPP2268,1050,,,10,100,Water	cf-RDX
PP386865	8	FA74620-7,2	8330	2	op80030,GPP2268,1050,,,10,2,Water	cf-2A
PP386866	9	op80038-BS	8330	1	op80038,GPP2268,1000,,,10,1,Water	\
PP386867	10	op80038-MB	8330	1	op80038,GPP2268,1000,,,10,1,Water	\
PP386868	11	FA74617-1	8330	1	op80038,GPP2268,1040,,,10,1,Water	cf-HMX,RDX,TNB,DNA,TNT,2A,4A
PP386869	12	FA74617-2	8330	1	op80038,GPP2268,1050,,,10,1,Water	cf-HMX,RDX,TNB,DNA,TNT,2A,4A
PP386870	2	cc2262-1000	8330	100/500	op80038,GPP2268,1000,,,10,100/500,Water	26-FHS1
PP386871	1	ccb	8330	1	op80038,GPP2268,1000,,,10,1,Water	
PP386872	13	FA74617-3	8330	1	op80038,GPP2268,1040,,,10,1,Water	cf-HMX,RDX,TNB,DNA,TNT,4A ?-2A
PP386873	14	FA74617-4	8330	1	op80038,GPP2268,1060,,,10,1,Water	cf-HMX,RDX,TNB,DNA,TNT,2A,4A
PP386874	15	FA74617-5	8330	1	op80038,GPP2268,1040,,,10,1,Water	\
PP386875	16	op80038-MS	8330	1	op80038,GPP2268,520,,,10,1,Water	\
PP386876	17	op80038-MSD	8330	1	op80038,GPP2268,520,,,10,1,Water	\
PP386877	2	ecc2262-1000	8330	100/500	op80038,GPP2268,1000,,,10,100/500,Water	26-FH

DATE	5/5/2020	METHODS	8330	IC/ICC STD LOT	LC1345
COLUMN TYPE	Extend C18	ACQ. METHOD	8330BPL	ICV STD LOT	LC1346
AMOUNT INJ	100 µL	PROC. METHOD	GPP2234_021120PRI.M	SOLVENT	
INSTRUMENT	HPLC4-PP	CALIB. DATE	2/11/2020	SOLVENT	
ANALYST	WFH	RUN BATCH	GPP2269	HEAD PRESSURE	

DATA FILE	ALS	SAMPLE NAME	METHOD	DF	MISC. INFO	COMMENTS
PP386878	1	ccb	8330	1	op80050,GPP2269,1000,,,10,1,Water	
PP386879	2	cc2262-1000	8330	100/500	op80050,GPP2269,1000,,,10,100/500,Water	26-FH
PP386880	3	op80050-BS	8330	1	op80050,GPP2269,2,,,20,1,Soil	\
PP386881	4	op80050-MB	8330	1	op80050,GPP2269,2,,,20,1,Soil	\
PP386882	5	JD6296-2	8330	1	op80050,GPP2269,2.2,,,20,1,Soil	\
PP386883	6	op80050-MS	8330	1	op80050,GPP2269,2.19,,,20,1,Soil	\
PP386884	7	op80050-MSD	8330	1	op80050,GPP2269,2.19,,,20,1,Soil	\
PP386885	8	FA74617-3,2	8330	2	op80038,GPP2269,1040,,,10,2,Water	report 2A
PP386886	9	op80045-BS	8330	1	op80045,GPP2269,1000,,,10,1,Water	\
PP386887	10	op80045-MB	8330	1	op80045,GPP2269,1000,,,10,1,Water	\
PP386888	11	FA74434-8cfs	8330	1	op80045,GPP2269,1040,,,10,1,Water	surr confirms
PP386889	12	FA74434-18cfs	8330	1	op80045,GPP2269,1050,,,10,1,Water	surr confirms
PP386890	2	cc2262-1000	8330	100/500	op80045,GPP2269,1000,,,10,100/500,Water	26-FH
PP386891	1	ccb	8330	1	op80045,GPP2269,1000,,,10,1,Water	
PP386892	13	FA74527-4cfs	8330	1	op80045,GPP2269,1050,,,10,1,Water	surr confirms
PP386893	14	FA74527-5cfs	8330	1	op80045,GPP2269,1040,,,10,1,Water	surr confirms
PP386894	15	FA74527-8cfs	8330	1	op80045,GPP2269,1040,,,10,1,Water	surr confirms
PP386895	16	JD6576-3	8330	1	op80045,GPP2269,1000,,,10,1,Water	\
PP386896	17	JD6576-5	8330	1	op80045,GPP2269,1000,,,10,1,Water	\
PP386897	18	JD6576-6	8330	1	op80045,GPP2269,1000,,,10,1,Water	\
PP386898	19	JD6576-20	8330	1	op80045,GPP2269,990,,,10,1,Water	\
PP386899	20	JD6576-29	8330	1	op80045,GPP2269,1000,,,10,1,Water	\
PP386900	21	op80045-MS	8330	1	op80045,GPP2269,500,,,10,1,Water	\
PP386901	22	op80045-MSD	8330	1	op80045,GPP2269,500,,,10,1,Water	\
PP386902	2	ecc2262-1000	8330	100/500	op80045,GPP2269,1000,,,10,100/500,Water	26-FH
PP386903	1	ccb	8330	1	op80057,GPP2269,1000,,,10,1,Water	
PP386904	23	op80057-BS	8330	1	op80057,GPP2269,1000,,,10,1,Water	RR
PP386905	24	op80057-MB	8330	1	op80057,GPP2269,1000,,,10,1,Water	RR
PP386906	25	FA74653-1	8330	1	op80057,GPP2269,1000,,,10,1,Water	RR
PP386907	26	FA74653-2	8330	1	op80057,GPP2269,1000,,,10,1,Water	RR +10x
PP386908	27	FA74690-1	8330	1	op80057,GPP2269,1000,,,10,1,Water	RR +10x
PP386909	28	FA74690-2	8330	1	op80057,GPP2269,1000,,,10,1,Water	RR +10x

PP386910	29	FA74690-3	8330	1	op80057,GPP2269,1000,,,10,1,Water	RR +10x
PP386911	30	FA74690-4	8330	1	op80057,GPP2269,1000,,,10,1,Water	RR +10x
PP386912	31	FA74687-1	8330	1	op80057,GPP2269,1000,,,10,1,Water	RR
PP386913	32	FA74687-2	8330	1	op80057,GPP2269,1000,,,10,1,Water	RR
PP386914	2	cc2262-1000	8330	100/500	op80057,GPP2269,1000,,,10,100/500,Water	24-FL
PP386915	1	ccb	8330	1	op80057,GPP2269,1000,,,10,1,Water	
PP386916	33	FA74687-3	8330	1	op80057,GPP2269,1000,,,10,1,Water	RR
PP386917	34	op80057-MS	8330	1	op80057,GPP2269,1000,,,10,1,Water	RR
PP386918	35	op80057-MSD	8330	1	op80057,GPP2269,1000,,,10,1,Water	RR
PP386919	2	cc2262-1000	8330	100/500	op80057,GPP2269,1000,,,10,100/500,Water	

SGS - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time: 05/02/2020 0830 Started {mm/dd/yy 24:00}

Date/Time: 05/02/2020 1430 Finished {mm/dd/yy 24:00}

Prep Method: (3535A) or 537 or 537MOD (circle)

Analytical Method: 8330B

Batch#: OP 80038 Ext. By: MB Conc. By: — Vialed By: MB

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Surrogate Amount	Spike Amount	Final Volume (ml)	Manifold ID	Comments
OP 80038 MB	X	1000	6	N/A	250ul		10ml	AT-1	
OP 80038 BS	X	1000	↓	↓	↓	200+250ul	↓	↓	
FA 74617-1	2	1040	↓	↓	↓	↓	↓	↓	
-2	2	1050	↓	↓	↓	↓	↓	↓	
-3	2	1040	↓	↓	↓	↓	↓	AT-2	
-4	4	1060	↓	↓	↓	↓	↓	↓	
-5	2	1040	↓	↓	↓	↓	↓	↓	
FA74617-4 MS	5	520	6	N/A	250ul	200+250ul	10ml	AT-1	
-4 MSD	5	520	↓	↓	↓	↓	↓	↓	
DUP									

MB 05/02/2020

Comments:

Surr.1 ID: LC1341 Conc: 20ppm Exp. Date: 09/18/20 Inj. By: MB Ver. By MB

Spk.1 ID: LC1349 Conc: 20ppm Exp. Date: 10/16/20 Inj. By: MB Ver. By MB

Spk.2 ID: LC1332 Conc: 25ppm Exp. Date: 08/03/20 Inj. By: MB Ver. By MB

Spk.3 ID: — Conc: — Exp. Date: — Inj. By: — Ver. By —

TurboVap Temp (Therm ID): — Observed Temp °C: — Corr. Temp °C: —

N-Evap Temp (Therm ID): — Observed Temp °C: — Corr. Temp °C: —

Methanol Lot #: — SPE Lot #: 5214-0099 pH Paper #: 23019

Acetonitrile Lot #: 195161 Syringe filter Lot #: — Reagent #: —

Water Lot#: DI H2O Pre-filter Lot#: — Reagent #: —

Solvent#: — Carbon Lot#: — Other —

Relinquished By: Date: 05/02/2020

Accepted By: Date: 5/5/2020

ORLD-EXT-0001-3-08-FORM-extwater_spe.xls 032718

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

Weston Solutions, Inc

Radford AAP; VA

SGS Job Number: FA77052

Sampling Date: 07/21/20

Report to:

Weston Solutions, Inc
2 Eaton St Suite 603
Hampton, VA 23669
pacea@westonsolutions.com

ATTN: Tony Pace

Total number of pages in report: **421**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Caitlin Brice, M.S.
General Manager

Client Service contact: Andrea Colby 407-425-6700

Certifications: FL(E83510), LA(03051), KS(E-10327), IL(200063), NC(573), NJ(FL002), NY(12022), SC(96038001) DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177), AK, AR, IA, KY, MA, MS, ND, NH, NV, OK, OR, UT, WA, WV

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EHS.US.CustomerCare@sgs.com

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SGS North America Inc.

Sample Summary

Weston Solutions, Inc

Radford AAP; VA

Job No: FA77052

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
FA77052-1	07/21/20	09:40	BE	07/22/20	AQ	Ground Water	54MW13
FA77052-2	07/21/20	09:40	BE	07/22/20	AQ	Ground Water	54TW13
FA77052-3	07/21/20	10:50	BE	07/22/20	AQ	Ground Water	54MW12
FA77052-3D	07/21/20	10:50	BE	07/22/20	AQ	Water Dup/MSD	54MW12
FA77052-3S	07/21/20	10:50	BE	07/22/20	AQ	Water Matrix Spike	54MW12
FA77052-4	07/21/20	12:30	BE	07/22/20	AQ	Ground Water	54MW10
FA77052-5	07/21/20	14:00	BE	07/22/20	AQ	Ground Water	54MW1

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: Weston Solutions, Inc **Job No:** FA77052

Site: Radford AAP; VA **Report Date** 8/5/2020 8:50:16 PM

5 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were collected on 07/21/2020 and were received at SGS North America Inc - Orlando on 07/22/2020 properly preserved, at 6 Deg. C and intact. These Samples received an SGS Orlando job number of FA77052. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section. Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

MS Semi-volatiles By Method SW846 6850

Matrix: AQ **Batch ID:** OP81404

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) FA77052-3MS, FA77052-3MSD were used as the QC samples indicated.

GC/LC Semi-volatiles By Method SW846 8330B

Matrix: AQ **Batch ID:** OP81252

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) FA77052-3MS, FA77052-3MSD were used as the QC samples indicated.

Matrix Spike Recovery(s) for 1,3,5-Trinitrobenzene, o-Nitrotoluene are outside control limits. Probable cause is due to matrix interference.

Matrix Spike Duplicate Recovery(s) for DNX are outside control limits. Probable cause is due to matrix interference.

Sample(s) FA77052-2, FA77052-3: All hits confirmed by dual column analysis.

FA77052-1 for 3,5-Dinitroaniline: Primary and confirmation results differ by more than 40%.

FA77052-1: All hits confirmed by reanalysis on a dissimilar column.

FA77052-1: Confirmation run.

FA77052-2: Confirmation run.

FA77052-3: Confirmation run.

SGS Orlando certifies that this report meets the project requirements for analytical data produced for the samples as received at SGS Orlando and as stated on the COC. SGS Orlando certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the SGS Orlando Quality Manual except as noted above. This report is to be used in its entirety. SGS Orlando is not responsible for any assumptions of data quality if partial data packages are used.

Narrative prepared by:

_____

Ariel Hartney, Client Services *(Signature on File)*

Summary of Hits

Job Number: FA77052
Account: Weston Solutions, Inc
Project: Radford AAP; VA
Collected: 07/21/20

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
FA77052-1	**54MW13**					
Perchlorate		0.30	0.20	0.10	ug/l	SW846 6850
HMX [a]		2.7	0.20	0.098	ug/l	SW846 8330B
RDX [b]		0.43	0.20	0.098	ug/l	SW846 8330B
3,5-Dinitroaniline [b]		0.33	0.20	0.098	ug/l	SW846 8330B
2-amino-4,6-Dinitrotoluene [a]		0.92	0.20	0.098	ug/l	SW846 8330B
4-amino-2,6-Dinitrotoluene [b]		0.80	0.20	0.098	ug/l	SW846 8330B
1,3,5-Trinitrobenzene [a]		5.6	0.20	0.098	ug/l	SW846 8330B
2,4,6-Trinitrotoluene [a]		8.3	0.20	0.098	ug/l	SW846 8330B
FA77052-2	**54TW13**					
Perchlorate		0.29	0.20	0.10	ug/l	SW846 6850
HMX [c]		2.7	0.20	0.10	ug/l	SW846 8330B
RDX [d]		0.44	0.20	0.10	ug/l	SW846 8330B
3,5-Dinitroaniline [c]		0.35	0.20	0.10	ug/l	SW846 8330B
2-amino-4,6-Dinitrotoluene [d]		0.97	0.20	0.10	ug/l	SW846 8330B
4-amino-2,6-Dinitrotoluene [c]		0.86	0.20	0.10	ug/l	SW846 8330B
1,3,5-Trinitrobenzene [d]		6.3	0.20	0.10	ug/l	SW846 8330B
2,4,6-Trinitrotoluene [d]		9.5	0.20	0.10	ug/l	SW846 8330B
FA77052-3	**54MW12**					
Perchlorate		0.75	0.20	0.10	ug/l	SW846 6850
HMX [d]		12.2	0.20	0.10	ug/l	SW846 8330B
3,5-Dinitroaniline [c]		0.23	0.20	0.10	ug/l	SW846 8330B
2-amino-4,6-Dinitrotoluene [d]		3.6	0.20	0.10	ug/l	SW846 8330B
4-amino-2,6-Dinitrotoluene [c]		2.2	0.20	0.10	ug/l	SW846 8330B
1,3,5-Trinitrobenzene [d]		5.9	0.20	0.10	ug/l	SW846 8330B
2,4,6-Trinitrotoluene [d]		4.1	0.20	0.10	ug/l	SW846 8330B
FA77052-4	**54MW10**					
No hits reported in this sample.						
FA77052-5	**54MW1**					
No hits reported in this sample.						

(a) All hits confirmed by reanalysis on a dissimilar column.
(b) All hits confirmed by reanalysis on a dissimilar column. Primary and confirmation results differ by more than 40%.
(c) All hits confirmed by dual column analysis. Primary and confirmation results differ by more than 40%.
(d) All hits confirmed by dual column analysis.

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW13		
Lab Sample ID:	FA77052-1	**Date Sampled:**	07/21/20
Matrix:	AQ - Ground Water	**Date Received:**	07/22/20
Method:	SW846 6850 SW846 6850	**Percent Solids:**	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Q71891.D	1	08/05/20 09:34	NC	08/04/20 12:00	OP81404	SQ1630
Run #2							

	Initial Volume	Final Volume
Run #1	10.0 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
14797-73-0	Perchlorate	0.30	0.20	0.10	0.050	ug/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID: 54MW13
Lab Sample ID: FA77052-1
Matrix: AQ - Ground Water
Method: SW846 8330B SW846 8330B
Project: Radford AAP; VA

Date Sampled: 07/21/20
Date Received: 07/22/20
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB068457.D	1	07/27/20 21:21	WH	07/27/20 07:00	OP81252	GBB2008
Run #2 [b]	GG619139.D	1	07/29/20 14:33	WH	07/27/20 07:00	OP81252	GGG2858

	Initial Volume	Final Volume
Run #1	1020 ml	10.0 ml
Run #2	1020 ml	10.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	2.7	0.20	0.098	0.078	ug/l	
121-82-4	RDX [c]	0.43	0.20	0.098	0.078	ug/l	
	DNX	0.098 U	0.20	0.098	0.078	ug/l	
	MNX	0.098 U	0.20	0.098	0.078	ug/l	
	TNX	0.098 U	0.20	0.098	0.078	ug/l	
618-87-1	3,5-Dinitroaniline [c]	0.33	0.20	0.098	0.078	ug/l	
99-65-0	1,3-Dinitrobenzene	0.098 U	0.20	0.098	0.078	ug/l	
606-20-2	2,6-Dinitrotoluene	0.098 U	0.20	0.098	0.078	ug/l	
121-14-2	2,4-Dinitrotoluene	0.098 U	0.20	0.098	0.078	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	0.92	0.20	0.098	0.078	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene [c]	0.80	0.20	0.098	0.078	ug/l	
98-95-3	Nitrobenzene	0.098 U	0.20	0.098	0.095	ug/l	
88-72-2	o-Nitrotoluene	0.098 U	0.20	0.098	0.078	ug/l	
99-08-1	m-Nitrotoluene	0.098 U	0.20	0.098	0.078	ug/l	
99-99-0	p-Nitrotoluene	0.098 U	0.20	0.098	0.078	ug/l	
479-45-8	Tetryl	0.098 U	0.20	0.098	0.078	ug/l	
99-35-4	1,3,5-Trinitrobenzene	5.6	0.20	0.098	0.097	ug/l	
118-96-7	2,4,6-Trinitrotoluene	8.3	0.20	0.098	0.078	ug/l	
55-63-0	Nitroglycerine	0.98 U	2.0	0.98	0.49	ug/l	
78-11-5	PETN	0.98 U	2.0	0.98	0.49	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
610-39-9	3,4-Dinitrotoluene	118%	128%	70-136%

(a) All hits confirmed by reanalysis on a dissimilar column.
(b) Confirmation run.
(c) Primary and confirmation results differ by more than 40%.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID: 54TW13
Lab Sample ID: FA77052-2
Matrix: AQ - Ground Water
Method: SW846 6850 SW846 6850
Project: Radford AAP; VA

Date Sampled: 07/21/20
Date Received: 07/22/20
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Q71892.D	1	08/05/20 09:43	NC	08/04/20 12:00	OP81404	SQ1630
Run #2							

	Initial Volume	Final Volume
Run #1	10.0 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
14797-73-0	Perchlorate	0.29	0.20	0.10	0.050	ug/l	

U = Not detected LOD = Limit of Detection
LOQ = Limit of Quantitation DL = Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID: 54TW13
Lab Sample ID: FA77052-2
Matrix: AQ - Ground Water
Method: SW846 8330B SW846 8330B
Project: Radford AAP; VA

Date Sampled: 07/21/20
Date Received: 07/22/20
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB068458.D	1	07/27/20 21:51	WH	07/27/20 07:00	OP81252	GBB2008
Run #2 [b]	GG619140.D	1	07/29/20 15:02	WH	07/27/20 07:00	OP81252	GGG2858

	Initial Volume	Final Volume
Run #1	1000 ml	10.0 ml
Run #2	1000 ml	10.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX [c]	2.7	0.20	0.10	0.080	ug/l	
121-82-4	RDX	0.44	0.20	0.10	0.080	ug/l	
	DNX	0.10 U	0.20	0.10	0.080	ug/l	
	MNX	0.10 U	0.20	0.10	0.080	ug/l	
	TNX	0.10 U	0.20	0.10	0.080	ug/l	
618-87-1	3,5-Dinitroaniline [c]	0.35	0.20	0.10	0.080	ug/l	
99-65-0	1,3-Dinitrobenzene	0.10 U	0.20	0.10	0.080	ug/l	
606-20-2	2,6-Dinitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
121-14-2	2,4-Dinitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	0.97	0.20	0.10	0.080	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene [c]	0.86	0.20	0.10	0.080	ug/l	
98-95-3	Nitrobenzene	0.10 U	0.20	0.10	0.097	ug/l	
88-72-2	o-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
99-08-1	m-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
99-99-0	p-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
479-45-8	Tetryl	0.10 U	0.20	0.10	0.080	ug/l	
99-35-4	1,3,5-Trinitrobenzene	6.3	0.20	0.10	0.099	ug/l	
118-96-7	2,4,6-Trinitrotoluene	9.5	0.20	0.10	0.080	ug/l	
55-63-0	Nitroglycerine	1.0 U	2.0	1.0	0.50	ug/l	
78-11-5	PETN	1.0 U	2.0	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
610-39-9	3,4-Dinitrotoluene	116%	126%	70-136%

(a) All hits confirmed by dual column analysis.
(b) Confirmation run.
(c) Primary and confirmation results differ by more than 40%.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW12		
Lab Sample ID:	FA77052-3	**Date Sampled:**	07/21/20
Matrix:	AQ - Ground Water	**Date Received:**	07/22/20
Method:	SW846 6850 SW846 6850	**Percent Solids:**	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Q71893.D	1	08/05/20 09:52	NC	08/04/20 12:00	OP81404	SQ1630
Run #2							

	Initial Volume	Final Volume
Run #1	10.0 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
14797-73-0	Perchlorate	0.75	0.20	0.10	0.050	ug/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID: 54MW12
Lab Sample ID: FA77052-3
Matrix: AQ - Ground Water
Method: SW846 8330B SW846 8330B
Project: Radford AAP; VA

Date Sampled: 07/21/20
Date Received: 07/22/20
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB068459.D	1	07/27/20 22:21	WH	07/27/20 07:00	OP81252	GBB2008
Run #2 [b]	GG619141.D	1	07/29/20 15:32	WH	07/27/20 07:00	OP81252	GGG2858

	Initial Volume	Final Volume
Run #1	1000 ml	10.0 ml
Run #2	1000 ml	10.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	12.2	0.20	0.10	0.080	ug/l	
121-82-4	RDX	0.10 U	0.20	0.10	0.080	ug/l	
	DNX	0.10 U	0.20	0.10	0.080	ug/l	
	MNX	0.10 U	0.20	0.10	0.080	ug/l	
	TNX	0.10 U	0.20	0.10	0.080	ug/l	
618-87-1	3,5-Dinitroaniline [c]	0.23	0.20	0.10	0.080	ug/l	
99-65-0	1,3-Dinitrobenzene	0.10 U	0.20	0.10	0.080	ug/l	
606-20-2	2,6-Dinitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
121-14-2	2,4-Dinitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	3.6	0.20	0.10	0.080	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene [c]	2.2	0.20	0.10	0.080	ug/l	
98-95-3	Nitrobenzene	0.10 U	0.20	0.10	0.097	ug/l	
88-72-2	o-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
99-08-1	m-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
99-99-0	p-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
479-45-8	Tetryl	0.10 U	0.20	0.10	0.080	ug/l	
99-35-4	1,3,5-Trinitrobenzene	5.9	0.20	0.10	0.099	ug/l	
118-96-7	2,4,6-Trinitrotoluene	4.1	0.20	0.10	0.080	ug/l	
55-63-0	Nitroglycerine	1.0 U	2.0	1.0	0.50	ug/l	
78-11-5	PETN	1.0 U	2.0	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
610-39-9	3,4-Dinitrotoluene	106%	124%	70-136%

(a) All hits confirmed by dual column analysis.
(b) Confirmation run.
(c) Primary and confirmation results differ by more than 40%.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID: 54MW10
Lab Sample ID: FA77052-4
Matrix: AQ - Ground Water
Method: SW846 6850 SW846 6850
Project: Radford AAP; VA

Date Sampled: 07/21/20
Date Received: 07/22/20
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Q71896.D	1	08/05/20 10:19	NC	08/04/20 12:00	OP81404	SQ1630
Run #2							

	Initial Volume	Final Volume
Run #1	10.0 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
14797-73-0	Perchlorate	0.10 U	0.20	0.10	0.050	ug/l	

U = Not detected LOD = Limit of Detection
LOQ = Limit of Quantitation DL = Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID: 54MW10
Lab Sample ID: FA77052-4
Matrix: AQ - Ground Water
Method: SW846 8330B SW846 8330B
Project: Radford AAP; VA

Date Sampled: 07/21/20
Date Received: 07/22/20
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BB068460.D	1	07/27/20 22:50	WH	07/27/20 07:00	OP81252	GBB2008
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	0.10 U	0.20	0.10	0.080	ug/l	
121-82-4	RDX	0.10 U	0.20	0.10	0.080	ug/l	
	DNX	0.10 U	0.20	0.10	0.080	ug/l	
	MNX	0.10 U	0.20	0.10	0.080	ug/l	
	TNX	0.10 U	0.20	0.10	0.080	ug/l	
618-87-1	3,5-Dinitroaniline	0.10 U	0.20	0.10	0.080	ug/l	
99-65-0	1,3-Dinitrobenzene	0.10 U	0.20	0.10	0.080	ug/l	
606-20-2	2,6-Dinitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
121-14-2	2,4-Dinitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
98-95-3	Nitrobenzene	0.10 U	0.20	0.10	0.097	ug/l	
88-72-2	o-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
99-08-1	m-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
99-99-0	p-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
479-45-8	Tetryl	0.10 U	0.20	0.10	0.080	ug/l	
99-35-4	1,3,5-Trinitrobenzene	0.10 U	0.20	0.10	0.099	ug/l	
118-96-7	2,4,6-Trinitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
55-63-0	Nitroglycerine	1.0 U	2.0	1.0	0.50	ug/l	
78-11-5	PETN	1.0 U	2.0	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
610-39-9	3,4-Dinitrotoluene	98%		70-136%

U = Not detected LOD = Limit of Detection
LOQ = Limit of Quantitation DL = Detection Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW1		
Lab Sample ID:	FA77052-5	**Date Sampled:**	07/21/20
Matrix:	AQ - Ground Water	**Date Received:**	07/22/20
Method:	SW846 6850 SW846 6850	**Percent Solids:**	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Q71897.D	1	08/05/20 10:28	NC	08/04/20 12:00	OP81404	SQ1630
Run #2							

	Initial Volume	Final Volume
Run #1	10.0 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
14797-73-0	Perchlorate	0.10 U	0.20	0.10	0.050	ug/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID: 54MW1
Lab Sample ID: FA77052-5
Matrix: AQ - Ground Water
Method: SW846 8330B SW846 8330B
Project: Radford AAP; VA

Date Sampled: 07/21/20
Date Received: 07/22/20
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BB068461.D	1	07/27/20 23:20	WH	07/27/20 07:00	OP81252	GBB2008
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	0.10 U	0.20	0.10	0.080	ug/l	
121-82-4	RDX	0.10 U	0.20	0.10	0.080	ug/l	
	DNX	0.10 U	0.20	0.10	0.080	ug/l	
	MNX	0.10 U	0.20	0.10	0.080	ug/l	
	TNX	0.10 U	0.20	0.10	0.080	ug/l	
618-87-1	3,5-Dinitroaniline	0.10 U	0.20	0.10	0.080	ug/l	
99-65-0	1,3-Dinitrobenzene	0.10 U	0.20	0.10	0.080	ug/l	
606-20-2	2,6-Dinitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
121-14-2	2,4-Dinitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
98-95-3	Nitrobenzene	0.10 U	0.20	0.10	0.097	ug/l	
88-72-2	o-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
99-08-1	m-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
99-99-0	p-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
479-45-8	Tetryl	0.10 U	0.20	0.10	0.080	ug/l	
99-35-4	1,3,5-Trinitrobenzene	0.10 U	0.20	0.10	0.099	ug/l	
118-96-7	2,4,6-Trinitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
55-63-0	Nitroglycerine	1.0 U	2.0	1.0	0.50	ug/l	
78-11-5	PETN	1.0 U	2.0	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
610-39-9	3,4-Dinitrotoluene	103%		70-136%

U = Not detected LOD = Limit of Detection
LOQ = Limit of Quantitation DL = Detection Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- QC Evaluation: DOD QSM5.x Limits

SGS North America Inc - Orlando

Chain of Custody

FA77052

SGS - ORLANDO JOB # : PAGE 1 OF 1

4405 Vineland Road, Suite C-15 Orlando, Fl 32811
TEL. 407-425-6700 FAX: 407-425-0707
www.sgs.com

SGS - ORLANDO Quote # | SKIFF #

Client / Reporting Information		Project Information		Analytical Information	Matrix Codes
Company Name:	WESTON SOLUTIONS	Project Name:	Radford AAP 54	EXPLOSIVES+DNAX+MNO3+TNX	DW - Drinking Water
Address:	2 EATON ST SUITE 603	Street		8330B	GW - Ground Water
City:	HAMPTON State: VA Zip: 23669	City	Radford State VA	PERCHLORATE 6850	WW - Water
Project Contact:	TONY [redacted] Email: TONY.PACE@WESTONSOLUTIONS.COM	Project #			SW - Surface Water
Phone #:	757 819 5310	Fax #			SO - Soil
Sampler(s) Name(s) (Printed) Sampler 1:	Woods Sampler 2: EVANS	Client Purchase Order #			SL- Sludge
					OI - Oil
					LIQ - Other Liquid
					AIR - Air
					SOL - Other Solid

SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION DATE	TIME	SAMPLED BY:	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NAOH+ZNAC	DI WATER	MEOH	EXPLOSIVES+DNAX+MNO3+TNX	8330B	PERCHLORATE 6850							LAB USE ONLY
1	54MW13	7/21/20	0940	R/E	GW	3		X								2		1							
2	54TW13	7/21/20	0940	R/E	GW	3		X								2		1							
3	54MW12	7/21/20	1050	R/E	GW	9		X								6		3	MS/MSD						
4	54MW10	7/21/20	1230	R/E	GW	3		X								2		1							
5	54MW1	7/21/20	1400	R/E	GW	3		X								2		1							

Turnaround Time (Business days)	Data Deliverable Information	Comments / Remarks
(10 Day (Business)) Approved By: / Date:	COMMERCIAL "A" (RESULTS ONLY)	INITIAL ASSESSMENT MK
7 Day	COMMERCIAL "B" (RESULTS PLUS QC)	LABEL VERIFICATION DO
5 Day	REDT1 (EPA LEVEL 3)	
3 Day *RUSH*	FULLT1 (EPA LEVEL 4)	
2 Day *RUSH*	EDD'S	
1 Day *RUSH*		
Other		

Rush T/A Data Available VIA Email or Lablink

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
1	WESTON	7/21/20 1700	2 fedex	3	07/22/20	4 9:30
5	Relinquished by/Affiliation	Date Time:	6 Received By/Affiliation	7 Relinquished By/Affiliation	Date Time:	8 Received By/Affiliation

Lab Use Only : Cooler Temperature (s) Celsius (corrected): 6.0 (Method)

http://www.sgs.com/en/terms-and-conditions

ORLD-SMT-0001-03-FORM-COC (4).xls Rev 031318

SGS Sample Receipt Summary

Job Number: FA77052 **Client:** WESTON SOLUTIONS **Project:** RADFORD ADP 54

Date / Time Received: 7/22/2020 9:30:00 AM **Delivery Method:** FEDEX **Airbill #'s:**

Therm ID: IR 1; **Therm CF:** -0.2; **# of Coolers:** 1

Cooler Temps (Raw Measured) °C: Cooler 1: (6.2);

Cooler Temps (Corrected) °C: Cooler 1: (6.0);

Cooler Information	Y	N
1. Custody Seals Present	☑	☐
2. Custody Seals Intact	☑	☐
3. Temp criteria achieved	☑	☐
4. Cooler temp verification	IR Gun	
5. Cooler media	Ice (Bag)	

Trip Blank Information	Y	N	N/A
1. Trip Blank present / cooler	☐	☐	☑
2. Trip Blank listed on COC	☐	☐	☑

	W	S	N/A
3. Type Of TB Received	☐	☐	☑

Sample Information	Y	N	N/A
1. Sample labels present on bottles	☑	☐	
2. Samples preserved properly	☑	☐	
3. Sufficient volume/containers recvd for analysis:	☑	☐	
4. Condition of sample	Intact		
5. Sample recvd within HT	☑	☐	
6. Dates/Times/IDs on COC match Sample Label	☐	☑	
7. VOCs have headspace	☐	☐	☑
8. Bottles received for unspecified tests	☐	☑	
9. Compositing instructions clear	☐	☐	☑
10. Voa Soil Kits/Jars received past 48hrs?	☐	☐	☑
11. % Solids Jar received?	☐	☐	☑
12. Residual Chlorine Present?	☐	☐	☑

Misc. Information

Number of Encores: 25-Gram _____ 5-Gram _____ Number of 5035 Field Kits: _____ Number of Lab Filtered Metals: _____

Test Strip Lot #s: pH 0-3 230315 pH 10-12 219813A Other: (Specify) _____ _____

Residual Chlorine Test Strip Lot #: _____

Comments ONE S4MW12 BOTTLE WAS TYPED INCORRECTLY. HAS 21 INSTEAD OF 12 ON SAMPLE ID WRITTEN.

SM001
Rev. Date 05/24/17

Technician: AKARIG Date: 7/22/2020 9:30:00 AM Reviewer: _____ Date: _____

QC Evaluation: DOD QSM5.x Limits

Job Number: FA77052
Account: Weston Solutions, Inc
Project: Radford AAP; VA
Collected: 07/21/20

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
OP81404	SW846 6850						
OP81404-BS	14797-73-0	Perchlorate	BSP	REC	105	%	84-119
OP81404-MS	14797-73-0	Perchlorate	MS	REC	100	%	84-119
OP81404-MSD	14797-73-0	Perchlorate	MSD	REC	110	%	84-119
OP81404-MSD	14797-73-0	Perchlorate	MSD	RPD	2	%	15
OP81252	SW846 8330B						
OP81252-BS	2691-41-0	HMX	BSP	REC	108	%	65-135
OP81252-BS	121-82-4	RDX	BSP	REC	98	%	68-130
OP81252-BS		DNX	BSP	REC	118	%	66-119
OP81252-BS		MNX	BSP	REC	96	%	57-132
OP81252-BS	618-87-1	3,5-Dinitroaniline	BSP	REC	104	%	71-117
OP81252-BS	99-65-0	1,3-Dinitrobenzene	BSP	REC	100	%	78-120
OP81252-BS	606-20-2	2,6-Dinitrotoluene	BSP	REC	104	%	77-127
OP81252-BS	121-14-2	2,4-Dinitrotoluene	BSP	REC	100	%	78-120
OP81252-BS	35572-78-2	2-amino-4,6-Dinitrotoluene	BSP	REC	102	%	79-120
OP81252-BS	19406-51-0	4-amino-2,6-Dinitrotoluene	BSP	REC	98	%	76-125
OP81252-BS	98-95-3	Nitrobenzene	BSP	REC	100	%	65-134
OP81252-BS	88-72-2	o-Nitrotoluene	BSP	REC	96	%	70-127
OP81252-BS	99-08-1	m-Nitrotoluene	BSP	REC	96	%	73-125
OP81252-BS	99-99-0	p-Nitrotoluene	BSP	REC	100	%	71-127
OP81252-BS	479-45-8	Tetryl	BSP	REC	76	%	64-128
OP81252-BS	99-35-4	1,3,5-Trinitrobenzene	BSP	REC	92	%	73-125
OP81252-BS	118-96-7	2,4,6-Trinitrotoluene	BSP	REC	94	%	71-123
OP81252-BS	55-63-0	Nitroglycerine	BSP	REC	108	%	74-127
OP81252-BS	78-11-5	PETN	BSP	REC	110	%	73-127
OP81252-MS	2691-41-0	HMX	MS	REC	90	%	65-135
OP81252-MS	121-82-4	RDX	MS	REC	90	%	68-130
OP81252-MS		DNX	MS	REC	123	%	66-119
OP81252-MS		MNX	MS	REC	94	%	57-132
OP81252-MS	618-87-1	3,5-Dinitroaniline	MS	REC	89	%	71-117
OP81252-MS	99-65-0	1,3-Dinitrobenzene	MS	REC	86	%	78-120
OP81252-MS	606-20-2	2,6-Dinitrotoluene	MS	REC	92	%	77-127
OP81252-MS	121-14-2	2,4-Dinitrotoluene	MS	REC	85	%	78-120
OP81252-MS	35572-78-2	2-amino-4,6-Dinitrotoluene	MS	REC	85	%	79-120
OP81252-MS	19406-51-0	4-amino-2,6-Dinitrotoluene	MS	REC	85	%	76-125
OP81252-MS	98-95-3	Nitrobenzene	MS	REC	85	%	65-134
OP81252-MS	88-72-2	o-Nitrotoluene	MS	REC	74	%	70-127
OP81252-MS	99-08-1	m-Nitrotoluene	MS	REC	87	%	73-125
OP81252-MS	99-99-0	p-Nitrotoluene	MS	REC	84	%	71-127
OP81252-MS	479-45-8	Tetryl	MS	REC	65	%	64-128
OP81252-MS	99-35-4	1,3,5-Trinitrobenzene	MS	REC	74	%	73-125

* Sample used for QC is not from job FA77052

QC Evaluation: DOD QSM5.x Limits

Job Number: FA77052
Account: Weston Solutions, Inc
Project: Radford AAP; VA
Collected: 07/21/20

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
OP81252-MS	118-96-7	2,4,6-Trinitrotoluene	MS	REC	75	%	71-123
OP81252-MS	55-63-0	Nitroglycerine	MS	REC	91	%	74-127
OP81252-MS	78-11-5	PETN	MS	REC	102	%	73-127
OP81252-MSD	2691-41-0	HMX	MSD	REC	108	%	65-135
OP81252-MSD	2691-41-0	HMX	MSD	RPD	8	%	20
OP81252-MSD	121-82-4	RDX	MSD	REC	96	%	68-130
OP81252-MSD	121-82-4	RDX	MSD	RPD	6	%	20
OP81252-MSD		DNX	MSD	REC	131	%	66-119
OP81252-MSD		DNX	MSD	RPD	6	%	20
OP81252-MSD		MNX	MSD	REC	102	%	57-132
OP81252-MSD		MNX	MSD	RPD	8	%	20
OP81252-MSD	618-87-1	3,5-Dinitroaniline	MSD	REC	97	%	71-117
OP81252-MSD	618-87-1	3,5-Dinitroaniline	MSD	RPD	8	%	20
OP81252-MSD	99-65-0	1,3-Dinitrobenzene	MSD	REC	93	%	78-120
OP81252-MSD	99-65-0	1,3-Dinitrobenzene	MSD	RPD	8	%	20
OP81252-MSD	606-20-2	2,6-Dinitrotoluene	MSD	REC	98	%	77-127
OP81252-MSD	606-20-2	2,6-Dinitrotoluene	MSD	RPD	6	%	20
OP81252-MSD	121-14-2	2,4-Dinitrotoluene	MSD	REC	87	%	78-120
OP81252-MSD	121-14-2	2,4-Dinitrotoluene	MSD	RPD	2	%	20
OP81252-MSD	35572-78-2	2-amino-4,6-Dinitrotoluene	MSD	REC	96	%	79-120
OP81252-MSD	35572-78-2	2-amino-4,6-Dinitrotoluene	MSD	RPD	9	%	20
OP81252-MSD	19406-51-0	4-amino-2,6-Dinitrotoluene	MSD	REC	92	%	76-125
OP81252-MSD	19406-51-0	4-amino-2,6-Dinitrotoluene	MSD	RPD	6	%	20
OP81252-MSD	98-95-3	Nitrobenzene	MSD	REC	90	%	65-134
OP81252-MSD	98-95-3	Nitrobenzene	MSD	RPD	6	%	20
OP81252-MSD	88-72-2	o-Nitrotoluene	MSD	REC	84	%	70-127
OP81252-MSD	88-72-2	o-Nitrotoluene	MSD	RPD	13	%	20
OP81252-MSD	99-08-1	m-Nitrotoluene	MSD	REC	92	%	73-125
OP81252-MSD	99-08-1	m-Nitrotoluene	MSD	RPD	6	%	20
OP81252-MSD	99-99-0	p-Nitrotoluene	MSD	REC	91	%	71-127
OP81252-MSD	99-99-0	p-Nitrotoluene	MSD	RPD	8	%	20
OP81252-MSD	479-45-8	Tetryl	MSD	REC	70	%	64-128
OP81252-MSD	479-45-8	Tetryl	MSD	RPD	7	%	20
OP81252-MSD	99-35-4	1,3,5-Trinitrobenzene	MSD	REC	87	%	73-125
OP81252-MSD	99-35-4	1,3,5-Trinitrobenzene	MSD	RPD	9	%	20
OP81252-MSD	118-96-7	2,4,6-Trinitrotoluene	MSD	REC	84	%	71-123
OP81252-MSD	118-96-7	2,4,6-Trinitrotoluene	MSD	RPD	7	%	20
OP81252-MSD	55-63-0	Nitroglycerine	MSD	REC	97	%	74-127
OP81252-MSD	55-63-0	Nitroglycerine	MSD	RPD	6	%	20
OP81252-MSD	78-11-5	PETN	MSD	REC	102	%	73-127
OP81252-MSD	78-11-5	PETN	MSD	RPD	0	%	20

* Sample used for QC is not from job FA77052

MS Semi-volatiles

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QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Internal Standard Area Summaries
- Initial and Continuing Calibration Summaries
- Run Sequence Reports

Instrument Blank

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
SQ1630-IBLK	Q71905.D	1	08/05/20	NC	n/a	n/a	SQ1630

The QC reported here applies to the following samples: **Method:** SW846 6850

FA77052-1, FA77052-2, FA77052-3, FA77052-4, FA77052-5

CAS No.	Compound	Result	RL	MDL	Units	Q
14797-73-0	Perchlorate	ND	0.20	0.050	ug/l	

Method Blank Summary

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP81404-MB	Q71890.D	1	08/05/20	NC	08/04/20	OP81404	SQ1630

The QC reported here applies to the following samples: **Method:** SW846 6850

FA77052-1, FA77052-2, FA77052-3, FA77052-4, FA77052-5

CAS No.	Compound	Result	RL	MDL	Units	Q
14797-73-0	Perchlorate	ND	0.20	0.050	ug/l	

Blank Spike Summary

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP81404-BS	Q71889.D	1	08/05/20	NC	08/04/20	OP81404	SQ1630

The QC reported here applies to the following samples: **Method:** SW846 6850

FA77052-1, FA77052-2, FA77052-3, FA77052-4, FA77052-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
14797-73-0	Perchlorate	0.2	0.21	105	80-120

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP81404-MS	Q71894.D	1	08/05/20	NC	08/04/20	OP81404	SQ1630
OP81404-MSD	Q71895.D	1	08/05/20	NC	08/04/20	OP81404	SQ1630
FA77052-3	Q71893.D	1	08/05/20	NC	08/04/20	OP81404	SQ1630

The QC reported here applies to the following samples: **Method:** SW846 6850

FA77052-1, FA77052-2, FA77052-3, FA77052-4, FA77052-5

CAS No.	Compound	FA77052-3 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
14797-73-0	Perchlorate	0.75		0.2	0.95	100	0.2	0.97	110	2	80-120/15

* = Outside of Control Limits.

Internal Standard Area Summary

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Check Std:	SQ1630-CC1629	**Injection Date:**	08/05/20
Lab File ID:	Q71886.D	**Injection Time:**	08:36
Instrument ID:	GCMSQ	**Method:**	SW846 6850

	IS 1 AREA	RT
Initial Cal [a]	93243	6.11
Check Std [b]	132413	6.12
Upper Limit [c]	139865	8.12
Lower Limit [d]	46622	4.12

Lab Sample ID	IS 1 AREA	RT
OP81404-BS	123482	6.12
OP81404-MB	126650	6.13
FA77052-1	66482	5.94
FA77052-2	70439	5.88
FA77052-3	70239	5.83
OP81404-MS	70473	5.83
OP81404-MSD	70052	5.83
FA77052-4	55229	5.54
FA77052-5	69223	5.72

IS 1 = Cl18O4 (ISTD)

(a) Initial Cal is: SQ1629-ICC1629 Q71857.D 08/04/20 15:24. Area is AVERAGE of initial cal points.
(b) Check Std Limit = -50 to + 50% of initial cal area.
(c) Upper Limit = + 50% of initial standard area; Retention time + 2 minutes of check standard.
(d) Lower Limit = -50% of initial standard area; Retention time -2 minutes of check standard.

Initial Calibration Summary

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: SQ1629-ICC1629
Lab FileID: Q71857.D

Initial Calibration Report

Method Path	D:\MassHunter\Methods
Method File	6850_080420_SQ1629.quantmethod.xml
Batch Name	D:\MassHunter\Data\0804_6850_SQ1629\QuantResults\SQ1629.batch.bin
Last Calib Update	8/5/2020 8:51:50 AM

Level Name	Calibration Files	Acq. Date-Time	Level Last Update Time
1	D:\MassHunter\Data\0804_6850_SQ1629\Q71854.d	8/4/2020 2:57:54 PM	8/5/2020 8:51:50 AM
2	D:\MassHunter\Data\0804_6850_SQ1629\Q71855.d	8/4/2020 3:06:51 PM	8/5/2020 8:51:50 AM
3	D:\MassHunter\Data\0804_6850_SQ1629\Q71856.d	8/4/2020 3:15:49 PM	8/5/2020 8:51:50 AM
4	D:\MassHunter\Data\0804_6850_SQ1629\Q71857.d	8/4/2020 3:24:46 PM	8/5/2020 8:51:50 AM
5	D:\MassHunter\Data\0804_6850_SQ1629\Q71858.d	8/4/2020 3:33:45 PM	8/5/2020 8:51:50 AM
6	D:\MassHunter\Data\0804_6850_SQ1629\Q71859.d	8/4/2020 3:42:43 PM	8/5/2020 8:51:50 AM
7	D:\MassHunter\Data\0804_6850_SQ1629\Q71860.d	8/4/2020 3:51:41 PM	8/5/2020 8:51:50 AM
8	D:\MassHunter\Data\0804_6850_SQ1629\Q71861.d	8/4/2020 4:00:38 PM	8/5/2020 8:51:50 AM

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I Cl18O4		---------- ISTD ----------									
T Perchlorate	Quadratic	1.3559	1.3133	1.3136	1.3091	1.3521	1.4390	1.4105	1.4654	1.3699	4.460

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Generated at 8:52 AM on 8/5/2020

Initial Calibration Summary

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: SQ1629-ICC1629
Lab FileID: Q71857.D

Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	Curve Fit R2
T Perchlorate	Quadratic	y = 0.009073 * x ^ 2 + 1.373879 * x	0.999931

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Initial Calibration Verification

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: SQ1629-ICV1629
Lab FileID: Q71862.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0804_6850_SQ1629\SQ1629.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0804_6850_SQ1629\Q71854.d
2:D:\MassHunter\Data\0804_6850_SQ1629\Q71855.d
3:D:\MassHunter\Data\0804_6850_SQ1629\Q71856.d
4:D:\MassHunter\Data\0804_6850_SQ1629\Q71857.d
5:D:\MassHunter\Data\0804_6850_SQ1629\Q71858.d
6:D:\MassHunter\Data\0804_6850_SQ1629\Q71859.d
7:D:\MassHunter\Data\0804_6850_SQ1629\Q71860.d
8:D:\MassHunter\Data\0804_6850_SQ1629\Q71861.d

Data File: Q71862
Type : QC
Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
Cl18O4	---	--ISTD--		
Perchlorate	2.000	1.889	-5.6	94.4

CC Criteria: +/- 15%

Continuing Calibration Summary

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: SQ1630-CC1629
Lab FileID: Q71886.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0806_6850_SQ1630\sq1630.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0804_6850_SQ1629\Q71854.d
2:D:\MassHunter\Data\0804_6850_SQ1629\Q71855.d
3:D:\MassHunter\Data\0804_6850_SQ1629\Q71856.d
4:D:\MassHunter\Data\0804_6850_SQ1629\Q71857.d
5:D:\MassHunter\Data\0804_6850_SQ1629\Q71858.d
6:D:\MassHunter\Data\0804_6850_SQ1629\Q71859.d
7:D:\MassHunter\Data\0804_6850_SQ1629\Q71860.d
8:D:\MassHunter\Data\0804_6850_SQ1629\Q71861.d

Data File: Q71886
Type : QC
Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
Cl18O4	---	--ISTD--		
Perchlorate	2.000	1.949	-2.6	97.4

CC Criteria: +/- 15%

Continuing Calibration Summary

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: SQ1630-CC1629
Lab FileID: Q71887.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0806_6850_SQ1630\sq1630.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0804_6850_SQ1629\Q71854.d
2:D:\MassHunter\Data\0804_6850_SQ1629\Q71855.d
3:D:\MassHunter\Data\0804_6850_SQ1629\Q71856.d
4:D:\MassHunter\Data\0804_6850_SQ1629\Q71857.d
5:D:\MassHunter\Data\0804_6850_SQ1629\Q71858.d
6:D:\MassHunter\Data\0804_6850_SQ1629\Q71859.d
7:D:\MassHunter\Data\0804_6850_SQ1629\Q71860.d
8:D:\MassHunter\Data\0804_6850_SQ1629\Q71861.d

Data File: Q71887
Type : QC
Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
Cl18O4	---	--ISTD--		
Perchlorate	0.200	0.197	-1.3	98.7

CC Criteria: +/- 15%

Continuing Calibration Summary

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: SQ1630-CC1629
Lab FileID: Q71898.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0806_6850_SQ1630\sq1630.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0804_6850_SQ1629\Q71854.d
2:D:\MassHunter\Data\0804_6850_SQ1629\Q71855.d
3:D:\MassHunter\Data\0804_6850_SQ1629\Q71856.d
4:D:\MassHunter\Data\0804_6850_SQ1629\Q71857.d
5:D:\MassHunter\Data\0804_6850_SQ1629\Q71858.d
6:D:\MassHunter\Data\0804_6850_SQ1629\Q71859.d
7:D:\MassHunter\Data\0804_6850_SQ1629\Q71860.d
8:D:\MassHunter\Data\0804_6850_SQ1629\Q71861.d

Data File: Q71898
Type : QC
Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
Cl18O4	---	--ISTD--		
Perchlorate	2.000	1.939	-3.0	97.0

CC Criteria: +/- 15%

Continuing Calibration Summary

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: SQ1630-CC1629
Lab FileID: Q71899.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\0806_6850_SQ1630\sq1630.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\0804_6850_SQ1629\Q71854.d
2:D:\MassHunter\Data\0804_6850_SQ1629\Q71855.d
3:D:\MassHunter\Data\0804_6850_SQ1629\Q71856.d
4:D:\MassHunter\Data\0804_6850_SQ1629\Q71857.d
5:D:\MassHunter\Data\0804_6850_SQ1629\Q71858.d
6:D:\MassHunter\Data\0804_6850_SQ1629\Q71859.d
7:D:\MassHunter\Data\0804_6850_SQ1629\Q71860.d
8:D:\MassHunter\Data\0804_6850_SQ1629\Q71861.d

Data File: Q71899
Type : QC
Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
Cl18O4	---	--ISTD--		
Perchlorate	0.200	0.197	-1.4	98.6

CC Criteria: +/- 15%

Run Sequence Report

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Run ID: SQ1629	**Method:** SW846 6850	**Instrument ID:** GCMSQ

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
SQ1629-IC1629	Q71854.D	08/04/20 14:57	n/a	Initial cal 0.2
SQ1629-IC1629	Q71855.D	08/04/20 15:06	n/a	Initial cal 0.5
SQ1629-IC1629	Q71856.D	08/04/20 15:15	n/a	Initial cal 1.0
SQ1629-ICC1629	Q71857.D	08/04/20 15:24	n/a	Initial cal 2.0
SQ1629-IC1629	Q71858.D	08/04/20 15:33	n/a	Initial cal 5.0
SQ1629-IC1629	Q71859.D	08/04/20 15:42	n/a	Initial cal 10
SQ1629-IC1629	Q71860.D	08/04/20 15:51	n/a	Initial cal 25
SQ1629-IC1629	Q71861.D	08/04/20 16:00	n/a	Initial cal 50
SQ1629-ICV1629	Q71862.D	08/04/20 16:09	n/a	Initial cal verification 2.0
SQ1629-CC1629	Q71871.D	08/04/20 17:30	n/a	Continuing cal 2.0
SQ1629-CC1629	Q71872.D	08/04/20 17:39	n/a	Continuing cal 0.2
SQ1629-CC1629	Q71879.D	08/04/20 18:42	n/a	Continuing cal 2.0
SQ1629-ECC1629	Q71880.D	08/04/20 18:50	n/a	Ending cal 0.2

Run Sequence Report

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Run ID: SQ1630	**Method:** SW846 6850	**Instrument ID:** GCMSQ

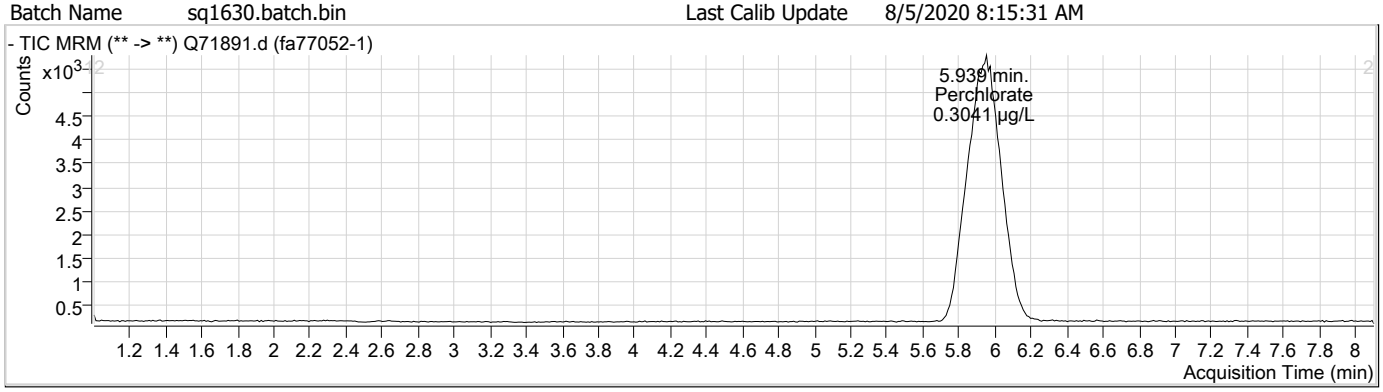
Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
SQ1630-CC1629	Q71886.D	08/05/20 08:36	n/a	Continuing cal 2.0
SQ1630-CC1629	Q71887.D	08/05/20 08:45	n/a	Continuing cal 0.2
OP81404-BS	Q71889.D	08/05/20 09:16	OP81404	Blank Spike
OP81404-MB	Q71890.D	08/05/20 09:25	OP81404	Method Blank
FA77052-1	Q71891.D	08/05/20 09:34	OP81404	54MW13
FA77052-2	Q71892.D	08/05/20 09:43	OP81404	54TW13
FA77052-3	Q71893.D	08/05/20 09:52	OP81404	54MW12
OP81404-MS	Q71894.D	08/05/20 10:01	OP81404	Matrix Spike
OP81404-MSD	Q71895.D	08/05/20 10:10	OP81404	Matrix Spike Duplicate
FA77052-4	Q71896.D	08/05/20 10:19	OP81404	54MW10
FA77052-5	Q71897.D	08/05/20 10:28	OP81404	54MW1
SQ1630-CC1629	Q71898.D	08/05/20 10:37	n/a	Continuing cal 2.0
SQ1630-CC1629	Q71899.D	08/05/20 10:46	n/a	Continuing cal 0.2
ZZZZZZ	Q71900.D	08/05/20 10:55	OP81404	(unrelated sample)
ZZZZZZ	Q71901.D	08/05/20 11:04	OP81404	(unrelated sample)
ZZZZZZ	Q71902.D	08/05/20 11:13	OP81404	(unrelated sample)
SQ1630-CC1629	Q71903.D	08/05/20 11:22	n/a	Continuing cal 2.0
SQ1630-ECC1629	Q71904.D	08/05/20 11:31	n/a	Ending cal 0.2
SQ1630-IBLK	Q71905.D	08/05/20 11:40	n/a	Method Blank

MS Semi-volatiles

Raw Data

Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q71891.d	Operator	nancy
Acq. Method	Perchlorate2.m	Acq. Date-Time	8/5/2020 9:34:29 AM
Sample Name	fa77052-1	Instrument	Instrument 1
Vial	Vial 14	Sample Information	OP81404,SQ1630,10,,,10,1,water
DA Method File	6850_080420_SQ1629.quantmethod.xml	Comment	
Batch Name	sq1630.batch.bin	Last Calib Update	8/5/2020 8:15:31 AM

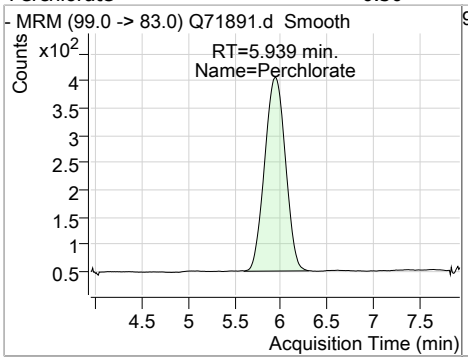


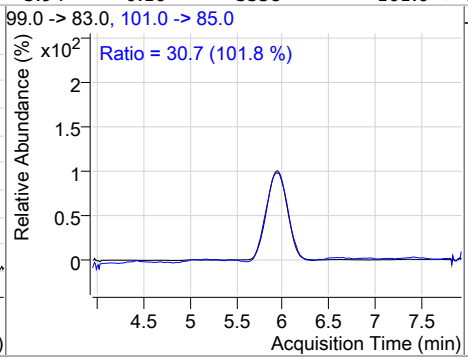
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	5.942	107.0 -> 89.0	66482	NoQ	5.00	µg/L	-0.163
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	5.939	99.0 -> 83.0	5558	3.3	0.30	µg/L	99

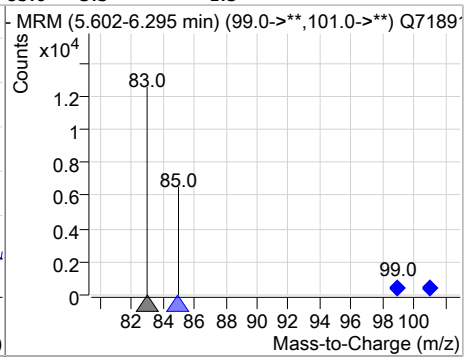
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.30	5.94	-0.16	5558	101.0 -> 85.0	3.3	1.5	

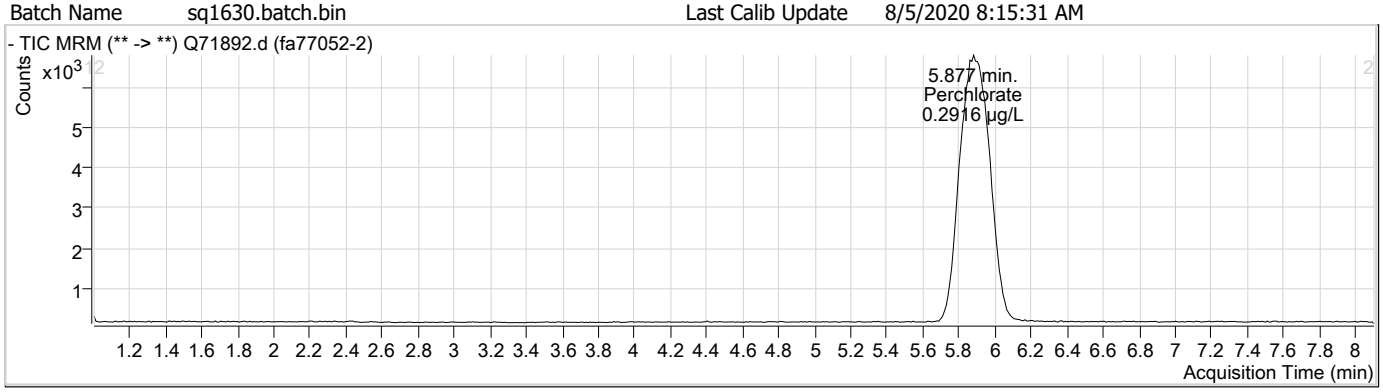






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q71892.d	Operator	nancy
Acq. Method	Perchlorate2.m	Acq. Date-Time	8/5/2020 9:43:28 AM
Sample Name	fa77052-2	Instrument	Instrument 1
Vial	Vial 15	Sample Information	OP81404,SQ1630,10,,,10,1,water
DA Method File	6850_080420_SQ1629.quantmethod.xml	Comment	
Batch Name	sq1630.batch.bin	Last Calib Update	8/5/2020 8:15:31 AM

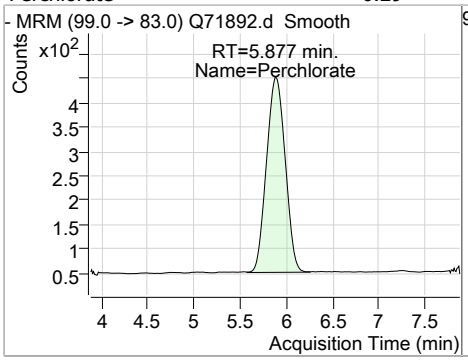


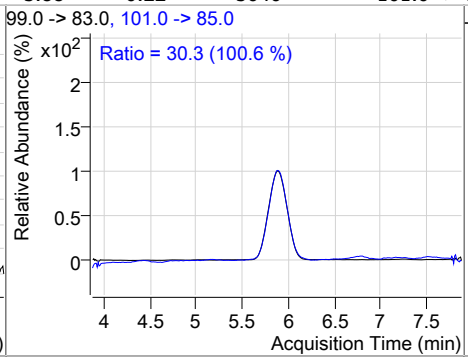
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	5.881	107.0 -> 89.0	70439	NoQ	5.00	µg/L	-0.224
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	5.877	99.0 -> 83.0	5646	3.3	0.29	µg/L	100

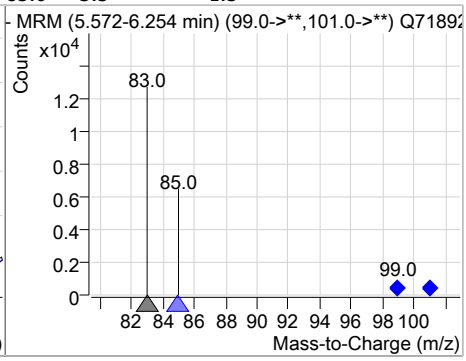
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.29	5.88	-0.22	5646	101.0 -> 85.0	3.3	1.5	

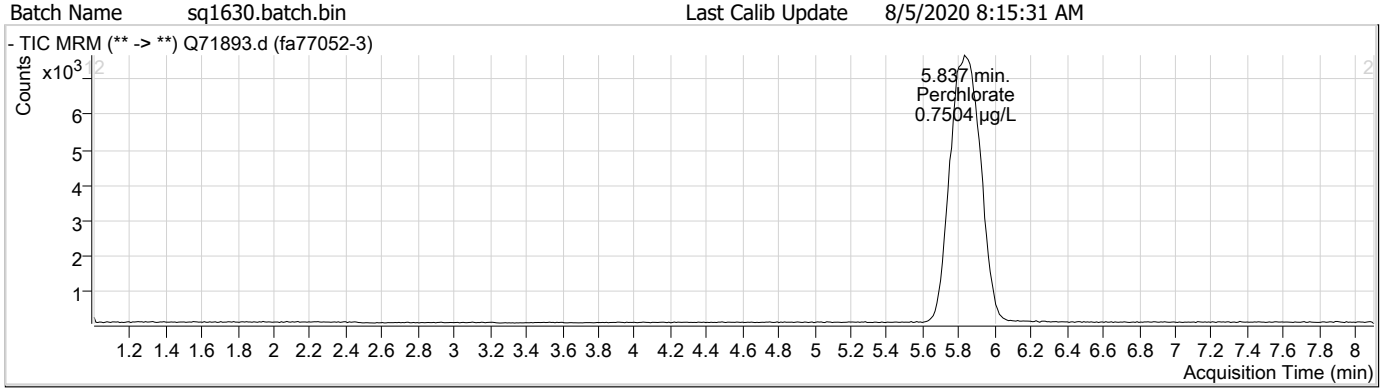






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q71893.d	Operator	nancy
Acq. Method	Perchlorate2.m	Acq. Date-Time	8/5/2020 9:52:25 AM
Sample Name	fa77052-3	Instrument	Instrument 1
Vial	Vial 16	Sample Information	OP81404,SQ1630,10,,,10,1,water
DA Method File	6850_080420_SQ1629.quantmethod.xml	Comment	
Batch Name	sq1630.batch.bin	Last Calib Update	8/5/2020 8:15:31 AM

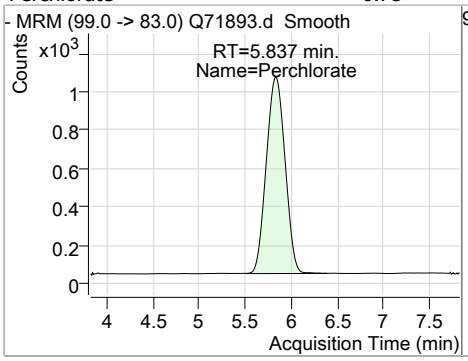


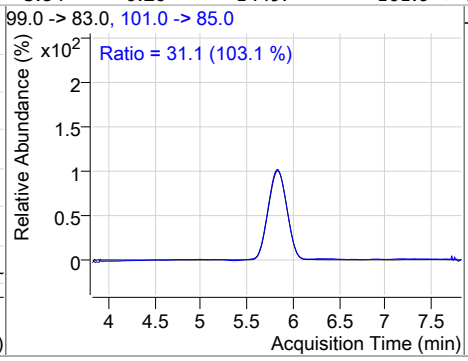
Compound	RT	QIon	Resp.	Q-ratio	Conc. Units	Dev(Min)
Internal Standards						
Cl18O4	5.830	107.0 -> 89.0	70239	NoQ	5.00 µg/L	-0.275
System Monitoring Compounds						
Target Compounds						**QValue**
Perchlorate	5.837	99.0 -> 83.0	14497	3.2	0.75 µg/L	98

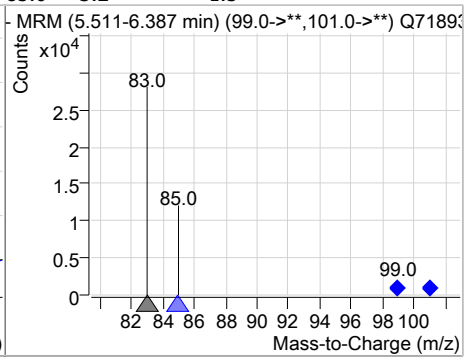
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.75	5.84	-0.26	14497	101.0 -> 85.0	3.2	1.5	

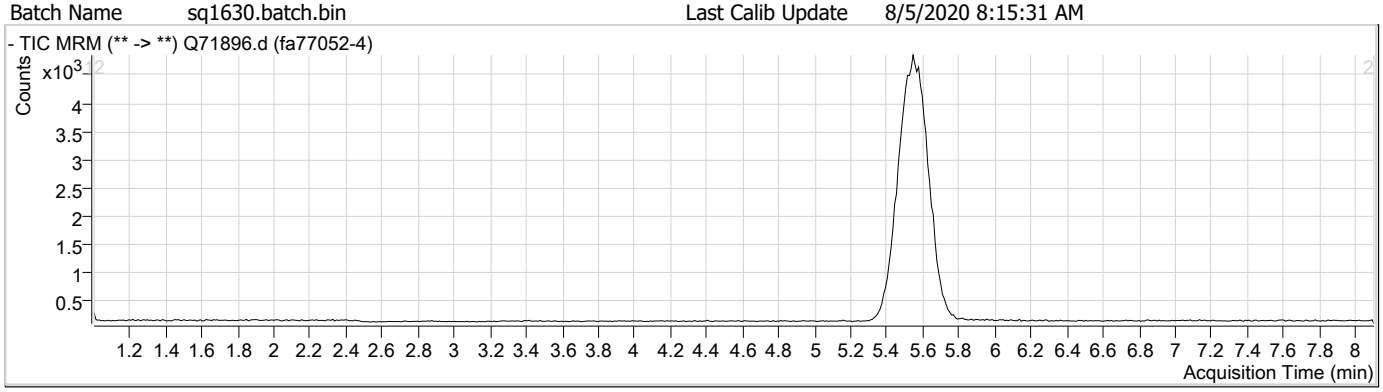






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q71896.d	Operator	nancy
Acq. Method	Perchlorate2.m	Acq. Date-Time	8/5/2020 10:19:28 AM
Sample Name	fa77052-4	Instrument	Instrument 1
Vial	Vial 19	Sample Information	OP81404,SQ1630,10,,,10,1,water
DA Method File	6850_080420_SQ1629.quantmethod.xml	Comment	
Batch Name	sq1630.batch.bin	Last Calib Update	8/5/2020 8:15:31 AM

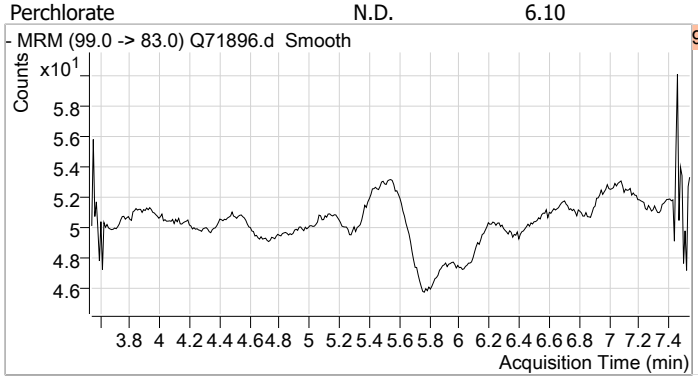


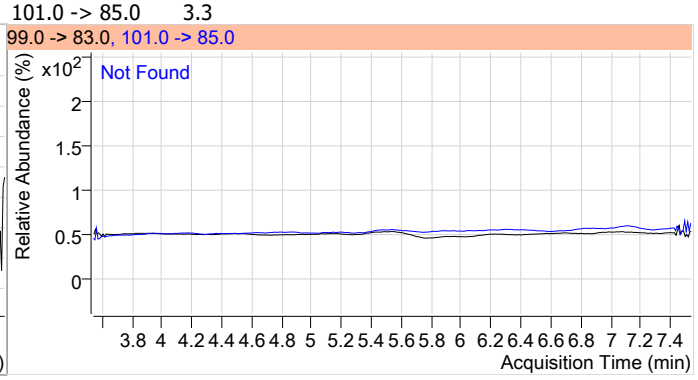
Compound	RT	QIon	Resp.	Q-ratio	Conc. Units	Dev(Min)
Internal Standards						
Cl18O4	5.545	107.0 -> 89.0	55229	NoQ	5.00 µg/L	-0.560
System Monitoring Compounds						
Target Compounds						**QValue**
Perchlorate	-	99.0 -> 83.0		-	N.D.	

(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

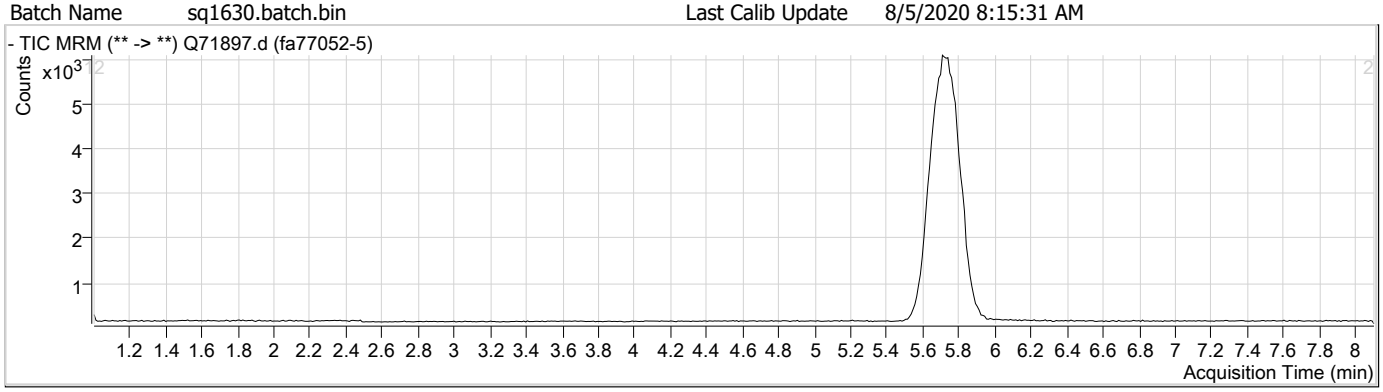
Compound	Conc.	Exp RT	QIon	Exp Ratio
Perchlorate	N.D.	6.10	101.0 -> 85.0	3.3





Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q71897.d	Operator	nancy
Acq. Method	Perchlorate2.m	Acq. Date-Time	8/5/2020 10:28:26 AM
Sample Name	fa77052-5	Instrument	Instrument 1
Vial	Vial 20	Sample Information	OP81404,SQ1630,10,,,10,1,water
DA Method File	6850_080420_SQ1629.quantmethod.xml	Comment	
Batch Name	sq1630.batch.bin	Last Calib Update	8/5/2020 8:15:31 AM

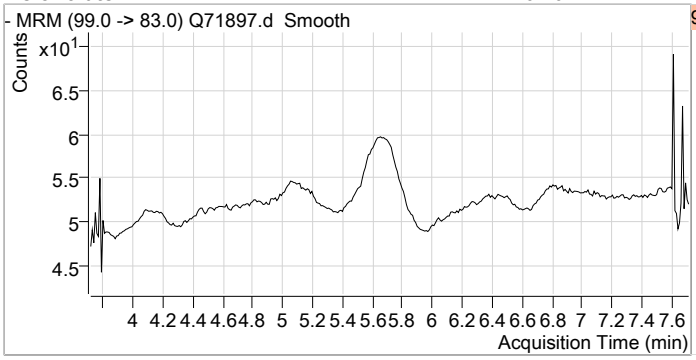


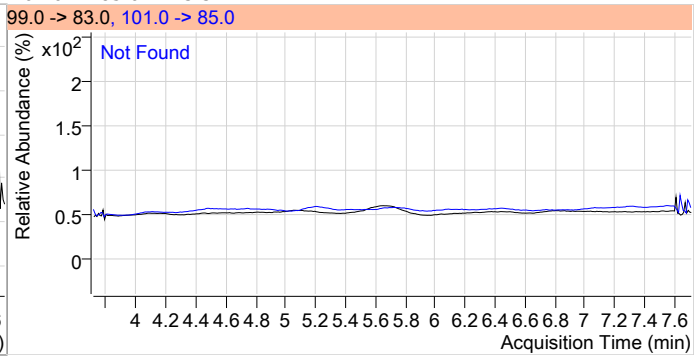
Compound	RT	QIon	Resp.	Q-ratio	Conc. Units	Dev(Min)
Internal Standards						
Cl18O4	5.718	107.0 -> 89.0	69223	NoQ	5.00 µg/L	-0.387
System Monitoring Compounds						
Target Compounds						**QValue**
Perchlorate	-	99.0 -> 83.0		-	N.D.	

(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

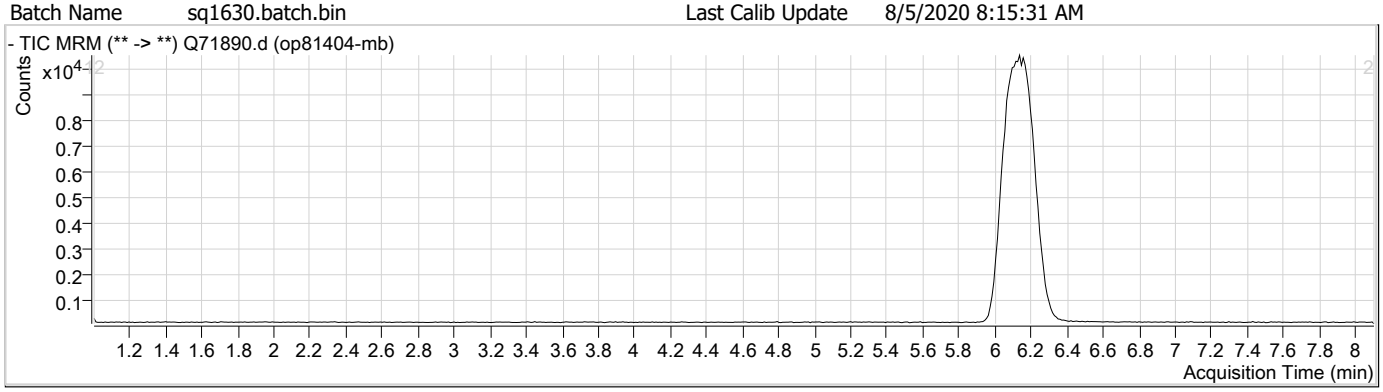
Compound	Conc.	Exp RT	QIon	Exp Ratio
Perchlorate	N.D.	6.10	101.0 -> 85.0	3.3





Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q71890.d	Operator	nancy
Acq. Method	Perchlorate2.m	Acq. Date-Time	8/5/2020 9:25:31 AM
Sample Name	op81404-mb	Instrument	Instrument 1
Vial	Vial 13	Sample Information	OP81404,SQ1630,10,,,10,1,water
DA Method File	6850_080420_SQ1629.quantmethod.xml	Comment	
Batch Name	sq1630.batch.bin	Last Calib Update	8/5/2020 8:15:31 AM

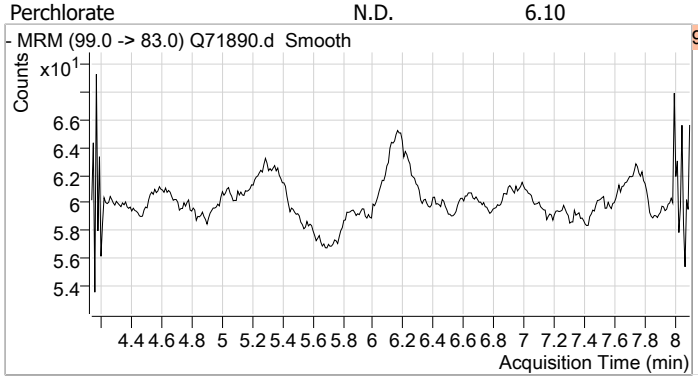


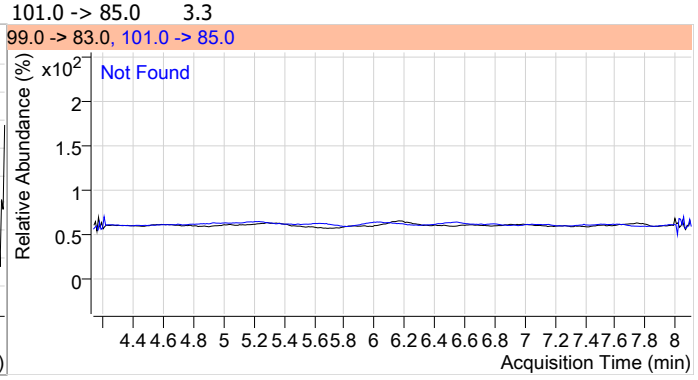
Compound	RT	QIon	Resp.	Q-ratio	Conc. Units	Dev(Min)
Internal Standards						
Cl18O4	6.135	107.0 -> 89.0	126650	NoQ	5.00 µg/L	0.031
System Monitoring Compounds						
Target Compounds						**QValue**
Perchlorate	-	99.0 -> 83.0		-	N.D.	

(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

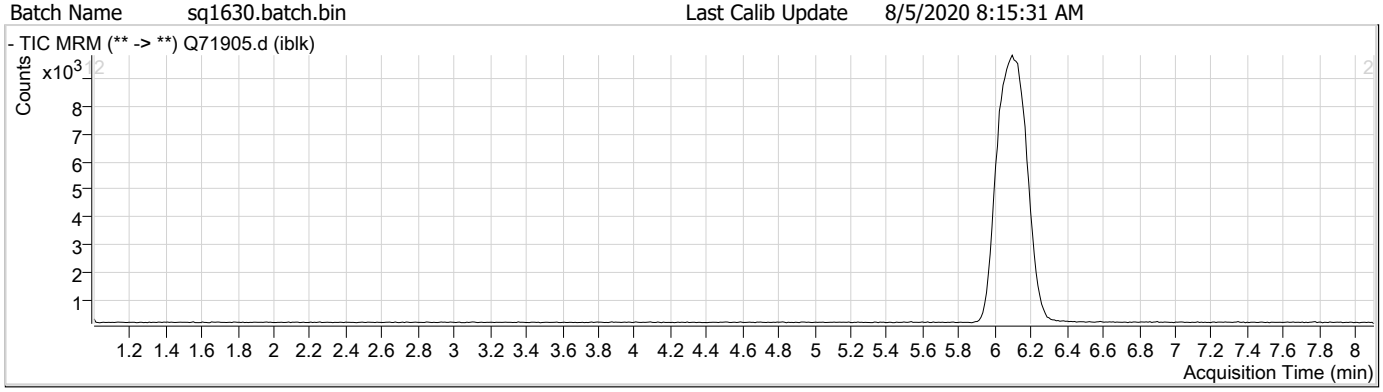
Compound	Conc.	Exp RT	QIon	Exp Ratio
Perchlorate	N.D.	6.10	101.0 -> 85.0	3.3





Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q71905.d	Operator	nancy
Acq. Method	Perchlorate2.m	Acq. Date-Time	8/5/2020 11:40:23 AM
Sample Name	iblk	Instrument	Instrument 1
Vial	Vial 1	Sample Information	OP81404,SQ1630,10,,,10,1,water
DA Method File	6850_080420_SQ1629.quantmethod.xml	Comment	
Batch Name	sq1630.batch.bin	Last Calib Update	8/5/2020 8:15:31 AM

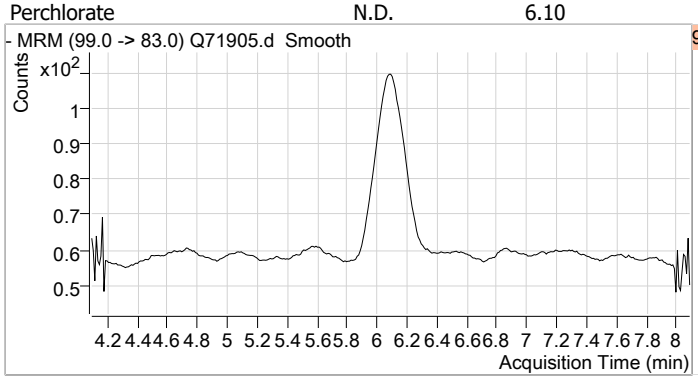


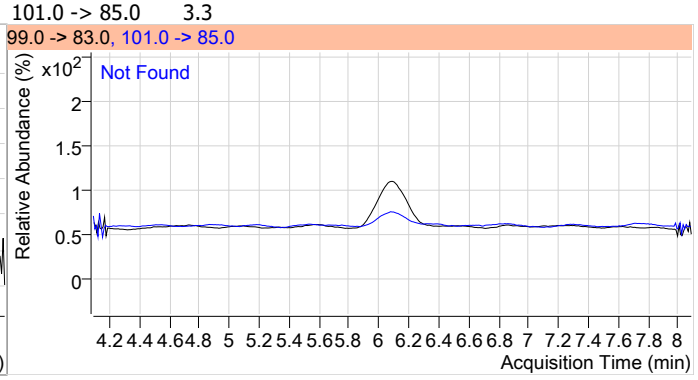
Compound	RT	QIon	Resp.	Q-ratio	Conc. Units	Dev(Min)
Internal Standards						
Cl18O4	6.095	107.0 -> 89.0	113005	NoQ	5.00 µg/L	-0.010
System Monitoring Compounds						
Target Compounds						**QValue**
Perchlorate	-	99.0 -> 83.0		-	N.D.	

(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

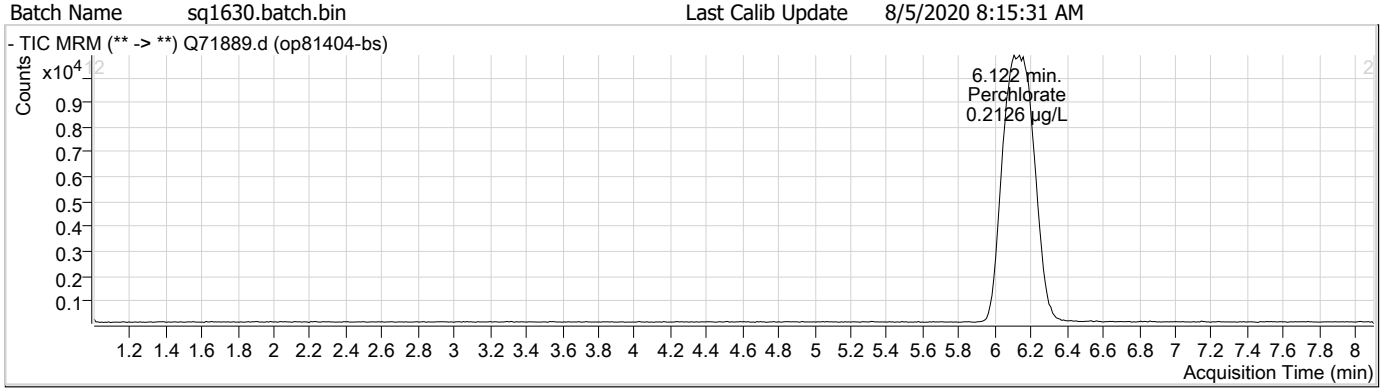
Compound	Conc.	Exp RT	QIon	Exp Ratio
Perchlorate	N.D.	6.10	101.0 -> 85.0	3.3





Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q71889.d	Operator	nancy
Acq. Method	Perchlorate2.m	Acq. Date-Time	8/5/2020 9:16:32 AM
Sample Name	op81404-bs	Instrument	Instrument 1
Vial	Vial 12	Sample Information	OP81404,SQ1630,10,,,10,1,water
DA Method File	6850_080420_SQ1629.quantmethod.xml	Comment	
Batch Name	sq1630.batch.bin	Last Calib Update	8/5/2020 8:15:31 AM

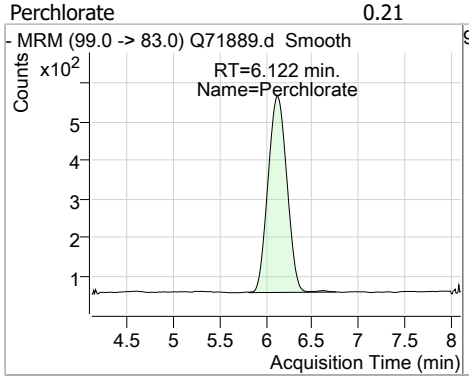


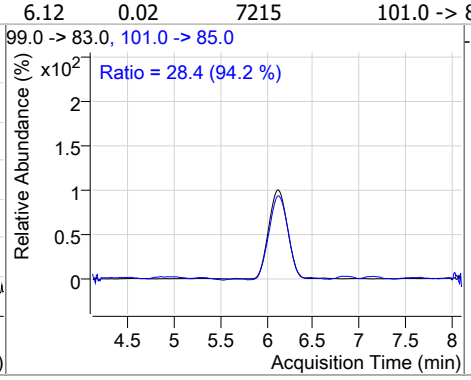
Compound	RT	QIon	Resp.	Q-ratio	Conc. Units	Dev(Min)
Internal Standards						
Cl18O4	6.125	107.0 -> 89.0	123482	NoQ	5.00 µg/L	0.020
System Monitoring Compounds						
Target Compounds						QValue
Perchlorate	6.122	99.0 -> 83.0	7215	3.5	0.21 µg/L	97

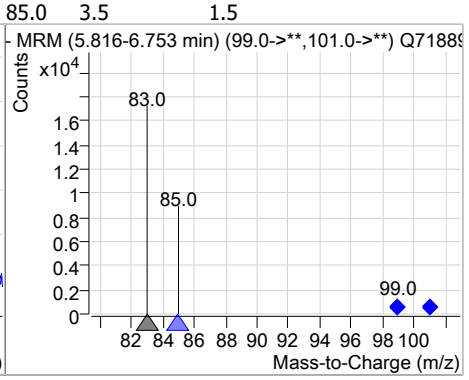
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.21	6.12	0.02	7215	101.0 -> 85.0	3.5	1.5	

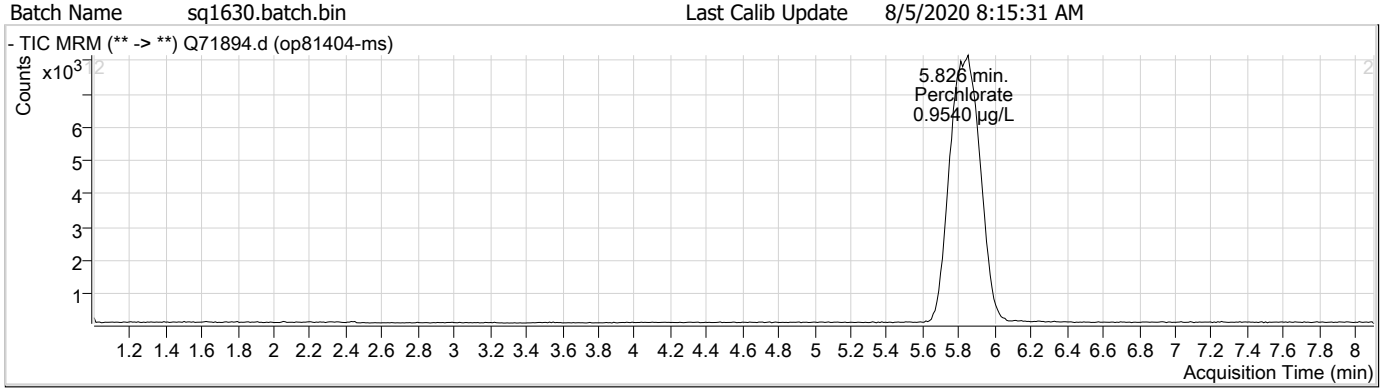






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q71894.d	Operator	nancy
Acq. Method	Perchlorate2.m	Acq. Date-Time	8/5/2020 10:01:33 AM
Sample Name	op81404-ms	Instrument	Instrument 1
Vial	Vial 17	Sample Information	OP81404,SQ1630,10,,,10,1,water
DA Method File	6850_080420_SQ1629.quantmethod.xml	Comment	
Batch Name	sq1630.batch.bin	Last Calib Update	8/5/2020 8:15:31 AM

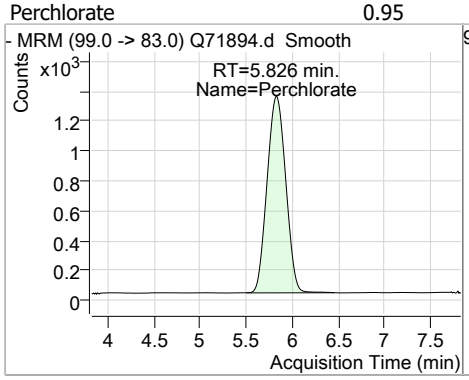


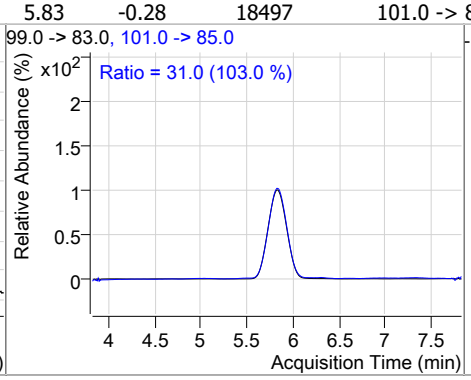
Compound	RT	QIon	Resp.	Q-ratio	Conc. Units	Dev(Min)
Internal Standards						
Cl18O4	5.830	107.0 -> 89.0	70473	NoQ	5.00 µg/L	-0.275
System Monitoring Compounds						
Target Compounds						**QValue**
Perchlorate	5.826	99.0 -> 83.0	18497	3.2	0.95 µg/L	98

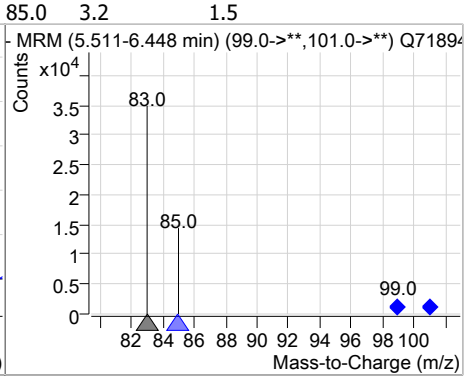
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.95	5.83	-0.28	18497	101.0 -> 85.0	3.2	1.5	

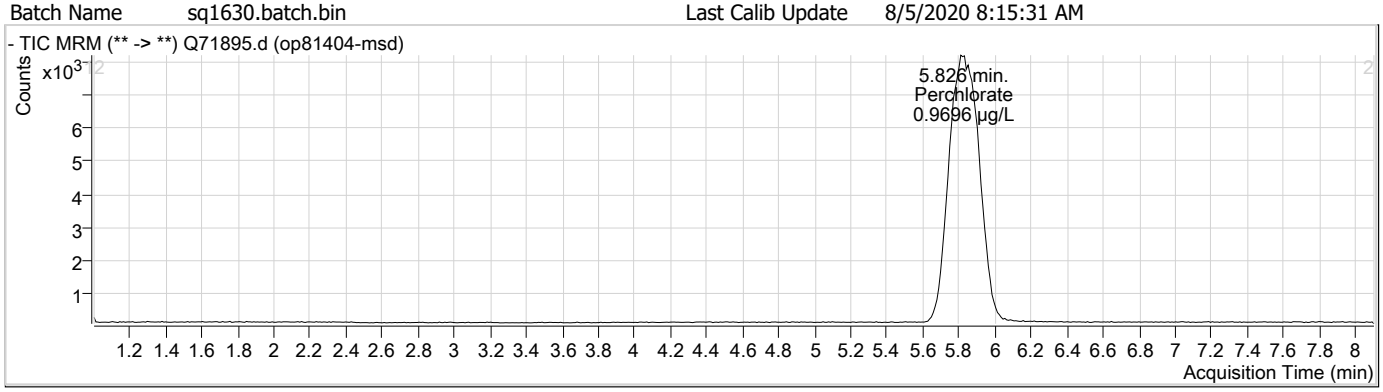






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q71895.d	Operator	nancy
Acq. Method	Perchlorate2.m	Acq. Date-Time	8/5/2020 10:10:31 AM
Sample Name	op81404-msd	Instrument	Instrument 1
Vial	Vial 18	Sample Information	OP81404,SQ1630,10,,,10,1,water
DA Method File	6850_080420_SQ1629.quantmethod.xml	Comment	
Batch Name	sq1630.batch.bin	Last Calib Update	8/5/2020 8:15:31 AM

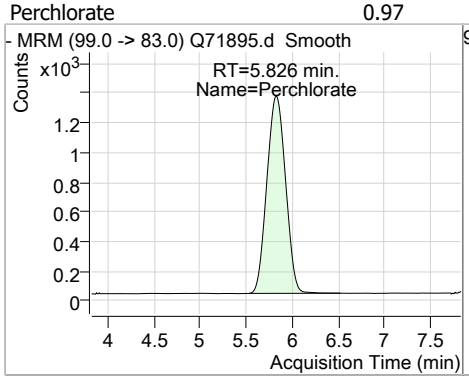


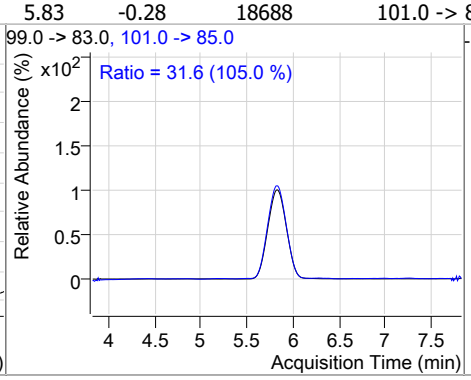
Compound	RT	QIon	Resp.	Q-ratio	Conc. Units	Dev(Min)
Internal Standards						
Cl18O4	5.830	107.0 -> 89.0	70052	NoQ	5.00 µg/L	-0.275
System Monitoring Compounds						
Target Compounds						**QValue**
Perchlorate	5.826	99.0 -> 83.0	18688	3.2	0.97 µg/L	97

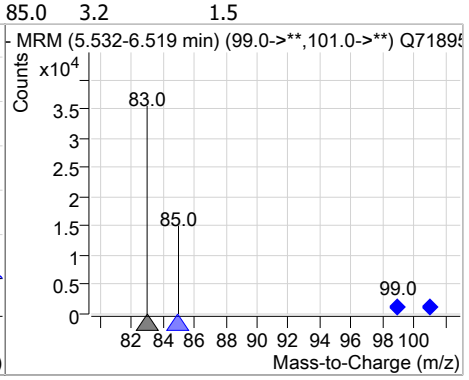
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.97	5.83	-0.28	18688	101.0 -> 85.0	3.2	1.5	

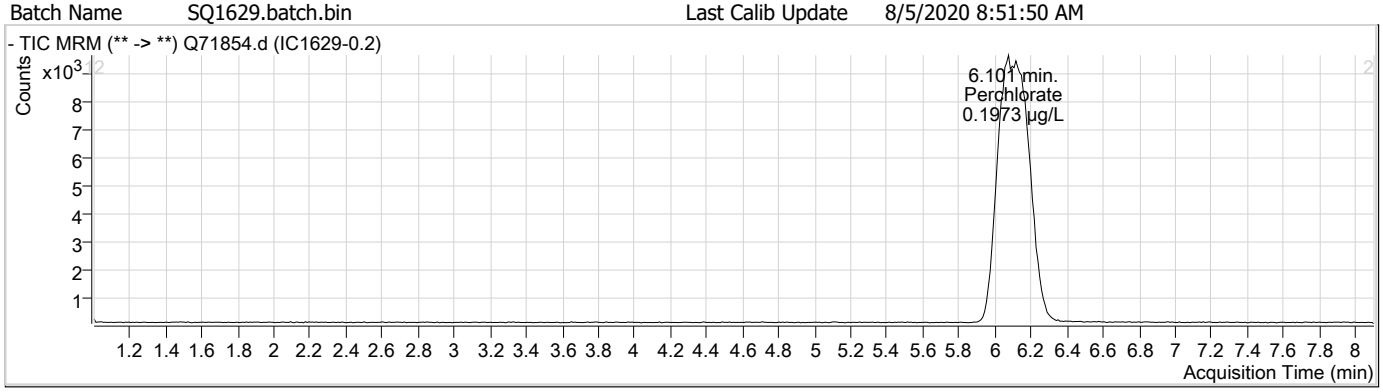






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q71854.d	Operator	nancy
Acq. Method	Perchlorate2.m	Acq. Date-Time	8/4/2020 2:57:54 PM
Sample Name	IC1629-0.2	Instrument	Instrument 1
Vial	Vial 2	Sample Information	OP81404,SQ1629,10,,,10,1,water
DA Method File	6850_080420_SQ1629.quantmethod.xml	Comment	
Batch Name	SQ1629.batch.bin	Last Calib Update	8/5/2020 8:51:50 AM

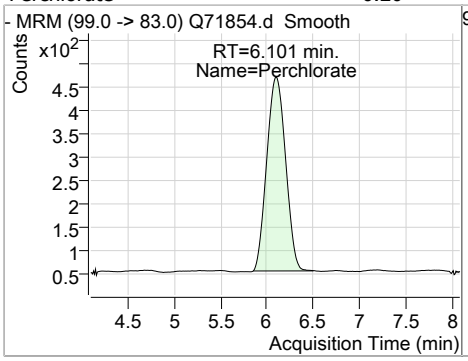


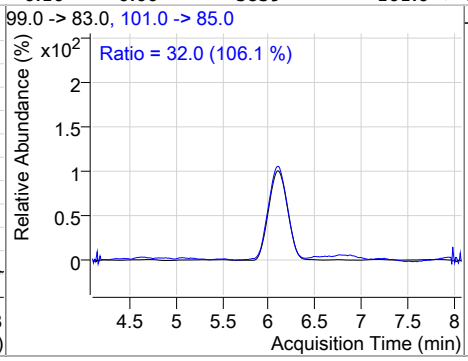
Compound	RT	QIon	Resp.	Q-ratio	Conc. Units	Dev(Min)
Internal Standards						
Cl18O4	6.095	107.0 -> 89.0	108037	NoQ	5.00 µg/L	-0.010
System Monitoring Compounds						
Target Compounds						**QValue**
Perchlorate	6.101	99.0 -> 83.0	5859	3.1	0.20 µg/L	97

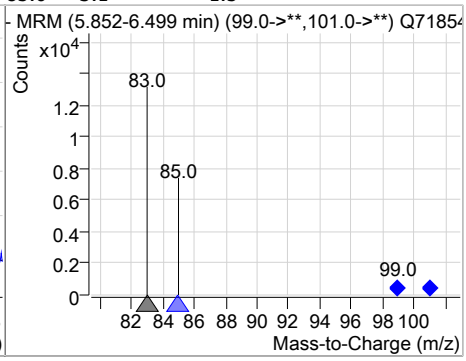
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.20	6.10	0.00	5859	101.0 -> 85.0	3.1	1.5	

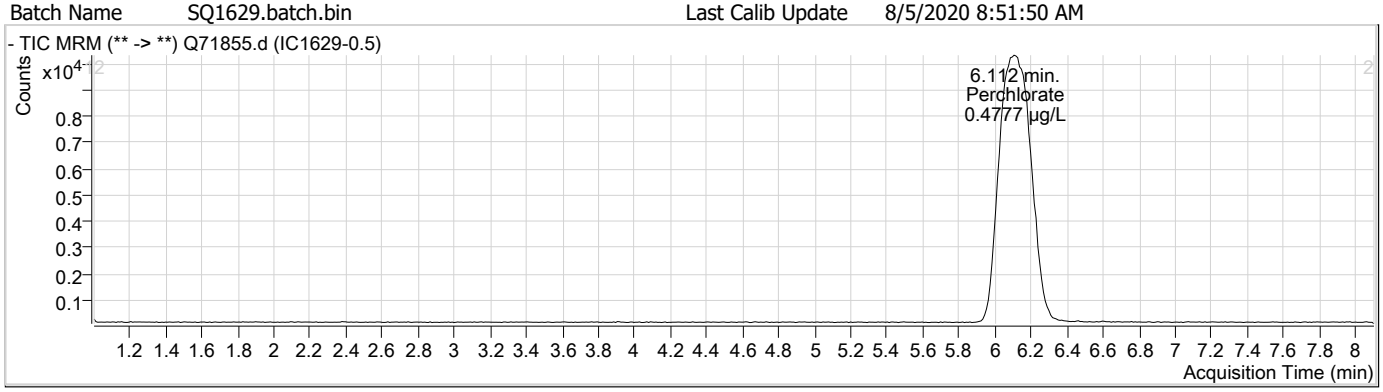






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q71855.d	Operator	nancy
Acq. Method	Perchlorate2.m	Acq. Date-Time	8/4/2020 3:06:51 PM
Sample Name	IC1629-0.5	Instrument	Instrument 1
Vial	Vial 3	Sample Information	OP81404,SQ1629,10,,,10,1,water
DA Method File	6850_080420_SQ1629.quantmethod.xml	Comment	
Batch Name	SQ1629.batch.bin	Last Calib Update	8/5/2020 8:51:50 AM

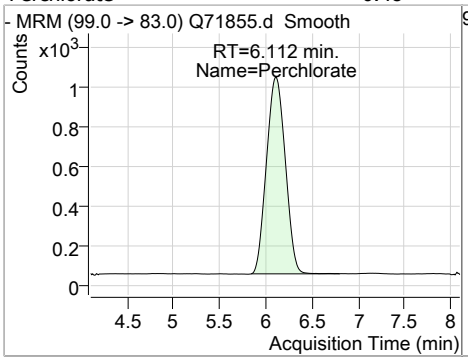


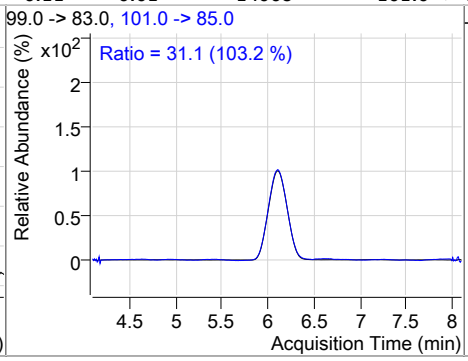
Compound	RT	QIon	Resp.	Q-ratio	Conc. Units	Dev(Min)
Internal Standards						
Cl18O4	6.105	107.0 -> 89.0	107114	NoQ	5.00 µg/L	0.000
System Monitoring Compounds						
Target Compounds						**QValue**
Perchlorate	6.112	99.0 -> 83.0	14068	3.2	0.48 µg/L	98

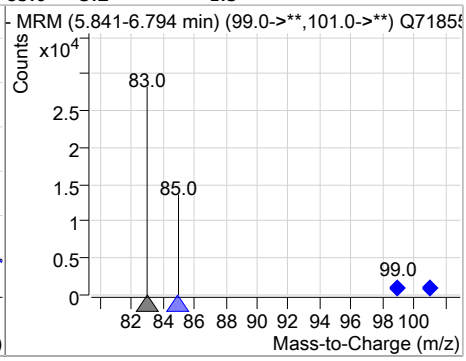
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.48	6.11	0.01	14068	101.0 -> 85.0	3.2	1.5	

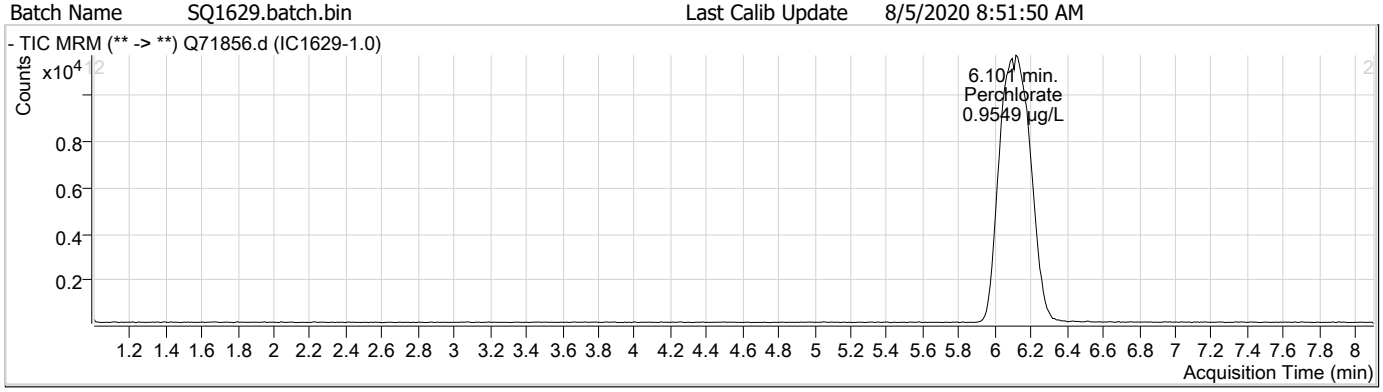






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q71856.d	Operator	nancy
Acq. Method	Perchlorate2.m	Acq. Date-Time	8/4/2020 3:15:49 PM
Sample Name	IC1629-1.0	Instrument	Instrument 1
Vial	Vial 4	Sample Information	OP81404,SQ1629,10,,,10,1,water
DA Method File	6850_080420_SQ1629.quantmethod.xml	Comment	
Batch Name	SQ1629.batch.bin	Last Calib Update	8/5/2020 8:51:50 AM

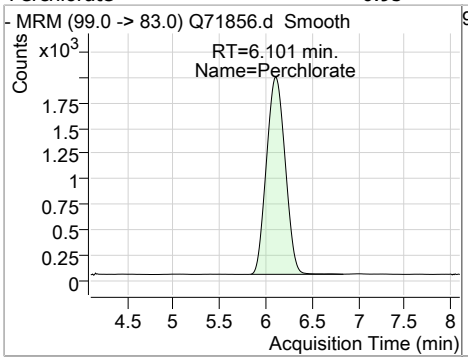


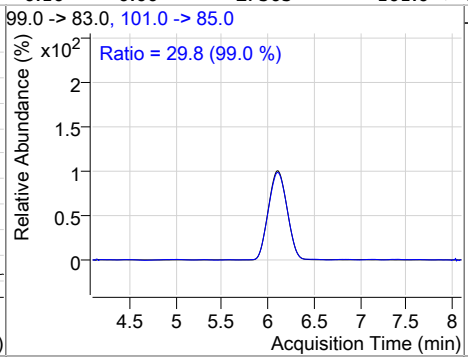
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.105	107.0 -> 89.0	104696	NoQ	5.00	µg/L	0.000
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.101	99.0 -> 83.0	27505	3.4	0.95	µg/L	99

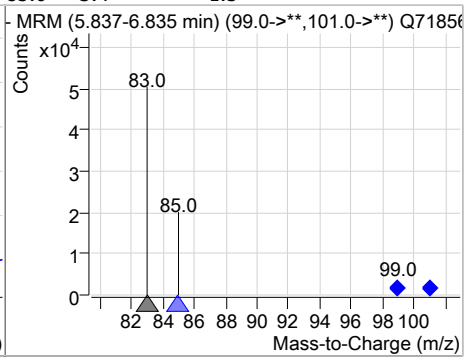
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.95	6.10	0.00	27505	101.0 -> 85.0	3.4	1.5	

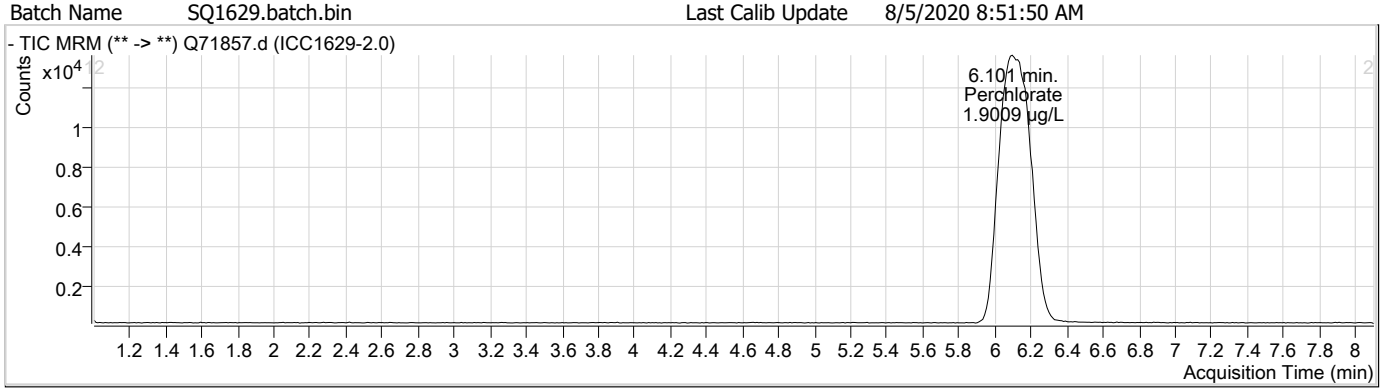






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q71857.d	Operator	nancy
Acq. Method	Perchlorate2.m	Acq. Date-Time	8/4/2020 3:24:46 PM
Sample Name	ICC1629-2.0	Instrument	Instrument 1
Vial	Vial 5	Sample Information	OP81404,SQ1629,10,,,10,1,water
DA Method File	6850_080420_SQ1629.quantmethod.xml	Comment	
Batch Name	SQ1629.batch.bin	Last Calib Update	8/5/2020 8:51:50 AM

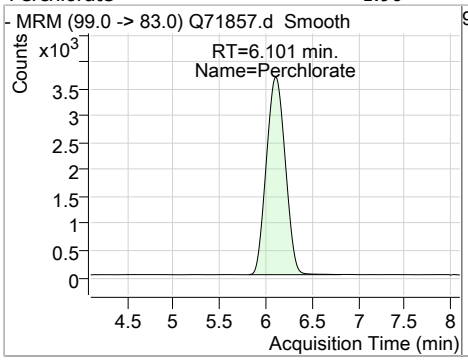


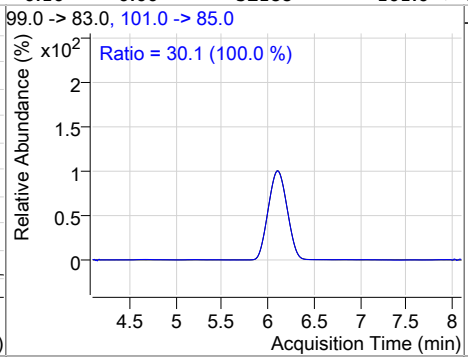
Compound	RT	QIon	Resp.	Q-ratio	Conc. Units	Dev(Min)
Internal Standards						
Cl18O4	6.105	107.0 -> 89.0	99665	NoQ	5.00 µg/L	0.000
System Monitoring Compounds						
Target Compounds						**QValue**
Perchlorate	6.101	99.0 -> 83.0	52188	3.3	1.90 µg/L	100

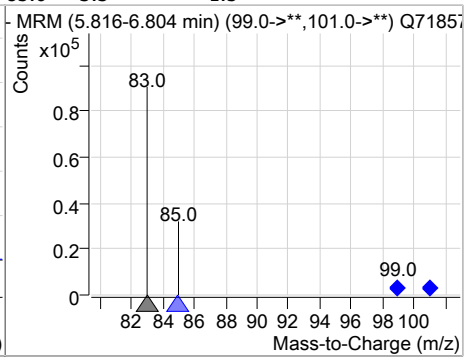
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	1.90	6.10	0.00	52188	101.0 -> 85.0	3.3	1.5	

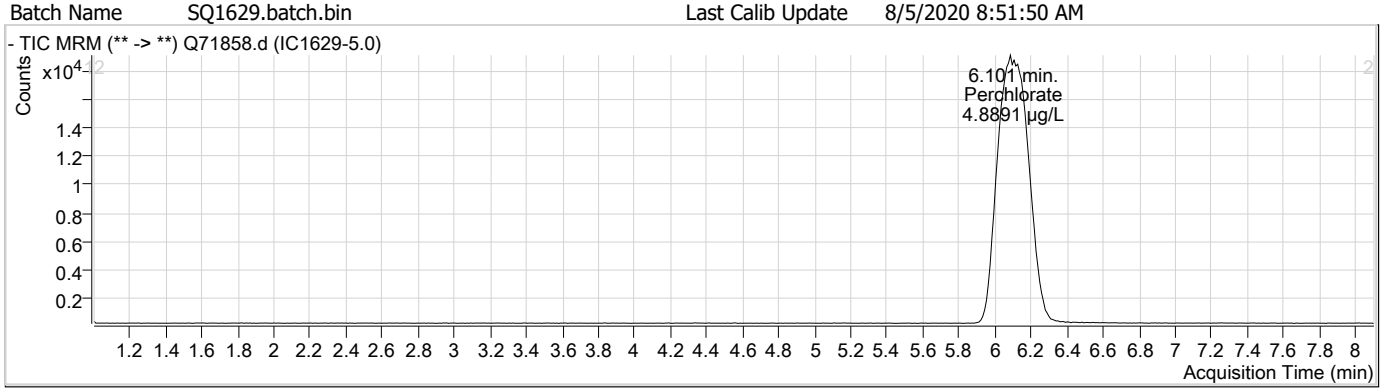






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q71858.d	Operator	nancy
Acq. Method	Perchlorate2.m	Acq. Date-Time	8/4/2020 3:33:45 PM
Sample Name	IC1629-5.0	Instrument	Instrument 1
Vial	Vial 6	Sample Information	OP81404,SQ1629,10,,,10,1,water
DA Method File	6850_080420_SQ1629.quantmethod.xml	Comment	
Batch Name	SQ1629.batch.bin	Last Calib Update	8/5/2020 8:51:50 AM

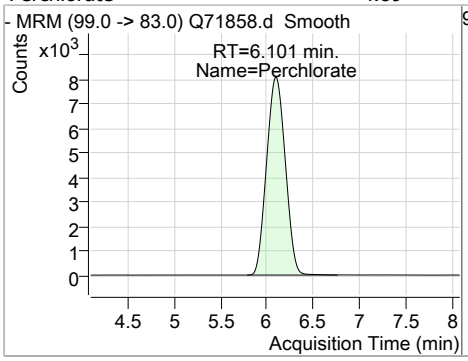


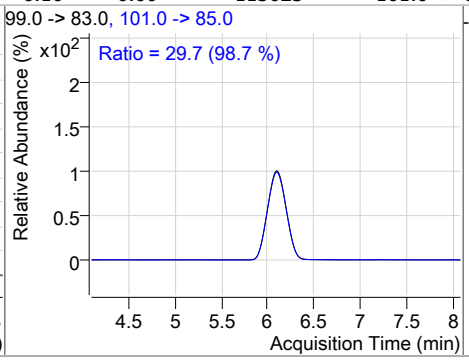
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.095	107.0 -> 89.0	83593	NoQ	5.00	µg/L	-0.010
System Monitoring Compounds							
Target Compounds							**QValue**
Perchlorate	6.101	99.0 -> 83.0	113023	3.4	4.89	µg/L	99

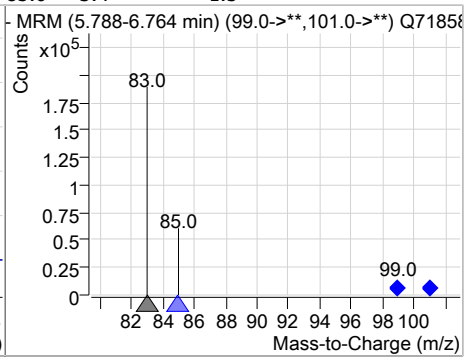
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	4.89	6.10	0.00	113023	101.0 -> 85.0	3.4	1.5	

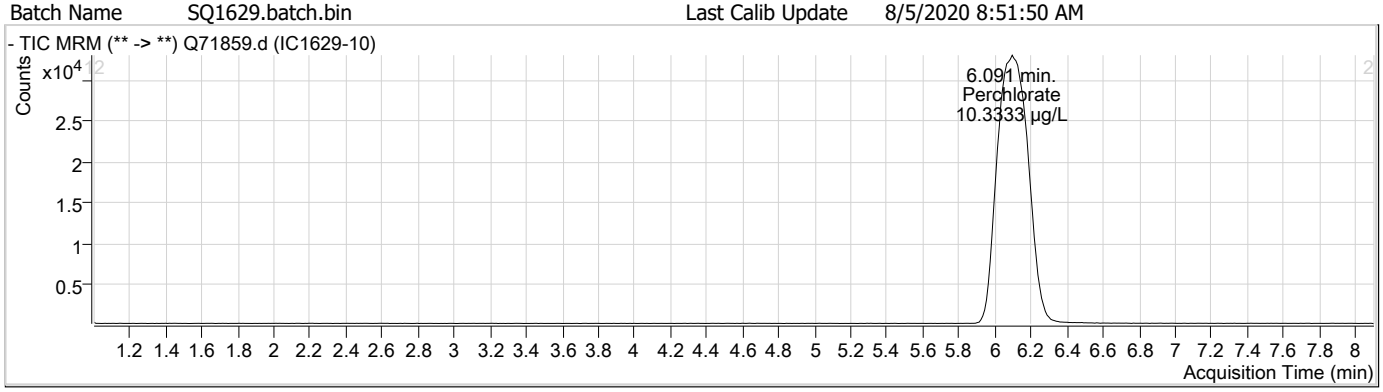






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q71859.d	Operator	nancy
Acq. Method	Perchlorate2.m	Acq. Date-Time	8/4/2020 3:42:43 PM
Sample Name	IC1629-10	Instrument	Instrument 1
Vial	Vial 7	Sample Information	OP81404,SQ1629,10,,,10,1,water
DA Method File	6850_080420_SQ1629.quantmethod.xml	Comment	
Batch Name	SQ1629.batch.bin	Last Calib Update	8/5/2020 8:51:50 AM

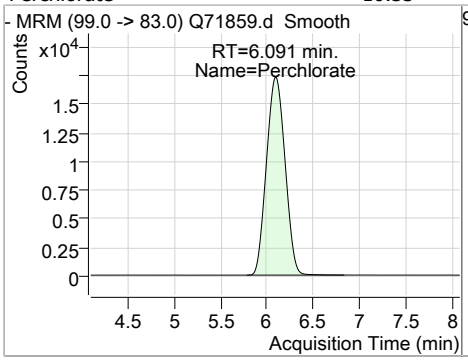


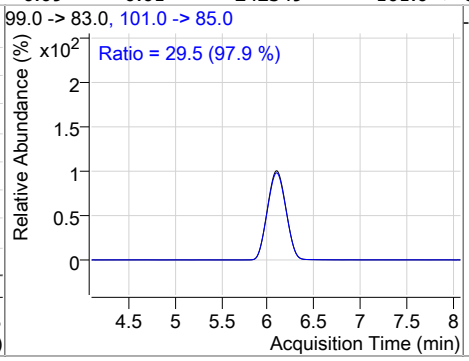
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.095	107.0 -> 89.0	84205	NoQ	5.00	µg/L	-0.010
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.091	99.0 -> 83.0	242349	3.4	10.33	µg/L	99

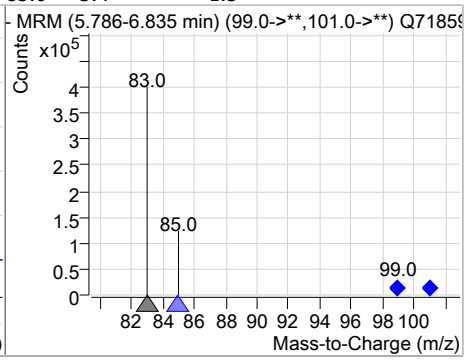
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	10.33	6.09	-0.01	242349	101.0 -> 85.0	3.4	1.5	

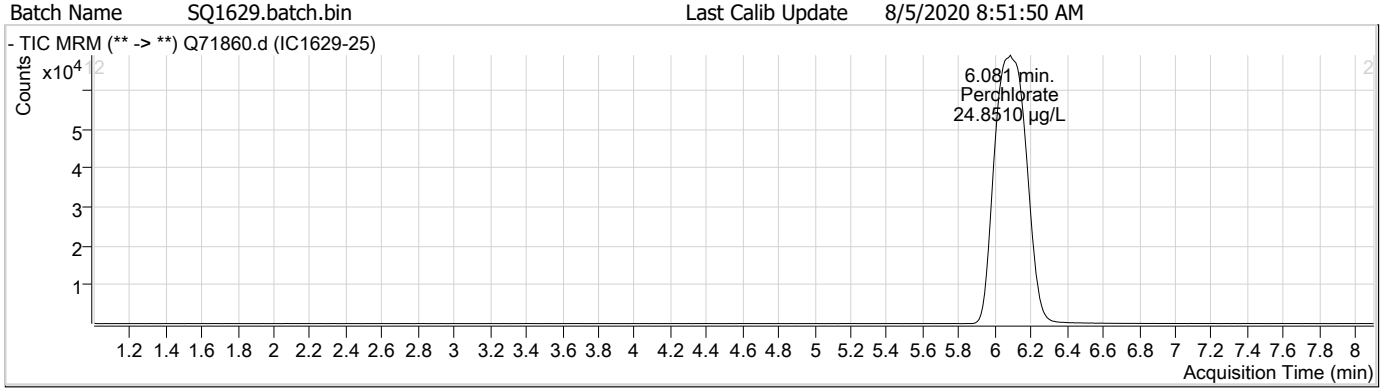






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q71860.d	Operator	nancy
Acq. Method	Perchlorate2.m	Acq. Date-Time	8/4/2020 3:51:41 PM
Sample Name	IC1629-25	Instrument	Instrument 1
Vial	Vial 8	Sample Information	OP81404,SQ1629,10,,,10,1,water
DA Method File	6850_080420_SQ1629.quantmethod.xml	Comment	
Batch Name	SQ1629.batch.bin	Last Calib Update	8/5/2020 8:51:50 AM

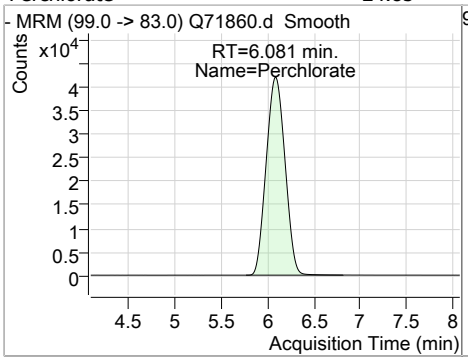


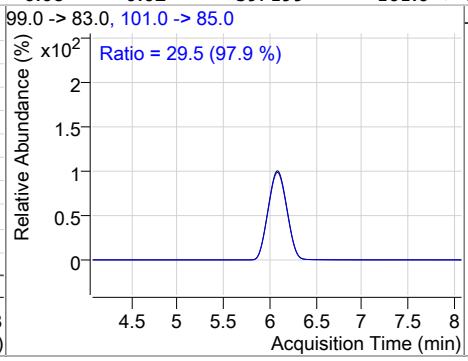
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.085	107.0 -> 89.0	84678	NoQ	5.00	µg/L	-0.020
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.081	99.0 -> 83.0	597199	3.4	24.85	µg/L	99

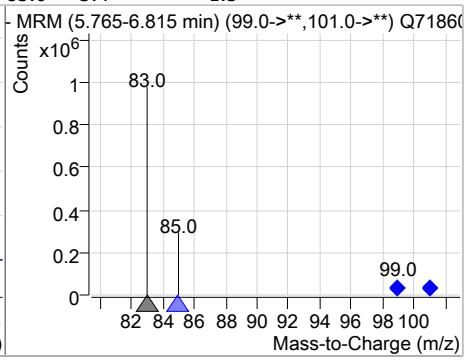
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	24.85	6.08	-0.02	597199	101.0 -> 85.0	3.4	1.5	

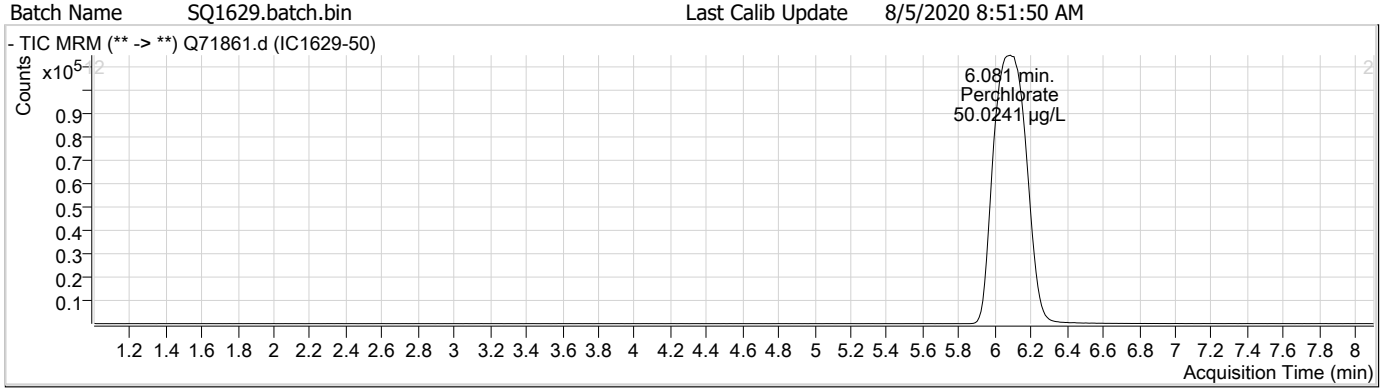






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q71861.d	Operator	nancy
Acq. Method	Perchlorate2.m	Acq. Date-Time	8/4/2020 4:00:38 PM
Sample Name	IC1629-50	Instrument	Instrument 1
Vial	Vial 9	Sample Information	OP81404,SQ1629,10,,,10,1,water
DA Method File	6850_080420_SQ1629.quantmethod.xml	Comment	
Batch Name	SQ1629.batch.bin	Last Calib Update	8/5/2020 8:51:50 AM

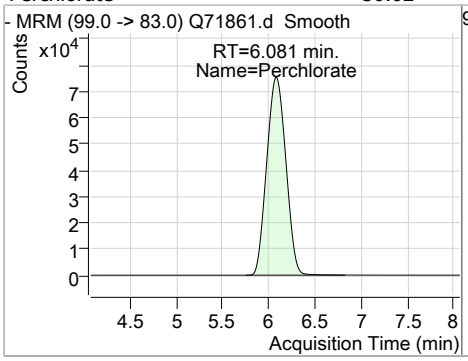


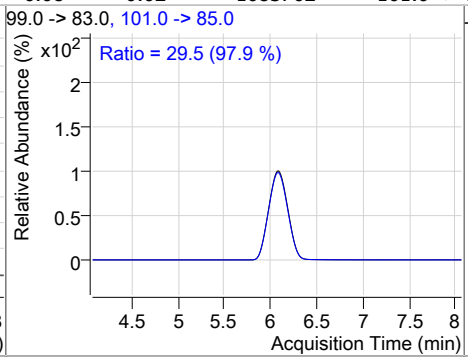
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.074	107.0 -> 89.0	73959	NoQ	5.00	µg/L	-0.031
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.081	99.0 -> 83.0	1083762	3.4	50.02	µg/L	99

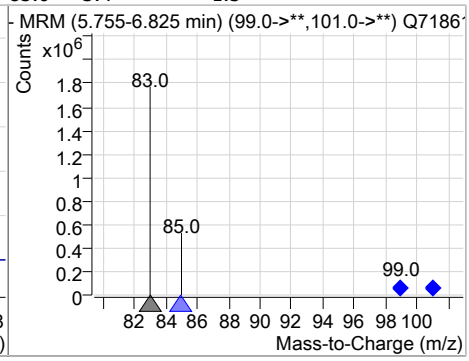
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	50.02	6.08	-0.02	1083762	101.0 -> 85.0	3.4	1.5	

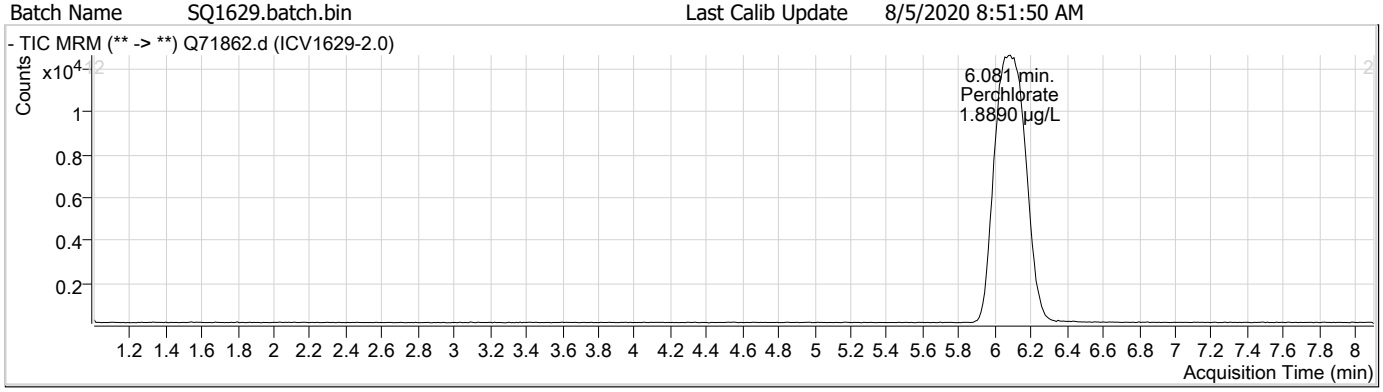






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q71862.d	Operator	nancy
Acq. Method	Perchlorate2.m	Acq. Date-Time	8/4/2020 4:09:37 PM
Sample Name	ICV1629-2.0	Instrument	Instrument 1
Vial	Vial 10	Sample Information	OP81404,SQ1629,10,,,10,1,water
DA Method File	6850_080420_SQ1629.quantmethod.xml	Comment	
Batch Name	SQ1629.batch.bin	Last Calib Update	8/5/2020 8:51:50 AM

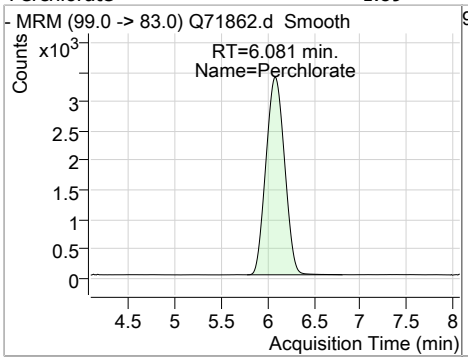


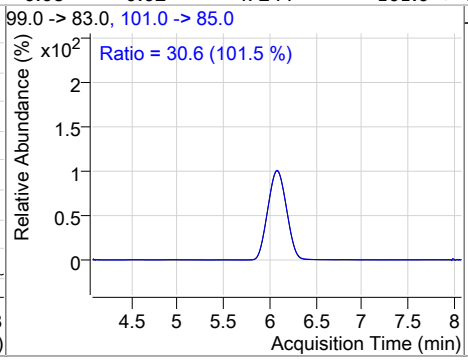
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.085	107.0 -> 89.0	90796	NoQ	5.00	µg/L	-0.020
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.081	99.0 -> 83.0	47244	3.3	1.89	µg/L	99

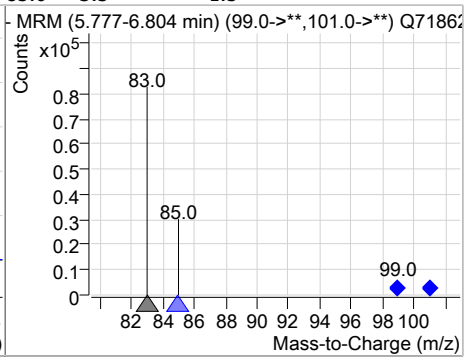
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	1.89	6.08	-0.02	47244	101.0 -> 85.0	3.3	1.5	

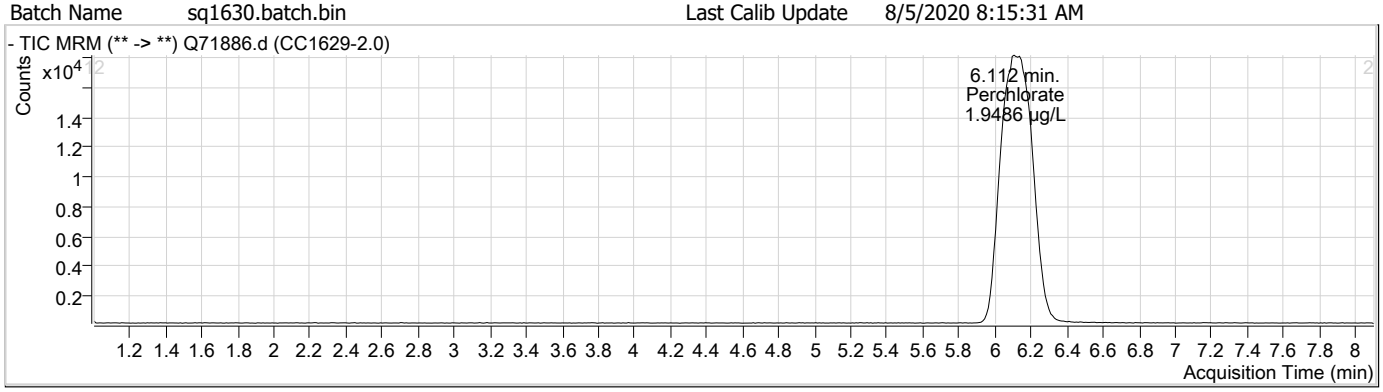






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q71886.d	Operator	nancy
Acq. Method	Perchlorate2.m	Acq. Date-Time	8/5/2020 8:36:27 AM
Sample Name	CC1629-2.0	Instrument	Instrument 1
Vial	Vial 5	Sample Information	OP81404,SQ1630,10,,,10,1,water
DA Method File	6850_080420_SQ1629.quantmethod.xml	Comment	
Batch Name	sq1630.batch.bin	Last Calib Update	8/5/2020 8:15:31 AM

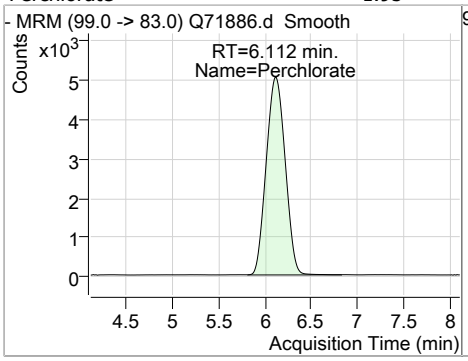


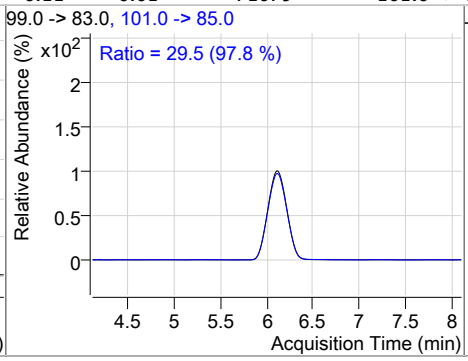
Compound	RT	QIon	Resp.	Q-ratio	Conc. Units	Dev(Min)
Internal Standards						
Cl18O4	6.125	107.0 -> 89.0	132413	NoQ	5.00 µg/L	0.020
System Monitoring Compounds						
Target Compounds						**QValue**
Perchlorate	6.112	99.0 -> 83.0	71079	3.4	1.95 µg/L	99

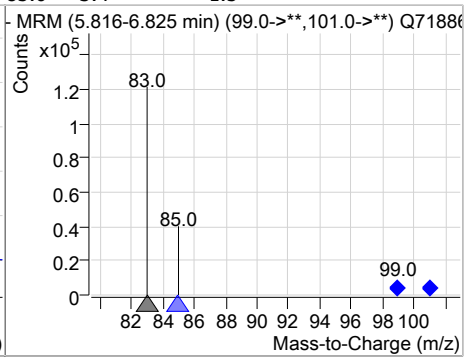
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	1.95	6.11	0.01	71079	101.0 -> 85.0	3.4	1.5	

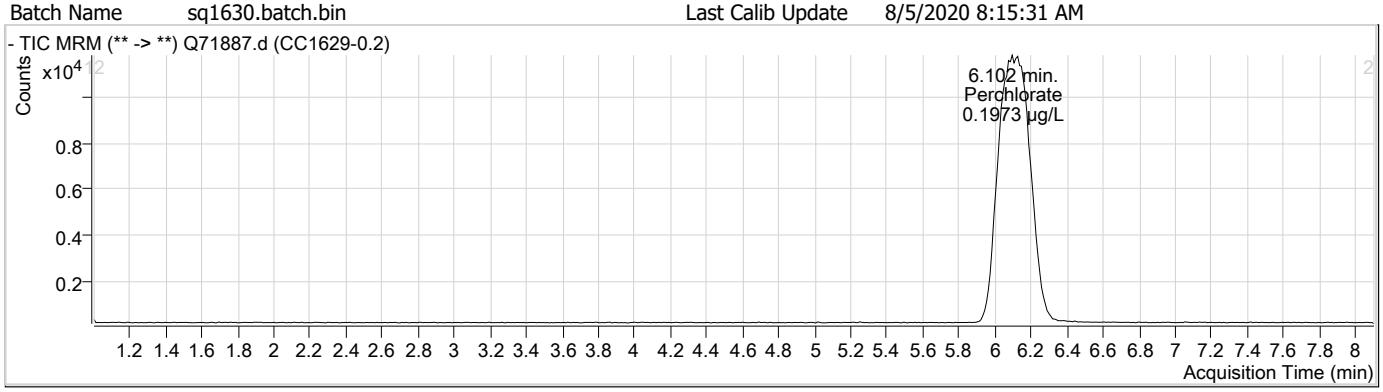






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q71887.d	Operator	nancy
Acq. Method	Perchlorate2.m	Acq. Date-Time	8/5/2020 8:45:24 AM
Sample Name	CC1629-0.2	Instrument	Instrument 1
Vial	Vial 2	Sample Information	OP81404,SQ1630,10,,,10,1,water
DA Method File	6850_080420_SQ1629.quantmethod.xml	Comment	
Batch Name	sq1630.batch.bin	Last Calib Update	8/5/2020 8:15:31 AM

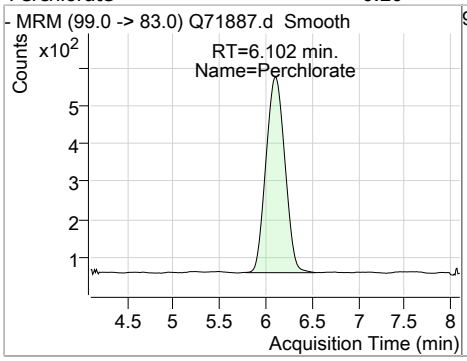


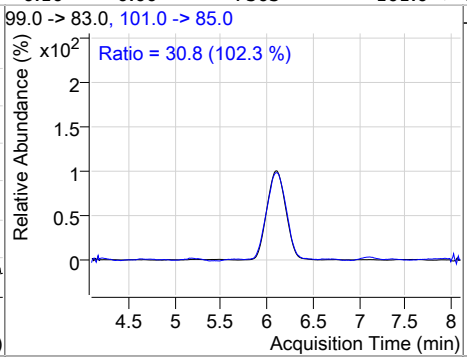
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.105	107.0 -> 89.0	135755	NoQ	5.00	µg/L	0.000
System Monitoring Compounds							
Target Compounds							**QValue**
Perchlorate	6.102	99.0 -> 83.0	7363	3.2	0.20	µg/L	99

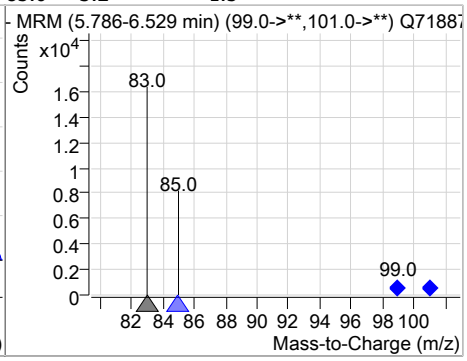
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.20	6.10	0.00	7363	101.0 -> 85.0	3.2	1.5	

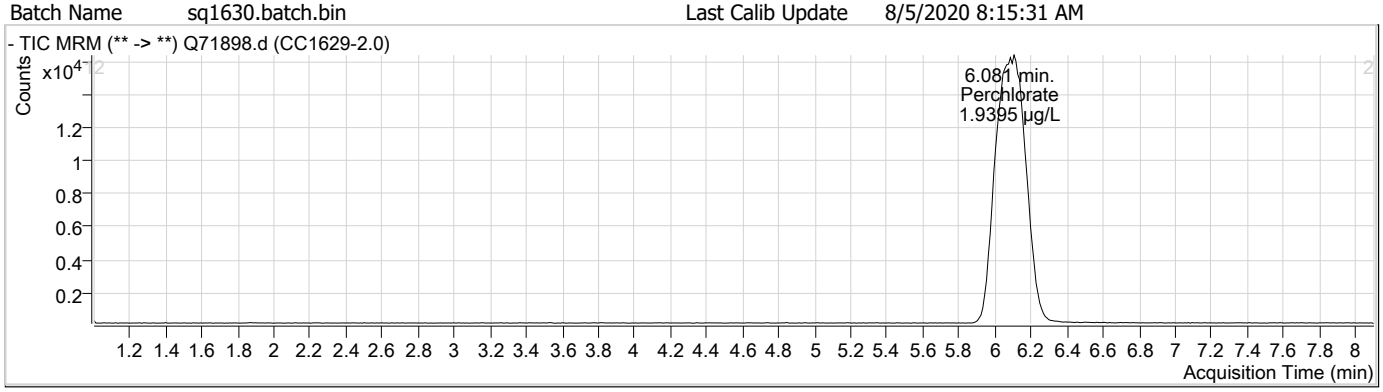






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q71898.d	Operator	nancy
Acq. Method	Perchlorate2.m	Acq. Date-Time	8/5/2020 10:37:24 AM
Sample Name	CC1629-2.0	Instrument	Instrument 1
Vial	Vial 5	Sample Information	OP81404,SQ1630,10,,,10,1,water
DA Method File	6850_080420_SQ1629.quantmethod.xml	Comment	
Batch Name	sq1630.batch.bin	Last Calib Update	8/5/2020 8:15:31 AM

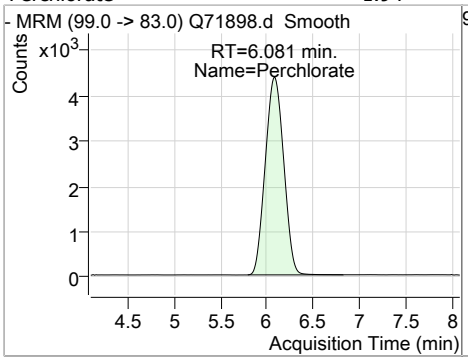


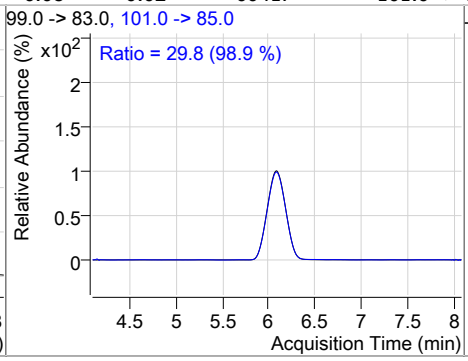
Compound	RT	QIon	Resp.	Q-ratio	Conc. Units	Dev(Min)
Internal Standards						
Cl18O4	6.095	107.0 -> 89.0	113081	NoQ	5.00 µg/L	-0.010
System Monitoring Compounds						
Target Compounds						**QValue**
Perchlorate	6.081	99.0 -> 83.0	60417	3.4	1.94 µg/L	99

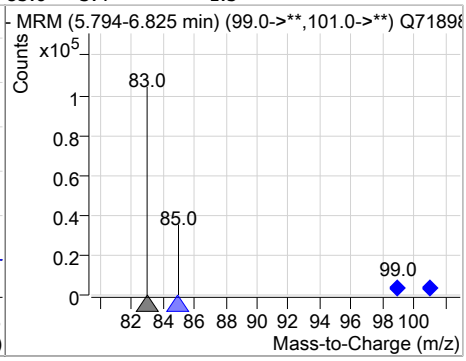
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	1.94	6.08	-0.02	60417	101.0 -> 85.0	3.4	1.5	

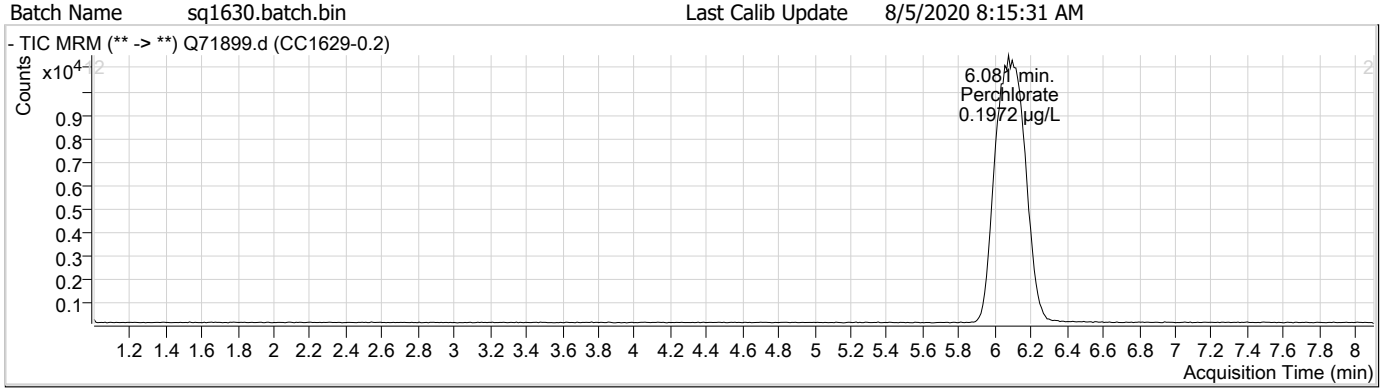






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q71899.d	Operator	nancy
Acq. Method	Perchlorate2.m	Acq. Date-Time	8/5/2020 10:46:21 AM
Sample Name	CC1629-0.2	Instrument	Instrument 1
Vial	Vial 2	Sample Information	OP81404,SQ1630,10,,,10,1,water
DA Method File	6850_080420_SQ1629.quantmethod.xml	Comment	
Batch Name	sq1630.batch.bin	Last Calib Update	8/5/2020 8:15:31 AM

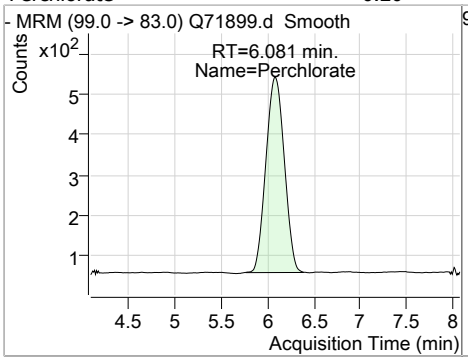


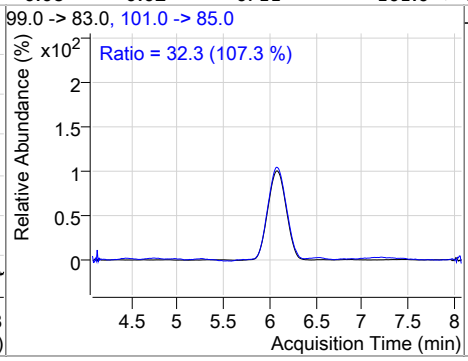
Compound	RT	QIon	Resp.	Q-ratio	Conc. Units	Dev(Min)
Internal Standards						
Cl18O4	6.085	107.0 -> 89.0	123803	NoQ	5.00 µg/L	-0.020
System Monitoring Compounds						
Target Compounds						**QValue**
Perchlorate	6.081	99.0 -> 83.0	6711	3.1	0.20 µg/L	96

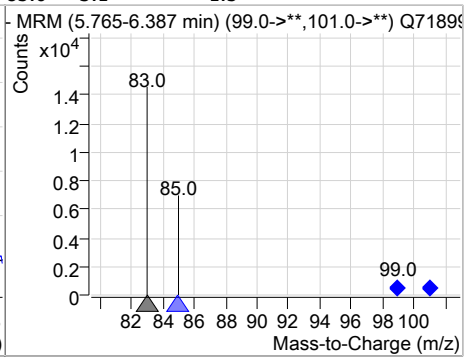
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.20	6.08	-0.02	6711	101.0 -> 85.0	3.1	1.5	







SGS ORLANDO

LCMS1-Q ANALYSIS LOG

DATE:	08/04/20
COLUMN TYPE:	K Prime
AMOUNT INJ:	7.5 ul
INSTRUMENT:	LCMS1-Q

METHODS:	SW846 6850
PROC. METH:	6850_061920_SQ1605
CAL DATE:	06/19/20
ANALYST:	NAS
RUN BATCH:	SQ1629

ELUENT A LOT #:	200633 W/0.1% AA
ELUENT B LOT #:	194003 W/0.1% AA
IC/CC STD LOT #:	LCMS1412
ICV STD LOT #:	LCMS1413
ISTD/ID STD LOT #:	9970

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	Q71844.d	Vial 1	CCB	Perchlorate2.m	Sample		OP81404,SQ1629,10,,,10,1,water	✓
2	Q71845.d	Vial 1	CCB	Perchlorate2.m	Sample		OP81404,SQ1629,10,,,10,1,water	✓
3	Q71846.d	Vial 1	CCB	Perchlorate2.m	Sample		OP81404,SQ1629,10,,,10,1,water	✓
4	Q71847.d	Vial 1	CCB	Perchlorate2.m	Sample		OP81404,SQ1629,10,,,10,1,water	✓
5	Q71848.d	Vial 5	CC1620-2.0	Perchlorate2.m	QC	4	OP81404,SQ1629,10,,,10,1,water	pass
6	Q71849.d	Vial 2	CC1620-0.2	Perchlorate2.m	QC	1	OP81404,SQ1629,10,,,10,1,water	pass
7	Q71850.d	Vial 11	ICS1620-0.2	Perchlorate2.m	Sample		OP81404,SQ1629,10,,,10,1,water	istd low
8	Q71851.d	Vial 11	ICS1620-0.2	Perchlorate2.m	Sample		OP81404,SQ1629,10,,,10,1,water	istd low
9	Q71852.d	Vial 11	ICS1620-0.2	Perchlorate2.m	Sample		OP81404,SQ1629,10,,,10,1,water	istd fail run curve
10	Q71853.d	Vial 1	CCB	Perchlorate2.m	Sample		OP81404,SQ1629,10,,,10,1,water	bdl
11	Q71854.d	Vial 2	IC1629-0.2	Perchlorate2.m	Calibration	0.02/10	OP81404,SQ1629,10,,,10,1,water	✓
12	Q71855.d	Vial 3	IC1629-0.5	Perchlorate2.m	Calibration	0.05/10	OP81404,SQ1629,10,,,10,1,water	✓
13	Q71856.d	Vial 4	IC1629-1.0	Perchlorate2.m	Calibration	0.1/10	OP81404,SQ1629,10,,,10,1,water	✓
14	Q71857.d	Vial 5	ICC1629-2.0	Perchlorate2.m	Calibration	0.2/10	OP81404,SQ1629,10,,,10,1,water	✓
15	Q71858.d	Vial 6	IC1629-5.0	Perchlorate2.m	Calibration	0.5/10	OP81404,SQ1629,10,,,10,1,water	✓
16	Q71859.d	Vial 7	IC1629-10	Perchlorate2.m	Calibration	1.0/10	OP81404,SQ1629,10,,,10,1,water	✓
17	Q71860.d	Vial 8	IC1629-25	Perchlorate2.m	Calibration	2.5/10	OP81404,SQ1629,10,,,10,1,water	✓
18	Q71861.d	Vial 9	IC1629-50	Perchlorate2.m	Calibration	5.0/10	OP81404,SQ1629,10,,,10,1,water	✓
19	Q71862.d	Vial 10	ICV1629-2.0	Perchlorate2.m	QC	0.2/10	OP81404,SQ1629,10,,,10,1,water	✓
20	Q71863.d	Vial 11	ICS1629-0.2	Perchlorate2.m	Sample		OP81404,SQ1629,10,,,10,1,water	istd low rr smples
21	Q71864.d	Vial 12	OP81404-BS	Perchlorate2.m	Sample		OP81404,SQ1629,10,,,10,1,water	✓ rr
22	Q71865.d	Vial 13	OP81404-MB	Perchlorate2.m	Sample		OP81404,SQ1629,10,,,10,1,water	✓ rr
23	Q71866.d	Vial 14	fa77052-1	Perchlorate2.m	Sample		OP81404,SQ1629,10,,,10,1,water	✓ rr
24	Q71867.d	Vial 15	fa77052-2	Perchlorate2.m	Sample		OP81404,SQ1629,10,,,10,1,water	✓ rr
25	Q71868.d	Vial 16	fa77052-3	Perchlorate2.m	Sample		OP81404,SQ1629,10,,,10,1,water	✓ rr
26	Q71869.d	Vial 17	OP81404-MS	Perchlorate2.m	Sample		OP81404,SQ1629,10,,,10,1,water	✓ rr
27	Q71870.d	Vial 18	OP81404-MSD	Perchlorate2.m	Sample		OP81404,SQ1629,10,,,10,1,water	✓ rr
28	Q71871.d	Vial 5	CC1629-2.0	Perchlorate2.m	QC	0.2/10	OP81404,SQ1629,10,,,10,1,water	pass
29	Q71872.d	Vial 2	CC1629-0.2	Perchlorate2.m	QC	0.02/10	OP81404,SQ1629,10,,,10,1,water	pass
30	Q71873.d	Vial 1	CCB	Perchlorate2.m	Sample		OP81404,SQ1629,10,,,10,1,water	bdl
31	Q71874.d	Vial 19	fa77052-4	Perchlorate2.m	Sample		OP81404,SQ1629,10,,,10,1,water	✓ istd low rr
32	Q71875.d	Vial 20	fa77052-5	Perchlorate2.m	Sample		OP81404,SQ1629,10,,,10,1,water	✓ rr
33	Q71876.d	Vial 21	fa77117-1	Perchlorate2.m	Sample		OP81404,SQ1629,10,,,10,1,water	✓ rr
34	Q71877.d	Vial 22	fa77117-2	Perchlorate2.m	Sample		OP81404,SQ1629,10,,,10,1,water	✓ rr
35	Q71878.d	Vial 23	fa77117-3	Perchlorate2.m	Sample		OP81404,SQ1629,10,,,10,1,water	✓ rr

SGS ORLANDO LCMS1-Q ANALYSIS LOG

36	Q71879.d	Vial 5	CC1629-2.0	Perchlorate2.m	QC	0.2/10	OP81404,SQ1629,10,,,10,1,water	pass
37	Q71880.d	Vial 2	ECC1629-0.2	Perchlorate2.m	QC	0.02/10	OP81404,SQ1629,10,,,10,1,water	pass
38	Q71881.d	Vial 1	CCB	Perchlorate2.m	Sample		OP81404,SQ1629,10,,,10,1,water	bdl
39	Q71882.d	Vial 1	CCB	Perchlorate2.m	Sample		OP81404,SQ1629,10,,,10,1,water	✓
40	Q71883.d	Vial 1	CCB	Perchlorate2.m	Sample		OP81404,SQ1629,10,,,10,1,water	✓
41	Q71884.d	Vial 11	COND	Perchlorate2.m	Sample		OP81404,SQ1629,10,,,10,1,water	✓
42	Q71885.d	Vial 1	CCB	Perchlorate2.m	Sample		OP81404,SQ1630,10,,,10,1,water	✓
43	Q71886.d	Vial 5	CC1629-2.0	Perchlorate2.m	QC	0.2/10	OP81404,SQ1630,10,,,10,1,water	test
44	Q71887.d	Vial 2	CC1629-0.2	Perchlorate2.m	QC	0.02/10	OP81404,SQ1630,10,,,10,1,water	test
45	Q71889.d	Vial 11	ICS1629-0.2	Perchlorate2.m	Sample		OP81404,SQ1630,10,,,10,1,water	test

SGS ORLANDO

LCMS1-Q ANALYSIS LOG

DATE:	08/05/20
COLUMN TYPE:	K Prime
AMOUNT INJ:	7.5 ul
INSTRUMENT:	LCMS1-Q

METHODS:	SW846 6850
PROC. METH:	6850_061920_SQ1605
CAL DATE:	06/19/20
ANALYST:	NAS
RUN BATCH:	SQ1630

ELUENT A LOT #:	200633 W/0.1% AA
ELUENT B LOT #:	194003 W/0.1% AA
IC/CC STD LOT #:	LCMS1412
ICV STD LOT #:	LCMS1413
ISTD/ID STD LOT #:	9970

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	Q71885.d	Vial 1	CCB	Perchlorate2.m	Sample		OP81404,SQ1630,10,,,10,1,water	bdl
2	Q71886.d	Vial 5	CC1629-2.0	Perchlorate2.m	QC	0.2/10	OP81404,SQ1630,10,,,10,1,water	pass
3	Q71887.d	Vial 2	CC1629-0.2	Perchlorate2.m	QC	0.02/10	OP81404,SQ1630,10,,,10,1,water	pass
4	Q71888.d	Vial 11	ICS1629-0.2	Perchlorate2.m	Sample		OP81404,SQ1630,10,,,10,1,water	✓
5	Q71889.d	Vial 12	op81404-bs	Perchlorate2.m	Sample		OP81404,SQ1630,10,,,10,1,water	✓
6	Q71890.d	Vial 13	op81404-mb	Perchlorate2.m	Sample		OP81404,SQ1630,10,,,10,1,water	bdl
7	Q71891.d	Vial 14	fa77052-1	Perchlorate2.m	Sample		OP81404,SQ1630,10,,,10,1,water	✓
8	Q71892.d	Vial 15	fa77052-2	Perchlorate2.m	Sample		OP81404,SQ1630,10,,,10,1,water	✓
9	Q71893.d	Vial 16	fa77052-3	Perchlorate2.m	Sample		OP81404,SQ1630,10,,,10,1,water	✓
10	Q71894.d	Vial 17	op81404-ms	Perchlorate2.m	Sample		OP81404,SQ1630,10,,,10,1,water	✓
11	Q71895.d	Vial 18	op81404-msd	Perchlorate2.m	Sample		OP81404,SQ1630,10,,,10,1,water	✓
12	Q71896.d	Vial 19	fa77052-4	Perchlorate2.m	Sample		OP81404,SQ1630,10,,,10,1,water	✓
13	Q71897.d	Vial 20	fa77052-5	Perchlorate2.m	Sample		OP81404,SQ1630,10,,,10,1,water	✓
14	Q71898.d	Vial 5	CC1629-2.0	Perchlorate2.m	QC	0.2/10	OP81404,SQ1630,10,,,10,1,water	pass
15	Q71899.d	Vial 2	CC1629-0.2	Perchlorate2.m	QC	0.02/10	OP81404,SQ1630,10,,,10,1,water	pass
16	Q71900.d	Vial 21	fa77117-1	Perchlorate2.m	Sample		OP81404,SQ1630,10,,,10,1,water	✓
17	Q71901.d	Vial 22	fa77117-2	Perchlorate2.m	Sample		OP81404,SQ1630,10,,,10,1,water	✓
18	Q71902.d	Vial 23	fa77117-3	Perchlorate2.m	Sample		OP81404,SQ1630,10,,,10,1,water	✓
19	Q71903.d	Vial 5	CC1629-2.0	Perchlorate2.m	QC	0.2/10	OP81404,SQ1630,10,,,10,1,water	pass
20	Q71904.d	Vial 2	ECC1629-0.2	Perchlorate2.m	QC	0.02/10	OP81404,SQ1630,10,,,10,1,water	pass
21	Q71905.d	Vial 1	iblk	Perchlorate2.m	Sample		OP81404,SQ1630,10,,,10,1,water	bdl

SGS - ORLANDO

LIQUID SAMPLE PREP REPORT

Date/Time: 08-04-20 1200
Started {mm/dd/yy 24:00}

Date/Time: 08-04-20 1230
Finished {mm/dd/yy 24:00}

Prep Method: 3510C 3580A or Method (circle)

Analytical Method: 6850

Batch#: OP81404 Ext. By: NAS Conc. By: — Vialed By: NAS

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Surrogate Amount	Spike Amount	Final Volume (ml)	Comments
OP 81404 MB		10					10	
OP " BS		"				20ul	"	
FA77052-1	1	"				"	"	
-2	"	"				"	"	
-3	"	"				"	"	MS/MSD
-4	"	"				"	"	
-5	"	"				"	"	
FA77117-1	"	"				"	"	
-2	"	"				"	"	
-3	"	"				"	"	
					NAS	OB-04-20		
FA77052-3 MS	1	10				20ul	10	
-3 MSD	1	"				"	"	
DUP								

Comments:

Surr. ID: — Conc: — Exp. Date: — Inj. By: — Ver. By —

Spk. ID: LCMS1413 Conc: 100ppb Exp. Date: 08/02/20 Inj. By: NAS Ver. By NAS

Initial Bath Temp (Therm ID): —
Observed Temp °C: — Corr. Temp °C: —

Exchange Bath/N-Evap Temp (Therm ID): —
Observed Temp °C: — Corr. Temp °C: —

CH2CL2 Lot # — Hexane Lot # — Na2SO4 Lot# —

Acetonitrile Lot # — Methanol Lot # — Acetone Lot# —

Syringe Filter Lot# (vial) A12312-0629 pH Paper # — Reagent # —

Copper Lot # — If Sulfur Cleaning is performed in Extractions (3660B)

Relinquished By: — Date: 08 04-20

Accepted By: — Date: 08 04-20

ORLD-EXT-0001-1-06-FORM-extwater.xls 032718

GC/LC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- GC Identification Summaries (Explosives)
- Surrogate Recovery Summaries
- GC Surrogate Retention Time Summaries
- Initial and Continuing Calibration Summaries
- Run Sequence Reports

Method Blank Summary

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP81252-MB	BB068456.D	1	07/27/20	WH	07/27/20	OP81252	GBB2008

The QC reported here applies to the following samples: **Method:** SW846 8330B

FA77052-1, FA77052-2, FA77052-3, FA77052-4, FA77052-5

CAS No.	Compound	Result	RL	MDL	Units	Q
2691-41-0	HMX	ND	0.20	0.080	ug/l	
121-82-4	RDX	ND	0.20	0.080	ug/l	
	DNX	ND	0.20	0.080	ug/l	
	MNX	ND	0.20	0.080	ug/l	
	TNX	ND	0.20	0.080	ug/l	
618-87-1	3,5-Dinitroaniline	ND	0.20	0.080	ug/l	
99-65-0	1,3-Dinitrobenzene	ND	0.20	0.080	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	0.20	0.080	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	0.20	0.080	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	ND	0.20	0.080	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene	ND	0.20	0.080	ug/l	
98-95-3	Nitrobenzene	ND	0.20	0.097	ug/l	
88-72-2	o-Nitrotoluene	ND	0.20	0.080	ug/l	
99-08-1	m-Nitrotoluene	ND	0.20	0.080	ug/l	
99-99-0	p-Nitrotoluene	ND	0.20	0.080	ug/l	
479-45-8	Tetryl	ND	0.20	0.080	ug/l	
99-35-4	1,3,5-Trinitrobenzene	ND	0.20	0.099	ug/l	
118-96-7	2,4,6-Trinitrotoluene	ND	0.20	0.080	ug/l	
55-63-0	Nitroglycerine	ND	2.0	0.50	ug/l	
78-11-5	PETN	ND	2.0	0.50	ug/l	

CAS No.	Surrogate Recoveries		Limits
610-39-9	3,4-Dinitrotoluene	73%	70-136%

Method Blank Summary

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP81252-MB	GG619138.D	1	07/29/20	WH	07/27/20	OP81252	GGG2858

The QC reported here applies to the following samples: **Method:** SW846 8330B

FA77052-1, FA77052-2, FA77052-3, FA77052-4, FA77052-5

CAS No.	Compound	Result	RL	MDL	Units	Q
2691-41-0	HMX	ND	0.20	0.080	ug/l	
121-82-4	RDX	ND	0.20	0.080	ug/l	
	DNX	ND	0.20	0.080	ug/l	
	MNX	ND	0.20	0.080	ug/l	
	TNX	ND	0.20	0.080	ug/l	
618-87-1	3,5-Dinitroaniline	ND	0.20	0.080	ug/l	
99-65-0	1,3-Dinitrobenzene	ND	0.20	0.080	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	0.20	0.080	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	0.20	0.080	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	ND	0.20	0.080	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene	ND	0.20	0.080	ug/l	
98-95-3	Nitrobenzene	ND	0.20	0.097	ug/l	
88-72-2	o-Nitrotoluene	ND	0.20	0.080	ug/l	
99-08-1	m-Nitrotoluene	ND	0.20	0.080	ug/l	
99-99-0	p-Nitrotoluene	ND	0.20	0.080	ug/l	
479-45-8	Tetryl	ND	0.20	0.080	ug/l	
99-35-4	1,3,5-Trinitrobenzene	ND	0.20	0.099	ug/l	
118-96-7	2,4,6-Trinitrotoluene	ND	0.20	0.080	ug/l	
55-63-0	Nitroglycerine	ND	2.0	0.50	ug/l	
78-11-5	PETN	ND	2.0	0.50	ug/l	

CAS No.	Surrogate Recoveries		Limits
610-39-9	3,4-Dinitrotoluene	75%	70-136%

Blank Spike Summary

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP81252-BS	BB068455.D	1	07/27/20	WH	07/27/20	OP81252	GBB2008

The QC reported here applies to the following samples: **Method:** SW846 8330B

FA77052-1, FA77052-2, FA77052-3, FA77052-4, FA77052-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
2691-41-0	HMX	5	5.4	108	77-144
121-82-4	RDX	5	4.9	98	77-125
	DNX	5	5.9	118	66-127
	MNX	5	4.8	96	71-137
	TNX	5	3.7	74	60-126
618-87-1	3,5-Dinitroaniline	5	5.2	104	77-115
99-65-0	1,3-Dinitrobenzene	5	5.0	100	79-122
606-20-2	2,6-Dinitrotoluene	5	5.2	104	81-131
121-14-2	2,4-Dinitrotoluene	5	5.0	100	80-123
35572-78-2	2-amino-4,6-Dinitrotoluene	5	5.1	102	81-120
19406-51-0	4-amino-2,6-Dinitrotoluene	5	4.9	98	79-119
98-95-3	Nitrobenzene	5	5.0	100	78-130
88-72-2	o-Nitrotoluene	5	4.8	96	76-131
99-08-1	m-Nitrotoluene	5	4.8	96	78-122
99-99-0	p-Nitrotoluene	5	5.0	100	79-124
479-45-8	Tetryl	5	3.8	76	65-124
99-35-4	1,3,5-Trinitrobenzene	5	4.6	92	79-128
118-96-7	2,4,6-Trinitrotoluene	5	4.7	94	72-112
55-63-0	Nitroglycerine	5	5.4	108	69-123
78-11-5	PETN	5	5.5	110	73-145

CAS No.	Surrogate Recoveries	BSP	Limits
610-39-9	3,4-Dinitrotoluene	111%	70-136%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP81252-MS	BB068462.D	1	07/27/20	WH	07/27/20	OP81252	GBB2008
OP81252-MSD	BB068463.D	1	07/28/20	WH	07/27/20	OP81252	GBB2008
FA77052-3 [a]	BB068459.D	1	07/27/20	WH	07/27/20	OP81252	GBB2008
FA77052-3 [b]	GG619141.D	1	07/29/20	WH	07/27/20	OP81252	GGG2858

The QC reported here applies to the following samples: **Method:** SW846 8330B

FA77052-1, FA77052-2, FA77052-3, FA77052-4, FA77052-5

CAS No.	Compound	FA77052-3 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
2691-41-0	HMX	12.2		10	21.2	90	10	23.0	108	8	77-144/21
121-82-4	RDX	0.20 U		10	9.0	90	10	9.6	96	6	77-125/19
	DNX	0.20 U		10	12.3	123	10	13.1	131*	6	66-127/25
	MNX	0.20 U		10	9.4	94	10	10.2	102	8	71-137/20
	TNX	0.20 U		10	8.7	87	10	9.2	92	6	60-126/18
618-87-1	3,5-Dinitroaniline	0.23		10	9.1	89	10	9.9	97	8	77-115/19
99-65-0	1,3-Dinitrobenzene	0.20 U		10	8.6	86	10	9.3	93	8	79-122/17
606-20-2	2,6-Dinitrotoluene	0.20 U		10	9.2	92	10	9.8	98	6	81-131/17
121-14-2	2,4-Dinitrotoluene	0.20 U		10	8.5	85	10	8.7	87	2	80-123/19
35572-78-2	2-amino-4,6-Dinitrotoluene	3.6		10	12.1	85	10	13.2	96	9	81-120/19
19406-51-0	4-amino-2,6-Dinitrotoluene	2.2		10	10.7	85	10	11.4	92	6	79-119/20
98-95-3	Nitrobenzene	0.20 U		10	8.5	85	10	9.0	90	6	78-130/19
88-72-2	o-Nitrotoluene	0.20 U		10	7.4	74*	10	8.4	84	13	76-131/20
99-08-1	m-Nitrotoluene	0.20 U		10	8.7	87	10	9.2	92	6	78-122/18
99-99-0	p-Nitrotoluene	0.20 U		10	8.4	84	10	9.1	91	8	79-124/18
479-45-8	Tetryl	0.20 U		10	6.5	65	10	7.0	70	7	65-124/20
99-35-4	1,3,5-Trinitrobenzene	5.9		10	13.3	74*	10	14.6	87	9	79-128/16
118-96-7	2,4,6-Trinitrotoluene	4.1		10	11.6	75	10	12.5	84	7	72-112/16
55-63-0	Nitroglycerine	2.0 U		10	9.1	91	10	9.7	97	6	69-123/18
78-11-5	PETN	2.0 U		10	10.2	102	10	10.2	102	0	73-145/18

CAS No.	Surrogate Recoveries	MS	MSD	FA77052-3	FA77052-3	Limits
610-39-9	3,4-Dinitrotoluene	100%	101%	106%	124%	70-136%

(a) All hits confirmed by dual column analysis.
(b) Confirmation run.

* = Outside of Control Limits.

GC Identification Summary (Explosives)

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample ID:	FA77052-1	**Method:**	SW846 8330B
Client ID:	54MW13		

Injection Type	Lab File ID	Dilution	Prep Batch	Inst Batch	Injection Time	Inst ID
Reportable	BB068457.D	1	OP81252	GBB2008	07/27/20 21:21	GCBB
Confirmation	GG619139.D	1	OP81252	GGG2858	07/29/20 14:33	GCGG

Compound	Lab File ID	Dilution	Sig#	Conc	Q	Units	RPD Conc
HMX	BB068457.D	1	1	2.7		ug/l	11.8
HMX	GG619139.D	1	1	2.4		ug/l	
RDX [a]	BB068457.D	1	1	.43		ug/l	49.1
RDX	GG619139.D	1	1	.71		ug/l	
3,5-Dinitroaniline [a]	BB068457.D	1	1	.33		ug/l	107.7
3,5-Dinitroaniline	GG619139.D	1	1	1.1		ug/l	
2-amino-4,6-Dinitrotoluene	BB068457.D	1	1	.92		ug/l	1.1
2-amino-4,6-Dinitrotoluene	GG619139.D	1	1	.91		ug/l	
4-amino-2,6-Dinitrotoluene [a]	BB068457.D	1	1	.8		ug/l	60.2
4-amino-2,6-Dinitrotoluene	GG619139.D	1	1	.43		ug/l	
1,3,5-Trinitrobenzene	BB068457.D	1	1	5.6		ug/l	3.6
1,3,5-Trinitrobenzene	GG619139.D	1	1	5.4		ug/l	
2,4,6-Trinitrotoluene	BB068457.D	1	1	8.3		ug/l	4.9
2,4,6-Trinitrotoluene	GG619139.D	1	1	7.9		ug/l	

(a) Primary and confirmation results differ by more than 40%.

GC Identification Summary (Explosives)

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample ID:	FA77052-2	**Method:**	SW846 8330B
Client ID:	54TW13		

Injection Type	Lab File ID	Dilution	Prep Batch	Inst Batch	Injection Time	Inst ID
Reportable	BB068458.D	1	OP81252	GBB2008	07/27/20 21:51	GCBB
Confirmation	GG619140.D	1	OP81252	GGG2858	07/29/20 15:02	GCGG

Compound	Lab File ID	Dilution	Sig#	Conc	Q	Units	RPD Conc
HMX [a]	BB068458.D	1	1	2.7		ug/l	68.3
HMX	GG619140.D	1	1	5.5		ug/l	
RDX	BB068458.D	1	1	.44		ug/l	10.8
RDX	GG619140.D	1	1	.49		ug/l	
3,5-Dinitroaniline [a]	BB068458.D	1	1	.35		ug/l	103.4
3,5-Dinitroaniline	GG619140.D	1	1	1.1		ug/l	
2-amino-4,6-Dinitrotoluene	BB068458.D	1	1	.97		ug/l	1.0
2-amino-4,6-Dinitrotoluene	GG619140.D	1	1	.96		ug/l	
4-amino-2,6-Dinitrotoluene [a]	BB068458.D	1	1	.86		ug/l	68.8
4-amino-2,6-Dinitrotoluene	GG619140.D	1	1	.42		ug/l	
1,3,5-Trinitrobenzene	BB068458.D	1	1	6.3		ug/l	1.6
1,3,5-Trinitrobenzene	GG619140.D	1	1	6.4		ug/l	
2,4,6-Trinitrotoluene	BB068458.D	1	1	9.5		ug/l	7.7
2,4,6-Trinitrotoluene	GG619140.D	1	1	8.8		ug/l	

(a) Primary and confirmation results differ by more than 40%.

GC Identification Summary (Explosives)

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample ID:	FA77052-3	**Method:**	SW846 8330B
Client ID:	54MW12		

Injection Type	Lab File ID	Dilution	Prep Batch	Inst Batch	Injection Time	Inst ID
Reportable	BB068459.D	1	OP81252	GBB2008	07/27/20 22:21	GCBB
Confirmation	GG619141.D	1	OP81252	GGG2858	07/29/20 15:32	GCGG

Compound	Lab File ID	Dilution	Sig#	Conc	Q	Units	RPD Conc
HMX	BB068459.D	1	1	12.2		ug/l	26.3
HMX	GG619141.D	1	1	15.9		ug/l	
3,5-Dinitroaniline [a]	BB068459.D	1	1	.23		ug/l	135.7
3,5-Dinitroaniline	GG619141.D	1	1	1.2		ug/l	
2-amino-4,6-Dinitrotoluene	BB068459.D	1	1	3.6		ug/l	11.8
2-amino-4,6-Dinitrotoluene	GG619141.D	1	1	3.2		ug/l	
4-amino-2,6-Dinitrotoluene [a]	BB068459.D	1	1	2.2		ug/l	58.8
4-amino-2,6-Dinitrotoluene	GG619141.D	1	1	1.2		ug/l	
1,3,5-Trinitrobenzene	BB068459.D	1	1	5.9		ug/l	7.0
1,3,5-Trinitrobenzene	GG619141.D	1	1	5.5		ug/l	
2,4,6-Trinitrotoluene	BB068459.D	1	1	4.1		ug/l	2.5
2,4,6-Trinitrotoluene	GG619141.D	1	1	4		ug/l	

(a) Primary and confirmation results differ by more than 40%.

Surrogate Recovery Summary

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Method: SW846 8330B **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 [a]
FA77052-1	GG619139.D	128
FA77052-1	BB068457.D	118
FA77052-2	GG619140.D	126
FA77052-2	BB068458.D	116
FA77052-3	GG619141.D	124
FA77052-3	BB068459.D	106
FA77052-4	BB068460.D	98
FA77052-5	BB068461.D	103
OP81252-BS	BB068455.D	111
OP81252-MB	BB068456.D	
OP81252-MB	GG619138.D	75
OP81252-MS	BB068462.D	100
OP81252-MSD	BB068463.D	101

Surrogate Compounds	Recovery Limits
S1 = 3,4-Dinitrotoluene	70-136%

(a) Recovery from GC signal #1

GC Surrogate Retention Time Summary

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Check Std:	GBB2008-CC2001	**Injection Date:**	07/27/20
Lab File ID:	BB068453.D	**Injection Time:**	19:21
Instrument ID:	GCBB	**Method:**	SW846 8330B

	S1 [a] RT	S1 [b] RT
Check Std	10.78	10.78

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT	S1 [b] RT
OP81252-BS	BB068455.D	07/27/20	20:21		10.73
OP81252-MB	BB068456.D	07/27/20	20:51	10.75	
FA77052-1	BB068457.D	07/27/20	21:21		10.74
FA77052-2	BB068458.D	07/27/20	21:51		10.74
FA77052-3	BB068459.D	07/27/20	22:21		10.73
FA77052-4	BB068460.D	07/27/20	22:50		10.74
FA77052-5	BB068461.D	07/27/20	23:20		10.74
OP81252-MS	BB068462.D	07/27/20	23:50		10.70
OP81252-MSD	BB068463.D	07/28/20	00:21		10.70
GBB2008-ECC200	BB068464.D	07/28/20	00:51	10.75	10.75

Surrogate Compounds

S1 = 3,4-Dinitrotoluene

(a) Retention time from GC signal #2
(b) Retention time from GC signal #1

GC Surrogate Retention Time Summary

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Check Std:	GGG2858-CC2769	**Injection Date:**	07/29/20
Lab File ID:	GG619137.D	**Injection Time:**	13:34
Instrument ID:	GCGG	**Method:**	SW846 8330B

	S1 [a] RT	S1 [b] RT
Check Std	13.26	13.27

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT	S1 [b] RT
OP81252-MB	GG619138.D	07/29/20	14:03		13.18
FA77052-1	GG619139.D	07/29/20	14:33		13.34
FA77052-2	GG619140.D	07/29/20	15:02		13.31
FA77052-3	GG619141.D	07/29/20	15:32		13.29
OP81189-MB	GG619142.D	07/29/20	16:01		13.34
ZZZZZZ	GG619143.D	07/29/20	16:30		13.31
ZZZZZZ	GG619144.D	07/29/20	17:00		13.36
ZZZZZZ	GG619145.D	07/29/20	17:29	13.19	
ZZZZZZ	GG619146.D	07/29/20	17:59		13.16
ZZZZZZ	GG619147.D	07/29/20	18:28		13.31

Surrogate Compounds

S1 = 3,4-Dinitrotoluene

(a) Retention time from GC signal #2
(b) Retention time from GC signal #1

Initial Calibration Summary

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GBB2001-ICC2001
Lab FileID: BB068181.D

Response Factor Report G1315B

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Jun 02 12:03:17 2020
Response via : Initial Calibration

Calibration Files
20 =BB068176.D 50 =BB068177.D 100 =BB068178.D 200 =BB068179.D
500 =BB068180.D 1000=BB068181.D 2500=BB068182.D 5000=BB068183.D

Compound	20	50	100	200	500	1000	2500	5000	Avg	%RSD
1) TNX	1.660	1.996	2.064	2.261	2.518	2.513	2.601	2.558	2.272 E3	14.91
2) HMX	1.183	1.318	1.278	1.425	1.675	1.627	1.678	1.639	1.478 E3	13.59
3) DNX	0.840	0.988	0.949	0.992	1.095	1.073	1.098	1.078	1.014 E3	8.88
4) MNX	2.185	2.239	2.209	2.172	2.124	2.117	2.179	2.141	2.171 E3	1.94
5) RDX	1.693	1.989	1.947	1.916	1.885	1.883	1.946	1.914	1.897 E3	4.72
6) 1,3,5-Trinit	3.967	4.356	4.212	4.145	4.186	4.097	4.301	4.238	4.188 E3	2.90
7) 1,3-Dinitrob	5.177	5.542	5.456	5.333	5.291	5.271	5.450	5.364	5.361 E3	2.20
8) 3,5-Dinitroa	4.004	4.172	4.119	4.007	3.998	3.983	4.121	4.063	4.058 E3	1.75
9) Nitrobenzene	3.128	3.066	3.188	3.098	3.097	3.110	3.217	3.172	3.135 E3	1.67
10) Nitroglyceri									0.000	-1.00
11) Tetryl	2.974	3.239	3.117	3.011	2.972	2.971	3.086	3.019	3.049 E3	3.08
12) 2,4,6-Trinit	3.853	3.949	3.818	3.728	3.698	3.704	3.839	3.791	3.798 E3	2.26
13) 2-Amino-4,6-	3.529	3.525	3.466	3.405	3.376	3.384	3.505	3.460	3.456 E3	1.79
14) 4-Amino-2,6-	2.559	2.648	2.546	2.472	2.453	2.462	2.544	2.507	2.524 E3	2.55
15) 3,4-Dinitrot	2.061	1.894	1.852	1.801	1.784	1.802	1.876	1.869	1.867 E3	4.71
16) 2,4-Dinitrot	4.477	4.812	4.769	4.676	4.634	4.664	4.831	4.768	4.704 E3	2.48
17) 2,6-Dinitrot	2.615	2.800	2.783	2.737	2.677	2.713	2.800	2.767	2.736 E3	2.39
18) o-Nitrotolue	2.153	2.259	2.317	2.233	2.209	2.213	2.311	2.263	2.245 E3	2.45
19) p-Nitrotolue	3.448	3.535	3.514	3.438	3.393	3.404	3.533	3.473	3.467 E3	1.61
20) m-Nitrotolue	3.065	3.419	3.345	3.301	3.324	3.328	3.449	3.391	3.328 E3	3.54
21) PETN									0.000	-1.00

Signal #2

1) TNX	3.150	3.497	3.393	3.708	3.948	3.909	4.035	3.949	3.699 E3	8.65
2) HMX	3.035	3.768	3.791	4.076	4.679	4.430	4.578	4.437	4.099 E3	13.45
3) DNX	0.771	1.248	1.309	1.434	1.850	1.698	1.745	1.700	1.470 E3	24.27

---- Quadratic regr., Force(0,0) ---- Coefficient = 0.9998
Response Ratio = 0.00000 + 1763.70993 *A + -0.01252 *A^2

4) MNX	3.117	3.310	3.265	3.240	3.387	3.288	3.359	3.294	3.283 E3	2.50
5) RDX	2.601	3.051	3.101	3.100	3.077	3.043	3.114	3.056	3.018 E3	5.65
6) 1,3,5-Trinit	7.735	8.225	8.143	7.980	7.653	7.803	8.248	8.200	7.998 E3	3.00
7) 1,3-Dinitrob	3.394	3.576	3.664	3.582	3.818	3.677	3.731	3.662	3.638 E3	3.45
8) 3,5-Dinitroa	6.909	6.974	7.101	6.800	6.950	6.833	6.952	6.809	6.916 E3	1.46
9) Nitrobenzene	3.171	3.187	3.220	3.120	3.037	3.065	3.166	3.124	3.136 E3	1.98
10) Nitroglyceri	1.272	1.250	1.255	1.213	1.244	1.235	1.276	1.250	1.249 E3	1.60
11) Tetryl	4.893	5.012	4.945	4.828	4.846	4.823	5.011	4.901	4.907 E3	1.55
12) 2,4,6-Trinit	4.302	4.508	4.477	4.454	4.485	4.487	4.661	4.612	4.498 E3	2.39
13) 2-Amino-4,6-	4.968	5.162	5.151	5.094	5.111	5.114	5.308	5.241	5.144 E3	1.97
14) 4-Amino-2,6-	4.491	5.025	4.978	4.919	4.963	4.969	5.149	5.075	4.946 E3	4.00
15) 3,4-Dinitrot	2.772	3.103	3.146	3.174	3.216	3.236	3.388	3.375	3.176 E3	6.06
16) 2,4-Dinitrot	2.222	2.923	3.007	2.997	3.087	3.099	3.228	3.188	2.969 E3	10.72
17) 2,6-Dinitrot	2.715	3.340	3.559	3.480	3.560	3.555	3.691	3.645	3.443 E3	9.08
18) o-Nitrotolue	3.169	3.148	3.199	3.206	3.148	3.259	3.356	3.232	3.215 E3	2.15
19) p-Nitrotolue	2.672	2.642	2.750	2.946	2.962	2.966	3.086	3.037	2.883 E3	5.89
20) m-Nitrotolue	2.663	3.059	3.526	3.691	3.909	3.999	4.218	4.132	3.650 E3	14.95

Initial Calibration Summary

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GBB2001-ICC2001
Lab FileID: BB068181.D

```
21) PETN         1.507 1.151 1.186 1.259 1.389 1.400 1.451 1.419 1.345 E3   9.66
-------------------------------------------------------------------------------
(#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          8330B_060120_PLUS.M        Tue Jun 02 13:37:57 2020
```

Initial Calibration Verification

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GBB2001-ICV2001
Lab FileID: BB068184.D

Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068184.D\dad1B.ch Vial: 10
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068184.D\dad1A.ch
Acq On : 01-Jun-2020, 21:04:02 Operator: williamh
Sample : icv2001-1000 Inst : G1315B
Misc : op80309,GBB2001,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Jun 02 12:03:17 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT Window
1	TNX	1000.000	1142.044	-14.2	103	0.00	1.04- 1.64
2	HMX	1000.000	1107.219	-10.7	101	0.00	1.17- 1.77
3	DNX	1000.000	1043.801	-4.4	99	0.00	1.41- 2.01
4	MNX	1000.000	1038.027	-3.8	106	0.00	1.99- 2.59
5	RDX	1000.000	1047.367	-4.7	105	0.00	2.50- 3.30
6	1,3,5-Trinitrobenzene	1000.000	975.162	2.5	100	0.00	4.24- 5.04
7	1,3-Dinitrobenzene	1000.000	1021.950	-2.2	104	0.00	5.41- 6.21
8	3,5-Dinitroaniline	1000.000	1020.581	-2.1	104	0.00	5.78- 6.58
9	Nitrobenzene	1000.000	1029.429	-2.9	104	0.00	6.90- 7.70
10	Nitroglycerin	----------	NA	----------			
11	Tetryl	1000.000	999.721	0.0	103	0.02	8.78- 9.58
12	2,4,6-Trinitrotoluene	1000.000	1059.790	-6.0	109	0.02	9.22-10.02
13	2-Amino-4,6-Dinitrotol	1000.000	1002.459	-0.2	102	0.02	9.59-10.39
14	4-Amino-2,6-Dinitrotol	1000.000	1016.102	-1.6	104	0.02	10.05-10.85
15 S	3,4-Dinitrotoluene	----------	NA	----------			
16	2,4-Dinitrotoluene	1000.000	1033.570	-3.4	104	0.02	11.11-11.91
17	2,6-Dinitrotoluene	1000.000	1041.458	-4.1	105	0.02	11.55-12.35
18	o-Nitrotoluene	1000.000	1045.792	-4.6	106	0.02	14.58-15.46
19	p-Nitrotoluene	1000.000	1028.804	-2.9	105	0.02	15.03-16.03
20	m-Nitrotoluene	1000.000	1034.485	-3.4	103	0.01	15.91-16.91
21	PETN	----------	NA	----------			

***** Signal #2 *****

1	TNX	1000.000	1092.279	-9.2	103	0.00	1.04- 1.64
2	HMX	1000.000	1093.962	-9.4	101	0.00	1.17- 1.77
	----------	Amount	Calc.	%Drift	----------		
3	DNX	1000.000	982.130	1.8	101	0.00	1.41- 2.01
	----------	Amount	Calc.	%Drift	----------		
4	MNX	1000.000	1066.353	-6.6	106	0.00	1.99- 2.59
5	RDX	1000.000	1069.245	-6.9	106	0.00	2.50- 3.30
6	1,3,5-Trinitrobenzene	1000.000	969.652	3.0	99	0.00	4.24- 5.04
7	1,3-Dinitrobenzene	1000.000	1040.753	-4.1	103	0.00	5.41- 6.21
8	3,5-Dinitroaniline	1000.000	1025.724	-2.6	104	0.00	5.78- 6.58
9	Nitrobenzene	1000.000	1012.545	-1.3	104	0.00	6.90- 7.70
10	Nitroglycerin	1000.000	1131.917	-13.2	114	0.02	8.29- 9.29
11	Tetryl	1000.000	1011.652	-1.2	103	0.02	8.78- 9.58
12	2,4,6-Trinitrotoluene	1000.000	1094.082	-9.4	110	0.02	9.22-10.02
13	2-Amino-4,6-Dinitrotol	1000.000	1021.530	-2.2	103	0.02	9.59-10.39

Initial Calibration Verification

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GBB2001-ICV2001
Lab FileID: BB068184.D

14		4-Amino-2,6-Dinitrotol	1000.000	1044.431	-4.4	104	0.02	10.05-10.85
15	S	3,4-Dinitrotoluene		----------NA----------				
16		2,4-Dinitrotoluene	1000.000	1100.080	-10.0	105	0.02	11.12-11.92
17		2,6-Dinitrotoluene	1000.000	1092.978	-9.3	106	0.02	11.56-12.36
18		o-Nitrotoluene	1000.000	1048.065	-4.8	103	0.02	14.45-15.45
19		p-Nitrotoluene	1000.000	1092.479	-9.2	106	0.02	15.03-16.03
20		m-Nitrotoluene	1000.000	1086.305	-8.6	99	0.02	15.91-16.91
21		PETN	1000.000	1114.167	-11.4	107	0.00	17.66-18.86

(#) = Out of Range SPCC's out = 0 CCC's out = 0
BB068181.D 8330B_060120_PLUS.M Tue Jun 02 13:37:40 2020

Continuing Calibration Summary

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GBB2008-CC2001
Lab FileID: BB068453.D

Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068453.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068453.D\dad1A.ch
Acq On : 27-Jul-2020, 19:21:08 Operator: williamh
Sample : cc2001-1000 Inst : G1315B
Misc : op81252,GBB2008,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT Window
1	TNX	1000.000	1009.766	-1.0	91	0.00	1.03- 1.63
2	HMX	1000.000	1077.557	-7.8	98	0.00	1.17- 1.77
3	DNX	1000.000	983.534	1.6	93	0.00	1.41- 2.01
4	MNX	1000.000	946.361	5.4	97	0.00	1.98- 2.58
5	RDX	1000.000	967.403	3.3	97	0.00	2.49- 3.29
6	1,3,5-Trinitrobenzene	1000.000	939.116	6.1	96	0.00	4.25- 5.05
7	1,3-Dinitrobenzene	1000.000	957.105	4.3	97	0.00	5.40- 6.20
8	3,5-Dinitroaniline	1000.000	950.105	5.0	97	-0.01	5.77- 6.57
9	Nitrobenzene	1000.000	955.022	4.5	96	0.00	6.87- 7.67
10	Nitroglycerin	----------	NA	----------			
11	Tetryl	1000.000	820.990	17.9	84	-0.02	8.76- 9.56
12	2,4,6-Trinitrotoluene	1000.000	928.216	7.2	95	-0.02	9.20-10.00
13	2-Amino-4,6-Dinitrotol	1000.000	958.598	4.1	98	-0.03	9.55-10.35
14	4-Amino-2,6-Dinitrotol	1000.000	942.543	5.7	97	-0.03	9.99-10.79
15 S	3,4-Dinitrotoluene	1000.000	1049.651	-5.0	109	-0.03	10.40-11.20
16	2,4-Dinitrotoluene	1000.000	954.543	4.5	96	-0.03	11.06-11.86
17	2,6-Dinitrotoluene	1000.000	980.853	1.9	99	-0.02	11.48-12.28
18	o-Nitrotoluene	1000.000	907.795	9.2	92	-0.02	14.48-15.36
19	p-Nitrotoluene	1000.000	947.031	5.3	96	-0.03	14.95-15.95
20	m-Nitrotoluene	1000.000	956.876	4.3	96	-0.02	15.83-16.83
21	PETN	----------	NA	----------			

***** Signal #2 *****

1	TNX	1000.000	963.658	3.6	91	0.00	1.03- 1.63
2	HMX	1000.000	1048.597	-4.9	97	0.00	1.17- 1.77
	----------	Amount	Calc.	%Drift	----------		
3	DNX	1000.000	904.735	9.5	93	0.00	1.41- 2.01
	----------	Amount	Calc.	%Drift	----------		
4	MNX	1000.000	975.746	2.4	97	0.00	1.98- 2.58
5	RDX	1000.000	992.365	0.8	98	0.00	2.49- 3.29
6	1,3,5-Trinitrobenzene	1000.000	908.260	9.2	93	0.00	4.25- 5.05
7	1,3-Dinitrobenzene	1000.000	989.300	1.1	98	0.00	5.40- 6.20
8	3,5-Dinitroaniline	1000.000	965.632	3.4	98	-0.01	5.77- 6.57
9	Nitrobenzene	1000.000	939.451	6.1	96	0.00	6.87- 7.67
10	Nitroglycerin	1000.000	950.194	5.0	96	0.00	8.23- 9.23
11	Tetryl	1000.000	818.564	18.1	83	-0.02	8.76- 9.56
12	2,4,6-Trinitrotoluene	1000.000	945.349	5.5	95	-0.02	9.20-10.00
13	2-Amino-4,6-Dinitrotol	1000.000	969.173	3.1	97	-0.03	9.55-10.35

Continuing Calibration Summary

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GBB2008-CC2001
Lab FileID: BB068453.D

14		4-Amino-2,6-Dinitrotol	1000.000	966.456	3.4	96	-0.03	9.99-10.79
15	S	3,4-Dinitrotoluene	1000.000	1094.734	-9.5	107	-0.03	10.40-11.20
16		2,4-Dinitrotoluene	1000.000	965.528	3.4	92	-0.02	11.06-11.86
17		2,6-Dinitrotoluene	1000.000	1013.582	-1.4	98	-0.02	11.48-12.28
18		o-Nitrotoluene	1000.000	951.706	4.8	94	-0.02	14.36-15.36
19		p-Nitrotoluene	1000.000	999.305	0.1	97	-0.02	14.95-15.95
20		m-Nitrotoluene	1000.000	1001.981	-0.2	91	-0.02	15.83-16.83
21		PETN	1000.000	998.013	0.2	96	0.00	17.64-18.84

(#) = Out of Range SPCC's out = 0 CCC's out = 0
BB068181.D 8330B_060120_PLUS.M Tue Jul 28 15:21:09 2020

8.7.3

8

Continuing Calibration Summary

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GBB2008-ECC2001
Lab FileID: BB068464.D

Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068464.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068464.D\dad1A.ch
Acq On : 28-Jul-2020, 00:51:00 Operator: williamh
Sample : ecc2001-1000 Inst : G1315B
Misc : op81252,GBB2008,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT Window
1	TNX	1000.000	1011.198	-1.1	91	0.00	1.03- 1.63
2	HMX	1000.000	1093.700	-9.4	99	0.00	1.17- 1.77
3	DNX	1000.000	989.893	1.0	94	0.00	1.41- 2.01
4	MNX	1000.000	937.545	6.2	96	0.00	1.98- 2.58
5	RDX	1000.000	965.423	3.5	97	-0.01	2.49- 3.29
6	1,3,5-Trinitrobenzene	1000.000	929.205	7.1	95	-0.01	4.25- 5.05
7	1,3-Dinitrobenzene	1000.000	954.042	4.6	97	-0.02	5.40- 6.20
8	3,5-Dinitroaniline	1000.000	951.438	4.9	97	-0.03	5.77- 6.57
9	Nitrobenzene	1000.000	952.117	4.8	96	-0.02	6.87- 7.67
10	Nitroglycerin	----------	NA	----------			
11	Tetryl	1000.000	807.157	19.3	83	-0.04	8.76- 9.56
12	2,4,6-Trinitrotoluene	1000.000	919.526	8.0	94	-0.03	9.20-10.00
13	2-Amino-4,6-Dinitrotol	1000.000	955.529	4.4	98	-0.06	9.55-10.35
14	4-Amino-2,6-Dinitrotol	1000.000	937.721	6.2	96	-0.06	9.99-10.79
15 S	3,4-Dinitrotoluene	1000.000	1038.784	-3.9	108	-0.05	10.40-11.20
16	2,4-Dinitrotoluene	1000.000	951.479	4.9	96	-0.05	11.06-11.86
17	2,6-Dinitrotoluene	1000.000	974.944	2.5	98	-0.05	11.48-12.28
18	o-Nitrotoluene	1000.000	901.779	9.8	91	-0.05	14.48-15.36
19	p-Nitrotoluene	1000.000	942.814	5.7	96	-0.05	14.95-15.95
20	m-Nitrotoluene	1000.000	952.268	4.8	95	-0.05	15.83-16.83
21	PETN	----------	NA	----------			

***** Signal #2 *****

1	TNX	1000.000	962.956	3.7	91	0.00	1.03- 1.63
2	HMX	1000.000	1070.437	-7.0	99	0.00	1.17- 1.77

		---------- Amount	Calc.	%Drift	----------		
3	DNX	1000.000	929.163	7.1	96	0.00	1.41- 2.01

		---------- Amount	Calc.	%Drift	----------		
4	MNX	1000.000	965.308	3.5	96	0.00	1.98- 2.58
5	RDX	1000.000	981.735	1.8	97	-0.01	2.49- 3.29
6	1,3,5-Trinitrobenzene	1000.000	906.537	9.3	93	-0.01	4.25- 5.05
7	1,3-Dinitrobenzene	1000.000	979.236	2.1	97	-0.02	5.40- 6.20
8	3,5-Dinitroaniline	1000.000	962.831	3.7	97	-0.03	5.77- 6.57
9	Nitrobenzene	1000.000	931.501	6.8	95	-0.02	6.87- 7.67
10	Nitroglycerin	1000.000	917.130	8.3	93	-0.01	8.23- 9.23
11	Tetryl	1000.000	803.373	19.7	82	-0.04	8.76- 9.56
12	2,4,6-Trinitrotoluene	1000.000	932.702	6.7	94	-0.03	9.20-10.00
13	2-Amino-4,6-Dinitrotol	1000.000	967.498	3.3	97	-0.06	9.55-10.35

Continuing Calibration Summary

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GBB2008-ECC2001
Lab FileID: BB068464.D

14		4-Amino-2,6-Dinitrotol	1000.000	961.997	3.8	96	-0.06	9.99-10.79
15	S	3,4-Dinitrotoluene	1000.000	1082.573	-8.3	106	-0.05	10.40-11.20
16		2,4-Dinitrotoluene	1000.000	957.757	4.2	92	-0.05	11.06-11.86
17		2,6-Dinitrotoluene	1000.000	1014.925	-1.5	98	-0.05	11.48-12.28
18		o-Nitrotoluene	1000.000	948.965	5.1	94	-0.05	14.36-15.36
19		p-Nitrotoluene	1000.000	1003.988	-0.4	98	-0.05	14.95-15.95
20		m-Nitrotoluene	1000.000	1003.214	-0.3	92	-0.05	15.83-16.83
21		PETN	1000.000	1008.509	-0.9	97	-0.01	17.64-18.84

(#) = Out of Range SPCC's out = 0 CCC's out = 0
BB068181.D 8330B_060120_PLUS.M Tue Jul 28 15:21:10 2020

Initial Calibration Summary

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GGG2769-ICC2769
Lab FileID: GG617752.D

Response Factor Report G1315B

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 15:51:18 2019
Response via : Initial Calibration

Calibration Files
20 =GG617747.D 50 =GG617748.D 100 =GG617749.D 200 =GG617750.D
500 =GG617751.D 1000=GG617752.D 2500=GG617753.D 5000=GG617754.D

Compound	20	50	100	200	500	1000	2500	5000	Avg	%RSD
1) TNX	1.090	0.567	0.627	0.595	0.598	0.602	0.618	0.604	0.663 E4	26.21
---- Quadratic regr., Force(0,0) ---- Coefficient = 0.9999										
Response Ratio = 0.00000 + 6202.12639 *A + -0.03160 *A^2										
2) HMX	3.834	2.496	3.035	2.806	2.719	3.026	2.990	2.931	2.980 E3	13.12
3) DNX	7.384	4.212	4.785	4.214	4.184	4.047	4.321	4.153	4.663 E3	24.06
---- Quadratic regr., Force(0,0) ---- Coefficient = 0.9997										
Response Ratio = 0.00000 + 4333.59625 *A + -0.03462 *A^2										
4) MNX	3.829	4.429	5.498	5.552	5.623	5.735	5.854	5.780	5.288 E3	14.03
5) 1,3,5-Trinit	1.020	0.967	1.069	1.037	1.033	1.043	1.058	1.046	1.034 E4	3.00
6) RDX	4.787	4.788	5.136	5.268	5.146	5.160	5.189	5.085	5.070 E3	3.58
7) 1,3-Dinitrob	1.351	1.340	1.497	1.400	1.385	1.399	1.413	1.396	1.398 E4	3.38
8) Nitrobenzene	9.226	8.494	9.395	8.804	8.737	8.836	8.904	8.831	8.904 E3	3.18
9) 2,4,6-Trinit	1.020	0.934	1.096	1.022	1.018	1.025	1.033	1.011	1.020 E4	4.30
10) Nitroglyceri									0.000	-1.00
11) Tetryl	6.250	6.856	8.642	7.770	7.905	7.927	8.059	7.836	7.656 E3	9.79
12) 3,4-Dinitrot	4.231	4.332	4.810	4.488	4.563	4.591	4.571	4.539	4.515 E3	3.87
13) 2,6-Dinitrot	6.796	6.590	7.679	7.285	7.241	7.352	7.470	7.339	7.219 E3	4.93
14) 2,4-Dinitrot	1.203	1.143	1.329	1.286	1.273	1.291	1.307	1.283	1.265 E4	4.84
15) o-Nitrotolue	4.848	4.544	6.419	6.171	6.103	6.202	6.233	6.005	5.816 E3	12.13
16) 3,5-Dinitroa	0.842	0.938	1.099	1.046	1.049	1.053	1.074	1.060	1.020 E4	8.42
17) p-Nitrotolue	1.096	1.037	1.221	1.174	1.176	1.189	1.207	1.178	1.160 E4	5.33
18) 4-Amino-2,6-	1.069	1.037	1.221	1.174	1.176	1.189	1.207	1.178	1.156 E4	5.74
19) m-Nitrotolue	5.524	5.089	6.330	5.944	5.883	5.955	6.038	5.897	5.833 E3	6.39
20) 2-Amino-4,6-	0.888	0.781	1.024	1.003	0.987	1.000	1.015	0.977	0.960 E4	8.70
21) PETN									0.000	-1.00

Signal #2

1) TNX	1.090	0.571	0.627	0.597	0.595	0.600	0.618	0.604	0.663 E4	26.17
---- Quadratic regr., Force(0,0) ---- Coefficient = 0.9999										
Response Ratio = 0.00000 + 6194.64751 *A + -0.03004 *A^2										
2) HMX	3.693	2.602	3.068	2.854	2.826	3.028	2.990	2.931	2.999 E3	10.55
3) DNX	7.474	4.184	4.889	4.312	4.279	4.063	4.321	4.153	4.709 E3	24.31
---- Quadratic regr., Force(0,0) ---- Coefficient = 0.9997										
Response Ratio = 0.00000 + 4350.00063 *A + -0.03808 *A^2										
4) MNX	3.921	4.420	5.498	5.552	5.623	5.735	5.854	5.780	5.298 E3	13.55
5) 1,3,5-Trinit	1.020	0.967	1.069	1.037	1.033	1.043	1.058	1.046	1.034 E4	3.00
6) RDX	4.787	4.788	5.136	5.268	5.146	5.160	5.189	5.085	5.070 E3	3.58
7) 1,3-Dinitrob	0.883	1.110	1.035	1.044	1.096	1.064	1.072	1.050	1.044 E4	6.70
8) Nitrobenzene	8.764	9.364	8.424	8.090	7.900	8.512	8.398	8.260	8.464 E3	5.30
9) 2,4,6-Trinit	1.186	1.257	1.276	1.460	1.351	1.365	1.361	1.320	1.322 E4	6.27
10) Nitroglyceri			3.766	3.719	3.543	3.333	3.267	3.115	3.457 E3	7.54
11) Tetryl	1.611	1.083	1.444	1.506	1.352	1.423	1.457	1.394	1.409 E4	10.84

Initial Calibration Summary

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA
Sample: GGG2769-ICC2769
Lab FileID: GG617752.D

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12) 3,4-Dinitrot 8.357 6.861 8.685 8.668 8.891 9.056 9.049 9.141 8.588 E3   8.67
13) 2,6-Dinitrot 1.018 1.084 1.206 1.125 1.051 1.077 1.093 1.077 1.091 E4   5.10
            ---- Linear regr., Force(0,0) ----  Coefficient =  0.9999
              Response Ratio = 0.00000 + 10801.53993 *A

14) 2,4-Dinitrot 1.041 0.922 0.797 0.842 0.827 0.883 0.914 0.909 0.892 E4   8.45
15) o-Nitrotolue 6.448 7.957 8.440 8.806 8.347 8.738 8.989 8.884 8.326 E3   9.97
16) 3,5-Dinitroa 1.569 1.678 1.615 1.616 1.642 1.681 1.736 1.743 1.660 E4   3.68
17) p-Nitrotolue 2.824 2.121 2.192 1.990 2.054 2.083 2.153 2.150 2.196 E4  11.91
18) 4-Amino-2,6- 2.824 1.927 2.192 1.990 2.054 2.083 2.153 2.150 2.172 E4  12.80
19) m-Nitrotolue 1.275 0.790 1.070 0.960 0.914 0.946 0.998 1.002 0.994 E4  14.03
20) 2-Amino-4,6- 1.755 1.340 1.389 1.299 1.291 1.344 1.406 1.401 1.403 E4  10.61
21) PETN                     2.339 2.597 2.462 3.079 3.454 3.480 2.902 E3  17.39
            ---- Quadratic regr., Force(0,0) ----  Coefficient =  0.9992
              Response Ratio = 0.00000 + 3195.99600 *A + 0.05906 *A^2

------------------------------------------------------------------------------
(#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          8330RPB.M_092519.M        Thu Sep 26 16:02:14 2019
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8.7.5

8

Initial Calibration Verification

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GGG2769-ICV2769
Lab FileID: GG617755.D

Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617755.D\dad1B.ch Vial: 10
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617755.D\dad1A.ch
Acq On : 26-Sep-2019, 00:25:58 Operator: williamh
Sample : icv2769-1000 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 15:51:18 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT Window
1	TNX	1000.000	996.081	0.4	102	0.02	4.46- 5.46
2	HMX	1000.000	980.590	1.9	97	0.02	4.87- 5.87
3	DNX	1000.000	957.975	4.2	102	0.02	4.98- 5.98
4	MNX	1000.000	1010.883	-1.1	93	0.03	5.82- 6.82
5	1,3,5-Trinitrobenzene	1000.000	918.511	8.1	91	0.04	6.63- 7.63
6	RDX	1000.000	975.924	2.4	96	0.05	7.05- 8.05
7	1,3-Dinitrobenzene	1000.000	954.196	4.6	95	0.05	9.00-10.00
8	Nitrobenzene	1000.000	968.207	3.2	98	0.06	9.91-10.91
9	2,4,6-Trinitrotoluene	1000.000	995.903	0.4	99	0.07	10.52-11.52
10	Nitroglycerin			NA			
11	Tetryl	1000.000	984.241	1.6	95	0.10	11.62-12.62
12 S	3,4-Dinitrotoluene			NA			
13	2,6-Dinitrotoluene	1000.000	873.993	12.6	86	0.12	13.38-14.38
14	2,4-Dinitrotoluene	1000.000	979.272	2.1	96	0.11	14.08-15.08
15	o-Nitrotoluene	1000.000	1054.033	-5.4	99	0.13	15.56-16.56
16	3,5-Dinitroaniline	1000.000	1041.817	-4.2	101	0.09	14.96-15.96
17	p-Nitrotoluene	1000.000	984.309	1.6	96	0.13	16.60-17.60
18	4-Amino-2,6-Dinitrotol	1000.000	987.195	1.3	96	0.13	16.60-17.60
19	m-Nitrotoluene	1000.000	1018.222	-1.8	100	0.14	17.83-18.83
20	2-Amino-4,6-Dinitrotol	1000.000	960.966	3.9	92	0.14	18.66-19.66
21	PETN			NA			

***** Signal #2 *****

		Amount	Calc.	%Drift			
1	TNX	1000.000	997.042	0.3	102	0.02	4.46- 5.46
2	HMX	1000.000	974.217	2.6	96	0.02	4.87- 5.87
3	DNX	1000.000	955.041	4.5	101	0.02	4.98- 5.98

8.7.6

8

Initial Calibration Verification

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GGG2769-ICV2769
Lab FileID: GG617755.D

			Amount	Calc.	%Drift			
4		MNX	1000.000	1008.886	-0.9	93	0.03	5.82- 6.82
5		1,3,5-Trinitrobenzene	1000.000	918.511	8.1	91	0.04	6.63- 7.63
6		RDX	1000.000	975.924	2.4	96	0.05	7.05- 8.05
7		1,3-Dinitrobenzene	1000.000	986.349	1.4	97	0.05	9.00-10.00
8		Nitrobenzene	1000.000	977.336	2.3	97	0.06	9.91-10.91
9		2,4,6-Trinitrotoluene	1000.000	1026.613	-2.7	99	0.07	10.52-11.52
10		Nitroglycerin	1000.000	999.345	0.1	104	0.09	11.15-12.15
11		Tetryl	1000.000	971.517	2.8	96	0.10	11.62-12.62

			Amount	Calc.	%Drift			
12	S	3,4-Dinitrotoluene	----------NA----------					

			Amount	Calc.	%Drift			
13		2,6-Dinitrotoluene	1000.000	844.042	15.6	85	0.12	13.38-14.38
14		2,4-Dinitrotoluene	1000.000	965.106	3.5	98	0.11	14.08-15.08
15		o-Nitrotoluene	1000.000	1006.127	-0.6	96	0.12	15.56-16.56
16		3,5-Dinitroaniline	1000.000	1029.620	-3.0	102	0.09	14.96-15.96
17		p-Nitrotoluene	1000.000	894.241	10.6	94	0.13	16.60-17.60
18		4-Amino-2,6-Dinitrotol	1000.000	904.219	9.6	94	0.13	16.60-17.60
19		m-Nitrotoluene	1000.000	934.998	6.5	98	0.14	17.83-18.83
20		2-Amino-4,6-Dinitrotol	1000.000	868.472	13.2	91	0.14	18.66-19.66

			Amount	Calc.	%Drift			
21		PETN	1000.000	815.859	18.4	86	0.19	19.78-20.78

(#) = Out of Range SPCC's out = 0 CCC's out = 0
GG617752.D 8330RPB.M_092519.M Thu Sep 26 16:02:40 2019

8.7.6

8

Continuing Calibration Summary

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GGG2858-CC2769
Lab FileID: GG619137.D

Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619137.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619137.D\dad1A.ch
Acq On : 29-Jul-2020, 13:34:23 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : op81252,GGG2858,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT Window
1		TNX	1000.000	1335.046	-33.5#	137	0.00	4.47- 5.47
2		HMX	1000.000	1073.362	-7.3	106	0.00	4.81- 5.81
3		DNX	1000.000	575.009	42.5#	61	0.00	4.99- 5.99
4		MNX	1000.000	895.235	10.5	83	0.00	5.78- 6.78
5		1,3,5-Trinitrobenzene	1000.000	887.418	11.3	88	0.00	6.50- 7.50
6		RDX	1000.000	868.592	13.1	85	0.00	6.93- 7.93
7		1,3-Dinitrobenzene	1000.000	947.694	5.2	95	0.00	8.83- 9.83
8		Nitrobenzene	1000.000	967.888	3.2	98	0.00	9.69-10.69
9		2,4,6-Trinitrotoluene	1000.000	914.813	8.5	91	0.00	10.22-11.22
10		Nitroglycerin	----------	NA	----------			
11		Tetryl	1000.000	1027.906	-2.8	99	0.00	11.25-12.25
12	S	3,4-Dinitrotoluene	1000.000	1197.793	-19.8#	118	0.00	12.76-13.76
13		2,6-Dinitrotoluene	1000.000	1002.349	-0.2	98	0.00	13.05-14.05
14		2,4-Dinitrotoluene	1000.000	1027.477	-2.7	101	0.00	13.70-14.70
15		o-Nitrotoluene	1000.000	1169.584	-17.0#	110	0.00	15.15-16.15
16		3,5-Dinitroaniline	1000.000	1146.666	-14.7	111	0.00	14.62-15.62
17		p-Nitrotoluene	1000.000	975.317	2.5	95	-0.03	16.24-17.24
18		4-Amino-2,6-Dinitrotol	1000.000	962.027	3.8	94	0.00	16.21-17.21
19		m-Nitrotoluene	1000.000	986.233	1.4	97	0.00	17.35-18.35
20		2-Amino-4,6-Dinitrotol	1000.000	976.735	2.3	94	0.00	18.31-19.31
21		PETN	----------	NA	----------			

***** Signal #2 *****

1		TNX	1000.000	1296.074	-29.6#	133	0.00	4.47- 5.47
2		HMX	1000.000	1086.720	-8.7	108	0.00	4.81- 5.81
3		DNX	1000.000	564.324	43.6#	60	0.00	4.99- 5.99

8.7.7

8

Continuing Calibration Summary

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GGG2858-CC2769
Lab FileID: GG619137.D

			Amount	Calc.	%Drift			
4		MNX	1000.000	881.991	11.8	81	0.00	5.79- 6.79
5		1,3,5-Trinitrobenzene	1000.000	887.418	11.3	88	0.00	6.50- 7.50
6		RDX	1000.000	896.401	10.4	88	0.00	6.94- 7.94
7		1,3-Dinitrobenzene	1000.000	972.944	2.7	95	0.00	8.83- 9.83
8		Nitrobenzene	1000.000	972.462	2.8	97	0.00	9.69-10.69
9		2,4,6-Trinitrotoluene	1000.000	927.946	7.2	90	0.00	10.22-11.22
10		Nitroglycerin	1000.000	897.414	10.3	93	0.00	10.83-11.83
11		Tetryl	1000.000	955.821	4.4	95	0.00	11.25-12.25

			Amount	Calc.	%Drift			
12	S	3,4-Dinitrotoluene	1000.000	1129.848	-13.0	112	0.00	12.76-13.76

			Amount	Calc.	%Drift			
13		2,6-Dinitrotoluene	1000.000	903.280	9.7	92	0.00	13.03-14.03
14		2,4-Dinitrotoluene	1000.000	987.581	1.2	100	0.00	13.70-14.70
15		o-Nitrotoluene	1000.000	1023.599	-2.4	98	0.00	15.14-16.14
16		3,5-Dinitroaniline	1000.000	1133.129	-13.3	112	0.00	14.62-15.62
17		p-Nitrotoluene	1000.000	972.808	2.7	103	0.00	16.23-17.23
18		4-Amino-2,6-Dinitrotol	1000.000	960.816	3.9	100	0.00	16.23-17.23
19		m-Nitrotoluene	1000.000	988.428	1.2	104	0.00	17.35-18.35
20		2-Amino-4,6-Dinitrotol	1000.000	873.862	12.6	91	0.00	18.30-19.30

			Amount	Calc.	%Drift			
21		PETN	1000.000	814.479	18.6#	86	0.00	18.99-19.99

(#) = Out of Range SPCC's out = 0 CCC's out = 0
GG617752.D 8330RPB.M_092519.M Thu Jul 30 15:07:20 2020

8.7.7

Continuing Calibration Summary

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GGG2858-CC2769
Lab FileID: GG619148.D

Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619148.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619148.D\dad1A.ch
Acq On : 29-Jul-2020, 18:58:10 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : op81189,GGG2858,1040,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT Window
1	TNX	1000.000	1053.242	-5.3	108	0.02	4.47- 5.47
2	HMX	1000.000	1135.687	-13.6	112	0.02	4.81- 5.81
3	DNX	1000.000	597.539	40.2#	64	0.01	4.99- 5.99
4	MNX	1000.000	905.260	9.5	83	0.03	5.78- 6.78
5	1,3,5-Trinitrobenzene	1000.000	947.927	5.2	94	0.04	6.50- 7.50
6	RDX	1000.000	887.184	11.3	87	0.05	6.93- 7.93
7	1,3-Dinitrobenzene	1000.000	939.082	6.1	94	0.06	8.83- 9.83
8	Nitrobenzene	1000.000	949.977	5.0	96	0.08	9.69-10.69
9	2,4,6-Trinitrotoluene	1000.000	902.933	9.7	90	0.08	10.22-11.22
10	Nitroglycerin	----------	NA	----------			
11	Tetryl	1000.000	944.698	5.5	91	0.08	11.25-12.25
12 S	3,4-Dinitrotoluene	1000.000	1120.480	-12.0	110	0.12	12.76-13.76
13	2,6-Dinitrotoluene	1000.000	909.077	9.1	89	0.10	13.05-14.05
14	2,4-Dinitrotoluene	1000.000	948.760	5.1	93	0.10	13.70-14.70
15	o-Nitrotoluene	1000.000	911.262	8.9	85	0.10	15.15-16.15
16	3,5-Dinitroaniline	1000.000	983.481	1.7	95	0.08	14.62-15.62
17	p-Nitrotoluene	1000.000	950.799	4.9	93	0.07	16.24-17.24
18	4-Amino-2,6-Dinitrotol	1000.000	953.587	4.6	93	0.10	16.21-17.21
19	m-Nitrotoluene	1000.000	1025.194	-2.5	100	0.08	17.35-18.35
20	2-Amino-4,6-Dinitrotol	1000.000	940.810	5.9	90	0.04	18.31-19.31
21	PETN	----------	NA	----------			

***** Signal #2 *****

		Amount	Calc.	%Drift			
1	TNX	1000.000	1054.244	-5.4	108	0.02	4.47- 5.47
2	HMX	1000.000	1149.750	-15.0	114	0.02	4.81- 5.81
3	DNX	1000.000	625.515	37.4#	67	0.01	4.99- 5.99

Continuing Calibration Summary

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GGG2858-CC2769
Lab FileID: GG619148.D

			Amount	Calc.	%Drift			
4		MNX	1000.000	908.890	9.1	84	0.02	5.79- 6.79
5		1,3,5-Trinitrobenzene	1000.000	947.927	5.2	94	0.04	6.50- 7.50
6		RDX	1000.000	887.184	11.3	87	0.04	6.94- 7.94
7		1,3-Dinitrobenzene	1000.000	952.734	4.7	93	0.06	8.83- 9.83
8		Nitrobenzene	1000.000	958.556	4.1	95	0.09	9.69-10.69
9		2,4,6-Trinitrotoluene	1000.000	943.558	5.6	91	0.08	10.22-11.22
10		Nitroglycerin	1000.000	872.042	12.8	90	0.08	10.83-11.83
11		Tetryl	1000.000	929.727	7.0	92	0.08	11.25-12.25

			Amount	Calc.	%Drift			
12	S	3,4-Dinitrotoluene	1000.000	1103.800	-10.4	110	0.11	12.76-13.76

			Amount	Calc.	%Drift			
13		2,6-Dinitrotoluene	1000.000	767.237	23.3#	78	0.11	13.03-14.03
14		2,4-Dinitrotoluene	1000.000	895.536	10.4	90	0.11	13.70-14.70
15		o-Nitrotoluene	1000.000	937.061	6.3	89	0.11	15.14-16.14
16		3,5-Dinitroaniline	1000.000	982.083	1.8	97	0.08	14.62-15.62
17		p-Nitrotoluene	1000.000	917.471	8.3	97	0.09	16.23-17.23
18		4-Amino-2,6-Dinitrotol	1000.000	927.708	7.2	97	0.09	16.23-17.23
19		m-Nitrotoluene	1000.000	1018.115	-1.8	107	0.08	17.35-18.35
20		2-Amino-4,6-Dinitrotol	1000.000	927.458	7.3	97	0.04	18.30-19.30

			Amount	Calc.	%Drift			
21		PETN	1000.000	1027.163	-2.7	109	0.08	18.99-19.99

(#) = Out of Range SPCC's out = 0 CCC's out = 0
GG617752.D 8330RPB.M_092519.M Thu Jul 30 15:07:21 2020

8.7.8

Run Sequence Report

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Run ID: GBB2001 **Method:** SW846 8330B **Instrument ID:** GCBB

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
GBB2001-IC2001	BB068176.D	06/01/20 17:04	n/a	Initial cal 20
GBB2001-IC2001	BB068177.D	06/01/20 17:34	n/a	Initial cal 50
GBB2001-IC2001	BB068178.D	06/01/20 18:04	n/a	Initial cal 100
GBB2001-IC2001	BB068179.D	06/01/20 18:34	n/a	Initial cal 200
GBB2001-IC2001	BB068180.D	06/01/20 19:04	n/a	Initial cal 500
GBB2001-ICC2001	BB068181.D	06/01/20 19:34	n/a	Initial cal 1000
GBB2001-IC2001	BB068182.D	06/01/20 20:04	n/a	Initial cal 2500
GBB2001-IC2001	BB068183.D	06/01/20 20:34	n/a	Initial cal 5000
GBB2001-ICV2001	BB068184.D	06/01/20 21:04	n/a	Initial cal verification 1000
ZZZZZZ	BB068186.D	06/01/20 22:03	OP80309	(unrelated sample)
ZZZZZZ	BB068187.D	06/01/20 22:33	OP80309	(unrelated sample)
ZZZZZZ	BB068188.D	06/01/20 23:03	OP80309	(unrelated sample)
ZZZZZZ	BB068189.D	06/01/20 23:33	OP80309	(unrelated sample)
ZZZZZZ	BB068190.D	06/02/20 00:03	OP80309	(unrelated sample)
ZZZZZZ	BB068191.D	06/02/20 00:33	OP80309	(unrelated sample)
ZZZZZZ	BB068192.D	06/02/20 01:03	OP80309	(unrelated sample)
GBB2001-ECC2001	BB068196.D	06/02/20 12:53	n/a	Ending cal 1000

Run Sequence Report

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Run ID: GBB2008	**Method:** SW846 8330B	**Instrument ID:** GCBB

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
GBB2008-CC2001	BB068453.D	07/27/20 19:21	n/a	Continuing cal 1000
OP81252-BS	BB068455.D	07/27/20 20:21	OP81252	Blank Spike
OP81252-MB	BB068456.D	07/27/20 20:51	OP81252	Method Blank
FA77052-1	BB068457.D	07/27/20 21:21	OP81252	54MW13
FA77052-2	BB068458.D	07/27/20 21:51	OP81252	54TW13
FA77052-3	BB068459.D	07/27/20 22:21	OP81252	54MW12
FA77052-4	BB068460.D	07/27/20 22:50	OP81252	54MW10
FA77052-5	BB068461.D	07/27/20 23:20	OP81252	54MW1
OP81252-MS	BB068462.D	07/27/20 23:50	OP81252	Matrix Spike
OP81252-MSD	BB068463.D	07/28/20 00:21	OP81252	Matrix Spike Duplicate
GBB2008-ECC2001	BB068464.D	07/28/20 00:51	n/a	Ending cal 1000

Run Sequence Report

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Run ID: GGG2769 **Method:** SW846 8330A **Instrument ID:** GCGG

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
GGG2769-IC2769	GG617747.D	09/25/19 20:30	n/a	Initial cal 20
GGG2769-IC2769	GG617748.D	09/25/19 20:59	n/a	Initial cal 50
GGG2769-IC2769	GG617749.D	09/25/19 21:29	n/a	Initial cal 100
GGG2769-IC2769	GG617750.D	09/25/19 21:58	n/a	Initial cal 200
GGG2769-IC2769	GG617751.D	09/25/19 22:28	n/a	Initial cal 500
GGG2769-ICC2769	GG617752.D	09/25/19 22:57	n/a	Initial cal 1000
GGG2769-IC2769	GG617753.D	09/25/19 23:27	n/a	Initial cal 2500
GGG2769-IC2769	GG617754.D	09/25/19 23:56	n/a	Initial cal 5000
GGG2769-ICV2769	GG617755.D	09/26/19 00:25	n/a	Initial cal verification 1000
OP76947-MB	GG617756.D	09/26/19 00:55	OP76947	Method Blank
ZZZZZZ	GG617757.D	09/26/19 01:24	OP76947	(unrelated sample)
ZZZZZZ	GG617758.D	09/26/19 01:54	OP76947	(unrelated sample)
ZZZZZZ	GG617759.D	09/26/19 02:23	OP76947	(unrelated sample)
ZZZZZZ	GG617760.D	09/26/19 02:53	OP76947	(unrelated sample)
ZZZZZZ	GG617761.D	09/26/19 03:22	OP76947	(unrelated sample)
ZZZZZZ	GG617762.D	09/26/19 03:51	OP76947	(unrelated sample)
ZZZZZZ	GG617763.D	09/26/19 04:21	OP76947	(unrelated sample)
ZZZZZZ	GG617764.D	09/26/19 04:50	OP76947	(unrelated sample)
ZZZZZZ	GG617765.D	09/26/19 05:20	OP76947	(unrelated sample)
GGG2769-ECC2769	GG617766.D	09/26/19 05:49	n/a	Ending cal 1000

Run Sequence Report

Job Number: FA77052
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Run ID: GGG2858	**Method:** SW846 8330A	**Instrument ID:** GCGG

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
GGG2858-CC2769	GG619137.D	07/29/20 13:34	n/a	Continuing cal 1000
OP81252-MB	GG619138.D	07/29/20 14:03	OP81252	Method Blank
FA77052-1	GG619139.D	07/29/20 14:33	OP81252	54MW13
FA77052-2	GG619140.D	07/29/20 15:02	OP81252	54TW13
FA77052-3	GG619141.D	07/29/20 15:32	OP81252	54MW12
OP81189-MB	GG619142.D	07/29/20 16:01	OP81189	Method Blank
ZZZZZZ	GG619143.D	07/29/20 16:30	OP81189	(unrelated sample)
ZZZZZZ	GG619144.D	07/29/20 17:00	OP81189	(unrelated sample)
ZZZZZZ	GG619145.D	07/29/20 17:29	OP81189	(unrelated sample)
ZZZZZZ	GG619146.D	07/29/20 17:59	OP81189	(unrelated sample)
ZZZZZZ	GG619147.D	07/29/20 18:28	OP81189	(unrelated sample)
GGG2858-CC2769	GG619148.D	07/29/20 18:58	n/a	Continuing cal 1000
OP81219-MB	GG619150.D	07/29/20 19:57	OP81219	Method Blank
ZZZZZZ	GG619151.D	07/29/20 20:26	OP81219	(unrelated sample)
OP81200-MB	GG619152.D	07/29/20 20:55	OP81200	Method Blank
ZZZZZZ	GG619153.D	07/29/20 21:25	OP81200	(unrelated sample)
ZZZZZZ	GG619154.D	07/29/20 21:54	OP81200	(unrelated sample)
ZZZZZZ	GG619155.D	07/29/20 22:24	OP81200	(unrelated sample)
ZZZZZZ	GG619156.D	07/29/20 22:53	OP81200	(unrelated sample)
ZZZZZZ	GG619157.D	07/29/20 23:23	OP81200	(unrelated sample)
ZZZZZZ	GG619158.D	07/29/20 23:52	OP81200	(unrelated sample)
ZZZZZZ	GG619159.D	07/30/20 00:21	OP81200	(unrelated sample)
GGG2858-ECC2769	GG619160.D	07/30/20 00:51	n/a	Ending cal 1000

GC/LC Semi-volatiles

Raw Data

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 07/30/20 16:23

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068457.D\dad1B.ch Vial: 74
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068457.D\dad1A.ch
Acq On : 27-Jul-2020, 21:21:04 Operator: williamh
Sample : FA77052-1 Inst : G1315B
Misc : op81252,GBB2008,1020,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jul 28 10:04:52 2020 Quant Results File: 8330B_060120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.74	10.74	1103792	1844461	591.074	580.723
	Spiked Amount 500.000	Range 70 - 136		Recovery =		118.21%	116.14%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	1.47	1.47	406244	1089091	274.880	265.682
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D. d	N.D. d
5)	RDX	2.87	2.87	82913	145230	43.714	48.124m
6)	1,3,5-Trinitrobe	4.63	4.63	2390968	4529131	570.929	566.256
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D. d	N.D. d
8)	3,5-Dinitroanili	6.12	6.12	136257	252957	33.575m	36.576m
9)	Nitrobenzene	0.00	0.00	0	0	N.D.	N.D.
10)	Nitroglycerin	0.00	0.00	0	0	N.D.	N.D.
11)	Tetryl	0.00	0.00	0	0	N.D.	N.D.
12)	2,4,6-Trinitroto	9.55	9.55	3229622	4003840	850.436m	890.109m
13)	2-Amino-4,6-Dini	9.81	9.80	325759	586530	94.252m	114.030m
14)	4-Amino-2,6-Dini	10.31	10.31	204940	378742	81.199	76.573
16)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D.	N.D.
17)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
18)	o-Nitrotoluene	0.00	0.00	0	0	N.D.	N.D.
19)	p-Nitrotoluene	0.00	0.00	0	0	N.D.	N.D.
20)	m-Nitrotoluene	0.00	0.00	0	0	N.D.	N.D.
21)	PETN	18.35	0.00	22998	0	NoCal	N.D.

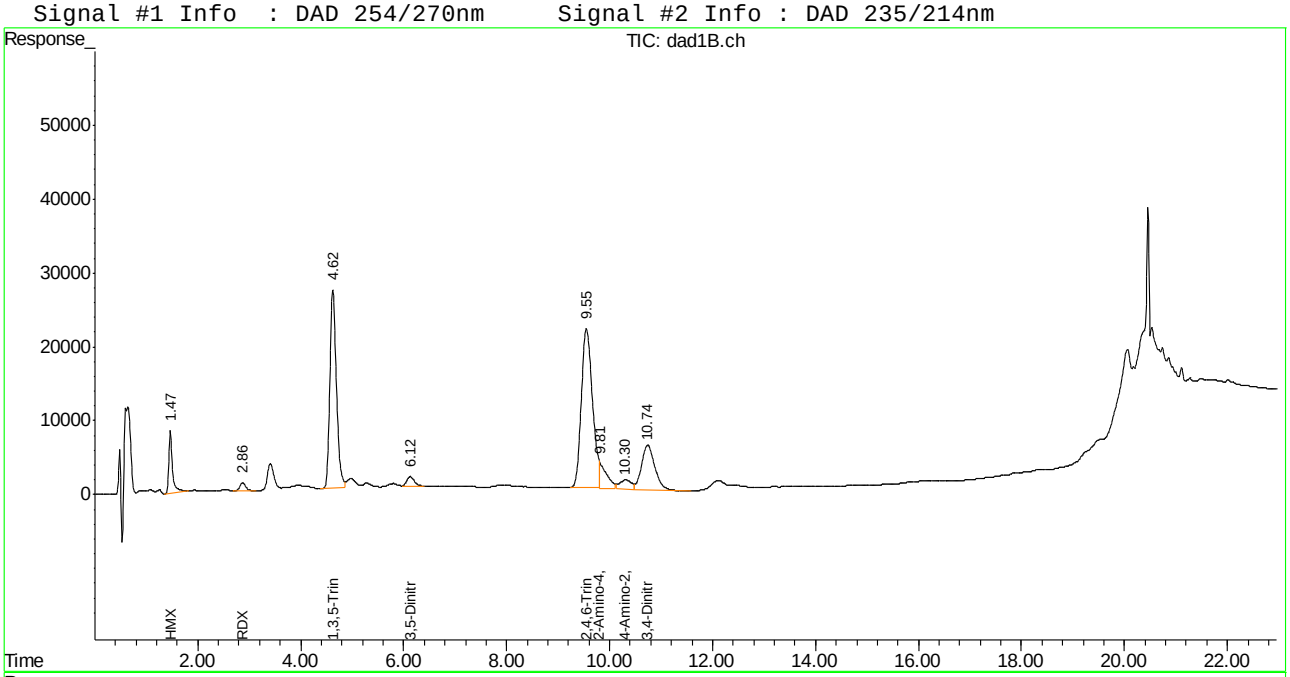
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB068457.D 8330B_060120_PLUS.M Tue Jul 28 15:18:05 2020 Page 1

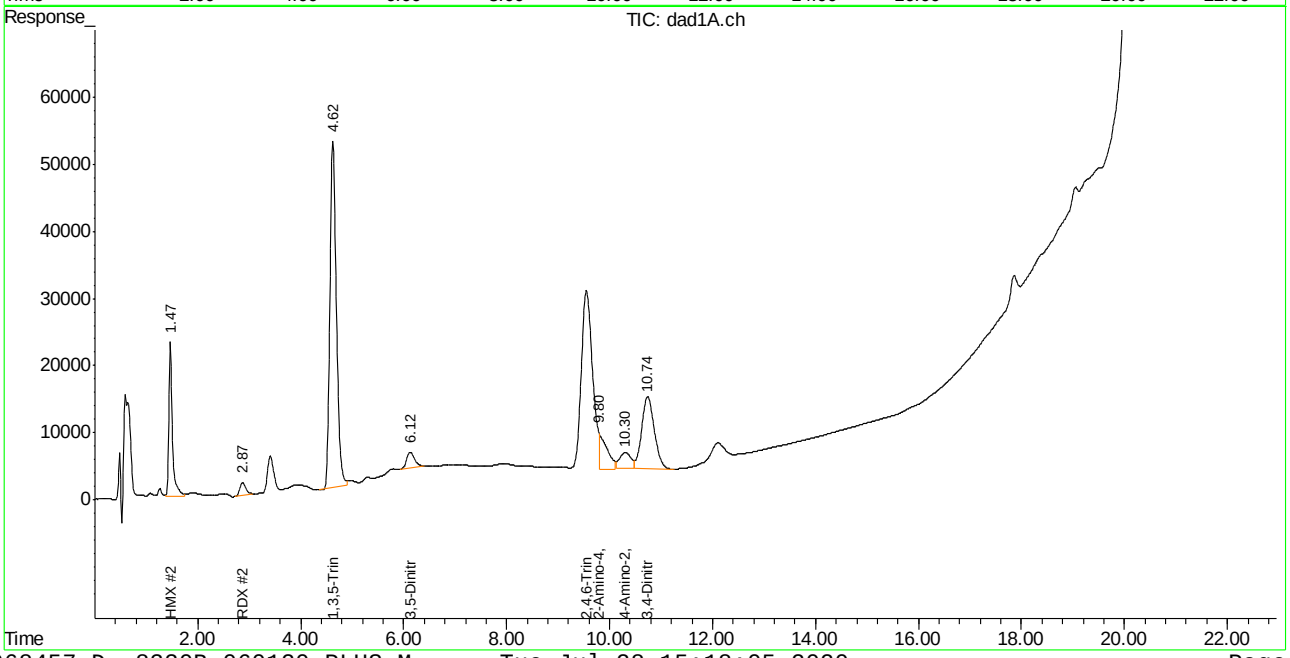
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068457.D\dad1B.ch Vial: 74
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068457.D\dad1A.ch
Acq On : 27-Jul-2020, 21:21:04 Operator: williamh
Sample : FA77052-1 Inst : G1315B
Misc : op81252,GBB2008,1020,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jul 28 15:02 2020 Quant Results File: 8330B_060120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

Sample Number: FA77052-1
Lab FileID: BB068457.D
Injection Time: 07/27/20 21:21

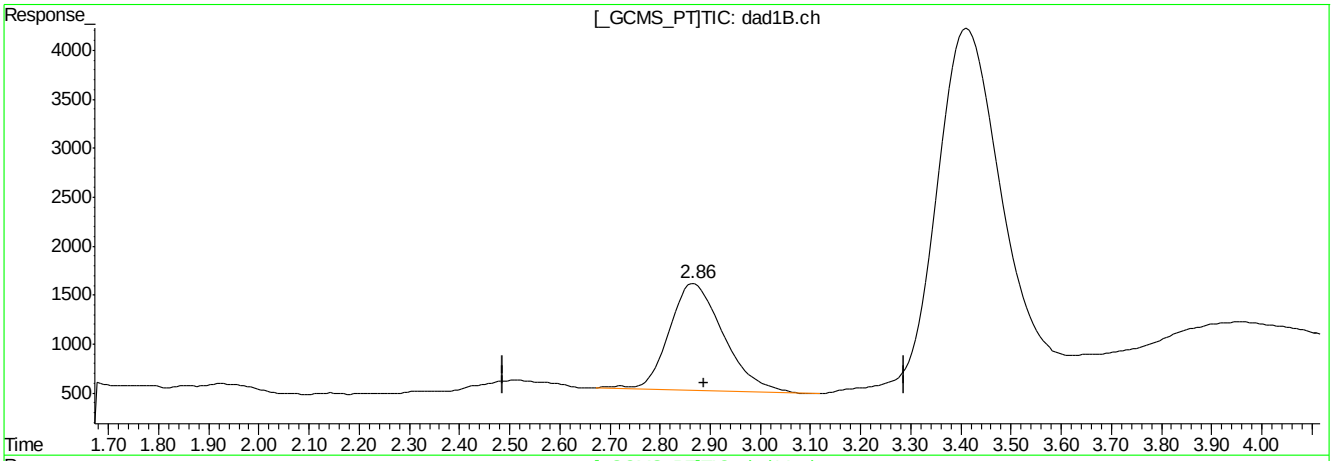
Method: SW846 8330B
Analyst approved: 07/30/20 15:13 William Hustedde
Supervisor approved: 07/30/20 16:23 Naresh Jiawan

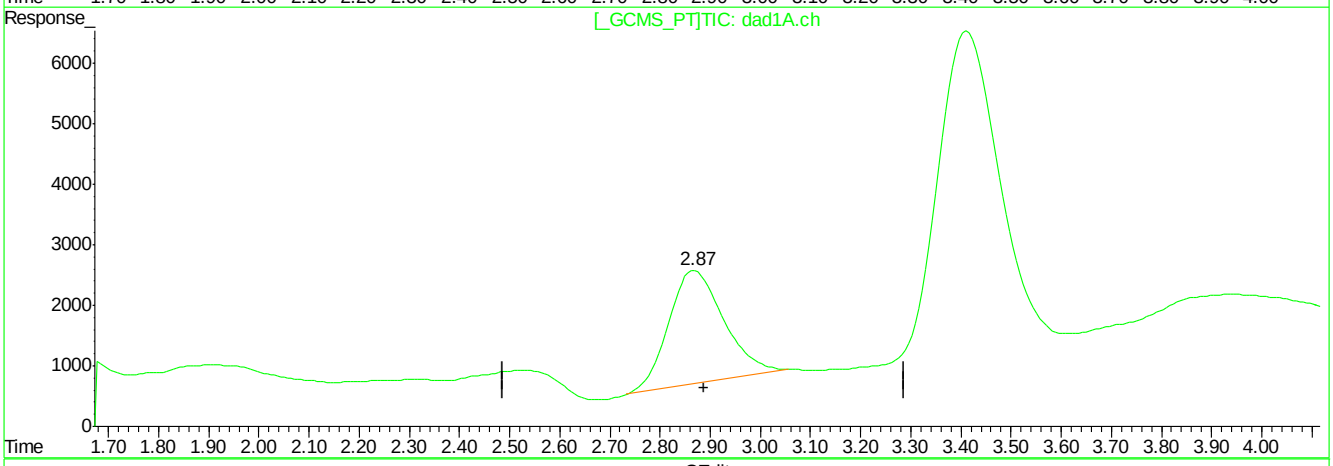
Parameter	CAS	Sig#	R.T. (min.)	Reason
RDX	121-82-4	2	2.87	Poor instrument integration
3,5-Dinitroaniline	618-87-1	1	6.12	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	6.12	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	1	9.55	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	2	9.55	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	2	9.80	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	1	9.81	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068457.D\dad1B.ch Vial: 74
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068457.D\dad1A.ch
Acq On : 27-Jul-2020, 21:21:04 Operator: williamh
Sample : FA77052-1 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jul 28 10:04 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Multiple Level Calibration





QEdit

(5) RDX

2.87min 43.714ppb

response 82913

(5) RDX #2

2.87min 48.124ppb m

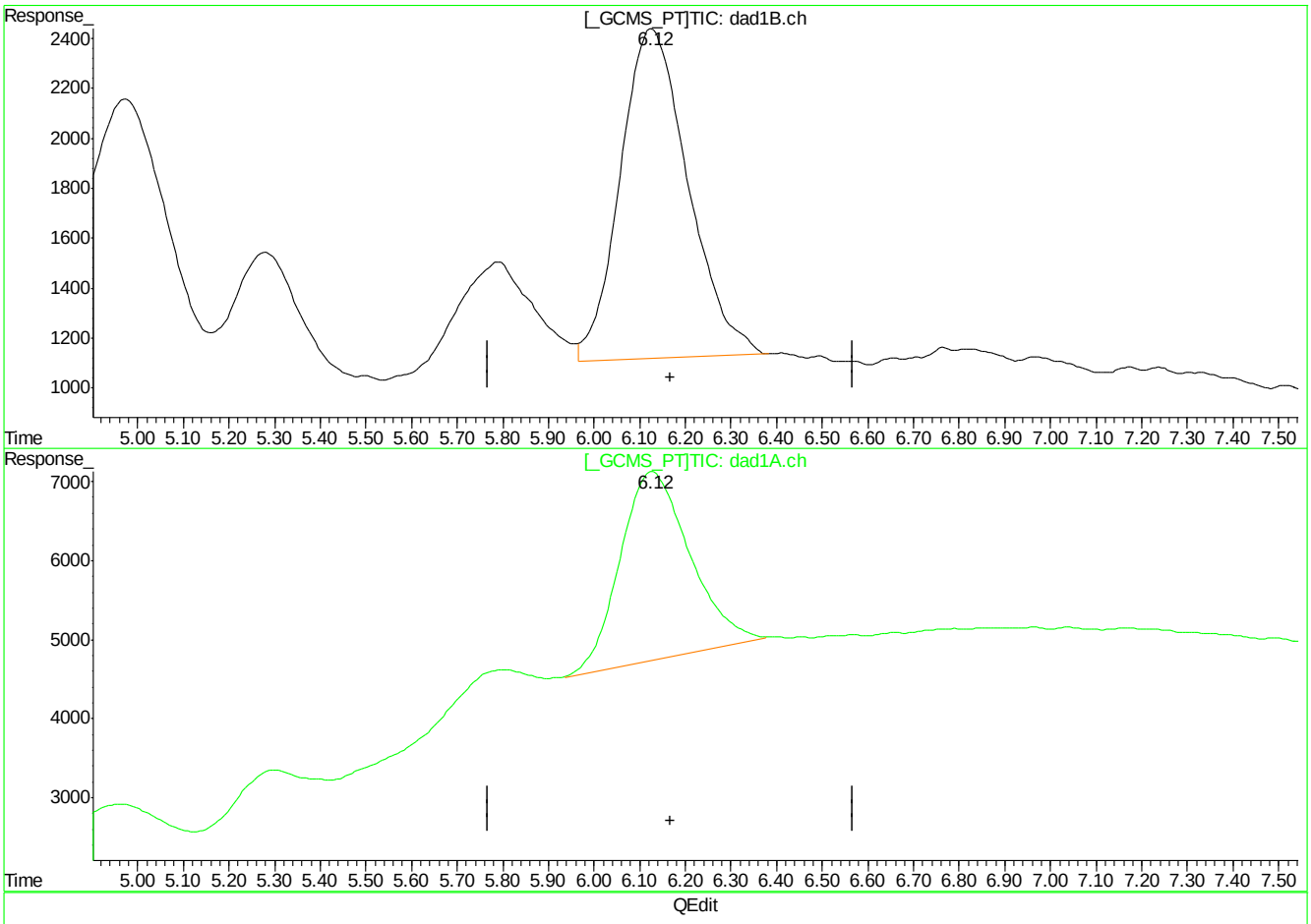
response 145230

(+) = Expected Retention Time
BB068457.D 8330B_060120_PLUS.M Tue Jul 28 15:01:10 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068457.D\dad1B.ch Vial: 74
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068457.D\dad1A.ch
Acq On : 27-Jul-2020, 21:21:04 Operator: williamh
Sample : FA77052-1 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jul 28 10:04 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Multiple Level Calibration



(8) 3,5-Dinitroaniline

6.12min 33.575ppb m

response 136257

(8) 3,5-Dinitroaniline #2

6.12min 36.576ppb m

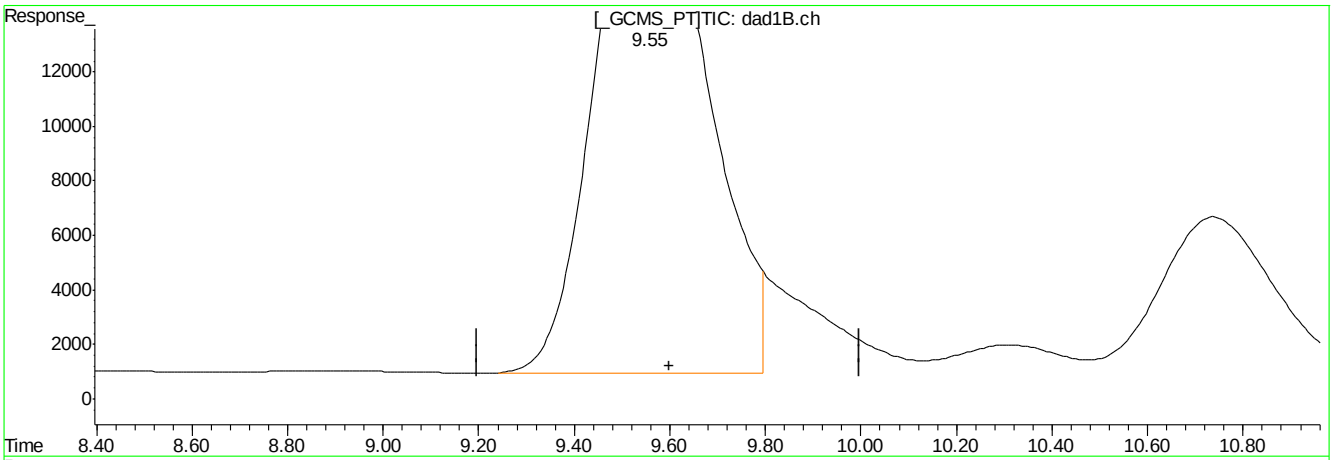
response 252957

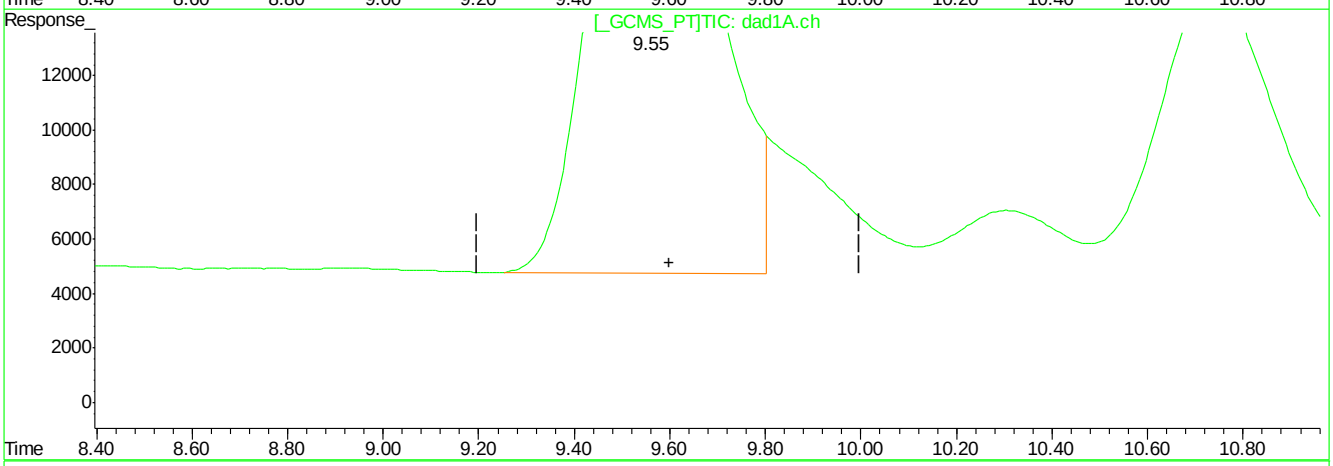
(+) = Expected Retention Time
BB068457.D 8330B_060120_PLUS.M Tue Jul 28 15:01:27 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068457.D\dad1B.ch Vial: 74
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068457.D\dad1A.ch
Acq On : 27-Jul-2020, 21:21:04 Operator: williamh
Sample : FA77052-1 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jul 28 10:04 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Multiple Level Calibration





QEdit

(12) 2,4,6-Trinitrotoluene

9.55min 850.436ppb m

response 3229622

(12) 2,4,6-Trinitrotoluene #2

9.55min 890.109ppb m

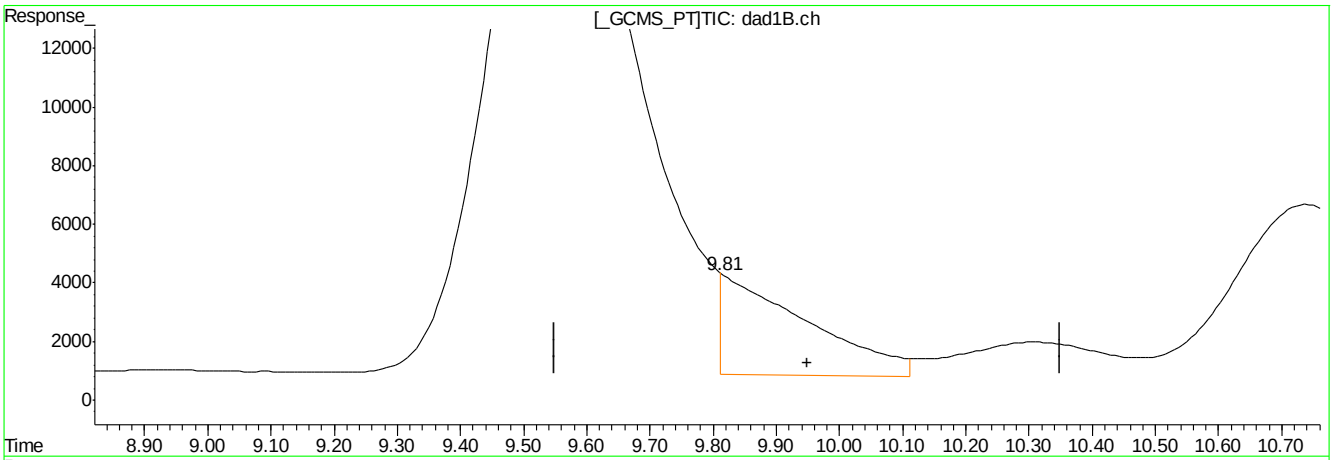
response 4003840

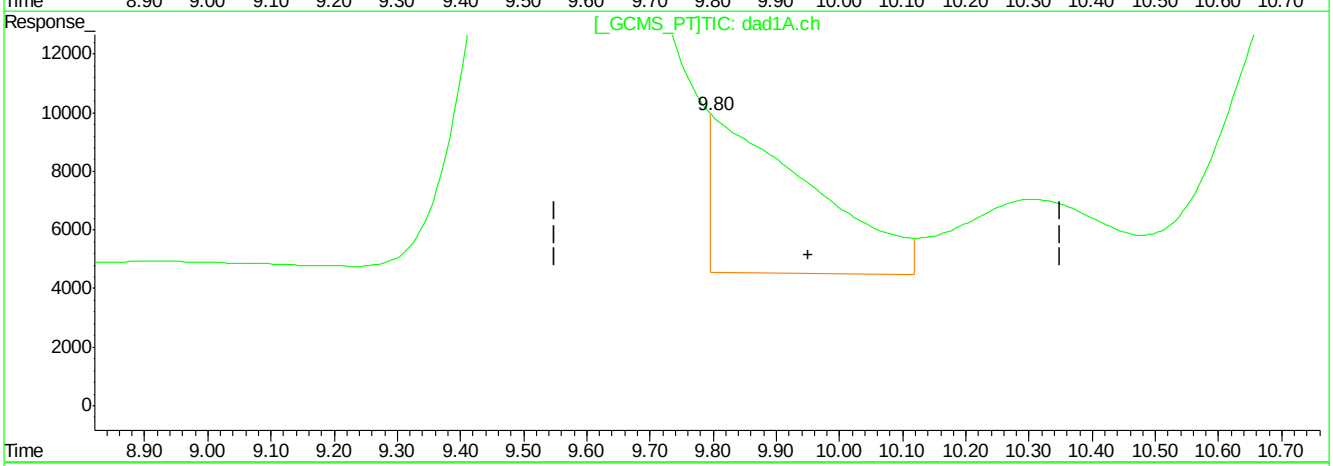
(+) = Expected Retention Time
BB068457.D 8330B_060120_PLUS.M Tue Jul 28 15:01:45 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068457.D\dad1B.ch Vial: 74
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068457.D\dad1A.ch
Acq On : 27-Jul-2020, 21:21:04 Operator: williamh
Sample : FA77052-1 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jul 28 10:04 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Multiple Level Calibration





QEdit

(13) 2-Amino-4,6-Dinitrotoluene

9.81min 94.252ppb m

response 325759

(13) 2-Amino-4,6-Dinitrotoluene #2

9.80min 114.030ppb m

response 586530

(+) = Expected Retention Time
BB068457.D 8330B_060120_PLUS.M Tue Jul 28 15:01:58 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 07/30/20 16:23

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619139.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619139.D\dad1A.ch
Acq On : 29-Jul-2020, 14:33:14 Operator: williamh
Sample : FA77052-1cf Inst : G1315B
Misc : op81252,GGG2858,1020,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 30 10:20:31 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.34	13.34	2896032	5640535	641.369	627.844m
	Spiked Amount 500.000	Range 70 - 136		Recovery =		128.27%	125.57%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	5.34	5.34	726796	728241	243.923m	242.819m
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D. d	N.D. d
5)	1,3,5-Trinitrobe	7.04	7.04	5732621	5608048	554.345m	542.298m
6)	RDX	7.34	7.32	366889	430582	72.367m	84.930m
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D. d	N.D. d
8)	Nitrobenzene	0.00	0.00	0	0	N.D. d	N.D. d
9)	2,4,6-Trinitroto	10.81	10.81	8173252	11062067	801.558	836.863
10)	Nitroglycerin	0.00	0.00	0	0	N.D. d	N.D. d
11)	Tetryl	0.00	0.00	0	0	N.D. d	N.D. d
13)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
14)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
15)	o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
16)	3,5-Dinitroanili	15.13	15.14	1102983	1801741	108.104m	108.530m
17)	p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
18)	4-Amino-2,6-Dini	16.86	16.89	505408	856416	43.711m	39.435m
19)	m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20)	2-Amino-4,6-Dini	18.83	18.82	893950	1067972	93.162	76.110m
21)	PETN	0.00	0.00	0	0	N.D. d	N.D. d

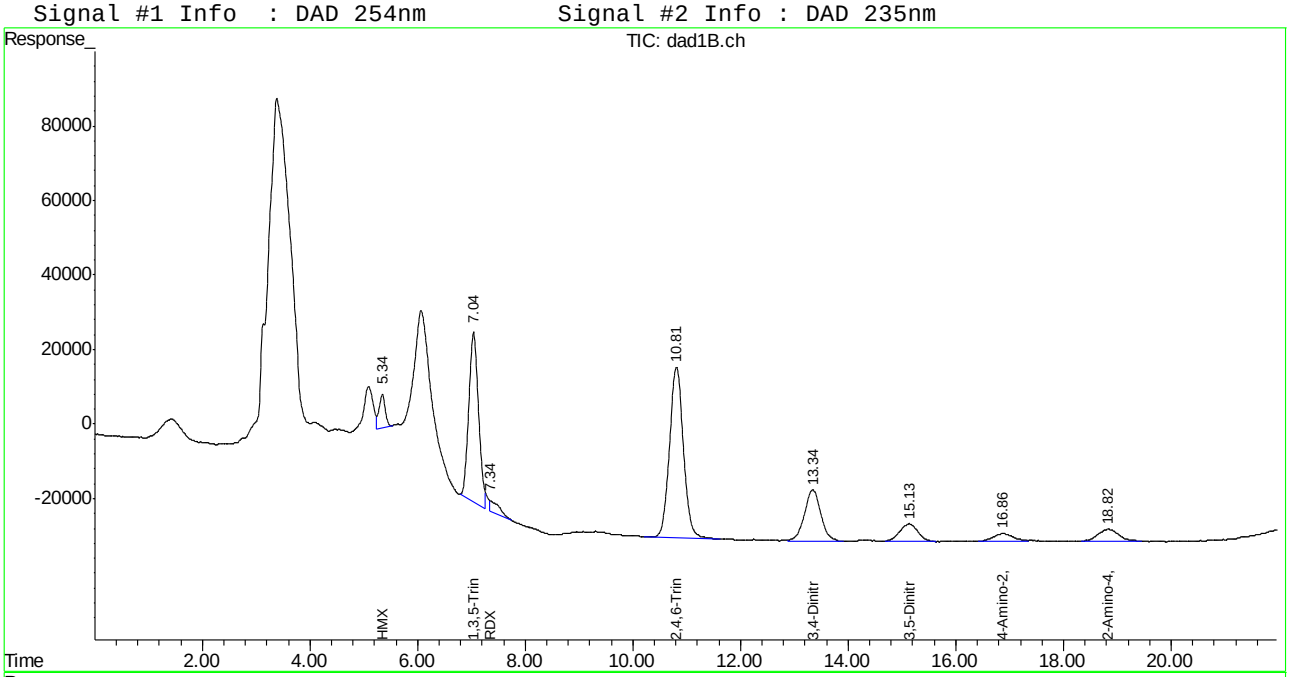
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

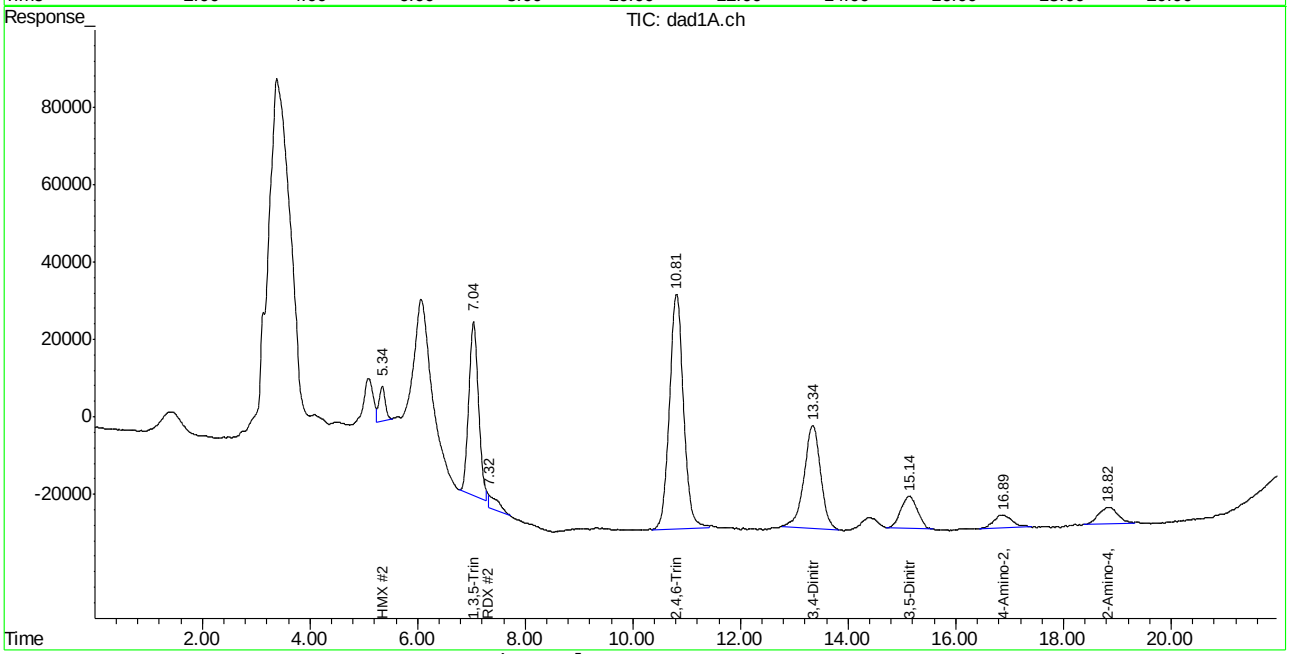
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619139.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619139.D\dad1A.ch
Acq On : 29-Jul-2020, 14:33:14 Operator: williamh
Sample : FA77052-1cf Inst : G1315B
Misc : op81252,GGG2858,1020,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 30 12:40 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

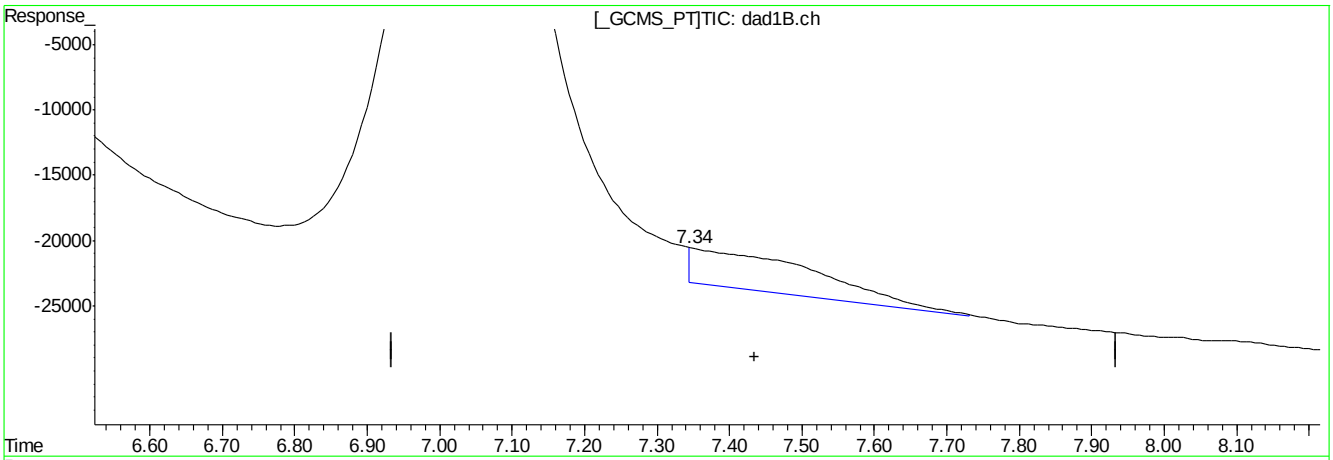
Sample Number: FA77052-1
Lab FileID: GG619139.D
Injection Time: 07/29/20 14:33
Method: SW846 8330B
Analyst approved: 07/30/20 15:13 William Hustedde
Supervisor approved: 07/30/20 16:23 Naresh Jiawan

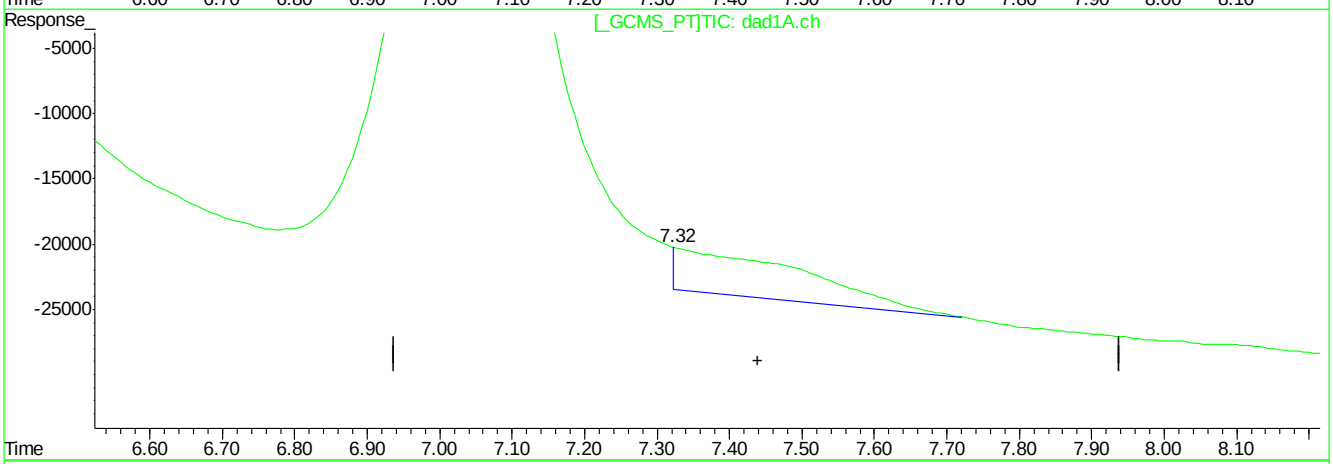
Parameter	CAS	Sig#	R.T. (min.)	Reason
HMX	2691-41-0	1	5.34	Poor instrument integration
HMX	2691-41-0	2	5.34	Poor instrument integration
1,3,5-Trinitrobenzene	99-35-4	1	7.04	Poor instrument integration
1,3,5-Trinitrobenzene	99-35-4	2	7.04	Poor instrument integration
RDX	121-82-4	2	7.32	Poor instrument integration
RDX	121-82-4	1	7.34	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	2	13.34	Poor instrument integration
3,5-Dinitroaniline	618-87-1	1	15.13	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	15.14	Poor instrument integration
4-amino-2,6-Dinitrotoluene	19406-51-0	1	16.86	Poor instrument integration
4-amino-2,6-Dinitrotoluene	19406-51-0	2	16.89	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	2	18.82	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619139.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619139.D\dad1A.ch
Acq On : 29-Jul-2020, 14:33:14 Operator: williamh
Sample : FA77052-1 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 30 10:20 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration





QEdit

(6) RDX

7.34min 72.367ppb m

response 366889

(6) RDX #2

7.32min 84.930ppb m

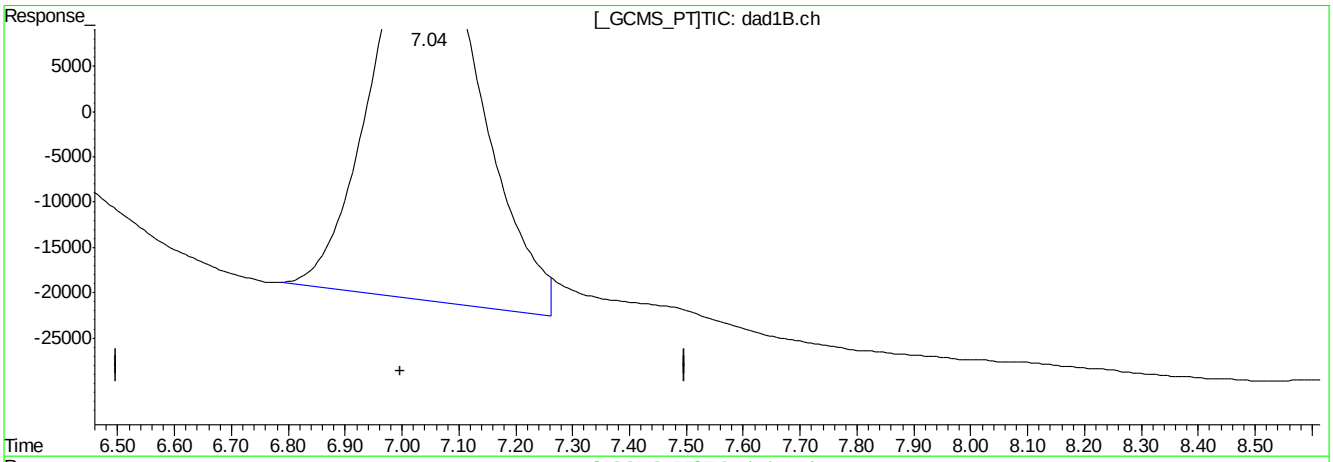
response 430582

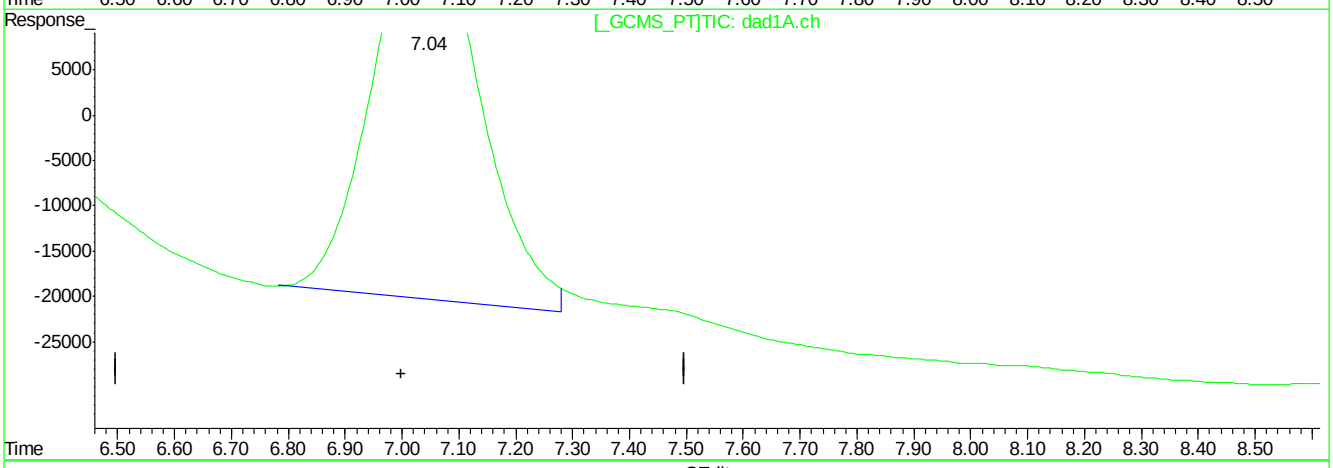
(+) = Expected Retention Time
GG619139.D 8330RPB.M_092519.M Thu Jul 30 12:38:59 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619139.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619139.D\dad1A.ch
Acq On : 29-Jul-2020, 14:33:14 Operator: williamh
Sample : FA77052-1 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 30 10:20 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration





QEdit

(5) 1,3,5-Trinitrobenzene

7.04min 554.345ppb m

response 5732621

(5) 1,3,5-Trinitrobenzene #2

7.04min 542.298ppb m

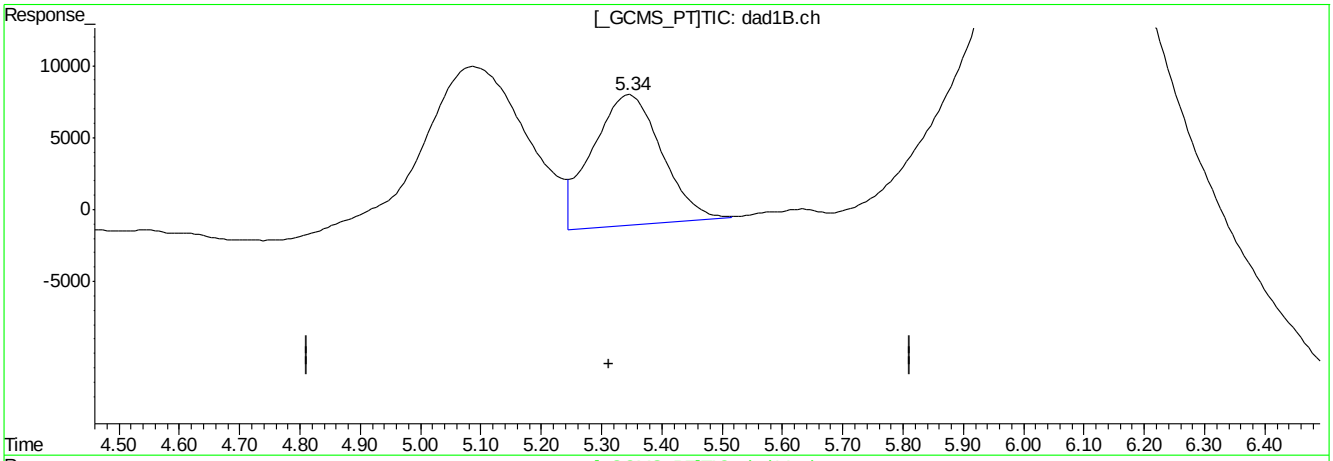
response 5608048

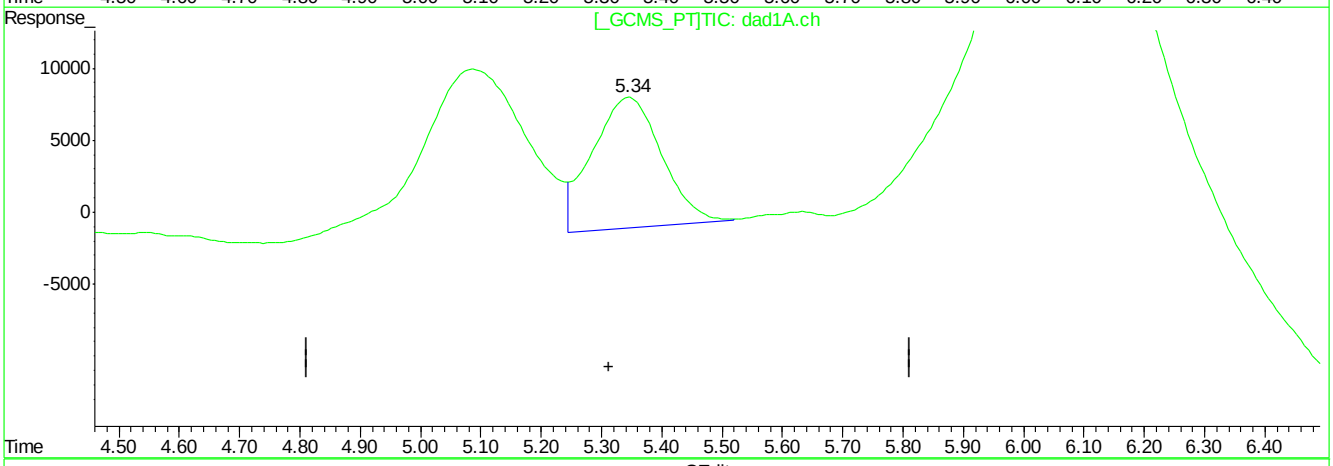
(+) = Expected Retention Time
GG619139.D 8330RPB.M_092519.M Thu Jul 30 12:39:13 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619139.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619139.D\dad1A.ch
Acq On : 29-Jul-2020, 14:33:14 Operator: williamh
Sample : FA77052-1 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 30 10:20 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.34min 243.923ppb m

response 726796

(2) HMX #2

5.34min 242.819ppb m

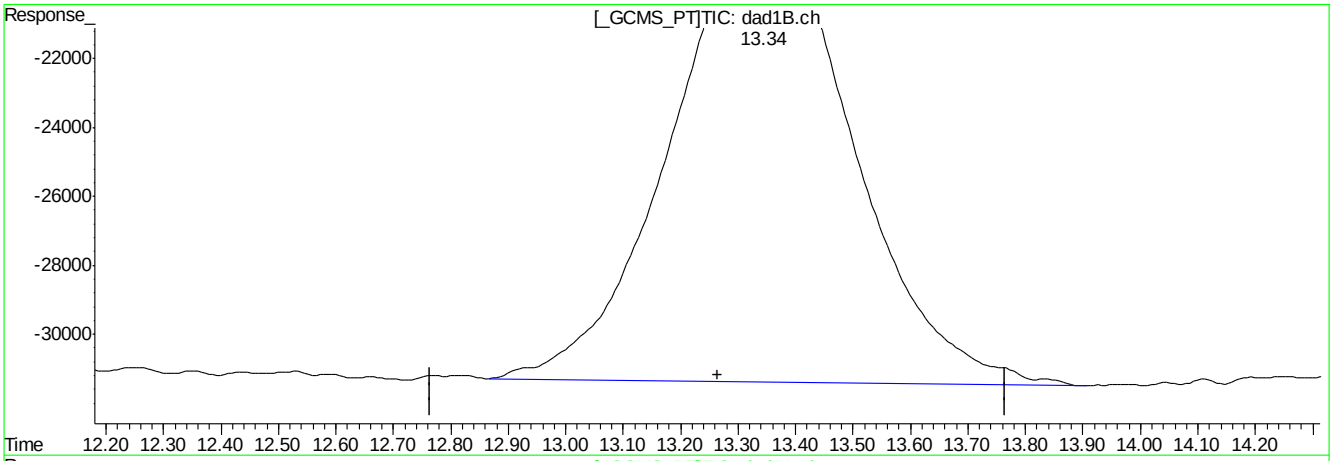
response 728241

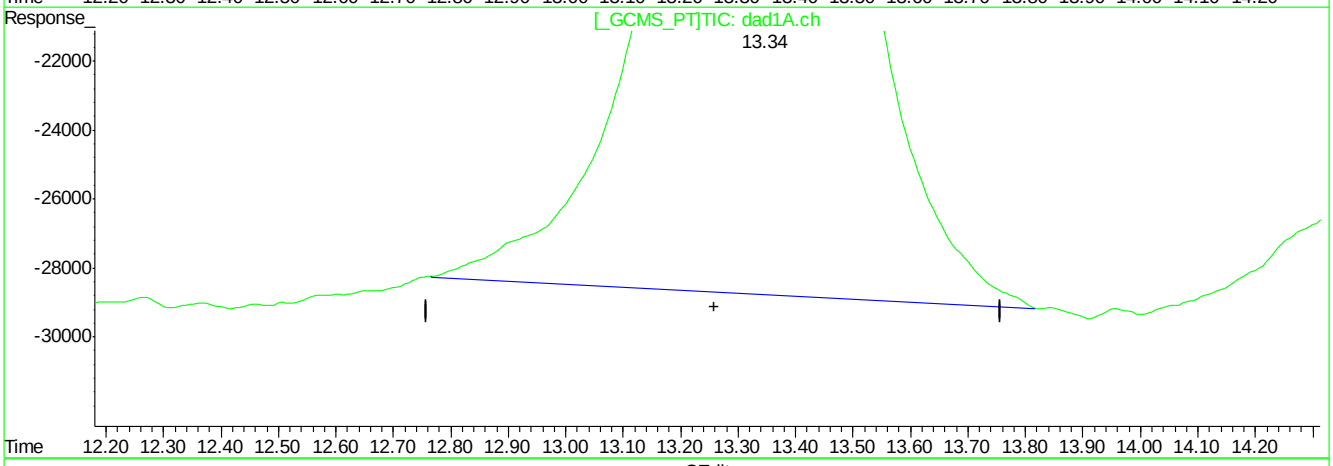
(+) = Expected Retention Time
GG619139.D 8330RPB.M_092519.M Thu Jul 30 12:39:26 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619139.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619139.D\dad1A.ch
Acq On : 29-Jul-2020, 14:33:14 Operator: williamh
Sample : FA77052-1 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 30 10:20 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration





QEdit

(12) 3,4-Dinitrotoluene (S)

13.34min 641.369ppb

response 2896032

(12) 3,4-Dinitrotoluene #2 (S)

13.34min 627.844ppb m

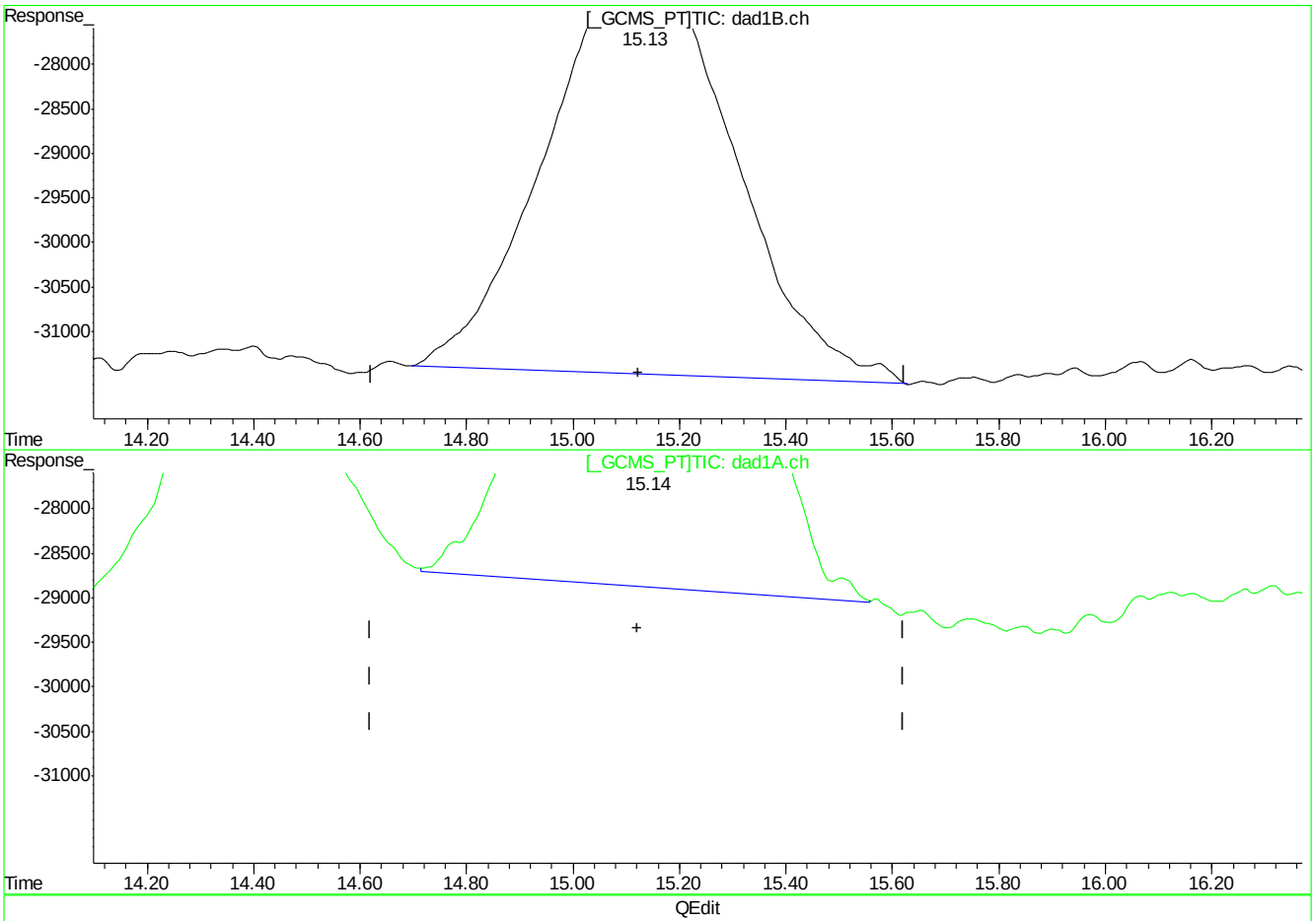
response 5640535

(+) = Expected Retention Time
GG619139.D 8330RPB.M_092519.M Thu Jul 30 12:39:56 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619139.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619139.D\dad1A.ch
Acq On : 29-Jul-2020, 14:33:14 Operator: williamh
Sample : FA77052-1 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 30 10:20 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration



(16) 3,5-Dinitroaniline

15.13min 108.104ppb m

response 1102983

(16) 3,5-Dinitroaniline #2

15.14min 108.530ppb m

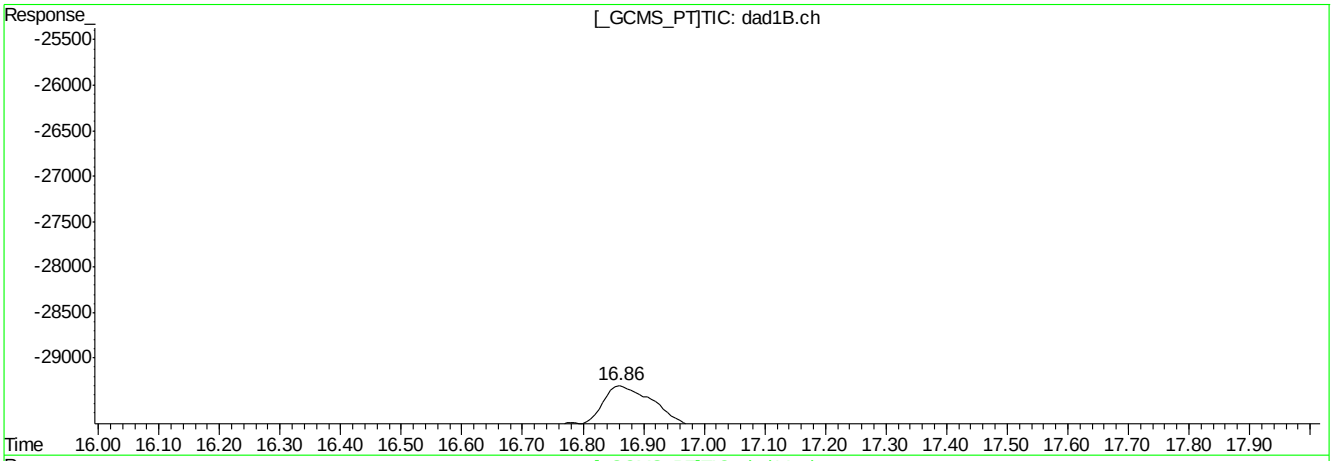
response 1801741

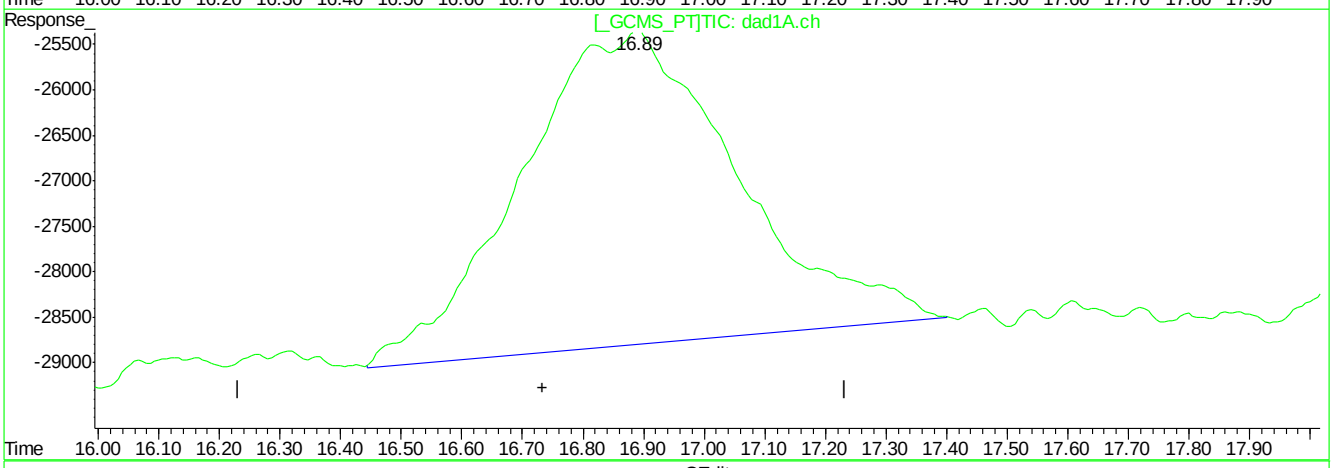
(+) = Expected Retention Time
GG619139.D 8330RPB.M_092519.M Thu Jul 30 12:40:06 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619139.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619139.D\dad1A.ch
Acq On : 29-Jul-2020, 14:33:14 Operator: williamh
Sample : FA77052-1 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 30 10:20 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration





QEdit

(18) 4-Amino-2,6-Dinitrotoluene

16.86min 43.711ppb m

response 505408

(18) 4-Amino-2,6-Dinitrotoluene #2

16.89min 39.435ppb m

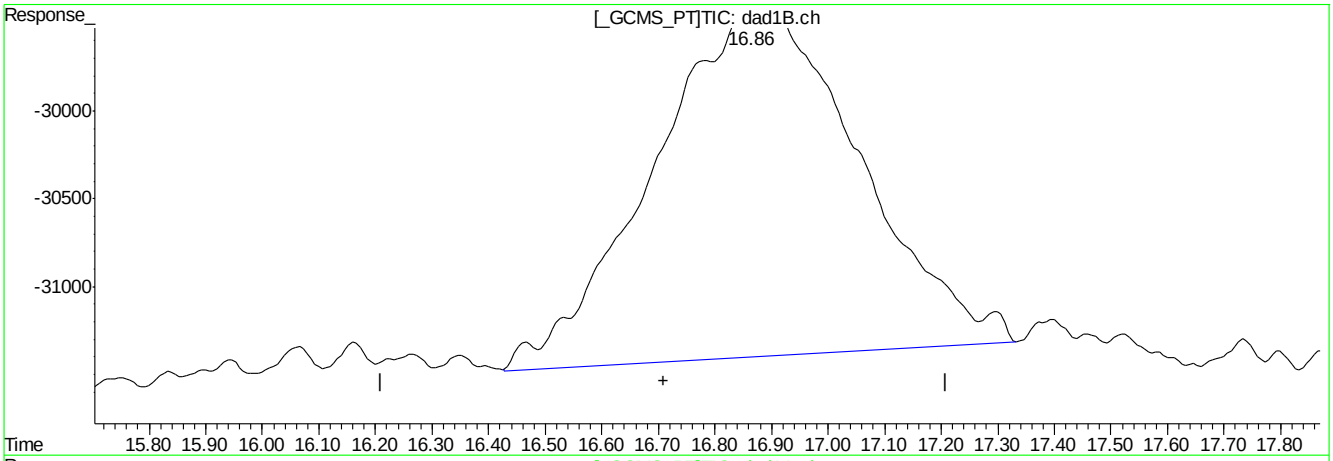
response 856416

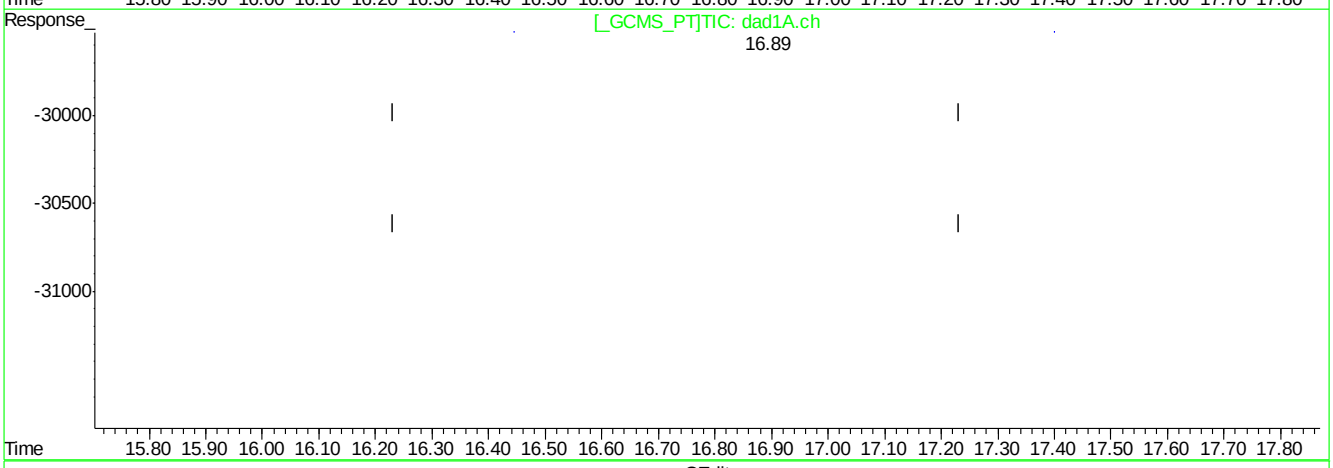
(+) = Expected Retention Time
GG619139.D 8330RPB.M_092519.M Thu Jul 30 12:40:15 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619139.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619139.D\dad1A.ch
Acq On : 29-Jul-2020, 14:33:14 Operator: williamh
Sample : FA77052-1 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 30 10:20 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration





QEdit

(18) 4-Amino-2,6-Dinitrotoluene

16.86min 43.711ppb m

response 505408

(18) 4-Amino-2,6-Dinitrotoluene #2

16.89min 39.435ppb m

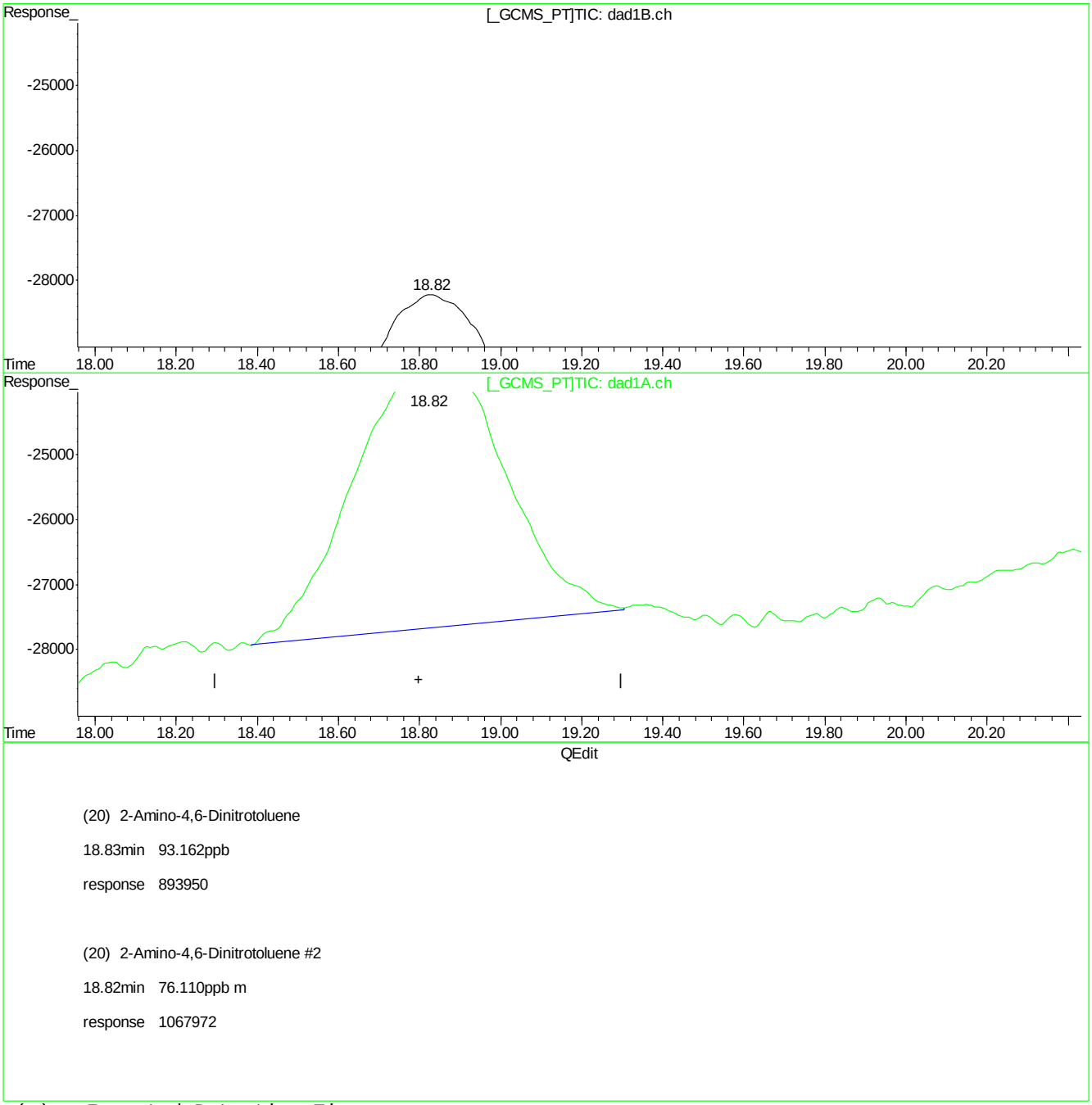
response 856416

(+) = Expected Retention Time
GG619139.D 8330RPB.M_092519.M Thu Jul 30 12:40:18 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619139.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619139.D\dad1A.ch
Acq On : 29-Jul-2020, 14:33:14 Operator: williamh
Sample : FA77052-1 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 30 10:20 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration



(20) 2-Amino-4,6-Dinitrotoluene

18.83min 93.162ppb

response 893950

(20) 2-Amino-4,6-Dinitrotoluene #2

18.82min 76.110ppb m

response 1067972

(+) = Expected Retention Time
GG619139.D 8330RPB.M_092519.M Thu Jul 30 12:40:27 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 07/30/20 16:25

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068458.D\dad1B.ch Vial: 75
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068458.D\dad1A.ch
Acq On : 27-Jul-2020, 21:51:03 Operator: williamh
Sample : FA77052-2 Inst : G1315B
Misc : op81252,GBB2008,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jul 28 10:04:53 2020 Quant Results File: 8330B_060120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.74	10.74	1079251	1822305	577.932	573.747
	Spiked Amount 500.000	Range 70 - 136		Recovery =		115.59%	114.75%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	1.46	1.46	396627	1165600	268.373m	284.347m
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D.	N.D.
5)	RDX	2.87	2.87	83982	146617	44.278	48.584m
6)	1,3,5-Trinitrobe	4.62	4.62	2648315	5040689	632.379	630.214
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D. d	N.D. d
8)	3,5-Dinitroanili	6.12	6.12	141819	257129	34.945	37.179m
9)	Nitrobenzene	0.00	0.00	0	0	N.D. d	N.D. d
10)	Nitroglycerin	0.00	0.00	0	0	N.D.	N.D.
11)	Tetryl	0.00	0.00	0	0	N.D.	N.D.
12)	2,4,6-Trinitroto	9.55	9.55	3614061	4416125	951.668m	981.766m
13)	2-Amino-4,6-Dini	9.82	9.79	333832	589696	96.587m	114.645m
14)	4-Amino-2,6-Dini	10.31	10.31	216983	399362	85.970	80.742
16)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
17)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
18)	o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
19)	p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20)	m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
21)	PETN	0.00	0.00	0	0	N.D. d	N.D. d

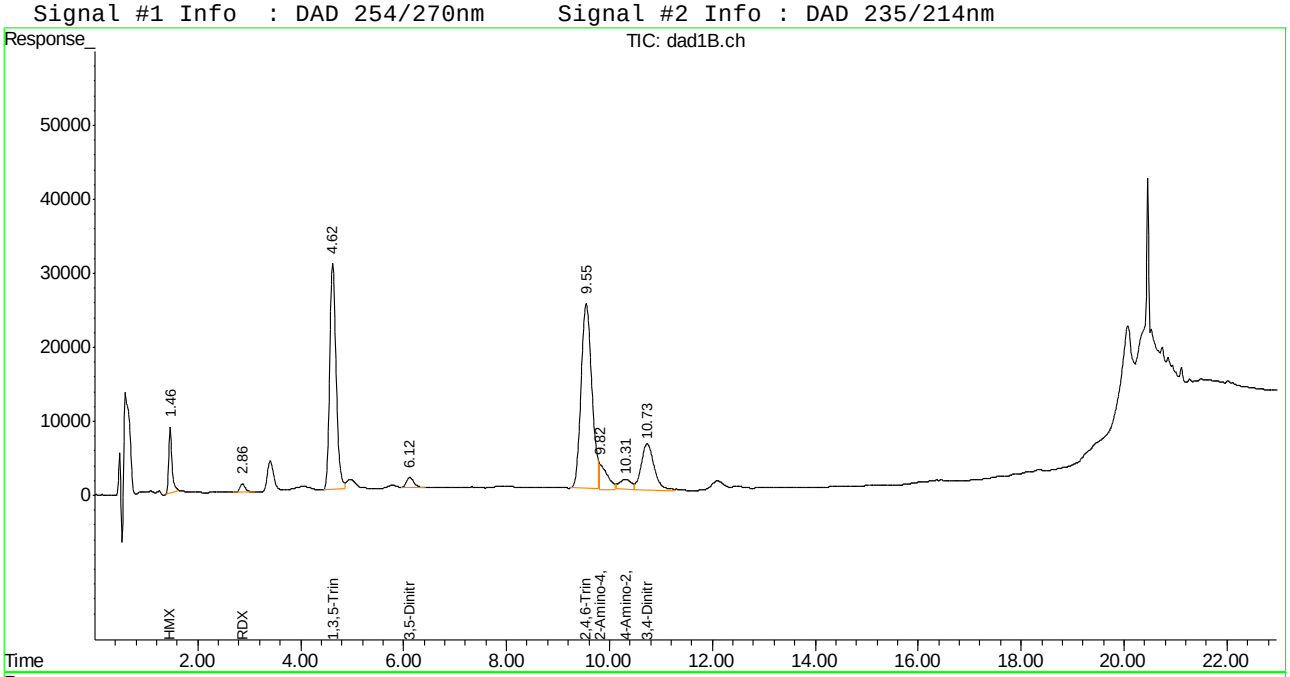
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB068458.D 8330B_060120_PLUS.M Tue Jul 28 15:18:06 2020 Page 1

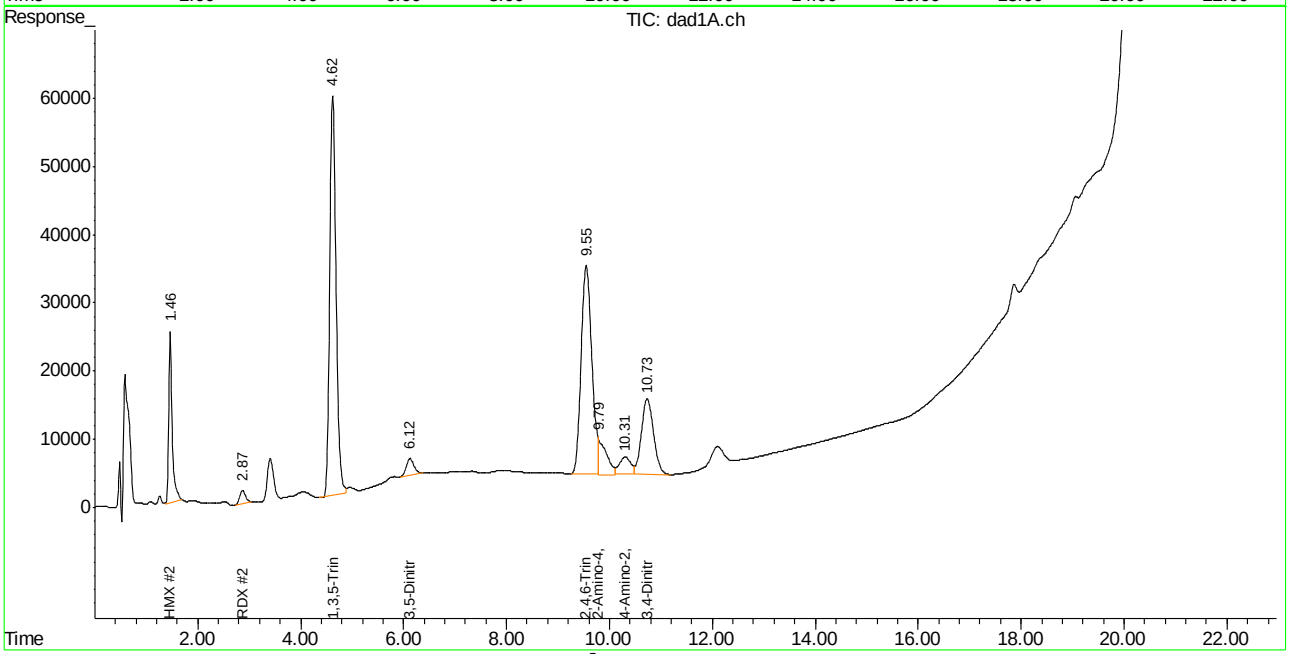
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068458.D\dad1B.ch Vial: 75
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068458.D\dad1A.ch
Acq On : 27-Jul-2020, 21:51:03 Operator: williamh
Sample : FA77052-2 Inst : G1315B
Misc : op81252,GBB2008,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jul 28 15:09 2020 Quant Results File: 8330B_060120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

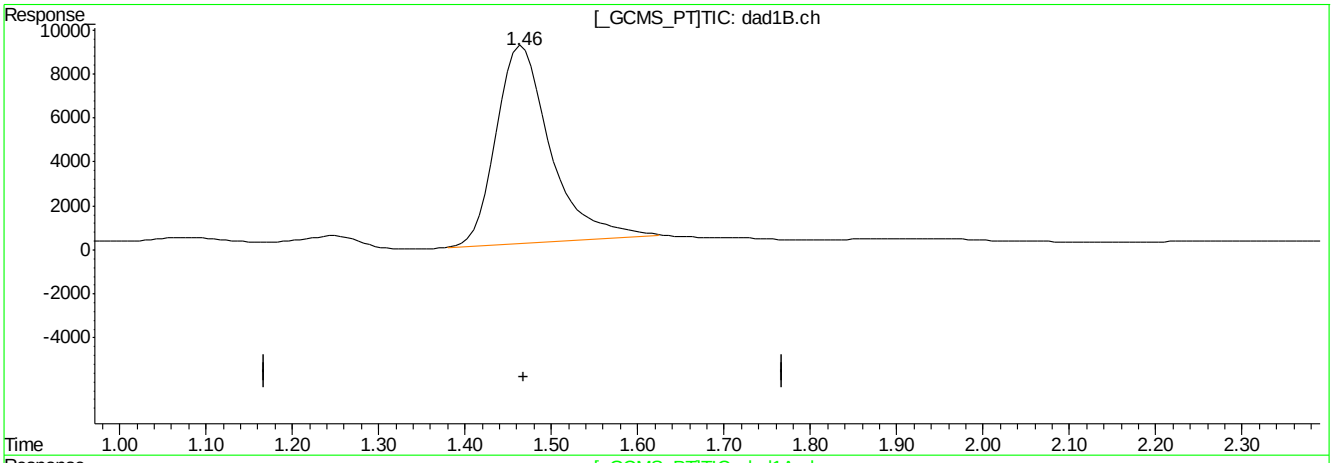
Sample Number: FA77052-2
Lab FileID: BB068458.D
Injection Time: 07/27/20 21:51
Method: SW846 8330B
Analyst approved: 07/30/20 15:14 William Hustedde
Supervisor approved: 07/30/20 16:25 Naresh Jiawan

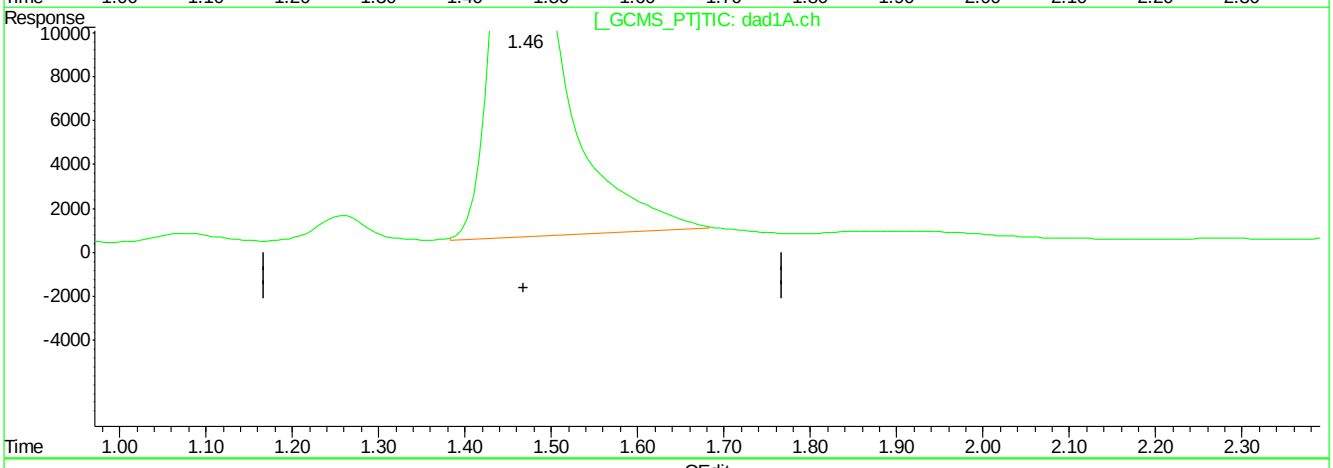
Parameter	CAS	Sig#	R.T. (min.)	Reason
HMX	2691-41-0	1	1.46	Poor instrument integration
HMX	2691-41-0	2	1.46	Poor instrument integration
RDX	121-82-4	2	2.87	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	6.12	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	1	9.55	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	2	9.55	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	2	9.79	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	1	9.82	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068458.D\dad1B.ch Vial: 75
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068458.D\dad1A.ch
Acq On : 27-Jul-2020, 21:51:03 Operator: williamh
Sample : FA77052-2 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jul 28 10:04 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Multiple Level Calibration





QEdit

(2) HMX

1.46min 268.373ppb m

response 396627

(2) HMX #2

1.46min 284.347ppb m

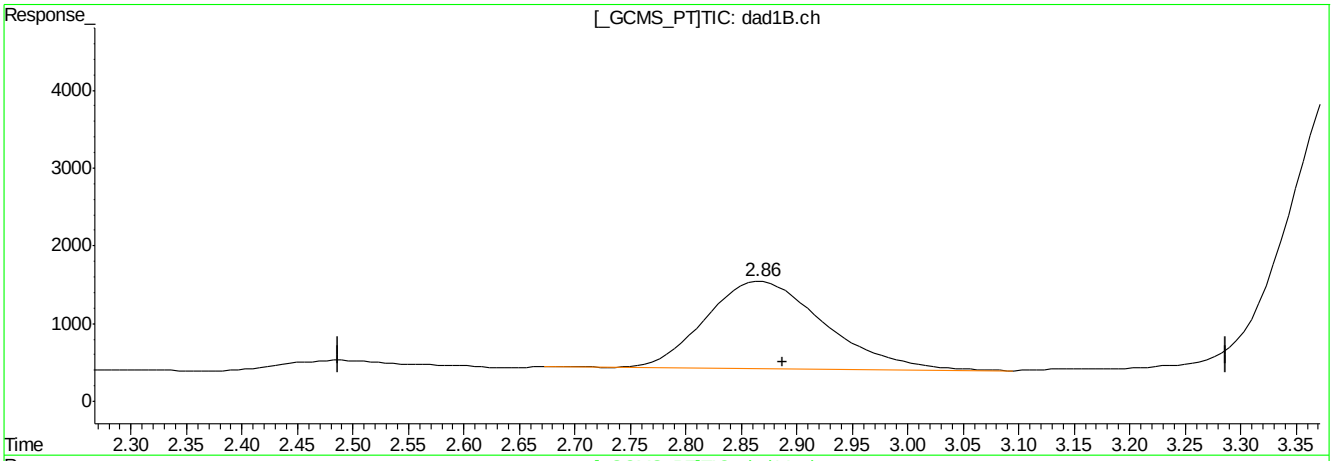
response 1165600

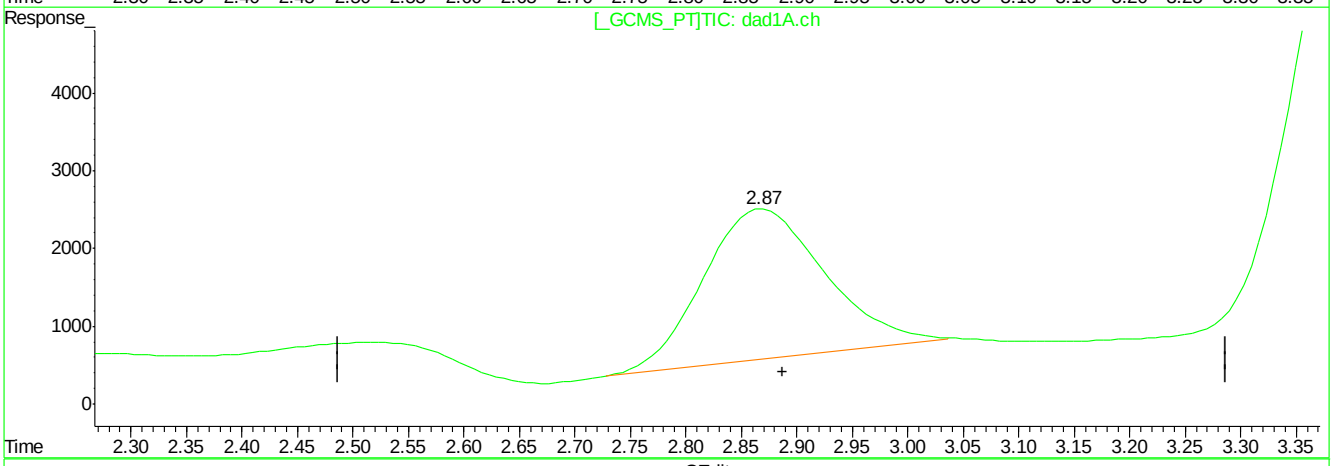
(+) = Expected Retention Time
BB068458.D 8330B_060120_PLUS.M Tue Jul 28 15:07:02 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068458.D\dad1B.ch Vial: 75
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068458.D\dad1A.ch
Acq On : 27-Jul-2020, 21:51:03 Operator: williamh
Sample : FA77052-2 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jul 28 10:04 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Multiple Level Calibration





QEdit

(5) RDX

2.87min 44.278ppb

response 83982

(5) RDX #2

2.87min 48.584ppb m

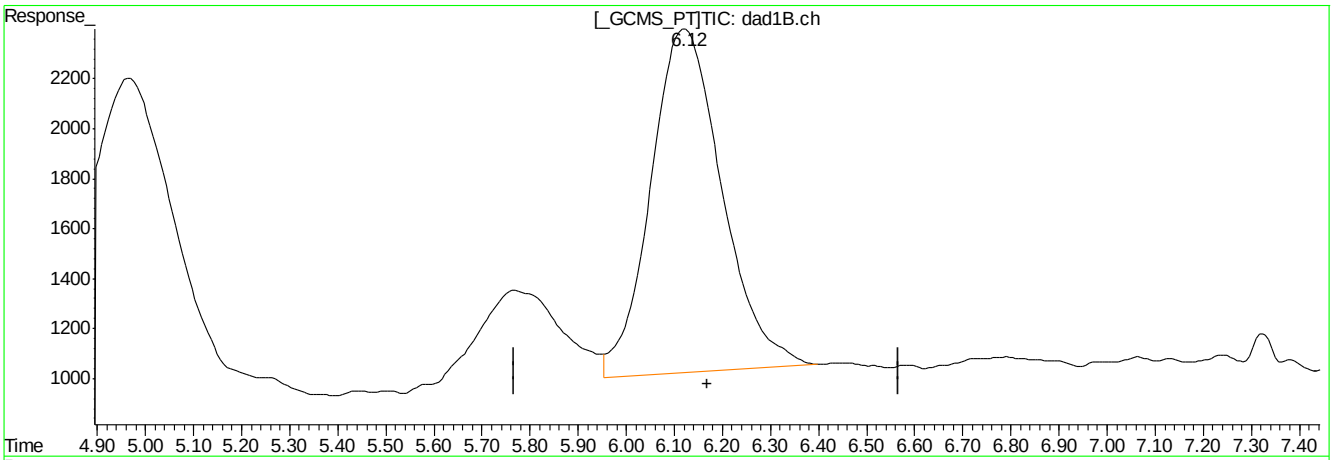
response 146617

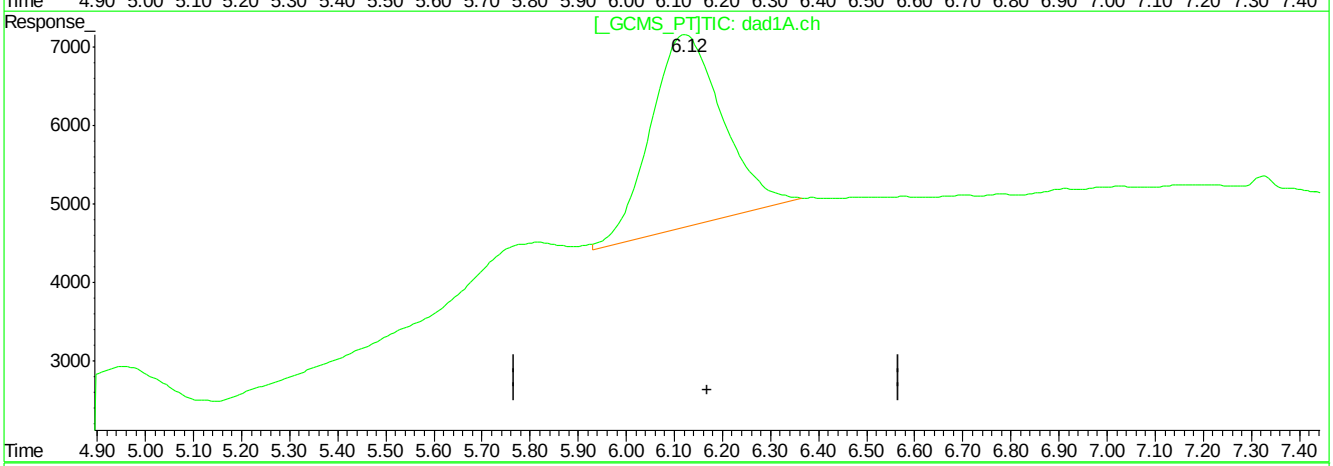
(+) = Expected Retention Time
BB068458.D 8330B_060120_PLUS.M Tue Jul 28 15:07:13 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068458.D\dad1B.ch Vial: 75
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068458.D\dad1A.ch
Acq On : 27-Jul-2020, 21:51:03 Operator: williamh
Sample : FA77052-2 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jul 28 10:04 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.12min 34.945ppb

response 141819

(8) 3,5-Dinitroaniline #2

6.12min 37.179ppb m

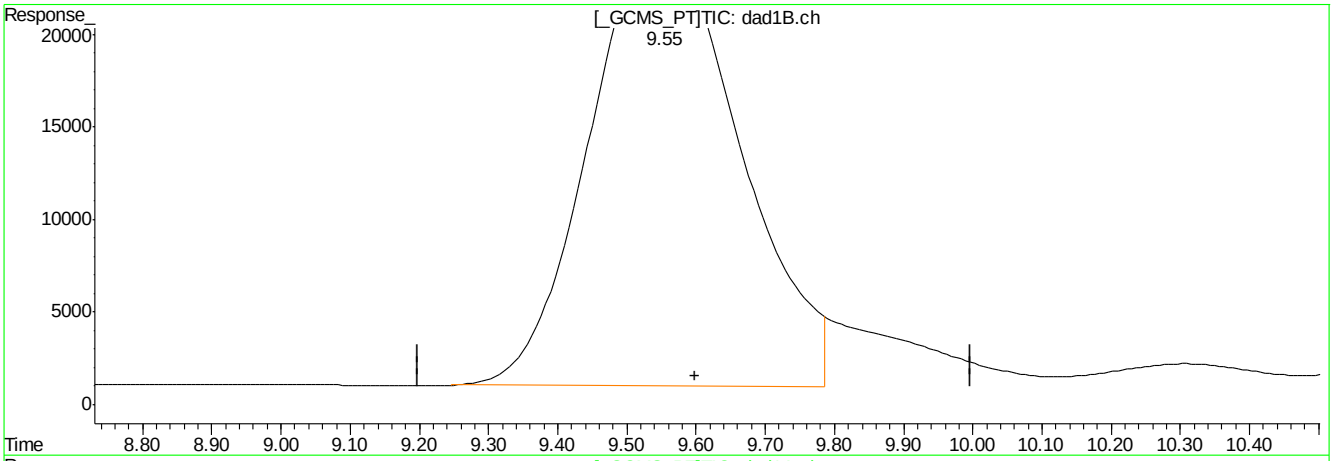
response 257129

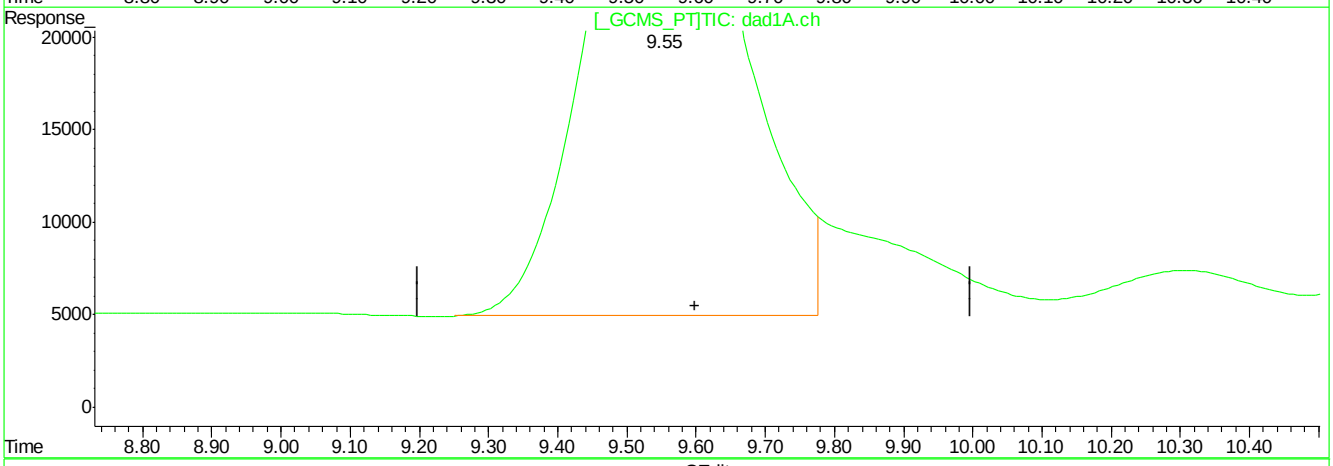
(+) = Expected Retention Time
BB068458.D 8330B_060120_PLUS.M Tue Jul 28 15:08:45 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068458.D\dad1B.ch Vial: 75
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068458.D\dad1A.ch
Acq On : 27-Jul-2020, 21:51:03 Operator: williamh
Sample : FA77052-2 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jul 28 10:04 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Multiple Level Calibration





QEdit

(12) 2,4,6-Trinitrotoluene

9.55min 951.668ppb m

response 3614061

(12) 2,4,6-Trinitrotoluene #2

9.55min 981.766ppb m

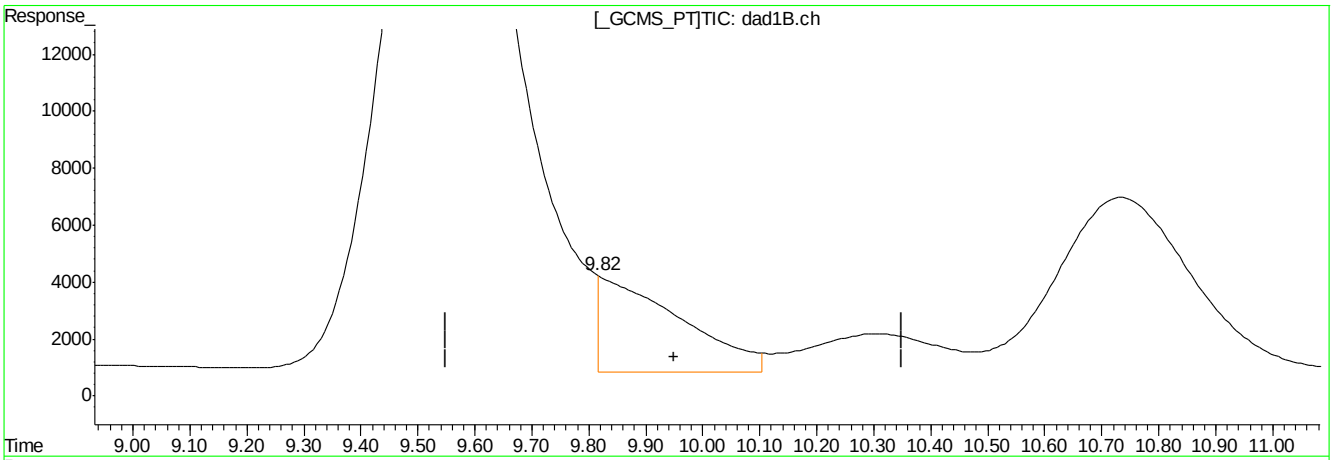
response 4416125

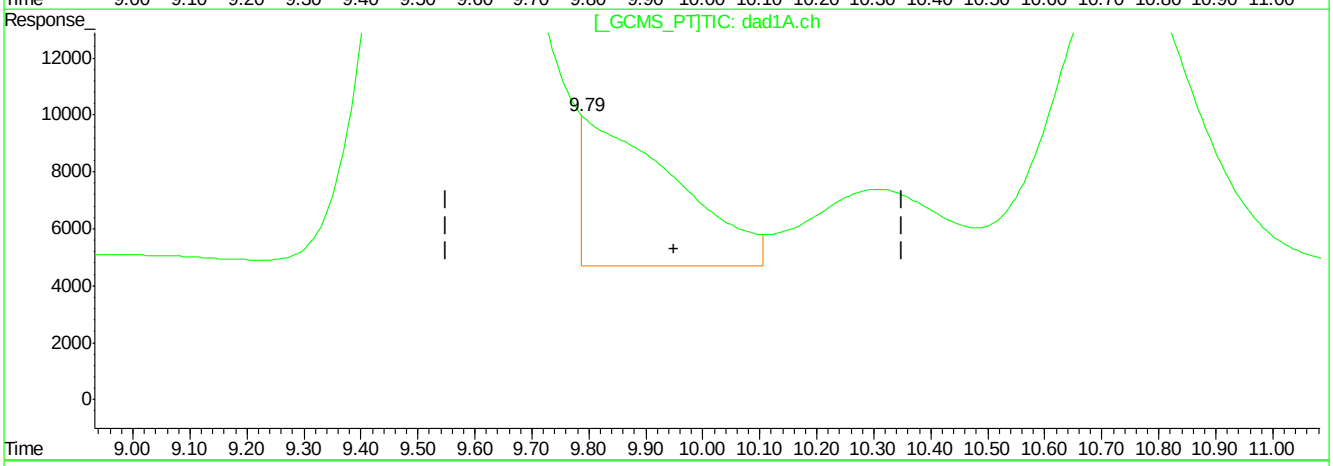
(+) = Expected Retention Time
BB068458.D 8330B_060120_PLUS.M Tue Jul 28 15:09:01 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068458.D\dad1B.ch Vial: 75
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068458.D\dad1A.ch
Acq On : 27-Jul-2020, 21:51:03 Operator: williamh
Sample : FA77052-2 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jul 28 10:04 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Multiple Level Calibration





QEdit

(13) 2-Amino-4,6-Dinitrotoluene

9.82min 96.587ppb m

response 333832

(13) 2-Amino-4,6-Dinitrotoluene #2

9.79min 114.645ppb m

response 589696

(+) = Expected Retention Time
BB068458.D 8330B_060120_PLUS.M Tue Jul 28 15:09:12 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 07/30/20 16:25

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619140.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619140.D\dad1A.ch
Acq On : 29-Jul-2020, 15:02:39 Operator: williamh
Sample : FA77052-2cf Inst : G1315B
Misc : op81252,GGG2858,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 30 10:20:32 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.31	13.31	2852680	5279677	631.768	587.771m
	Spiked Amount 500.000	Range 70 - 136		Recovery =		126.35%	117.55%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	5.34	5.34	1626763	1588510	545.964m	529.661m
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D. d	N.D. d
5)	1,3,5-Trinitrobe	7.03	7.03	6661657	6676785	644.182m	645.645m
6)	RDX	7.34	7.32	246085	322153	48.539m	63.543m
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D. d	N.D. d
8)	Nitrobenzene	0.00	0.00	0	0	N.D. d	N.D. d
9)	2,4,6-Trinitroto	10.79	10.79	8978307	12045068	880.510	911.228
10)	Nitroglycerin	0.00	0.00	0	0	N.D. d	N.D. d
11)	Tetryl	0.00	0.00	0	0	N.D. d	N.D. d
13)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
14)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
15)	o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
16)	3,5-Dinitroanili	15.09	15.11	1107767	1923016	108.573m	115.835m
17)	p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
18)	4-Amino-2,6-Dini	16.86	16.82	491072	996449	42.471m	45.883m
19)	m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20)	2-Amino-4,6-Dini	18.81	18.80	917727	1326794	95.640m	94.555m
21)	PETN	0.00	0.00	0	0	N.D. d	N.D. d

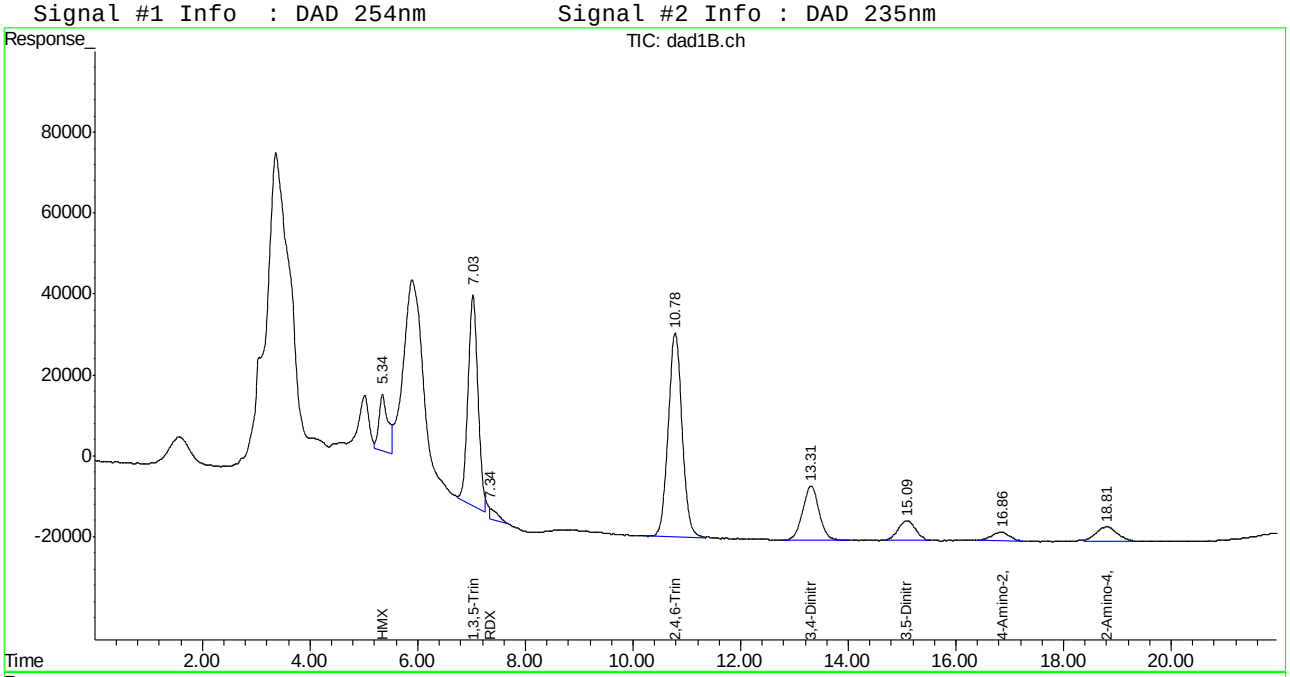
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

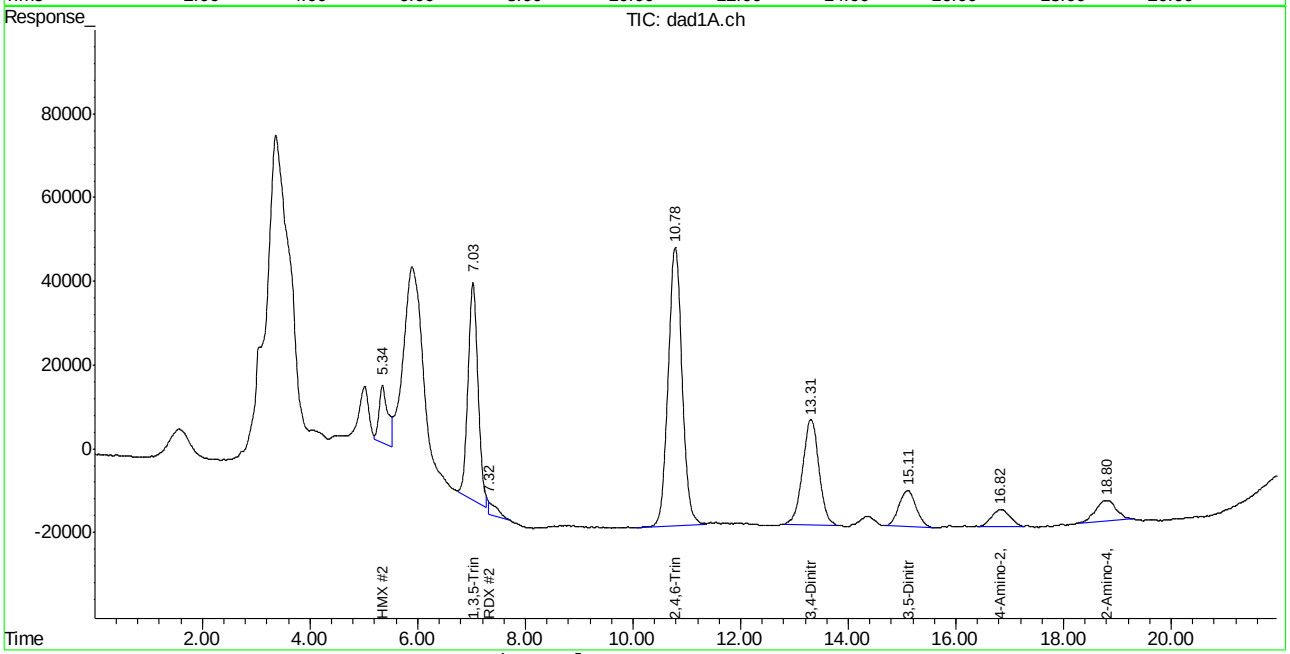
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619140.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619140.D\dad1A.ch
Acq On : 29-Jul-2020, 15:02:39 Operator: williamh
Sample : FA77052-2cf Inst : G1315B
Misc : op81252,GGG2858,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 30 12:43 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

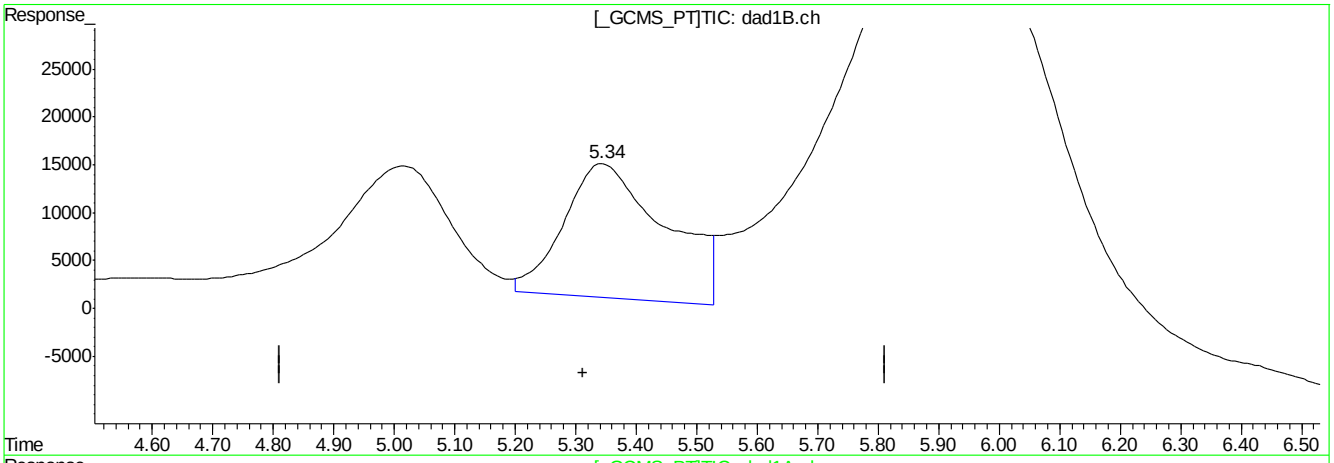
Sample Number: FA77052-2
Lab FileID: GG619140.D
Injection Time: 07/29/20 15:02
Method: SW846 8330B
Analyst approved: 07/30/20 15:14 William Hustedde
Supervisor approved: 07/30/20 16:25 Naresh Jiawan

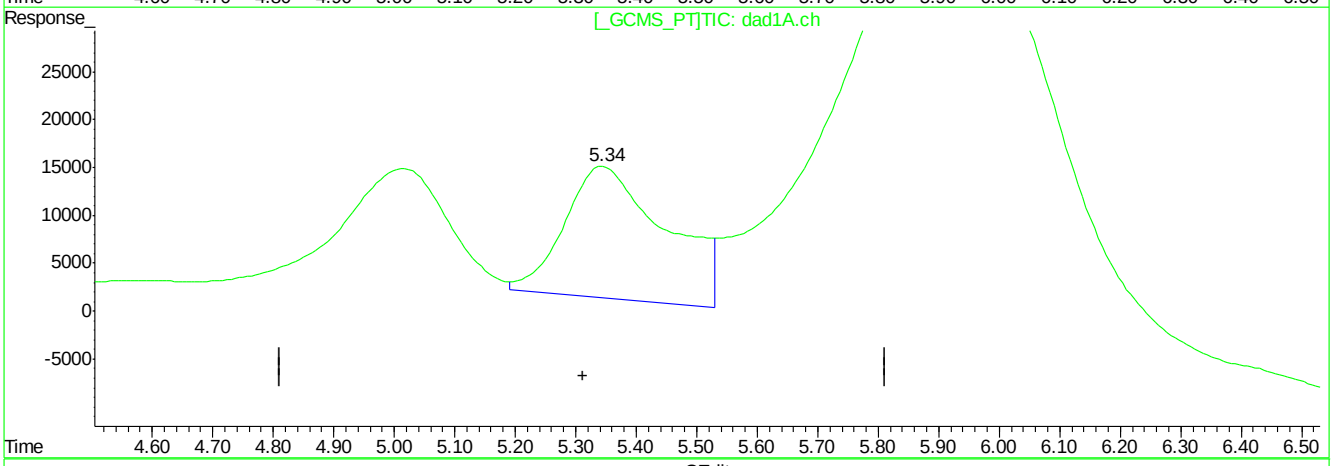
Parameter	CAS	Sig#	R.T. (min.)	Reason
HMX	2691-41-0	1	5.34	Poor instrument integration
HMX	2691-41-0	2	5.34	Poor instrument integration
1,3,5-Trinitrobenzene	99-35-4	1	7.03	Poor instrument integration
1,3,5-Trinitrobenzene	99-35-4	2	7.03	Poor instrument integration
RDX	121-82-4	2	7.32	Poor instrument integration
RDX	121-82-4	1	7.34	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	2	13.31	Poor instrument integration
3,5-Dinitroaniline	618-87-1	1	15.09	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	15.11	Poor instrument integration
4-amino-2,6-Dinitrotoluene	19406-51-0	2	16.82	Poor instrument integration
4-amino-2,6-Dinitrotoluene	19406-51-0	1	16.86	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	2	18.80	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	1	18.81	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619140.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619140.D\dad1A.ch
Acq On : 29-Jul-2020, 15:02:39 Operator: williamh
Sample : FA77052-2 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 30 10:20 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.34min 545.964ppb m

response 1626763

(2) HMX #2

5.34min 529.661ppb m

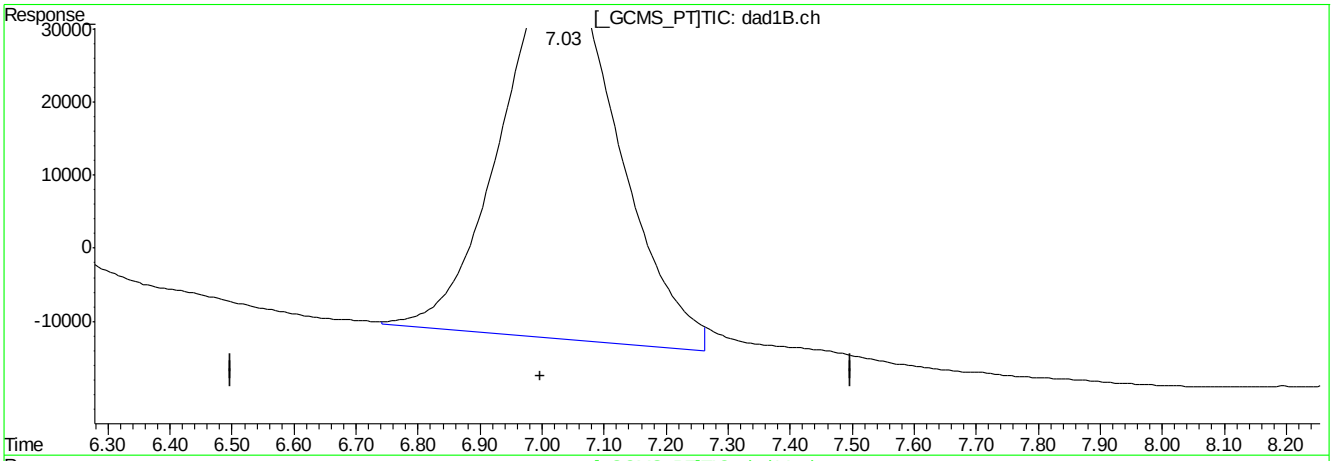
response 1588510

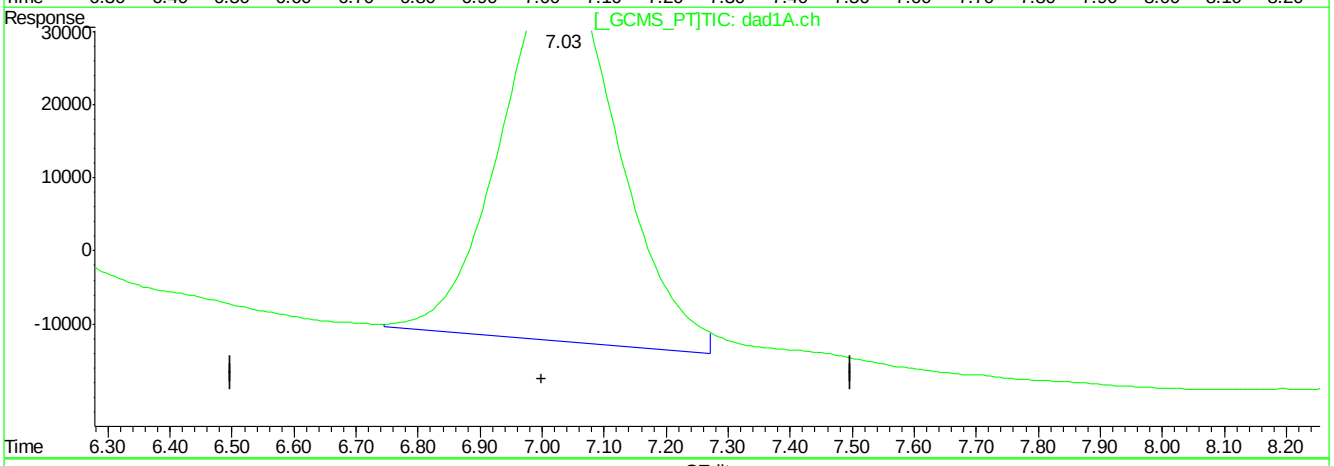
(+) = Expected Retention Time
GG619140.D 8330RPB.M_092519.M Thu Jul 30 12:42:25 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619140.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619140.D\dad1A.ch
Acq On : 29-Jul-2020, 15:02:39 Operator: williamh
Sample : FA77052-2 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 30 10:20 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration





QEdit

(5) 1,3,5-Trinitrobenzene

7.03min 644.182ppb m

response 6661657

(5) 1,3,5-Trinitrobenzene #2

7.03min 645.645ppb m

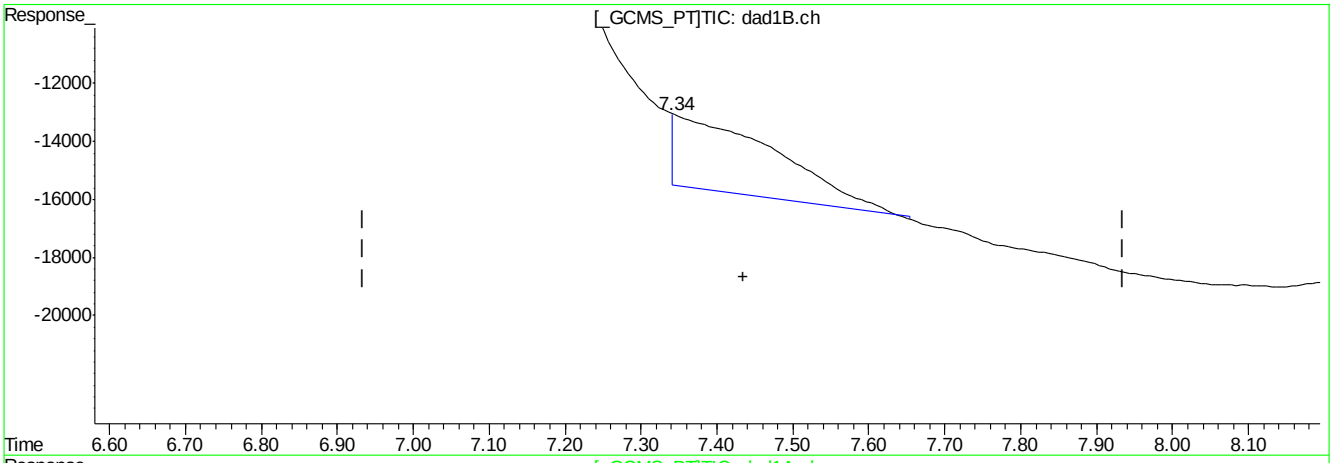
response 6676785

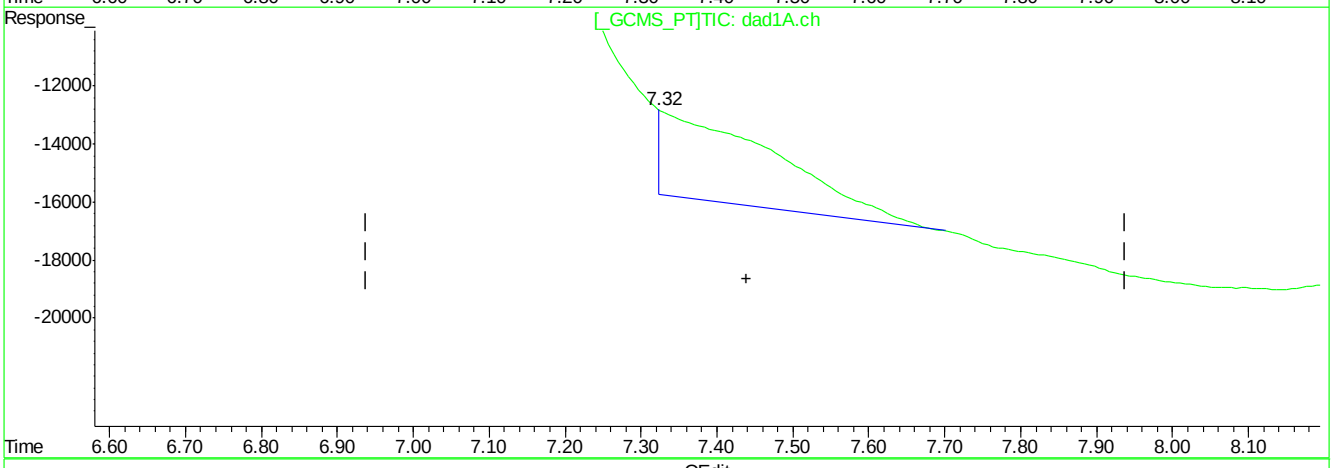
(+) = Expected Retention Time
GG619140.D 8330RPB.M_092519.M Thu Jul 30 12:42:35 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619140.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619140.D\dad1A.ch
Acq On : 29-Jul-2020, 15:02:39 Operator: williamh
Sample : FA77052-2 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 30 10:20 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration





QEdit

(6) RDX

7.34min 48.539ppb m

response 246085

(6) RDX #2

7.32min 63.543ppb m

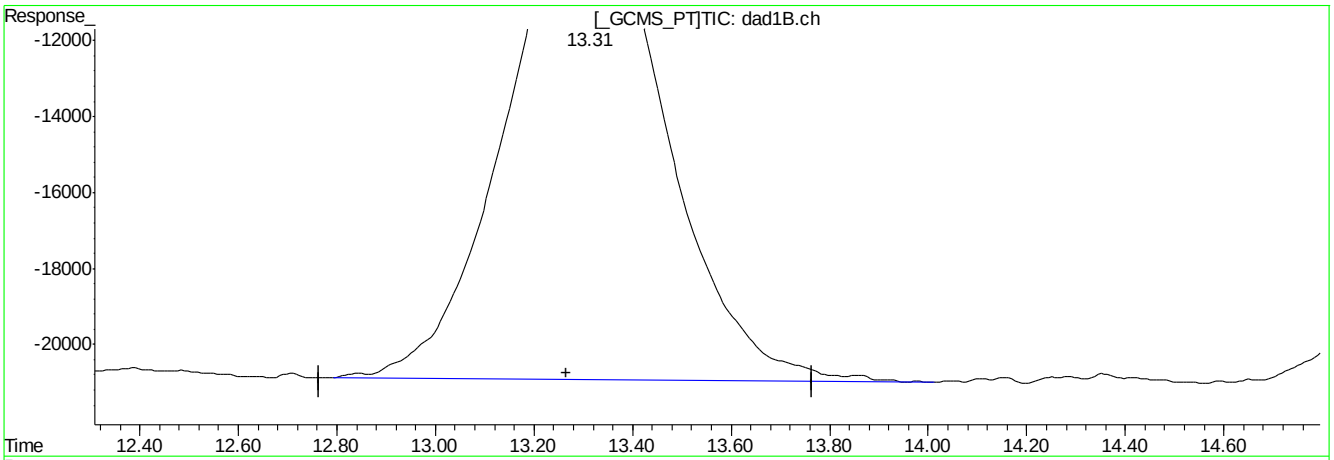
response 322153

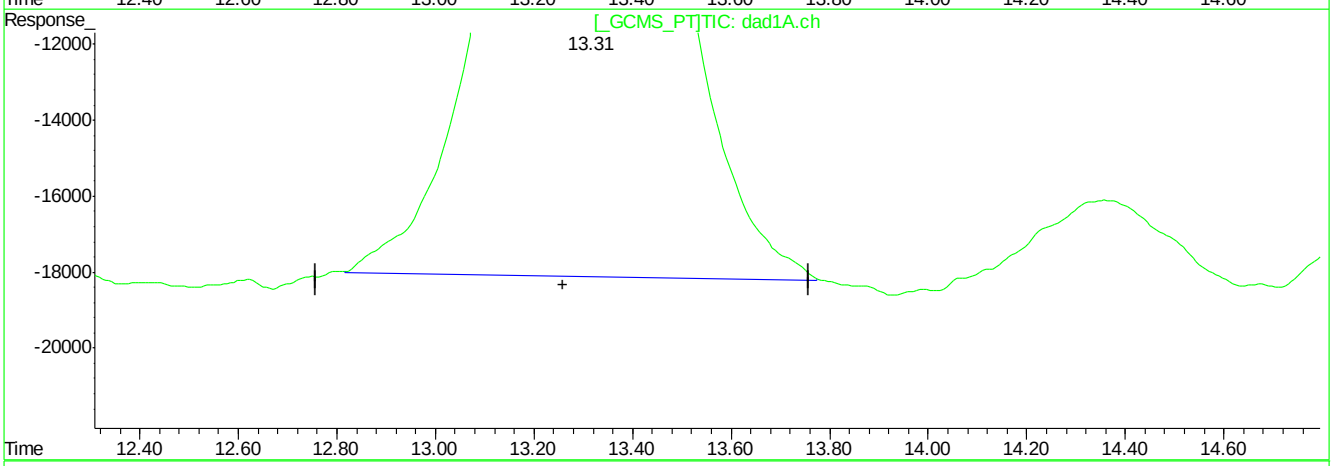
(+) = Expected Retention Time
GG619140.D 8330RPB.M_092519.M Thu Jul 30 12:42:44 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619140.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619140.D\dad1A.ch
Acq On : 29-Jul-2020, 15:02:39 Operator: williamh
Sample : FA77052-2 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 30 10:20 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration





QEdit

(12) 3,4-Dinitrotoluene (S)

13.31min 631.768ppb

response 2852680

(12) 3,4-Dinitrotoluene #2 (S)

13.31min 587.771ppb m

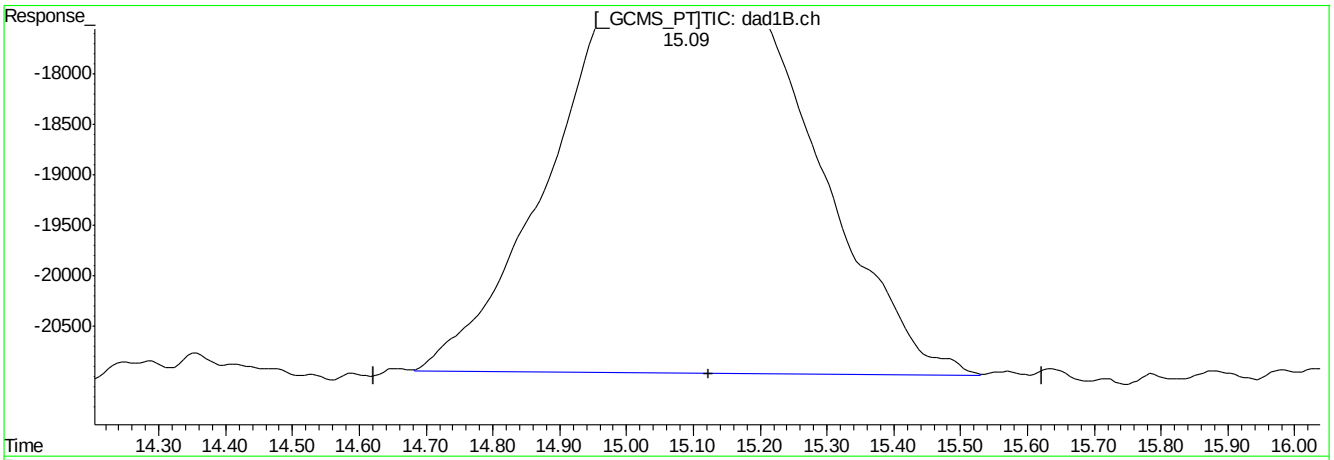
response 5279677

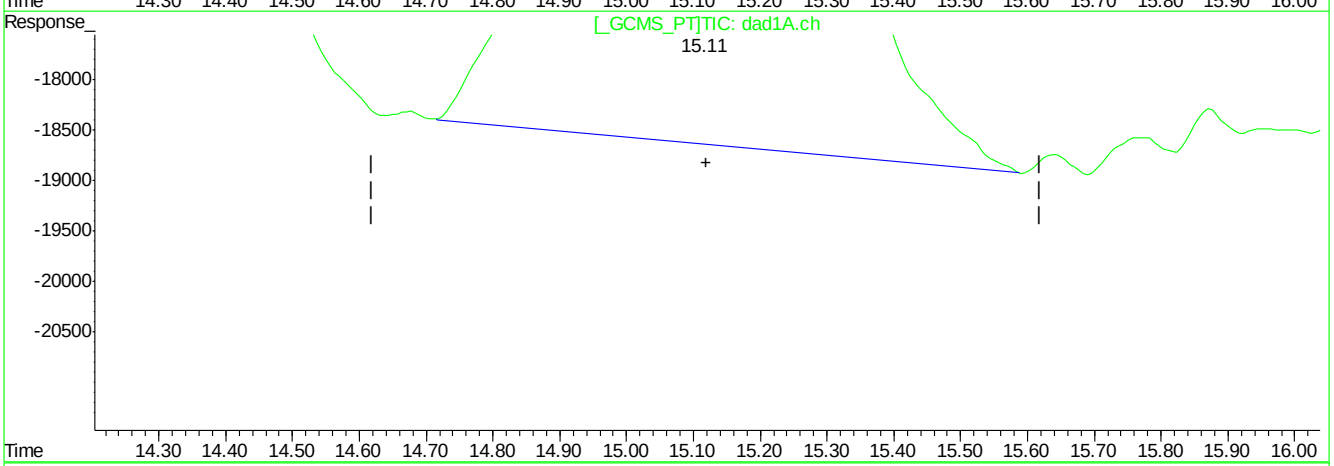
(+) = Expected Retention Time
GG619140.D 8330RPB.M_092519.M Thu Jul 30 12:42:54 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619140.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619140.D\dad1A.ch
Acq On : 29-Jul-2020, 15:02:39 Operator: williamh
Sample : FA77052-2 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 30 10:20 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration





QEdit

(16) 3,5-Dinitroaniline

15.09min 108.573ppb m

response 1107767

(16) 3,5-Dinitroaniline #2

15.11min 115.835ppb m

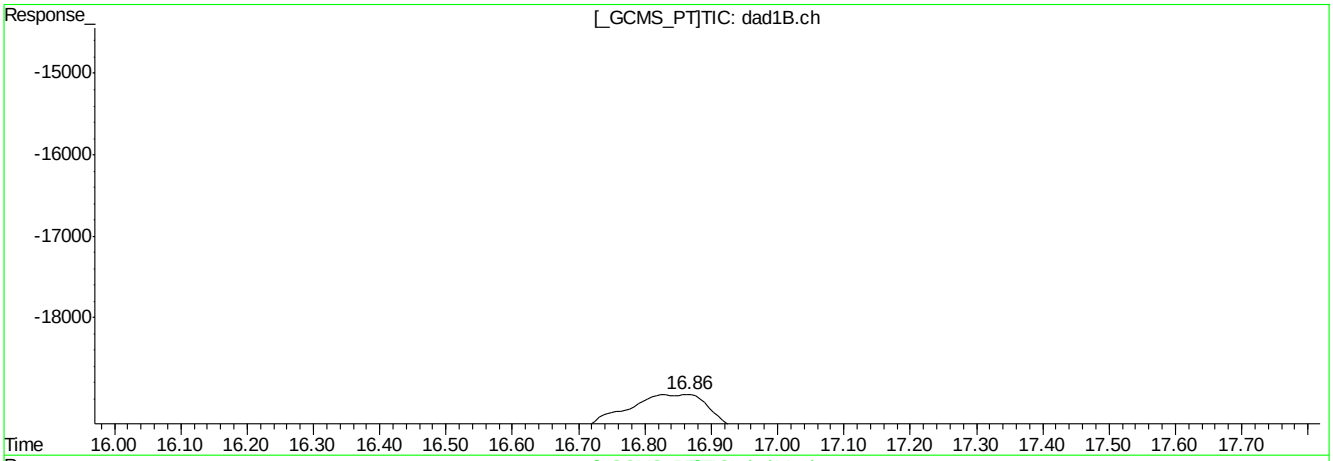
response 1923016

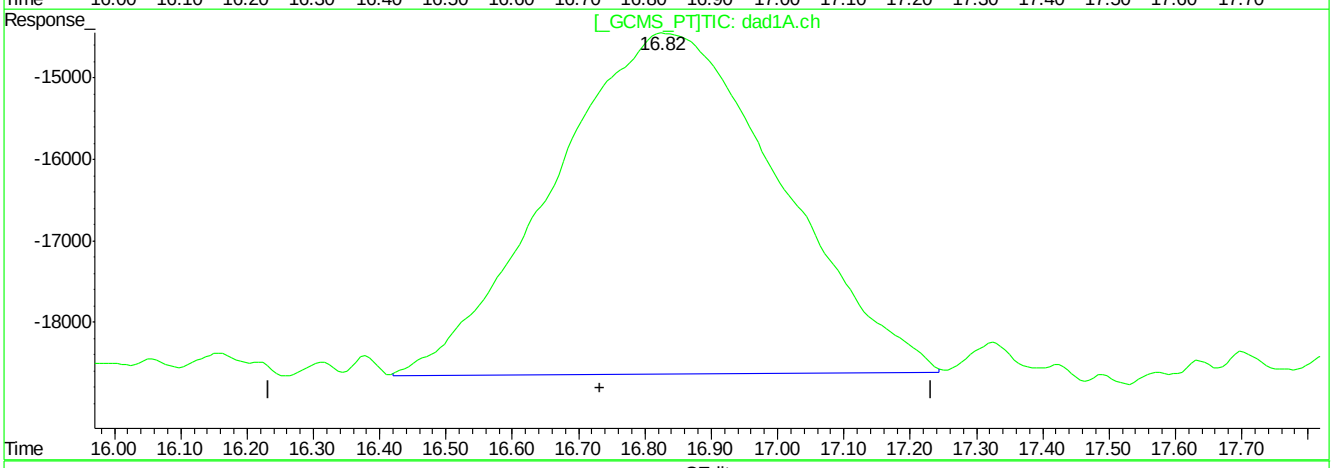
(+) = Expected Retention Time
GG619140.D 8330RPB.M_092519.M Thu Jul 30 12:43:05 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619140.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619140.D\dad1A.ch
Acq On : 29-Jul-2020, 15:02:39 Operator: williamh
Sample : FA77052-2 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 30 10:20 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration





QEdit

(18) 4-Amino-2,6-Dinitrotoluene

16.86min 42.471ppb m

response 491072

(18) 4-Amino-2,6-Dinitrotoluene #2

16.82min 45.883ppb m

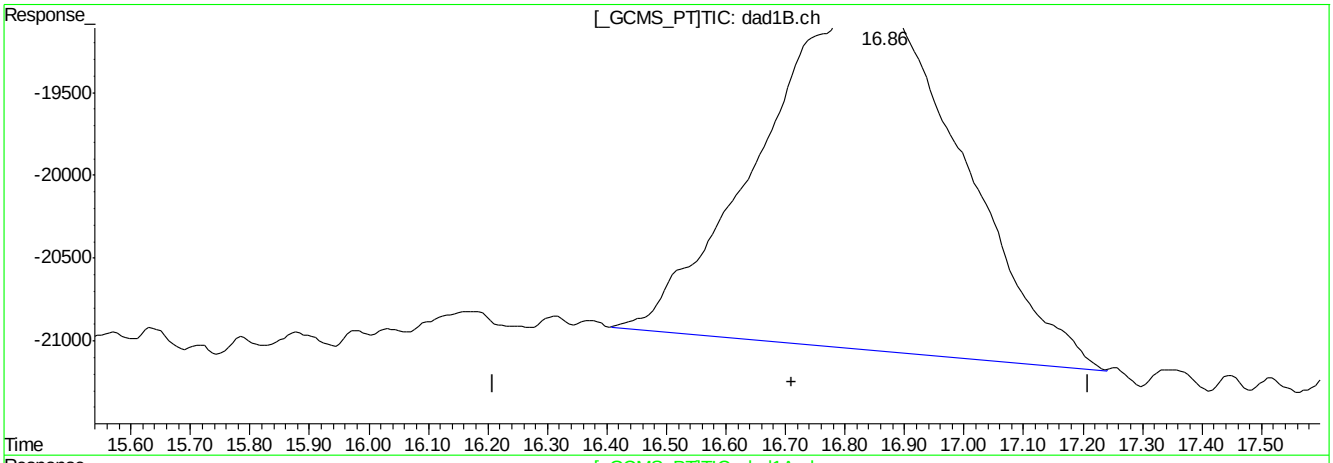
response 996449

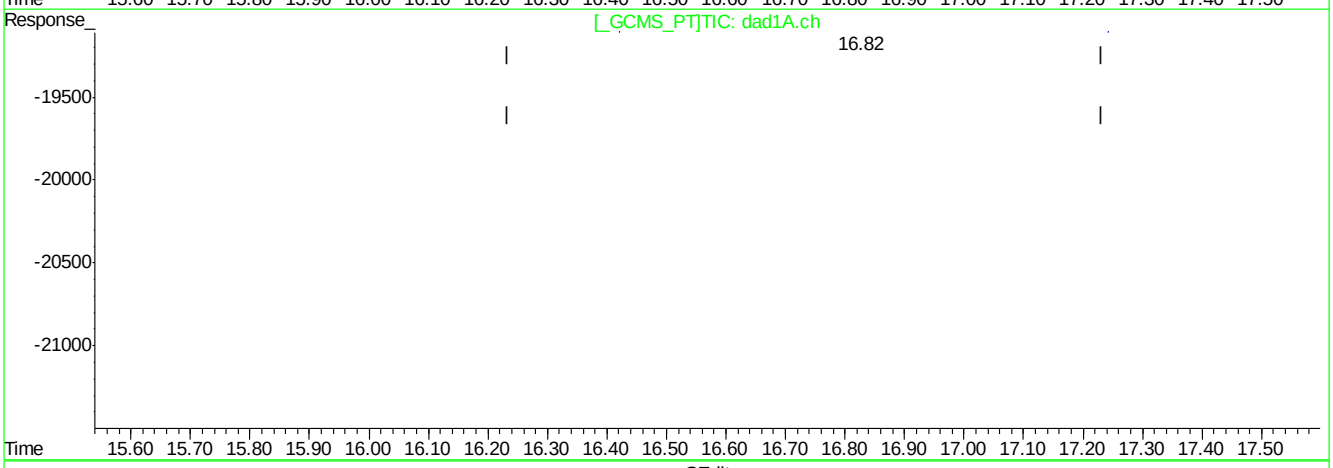
(+) = Expected Retention Time
GG619140.D 8330RPB.M_092519.M Thu Jul 30 12:43:17 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619140.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619140.D\dad1A.ch
Acq On : 29-Jul-2020, 15:02:39 Operator: williamh
Sample : FA77052-2 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 30 10:20 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration





QEdit

(18) 4-Amino-2,6-Dinitrotoluene

16.86min 42.471ppb m

response 491072

(18) 4-Amino-2,6-Dinitrotoluene #2

16.82min 45.883ppb m

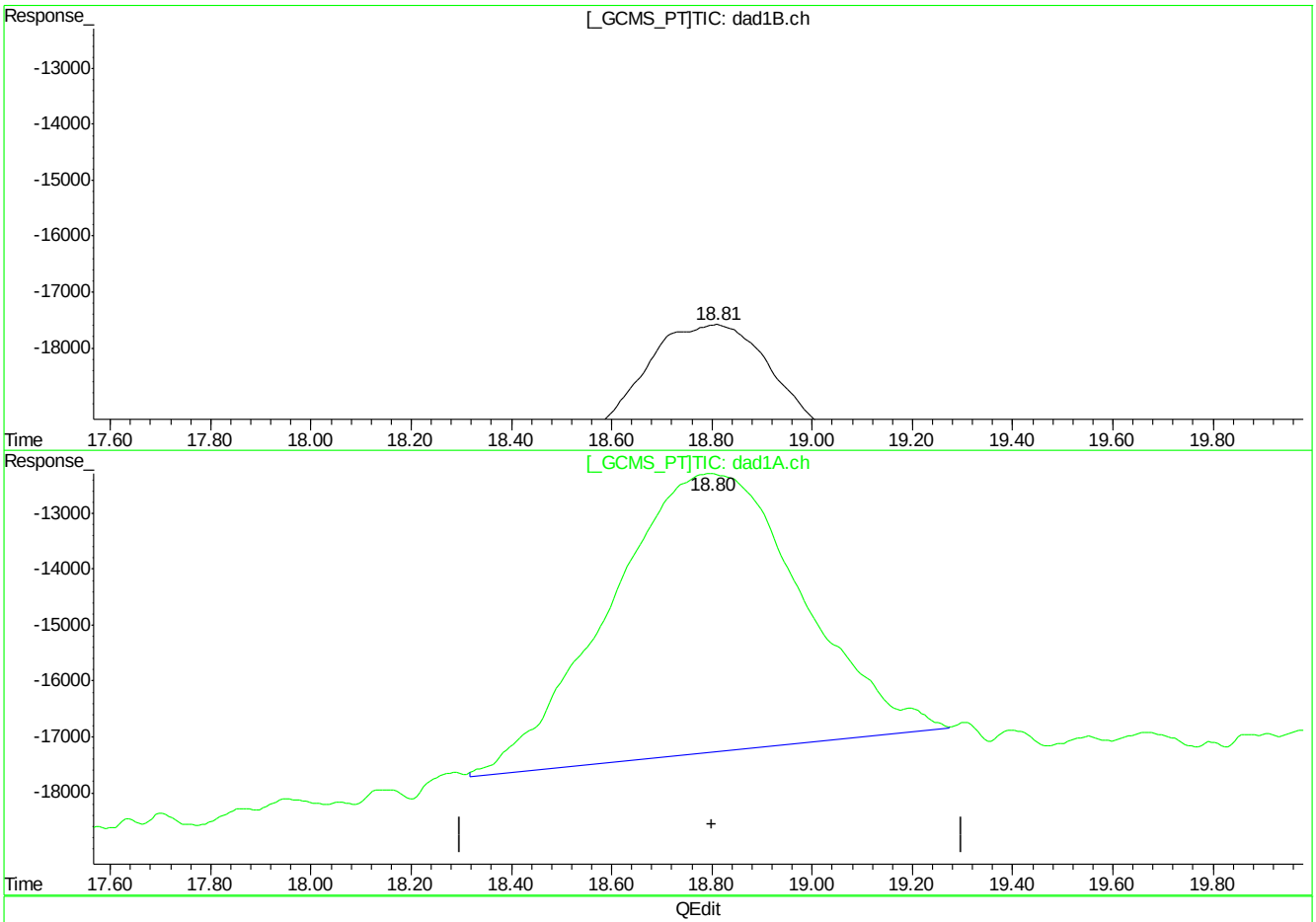
response 996449

(+) = Expected Retention Time
GG619140.D 8330RPB.M_092519.M Thu Jul 30 12:43:19 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619140.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619140.D\dad1A.ch
Acq On : 29-Jul-2020, 15:02:39 Operator: williamh
Sample : FA77052-2 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 30 10:20 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration



(20) 2-Amino-4,6-Dinitrotoluene

18.81min 95.640ppb m

response 917727

(20) 2-Amino-4,6-Dinitrotoluene #2

18.80min 94.555ppb m

response 1326794

(+) = Expected Retention Time
GG619140.D 8330RPB.M_092519.M Thu Jul 30 12:43:31 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 07/30/20 16:25

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068459.D\dad1B.ch Vial: 76
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068459.D\dad1A.ch
Acq On : 27-Jul-2020, 22:21:00 Operator: williamh
Sample : FA77052-3 Inst : G1315B
Misc : op81252,GBB2008,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jul 28 10:04:54 2020 Quant Results File: 8330B_060120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.73	10.73	991026	1765820	530.688	555.963
	Spiked Amount 500.000	Range 70 - 136		Recovery =		106.14%	111.19%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	1.47	1.47	1799817	5111607	1217.825	1246.970
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D.	N.D.
5)	RDX	0.00	0.00	0	0	N.D. d	N.D. d
6)	1,3,5-Trinitrobe	4.62	4.62	2461328	4747218	587.729	593.522
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D. d	N.D. d
8)	3,5-Dinitroanili	6.12	6.12	94639	167168	23.320	24.172m
9)	Nitrobenzene	0.00	0.00	0	0	N.D.	N.D.
10)	Nitroglycerin	0.00	0.00	0	0	N.D.	N.D.
11)	Tetryl	0.00	0.00	0	0	N.D.	N.D.
12)	2,4,6-Trinitroto	9.54	9.54	1553685	1831209	409.122	407.103
13)	2-Amino-4,6-Dini	9.85	9.85	1229444	1895944	355.714	368.599
14)	4-Amino-2,6-Dini	10.29	10.30	553237	1120481	219.196	226.536
16)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D.	N.D.
17)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
18)	o-Nitrotoluene	0.00	0.00	0	0	N.D.	N.D.
19)	p-Nitrotoluene	0.00	0.00	0	0	N.D.	N.D.
20)	m-Nitrotoluene	0.00	0.00	0	0	N.D.	N.D.
21)	PETN	18.34	0.00	26798	0	NoCal	N.D.

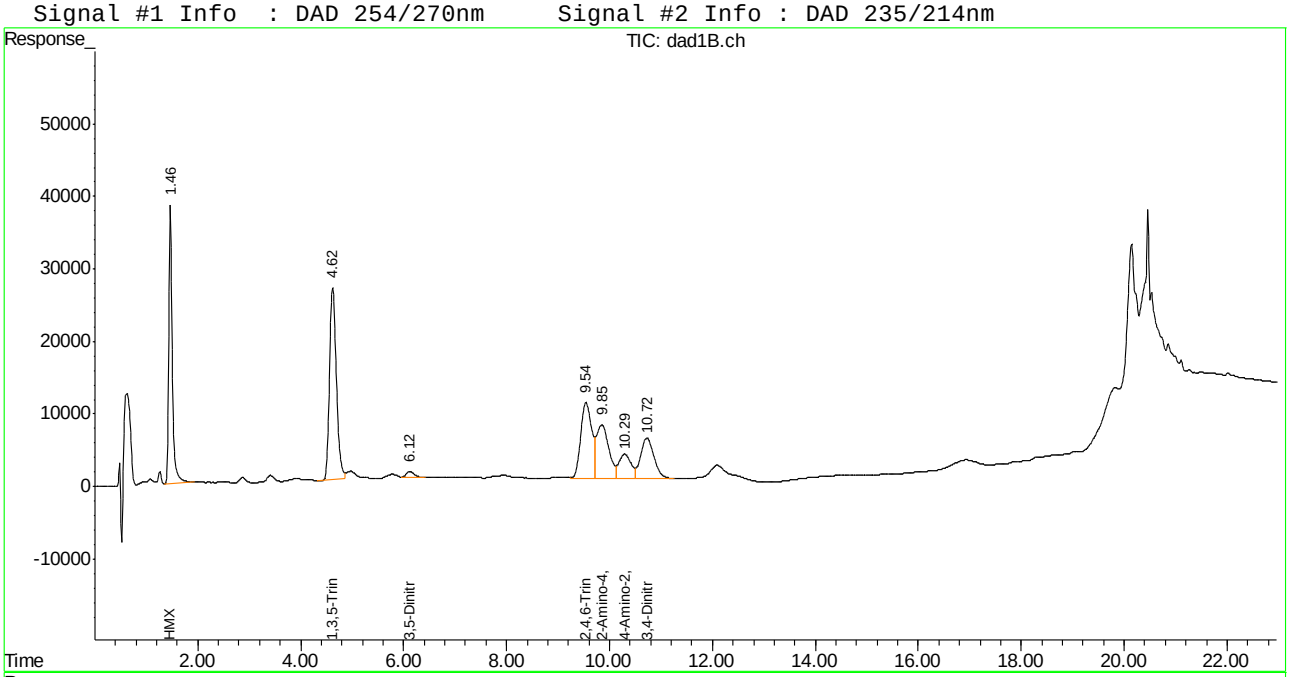
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB068459.D 8330B_060120_PLUS.M Thu Jul 30 12:59:50 2020 Page 1

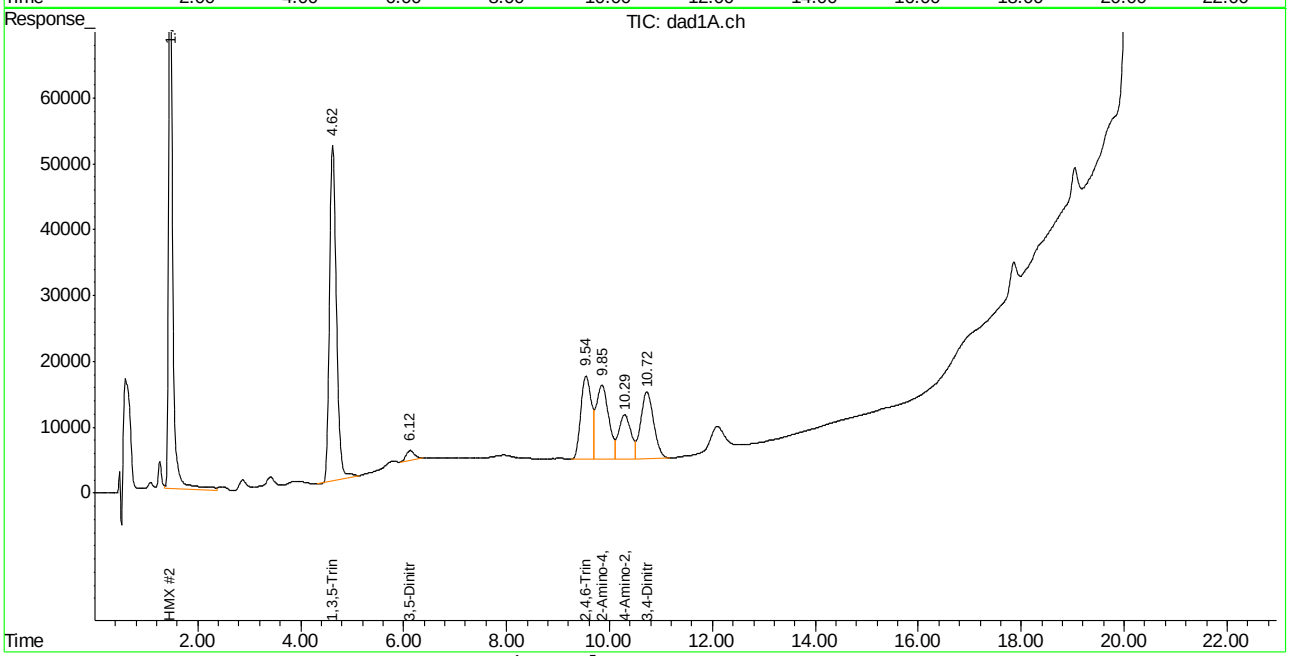
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068459.D\dad1B.ch Vial: 76
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068459.D\dad1A.ch
Acq On : 27-Jul-2020, 22:21:00 Operator: williamh
Sample : FA77052-3 Inst : G1315B
Misc : op81252,GBB2008,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jul 30 12:59 2020 Quant Results File: 8330B_060120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

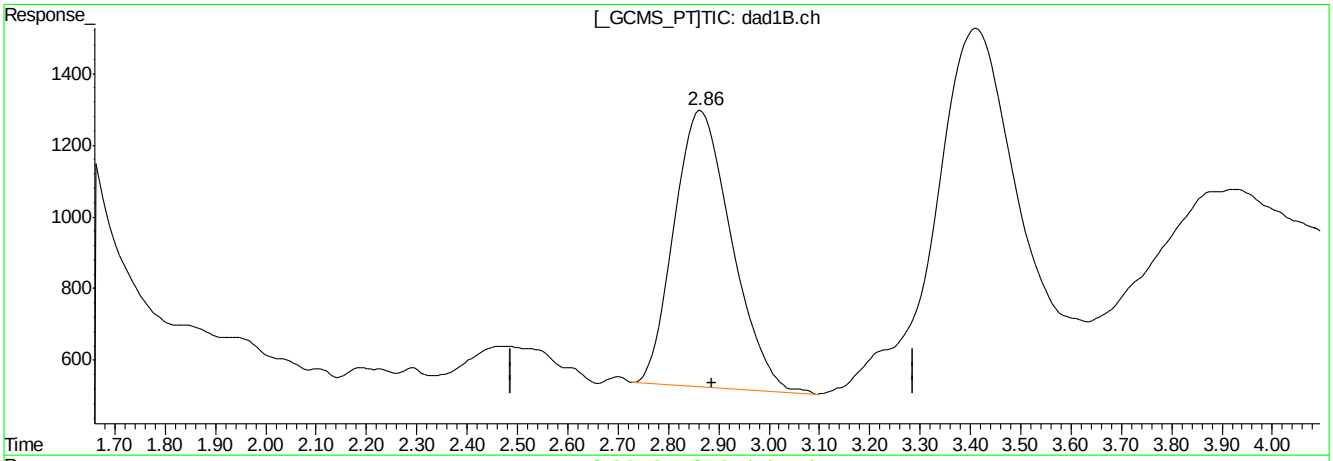
Sample Number: FA77052-3
Lab FileID: BB068459.D
Injection Time: 07/27/20 22:21
Method: SW846 8330B
Analyst approved: 07/30/20 15:15 William Hustedde
Supervisor approved: 07/30/20 16:25 Naresh Jiawan

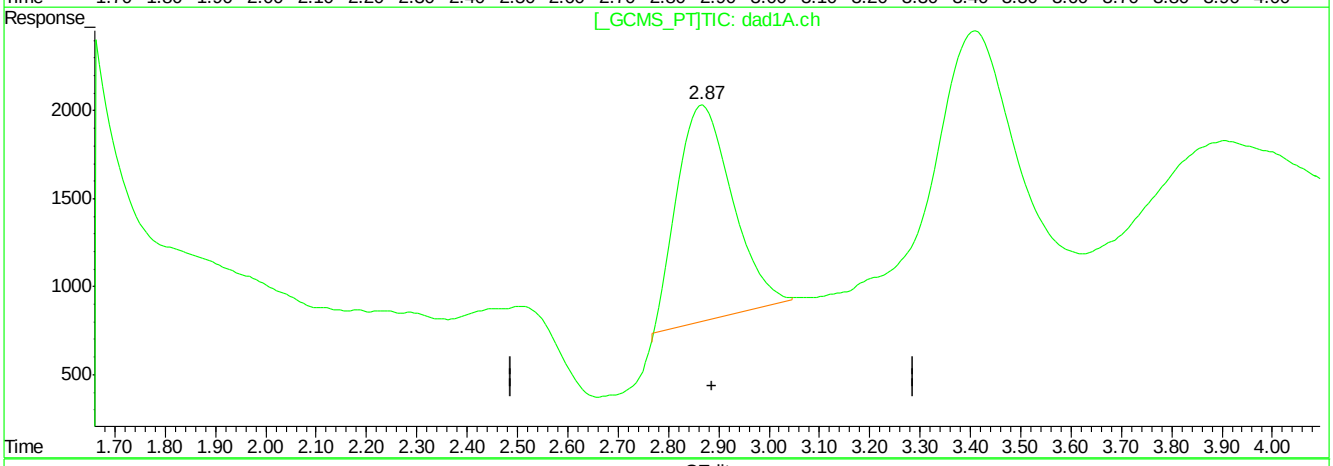
Parameter	CAS	Sig#	R.T. (min.)	Reason
RDX	121-82-4	2	2.87	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	6.12	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068459.D\dad1B.ch Vial: 76
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068459.D\dad1A.ch
Acq On : 27-Jul-2020, 22:21:00 Operator: williamh
Sample : FA77052-3 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jul 28 10:04 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Multiple Level Calibration





QEdit

(5) RDX

2.87min 32.226ppb

response 61122

(5) RDX #2

2.87min 31.146ppb m

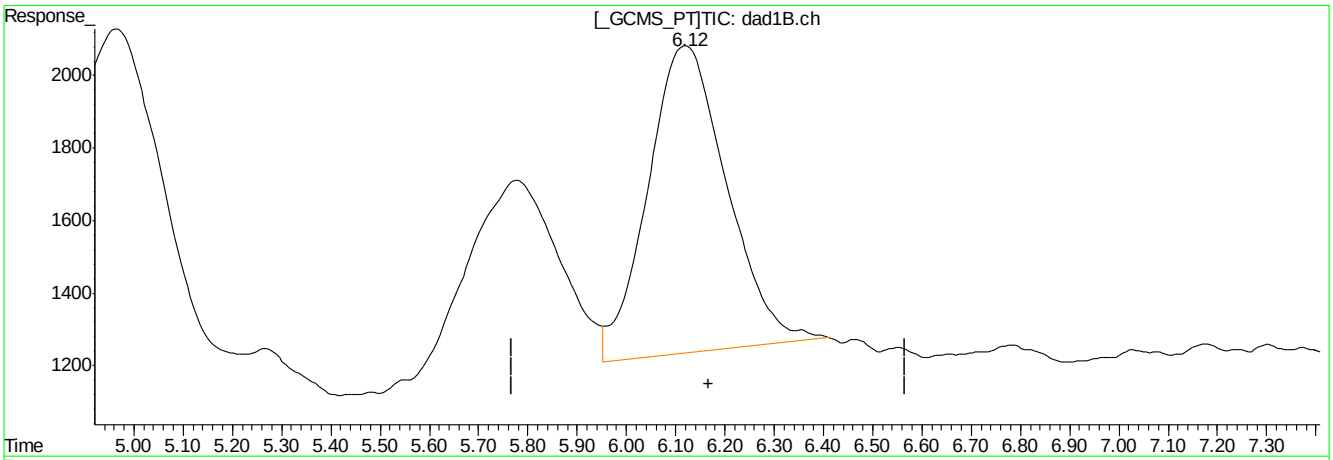
response 93992

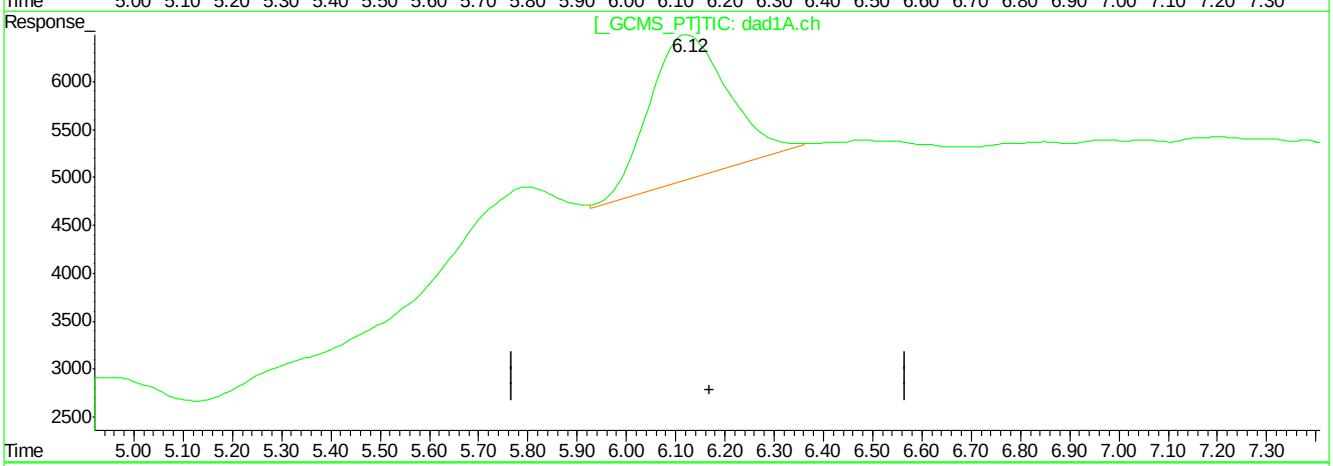
(+) = Expected Retention Time
BB068459.D 8330B_060120_PLUS.M Tue Jul 28 15:11:39 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068459.D\dad1B.ch Vial: 76
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068459.D\dad1A.ch
Acq On : 27-Jul-2020, 22:21:00 Operator: williamh
Sample : FA77052-3 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jul 28 10:04 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.12min 23.320ppb

response 94639

(8) 3,5-Dinitroaniline #2

6.12min 24.172ppb m

response 167168

(+) = Expected Retention Time
BB068459.D 8330B_060120_PLUS.M Tue Jul 28 15:11:52 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
07/30/20 16:25

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619141.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619141.D\dad1A.ch
Acq On : 29-Jul-2020, 15:32:04 Operator: williamh
Sample : FA77052-3cf Inst : G1315B
Misc : op81252,GGG2858,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 30 10:20:33 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.29	13.28	2799349	6067024	619.957m	675.188m
	Spiked Amount 500.000	Range 70 - 136		Recovery =		123.99%	135.04%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	5.33	5.33	4746798	5110130	1593.092m	1703.885m
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D. d	N.D. d
5)	1,3,5-Trinitrobe	7.02	7.02	5738895	5793808	554.951m	560.261m
6)	RDX	0.00	0.00	0	0	N.D.	N.D.
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D. d	N.D. d
8)	Nitrobenzene	0.00	0.00	0	0	N.D. d	N.D. d
9)	2,4,6-Trinitroto	10.77	10.77	4078696	5329899	400.001	403.215m
10)	Nitroglycerin	0.00	0.00	0	0	N.D. d	N.D. d
11)	Tetryl	0.00	0.00	0	0	N.D. d	N.D. d
13)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
14)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
15)	o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
16)	3,5-Dinitroanili	15.05	15.05	1210186	2087577	118.611	125.747m
17)	p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
18)	4-Amino-2,6-Dini	16.79	16.79	1394792	2801226	120.631m	128.988m
19)	m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20)	2-Amino-4,6-Dini	18.74	18.74	3068326	4424559	319.761m	315.321m
21)	PETN	0.00	0.00	0	0	N.D. d	N.D. d

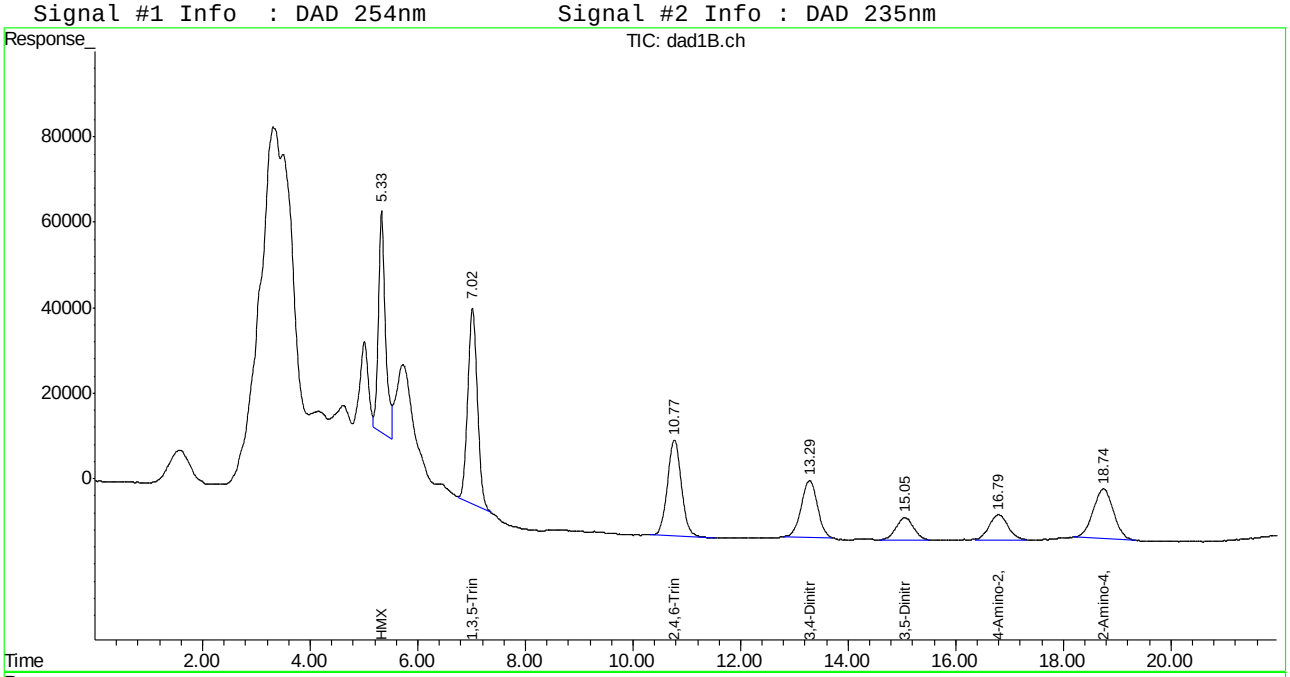
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
GG619141.D 8330RPB.M_092519.M Thu Jul 30 15:06:27 2020 Page 1

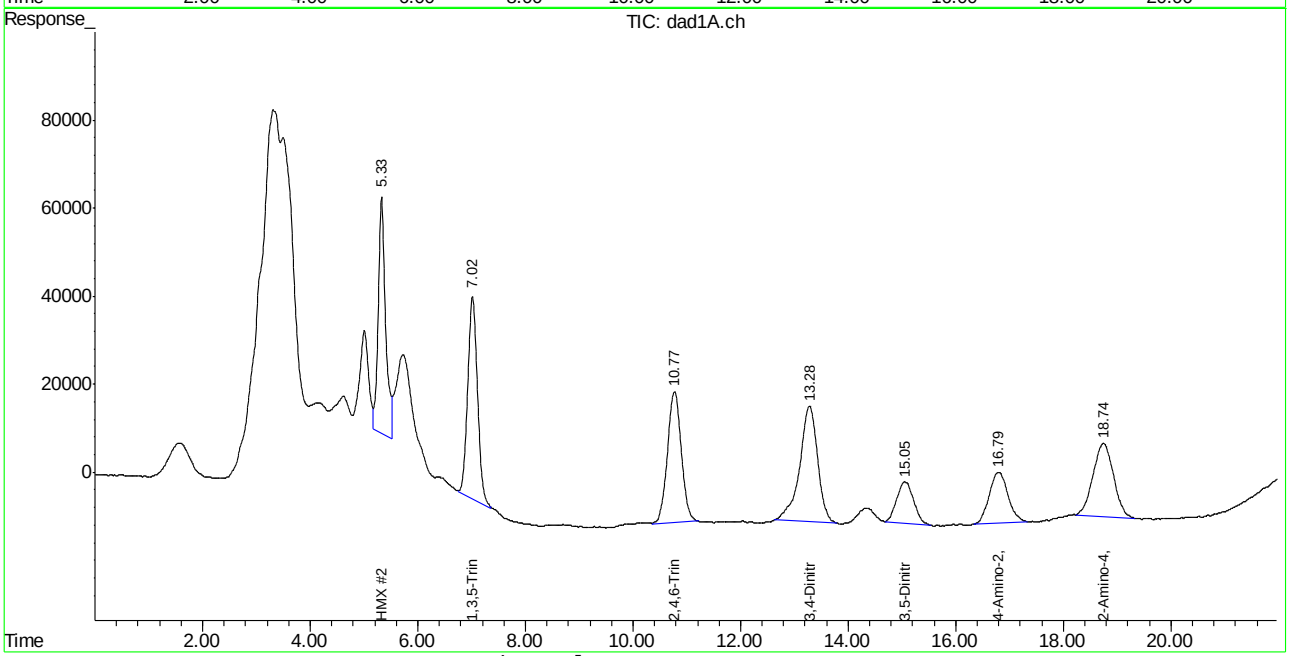
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619141.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619141.D\dad1A.ch
Acq On : 29-Jul-2020, 15:32:04 Operator: williamh
Sample : FA77052-3cf Inst : G1315B
Misc : op81252,GGG2858,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 30 12:46 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

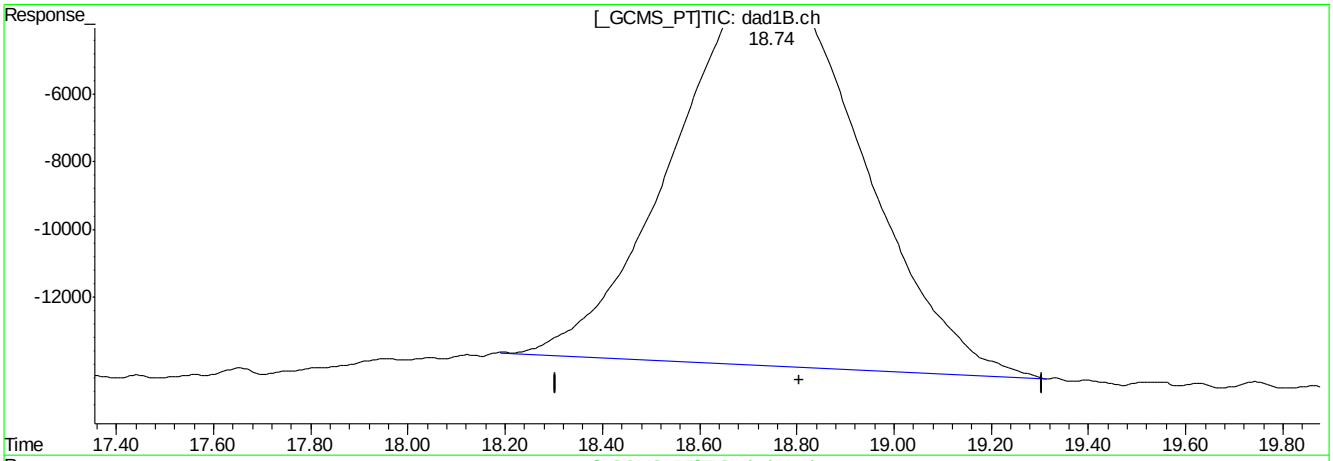
Sample Number: FA77052-3
Lab FileID: GG619141.D
Injection Time: 07/29/20 15:32
Method: SW846 8330B
Analyst approved: 07/30/20 15:15 William Hustedde
Supervisor approved: 07/30/20 16:25 Naresh Jiawan

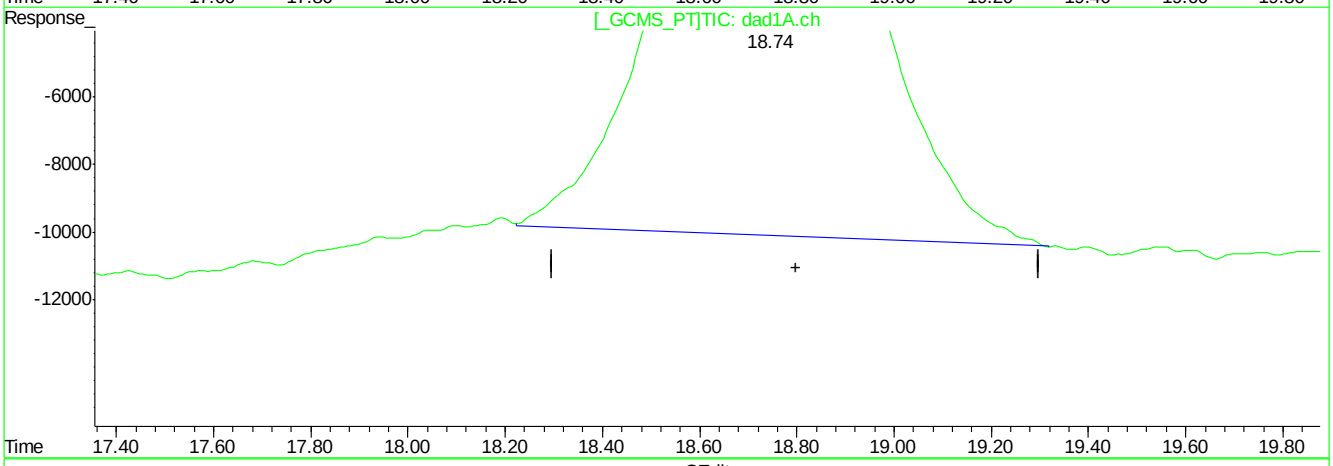
Parameter	CAS	Sig#	R.T. (min.)	Reason
HMX	2691-41-0	1	5.33	Poor instrument integration
HMX	2691-41-0	2	5.33	Poor instrument integration
1,3,5-Trinitrobenzene	99-35-4	1	7.02	Poor instrument integration
1,3,5-Trinitrobenzene	99-35-4	2	7.02	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	2	10.77	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	2	13.28	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	1	13.29	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	15.05	Poor instrument integration
4-amino-2,6-Dinitrotoluene	19406-51-0	1	16.79	Poor instrument integration
4-amino-2,6-Dinitrotoluene	19406-51-0	2	16.79	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	1	18.74	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	2	18.74	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619141.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619141.D\dad1A.ch
Acq On : 29-Jul-2020, 15:32:04 Operator: williamh
Sample : FA77052-3 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 30 10:20 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration





QEdit

(20) 2-Amino-4,6-Dinitrotoluene

18.74min 319.761ppb m

response 3068326

(20) 2-Amino-4,6-Dinitrotoluene #2

18.74min 315.321ppb m

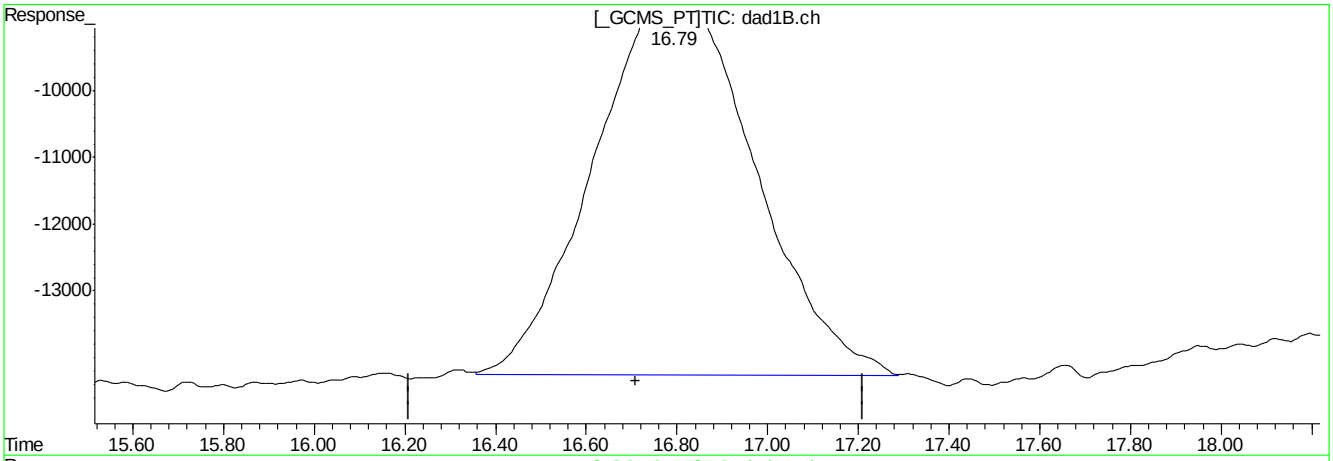
response 4424559

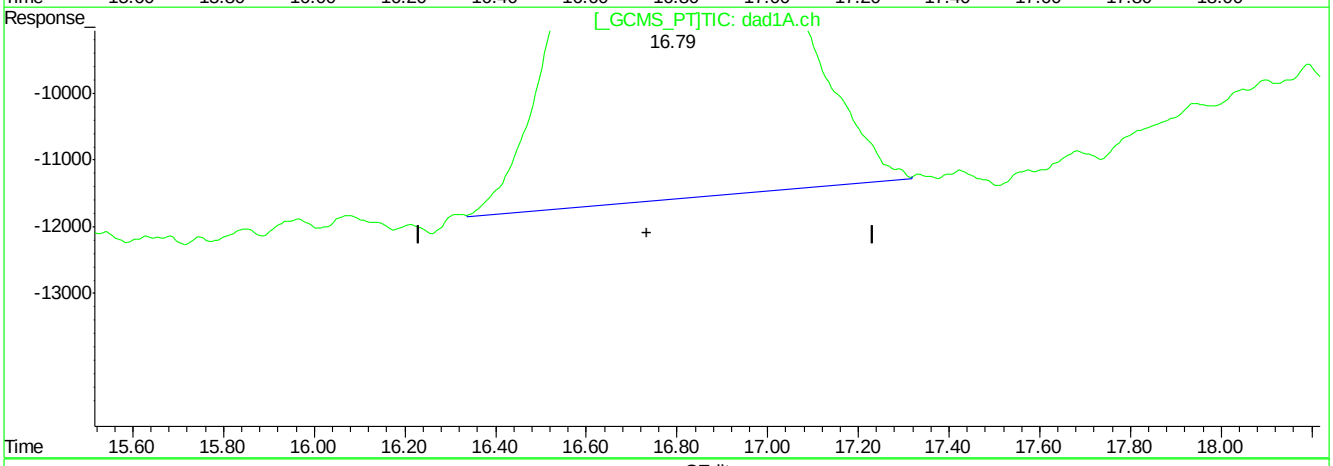
(+) = Expected Retention Time
GG619141.D 8330RPB.M_092519.M Thu Jul 30 12:45:39 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619141.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619141.D\dad1A.ch
Acq On : 29-Jul-2020, 15:32:04 Operator: williamh
Sample : FA77052-3 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 30 10:20 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration





QEdit

(18) 4-Amino-2,6-Dinitrotoluene

16.79min 120.631ppb m

response 1394792

(18) 4-Amino-2,6-Dinitrotoluene #2

16.79min 128.988ppb m

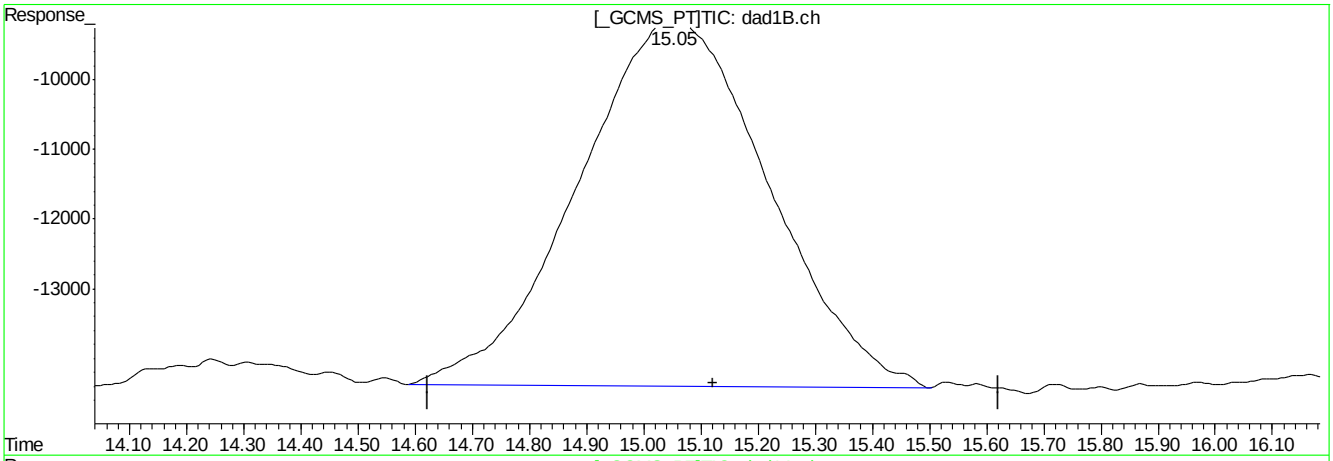
response 2801226

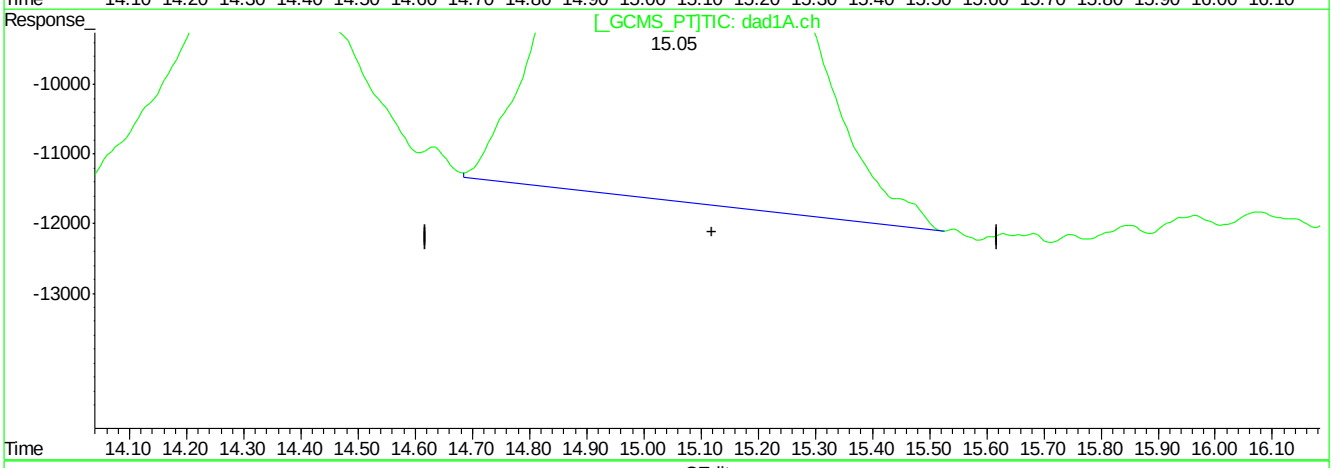
(+) = Expected Retention Time
GG619141.D 8330RPB.M_092519.M Thu Jul 30 12:45:47 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619141.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619141.D\dad1A.ch
Acq On : 29-Jul-2020, 15:32:04 Operator: williamh
Sample : FA77052-3 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 30 10:20 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration





QEdit

(16) 3,5-Dinitroaniline

15.05min 118.611ppb

response 1210186

(16) 3,5-Dinitroaniline #2

15.05min 125.747ppb m

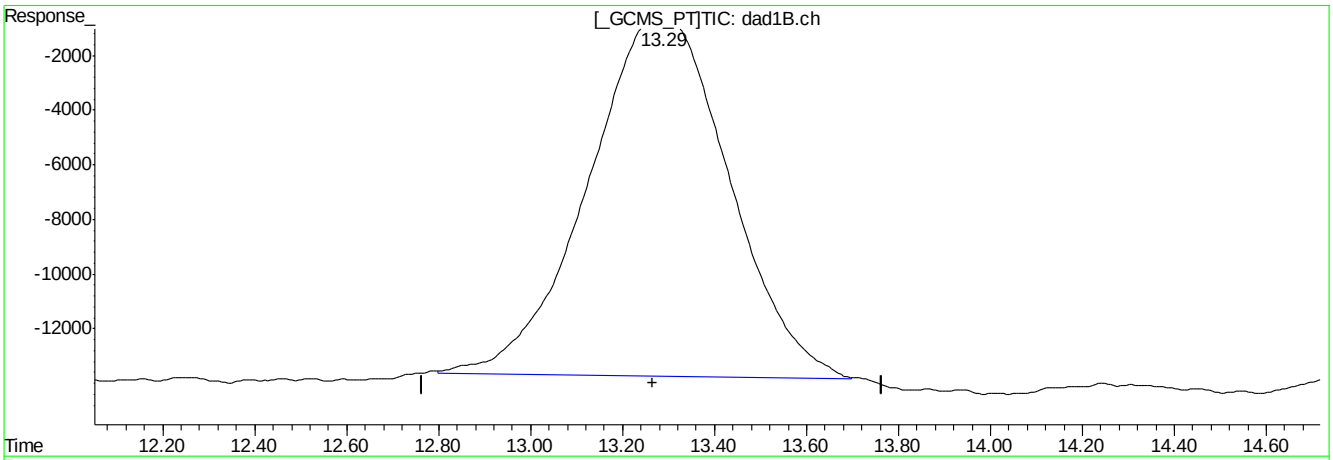
response 2087577

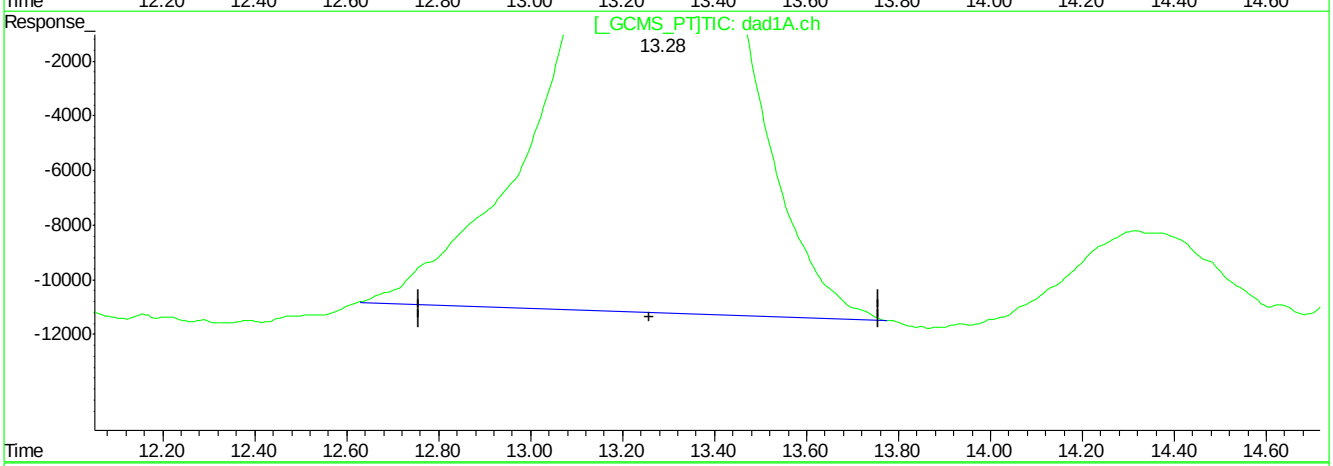
(+) = Expected Retention Time
GG619141.D 8330RPB.M_092519.M Thu Jul 30 12:45:55 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619141.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619141.D\dad1A.ch
Acq On : 29-Jul-2020, 15:32:04 Operator: williamh
Sample : FA77052-3 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 30 10:20 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration





QEdit

(12) 3,4-Dinitrotoluene (S)

13.29min 619.957ppb m

response 2799349

(12) 3,4-Dinitrotoluene #2 (S)

13.28min 675.188ppb m

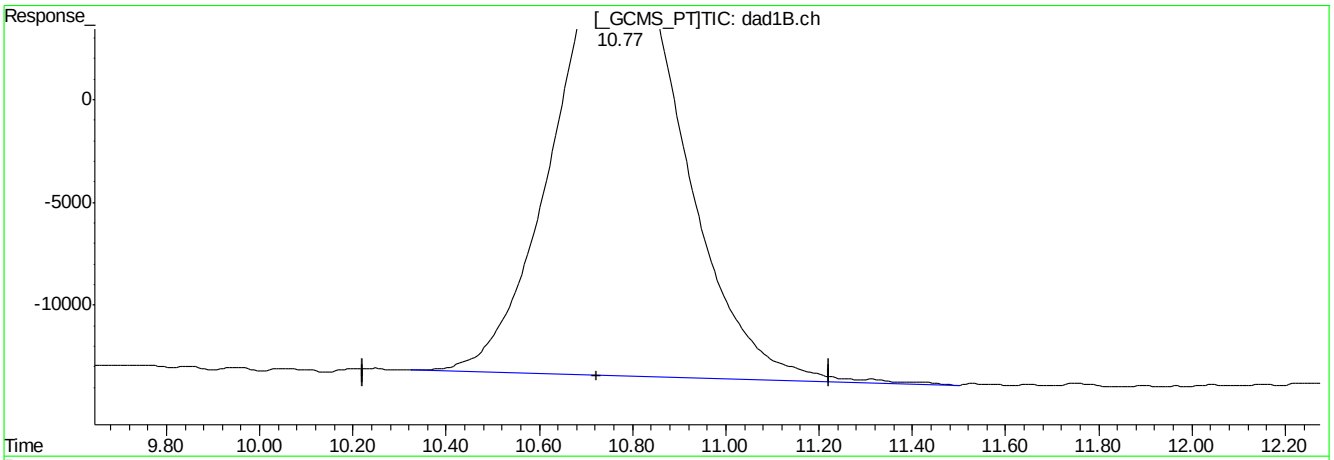
response 6067024

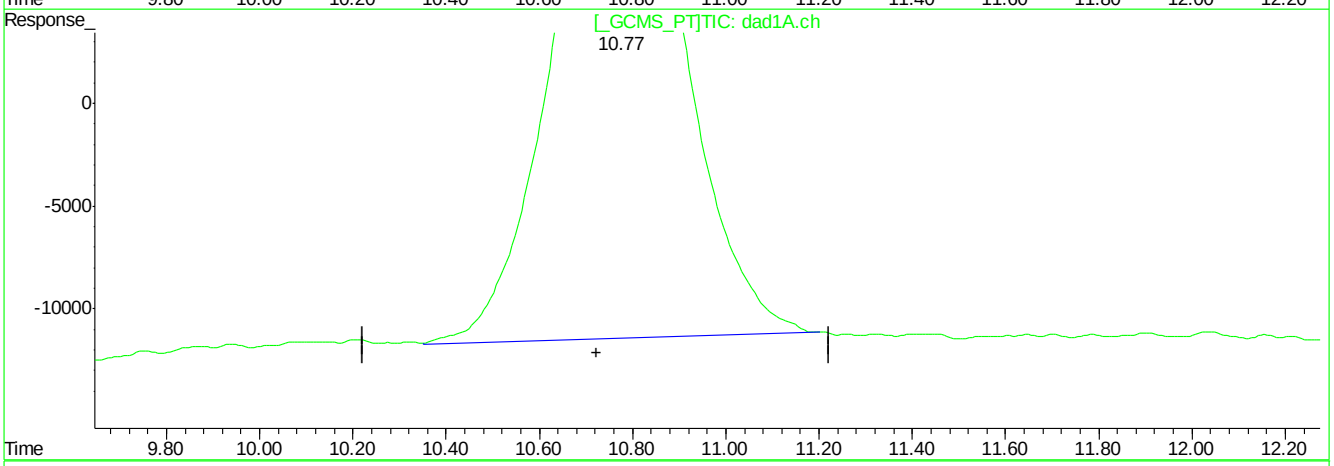
(+) = Expected Retention Time
GG619141.D 8330RPB.M_092519.M Thu Jul 30 12:46:05 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619141.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619141.D\dad1A.ch
Acq On : 29-Jul-2020, 15:32:04 Operator: williamh
Sample : FA77052-3 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 30 10:20 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

10.77min 400.001ppb

response 4078696

(9) 2,4,6-Trinitrotoluene #2

10.77min 403.215ppb m

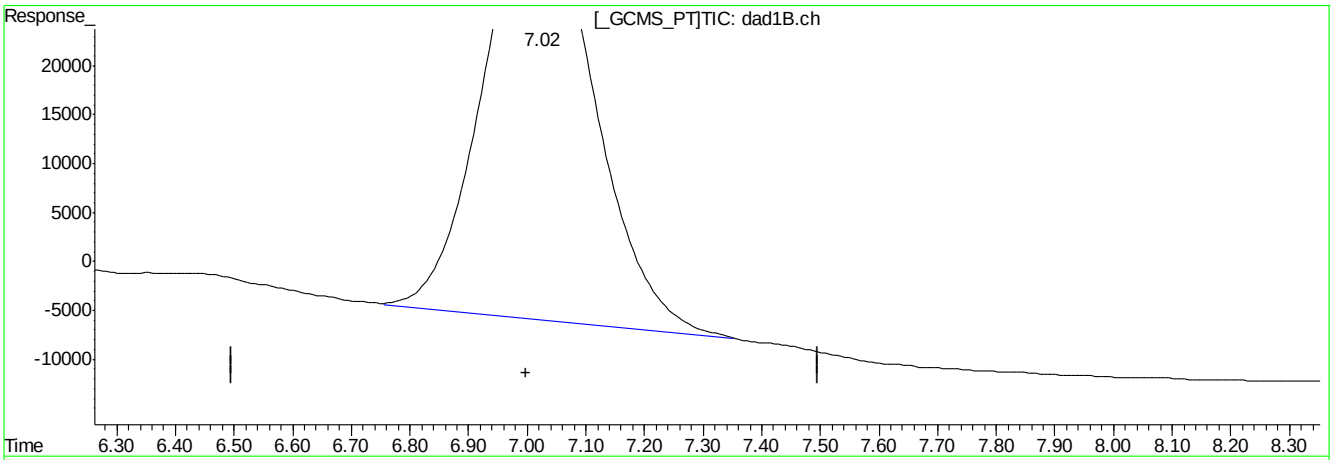
response 5329899

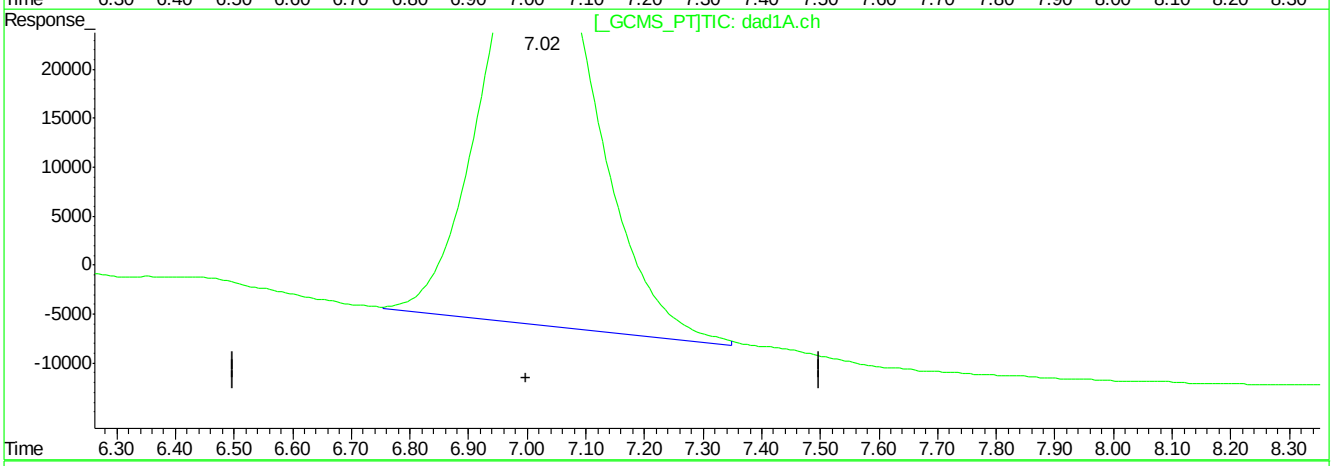
(+) = Expected Retention Time
GG619141.D 8330RPB.M_092519.M Thu Jul 30 12:46:13 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619141.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619141.D\dad1A.ch
Acq On : 29-Jul-2020, 15:32:04 Operator: williamh
Sample : FA77052-3 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 30 10:20 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration





QEdit

(5) 1,3,5-Trinitrobenzene

7.02min 554.951ppb m

response 5738895

(5) 1,3,5-Trinitrobenzene #2

7.02min 560.261ppb m

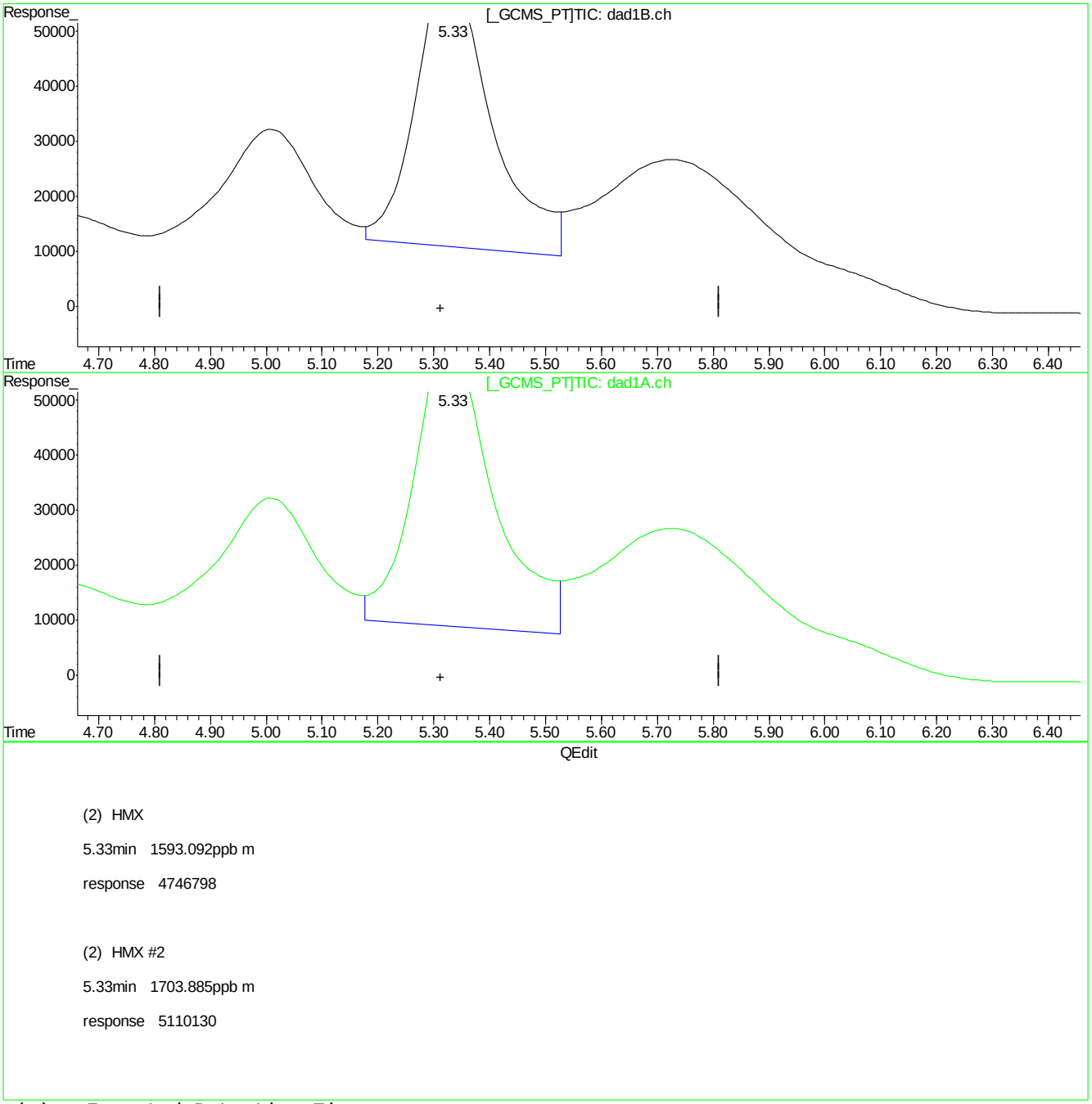
response 5793808

(+) = Expected Retention Time
GG619141.D 8330RPB.M_092519.M Thu Jul 30 12:46:32 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619141.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619141.D\dad1A.ch
Acq On : 29-Jul-2020, 15:32:04 Operator: williamh
Sample : FA77052-3 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 30 10:20 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration



(+) = Expected Retention Time
GG619141.D 8330RPB.M_092519.M Thu Jul 30 12:46:41 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 07/29/20 15:09

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068460.D\dad1B.ch Vial: 77
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068460.D\dad1A.ch
Acq On : 27-Jul-2020, 22:50:58 Operator: williamh
Sample : FA77052-4 Inst : G1315B
Misc : op81252,GBB2008,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jul 28 10:04:55 2020 Quant Results File: 8330B_060120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
System Monitoring Compounds						
15) S 3,4-Dinitrotolue	10.74	10.74	913070	1681281	488.943m	529.346
Spiked Amount 500.000	Range 70 - 136		Recovery =		97.79%	105.87%
Target Compounds						
1) TNX	0.00	0.00	0	0	N.D. d	N.D. d
2) HMX	0.00	0.00	0	0	N.D. d	N.D. d
3) DNX	0.00	0.00	0	0	N.D. d	N.D. d
4) MNX	0.00	0.00	0	0	N.D. d	N.D. d
5) RDX	0.00	0.00	0	0	N.D. d	N.D. d
6) 1,3,5-Trinitrobe	0.00	0.00	0	0	N.D. d	N.D. d
7) 1,3-Dinitrobenze	0.00	0.00	0	0	N.D. d	N.D. d
8) 3,5-Dinitroanili	0.00	0.00	0	0	N.D. d	N.D. d
9) Nitrobenzene	0.00	0.00	0	0	N.D. d	N.D. d
10) Nitroglycerin	0.00	0.00	0	0	N.D. d	N.D. d
11) Tetryl	0.00	0.00	0	0	N.D. d	N.D. d
12) 2,4,6-Trinitroto	0.00	0.00	0	0	N.D. d	N.D. d
13) 2-Amino-4,6-Dini	0.00	0.00	0	0	N.D. d	N.D. d
14) 4-Amino-2,6-Dini	0.00	0.00	0	0	N.D. d	N.D. d
16) 2,4-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
17) 2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
18) o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
19) p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20) m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
21) PETN	0.00	0.00	0	0	N.D. d	N.D. d

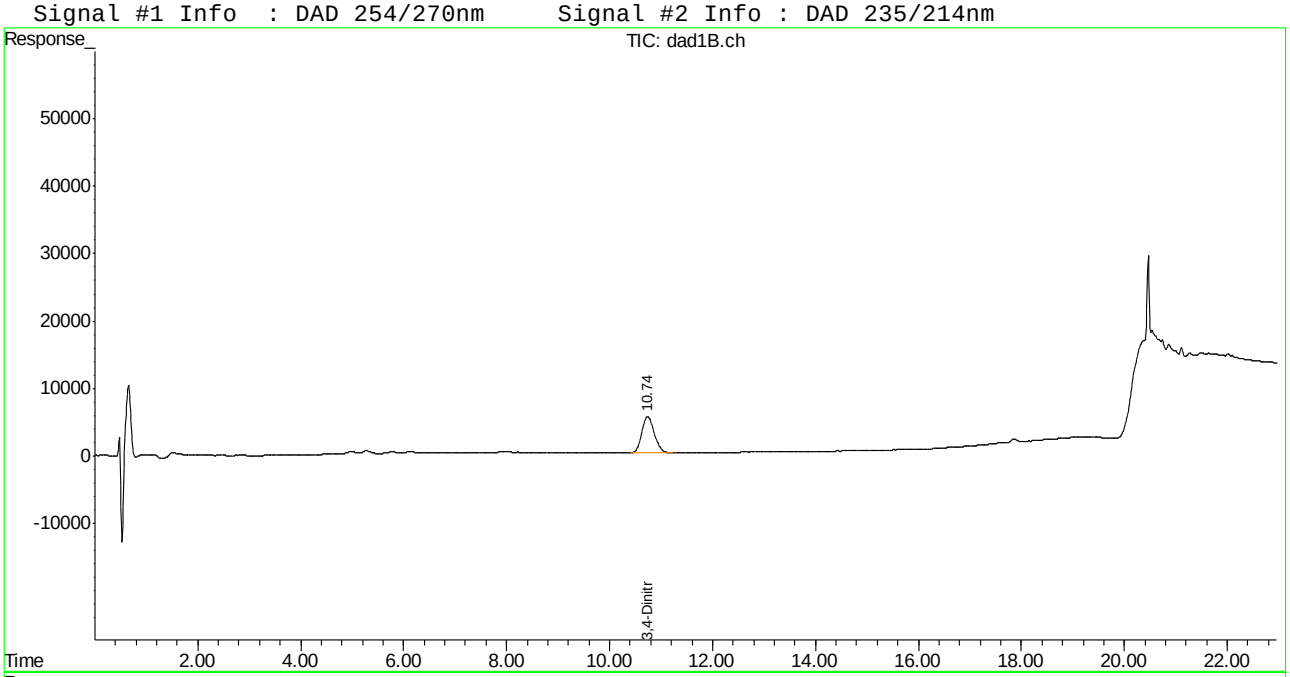
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB068460.D 8330B_060120_PLUS.M Tue Jul 28 15:18:08 2020 Page 1

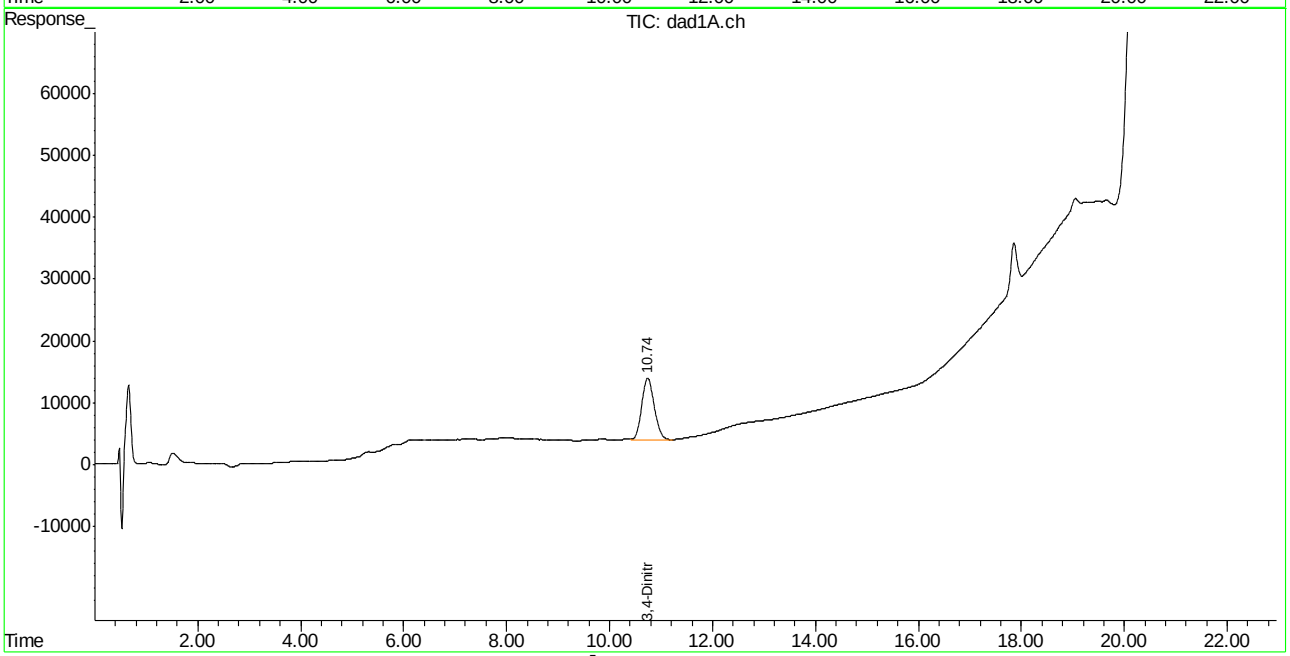
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068460.D\dad1B.ch Vial: 77
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068460.D\dad1A.ch
Acq On : 27-Jul-2020, 22:50:58 Operator: williamh
Sample : FA77052-4 Inst : G1315B
Misc : op81252,GBB2008,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jul 28 15:13 2020 Quant Results File: 8330B_060120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

Sample Number: FA77052-4
Lab FileID: BB068460.D
Injection Time: 07/27/20 22:50

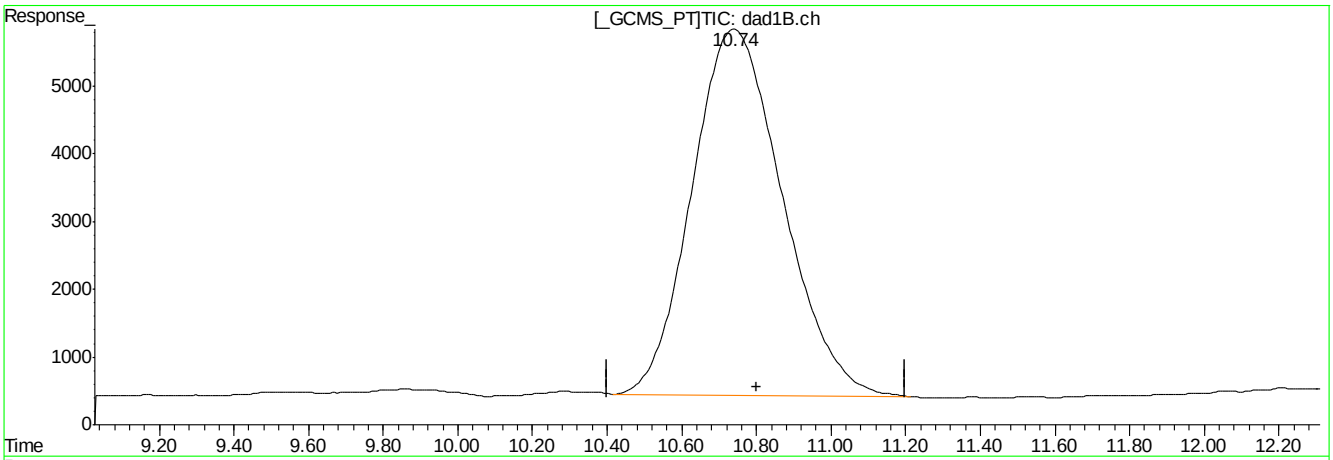
Method: SW846 8330B
Analyst approved: 07/28/20 15:30 William Hustedde
Supervisor approved: 07/29/20 15:09 Naresh Jiawan

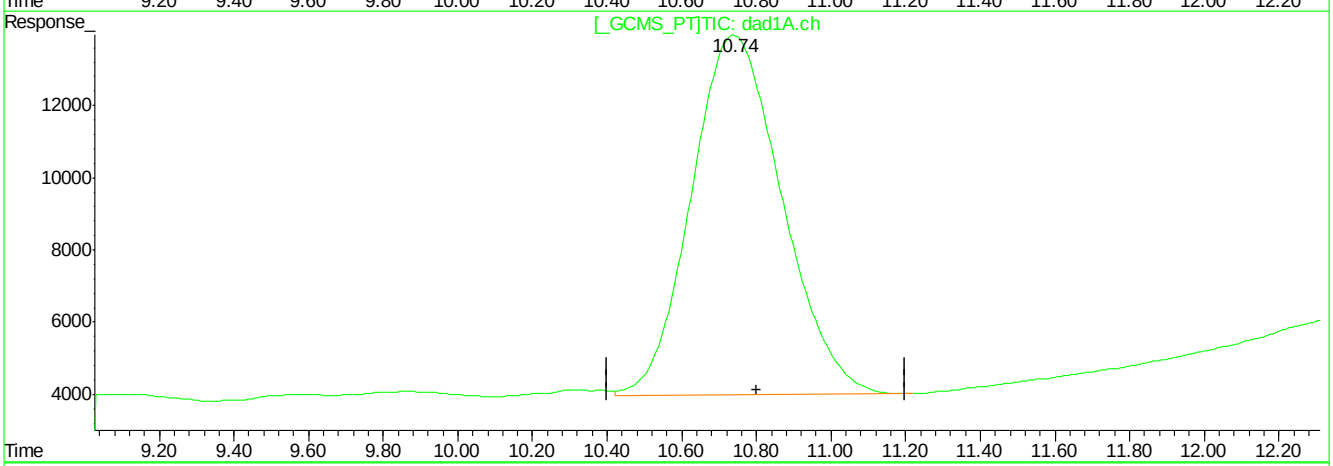
Parameter	CAS	Sig#	R.T. (min.)	Reason
3,4-Dinitrotoluene	610-39-9	1	10.74	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068460.D\dad1B.ch Vial: 77
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068460.D\dad1A.ch
Acq On : 27-Jul-2020, 22:50:58 Operator: williamh
Sample : FA77052-4 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jul 28 10:04 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Multiple Level Calibration





QEdit

(15) 3,4-Dinitrotoluene (S)

10.74min 488.943ppb m

response 913070

(15) 3,4-Dinitrotoluene #2 (S)

10.74min 529.346ppb

response 1681281

(+) = Expected Retention Time
BB068460.D 8330B_060120_PLUS.M Tue Jul 28 15:13:31 2020

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068461.D\dad1B.ch Vial: 78
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068461.D\dad1A.ch
Acq On : 27-Jul-2020, 23:20:57 Operator: williamh
Sample : FA77052-5 Inst : G1315B
Misc : op81252,GBB2008,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jul 28 10:04:56 2020 Quant Results File: 8330B_060120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.74	10.74	960365	1724150	514.270	542.843
	Spiked Amount 500.000	Range 70 - 136		Recovery =		102.85%	108.57%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	0.00	0.00	0	0	N.D. d	N.D. d
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D. d	N.D. d
5)	RDX	0.00	0.00	0	0	N.D. d	N.D. d
6)	1,3,5-Trinitrobe	0.00	0.00	0	0	N.D. d	N.D. d
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D. d	N.D. d
8)	3,5-Dinitroanili	0.00	0.00	0	0	N.D. d	N.D. d
9)	Nitrobenzene	0.00	0.00	0	0	N.D. d	N.D. d
10)	Nitroglycerin	0.00	0.00	0	0	N.D. d	N.D. d
11)	Tetryl	0.00	0.00	0	0	N.D. d	N.D. d
12)	2,4,6-Trinitroto	0.00	0.00	0	0	N.D. d	N.D. d
13)	2-Amino-4,6-Dini	0.00	0.00	0	0	N.D. d	N.D. d
14)	4-Amino-2,6-Dini	0.00	0.00	0	0	N.D. d	N.D. d
16)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
17)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
18)	o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
19)	p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20)	m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
21)	PETN	0.00	0.00	0	0	N.D. d	N.D. d

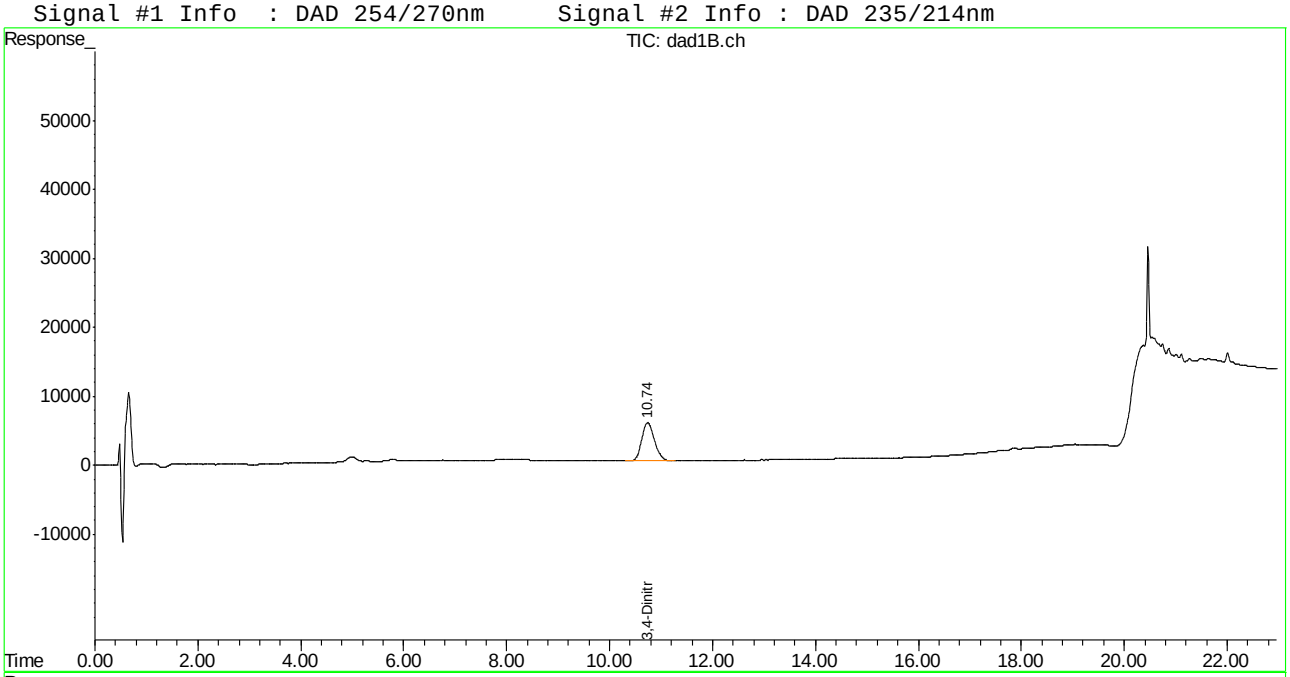
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB068461.D 8330B_060120_PLUS.M Tue Jul 28 15:18:09 2020 Page 1

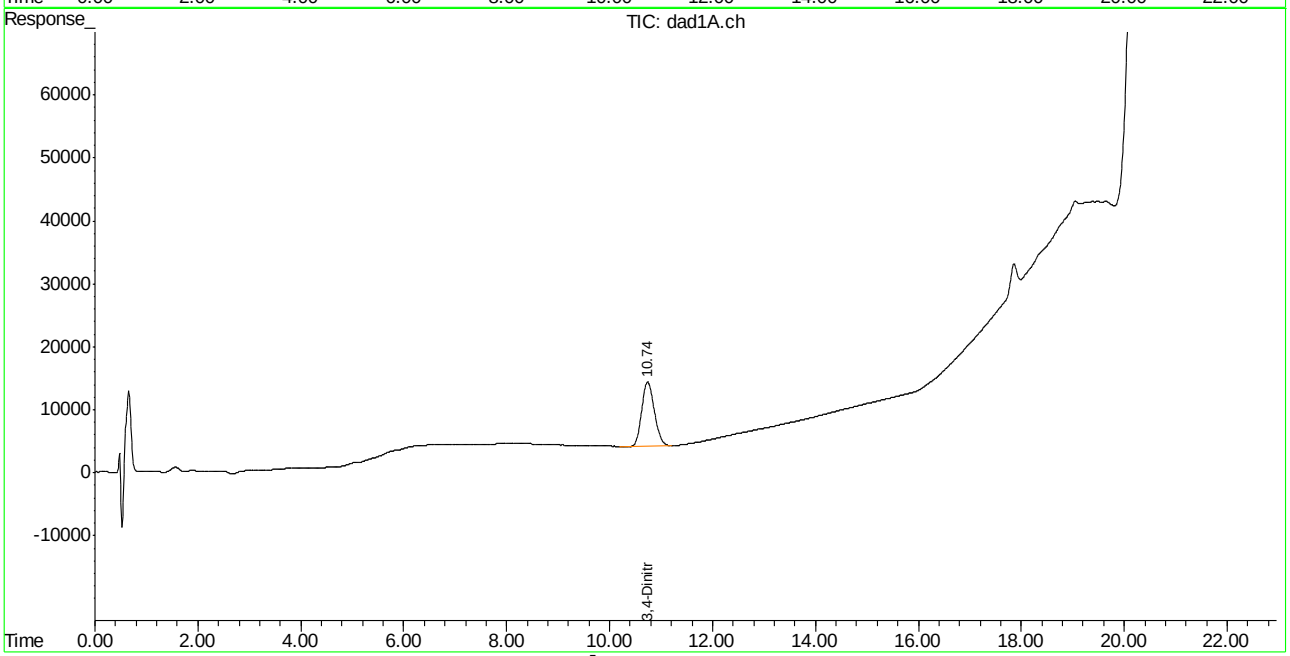
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068461.D\dad1B.ch Vial: 78
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068461.D\dad1A.ch
Acq On : 27-Jul-2020, 23:20:57 Operator: williamh
Sample : FA77052-5 Inst : G1315B
Misc : op81252,GBB2008,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jul 28 15:13 2020 Quant Results File: 8330B_060120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
07/29/20 15:09

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068456.D\dad1B.ch Vial: 73
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068456.D\dad1A.ch
Acq On : 27-Jul-2020, 20:51:00 Operator: williamh
Sample : op81252-MB Inst : G1315B
Misc : op81252,GBB2008,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jul 28 10:04:51 2020 Quant Results File: 8330B_060120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.75	10.75	639493	1155907	342.445m	363.934m
	Spiked Amount 500.000	Range 70 - 136		Recovery =		68.49%#	72.79%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	0.00	0.00	0	0	N.D. d	N.D. d
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D. d	N.D. d
5)	RDX	0.00	0.00	0	0	N.D. d	N.D. d
6)	1,3,5-Trinitrobe	0.00	0.00	0	0	N.D. d	N.D. d
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D. d	N.D. d
8)	3,5-Dinitroanili	0.00	0.00	0	0	N.D. d	N.D. d
9)	Nitrobenzene	0.00	0.00	0	0	N.D. d	N.D. d
10)	Nitroglycerin	0.00	0.00	0	0	N.D. d	N.D. d
11)	Tetryl	0.00	0.00	0	0	N.D. d	N.D. d
12)	2,4,6-Trinitroto	0.00	0.00	0	0	N.D. d	N.D. d
13)	2-Amino-4,6-Dini	0.00	0.00	0	0	N.D. d	N.D. d
14)	4-Amino-2,6-Dini	0.00	0.00	0	0	N.D. d	N.D. d
16)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
17)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
18)	o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
19)	p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20)	m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
21)	PETN	0.00	0.00	0	0	N.D. d	N.D. d

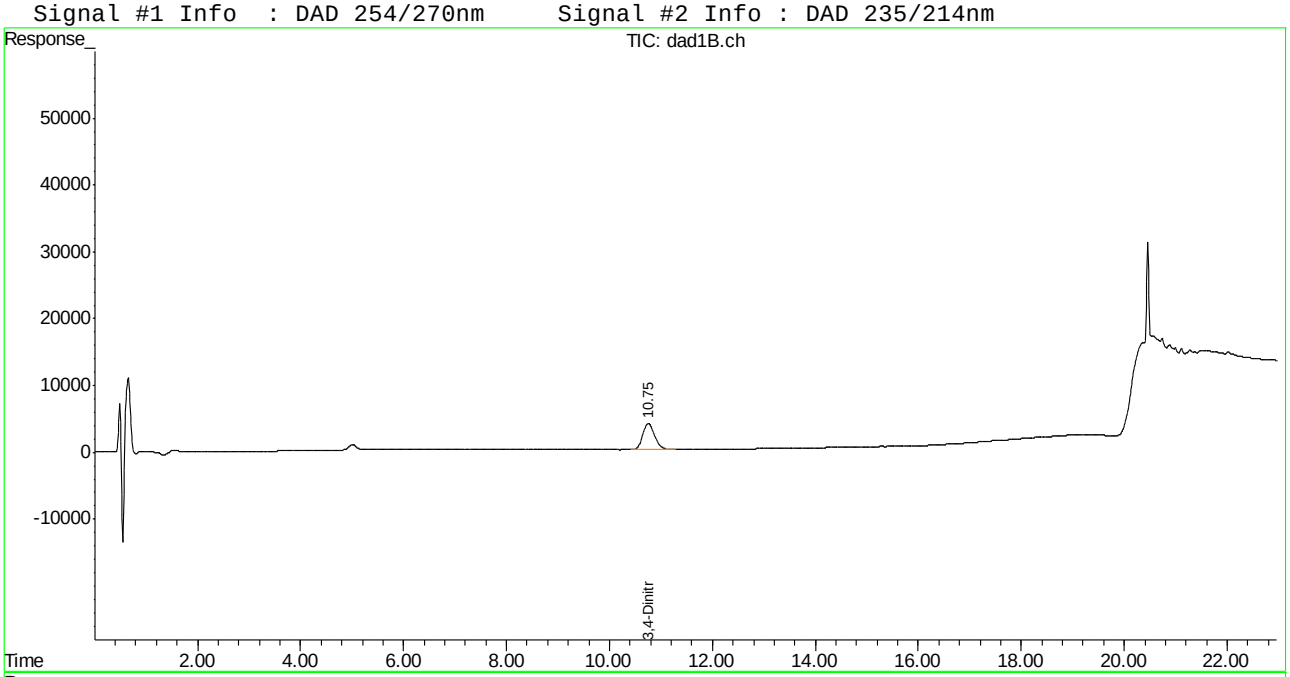
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB068456.D 8330B_060120_PLUS.M Tue Jul 28 15:18:04 2020 Page 1

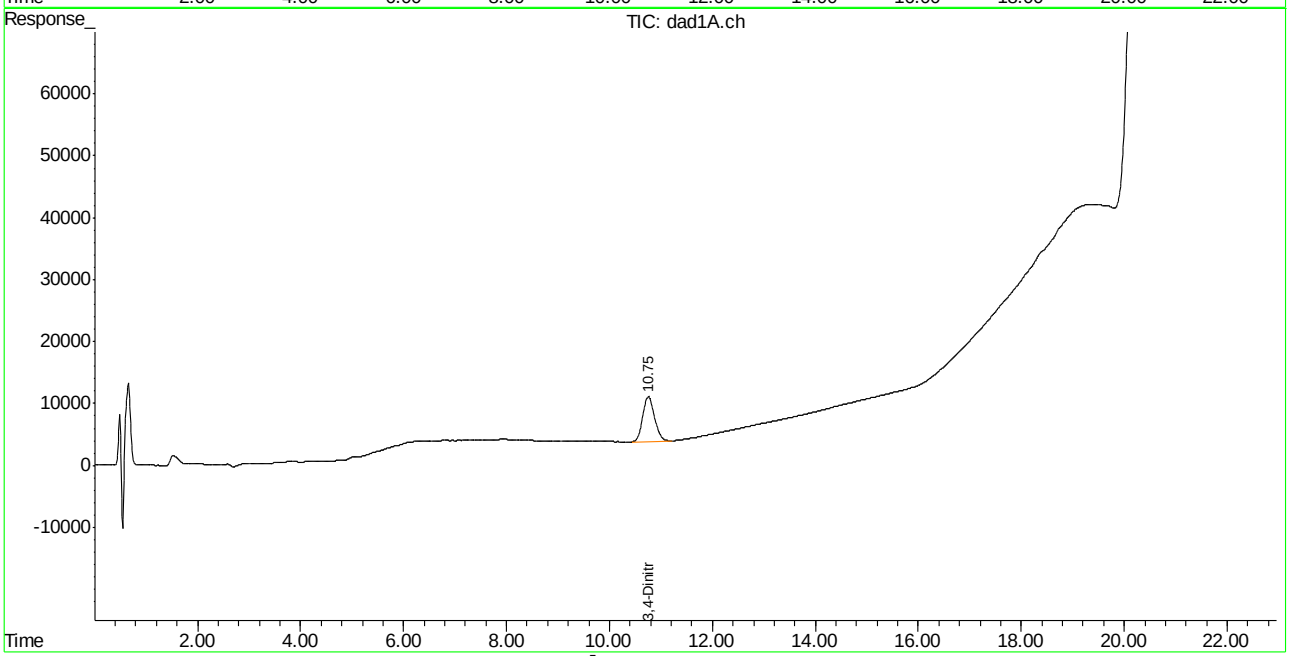
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068456.D\dad1B.ch Vial: 73
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068456.D\dad1A.ch
Acq On : 27-Jul-2020, 20:51:00 Operator: williamh
Sample : op81252-MB Inst : G1315B
Misc : op81252,GBB2008,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jul 28 15:00 2020 Quant Results File: 8330B_060120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

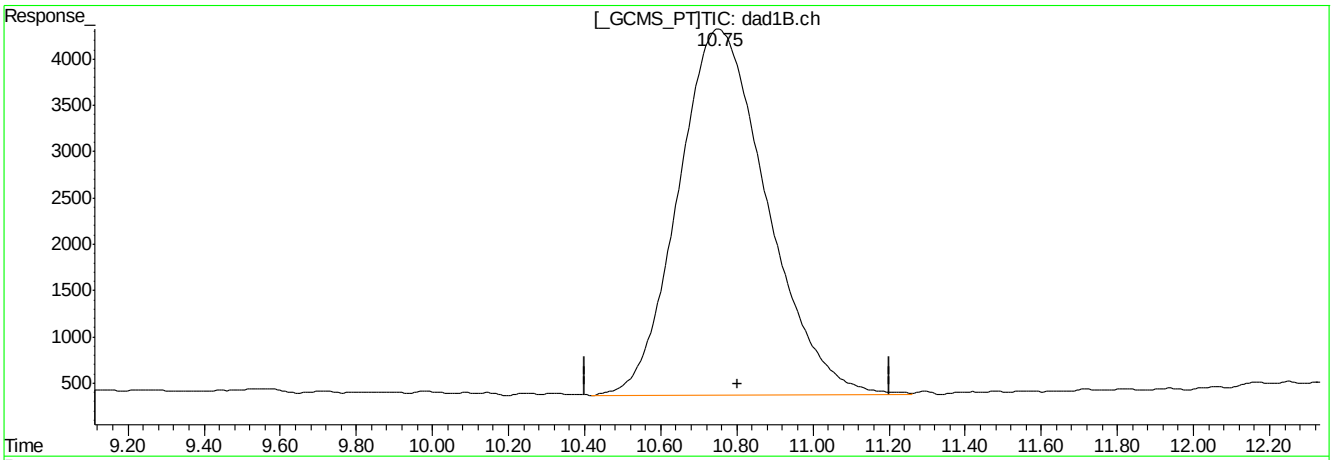
Sample Number: OP81252-MB
Lab FileID: BB068456.D
Injection Time: 07/27/20 20:51
Method: SW846 8330B
Analyst approved: 07/28/20 15:30 William Hustedde
Supervisor approved: 07/29/20 15:09 Naresh Jiawan

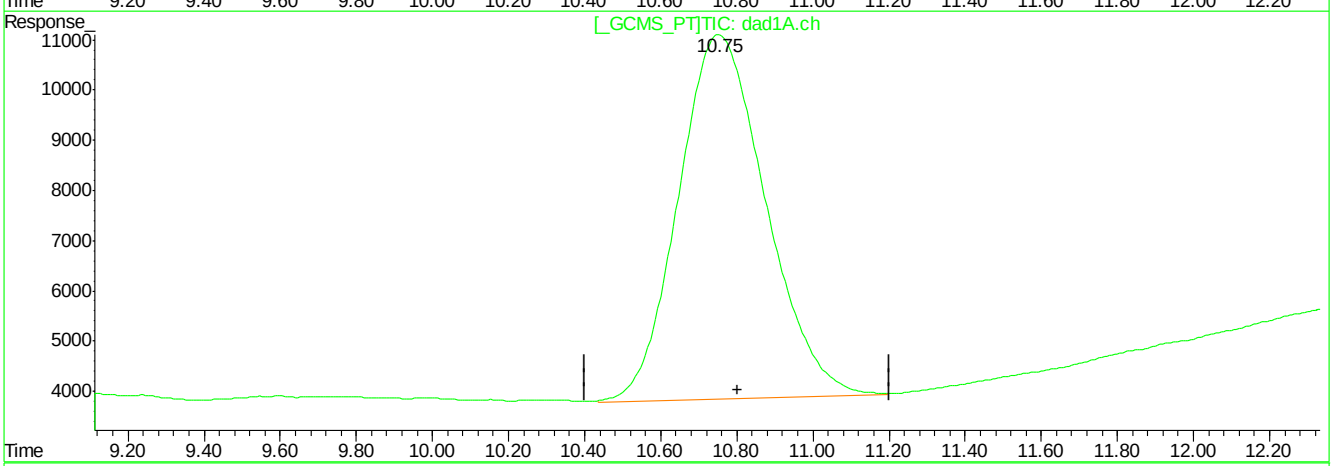
Parameter	CAS	Sig#	R.T. (min.)	Reason
3,4-Dinitrotoluene	610-39-9	1	10.75	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	2	10.75	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068456.D\dad1B.ch Vial: 73
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068456.D\dad1A.ch
Acq On : 27-Jul-2020, 20:51:00 Operator: williamh
Sample : op81252-MB Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jul 28 10:04 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Multiple Level Calibration





QEdit

(15) 3,4-Dinitrotoluene (S)

10.75min 342.445ppb m

response 639493

(15) 3,4-Dinitrotoluene #2 (S)

10.75min 363.934ppb m

response 1155907

(+) = Expected Retention Time
BB068456.D 8330B_060120_PLUS.M Tue Jul 28 15:00:32 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
07/30/20 16:18

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619138.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619138.D\dad1A.ch
Acq On : 29-Jul-2020, 14:03:48 Operator: williamh
Sample : op81252-MB Inst : G1315B
Misc : op81252,GGG2858,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 30 10:20:30 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.18	13.18	1704008	3245661	377.378m	361.657m
	Spiked Amount 500.000	Range 70 - 136		Recovery =		75.48%	72.33%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	0.00	0.00	0	0	N.D. d	N.D. d
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D. d	N.D. d
5)	1,3,5-Trinitrobe	0.00	0.00	0	0	N.D. d	N.D. d
6)	RDX	0.00	0.00	0	0	N.D. d	N.D. d
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D. d	N.D. d
8)	Nitrobenzene	0.00	0.00	0	0	N.D. d	N.D. d
9)	2,4,6-Trinitroto	0.00	0.00	0	0	N.D. d	N.D. d
10)	Nitroglycerin	0.00	0.00	0	0	N.D. d	N.D. d
11)	Tetryl	0.00	0.00	0	0	N.D. d	N.D. d
13)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
14)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
15)	o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
16)	3,5-Dinitroanili	0.00	0.00	0	0	N.D. d	N.D. d
17)	p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
18)	4-Amino-2,6-Dini	0.00	0.00	0	0	N.D. d	N.D. d
19)	m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20)	2-Amino-4,6-Dini	0.00	0.00	0	0	N.D. d	N.D. d
21)	PETN	0.00	0.00	0	0	N.D. d	N.D. d

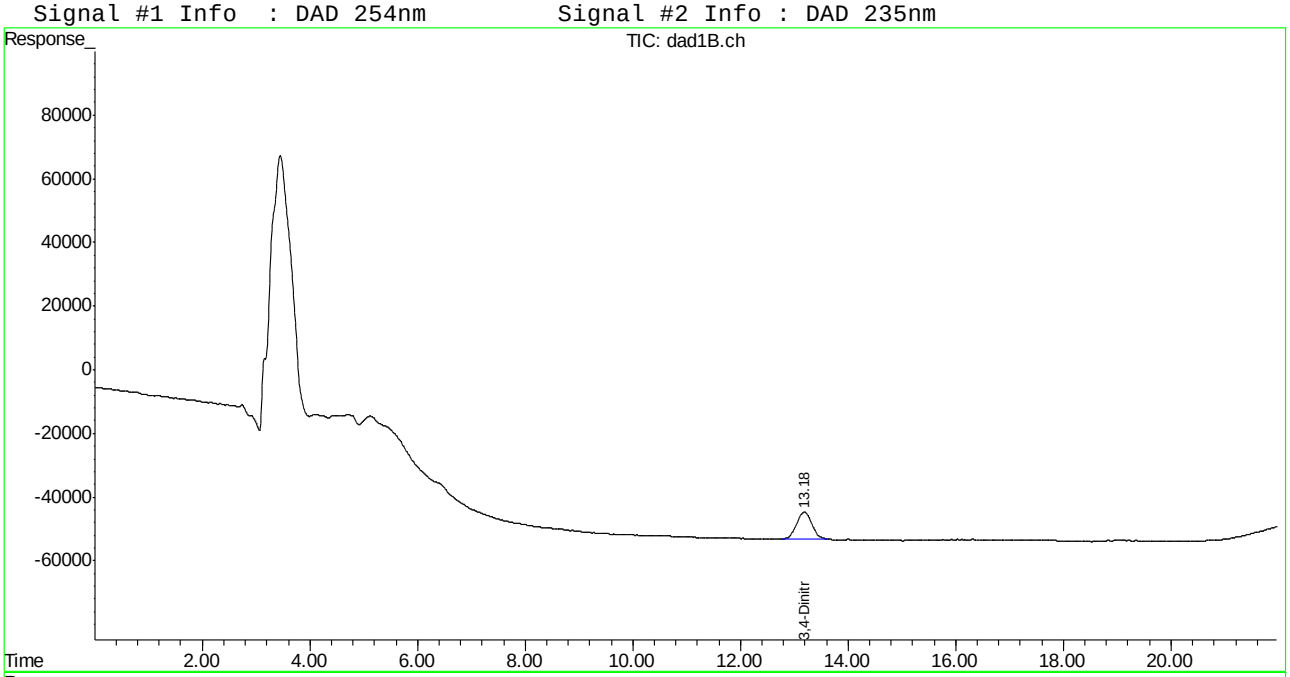
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
GG619138.D 8330RPB.M_092519.M Thu Jul 30 15:06:24 2020 Page 1

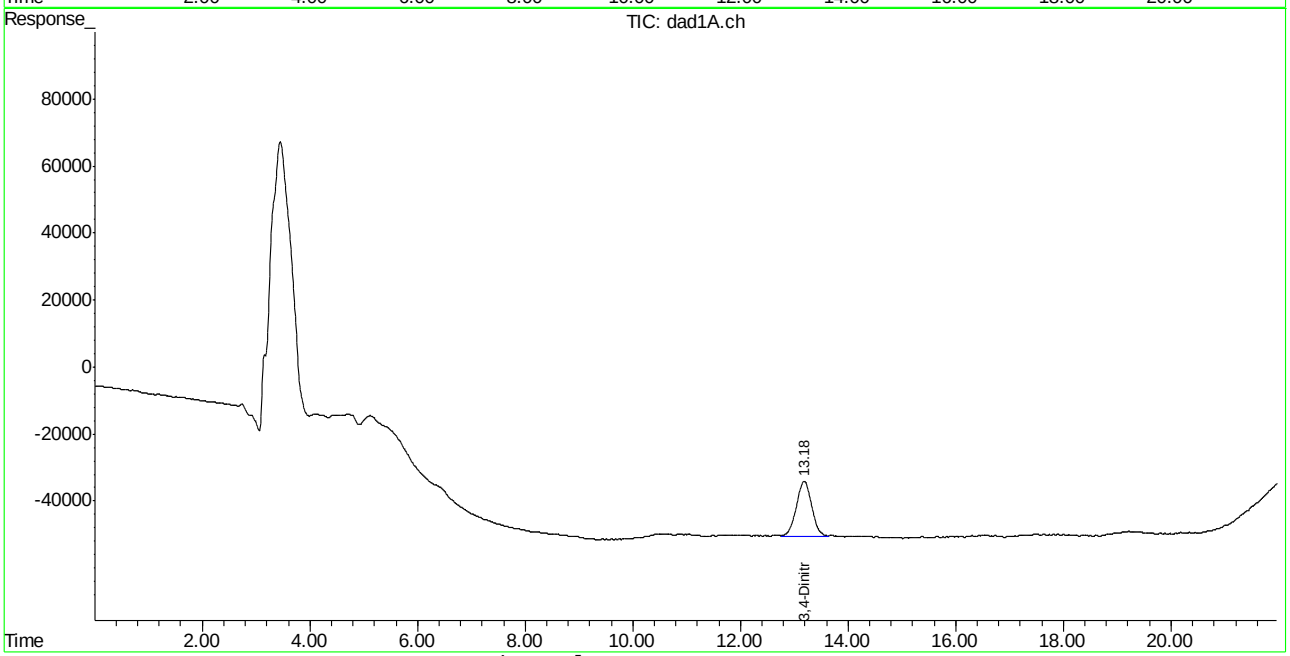
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619138.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619138.D\dad1A.ch
Acq On : 29-Jul-2020, 14:03:48 Operator: williamh
Sample : op81252-MB Inst : G1315B
Misc : op81252,GGG2858,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 30 12:37 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

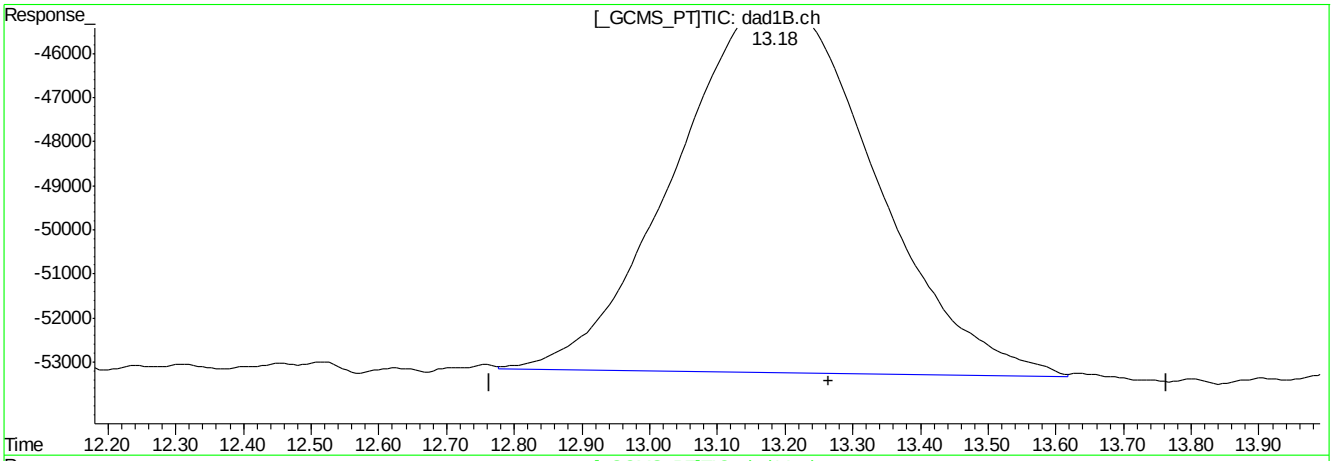
Sample Number: OP81252-MB
Lab FileID: GG619138.D
Injection Time: 07/29/20 14:03
Method: SW846 8330B
Analyst approved: 07/30/20 15:11 William Hustedde
Supervisor approved: 07/30/20 16:18 Naresh Jiawan

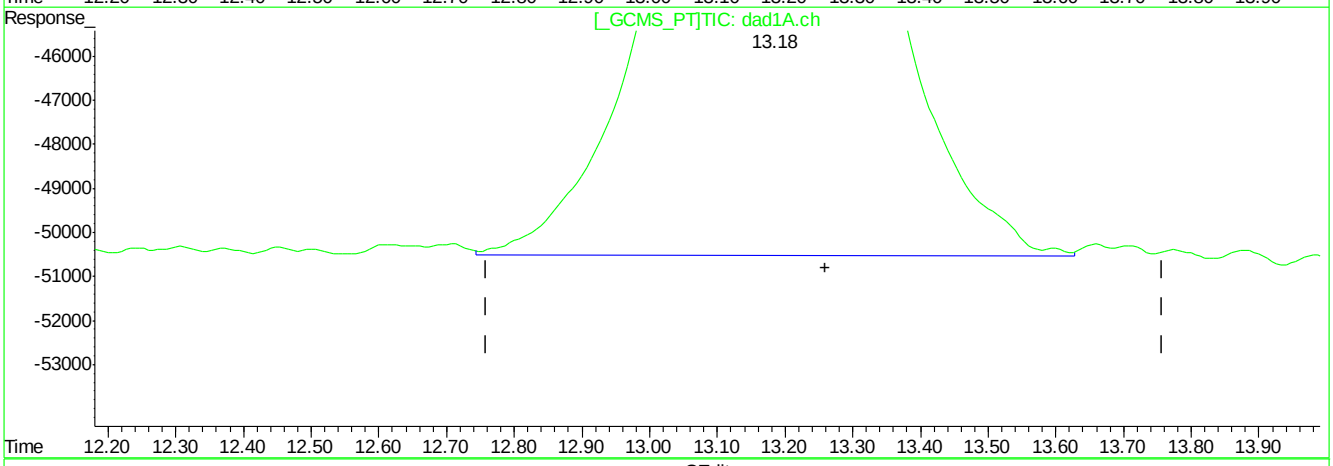
Parameter	CAS	Sig#	R.T. (min.)	Reason
3,4-Dinitrotoluene	610-39-9	1	13.18	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	2	13.18	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619138.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619138.D\dad1A.ch
Acq On : 29-Jul-2020, 14:03:48 Operator: williamh
Sample : op81252-MB Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 30 10:20 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration





QEdit

(12) 3,4-Dinitrotoluene (S)

13.18min 377.378ppb m

response 1704008

(12) 3,4-Dinitrotoluene #2 (S)

13.18min 361.657ppb m

response 3245661

(+) = Expected Retention Time
GG619138.D 8330RPB.M_092519.M Thu Jul 30 12:37:51 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
07/29/20 15:09

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068455.D\dad1B.ch Vial: 72
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068455.D\dad1A.ch
Acq On : 27-Jul-2020, 20:21:03 Operator: williamh
Sample : op81252-BS Inst : G1315B
Misc : op81252,GBB2008,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jul 28 10:04:50 2020 Quant Results File: 8330B_060120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.73	10.73	1037095	1800311	555.358	566.823
	Spiked Amount 500.000	Range 70 - 136		Recovery =		111.07%	113.36%
	Target Compounds						
1)	TNX	1.33	1.33	837648	1329385	368.757	359.435
2)	HMX	1.47	1.47	798384	2192925	540.218	534.961
3)	DNX	1.70	1.70	593662	965169	585.445	549.381
4)	MNX	2.27	2.27	1034792	1641830	476.717	500.176
5)	RDX	2.87	2.87	937403	1535251	494.230	508.730
6)	1,3,5-Trinitrobe	4.62	4.62	1929900	3663095	460.832	457.979
7)	1,3-Dinitrobenze	5.77	5.77	2677049	1915690	499.387	526.579
8)	3,5-Dinitroanili	6.12	6.12	2112299	3779501	520.483	546.494
9)	Nitrobenzene	7.23	7.23	1555990	1529747	496.407	487.758
10)	Nitroglycerin	0.00	8.70	0	673563	N.D.	539.233 #
11)	Tetryl	9.10	9.10	1164856	1836996	382.101	374.335
12)	2,4,6-Trinitroto	9.55	9.55	1769114	2124343	465.850	472.271
13)	2-Amino-4,6-Dini	9.86	9.86	1748733	2604077	505.960	506.270
14)	4-Amino-2,6-Dini	10.30	10.30	1248266	2472494	494.572	499.882
16)	2,4-Dinitrotolue	11.39	11.39	2340872	1416798	497.645	477.210
17)	2,6-Dinitrotolue	11.81	11.82	1421034	1809840	519.301	525.662
18)	o-Nitrotoluene	14.80	14.80	1074879	1570240	478.858	488.456
19)	p-Nitrotoluene	15.38	15.39	1735400	1496062	500.518	518.982
20)	m-Nitrotoluene	16.27	16.27	1608914	1811133	483.472	496.251m
21)	PETN	0.00	18.23	0	737929	N.D. d	548.540m

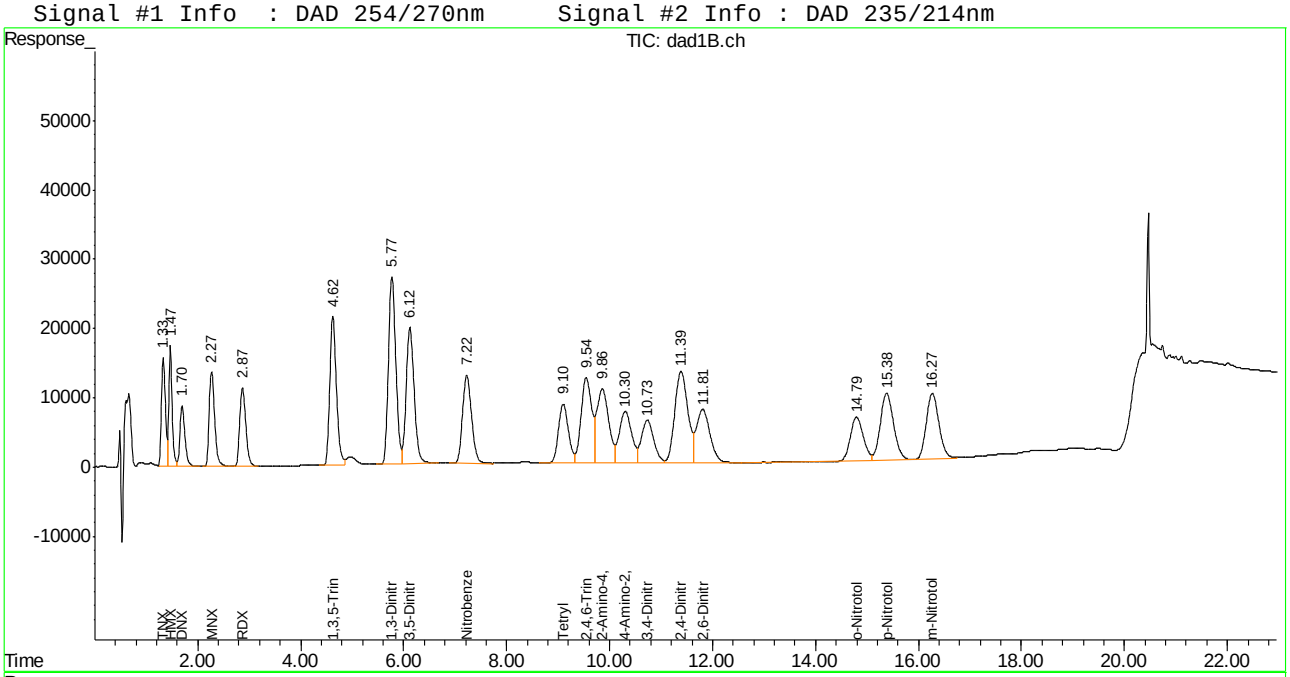
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB068455.D 8330B_060120_PLUS.M Tue Jul 28 15:18:03 2020 Page 1

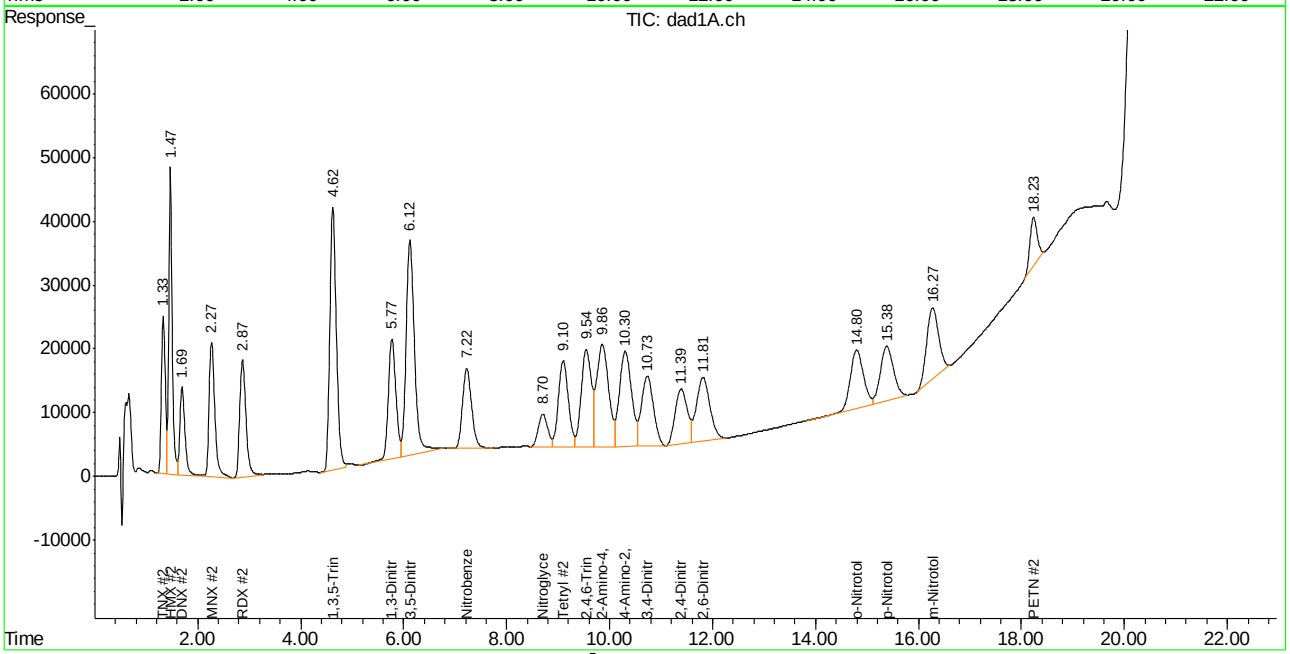
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068455.D\dad1B.ch Vial: 72
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068455.D\dad1A.ch
Acq On : 27-Jul-2020, 20:21:03 Operator: williamh
Sample : op81252-BS Inst : G1315B
Misc : op81252,GBB2008,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jul 28 15:00 2020 Quant Results File: 8330B_060120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

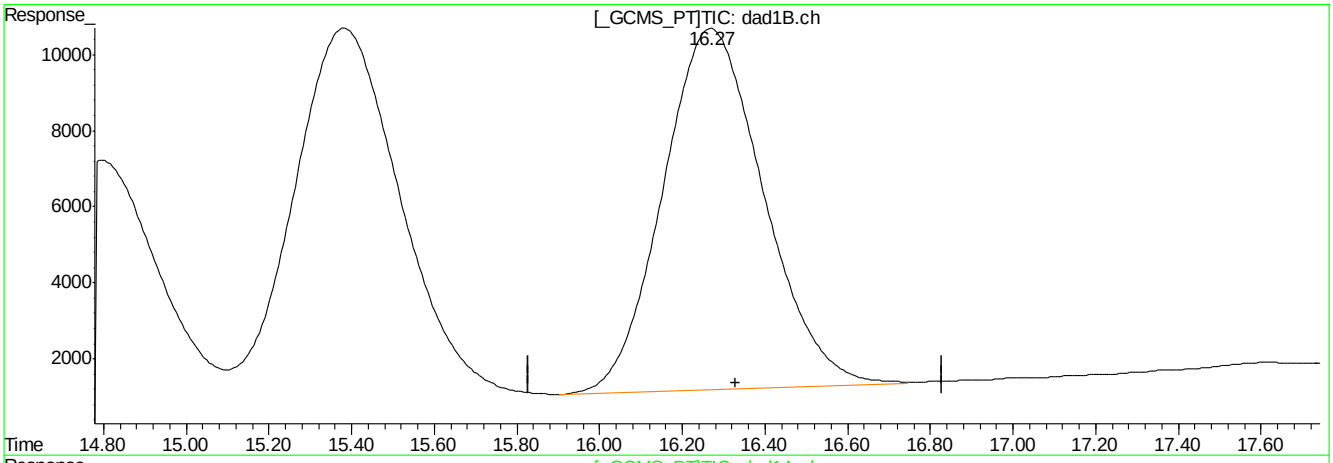
Sample Number: OP81252-BS
Lab FileID: BB068455.D
Injection Time: 07/27/20 20:21
Method: SW846 8330B
Analyst approved: 07/28/20 15:30 William Hustedde
Supervisor approved: 07/29/20 15:09 Naresh Jiawan

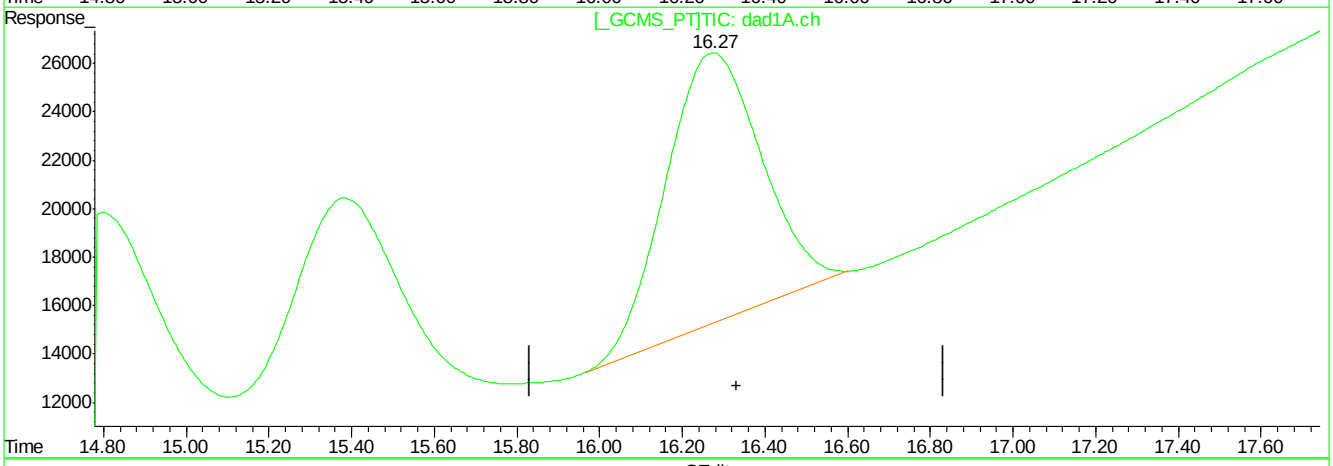
Parameter	CAS	Sig#	R.T. (min.)	Reason
m-Nitrotoluene	99-08-1	2	16.27	Poor instrument integration
PETN	78-11-5	2	18.23	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068455.D\dad1B.ch Vial: 72
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068455.D\dad1A.ch
Acq On : 27-Jul-2020, 20:21:03 Operator: williamh
Sample : op81252-BS Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jul 28 10:04 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Multiple Level Calibration





QEdit

(20) m-Nitrotoluene

16.27min 483.472ppb

response 1608914

(20) m-Nitrotoluene #2

16.27min 496.251ppb m

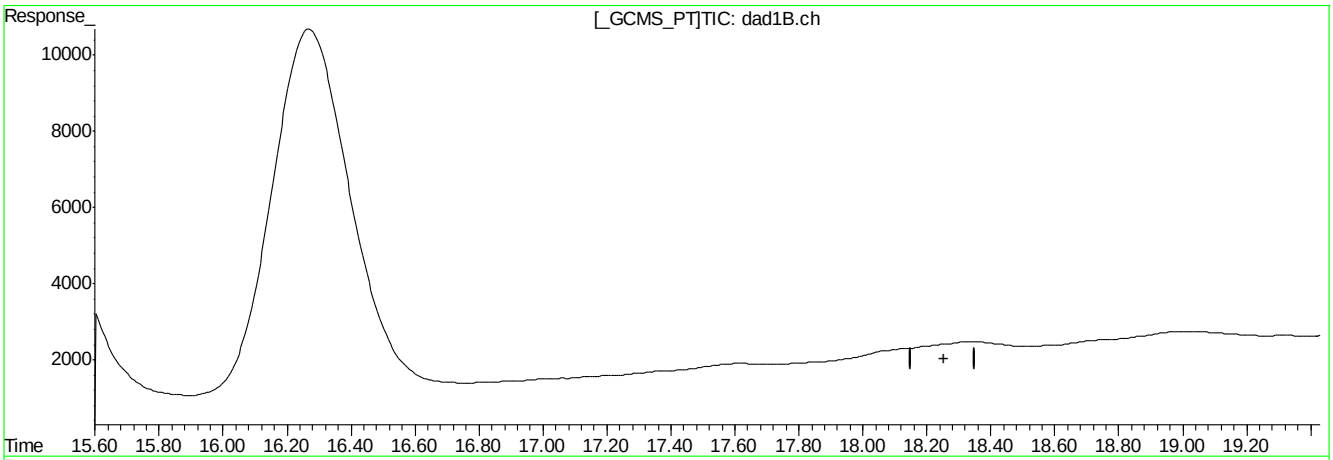
response 1811133

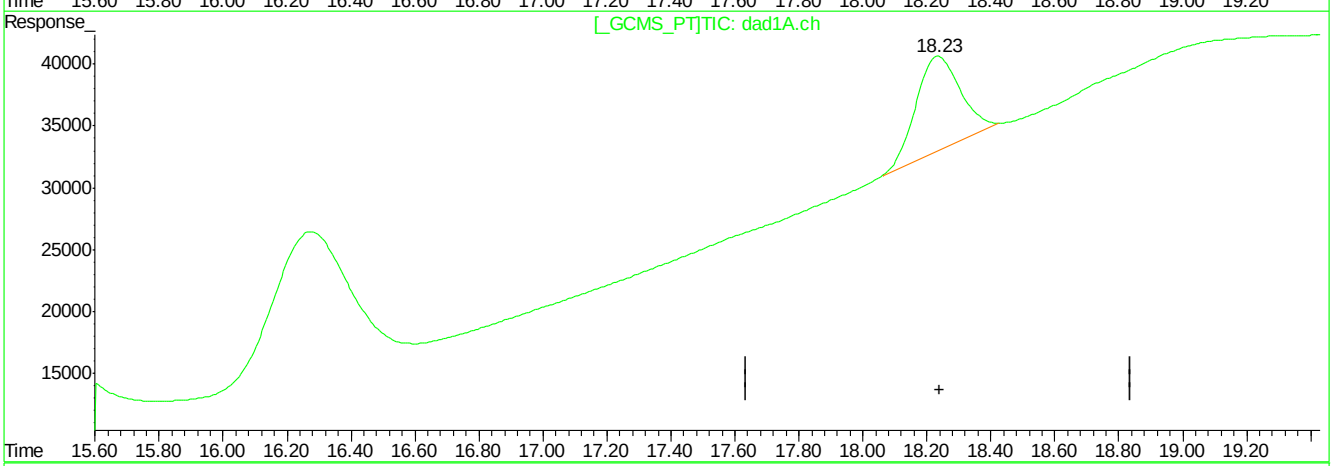
(+) = Expected Retention Time
BB068455.D 8330B_060120_PLUS.M Tue Jul 28 15:00:03 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068455.D\dad1B.ch Vial: 72
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068455.D\dad1A.ch
Acq On : 27-Jul-2020, 20:21:03 Operator: williamh
Sample : op81252-BS Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jul 28 10:04 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb d

response 0

(21) PETN #2

18.23min 548.540ppb m

response 737929

(+) = Expected Retention Time
BB068455.D 8330B_060120_PLUS.M Tue Jul 28 15:00:10 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
07/30/20 16:26

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068462.D\dad1B.ch Vial: 79
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068462.D\dad1A.ch
Acq On : 27-Jul-2020, 23:50:58 Operator: williamh
Sample : op81252-MS Inst : G1315B
Misc : op81252,GBB2008,500,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jul 28 10:04:57 2020 Quant Results File: 8330B_060120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.70	10.70	930058	1604239	498.040	505.090
Spiked Amount	500.000	Range	70 - 136	Recovery	=	99.61%	101.02%
	Target Compounds						
1)	TNX	1.33	1.33	984264	1616347	433.301	437.023
2)	HMX	1.47	1.47	1570083	4355207	1062.378	1062.447
3)	DNX	1.70	1.70	624175	1059828	615.536	603.494
4)	MNX	2.27	2.27	1025019	1613539	472.214	491.557
5)	RDX	2.87	2.87	851639	1406256	449.013	465.986
6)	1,3,5-Trinitrobe	4.62	4.62	2777715	5276312	663.278	659.672
7)	1,3-Dinitrobenze	5.77	5.77	2316741	1673406	432.174	459.981
8)	3,5-Dinitroanili	6.11	6.11	1853374	3252901	456.683	470.351
9)	Nitrobenzene	7.22	7.22	1329052	1318392	424.007	420.367
10)	Nitroglycerin	0.00	8.69	0	570272	N.D.	456.542 #
11)	Tetryl	9.08	9.08	990170	1586806	324.800	323.352
12)	2,4,6-Trinitroto	9.53	9.53	2202867	2624349	580.067	583.429
13)	2-Amino-4,6-Dini	9.84	9.84	2084466	3160469	603.097	614.440
14)	4-Amino-2,6-Dini	10.28	10.28	1349061	2712301	534.508	548.365
16)	2,4-Dinitrotolue	11.36	11.36	1994875	1173051	424.090	395.111
17)	2,6-Dinitrotolue	11.78	11.79	1257163	1776132	459.416	515.872
18)	o-Nitrotoluene	14.78	14.78	835725	1269988	372.315	395.057
19)	p-Nitrotoluene	15.36	15.37	1448221	1277126	417.690	443.033
20)	m-Nitrotoluene	16.25	16.26	1439980	1457021	432.708	399.224
21)	PETN	0.00	18.22	0	687133	N.D.	510.782m#

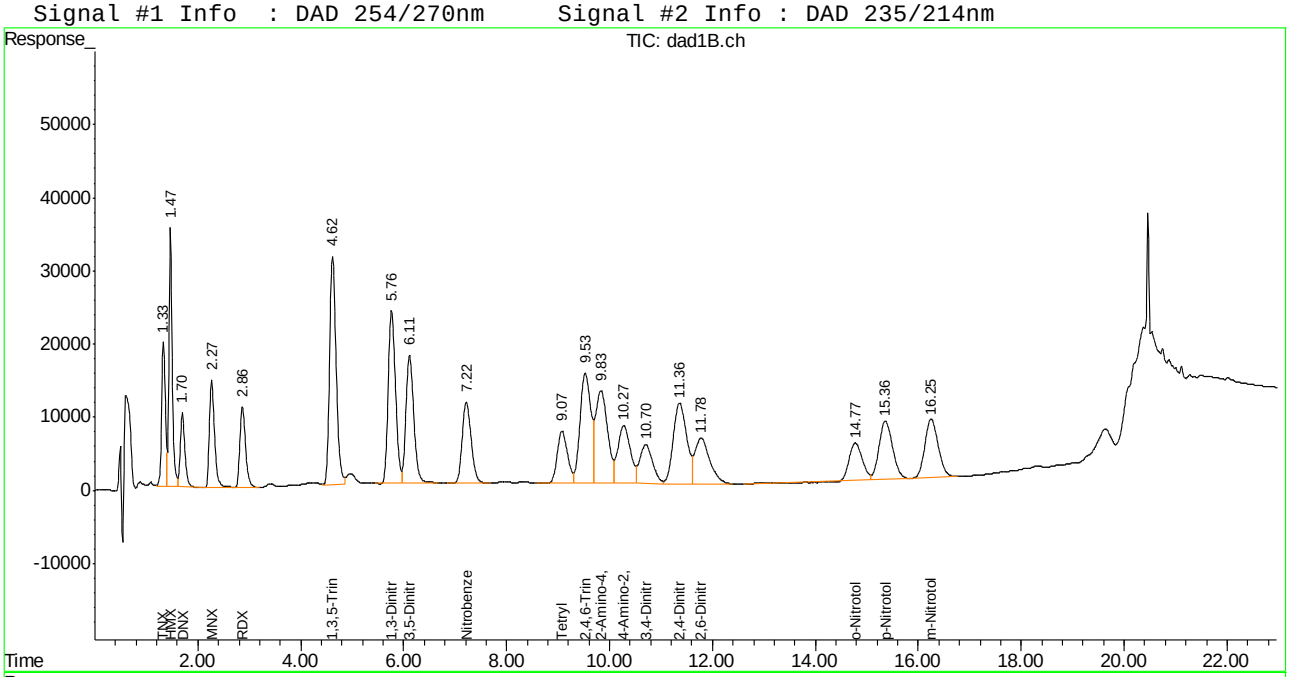
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB068462.D 8330B_060120_PLUS.M Tue Jul 28 15:18:10 2020 Page 1

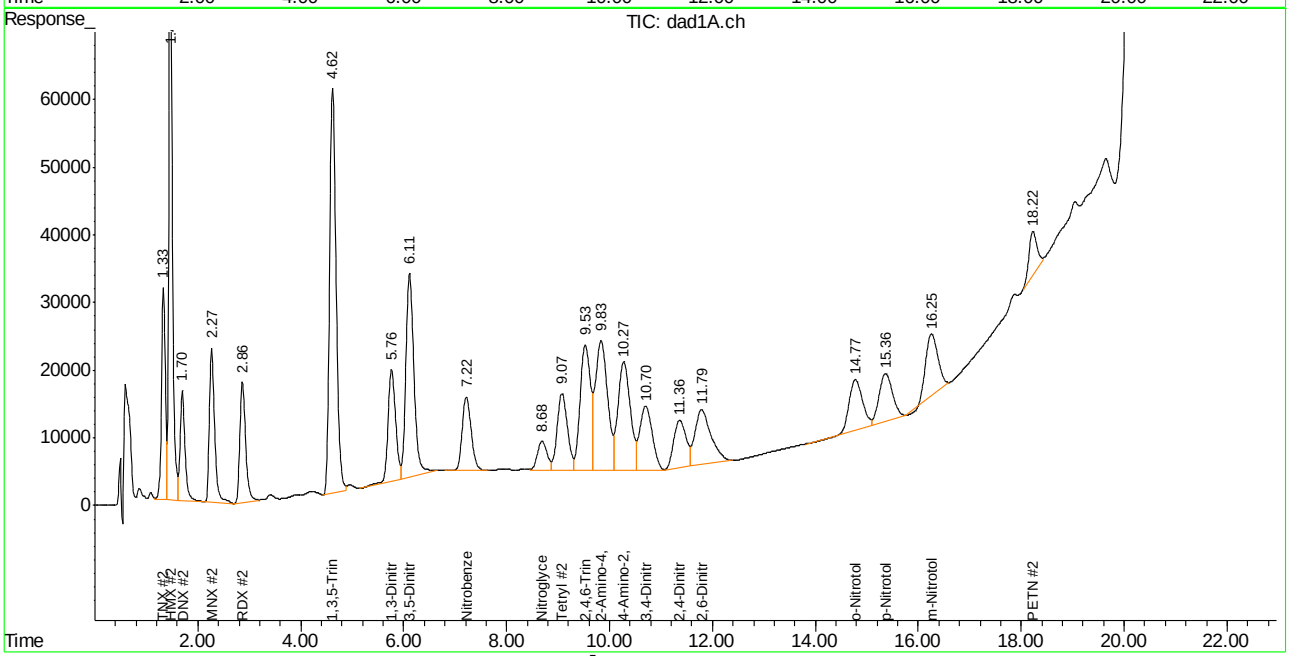
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068462.D\dad1B.ch Vial: 79
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068462.D\dad1A.ch
Acq On : 27-Jul-2020, 23:50:58 Operator: williamh
Sample : op81252-MS Inst : G1315B
Misc : op81252,GBB2008,500,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jul 28 15:14 2020 Quant Results File: 8330B_060120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

Sample Number: OP81252-MS
Lab FileID: BB068462.D
Injection Time: 07/27/20 23:50

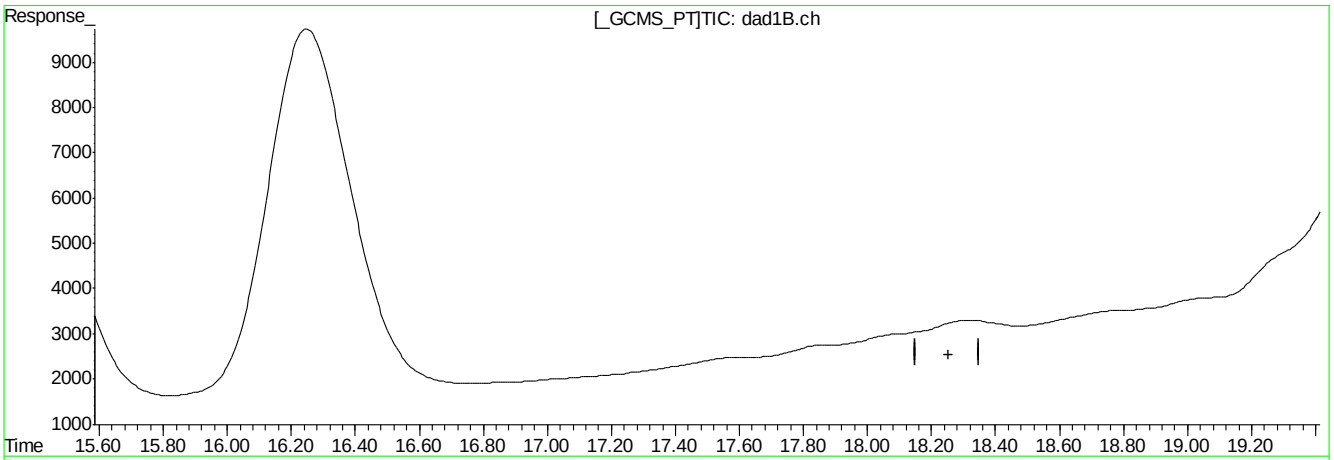
Method: SW846 8330B
Analyst approved: 07/30/20 15:32 William Hustedde
Supervisor approved: 07/30/20 16:26 Naresh Jiawan

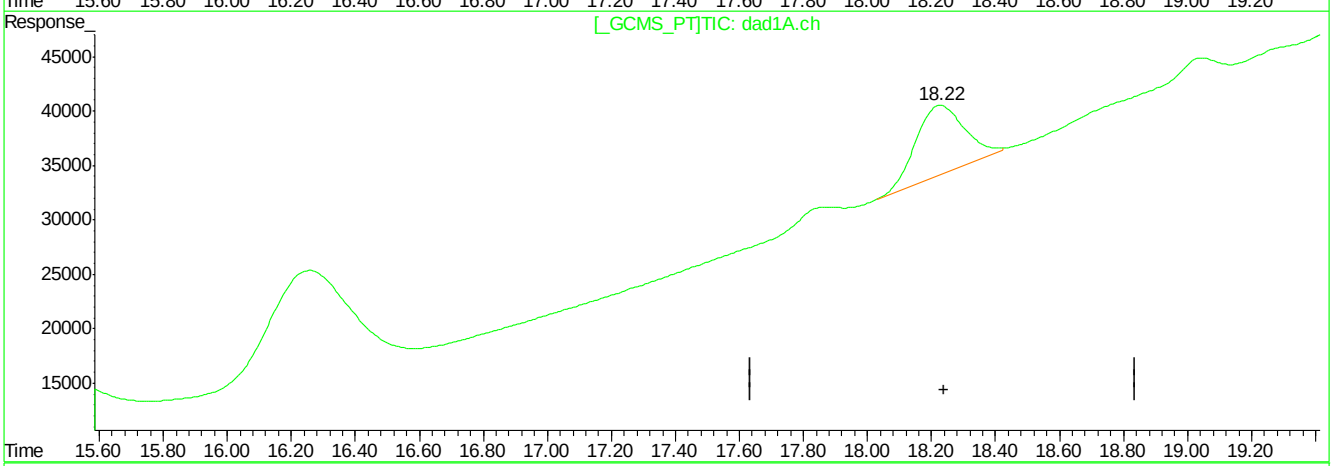
Parameter	CAS	Sig#	R.T. (min.)	Reason
PETN	78-11-5	2	18.22	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068462.D\dad1B.ch Vial: 79
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068462.D\dad1A.ch
Acq On : 27-Jul-2020, 23:50:58 Operator: williamh
Sample : op81252-MS Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jul 28 10:04 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

18.22min 510.782ppb m

response 687133

(+) = Expected Retention Time
BB068462.D 8330B_060120_PLUS.M Tue Jul 28 15:14:06 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
07/30/20 16:26

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068463.D\dad1B.ch Vial: 80
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068463.D\dad1A.ch
Acq On : 28-Jul-2020, 00:21:00 Operator: williamh
Sample : op81252-MSD Inst : G1315B
Misc : op81252,GBB2008,500,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jul 28 10:04:58 2020 Quant Results File: 8330B_060120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.70	10.70	938791	1653961	502.717	520.745
	Spiked Amount 500.000	Range 70 - 136		Recovery =		100.54%	104.15%
	Target Compounds						
1)	TNX	1.33	1.33	1048493	1690520	461.577	457.078
2)	HMX	1.47	1.47	1700128	4721358	1150.372	1151.769
3)	DNX	1.70	1.70	661873	1089712	652.711	620.586
4)	MNX	2.27	2.27	1111726	1724130	512.159	525.248
5)	RDX	2.87	2.87	913515	1488887	481.636	493.367
6)	1,3,5-Trinitrobe	4.62	4.62	3051352	5792809	728.618	724.247
7)	1,3-Dinitrobenze	5.76	5.77	2486976	1801963	463.930	495.318
8)	3,5-Dinitroanili	6.11	6.11	2000873	3596761	493.027	520.071
9)	Nitrobenzene	7.22	7.22	1417220	1410293	452.135	449.670
10)	Nitroglycerin	0.00	8.69	0	607217	N.D.	486.119 #
11)	Tetryl	9.07	9.07	1065163	1713949	349.399	349.261
12)	2,4,6-Trinitroto	9.53	9.53	2376648	2837141	625.828	630.736
13)	2-Amino-4,6-Dini	9.83	9.83	2274926	3461065	658.203	672.881
14)	4-Amino-2,6-Dini	10.27	10.27	1443331	2929703	571.858	592.319
16)	2,4-Dinitrotolue	11.36	11.36	2043759	1220354	434.482	411.043
17)	2,6-Dinitrotolue	11.78	11.79	1338455	1903526	489.123	552.873
18)	o-Nitrotoluene	14.77	14.77	940510	1317298	418.997	409.773
19)	p-Nitrotoluene	15.35	15.35	1583268	1285758	456.640	446.028
20)	m-Nitrotoluene	16.24	16.24	1533628	1537996	460.849	421.412
21)	PETN	0.00	18.21	0	685544	N.D.	509.600m#

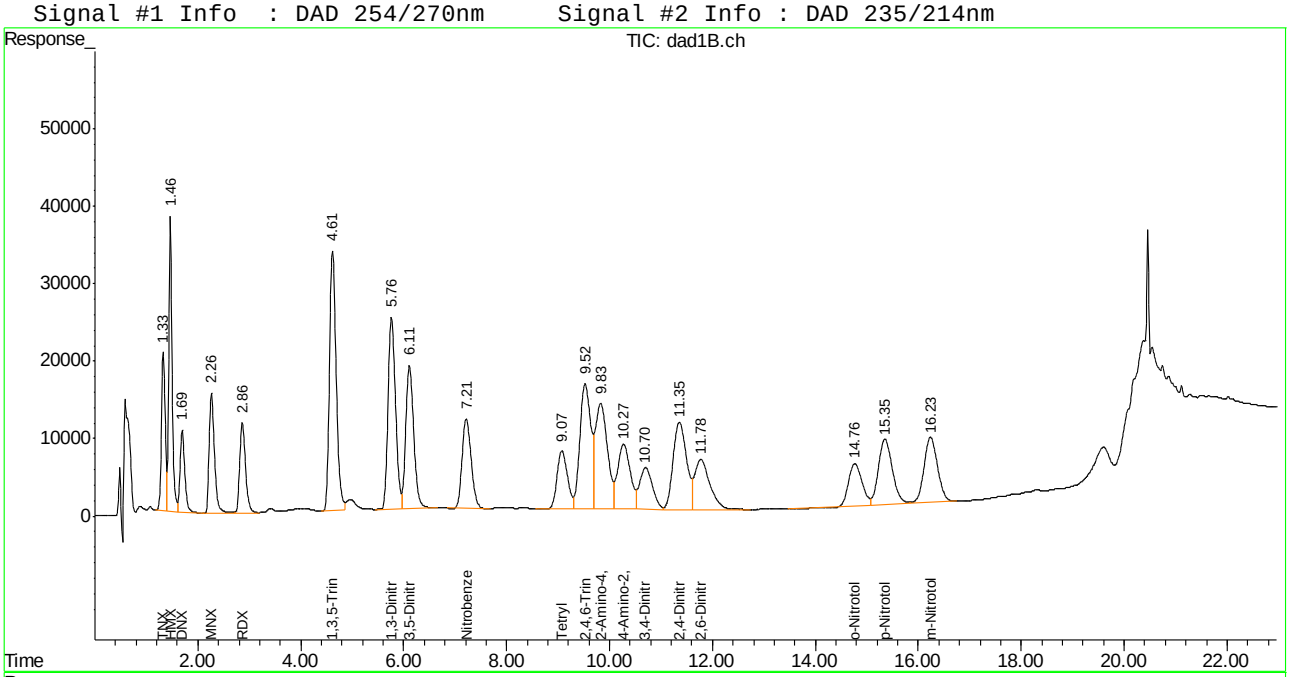
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB068463.D 8330B_060120_PLUS.M Tue Jul 28 15:18:11 2020 Page 1

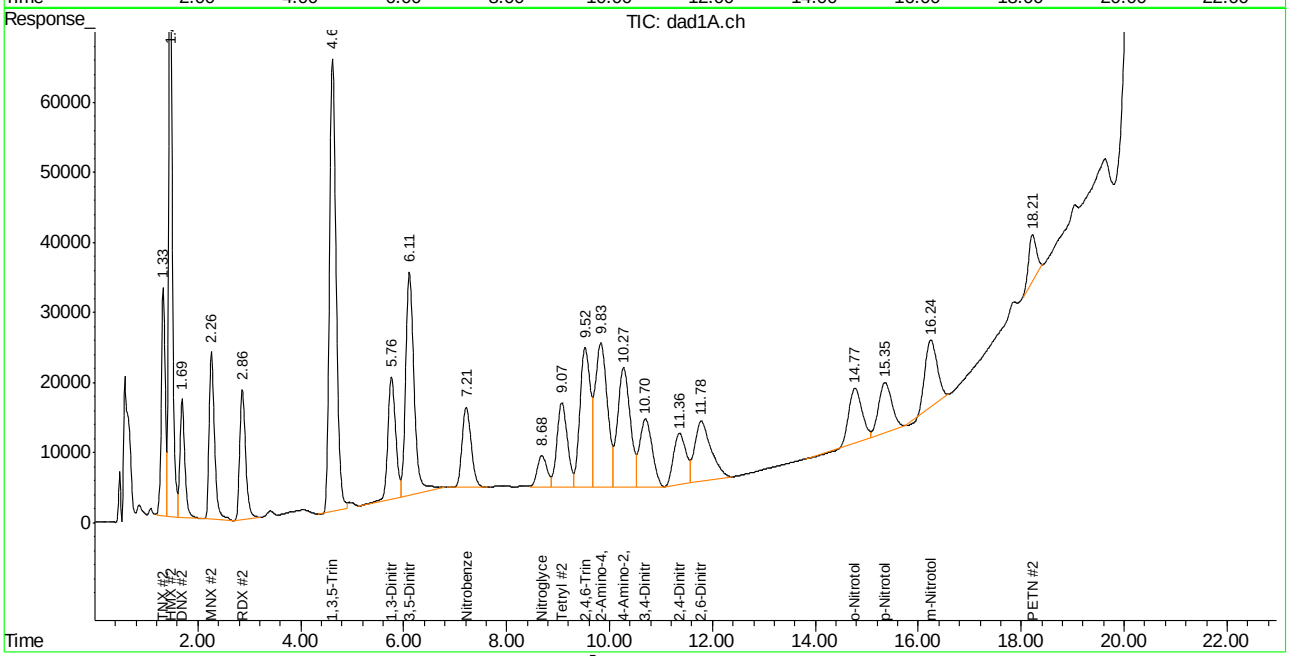
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068463.D\dad1B.ch Vial: 80
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068463.D\dad1A.ch
Acq On : 28-Jul-2020, 00:21:00 Operator: williamh
Sample : op81252-MSD Inst : G1315B
Misc : op81252,GBB2008,500,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jul 28 15:14 2020 Quant Results File: 8330B_060120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

Sample Number: OP81252-MSD
Lab FileID: BB068463.D
Injection Time: 07/28/20 00:21

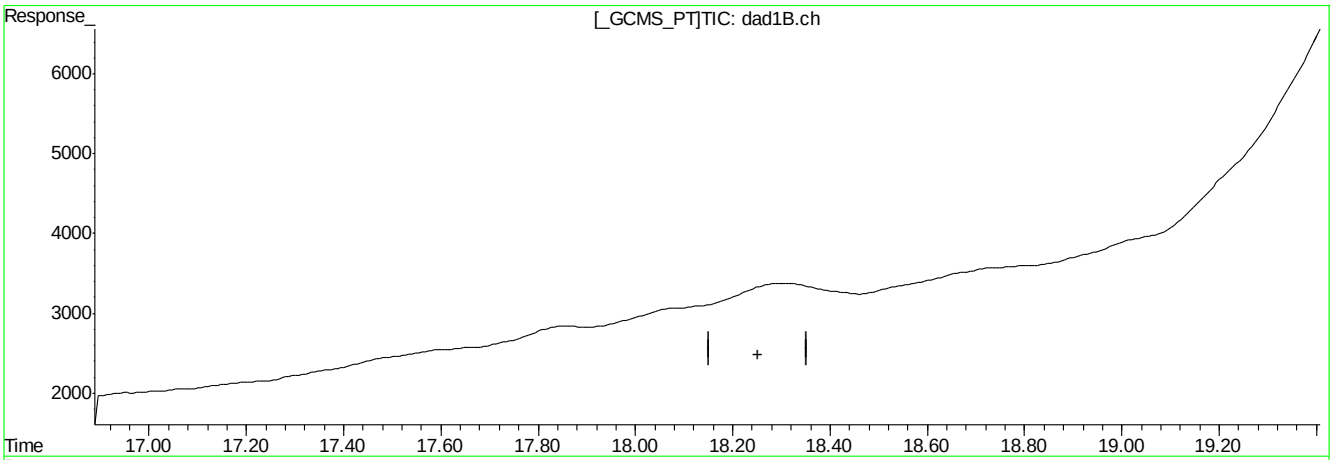
Method: SW846 8330B
Analyst approved: 07/30/20 15:32 William Hustedde
Supervisor approved: 07/30/20 16:26 Naresh Jiawan

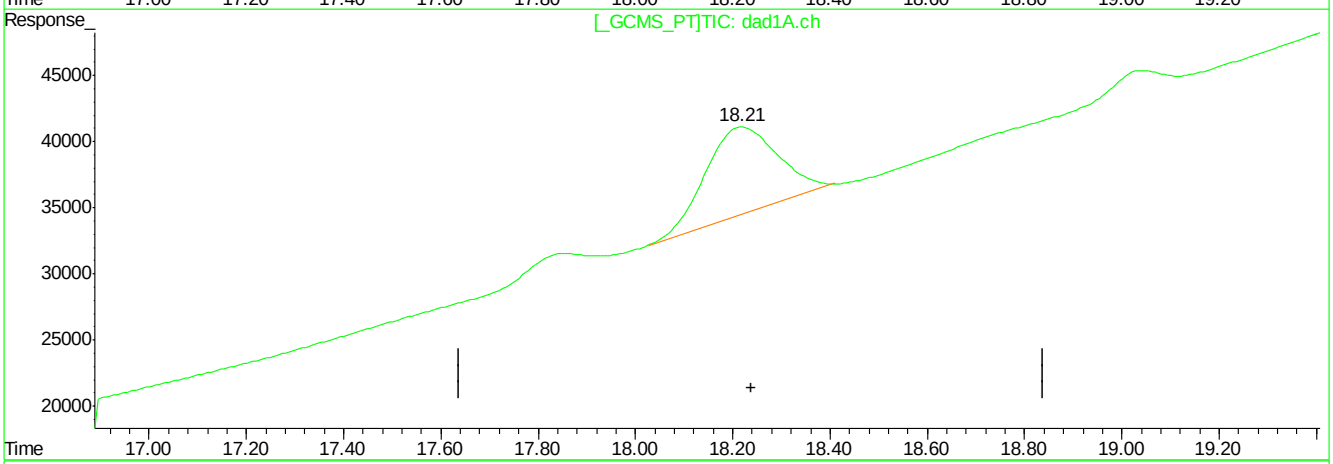
Parameter	CAS	Sig#	R.T. (min.)	Reason
PETN	78-11-5	2	18.21	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068463.D\dad1B.ch Vial: 80
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068463.D\dad1A.ch
Acq On : 28-Jul-2020, 00:21:00 Operator: williamh
Sample : op81252-MSD Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jul 28 10:04 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

18.21min 509.600ppb m

response 685544

(+) = Expected Retention Time
BB068463.D 8330B_060120_PLUS.M Tue Jul 28 15:14:20 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
06/02/20 14:50

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068176.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068176.D\dad1A.ch
Acq On : 01-Jun-2020, 17:04:10 Operator: williamh
Sample : ic2001-20 Inst : G1315B
Misc : op80309,GBB2001,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 02 11:41:46 2020 Quant Results File: 8330B_060120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.81	10.81	41215	55437	19.870	14.623
Spiked Amount	500.000	Range	70 - 136	Recovery	=	3.97%#	2.92%#
	Target Compounds						
1)	TNX	1.33	1.33	33203	63005	14.565	17.237m
2)	HMX	1.46	1.47	23660	60693	12.275m	11.687m
3)	DNX	1.70	1.70	16803	15419	13.095m	7.818m#
4)	MNX	2.28	2.28	43709	62345	20.332m	18.878m
5)	RDX	2.89	2.89	33858	52022	15.702m	15.473m
6)	1,3,5-Trinitrobe	4.63	4.63	79350	154691	17.037m	17.376m
7)	1,3-Dinitrobenze	5.80	5.80	103543	67882	17.635	16.907m
8)	3,5-Dinitroanili	6.16	6.16	80081	138180	17.829	18.190m
9)	Nitrobenzene	7.28	7.29	62562	63430	18.029	18.488
10)	Nitroglycerin	0.00	8.75	0	25434	N.D.	19.545 #
11)	Tetryl	9.15	9.15	59482	97852	19.394m	20.596
12)	2,4,6-Trinitroto	9.60	9.60	77060	86031	18.653	17.485
13)	2-Amino-4,6-Dini	9.96	9.96	70582	99362	18.533	17.717
14)	4-Amino-2,6-Dini	10.41	10.41	51171	89822	18.473	16.528
16)	2,4-Dinitrotolue	11.48	11.49	89536	44431	17.280	14.086m
17)	2,6-Dinitrotolue	11.92	11.94	52303	54296	17.181	14.463m
18)	o-Nitrotoluene	14.92	14.95	43050	63381	17.971	19.414m
19)	p-Nitrotoluene	15.50	15.53	68961	53449	18.254	16.927m
20)	m-Nitrotoluene	16.38	16.37	61301	53263	17.922m	13.583m
21)	PETN	0.00	18.23	0	30142	N.D.	21.340m#

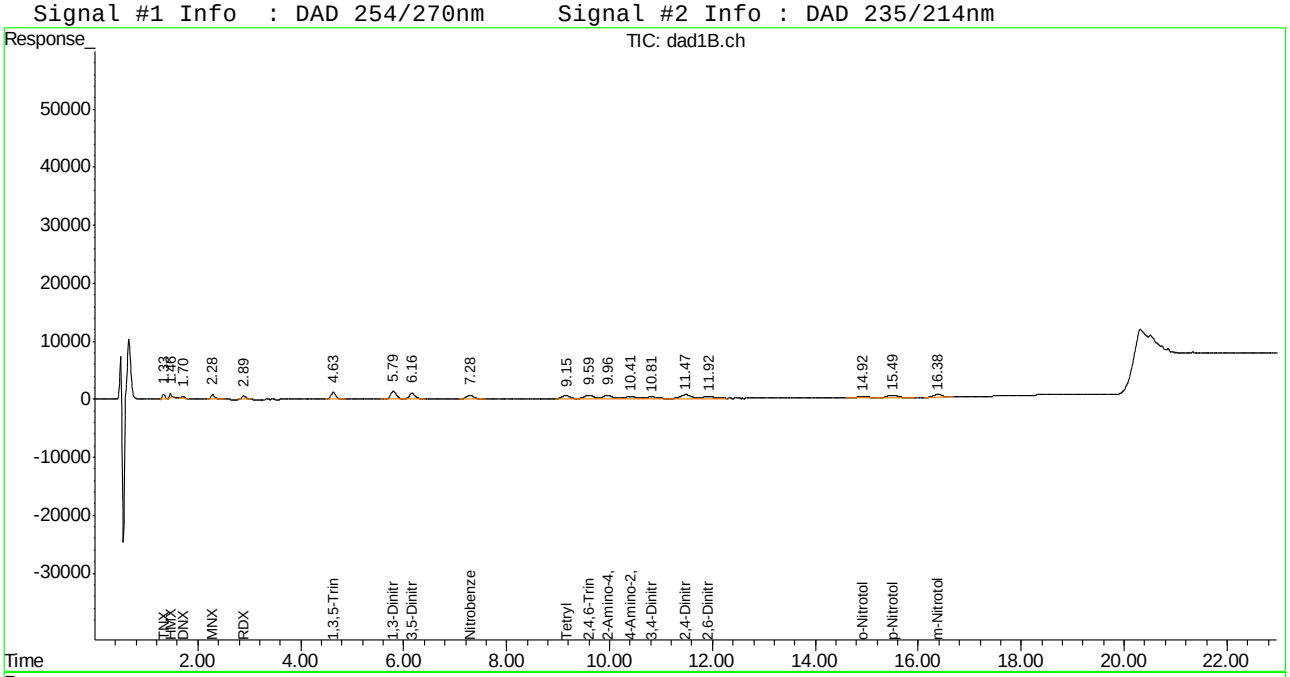
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB068176.D 8330B_060120_PLUS.M Tue Jun 02 13:34:29 2020 Page 1

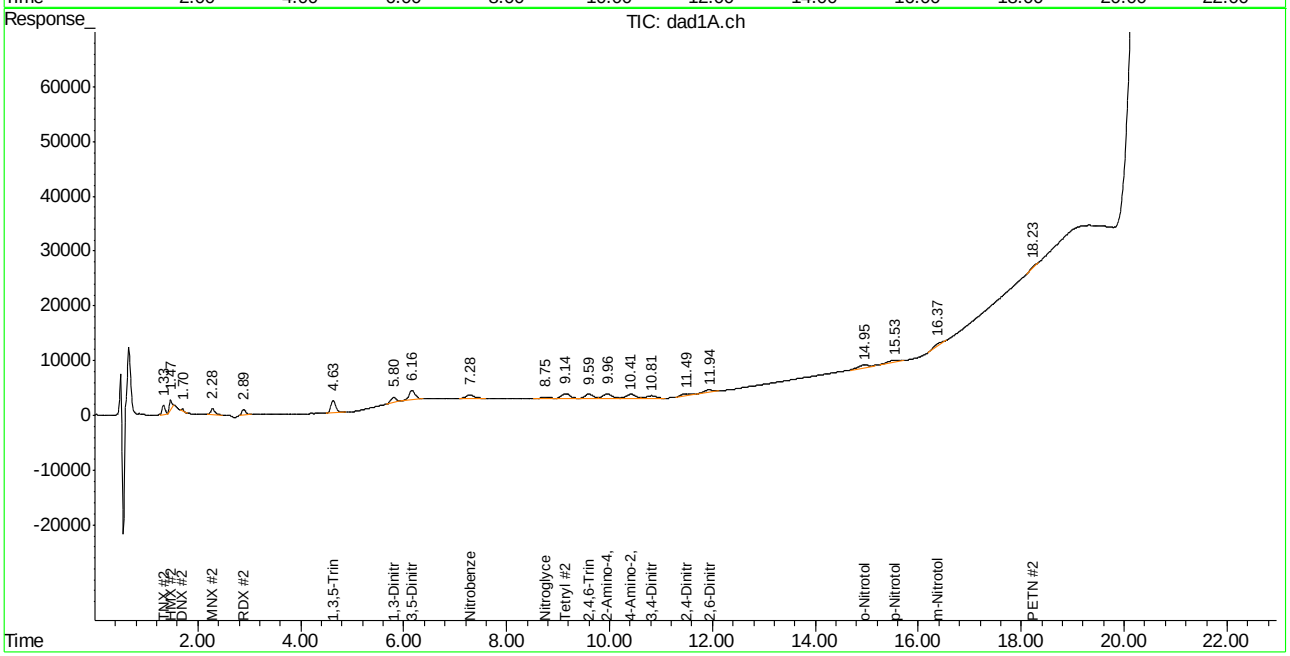
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068176.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068176.D\dad1A.ch
Acq On : 01-Jun-2020, 17:04:10 Operator: williamh
Sample : ic2001-20 Inst : G1315B
Misc : op80309,GBB2001,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:46 2020 Quant Results File: 8330B_060120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

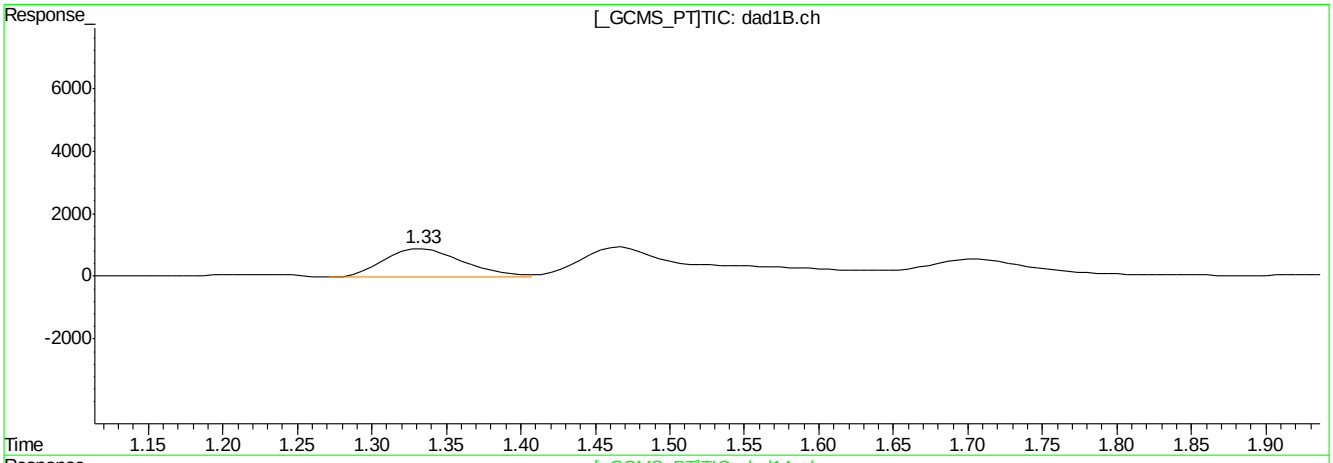
Sample Number: GBB2001-IC2001
Lab FileID: BB068176.D
Injection Time: 06/01/20 17:04
Method: SW846 8330B
Analyst approved: 06/02/20 13:46 William Hustedde
Supervisor approved: 06/02/20 14:50 Naresh Jiawan

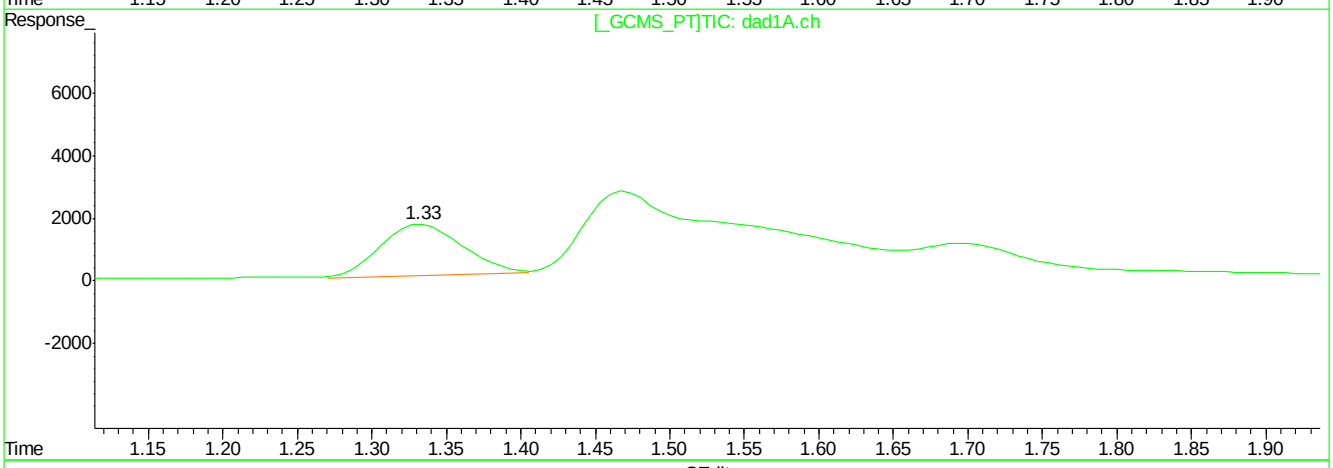
Parameter	CAS	Sig#	R.T. (min.)	Reason
TNX		2	1.33	Poor instrument integration
HMX	2691-41-0	1	1.46	Poor instrument integration
HMX	2691-41-0	2	1.47	Poor instrument integration
DNX		1	1.70	Poor instrument integration
DNX		2	1.70	Poor instrument integration
MNX		1	2.28	Poor instrument integration
MNX		2	2.28	Poor instrument integration
RDX	121-82-4	1	2.89	Poor instrument integration
RDX	121-82-4	2	2.89	Poor instrument integration
1,3,5-Trinitrobenzene	99-35-4	1	4.63	Poor instrument integration
1,3,5-Trinitrobenzene	99-35-4	2	4.63	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	5.80	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	6.16	Poor instrument integration
Tetryl	479-45-8	1	9.15	Poor instrument integration
2,4-Dinitrotoluene	121-14-2	2	11.49	Poor instrument integration
2,6-Dinitrotoluene	606-20-2	2	11.94	Poor instrument integration
o-Nitrotoluene	88-72-2	2	14.95	Poor instrument integration
p-Nitrotoluene	99-99-0	2	15.53	Poor instrument integration
m-Nitrotoluene	99-08-1	2	16.37	Poor instrument integration
m-Nitrotoluene	99-08-1	1	16.38	Poor instrument integration
PETN	78-11-5	2	18.23	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068176.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068176.D\dad1A.ch
Acq On : 01-Jun-2020, 17:04:10 Operator: williamh
Sample : ic2001-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(1) TNX

1.33min 14.565ppb

response 33203

(1) TNX #2

1.33min 17.237ppb m

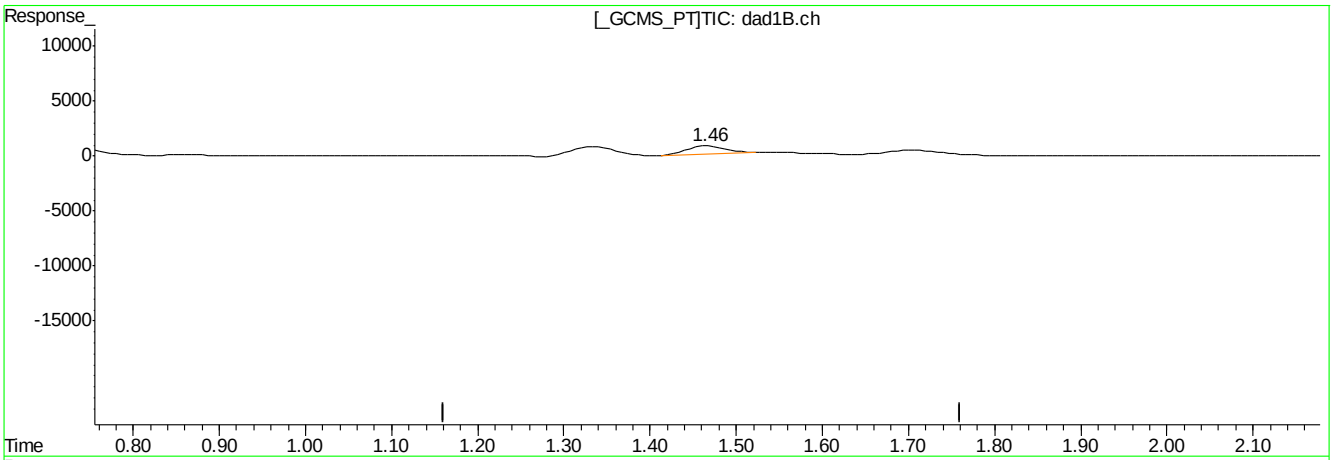
response 63005

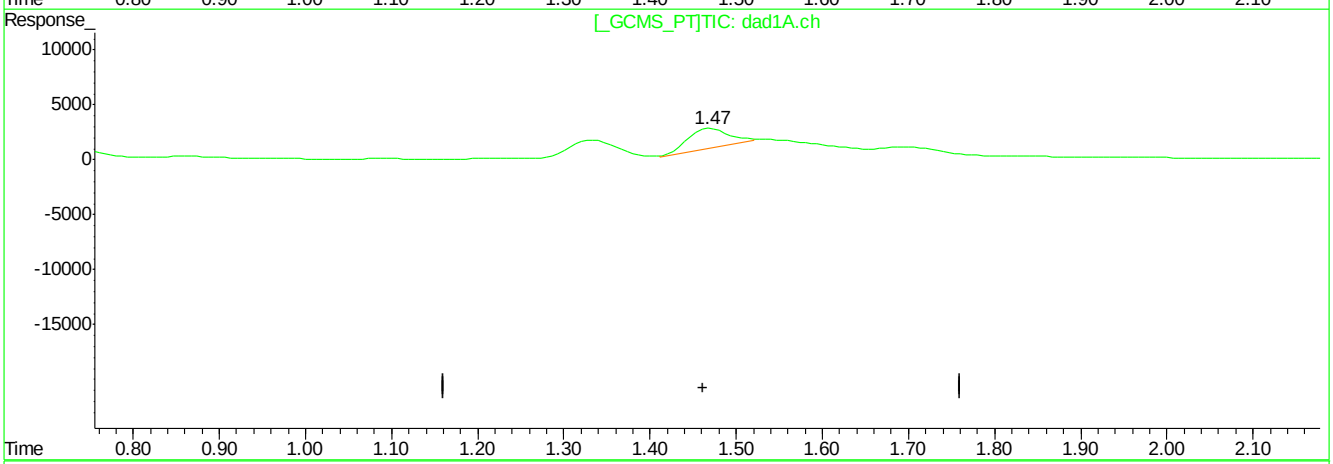
(+) = Expected Retention Time
BB068176.D 8330B_060120_PLUS.M Tue Jun 02 11:43:37 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068176.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068176.D\dad1A.ch
Acq On : 01-Jun-2020, 17:04:10 Operator: williamh
Sample : ic2001-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(2) HMX

1.46min 12.275ppb m

response 23660

(2) HMX #2

1.47min 11.687ppb m

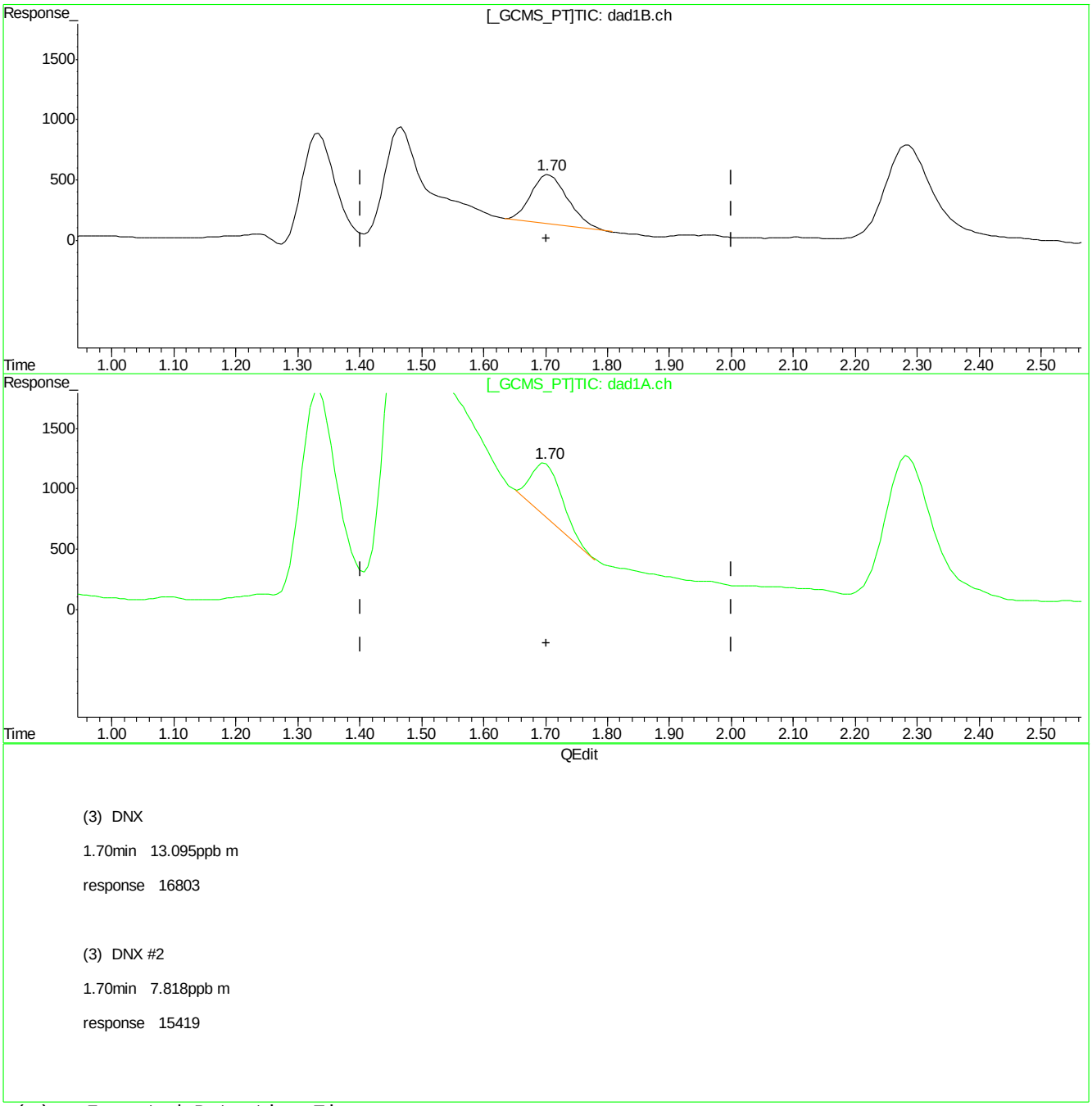
response 60693

(+) = Expected Retention Time
BB068176.D 8330B_060120_PLUS.M Tue Jun 02 11:43:52 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068176.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068176.D\dad1A.ch
Acq On : 01-Jun-2020, 17:04:10 Operator: williamh
Sample : ic2001-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration



(3) DNX

1.70min 13.095ppb m

response 16803

(3) DNX #2

1.70min 7.818ppb m

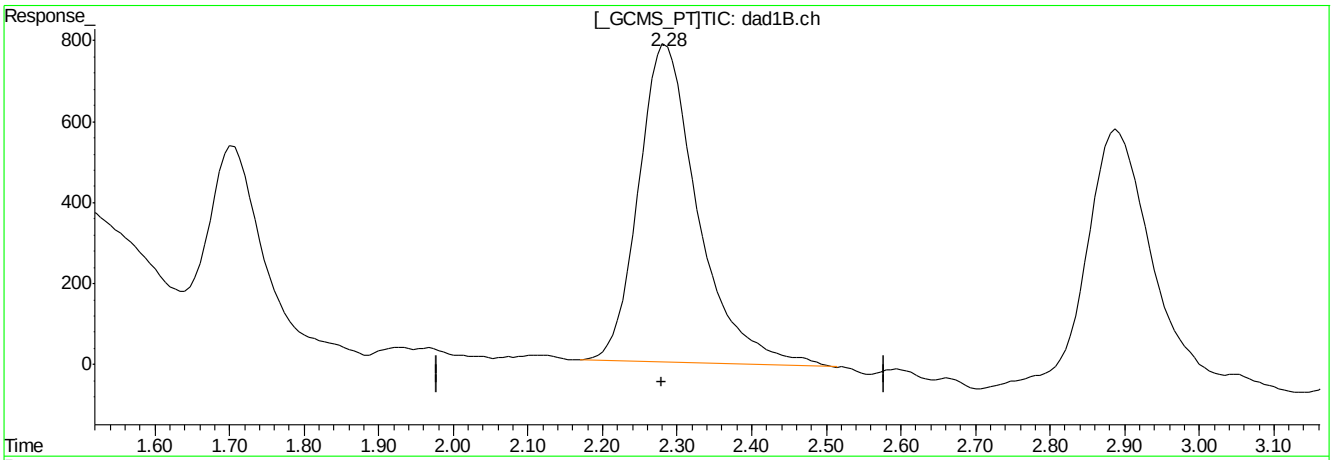
response 15419

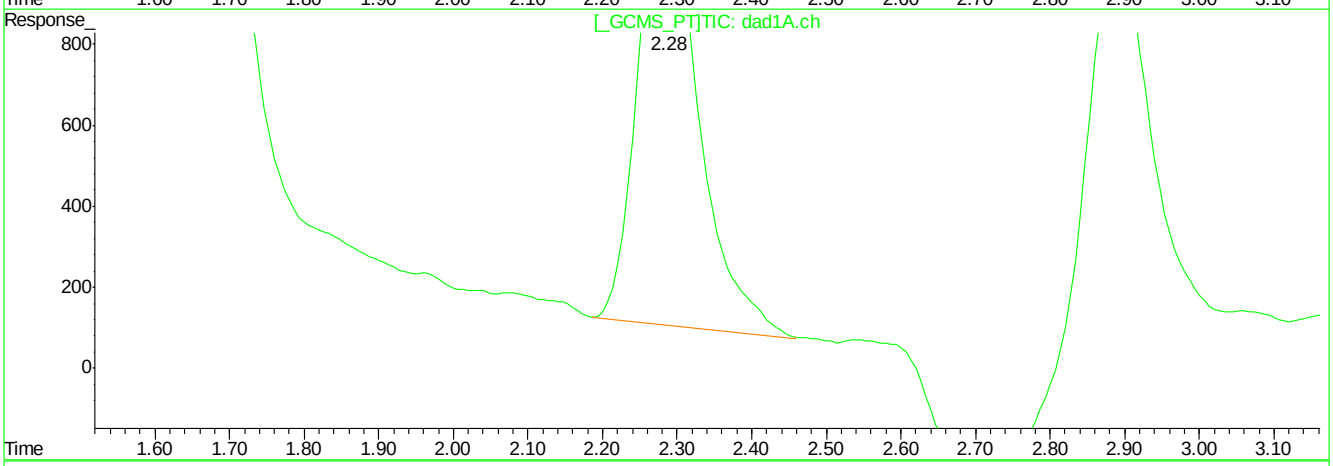
(+) = Expected Retention Time
BB068176.D 8330B_060120_PLUS.M Tue Jun 02 11:44:03 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068176.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068176.D\dad1A.ch
Acq On : 01-Jun-2020, 17:04:10 Operator: williamh
Sample : ic2001-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(4) MNX

2.28min 20.332ppb m

response 43709

(4) MNX #2

2.28min 18.878ppb m

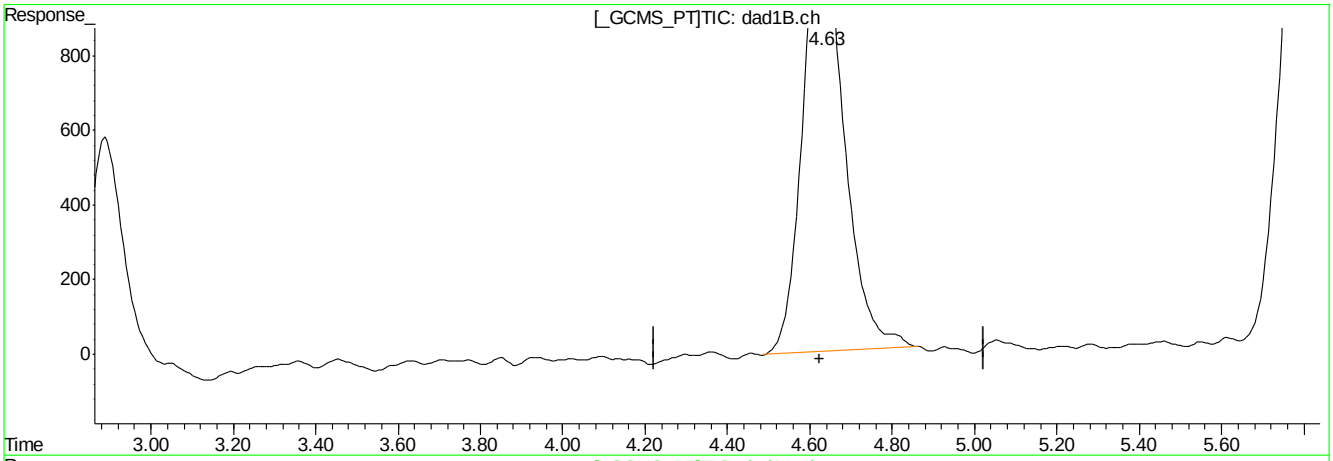
response 62345

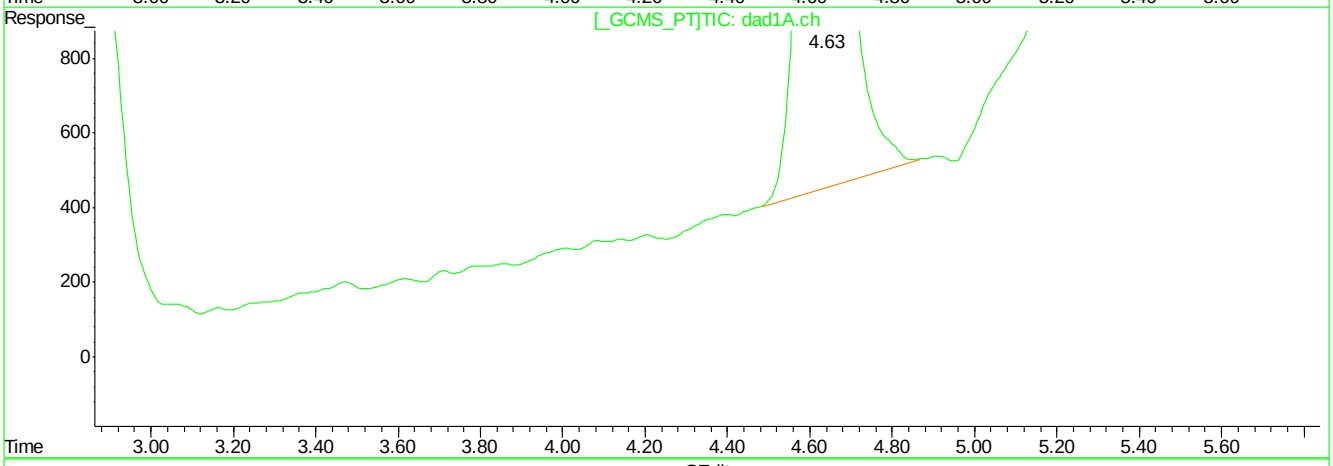
(+) = Expected Retention Time
BB068176.D 8330B_060120_PLUS.M Tue Jun 02 11:44:14 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068176.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068176.D\dad1A.ch
Acq On : 01-Jun-2020, 17:04:10 Operator: williamh
Sample : ic2001-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(6) 1,3,5-Trinitrobenzene

4.63min 17.037ppb m

response 79350

(6) 1,3,5-Trinitrobenzene #2

4.63min 17.376ppb m

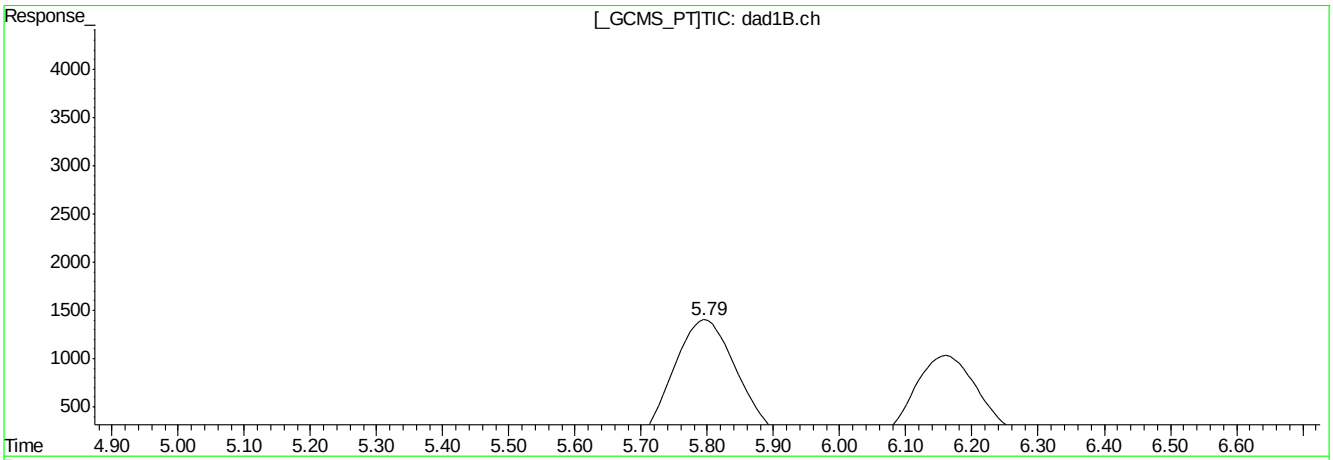
response 154691

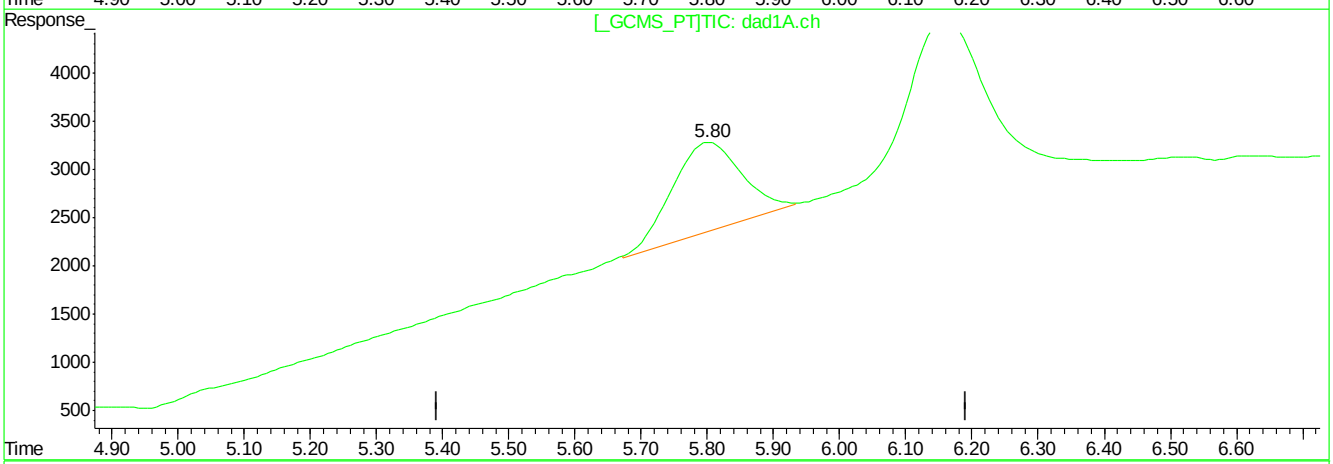
(+) = Expected Retention Time
BB068176.D 8330B_060120_PLUS.M Tue Jun 02 11:45:51 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068176.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068176.D\dad1A.ch
Acq On : 01-Jun-2020, 17:04:10 Operator: williamh
Sample : ic2001-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

5.80min 17.635ppb

response 103543

(7) 1,3-Dinitrobenzene #2

5.80min 16.907ppb m

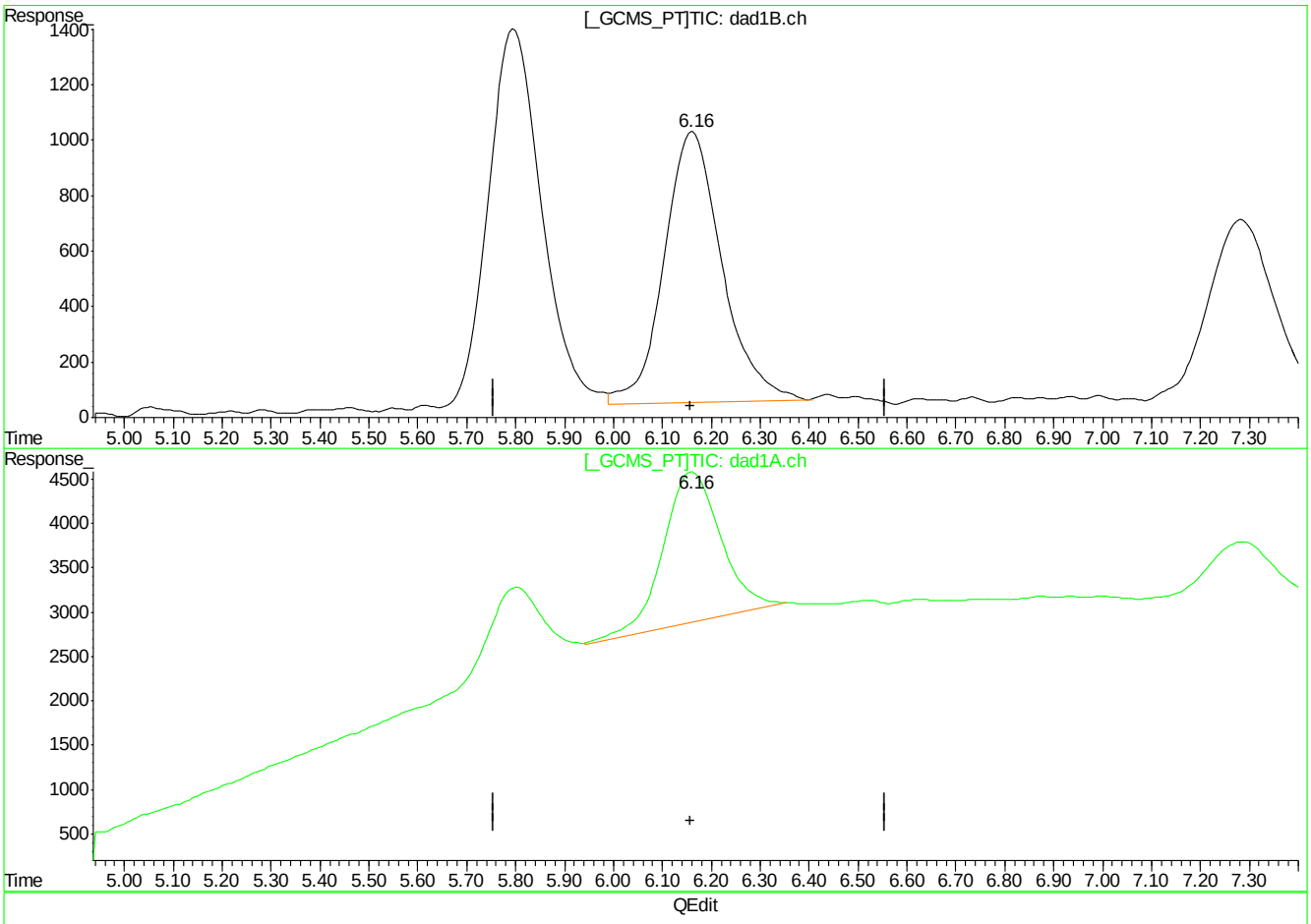
response 67882

(+) = Expected Retention Time
BB068176.D 8330B_060120_PLUS.M Tue Jun 02 11:46:00 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068176.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068176.D\dad1A.ch
Acq On : 01-Jun-2020, 17:04:10 Operator: williamh
Sample : ic2001-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration



(8) 3,5-Dinitroaniline

6.16min 17.829ppb

response 80081

(8) 3,5-Dinitroaniline #2

6.16min 18.190ppb m

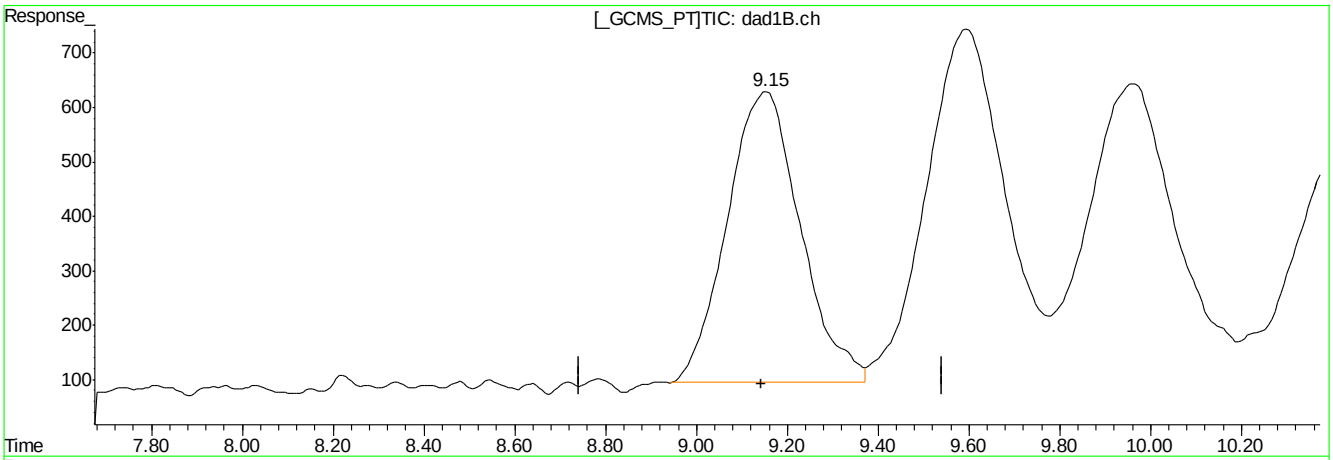
response 138180

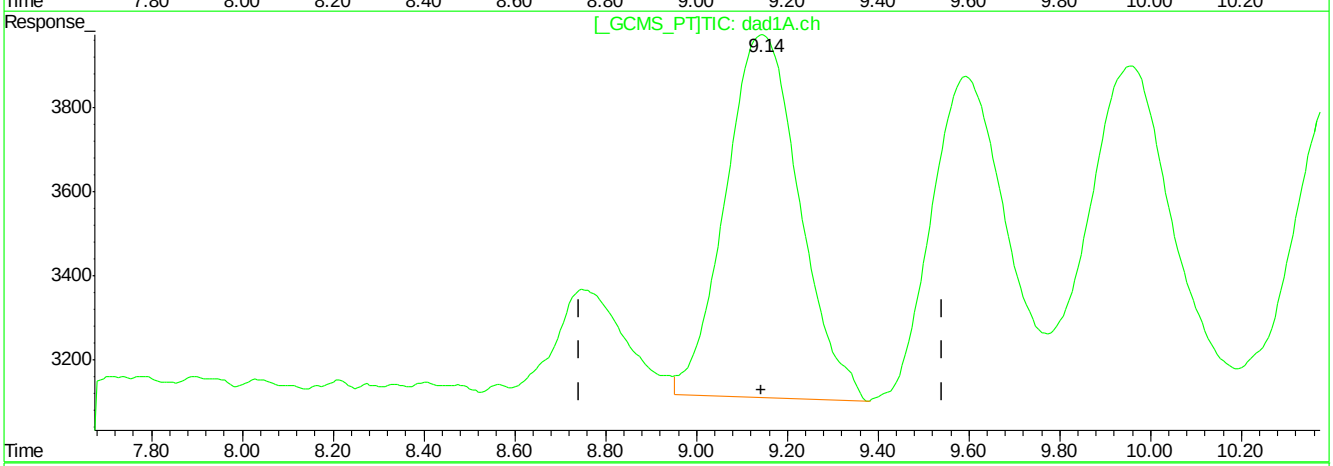
(+) = Expected Retention Time
BB068176.D 8330B_060120_PLUS.M Tue Jun 02 11:46:08 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068176.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068176.D\dad1A.ch
Acq On : 01-Jun-2020, 17:04:10 Operator: williamh
Sample : ic2001-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(11) Tetryl

9.15min 19.394ppb m

response 59482

(11) Tetryl #2

9.15min 20.596ppb

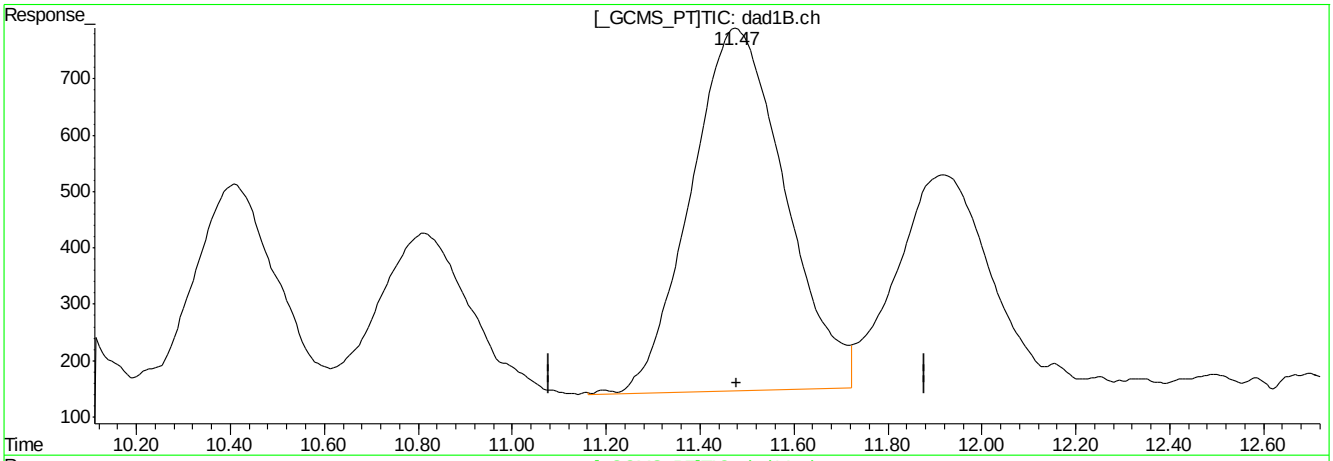
response 97852

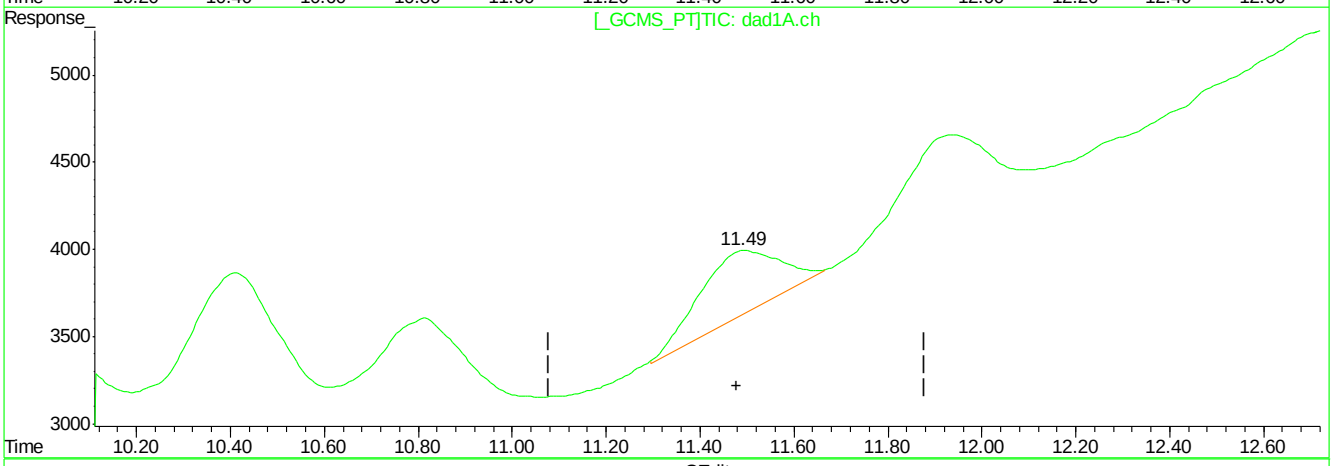
(+) = Expected Retention Time
BB068176.D 8330B_060120_PLUS.M Tue Jun 02 11:46:17 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068176.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068176.D\dad1A.ch
Acq On : 01-Jun-2020, 17:04:10 Operator: williamh
Sample : ic2001-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(16) 2,4-Dinitrotoluene

11.48min 17.280ppb

response 89536

(16) 2,4-Dinitrotoluene #2

11.49min 14.086ppb m

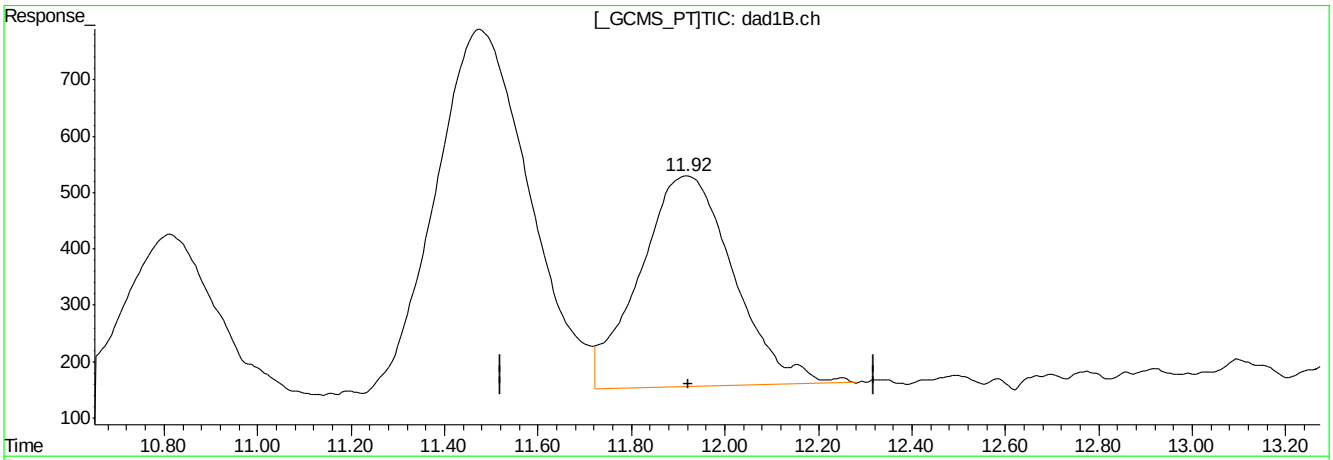
response 44431

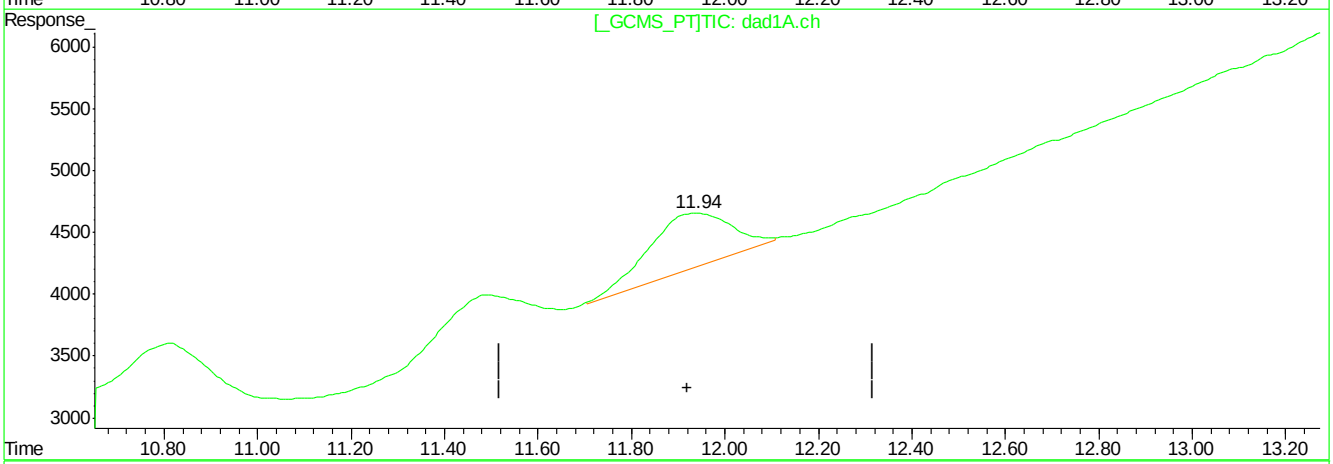
(+) = Expected Retention Time
BB068176.D 8330B_060120_PLUS.M Tue Jun 02 11:46:26 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068176.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068176.D\dad1A.ch
Acq On : 01-Jun-2020, 17:04:10 Operator: williamh
Sample : ic2001-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(17) 2,6-Dinitrotoluene

11.92min 17.181ppb

response 52303

(17) 2,6-Dinitrotoluene #2

11.94min 14.463ppb m

response 54296

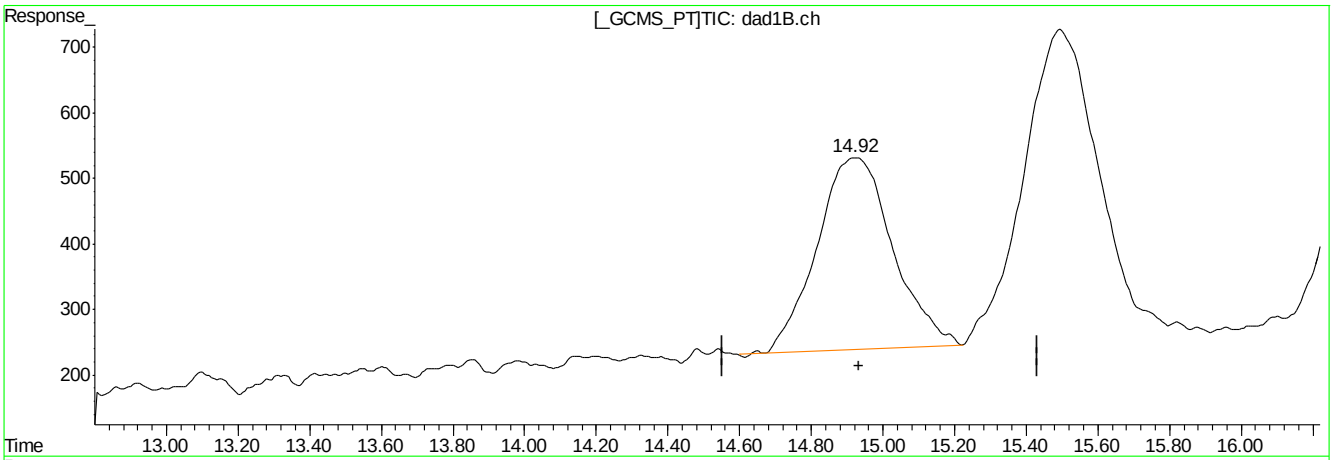
(+) = Expected Retention Time
BB068176.D 8330B_060120_PLUS.M Tue Jun 02 11:46:33 2020

BB068176.D edits: 2,6-Dinitrotoluene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068176.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068176.D\dad1A.ch
Acq On : 01-Jun-2020, 17:04:10 Operator: williamh
Sample : ic2001-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration



(18) o-Nitrotoluene

14.92min 17.971ppb

response 43050

(18) o-Nitrotoluene #2

14.95min 19.414ppb m

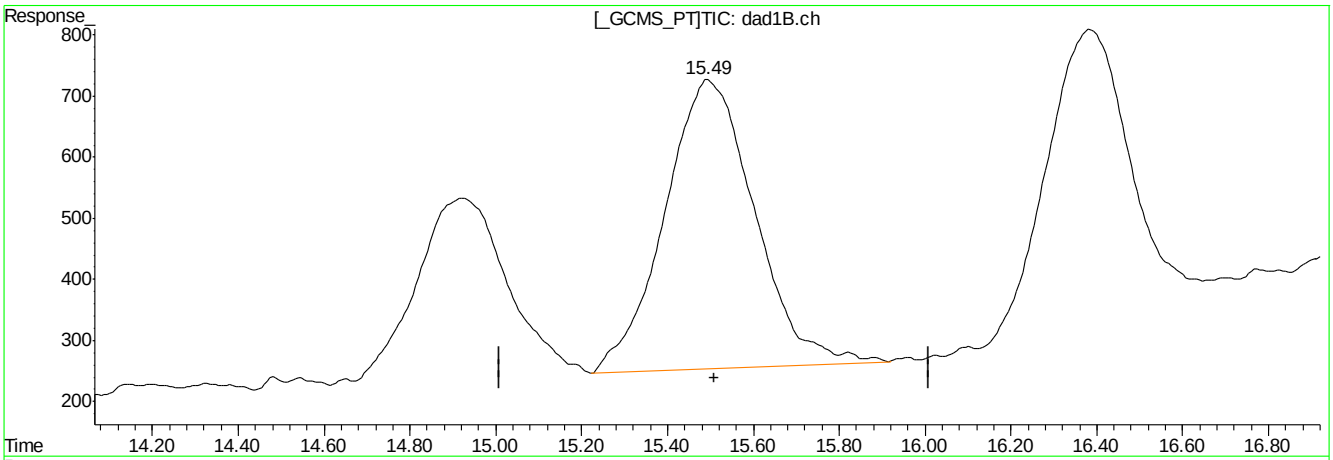
response 63381

(+) = Expected Retention Time
BB068176.D 8330B_060120_PLUS.M Tue Jun 02 11:46:40 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068176.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068176.D\dad1A.ch
Acq On : 01-Jun-2020, 17:04:10 Operator: williamh
Sample : ic2001-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration



(19) p-Nitrotoluene

15.50min 18.254ppb

response 68961

(19) p-Nitrotoluene #2

15.53min 16.927ppb m

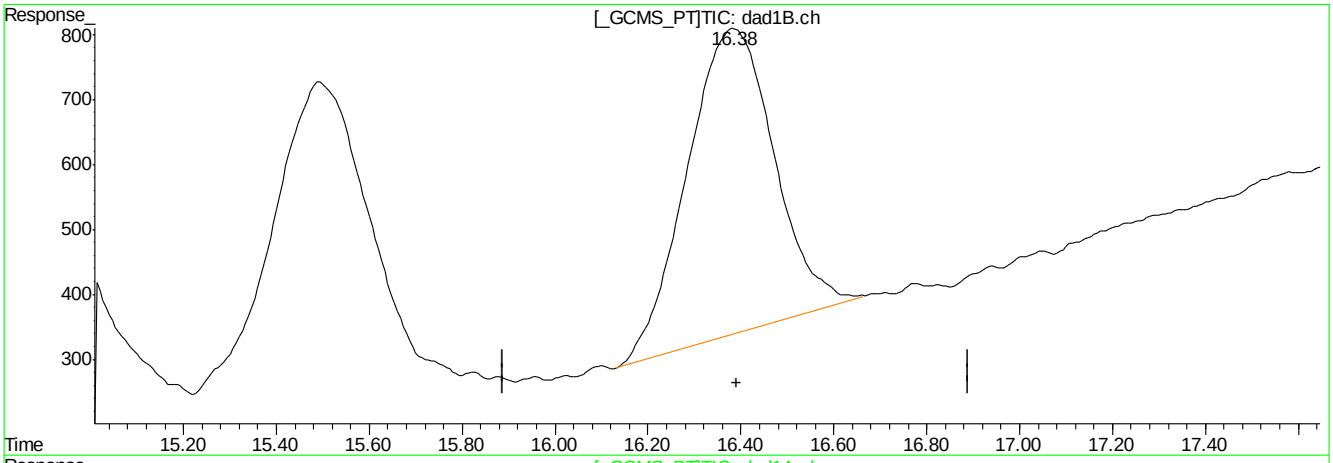
response 53449

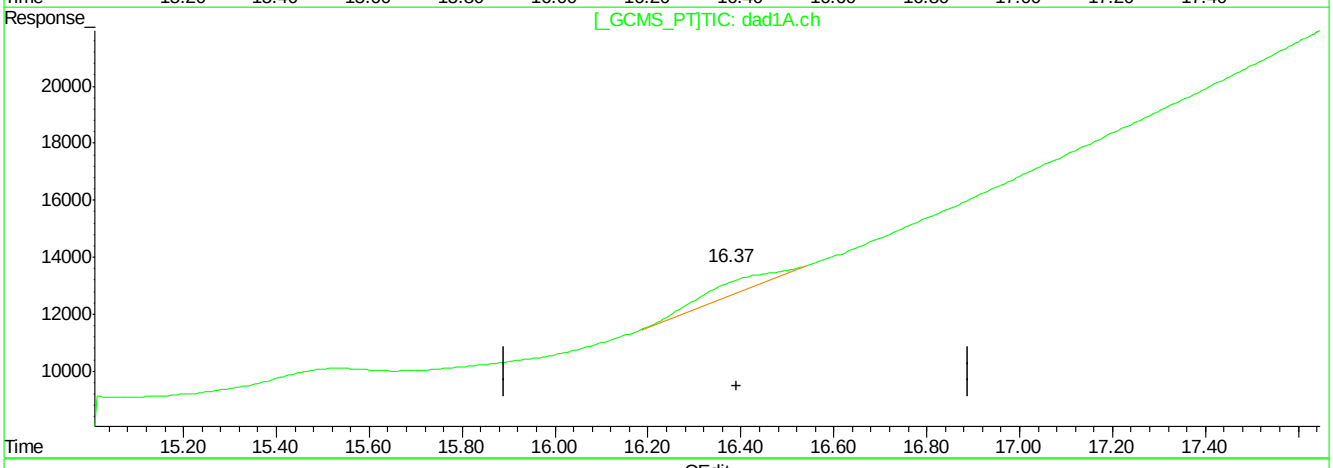
(+) = Expected Retention Time
BB068176.D 8330B_060120_PLUS.M Tue Jun 02 11:46:46 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068176.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068176.D\dad1A.ch
Acq On : 01-Jun-2020, 17:04:10 Operator: williamh
Sample : ic2001-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(20) m-Nitrotoluene

16.38min 17.922ppb m

response 61301

(20) m-Nitrotoluene #2

16.37min 13.583ppb m

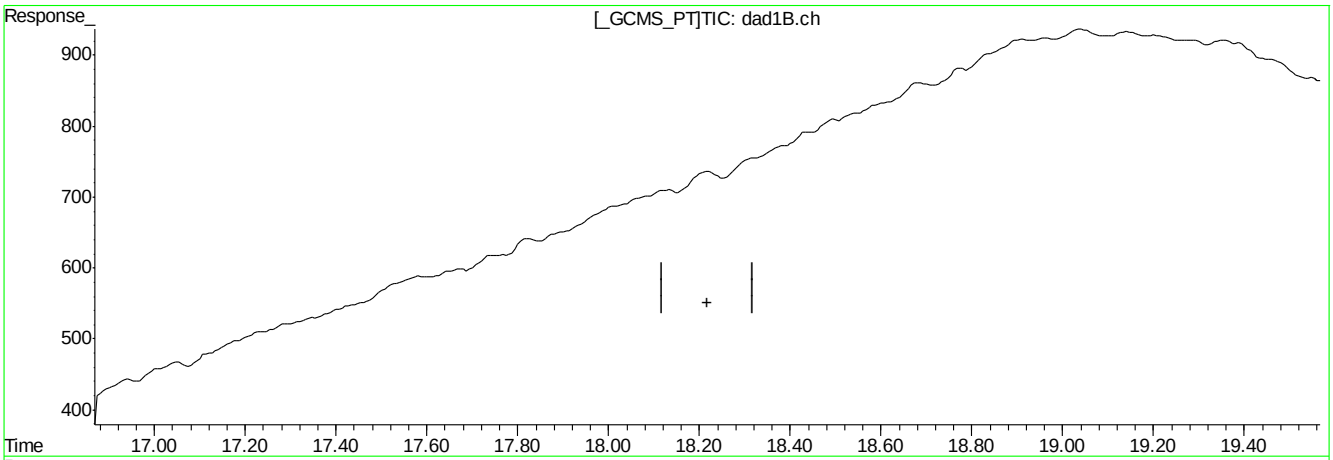
response 53263

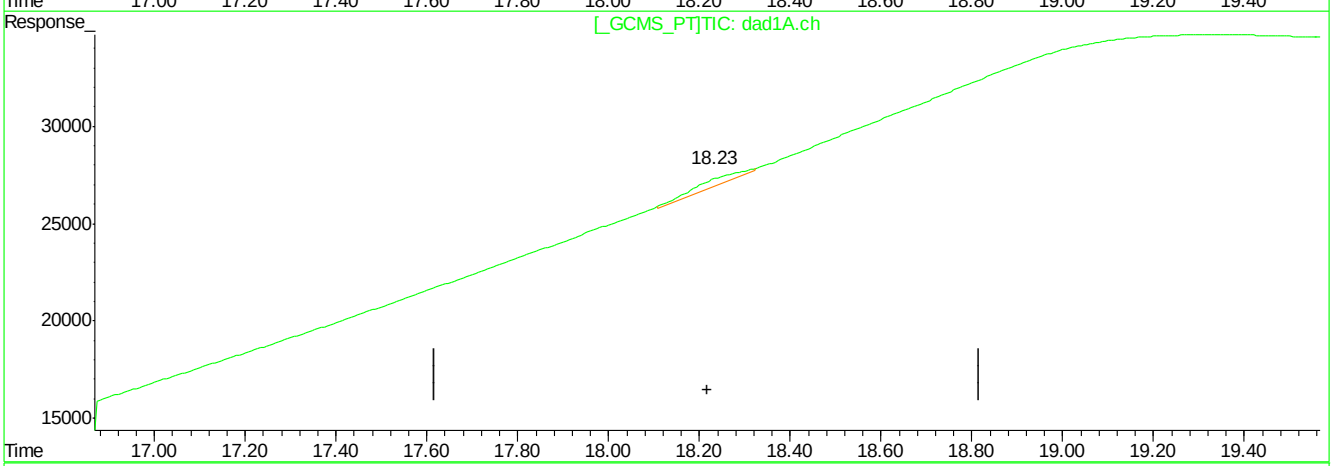
(+) = Expected Retention Time
BB068176.D 8330B_060120_PLUS.M Tue Jun 02 11:46:56 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068176.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068176.D\dad1A.ch
Acq On : 01-Jun-2020, 17:04:10 Operator: williamh
Sample : ic2001-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

18.23min 21.340ppb m

response 30142

(+) = Expected Retention Time
BB068176.D 8330B_060120_PLUS.M Tue Jun 02 11:47:02 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 06/02/20 14:50

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068177.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068177.D\dad1A.ch
Acq On : 01-Jun-2020, 17:34:07 Operator: williamh
Sample : ic2001-50 Inst : G1315B
Misc : op80309,GBB2001,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 02 11:41:47 2020 Quant Results File: 8330B_060120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.84	10.83	94717	155173	45.660	40.931
	Spiked Amount 500.000	Range 70 - 136		Recovery =		9.13%#	8.19%#
	Target Compounds						
1)	TNX	1.33	1.33	99824	174829	43.789m	47.829m
2)	HMX	1.47	1.47	65885	188414	34.180m	36.282m
3)	DNX	1.71	1.71	49390	62420	38.491m	31.657m
4)	MNX	2.29	2.29	111953	165504	52.078	50.115m
5)	RDX	2.89	2.90	99469	152527	46.131m	45.365m
6)	1,3,5-Trinitrobe	4.64	4.64	217824	411264	46.767	46.195m
7)	1,3-Dinitrobenze	5.81	5.81	277083	178782	47.193	44.528m
8)	3,5-Dinitroanili	6.17	6.17	208577	348696	46.437	45.902m
9)	Nitrobenzene	7.30	7.30	153283	159359	44.173m	46.448
10)	Nitroglycerin	0.00	8.78	0	62501	N.D.	48.029 #
11)	Tetryl	9.17	9.17	161928	250610	52.818	52.749
12)	2,4,6-Trinitroto	9.62	9.62	197468	225416	47.798	45.814
13)	2-Amino-4,6-Dini	9.98	9.98	176230	258097	46.274	46.021
14)	4-Amino-2,6-Dini	10.43	10.43	132379	251256	47.790	46.234
16)	2,4-Dinitrotolue	11.50	11.51	240575	146162	46.431	46.339m
17)	2,6-Dinitrotolue	11.94	11.95	139978	167019	45.980	44.489
18)	o-Nitrotoluene	14.94	14.95	112935	157386	47.144	48.208m
19)	p-Nitrotoluene	15.53	15.53	176734	132108	46.781	41.839m
20)	m-Nitrotoluene	16.40	16.43	170948	152967	49.978m	39.000m
21)	PETN	0.00	18.27	0	57573	N.D.	40.748m#

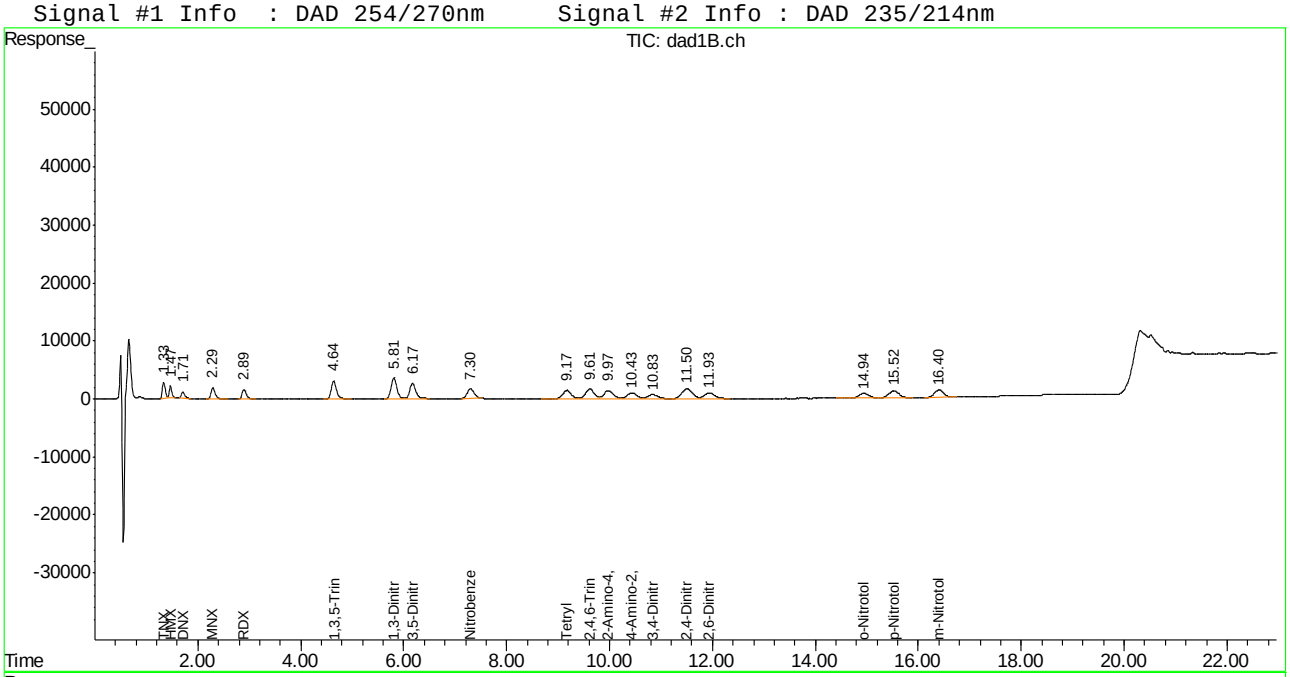
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB068177.D 8330B_060120_PLUS.M Tue Jun 02 13:34:30 2020 Page 1

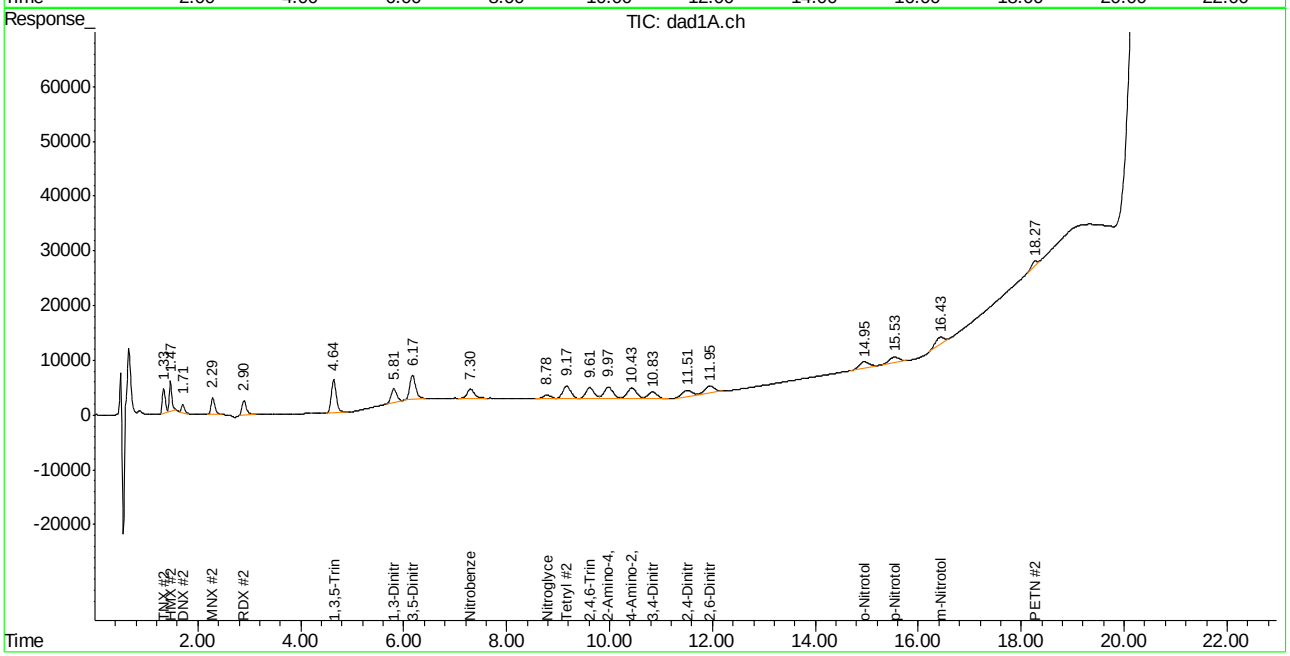
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068177.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068177.D\dad1A.ch
Acq On : 01-Jun-2020, 17:34:07 Operator: williamh
Sample : ic2001-50 Inst : G1315B
Misc : op80309,GBB2001,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:51 2020 Quant Results File: 8330B_060120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

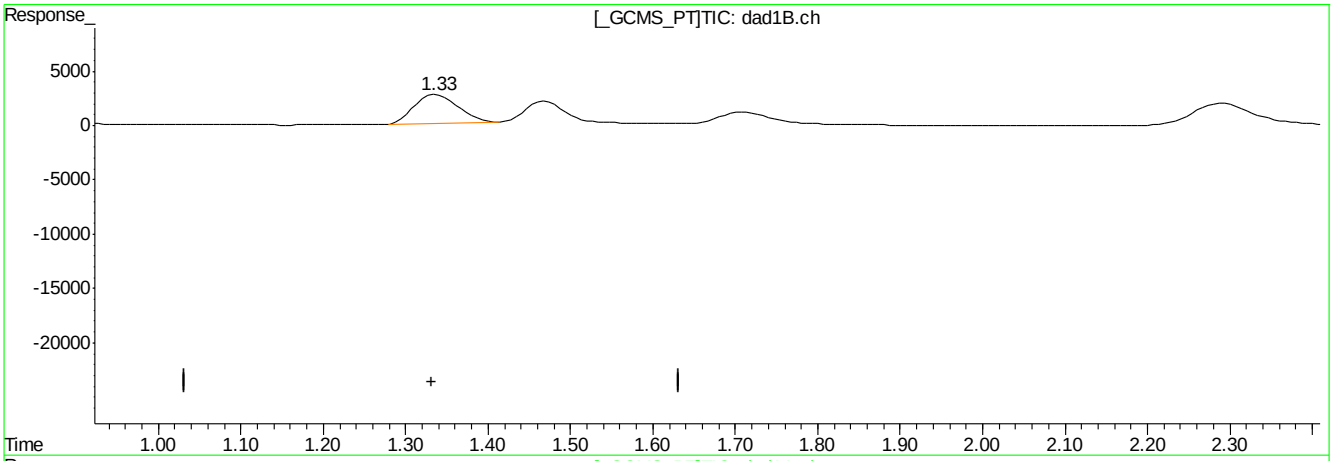
Sample Number: GBB2001-IC2001
Lab FileID: BB068177.D
Injection Time: 06/01/20 17:34
Method: SW846 8330B
Analyst approved: 06/02/20 13:46 William Hustedde
Supervisor approved: 06/02/20 14:50 Naresh Jiawan

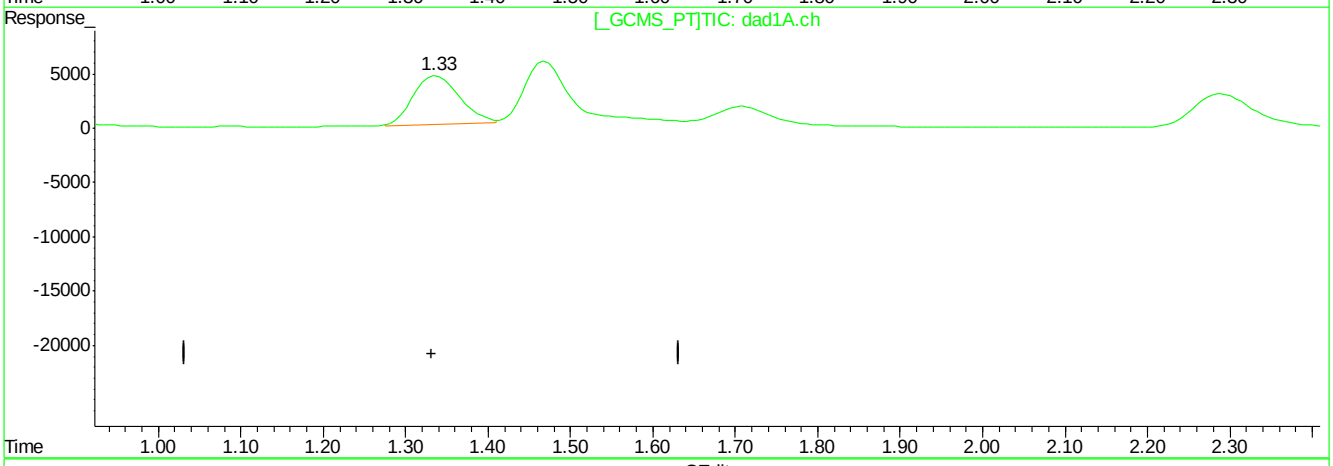
Parameter	CAS	Sig#	R.T. (min.)	Reason
TNX		1	1.33	Poor instrument integration
TNX		2	1.33	Poor instrument integration
HMX	2691-41-0	1	1.47	Poor instrument integration
HMX	2691-41-0	2	1.47	Poor instrument integration
DNX		1	1.71	Poor instrument integration
DNX		2	1.71	Poor instrument integration
MNX		2	2.29	Poor instrument integration
RDX	121-82-4	1	2.89	Poor instrument integration
RDX	121-82-4	2	2.90	Poor instrument integration
1,3,5-Trinitrobenzene	99-35-4	2	4.64	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	5.81	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	6.17	Poor instrument integration
Nitrobenzene	98-95-3	1	7.30	Poor instrument integration
2,4-Dinitrotoluene	121-14-2	2	11.51	Poor instrument integration
o-Nitrotoluene	88-72-2	2	14.95	Poor instrument integration
p-Nitrotoluene	99-99-0	2	15.53	Poor instrument integration
m-Nitrotoluene	99-08-1	1	16.40	Poor instrument integration
m-Nitrotoluene	99-08-1	2	16.43	Poor instrument integration
PETN	78-11-5	2	18.27	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068177.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068177.D\dad1A.ch
Acq On : 01-Jun-2020, 17:34:07 Operator: williamh
Sample : ic2001-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(1) TNX

1.33min 43.789ppb m

response 99824

(1) TNX #2

1.33min 47.829ppb m

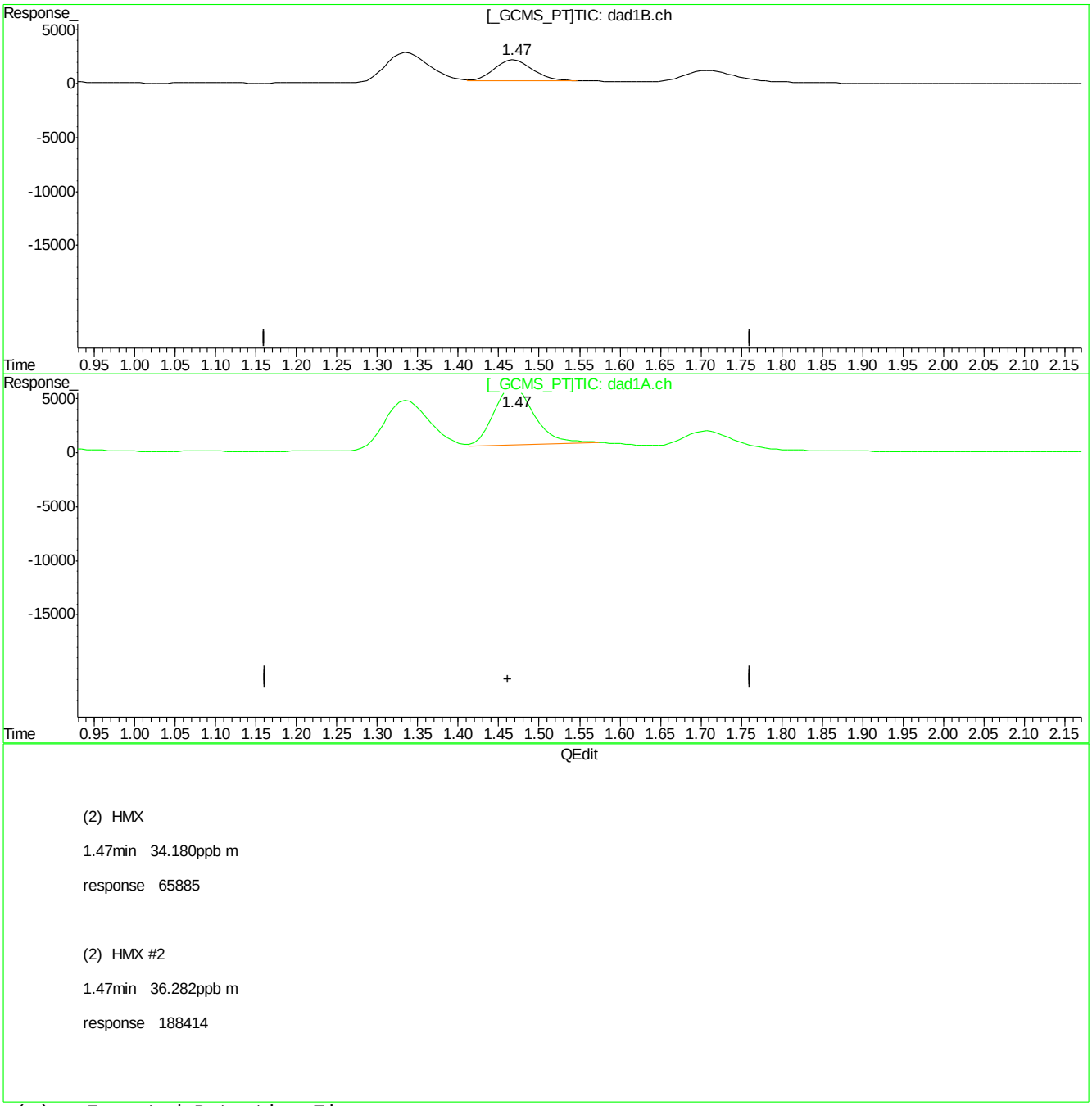
response 174829

(+) = Expected Retention Time
BB068177.D 8330B_060120_PLUS.M Tue Jun 02 11:47:20 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068177.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068177.D\dad1A.ch
Acq On : 01-Jun-2020, 17:34:07 Operator: williamh
Sample : ic2001-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration

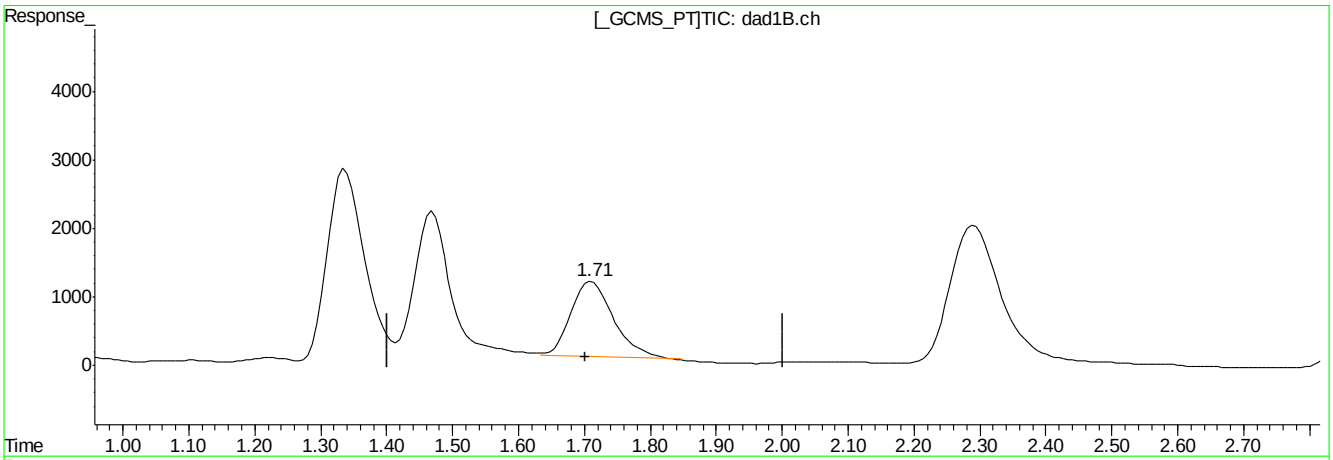


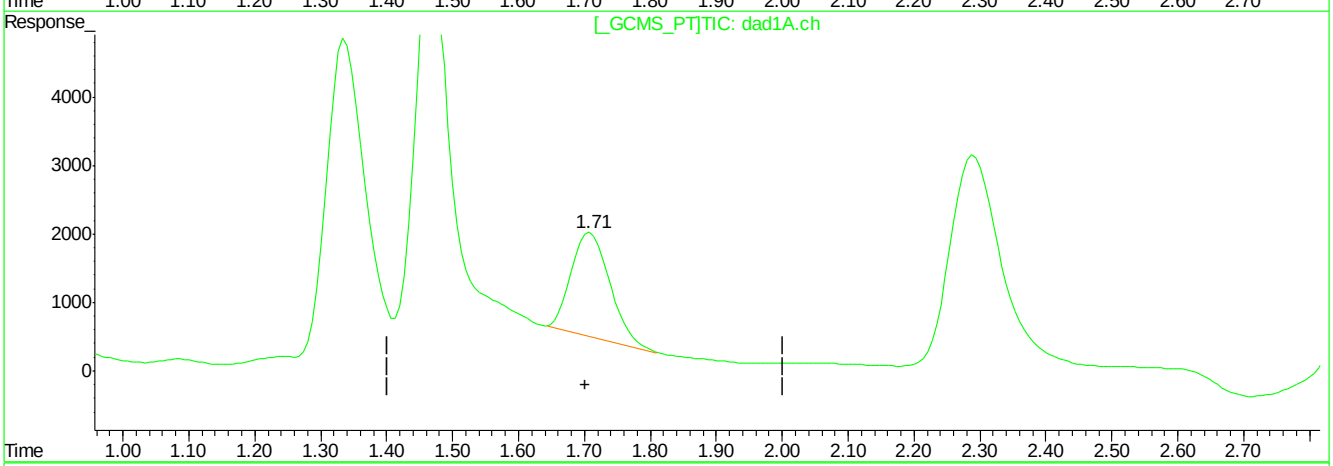
(+) = Expected Retention Time
BB068177.D 8330B_060120_PLUS.M Tue Jun 02 11:47:31 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068177.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068177.D\dad1A.ch
Acq On : 01-Jun-2020, 17:34:07 Operator: williamh
Sample : ic2001-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(3) DNX

1.71min 38.491ppb m

response 49390

(3) DNX #2

1.71min 31.657ppb m

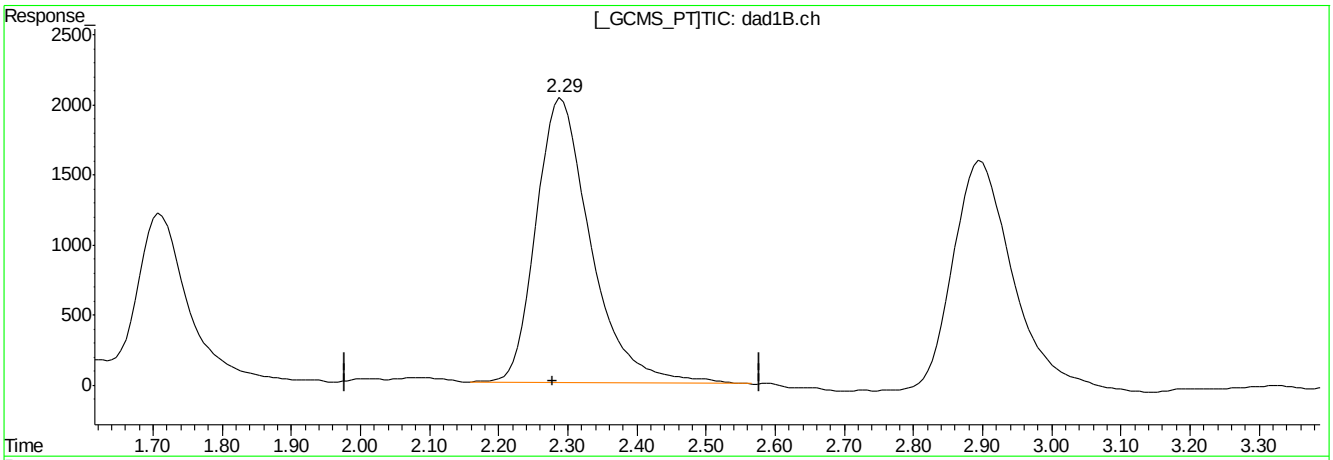
response 62420

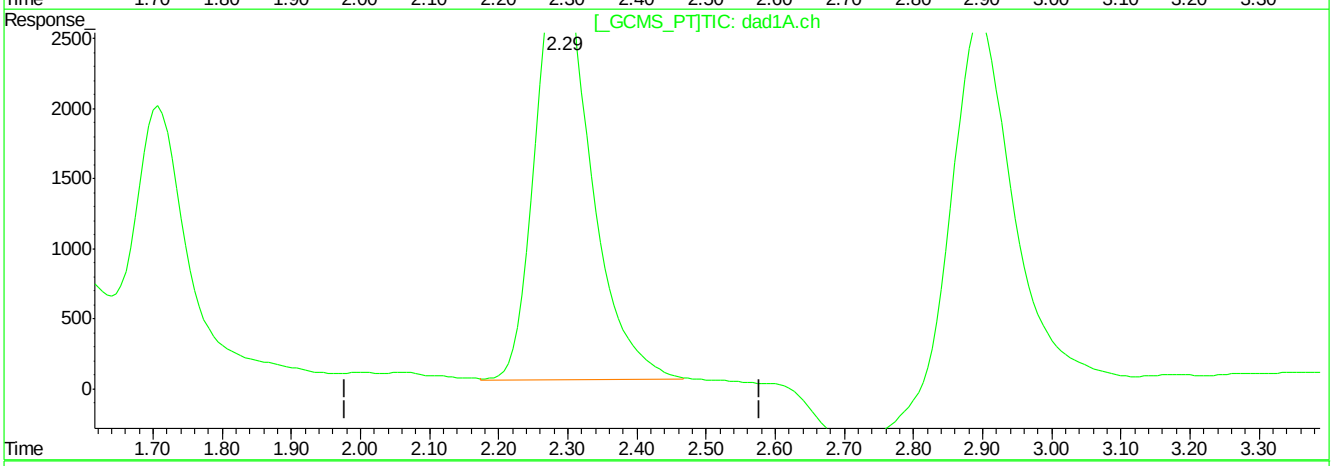
(+) = Expected Retention Time
BB068177.D 8330B_060120_PLUS.M Tue Jun 02 11:47:40 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068177.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068177.D\dad1A.ch
Acq On : 01-Jun-2020, 17:34:07 Operator: williamh
Sample : ic2001-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(4) MNX

2.29min 52.078ppb

response 111953

(4) MNX #2

2.29min 50.115ppb m

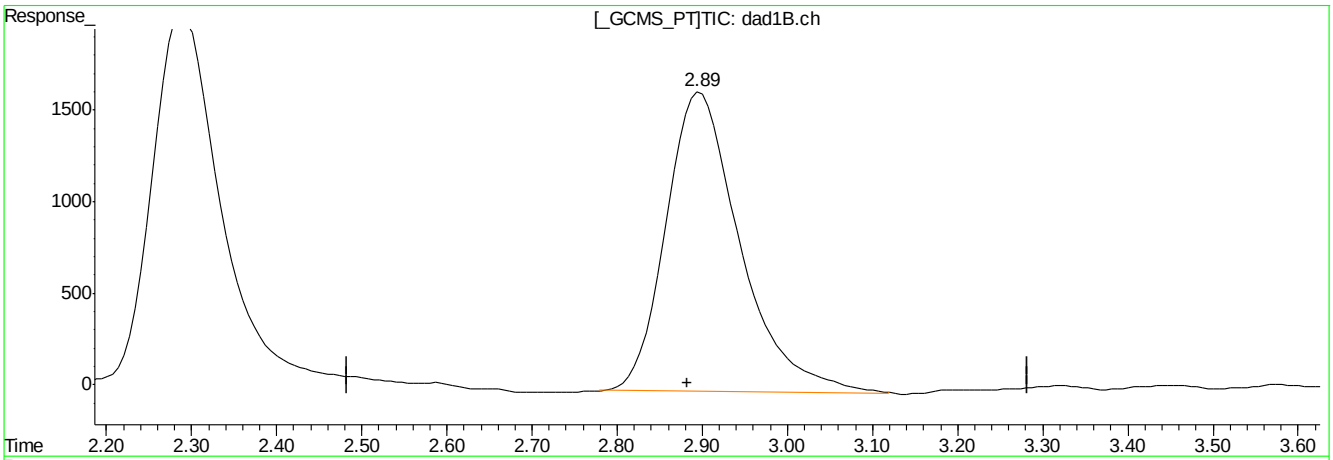
response 165504

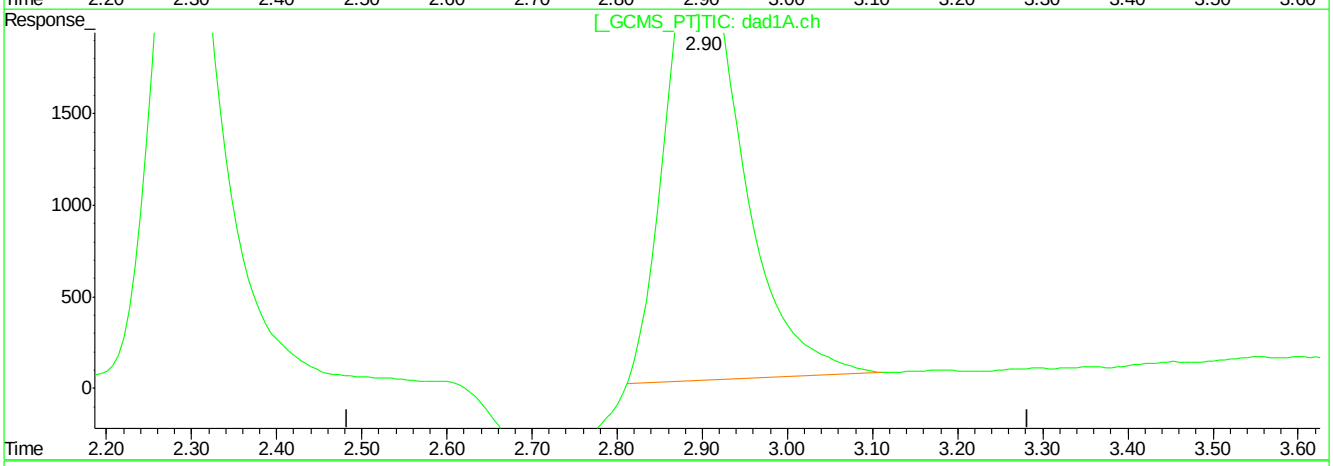
(+) = Expected Retention Time
BB068177.D 8330B_060120_PLUS.M Tue Jun 02 11:47:50 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068177.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068177.D\dad1A.ch
Acq On : 01-Jun-2020, 17:34:07 Operator: williamh
Sample : ic2001-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(5) RDX

2.89min 46.131ppb m

response 99469

(5) RDX #2

2.90min 45.365ppb m

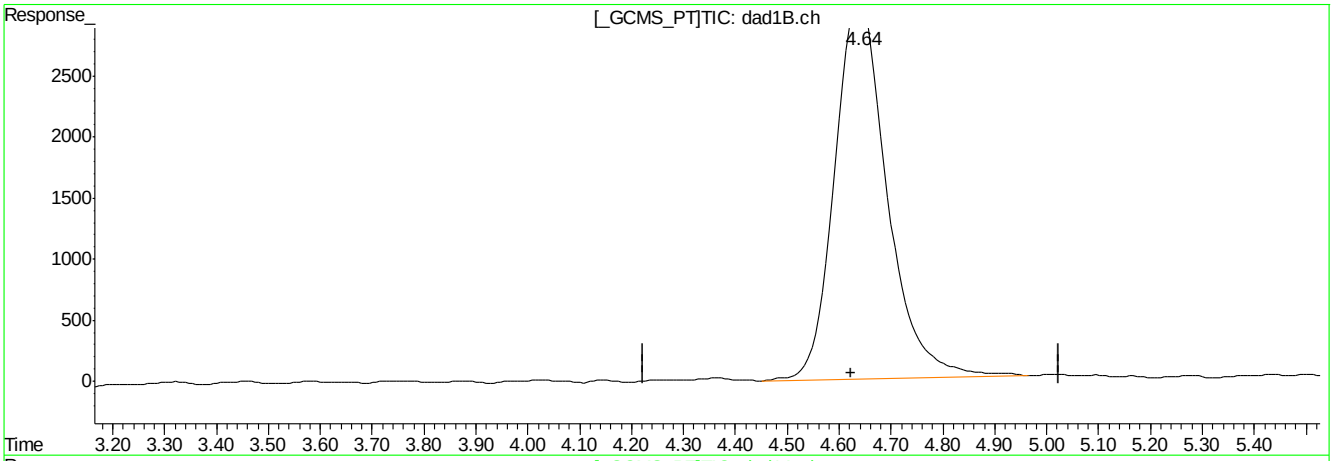
response 152527

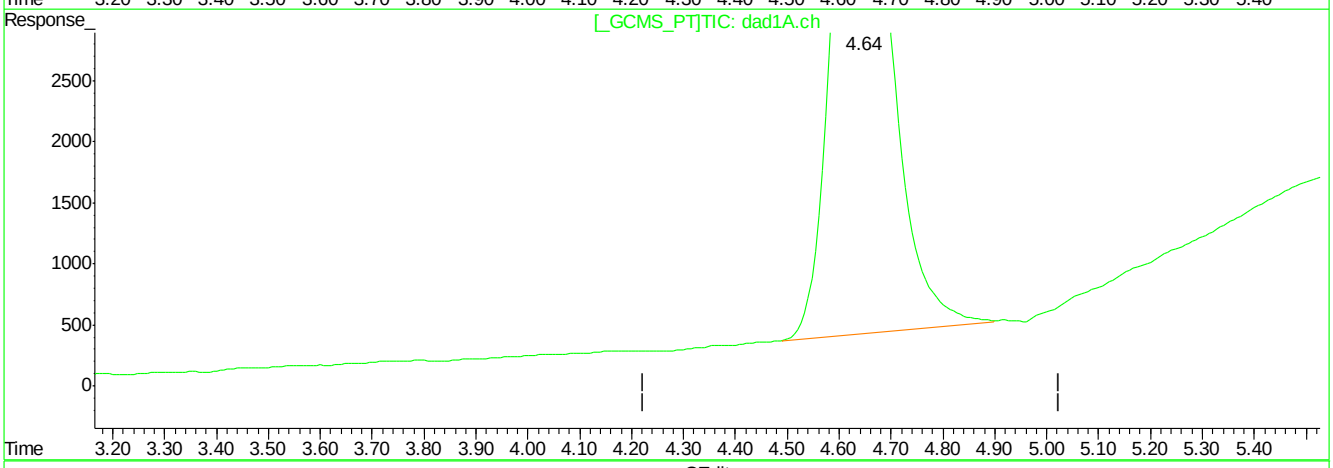
(+) = Expected Retention Time
BB068177.D 8330B_060120_PLUS.M Tue Jun 02 11:49:46 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068177.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068177.D\dad1A.ch
Acq On : 01-Jun-2020, 17:34:07 Operator: williamh
Sample : ic2001-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(6) 1,3,5-Trinitrobenzene

4.64min 46.767ppb

response 217824

(6) 1,3,5-Trinitrobenzene #2

4.64min 46.195ppb m

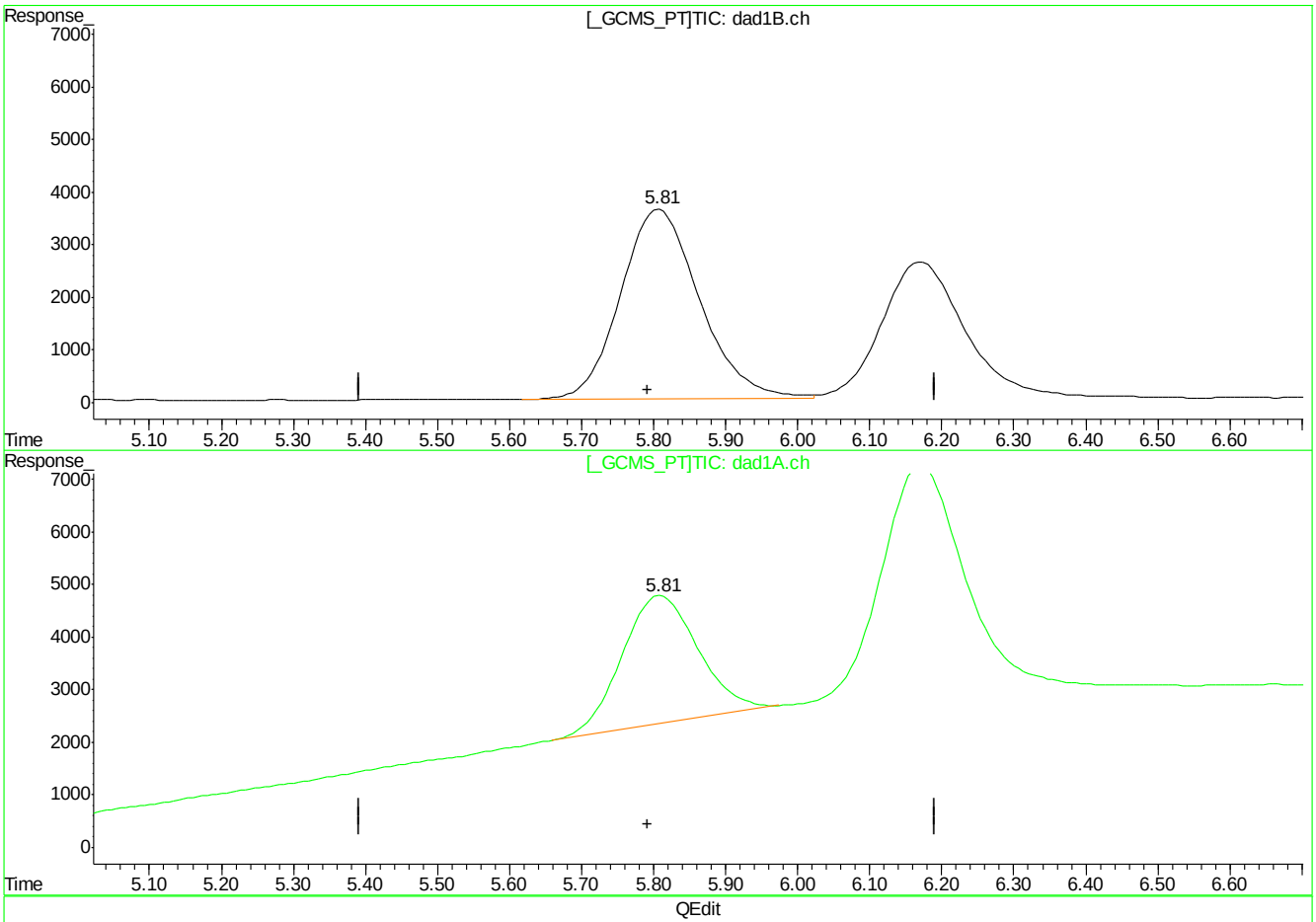
response 411264

(+) = Expected Retention Time
BB068177.D 8330B_060120_PLUS.M Tue Jun 02 11:49:54 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068177.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068177.D\dad1A.ch
Acq On : 01-Jun-2020, 17:34:07 Operator: williamh
Sample : ic2001-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration



(7) 1,3-Dinitrobenzene

5.81min 47.193ppb

response 277083

(7) 1,3-Dinitrobenzene #2

5.81min 44.528ppb m

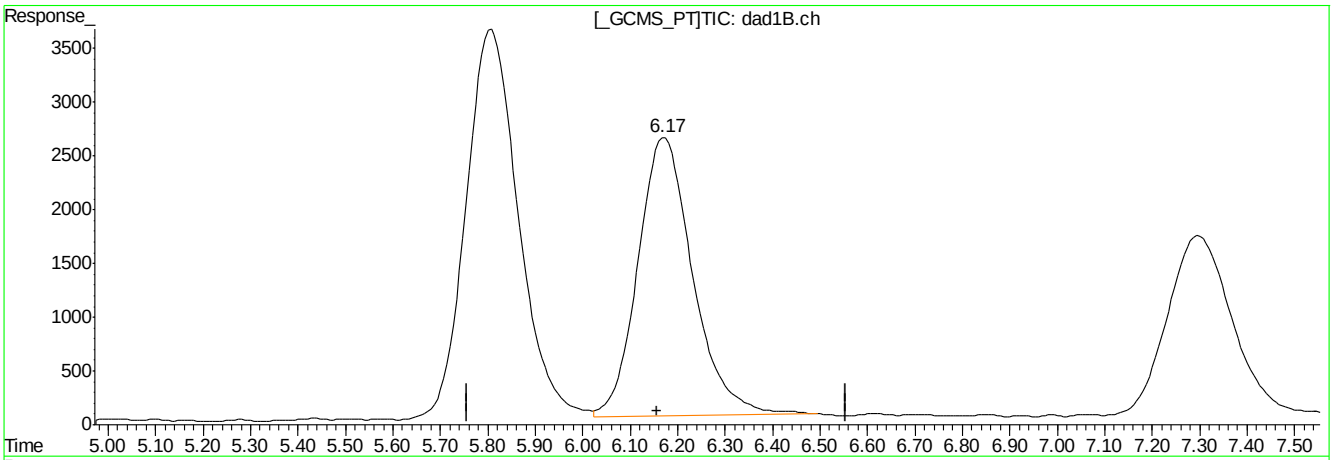
response 178782

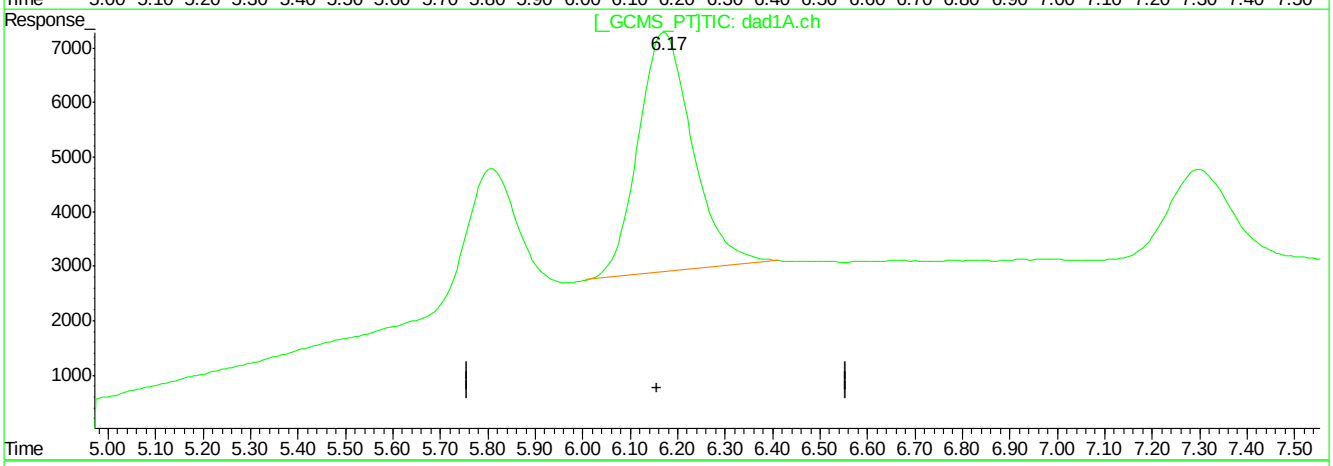
(+) = Expected Retention Time
BB068177.D 8330B_060120_PLUS.M Tue Jun 02 11:50:05 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068177.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068177.D\dad1A.ch
Acq On : 01-Jun-2020, 17:34:07 Operator: williamh
Sample : ic2001-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.17min 46.437ppb

response 208577

(8) 3,5-Dinitroaniline #2

6.17min 45.902ppb m

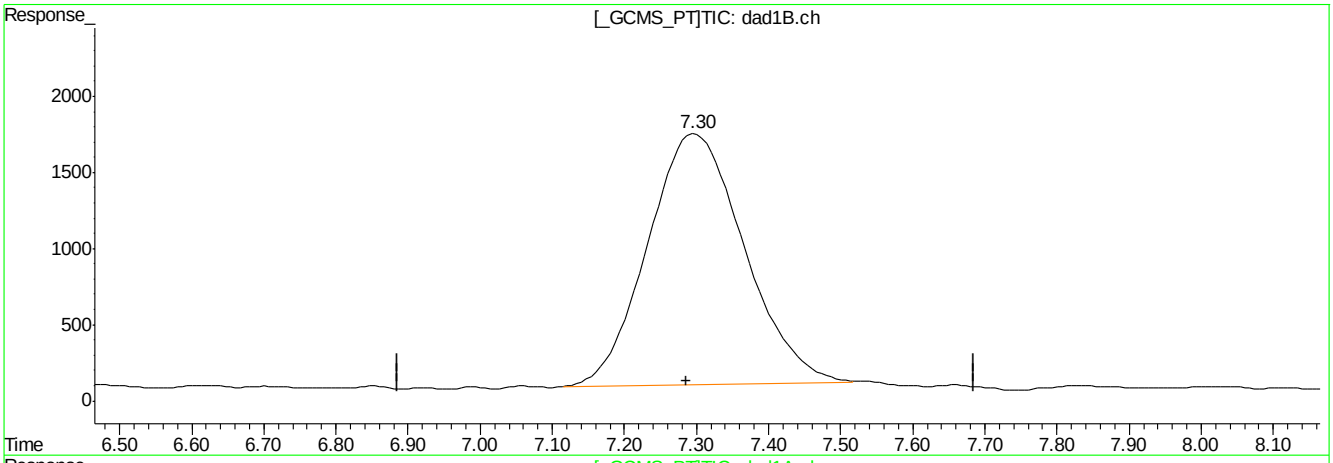
response 348696

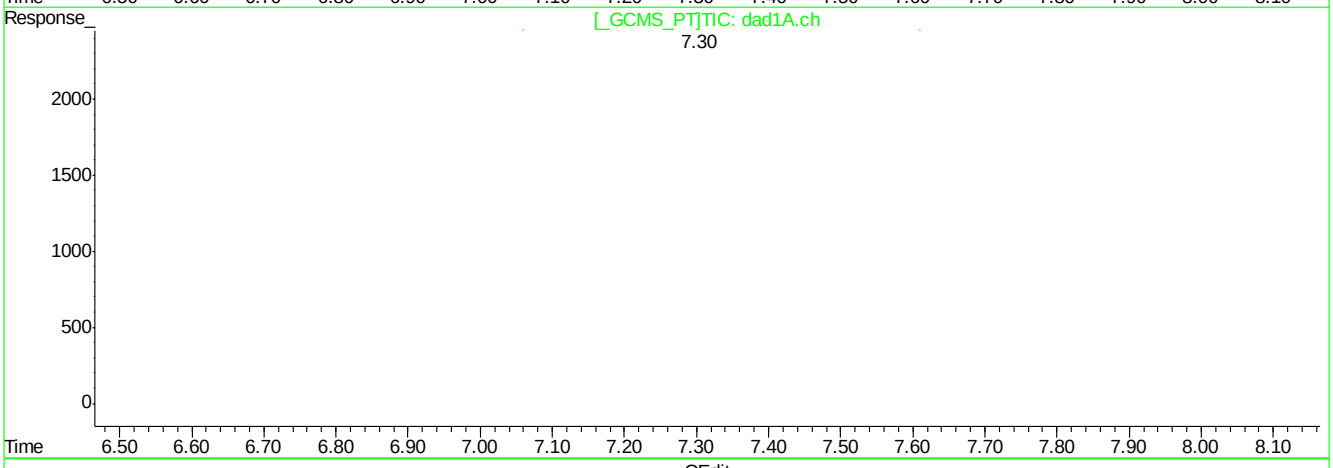
(+) = Expected Retention Time
BB068177.D 8330B_060120_PLUS.M Tue Jun 02 11:50:11 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068177.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068177.D\dad1A.ch
Acq On : 01-Jun-2020, 17:34:07 Operator: williamh
Sample : ic2001-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(9) Nitrobenzene

7.30min 44.173ppb m

response 153283

(9) Nitrobenzene #2

7.30min 46.448ppb

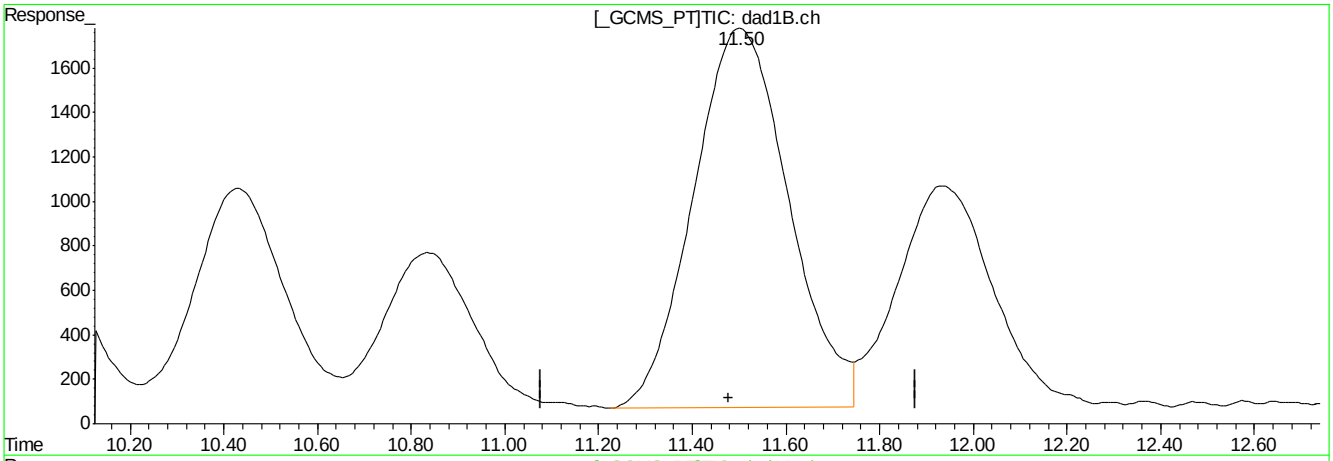
response 159359

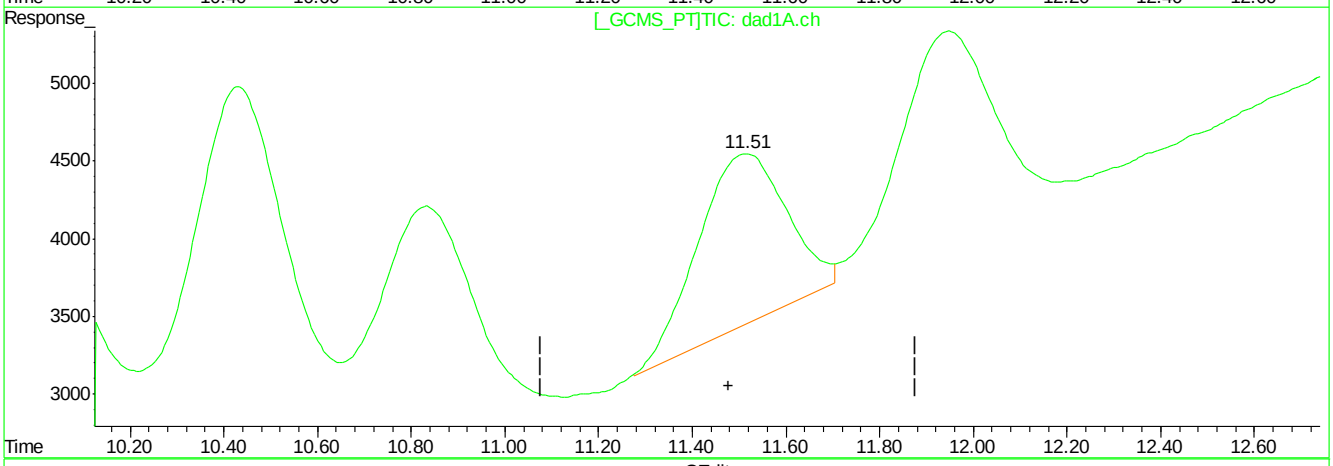
(+) = Expected Retention Time
BB068177.D 8330B_060120_PLUS.M Tue Jun 02 11:50:24 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068177.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068177.D\dad1A.ch
Acq On : 01-Jun-2020, 17:34:07 Operator: williamh
Sample : ic2001-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(16) 2,4-Dinitrotoluene

11.50min 46.431ppb

response 240575

(16) 2,4-Dinitrotoluene #2

11.51min 46.339ppb m

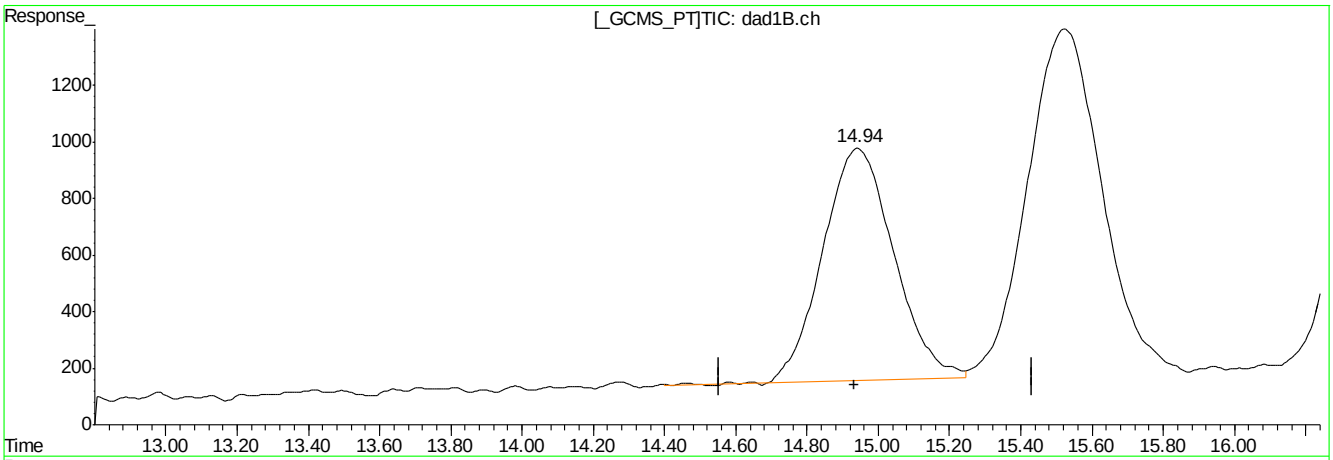
response 146162

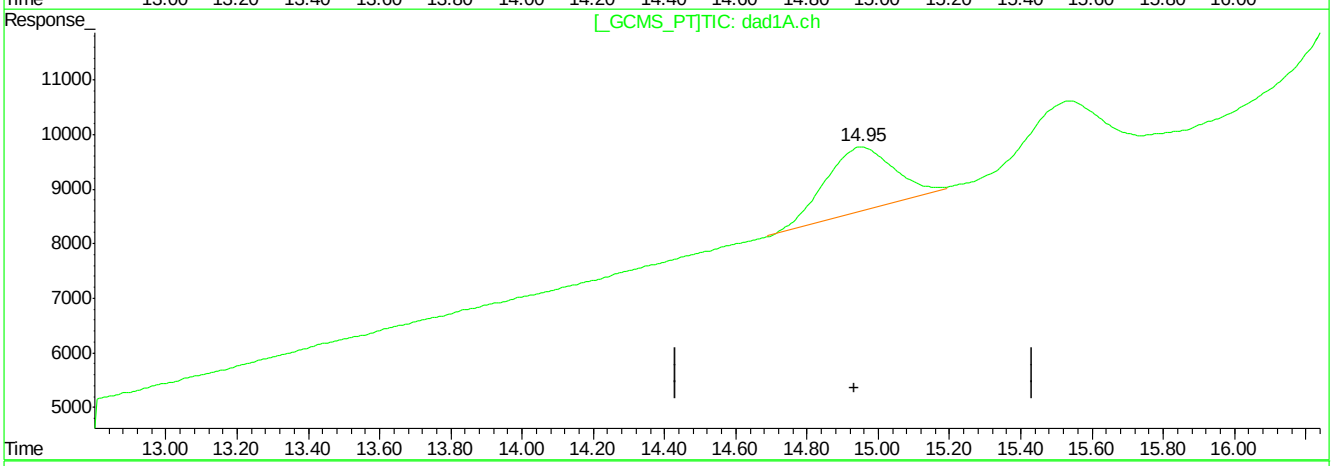
(+) = Expected Retention Time
BB068177.D 8330B_060120_PLUS.M Tue Jun 02 11:50:37 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068177.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068177.D\dad1A.ch
Acq On : 01-Jun-2020, 17:34:07 Operator: williamh
Sample : ic2001-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(18) o-Nitrotoluene

14.94min 47.144ppb

response 112935

(18) o-Nitrotoluene #2

14.95min 48.208ppb m

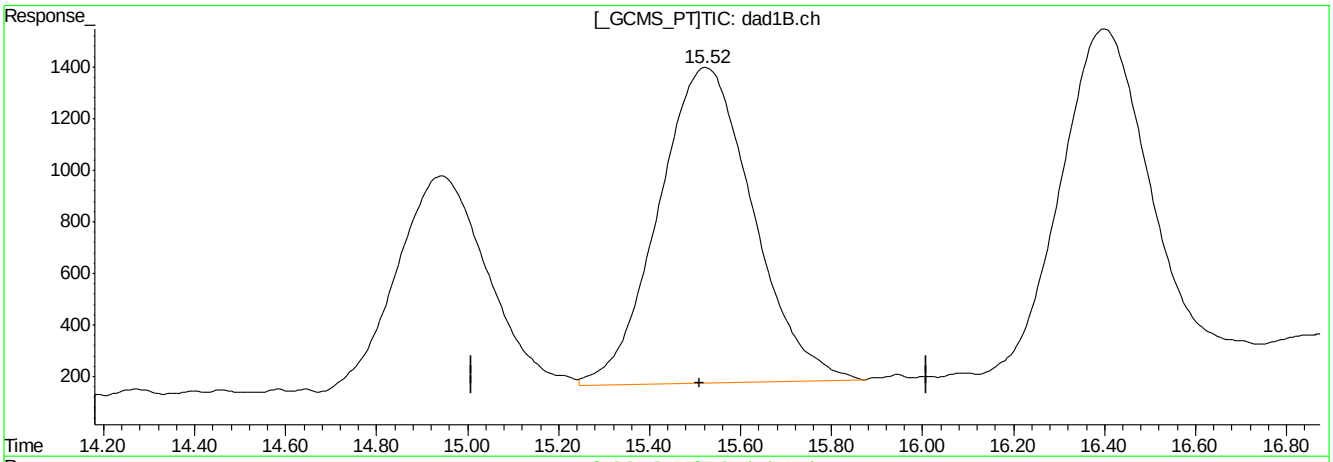
response 157386

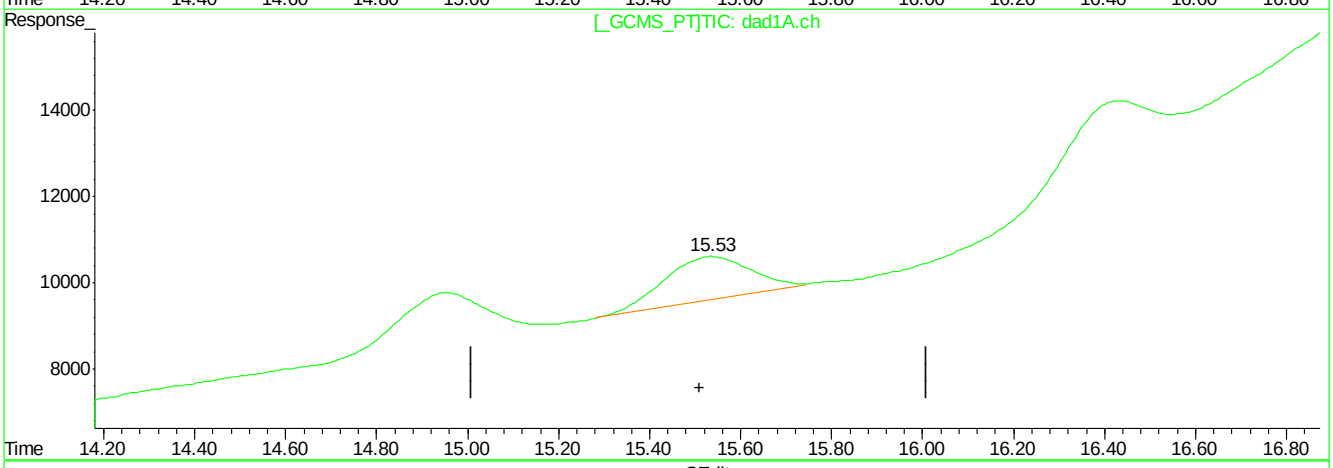
(+) = Expected Retention Time
BB068177.D 8330B_060120_PLUS.M Tue Jun 02 11:50:44 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068177.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068177.D\dad1A.ch
Acq On : 01-Jun-2020, 17:34:07 Operator: williamh
Sample : ic2001-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(19) p-Nitrotoluene

15.53min 46.781ppb

response 176734

(19) p-Nitrotoluene #2

15.53min 41.839ppb m

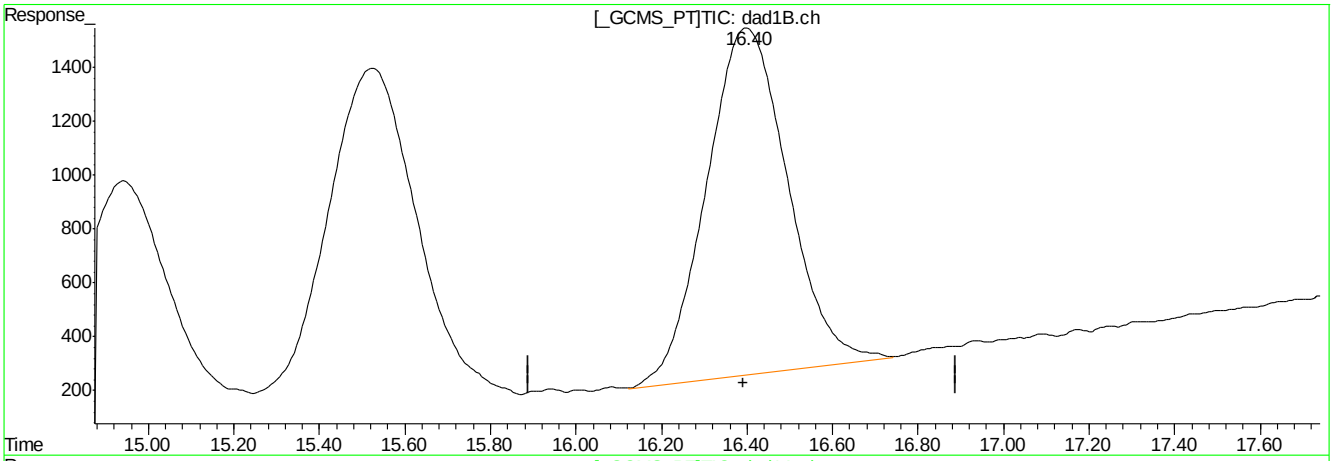
response 132108

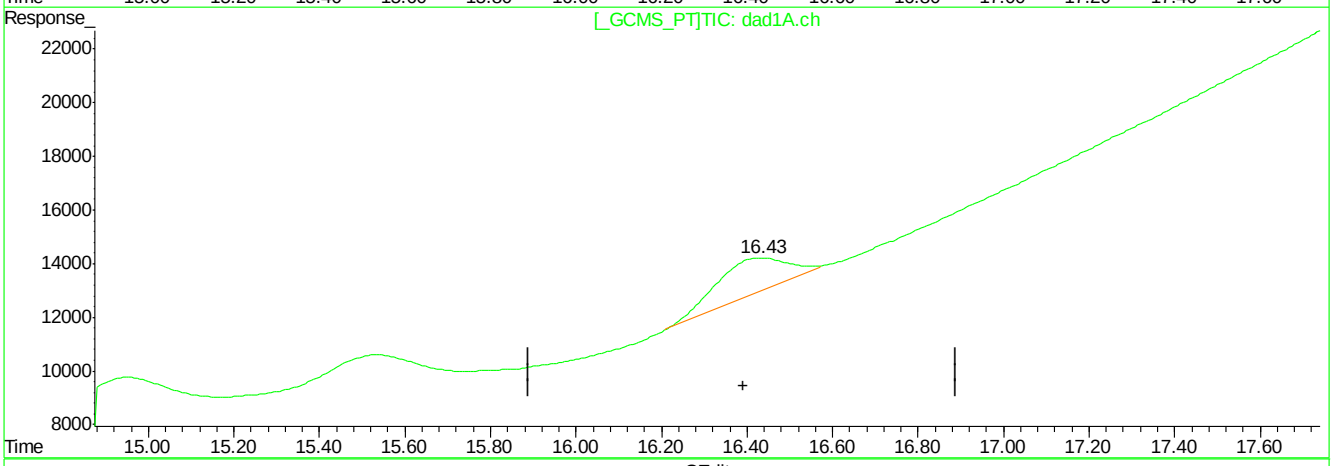
(+) = Expected Retention Time
BB068177.D 8330B_060120_PLUS.M Tue Jun 02 11:50:51 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068177.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068177.D\dad1A.ch
Acq On : 01-Jun-2020, 17:34:07 Operator: williamh
Sample : ic2001-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(20) m-Nitrotoluene

16.40min 49.978ppb m

response 170948

(20) m-Nitrotoluene #2

16.43min 39.000ppb m

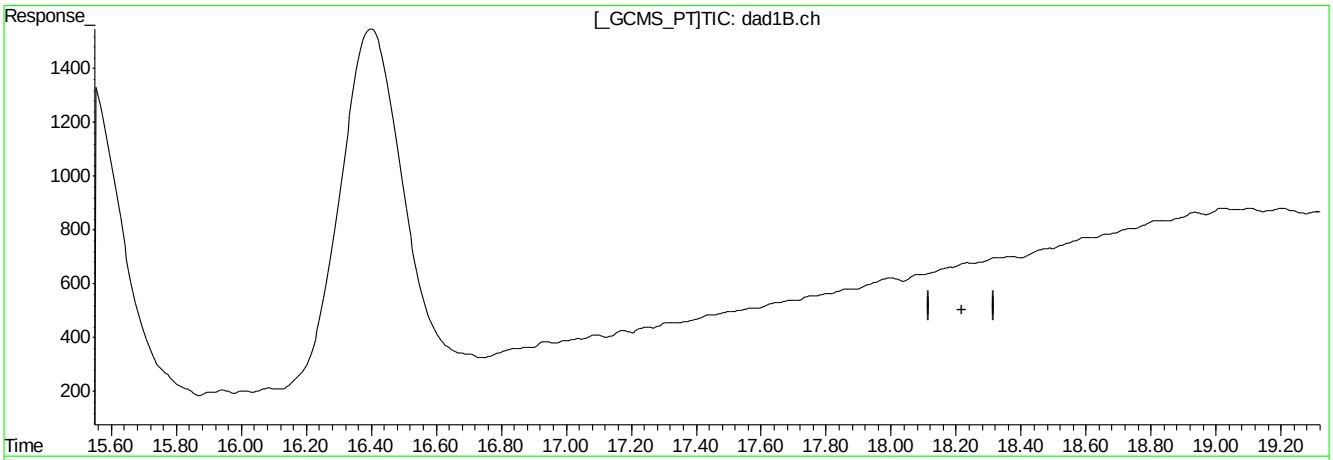
response 152967

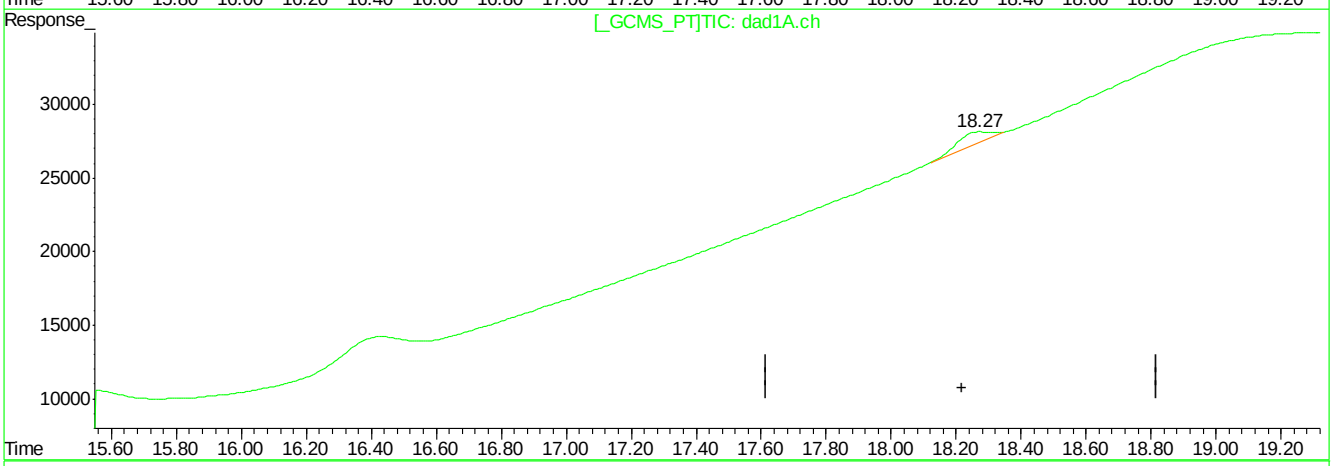
(+) = Expected Retention Time
BB068177.D 8330B_060120_PLUS.M Tue Jun 02 11:51:00 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068177.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068177.D\dad1A.ch
Acq On : 01-Jun-2020, 17:34:07 Operator: williamh
Sample : ic2001-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

18.27min 40.748ppb m

response 57573

(+) = Expected Retention Time
BB068177.D 8330B_060120_PLUS.M Tue Jun 02 11:51:05 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 06/02/20 14:50

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068178.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068178.D\dad1A.ch
Acq On : 01-Jun-2020, 18:04:07 Operator: williamh
Sample : ic2001-100 Inst : G1315B
Misc : op80309,GBB2001,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 02 11:41:48 2020 Quant Results File: 8330B_060120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.83	10.84	185229	314624	89.275	82.990
	Spiked Amount 500.000	Range 70 - 136		Recovery =		17.86%#	16.60%#
	Target Compounds						
1)	TNX	1.33	1.33	206369	339262	90.526m	92.814m
2)	HMX	1.46	1.47	127786	379114	66.295m	73.004m
3)	DNX	1.71	1.71	94907	130916	73.965m	66.417m
4)	MNX	2.29	2.29	220858	326502	102.739	98.866m
5)	RDX	2.90	2.89	194707	310149	90.300	92.245m
6)	1,3,5-Trinitrobe	4.64	4.64	421165	814304	90.425	91.466m
7)	1,3-Dinitrobenze	5.81	5.81	545622	366404	92.931	91.257m
8)	3,5-Dinitroanili	6.17	6.17	411939	710062	91.713	93.471m
9)	Nitrobenzene	7.30	7.30	318833	321989	91.880	93.849
10)	Nitroglycerin	0.00	8.79	0	125468	N.D.	96.416 #
11)	Tetryl	9.17	9.17	311664	494526	101.726	104.089
12)	2,4,6-Trinitroto	9.62	9.62	381778	447697	92.412	90.992
13)	2-Amino-4,6-Dini	9.98	9.98	346623	515080	91.016	91.844
14)	4-Amino-2,6-Dini	10.43	10.43	254615	497836	91.918	91.608
16)	2,4-Dinitrotolue	11.50	11.51	476898	300687	92.042	95.329
17)	2,6-Dinitrotolue	11.94	11.95	278314	355900	91.422	94.801
18)	o-Nitrotoluene	14.94	14.95	231750	319919	96.743	97.992m
19)	p-Nitrotoluene	15.52	15.53	351402	275026	93.016	87.102
20)	m-Nitrotoluene	16.40	16.41	334544	352556	97.807	89.848m
21)	PETN	0.00	18.26	0	118588	N.D. d	83.875m

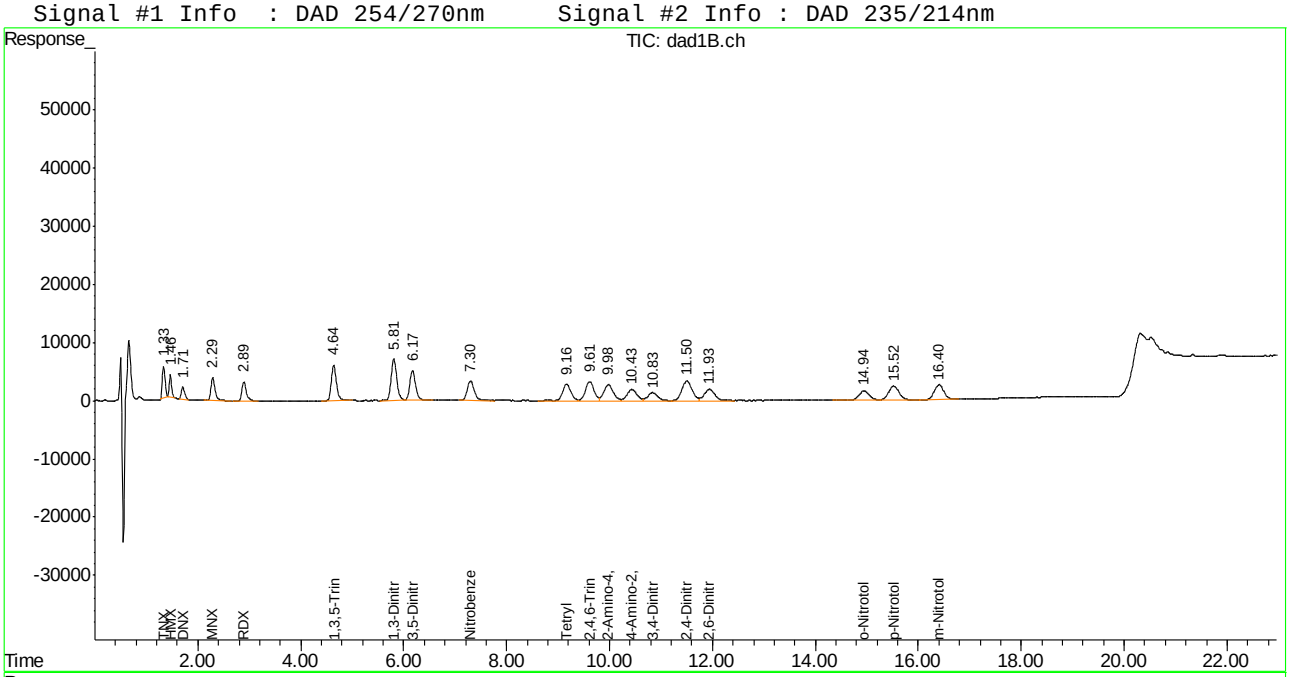
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB068178.D 8330B_060120_PLUS.M Tue Jun 02 13:34:31 2020 Page 1

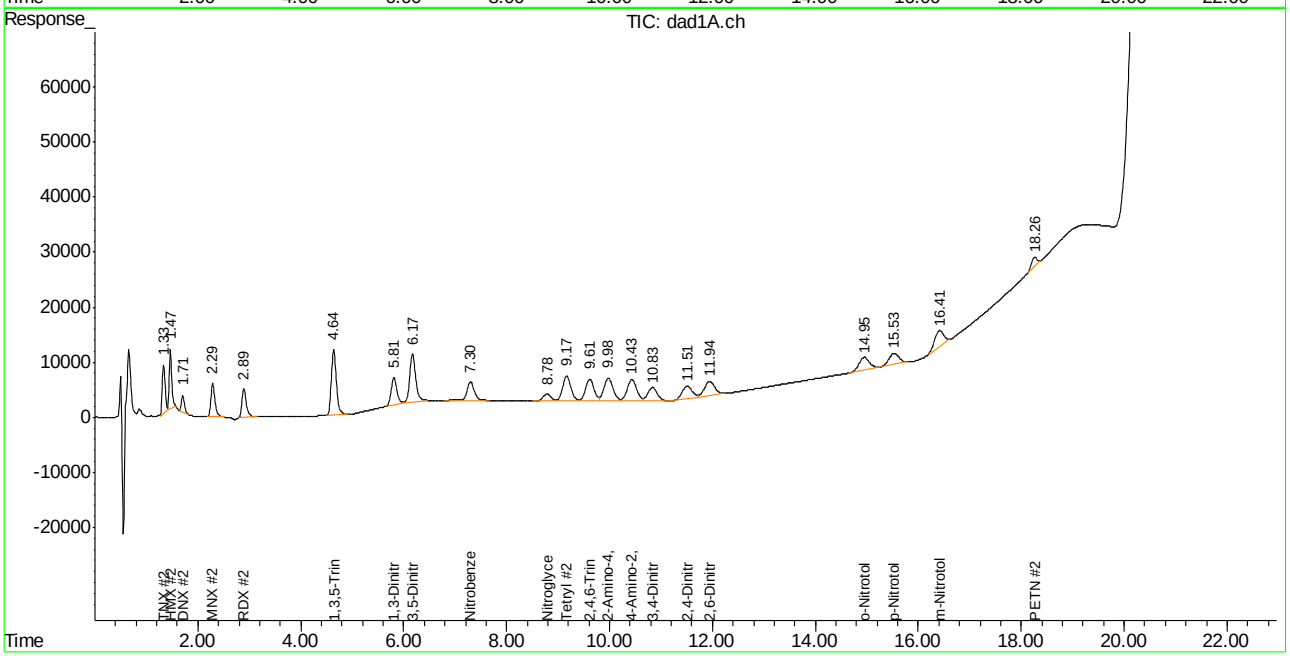
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068178.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068178.D\dad1A.ch
Acq On : 01-Jun-2020, 18:04:07 Operator: williamh
Sample : ic2001-100 Inst : G1315B
Misc : op80309,GBB2001,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:53 2020 Quant Results File: 8330B_060120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

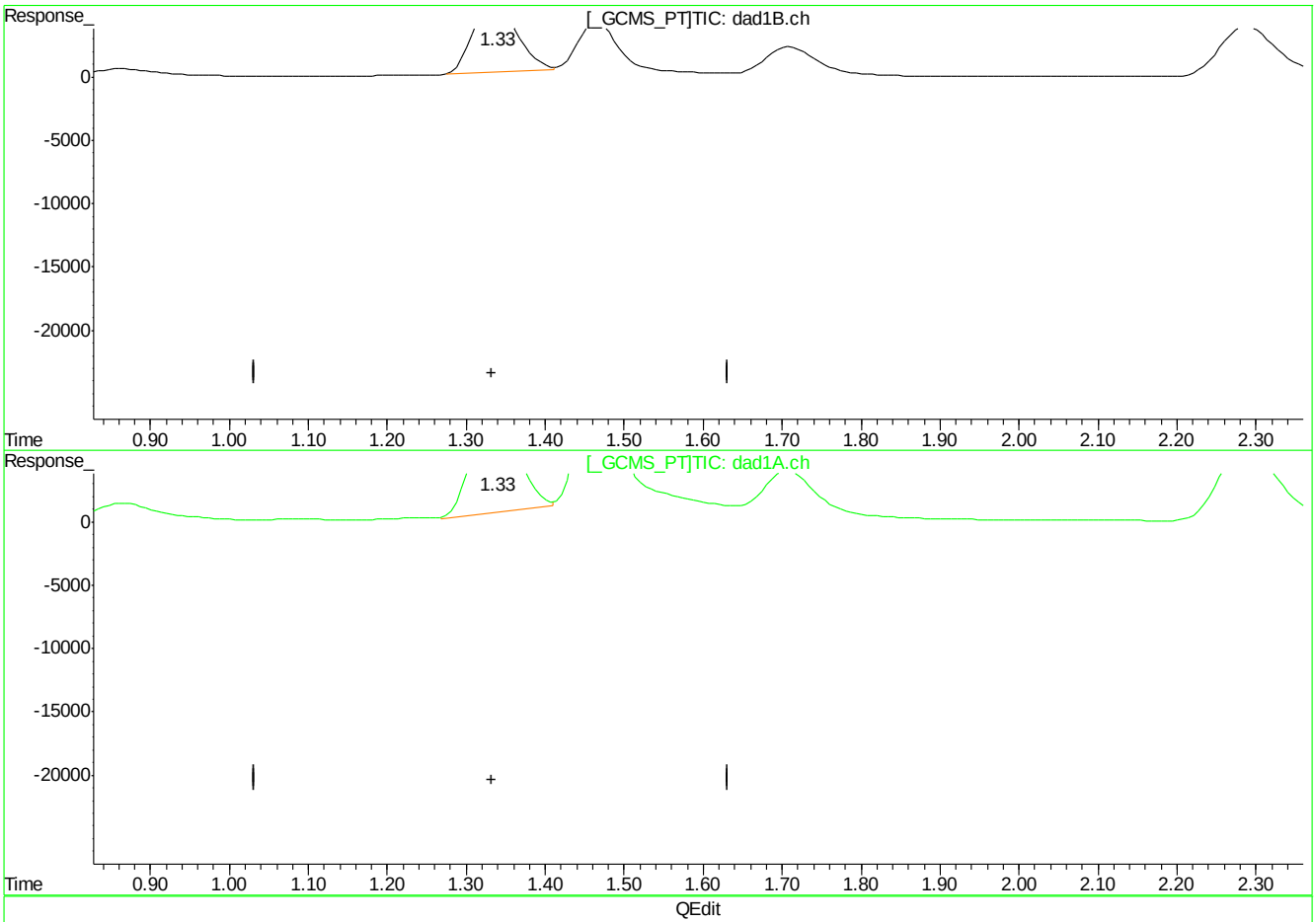
Sample Number: GBB2001-IC2001
Lab FileID: BB068178.D
Injection Time: 06/01/20 18:04
Method: SW846 8330B
Analyst approved: 06/02/20 13:46 William Hustedde
Supervisor approved: 06/02/20 14:50 Naresh Jiawan

Parameter	CAS	Sig#	R.T. (min.)	Reason
TNX		1	1.33	Poor instrument integration
TNX		2	1.33	Poor instrument integration
HMX	2691-41-0	1	1.46	Poor instrument integration
HMX	2691-41-0	2	1.47	Poor instrument integration
DNX		1	1.71	Poor instrument integration
DNX		2	1.71	Poor instrument integration
MNX		2	2.29	Poor instrument integration
RDX	121-82-4	2	2.89	Poor instrument integration
1,3,5-Trinitrobenzene	99-35-4	2	4.64	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	5.81	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	6.17	Poor instrument integration
o-Nitrotoluene	88-72-2	2	14.95	Poor instrument integration
m-Nitrotoluene	99-08-1	2	16.41	Poor instrument integration
PETN	78-11-5	2	18.26	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068178.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068178.D\dad1A.ch
Acq On : 01-Jun-2020, 18:04:07 Operator: williamh
Sample : ic2001-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration



(1) TNX

1.33min 90.526ppb m

response 206369

(1) TNX #2

1.33min 92.814ppb m

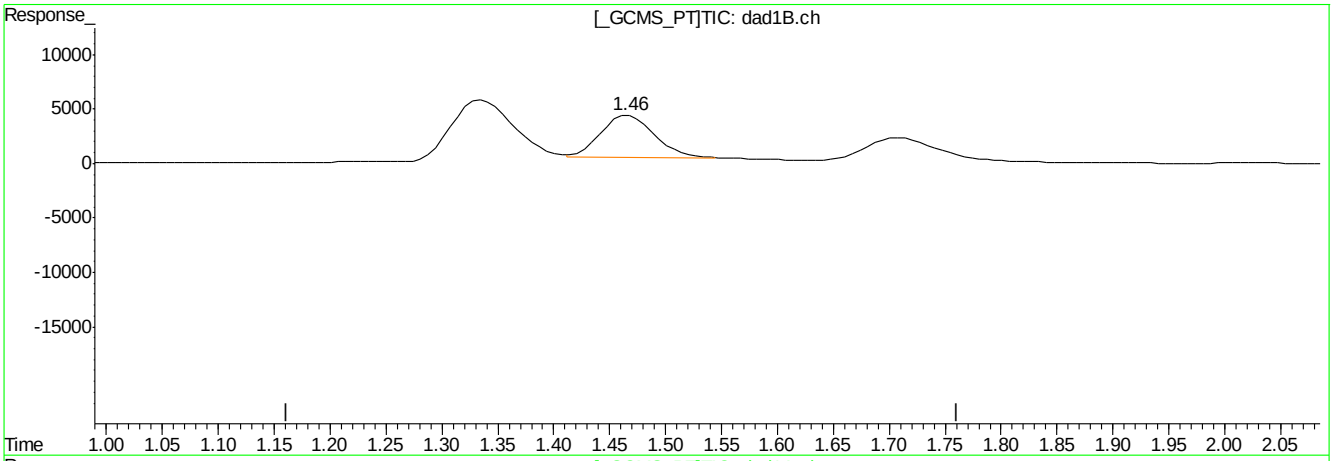
response 339262

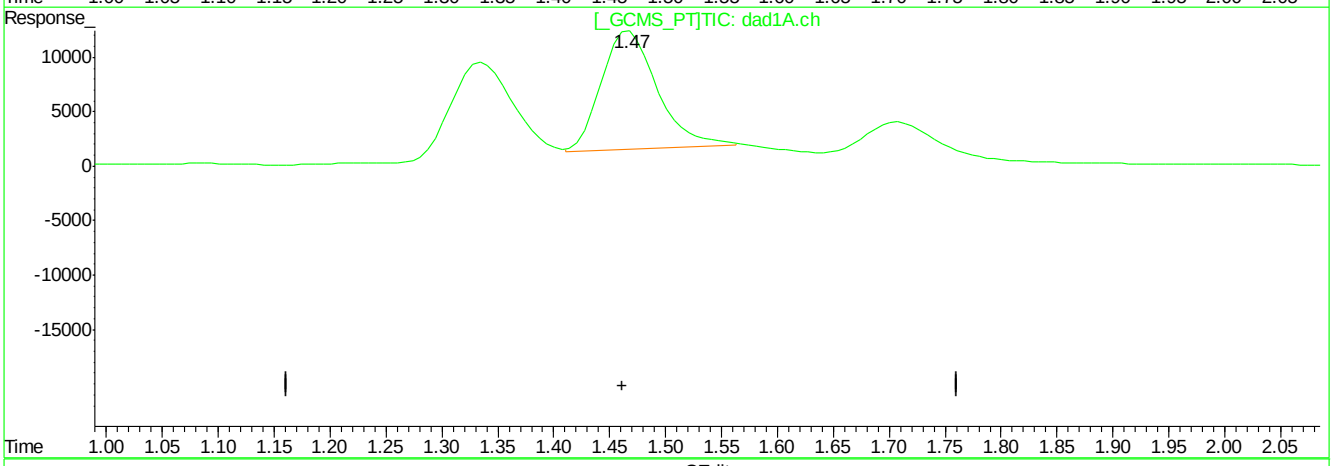
(+) = Expected Retention Time
BB068178.D 8330B_060120_PLUS.M Tue Jun 02 11:51:21 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068178.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068178.D\dad1A.ch
Acq On : 01-Jun-2020, 18:04:07 Operator: williamh
Sample : ic2001-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(2) HMX

1.46min 66.295ppb m

response 127786

(2) HMX #2

1.47min 73.004ppb m

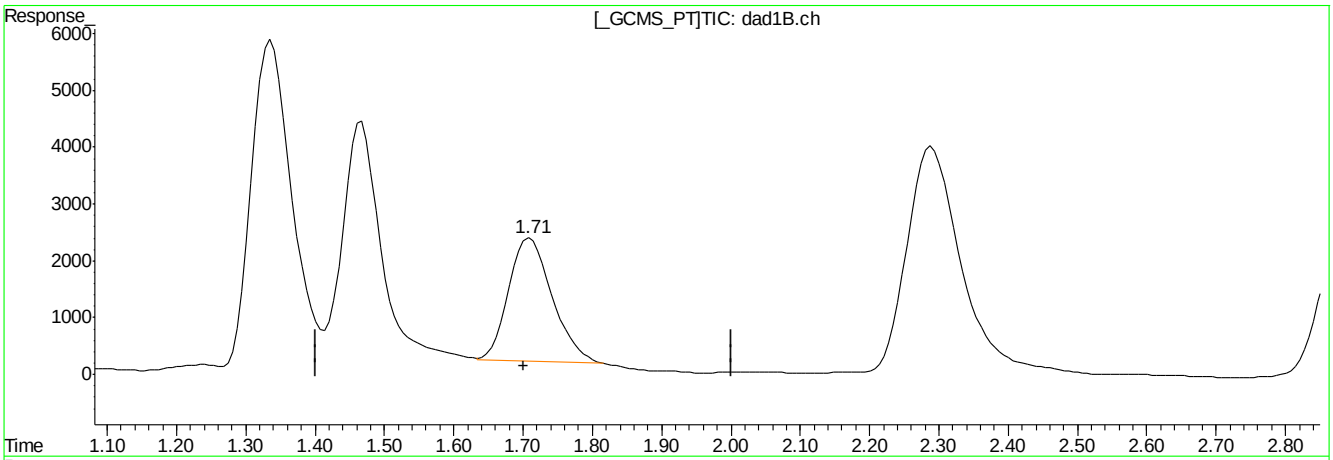
response 379114

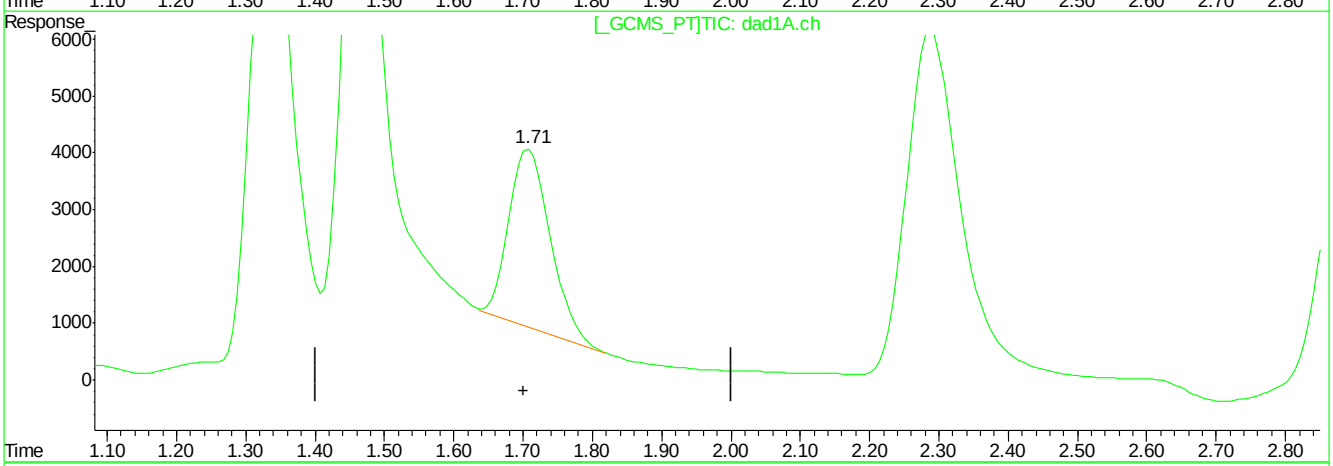
(+) = Expected Retention Time
BB068178.D 8330B_060120_PLUS.M Tue Jun 02 11:51:33 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068178.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068178.D\dad1A.ch
Acq On : 01-Jun-2020, 18:04:07 Operator: williamh
Sample : ic2001-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(3) DNX

1.71min 73.965ppb m

response 94907

(3) DNX #2

1.71min 66.417ppb m

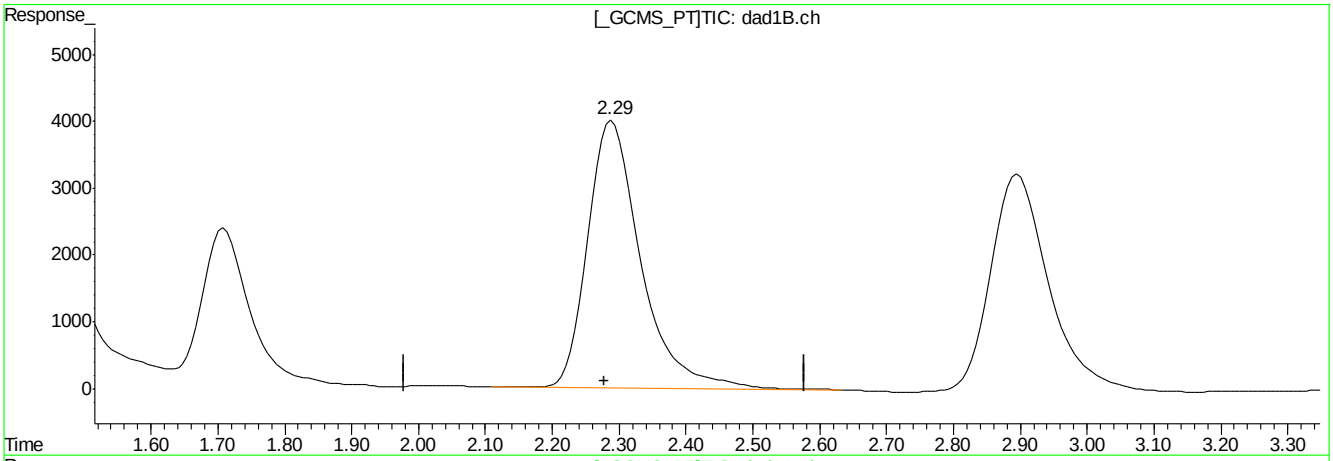
response 130916

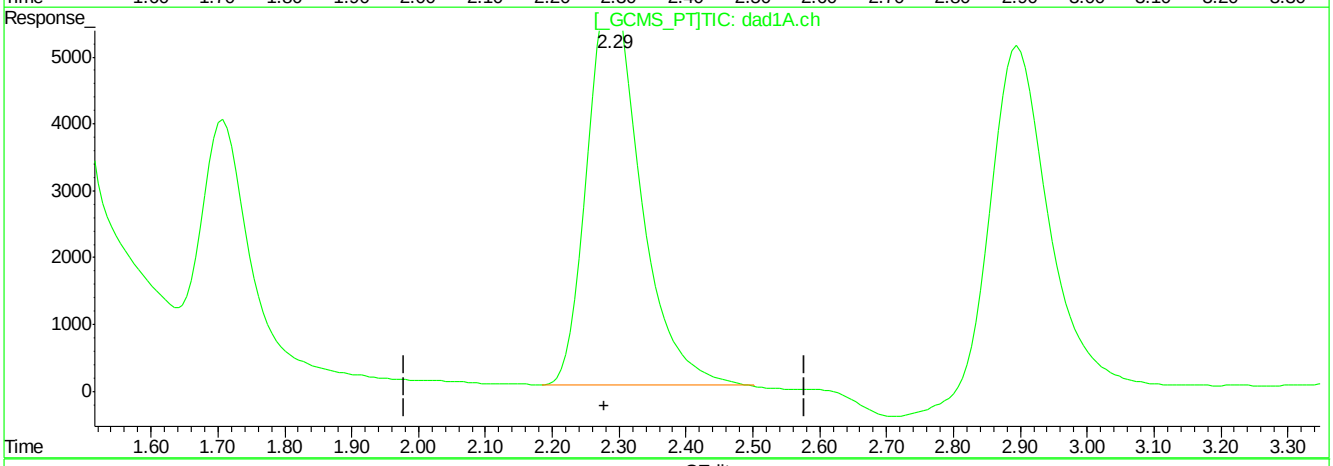
(+) = Expected Retention Time
BB068178.D 8330B_060120_PLUS.M Tue Jun 02 11:51:42 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068178.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068178.D\dad1A.ch
Acq On : 01-Jun-2020, 18:04:07 Operator: williamh
Sample : ic2001-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(4) MNX

2.29min 102.739ppb

response 220858

(4) MNX #2

2.29min 98.866ppb m

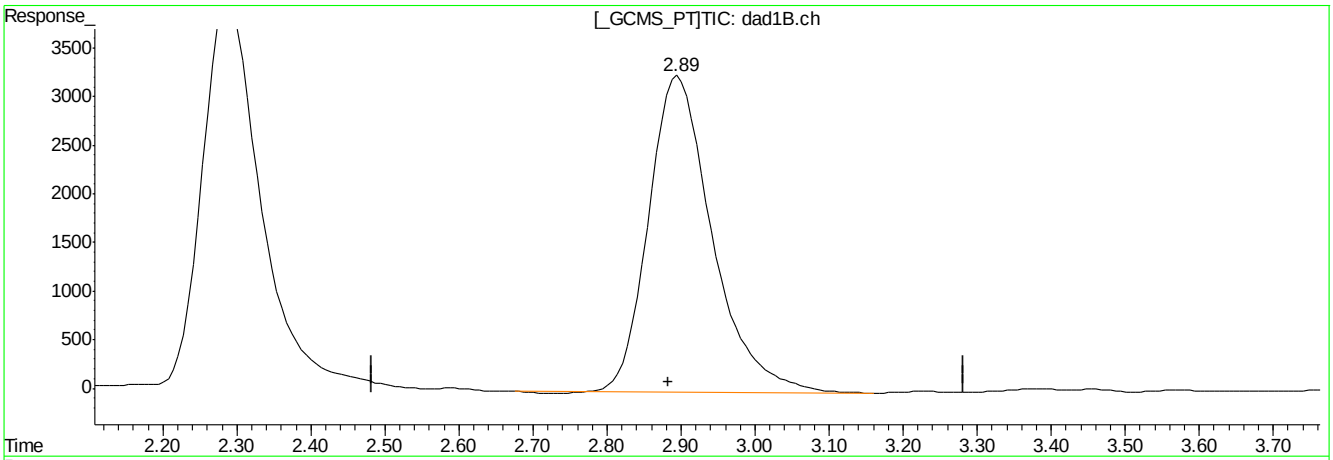
response 326502

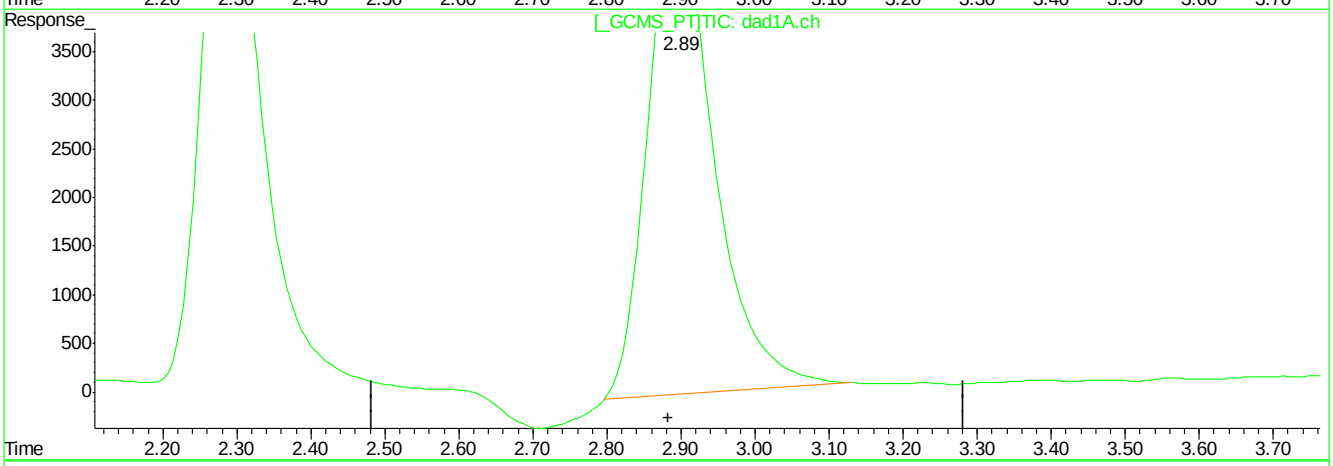
(+) = Expected Retention Time
BB068178.D 8330B_060120_PLUS.M Tue Jun 02 11:51:48 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068178.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068178.D\dad1A.ch
Acq On : 01-Jun-2020, 18:04:07 Operator: williamh
Sample : ic2001-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(5) RDX

2.90min 90.300ppb

response 194707

(5) RDX #2

2.89min 92.245ppb m

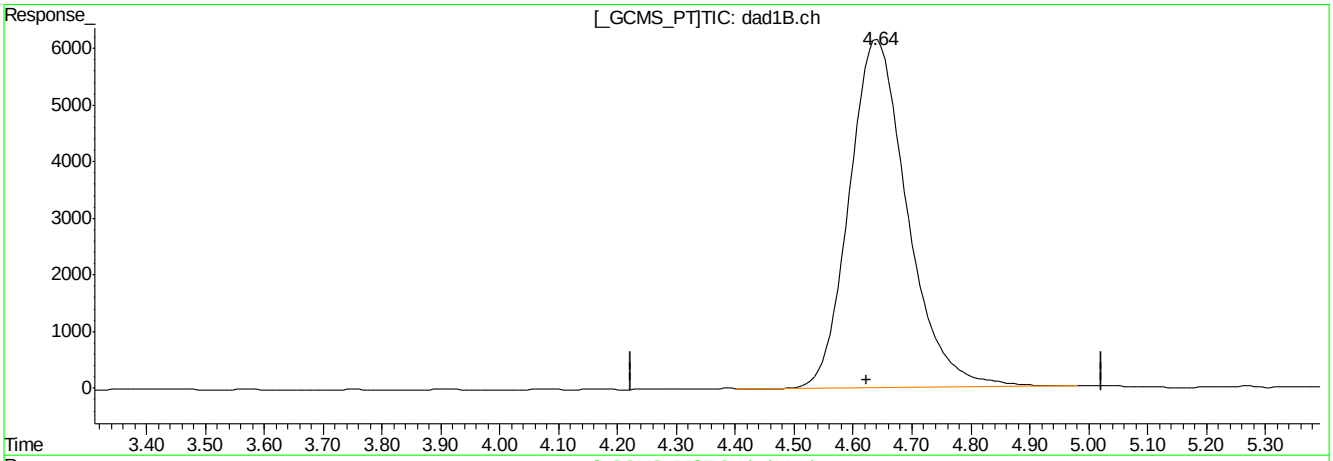
response 310149

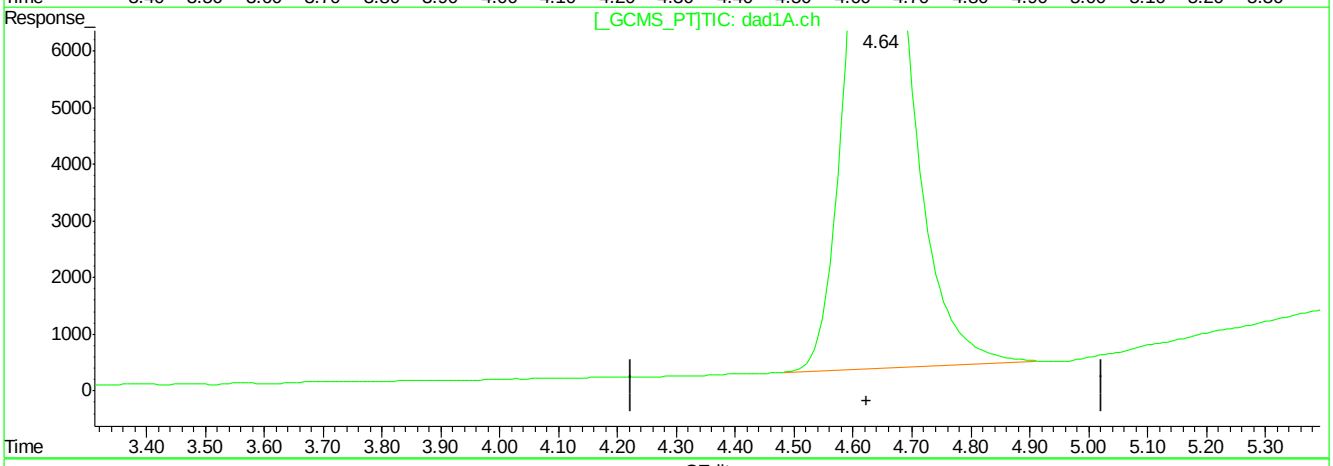
(+) = Expected Retention Time
BB068178.D 8330B_060120_PLUS.M Tue Jun 02 11:52:54 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068178.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068178.D\dad1A.ch
Acq On : 01-Jun-2020, 18:04:07 Operator: williamh
Sample : ic2001-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(6) 1,3,5-Trinitrobenzene

4.64min 90.425ppb

response 421165

(6) 1,3,5-Trinitrobenzene #2

4.64min 91.466ppb m

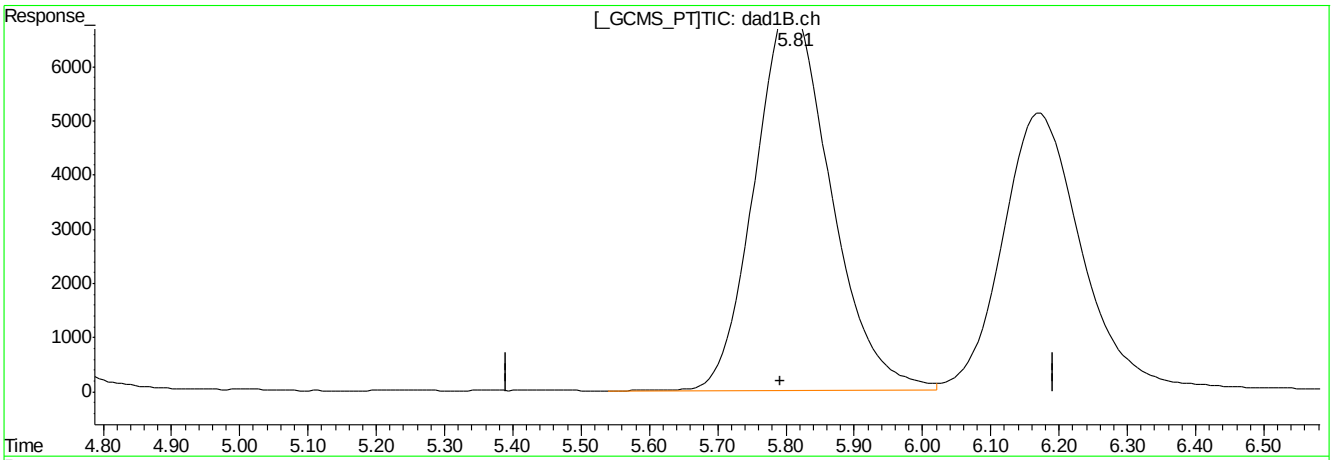
response 814304

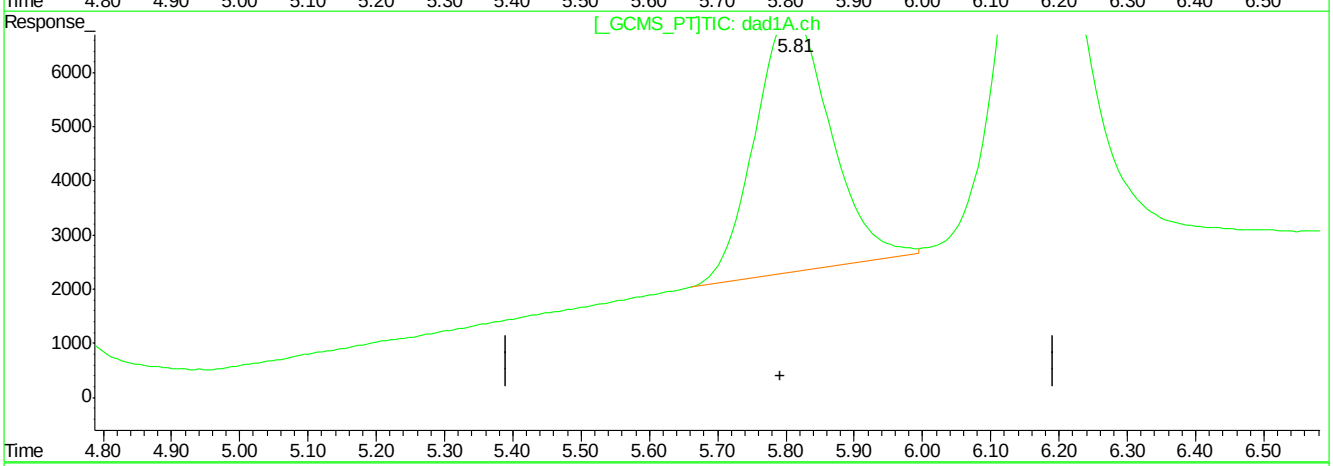
(+) = Expected Retention Time
BB068178.D 8330B_060120_PLUS.M Tue Jun 02 11:53:02 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068178.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068178.D\dad1A.ch
Acq On : 01-Jun-2020, 18:04:07 Operator: williamh
Sample : ic2001-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

5.81min 92.931ppb

response 545622

(7) 1,3-Dinitrobenzene #2

5.81min 91.257ppb m

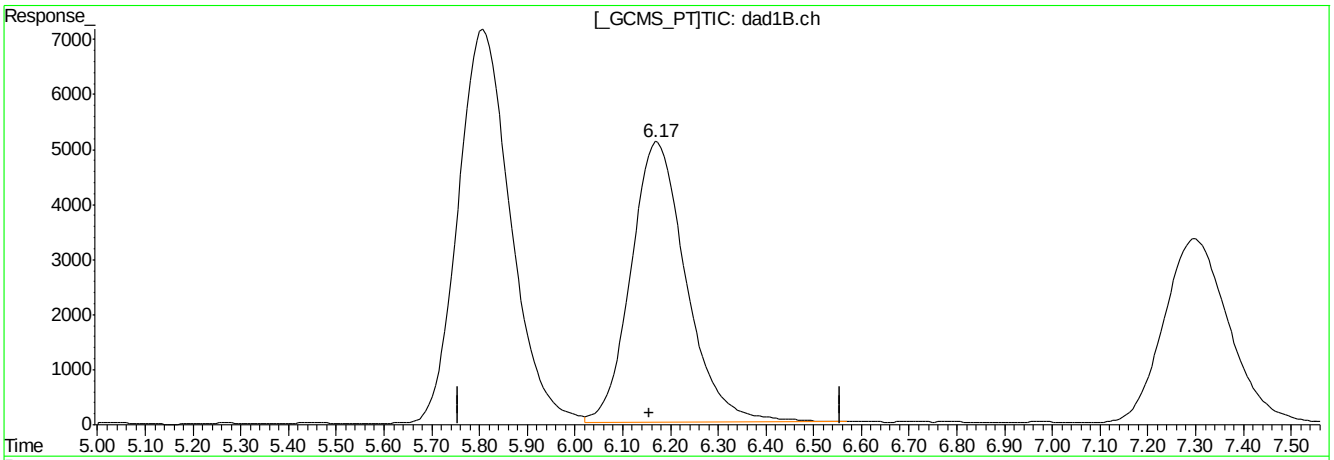
response 366404

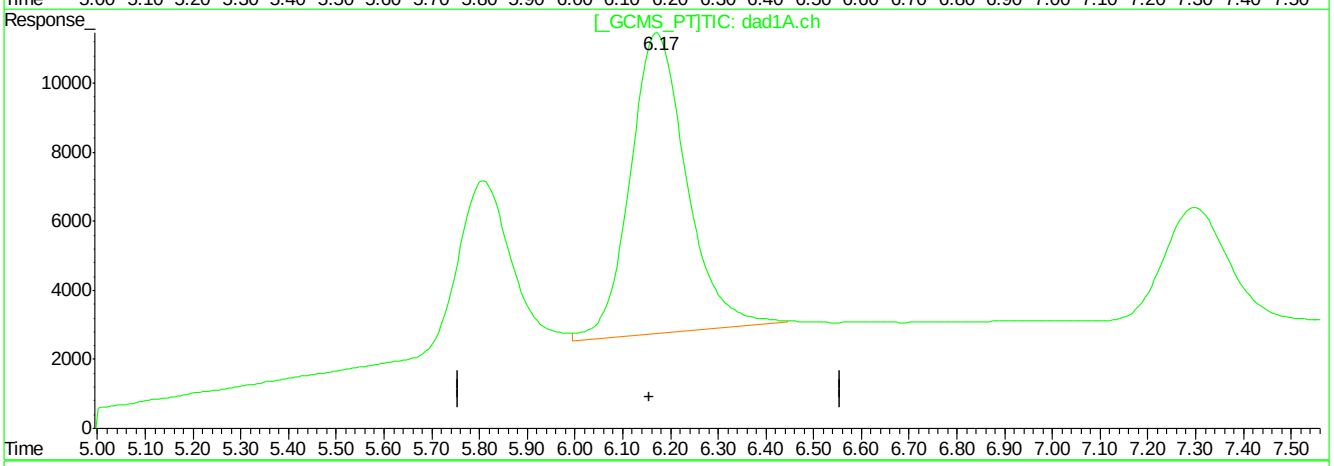
(+) = Expected Retention Time
BB068178.D 8330B_060120_PLUS.M Tue Jun 02 11:53:09 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068178.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068178.D\dad1A.ch
Acq On : 01-Jun-2020, 18:04:07 Operator: williamh
Sample : ic2001-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.17min 91.713ppb

response 411939

(8) 3,5-Dinitroaniline #2

6.17min 93.471ppb m

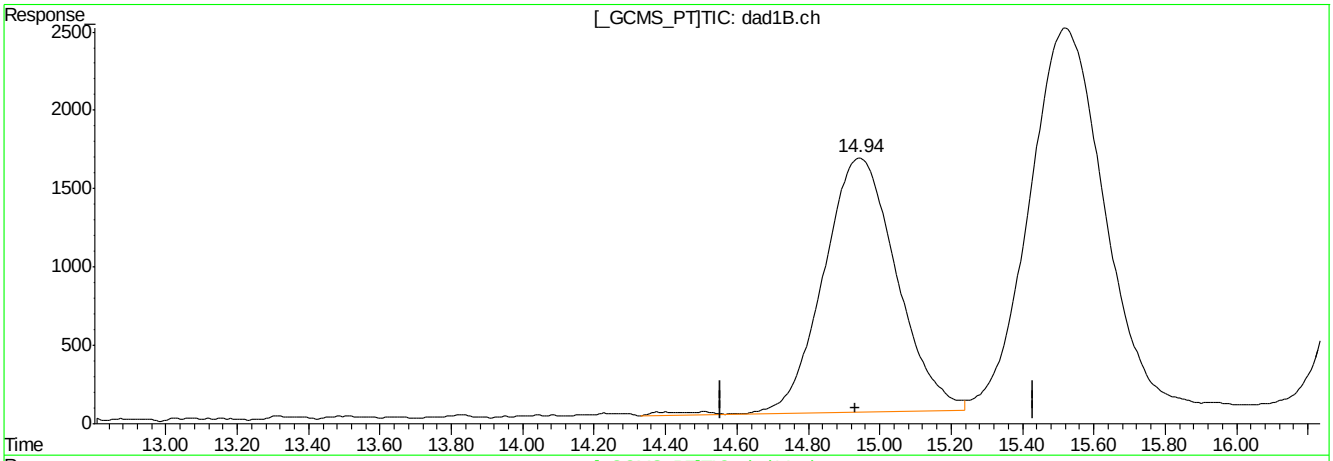
response 710062

(+) = Expected Retention Time
BB068178.D 8330B_060120_PLUS.M Tue Jun 02 11:53:19 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068178.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068178.D\dad1A.ch
Acq On : 01-Jun-2020, 18:04:07 Operator: williamh
Sample : ic2001-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration



(18) o-Nitrotoluene

14.94min 96.743ppb

response 231750

(18) o-Nitrotoluene #2

14.95min 97.992ppb m

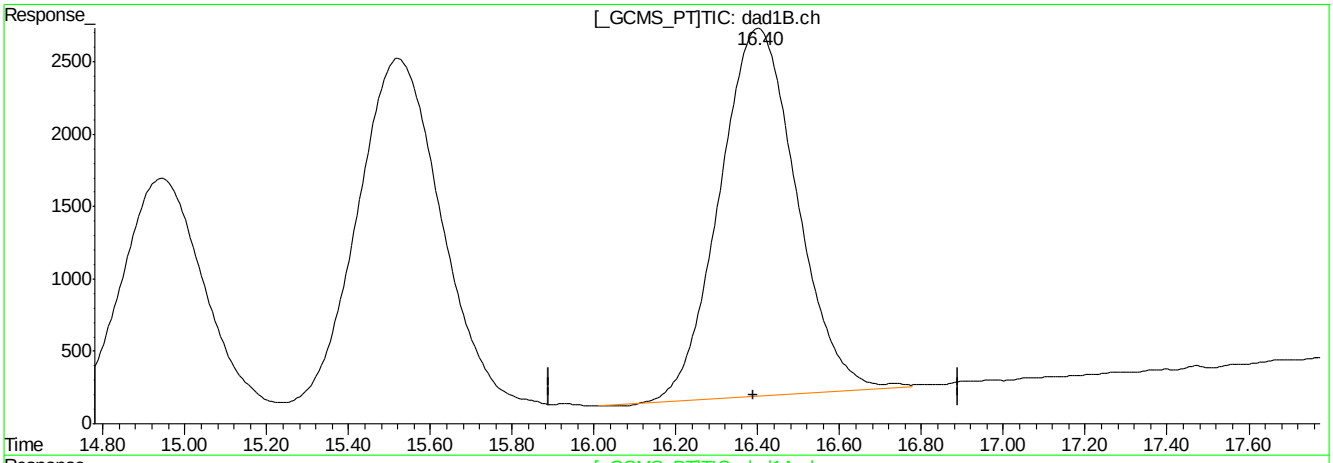
response 319919

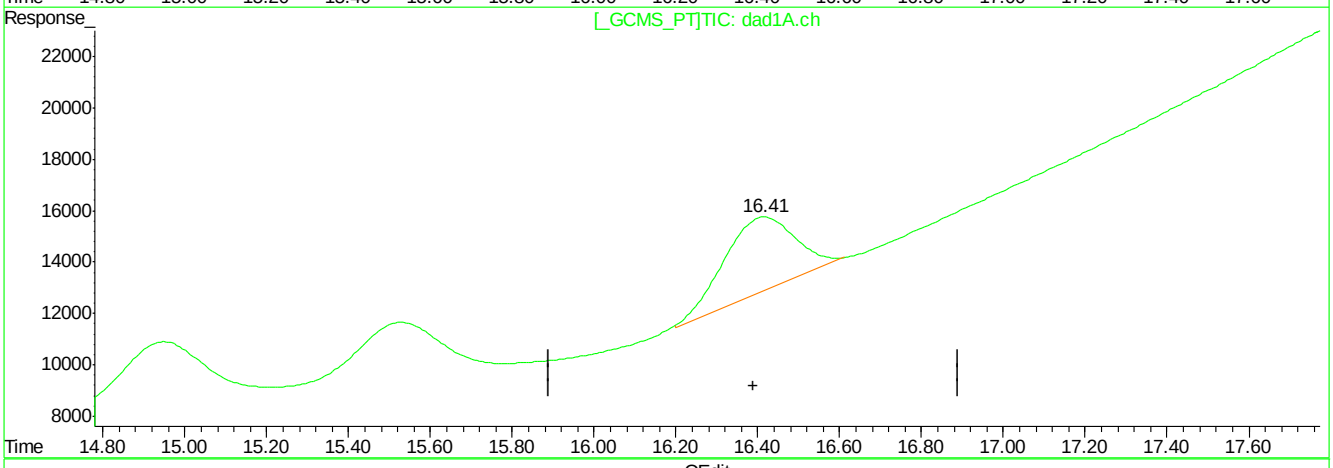
(+) = Expected Retention Time
BB068178.D 8330B_060120_PLUS.M Tue Jun 02 11:53:32 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068178.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068178.D\dad1A.ch
Acq On : 01-Jun-2020, 18:04:07 Operator: williamh
Sample : ic2001-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(20) m-Nitrotoluene

16.40min 97.807ppb

response 334544

(20) m-Nitrotoluene #2

16.41min 89.848ppb m

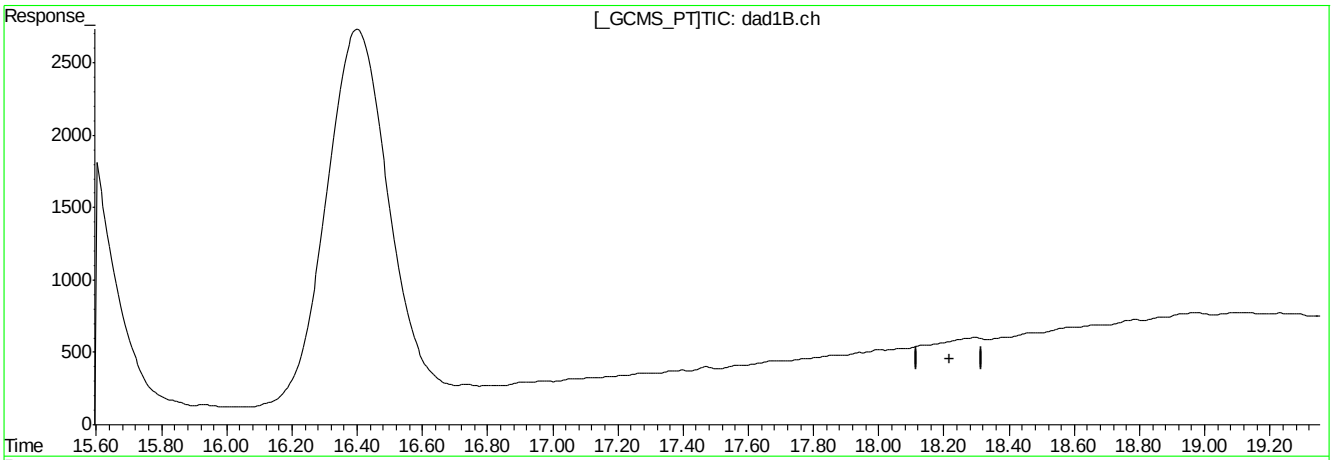
response 352556

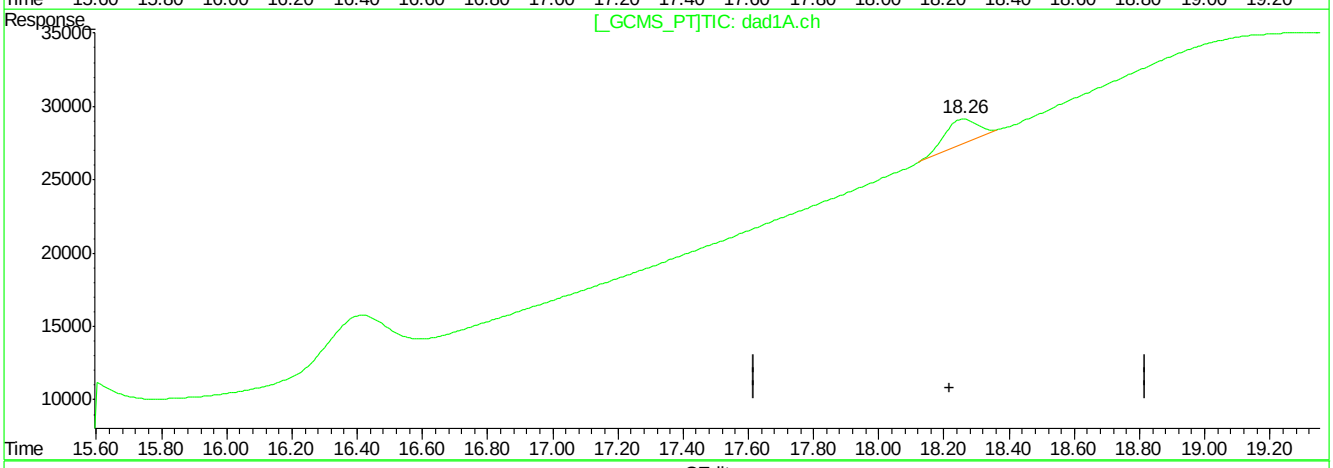
(+) = Expected Retention Time
BB068178.D 8330B_060120_PLUS.M Tue Jun 02 11:53:38 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068178.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068178.D\dad1A.ch
Acq On : 01-Jun-2020, 18:04:07 Operator: williamh
Sample : ic2001-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb d

response 0

(21) PETN #2

18.26min 83.875ppb m

response 118588

(+) = Expected Retention Time
BB068178.D 8330B_060120_PLUS.M Tue Jun 02 11:53:45 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 06/02/20 14:50

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068179.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068179.D\dad1A.ch
Acq On : 01-Jun-2020, 18:34:05 Operator: williamh
Sample : ic2001-200 Inst : G1315B
Misc : op80309,GBB2001,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 02 11:41:49 2020 Quant Results File: 8330B_060120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.84	10.84	360127	634736	173.510	167.427
Spiked Amount	500.000	Range	70 - 136	Recovery	=	34.70%#	33.49%#
	Target Compounds						
1)	TNX	1.33	1.33	452291	741665	198.402m	202.902m
2)	HMX	1.46	1.47	285093	815153	147.904m	156.969m
3)	DNX	1.71	1.71	198388	286833	154.611m	145.627m
4)	MNX	2.29	2.29	434339	647944	202.046	196.199m
5)	RDX	2.90	2.89	383212	619949	177.723	184.387m
6)	1,3,5-Trinitrobe	4.64	4.64	828973	1596029	177.982	179.274m
7)	1,3-Dinitrobenze	5.81	5.81	1066657	716387	181.673	178.424m
8)	3,5-Dinitroanili	6.17	6.17	801326	1360036	178.404	179.032m
9)	Nitrobenzene	7.30	7.30	619668	623935	178.574	181.856
10)	Nitroglycerin	0.00	8.79	0	242521	N.D.	186.366 #
11)	Tetryl	9.17	9.17	602176	965538	196.795	203.230
12)	2,4,6-Trinitroto	9.62	9.62	745546	890815	180.464	181.052
13)	2-Amino-4,6-Dini	9.98	9.98	681021	1018865	178.822	181.674
14)	4-Amino-2,6-Dini	10.44	10.44	494473	983790	178.508	181.030
16)	2,4-Dinitrotolue	11.51	11.51	935299	599333	180.514	190.012
17)	2,6-Dinitrotolue	11.95	11.95	547487	695911	179.841	185.371
18)	o-Nitrotoluene	14.95	14.95	446699	641285	186.471	196.427m
19)	p-Nitrotoluene	15.53	15.53	687546	589284	181.992	186.628
20)	m-Nitrotoluene	16.40	16.41	660203	738266	193.017m	187.990m
21)	PETN	0.00	18.25	0	251726	N.D.	177.771m#

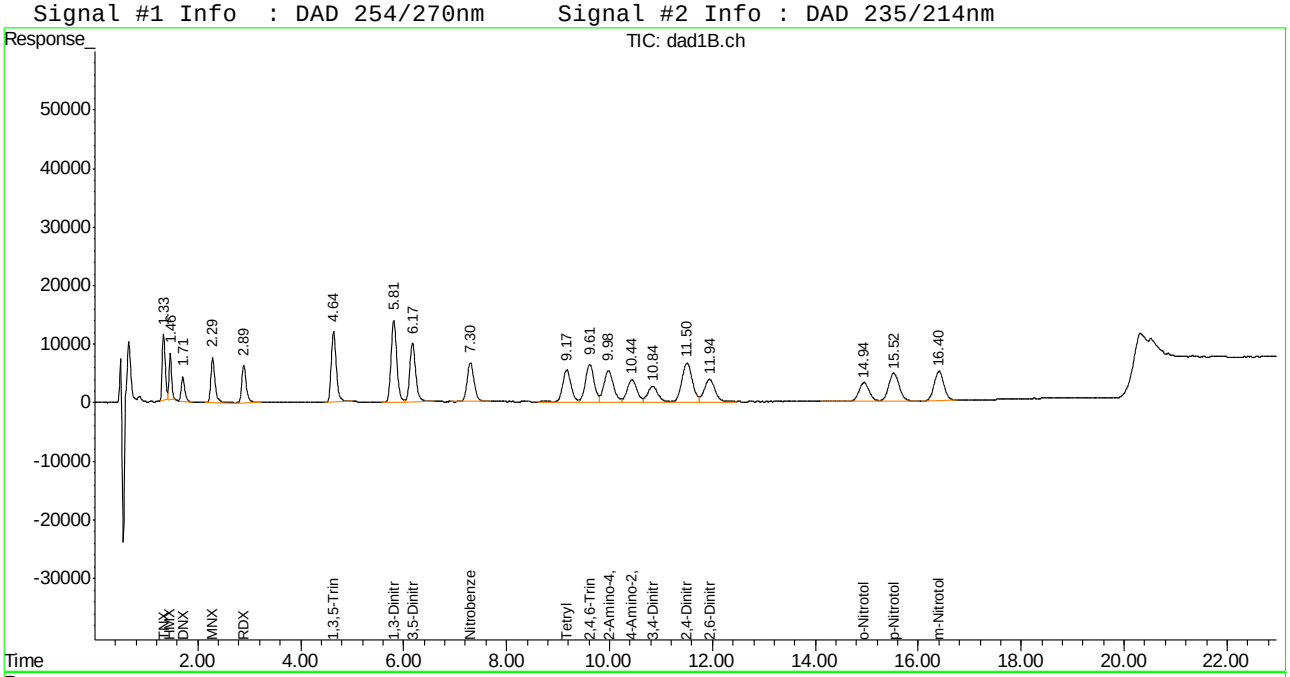
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB068179.D 8330B_060120_PLUS.M Tue Jun 02 13:34:32 2020 Page 1

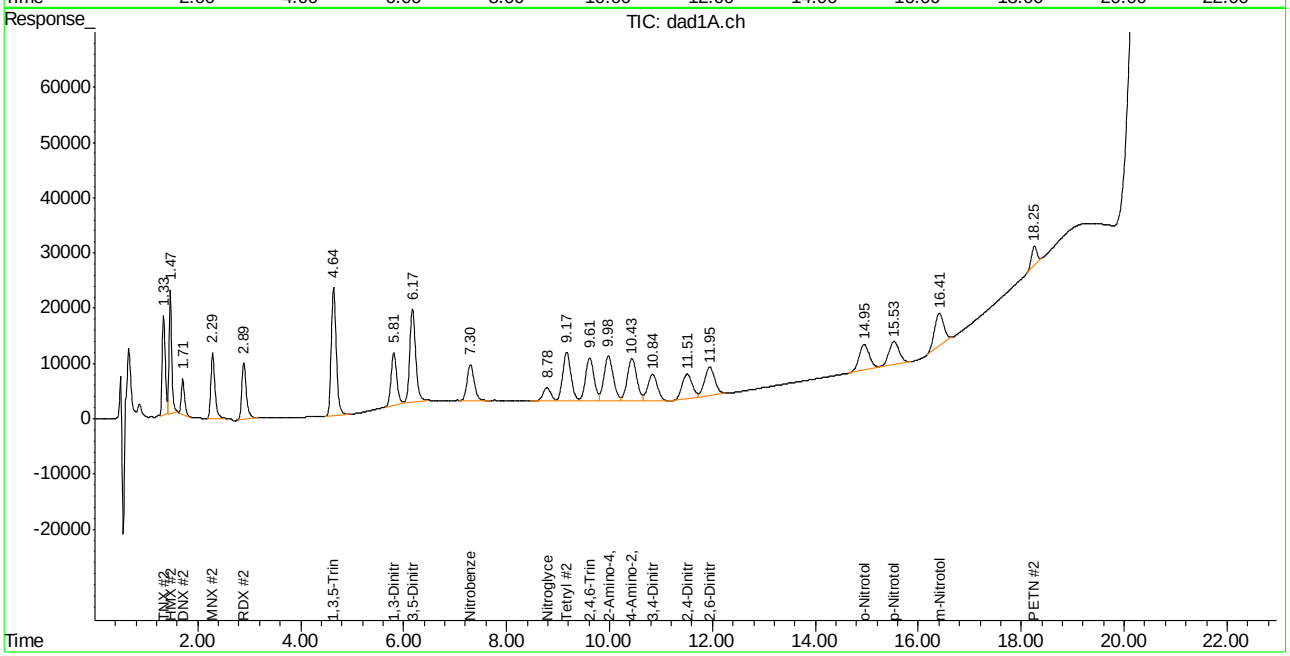
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068179.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068179.D\dad1A.ch
Acq On : 01-Jun-2020, 18:34:05 Operator: williamh
Sample : ic2001-200 Inst : G1315B
Misc : op80309,GBB2001,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:58 2020 Quant Results File: 8330B_060120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

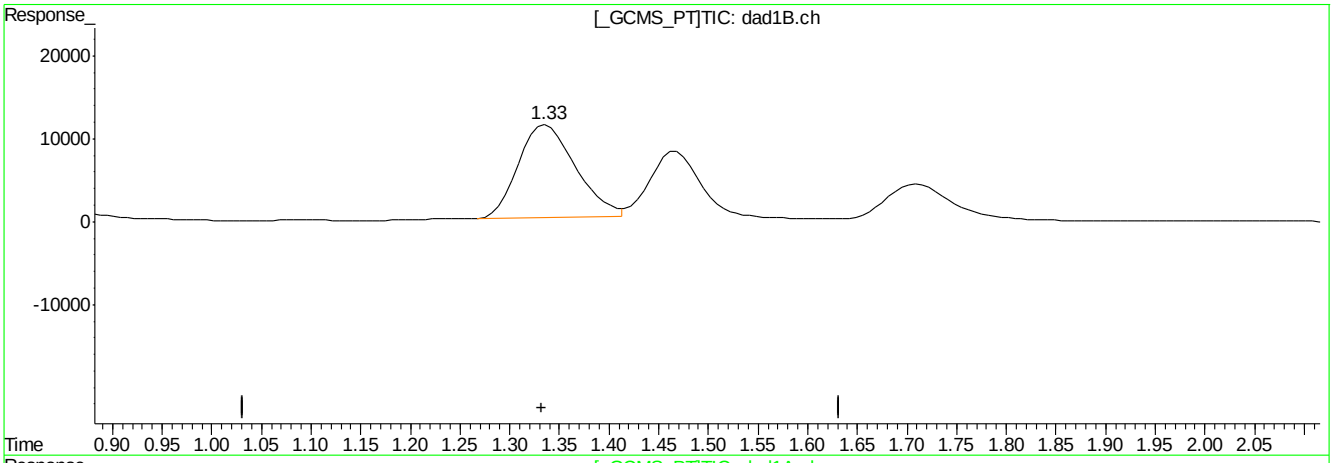
Sample Number: GBB2001-IC2001 **Method:** SW846 8330B
Lab FileID: BB068179.D **Analyst approved:** 06/02/20 13:46 William Hustedde
Injection Time: 06/01/20 18:34 **Supervisor approved:** 06/02/20 14:50 Naresh Jiawan

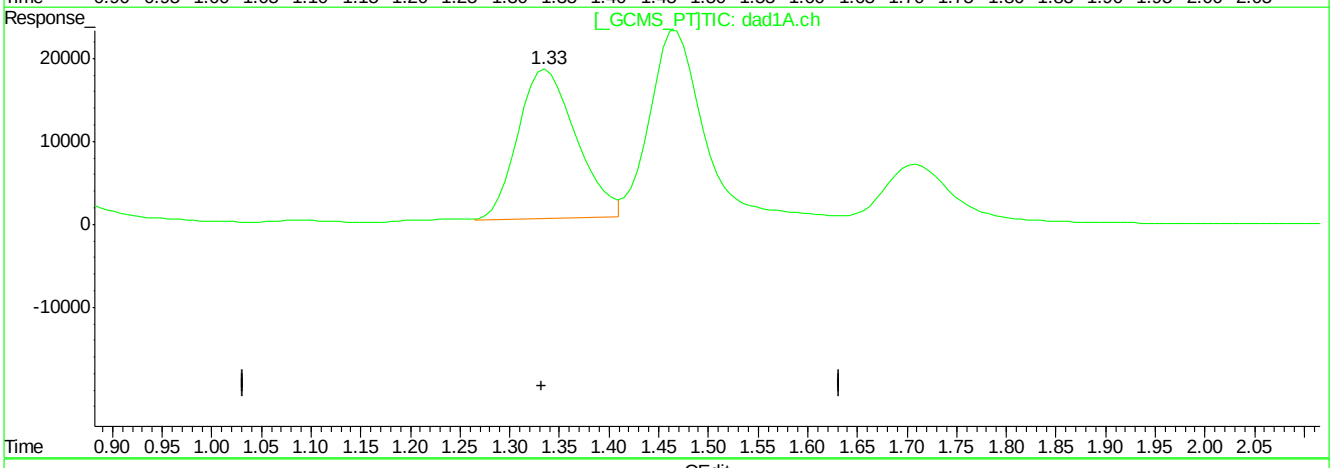
Parameter	CAS	Sig#	R.T. (min.)	Reason
TNX		1	1.33	Poor instrument integration
TNX		2	1.33	Poor instrument integration
HMX	2691-41-0	1	1.46	Poor instrument integration
HMX	2691-41-0	2	1.47	Poor instrument integration
DNX		1	1.71	Poor instrument integration
DNX		2	1.71	Poor instrument integration
MNX		2	2.29	Poor instrument integration
RDX	121-82-4	2	2.89	Poor instrument integration
1,3,5-Trinitrobenzene	99-35-4	2	4.64	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	5.81	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	6.17	Poor instrument integration
o-Nitrotoluene	88-72-2	2	14.95	Poor instrument integration
m-Nitrotoluene	99-08-1	1	16.40	Poor instrument integration
m-Nitrotoluene	99-08-1	2	16.41	Poor instrument integration
PETN	78-11-5	2	18.25	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068179.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068179.D\dad1A.ch
Acq On : 01-Jun-2020, 18:34:05 Operator: williamh
Sample : ic2001-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(1) TNX

1.33min 198.402ppb m

response 452291

(1) TNX #2

1.33min 202.902ppb m

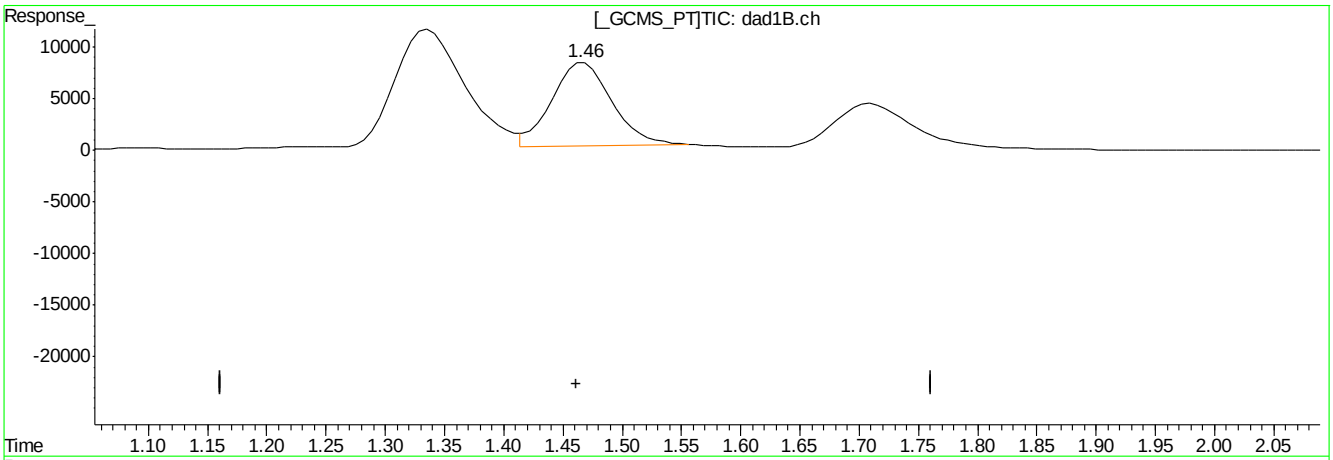
response 741665

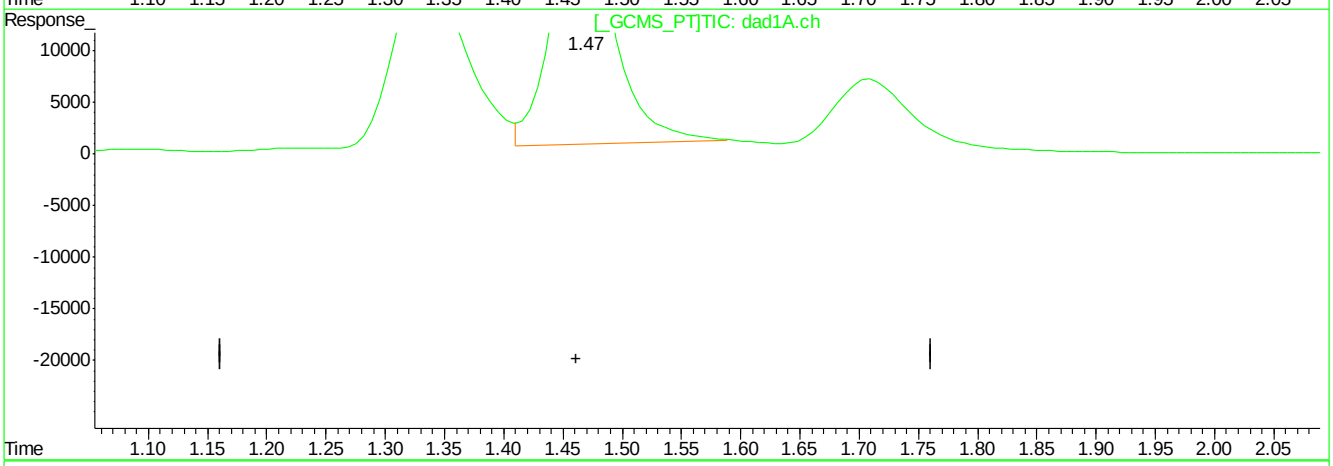
(+) = Expected Retention Time
BB068179.D 8330B_060120_PLUS.M Tue Jun 02 11:54:21 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068179.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068179.D\dad1A.ch
Acq On : 01-Jun-2020, 18:34:05 Operator: williamh
Sample : ic2001-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(2) HMX

1.46min 147.904ppb m

response 285093

(2) HMX #2

1.47min 156.969ppb m

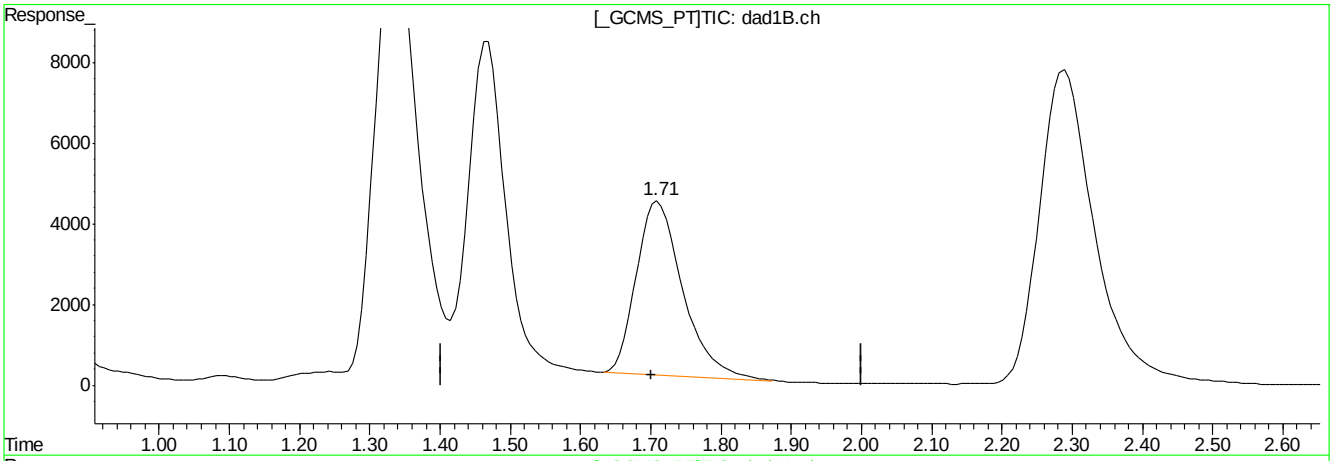
response 815153

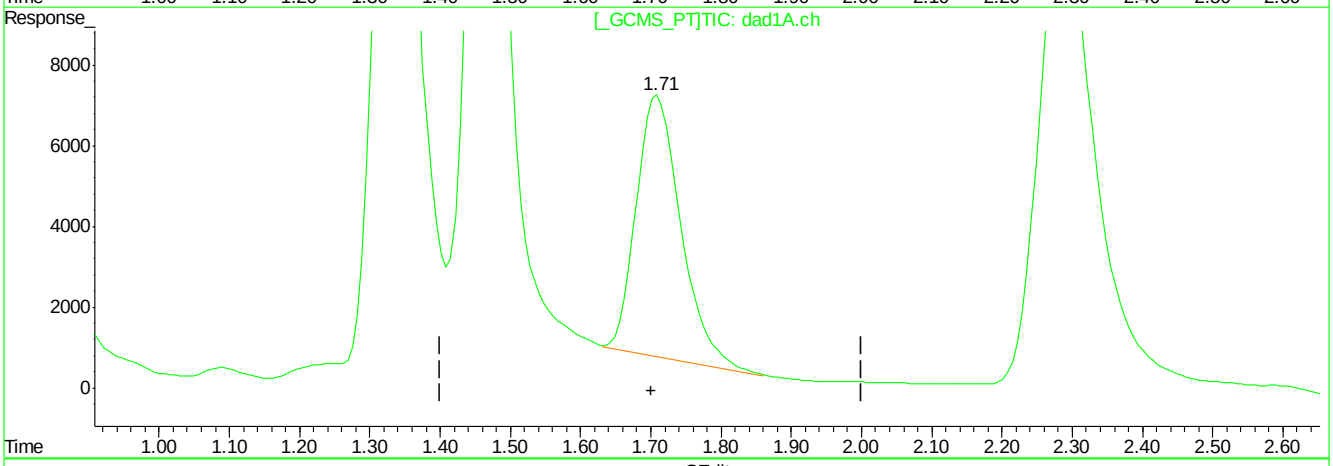
(+) = Expected Retention Time
BB068179.D 8330B_060120_PLUS.M Tue Jun 02 11:54:31 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068179.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068179.D\dad1A.ch
Acq On : 01-Jun-2020, 18:34:05 Operator: williamh
Sample : ic2001-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(3) DNX

1.71min 154.611ppb m

response 198388

(3) DNX #2

1.71min 145.627ppb m

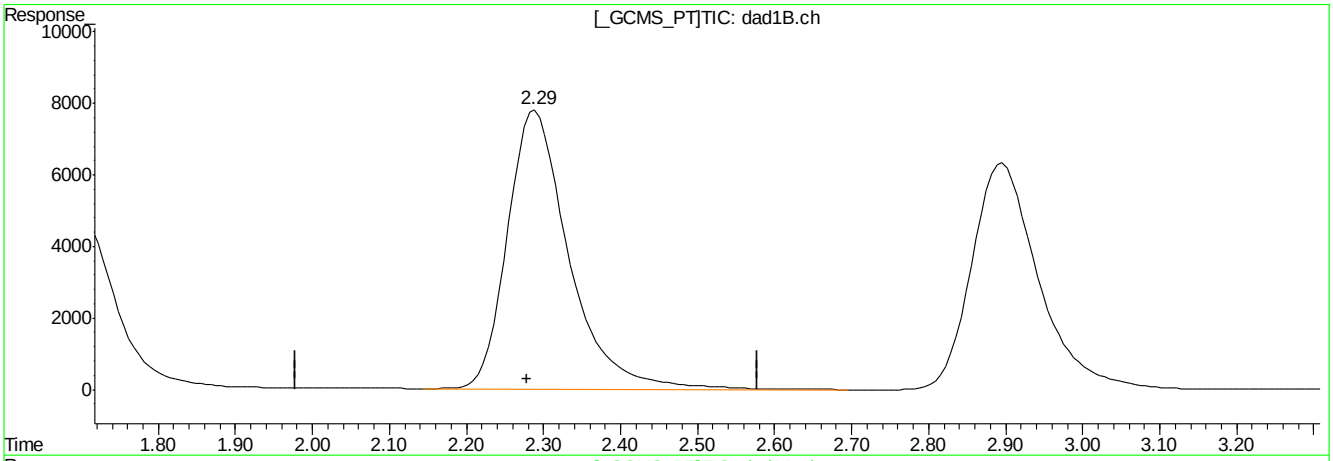
response 286833

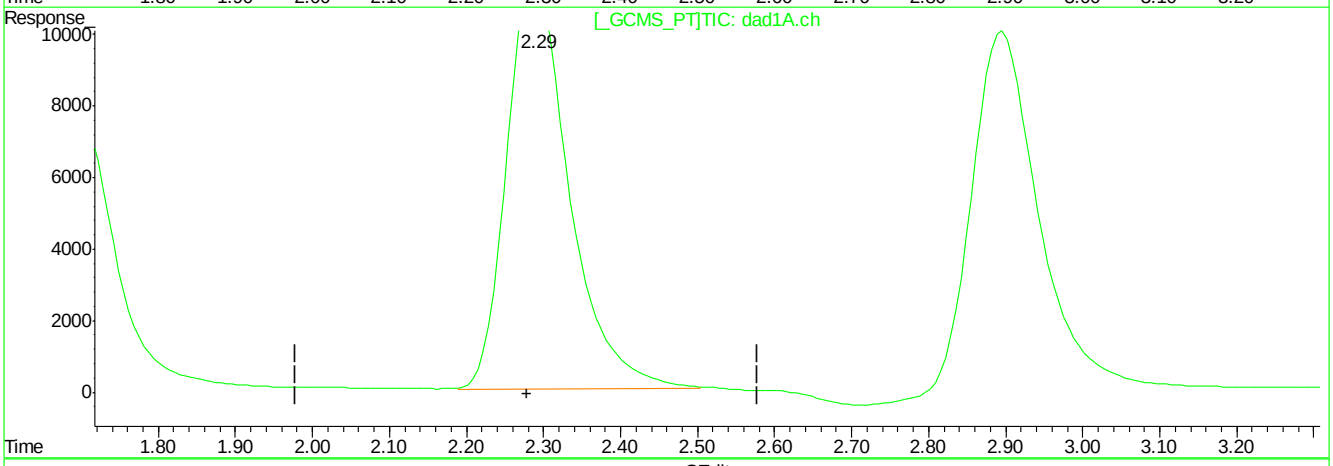
(+) = Expected Retention Time
BB068179.D 8330B_060120_PLUS.M Tue Jun 02 11:54:42 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068179.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068179.D\dad1A.ch
Acq On : 01-Jun-2020, 18:34:05 Operator: williamh
Sample : ic2001-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(4) MNX

2.29min 202.046ppb

response 434339

(4) MNX #2

2.29min 196.199ppb m

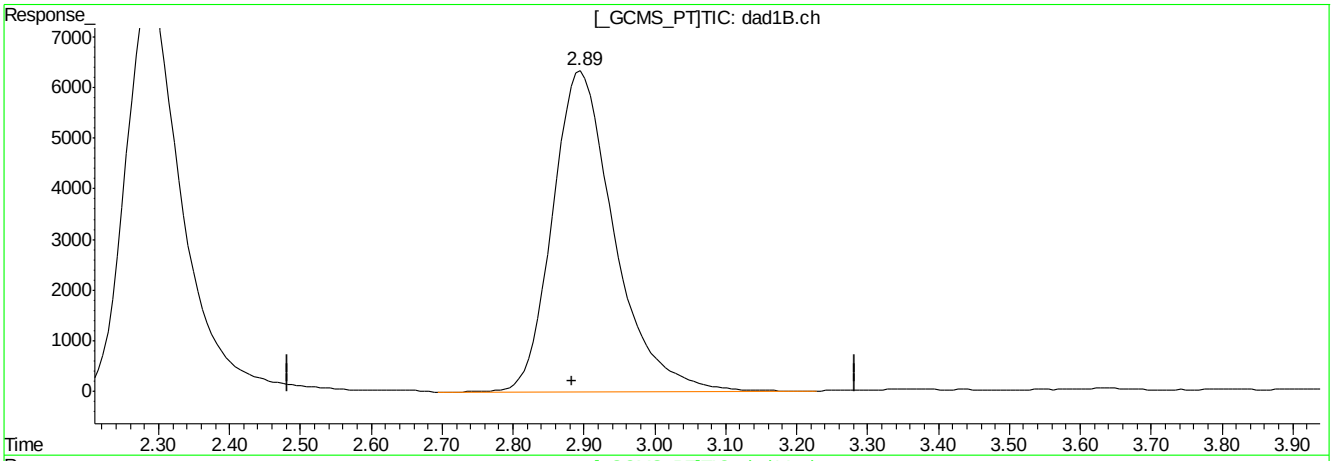
response 647944

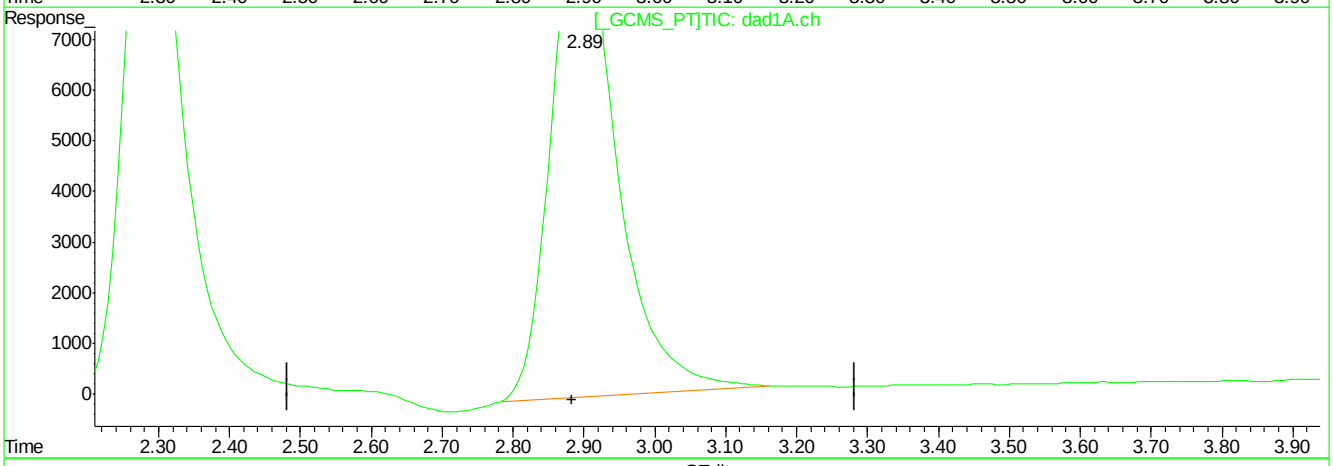
(+) = Expected Retention Time
BB068179.D 8330B_060120_PLUS.M Tue Jun 02 11:54:49 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068179.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068179.D\dad1A.ch
Acq On : 01-Jun-2020, 18:34:05 Operator: williamh
Sample : ic2001-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(5) RDX

2.90min 177.723ppb

response 383212

(5) RDX #2

2.89min 184.387ppb m

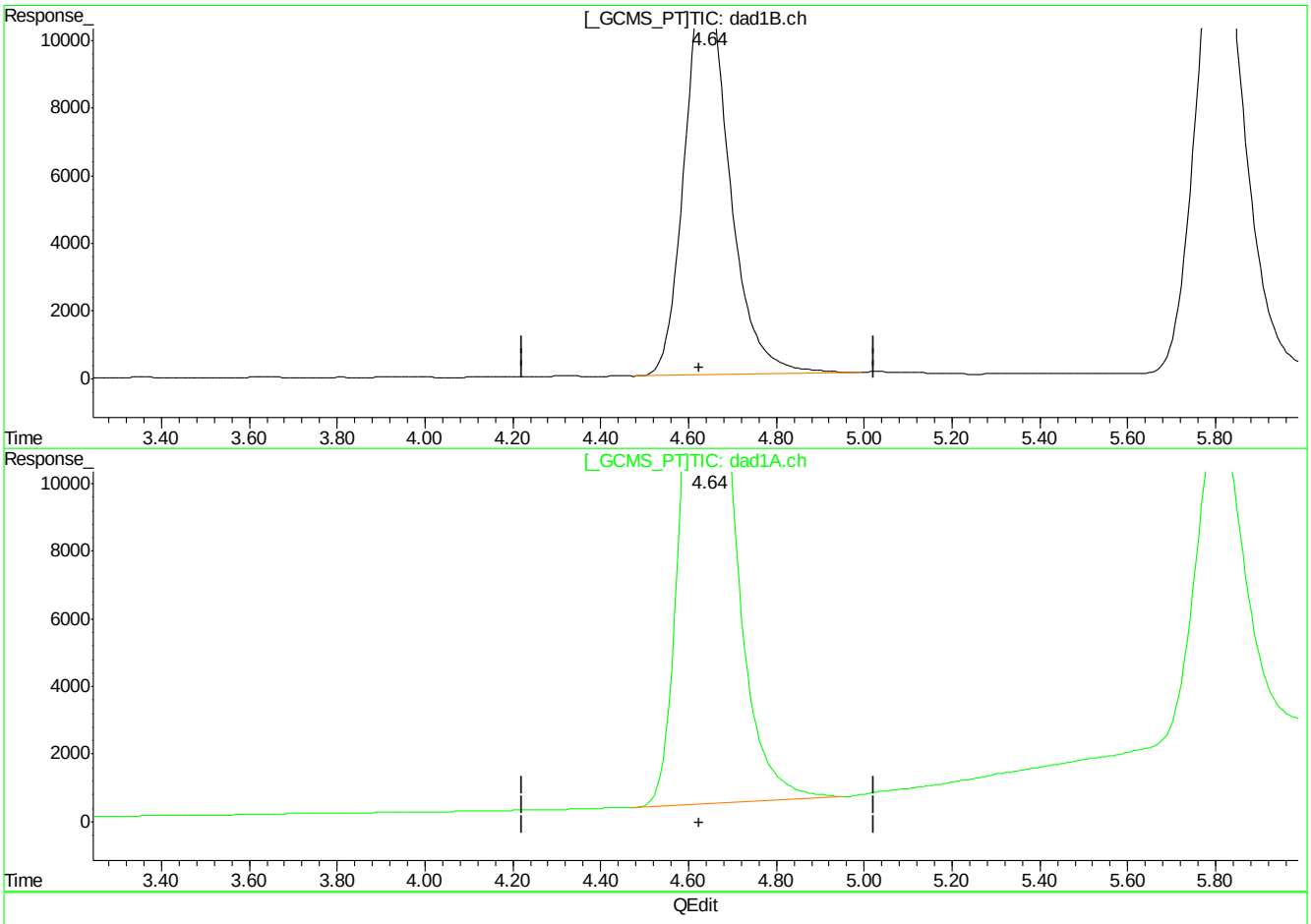
response 619949

(+) = Expected Retention Time
BB068179.D 8330B_060120_PLUS.M Tue Jun 02 11:55:53 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068179.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068179.D\dad1A.ch
Acq On : 01-Jun-2020, 18:34:05 Operator: williamh
Sample : ic2001-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration



(6) 1,3,5-Trinitrobenzene

4.64min 177.982ppb

response 828973

(6) 1,3,5-Trinitrobenzene #2

4.64min 179.274ppb m

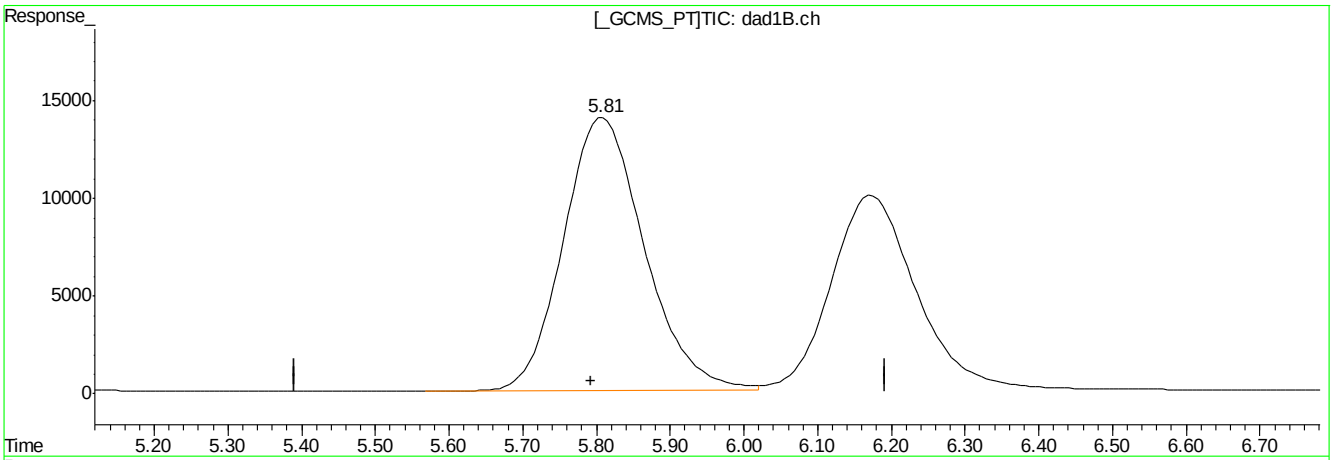
response 1596029

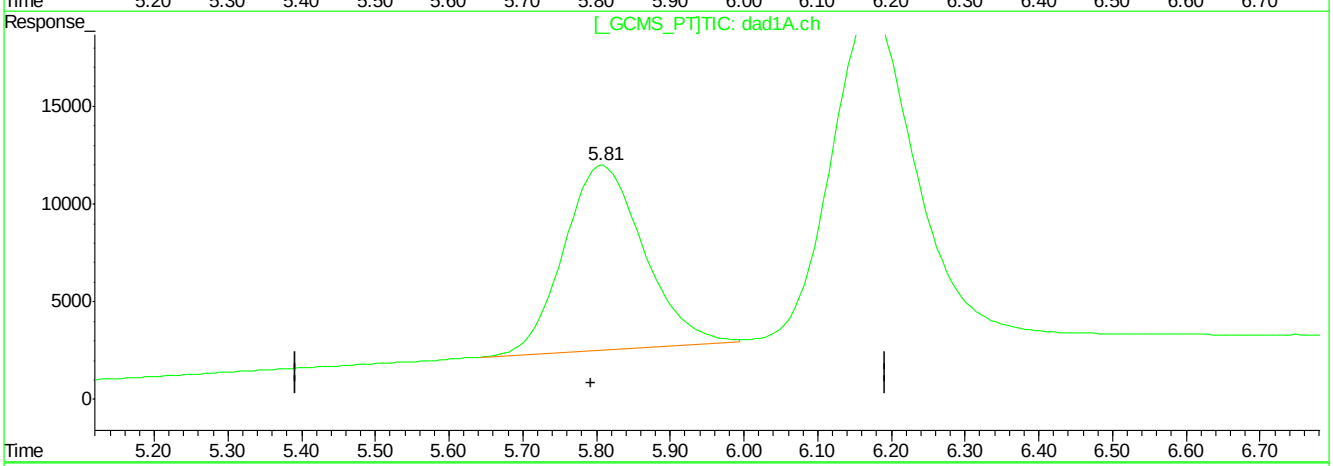
(+) = Expected Retention Time
BB068179.D 8330B_060120_PLUS.M Tue Jun 02 11:56:00 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068179.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068179.D\dad1A.ch
Acq On : 01-Jun-2020, 18:34:05 Operator: williamh
Sample : ic2001-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

5.81min 181.673ppb

response 1066657

(7) 1,3-Dinitrobenzene #2

5.81min 178.424ppb m

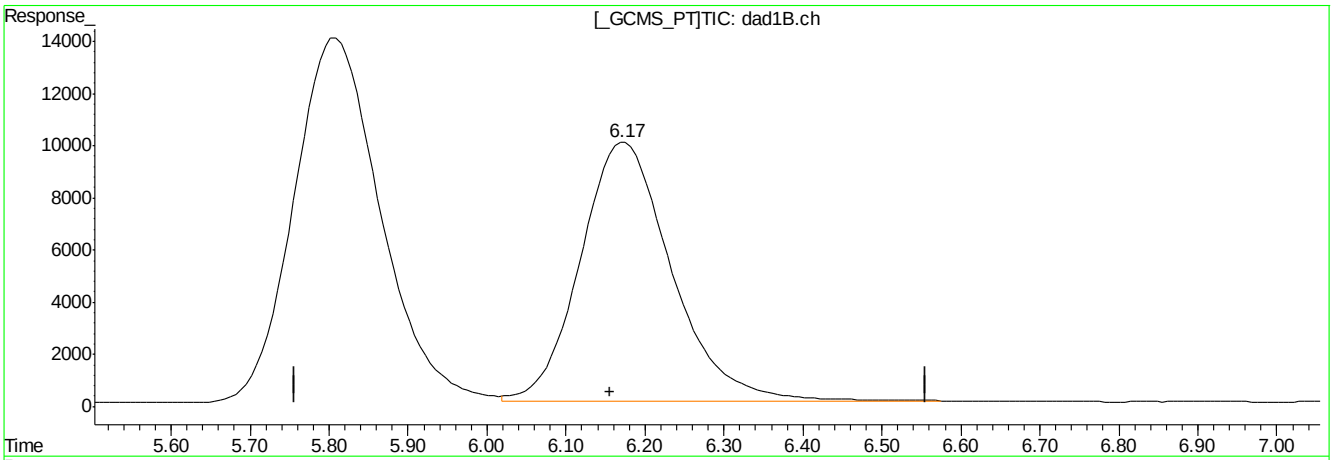
response 716387

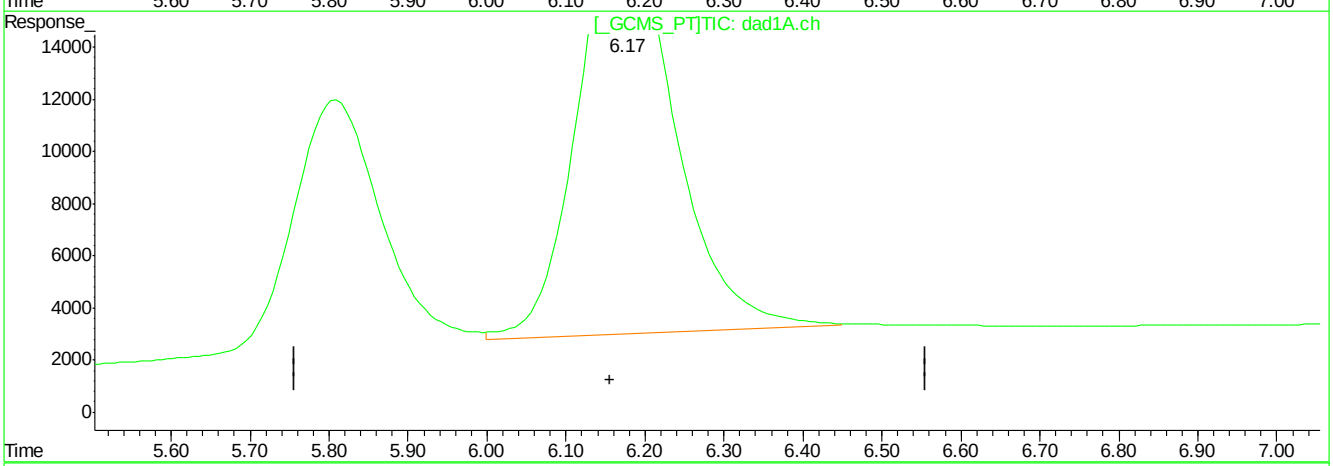
(+) = Expected Retention Time
BB068179.D 8330B_060120_PLUS.M Tue Jun 02 11:56:54 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068179.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068179.D\dad1A.ch
Acq On : 01-Jun-2020, 18:34:05 Operator: williamh
Sample : ic2001-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.17min 178.404ppb

response 801326

(8) 3,5-Dinitroaniline #2

6.17min 179.032ppb m

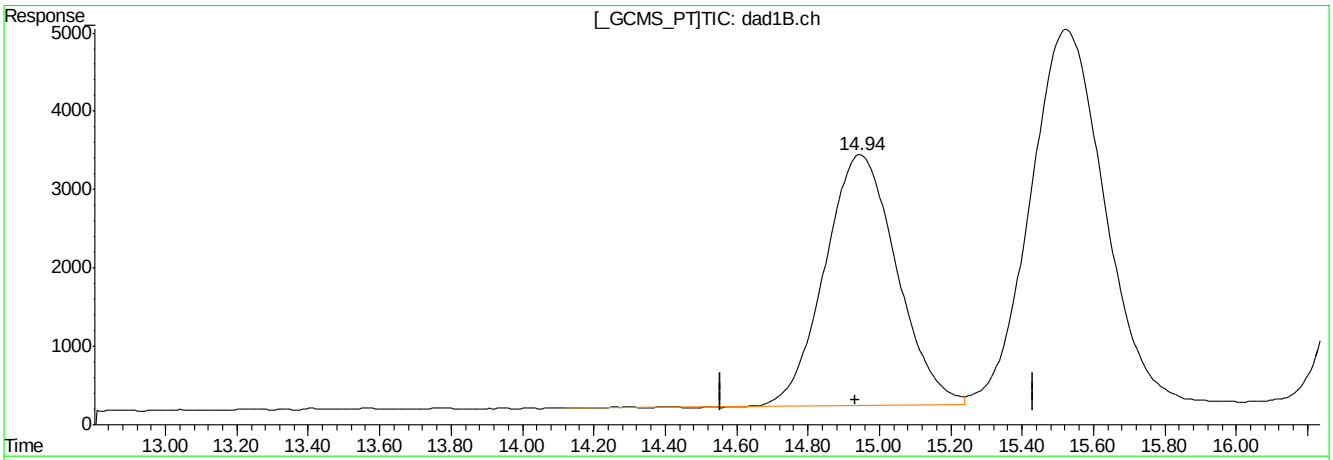
response 1360036

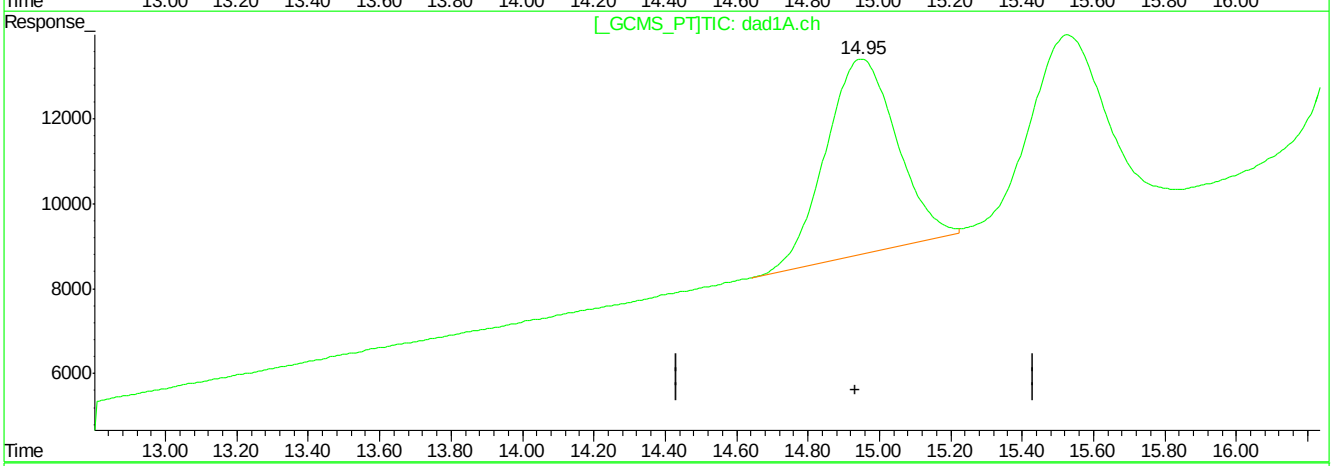
(+) = Expected Retention Time
BB068179.D 8330B_060120_PLUS.M Tue Jun 02 11:57:04 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068179.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068179.D\dad1A.ch
Acq On : 01-Jun-2020, 18:34:05 Operator: williamh
Sample : ic2001-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(18) o-Nitrotoluene

14.95min 186.471ppb

response 446699

(18) o-Nitrotoluene #2

14.95min 196.427ppb m

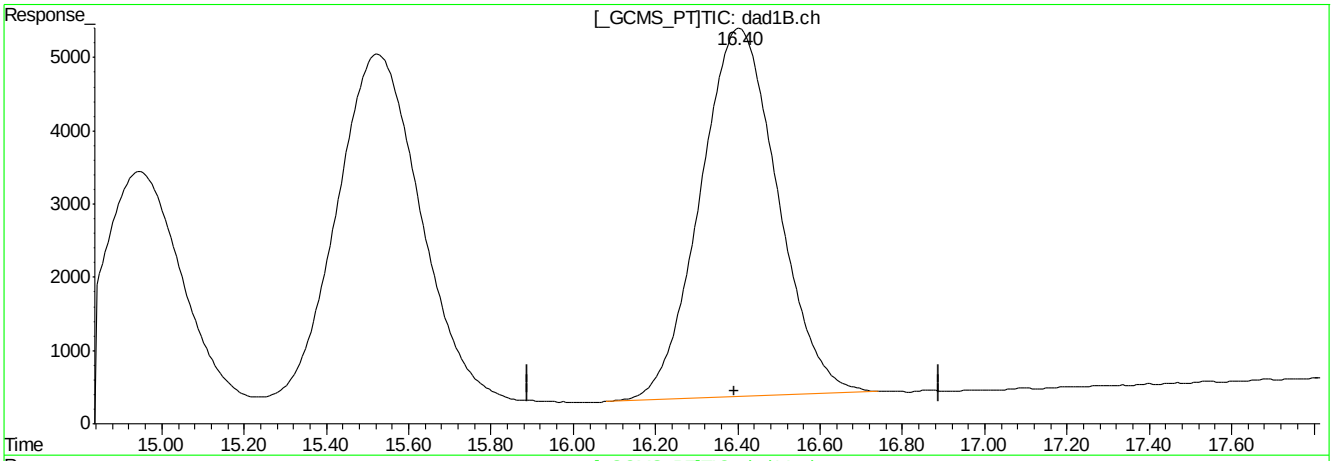
response 641285

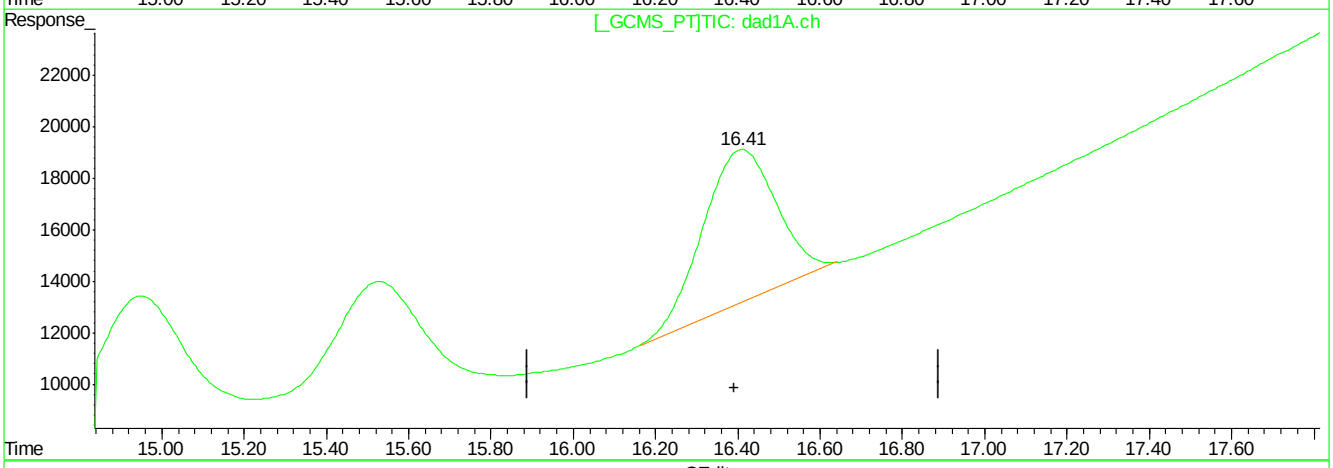
(+) = Expected Retention Time
BB068179.D 8330B_060120_PLUS.M Tue Jun 02 11:58:26 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068179.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068179.D\dad1A.ch
Acq On : 01-Jun-2020, 18:34:05 Operator: williamh
Sample : ic2001-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(20) m-Nitrotoluene

16.40min 193.017ppb m

response 660203

(20) m-Nitrotoluene #2

16.41min 187.990ppb m

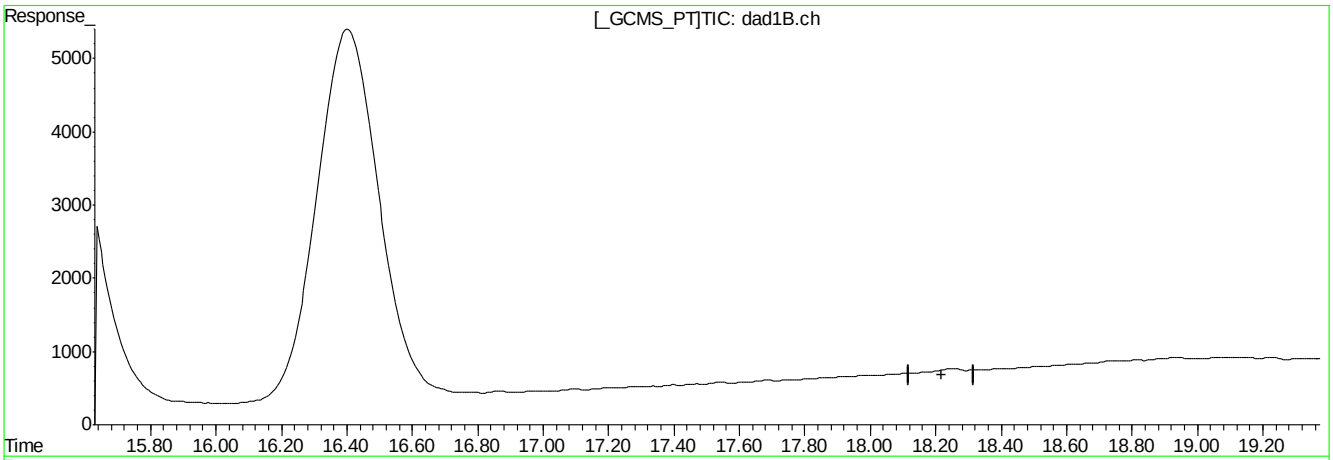
response 738266

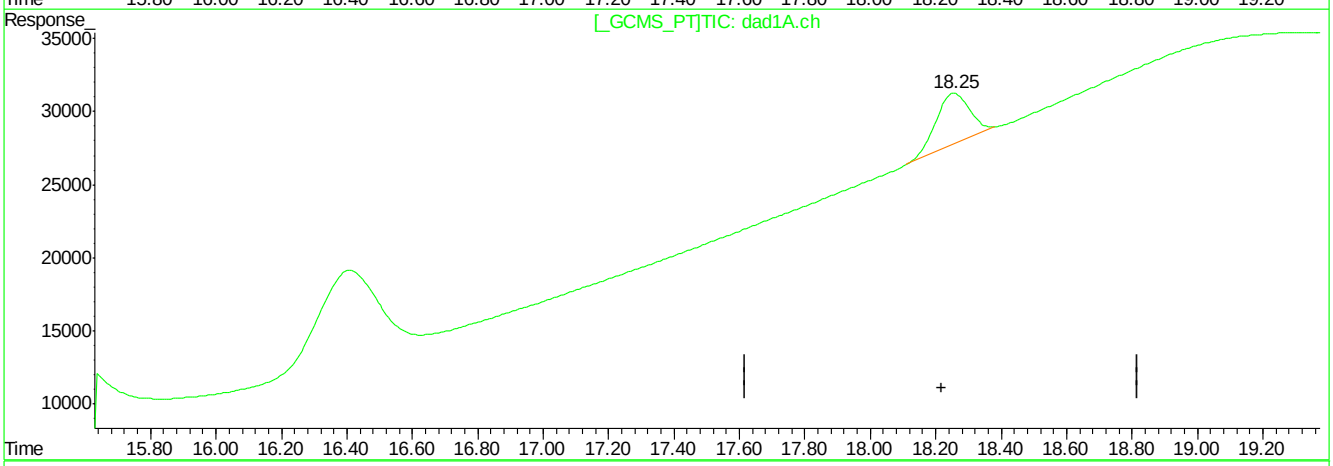
(+) = Expected Retention Time
BB068179.D 8330B_060120_PLUS.M Tue Jun 02 11:58:43 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068179.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068179.D\dad1A.ch
Acq On : 01-Jun-2020, 18:34:05 Operator: williamh
Sample : ic2001-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

18.25min 177.771ppb m

response 251726

(+) = Expected Retention Time
BB068179.D 8330B_060120_PLUS.M Tue Jun 02 11:58:48 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 06/02/20 14:50

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068180.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068180.D\dad1A.ch
Acq On : 01-Jun-2020, 19:04:03 Operator: williamh
Sample : ic2001-500 Inst : G1315B
Misc : op80309,GBB2001,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 02 11:41:50 2020 Quant Results File: 8330B_060120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.85	10.85	891791	1607837	429.206	424.105
	Spiked Amount 500.000	Range 70 - 136		Recovery =		85.84%	84.82%
	Target Compounds						
1)	TNX	1.34	1.34	1258910	1973767	552.235	539.976
2)	HMX	1.47	1.47	837571	2339509	434.526	450.506
3)	DNX	1.71	1.71	547362	925209	426.578	471.171
4)	MNX	2.29	2.29	1061900	1693740	493.977	512.869
5)	RDX	2.90	2.90	942262	1538335	436.994	457.536
6)	1,3,5-Trinitrobe	4.64	4.64	2093131	3826396	449.399	429.799
7)	1,3-Dinitrobenze	5.81	5.81	2645552	1909023	450.591	475.463
8)	3,5-Dinitroanili	6.18	6.18	1999170	3474994	445.088	457.441
9)	Nitrobenzene	7.30	7.30	1548437	1518473	446.225	442.583
10)	Nitroglycerin	0.00	8.79	0	621942	N.D.	477.934 #
11)	Tetryl	9.18	9.18	1485800	2423059	487.443	510.013
12)	2,4,6-Trinitroto	9.62	9.62	1849212	2242528	447.614	455.779
13)	2-Amino-4,6-Dini	9.99	9.99	1688061	2555732	443.251	455.713
14)	4-Amino-2,6-Dini	10.44	10.44	1226746	2481271	442.864	456.586
16)	2,4-Dinitrotolue	11.51	11.52	2317012	1543631	447.187	489.390
17)	2,6-Dinitrotolue	11.95	11.95	1338255	1779968	439.595	474.132
18)	o-Nitrotoluene	14.95	14.96	1104260	1574088	460.966	482.146
19)	p-Nitrotoluene	15.53	15.53	1696659	1480823	449.102	468.982
20)	m-Nitrotoluene	16.41	16.41	1662044	1954450	485.915	496.394m
21)	PETN	0.00	18.26	0	694427	N.D. d	487.977m

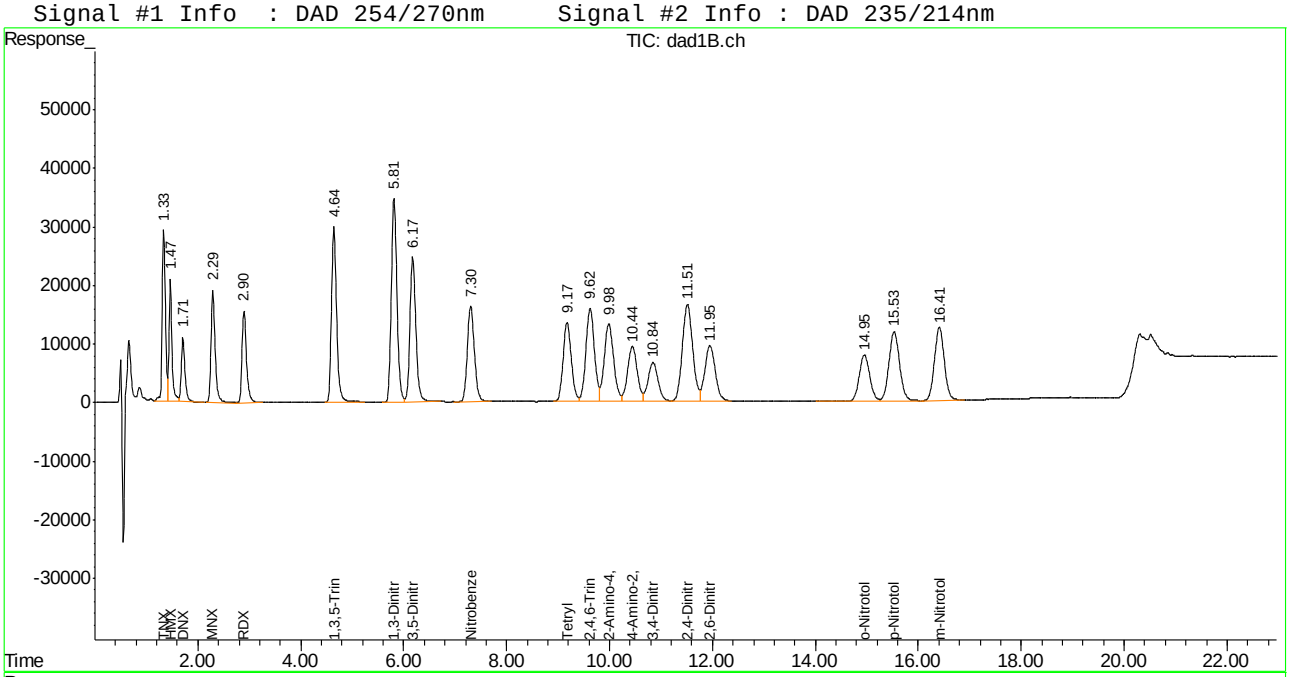
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB068180.D 8330B_060120_PLUS.M Tue Jun 02 13:34:33 2020 Page 1

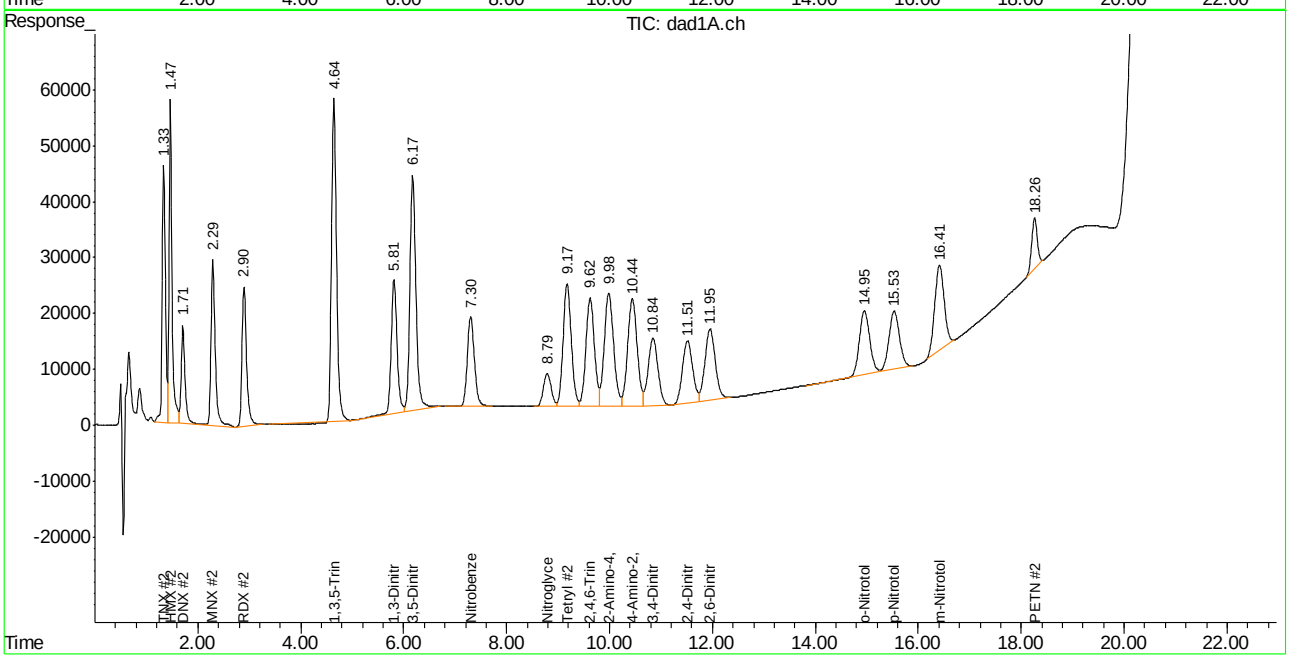
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068180.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068180.D\dad1A.ch
Acq On : 01-Jun-2020, 19:04:03 Operator: williamh
Sample : ic2001-500 Inst : G1315B
Misc : op80309,GBB2001,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 12:00 2020 Quant Results File: 8330B_060120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

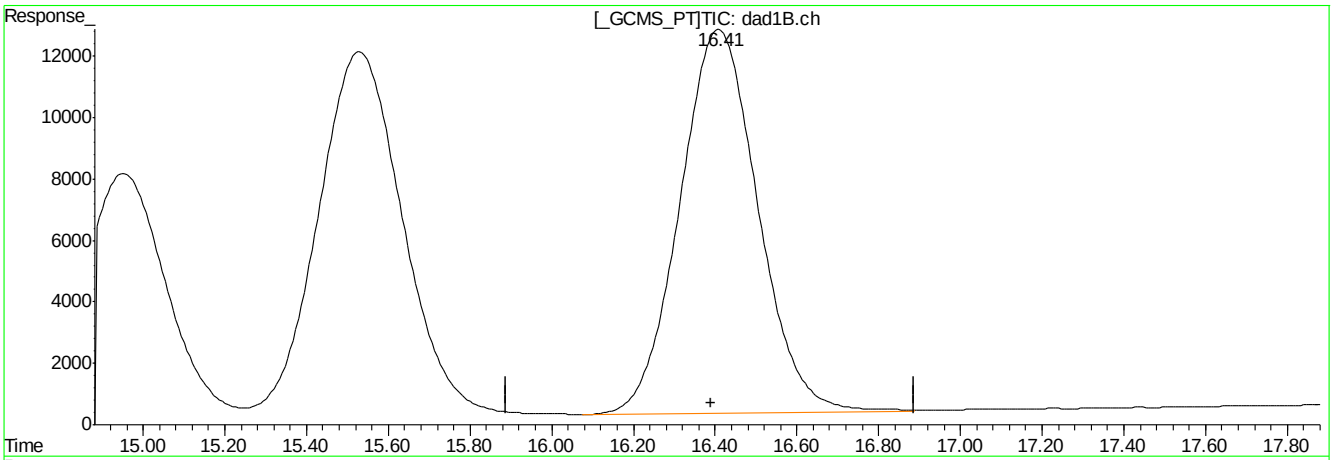
Sample Number: GBB2001-IC2001
Lab FileID: BB068180.D
Injection Time: 06/01/20 19:04
Method: SW846 8330B
Analyst approved: 06/02/20 13:46 William Hustedde
Supervisor approved: 06/02/20 14:50 Naresh Jiawan

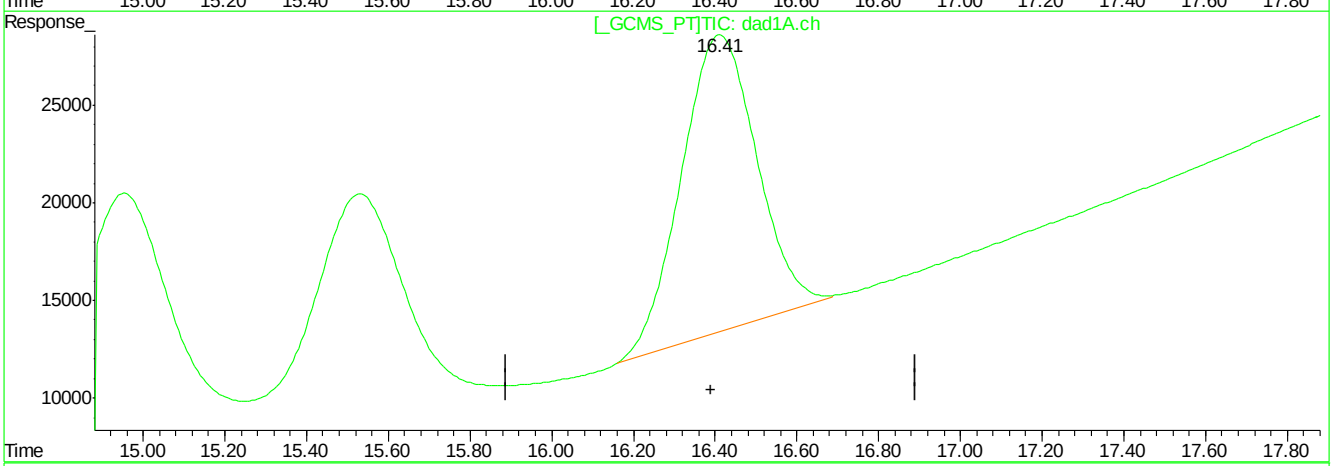
Parameter	CAS	Sig#	R.T. (min.)	Reason
m-Nitrotoluene	99-08-1	2	16.41	Poor instrument integration
PETN	78-11-5	2	18.26	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068180.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068180.D\dad1A.ch
Acq On : 01-Jun-2020, 19:04:03 Operator: williamh
Sample : ic2001-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(20) m-Nitrotoluene

16.41min 485.915ppb

response 1662044

(20) m-Nitrotoluene #2

16.41min 496.394ppb m

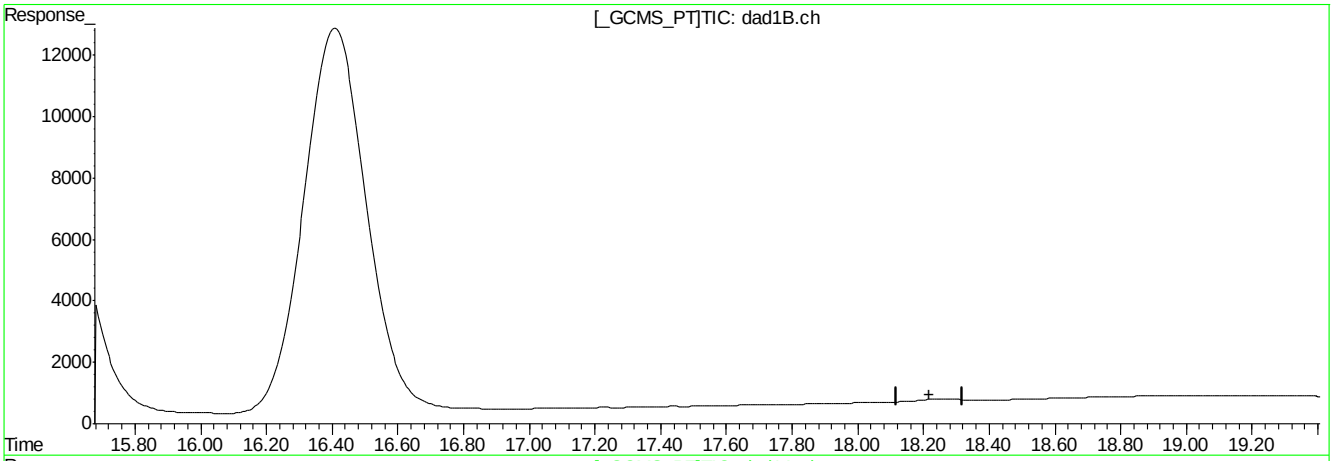
response 1954450

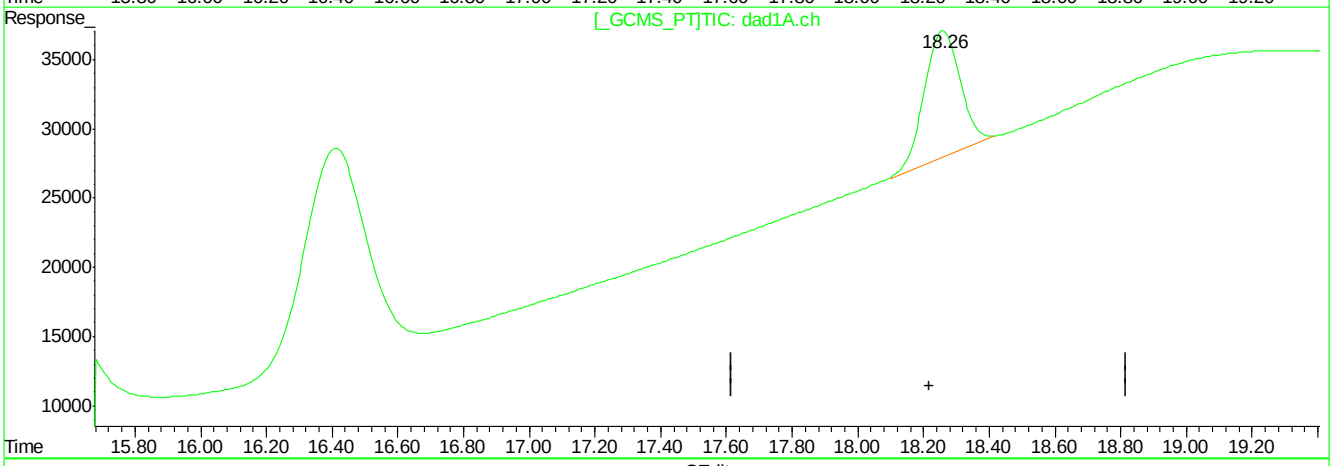
(+) = Expected Retention Time
BB068180.D 8330B_060120_PLUS.M Tue Jun 02 12:00:09 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068180.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068180.D\dad1A.ch
Acq On : 01-Jun-2020, 19:04:03 Operator: williamh
Sample : ic2001-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb d

response 0

(21) PETN #2

18.26min 487.977ppb m

response 694427

(+) = Expected Retention Time
BB068180.D 8330B_060120_PLUS.M Tue Jun 02 12:00:15 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 06/02/20 14:50

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068181.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068181.D\dad1A.ch
Acq On : 01-Jun-2020, 19:34:05 Operator: williamh
Sample : icc2001-1000 Inst : G1315B
Misc : op80309,GBB2001,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 02 11:41:51 2020 Quant Results File: 8330B_060120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.85	10.85	1802123	3235754	865.750	853.506
	Spiked Amount 500.000	Range 70 - 136		Recovery =		173.15%#	170.70%#
	Target Compounds						
1)	TNX	1.34	1.34	2513026	3909410	1102.367	1069.523
2)	HMX	1.47	1.47	1626956	4429562	844.053	852.976
3)	DNX	1.71	1.71	1073237	1698477	836.411	868.203
4)	MNX	2.29	2.29	2116835	3288147	984.713	995.660
5)	RDX	2.90	2.90	1883121	3043006	873.337	905.060
6)	1,3,5-Trinitrobe	4.64	4.64	4096846	7802868	879.599	876.455
7)	1,3-Dinitrobenze	5.81	5.81	5271029	3676875	897.764	915.766
8)	3,5-Dinitroanili	6.18	6.18	3982644	6832556	886.681	899.423
9)	Nitrobenzene	7.30	7.30	3109648	3065414	896.131	893.464
10)	Nitroglycerin	0.00	8.79	0	1234912	N.D.	948.973 #
11)	Tetryl	9.18	9.18	2971406	4823179	981.260	1015.198
12)	2,4,6-Trinitroto	9.62	9.62	3704006	4486618	896.580	911.877
13)	2-Amino-4,6-Dini	9.99	9.99	3383653	5113943	888.480	911.869
14)	4-Amino-2,6-Dini	10.45	10.45	2462346	4969392	888.923	914.433
16)	2,4-Dinitrotolue	11.51	11.52	4664167	3099477	900.191	982.654
17)	2,6-Dinitrotolue	11.95	11.96	2713017	3554651	891.182	946.856
18)	o-Nitrotoluene	14.96	14.95	2212834	3258846	923.733	998.190m
19)	p-Nitrotoluene	15.53	15.53	3403824	2966373	900.986	939.461
20)	m-Nitrotoluene	16.41	16.41	3328357	3999026	973.079	1011.329m
21)	PETN	0.00	18.26	0	1400274	N.D. d	976.351m

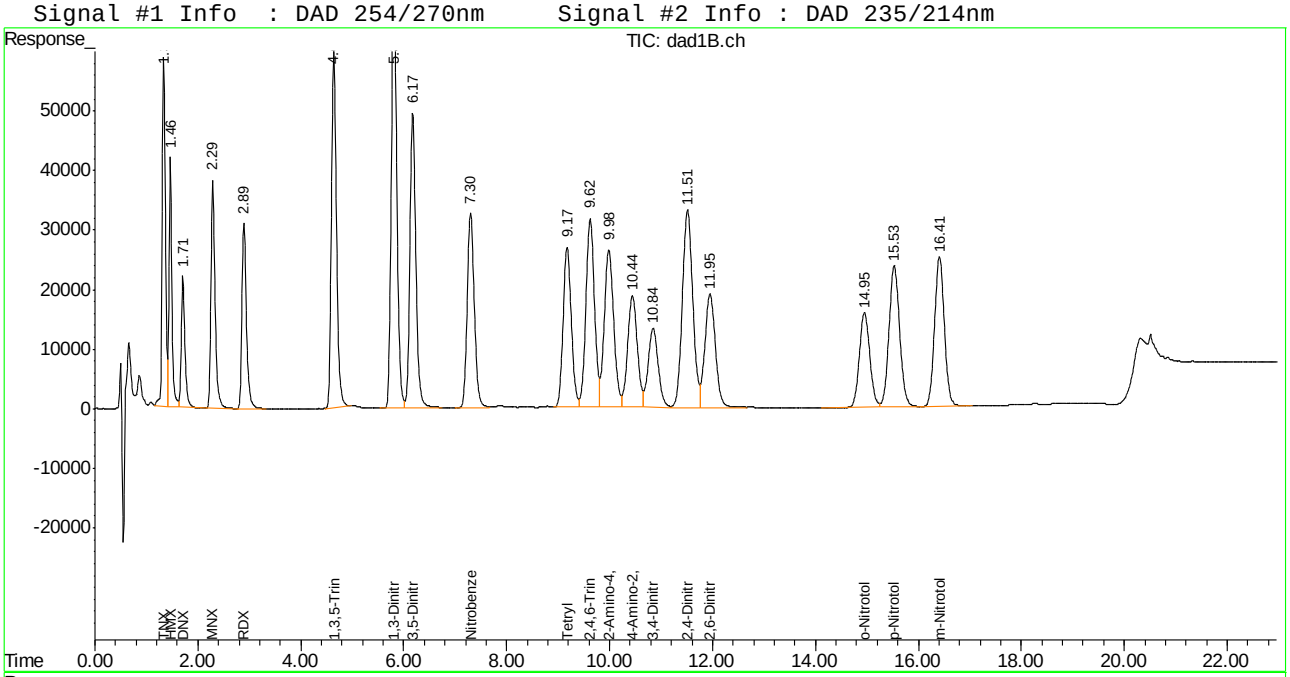
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB068181.D 8330B_060120_PLUS.M Tue Jun 02 13:34:34 2020 Page 1

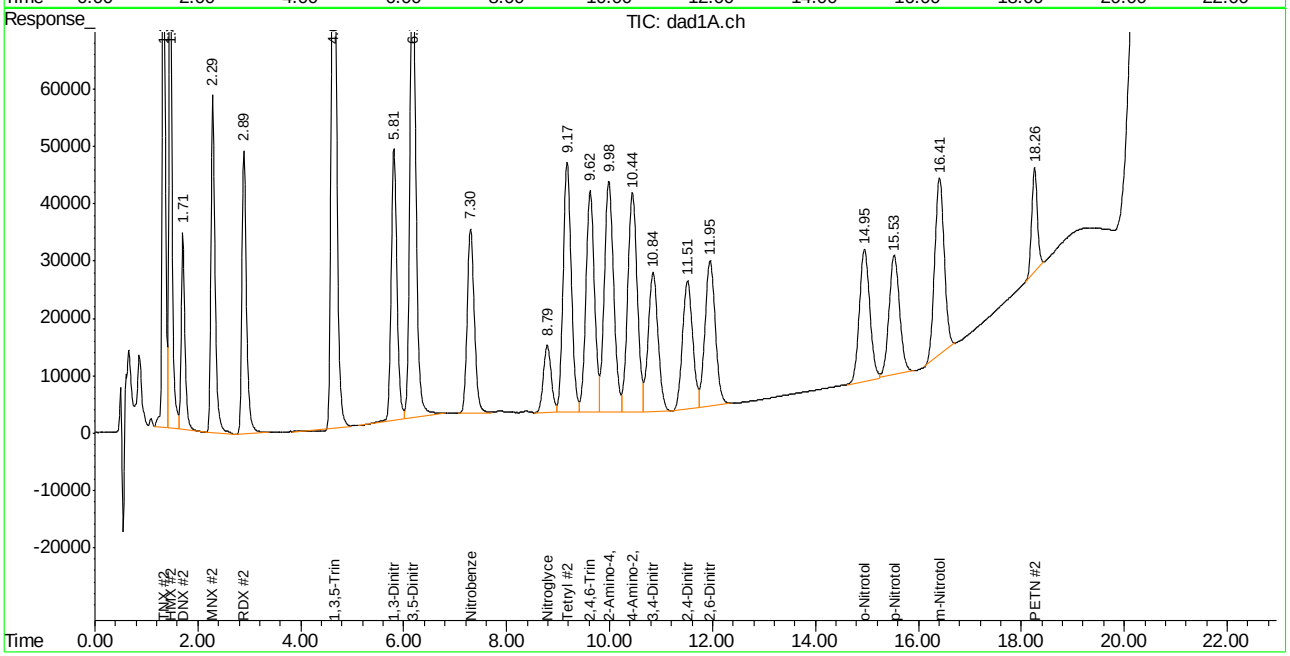
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068181.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068181.D\dad1A.ch
Acq On : 01-Jun-2020, 19:34:05 Operator: williamh
Sample : icc2001-1000 Inst : G1315B
Misc : op80309,GBB2001,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 12:00 2020 Quant Results File: 8330B_060120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

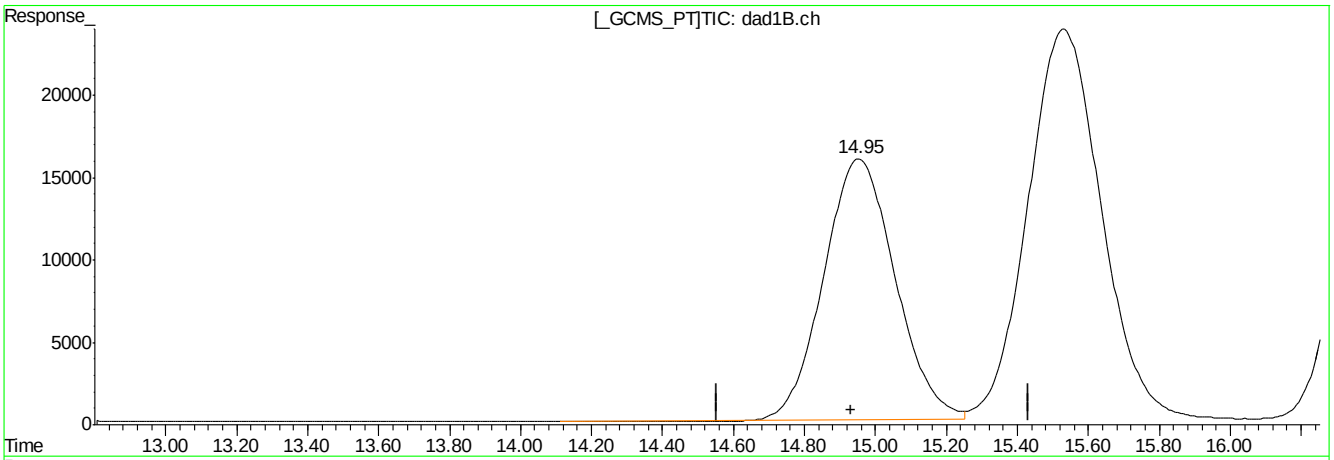
Sample Number: GBB2001-ICC2001 **Method:** SW846 8330B
Lab FileID: BB068181.D **Analyst approved:** 06/02/20 13:46 William Hustedde
Injection Time: 06/01/20 19:34 **Supervisor approved:** 06/02/20 14:50 Naresh Jiawan

Parameter	CAS	Sig#	R.T. (min.)	Reason
o-Nitrotoluene	88-72-2	2	14.95	Poor instrument integration
m-Nitrotoluene	99-08-1	2	16.41	Poor instrument integration
PETN	78-11-5	2	18.26	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068181.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068181.D\dad1A.ch
Acq On : 01-Jun-2020, 19:34:05 Operator: williamh
Sample : icc2001-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration



(18) o-Nitrotoluene

14.96min 923.733ppb

response 2212834

(18) o-Nitrotoluene #2

14.95min 998.190ppb m

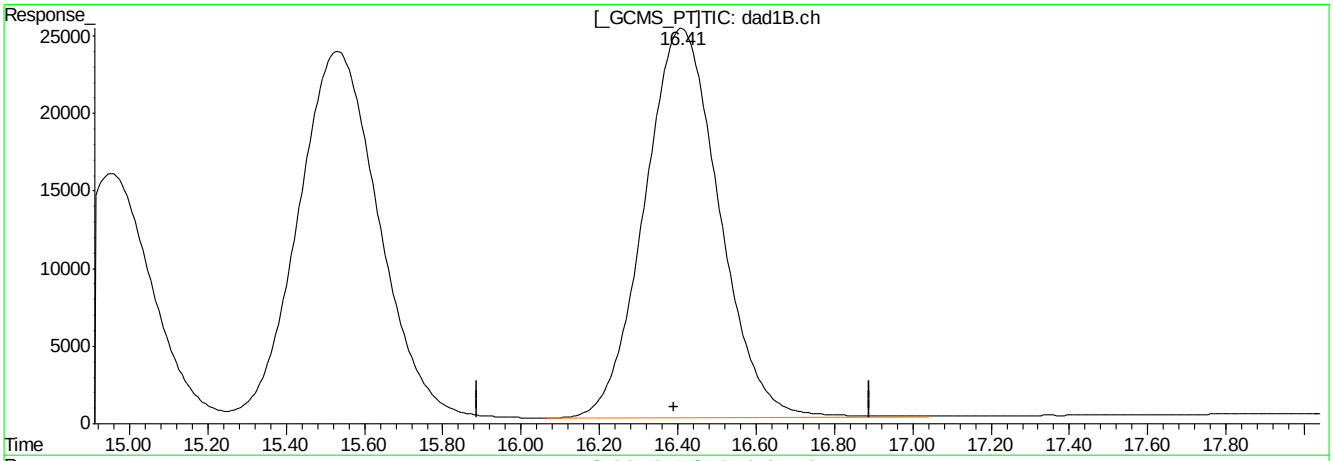
response 3258846

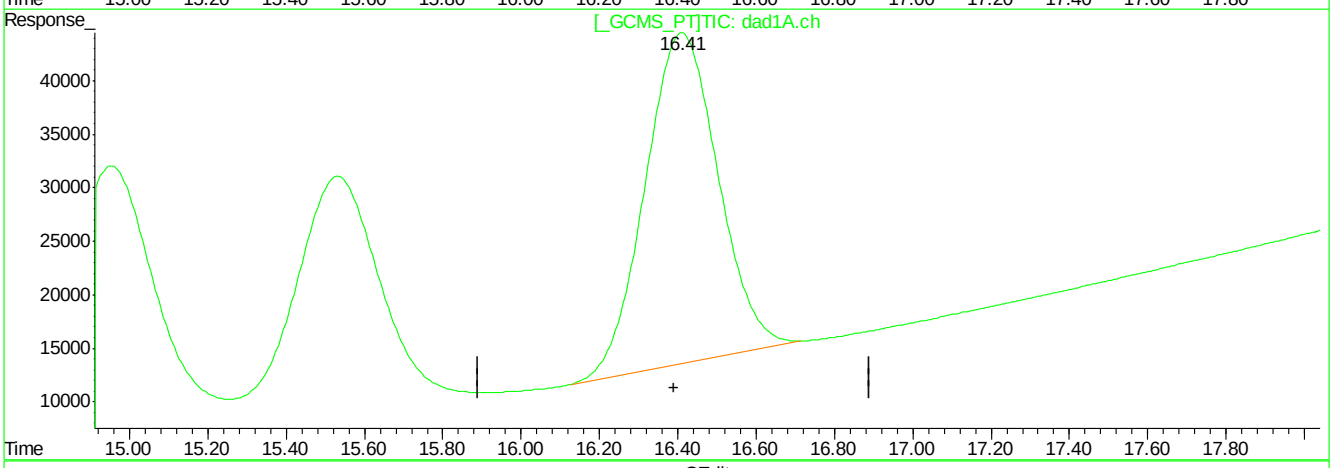
(+) = Expected Retention Time
BB068181.D 8330B_060120_PLUS.M Tue Jun 02 12:00:33 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068181.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068181.D\dad1A.ch
Acq On : 01-Jun-2020, 19:34:05 Operator: williamh
Sample : icc2001-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(20) m-Nitrotoluene

16.41min 973.079ppb

response 3328357

(20) m-Nitrotoluene #2

16.41min 1011.329ppb m

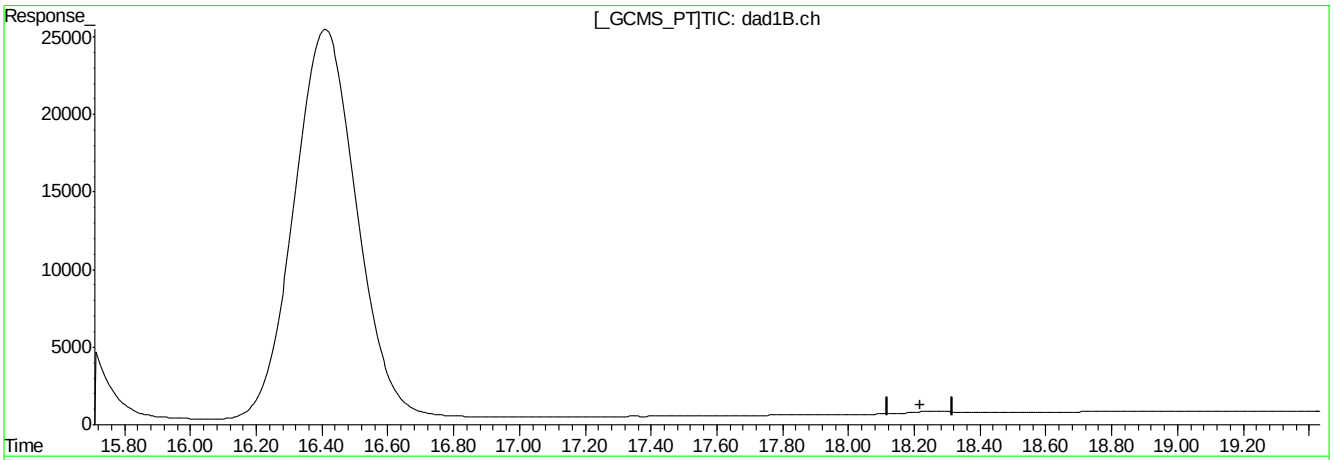
response 3999026

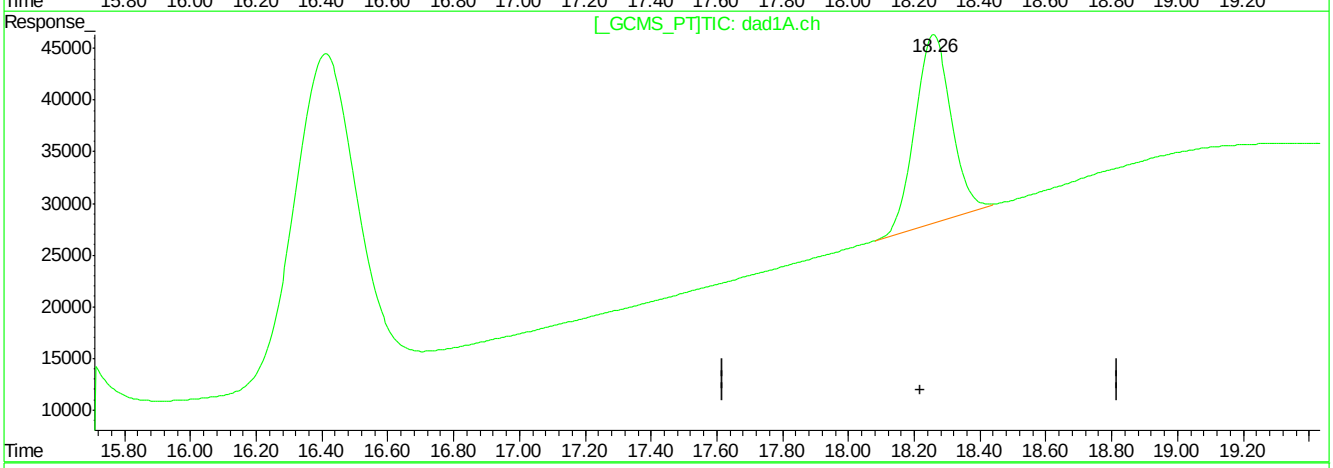
(+) = Expected Retention Time
BB068181.D 8330B_060120_PLUS.M Tue Jun 02 12:00:39 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068181.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068181.D\dad1A.ch
Acq On : 01-Jun-2020, 19:34:05 Operator: williamh
Sample : icc2001-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb d

response 0

(21) PETN #2

18.26min 976.351ppb m

response 1400274

(+) = Expected Retention Time
BB068181.D 8330B_060120_PLUS.M Tue Jun 02 12:00:45 2020

BB068182.D

Manual Integrations APPROVED (compounds with "m" flag)

Naresh Jiawan 06/02/20 14:50

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068182.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068182.D\dad1A.ch
Acq On : 01-Jun-2020, 20:04:05 Operator: williamh
Sample : ic2001-2500 Inst : G1315B
Misc : op80309,GBB2001,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 02 11:41:52 2020 Quant Results File: 8330B_060120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.86	10.86	4690898	8469262	2240.633	2233.967
	Spiked Amount 500.000	Range 70 - 136		Recovery =		448.13%#	446.79%#
	Target Compounds						
1)	TNX	1.34	1.34	6503665	10087469	2852.906	2759.695
2)	HMX	1.47	1.47	4195431	11445986	2176.561	2204.089
3)	DNX	1.71	1.71	2744614	4362956	2138.974	2259.851
4)	MNX	2.29	2.29	5448276	8397037	2534.439	2542.647
5)	RDX	2.90	2.90	4865480	7784946	2256.469	2315.421
6)	1,3,5-Trinitrobe	4.65	4.65	10753448	20620339	2308.782	2316.174
7)	1,3-Dinitrobenze	5.81	5.81	13626249	9327777	2320.828	2323.184
8)	3,5-Dinitroanili	6.18	6.18	10303594	17380253	2293.953	2287.900
9)	Nitrobenzene	7.30	7.30	8042586	7915030	2317.693	2306.963
10)	Nitroglycerin	0.00	8.80	0	3188956	N.D. d	2450.567
11)	Tetryl	9.19	9.19	7714445	12526542	2604.086	2636.627
12)	2,4,6-Trinitroto	9.64	9.64	9598102	11652137	2323.286	2368.223
13)	2-Amino-4,6-Dini	10.00	10.00	8763442	13268820	2301.105	2365.967
14)	4-Amino-2,6-Dini	10.46	10.46	6360083	12871770	2296.033	2368.574
16)	2,4-Dinitrotolue	11.53	11.53	12077158	8069851	2330.910	2558.454
17)	2,6-Dinitrotolue	11.97	11.97	7000120	9226649	2299.426	2457.711
18)	o-Nitrotoluene	14.97	14.96	5777143	8389875	2411.631	2569.832m
19)	p-Nitrotoluene	15.54	15.54	8831931	7714053	2337.796	2443.069
20)	m-Nitrotoluene	16.42	16.42	8622616	10543830	2520.910	2631.026m
21)	PETN	0.00	18.26	0	3626472	N.D. d	2470.014m

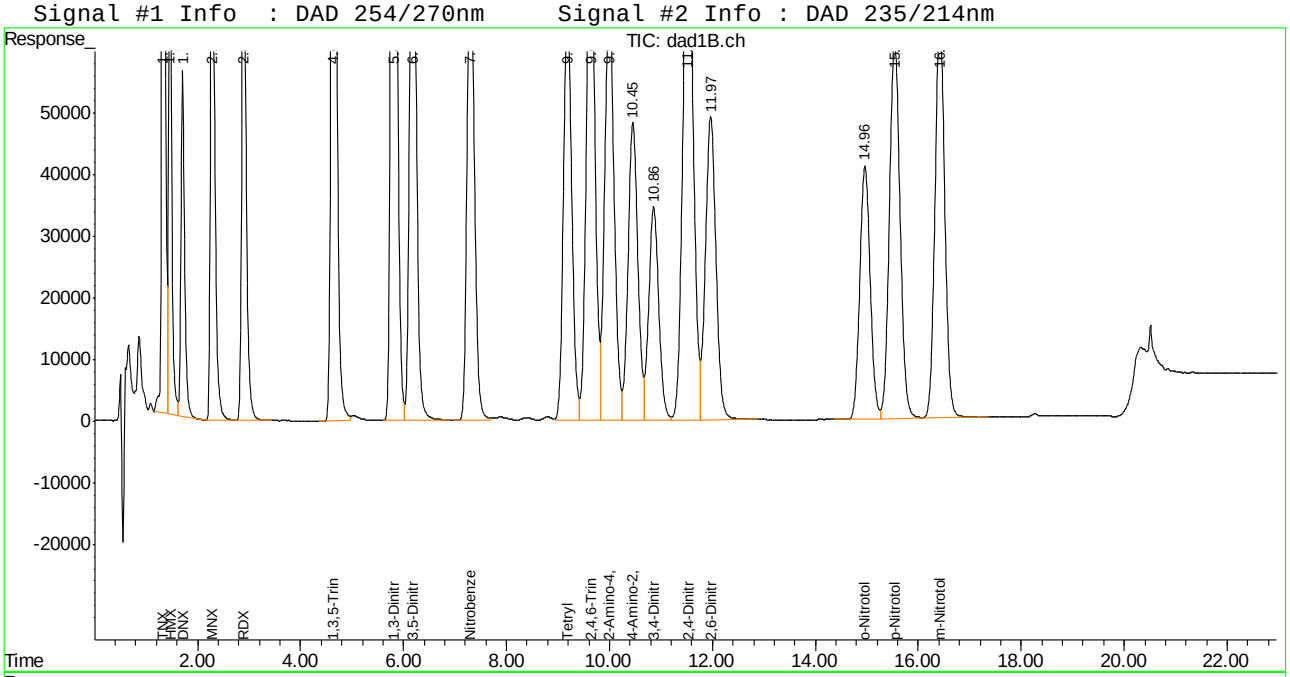
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB068182.D 8330B_060120_PLUS.M Tue Jun 02 13:34:35 2020 Page 1

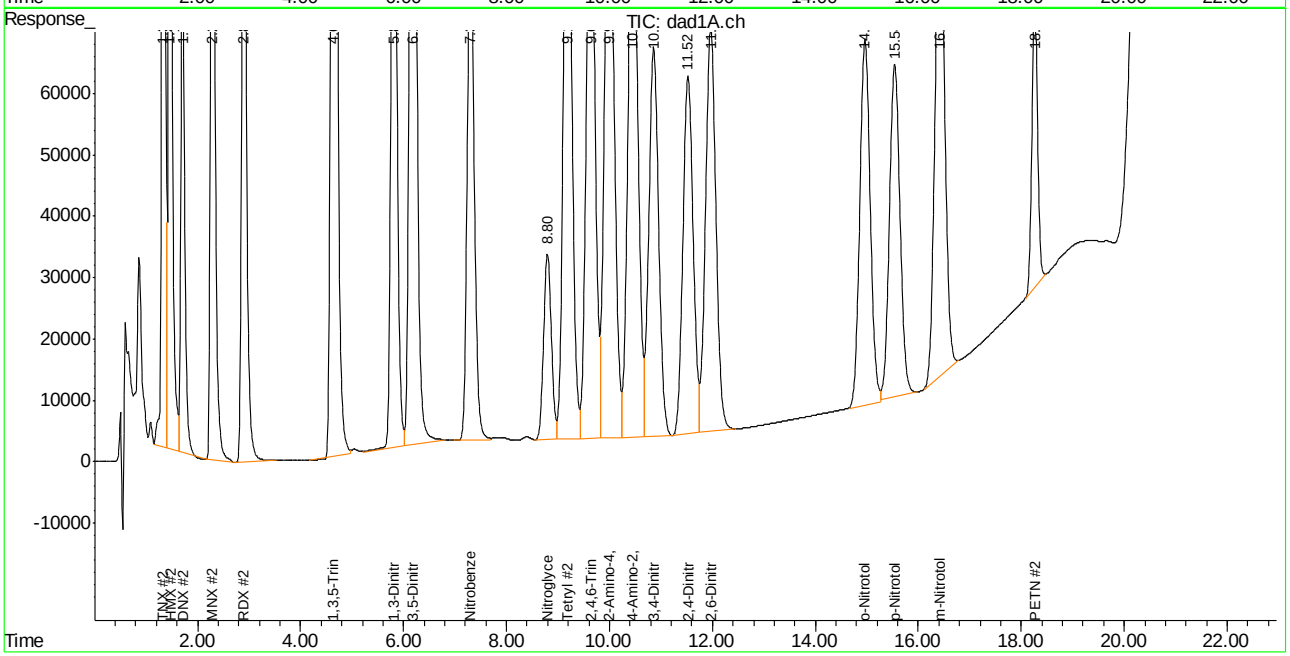
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068182.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068182.D\dad1A.ch
Acq On : 01-Jun-2020, 20:04:05 Operator: williamh
Sample : ic2001-2500 Inst : G1315B
Misc : op80309,GBB2001,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 12:01 2020 Quant Results File: 8330B_060120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

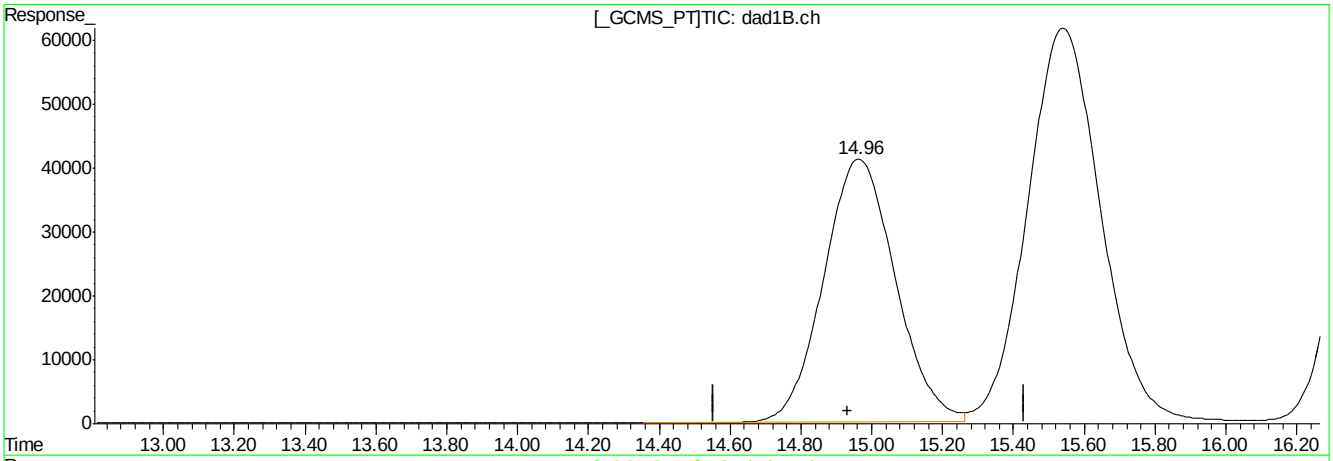
Sample Number: GBB2001-IC2001
Lab FileID: BB068182.D
Injection Time: 06/01/20 20:04
Method: SW846 8330B
Analyst approved: 06/02/20 13:46 William Hustedde
Supervisor approved: 06/02/20 14:50 Naresh Jiawan

Parameter	CAS	Sig#	R.T. (min.)	Reason
o-Nitrotoluene	88-72-2	2	14.96	Poor instrument integration
m-Nitrotoluene	99-08-1	2	16.42	Poor instrument integration
PETN	78-11-5	2	18.26	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068182.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068182.D\dad1A.ch
Acq On : 01-Jun-2020, 20:04:05 Operator: williamh
Sample : ic2001-2500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration



(18) o-Nitrotoluene

14.97min 2411.631ppb

response 5777143

(18) o-Nitrotoluene #2

14.96min 2569.832ppb m

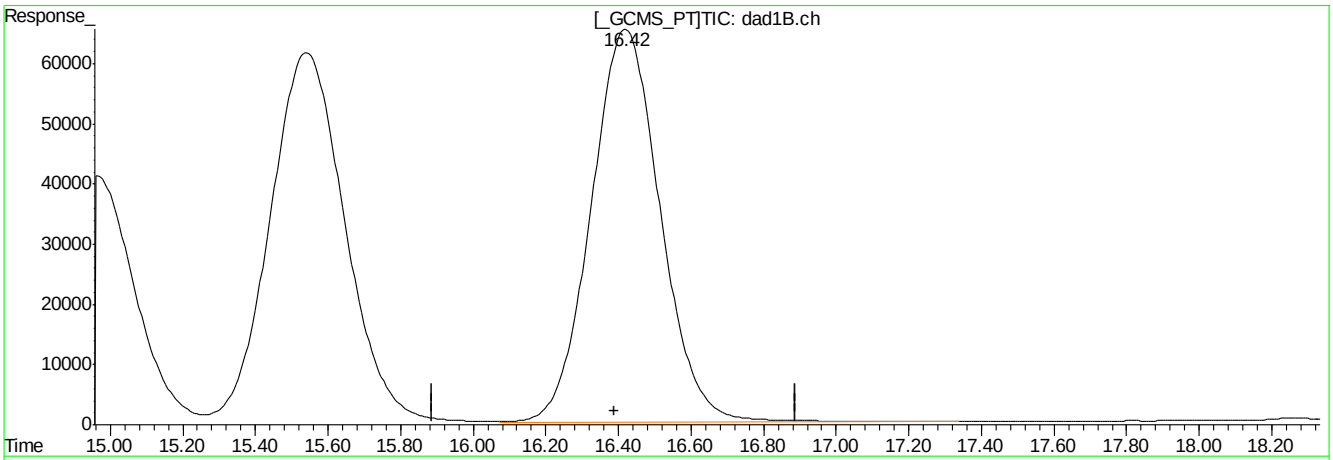
response 8389875

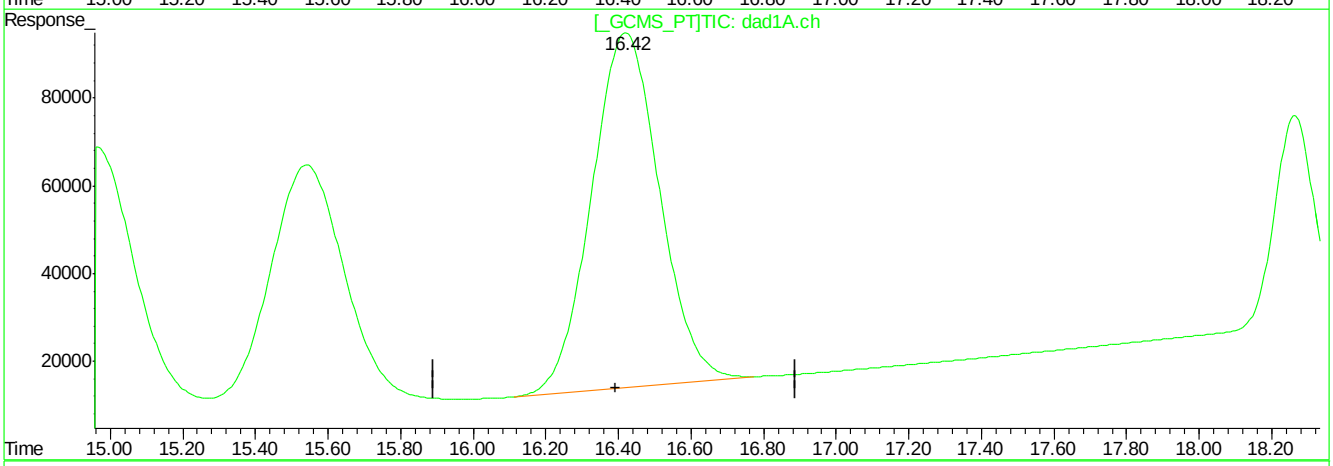
(+) = Expected Retention Time
BB068182.D 8330B_060120_PLUS.M Tue Jun 02 12:01:18 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068182.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068182.D\dad1A.ch
Acq On : 01-Jun-2020, 20:04:05 Operator: williamh
Sample : ic2001-2500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(20) m-Nitrotoluene

16.42min 2520.910ppb

response 8622616

(20) m-Nitrotoluene #2

16.42min 2631.026ppb m

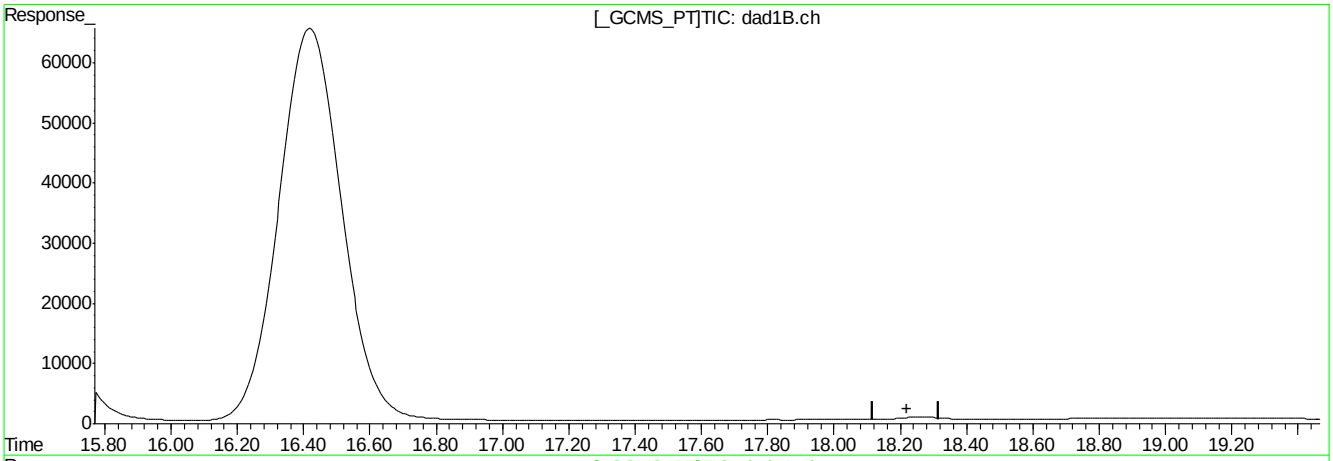
response 10543830

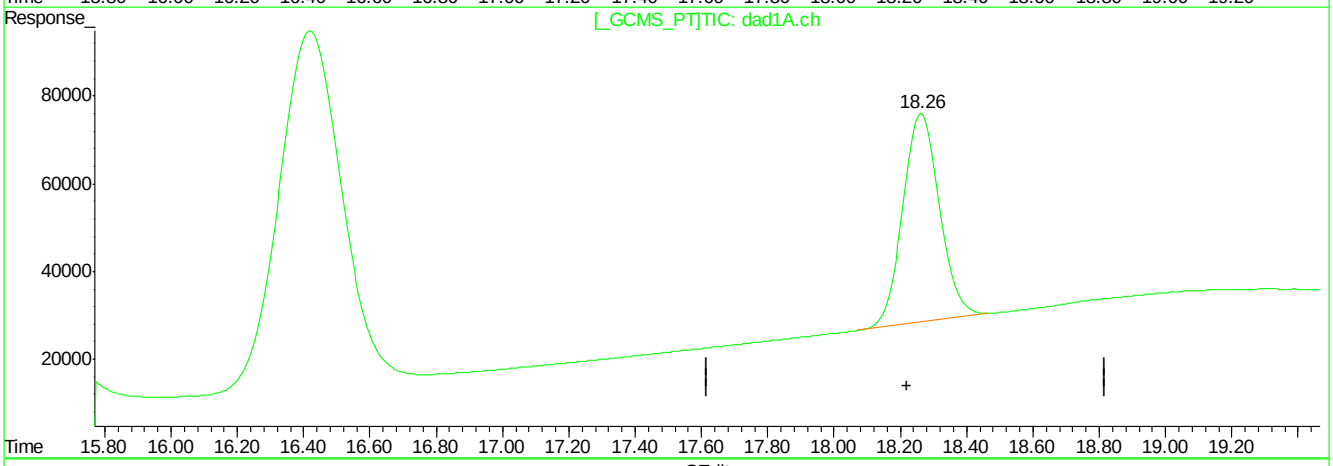
(+) = Expected Retention Time
BB068182.D 8330B_060120_PLUS.M Tue Jun 02 12:01:25 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068182.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068182.D\dad1A.ch
Acq On : 01-Jun-2020, 20:04:05 Operator: williamh
Sample : ic2001-2500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb d

response 0

(21) PETN #2

18.26min 2470.014ppb m

response 3626472

(+) = Expected Retention Time
BB068182.D 8330B_060120_PLUS.M Tue Jun 02 12:01:32 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 06/02/20 14:50

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068183.D\dad1B.ch Vial: 9
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068183.D\dad1A.ch
Acq On : 01-Jun-2020, 20:34:02 Operator: williamh
Sample : ic2001-5000 Inst : G1315B
Misc : op80309,GBB2001,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 02 11:41:53 2020 Quant Results File: 8330B_060120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.86	10.86	9346998	16873939	4424.417	4450.898
	Spiked Amount 500.000	Range 70 - 136		Recovery =		884.88%#	890.18%#
	Target Compounds						
1)	TNX	1.34	1.34	12791573	19742964	5611.169	5401.213
2)	HMX	1.47	1.47	8194241	22184778	4251.116	4271.997
3)	DNX	1.71	1.71	5387626	8499308	4198.767	4498.562
4)	MNX	2.29	2.29	10703103	16467661	4978.889	4986.455
5)	RDX	2.90	2.90	9571577	15279630	4439.021	4544.512
6)	1,3,5-Trinitrobe	4.65	4.65	21189522	41001256	4549.424	4605.455
7)	1,3-Dinitrobenze	5.81	5.81	26821984	18310809	4568.330	4560.506
8)	3,5-Dinitroanili	6.18	6.18	20313647	34044153	4522.554	4481.500
9)	Nitrobenzene	7.30	7.30	15860375	15618336	4570.604	4552.216
10)	Nitroglycerin	0.00	8.79	0	6247585	N.D. d	4800.982
11)	Tetryl	9.18	9.18	15097360	24506032	5290.543	5158.108
12)	2,4,6-Trinitroto	9.64	9.64	18956434	23058535	4588.533	4686.500
13)	2-Amino-4,6-Dini	9.99	9.99	17299840	26205629	4542.593	4672.733
14)	4-Amino-2,6-Dini	10.45	10.45	12534799	25375508	4525.147	4669.425
16)	2,4-Dinitrotolue	11.52	11.52	23841738	15941659	4601.492	5054.120
17)	2,6-Dinitrotolue	11.97	11.97	13833289	18223987	4544.011	4854.341
18)	o-Nitrotoluene	14.96	14.96	11314599	16161307	4723.206	4950.235
19)	p-Nitrotoluene	15.54	15.54	17366338	15182835	4596.838	4808.459
20)	m-Nitrotoluene	16.42	16.42	16953368	20661012	4956.490	5055.032
21)	PETN	0.00	18.26	0	7096447	N.D. d	4673.722m

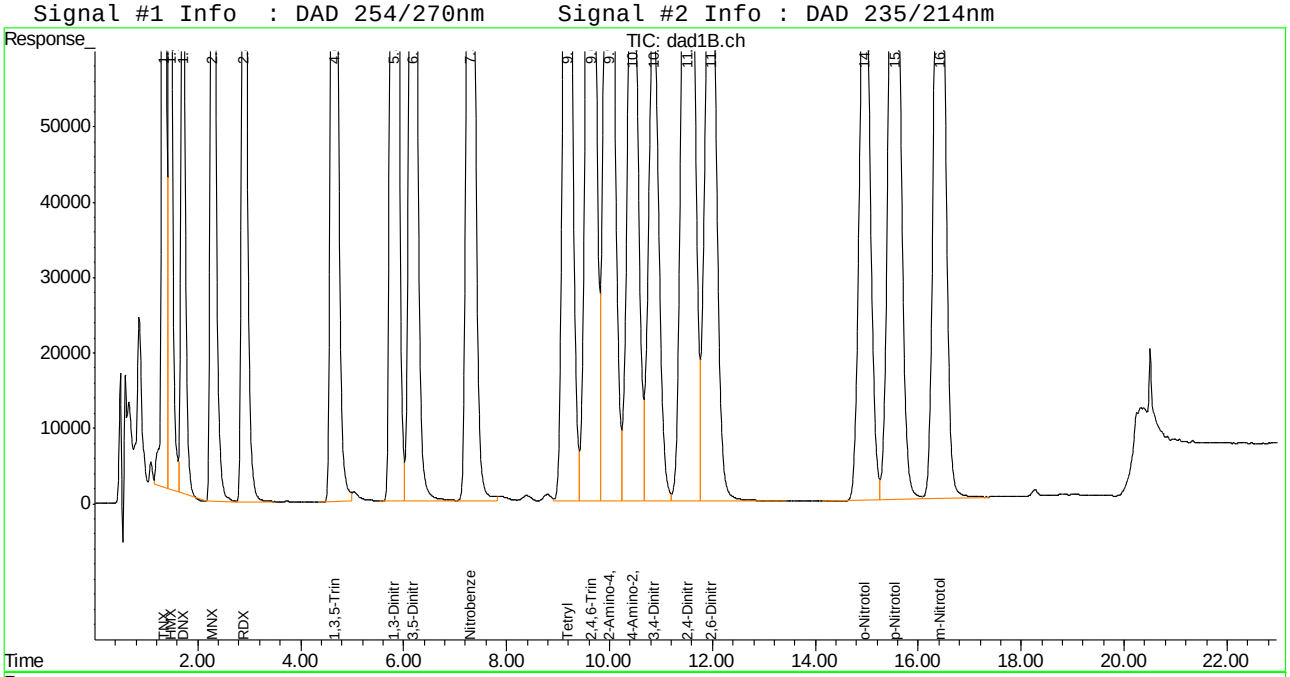
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB068183.D 8330B_060120_PLUS.M Tue Jun 02 13:34:36 2020 Page 1

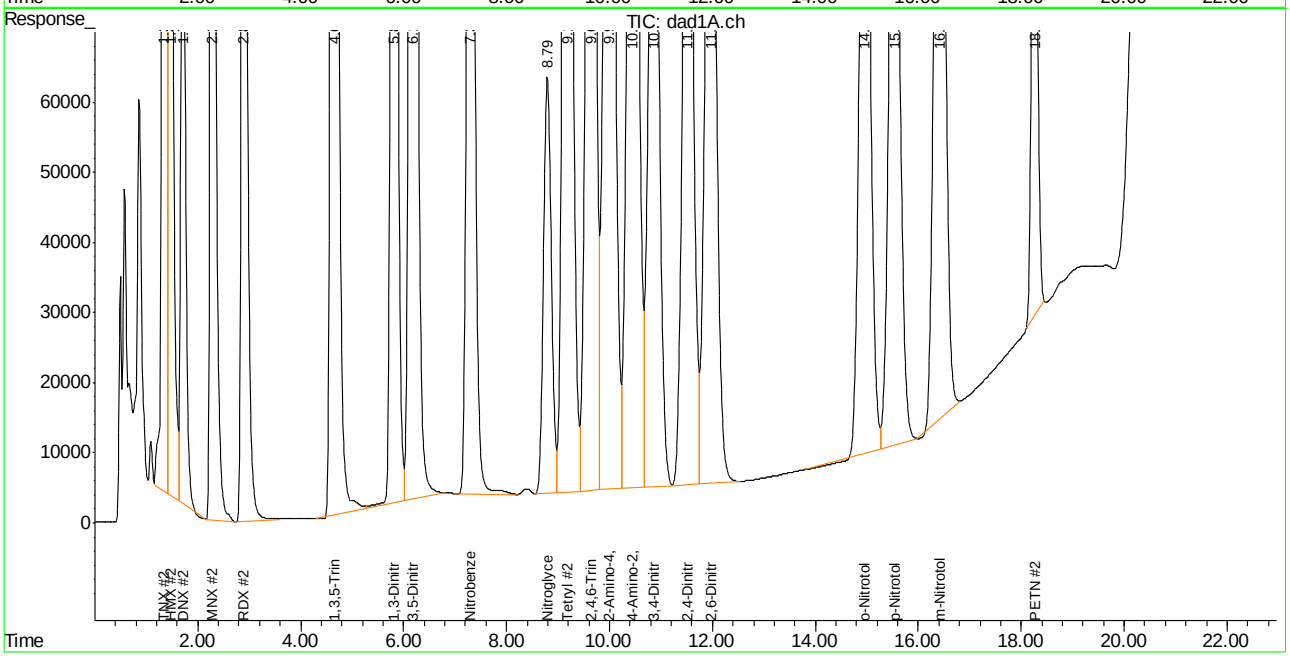
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068183.D\dad1B.ch Vial: 9
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068183.D\dad1A.ch
Acq On : 01-Jun-2020, 20:34:02 Operator: williamh
Sample : ic2001-5000 Inst : G1315B
Misc : op80309,GBB2001,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 12:02 2020 Quant Results File: 8330B_060120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

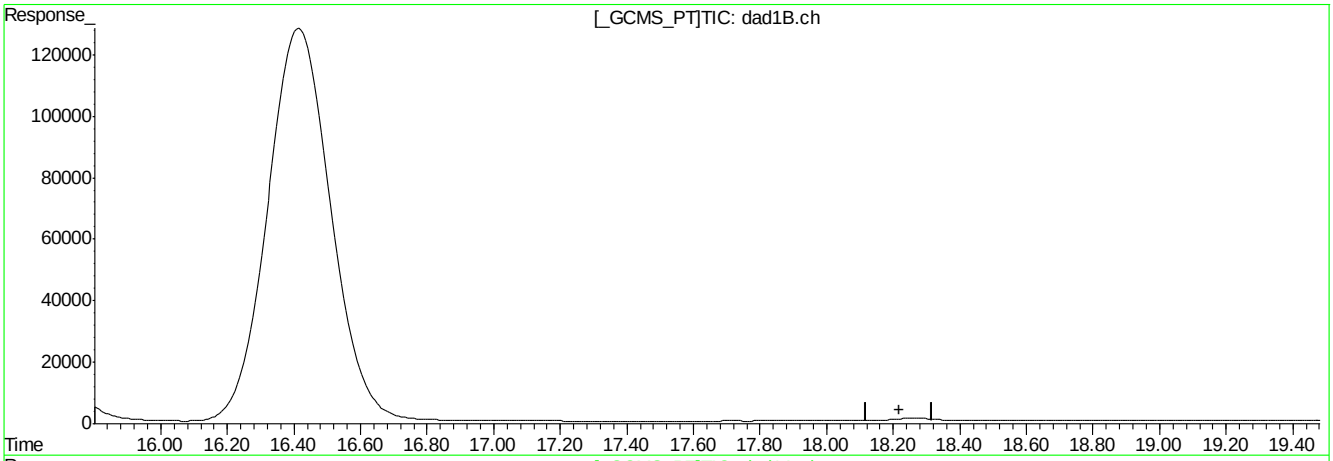
Sample Number: GBB2001-IC2001
Lab FileID: BB068183.D
Injection Time: 06/01/20 20:34
Method: SW846 8330B
Analyst approved: 06/02/20 13:46 William Hustedde
Supervisor approved: 06/02/20 14:50 Naresh Jiawan

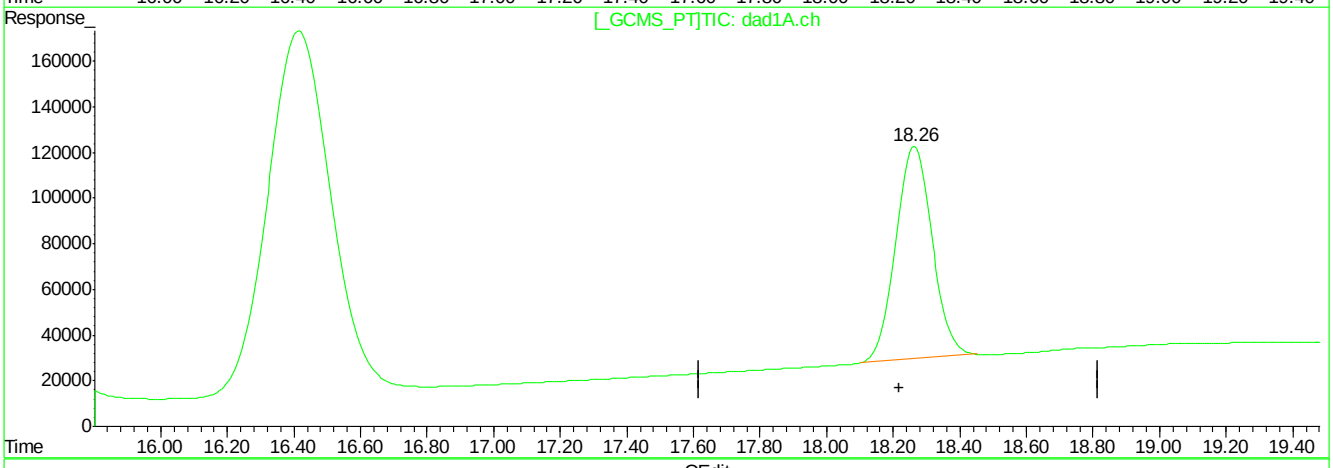
Parameter	CAS	Sig#	R.T. (min.)	Reason
PETN	78-11-5	2	18.26	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068183.D\dad1B.ch Vial: 9
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068183.D\dad1A.ch
Acq On : 01-Jun-2020, 20:34:02 Operator: williamh
Sample : ic2001-5000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 11:41 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jun 01 11:07:06 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb d

response 0

(21) PETN #2

18.26min 4673.722ppb m

response 7096447

(+) = Expected Retention Time
BB068183.D 8330B_060120_PLUS.M Tue Jun 02 12:02:13 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
06/02/20 14:50

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068184.D\dad1B.ch Vial: 10
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068184.D\dad1A.ch
Acq On : 01-Jun-2020, 21:04:02 Operator: williamh
Sample : icv2001-1000 Inst : G1315B
Misc : op80309,GBB2001,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 02 12:03:34 2020 Quant Results File: 8330B_060120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Jun 02 12:03:17 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	0.00	0.00	0	0	N.D.	N.D.
Spiked Amount	500.000	Range	70 - 136	Recovery	=	0.00%#	0.00%#
	Target Compounds						
1)	TNX	1.34	1.34	2594207	4039833	1142.044	1092.279
2)	HMX	1.47	1.47	1636353	4484394	1107.219m	1093.962m
3)	DNX	1.71	1.71	1058452	1720115	1043.801m	982.130m
4)	MNX	2.29	2.29	2253210	3500312	1038.027	1066.353
5)	RDX	2.90	2.90	1986533	3226778	1047.367	1069.245
6)	1,3,5-Trinitrobe	4.65	4.65	4083842	7755652	975.162	969.652
7)	1,3-Dinitrobenze	5.82	5.82	5478334	3786247	1021.950	1040.753
8)	3,5-Dinitroanili	6.18	6.18	4141869	7093810	1020.581	1025.724
9)	Nitrobenzene	7.31	7.31	3226748	3175630	1029.429	1012.545
10)	Nitroglycerin	0.00	8.81	0	1413891	N.D. d	1131.917
11)	Tetryl	9.19	9.19	3047706	4964538	999.721	1011.652
12)	2,4,6-Trinitroto	9.64	9.64	4024666	4921339	1059.790	1094.082
13)	2-Amino-4,6-Dini	10.01	10.01	3464770	5254398	1002.459	1021.530
14)	4-Amino-2,6-Dini	10.46	10.46	2564572	5165922	1016.102	1044.431
16)	2,4-Dinitrotolue	11.53	11.53	4861803	3266048	1033.570	1100.080
17)	2,6-Dinitrotolue	11.97	11.97	2849886	3763094	1041.458	1092.978
18)	o-Nitrotoluene	14.97	14.97	2347459	3369215	1045.792	1048.065m
19)	p-Nitrotoluene	15.55	15.55	3567082	3149275	1028.804	1092.479
20)	m-Nitrotoluene	16.43	16.43	3442591	3964610	1034.485	1086.305
21)	PETN	0.00	18.27	0	1498843	N.D. d	1114.167m

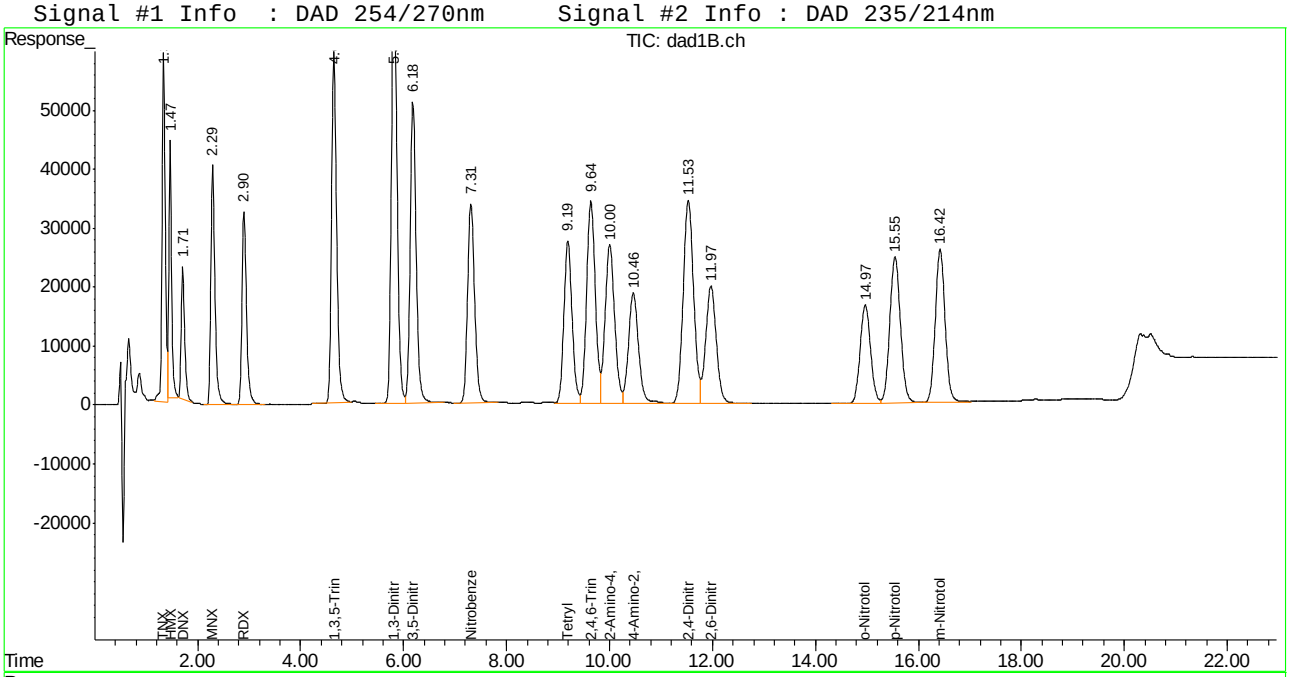
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB068184.D 8330B_060120_PLUS.M Tue Jun 02 13:34:37 2020 Page 1

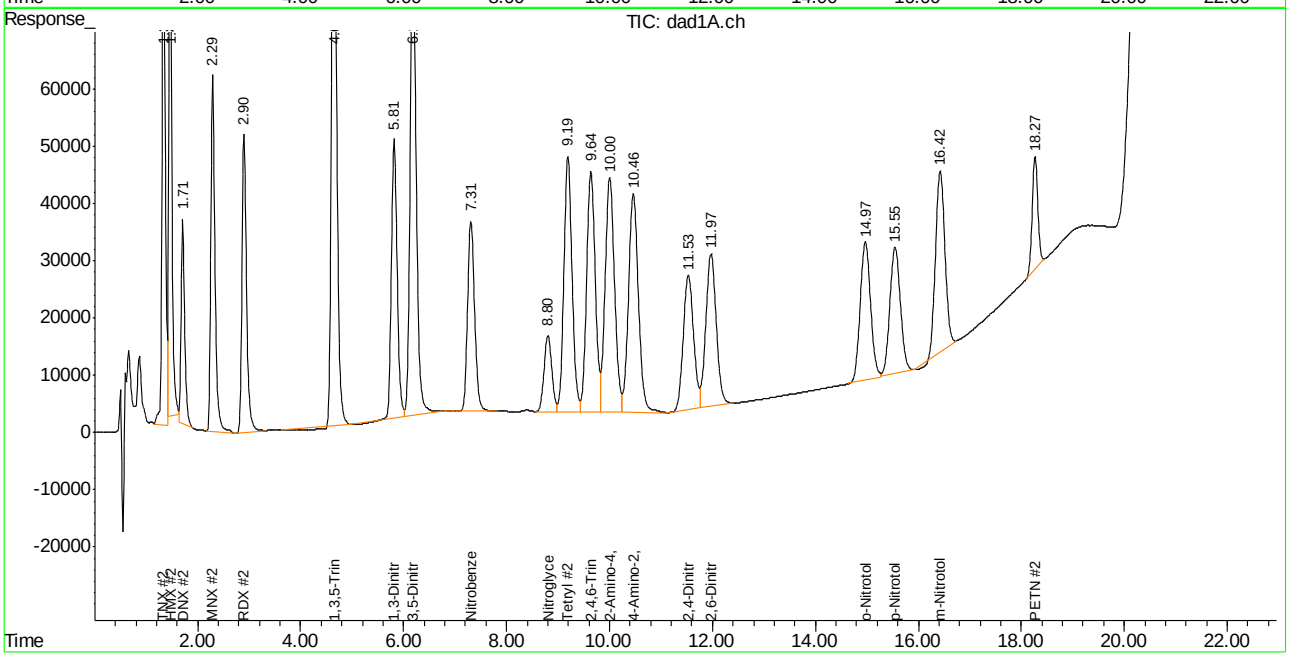
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068184.D\dad1B.ch Vial: 10
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068184.D\dad1A.ch
Acq On : 01-Jun-2020, 21:04:02 Operator: williamh
Sample : icv2001-1000 Inst : G1315B
Misc : op80309,GBB2001,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 13:22 2020 Quant Results File: 8330B_060120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Jun 02 12:03:17 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

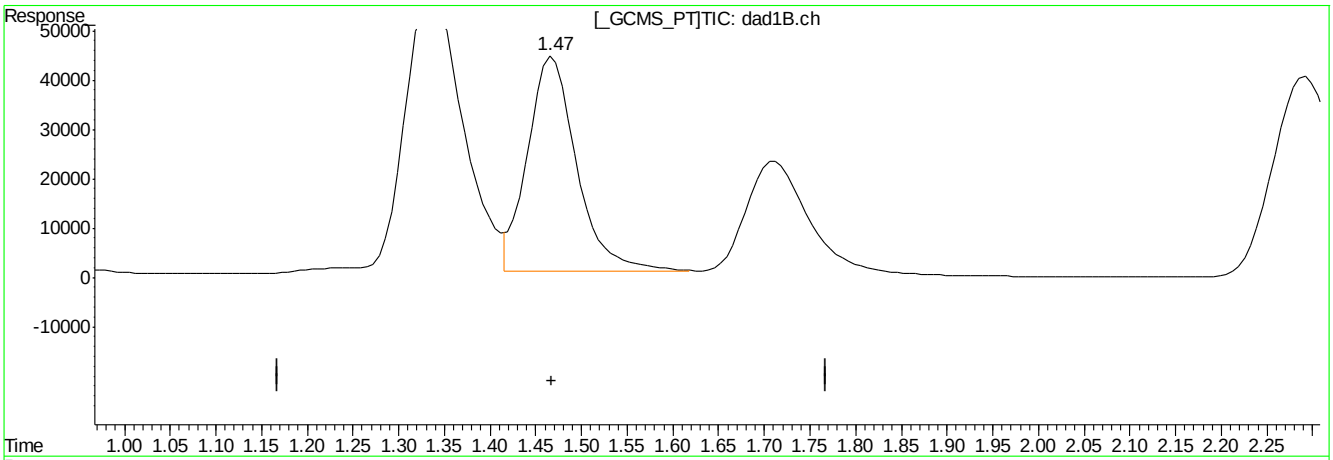
Sample Number: GBB2001-ICV2001 **Method:** SW846 8330B
Lab FileID: BB068184.D **Analyst approved:** 06/02/20 13:46 William Hustedde
Injection Time: 06/01/20 21:04 **Supervisor approved:** 06/02/20 14:50 Naresh Jiawan

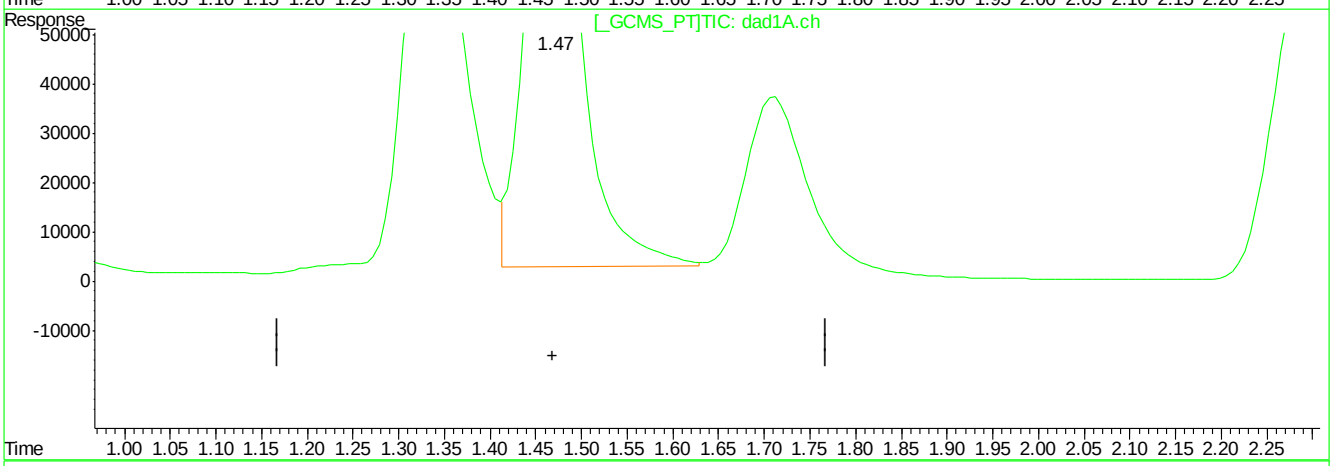
Parameter	CAS	Sig#	R.T. (min.)	Reason
HMX	2691-41-0	1	1.47	Poor instrument integration
HMX	2691-41-0	2	1.47	Poor instrument integration
DNX		1	1.71	Poor instrument integration
DNX		2	1.71	Poor instrument integration
o-Nitrotoluene	88-72-2	2	14.97	Poor instrument integration
PETN	78-11-5	2	18.27	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068184.D\dad1B.ch Vial: 10
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068184.D\dad1A.ch
Acq On : 01-Jun-2020, 21:04:02 Operator: williamh
Sample : icv2001-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 12:03 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Jun 02 12:03:17 2020
Response via : Multiple Level Calibration





QEdit

(2) HMX

1.47min 1107.219ppb m

response 1636353

(2) HMX #2

1.47min 1093.962ppb m

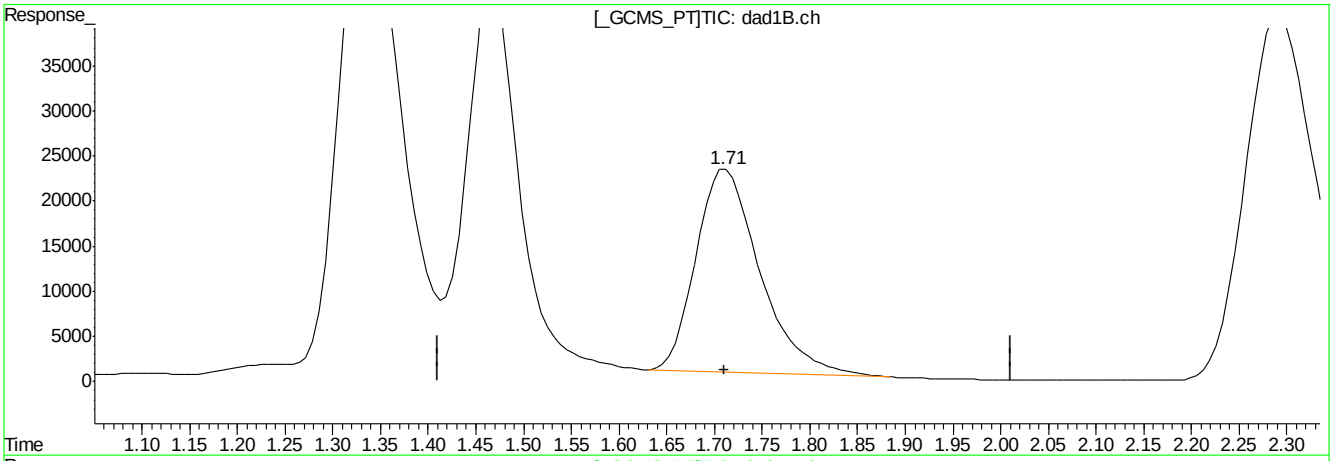
response 4484394

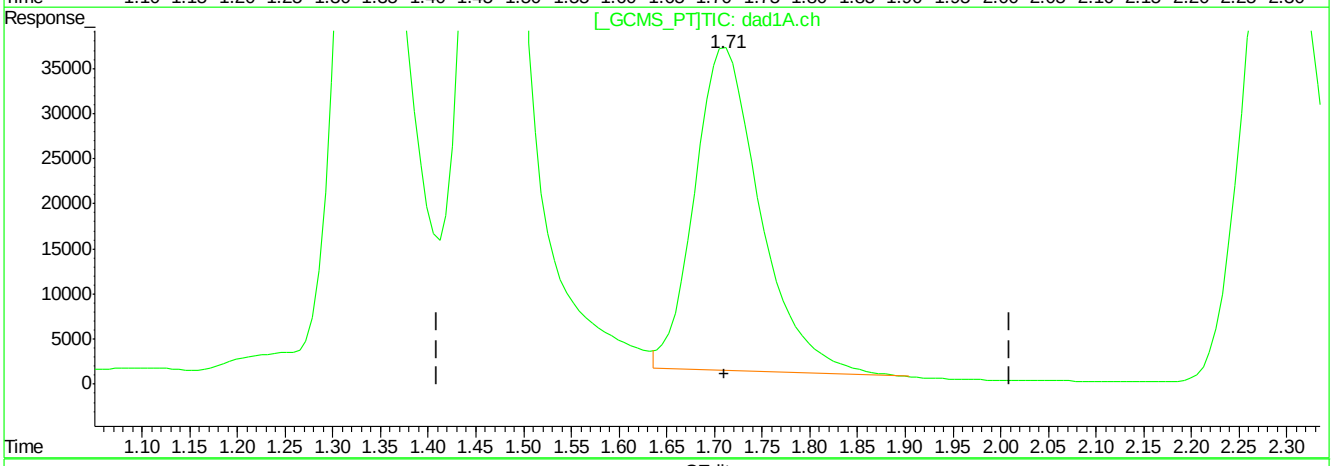
(+) = Expected Retention Time
BB068184.D 8330B_060120_PLUS.M Tue Jun 02 13:22:14 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068184.D\dad1B.ch Vial: 10
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068184.D\dad1A.ch
Acq On : 01-Jun-2020, 21:04:02 Operator: williamh
Sample : icv2001-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 12:03 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Jun 02 12:03:17 2020
Response via : Multiple Level Calibration





QEdit

(3) DNX

1.71min 1043.801ppb m

response 1058452

(3) DNX #2

1.71min 982.130ppb m

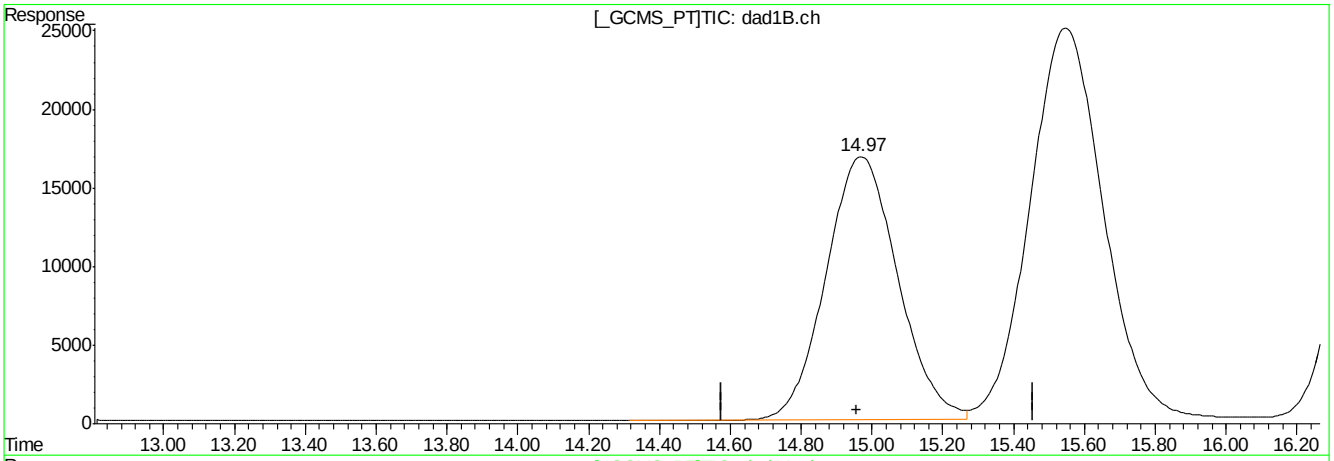
response 1720115

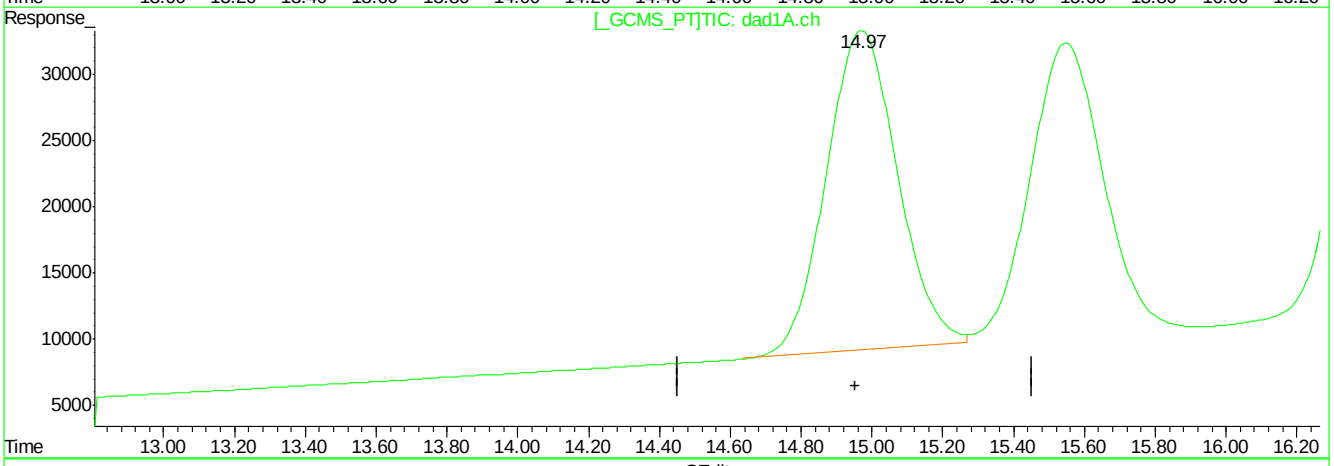
(+) = Expected Retention Time
BB068184.D 8330B_060120_PLUS.M Tue Jun 02 13:22:24 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068184.D\dad1B.ch Vial: 10
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068184.D\dad1A.ch
Acq On : 01-Jun-2020, 21:04:02 Operator: williamh
Sample : icv2001-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 12:03 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Jun 02 12:03:17 2020
Response via : Multiple Level Calibration





QEdit

(18) o-Nitrotoluene

14.97min 1045.792ppb

response 2347459

(18) o-Nitrotoluene #2

14.97min 1048.065ppb m

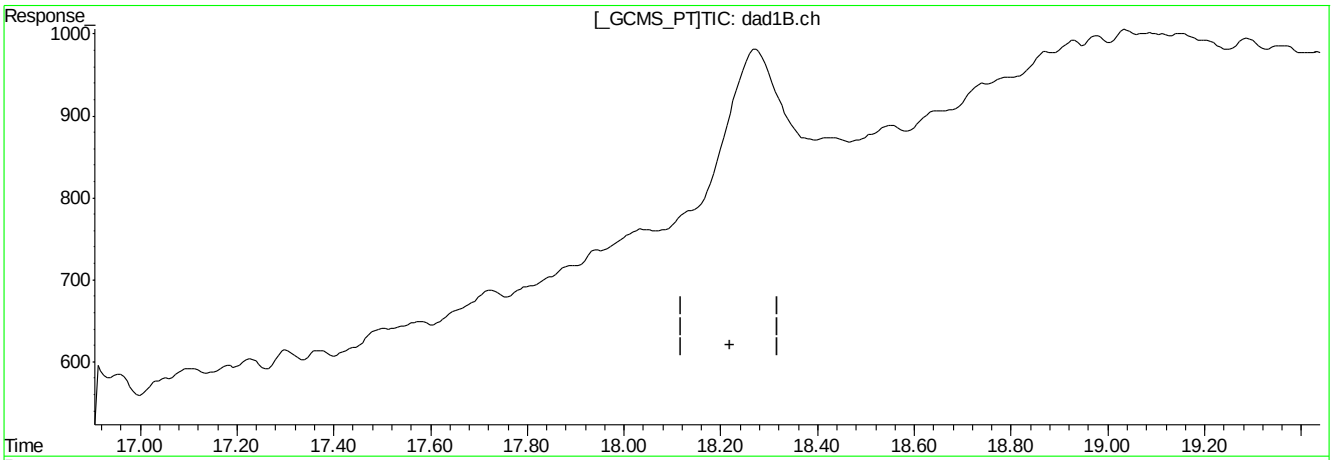
response 3369215

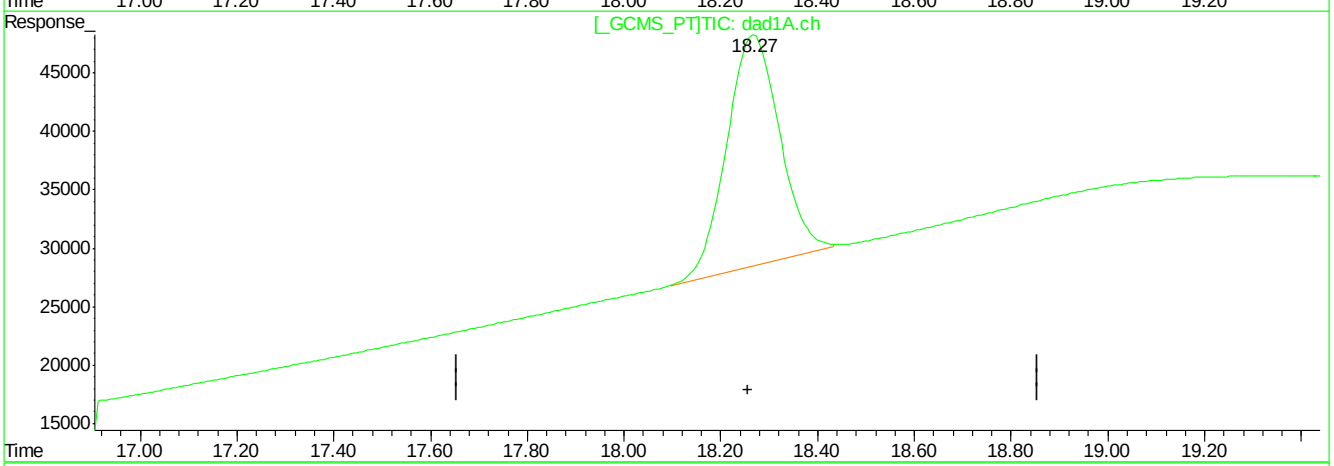
(+) = Expected Retention Time
BB068184.D 8330B_060120_PLUS.M Tue Jun 02 13:22:45 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2001\BB068184.D\dad1B.ch Vial: 10
Signal #2 : C:\HPCHEM\2\DATA\GBB2001\BB068184.D\dad1A.ch
Acq On : 01-Jun-2020, 21:04:02 Operator: williamh
Sample : icv2001-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jun 2 12:03 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Tue Jun 02 12:03:17 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb d

response 0

(21) PETN #2

18.27min 1114.167ppb m

response 1498843

(+) = Expected Retention Time
BB068184.D 8330B_060120_PLUS.M Tue Jun 02 13:22:59 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
07/29/20 15:09

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068453.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068453.D\dad1A.ch
Acq On : 27-Jul-2020, 19:21:08 Operator: williamh
Sample : cc2001-1000 Inst : G1315B
Misc : op81252,GBB2008,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jul 28 10:04:48 2020 Quant Results File: 8330B_060120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.78	10.78	1960156	3477035	1049.651	1094.734
	Spiked Amount 500.000	Range 70 - 136		Recovery =		209.93%#	218.95%#
	Target Compounds						
1)	TNX	1.34	1.34	2293732	3564123	1009.766	963.658
2)	HMX	1.47	1.47	1592515	4298435	1077.557	1048.597
3)	DNX	1.71	1.71	997339	1585441	983.534	904.735
4)	MNX	2.28	2.28	2054232	3202892	946.361	975.746
5)	RDX	2.89	2.89	1834867	2994767	967.403	992.365
6)	1,3,5-Trinitrobe	4.64	4.64	3932887	7264613	939.116	908.260
7)	1,3-Dinitrobenze	5.80	5.80	5130726	3599061	957.105	989.300
8)	3,5-Dinitroanili	6.15	6.15	3855850	6678216	950.105	965.632
9)	Nitrobenzene	7.26	7.26	2993520	2946387	955.022	939.451
10)	Nitroglycerin	0.00	8.73	0	1186898	N.D.	950.194 #
11)	Tetryl	9.14	9.14	2502835	4016989	820.990	818.564
12)	2,4,6-Trinitroto	9.58	9.58	3525000	4252317	928.216	945.349
13)	2-Amino-4,6-Dini	9.92	9.92	3313172	4985089	958.598	969.173
14)	4-Amino-2,6-Dini	10.36	10.36	2378913	4780245	942.543	966.456
16)	2,4-Dinitrotolue	11.43	11.43	4490071	2866573	954.543	965.528
17)	2,6-Dinitrotolue	11.86	11.86	2684042	3489734	980.853	1013.582
18)	o-Nitrotoluene	14.84	14.84	2037700	3059448	907.795	951.706
19)	p-Nitrotoluene	15.42	15.42	3283558	2880682	947.031	999.305
20)	m-Nitrotoluene	16.31	16.31	3184322	3656858	956.876	1001.981
21)	PETN	0.00	18.24	0	1342585	N.D. d	998.013m

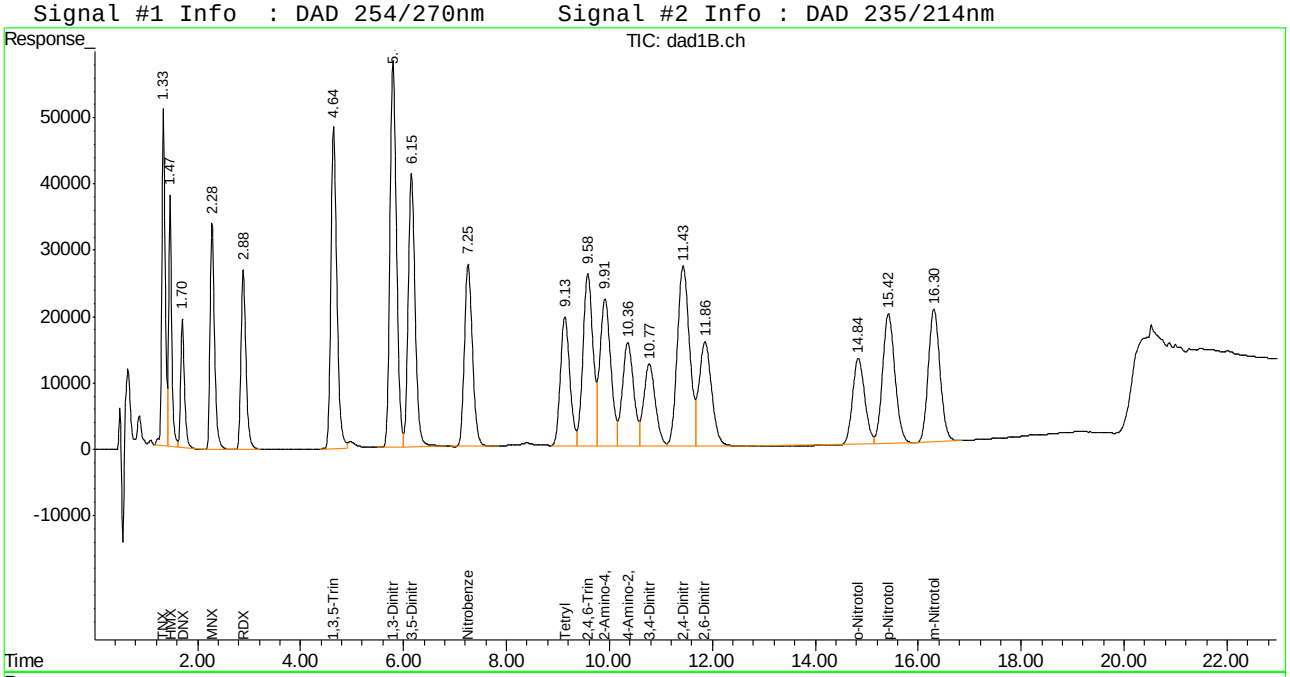
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB068453.D 8330B_060120_PLUS.M Tue Jul 28 15:18:02 2020 Page 1

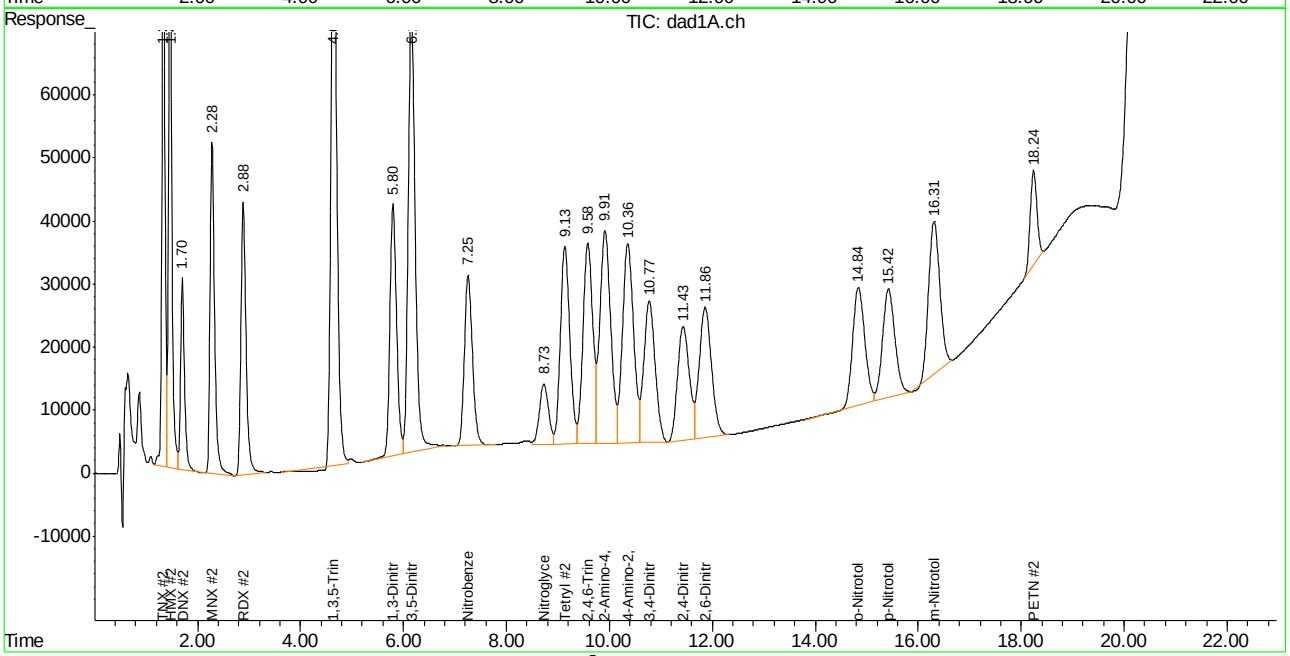
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068453.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068453.D\dad1A.ch
Acq On : 27-Jul-2020, 19:21:08 Operator: williamh
Sample : cc2001-1000 Inst : G1315B
Misc : op81252,GBB2008,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jul 28 14:58 2020 Quant Results File: 8330B_060120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

Sample Number: GBB2008-CC2001
Lab FileID: BB068453.D
Injection Time: 07/27/20 19:21

Method: SW846 8330B
Analyst approved: 07/28/20 15:29 William Hustedde
Supervisor approved: 07/29/20 15:09 Naresh Jiawan

Parameter	CAS	Sig#	R.T. (min.)	Reason
PETN	78-11-5	2	18.24	Poor instrument integration

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
07/29/20 15:09

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068464.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068464.D\dad1A.ch
Acq On : 28-Jul-2020, 00:51:00 Operator: williamh
Sample : ecc2001-1000 Inst : G1315B
Misc : op81252,GBB2008,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jul 28 10:04:59 2020 Quant Results File: 8330B_060120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.75	10.75	1939861	3438409	1038.784	1082.573
	Spiked Amount 500.000	Range 70 - 136		Recovery =		207.76%#	216.51%#
	Target Compounds						
1)	TNX	1.33	1.33	2296985	3561529	1011.198	962.956
2)	HMX	1.46	1.47	1616373	4387961	1093.700	1070.437
3)	DNX	1.70	1.70	1003787	1627964	989.893	929.163
4)	MNX	2.27	2.27	2035097	3168628	937.545	965.308
5)	RDX	2.87	2.87	1831110	2962689	965.423	981.735
6)	1,3,5-Trinitrobe	4.63	4.63	3891381	7250830	929.205	906.537
7)	1,3-Dinitrobenze	5.78	5.78	5114304	3562448	954.042	979.236
8)	3,5-Dinitroanili	6.13	6.13	3861263	6658848	951.438	962.831
9)	Nitrobenzene	7.24	7.24	2984415	2921453	952.117	931.501
10)	Nitroglycerin	0.00	8.71	0	1145597	N.D.	917.130 #
11)	Tetryl	9.11	9.11	2460662	3942441	807.157	803.373
12)	2,4,6-Trinitroto	9.56	9.56	3491997	4195429	919.526	932.702
13)	2-Amino-4,6-Dini	9.89	9.89	3302568	4976475	955.529	967.498
14)	4-Amino-2,6-Dini	10.33	10.33	2366744	4758190	937.721	961.997
16)	2,4-Dinitrotolue	11.41	11.41	4475659	2843503	951.479	957.757
17)	2,6-Dinitrotolue	11.83	11.84	2667873	3494357	974.944	1014.925
18)	o-Nitrotoluene	14.81	14.81	2024196	3050636	901.779	948.965
19)	p-Nitrotoluene	15.40	15.40	3268933	2894183	942.814	1003.988
20)	m-Nitrotoluene	16.28	16.29	3168988	3661359	952.268	1003.214
21)	PETN	0.00	18.23	0	1356705	N.D. d	1008.509m

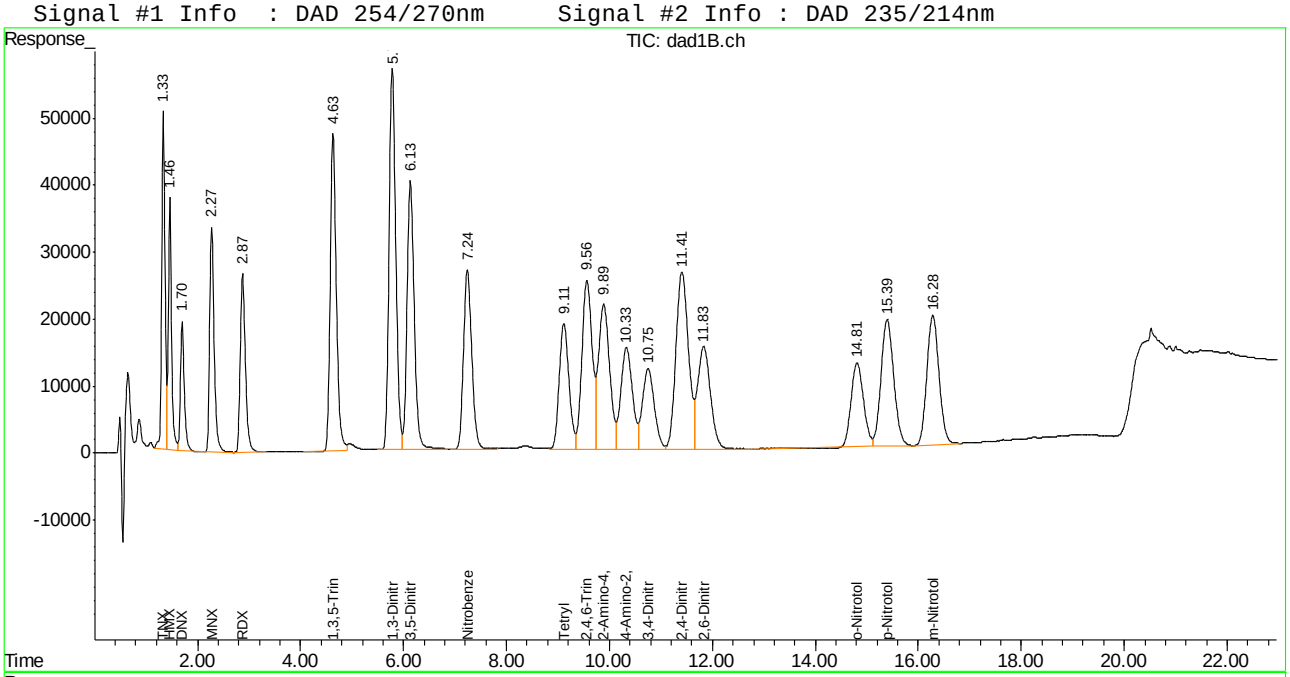
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

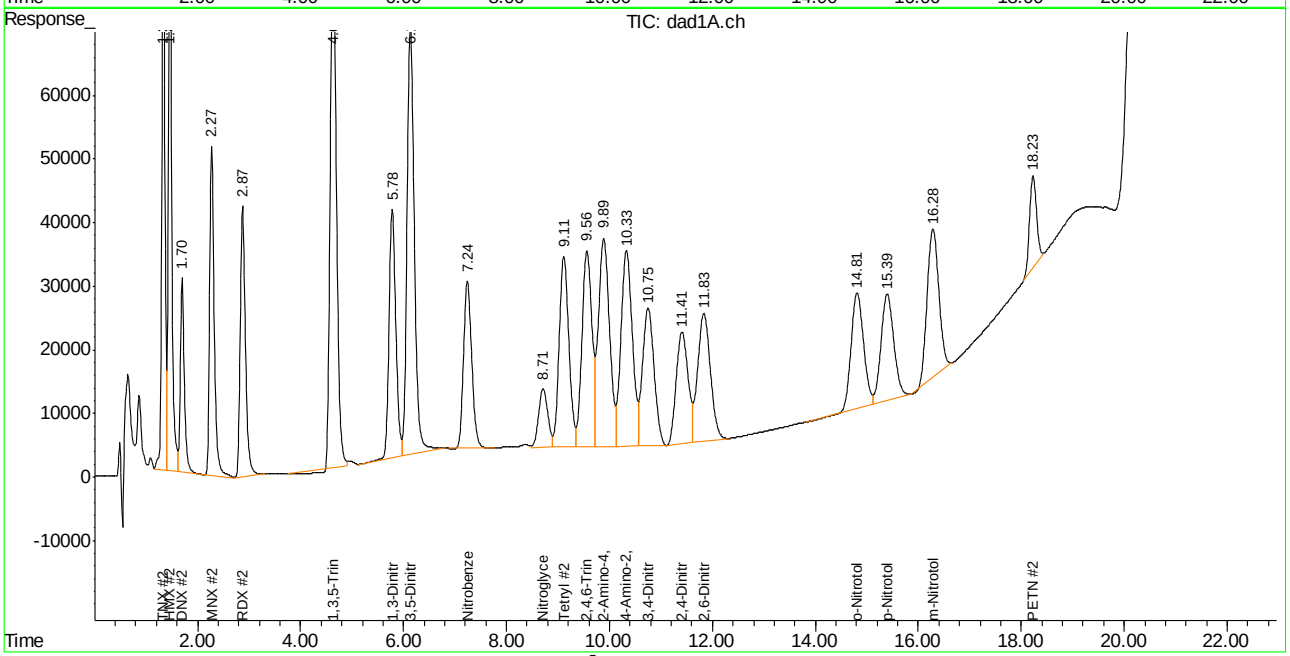
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068464.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068464.D\dad1A.ch
Acq On : 28-Jul-2020, 00:51:00 Operator: williamh
Sample : ecc2001-1000 Inst : G1315B
Misc : op81252,GBB2008,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jul 28 14:59 2020 Quant Results File: 8330B_060120_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

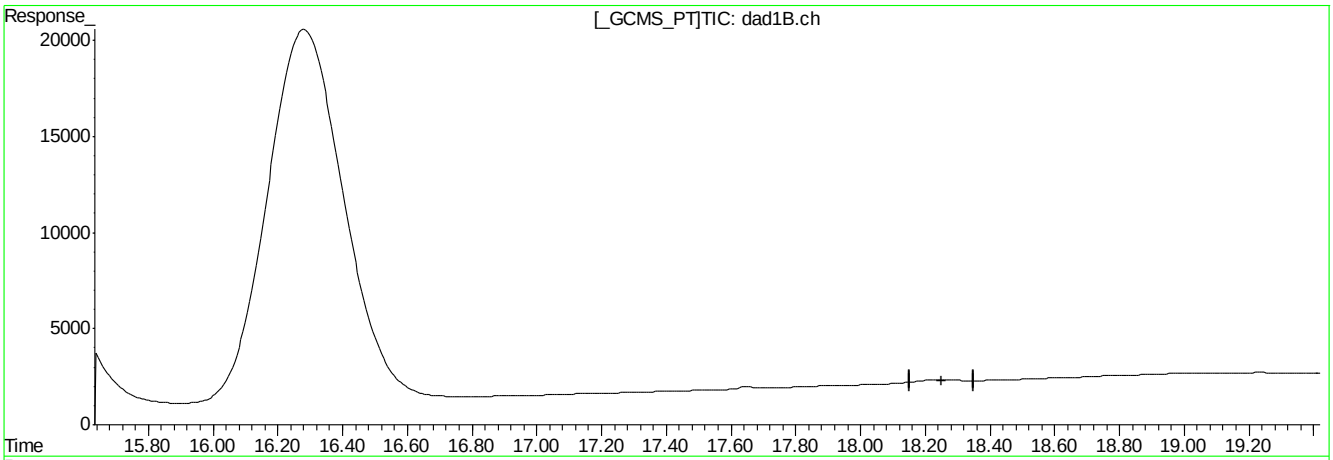
Sample Number: GBB2008-ECC2001 **Method:** SW846 8330B
Lab FileID: BB068464.D **Analyst approved:** 07/28/20 15:29 William Hustedde
Injection Time: 07/28/20 00:51 **Supervisor approved:** 07/29/20 15:09 Naresh Jiawan

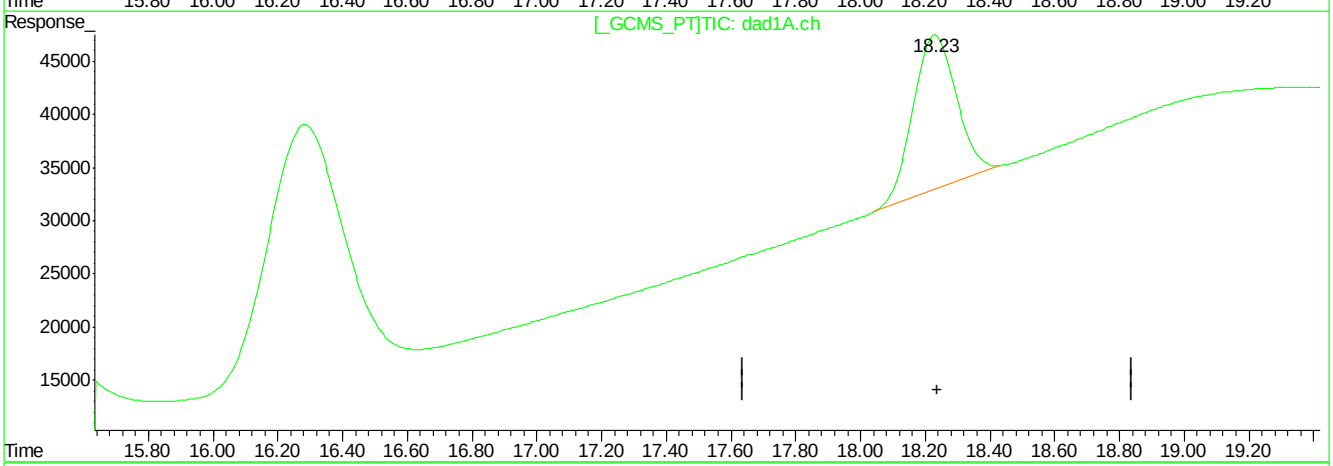
Parameter	CAS	Sig#	R.T. (min.)	Reason
PETN	78-11-5	2	18.23	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB2008\BB068464.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB2008\BB068464.D\dad1A.ch
Acq On : 28-Jul-2020, 00:51:00 Operator: williamh
Sample : cc2001-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Jul 28 10:04 2020 Quant Results File: 8330B_060120_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_060120_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Jul 27 10:40:27 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb d

response 0

(21) PETN #2

18.23min 1008.509ppb m

response 1356705

(+) = Expected Retention Time
BB068464.D 8330B_060120_PLUS.M Tue Jul 28 14:59:38 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
09/26/19 16:28

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12:33 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.56	13.55	84611	167134	16.252m	16.532m
	Spiked Amount 500.000	Range 70 - 136		Recovery =		3.25%#	3.31%#
	Target Compounds						
1)	TNX	4.97	4.97	218003	218003	38.377	38.296
2)	HMX	5.43	5.43	76671	73869	20.769m	20.035m
3)	DNX	5.49	5.49	147671	149475	27.214m	27.859m
4)	MNX	6.35	6.35	76584	78430	13.122m	13.439m
5)	1,3,5-Trinitrobe	7.16	7.16	204014	204014	21.442	21.506
6)	RDX	7.60	7.60	95749	95749	20.715	20.867
7)	1,3-Dinitrobenze	9.52	9.54	270208	176613	20.183m	17.415m
8)	Nitrobenzene	10.45	10.46	184518	175282	21.751	20.700m
9)	2,4,6-Trinitroto	11.07	11.07	203967	237191	21.926	19.902
10)	Nitroglycerin	0.00	0.00	0	0	N.D.	N.D.
11)	Tetryl	12.18	12.14	124995	322243	18.121	24.454m
13)	2,6-Dinitrotolue	13.94	13.91	135925	203654	21.731m	21.420
14)	2,4-Dinitrotolue	14.64	14.59	240621	208217	19.818	23.705m
15)	o-Nitrotoluene	16.13	16.11	96951	128957	17.328	12.789
16)	3,5-Dinitroanili	15.48	15.48	168483	313790	15.490	16.606
17)	p-Nitrotoluene	17.17	17.17	219157	564760	19.281m	27.186 #
18)	4-Amino-2,6-Dini	17.17	17.17	213733	564760	18.804m	27.184 #
19)	m-Nitrotoluene	18.37	18.36	110487	255019	19.272m	24.421m
20)	2-Amino-4,6-Dini	19.18	19.28	177657	351021	20.592	28.276
21)	PETN	0.00	0.00	0	0	N.D.	N.D. d

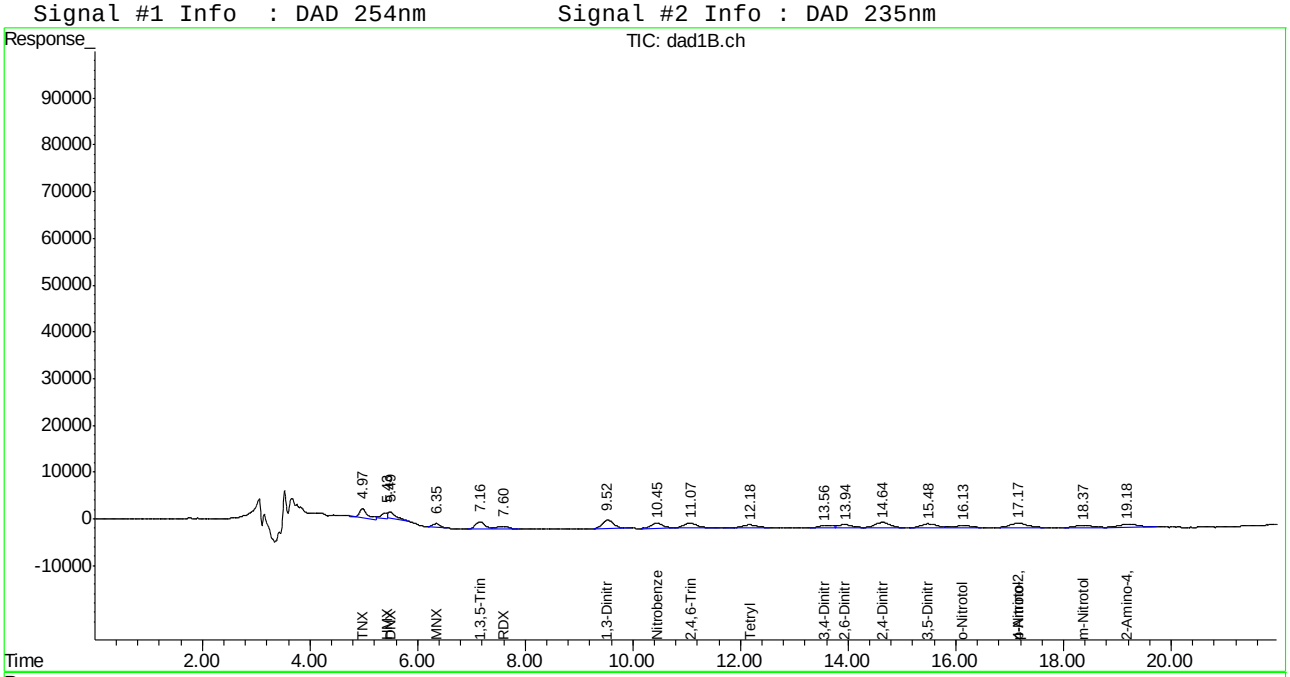
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

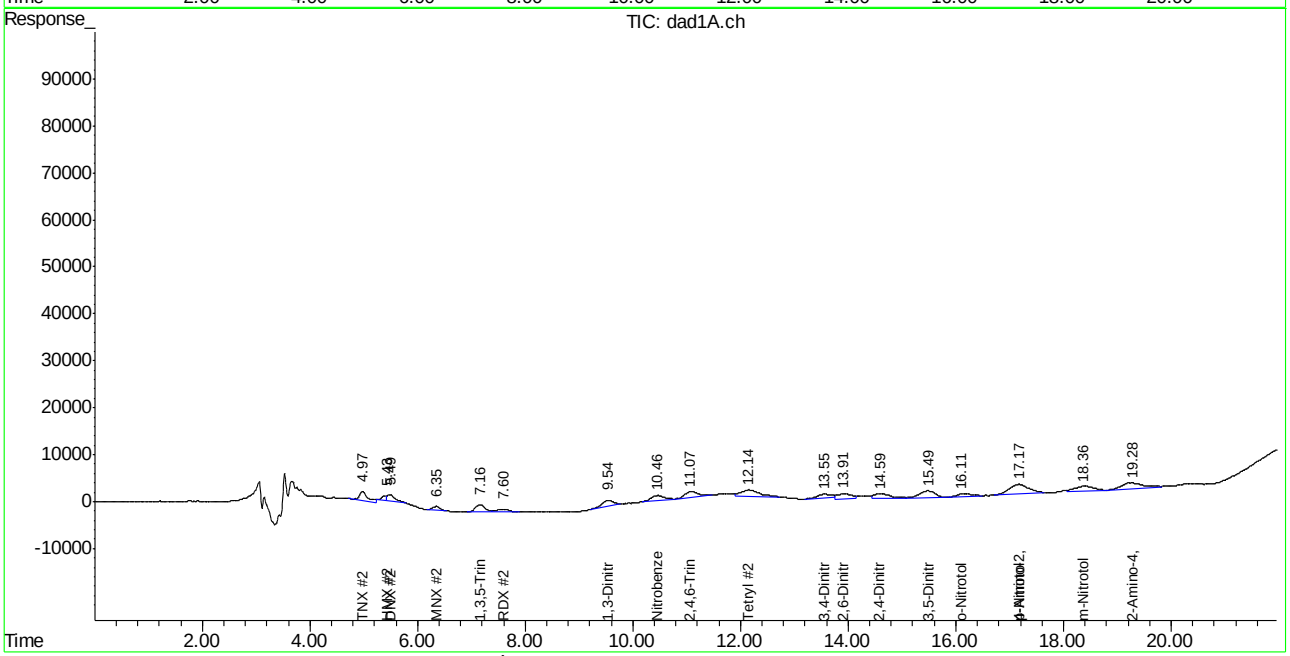
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:18 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

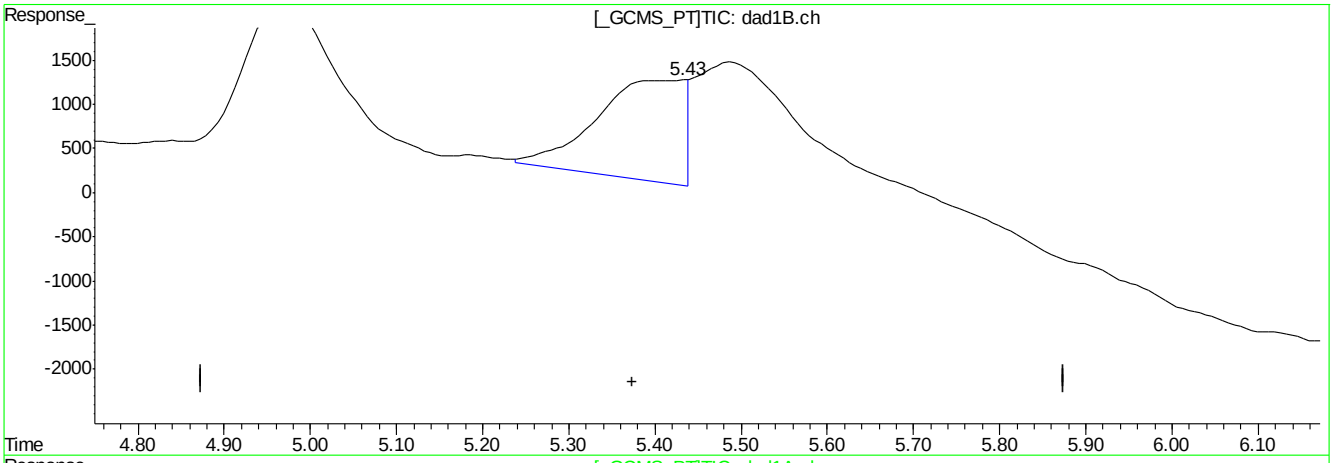
Sample Number: GGG2769-IC2769
Lab FileID: GG617747.D
Injection Time: 09/25/19 20:30
Method: SW846 8330B
Analyst approved: 09/26/19 16:07 William Hustedde
Supervisor approved: 09/26/19 16:28 Naresh Jiawan

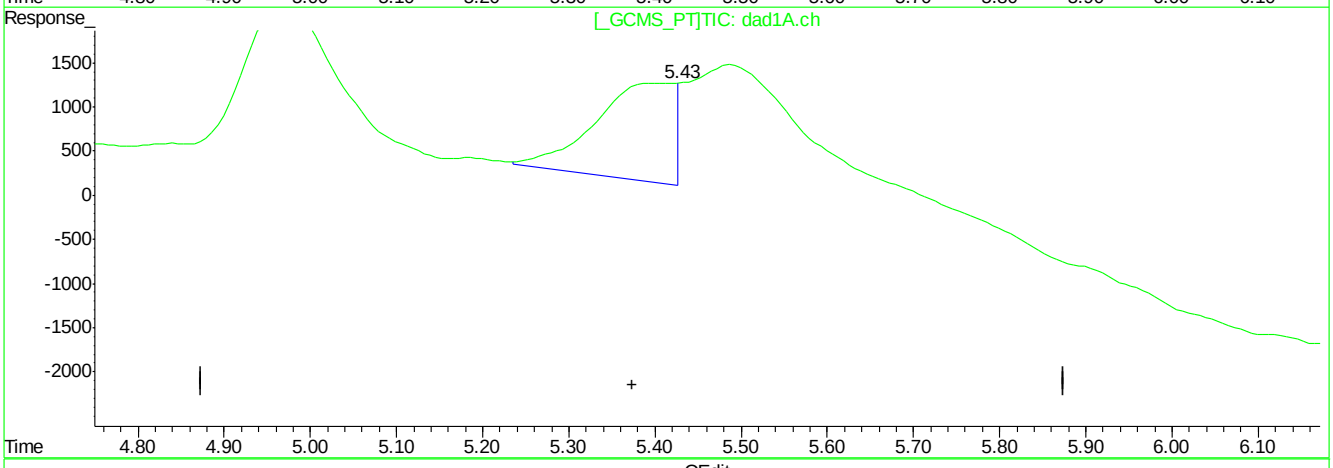
Parameter	CAS	Sig#	R.T. (min.)	Reason
HMX	2691-41-0	1	5.43	Poor instrument integration
HMX	2691-41-0	2	5.43	Poor instrument integration
DNX		1	5.49	Poor instrument integration
DNX		2	5.49	Poor instrument integration
MNX		1	6.35	Poor instrument integration
MNX		2	6.35	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	1	9.52	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	9.54	Poor instrument integration
Nitrobenzene	98-95-3	2	10.46	Poor instrument integration
Tetryl	479-45-8	2	12.14	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	2	13.55	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	1	13.56	Poor instrument integration
2,6-Dinitrotoluene	606-20-2	1	13.94	Poor instrument integration
2,4-Dinitrotoluene	121-14-2	2	14.59	Poor instrument integration
4-amino-2,6-Dinitrotoluene	19406-51-0	1	17.17	Poor instrument integration
p-Nitrotoluene	99-99-0	1	17.17	Poor instrument integration
m-Nitrotoluene	99-08-1	2	18.36	Poor instrument integration
m-Nitrotoluene	99-08-1	1	18.37	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.43min 20.769ppb m

response 76671

(2) HMX #2

5.43min 20.035ppb m

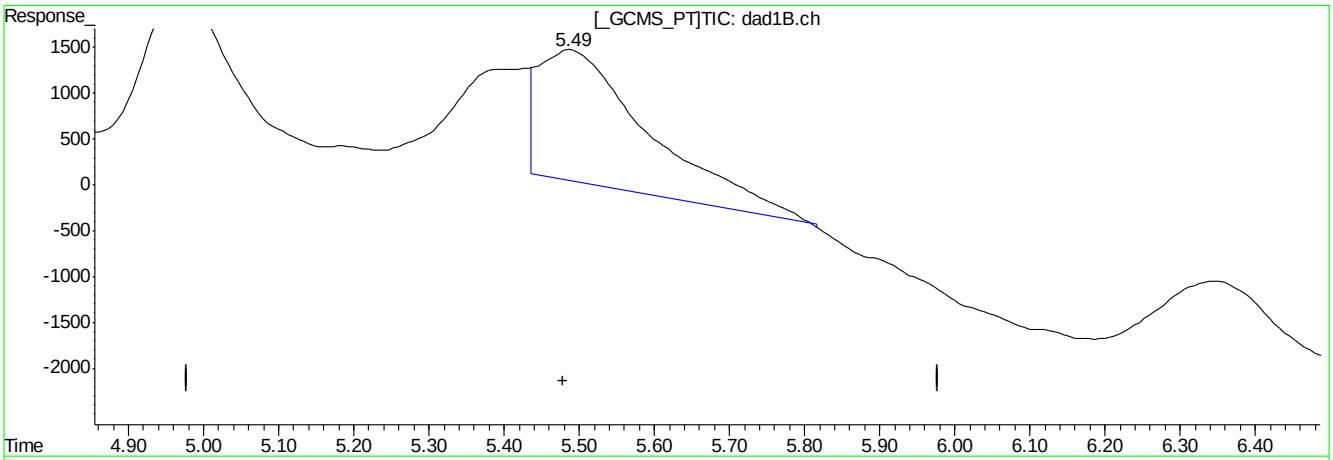
response 73869

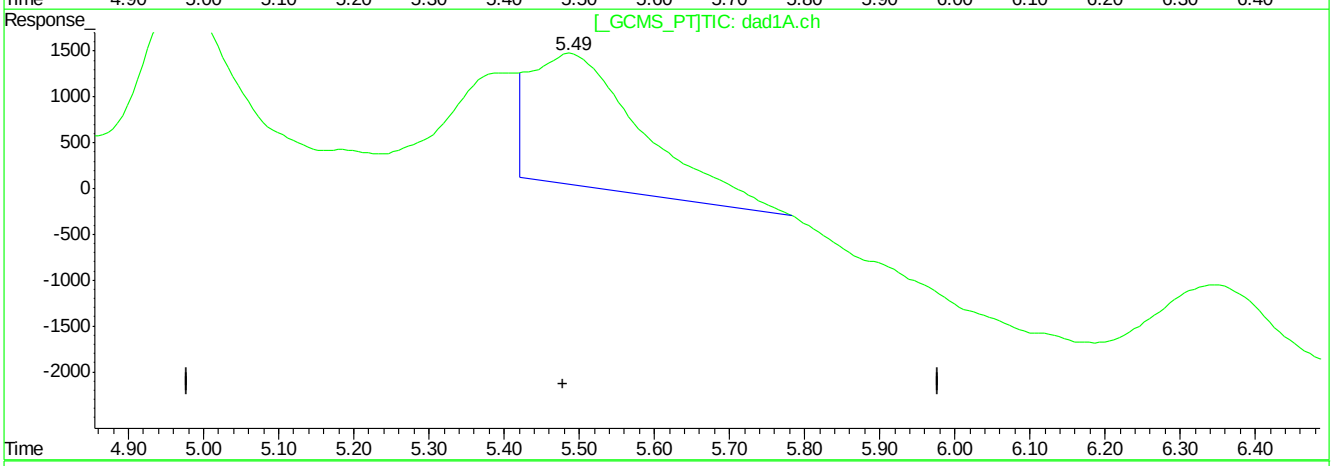
(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:16:26 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(3) DNX

5.49min 27.214ppb m

response 147671

(3) DNX #2

5.49min 27.859ppb m

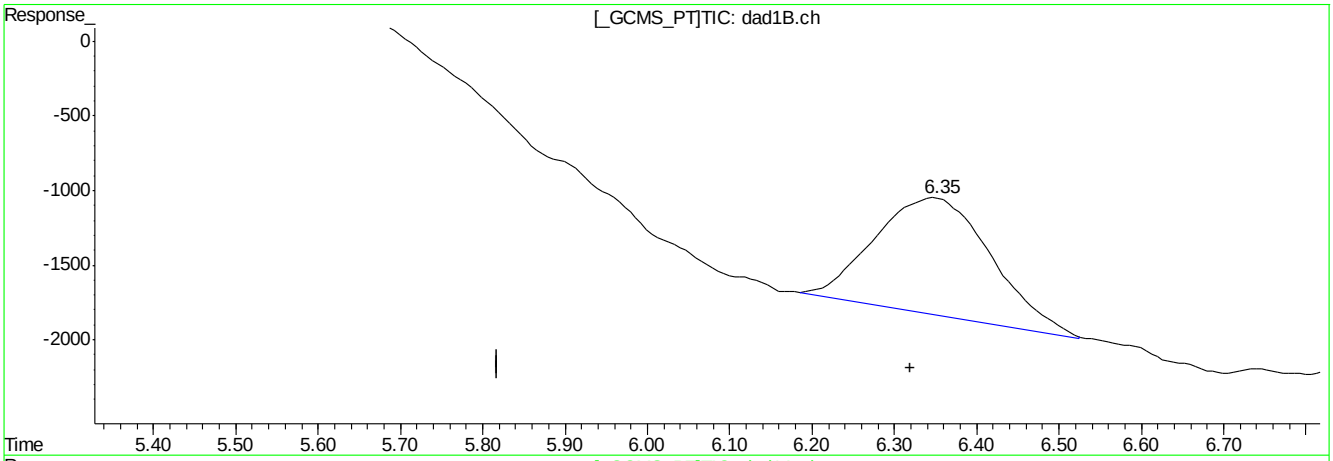
response 149475

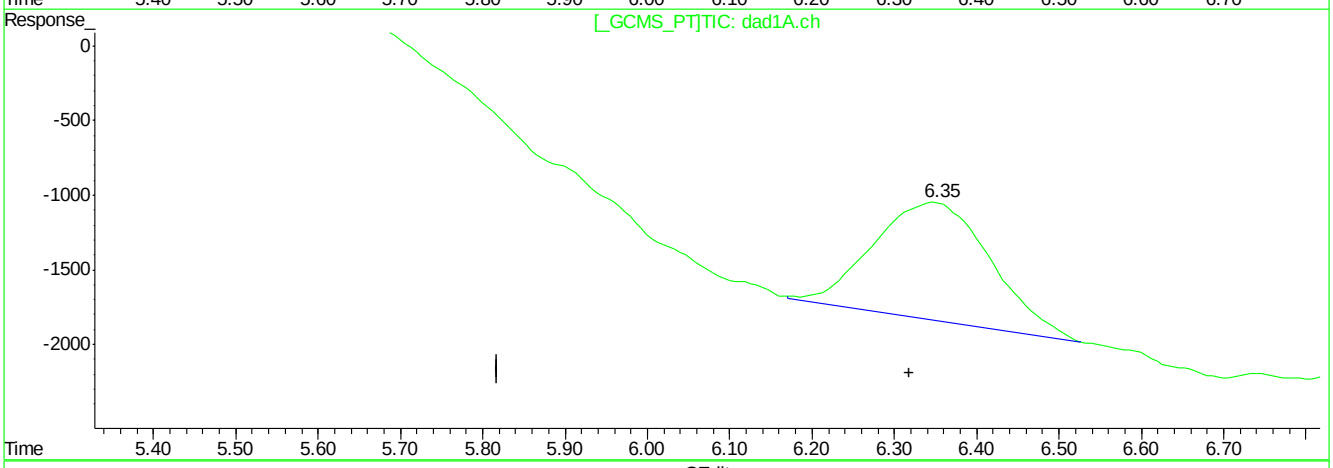
(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:16:36 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(4) MNX

6.35min 13.122ppb m

response 76584

(4) MNX #2

6.35min 13.439ppb m

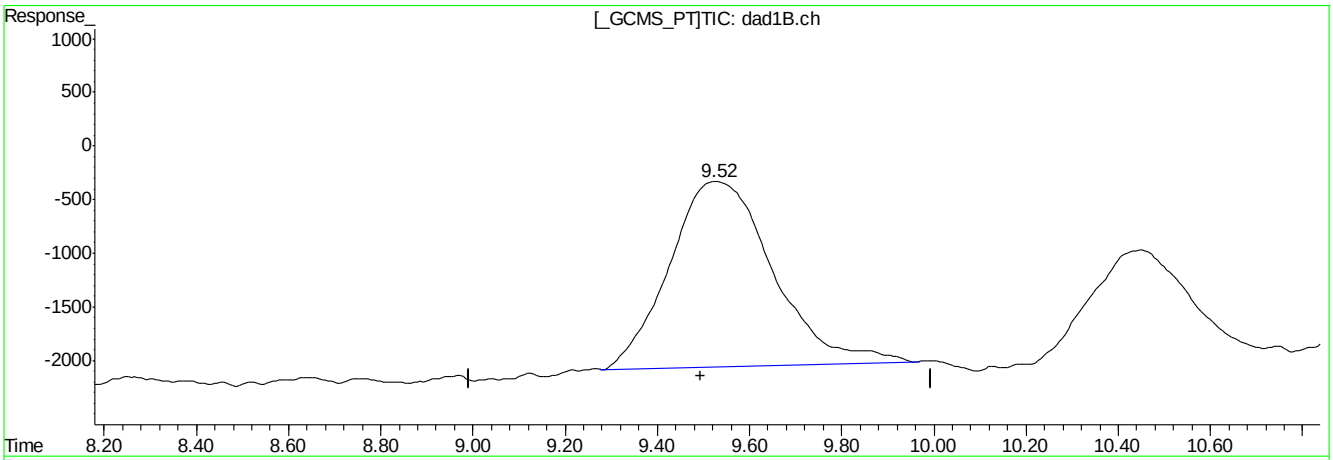
response 78430

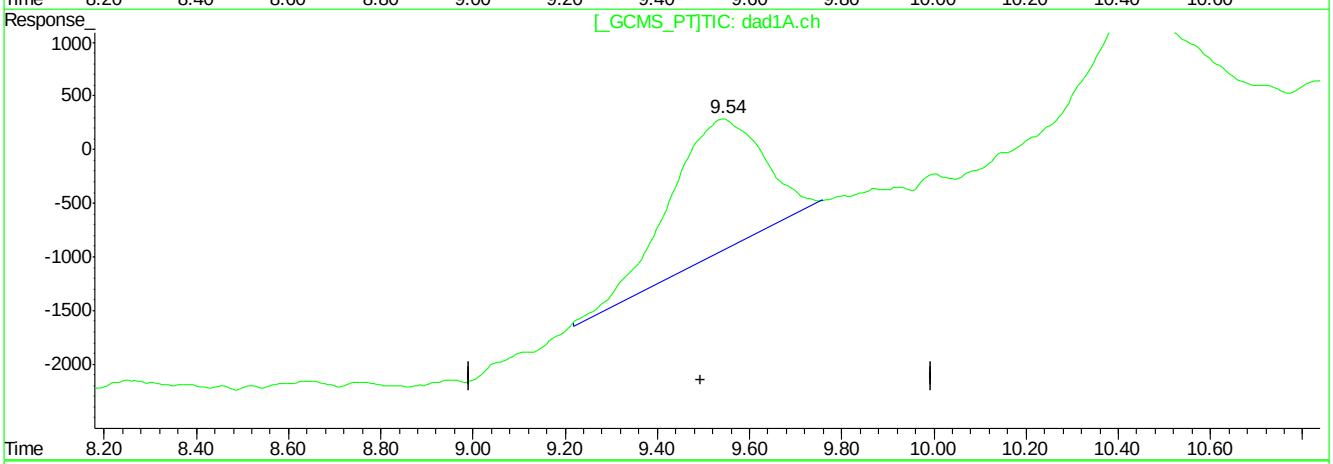
(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:16:43 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

9.52min 20.183ppb m

response 270208

(7) 1,3-Dinitrobenzene #2

9.54min 17.415ppb m

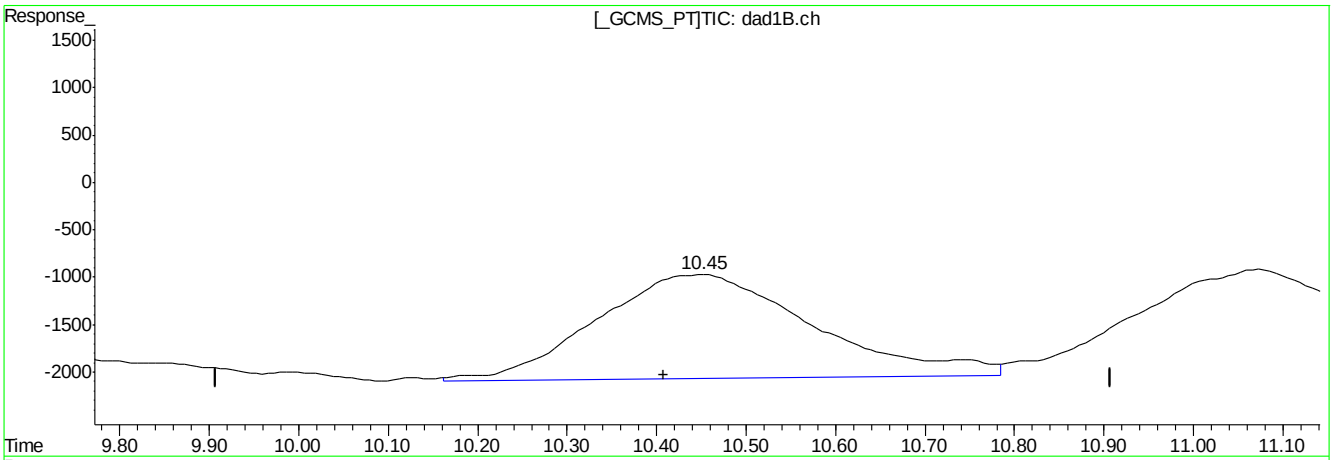
response 176613

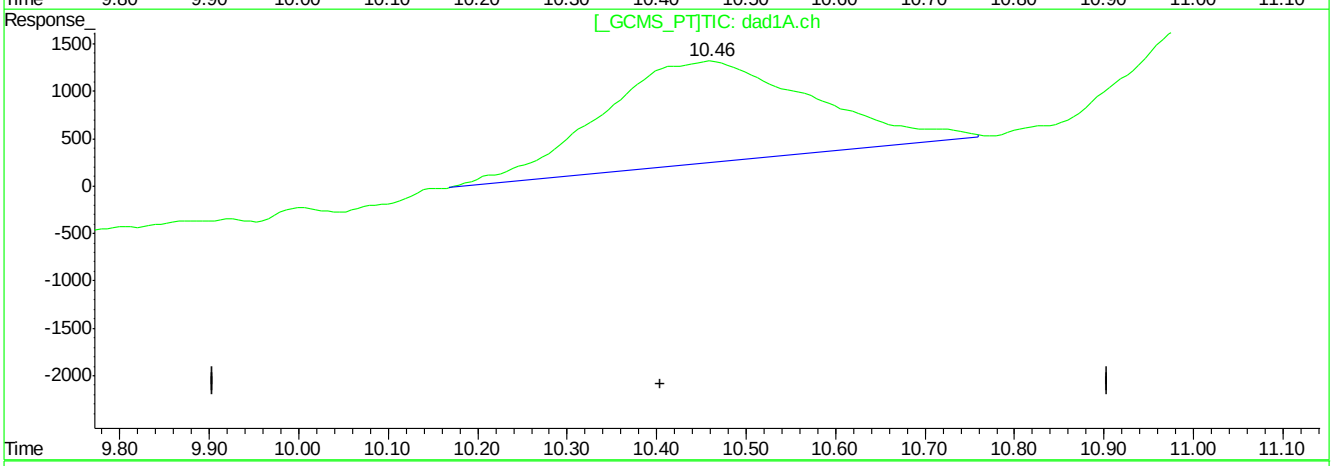
(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:16:59 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(8) Nitrobenzene

10.45min 21.751ppb

response 184518

(8) Nitrobenzene #2

10.46min 20.700ppb m

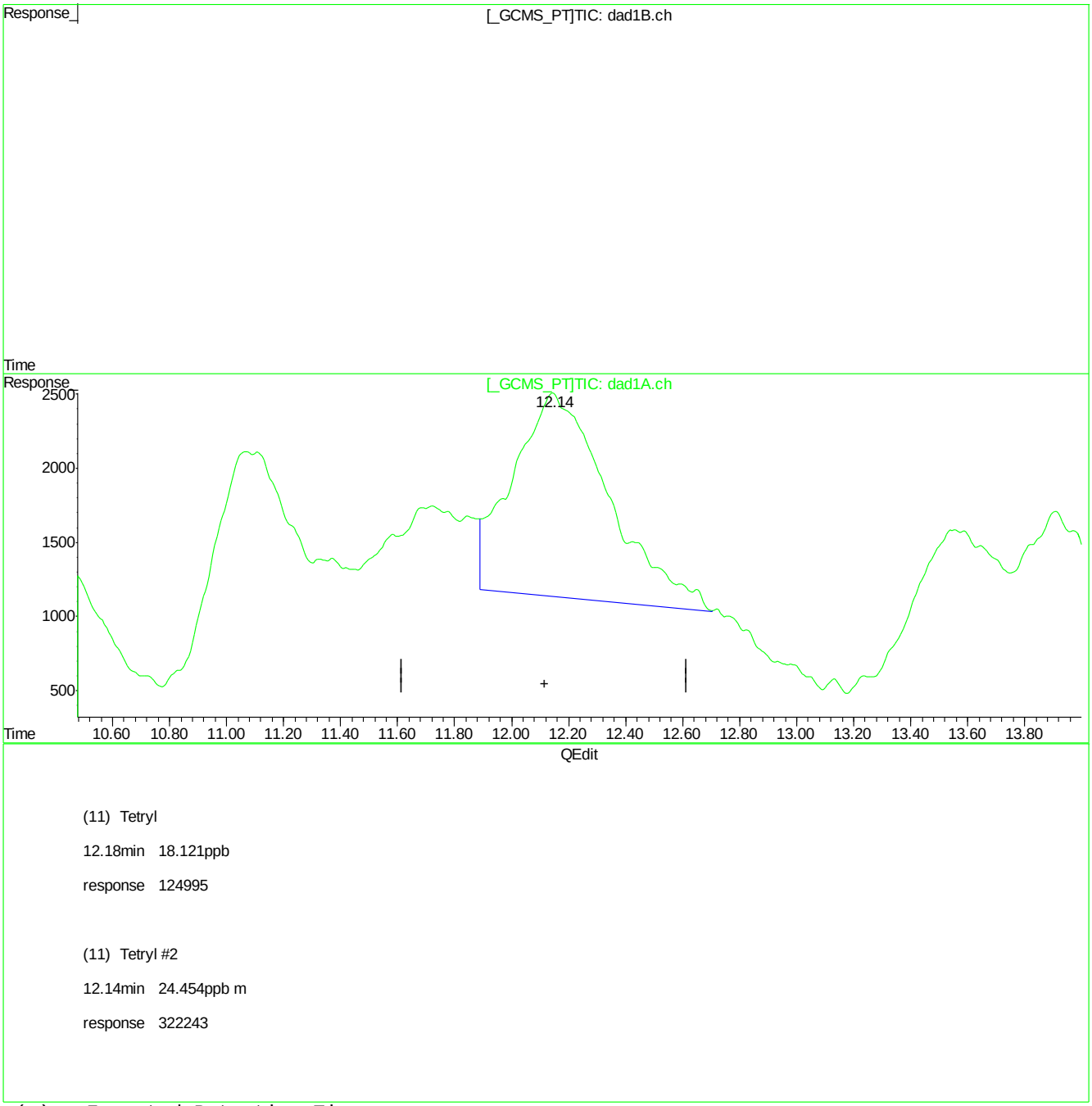
response 175282

(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:17:09 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(11) Tetryl

12.18min 18.121ppb

response 124995

(11) Tetryl #2

12.14min 24.454ppb m

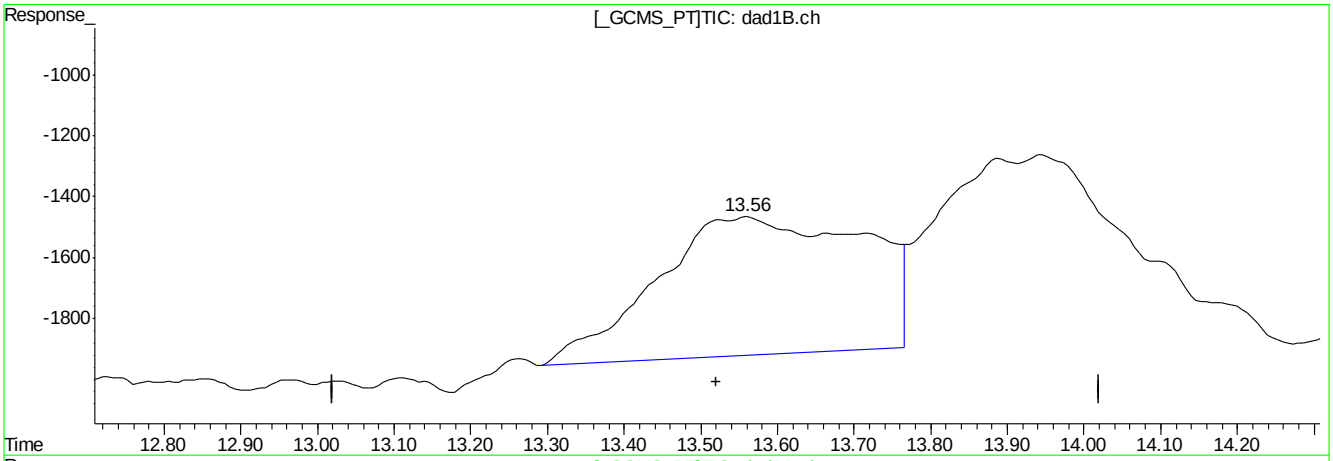
response 322243

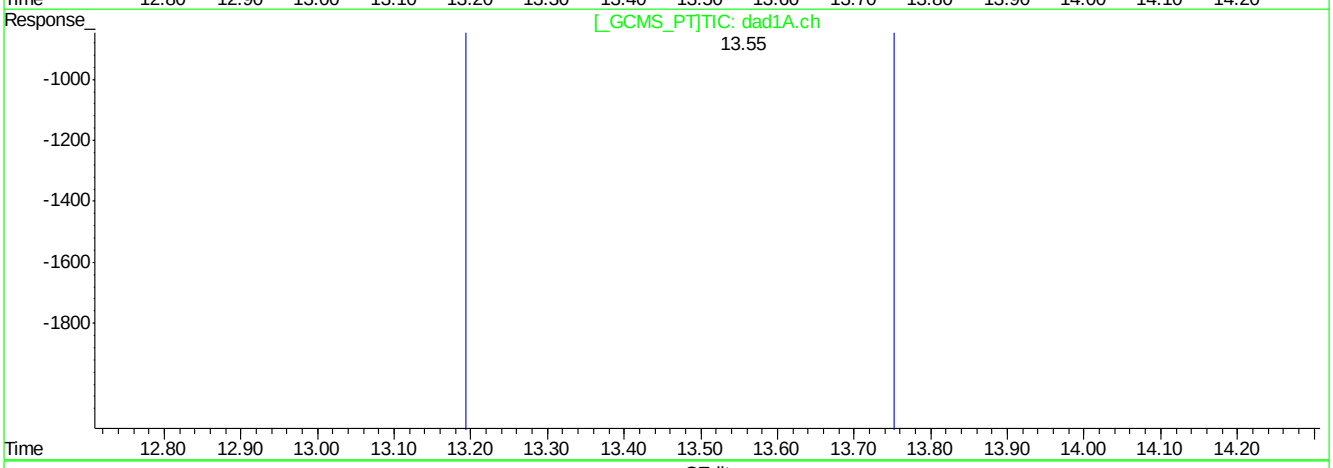
(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:17:27 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(12) 3,4-Dinitrotoluene (S)

13.56min 16.252ppb m

response 84611

(12) 3,4-Dinitrotoluene #2 (S)

13.55min 16.532ppb m

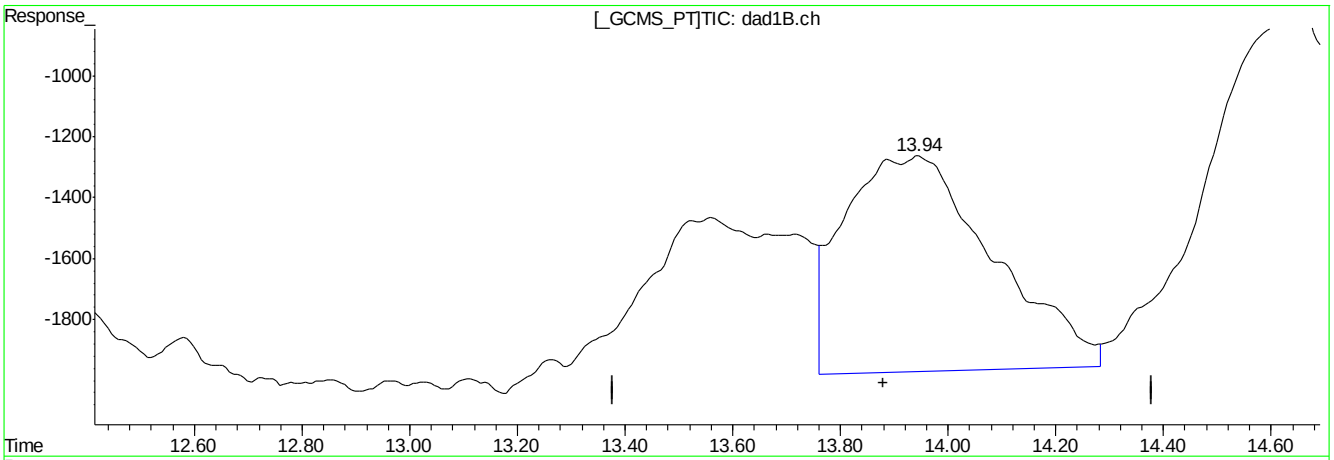
response 167134

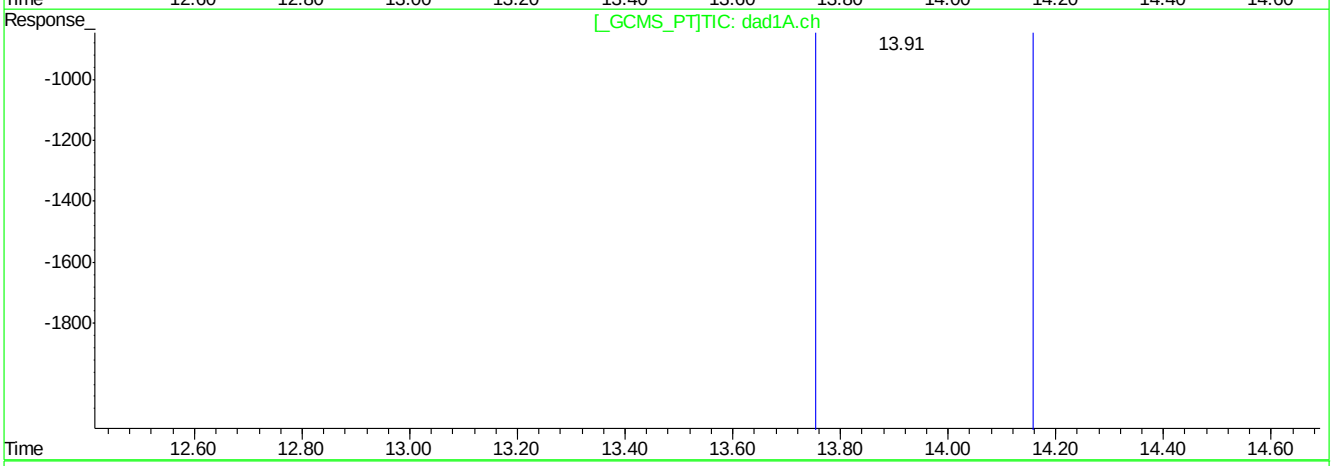
(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:17:37 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(13) 2,6-Dinitrotoluene

13.94min 21.731ppb m

response 135925

(13) 2,6-Dinitrotoluene #2

13.91min 21.420ppb

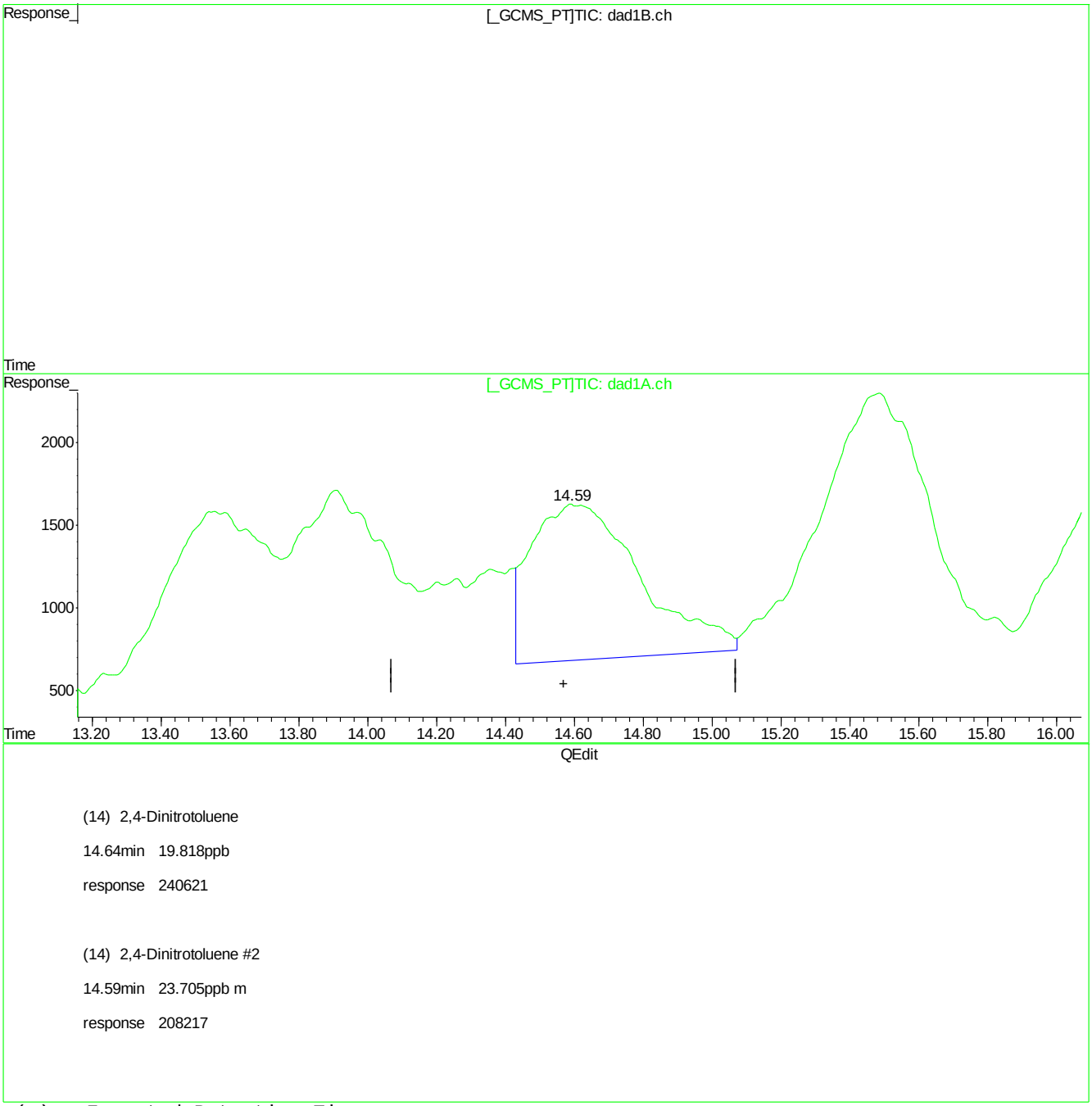
response 203654

(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:17:45 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(14) 2,4-Dinitrotoluene

14.64min 19.818ppb

response 240621

(14) 2,4-Dinitrotoluene #2

14.59min 23.705ppb m

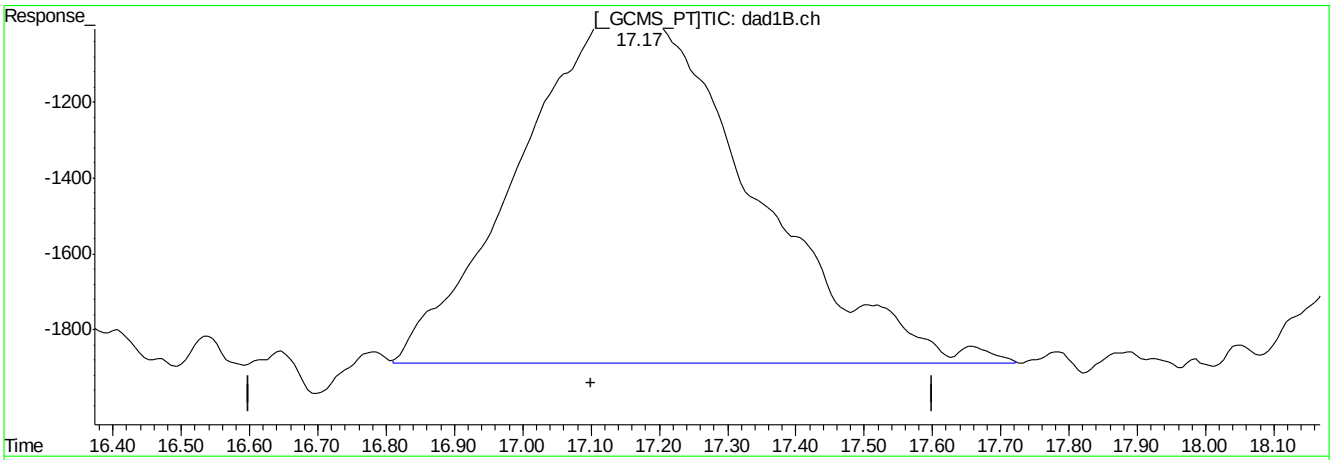
response 208217

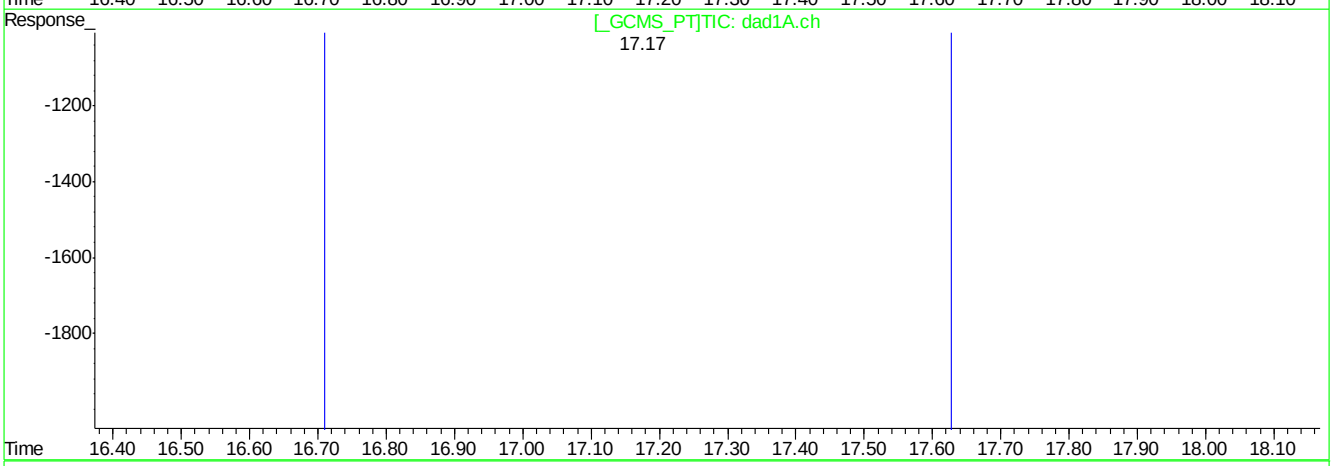
(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:17:52 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(17) p-Nitrotoluene

17.17min 19.281ppb m

response 219157

(17) p-Nitrotoluene #2

17.17min 27.186ppb

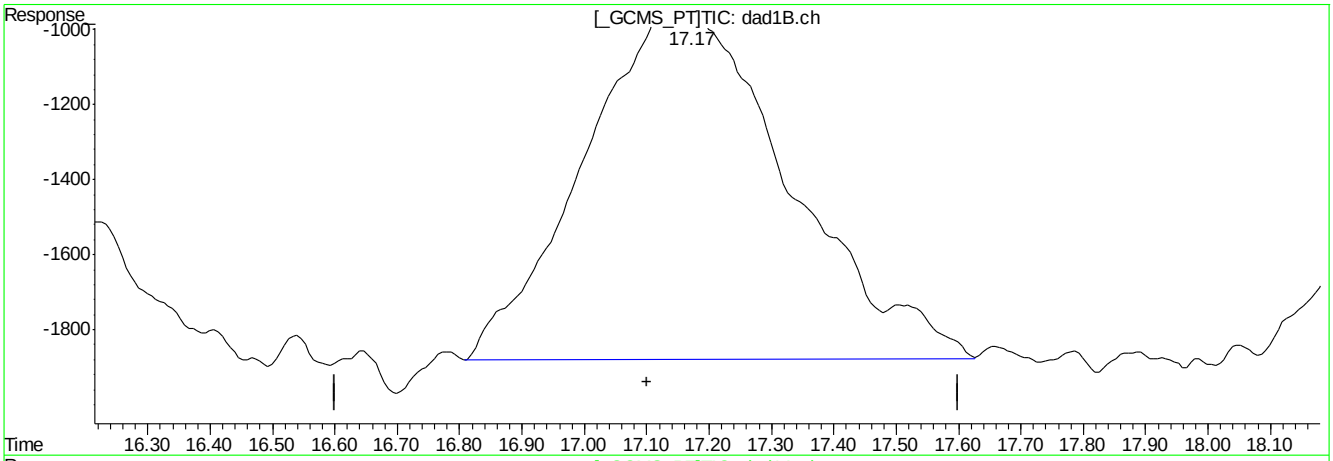
response 564760

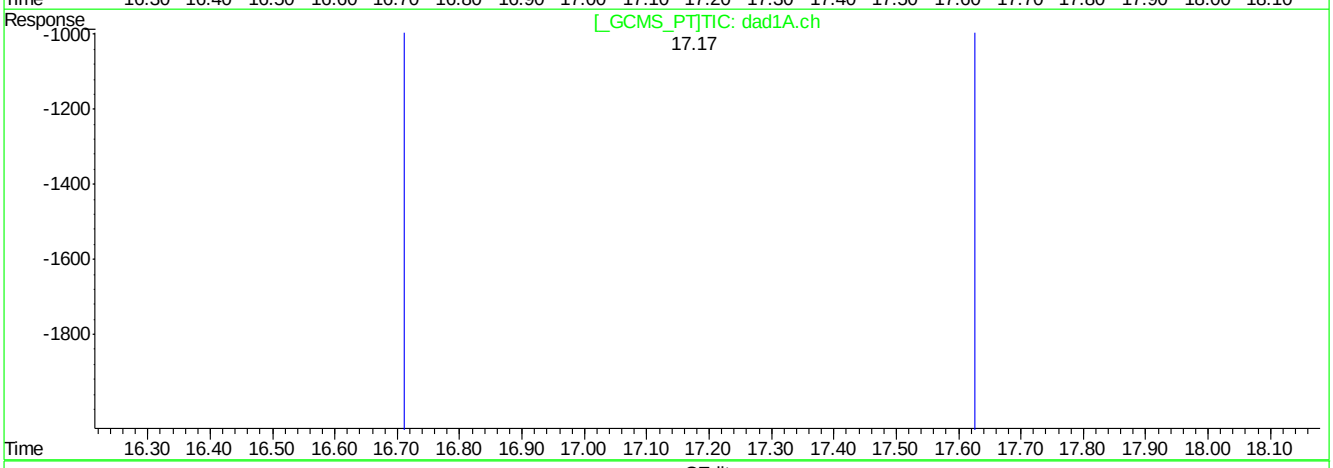
(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:18:05 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(18) 4-Amino-2,6-Dinitrotoluene

17.17min 18.804ppb m

response 213733

(18) 4-Amino-2,6-Dinitrotoluene #2

17.17min 27.184ppb

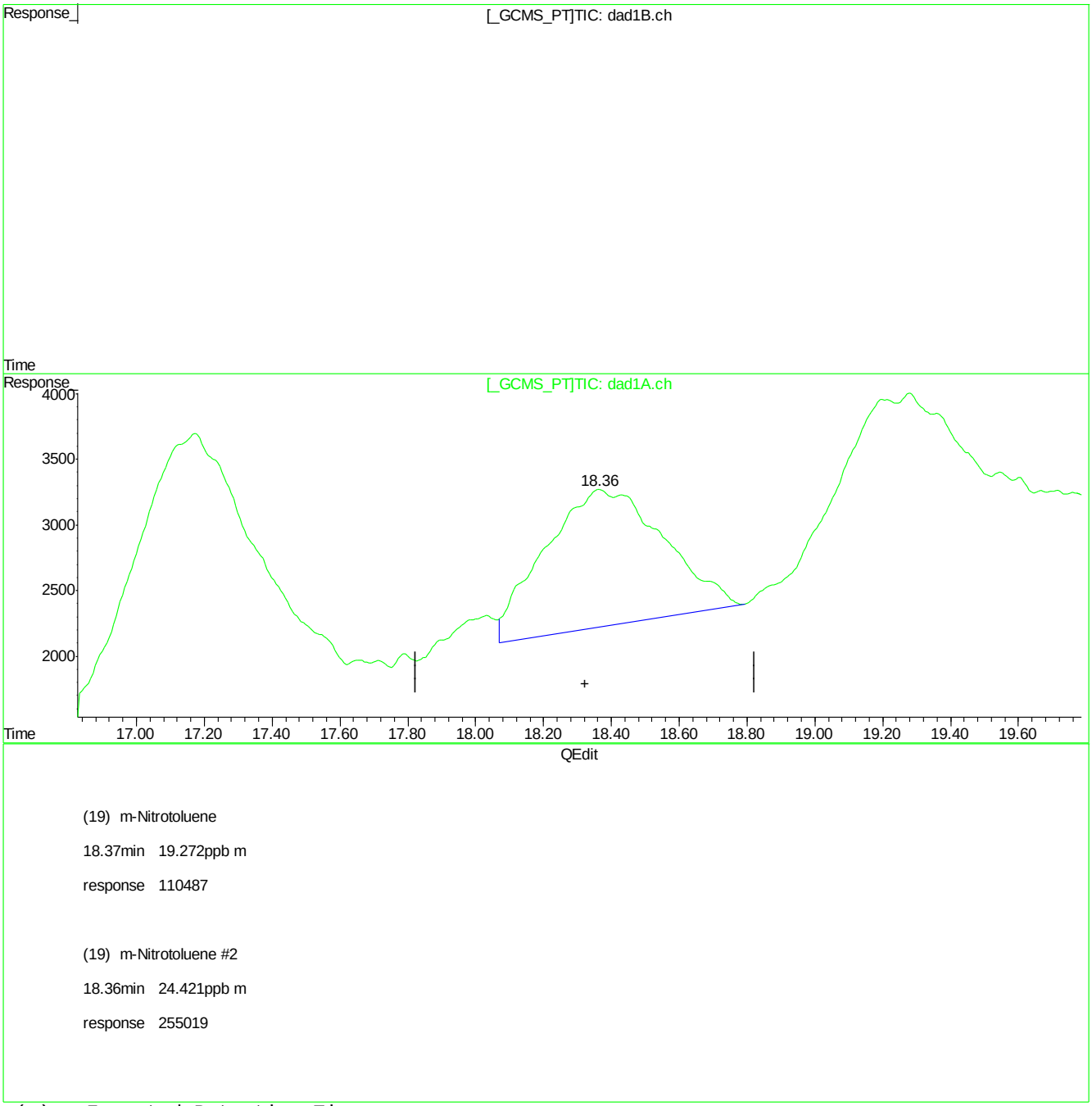
response 564760

(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:18:12 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(19) m-Nitrotoluene

18.37min 19.272ppb m

response 110487

(19) m-Nitrotoluene #2

18.36min 24.421ppb m

response 255019

(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:18:24 2019

GG617747.D edits: m-Nitrotoluene

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
09/26/19 16:28

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12:34 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.55	13.52	216587	343039	41.601	33.928m
	Spiked Amount 500.000	Range 70 - 136		Recovery =		8.32%#	6.79%#
	Target Compounds						
1)	TNX	4.96	4.96	283262	285743	49.866m	50.196m
2)	HMX	5.41	5.41	124790	130111	33.819m	35.307m
3)	DNX	5.48	5.48	210608	209215	38.829m	39.007m
4)	MNX	6.32	6.32	221441	221012	37.947m	37.875m
5)	1,3,5-Trinitrobe	7.14	7.14	483501	483501	50.816	50.968
6)	RDX	7.56	7.56	239398	239398	51.793	52.174
7)	1,3-Dinitrobenze	9.50	9.50	670221	555145	50.061m	54.739m
8)	Nitrobenzene	10.42	10.41	424717	468190	50.067	55.327m
9)	2,4,6-Trinitroto	11.03	11.03	466855	628341	50.186	52.723m
10)	Nitroglycerin	0.00	0.00	0	0	N.D.	N.D. d
11)	Tetryl	12.13	12.12	342824	541733	49.699	41.127m
13)	2,6-Dinitrotolue	13.89	13.87	329483	542159	52.677	57.034
14)	2,4-Dinitrotolue	14.58	14.60	571403	460842	47.062	52.465
15)	o-Nitrotoluene	16.06	16.06	227215	397827	40.609	39.455
16)	3,5-Dinitroanili	15.46	15.46	469052	839109	43.124	44.407
17)	p-Nitrotoluene	17.08	17.09	518543	1060606	45.620	51.055m
18)	4-Amino-2,6-Dini	17.08	17.09	518543	963679	45.620	46.386m
19)	m-Nitrotoluene	18.31	18.31	254437	395224	44.382	37.847m
20)	2-Amino-4,6-Dini	19.17	19.19	390617	670153	45.277	53.984
21)	PETN	0.00	20.26	0	223792	N.D.	88.985 #

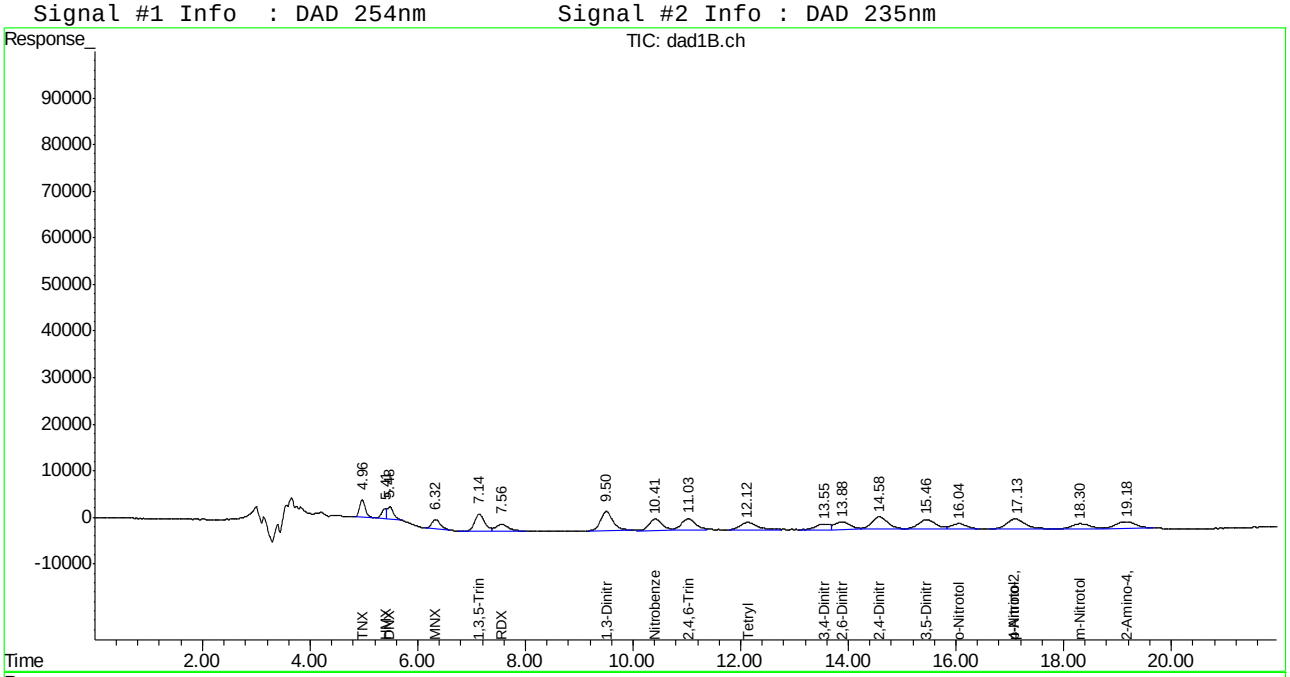
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

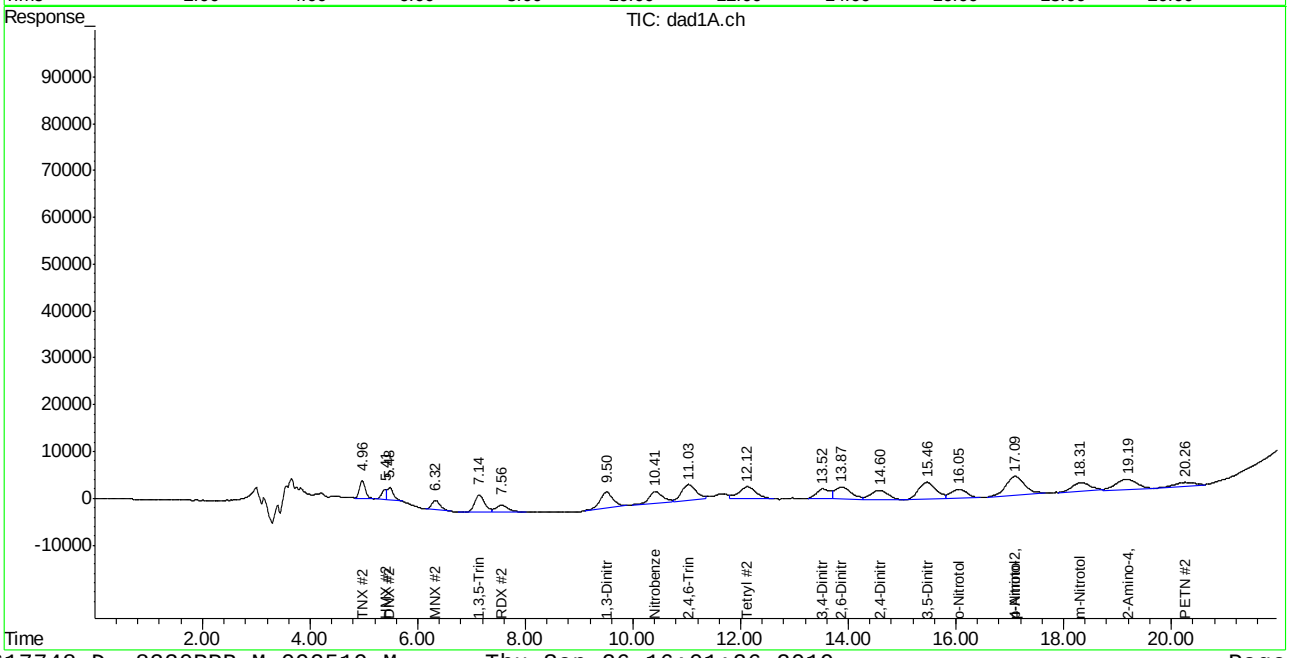
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:36 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

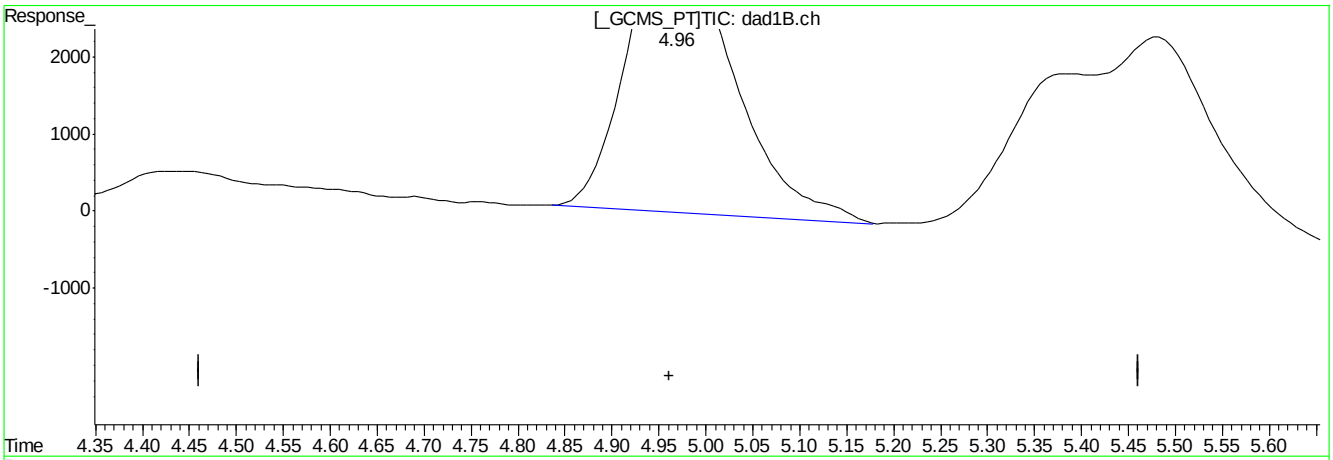
Sample Number: GGG2769-IC2769
Lab FileID: GG617748.D
Injection Time: 09/25/19 20:59
Method: SW846 8330B
Analyst approved: 09/26/19 16:07 William Hustedde
Supervisor approved: 09/26/19 16:28 Naresh Jiawan

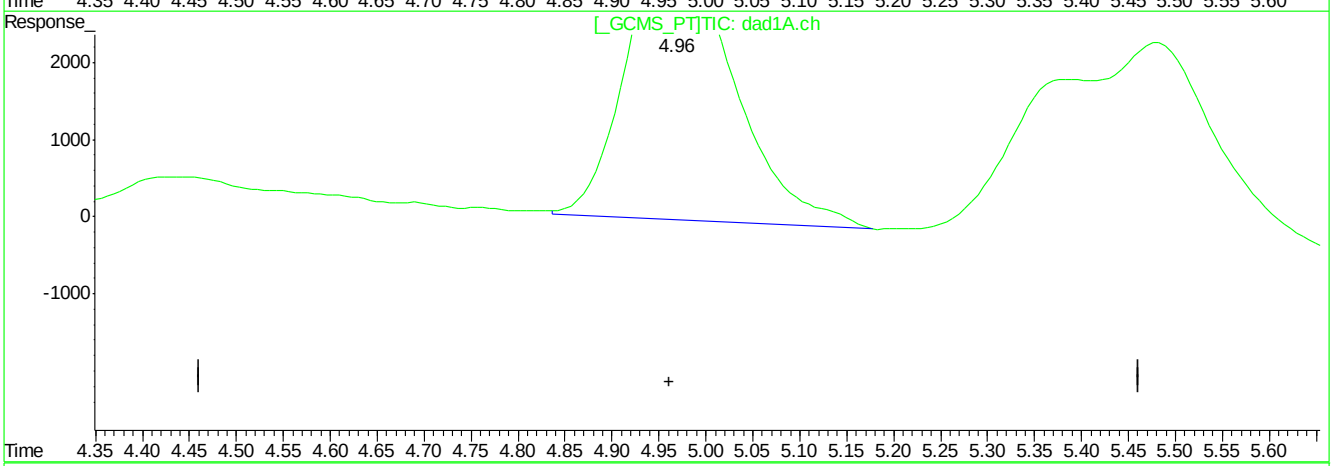
Parameter	CAS	Sig#	R.T. (min.)	Reason
TNX		1	4.96	Poor instrument integration
TNX		2	4.96	Poor instrument integration
HMX	2691-41-0	1	5.41	Poor instrument integration
HMX	2691-41-0	2	5.41	Poor instrument integration
DNX		1	5.48	Poor instrument integration
DNX		2	5.48	Poor instrument integration
MNX		1	6.32	Poor instrument integration
MNX		2	6.32	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	1	9.50	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	9.50	Poor instrument integration
Nitrobenzene	98-95-3	2	10.41	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	2	11.03	Poor instrument integration
Tetryl	479-45-8	2	12.12	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	2	13.52	Poor instrument integration
4-amino-2,6-Dinitrotoluene	19406-51-0	2	17.09	Poor instrument integration
p-Nitrotoluene	99-99-0	2	17.09	Poor instrument integration
m-Nitrotoluene	99-08-1	2	18.31	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(1) TNX

4.96min 49.866ppb m

response 283262

(1) TNX #2

4.96min 50.196ppb m

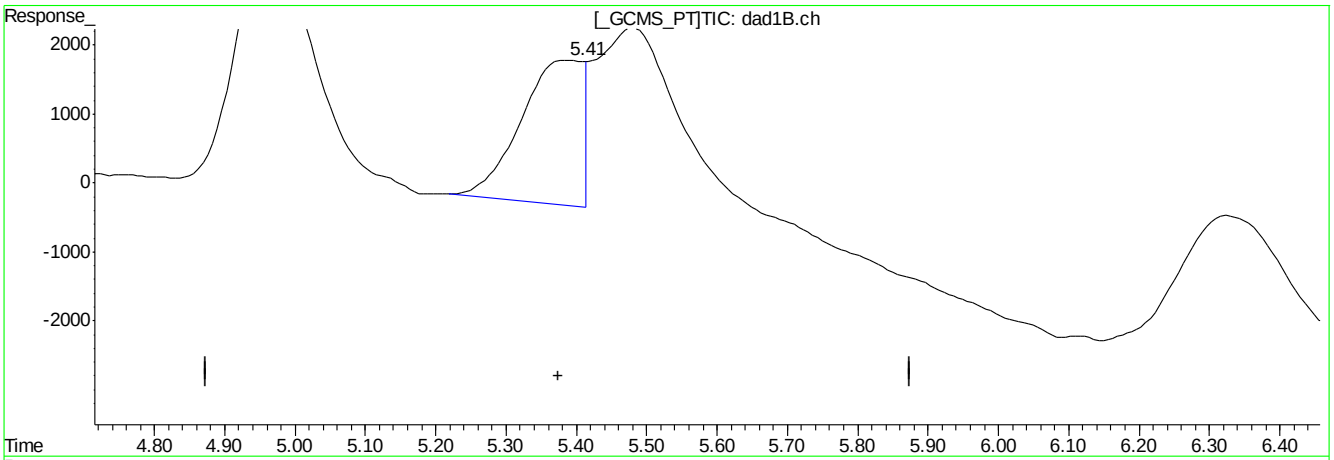
response 285743

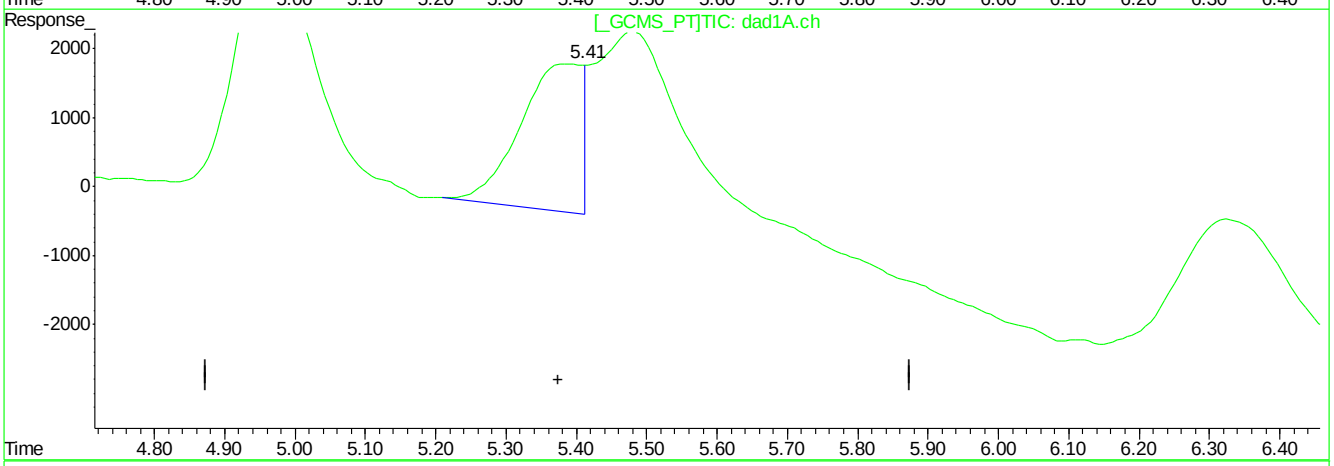
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:18:44 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.41min 33.819ppb m

response 124790

(2) HMX #2

5.41min 35.307ppb m

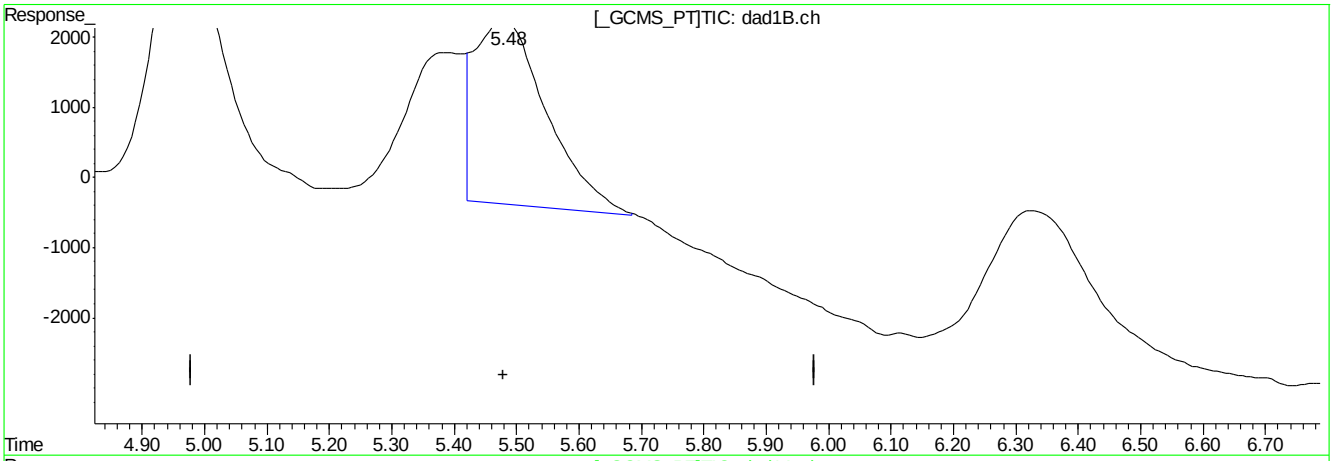
response 130111

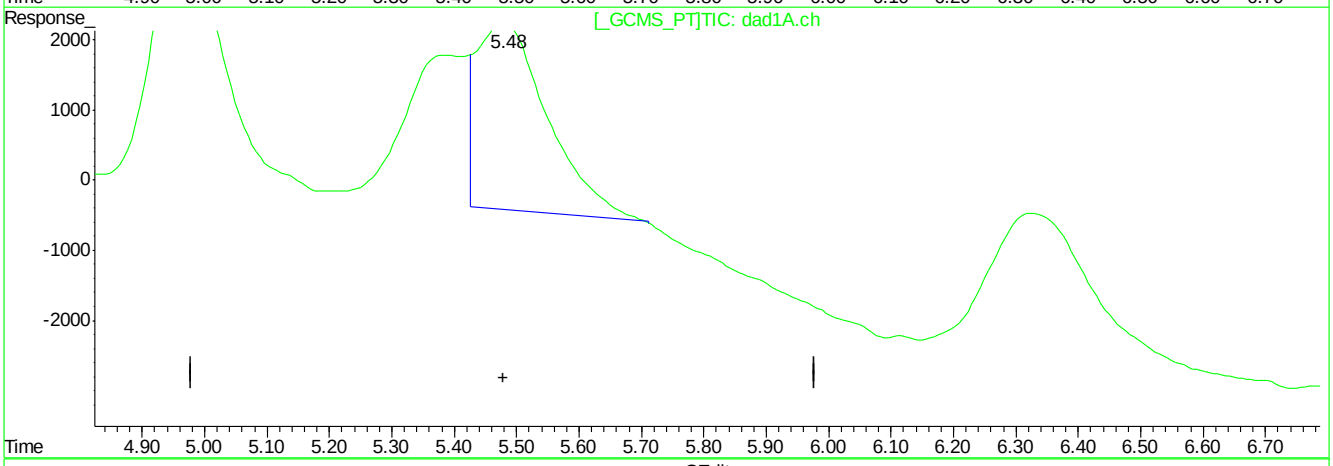
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:18:54 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(3) DNX

5.48min 38.829ppb m

response 210608

(3) DNX #2

5.48min 39.007ppb m

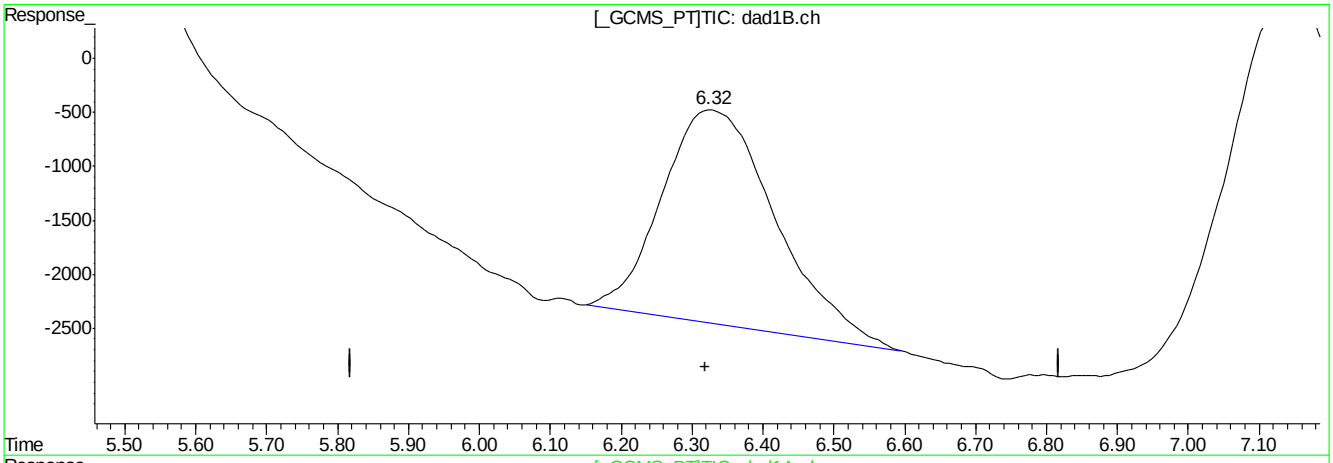
response 209215

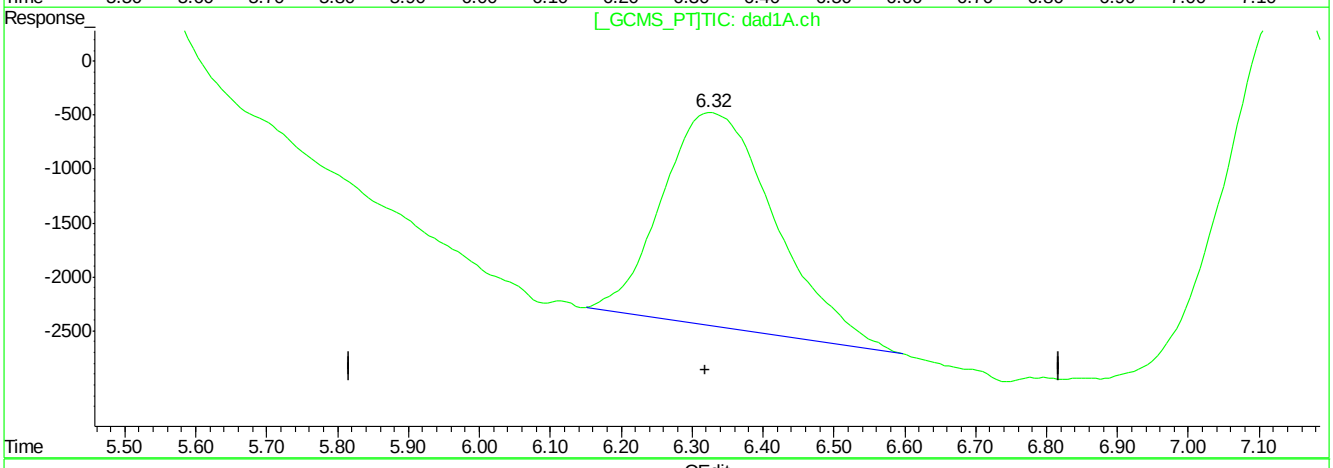
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:19:05 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(4) MNX

6.32min 37.947ppb m

response 221441

(4) MNX #2

6.32min 37.875ppb m

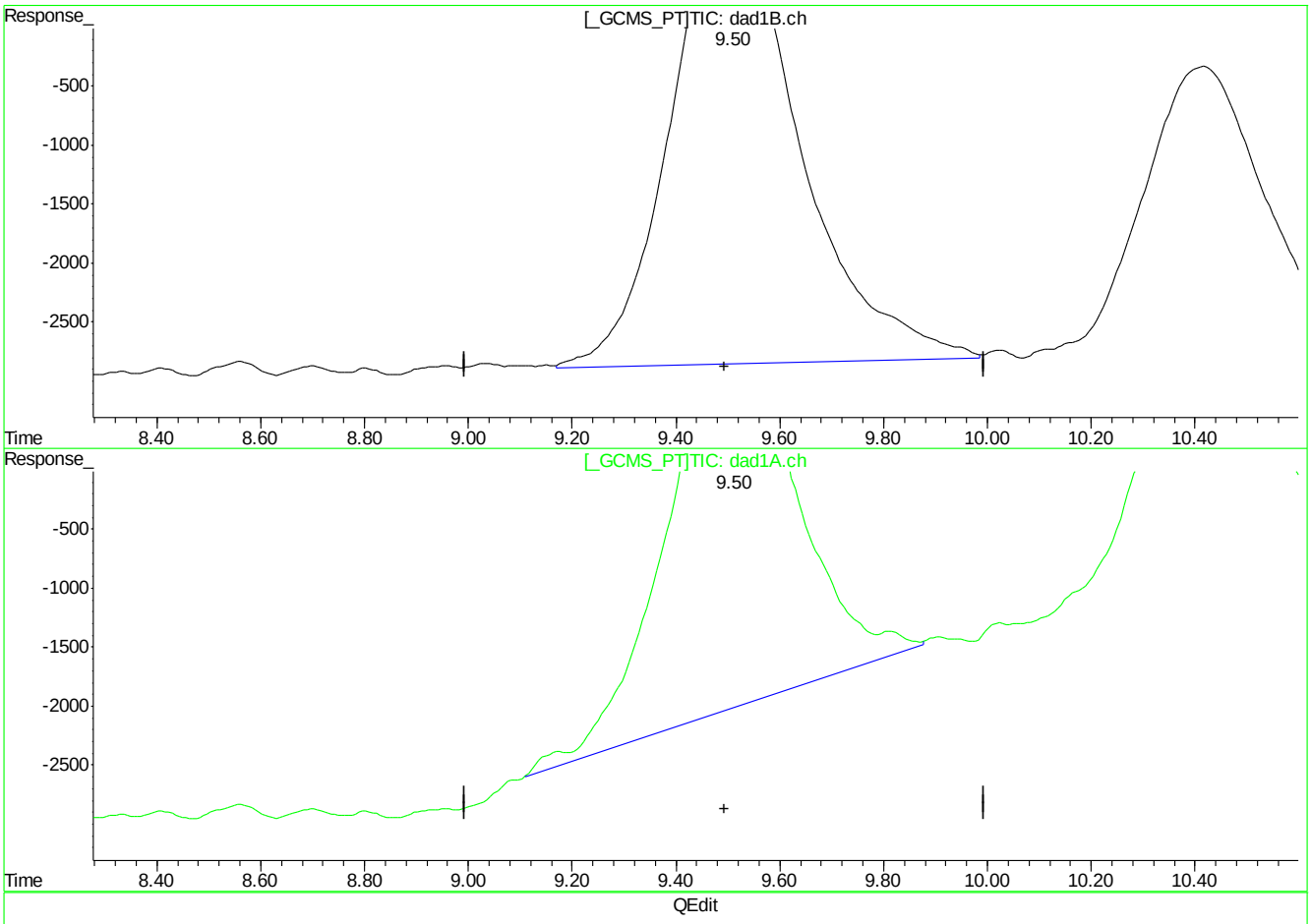
response 221012

(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:19:14 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(7) 1,3-Dinitrobenzene

9.50min 50.061ppb m

response 670221

(7) 1,3-Dinitrobenzene #2

9.50min 54.739ppb m

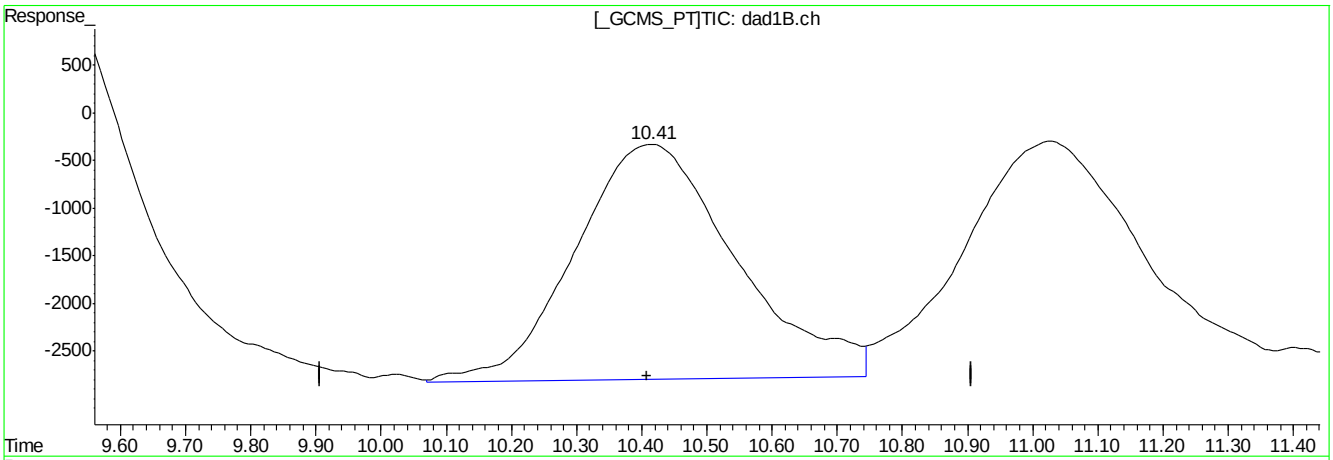
response 555145

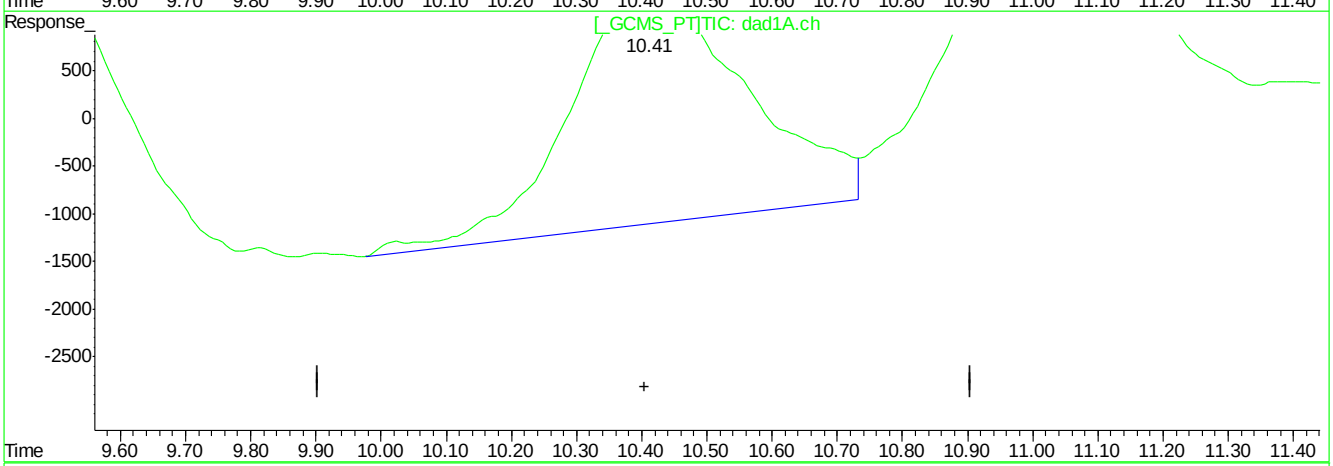
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:19:32 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(8) Nitrobenzene

10.42min 50.067ppb

response 424717

(8) Nitrobenzene #2

10.41min 55.327ppb m

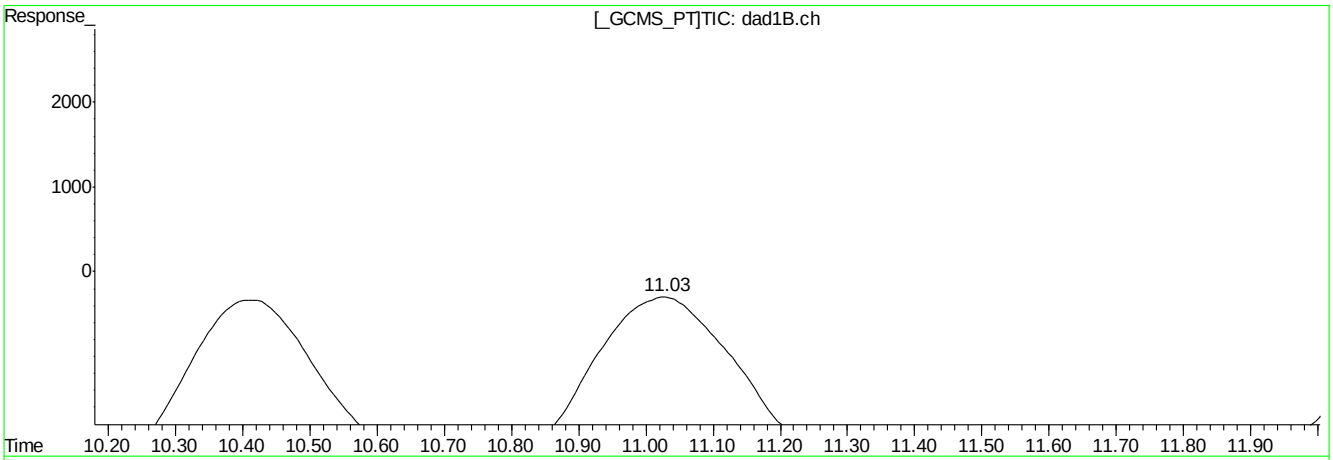
response 468190

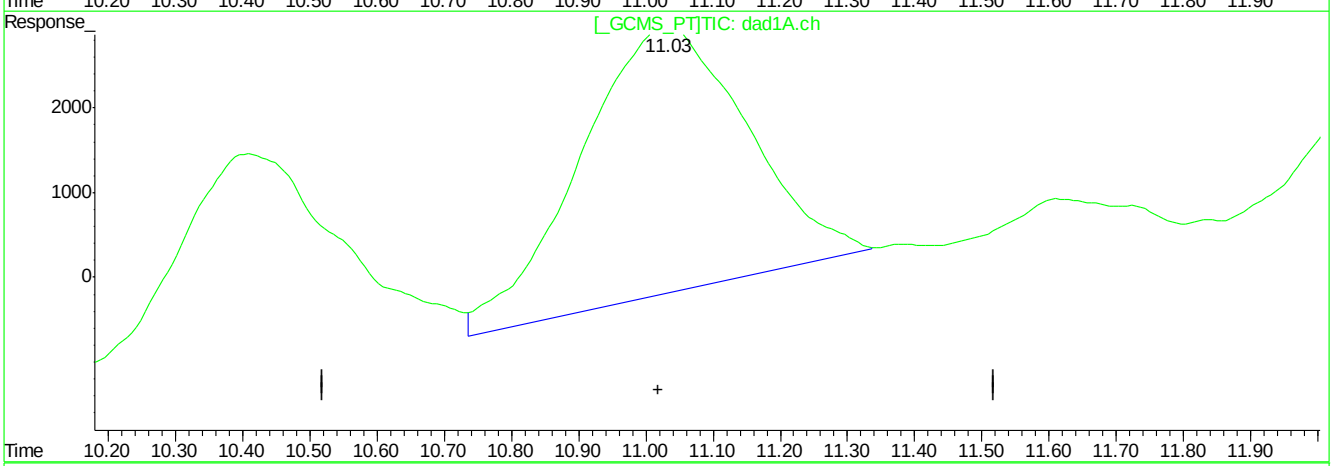
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:19:43 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.03min 50.186ppb

response 466855

(9) 2,4,6-Trinitrotoluene #2

11.03min 45.774ppb m

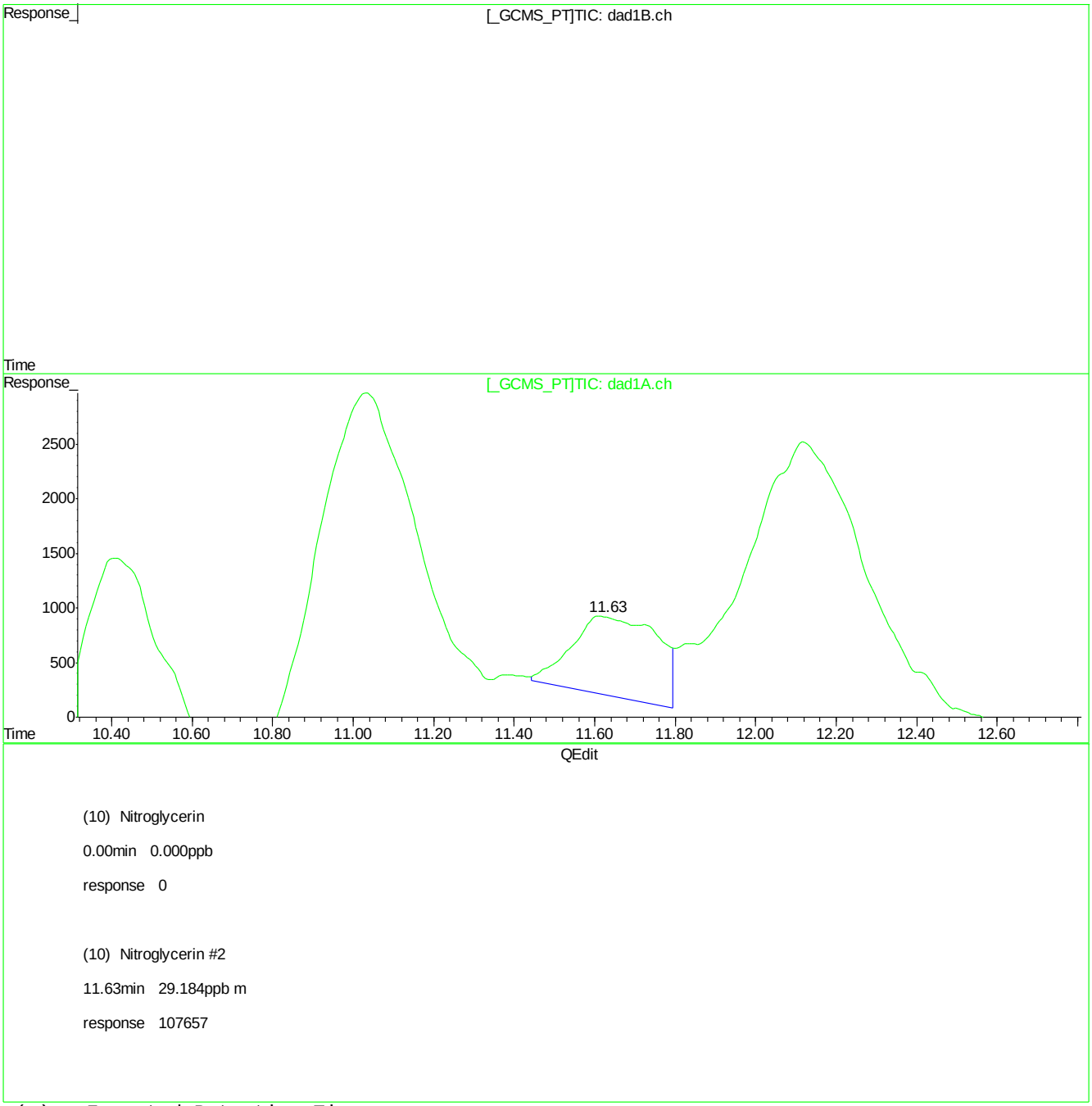
response 545525

(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:19:51 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration

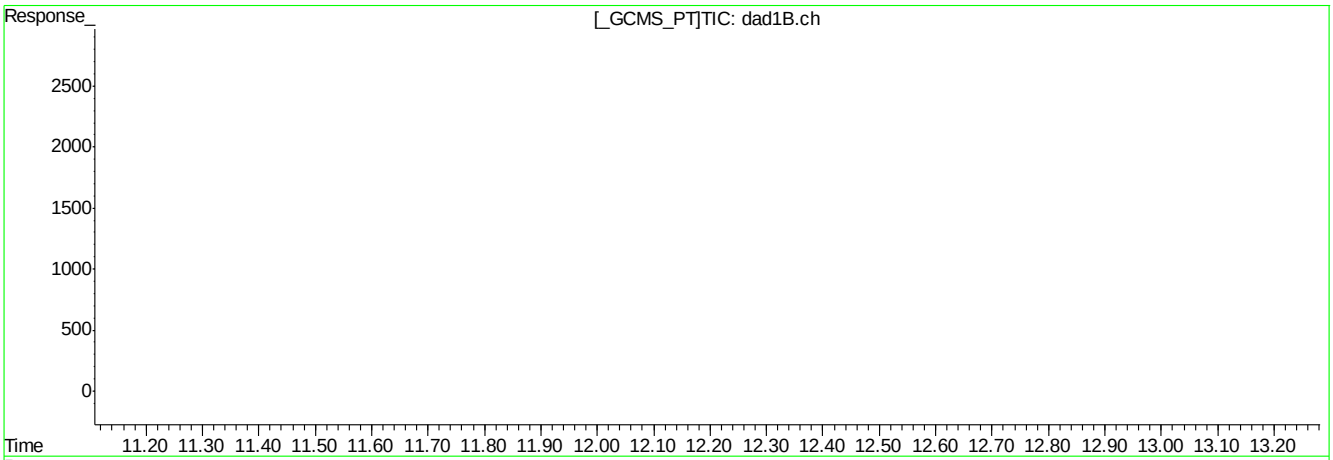


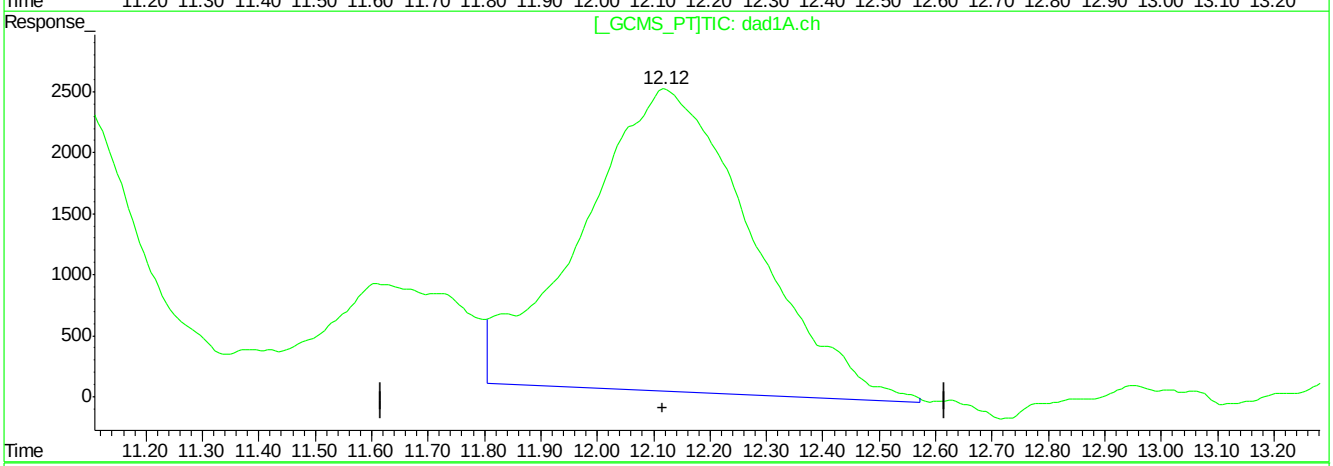
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:20:00 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(11) Tetryl

12.13min 49.699ppb

response 342824

(11) Tetryl #2

12.12min 39.278ppb m

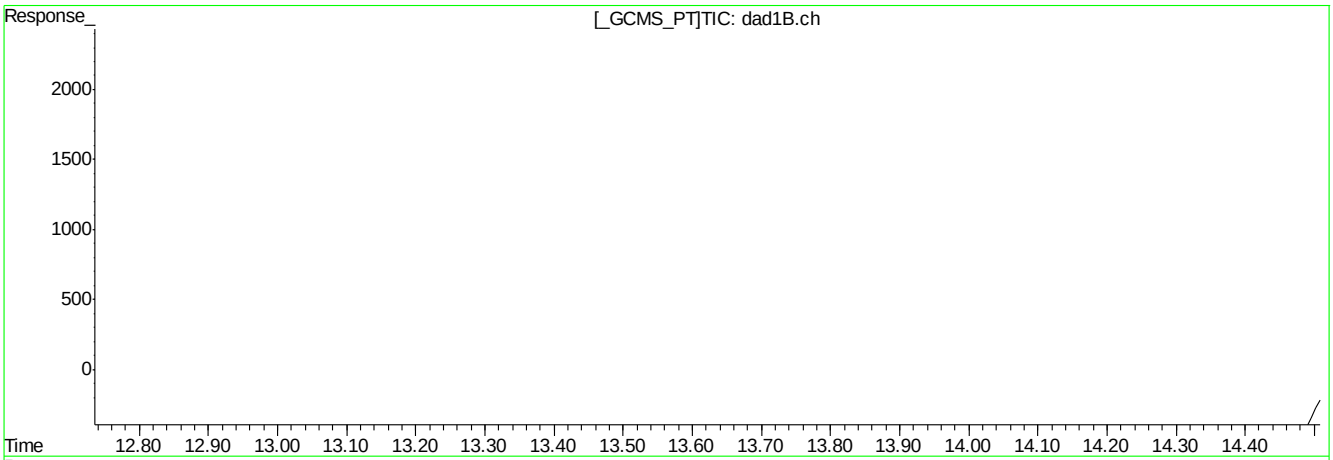
response 517408

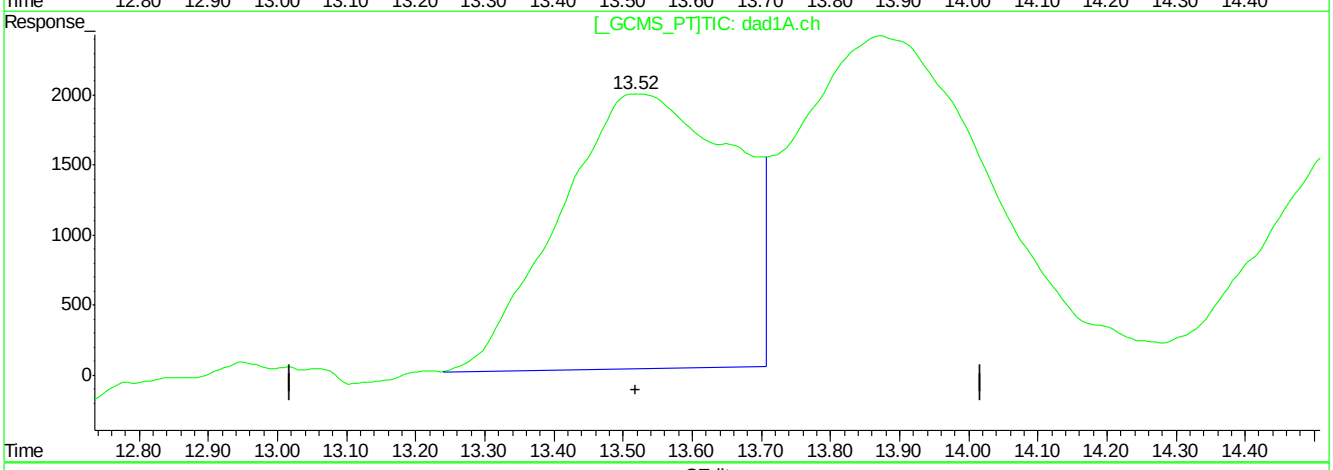
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:20:10 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(12) 3,4-Dinitrotoluene (S)

13.55min 41.601ppb

response 216587

(12) 3,4-Dinitrotoluene #2 (S)

13.52min 33.928ppb m

response 343039

(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:20:19 2019

GG617748.D edits: 3,4-Dinitrotoluene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
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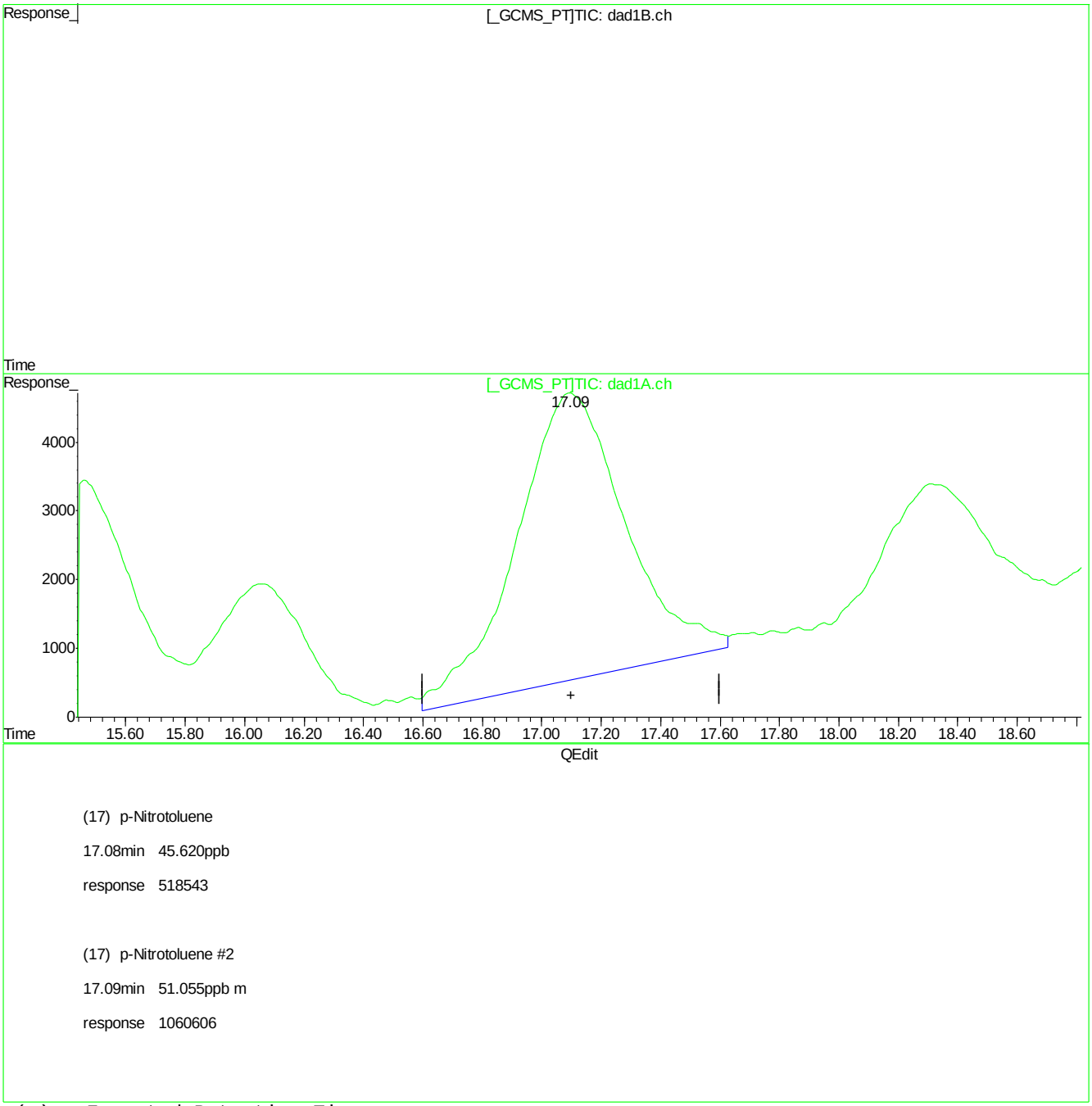
Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(17) p-Nitrotoluene

17.08min 45.620ppb

response 518543

(17) p-Nitrotoluene #2

17.09min 51.055ppb m

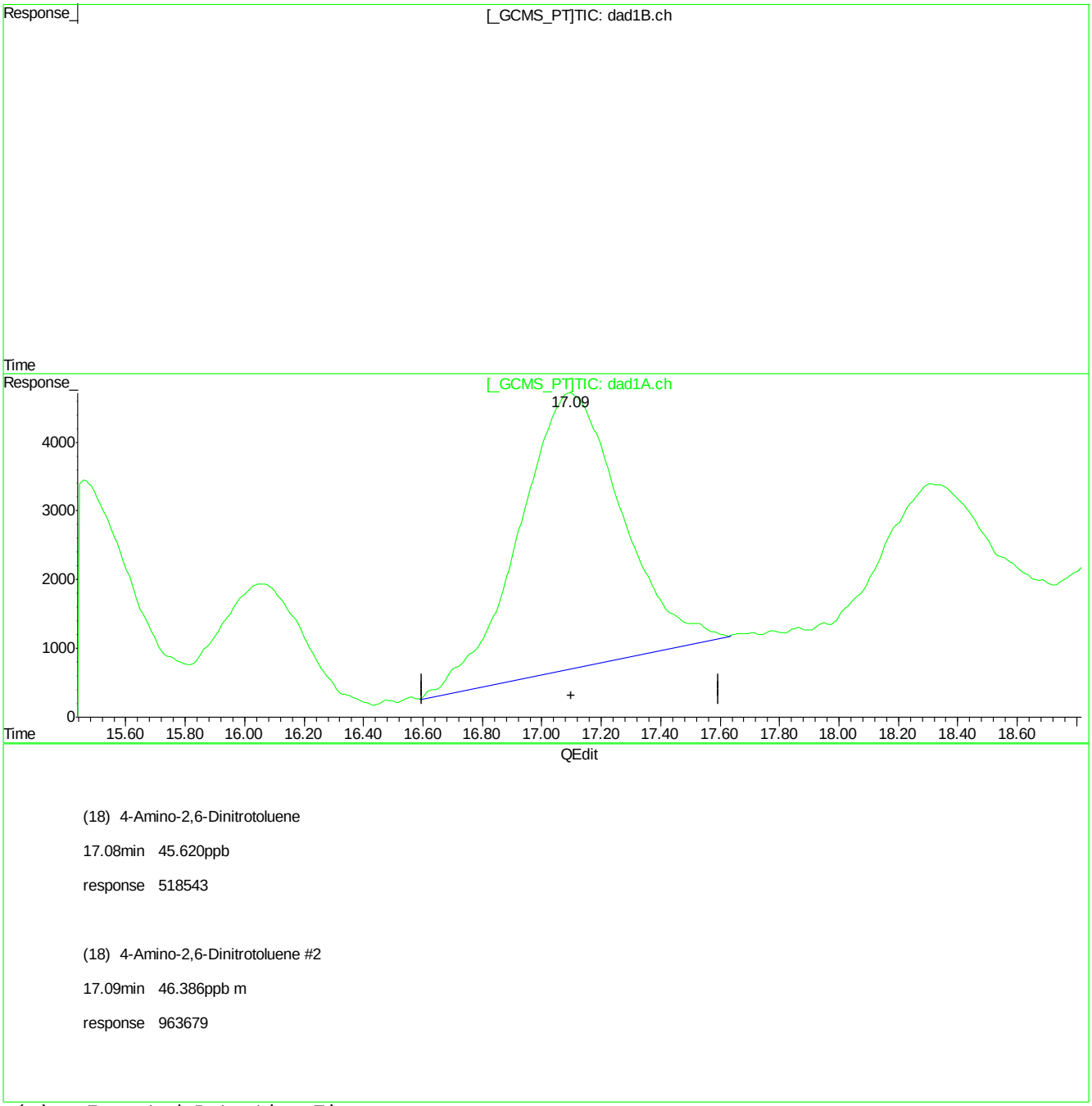
response 1060606

(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:20:39 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(18) 4-Amino-2,6-Dinitrotoluene

17.08min 45.620ppb

response 518543

(18) 4-Amino-2,6-Dinitrotoluene #2

17.09min 46.386ppb m

response 963679

(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:20:51 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
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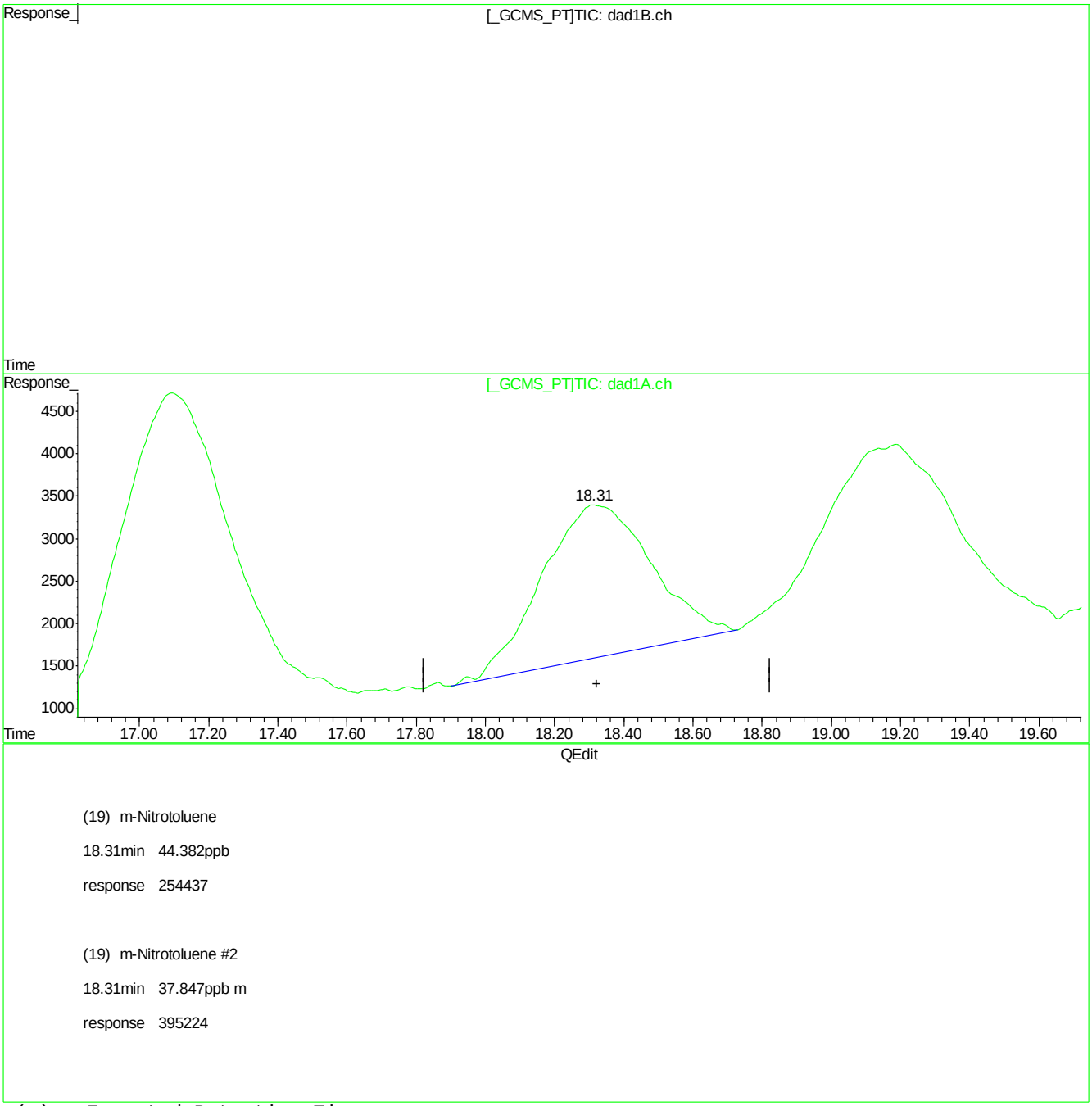
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(19) m-Nitrotoluene

18.31min 44.382ppb

response 254437

(19) m-Nitrotoluene #2

18.31min 37.847ppb m

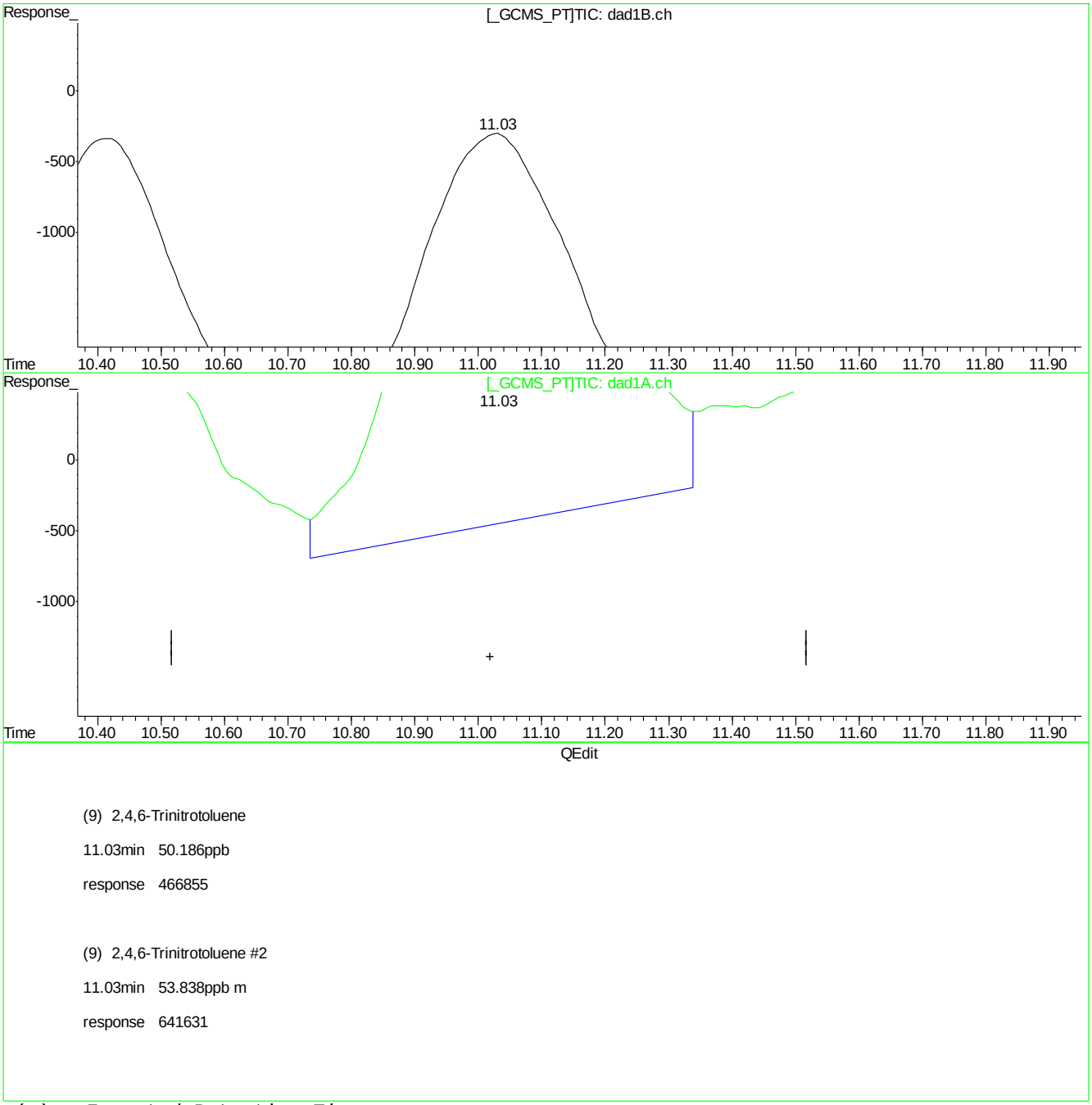
response 395224

(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:20:58 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:20 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(9) 2,4,6-Trinitrotoluene

11.03min 50.186ppb

response 466855

(9) 2,4,6-Trinitrotoluene #2

11.03min 53.838ppb m

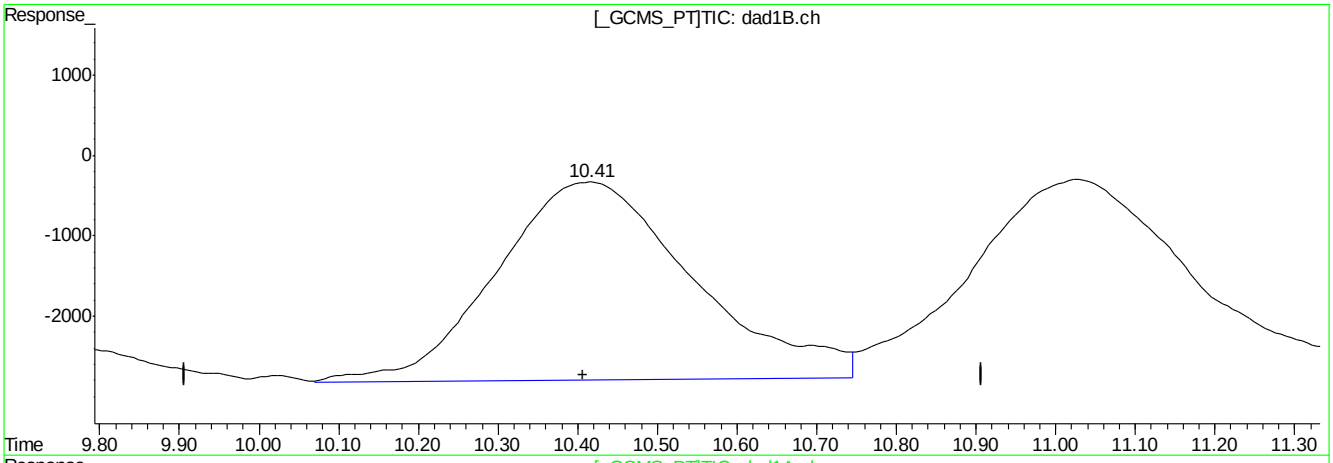
response 641631

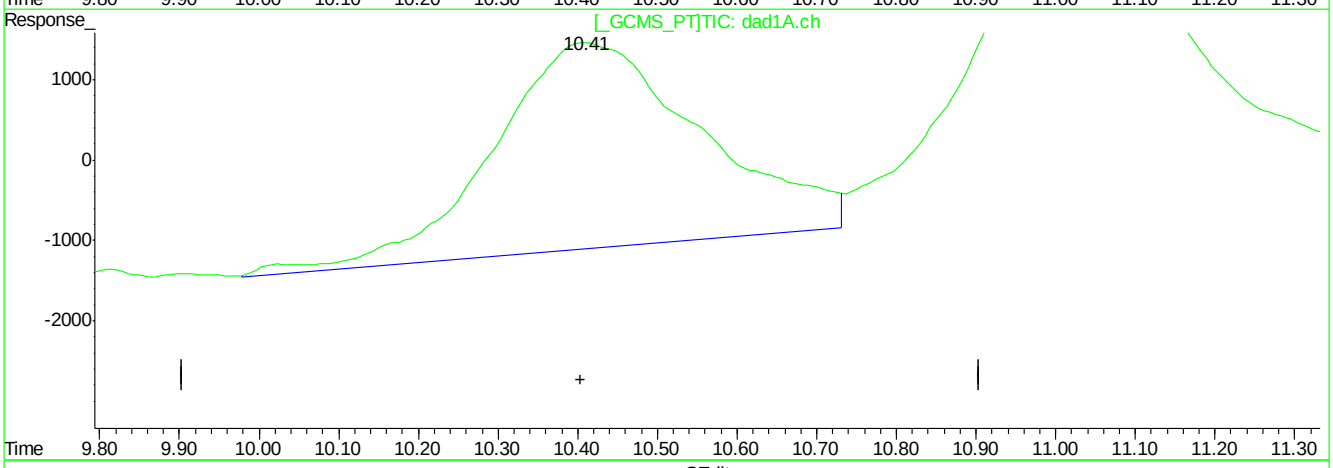
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:35:48 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:20 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(8) Nitrobenzene

10.42min 50.067ppb

response 424717

(8) Nitrobenzene #2

10.41min 55.327ppb m

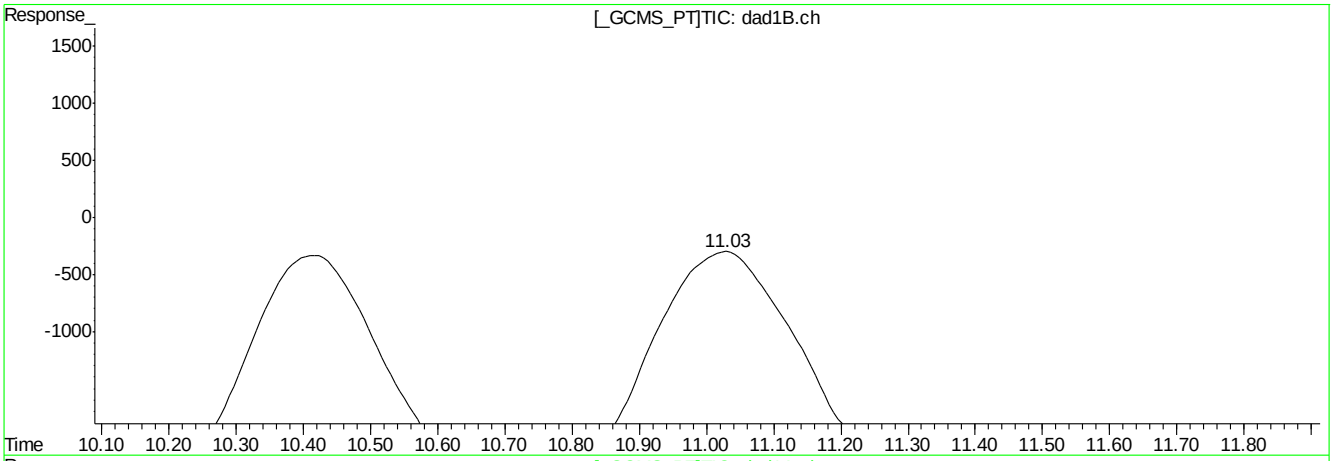
response 468190

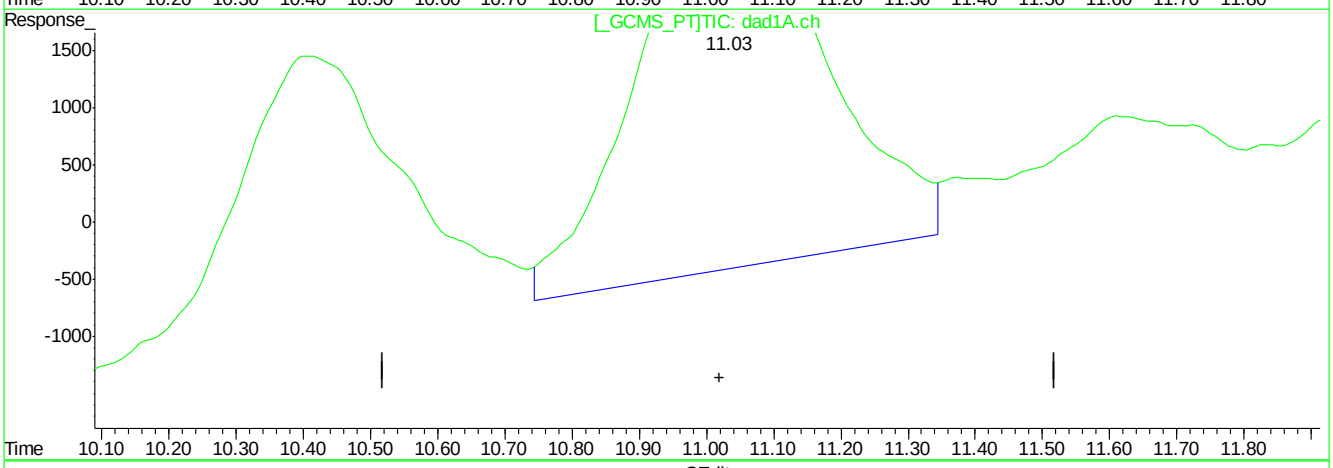
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:35:52 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:20 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.03min 50.186ppb

response 466855

(9) 2,4,6-Trinitrotoluene #2

11.03min 52.723ppb m

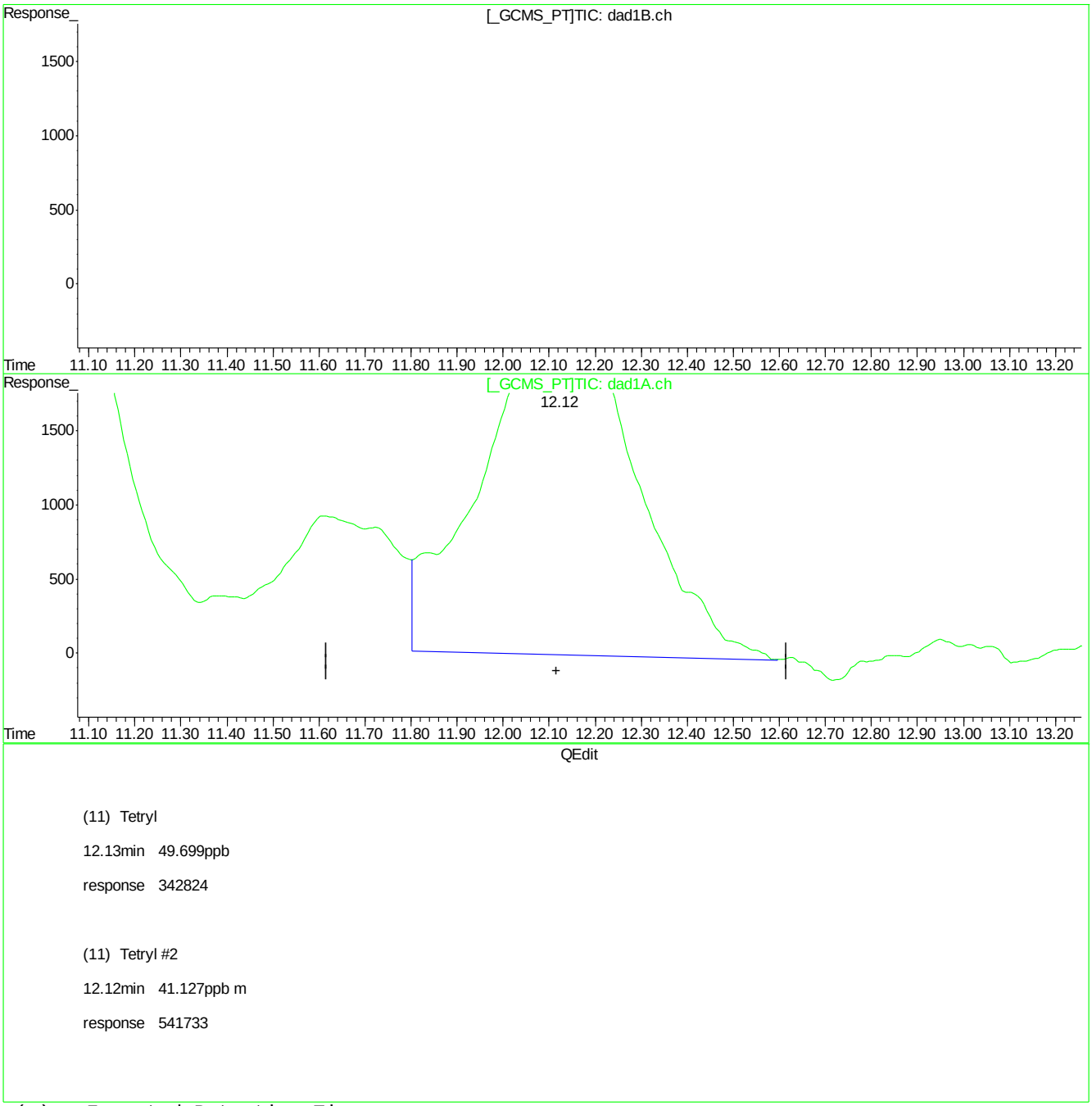
response 628341

(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:36:06 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:20 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(11) Tetryl

12.13min 49.699ppb

response 342824

(11) Tetryl #2

12.12min 41.127ppb m

response 541733

(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:36:14 2019

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
09/26/19 16:28

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12:35 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.54	13.54	480959	868537	92.381	85.881
	Spiked Amount 500.000	Range 70 - 136		Recovery =		18.48%#	17.18%#
	Target Compounds						
1)	TNX	4.96	4.96	627331	626725	110.436m	110.096m
2)	HMX	5.39	5.39	303509	306772	82.387m	83.377m
3)	DNX	5.48	5.48	478533	488896	88.393m	91.309m
4)	MNX	6.34	6.34	549848	549848	94.250	94.253
5)	1,3,5-Trinitrobe	7.14	7.14	1068826	1068826	112.334	112.669
6)	RDX	7.55	7.55	513642	513642	111.124	111.941
7)	1,3-Dinitrobenze	9.51	9.51	1496695	1034767	111.794	102.032m
8)	Nitrobenzene	10.42	10.42	939534	842434	110.754	99.633m
9)	2,4,6-Trinitroto	11.03	11.02	1095538	1275868	117.768	107.055m
10)	Nitroglycerin	0.00	11.66	0	376622	N.D.	102.113m#
11)	Tetryl	12.13	12.11	864235	1444030	125.289	109.804m
13)	2,6-Dinitrotolue	13.89	13.88	767928	1205926	122.774	126.901
14)	2,4-Dinitrotolue	14.58	14.56	1329488	796655	109.499	90.696
15)	o-Nitrotoluene	16.05	16.05	641941	843998	114.731	83.704
16)	3,5-Dinitroanili	15.44	15.45	1099231	1615264	101.063	85.482
17)	p-Nitrotoluene	17.09	17.09	1221156	2192222	107.434	105.529
18)	4-Amino-2,6-Dini	17.09	17.09	1221156	2192222	107.434	105.521
19)	m-Nitrotoluene	18.30	18.31	632999	1070219	110.414	102.486
20)	2-Amino-4,6-Dini	19.13	19.14	1024160	1389255	118.711	111.911
21)	PETN	0.00	20.29	0	233935	N.D.	93.016 #

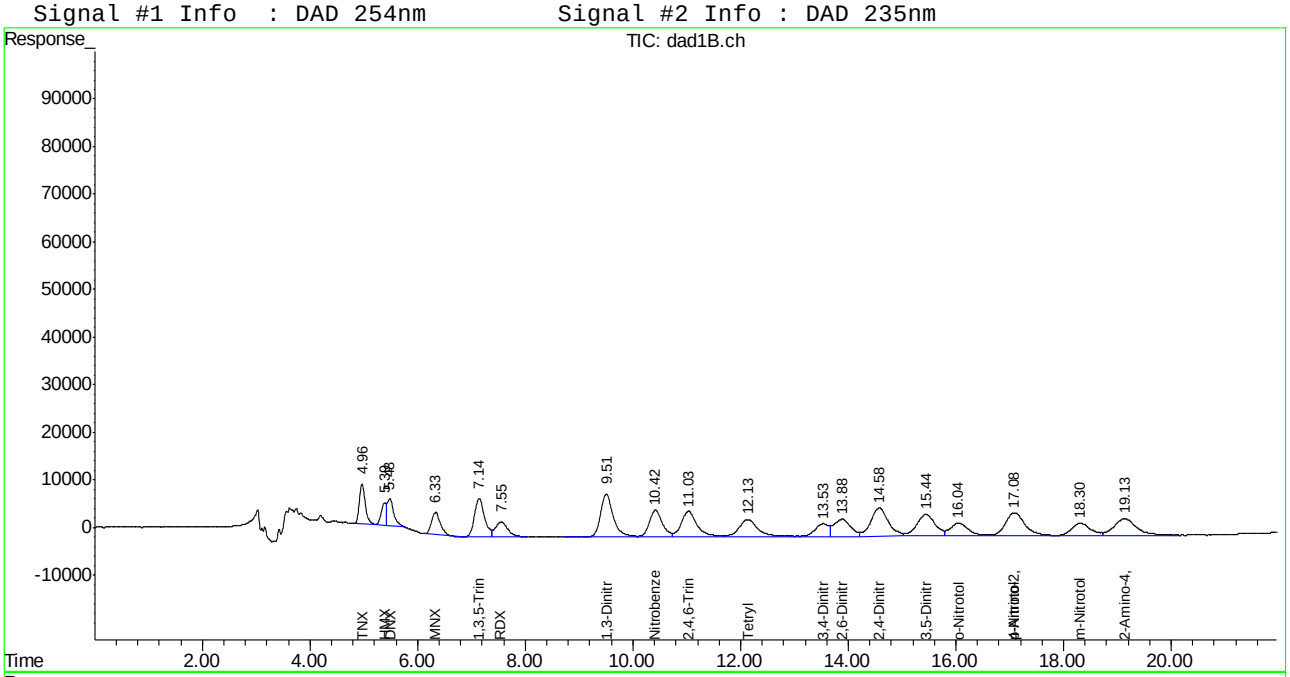
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

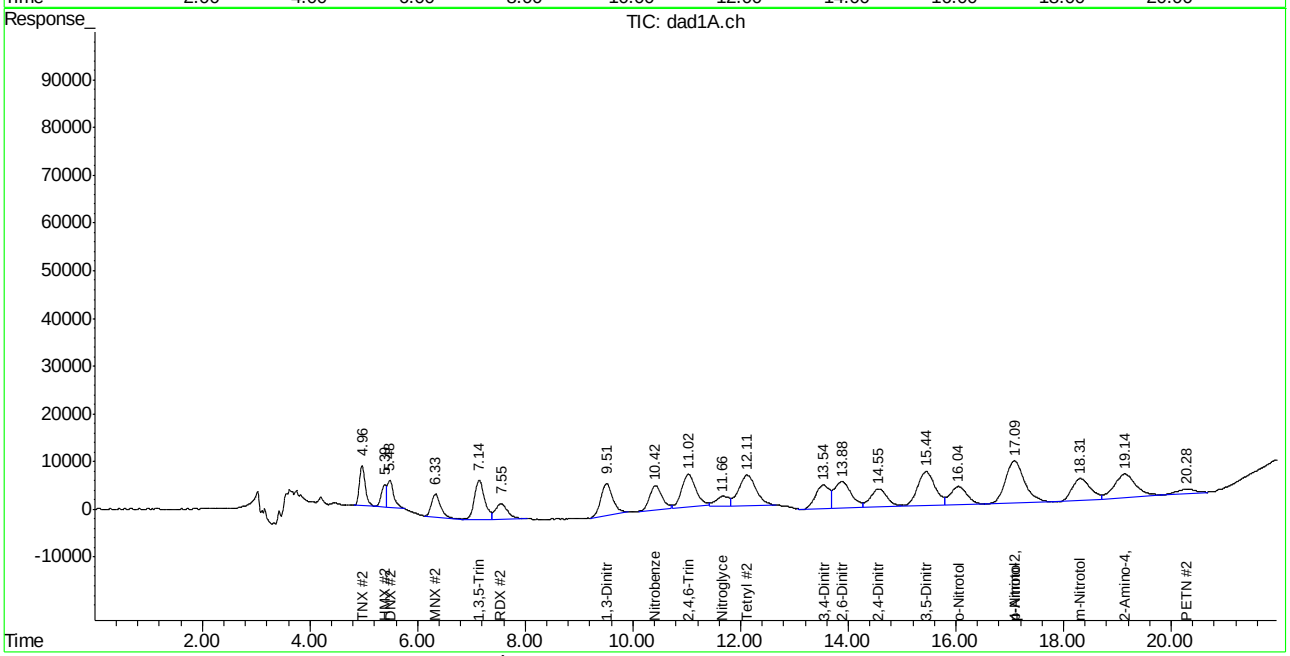
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:35 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

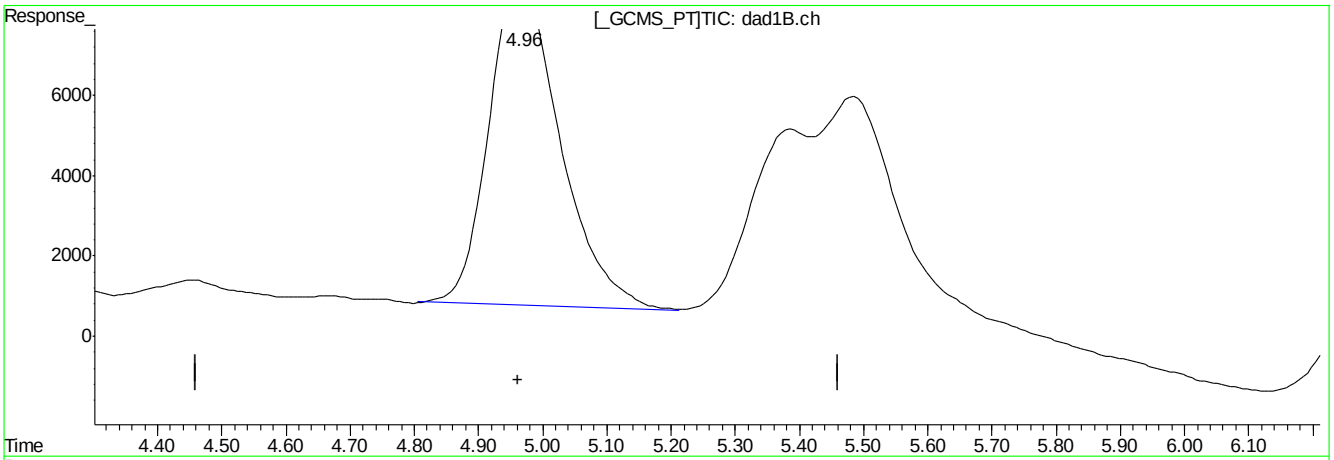
Sample Number: GGG2769-IC2769
Lab FileID: GG617749.D
Injection Time: 09/25/19 21:29
Method: SW846 8330B
Analyst approved: 09/26/19 16:07 William Hustedde
Supervisor approved: 09/26/19 16:28 Naresh Jiawan

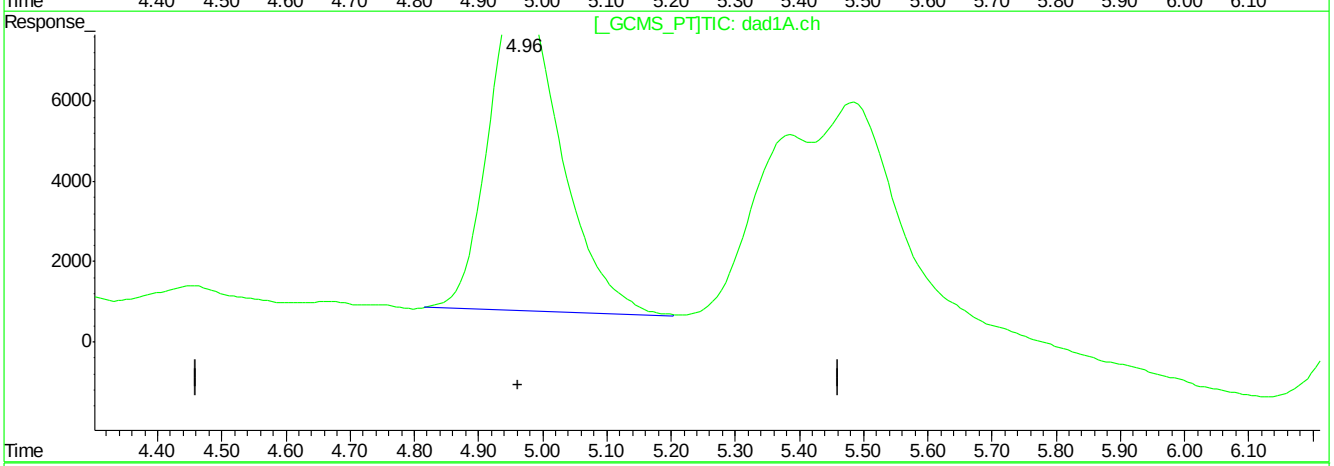
Parameter	CAS	Sig#	R.T. (min.)	Reason
TNX		1	4.96	Poor instrument integration
TNX		2	4.96	Poor instrument integration
HMX	2691-41-0	1	5.39	Poor instrument integration
HMX	2691-41-0	2	5.39	Poor instrument integration
DNX		1	5.48	Poor instrument integration
DNX		2	5.48	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	9.51	Poor instrument integration
Nitrobenzene	98-95-3	2	10.42	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	2	11.02	Poor instrument integration
Nitroglycerine	55-63-0	2	11.66	Poor instrument integration
Tetryl	479-45-8	2	12.11	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(1) TNX

4.96min 110.436ppb m

response 627331

(1) TNX #2

4.96min 110.096ppb m

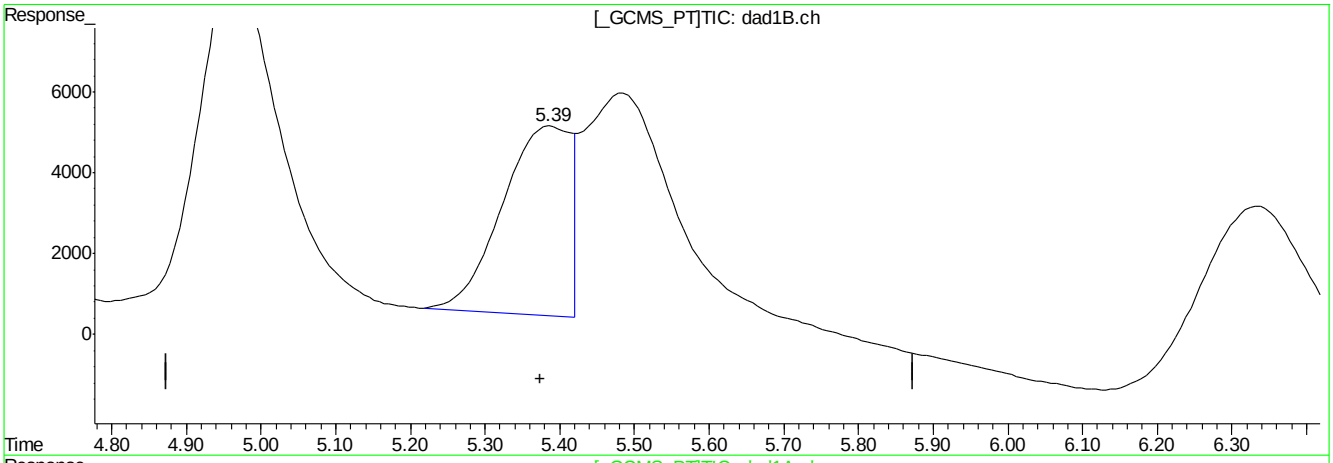
response 626725

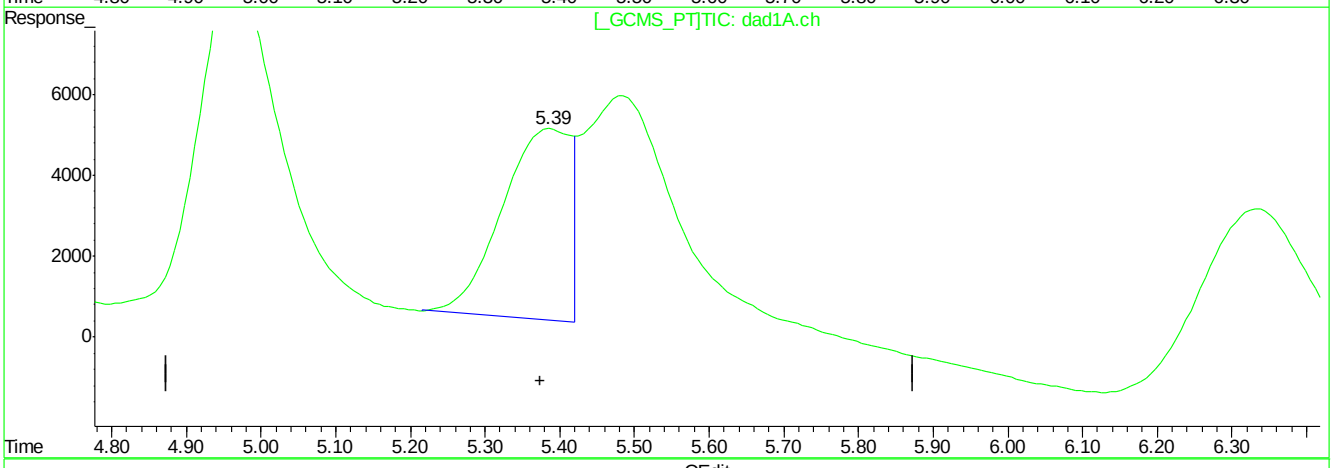
(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:22:45 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.39min 82.387ppb m

response 303509

(2) HMX #2

5.39min 83.377ppb m

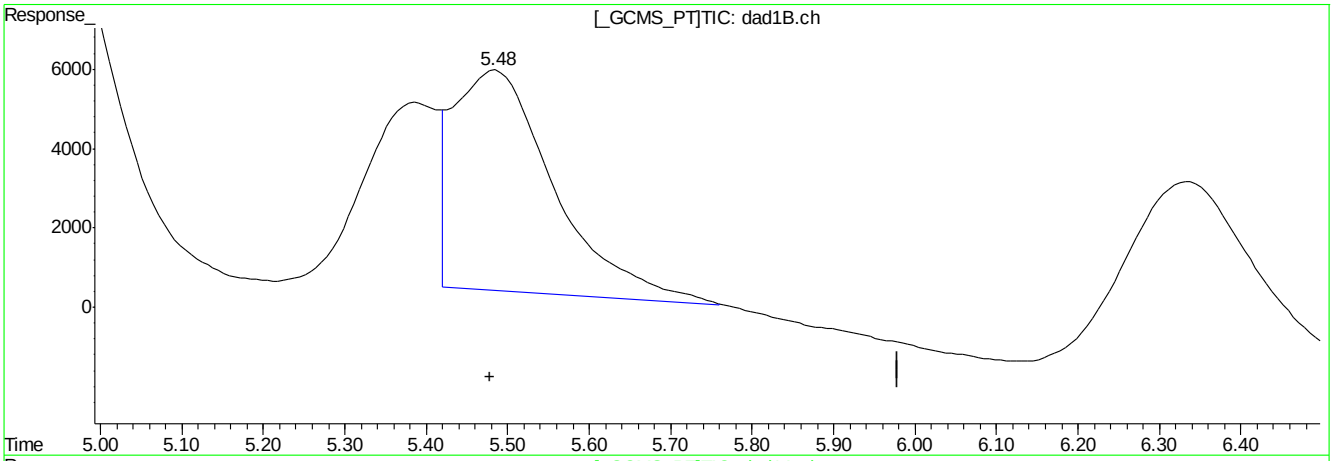
response 306772

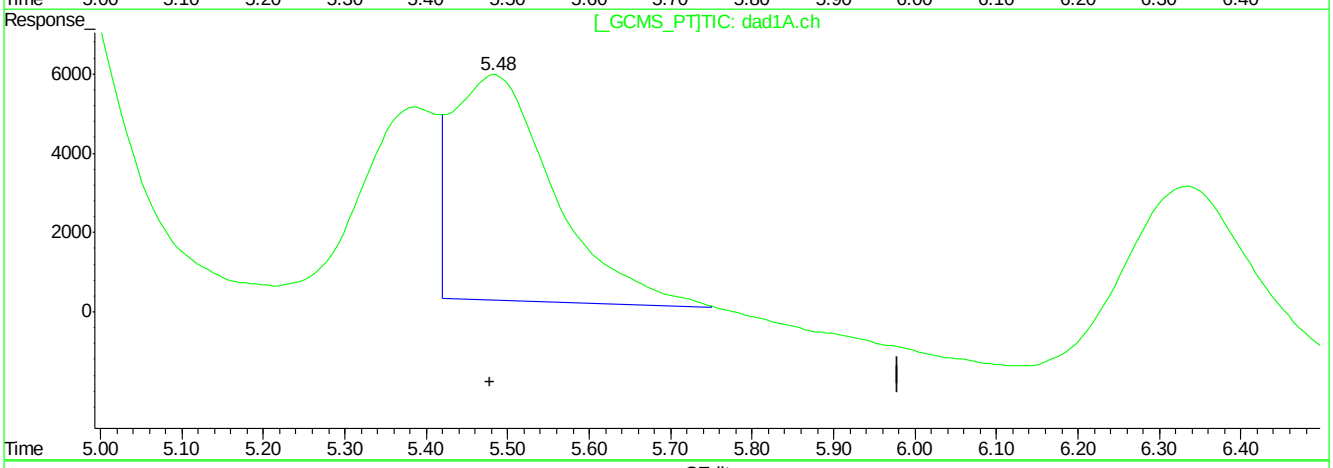
(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:22:54 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(3) DNX

5.48min 88.393ppb m

response 478533

(3) DNX #2

5.48min 91.309ppb m

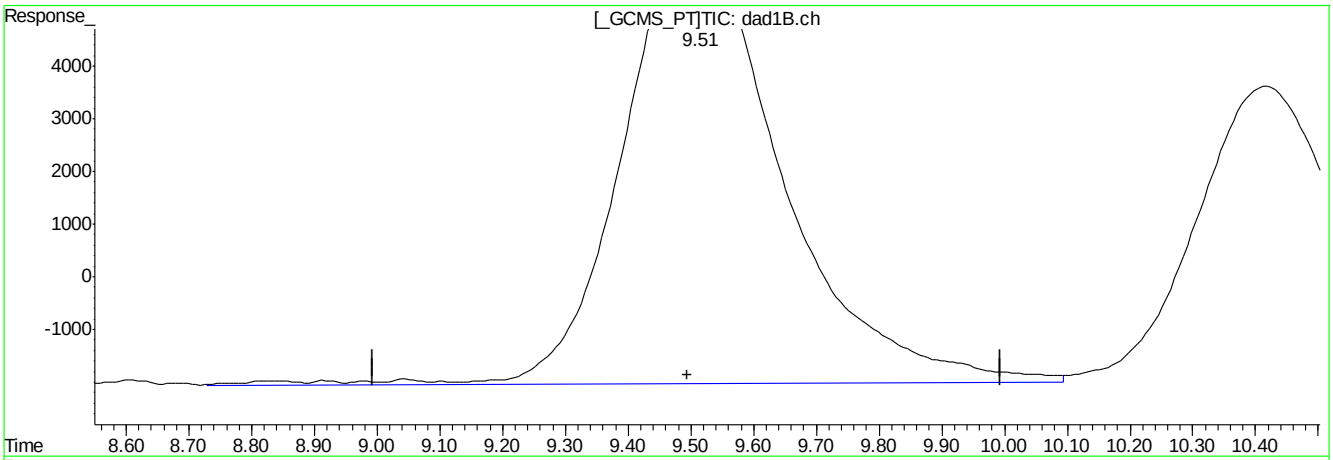
response 488896

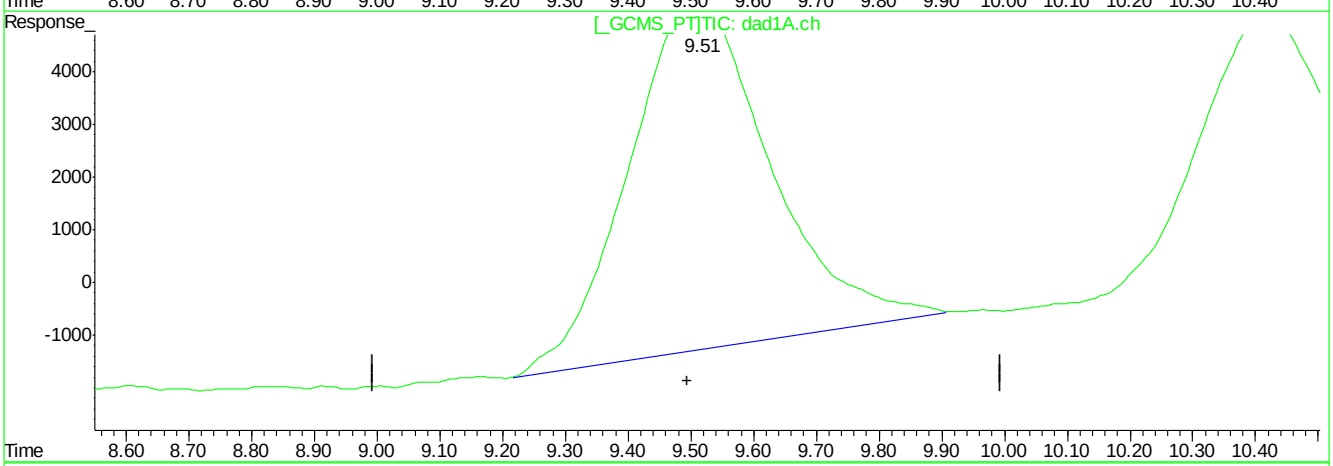
(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:23:04 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

9.51min 111.794ppb

response 1496695

(7) 1,3-Dinitrobenzene #2

9.51min 102.032ppb m

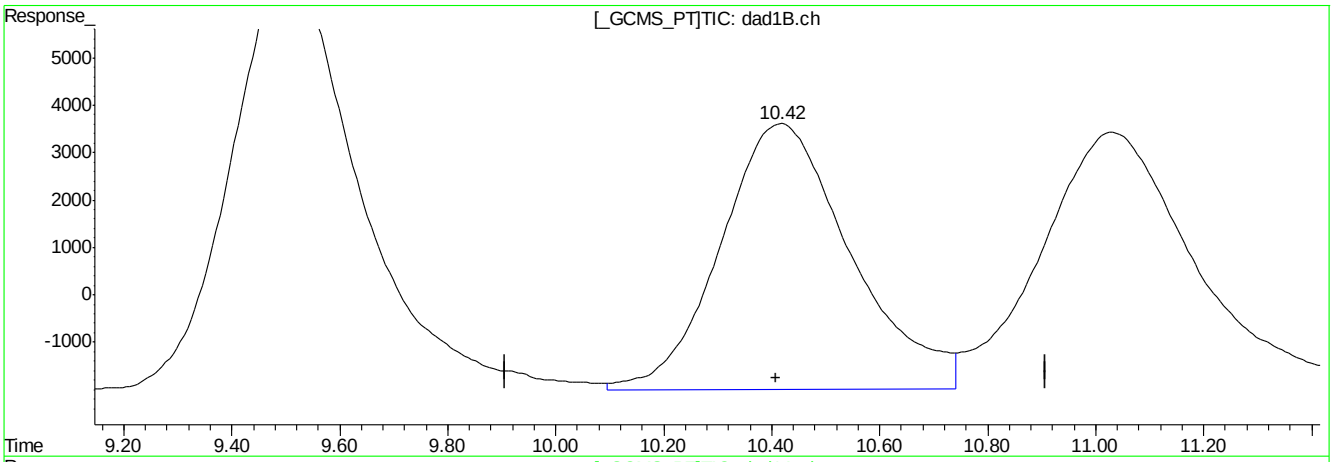
response 1034767

(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:23:17 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(8) Nitrobenzene

10.42min 110.754ppb

response 939534

(8) Nitrobenzene #2

10.42min 93.724ppb m

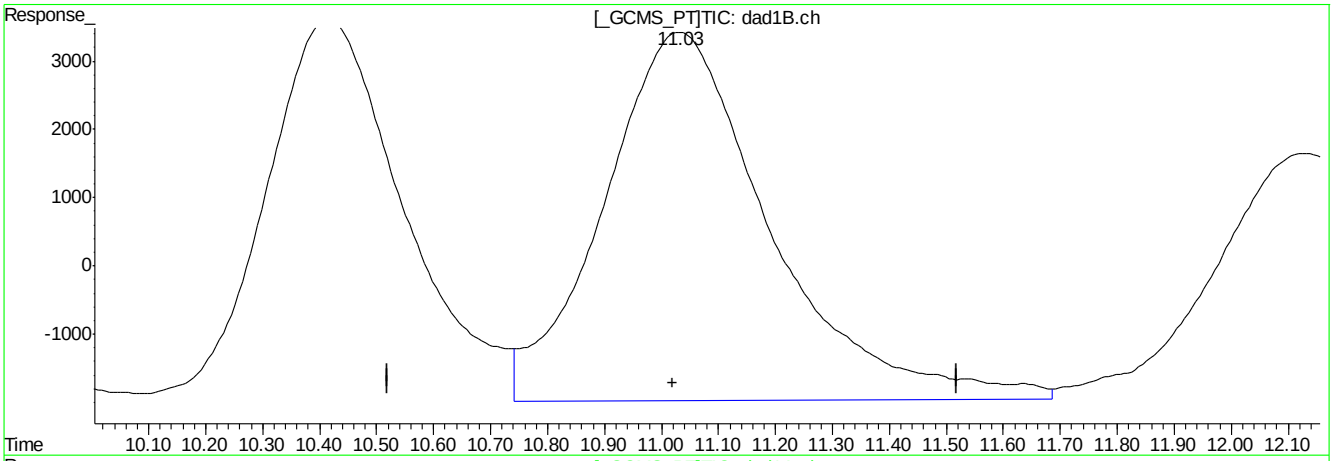
response 792550

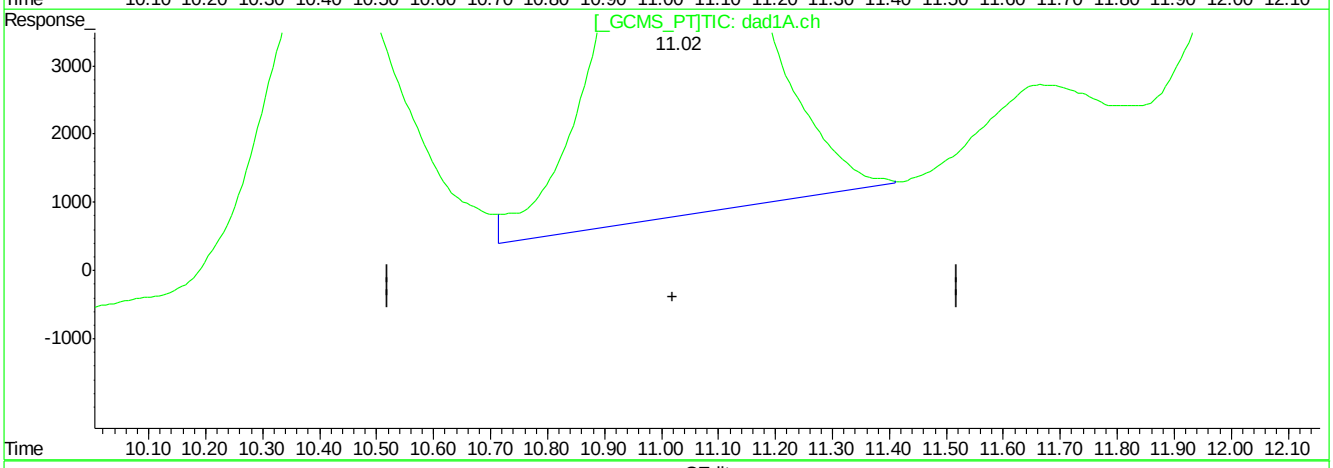
(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:23:25 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.03min 117.768ppb

response 1095538

(9) 2,4,6-Trinitrotoluene #2

11.02min 95.144ppb m

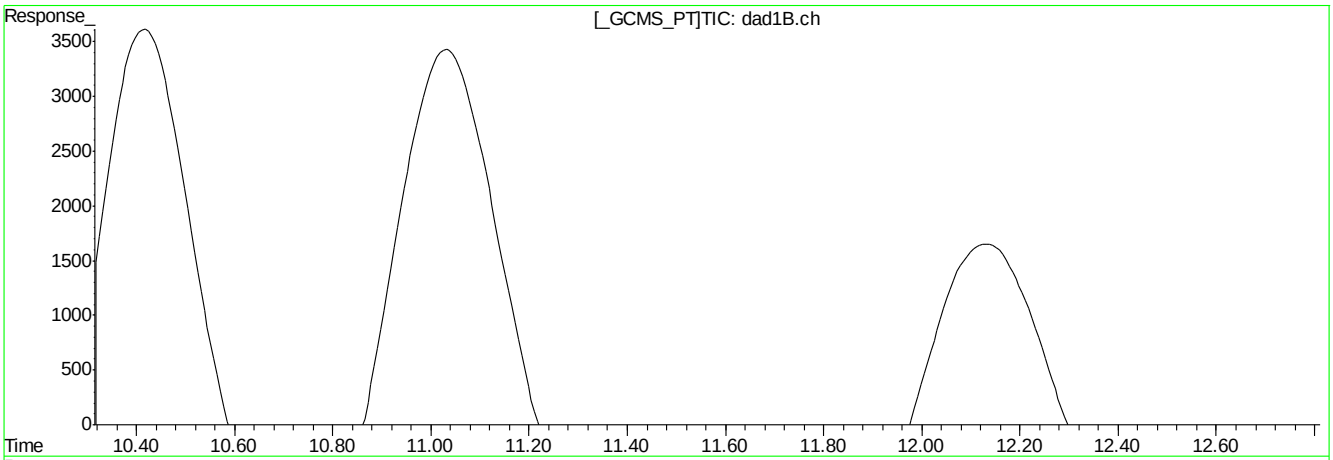
response 1133915

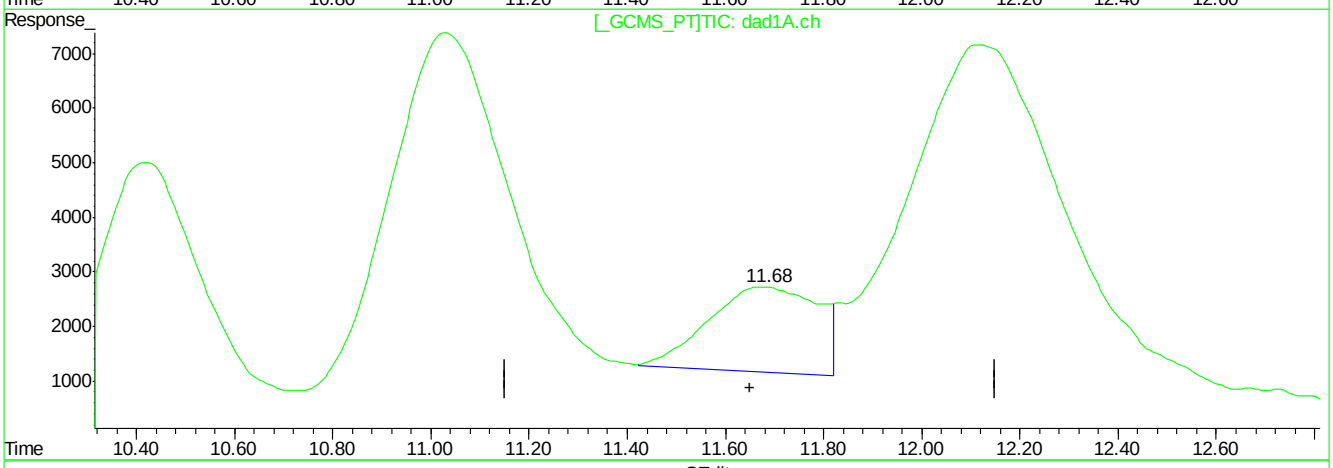
(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:23:32 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(10) Nitroglycerin

0.00min 0.000ppb

response 0

(10) Nitroglycerin #2

11.68min 65.833ppb m

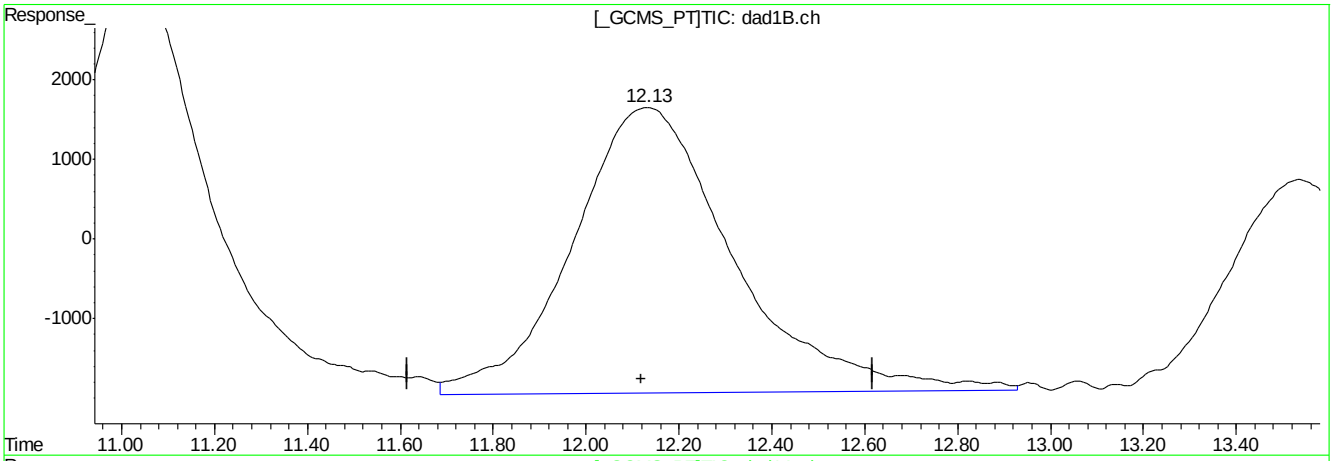
response 242831

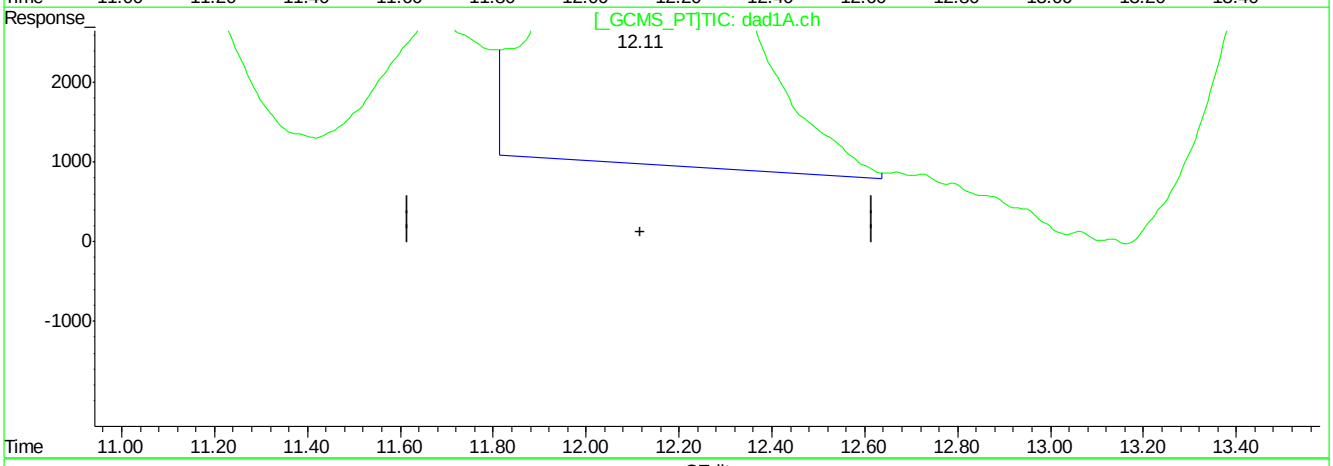
(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:23:43 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(11) Tetryl

12.13min 125.289ppb

response 864235

(11) Tetryl #2

12.11min 104.507ppb m

response 1374552

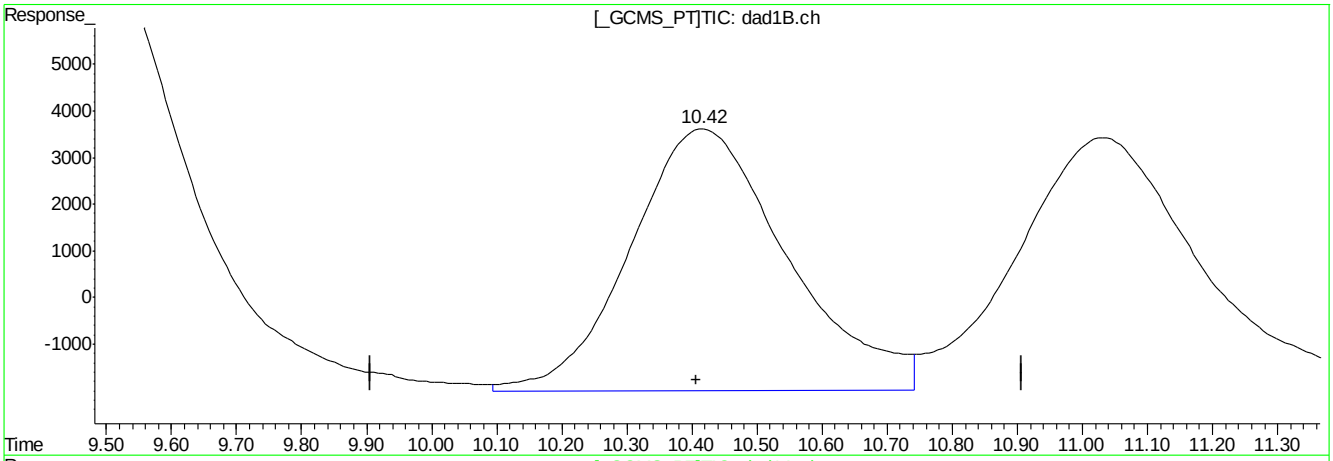
(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:23:50 2019

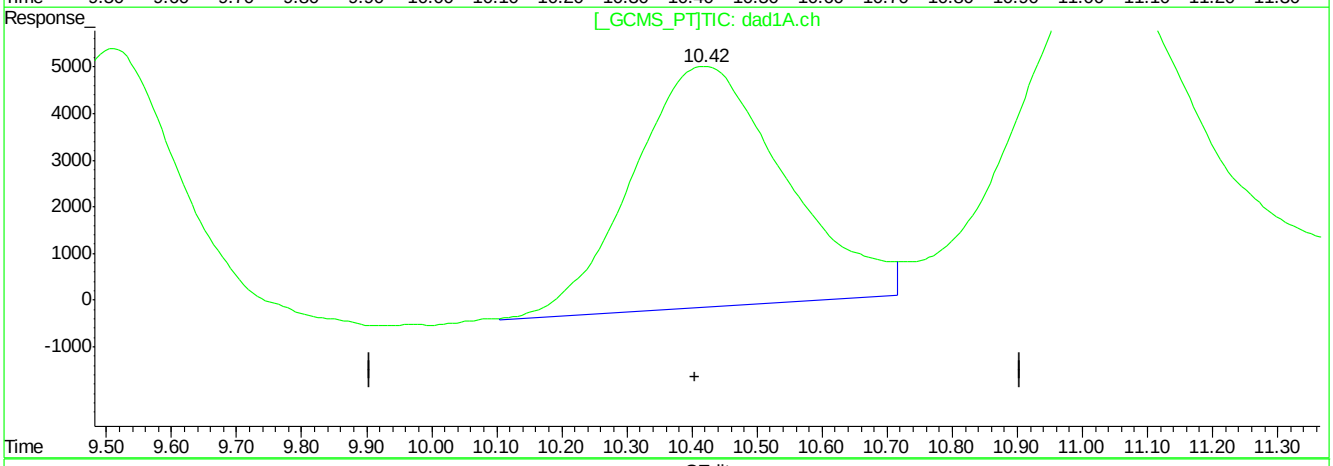
GG617749.D edits: Tetryl

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:23 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(8) Nitrobenzene

10.42min 110.754ppb

response 939534

(8) Nitrobenzene #2

10.42min 99.633ppb m

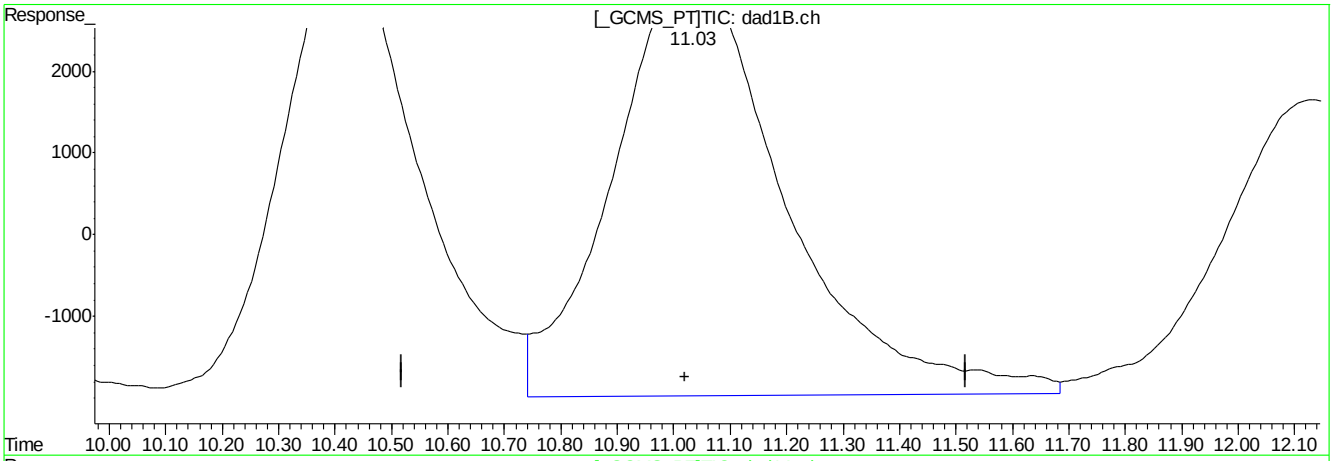
response 842434

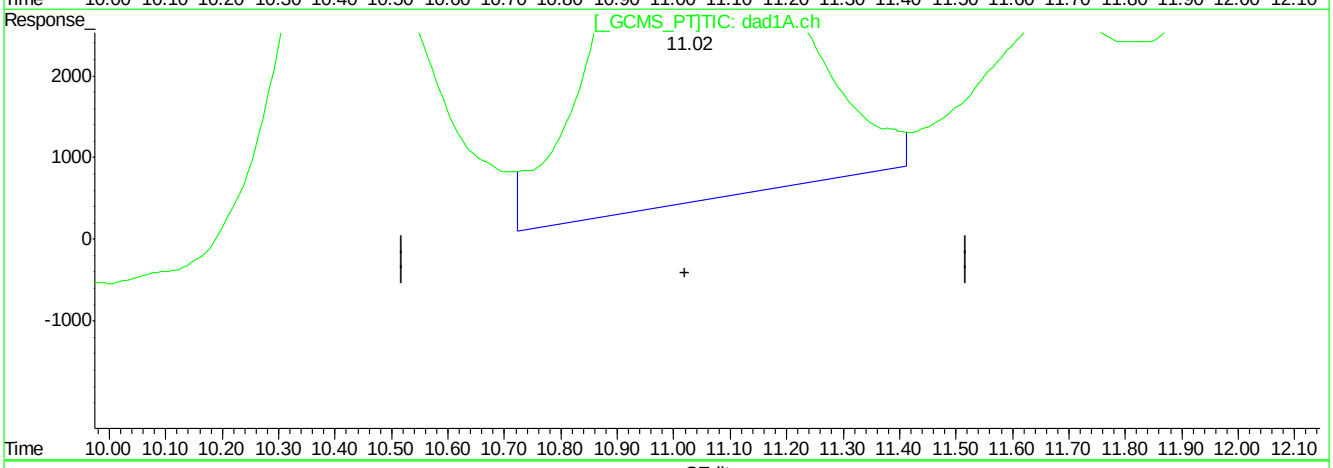
(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:35:00 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:23 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.03min 117.768ppb

response 1095538

(9) 2,4,6-Trinitrotoluene #2

11.02min 107.055ppb m

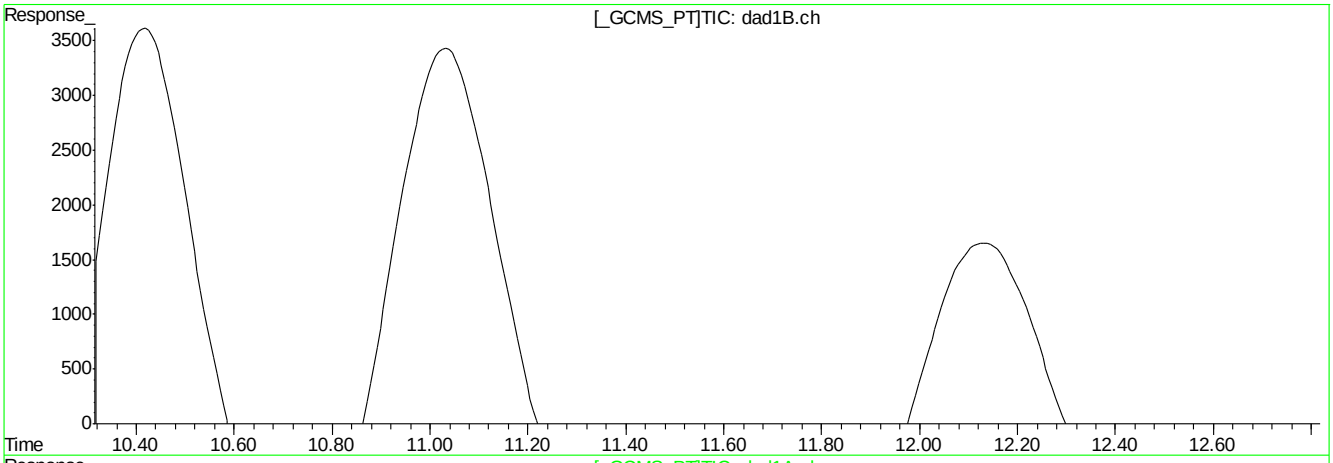
response 1275868

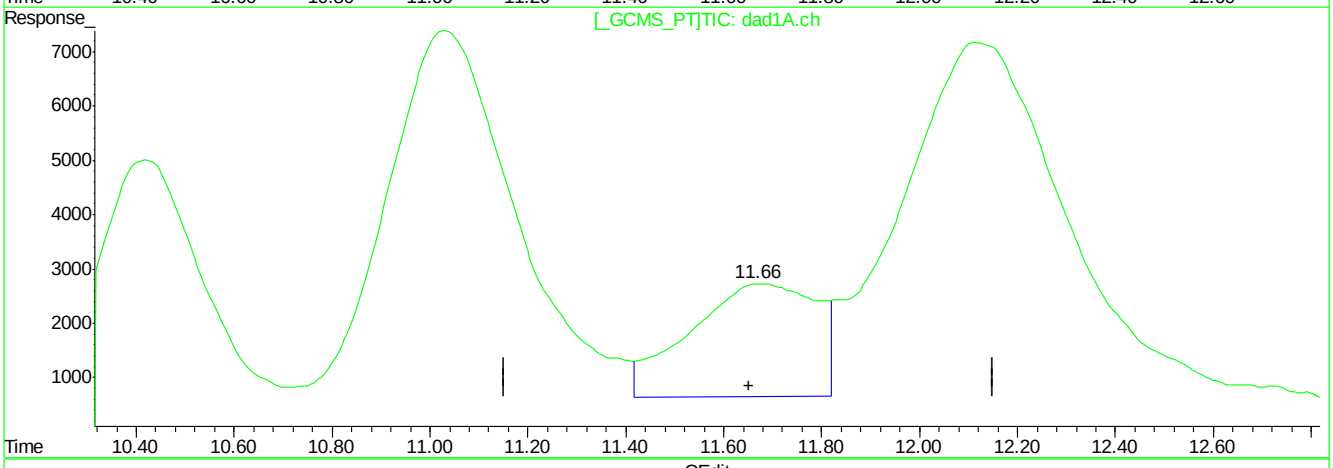
(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:35:07 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:23 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(10) Nitroglycerin

0.00min 0.000ppb

response 0

(10) Nitroglycerin #2

11.66min 102.113ppb m

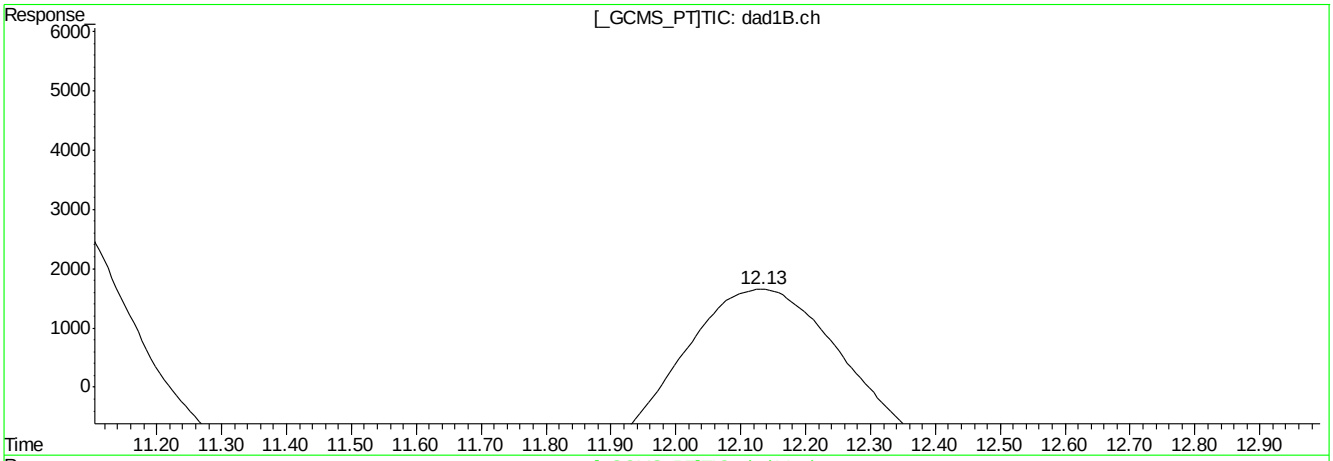
response 376622

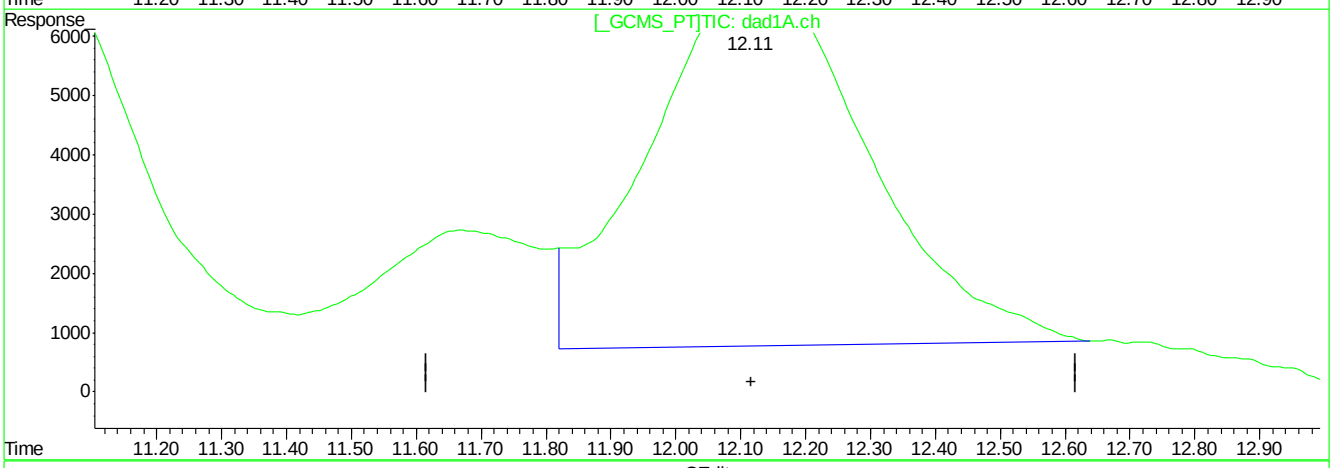
(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:35:14 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:23 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(11) Tetryl

12.13min 125.289ppb

response 864235

(11) Tetryl #2

12.11min 109.804ppb m

response 1444030

(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:35:24 2019

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
09/26/19 16:28

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12:36 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.53	13.53	897500	1733597	172.389	171.349
	Spiked Amount 500.000	Range 70 - 136		Recovery =		34.48%#	34.27%#
	Target Compounds						
1)	TNX	4.96	4.96	1189698	1193239	209.435m	209.615m
2)	HMX	5.38	5.38	561213	570787	152.702m	155.505m
3)	DNX	5.48	5.48	842819	862360	156.087m	161.429m
4)	MNX	6.33	6.33	1110475	1110475	190.435	190.441
5)	1,3,5-Trinitrobe	7.14	7.14	2073386	2073386	217.913	218.564
6)	RDX	7.55	7.55	1053536	1053536	227.927	229.604
7)	1,3-Dinitrobenze	9.50	9.50	2799974	2087611	209.140	205.849m
8)	Nitrobenzene	10.41	10.41	1760848	1617927	207.572	191.675m
9)	2,4,6-Trinitroto	11.03	11.03	2043556	2919500	219.678	244.968m
10)	Nitroglycerin	0.00	11.66	0	743814	N.D.	201.718m#
11)	Tetryl	12.13	12.13	1553902	3011692	225.270	229.656m
13)	2,6-Dinitrotolue	13.88	13.88	1457065	2249189	232.952	236.804
14)	2,4-Dinitrotolue	14.57	14.58	2571728	1683225	211.811	191.628
15)	o-Nitrotoluene	16.05	16.05	1234213	1761233	220.585	174.672
16)	3,5-Dinitroanili	15.43	15.44	2092859	3231411	192.417	171.010
17)	p-Nitrotoluene	17.09	17.09	2347007	3980941	206.483	191.635
18)	4-Amino-2,6-Dini	17.09	17.09	2347007	3980941	206.483	191.620
19)	m-Nitrotoluene	18.32	18.32	1188880	1919756	207.376	183.839
20)	2-Amino-4,6-Dini	19.14	19.14	2006480	2598000	232.572	209.281
21)	PETN	0.00	20.30	0	519437	N.D.	206.419 #

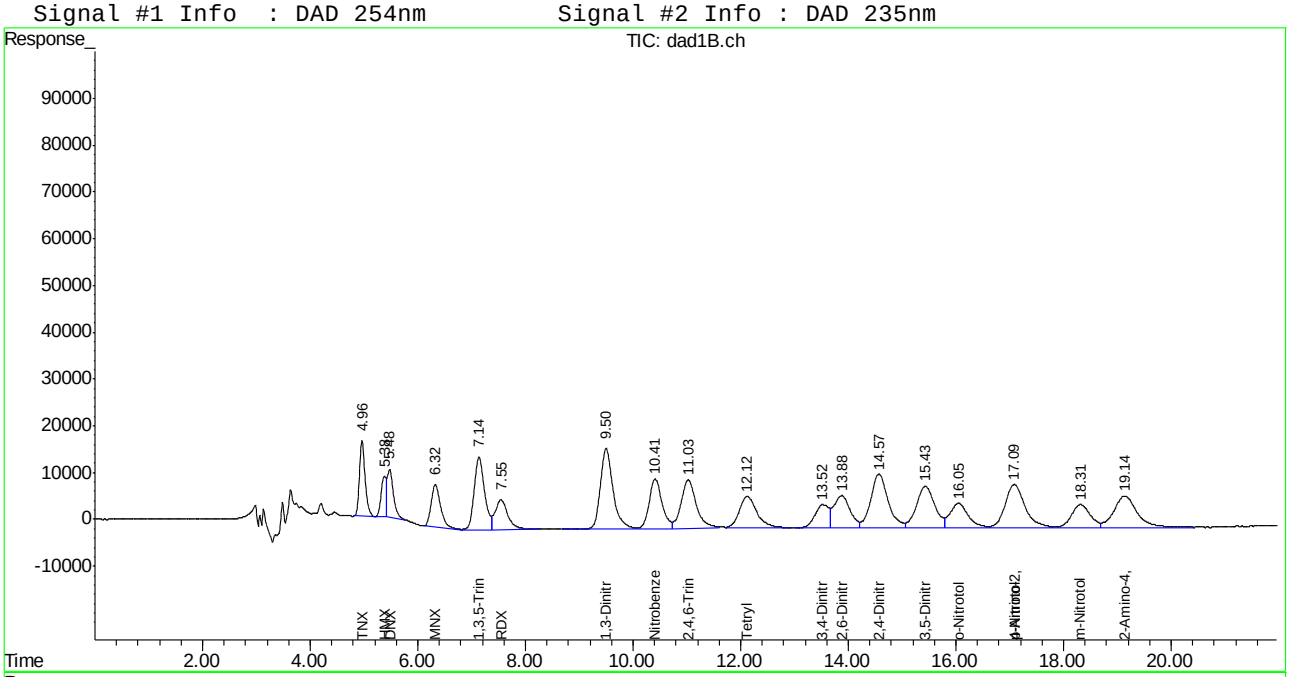
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

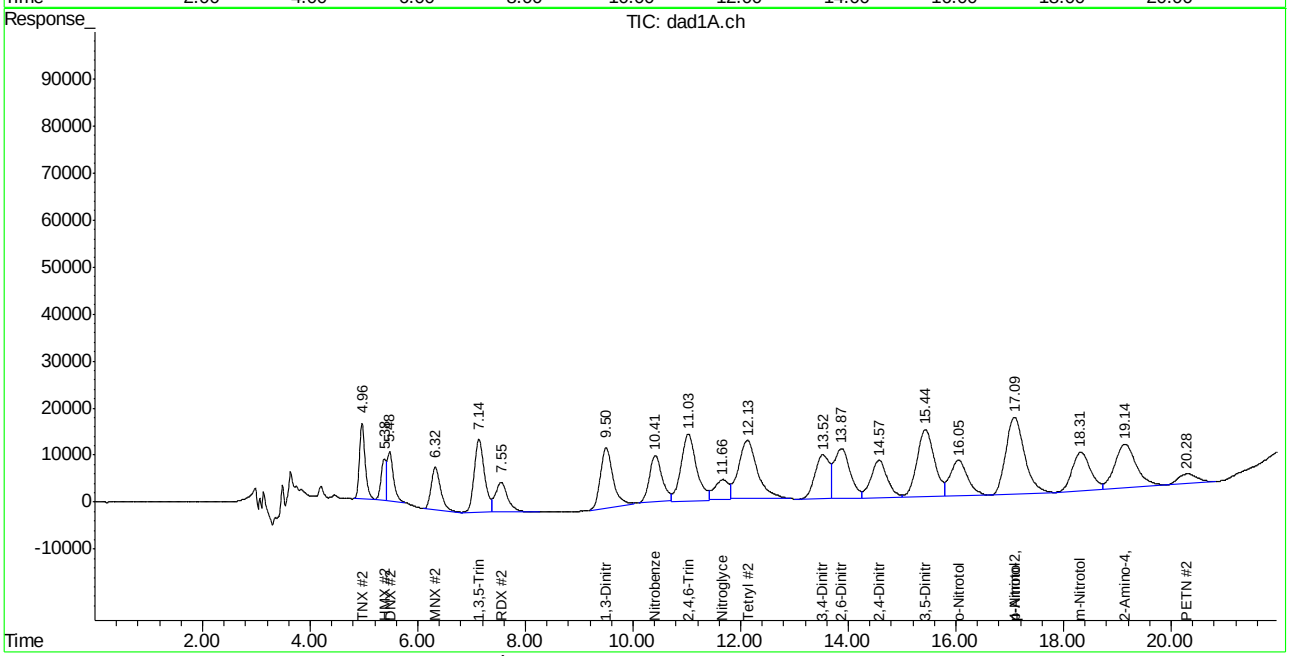
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:34 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

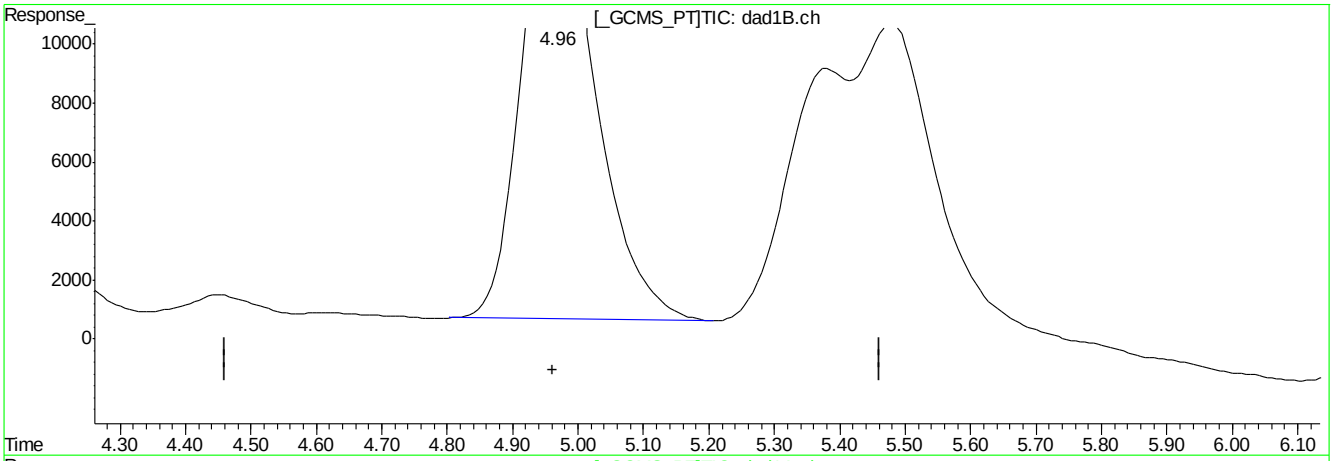
Sample Number: GGG2769-IC2769
Lab FileID: GG617750.D
Injection Time: 09/25/19 21:58
Method: SW846 8330B
Analyst approved: 09/26/19 16:07 William Hustedde
Supervisor approved: 09/26/19 16:28 Naresh Jiawan

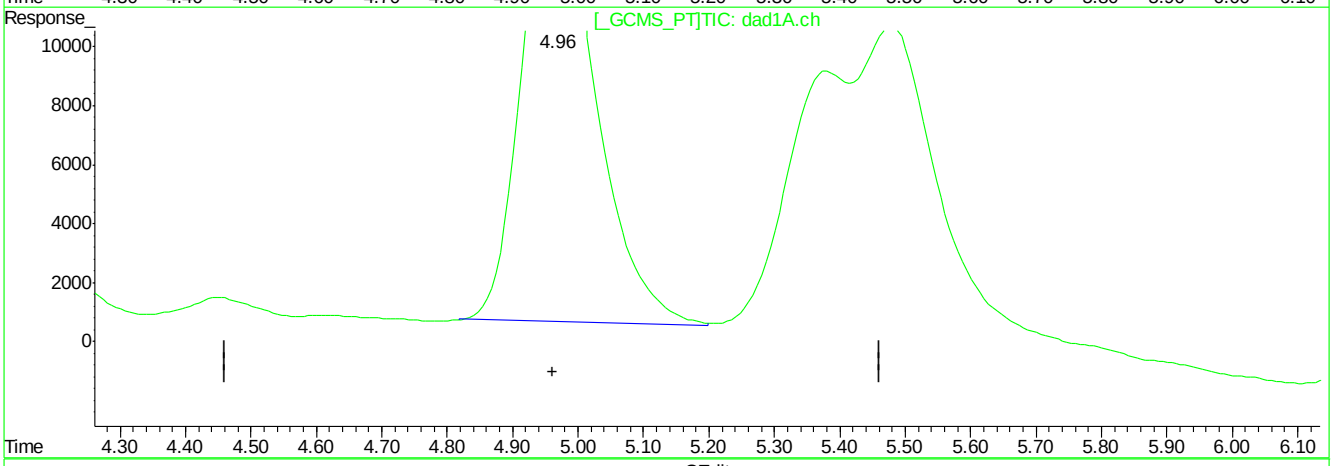
Parameter	CAS	Sig#	R.T. (min.)	Reason
TNX		1	4.96	Poor instrument integration
TNX		2	4.96	Poor instrument integration
HMX	2691-41-0	1	5.38	Poor instrument integration
HMX	2691-41-0	2	5.38	Poor instrument integration
DNX		1	5.48	Poor instrument integration
DNX		2	5.48	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	9.50	Poor instrument integration
Nitrobenzene	98-95-3	2	10.41	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	2	11.03	Poor instrument integration
Nitroglycerine	55-63-0	2	11.66	Poor instrument integration
Tetryl	479-45-8	2	12.13	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(1) TNX

4.96min 209.435ppb m

response 1189698

(1) TNX #2

4.96min 209.615ppb m

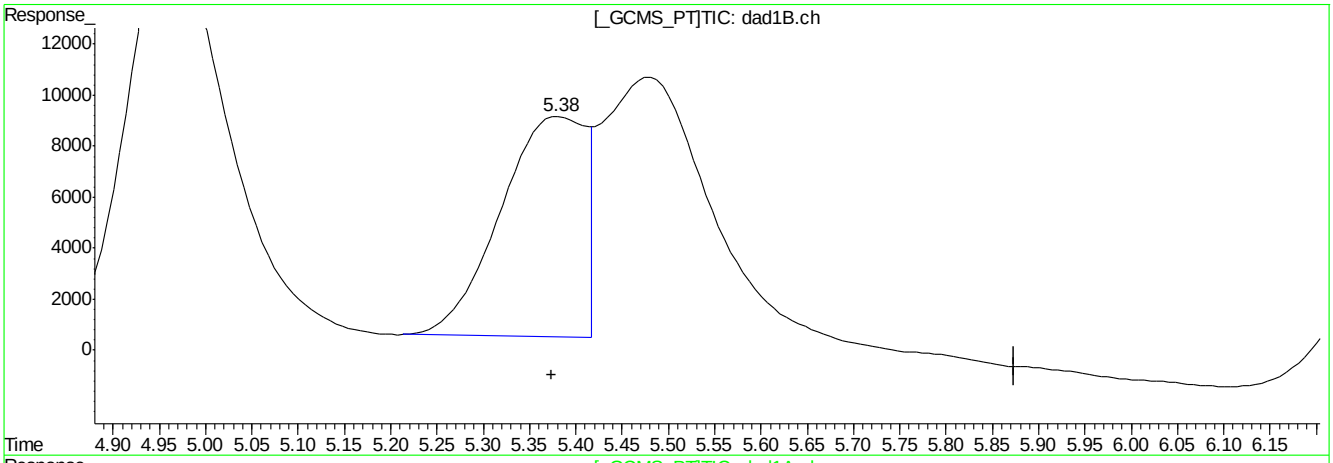
response 1193239

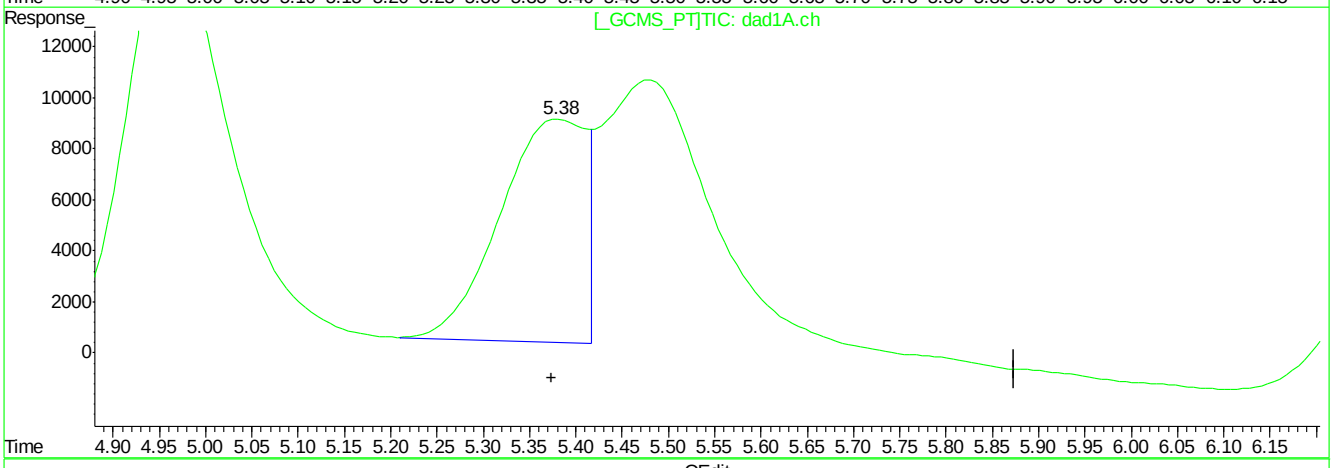
(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:24:22 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.38min 152.702ppb m

response 561213

(2) HMX #2

5.38min 155.505ppb m

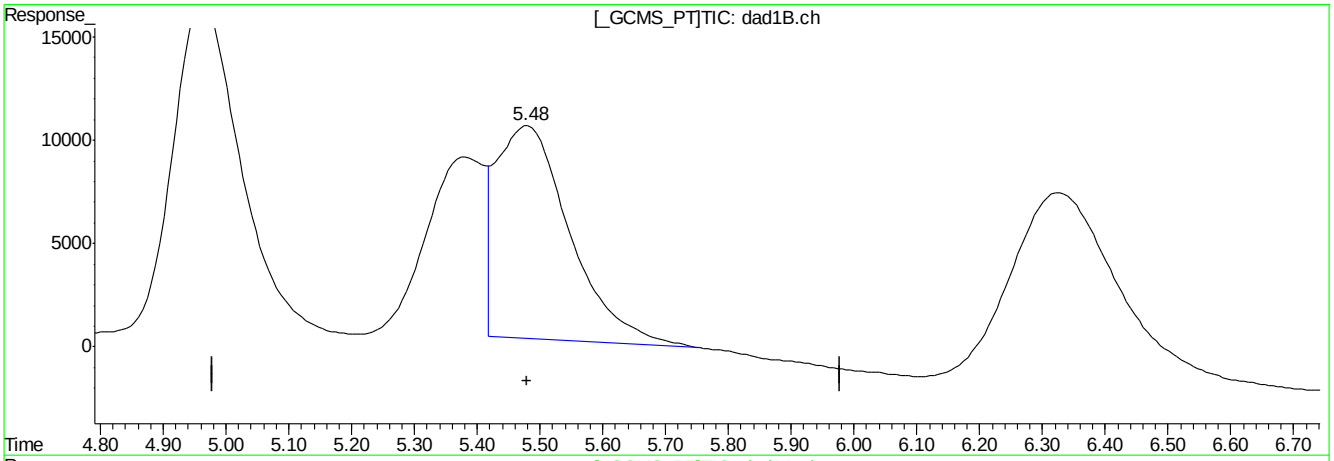
response 570787

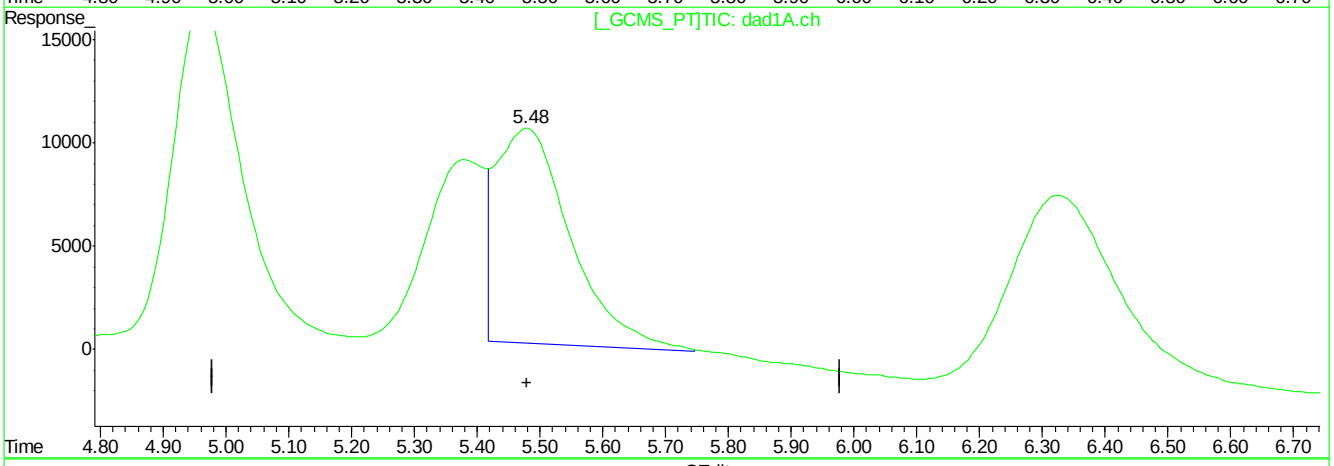
(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:24:32 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(3) DNX

5.48min 156.087ppb m

response 842819

(3) DNX #2

5.48min 161.429ppb m

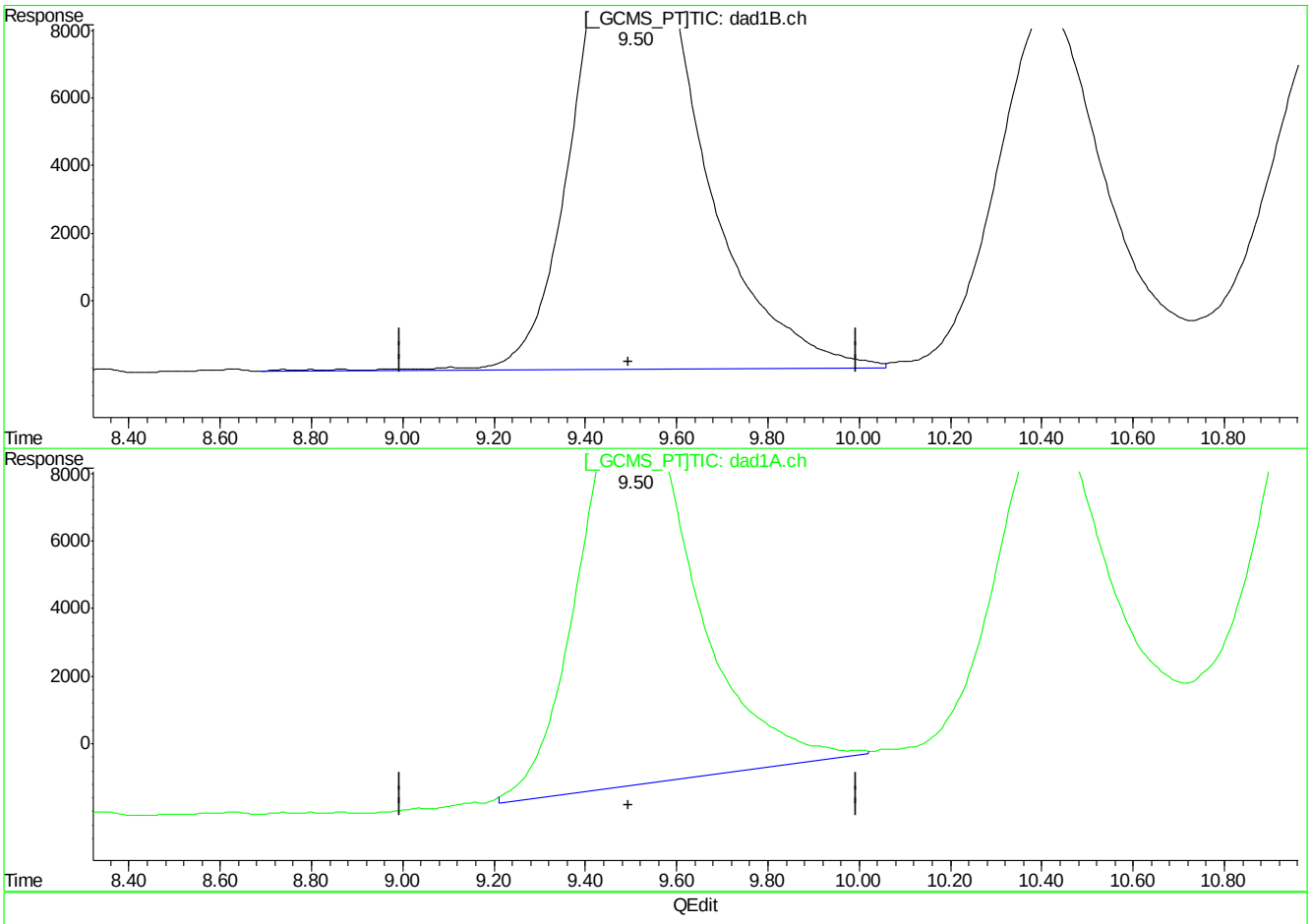
response 862360

(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:24:42 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(7) 1,3-Dinitrobenzene

9.50min 209.140ppb

response 2799974

(7) 1,3-Dinitrobenzene #2

9.50min 205.849ppb m

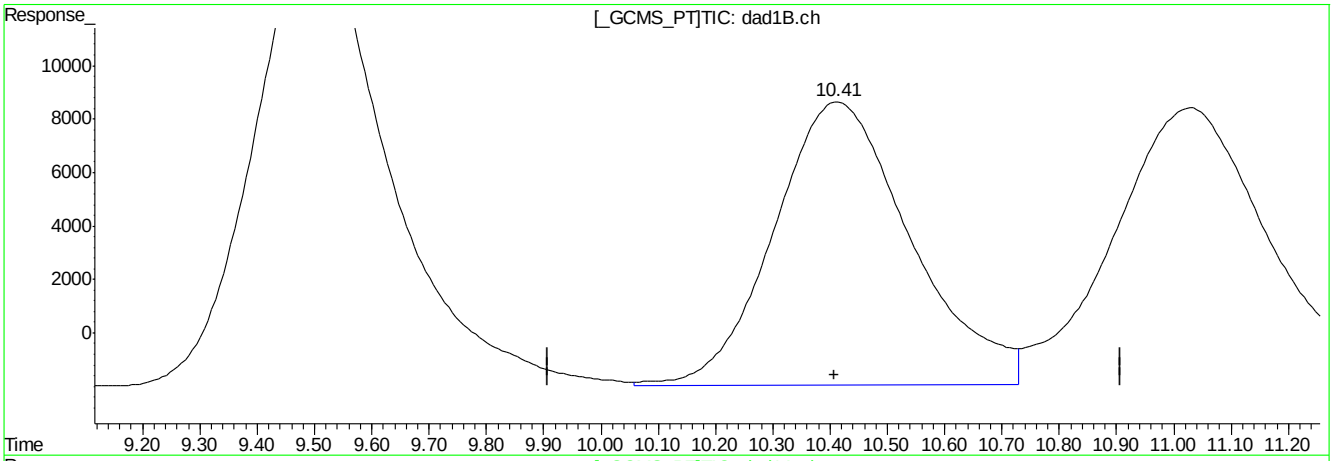
response 2087611

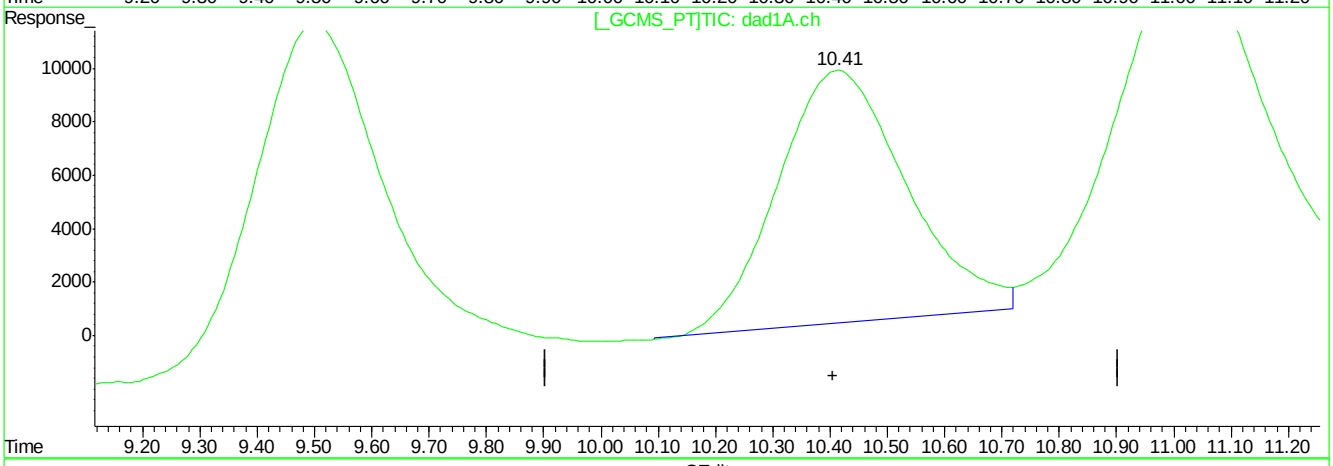
(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:29:27 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(8) Nitrobenzene

10.41min 207.572ppb

response 1760848

(8) Nitrobenzene #2

10.41min 174.329ppb m

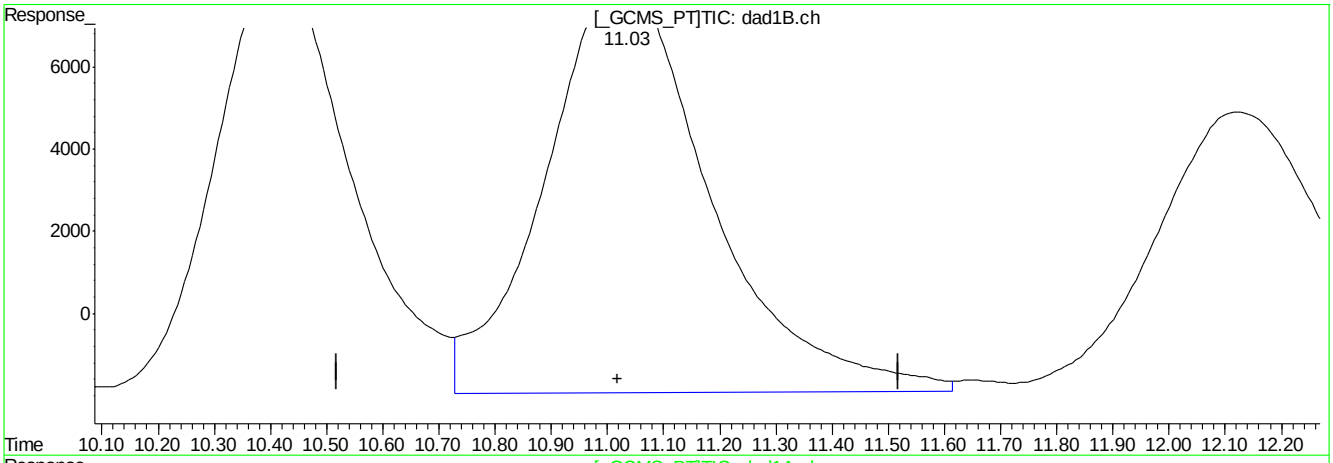
response 1471983

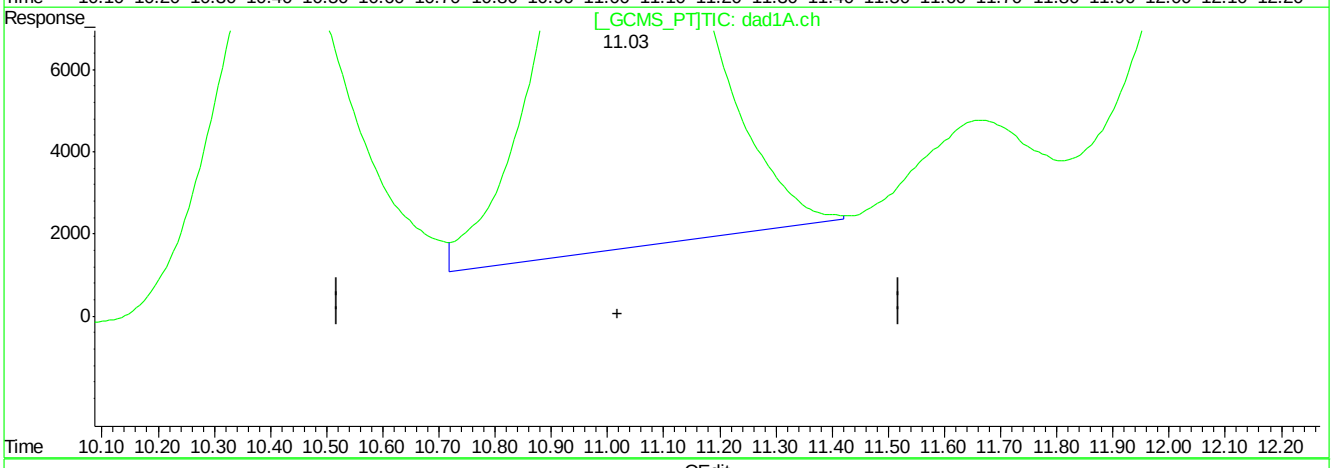
(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:29:34 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.03min 219.678ppb

response 2043556

(9) 2,4,6-Trinitrotoluene #2

11.03min 188.705ppb m

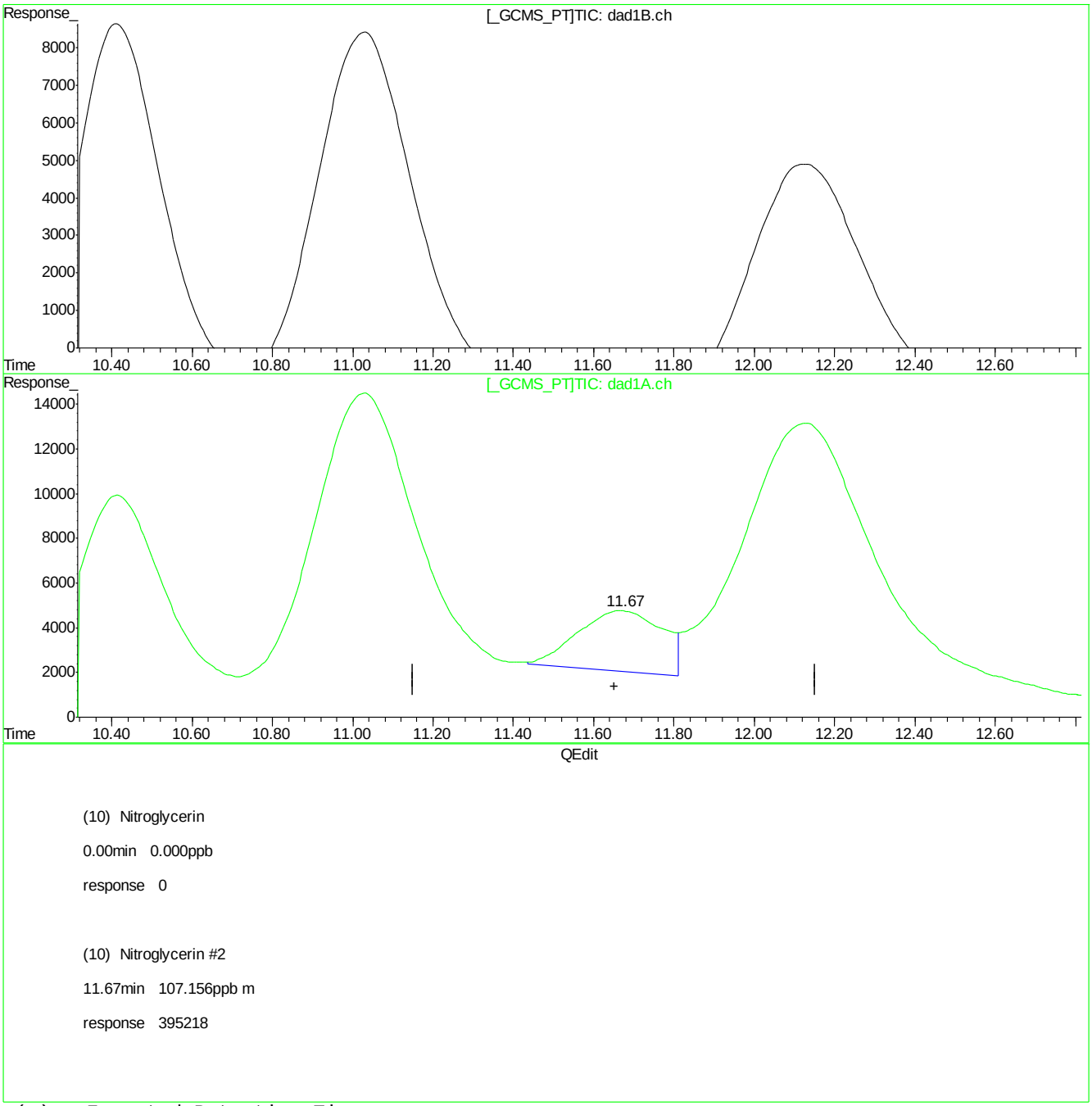
response 2248961

(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:29:40 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(10) Nitroglycerin

0.00min 0.000ppb

response 0

(10) Nitroglycerin #2

11.67min 107.156ppb m

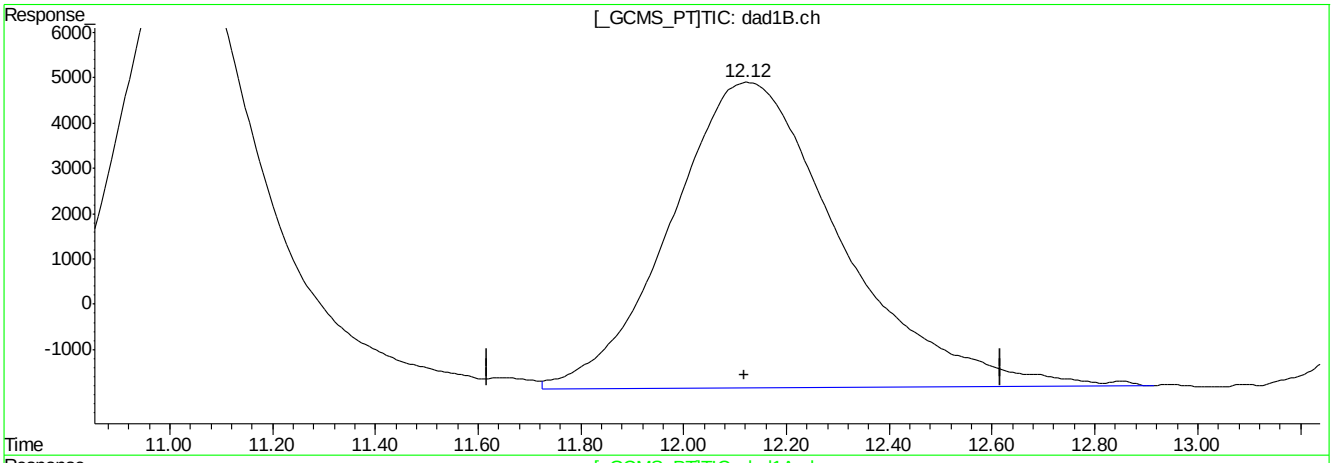
response 395218

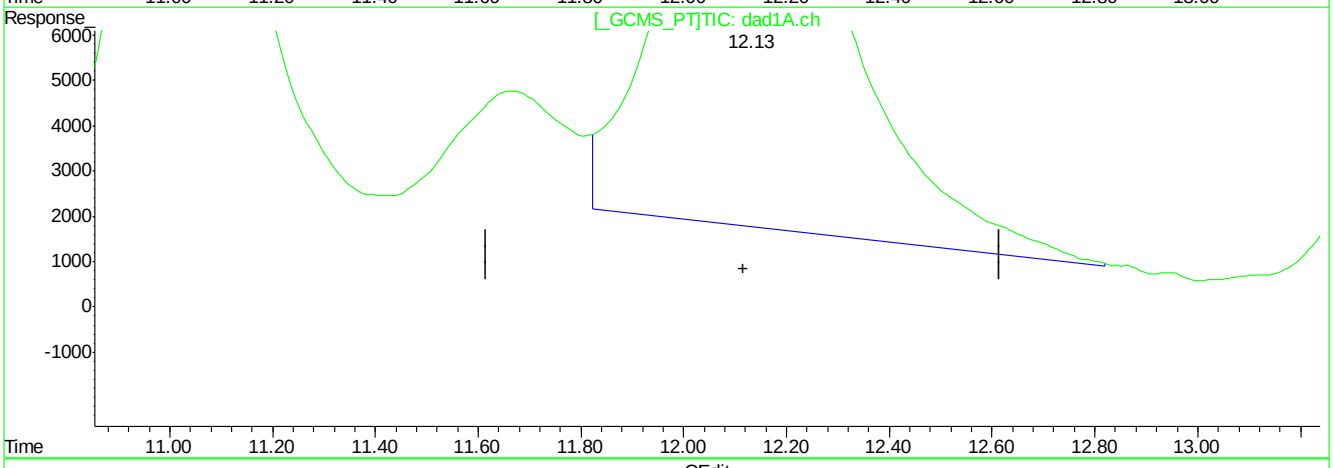
(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:29:47 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(11) Tetryl

12.13min 225.270ppb

response 1553902

(11) Tetryl #2

12.13min 194.190ppb m

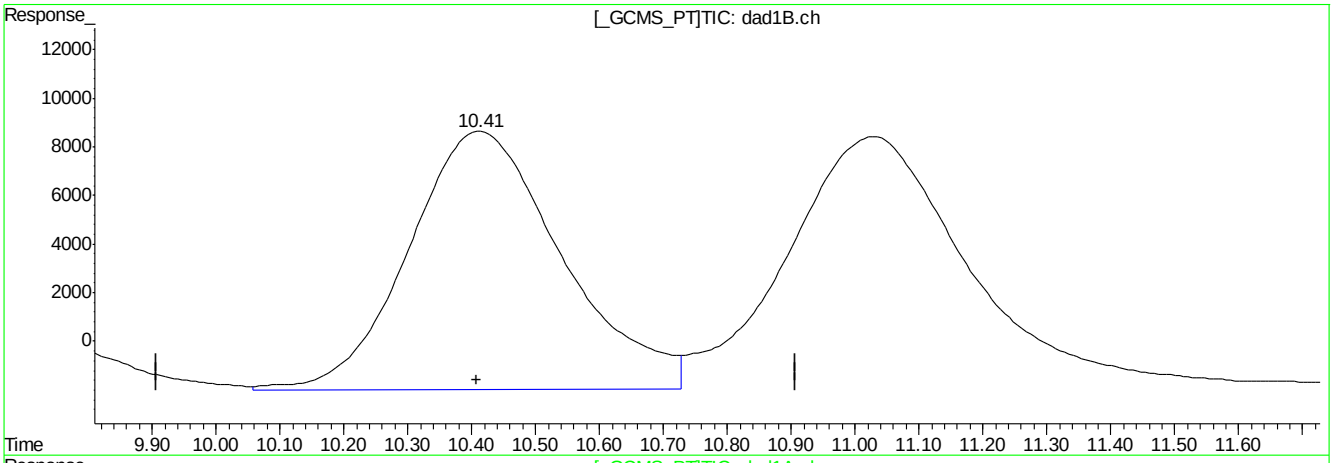
response 2548720

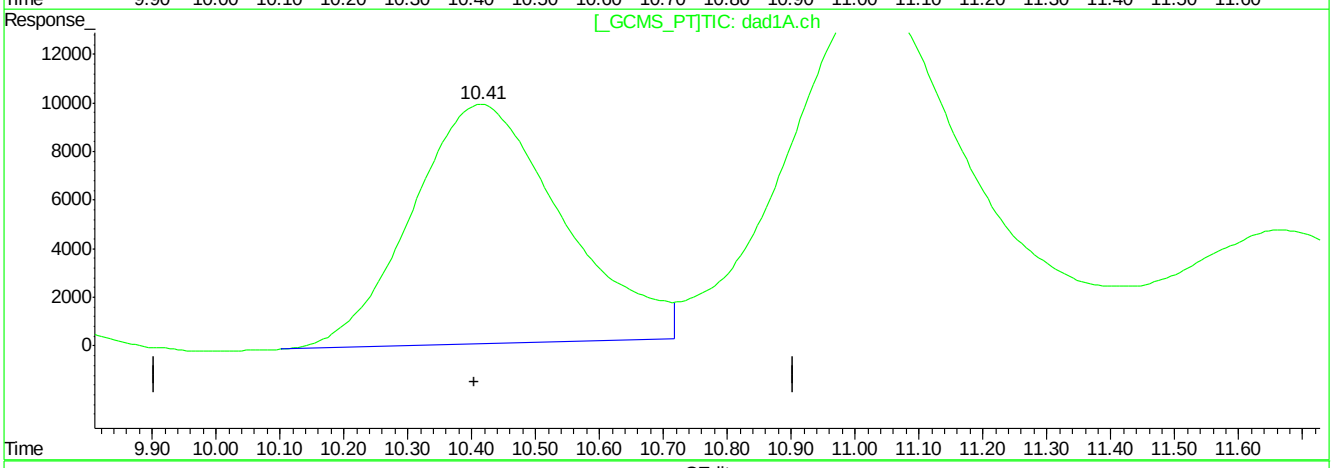
(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:29:53 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:29 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(8) Nitrobenzene

10.41min 207.572ppb

response 1760848

(8) Nitrobenzene #2

10.41min 191.675ppb m

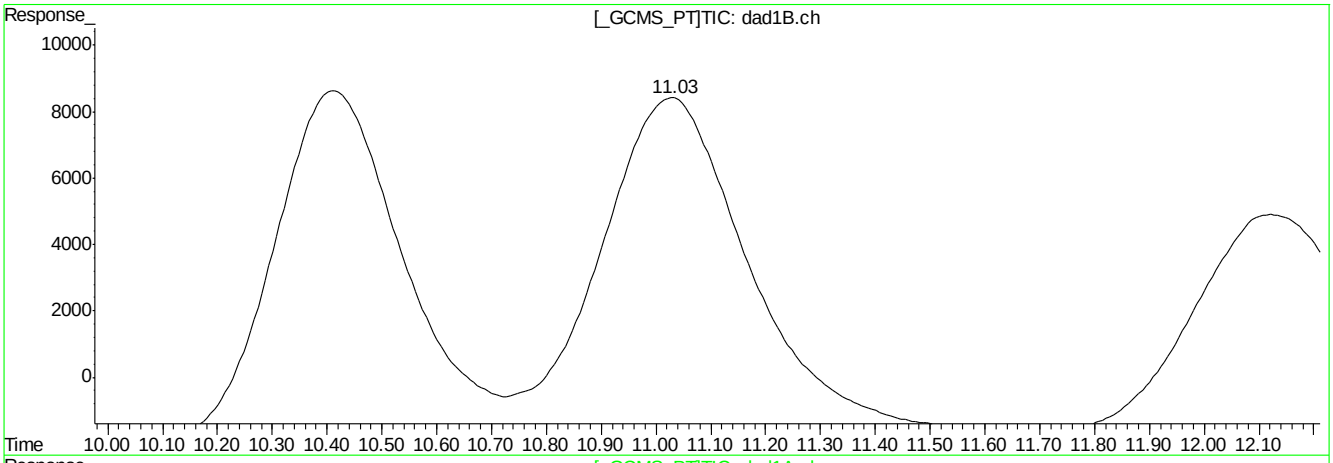
response 1617927

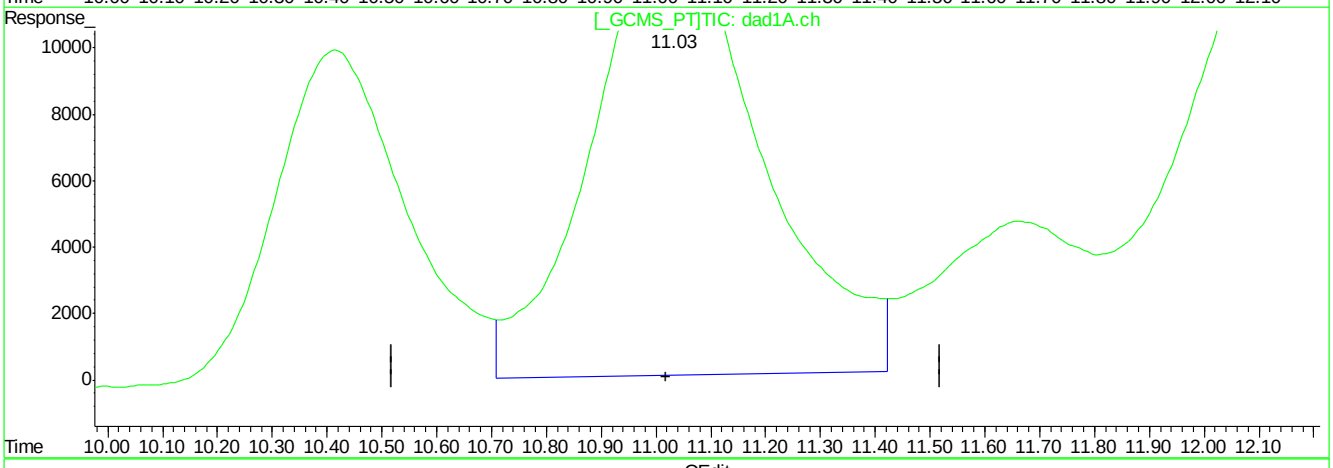
(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:33:44 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:29 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.03min 219.678ppb

response 2043556

(9) 2,4,6-Trinitrotoluene #2

11.03min 244.968ppb m

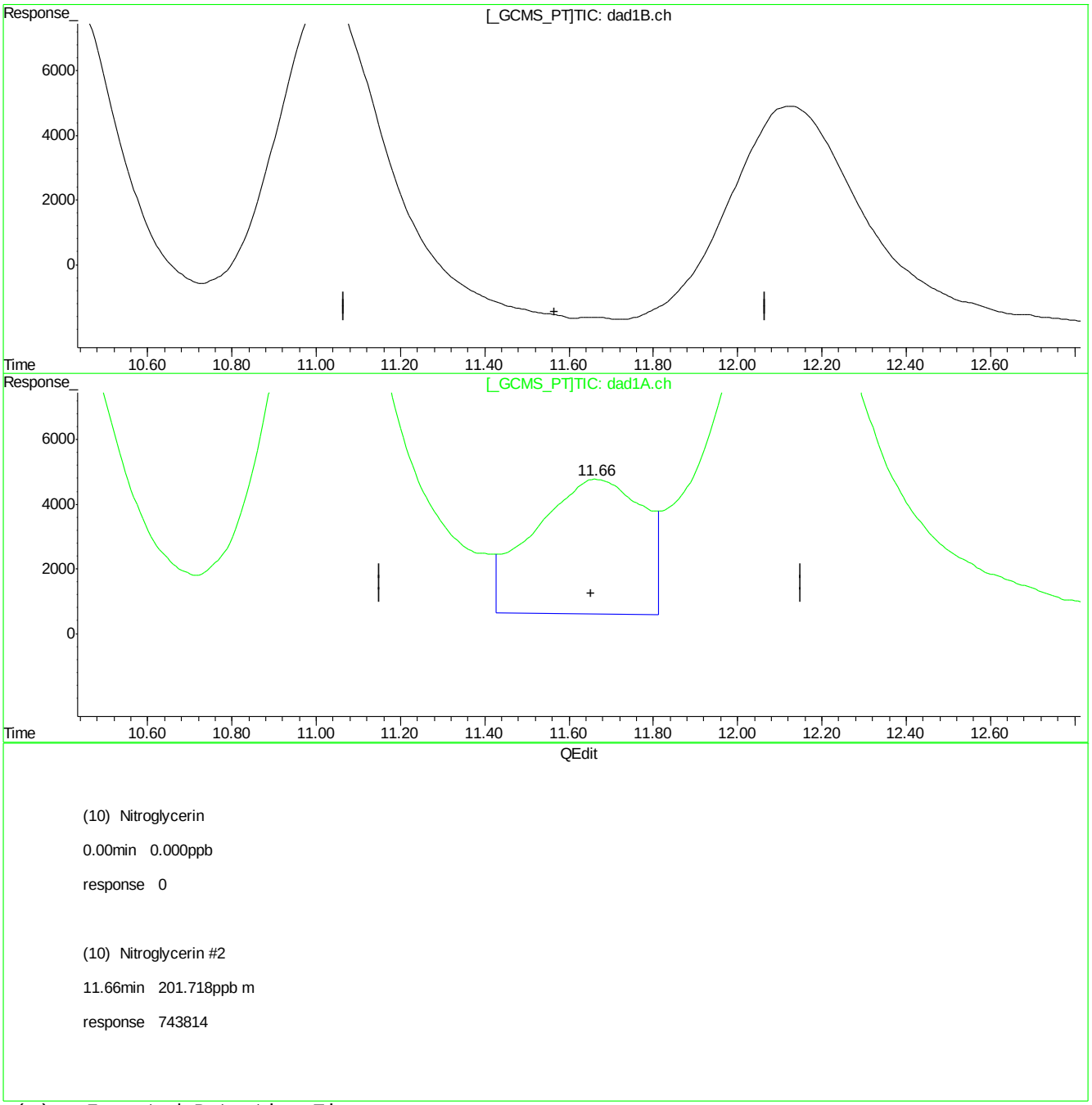
response 2919500

(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:33:54 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:29 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(10) Nitroglycerin

0.00min 0.000ppb

response 0

(10) Nitroglycerin #2

11.66min 201.718ppb m

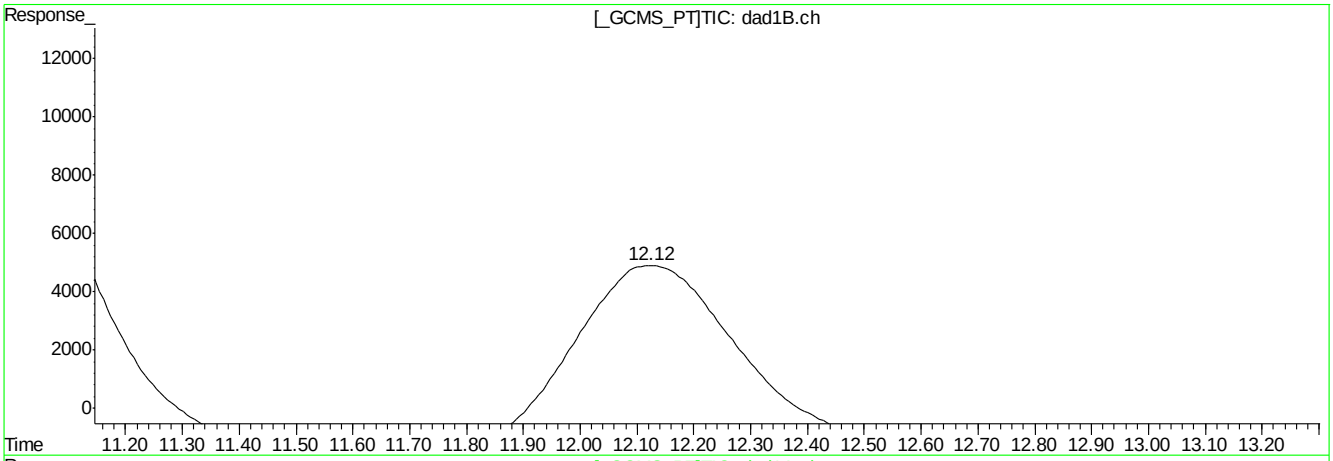
response 743814

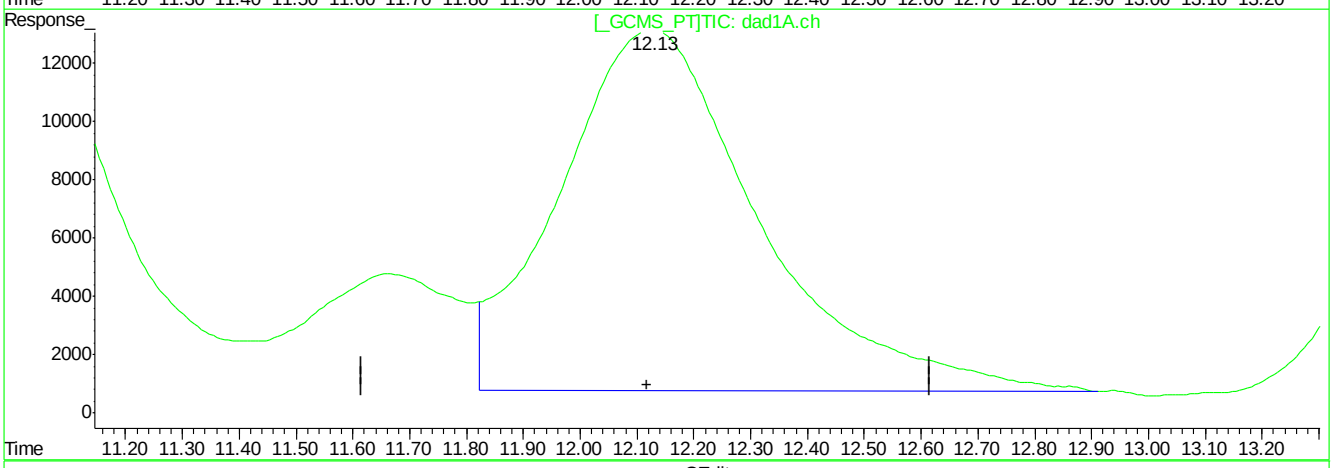
(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:34:01 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:29 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(11) Tetryl

12.13min 225.270ppb

response 1553902

(11) Tetryl #2

12.13min 229.656ppb m

response 3011692

(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:34:09 2019

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
09/26/19 16:28

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12:37 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.54	13.54	2281383	4445619	438.201	438.853
	Spiked Amount 500.000	Range 70 - 136		Recovery =		87.64%	87.77%
	Target Compounds						
1)	TNX	4.96	4.96	2989613	2973307	526.293m	522.317m
2)	HMX	5.38	5.38	1359298	1413019	372.621m	387.947m
3)	DNX	5.48	5.48	2092027	2139504	390.961m	403.713m
4)	MNX	6.33	6.33	2811687	2811687	482.843	482.856
5)	1,3,5-Trinitrobe	7.14	7.14	5164931	5164931	542.835	544.455
6)	RDX	7.55	7.55	2572902	2572902	556.633	560.729
7)	1,3-Dinitrobenze	9.51	9.51	6927186	5479726	517.417	540.348
8)	Nitrobenzene	10.42	10.42	4368356	3949762	514.950	470.342m
9)	2,4,6-Trinitroto	11.03	11.03	5090539	6753482	547.221	566.668m
10)	Nitroglycerin	0.00	11.67	0	1771692	N.D.	480.799m#
11)	Tetryl	12.14	12.13	3952625	6761754	573.014	519.169m
13)	2,6-Dinitrotolue	13.89	13.89	3620560	5255653	578.846	554.142
14)	2,4-Dinitrotolue	14.59	14.59	6366215	4136576	524.331	470.931
15)	o-Nitrotoluene	16.08	16.08	3051584	4173518	545.395	413.912
16)	3,5-Dinitroanili	15.47	15.47	5247298	8209950	482.434	434.481
17)	p-Nitrotoluene	17.12	17.12	5877803	10268368	517.113	494.299
18)	4-Amino-2,6-Dini	17.12	17.12	5877803	10268368	517.113	494.261
19)	m-Nitrotoluene	18.35	18.35	2941670	4567874	513.116	437.428
20)	2-Amino-4,6-Dini	19.20	19.20	4936073	6454657	572.143	519.952
21)	PETN	0.00	20.31	0	1231074	N.D.	488.527 #

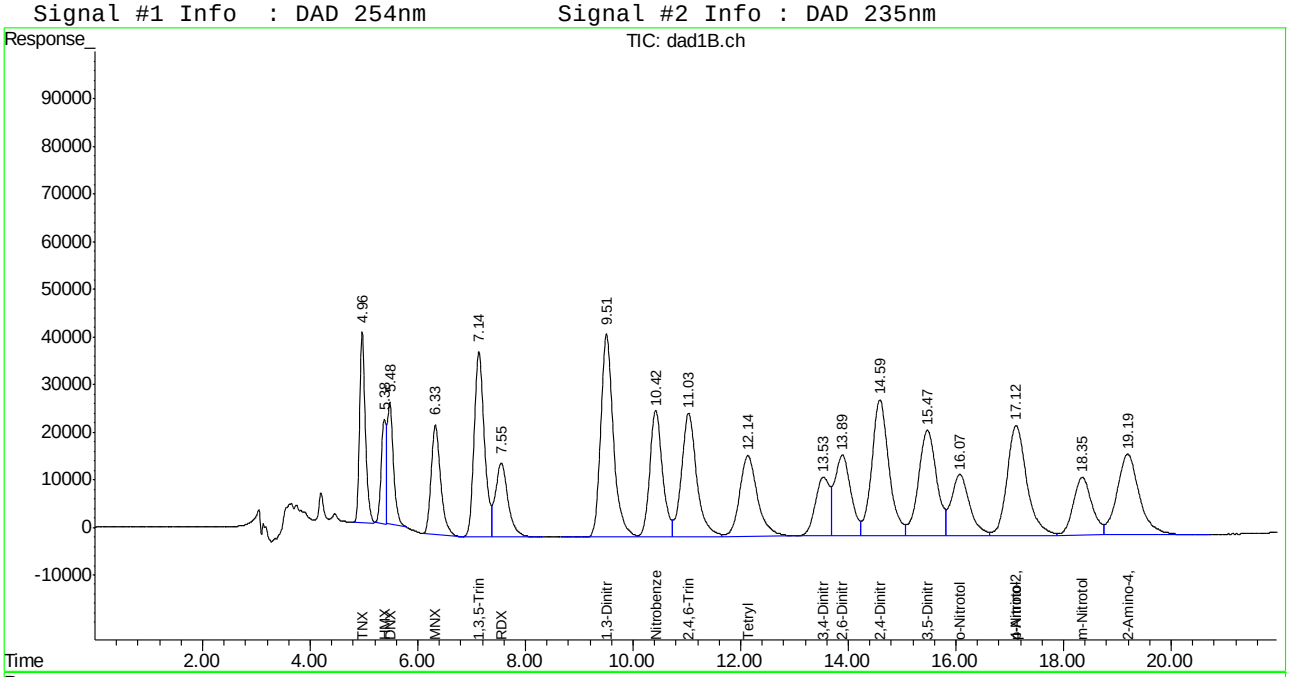
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

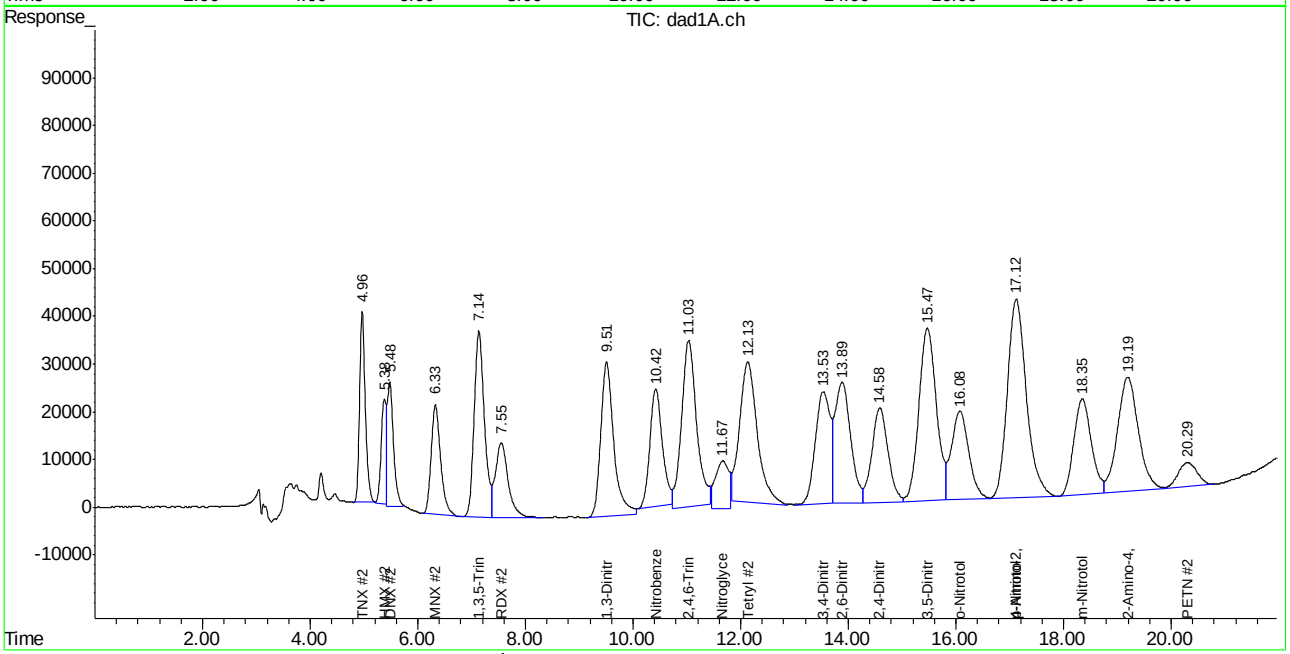
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:33 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

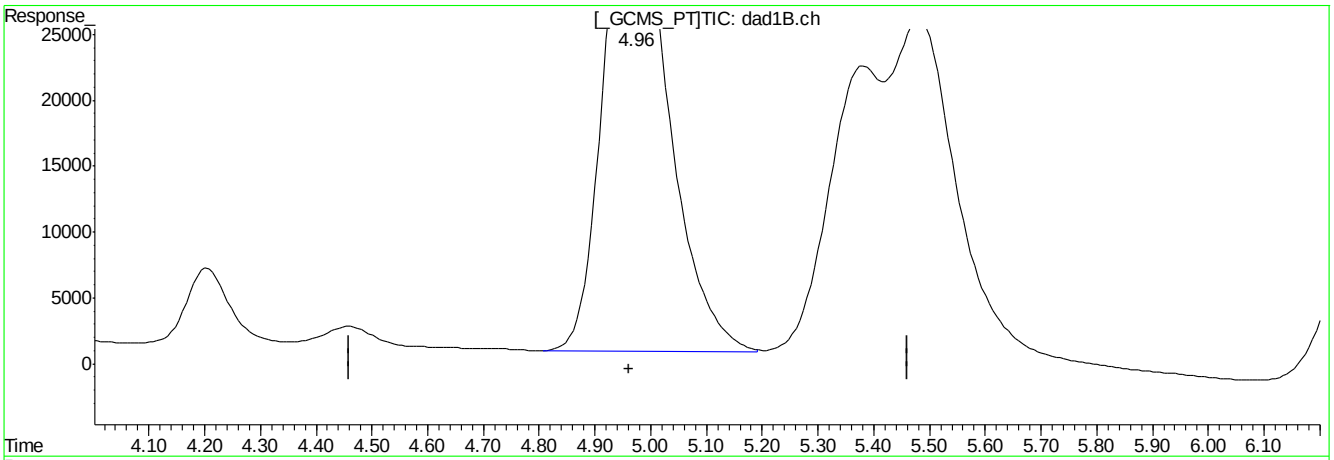
Sample Number: GGG2769-IC2769
Lab FileID: GG617751.D
Injection Time: 09/25/19 22:28
Method: SW846 8330B
Analyst approved: 09/26/19 16:07 William Hustedde
Supervisor approved: 09/26/19 16:28 Naresh Jiawan

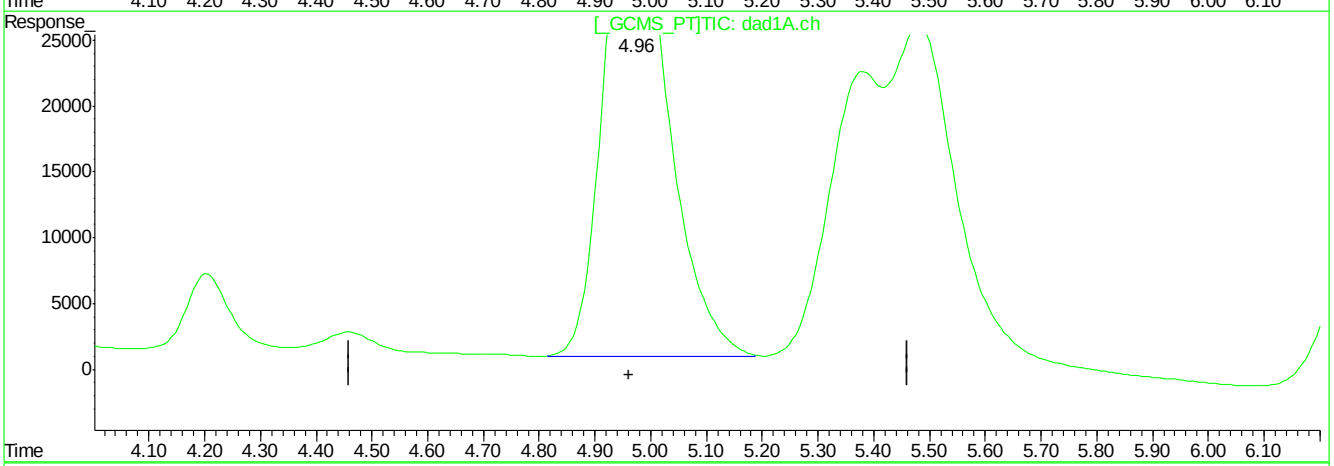
Parameter	CAS	Sig#	R.T. (min.)	Reason
TNX		1	4.96	Poor instrument integration
TNX		2	4.96	Poor instrument integration
HMX	2691-41-0	1	5.38	Poor instrument integration
HMX	2691-41-0	2	5.38	Poor instrument integration
DNX		1	5.48	Poor instrument integration
DNX		2	5.48	Poor instrument integration
Nitrobenzene	98-95-3	2	10.42	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	2	11.03	Poor instrument integration
Nitroglycerine	55-63-0	2	11.67	Poor instrument integration
Tetryl	479-45-8	2	12.13	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(1) TNX

4.96min 526.293ppb m

response 2989613

(1) TNX #2

4.96min 522.317ppb m

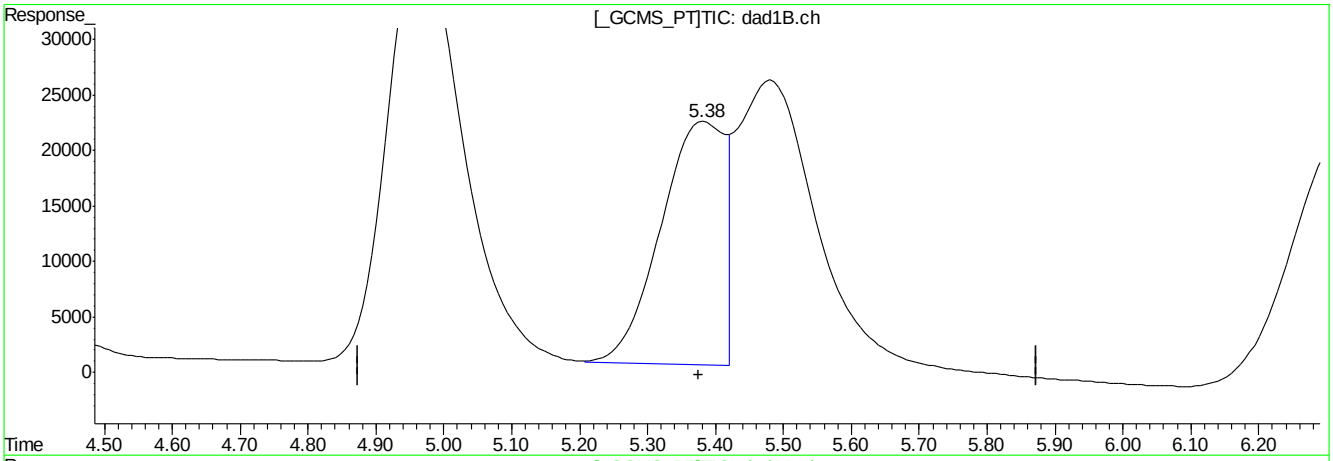
response 2973307

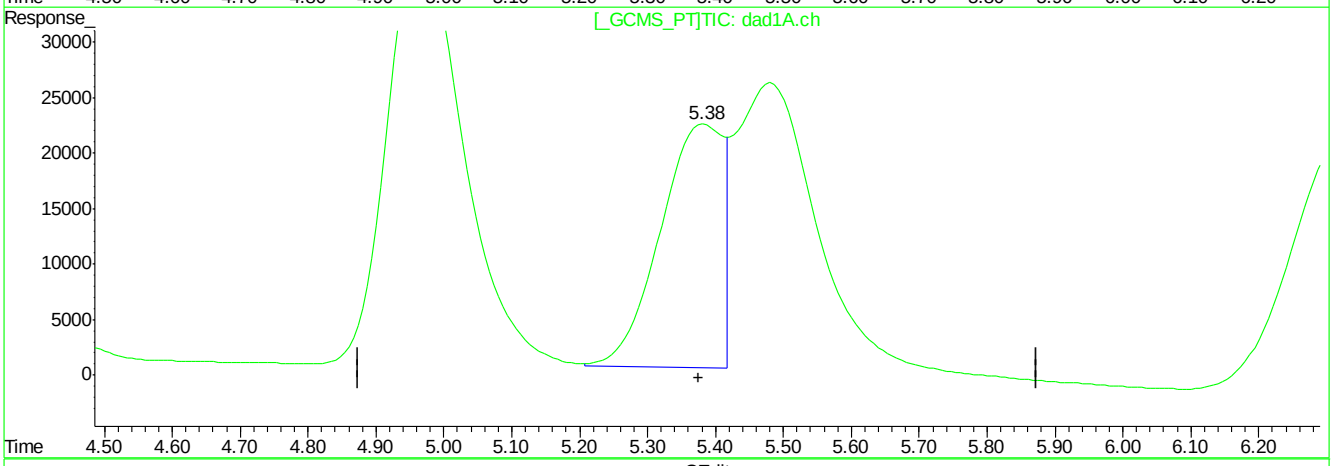
(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:30:29 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.38min 372.621ppb m

response 1359298

(2) HMX #2

5.38min 387.947ppb m

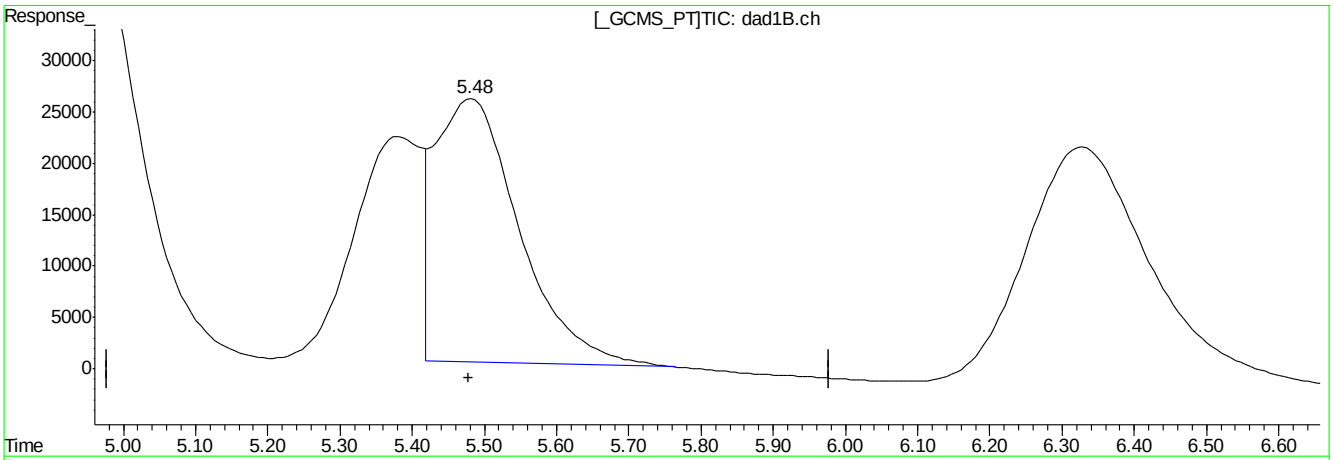
response 1413019

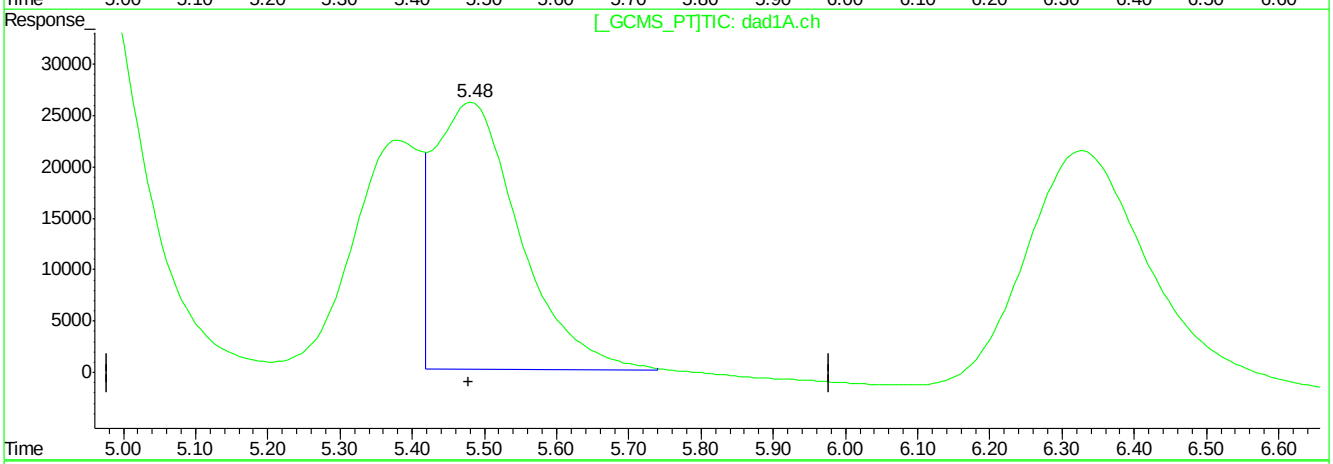
(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:30:37 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(3) DNX

5.48min 390.961ppb m

response 2092027

(3) DNX #2

5.48min 403.713ppb m

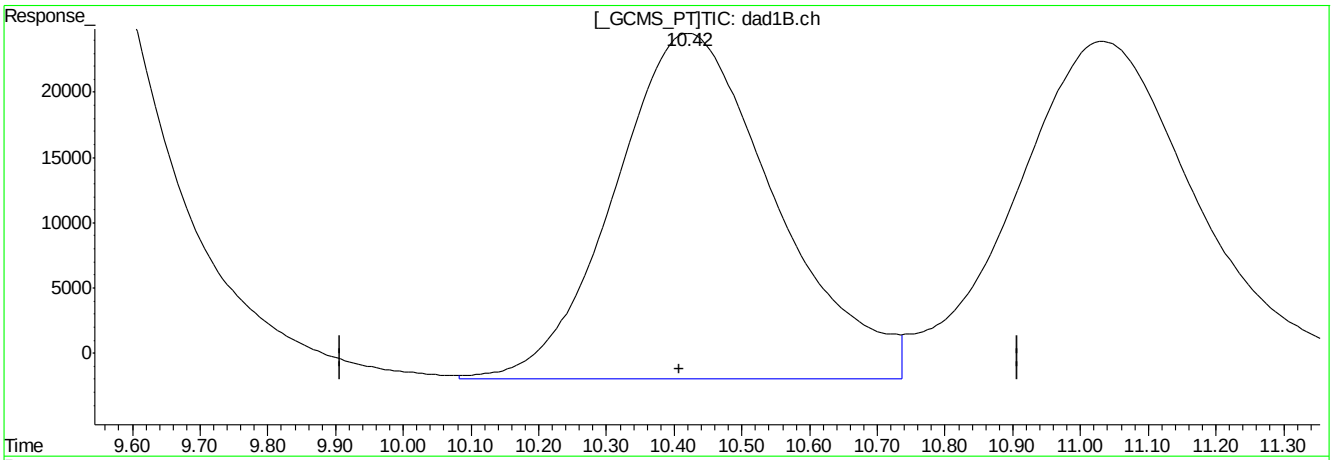
response 2139504

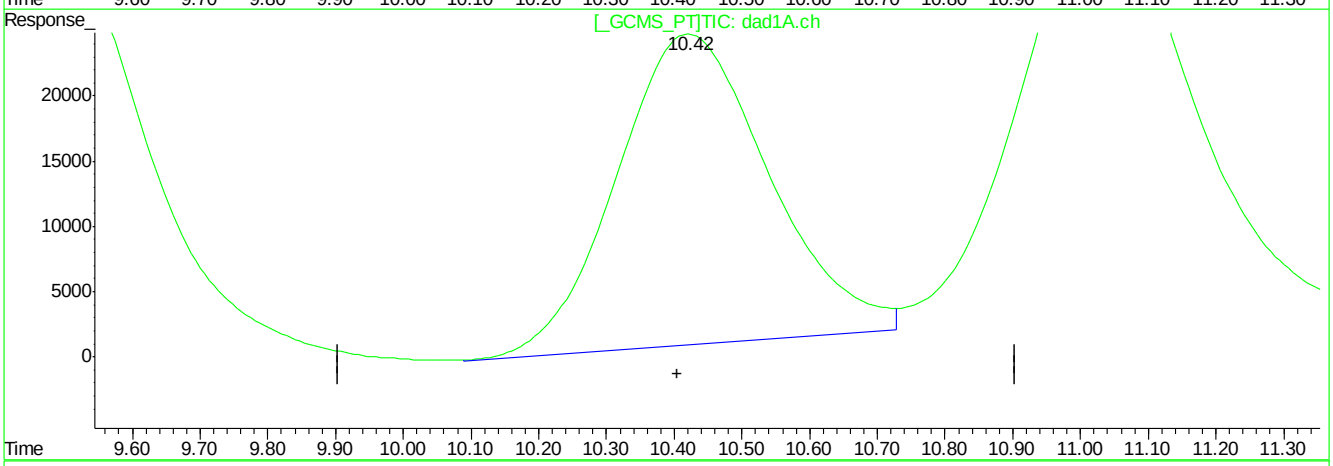
(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:30:46 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(8) Nitrobenzene

10.42min 514.950ppb

response 4368356

(8) Nitrobenzene #2

10.42min 445.545ppb m

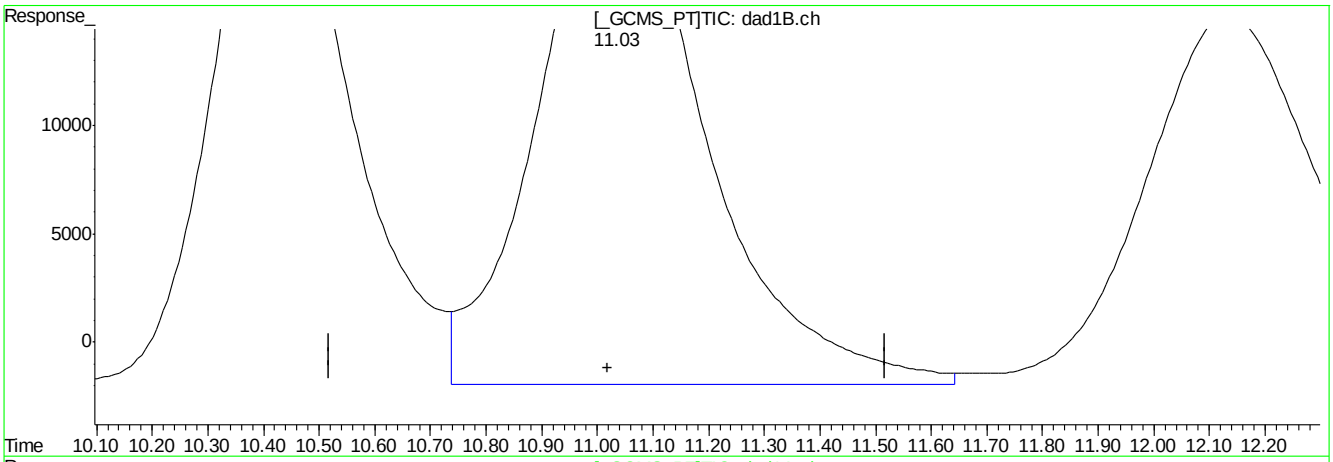
response 3743241

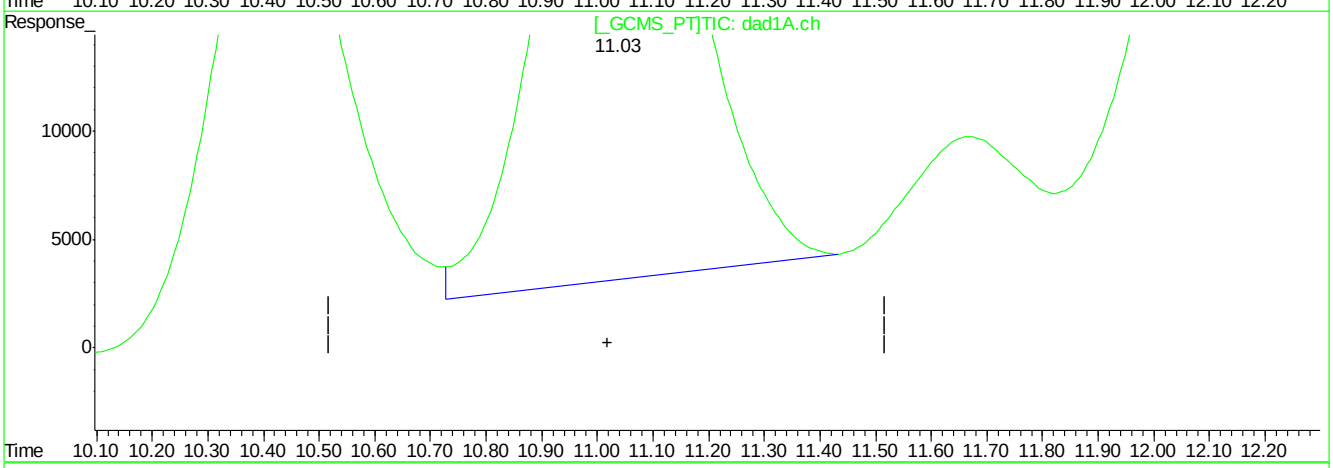
(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:31:04 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.03min 547.221ppb

response 5090539

(9) 2,4,6-Trinitrotoluene #2

11.03min 456.956ppb m

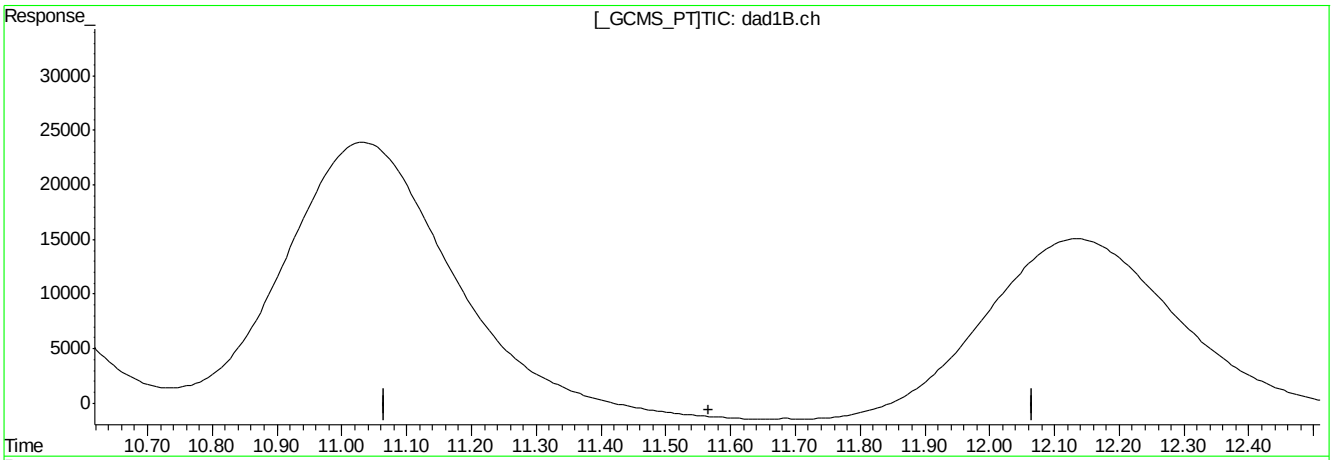
response 5445943

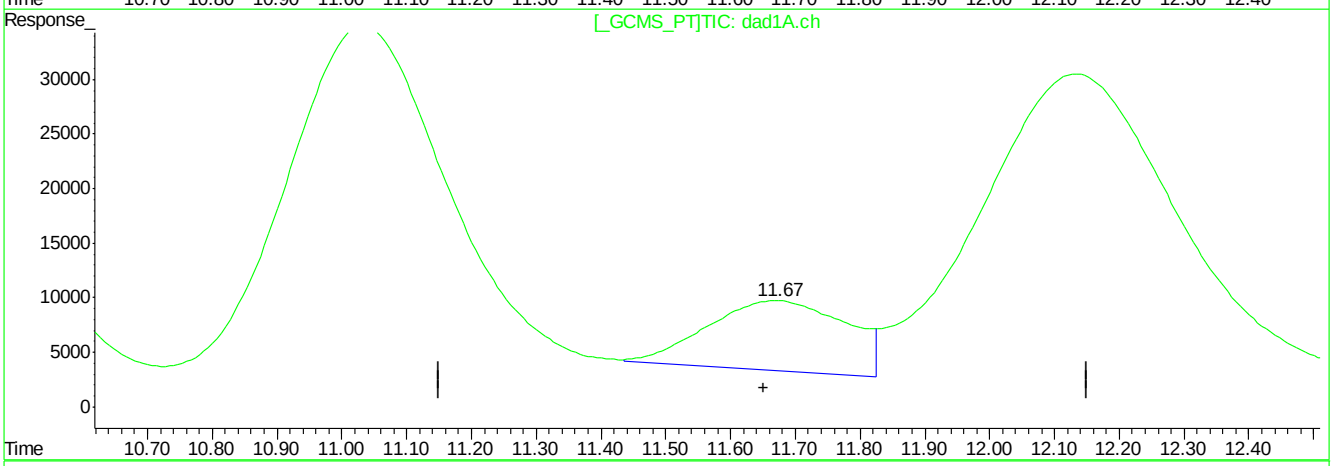
(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:31:10 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(10) Nitroglycerin

0.00min 0.000ppb

response 0

(10) Nitroglycerin #2

11.67min 257.891ppb m

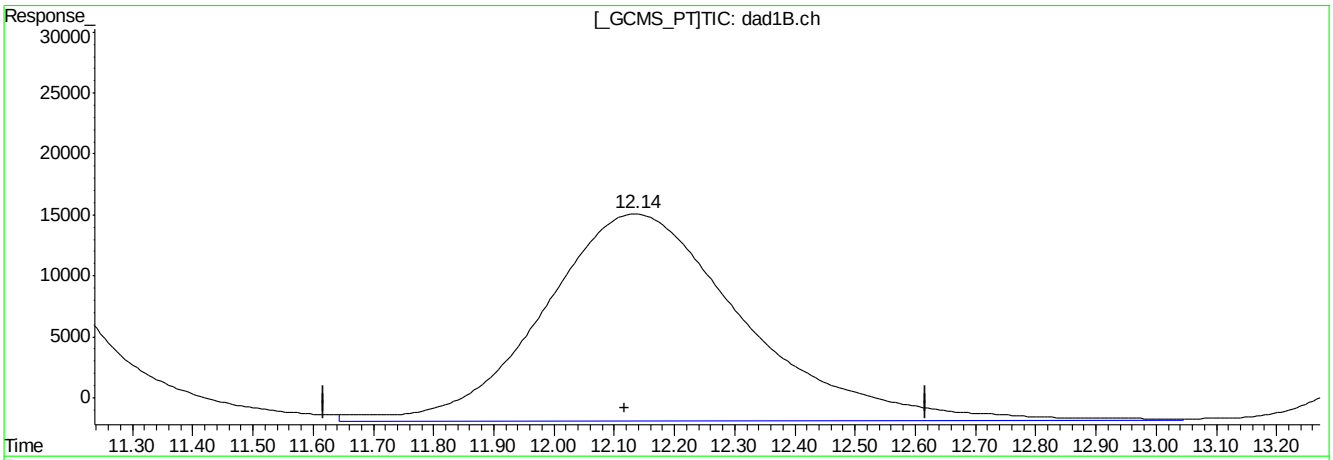
response 950817

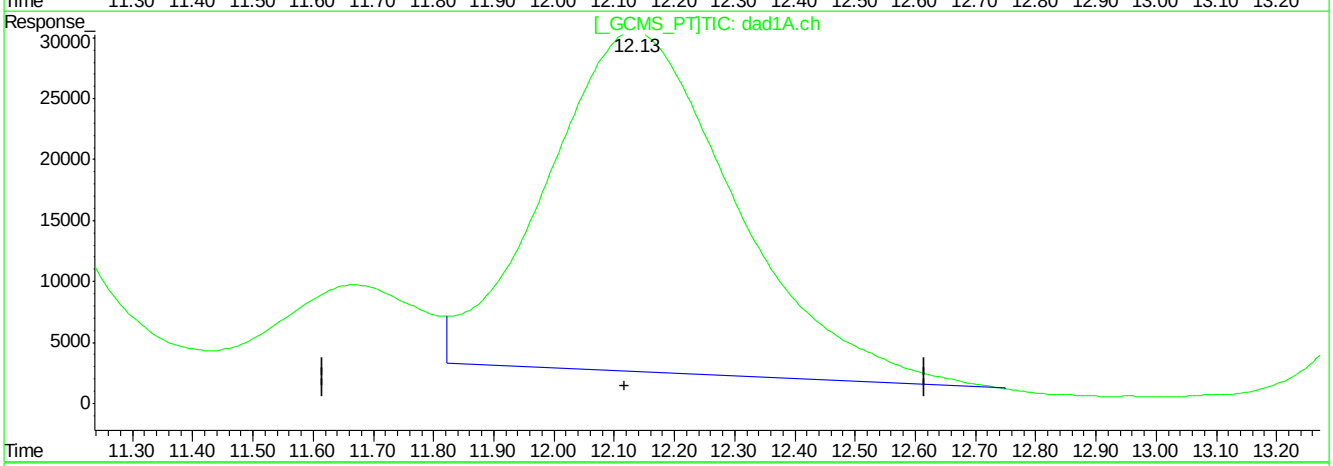
(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:31:19 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(11) Tetryl

12.14min 573.014ppb

response 3952625

(11) Tetryl #2

12.13min 464.205ppb m

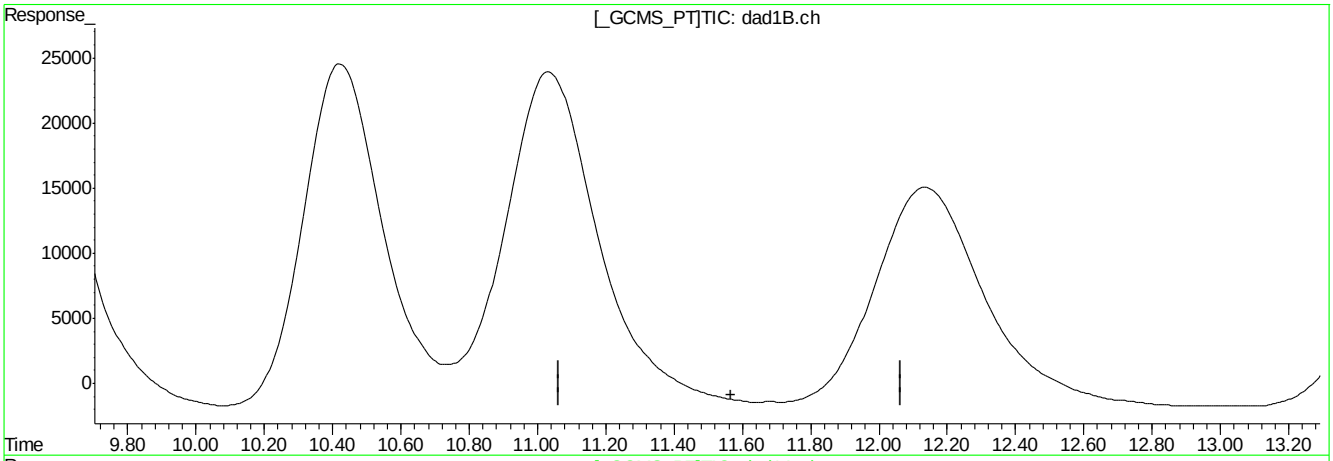
response 6053797

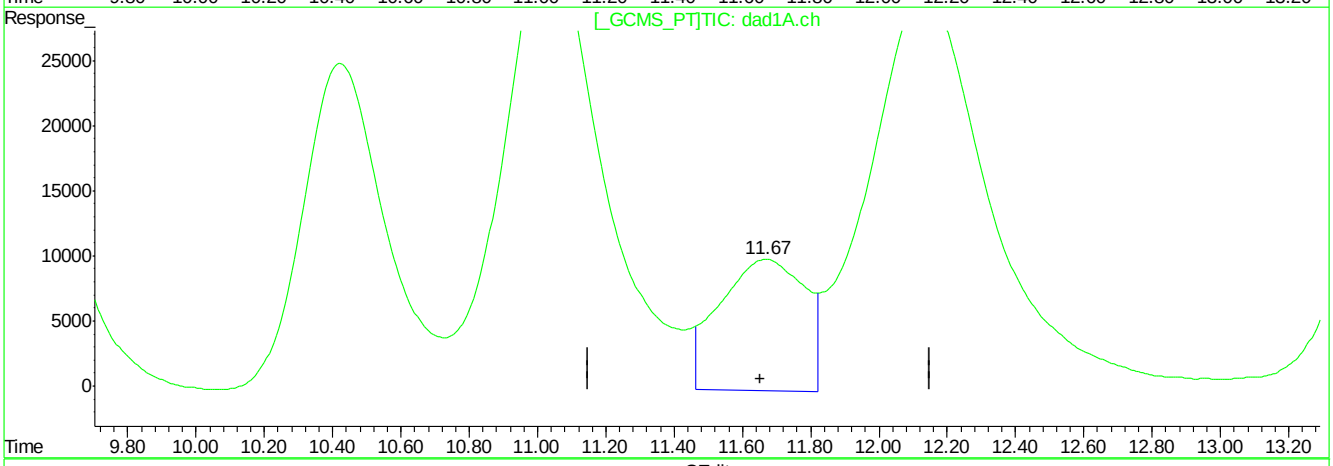
(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:31:24 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:31 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(10) Nitroglycerin

0.00min 0.000ppb

response 0

(10) Nitroglycerin #2

11.67min 480.799ppb m

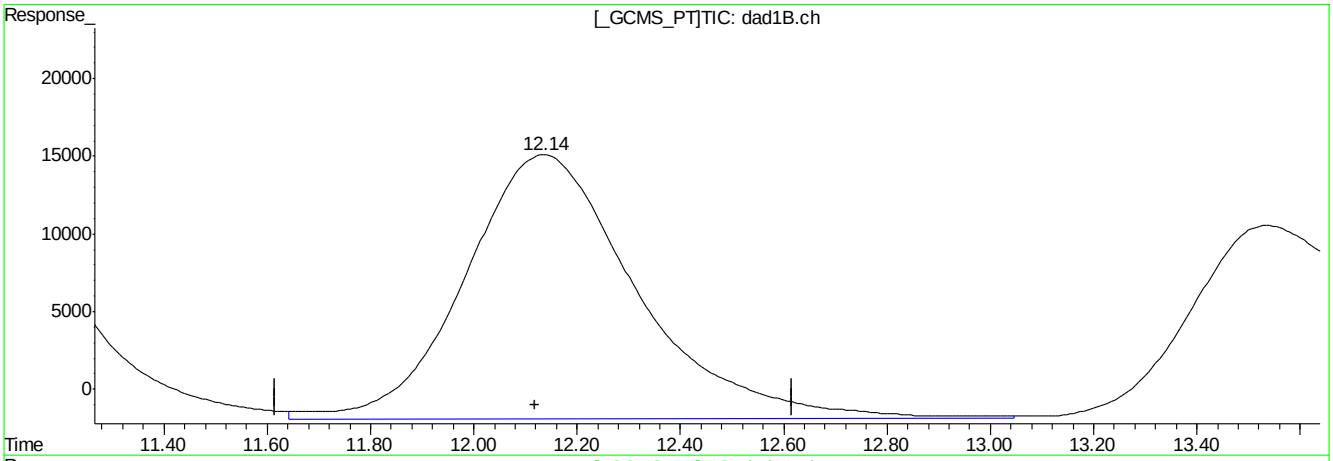
response 1771692

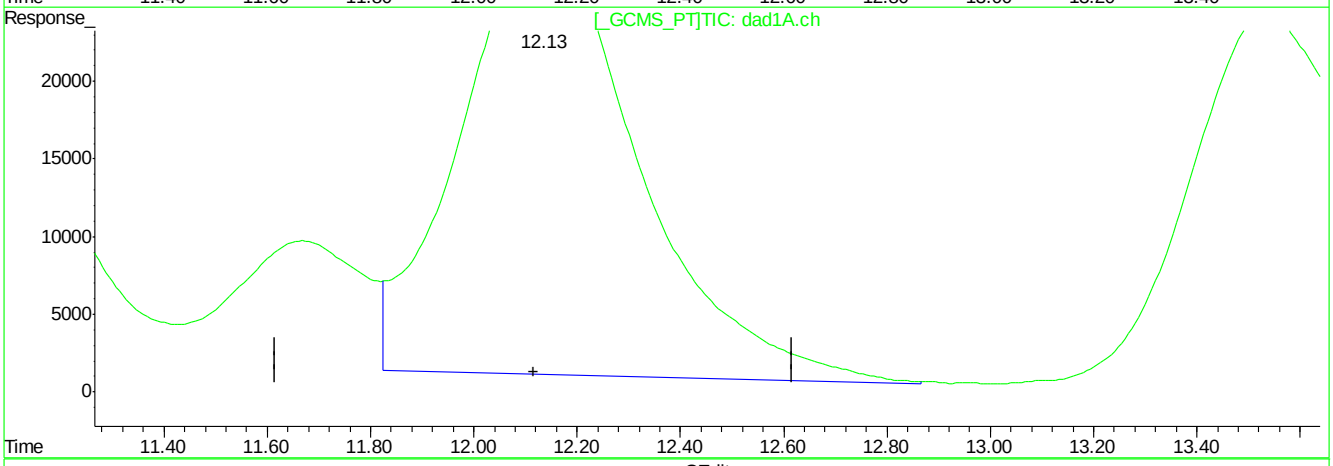
(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:33:01 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:31 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(11) Tetryl

12.14min 573.014ppb

response 3952625

(11) Tetryl #2

12.13min 519.169ppb m

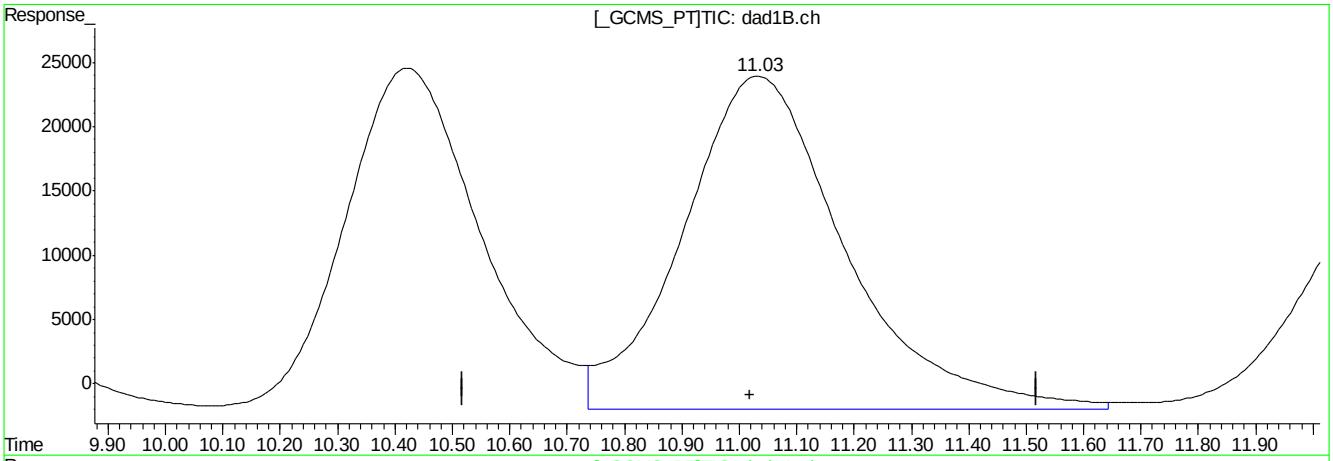
response 6761754

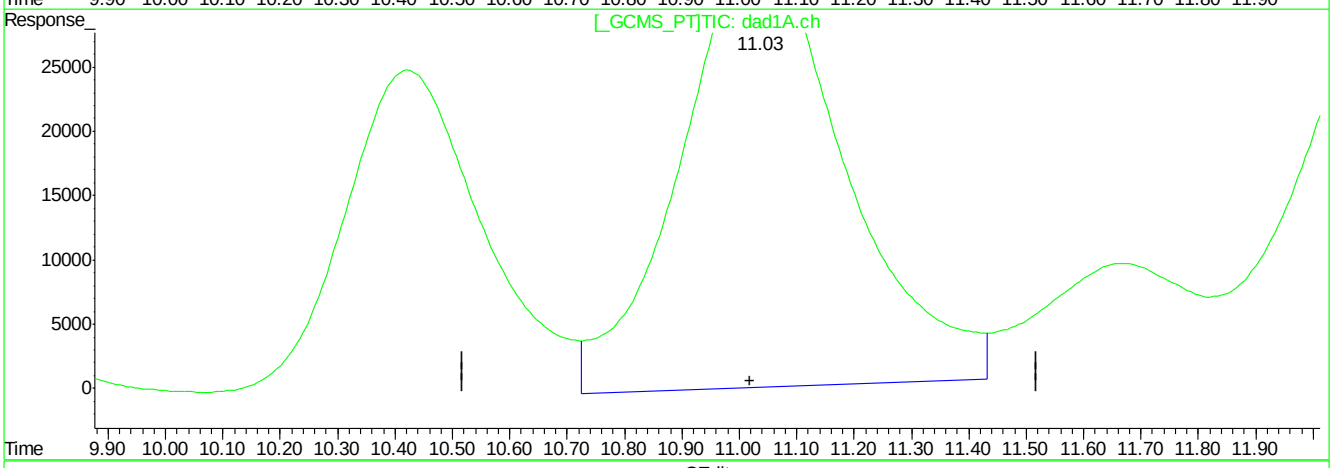
(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:33:10 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:31 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.03min 547.221ppb

response 5090539

(9) 2,4,6-Trinitrotoluene #2

11.03min 566.668ppb m

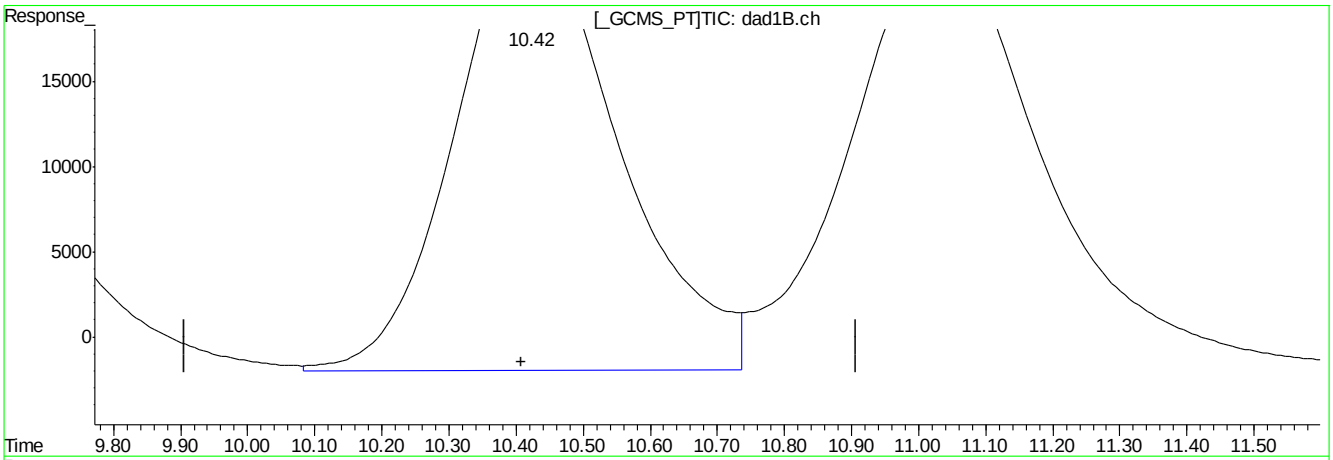
response 6753482

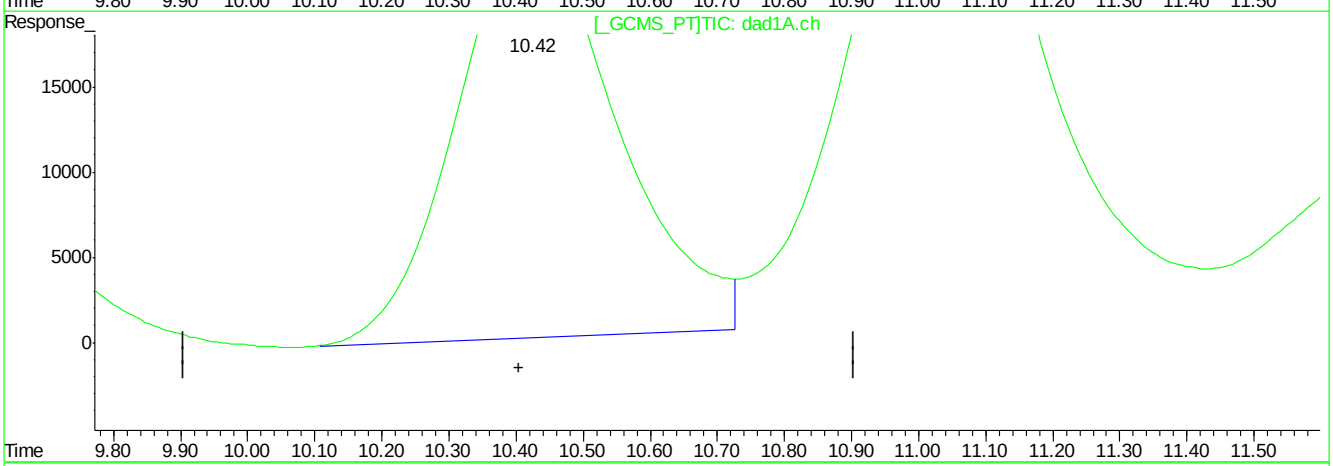
(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:33:18 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:31 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(8) Nitrobenzene

10.42min 514.950ppb

response 4368356

(8) Nitrobenzene #2

10.42min 470.342ppb m

response 3949762

(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:33:24 2019

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 09/26/19 16:28

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617752.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617752.D\dad1A.ch
Acq On : 25-Sep-2019, 22:57:38 Operator: williamh
Sample : icc2769-1000 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12:38 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.53	13.52	4591322	9055692	881.888	892.036
Spiked Amount	500.000	Range	70 - 136	Recovery	=	176.38%#	178.41%#
	Target Compounds						
1)	TNX	4.96	4.96	6018347	6004425	1059.473m	1054.789m
2)	HMX	5.37	5.37	3026166	3027841	843.036m	844.146m
3)	DNX	5.48	5.48	4046919	4062739	767.488m	776.175m
4)	MNX	6.32	6.32	5734990	5734990	987.214	987.231
5)	1,3,5-Trinitrobe	7.13	7.13	10428175	10428175	1096.003	1099.274
6)	RDX	7.55	7.55	5159657	5159657	1116.264	1124.476
7)	1,3-Dinitrobenze	9.50	9.50	13991520	10641112	1045.078	1049.362
8)	Nitrobenzene	10.41	10.41	8835617	8512375	1041.560	1024.176
9)	2,4,6-Trinitroto	11.02	11.02	10246321	13648582	1101.456	1145.220
10)	Nitroglycerin	0.00	11.65	0	3332958	N.D.	905.425 #
11)	Tetryl	12.12	12.12	7927404	14234017	1149.239	1108.429
13)	2,6-Dinitrotolue	13.88	13.88	7351863	10767621	1175.396	1138.354
14)	2,4-Dinitrotolue	14.58	14.58	12909220	8826775	1063.222	1004.890
15)	o-Nitrotoluene	16.06	16.06	6201909	8738054	1108.438	866.604
16)	3,5-Dinitroanili	15.46	15.46	10530684	16811687	968.187	889.696
17)	p-Nitrotoluene	17.10	17.10	11894457	20829522	1046.442	1002.692
18)	4-Amino-2,6-Dini	17.10	17.10	11894457	20829522	1046.442	1002.615
19)	m-Nitrotoluene	18.33	18.33	5955214	9462873	1038.768	906.183
20)	2-Amino-4,6-Dini	19.16	19.16	9999547	13435173	1159.054	1082.265
21)	PETN	0.00	20.28	0	3078917	N.D.	1217.374 #

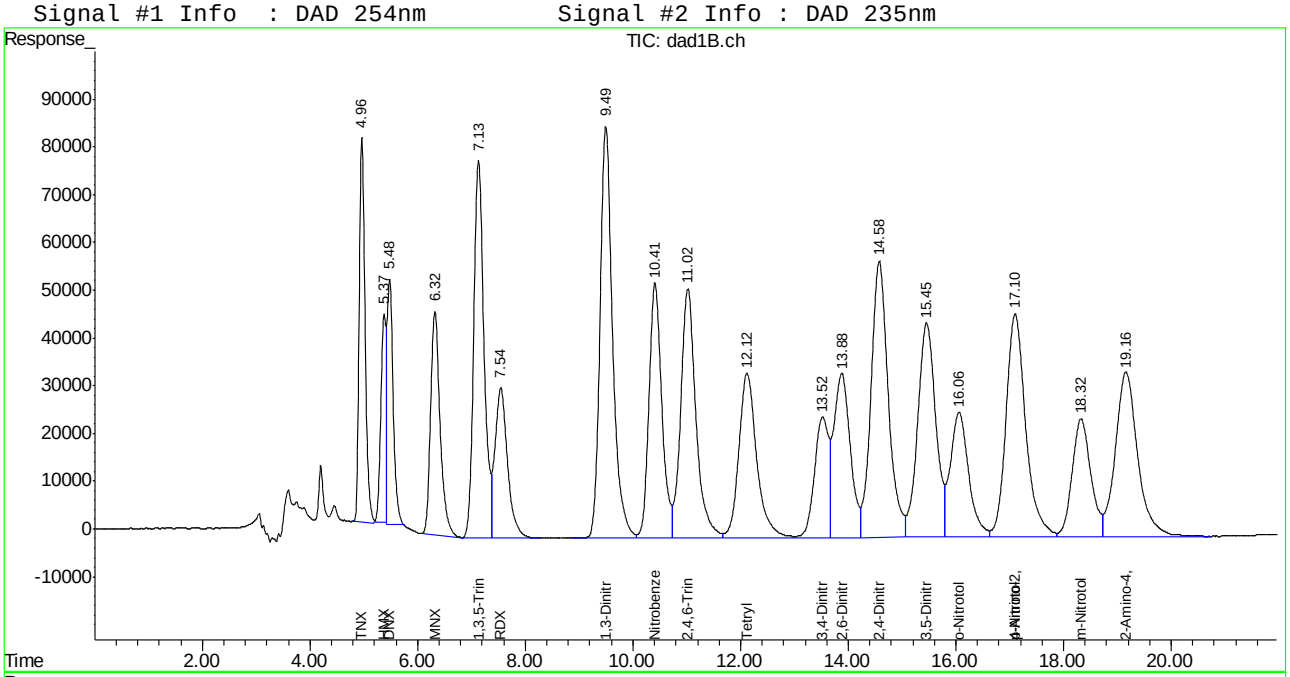
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

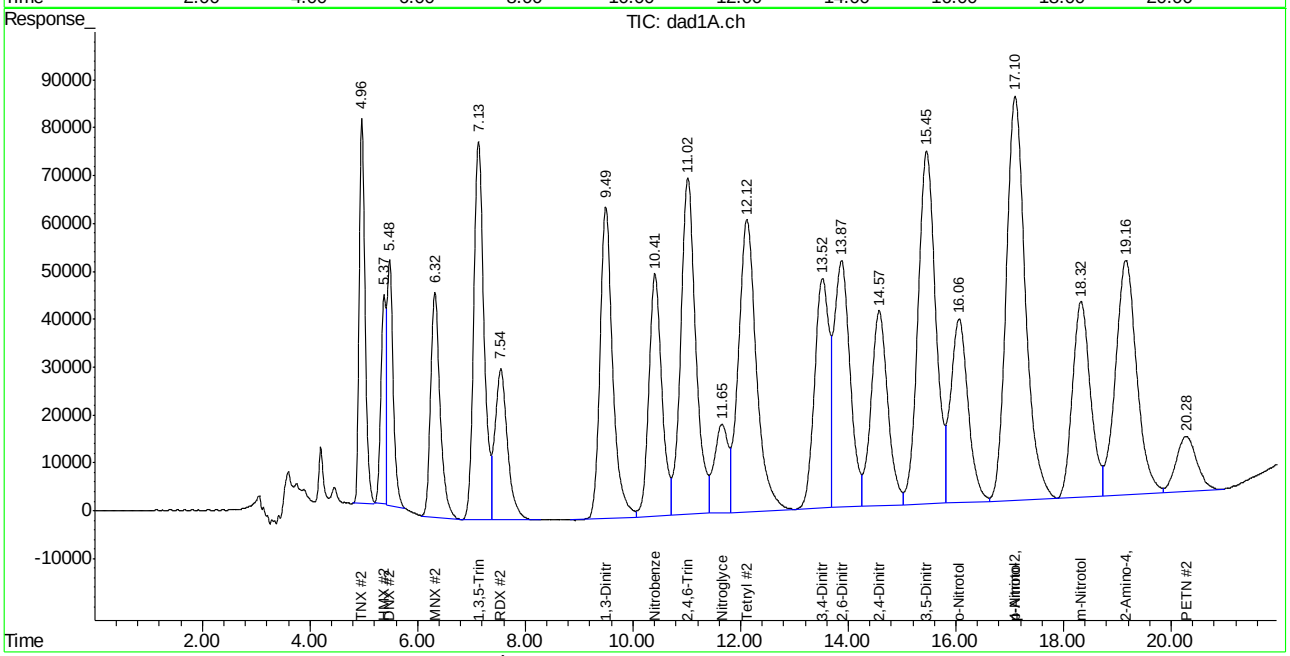
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617752.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617752.D\dad1A.ch
Acq On : 25-Sep-2019, 22:57:38 Operator: williamh
Sample : icc2769-1000 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:32 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

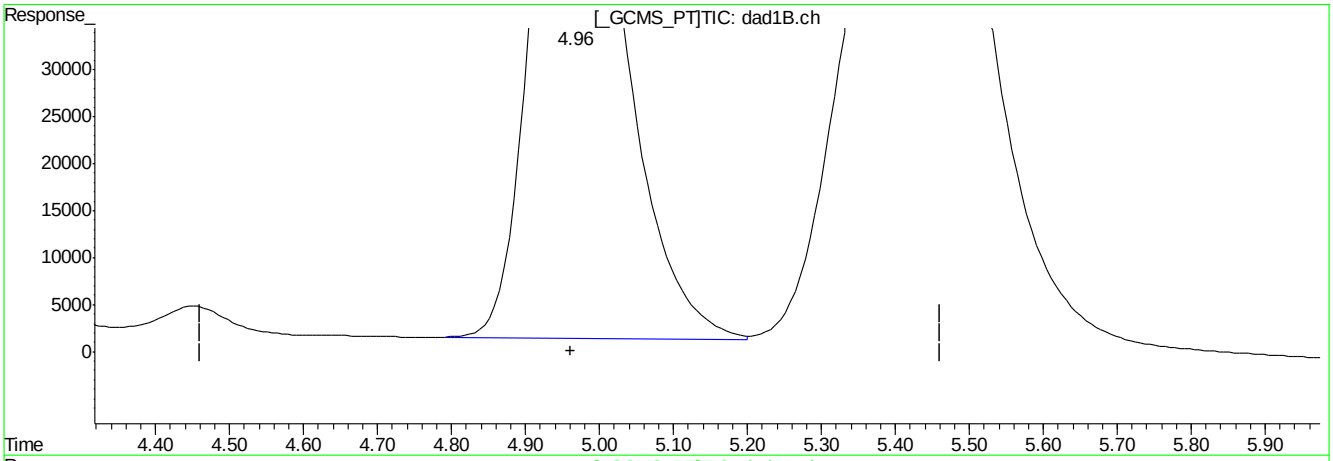
Sample Number: GGG2769-ICC2769
Lab FileID: GG617752.D
Injection Time: 09/25/19 22:57
Method: SW846 8330B
Analyst approved: 09/26/19 16:07 William Hustedde
Supervisor approved: 09/26/19 16:28 Naresh Jiawan

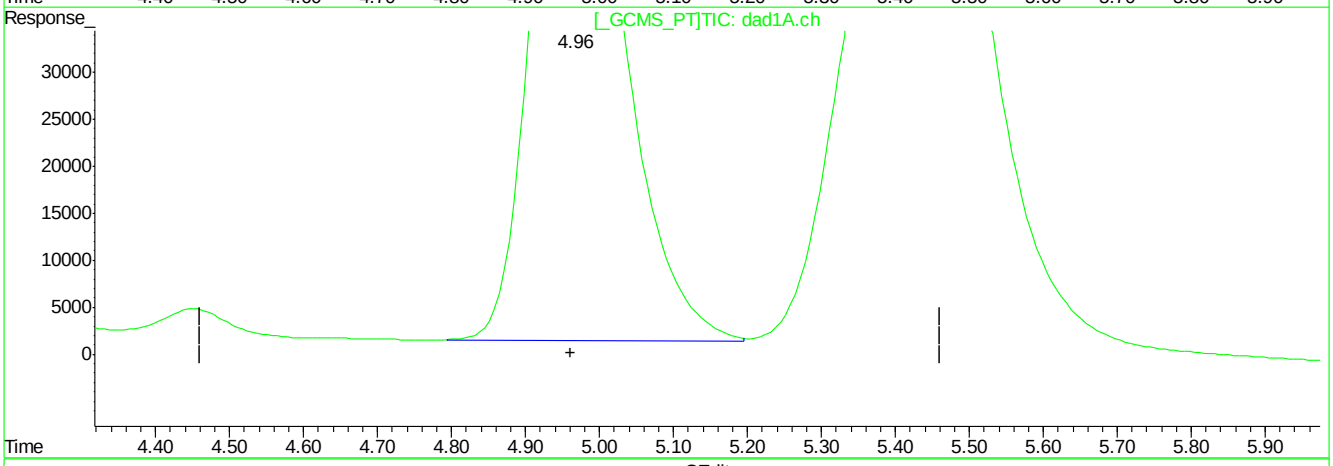
Parameter	CAS	Sig#	R.T. (min.)	Reason
TNX		1	4.96	Poor instrument integration
TNX		2	4.96	Poor instrument integration
HMX	2691-41-0	1	5.37	Poor instrument integration
HMX	2691-41-0	2	5.37	Poor instrument integration
DNX		1	5.48	Poor instrument integration
DNX		2	5.48	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617752.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617752.D\dad1A.ch
Acq On : 25-Sep-2019, 22:57:38 Operator: williamh
Sample : icc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(1) TNX

4.96min 1059.473ppb m

response 6018347

(1) TNX #2

4.96min 1054.789ppb m

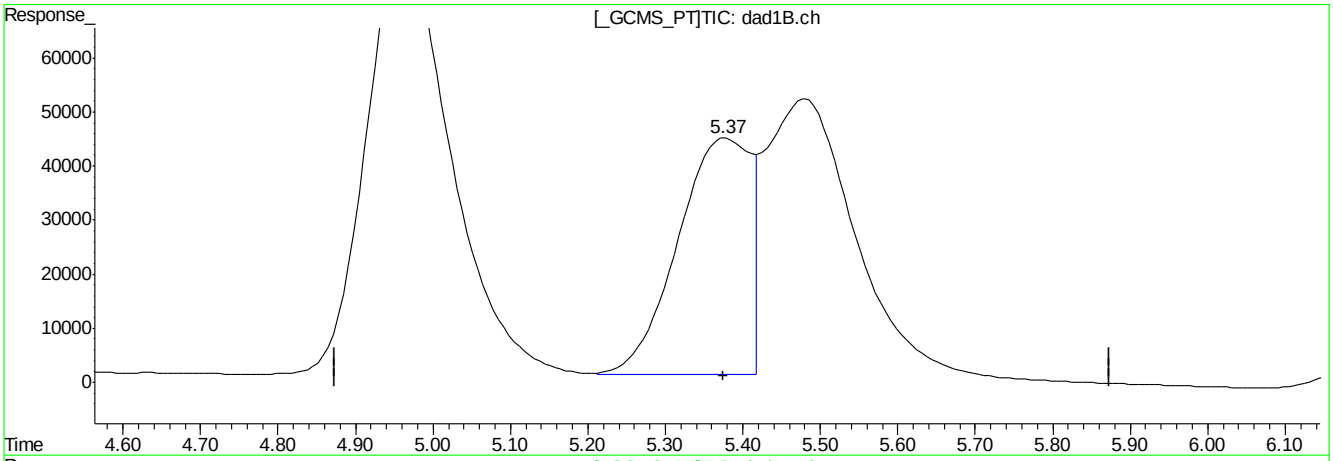
response 6004425

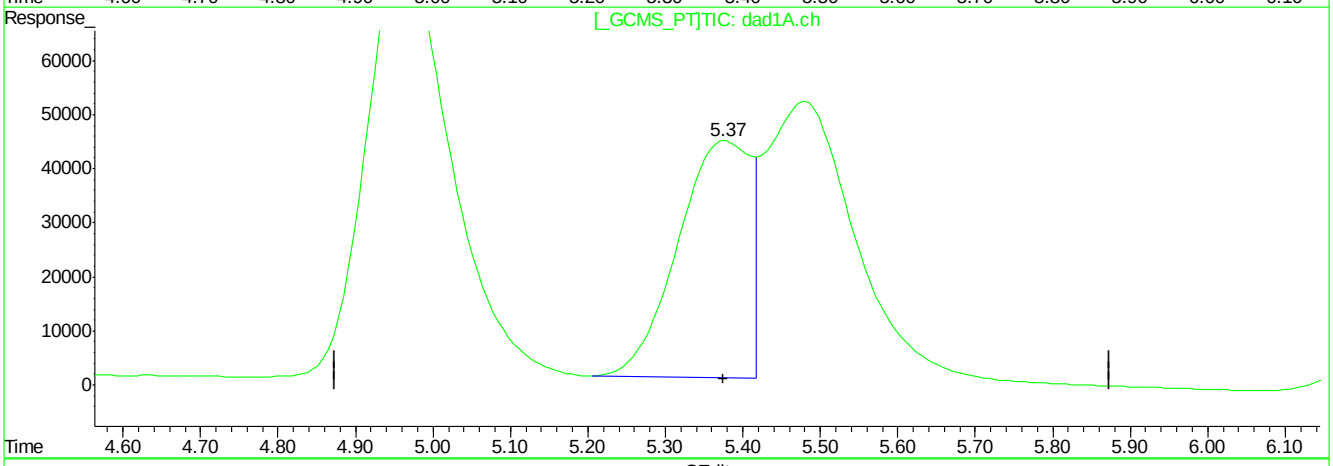
(+) = Expected Retention Time
GG617752.D 8330RPB.M_092519.M Thu Sep 26 11:31:47 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617752.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617752.D\dad1A.ch
Acq On : 25-Sep-2019, 22:57:38 Operator: williamh
Sample : icc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.37min 843.036ppb m

response 3026166

(2) HMX #2

5.37min 844.146ppb m

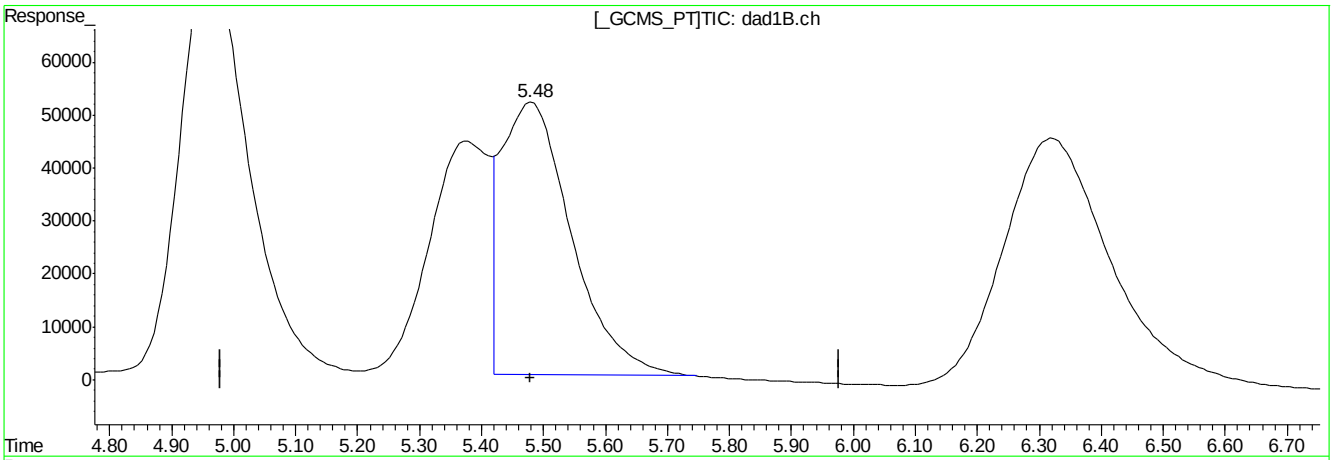
response 3027841

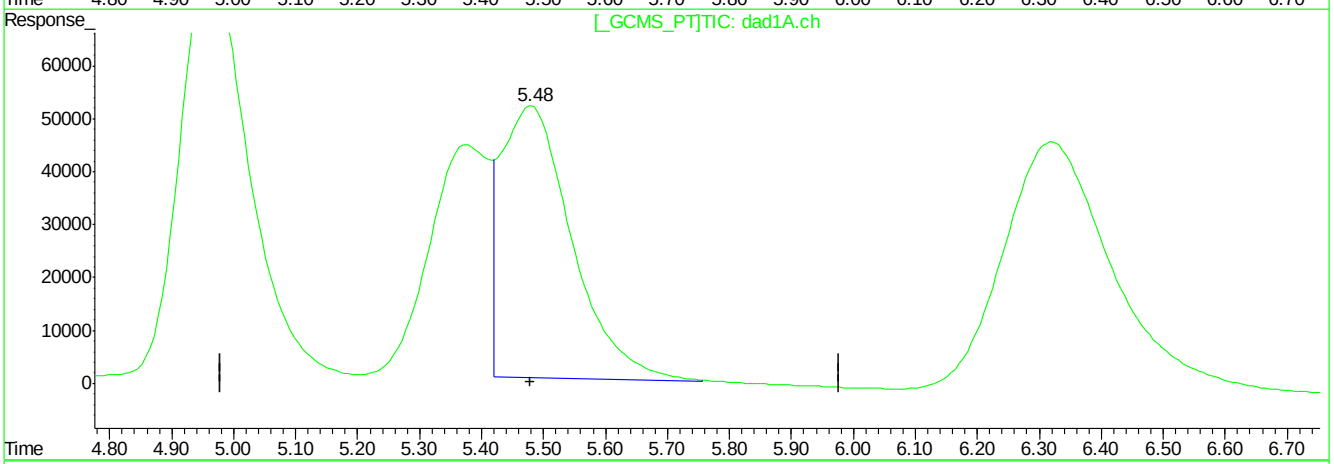
(+) = Expected Retention Time
GG617752.D 8330RPB.M_092519.M Thu Sep 26 11:31:55 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617752.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617752.D\dad1A.ch
Acq On : 25-Sep-2019, 22:57:38 Operator: williamh
Sample : icc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(3) DNX

5.48min 767.488ppb m

response 4046919

(3) DNX #2

5.48min 776.175ppb m

response 4062739

(+) = Expected Retention Time
GG617752.D 8330RPB.M_092519.M Thu Sep 26 11:32:03 2019

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617753.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617753.D\dad1A.ch
Acq On : 25-Sep-2019, 23:27:05 Operator: williamh
Sample : ic2769-2500 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12:39 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb	
	System Monitoring Compounds							
12) S	3,4-Dinitrotolue	13.53	13.53	11427135	22622399	2194.891	2214.666	
Spiked Amount	500.000	Range	70 - 136	Recovery	=	438.98%#	442.93%#	
	Target Compounds							
1)	TNX	4.96	4.96	15449035	15449035	2719.657	2713.910	
2)	HMX	5.38	5.38	7476194	7476194	2183.897	2183.383	
3)	DNX	5.48	5.48	10801869	10801869	2167.878	2164.227	
4)	MNX	6.33	6.33	14634680	14634680	2537.898	2537.865	
5)	1,3,5-Trinitrobe	7.14	7.14	26458043	26458043	2780.744	2789.044	
6)	RDX	7.55	7.55	12973470	12973470	2806.739	2827.390	
7)	1,3-Dinitrobenze	9.50	9.50	35336094	26792304	2639.382	2642.540	
8)	Nitrobenzene	10.41	10.41	22261102	20994018	2624.182	2602.867	
9)	2,4,6-Trinitroto	11.02	11.03	25828110	34018225	2776.463	2854.388	
10)	Nitroglycerin	0.00	11.66	0	8168741	N.D.	2226.244	#
11)	Tetryl	12.12	12.12	20146483	36422079	2920.645	2969.609	
13)	2,6-Dinitrotolue	13.88	13.88	18676188	27322720	2985.900	2912.280	
14)	2,4-Dinitrotolue	14.57	14.57	32684148	22848017	2691.914	2601.146	
15)	o-Nitrotoluene	16.06	16.06	15582462	22472561	2784.979	2228.736	
16)	3,5-Dinitroanili	15.43	15.43	26850786	43410142	2468.650	2297.320	
17)	p-Nitrotoluene	17.09	17.09	30163703	53830444	2653.720	2591.290	
18)	4-Amino-2,6-Dini	17.09	17.09	30163703	53830444	2653.720	2591.091	
19)	m-Nitrotoluene	18.32	18.32	15094613	24955421	2632.955	2389.778	
20)	2-Amino-4,6-Dini	19.13	19.13	25378119	35158532	2941.594	2832.181	
21)	PETN	0.00	20.28	0	8634754	N.D.	3377.775	#

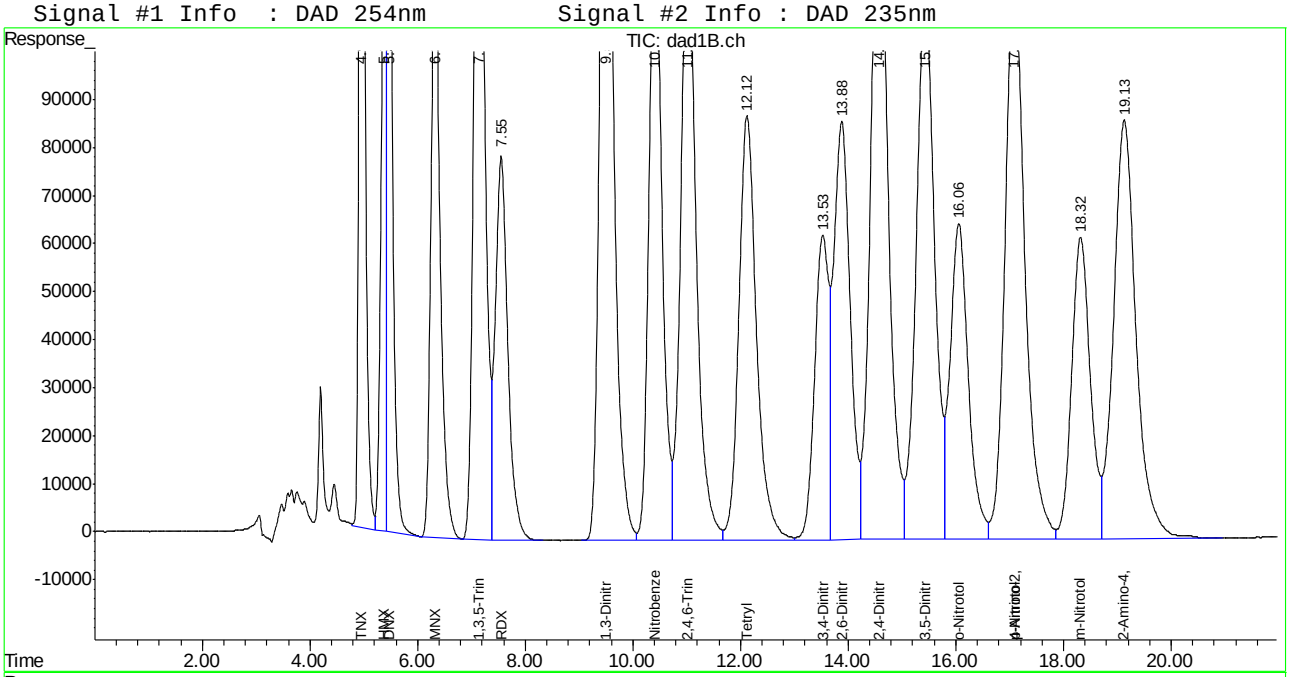
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

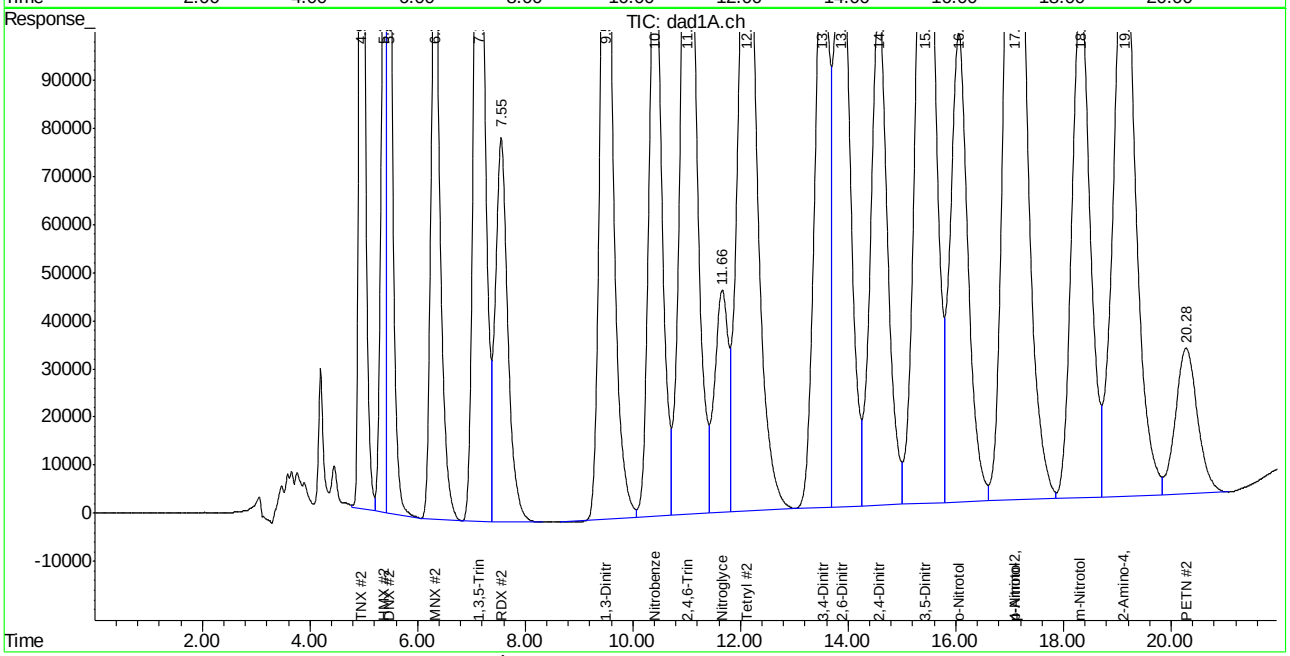
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617753.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617753.D\dad1A.ch
Acq On : 25-Sep-2019, 23:27:05 Operator: williamh
Sample : ic2769-2500 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617754.D\dad1B.ch Vial: 9
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617754.D\dad1A.ch
Acq On : 25-Sep-2019, 23:56:32 Operator: williamh
Sample : ic2769-5000 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12:40 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb	
	System Monitoring Compounds							
12) S	3,4-Dinitrotolue	13.61	13.61	22694012	45704871	4359.001	4428.579	
	Spiked Amount 500.000	Range 70 - 136		Recovery =		871.80%#	885.72%#	
	Target Compounds							
1)	TNX	4.96	4.96	30192410	30192410	5315.089	5303.858	
2)	HMX	5.38	5.38	14655794	14655794	4712.906	4699.865	
3)	DNX	5.48	5.48	20767103	20767103	4647.092	4539.317	
4)	MNX	6.33	6.33	28899678	28899678	5073.270	5072.941	
5)	1,3,5-Trinitrobe	7.15	7.15	52314501	52314501	5498.262	5514.673	
6)	RDX	7.56	7.56	25422911	25422911	5500.108	5540.575	
7)	1,3-Dinitrobenze	9.53	9.53	69786310	52489977	5212.594	5178.510	
8)	Nitrobenzene	10.45	10.45	44157450	41298399	5205.366	5413.898	
9)	2,4,6-Trinitroto	11.08	11.08	50532038	66013038	5432.079	5538.996	
10)	Nitroglycerin	0.00	11.72	0	15575975	N.D.	4266.154	#
11)	Tetryl	12.19	12.19	39181731	69694565	5680.193	6184.772	
13)	2,6-Dinitrotolue	13.95	13.95	36695921	53863518	5866.847	5819.536	
14)	2,4-Dinitrotolue	14.65	14.65	64169582	45461253	5285.100	5175.564	
15)	o-Nitrotoluene	16.15	16.15	30022716	44417557	5365.816	4405.150	
16)	3,5-Dinitroanili	15.50	15.50	52983074	87170322	4871.242	4613.165	
17)	p-Nitrotoluene	17.19	17.19	58898663	107.5E6	5181.743	5174.583	
18)	4-Amino-2,6-Dini	17.19	17.19	58898663	107.5E6	5181.743	5174.185	
19)	m-Nitrotoluene	18.42	18.42	29482656	50105401	5142.662	4798.188	
20)	2-Amino-4,6-Dini	19.24	19.24	48866600	70054734	5664.160	5643.230	
21)	PETN	0.00	20.41	0	17398593	N.D.	6696.595	#

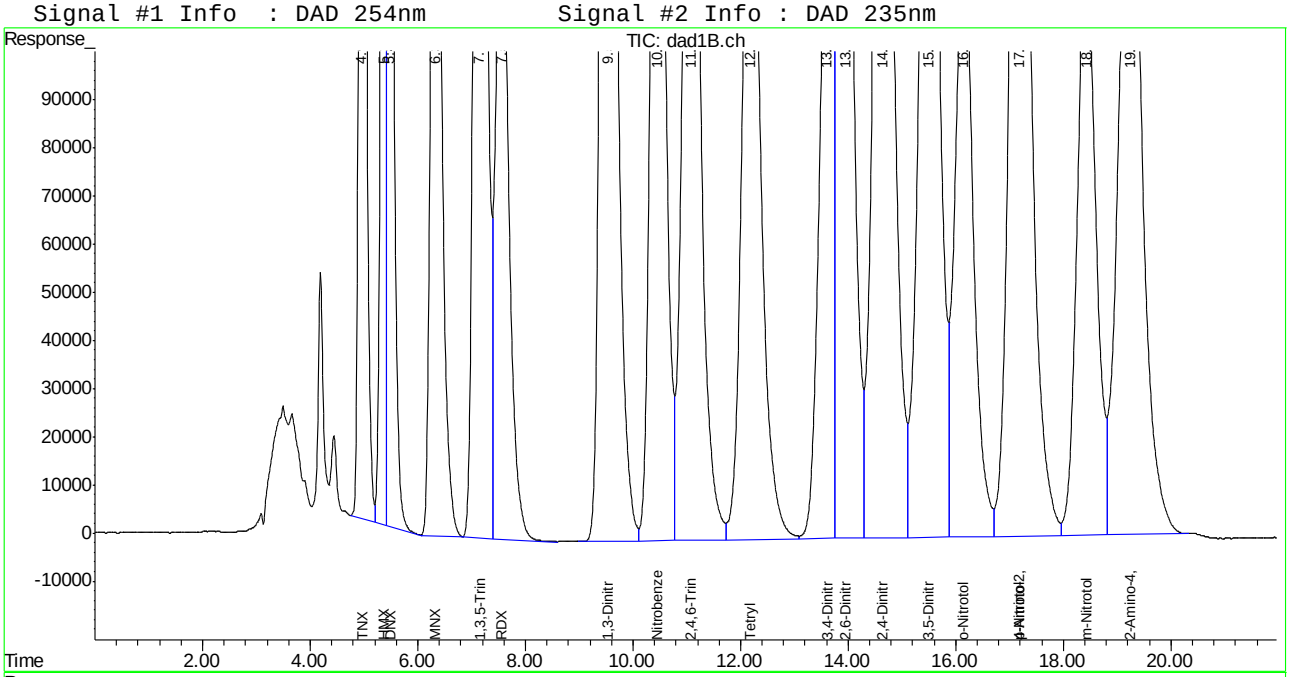
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

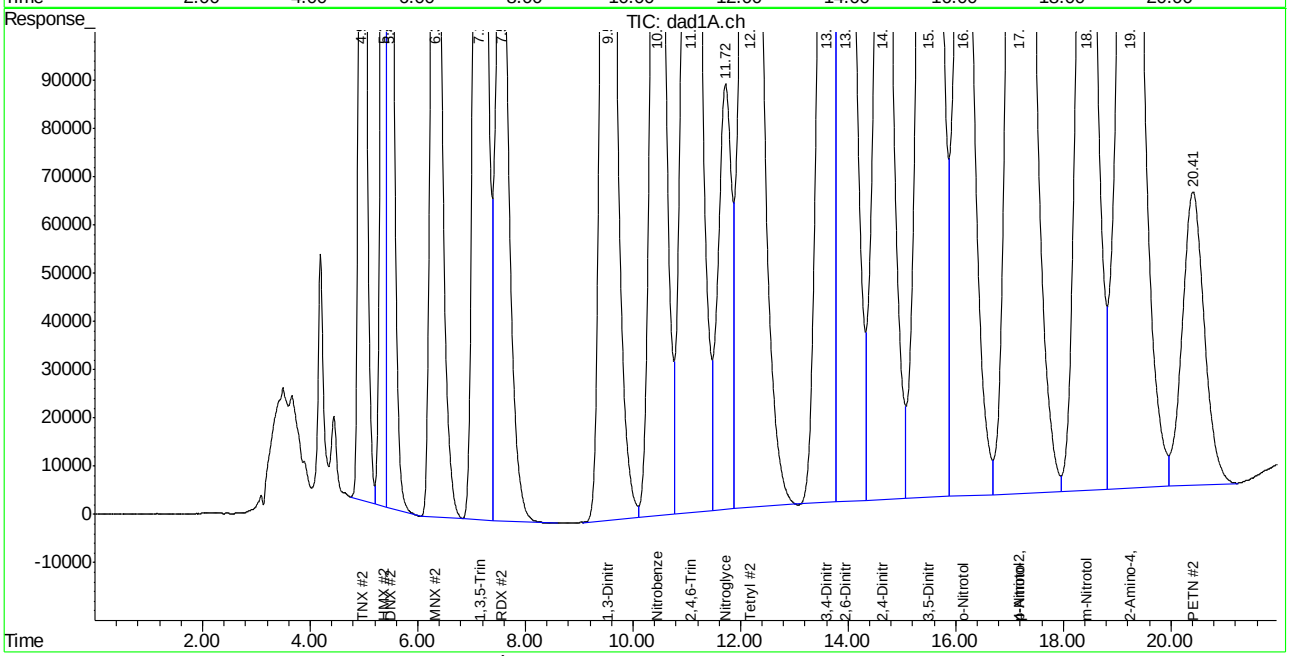
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617754.D\dad1B.ch Vial: 9
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617754.D\dad1A.ch
Acq On : 25-Sep-2019, 23:56:32 Operator: williamh
Sample : ic2769-5000 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
09/26/19 16:28

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617755.D\dad1B.ch Vial: 10
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617755.D\dad1A.ch
Acq On : 26-Sep-2019, 00:25:58 Operator: williamh
Sample : icv2769-1000 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:43:39 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:43:32 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	0.00	0.00	0	0	N.D.	N.D.
	Spiked Amount 500.000	Range 70 - 136		Recovery =		0.00%#	0.00%#
	Target Compounds						
1)	TNX	4.98	4.98	6146461	6146461	996.081	997.042
2)	HMX	5.40	5.40	2921780	2921780	980.590	974.217
3)	DNX	5.50	5.50	4119701	4119701	957.975	955.041
4)	MNX	6.36	6.36	5345176	5345176	1010.883	1008.886
5)	1,3,5-Trinitrobe	7.17	7.17	9498559	9498559	918.511	918.511
6)	RDX	7.59	7.59	4947804	4947804	975.924	975.924
7)	1,3-Dinitrobenze	9.55	9.55	13337178	10299301	954.196	986.349
8)	Nitrobenzene	10.47	10.47	8620445	8272061	968.207	977.336
9)	2,4,6-Trinitroto	11.09	11.09	10154932	13570285	995.903	1026.613
10)	Nitroglycerin	0.00	11.74	0	3455123	N.D.	999.345 #
11)	Tetryl	12.22	12.22	7535068	13687564	984.241	971.517
13)	2,6-Dinitrotolue	14.00	14.00	6309481	9116954	873.993	844.042
14)	2,4-Dinitrotolue	14.69	14.69	12383125	8606538	979.272	965.106
15)	o-Nitrotoluene	16.19	16.19	6129850	8377033	1054.033	1006.127
16)	3,5-Dinitroanili	15.55	15.55	10629658	17093123	1041.817	1029.620
17)	p-Nitrotoluene	17.24	17.24	11414366	19636916	984.309	894.241
18)	4-Amino-2,6-Dini	17.24	17.24	11414366	19636916	987.195	904.219
19)	m-Nitrotoluene	18.47	18.47	5938830	9298354	1018.222	934.998
20)	2-Amino-4,6-Dini	19.30	19.30	9221128	12186345	960.966	868.472
21)	PETN	0.00	20.47	0	2646792	N.D.	815.859m#

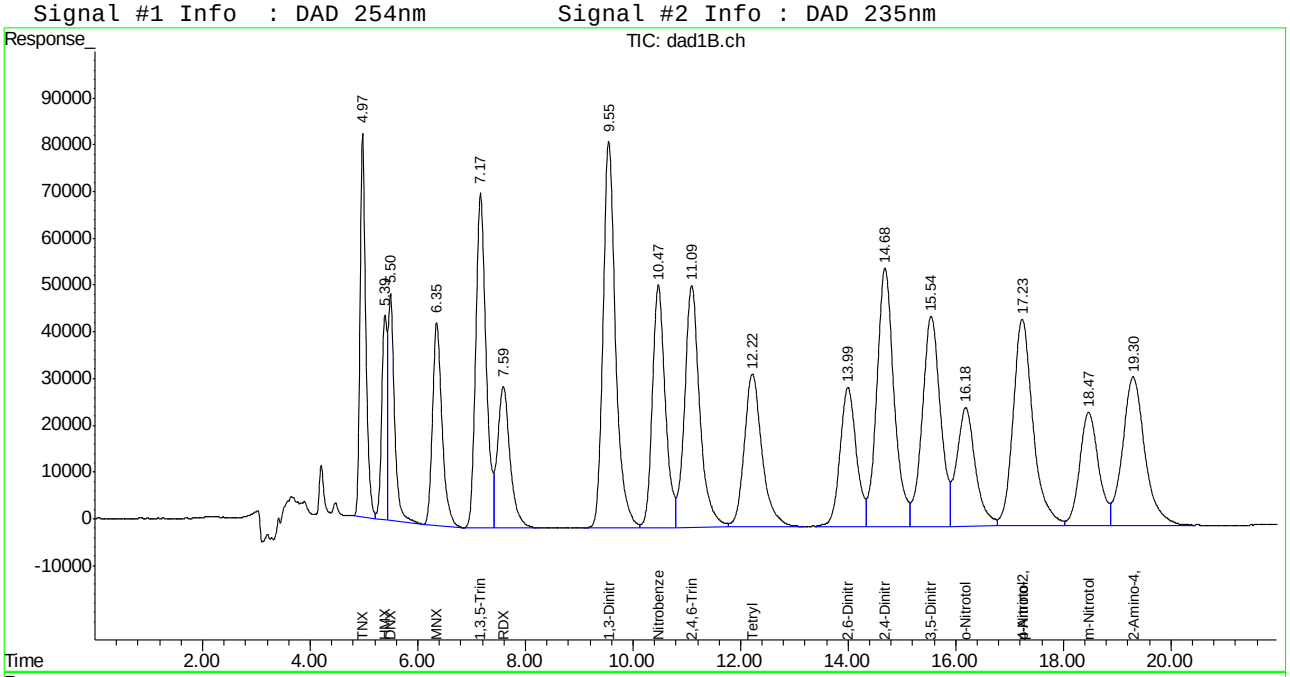
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

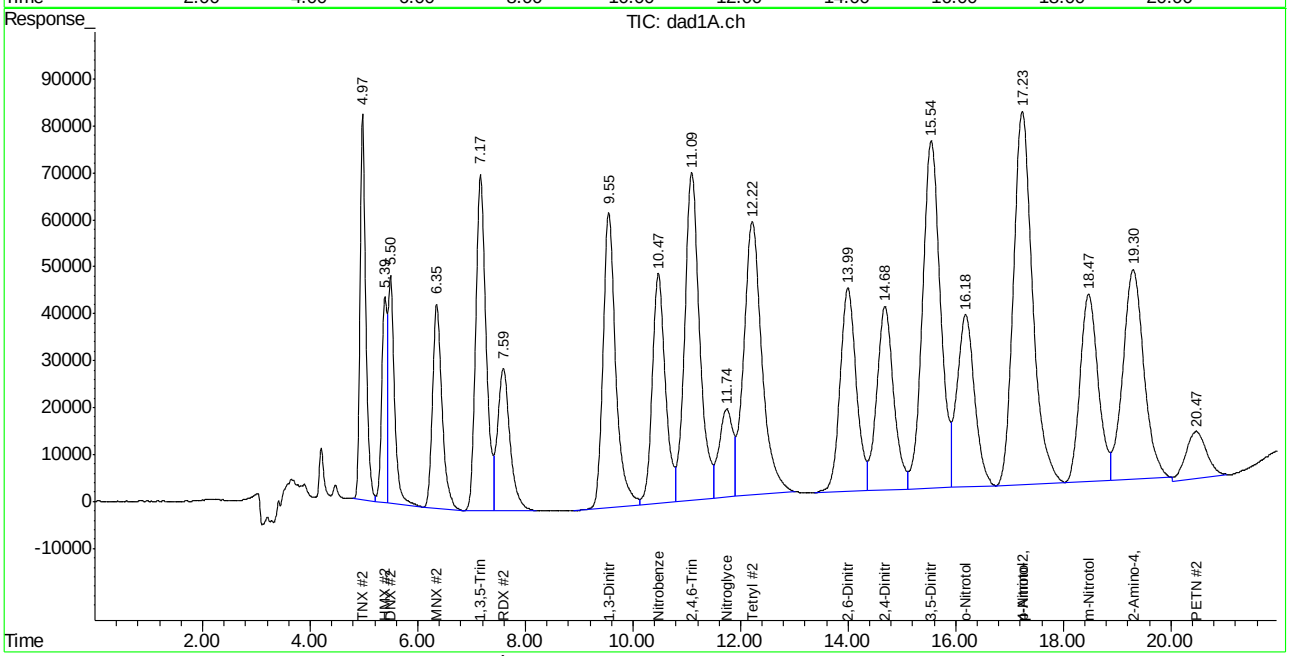
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617755.D\dad1B.ch Vial: 10
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617755.D\dad1A.ch
Acq On : 26-Sep-2019, 00:25:58 Operator: williamh
Sample : icv2769-1000 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:43 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:43:32 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

Sample Number: GGG2769-ICV2769
Lab FileID: GG617755.D
Injection Time: 09/26/19 00:25
Method: SW846 8330B
Analyst approved: 09/26/19 16:07 William Hustedde
Supervisor approved: 09/26/19 16:28 Naresh Jiawan

Parameter	CAS	Sig#	R.T. (min.)	Reason
PETN	78-11-5	2	20.47	Poor instrument integration

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
07/30/20 16:18

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619137.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619137.D\dad1A.ch
Acq On : 29-Jul-2020, 13:34:23 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : op81252,GGG2858,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 29 15:06:39 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.27	13.26	5408504	10170904	1197.793	1129.848m
	Spiked Amount 500.000	Range 70 - 136		Recovery =		239.56%#	225.97%#
	Target Compounds						
1)	TNX	4.97	4.97	8223797	7978267	1335.046m	1296.074m
2)	HMX	5.31	5.31	3198205	3259188	1073.362m	1086.720m
3)	DNX	5.49	5.49	2480408	2442686	575.009m	564.324m
4)	MNX	6.28	6.28	4733672	4672874	895.235m	881.991m
5)	1,3,5-Trinitrobe	7.00	7.00	9177015	9177015	887.418	887.418
6)	RDX	7.43	7.43	4403645	4544634	868.592m	896.401m
7)	1,3-Dinitrobenze	9.33	9.33	13246302	10159327	947.694	972.944
8)	Nitrobenzene	10.19	10.19	8617602	8230803	967.888	972.462
9)	2,4,6-Trinitroto	10.73	10.73	9328085	12266053	914.813	927.946
10)	Nitroglycerin	0.00	11.32	0	3102709	N.D. d	897.414
11)	Tetryl	11.75	11.75	7869352	13466431	1027.906	955.821
13)	2,6-Dinitrotolue	13.54	13.53	7236105	9858379	1002.349	903.280m
14)	2,4-Dinitrotolue	14.20	14.20	12992682	8806965	1027.477	987.581m
15)	o-Nitrotoluene	15.65	15.64	6801851	8522506	1169.584	1023.599m
16)	3,5-Dinitroanili	15.12	15.12	11699434	18811514	1146.666	1133.129m
17)	p-Nitrotoluene	16.71	16.73	11310090	21362195	975.317m	972.808m
18)	4-Amino-2,6-Dini	16.71	16.73	11123357	20866037	962.027m	960.816m
19)	m-Nitrotoluene	17.85	17.85	5752254	9829695	986.233m	988.428m
20)	2-Amino-4,6-Dini	18.80	18.81	9372441	12261982	976.735m	873.862m
21)	PETN	0.00	19.49	0	2642248	N.D.	814.479m#

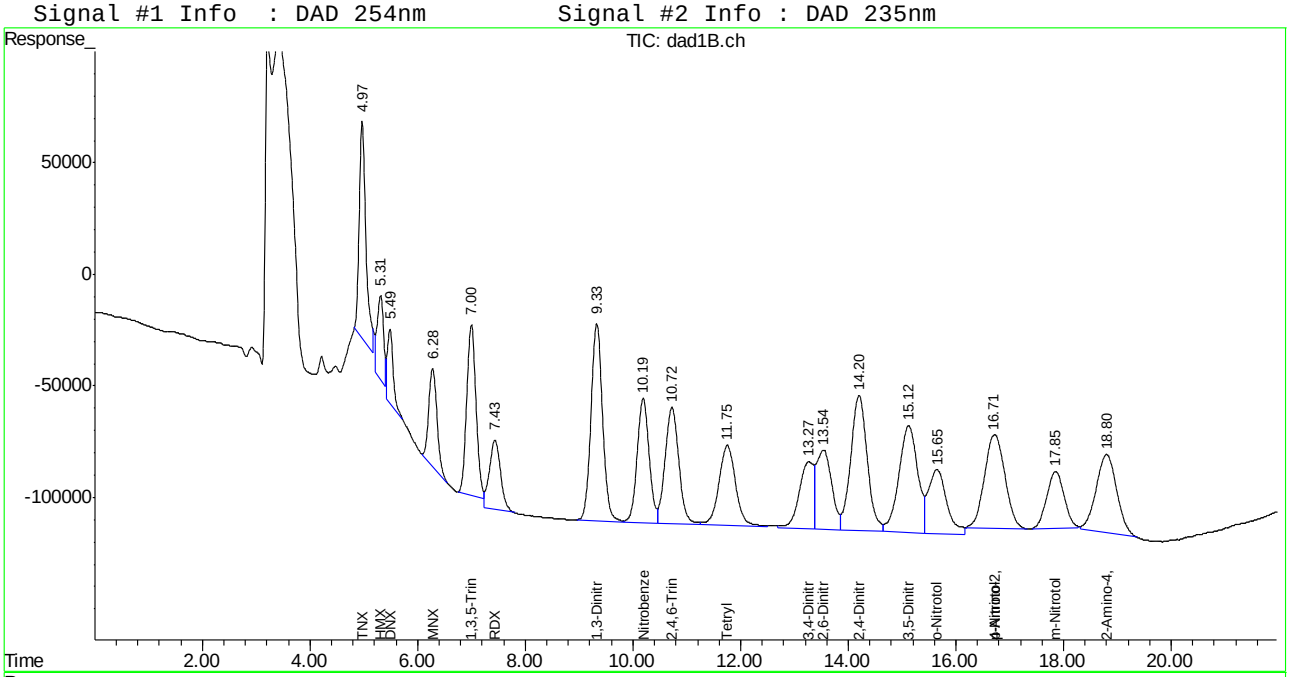
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
GG619137.D 8330RPB.M_092519.M Thu Jul 30 15:06:23 2020 Page 1

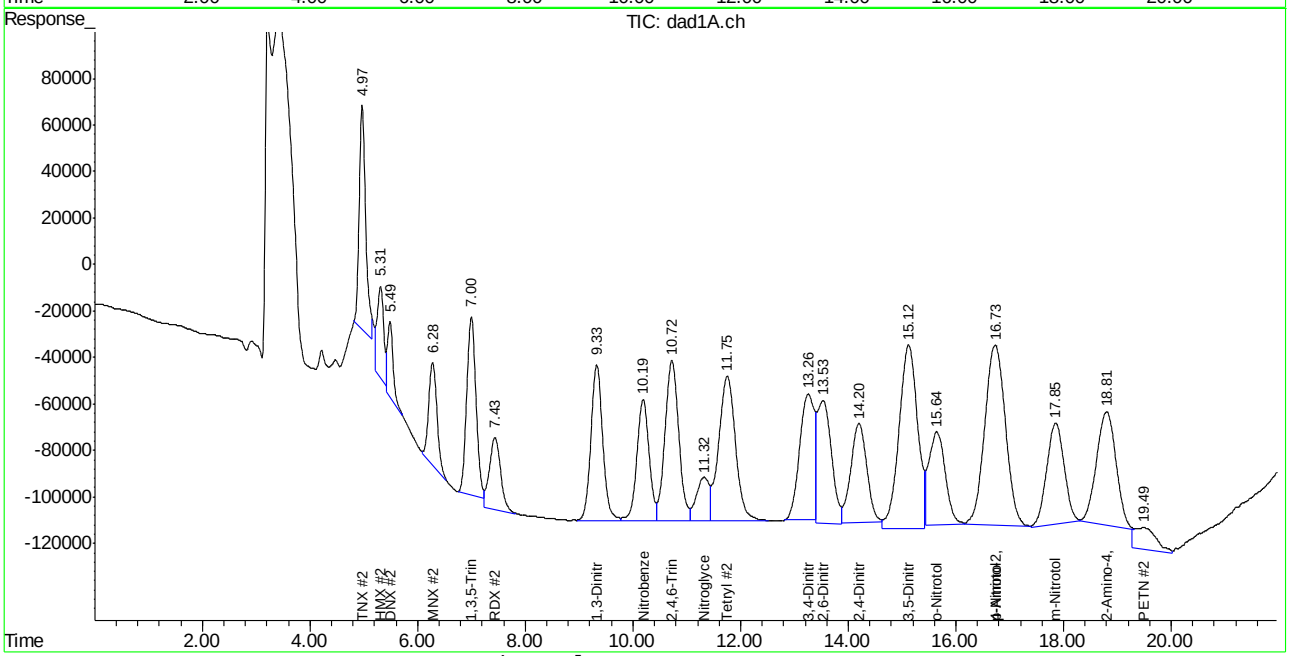
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619137.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619137.D\dad1A.ch
Acq On : 29-Jul-2020, 13:34:23 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : op81252,GGG2858,1000,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 30 11:39 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

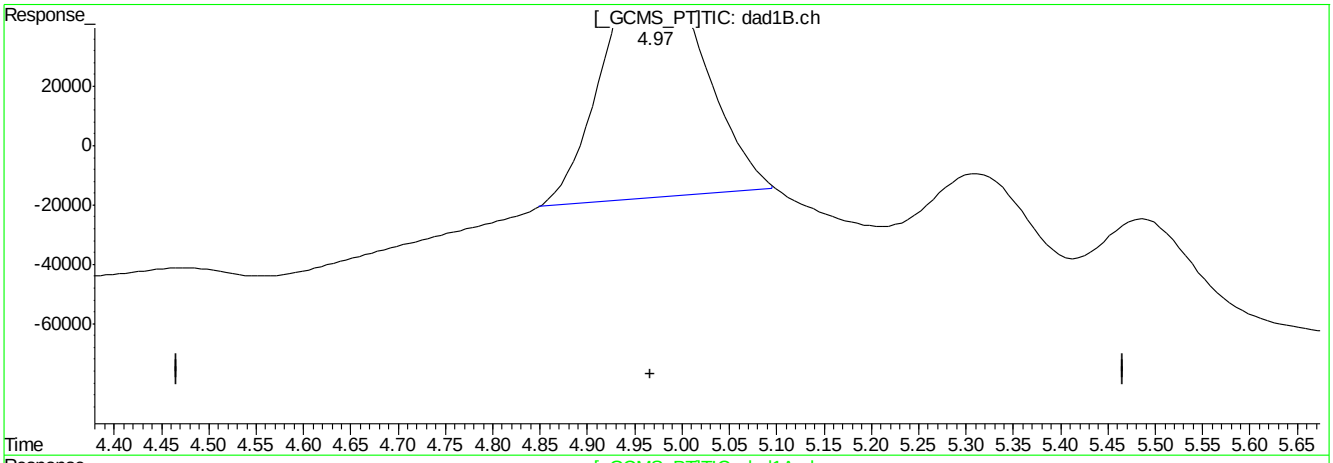
Sample Number: GGG2858-CC2769
Lab FileID: GG619137.D
Injection Time: 07/29/20 13:34
Method: SW846 8330B
Analyst approved: 07/30/20 15:10 William Hustedde
Supervisor approved: 07/30/20 16:18 Naresh Jiawan

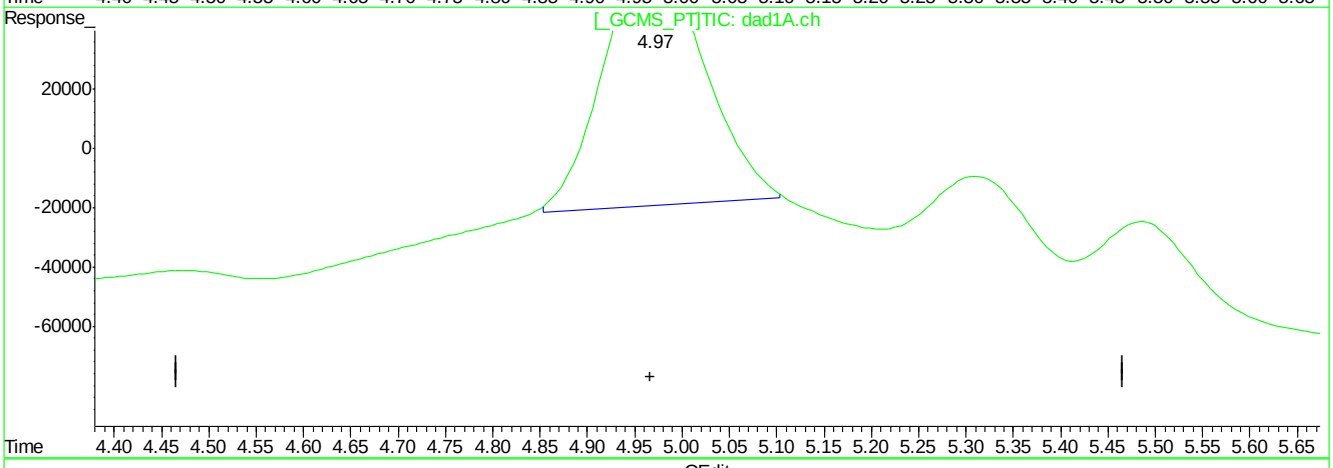
Parameter	CAS	Sig#	R.T. (min.)	Reason
TNX		1	4.97	Poor instrument integration
TNX		2	4.97	Poor instrument integration
HMX	2691-41-0	1	5.31	Poor instrument integration
HMX	2691-41-0	2	5.31	Poor instrument integration
DNX		1	5.49	Poor instrument integration
DNX		2	5.49	Poor instrument integration
MNX		1	6.28	Poor instrument integration
MNX		2	6.28	Poor instrument integration
RDX	121-82-4	1	7.43	Poor instrument integration
RDX	121-82-4	2	7.43	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	2	13.26	Poor instrument integration
2,6-Dinitrotoluene	606-20-2	2	13.53	Poor instrument integration
2,4-Dinitrotoluene	121-14-2	2	14.20	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	15.12	Poor instrument integration
o-Nitrotoluene	88-72-2	2	15.64	Poor instrument integration
4-amino-2,6-Dinitrotoluene	19406-51-0	1	16.71	Poor instrument integration
p-Nitrotoluene	99-99-0	1	16.71	Poor instrument integration
4-amino-2,6-Dinitrotoluene	19406-51-0	2	16.73	Poor instrument integration
p-Nitrotoluene	99-99-0	2	16.73	Poor instrument integration
m-Nitrotoluene	99-08-1	1	17.85	Poor instrument integration
m-Nitrotoluene	99-08-1	2	17.85	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	1	18.80	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	2	18.81	Poor instrument integration
PETN	78-11-5	2	19.49	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619137.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619137.D\dad1A.ch
Acq On : 29-Jul-2020, 13:34:23 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 29 15:06 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration





QEdit

(1) TNX

4.97min 966.080ppb m

response 5962252

(1) TNX #2

4.97min 1009.133ppb m

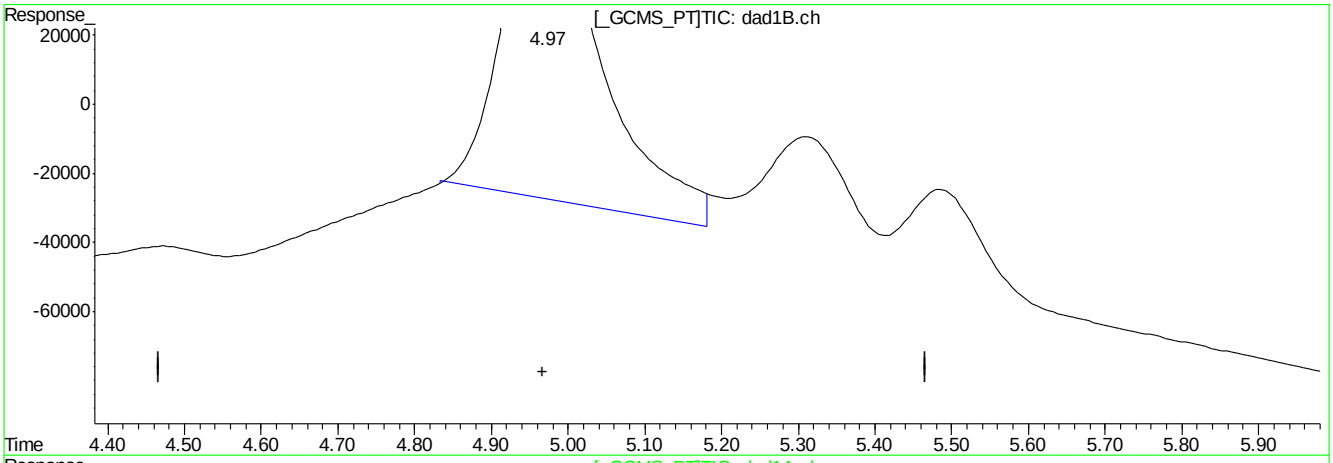
response 6220636

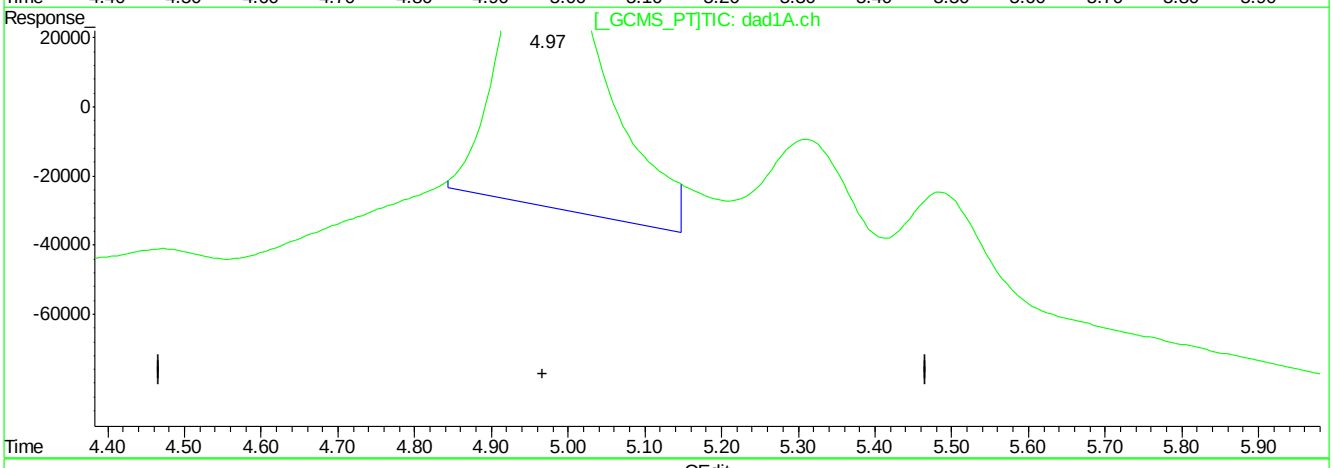
(+) = Expected Retention Time
GG619137.D 8330RPB.M_092519.M Wed Jul 29 15:06:49 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619137.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619137.D\dad1A.ch
Acq On : 29-Jul-2020, 13:34:23 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 29 15:06 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration





QEdit

(1) TNX

4.97min 966.080ppb m

response 5962252

(1) TNX #2

4.97min 1009.133ppb m

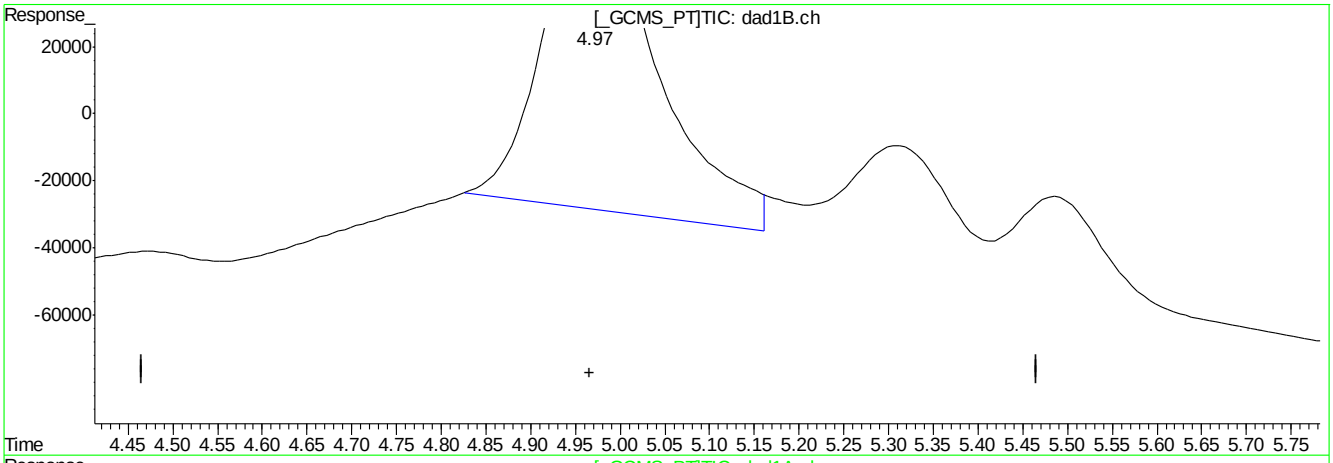
response 8174770

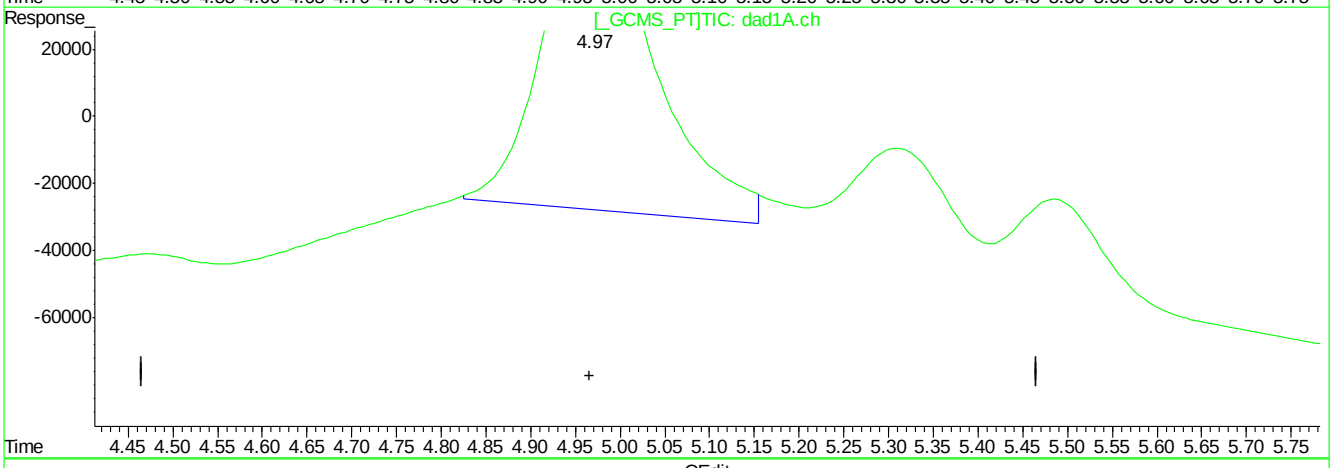
(+) = Expected Retention Time
GG619137.D 8330RPB.M_092519.M Wed Jul 29 15:07:16 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619137.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619137.D\dad1A.ch
Acq On : 29-Jul-2020, 13:34:23 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 29 15:06 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration





QEdit

(1) TNX

4.97min 1335.046ppb m

response 8223797

(1) TNX #2

4.97min 1296.074ppb m

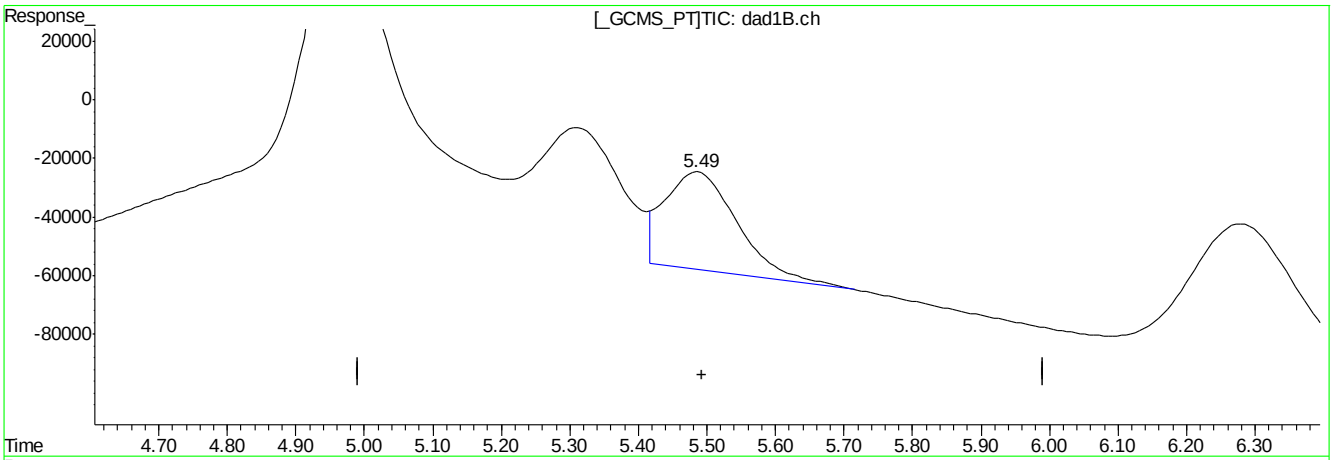
response 7978267

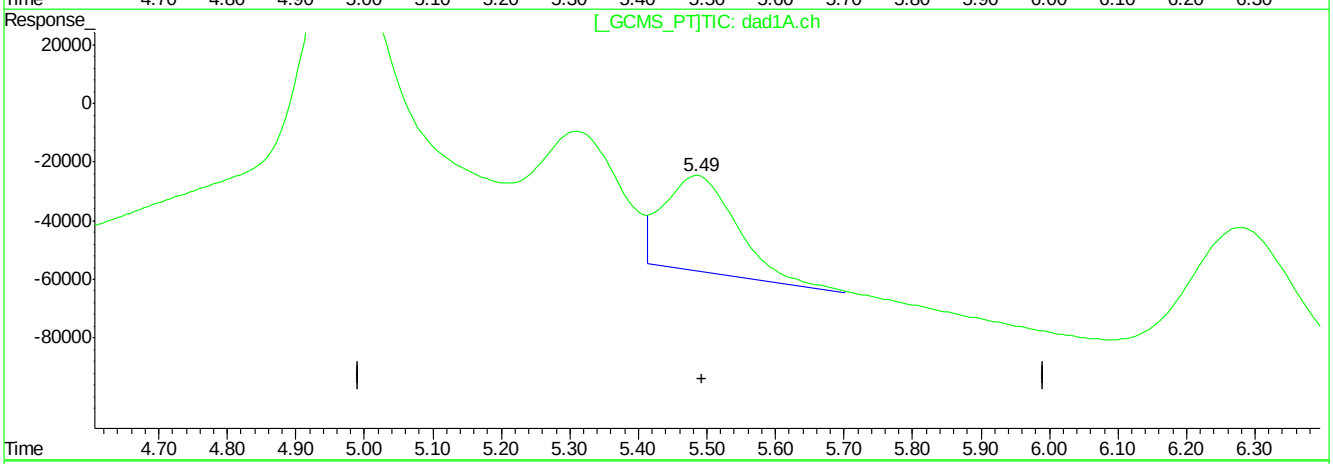
(+) = Expected Retention Time
GG619137.D 8330RPB.M_092519.M Wed Jul 29 15:07:42 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619137.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619137.D\dad1A.ch
Acq On : 29-Jul-2020, 13:34:23 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 29 15:06 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration





QEdit

(3) DNX

5.49min 575.009ppb m

response 2480408

(3) DNX #2

5.49min 564.324ppb m

response 2442686

(+) = Expected Retention Time
GG619137.D 8330RPB.M_092519.M Wed Jul 29 15:07:54 2020

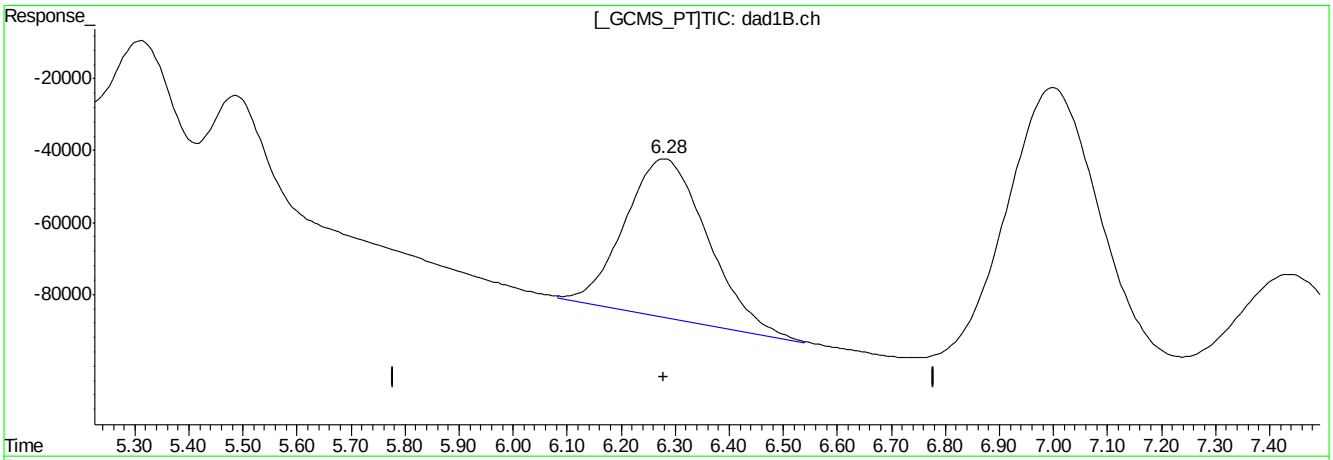
9.5.21.5

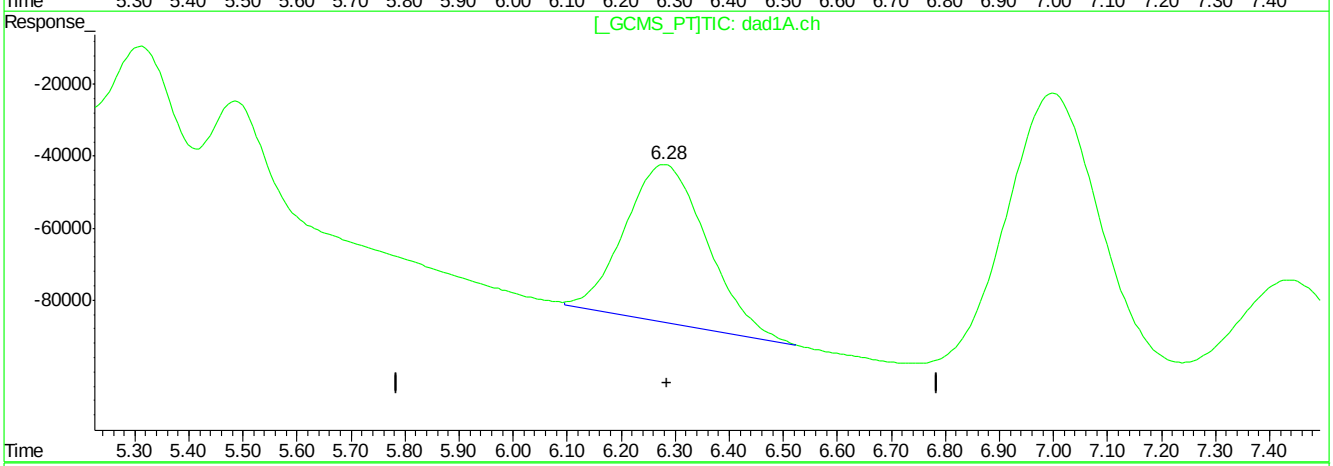
9

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619137.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619137.D\dad1A.ch
Acq On : 29-Jul-2020, 13:34:23 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 29 15:06 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration





QEdit

(4) MNX

6.28min 895.235ppb m

response 4733672

(4) MNX #2

6.28min 881.991ppb m

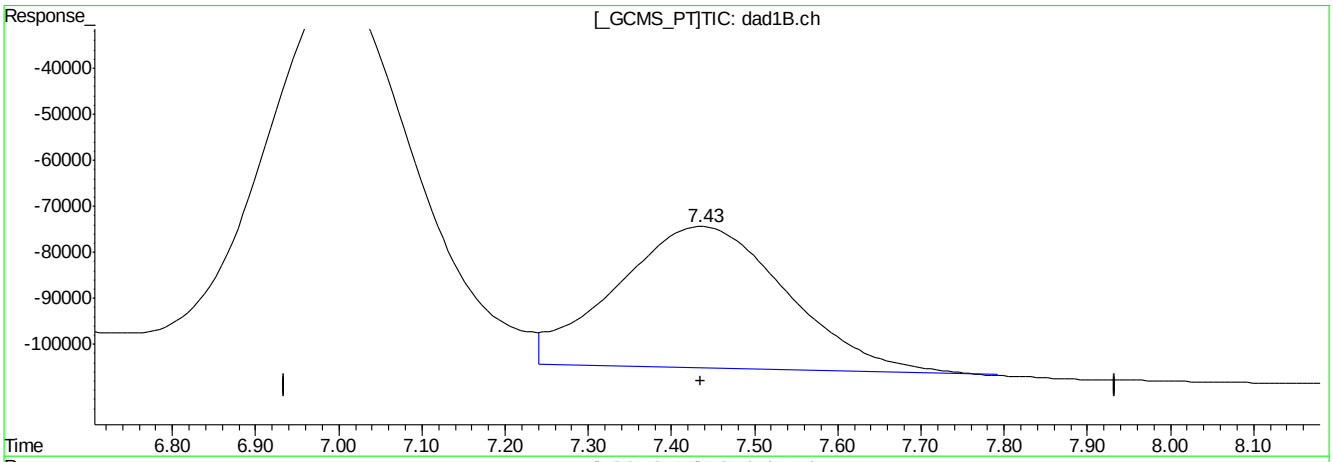
response 4672874

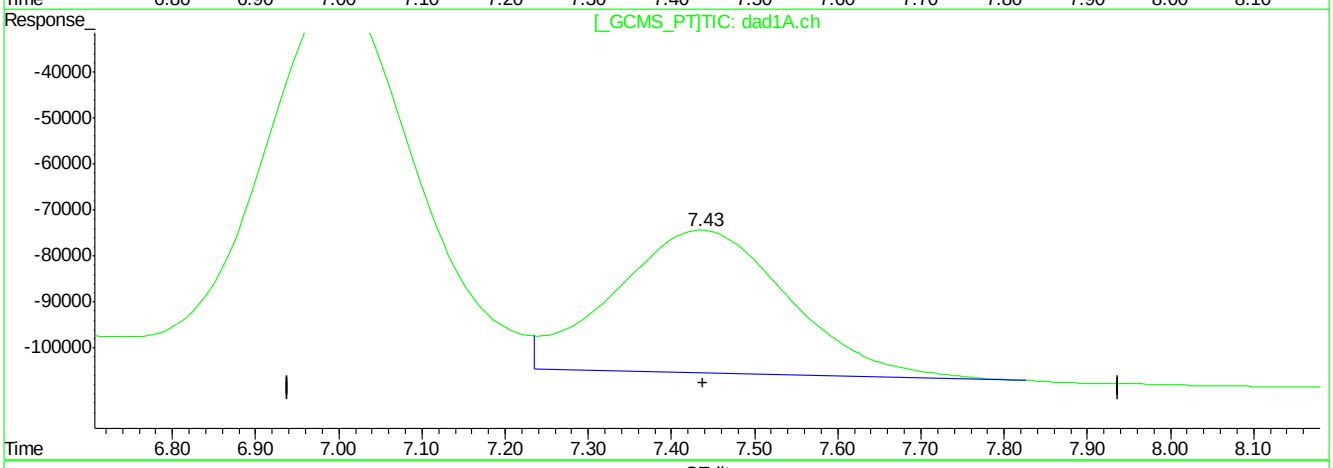
(+) = Expected Retention Time
GG619137.D 8330RPB.M_092519.M Wed Jul 29 15:08:05 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619137.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619137.D\dad1A.ch
Acq On : 29-Jul-2020, 13:34:23 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 29 15:06 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration





QEdit

(6) RDX

7.43min 868.592ppb m

response 4403645

(6) RDX #2

7.43min 896.401ppb m

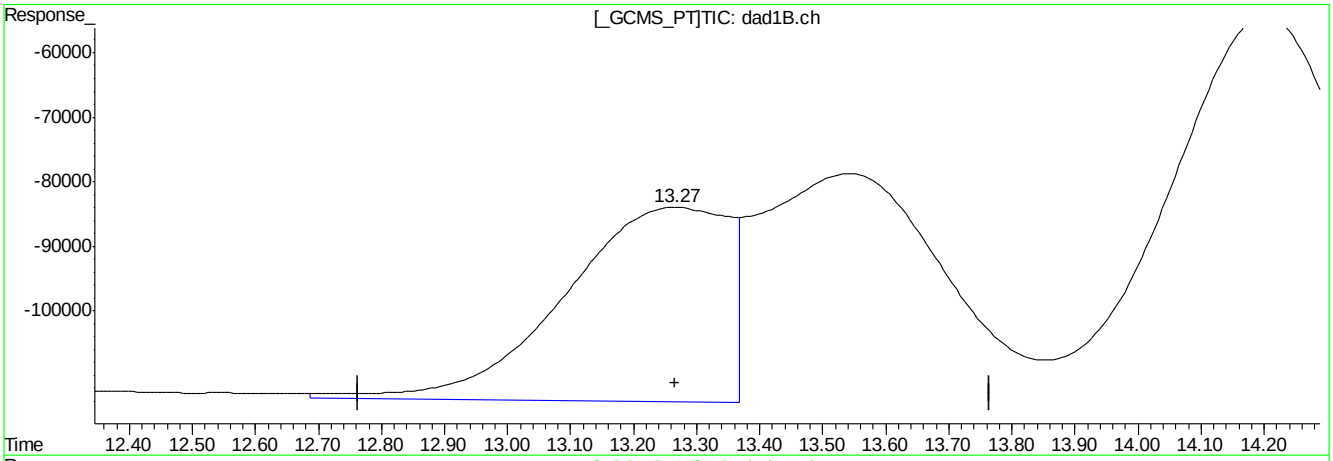
response 4544634

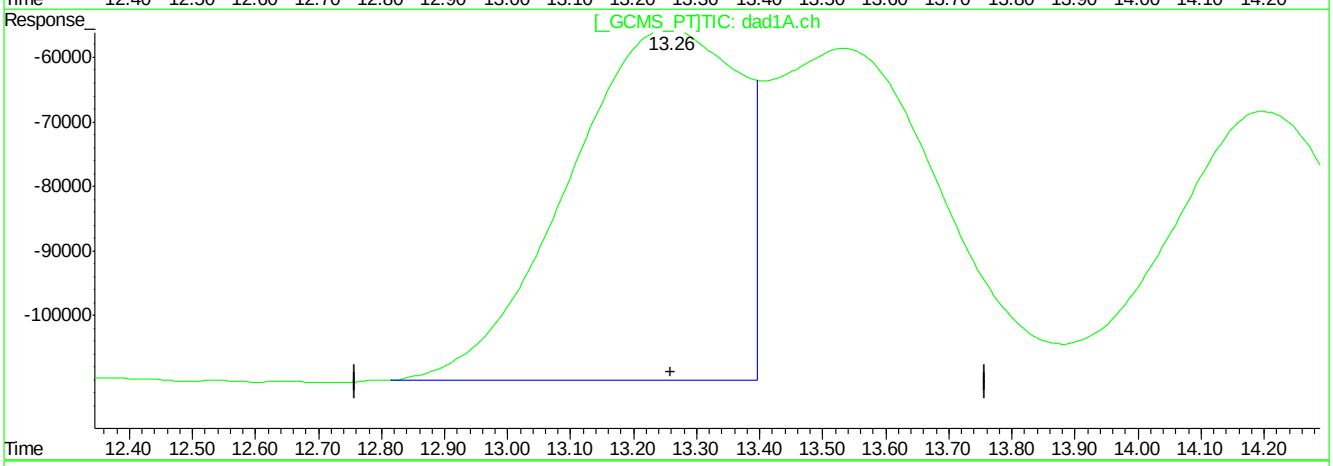
(+) = Expected Retention Time
GG619137.D 8330RPB.M_092519.M Wed Jul 29 15:08:17 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619137.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619137.D\dad1A.ch
Acq On : 29-Jul-2020, 13:34:23 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 29 15:06 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration





QEdit

(12) 3,4-Dinitrotoluene (S)

13.27min 1197.793ppb

response 5408504

(12) 3,4-Dinitrotoluene #2 (S)

13.26min 1129.848ppb m

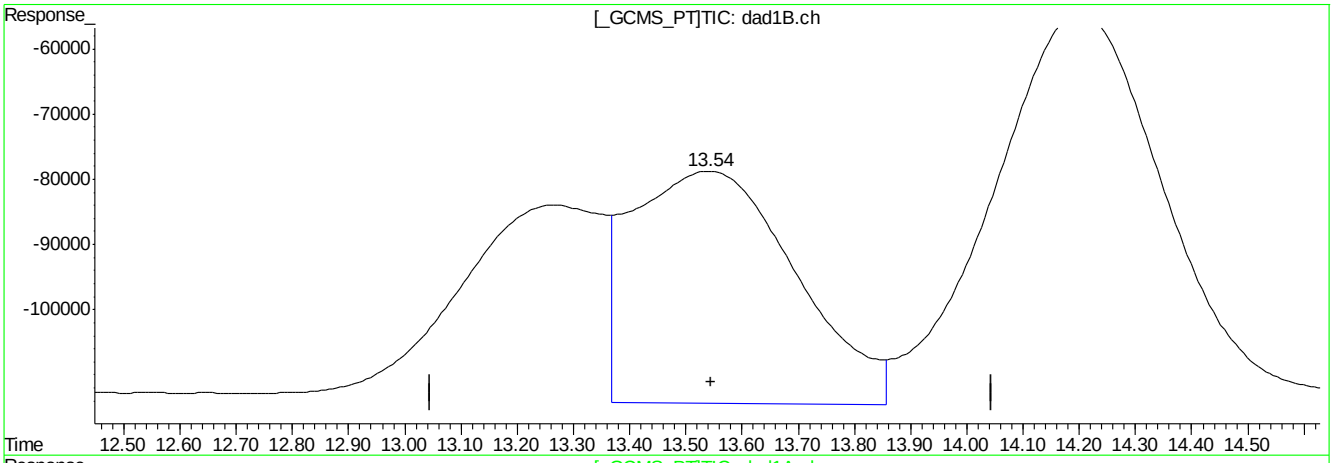
response 10170904

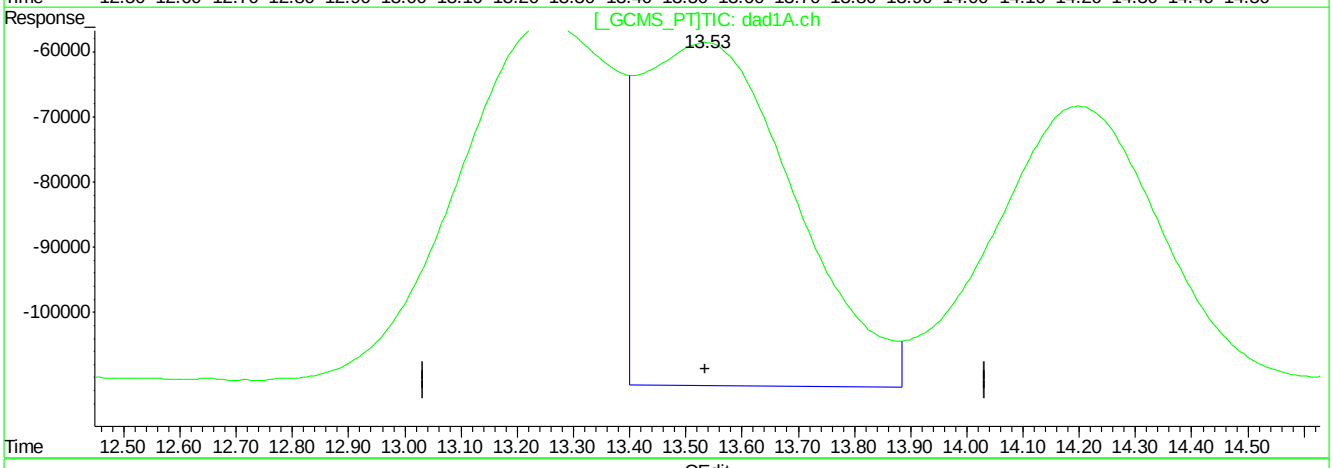
(+) = Expected Retention Time
GG619137.D 8330RPB.M_092519.M Wed Jul 29 15:08:41 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619137.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619137.D\dad1A.ch
Acq On : 29-Jul-2020, 13:34:23 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 29 15:06 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration





QEdit

(13) 2,6-Dinitrotoluene

13.54min 1002.349ppb

response 7236105

(13) 2,6-Dinitrotoluene #2

13.53min 903.280ppb m

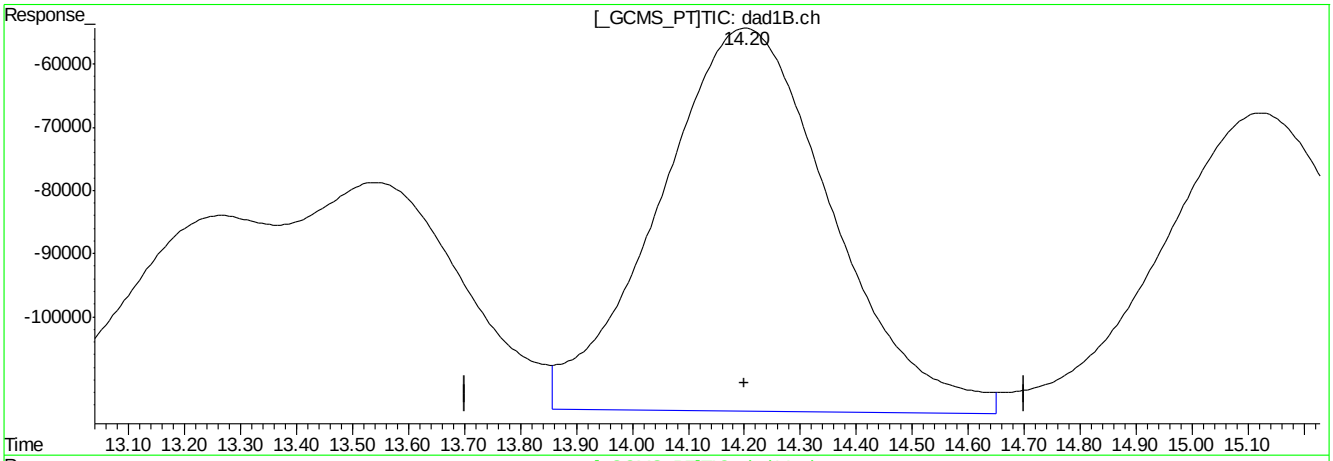
response 9858379

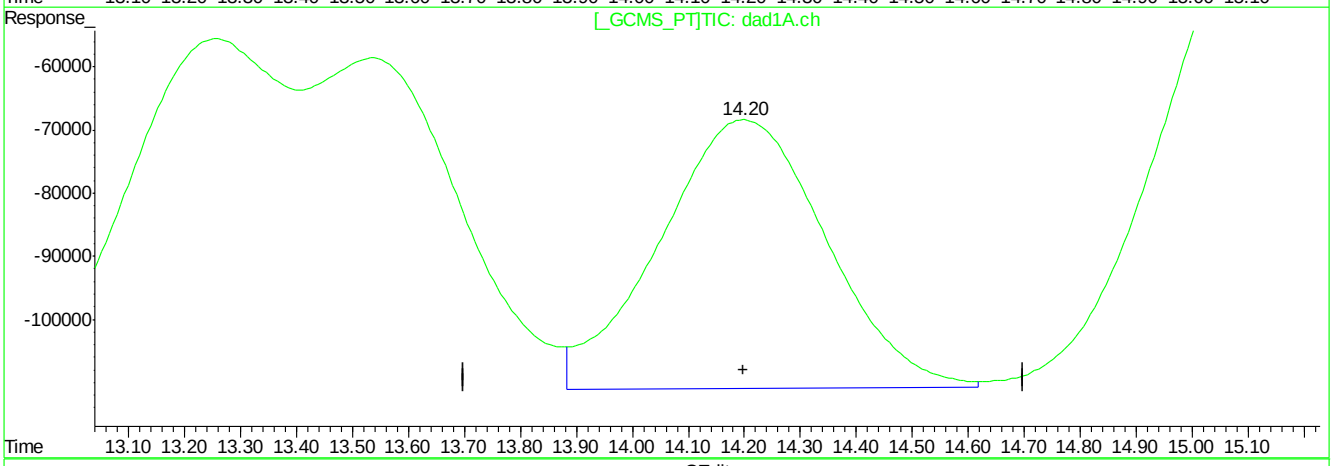
(+) = Expected Retention Time
GG619137.D 8330RPB.M_092519.M Wed Jul 29 15:08:55 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619137.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619137.D\dad1A.ch
Acq On : 29-Jul-2020, 13:34:23 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 29 15:06 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration





QEdit

(14) 2,4-Dinitrotoluene

14.20min 1027.477ppb

response 12992682

(14) 2,4-Dinitrotoluene #2

14.20min 987.581ppb m

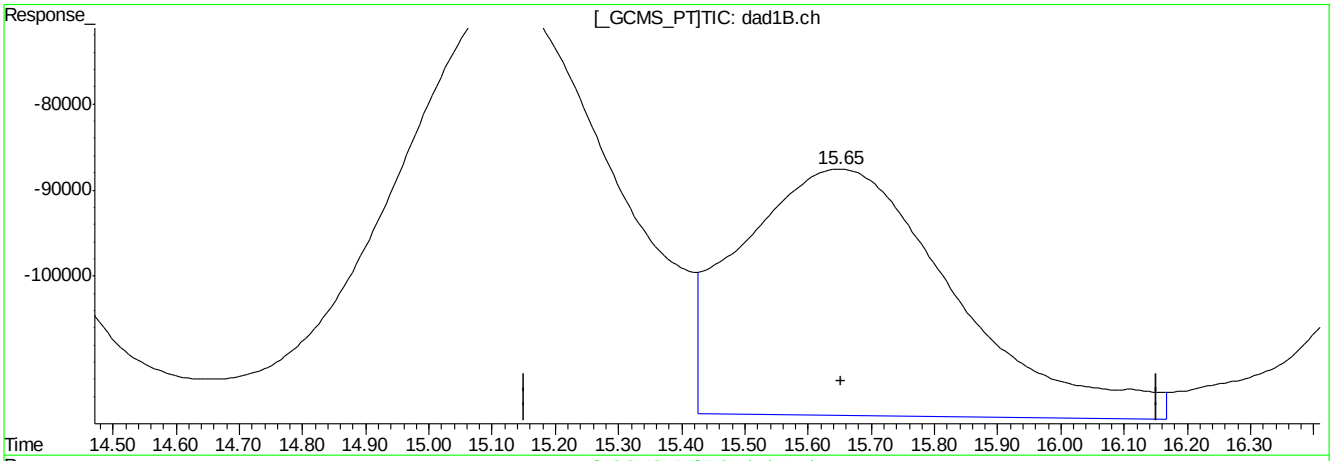
response 8806965

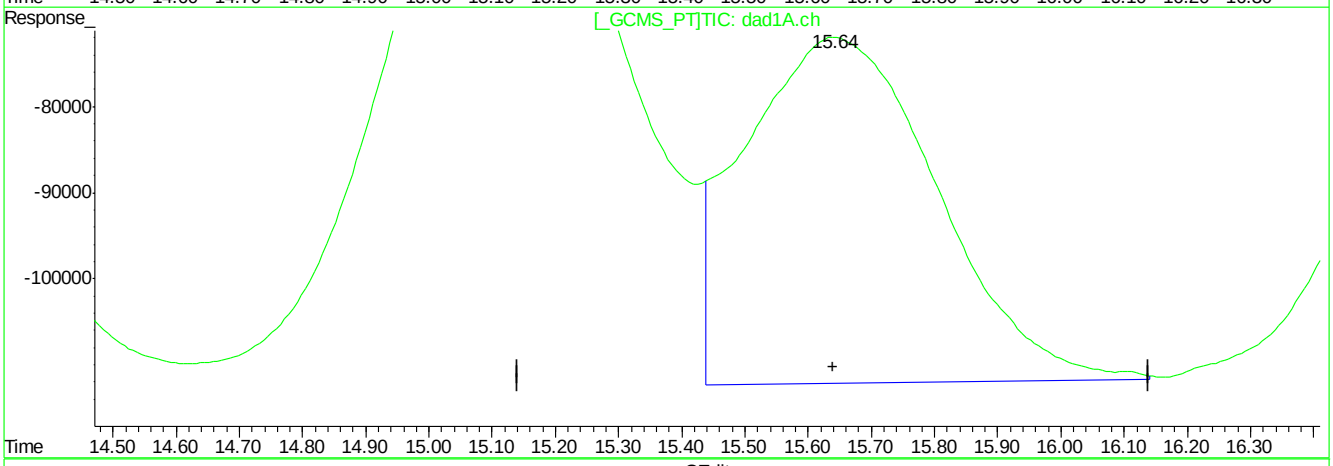
(+) = Expected Retention Time
GG619137.D 8330RPB.M_092519.M Wed Jul 29 15:09:02 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619137.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619137.D\dad1A.ch
Acq On : 29-Jul-2020, 13:34:23 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 29 15:06 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration





QEdit

(15) o-Nitrotoluene

15.65min 1169.584ppb

response 6801851

(15) o-Nitrotoluene #2

15.64min 1023.599ppb m

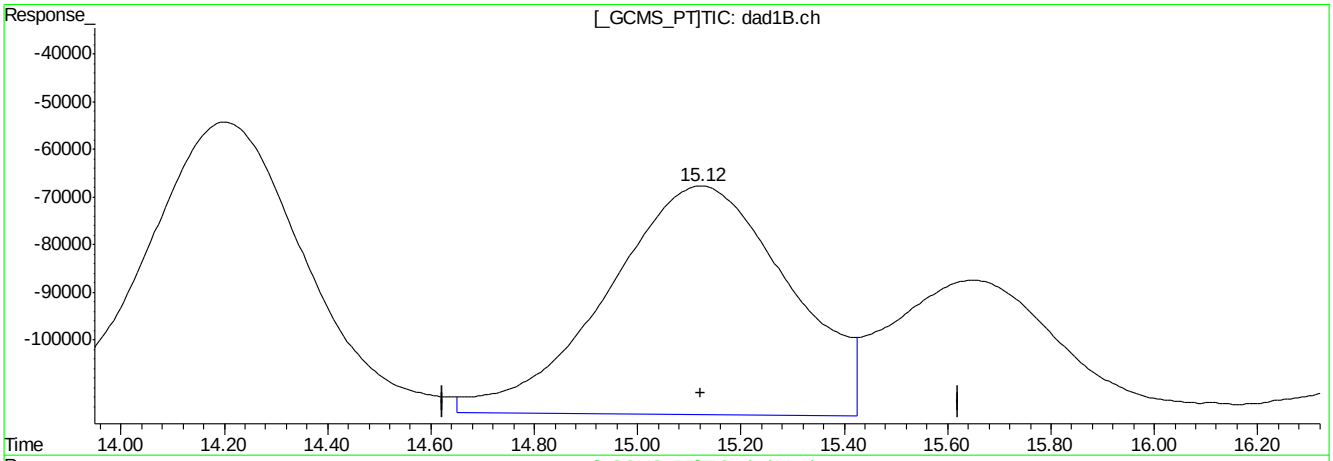
response 8522506

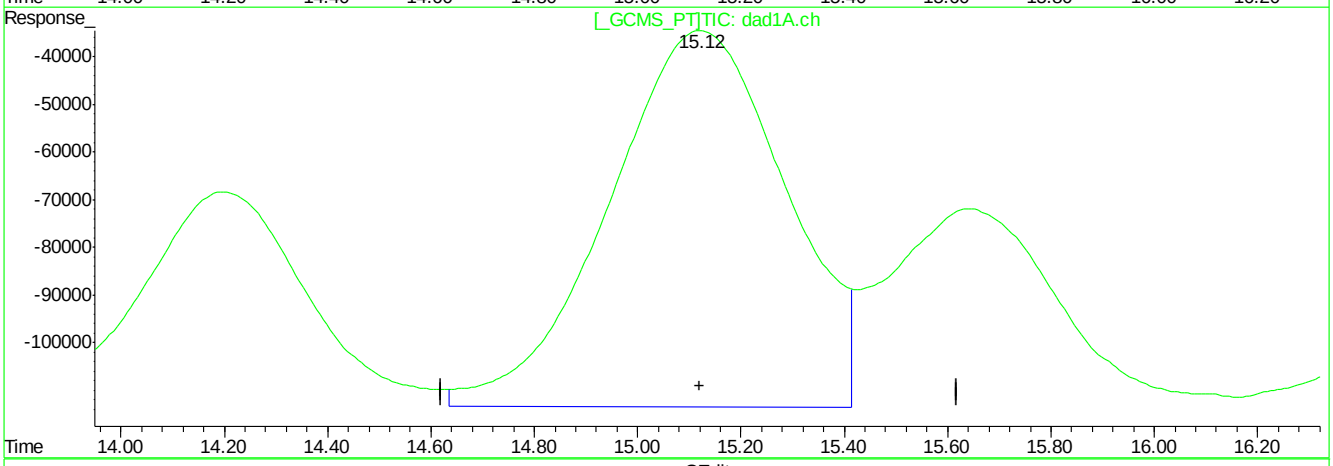
(+) = Expected Retention Time
GG619137.D 8330RPB.M_092519.M Wed Jul 29 15:09:11 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619137.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619137.D\dad1A.ch
Acq On : 29-Jul-2020, 13:34:23 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 29 15:06 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration





QEdit

(16) 3,5-Dinitroaniline

15.12min 1146.666ppb

response 11699434

(16) 3,5-Dinitroaniline #2

15.12min 1133.129ppb m

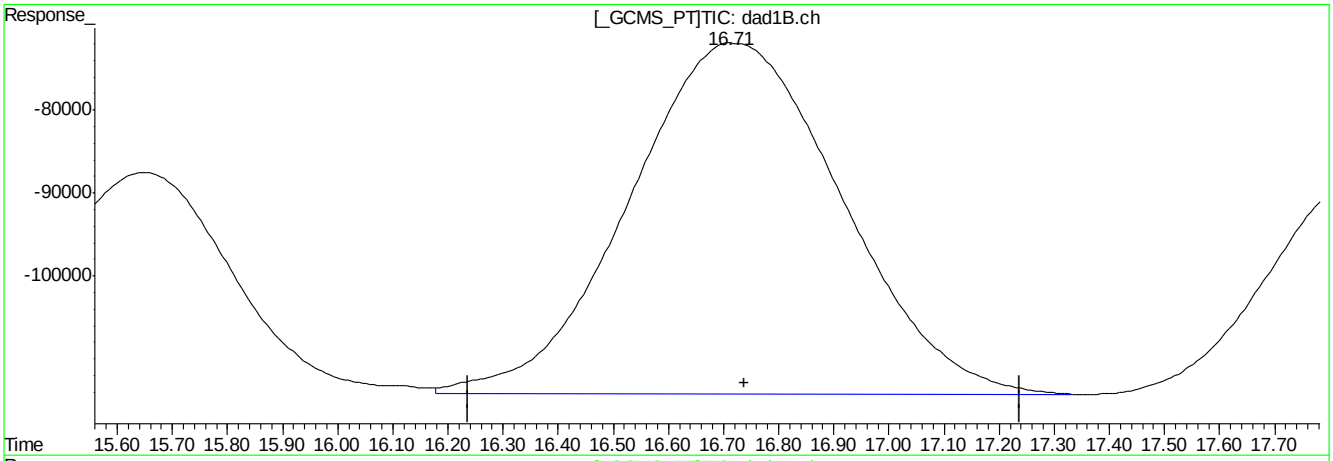
response 18811514

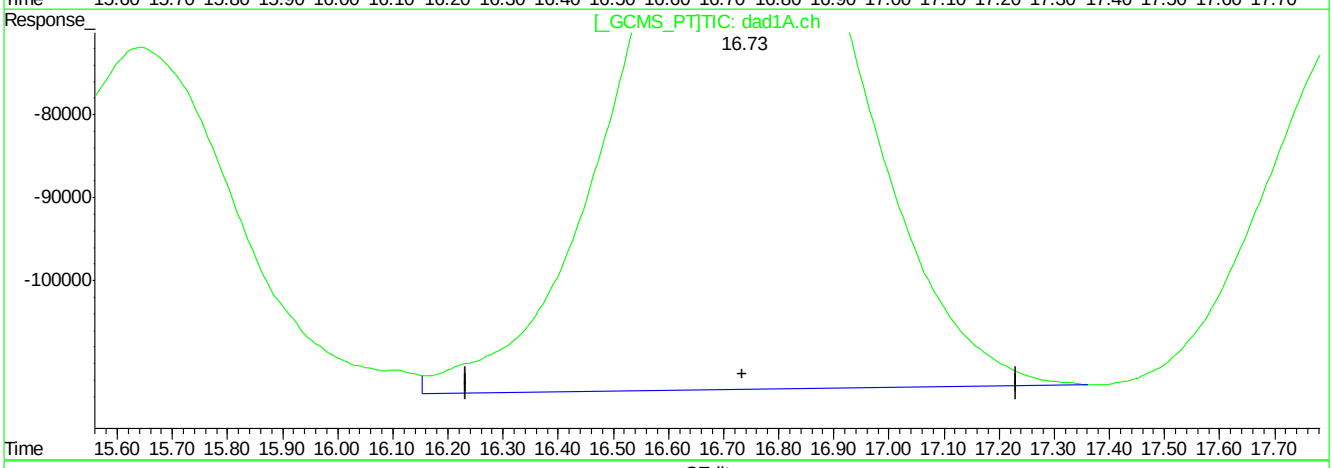
(+) = Expected Retention Time
GG619137.D 8330RPB.M_092519.M Wed Jul 29 15:09:23 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619137.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619137.D\dad1A.ch
Acq On : 29-Jul-2020, 13:34:23 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 29 15:06 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration





QEdit

(17) p-Nitrotoluene

16.71min 975.317ppb m

response 11310090

(17) p-Nitrotoluene #2

16.73min 972.808ppb m

response 21362195

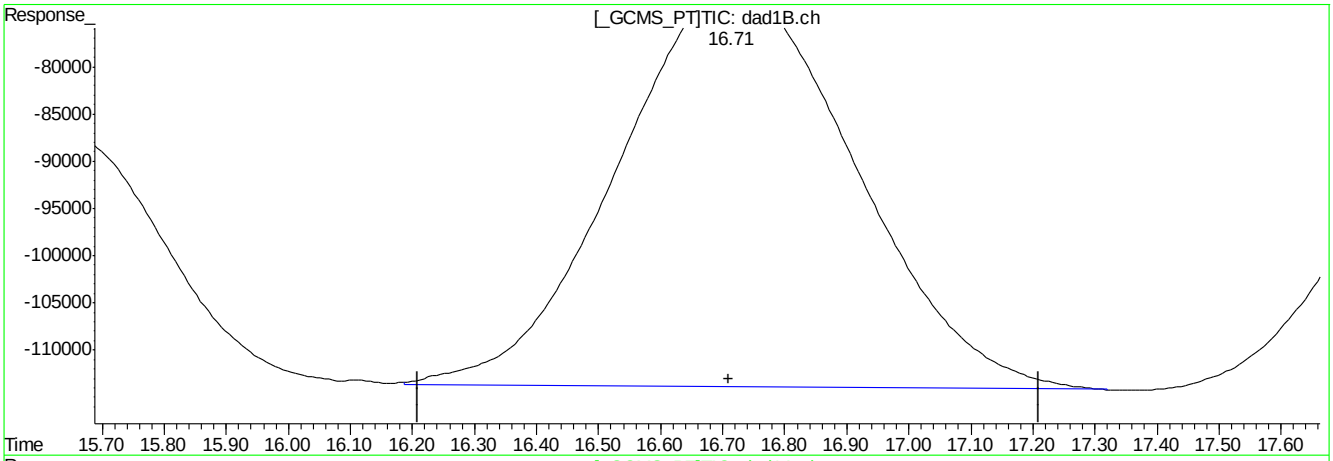
(+) = Expected Retention Time
GG619137.D 8330RPB.M_092519.M Wed Jul 29 15:09:35 2020

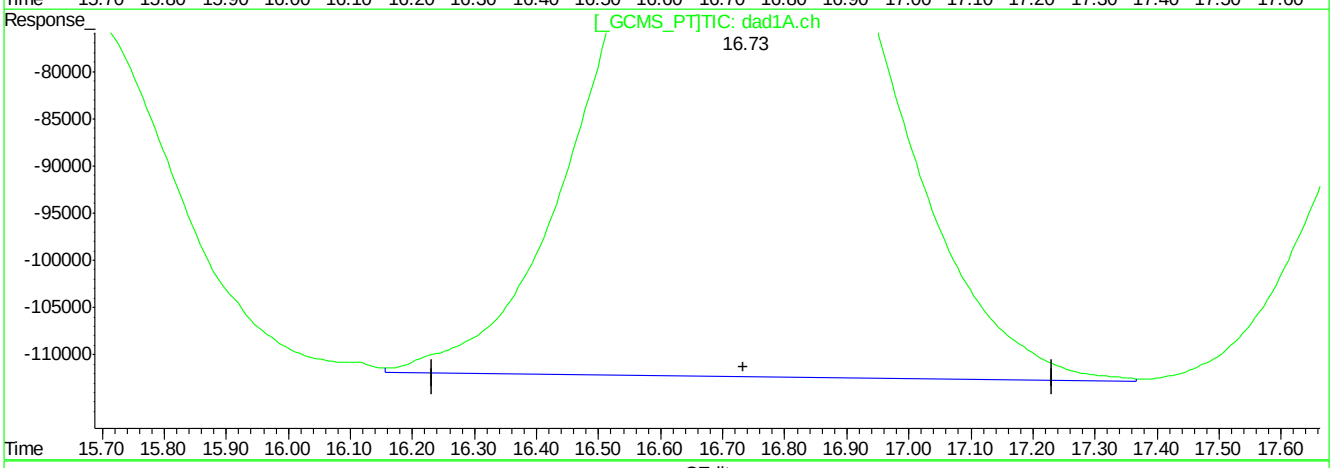
GG619137.D edits: p-Nitrotoluene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619137.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619137.D\dad1A.ch
Acq On : 29-Jul-2020, 13:34:23 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 29 15:06 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration





QEdit

(18) 4-Amino-2,6-Dinitrotoluene

16.71min 962.027ppb m

response 11123357

(18) 4-Amino-2,6-Dinitrotoluene #2

16.73min 960.816ppb m

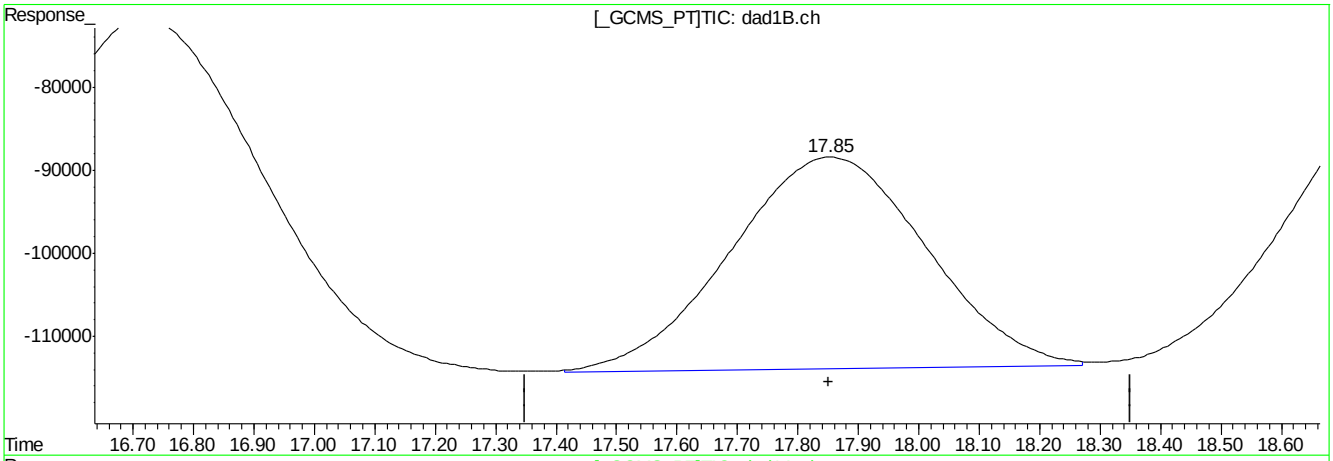
response 20866037

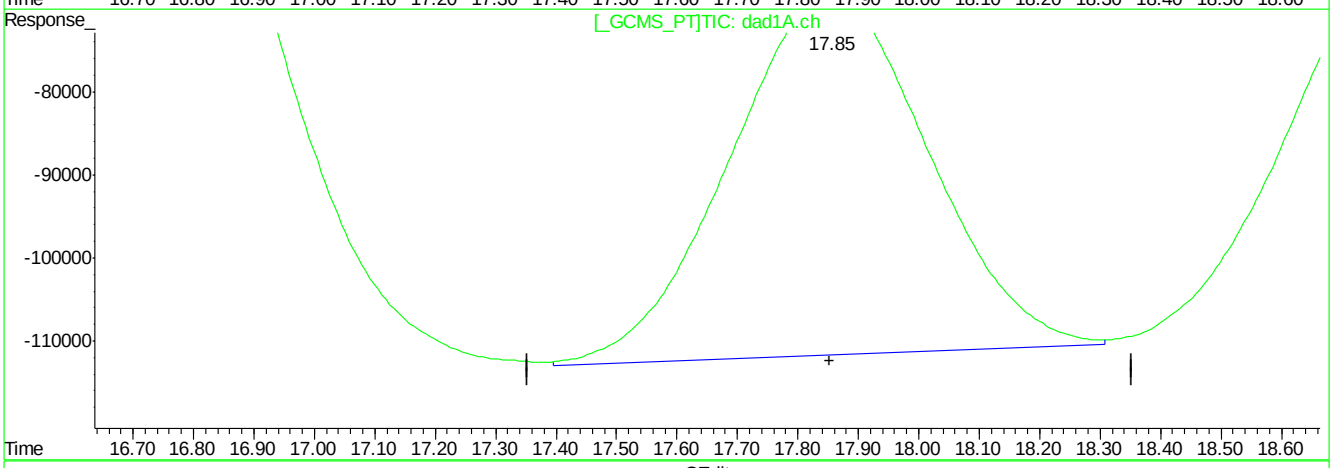
(+) = Expected Retention Time
GG619137.D 8330RPB.M_092519.M Wed Jul 29 15:09:44 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619137.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619137.D\dad1A.ch
Acq On : 29-Jul-2020, 13:34:23 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 29 15:06 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration





QEdit

(19) m-Nitrotoluene

17.85min 986.233ppb m

response 5752254

(19) m-Nitrotoluene #2

17.85min 988.428ppb m

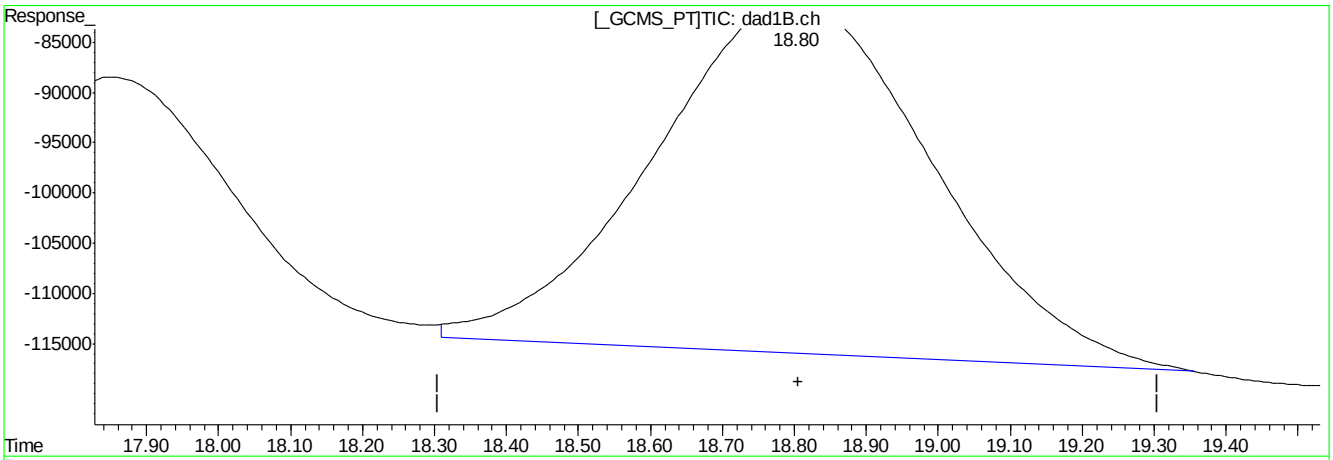
response 9829695

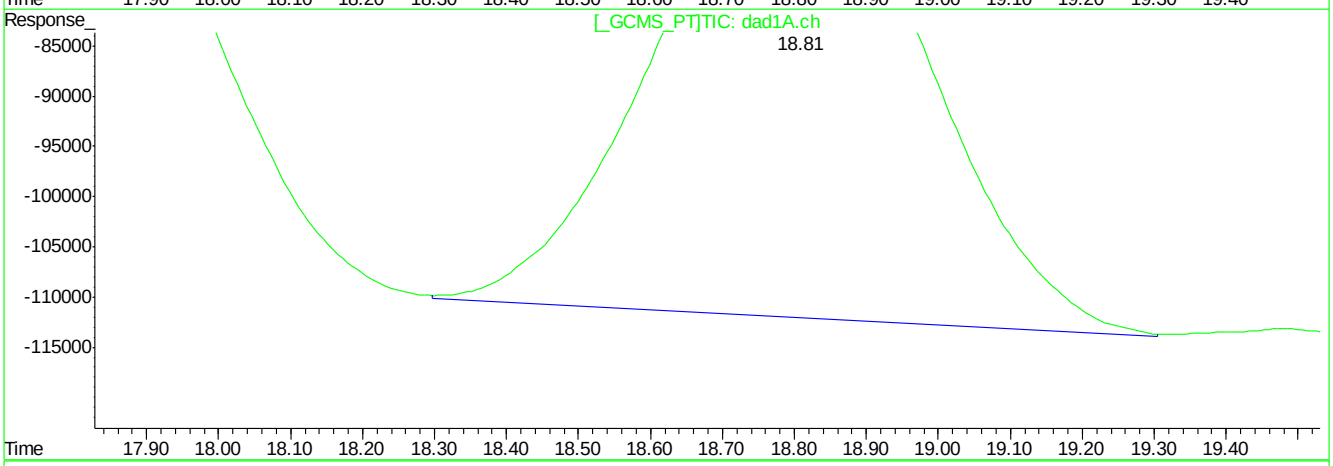
(+) = Expected Retention Time
GG619137.D 8330RPB.M_092519.M Wed Jul 29 15:09:54 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619137.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619137.D\dad1A.ch
Acq On : 29-Jul-2020, 13:34:23 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 29 15:06 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration





QEdit

(20) 2-Amino-4,6-Dinitrotoluene

18.80min 976.735ppb m

response 9372441

(20) 2-Amino-4,6-Dinitrotoluene #2

18.81min 873.862ppb m

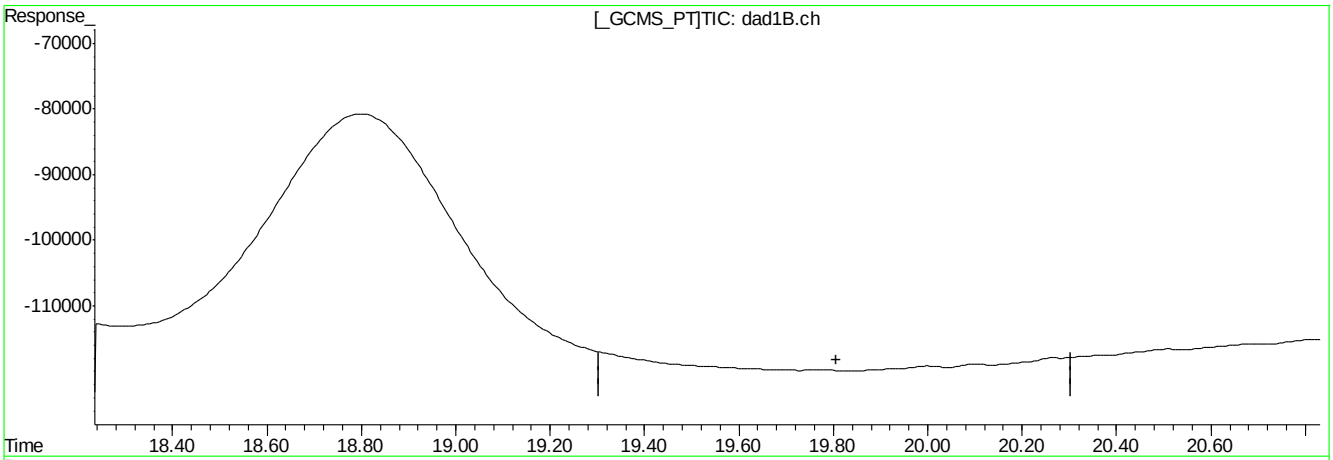
response 12261982

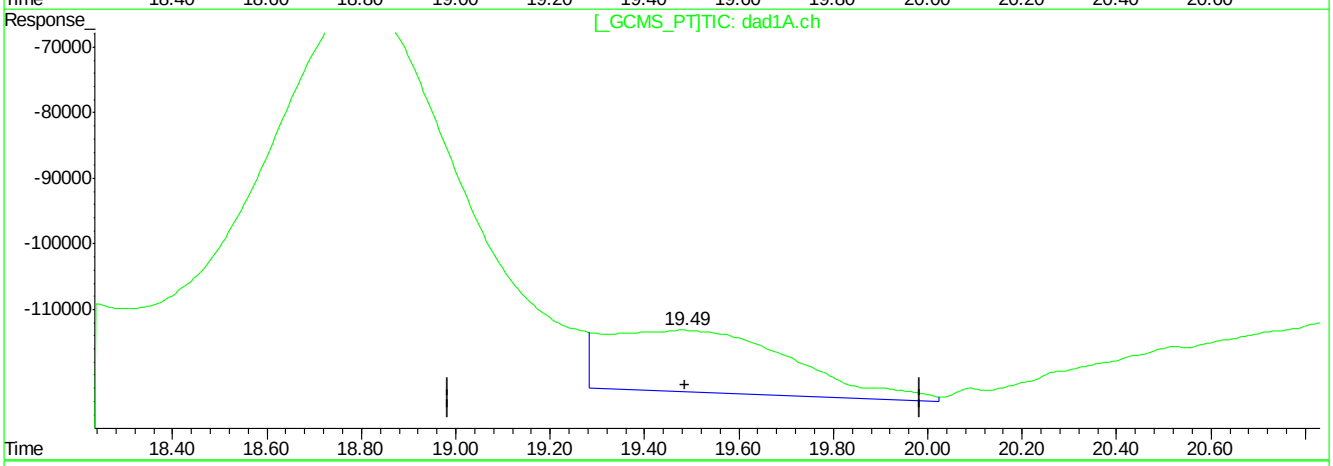
(+) = Expected Retention Time
GG619137.D 8330RPB.M_092519.M Wed Jul 29 15:10:04 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619137.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619137.D\dad1A.ch
Acq On : 29-Jul-2020, 13:34:23 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 29 15:06 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

19.49min 814.479ppb m

response 2642248

(+) = Expected Retention Time
GG619137.D 8330RPB.M_092519.M Wed Jul 29 15:10:29 2020

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
07/30/20 16:18

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619148.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619148.D\dad1A.ch
Acq On : 29-Jul-2020, 18:58:10 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : op81189,GGG2858,1040,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 30 10:20:40 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.38	13.37	5059405	9935386	1120.480	1103.800
	Spiked Amount 500.000	Range 70 - 136		Recovery =		224.10%#	220.76%#
	Target Compounds						
1)	TNX	4.98	4.98	6497283	6497283	1053.242	1054.244
2)	HMX	5.34	5.34	3383908	3448222	1135.687m	1149.750m
3)	DNX	5.50	5.50	2577129	2706093	597.539m	625.515m
4)	MNX	6.31	6.31	4786681	4815387	905.260m	908.890m
5)	1,3,5-Trinitrobe	7.04	7.04	9802760	9802760	947.927	947.927
6)	RDX	7.48	7.48	4497905	4497905	887.184	887.184
7)	1,3-Dinitrobenze	9.39	9.39	13125935	9948298	939.082	952.734
8)	Nitrobenzene	10.28	10.28	8458135	8113108	949.977	958.556
9)	2,4,6-Trinitroto	10.80	10.81	9206950	12472416	902.933	943.558
10)	Nitroglycerin	0.00	11.41	0	3014987	N.D.	872.042 #
11)	Tetryl	11.84	11.84	7232340	13098792	944.698	929.727
13)	2,6-Dinitrotolue	13.65	13.64	6562756	8373611	909.077	767.237
14)	2,4-Dinitrotolue	14.30	14.30	11997289	7986137	948.760	895.536
15)	o-Nitrotoluene	15.75	15.75	5299549	7801990	911.262	937.061
16)	3,5-Dinitroanili	15.20	15.20	10034454	16303931	983.481	982.083
17)	p-Nitrotoluene	16.81	16.82	11025775	20147032	950.799	917.471
18)	4-Amino-2,6-Dini	16.81	16.82	11025775	20147032	953.587	927.708
19)	m-Nitrotoluene	17.93	17.93	5979497	10124930	1025.194	1018.115
20)	2-Amino-4,6-Dini	18.84	18.84	9027710	13014039	940.810	927.458
21)	PETN	0.00	19.57	0	3345119	N.D.	1027.163 #

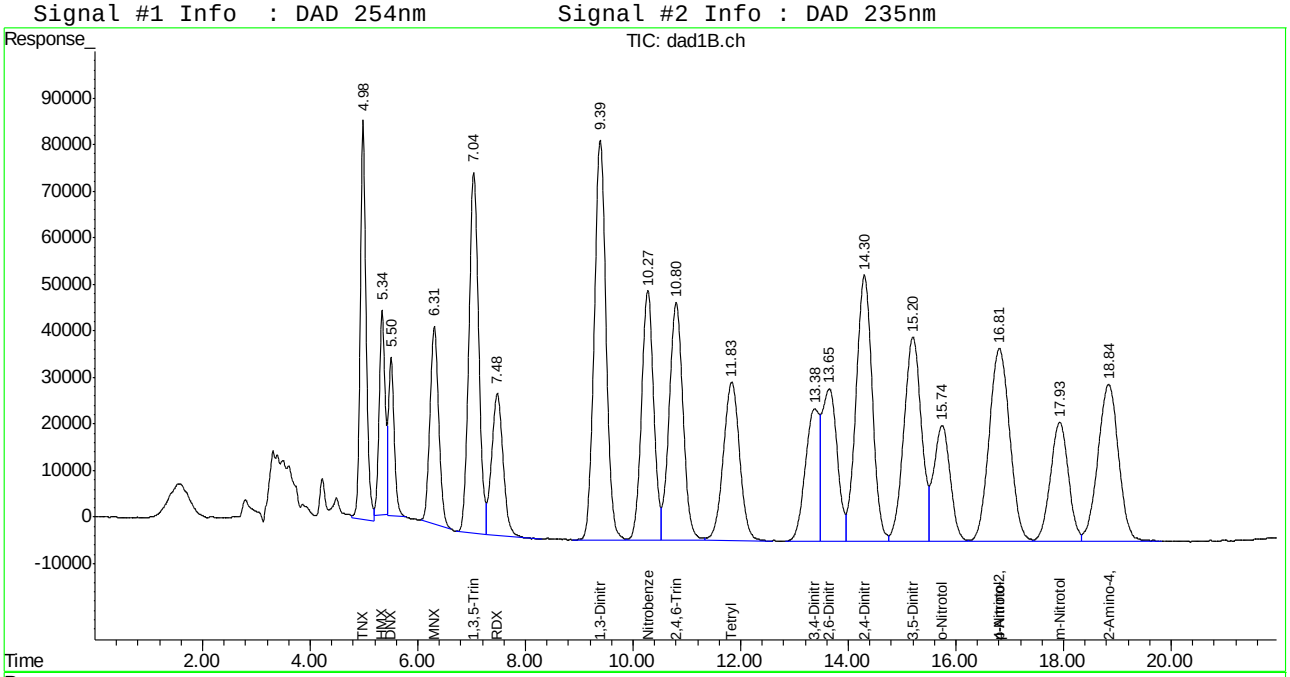
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

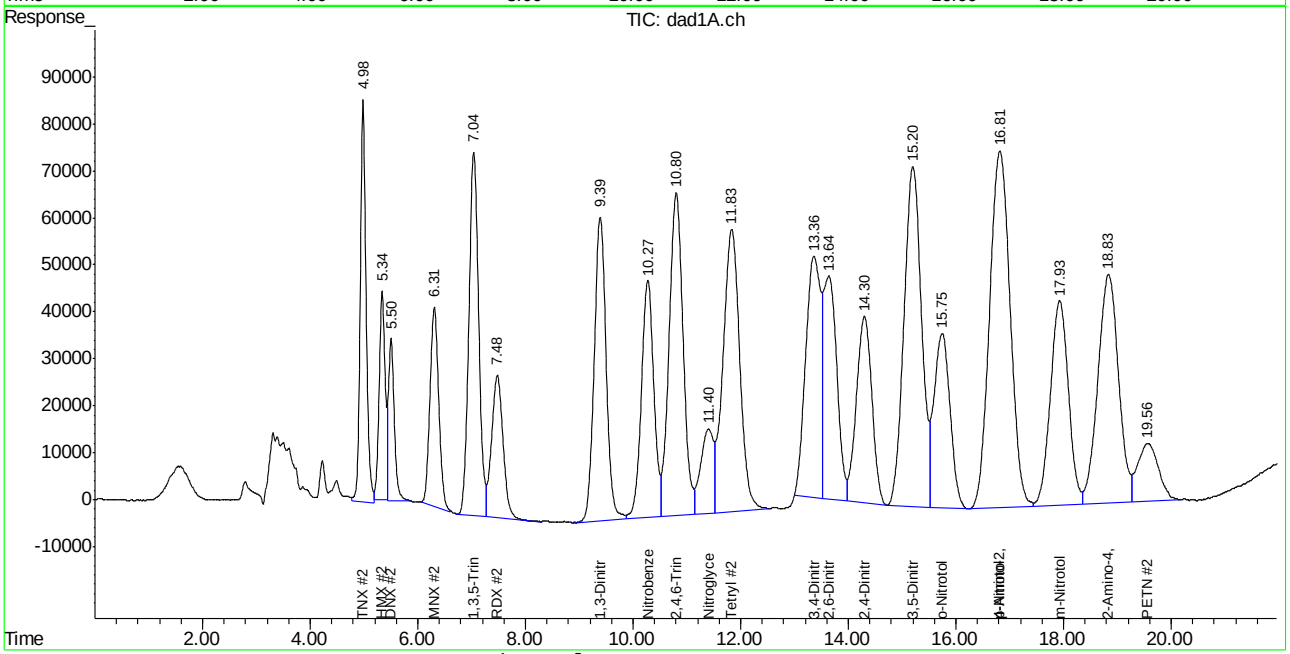
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619148.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619148.D\dad1A.ch
Acq On : 29-Jul-2020, 18:58:10 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : op81189,GGG2858,1040,,,10,1,Water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 30 11:38 2020 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

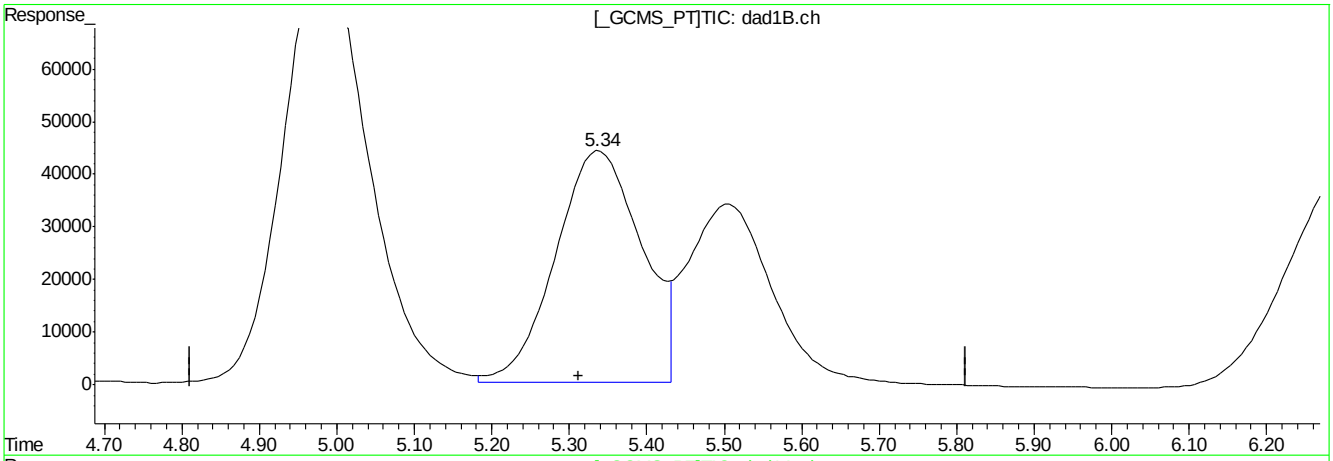
Sample Number: GGG2858-CC2769
Lab FileID: GG619148.D
Injection Time: 07/29/20 18:58
Method: SW846 8330A
Analyst approved: 07/30/20 15:10 William Hustedde
Supervisor approved: 07/30/20 16:18 Naresh Jiawan

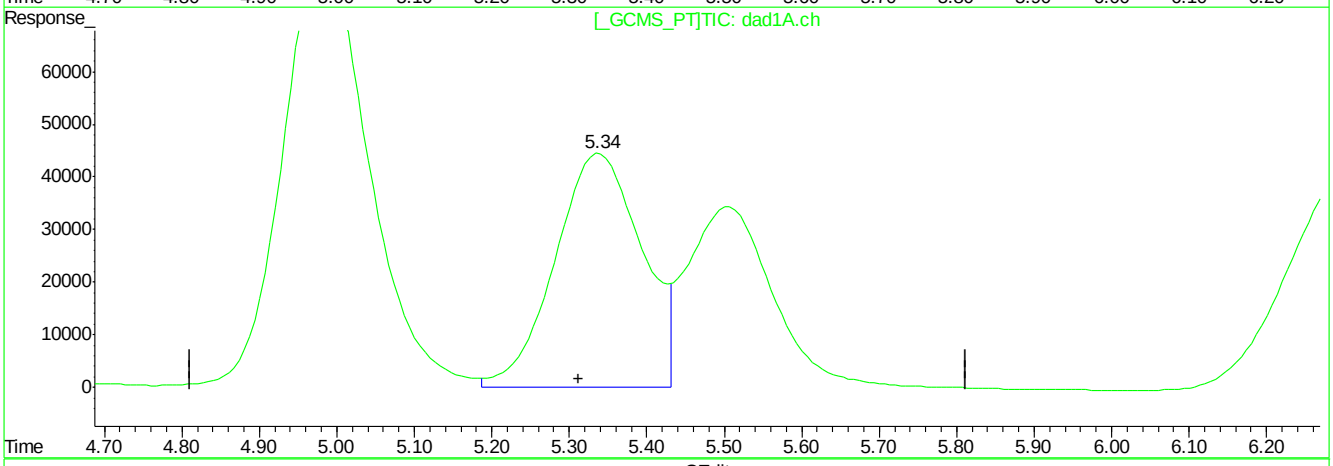
Parameter	CAS	Sig#	R.T. (min.)	Reason
HMX	2691-41-0	1	5.34	Poor instrument integration
HMX	2691-41-0	2	5.34	Poor instrument integration
DNX		1	5.50	Poor instrument integration
DNX		2	5.50	Poor instrument integration
MNX		1	6.31	Poor instrument integration
MNX		2	6.31	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619148.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619148.D\dad1A.ch
Acq On : 29-Jul-2020, 18:58:10 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 30 10:20 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.34min 1135.687ppb m

response 3383908

(2) HMX #2

5.34min 1149.750ppb m

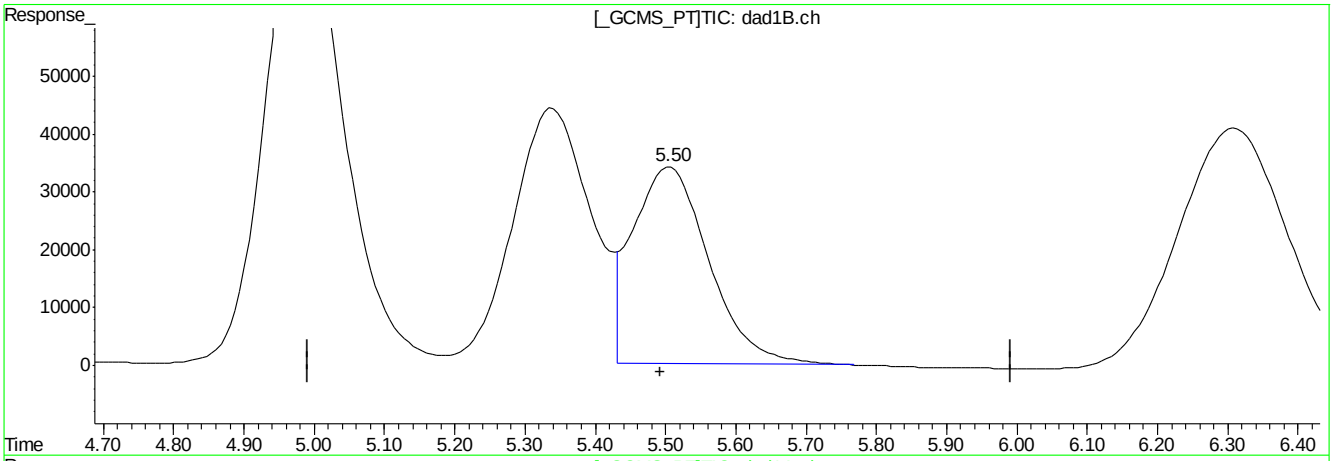
response 3448222

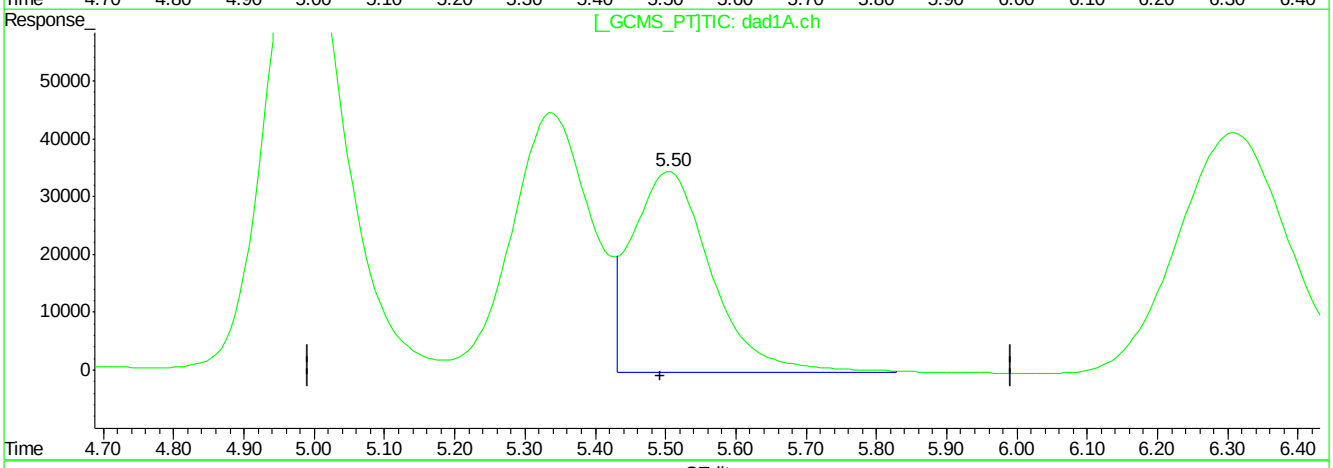
(+) = Expected Retention Time
GG619148.D 8330RPB.M_092519.M Thu Jul 30 11:38:36 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619148.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619148.D\dad1A.ch
Acq On : 29-Jul-2020, 18:58:10 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 30 10:20 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration





QEdit

(3) DNX

5.50min 597.539ppb m

response 2577129

(3) DNX #2

5.50min 625.515ppb m

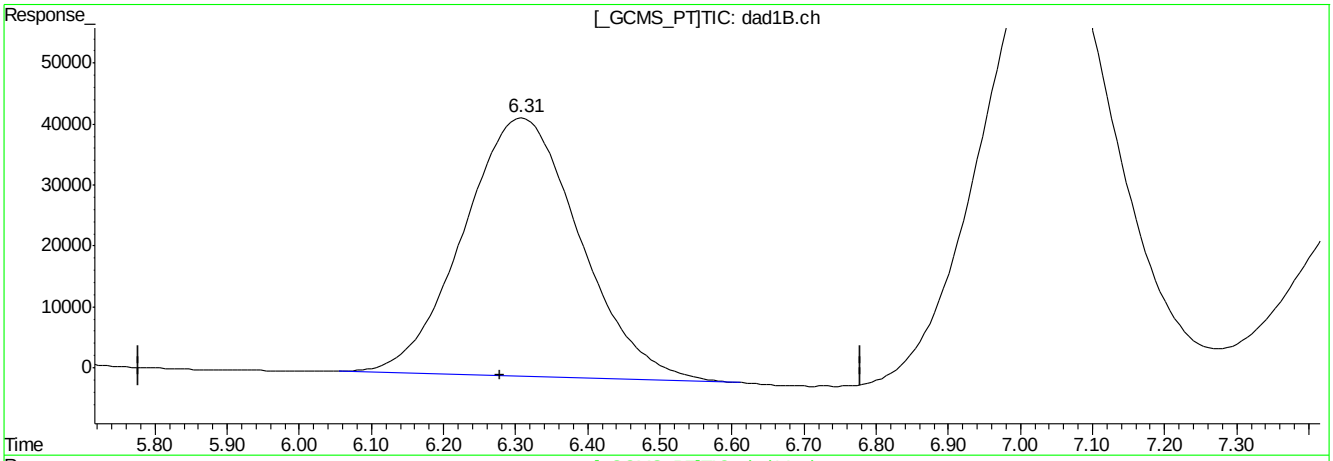
response 2706093

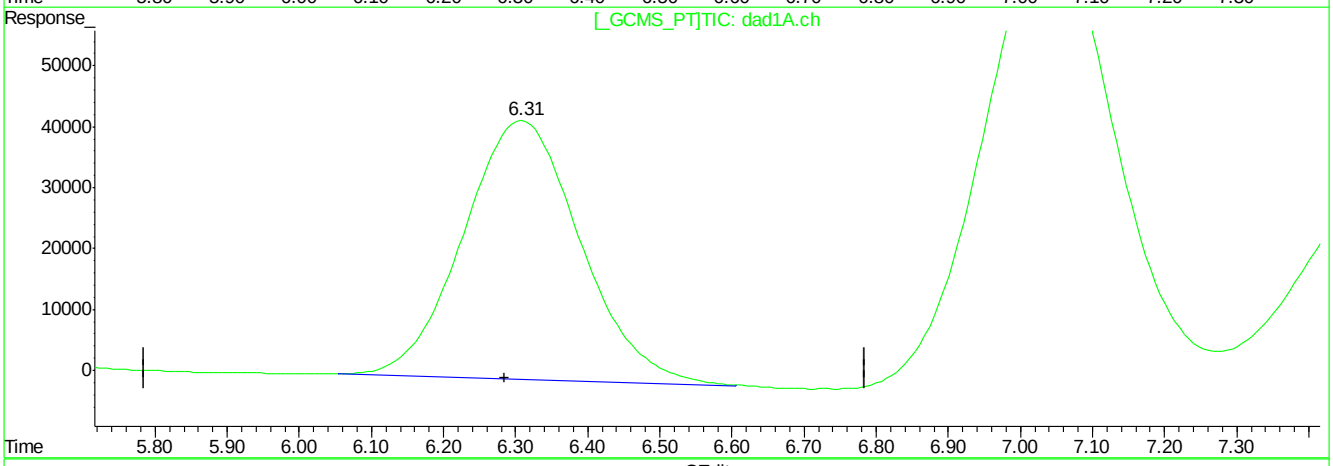
(+) = Expected Retention Time
GG619148.D 8330RPB.M_092519.M Thu Jul 30 11:38:46 2020

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2858\GG619148.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2858\GG619148.D\dad1A.ch
Acq On : 29-Jul-2020, 18:58:10 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Jul 30 10:20 2020 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Jul 29 15:06:33 2020
Response via : Multiple Level Calibration





QEdit

(4) MNX

6.31min 905.260ppb m

response 4786681

(4) MNX #2

6.31min 908.890ppb m

response 4815387

(+) = Expected Retention Time
GG619148.D 8330RPB.M_092519.M Thu Jul 30 11:38:58 2020

DATE	6/1/2020	**METHODS**	8330	**IC/ICC STD LOT**	**LC1361**
COLUMN TYPE	Extend C18	**ACQ. METHOD**	8330B	**ICV STD LOT**	**LC1362**
AMOUNT INJ	100 µL	**PROC. METHOD**	8330B_022020_PLUS.M	**SOLVENT**	
INSTRUMENT	HPLC5-BB	**CALIB. DATE**	2/21/2020	**SOLVENT**	
ANALYST	WFH	**RUN BATCH**	GBB2001	**HEAD PRESSURE**	

DATA FILE	ALS	SAMPLE NAME	METHOD	DF	MISC. INFO	COMMENTS
BB068175	1	ccb	8330	1	op80309,GBB2001,1000,,,10,1,water	
BB068176	2	ic2001-20	8330	2/500	op80309,GBB2001,1000,,,10,2/500,water	\
BB068177	3	ic2001-50	8330	5/500	op80309,GBB2001,1000,,,10,5/500,water	\
BB068178	4	ic2001-100	8330	10/500	op80309,GBB2001,1000,,,10,10/500,water	\
BB068179	5	ic2001-200	8330	20/500	op80309,GBB2001,1000,,,10,20/500,water	\
BB068180	6	ic2001-500	8330	50/500	op80309,GBB2001,1000,,,10,50/500,water	\
BB068181	7	icc2001-1000	8330	100/500	op80309,GBB2001,1000,,,10,100/500,water	\
BB068182	8	ic2001-2500	8330	250/500	op80309,GBB2001,1000,,,10,250/500,water	\
BB068183	9	ic2001-5000	8330	500/500	op80309,GBB2001,1000,,,10,500/500,water	\
BB068184	10	icv2001-1000	8330	1	op80309,GBB2001,1000,,,10,1,water	pass
BB068185	11	op80309-MB	8330	1	op80309,GBB2001,1000,,,10,1,water	\
BB068186	12	FA75160-1	8330	1	op80309,GBB2001,1000,,,10,1,water	\
BB068187	13	FA75160-2	8330	1	op80309,GBB2001,1000,,,10,1,water	\
BB068188	14	FA75160-3	8330	1	op80309,GBB2001,1000,,,10,1,water	\
BB068189	15	FA75160-4	8330	1	op80309,GBB2001,1000,,,10,1,water	\
BB068190	16	FA75160-5	8330	1	op80309,GBB2001,1000,,,10,1,water	\
BB068191	17	FA75160-6	8330	1	op80309,GBB2001,1000,,,10,1,water	\
BB068192	18	FA75160-7	8330	1	op80309,GBB2001,1000,,,10,1,water	\
BB068193	19	MDL 8	8330	1	op80309,GBB2001,1000,,,10,1,water	\
BB068194	2	ecc2001-1000	8330	1	op80309,GBB2001,1000,,,10,1,water	missequence
BB068195	1	ccb	8330	1	op80309,GBB2001,1000,,,10,1,water	
BB068196	7	ecc2001-1000	8330	100/500	op80309,GBB2001,1000,,,10,100/500,water	pass

DATE	7/27/2020	METHODS	8330	IC/ICC STD LOT	LC1361
COLUMN TYPE	Extend C18	ACQ. METHOD	8330B	ICV STD LOT	LC1362
AMOUNT INJ	100 µL	PROC. METHOD	8330B_022020_PLUS.M	SOLVENT	
INSTRUMENT	HPLC5-BB	CALIB. DATE	2/21/2020	SOLVENT	
ANALYST	WFH	RUN BATCH	GBB2008	HEAD PRESSURE	

DATA FILE	ALS	SAMPLE NAME	METHOD	DF	MISC. INFO	COMMENTS
BB068432	1	ccb	8330B	1	op81195,GBB2008,10,,,50,1,Soil	
BB068433	2	cc2001-1000	8330B	100/500	op81195,GBB2008,10,,,50,100/500,Soil	Tet-FL
BB068434	1	ccb	8330	1	op81189,GBB2008,1000,,,10,1,Water	RR tet
BB068435	54	op81189-MB	8330	1	op81189,GBB2008,1000,,,10,1,Water	RR tet
BB068436	63	FA76935-6	8330	1	op81189,GBB2008,1020,,,10,1,Water	RR tet
BB068437	64	FA76935-7	8330	1	op81189,GBB2008,1040,,,10,1,Water	RR tet
BB068438	65	FA76935-8	8330	1	op81189,GBB2008,1040,,,10,1,Water	RR tet
BB068439	66	FA76935-9	8330	1	op81189,GBB2008,1040,,,10,1,Water	RR tet
BB068440	67	FA76935-10	8330	1	op81189,GBB2008,1040,,,10,1,Water	RR tet
BB068441	68	FA76935-11	8330	1	op81189,GBB2008,1020,,,10,1,Water	RR tet
BB068442	69	FA76935-13	8330	1	op81189,GBB2008,1040,,,10,1,Water	RR tet
BB068443	70	FA76935-14	8330	1	op81189,GBB2008,1040,,,10,1,Water	RR tet
BB068444	2	cc2001-1000	8330B	100/500	op81195,GBB2008,9.98,,,50,100/500,Soil	Tet-FL
BB068445	1	ccb			op81195,GBB2008,10,,,50,,Soil	
BB068446	55	FA76935-15	8330	1	op81189,GBB2008,1020,,,10,1,Water	RR tet
BB068447	58	FA76935-1	8330	1	op81189,GBB2008,1020,,,10,1,Water	RR tet
BB068448	71	FA76935-1,10	8330	10	op81189,GBB2008,1020,,,10,10,Water	RR tet
BB068449	59	FA76935-2	8330	1	op81189,GBB2008,1020,,,10,1,Water	RR tet
BB068450	60	FA76935-3	8330	1	op81189,GBB2008,1040,,,10,1,Water	RR tet
BB068451	61	FA76935-4	8330	1	op81189,GBB2008,1040,,,10,1,Water	RR tet
BB068452	62	FA76935-5	8330	1	op81189,GBB2008,1020,,,10,1,Water	RR tet
BB068453	2	cc2001-1000	8330	100/500	op81195,GBB2008,10.1,,,50,100/500,Soil	Tet-FLA
BB068454	1	ccb	8330	1	op81195,GBB2008,10,,,50,1,Soil	
BB068455	72	op81252-BS	8330B	1	op81252,GBB2008,1000,,,10,1,Water	\
BB068456	73	op81252-MB	8330B	1	op81252,GBB2008,1000,,,10,1,Water	\
BB068457	74	FA77052-1	8330B	1	op81252,GBB2008,1020,,,10,1,Water	cf-HMX,RDX,TNB,DNA,TNT,2A,4A
BB068458	75	FA77052-2	8330B	1	op81252,GBB2008,1000,,,10,1,Water	cf-HMX,RDX,TNB,DNA,TNT,2A,4A
BB068459	76	FA77052-3	8330B	1	op81252,GBB2008,1000,,,10,1,Water	cf-HMX,RDX,TNB,DNA,TNT,2A,4A
BB068460	77	FA77052-4	8330B	1	op81252,GBB2008,1000,,,10,1,Water	\
BB068461	78	FA77052-5	8330B	1	op81252,GBB2008,1000,,,10,1,Water	\
BB068462	79	op81252-MS	8330B	1	op81252,GBB2008,500,,,10,1,Water	\
BB068463	80	op81252-MSD	8330B	1	op81252,GBB2008,500,,,10,1,Water	\

BB068464	2	cc2001-1000	8330	100/500	op81252,GBB2008,10.2,,,50,100/500,Soil	Tet-FLA
BB068465	1	ccb	8330	1	op81195,GBB2008,10.1,,,50,1,Soil	
BB068466	81	op81219-BS	8330	1	op81219,GBB2008,1000,,,10,1,water	RR tet
BB068467	82	op81219-MB	8330	1	op81219,GBB2008,1000,,,10,1,water	RR tet
BB068468	83	FA76993-1	8330	1	op81219,GBB2008,1040,,,10,1,water	RR tet
BB068469	84	FA76993-2	8330	1	op81219,GBB2008,1040,,,10,1,water	RR tet
BB068470	85	FA76993-3	8330	1	op81219,GBB2008,1020,,,10,1,water	RR tet
BB068471	86	FA76993-4	8330	1	op81219,GBB2008,1040,,,10,1,water	RR tet
BB068472	87	op81219-MS	8330	1	op81219,GBB2008,510,,,10,1,water	RR tet
BB068473	88	op81219-MSD	8330	1	op81219,GBB2008,510,,,10,1,water	RR tet
BB068474	89	op81200-BS	8330	1	op81200,GBB2008,1000,,,10,1,water	RR tet
BB068475	90	op81200-MB	8330	1	op81200,GBB2008,1000,,,10,1,water	RR tet
BB068476	2	cc2001-1000	8330	100/500	op81219,GBB2008,1000,,,10,100/500,water	RR tet
BB068477	1	ccb	8330	1	op81219,GBB2008,1000,,,10,1,water	RR tet
BB068478	91	FA76968-1	8330	1	op81196,GBB2008,10.3,,,50,1,Soil	RR tet
BB068479	92	FA76968-2	8330	1	op81196,GBB2008,10.1,,,50,1,Soil	RR tet
BB068480	93	FA76968-3	8330	1	op81196,GBB2008,10.3,,,50,1,Soil	RR tet
BB068481	94	FA76968-4	8330	1	op81195,GBB2008,10,,,50,1,Soil	RR tet
BB068482	95	FA76968-5	8330	1	op81196,GBB2008,10,,,50,1,Soil	RR tet
BB068483	96	FA76968-6	8330	1	op81195,GBB2008,10,,,50,1,Soil	RR tet
BB068484	97	FA76968-7	8330	1	op81195,GBB2008,10,,,50,1,Soil	RR tet
BB068485	98	FA76968-8	8330	1	op81195,GBB2008,5,,,50,1,Soil	RR tet
BB068486	99	FA76968-9	8330	1	op81195,GBB2008,10,,,50,1,Soil	RR tet
BB068487	100	FA76968-10	8330	1	op81195,GBB2008,10.5,,,50,1,Soil	RR tet
BB068488	2	cc2001-1000	8330	100/500	op81195,GBB2008,10.4,,,50,100/500,Soil	RR tet
BB068489	1	ccb	8330	1	op81195,GBB2008,10.5,,,50,1,Soil	RR tet
BB068490	11	FA76968-11	8330	1	op81195,GBB2008,10.2,,,50,1,Soil	RR tet
BB068491	12	FA76968-12	8330	1	op81195,GBB2008,10,,,50,1,Soil	RR tet
BB068492	13	FA76968-13	8330	1	op81195,GBB2008,9.98,,,50,1,Soil	RR tet
BB068493	14	FA76968-14	8330	1	op81196,GBB2008,10,,,50,1,Soil	RR tet
BB068494	15	FA76968-15	8330	1	op81196,GBB2008,10,,,50,1,Soil	RR tet
BB068495	16	FA76968-16	8330	1	op81196,GBB2008,10.2,,,50,1,Soil	RR tet
BB068496	17	FA76968-17	8330	1	op81196,GBB2008,10.1,,,50,1,Soil	RR tet
BB068497	18	FA76968-18	8330	1	op81196,GBB2008,10.2,,,50,1,Soil	RR tet
BB068498	19	FA77030-1	8330	1	op81196,GBB2008,10.4,,,50,1,Soil	RR tet
BB068499	20	FA77030-2	8330	1	op81196,GBB2008,10.5,,,50,1,Soil	RR tet
BB068500	2	cc2001-1000	8330	100/500	op81196,GBB2008,10.1,,,50,100/500,Soil	RR tet
BB068501	1	ccb	8330	1	op81196,GBB2008,10.5,,,50,1,Soil	RR tet
BB068502	21	op81200-MS	8330	1	op81196,GBB2008,10,,,50,1,Soil	RR tet

BB068503	22	op81200-MSD	8330	1	op81196,GBB2008,10,,,50,1,Soil	RR tet
BB068504	2	cc2001-1000	8330	100/500	op81196,GBB2008,10,,,50,100/500,Soil	RR tet

SGS ACCUTEST-ORLANDO

DATE:	9/25/19
COLUMN TYPE:	Bonus-RP
AMOUNT INJECTED:	100 ul
INSTRUMENT: HPLC3-GG	

HPLC3-GG ANALYSIS LOG

METHODS:	8330
ACQ. METHOD:	8330 KPB3
PROC. METHOD:	8330 RPB, M_092519.M
CALIB. DATE:	9/25/19
RUN BATCH: GGG	2769

ANALYST:	WTH
ACETONITRILE LOT #:	
MEOH LOT #:	
HEAD PRESSURE:	

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	MANUALLY INTEGRATED PEAKS RATIONALE, PEAK #	COMMENTS
GG 617743	1	ccb	8330				
GG 44	1	"	"				
GG 45	1	"	"				
GG 46	1	"	"				
GG 47	2	ic 2769-20	"	LC1300	2/500		✓
GG 48	3	-50	"	"	5/500		✓
GG 49	4	-100	"	"	"		✓
GG 50	5	-200	"	"	"		✓
GG 51	6	-500	"	"	"		✓
GG 52	7	icc -1000	"	"	"		✓
GG 53	8	-2500	"	"	"		✓
GG 54	9	-5000	"	"	"		✓
GG 55	10	icv -1000	"	"	"	RETN	26.52 8330A
GG 56	11	op 71947-MB	"	op 76947	1		✓
GG 57	12	FA68129-1	"	"	1		✓
GG 58	13	-2	"	"	1		✓
GG 59	14	FA68182-2	"	"	1		✓
GG 60	15	FA68238-1	"	"	1		✓
GG 61	16	-1,10	"	"	10		✓
GG 62	17	-2	"	"	1		✓

Manual Integration Rationale SOP QA029: **MP** Missed Peak, **OP** Overlapping Peak, **SP** Split Peak, **PDB** Poorly Defined Baseline, **BR** Baseline Ripple, **PII** Poor Instrument Integration
All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

hplc3_gg_log.xls NF rev. 06/16

Analyst's Signature:

SGS ACCUTEST-ORLANDO

DATE:	9/25/19
COLUMN TYPE:	Bonus-rp
AMOUNT INJECTED:	100 ul
INSTRUMENT: HPLC3-GG	

HPLC3-GG ANALYSIS LOG

METHODS:	8330
ACQ. METHOD:	8330RPB3
PROC. METHOD:	8330RPB_M_092519
CALIB. DATE:	9/25/19
RUN BATCH: GGG	2769

ANALYST:	WFY
ACETONITRILE LOT #:	
MEOH LOT #:	
HEAD PRESSURE:	

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	MANUALLY INTEGRATED PEAKS RATIONALE, PEAK #	COMMENTS
GG 617763	18	FA68238-2 10	8330	op76947	10		⌐
GG 64	19	-3	"	"	1		⌐
GG 65	20	FA68275-6	"	"	1		/
GG 66	7	ccc 2769-1000	"	LC1200	100/500		poles
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							

Manual Integration Rationale SOP QA029: **MP** Missed Peak, **OP** Overlapping Peak, **SP** Split Peak, **PDB** Poorly Defined Baseline, **BR** Baseline Ripple, **PII** Poor Instrument Integration
All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

hplc3_gg_log.xls NF rev. 06/16

Analyst's Signature:

DATE	7/29/2020	METHODS	8330	IC/ICC STD LOT	LC1300
COLUMN TYPE	Bonus-rp	ACQ. METHOD	8330RPB3	ICV STD LOT	LC1280
AMOUNT INJ	100 uL	PROC. METHOD	8330RPB.M_092519.M	SOLVENT	
INSTRUMENT	HPLC3-GG	CALIB. DATE	9/25/2019	SOLVENT	
ANALYST	WFH	RUN BATCH	GGG2858	HEAD PRESSURE	

DATA FILE	ALS	SAMPLE NAME	METHOD	DF	MISC. INFO	COMMENTS
GG619136	1	ccb	8330	1	op81252,GGG2858,1000,,,10,1,Water	
GG619137	2	cc2769-1000	8330	100/500	op81252,GGG2858,1000,,,10,100/500,Water	TNX-FL DNX-FL
GG619138	3	op81252-MB	8330	1	op81252,GGG2858,1000,,,10,1,Water	\
GG619139	4	FA77052-1cf	8330	1	op81252,GGG2858,1020,,,10,1,Water	\
GG619140	5	FA77052-2cf	8330	1	op81252,GGG2858,1000,,,10,1,Water	\
GG619141	6	FA77052-3cf	8330	1	op81252,GGG2858,1000,,,10,1,Water	X-RDX
GG619142	7	op81189-MB	8330	1	op81189,GGG2858,1000,,,10,1,Water	\
GG619143	8	FA76935-1cf	8330	1	op81189,GGG2858,1020,,,10,1,Water	X-mNT
GG619144	9	FA76935-1cf,10	8330	10	op81189,GGG2858,1020,,,10,10,Water	\
GG619145	10	FA76935-2cf	8330	1	op81189,GGG2858,1020,,,10,1,Water	X-oNT
GG619146	11	FA76935-3cf	8330	1	op81189,GGG2858,1040,,,10,1,Water	X-26
GG619147	12	FA76935-13cf	8330	1	op81189,GGG2858,1040,,,10,1,Water	\
GG619148	2	cc2769-1000	8330	100/500	op81189,GGG2858,1000,,,10,100/500,Water	DNX-FL 26-FLS2
GG619149	1	ccb	8330	1	op81189,GGG2858,1000,,,10,1,Water	
GG619150	13	op81219-MB	8330	1	op81219,GGG2858,1000,,,10,1,Water	\
GG619151	14	FA76993-2cf	8330	1	op81219,GGG2858,1040,,,10,1,Water	X-NB,oNT,Tet
GG619152	15	op81200-MB	8330	1	op81200,GGG2858,1000,,,10,1,Water	\
GG619153	16	FA76968-1cf	8330	1	op81200,GGG2858,1010,,,10,1,Water	\
GG619154	17	FA76968-5cf	8330	1	op81200,GGG2858,1030,,,10,1,Water	X-2A
GG619155	18	FA76968-7cf	8330	1	op81200,GGG2858,1030,,,10,1,Water	\
GG619156	19	FA76968-9cf	8330	1	op81200,GGG2858,1010,,,10,1,Water	X-DNB
GG619157	20	FA76968-10cf	8330	1	op81200,GGG2858,1020,,,10,1,Water	\
GG619158	21	FA76968-11cf	8330	1	op81200,GGG2858,1040,,,10,1,Water	\
GG619159	22	FA76968-12cf	8330	1	op81200,GGG2858,1020,,,10,1,Water	X-Tet
GG619160	2	ecc2769-1000	8330	100/500	op81200,GGG2858,1000,,,10,100/500,Water	DNX-FL 26-FLS2

SGS - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time: 7/27/20 0700
Started {mm/dd/yy 24:00}

Date/Time: 7/27/20 1300
Finished {mm/dd/yy 24:00}

Prep Method: 3535A or 537 or 537MOD (circle)

Analytical Method: 8330B

Batch#: OP 81252 Ext. By: DC Conc. By: DC Vialed By: DC

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Surrogate Amount	Spike Amount	Final Volume (ml)	Manifold ID	Comments
OP 81252 MB	X	1000	6	NA	250uL		20.0		
OP 81252 BS	X	1				250/200uL			
FA77052-1	3	1020							
-2	3	1000							
-3	6	1000							MS/MSD
-4	3	1000							
-5	3	1000	↓	↓	↓	↓	↓		
FA77052-3 MS	7	500	↓	NA	250uL	250/200uL	20.0		
↓ MSD	7	500	↓	↓	↓	↓	↓		
DUP									

Comments:

Surr.1 ID: LC1377 Conc: 20ppm Exp. Date: 1/22/21 Inj. By: DC Ver. By DC

Spk.1 ID: LC1376 Conc: 20ppm Exp. Date: 10/29/20 Inj. By: DC Ver. By DC

Spk.2 ID: LC1336 Conc: 25 ppm Exp. Date: 8/3/20 Inj. By: DC Ver. By DC

Spk.3 ID: _____ Conc: _____ Exp. Date: _____ Inj. By: _____ Ver. By _____

TurboVap Temp (Therm ID): — N-Evap Temp (Therm ID): —

Observed Temp °C: _____ Corr. Temp °C: _____ Observed Temp °C: _____ Corr. Temp °C: _____

Methanol Lot # _____ SPE Lot # 5214-0100 pH Paper # 231219

Acetonitrile Lot # 198527 Syringe filter Lot # — Reagent # —

Water Lot# DI water Pre-filter Lot# _____ Reagent # _____

Solvent# — Carbon Lot# — Other —

Relinquished By: _____ Date: 7/28/20

Accepted By: _____ Date: _____

ORLD-EXT-0001-3-08-FORM-extwater_spe.xls 032718

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

Weston Solutions, Inc

Radford AAP; VA

SGS Job Number: FA69146

Sampling Date: 10/14/19

Report to:

Weston Solutions, Inc
2 Eaton St Suite 603
Hampton, VA 23669
pacea@westonsolutions.com

ATTN: Tony Pace

Total number of pages in report: **514**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Caitlin Brice, M.S.
General Manager

Client Service contact: Andrea Colby 407-425-6700

Certifications: FL(E83510), LA(03051), KS(E-10327), IL(200063), NC(573), NJ(FL002), NY(12022), SC(96038001) DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177), AK, AR, IA, KY, MA, MS, ND, NH, NV, OK, OR, UT, WA, WV

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SGS North America Inc.

Sample Summary

Weston Solutions, Inc

Radford AAP; VA

Job No: FA69146

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
FA69146-1	10/14/19	10:25	BBPT	10/19/19	AQ	Ground Water	54MW13
FA69146-2	10/14/19	10:25	BBPT	10/19/19	AQ	Ground Water	54TW13
FA69146-3	10/14/19	12:15	BBPT	10/19/19	AQ	Ground Water	54MW10
FA69146-4	10/14/19	13:25	BBPT	10/19/19	AQ	Ground Water	54MW12
FA69146-4D	10/14/19	13:25	BBPT	10/19/19	AQ	Water Dup/MSD	54MW12
FA69146-4S	10/14/19	13:25	BBPT	10/19/19	AQ	Water Matrix Spike	54MW12
FA69146-5	10/14/19	15:10	BBPT	10/19/19	AQ	Ground Water	54MW1

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: Weston Solutions, Inc **Job** FA69146

Site: Radford AAP; VA **Report** 10/30/2019 5:49:56

5 Samples were collected on 10/14/2019 and were received at SGS North America Inc - Orlando on 10/19/2019 properly preserved, at 2.7 Deg. C and intact. These Samples received an SGS Orlando job number of FA69146. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

MS Semi-volatiles By Method SW846 6850

Matrix: AQ **Batch ID:** OP77429

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

Sample(s) FA69146-4MSD, FA69146-4MS were used as the QC samples indicated.

All method blanks for this batch meet method specific criteria.

Matrix Spike Recovery for Perchlorate are outside control limits. Outside control limits due to high level in sample relative to spike amount. %RPD within control limits.

GC/LC Semi-volatiles By Method SW846 8330B

Matrix: AQ **Batch ID:** OP77364

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

Sample(s) FA69146-4MS, FA69146-4MSD were used as the QC samples indicated.

All method blanks for this batch meet method specific criteria.

BS/MS/MSD Recovery for PETN is below lower acceptance limit.

For Sample(s) FA69146-1, FA69146-2, FA69146-3, FA69146-4, FA69146-5 are associated with a blank spike that has a recovery for PETN outside DOD QSM control limits.

FA69146-1, 2, 3, 4: All hits confirmed by reanalysis on a dissimilar column.

FA69146-2 for 4-amino-2,6-Dinitrotoluene: Primary and confirmation results differ by more than 40%.

FA69146-1, 3, 4 for 3,5-Dinitroaniline: Primary and confirmation results differ by more than 40%.

Matrix: AQ **Batch ID:** OP77415

The following samples were extracted outside of holding time for method SW846 8330B: FA69146-1, FA69146-2, FA69146-3, FA69146-4, FA69146-5 for confirmation.

FA69146-1, 2, 3,4, 5: Confirmation run.

SGS Orlando certifies that this report meets the project requirements for analytical data produced for the samples as received at SGS Orlando and as stated on the COC. SGS Orlando certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the SGS Orlando Quality Manual except as noted above. This report is to be used in its entirety. SGS Orlando is not responsible for any assumptions of data quality if partial data packages are used.

Narrative prepared by:

_____

Svetlana Izosimova, QA Officer *(Signature on File)*

Summary of Hits

Job Number: FA69146
Account: Weston Solutions, Inc
Project: Radford AAP; VA
Collected: 10/14/19

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method
FA69146-1	**54MW13**					
Perchlorate		0.55	0.20	0.10	ug/l	SW846 6850
HMX [a]		7.7	0.20	0.10	ug/l	SW846 8330B
3,5-Dinitroaniline [b]		0.67	0.20	0.10	ug/l	SW846 8330B
2-amino-4,6-Dinitrotoluene [a]		1.9	0.20	0.10	ug/l	SW846 8330B
4-amino-2,6-Dinitrotoluene [a]		1.1	0.20	0.10	ug/l	SW846 8330B
1,3,5-Trinitrobenzene [a]		22.2	0.20	0.10	ug/l	SW846 8330B
2,4,6-Trinitrotoluene [a]		12.5	0.20	0.10	ug/l	SW846 8330B
FA69146-2	**54TW13**					
Perchlorate		0.36	0.20	0.10	ug/l	SW846 6850
HMX [a]		8.5	0.20	0.10	ug/l	SW846 8330B
3,5-Dinitroaniline [a]		0.69	0.20	0.10	ug/l	SW846 8330B
2-amino-4,6-Dinitrotoluene [a]		2.1	0.20	0.10	ug/l	SW846 8330B
4-amino-2,6-Dinitrotoluene [b]		1.7	0.20	0.10	ug/l	SW846 8330B
1,3,5-Trinitrobenzene [a]		25.6	0.20	0.10	ug/l	SW846 8330B
2,4,6-Trinitrotoluene [a]		14.6	0.20	0.10	ug/l	SW846 8330B
FA69146-3	**54MW10**					
HMX [a]		2.4	0.20	0.10	ug/l	SW846 8330B
RDX [b]		2.1	0.20	0.10	ug/l	SW846 8330B
3,5-Dinitroaniline [b]		0.31	0.20	0.10	ug/l	SW846 8330B
2-amino-4,6-Dinitrotoluene [a]		0.99	0.20	0.10	ug/l	SW846 8330B
4-amino-2,6-Dinitrotoluene [a]		0.89	0.20	0.10	ug/l	SW846 8330B
1,3,5-Trinitrobenzene [a]		0.77	0.20	0.10	ug/l	SW846 8330B
2,4,6-Trinitrotoluene [a]		4.0	0.20	0.10	ug/l	SW846 8330B
FA69146-4	**54MW12**					
Perchlorate		0.53	0.20	0.10	ug/l	SW846 6850
HMX [a]		16.6	0.20	0.10	ug/l	SW846 8330B
3,5-Dinitroaniline [b]		0.31	0.20	0.10	ug/l	SW846 8330B
2-amino-4,6-Dinitrotoluene [a]		3.8	0.20	0.10	ug/l	SW846 8330B
4-amino-2,6-Dinitrotoluene [b]		2.0	0.20	0.10	ug/l	SW846 8330B
1,3,5-Trinitrobenzene [a]		17.4	0.20	0.10	ug/l	SW846 8330B
2,4,6-Trinitrotoluene [a]		10.1	0.20	0.10	ug/l	SW846 8330B
FA69146-5	**54MW1**					

No hits reported in this sample.

(a) All hits confirmed by reanalysis on a dissimilar column.

Summary of Hits

Job Number: FA69146
Account: Weston Solutions, Inc
Project: Radford AAP; VA
Collected: 10/14/19

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	LOQ	LOD	Units	Method

(b) All hits confirmed by reanalysis on a dissimilar column. Primary and confirmation results differ by more than 40%.

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW13		
Lab Sample ID:	FA69146-1	**Date Sampled:**	10/14/19
Matrix:	AQ - Ground Water	**Date Received:**	10/19/19
Method:	SW846 6850 SW846 6850	**Percent Solids:**	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Q64983.D	1	10/24/19 13:26	NG	10/24/19 08:00	OP77429	SQ1467
Run #2							

	Initial Volume	Final Volume
Run #1	10.0 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
14797-73-0	Perchlorate	0.55	0.20	0.10	0.050	ug/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW13		
Lab Sample ID:	FA69146-1	**Date Sampled:**	10/14/19
Matrix:	AQ - Ground Water	**Date Received:**	10/19/19
Method:	SW846 8330B SW846 3535A	**Percent Solids:**	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB066718.D	1	10/23/19 14:03	WH	10/21/19 09:00	OP77364	GBB1935
Run #2 [b]	BB066797.D	1	10/26/19 06:53	WH	10/24/19 07:30	OP77415	GBB1937
Run #3 [b]	GG617959.D	1	10/29/19 01:52	WH	10/24/19 07:30	OP77415	GGG2778

	Initial Volume	Final Volume
Run #1	1000 ml	10.0 ml
Run #2	980 ml	10.0 ml
Run #3	980 ml	10.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	7.7	0.20	0.10	0.080	ug/l	
121-82-4	RDX	0.10 U	0.20	0.10	0.080	ug/l	
	DNX	0.10 U	0.20	0.10	0.080	ug/l	
	MNX	0.10 U	0.20	0.10	0.080	ug/l	
	TNX	0.10 U	0.20	0.10	0.080	ug/l	
618-87-1	3,5-Dinitroaniline [c]	0.67	0.20	0.10	0.080	ug/l	
99-65-0	1,3-Dinitrobenzene	0.10 U	0.20	0.10	0.080	ug/l	
606-20-2	2,6-Dinitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
121-14-2	2,4-Dinitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	1.9	0.20	0.10	0.080	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene	1.1	0.20	0.10	0.080	ug/l	
98-95-3	Nitrobenzene	0.10 U	0.20	0.10	0.097	ug/l	
88-72-2	o-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
99-08-1	m-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
99-99-0	p-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
479-45-8	Tetryl	0.10 U	0.20	0.10	0.080	ug/l	
99-35-4	1,3,5-Trinitrobenzene	22.2	0.20	0.10	0.099	ug/l	
118-96-7	2,4,6-Trinitrotoluene	12.5	0.20	0.10	0.080	ug/l	
55-63-0	Nitroglycerine	1.0 U	2.0	1.0	0.50	ug/l	
78-11-5	PETN [d]	1.0 U	2.0	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
610-39-9	3,4-Dinitrotoluene	93%	108%	134%	70-136%

(a) All hits confirmed by reanalysis on a dissimilar column.
(b) Confirmation run.
(c) Primary and confirmation results differ by more than 40%.
(d) Associated BS recovery outside DOD QSM control limits. Confirmed ND by re-extraction and reanalysis.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54TW13		
Lab Sample ID:	FA69146-2	**Date Sampled:**	10/14/19
Matrix:	AQ - Ground Water	**Date Received:**	10/19/19
Method:	SW846 6850 SW846 6850	**Percent Solids:**	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Q64984.D	1	10/24/19 13:36	NG	10/24/19 08:00	OP77429	SQ1467
Run #2							

	Initial Volume	Final Volume
Run #1	10.0 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
14797-73-0	Perchlorate	0.36	0.20	0.10	0.050	ug/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54TW13		
Lab Sample ID:	FA69146-2	**Date Sampled:**	10/14/19
Matrix:	AQ - Ground Water	**Date Received:**	10/19/19
Method:	SW846 8330B SW846 3535A	**Percent Solids:**	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB066719.D	1	10/23/19 14:33	WH	10/21/19 09:00	OP77364	GBB1935
Run #2 [b]	BB066805.D	1	10/28/19 13:08	WH	10/24/19 07:30	OP77415	GBB1938
Run #3 [b]	GG617960.D	1	10/29/19 02:21	WH	10/24/19 07:30	OP77415	GGG2778

	Initial Volume	Final Volume
Run #1	1000 ml	10.0 ml
Run #2	990 ml	10.0 ml
Run #3	990 ml	10.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	8.5	0.20	0.10	0.080	ug/l	
121-82-4	RDX	0.10 U	0.20	0.10	0.080	ug/l	
	DNX	0.10 U	0.20	0.10	0.080	ug/l	
	MNX	0.10 U	0.20	0.10	0.080	ug/l	
	TNX	0.10 U	0.20	0.10	0.080	ug/l	
618-87-1	3,5-Dinitroaniline	0.69	0.20	0.10	0.080	ug/l	
99-65-0	1,3-Dinitrobenzene	0.10 U	0.20	0.10	0.080	ug/l	
606-20-2	2,6-Dinitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
121-14-2	2,4-Dinitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	2.1	0.20	0.10	0.080	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene [c]	1.7	0.20	0.10	0.080	ug/l	
98-95-3	Nitrobenzene	0.10 U	0.20	0.10	0.097	ug/l	
88-72-2	o-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
99-08-1	m-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
99-99-0	p-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
479-45-8	Tetryl	0.10 U	0.20	0.10	0.080	ug/l	
99-35-4	1,3,5-Trinitrobenzene	25.6	0.20	0.10	0.099	ug/l	
118-96-7	2,4,6-Trinitrotoluene	14.6	0.20	0.10	0.080	ug/l	
55-63-0	Nitroglycerine	1.0 U	2.0	1.0	0.50	ug/l	
78-11-5	PETN [d]	1.0 U	2.0	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
610-39-9	3,4-Dinitrotoluene	117%	95%	129%	70-136%

(a) All hits confirmed by reanalysis on a dissimilar column.
(b) Confirmation run.
(c) Primary and confirmation results differ by more than 40%.
(d) Associated BS recovery outside DOD QSM control limits. Confirmed ND by re-extraction and reanalysis.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW10		
Lab Sample ID:	FA69146-3	**Date Sampled:**	10/14/19
Matrix:	AQ - Ground Water	**Date Received:**	10/19/19
Method:	SW846 6850 SW846 6850	**Percent Solids:**	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Q64985.D	1	10/24/19 13:46	NG	10/24/19 08:00	OP77429	SQ1467
Run #2							

	Initial Volume	Final Volume
Run #1	10.0 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
14797-73-0	Perchlorate	0.10 U	0.20	0.10	0.050	ug/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW10		
Lab Sample ID:	FA69146-3	**Date Sampled:**	10/14/19
Matrix:	AQ - Ground Water	**Date Received:**	10/19/19
Method:	SW846 8330B SW846 3535A	**Percent Solids:**	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB066720.D	1	10/23/19 15:03	WH	10/21/19 09:00	OP77364	GBB1935
Run #2 [b]	BB066806.D	1	10/28/19 13:38	WH	10/24/19 07:30	OP77415	GBB1938
Run #3 [b]	GG617961.D	1	10/29/19 02:51	WH	10/24/19 07:30	OP77415	GGG2778

	Initial Volume	Final Volume
Run #1	990 ml	10.0 ml
Run #2	990 ml	10.0 ml
Run #3	990 ml	10.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	2.4	0.20	0.10	0.081	ug/l	
121-82-4	RDX [c]	2.1	0.20	0.10	0.081	ug/l	
	DNX	0.10 U	0.20	0.10	0.081	ug/l	
	MNX	0.10 U	0.20	0.10	0.081	ug/l	
	TNX	0.10 U	0.20	0.10	0.081	ug/l	
618-87-1	3,5-Dinitroaniline [c]	0.31	0.20	0.10	0.081	ug/l	
99-65-0	1,3-Dinitrobenzene	0.10 U	0.20	0.10	0.081	ug/l	
606-20-2	2,6-Dinitrotoluene	0.10 U	0.20	0.10	0.081	ug/l	
121-14-2	2,4-Dinitrotoluene	0.10 U	0.20	0.10	0.081	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	0.99	0.20	0.10	0.081	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene	0.89	0.20	0.10	0.081	ug/l	
98-95-3	Nitrobenzene	0.10 U	0.20	0.10	0.098	ug/l	
88-72-2	o-Nitrotoluene	0.10 U	0.20	0.10	0.081	ug/l	
99-08-1	m-Nitrotoluene	0.10 U	0.20	0.10	0.081	ug/l	
99-99-0	p-Nitrotoluene	0.10 U	0.20	0.10	0.081	ug/l	
479-45-8	Tetryl	0.10 U	0.20	0.10	0.081	ug/l	
99-35-4	1,3,5-Trinitrobenzene	0.77	0.20	0.10	0.10	ug/l	
118-96-7	2,4,6-Trinitrotoluene	4.0	0.20	0.10	0.081	ug/l	
55-63-0	Nitroglycerine	1.0 U	2.0	1.0	0.51	ug/l	
78-11-5	PETN [d]	1.0 U	2.0	1.0	0.51	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
610-39-9	3,4-Dinitrotoluene	99%	99%	122%	70-136%

(a) All hits confirmed by reanalysis on a dissimilar column.
(b) Confirmation run.
(c) Primary and confirmation results differ by more than 40%.
(d) Associated BS recovery outside DOD QSM control limits. Confirmed ND by re-extraction and reanalysis.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW12		
Lab Sample ID:	FA69146-4	**Date Sampled:**	10/14/19
Matrix:	AQ - Ground Water	**Date Received:**	10/19/19
Method:	SW846 6850 SW846 6850	**Percent Solids:**	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Q64991.D	1	10/24/19 14:46	NG	10/24/19 08:00	OP77429	SQ1467
Run #2							

	Initial Volume	Final Volume
Run #1	10.0 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
14797-73-0	Perchlorate	0.53	0.20	0.10	0.050	ug/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW12		
Lab Sample ID:	FA69146-4	**Date Sampled:**	10/14/19
Matrix:	AQ - Ground Water	**Date Received:**	10/19/19
Method:	SW846 8330B SW846 3535A	**Percent Solids:**	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	BB066721.D	1	10/23/19 15:33	WH	10/21/19 09:00	OP77364	GBB1935
Run #2 [b]	BB066810.D	1	10/28/19 15:38	WH	10/24/19 07:30	OP77415	GBB1938
Run #3 [b]	GG617962.D	1	10/29/19 03:20	WH	10/24/19 07:30	OP77415	GGG2778

	Initial Volume	Final Volume
Run #1	1000 ml	10.0 ml
Run #2	1000 ml	10.0 ml
Run #3	1000 ml	10.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	16.6	0.20	0.10	0.080	ug/l	
121-82-4	RDX	0.10 U	0.20	0.10	0.080	ug/l	
	DNX	0.10 U	0.20	0.10	0.080	ug/l	
	MNX	0.10 U	0.20	0.10	0.080	ug/l	
	TNX	0.10 U	0.20	0.10	0.080	ug/l	
618-87-1	3,5-Dinitroaniline [c]	0.31	0.20	0.10	0.080	ug/l	
99-65-0	1,3-Dinitrobenzene	0.10 U	0.20	0.10	0.080	ug/l	
606-20-2	2,6-Dinitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
121-14-2	2,4-Dinitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	3.8	0.20	0.10	0.080	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene [c]	2.0	0.20	0.10	0.080	ug/l	
98-95-3	Nitrobenzene	0.10 U	0.20	0.10	0.097	ug/l	
88-72-2	o-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
99-08-1	m-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
99-99-0	p-Nitrotoluene	0.10 U	0.20	0.10	0.080	ug/l	
479-45-8	Tetryl	0.10 U	0.20	0.10	0.080	ug/l	
99-35-4	1,3,5-Trinitrobenzene	17.4	0.20	0.10	0.099	ug/l	
118-96-7	2,4,6-Trinitrotoluene	10.1	0.20	0.10	0.080	ug/l	
55-63-0	Nitroglycerine	1.0 U	2.0	1.0	0.50	ug/l	
78-11-5	PETN [d]	1.0 U	2.0	1.0	0.50	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
610-39-9	3,4-Dinitrotoluene	102%	110%	127%	70-136%

(a) All hits confirmed by reanalysis on a dissimilar column.
(b) Confirmation run.
(c) Primary and confirmation results differ by more than 40%.
(d) Associated BS recovery outside DOD QSM control limits. Confirmed ND by re-extraction and reanalysis.

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	54MW1		
Lab Sample ID:	FA69146-5	**Date Sampled:**	10/14/19
Matrix:	AQ - Ground Water	**Date Received:**	10/19/19
Method:	SW846 6850 SW846 6850	**Percent Solids:**	n/a
Project:	Radford AAP; VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Q64996.D	1	10/24/19 15:37	NG	10/24/19 08:00	OP77429	SQ1467
Run #2							

	Initial Volume	Final Volume
Run #1	10.0 ml	10.0 ml
Run #2		

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
14797-73-0	Perchlorate	0.10 U	0.20	0.10	0.050	ug/l	

U = Not detected LOD = Limit of Detection J = Indicates an estimated value
LOQ = Limit of Quantitation DL = Detection Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID: 54MW1
Lab Sample ID: FA69146-5
Matrix: AQ - Ground Water
Method: SW846 8330B SW846 3535A
Project: Radford AAP; VA

Date Sampled: 10/14/19
Date Received: 10/19/19
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BB066722.D	1	10/23/19 16:03	WH	10/21/19 09:00	OP77364	GBB1935
Run #2 [a]	BB066812.D	1	10/28/19 16:38	WH	10/24/19 07:30	OP77415	GBB1938

	Initial Volume	Final Volume
Run #1	980 ml	10.0 ml
Run #2	1000 ml	10.0 ml

CAS No.	Compound	Result	LOQ	LOD	DL	Units	Q
2691-41-0	HMX	0.10 U	0.20	0.10	0.082	ug/l	
121-82-4	RDX	0.10 U	0.20	0.10	0.082	ug/l	
	DNX	0.10 U	0.20	0.10	0.082	ug/l	
	MNX	0.10 U	0.20	0.10	0.082	ug/l	
	TNX	0.10 U	0.20	0.10	0.082	ug/l	
618-87-1	3,5-Dinitroaniline	0.10 U	0.20	0.10	0.082	ug/l	
99-65-0	1,3-Dinitrobenzene	0.10 U	0.20	0.10	0.082	ug/l	
606-20-2	2,6-Dinitrotoluene	0.10 U	0.20	0.10	0.082	ug/l	
121-14-2	2,4-Dinitrotoluene	0.10 U	0.20	0.10	0.082	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	0.10 U	0.20	0.10	0.082	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene	0.10 U	0.20	0.10	0.082	ug/l	
98-95-3	Nitrobenzene	0.10 U	0.20	0.10	0.099	ug/l	
88-72-2	o-Nitrotoluene	0.10 U	0.20	0.10	0.082	ug/l	
99-08-1	m-Nitrotoluene	0.10 U	0.20	0.10	0.082	ug/l	
99-99-0	p-Nitrotoluene	0.10 U	0.20	0.10	0.082	ug/l	
479-45-8	Tetryl	0.10 U	0.20	0.10	0.082	ug/l	
99-35-4	1,3,5-Trinitrobenzene	0.10 U	0.20	0.10	0.10	ug/l	
118-96-7	2,4,6-Trinitrotoluene	0.10 U	0.20	0.10	0.082	ug/l	
55-63-0	Nitroglycerine	1.0 U	2.0	1.0	0.51	ug/l	
78-11-5	PETN [b]	1.0 U	2.0	1.0	0.51	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
610-39-9	3,4-Dinitrotoluene	100%	100%	70-136%

(a) Confirmation run.
(b) Associated BS recovery outside DOD QSM control limits. Confirmed ND by re-extraction and reanalysis.

U = Not detected LOD = Limit of Detection
LOQ = Limit of Quantitation DL = Detection Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- QC Evaluation: DOD QSM5.x Limits

SGS samples

FA69146

Rev. 02/2017

CHAIN OF CUSTODY

Page 1 of 1

Company: Weston Solutions
Project Contact: Tony Pace
Telephone: 757-819-5310
Project Name: Radford AAP SWMU-54
Project #:
Location: Radford, VA
Sampled By: B. Bounds/P. Taylor

CT LABORATORIES
1230 Lange Court, Baraboo, WI 53913
608-356-2760 Fax 608-356-2766
www.ctlaboratories.com

Lab Use Only
Place Header Sticker Here:

Program:
QSM RCRA SDWA NPDES
Solid Waste Other _____
PO #

Report To:
EMAIL: Anthony.Pace@WestonSolutions.com
Company: Weston Solutions
Address: 2 Eaton St, Ste. 603 Hampton, VA 23669

Invoice To:*
EMAIL:
Company: Same
Address:

**Party listed is responsible for payment of invoice as per CT Laboratories' terms and conditions*

Client Special Instructions

Matrix:
GW – groundwater SW - surface water WW - wastewater DW - drinking water
S - soil/sediment SL - sludge A - air M - misc/waste

ANALYSES REQUESTED

	2019 Collection Date	Time	Matrix	Grab/ Comp	Sample #	Sample ID Description	Filtered? Y/N	Explosives 8330B	Chlorate/Chlorite 300.1	Anions (C,N,S) 9056A	TOC 9060A	TIC 9060A	Perchlorate 6850	Cold 410.4	pH 9040C	Total Metals 6010C/7470A								Total # Containers	Designated MS/MSD	CT Lab ID # (Lab use only)
								Fill in Spaces with Bottles per Test																		
1	10/14	1025	GW	G	1	54MW13	N	2	1	1	1	3	1											9		
2	10/14	1025	GW	G	1	54TW13	N	2	1	1	1	3	1											9		
3	10/14	1215	GW	G	1	54MW10	N	2	1	1	1	3	1											9		
4	10/14	1325	GW	G	1	54MW12	N	6	3	3	3	9	3											27	X	
5	10/14	1510	GW	G	1	54MW1	N	2	1	1	1	3	1											9		
	10/14	1600	GW	G	1	54IDW	N							1	1	1								3		

Turnaround Time
Normal RUSH*
Date Needed: Std.
Rush analysis requires prior CT Laboratories' approval
Surcharges:
24 hr 200%
2-3 days 100%
4-9 days 50%

Relinquished By:	Date/Time	Received By:	Date/Time	Lab Use Only
	10/17/2019 1000	Fedex	10/17/2019 1600	Ice Present (Yes) No
Received By: Fedex	Date/Time	Received for Laboratory By: Terri/Mastro	Date/Time 10/19/19 @ 10:00	Temp 2.7 IR Gun 1
				Cooler #

SGS Sample Receipt Summary

Job Number: FA69146 **Client:** CT LABORATORIES / WESTERN SOLUTI **Project:** RADFORD AAP SWMV - 54

Date / Time Received: 10/19/2019 10:00:00 AM **Delivery Method:** FED EX **Airbill #'s:**

Therm ID: IR 1; **Therm CF:** 1; **# of Coolers:** 1

Cooler Temps (Raw Measured) °C: Cooler 1: (1.7);

Cooler Temps (Corrected) °C: Cooler 1: (2.7);

Cooler Information	Y	or	N
1. Custody Seals Present	☑		☐
2. Custody Seals Intact	☑		☐
3. Temp criteria achieved	☑		☐
4. Cooler temp verification	IR Gun		
5. Cooler media	Ice (Bag)		

Trip Blank Information	Y	or	N	N/A
1. Trip Blank present / cooler	☐		☑	☐
2. Trip Blank listed on COC	☐		☑	☐

	W	or	S	N/A
3. Type Of TB Received	☐		☐	☑

Sample Information	Y	or	N	N/A
1. Sample labels present on bottles	☑		☐	
2. Samples preserved properly	☑		☐	
3. Sufficient volume/containers recvd for analysis:	☑		☐	
4. Condition of sample	Intact			
5. Sample recvd within HT	☑		☐	
6. Dates/Times/IDs on COC match Sample Label	☑		☐	
7. VOCs have headspace	☐		☐	☑
8. Bottles received for unspecified tests	☐		☑	
9. Compositing instructions clear	☐		☐	☑
10. Voa Soil Kits/Jars received past 48hrs?	☐		☐	☑
11. % Solids Jar received?	☐		☐	☑
12. Residual Chlorine Present?	☐		☐	☑

Misc. Information

Number of Encores: 25-Gram _____ 5-Gram _____ Number of 5035 Field Kits: _____ Number of Lab Filtered Metals: _____

Test Strip Lot #s: pH 0-3 230315 pH 10-12 219813A Other: (Specify) _____ _____

Residual Chlorine Test Strip Lot #: _____

Comments

SM001
Rev. Date 05/24/17

Technician: TRINITYM Date: 10/19/2019 10:00:00 Reviewer: _____ Date: _____

QC Evaluation: DOD QSM5.x Limits

Job Number: FA69146
Account: Weston Solutions, Inc
Project: Radford AAP; VA
Collected: 10/14/19

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
OP77429	SW846 6850						
OP77429-BS	14797-73-0	Perchlorate	BSP	REC	85	%	84-119
OP77429-MS	14797-73-0	Perchlorate	MS	REC	130 [a]	%	84-119
OP77429-MSD	14797-73-0	Perchlorate	MSD	REC	110	%	84-119
OP77429-MSD	14797-73-0	Perchlorate	MSD	RPD	5	%	15
OP77364	SW846 8330B						
OP77364-BS	2691-41-0	HMX	BSP	REC	100	%	65-135
OP77364-BS	121-82-4	RDX	BSP	REC	94	%	68-130
OP77364-BS		DNX	BSP	REC	92	%	66-119
OP77364-BS		MNX	BSP	REC	84	%	57-132
OP77364-BS	618-87-1	3,5-Dinitroaniline	BSP	REC	98	%	71-117
OP77364-BS	99-65-0	1,3-Dinitrobenzene	BSP	REC	100	%	78-120
OP77364-BS	606-20-2	2,6-Dinitrotoluene	BSP	REC	112	%	77-127
OP77364-BS	121-14-2	2,4-Dinitrotoluene	BSP	REC	98	%	78-120
OP77364-BS	35572-78-2	2-amino-4,6-Dinitrotoluene	BSP	REC	96	%	79-120
OP77364-BS	19406-51-0	4-amino-2,6-Dinitrotoluene	BSP	REC	94	%	76-125
OP77364-BS	98-95-3	Nitrobenzene	BSP	REC	92	%	65-134
OP77364-BS	88-72-2	o-Nitrotoluene	BSP	REC	88	%	70-127
OP77364-BS	99-08-1	m-Nitrotoluene	BSP	REC	90	%	73-125
OP77364-BS	99-99-0	p-Nitrotoluene	BSP	REC	88	%	71-127
OP77364-BS	479-45-8	Tetryl	BSP	REC	80	%	64-128
OP77364-BS	99-35-4	1,3,5-Trinitrobenzene	BSP	REC	96	%	73-125
OP77364-BS	118-96-7	2,4,6-Trinitrotoluene	BSP	REC	96	%	71-123
OP77364-BS	55-63-0	Nitroglycerine	BSP	REC	98	%	74-127
OP77364-BS	78-11-5	PETN	BSP	REC	54	%	73-127
OP77364-MS	2691-41-0	HMX	MS	REC	117	%	65-135
OP77364-MS	121-82-4	RDX	MS	REC	98	%	68-130
OP77364-MS		DNX	MS	REC	100	%	66-119
OP77364-MS		MNX	MS	REC	82	%	57-132
OP77364-MS	618-87-1	3,5-Dinitroaniline	MS	REC	96	%	71-117
OP77364-MS	99-65-0	1,3-Dinitrobenzene	MS	REC	98	%	78-120
OP77364-MS	606-20-2	2,6-Dinitrotoluene	MS	REC	119	%	77-127
OP77364-MS	121-14-2	2,4-Dinitrotoluene	MS	REC	97	%	78-120
OP77364-MS	35572-78-2	2-amino-4,6-Dinitrotoluene	MS	REC	95	%	79-120
OP77364-MS	19406-51-0	4-amino-2,6-Dinitrotoluene	MS	REC	93	%	76-125
OP77364-MS	98-95-3	Nitrobenzene	MS	REC	92	%	65-134
OP77364-MS	88-72-2	o-Nitrotoluene	MS	REC	88	%	70-127
OP77364-MS	99-08-1	m-Nitrotoluene	MS	REC	93	%	73-125
OP77364-MS	99-99-0	p-Nitrotoluene	MS	REC	90	%	71-127
OP77364-MS	479-45-8	Tetryl	MS	REC	78	%	64-128
OP77364-MS	99-35-4	1,3,5-Trinitrobenzene	MS	REC	102	%	73-125

* Sample used for QC is not from job FA69146

QC Evaluation: DOD QSM5.x Limits

Job Number: FA69146
Account: Weston Solutions, Inc
Project: Radford AAP; VA
Collected: 10/14/19

QC Sample ID	CAS#	Analyte	Sample Type	Result Type	Result	Units	Limits
OP77364-MS	118-96-7	2,4,6-Trinitrotoluene	MS	REC	92	%	71-123
OP77364-MS	55-63-0	Nitroglycerine	MS	REC	96	%	74-127
OP77364-MS	78-11-5	PETN	MS	REC	54	%	73-127
OP77364-MSD	2691-41-0	HMX	MSD	REC	112	%	65-135
OP77364-MSD	2691-41-0	HMX	MSD	RPD	2	%	20
OP77364-MSD	121-82-4	RDX	MSD	REC	101	%	68-130
OP77364-MSD	121-82-4	RDX	MSD	RPD	3	%	20
OP77364-MSD		DNX	MSD	REC	105	%	66-119
OP77364-MSD		DNX	MSD	RPD	5	%	20
OP77364-MSD		MNX	MSD	REC	87	%	57-132
OP77364-MSD		MNX	MSD	RPD	6	%	20
OP77364-MSD	618-87-1	3,5-Dinitroaniline	MSD	REC	99	%	71-117
OP77364-MSD	618-87-1	3,5-Dinitroaniline	MSD	RPD	3	%	20
OP77364-MSD	99-65-0	1,3-Dinitrobenzene	MSD	REC	100	%	78-120
OP77364-MSD	99-65-0	1,3-Dinitrobenzene	MSD	RPD	2	%	20
OP77364-MSD	606-20-2	2,6-Dinitrotoluene	MSD	REC	117	%	77-127
OP77364-MSD	606-20-2	2,6-Dinitrotoluene	MSD	RPD	2	%	20
OP77364-MSD	121-14-2	2,4-Dinitrotoluene	MSD	REC	95	%	78-120
OP77364-MSD	121-14-2	2,4-Dinitrotoluene	MSD	RPD	2	%	20
OP77364-MSD	35572-78-2	2-amino-4,6-Dinitrotoluene	MSD	REC	95	%	79-120
OP77364-MSD	35572-78-2	2-amino-4,6-Dinitrotoluene	MSD	RPD	0	%	20
OP77364-MSD	19406-51-0	4-amino-2,6-Dinitrotoluene	MSD	REC	91	%	76-125
OP77364-MSD	19406-51-0	4-amino-2,6-Dinitrotoluene	MSD	RPD	2	%	20
OP77364-MSD	98-95-3	Nitrobenzene	MSD	REC	90	%	65-134
OP77364-MSD	98-95-3	Nitrobenzene	MSD	RPD	2	%	20
OP77364-MSD	88-72-2	o-Nitrotoluene	MSD	REC	89	%	70-127
OP77364-MSD	88-72-2	o-Nitrotoluene	MSD	RPD	1	%	20
OP77364-MSD	99-08-1	m-Nitrotoluene	MSD	REC	90	%	73-125
OP77364-MSD	99-08-1	m-Nitrotoluene	MSD	RPD	3	%	20
OP77364-MSD	99-99-0	p-Nitrotoluene	MSD	REC	90	%	71-127
OP77364-MSD	99-99-0	p-Nitrotoluene	MSD	RPD	0	%	20
OP77364-MSD	479-45-8	Tetryl	MSD	REC	86	%	64-128
OP77364-MSD	479-45-8	Tetryl	MSD	RPD	10	%	20
OP77364-MSD	99-35-4	1,3,5-Trinitrobenzene	MSD	REC	103	%	73-125
OP77364-MSD	99-35-4	1,3,5-Trinitrobenzene	MSD	RPD	0	%	20
OP77364-MSD	118-96-7	2,4,6-Trinitrotoluene	MSD	REC	93	%	71-123
OP77364-MSD	118-96-7	2,4,6-Trinitrotoluene	MSD	RPD	1	%	20
OP77364-MSD	55-63-0	Nitroglycerine	MSD	REC	109	%	74-127
OP77364-MSD	55-63-0	Nitroglycerine	MSD	RPD	13	%	20
OP77364-MSD	78-11-5	PETN	MSD	REC	54	%	73-127
OP77364-MSD	78-11-5	PETN	MSD	RPD	0	%	20

(a) Outside control limits due to high level in sample relative to spike amount.

* Sample used for QC is not from job FA69146

MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Internal Standard Area Summaries
- Initial and Continuing Calibration Summaries
- Run Sequence Reports

Method Blank Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP77429-MB	Q64980.D	1	10/24/19	NG	10/24/19	OP77429	SQ1467

The QC reported here applies to the following samples: **Method:** SW846 6850

FA69146-1, FA69146-2, FA69146-3, FA69146-4, FA69146-5

CAS No.	Compound	Result	RL	MDL	Units	Q
14797-73-0	Perchlorate	ND	0.20	0.050	ug/l	

Blank Spike Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP77429-BS	Q64979.D	1	10/24/19	NG	10/24/19	OP77429	SQ1467

The QC reported here applies to the following samples: **Method:** SW846 6850

FA69146-1, FA69146-2, FA69146-3, FA69146-4, FA69146-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
14797-73-0	Perchlorate	0.2	0.17	85	80-120

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP77429-MS	Q64994.D	1	10/24/19	NG	10/24/19	OP77429	SQ1467
OP77429-MSD	Q64995.D	1	10/24/19	NG	10/24/19	OP77429	SQ1467
FA69146-4	Q64991.D	1	10/24/19	NG	10/24/19	OP77429	SQ1467

The QC reported here applies to the following samples: **Method:** SW846 6850

FA69146-1, FA69146-2, FA69146-3, FA69146-4, FA69146-5

CAS No.	Compound	FA69146-4 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
14797-73-0	Perchlorate	0.53		0.2	0.79	130* [a]	0.2	0.75	110	5	80-120/15

(a) Outside control limits due to high level in sample relative to spike amount.

* = Outside of Control Limits.

Internal Standard Area Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Check Std:	SQ1467-ICC1467	**Injection Date:**	10/24/19
Lab File ID:	Q64972.D	**Injection Time:**	11:30
Instrument ID:	GCMSQ	**Method:**	SW846 6850

	IS 1 AREA	RT
Initial Cal [a]	6968	6.90
Check Std [b]	7072	6.90
Upper Limit [c]	10452	8.90
Lower Limit [d]	3484	4.90

Lab Sample ID	IS 1 AREA	RT
OP77429-BS	7759	6.90
OP77429-MB	6226	6.88
FA69146-1	8806	6.67
FA69146-2	9579	6.69
FA69146-3	9063	6.63

IS 1 = Cl18O4 (ISTD)

(a) Initial Cal is: SQ1467-ICC1467 Q64972.D 10/24/19 11:30. Area is AVERAGE of initial cal points.
(b) Check Std Limit = -50 to + 50% of initial cal area.
(c) Upper Limit = + 50% of initial standard area; Retention time + 2 minutes of check standard.
(d) Lower Limit = -50% of initial standard area; Retention time -2 minutes of check standard.

Internal Standard Area Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Check Std:	SQ1467-CC1467	**Injection Date:**	10/24/19
Lab File ID:	Q64986.D	**Injection Time:**	13:56
Instrument ID:	GCMSQ	**Method:**	SW846 6850

	IS 1 AREA	RT
Initial Cal [a]	6968	6.90
Check Std [b]	8536	6.88
Upper Limit [c]	10452	8.88
Lower Limit [d]	3484	4.88

Lab Sample ID	IS 1 AREA	RT
FA69146-4	8110	6.67
ZZZZZZ	6037	6.85
ZZZZZZ	5170	6.83
OP77429-MS	7981	6.67
OP77429-MSD	8173	6.66
FA69146-5	7607	6.67

IS 1 = Cl18O4 (ISTD)

(a) Initial Cal is: SQ1467-ICC1467 Q64972.D 10/24/19 11:30. Area is AVERAGE of initial cal points.
(b) Check Std Limit = -50 to + 50% of initial cal area.
(c) Upper Limit = + 50% of initial standard area; Retention time + 2 minutes of check standard.
(d) Lower Limit = -50% of initial standard area; Retention time -2 minutes of check standard.

Initial Calibration Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: SQ1467-ICC1467
Lab FileID: Q64972.D

Initial Calibration Report

Method Path	D:\MassHunter\damethods
Method File	6850_1024_SQ1467.quantmethod.xml
Batch Name	D:\MassHunter\Data\1024_6850_SQ1467\QuantResults\sq1467.batch.bin
Last Calib Update	10/24/2019 12:53:54 PM

Level Name	Calibration Files	Acq. Date-Time	Level Last Update Time
1	D:\MassHunter\Data\1024_6850_SQ1467\Q64969.d	10/24/2019 11:00:39 AM	10/24/2019 12:53:54 PM
2	D:\MassHunter\Data\1024_6850_SQ1467\Q64970.d	10/24/2019 11:10:34 AM	10/24/2019 12:53:54 PM
3	D:\MassHunter\Data\1024_6850_SQ1467\Q64971.d	10/24/2019 11:20:27 AM	10/24/2019 12:53:54 PM
4	D:\MassHunter\Data\1024_6850_SQ1467\Q64972.d	10/24/2019 11:30:21 AM	10/24/2019 12:53:54 PM
5	D:\MassHunter\Data\1024_6850_SQ1467\Q64973.d	10/24/2019 11:40:17 AM	10/24/2019 12:53:54 PM
6	D:\MassHunter\Data\1024_6850_SQ1467\Q64974.d	10/24/2019 11:50:11 AM	10/24/2019 12:53:54 PM
7	D:\MassHunter\Data\1024_6850_SQ1467\Q64975.d	10/24/2019 12:00:06 PM	10/24/2019 12:53:54 PM
8	D:\MassHunter\Data\1024_6850_SQ1467\Q64976.d	10/24/2019 12:17:02 PM	10/24/2019 12:53:54 PM

Compound	Curve Fit	1	2	3	4	5	6	7	8	Avg RF	%RSD
I Cl18O4		---------- ISTD ----------									
T Perchlorate	Quadratic	1.3541	1.1492	1.1136	1.1819	1.2433	1.1742	1.1567	1.3847	1.2197	8.172

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Generated at 12:54 PM on 10/24/2019

Initial Calibration Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: SQ1467-ICC1467
Lab FileID: Q64972.D

Initial Calibration Report

Compounds with Curve fitting not using Avg Response Factor:

Compound	Curve Fit	Curve Fit Formula	Curve Fit R2
T Perchlorate	Quadratic	y = 0.027095 * x ^ 2 + 1.097048 * x	0.998212

(RedFont and #) = Outlier Flag; (I) = Internal Standard; (T) = Target; (S) = Surrogate; (M) = Matrix Spike

Initial Calibration Verification

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: SQ1467-ICV1467
Lab FileID: Q64977.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\1024_6850_SQ1467\sq1467.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\1024_6850_SQ1467\Q64969.d
2:D:\MassHunter\Data\1024_6850_SQ1467\Q64970.d
3:D:\MassHunter\Data\1024_6850_SQ1467\Q64971.d
4:D:\MassHunter\Data\1024_6850_SQ1467\Q64972.d
5:D:\MassHunter\Data\1024_6850_SQ1467\Q64973.d
6:D:\MassHunter\Data\1024_6850_SQ1467\Q64974.d
7:D:\MassHunter\Data\1024_6850_SQ1467\Q64975.d
8:D:\MassHunter\Data\1024_6850_SQ1467\Q64976.d

Data File: Q64977
Type : QC
Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
Cl18O4	---	--ISTD--		
Perchlorate	2.000	2.269	13.5	113.5

CC Criteria: +/- 15%

Continuing Calibration Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: SQ1467-CC1467
Lab FileID: Q64986.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\1024_6850_SQ1467\sq1467.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\1024_6850_SQ1467\Q64969.d
2:D:\MassHunter\Data\1024_6850_SQ1467\Q64970.d
3:D:\MassHunter\Data\1024_6850_SQ1467\Q64971.d
4:D:\MassHunter\Data\1024_6850_SQ1467\Q64972.d
5:D:\MassHunter\Data\1024_6850_SQ1467\Q64973.d
6:D:\MassHunter\Data\1024_6850_SQ1467\Q64974.d
7:D:\MassHunter\Data\1024_6850_SQ1467\Q64975.d
8:D:\MassHunter\Data\1024_6850_SQ1467\Q64976.d

Data File: Q64986
Type : QC
Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
Cl18O4	---	--ISTD--		
Perchlorate	2.000	1.983	-0.8	99.2

CC Criteria: +/- 15%

Continuing Calibration Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: SQ1467-CC1467
Lab FileID: Q64987.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\1024_6850_SQ1467\sq1467.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\1024_6850_SQ1467\Q64969.d
2:D:\MassHunter\Data\1024_6850_SQ1467\Q64970.d
3:D:\MassHunter\Data\1024_6850_SQ1467\Q64971.d
4:D:\MassHunter\Data\1024_6850_SQ1467\Q64972.d
5:D:\MassHunter\Data\1024_6850_SQ1467\Q64973.d
6:D:\MassHunter\Data\1024_6850_SQ1467\Q64974.d
7:D:\MassHunter\Data\1024_6850_SQ1467\Q64975.d
8:D:\MassHunter\Data\1024_6850_SQ1467\Q64976.d

Data File: Q64987
Type : QC
Level : 1

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
Cl18O4	---	--ISTD--		
Perchlorate	0.200	0.218	8.8	108.8

CC Criteria: +/- 30%

Continuing Calibration Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: SQ1467-CC1467
Lab FileID: Q64997.D

Continuing Calibration Report

Batch: D:\MassHunter\Data\1024_6850_SQ1467\sq1467.batch.bin

Level ID:Calibration File
1:D:\MassHunter\Data\1024_6850_SQ1467\Q64969.d
2:D:\MassHunter\Data\1024_6850_SQ1467\Q64970.d
3:D:\MassHunter\Data\1024_6850_SQ1467\Q64971.d
4:D:\MassHunter\Data\1024_6850_SQ1467\Q64972.d
5:D:\MassHunter\Data\1024_6850_SQ1467\Q64973.d
6:D:\MassHunter\Data\1024_6850_SQ1467\Q64974.d
7:D:\MassHunter\Data\1024_6850_SQ1467\Q64975.d
8:D:\MassHunter\Data\1024_6850_SQ1467\Q64976.d

Data File: Q64997
Type : QC
Level : 4

Cpnd Name	Exp. Conc	Final Conc	Dev %	Area %
Cl18O4	---	--ISTD--		
Perchlorate	2.000	1.935	-3.3	96.7

CC Criteria: +/- 15%

Run Sequence Report

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Run ID: SQ1467	**Method:** SW846 6850	**Instrument ID:** GCMSQ

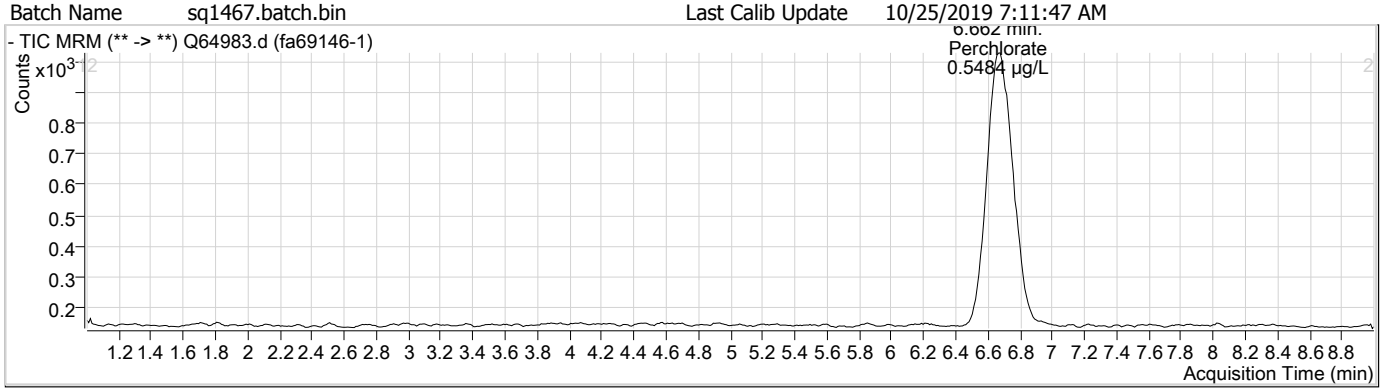
Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
SQ1467-IC1467	Q64969.D	10/24/19 11:00	n/a	Initial cal 0.2
SQ1467-IC1467	Q64970.D	10/24/19 11:10	n/a	Initial cal 0.5
SQ1467-IC1467	Q64971.D	10/24/19 11:20	n/a	Initial cal 1
SQ1467-ICC1467	Q64972.D	10/24/19 11:30	n/a	Initial cal 2
SQ1467-IC1467	Q64973.D	10/24/19 11:40	n/a	Initial cal 5
SQ1467-IC1467	Q64974.D	10/24/19 11:50	n/a	Initial cal 10
SQ1467-IC1467	Q64975.D	10/24/19 12:00	n/a	Initial cal 25
SQ1467-IC1467	Q64976.D	10/24/19 12:17	n/a	Initial cal 50
SQ1467-ICV1467	Q64977.D	10/24/19 12:26	n/a	Initial cal verification 2
OP77429-BS	Q64979.D	10/24/19 12:46	OP77429	Blank Spike
OP77429-MB	Q64980.D	10/24/19 12:56	OP77429	Method Blank
FA69146-1	Q64983.D	10/24/19 13:26	OP77429	54MW13
FA69146-2	Q64984.D	10/24/19 13:36	OP77429	54TW13
FA69146-3	Q64985.D	10/24/19 13:46	OP77429	54MW10
SQ1467-CC1467	Q64986.D	10/24/19 13:56	n/a	Continuing cal 2
SQ1467-CC1467	Q64987.D	10/24/19 14:06	n/a	Continuing cal 0.2
FA69146-4	Q64991.D	10/24/19 14:46	OP77429	54MW12
ZZZZZZ	Q64992.D	10/24/19 14:57	OP77429	(unrelated sample)
ZZZZZZ	Q64993.D	10/24/19 15:07	OP77429	(unrelated sample)
OP77429-MS	Q64994.D	10/24/19 15:17	OP77429	Matrix Spike
OP77429-MSD	Q64995.D	10/24/19 15:27	OP77429	Matrix Spike Duplicate
FA69146-5	Q64996.D	10/24/19 15:37	OP77429	54MW1
SQ1467-CC1467	Q64997.D	10/24/19 15:47	n/a	Continuing cal 2
SQ1467-ECC1467	Q64998.D	10/24/19 15:57	n/a	Ending cal 0.2

MS Semi-volatiles

Raw Data

Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q64983.d	Operator	natashag
Acq. Method	Perchlorate2.m	Acq. Date-Time	10/24/2019 1:26:24 PM
Sample Name	fa69146-1	Instrument	LCMS1-Q
Vial	Vial 16	Multiplier	1.00
DA Method File	6850_1024_SQ1467.quantmethod.xml		OP77429,SQ1467,10,,,10,1,water
Batch Name	sq1467.batch.bin	Last Calib Update	10/25/2019 7:11:47 AM

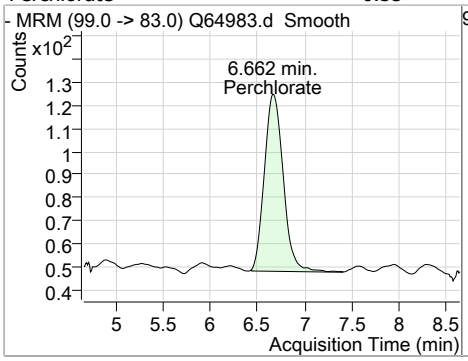


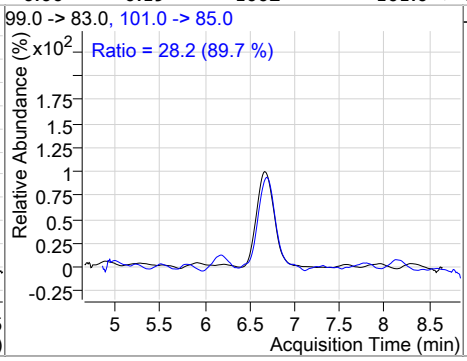
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.665	107.0 -> 89.0	8806	NoQ	5.00	µg/L	-0.204
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.662	99.0 -> 83.0	1062	3.6	0.55	µg/L	94

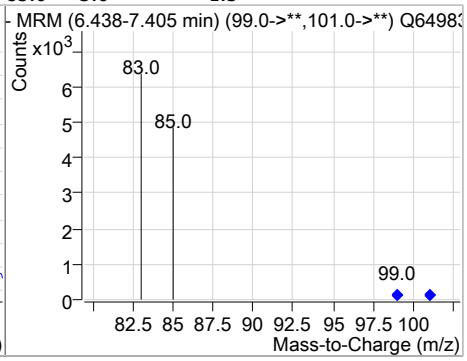
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.55	6.66	-0.19	1062	101.0 -> 85.0	3.6	1.5	

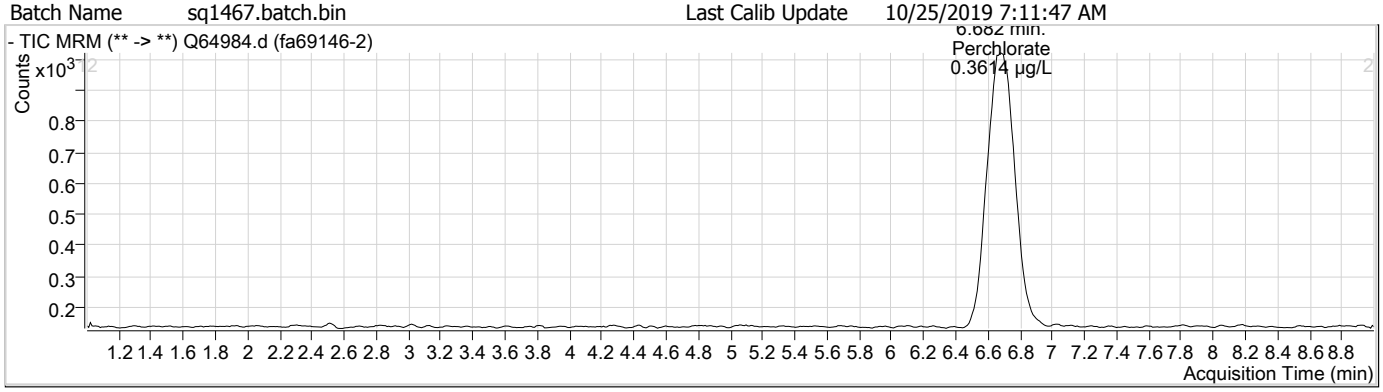






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q64984.d	Operator	natashag
Acq. Method	Perchlorate2.m	Acq. Date-Time	10/24/2019 1:36:55 PM
Sample Name	fa69146-2	Instrument	LCMS1-Q
Vial	Vial 17	Multiplier	1.00
DA Method File	6850_1024_SQ1467.quantmethod.xml		OP77429,SQ1467,10,,,10,1,water
Batch Name	sq1467.batch.bin	Last Calib Update	10/25/2019 7:11:47 AM

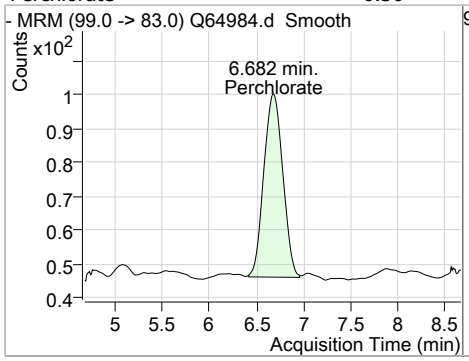


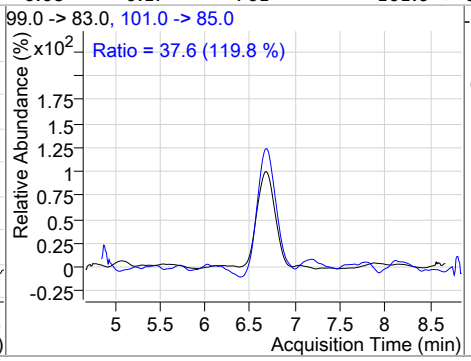
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.686	107.0 -> 89.0	9579	NoQ	5.00	µg/L	-0.183
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.682	99.0 -> 83.0	761	2.7	0.36	µg/L	89

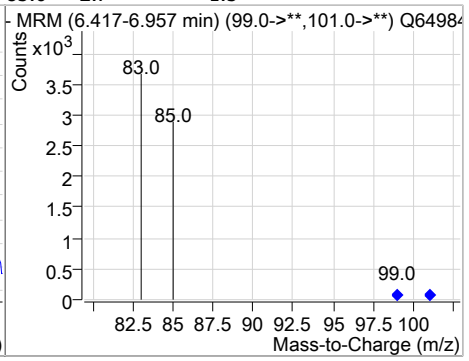
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.36	6.68	-0.17	761	101.0 -> 85.0	2.7	1.5	

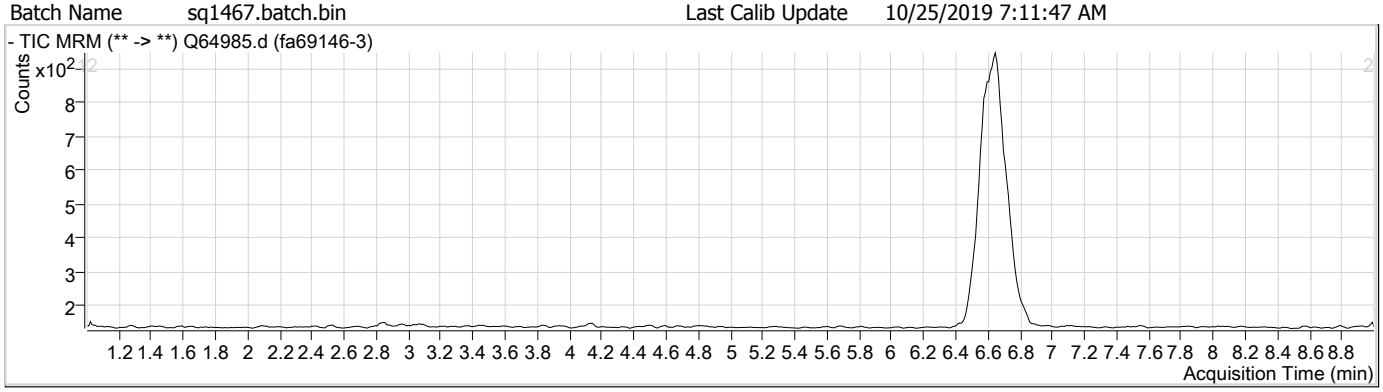






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q64985.d	Operator	natashag
Acq. Method	Perchlorate2.m	Acq. Date-Time	10/24/2019 1:46:50 PM
Sample Name	fa69146-3	Instrument	LCMS1-Q
Vial	Vial 18	Multiplier	1.00
DA Method File	6850_1024_SQ1467.quantmethod.xml		OP77429,SQ1467,10,,,10,1,water
Batch Name	sq1467.batch.bin	Last Calib Update	10/25/2019 7:11:47 AM

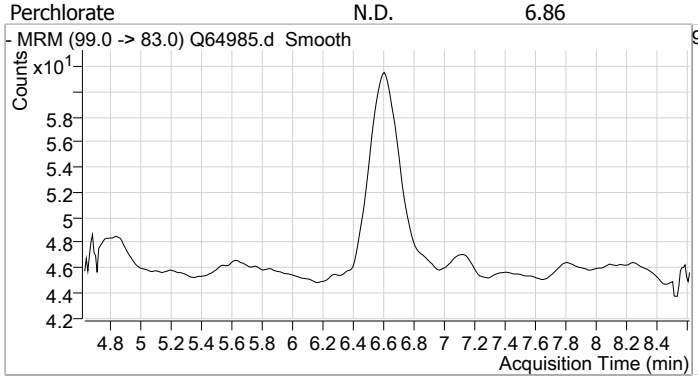


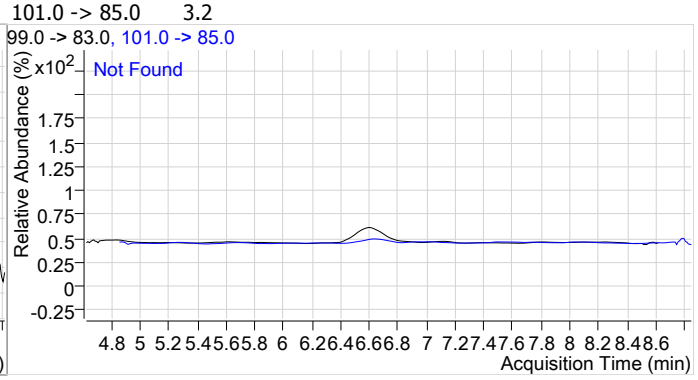
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.635	107.0 -> 89.0	9063	NoQ	5.00	µg/L	-0.234
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	-	99.0 -> 83.0		-	N.D.		

(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

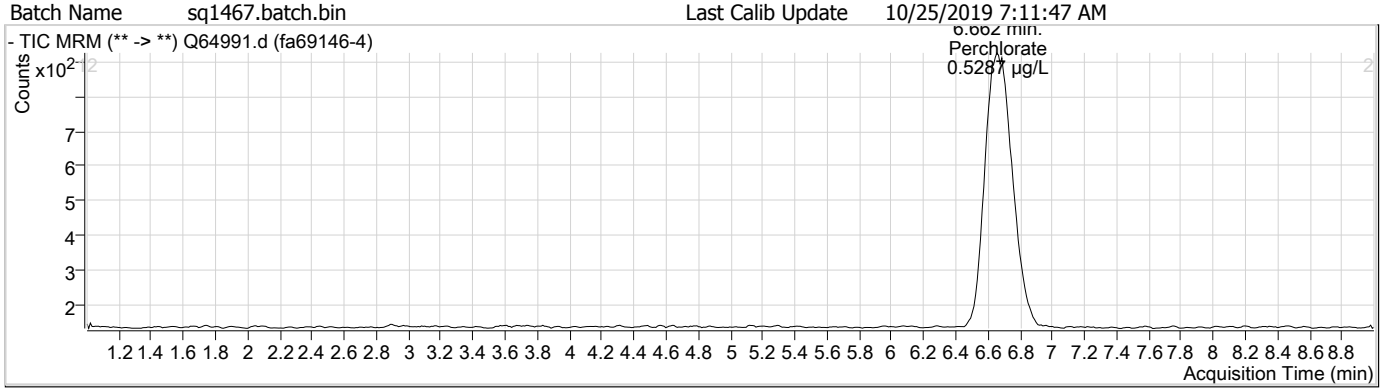
Compound	Conc.	Exp RT	QIon	Exp Ratio
Perchlorate	N.D.	6.86	101.0 -> 85.0	3.2





Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q64991.d	Operator	natashag
Acq. Method	Perchlorate2.m	Acq. Date-Time	10/24/2019 2:46:18 PM
Sample Name	fa69146-4	Instrument	LCMS1-Q
Vial	Vial 19	Multiplier	1.00
DA Method File	6850_1024_SQ1467.quantmethod.xml		OP77429,SQ1467,10,,,10,1,water
Batch Name	sq1467.batch.bin	Last Calib Update	10/25/2019 7:11:47 AM

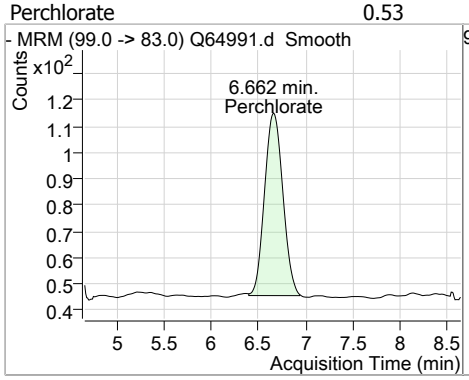


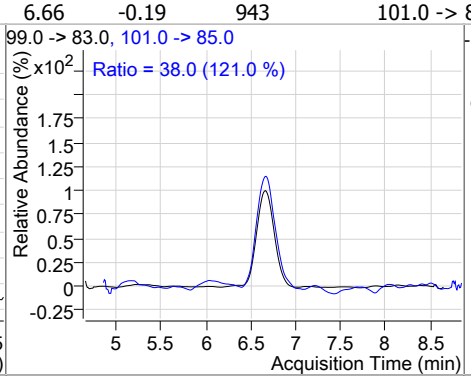
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.665	107.0 -> 89.0	8110	NoQ	5.00	µg/L	-0.204
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.662	99.0 -> 83.0	943	2.6	0.53	µg/L	88

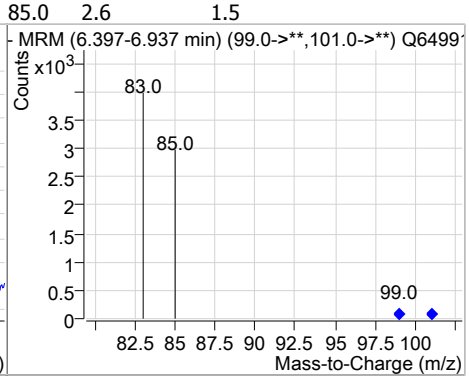
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.53	6.66	-0.19	943	101.0 -> 85.0	2.6	1.5	

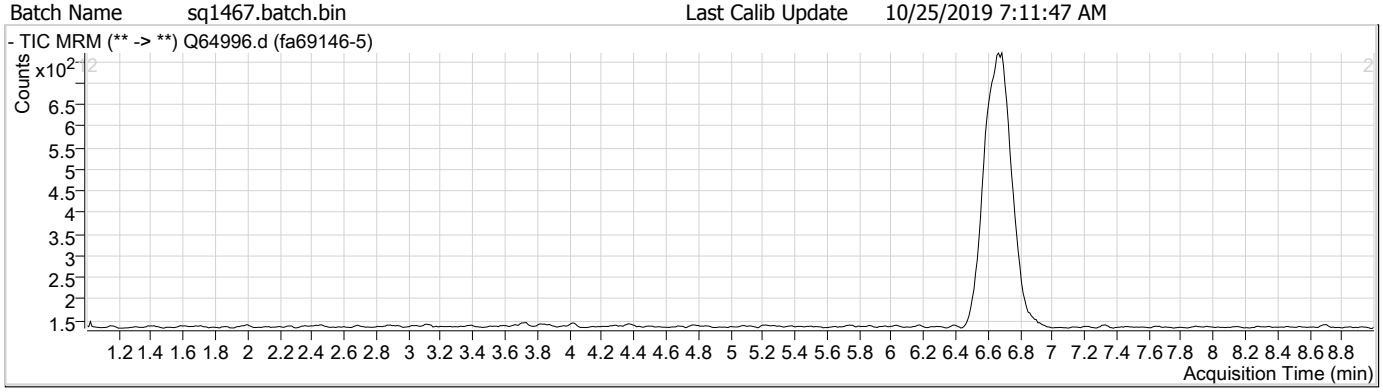






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q64996.d	Operator	natashag
Acq. Method	Perchlorate2.m	Acq. Date-Time	10/24/2019 3:37:21 PM
Sample Name	fa69146-5	Instrument	LCMS1-Q
Vial	Vial 22	Multiplier	1.00
DA Method File	6850_1024_SQ1467.quantmethod.xml		OP77429,SQ1467,10,,,10,1,water
Batch Name	sq1467.batch.bin	Last Calib Update	10/25/2019 7:11:47 AM

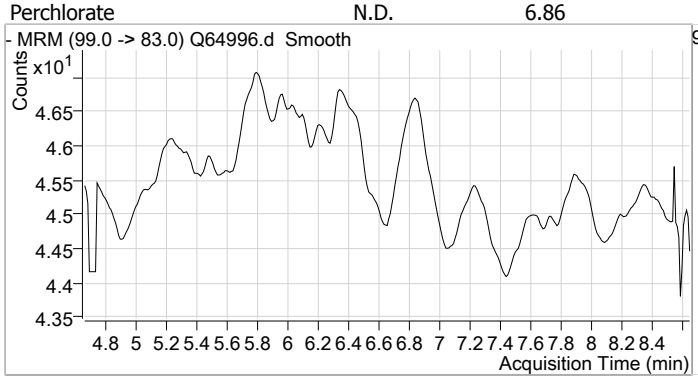


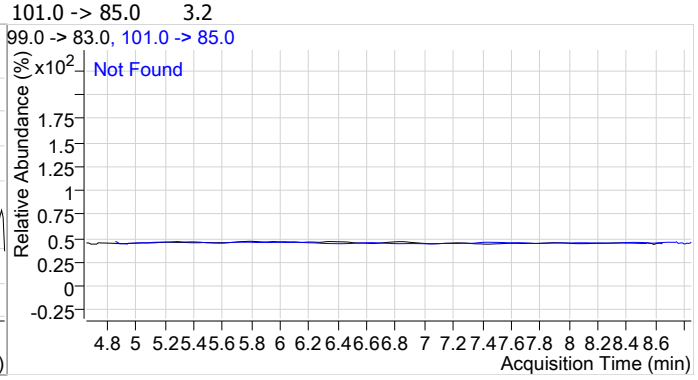
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.665	107.0 -> 89.0	7607	NoQ	5.00	µg/L	-0.204
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	-	99.0 -> 83.0		-	N.D.		

(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

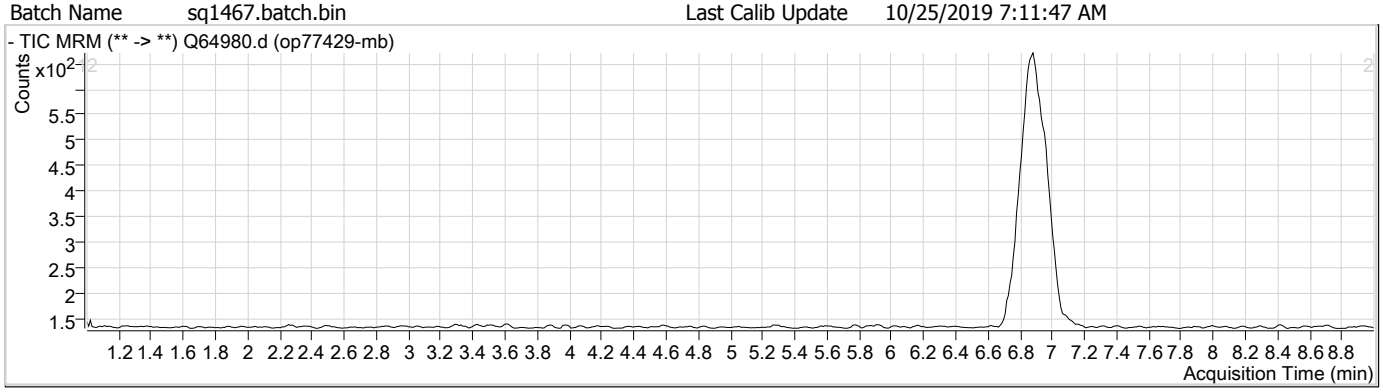
Compound	Conc.	Exp RT	QIon	Exp Ratio
Perchlorate	N.D.	6.86	101.0 -> 85.0	3.2





Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q64980.d	Operator	natashag
Acq. Method	Perchlorate2.m	Acq. Date-Time	10/24/2019 12:56:40 PM
Sample Name	op77429-mb	Instrument	LCMS1-Q
Vial	Vial 13	Multiplier	1.00
DA Method File	6850_1024_SQ1467.quantmethod.xml		OP77429,SQ1467,10,,,10,1,water
Batch Name	sq1467.batch.bin	Last Calib Update	10/25/2019 7:11:47 AM

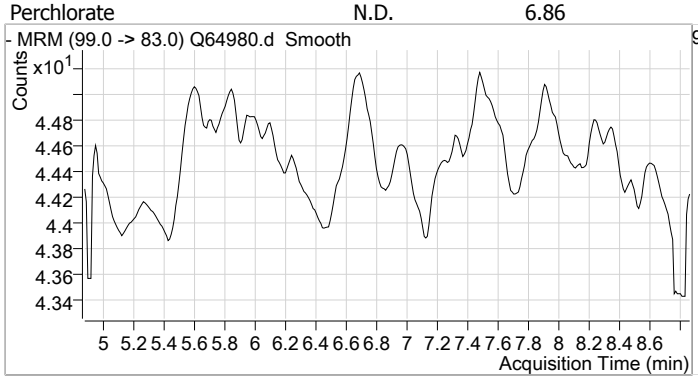


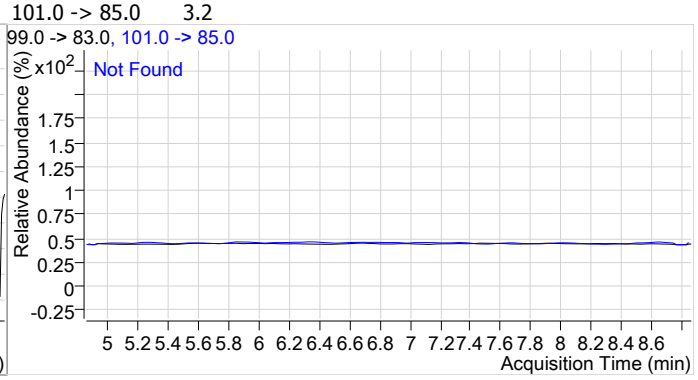
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.879	107.0 -> 89.0	6226	NoQ	5.00	µg/L	0.010
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	-	99.0 -> 83.0		-	N.D.		

(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

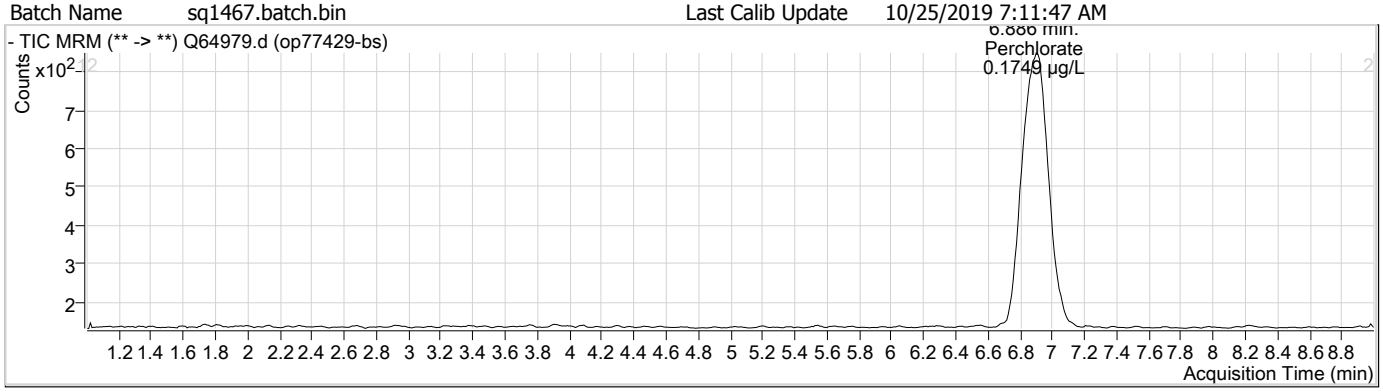
Compound	Conc.	Exp RT	QIon	Exp Ratio
Perchlorate	N.D.	6.86	101.0 -> 85.0	3.2





Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q64979.d	Operator	natashag
Acq. Method	Perchlorate2.m	Acq. Date-Time	10/24/2019 12:46:45 PM
Sample Name	op77429-bs	Instrument	LCMS1-Q
Vial	Vial 12	Multiplier	1.00
DA Method File	6850_1024_SQ1467.quantmethod.xml		OP77429,SQ1467,10,,,10,1,water
Batch Name	sq1467.batch.bin	Last Calib Update	10/25/2019 7:11:47 AM

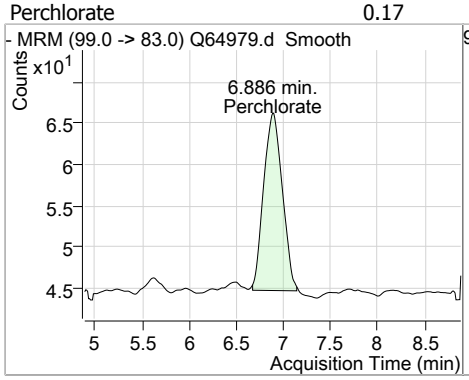


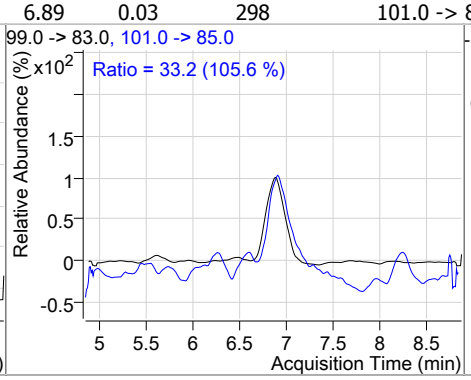
Compound	RT	QIon	Resp.	Q-ratio	Conc. Units	Dev(Min)
Internal Standards						
Cl18O4	6.899	107.0 -> 89.0	7759	NoQ	5.00 µg/L	0.031
System Monitoring Compounds						
Target Compounds						QValue
Perchlorate	6.886	99.0 -> 83.0	298	3.0	0.17 µg/L	97

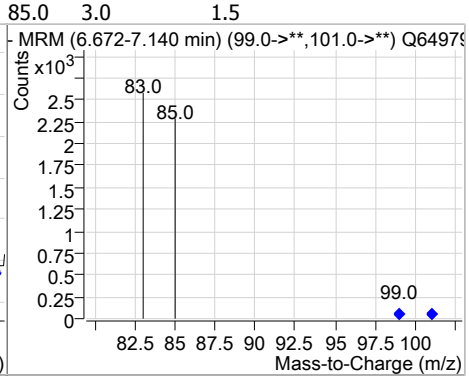
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.17	6.89	0.03	298	101.0 -> 85.0	3.0	1.5	

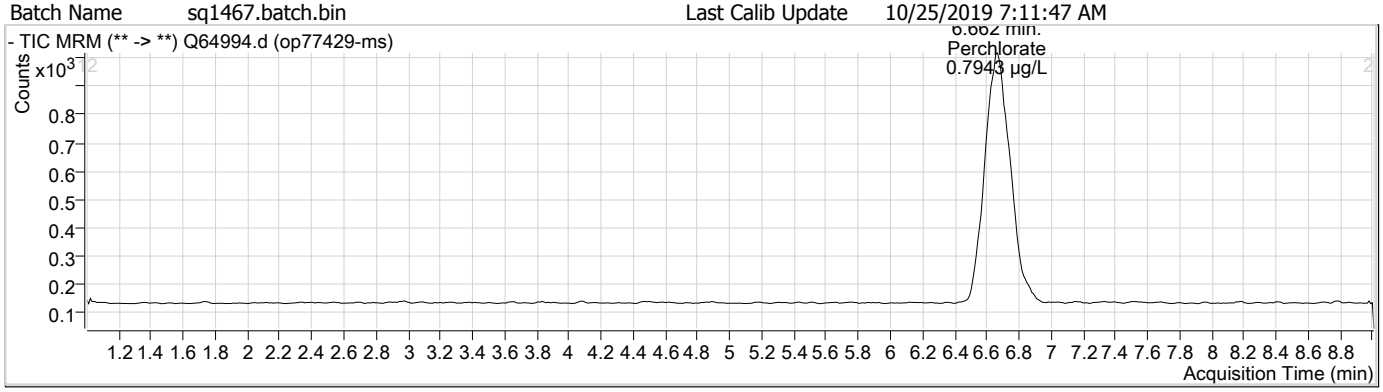






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q64994.d	Operator	natashag
Acq. Method	Perchlorate2.m	Acq. Date-Time	10/24/2019 3:17:34 PM
Sample Name	op77429-ms	Instrument	LCMS1-Q
Vial	Vial 20	Multiplier	1.00
DA Method File	6850_1024_SQ1467.quantmethod.xml		OP77429,SQ1467,10,,,10,1,water
Batch Name	sq1467.batch.bin	Last Calib Update	10/25/2019 7:11:47 AM

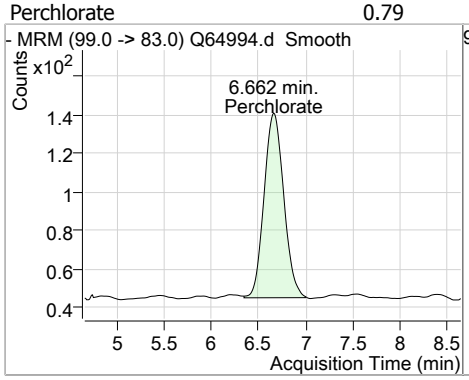


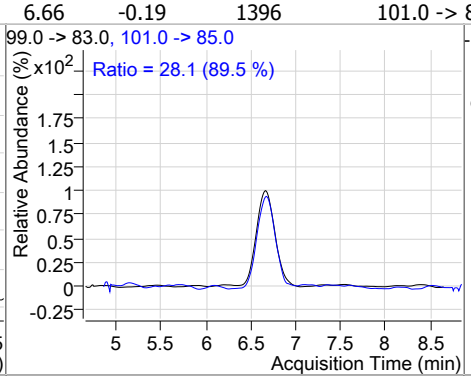
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.665	107.0 -> 89.0	7981	NoQ	5.00	µg/L	-0.204
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.662	99.0 -> 83.0	1396	3.6	0.79	µg/L	94

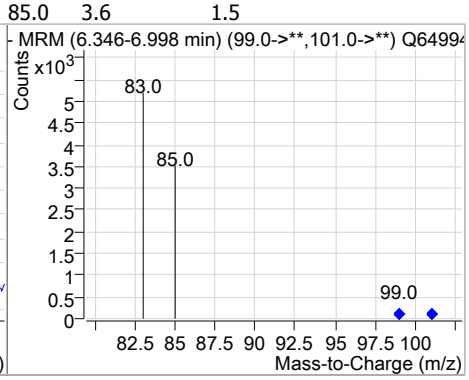
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.79	6.66	-0.19	1396	101.0 -> 85.0	3.6	1.5	

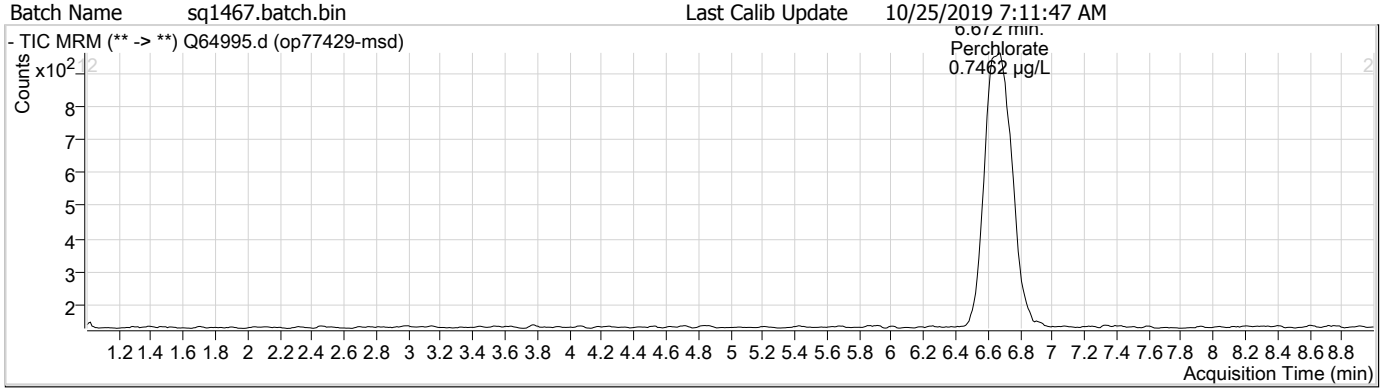






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q64995.d	Operator	natashag
Acq. Method	Perchlorate2.m	Acq. Date-Time	10/24/2019 3:27:27 PM
Sample Name	op77429-msd	Instrument	LCMS1-Q
Vial	Vial 21	Multiplier	1.00
DA Method File	6850_1024_SQ1467.quantmethod.xml		OP77429,SQ1467,10,,,10,1,water
Batch Name	sq1467.batch.bin	Last Calib Update	10/25/2019 7:11:47 AM

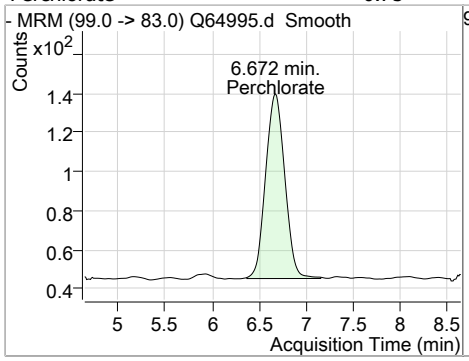


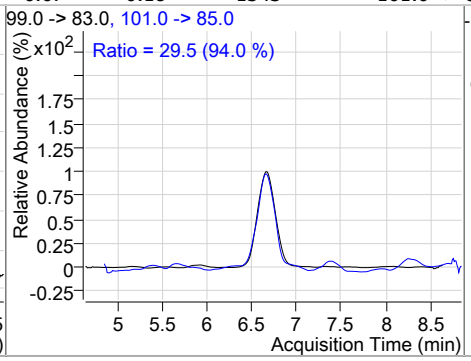
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.655	107.0 -> 89.0	8173	NoQ	5.00	µg/L	-0.214
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.672	99.0 -> 83.0	1343	3.4	0.75	µg/L	97

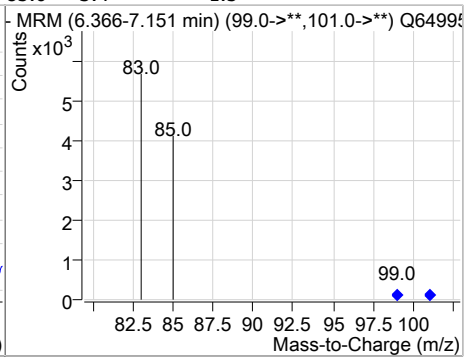
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.75	6.67	-0.18	1343	101.0 -> 85.0	3.4	1.5	



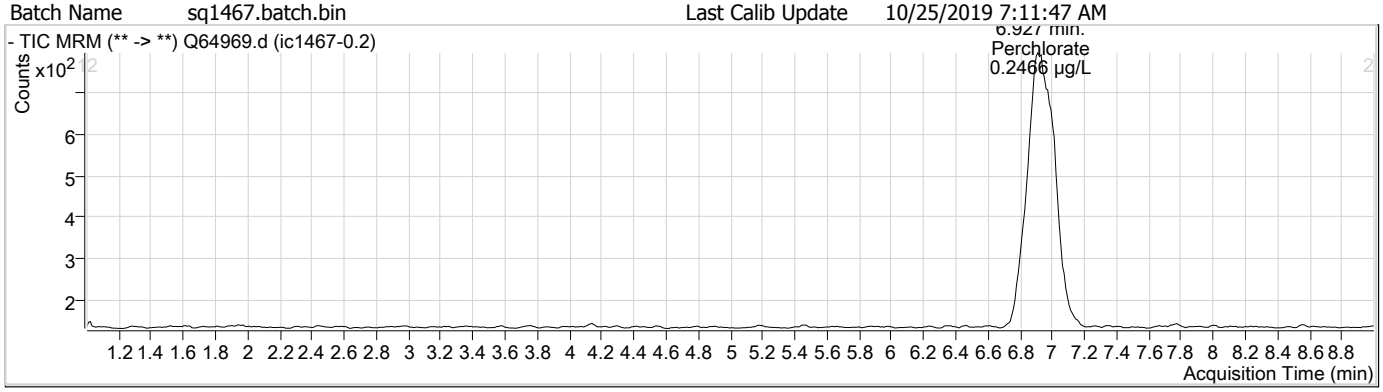




Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
10/25/19 11:00

Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q64969.d	Operator	natashag
Acq. Method	Perchlorate2.m	Acq. Date-Time	10/24/2019 11:00:39 AM
Sample Name	ic1467-0.2	Instrument	LCMS1-Q
Vial	Vial 2	Multiplier	1.00
DA Method File	6850_1024_SQ1467.quantmethod.xml		OP77294,SQ1467,10,,,10,1,water
Batch Name	sq1467.batch.bin	Last Calib Update	10/25/2019 7:11:47 AM

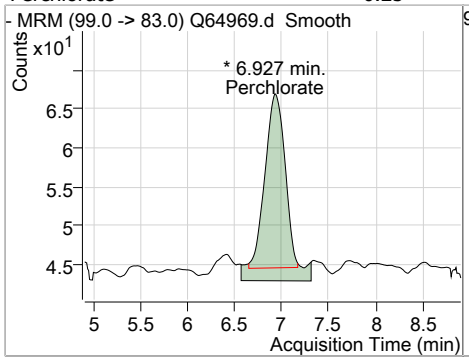


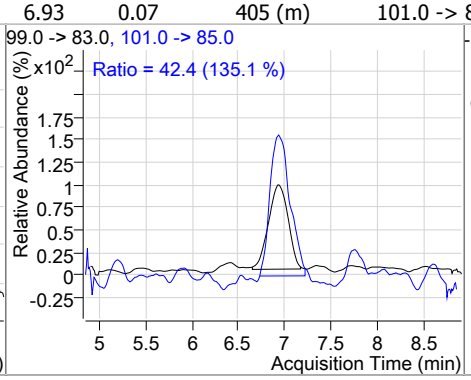
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units		Dev(Min)
Internal Standards								
Cl18O4	6.920	107.0 -> 89.0	7485	NoQ	5.00	µg/L		0.051
System Monitoring Compounds								
Target Compounds								QValue
Perchlorate	6.927	99.0 -> 83.0	405	2.4	0.25	µg/L	m	80

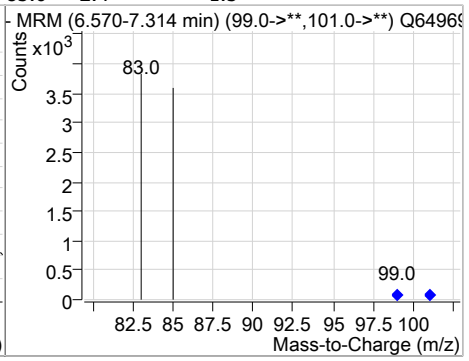
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.25	6.93	0.07	405 (m)	101.0 -> 85.0	2.4	1.5	







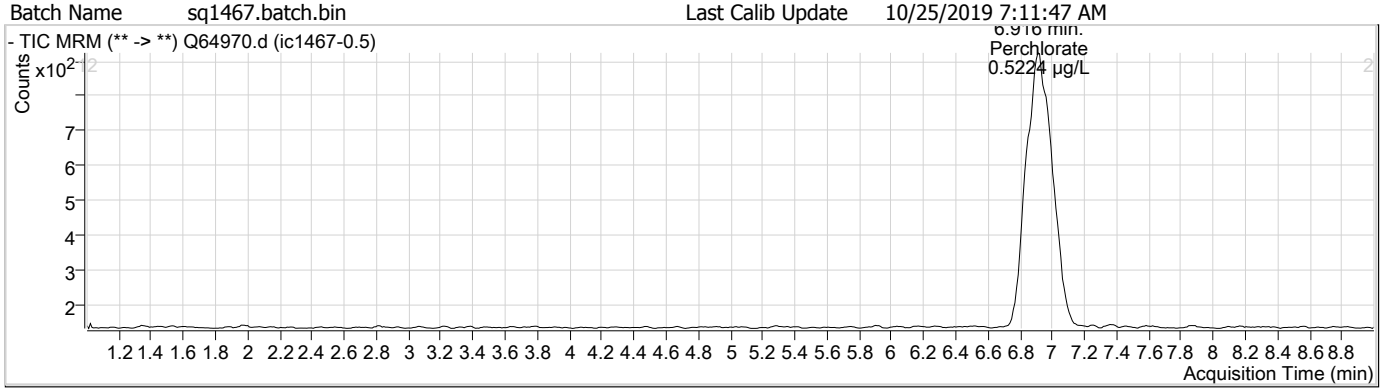
Manual Integration Approval Summary

Sample Number:	SQ1467-IC1467	**Method:**	SW846 6850
Lab FileID:	Q64969.D	**Analyst approved:**	10/25/19 07:30 Natasha Gumtie
Injection Time:	10/24/19 11:00	**Supervisor approved:**	10/25/19 11:00 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
Perchlorate	14797-73-0		6.93	Poorly defined baseline

Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q64970.d	Operator	natashag
Acq. Method	Perchlorate2.m	Acq. Date-Time	10/24/2019 11:10:34 AM
Sample Name	ic1467-0.5	Instrument	LCMS1-Q
Vial	Vial 3	Multiplier	1.00
DA Method File	6850_1024_SQ1467.quantmethod.xml		OP77294,SQ1467,10,,,10,1,water
Batch Name	sq1467.batch.bin	Last Calib Update	10/25/2019 7:11:47 AM

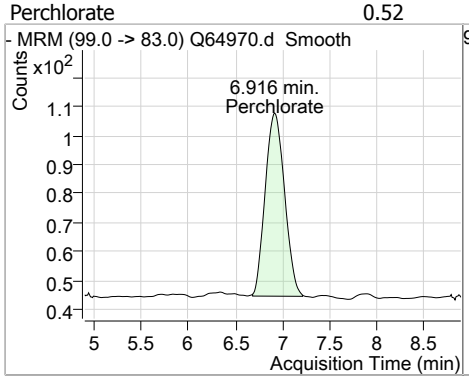


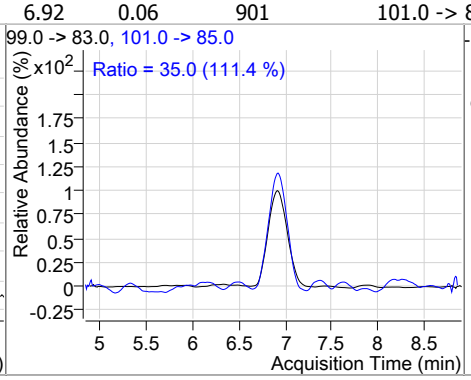
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.910	107.0 -> 89.0	7837	NoQ	5.00	µg/L	0.041
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.916	99.0 -> 83.0	901	2.9	0.52	µg/L	94

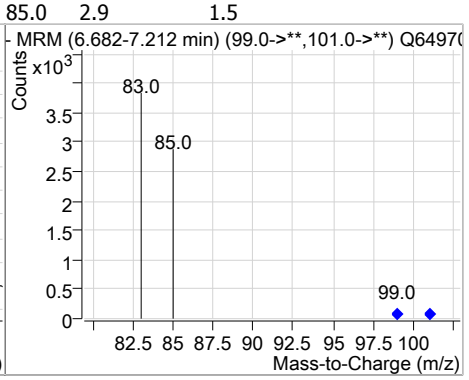
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.52	6.92	0.06	901	101.0 -> 85.0	2.9	1.5	

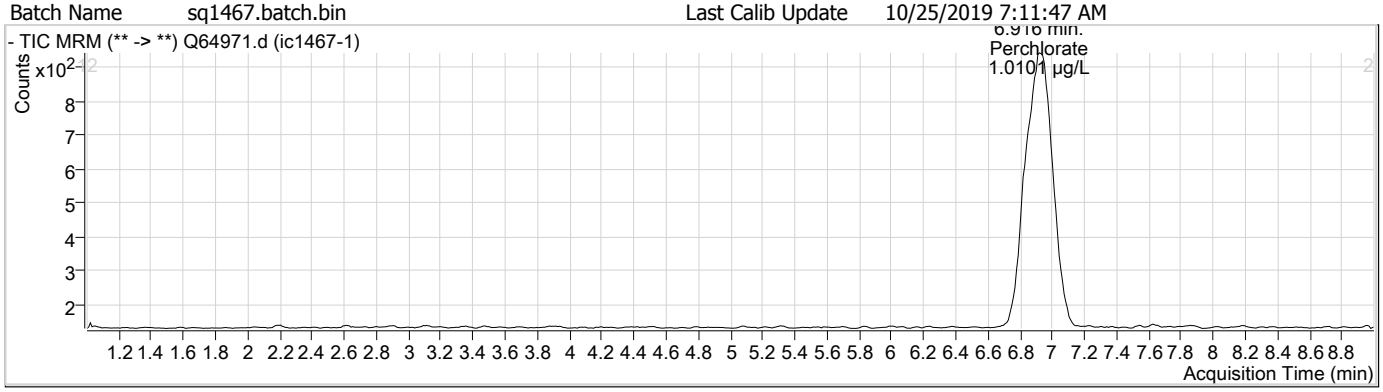






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q64971.d	Operator	natashag
Acq. Method	Perchlorate2.m	Acq. Date-Time	10/24/2019 11:20:27 AM
Sample Name	ic1467-1	Instrument	LCMS1-Q
Vial	Vial 4	Multiplier	1.00
DA Method File	6850_1024_SQ1467.quantmethod.xml		OP77294,SQ1467,10,,,10,1,water
Batch Name	sq1467.batch.bin	Last Calib Update	10/25/2019 7:11:47 AM

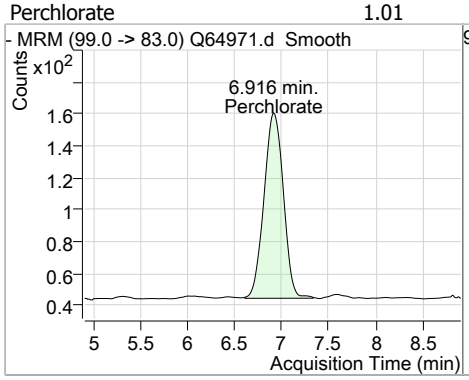


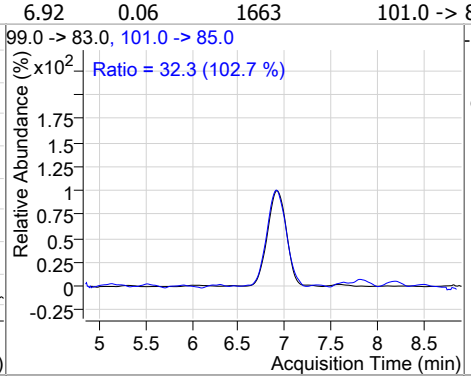
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.920	107.0 -> 89.0	7468	NoQ	5.00	µg/L	0.051
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.916	99.0 -> 83.0	1663	3.1	1.01	µg/L	98

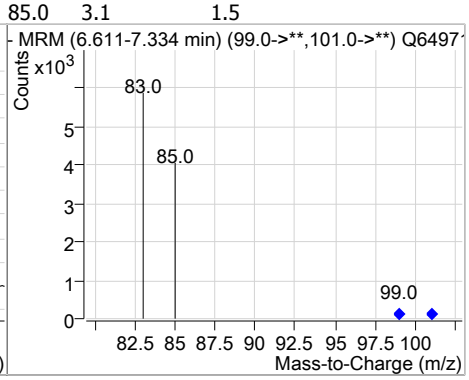
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	1.01	6.92	0.06	1663	101.0 -> 85.0	3.1	1.5	

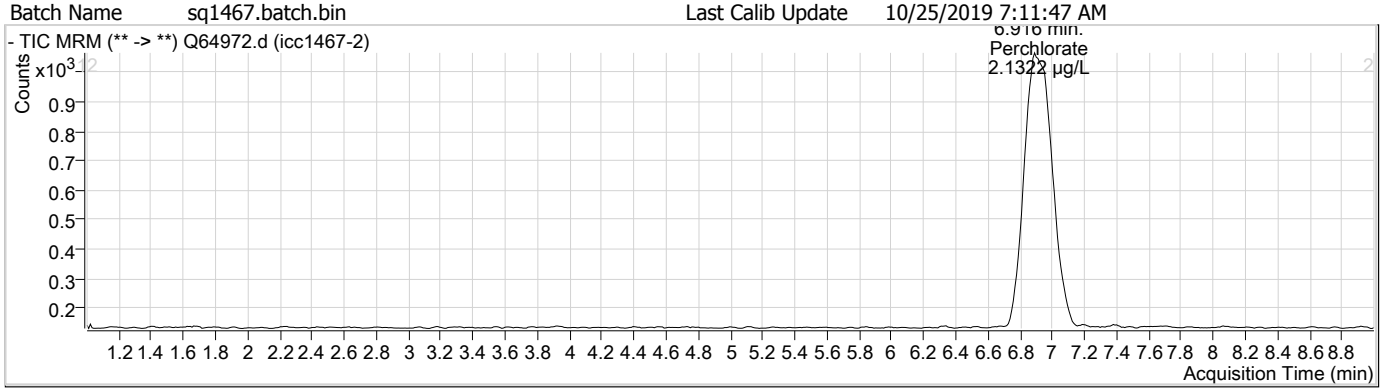






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q64972.d	Operator	natashag
Acq. Method	Perchlorate2.m	Acq. Date-Time	10/24/2019 11:30:21 AM
Sample Name	icc1467-2	Instrument	LCMS1-Q
Vial	Vial 5	Multiplier	1.00
DA Method File	6850_1024_SQ1467.quantmethod.xml		OP77294,SQ1467,10,,,10,1,water
Batch Name	sq1467.batch.bin	Last Calib Update	10/25/2019 7:11:47 AM

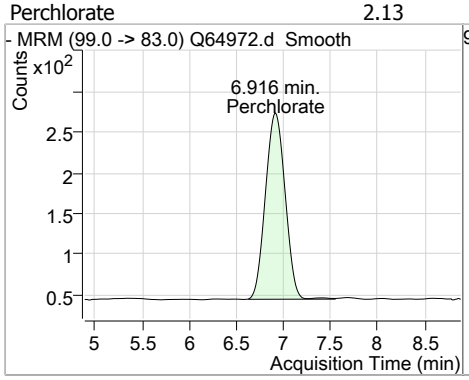


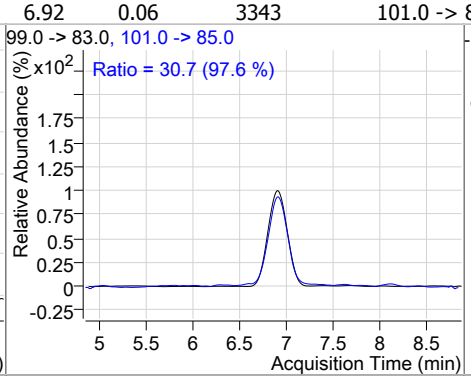
Compound	RT	QIon	Resp.	Q-ratio	Conc. Units	Dev(Min)
Internal Standards						
Cl18O4	6.899	107.0 -> 89.0	7072	NoQ	5.00 µg/L	0.031
System Monitoring Compounds						
Target Compounds						**QValue**
Perchlorate	6.916	99.0 -> 83.0	3343	3.3	2.13 µg/L	99

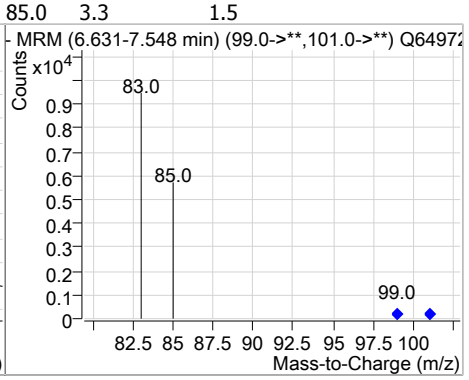
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	2.13	6.92	0.06	3343	101.0 -> 85.0	3.3	1.5	

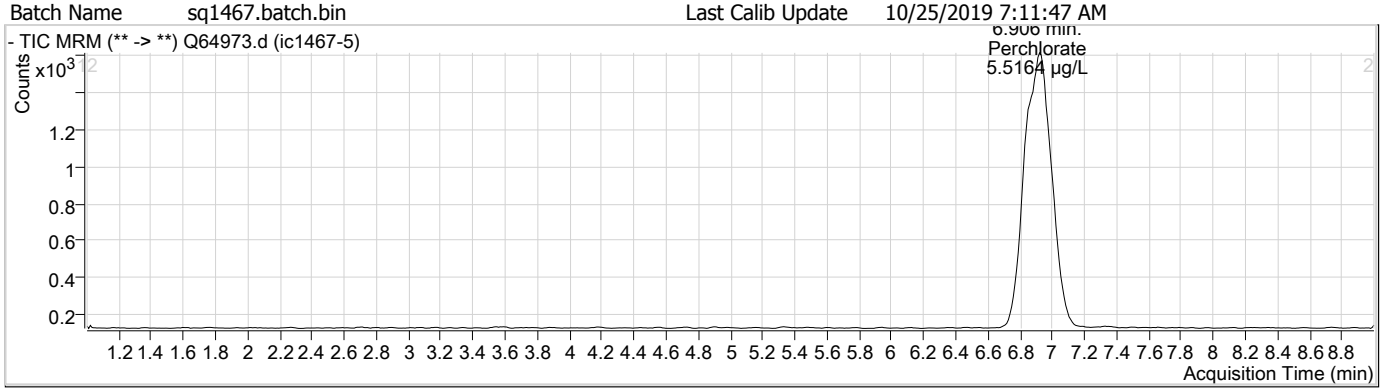






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q64973.d	Operator	natashag
Acq. Method	Perchlorate2.m	Acq. Date-Time	10/24/2019 11:40:17 AM
Sample Name	ic1467-5	Instrument	LCMS1-Q
Vial	Vial 6	Multiplier	1.00
DA Method File	6850_1024_SQ1467.quantmethod.xml		OP77294,SQ1467,10,,,10,1,water
Batch Name	sq1467.batch.bin	Last Calib Update	10/25/2019 7:11:47 AM

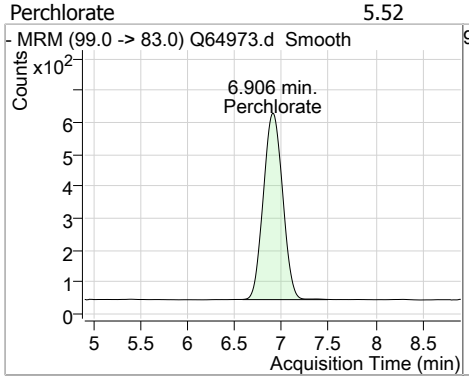


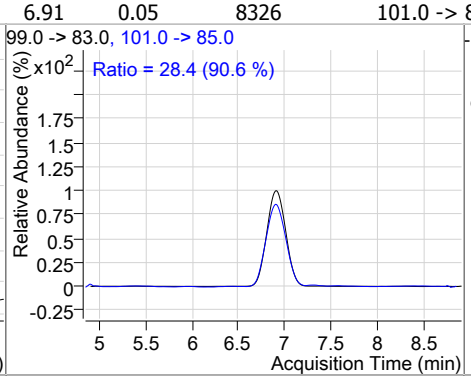
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.920	107.0 -> 89.0	6696	NoQ	5.00	µg/L	0.051
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.906	99.0 -> 83.0	8326	3.5	5.52	µg/L	95

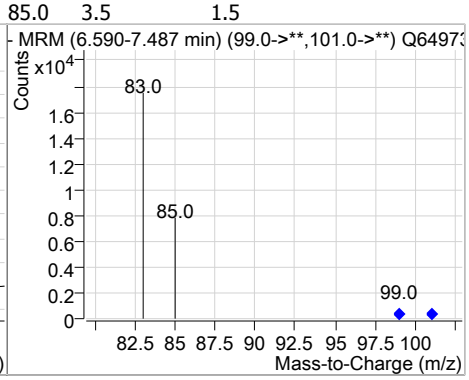
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	5.52	6.91	0.05	8326	101.0 -> 85.0	3.5	1.5	

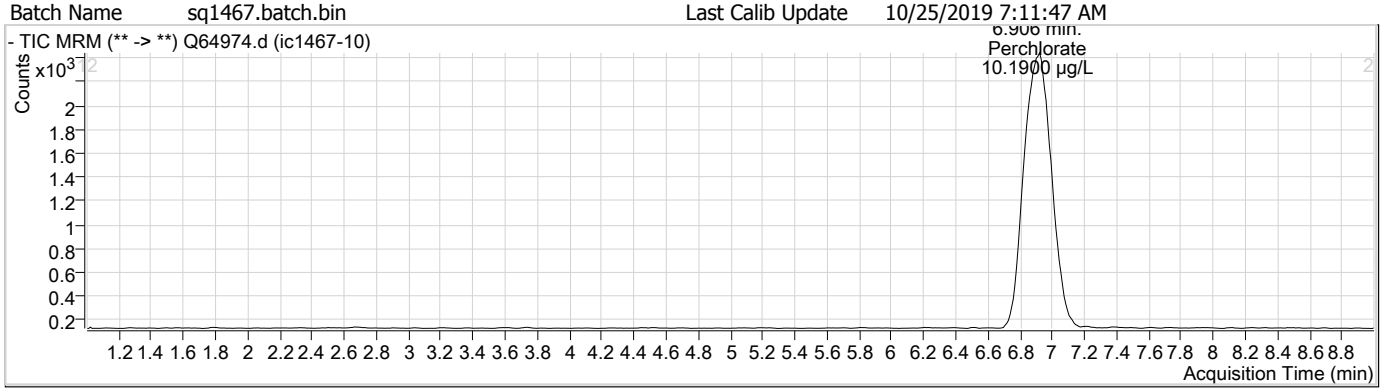






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q64974.d	Operator	natashag
Acq. Method	Perchlorate2.m	Acq. Date-Time	10/24/2019 11:50:11 AM
Sample Name	ic1467-10	Instrument	LCMS1-Q
Vial	Vial 7	Multiplier	1.00
DA Method File	6850_1024_SQ1467.quantmethod.xml		OP77294,SQ1467,10,,,10,1,water
Batch Name	sq1467.batch.bin	Last Calib Update	10/25/2019 7:11:47 AM

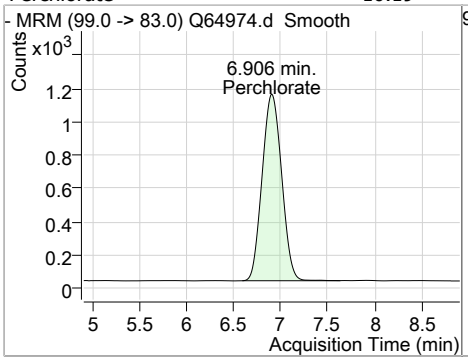


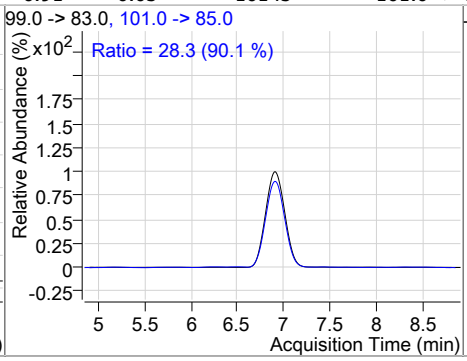
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.920	107.0 -> 89.0	6875	NoQ	5.00	µg/L	0.051
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.906	99.0 -> 83.0	16145	3.5	10.19	µg/L	94

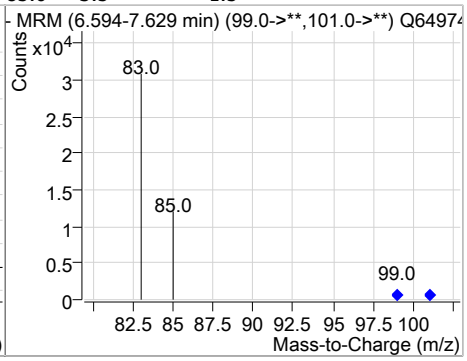
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	10.19	6.91	0.05	16145	101.0 -> 85.0	3.5	1.5	

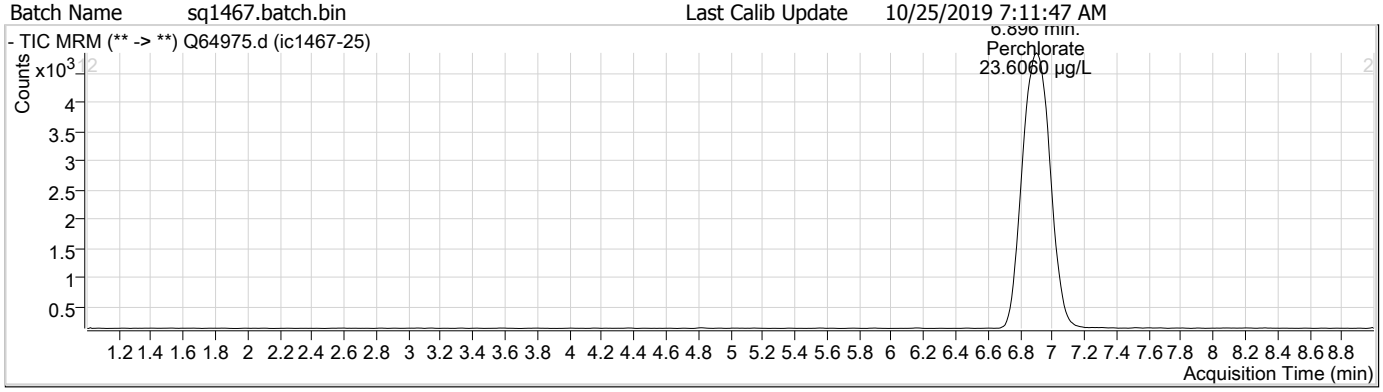






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q64975.d	Operator	natashag
Acq. Method	Perchlorate2.m	Acq. Date-Time	10/24/2019 12:00:06 PM
Sample Name	ic1467-25	Instrument	LCMS1-Q
Vial	Vial 8	Multiplier	1.00
DA Method File	6850_1024_SQ1467.quantmethod.xml		OP77294,SQ1467,10,,,10,1,water
Batch Name	sq1467.batch.bin	Last Calib Update	10/25/2019 7:11:47 AM

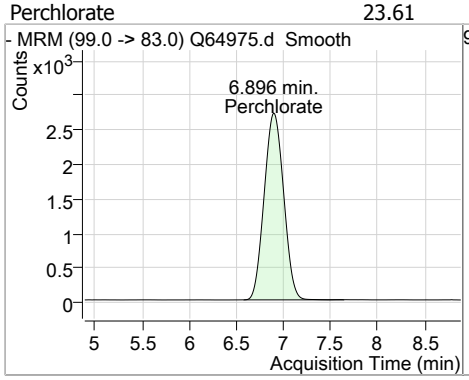


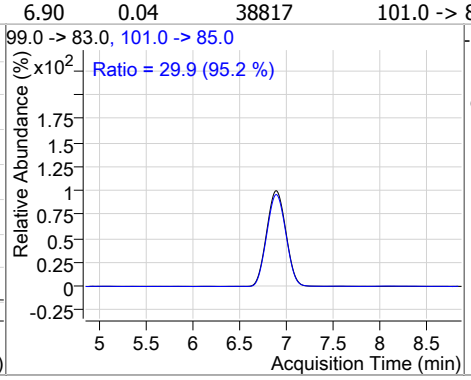
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.899	107.0 -> 89.0	6712	NoQ	5.00	µg/L	0.031
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.896	99.0 -> 83.0	38817	3.3	23.61	µg/L	97

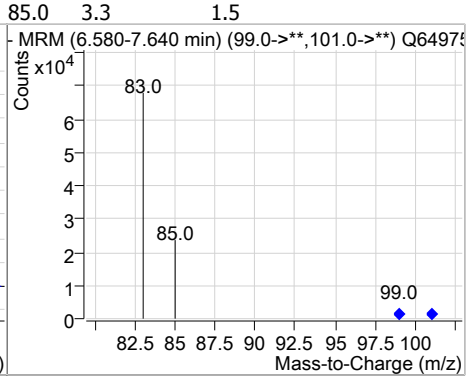
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	23.61	6.90	0.04	38817	101.0 -> 85.0	3.3	1.5	

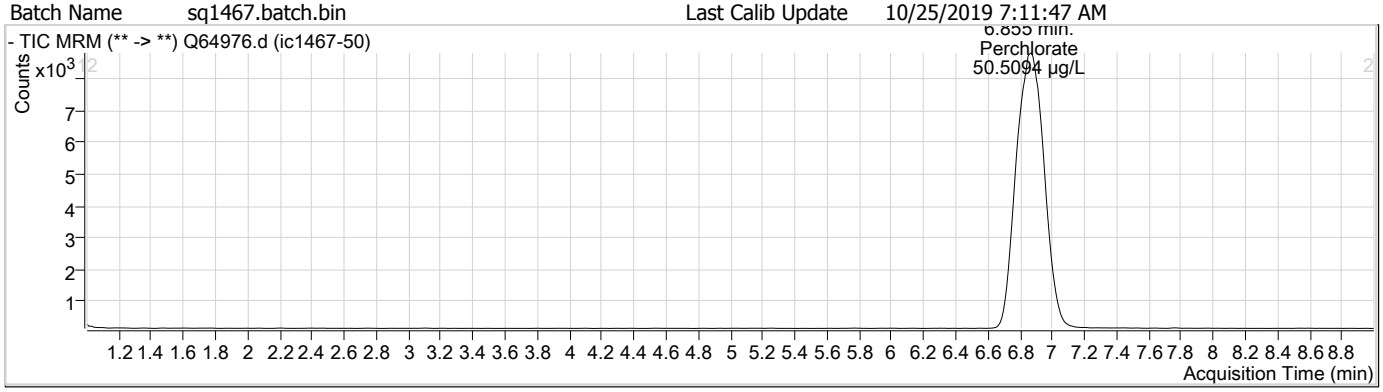






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q64976.d	Operator	natashag
Acq. Method	Perchlorate2.m	Acq. Date-Time	10/24/2019 12:17:02 PM
Sample Name	ic1467-50	Instrument	LCMS1-Q
Vial	Vial 9	Multiplier	1.00
DA Method File	6850_1024_SQ1467.quantmethod.xml		OP77294,SQ1467,10,,,10,1,water
Batch Name	sq1467.batch.bin	Last Calib Update	10/25/2019 7:11:47 AM

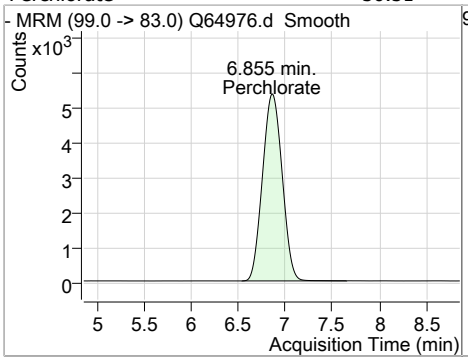


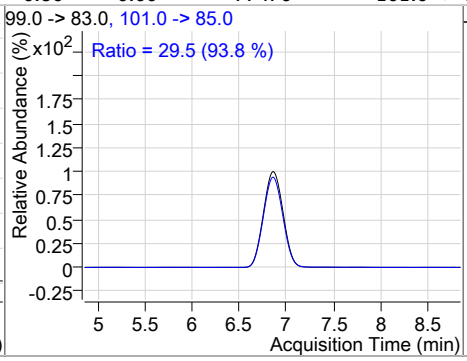
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.869	107.0 -> 89.0	5595	NoQ	5.00	µg/L	0.000
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.855	99.0 -> 83.0	77476	3.4	50.51	µg/L	96

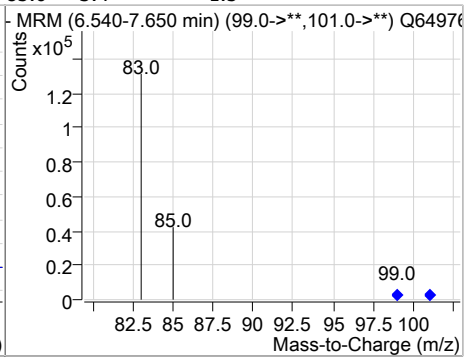
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	50.51	6.86	0.00	77476	101.0 -> 85.0	3.4	1.5	

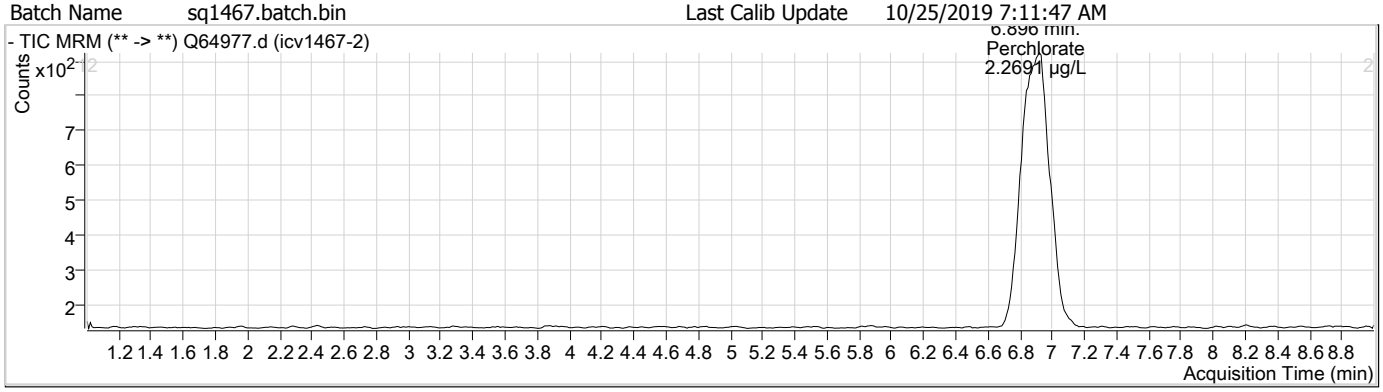






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q64977.d	Operator	natashag
Acq. Method	Perchlorate2.m	Acq. Date-Time	10/24/2019 12:26:57 PM
Sample Name	icv1467-2	Instrument	LCMS1-Q
Vial	Vial 10	Multiplier	1.00
DA Method File	6850_1024_SQ1467.quantmethod.xml		OP77294,SQ1467,10,,,10,1,water
Batch Name	sq1467.batch.bin	Last Calib Update	10/25/2019 7:11:47 AM

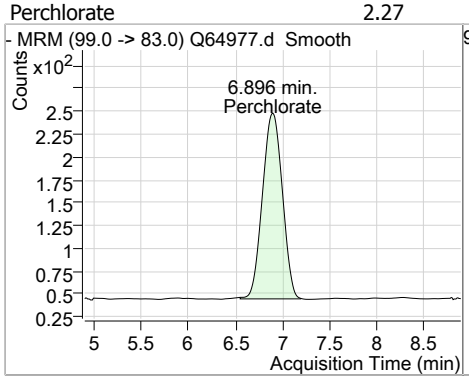


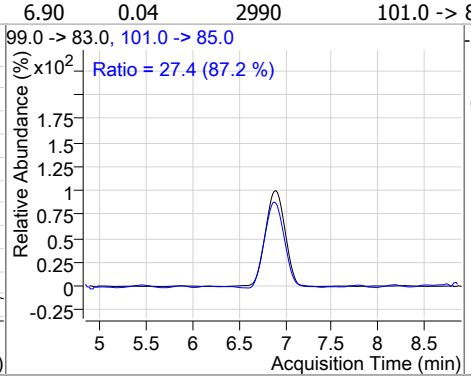
Compound	RT	QIon	Resp.	Q-ratio	Conc. Units	Dev(Min)
Internal Standards						
Cl18O4	6.910	107.0 -> 89.0	5938	NoQ	5.00 µg/L	0.041
System Monitoring Compounds						
Target Compounds						QValue
Perchlorate	6.896	99.0 -> 83.0	2990	3.7	2.27 µg/L	93

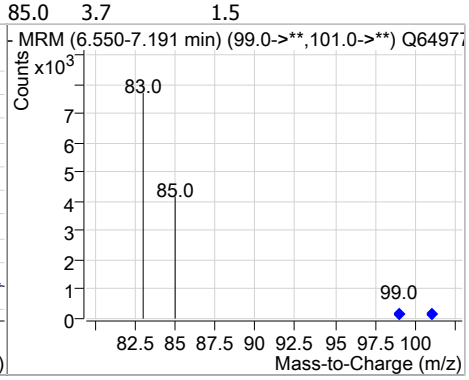
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	2.27	6.90	0.04	2990	101.0 -> 85.0	3.7	1.5	

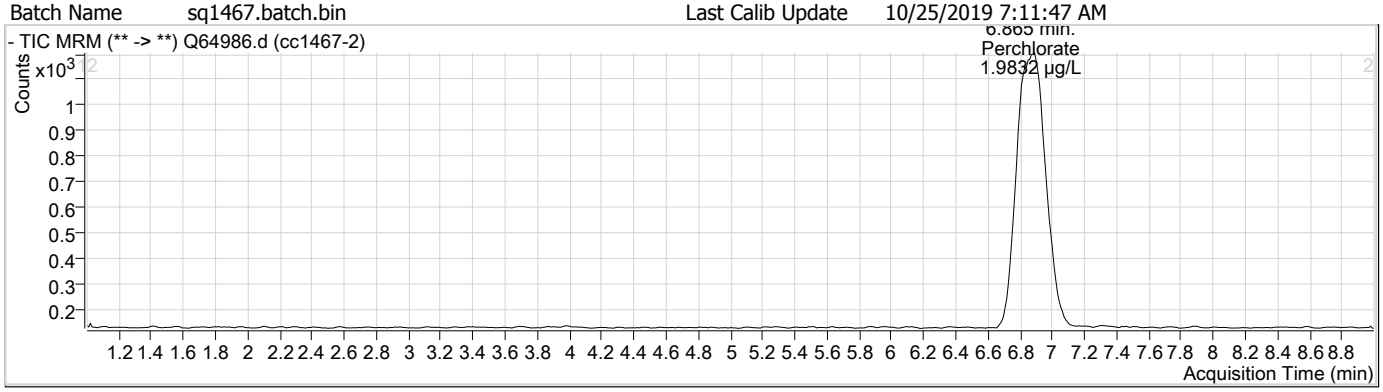






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q64986.d	Operator	natashag
Acq. Method	Perchlorate2.m	Acq. Date-Time	10/24/2019 1:56:45 PM
Sample Name	cc1467-2	Instrument	LCMS1-Q
Vial	Vial 5	Multiplier	1.00
DA Method File	6850_1024_SQ1467.quantmethod.xml		OP77429,SQ1467,10,,,10,1,water
Batch Name	sq1467.batch.bin	Last Calib Update	10/25/2019 7:11:47 AM

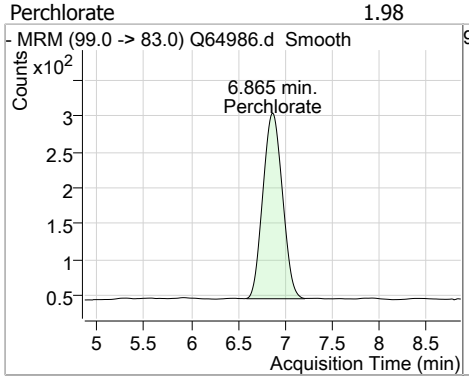


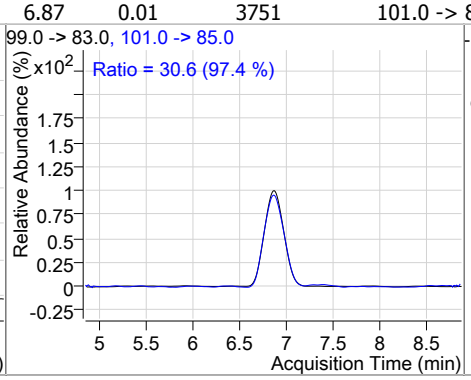
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.879	107.0 -> 89.0	8536	NoQ	5.00	µg/L	0.010
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.865	99.0 -> 83.0	3751	3.3	1.98	µg/L	99

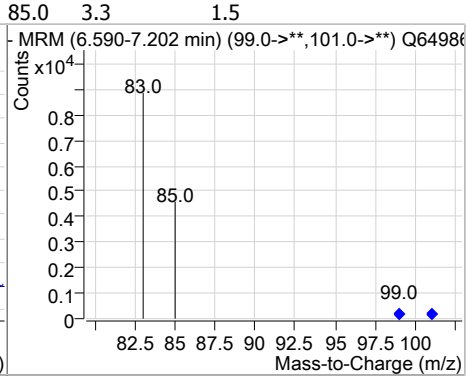
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	1.98	6.87	0.01	3751	101.0 -> 85.0	3.3	1.5	

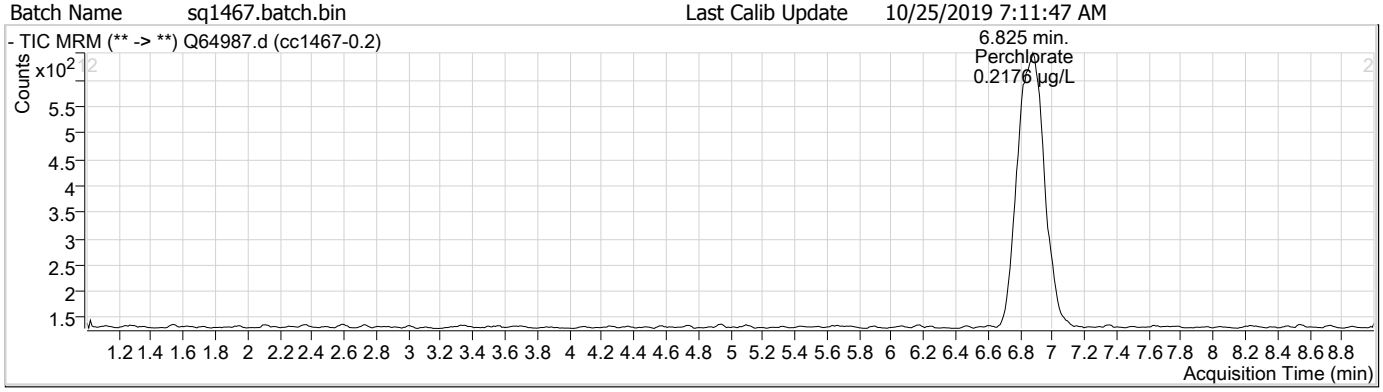






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q64987.d	Operator	natashag
Acq. Method	Perchlorate2.m	Acq. Date-Time	10/24/2019 2:06:40 PM
Sample Name	cc1467-0.2	Instrument	LCMS1-Q
Vial	Vial 2	Multiplier	1.00
DA Method File	6850_1024_SQ1467.quantmethod.xml		OP77429,SQ1467,10,,,10,1,water
Batch Name	sq1467.batch.bin	Last Calib Update	10/25/2019 7:11:47 AM

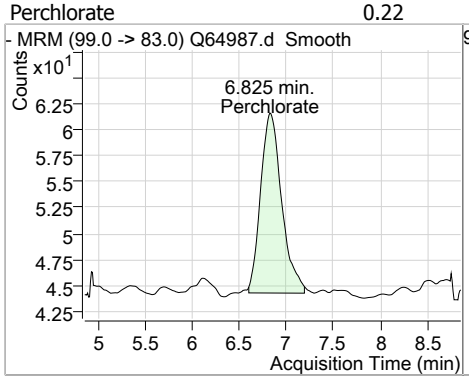


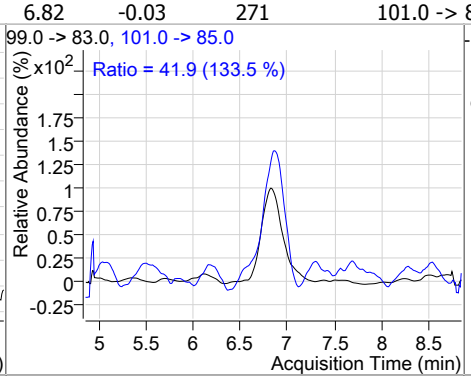
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.869	107.0 -> 89.0	5680	NoQ	5.00	µg/L	0.000
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.825	99.0 -> 83.0	271	2.4	0.22	µg/L	81

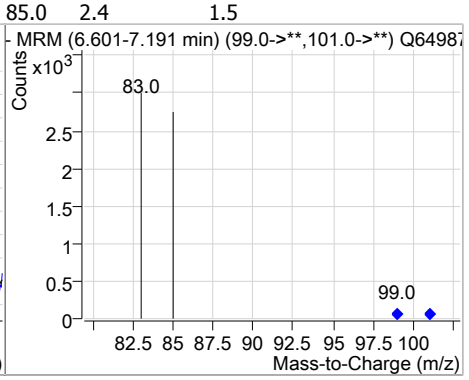
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	0.22	6.82	-0.03	271	101.0 -> 85.0	2.4	1.5	

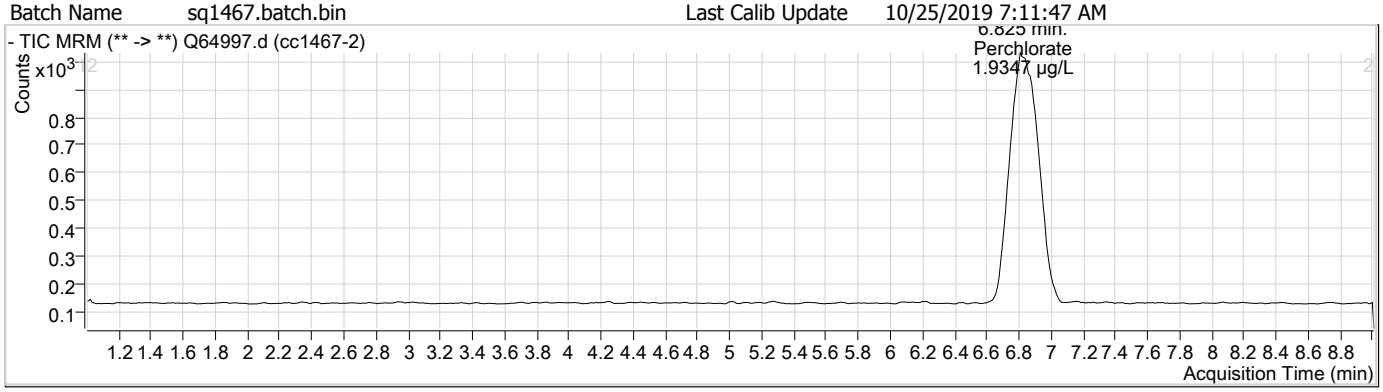






Quantitative Analysis Report for Perchlorate by 6850

Data File	: Q64997.d	Operator	natashag
Acq. Method	Perchlorate2.m	Acq. Date-Time	10/24/2019 3:47:16 PM
Sample Name	cc1467-2	Instrument	LCMS1-Q
Vial	Vial 5	Multiplier	1.00
DA Method File	6850_1024_SQ1467.quantmethod.xml		OP77429,SQ1467,10,,,10,1,water
Batch Name	sq1467.batch.bin	Last Calib Update	10/25/2019 7:11:47 AM

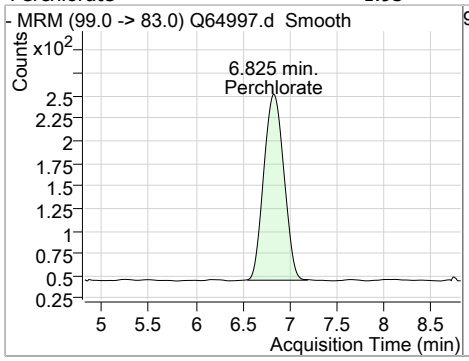


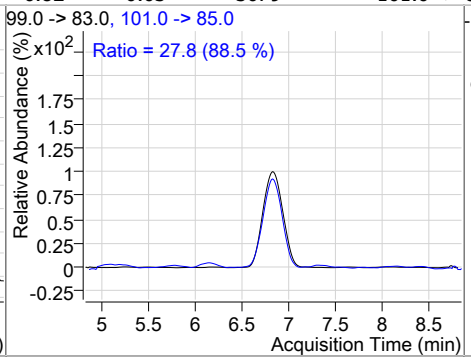
Compound	RT	QIon	Resp.	Q-ratio	Conc.	Units	Dev(Min)
Internal Standards							
Cl18O4	6.828	107.0 -> 89.0	7185	NoQ	5.00	µg/L	-0.041
System Monitoring Compounds							
Target Compounds							QValue
Perchlorate	6.825	99.0 -> 83.0	3079	3.6	1.93	µg/L	93

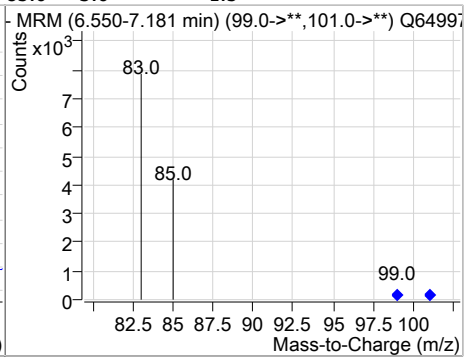
(#) = Qualifier Out of Range; (m) = Manual Integration; (+) = Area Summed; (*) = Surrogate Percent Recovery Out of Range; (d): Zeroed Peak

Quantitative Analysis Report for Perchlorate by 6850

Compound	Conc.	RT	Dev(Min)	Resp.	QIon	QRatio	Min.	Max.
Perchlorate	1.93	6.82	-0.03	3079	101.0 -> 85.0	3.6	1.5	







SGS ORLANDO

LCMS1-Q ANALYSIS LOG

DATE:	10/24/19
COLUMN TYPE:	Poroshell EC18
AMOUNT INJ:	4 ul
INSTRUMENT:	LCMS1-Q

METHODS:	6850_PERCHLORATE
PROC. METH:	6850_1024_SQ1467
CAL DATE:	10/24/19
ANALYST:	NG
RUN BATCH:	SQ1467

ELUENT A LOT #:	194315 W/0.1% AA
ELUENT B LOT #:	191823 W/0.1% AA
IC/CC STD LOT #:	LCMS1278
ICV STD LOT #:	LCMS1279
ISTD/ID STD LOT #:	9603

	Data File	Sample	Sample Name	Method	Sample Type	Level	Misc. Info	Comments
1	Q64963.d	Vial 1	ccb	Perchlorate2.m	Sample		OP77294,SQ1467,10,,,10,1,water	Re-calibrate, low istd
2	Q64964.d	Vial 11	ICS	Perchlorate2.m	Sample		OP77294,SQ1467,10,,,10,1,water	Re-calibrate, low istd
3	Q64965.d	Vial 11	ICS	Perchlorate2.m	Sample		OP77294,SQ1467,10,,,10,1,water	Re-calibrate, low istd
4	Q64966.d	Vial 1	ccb	Perchlorate2.m	Sample		OP77294,SQ1467,10,,,10,1,water	Re-calibrate, low istd
5	Q64967.d	Vial 1	ccb	Perchlorate2.m	Sample		OP77294,SQ1467,10,,,10,1,water	Re-calibrate, low istd
6	Q64968.d	Vial 1	ccb	Perchlorate2.m	Sample		OP77294,SQ1467,10,,,10,1,water	Re-calibrate, low istd
7	Q64969.d	Vial 2	ic1467-0.2	Perchlorate2.m	Calibration	.02/10	OP77294,SQ1467,10,,,10,1,water	Updated
8	Q64970.d	Vial 3	ic1467-0.5	Perchlorate2.m	Calibration	.05/10	OP77294,SQ1467,10,,,10,1,water	Updated
9	Q64971.d	Vial 4	ic1467-1	Perchlorate2.m	Calibration	0.1/10	OP77294,SQ1467,10,,,10,1,water	Updated
10	Q64972.d	Vial 5	icc1467-2	Perchlorate2.m	Calibration	0.2/10	OP77294,SQ1467,10,,,10,1,water	Updated
11	Q64973.d	Vial 6	ic1467-5	Perchlorate2.m	Calibration	0.5/10	OP77294,SQ1467,10,,,10,1,water	Updated
12	Q64974.d	Vial 7	ic1467-10	Perchlorate2.m	Calibration	1.0/10	OP77294,SQ1467,10,,,10,1,water	Updated
13	Q64975.d	Vial 8	ic1467-25	Perchlorate2.m	Calibration	2.5/10	OP77294,SQ1467,10,,,10,1,water	Updated
14	Q64976.d	Vial 9	ic1467-50	Perchlorate2.m	Calibration	5.0/10	OP77294,SQ1467,10,,,10,1,water	Updated
15	Q64977.d	Vial 10	icv1467-2	Perchlorate2.m	QC	0.2/10	OP77294,SQ1467,10,,,10,1,water	PASS
16	Q64978.d	Vial 11	ics1467-0.2	Perchlorate2.m	Sample		OP77294,SQ1467,10,,,10,1,water	PASS
17	Q64979.d	Vial 12	op77429-bs	Perchlorate2.m	Sample		OP77429,SQ1467,10,,,10,1,water	✓
18	Q64980.d	Vial 13	op77429-mb	Perchlorate2.m	Sample		OP77429,SQ1467,10,,,10,1,water	✓
19	Q64981.d	Vial 14	la58707-1	Perchlorate2.m	Sample		OP77429,SQ1467,10,,,10,1,water	rr 20x
20	Q64982.d	Vial 15	la58708-1	Perchlorate2.m	Sample		OP77429,SQ1467,10,,,10,1,water	rr 20x
21	Q64983.d	Vial 16	fa69146-1	Perchlorate2.m	Sample		OP77429,SQ1467,10,,,10,1,water	✓
22	Q64984.d	Vial 17	fa69146-2	Perchlorate2.m	Sample		OP77429,SQ1467,10,,,10,1,water	✓
23	Q64985.d	Vial 18	fa69146-3	Perchlorate2.m	Sample		OP77429,SQ1467,10,,,10,1,water	✓
24	Q64986.d	Vial 5	cc1467-2	Perchlorate2.m	QC	0.2/10	OP77429,SQ1467,10,,,10,1,water	PASS
25	Q64987.d	Vial 2	cc1467-0.2	Perchlorate2.m	QC	.02/10	OP77429,SQ1467,10,,,10,1,water	PASS
26	Q64988.d	Vial 1	ccb	Perchlorate2.m	Sample		OP77429,SQ1467,10,,,10,1,water	ND
27	Q64989.d	Vial 23	la58707-1	Perchlorate2.m	Sample		OP77429,SQ1467,10,,,10,20,water	rr 100x
28	Q64990.d	Vial 24	la58708-1	Perchlorate2.m	Sample		OP77429,SQ1467,10,,,10,20,water	rr 100x
29	Q64991.d	Vial 19	fa69146-4	Perchlorate2.m	Sample		OP77429,SQ1467,10,,,10,1,water	✓
30	Q64992.d	Vial 25	la58707-1	Perchlorate2.m	Sample		OP77429,SQ1467,10,,,10,100,water	✓
31	Q64993.d	Vial 26	la58708-1	Perchlorate2.m	Sample		OP77429,SQ1467,10,,,10,100,water	✓
32	Q64994.d	Vial 20	op77429-ms	Perchlorate2.m	Sample		OP77429,SQ1467,10,,,10,1,water	✓
33	Q64995.d	Vial 21	op77429-msd	Perchlorate2.m	Sample		OP77429,SQ1467,10,,,10,1,water	✓
34	Q64996.d	Vial 22	fa69146-5	Perchlorate2.m	Sample		OP77429,SQ1467,10,,,10,1,water	✓
35	Q64997.d	Vial 5	cc1467-2	Perchlorate2.m	QC	0.2/10	OP77429,SQ1467,10,,,10,1,water	PASS

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SGS ORLANDO LCMS1-Q ANALYSIS LOG

36	Q64998.d	Vial 2	ecc1467-0.2	Perchlorate2.m	QC	.02/10	OP77429,SQ1467,10,,,10,1,water	PASS
37	Q64999.d	Vial 1	ccb	Perchlorate2.m	Sample		OP77429,SQ1467,10,,,10,1,water	ND

SGS - ORLANDO

LIQUID SAMPLE PREP REPORT

Date/Time: 10/24/19 Started {mm/dd/yy 24:00}

Date/Time: 10/24/19 Finished {mm/dd/yy 24:00}

Prep Method: 3510C 3580A or Method (circle)

Analytical Method: 6850

Batch#: OP77429 Ext. By: NG Conc. By: — Vialed By: NG

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Surrogate Amount	Spike Amount	Final Volume (ml)	Comments
OP77429 MB		10mL					10mL	
OP77429 BS						20uL		
LA58707-1	1							
LA58708-1	1							
FA69146-1	1							
-2	1							
-3	1							
-4	1							MS/MSD
-5	1							
			NG 10/24/19					
OP77429 MS	2	10mL				20uL	10mL	FA69146-4
OP77429 MSD	3							
DUP								

Comments:

Surr. ID: — Conc: — Exp. Date: — Inj. By: — Ver. By —

Spk. ID: LCMS1279 Conc: 100ppb Exp. Date: 12/07/19 Inj. By: NG Ver. By NG

Initial Bath Temp (Therm ID): _____ Observed Temp °C: _____ Corr. Temp °C: _____

Exchange Bath/N-Evap Temp (Therm ID): _____ Observed Temp °C: _____ Corr. Temp °C: _____

CH2CL2 Lot #: — Hexane Lot #: — Na2SO4 Lot#: —

Acetonitrile Lot #: — Methanol Lot #: — Acetone Lot#: —

Syringe Filter Lot#: vial 21252-1 pH Paper #: _____ Reagent #: —

Copper Lot #: _____ If Sulfur Cleaning is performed in Extractions (3660B)

Relinquished By: _____ Date: 10/24/19

Accepted By: _____ Date: 10/24/19

ORLD-EXT-0001-1-06-FORM-extwater.xls 032718

7.7.1

7

GC/LC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- GC Identification Summaries (Explosives)
- Surrogate Recovery Summaries
- GC Surrogate Retention Time Summaries
- Initial and Continuing Calibration Summaries
- Run Sequence Reports

Method Blank Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP77364-MB	BB066717.D	1	10/23/19	WH	10/21/19	OP77364	GBB1935

The QC reported here applies to the following samples: **Method:** SW846 8330B

FA69146-1, FA69146-2, FA69146-3, FA69146-4, FA69146-5

CAS No.	Compound	Result	RL	MDL	Units	Q
2691-41-0	HMX	ND	0.20	0.080	ug/l	
121-82-4	RDX	ND	0.20	0.080	ug/l	
	DNX	ND	0.20	0.080	ug/l	
	MNX	ND	0.20	0.080	ug/l	
	TNX	ND	0.20	0.080	ug/l	
618-87-1	3,5-Dinitroaniline	ND	0.20	0.080	ug/l	
99-65-0	1,3-Dinitrobenzene	ND	0.20	0.080	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	0.20	0.080	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	0.20	0.080	ug/l	
35572-78-2	2-amino-4,6-Dinitrotoluene	ND	0.20	0.080	ug/l	
19406-51-0	4-amino-2,6-Dinitrotoluene	ND	0.20	0.080	ug/l	
98-95-3	Nitrobenzene	ND	0.20	0.097	ug/l	
88-72-2	o-Nitrotoluene	ND	0.20	0.080	ug/l	
99-08-1	m-Nitrotoluene	ND	0.20	0.080	ug/l	
99-99-0	p-Nitrotoluene	ND	0.20	0.080	ug/l	
479-45-8	Tetryl	ND	0.20	0.080	ug/l	
99-35-4	1,3,5-Trinitrobenzene	ND	0.20	0.099	ug/l	
118-96-7	2,4,6-Trinitrotoluene	ND	0.20	0.080	ug/l	
55-63-0	Nitroglycerine	ND	2.0	0.50	ug/l	
78-11-5	PETN	ND	2.0	0.50	ug/l	

CAS No.	Surrogate Recoveries		Limits
610-39-9	3,4-Dinitrotoluene	102%	70-136%

Blank Spike Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP77364-BS	BB066716.D	1	10/23/19	WH	10/21/19	OP77364	GBB1935

The QC reported here applies to the following samples: **Method:** SW846 8330B

FA69146-1, FA69146-2, FA69146-3, FA69146-4, FA69146-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
2691-41-0	HMX	5	5.0	100	77-144
121-82-4	RDX	5	4.7	94	77-125
	DNX	5	4.6	92	66-127
	MNX	5	4.2	84	71-137
	TNX	5	3.1	62	60-126
618-87-1	3,5-Dinitroaniline	5	4.9	98	77-115
99-65-0	1,3-Dinitrobenzene	5	5.0	100	79-122
606-20-2	2,6-Dinitrotoluene	5	5.6	112	81-131
121-14-2	2,4-Dinitrotoluene	5	4.9	98	80-123
35572-78-2	2-amino-4,6-Dinitrotoluene	5	4.8	96	81-120
19406-51-0	4-amino-2,6-Dinitrotoluene	5	4.7	94	79-119
98-95-3	Nitrobenzene	5	4.6	92	78-130
88-72-2	o-Nitrotoluene	5	4.4	88	76-131
99-08-1	m-Nitrotoluene	5	4.5	90	78-122
99-99-0	p-Nitrotoluene	5	4.4	88	79-124
479-45-8	Tetryl	5	4.0	80	65-124
99-35-4	1,3,5-Trinitrobenzene	5	4.8	96	79-128
118-96-7	2,4,6-Trinitrotoluene	5	4.8	96	72-112
55-63-0	Nitroglycerine	5	4.9	98	69-123
78-11-5	PETN	5	2.7	54*	73-145

CAS No.	Surrogate Recoveries	BSP	Limits
610-39-9	3,4-Dinitrotoluene	104%	70-136%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP77364-MS	BB066740.D	1	10/24/19	WH	10/21/19	OP77364	GBB1936
OP77364-MSD	BB066741.D	1	10/24/19	WH	10/21/19	OP77364	GBB1936
FA69146-4 [a]	BB066721.D	1	10/23/19	WH	10/21/19	OP77364	GBB1935

The QC reported here applies to the following samples: **Method:** SW846 8330B

FA69146-1, FA69146-2, FA69146-3, FA69146-4, FA69146-5

CAS No.	Compound	FA69146-4 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
2691-41-0	HMX	16.6		10	28.3	117	10	27.8	112	2	77-144/21
121-82-4	RDX	0.20	U	10	9.8	98	10	10.1	101	3	77-125/19
	DNX	0.20	U	10	10.0	100	10	10.5	105	5	66-127/25
	MNX	0.20	U	10	8.2	82	10	8.7	87	6	71-137/20
	TNX	0.20	U	10	7.7	77	10	7.7	77	0	60-126/18
618-87-1	3,5-Dinitroaniline	0.31		10	9.9	96	10	10.2	99	3	77-115/19
99-65-0	1,3-Dinitrobenzene	0.20	U	10	9.8	98	10	10	100	2	79-122/17
606-20-2	2,6-Dinitrotoluene	0.20	U	10	11.9	119	10	11.7	117	2	81-131/17
121-14-2	2,4-Dinitrotoluene	0.20	U	10	9.7	97	10	9.5	95	2	80-123/19
35572-78-2	2-amino-4,6-Dinitrotoluene	3.8		10	13.3	95	10	13.3	95	0	81-120/19
19406-51-0	4-amino-2,6-Dinitrotoluene	2.0		10	11.3	93	10	11.1	91	2	79-119/20
98-95-3	Nitrobenzene	0.20	U	10	9.2	92	10	9.0	90	2	78-130/19
88-72-2	o-Nitrotoluene	0.20	U	10	8.8	88	10	8.9	89	1	76-131/20
99-08-1	m-Nitrotoluene	0.20	U	10	9.3	93	10	9.0	90	3	78-122/18
99-99-0	p-Nitrotoluene	0.20	U	10	9.0	90	10	9.0	90	0	79-124/18
479-45-8	Tetryl	0.20	U	10	7.8	78	10	8.6	86	10	65-124/20
99-35-4	1,3,5-Trinitrobenzene	17.4		10	27.6	102	10	27.7	103	0	79-128/16
118-96-7	2,4,6-Trinitrotoluene	10.1		10	19.3	92	10	19.4	93	1	72-112/16
55-63-0	Nitroglycerine	2.0	U	10	9.6	96	10	10.9	109	13	69-123/18
78-11-5	PETN	2.0	U	10	5.4	54*	10	5.4	54*	0	73-145/18

CAS No.	Surrogate Recoveries	MS	MSD	FA69146-4	Limits
610-39-9	3,4-Dinitrotoluene	105%	100%	102%	70-136%

(a) All hits confirmed by reanalysis on a dissimilar column.

* = Outside of Control Limits.

GC Identification Summary (Explosives)

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample ID: FA69146-1 **Method:** SW846 8330B
Client ID: 54MW13

Injection Type	Lab File ID	Dilution	Prep Batch	Inst Batch	Injection Time	Inst ID
Reportable	BB066718.D	1	OP77364	GBB1935	10/23/19 14:03	GCBB
Confirmation	BB066797.D	1	OP77415	GBB1937	10/26/19 06:53	GCBB
Confirmation	GG617959.D	1	OP77415	GGG2778	10/29/19 01:52	GCGG

Compound	Lab File ID	Dilution	Sig#	Conc	Q	Units	RPD Conc
HMX	BB066718.D	1	1	7.7		ug/l	23.0
HMX	GG617959.D	1	1	9.7		ug/l	
3,5-Dinitroaniline [a]	BB066718.D	1	1	.67		ug/l	124.9
3,5-Dinitroaniline	GG617959.D	1	1	2.9		ug/l	
2-amino-4,6-Dinitrotoluene	BB066718.D	1	1	1.9		ug/l	19.0
2-amino-4,6-Dinitrotoluene	GG617959.D	1	1	2.3		ug/l	
4-amino-2,6-Dinitrotoluene	BB066718.D	1	1	1.1		ug/l	34.0
4-amino-2,6-Dinitrotoluene	GG617959.D	1	1	.78		ug/l	
1,3,5-Trinitrobenzene	BB066718.D	1	1	22.2		ug/l	7.8
1,3,5-Trinitrobenzene	GG617959.D	1	1	24		ug/l	
2,4,6-Trinitrotoluene	BB066718.D	1	1	12.5		ug/l	1.6
2,4,6-Trinitrotoluene	GG617959.D	1	1	12.3		ug/l	

(a) Primary and confirmation results differ by more than 40%.

GC Identification Summary (Explosives)

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample ID: FA69146-2 **Method:** SW846 8330B
Client ID: 54TW13

Injection Type	Lab File ID	Dilution	Prep Batch	Inst Batch	Injection Time	Inst ID
Reportable	BB066719.D	1	OP77364	GBB1935	10/23/19 14:33	GCBB
Confirmation	BB066805.D	1	OP77415	GBB1938	10/28/19 13:08	GCBB
Confirmation	GG617960.D	1	OP77415	GGG2778	10/29/19 02:21	GCGG

Compound	Lab File ID	Dilution	Sig#	Conc	Q	Units	RPD Conc
HMX	BB066719.D	1	1	8.5		ug/l	19.4
HMX	BB066805.D	1	1	7		ug/l	
3,5-Dinitroaniline	BB066719.D	1	1	.69		ug/l	17.3
3,5-Dinitroaniline	BB066805.D	1	1	.58		ug/l	
2-amino-4,6-Dinitrotoluene	BB066719.D	1	1	2.1		ug/l	27.0
2-amino-4,6-Dinitrotoluene	BB066805.D	1	1	1.6		ug/l	
4-amino-2,6-Dinitrotoluene [a]	BB066719.D	1	1	1.7		ug/l	42.9
4-amino-2,6-Dinitrotoluene	BB066805.D	1	1	1.1		ug/l	
1,3,5-Trinitrobenzene	BB066719.D	1	1	25.6		ug/l	21.6
1,3,5-Trinitrobenzene	BB066805.D	1	1	20.6		ug/l	
2,4,6-Trinitrotoluene	BB066719.D	1	1	14.6		ug/l	21.2
2,4,6-Trinitrotoluene	BB066805.D	1	1	11.8		ug/l	

(a) Primary and confirmation results differ by more than 40%.

GC Identification Summary (Explosives)

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample ID:	FA69146-3	**Method:**	SW846 8330B
Client ID:	54MW10		

Injection Type	Lab File ID	Dilution	Prep Batch	Inst Batch	Injection Time	Inst ID
Reportable	BB066720.D	1	OP77364	GBB1935	10/23/19 15:03	GCBB
Confirmation	BB066806.D	1	OP77415	GBB1938	10/28/19 13:38	GCBB
Confirmation	GG617961.D	1	OP77415	GGG2778	10/29/19 02:51	GCGG

Compound	Lab File ID	Dilution	Sig#	Conc	Q	Units	RPD Conc
HMX	BB066720.D	1	1	2.4		ug/l	18.9
HMX	BB066806.D	1	1	2.9		ug/l	
RDX [a]	BB066720.D	1	1	2.1		ug/l	62.5
RDX	BB066806.D	1	1	1.1		ug/l	
3,5-Dinitroaniline [a]	BB066720.D	1	1	.31		ug/l	43.1
3,5-Dinitroaniline	BB066806.D	1	1	.2		ug/l	
2-amino-4,6-Dinitrotoluene	BB066720.D	1	1	.99		ug/l	10.5
2-amino-4,6-Dinitrotoluene	BB066806.D	1	1	1.1		ug/l	
4-amino-2,6-Dinitrotoluene	BB066720.D	1	1	.89		ug/l	11.6
4-amino-2,6-Dinitrotoluene	BB066806.D	1	1	1		ug/l	
1,3,5-Trinitrobenzene	BB066720.D	1	1	.77		ug/l	11.0
1,3,5-Trinitrobenzene	BB066806.D	1	1	.69		ug/l	
2,4,6-Trinitrotoluene	BB066720.D	1	1	4		ug/l	22.2
2,4,6-Trinitrotoluene	BB066806.D	1	1	3.2		ug/l	

(a) Primary and confirmation results differ by more than 40%.

GC Identification Summary (Explosives)

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample ID: FA69146-4 **Method:** SW846 8330B
Client ID: 54MW12

Injection Type	Lab File ID	Dilution	Prep Batch	Inst Batch	Injection Time	Inst ID
Reportable	BB066721.D	1	OP77364	GBB1935	10/23/19 15:33	GCBB
Confirmation	BB066810.D	1	OP77415	GBB1938	10/28/19 15:38	GCBB
Confirmation	GG617962.D	1	OP77415	GGG2778	10/29/19 03:20	GCGG

Compound	Lab File ID	Dilution	Sig#	Conc	Q	Units	RPD Conc
HMX	BB066721.D	1	1	16.6		ug/l	0.6
HMX	BB066810.D	1	1	16.5		ug/l	
3,5-Dinitroaniline [a]	BB066721.D	1	1	.31		ug/l	3.2
3,5-Dinitroaniline	BB066810.D	1	1	.32		ug/l	
2-amino-4,6-Dinitrotoluene	BB066721.D	1	1	3.8		ug/l	2.6
2-amino-4,6-Dinitrotoluene	BB066810.D	1	1	3.9		ug/l	
4-amino-2,6-Dinitrotoluene [a]	BB066721.D	1	1	2		ug/l	4.9
4-amino-2,6-Dinitrotoluene	BB066810.D	1	1	2.1		ug/l	
1,3,5-Trinitrobenzene	BB066721.D	1	1	17.4		ug/l	1.1
1,3,5-Trinitrobenzene	BB066810.D	1	1	17.6		ug/l	
2,4,6-Trinitrotoluene	BB066721.D	1	1	10.1		ug/l	2.0
2,4,6-Trinitrotoluene	BB066810.D	1	1	10.3		ug/l	

(a) Primary and confirmation results differ by more than 40%.

Surrogate Recovery Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Method: SW846 8330B **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 [a]
FA69146-1	BB066797.D	108
FA69146-1	GG617959.D	134
FA69146-1	BB066718.D	93
FA69146-2	GG617960.D	129
FA69146-2	BB066805.D	95
FA69146-2	BB066719.D	117
FA69146-3	GG617961.D	122
FA69146-3	BB066720.D	99
FA69146-3	BB066806.D	99
FA69146-4	GG617962.D	127
FA69146-4	BB066810.D	110
FA69146-4	BB066721.D	102
FA69146-5	BB066812.D	100
FA69146-5	BB066722.D	100
OP77364-BS	BB066716.D	104
OP77364-MB	BB066717.D	102
OP77364-MS	BB066740.D	105
OP77364-MSD	BB066741.D	100

Surrogate Compounds	Recovery Limits
S1 = 3,4-Dinitrotoluene	70-136%

(a) Recovery from GC signal #1

GC Surrogate Retention Time Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Check Std:	GBB1935-CC1929	**Injection Date:**	10/23/19
Lab File ID:	BB066715.D	**Injection Time:**	12:33
Instrument ID:	GCBB	**Method:**	SW846 8330B

	S1 [a] **RT**	**S1** [b] **RT**
Check Std	10.91	10.91

Lab Sample ID	**Lab File ID**	**Date Analyzed**	**Time Analyzed**	**S1** [a] **RT**	**S1** [b] **RT**
OP77364-BS	BB066716.D	10/23/19	13:03		10.88
OP77364-MB	BB066717.D	10/23/19	13:33		10.90
FA69146-1	BB066718.D	10/23/19	14:03		10.91
FA69146-2	BB066719.D	10/23/19	14:33		10.91
FA69146-3	BB066720.D	10/23/19	15:03		10.92
FA69146-4	BB066721.D	10/23/19	15:33		10.91
FA69146-5	BB066722.D	10/23/19	16:03		10.90
ZZZZZZ	BB066723.D	10/23/19	16:33		10.92
GBB1935-ECC1929	BB066726.D	10/23/19	18:03	10.92	10.92

Surrogate Compounds

S1 = 3,4-Dinitrotoluene

(a) Retention time from GC signal #2
(b) Retention time from GC signal #1

GC Surrogate Retention Time Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Check Std:	GBB1937-CC1929	**Injection Date:**	10/26/19
Lab File ID:	BB066786.D	**Injection Time:**	01:24
Instrument ID:	GCBB	**Method:**	SW846 8330B

	S1 [a] RT	S1 [b] RT
Check Std	10.90	10.90

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT	S1 [b] RT
ZZZZZZ	BB066788.D	10/26/19	02:24		10.90
ZZZZZZ	BB066789.D	10/26/19	02:54		10.89
OP77415-BS	BB066790.D	10/26/19	03:24		10.87
OP77415-MB	BB066791.D	10/26/19	03:54		10.88
ZZZZZZ	BB066792.D	10/26/19	04:24		10.88
LA58708-1	BB066793.D	10/26/19	04:54		10.87
ZZZZZZ	BB066796.D	10/26/19	06:23		10.88
FA69146-1	BB066797.D	10/26/19	06:53		10.89
GBB1937-ECC1929	BB066798.D	10/26/19	07:23	10.89	10.89

Surrogate Compounds

S1 = 3,4-Dinitrotoluene

(a) Retention time from GC signal #2
(b) Retention time from GC signal #1

GC Surrogate Retention Time Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Check Std:	GGG2778-CC2769	**Injection Date:**	10/28/19
Lab File ID:	GG617955.D	**Injection Time:**	23:54
Instrument ID:	GCGG	**Method:**	SW846 8330B

	S1 [a] RT	S1 [b] RT
Check Std	13.51	13.51

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT	S1 [b] RT
OP77415-MB	GG617957.D	10/29/19	00:53		13.49
FA69146-1	GG617959.D	10/29/19	01:52		13.50
FA69146-2	GG617960.D	10/29/19	02:21		13.49
FA69146-3	GG617961.D	10/29/19	02:51		13.52
FA69146-4	GG617962.D	10/29/19	03:20		13.51
GGG2778-ECC2769	GG617963.D	10/29/19	03:50	13.55	13.56

Surrogate Compounds

S1 = 3,4-Dinitrotoluene

(a) Retention time from GC signal #2
(b) Retention time from GC signal #1

8.6.3

8

GC Surrogate Retention Time Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Check Std:	GBB1936-CC1929	**Injection Date:**	10/24/19
Lab File ID:	BB066739.D	**Injection Time:**	11:13
Instrument ID:	GCBB	**Method:**	SW846 8330B

	S1 [a] RT	S1 [b] RT
Check Std	10.89	10.89

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 [a] RT	S1 [b] RT
OP77364-MS	BB066740.D	10/24/19	11:43		10.88
OP77364-MSD	BB066741.D	10/24/19	12:13		10.88
OP77370-BS	BB066742.D	10/24/19	12:43		10.89
OP77370-MB	BB066743.D	10/24/19	13:13		10.89
ZZZZZZ	BB066744.D	10/24/19	13:43	10.88	10.88
ZZZZZZ	BB066745.D	10/24/19	14:13	10.92	10.91
ZZZZZZ	BB066746.D	10/24/19	14:42		10.90
FA69110-3	BB066747.D	10/24/19	15:12		10.88
ZZZZZZ	BB066749.D	10/24/19	16:12		10.97

Surrogate Compounds

S1 = 3,4-Dinitrotoluene

(a) Retention time from GC signal #2
(b) Retention time from GC signal #1

GC Surrogate Retention Time Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Check Std:	GBB1938-CC1929	**Injection Date:**	10/28/19
Lab File ID:	BB066803.D	**Injection Time:**	12:08
Instrument ID:	GCBB	**Method:**	SW846 8330B

	S1 [a] **RT**
Check Std	10.82

Lab Sample ID	**Lab File ID**	**Date Analyzed**	**Time Analyzed**	**S1** [a] **RT**
FA69146-2	BB066805.D	10/28/19	13:08	10.85
FA69146-3	BB066806.D	10/28/19	13:38	10.87
OP77415-MS2	BB066807.D	10/28/19	14:08	10.87
OP77415-MS	BB066808.D	10/28/19	14:38	10.85
OP77415-MSD	BB066809.D	10/28/19	15:08	10.85
FA69146-4	BB066810.D	10/28/19	15:38	10.87
OP77415-MSD2	BB066811.D	10/28/19	16:08	10.87
FA69146-5	BB066812.D	10/28/19	16:38	10.88

Surrogate Compounds

S1 = 3,4-Dinitrotoluene

(a) Retention time from GC signal #1

Initial Calibration Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GBB1929-ICC1929
Lab FileID: BB066564.D

Response Factor Report G1315B

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 14 09:43:51 2019
Response via : Initial Calibration

Calibration Files
20 =BB066559.D 50 =BB066560.D 100 =BB066561.D 200 =BB066562.D
500 =BB066563.D 1000=BB066564.D 2500=BB066565.D 5000=BB066566.D

Compound	20	50	100	200	500	1000	2500	5000	Avg	%RSD
1) TNX	2.405	3.033	2.608	3.027	2.741	2.681	3.033	2.667	2.774 E3	8.44
2) HMX	1.508	1.450	1.364	1.516	1.759	1.716	1.739	1.709	1.595 E3	9.58
3) DNX	1.222	1.456	1.271	1.288	1.440	1.413	1.426	1.396	1.364 E3	6.57
4) MNX	2.704	2.847	2.681	2.566	2.541	2.534	2.580	2.542	2.624 E3	4.23
5) RDX	1.998	2.262	2.023	1.968	1.970	1.969	1.989	1.978	2.020 E3	4.94
6) 1,3,5-Trinit	4.398	4.881	4.377	4.295	4.346	4.352	4.423	4.400	4.434 E3	4.17
7) 1,3-Dinitrob	5.626	6.133	5.579	5.483	5.477	5.479	5.561	5.535	5.609 E3	3.89
8) 3,5-Dinitroa	4.246	4.572	4.240	4.226	4.185	4.202	4.248	4.239	4.270 E3	2.91
9) Nitrobenzene	3.883	3.635	3.349	3.277	3.240	3.242	3.327	3.304	3.407 E3	6.75
10) Nitroglyceri									0.000	-1.00
11) Tetryl	3.116	3.601	3.197	3.107	3.132	3.128	3.174	3.151	3.201 E3	5.14
12) 2,4,6-Trinit	3.979	4.405	3.939	3.872	3.878	3.878	3.940	3.925	3.977 E3	4.45
13) 2-Amino-4,6-	3.772	3.877	3.558	3.489	3.492	3.508	3.556	3.533	3.598 E3	4.03
14) 4-Amino-2,6-	2.963	2.941	2.631	2.581	2.570	2.569	2.597	2.576	2.679 E3	6.35
15) 3,4-Dinitrot	2.452	2.302	2.035	2.014	2.003	2.007	2.024	2.025	2.108 E3	8.12
16) 2,4-Dinitrot	5.037	5.333	4.932	4.864	4.856	4.884	4.968	4.950	4.978 E3	3.12
17) 2,6-Dinitrot	3.297	3.246	2.914	2.862	2.837	2.851	2.907	2.874	2.974 E3	6.27
18) o-Nitrotolue	2.456	2.586	2.432	2.292	2.306	2.314	2.351	2.339	2.385 E3	4.22
19) p-Nitrotolue	4.268	4.062	3.741	3.608	3.591	3.621	3.689	3.673	3.782 E3	6.55
20) m-Nitrotolue	3.742	3.504	3.484	3.399	3.353	3.392	3.473	3.441	3.473 E3	3.46
21) PETN									0.000	-1.00

Signal #2

1) TNX	4.402	5.062	3.681	4.666	4.300	4.187	4.722	4.187	4.401 E3	9.53
2) HMX	4.521	3.781	3.969	4.239	4.897	4.672	4.738	4.622	4.430 E3	8.89
3) DNX	3.450	2.043	1.730	1.927	2.477	2.273	2.274	2.213	2.298 E3	22.62

---- Quadratic regr., Force(0,0) ---- Coefficient = 0.9998
Response Ratio = 0.00000 + 2327.48179 *A + -0.02276 *A^2

4) MNX	3.931	4.448	3.935	3.834	4.047	3.940	3.982	3.921	4.005 E3	4.71
5) RDX	2.959	3.384	3.493	3.338	3.229	3.177	3.190	3.161	3.241 E3	5.04
6) 1,3,5-Trinit	8.501	9.238	8.269	8.277	8.105	8.112	8.362	8.415	8.410 E3	4.30
7) 1,3-Dinitrob	4.164	4.396	3.998	3.748	3.928	3.755	3.786	3.751	3.941 E3	6.00
8) 3,5-Dinitroa	7.788	8.414	7.284	6.973	7.304	7.167	7.148	7.074	7.394 E3	6.48
9) Nitrobenzene	3.901	3.569	3.268	3.251	3.186	3.170	3.224	3.225	3.349 E3	7.64
10) Nitroglyceri	1.237	1.477	1.317	1.239	1.272	1.279	1.295	1.293	1.301 E3	5.86
11) Tetryl	5.214	5.639	5.134	4.990	5.057	5.055	5.143	5.127	5.170 E3	3.89
12) 2,4,6-Trinit	4.734	5.019	4.691	4.595	4.672	4.678	4.761	4.769	4.740 E3	2.66
13) 2-Amino-4,6-	5.567	5.559	5.264	5.191	5.256	5.289	5.383	5.388	5.362 E3	2.61
14) 4-Amino-2,6-	5.432	5.398	5.163	5.051	5.127	5.144	5.223	5.244	5.223 E3	2.54
15) 3,4-Dinitrot	3.526	3.546	3.441	3.427	3.491	3.532	3.582	3.669	3.527 E3	2.20
16) 2,4-Dinitrot	2.637	3.320	3.033	3.074	3.150	3.181	3.253	3.306	3.119 E3	7.06
17) 2,6-Dinitrot	2.904	3.690	3.604	3.612	3.712	3.715	3.784	3.800	3.603 E3	8.07
18) o-Nitrotolue	3.558	3.293	3.190	3.026	3.165	3.204	3.304	3.308	3.256 E3	4.73
19) p-Nitrotolue	3.289	2.878	3.026	2.983	3.063	3.121	3.190	3.194	3.093 E3	4.28
20) m-Nitrotolue	3.444	3.315	3.506	3.632	3.575	3.907	4.120	4.163	3.708 E3	8.56

Initial Calibration Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GBB1929-ICC1929
Lab FileID: BB066564.D

```
            ---- Quadratic regr., Force(0,0) ----  Coefficient =  0.9998
              Response Ratio = 0.00000 + 3954.95529 *A + 0.04277 *A^2

21) PETN         1.163 1.252 1.299 1.335 1.398 1.462 1.513 1.505 1.366 E3   9.21
--------------------------------------------------------------------------------
(#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          8330B_101119_PLUS.M        Mon Oct 14 09:58:13 2019
```

Initial Calibration Verification

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GBB1929-ICV1929
Lab FileID: BB066568.D

Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066568.D\dad1B.ch Vial: 10
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066568.D\dad1A.ch
Acq On : 11-Oct-2019, 16:15:45 Operator: williamh
Sample : icv1929-1000 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 14 09:43:51 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT Window
1	TNX	1000.000	872.182	12.8	90	0.00	1.04- 1.64
2	HMX	1000.000	1074.744	-7.5	100	0.00	1.16- 1.76
3	DNX	1000.000	955.306	4.5	92	0.00	1.41- 2.01
4	MNX	1000.000	865.693	13.4	90	0.00	1.99- 2.59
5	RDX	1000.000	976.558	2.3	100	0.00	2.49- 3.29
6	1,3,5-Trinitrobenzene	1000.000	937.848	6.2	96	0.00	4.24- 5.04
7	1,3-Dinitrobenzene	1000.000	967.047	3.3	99	0.00	5.41- 6.21
8	3,5-Dinitroaniline	1000.000	1005.509	-0.6	102	0.00	5.76- 6.56
9	Nitrobenzene	1000.000	957.118	4.3	101	0.00	6.91- 7.71
10	Nitroglycerin		----------NA----------				
11	Tetryl	1000.000	960.109	4.0	98	0.02	8.76- 9.56
12	2,4,6-Trinitrotoluene	1000.000	1024.255	-2.4	105	0.02	9.21-10.01
13	2-Amino-4,6-Dinitrotol	1000.000	953.597	4.6	98	0.02	9.57-10.37
14	4-Amino-2,6-Dinitrotol	1000.000	958.493	4.2	100	0.02	10.03-10.83
15 S	3,4-Dinitrotoluene		----------NA----------				
16	2,4-Dinitrotoluene	1000.000	974.695	2.5	99	0.02	11.12-11.92
17	2,6-Dinitrotoluene	1000.000	947.570	5.2	99	0.02	11.56-12.36
18	o-Nitrotoluene	1000.000	986.758	1.3	102	0.01	14.61-15.48
19	p-Nitrotoluene	1000.000	941.837	5.8	98	0.01	15.05-16.05
20	m-Nitrotoluene	1000.000	989.240	1.1	101	0.01	15.94-16.94
21	PETN		----------NA----------				
*****	Signal #2 *****						
1	TNX	1000.000	859.779	14.0	90	0.00	1.04- 1.64
2	HMX	1000.000	1056.711	-5.7	100	0.00	1.16- 1.76
	----------	Amount	Calc.	%Drift	----------		
3	DNX	1000.000	938.360	6.2	95	0.00	1.41- 2.01
	----------	Amount	Calc.	%Drift	----------		
4	MNX	1000.000	888.709	11.1	90	0.00	1.99- 2.59
5	RDX	1000.000	983.675	1.6	100	0.00	2.49- 3.29
6	1,3,5-Trinitrobenzene	1000.000	932.011	6.8	97	0.00	4.24- 5.04
7	1,3-Dinitrobenzene	1000.000	960.450	4.0	101	0.00	5.41- 6.21
8	3,5-Dinitroaniline	1000.000	994.552	0.5	103	0.00	5.76- 6.56
9	Nitrobenzene	1000.000	956.570	4.3	101	0.00	6.91- 7.71
10	Nitroglycerin	1000.000	1089.647	-9.0	111	0.02	8.26- 9.26
11	Tetryl	1000.000	967.869	3.2	99	0.02	8.76- 9.56
12	2,4,6-Trinitrotoluene	1000.000	1051.210	-5.1	107	0.02	9.21-10.01
13	2-Amino-4,6-Dinitrotol	1000.000	974.332	2.6	99	0.02	9.57-10.37

Initial Calibration Verification

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GBB1929-ICV1929
Lab FileID: BB066568.D

			Amount	Calc.	%Drift			
14		4-Amino-2,6-Dinitrotol	1000.000	995.370	0.5	101	0.02	10.03-10.83
15	S	3,4-Dinitrotoluene		----------NA----------				
16		2,4-Dinitrotoluene	1000.000	1045.256	-4.5	102	0.02	11.12-11.92
17		2,6-Dinitrotoluene	1000.000	1034.739	-3.5	100	0.02	11.56-12.36
18		o-Nitrotoluene	1000.000	1005.217	-0.5	102	0.01	14.48-15.48
19		p-Nitrotoluene	1000.000	1005.332	-0.5	100	0.01	15.05-16.05
			Amount	Calc.	%Drift			
20		m-Nitrotoluene	1000.000	989.093	1.1	101	0.01	15.94-16.94
			Amount	Calc.	%Drift			
21		PETN	1000.000	1071.361	-7.1	100	0.03	17.64-18.84

(#) = Out of Range SPCC's out = 0 CCC's out = 0
BB066564.D 8330B_101119_PLUS.M Mon Oct 14 09:58:01 2019

Continuing Calibration Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GBB1935-CC1929
Lab FileID: BB066715.D

Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\2\DATA\GBB1935\BB066715.D\dad1B.ch Vial: 24
Signal #2 : C:\HPCHEM\2\DATA\GBB1935\BB066715.D\dad1A.ch
Acq On : 23-Oct-2019, 12:33:44 Operator: williamh
Sample : cc1929-1000 Inst : G1315B
Misc : op77365,GBB1935,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT Window
1	TNX	1000.000	853.963	14.6	89	0.00	1.04- 1.64
2	HMX	1000.000	909.808	9.0	88	0.00	1.17- 1.77
3	DNX	1000.000	982.036	1.8	98	0.00	1.42- 2.02
4	MNX	1000.000	998.249	0.2	103	0.00	2.00- 2.60
5	RDX	1000.000	874.658	12.5	90	0.00	2.51- 3.31
6	1,3,5-Trinitrobenzene	1000.000	910.841	8.9	93	0.00	4.28- 5.08
7	1,3-Dinitrobenzene	1000.000	879.845	12.0	90	0.00	5.45- 6.25
8	3,5-Dinitroaniline	1000.000	878.322	12.2	90	-0.01	5.80- 6.60
9	Nitrobenzene	1000.000	877.285	12.3	92	-0.01	6.93- 7.73
10	Nitroglycerin		----------NA----------				
11	Tetryl	1000.000	860.384	14.0	88	-0.03	8.86- 9.66
12	2,4,6-Trinitrotoluene	1000.000	865.508	13.4	89	-0.03	9.31-10.11
13	2-Amino-4,6-Dinitrotol	1000.000	882.472	11.8	91	-0.03	9.65-10.45
14	4-Amino-2,6-Dinitrotol	1000.000	853.216	14.7	89	-0.04	10.11-10.91
15 S	3,4-Dinitrotoluene	1000.000	1015.745	-1.6	107	-0.03	10.54-11.34
16	2,4-Dinitrotoluene	1000.000	880.188	12.0	90	-0.03	11.20-12.00
17	2,6-Dinitrotoluene	1000.000	862.957	13.7	90	-0.04	11.64-12.44
18	o-Nitrotoluene	1000.000	880.454	12.0	91	-0.03	14.64-15.51
19	p-Nitrotoluene	1000.000	851.404	14.9	91	-0.03	15.09-16.09
20	m-Nitrotoluene	1000.000	876.444	12.4	90	-0.03	15.97-16.97
21	PETN		----------NA----------				

***** Signal #2 *****

1	TNX	1000.000	836.009	16.4	90	0.00	1.04- 1.64
2	HMX	1000.000	907.194	9.3	89	0.00	1.17- 1.77
	----------	Amount	Calc.	%Drift	----------		
3	DNX	1000.000	941.110	5.9	96	0.00	1.42- 2.02
	----------	Amount	Calc.	%Drift	----------		
4	MNX	1000.000	1005.205	-0.5	102	0.00	2.00- 2.60
5	RDX	1000.000	892.230	10.8	90	0.00	2.51- 3.31
6	1,3,5-Trinitrobenzene	1000.000	899.838	10.0	93	0.00	4.28- 5.08
7	1,3-Dinitrobenzene	1000.000	897.662	10.2	92	0.00	5.45- 6.25
8	3,5-Dinitroaniline	1000.000	871.371	12.9	90	-0.01	5.80- 6.60
9	Nitrobenzene	1000.000	871.399	12.9	92	-0.01	6.93- 7.73
10	Nitroglycerin	1000.000	891.678	10.8	90	-0.02	8.39- 9.39
11	Tetryl	1000.000	870.866	12.9	89	-0.03	8.86- 9.66
12	2,4,6-Trinitrotoluene	1000.000	879.620	12.0	89	-0.03	9.31-10.11
13	2-Amino-4,6-Dinitrotol	1000.000	896.485	10.4	91	-0.03	9.65-10.45

Continuing Calibration Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GBB1935-CC1929
Lab FileID: BB066715.D

14		4-Amino-2,6-Dinitrotol	1000.000	882.859	11.7	90	-0.04	10.11-10.91
15	S	3,4-Dinitrotoluene	1000.000	1086.264	-8.6	108	-0.03	10.54-11.34
16		2,4-Dinitrotoluene	1000.000	927.626	7.2	90	-0.03	11.20-12.00
17		2,6-Dinitrotoluene	1000.000	921.263	7.9	91	-0.03	11.64-12.44
18		o-Nitrotoluene	1000.000	911.506	8.8	90	-0.03	14.51-15.51
19		p-Nitrotoluene	1000.000	946.469	5.4	91	-0.03	15.09-16.09

			Amount	Calc.	%Drift			
20		m-Nitrotoluene	1000.000	872.084	12.8	90	-0.03	15.97-16.97

			Amount	Calc.	%Drift			
21		PETN	1000.000	932.410	6.8	91	-0.01	17.76-18.96

(#) = Out of Range SPCC's out = 0 CCC's out = 0
BB066564.D 8330B_101119_PLUS.M Thu Oct 24 09:49:40 2019

8.7.3

8

Continuing Calibration Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GBB1935-ECC1929
Lab FileID: BB066726.D

Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\2\DATA\GBB1935\BB066726.D\dad1B.ch Vial: 24
Signal #2 : C:\HPCHEM\2\DATA\GBB1935\BB066726.D\dad1A.ch
Acq On : 23-Oct-2019, 18:03:24 Operator: williamh
Sample : ecc1929-1000 Inst : G1315B
Misc : op77364,GBB1935,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT Window
1	TNX	1000.000	836.088	16.4	88	0.00	1.04- 1.64
2	HMX	1000.000	900.812	9.9	87	0.00	1.17- 1.77
3	DNX	1000.000	979.256	2.1	98	0.00	1.42- 2.02
4	MNX	1000.000	997.080	0.3	103	0.00	2.00- 2.60
5	RDX	1000.000	875.049	12.5	90	0.00	2.51- 3.31
6	1,3,5-Trinitrobenzene	1000.000	886.325	11.4	90	0.00	4.28- 5.08
7	1,3-Dinitrobenzene	1000.000	879.637	12.0	90	0.00	5.45- 6.25
8	3,5-Dinitroaniline	1000.000	874.286	12.6	89	0.00	5.80- 6.60
9	Nitrobenzene	1000.000	867.329	13.3	91	0.00	6.93- 7.73
10	Nitroglycerin	----------	NA	----------			
11	Tetryl	1000.000	856.123	14.4	88	-0.02	8.86- 9.66
12	2,4,6-Trinitrotoluene	1000.000	864.533	13.5	89	-0.02	9.31-10.11
13	2-Amino-4,6-Dinitrotol	1000.000	878.346	12.2	90	-0.02	9.65-10.45
14	4-Amino-2,6-Dinitrotol	1000.000	852.406	14.8	89	-0.02	10.11-10.91
15 S	3,4-Dinitrotoluene	1000.000	1014.881	-1.5	107	-0.02	10.54-11.34
16	2,4-Dinitrotoluene	1000.000	877.739	12.2	89	-0.01	11.20-12.00
17	2,6-Dinitrotoluene	1000.000	861.731	13.8	90	-0.02	11.64-12.44
18	o-Nitrotoluene	1000.000	876.580	12.3	90	0.00	14.64-15.51
19	p-Nitrotoluene	1000.000	850.364	15.0	91	-0.01	15.09-16.09
20	m-Nitrotoluene	1000.000	878.444	12.2	90	-0.01	15.97-16.97
21	PETN	----------	NA	----------			

***** Signal #2 *****

1	TNX	1000.000	827.095	17.3	89	0.00	1.04- 1.64
2	HMX	1000.000	886.857	11.3	87	0.00	1.17- 1.77
	----------	Amount	Calc.	%Drift	----------		
3	DNX	1000.000	948.450	5.2	96	0.00	1.42- 2.02
	----------	Amount	Calc.	%Drift	----------		
4	MNX	1000.000	1003.643	-0.4	102	0.00	2.00- 2.60
5	RDX	1000.000	892.144	10.8	90	0.00	2.51- 3.31
6	1,3,5-Trinitrobenzene	1000.000	885.722	11.4	91	0.00	4.28- 5.08
7	1,3-Dinitrobenzene	1000.000	900.801	9.9	92	0.00	5.45- 6.25
8	3,5-Dinitroaniline	1000.000	871.264	12.9	90	0.00	5.80- 6.60
9	Nitrobenzene	1000.000	862.141	13.8	91	0.00	6.93- 7.73
10	Nitroglycerin	1000.000	891.092	10.9	90	-0.01	8.39- 9.39
11	Tetryl	1000.000	865.488	13.5	89	-0.02	8.86- 9.66
12	2,4,6-Trinitrotoluene	1000.000	877.762	12.2	89	-0.02	9.31-10.11
13	2-Amino-4,6-Dinitrotol	1000.000	890.765	10.9	90	-0.02	9.65-10.45

Continuing Calibration Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GBB1935-ECC1929
Lab FileID: BB066726.D

14		4-Amino-2,6-Dinitrotol	1000.000	878.850	12.1	89	-0.02	10.11-10.91
15	S	3,4-Dinitrotoluene	1000.000	1080.067	-8.0	108	-0.02	10.54-11.34
16		2,4-Dinitrotoluene	1000.000	924.685	7.5	90	-0.01	11.20-12.00
17		2,6-Dinitrotoluene	1000.000	923.248	7.7	91	-0.01	11.64-12.44
18		o-Nitrotoluene	1000.000	915.475	8.5	91	0.00	14.51-15.51
19		p-Nitrotoluene	1000.000	946.690	5.3	91	0.00	15.09-16.09

			Amount	Calc.	%Drift			
20		m-Nitrotoluene	1000.000	877.589	12.2	90	-0.01	15.97-16.97

			Amount	Calc.	%Drift			
21		PETN	1000.000	914.440	8.6	89	0.00	17.76-18.96

(#) = Out of Range SPCC's out = 0 CCC's out = 0
BB066564.D 8330B_101119_PLUS.M Thu Oct 24 09:49:41 2019

8.7.4

8

Continuing Calibration Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GBB1936-CC1929
Lab FileID: BB066739.D

Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\2\DATA\GBB1936\BB066739.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1936\BB066739.D\dad1A.ch
Acq On : 24-Oct-2019, 11:13:23 Operator: williamh
Sample : cc1929-1000 Inst : G1315B
Misc : op77364,GBB1936,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT Window
1	TNX	1000.000	874.906	12.5	92	0.00	1.04- 1.64
2	HMX	1000.000	1084.405	-8.4	105	0.00	1.17- 1.77
3	DNX	1000.000	1164.530	-16.5#	116	0.00	1.42- 2.02
4	MNX	1000.000	884.723	11.5	91	0.00	2.00- 2.60
5	RDX	1000.000	976.114	2.4	100	0.00	2.51- 3.31
6	1,3,5-Trinitrobenzene	1000.000	992.060	0.8	101	0.00	4.28- 5.08
7	1,3-Dinitrobenzene	1000.000	986.746	1.3	101	-0.01	5.45- 6.25
8	3,5-Dinitroaniline	1000.000	984.101	1.6	100	-0.02	5.80- 6.60
9	Nitrobenzene	1000.000	966.978	3.3	101	-0.02	6.93- 7.73
10	Nitroglycerin	----------	NA	----------			
11	Tetryl	1000.000	880.923	11.9	90	-0.04	8.86- 9.66
12	2,4,6-Trinitrotoluene	1000.000	967.233	3.3	99	-0.04	9.31-10.11
13	2-Amino-4,6-Dinitrotol	1000.000	992.091	0.8	102	-0.06	9.65-10.45
14	4-Amino-2,6-Dinitrotol	1000.000	961.760	3.8	100	-0.06	10.11-10.91
15 S	3,4-Dinitrotoluene	1000.000	1049.990	-5.0	110	-0.05	10.54-11.34
16	2,4-Dinitrotoluene	1000.000	986.636	1.3	101	-0.05	11.20-12.00
17	2,6-Dinitrotoluene	1000.000	975.059	2.5	102	-0.06	11.64-12.44
18	o-Nitrotoluene	1000.000	974.373	2.6	100	-0.05	14.64-15.51
19	p-Nitrotoluene	1000.000	944.933	5.5	101	-0.05	15.09-16.09
20	m-Nitrotoluene	1000.000	976.793	2.3	100	-0.04	15.97-16.97
21	PETN	----------	NA	----------			

***** Signal #2 *****

1	TNX	1000.000	842.817	15.7#	90	0.00	1.04- 1.64
2	HMX	1000.000	1030.101	-3.0	101	0.00	1.17- 1.77
	----------	Amount	Calc.	%Drift	----------		
3	DNX	1000.000	1134.911	-13.5	115	0.00	1.42- 2.02
	----------	Amount	Calc.	%Drift	----------		
4	MNX	1000.000	893.358	10.7	91	0.00	2.00- 2.60
5	RDX	1000.000	991.917	0.8	100	0.00	2.51- 3.31
6	1,3,5-Trinitrobenzene	1000.000	998.450	0.2	103	0.00	4.28- 5.08
7	1,3-Dinitrobenzene	1000.000	1010.065	-1.0	103	-0.01	5.45- 6.25
8	3,5-Dinitroaniline	1000.000	976.651	2.3	101	-0.02	5.80- 6.60
9	Nitrobenzene	1000.000	973.120	2.7	103	-0.02	6.93- 7.73
10	Nitroglycerin	1000.000	992.235	0.8	100	-0.03	8.39- 9.39
11	Tetryl	1000.000	886.234	11.4	91	-0.04	8.86- 9.66
12	2,4,6-Trinitrotoluene	1000.000	988.019	1.2	100	-0.04	9.31-10.11
13	2-Amino-4,6-Dinitrotol	1000.000	1005.360	-0.5	102	-0.06	9.65-10.45

Continuing Calibration Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GBB1936-CC1929
Lab FileID: BB066739.D

14		4-Amino-2,6-Dinitrotol	1000.000	991.428	0.9	101	-0.06	10.11-10.91
15	S	3,4-Dinitrotoluene	1000.000	1112.760	-11.3	111	-0.05	10.54-11.34
16		2,4-Dinitrotoluene	1000.000	1036.889	-3.7	101	-0.05	11.20-12.00
17		2,6-Dinitrotoluene	1000.000	1034.862	-3.5	102	-0.05	11.64-12.44
18		o-Nitrotoluene	1000.000	1034.937	-3.5	103	-0.04	14.51-15.51
19		p-Nitrotoluene	1000.000	1057.013	-5.7	101	-0.04	15.09-16.09

			Amount	Calc.	%Drift			
20		m-Nitrotoluene	1000.000	978.262	2.2	101	-0.04	15.97-16.97

			Amount	Calc.	%Drift			
21		PETN	1000.000	1064.469	-6.4	103	-0.02	17.76-18.96

(#) = Out of Range SPCC's out = 0 CCC's out = 0
BB066564.D 8330B_101119_PLUS.M Fri Oct 25 14:31:11 2019

8.7.5

8

Continuing Calibration Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GBB1936-CC1929
Lab FileID: BB066750.D

Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\2\DATA\GBB1936\BB066750.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1936\BB066750.D\dad1A.ch
Acq On : 24-Oct-2019, 16:42:51 Operator: williamh
Sample : cc1929-1000 Inst : G1315B
Misc : op77370,GBB1936,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT Window
1	TNX	1000.000	853.898	14.6	89	0.00	1.04- 1.64
2	HMX	1000.000	1060.475	-6.0	103	0.00	1.17- 1.77
3	DNX	1000.000	1145.181	-14.5	114	0.00	1.42- 2.02
4	MNX	1000.000	884.246	11.6	91	0.00	2.00- 2.60
5	RDX	1000.000	977.558	2.2	100	0.00	2.51- 3.31
6	1,3,5-Trinitrobenzene	1000.000	991.120	0.9	101	0.00	4.28- 5.08
7	1,3-Dinitrobenzene	1000.000	984.051	1.6	101	0.00	5.45- 6.25
8	3,5-Dinitroaniline	1000.000	978.798	2.1	100	0.00	5.80- 6.60
9	Nitrobenzene	1000.000	954.098	4.6	100	0.00	6.93- 7.73
10	Nitroglycerin		----------NA----------				
11	Tetryl	1000.000	873.671	12.6	89	-0.02	8.86- 9.66
12	2,4,6-Trinitrotoluene	1000.000	964.359	3.6	99	-0.02	9.31-10.11
13	2-Amino-4,6-Dinitrotol	1000.000	988.911	1.1	101	-0.02	9.65-10.45
14	4-Amino-2,6-Dinitrotol	1000.000	960.322	4.0	100	-0.02	10.11-10.91
15 S	3,4-Dinitrotoluene	1000.000	1046.717	-4.7	110	-0.02	10.54-11.34
16	2,4-Dinitrotoluene	1000.000	984.651	1.5	100	-0.02	11.20-12.00
17	2,6-Dinitrotoluene	1000.000	968.862	3.1	101	-0.02	11.64-12.44
18	o-Nitrotoluene	1000.000	973.997	2.6	100	-0.02	14.64-15.51
19	p-Nitrotoluene	1000.000	942.946	5.7	100	-0.02	15.09-16.09
20	m-Nitrotoluene	1000.000	974.729	2.5	100	-0.02	15.97-16.97
21	PETN		----------NA----------				

***** Signal #2 *****

1	TNX	1000.000	830.679	16.9#	89	0.00	1.04- 1.64
2	HMX	1000.000	1021.520	-2.2	101	0.00	1.17- 1.77
	----------	Amount	Calc.	%Drift	----------		
3	DNX	1000.000	1128.814	-12.9	114	0.00	1.42- 2.02
	----------	Amount	Calc.	%Drift	----------		
4	MNX	1000.000	889.561	11.0	91	0.00	2.00- 2.60
5	RDX	1000.000	990.324	1.0	100	0.00	2.51- 3.31
6	1,3,5-Trinitrobenzene	1000.000	974.623	2.5	100	0.00	4.28- 5.08
7	1,3-Dinitrobenzene	1000.000	1003.969	-0.4	103	0.00	5.45- 6.25
8	3,5-Dinitroaniline	1000.000	970.823	2.9	100	0.00	5.80- 6.60
9	Nitrobenzene	1000.000	974.174	2.6	103	0.00	6.93- 7.73
10	Nitroglycerin	1000.000	978.847	2.1	99	-0.01	8.39- 9.39
11	Tetryl	1000.000	876.639	12.3	90	-0.02	8.86- 9.66
12	2,4,6-Trinitrotoluene	1000.000	980.889	1.9	99	-0.02	9.31-10.11
13	2-Amino-4,6-Dinitrotol	1000.000	998.097	0.2	101	-0.02	9.65-10.45

8.7.6

Continuing Calibration Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GBB1936-CC1929
Lab FileID: BB066750.D

14		4-Amino-2,6-Dinitrotol	1000.000	986.375	1.4	100	-0.02	10.11-10.91
15	S	3,4-Dinitrotoluene	1000.000	1104.566	-10.5	110	-0.02	10.54-11.34
16		2,4-Dinitrotoluene	1000.000	1033.571	-3.4	101	-0.02	11.20-12.00
17		2,6-Dinitrotoluene	1000.000	1029.190	-2.9	101	-0.02	11.64-12.44
18		o-Nitrotoluene	1000.000	1026.559	-2.7	102	-0.02	14.51-15.51
19		p-Nitrotoluene	1000.000	1053.535	-5.4	101	-0.02	15.09-16.09
			Amount	Calc.	%Drift			
20		m-Nitrotoluene	1000.000	971.931	2.8	100	-0.02	15.97-16.97
			Amount	Calc.	%Drift			
21		PETN	1000.000	1039.912	-4.0	101	0.00	17.76-18.96

(#) = Out of Range SPCC's out = 0 CCC's out = 0
BB066564.D 8330B_101119_PLUS.M Fri Oct 25 14:31:12 2019

8.7.6

8

Continuing Calibration Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GBB1937-CC1929
Lab FileID: BB066786.D

Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\2\DATA\GBB1937\BB066786.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1937\BB066786.D\dad1A.ch
Acq On : 26-Oct-2019, 01:24:17 Operator: williamh
Sample : cc1929-1000 Inst : G1315B
Misc : op77416,GBB1937,1060,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT Window
1	TNX	1000.000	914.569	8.5	96	0.00	1.04- 1.64
2	HMX	1000.000	986.775	1.3	96	0.00	1.17- 1.77
3	DNX	1000.000	1141.452	-14.1	114	0.00	1.42- 2.02
4	MNX	1000.000	884.618	11.5	91	0.00	2.00- 2.60
5	RDX	1000.000	925.296	7.5	95	-0.01	2.51- 3.31
6	1,3,5-Trinitrobenzene	1000.000	913.011	8.7	93	-0.01	4.28- 5.08
7	1,3-Dinitrobenzene	1000.000	933.351	6.7	96	-0.01	5.45- 6.25
8	3,5-Dinitroaniline	1000.000	932.090	6.8	95	-0.02	5.80- 6.60
9	Nitrobenzene	1000.000	924.580	7.5	97	-0.02	6.93- 7.73
10	Nitroglycerin		----------NA----------				
11	Tetryl	1000.000	876.086	12.4	90	-0.03	8.86- 9.66
12	2,4,6-Trinitrotoluene	1000.000	920.611	7.9	94	-0.03	9.31-10.11
13	2-Amino-4,6-Dinitrotol	1000.000	936.581	6.3	96	-0.05	9.65-10.45
14	4-Amino-2,6-Dinitrotol	1000.000	910.957	8.9	95	-0.05	10.11-10.91
15 S	3,4-Dinitrotoluene	1000.000	925.146	7.5	97	-0.04	10.54-11.34
16	2,4-Dinitrotoluene	1000.000	932.108	6.8	95	-0.04	11.20-12.00
17	2,6-Dinitrotoluene	1000.000	912.310	8.8	95	-0.05	11.64-12.44
18	o-Nitrotoluene	1000.000	927.792	7.2	96	-0.04	14.64-15.51
19	p-Nitrotoluene	1000.000	898.710	10.1	96	-0.04	15.09-16.09
20	m-Nitrotoluene	1000.000	926.727	7.3	95	-0.04	15.97-16.97
21	PETN		----------NA----------				

***** Signal #2 *****

1	TNX	1000.000	885.495	11.5	95	0.00	1.04- 1.64
2	HMX	1000.000	977.806	2.2	96	0.00	1.17- 1.77
	----------	Amount	Calc.	%Drift	----------		
3	DNX	1000.000	1120.163	-12.0	113	0.00	1.42- 2.02
	----------	Amount	Calc.	%Drift	----------		
4	MNX	1000.000	890.994	10.9	91	0.00	2.00- 2.60
5	RDX	1000.000	943.588	5.6	95	-0.01	2.51- 3.31
6	1,3,5-Trinitrobenzene	1000.000	934.726	6.5	96	-0.01	4.28- 5.08
7	1,3-Dinitrobenzene	1000.000	955.772	4.4	98	-0.01	5.45- 6.25
8	3,5-Dinitroaniline	1000.000	927.845	7.2	96	-0.02	5.80- 6.60
9	Nitrobenzene	1000.000	925.377	7.5	98	-0.02	6.93- 7.73
10	Nitroglycerin	1000.000	935.900	6.4	95	-0.02	8.39- 9.39
11	Tetryl	1000.000	885.108	11.5	91	-0.03	8.86- 9.66
12	2,4,6-Trinitrotoluene	1000.000	935.511	6.4	95	-0.03	9.31-10.11
13	2-Amino-4,6-Dinitrotol	1000.000	949.784	5.0	96	-0.05	9.65-10.45

Continuing Calibration Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GBB1937-CC1929
Lab FileID: BB066786.D

14		4-Amino-2,6-Dinitrotol	1000.000	936.293	6.4	95	-0.05	10.11-10.91
15	S	3,4-Dinitrotoluene	1000.000	976.936	2.3	98	-0.04	10.54-11.34
16		2,4-Dinitrotoluene	1000.000	973.509	2.6	95	-0.04	11.20-12.00
17		2,6-Dinitrotoluene	1000.000	975.238	2.5	96	-0.05	11.64-12.44
18		o-Nitrotoluene	1000.000	975.070	2.5	97	-0.04	14.51-15.51
19		p-Nitrotoluene	1000.000	1007.061	-0.7	96	-0.04	15.09-16.09

			Amount	Calc.	%Drift			
20		m-Nitrotoluene	1000.000	934.954	6.5	96	-0.04	15.97-16.97

			Amount	Calc.	%Drift			
21		PETN	1000.000	981.242	1.9	95	-0.01	17.76-18.96

(#) = Out of Range SPCC's out = 0 CCC's out = 0
BB066564.D 8330B_101119_PLUS.M Mon Oct 28 13:36:40 2019

8.7.7

8

Continuing Calibration Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GBB1937-ECC1929
Lab FileID: BB066798.D

Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\2\DATA\GBB1937\BB066798.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1937\BB066798.D\dad1A.ch
Acq On : 26-Oct-2019, 07:23:54 Operator: williamh
Sample : ecc1929-1000 Inst : G1315B
Misc : op77415,GBB1937,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT Window
1	TNX	1000.000	917.678	8.2	96	0.00	1.04- 1.64
2	HMX	1000.000	991.621	0.8	96	0.00	1.17- 1.77
3	DNX	1000.000	1143.735	-14.4	114	0.00	1.42- 2.02
4	MNX	1000.000	877.904	12.2	91	0.00	2.00- 2.60
5	RDX	1000.000	924.236	7.6	95	-0.01	2.51- 3.31
6	1,3,5-Trinitrobenzene	1000.000	925.237	7.5	94	-0.01	4.28- 5.08
7	1,3-Dinitrobenzene	1000.000	928.922	7.1	95	-0.02	5.45- 6.25
8	3,5-Dinitroaniline	1000.000	928.875	7.1	95	-0.02	5.80- 6.60
9	Nitrobenzene	1000.000	925.190	7.5	97	-0.02	6.93- 7.73
10	Nitroglycerin		----------NA----------				
11	Tetryl	1000.000	861.722	13.8	88	-0.04	8.86- 9.66
12	2,4,6-Trinitrotoluene	1000.000	916.294	8.4	94	-0.04	9.31-10.11
13	2-Amino-4,6-Dinitrotol	1000.000	936.158	6.4	96	-0.05	9.65-10.45
14	4-Amino-2,6-Dinitrotol	1000.000	908.450	9.2	95	-0.06	10.11-10.91
15 S	3,4-Dinitrotoluene	1000.000	923.245	7.7	97	-0.05	10.54-11.34
16	2,4-Dinitrotoluene	1000.000	931.264	6.9	95	-0.05	11.20-12.00
17	2,6-Dinitrotoluene	1000.000	922.398	7.8	96	-0.05	11.64-12.44
18	o-Nitrotoluene	1000.000	924.643	7.5	95	-0.05	14.64-15.51
19	p-Nitrotoluene	1000.000	897.411	10.3	96	-0.05	15.09-16.09
20	m-Nitrotoluene	1000.000	924.255	7.6	95	-0.05	15.97-16.97
21	PETN		----------NA----------				

***** Signal #2 *****

1	TNX	1000.000	885.952	11.4	95	0.00	1.04- 1.64
2	HMX	1000.000	979.088	2.1	96	0.00	1.17- 1.77
	---------- Amount	Calc.	%Drift	----------			
3	DNX	1000.000	1121.749	-12.2	114	0.00	1.42- 2.02
	---------- Amount	Calc.	%Drift	----------			
4	MNX	1000.000	887.425	11.3	90	0.00	2.00- 2.60
5	RDX	1000.000	940.095	6.0	95	-0.01	2.51- 3.31
6	1,3,5-Trinitrobenzene	1000.000	933.301	6.7	96	-0.01	4.28- 5.08
7	1,3-Dinitrobenzene	1000.000	952.956	4.7	97	-0.02	5.45- 6.25
8	3,5-Dinitroaniline	1000.000	925.757	7.4	95	-0.02	5.80- 6.60
9	Nitrobenzene	1000.000	928.214	7.2	98	-0.02	6.93- 7.73
10	Nitroglycerin	1000.000	932.197	6.8	94	-0.03	8.39- 9.39
11	Tetryl	1000.000	869.255	13.1	89	-0.04	8.86- 9.66
12	2,4,6-Trinitrotoluene	1000.000	929.556	7.0	94	-0.04	9.31-10.11
13	2-Amino-4,6-Dinitrotol	1000.000	947.515	5.2	96	-0.05	9.65-10.45

8.7.8

8

Continuing Calibration Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GBB1937-ECC1929
Lab FileID: BB066798.D

14		4-Amino-2,6-Dinitrotol	1000.000	934.725	6.5	95	-0.05	10.11-10.91
15	S	3,4-Dinitrotoluene	1000.000	975.013	2.5	97	-0.05	10.54-11.34
16		2,4-Dinitrotoluene	1000.000	974.574	2.5	95	-0.05	11.20-12.00
17		2,6-Dinitrotoluene	1000.000	976.062	2.4	96	-0.05	11.64-12.44
18		o-Nitrotoluene	1000.000	969.589	3.0	96	-0.05	14.51-15.51
19		p-Nitrotoluene	1000.000	1004.449	-0.4	96	-0.05	15.09-16.09

			Amount	Calc.	%Drift			
20		m-Nitrotoluene	1000.000	926.548	7.3	95	-0.05	15.97-16.97

			Amount	Calc.	%Drift			
21		PETN	1000.000	996.368	0.4	97	-0.01	17.76-18.96

(#) = Out of Range SPCC's out = 0 CCC's out = 0
BB066564.D 8330B_101119_PLUS.M Mon Oct 28 13:36:41 2019

8.7.8

8

Continuing Calibration Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GBB1938-CC1929
Lab FileID: BB066803.D

Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\2\DATA\GBB1938\BB066803.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1938\BB066803.D\dad1A.ch
Acq On : 28-Oct-2019, 12:08:38 Operator: williamh
Sample : cc1929-1000 Inst : G1315B
Misc : op77415,GBB1938,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT Window
1	TNX	1000.000	914.022	8.6	96	0.00	1.04- 1.64
2	HMX	1000.000	984.106	1.6	95	-0.01	1.17- 1.77
3	DNX	1000.000	1144.475	-14.4	114	-0.01	1.42- 2.02
4	MNX	1000.000	881.261	11.9	91	-0.03	2.00- 2.60
5	RDX	1000.000	920.941	7.9	94	-0.03	2.51- 3.31
6	1,3,5-Trinitrobenzene	1000.000	930.240	7.0	95	-0.04	4.28- 5.08
7	1,3-Dinitrobenzene	1000.000	925.912	7.4	95	-0.05	5.45- 6.25
8	3,5-Dinitroaniline	1000.000	933.088	6.7	95	-0.06	5.80- 6.60
9	Nitrobenzene	1000.000	929.737	7.0	97	-0.06	6.93- 7.73
10	Nitroglycerin	----------	NA	----------			
11	Tetryl	1000.000	888.392	11.2	91	-0.10	8.86- 9.66
12	2,4,6-Trinitrotoluene	1000.000	916.040	8.4	94	-0.10	9.31-10.11
13	2-Amino-4,6-Dinitrotol	1000.000	929.966	7.0	95	-0.13	9.65-10.45
14	4-Amino-2,6-Dinitrotol	1000.000	908.208	9.2	95	-0.14	10.11-10.91
15 S	3,4-Dinitrotoluene	1000.000	928.834	7.1	98	-0.12	10.54-11.34
16	2,4-Dinitrotoluene	1000.000	928.424	7.2	95	-0.12	11.20-12.00
17	2,6-Dinitrotoluene	1000.000	913.187	8.7	95	-0.13	11.64-12.44
18	o-Nitrotoluene	1000.000	916.230	8.4	94	-0.12	14.64-15.51
19	p-Nitrotoluene	1000.000	888.476	11.2	95	-0.12	15.09-16.09
20	m-Nitrotoluene	1000.000	915.654	8.4	94	-0.11	15.97-16.97
21	PETN	----------	NA	----------			

***** Signal #2 *****

1	TNX	1000.000	883.554	11.6	95	0.00	1.04- 1.64
2	HMX	1000.000	975.896	2.4	96	-0.01	1.17- 1.77
	----------	Amount	Calc.	%Drift	----------		
3	DNX	1000.000	1122.848	-12.3	114	-0.01	1.42- 2.02
	----------	Amount	Calc.	%Drift	----------		
4	MNX	1000.000	887.667	11.2	90	-0.03	2.00- 2.60
5	RDX	1000.000	935.213	6.5	94	-0.03	2.51- 3.31
6	1,3,5-Trinitrobenzene	1000.000	927.360	7.3	95	-0.04	4.28- 5.08
7	1,3-Dinitrobenzene	1000.000	941.448	5.9	96	-0.05	5.45- 6.25
8	3,5-Dinitroaniline	1000.000	924.749	7.5	95	-0.06	5.80- 6.60
9	Nitrobenzene	1000.000	920.231	8.0	97	-0.06	6.93- 7.73
10	Nitroglycerin	1000.000	915.253	8.5	93	-0.07	8.39- 9.39
11	Tetryl	1000.000	896.160	10.4	92	-0.10	8.86- 9.66
12	2,4,6-Trinitrotoluene	1000.000	924.636	7.5	94	-0.10	9.31-10.11
13	2-Amino-4,6-Dinitrotol	1000.000	944.262	5.6	96	-0.13	9.65-10.45

Continuing Calibration Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GBB1938-CC1929
Lab FileID: BB066803.D

14		4-Amino-2,6-Dinitrotol	1000.000	933.182	6.7	95	-0.14	10.11-10.91
15	S	3,4-Dinitrotoluene	1000.000	977.628	2.2	98	-0.12	10.54-11.34
16		2,4-Dinitrotoluene	1000.000	964.828	3.5	94	-0.12	11.20-12.00
17		2,6-Dinitrotoluene	1000.000	965.846	3.4	95	-0.13	11.64-12.44
18		o-Nitrotoluene	1000.000	975.715	2.4	97	-0.12	14.51-15.51
19		p-Nitrotoluene	1000.000	1001.991	-0.2	96	-0.12	15.09-16.09

			Amount	Calc.	%Drift			
20		m-Nitrotoluene	1000.000	921.967	7.8	95	-0.11	15.97-16.97

			Amount	Calc.	%Drift			
21		PETN	1000.000	982.471	1.8	96	-0.04	17.76-18.96

(#) = Out of Range SPCC's out = 0 CCC's out = 0
BB066564.D 8330B_101119_PLUS.M Tue Oct 29 14:19:11 2019

8.7.9

8

Continuing Calibration Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GBB1938-CC1929
Lab FileID: BB066814.D

Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\2\DATA\GBB1938\BB066814.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1938\BB066814.D\dad1A.ch
Acq On : 28-Oct-2019, 17:38:21 Operator: williamh
Sample : cc1929-1000 Inst : G1315B
Misc : op77415,GBB1938,500,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT Window
1	TNX	1000.000	917.152	8.3	96	0.00	1.04- 1.64
2	HMX	1000.000	971.606	2.8	94	0.00	1.17- 1.77
3	DNX	1000.000	1132.148	-13.2	113	0.00	1.42- 2.02
4	MNX	1000.000	877.888	12.2	91	0.00	2.00- 2.60
5	RDX	1000.000	922.224	7.8	95	-0.01	2.51- 3.31
6	1,3,5-Trinitrobenzene	1000.000	927.921	7.2	95	0.00	4.28- 5.08
7	1,3-Dinitrobenzene	1000.000	924.562	7.5	95	-0.01	5.45- 6.25
8	3,5-Dinitroaniline	1000.000	925.875	7.4	94	-0.02	5.80- 6.60
9	Nitrobenzene	1000.000	909.863	9.0	95	-0.02	6.93- 7.73
10	Nitroglycerin		----------NA----------				
11	Tetryl	1000.000	868.061	13.2	89	-0.04	8.86- 9.66
12	2,4,6-Trinitrotoluene	1000.000	913.272	8.7	94	-0.04	9.31-10.11
13	2-Amino-4,6-Dinitrotol	1000.000	931.501	6.8	96	-0.06	9.65-10.45
14	4-Amino-2,6-Dinitrotol	1000.000	904.241	9.6	94	-0.06	10.11-10.91
15 S	3,4-Dinitrotoluene	1000.000	920.373	8.0	97	-0.05	10.54-11.34
16	2,4-Dinitrotoluene	1000.000	924.388	7.6	94	-0.05	11.20-12.00
17	2,6-Dinitrotoluene	1000.000	911.419	8.9	95	-0.05	11.64-12.44
18	o-Nitrotoluene	1000.000	919.102	8.1	95	-0.06	14.64-15.51
19	p-Nitrotoluene	1000.000	891.492	10.9	95	-0.06	15.09-16.09
20	m-Nitrotoluene	1000.000	919.873	8.0	94	-0.05	15.97-16.97
21	PETN		----------NA----------				

***** Signal #2 *****

1	TNX	1000.000	887.907	11.2	95	0.00	1.04- 1.64
2	HMX	1000.000	955.439	4.5	94	0.00	1.17- 1.77
	----------	Amount	Calc.	%Drift	----------		
3	DNX	1000.000	1099.618	-10.0	111	0.00	1.42- 2.02
	----------	Amount	Calc.	%Drift	----------		
4	MNX	1000.000	883.709	11.6	90	0.00	2.00- 2.60
5	RDX	1000.000	933.702	6.6	94	-0.01	2.51- 3.31
6	1,3,5-Trinitrobenzene	1000.000	910.377	9.0	94	0.00	4.28- 5.08
7	1,3-Dinitrobenzene	1000.000	947.548	5.2	97	-0.01	5.45- 6.25
8	3,5-Dinitroaniline	1000.000	921.160	7.9	95	-0.02	5.80- 6.60
9	Nitrobenzene	1000.000	912.123	8.8	96	-0.02	6.93- 7.73
10	Nitroglycerin	1000.000	921.496	7.9	93	-0.02	8.39- 9.39
11	Tetryl	1000.000	876.076	12.4	90	-0.04	8.86- 9.66
12	2,4,6-Trinitrotoluene	1000.000	924.429	7.6	94	-0.04	9.31-10.11
13	2-Amino-4,6-Dinitrotol	1000.000	944.340	5.6	96	-0.06	9.65-10.45

Continuing Calibration Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GBB1938-CC1929
Lab FileID: BB066814.D

14		4-Amino-2,6-Dinitrotol	1000.000	929.273	7.1	94	-0.06	10.11-10.91
15	S	3,4-Dinitrotoluene	1000.000	973.820	2.6	97	-0.05	10.54-11.34
16		2,4-Dinitrotoluene	1000.000	964.435	3.6	94	-0.05	11.20-12.00
17		2,6-Dinitrotoluene	1000.000	967.526	3.2	95	-0.05	11.64-12.44
18		o-Nitrotoluene	1000.000	964.221	3.6	96	-0.05	14.51-15.51
19		p-Nitrotoluene	1000.000	997.139	0.3	96	-0.05	15.09-16.09
			Amount	Calc.	%Drift			
20		m-Nitrotoluene	1000.000	921.447	7.9	95	-0.05	15.97-16.97
			Amount	Calc.	%Drift			
21		PETN	1000.000	977.007	2.3	95	-0.02	17.76-18.96

(#) = Out of Range SPCC's out = 0 CCC's out = 0
BB066564.D 8330B_101119_PLUS.M Tue Oct 29 14:22:26 2019

8.7.10

8

Initial Calibration Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GGG2769-ICC2769
Lab FileID: GG617752.D

Response Factor Report G1315B

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 15:51:18 2019
Response via : Initial Calibration

Calibration Files
20 =GG617747.D 50 =GG617748.D 100 =GG617749.D 200 =GG617750.D
500 =GG617751.D 1000=GG617752.D 2500=GG617753.D 5000=GG617754.D

Compound	20	50	100	200	500	1000	2500	5000	Avg	%RSD
1) TNX	1.090	0.567	0.627	0.595	0.598	0.602	0.618	0.604	0.663 E4	26.21
---- Quadratic regr., Force(0,0) ---- Coefficient = 0.9999										
Response Ratio = 0.00000 + 6202.12639 *A + -0.03160 *A^2										
2) HMX	3.834	2.496	3.035	2.806	2.719	3.026	2.990	2.931	2.980 E3	13.12
3) DNX	7.384	4.212	4.785	4.214	4.184	4.047	4.321	4.153	4.663 E3	24.06
---- Quadratic regr., Force(0,0) ---- Coefficient = 0.9997										
Response Ratio = 0.00000 + 4333.59625 *A + -0.03462 *A^2										
4) MNX	3.829	4.429	5.498	5.552	5.623	5.735	5.854	5.780	5.288 E3	14.03
5) 1,3,5-Trinit	1.020	0.967	1.069	1.037	1.033	1.043	1.058	1.046	1.034 E4	3.00
6) RDX	4.787	4.788	5.136	5.268	5.146	5.160	5.189	5.085	5.070 E3	3.58
7) 1,3-Dinitrob	1.351	1.340	1.497	1.400	1.385	1.399	1.413	1.396	1.398 E4	3.38
8) Nitrobenzene	9.226	8.494	9.395	8.804	8.737	8.836	8.904	8.831	8.904 E3	3.18
9) 2,4,6-Trinit	1.020	0.934	1.096	1.022	1.018	1.025	1.033	1.011	1.020 E4	4.30
10) Nitroglyceri									0.000	-1.00
11) Tetryl	6.250	6.856	8.642	7.770	7.905	7.927	8.059	7.836	7.656 E3	9.79
12) 3,4-Dinitrot	4.231	4.332	4.810	4.488	4.563	4.591	4.571	4.539	4.515 E3	3.87
13) 2,6-Dinitrot	6.796	6.590	7.679	7.285	7.241	7.352	7.470	7.339	7.219 E3	4.93
14) 2,4-Dinitrot	1.203	1.143	1.329	1.286	1.273	1.291	1.307	1.283	1.265 E4	4.84
15) o-Nitrotolue	4.848	4.544	6.419	6.171	6.103	6.202	6.233	6.005	5.816 E3	12.13
16) 3,5-Dinitroa	0.842	0.938	1.099	1.046	1.049	1.053	1.074	1.060	1.020 E4	8.42
17) p-Nitrotolue	1.096	1.037	1.221	1.174	1.176	1.189	1.207	1.178	1.160 E4	5.33
18) 4-Amino-2,6-	1.069	1.037	1.221	1.174	1.176	1.189	1.207	1.178	1.156 E4	5.74
19) m-Nitrotolue	5.524	5.089	6.330	5.944	5.883	5.955	6.038	5.897	5.833 E3	6.39
20) 2-Amino-4,6-	0.888	0.781	1.024	1.003	0.987	1.000	1.015	0.977	0.960 E4	8.70
21) PETN									0.000	-1.00

Signal #2

1) TNX	1.090	0.571	0.627	0.597	0.595	0.600	0.618	0.604	0.663 E4	26.17
---- Quadratic regr., Force(0,0) ---- Coefficient = 0.9999										
Response Ratio = 0.00000 + 6194.64751 *A + -0.03004 *A^2										
2) HMX	3.693	2.602	3.068	2.854	2.826	3.028	2.990	2.931	2.999 E3	10.55
3) DNX	7.474	4.184	4.889	4.312	4.279	4.063	4.321	4.153	4.709 E3	24.31
---- Quadratic regr., Force(0,0) ---- Coefficient = 0.9997										
Response Ratio = 0.00000 + 4350.00063 *A + -0.03808 *A^2										
4) MNX	3.921	4.420	5.498	5.552	5.623	5.735	5.854	5.780	5.298 E3	13.55
5) 1,3,5-Trinit	1.020	0.967	1.069	1.037	1.033	1.043	1.058	1.046	1.034 E4	3.00
6) RDX	4.787	4.788	5.136	5.268	5.146	5.160	5.189	5.085	5.070 E3	3.58
7) 1,3-Dinitrob	0.883	1.110	1.035	1.044	1.096	1.064	1.072	1.050	1.044 E4	6.70
8) Nitrobenzene	8.764	9.364	8.424	8.090	7.900	8.512	8.398	8.260	8.464 E3	5.30
9) 2,4,6-Trinit	1.186	1.257	1.276	1.460	1.351	1.365	1.361	1.320	1.322 E4	6.27
10) Nitroglyceri			3.766	3.719	3.543	3.333	3.267	3.115	3.457 E3	7.54
11) Tetryl	1.611	1.083	1.444	1.506	1.352	1.423	1.457	1.394	1.409 E4	10.84

Initial Calibration Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA
Sample: GGG2769-ICC2769
Lab FileID: GG617752.D

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12) 3,4-Dinitrot 8.357 6.861 8.685 8.668 8.891 9.056 9.049 9.141 8.588 E3   8.67
13) 2,6-Dinitrot 1.018 1.084 1.206 1.125 1.051 1.077 1.093 1.077 1.091 E4   5.10
            ---- Linear regr., Force(0,0) ----  Coefficient =  0.9999
              Response Ratio = 0.00000 + 10801.53993 *A

14) 2,4-Dinitrot 1.041 0.922 0.797 0.842 0.827 0.883 0.914 0.909 0.892 E4   8.45
15) o-Nitrotolue 6.448 7.957 8.440 8.806 8.347 8.738 8.989 8.884 8.326 E3   9.97
16) 3,5-Dinitroa 1.569 1.678 1.615 1.616 1.642 1.681 1.736 1.743 1.660 E4   3.68
17) p-Nitrotolue 2.824 2.121 2.192 1.990 2.054 2.083 2.153 2.150 2.196 E4  11.91
18) 4-Amino-2,6- 2.824 1.927 2.192 1.990 2.054 2.083 2.153 2.150 2.172 E4  12.80
19) m-Nitrotolue 1.275 0.790 1.070 0.960 0.914 0.946 0.998 1.002 0.994 E4  14.03
20) 2-Amino-4,6- 1.755 1.340 1.389 1.299 1.291 1.344 1.406 1.401 1.403 E4  10.61
21) PETN                    2.339 2.597 2.462 3.079 3.454 3.480 2.902 E3  17.39
            ---- Quadratic regr., Force(0,0) ----  Coefficient =  0.9992
              Response Ratio = 0.00000 + 3195.99600 *A + 0.05906 *A^2

--------------------------------------------------------------------------------
(#) = Out of Range  ###  Number of calibration levels exceeded format  ###

          8330RPB.M_092519.M        Thu Sep 26 16:02:14 2019
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8.7.11

8

Initial Calibration Verification

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GGG2769-ICV2769
Lab FileID: GG617755.D

Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617755.D\dad1B.ch Vial: 10
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617755.D\dad1A.ch
Acq On : 26-Sep-2019, 00:25:58 Operator: williamh
Sample : icv2769-1000 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 15:51:18 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT Window
1		TNX	1000.000	996.081	0.4	102	0.02	4.46- 5.46
2		HMX	1000.000	980.590	1.9	97	0.02	4.87- 5.87
3		DNX	1000.000	957.975	4.2	102	0.02	4.98- 5.98
4		MNX	1000.000	1010.883	-1.1	93	0.03	5.82- 6.82
5		1,3,5-Trinitrobenzene	1000.000	918.511	8.1	91	0.04	6.63- 7.63
6		RDX	1000.000	975.924	2.4	96	0.05	7.05- 8.05
7		1,3-Dinitrobenzene	1000.000	954.196	4.6	95	0.05	9.00-10.00
8		Nitrobenzene	1000.000	968.207	3.2	98	0.06	9.91-10.91
9		2,4,6-Trinitrotoluene	1000.000	995.903	0.4	99	0.07	10.52-11.52
10		Nitroglycerin			NA			
11		Tetryl	1000.000	984.241	1.6	95	0.10	11.62-12.62
12	S	3,4-Dinitrotoluene			NA			
13		2,6-Dinitrotoluene	1000.000	873.993	12.6	86	0.12	13.38-14.38
14		2,4-Dinitrotoluene	1000.000	979.272	2.1	96	0.11	14.08-15.08
15		o-Nitrotoluene	1000.000	1054.033	-5.4	99	0.13	15.56-16.56
16		3,5-Dinitroaniline	1000.000	1041.817	-4.2	101	0.09	14.96-15.96
17		p-Nitrotoluene	1000.000	984.309	1.6	96	0.13	16.60-17.60
18		4-Amino-2,6-Dinitrotol	1000.000	987.195	1.3	96	0.13	16.60-17.60
19		m-Nitrotoluene	1000.000	1018.222	-1.8	100	0.14	17.83-18.83
20		2-Amino-4,6-Dinitrotol	1000.000	960.966	3.9	92	0.14	18.66-19.66
21		PETN			NA			

***** Signal #2 *****

			Amount	Calc.	%Drift			
1		TNX	1000.000	997.042	0.3	102	0.02	4.46- 5.46
2		HMX	1000.000	974.217	2.6	96	0.02	4.87- 5.87
3		DNX	1000.000	955.041	4.5	101	0.02	4.98- 5.98

Initial Calibration Verification

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GGG2769-ICV2769
Lab FileID: GG617755.D

			Amount	Calc.	%Drift			
4		MNX	1000.000	1008.886	-0.9	93	0.03	5.82- 6.82
5		1,3,5-Trinitrobenzene	1000.000	918.511	8.1	91	0.04	6.63- 7.63
6		RDX	1000.000	975.924	2.4	96	0.05	7.05- 8.05
7		1,3-Dinitrobenzene	1000.000	986.349	1.4	97	0.05	9.00-10.00
8		Nitrobenzene	1000.000	977.336	2.3	97	0.06	9.91-10.91
9		2,4,6-Trinitrotoluene	1000.000	1026.613	-2.7	99	0.07	10.52-11.52
10		Nitroglycerin	1000.000	999.345	0.1	104	0.09	11.15-12.15
11		Tetryl	1000.000	971.517	2.8	96	0.10	11.62-12.62

			Amount	Calc.	%Drift			
12	S	3,4-Dinitrotoluene	----------NA----------					

			Amount	Calc.	%Drift			
13		2,6-Dinitrotoluene	1000.000	844.042	15.6	85	0.12	13.38-14.38
14		2,4-Dinitrotoluene	1000.000	965.106	3.5	98	0.11	14.08-15.08
15		o-Nitrotoluene	1000.000	1006.127	-0.6	96	0.12	15.56-16.56
16		3,5-Dinitroaniline	1000.000	1029.620	-3.0	102	0.09	14.96-15.96
17		p-Nitrotoluene	1000.000	894.241	10.6	94	0.13	16.60-17.60
18		4-Amino-2,6-Dinitrotol	1000.000	904.219	9.6	94	0.13	16.60-17.60
19		m-Nitrotoluene	1000.000	934.998	6.5	98	0.14	17.83-18.83
20		2-Amino-4,6-Dinitrotol	1000.000	868.472	13.2	91	0.14	18.66-19.66

			Amount	Calc.	%Drift			
21		PETN	1000.000	815.859	18.4	86	0.19	19.78-20.78

(#) = Out of Range SPCC's out = 0 CCC's out = 0
GG617752.D 8330RPB.M_092519.M Thu Sep 26 16:02:40 2019

8.7.12

8

Continuing Calibration Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GGG2778-CC2769
Lab FileID: GG617955.D

Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\1\DATA\GGG2778\GG617955.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2778\GG617955.D\dad1A.ch
Acq On : 28-Oct-2019, 23:54:40 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : op77416,ggg2778,1040,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Oct 24 10:07:48 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT Window
1	TNX	1000.000	1107.617	-10.8	113	-0.02	4.47- 5.47
2	HMX	1000.000	890.346	11.0	88	-0.02	4.90- 5.90
3	DNX	1000.000	1129.245	-12.9	120	-0.02	4.99- 5.99
4	MNX	1000.000	1042.659	-4.3	96	-0.03	5.84- 6.84
5	1,3,5-Trinitrobenzene	1000.000	931.824	6.8	92	-0.03	6.65- 7.65
6	RDX	1000.000	959.226	4.1	94	-0.04	7.08- 8.08
7	1,3-Dinitrobenzene	1000.000	938.988	6.1	94	-0.05	9.02-10.02
8	Nitrobenzene	1000.000	927.052	7.3	93	-0.05	9.93-10.93
9	2,4,6-Trinitrotoluene	1000.000	936.908	6.3	93	-0.06	10.55-11.55
10	Nitroglycerin	----------	NA	----------			
11	Tetryl	1000.000	938.545	6.1	91	-0.08	11.68-12.68
12 S	3,4-Dinitrotoluene	1000.000	888.628	11.1	87	-0.09	13.09-14.09
13	2,6-Dinitrotoluene	1000.000	995.250	0.5	98	-0.07	13.41-14.41
14	2,4-Dinitrotoluene	1000.000	957.398	4.3	94	-0.07	14.11-15.11
15	o-Nitrotoluene	1000.000	1017.123	-1.7	95	-0.07	15.57-16.57
16	3,5-Dinitroaniline	1000.000	966.535	3.3	94	-0.08	14.98-15.98
17	p-Nitrotoluene	1000.000	964.002	3.6	94	-0.08	16.63-17.63
18	4-Amino-2,6-Dinitrotol	1000.000	966.829	3.3	94	-0.08	16.63-17.63
19	m-Nitrotoluene	1000.000	958.848	4.1	94	-0.07	17.83-18.83
20	2-Amino-4,6-Dinitrotol	1000.000	974.246	2.6	93	-0.10	18.71-19.71
21	PETN	----------	NA	----------			

***** Signal #2 *****

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT Window
1	TNX	1000.000	1108.655	-10.9	114	-0.02	4.47- 5.47
2	HMX	1000.000	861.674	13.8	85	-0.02	4.90- 5.90
3	DNX	1000.000	1026.026	-2.6	109	-0.02	4.99- 5.99

8.7.13

8

Continuing Calibration Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GGG2778-CC2769
Lab FileID: GG617955.D

			Amount	Calc.	%Drift			
4		MNX	1000.000	1040.600	-4.1	96	-0.03	5.84- 6.84
5		1,3,5-Trinitrobenzene	1000.000	931.824	6.8	92	-0.03	6.65- 7.65
6		RDX	1000.000	959.226	4.1	94	-0.04	7.08- 8.08
7		1,3-Dinitrobenzene	1000.000	960.680	3.9	94	-0.05	9.02-10.02
8		Nitrobenzene	1000.000	940.346	6.0	93	-0.05	9.93-10.93
9		2,4,6-Trinitrotoluene	1000.000	969.927	3.0	94	-0.06	10.56-11.56
10		Nitroglycerin	1000.000	901.091	9.9	93	-0.05	11.20-12.20
11		Tetryl	1000.000	944.276	5.6	93	-0.08	11.68-12.68

			Amount	Calc.	%Drift			
12	S	3,4-Dinitrotoluene	1000.000	897.668	10.2	89	-0.08	13.09-14.09

			Amount	Calc.	%Drift			
13		2,6-Dinitrotoluene	1000.000	938.430	6.2	95	-0.07	13.40-14.40
14		2,4-Dinitrotoluene	1000.000	899.235	10.1	91	-0.07	14.10-15.10
15		o-Nitrotoluene	1000.000	959.984	4.0	91	-0.07	15.57-16.57
16		3,5-Dinitroaniline	1000.000	933.553	6.6	92	-0.08	14.98-15.98
17		p-Nitrotoluene	1000.000	868.469	13.2	92	-0.08	16.63-17.63
18		4-Amino-2,6-Dinitrotol	1000.000	878.160	12.2	92	-0.08	16.63-17.63
19		m-Nitrotoluene	1000.000	875.922	12.4	92	-0.08	17.83-18.83
20		2-Amino-4,6-Dinitrotol	1000.000	885.461	11.5	92	-0.10	18.71-19.71

			Amount	Calc.	%Drift			
21		PETN	1000.000	884.192	11.6	93	-0.12	19.84-20.84

(#) = Out of Range SPCC's out = 0 CCC's out = 0
GG617752.D 8330RPB.M_092519.M Tue Oct 29 12:46:56 2019

8.7.13

8

Continuing Calibration Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GGG2778-ECC2769
Lab FileID: GG617963.D

Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\1\DATA\GGG2778\GG617963.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2778\GG617963.D\dad1A.ch
Acq On : 29-Oct-2019, 03:50:13 Operator: williamh
Sample : ecc2769-1000 Inst : G1315B
Misc : op77415,ggg2778,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Oct 24 10:07:48 2019
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT Window
1	TNX	1000.000	1106.132	-10.6	113	0.00	4.47- 5.47
2	HMX	1000.000	964.523	3.5	95	0.02	4.90- 5.90
3	DNX	1000.000	1170.913	-17.1#	124	0.00	4.99- 5.99
4	MNX	1000.000	1032.997	-3.3	95	-0.01	5.84- 6.84
5	1,3,5-Trinitrobenzene	1000.000	932.940	6.7	93	0.00	6.65- 7.65
6	RDX	1000.000	952.346	4.8	94	-0.02	7.08- 8.08
7	1,3-Dinitrobenzene	1000.000	939.414	6.1	94	0.00	9.02-10.02
8	Nitrobenzene	1000.000	921.228	7.9	93	-0.01	9.93-10.93
9	2,4,6-Trinitrotoluene	1000.000	932.521	6.7	93	-0.02	10.55-11.55
10	Nitroglycerin	----------	----------	NA	----------		
11	Tetryl	1000.000	932.851	6.7	90	-0.03	11.68-12.68
12 S	3,4-Dinitrotoluene	1000.000	890.297	11.0	88	-0.03	13.09-14.09
13	2,6-Dinitrotoluene	1000.000	983.841	1.6	97	-0.02	13.41-14.41
14	2,4-Dinitrotoluene	1000.000	954.696	4.5	94	-0.03	14.11-15.11
15	o-Nitrotoluene	1000.000	988.500	1.1	93	-0.02	15.57-16.57
16	3,5-Dinitroaniline	1000.000	960.363	4.0	93	-0.03	14.98-15.98
17	p-Nitrotoluene	1000.000	955.025	4.5	93	-0.03	16.63-17.63
18	4-Amino-2,6-Dinitrotol	1000.000	957.825	4.2	93	-0.03	16.63-17.63
19	m-Nitrotoluene	1000.000	948.522	5.1	93	-0.02	17.83-18.83
20	2-Amino-4,6-Dinitrotol	1000.000	963.493	3.7	92	-0.05	18.71-19.71
21	PETN	----------	----------	NA	----------		

***** Signal #2 *****

		Amount	Calc.	%Drift			
1	TNX	1000.000	1107.169	-10.7	114	0.00	4.47- 5.47
2	HMX	1000.000	870.905	12.9	86	0.00	4.90- 5.90
3	DNX	1000.000	1186.095	-18.6#	126	0.00	4.99- 5.99

8.7.14

8

Continuing Calibration Summary

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Sample: GGG2778-ECC2769
Lab FileID: GG617963.D

			Amount	Calc.	%Drift			
4		MNX	1000.000	1030.957	-3.1	95	0.00	5.84- 6.84
5		1,3,5-Trinitrobenzene	1000.000	932.940	6.7	93	0.00	6.65- 7.65
6		RDX	1000.000	952.346	4.8	94	-0.02	7.08- 8.08
7		1,3-Dinitrobenzene	1000.000	928.445	7.2	91	-0.01	9.02-10.02
8		Nitrobenzene	1000.000	950.848	4.9	95	-0.01	9.93-10.93
9		2,4,6-Trinitrotoluene	1000.000	962.065	3.8	93	-0.02	10.56-11.56
10		Nitroglycerin	1000.000	897.178	10.3	93	-0.02	11.20-12.20
11		Tetryl	1000.000	927.331	7.3	92	-0.03	11.68-12.68

			Amount	Calc.	%Drift			
12	S	3,4-Dinitrotoluene	1000.000	871.705	12.8	87	-0.04	13.09-14.09

			Amount	Calc.	%Drift			
13		2,6-Dinitrotoluene	1000.000	941.869	5.8	95	-0.02	13.40-14.40
14		2,4-Dinitrotoluene	1000.000	905.636	9.4	91	-0.03	14.10-15.10
15		o-Nitrotoluene	1000.000	926.539	7.3	88	-0.03	15.57-16.57
16		3,5-Dinitroaniline	1000.000	924.404	7.6	91	-0.03	14.98-15.98
17		p-Nitrotoluene	1000.000	869.882	13.0	92	-0.02	16.63-17.63
18		4-Amino-2,6-Dinitrotol	1000.000	879.588	12.0	92	-0.02	16.63-17.63
19		m-Nitrotoluene	1000.000	874.076	12.6	92	-0.03	17.83-18.83
20		2-Amino-4,6-Dinitrotol	1000.000	891.388	10.9	93	-0.05	18.71-19.71

			Amount	Calc.	%Drift			
21		PETN	1000.000	868.203	13.2	92	-0.07	19.84-20.84

(#) = Out of Range SPCC's out = 0 CCC's out = 0
GG617752.D 8330RPB.M_092519.M Tue Oct 29 12:46:57 2019

8.7.14

8

Run Sequence Report

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Run ID: GBB1929	**Method:** SW846 8330B	**Instrument ID:** GCBB

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
GBB1929-IC1929	BB066559.D	10/11/19 11:42	n/a	Initial cal 20
GBB1929-IC1929	BB066560.D	10/11/19 12:12	n/a	Initial cal 50
GBB1929-IC1929	BB066561.D	10/11/19 12:42	n/a	Initial cal 100
GBB1929-IC1929	BB066562.D	10/11/19 13:12	n/a	Initial cal 200
GBB1929-IC1929	BB066563.D	10/11/19 13:42	n/a	Initial cal 500
GBB1929-ICC1929	BB066564.D	10/11/19 14:12	n/a	Initial cal 1000
GBB1929-IC1929	BB066565.D	10/11/19 14:42	n/a	Initial cal 2500
GBB1929-IC1929	BB066566.D	10/11/19 15:12	n/a	Initial cal 5000
GBB1929-ICV1929	BB066568.D	10/11/19 16:15	n/a	Initial cal verification 1000
OP77138-MB	BB066569.D	10/11/19 16:45	OP77138	Method Blank
ZZZZZZ	BB066570.D	10/11/19 17:15	OP77138	(unrelated sample)
ZZZZZZ	BB066571.D	10/11/19 17:45	OP77138	(unrelated sample)
OP77139-MB	BB066572.D	10/11/19 18:15	OP77139	Method Blank
ZZZZZZ	BB066573.D	10/11/19 18:45	OP77139	(unrelated sample)
ZZZZZZ	BB066574.D	10/11/19 19:15	OP77139	(unrelated sample)
OP77140-MB	BB066575.D	10/11/19 19:45	OP77140	Method Blank
ZZZZZZ	BB066576.D	10/11/19 20:15	OP77140	(unrelated sample)
ZZZZZZ	BB066577.D	10/11/19 20:45	OP77140	(unrelated sample)
GBB1929-ECC1929	BB066578.D	10/11/19 21:15	n/a	Ending cal 1000

Run Sequence Report

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Run ID: GBB1935	**Method:** SW846 8330B	**Instrument ID:** GCBB

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
GBB1935-CC1929	BB066715.D	10/23/19 12:33	n/a	Continuing cal 1000
OP77364-BS	BB066716.D	10/23/19 13:03	OP77364	Blank Spike
OP77364-MB	BB066717.D	10/23/19 13:33	OP77364	Method Blank
FA69146-1	BB066718.D	10/23/19 14:03	OP77364	54MW13
FA69146-2	BB066719.D	10/23/19 14:33	OP77364	54TW13
FA69146-3	BB066720.D	10/23/19 15:03	OP77364	54MW10
FA69146-4	BB066721.D	10/23/19 15:33	OP77364	54MW12
FA69146-5	BB066722.D	10/23/19 16:03	OP77364	54MW1
ZZZZZZ	BB066723.D	10/23/19 16:33	OP77364	(unrelated sample)
GBB1935-ECC1929	BB066726.D	10/23/19 18:03	n/a	Ending cal 1000

Run Sequence Report

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Run ID: GBB1936	**Method:** SW846 8330A	**Instrument ID:** GCBB

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
GBB1936-CC1929	BB066739.D	10/24/19 11:13	n/a	Continuing cal 1000
OP77364-MS	BB066740.D	10/24/19 11:43	OP77364	Matrix Spike
OP77364-MSD	BB066741.D	10/24/19 12:13	OP77364	Matrix Spike Duplicate
OP77370-BS	BB066742.D	10/24/19 12:43	OP77370	Blank Spike
OP77370-MB	BB066743.D	10/24/19 13:13	OP77370	Method Blank
ZZZZZZ	BB066744.D	10/24/19 13:43	OP77370	(unrelated sample)
ZZZZZZ	BB066745.D	10/24/19 14:13	OP77370	(unrelated sample)
ZZZZZZ	BB066746.D	10/24/19 14:42	OP77370	(unrelated sample)
FA69110-3	BB066747.D	10/24/19 15:12	OP77370	(used for QC only; not part of job FA69146)
ZZZZZZ	BB066749.D	10/24/19 16:12	OP77335	(unrelated sample)
GBB1936-CC1929	BB066750.D	10/24/19 16:42	n/a	Continuing cal 1000
OP77370-MS	BB066752.D	10/24/19 17:42	OP77370	Matrix Spike
OP77370-MSD	BB066753.D	10/24/19 18:12	OP77370	Matrix Spike Duplicate
ZZZZZZ	BB066756.D	10/24/19 19:42	OP77370	(unrelated sample)
ZZZZZZ	BB066757.D	10/24/19 20:12	OP77370	(unrelated sample)
ZZZZZZ	BB066758.D	10/24/19 20:42	OP77370	(unrelated sample)
ZZZZZZ	BB066759.D	10/24/19 21:12	OP77370	(unrelated sample)
ZZZZZZ	BB066760.D	10/24/19 21:42	OP77370	(unrelated sample)
ZZZZZZ	BB066761.D	10/24/19 22:12	OP77370	(unrelated sample)
GBB1936-ECC1929	BB066762.D	10/24/19 22:42	n/a	Ending cal 1000

Run Sequence Report

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Run ID: GBB1937 **Method:** SW846 8330A **Instrument ID:** GCBB

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
GBB1937-CC1929	BB066765.D	10/25/19 14:55	n/a	Continuing cal 1000
ZZZZZZ	BB066767.D	10/25/19 15:55	OP77370	(unrelated sample)
ZZZZZZ	BB066768.D	10/25/19 16:25	OP77370	(unrelated sample)
ZZZZZZ	BB066769.D	10/25/19 16:55	OP77370	(unrelated sample)
ZZZZZZ	BB066770.D	10/25/19 17:24	OP77370	(unrelated sample)
ZZZZZZ	BB066771.D	10/25/19 17:54	OP77370	(unrelated sample)
ZZZZZZ	BB066772.D	10/25/19 18:24	OP77370	(unrelated sample)
GBB1937-CC1929	BB066774.D	10/25/19 19:24	n/a	Continuing cal 1000
OP77416-BS	BB066776.D	10/25/19 20:24	OP77416	Blank Spike
OP77416-MB	BB066777.D	10/25/19 20:54	OP77416	Method Blank
ZZZZZZ	BB066778.D	10/25/19 21:24	OP77416	(unrelated sample)
FA69207-1	BB066779.D	10/25/19 21:54	OP77416	(used for QC only; not part of job FA69146)
OP77416-MS	BB066780.D	10/25/19 22:24	OP77416	Matrix Spike
OP77416-MSD	BB066781.D	10/25/19 22:54	OP77416	Matrix Spike Duplicate
ZZZZZZ	BB066782.D	10/25/19 23:24	OP77416	(unrelated sample)
ZZZZZZ	BB066783.D	10/25/19 23:54	OP77416	(unrelated sample)
ZZZZZZ	BB066785.D	10/26/19 00:54	OP77416	(unrelated sample)
GBB1937-CC1929	BB066786.D	10/26/19 01:24	n/a	Continuing cal 1000
ZZZZZZ	BB066788.D	10/26/19 02:24	OP77416	(unrelated sample)
ZZZZZZ	BB066789.D	10/26/19 02:54	OP77416	(unrelated sample)
OP77415-BS	BB066790.D	10/26/19 03:24	OP77415	Blank Spike
OP77415-MB	BB066791.D	10/26/19 03:54	OP77415	Method Blank
ZZZZZZ	BB066792.D	10/26/19 04:24	OP77415	(unrelated sample)
LA58708-1	BB066793.D	10/26/19 04:54	OP77415	(used for QC only; not part of job FA69146)
ZZZZZZ	BB066796.D	10/26/19 06:23	OP77415	(unrelated sample)
FA69146-1	BB066797.D	10/26/19 06:53	OP77415	54MW13
GBB1937-ECC1929	BB066798.D	10/26/19 07:23	n/a	Ending cal 1000

Run Sequence Report

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Run ID: GBB1938 **Method:** SW846 8330B **Instrument ID:** GCBB

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
GBB1938-CC1929	BB066803.D	10/28/19 12:08	n/a	Continuing cal 1000
FA69146-2	BB066805.D	10/28/19 13:08	OP77415	54TW13
FA69146-3	BB066806.D	10/28/19 13:38	OP77415	54MW10
OP77415-MS2	BB066807.D	10/28/19 14:08	OP77415	Matrix Spike
OP77415-MS	BB066808.D	10/28/19 14:38	OP77415	Matrix Spike
OP77415-MSD	BB066809.D	10/28/19 15:08	OP77415	Matrix Spike Duplicate
FA69146-4	BB066810.D	10/28/19 15:38	OP77415	54MW12
OP77415-MSD2	BB066811.D	10/28/19 16:08	OP77415	Matrix Spike Duplicate
FA69146-5	BB066812.D	10/28/19 16:38	OP77415	54MW1
GBB1938-CC1929	BB066814.D	10/28/19 17:38	n/a	Continuing cal 1000
OP77440-BS	BB066816.D	10/28/19 18:38	OP77440	Blank Spike
OP77440-MB	BB066817.D	10/28/19 19:08	OP77440	Method Blank
OP77440-PT1	BB066818.D	10/28/19 19:38	OP77440	Laboratory Control Sample
ZZZZZZ	BB066819.D	10/28/19 20:08	OP77440	(unrelated sample)
ZZZZZZ	BB066820.D	10/28/19 20:38	OP77440	(unrelated sample)
ZZZZZZ	BB066821.D	10/28/19 21:08	OP77440	(unrelated sample)
FA69059-4	BB066822.D	10/28/19 21:38	OP77440	(used for QC only; not part of job FA69146)
ZZZZZZ	BB066823.D	10/28/19 22:08	OP77440	(unrelated sample)
ZZZZZZ	BB066824.D	10/28/19 22:38	OP77440	(unrelated sample)
FA69059-7	BB066825.D	10/28/19 23:08	OP77440	(used for QC only; not part of job FA69146)
GBB1938-CC1929	BB066826.D	10/28/19 23:38	n/a	Continuing cal 1000
ZZZZZZ	BB066828.D	10/29/19 00:37	OP77440	(unrelated sample)
ZZZZZZ	BB066829.D	10/29/19 01:07	OP77440	(unrelated sample)
OP77440-MS	BB066830.D	10/29/19 01:37	OP77440	Matrix Spike
OP77440-MSD	BB066831.D	10/29/19 02:07	OP77440	Matrix Spike Duplicate
OP77440-DUP	BB066832.D	10/29/19 02:37	OP77440	Duplicate
OP77440-DUP2	BB066833.D	10/29/19 03:07	OP77440	Duplicate
OP77440-GB1	BB066834.D	10/29/19 03:37	OP77440	Method Blank
OP77440-GB2	BB066835.D	10/29/19 04:07	OP77440	Method Blank
OP77440-GB3	BB066836.D	10/29/19 04:37	OP77440	Method Blank
GBB1938-ECC1929	BB066838.D	10/29/19 05:37	n/a	Ending cal 1000

Run Sequence Report

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Run ID: GGG2769 **Method:** SW846 8330A **Instrument ID:** GCGG

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
GGG2769-IC2769	GG617747.D	09/25/19 20:30	n/a	Initial cal 20
GGG2769-IC2769	GG617748.D	09/25/19 20:59	n/a	Initial cal 50
GGG2769-IC2769	GG617749.D	09/25/19 21:29	n/a	Initial cal 100
GGG2769-IC2769	GG617750.D	09/25/19 21:58	n/a	Initial cal 200
GGG2769-IC2769	GG617751.D	09/25/19 22:28	n/a	Initial cal 500
GGG2769-ICC2769	GG617752.D	09/25/19 22:57	n/a	Initial cal 1000
GGG2769-IC2769	GG617753.D	09/25/19 23:27	n/a	Initial cal 2500
GGG2769-IC2769	GG617754.D	09/25/19 23:56	n/a	Initial cal 5000
GGG2769-ICV2769	GG617755.D	09/26/19 00:25	n/a	Initial cal verification 1000
OP76947-MB	GG617756.D	09/26/19 00:55	OP76947	Method Blank
ZZZZZZ	GG617757.D	09/26/19 01:24	OP76947	(unrelated sample)
ZZZZZZ	GG617758.D	09/26/19 01:54	OP76947	(unrelated sample)
ZZZZZZ	GG617759.D	09/26/19 02:23	OP76947	(unrelated sample)
ZZZZZZ	GG617760.D	09/26/19 02:53	OP76947	(unrelated sample)
ZZZZZZ	GG617761.D	09/26/19 03:22	OP76947	(unrelated sample)
ZZZZZZ	GG617762.D	09/26/19 03:51	OP76947	(unrelated sample)
ZZZZZZ	GG617763.D	09/26/19 04:21	OP76947	(unrelated sample)
ZZZZZZ	GG617764.D	09/26/19 04:50	OP76947	(unrelated sample)
ZZZZZZ	GG617765.D	09/26/19 05:20	OP76947	(unrelated sample)
GGG2769-ECC2769	GG617766.D	09/26/19 05:49	n/a	Ending cal 1000

Run Sequence Report

Job Number: FA69146
Account: WESTVAH Weston Solutions, Inc
Project: Radford AAP; VA

Run ID: GGG2778 **Method:** SW846 8330A **Instrument ID:** GCGG

Lab Sample ID	Lab File ID	Date/Time Analyzed	Prep QC Batch	Client Sample ID
GGG2778-CC2769	GG617930.D	10/28/19 12:14	n/a	Continuing cal 1000
ZZZZZZ	GG617932.D	10/28/19 13:13	OP77370	(unrelated sample)
ZZZZZZ	GG617933.D	10/28/19 13:42	OP77370	(unrelated sample)
ZZZZZZ	GG617934.D	10/28/19 14:11	OP77370	(unrelated sample)
ZZZZZZ	GG617935.D	10/28/19 14:41	OP77370	(unrelated sample)
ZZZZZZ	GG617936.D	10/28/19 15:10	OP77370	(unrelated sample)
ZZZZZZ	GG617937.D	10/28/19 15:40	OP77370	(unrelated sample)
ZZZZZZ	GG617940.D	10/28/19 16:33	OP77370	(unrelated sample)
ZZZZZZ	GG617941.D	10/28/19 17:02	OP77370	(unrelated sample)
ZZZZZZ	GG617942.D	10/28/19 17:32	OP77370	(unrelated sample)
GGG2778-CC2769	GG617943.D	10/28/19 18:01	n/a	Continuing cal 1000
ZZZZZZ	GG617945.D	10/28/19 19:00	OP77370	(unrelated sample)
ZZZZZZ	GG617946.D	10/28/19 19:29	OP77370	(unrelated sample)
OP77416-MB	GG617947.D	10/28/19 19:59	OP77416	Method Blank
FA69207-1	GG617948.D	10/28/19 20:28	OP77416	(used for QC only; not part of job FA69146)
ZZZZZZ	GG617949.D	10/28/19 20:58	OP77416	(unrelated sample)
ZZZZZZ	GG617950.D	10/28/19 21:27	OP77416	(unrelated sample)
ZZZZZZ	GG617951.D	10/28/19 21:56	OP77416	(unrelated sample)
ZZZZZZ	GG617952.D	10/28/19 22:26	OP77416	(unrelated sample)
ZZZZZZ	GG617953.D	10/28/19 22:55	OP77416	(unrelated sample)
ZZZZZZ	GG617954.D	10/28/19 23:25	OP77416	(unrelated sample)
GGG2778-CC2769	GG617955.D	10/28/19 23:54	n/a	Continuing cal 1000
OP77415-MB	GG617957.D	10/29/19 00:53	OP77415	Method Blank
FA69146-1	GG617959.D	10/29/19 01:52	OP77415	54MW13
FA69146-2	GG617960.D	10/29/19 02:21	OP77415	54TW13
FA69146-3	GG617961.D	10/29/19 02:51	OP77415	54MW10
FA69146-4	GG617962.D	10/29/19 03:20	OP77415	54MW12
GGG2778-ECC2769	GG617963.D	10/29/19 03:50	n/a	Ending cal 1000

GC/LC Semi-volatiles

Raw Data

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 10/29/19 17:38

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1935\BB066718.D\dad1B.ch Vial: 36
Signal #2 : C:\HPCHEM\2\DATA\GBB1935\BB066718.D\dad1A.ch
Acq On : 23-Oct-2019, 14:03:38 Operator: williamh
Sample : FA69146-1 Inst : G1315B
Misc : op77364,GBB1935,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 24 09:08:00 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.91	10.91	984738	1883924	467.204	534.171
	Spiked Amount 500.000	Range 70 - 136		Recovery =		93.44%	106.83%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	1.47	1.47	1285043	3585787	772.860	779.316
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D. d	N.D. d
5)	RDX	0.00	0.00	0	0	N.D. d	N.D. d
6)	1,3,5-Trinitrobe	4.67	4.67	9843128	19027100	2219.924	2278.322
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D. d	N.D. d
8)	3,5-Dinitroanili	6.19	6.19	288944	453752	67.454	61.473m
9)	Nitrobenzene	0.00	0.00	0	0	N.D.	N.D.
10)	Nitroglycerin	0.00	0.00	0	0	N.D.	N.D.
11)	Tetryl	0.00	0.00	0	0	N.D.	N.D.
12)	2,4,6-Trinitroto	9.69	9.69	4966979	6088810	1249.018	1284.624
13)	2-Amino-4,6-Dini	10.02	10.02	693556	1156887	192.755	215.750
14)	4-Amino-2,6-Dini	10.47	10.47	295346	694965	110.262	133.062
16)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
17)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
18)	o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
19)	p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20)	m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
21)	PETN	0.00	0.00	0	0	N.D. d	N.D. d

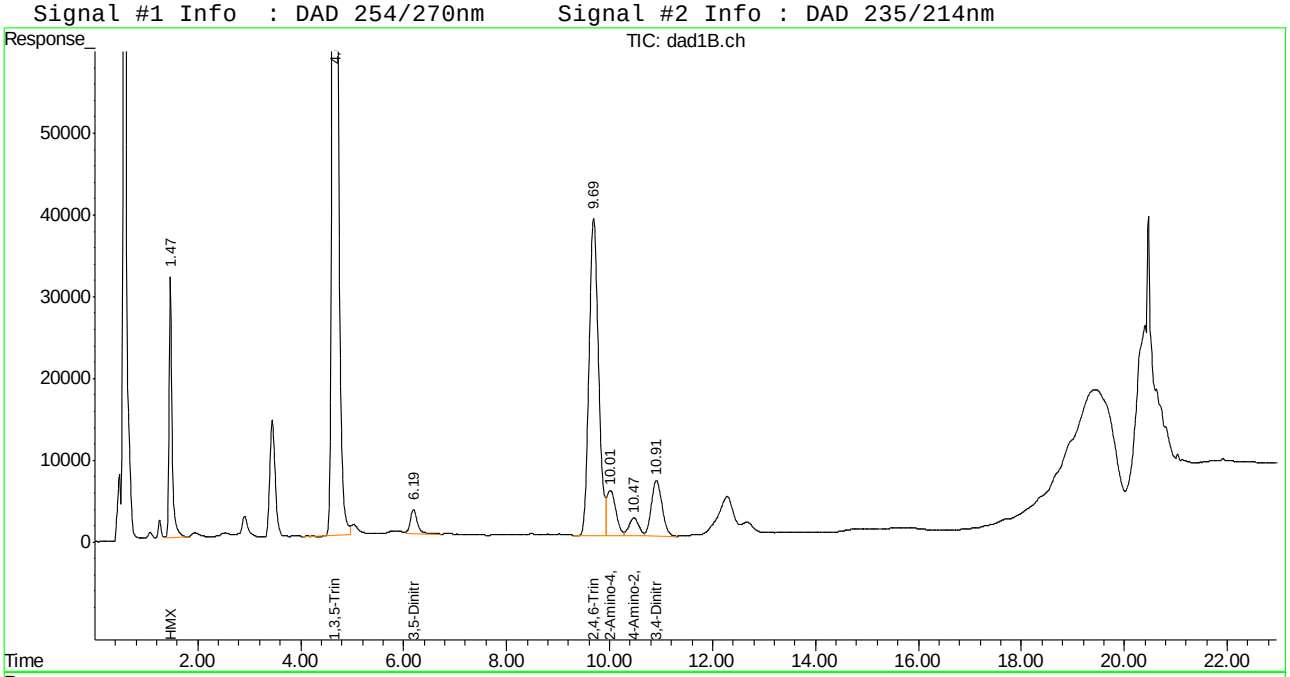
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB066718.D 8330B_101119_PLUS.M Mon Oct 28 14:01:58 2019 Page 1

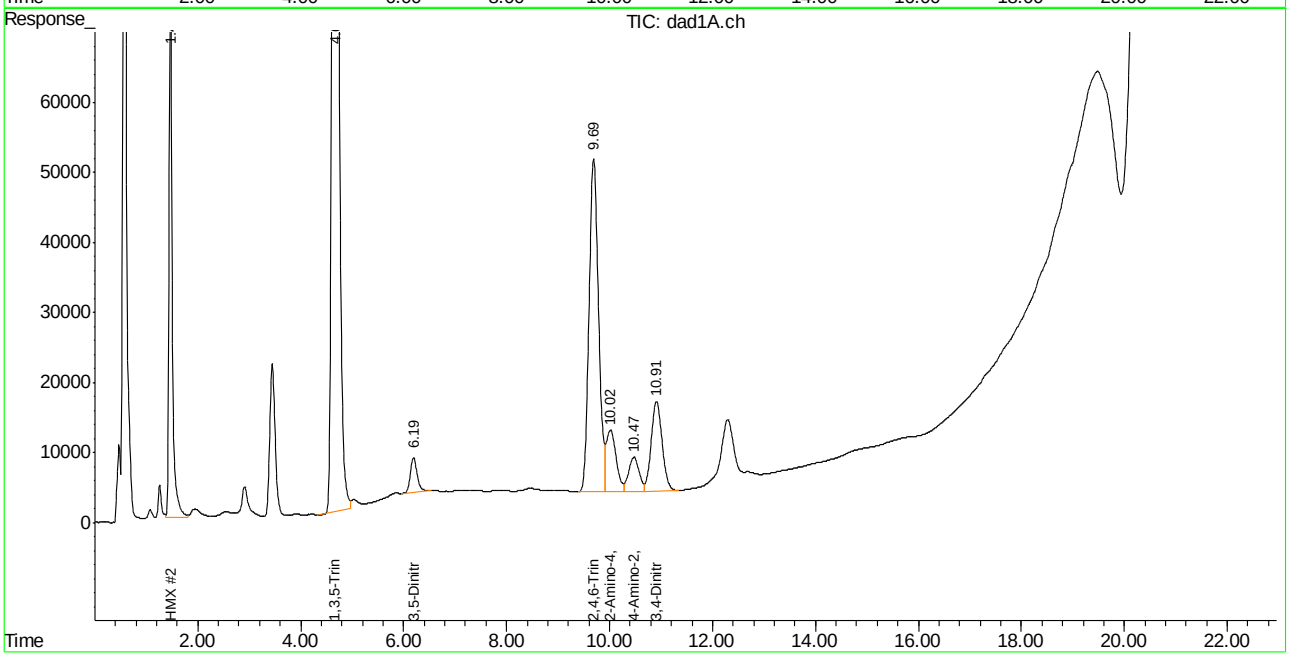
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1935\BB066718.D\dad1B.ch Vial: 36
Signal #2 : C:\HPCHEM\2\DATA\GBB1935\BB066718.D\dad1A.ch
Acq On : 23-Oct-2019, 14:03:38 Operator: williamh
Sample : FA69146-1 Inst : G1315B
Misc : op77364,GBB1935,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 28 13:52 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





BB066718.D 8330B_101119_PLUS.M Mon Oct 28 14:01:58 2019 Page 2

Manual Integration Approval Summary

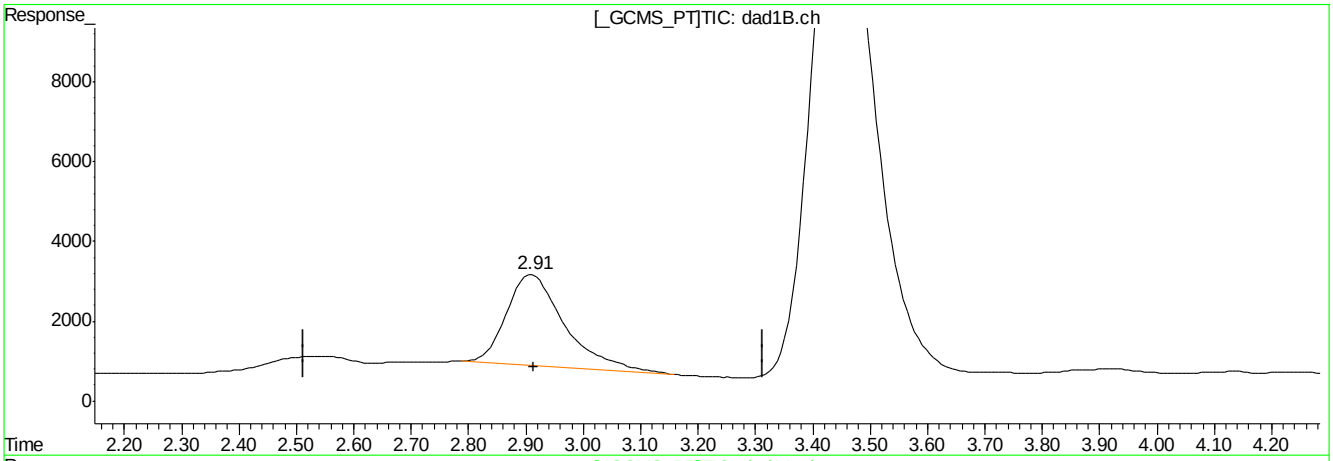
Sample Number: FA69146-1
Lab FileID: BB066718.D
Injection Time: 10/23/19 14:03
Method: SW846 8330B
Analyst approved: 10/29/19 15:09 William Hustedde
Supervisor approved: 10/29/19 17:38 Naresh Jiawan

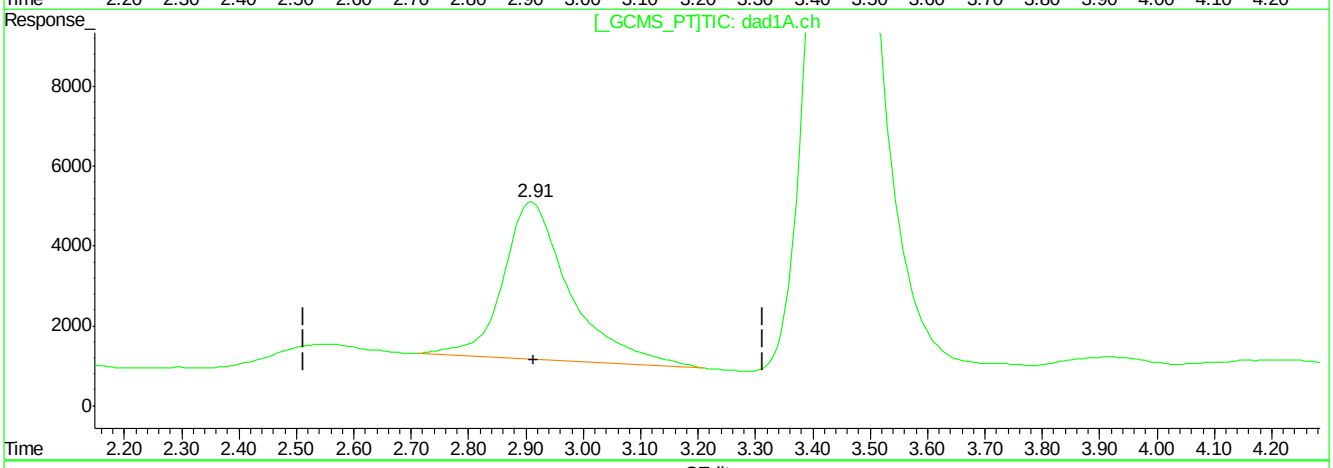
Parameter	CAS	Sig#	R.T. (min.)	Reason
RDX	121-82-4	1	2.91	Poor instrument integration
RDX	121-82-4	2	2.91	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	6.19	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1935\BB066718.D\dad1B.ch Vial: 36
Signal #2 : C:\HPCHEM\2\DATA\GBB1935\BB066718.D\dad1A.ch
Acq On : 23-Oct-2019, 14:03:38 Operator: williamh
Sample : FA69146-1 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 24 9:08 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration





QEdit

(5) RDX

2.91min 78.995ppb m

response 159421

(5) RDX #2

2.91min 98.974ppb m

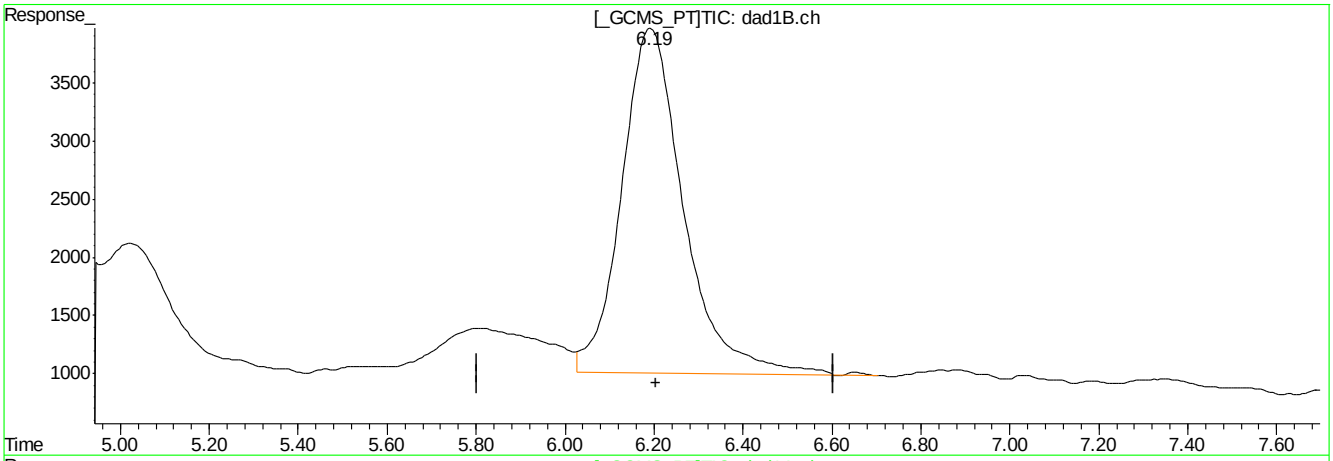
response 316744

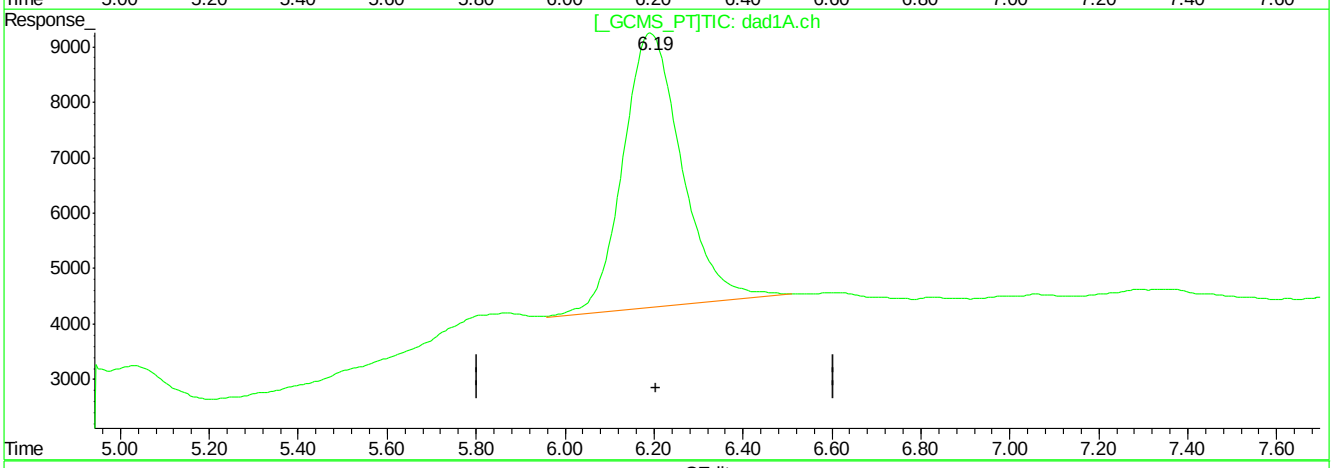
(+) = Expected Retention Time
BB066718.D 8330B_101119_PLUS.M Thu Oct 24 09:35:54 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1935\BB066718.D\dad1B.ch Vial: 36
Signal #2 : C:\HPCHEM\2\DATA\GBB1935\BB066718.D\dad1A.ch
Acq On : 23-Oct-2019, 14:03:38 Operator: williamh
Sample : FA69146-1 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 24 9:08 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.19min 67.454ppb

response 288944

(8) 3,5-Dinitroaniline #2

6.19min 61.473ppb m

response 453752

(+) = Expected Retention Time
BB066718.D 8330B_101119_PLUS.M Thu Oct 24 09:36:06 2019

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1937\BB066797.D\dad1B.ch Vial: 27
Signal #2 : C:\HPCHEM\2\DATA\GBB1937\BB066797.D\dad1A.ch
Acq On : 26-Oct-2019, 06:53:52 Operator: williamh
Sample : FA69146-1 Inst : G1315B
Misc : op77415,GBB1937,980,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 28 08:38:52 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.89	10.89	1133242	1909759	537.661	541.496
	Spiked Amount 500.000	Range 70 - 136		Recovery =		107.53%	108.30%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	1.47	1.47	1248836	3492277	751.085	758.994
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D. d	N.D. d
5)	RDX	2.90	2.90	146407	263101	72.546	82.212
6)	1,3,5-Trinitrobe	4.66	4.66	9818169	18889899	2214.295	2261.894
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D. d	N.D. d
8)	3,5-Dinitroanili	6.18	6.18	270622	462274	63.177	62.628
9)	Nitrobenzene	0.00	0.00	0	0	N.D.	N.D.
10)	Nitroglycerin	0.00	0.00	0	0	N.D.	N.D.
11)	Tetryl	0.00	0.00	0	0	N.D.	N.D.
12)	2,4,6-Trinitroto	9.67	9.67	5127361	6208469	1289.349	1309.869
13)	2-Amino-4,6-Dini	9.98	9.98	707363	1119069	196.592	208.697
14)	4-Amino-2,6-Dini	10.45	10.45	395387	727923	147.610	139.372
16)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
17)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
18)	o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
19)	p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20)	m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
21)	PETN	0.00	0.00	0	0	N.D. d	N.D. d

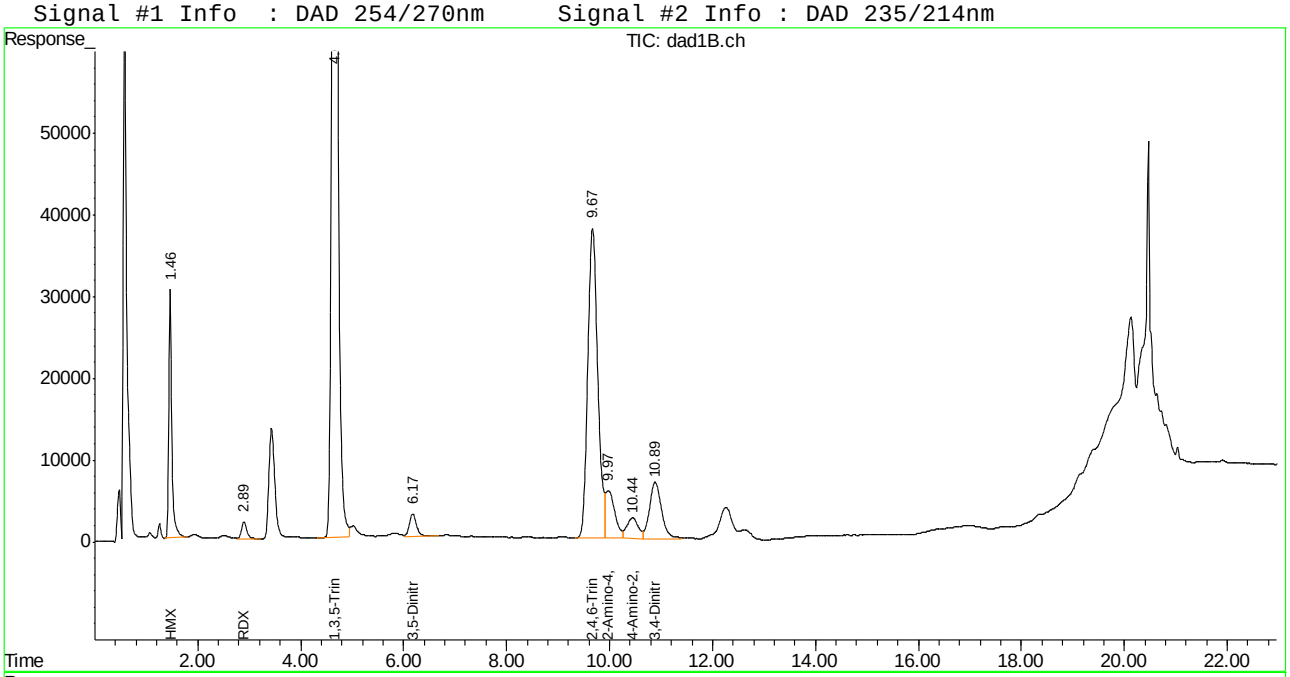
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB066797.D 8330B_101119_PLUS.M Mon Oct 28 13:29:15 2019 Page 1

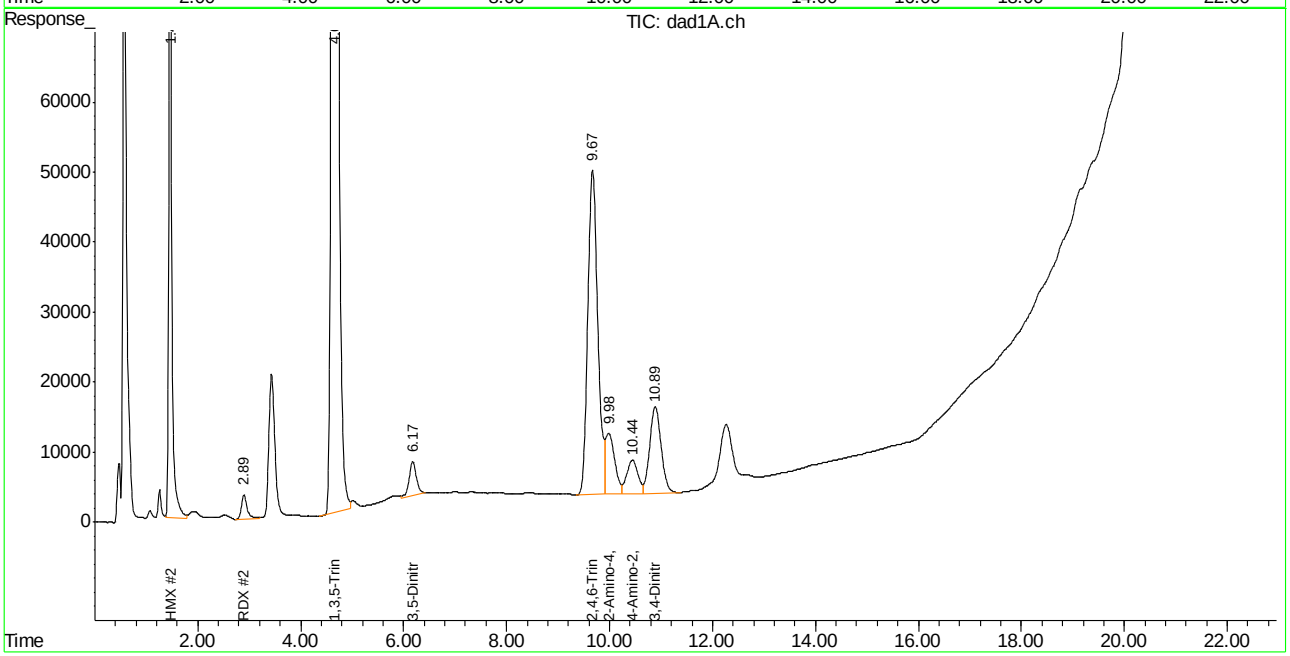
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1937\BB066797.D\dad1B.ch Vial: 27
Signal #2 : C:\HPCHEM\2\DATA\GBB1937\BB066797.D\dad1A.ch
Acq On : 26-Oct-2019, 06:53:52 Operator: williamh
Sample : FA69146-1 Inst : G1315B
Misc : op77415,GBB1937,980,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 28 13:00 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





BB066797.D 8330B_101119_PLUS.M Mon Oct 28 13:29:15 2019 Page 2

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 10/29/19 17:38

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2778\GG617959.D\dad1B.ch Vial: 55
Signal #2 : C:\HPCHEM\1\DATA\GGG2778\GG617959.D\dad1A.ch
Acq On : 29-Oct-2019, 01:52:27 Operator: williamh
Sample : FA69146-1CF Inst : G1315B
Misc : op77415,ggg2778,980,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Oct 29 10:08:55 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Oct 24 10:07:48 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.50	13.50	3019877	5679387	668.796	632.157
	Spiked Amount 500.000	Range 70 - 136		Recovery =		133.76%	126.43%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	5.36	5.36	2843876	2834084	954.444m	944.977m
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D. d	N.D. d
5)	1,3,5-Trinitrobe	7.11	7.11	24278614	24278614	2347.742	2347.742
6)	RDX	0.00	0.00	0	0	N.D.	N.D.
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D.	N.D.
8)	Nitrobenzene	0.00	0.00	0	0	N.D.	N.D.
9)	2,4,6-Trinitroto	11.00	11.00	12340306	16354493	1210.224	1237.243m
10)	Nitroglycerin	0.00	0.00	0	0	N.D.	N.D.
11)	Tetryl	0.00	0.00	0	0	N.D. d	N.D. d
13)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
14)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
15)	o-Nitrotoluene	0.00	0.00	0	0	N.D.	N.D.
16)	3,5-Dinitroanili	15.32	15.32	2854565	4828191	279.777	290.831
17)	p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
18)	4-Amino-2,6-Dini	17.05	17.07	880520	1736212	76.154m	79.947
19)	m-Nitrotoluene	0.00	0.00	0	0	N.D.	N.D.
20)	2-Amino-4,6-Dini	19.11	19.10	2173460	3632121	226.504	258.847m
21)	PETN	0.00	0.00	0	0	N.D. d	N.D. d

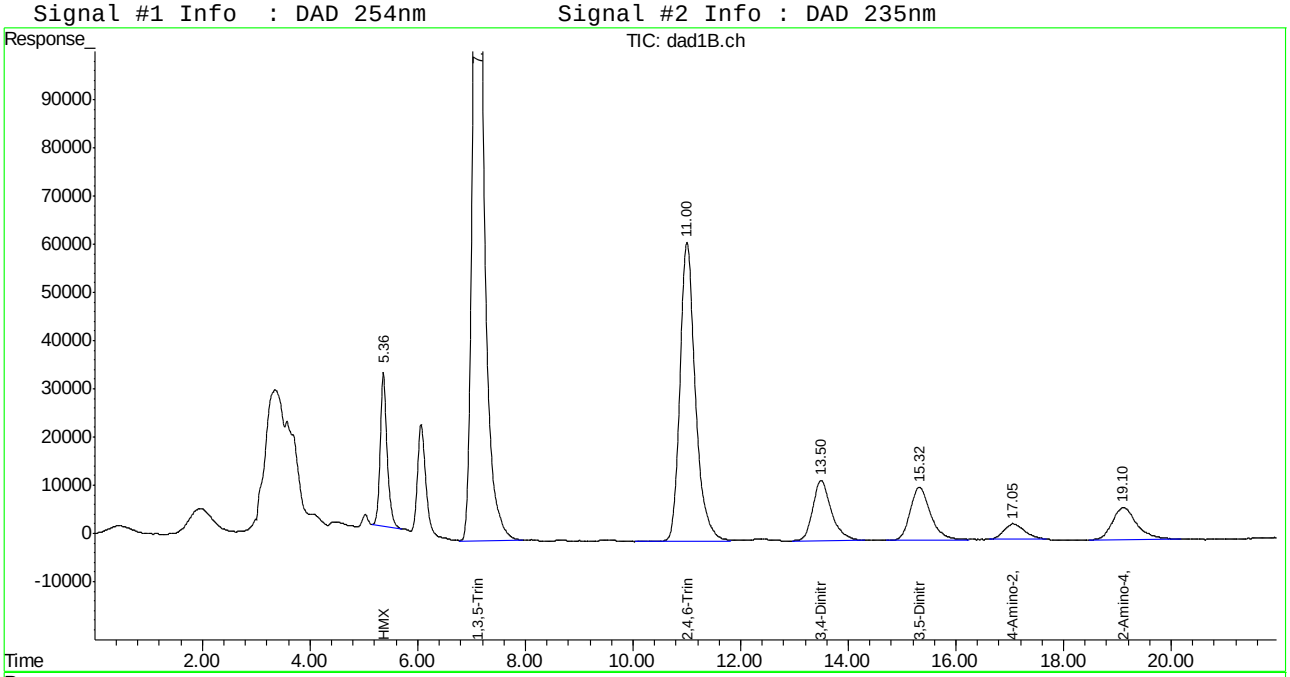
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
GG617959.D 8330RPB.M_092519.M Tue Oct 29 15:14:52 2019 Page 1

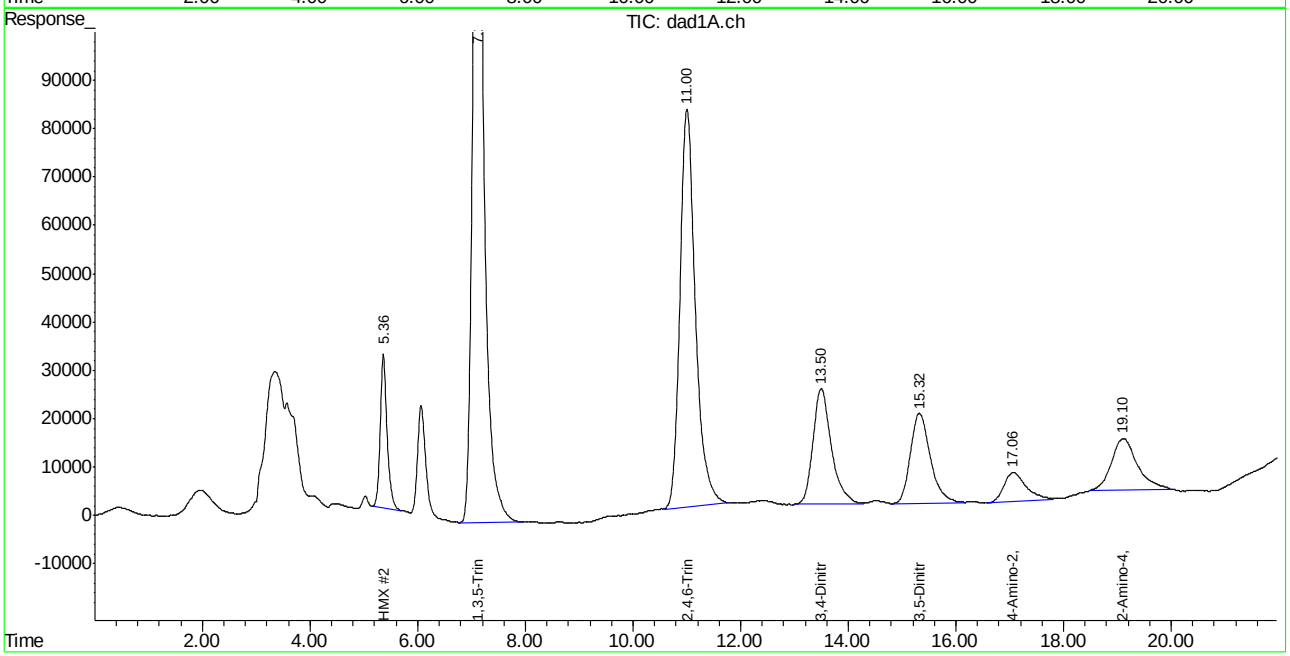
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2778\GG617959.D\dad1B.ch Vial: 55
Signal #2 : C:\HPCHEM\1\DATA\GGG2778\GG617959.D\dad1A.ch
Acq On : 29-Oct-2019, 01:52:27 Operator: williamh
Sample : FA69146-1CF Inst : G1315B
Misc : op77415,ggg2778,980,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Oct 29 15:14 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Oct 24 10:07:48 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

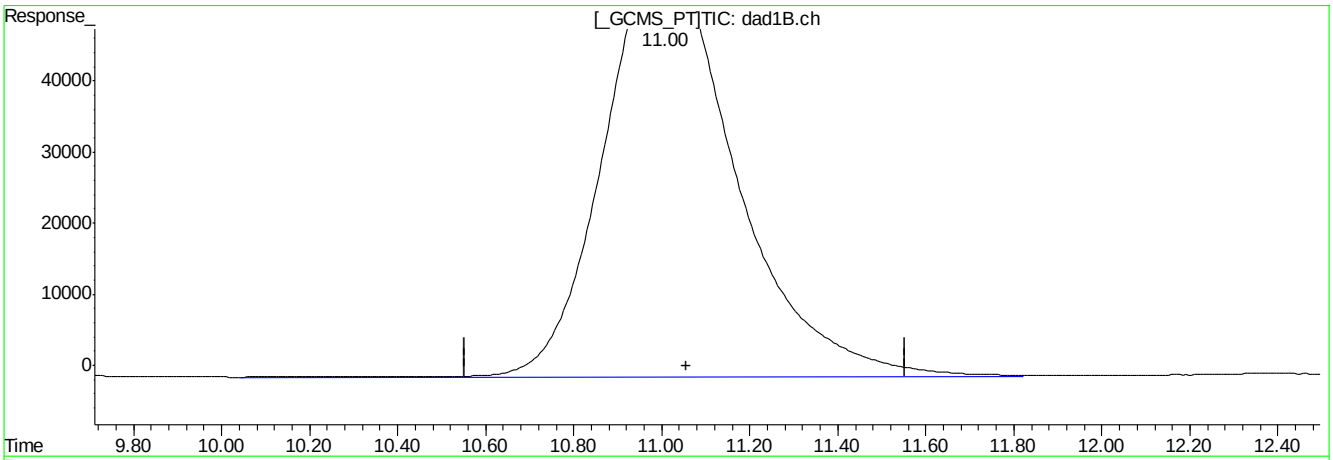
Sample Number: FA69146-1
Lab FileID: GG617959.D
Injection Time: 10/29/19 01:52
Method: SW846 8330B
Analyst approved: 10/29/19 16:17 William Hustedde
Supervisor approved: 10/29/19 17:38 Naresh Jiawan

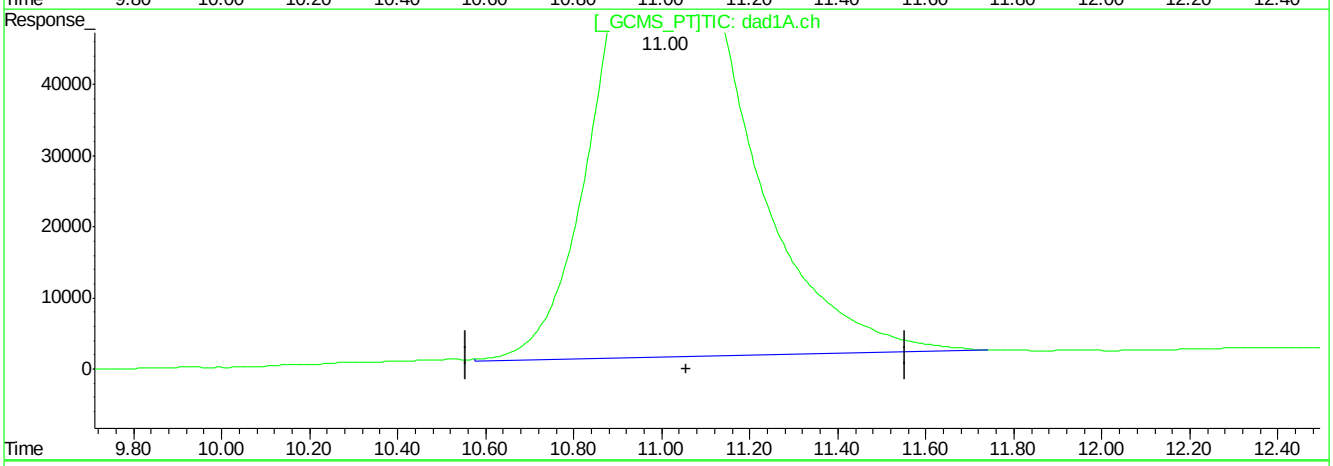
Parameter	CAS	Sig#	R.T. (min.)	Reason
HMX	2691-41-0	1	5.36	Poor instrument integration
HMX	2691-41-0	2	5.36	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	2	11.00	Poor instrument integration
4-amino-2,6-Dinitrotoluene	19406-51-0	1	17.05	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	2	19.10	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2778\GG617959.D\dad1B.ch Vial: 55
Signal #2 : C:\HPCHEM\1\DATA\GGG2778\GG617959.D\dad1A.ch
Acq On : 29-Oct-2019, 01:52:27 Operator: williamh
Sample : FA69146-1CF Inst : G1315B
Misc : op77415,ggg2778,980,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Oct 29 10:08 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Oct 24 10:07:48 2019
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.00min 1210.224ppb

response 12340306

(9) 2,4,6-Trinitrotoluene #2

11.00min 1237.243ppb m

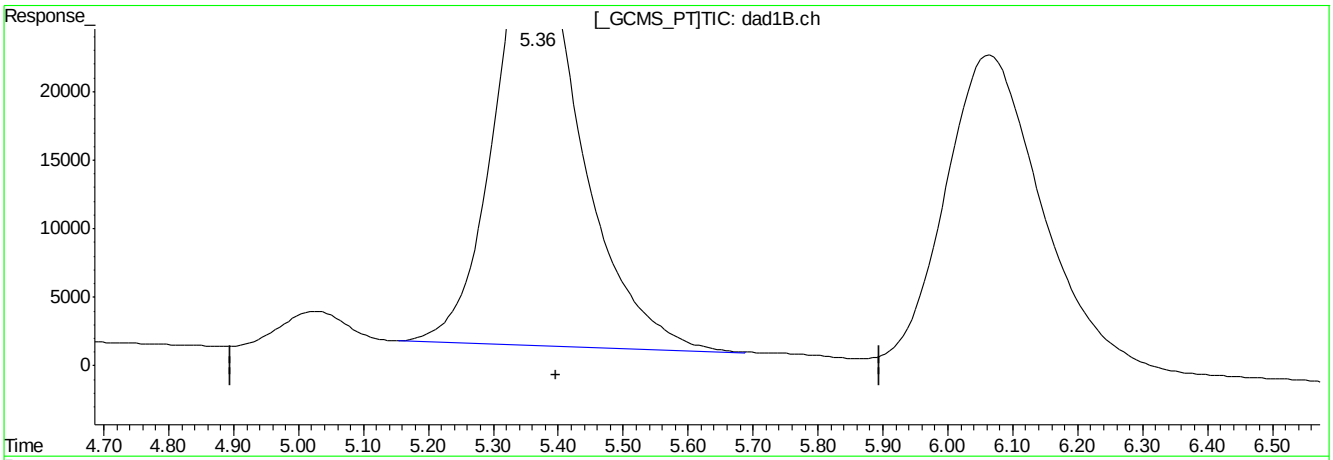
response 16354493

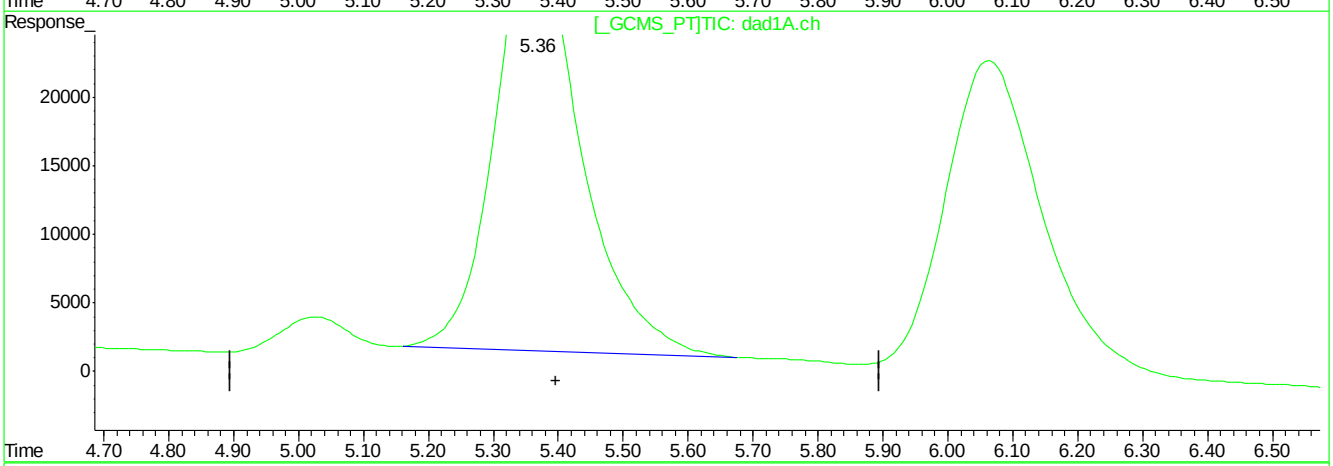
(+) = Expected Retention Time
GG617959.D 8330RPB.M_092519.M Tue Oct 29 15:14:05 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2778\GG617959.D\dad1B.ch Vial: 55
Signal #2 : C:\HPCHEM\1\DATA\GGG2778\GG617959.D\dad1A.ch
Acq On : 29-Oct-2019, 01:52:27 Operator: williamh
Sample : FA69146-1CF Inst : G1315B
Misc : op77415,ggg2778,980,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Oct 29 10:08 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Oct 24 10:07:48 2019
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.36min 954.444ppb m

response 2843876

(2) HMX #2

5.36min 944.977ppb m

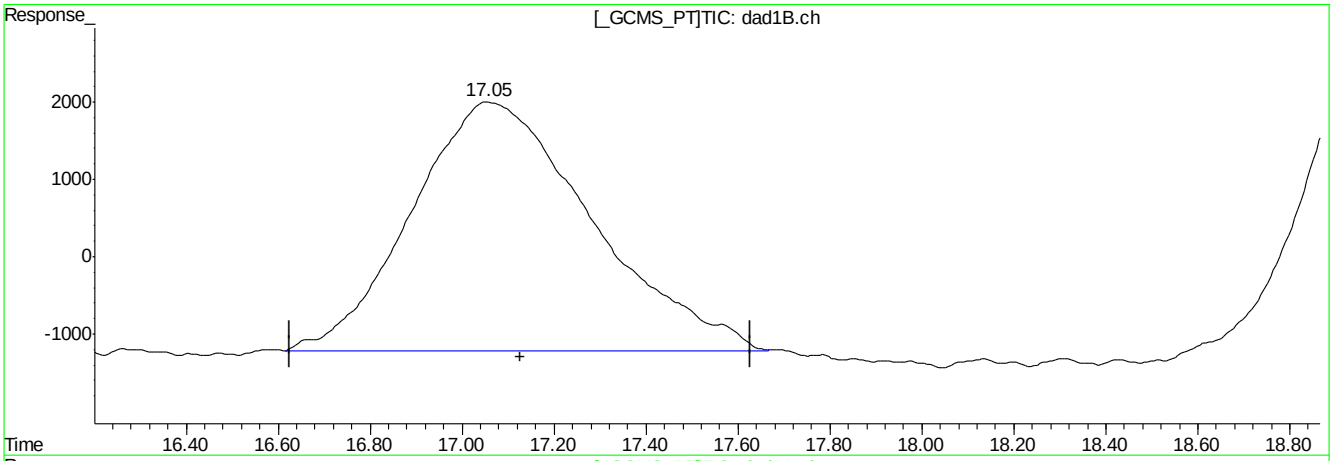
response 2834084

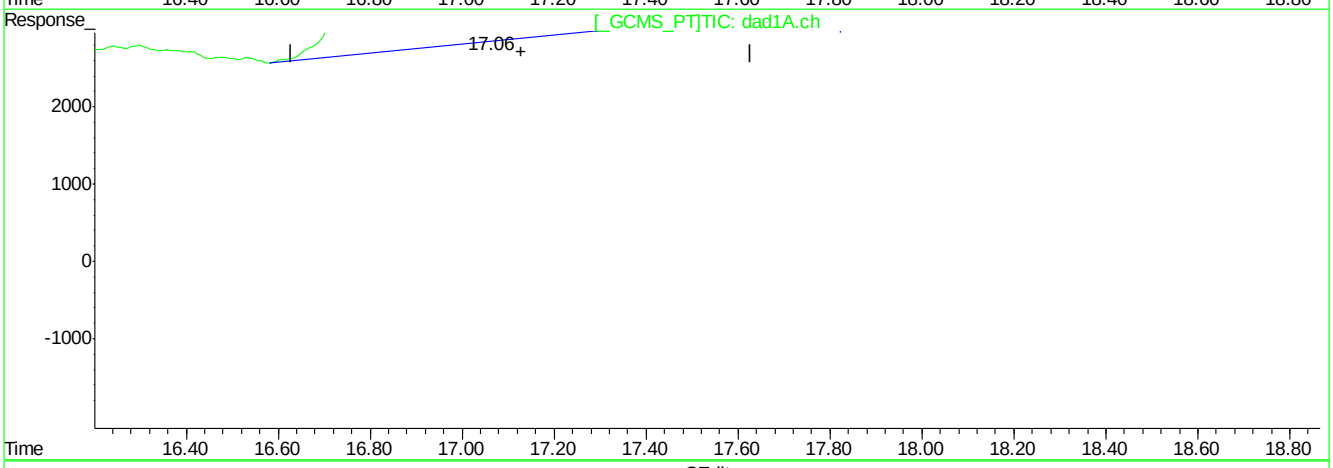
(+) = Expected Retention Time
GG617959.D 8330RPB.M_092519.M Tue Oct 29 15:14:15 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2778\GG617959.D\dad1B.ch Vial: 55
Signal #2 : C:\HPCHEM\1\DATA\GGG2778\GG617959.D\dad1A.ch
Acq On : 29-Oct-2019, 01:52:27 Operator: williamh
Sample : FA69146-1CF Inst : G1315B
Misc : op77415,ggg2778,980,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Oct 29 10:08 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Oct 24 10:07:48 2019
Response via : Multiple Level Calibration





QEdit

(18) 4-Amino-2,6-Dinitrotoluene

17.05min 76.154ppb m

response 880520

(18) 4-Amino-2,6-Dinitrotoluene #2

17.07min 79.947ppb

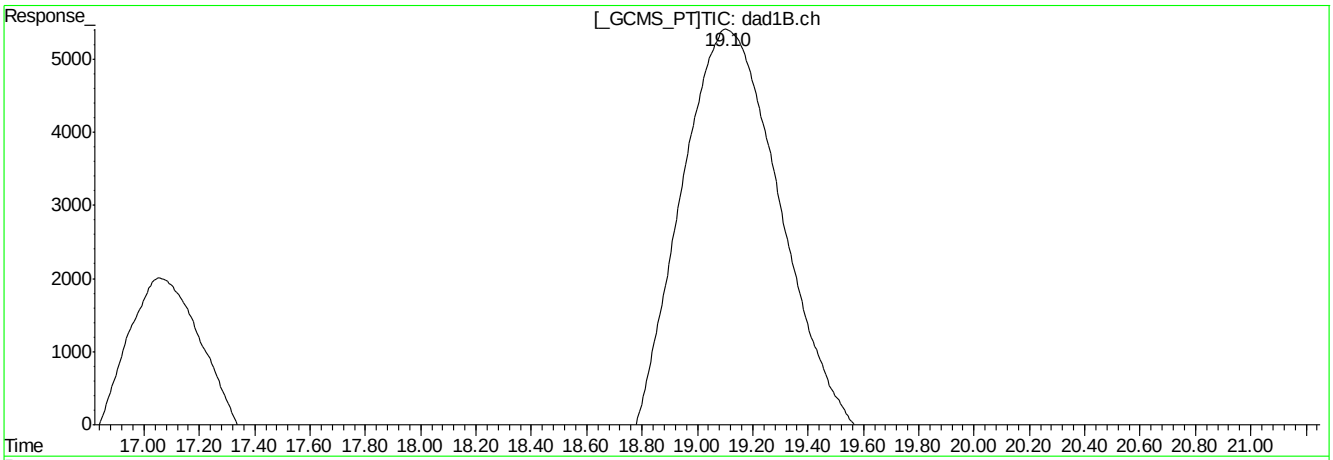
response 1736212

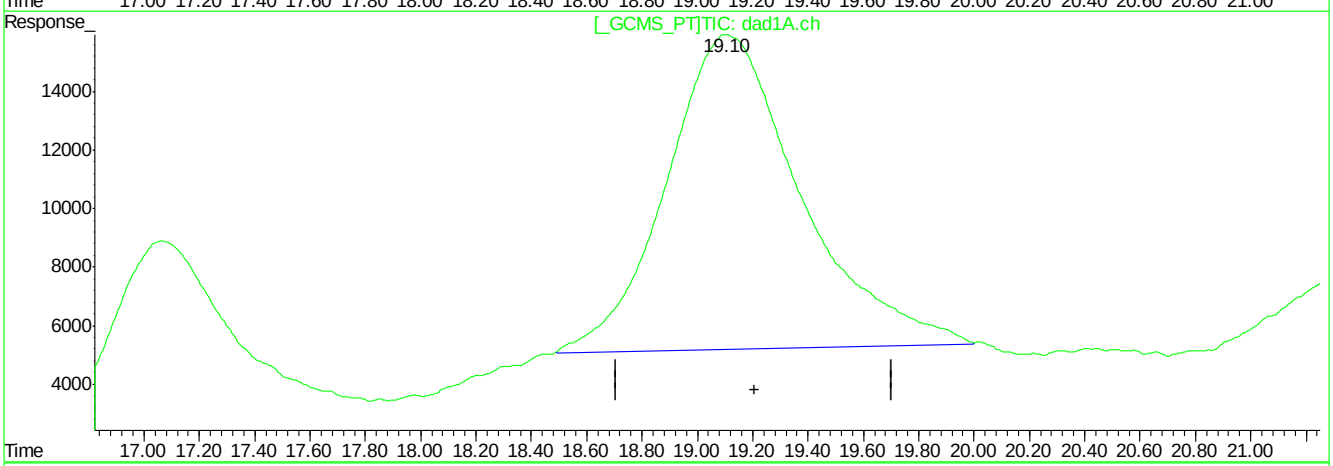
(+) = Expected Retention Time
GG617959.D 8330RPB.M_092519.M Tue Oct 29 15:14:24 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2778\GG617959.D\dad1B.ch Vial: 55
Signal #2 : C:\HPCHEM\1\DATA\GGG2778\GG617959.D\dad1A.ch
Acq On : 29-Oct-2019, 01:52:27 Operator: williamh
Sample : FA69146-1CF Inst : G1315B
Misc : op77415,ggg2778,980,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Oct 29 10:08 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Oct 24 10:07:48 2019
Response via : Multiple Level Calibration





QEdit

(20) 2-Amino-4,6-Dinitrotoluene

19.11min 226.504ppb

response 2173460

(20) 2-Amino-4,6-Dinitrotoluene #2

19.10min 258.847ppb m

response 3632121

(+) = Expected Retention Time
GG617959.D 8330RPB.M_092519.M Tue Oct 29 15:14:31 2019

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 10/29/19 17:40

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1935\BB066719.D\dad1B.ch Vial: 37
Signal #2 : C:\HPCHEM\2\DATA\GBB1935\BB066719.D\dad1A.ch
Acq On : 23-Oct-2019, 14:33:36 Operator: williamh
Sample : FA69146-2 Inst : G1315B
Misc : op77364,GBB1935,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 24 09:08:01 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.91	10.91	1237592	2047803	587.170	580.638
	Spiked Amount 500.000	Range 70 - 136		Recovery =		117.43%	116.13%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	1.47	1.47	1405460	4019930	845.283	873.671
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D. d	N.D. d
5)	RDX	2.89	2.90	154378	274903	76.496	85.900
6)	1,3,5-Trinitrobe	4.66	4.66	11331482	21470135	2555.593	2570.854
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D. d	N.D. d
8)	3,5-Dinitroanili	6.18	6.17	297147	456640	69.369	61.864m
9)	Nitrobenzene	0.00	0.00	0	0	N.D.	N.D.
10)	Nitroglycerin	0.00	0.00	0	0	N.D.	N.D.
11)	Tetryl	0.00	0.00	0	0	N.D.	N.D.
12)	2,4,6-Trinitroto	9.68	9.68	5787602	7005423	1455.376	1478.012
13)	2-Amino-4,6-Dini	9.99	10.00	771561	1220129	214.434	227.544
14)	4-Amino-2,6-Dini	10.46	10.46	455997	822206	170.238	157.424
16)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
17)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
18)	o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
19)	p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20)	m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
21)	PETN	0.00	0.00	0	0	N.D. d	N.D. d

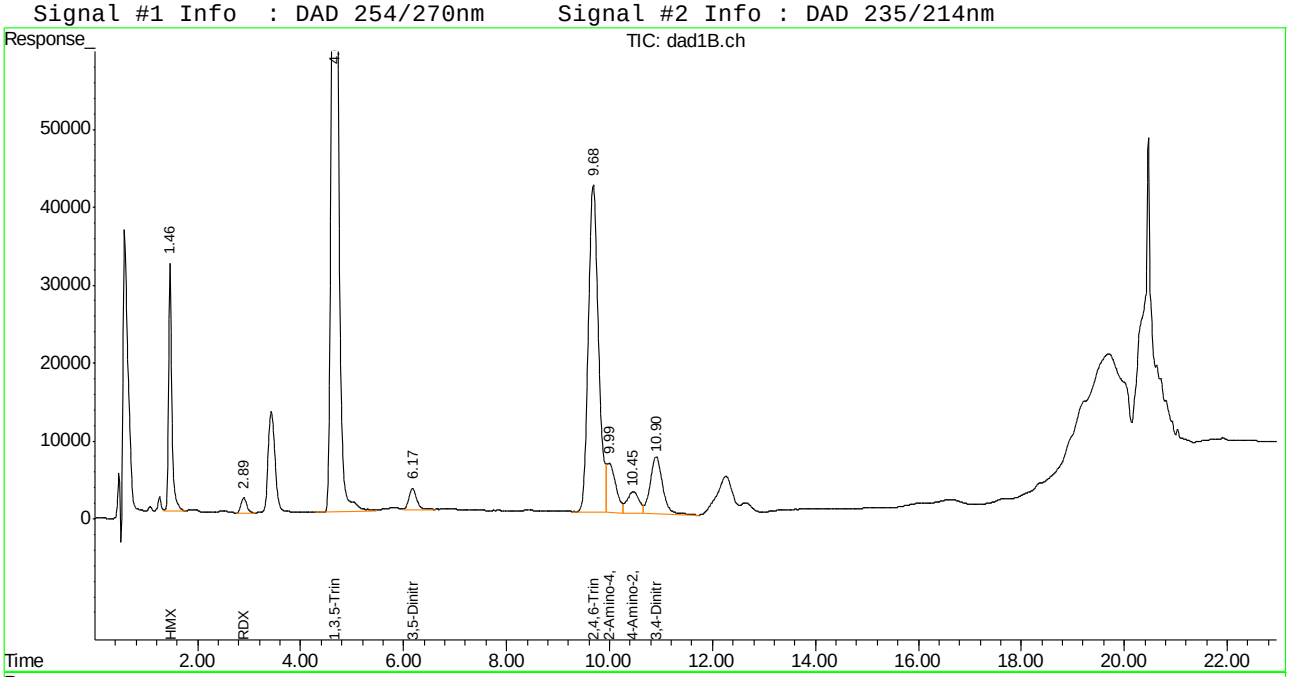
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB066719.D 8330B_101119_PLUS.M Mon Oct 28 14:01:59 2019 Page 1

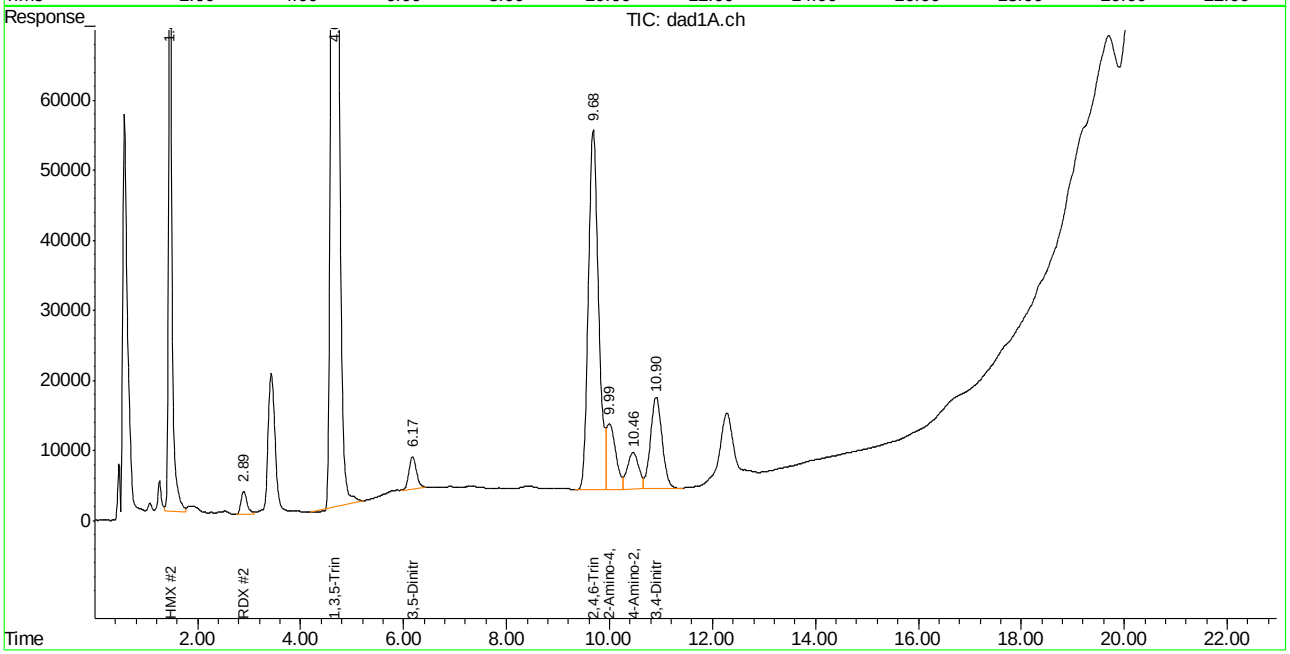
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1935\BB066719.D\dad1B.ch Vial: 37
Signal #2 : C:\HPCHEM\2\DATA\GBB1935\BB066719.D\dad1A.ch
Acq On : 23-Oct-2019, 14:33:36 Operator: williamh
Sample : FA69146-2 Inst : G1315B
Misc : op77364,GBB1935,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 24 8:37 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

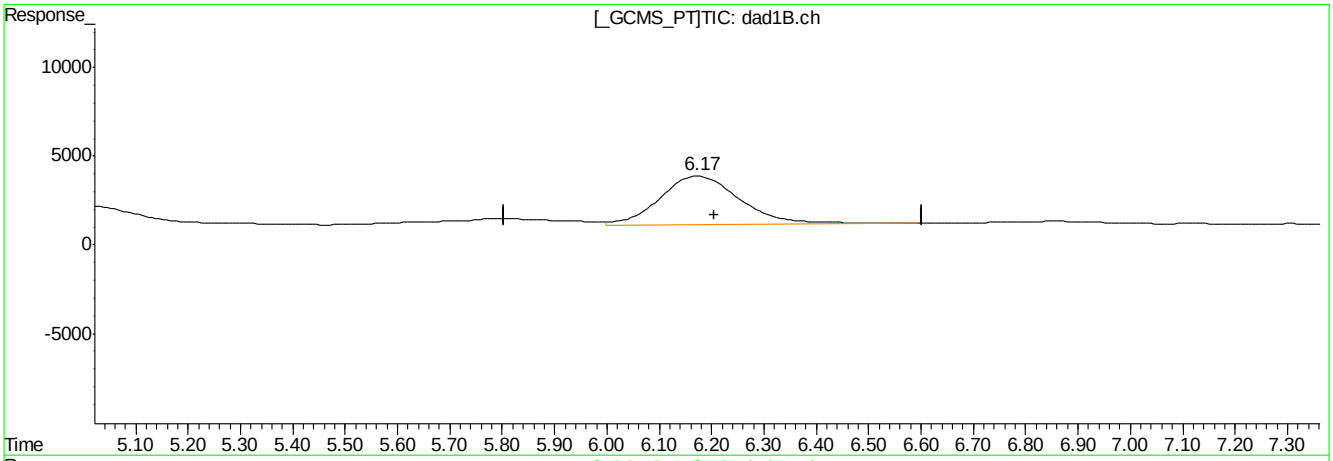
Sample Number: FA69146-2
Lab FileID: BB066719.D
Injection Time: 10/23/19 14:33
Method: SW846 8330B
Analyst approved: 10/29/19 15:26 William Hustedde
Supervisor approved: 10/29/19 17:40 Naresh Jiawan

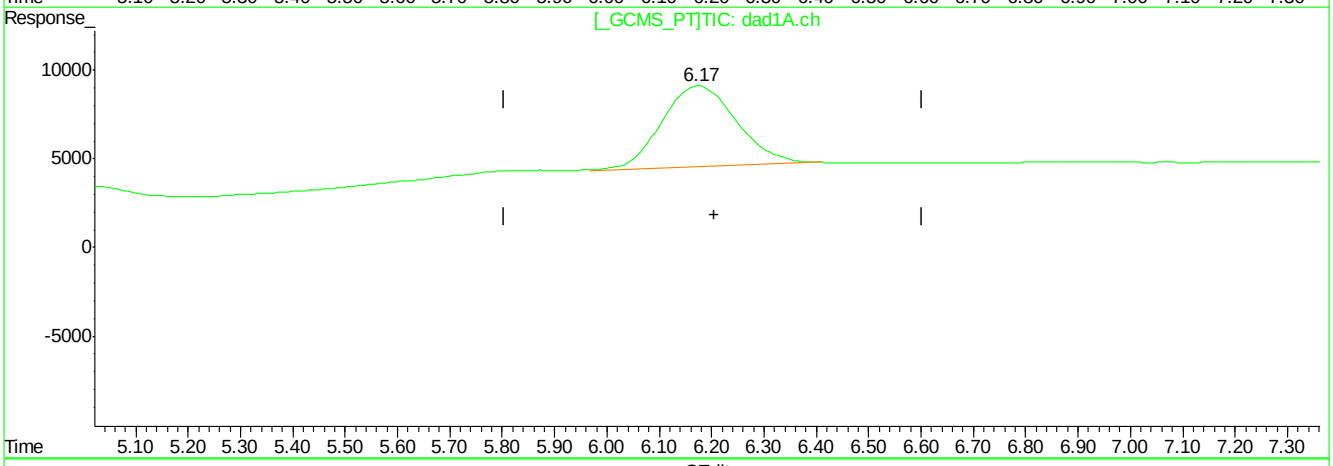
Parameter	CAS	Sig#	R.T. (min.)	Reason
3,5-Dinitroaniline	618-87-1	2	6.17	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1935\BB066719.D\dad1B.ch Vial: 37
Signal #2 : C:\HPCHEM\2\DATA\GBB1935\BB066719.D\dad1A.ch
Acq On : 23-Oct-2019, 14:33:36 Operator: williamh
Sample : FA69146-2 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 24 9:08 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.18min 69.369ppb

response 297147

(8) 3,5-Dinitroaniline #2

6.17min 61.864ppb m

response 456640

(+) = Expected Retention Time
BB066719.D 8330B_101119_PLUS.M Thu Oct 24 09:36:55 2019

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 10/29/19 17:40

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1938\BB066805.D\dad1B.ch Vial: 28
Signal #2 : C:\HPCHEM\2\DATA\GBB1938\BB066805.D\dad1A.ch
Acq On : 28-Oct-2019, 13:08:36 Operator: williamh
Sample : FA69146-2 Inst : G1315B
Misc : op77415,GBB1938,990,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 29 10:00:27 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.85	10.84	1003521	1857392	476.116	526.648
	Spiked Amount 500.000	Range 70 - 136		Recovery =		95.22%	105.33%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	1.46	1.46	1152014	3288604	692.853	714.728
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D.	N.D.
5)	RDX	0.00	0.00	0	0	N.D. d	N.D. d
6)	1,3,5-Trinitrobe	4.64	4.64	9027520	17431415	2035.980	2087.254
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D. d	N.D. d
8)	3,5-Dinitroanili	6.15	6.15	247015	428824	57.666	58.096m
9)	Nitrobenzene	0.00	0.00	0	0	N.D.	N.D.
10)	Nitroglycerin	0.00	0.00	0	0	N.D.	N.D.
11)	Tetryl	0.00	0.00	0	0	N.D.	N.D.
12)	2,4,6-Trinitroto	9.63	9.64	4630319	5656690	1164.360m	1193.455
13)	2-Amino-4,6-Dini	9.87	9.92	578521	954681	160.784m	178.040
14)	4-Amino-2,6-Dini	10.39	10.39	292487	642191	109.195	122.957
16)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D.	N.D.
17)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
18)	o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
19)	p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20)	m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
21)	PETN	0.00	0.00	0	0	N.D. d	N.D. d

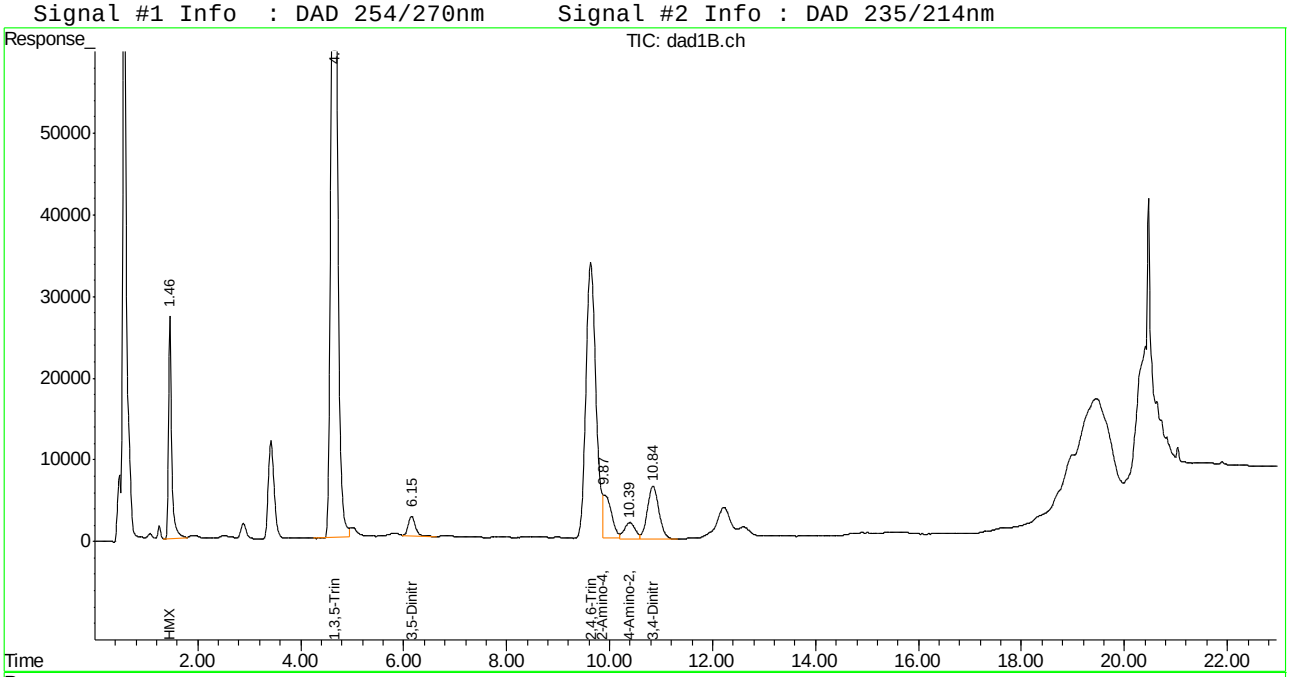
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB066805.D 8330B_101119_PLUS.M Tue Oct 29 14:18:26 2019 Page 1

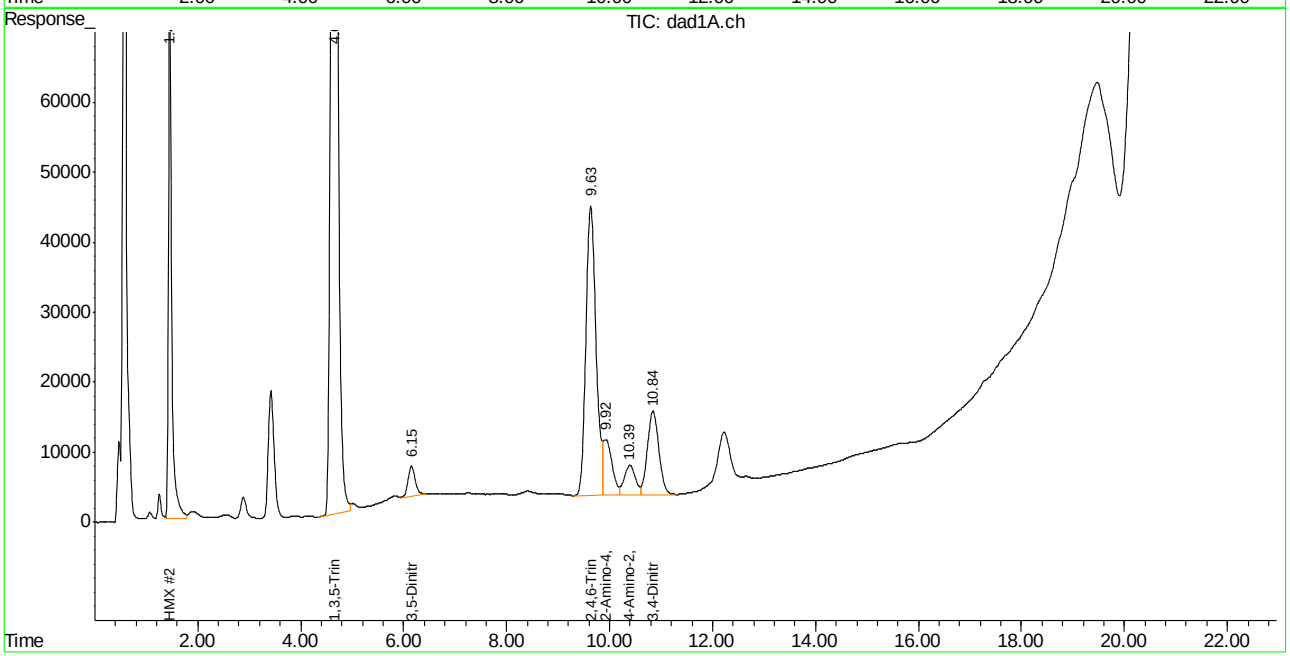
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1938\BB066805.D\dad1B.ch Vial: 28
Signal #2 : C:\HPCHEM\2\DATA\GBB1938\BB066805.D\dad1A.ch
Acq On : 28-Oct-2019, 13:08:36 Operator: williamh
Sample : FA69146-2 Inst : G1315B
Misc : op77415,GBB1938,990,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 29 10:58 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

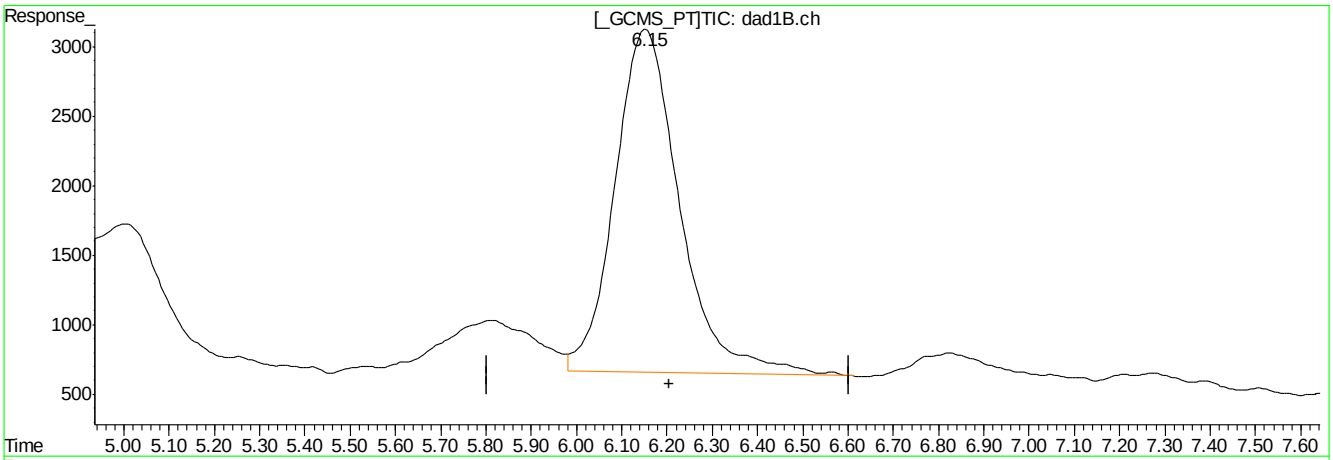
Sample Number: FA69146-2
Lab FileID: BB066805.D
Injection Time: 10/28/19 13:08
Method: SW846 8330B
Analyst approved: 10/29/19 15:26 William Hustedde
Supervisor approved: 10/29/19 17:40 Naresh Jiawan

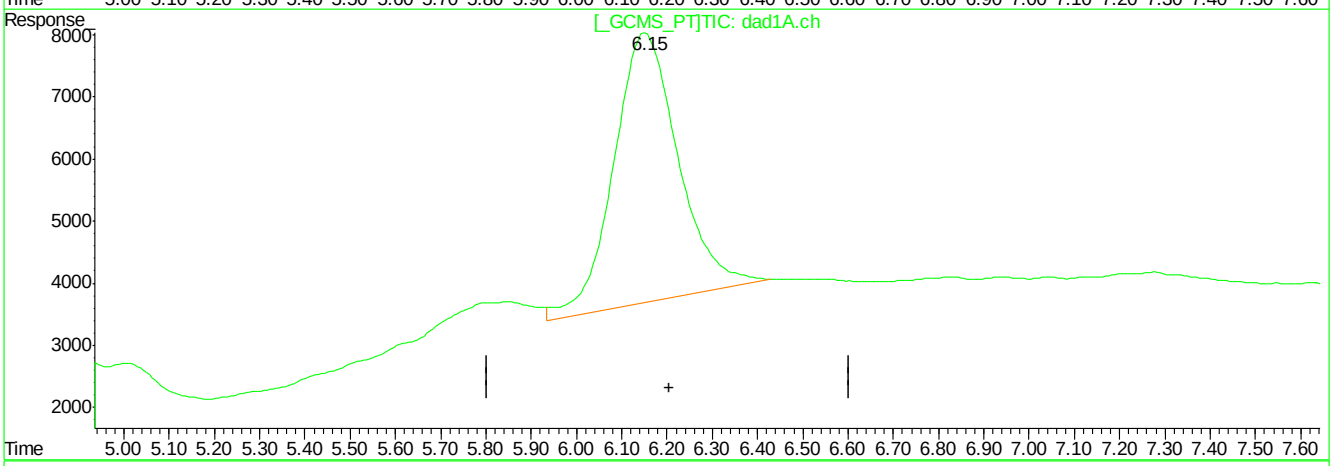
Parameter	CAS	Sig#	R.T. (min.)	Reason
3,5-Dinitroaniline	618-87-1	2	6.15	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	1	9.63	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	1	9.87	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1938\BB066805.D\dad1B.ch Vial: 28
Signal #2 : C:\HPCHEM\2\DATA\GBB1938\BB066805.D\dad1A.ch
Acq On : 28-Oct-2019, 13:08:36 Operator: williamh
Sample : FA69146-2 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 29 10:00 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.15min 57.666ppb

response 247015

(8) 3,5-Dinitroaniline #2

6.15min 58.096ppb m

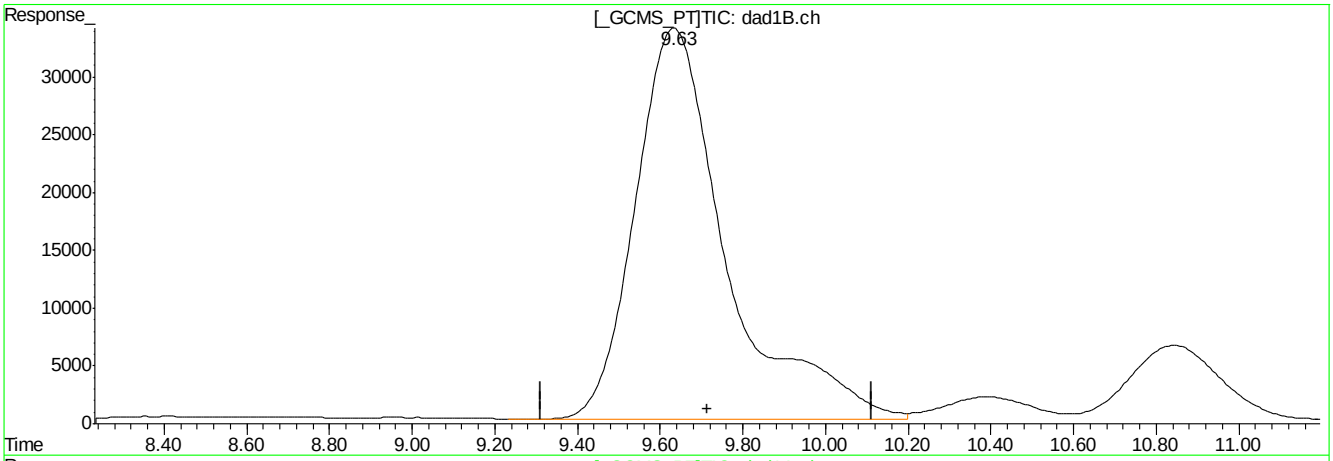
response 428824

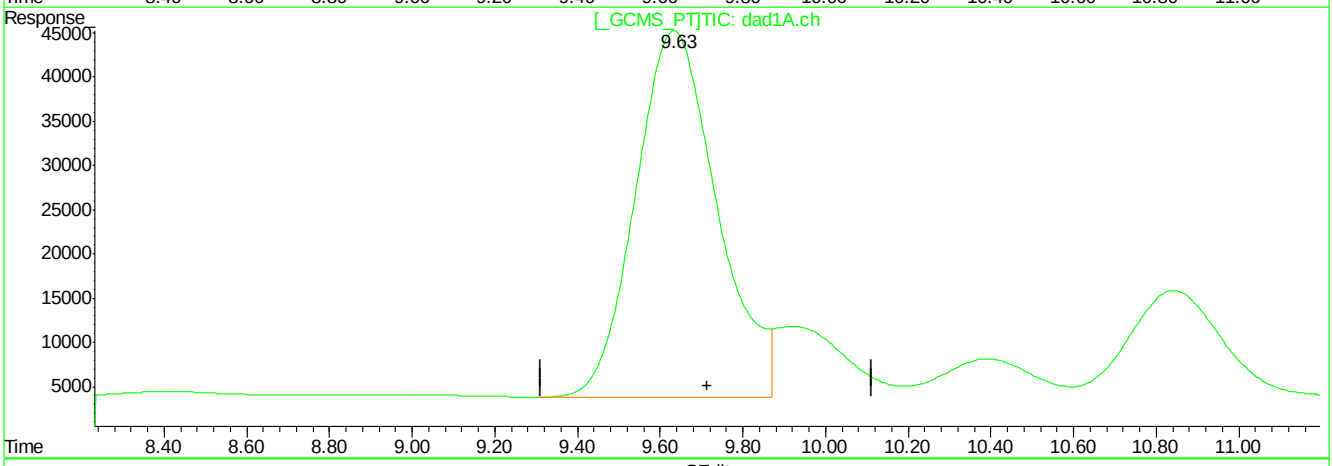
(+) = Expected Retention Time
BB066805.D 8330B_101119_PLUS.M Tue Oct 29 10:06:57 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1938\BB066805.D\dad1B.ch Vial: 28
Signal #2 : C:\HPCHEM\2\DATA\GBB1938\BB066805.D\dad1A.ch
Acq On : 28-Oct-2019, 13:08:36 Operator: williamh
Sample : FA69146-2 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 29 10:00 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration





QEdit

(12) 2,4,6-Trinitrotoluene

9.63min 1306.230ppb

response 5194492

(12) 2,4,6-Trinitrotoluene #2

9.64min 1193.455ppb

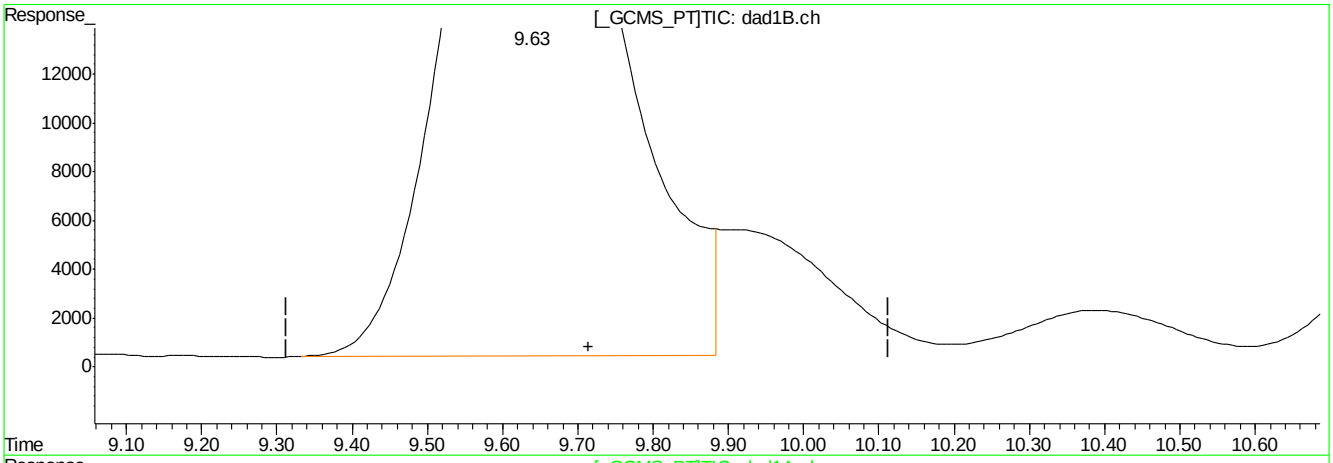
response 5656690

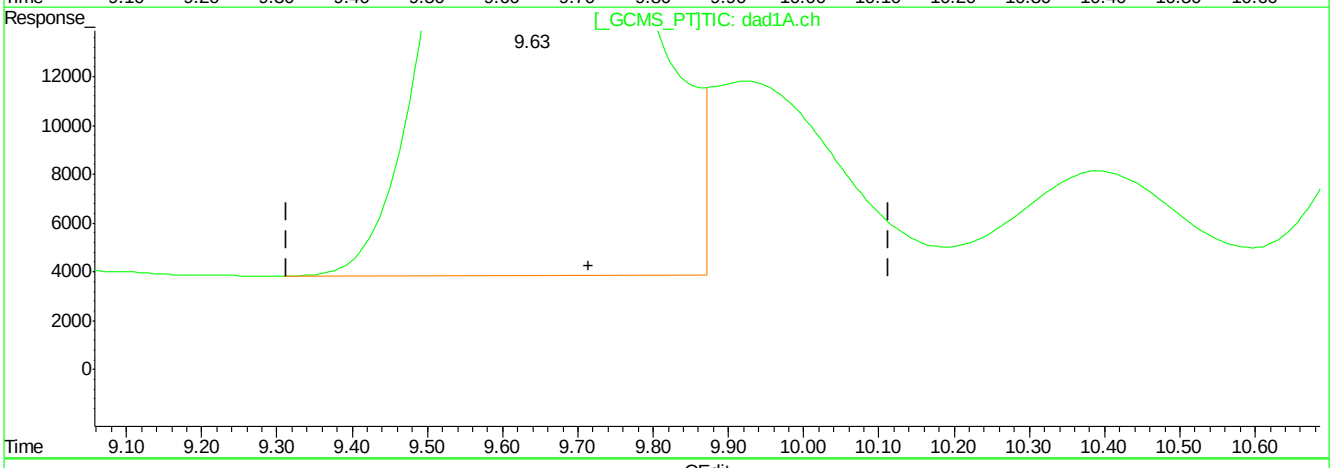
(+) = Expected Retention Time
BB066805.D 8330B_101119_PLUS.M Tue Oct 29 10:07:23 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1938\BB066805.D\dad1B.ch Vial: 28
Signal #2 : C:\HPCHEM\2\DATA\GBB1938\BB066805.D\dad1A.ch
Acq On : 28-Oct-2019, 13:08:36 Operator: williamh
Sample : FA69146-2 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 29 10:00 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration





QEdit

(12) 2,4,6-Trinitrotoluene

9.63min 1164.360ppb m

response 4630319

(12) 2,4,6-Trinitrotoluene #2

9.64min 1193.455ppb

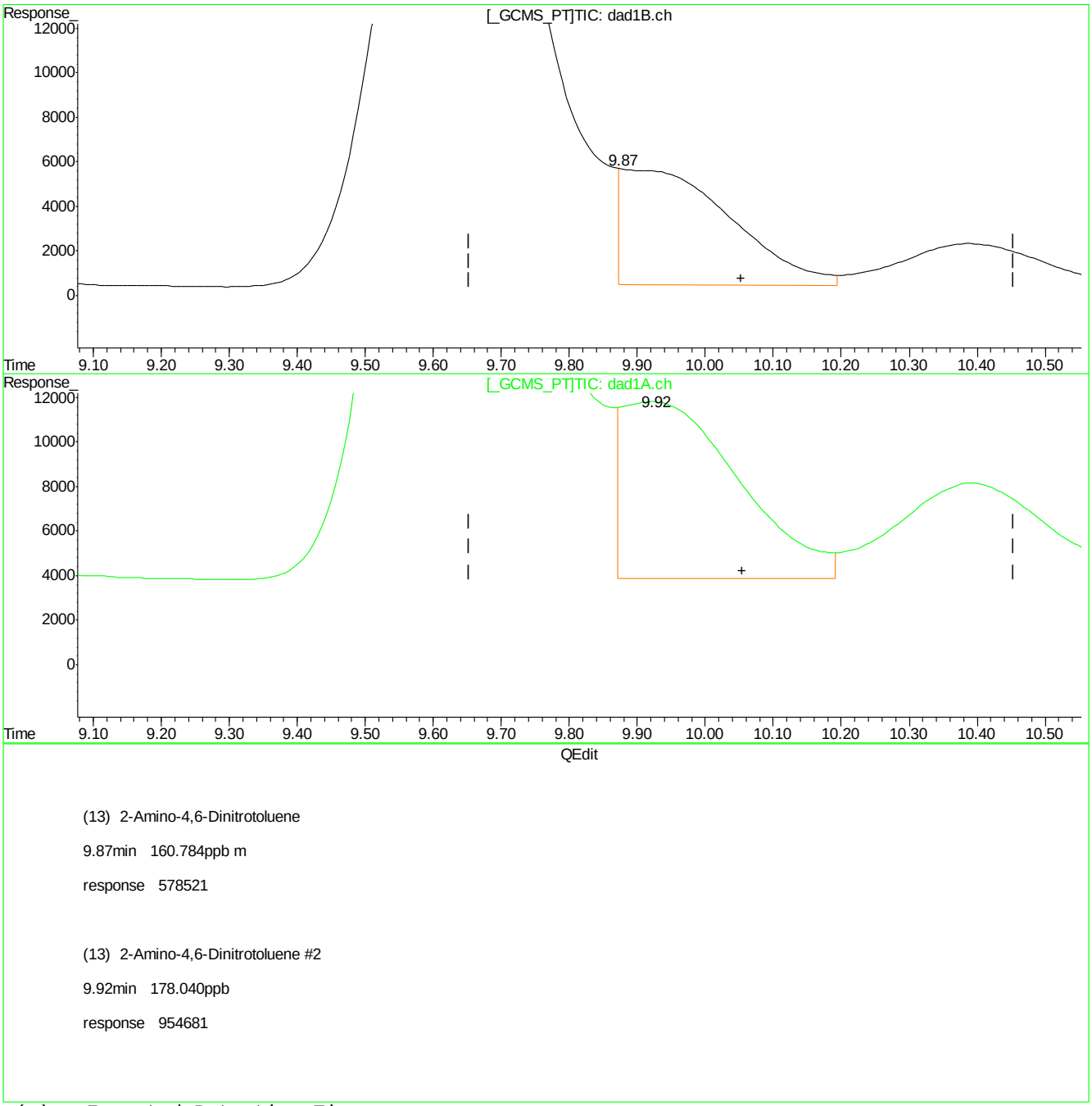
response 5656690

(+) = Expected Retention Time
BB066805.D 8330B_101119_PLUS.M Tue Oct 29 10:07:35 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1938\BB066805.D\dad1B.ch Vial: 28
Signal #2 : C:\HPCHEM\2\DATA\GBB1938\BB066805.D\dad1A.ch
Acq On : 28-Oct-2019, 13:08:36 Operator: williamh
Sample : FA69146-2 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 29 10:00 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration



(13) 2-Amino-4,6-Dinitrotoluene

9.87min 160.784ppb m

response 578521

(13) 2-Amino-4,6-Dinitrotoluene #2

9.92min 178.040ppb

response 954681

(+) = Expected Retention Time
BB066805.D 8330B_101119_PLUS.M Tue Oct 29 10:07:47 2019

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 10/29/19 17:40

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2778\GG617960.D\dad1B.ch Vial: 56
Signal #2 : C:\HPCHEM\1\DATA\GGG2778\GG617960.D\dad1A.ch
Acq On : 29-Oct-2019, 02:21:52 Operator: williamh
Sample : FA69146-2CF Inst : G1315B
Misc : op77415,ggg2778,990,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Oct 29 10:08:56 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Oct 24 10:07:48 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.49	13.50	2903612	5648061	643.048	628.679
	Spiked Amount 500.000	Range 70 - 136		Recovery =		128.61%	125.74%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	5.36	5.36	2875033	2875033	964.901	958.630
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D. d	N.D. d
5)	1,3,5-Trinitrobe	7.12	7.12	22289889	22289889	2155.433	2155.433
6)	RDX	0.00	0.00	0	0	N.D.	N.D.
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D.	N.D.
8)	Nitrobenzene	0.00	0.00	0	0	N.D. d	N.D. d
9)	2,4,6-Trinitroto	11.00	11.00	11397527	16084644	1117.765	1216.829
10)	Nitroglycerin	0.00	0.00	0	0	N.D. d	N.D. d
11)	Tetryl	0.00	0.00	0	0	N.D. d	N.D. d
13)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
14)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
15)	o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
16)	3,5-Dinitroanili	15.32	15.32	2620444	4629955	256.831	278.890
17)	p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
18)	4-Amino-2,6-Dini	17.05	17.08	775133	1557890	67.039m	71.736m
19)	m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20)	2-Amino-4,6-Dini	19.09	19.10	1895273	2631262	197.513m	187.519m
21)	PETN	0.00	0.00	0	0	N.D. d	N.D. d

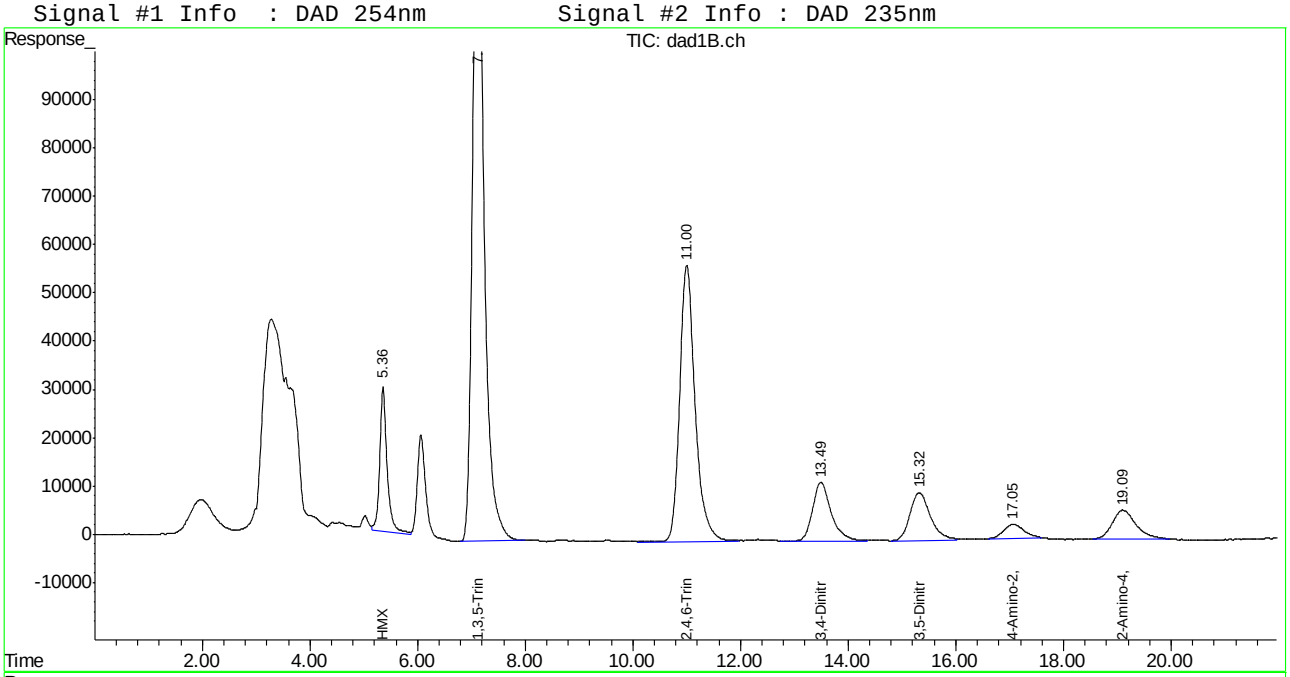
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
GG617960.D 8330RPB.M_092519.M Tue Oct 29 12:46:06 2019 Page 1

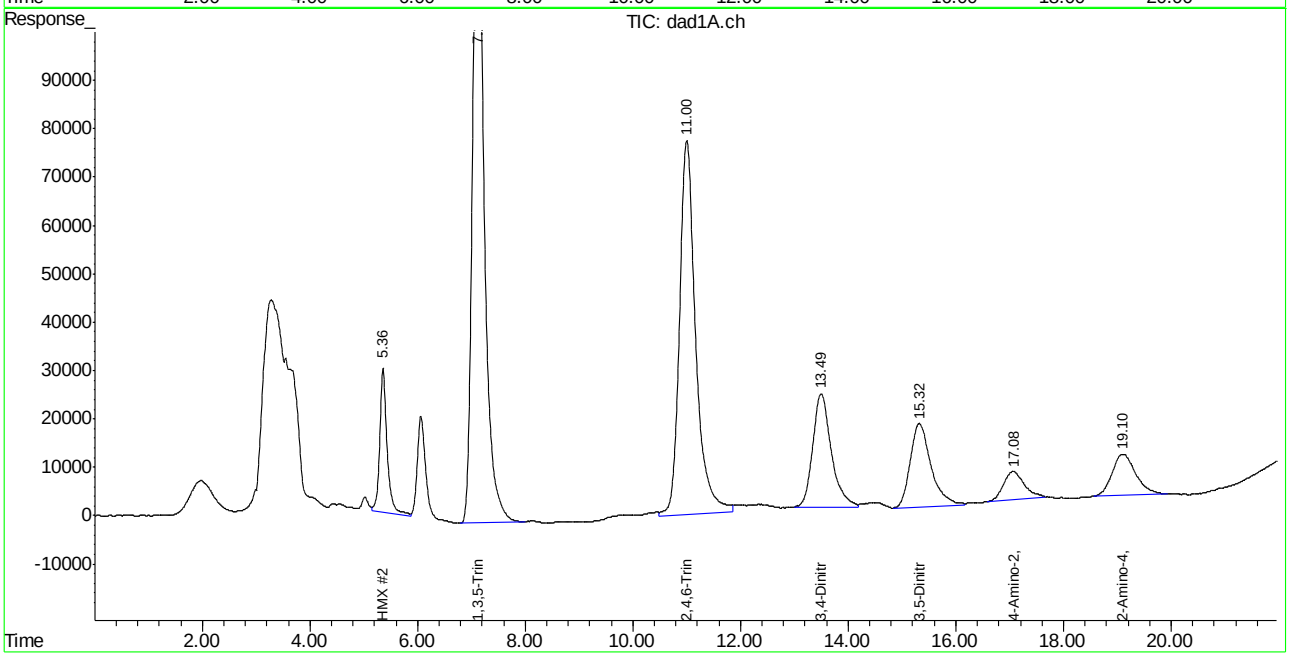
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2778\GG617960.D\dad1B.ch Vial: 56
Signal #2 : C:\HPCHEM\1\DATA\GGG2778\GG617960.D\dad1A.ch
Acq On : 29-Oct-2019, 02:21:52 Operator: williamh
Sample : FA69146-2CF Inst : G1315B
Misc : op77415,ggg2778,990,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Oct 29 10:57 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Oct 24 10:07:48 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

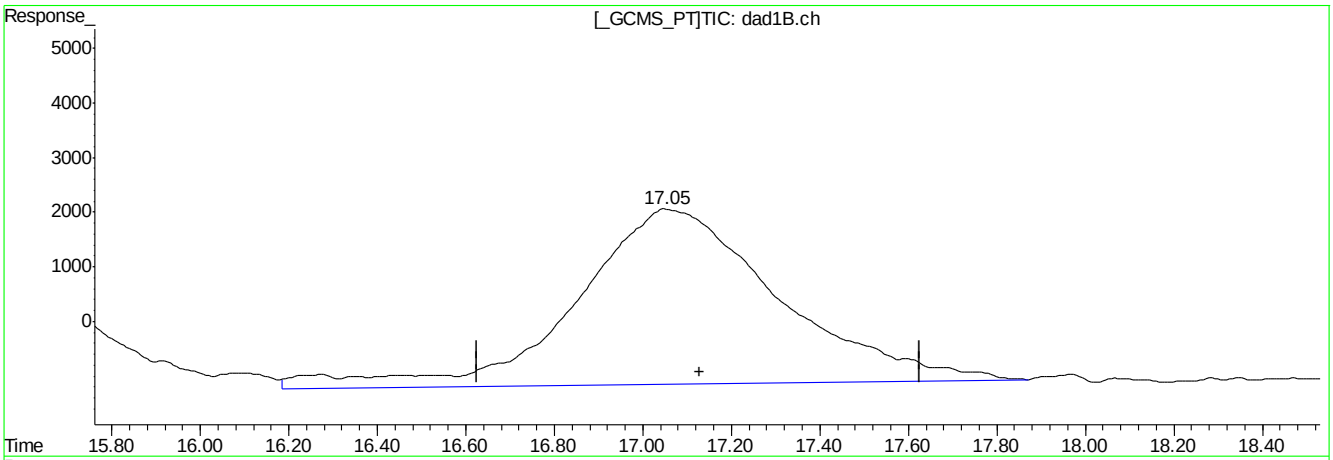
Sample Number: FA69146-2
Lab FileID: GG617960.D
Injection Time: 10/29/19 02:21
Method: SW846 8330B
Analyst approved: 10/29/19 15:26 William Hustedde
Supervisor approved: 10/29/19 17:40 Naresh Jiawan

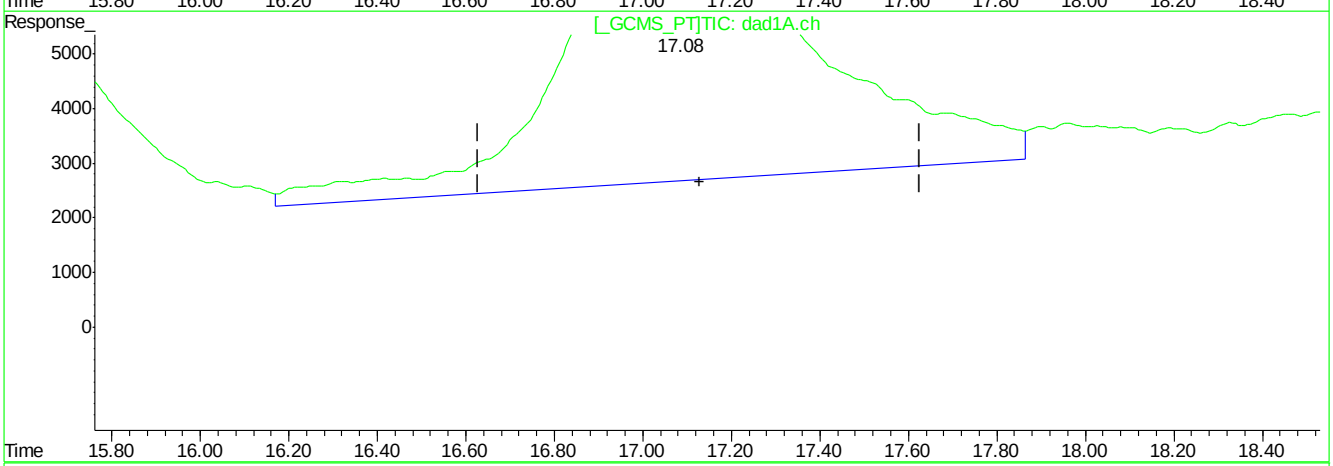
Parameter	CAS	Sig#	R.T. (min.)	Reason
4-amino-2,6-Dinitrotoluene	19406-51-0	1	17.05	Poor instrument integration
4-amino-2,6-Dinitrotoluene	19406-51-0	2	17.08	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	1	19.09	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	2	19.10	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2778\GG617960.D\dad1B.ch Vial: 56
Signal #2 : C:\HPCHEM\1\DATA\GGG2778\GG617960.D\dad1A.ch
Acq On : 29-Oct-2019, 02:21:52 Operator: williamh
Sample : FA69146-2 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Oct 29 10:08 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Oct 24 10:07:48 2019
Response via : Multiple Level Calibration





QEdit

(18) 4-Amino-2,6-Dinitrotoluene

17.06min 88.174ppb

response 1019501

(18) 4-Amino-2,6-Dinitrotoluene #2

17.08min 99.092ppb

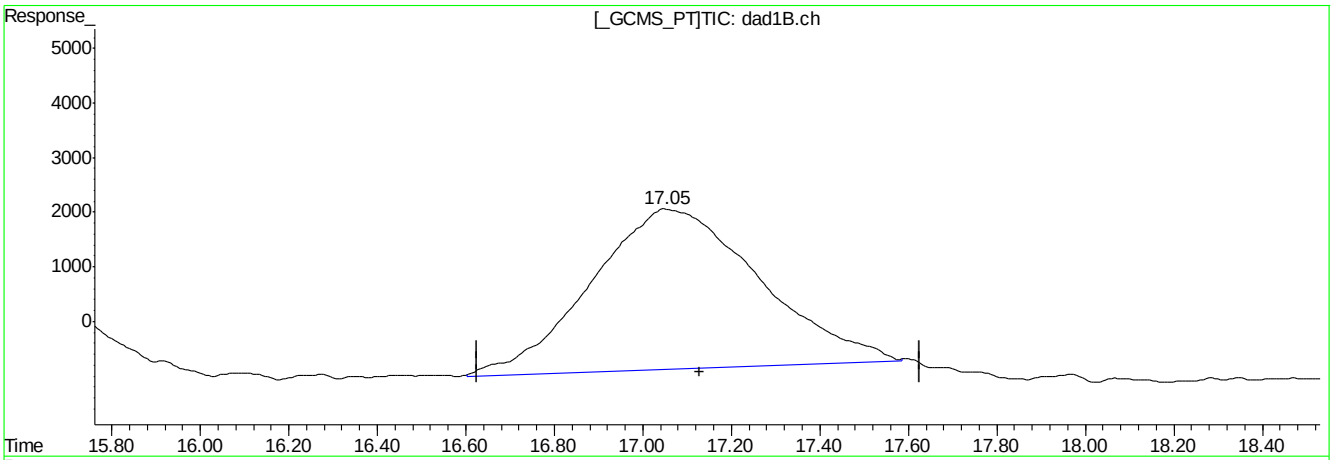
response 2151991

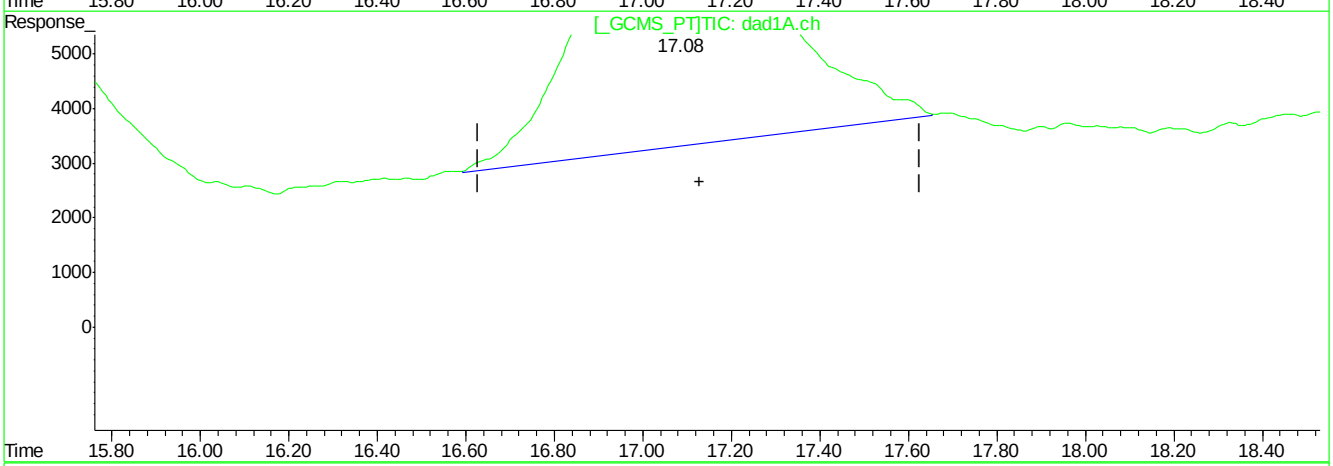
(+) = Expected Retention Time
GG617960.D 8330RPB.M_092519.M Tue Oct 29 10:56:57 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2778\GG617960.D\dad1B.ch Vial: 56
Signal #2 : C:\HPCHEM\1\DATA\GGG2778\GG617960.D\dad1A.ch
Acq On : 29-Oct-2019, 02:21:52 Operator: williamh
Sample : FA69146-2 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Oct 29 10:08 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Oct 24 10:07:48 2019
Response via : Multiple Level Calibration





QEdit

(18) 4-Amino-2,6-Dinitrotoluene

17.05min 67.039ppb m

response 775133

(18) 4-Amino-2,6-Dinitrotoluene #2

17.08min 71.736ppb m

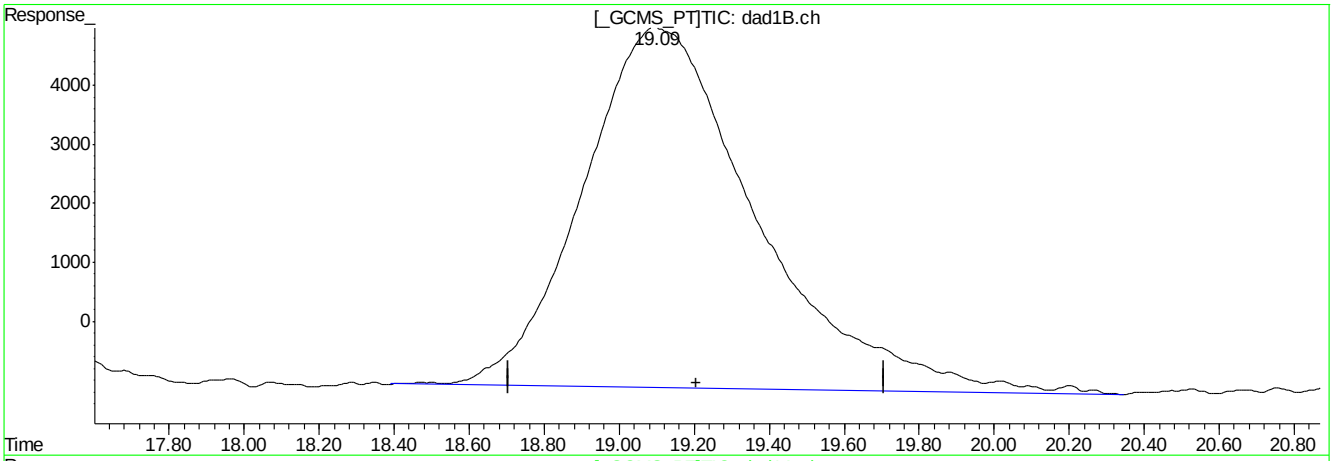
response 1557890

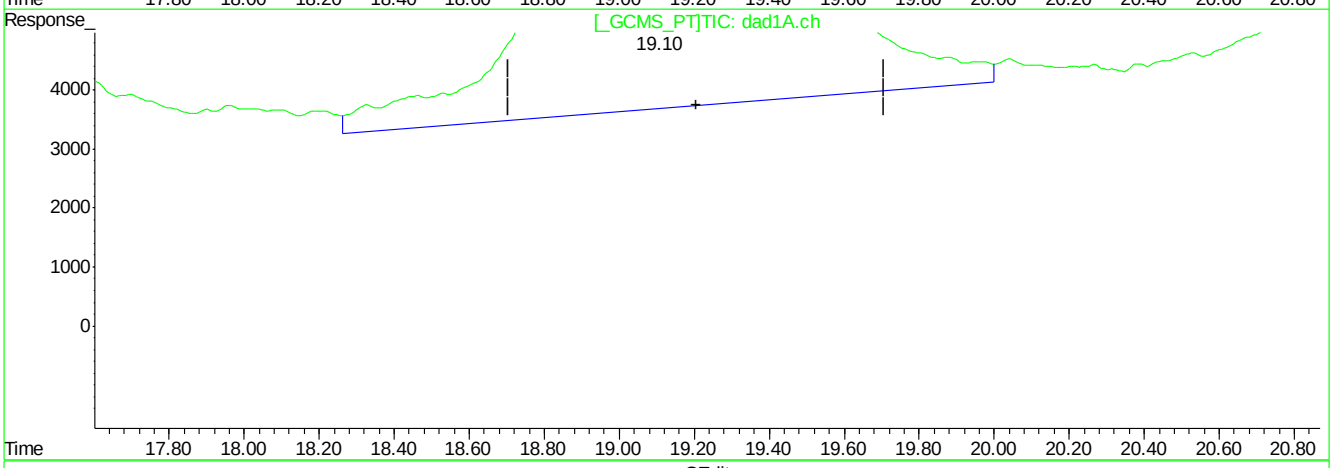
(+) = Expected Retention Time
GG617960.D 8330RPB.M_092519.M Tue Oct 29 10:57:04 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2778\GG617960.D\dad1B.ch Vial: 56
Signal #2 : C:\HPCHEM\1\DATA\GGG2778\GG617960.D\dad1A.ch
Acq On : 29-Oct-2019, 02:21:52 Operator: williamh
Sample : FA69146-2 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Oct 29 10:08 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Oct 24 10:07:48 2019
Response via : Multiple Level Calibration





QEdit

(20) 2-Amino-4,6-Dinitrotoluene

19.10min 205.212ppb

response 1969153

(20) 2-Amino-4,6-Dinitrotoluene #2

19.10min 218.784ppb

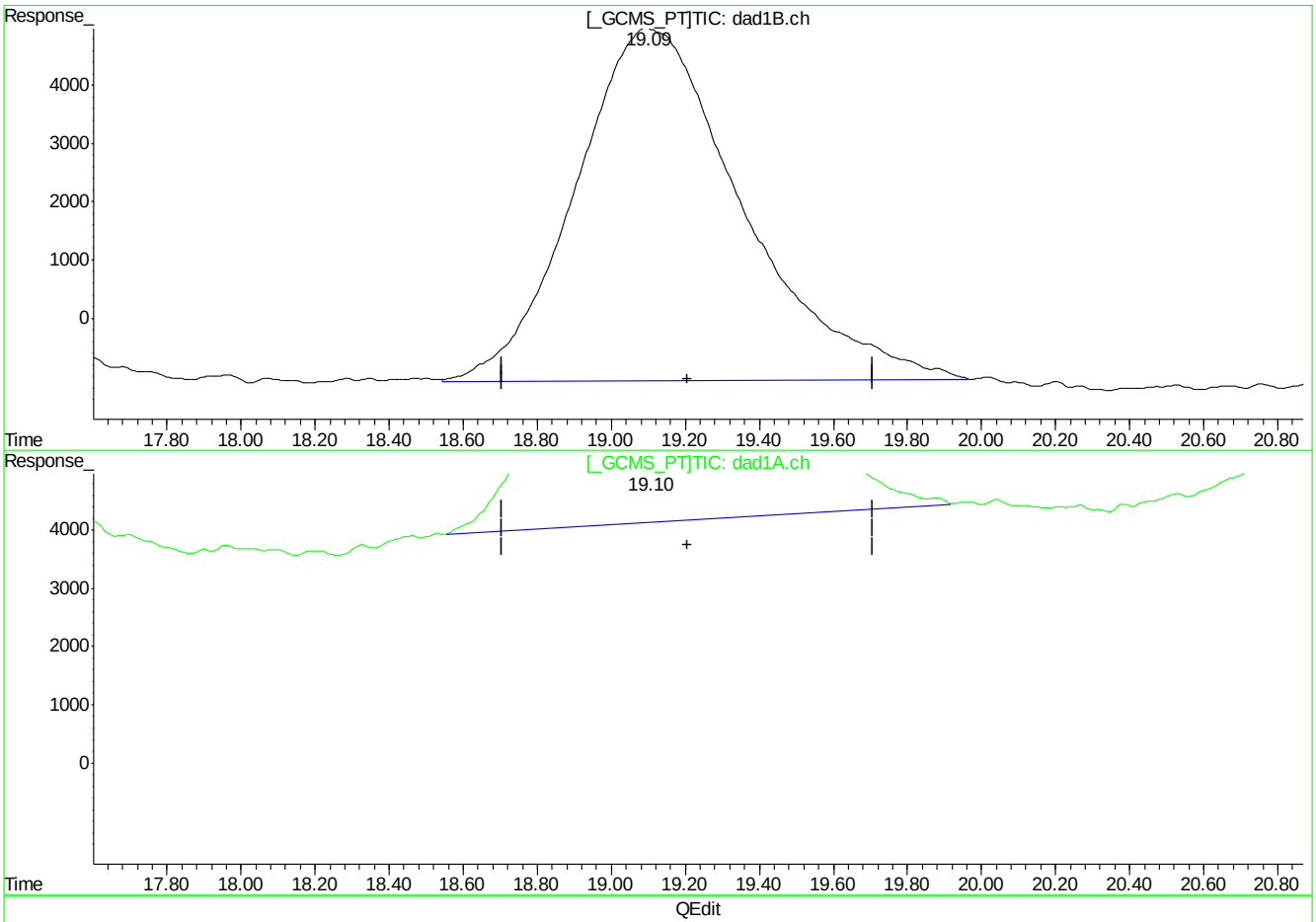
response 3069963

(+) = Expected Retention Time
GG617960.D 8330RPB.M_092519.M Tue Oct 29 10:57:13 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2778\GG617960.D\dad1B.ch Vial: 56
Signal #2 : C:\HPCHEM\1\DATA\GGG2778\GG617960.D\dad1A.ch
Acq On : 29-Oct-2019, 02:21:52 Operator: williamh
Sample : FA69146-2 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Oct 29 10:08 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Oct 24 10:07:48 2019
Response via : Multiple Level Calibration



QEdit

(20) 2-Amino-4,6-Dinitrotoluene

19.09min 197.513ppb m

response 1895273

(20) 2-Amino-4,6-Dinitrotoluene #2

19.10min 187.519ppb m

response 2631262

(+) = Expected Retention Time
GG617960.D 8330RPB.M_092519.M Tue Oct 29 10:57:20 2019

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 10/29/19 17:42

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1935\BB066720.D\dad1B.ch Vial: 38
Signal #2 : C:\HPCHEM\2\DATA\GBB1935\BB066720.D\dad1A.ch
Acq On : 23-Oct-2019, 15:03:34 Operator: williamh
Sample : FA69146-3 Inst : G1315B
Misc : op77364,GBB1935,990,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 24 09:08:02 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.92	10.93	1041120	1847624	493.954	523.878
	Spiked Amount 500.000	Range 70 - 136		Recovery =		98.79%	104.78%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	1.47	1.47	396755	1276515	238.619m	277.431m
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D. d	N.D. d
5)	RDX	2.91	2.91	413475	582186	204.881	181.918
6)	1,3,5-Trinitrobe	4.67	4.67	337760	615311	76.175m	73.678
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D. d	N.D. d
8)	3,5-Dinitroanili	6.21	6.20	130260	190232	30.409	25.772m
9)	Nitrobenzene	0.00	0.00	0	0	N.D. d	N.D. d
10)	Nitroglycerin	0.00	0.00	0	0	N.D.	N.D.
11)	Tetryl	0.00	0.00	0	0	N.D.	N.D.
12)	2,4,6-Trinitroto	9.70	9.70	1588055	2149013	399.339	453.401
13)	2-Amino-4,6-Dini	10.03	10.04	351904	636023	97.802	118.613
14)	4-Amino-2,6-Dini	10.49	10.48	236026	558210	88.116	106.878
16)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
17)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
18)	o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
19)	p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20)	m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
21)	PETN	0.00	0.00	0	0	N.D. d	N.D. d

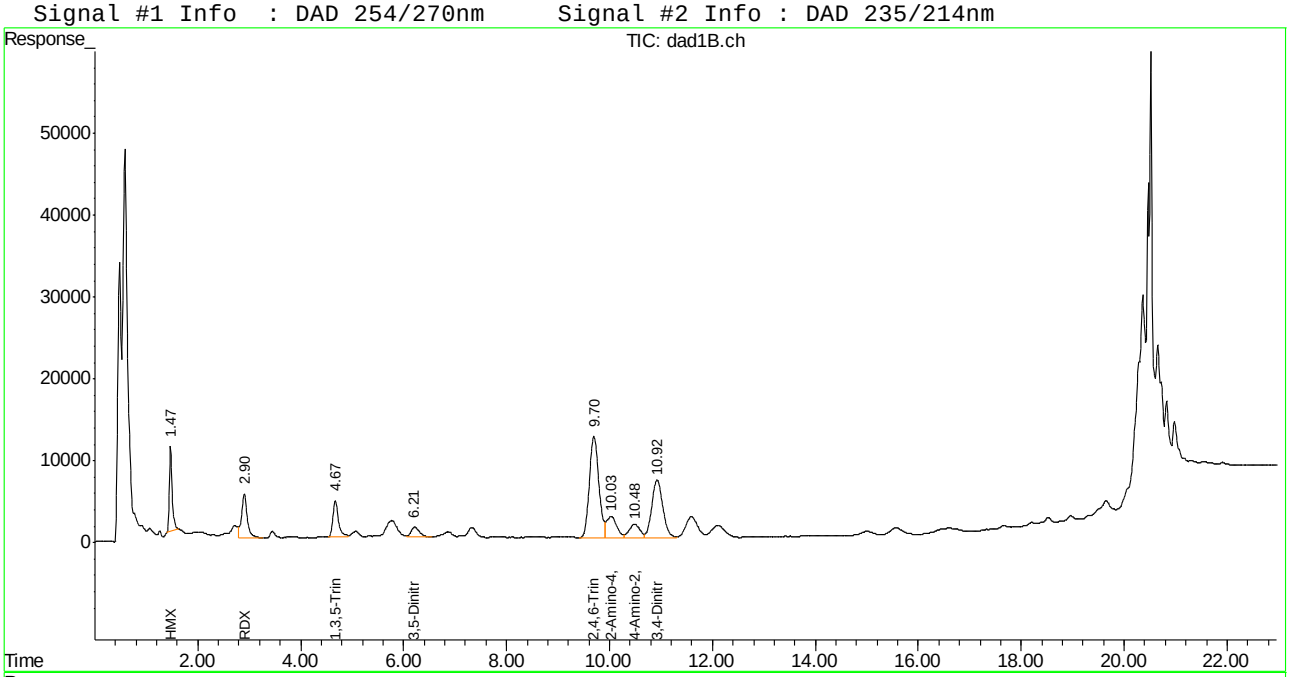
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB066720.D 8330B_101119_PLUS.M Tue Oct 29 14:30:32 2019 Page 1

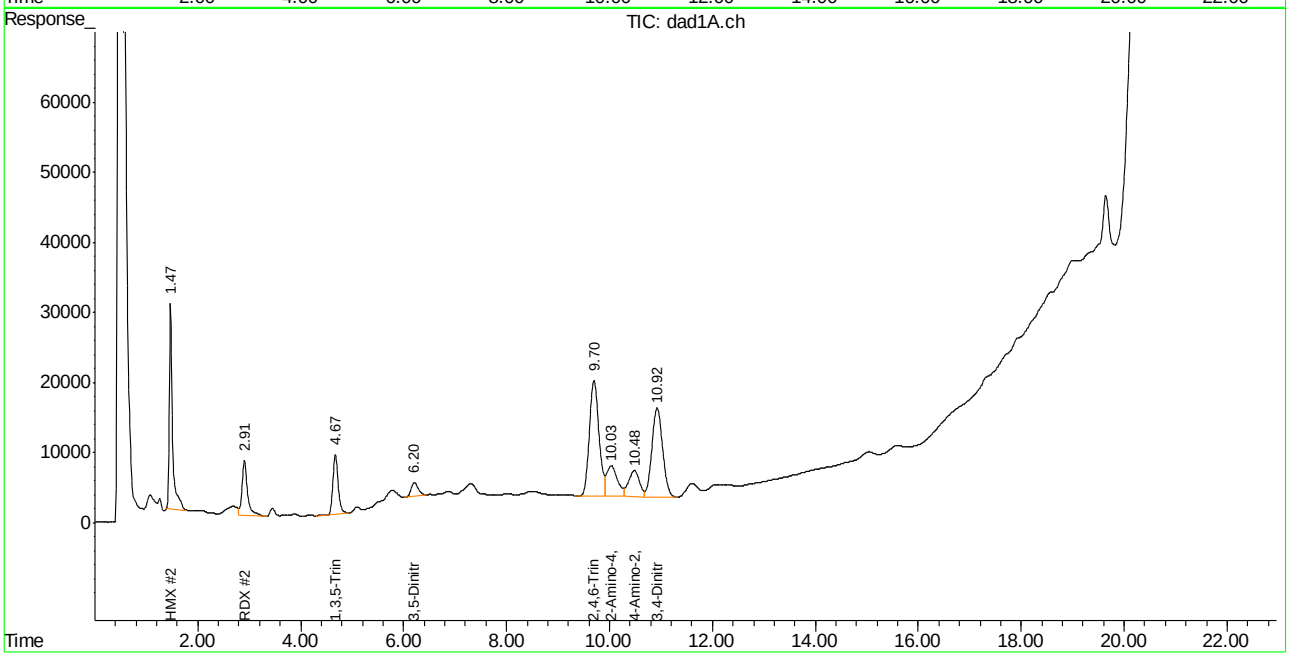
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1935\BB066720.D\dad1B.ch Vial: 38
Signal #2 : C:\HPCHEM\2\DATA\GBB1935\BB066720.D\dad1A.ch
Acq On : 23-Oct-2019, 15:03:34 Operator: williamh
Sample : FA69146-3 Inst : G1315B
Misc : op77364,GBB1935,990,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 29 14:30 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

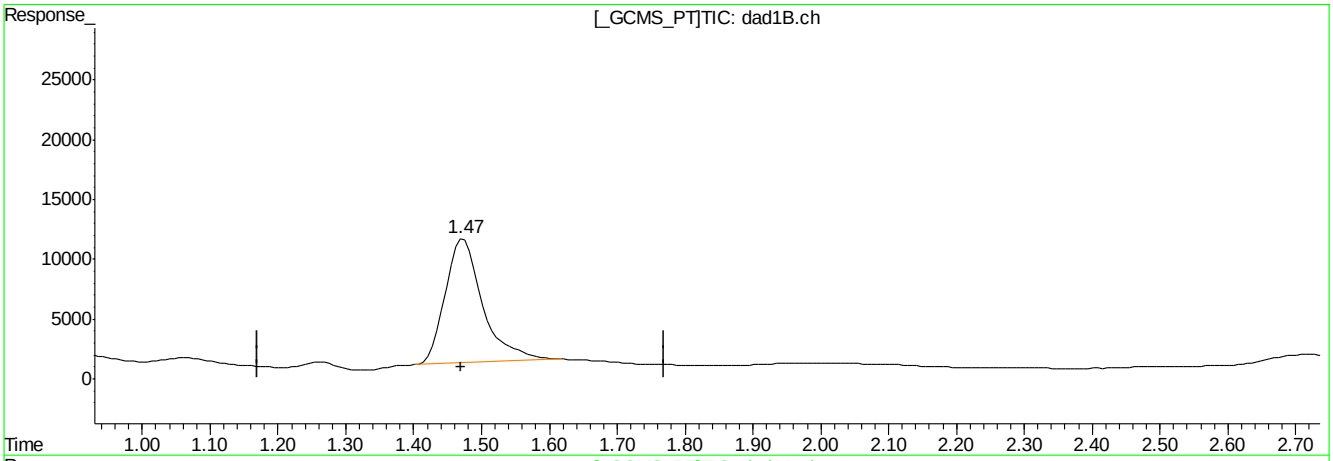
Sample Number: FA69146-3
Lab FileID: BB066720.D
Injection Time: 10/23/19 15:03
Method: SW846 8330B
Analyst approved: 10/29/19 15:31 William Hustedde
Supervisor approved: 10/29/19 17:42 Naresh Jiawan

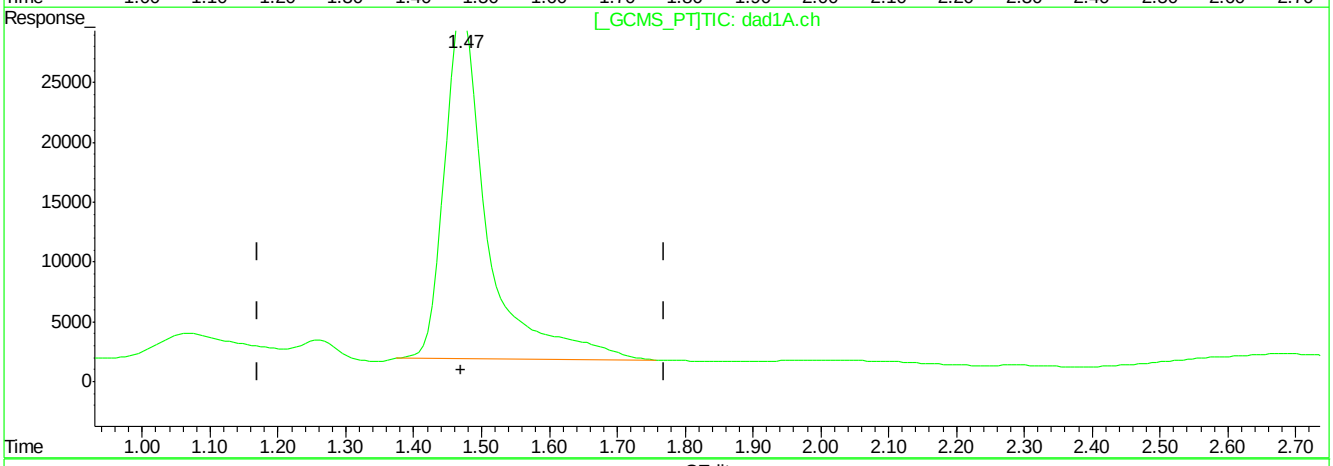
Parameter	CAS	Sig#	R.T. (min.)	Reason
HMX	2691-41-0	1	1.47	Poor instrument integration
HMX	2691-41-0	2	1.47	Poor instrument integration
1,3,5-Trinitrobenzene	99-35-4	1	4.67	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	6.20	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1935\BB066720.D\dad1B.ch Vial: 38
Signal #2 : C:\HPCHEM\2\DATA\GBB1935\BB066720.D\dad1A.ch
Acq On : 23-Oct-2019, 15:03:34 Operator: williamh
Sample : FA69146-3 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 24 9:08 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration





QEdit

(2) HMX

1.47min 238.619ppb m

response 396755

(2) HMX #2

1.47min 277.431ppb m

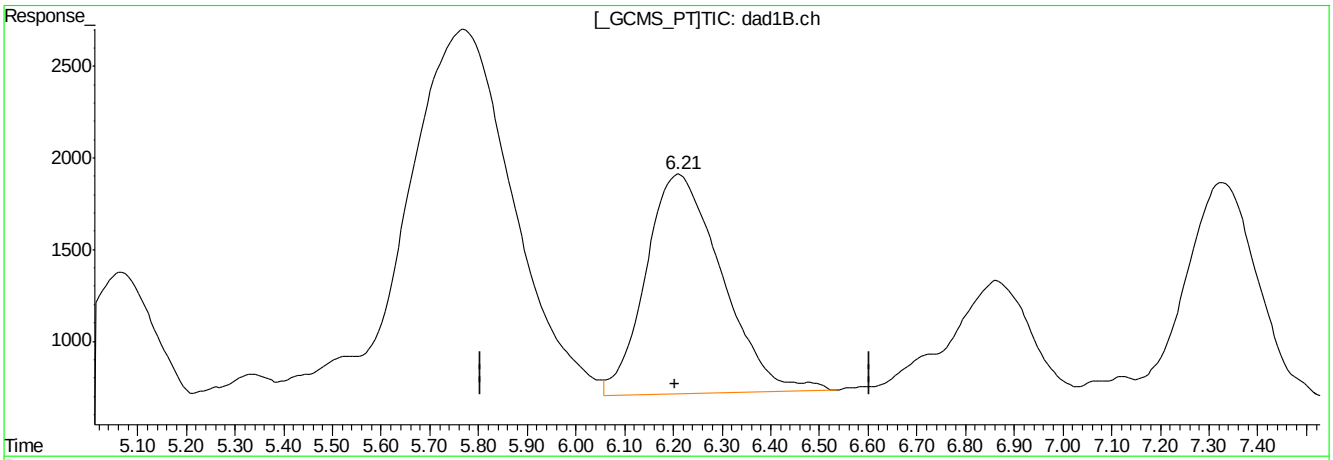
response 1276515

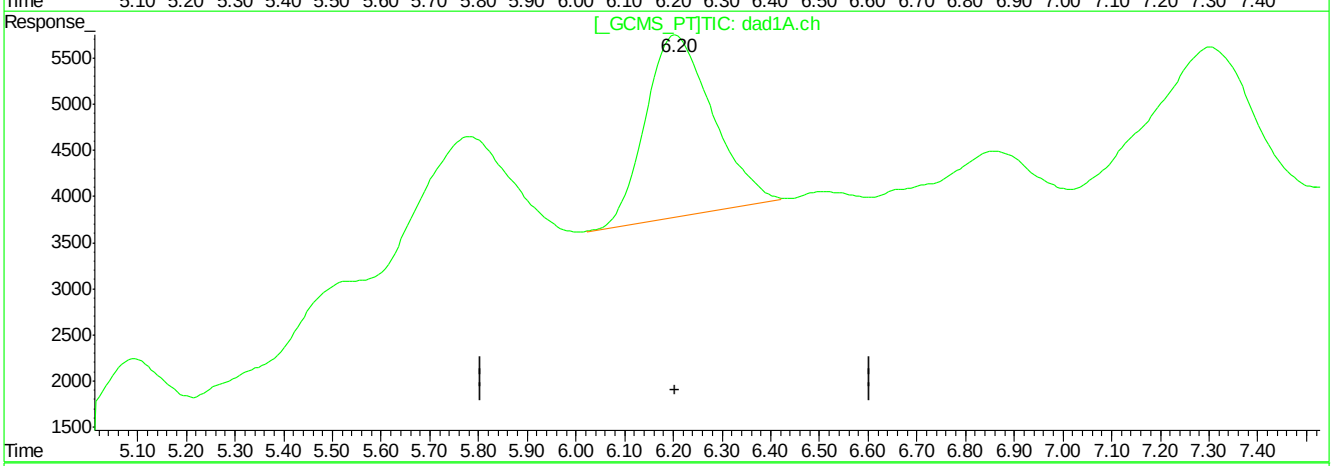
(+) = Expected Retention Time
BB066720.D 8330B_101119_PLUS.M Thu Oct 24 09:37:45 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1935\BB066720.D\dad1B.ch Vial: 38
Signal #2 : C:\HPCHEM\2\DATA\GBB1935\BB066720.D\dad1A.ch
Acq On : 23-Oct-2019, 15:03:34 Operator: williamh
Sample : FA69146-3 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 24 9:08 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.21min 30.409ppb

response 130260

(8) 3,5-Dinitroaniline #2

6.20min 25.772ppb m

response 190232

(+) = Expected Retention Time
BB066720.D 8330B_101119_PLUS.M Thu Oct 24 09:38:11 2019

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 10/29/19 17:42

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1938\BB066806.D\dad1B.ch Vial: 29
Signal #2 : C:\HPCHEM\2\DATA\GBB1938\BB066806.D\dad1A.ch
Acq On : 28-Oct-2019, 13:38:31 Operator: williamh
Sample : FA69146-3 Inst : G1315B
Misc : op77415,GBB1938,990,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 29 10:00:28 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.87	10.87	1039026	1865762	492.961	529.021
	Spiked Amount 500.000	Range 70 - 136		Recovery =		98.59%	105.80%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	1.46	1.46	474662	1309278	285.475	284.552
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D. d	N.D. d
5)	RDX	2.89	2.89	222726	373626	110.363	116.748
6)	1,3,5-Trinitrobe	4.66	4.66	302918	598902	68.317	71.713
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D.	N.D.
8)	3,5-Dinitroanili	6.17	6.17	84371	178569	19.696m	24.192m
9)	Nitrobenzene	0.00	0.00	0	0	N.D.	N.D.
10)	Nitroglycerin	0.00	0.00	0	0	N.D.	N.D.
11)	Tetryl	0.00	0.00	0	0	N.D.	N.D.
12)	2,4,6-Trinitroto	9.66	9.66	1272229	1540282	319.920	324.970
13)	2-Amino-4,6-Dini	9.98	9.98	379757	570384	105.543	106.372
14)	4-Amino-2,6-Dini	10.43	10.43	267632	529260	99.915	101.335
16)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D.	N.D.
17)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
18)	o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
19)	p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20)	m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
21)	PETN	0.00	0.00	0	0	N.D. d	N.D. d

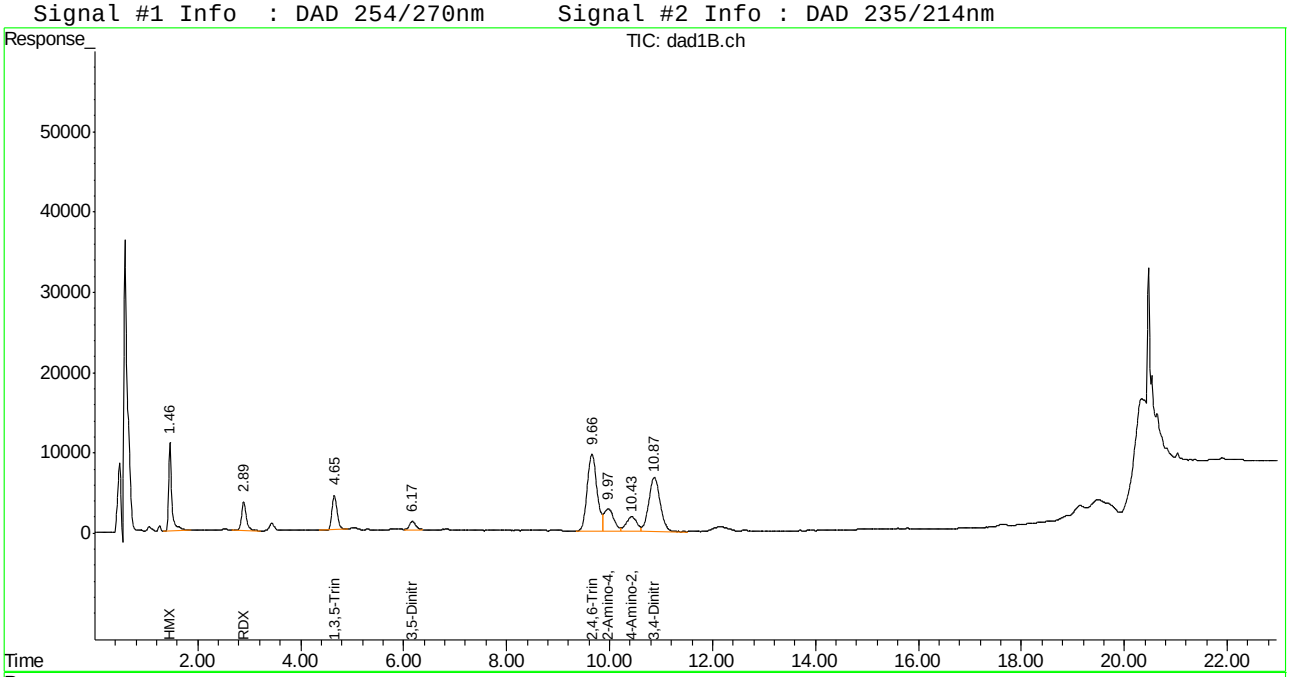
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB066806.D 8330B_101119_PLUS.M Tue Oct 29 14:18:27 2019 Page 1

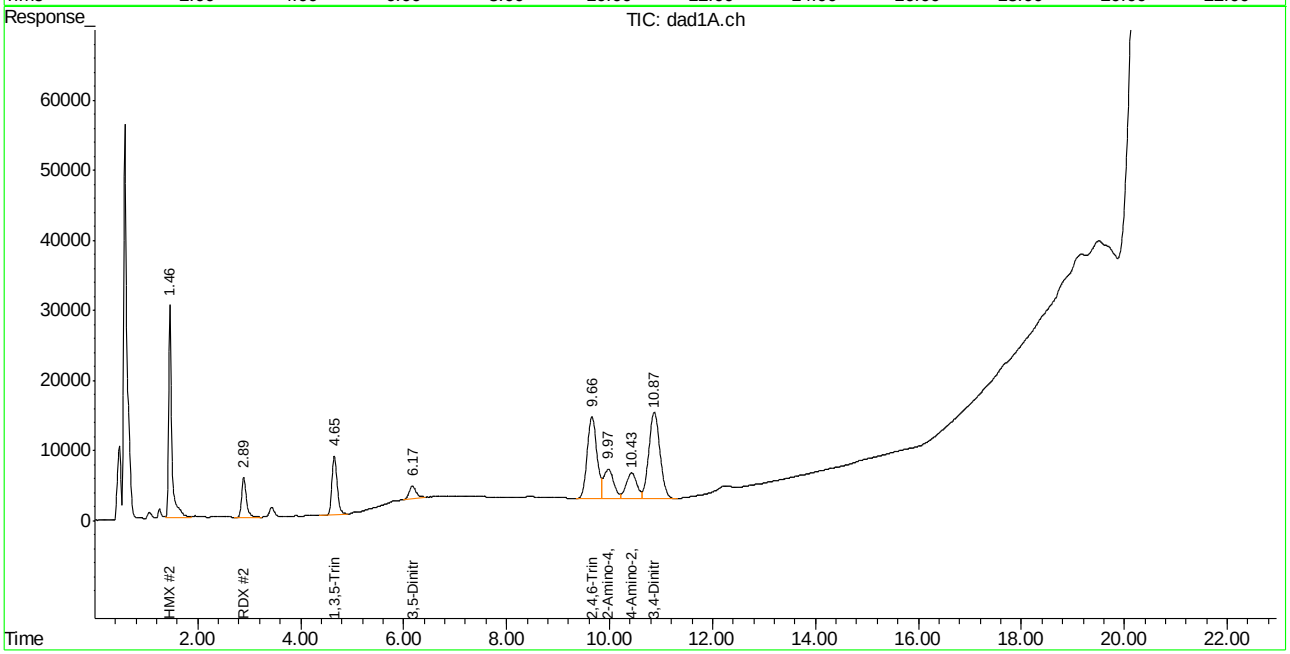
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1938\BB066806.D\dad1B.ch Vial: 29
Signal #2 : C:\HPCHEM\2\DATA\GBB1938\BB066806.D\dad1A.ch
Acq On : 28-Oct-2019, 13:38:31 Operator: williamh
Sample : FA69146-3 Inst : G1315B
Misc : op77415,GBB1938,990,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 29 10:09 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

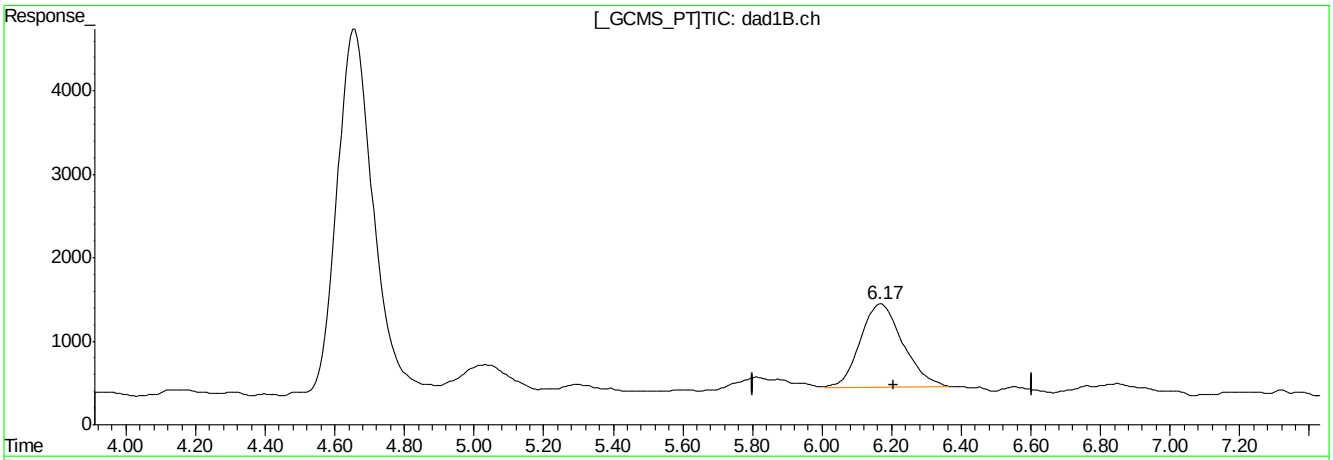
Sample Number: FA69146-3
Lab FileID: BB066806.D
Injection Time: 10/28/19 13:38
Method: SW846 8330B
Analyst approved: 10/29/19 15:31 William Hustedde
Supervisor approved: 10/29/19 17:42 Naresh Jiawan

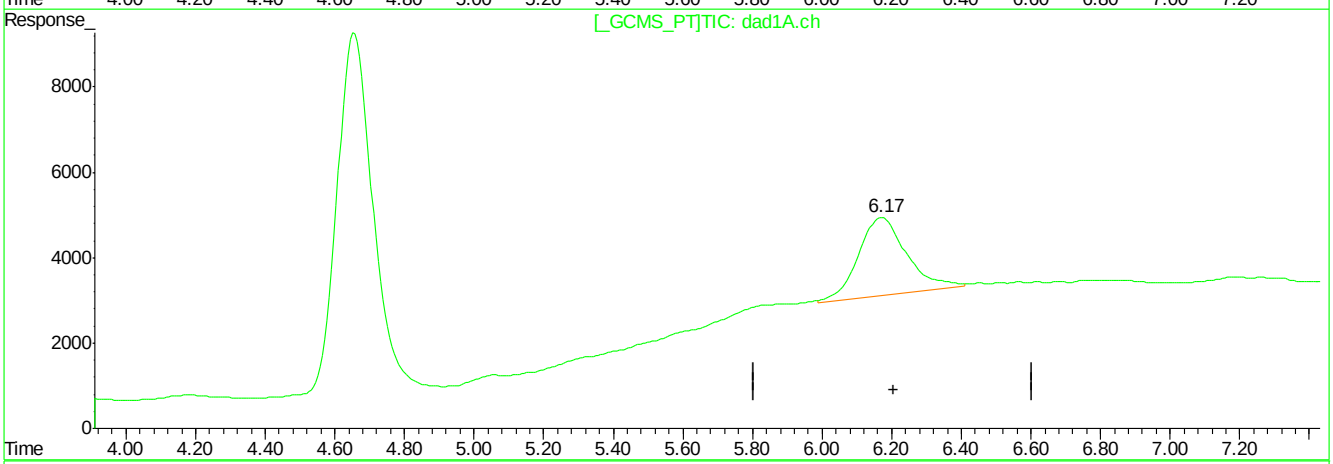
Parameter	CAS	Sig#	R.T. (min.)	Reason
3,5-Dinitroaniline	618-87-1	1	6.17	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	6.17	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1938\BB066806.D\dad1B.ch Vial: 29
Signal #2 : C:\HPCHEM\2\DATA\GBB1938\BB066806.D\dad1A.ch
Acq On : 28-Oct-2019, 13:38:31 Operator: williamh
Sample : FA69146-3 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 29 10:00 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.17min 19.696ppb m

response 84371

(8) 3,5-Dinitroaniline #2

6.17min 24.192ppb m

response 178569

(+) = Expected Retention Time
BB066806.D 8330B_101119_PLUS.M Tue Oct 29 10:08:52 2019

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 10/29/19 17:42

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2778\GG617961.D\dad1B.ch Vial: 57
Signal #2 : C:\HPCHEM\1\DATA\GGG2778\GG617961.D\dad1A.ch
Acq On : 29-Oct-2019, 02:51:19 Operator: williamh
Sample : FA69146-3CF Inst : G1315B
Misc : op77415,ggg2778,990,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Oct 29 10:08:57 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Oct 24 10:07:48 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.52	13.52	2755359	5511084	610.215	613.470
	Spiked Amount 500.000	Range 70 - 136		Recovery =		122.04%	122.69%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	5.37	5.37	1294540	1294540	434.466	431.642
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D. d	N.D. d
5)	1,3,5-Trinitrobe	7.14	7.14	725654	725654	70.171	70.171
6)	RDX	7.55	7.55	544829	544829	107.464	107.464
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D. d	N.D. d
8)	Nitrobenzene	0.00	0.00	0	0	N.D. d	N.D. d
9)	2,4,6-Trinitroto	11.02	11.02	3180259	4058470	311.891	307.030m
10)	Nitroglycerin	0.00	0.00	0	0	N.D. d	N.D. d
11)	Tetryl	0.00	0.00	0	0	N.D. d	N.D. d
13)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
14)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
15)	o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
16)	3,5-Dinitroanili	15.39	15.39	386165	700351	37.848	42.186
17)	p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
18)	4-Amino-2,6-Dini	17.06	17.09	663505	1180971	57.385m	54.380m
19)	m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20)	2-Amino-4,6-Dini	19.14	19.14	1063043	1161709	110.784m	82.790m
21)	PETN	0.00	0.00	0	0	N.D. d	N.D. d

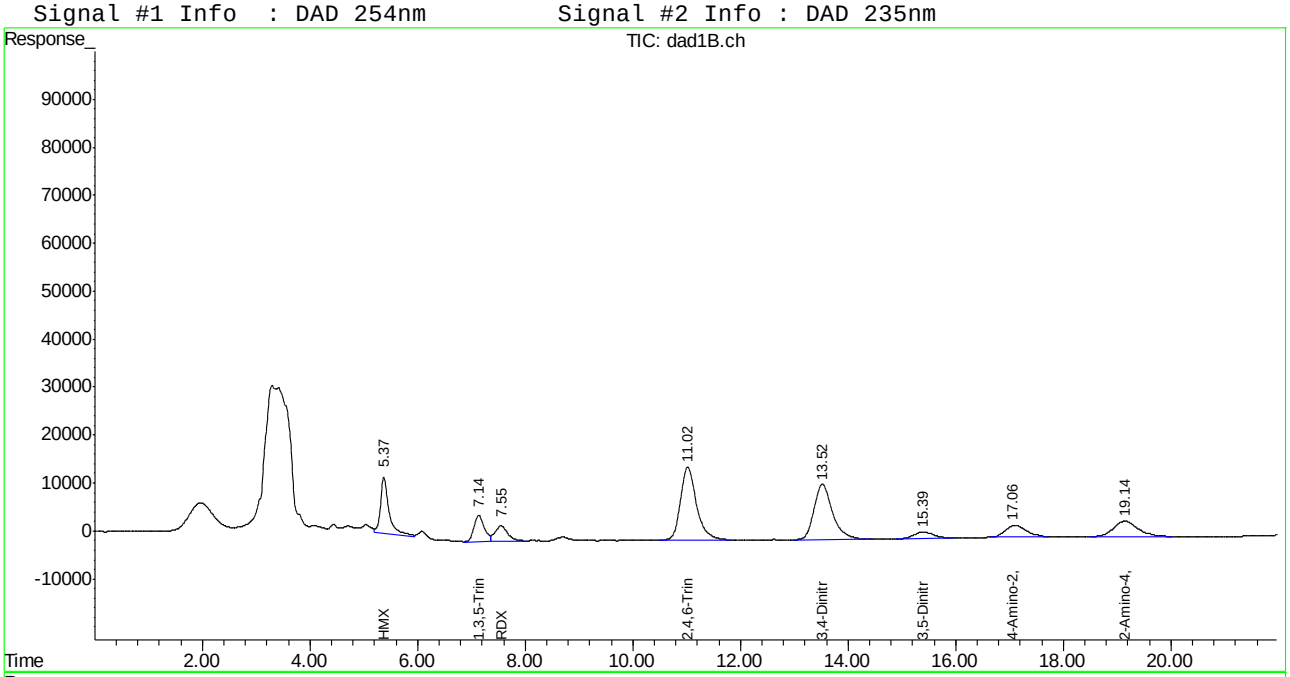
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
GG617961.D 8330RPB.M_092519.M Tue Oct 29 12:46:07 2019 Page 1

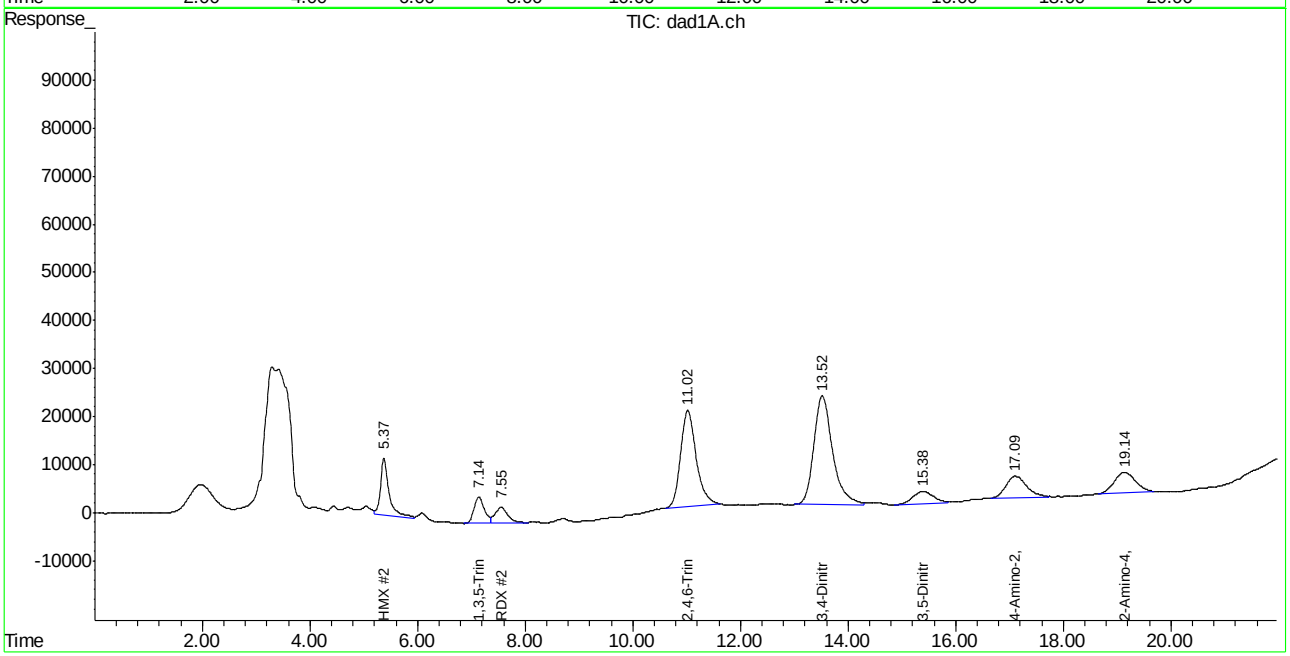
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2778\GG617961.D\dad1B.ch Vial: 57
Signal #2 : C:\HPCHEM\1\DATA\GGG2778\GG617961.D\dad1A.ch
Acq On : 29-Oct-2019, 02:51:19 Operator: williamh
Sample : FA69146-3CF Inst : G1315B
Misc : op77415,ggg2778,990,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Oct 29 10:58 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Oct 24 10:07:48 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

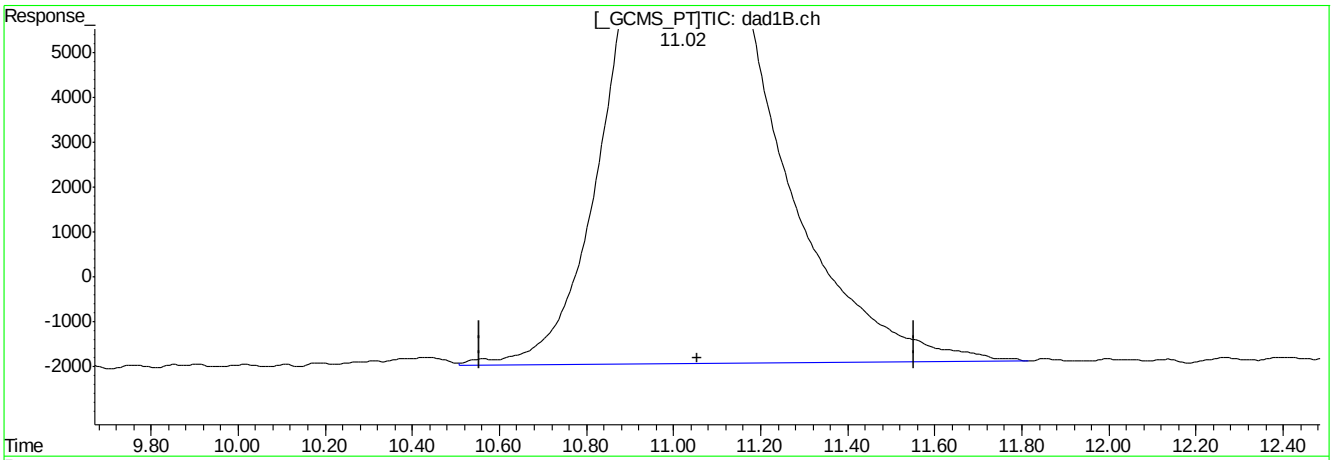
Sample Number: FA69146-3
Lab FileID: GG617961.D
Injection Time: 10/29/19 02:51
Method: SW846 8330B
Analyst approved: 10/29/19 15:31 William Hustedde
Supervisor approved: 10/29/19 17:42 Naresh Jiawan

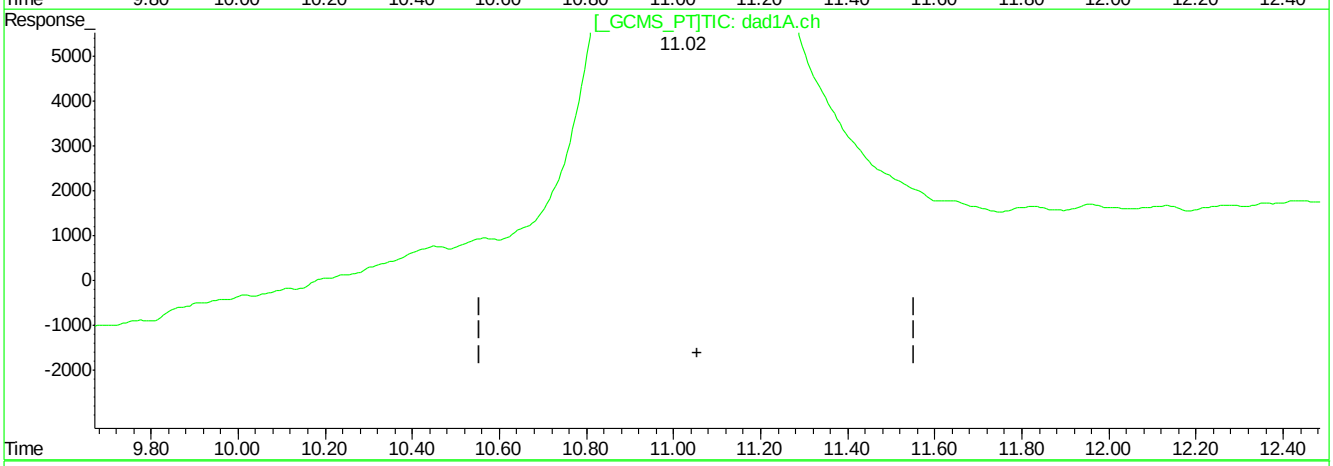
Parameter	CAS	Sig#	R.T. (min.)	Reason
2,4,6-Trinitrotoluene	118-96-7	2	11.02	Poor instrument integration
4-amino-2,6-Dinitrotoluene	19406-51-0	1	17.06	Poor instrument integration
4-amino-2,6-Dinitrotoluene	19406-51-0	2	17.09	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	1	19.14	Poor instrument integration
2-amino-4,6-Dinitrotoluene	35572-78-2	2	19.14	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2778\GG617961.D\dad1B.ch Vial: 57
Signal #2 : C:\HPCHEM\1\DATA\GGG2778\GG617961.D\dad1A.ch
Acq On : 29-Oct-2019, 02:51:19 Operator: williamh
Sample : FA69146-3 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Oct 29 10:08 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Oct 24 10:07:48 2019
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.02min 311.891ppb

response 3180259

(9) 2,4,6-Trinitrotoluene #2

11.02min 400.565ppb

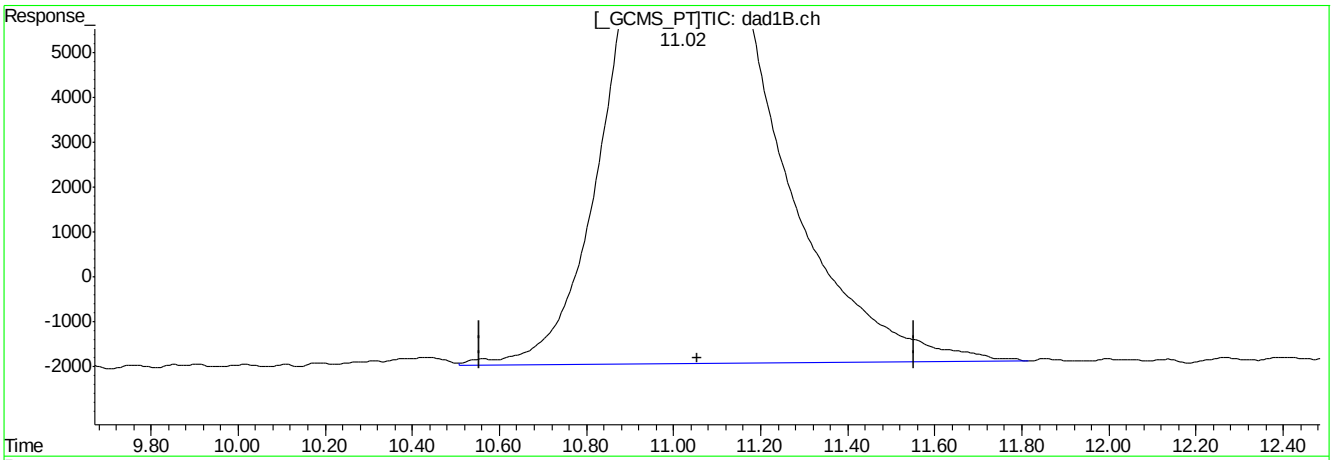
response 5294863

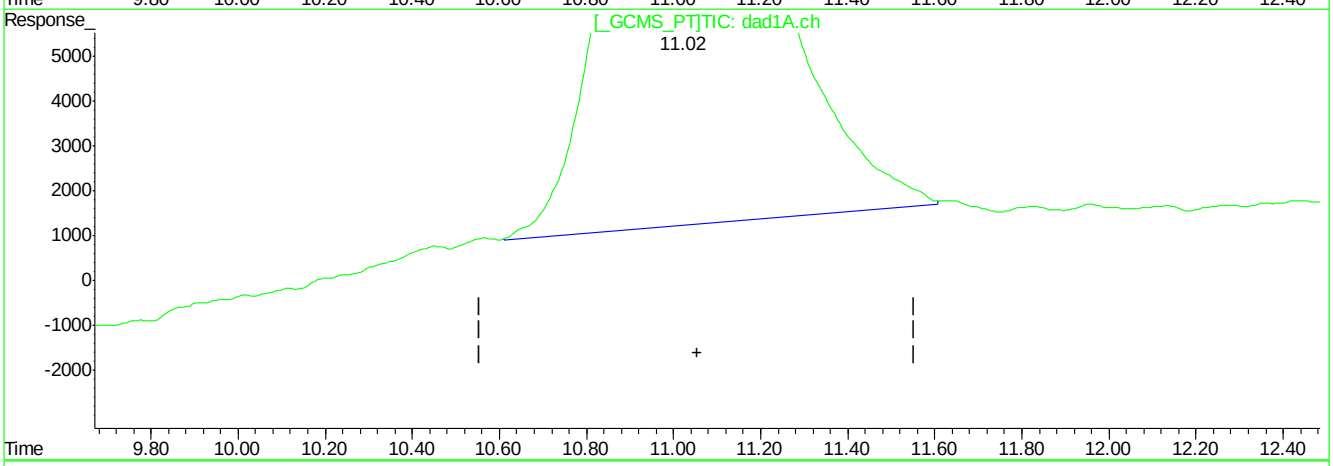
(+) = Expected Retention Time
GG617961.D 8330RPB.M_092519.M Tue Oct 29 10:58:14 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2778\GG617961.D\dad1B.ch Vial: 57
Signal #2 : C:\HPCHEM\1\DATA\GGG2778\GG617961.D\dad1A.ch
Acq On : 29-Oct-2019, 02:51:19 Operator: williamh
Sample : FA69146-3 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Oct 29 10:08 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Oct 24 10:07:48 2019
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.02min 311.891ppb

response 3180259

(9) 2,4,6-Trinitrotoluene #2

11.02min 307.030ppb m

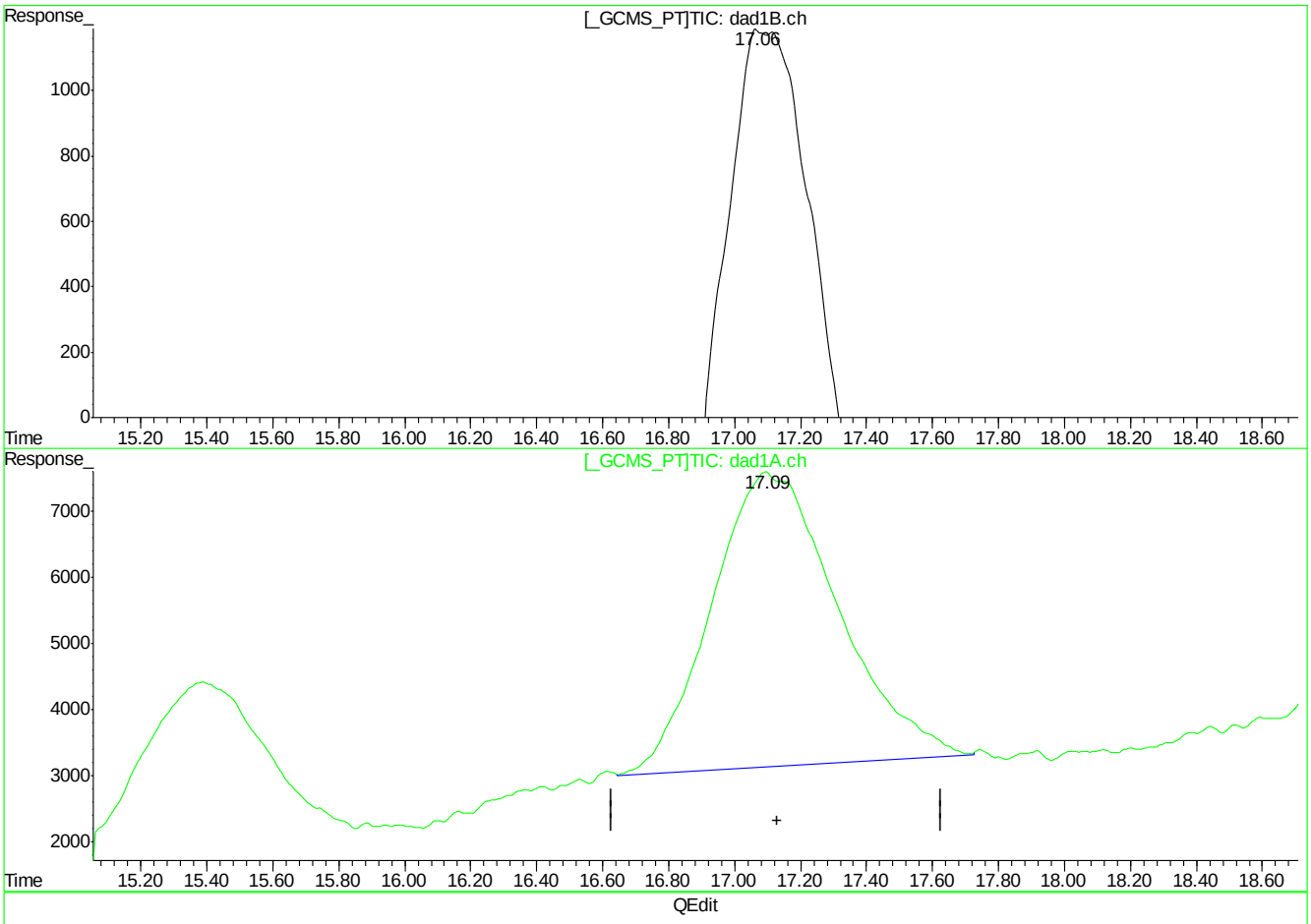
response 4058470

(+) = Expected Retention Time
GG617961.D 8330RPB.M_092519.M Tue Oct 29 10:58:18 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2778\GG617961.D\dad1B.ch Vial: 57
Signal #2 : C:\HPCHEM\1\DATA\GGG2778\GG617961.D\dad1A.ch
Acq On : 29-Oct-2019, 02:51:19 Operator: williamh
Sample : FA69146-3 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Oct 29 10:08 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Oct 24 10:07:48 2019
Response via : Multiple Level Calibration



(18) 4-Amino-2,6-Dinitrotoluene

17.06min 57.385ppb m

response 663505

(18) 4-Amino-2,6-Dinitrotoluene #2

17.09min 54.380ppb m

response 1180971

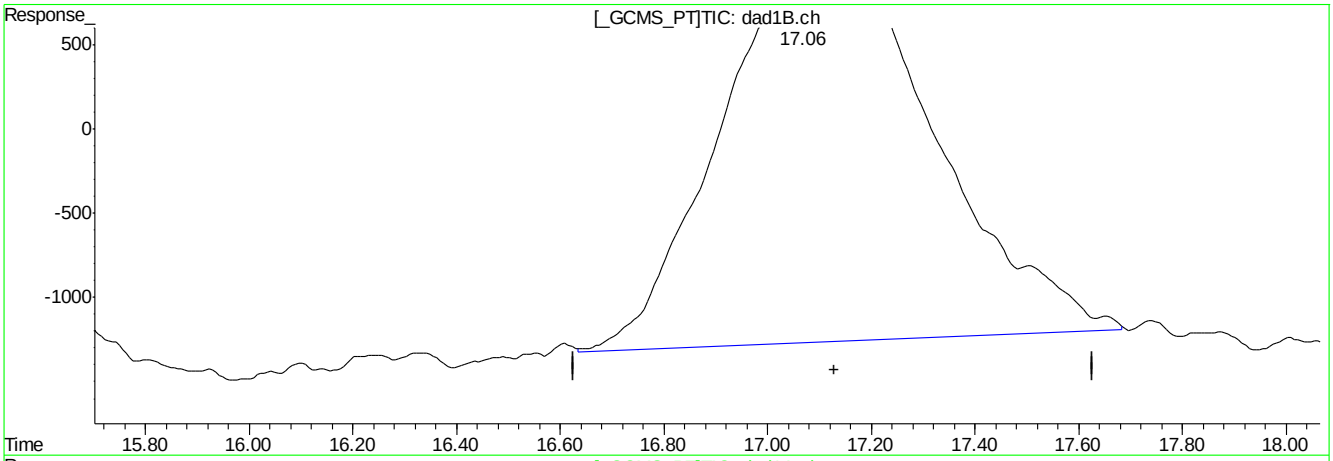
(+) = Expected Retention Time
GG617961.D 8330RPB.M_092519.M Tue Oct 29 10:58:34 2019

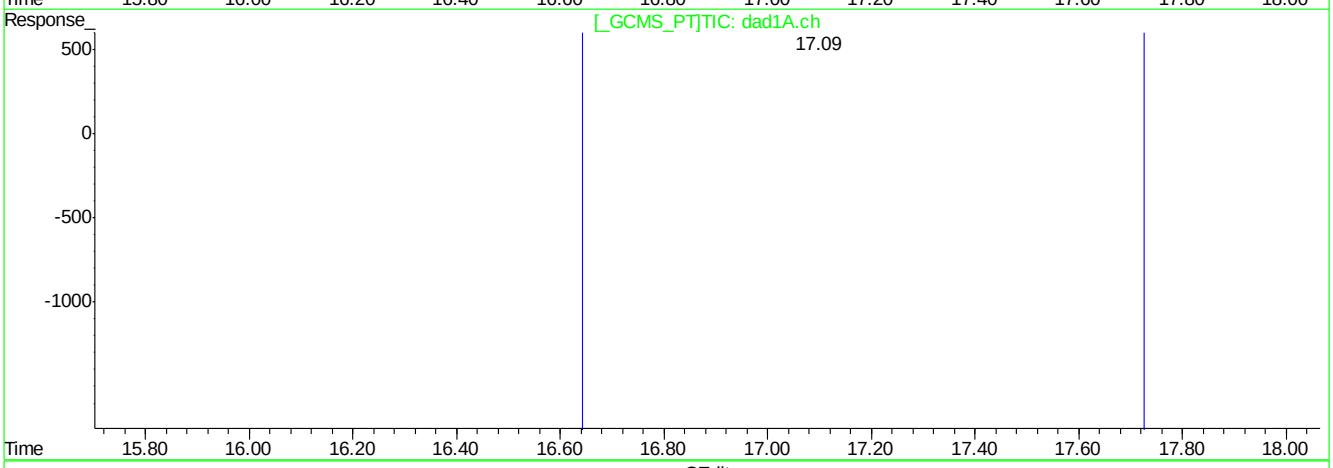
GG617961.D edits: 4-Amino-2,6-Dinitrotoluene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2778\GG617961.D\dad1B.ch Vial: 57
Signal #2 : C:\HPCHEM\1\DATA\GGG2778\GG617961.D\dad1A.ch
Acq On : 29-Oct-2019, 02:51:19 Operator: williamh
Sample : FA69146-3 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Oct 29 10:08 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Oct 24 10:07:48 2019
Response via : Multiple Level Calibration





QEdit

(18) 4-Amino-2,6-Dinitrotoluene

17.06min 57.385ppb m

response 663505

(18) 4-Amino-2,6-Dinitrotoluene #2

17.09min 54.380ppb m

response 1180971

(+) = Expected Retention Time
GG617961.D 8330RPB.M_092519.M Tue Oct 29 10:58:36 2019

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 10/29/19 17:42

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1935\BB066721.D\dad1B.ch Vial: 39
Signal #2 : C:\HPCHEM\2\DATA\GBB1935\BB066721.D\dad1A.ch
Acq On : 23-Oct-2019, 15:33:34 Operator: williamh
Sample : FA69146-4 Inst : G1315B
Misc : op77364,GBB1935,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 24 09:08:03 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.91	10.91	1077706	1946569	511.313	551.933
	Spiked Amount 500.000	Range 70 - 136		Recovery =		102.26%	110.39%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	1.47	1.47	2754683	7864256	1656.742	1709.177
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D. d	N.D. d
5)	RDX	0.00	0.00	0	0	N.D. d	N.D. d
6)	1,3,5-Trinitrobe	4.66	4.66	7708051	14744086	1738.399	1765.470
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D. d	N.D. d
8)	3,5-Dinitroanili	6.19	6.19	134413	223865	31.379	30.329m
9)	Nitrobenzene	0.00	0.00	0	0	N.D.	N.D.
10)	Nitroglycerin	0.00	0.00	0	0	N.D.	N.D.
11)	Tetryl	0.00	0.00	0	0	N.D.	N.D.
12)	2,4,6-Trinitroto	9.68	9.68	3998109	4834637	1005.382	1020.017
13)	2-Amino-4,6-Dini	10.00	10.00	1364757	2126972	379.297	396.663
14)	4-Amino-2,6-Dini	10.46	10.46	528285	1052808	197.225	201.577
16)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
17)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
18)	o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
19)	p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20)	m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
21)	PETN	0.00	0.00	0	0	N.D. d	N.D. d

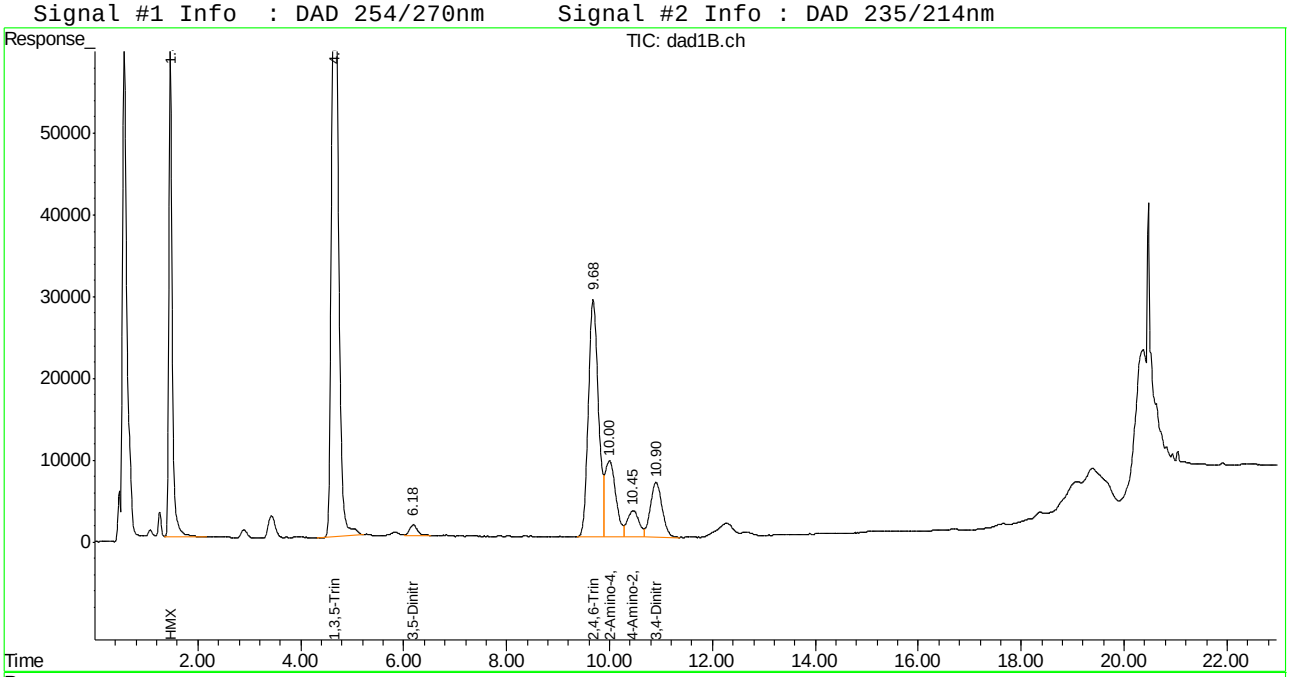
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB066721.D 8330B_101119_PLUS.M Tue Oct 29 14:31:50 2019 Page 1

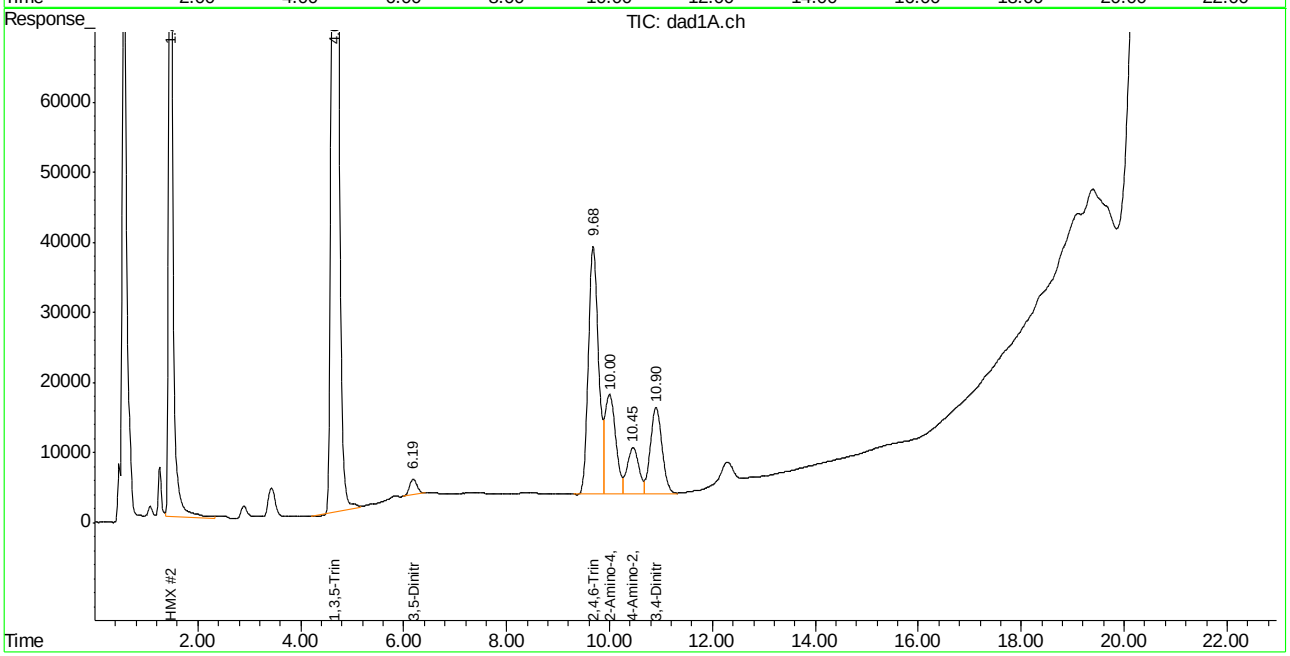
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1935\BB066721.D\dad1B.ch Vial: 39
Signal #2 : C:\HPCHEM\2\DATA\GBB1935\BB066721.D\dad1A.ch
Acq On : 23-Oct-2019, 15:33:34 Operator: williamh
Sample : FA69146-4 Inst : G1315B
Misc : op77364,GBB1935,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 29 14:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

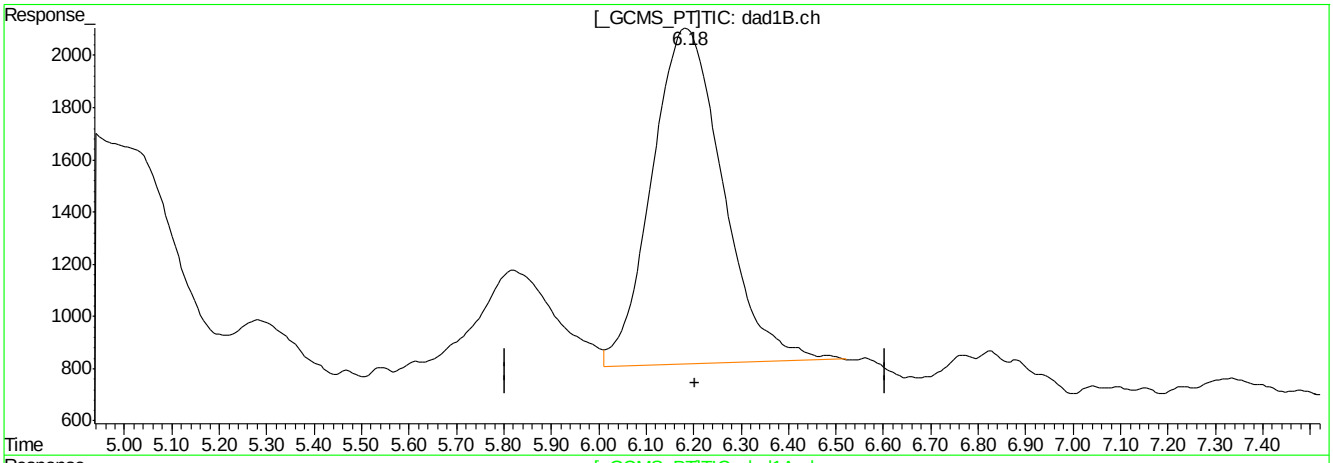
Sample Number: FA69146-4
Lab FileID: BB066721.D
Injection Time: 10/23/19 15:33
Method: SW846 8330B
Analyst approved: 10/29/19 15:32 William Hustedde
Supervisor approved: 10/29/19 17:42 Naresh Jiawan

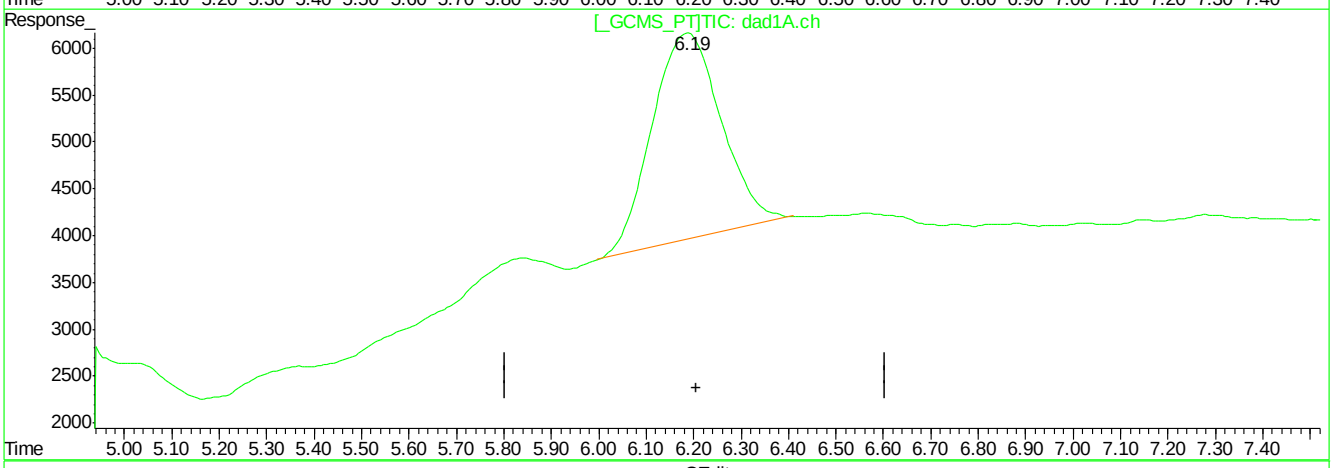
Parameter	CAS	Sig#	R.T. (min.)	Reason
3,5-Dinitroaniline	618-87-1	2	6.19	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1935\BB066721.D\dad1B.ch Vial: 39
Signal #2 : C:\HPCHEM\2\DATA\GBB1935\BB066721.D\dad1A.ch
Acq On : 23-Oct-2019, 15:33:34 Operator: williamh
Sample : FA69146-4 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 24 9:08 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.19min 31.379ppb

response 134413

(8) 3,5-Dinitroaniline #2

6.19min 30.329ppb m

response 223865

(+) = Expected Retention Time
BB066721.D 8330B_101119_PLUS.M Thu Oct 24 09:38:56 2019

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 10/29/19 17:42

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1938\BB066810.D\dad1B.ch Vial: 21
Signal #2 : C:\HPCHEM\2\DATA\GBB1938\BB066810.D\dad1A.ch
Acq On : 28-Oct-2019, 15:38:25 Operator: williamh
Sample : FA69146-4 Inst : G1315B
Misc : op77415,GBB1938,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 29 10:00:32 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.87	10.87	1161052	1957395	550.856	555.003
	Spiked Amount 500.000	Range 70 - 136		Recovery =		110.17%	111.00%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	1.46	1.46	2745449	7781321	1651.189	1691.152
3)	DNX	0.00	0.00	0	0	N.D.	N.D.
4)	MNX	0.00	0.00	0	0	N.D.	N.D.
5)	RDX	0.00	0.00	0	0	N.D. d	N.D. d
6)	1,3,5-Trinitrobe	4.65	4.65	7806435	15071726	1760.588	1804.702
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D. d	N.D. d
8)	3,5-Dinitroanili	6.16	6.16	137924	271074	32.198	36.724m
9)	Nitrobenzene	0.00	0.00	0	0	N.D.	N.D.
10)	Nitroglycerin	0.00	0.00	0	0	N.D.	N.D.
11)	Tetryl	0.00	0.00	0	0	N.D.	N.D.
12)	2,4,6-Trinitroto	9.66	9.66	4108258	4960223	1033.081	1046.513
13)	2-Amino-4,6-Dini	9.96	9.96	1401161	2190895	389.414	408.584
14)	4-Amino-2,6-Dini	10.42	10.41	573099	1106080	213.956	211.776
16)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
17)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
18)	o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
19)	p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20)	m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
21)	PETN	0.00	0.00	0	0	N.D. d	N.D. d

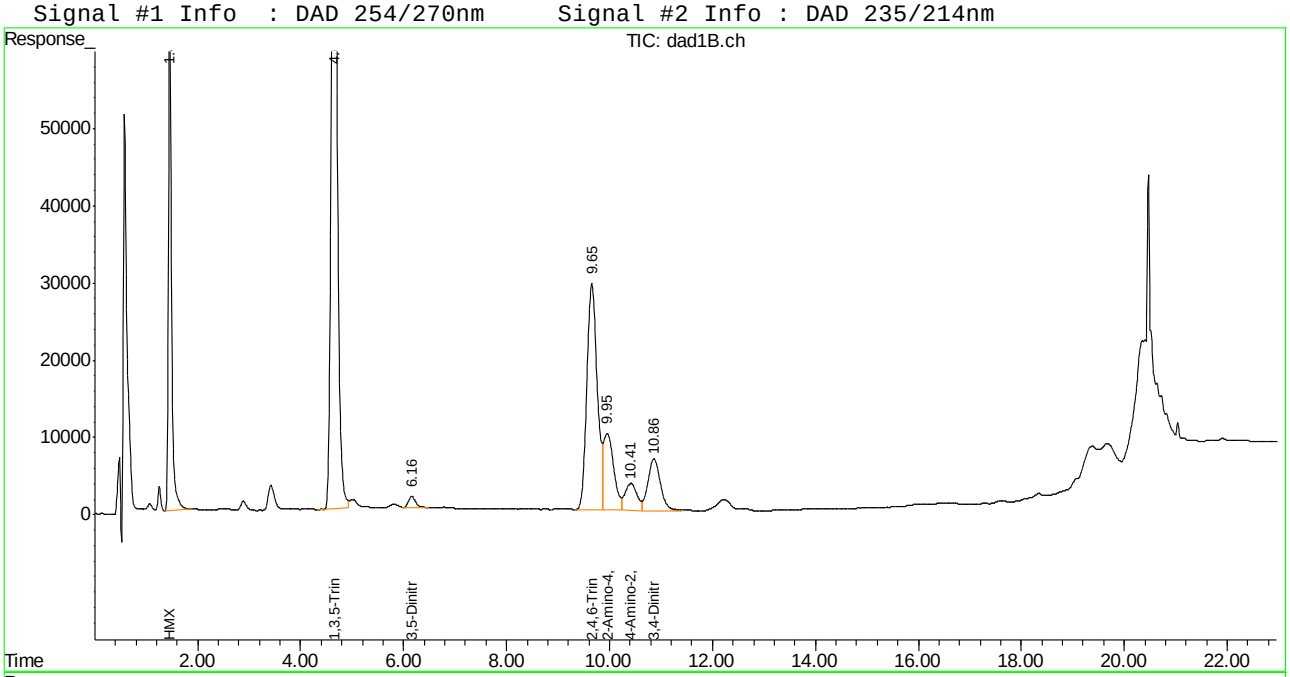
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB066810.D 8330B_101119_PLUS.M Tue Oct 29 14:18:31 2019 Page 1

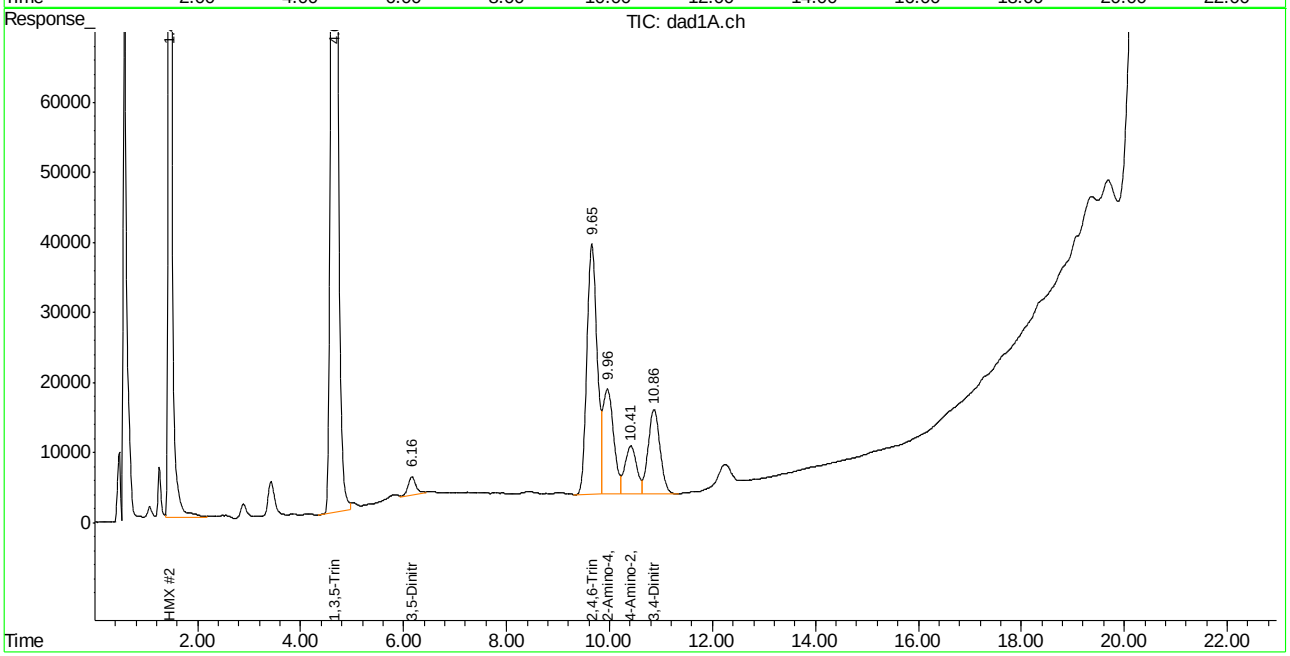
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1938\BB066810.D\dad1B.ch Vial: 21
Signal #2 : C:\HPCHEM\2\DATA\GBB1938\BB066810.D\dad1A.ch
Acq On : 28-Oct-2019, 15:38:25 Operator: williamh
Sample : FA69146-4 Inst : G1315B
Misc : op77415,GBB1938,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 29 10:56 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





BB066810.D 8330B_101119_PLUS.M Tue Oct 29 14:18:31 2019 Page 2

Manual Integration Approval Summary

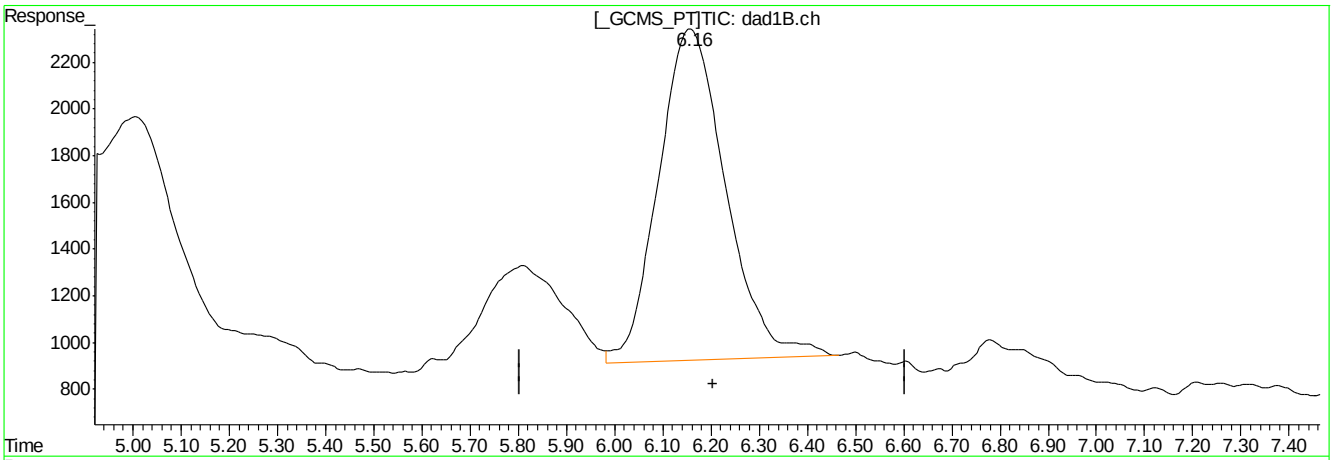
Sample Number: FA69146-4
Lab FileID: BB066810.D
Injection Time: 10/28/19 15:38
Method: SW846 8330B
Analyst approved: 10/29/19 15:32 William Hustedde
Supervisor approved: 10/29/19 17:42 Naresh Jiawan

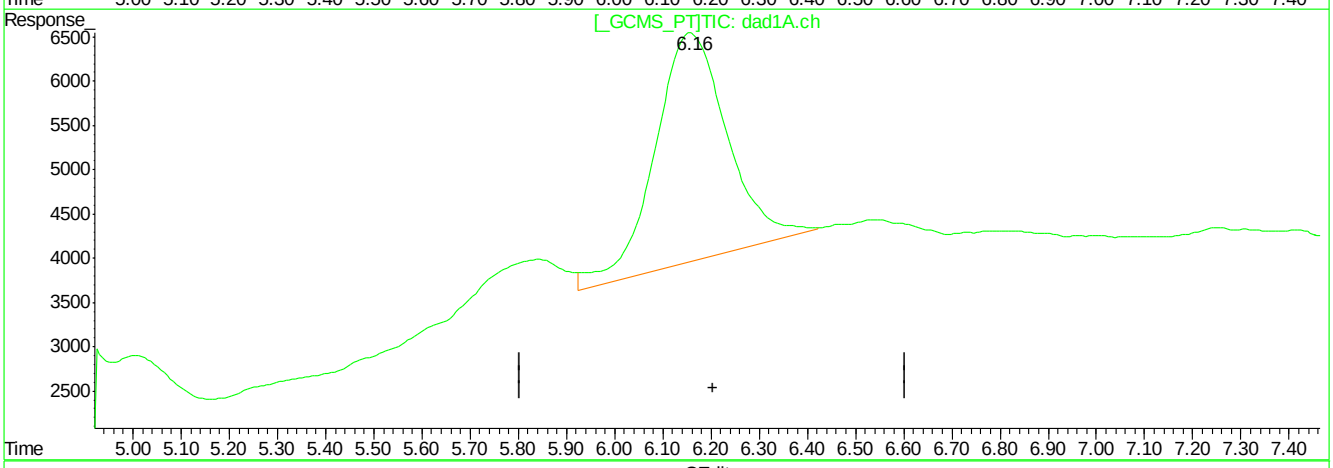
Parameter	CAS	Sig#	R.T. (min.)	Reason
3,5-Dinitroaniline	618-87-1	2	6.16	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1938\BB066810.D\dad1B.ch Vial: 21
Signal #2 : C:\HPCHEM\2\DATA\GBB1938\BB066810.D\dad1A.ch
Acq On : 28-Oct-2019, 15:38:25 Operator: williamh
Sample : FA69146-4 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 29 10:00 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.16min 32.198ppb

response 137924

(8) 3,5-Dinitroaniline #2

6.16min 36.724ppb m

response 271074

(+) = Expected Retention Time
BB066810.D 8330B_101119_PLUS.M Tue Oct 29 10:11:47 2019

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 10/29/19 17:42

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2778\GG617962.D\dad1B.ch Vial: 58
Signal #2 : C:\HPCHEM\1\DATA\GGG2778\GG617962.D\dad1A.ch
Acq On : 29-Oct-2019, 03:20:45 Operator: williamh
Sample : FA69146-4CF Inst : G1315B
Misc : op77415,ggg2778,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Oct 29 10:08:58 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Oct 24 10:07:48 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.51	13.52	2870595	5420572	635.736	603.419
	Spiked Amount 500.000	Range 70 - 136		Recovery =		127.15%	120.68%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	5.36	5.36	6227844	6227359	2090.151m	2076.405m
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D. d	N.D. d
5)	1,3,5-Trinitrobe	7.12	7.12	19431884	19431884	1879.064	1879.064
6)	RDX	0.00	0.00	0	0	N.D. d	N.D. d
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D. d	N.D. d
8)	Nitrobenzene	0.00	0.00	0	0	N.D. d	N.D. d
9)	2,4,6-Trinitroto	11.02	11.01	10039747	13087077	984.607	990.058m
10)	Nitroglycerin	0.00	0.00	0	0	N.D. d	N.D. d
11)	Tetryl	0.00	0.00	0	0	N.D. d	N.D. d
13)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
14)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
15)	o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
16)	3,5-Dinitroanili	15.36	15.36	1145785	1802853	112.299	108.597m
17)	p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
18)	4-Amino-2,6-Dini	17.09	17.08	1497626	2837192	129.525	130.644
19)	m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20)	2-Amino-4,6-Dini	19.13	19.13	4015439	5682398	418.463	404.962
21)	PETN	0.00	0.00	0	0	N.D. d	N.D. d

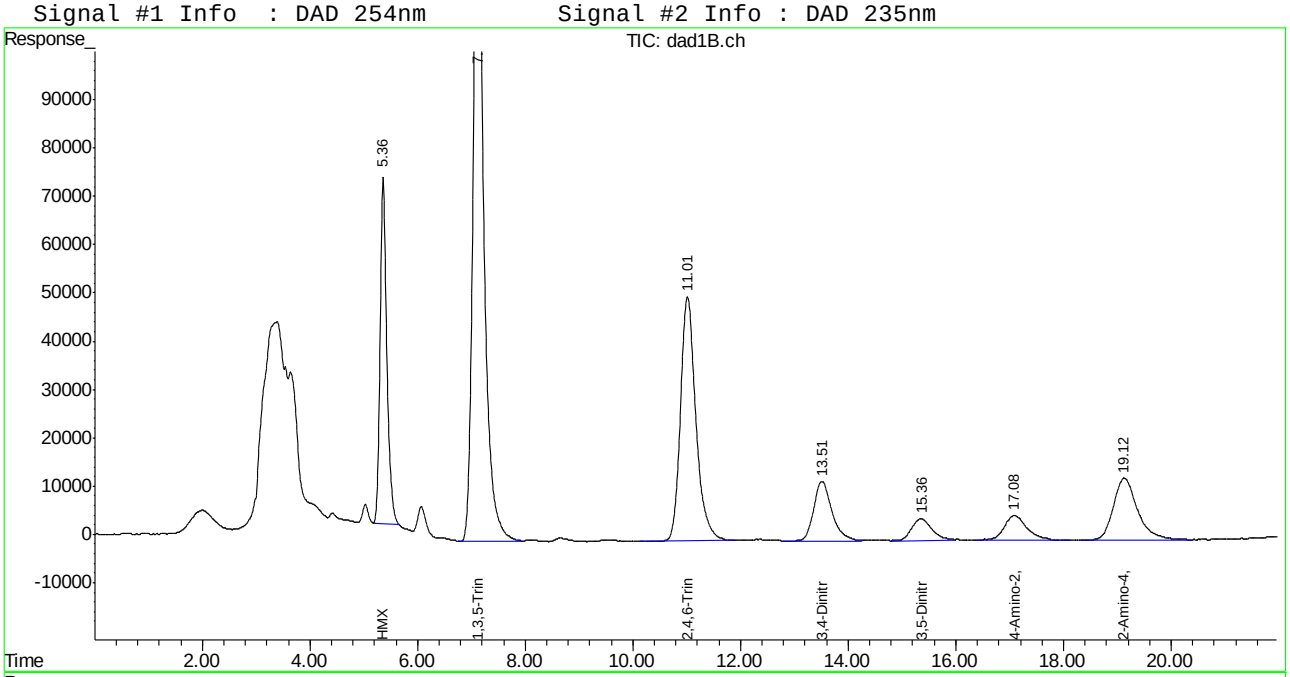
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
GG617962.D 8330RPB.M_092519.M Tue Oct 29 12:46:08 2019 Page 1

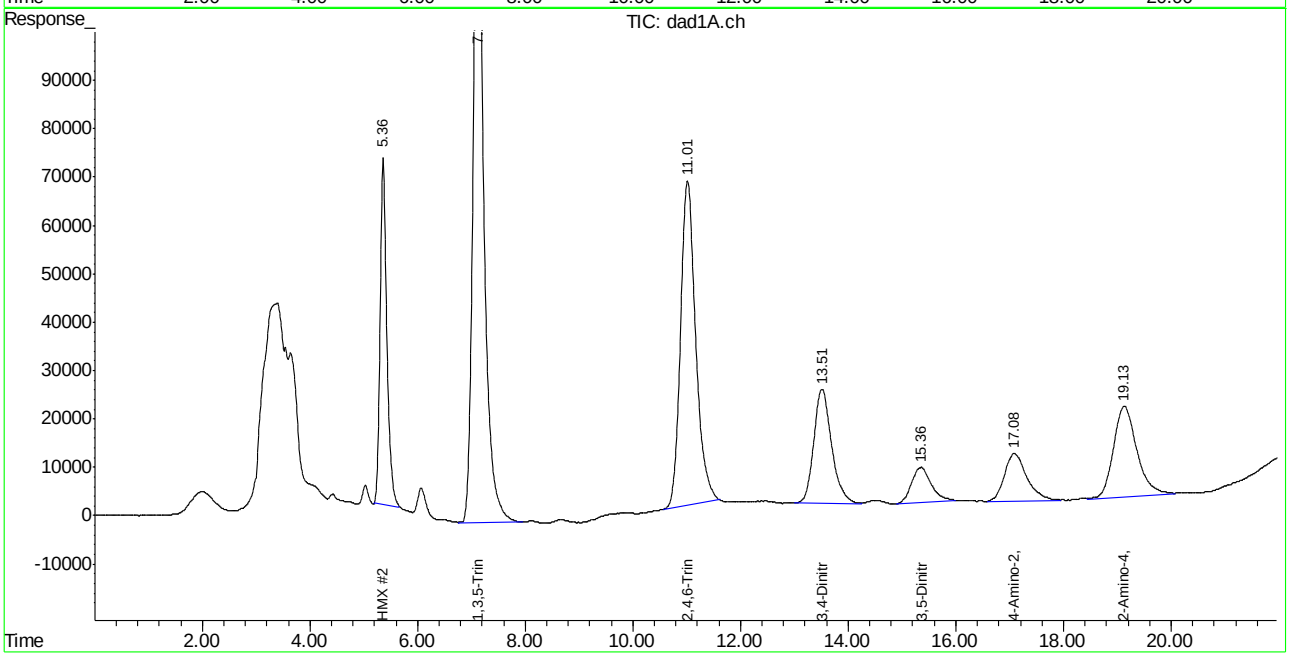
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2778\GG617962.D\dad1B.ch Vial: 58
Signal #2 : C:\HPCHEM\1\DATA\GGG2778\GG617962.D\dad1A.ch
Acq On : 29-Oct-2019, 03:20:45 Operator: williamh
Sample : FA69146-4CF Inst : G1315B
Misc : op77415,ggg2778,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Oct 29 10:59 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Oct 24 10:07:48 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





GG617962.D 8330RPB.M_092519.M Tue Oct 29 12:46:08 2019 Page 2

Manual Integration Approval Summary

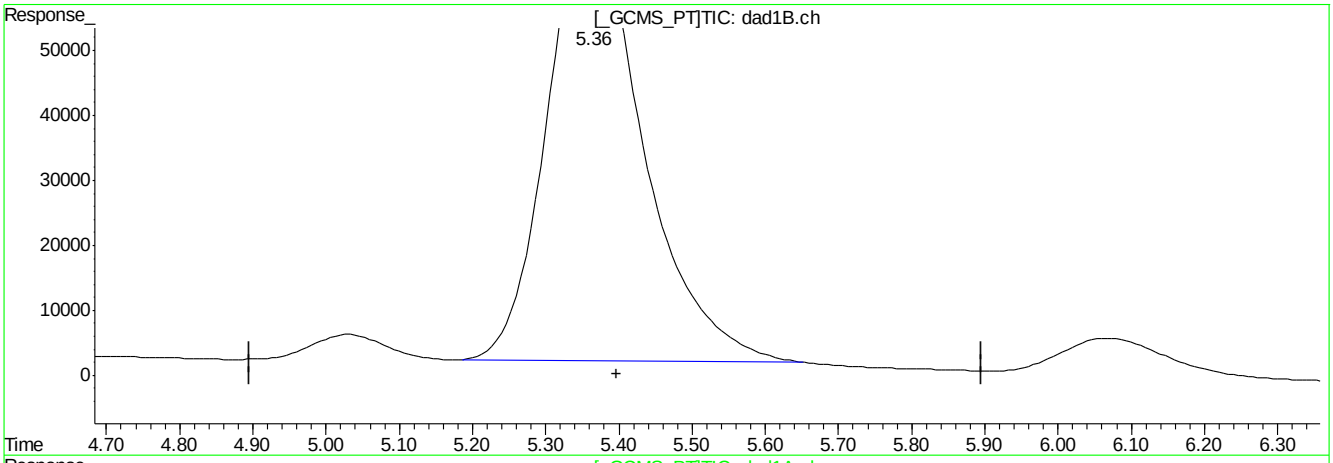
Sample Number: FA69146-4
Lab FileID: GG617962.D
Injection Time: 10/29/19 03:20
Method: SW846 8330B
Analyst approved: 10/29/19 15:32 William Hustedde
Supervisor approved: 10/29/19 17:42 Naresh Jiawan

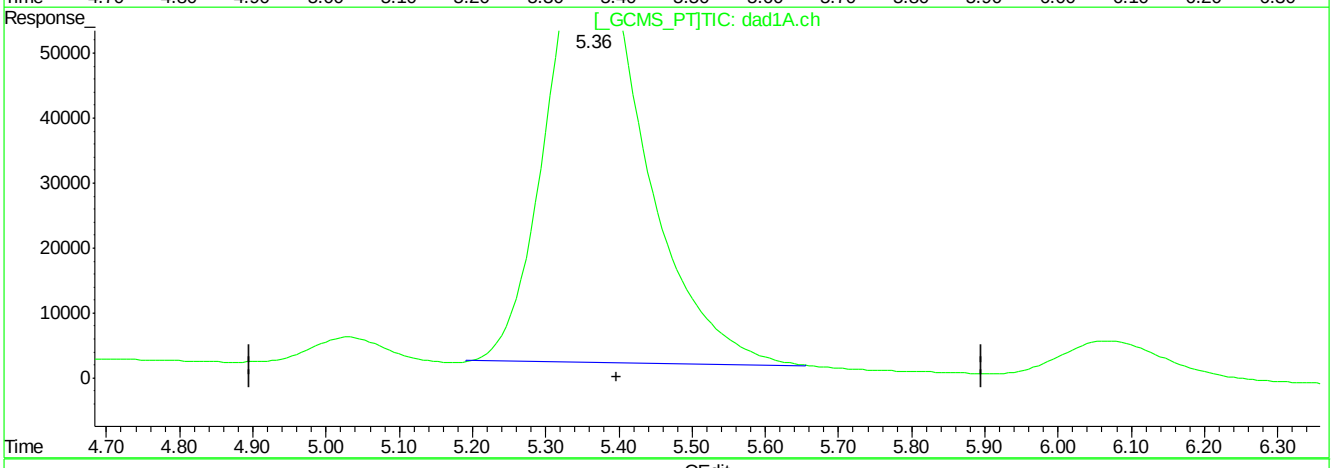
Parameter	CAS	Sig#	R.T. (min.)	Reason
HMX	2691-41-0	1	5.36	Poor instrument integration
HMX	2691-41-0	2	5.36	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	2	11.01	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	15.36	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2778\GG617962.D\dad1B.ch Vial: 58
Signal #2 : C:\HPCHEM\1\DATA\GGG2778\GG617962.D\dad1A.ch
Acq On : 29-Oct-2019, 03:20:45 Operator: williamh
Sample : FA69146-4 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Oct 29 10:08 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Oct 24 10:07:48 2019
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.36min 2090.151ppb m

response 6227844

(2) HMX #2

5.36min 2076.405ppb m

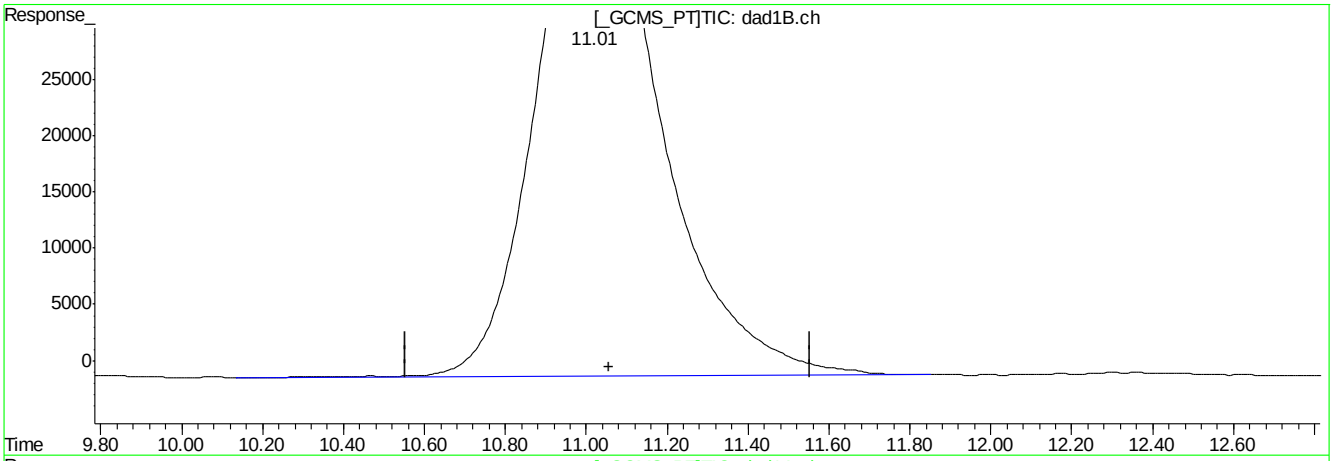
response 6227359

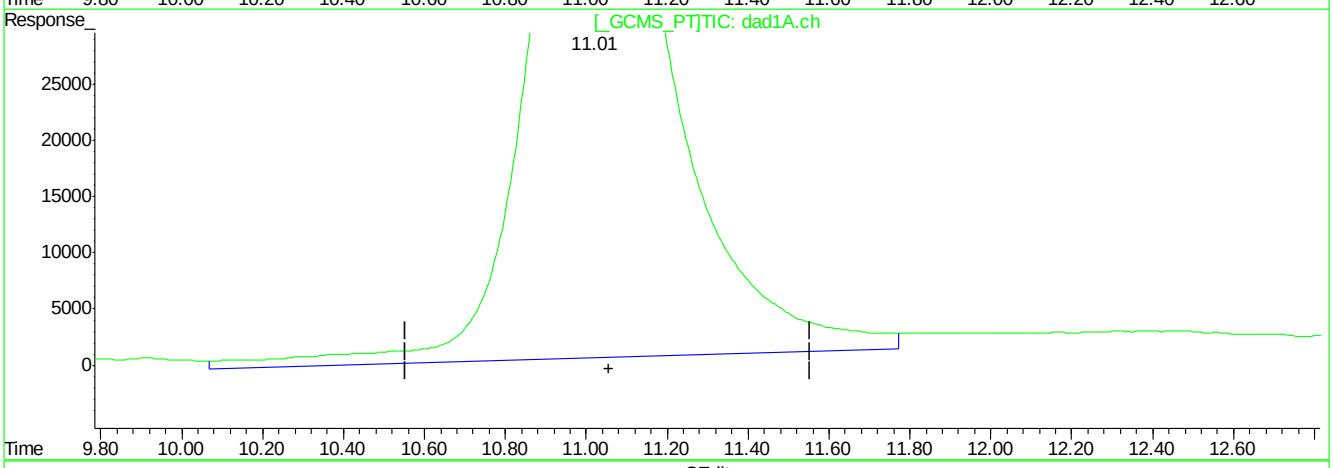
(+) = Expected Retention Time
GG617962.D 8330RPB.M_092519.M Tue Oct 29 10:59:08 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2778\GG617962.D\dad1B.ch Vial: 58
Signal #2 : C:\HPCHEM\1\DATA\GGG2778\GG617962.D\dad1A.ch
Acq On : 29-Oct-2019, 03:20:45 Operator: williamh
Sample : FA69146-4 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Oct 29 10:08 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Oct 24 10:07:48 2019
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.02min 984.607ppb

response 10039747

(9) 2,4,6-Trinitrotoluene #2

11.02min 1096.455ppb

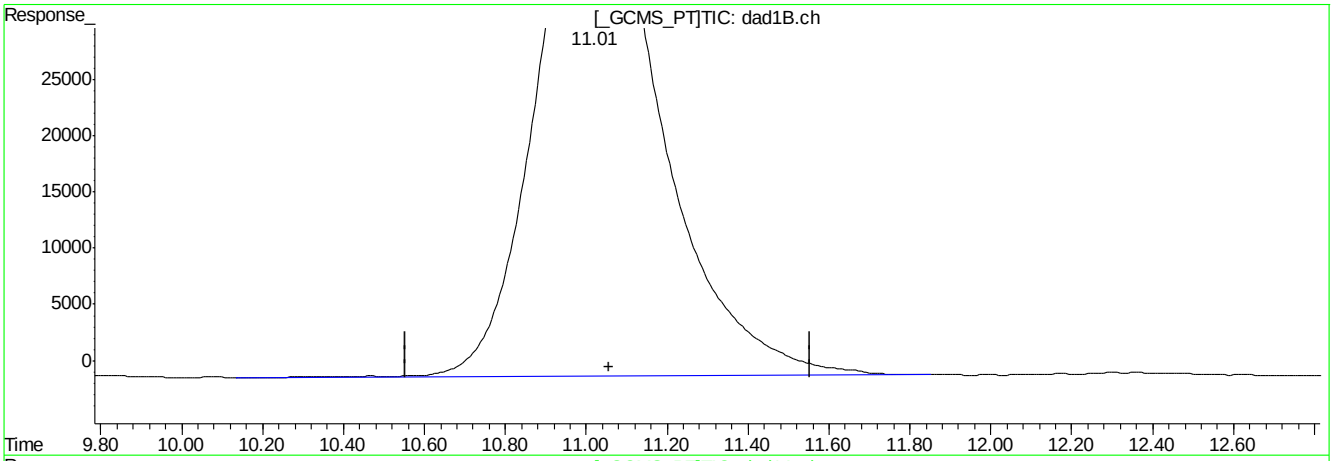
response 14493487

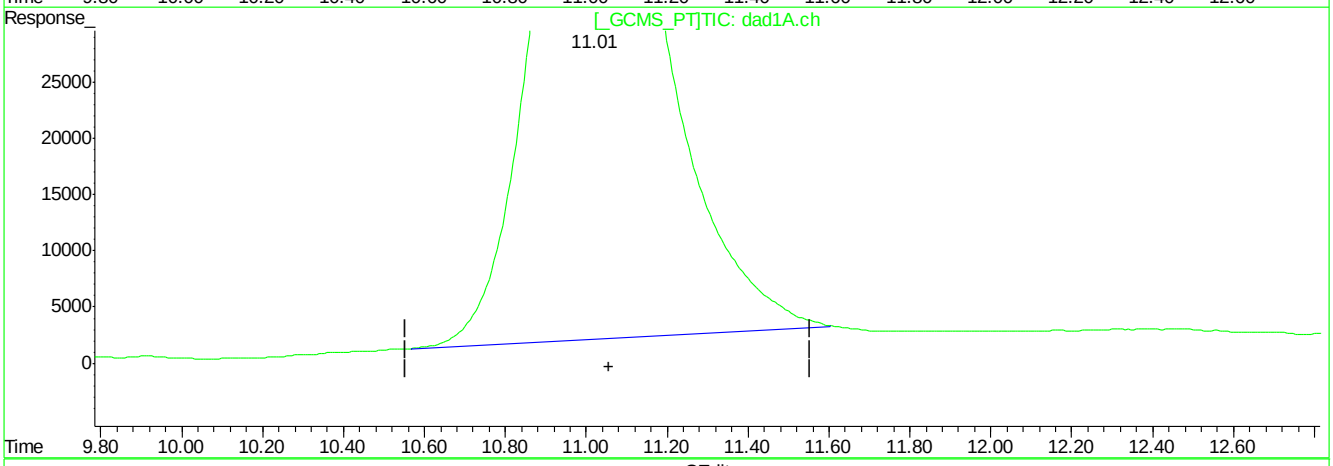
(+) = Expected Retention Time
GG617962.D 8330RPB.M_092519.M Tue Oct 29 10:59:17 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2778\GG617962.D\dad1B.ch Vial: 58
Signal #2 : C:\HPCHEM\1\DATA\GGG2778\GG617962.D\dad1A.ch
Acq On : 29-Oct-2019, 03:20:45 Operator: williamh
Sample : FA69146-4 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Oct 29 10:08 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Oct 24 10:07:48 2019
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.02min 984.607ppb

response 10039747

(9) 2,4,6-Trinitrotoluene #2

11.01min 990.058ppb m

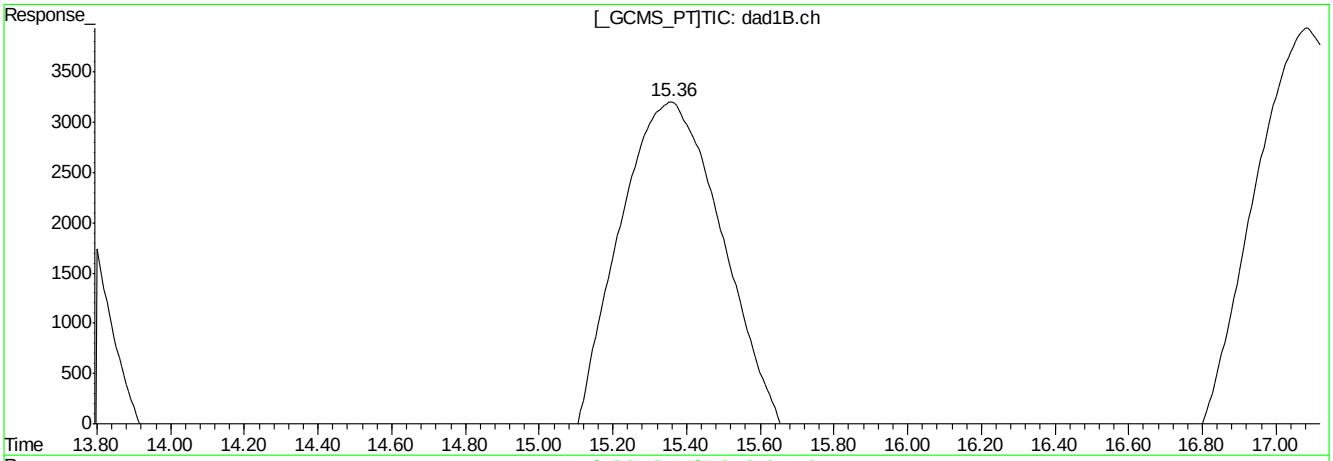
response 13087077

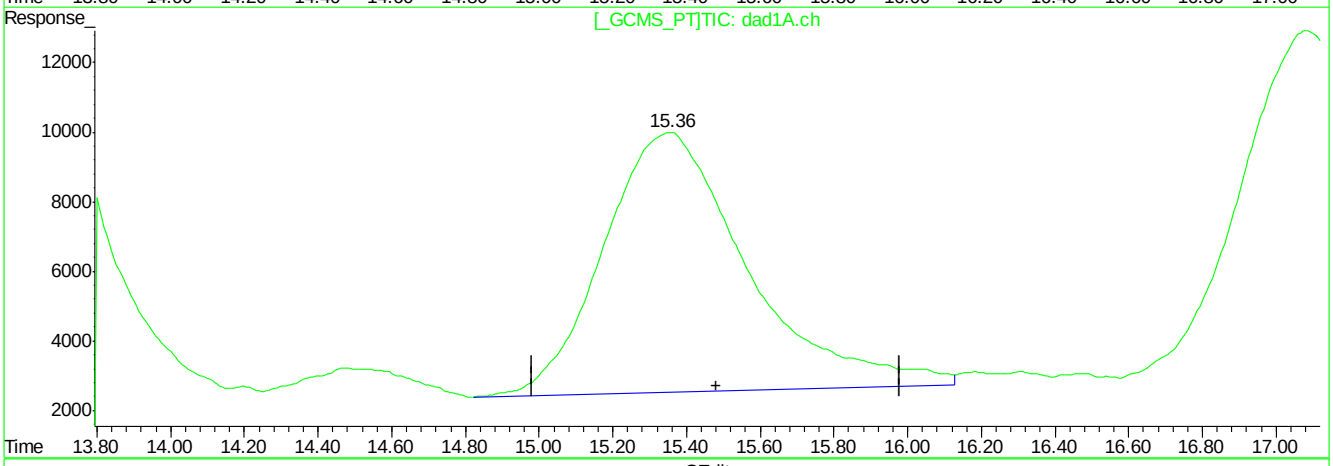
(+) = Expected Retention Time
GG617962.D 8330RPB.M_092519.M Tue Oct 29 10:59:23 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2778\GG617962.D\dad1B.ch Vial: 58
Signal #2 : C:\HPCHEM\1\DATA\GGG2778\GG617962.D\dad1A.ch
Acq On : 29-Oct-2019, 03:20:45 Operator: williamh
Sample : FA69146-4 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Oct 29 10:08 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Oct 24 10:07:48 2019
Response via : Multiple Level Calibration





QEdit

(16) 3,5-Dinitroaniline

15.36min 112.299ppb

response 1145785

(16) 3,5-Dinitroaniline #2

15.36min 121.707ppb

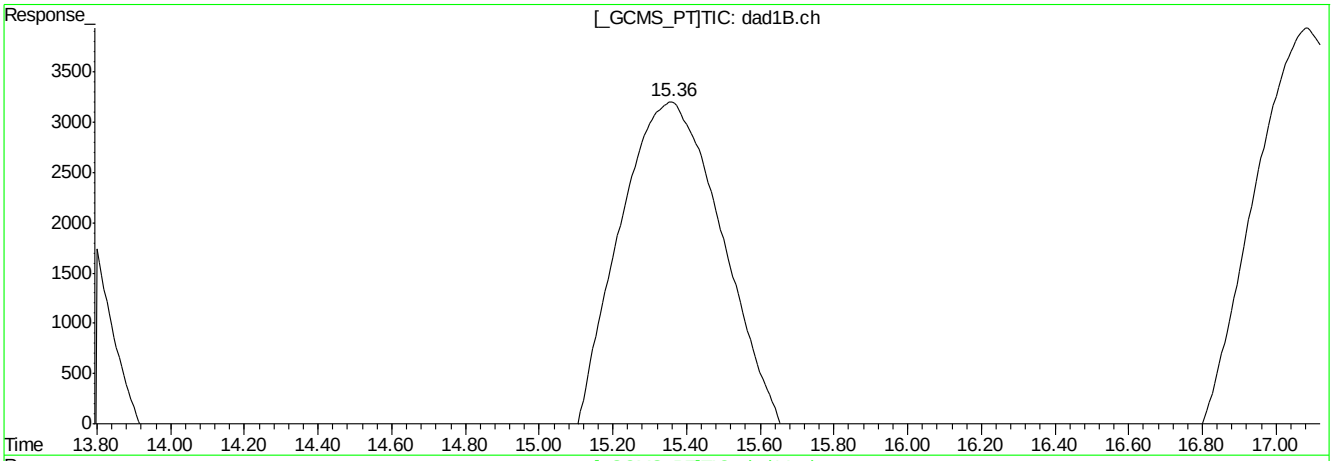
response 2020510

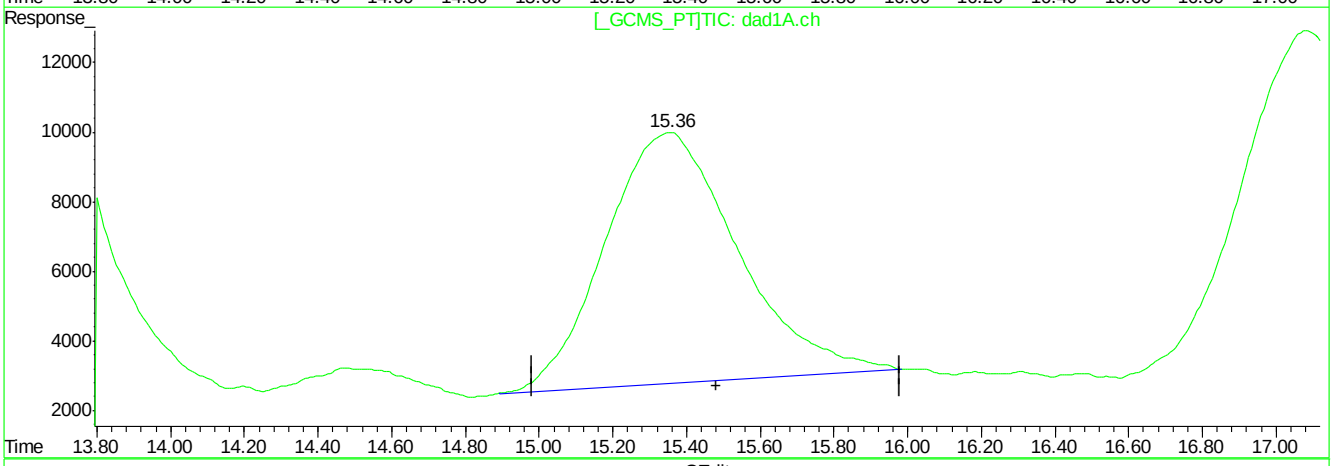
(+) = Expected Retention Time
GG617962.D 8330RPB.M_092519.M Tue Oct 29 10:59:30 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2778\GG617962.D\dad1B.ch Vial: 58
Signal #2 : C:\HPCHEM\1\DATA\GGG2778\GG617962.D\dad1A.ch
Acq On : 29-Oct-2019, 03:20:45 Operator: williamh
Sample : FA69146-4 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Oct 29 10:08 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Oct 24 10:07:48 2019
Response via : Multiple Level Calibration





QEdit

(16) 3,5-Dinitroaniline

15.36min 112.299ppb

response 1145785

(16) 3,5-Dinitroaniline #2

15.36min 108.597ppb m

response 1802853

(+) = Expected Retention Time
GG617962.D 8330RPB.M_092519.M Tue Oct 29 10:59:35 2019

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1935\BB066722.D\dad1B.ch Vial: 40
Signal #2 : C:\HPCHEM\2\DATA\GBB1935\BB066722.D\dad1A.ch
Acq On : 23-Oct-2019, 16:03:33 Operator: williamh
Sample : FA69146-5 Inst : G1315B
Misc : op77364,GBB1935,980,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 24 09:08:04 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.90	10.90	1058990	1896954	502.433	537.866
	Spiked Amount 500.000	Range 70 - 136		Recovery =		100.49%	107.57%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	0.00	0.00	0	0	N.D. d	N.D. d
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D. d	N.D. d
5)	RDX	0.00	0.00	0	0	N.D. d	N.D. d
6)	1,3,5-Trinitrobe	0.00	0.00	0	0	N.D. d	N.D. d
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D. d	N.D. d
8)	3,5-Dinitroanili	0.00	0.00	0	0	N.D. d	N.D. d
9)	Nitrobenzene	0.00	0.00	0	0	N.D. d	N.D. d
10)	Nitroglycerin	0.00	0.00	0	0	N.D. d	N.D. d
11)	Tetryl	0.00	0.00	0	0	N.D. d	N.D. d
12)	2,4,6-Trinitroto	0.00	0.00	0	0	N.D. d	N.D. d
13)	2-Amino-4,6-Dini	0.00	0.00	0	0	N.D. d	N.D. d
14)	4-Amino-2,6-Dini	0.00	0.00	0	0	N.D. d	N.D. d
16)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
17)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
18)	o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
19)	p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20)	m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
21)	PETN	0.00	0.00	0	0	N.D. d	N.D. d

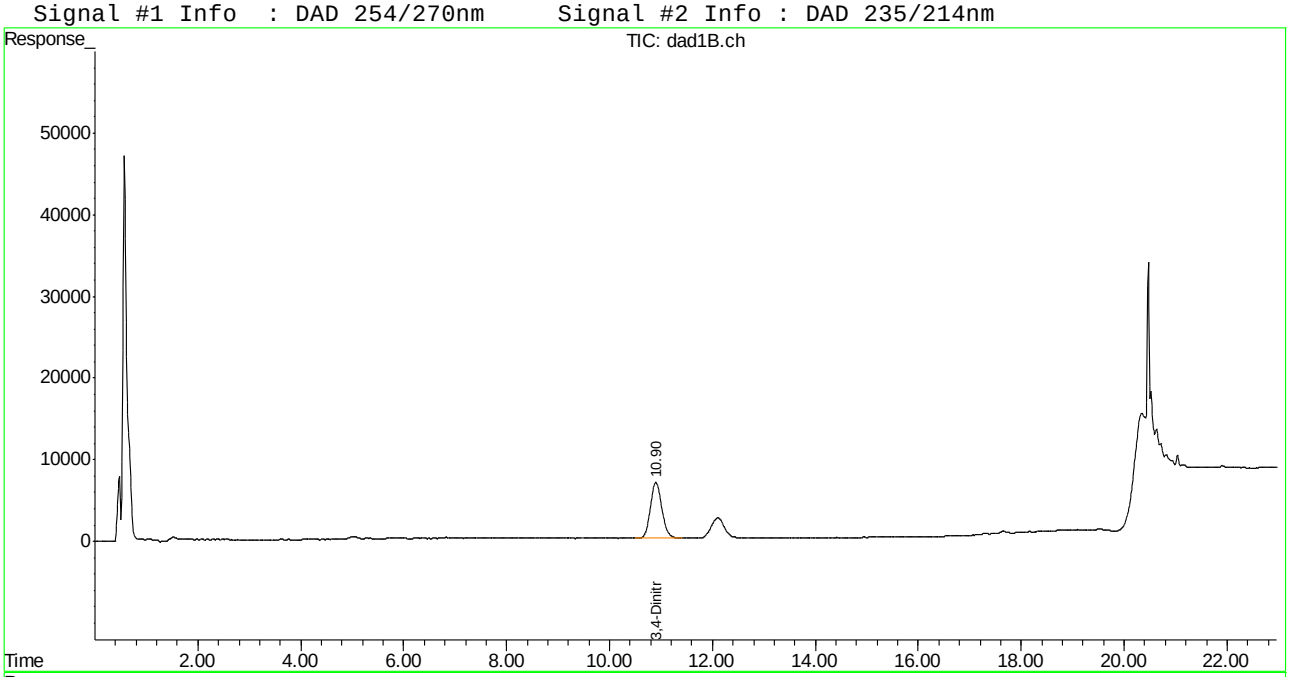
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB066722.D 8330B_101119_PLUS.M Mon Oct 28 14:02:02 2019 Page 1

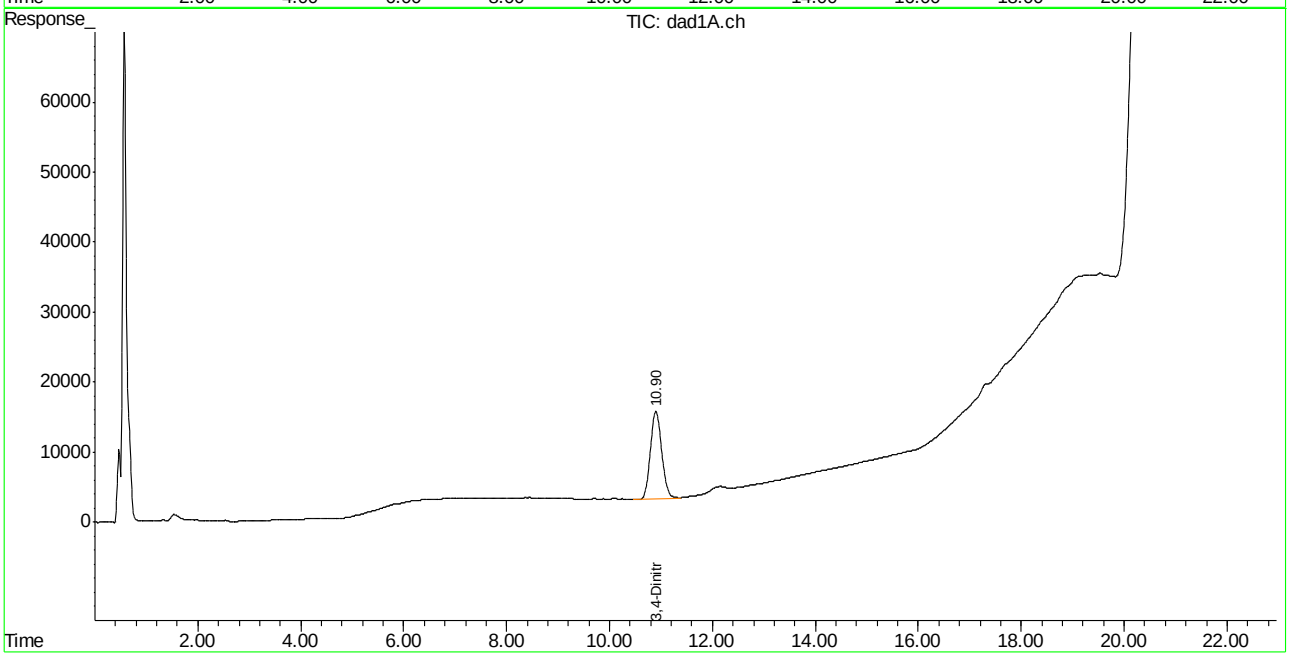
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1935\BB066722.D\dad1B.ch Vial: 40
Signal #2 : C:\HPCHEM\2\DATA\GBB1935\BB066722.D\dad1A.ch
Acq On : 23-Oct-2019, 16:03:33 Operator: williamh
Sample : FA69146-5 Inst : G1315B
Misc : op77364,GBB1935,980,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 24 8:39 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1938\BB066812.D\dad1B.ch Vial: 33
Signal #2 : C:\HPCHEM\2\DATA\GBB1938\BB066812.D\dad1A.ch
Acq On : 28-Oct-2019, 16:38:22 Operator: williamh
Sample : FA69146-5 Inst : G1315B
Misc : op77415,GBB1938,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 29 10:00:34 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.88	10.88	1058249	1892043	502.081	536.473
	Spiked Amount 500.000	Range 70 - 136		Recovery =		100.42%	107.29%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	0.00	0.00	0	0	N.D. d	N.D. d
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D. d	N.D. d
5)	RDX	0.00	0.00	0	0	N.D. d	N.D. d
6)	1,3,5-Trinitrobe	0.00	0.00	0	0	N.D. d	N.D. d
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D. d	N.D. d
8)	3,5-Dinitroanili	0.00	0.00	0	0	N.D. d	N.D. d
9)	Nitrobenzene	0.00	0.00	0	0	N.D. d	N.D. d
10)	Nitroglycerin	0.00	0.00	0	0	N.D. d	N.D. d
11)	Tetryl	0.00	0.00	0	0	N.D. d	N.D. d
12)	2,4,6-Trinitroto	0.00	0.00	0	0	N.D. d	N.D. d
13)	2-Amino-4,6-Dini	0.00	0.00	0	0	N.D. d	N.D. d
14)	4-Amino-2,6-Dini	0.00	0.00	0	0	N.D. d	N.D. d
16)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
17)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
18)	o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
19)	p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20)	m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
21)	PETN	0.00	0.00	0	0	N.D. d	N.D. d

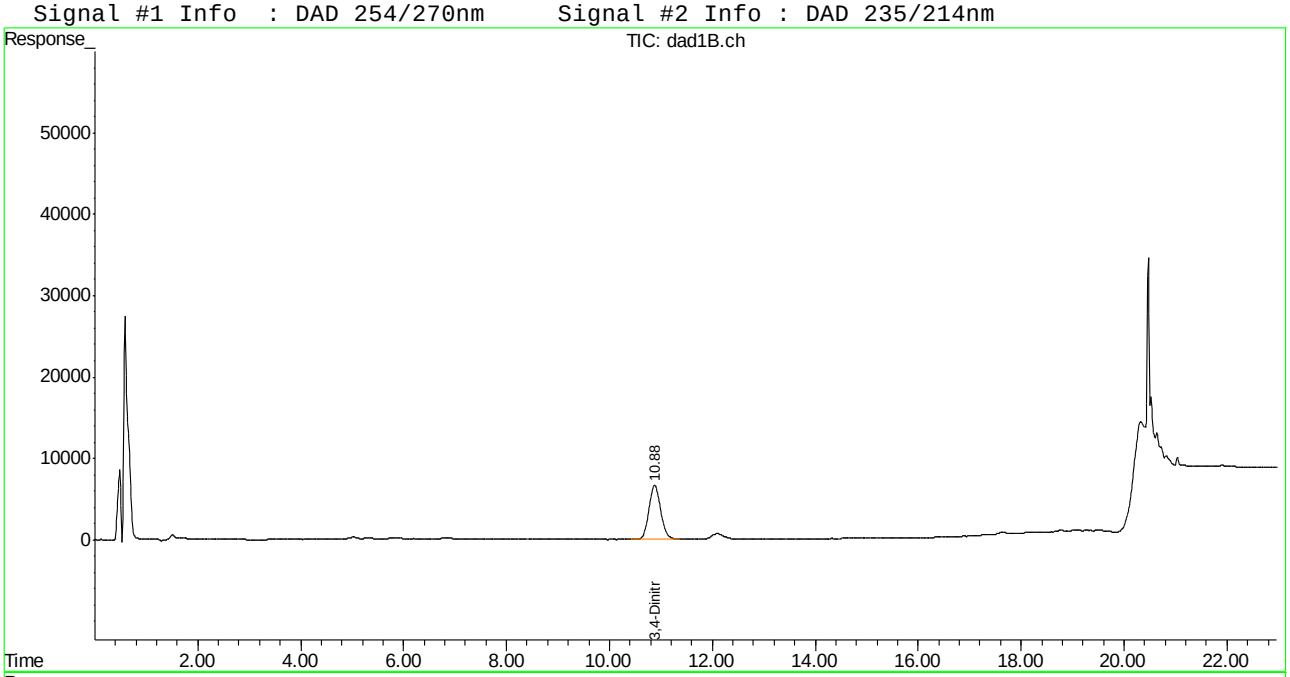
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB066812.D 8330B_101119_PLUS.M Tue Oct 29 14:18:33 2019 Page 1

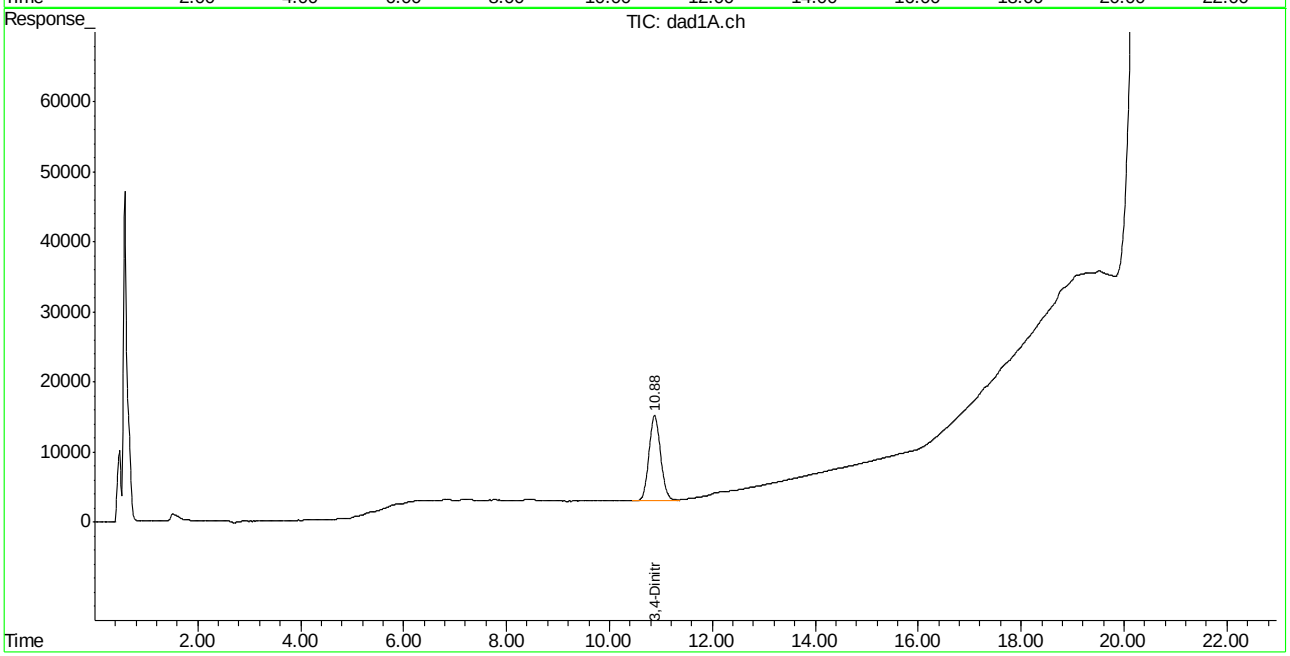
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1938\BB066812.D\dad1B.ch Vial: 33
Signal #2 : C:\HPCHEM\2\DATA\GBB1938\BB066812.D\dad1A.ch
Acq On : 28-Oct-2019, 16:38:22 Operator: williamh
Sample : FA69146-5 Inst : G1315B
Misc : op77415,GBB1938,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 29 10:12 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1935\BB066717.D\dad1B.ch Vial: 35
Signal #2 : C:\HPCHEM\2\DATA\GBB1935\BB066717.D\dad1A.ch
Acq On : 23-Oct-2019, 13:33:42 Operator: williamh
Sample : op77364-MB Inst : G1315B
Misc : op77364,GBB1935,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 24 09:07:59 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.90	10.90	1078574	1936548	511.724	549.092
Spiked Amount	500.000	Range	70 - 136	Recovery	=	102.34%	109.82%
	Target Compounds						
1)	TNX	0.00	0.00	0	0	N.D. d	N.D. d
2)	HMX	0.00	0.00	0	0	N.D. d	N.D. d
3)	DNX	0.00	0.00	0	0	N.D. d	N.D. d
4)	MNX	0.00	0.00	0	0	N.D. d	N.D. d
5)	RDX	0.00	0.00	0	0	N.D. d	N.D. d
6)	1,3,5-Trinitrobe	0.00	0.00	0	0	N.D. d	N.D. d
7)	1,3-Dinitrobenze	0.00	0.00	0	0	N.D. d	N.D. d
8)	3,5-Dinitroanili	0.00	0.00	0	0	N.D. d	N.D. d
9)	Nitrobenzene	0.00	0.00	0	0	N.D. d	N.D. d
10)	Nitroglycerin	0.00	0.00	0	0	N.D. d	N.D. d
11)	Tetryl	0.00	0.00	0	0	N.D. d	N.D. d
12)	2,4,6-Trinitroto	0.00	0.00	0	0	N.D. d	N.D. d
13)	2-Amino-4,6-Dini	0.00	0.00	0	0	N.D. d	N.D. d
14)	4-Amino-2,6-Dini	0.00	0.00	0	0	N.D. d	N.D. d
16)	2,4-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
17)	2,6-Dinitrotolue	0.00	0.00	0	0	N.D. d	N.D. d
18)	o-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
19)	p-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
20)	m-Nitrotoluene	0.00	0.00	0	0	N.D. d	N.D. d
21)	PETN	0.00	0.00	0	0	N.D. d	N.D. d

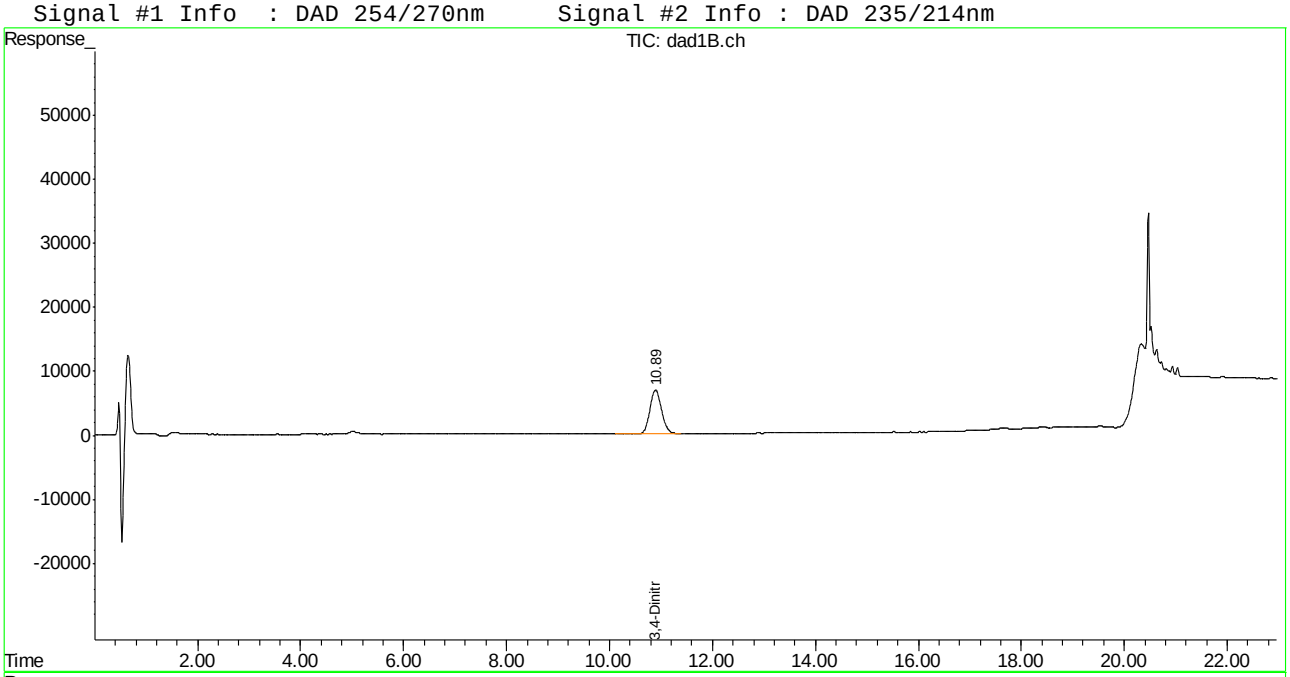
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB066717.D 8330B_101119_PLUS.M Thu Oct 24 09:47:02 2019 Page 1

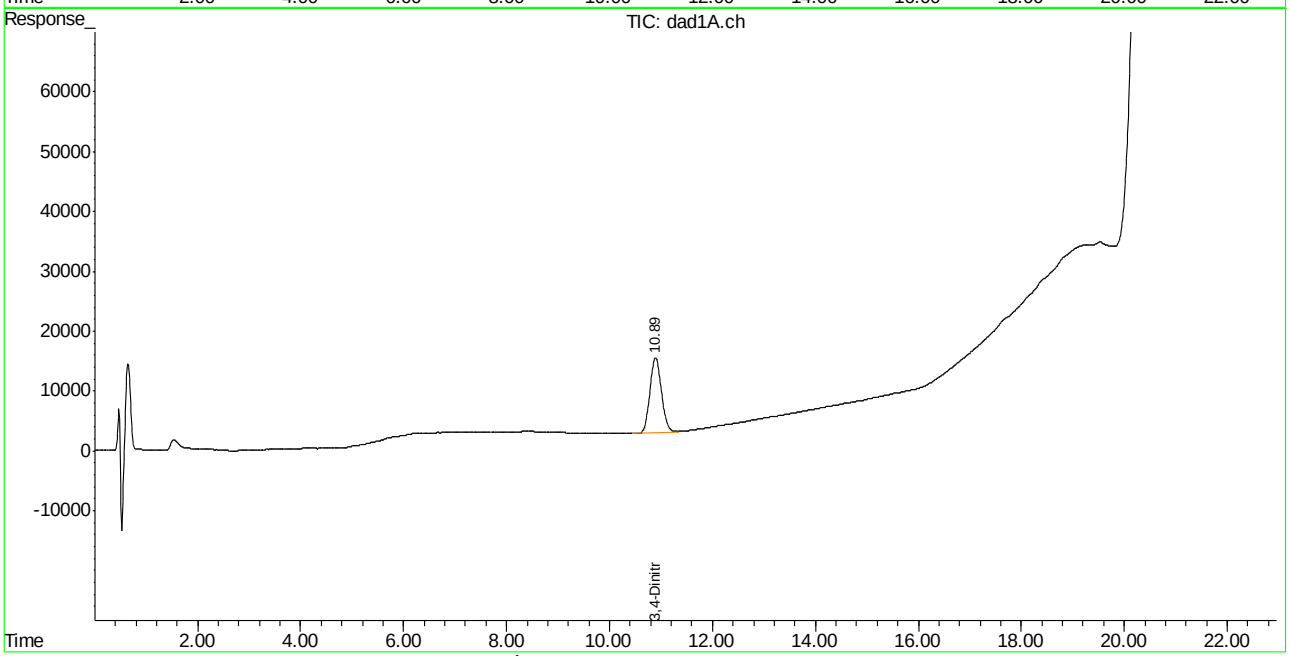
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1935\BB066717.D\dad1B.ch Vial: 35
Signal #2 : C:\HPCHEM\2\DATA\GBB1935\BB066717.D\dad1A.ch
Acq On : 23-Oct-2019, 13:33:42 Operator: williamh
Sample : op77364-MB Inst : G1315B
Misc : op77364,GBB1935,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 24 9:35 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
10/28/19 17:23

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1935\BB066716.D\dad1B.ch Vial: 34
Signal #2 : C:\HPCHEM\2\DATA\GBB1935\BB066716.D\dad1A.ch
Acq On : 23-Oct-2019, 13:03:42 Operator: williamh
Sample : op77364-BS Inst : G1315B
Misc : op77364,GBB1935,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 24 09:07:58 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.88	10.88	1100587	1904638	522.168	540.044
	Spiked Amount 500.000	Range 70 - 136		Recovery =		104.43%	108.01%
	Target Compounds						
1)	TNX	1.33	1.33	876058	1353263	312.255	301.650
2)	HMX	1.46	1.47	834947	2258583	502.160	490.869
3)	DNX	1.70	1.70	649495	1051481	461.060	453.628
4)	MNX	2.28	2.28	1105451	1727588	422.691	430.501
5)	RDX	2.89	2.89	942950	1538673	467.241	480.795
6)	1,3,5-Trinitrobe	4.65	4.65	2124861	3998831	479.221	478.824
7)	1,3-Dinitrobenze	5.82	5.82	2798554	1938594	497.802	505.671
8)	3,5-Dinitroanili	6.17	6.17	2108819	3593793	492.304	486.876
9)	Nitrobenzene	7.30	7.30	1554643	1479290	457.616	441.670
10)	Nitroglycerin	0.00	8.86	0	628373	N.D.	485.405 #
11)	Tetryl	9.22	9.22	1286911	2071918	402.066	400.770
12)	2,4,6-Trinitroto	9.67	9.67	1909490	2284376	480.169	481.960
13)	2-Amino-4,6-Dini	9.98	9.98	1736486	2605245	482.609	485.857
14)	4-Amino-2,6-Dini	10.44	10.44	1254344	2486831	468.285	476.143
16)	2,4-Dinitrotolue	11.55	11.55	2438549	1538413	489.890	497.024
17)	2,6-Dinitrotolue	11.99	11.98	1659098	1935542	557.929	528.266
18)	o-Nitrotoluene	14.96	14.96	1047258	1458358	438.806	458.827
19)	p-Nitrotoluene	15.54	15.54	1699753	1481432	440.991	495.595
20)	m-Nitrotoluene	16.42	16.42	1551258	1689419	446.294	422.551
21)	PETN	0.00	18.35	0	375023	N.D.	268.512m#

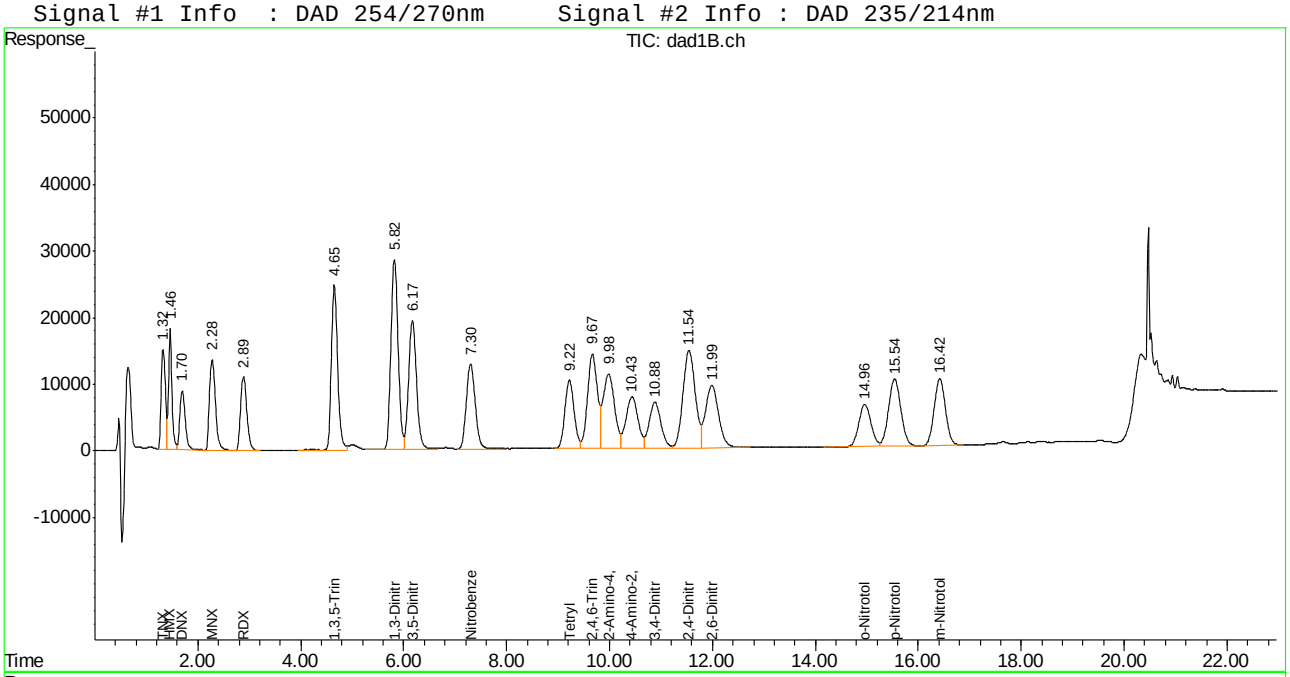
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB066716.D 8330B_101119_PLUS.M Thu Oct 24 09:47:01 2019 Page 1

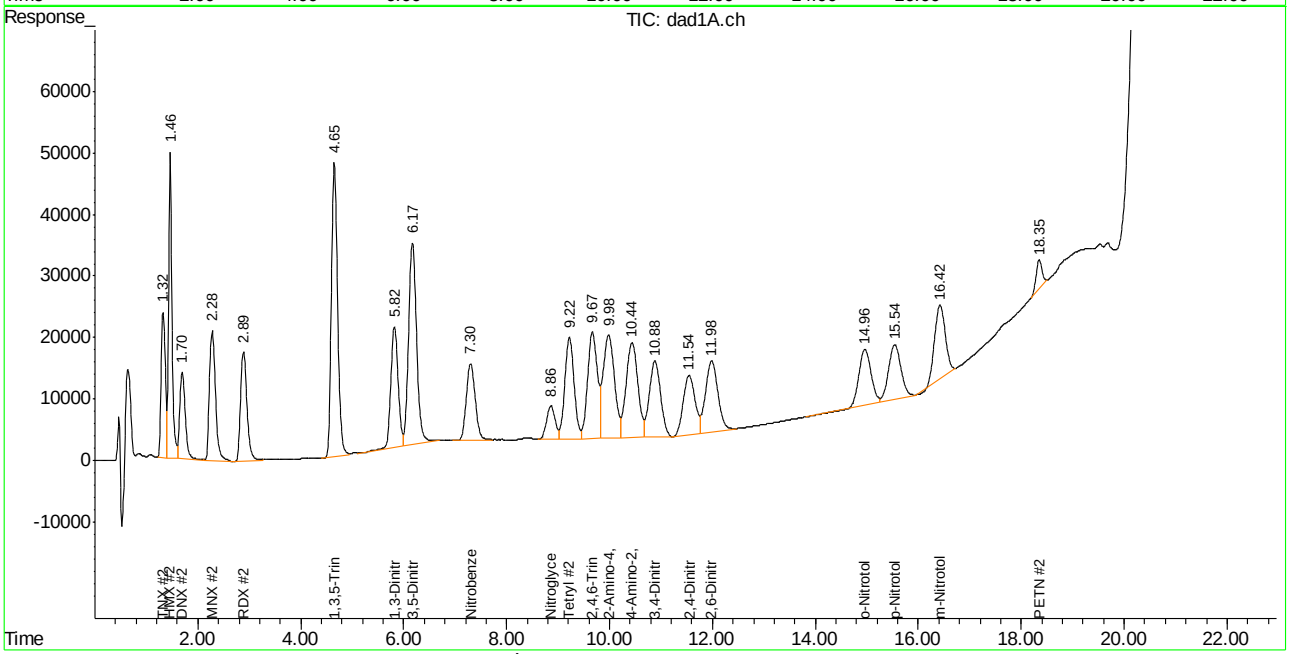
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1935\BB066716.D\dad1B.ch Vial: 34
Signal #2 : C:\HPCHEM\2\DATA\GBB1935\BB066716.D\dad1A.ch
Acq On : 23-Oct-2019, 13:03:42 Operator: williamh
Sample : op77364-BS Inst : G1315B
Misc : op77364,GBB1935,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 24 9:32 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

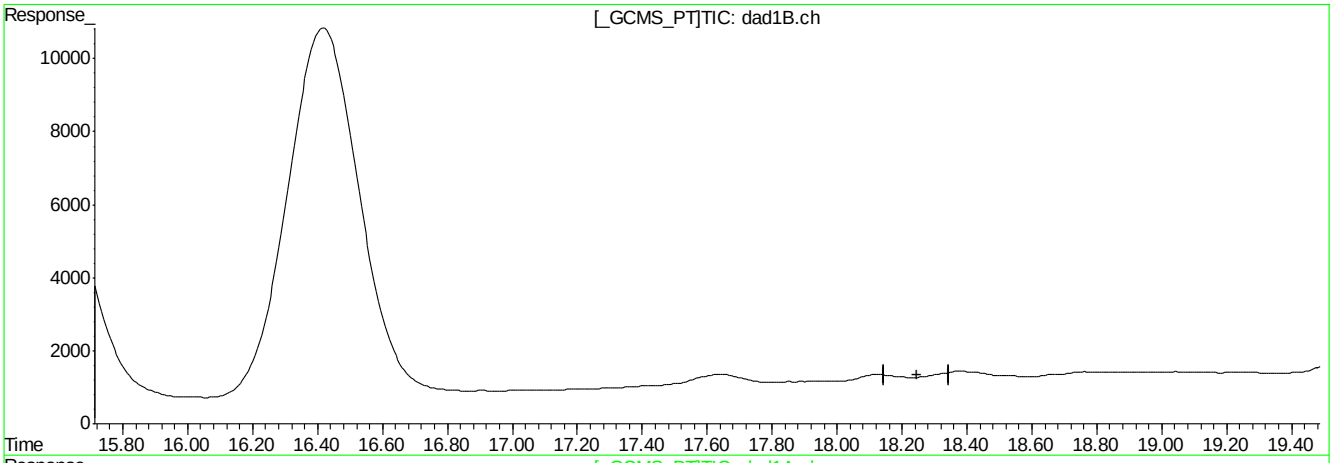
Sample Number: OP77364-BS
Lab FileID: BB066716.D
Injection Time: 10/23/19 13:03
Method: SW846 8330B
Analyst approved: 10/24/19 09:56 William Hustedde
Supervisor approved: 10/28/19 17:23 Mike Eger

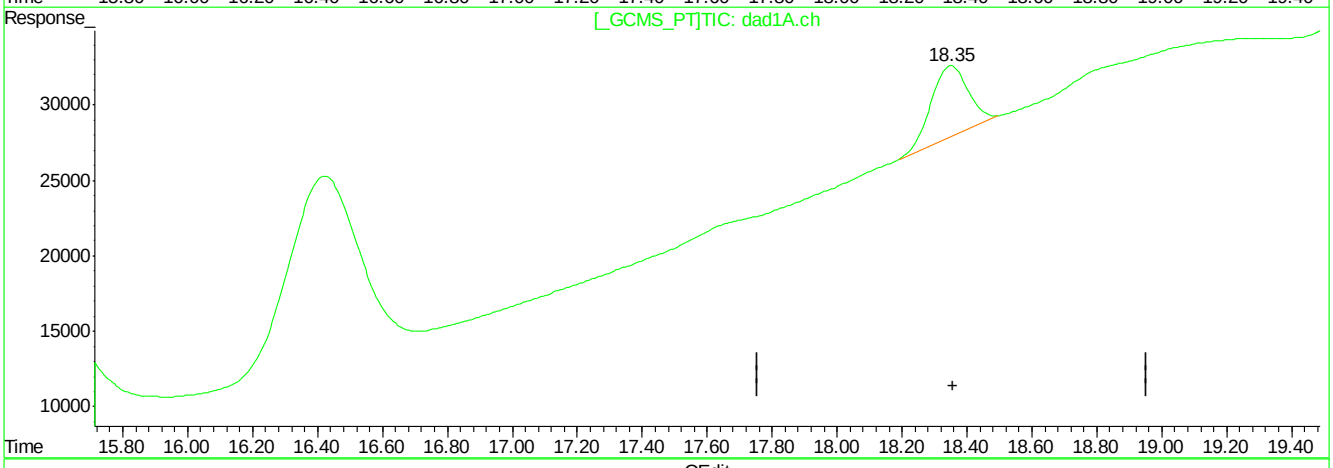
Parameter	CAS	Sig#	R.T. (min.)	Reason
PETN	78-11-5	2	18.35	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1935\BB066716.D\dad1B.ch Vial: 34
Signal #2 : C:\HPCHEM\2\DATA\GBB1935\BB066716.D\dad1A.ch
Acq On : 23-Oct-2019, 13:03:42 Operator: williamh
Sample : op77364-BS Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 24 9:07 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

18.35min 268.512ppb m

response 375023

(+) = Expected Retention Time
BB066716.D 8330B_101119_PLUS.M Thu Oct 24 09:32:40 2019

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
10/29/19 17:44

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1936\BB066740.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB1936\BB066740.D\dad1A.ch
Acq On : 24-Oct-2019, 11:43:19 Operator: williamh
Sample : op77364-MS Inst : G1315B
Misc : op77364,GBB1936,500,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 25 11:40:46 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.88	10.88	1105862	1927567	524.671	546.546
	Spiked Amount 500.000	Range 70 - 136		Recovery =		104.93%	109.31%
	Target Compounds						
1)	TNX	1.32	1.32	1085059	1734203	386.750	386.564
2)	HMX	1.46	1.46	2356277	6420800	1417.130	1395.464
3)	DNX	1.70	1.69	705268	1223606	500.652	528.276
4)	MNX	2.28	2.28	1073062	1662549	410.306	414.294
5)	RDX	2.89	2.89	986085	1617937	488.615	505.563
6)	1,3,5-Trinitrobe	4.65	4.65	6118658	11635659	1379.943	1393.265
7)	1,3-Dinitrobenze	5.81	5.81	2768513	2015607	492.458	525.760
8)	3,5-Dinitroanili	6.16	6.16	2121136	3732935	495.180	505.727
9)	Nitrobenzene	7.29	7.29	1567409	1527174	461.374	455.967
10)	Nitroglycerin	0.00	8.86	0	620407	N.D.	479.251 #
11)	Tetryl	9.22	9.22	1255561	2010620	392.271	388.913
12)	2,4,6-Trinitroto	9.67	9.67	3831803	4629314	963.562	976.698
13)	2-Amino-4,6-Dini	9.98	9.98	2384687	3660810	662.758	682.711
14)	4-Amino-2,6-Dini	10.43	10.43	1514066	3036990	565.248	581.479
16)	2,4-Dinitrotolue	11.54	11.54	2409866	1505610	484.127	486.426
17)	2,6-Dinitrotolue	11.98	11.98	1773187	2126524	596.295	580.390
18)	o-Nitrotoluene	14.96	14.96	1050831	1458116	440.303	458.751
19)	p-Nitrotoluene	15.54	15.54	1731685	1499377	449.276	501.598
20)	m-Nitrotoluene	16.42	16.42	1610103	1725988	463.223	431.661
21)	PETN	0.00	18.34	0	379334	N.D. d	271.598m

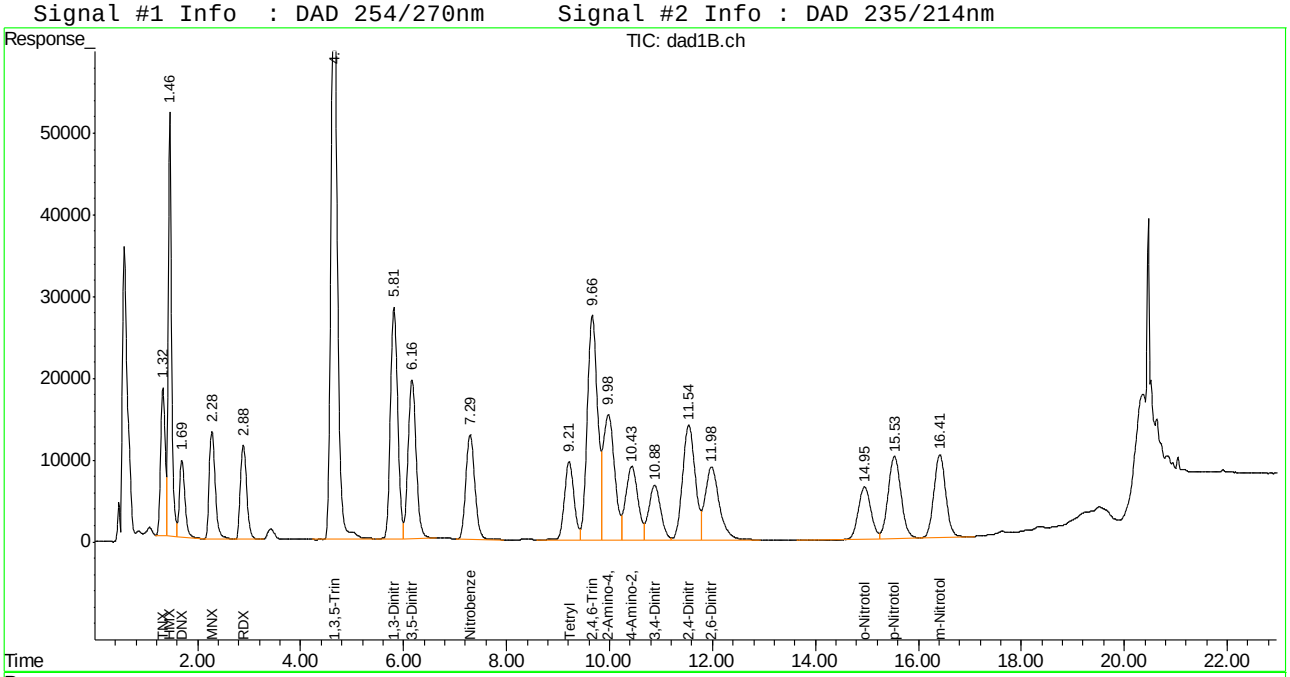
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB066740.D 8330B_101119_PLUS.M Fri Oct 25 14:29:27 2019 Page 1

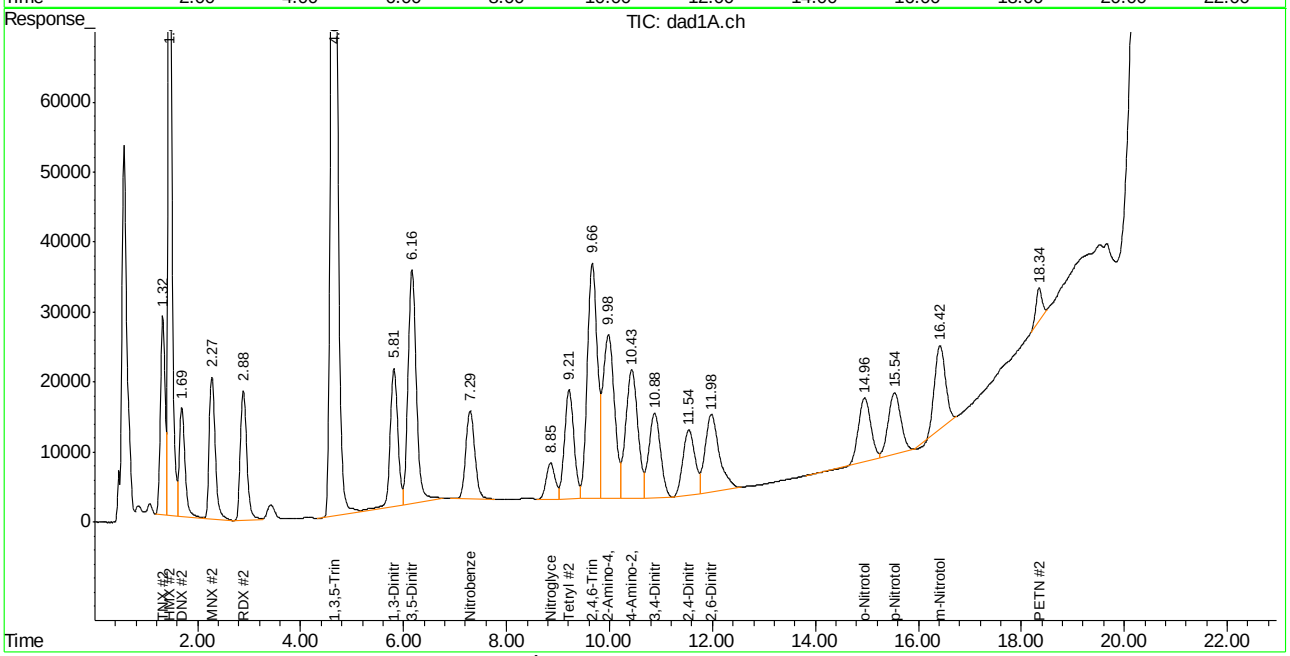
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1936\BB066740.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB1936\BB066740.D\dad1A.ch
Acq On : 24-Oct-2019, 11:43:19 Operator: williamh
Sample : op77364-MS Inst : G1315B
Misc : op77364,GBB1936,500,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 25 11:50 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

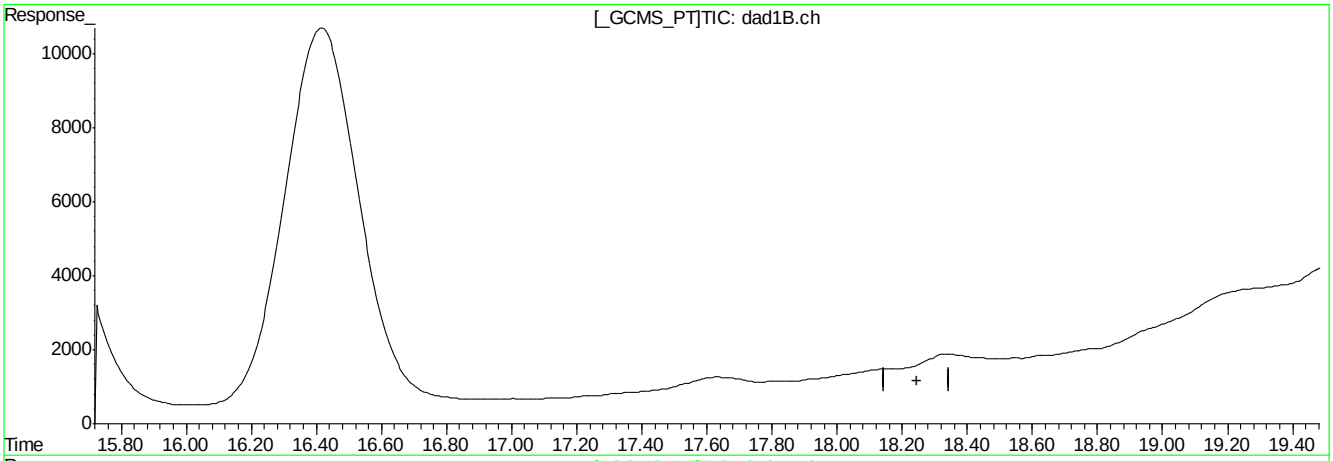
Sample Number:	OP77364-MS	**Method:**	SW846 8330B
Lab FileID:	BB066740.D	**Analyst approved:**	10/29/19 17:44 Naresh Jiawan
Injection Time:	10/24/19 11:43	**Supervisor approved:**	10/29/19 17:44 Naresh Jiawan

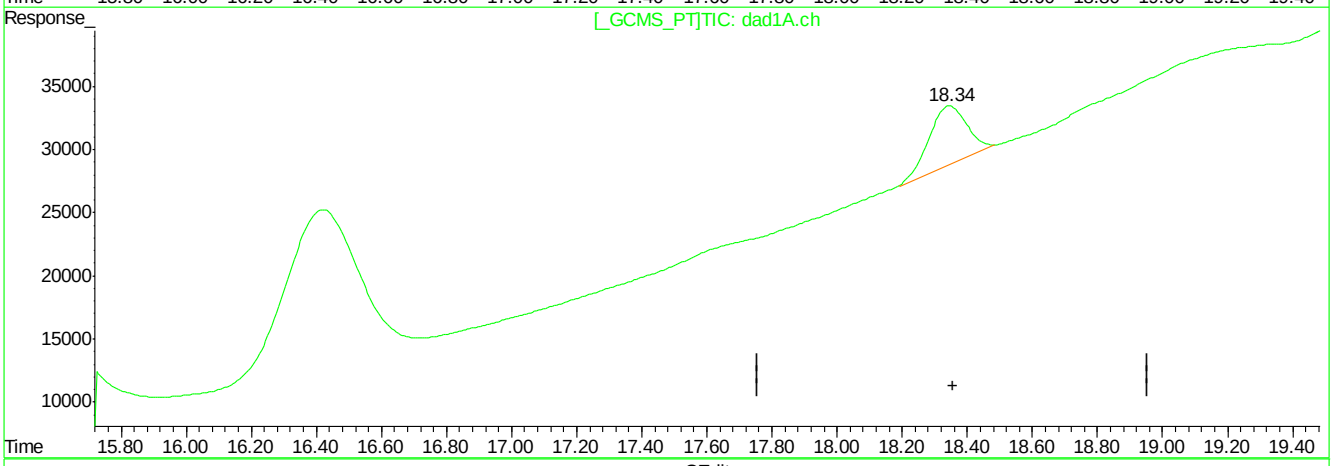
Parameter	CAS	Sig#	R.T. (min.)	Reason
PETN	78-11-5	2	18.34	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1936\BB066740.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB1936\BB066740.D\dad1A.ch
Acq On : 24-Oct-2019, 11:43:19 Operator: williamh
Sample : op77364-MS Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 25 11:40 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb d

response 0

(21) PETN #2

18.34min 271.598ppb m

response 379334

(+) = Expected Retention Time
BB066740.D 8330B_101119_PLUS.M Fri Oct 25 11:50:41 2019

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 10/29/19 17:44

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1936\BB066741.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GBB1936\BB066741.D\dad1A.ch
Acq On : 24-Oct-2019, 12:13:16 Operator: williamh
Sample : op77364-MSD Inst : G1315B
Misc : op77364,GBB1936,500,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 25 11:40:47 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.88	10.88	1056197	1968557	501.108	558.168
	Spiked Amount 500.000	Range 70 - 136		Recovery =		100.22%	111.63%
	Target Compounds						
1)	TNX	1.32	1.32	1080893	1728361	385.265	385.261
2)	HMX	1.46	1.46	2309411	6334810	1388.944	1376.775
3)	DNX	1.70	1.70	740291	1245734	525.514	537.880
4)	MNX	2.28	2.28	1142651	1759329	436.915	438.411
5)	RDX	2.89	2.89	1014161	1650994	502.527	515.893
6)	1,3,5-Trinitrobe	4.65	4.65	6141163	11572356	1385.019	1385.685
7)	1,3-Dinitrobenze	5.82	5.82	2809423	1982083	499.735	517.015
8)	3,5-Dinitroanili	6.17	6.17	2175363	3727775	507.839	505.028
9)	Nitrobenzene	7.29	7.29	1532176	1492314	451.003	445.559
10)	Nitroglycerin	0.00	8.86	0	705104	N.D.	544.678 #
11)	Tetryl	9.22	9.22	1372285	2331041	428.739	450.892
12)	2,4,6-Trinitroto	9.67	9.67	3857776	4769600	970.093	1006.295
13)	2-Amino-4,6-Dini	9.98	9.98	2389817	3793632	664.184	707.481
14)	4-Amino-2,6-Dini	10.43	10.43	1488159	3119938	555.576	597.361
16)	2,4-Dinitrotolue	11.54	11.54	2373416	1519908	476.805	491.045
17)	2,6-Dinitrotolue	11.99	11.98	1737460	2154935	584.281	588.144
18)	o-Nitrotoluene	14.95	14.95	1062099	1462072	445.025	459.996
19)	p-Nitrotoluene	15.53	15.53	1727802	1500197	448.269	501.873
20)	m-Nitrotoluene	16.41	16.42	1571913	1714905	452.236	428.900
21)	PETN	0.00	18.34	0	379907	N.D.	272.009m#

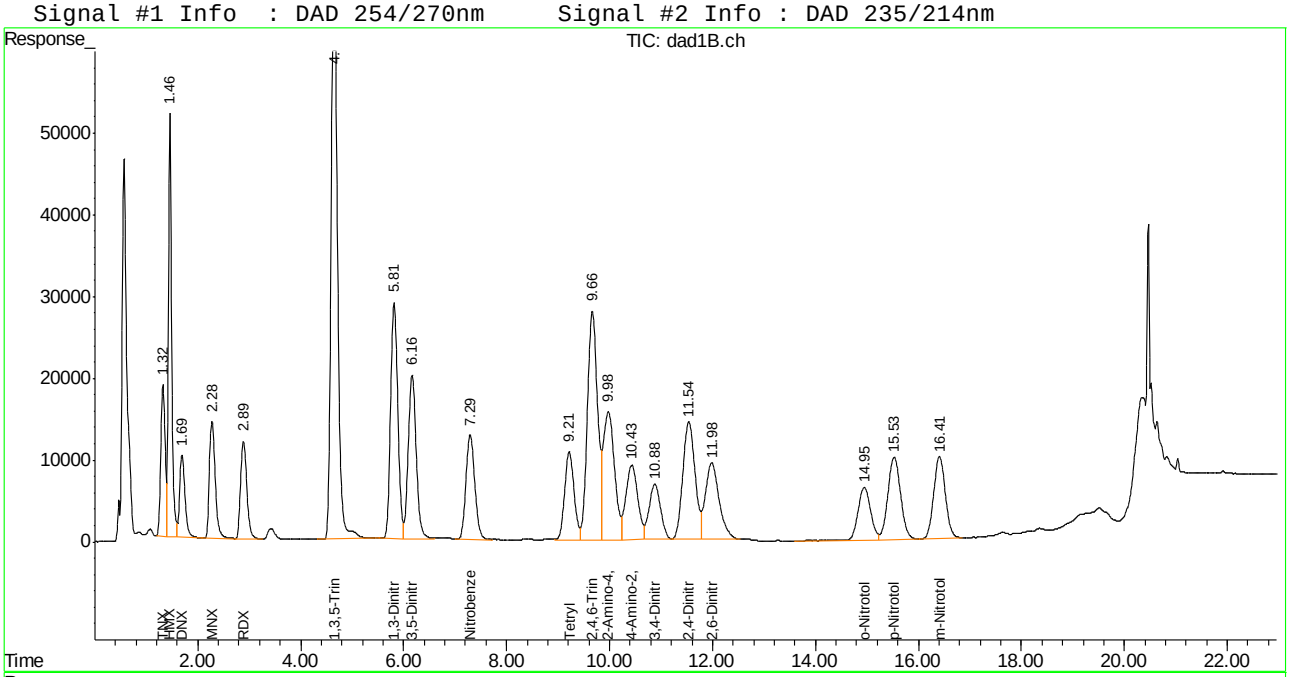
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

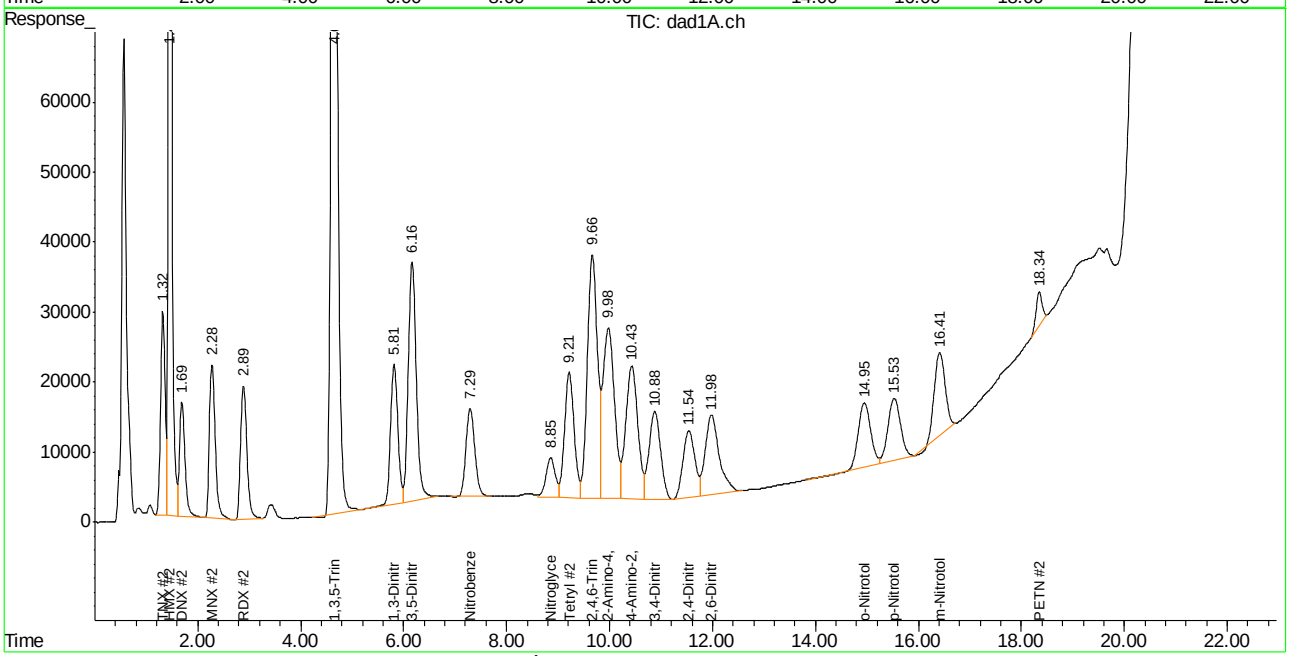
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1936\BB066741.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GBB1936\BB066741.D\dad1A.ch
Acq On : 24-Oct-2019, 12:13:16 Operator: williamh
Sample : op77364-MSD Inst : G1315B
Misc : op77364,GBB1936,500,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 25 11:50 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

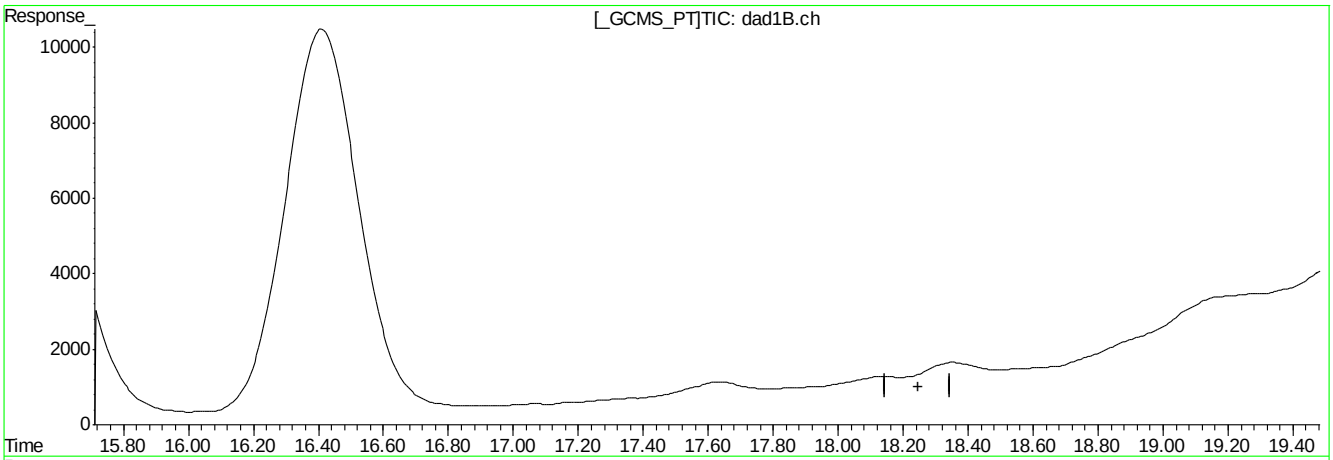
Sample Number:	OP77364-MSD	**Method:**	SW846 8330B
Lab FileID:	BB066741.D	**Analyst approved:**	10/29/19 17:44 Naresh Jiawan
Injection Time:	10/24/19 12:13	**Supervisor approved:**	10/29/19 17:44 Naresh Jiawan

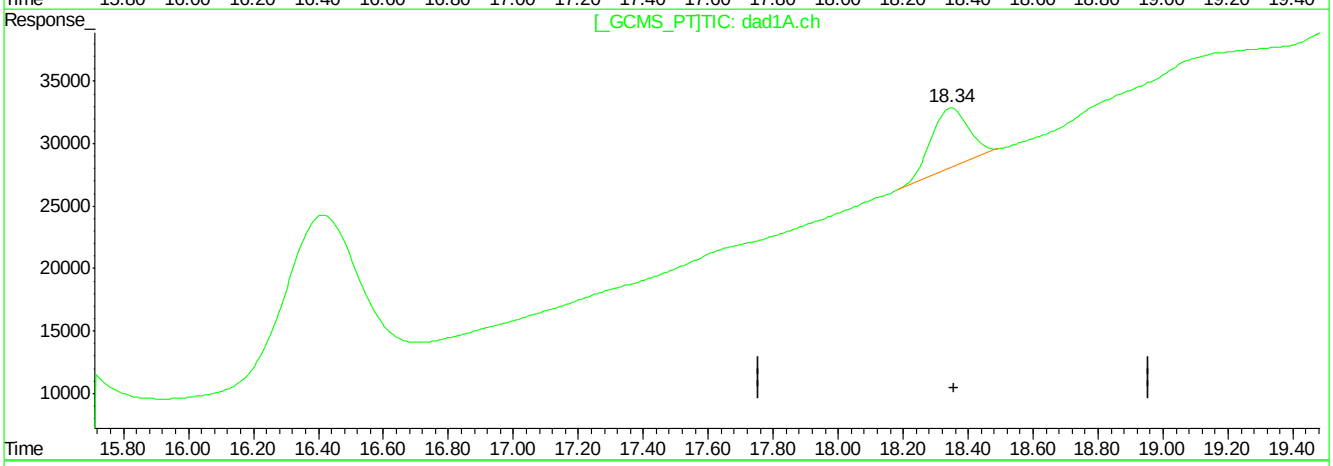
Parameter	CAS	Sig#	R.T. (min.)	Reason
PETN	78-11-5	2	18.34	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1936\BB066741.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GBB1936\BB066741.D\dad1A.ch
Acq On : 24-Oct-2019, 12:13:16 Operator: williamh
Sample : op77364-MSD Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 25 11:40 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

18.34min 272.009ppb m

response 379907

(+) = Expected Retention Time
BB066741.D 8330B_101119_PLUS.M Fri Oct 25 11:50:55 2019

Manual Integrations APPROVED (compounds with "m" flag)
Evita Martinez
10/14/19 10:52

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 09:31:39 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.80	10.81	49030	70525	23.262	19.997
Spiked Amount	500.000	Range	69 - 134	Recovery	=	4.65%#	4.00%#
	Target Compounds						
1)	TNX	1.33	1.33	48105	88038	17.146m	19.624m
2)	HMX	1.45	1.45	30166	90413	18.143m	19.650m
3)	DNX	1.70	1.69	24431	69002	17.343m	29.644m#
4)	MNX	2.27	2.27	54080	78618	20.679	19.591
5)	RDX	2.87	2.87	39955	59171	19.798m	18.489m
6)	1,3,5-Trinitrobe	4.61	4.61	87965	170013	19.839	20.357m
7)	1,3-Dinitrobenze	5.79	5.79	112518	83273	20.015	21.721m
8)	3,5-Dinitroanili	6.14	6.13	84916	155751	19.824	21.101m
9)	Nitrobenzene	7.29	7.29	77656	78016	22.859	23.293
10)	Nitroglycerin	0.00	8.69	0	24733	N.D.	19.106m#
11)	Tetryl	9.09	9.09	62323	104270	19.471	20.169
12)	2,4,6-Trinitroto	9.54	9.55	79571	94674	20.009	19.974
13)	2-Amino-4,6-Dini	9.90	9.91	75438	111339	20.966	20.764
14)	4-Amino-2,6-Dini	10.35	10.36	59263	108636	22.125	20.800
16)	2,4-Dinitrotolue	11.47	11.49	100734	52740	20.237	17.039m
17)	2,6-Dinitrotolue	11.90	11.91	65950	58089	22.178	15.854m
18)	o-Nitrotoluene	14.94	15.01	49128	71154	20.585m	22.386m
19)	p-Nitrotoluene	15.50	15.53	85365	65776	22.147m	22.005m
20)	m-Nitrotoluene	16.40	16.39	74840	68884	21.531m	17.294m
21)	PETN	0.00	18.18	0	23254	N.D.	16.649m#

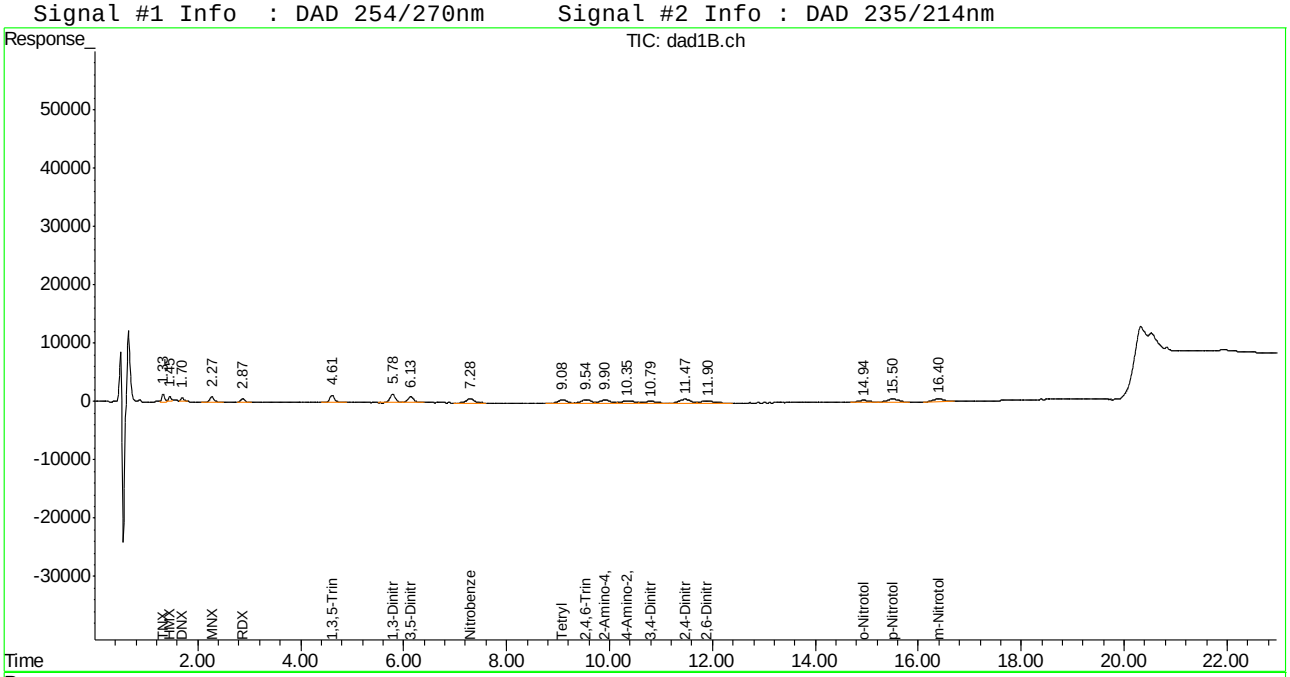
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB066559.D 8330B_101119_PLUS.M Mon Oct 14 09:54:53 2019 Page 1

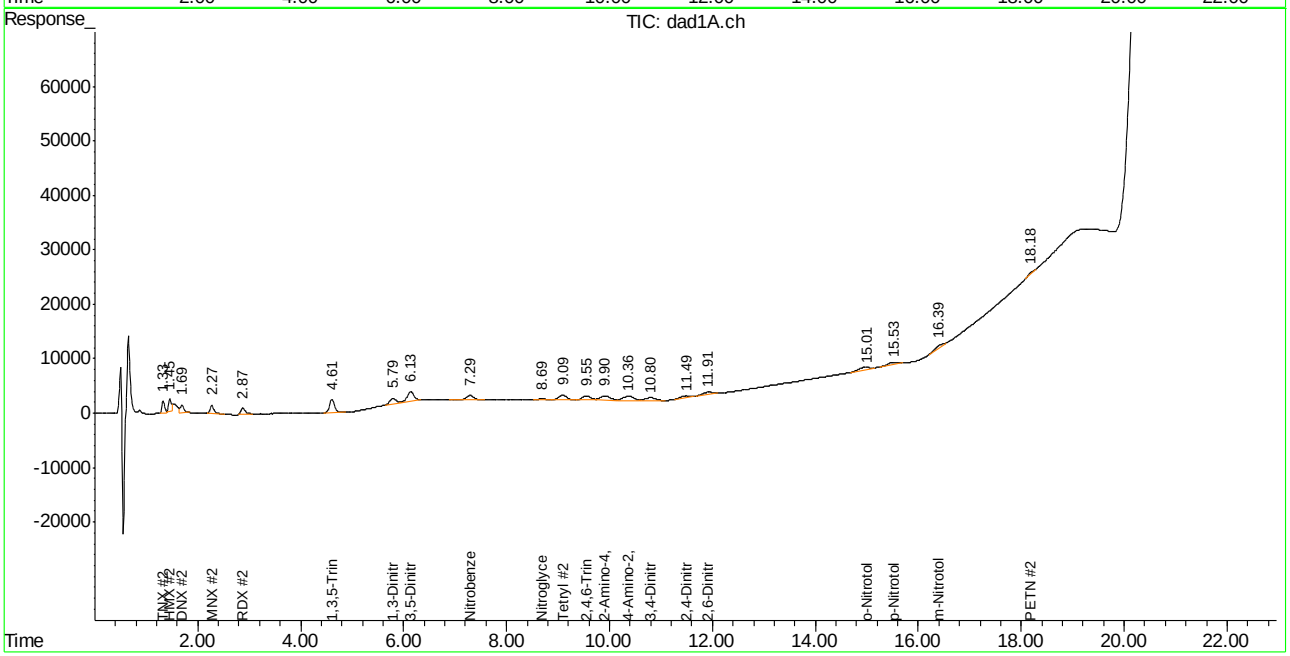
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:35 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

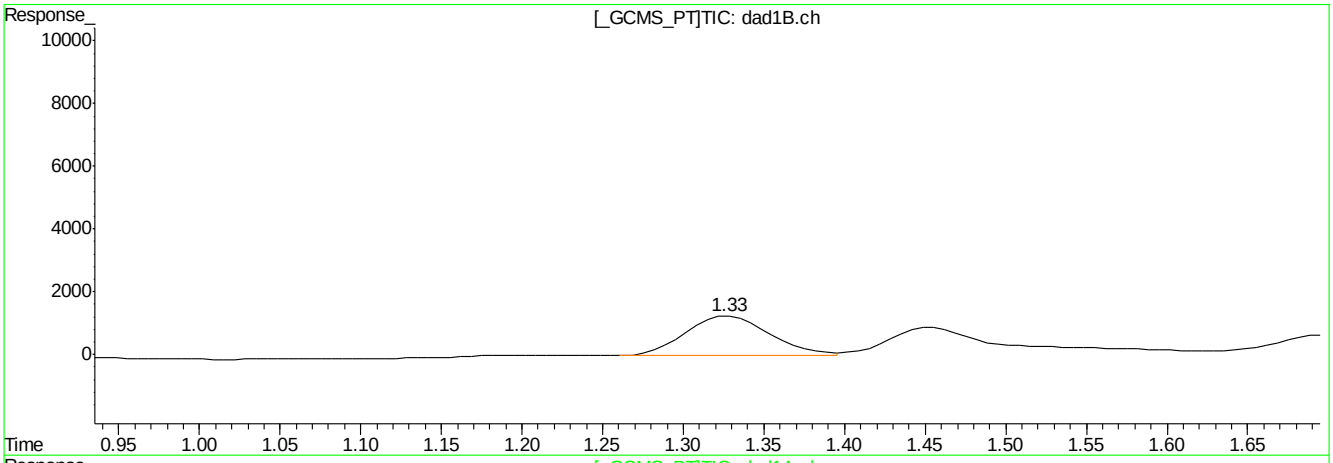
Sample Number: GBB1929-IC1929
Lab FileID: BB066559.D
Injection Time: 10/11/19 11:42
Method: SW846 8330B
Analyst approved: 10/14/19 10:02 William Hustedde
Supervisor approved: 10/14/19 10:52 Evita Martinez

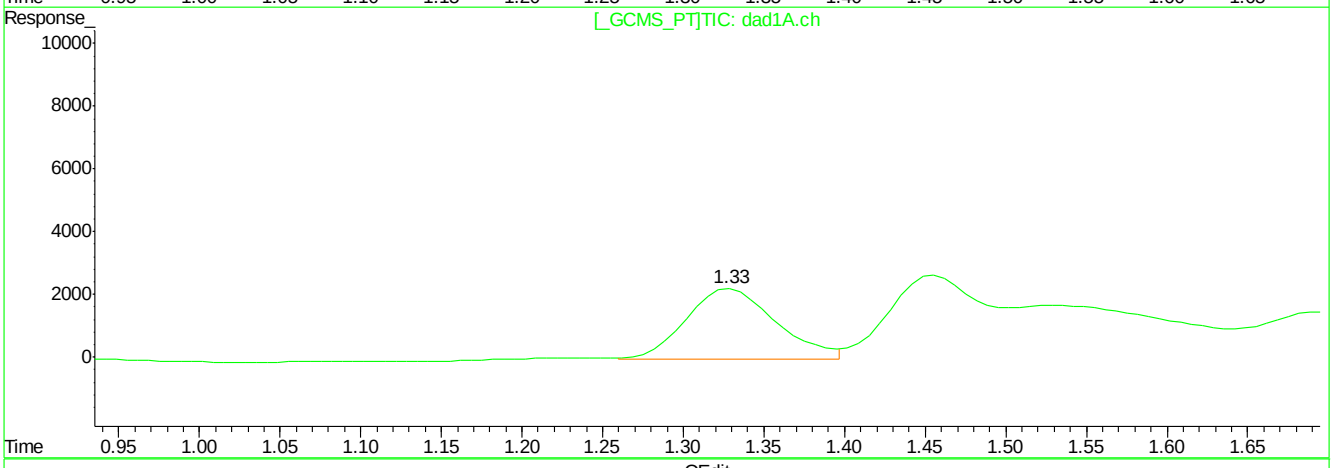
Parameter	CAS	Sig#	R.T. (min.)	Reason
TNX		1	1.33	Poor instrument integration
TNX		2	1.33	Poor instrument integration
HMX	2691-41-0	1	1.45	Poor instrument integration
HMX	2691-41-0	2	1.45	Poor instrument integration
DNX		2	1.69	Poor instrument integration
DNX		1	1.70	Poor instrument integration
RDX	121-82-4	1	2.87	Poor instrument integration
RDX	121-82-4	2	2.87	Poor instrument integration
1,3,5-Trinitrobenzene	99-35-4	2	4.61	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	5.79	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	6.13	Poor instrument integration
Nitroglycerine	55-63-0	2	8.69	Poor instrument integration
2,4-Dinitrotoluene	121-14-2	2	11.49	Poor instrument integration
2,6-Dinitrotoluene	606-20-2	2	11.91	Poor instrument integration
o-Nitrotoluene	88-72-2	1	14.94	Poor instrument integration
o-Nitrotoluene	88-72-2	2	15.01	Poor instrument integration
p-Nitrotoluene	99-99-0	1	15.50	Poor instrument integration
p-Nitrotoluene	99-99-0	2	15.53	Poor instrument integration
m-Nitrotoluene	99-08-1	2	16.39	Poor instrument integration
m-Nitrotoluene	99-08-1	1	16.40	Poor instrument integration
PETN	78-11-5	2	18.18	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:28 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Oct 09 16:09:38 2019
Response via : Multiple Level Calibration





QEdit

(1) TNX

1.33min 20.924ppb m

response 44977

(1) TNX #2

1.33min 24.576ppb m

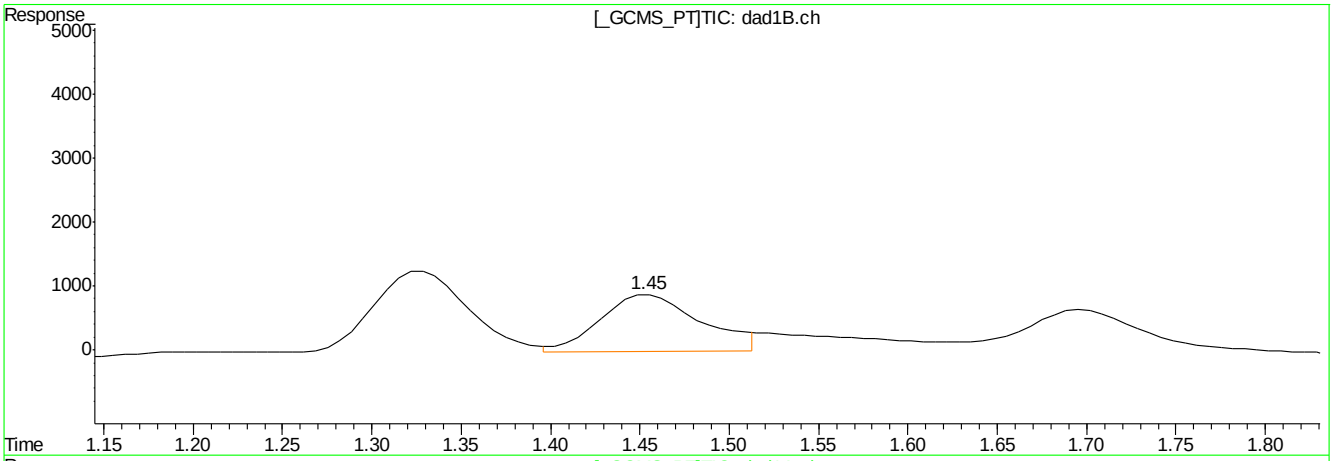
response 86931

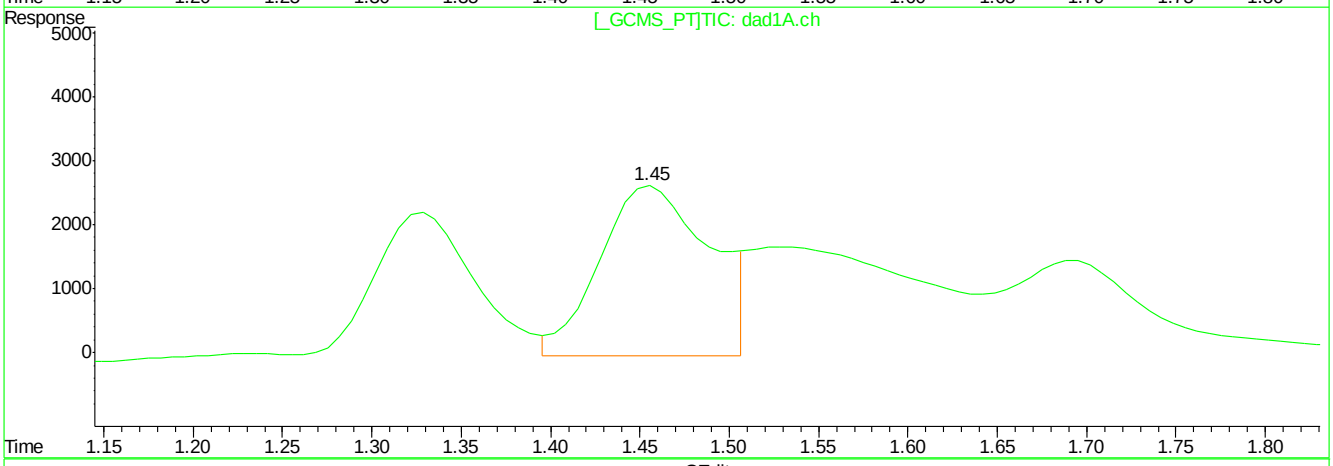
(+) = Expected Retention Time
BB066559.D 8330B_082219_PLUS.M Fri Oct 11 15:31:06 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:28 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Oct 09 16:09:38 2019
Response via : Multiple Level Calibration





QEdit

(2) HMX

1.45min 21.708ppb m

response 34935

(2) HMX #2

1.45min 25.088ppb m

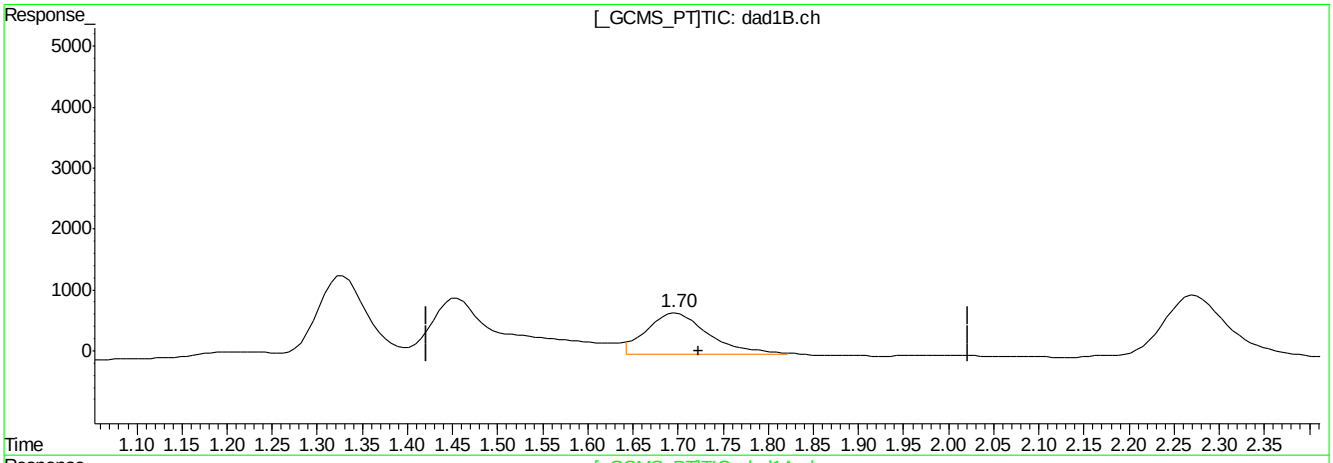
response 110748

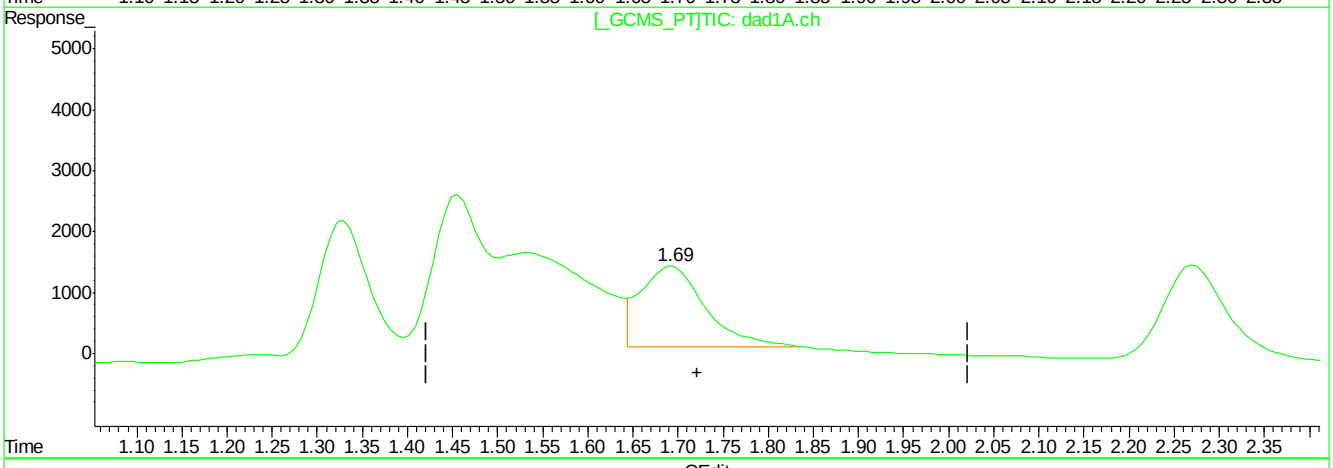
(+) = Expected Retention Time
BB066559.D 8330B_082219_PLUS.M Fri Oct 11 15:31:26 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:28 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Oct 09 16:09:38 2019
Response via : Multiple Level Calibration





QEdit

(3) DNX

1.70min 22.931ppb m

response 32303

(3) DNX #2

1.69min 28.568ppb m

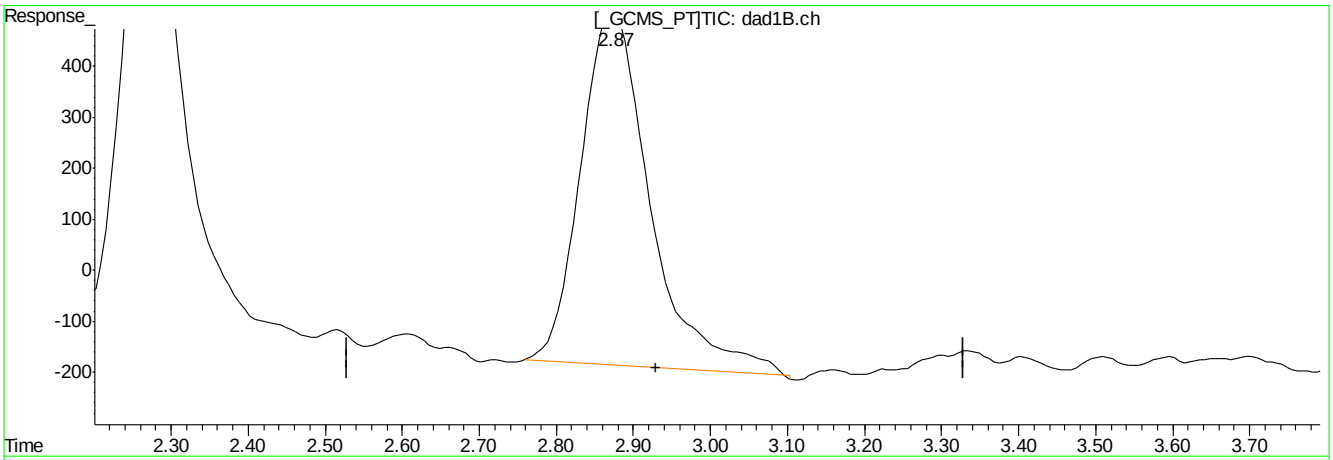
response 67748

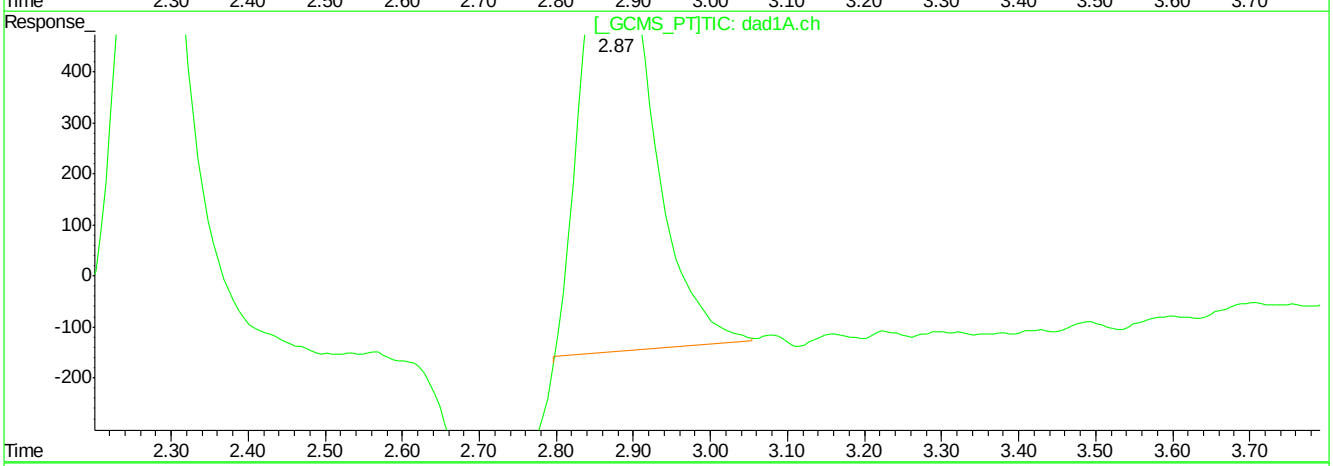
(+) = Expected Retention Time
BB066559.D 8330B_082219_PLUS.M Fri Oct 11 15:31:47 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:28 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Oct 09 16:09:38 2019
Response via : Multiple Level Calibration





QEdit

(5) RDX

2.87min 21.999ppb m

response 43478

(5) RDX #2

2.87min 19.280ppb m

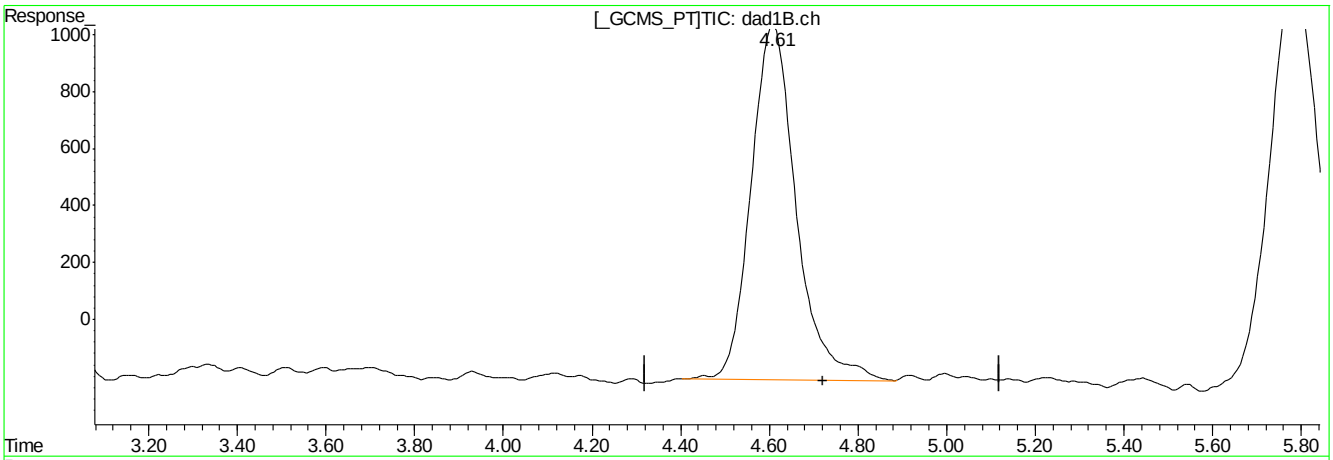
response 60136

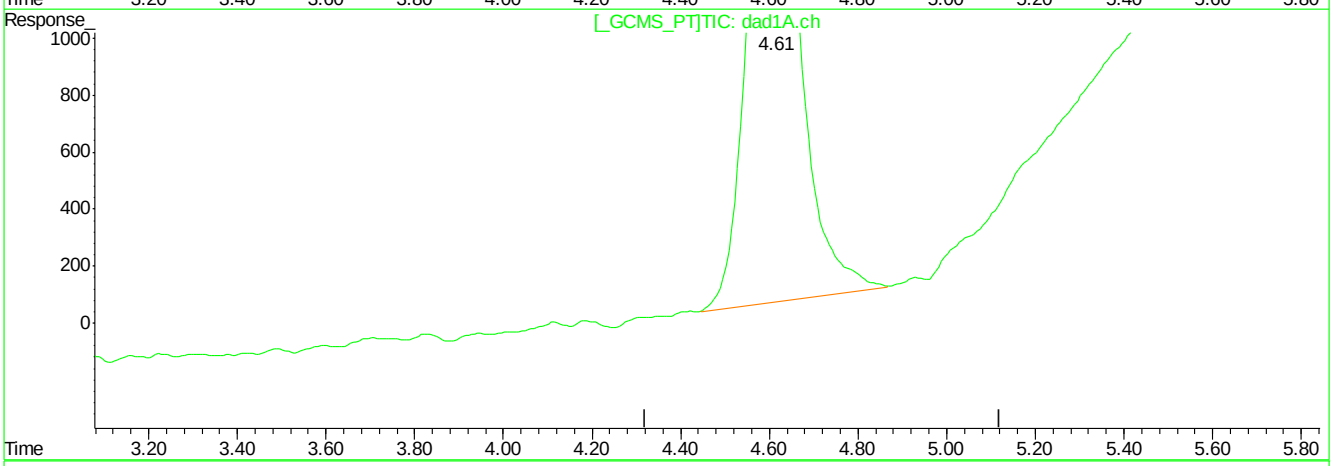
(+) = Expected Retention Time
BB066559.D 8330B_082219_PLUS.M Fri Oct 11 15:32:01 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:28 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Oct 09 16:09:38 2019
Response via : Multiple Level Calibration





QEdit

(6) 1,3,5-Trinitrobenzene

4.61min 20.686ppb

response 87965

(6) 1,3,5-Trinitrobenzene #2

4.61min 21.339ppb m

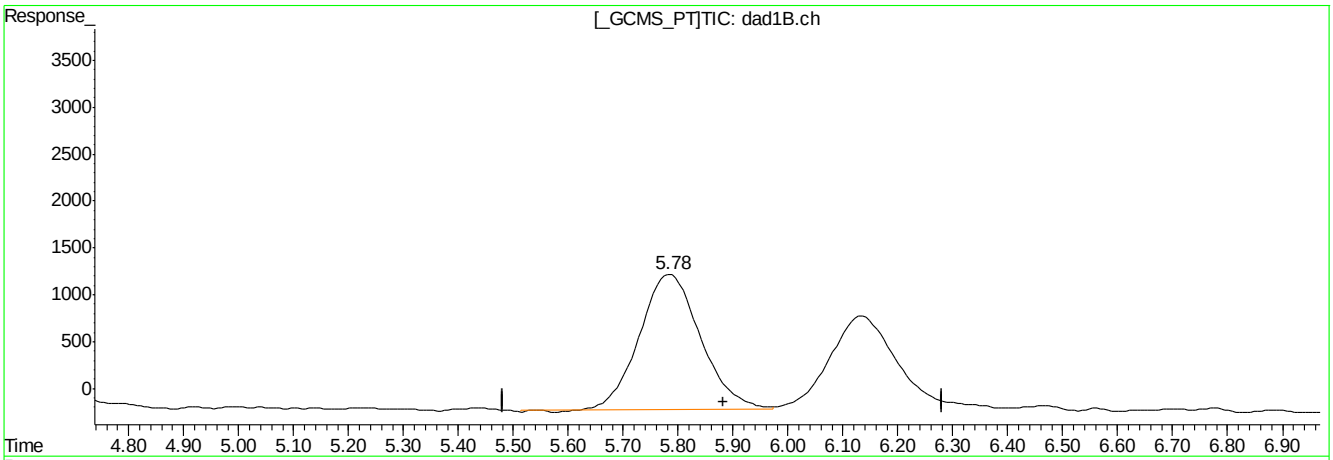
response 171374

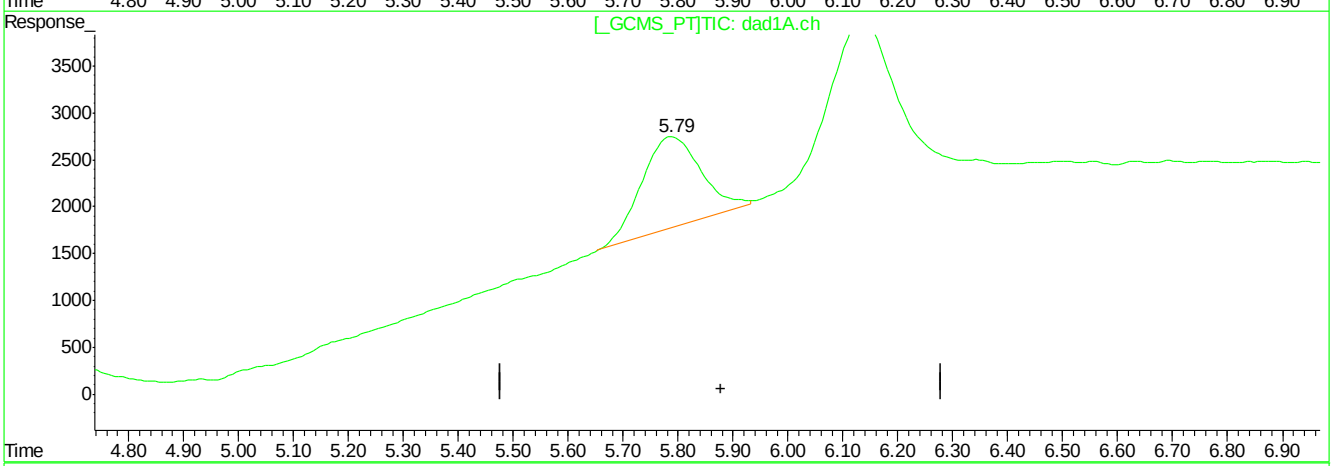
(+) = Expected Retention Time
BB066559.D 8330B_082219_PLUS.M Fri Oct 11 15:32:08 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:28 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Oct 09 16:09:38 2019
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

5.79min 20.679ppb

response 112518

(7) 1,3-Dinitrobenzene #2

5.79min 18.998ppb m

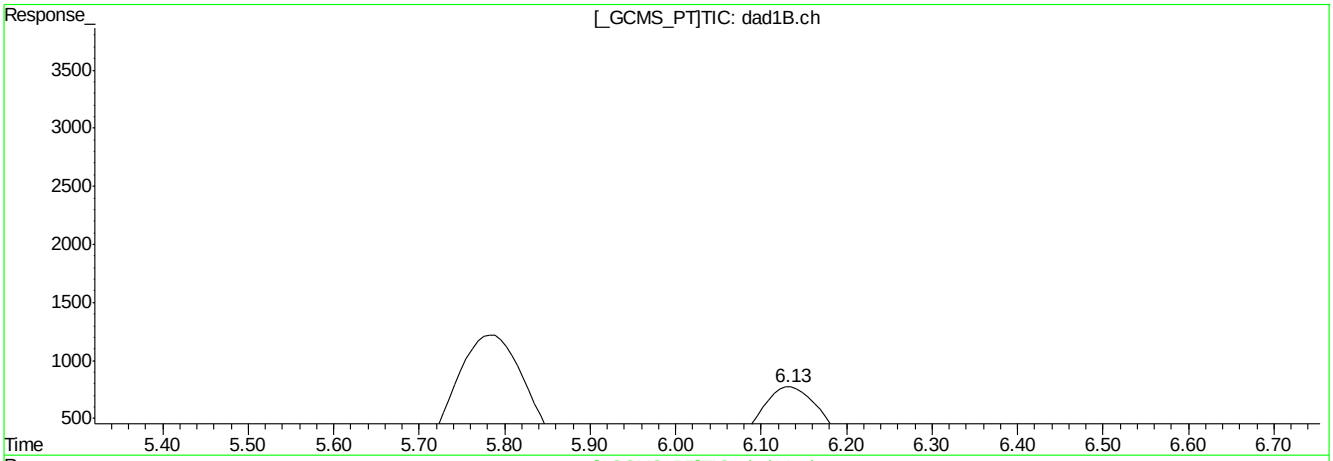
response 72746

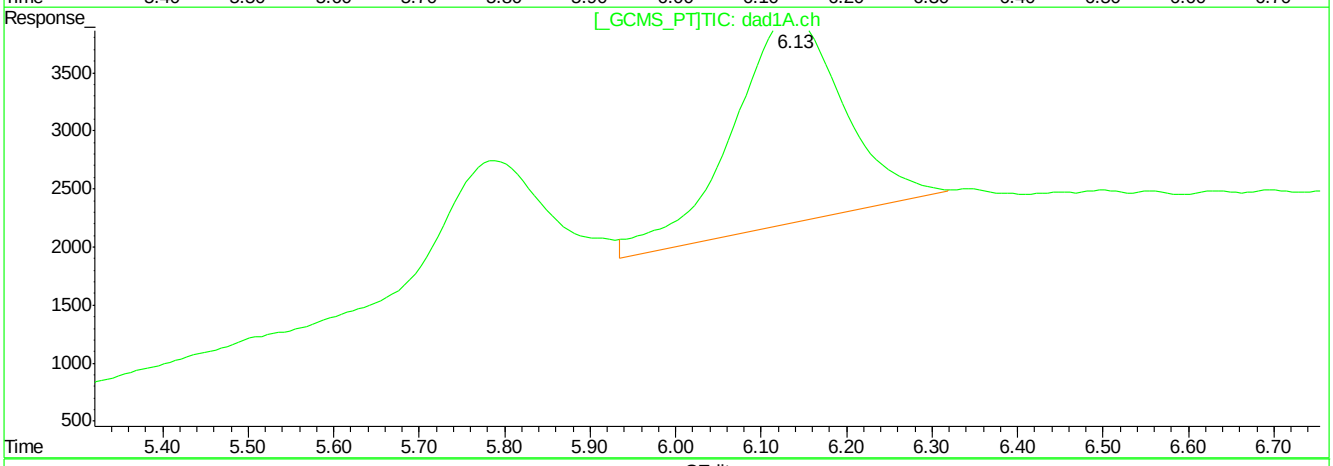
(+) = Expected Retention Time
BB066559.D 8330B_082219_PLUS.M Fri Oct 11 15:32:26 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:28 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Oct 09 16:09:38 2019
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.14min 20.484ppb

response 84916

(8) 3,5-Dinitroaniline #2

6.13min 22.030ppb m

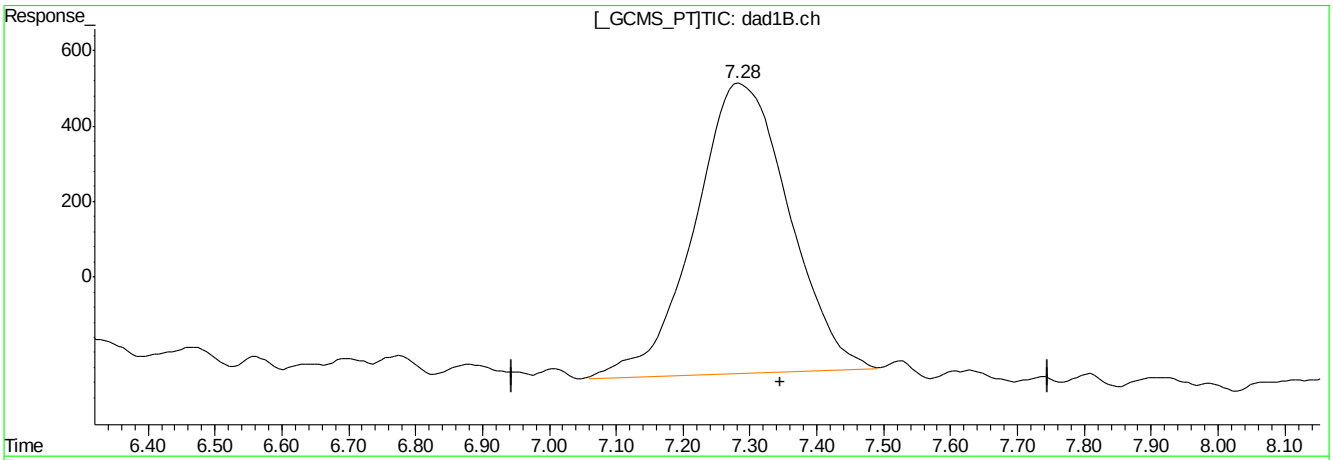
response 160292

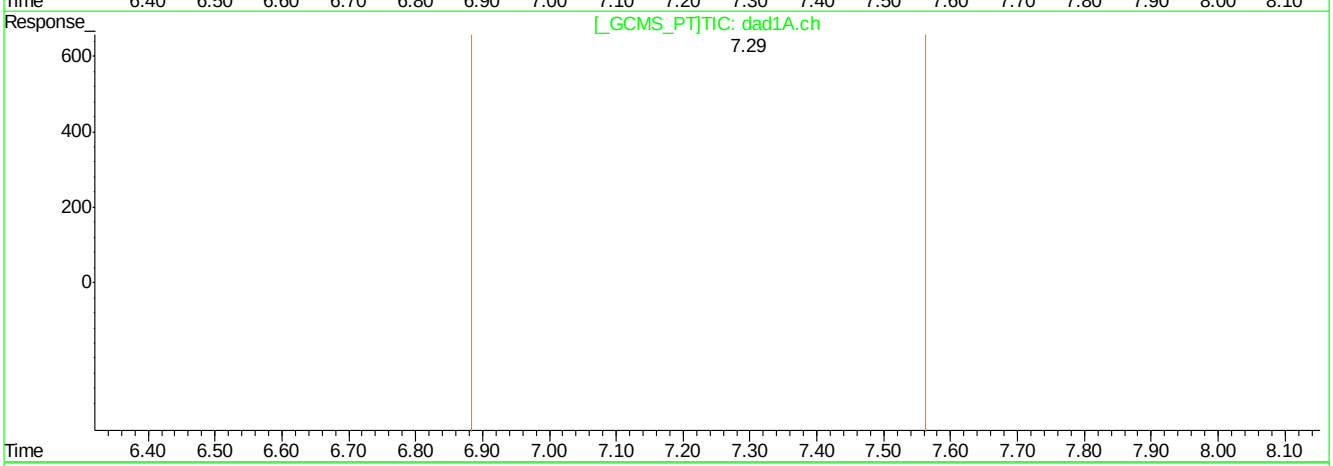
(+) = Expected Retention Time
BB066559.D 8330B_082219_PLUS.M Fri Oct 11 15:32:35 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:28 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Wed Oct 09 16:09:38 2019
Response via : Multiple Level Calibration





QEdit

(9) Nitrobenzene

7.28min 24.028ppb m

response 75885

(9) Nitrobenzene #2

7.29min 24.715ppb

response 78016

(+) = Expected Retention Time
BB066559.D 8330B_082219_PLUS.M Fri Oct 11 15:32:43 2019

9.5.19

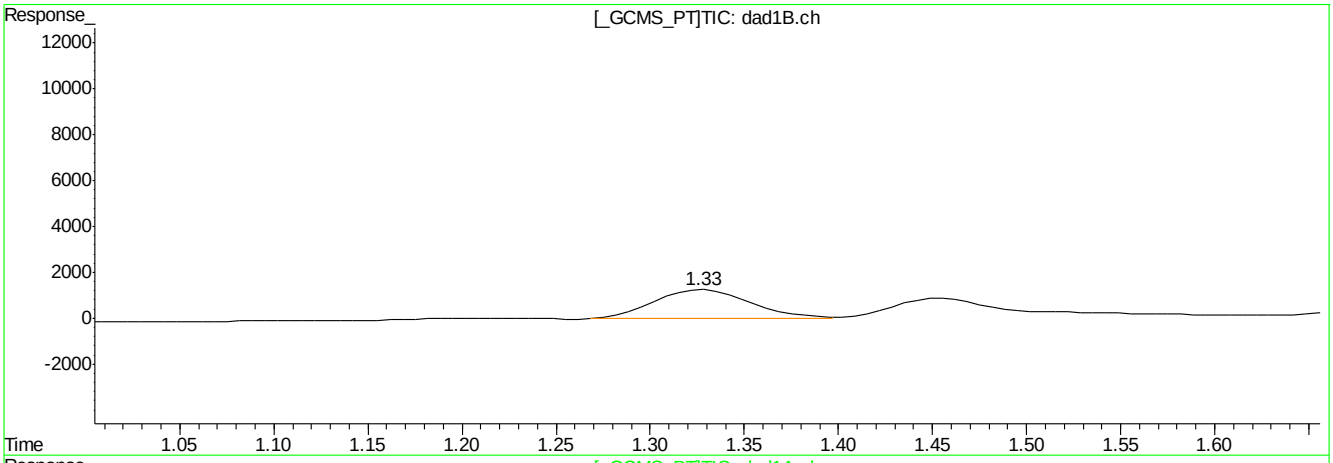
9

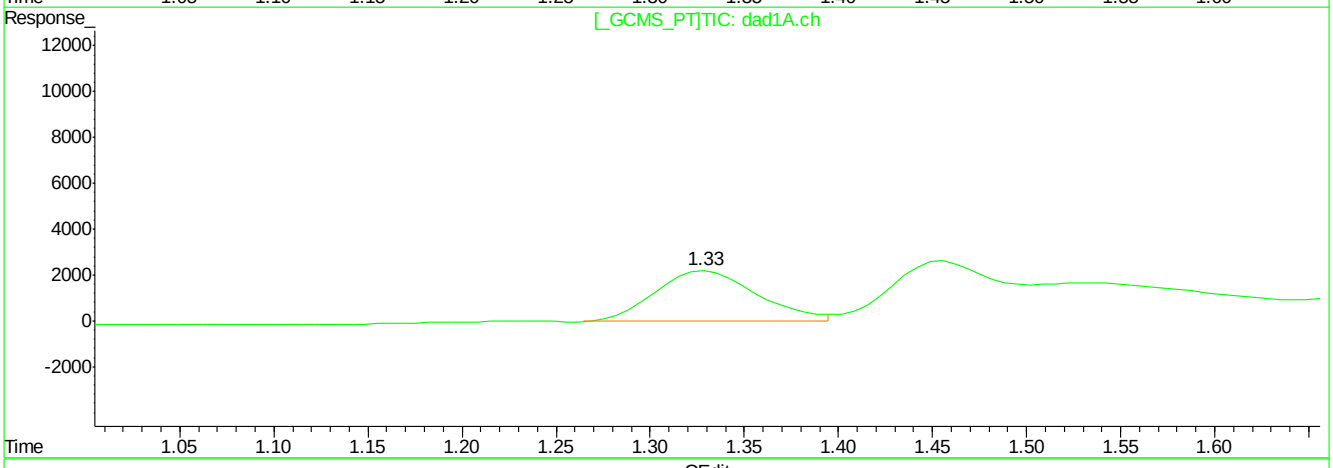
BB066559.D edits: Nitrobenzene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration





QEdit

(1) TNX

1.33min 21.656ppb m

response 46551

(1) TNX #2

1.33min 23.572ppb m

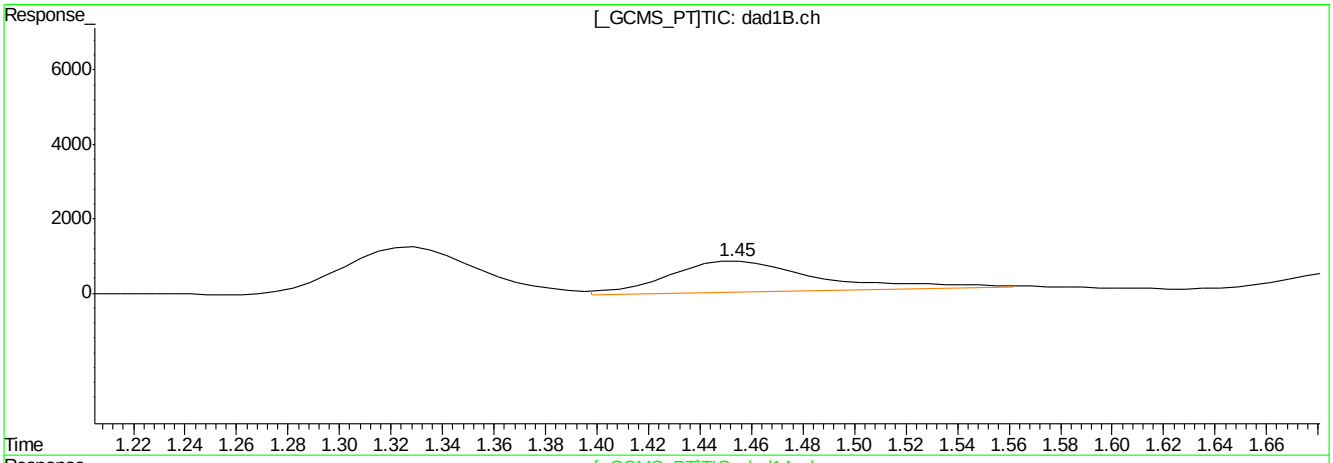
response 83378

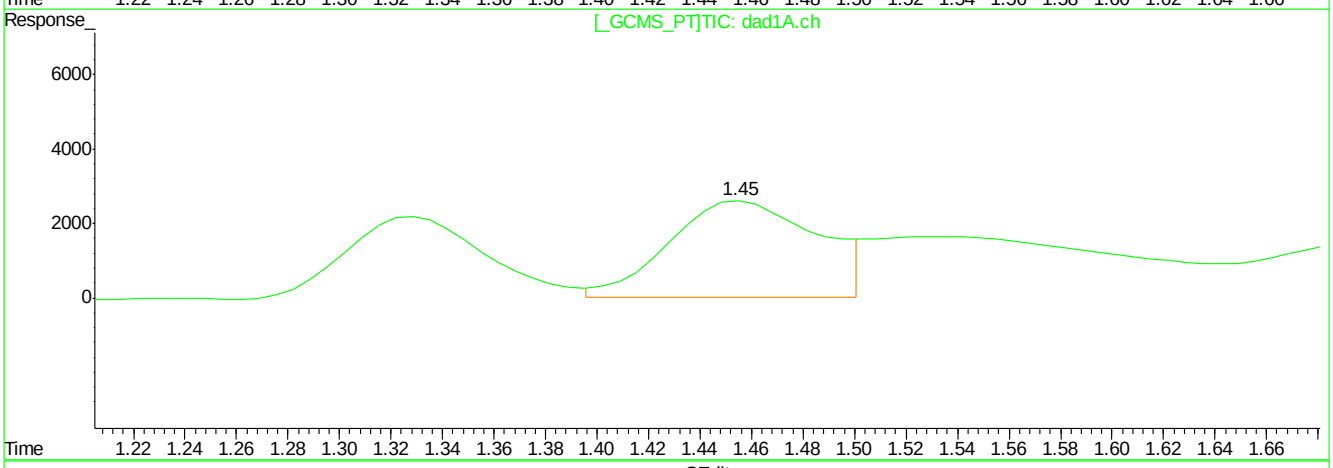
(+) = Expected Retention Time
BB066559.D 8330B_082219_PLUS.M Fri Oct 11 15:40:25 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration





QEdit

(2) HMX

1.45min 21.569ppb m

response 34711

(2) HMX #2

1.45min 22.542ppb m

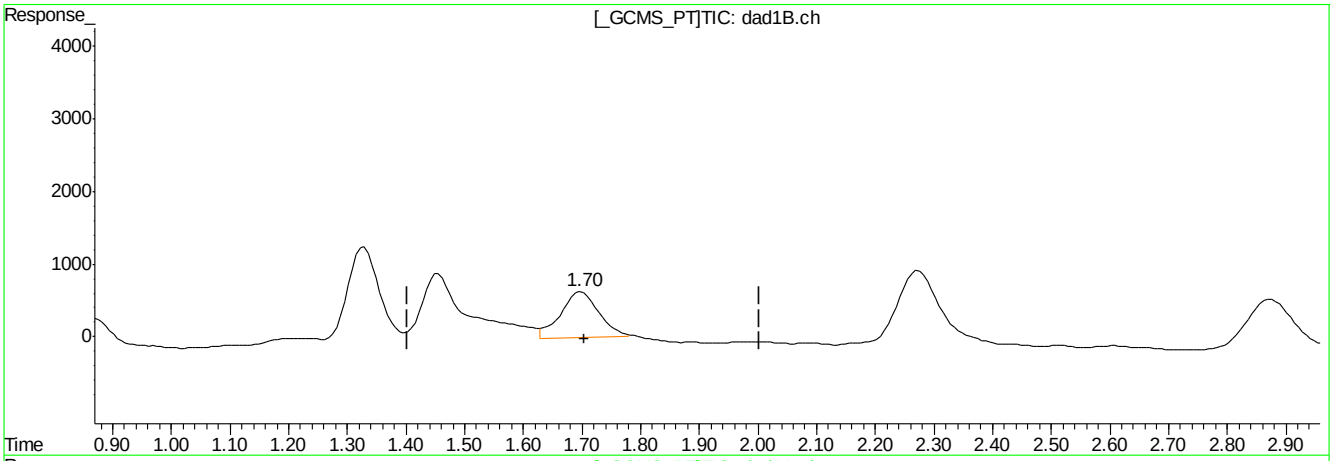
response 99509

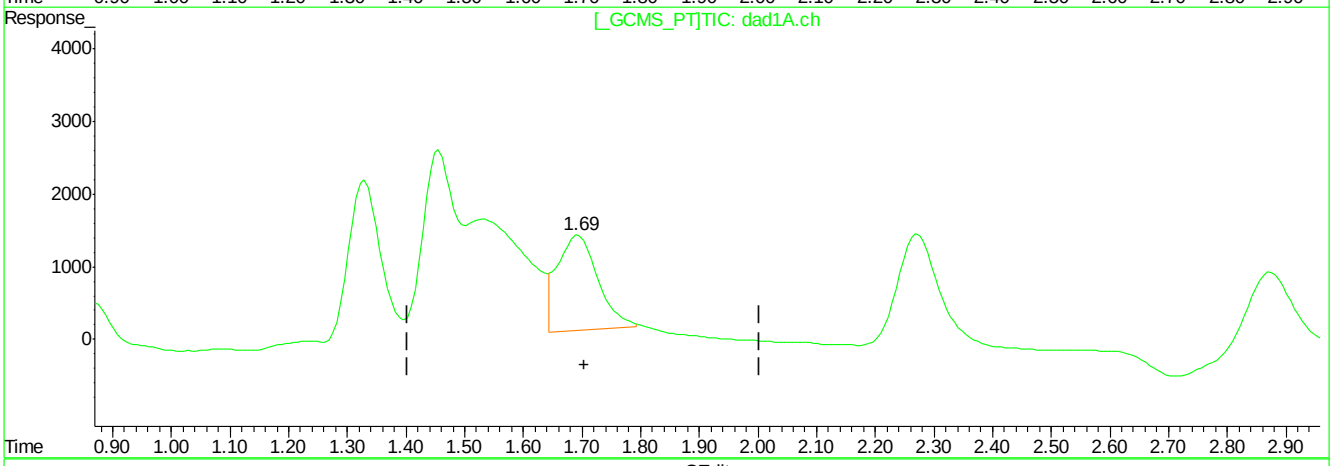
(+) = Expected Retention Time
BB066559.D 8330B_082219_PLUS.M Fri Oct 11 15:40:44 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration





QEdit

(3) DNX

1.70min 20.377ppb m

response 28705

(3) DNX #2

1.69min 26.349ppb m

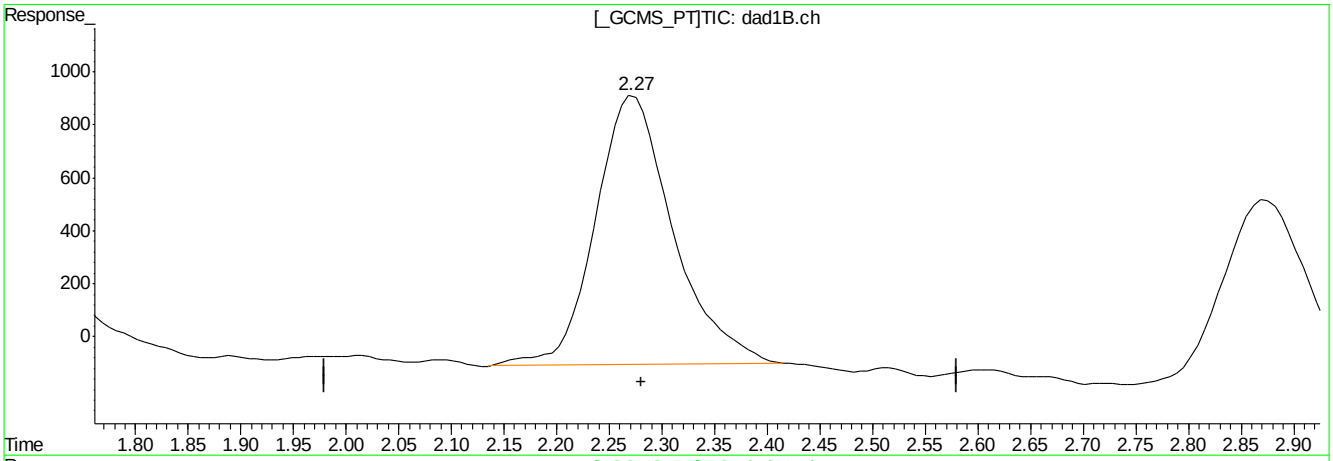
response 62485

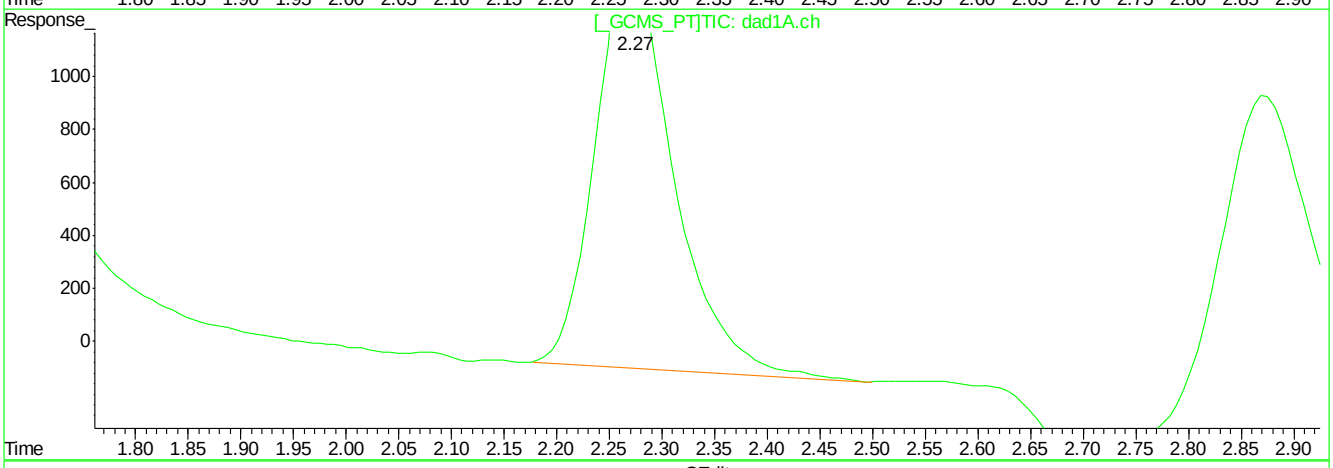
(+) = Expected Retention Time
BB066559.D 8330B_082219_PLUS.M Fri Oct 11 15:41:15 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration





QEdit

(4) MNX

2.27min 22.651ppb m

response 52621

(4) MNX #2

2.27min 21.932ppb

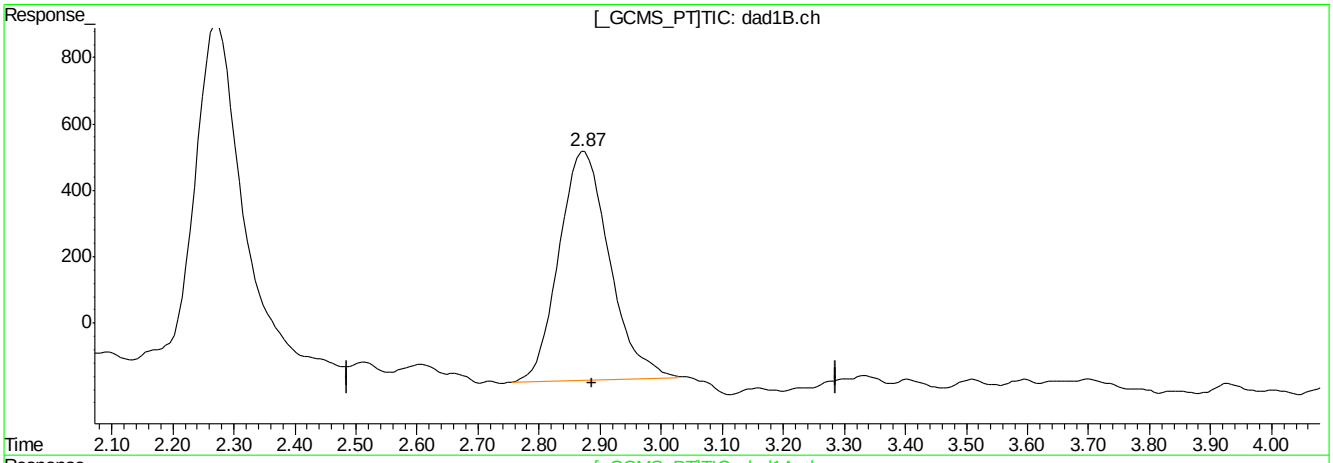
response 78618

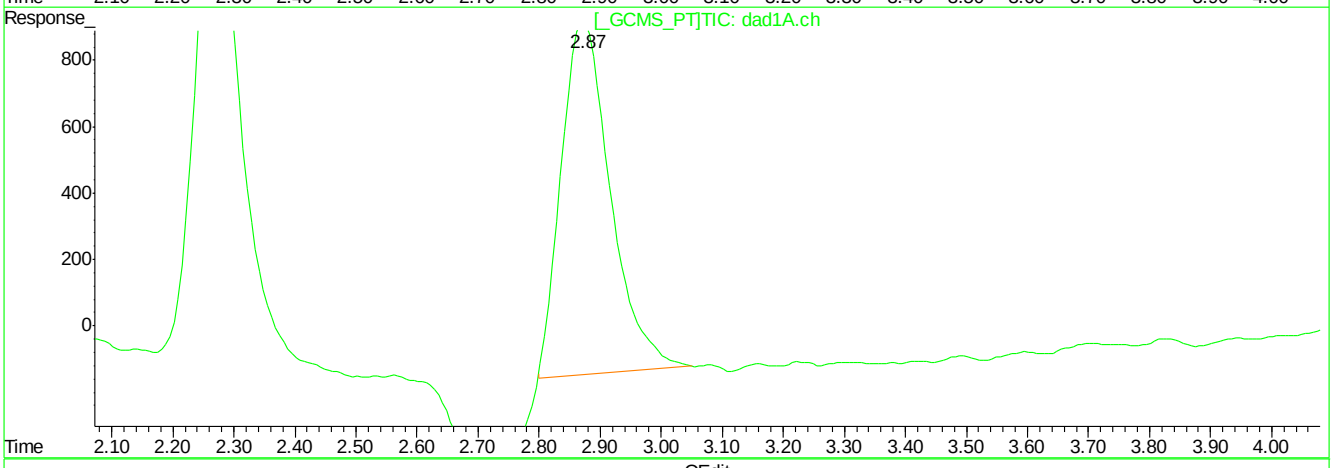
(+) = Expected Retention Time
BB066559.D 8330B_082219_PLUS.M Fri Oct 11 15:41:22 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration





QEdit

(5) RDX

2.87min 20.093ppb m

response 39711

(5) RDX #2

2.87min 19.111ppb m

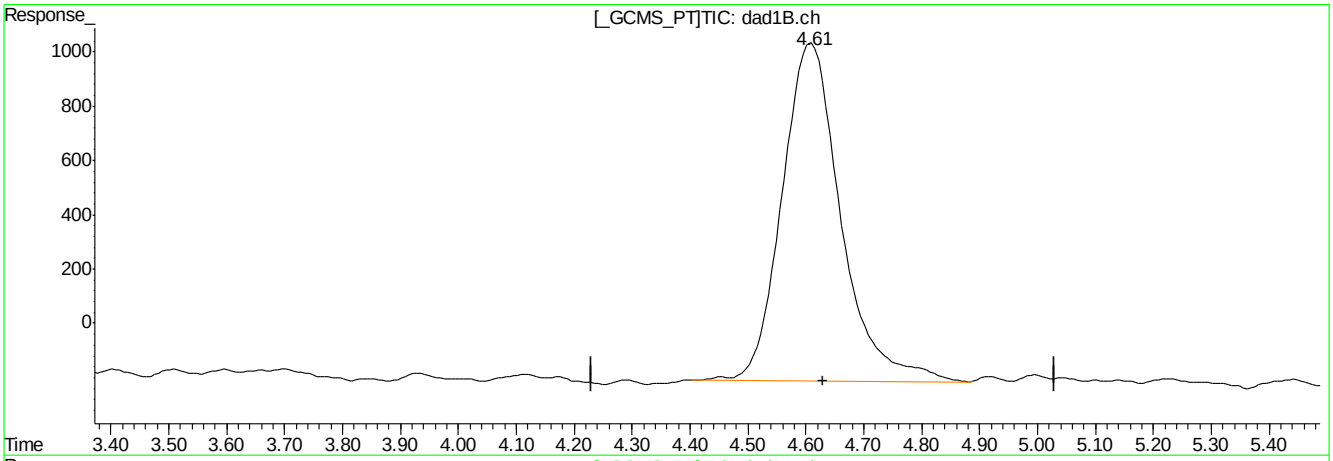
response 59609

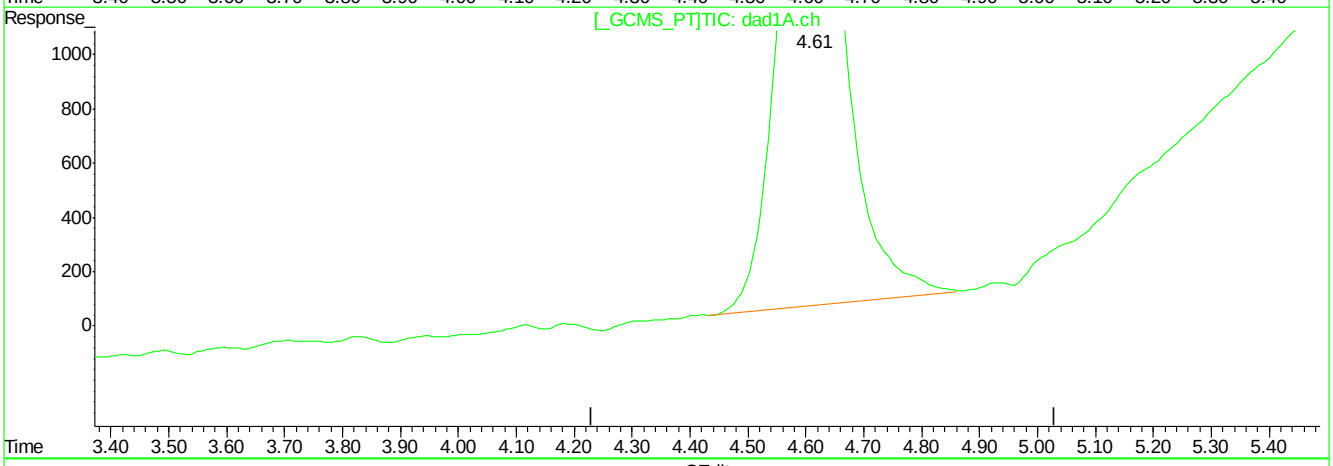
(+) = Expected Retention Time
BB066559.D 8330B_082219_PLUS.M Fri Oct 11 15:41:31 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration





QEdit

(6) 1,3,5-Trinitrobenzene

4.61min 20.686ppb

response 87965

(6) 1,3,5-Trinitrobenzene #2

4.61min 21.218ppb m

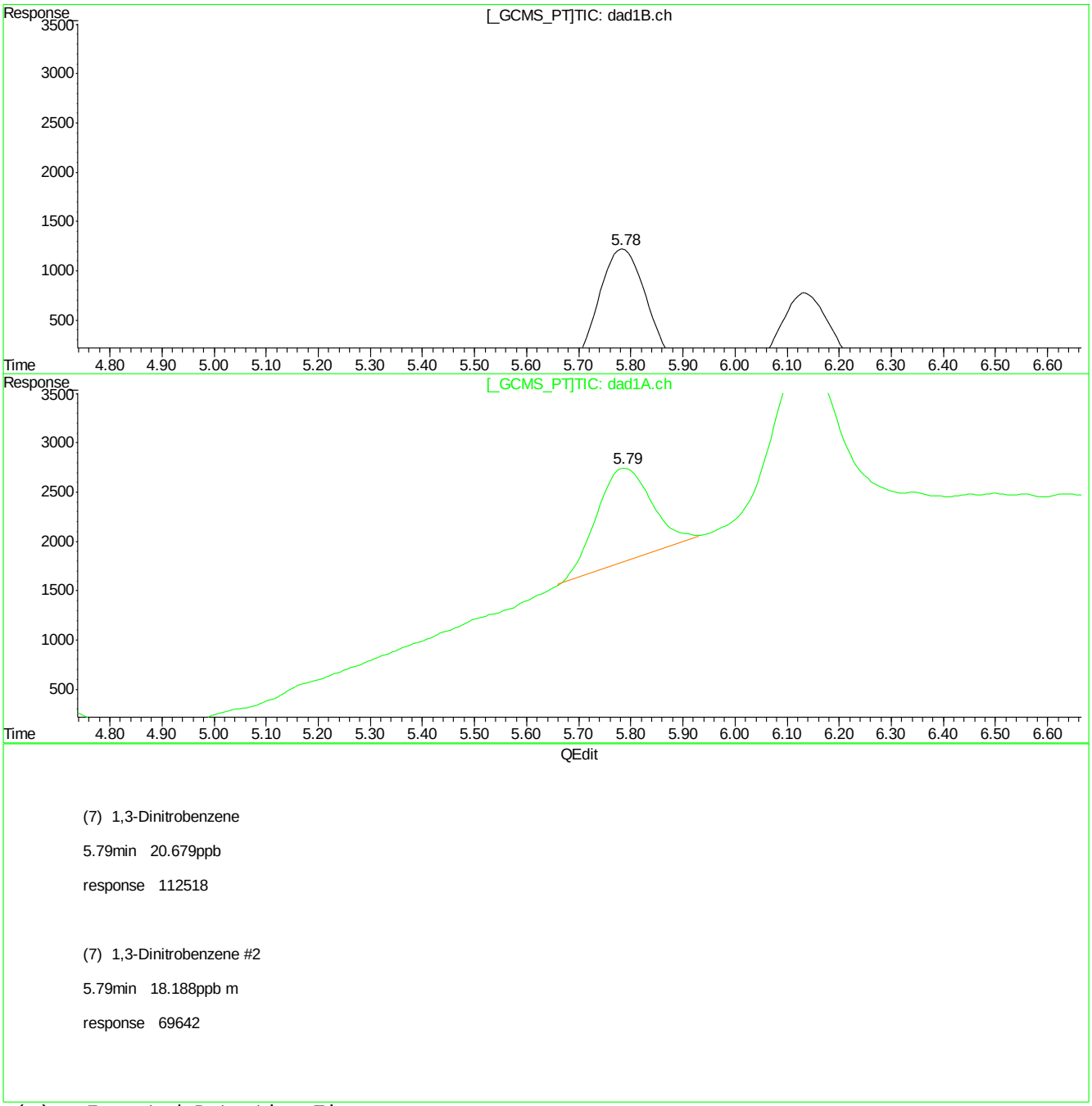
response 170401

(+) = Expected Retention Time
BB066559.D 8330B_082219_PLUS.M Fri Oct 11 15:41:38 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration



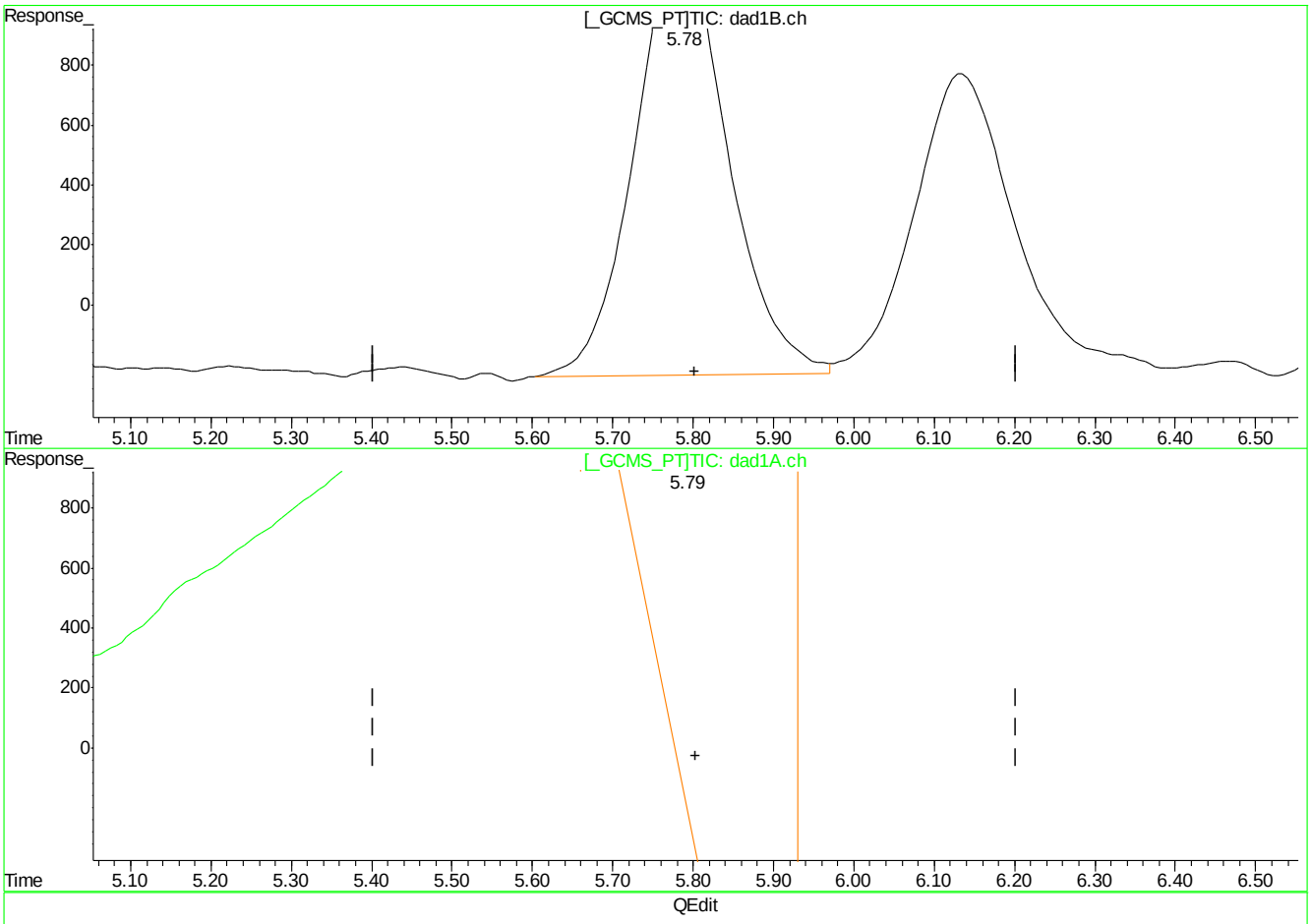
(+) = Expected Retention Time
BB066559.D 8330B_082219_PLUS.M Fri Oct 11 15:41:45 2019

BB066559.D edits: 1,3-Dinitrobenzene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration



(7) 1,3-Dinitrobenzene

5.78min 21.049ppb m

response 114534

(7) 1,3-Dinitrobenzene #2

5.79min 18.188ppb m

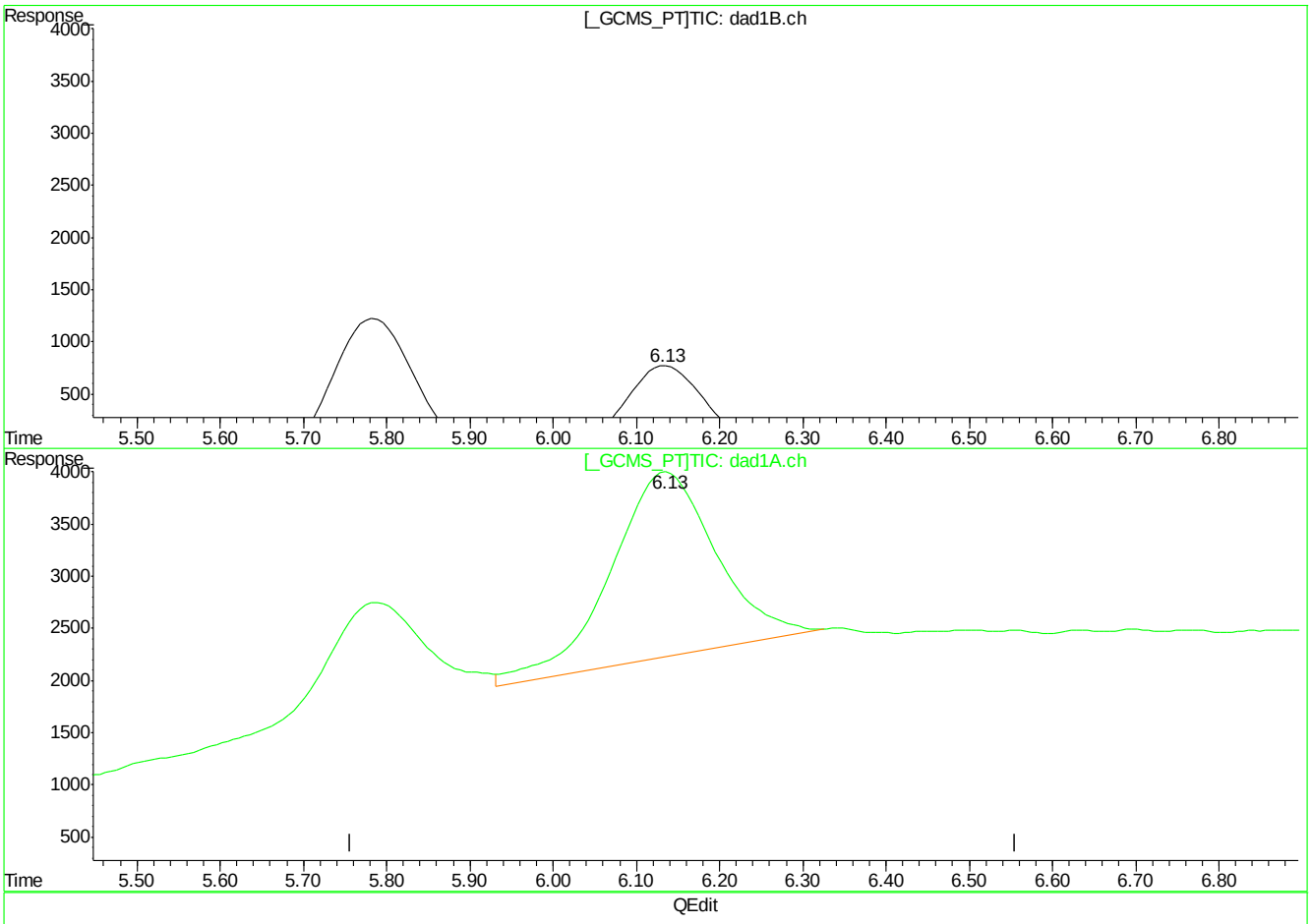
response 69642

(+) = Expected Retention Time
BB066559.D 8330B_082219_PLUS.M Fri Oct 11 15:41:50 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration



(8) 3,5-Dinitroaniline

6.14min 20.484ppb

response 84916

(8) 3,5-Dinitroaniline #2

6.13min 21.349ppb m

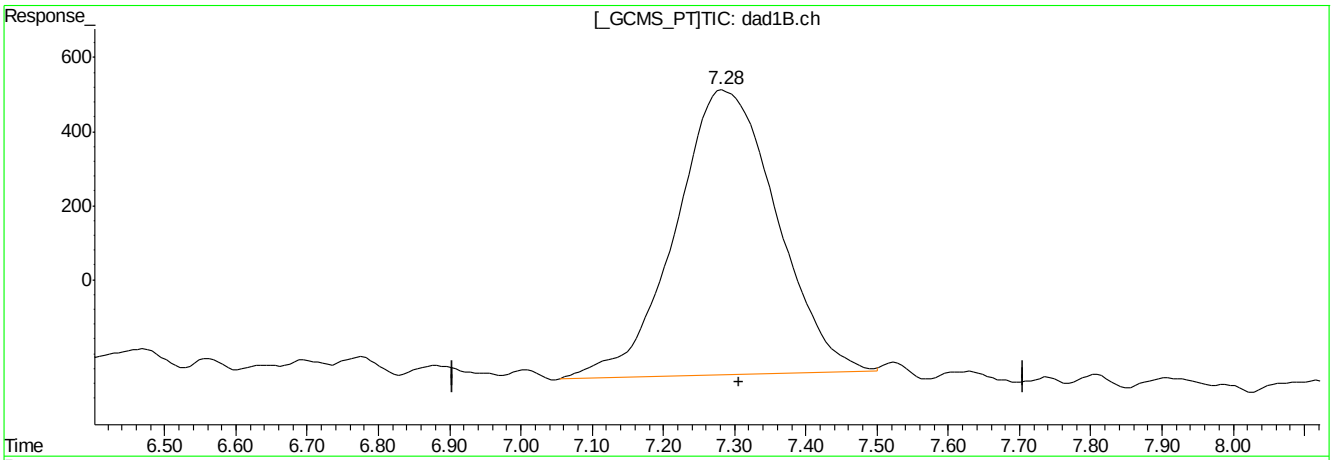
response 155341

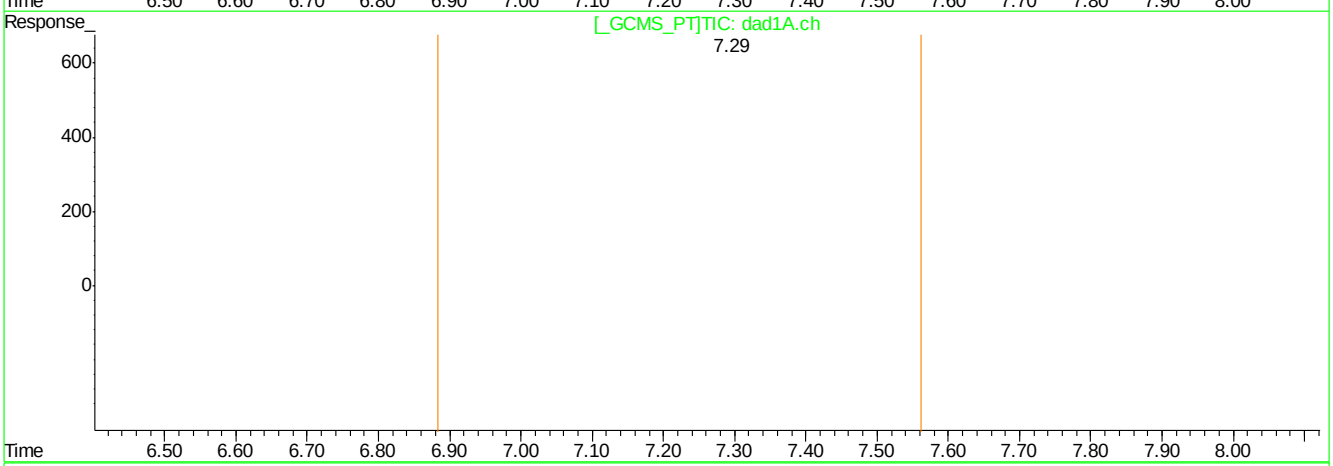
(+) = Expected Retention Time
BB066559.D 8330B_082219_PLUS.M Fri Oct 11 15:41:59 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration





QEdit

(9) Nitrobenzene

7.28min 24.088ppb m

response 76075

(9) Nitrobenzene #2

7.29min 24.715ppb

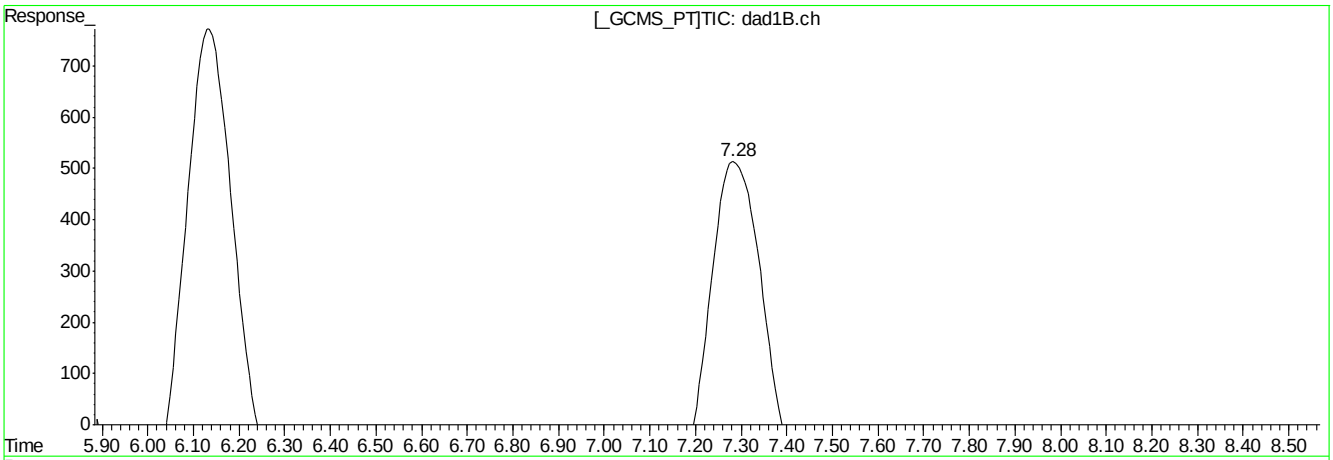
response 78016

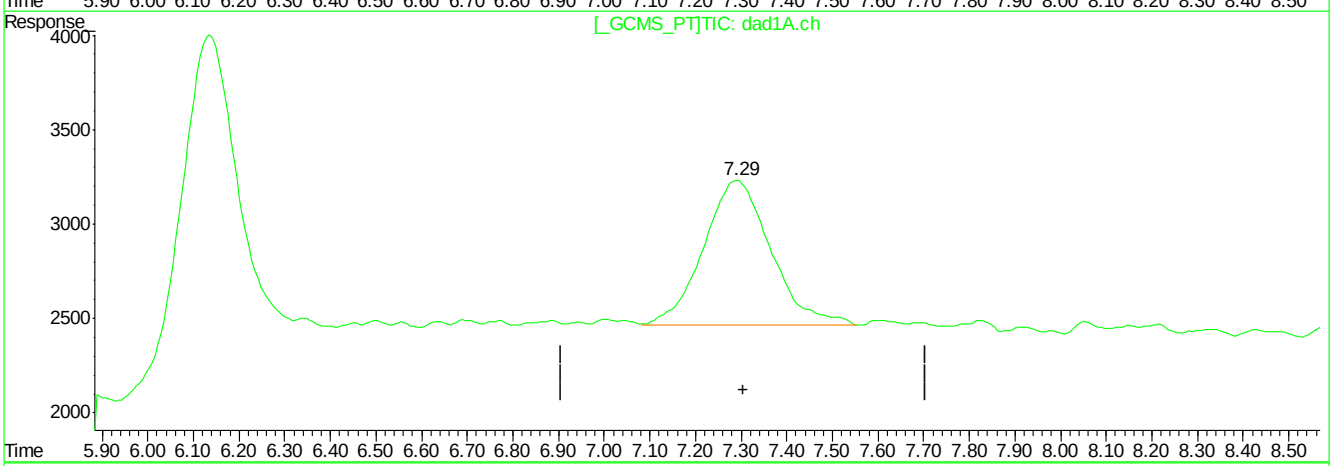
(+) = Expected Retention Time
BB066559.D 8330B_082219_PLUS.M Fri Oct 11 15:42:05 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration





QEdit

(9) Nitrobenzene

7.28min 24.088ppb m

response 76075

(9) Nitrobenzene #2

7.29min 24.721ppb m

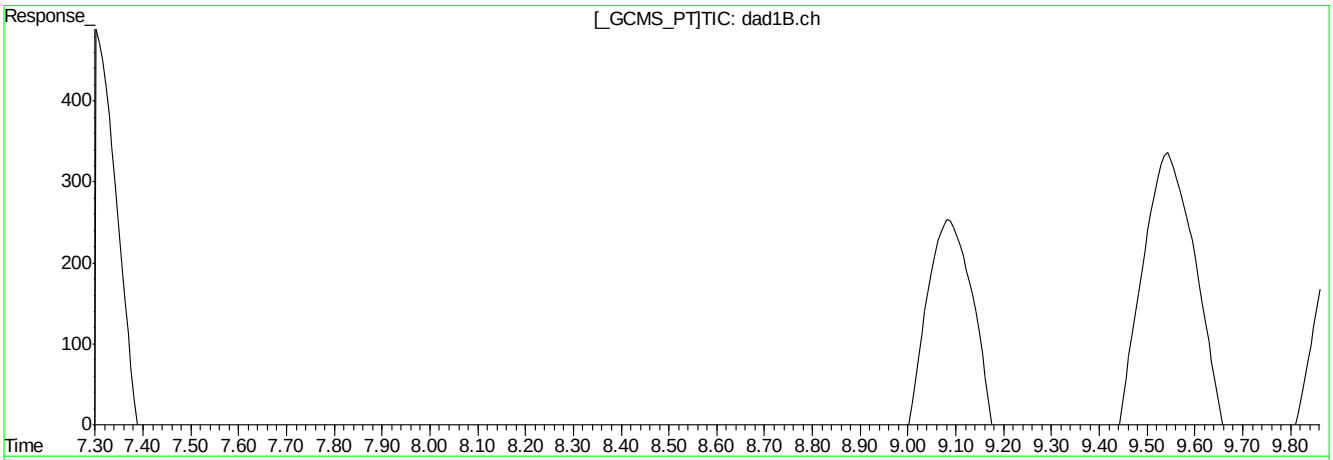
response 78035

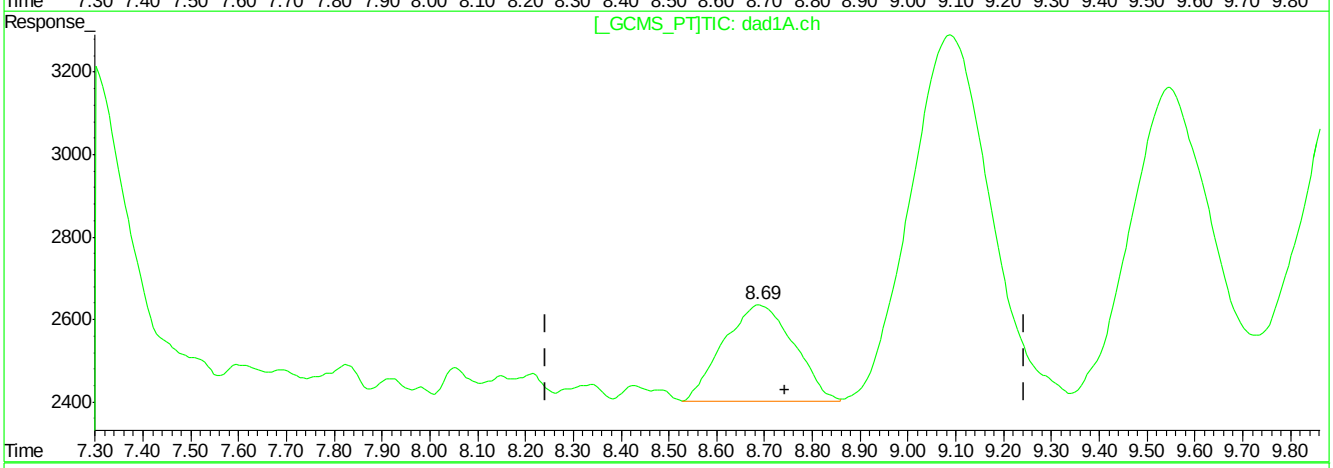
(+) = Expected Retention Time
BB066559.D 8330B_082219_PLUS.M Fri Oct 11 15:42:11 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration





QEdit

(10) Nitroglycerin

0.00min 0.000ppb

response 0

(10) Nitroglycerin #2

8.69min 19.355ppb m

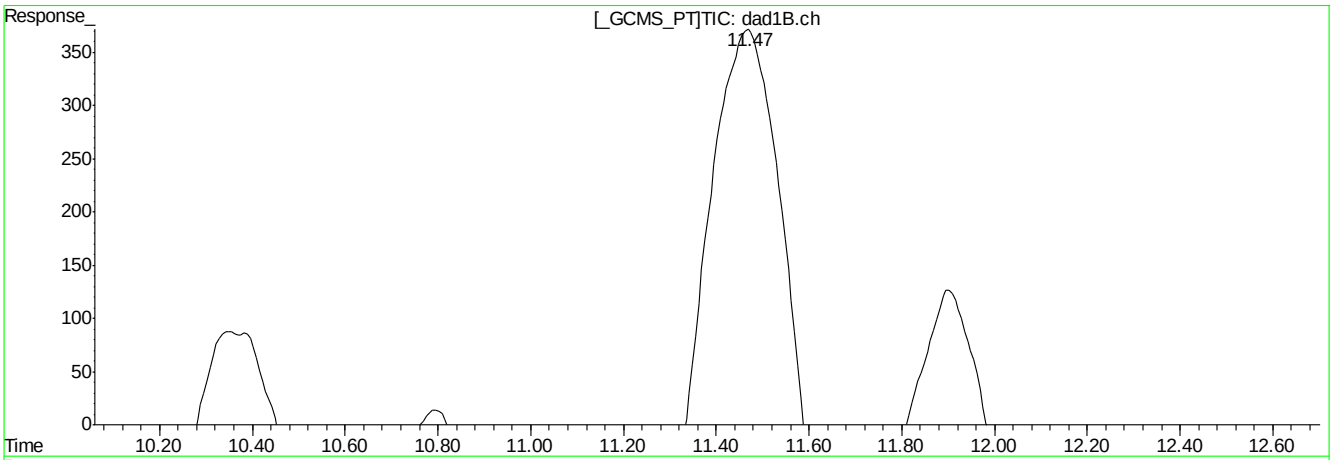
response 23706

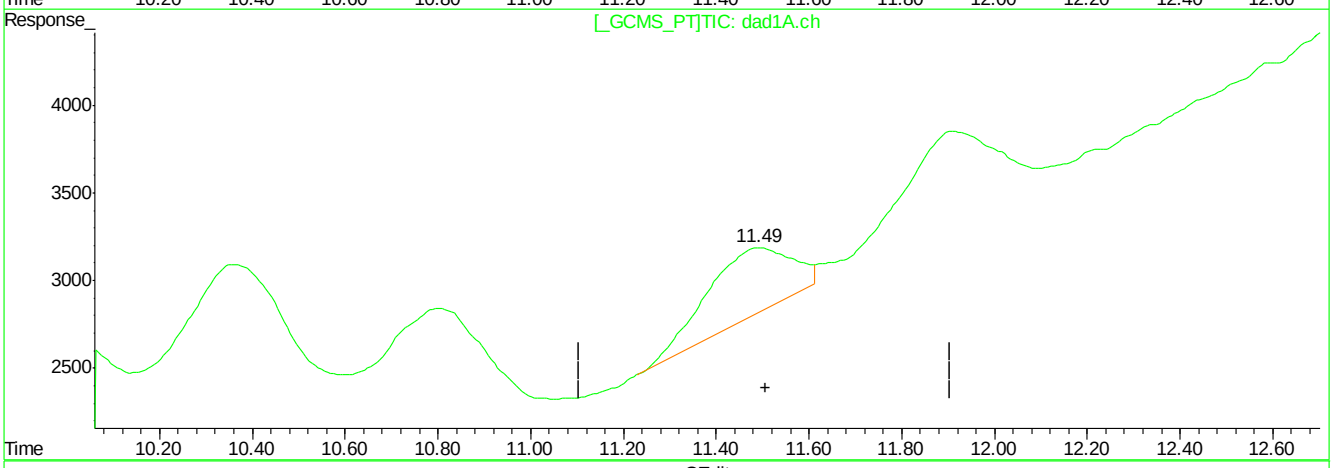
(+) = Expected Retention Time
BB066559.D 8330B_082219_PLUS.M Fri Oct 11 15:42:18 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration





QEdit

(16) 2,4-Dinitrotoluene

11.47min 20.760ppb

response 100734

(16) 2,4-Dinitrotoluene #2

11.49min 16.428ppb m

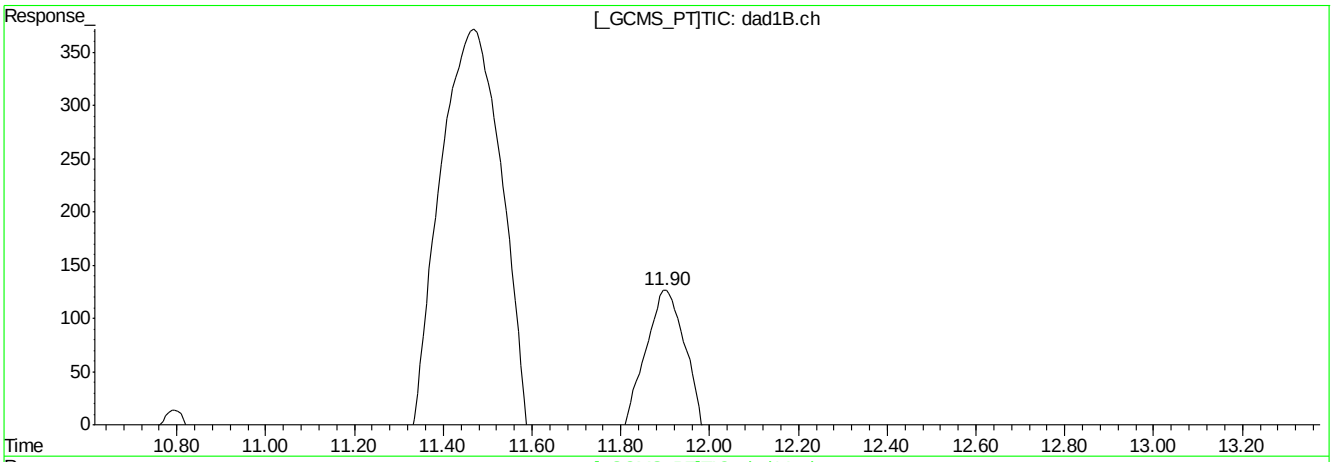
response 49044

(+) = Expected Retention Time
BB066559.D 8330B_082219_PLUS.M Fri Oct 11 15:42:30 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration



(17) 2,6-Dinitrotoluene

11.90min 24.135ppb

response 65950

(17) 2,6-Dinitrotoluene #2

11.91min 19.088ppb m

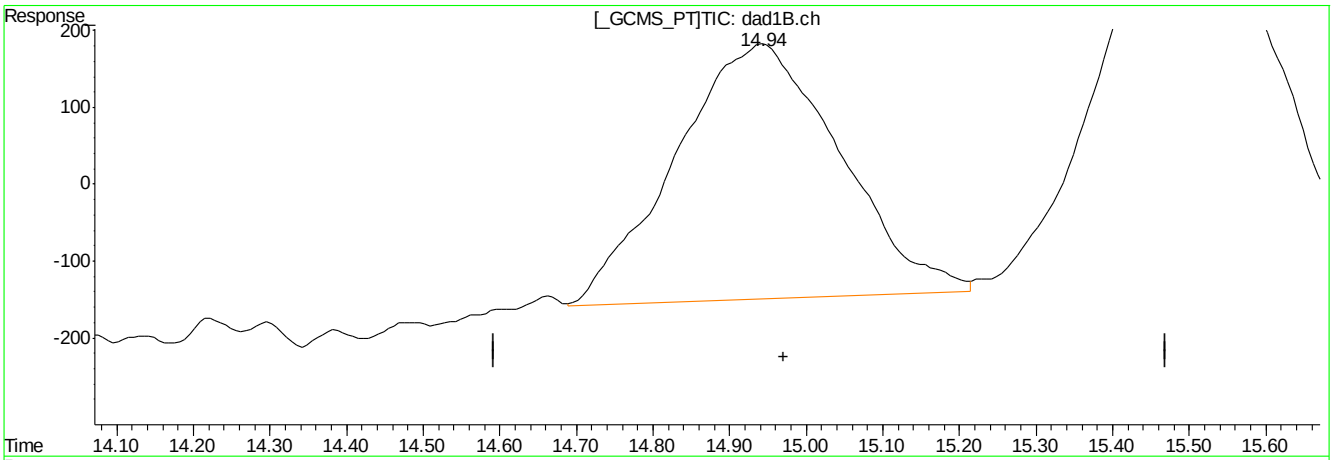
response 64586

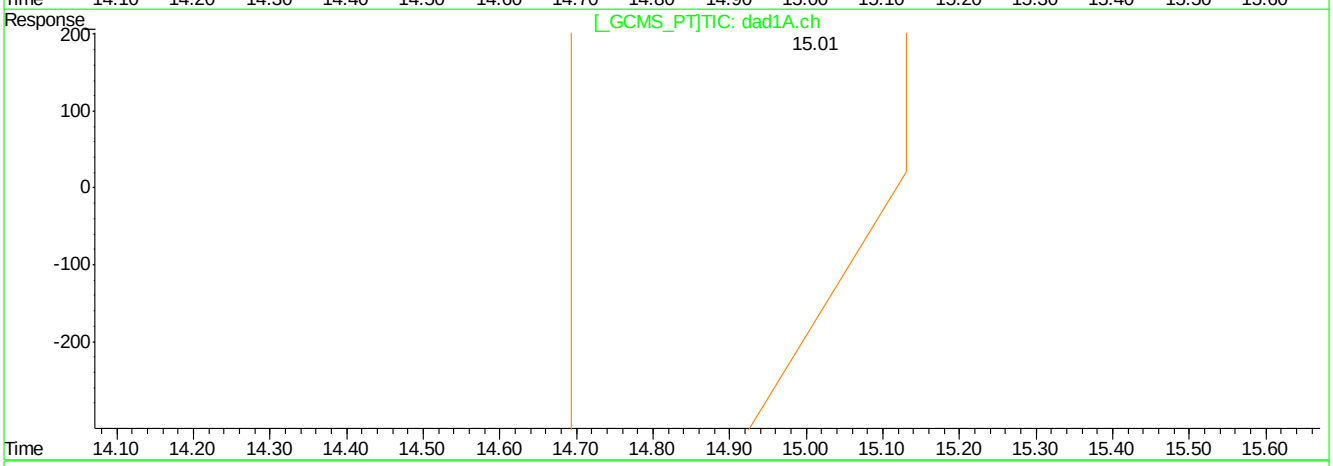
(+) = Expected Retention Time
BB066559.D 8330B_082219_PLUS.M Fri Oct 11 15:42:44 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration





QEdit

(18) o-Nitrotoluene

14.94min 21.825ppb m

response 49454

(18) o-Nitrotoluene #2

15.01min 22.696ppb m

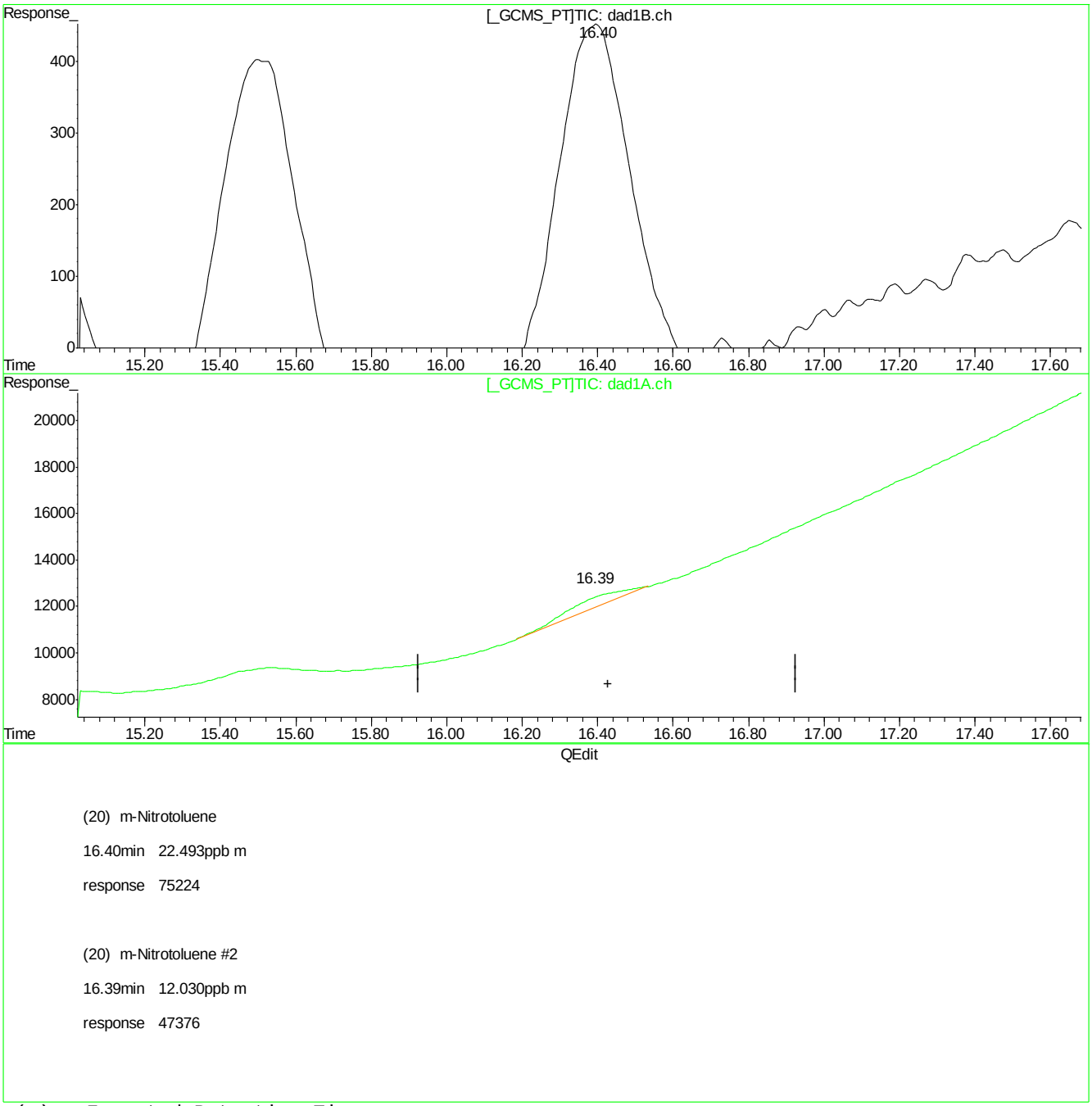
response 69542

(+) = Expected Retention Time
BB066559.D 8330B_082219_PLUS.M Fri Oct 11 15:42:59 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration

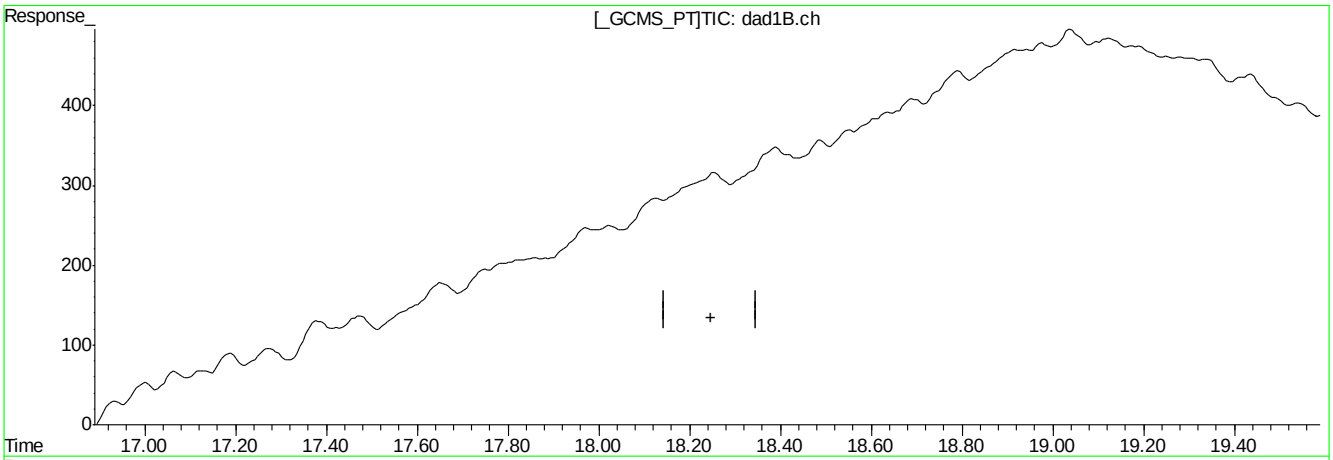


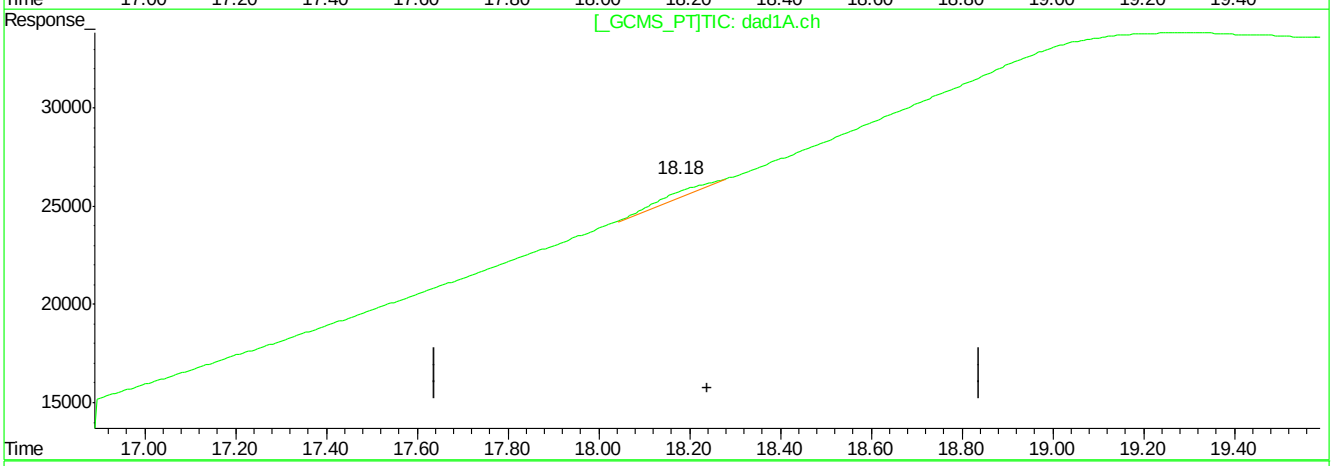
(+) = Expected Retention Time
BB066559.D 8330B_082219_PLUS.M Fri Oct 11 15:44:01 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

18.18min 19.911ppb m

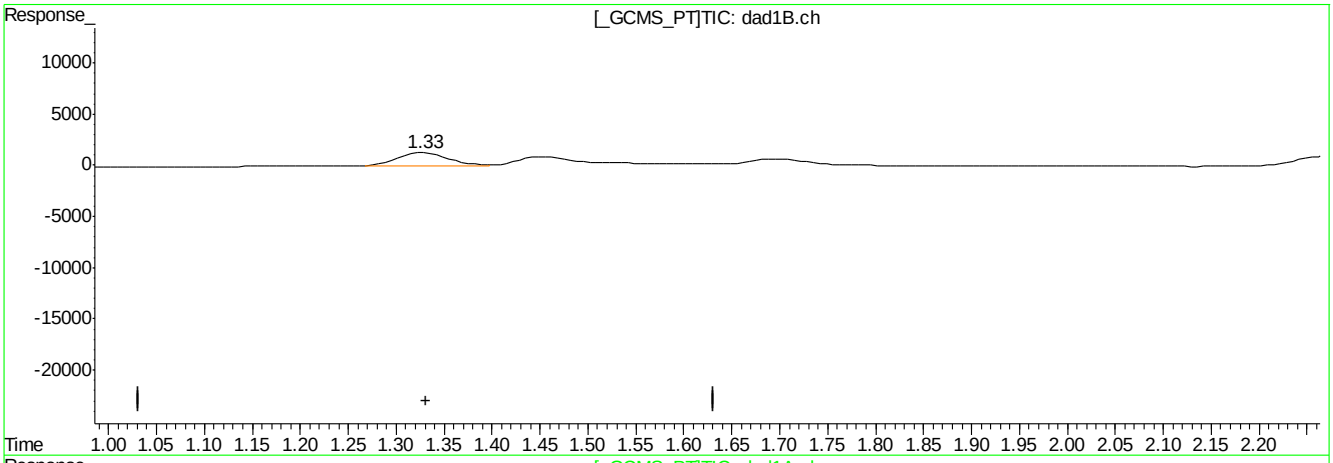
response 28080

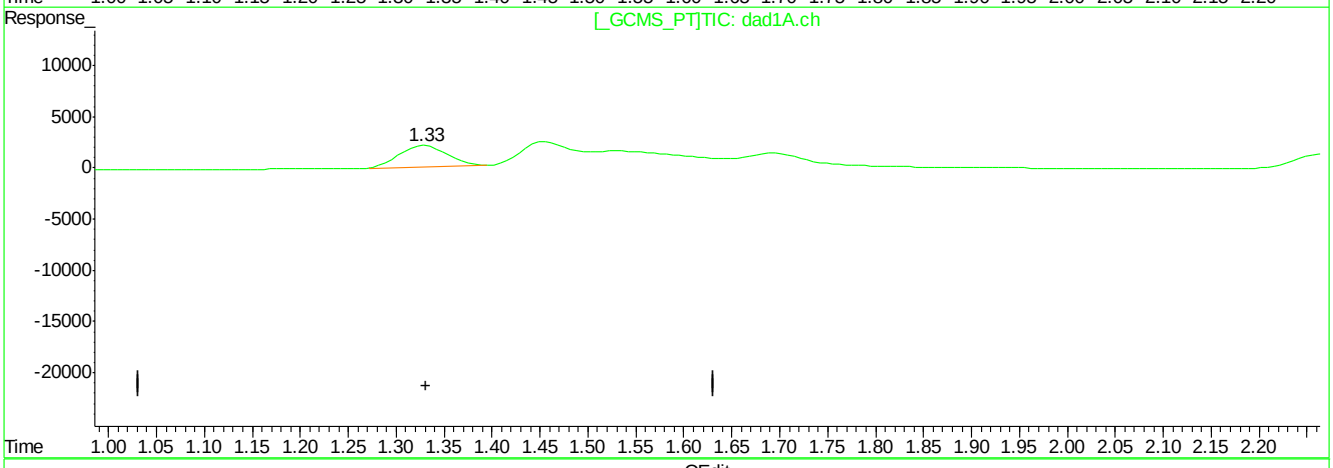
(+) = Expected Retention Time
BB066559.D 8330B_082219_PLUS.M Fri Oct 11 15:44:06 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:44 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:39:30 2019
Response via : Multiple Level Calibration





QEdit

(1) TNX

1.33min 21.656ppb m

response 46551

(1) TNX #2

1.33min 20.214ppb m

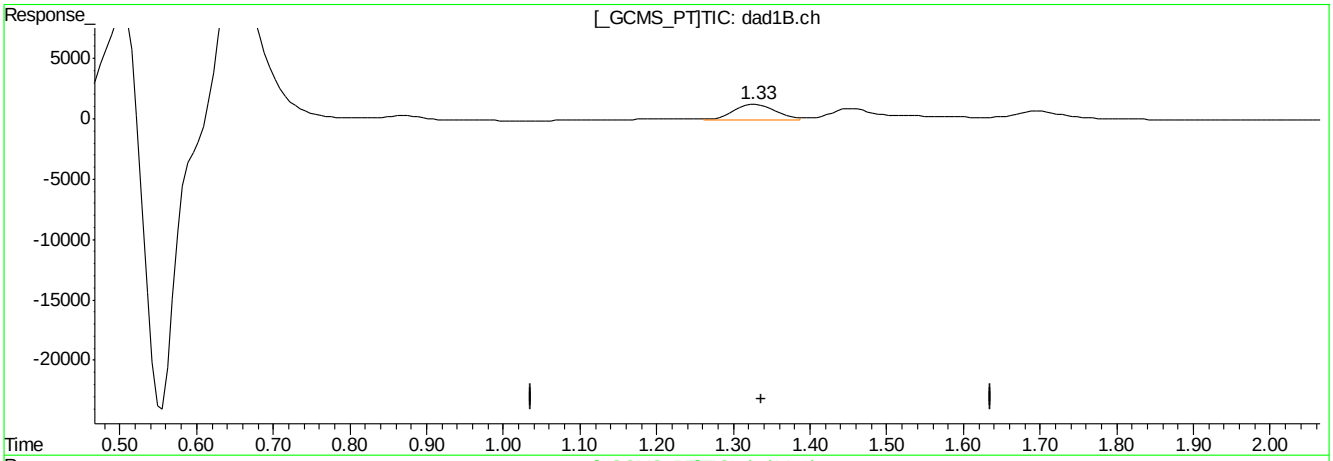
response 71501

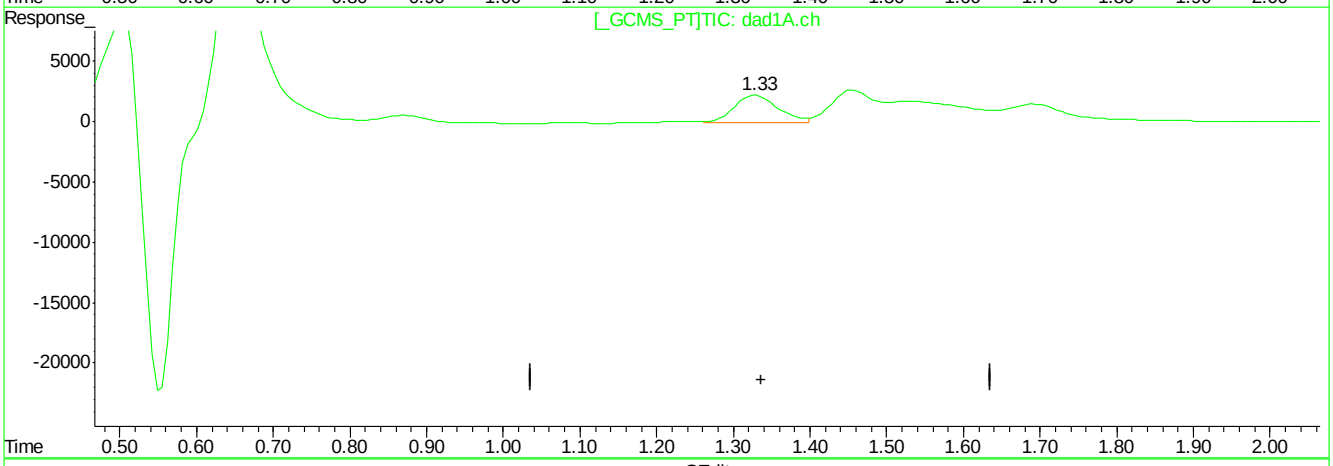
(+) = Expected Retention Time
BB066559.D 8330B_082219_PLUS.M Fri Oct 11 16:40:08 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(1) TNX

1.33min 17.146ppb m

response 48105

(1) TNX #2

1.33min 19.624ppb m

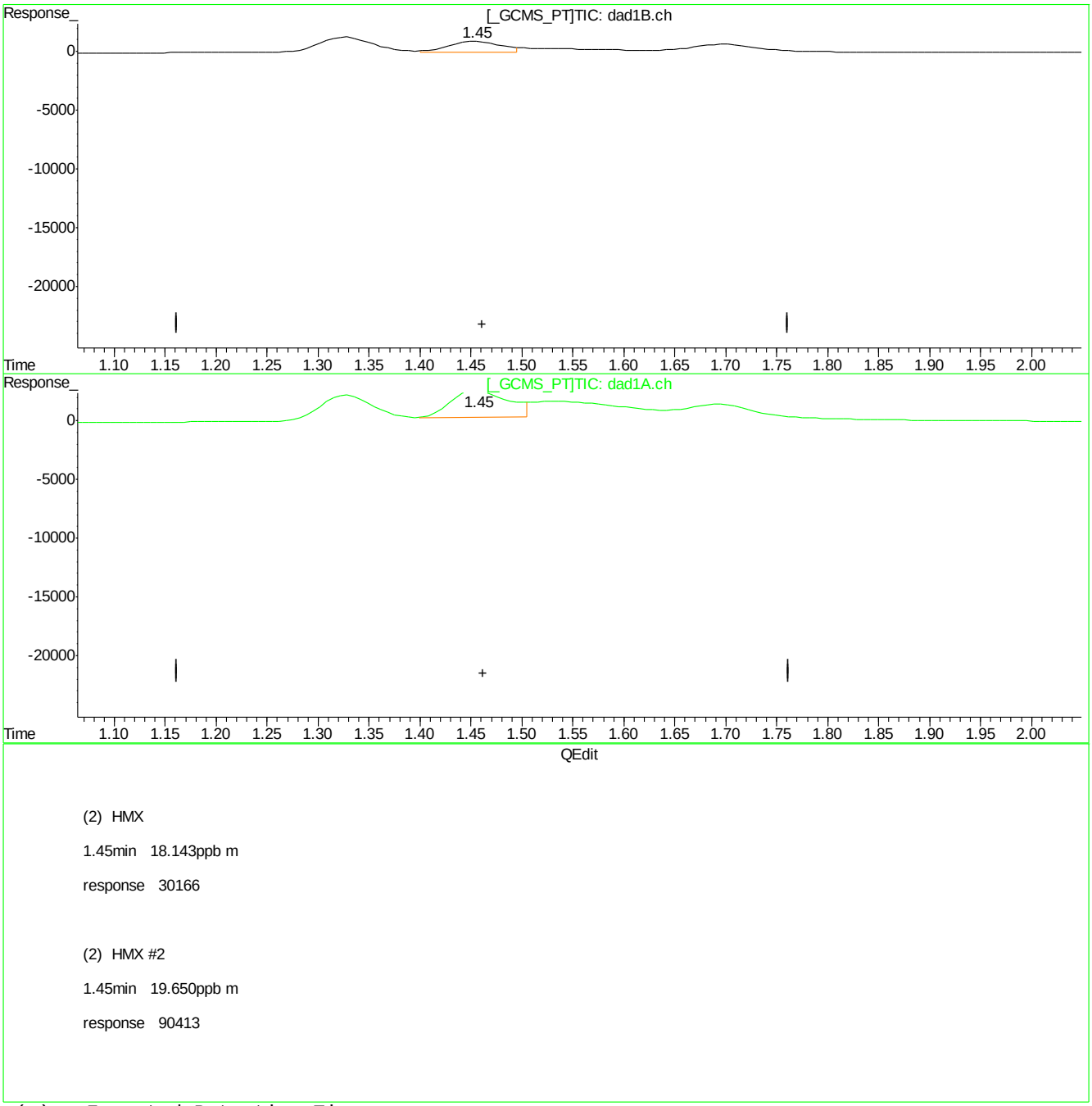
response 88038

(+) = Expected Retention Time
BB066559.D 8330B_101119_PLUS.M Mon Oct 14 09:32:40 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration



(2) HMX

1.45min 18.143ppb m

response 30166

(2) HMX #2

1.45min 19.650ppb m

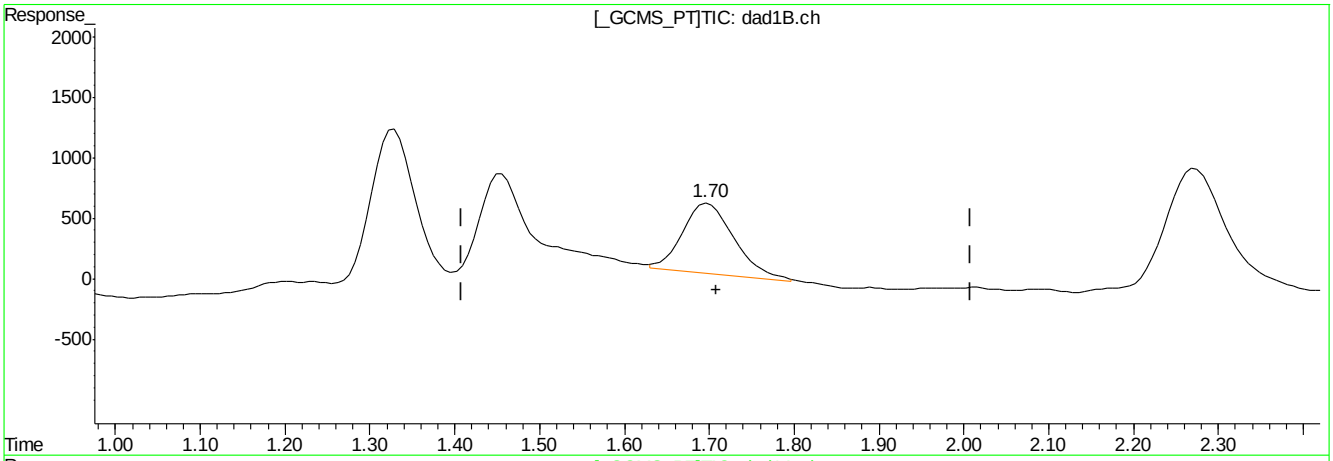
response 90413

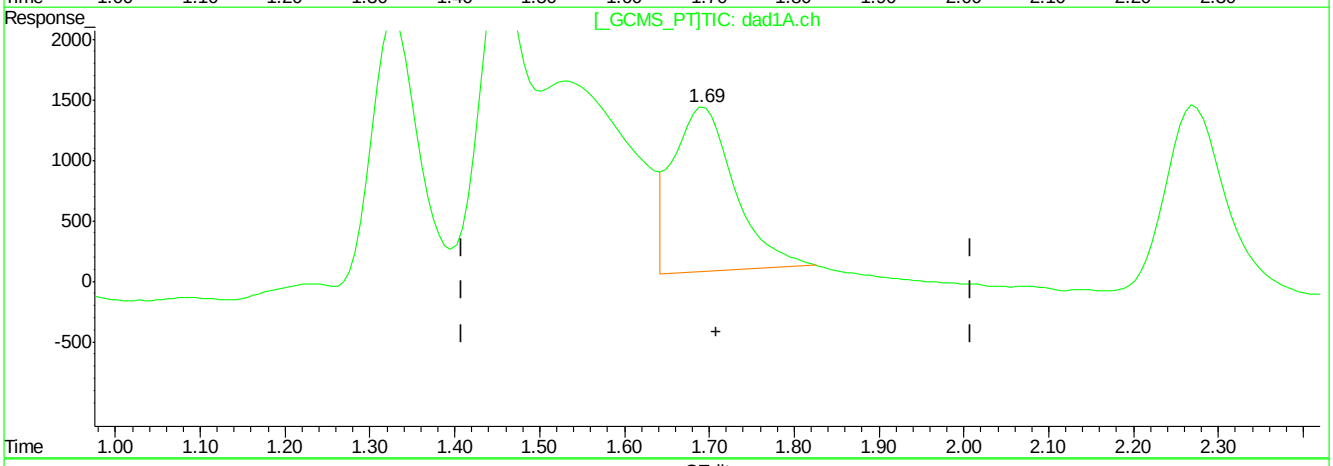
(+) = Expected Retention Time
BB066559.D 8330B_101119_PLUS.M Mon Oct 14 09:32:52 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(3) DNX

1.70min 17.343ppb m

response 24431

(3) DNX #2

1.69min 29.644ppb m

response 69002

(+) = Expected Retention Time
BB066559.D 8330B_101119_PLUS.M Mon Oct 14 09:33:13 2019

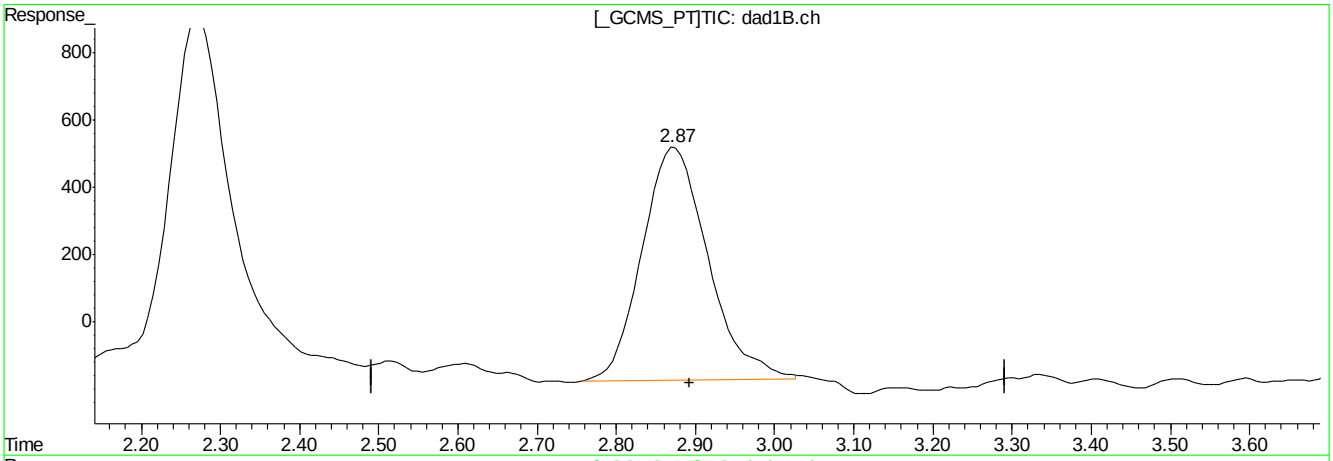
9.5.1.30

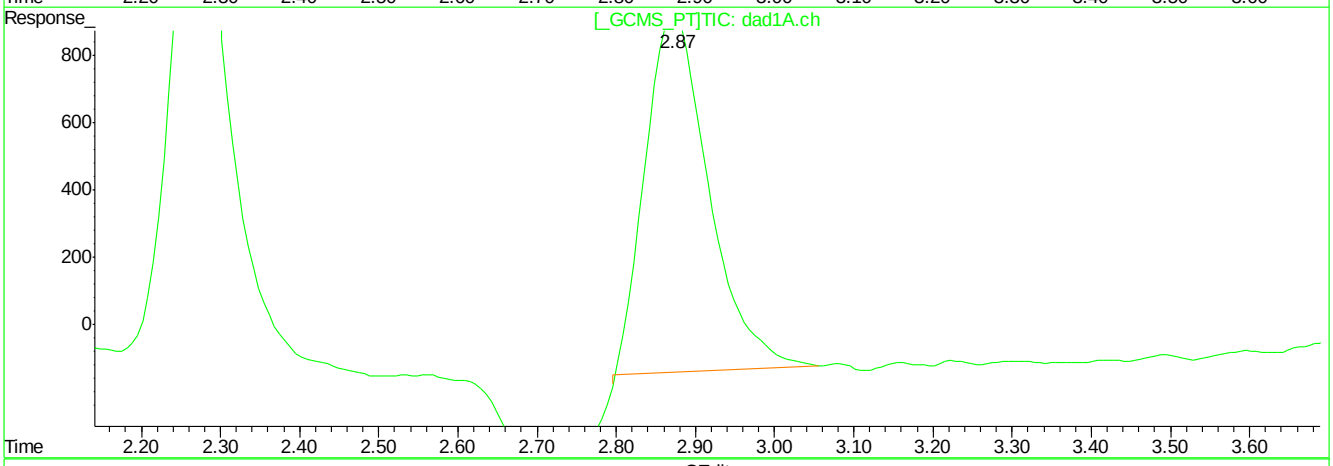
9

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(5) RDX

2.87min 19.798ppb m

response 39955

(5) RDX #2

2.87min 18.489ppb m

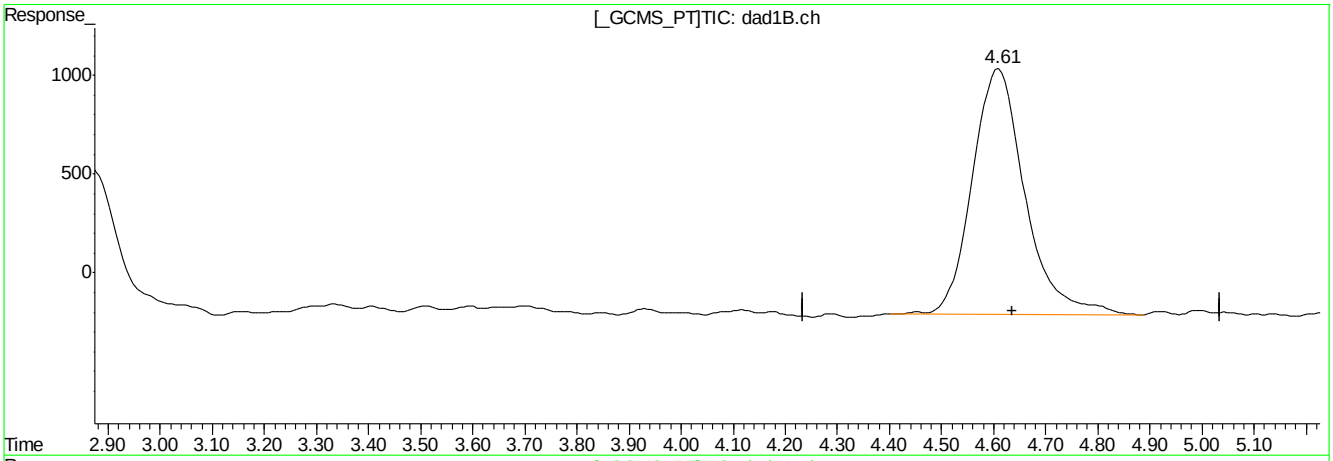
response 59171

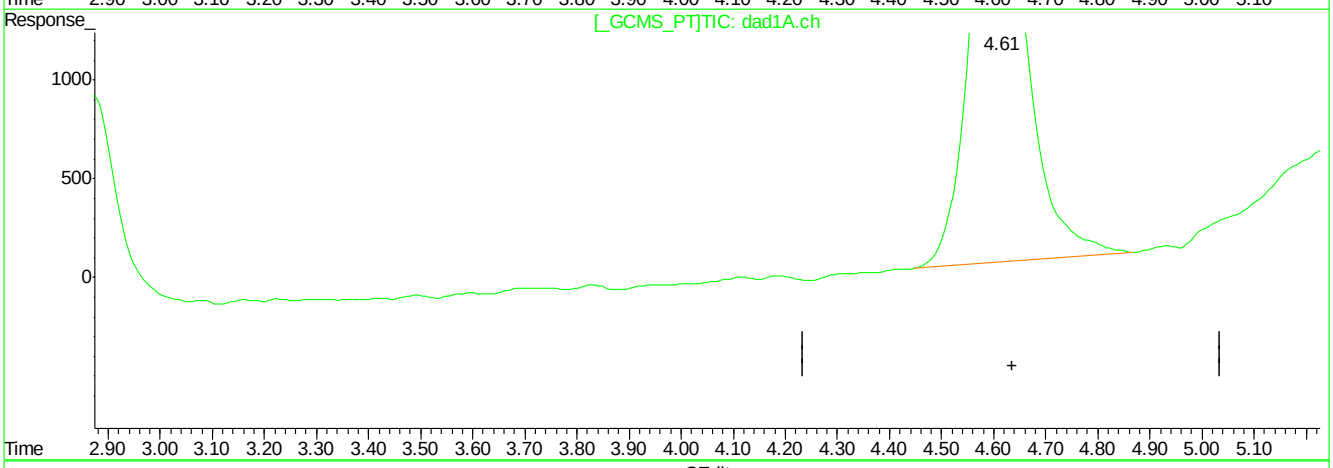
(+) = Expected Retention Time
BB066559.D 8330B_101119_PLUS.M Mon Oct 14 09:33:26 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(6) 1,3,5-Trinitrobenzene

4.61min 19.839ppb

response 87965

(6) 1,3,5-Trinitrobenzene #2

4.61min 20.357ppb m

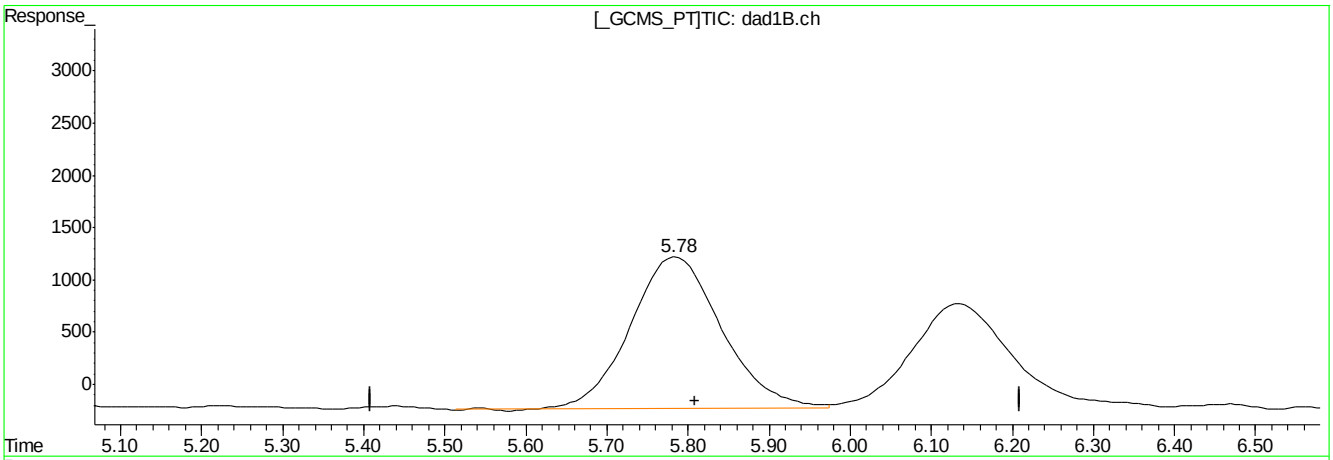
response 170013

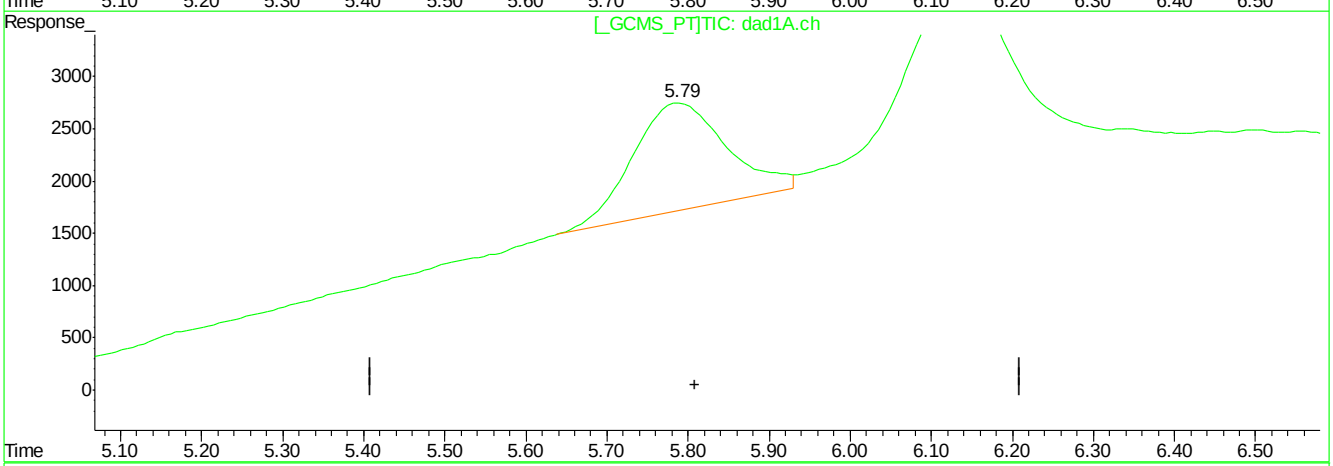
(+) = Expected Retention Time
BB066559.D 8330B_101119_PLUS.M Mon Oct 14 09:33:33 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

5.79min 20.015ppb

response 112518

(7) 1,3-Dinitrobenzene #2

5.79min 21.721ppb m

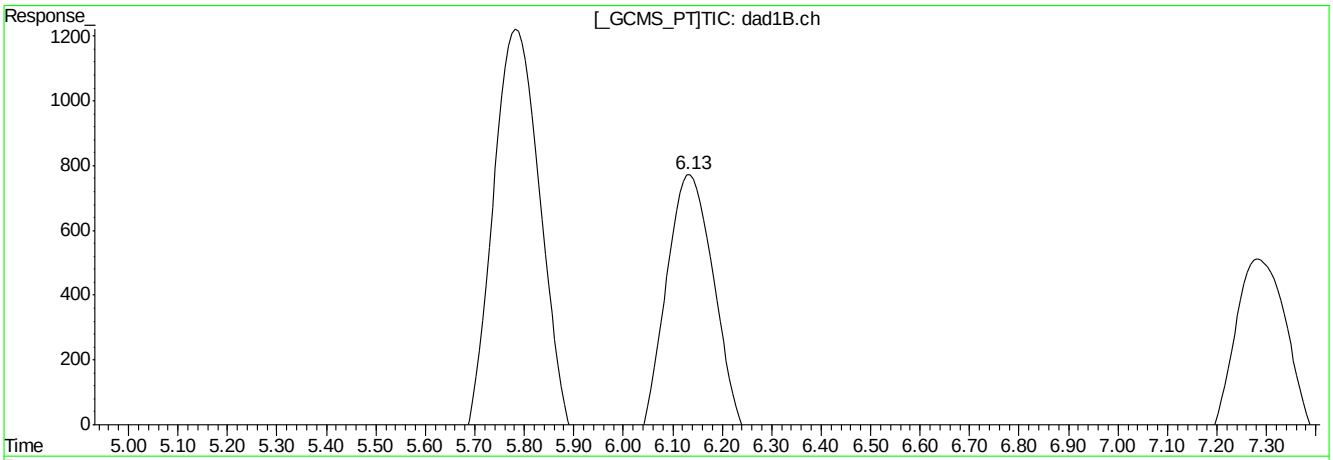
response 83273

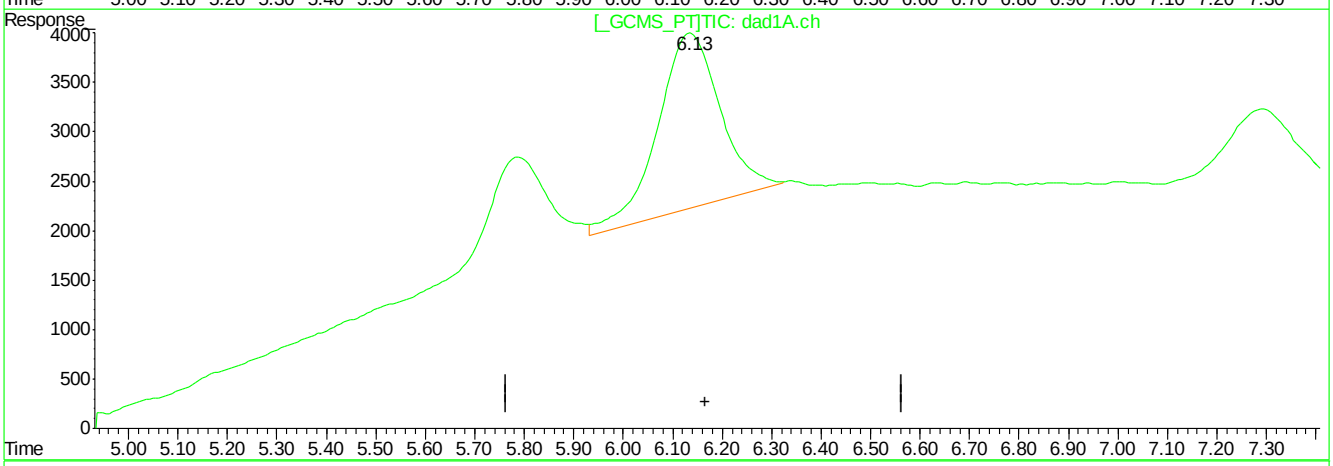
(+) = Expected Retention Time
BB066559.D 8330B_101119_PLUS.M Mon Oct 14 09:33:44 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.14min 19.824ppb

response 84916

(8) 3,5-Dinitroaniline #2

6.13min 21.101ppb m

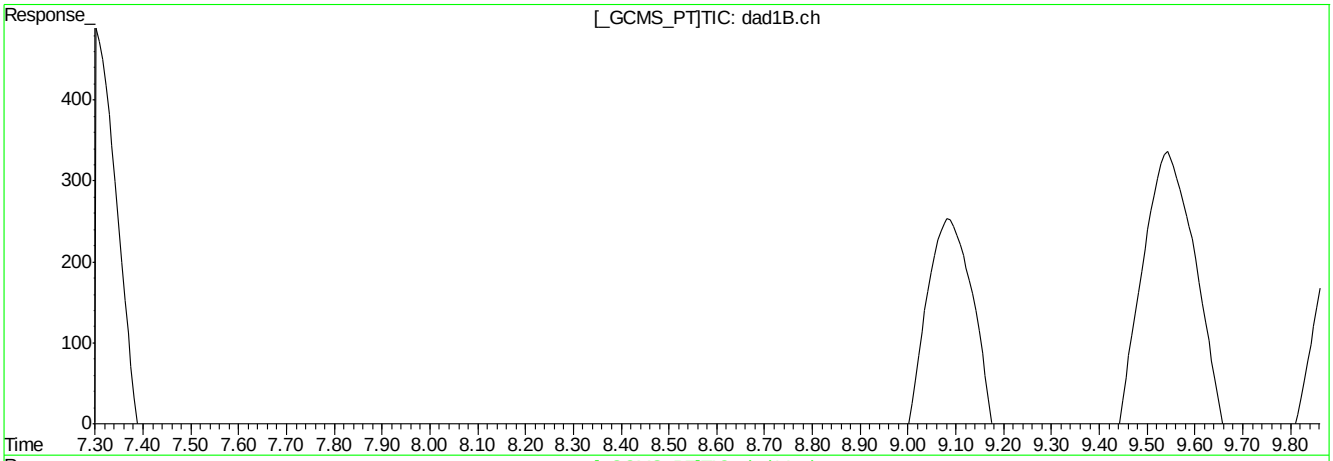
response 155751

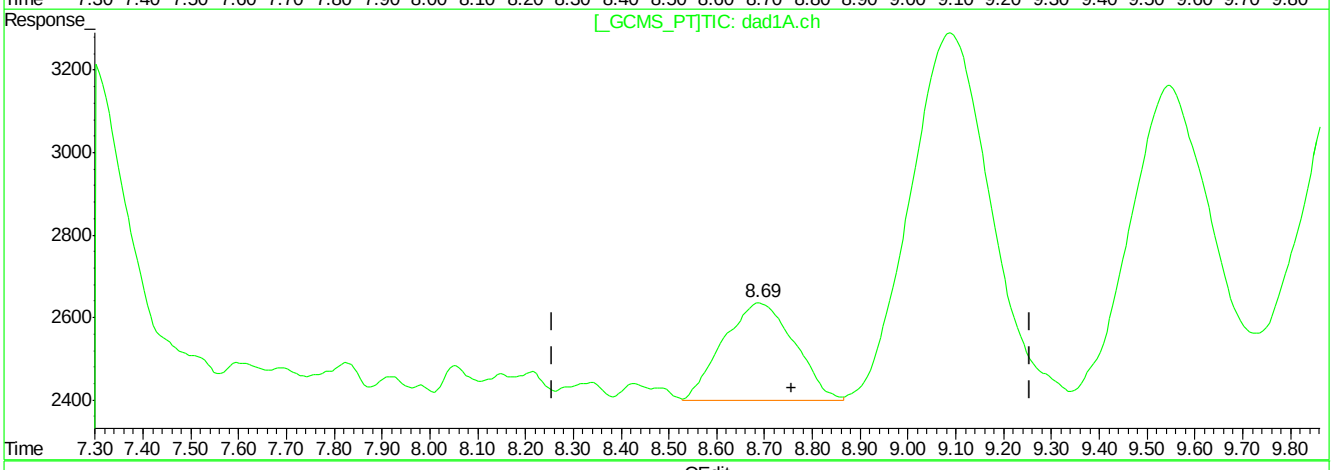
(+) = Expected Retention Time
BB066559.D 8330B_101119_PLUS.M Mon Oct 14 09:33:55 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(10) Nitroglycerin

0.00min 0.000ppb

response 0

(10) Nitroglycerin #2

8.69min 19.106ppb m

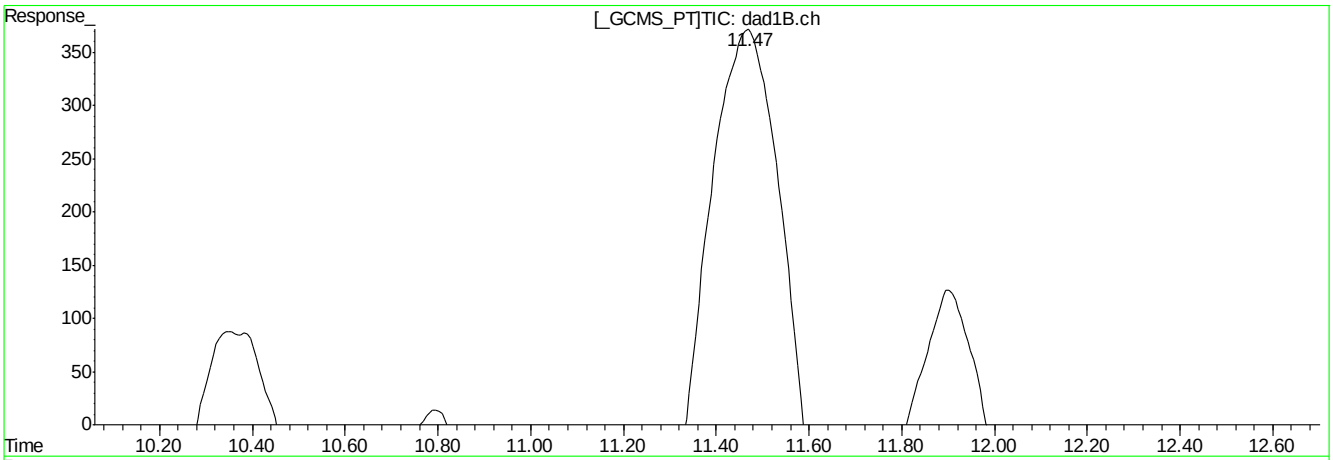
response 24733

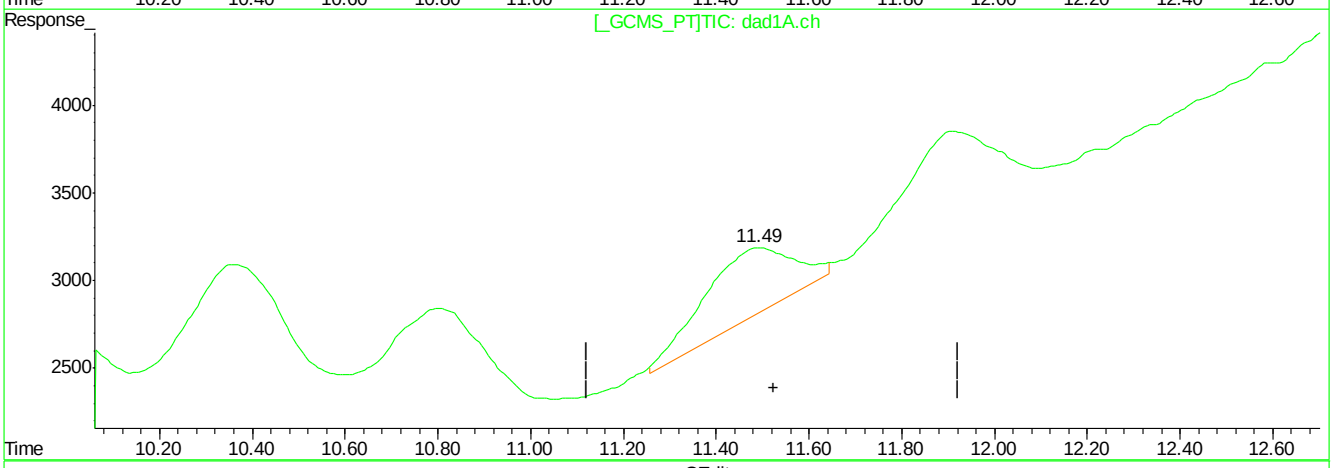
(+) = Expected Retention Time
BB066559.D 8330B_101119_PLUS.M Mon Oct 14 09:34:06 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(16) 2,4-Dinitrotoluene

11.47min 20.237ppb

response 100734

(16) 2,4-Dinitrotoluene #2

11.49min 17.039ppb m

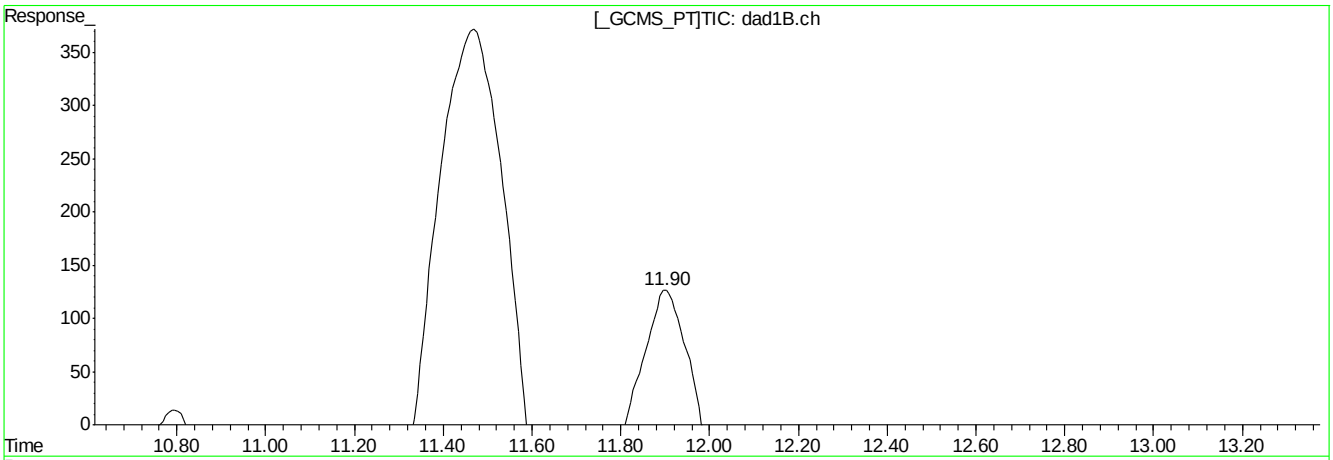
response 52740

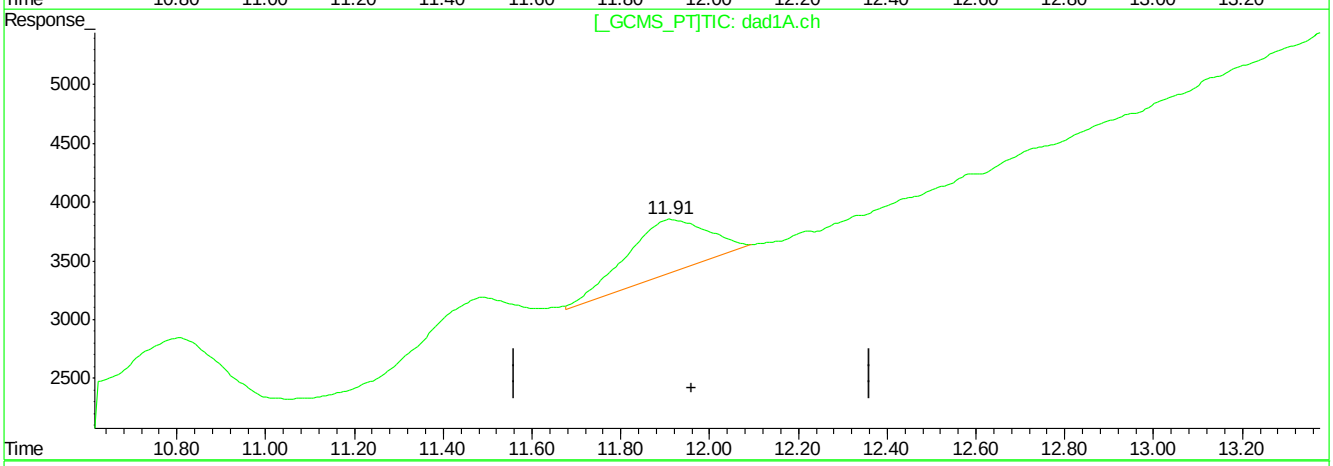
(+) = Expected Retention Time
BB066559.D 8330B_101119_PLUS.M Mon Oct 14 09:34:16 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(17) 2,6-Dinitrotoluene

11.90min 22.178ppb

response 65950

(17) 2,6-Dinitrotoluene #2

11.91min 15.854ppb m

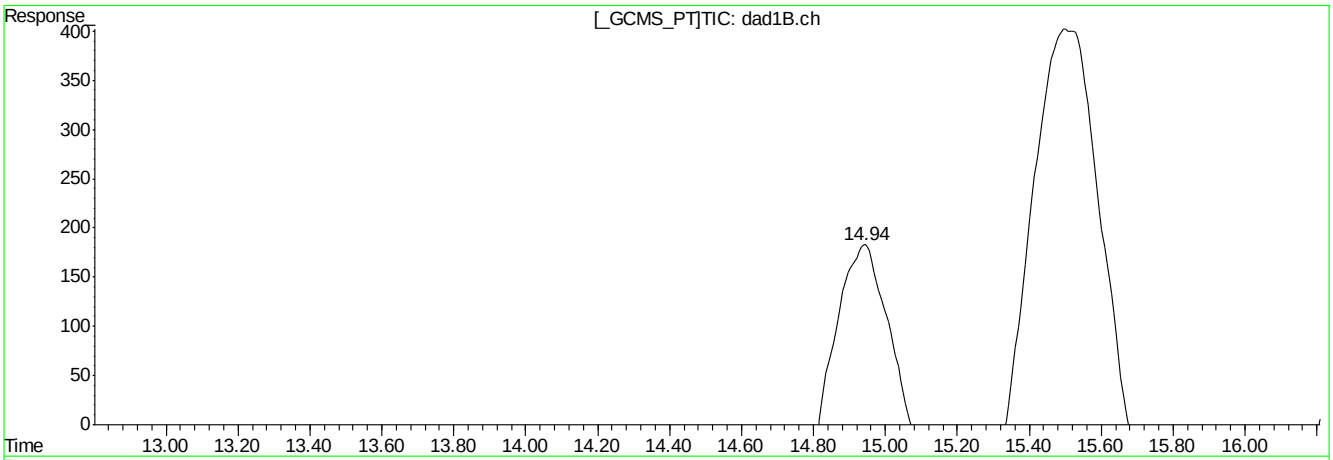
response 58089

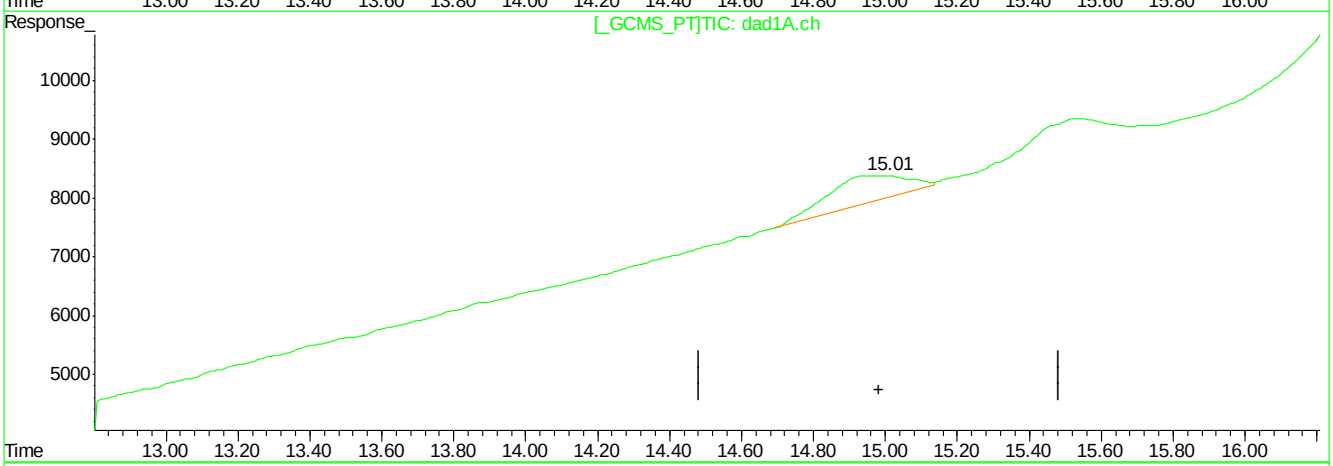
(+) = Expected Retention Time
BB066559.D 8330B_101119_PLUS.M Mon Oct 14 09:34:24 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(18) o-Nitrotoluene

14.94min 27.849ppb

response 66464

(18) o-Nitrotoluene #2

15.01min 22.386ppb m

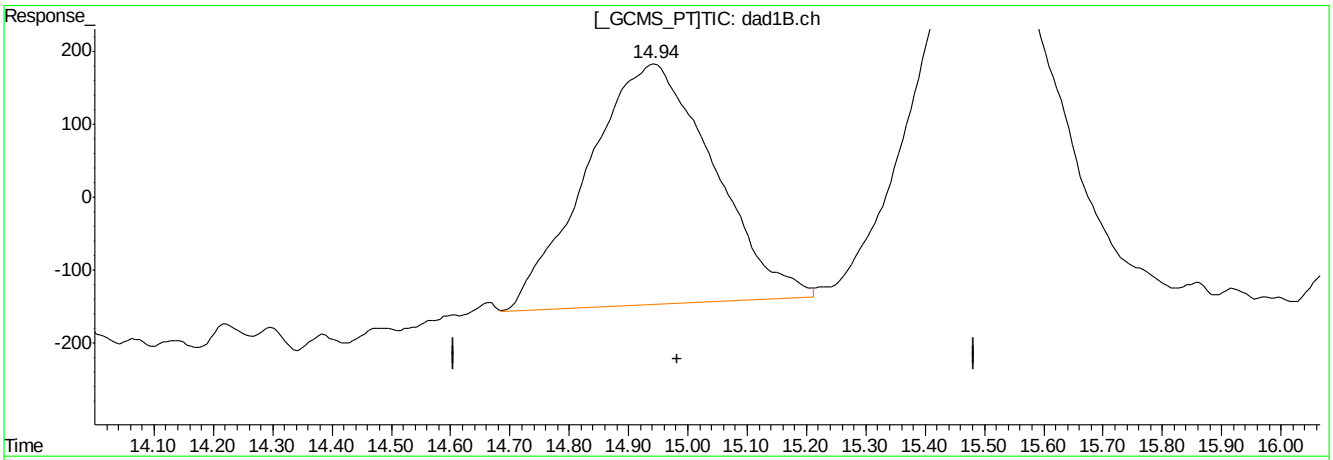
response 71154

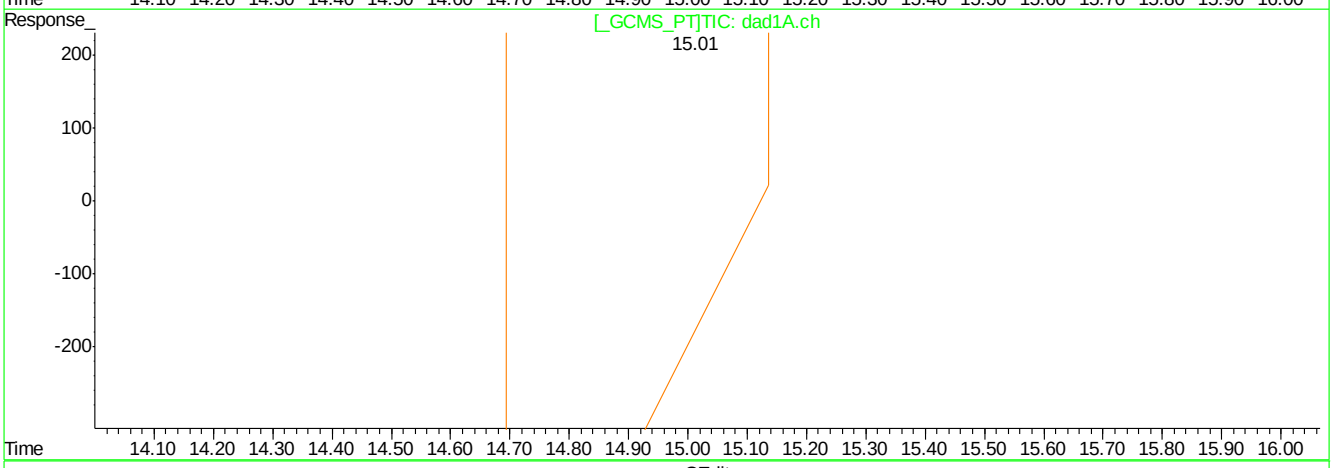
(+) = Expected Retention Time
BB066559.D 8330B_101119_PLUS.M Mon Oct 14 09:34:30 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(18) o-Nitrotoluene

14.94min 20.585ppb m

response 49128

(18) o-Nitrotoluene #2

15.01min 22.386ppb m

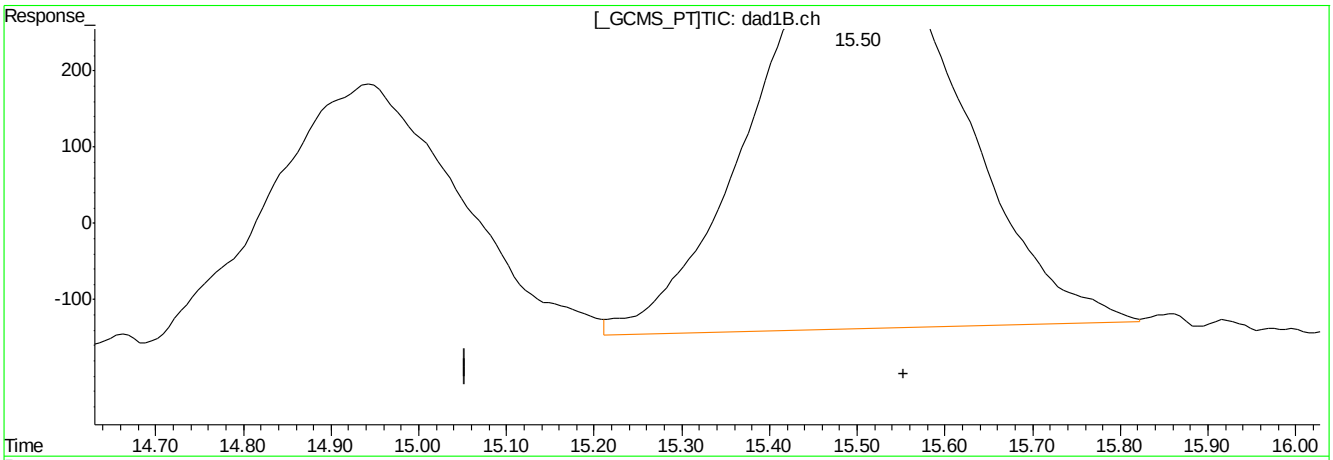
response 71154

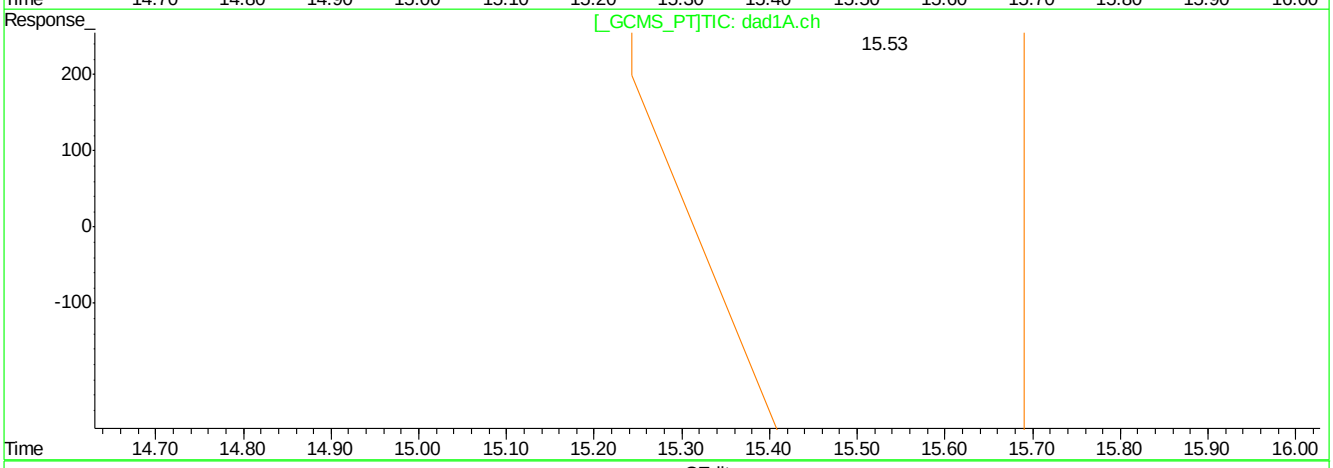
(+) = Expected Retention Time
BB066559.D 8330B_101119_PLUS.M Mon Oct 14 09:34:36 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(19) p-Nitrotoluene

15.50min 22.147ppb m

response 85365

(19) p-Nitrotoluene #2

15.53min 22.005ppb m

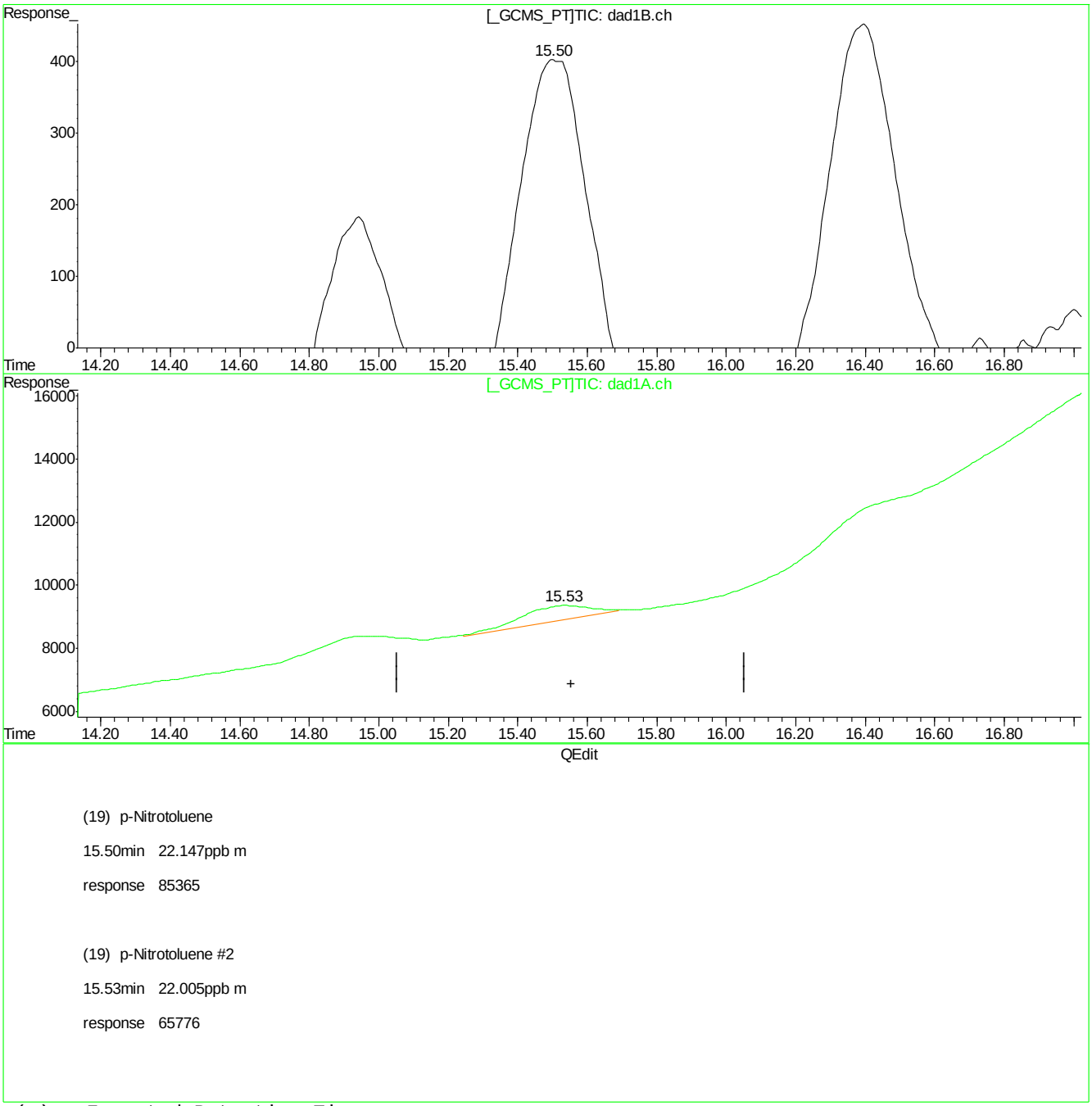
response 65776

(+) = Expected Retention Time
BB066559.D 8330B_101119_PLUS.M Mon Oct 14 09:34:47 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration



(19) p-Nitrotoluene

15.50min 22.147ppb m

response 85365

(19) p-Nitrotoluene #2

15.53min 22.005ppb m

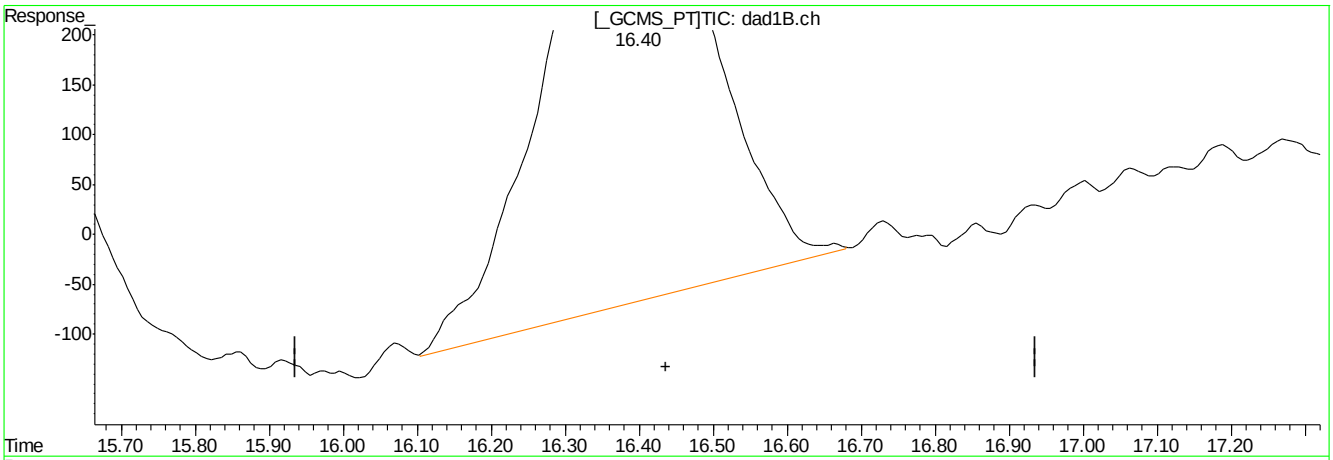
response 65776

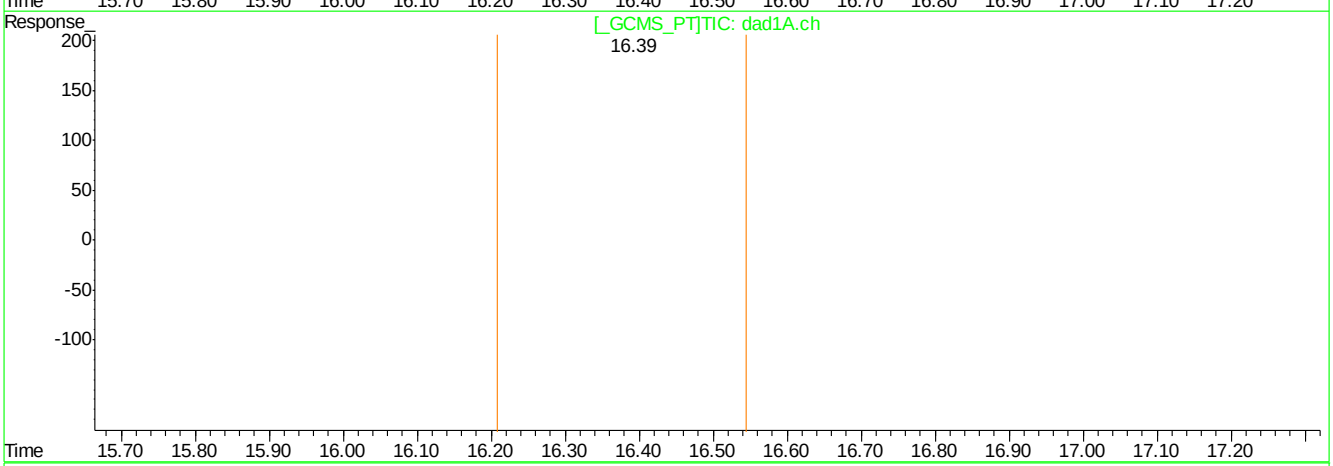
(+) = Expected Retention Time
BB066559.D 8330B_101119_PLUS.M Mon Oct 14 09:34:49 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(20) m-Nitrotoluene

16.40min 21.531ppb m

response 74840

(20) m-Nitrotoluene #2

16.39min 17.294ppb m

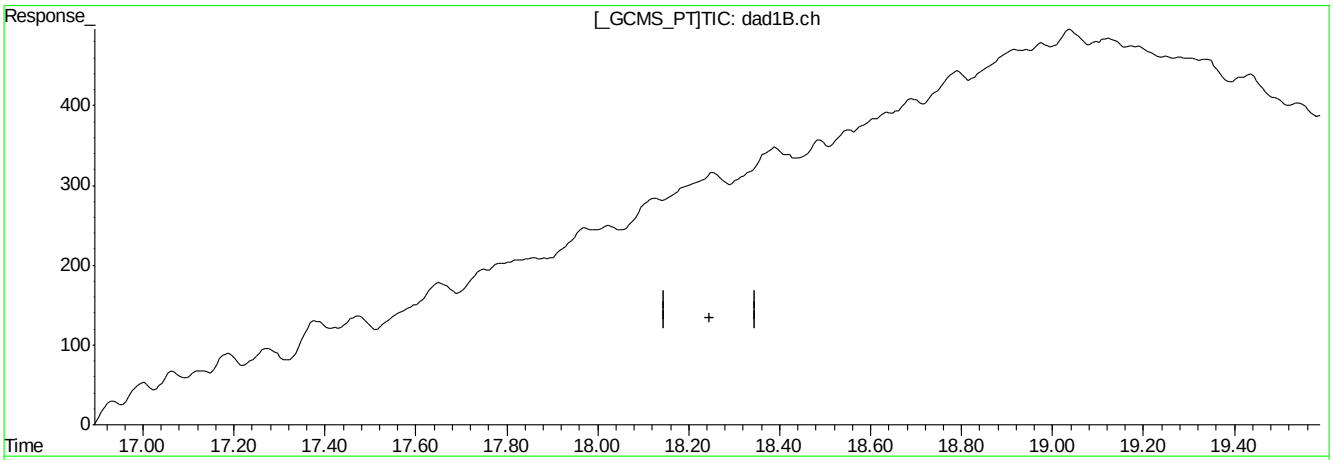
response 68884

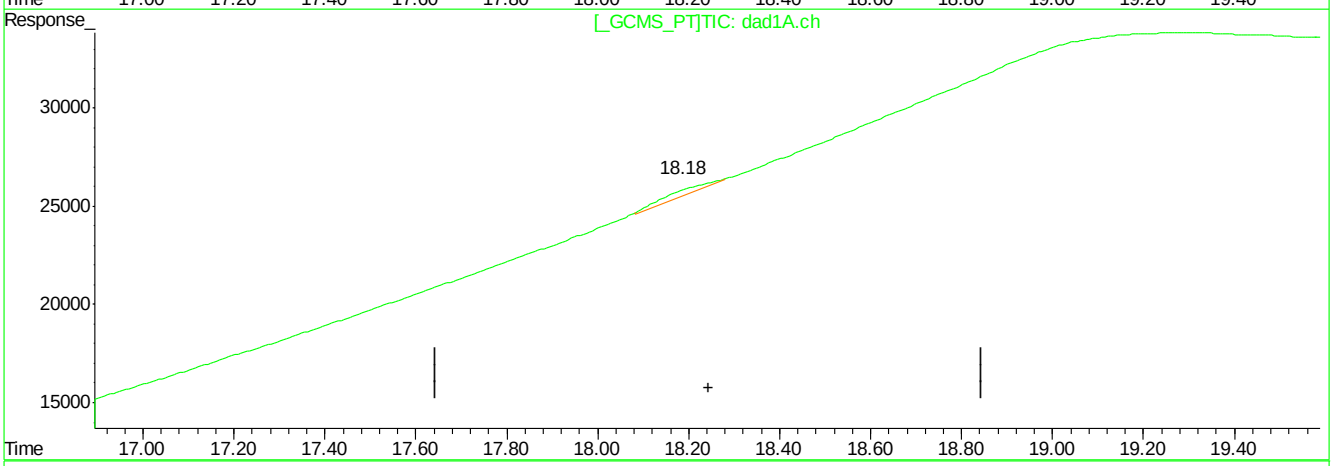
(+) = Expected Retention Time
BB066559.D 8330B_101119_PLUS.M Mon Oct 14 09:34:59 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066559.D\dad1A.ch
Acq On : 11-Oct-2019, 11:42:43 Operator: williamh
Sample : ic1929-20 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

18.18min 16.649ppb m

response 23254

(+) = Expected Retention Time
BB066559.D 8330B_101119_PLUS.M Mon Oct 14 09:35:05 2019

Manual Integrations APPROVED (compounds with "m" flag)
Evita Martinez 10/14/19 10:52

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1A.ch
Acq On : 11-Oct-2019, 12:12:38 Operator: williamh
Sample : ic1929-50 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 09:31:40 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.83	10.83	115107	177318	54.612	50.277
	Spiked Amount 500.000	Range 69 - 134		Recovery =		10.92%#	10.06%#
	Target Compounds						
1)	TNX	1.33	1.33	151667	253118	54.059m	56.421m
2)	HMX	1.45	1.45	72502	189046	43.605m	41.086m
3)	DNX	1.70	1.70	72822	102143	51.694m	43.888m
4)	MNX	2.28	2.28	142339	222390	54.426	55.418m
5)	RDX	2.88	2.88	113105	169205	56.045	52.872m
6)	1,3,5-Trinitrobe	4.62	4.62	244068	461916	55.045	55.310m
7)	1,3-Dinitrobenze	5.79	5.79	306627	219777	54.542m	57.328m
8)	3,5-Dinitroanili	6.14	6.14	228607	420714	53.368m	56.997m
9)	Nitrobenzene	7.30	7.30	181738	178462	53.495	53.283
10)	Nitroglycerin	0.00	8.71	0	73843	N.D.	57.042 #
11)	Tetryl	9.12	9.12	180041	281931	56.250	54.534
12)	2,4,6-Trinitroto	9.57	9.58	220234	250959	55.381	52.948
13)	2-Amino-4,6-Dini	9.94	9.94	193861	277945	53.878	51.834
14)	4-Amino-2,6-Dini	10.39	10.39	147029	269918	54.891	51.680
16)	2,4-Dinitrotolue	11.49	11.49	266641	165984	53.566	53.625m
17)	2,6-Dinitrotolue	11.92	11.93	162317	184492	54.585	50.353
18)	o-Nitrotoluene	14.96	14.96	129306	164658	54.180	51.805m
19)	p-Nitrotoluene	15.52	15.54	203082	143883	52.689	48.134
20)	m-Nitrotoluene	16.40	16.45	175191	165742	50.402	41.601m
21)	PETN	0.00	18.25	0	62577	N.D. d	44.804m

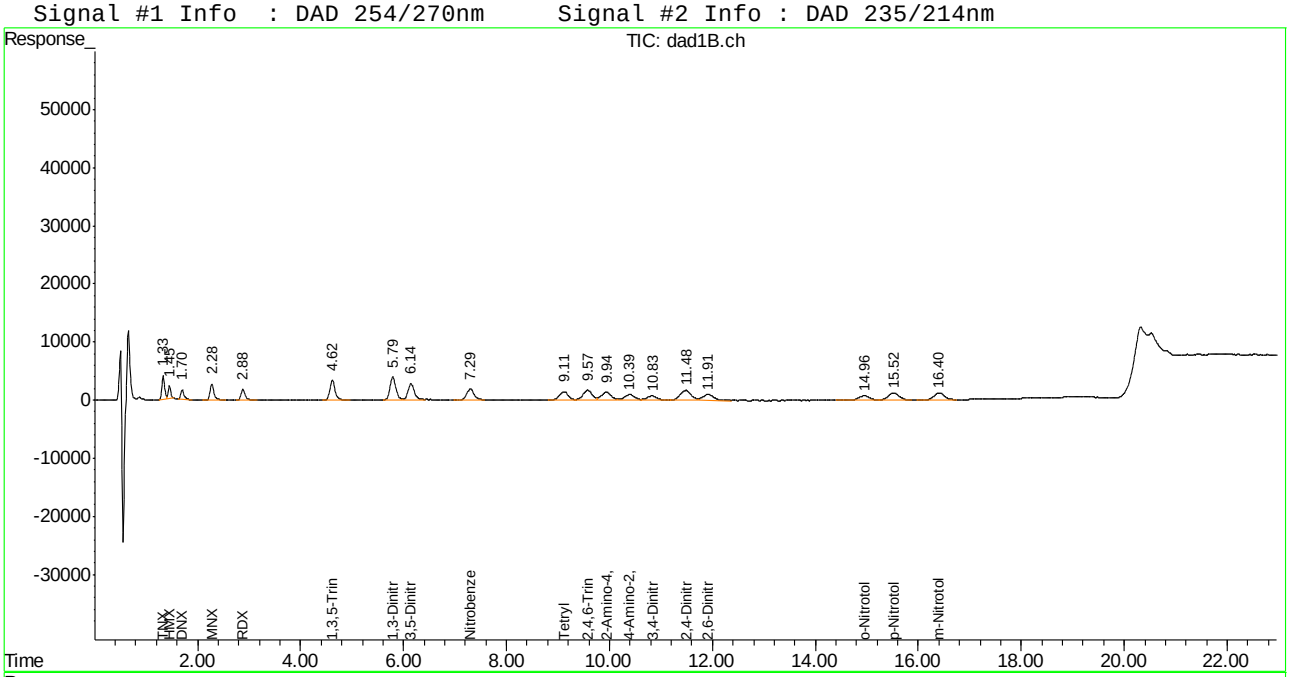
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB066560.D 8330B_101119_PLUS.M Mon Oct 14 09:54:54 2019 Page 1

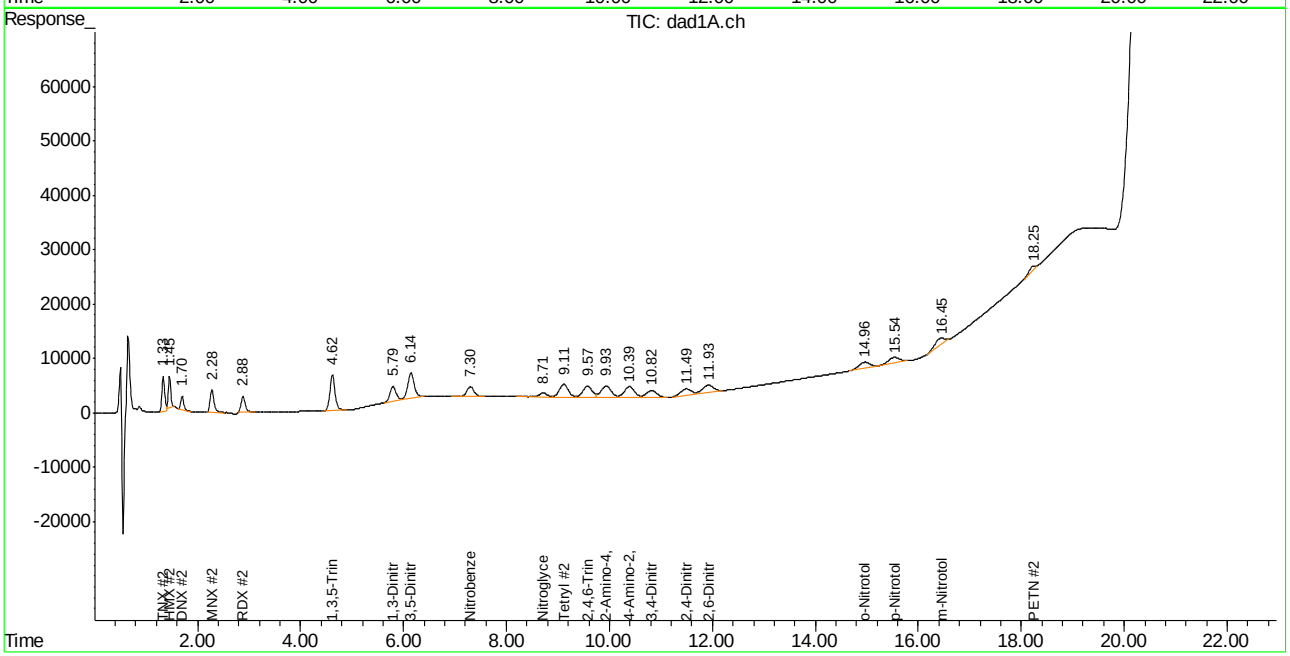
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1A.ch
Acq On : 11-Oct-2019, 12:12:38 Operator: williamh
Sample : ic1929-50 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:37 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

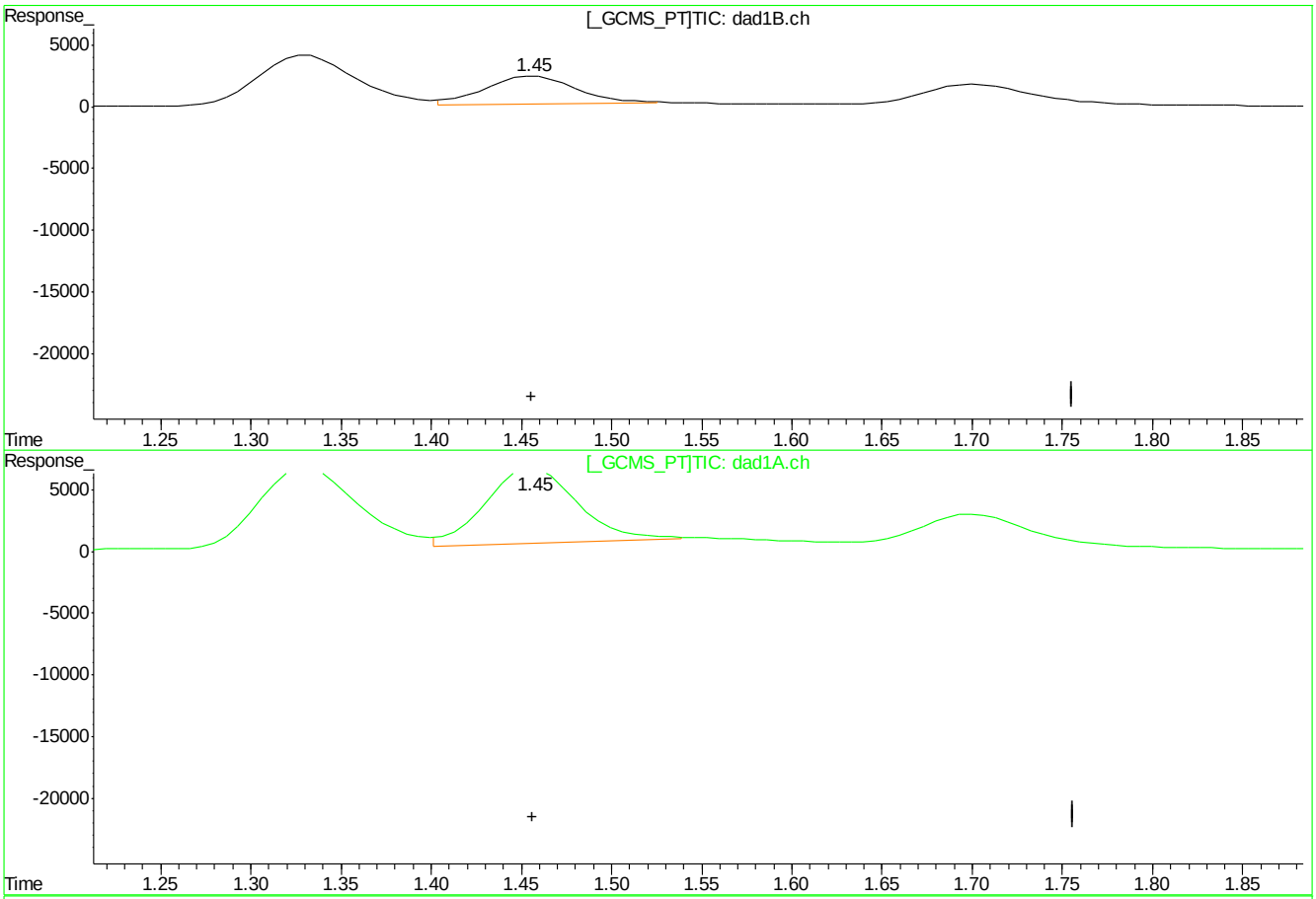
Sample Number: GBB1929-IC1929
Lab FileID: BB066560.D
Injection Time: 10/11/19 12:12
Method: SW846 8330B
Analyst approved: 10/14/19 10:02 William Hustedde
Supervisor approved: 10/14/19 10:52 Evita Martinez

Parameter	CAS	Sig#	R.T. (min.)	Reason
TNX		1	1.33	Poor instrument integration
TNX		2	1.33	Poor instrument integration
HMX	2691-41-0	1	1.45	Poor instrument integration
HMX	2691-41-0	2	1.45	Poor instrument integration
DNX		1	1.70	Poor instrument integration
DNX		2	1.70	Poor instrument integration
MNX		2	2.28	Poor instrument integration
RDX	121-82-4	2	2.88	Poor instrument integration
1,3,5-Trinitrobenzene	99-35-4	2	4.62	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	1	5.79	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	5.79	Poor instrument integration
3,5-Dinitroaniline	618-87-1	1	6.14	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	6.14	Poor instrument integration
2,4-Dinitrotoluene	121-14-2	2	11.49	Poor instrument integration
o-Nitrotoluene	88-72-2	2	14.96	Poor instrument integration
m-Nitrotoluene	99-08-1	2	16.45	Poor instrument integration
PETN	78-11-5	2	18.25	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1A.ch
Acq On : 11-Oct-2019, 12:12:38 Operator: williamh
Sample : ic1929-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration



QEdit

(2) HMX

1.45min 49.915ppb m

response 80328

(2) HMX #2

1.45min 48.706ppb m

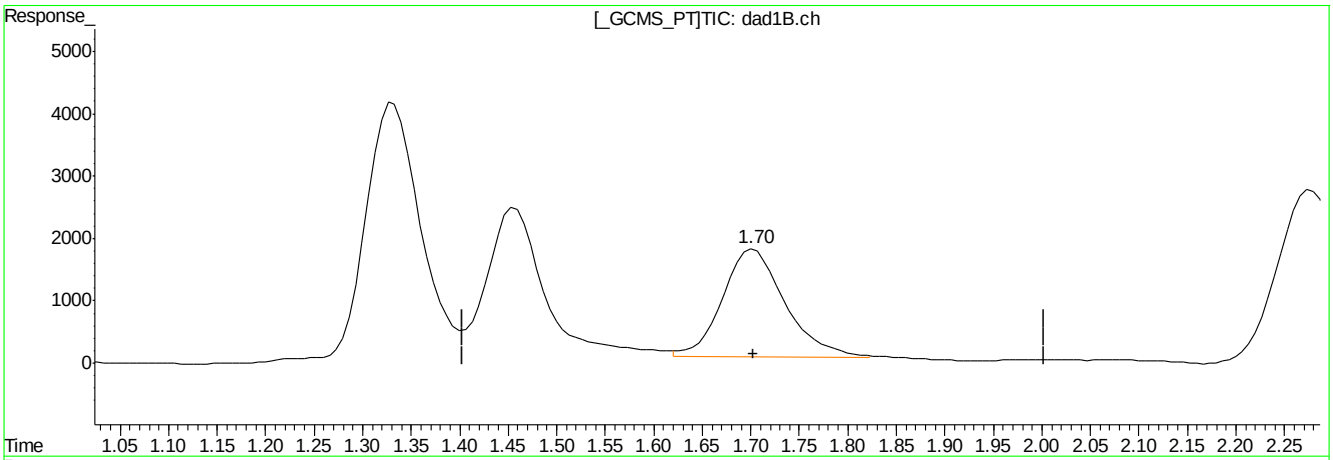
response 215010

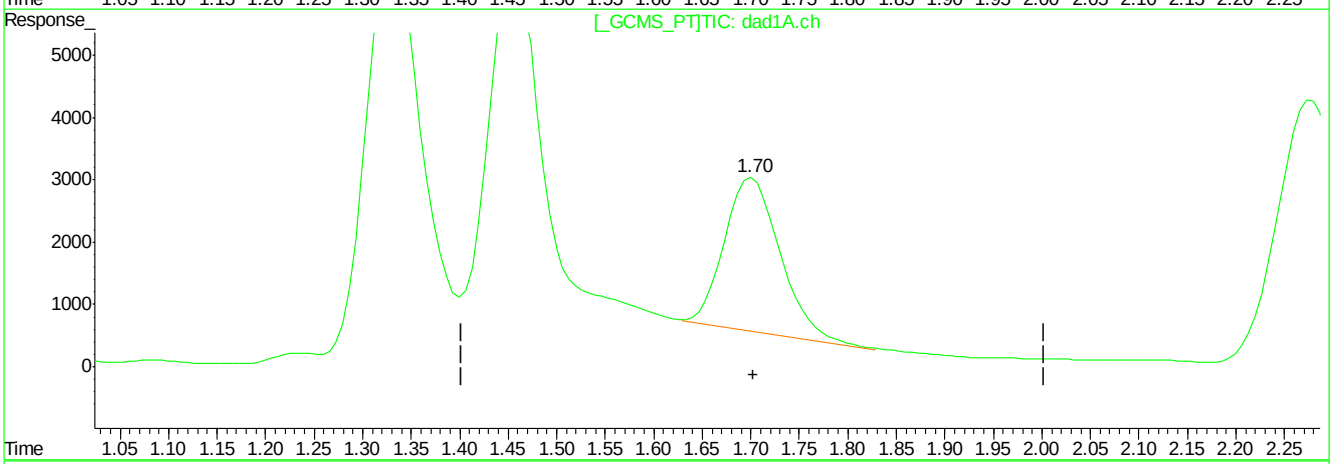
(+) = Expected Retention Time
BB066560.D 8330B_082219_PLUS.M Fri Oct 11 15:44:29 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1A.ch
Acq On : 11-Oct-2019, 12:12:38 Operator: williamh
Sample : ic1929-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration





QEdit

(3) DNX

1.70min 54.638ppb m

response 76969

(3) DNX #2

1.70min 41.863ppb m

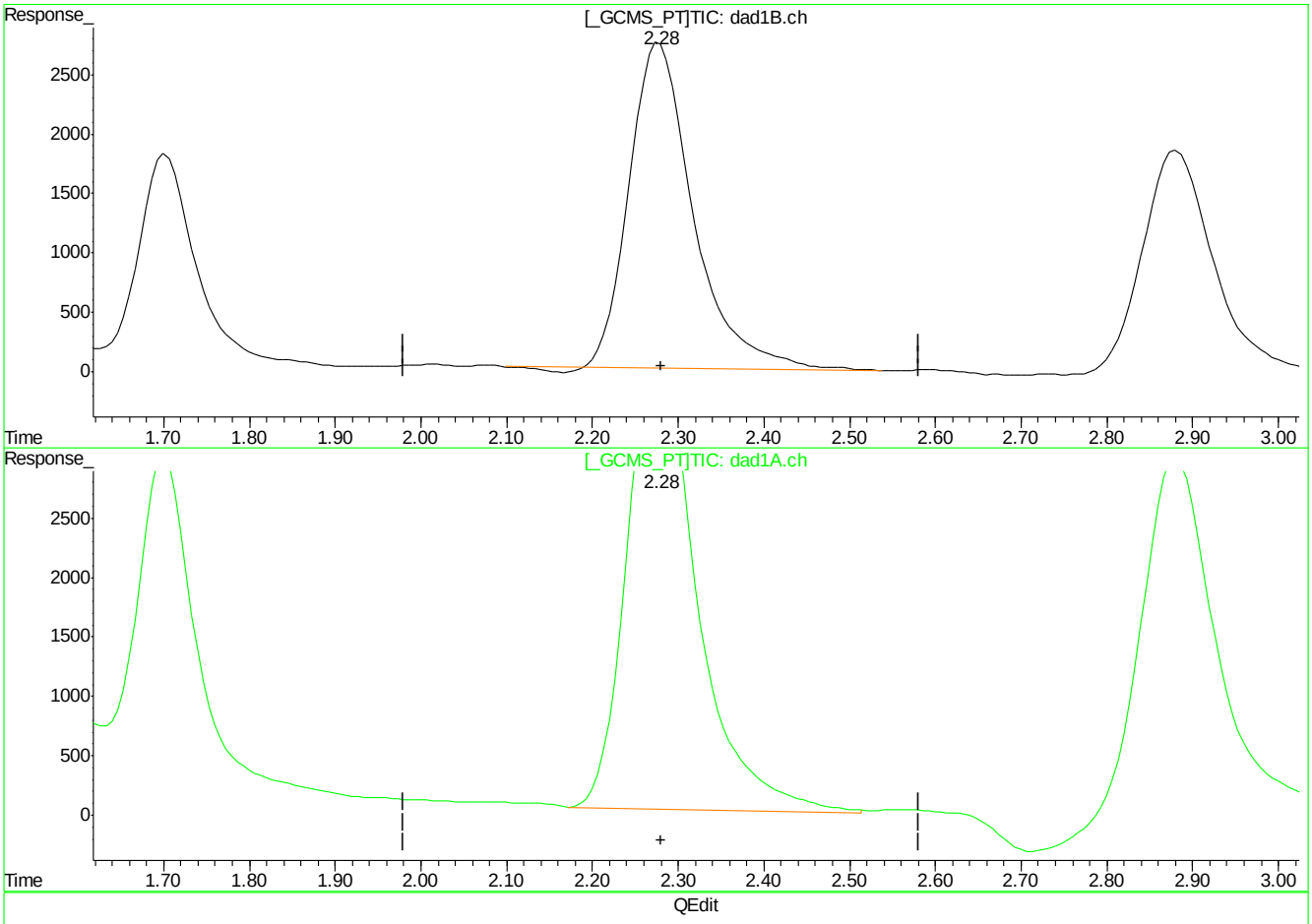
response 99275

(+) = Expected Retention Time
BB066560.D 8330B_082219_PLUS.M Fri Oct 11 15:44:42 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1A.ch
Acq On : 11-Oct-2019, 12:12:38 Operator: williamh
Sample : ic1929-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration



(4) MNX

2.28min 61.270ppb

response 142339

(4) MNX #2

2.28min 62.628ppb m

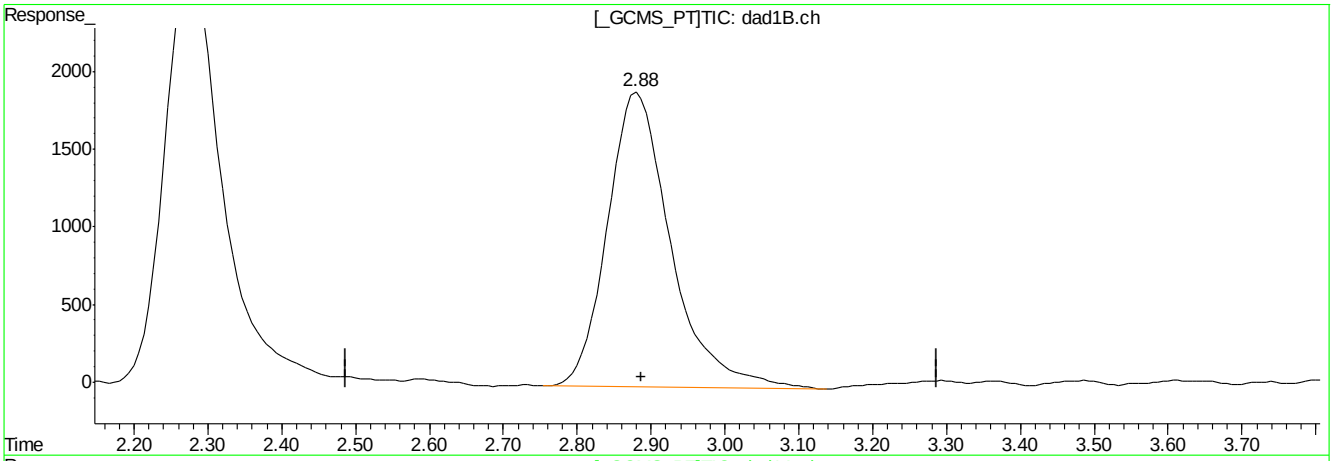
response 224500

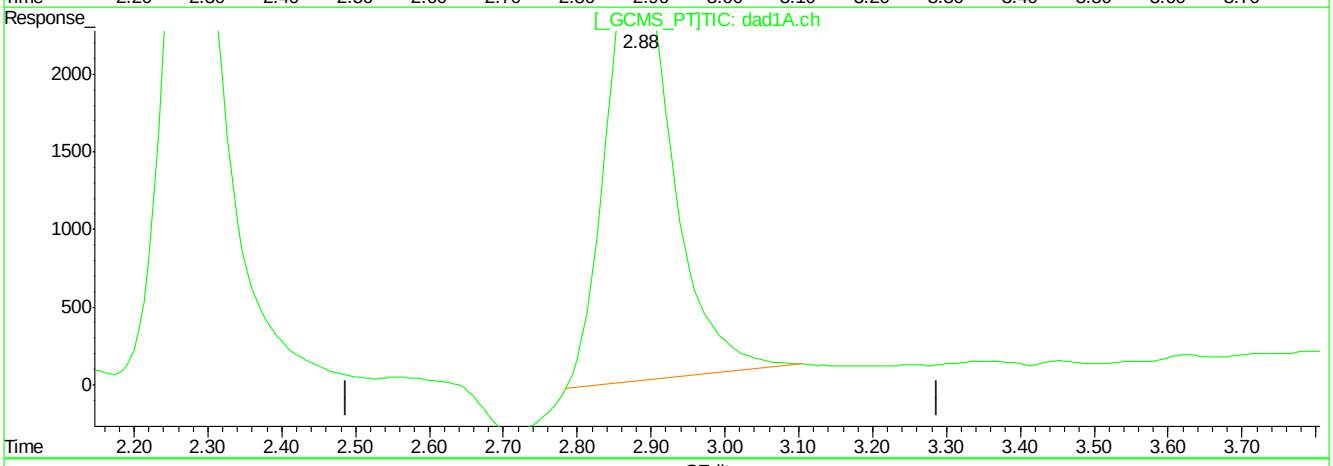
(+) = Expected Retention Time
BB066560.D 8330B_082219_PLUS.M Fri Oct 11 15:44:50 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1A.ch
Acq On : 11-Oct-2019, 12:12:38 Operator: williamh
Sample : ic1929-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration





QEdit

(5) RDX

2.88min 57.229ppb

response 113105

(5) RDX #2

2.88min 56.393ppb m

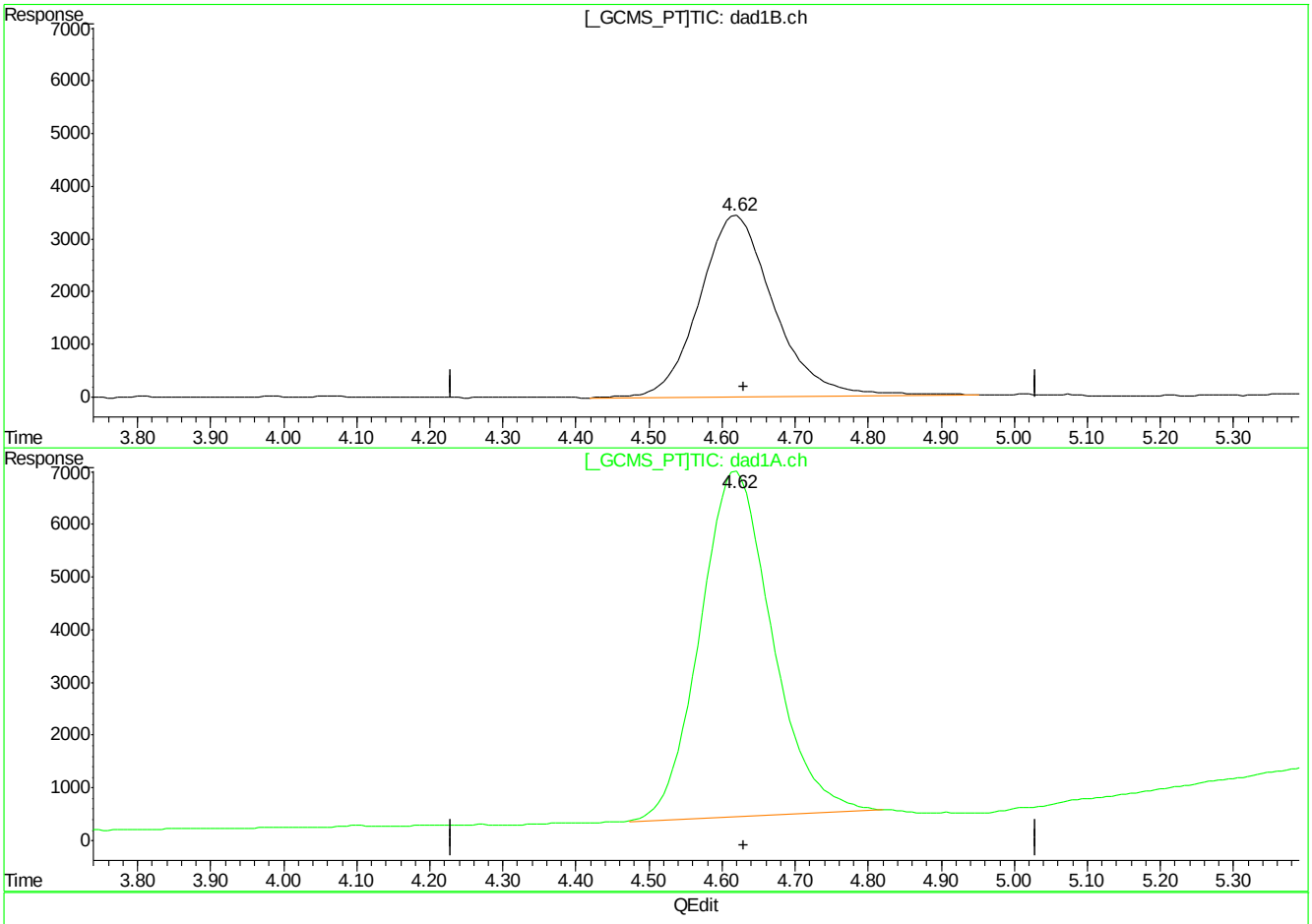
response 175895

(+) = Expected Retention Time
BB066560.D 8330B_082219_PLUS.M Fri Oct 11 15:44:57 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1A.ch
Acq On : 11-Oct-2019, 12:12:38 Operator: williamh
Sample : ic1929-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration



(6) 1,3,5-Trinitrobenzene

4.62min 57.395ppb

response 244068

(6) 1,3,5-Trinitrobenzene #2

4.62min 55.921ppb m

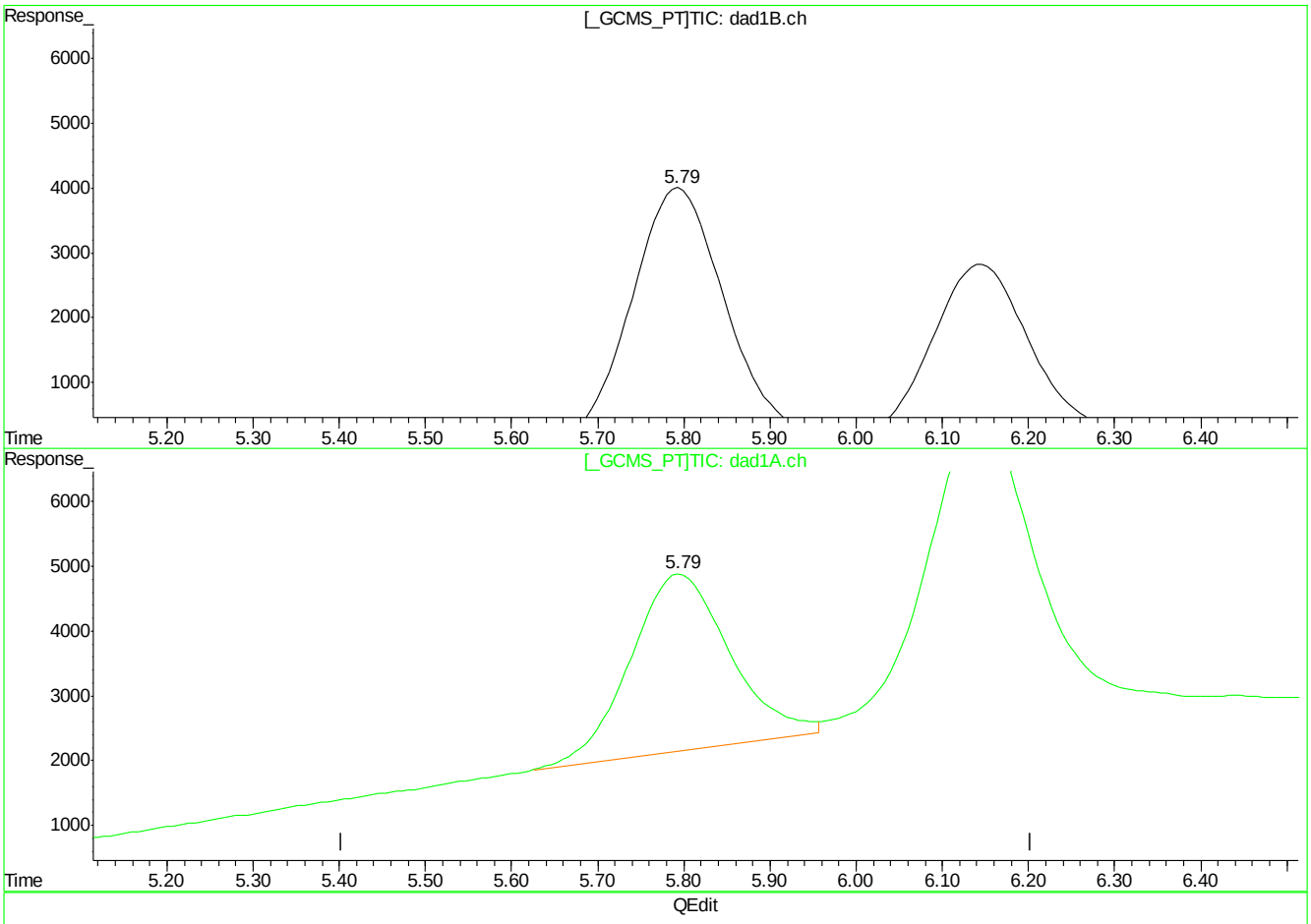
response 449102

(+) = Expected Retention Time
BB066560.D 8330B_082219_PLUS.M Fri Oct 11 15:45:07 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1A.ch
Acq On : 11-Oct-2019, 12:12:38 Operator: williamh
Sample : ic1929-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration



(7) 1,3-Dinitrobenzene

5.79min 56.362ppb

response 306679

(7) 1,3-Dinitrobenzene #2

5.79min 57.290ppb m

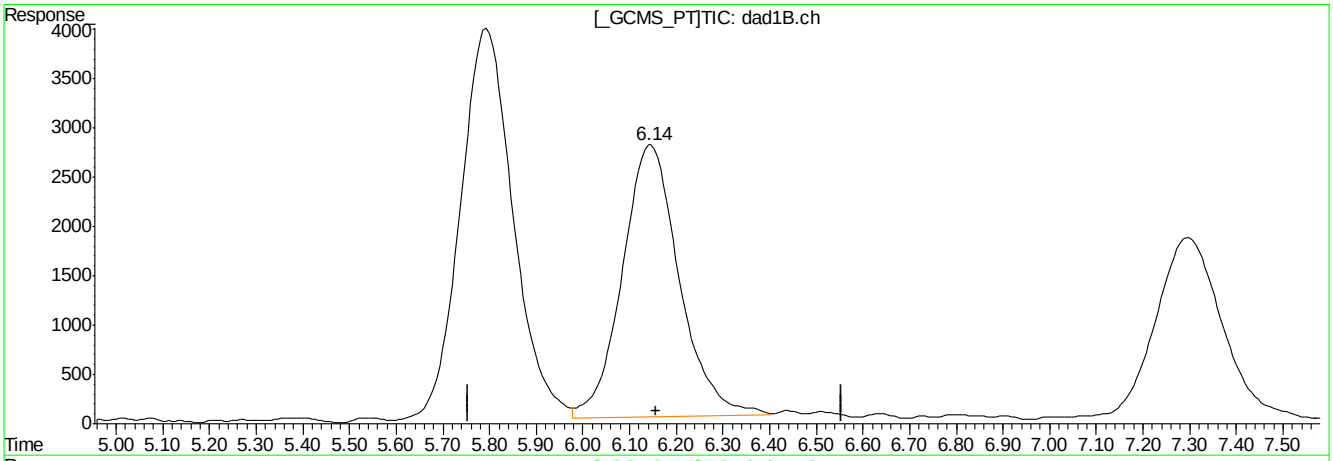
response 219369

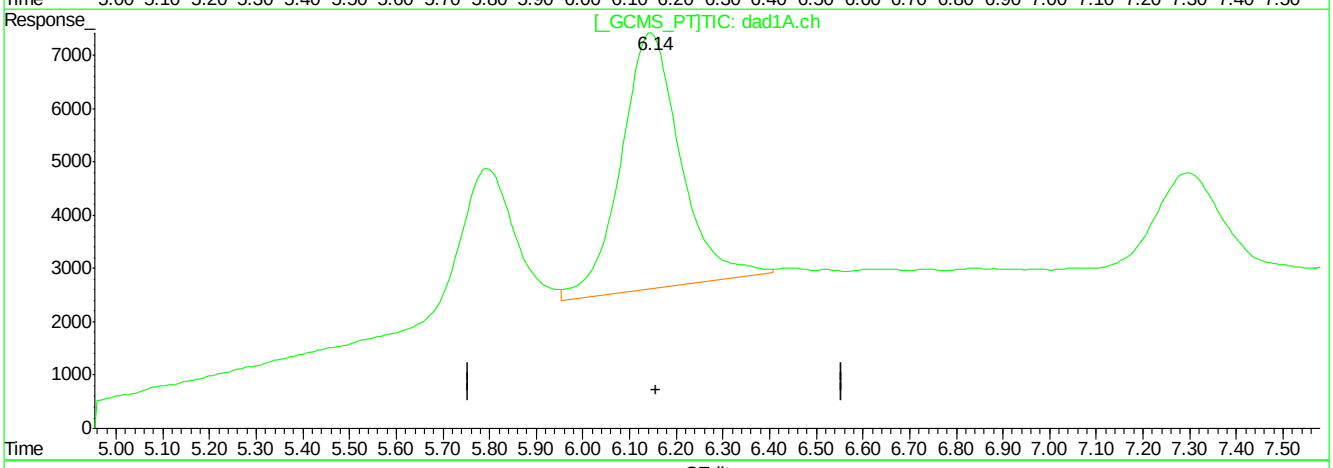
(+) = Expected Retention Time
BB066560.D 8330B_082219_PLUS.M Fri Oct 11 15:45:17 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1A.ch
Acq On : 11-Oct-2019, 12:12:38 Operator: williamh
Sample : ic1929-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.14min 56.478ppb m

response 234129

(8) 3,5-Dinitroaniline #2

6.14min 58.509ppb m

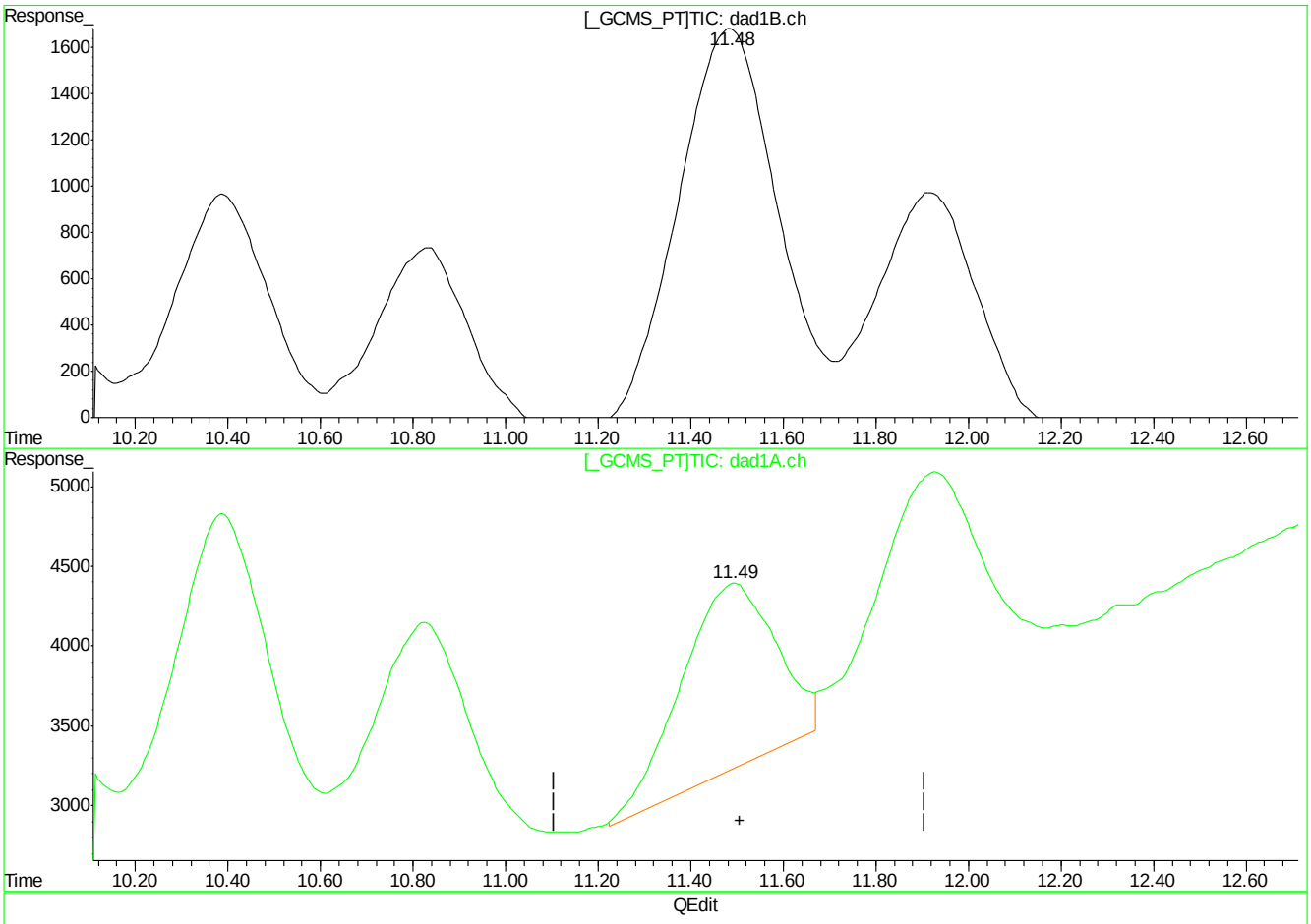
response 425723

(+) = Expected Retention Time
BB066560.D 8330B_082219_PLUS.M Fri Oct 11 15:45:32 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1A.ch
Acq On : 11-Oct-2019, 12:12:38 Operator: williamh
Sample : ic1929-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration



(16) 2,4-Dinitrotoluene

11.49min 54.951ppb

response 266641

(16) 2,4-Dinitrotoluene #2

11.49min 55.474ppb m

response 165611

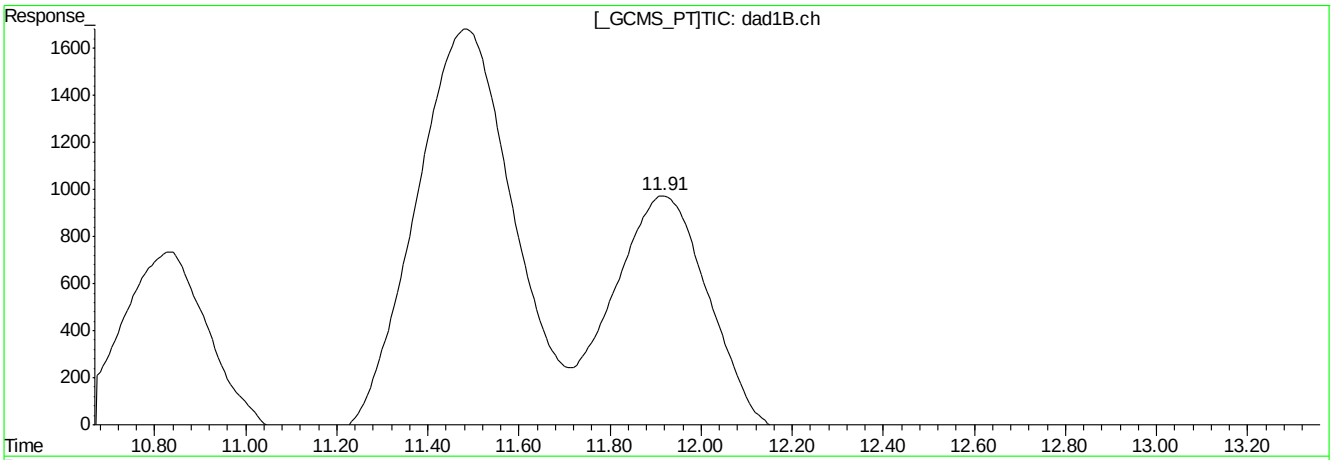
(+) = Expected Retention Time
BB066560.D 8330B_082219_PLUS.M Fri Oct 11 15:46:29 2019

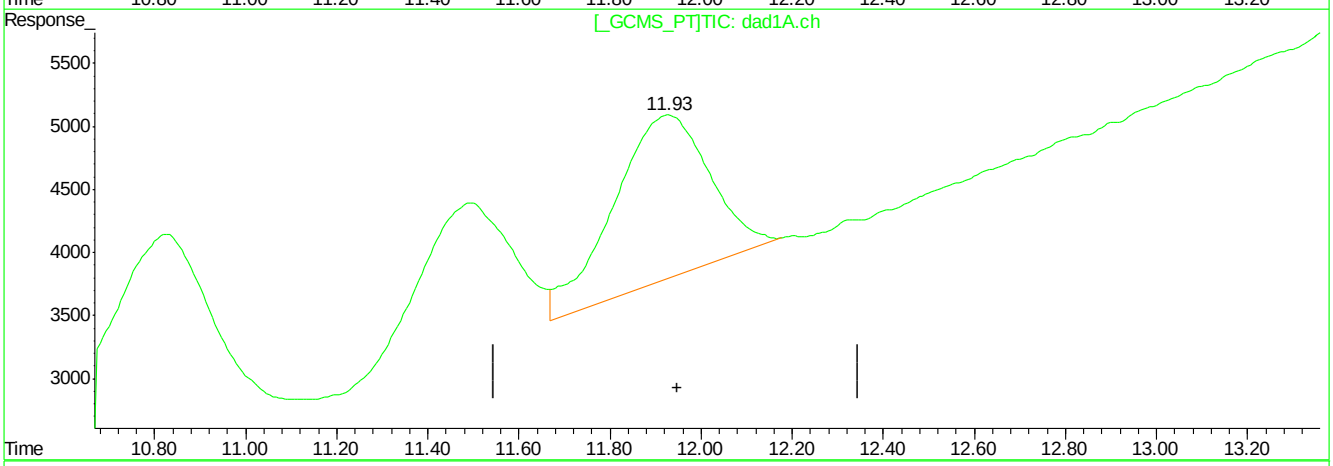
BB066560.D edits: 2,4-Dinitrotoluene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1A.ch
Acq On : 11-Oct-2019, 12:12:38 Operator: williamh
Sample : ic1929-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration





QEdit

(17) 2,6-Dinitrotoluene

11.92min 59.402ppb

response 162317

(17) 2,6-Dinitrotoluene #2

11.93min 56.989ppb m

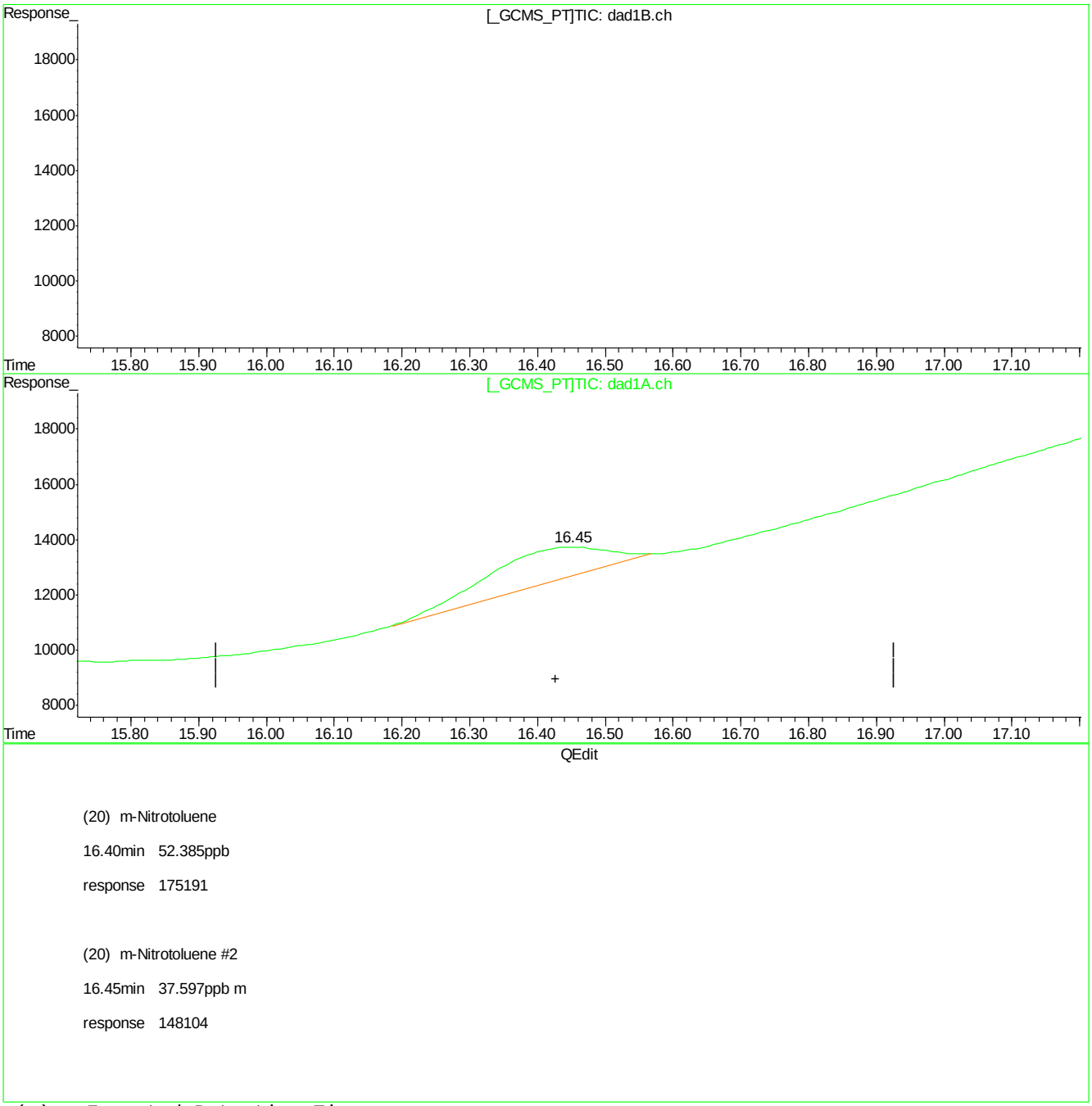
response 192826

(+) = Expected Retention Time
BB066560.D 8330B_082219_PLUS.M Fri Oct 11 15:46:36 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1A.ch
Acq On : 11-Oct-2019, 12:12:38 Operator: williamh
Sample : ic1929-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration



(20) m-Nitrotoluene

16.40min 52.385ppb

response 175191

(20) m-Nitrotoluene #2

16.45min 37.597ppb m

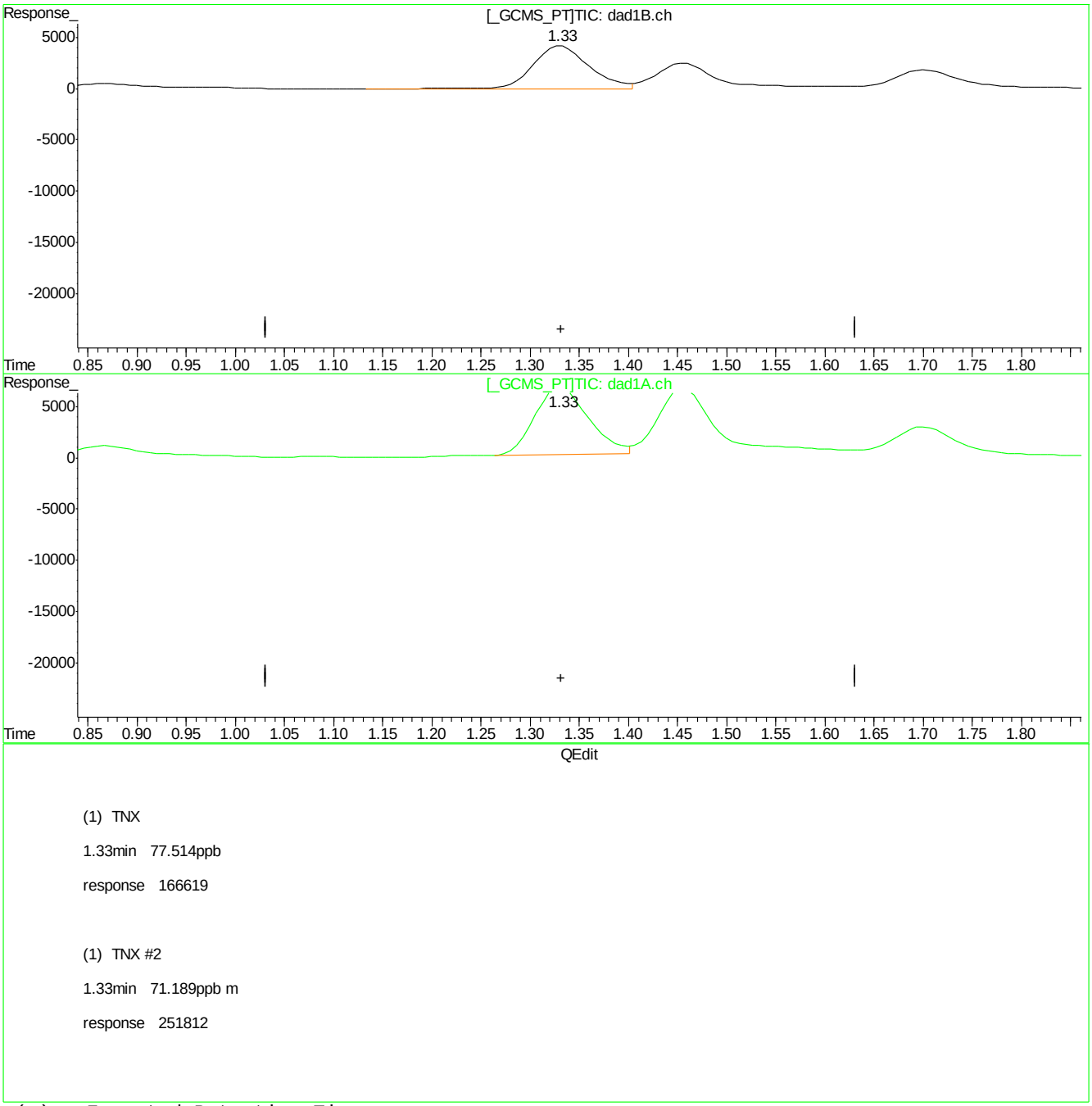
response 148104

(+) = Expected Retention Time
BB066560.D 8330B_082219_PLUS.M Fri Oct 11 15:46:51 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1A.ch
Acq On : 11-Oct-2019, 12:12:38 Operator: williamh
Sample : ic1929-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:46 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:39:30 2019
Response via : Multiple Level Calibration



(1) TNX

1.33min 77.514ppb

response 166619

(1) TNX #2

1.33min 71.189ppb m

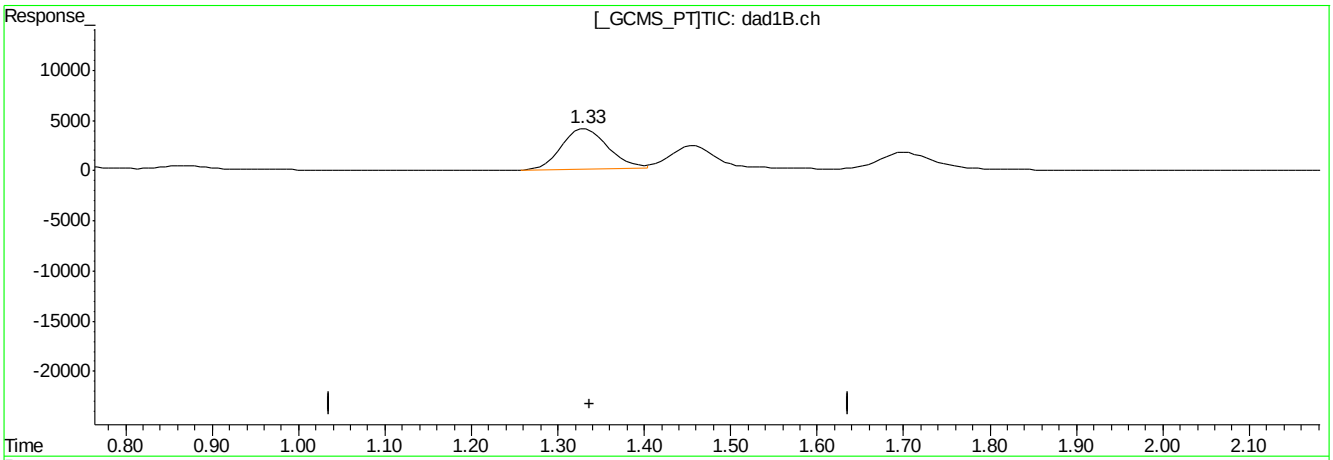
response 251812

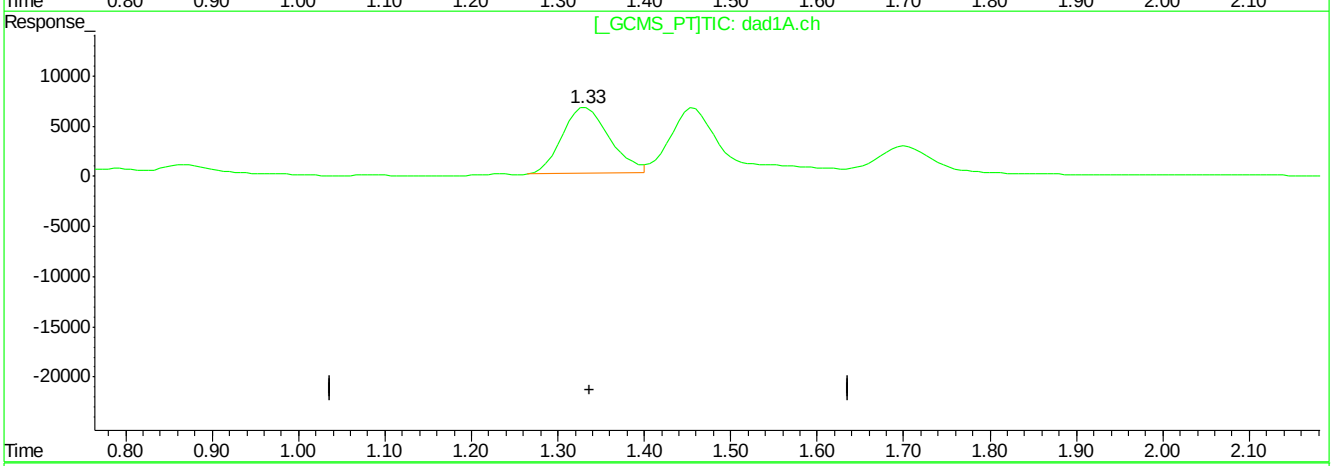
(+) = Expected Retention Time
BB066560.D 8330B_082219_PLUS.M Fri Oct 11 16:40:21 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1A.ch
Acq On : 11-Oct-2019, 12:12:38 Operator: williamh
Sample : ic1929-50 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(1) TNX

1.33min 54.059ppb m

response 151667

(1) TNX #2

1.33min 56.421ppb m

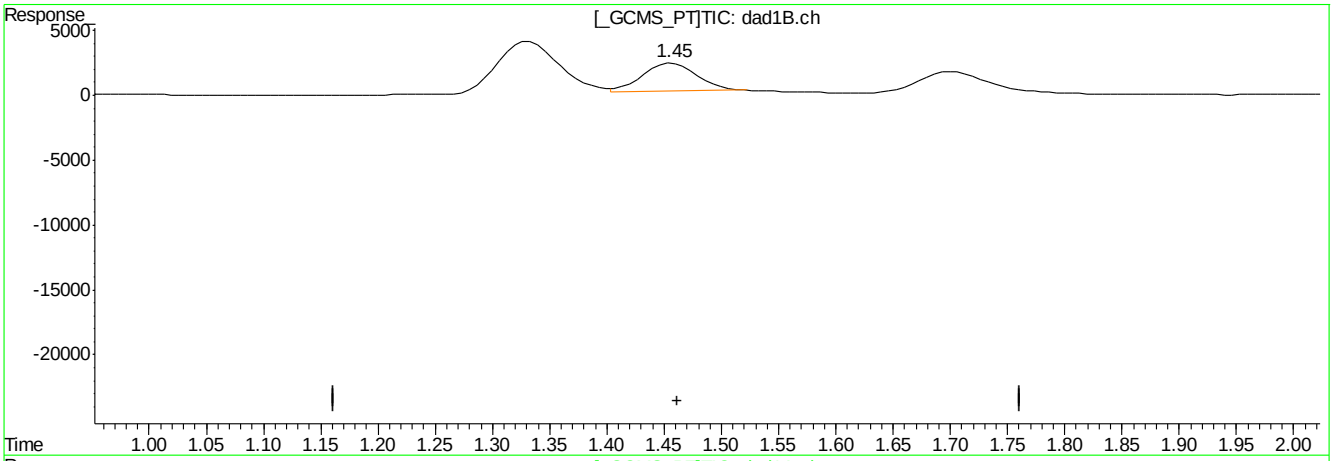
response 253118

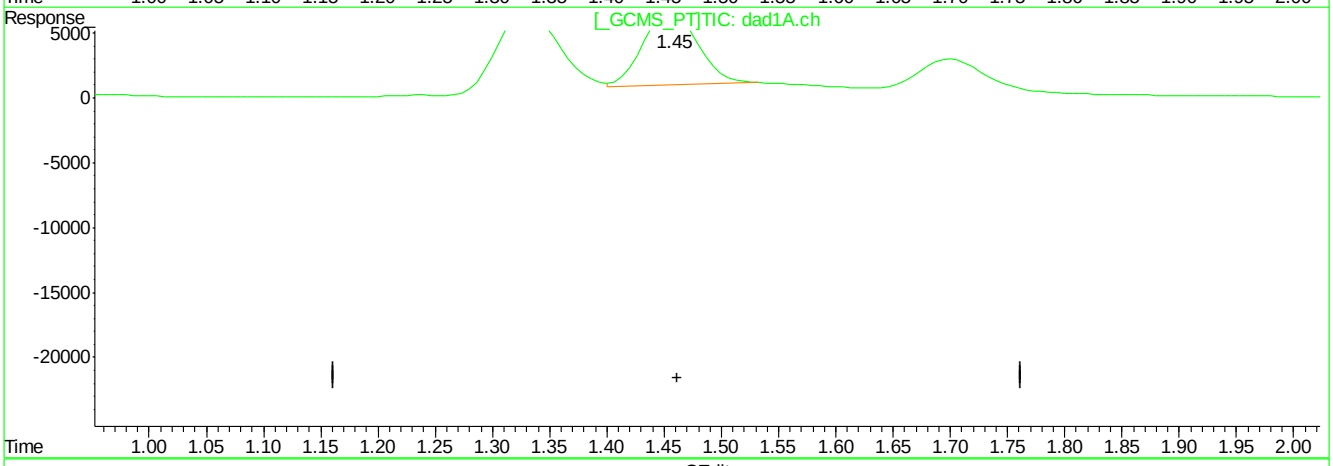
(+) = Expected Retention Time
BB066560.D 8330B_101119_PLUS.M Mon Oct 14 09:35:25 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1A.ch
Acq On : 11-Oct-2019, 12:12:38 Operator: williamh
Sample : ic1929-50 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(2) HMX

1.45min 43.605ppb m

response 72502

(2) HMX #2

1.45min 41.086ppb m

response 189046

(+) = Expected Retention Time
BB066560.D 8330B_101119_PLUS.M Mon Oct 14 09:35:35 2019

9.5.2.14

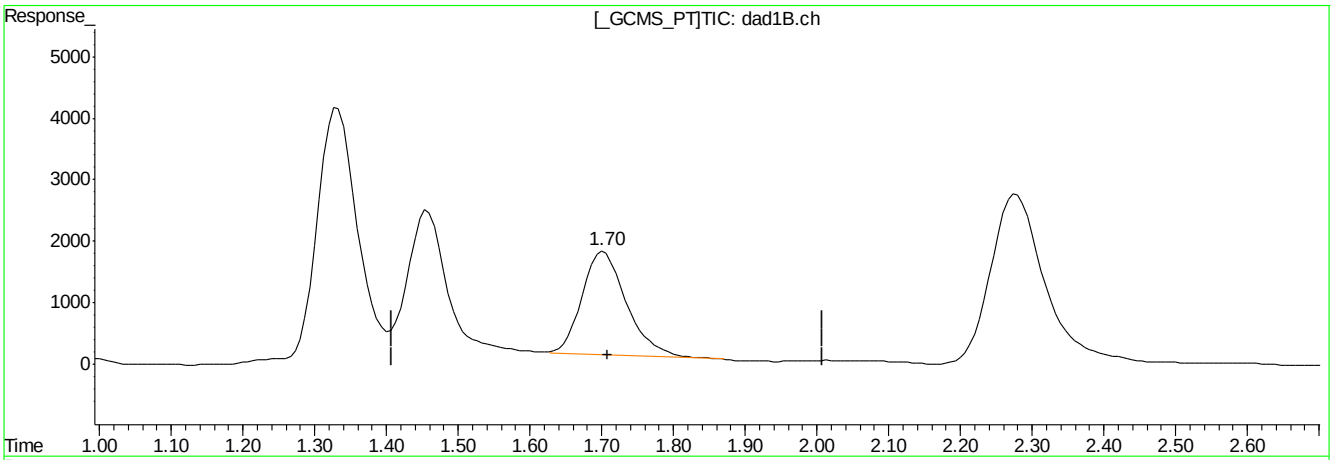
9

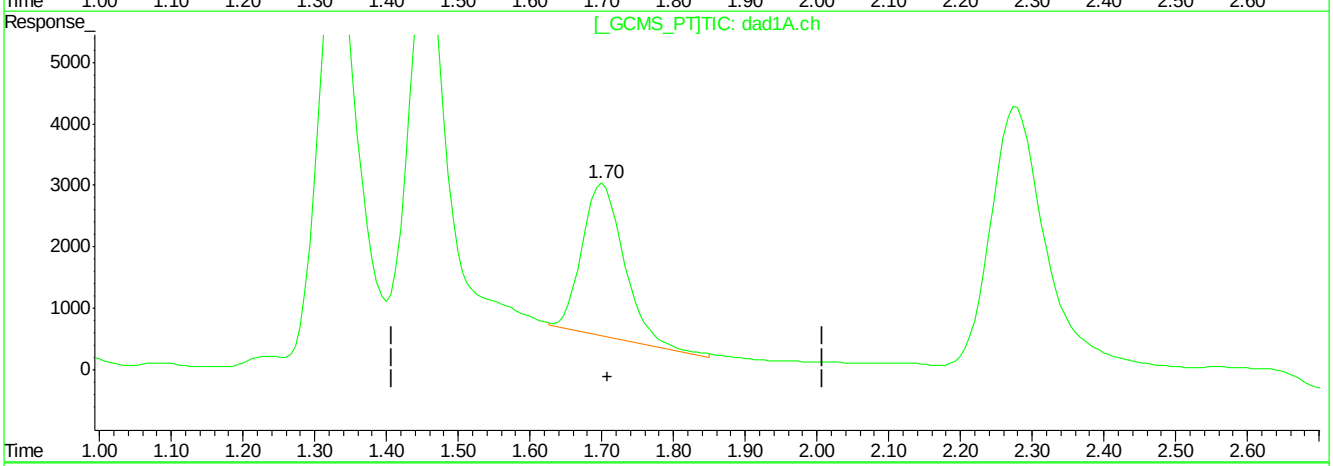
BB066560.D edits: HMX

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1A.ch
Acq On : 11-Oct-2019, 12:12:38 Operator: williamh
Sample : ic1929-50 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(3) DNX

1.70min 51.694ppb m

response 72822

(3) DNX #2

1.70min 43.888ppb m

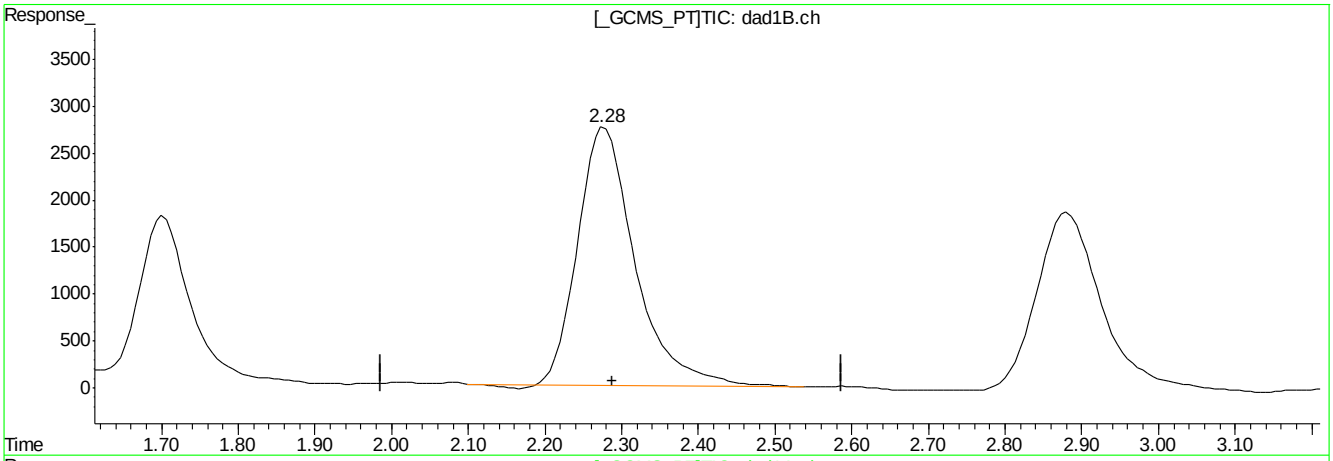
response 102143

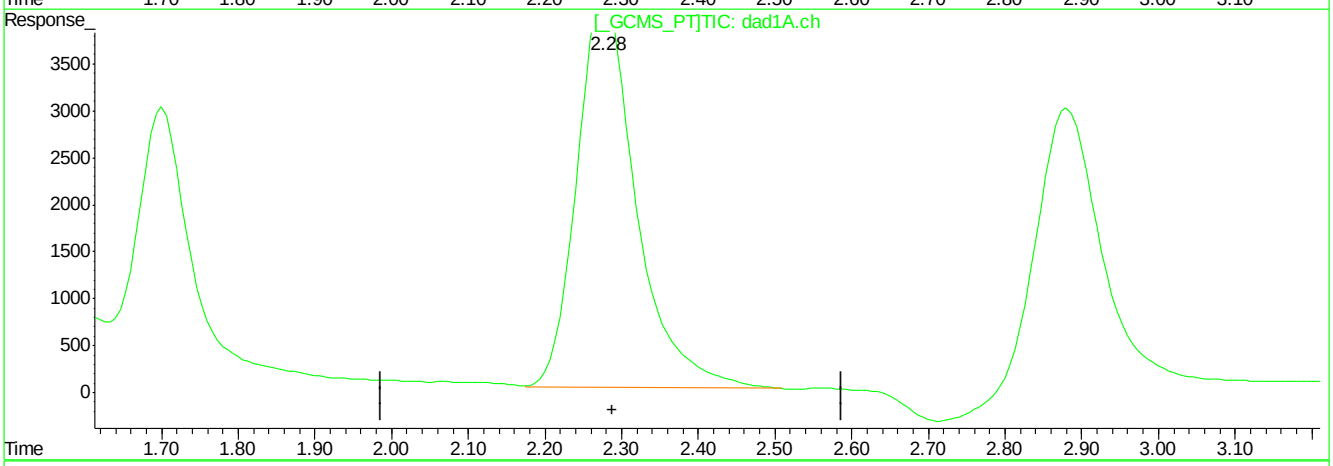
(+) = Expected Retention Time
BB066560.D 8330B_101119_PLUS.M Mon Oct 14 09:35:45 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1A.ch
Acq On : 11-Oct-2019, 12:12:38 Operator: williamh
Sample : ic1929-50 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(4) MNX

2.28min 54.426ppb

response 142339

(4) MNX #2

2.28min 55.418ppb m

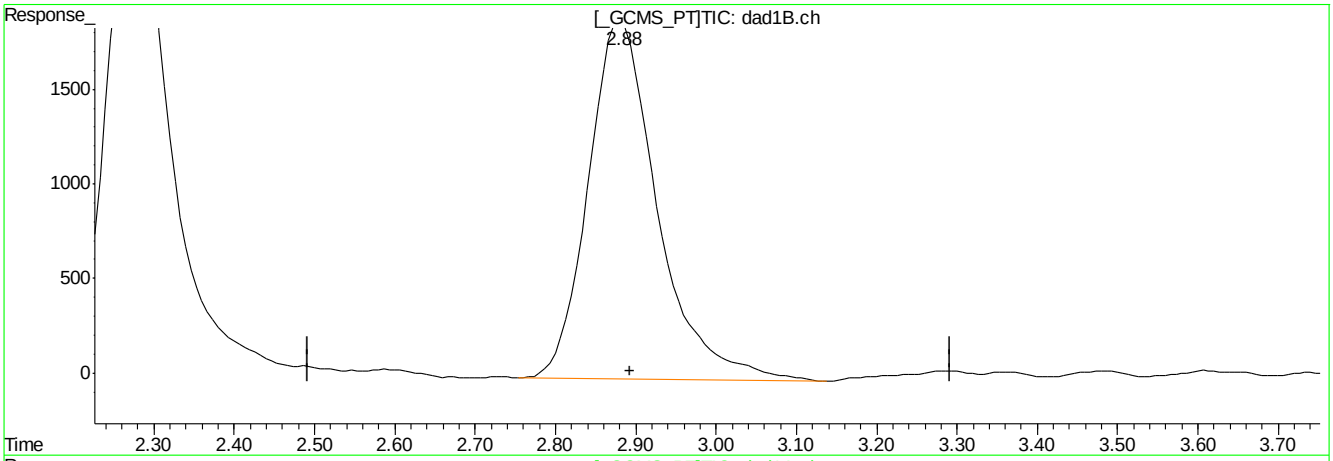
response 222390

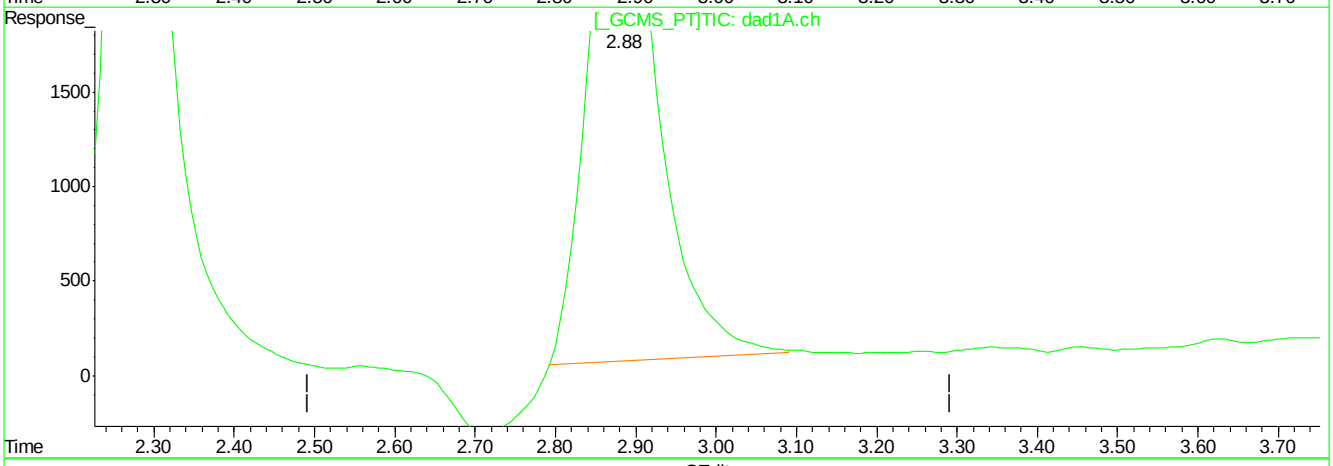
(+) = Expected Retention Time
BB066560.D 8330B_101119_PLUS.M Mon Oct 14 09:35:51 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1A.ch
Acq On : 11-Oct-2019, 12:12:38 Operator: williamh
Sample : ic1929-50 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(5) RDX

2.88min 56.045ppb

response 113105

(5) RDX #2

2.88min 52.872ppb m

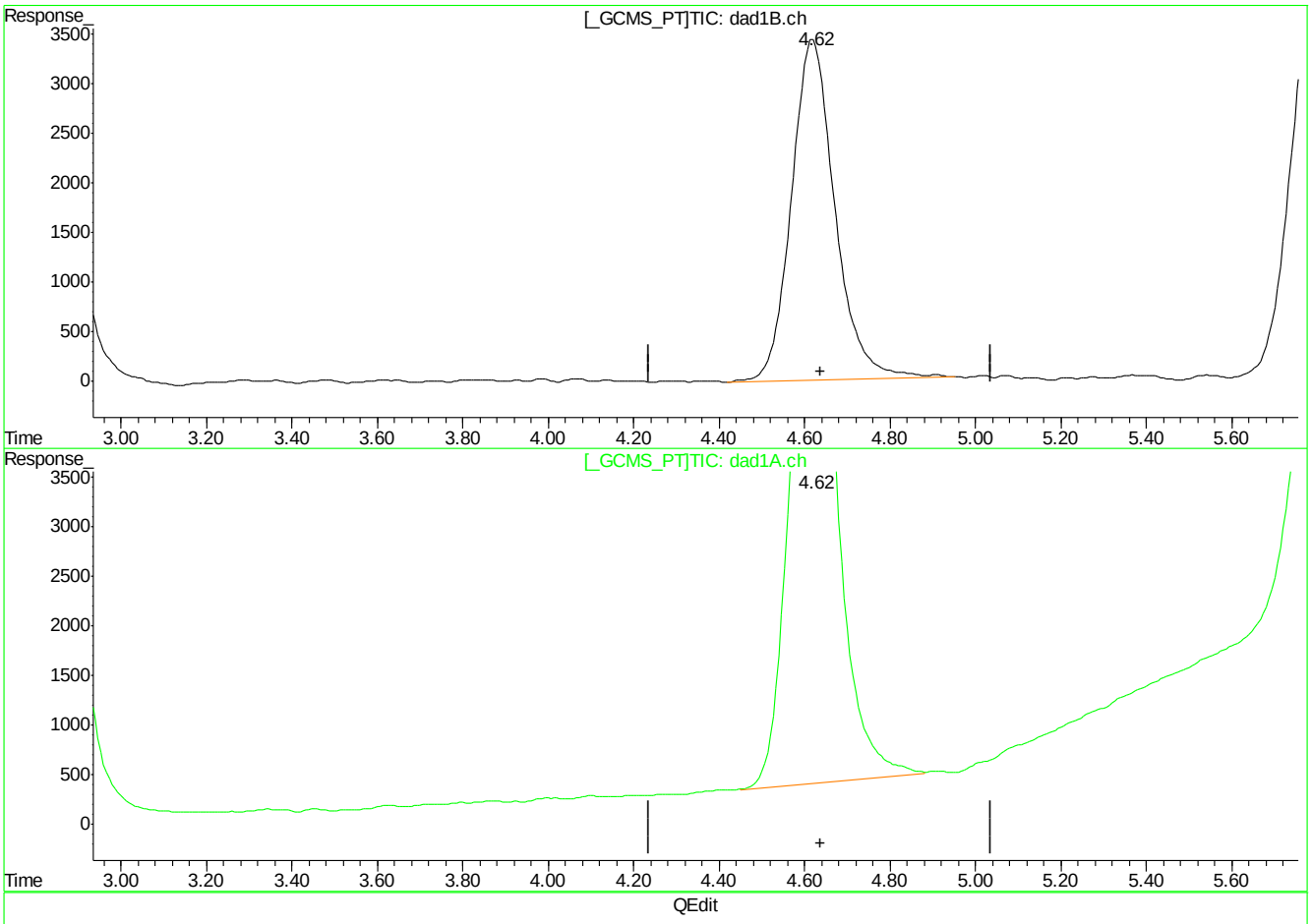
response 169205

(+) = Expected Retention Time
BB066560.D 8330B_101119_PLUS.M Mon Oct 14 09:35:57 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1A.ch
Acq On : 11-Oct-2019, 12:12:38 Operator: williamh
Sample : ic1929-50 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration



(6) 1,3,5-Trinitrobenzene

4.62min 55.045ppb

response 244068

(6) 1,3,5-Trinitrobenzene #2

4.62min 55.310ppb m

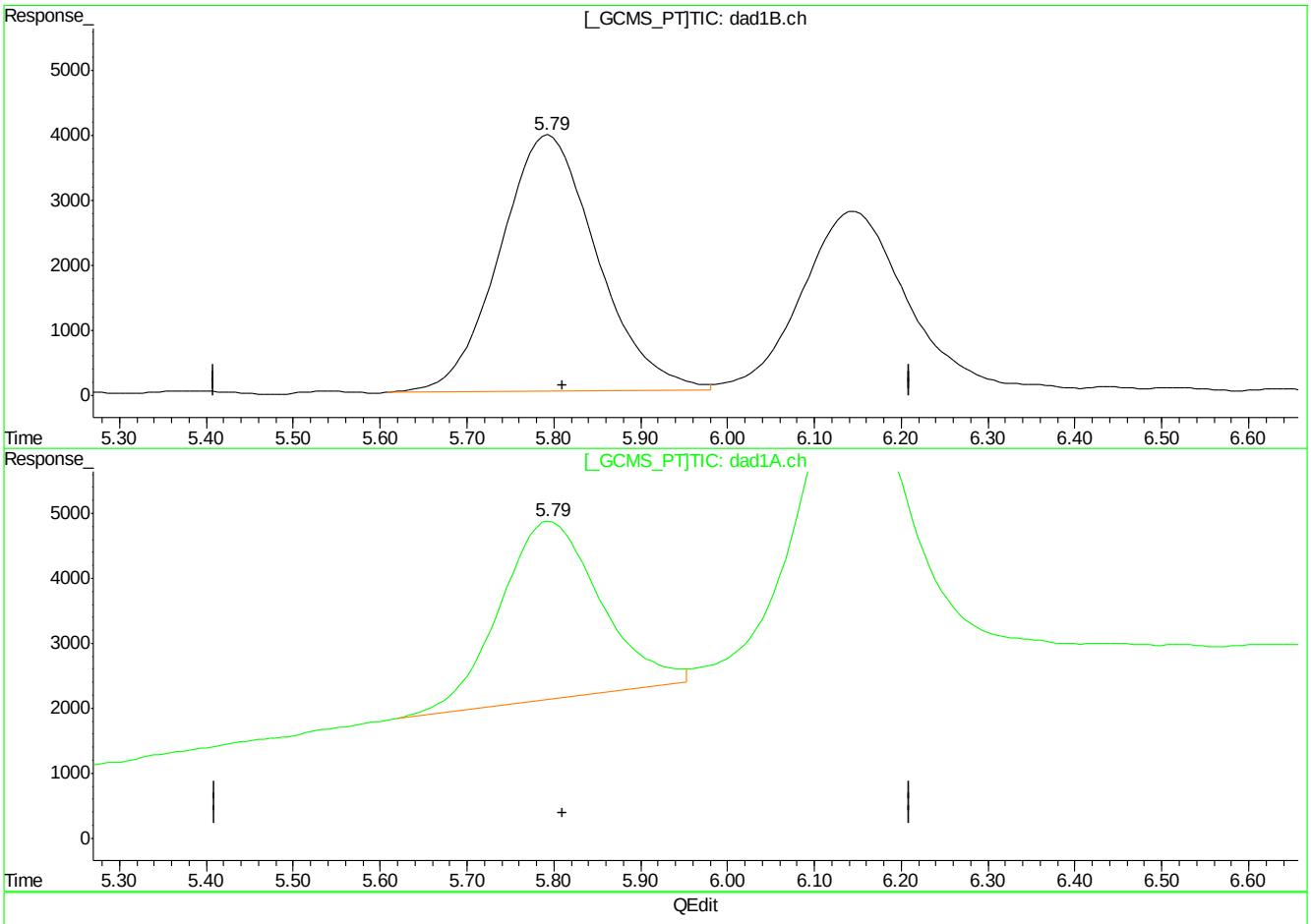
response 461916

(+) = Expected Retention Time
BB066560.D 8330B_101119_PLUS.M Mon Oct 14 09:36:05 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1A.ch
Acq On : 11-Oct-2019, 12:12:38 Operator: williamh
Sample : ic1929-50 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration



(7) 1,3-Dinitrobenzene

5.79min 54.542ppb m

response 306627

(7) 1,3-Dinitrobenzene #2

5.79min 57.328ppb m

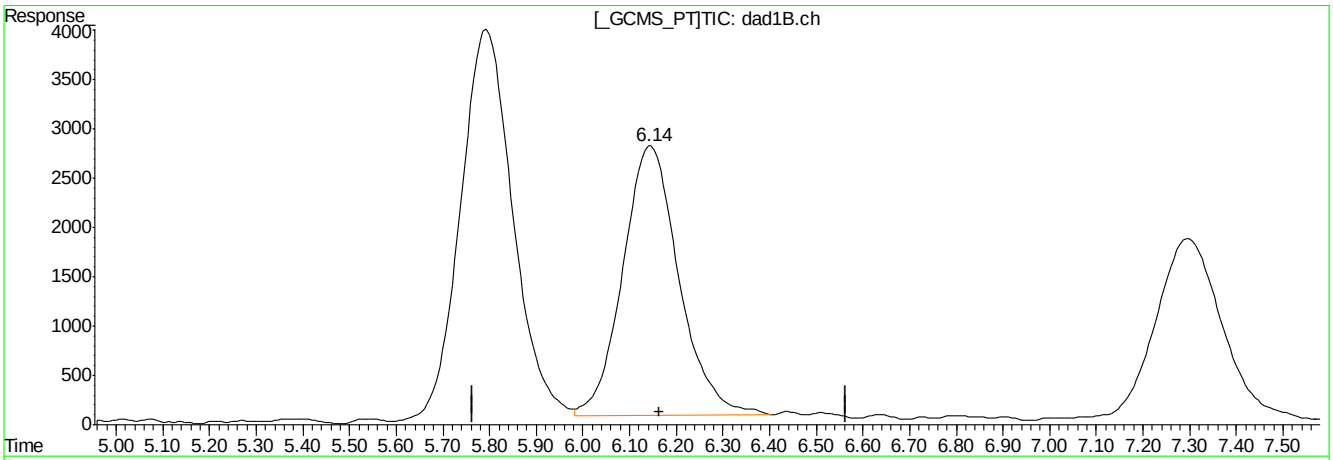
response 219777

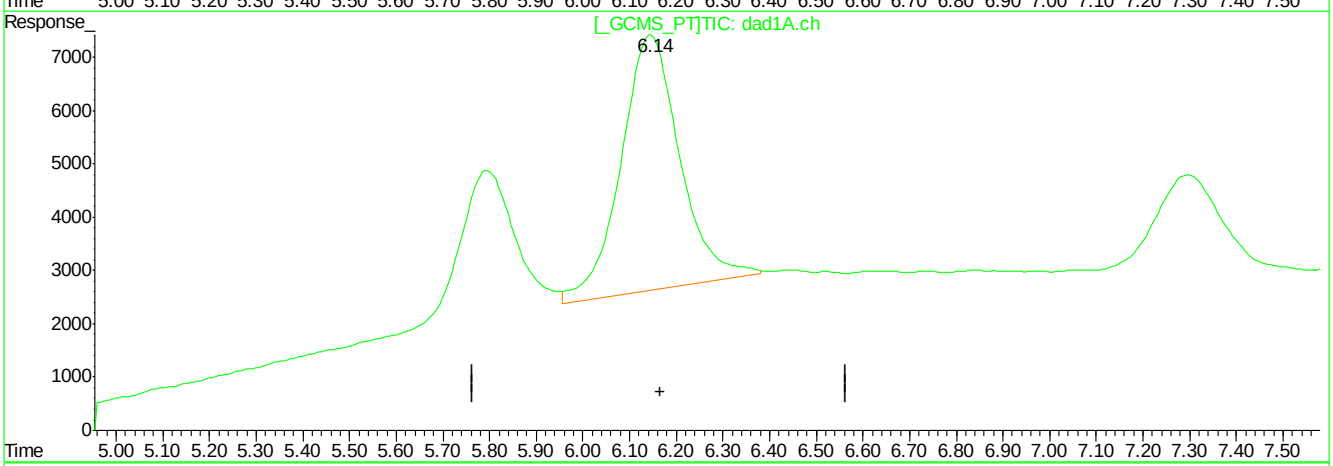
(+) = Expected Retention Time
BB066560.D 8330B_101119_PLUS.M Mon Oct 14 09:36:20 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1A.ch
Acq On : 11-Oct-2019, 12:12:38 Operator: williamh
Sample : ic1929-50 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.14min 53.368ppb m

response 228607

(8) 3,5-Dinitroaniline #2

6.14min 56.997ppb m

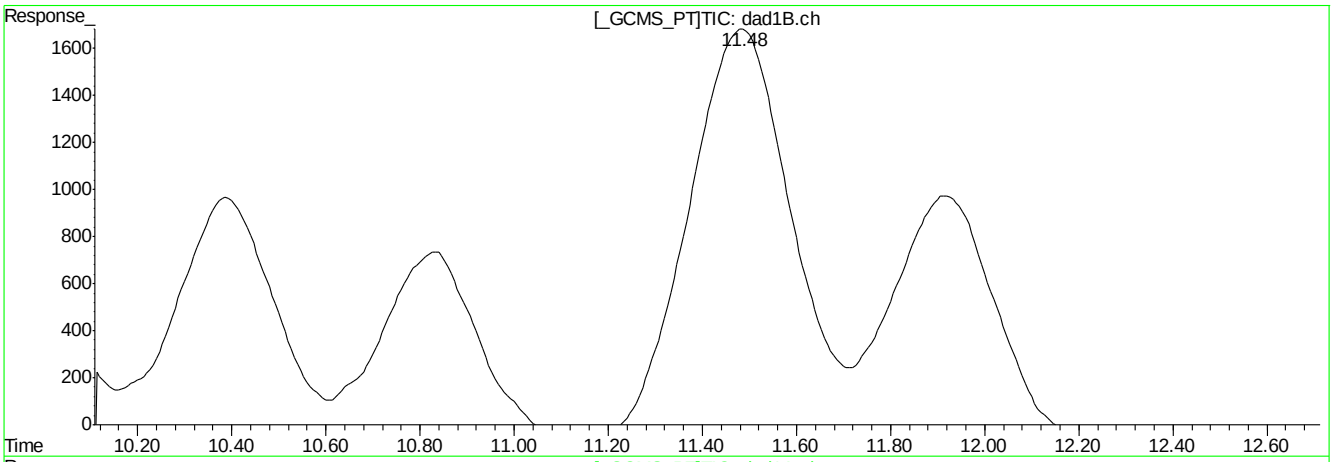
response 420714

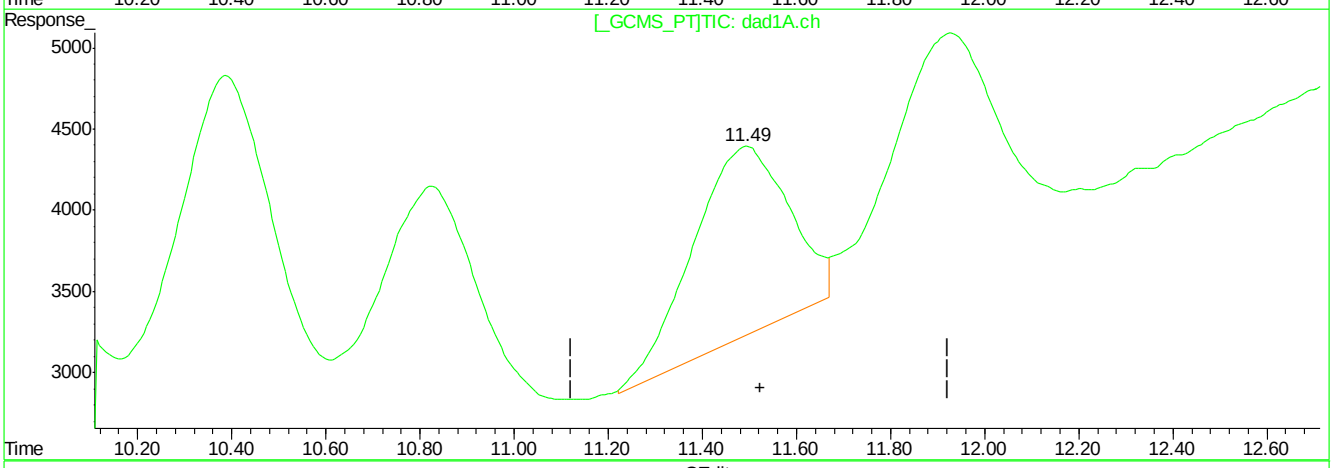
(+) = Expected Retention Time
BB066560.D 8330B_101119_PLUS.M Mon Oct 14 09:36:34 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1A.ch
Acq On : 11-Oct-2019, 12:12:38 Operator: williamh
Sample : ic1929-50 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(16) 2,4-Dinitrotoluene

11.49min 53.566ppb

response 266641

(16) 2,4-Dinitrotoluene #2

11.49min 53.625ppb m

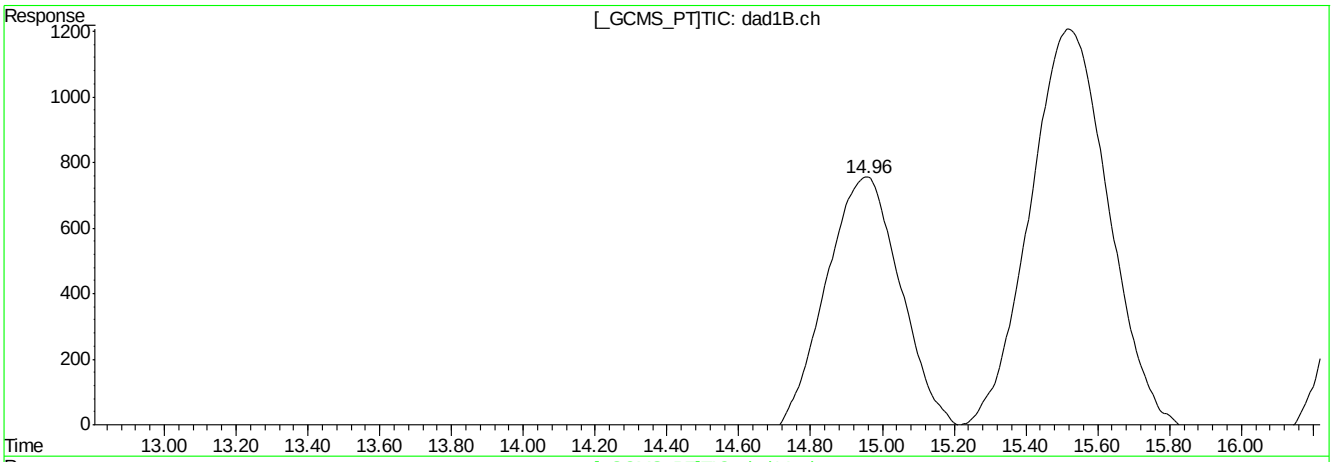
response 165984

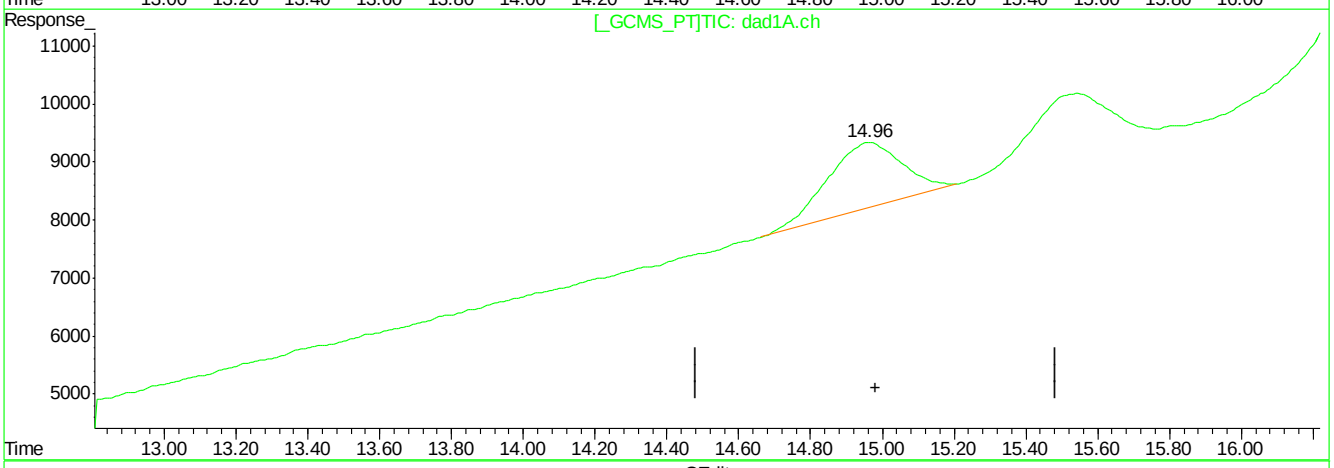
(+) = Expected Retention Time
BB066560.D 8330B_101119_PLUS.M Mon Oct 14 09:36:47 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1A.ch
Acq On : 11-Oct-2019, 12:12:38 Operator: williamh
Sample : ic1929-50 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(18) o-Nitrotoluene

14.96min 54.180ppb

response 129306

(18) o-Nitrotoluene #2

14.96min 51.805ppb m

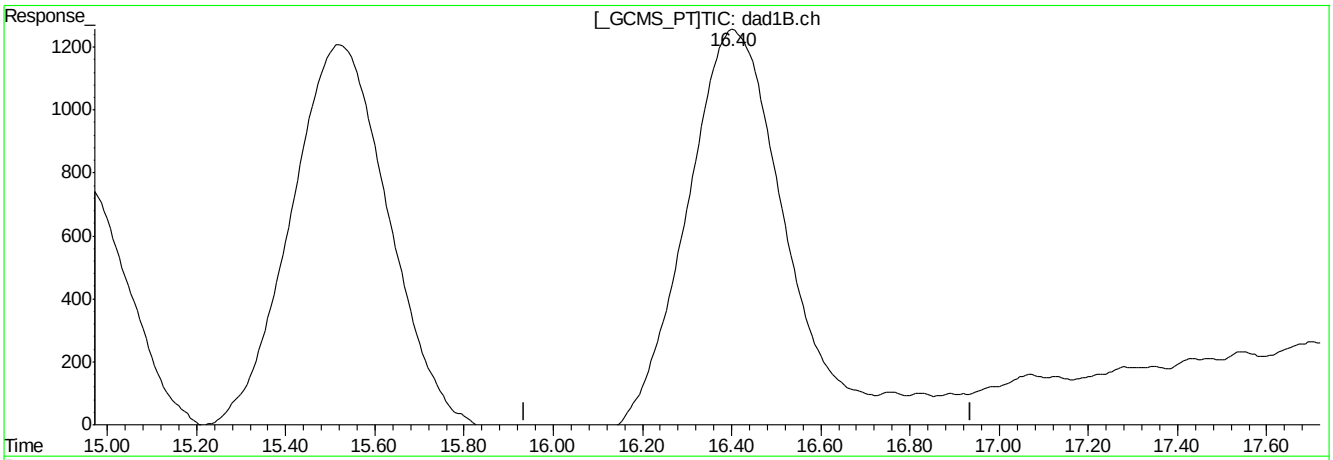
response 164658

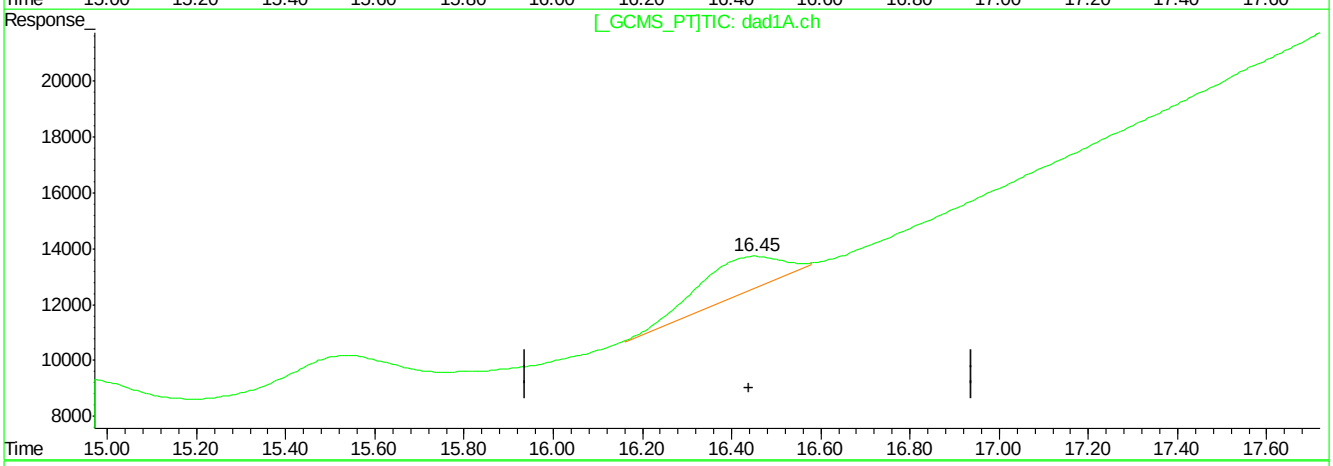
(+) = Expected Retention Time
BB066560.D 8330B_101119_PLUS.M Mon Oct 14 09:36:54 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1A.ch
Acq On : 11-Oct-2019, 12:12:38 Operator: williamh
Sample : ic1929-50 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(20) m-Nitrotoluene

16.40min 50.402ppb

response 175191

(20) m-Nitrotoluene #2

16.45min 41.601ppb m

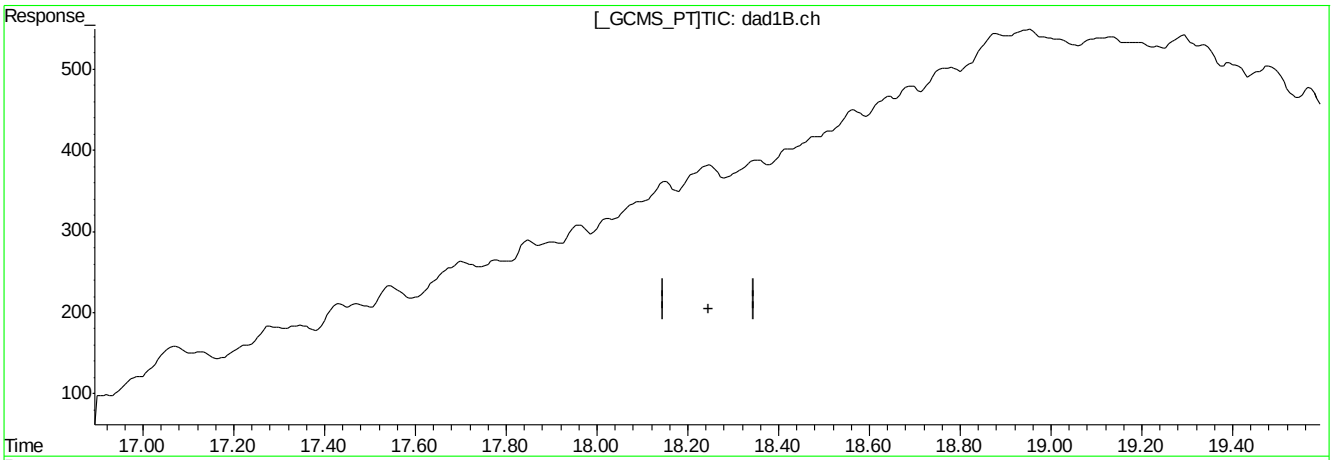
response 165742

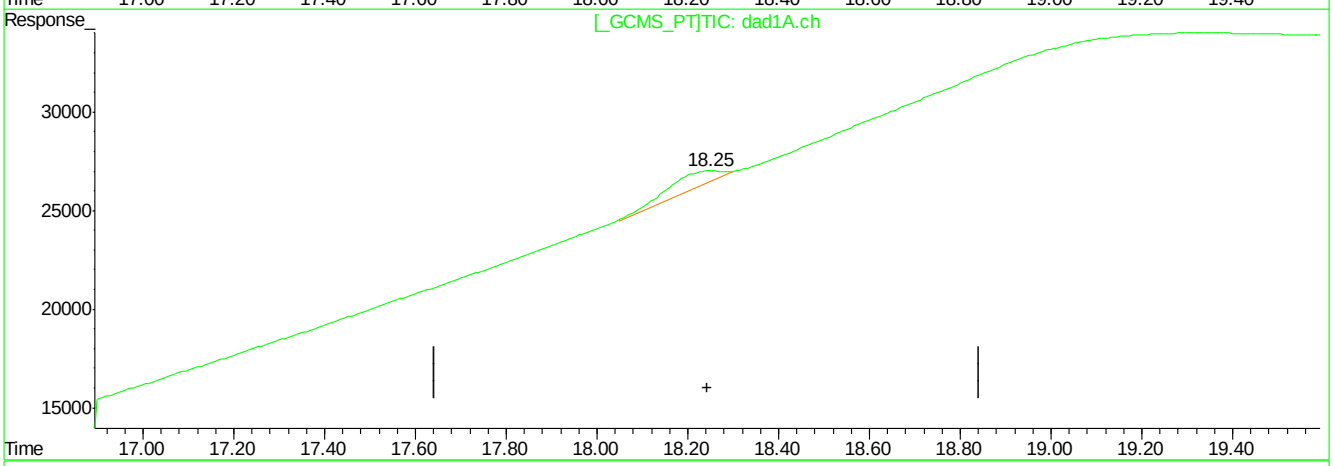
(+) = Expected Retention Time
BB066560.D 8330B_101119_PLUS.M Mon Oct 14 09:37:02 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066560.D\dad1A.ch
Acq On : 11-Oct-2019, 12:12:38 Operator: williamh
Sample : ic1929-50 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb d

response 0

(21) PETN #2

18.25min 44.804ppb m

response 62577

(+) = Expected Retention Time
BB066560.D 8330B_101119_PLUS.M Mon Oct 14 09:37:09 2019

Manual Integrations APPROVED (compounds with "m" flag)
Evita Martinez
10/14/19 10:52

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1A.ch
Acq On : 11-Oct-2019, 12:42:36 Operator: williamh
Sample : ic1929-100 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 09:31:41 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
System Monitoring Compounds						
15) S 3,4-Dinitrotolue	10.84	10.84	203484	344124	96.542	97.574
Spiked Amount 500.000	Range 69 - 134		Recovery =		19.31%#	19.51%#
Target Compounds						
1) TNX	1.33	1.33	260750	368078	92.940m	82.047m
2) HMX	1.46	1.46	136422	396885	82.048m	86.257m
3) DNX	1.70	1.70	127054	172989	90.192m	74.351m
4) MNX	2.28	2.28	268112	393488	102.518	98.054m
5) RDX	2.89	2.89	202325	349337	100.254	109.159
6) 1,3,5-Trinitrobe	4.63	4.63	437686	826876	98.711	99.011
7) 1,3-Dinitrobenze	5.80	5.80	557912	399834	99.240	104.295m
8) 3,5-Dinitroanili	6.15	6.15	424037	728447	98.992	98.688m
9) Nitrobenzene	7.31	7.31	334950	326780	98.594	97.566
10) Nitroglycerin	0.00	8.73	0	131689	N.D.	101.727 #
11) Tetryl	9.13	9.13	319671	513415	99.874	99.310
12) 2,4,6-Trinitroto	9.59	9.59	393878	469090	99.046	98.969
13) 2-Amino-4,6-Dini	9.95	9.95	355814	526442	98.889	98.177
14) 4-Amino-2,6-Dini	10.41	10.40	263147	516270	98.241	98.848
16) 2,4-Dinitrotolue	11.49	11.50	493165	303272	99.074	97.980
17) 2,6-Dinitrotolue	11.93	11.94	291365	360369	97.981	98.355
18) o-Nitrotoluene	14.97	14.97	243223	318973	101.912	100.355m
19) p-Nitrotoluene	15.54	15.55	374140	302577	97.069	101.224
20) m-Nitrotoluene	16.42	16.44	348418	350557	100.239	87.952m
21) PETN	0.00	18.24	0	129949	N.D.	93.042m#

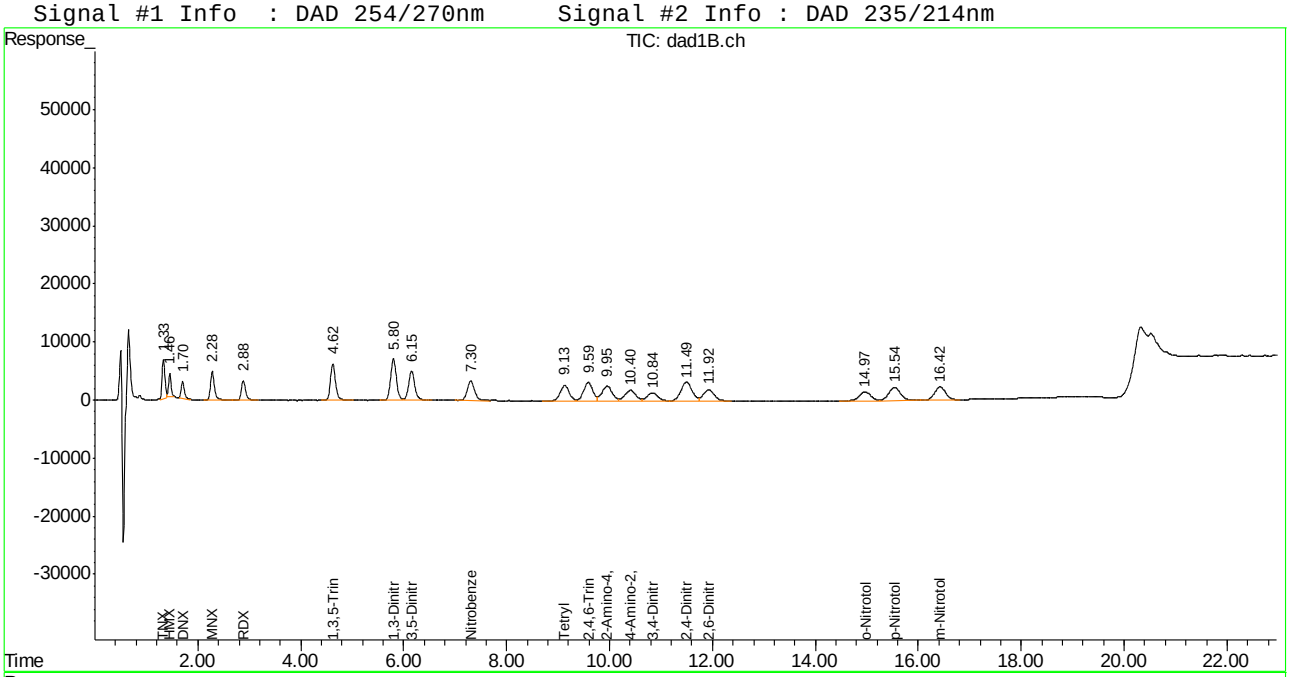
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB066561.D 8330B_101119_PLUS.M Mon Oct 14 09:54:55 2019 Page 1

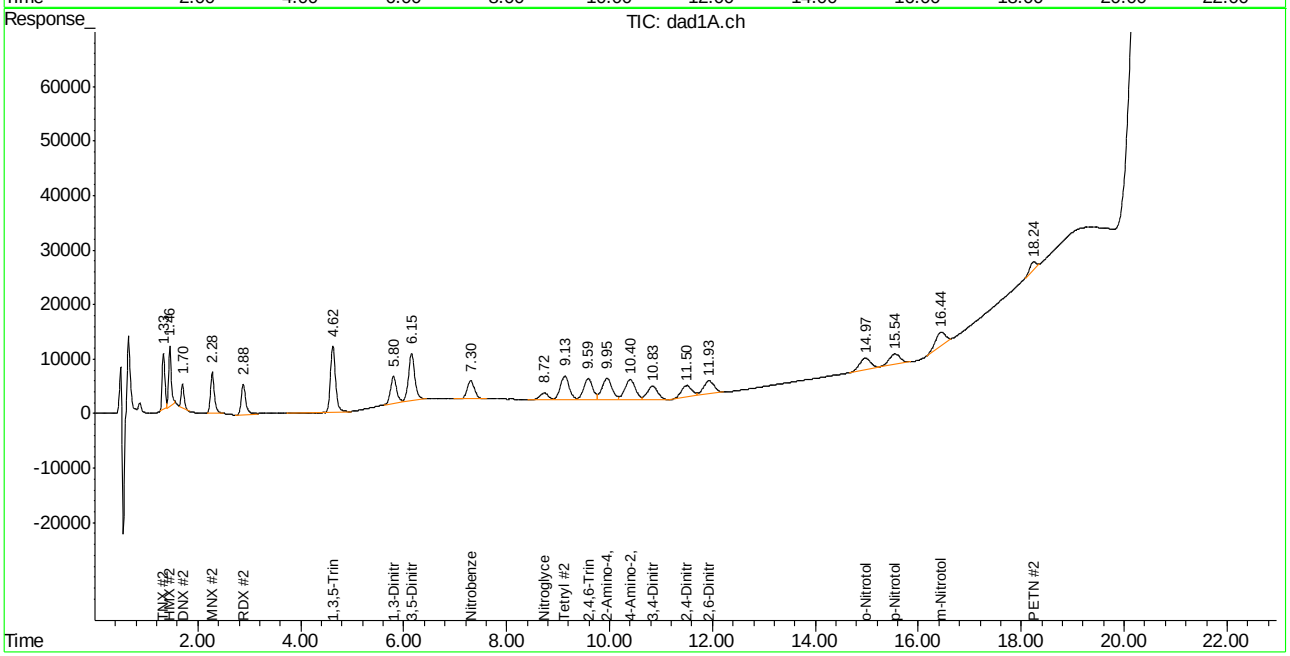
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1A.ch
Acq On : 11-Oct-2019, 12:42:36 Operator: williamh
Sample : ic1929-100 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:38 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

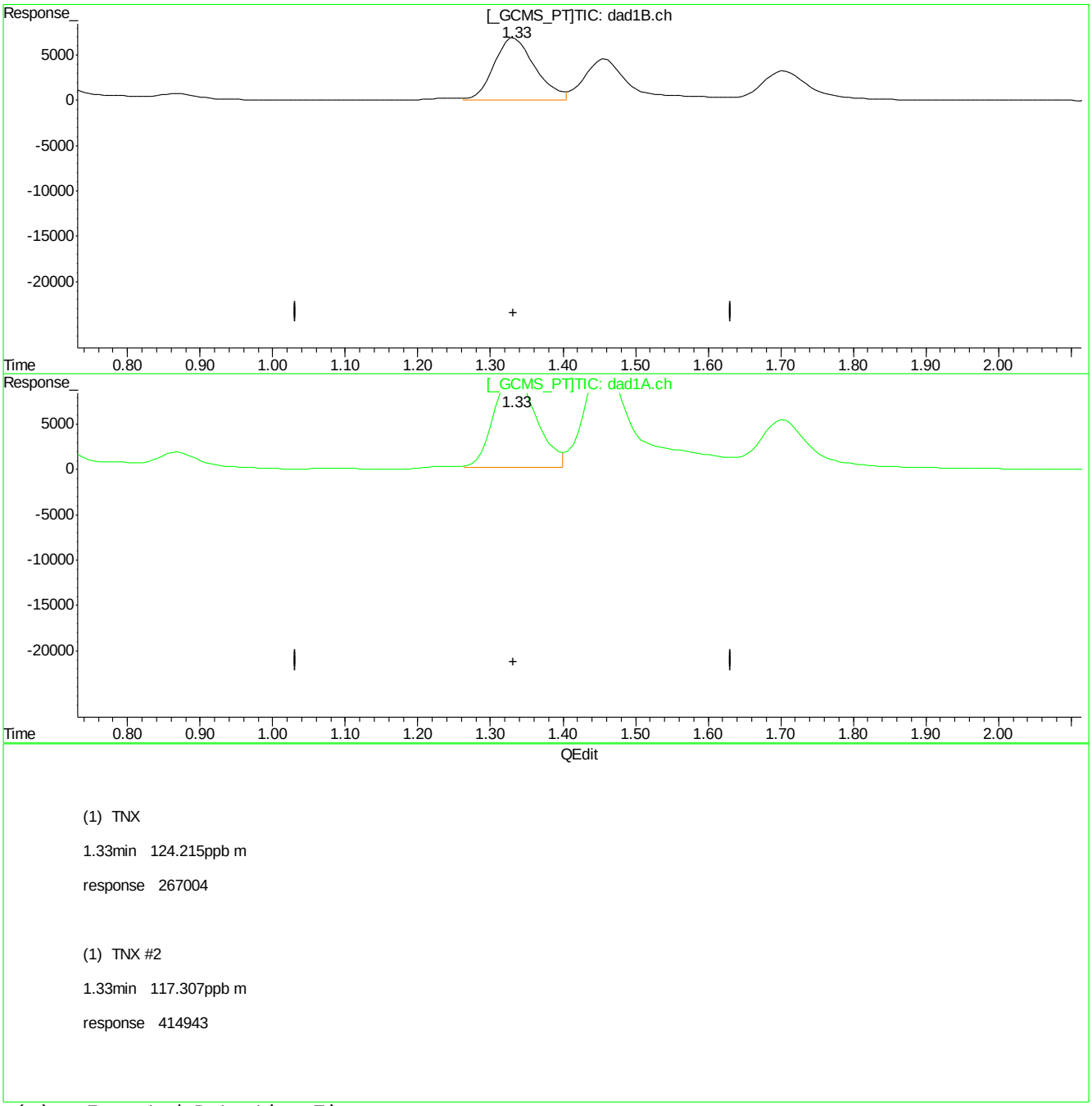
Sample Number: GBB1929-IC1929
Lab FileID: BB066561.D
Injection Time: 10/11/19 12:42
Method: SW846 8330B
Analyst approved: 10/14/19 10:02 William Hustedde
Supervisor approved: 10/14/19 10:52 Evita Martinez

Parameter	CAS	Sig#	R.T. (min.)	Reason
TNX		1	1.33	Poor instrument integration
TNX		2	1.33	Poor instrument integration
HMX	2691-41-0	1	1.46	Poor instrument integration
HMX	2691-41-0	2	1.46	Poor instrument integration
DNX		1	1.70	Poor instrument integration
DNX		2	1.70	Poor instrument integration
MNX		2	2.28	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	5.80	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	6.15	Poor instrument integration
o-Nitrotoluene	88-72-2	2	14.97	Poor instrument integration
m-Nitrotoluene	99-08-1	2	16.44	Poor instrument integration
PETN	78-11-5	2	18.24	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1A.ch
Acq On : 11-Oct-2019, 12:42:36 Operator: williamh
Sample : ic1929-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration



(1) TNX

1.33min 124.215ppb m

response 267004

(1) TNX #2

1.33min 117.307ppb m

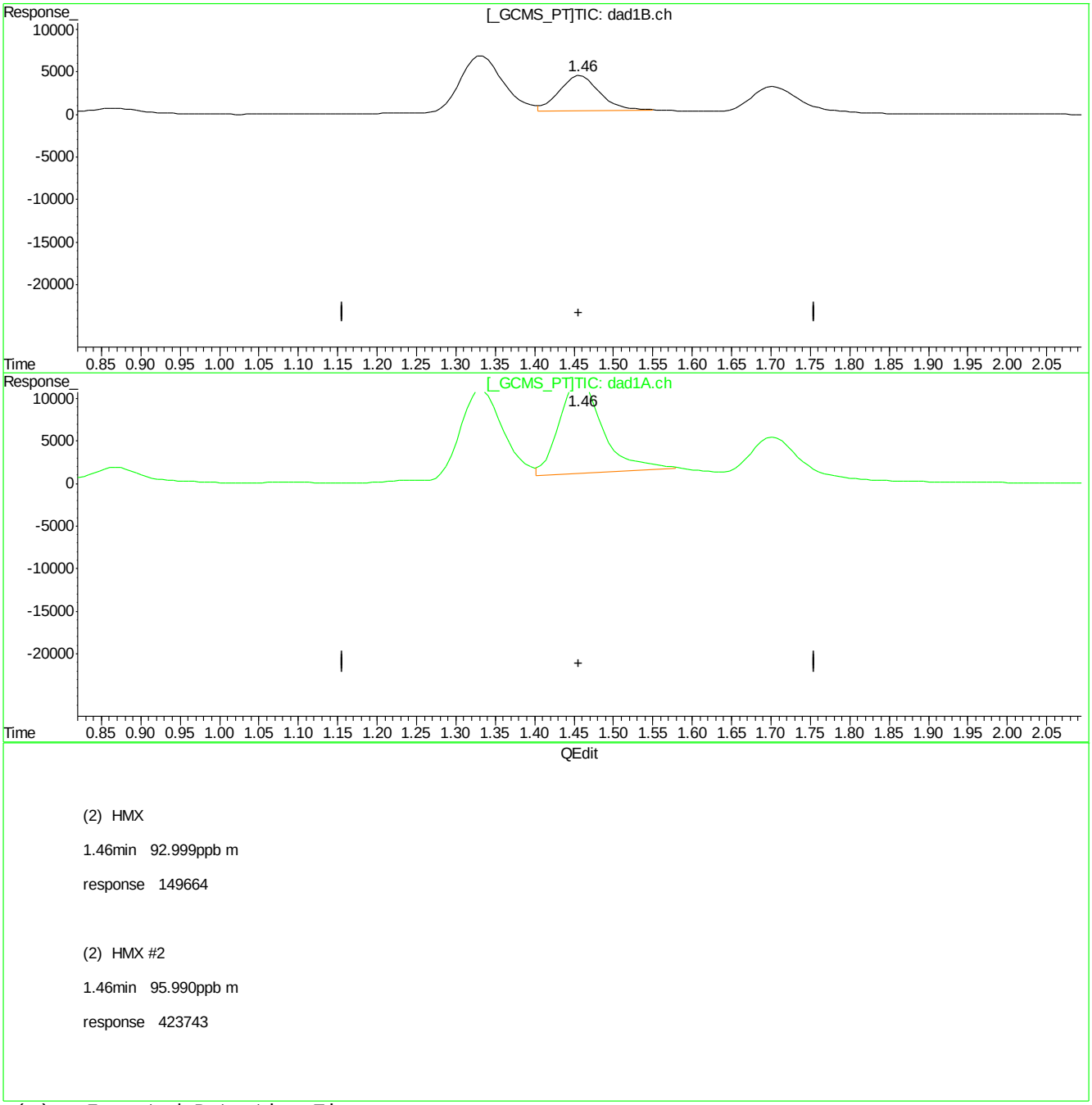
response 414943

(+) = Expected Retention Time
BB066561.D 8330B_082219_PLUS.M Fri Oct 11 15:47:11 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1A.ch
Acq On : 11-Oct-2019, 12:42:36 Operator: williamh
Sample : ic1929-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration

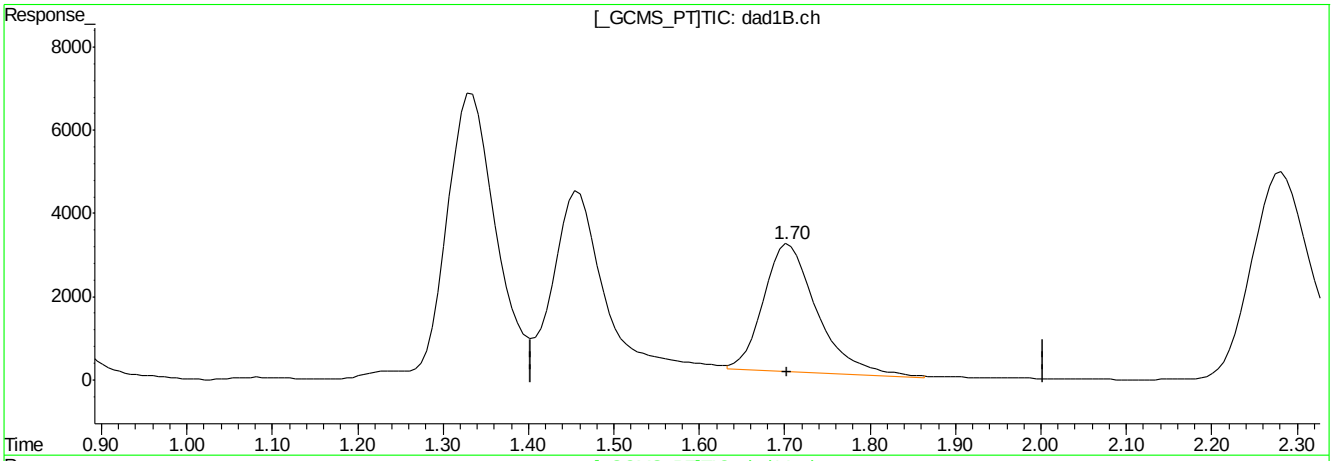


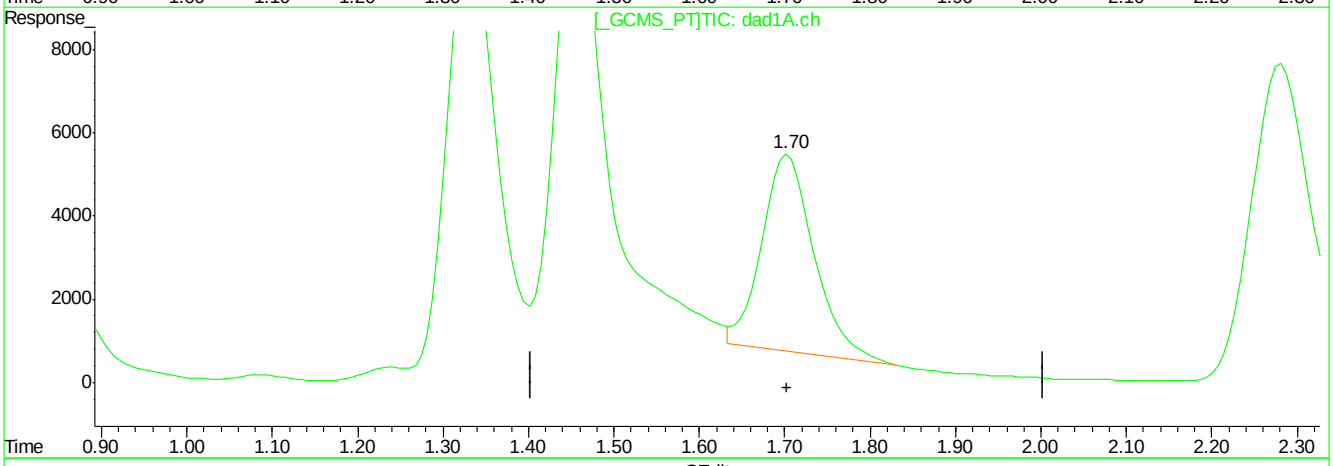
(+) = Expected Retention Time
BB066561.D 8330B_082219_PLUS.M Fri Oct 11 15:47:21 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1A.ch
Acq On : 11-Oct-2019, 12:42:36 Operator: williamh
Sample : ic1929-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration





QEdit

(3) DNX

1.70min 95.821ppb m

response 134985

(3) DNX #2

1.70min 85.313ppb m

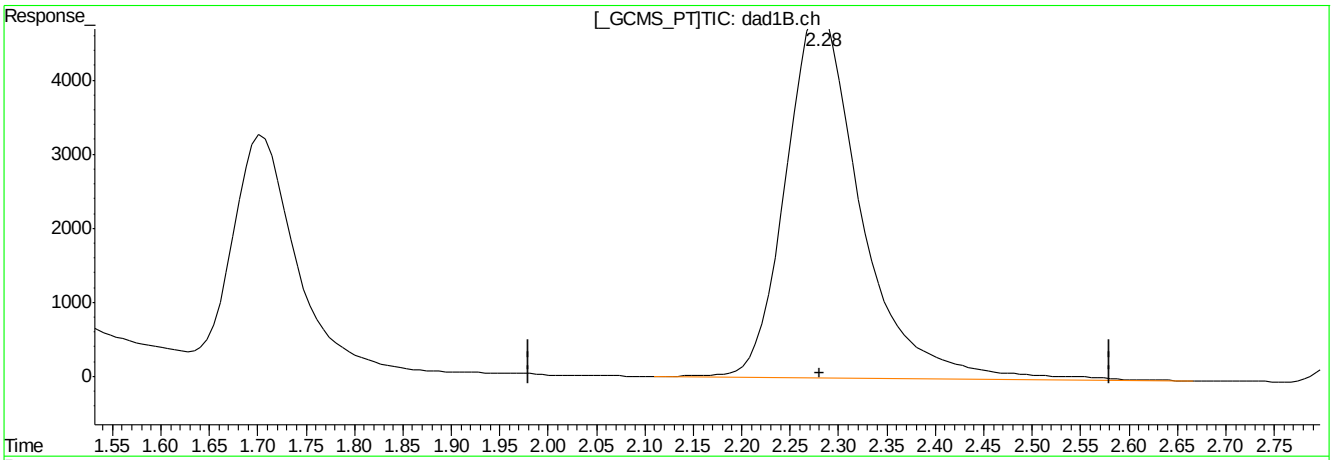
response 202315

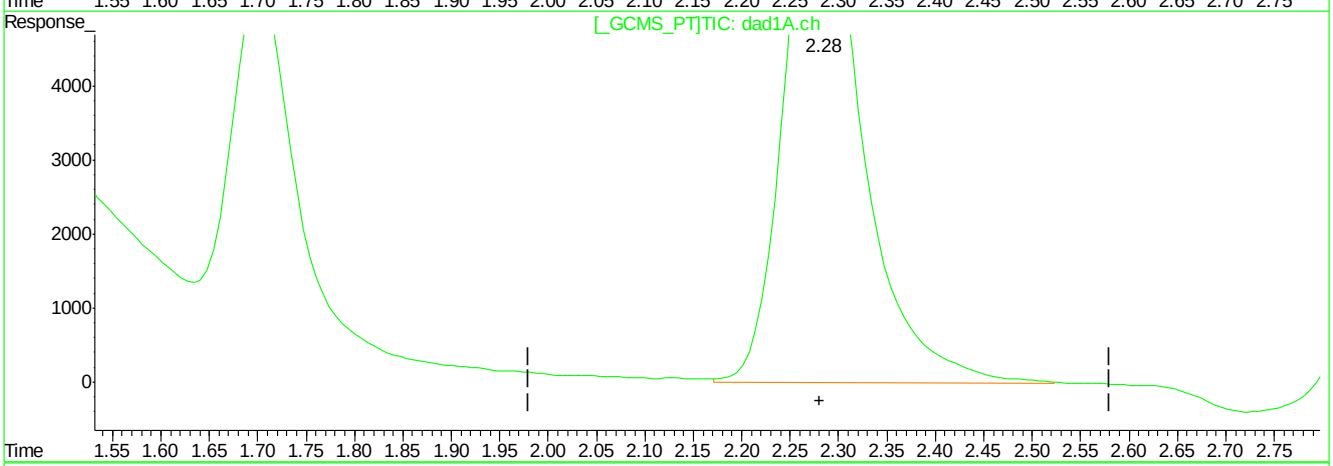
(+) = Expected Retention Time
BB066561.D 8330B_082219_PLUS.M Fri Oct 11 15:47:32 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1A.ch
Acq On : 11-Oct-2019, 12:42:36 Operator: williamh
Sample : ic1929-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration





QEdit

(4) MNX

2.28min 115.409ppb

response 268112

(4) MNX #2

2.28min 111.496ppb m

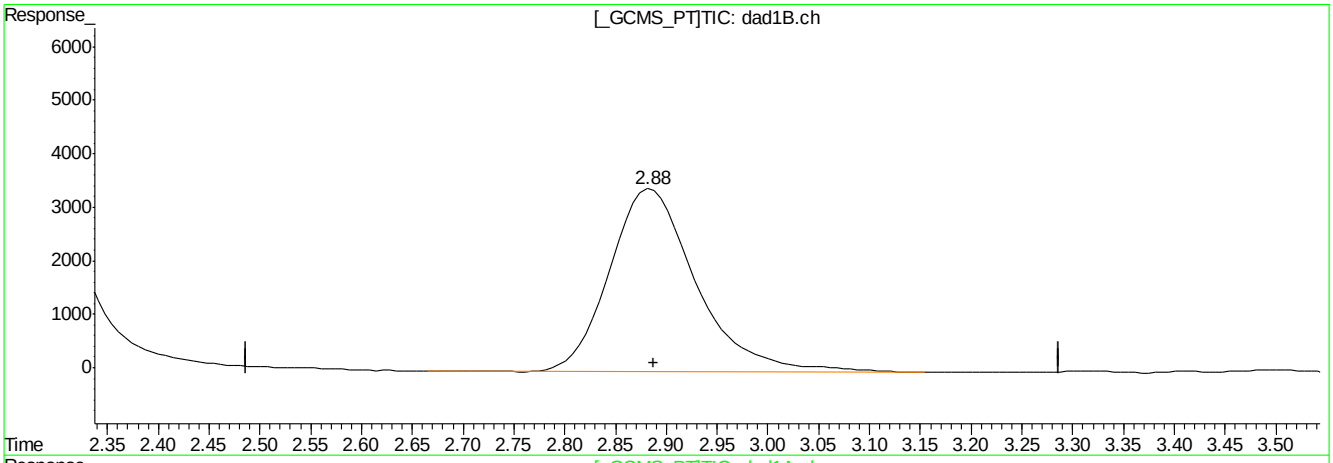
response 399677

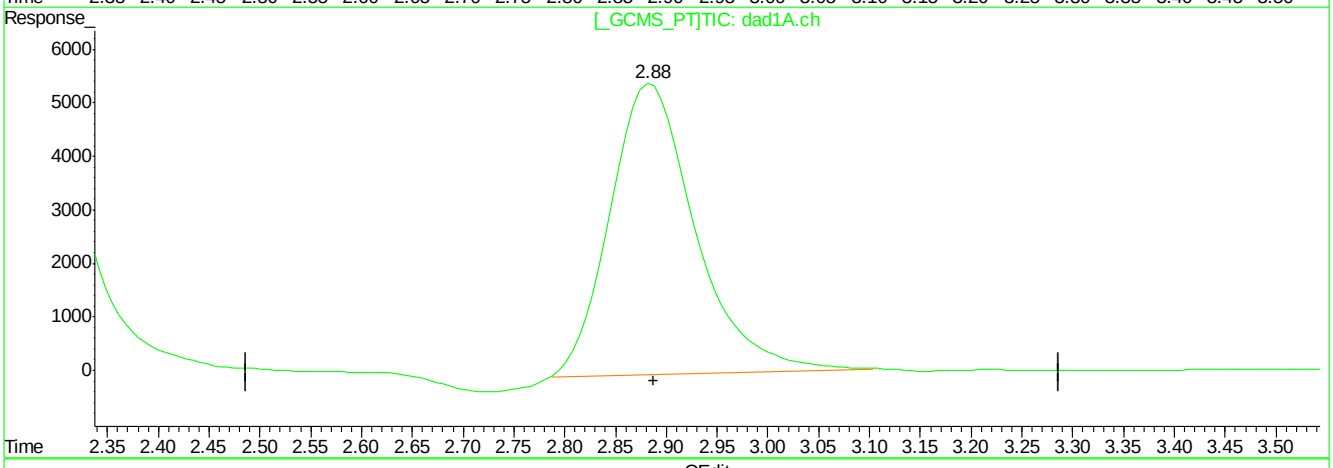
(+) = Expected Retention Time
BB066561.D 8330B_082219_PLUS.M Fri Oct 11 15:47:40 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1A.ch
Acq On : 11-Oct-2019, 12:42:36 Operator: williamh
Sample : ic1929-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration





QEdit

(5) RDX

2.89min 102.372ppb

response 202325

(5) RDX #2

2.88min 101.876ppb m

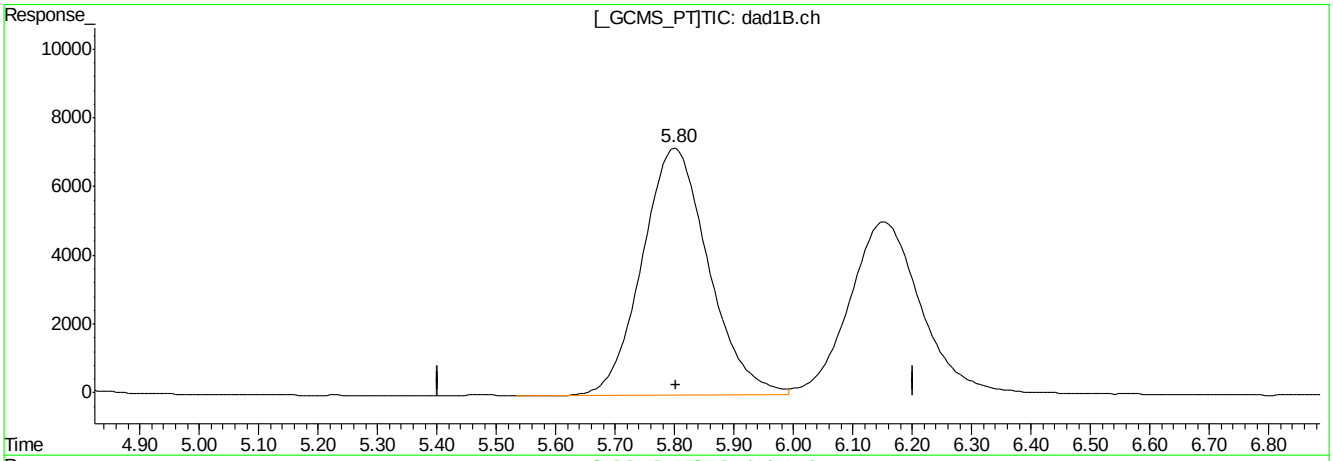
response 317757

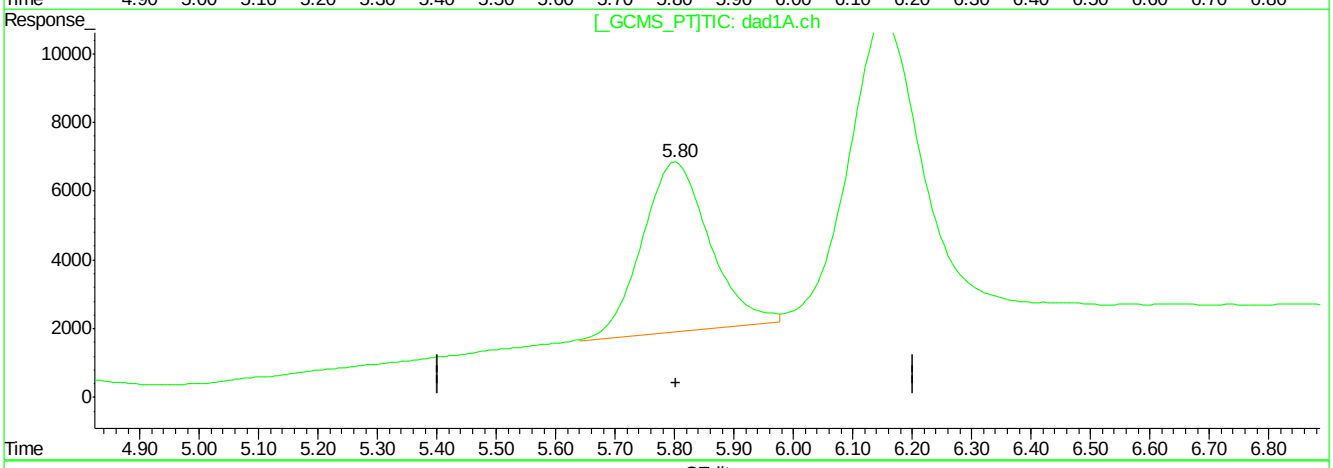
(+) = Expected Retention Time
BB066561.D 8330B_082219_PLUS.M Fri Oct 11 15:47:50 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1A.ch
Acq On : 11-Oct-2019, 12:42:36 Operator: williamh
Sample : ic1929-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

5.80min 102.533ppb

response 557912

(7) 1,3-Dinitrobenzene #2

5.80min 101.930ppb m

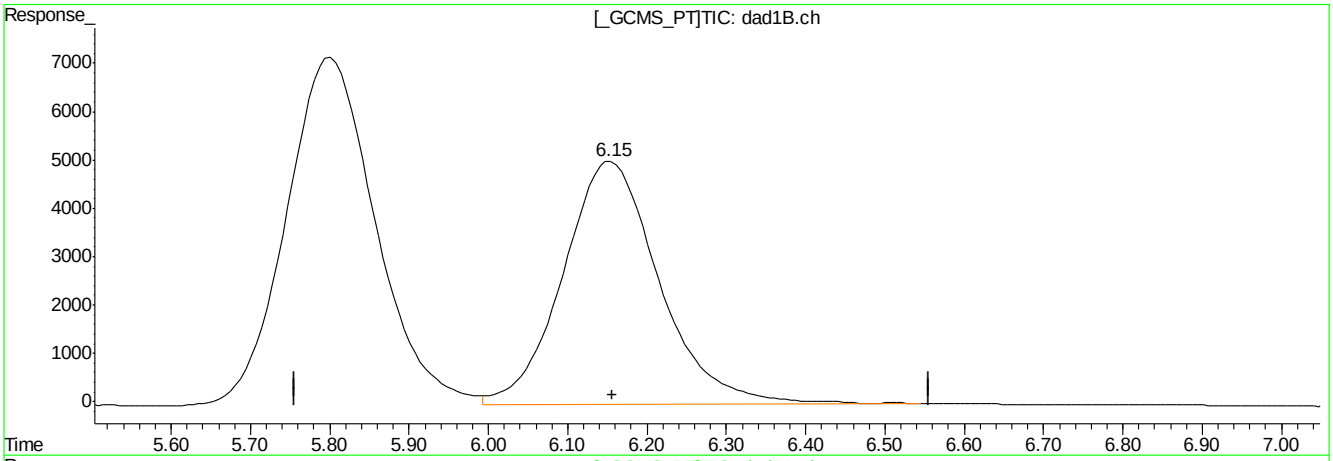
response 390298

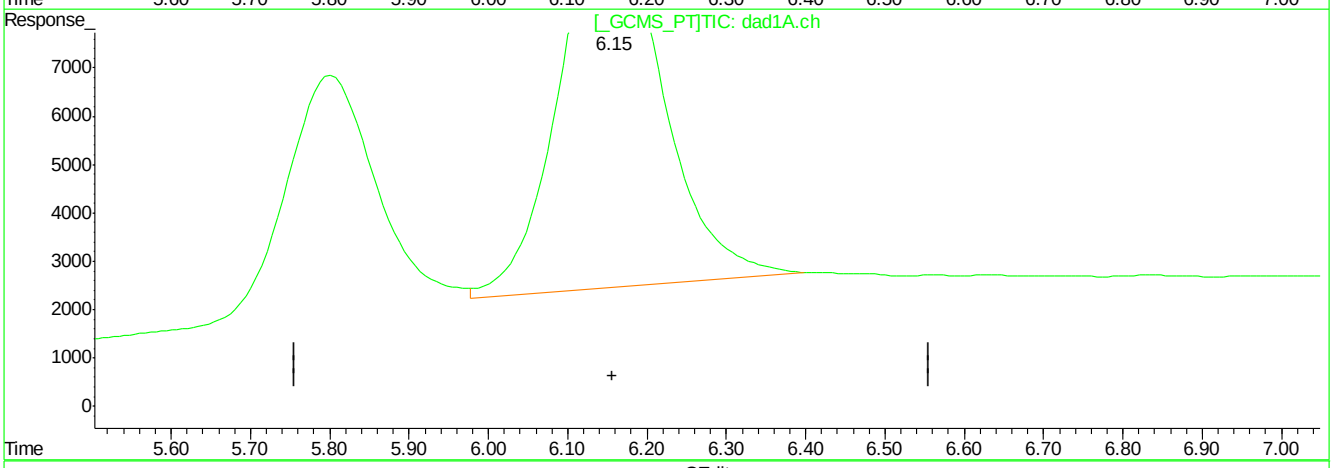
(+) = Expected Retention Time
BB066561.D 8330B_082219_PLUS.M Fri Oct 11 15:47:59 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1A.ch
Acq On : 11-Oct-2019, 12:42:36 Operator: williamh
Sample : ic1929-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.15min 102.288ppb

response 424037

(8) 3,5-Dinitroaniline #2

6.15min 98.509ppb m

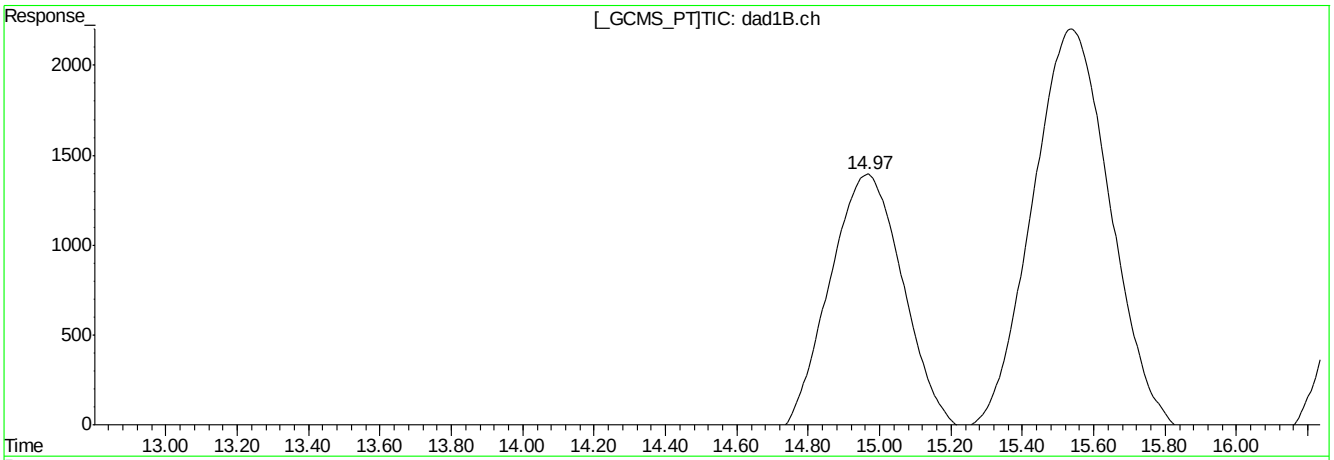
response 716768

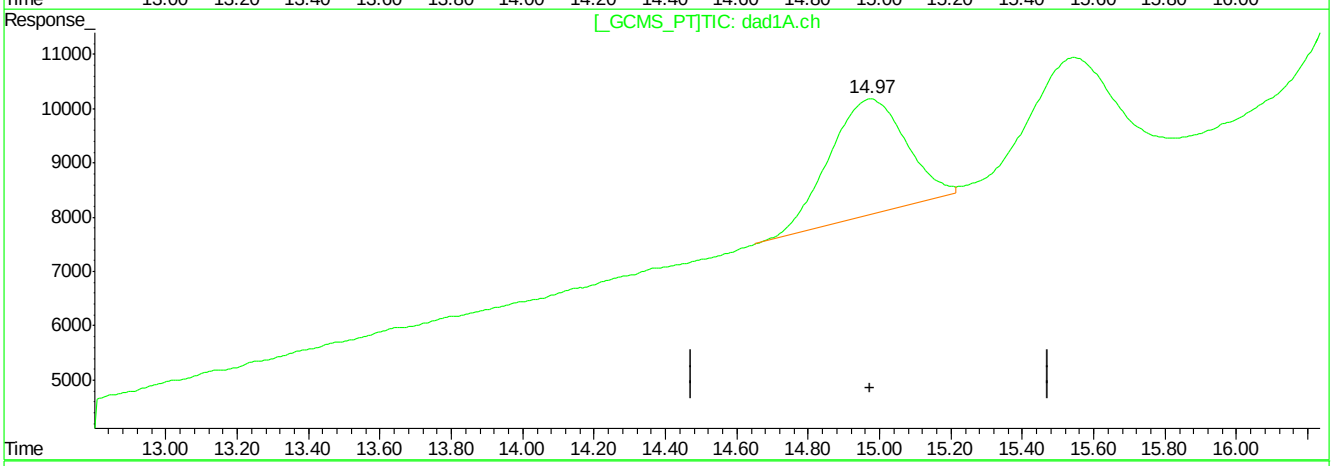
(+) = Expected Retention Time
BB066561.D 8330B_082219_PLUS.M Fri Oct 11 15:48:10 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1A.ch
Acq On : 11-Oct-2019, 12:42:36 Operator: williamh
Sample : ic1929-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration





QEdit

(18) o-Nitrotoluene

14.97min 107.340ppb

response 243223

(18) o-Nitrotoluene #2

14.97min 104.239ppb m

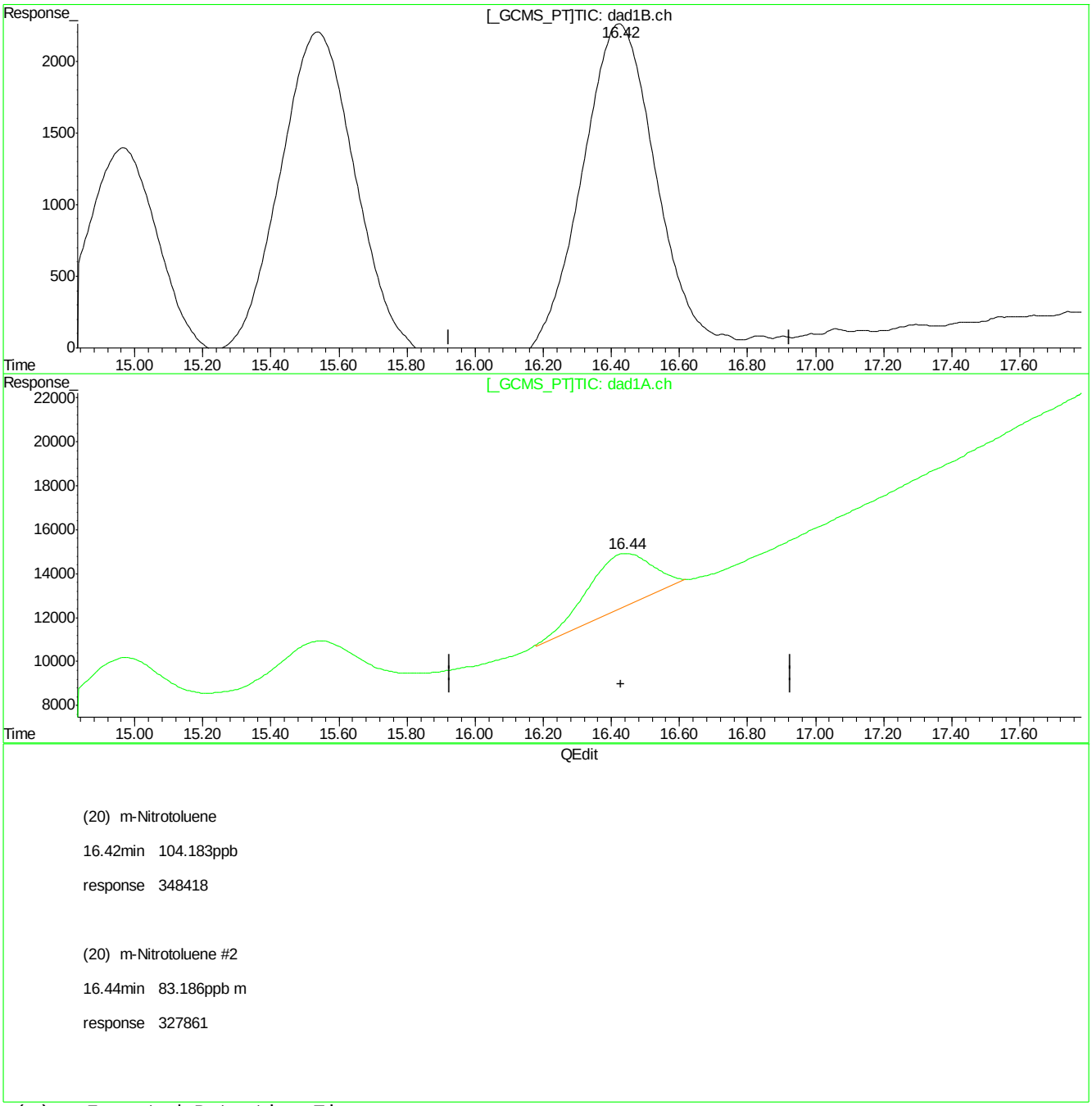
response 319388

(+) = Expected Retention Time
BB066561.D 8330B_082219_PLUS.M Fri Oct 11 15:48:26 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1A.ch
Acq On : 11-Oct-2019, 12:42:36 Operator: williamh
Sample : ic1929-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration



(20) m-Nitrotoluene

16.42min 104.183ppb

response 348418

(20) m-Nitrotoluene #2

16.44min 83.186ppb m

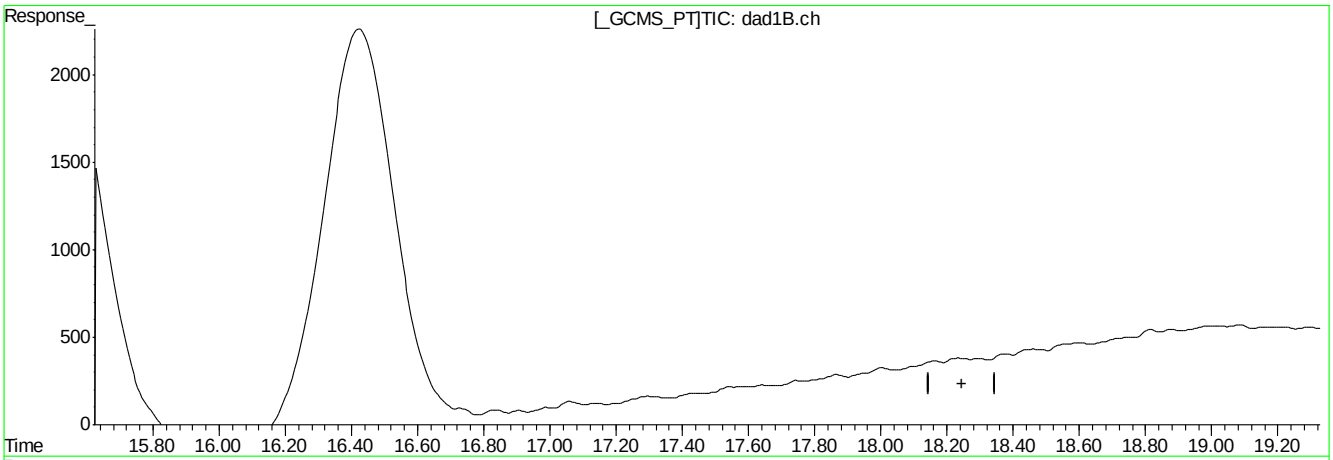
response 327861

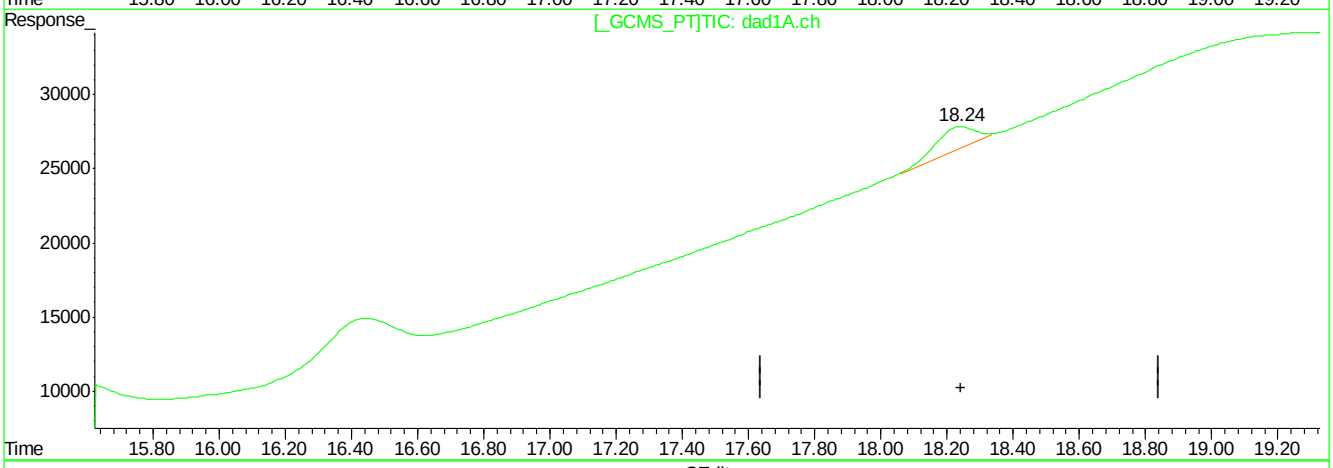
(+) = Expected Retention Time
BB066561.D 8330B_082219_PLUS.M Fri Oct 11 15:48:33 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1A.ch
Acq On : 11-Oct-2019, 12:42:36 Operator: williamh
Sample : ic1929-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

18.24min 92.123ppb m

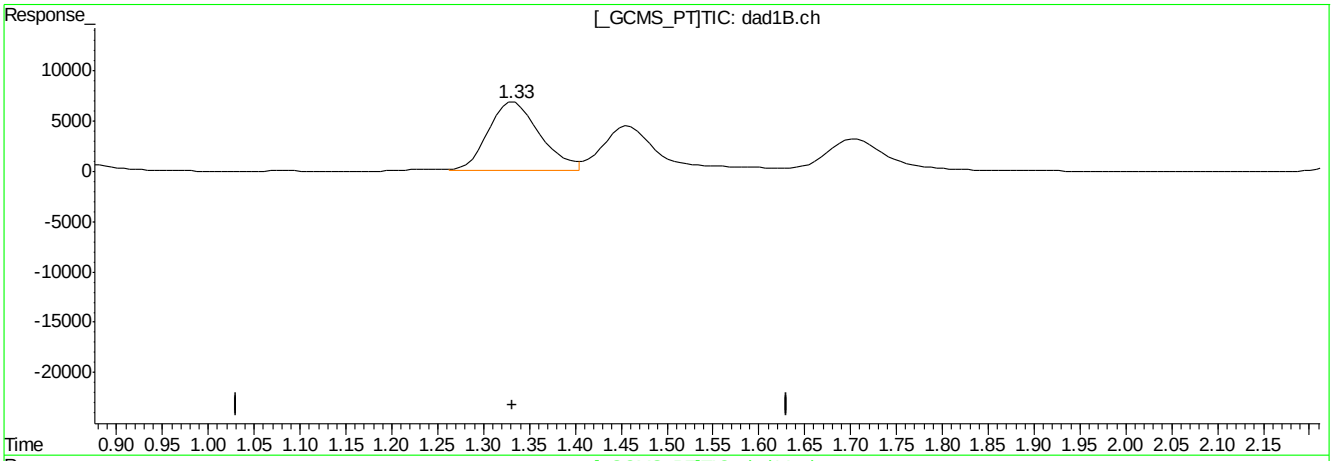
response 129998

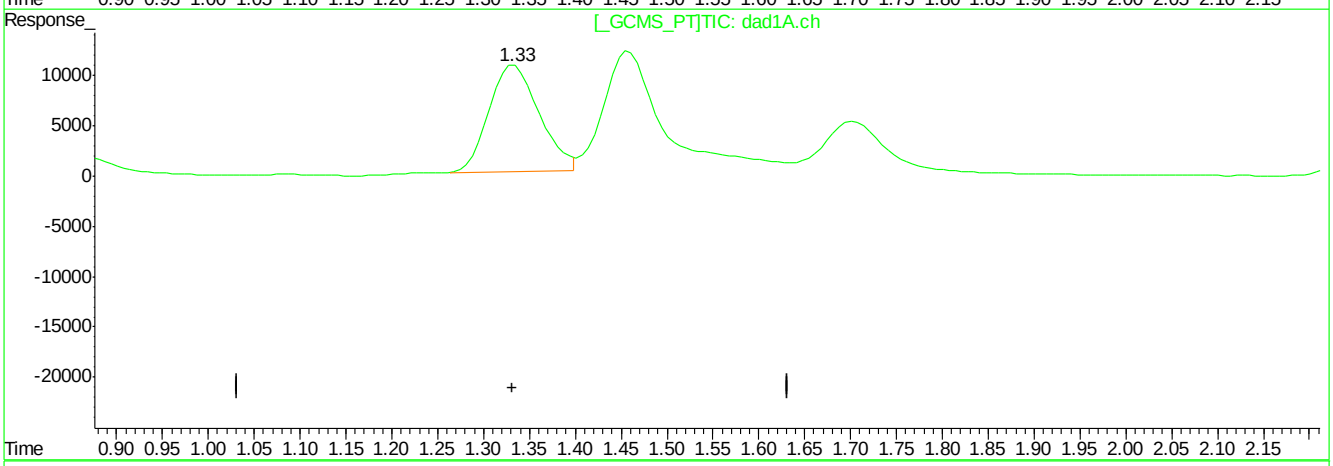
(+) = Expected Retention Time
BB066561.D 8330B_082219_PLUS.M Fri Oct 11 15:48:40 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1A.ch
Acq On : 11-Oct-2019, 12:42:36 Operator: williamh
Sample : ic1929-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:48 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:39:30 2019
Response via : Multiple Level Calibration





QEdit

(1) TNX

1.33min 124.215ppb m

response 267004

(1) TNX #2

1.33min 114.202ppb m

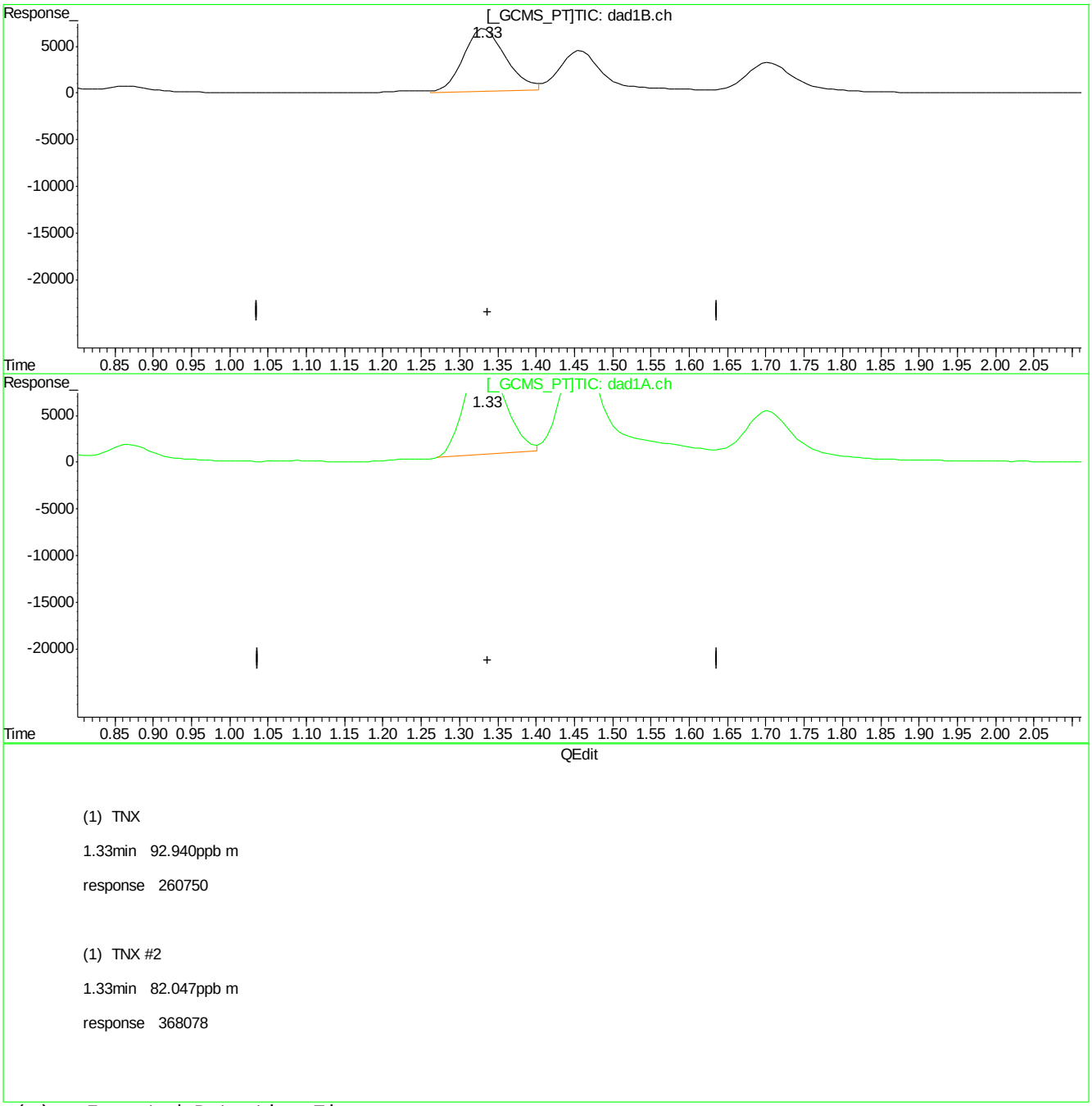
response 403960

(+) = Expected Retention Time
BB066561.D 8330B_082219_PLUS.M Fri Oct 11 16:40:36 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1A.ch
Acq On : 11-Oct-2019, 12:42:36 Operator: williamh
Sample : ic1929-100 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration



(1) TNX

1.33min 92.940ppb m

response 260750

(1) TNX #2

1.33min 82.047ppb m

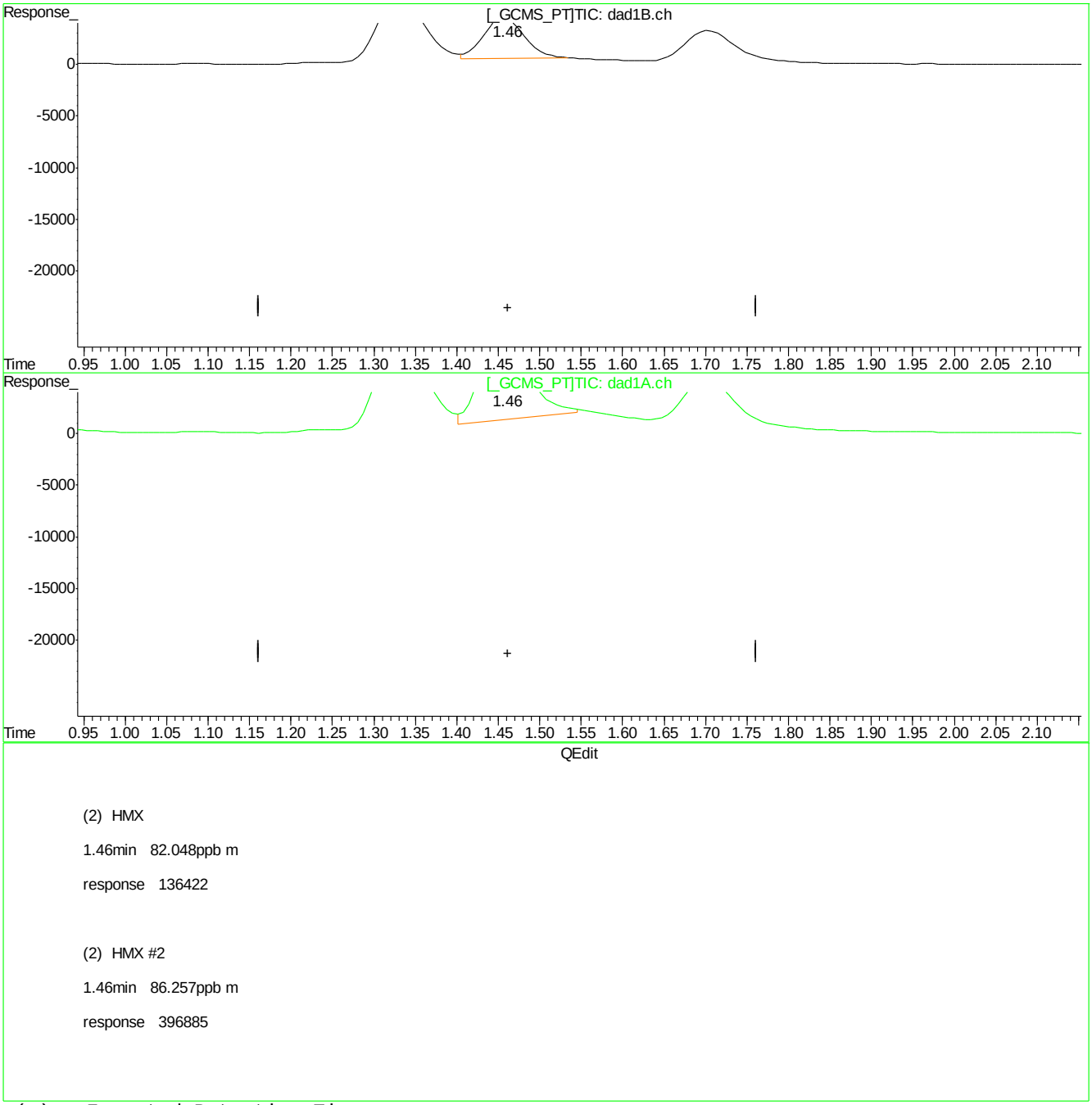
response 368078

(+) = Expected Retention Time
BB066561.D 8330B_101119_PLUS.M Mon Oct 14 09:37:24 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1A.ch
Acq On : 11-Oct-2019, 12:42:36 Operator: williamh
Sample : ic1929-100 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration

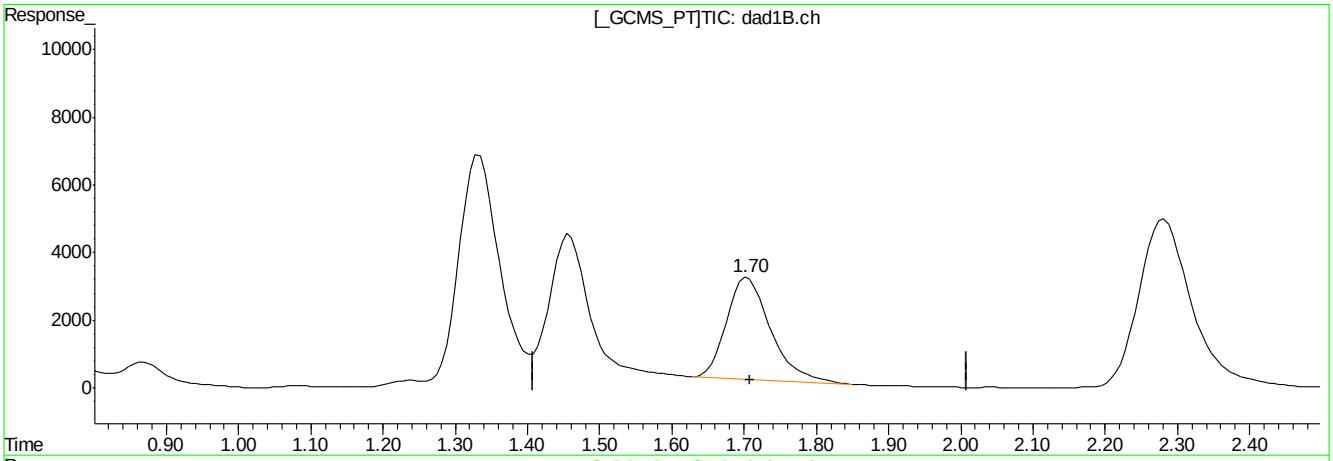


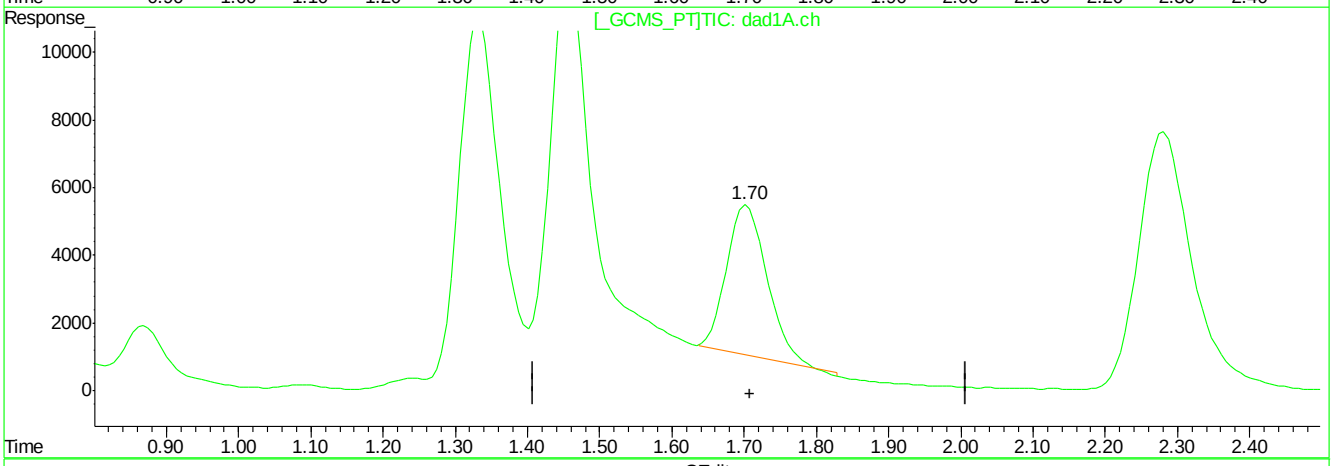
(+) = Expected Retention Time
BB066561.D 8330B_101119_PLUS.M Mon Oct 14 09:37:36 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1A.ch
Acq On : 11-Oct-2019, 12:42:36 Operator: williamh
Sample : ic1929-100 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(3) DNX

1.70min 90.192ppb m

response 127054

(3) DNX #2

1.70min 74.351ppb m

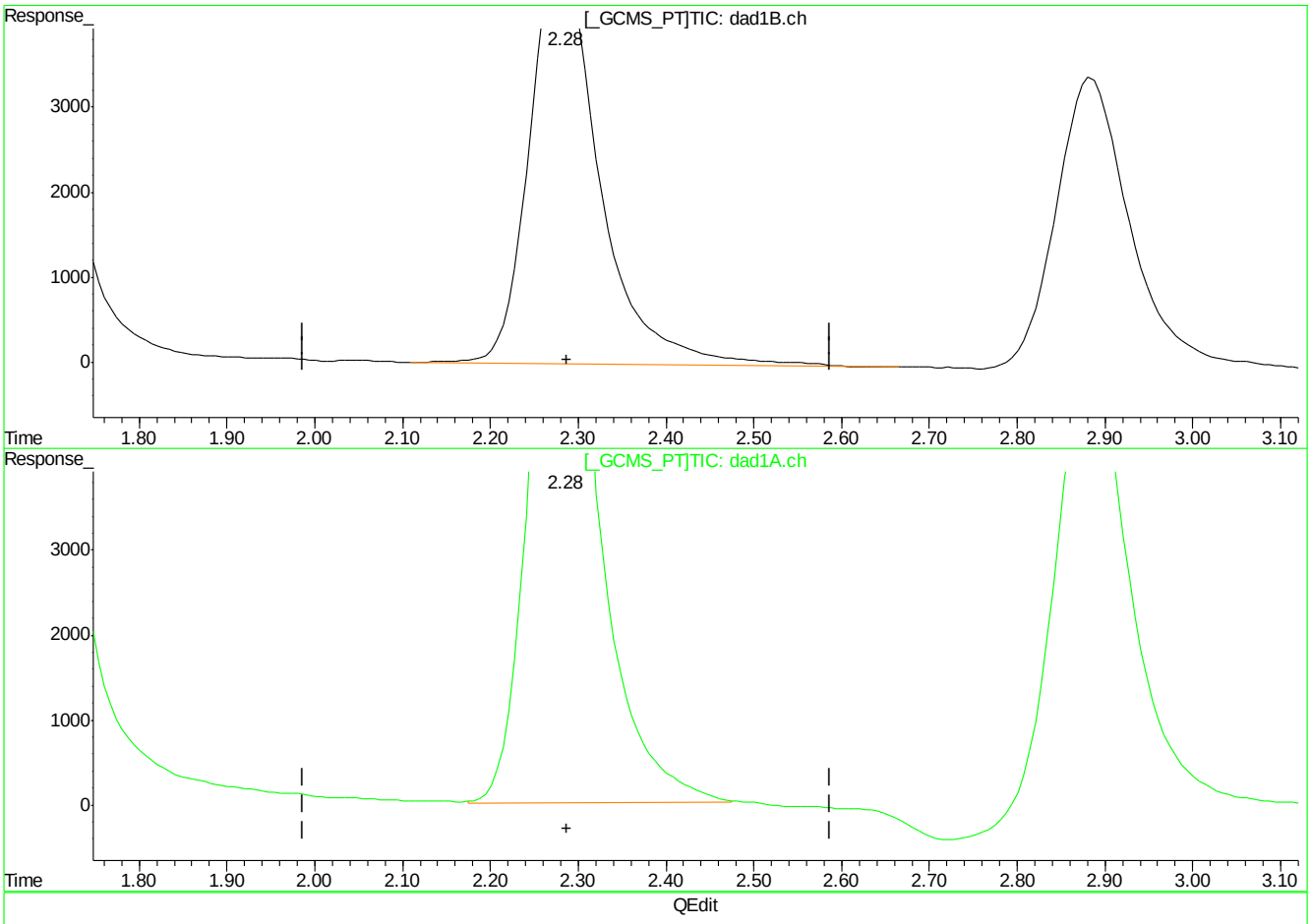
response 172989

(+) = Expected Retention Time
BB066561.D 8330B_101119_PLUS.M Mon Oct 14 09:37:45 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1A.ch
Acq On : 11-Oct-2019, 12:42:36 Operator: williamh
Sample : ic1929-100 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration



(4) MNX

2.28min 102.518ppb

response 268112

(4) MNX #2

2.28min 98.054ppb m

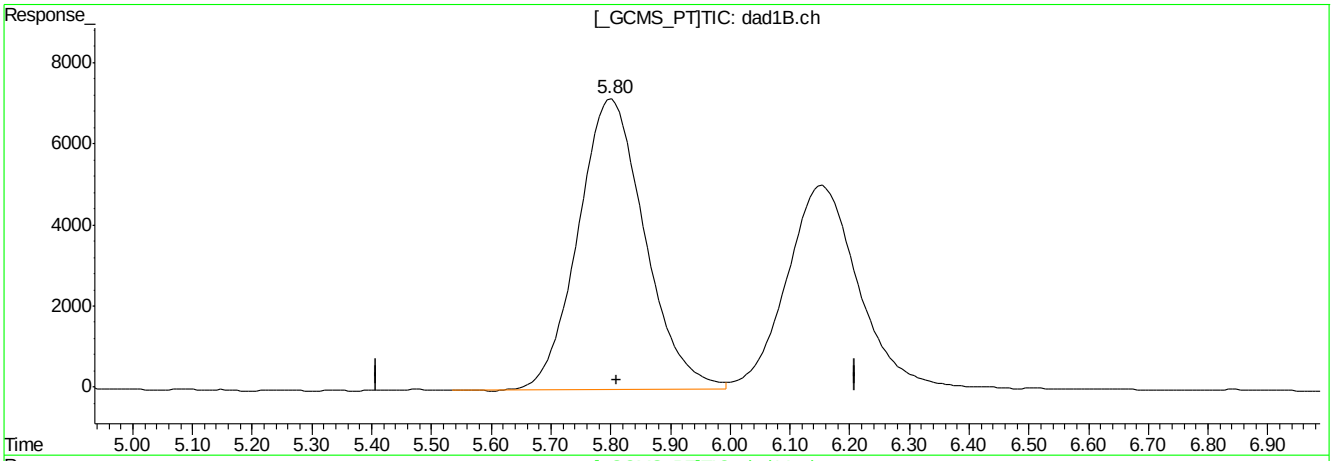
response 393488

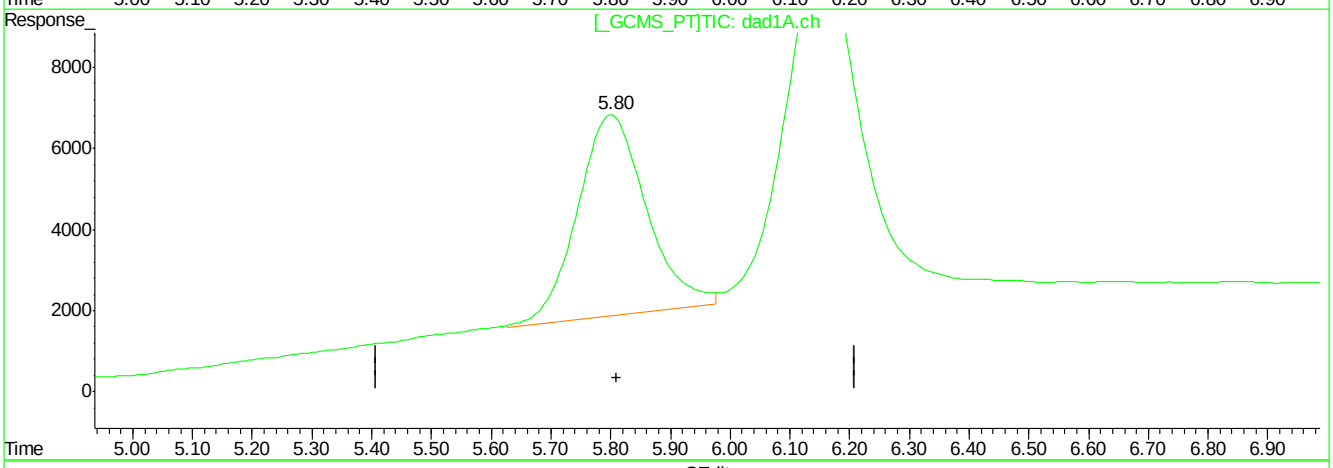
(+) = Expected Retention Time
BB066561.D 8330B_101119_PLUS.M Mon Oct 14 09:37:52 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1A.ch
Acq On : 11-Oct-2019, 12:42:36 Operator: williamh
Sample : ic1929-100 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

5.80min 99.240ppb

response 557912

(7) 1,3-Dinitrobenzene #2

5.80min 104.295ppb m

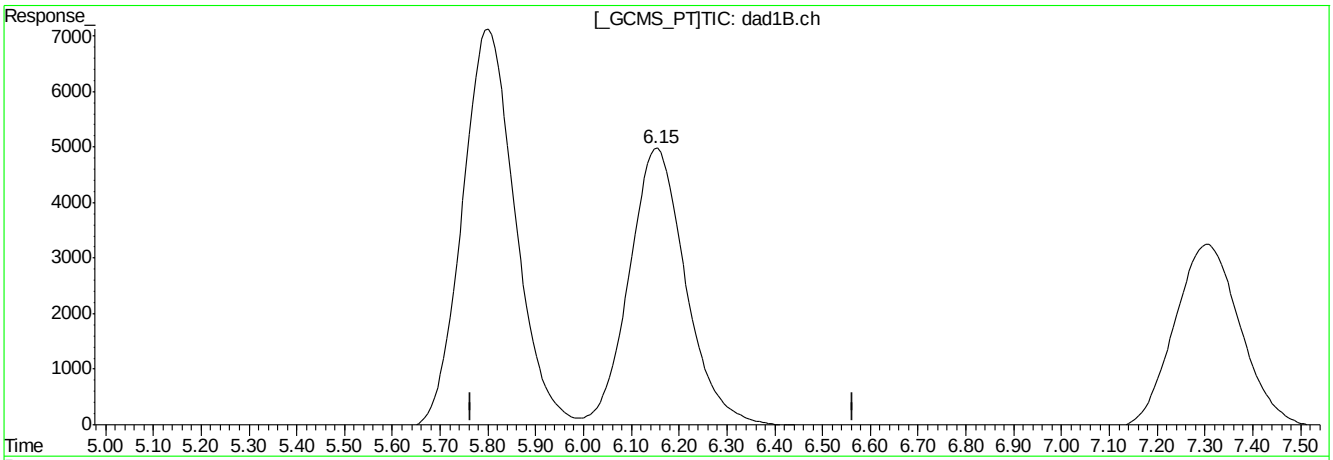
response 399834

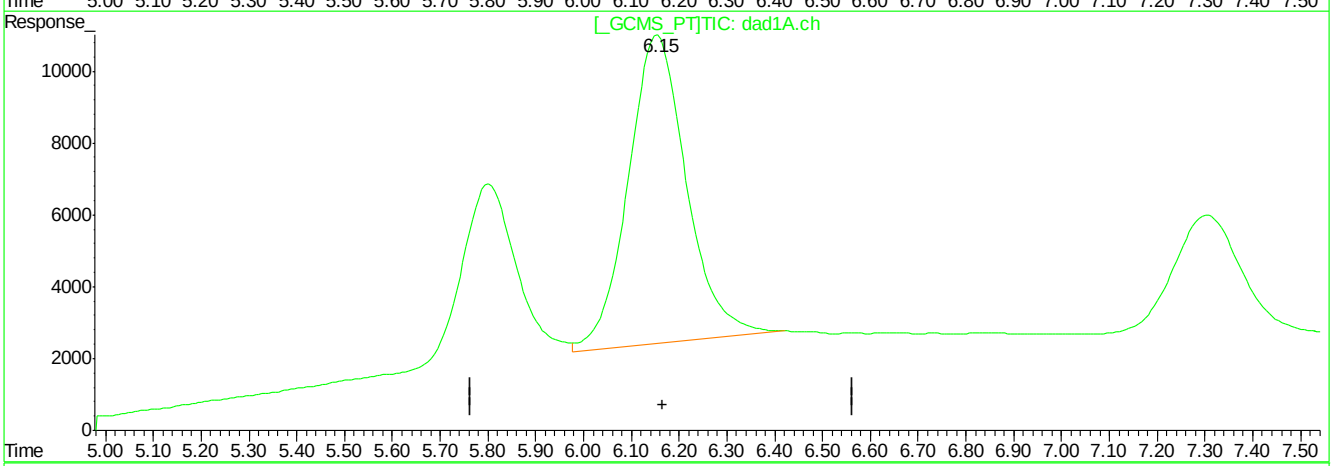
(+) = Expected Retention Time
BB066561.D 8330B_101119_PLUS.M Mon Oct 14 09:38:04 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1A.ch
Acq On : 11-Oct-2019, 12:42:36 Operator: williamh
Sample : ic1929-100 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.15min 98.992ppb

response 424037

(8) 3,5-Dinitroaniline #2

6.15min 98.688ppb m

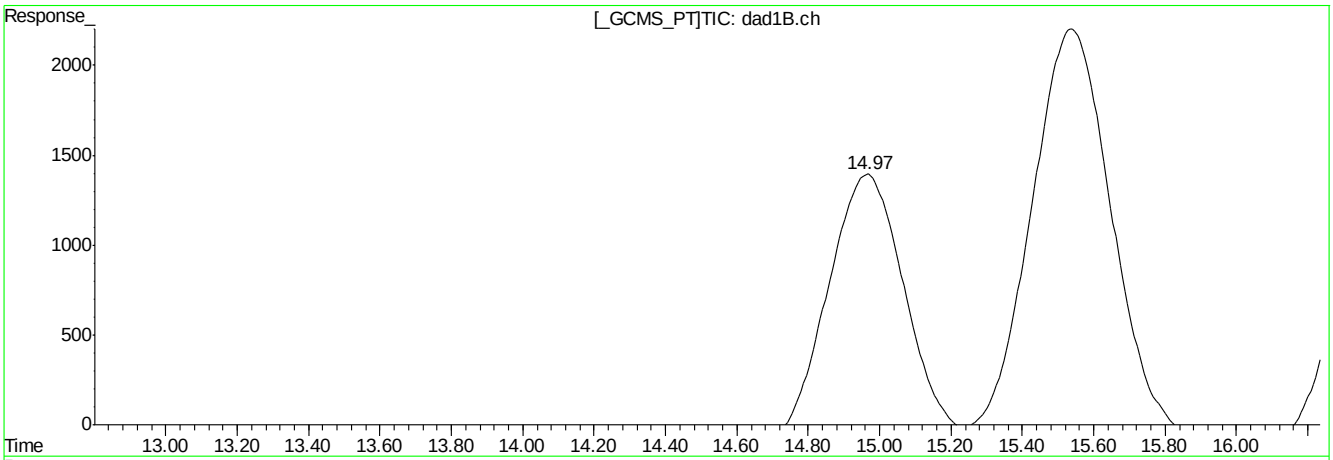
response 728447

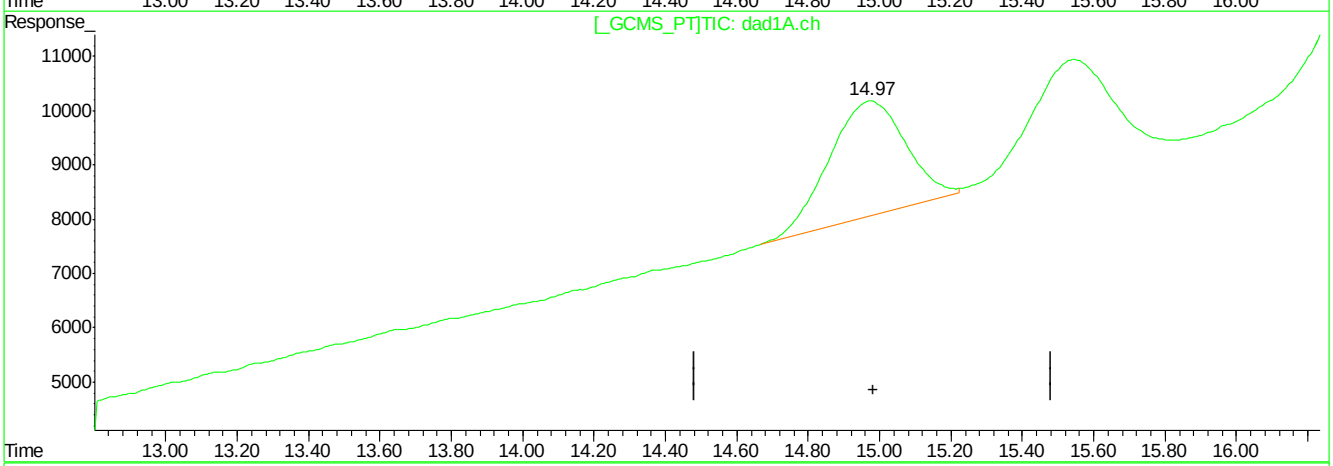
(+) = Expected Retention Time
BB066561.D 8330B_101119_PLUS.M Mon Oct 14 09:38:15 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1A.ch
Acq On : 11-Oct-2019, 12:42:36 Operator: williamh
Sample : ic1929-100 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(18) o-Nitrotoluene

14.97min 101.912ppb

response 243223

(18) o-Nitrotoluene #2

14.97min 100.355ppb m

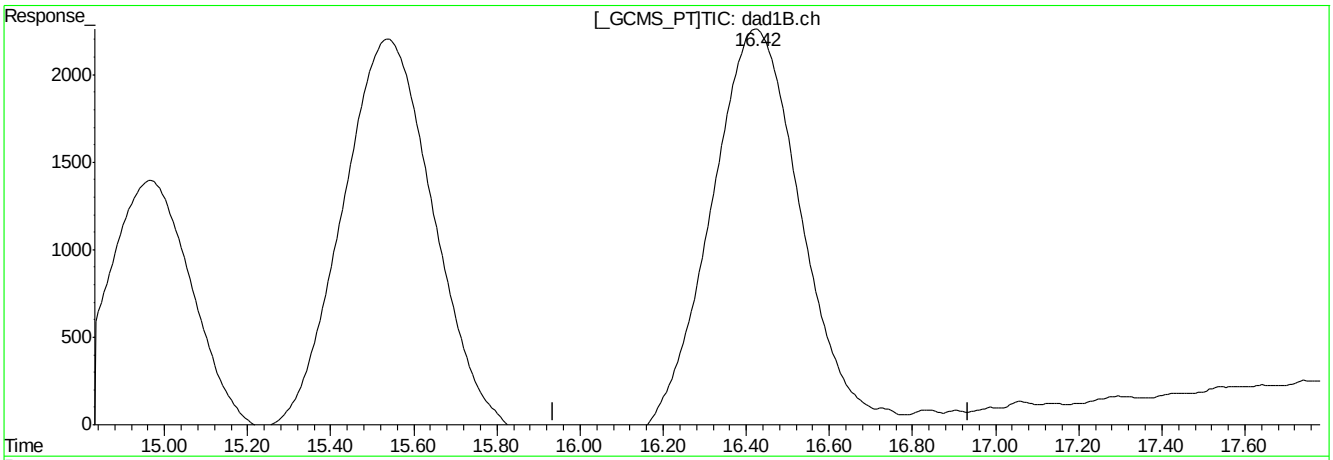
response 318973

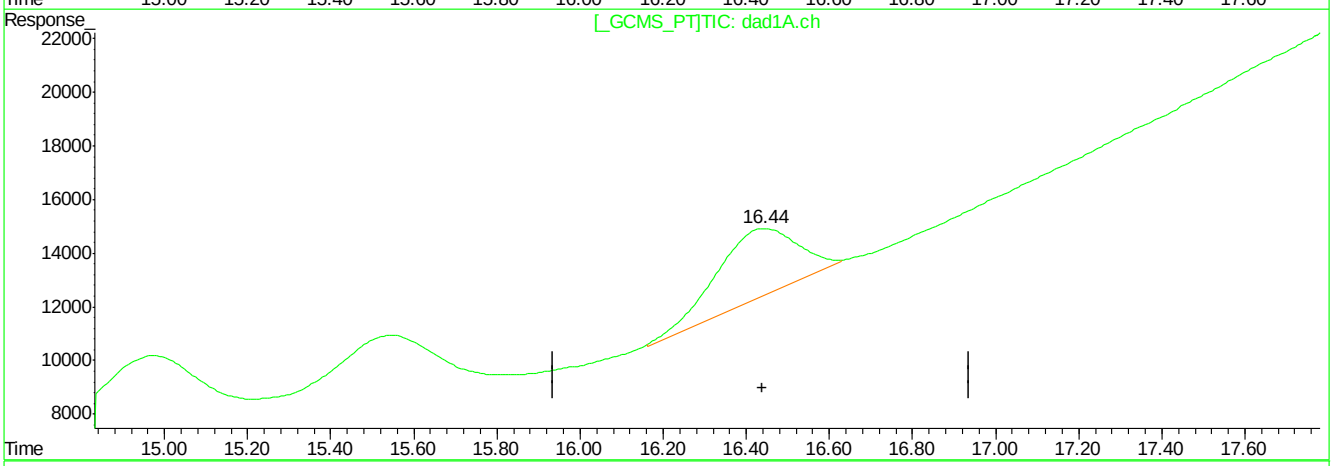
(+) = Expected Retention Time
BB066561.D 8330B_101119_PLUS.M Mon Oct 14 09:38:25 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1A.ch
Acq On : 11-Oct-2019, 12:42:36 Operator: williamh
Sample : ic1929-100 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(20) m-Nitrotoluene

16.42min 100.239ppb

response 348418

(20) m-Nitrotoluene #2

16.44min 87.952ppb m

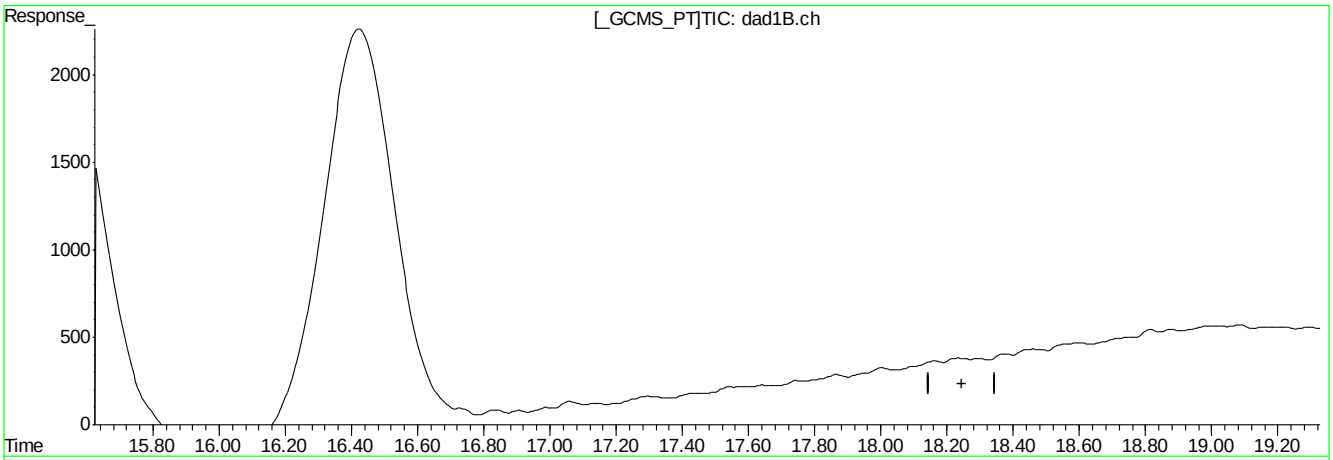
response 350557

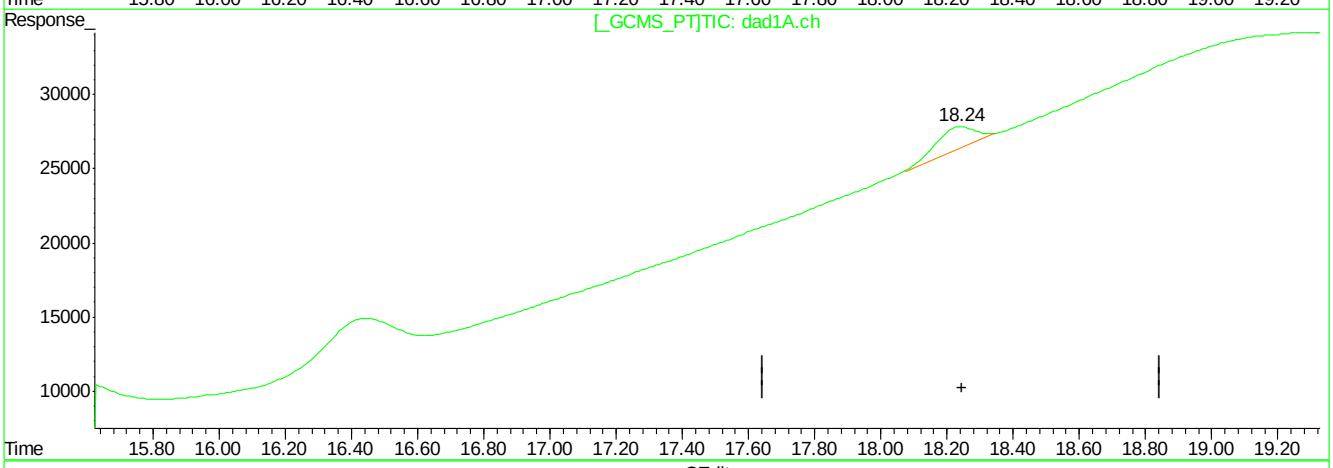
(+) = Expected Retention Time
BB066561.D 8330B_101119_PLUS.M Mon Oct 14 09:38:32 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066561.D\dad1A.ch
Acq On : 11-Oct-2019, 12:42:36 Operator: williamh
Sample : ic1929-100 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

18.24min 93.042ppb m

response 129949

(+) = Expected Retention Time
BB066561.D 8330B_101119_PLUS.M Mon Oct 14 09:38:38 2019

Manual Integrations APPROVED (compounds with "m" flag)
Evita Martinez 10/14/19 10:52

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066562.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066562.D\dad1A.ch
Acq On : 11-Oct-2019, 13:12:34 Operator: williamh
Sample : ic1929-200 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 09:31:42 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.86	10.86	402867	685451	191.138	194.354
Spiked Amount	500.000	Range	69 - 134	Recovery	=	38.23%#	38.87%#
	Target Compounds						
1)	TNX	1.33	1.33	605470	933223	215.809m	208.021m
2)	HMX	1.46	1.46	303264	847779	182.391m	184.252m
3)	DNX	1.70	1.70	257620	385492	182.878m	165.836m
4)	MNX	2.28	2.28	513281	766808	196.263	191.082m
5)	RDX	2.89	2.89	393578	667612	195.022	208.611
6)	1,3,5-Trinitrobe	4.63	4.63	859067	1655467	193.746	198.227m
7)	1,3-Dinitrobenze	5.81	5.80	1096533	749603	195.049	195.530m
8)	3,5-Dinitroanili	6.16	6.16	845113	1394620	197.292	188.939m
9)	Nitrobenzene	7.31	7.31	655481	650260	192.944	194.148
10)	Nitroglycerin	0.00	8.74	0	247775	N.D.	191.401 #
11)	Tetryl	9.15	9.15	621491	997935	194.171	193.030
12)	2,4,6-Trinitroto	9.60	9.61	774358	919096	194.723	193.912
13)	2-Amino-4,6-Dini	9.97	9.97	697758	1038276	193.923	193.630
14)	4-Amino-2,6-Dini	10.43	10.43	516172	1010242	192.703	193.427
16)	2,4-Dinitrotolue	11.51	11.52	972807	614886	195.431	198.655
17)	2,6-Dinitrotolue	11.95	11.95	572396	722358	192.488	197.152
18)	o-Nitrotoluene	14.97	14.97	458411	605162	192.077	190.395
19)	p-Nitrotoluene	15.54	15.54	721590	596625	187.212	199.594
20)	m-Nitrotoluene	16.42	16.43	679759	726309	195.565	182.066m
21)	PETN	0.00	18.23	0	267095	N.D.	191.236m#

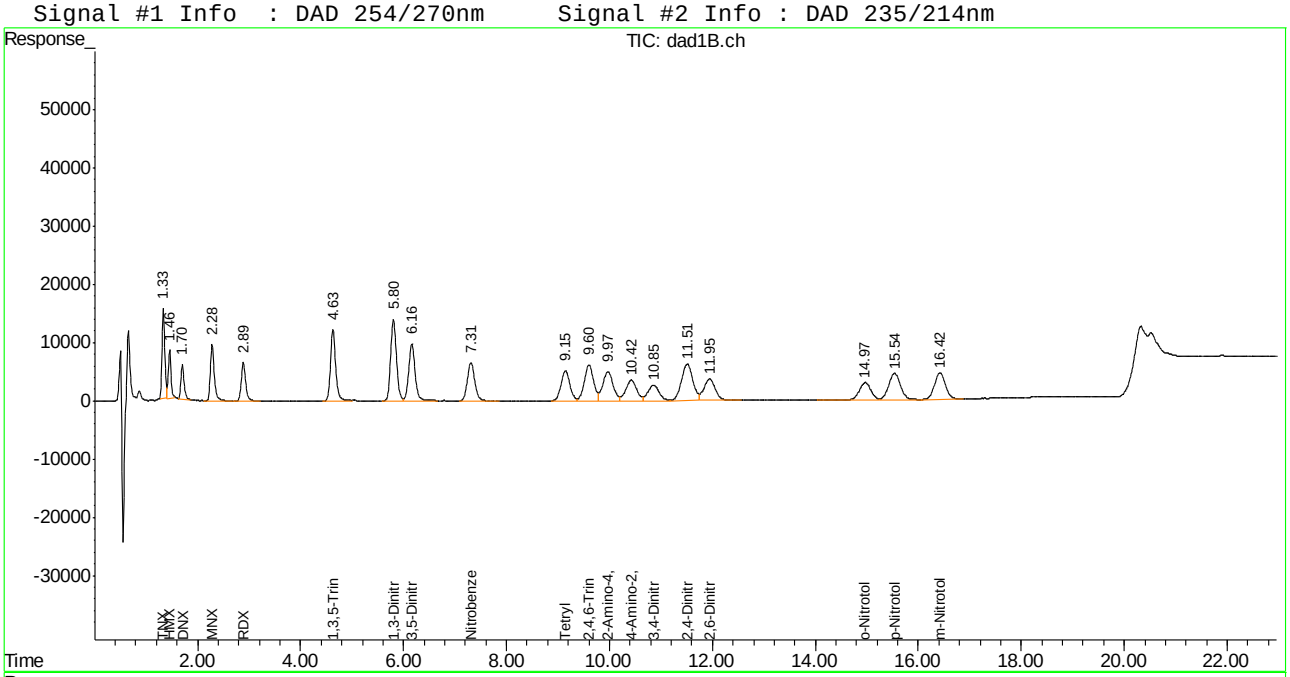
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB066562.D 8330B_101119_PLUS.M Mon Oct 14 09:54:56 2019 Page 1

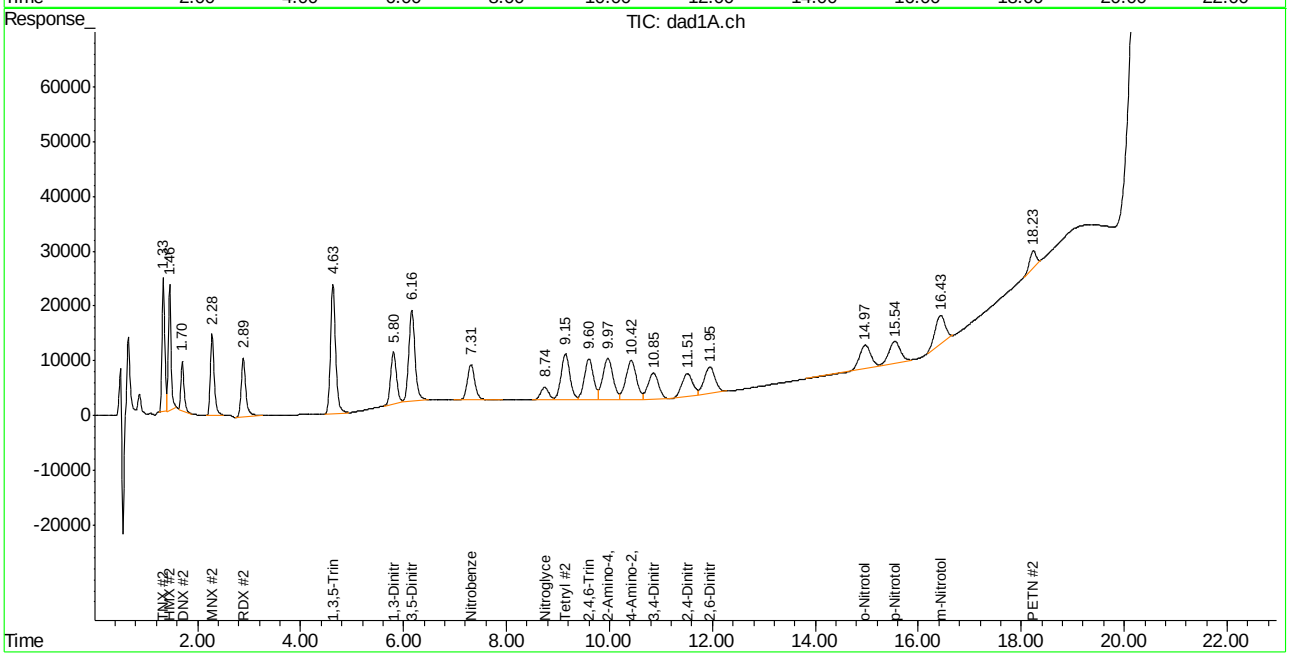
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066562.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066562.D\dad1A.ch
Acq On : 11-Oct-2019, 13:12:34 Operator: williamh
Sample : ic1929-200 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:40 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

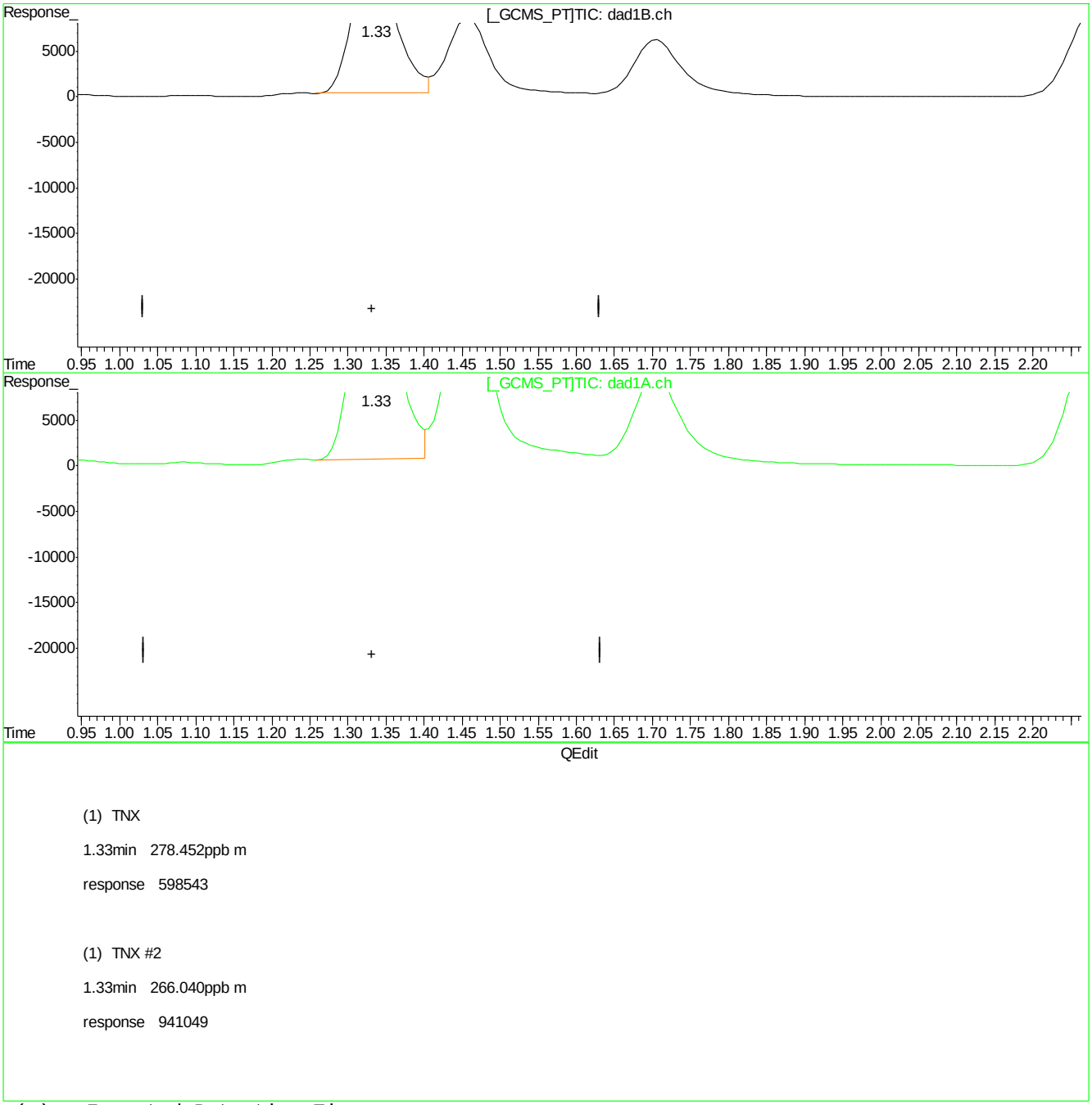
Sample Number: GBB1929-IC1929
Lab FileID: BB066562.D
Injection Time: 10/11/19 13:12
Method: SW846 8330B
Analyst approved: 10/14/19 10:02 William Hustedde
Supervisor approved: 10/14/19 10:52 Evita Martinez

Parameter	CAS	Sig#	R.T. (min.)	Reason
TNX		1	1.33	Poor instrument integration
TNX		2	1.33	Poor instrument integration
HMX	2691-41-0	1	1.46	Poor instrument integration
HMX	2691-41-0	2	1.46	Poor instrument integration
DNX		1	1.70	Poor instrument integration
DNX		2	1.70	Poor instrument integration
MNX		2	2.28	Poor instrument integration
1,3,5-Trinitrobenzene	99-35-4	2	4.63	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	5.80	Poor instrument integration
3,5-Dinitroaniline	618-87-1	2	6.16	Poor instrument integration
m-Nitrotoluene	99-08-1	2	16.43	Poor instrument integration
PETN	78-11-5	2	18.23	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066562.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066562.D\dad1A.ch
Acq On : 11-Oct-2019, 13:12:34 Operator: williamh
Sample : ic1929-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration



(1) TNX

1.33min 278.452ppb m

response 598543

(1) TNX #2

1.33min 266.040ppb m

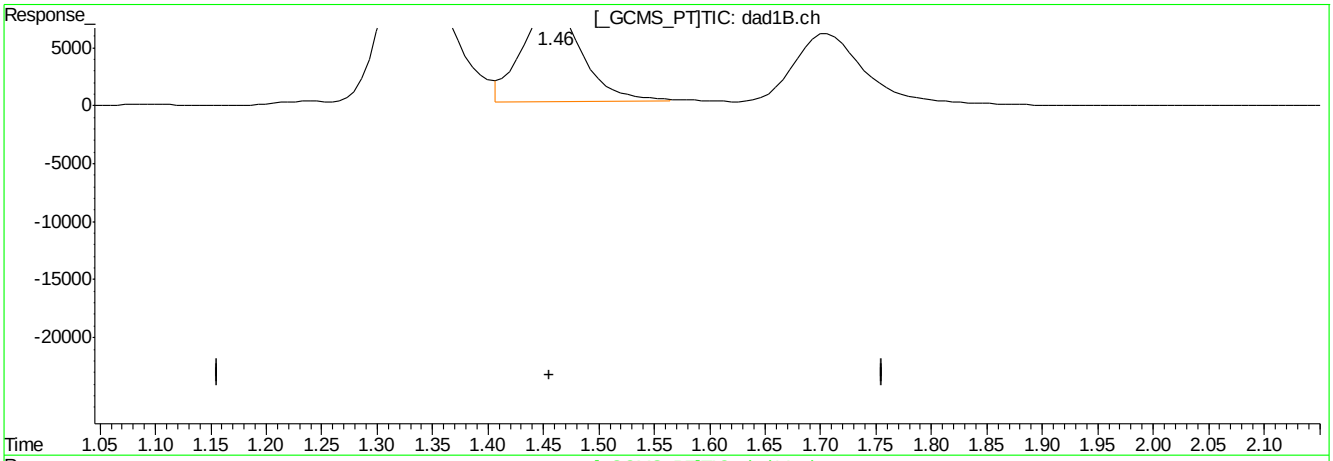
response 941049

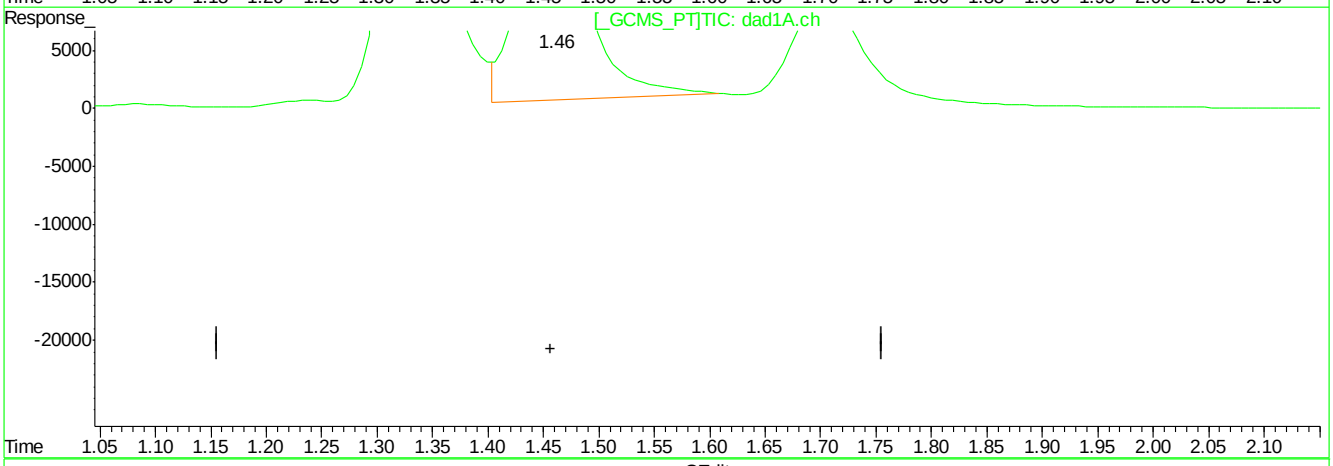
(+) = Expected Retention Time
BB066562.D 8330B_082219_PLUS.M Fri Oct 11 15:49:05 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066562.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066562.D\dad1A.ch
Acq On : 11-Oct-2019, 13:12:34 Operator: williamh
Sample : ic1929-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration





QEdit

(2) HMX

1.46min 191.294ppb m

response 307851

(2) HMX #2

1.46min 197.910ppb m

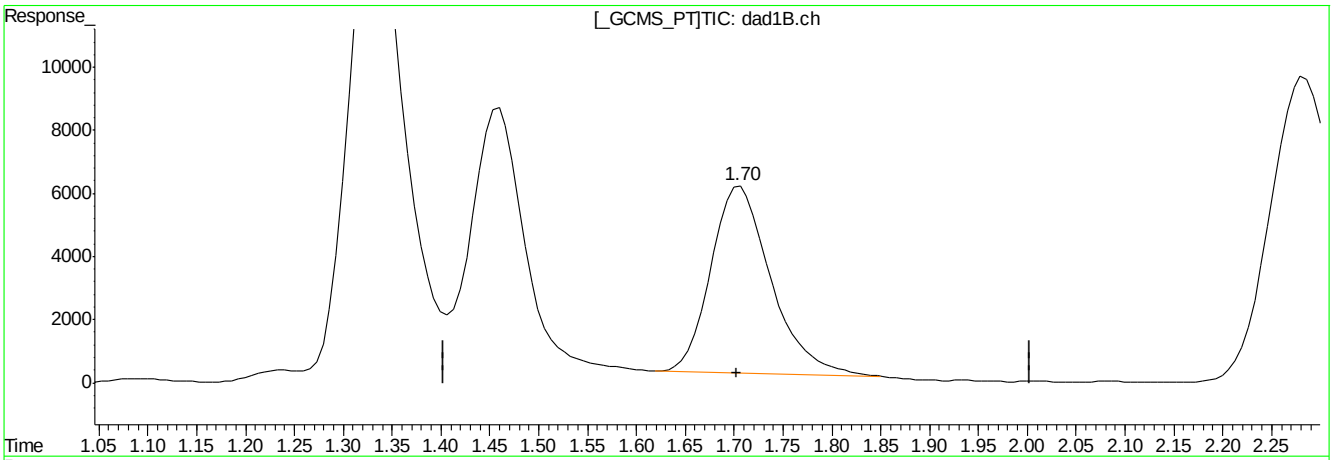
response 873667

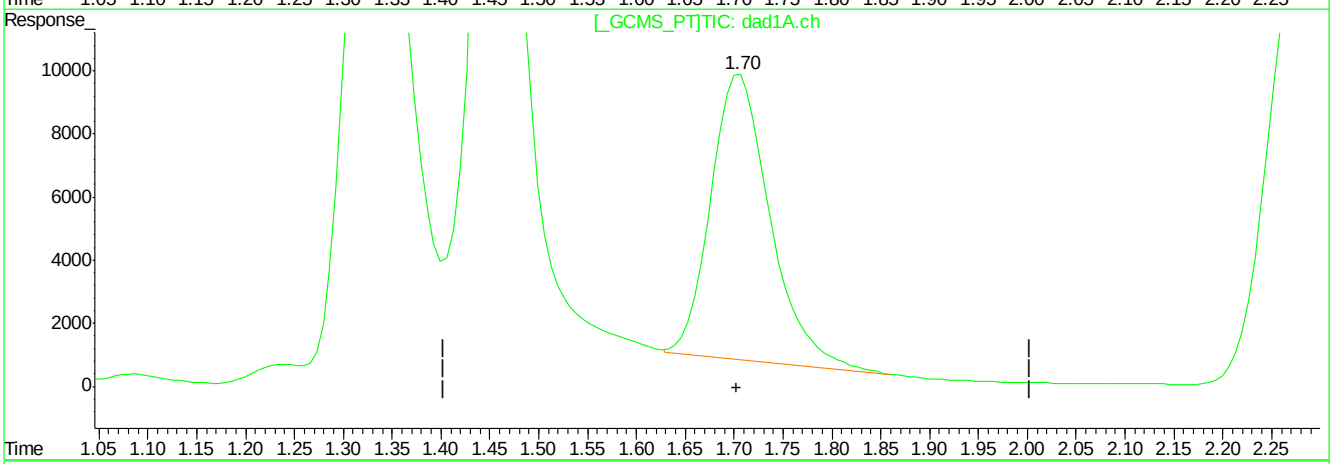
(+) = Expected Retention Time
BB066562.D 8330B_082219_PLUS.M Fri Oct 11 15:49:15 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066562.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066562.D\dad1A.ch
Acq On : 11-Oct-2019, 13:12:34 Operator: williamh
Sample : ic1929-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration





QEdit

(3) DNX

1.70min 180.529ppb m

response 254313

(3) DNX #2

1.70min 161.267ppb m

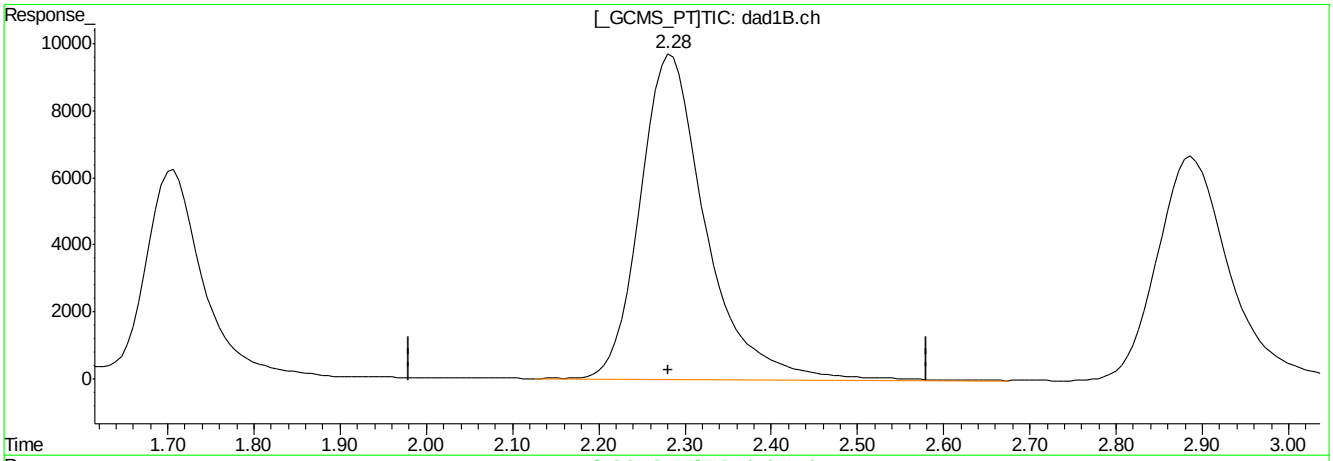
response 382436

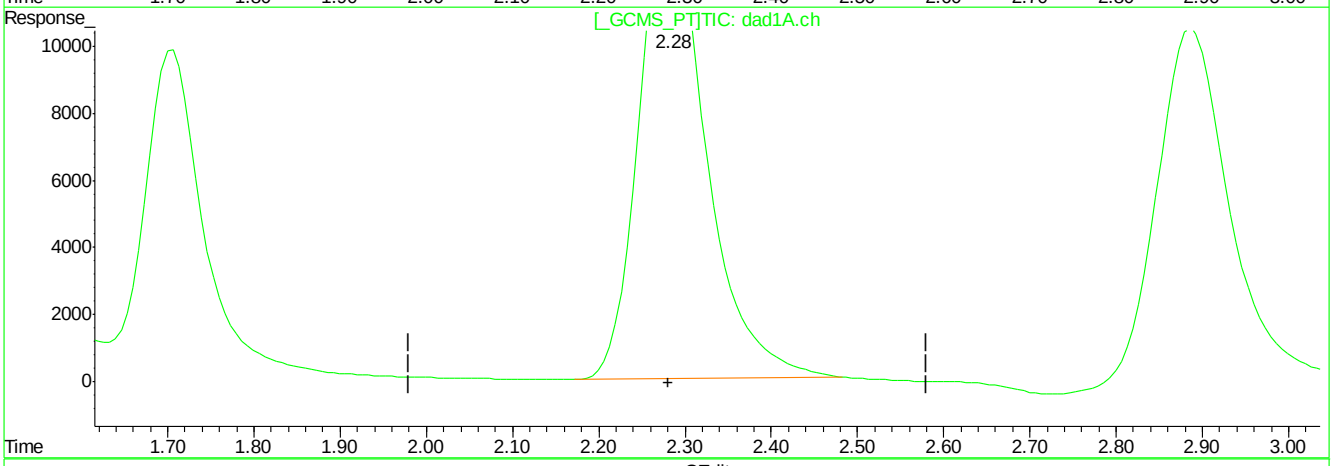
(+) = Expected Retention Time
BB066562.D 8330B_082219_PLUS.M Fri Oct 11 15:49:26 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066562.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066562.D\dad1A.ch
Acq On : 11-Oct-2019, 13:12:34 Operator: williamh
Sample : ic1929-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration





QEdit

(4) MNX

2.28min 220.942ppb

response 513281

(4) MNX #2

2.28min 211.796ppb m

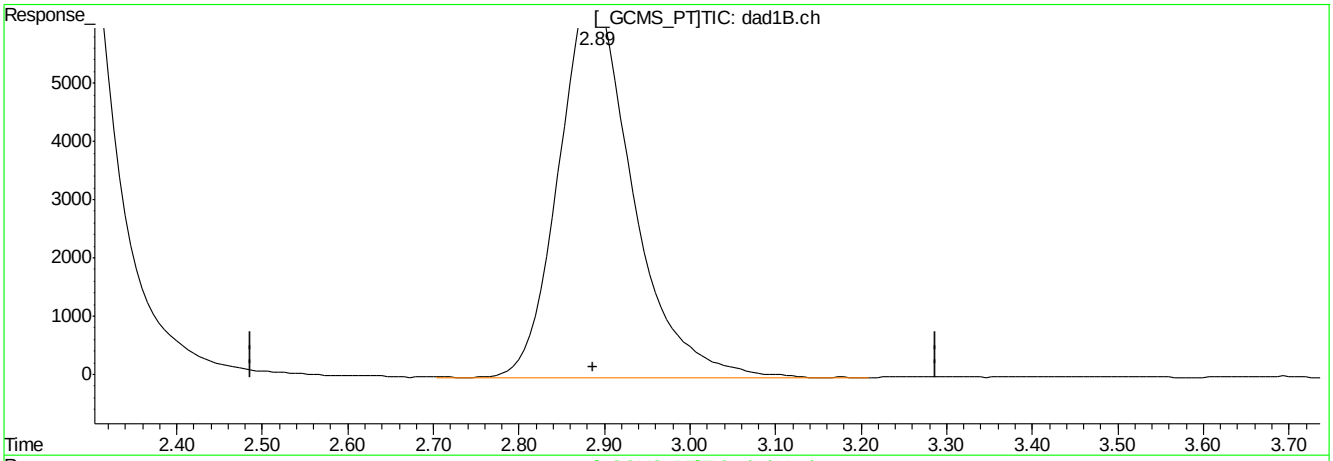
response 759223

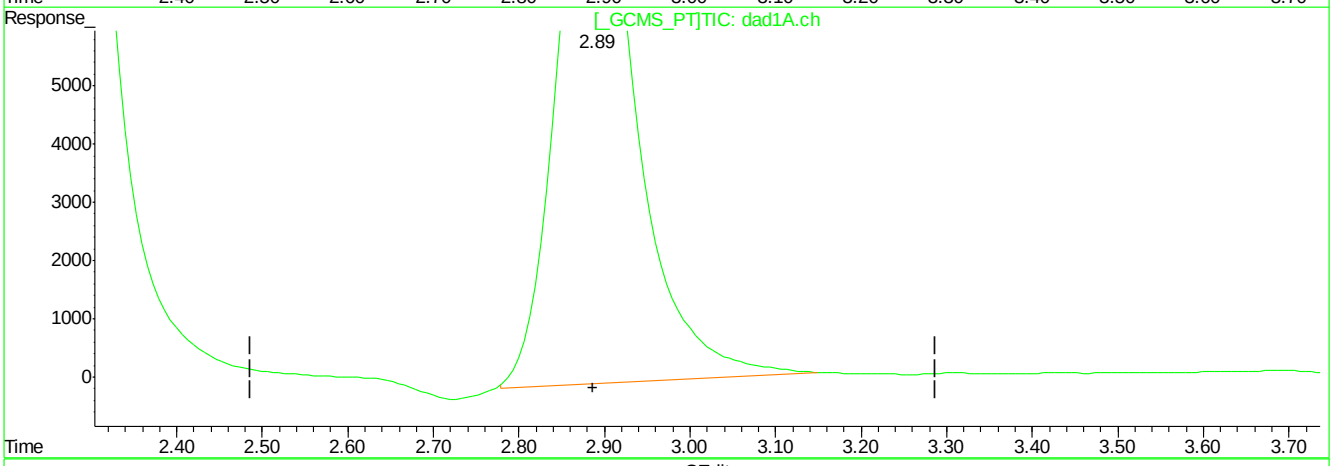
(+) = Expected Retention Time
BB066562.D 8330B_082219_PLUS.M Fri Oct 11 15:49:33 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066562.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066562.D\dad1A.ch
Acq On : 11-Oct-2019, 13:12:34 Operator: williamh
Sample : ic1929-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration





QEdit

(5) RDX

2.89min 199.141ppb

response 393578

(5) RDX #2

2.89min 203.215ppb m

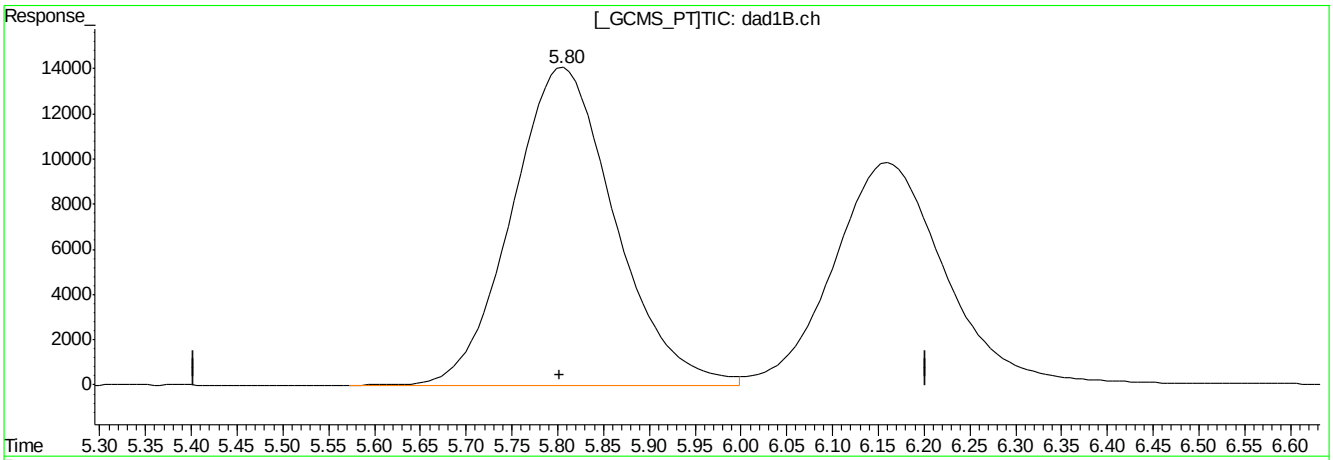
response 633843

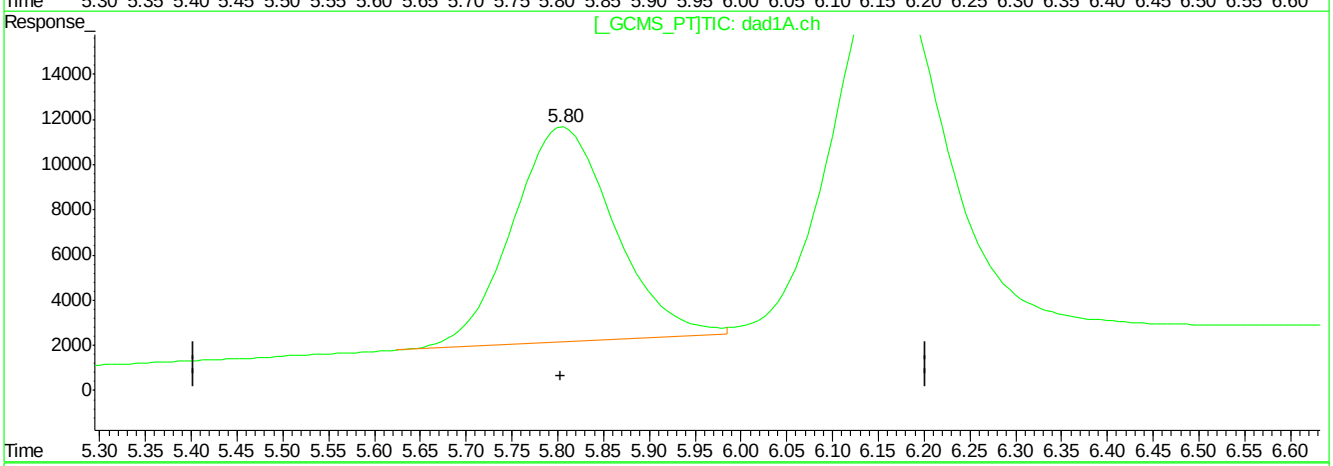
(+) = Expected Retention Time
BB066562.D 8330B_082219_PLUS.M Fri Oct 11 15:49:41 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066562.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066562.D\dad1A.ch
Acq On : 11-Oct-2019, 13:12:34 Operator: williamh
Sample : ic1929-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

5.81min 201.521ppb

response 1096533

(7) 1,3-Dinitrobenzene #2

5.80min 192.081ppb m

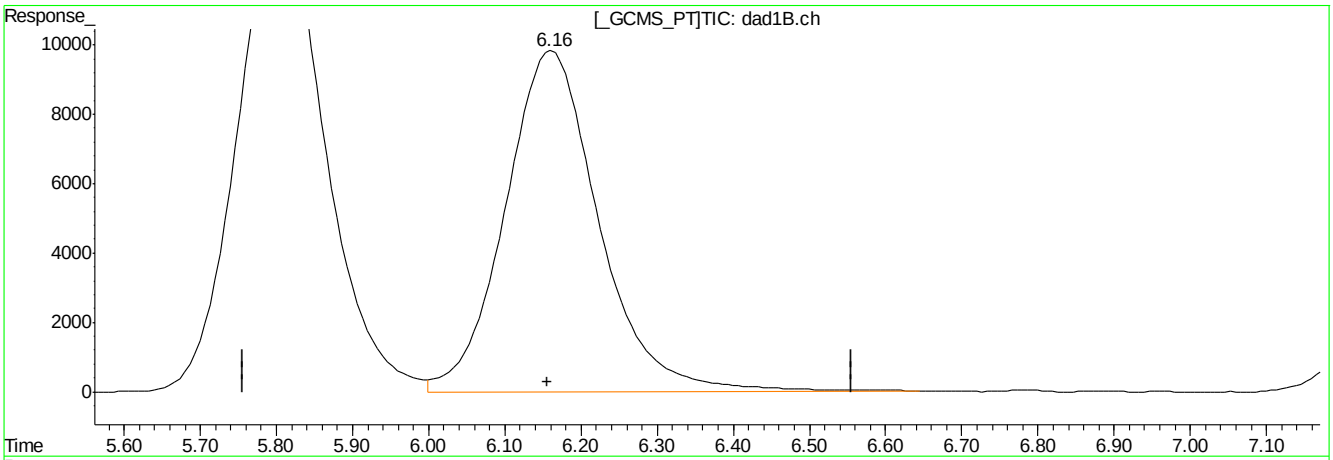
response 735492

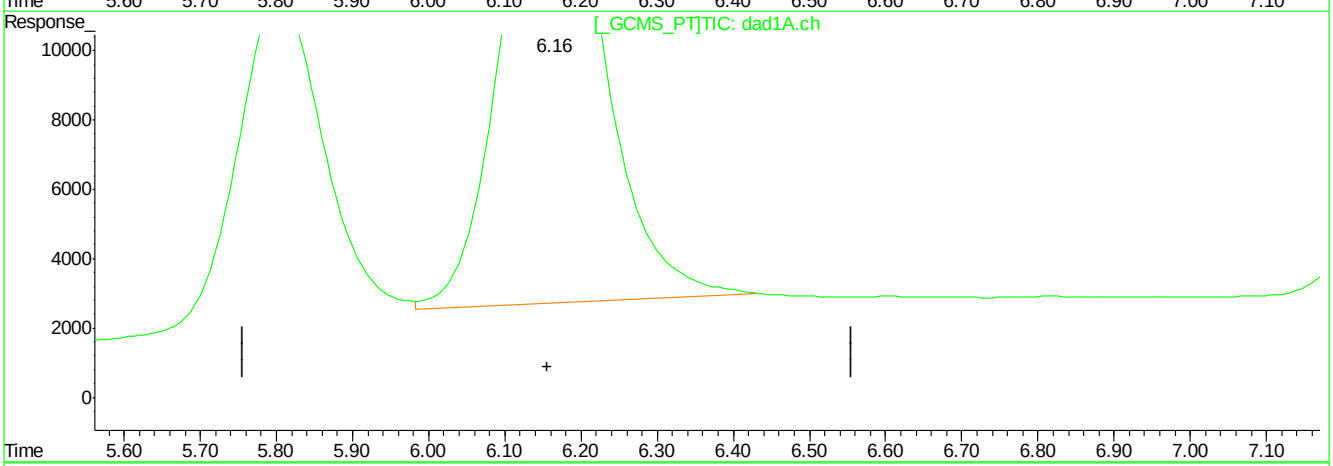
(+) = Expected Retention Time
BB066562.D 8330B_082219_PLUS.M Fri Oct 11 15:50:05 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066562.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066562.D\dad1A.ch
Acq On : 11-Oct-2019, 13:12:34 Operator: williamh
Sample : ic1929-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.16min 203.862ppb

response 845113

(8) 3,5-Dinitroaniline #2

6.16min 189.924ppb m

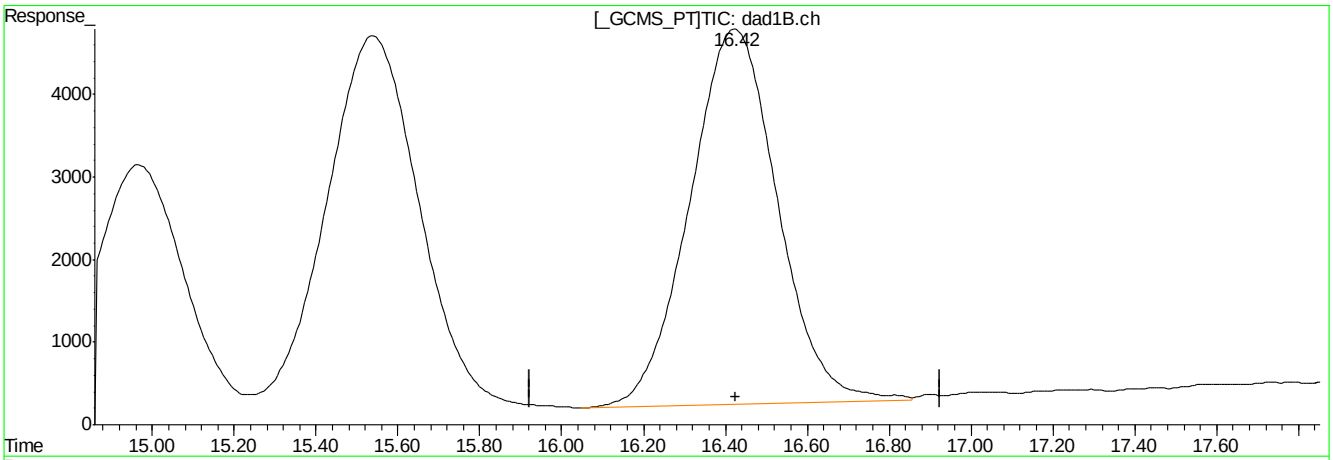
response 1381920

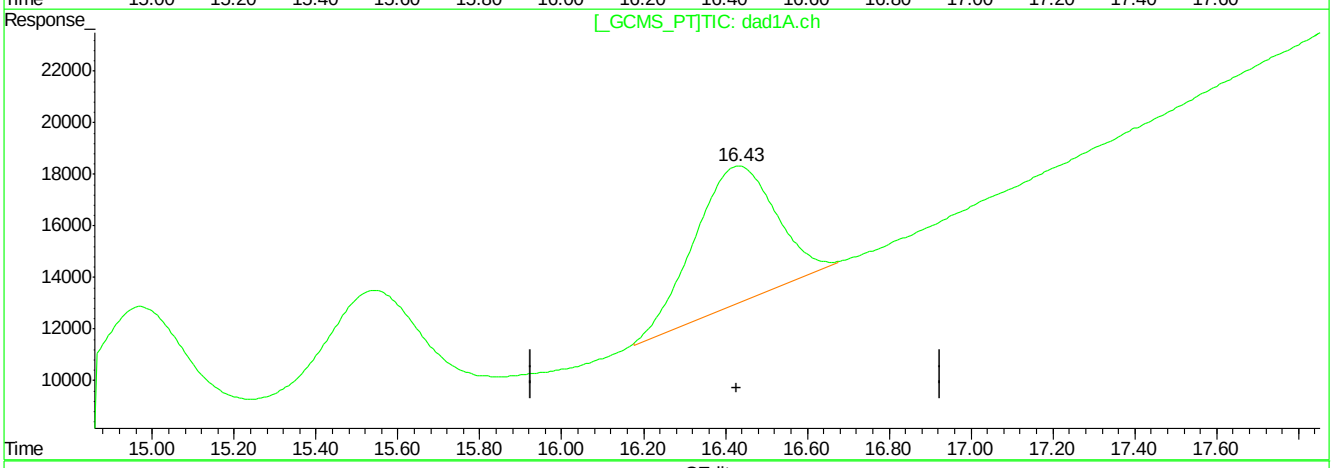
(+) = Expected Retention Time
BB066562.D 8330B_082219_PLUS.M Fri Oct 11 15:50:17 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066562.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066562.D\dad1A.ch
Acq On : 11-Oct-2019, 13:12:34 Operator: williamh
Sample : ic1929-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration





QEdit

(20) m-Nitrotoluene

16.42min 203.260ppb

response 679759

(20) m-Nitrotoluene #2

16.43min 188.197ppb m

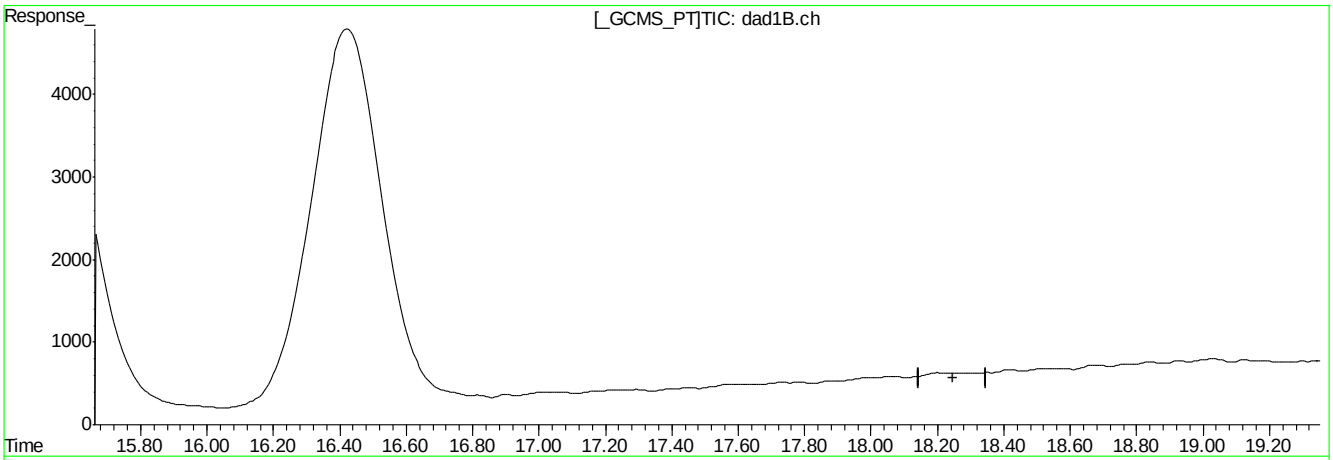
response 742606

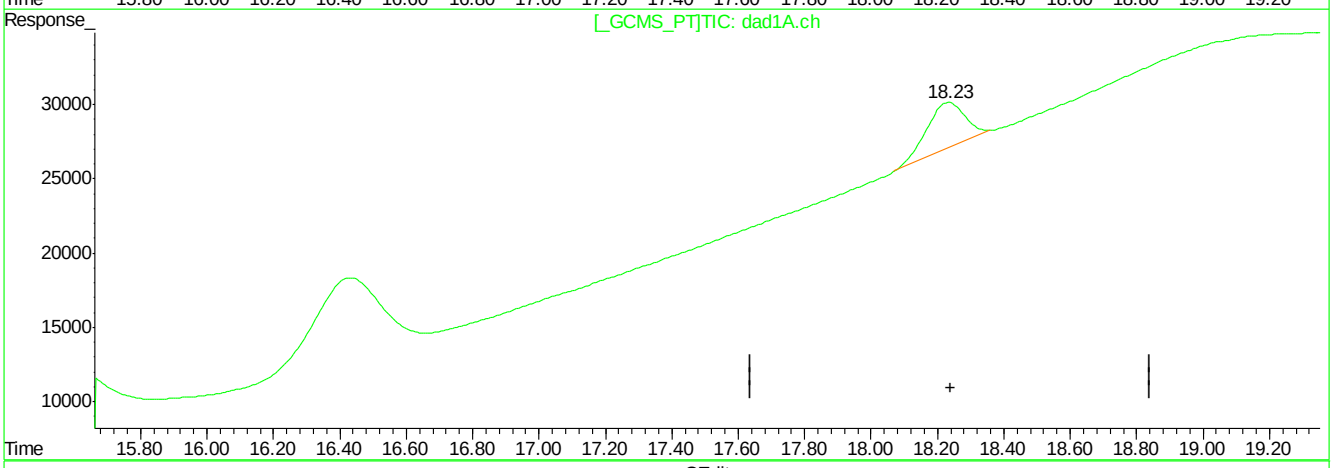
(+) = Expected Retention Time
BB066562.D 8330B_082219_PLUS.M Fri Oct 11 15:50:31 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066562.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066562.D\dad1A.ch
Acq On : 11-Oct-2019, 13:12:34 Operator: williamh
Sample : ic1929-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

18.23min 175.595ppb m

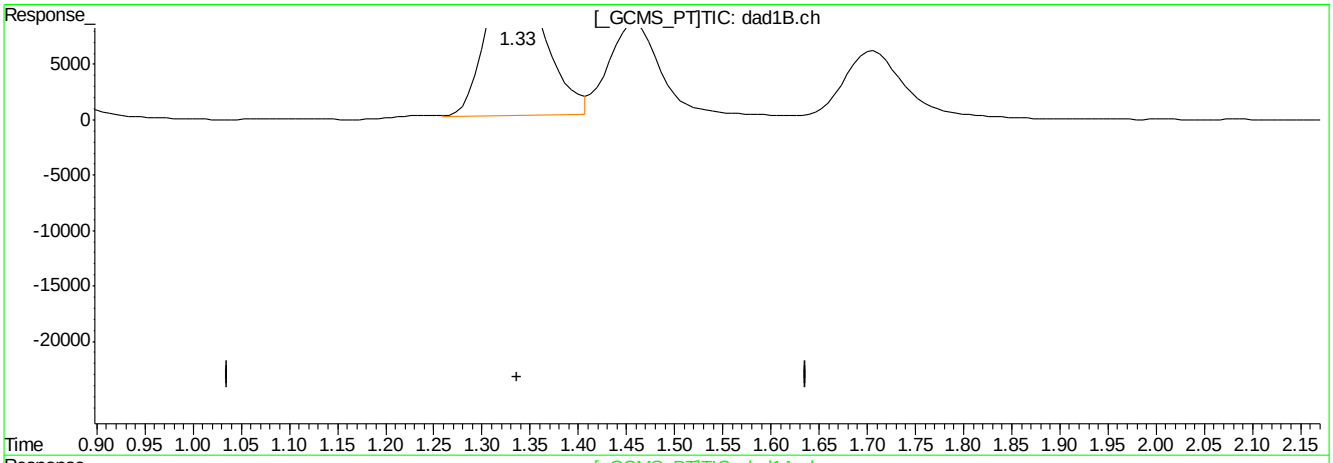
response 247965

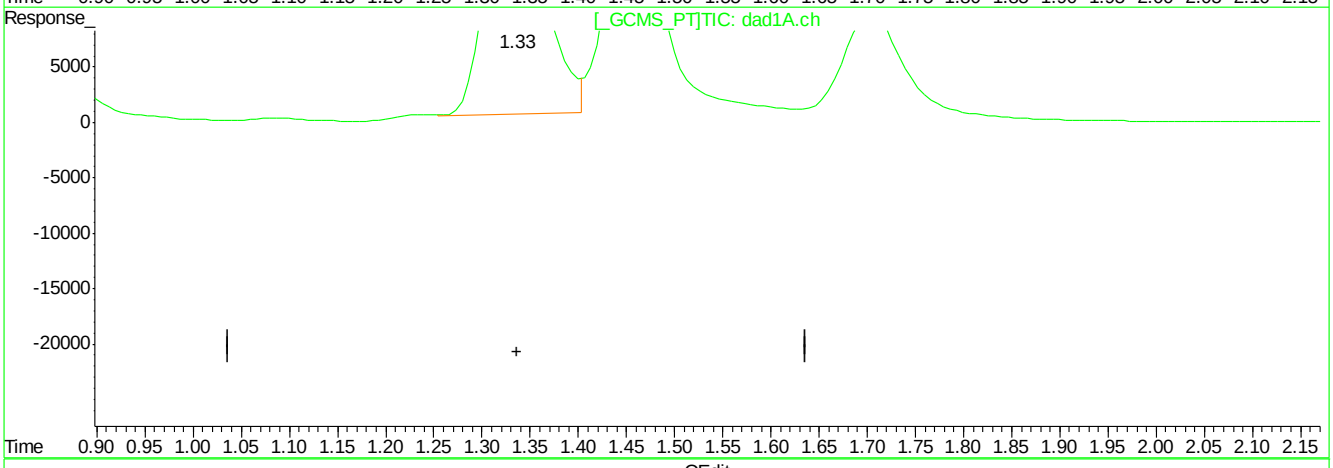
(+) = Expected Retention Time
BB066562.D 8330B_082219_PLUS.M Fri Oct 11 15:50:37 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066562.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066562.D\dad1A.ch
Acq On : 11-Oct-2019, 13:12:34 Operator: williamh
Sample : ic1929-200 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(1) TNX

1.33min 215.809ppb m

response 605470

(1) TNX #2

1.33min 208.021ppb m

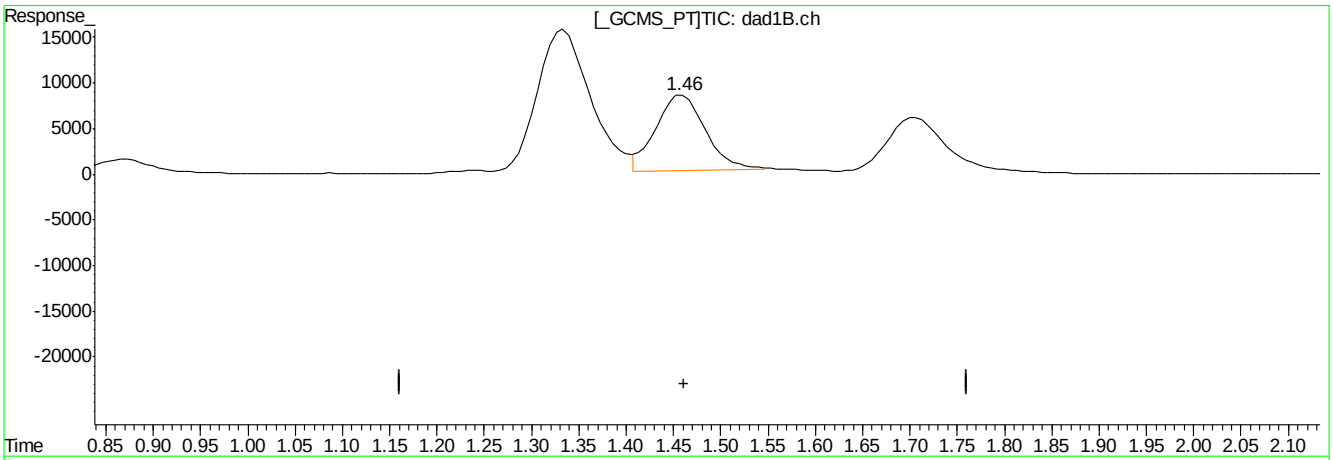
response 933223

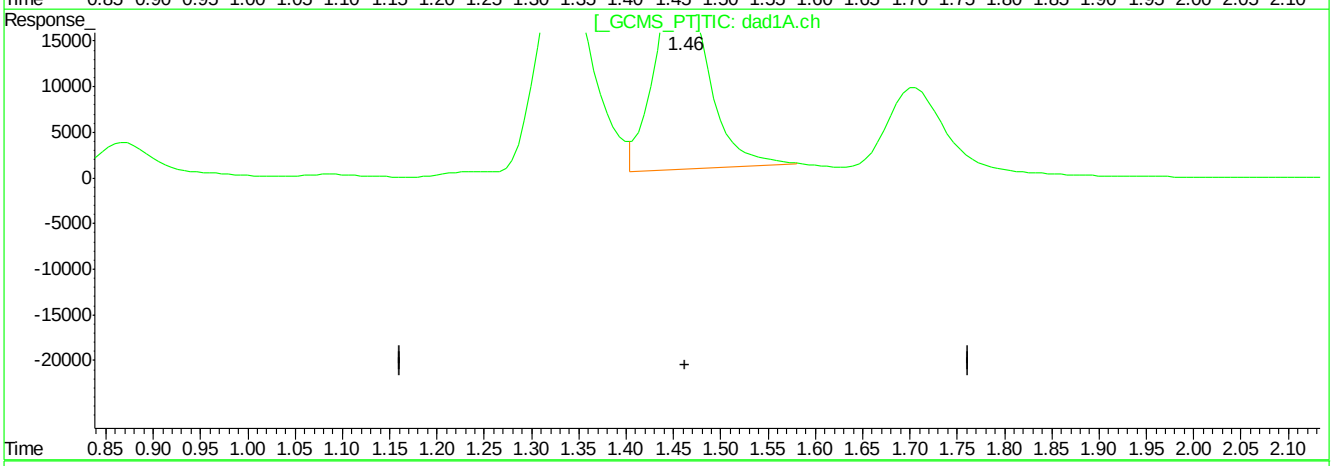
(+) = Expected Retention Time
BB066562.D 8330B_101119_PLUS.M Mon Oct 14 09:38:55 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066562.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066562.D\dad1A.ch
Acq On : 11-Oct-2019, 13:12:34 Operator: williamh
Sample : ic1929-200 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(2) HMX

1.46min 182.391ppb m

response 303264

(2) HMX #2

1.46min 184.252ppb m

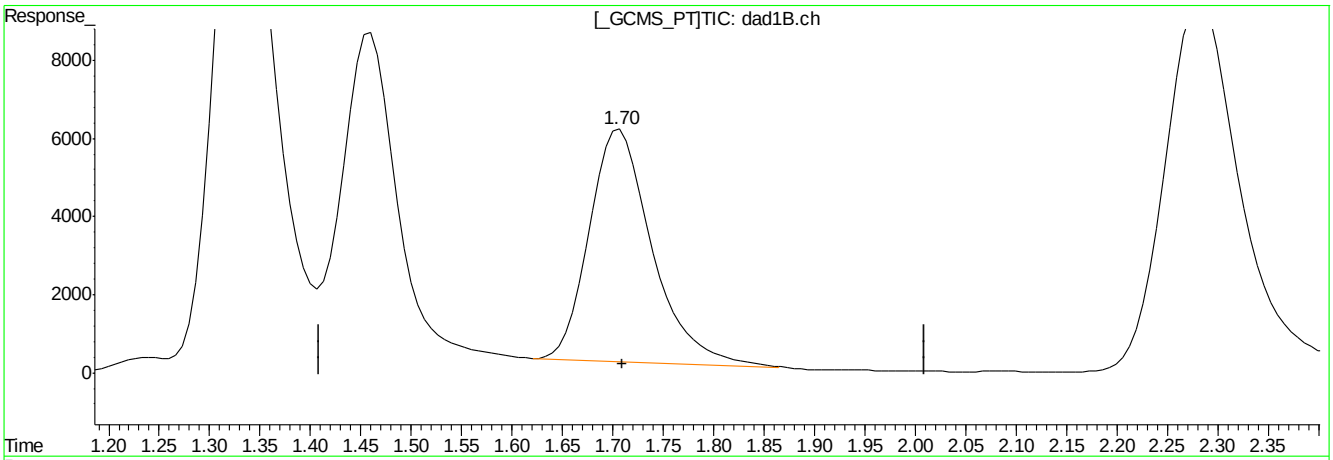
response 847779

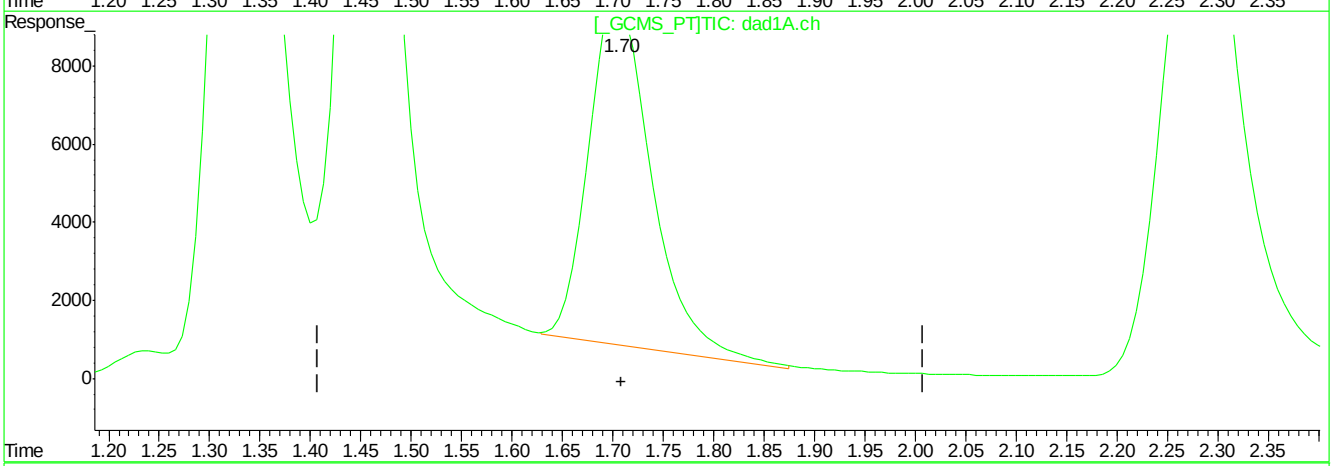
(+) = Expected Retention Time
BB066562.D 8330B_101119_PLUS.M Mon Oct 14 09:39:05 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066562.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066562.D\dad1A.ch
Acq On : 11-Oct-2019, 13:12:34 Operator: williamh
Sample : ic1929-200 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(3) DNX

1.70min 182.878ppb m

response 257620

(3) DNX #2

1.70min 165.836ppb m

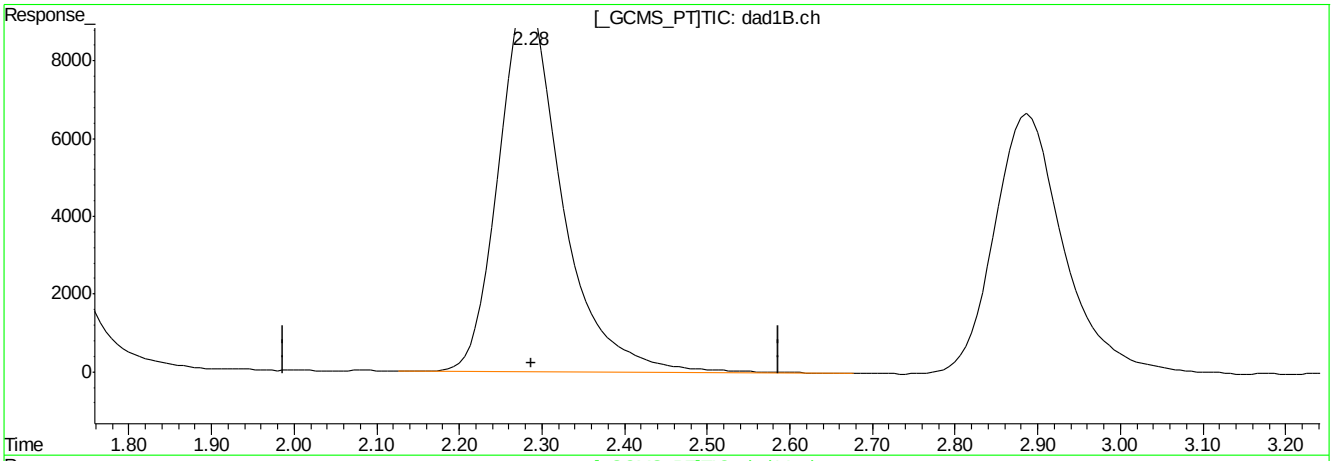
response 385492

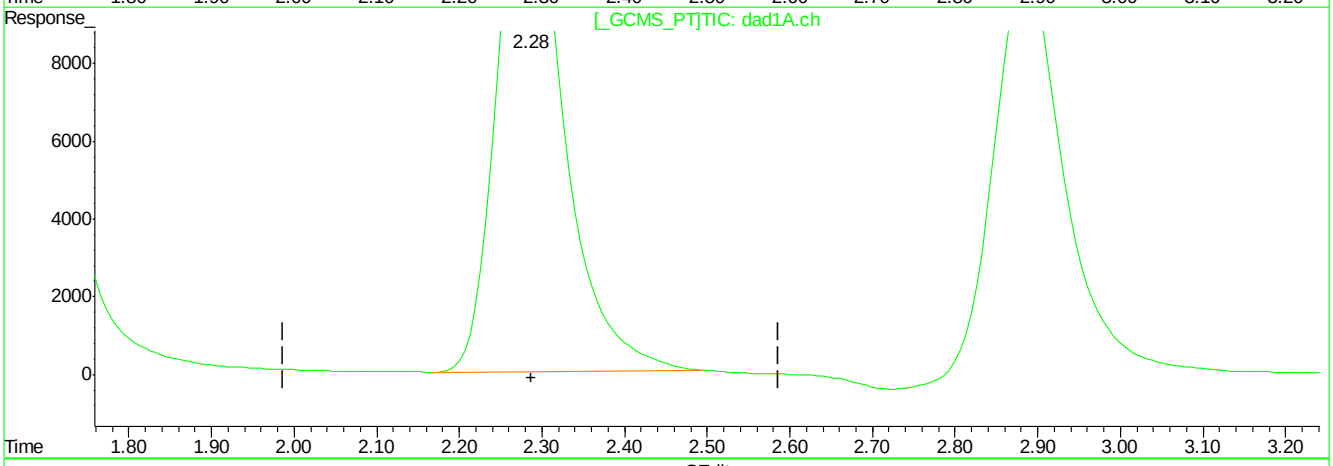
(+) = Expected Retention Time
BB066562.D 8330B_101119_PLUS.M Mon Oct 14 09:39:14 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066562.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066562.D\dad1A.ch
Acq On : 11-Oct-2019, 13:12:34 Operator: williamh
Sample : ic1929-200 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(4) MNX

2.28min 196.263ppb

response 513281

(4) MNX #2

2.28min 191.082ppb m

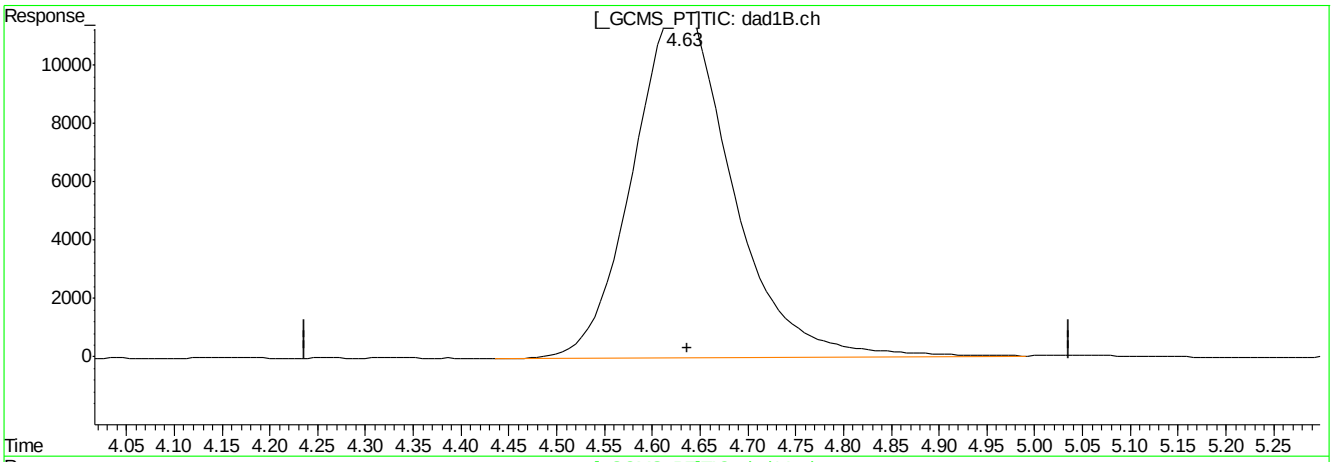
response 766808

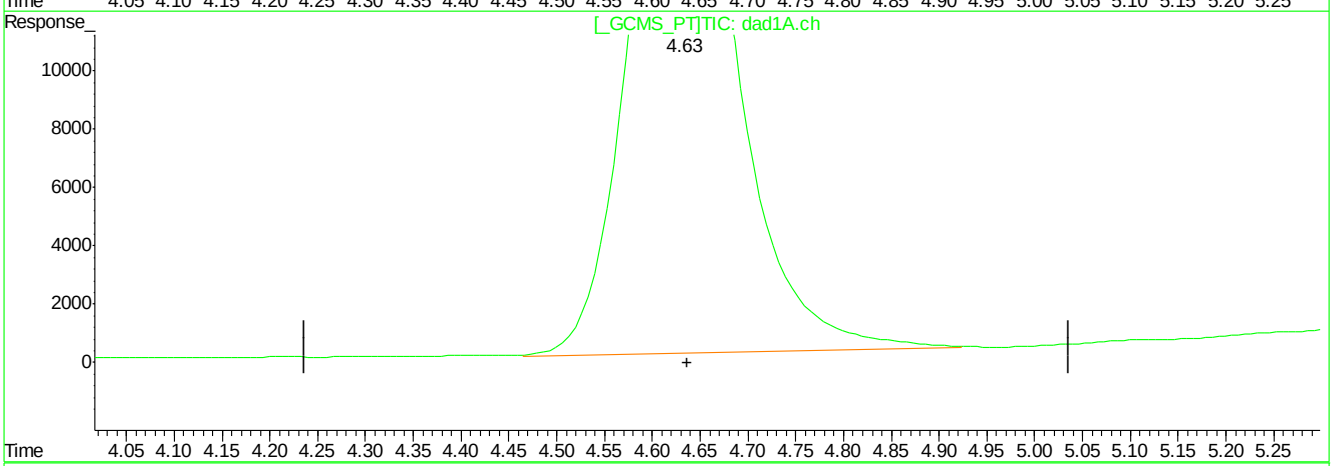
(+) = Expected Retention Time
BB066562.D 8330B_101119_PLUS.M Mon Oct 14 09:39:20 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066562.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066562.D\dad1A.ch
Acq On : 11-Oct-2019, 13:12:34 Operator: williamh
Sample : ic1929-200 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(6) 1,3,5-Trinitrobenzene

4.63min 193.746ppb

response 859067

(6) 1,3,5-Trinitrobenzene #2

4.63min 198.227ppb m

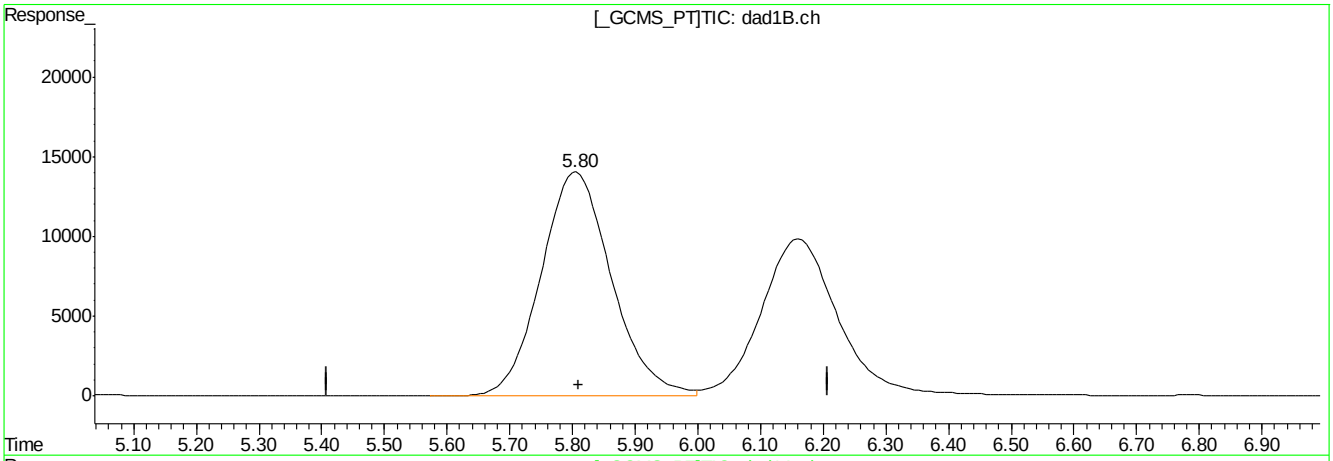
response 1655467

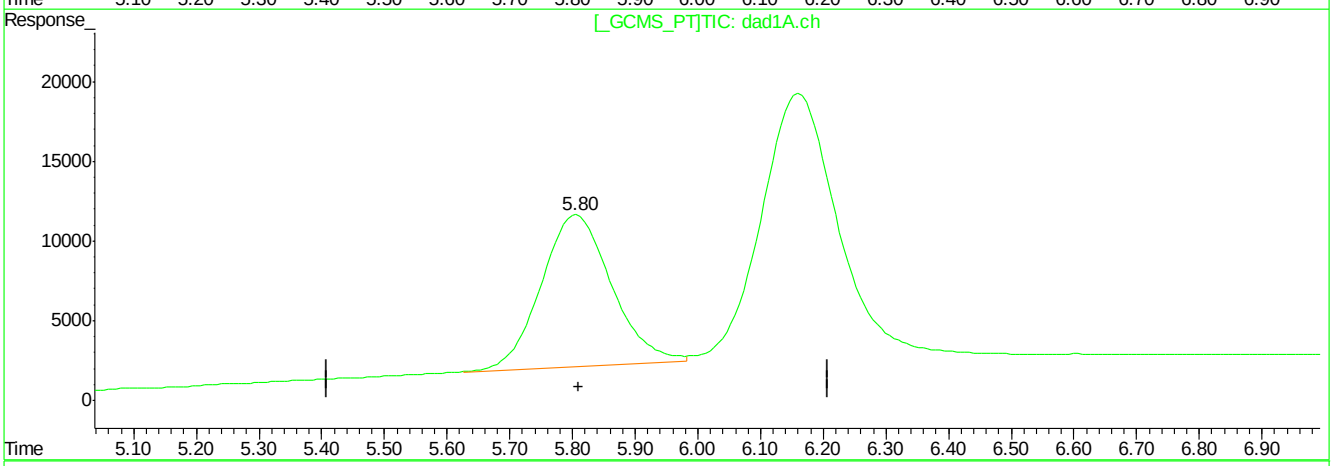
(+) = Expected Retention Time
BB066562.D 8330B_101119_PLUS.M Mon Oct 14 09:39:31 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066562.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066562.D\dad1A.ch
Acq On : 11-Oct-2019, 13:12:34 Operator: williamh
Sample : ic1929-200 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

5.81min 195.049ppb

response 1096533

(7) 1,3-Dinitrobenzene #2

5.80min 195.530ppb m

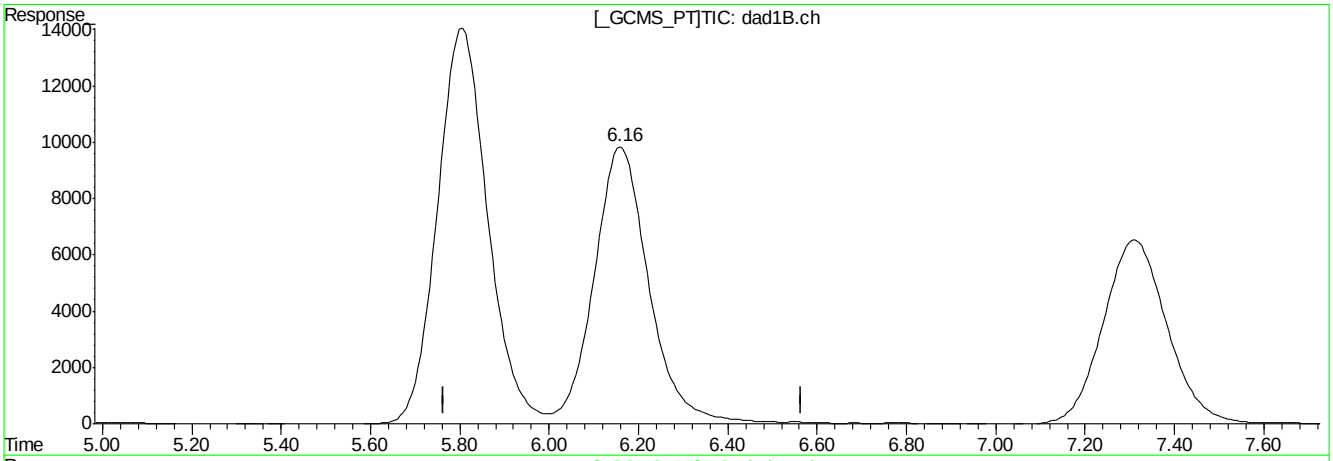
response 749603

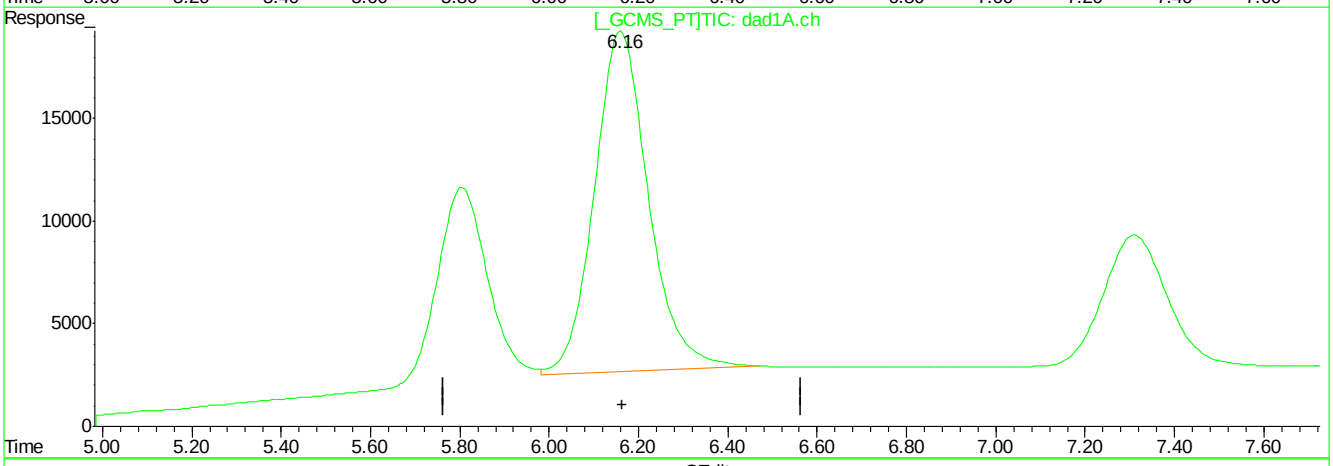
(+) = Expected Retention Time
BB066562.D 8330B_101119_PLUS.M Mon Oct 14 09:39:38 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066562.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066562.D\dad1A.ch
Acq On : 11-Oct-2019, 13:12:34 Operator: williamh
Sample : ic1929-200 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(8) 3,5-Dinitroaniline

6.16min 197.292ppb

response 845113

(8) 3,5-Dinitroaniline #2

6.16min 188.939ppb m

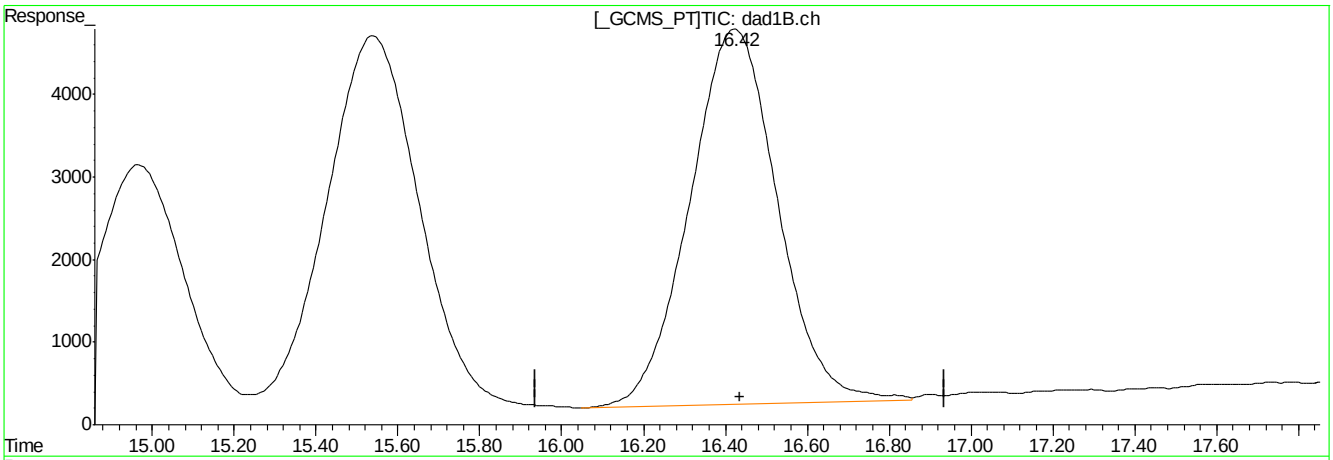
response 1394620

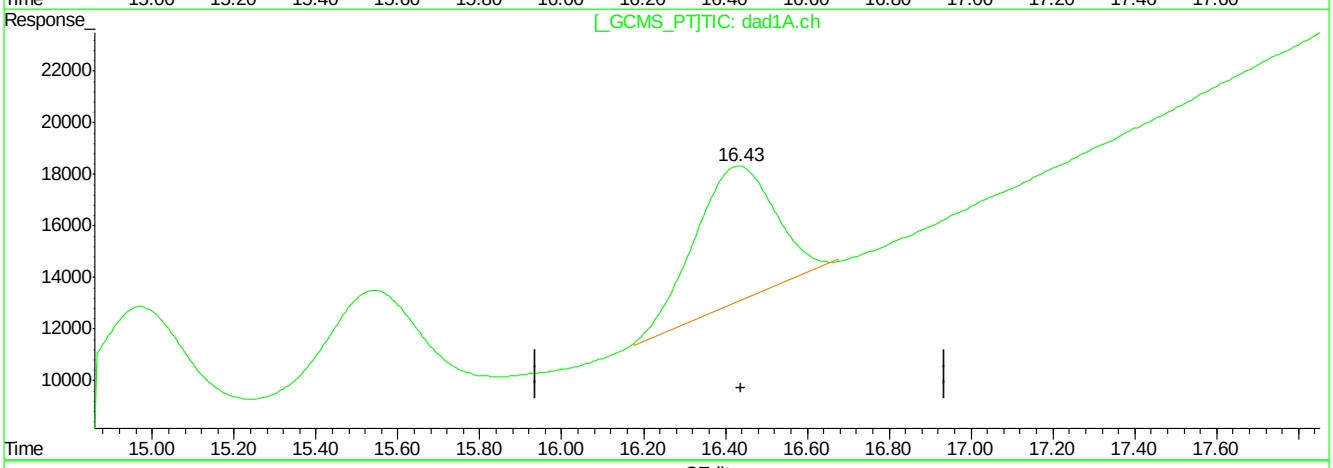
(+) = Expected Retention Time
BB066562.D 8330B_101119_PLUS.M Mon Oct 14 09:39:49 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066562.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066562.D\dad1A.ch
Acq On : 11-Oct-2019, 13:12:34 Operator: williamh
Sample : ic1929-200 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(20) m-Nitrotoluene

16.42min 195.565ppb

response 679759

(20) m-Nitrotoluene #2

16.43min 182.066ppb m

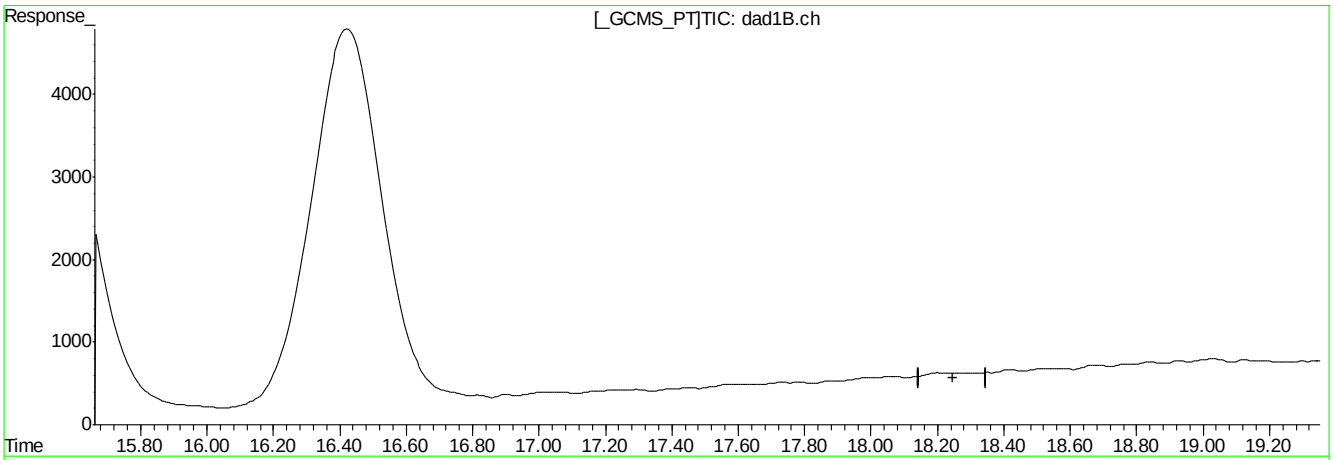
response 726309

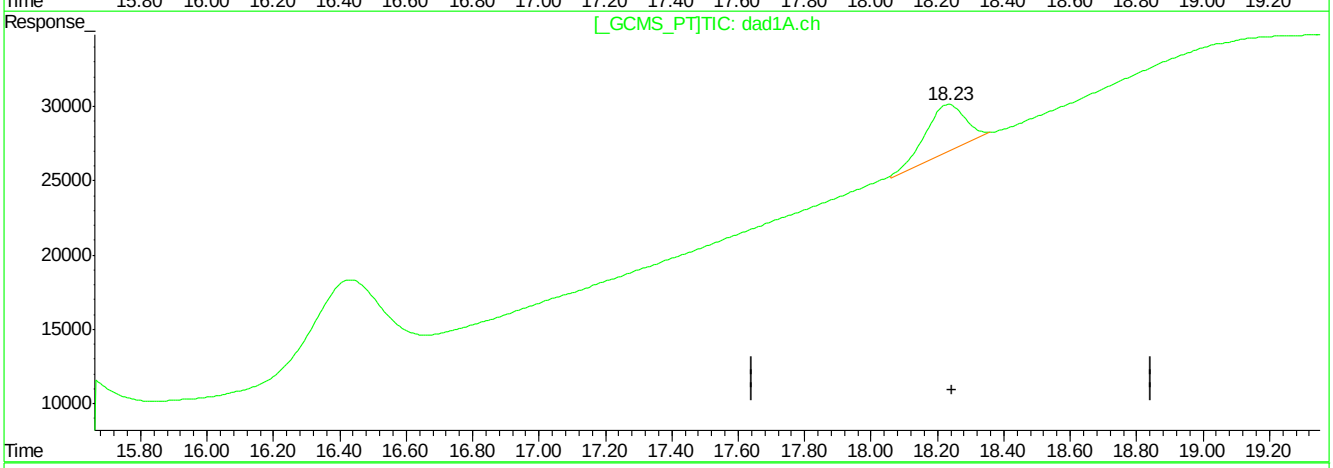
(+) = Expected Retention Time
BB066562.D 8330B_101119_PLUS.M Mon Oct 14 09:40:02 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066562.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066562.D\dad1A.ch
Acq On : 11-Oct-2019, 13:12:34 Operator: williamh
Sample : ic1929-200 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

18.23min 191.236ppb m

response 267095

(+) = Expected Retention Time
BB066562.D 8330B_101119_PLUS.M Mon Oct 14 09:40:09 2019

Manual Integrations APPROVED (compounds with "m" flag)
Evita Martinez 10/14/19 10:52

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066563.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066563.D\dad1A.ch
Acq On : 11-Oct-2019, 13:42:29 Operator: williamh
Sample : ic1929-500 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 09:31:43 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.85	10.85	1001335	1745501	475.079	494.922
	Spiked Amount 500.000	Range 69 - 134		Recovery =		95.02%	98.98%
	Target Compounds						
1)	TNX	1.33	1.33	1370561	2150032	488.512	479.254
2)	HMX	1.46	1.46	879356	2448540	528.869	532.153
3)	DNX	1.71	1.71	719752	1238463	510.934	534.724
4)	MNX	2.28	2.28	1270424	2023515	485.771	504.244
5)	RDX	2.89	2.89	984887	1614350	488.021	504.443
6)	1,3,5-Trinitrobe	4.63	4.63	2172825	4052329	490.038	485.230
7)	1,3-Dinitrobenze	5.81	5.81	2738511	1964182	487.121	512.346
8)	3,5-Dinitroanili	6.16	6.16	2092548	3652060	488.506	494.770
9)	Nitrobenzene	7.31	7.31	1619978	1593080	476.848	475.645
10)	Nitroglycerin	0.00	8.75	0	635815	N.D.	491.154 #
11)	Tetryl	9.15	9.15	1565960	2528441	489.248	489.075
12)	2,4,6-Trinitroto	9.60	9.60	1938770	2335795	487.532	492.809
13)	2-Amino-4,6-Dini	9.96	9.96	1745865	2627848	485.215	490.072
14)	4-Amino-2,6-Dini	10.42	10.42	1285234	2563669	479.818	490.855
16)	2,4-Dinitrotolue	11.51	11.51	2427759	1575136	487.722	508.888
17)	2,6-Dinitrotolue	11.95	11.95	1418551	1855884	477.036	506.525
18)	o-Nitrotoluene	14.97	14.98	1152941	1582343	483.088	497.835
19)	p-Nitrotoluene	15.55	15.55	1795680	1531274	465.879	512.269
20)	m-Nitrotoluene	16.43	16.43	1676603	1787624	482.355	447.013
21)	PETN	0.00	18.24	0	698796	N.D. d	500.329m

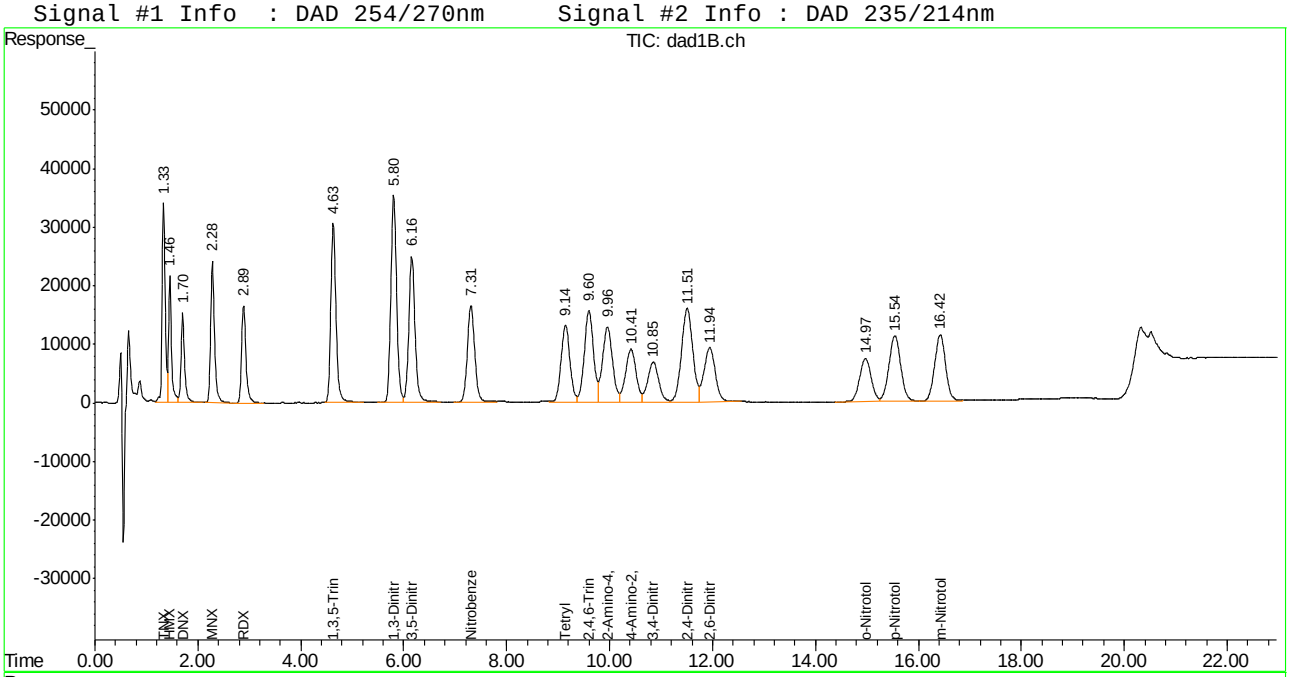
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB066563.D 8330B_101119_PLUS.M Mon Oct 14 09:54:57 2019 Page 1

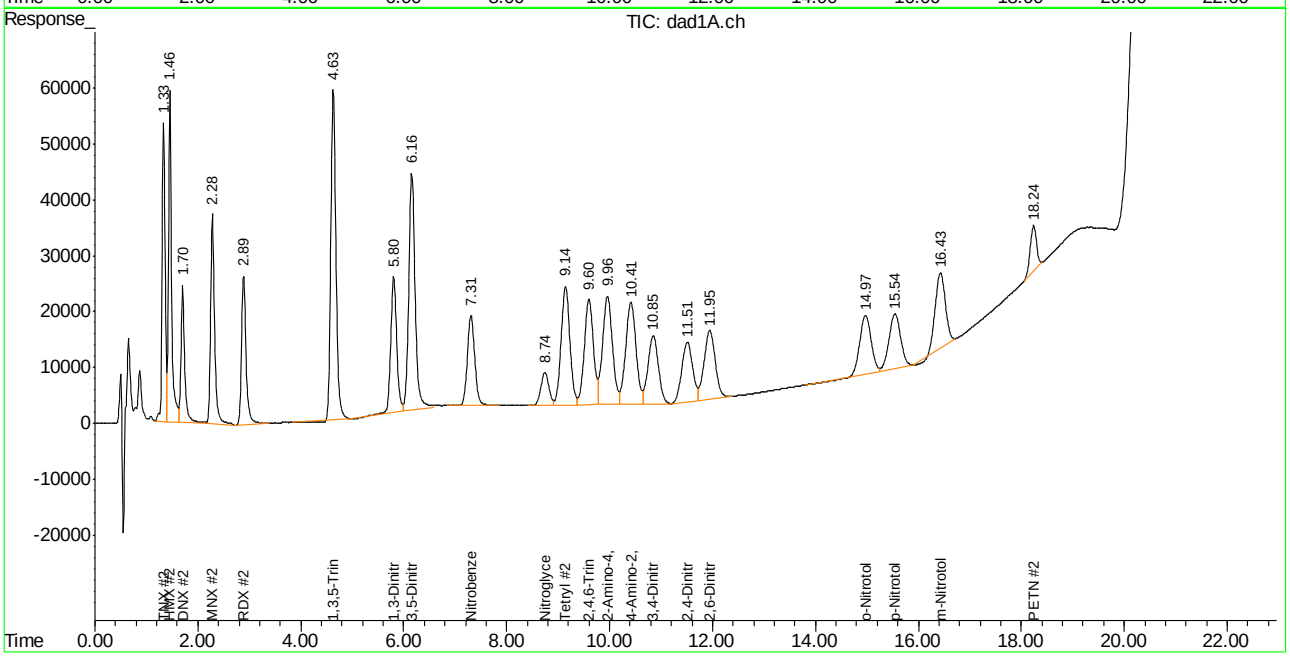
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066563.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066563.D\dad1A.ch
Acq On : 11-Oct-2019, 13:42:29 Operator: williamh
Sample : ic1929-500 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:43 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

Sample Number: GBB1929-IC1929
Lab FileID: BB066563.D
Injection Time: 10/11/19 13:42

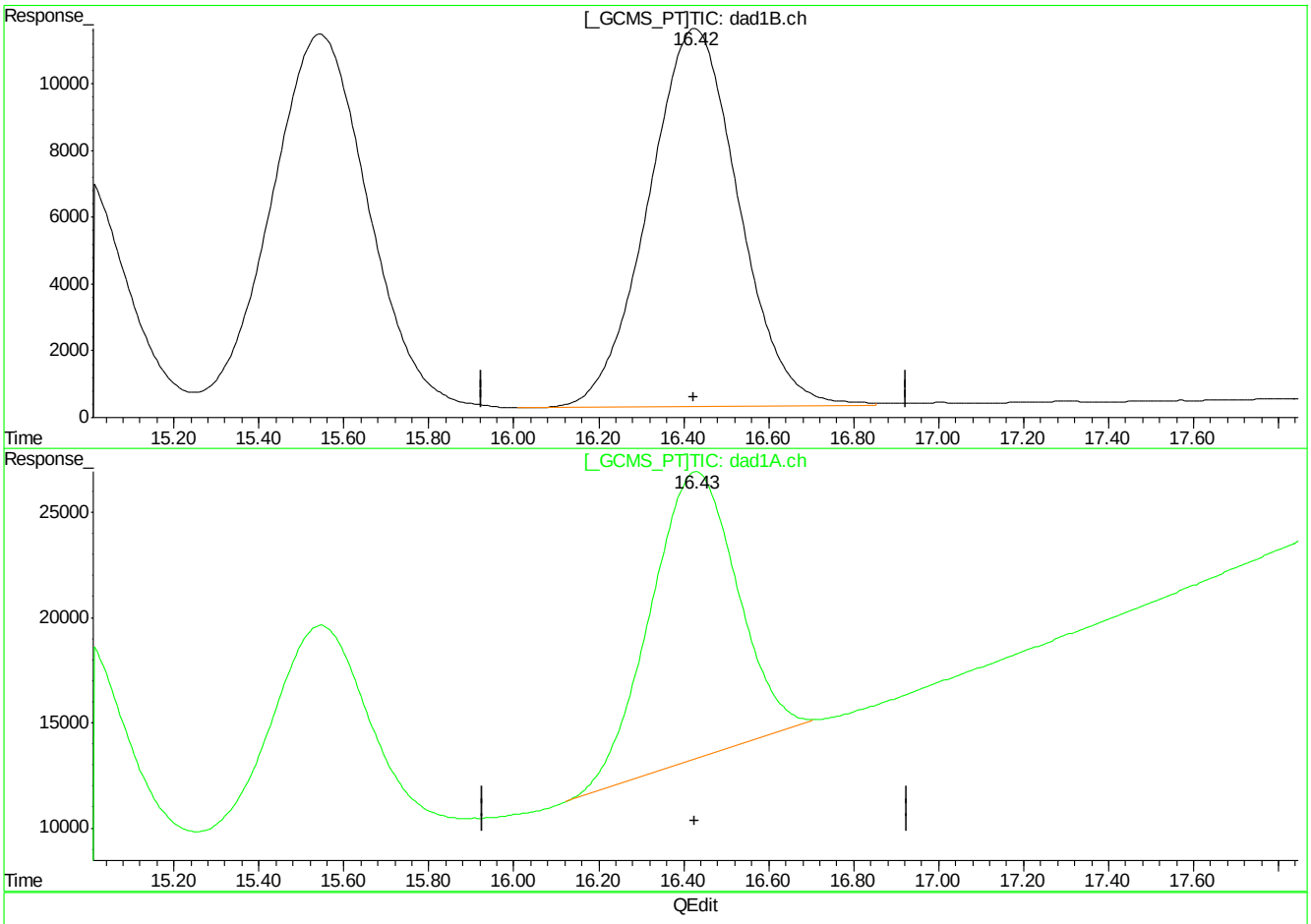
Method: SW846 8330B
Analyst approved: 10/14/19 10:02 William Hustedde
Supervisor approved: 10/14/19 10:52 Evita Martinez

Parameter	CAS	Sig#	R.T. (min.)	Reason
PETN	78-11-5	2	18.24	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066563.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066563.D\dad1A.ch
Acq On : 11-Oct-2019, 13:42:29 Operator: williamh
Sample : ic1929-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration



(20) m-Nitrotoluene

16.43min 501.335ppb

response 1676603

(20) m-Nitrotoluene #2

16.43min 488.225ppb m

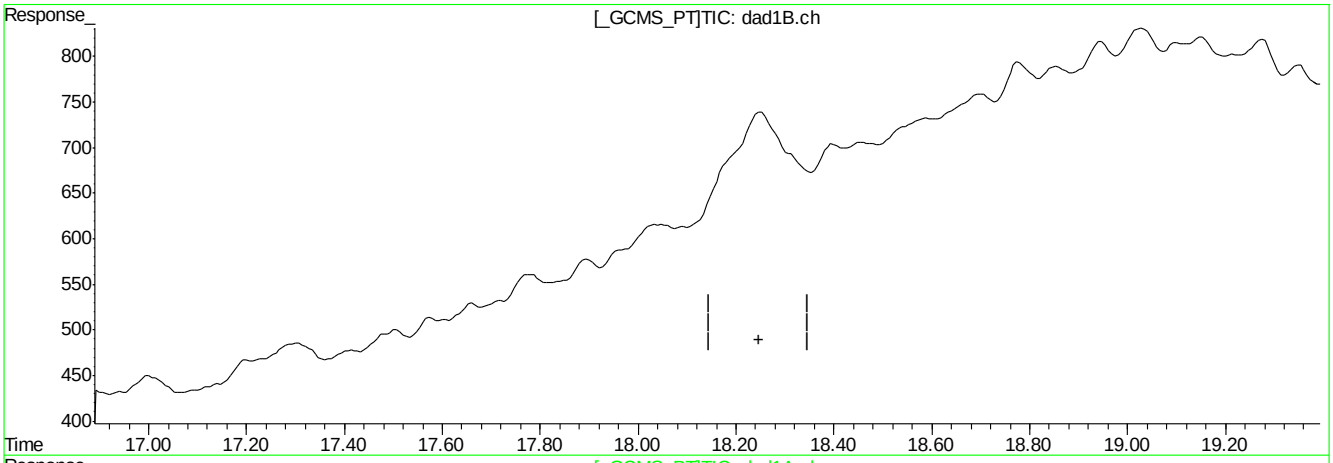
response 1932928

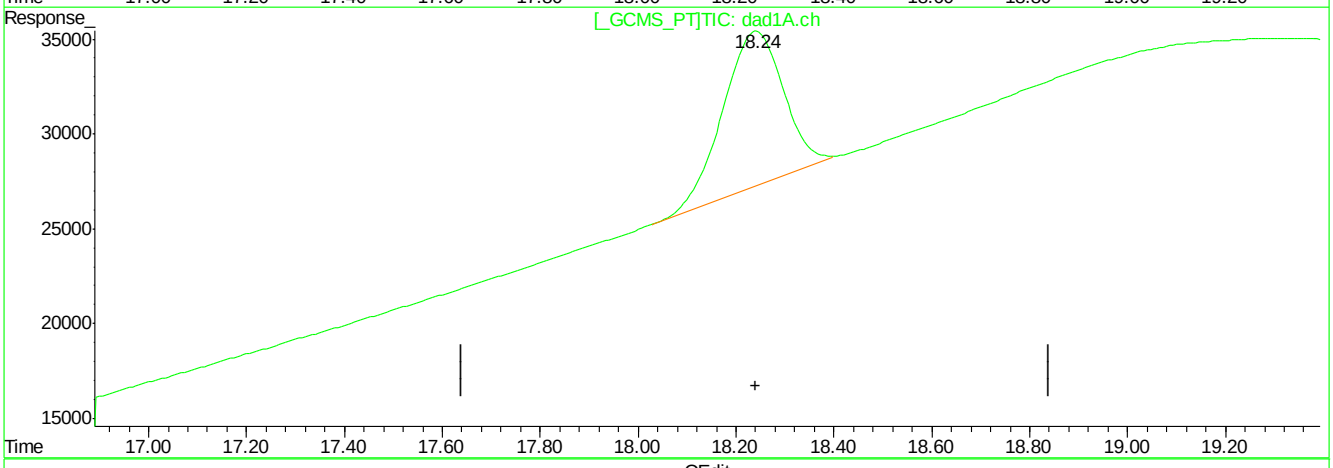
(+) = Expected Retention Time
BB066563.D 8330B_082219_PLUS.M Fri Oct 11 15:55:59 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066563.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066563.D\dad1A.ch
Acq On : 11-Oct-2019, 13:42:29 Operator: williamh
Sample : ic1929-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb d

response 0

(21) PETN #2

18.24min 498.034ppb m

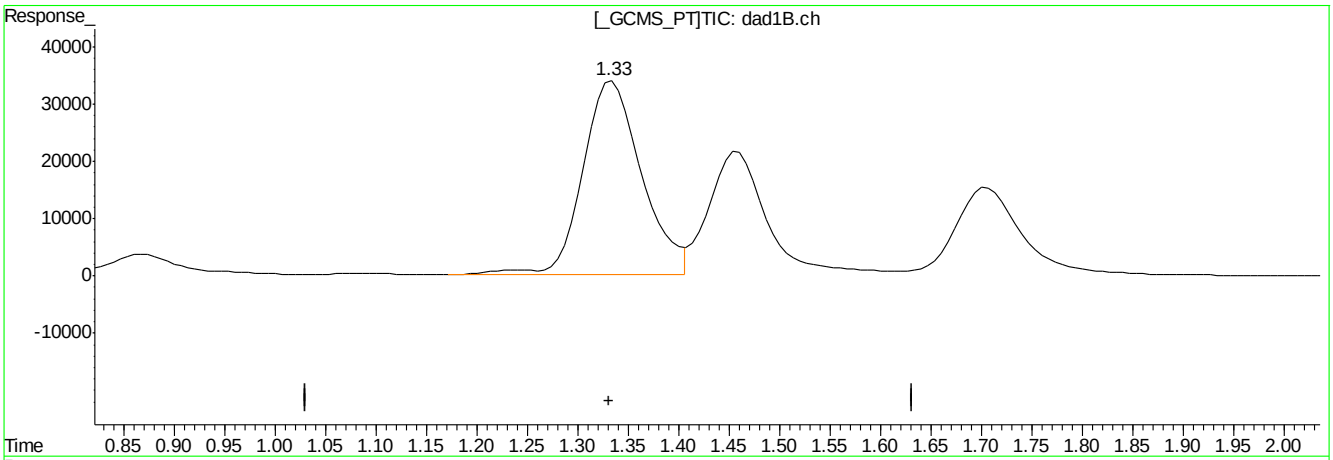
response 705227

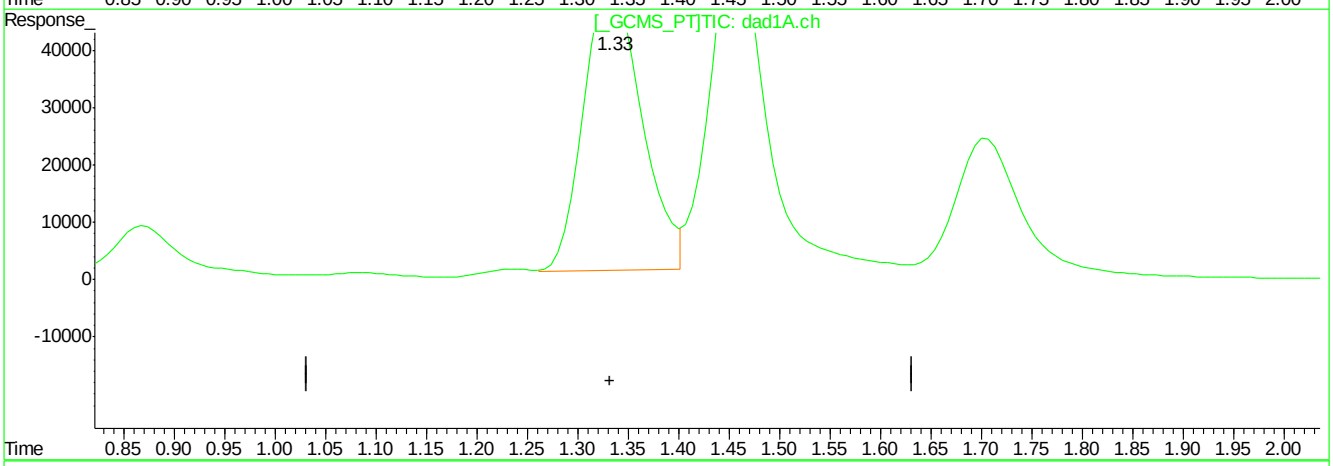
(+) = Expected Retention Time
BB066563.D 8330B_082219_PLUS.M Fri Oct 11 15:56:07 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066563.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066563.D\dad1A.ch
Acq On : 11-Oct-2019, 13:42:29 Operator: williamh
Sample : ic1929-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:56 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:39:30 2019
Response via : Multiple Level Calibration





QEdit

(1) TNX

1.33min 637.607ppb

response 1370561

(1) TNX #2

1.33min 574.127ppb m

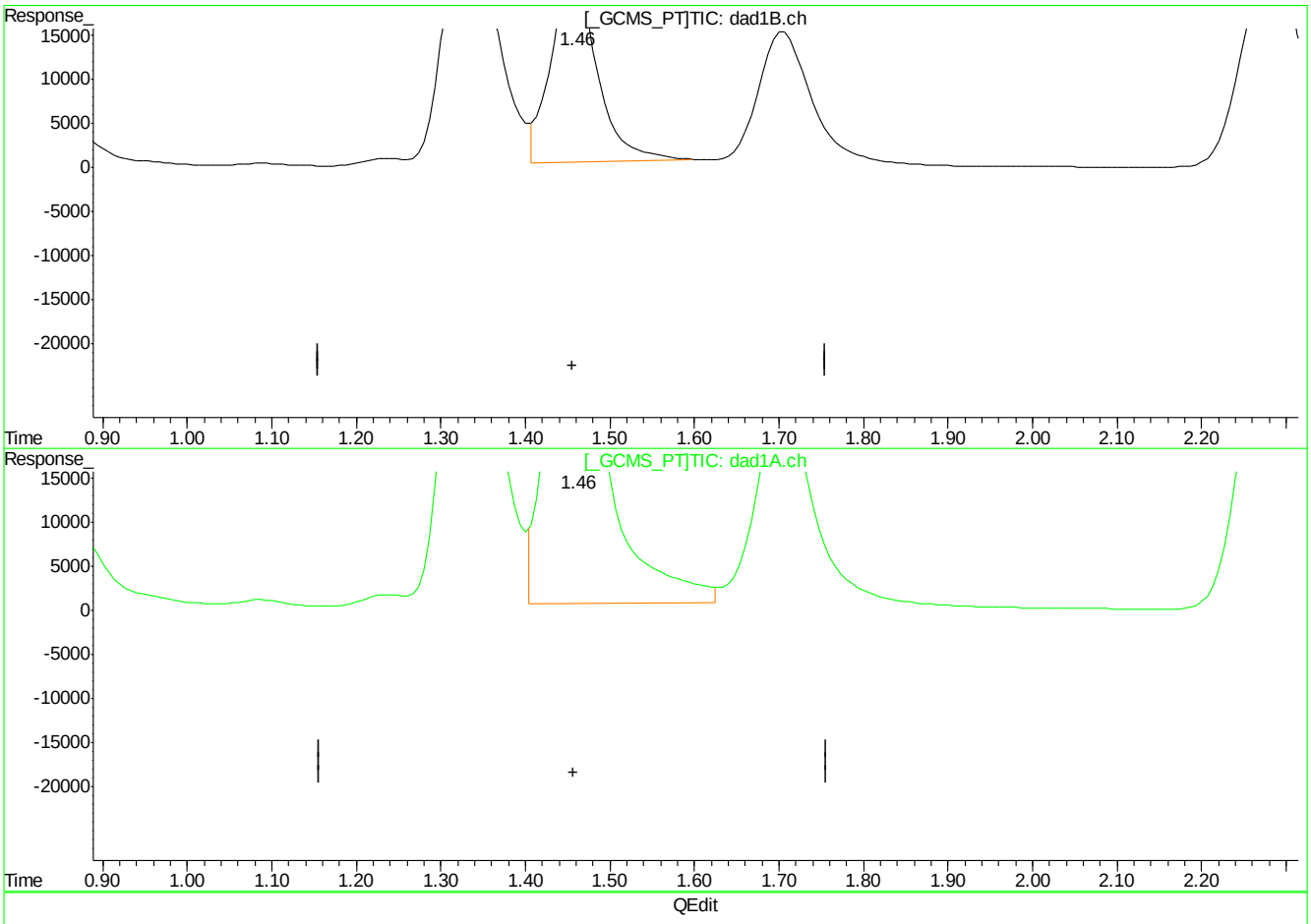
response 2030827

(+) = Expected Retention Time
BB066563.D 8330B_082219_PLUS.M Fri Oct 11 16:40:58 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066563.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066563.D\dad1A.ch
Acq On : 11-Oct-2019, 13:42:29 Operator: williamh
Sample : ic1929-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:56 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:39:30 2019
Response via : Multiple Level Calibration



(2) HMX

1.46min 493.770ppb m

response 794629

(2) HMX #2

1.46min 532.954ppb m

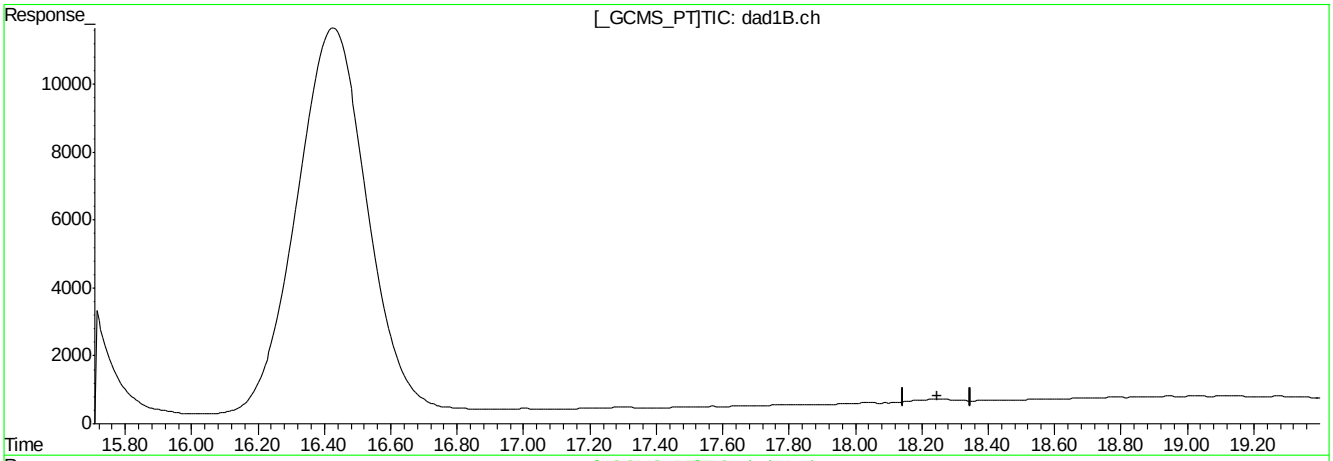
response 2352704

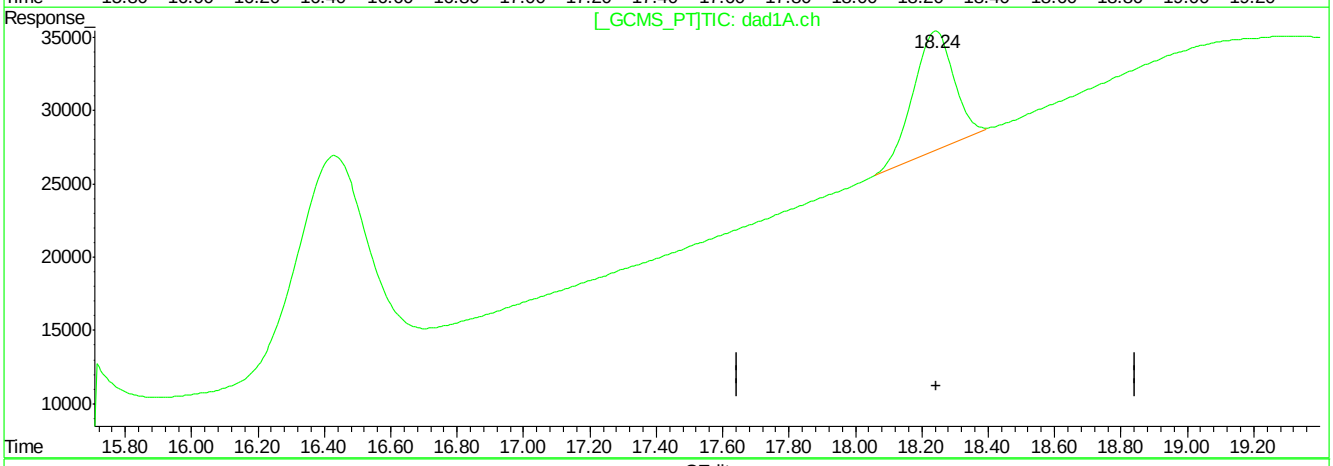
(+) = Expected Retention Time
BB066563.D 8330B_082219_PLUS.M Fri Oct 11 16:41:10 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066563.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066563.D\dad1A.ch
Acq On : 11-Oct-2019, 13:42:29 Operator: williamh
Sample : ic1929-500 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 14 09:42:42 2019
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb d

response 0

(21) PETN #2

18.24min 500.329ppb m

response 698796

(+) = Expected Retention Time
BB066563.D 8330B_101119_PLUS.M Mon Oct 14 09:43:38 2019

Manual Integrations APPROVED (compounds with "m" flag)
Evita Martinez 10/14/19 10:52

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066564.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066564.D\dad1A.ch
Acq On : 11-Oct-2019, 14:12:27 Operator: williamh
Sample : icc1929-1000 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 09:31:44 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.86	10.86	2006913	3531809	952.171	1001.415
Spiked Amount	500.000	Range	69 - 134	Recovery	=	190.43%#	200.28%#
	Target Compounds						
1)	TNX	1.34	1.34	2680592	4186920	955.449	933.288
2)	HMX	1.46	1.46	1716303	4671766	1032.232	1015.338
3)	DNX	1.71	1.71	1412696	2273103	1002.838	985.850
4)	MNX	2.29	2.29	2534187	3939682	968.996	981.737
5)	RDX	2.89	2.89	1969325	3177482	975.820	992.881
6)	1,3,5-Trinitrobe	4.64	4.64	4351898	8112241	981.485	971.367
7)	1,3-Dinitrobenze	5.81	5.81	5479410	3754648	974.668	979.378
8)	3,5-Dinitroanili	6.16	6.16	4202487	7166510	981.071	970.897
9)	Nitrobenzene	7.31	7.31	3242084	3169945	954.322	946.448
10)	Nitroglycerin	0.00	8.76	0	1279226	N.D.	988.176 #
11)	Tetryl	9.16	9.16	3127692	5055478	977.176	977.878
12)	2,4,6-Trinitroto	9.61	9.61	3877660	4677685	975.093	986.903
13)	2-Amino-4,6-Dini	9.97	9.97	3507863	5289414	974.914	986.432
14)	4-Amino-2,6-Dini	10.43	10.43	2569413	5143900	959.241	984.881
16)	2,4-Dinitrotolue	11.52	11.52	4883558	3181069	981.077	1027.726
17)	2,6-Dinitrotolue	11.96	11.96	2851227	3715244	958.823	1013.997
18)	o-Nitrotoluene	14.98	14.98	2314221	3204446	969.670	1008.180
19)	p-Nitrotoluene	15.55	15.55	3621467	3120936	939.570	1044.071
20)	m-Nitrotoluene	16.44	16.44	3392255	3907103	975.945	972.289
21)	PETN	0.00	18.24	0	1461858	N.D. d	1046.671m

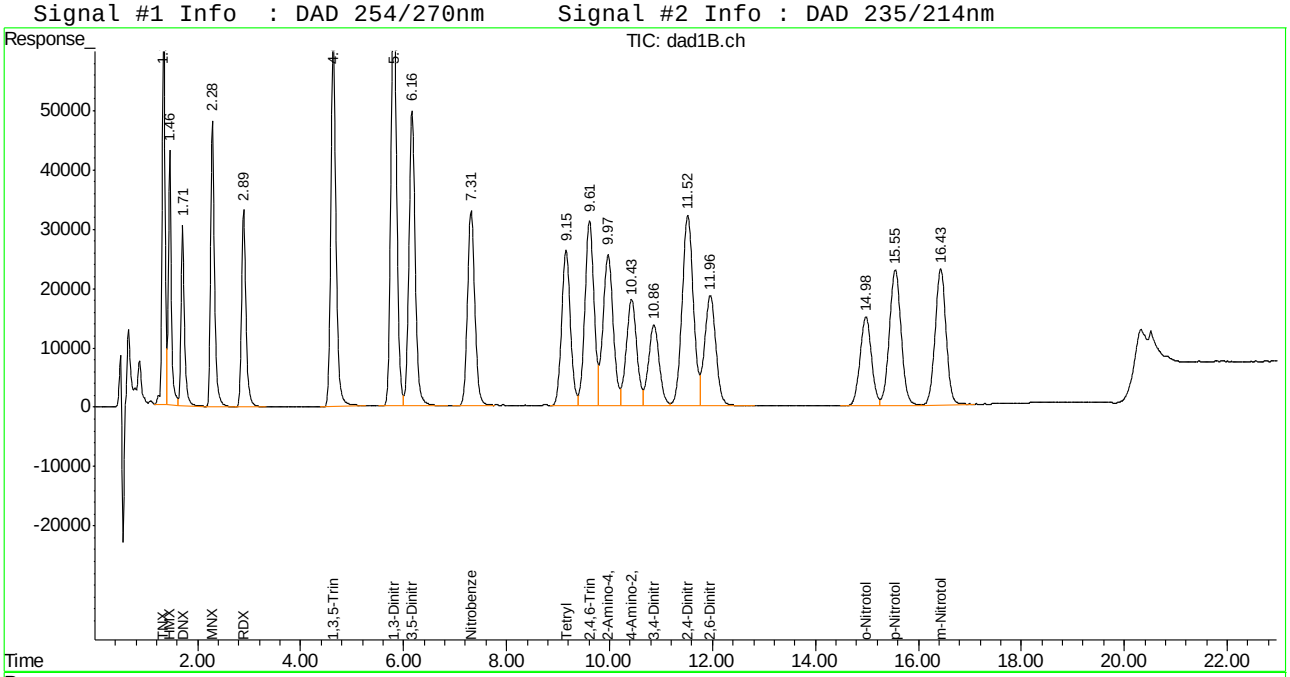
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

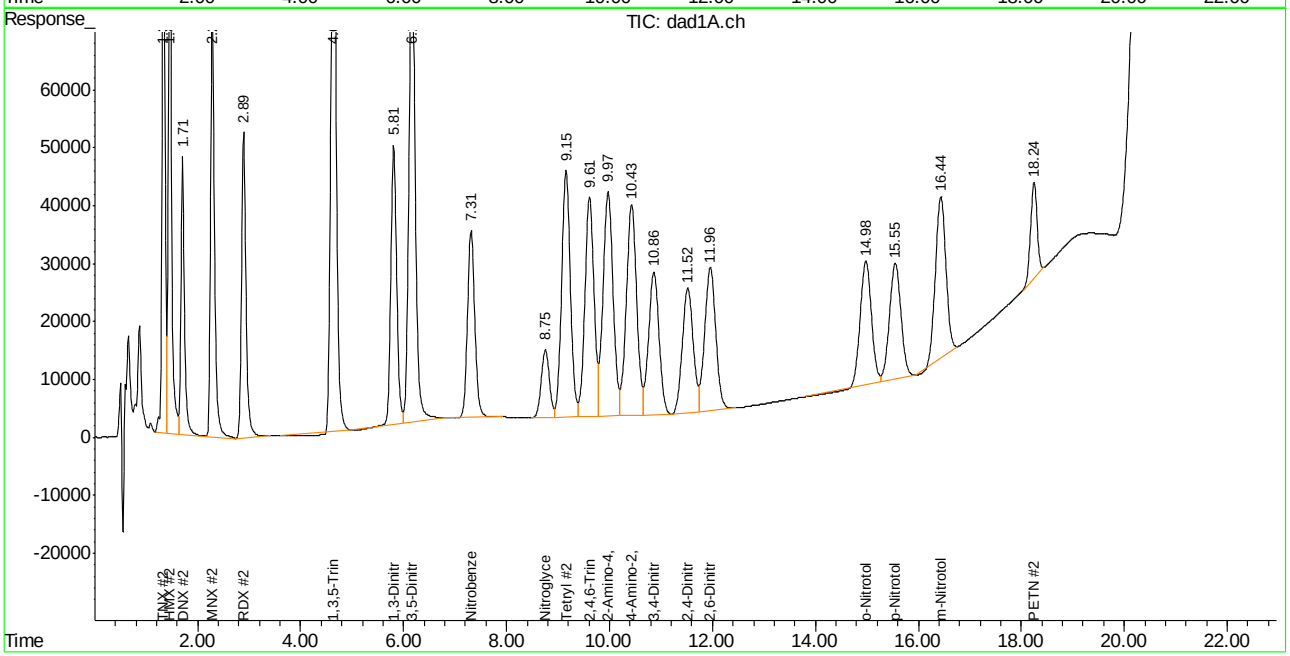
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066564.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066564.D\dad1A.ch
Acq On : 11-Oct-2019, 14:12:27 Operator: williamh
Sample : icc1929-1000 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:40 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

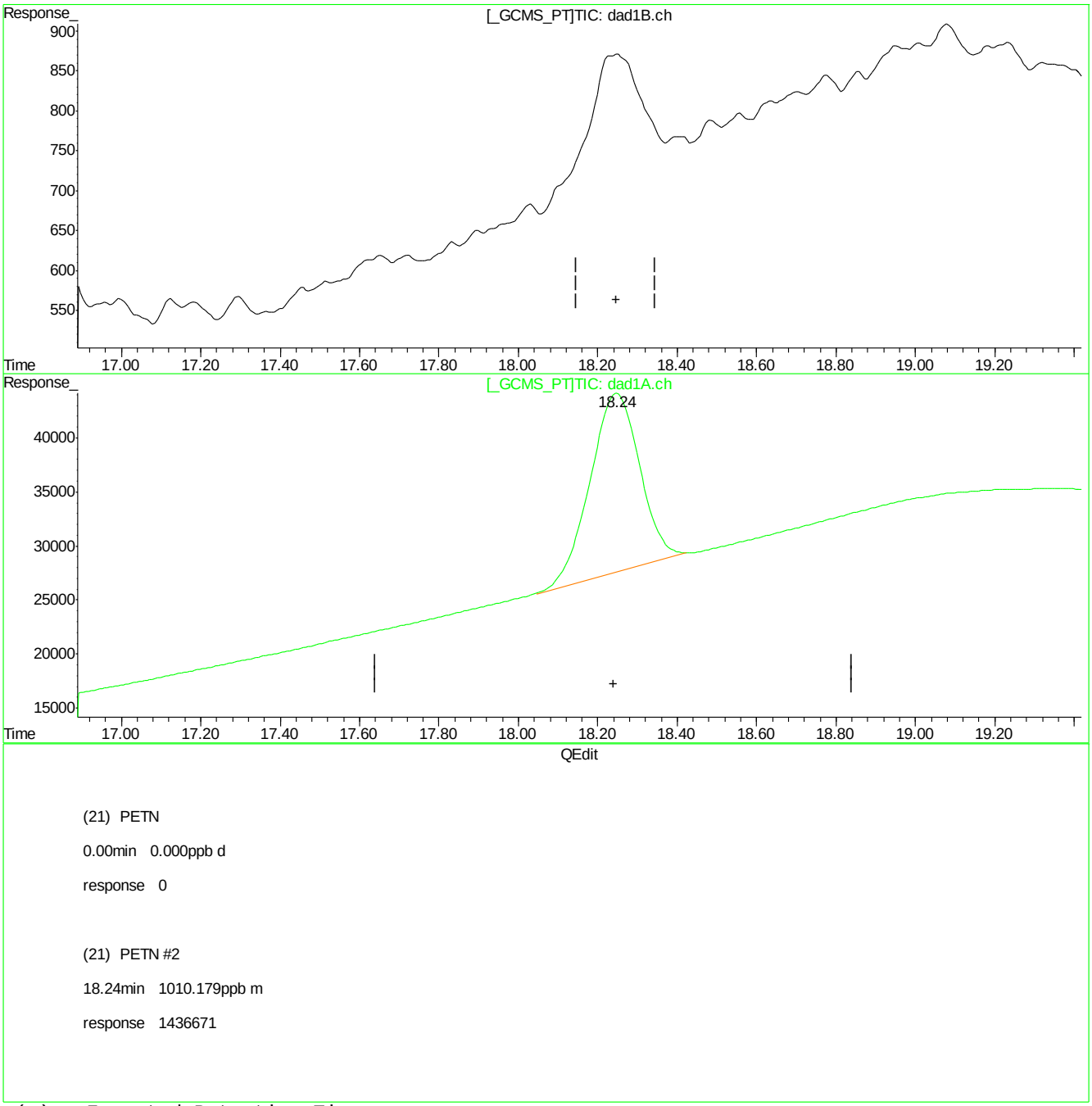
Sample Number:	GBB1929-ICC1929	**Method:**	SW846 8330B
Lab FileID:	BB066564.D	**Analyst approved:**	10/14/19 10:02 William Hustedde
Injection Time:	10/11/19 14:12	**Supervisor approved:**	10/14/19 10:52 Evita Martinez

Parameter	CAS	Sig#	R.T. (min.)	Reason
PETN	78-11-5	2	18.24	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066564.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066564.D\dad1A.ch
Acq On : 11-Oct-2019, 14:12:27 Operator: williamh
Sample : icc1929-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration



(21) PETN

0.00min 0.000ppb d

response 0

(21) PETN #2

18.24min 1010.179ppb m

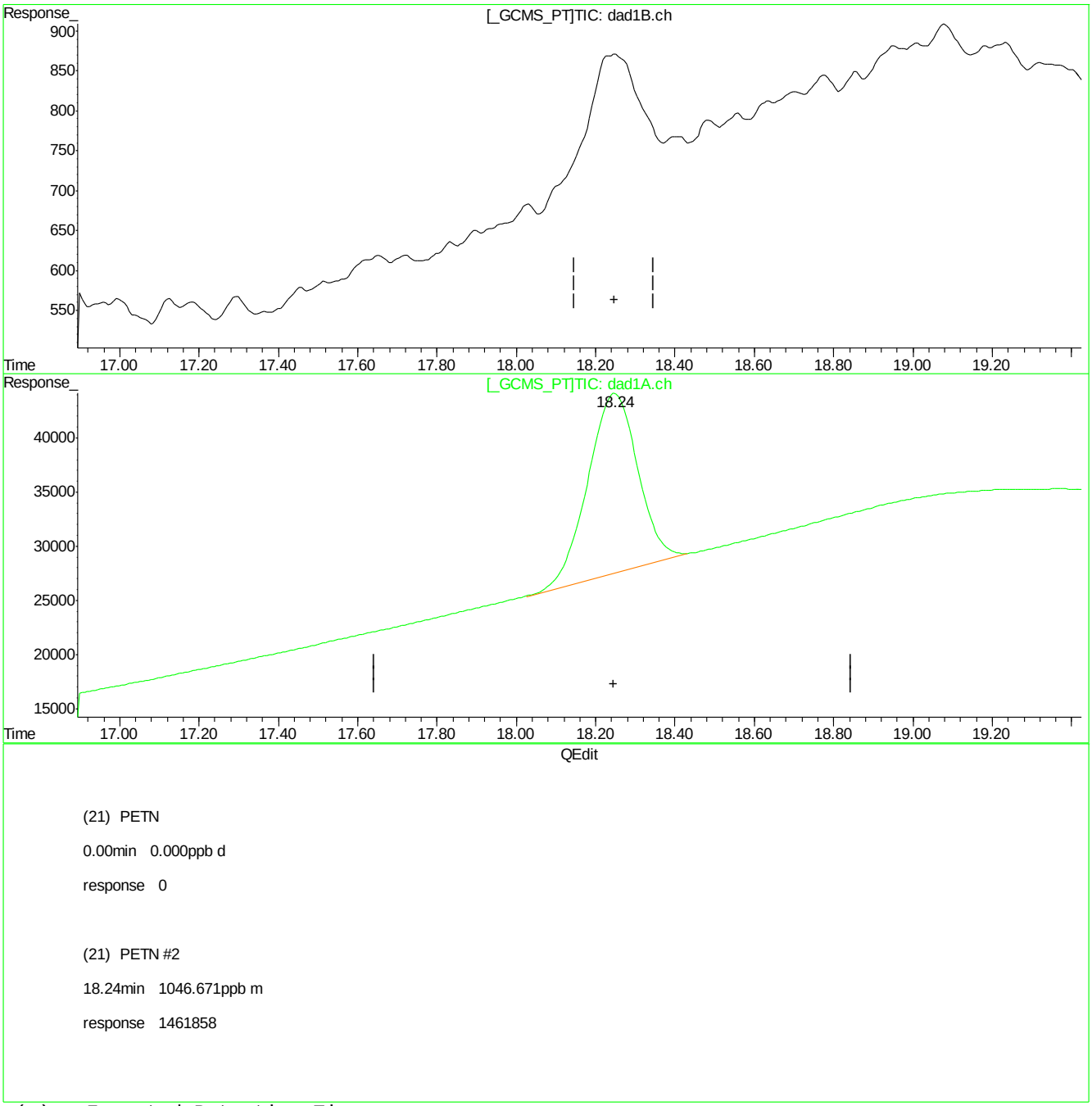
response 1436671

(+) = Expected Retention Time
BB066564.D 8330B_082219_PLUS.M Fri Oct 11 15:57:23 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066564.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066564.D\dad1A.ch
Acq On : 11-Oct-2019, 14:12:27 Operator: williamh
Sample : icc1929-1000 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration



(+) = Expected Retention Time
BB066564.D 8330B_101119_PLUS.M Mon Oct 14 09:40:52 2019

BB066565.D

Manual Integrations APPROVED (compounds with "m" flag)

Evita Martinez 10/14/19 10:52

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066565.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066565.D\dad1A.ch
Acq On : 11-Oct-2019, 14:42:23 Operator: williamh
Sample : ic1929-2500 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 09:31:45 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.87	10.87	5060650	8955288	2401.002	2539.198
	Spiked Amount 500.000	Range 69 - 134		Recovery =		480.20%#	507.84%#
	Target Compounds						
1)	TNX	1.34	1.34	7583310	11804251	2702.936	2631.233
2)	HMX	1.46	1.46	4348727	11844465	2615.445	2574.215
3)	DNX	1.71	1.71	3564400	5684797	2530.278	2503.300
4)	MNX	2.29	2.29	6449304	9955431	2466.017	2480.814
5)	RDX	2.89	2.89	4972902	7974218	2464.122	2491.736
6)	1,3,5-Trinitrobe	4.64	4.64	11057524	20906225	2493.807	2503.331
7)	1,3-Dinitrobenze	5.81	5.81	13902115	9464406	2472.883	2468.736
8)	3,5-Dinitroanili	6.17	6.17	10618826	17869095	2478.966	2420.851
9)	Nitrobenzene	7.32	7.32	8317290	8059095	2448.232	2406.197
10)	Nitroglycerin	0.00	8.77	0	3237275	N.D. d	2500.728
11)	Tetryl	9.17	9.17	7934869	12857974	2479.069	2487.111
12)	2,4,6-Trinitroto	9.62	9.62	9850053	11901308	2476.938	2510.951
13)	2-Amino-4,6-Dini	9.98	9.98	8890060	13457237	2470.748	2509.664
14)	4-Amino-2,6-Dini	10.44	10.44	6491800	13058664	2423.590	2500.286
16)	2,4-Dinitrotolue	11.53	11.53	12419655	8133728	2495.033	2627.809
17)	2,6-Dinitrotolue	11.97	11.97	7267972	9458874	2444.105	2581.600
18)	o-Nitrotoluene	14.99	14.99	5876606	8258929	2462.327	2598.416
19)	p-Nitrotoluene	15.56	15.56	9223359	7974144	2392.949	2667.653
20)	m-Nitrotoluene	16.44	16.44	8682215	10300116	2497.855	2527.071
21)	PETN	0.00	18.25	0	3781705	N.D. d	2707.652m

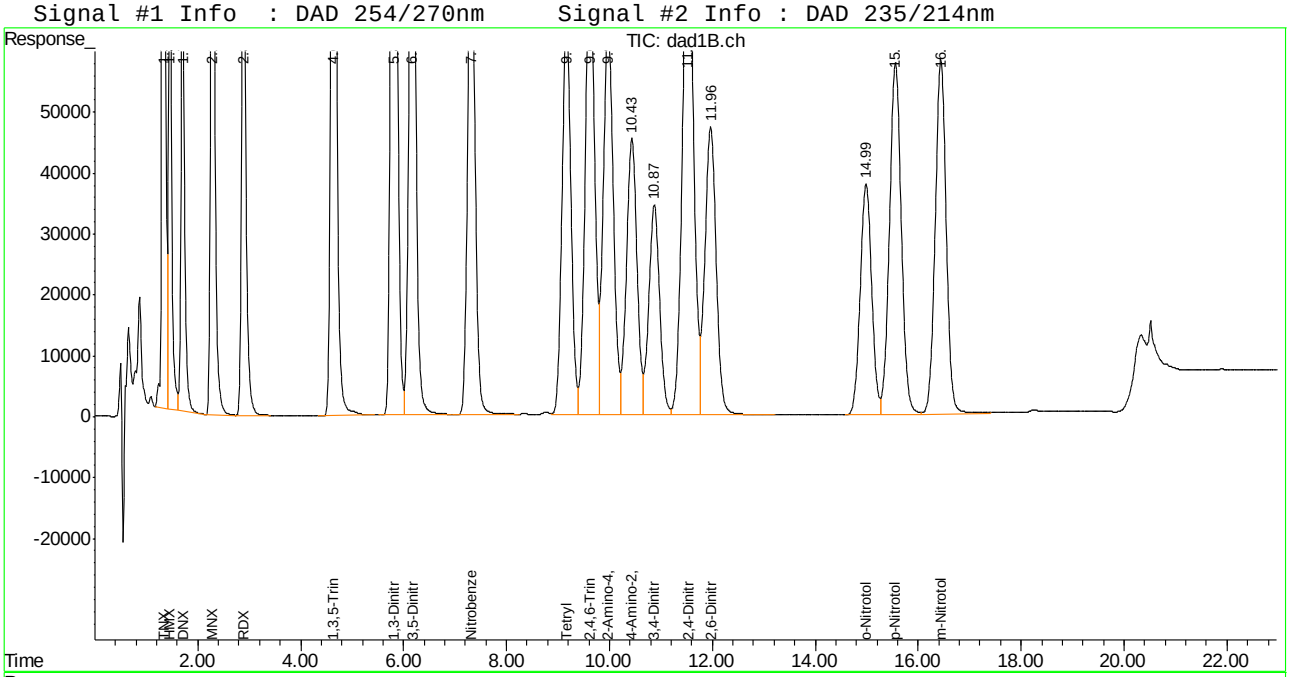
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB066565.D 8330B_101119_PLUS.M Mon Oct 14 09:54:59 2019 Page 1

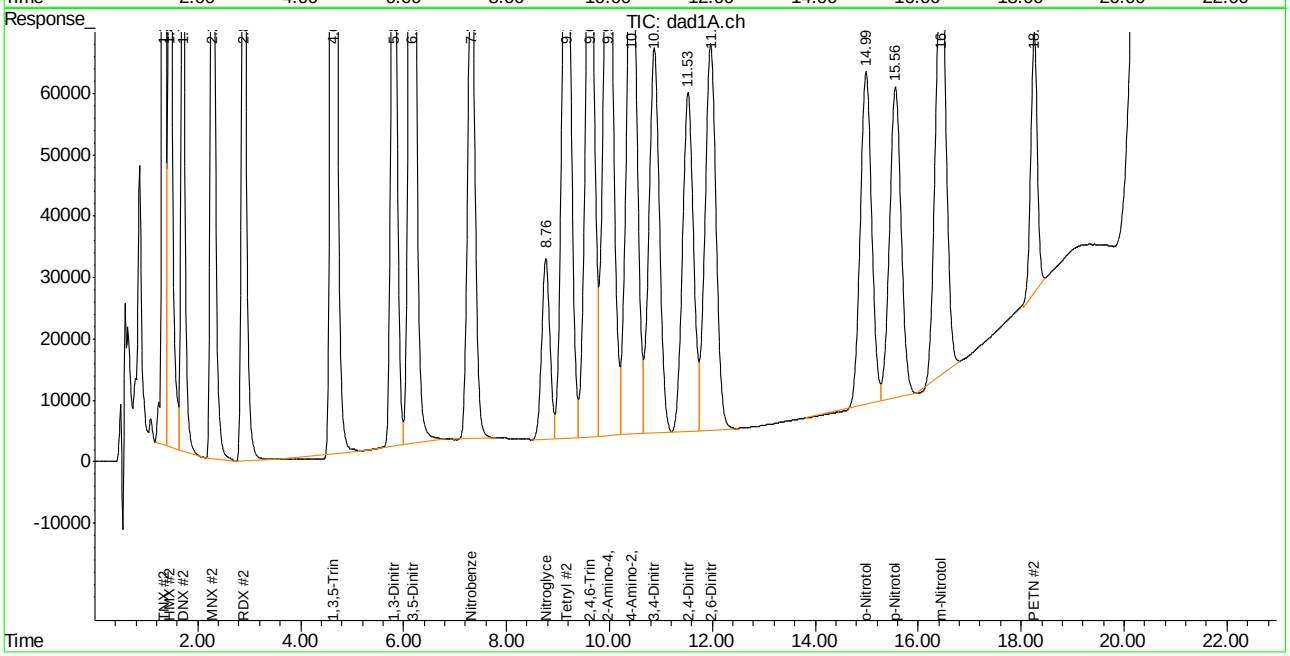
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066565.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066565.D\dad1A.ch
Acq On : 11-Oct-2019, 14:42:23 Operator: williamh
Sample : ic1929-2500 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:41 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

Sample Number: GBB1929-IC1929
Lab FileID: BB066565.D
Injection Time: 10/11/19 14:42

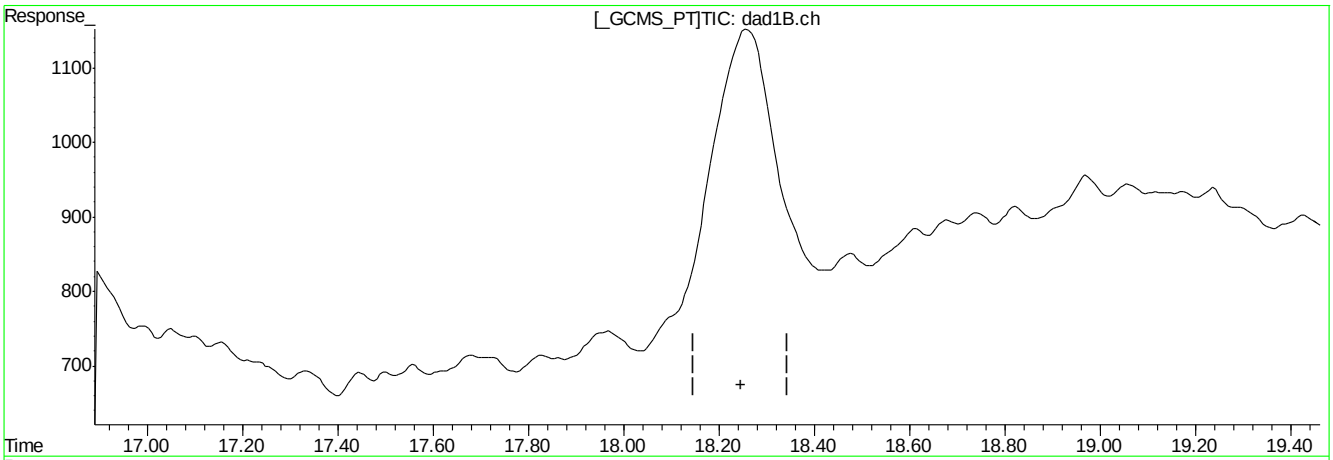
Method: SW846 8330B
Analyst approved: 10/14/19 10:02 William Hustedde
Supervisor approved: 10/14/19 10:52 Evita Martinez

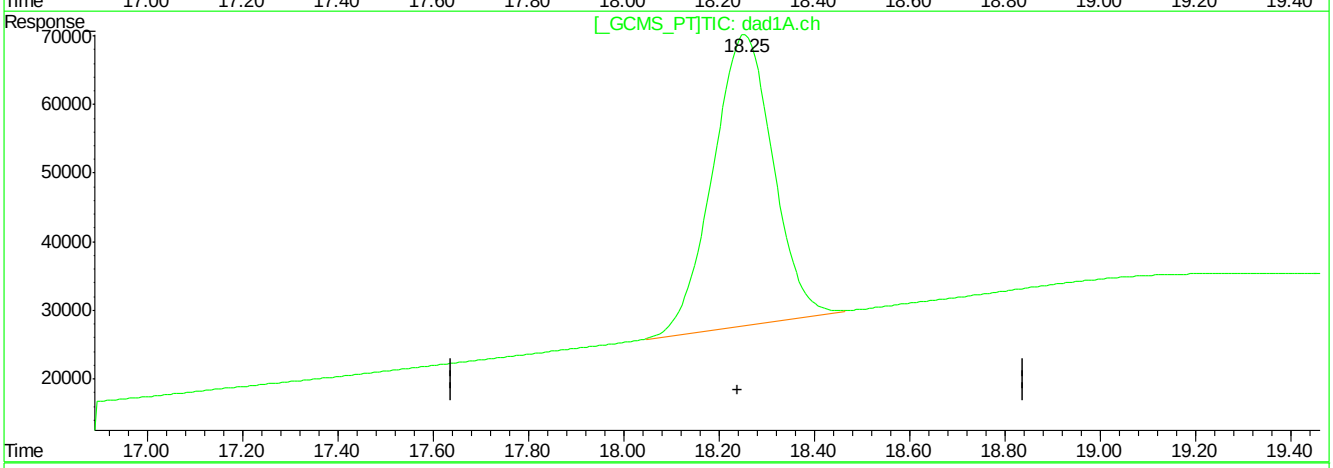
Parameter	CAS	Sig#	R.T. (min.)	Reason
PETN	78-11-5	2	18.25	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066565.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066565.D\dad1A.ch
Acq On : 11-Oct-2019, 14:42:23 Operator: williamh
Sample : ic1929-2500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb d

response 0

(21) PETN #2

18.25min 2594.924ppb m

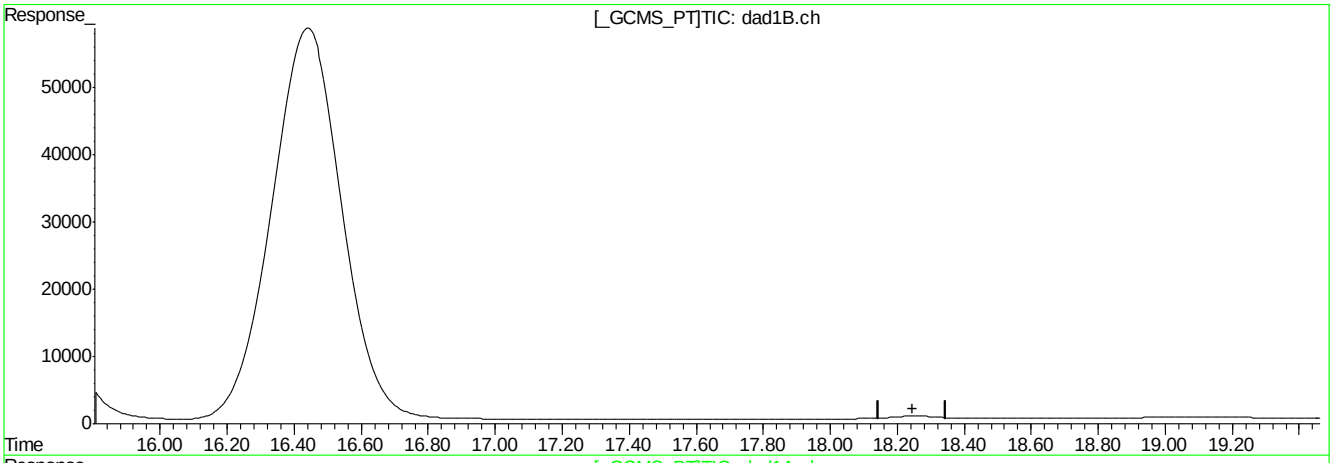
response 3740043

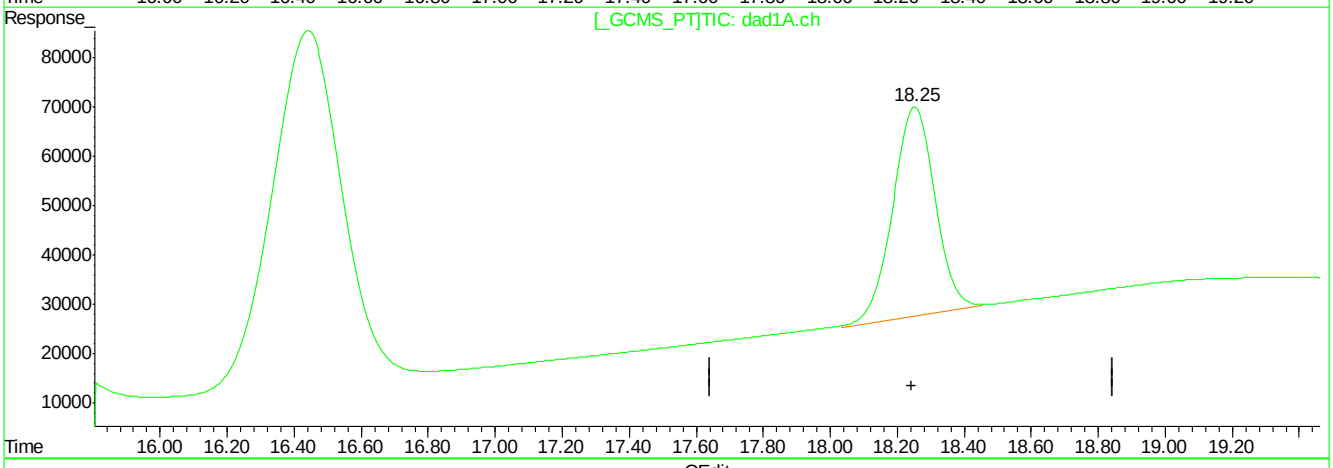
(+) = Expected Retention Time
BB066565.D 8330B_082219_PLUS.M Fri Oct 11 15:57:44 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066565.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066565.D\dad1A.ch
Acq On : 11-Oct-2019, 14:42:23 Operator: williamh
Sample : ic1929-2500 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb d

response 0

(21) PETN #2

18.25min 2707.652ppb m

response 3781705

(+) = Expected Retention Time
BB066565.D 8330B_101119_PLUS.M Mon Oct 14 09:41:11 2019

9.5.7.3

9

BB066565.D edits: PETN

Manual Integrations APPROVED (compounds with "m" flag)
Evita Martinez 10/14/19 10:52

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066566.D\dad1B.ch Vial: 9
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066566.D\dad1A.ch
Acq On : 11-Oct-2019, 15:12:19 Operator: williamh
Sample : ic1929-5000 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 09:31:46 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.88	10.88	10125616	18342589	4804.050	5200.889
	Spiked Amount 500.000	Range 69 - 134		Recovery =		960.81%#	1040.18%#
	Target Compounds						
1)	TNX	1.34	1.34	13334614	20935507	4752.887	4666.640
2)	HMX	1.46	1.46	8545758	23107646	5139.656	5022.097
3)	DNX	1.71	1.71	6978069	11067068	4953.555	4999.434
4)	MNX	2.29	2.29	12710282	19605395	4860.024	4885.509
5)	RDX	2.89	2.89	9889709	15805645	4900.448	4938.854
6)	1,3,5-Trinitrobe	4.64	4.64	21997931	42072995	4961.201	5037.859
7)	1,3-Dinitrobenze	5.81	5.81	27676156	18754834	4922.984	4892.091
8)	3,5-Dinitroanili	6.17	6.17	21195727	35367875	4948.145	4791.532
9)	Nitrobenzene	7.31	7.31	16518739	16123230	4862.365	4813.899
10)	Nitroglycerin	0.00	8.77	0	6462798	N.D. d	4992.378
11)	Tetryl	9.18	9.17	15756433	25636240	4922.738	4958.805
12)	2,4,6-Trinitroto	9.64	9.64	19623222	23845287	4934.542	5030.904
13)	2-Amino-4,6-Dini	9.98	9.98	17666647	26938323	4909.960	5023.775
14)	4-Amino-2,6-Dini	10.44	10.44	12880149	26220766	4808.558	5020.378
16)	2,4-Dinitrotolue	11.54	11.54	24749309	16528151	4971.985	5339.842
17)	2,6-Dinitrotolue	11.98	11.98	14372185	18998951	4833.140	5185.363
18)	o-Nitrotoluene	14.99	14.99	11695040	16539167	4900.279	5203.536
19)	p-Nitrotoluene	15.56	15.56	18364125	15967861	4764.470	5341.854
20)	m-Nitrotoluene	16.44	16.44	17202894	20813546	4949.237	4994.734
21)	PETN	0.00	18.26	0	7524251	N.D. d	5387.267m

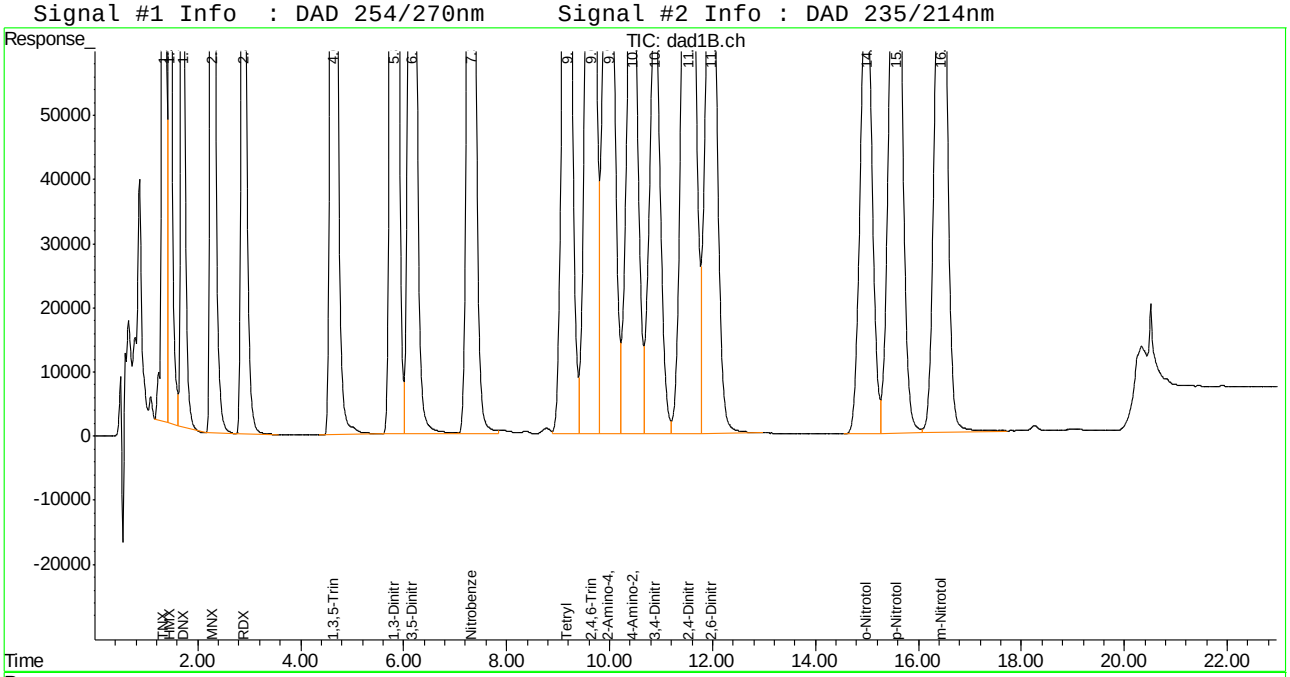
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB066566.D 8330B_101119_PLUS.M Mon Oct 14 09:55:00 2019 Page 1

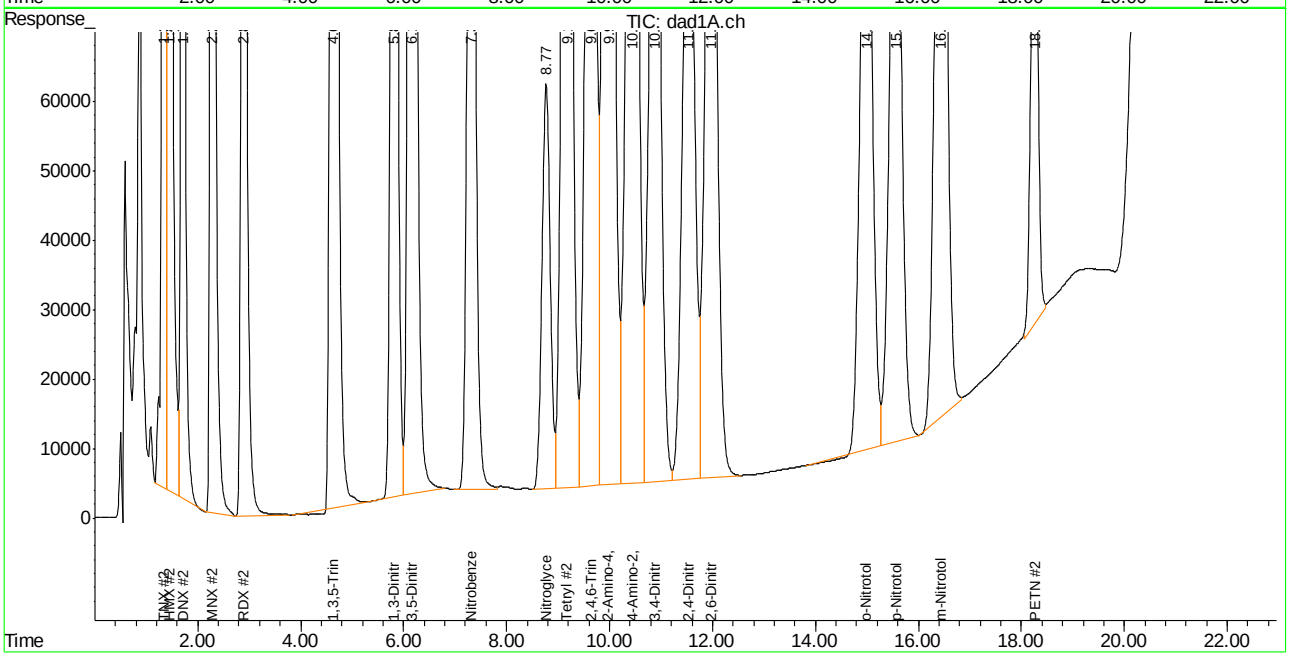
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066566.D\dad1B.ch Vial: 9
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066566.D\dad1A.ch
Acq On : 11-Oct-2019, 15:12:19 Operator: williamh
Sample : ic1929-5000 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:41 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

Sample Number: GBB1929-IC1929
Lab FileID: BB066566.D
Injection Time: 10/11/19 15:12

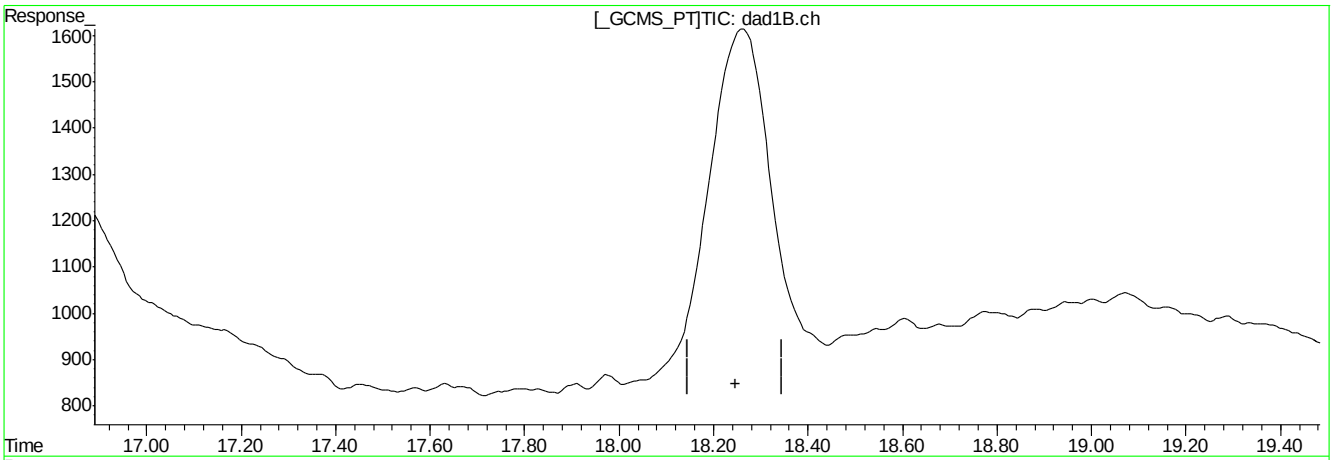
Method: SW846 8330B
Analyst approved: 10/14/19 10:02 William Hustedde
Supervisor approved: 10/14/19 10:52 Evita Martinez

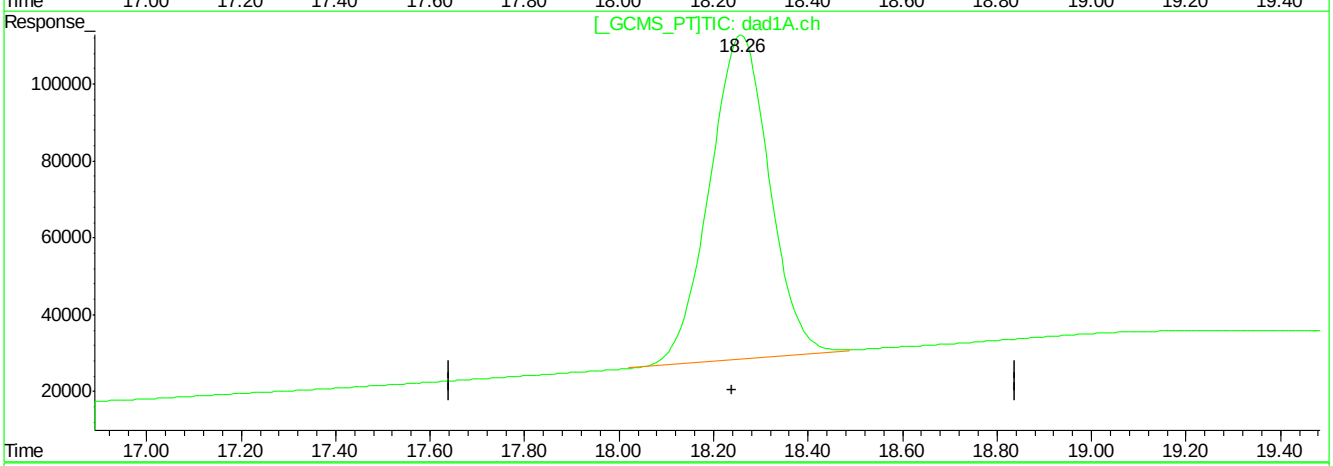
Parameter	CAS	Sig#	R.T. (min.)	Reason
PETN	78-11-5	2	18.26	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066566.D\dad1B.ch Vial: 9
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066566.D\dad1A.ch
Acq On : 11-Oct-2019, 15:12:19 Operator: williamh
Sample : ic1929-5000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 15:39 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 15:33:58 2019
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb d

response 0

(21) PETN #2

18.26min 5031.136ppb m

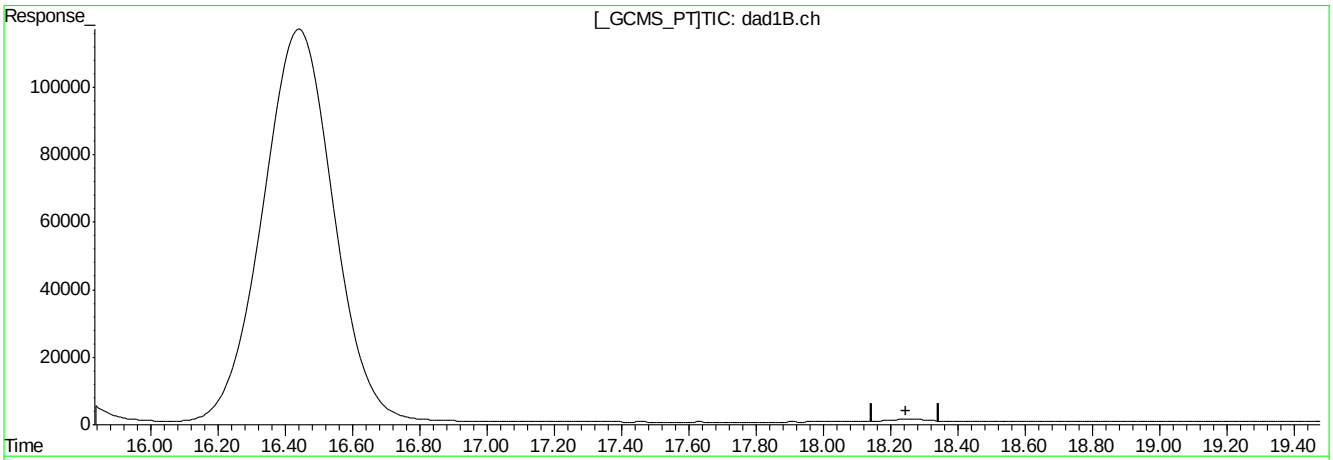
response 7399040

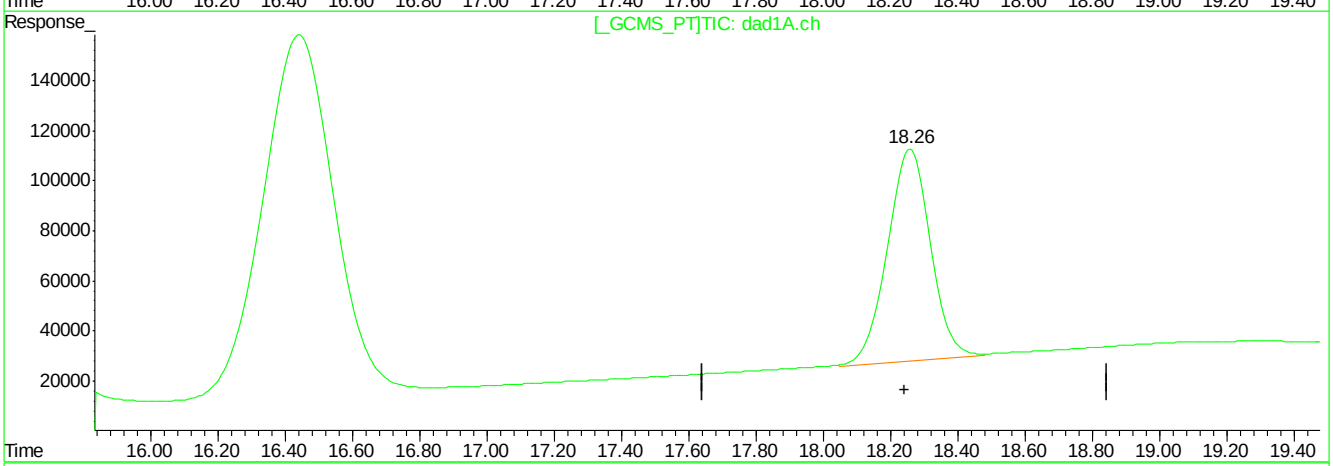
(+) = Expected Retention Time
BB066566.D 8330B_082219_PLUS.M Fri Oct 11 15:58:07 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066566.D\dad1B.ch Vial: 9
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066566.D\dad1A.ch
Acq On : 11-Oct-2019, 15:12:19 Operator: williamh
Sample : ic1929-5000 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:31 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:00:32 2019
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb d

response 0

(21) PETN #2

18.26min 5387.267ppb m

response 7524251

(+) = Expected Retention Time
BB066566.D 8330B_101119_PLUS.M Mon Oct 14 09:41:38 2019

Manual Integrations APPROVED (compounds with "m" flag)
Evita Martinez 10/14/19 10:52

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066568.D\dad1B.ch Vial: 10
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066568.D\dad1A.ch
Acq On : 11-Oct-2019, 16:15:45 Operator: williamh
Sample : icv1929-1000 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 09:44:13 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 14 09:43:51 2019
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	0.00	0.00	0	0	N.D.	N.D.
Spiked Amount	500.000	Range	69 - 134	Recovery	=	0.00%#	0.00%#
	Target Compounds						
1)	TNX	1.34	1.34	2419801	3783772	872.182	859.779
2)	HMX	1.46	1.46	1714558	4680897	1074.744	1056.711
3)	DNX	1.71	1.71	1302824	2163981	955.306	938.360
4)	MNX	2.29	2.29	2271920	3559010	865.693	888.709
5)	RDX	2.90	2.90	1972307	3188468	976.558	983.675
6)	1,3,5-Trinitrobe	4.64	4.64	4158413	7838102	937.848	932.011
7)	1,3-Dinitrobenze	5.82	5.82	5424255	3784809	967.047	960.450
8)	3,5-Dinitroanili	6.17	6.17	4293288	7353626	1005.509	994.552
9)	Nitrobenzene	7.32	7.32	3261042	3203738	957.118	956.570
10)	Nitroglycerin	0.00	8.77	0	1417574	N.D. d	1089.647
11)	Tetryl	9.18	9.18	3073065	5003732	960.109	967.869
12)	2,4,6-Trinitroto	9.63	9.63	4073163	4982485	1024.255	1051.210
13)	2-Amino-4,6-Dini	9.99	9.99	3431161	5224532	953.597	974.332
14)	4-Amino-2,6-Dini	10.45	10.45	2567409	5198688	958.493	995.370
16)	2,4-Dinitrotolue	11.54	11.54	4851790	3260452	974.695	1045.256
17)	2,6-Dinitrotolue	11.98	11.98	2817765	3727662	947.570	1034.739
18)	o-Nitrotoluene	14.99	14.99	2352992	3272850	986.758	1005.217
19)	p-Nitrotoluene	15.56	15.56	3561821	3109252	941.837	1005.332
20)	m-Nitrotoluene	16.45	16.45	3436090	3953666	989.240	989.093
21)	PETN	0.00	18.27	0	1463234	N.D. d	1071.361m

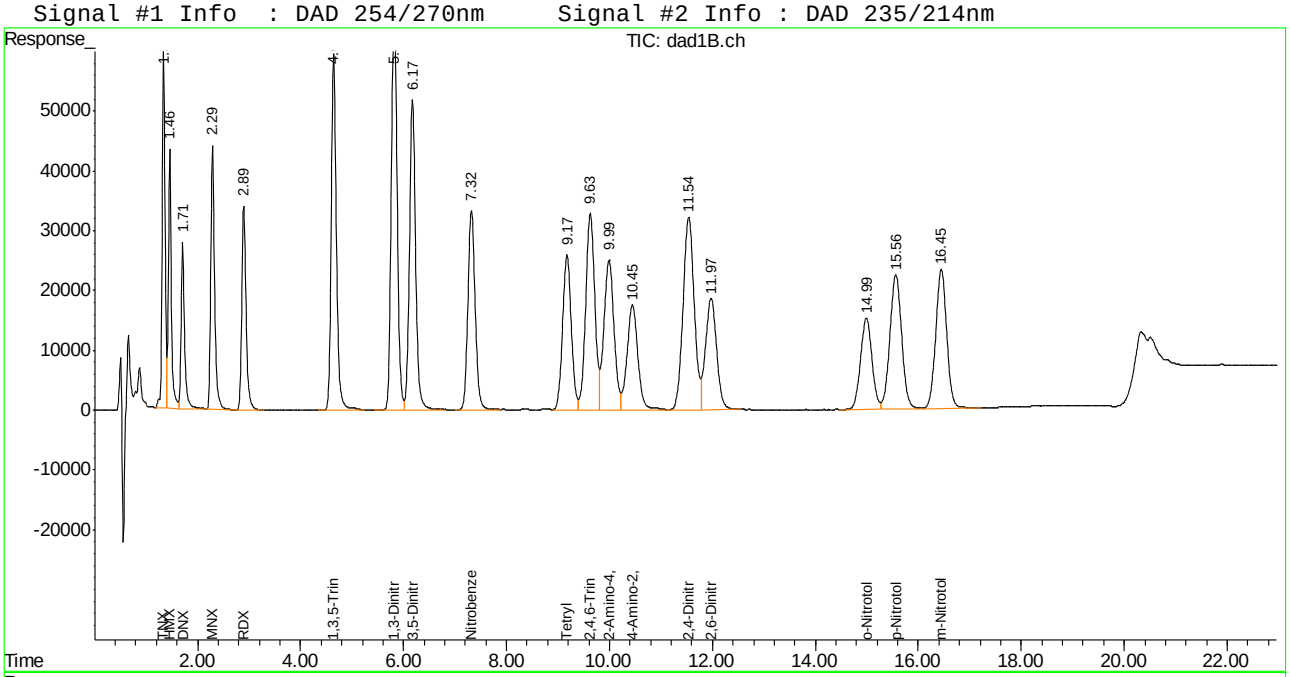
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB066568.D 8330B_101119_PLUS.M Mon Oct 14 09:55:01 2019 Page 1

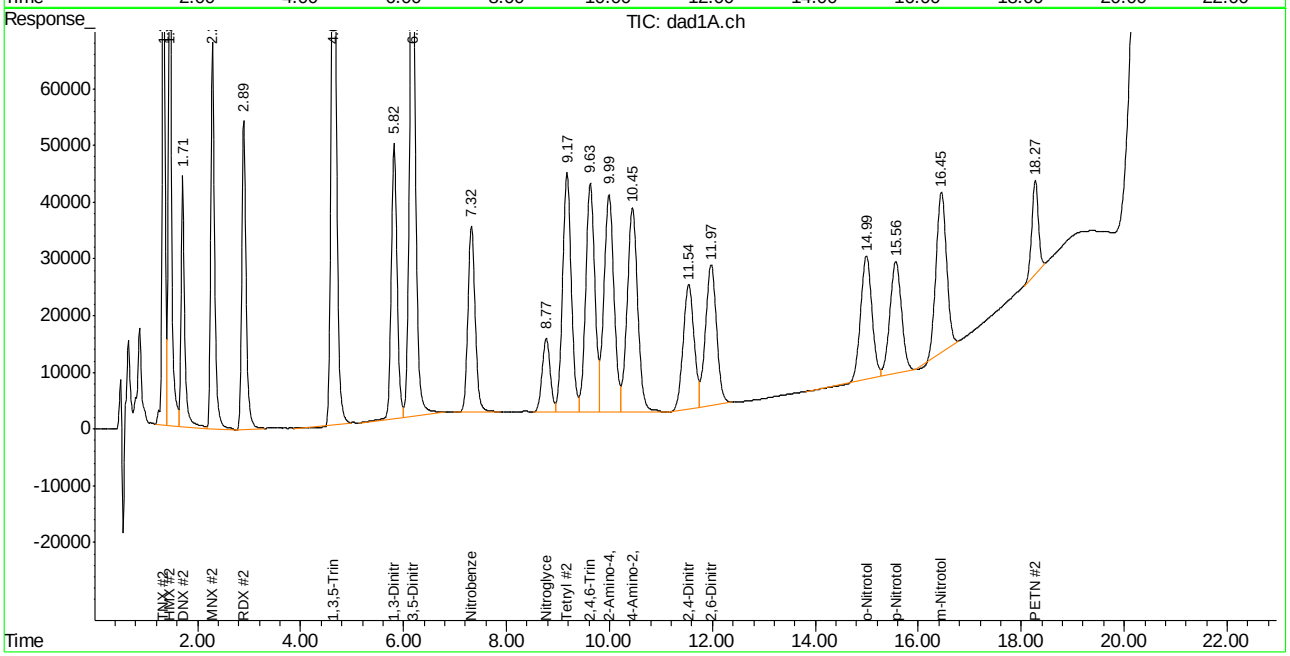
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066568.D\dad1B.ch Vial: 10
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066568.D\dad1A.ch
Acq On : 11-Oct-2019, 16:15:45 Operator: williamh
Sample : icv1929-1000 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:44 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 14 09:43:51 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

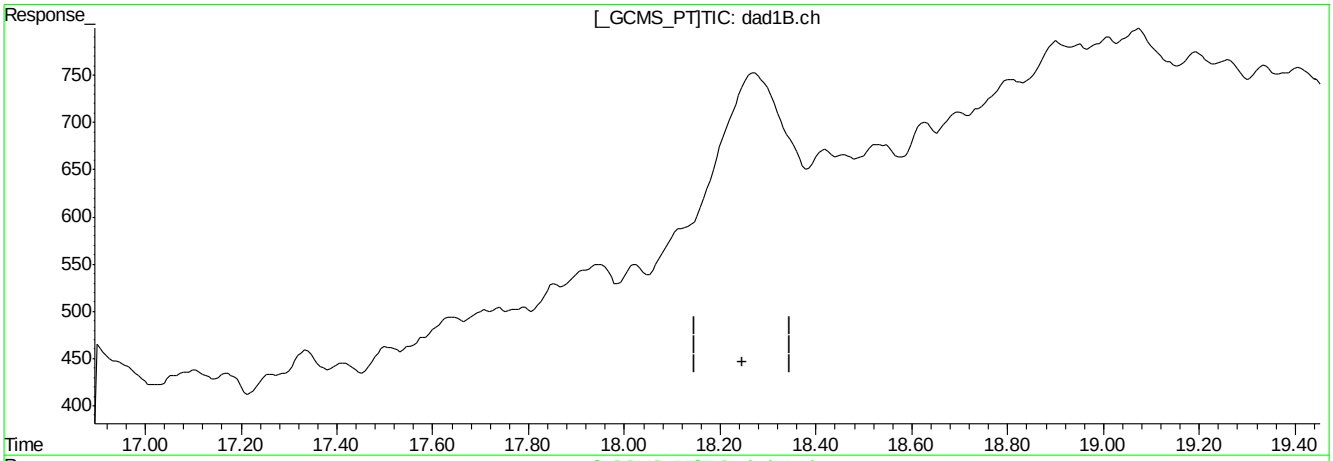
Sample Number: GBB1929-ICV1929 **Method:** SW846 8330B
Lab FileID: BB066568.D **Analyst approved:** 10/14/19 10:02 William Hustedde
Injection Time: 10/11/19 16:15 **Supervisor approved:** 10/14/19 10:52 Evita Martinez

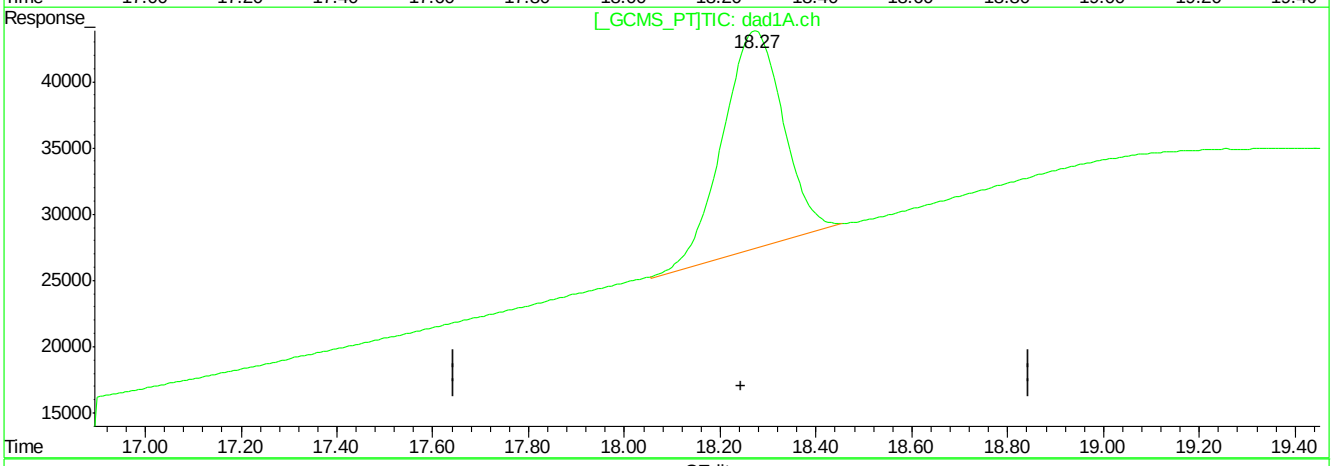
Parameter	CAS	Sig#	R.T. (min.)	Reason
PETN	78-11-5	2	18.27	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066568.D\dad1B.ch Vial: 10
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066568.D\dad1A.ch
Acq On : 11-Oct-2019, 16:15:45 Operator: williamh
Sample : icv1929-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 16:42 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:41:52 2019
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb d

response 0

(21) PETN #2

18.27min 1035.400ppb m

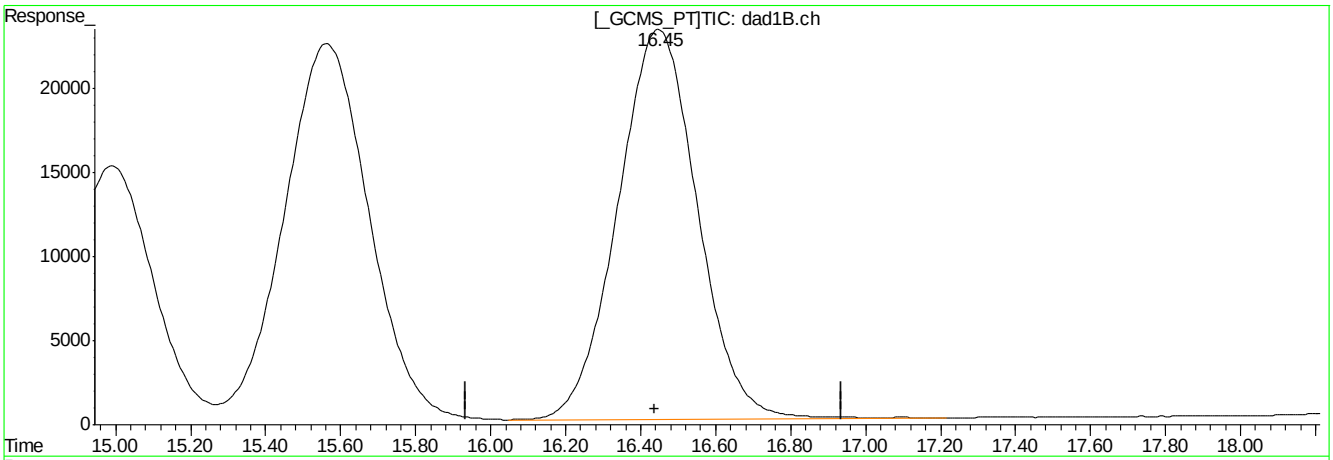
response 1446115

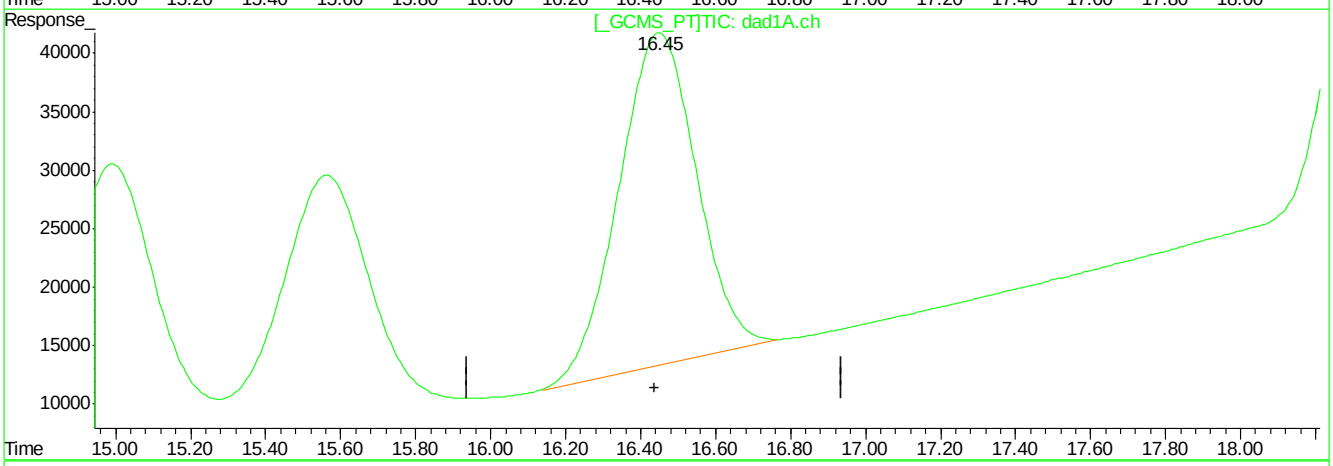
(+) = Expected Retention Time
BB066568.D 8330B_082219_PLUS.M Fri Oct 11 16:42:20 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066568.D\dad1B.ch Vial: 10
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066568.D\dad1A.ch
Acq On : 11-Oct-2019, 16:15:45 Operator: williamh
Sample : icv1929-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 11 16:42 2019 Quant Results File: 8330B_082219_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_082219_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Fri Oct 11 16:41:52 2019
Response via : Multiple Level Calibration





QEdit

(20) m-Nitrotoluene

16.45min 988.556ppb

response 3436090

(20) m-Nitrotoluene #2

16.45min 1019.098ppb m

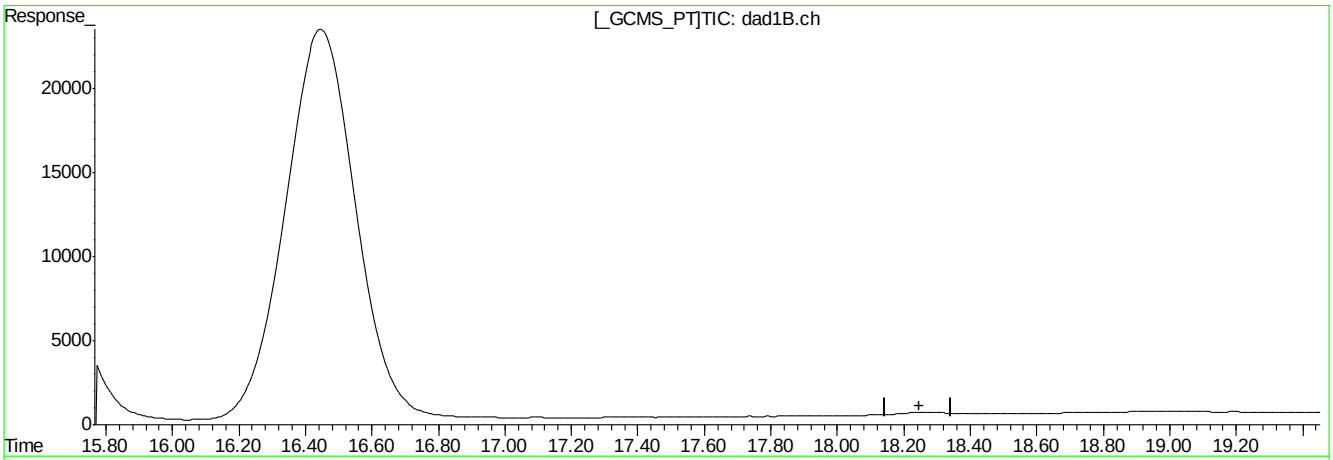
response 4096964

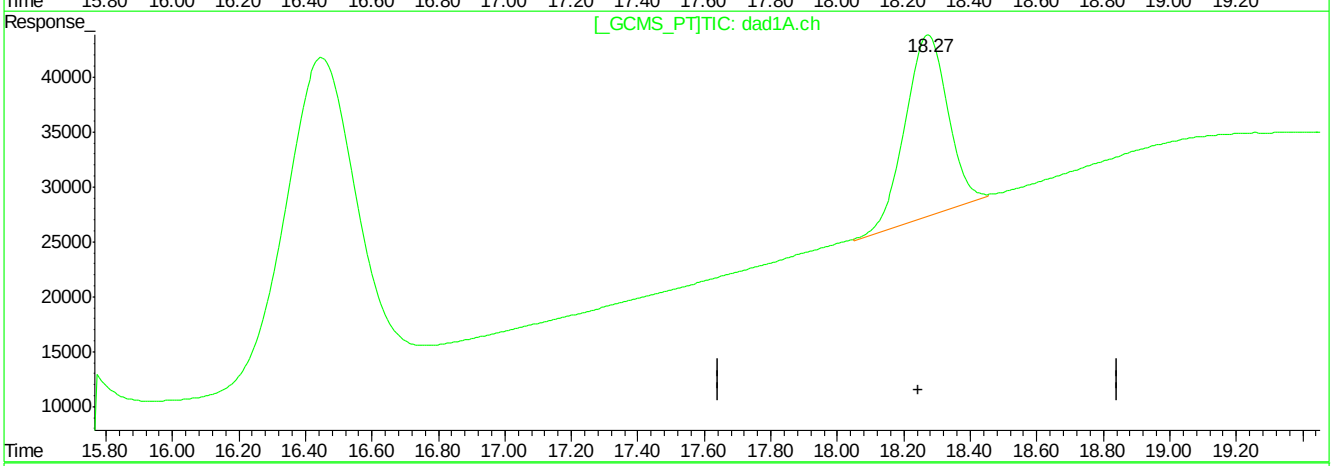
(+) = Expected Retention Time
BB066568.D 8330B_082219_PLUS.M Fri Oct 11 16:42:27 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1929\BB066568.D\dad1B.ch Vial: 10
Signal #2 : C:\HPCHEM\2\DATA\GBB1929\BB066568.D\dad1A.ch
Acq On : 11-Oct-2019, 16:15:45 Operator: williamh
Sample : icv1929-1000 Inst : G1315B
Misc : op77097,GBB1929,10.00,,,50,1,Soil Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 14 9:44 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 14 09:43:51 2019
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb d

response 0

(21) PETN #2

18.27min 1071.361ppb m

response 1463234

(+) = Expected Retention Time
BB066568.D 8330B_101119_PLUS.M Mon Oct 14 09:44:32 2019

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger 10/28/19 17:23

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1935\BB066715.D\dad1B.ch Vial: 24
Signal #2 : C:\HPCHEM\2\DATA\GBB1935\BB066715.D\dad1A.ch
Acq On : 23-Oct-2019, 12:33:44 Operator: williamh
Sample : cc1929-1000 Inst : G1315B
Misc : op77365,GBB1935,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 23 14:26:20 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.91	10.91	2140910	3831054	1015.745	1086.264
	Spiked Amount 500.000	Range 70 - 136		Recovery =		203.15%#	217.25%#
	Target Compounds						
1)	TNX	1.34	1.34	2395864	3750510	853.963	836.009
2)	HMX	1.47	1.47	1512747	4174177	909.808	907.194
3)	DNX	1.72	1.72	1383394	2170909	982.036	941.110
4)	MNX	2.30	2.30	2610693	4033855	998.249	1005.205
5)	RDX	2.91	2.91	1765168	2855374	874.658	892.230
6)	1,3,5-Trinitrobe	4.67	4.67	4038664	7514872	910.841	899.838
7)	1,3-Dinitrobenze	5.84	5.84	4946336	3441373	879.845	897.662
8)	3,5-Dinitroanili	6.19	6.19	3762354	6431877	878.322	871.371
9)	Nitrobenzene	7.32	7.32	2980369	2918584	877.285	871.399
10)	Nitroglycerin	0.00	8.87	0	1154306	N.D.	891.678 #
11)	Tetryl	9.24	9.24	2753869	4502240	860.384	870.866
12)	2,4,6-Trinitroto	9.69	9.69	3441871	4169187	865.508	879.620
13)	2-Amino-4,6-Dini	10.02	10.02	3175246	4807102	882.472	896.485
14)	4-Amino-2,6-Dini	10.47	10.47	2285414	4611056	853.216	882.859
16)	2,4-Dinitrotolue	11.57	11.57	4381359	2871234	880.188	927.626
17)	2,6-Dinitrotolue	12.01	12.01	2566154	3375468	862.957	921.263
18)	o-Nitrotoluene	14.98	14.98	2101298	2897175	880.454	911.506
19)	p-Nitrotoluene	15.56	15.56	3281643	2829185	851.404	946.469
20)	m-Nitrotoluene	16.44	16.44	3046404	3501202	876.444	872.084
21)	PETN	0.00	18.34	0	1302272	N.D.	932.410m#

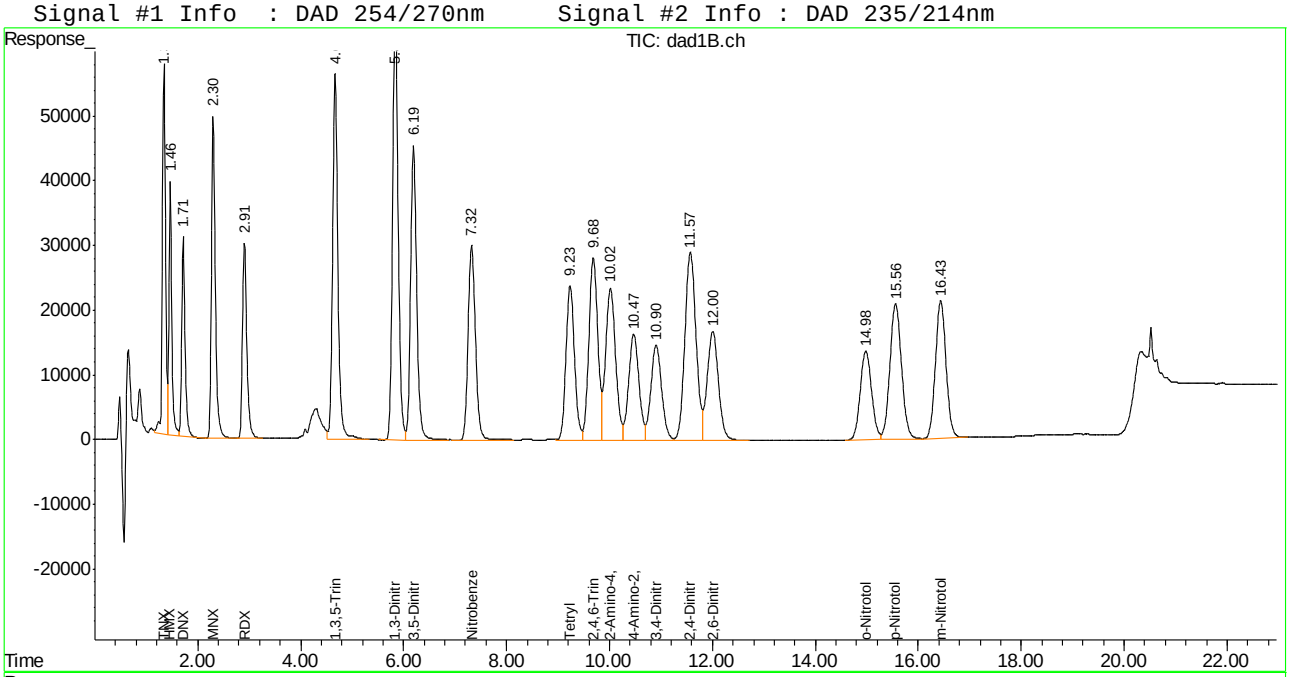
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB066715.D 8330B_101119_PLUS.M Thu Oct 24 09:49:15 2019 Page 1

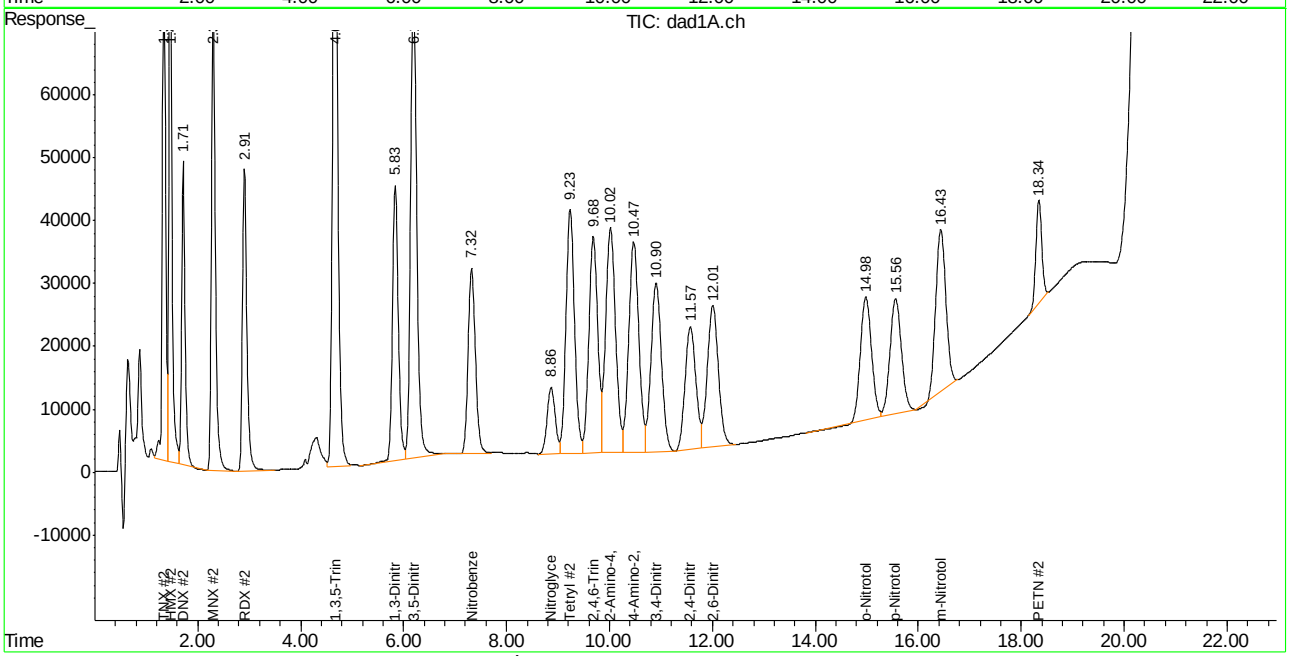
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1935\BB066715.D\dad1B.ch Vial: 24
Signal #2 : C:\HPCHEM\2\DATA\GBB1935\BB066715.D\dad1A.ch
Acq On : 23-Oct-2019, 12:33:44 Operator: williamh
Sample : cc1929-1000 Inst : G1315B
Misc : op77365,GBB1935,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 23 14:26 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

Sample Number: GBB1935-CC1929
Lab FileID: BB066715.D
Injection Time: 10/23/19 12:33
Method: SW846 8330A
Analyst approved: 10/24/19 09:56 William Hustedde
Supervisor approved: 10/28/19 17:23 Mike Eger

Parameter	CAS	Sig#	R.T. (min.)	Reason
PETN	78-11-5	2	18.34	Poor instrument integration

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
10/28/19 17:23

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1935\BB066726.D\dad1B.ch Vial: 24
Signal #2 : C:\HPCHEM\2\DATA\GBB1935\BB066726.D\dad1A.ch
Acq On : 23-Oct-2019, 18:03:24 Operator: williamh
Sample : ecc1929-1000 Inst : G1315B
Misc : op77364,GBB1935,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 24 09:08:08 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.92	10.92	2139091	3809199	1014.881	1080.067
	Spiked Amount 500.000	Range 70 - 136		Recovery =		202.98%#	216.01%#
	Target Compounds						
1)	TNX	1.34	1.34	2345713	3710519	836.088	827.095
2)	HMX	1.47	1.47	1497790	4080604	900.812	886.857
3)	DNX	1.72	1.72	1379477	2187681	979.256	948.450
4)	MNX	2.30	2.30	2607634	4027589	997.080	1003.643
5)	RDX	2.91	2.91	1765957	2855097	875.049	892.144
6)	1,3,5-Trinitrobe	4.67	4.67	3929959	7396983	886.325	885.722
7)	1,3-Dinitrobenze	5.84	5.84	4945166	3453404	879.637	900.801
8)	3,5-Dinitroanili	6.20	6.20	3745067	6431087	874.286	871.264
9)	Nitrobenzene	7.33	7.33	2946546	2887576	867.329	862.141
10)	Nitroglycerin	0.00	8.88	0	1153548	N.D.	891.092 #
11)	Tetryl	9.24	9.25	2740233	4474435	856.123	865.488
12)	2,4,6-Trinitroto	9.70	9.70	3437992	4160380	864.533	877.762
13)	2-Amino-4,6-Dini	10.03	10.03	3160400	4776431	878.346	890.765
14)	4-Amino-2,6-Dini	10.49	10.49	2283245	4590117	852.406	878.850
16)	2,4-Dinitrotolue	11.59	11.59	4369167	2862131	877.739	924.685
17)	2,6-Dinitrotolue	12.03	12.03	2562507	3382741	861.731	923.248
18)	o-Nitrotoluene	15.00	15.00	2092052	2909790	876.580	915.475
19)	p-Nitrotoluene	15.58	15.58	3277636	2829843	850.364	946.690
20)	m-Nitrotoluene	16.45	16.46	3053357	3523481	878.444	877.589
21)	PETN	0.00	18.35	0	1277174	N.D.	914.440m#

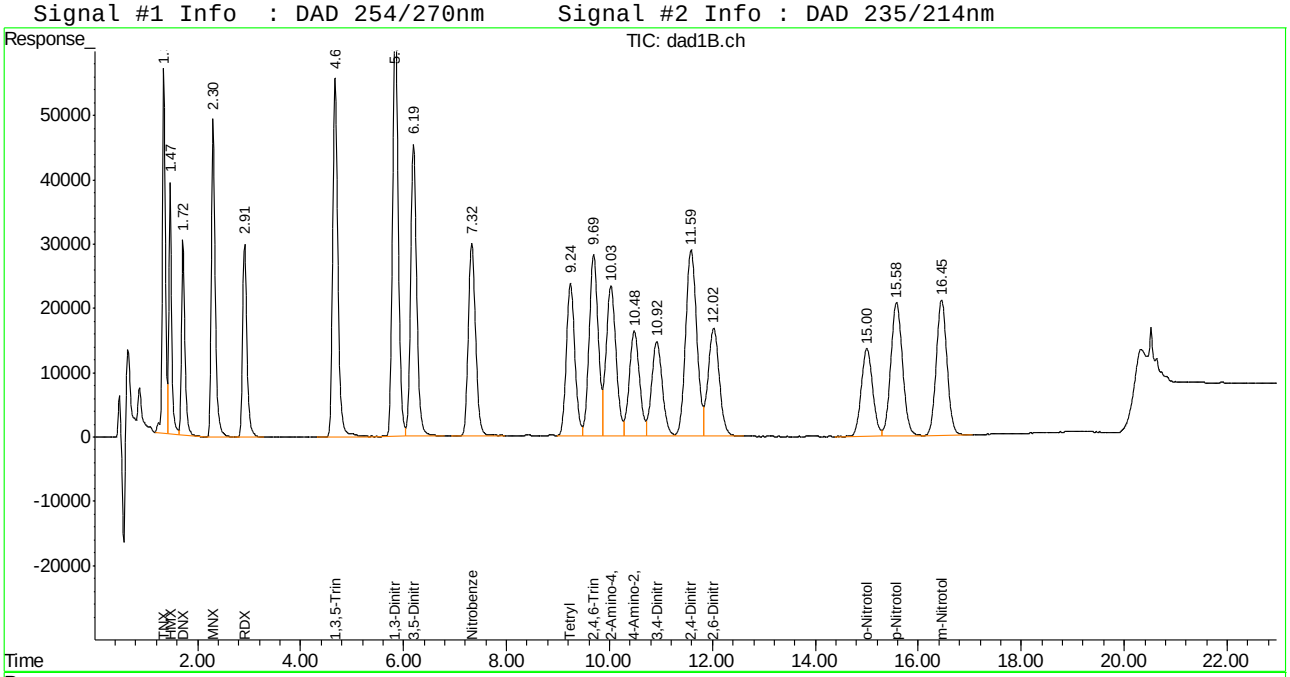
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB066726.D 8330B_101119_PLUS.M Thu Oct 24 09:49:16 2019 Page 1

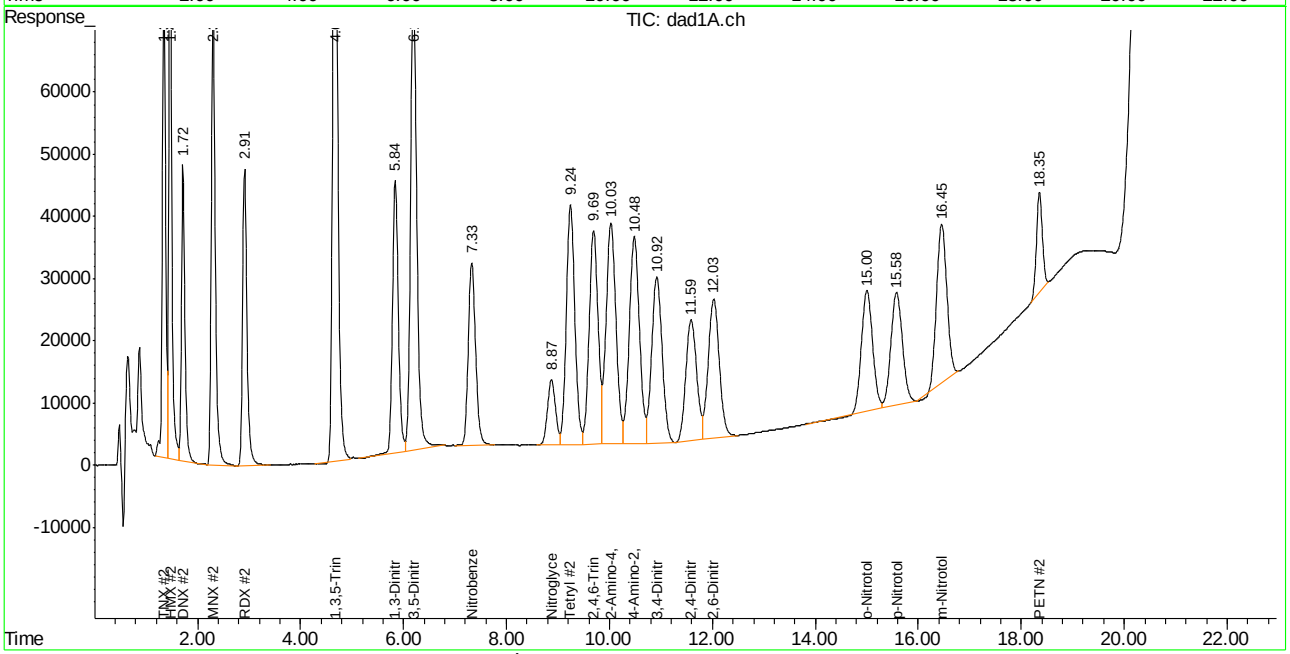
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1935\BB066726.D\dad1B.ch Vial: 24
Signal #2 : C:\HPCHEM\2\DATA\GBB1935\BB066726.D\dad1A.ch
Acq On : 23-Oct-2019, 18:03:24 Operator: williamh
Sample : ecc1929-1000 Inst : G1315B
Misc : op77364,GBB1935,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 24 9:09 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

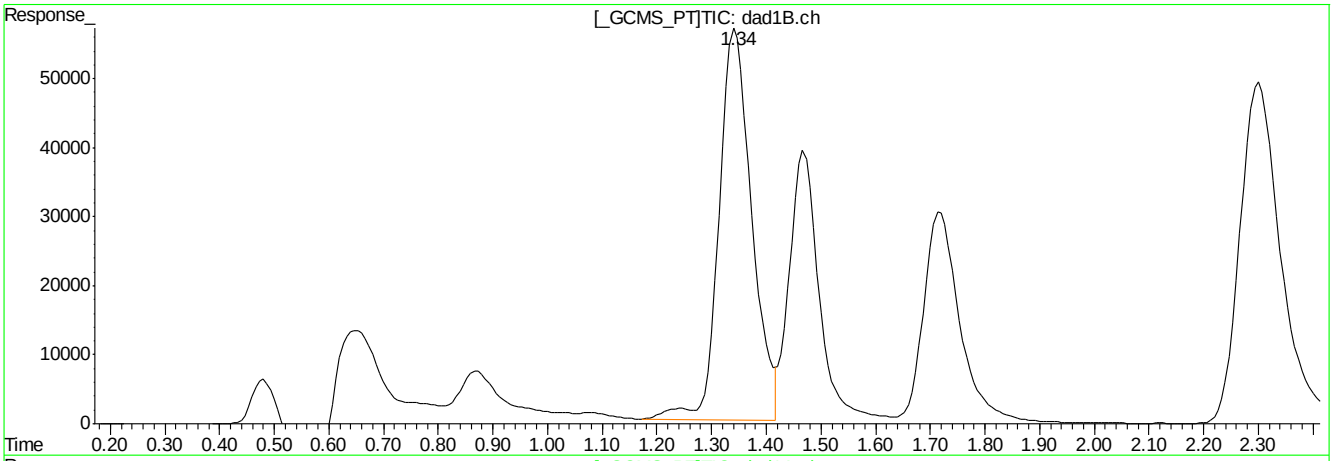
Sample Number: GBB1935-ECC1929 **Method:** SW846 8330B
Lab FileID: BB066726.D **Analyst approved:** 10/24/19 09:56 William Hustedde
Injection Time: 10/23/19 18:03 **Supervisor approved:** 10/28/19 17:23 Mike Eger

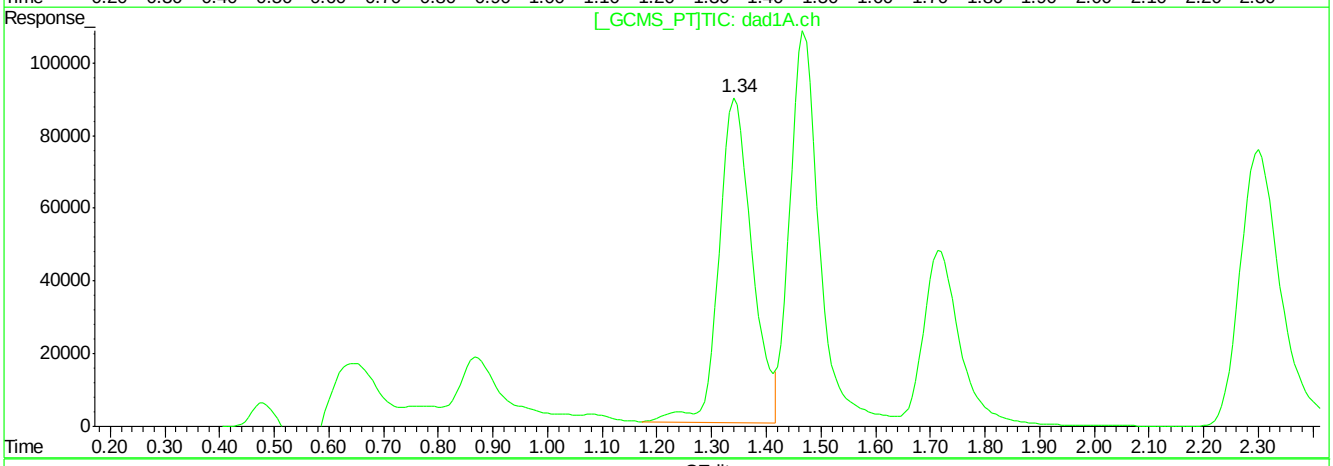
Parameter	CAS	Sig#	R.T. (min.)	Reason
PETN	78-11-5	2	18.35	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1935\BB066726.D\dad1B.ch Vial: 24
Signal #2 : C:\HPCHEM\2\DATA\GBB1935\BB066726.D\dad1A.ch
Acq On : 23-Oct-2019, 18:03:24 Operator: williamh
Sample : ecc1929-1000 Inst : G1315B
Misc : op77364,GBB1935,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 24 9:09 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration





QEdit

(1) TNX

1.34min 836.088ppb

response 2345713

(1) TNX #2

1.34min 827.095ppb

response 3710519

(+) = Expected Retention Time
BB066726.D 8330B_101119_PLUS.M Fri Oct 25 14:20:25 2019

Manual Integrations APPROVED (compounds with "m" flag)
Evita Martinez
10/29/19 14:45

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1936\BB066739.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1936\BB066739.D\dad1A.ch
Acq On : 24-Oct-2019, 11:13:23 Operator: williamh
Sample : cc1929-1000 Inst : G1315B
Misc : op77364,GBB1936,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 24 11:40:36 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.89	10.89	2213091	3924502	1049.990	1112.760
	Spiked Amount 500.000	Range 70 - 136		Recovery =		210.00%#	222.55%#
	Target Compounds						
1)	TNX	1.34	1.34	2454619	3781053	874.906	842.817
2)	HMX	1.47	1.47	1803051	4739697	1084.405	1030.101
3)	DNX	1.72	1.72	1640472	2612917	1164.530	1134.911
4)	MNX	2.30	2.30	2313790	3585018	884.723	893.358
5)	RDX	2.91	2.91	1969919	3174397	976.114	991.917
6)	1,3,5-Trinitrobe	4.67	4.67	4398787	8338416	992.060	998.450
7)	1,3-Dinitrobenze	5.83	5.83	5547315	3872291	986.746	1010.065
8)	3,5-Dinitroanili	6.18	6.18	4215465	7208983	984.101	976.651
9)	Nitrobenzene	7.32	7.32	3285079	3259280	966.978	973.120
10)	Nitroglycerin	0.00	8.86	0	1284481	N.D.	992.235 #
11)	Tetryl	9.22	9.22	2819610	4581690	880.923	886.234
12)	2,4,6-Trinitroto	9.67	9.67	3846403	4682975	967.233	988.019
13)	2-Amino-4,6-Dini	10.00	10.00	3569666	5390907	992.091	1005.360
14)	4-Amino-2,6-Dini	10.45	10.45	2576160	5178095	961.760	991.428
16)	2,4-Dinitrotolue	11.55	11.55	4911230	3209431	986.636	1036.889
17)	2,6-Dinitrotolue	11.99	11.99	2899509	3791689	975.059	1034.862
18)	o-Nitrotoluene	14.97	14.97	2325445	3289493	974.373	1034.937
19)	p-Nitrotoluene	15.54	15.55	3642142	3159622	944.933	1057.013
20)	m-Nitrotoluene	16.43	16.43	3395204	3931318	976.793	978.262
21)	PETN	0.00	18.33	0	1486716	N.D. d	1064.469m

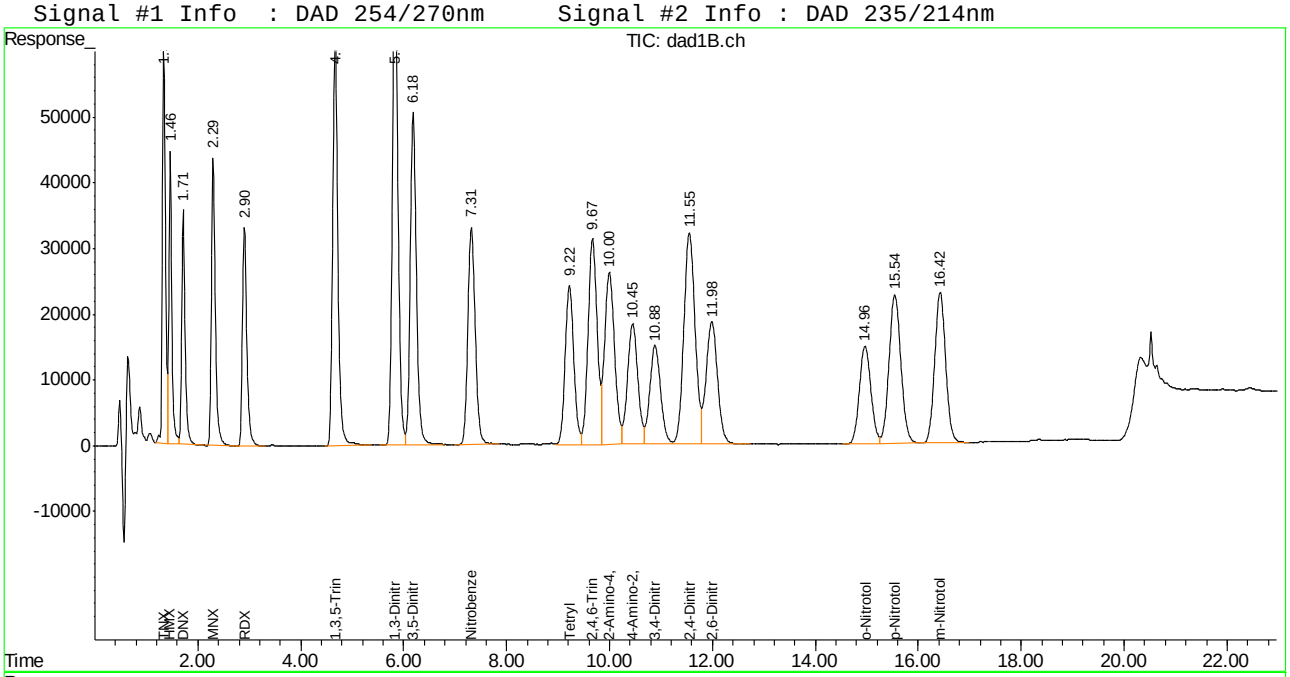
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

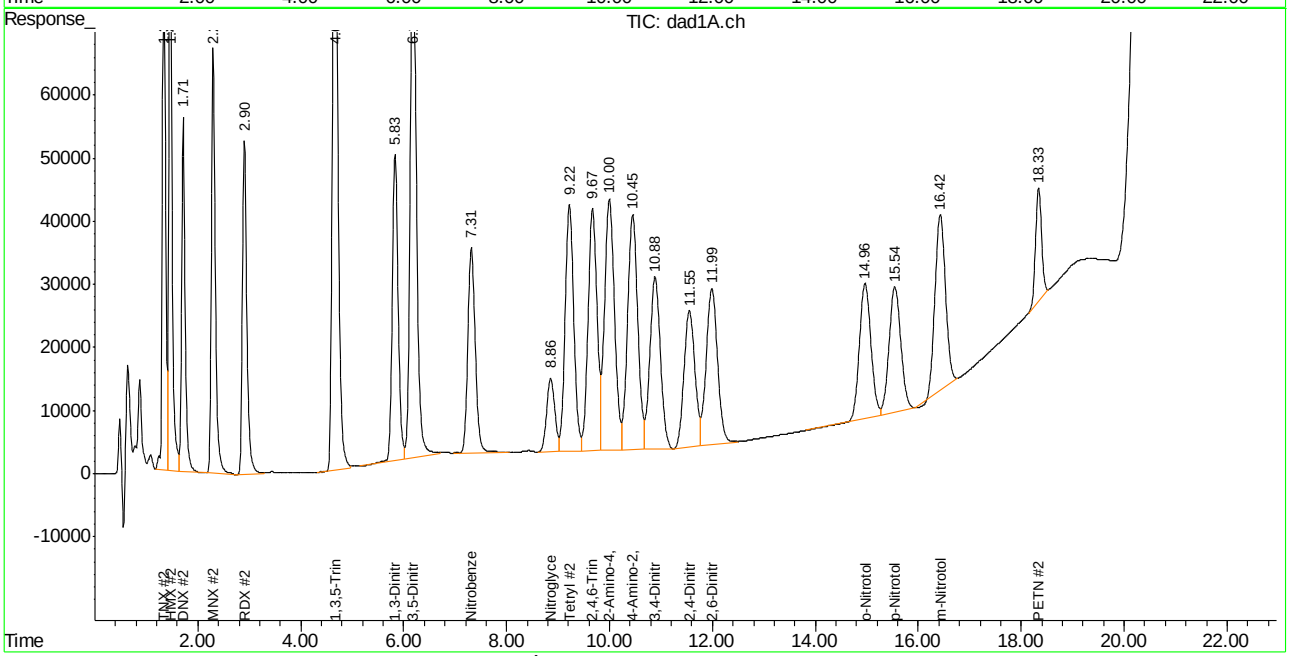
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1936\BB066739.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1936\BB066739.D\dad1A.ch
Acq On : 24-Oct-2019, 11:13:23 Operator: williamh
Sample : cc1929-1000 Inst : G1315B
Misc : op77364,GBB1936,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 24 11:40 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

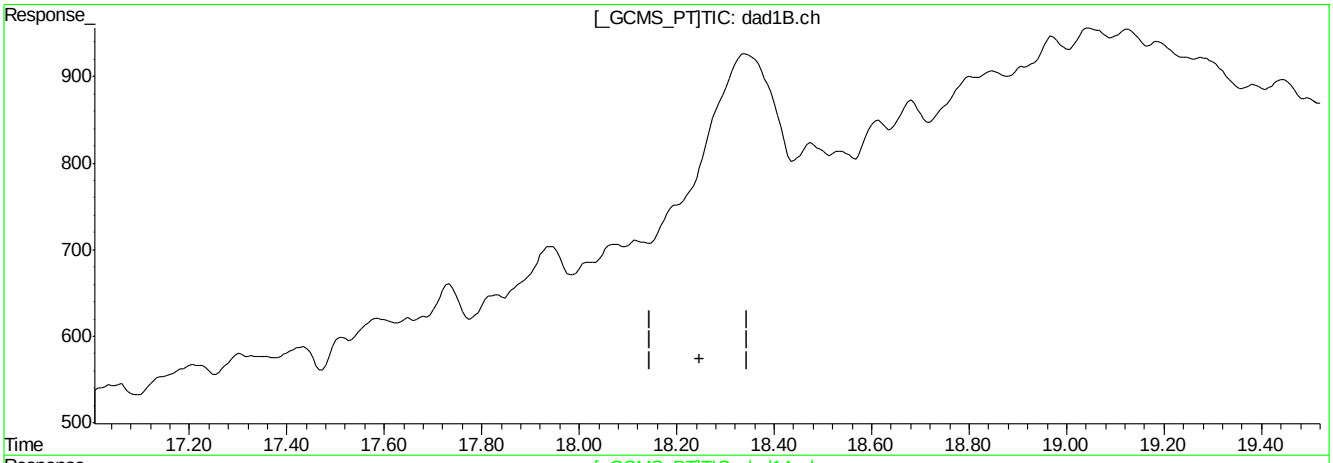
Sample Number: GBB1936-CC1929
Lab FileID: BB066739.D
Injection Time: 10/24/19 11:13
Method: SW846 8330B
Analyst approved: 10/25/19 14:38 William Hustedde
Supervisor approved: 10/29/19 14:45 Evita Martinez

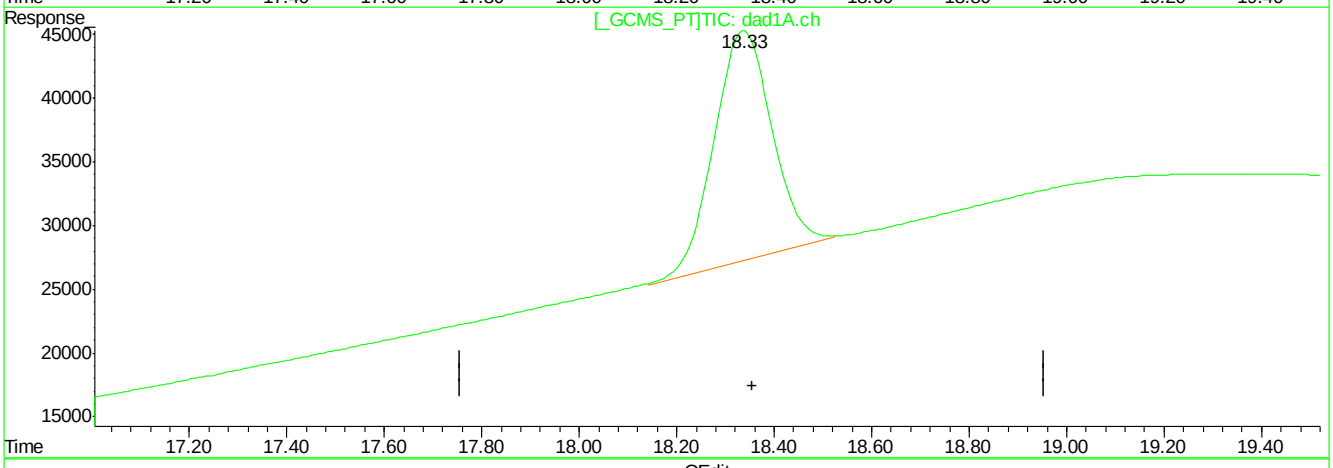
Parameter	CAS	Sig#	R.T. (min.)	Reason
PETN	78-11-5	2	18.33	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1936\BB066739.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1936\BB066739.D\dad1A.ch
Acq On : 24-Oct-2019, 11:13:23 Operator: williamh
Sample : cc1929-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 24 11:40 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb d

response 0

(21) PETN #2

18.33min 1064.469ppb m

response 1486716

(+) = Expected Retention Time
BB066739.D 8330B_101119_PLUS.M Thu Oct 24 11:40:58 2019

Manual Integrations APPROVED (compounds with "m" flag)
Evita Martinez 10/29/19 14:45

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1936\BB066750.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1936\BB066750.D\dad1A.ch
Acq On : 24-Oct-2019, 16:42:51 Operator: williamh
Sample : cc1929-1000 Inst : G1315B
Misc : op77370,GBB1936,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 24 17:22:58 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.92	10.92	2206192	3895604	1046.717	1104.566
	Spiked Amount 500.000	Range 70 - 136		Recovery =		209.34%#	220.91%#
	Target Compounds						
1)	TNX	1.34	1.34	2395680	3726598	853.898m	830.679m
2)	HMX	1.46	1.47	1763262	4700213	1060.475m	1021.520m
3)	DNX	1.71	1.71	1613215	2599037	1145.181m	1128.814m
4)	MNX	2.30	2.30	2312544	3569779	884.246	889.561
5)	RDX	2.91	2.91	1972832	3169301	977.558	990.324
6)	1,3,5-Trinitrobe	4.67	4.67	4394617	8139428	991.120	974.623
7)	1,3-Dinitrobenze	5.84	5.84	5532165	3848920	984.051	1003.969
8)	3,5-Dinitroanili	6.20	6.20	4192752	7165965	978.798	970.823
9)	Nitrobenzene	7.33	7.33	3241323	3262808	954.098	974.174
10)	Nitroglycerin	0.00	8.87	0	1267150	N.D.	978.847 #
11)	Tetryl	9.25	9.25	2796398	4532087	873.671	876.639
12)	2,4,6-Trinitroto	9.69	9.69	3834972	4649179	964.359	980.889
13)	2-Amino-4,6-Dini	10.03	10.03	3558224	5351963	988.911	998.097
14)	4-Amino-2,6-Dini	10.48	10.48	2572307	5151707	960.322	986.375
16)	2,4-Dinitrotolue	11.58	11.58	4901349	3199161	984.651	1033.571
17)	2,6-Dinitrotolue	12.02	12.02	2881079	3770910	968.862	1029.190
18)	o-Nitrotoluene	14.99	14.99	2324548	3262862	973.997	1026.559
19)	p-Nitrotoluene	15.57	15.57	3634480	3149226	942.946	1053.535
20)	m-Nitrotoluene	16.45	16.45	3388028	3905651	974.729	971.931
21)	PETN	0.00	18.35	0	1452417	N.D.	1039.912m#

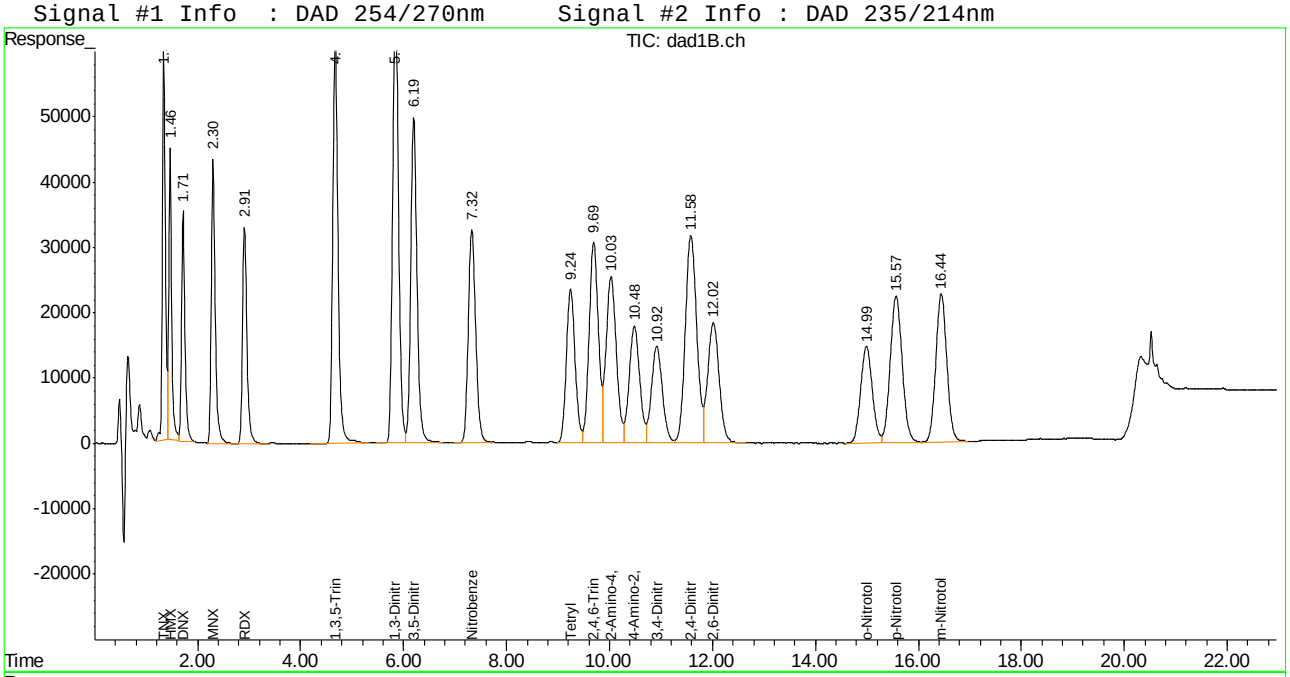
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB066750.D 8330B_101119_PLUS.M Fri Oct 25 14:29:37 2019 Page 1

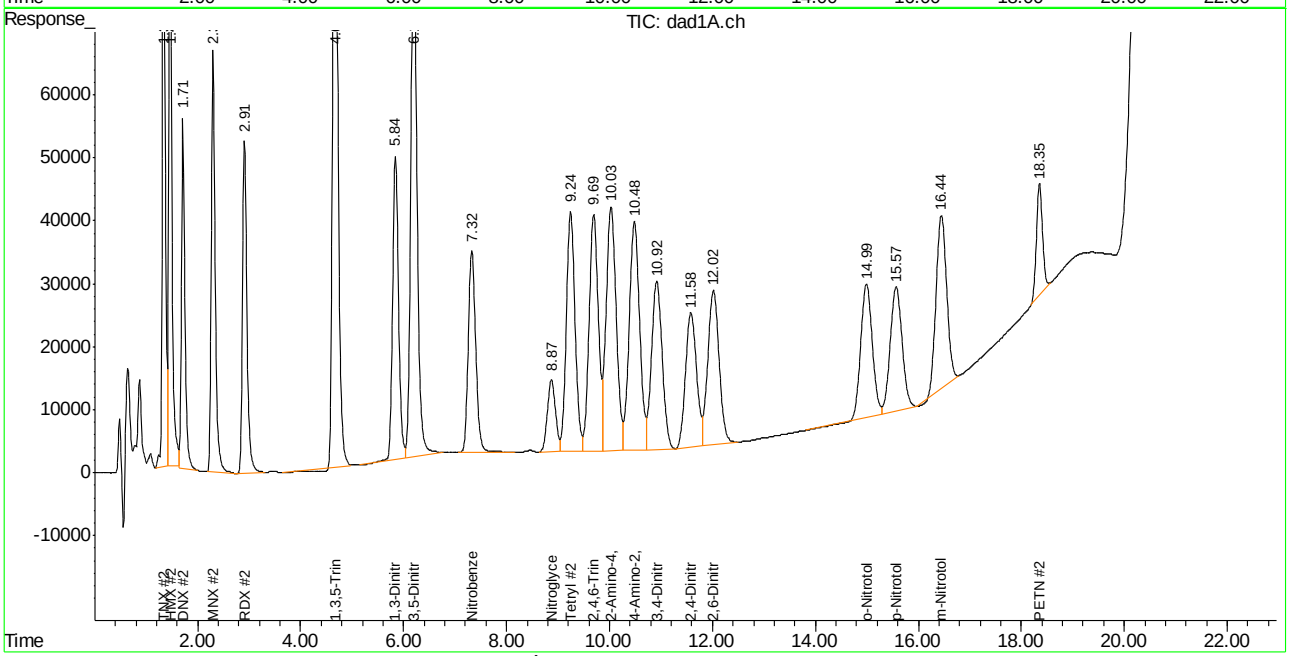
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1936\BB066750.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1936\BB066750.D\dad1A.ch
Acq On : 24-Oct-2019, 16:42:51 Operator: williamh
Sample : cc1929-1000 Inst : G1315B
Misc : op77370,GBB1936,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 25 13:22 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

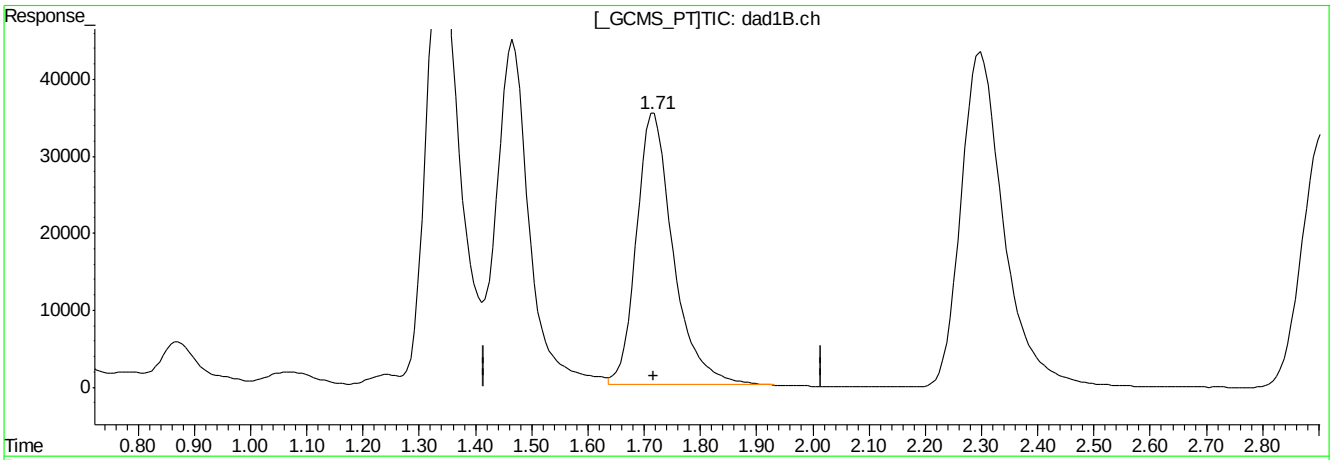
Sample Number: GBB1936-CC1929
Lab FileID: BB066750.D
Injection Time: 10/24/19 16:42
Method: SW846 8330A
Analyst approved: 10/25/19 14:38 William Hustedde
Supervisor approved: 10/29/19 14:45 Evita Martinez

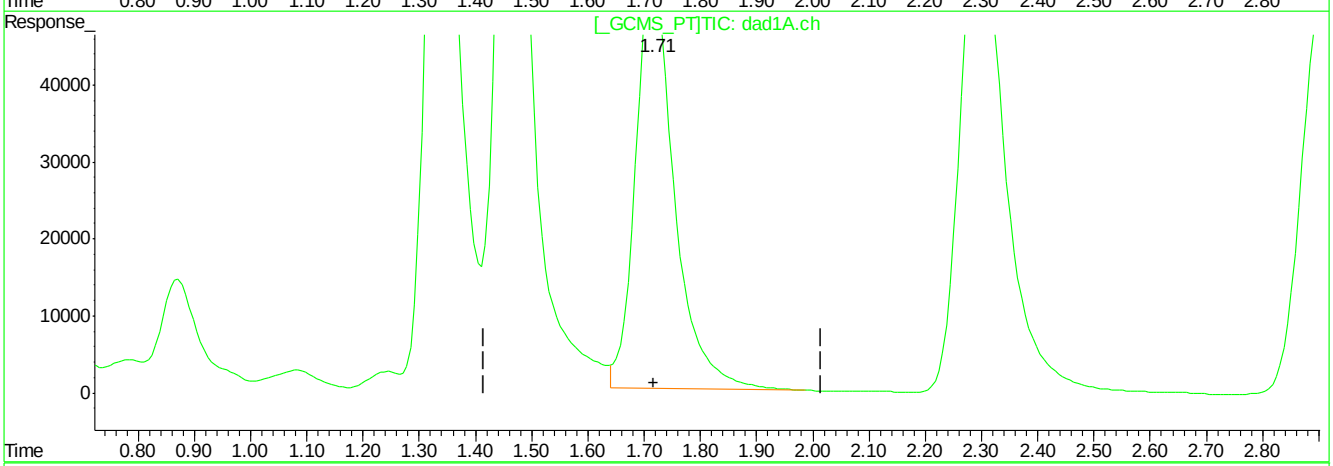
Parameter	CAS	Sig#	R.T. (min.)	Reason
TNX		1	1.34	Poor instrument integration
TNX		2	1.34	Poor instrument integration
HMX	2691-41-0	1	1.46	Poor instrument integration
HMX	2691-41-0	2	1.47	Poor instrument integration
DNX		1	1.71	Poor instrument integration
DNX		2	1.71	Poor instrument integration
PETN	78-11-5	2	18.35	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1936\BB066750.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1936\BB066750.D\dad1A.ch
Acq On : 24-Oct-2019, 16:42:51 Operator: williamh
Sample : cc1929-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 24 17:23 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration





QEdit

(3) DNX

1.71min 1145.181ppb m

response 1613215

(3) DNX #2

1.71min 1128.814ppb m

response 2599037

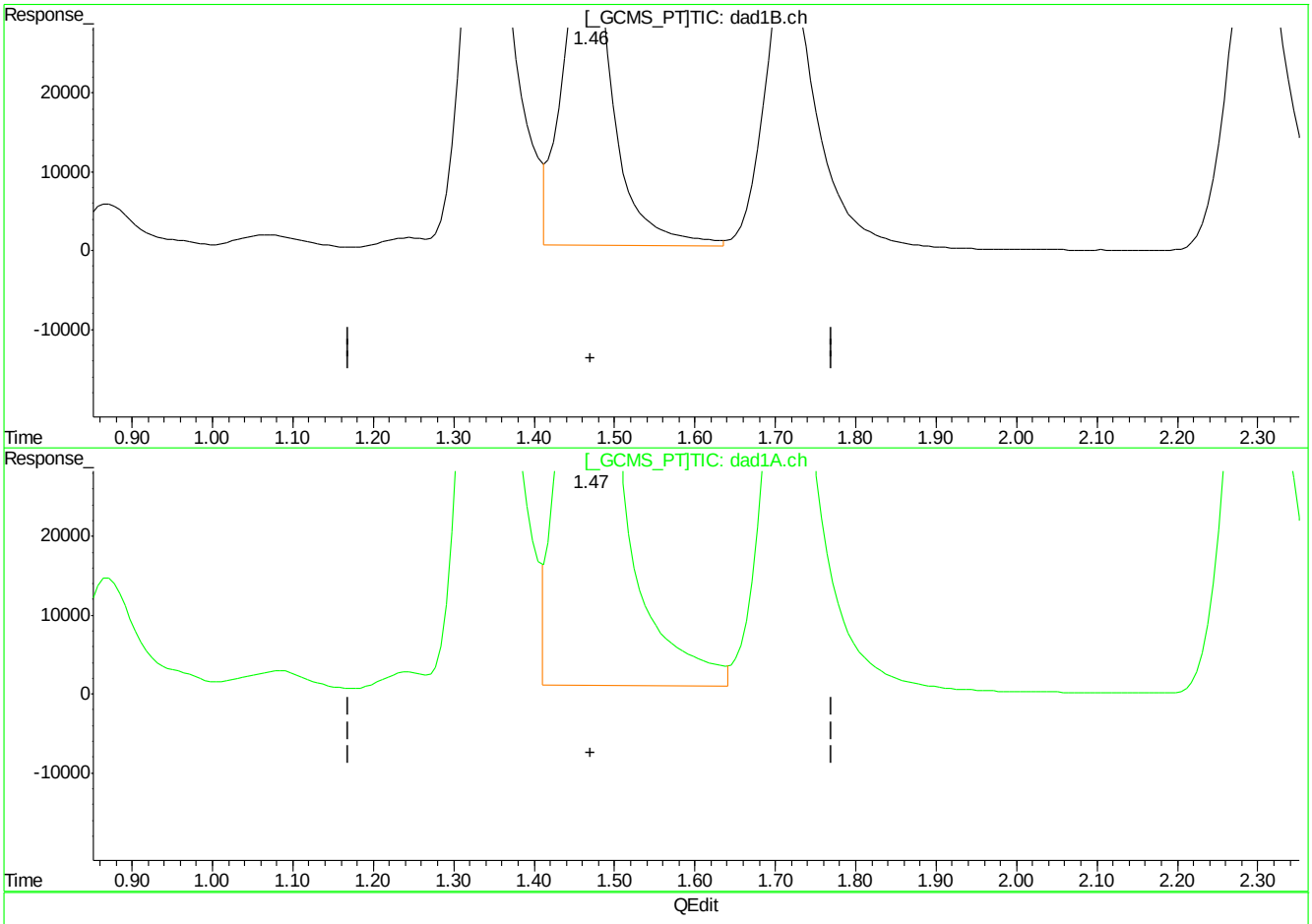
(+) = Expected Retention Time
BB066750.D 8330B_101119_PLUS.M Fri Oct 25 13:22:18 2019

BB066750.D edits: DNX

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1936\BB066750.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1936\BB066750.D\dad1A.ch
Acq On : 24-Oct-2019, 16:42:51 Operator: williamh
Sample : cc1929-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 24 17:23 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration



(2) HMX

1.46min 1060.475ppb m

response 1763262

(2) HMX #2

1.47min 1021.520ppb m

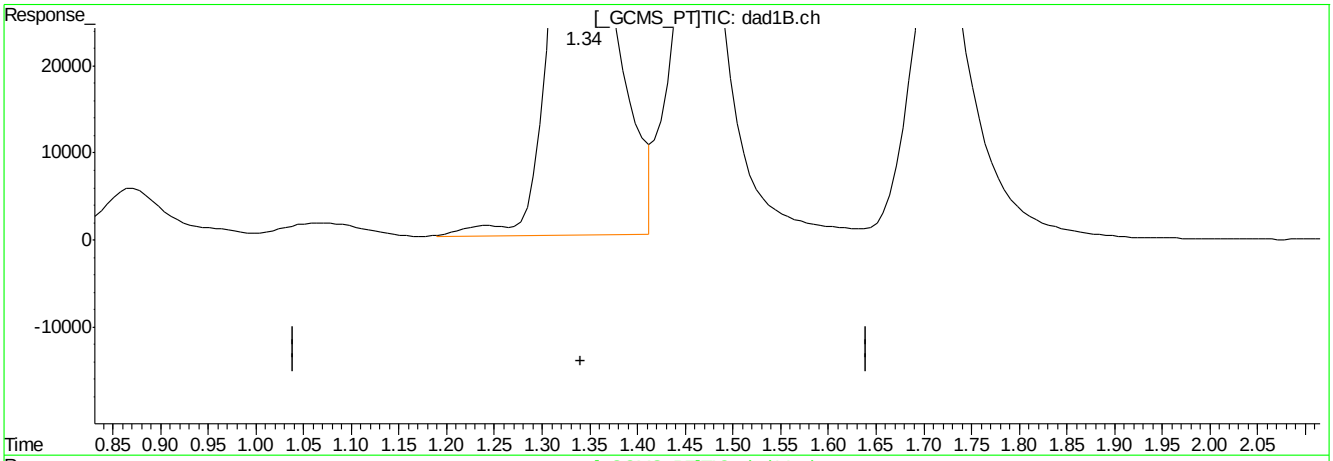
response 4700213

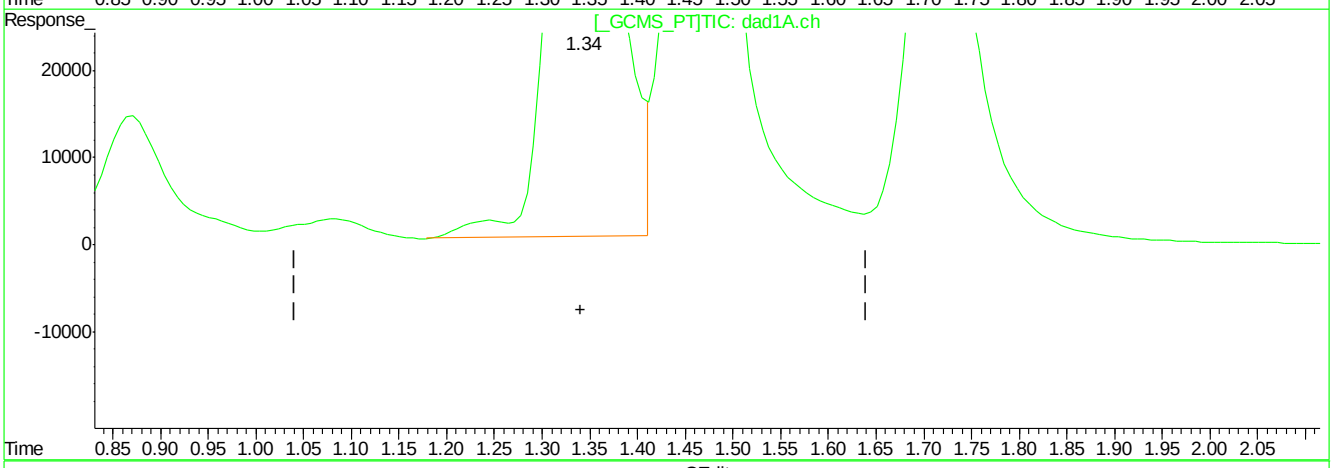
(+) = Expected Retention Time
BB066750.D 8330B_101119_PLUS.M Fri Oct 25 13:22:32 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1936\BB066750.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1936\BB066750.D\dad1A.ch
Acq On : 24-Oct-2019, 16:42:51 Operator: williamh
Sample : cc1929-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 24 17:23 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration





QEdit

(1) TNX

1.34min 853.898ppb m

response 2395680

(1) TNX #2

1.34min 830.679ppb m

response 3726598

(+) = Expected Retention Time
BB066750.D 8330B_101119_PLUS.M Fri Oct 25 13:22:59 2019

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
10/28/19 17:21

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1937\BB066786.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1937\BB066786.D\dad1A.ch
Acq On : 26-Oct-2019, 01:24:17 Operator: williamh
Sample : cc1929-1000 Inst : G1315B
Misc : op77416,GBB1937,1060,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 28 08:38:41 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.90	10.90	1949953	3445476	925.146	976.936
	Spiked Amount 500.000	Range 70 - 136		Recovery =		185.03%#	195.39%#
	Target Compounds						
1)	TNX	1.34	1.34	2565899	3972511	914.569	885.495
2)	HMX	1.47	1.47	1640721	4499074	986.775	977.806
3)	DNX	1.71	1.71	1607962	2579341	1141.452	1120.163
4)	MNX	2.29	2.29	2313516	3575532	884.618	890.994
5)	RDX	2.90	2.90	1867361	3019732	925.296	943.588
6)	1,3,5-Trinitrobe	4.66	4.66	4048284	7806235	913.011	934.726
7)	1,3-Dinitrobenze	5.83	5.83	5247139	3664147	933.351	955.772
8)	3,5-Dinitroanili	6.19	6.19	3992672	6848731	932.090	927.845
9)	Nitrobenzene	7.31	7.31	3141043	3099373	924.580	925.377
10)	Nitroglycerin	0.00	8.86	0	1211554	N.D.	935.900 #
11)	Tetryl	9.23	9.23	2804129	4575868	876.086	885.108
12)	2,4,6-Trinitroto	9.68	9.68	3660998	4434100	920.611	935.511
13)	2-Amino-4,6-Dini	10.01	10.01	3369935	5092901	936.581	949.784
14)	4-Amino-2,6-Dini	10.46	10.46	2440080	4890133	910.957	936.293
16)	2,4-Dinitrotolue	11.56	11.56	4639802	3013255	932.108	973.509
17)	2,6-Dinitrotolue	11.99	11.99	2712913	3573231	912.310	975.238
18)	o-Nitrotoluene	14.97	14.97	2214274	3099208	927.792	975.070
19)	p-Nitrotoluene	15.55	15.55	3463979	3010306	898.710	1007.061
20)	m-Nitrotoluene	16.42	16.43	3221181	3755783	926.727	934.954
21)	PETN	0.00	18.34	0	1370474	N.D.	981.242m#

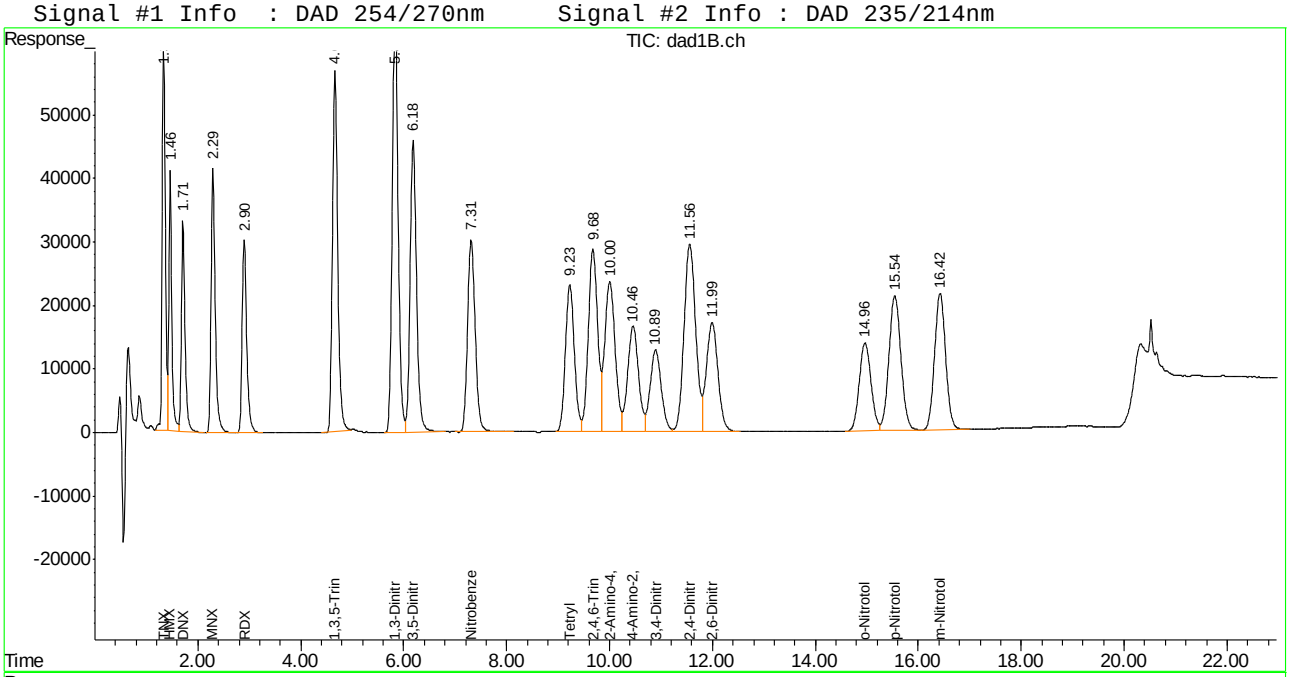
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

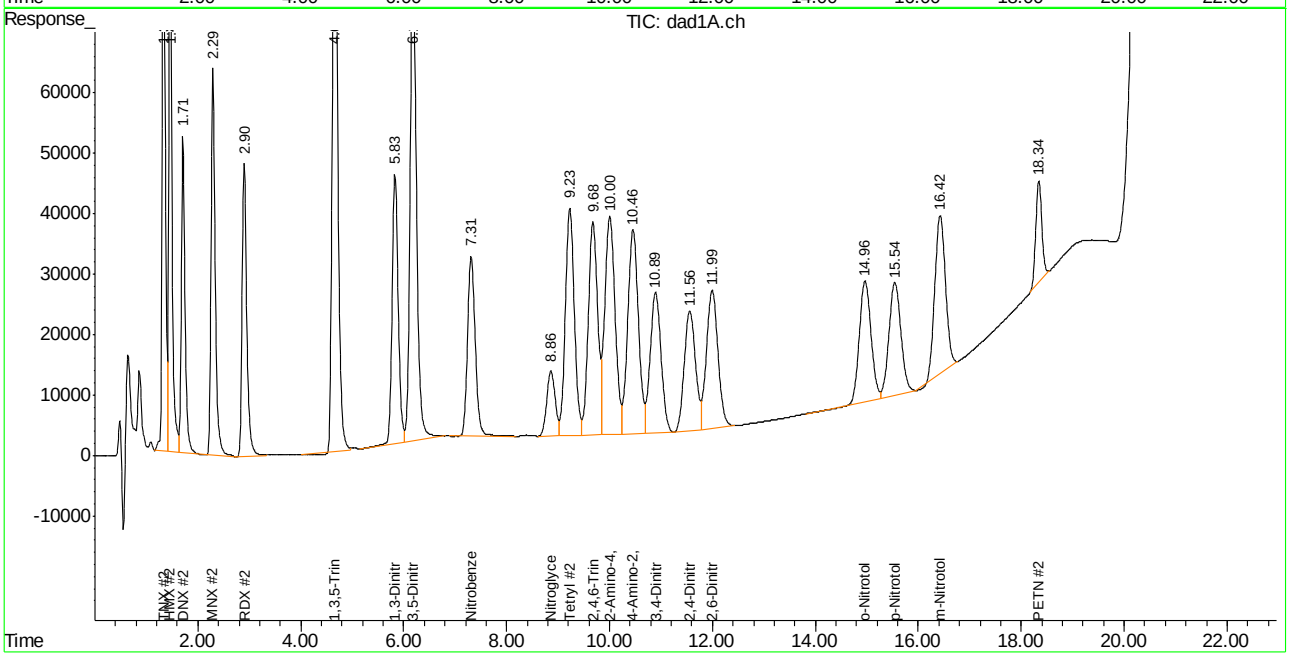
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1937\BB066786.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1937\BB066786.D\dad1A.ch
Acq On : 26-Oct-2019, 01:24:17 Operator: williamh
Sample : cc1929-1000 Inst : G1315B
Misc : op77416,GBB1937,1060,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 28 8:40 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

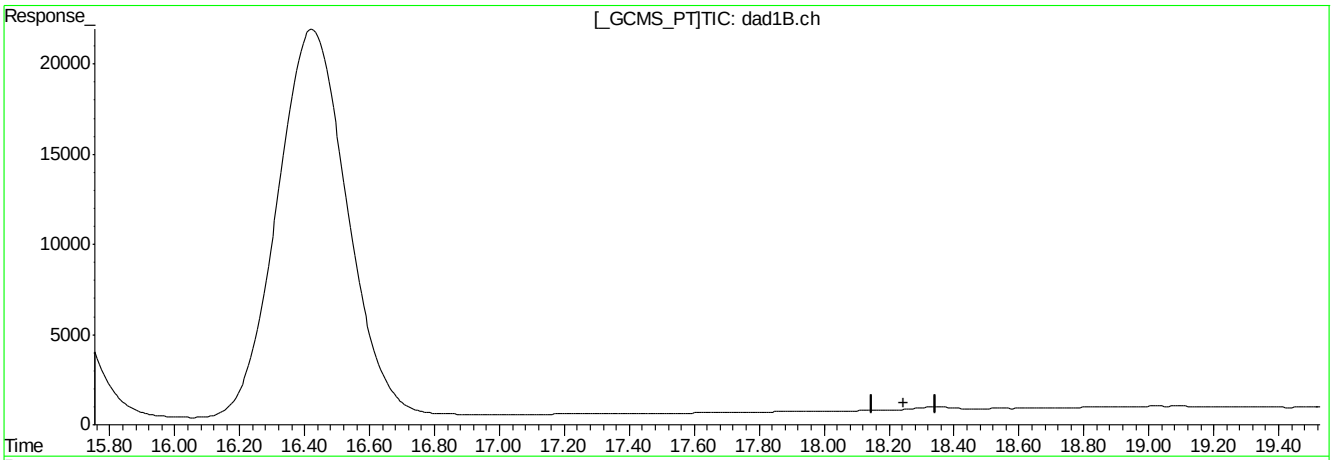
Sample Number:	GBB1937-CC1929	**Method:**	SW846 8330A
Lab FileID:	BB066786.D	**Analyst approved:**	10/28/19 14:40 William Hustedde
Injection Time:	10/26/19 01:24	**Supervisor approved:**	10/28/19 17:21 Mike Eger

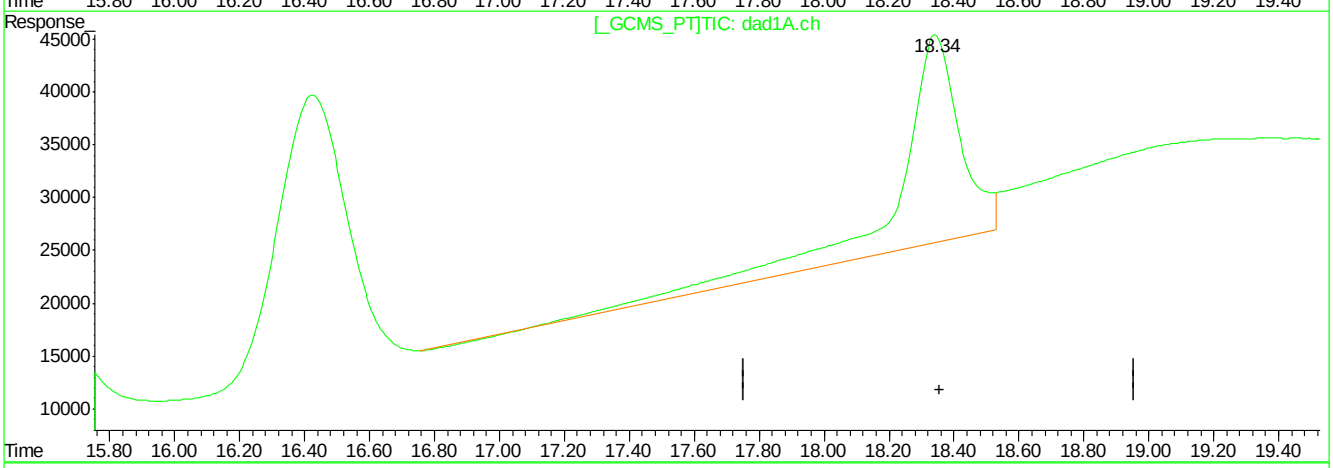
Parameter	CAS	Sig#	R.T. (min.)	Reason
PETN	78-11-5	2	18.34	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1937\BB066786.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1937\BB066786.D\dad1A.ch
Acq On : 26-Oct-2019, 01:24:17 Operator: williamh
Sample : cc1929-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 28 8:38 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

18.34min 1825.112ppb

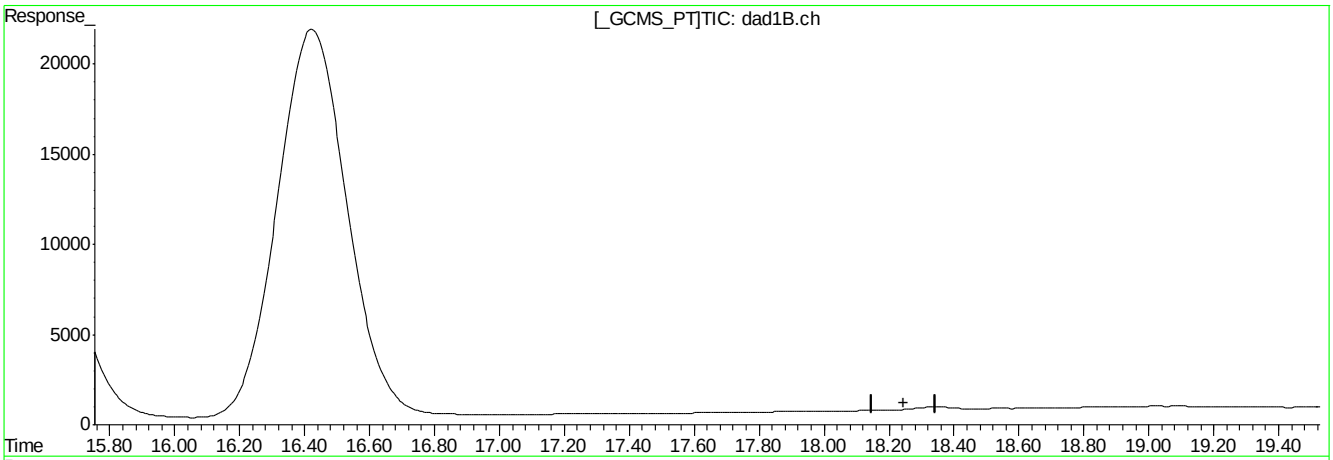
response 2549085

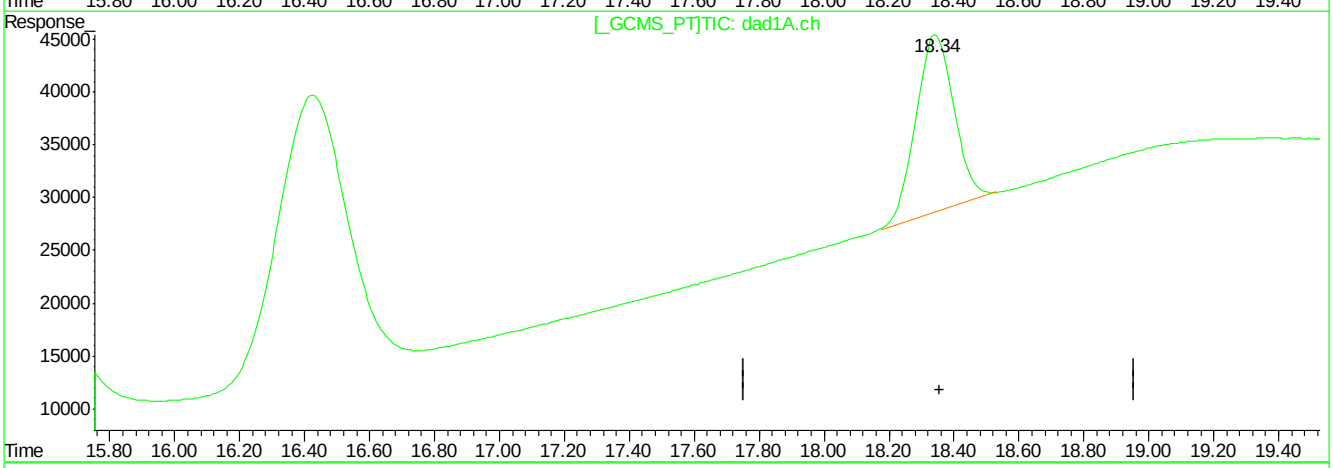
(+) = Expected Retention Time
BB066786.D 8330B_101119_PLUS.M Mon Oct 28 08:40:15 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1937\BB066786.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1937\BB066786.D\dad1A.ch
Acq On : 26-Oct-2019, 01:24:17 Operator: williamh
Sample : cc1929-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 28 8:38 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

18.34min 981.242ppb m

response 1370474

(+) = Expected Retention Time
BB066786.D 8330B_101119_PLUS.M Mon Oct 28 08:40:20 2019

Manual Integrations APPROVED (compounds with "m" flag)
Mike Eger
10/28/19 17:21

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1937\BB066798.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1937\BB066798.D\dad1A.ch
Acq On : 26-Oct-2019, 07:23:54 Operator: williamh
Sample : ecc1929-1000 Inst : G1315B
Misc : op77415,GBB1937,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 28 08:11:33 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.89	10.89	1945947	3438693	923.245	975.013
Spiked Amount	500.000	Range	70 - 136	Recovery	=	184.65%#	195.00%#
	Target Compounds						
1)	TNX	1.34	1.34	2574621	3974563	917.678	885.952
2)	HMX	1.47	1.47	1648778	4504975	991.621	979.088
3)	DNX	1.71	1.71	1611179	2582951	1143.735	1121.749
4)	MNX	2.29	2.29	2295959	3561209	877.904	887.425
5)	RDX	2.90	2.90	1865222	3008553	924.236	940.095
6)	1,3,5-Trinitrobe	4.66	4.66	4102496	7794336	925.237	933.301
7)	1,3-Dinitrobenze	5.83	5.83	5222238	3653351	928.922	952.956
8)	3,5-Dinitroanili	6.18	6.18	3978900	6833321	928.875	925.757
9)	Nitrobenzene	7.31	7.31	3143115	3108876	925.190	928.214
10)	Nitroglycerin	0.00	8.86	0	1206759	N.D.	932.197 #
11)	Tetryl	9.22	9.22	2758154	4493912	861.722	869.255
12)	2,4,6-Trinitroto	9.67	9.67	3643832	4405876	916.294	929.556
13)	2-Amino-4,6-Dini	10.00	10.00	3368414	5080736	936.158	947.515
14)	4-Amino-2,6-Dini	10.45	10.45	2433363	4881942	908.450	934.725
16)	2,4-Dinitrotolue	11.56	11.56	4635601	3016550	931.264	974.574
17)	2,6-Dinitrotolue	11.99	11.99	2742912	3576251	922.398	976.062
18)	o-Nitrotoluene	14.96	14.96	2206760	3081788	924.643	969.589
19)	p-Nitrotoluene	15.54	15.54	3458972	3002496	897.411	1004.449
20)	m-Nitrotoluene	16.42	16.42	3212589	3721727	924.255	926.548
21)	PETN	0.00	18.34	0	1391601	N.D.	996.368m#

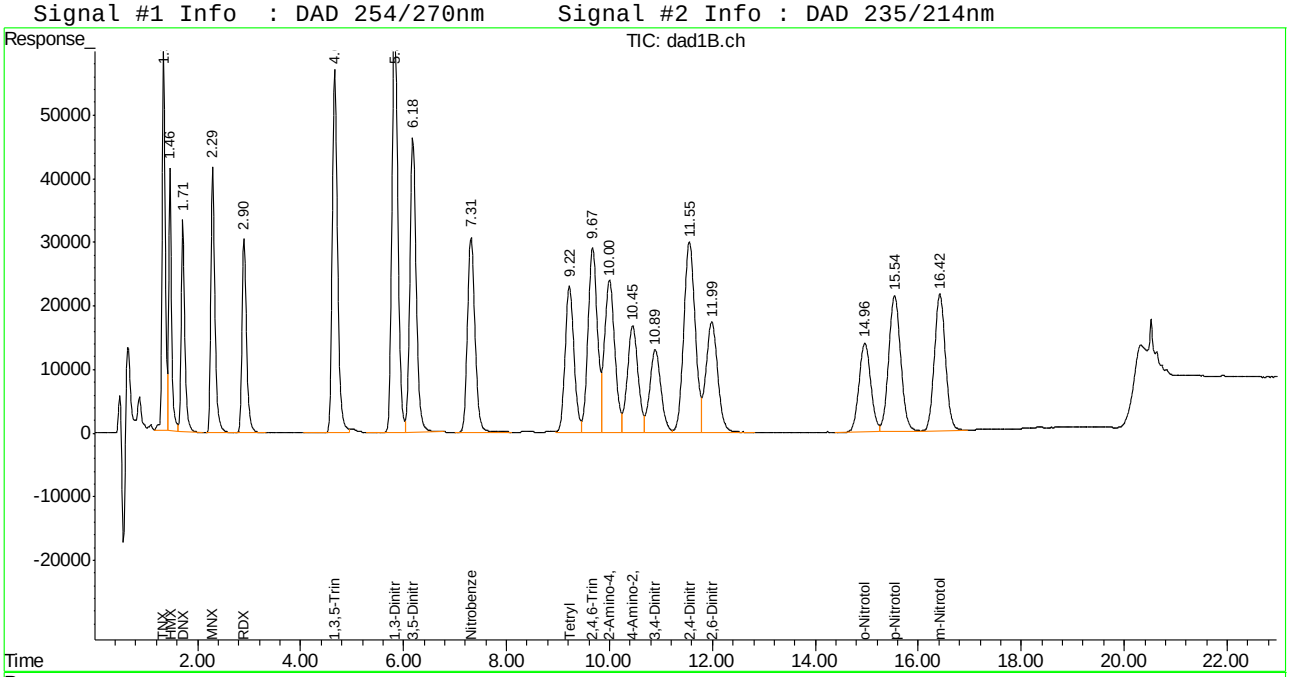
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB066798.D 8330B_101119_PLUS.M Mon Oct 28 13:29:16 2019 Page 1

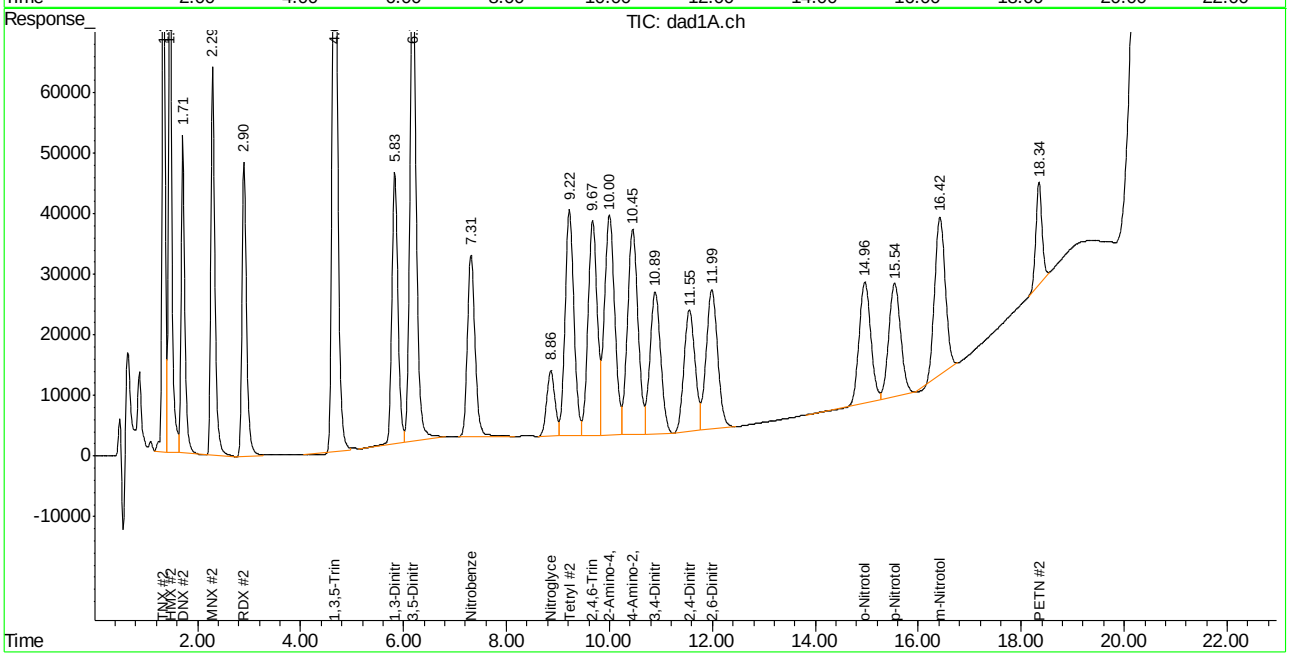
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1937\BB066798.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1937\BB066798.D\dad1A.ch
Acq On : 26-Oct-2019, 07:23:54 Operator: williamh
Sample : ecc1929-1000 Inst : G1315B
Misc : op77415,GBB1937,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 28 8:11 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

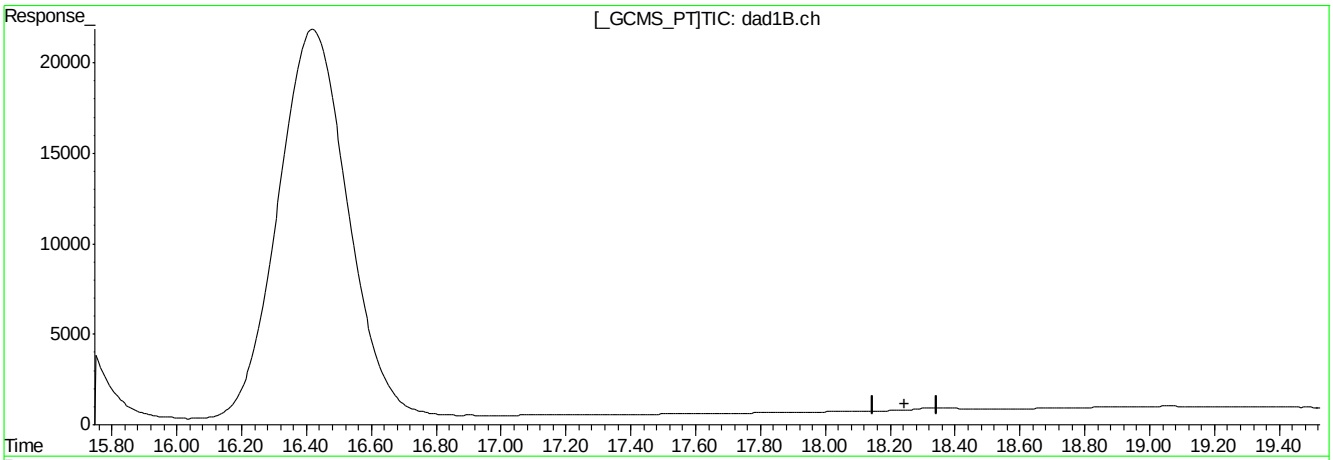
Sample Number:	GBB1937-ECC1929	**Method:**	SW846 8330B
Lab FileID:	BB066798.D	**Analyst approved:**	10/28/19 14:40 William Hustedde
Injection Time:	10/26/19 07:23	**Supervisor approved:**	10/28/19 17:21 Mike Eger

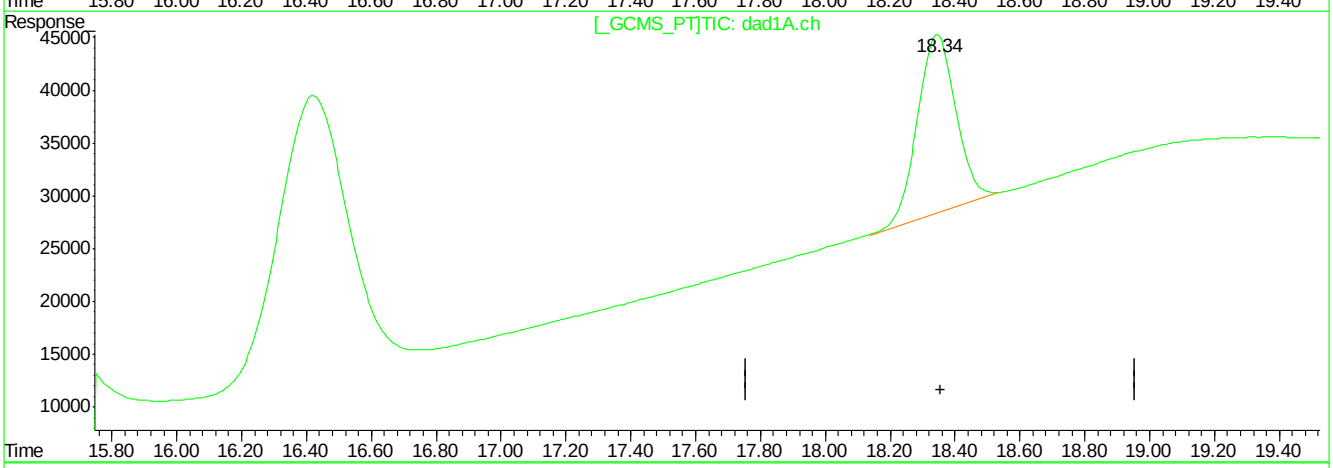
Parameter	CAS	Sig#	R.T. (min.)	Reason
PETN	78-11-5	2	18.34	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1937\BB066798.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1937\BB066798.D\dad1A.ch
Acq On : 26-Oct-2019, 07:23:54 Operator: williamh
Sample : cc1929-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 28 8:11 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

18.34min 996.368ppb m

response 1391601

(+) = Expected Retention Time
BB066798.D 8330B_101119_PLUS.M Mon Oct 28 08:11:57 2019

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 10/29/19 17:08

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1938\BB066803.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1938\BB066803.D\dad1A.ch
Acq On : 28-Oct-2019, 12:08:38 Operator: williamh
Sample : cc1929-1000 Inst : G1315B
Misc : op77415,GBB1938,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 28 11:33:06 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.82	10.82	1957726	3447915	928.834	977.628
	Spiked Amount 500.000	Range 70 - 136		Recovery =		185.77%#	195.53%#
	Target Compounds						
1)	TNX	1.33	1.33	2564364	3963804	914.022	883.554
2)	HMX	1.46	1.46	1636283	4490287	984.106	975.896
3)	DNX	1.70	1.70	1612221	2585453	1144.475	1122.848
4)	MNX	2.28	2.28	2304738	3562180	881.261	887.667
5)	RDX	2.88	2.88	1858572	2992931	920.941	935.213
6)	1,3,5-Trinitrobe	4.64	4.64	4124679	7744720	930.240	927.360
7)	1,3-Dinitrobenze	5.80	5.80	5205317	3609236	925.912	941.448
8)	3,5-Dinitroanili	6.14	6.14	3996947	6825876	933.088	924.749
9)	Nitrobenzene	7.27	7.27	3158561	3082137	929.737	920.231
10)	Nitroglycerin	0.00	8.82	0	1184825	N.D.	915.253 #
11)	Tetryl	9.16	9.16	2843518	4633005	888.392	896.160
12)	2,4,6-Trinitroto	9.62	9.62	3642820	4382555	916.040	924.636
13)	2-Amino-4,6-Dini	9.92	9.93	3346135	5063290	929.966	944.262
14)	4-Amino-2,6-Dini	10.37	10.37	2432714	4873888	908.208	933.182
16)	2,4-Dinitrotolue	11.48	11.48	4621466	2986385	928.424	964.828
17)	2,6-Dinitrotolue	11.91	11.91	2715519	3538817	913.187	965.846
18)	o-Nitrotoluene	14.89	14.89	2186681	3101259	916.230	975.715
19)	p-Nitrotoluene	15.47	15.47	3424534	2995150	888.476	1001.991
20)	m-Nitrotoluene	16.36	16.36	3182692	3703171	915.654	921.967
21)	PETN	0.00	18.31	0	1372191	N.D. d	982.471m

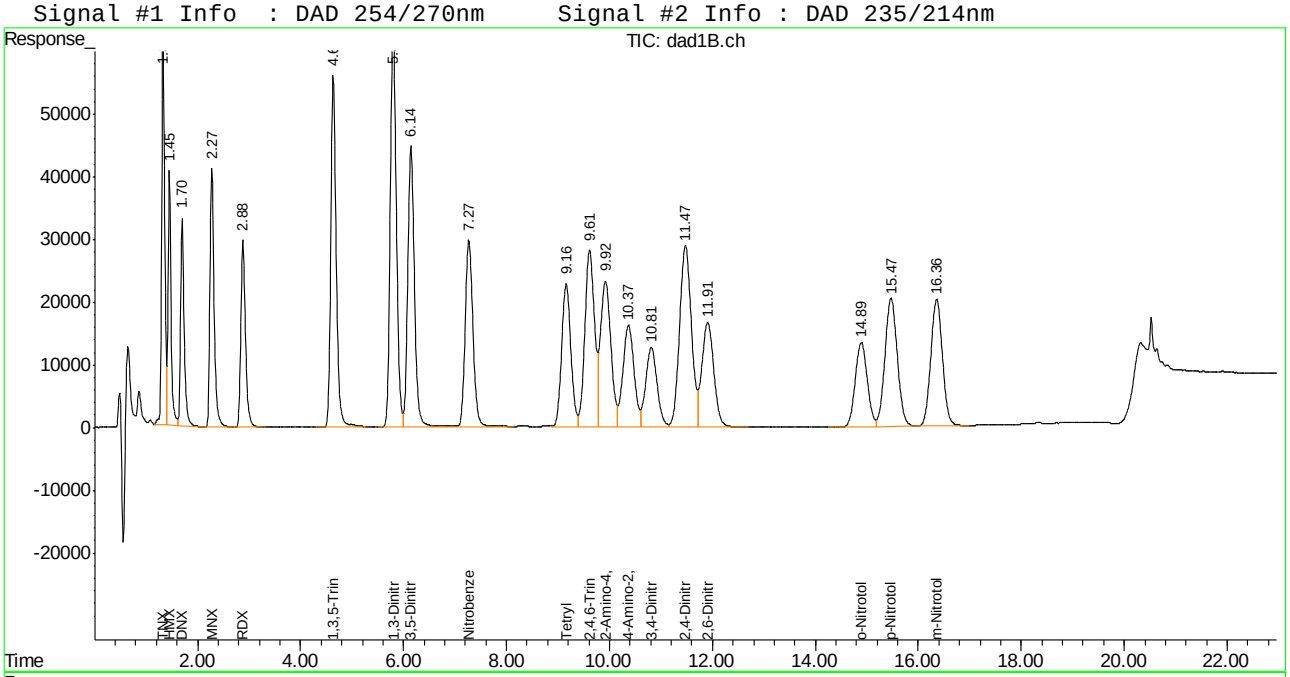
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB066803.D 8330B_101119_PLUS.M Tue Oct 29 14:18:25 2019 Page 1

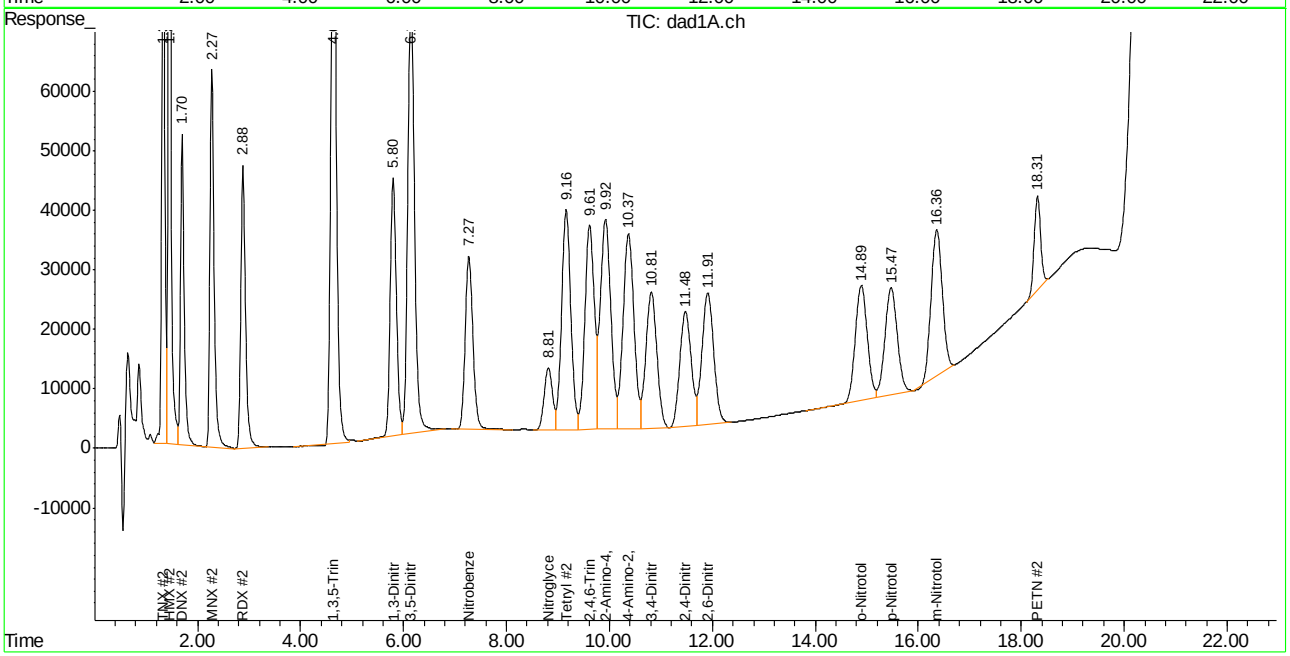
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1938\BB066803.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1938\BB066803.D\dad1A.ch
Acq On : 28-Oct-2019, 12:08:38 Operator: williamh
Sample : cc1929-1000 Inst : G1315B
Misc : op77415,GBB1938,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 28 11:33 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

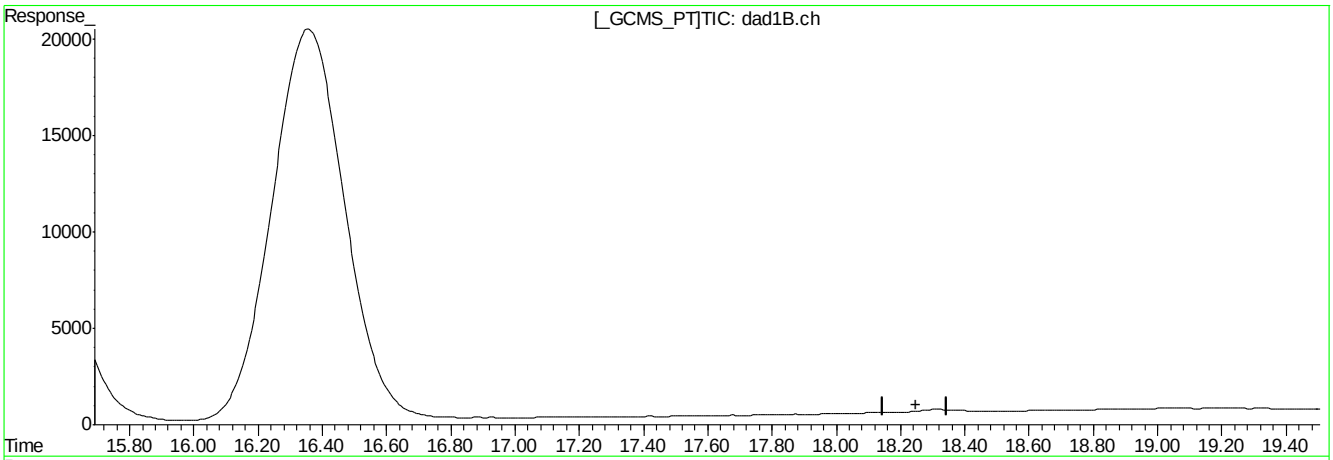
Sample Number: GBB1938-CC1929
Lab FileID: BB066803.D
Injection Time: 10/28/19 12:08
Method: SW846 8330B
Analyst approved: 10/29/19 15:23 William Hustedde
Supervisor approved: 10/29/19 17:08 Naresh Jiawan

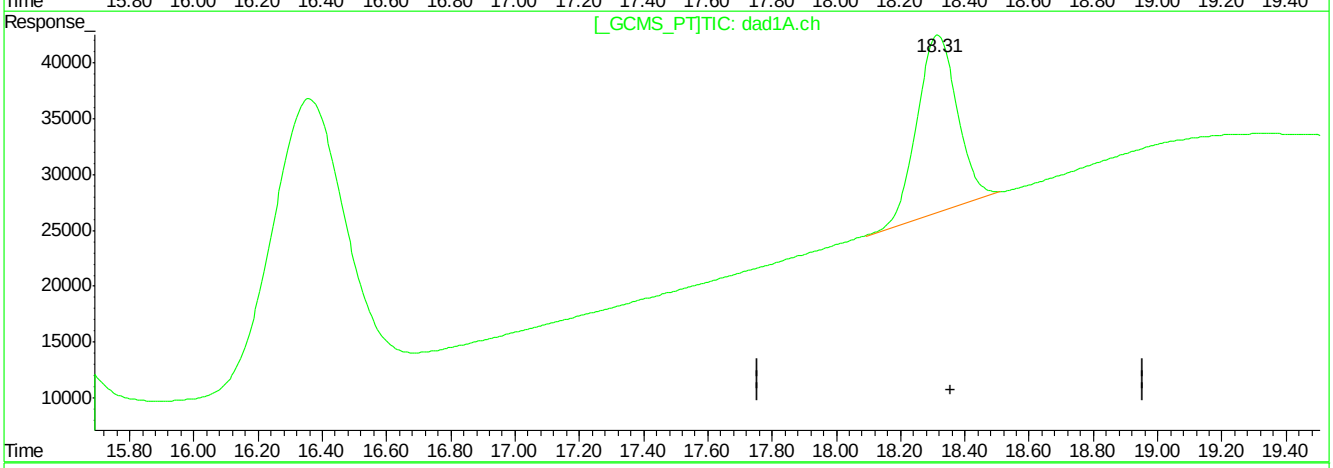
Parameter	CAS	Sig#	R.T. (min.)	Reason
PETN	78-11-5	2	18.31	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1938\BB066803.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1938\BB066803.D\dad1A.ch
Acq On : 28-Oct-2019, 12:08:38 Operator: williamh
Sample : cc1929-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 28 11:33 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb d

response 0

(21) PETN #2

18.31min 982.471ppb m

response 1372191

(+) = Expected Retention Time
BB066803.D 8330B_101119_PLUS.M Mon Oct 28 11:33:29 2019

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
10/29/19 17:08

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1938\BB066814.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1938\BB066814.D\dad1A.ch
Acq On : 28-Oct-2019, 17:38:21 Operator: williamh
Sample : cc1929-1000 Inst : G1315B
Misc : op77415,GBB1938,500,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 29 10:00:36 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Initial Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
15) S	3,4-Dinitrotolue	10.89	10.89	1939893	3434487	920.373	973.820
	Spiked Amount 500.000	Range 70 - 136		Recovery =		184.07%#	194.76%#
	Target Compounds						
1)	TNX	1.34	1.34	2573146	3983335	917.152	887.907
2)	HMX	1.47	1.47	1615499	4396159	971.606	955.439
3)	DNX	1.71	1.71	1594856	2532552	1132.148	1099.618
4)	MNX	2.29	2.29	2295915	3546298	877.888	883.709
5)	RDX	2.90	2.90	1861161	2988095	922.224	933.702
6)	1,3,5-Trinitrobe	4.67	4.67	4114395	7602890	927.921	910.377
7)	1,3-Dinitrobenze	5.83	5.83	5197729	3632619	924.562	947.548
8)	3,5-Dinitroanili	6.18	6.18	3966050	6799387	925.875	921.160
9)	Nitrobenzene	7.31	7.31	3091044	3054982	909.863	912.123
10)	Nitroglycerin	0.00	8.86	0	1192906	N.D.	921.496 #
11)	Tetryl	9.22	9.22	2778444	4529174	868.061	876.076
12)	2,4,6-Trinitroto	9.68	9.68	3631814	4381575	913.272	924.429
13)	2-Amino-4,6-Dini	10.00	10.00	3351658	5063710	931.501	944.340
14)	4-Amino-2,6-Dini	10.45	10.45	2422091	4853471	904.241	929.273
16)	2,4-Dinitrotolue	11.55	11.56	4601375	2985169	924.388	964.435
17)	2,6-Dinitrotolue	11.99	11.99	2710265	3544975	911.419	967.526
18)	o-Nitrotoluene	14.96	14.96	2193535	3064726	919.102	964.221
19)	p-Nitrotoluene	15.54	15.54	3436158	2980646	891.492	997.139
20)	m-Nitrotoluene	16.41	16.42	3197358	3701065	919.873	921.447
21)	PETN	0.00	18.34	0	1364559	N.D.	977.007m#

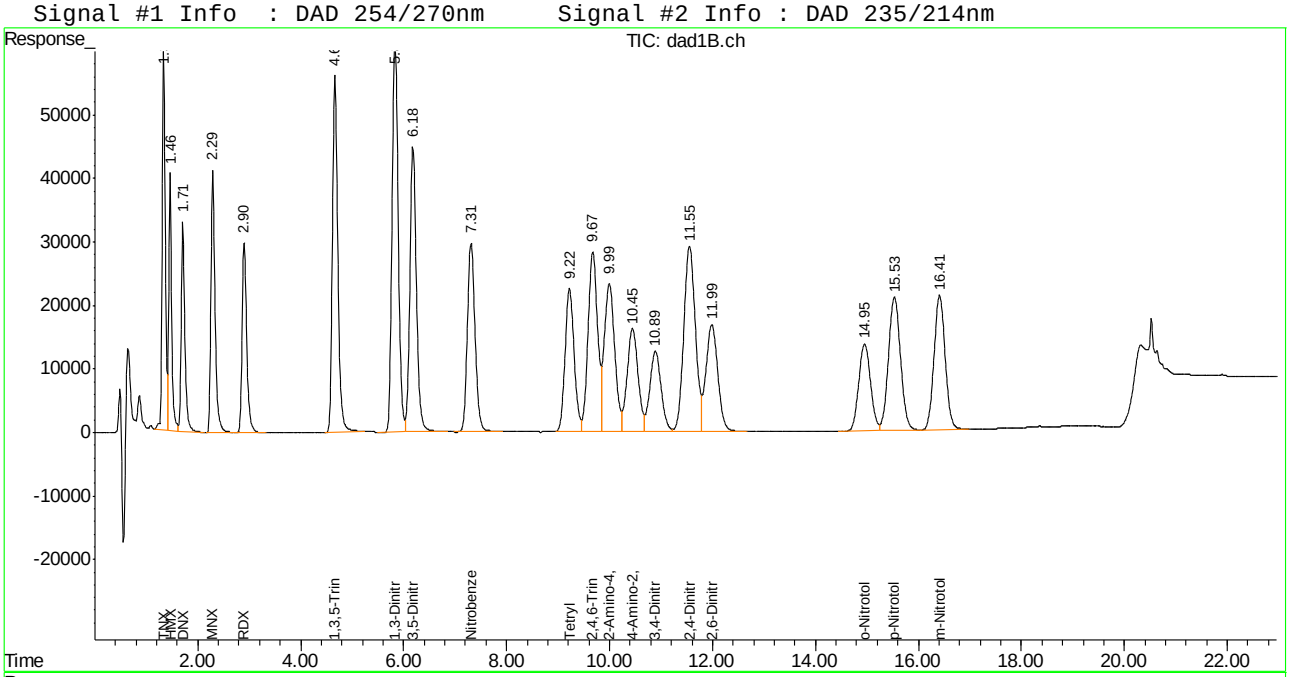
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
BB066814.D 8330B_101119_PLUS.M Tue Oct 29 14:18:34 2019 Page 1

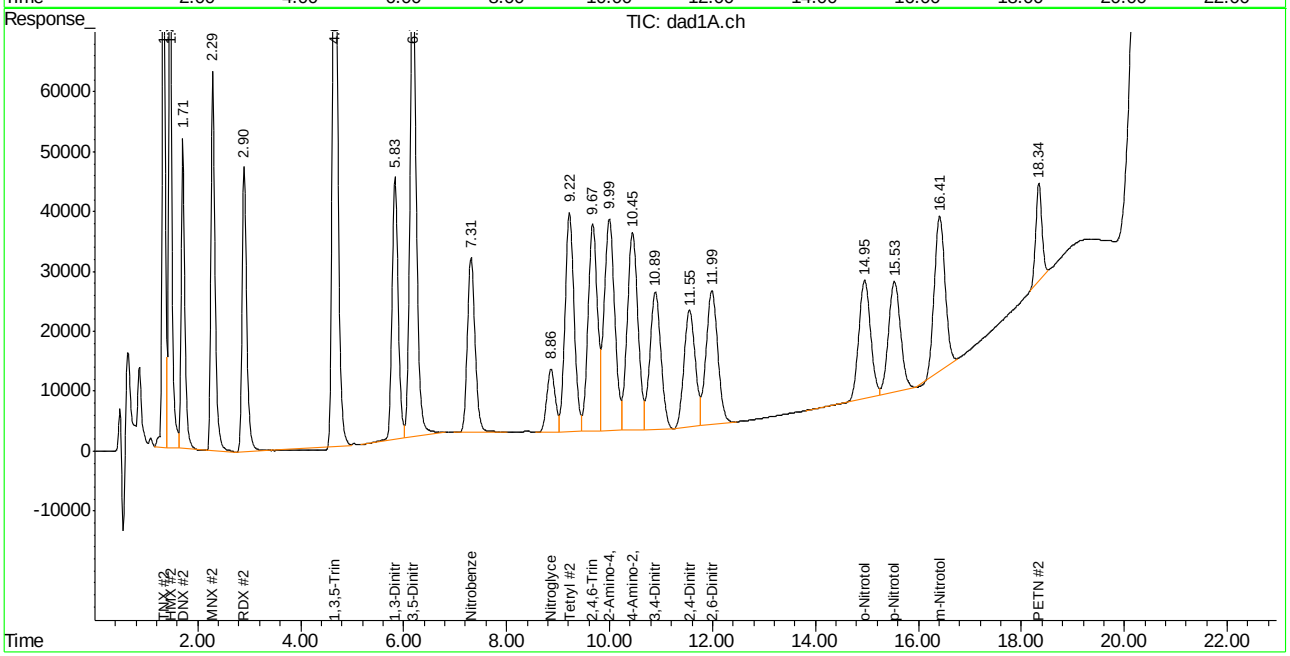
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\2\DATA\GBB1938\BB066814.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1938\BB066814.D\dad1A.ch
Acq On : 28-Oct-2019, 17:38:21 Operator: williamh
Sample : cc1929-1000 Inst : G1315B
Misc : op77415,GBB1938,500,,,10,1,water Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 29 10:04 2019 Quant Results File: 8330B_101119_PLUS.RES

Quant Method : C:\MSDCHEM\2...\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330B.M

Volume Inj. : 100ul
Signal #1 Phase : Extend C-18 Signal #2 Phase: Extend C-18
Signal #1 Info : DAD 254/270nm Signal #2 Info : DAD 235/214nm





Manual Integration Approval Summary

Sample Number: GBB1938-CC1929
Lab FileID: BB066814.D
Injection Time: 10/28/19 17:38

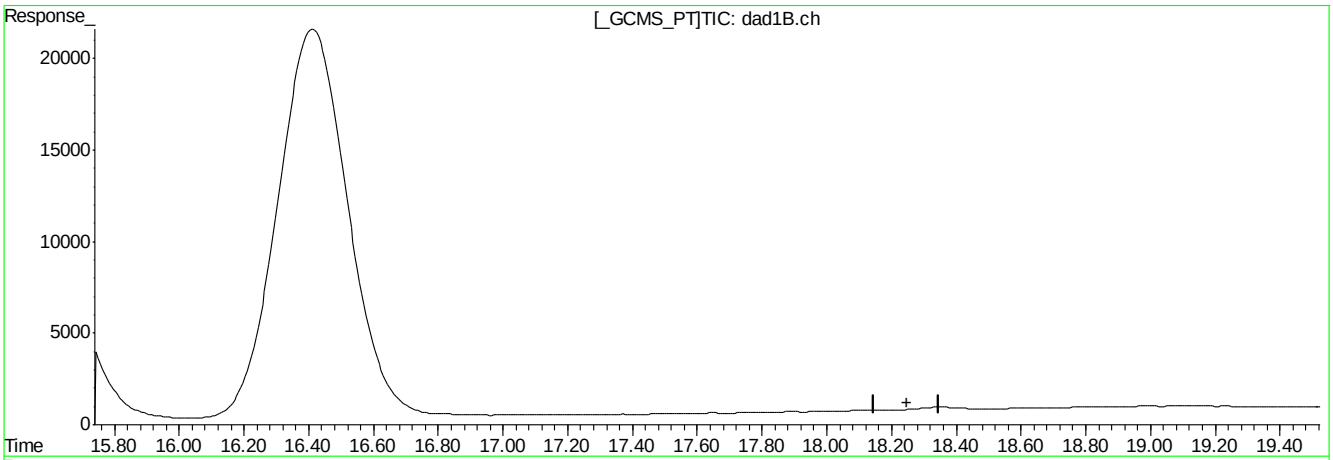
Method: SW846 8330B
Analyst approved: 10/29/19 15:23 William Hustedde
Supervisor approved: 10/29/19 17:08 Naresh Jiawan

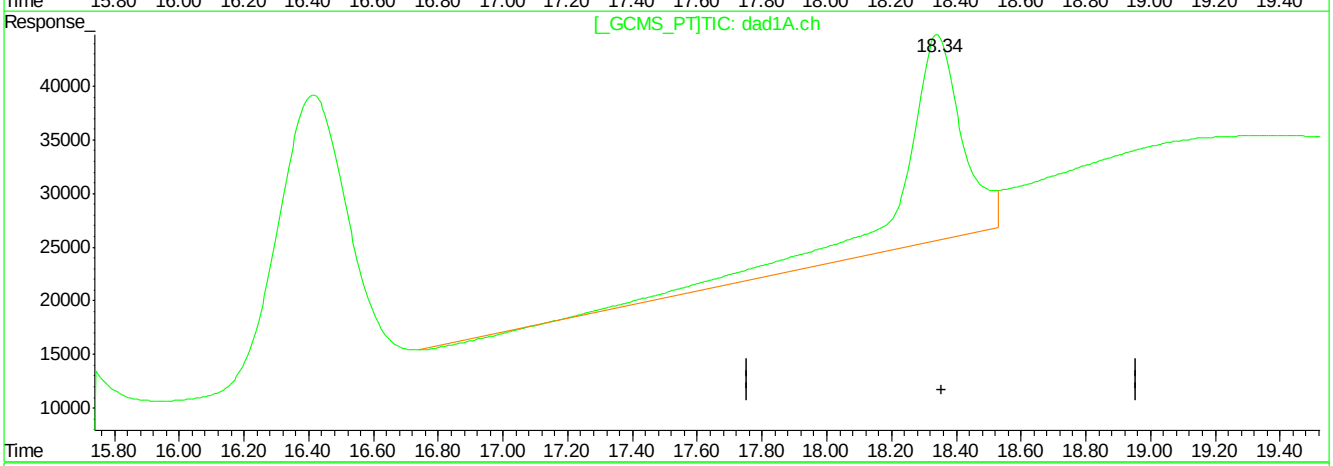
Parameter	CAS	Sig#	R.T. (min.)	Reason
PETN	78-11-5	2	18.34	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1938\BB066814.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1938\BB066814.D\dad1A.ch
Acq On : 28-Oct-2019, 17:38:21 Operator: williamh
Sample : cc1929-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 29 10:00 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

18.34min 1782.107ppb

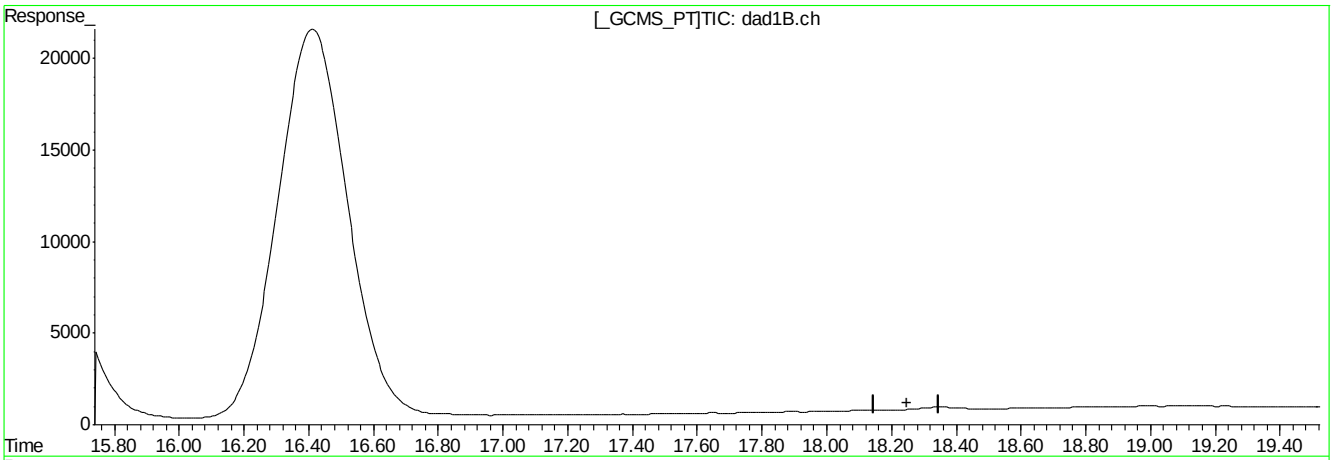
response 2489020

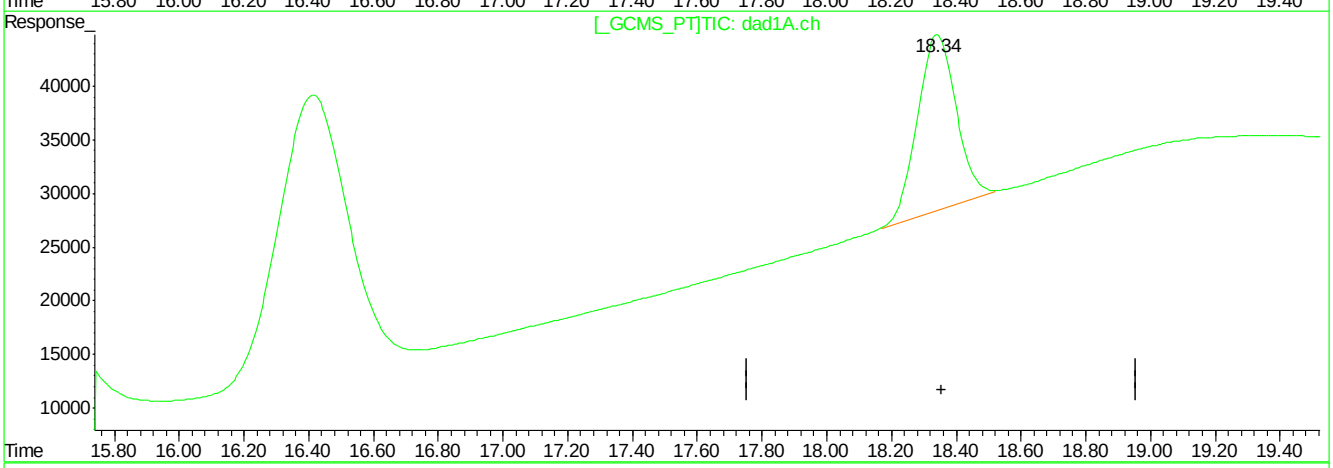
(+) = Expected Retention Time
BB066814.D 8330B_101119_PLUS.M Tue Oct 29 10:04:16 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\2\DATA\GBB1938\BB066814.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\2\DATA\GBB1938\BB066814.D\dad1A.ch
Acq On : 28-Oct-2019, 17:38:21 Operator: williamh
Sample : cc1929-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: events.e IntFile Signal #2: EVENTS2.E
Quant Time: Oct 29 10:00 2019 Quant Results File: 8330B_101119_PLUS.RES

Method : C:\MSDCHEM\2\METHODS\8330B_101119_PLUS.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Mon Oct 21 16:11:05 2019
Response via : Multiple Level Calibration





QEdit

(21) PETN

0.00min 0.000ppb

response 0

(21) PETN #2

18.34min 977.007ppb m

response 1364559

(+) = Expected Retention Time
BB066814.D 8330B_101119_PLUS.M Tue Oct 29 10:04:21 2019

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
09/26/19 16:28

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12:33 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.56	13.55	84611	167134	16.252m	16.532m
	Spiked Amount 500.000	Range 70 - 136		Recovery =		3.25%#	3.31%#
	Target Compounds						
1)	TNX	4.97	4.97	218003	218003	38.377	38.296
2)	HMX	5.43	5.43	76671	73869	20.769m	20.035m
3)	DNX	5.49	5.49	147671	149475	27.214m	27.859m
4)	MNX	6.35	6.35	76584	78430	13.122m	13.439m
5)	1,3,5-Trinitrobe	7.16	7.16	204014	204014	21.442	21.506
6)	RDX	7.60	7.60	95749	95749	20.715	20.867
7)	1,3-Dinitrobenze	9.52	9.54	270208	176613	20.183m	17.415m
8)	Nitrobenzene	10.45	10.46	184518	175282	21.751	20.700m
9)	2,4,6-Trinitroto	11.07	11.07	203967	237191	21.926	19.902
10)	Nitroglycerin	0.00	0.00	0	0	N.D.	N.D.
11)	Tetryl	12.18	12.14	124995	322243	18.121	24.454m
13)	2,6-Dinitrotolue	13.94	13.91	135925	203654	21.731m	21.420
14)	2,4-Dinitrotolue	14.64	14.59	240621	208217	19.818	23.705m
15)	o-Nitrotoluene	16.13	16.11	96951	128957	17.328	12.789
16)	3,5-Dinitroanili	15.48	15.48	168483	313790	15.490	16.606
17)	p-Nitrotoluene	17.17	17.17	219157	564760	19.281m	27.186 #
18)	4-Amino-2,6-Dini	17.17	17.17	213733	564760	18.804m	27.184 #
19)	m-Nitrotoluene	18.37	18.36	110487	255019	19.272m	24.421m
20)	2-Amino-4,6-Dini	19.18	19.28	177657	351021	20.592	28.276
21)	PETN	0.00	0.00	0	0	N.D.	N.D. d

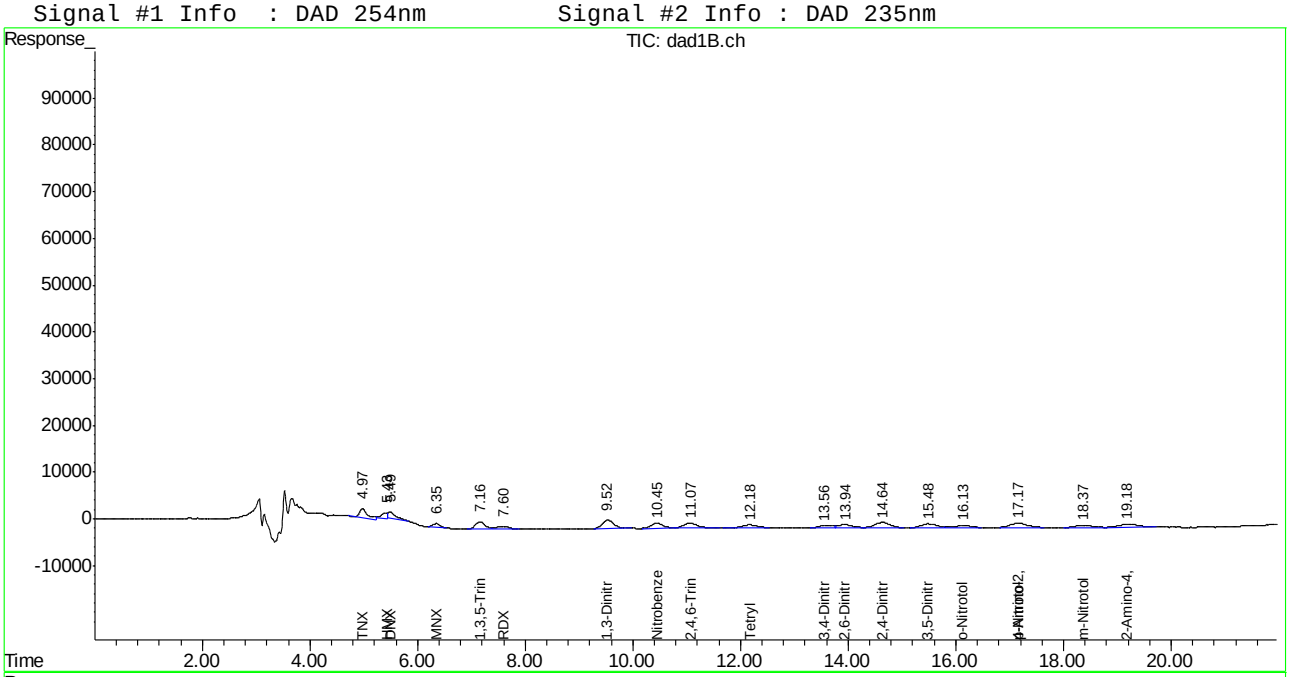
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

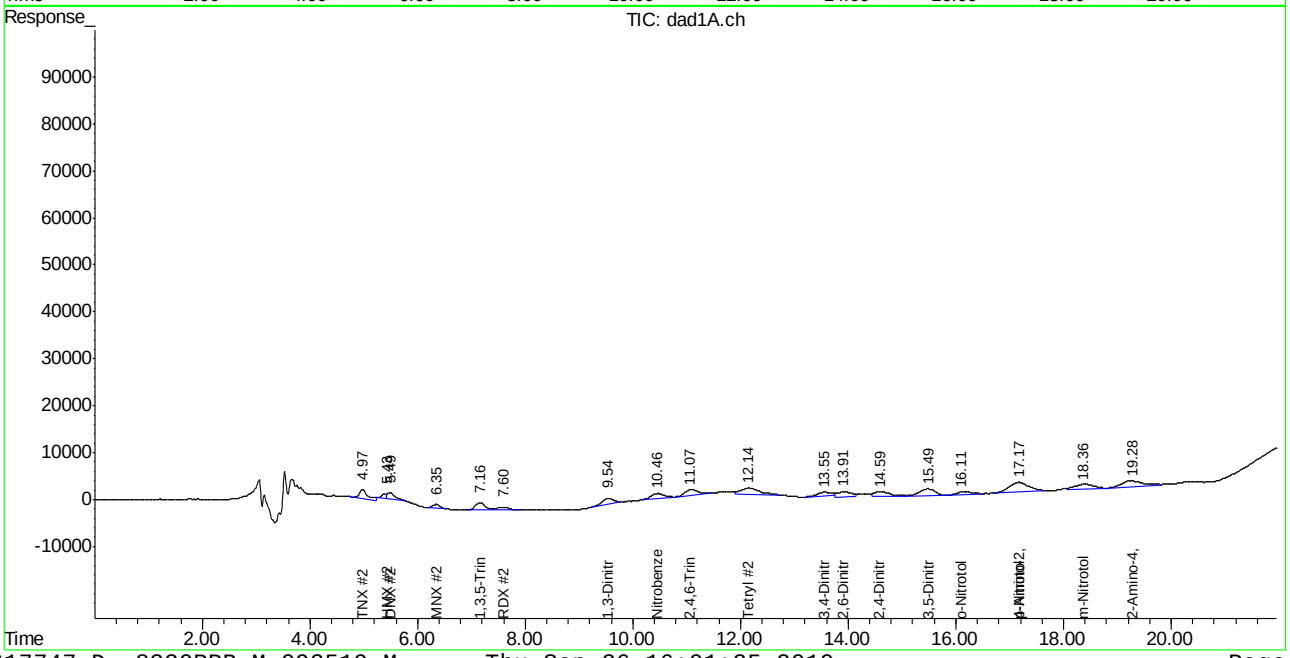
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:18 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

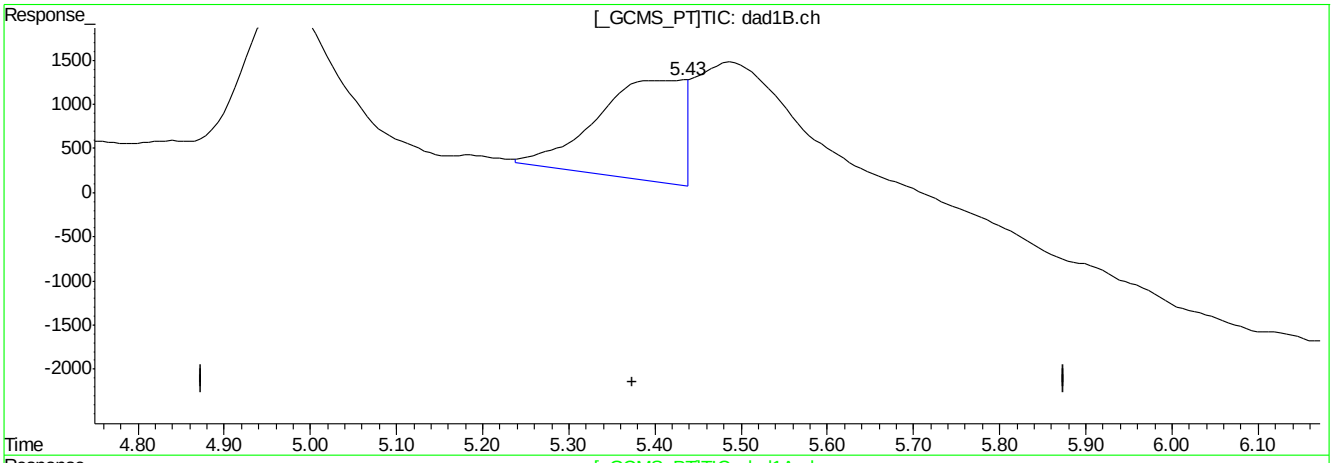
Sample Number: GGG2769-IC2769
Lab FileID: GG617747.D
Injection Time: 09/25/19 20:30
Method: SW846 8330B
Analyst approved: 09/26/19 16:07 William Hustedde
Supervisor approved: 09/26/19 16:28 Naresh Jiawan

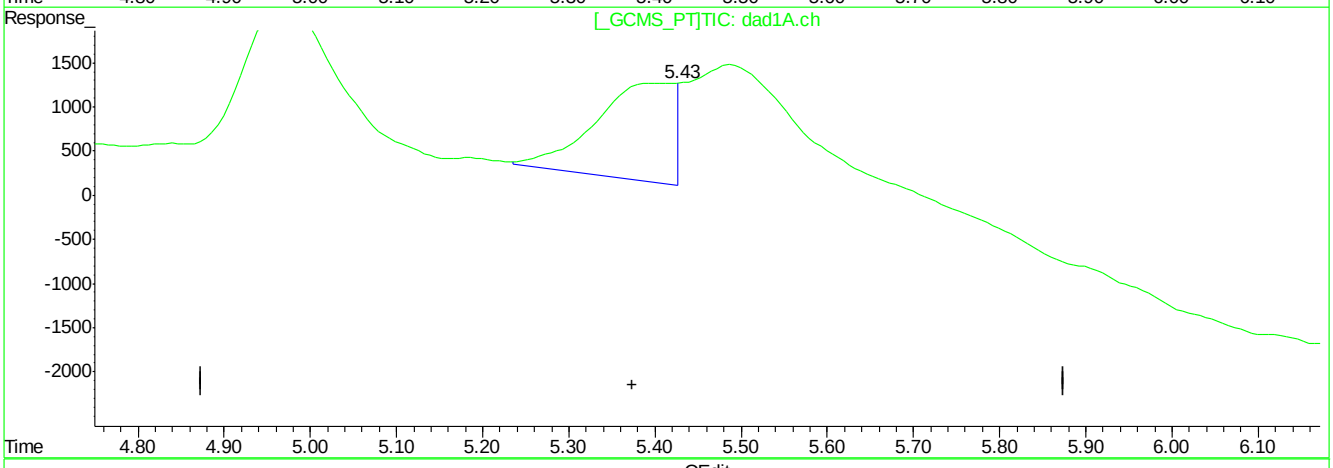
Parameter	CAS	Sig#	R.T. (min.)	Reason
HMX	2691-41-0	1	5.43	Poor instrument integration
HMX	2691-41-0	2	5.43	Poor instrument integration
DNX		1	5.49	Poor instrument integration
DNX		2	5.49	Poor instrument integration
MNX		1	6.35	Poor instrument integration
MNX		2	6.35	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	1	9.52	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	9.54	Poor instrument integration
Nitrobenzene	98-95-3	2	10.46	Poor instrument integration
Tetryl	479-45-8	2	12.14	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	2	13.55	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	1	13.56	Poor instrument integration
2,6-Dinitrotoluene	606-20-2	1	13.94	Poor instrument integration
2,4-Dinitrotoluene	121-14-2	2	14.59	Poor instrument integration
4-amino-2,6-Dinitrotoluene	19406-51-0	1	17.17	Poor instrument integration
p-Nitrotoluene	99-99-0	1	17.17	Poor instrument integration
m-Nitrotoluene	99-08-1	2	18.36	Poor instrument integration
m-Nitrotoluene	99-08-1	1	18.37	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.43min 20.769ppb m

response 76671

(2) HMX #2

5.43min 20.035ppb m

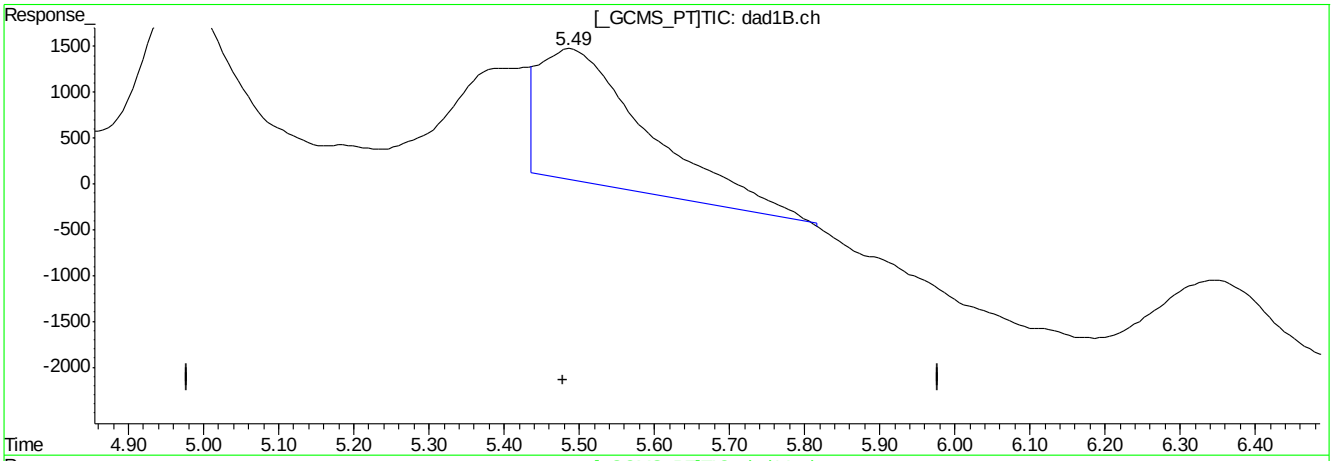
response 73869

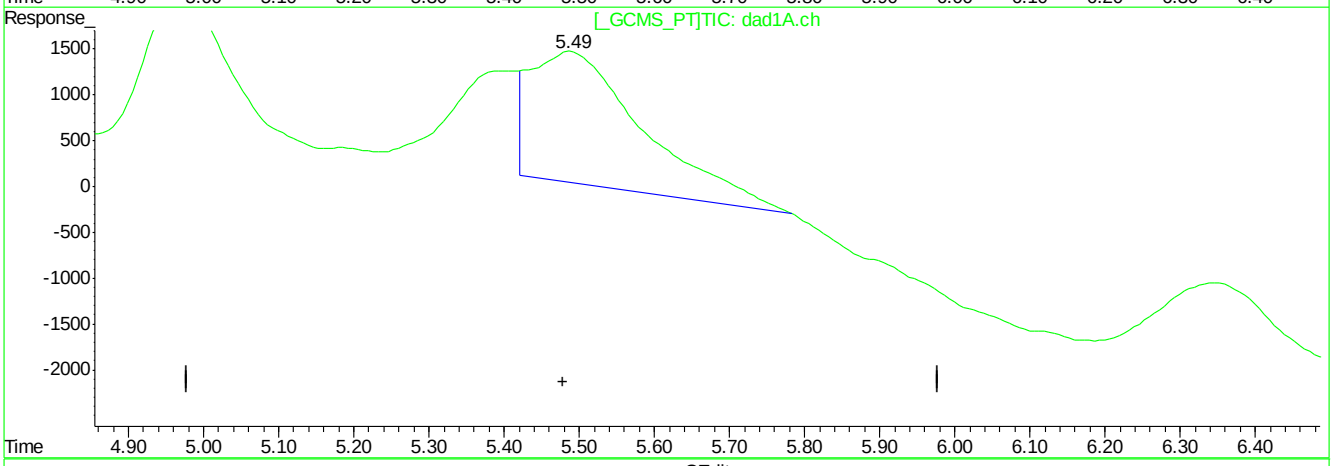
(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:16:26 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(3) DNX

5.49min 27.214ppb m

response 147671

(3) DNX #2

5.49min 27.859ppb m

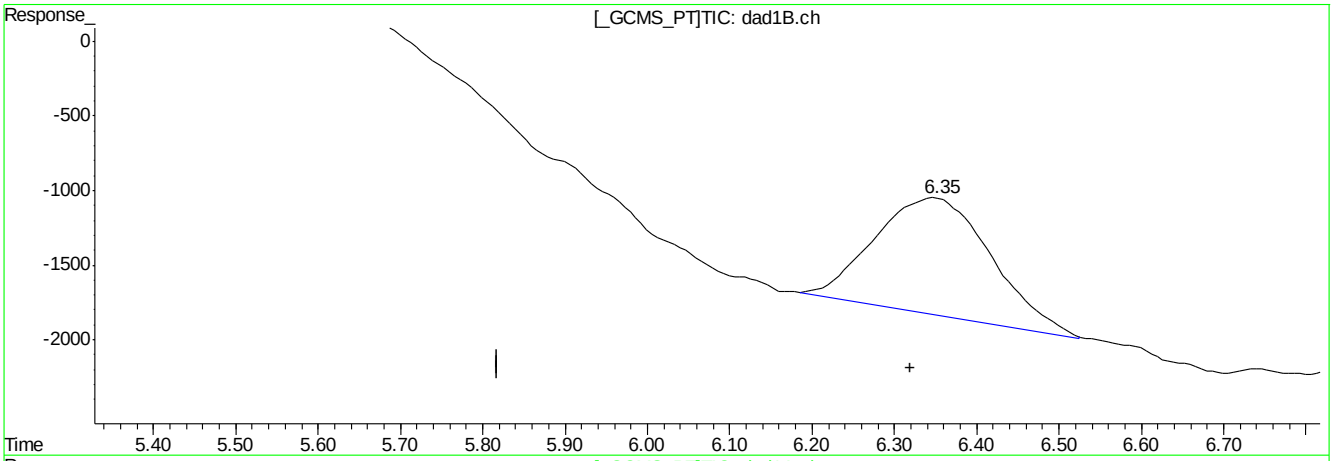
response 149475

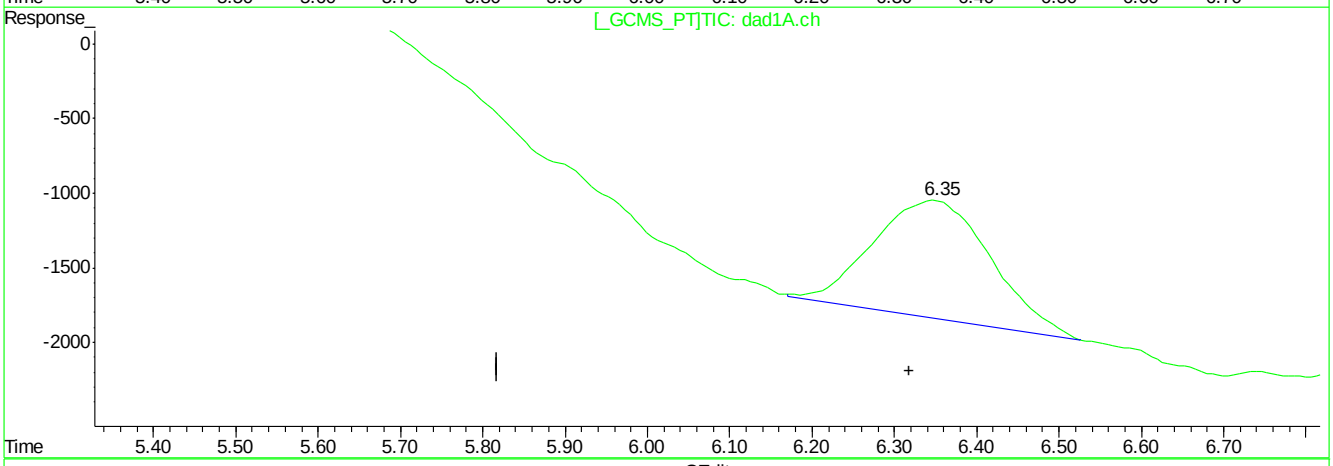
(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:16:36 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(4) MNX

6.35min 13.122ppb m

response 76584

(4) MNX #2

6.35min 13.439ppb m

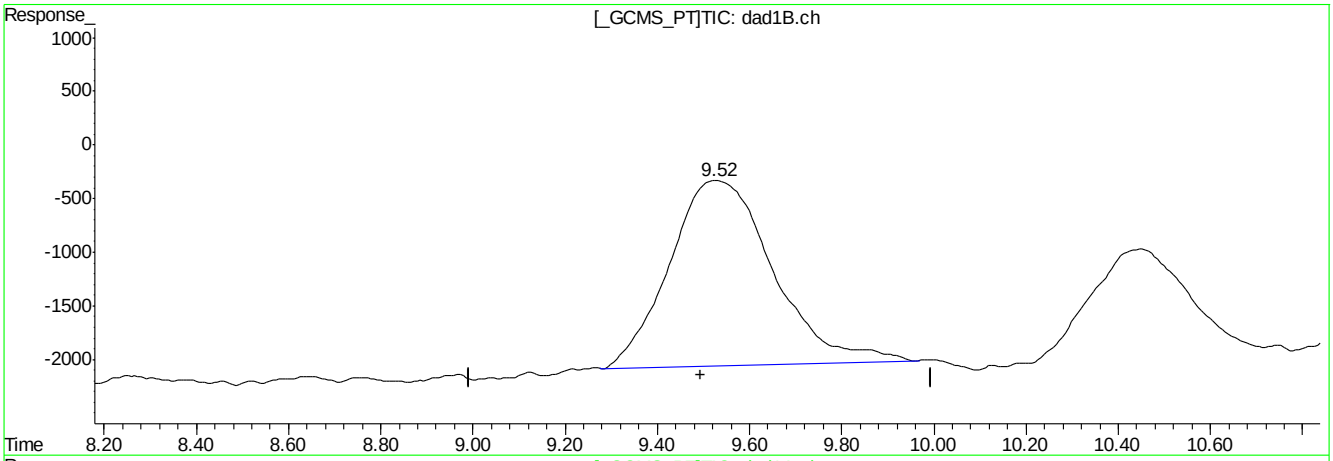
response 78430

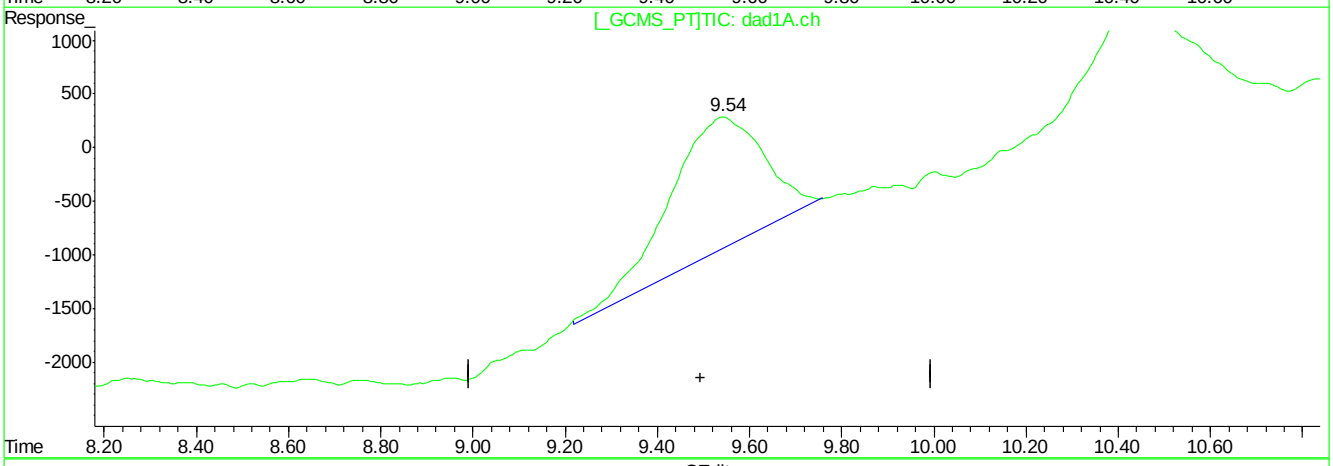
(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:16:43 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

9.52min 20.183ppb m

response 270208

(7) 1,3-Dinitrobenzene #2

9.54min 17.415ppb m

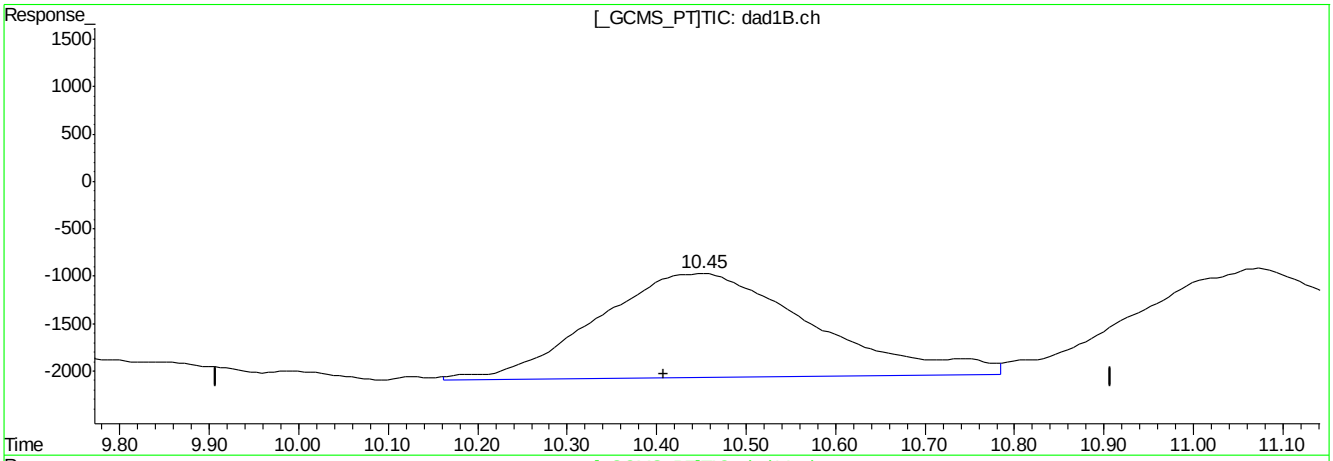
response 176613

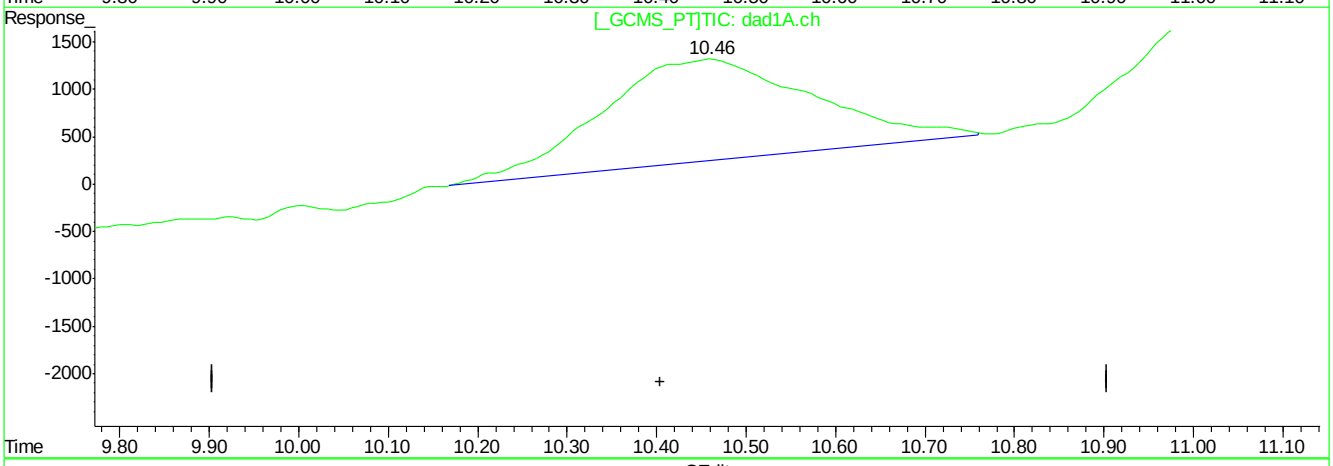
(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:16:59 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(8) Nitrobenzene

10.45min 21.751ppb

response 184518

(8) Nitrobenzene #2

10.46min 20.700ppb m

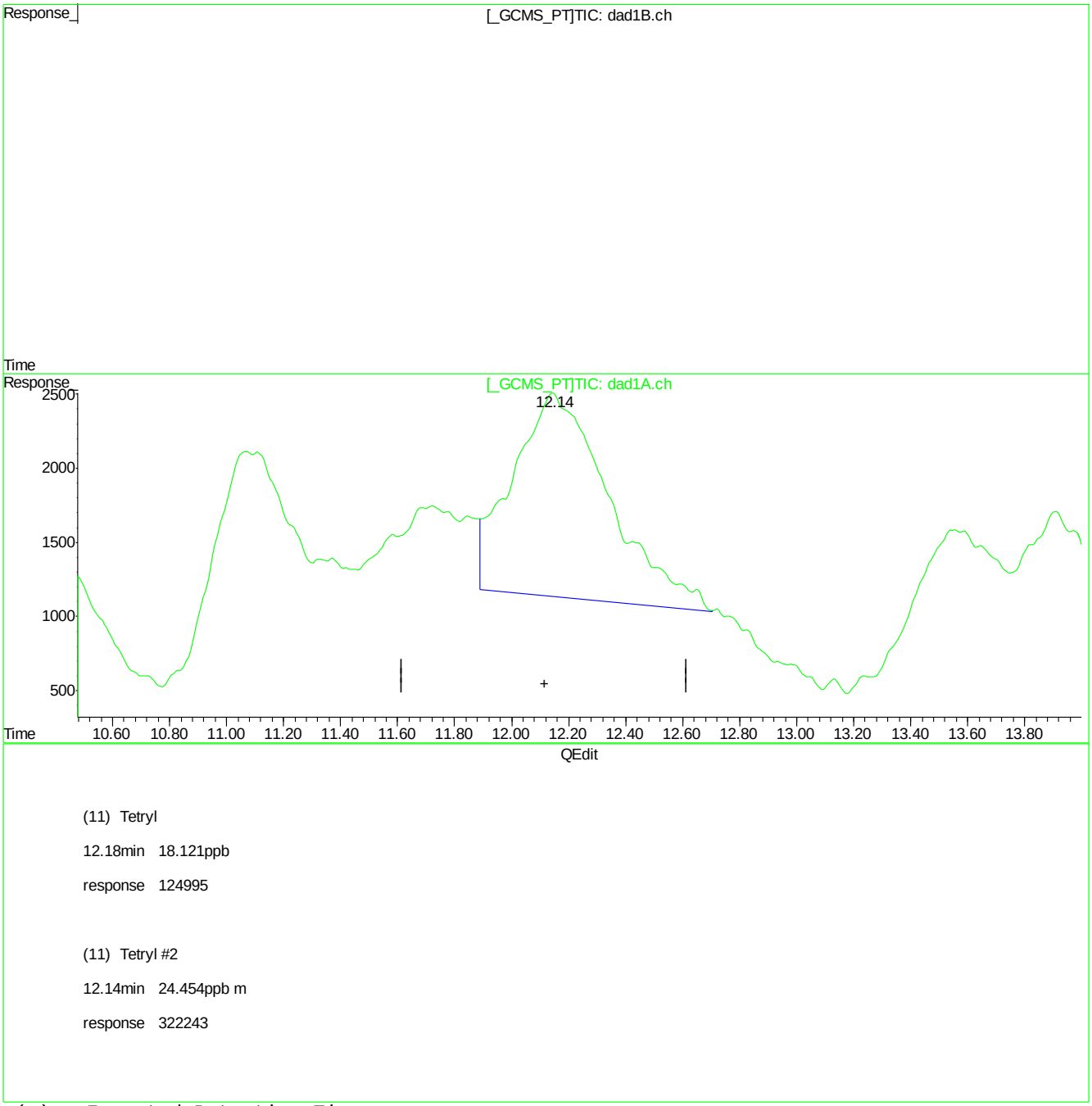
response 175282

(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:17:09 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(11) Tetryl

12.18min 18.121ppb

response 124995

(11) Tetryl #2

12.14min 24.454ppb m

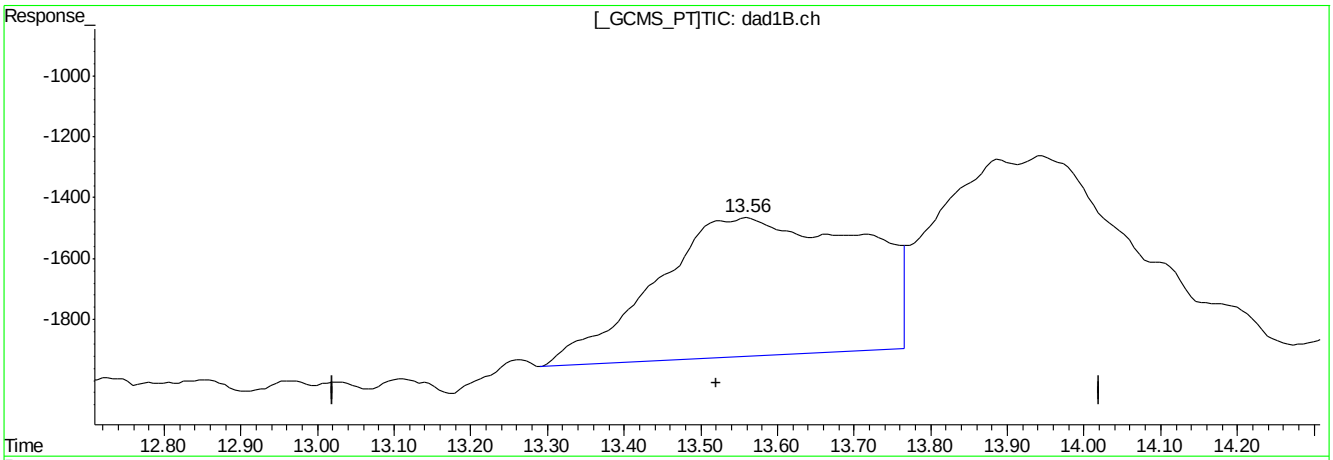
response 322243

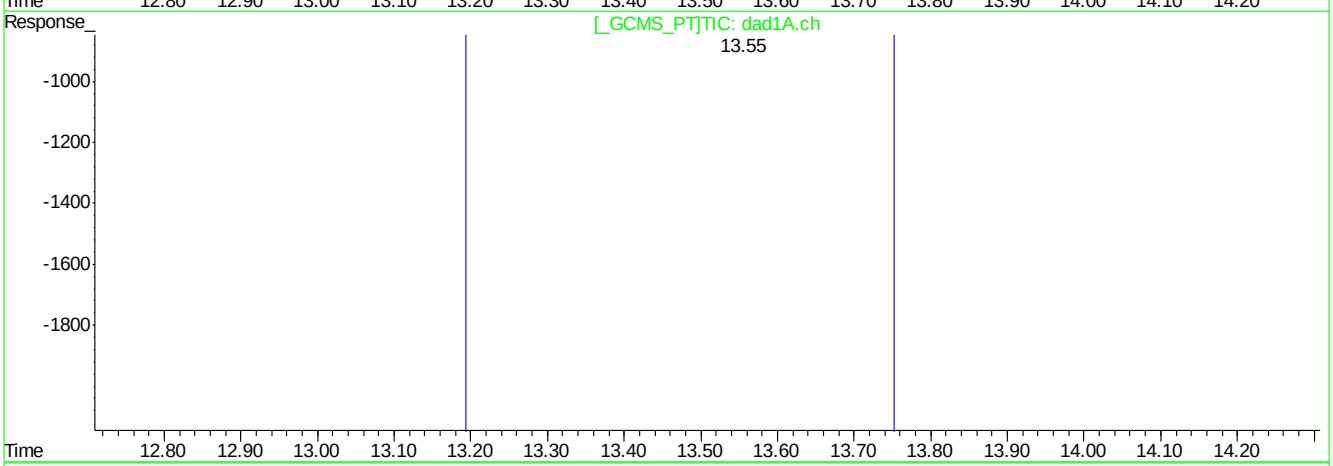
(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:17:27 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(12) 3,4-Dinitrotoluene (S)

13.56min 16.252ppb m

response 84611

(12) 3,4-Dinitrotoluene #2 (S)

13.55min 16.532ppb m

response 167134

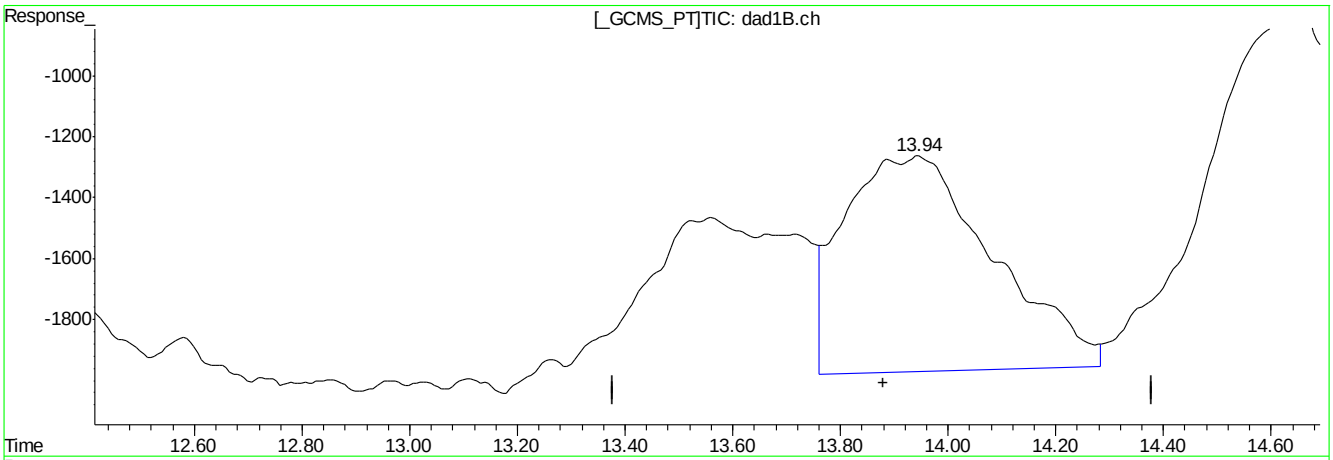
(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:17:37 2019

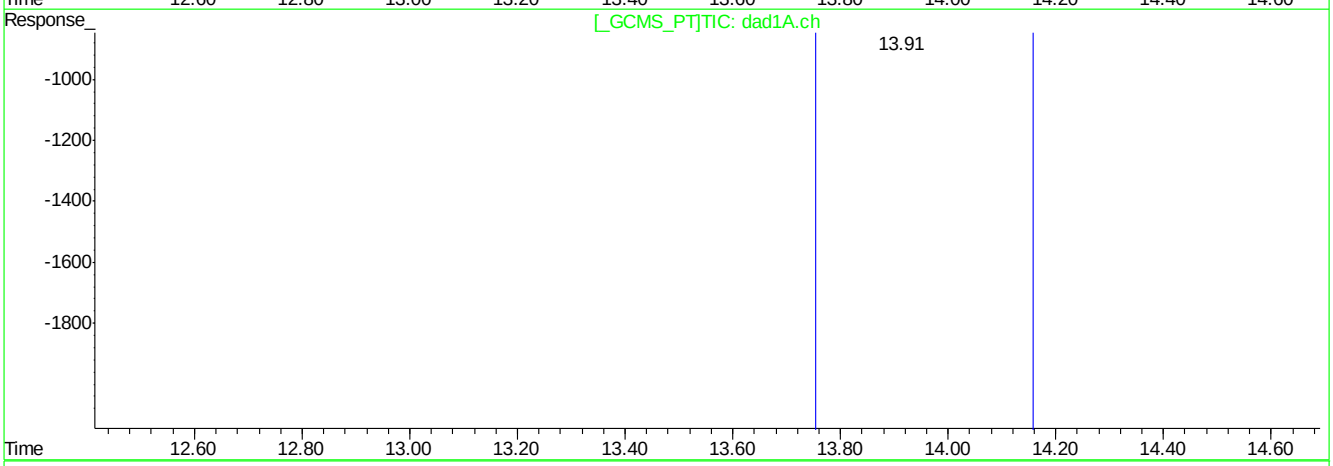
GG617747.D edits: 3,4-Dinitrotoluene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(13) 2,6-Dinitrotoluene

13.94min 21.731ppb m

response 135925

(13) 2,6-Dinitrotoluene #2

13.91min 21.420ppb

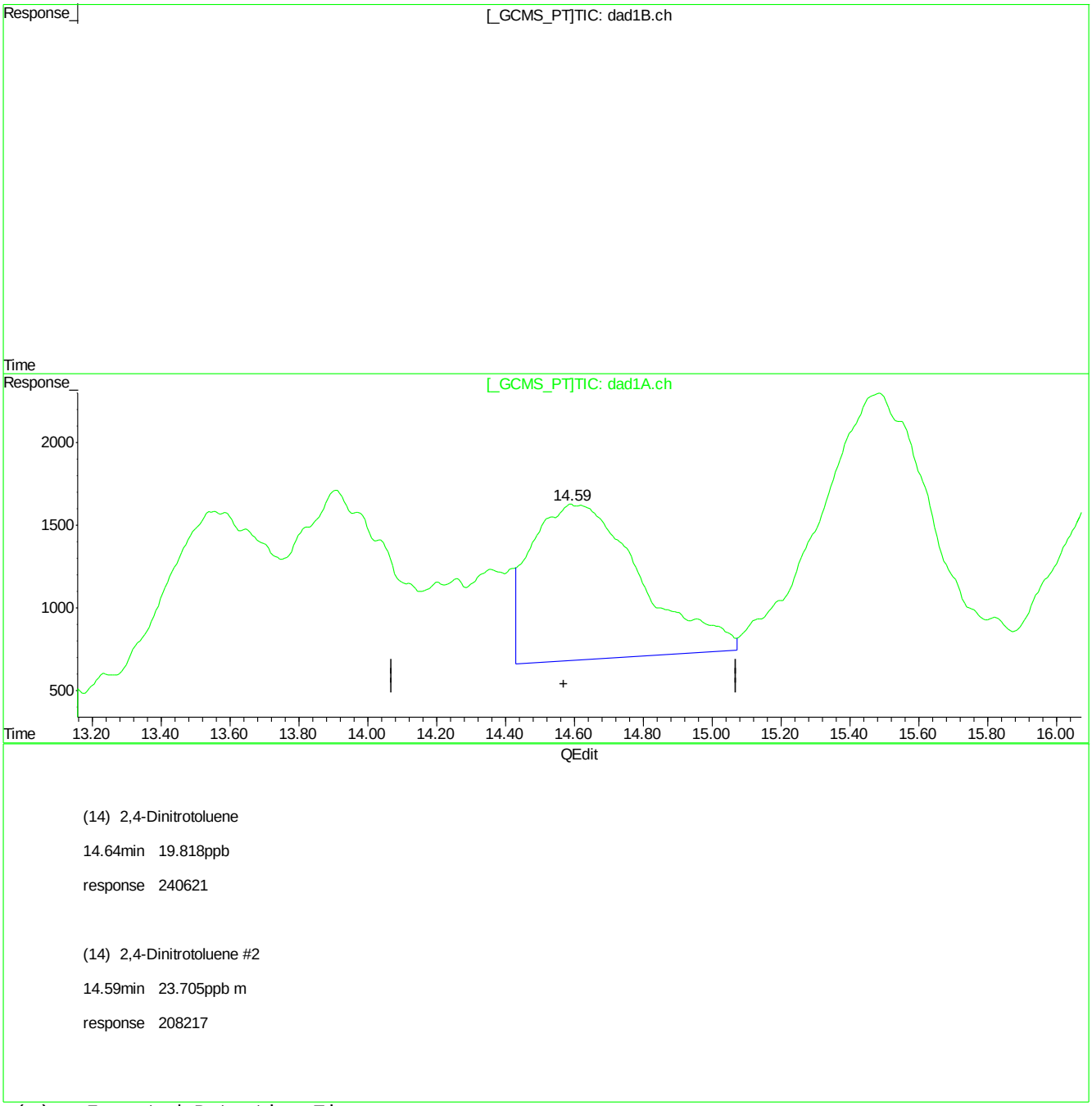
response 203654

(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:17:45 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(14) 2,4-Dinitrotoluene

14.64min 19.818ppb

response 240621

(14) 2,4-Dinitrotoluene #2

14.59min 23.705ppb m

response 208217

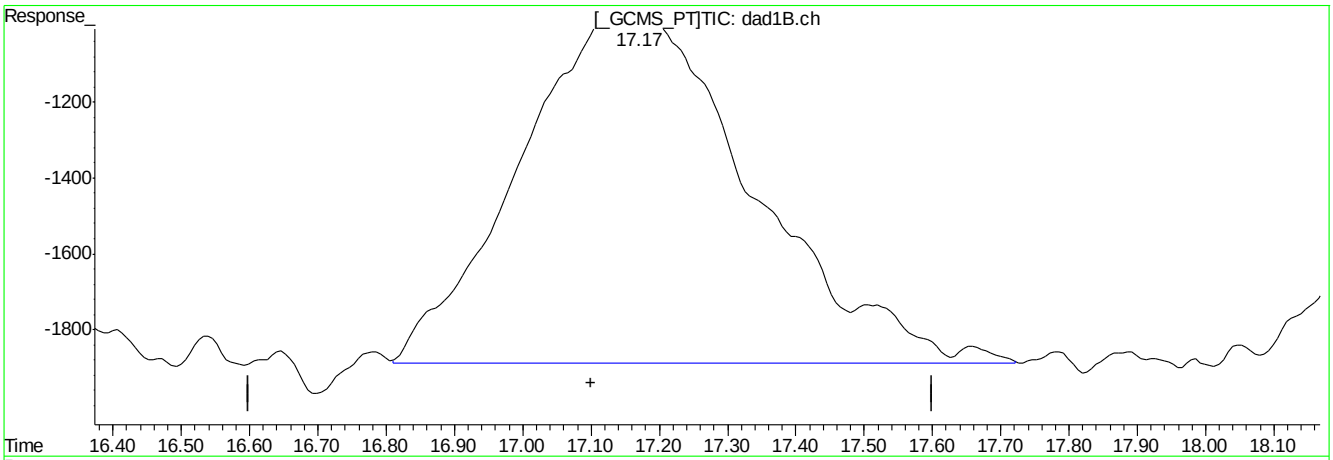
(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:17:52 2019

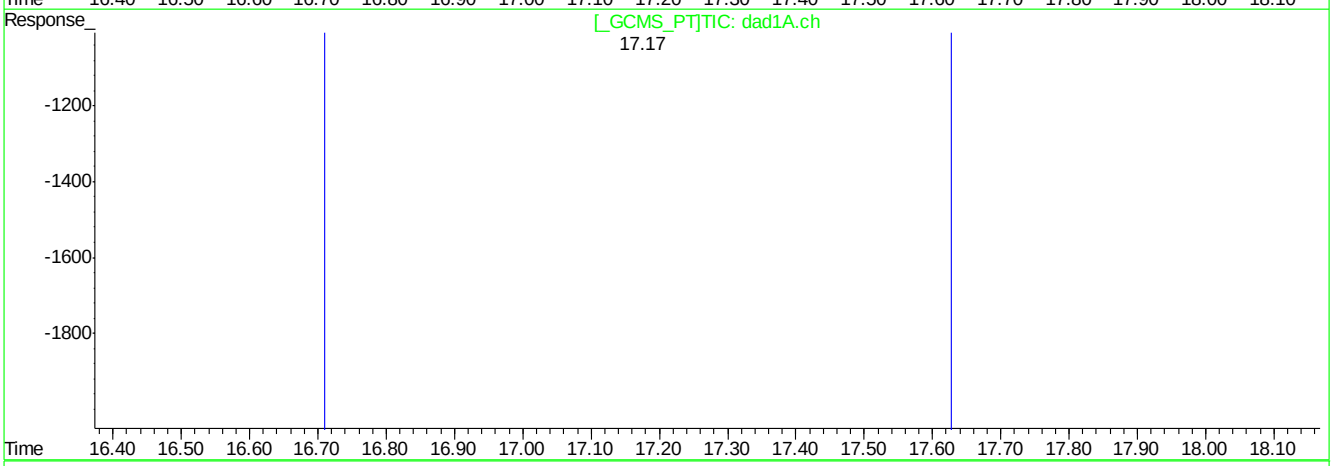
GG617747.D edits: 2,4-Dinitrotoluene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(17) p-Nitrotoluene

17.17min 19.281ppb m

response 219157

(17) p-Nitrotoluene #2

17.17min 27.186ppb

response 564760

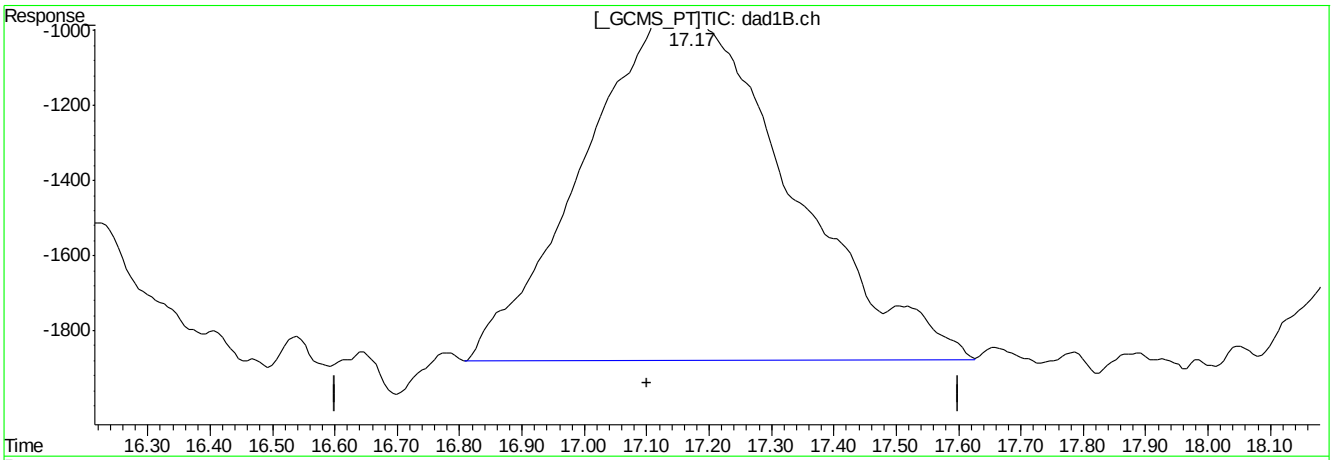
(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:18:05 2019

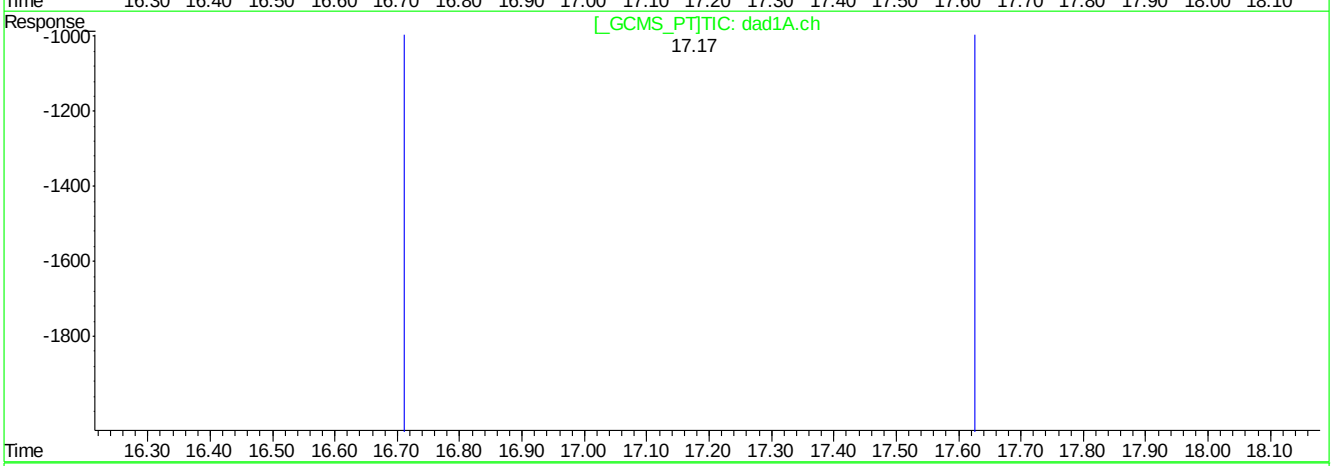
GG617747.D edits: p-Nitrotoluene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(18) 4-Amino-2,6-Dinitrotoluene

17.17min 18.804ppb m

response 213733

(18) 4-Amino-2,6-Dinitrotoluene #2

17.17min 27.184ppb

response 564760

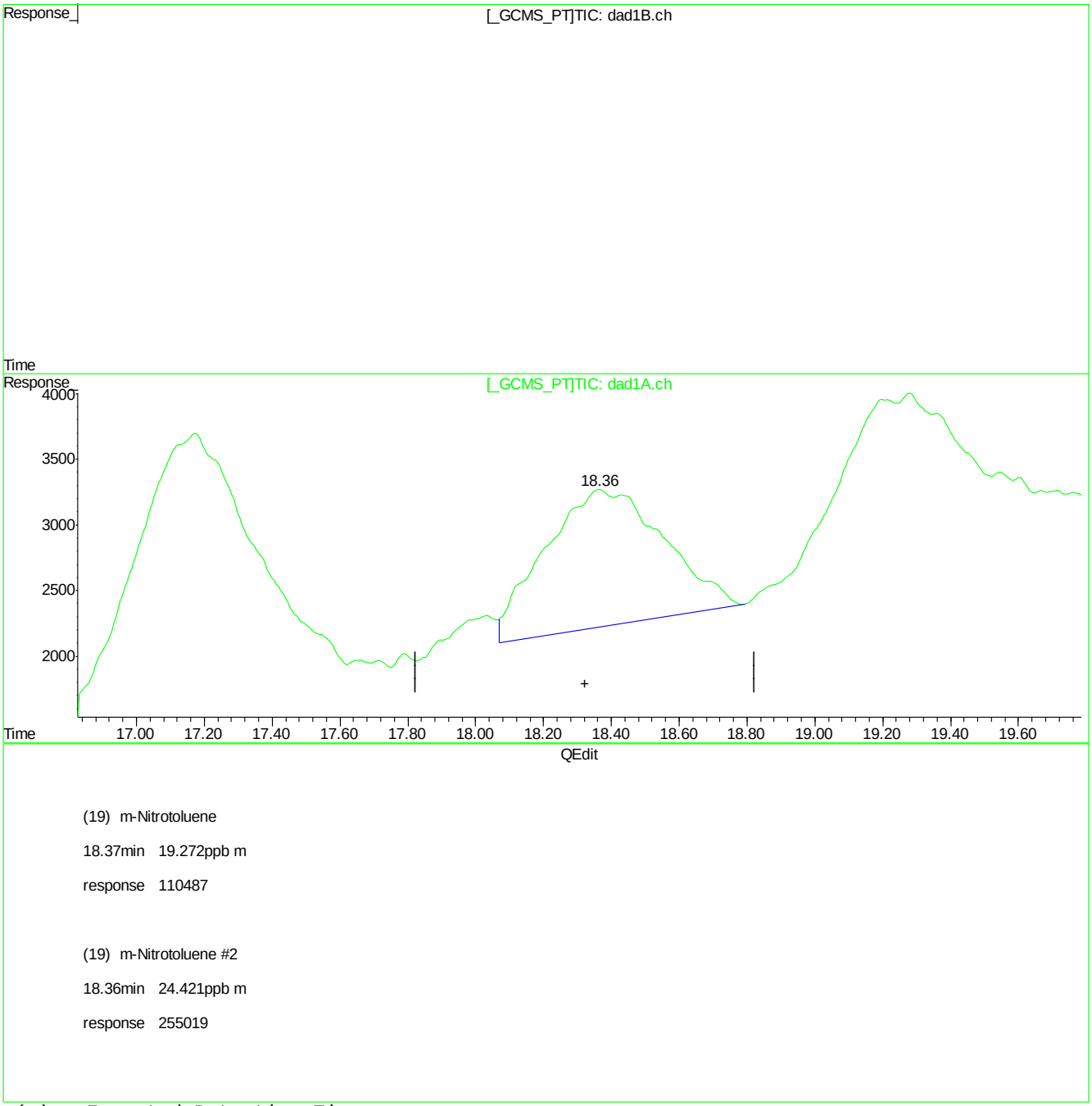
(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:18:12 2019

GG617747.D edits: 4-Amino-2,6-Dinitrotoluene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617747.D\dad1A.ch
Acq On : 25-Sep-2019, 20:30:32 Operator: williamh
Sample : ic2769-20 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(19) m-Nitrotoluene

18.37min 19.272ppb m

response 110487

(19) m-Nitrotoluene #2

18.36min 24.421ppb m

response 255019

(+) = Expected Retention Time
GG617747.D 8330RPB.M_092519.M Thu Sep 26 11:18:24 2019

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
09/26/19 16:28

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12:34 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.55	13.52	216587	343039	41.601	33.928m
	Spiked Amount 500.000	Range 70 - 136		Recovery =		8.32%#	6.79%#
	Target Compounds						
1)	TNX	4.96	4.96	283262	285743	49.866m	50.196m
2)	HMX	5.41	5.41	124790	130111	33.819m	35.307m
3)	DNX	5.48	5.48	210608	209215	38.829m	39.007m
4)	MNX	6.32	6.32	221441	221012	37.947m	37.875m
5)	1,3,5-Trinitrobe	7.14	7.14	483501	483501	50.816	50.968
6)	RDX	7.56	7.56	239398	239398	51.793	52.174
7)	1,3-Dinitrobenze	9.50	9.50	670221	555145	50.061m	54.739m
8)	Nitrobenzene	10.42	10.41	424717	468190	50.067	55.327m
9)	2,4,6-Trinitroto	11.03	11.03	466855	628341	50.186	52.723m
10)	Nitroglycerin	0.00	0.00	0	0	N.D.	N.D. d
11)	Tetryl	12.13	12.12	342824	541733	49.699	41.127m
13)	2,6-Dinitrotolue	13.89	13.87	329483	542159	52.677	57.034
14)	2,4-Dinitrotolue	14.58	14.60	571403	460842	47.062	52.465
15)	o-Nitrotoluene	16.06	16.06	227215	397827	40.609	39.455
16)	3,5-Dinitroanili	15.46	15.46	469052	839109	43.124	44.407
17)	p-Nitrotoluene	17.08	17.09	518543	1060606	45.620	51.055m
18)	4-Amino-2,6-Dini	17.08	17.09	518543	963679	45.620	46.386m
19)	m-Nitrotoluene	18.31	18.31	254437	395224	44.382	37.847m
20)	2-Amino-4,6-Dini	19.17	19.19	390617	670153	45.277	53.984
21)	PETN	0.00	20.26	0	223792	N.D.	88.985 #

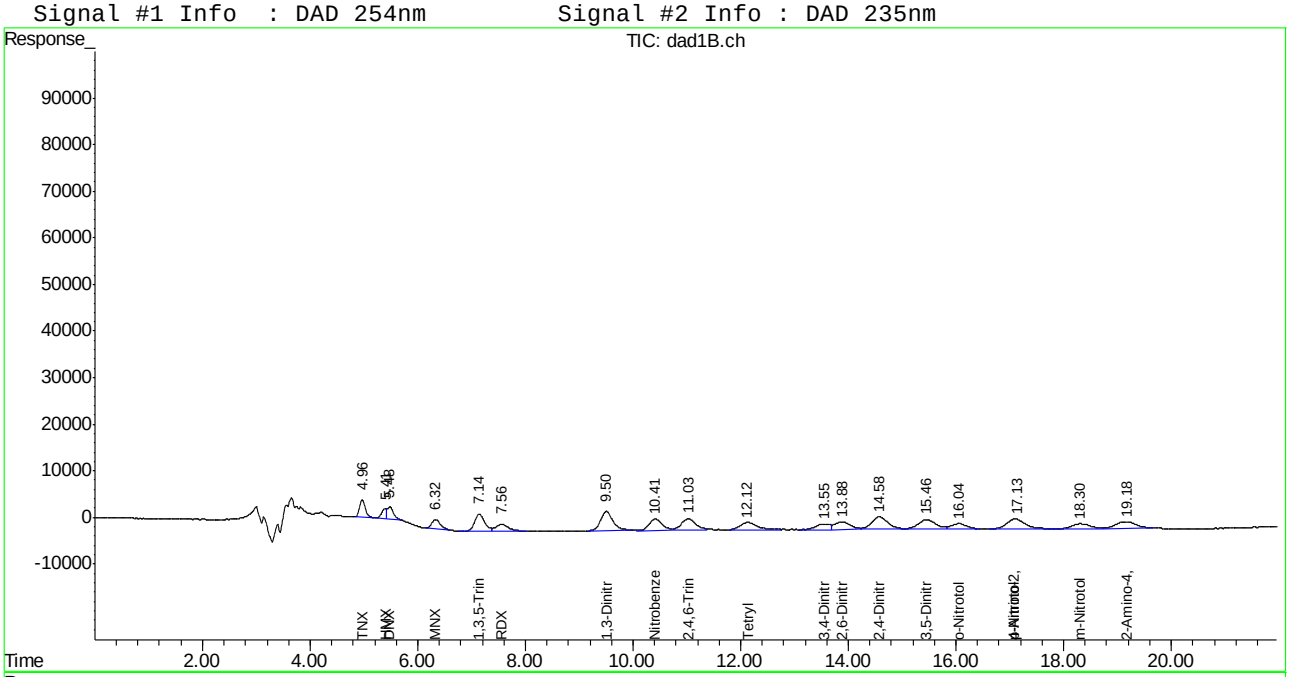
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

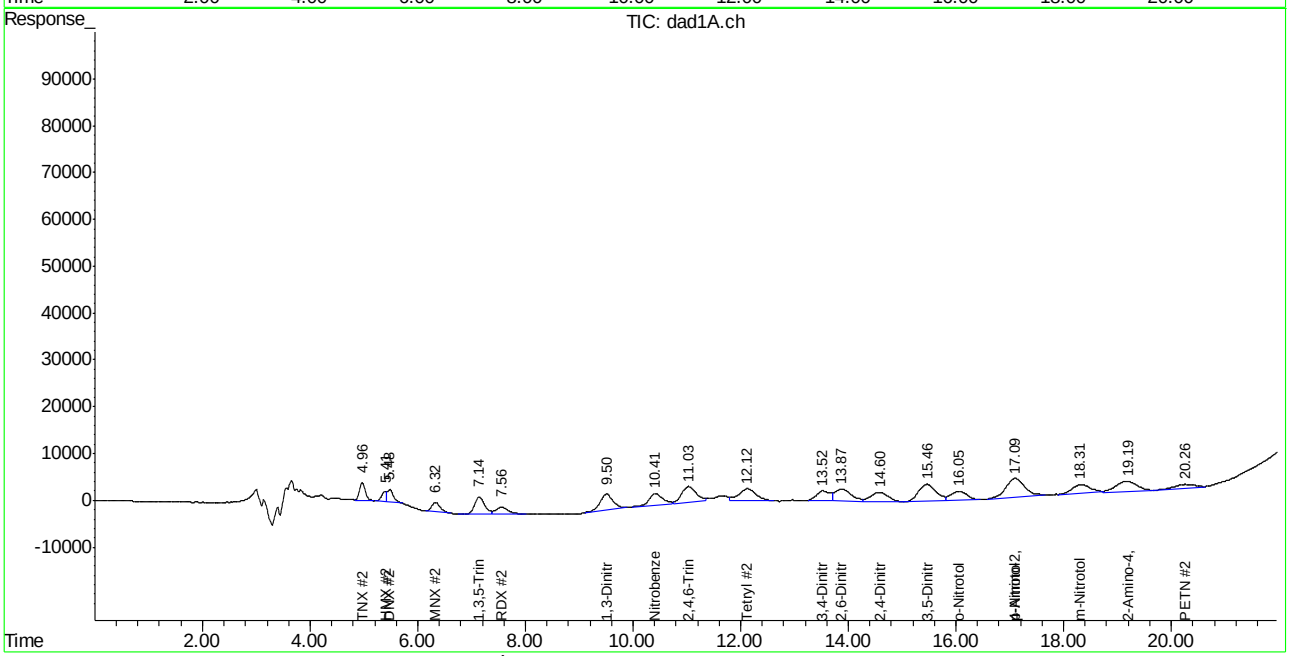
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:36 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

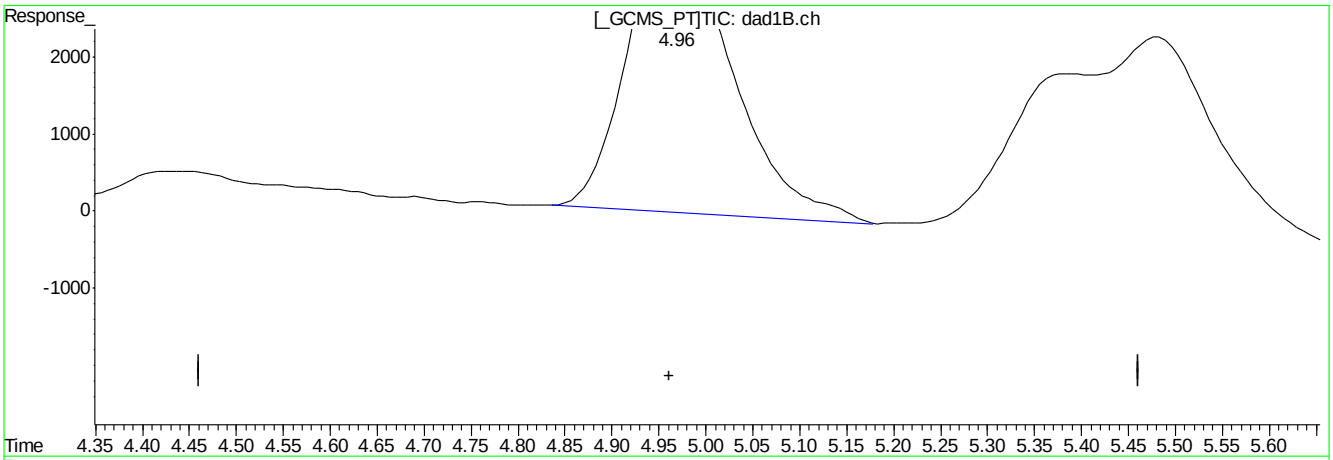
Sample Number: GGG2769-IC2769
Lab FileID: GG617748.D
Injection Time: 09/25/19 20:59
Method: SW846 8330B
Analyst approved: 09/26/19 16:07 William Hustedde
Supervisor approved: 09/26/19 16:28 Naresh Jiawan

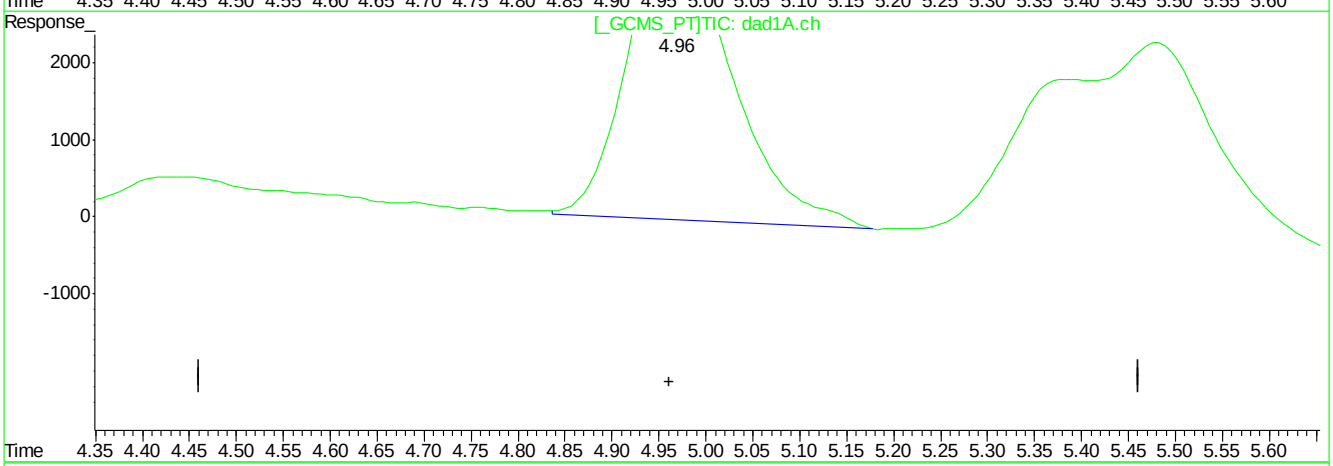
Parameter	CAS	Sig#	R.T. (min.)	Reason
TNX		1	4.96	Poor instrument integration
TNX		2	4.96	Poor instrument integration
HMX	2691-41-0	1	5.41	Poor instrument integration
HMX	2691-41-0	2	5.41	Poor instrument integration
DNX		1	5.48	Poor instrument integration
DNX		2	5.48	Poor instrument integration
MNX		1	6.32	Poor instrument integration
MNX		2	6.32	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	1	9.50	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	9.50	Poor instrument integration
Nitrobenzene	98-95-3	2	10.41	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	2	11.03	Poor instrument integration
Tetryl	479-45-8	2	12.12	Poor instrument integration
3,4-Dinitrotoluene	610-39-9	2	13.52	Poor instrument integration
4-amino-2,6-Dinitrotoluene	19406-51-0	2	17.09	Poor instrument integration
p-Nitrotoluene	99-99-0	2	17.09	Poor instrument integration
m-Nitrotoluene	99-08-1	2	18.31	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(1) TNX

4.96min 49.866ppb m

response 283262

(1) TNX #2

4.96min 50.196ppb m

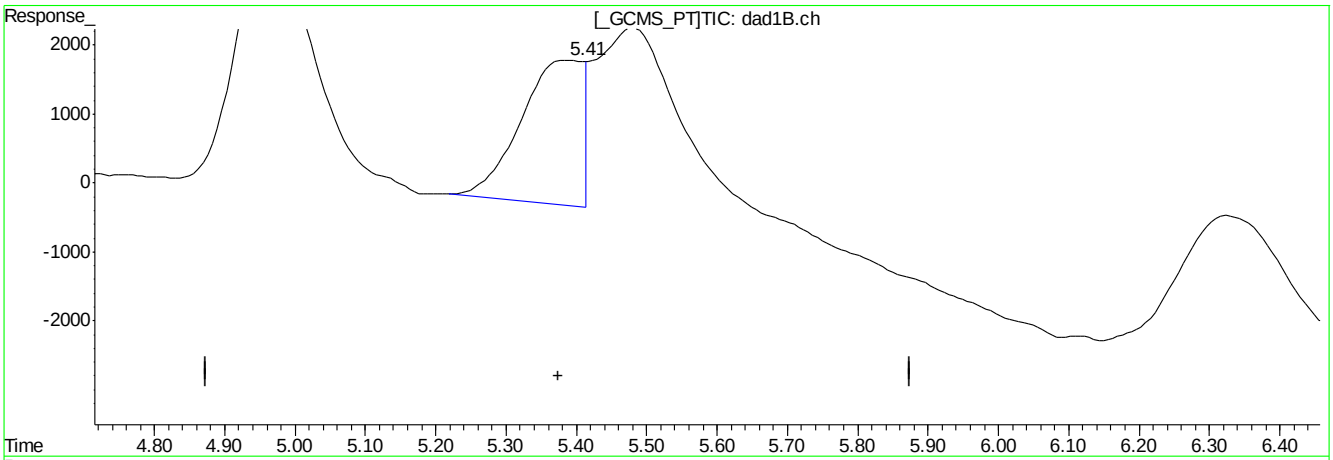
response 285743

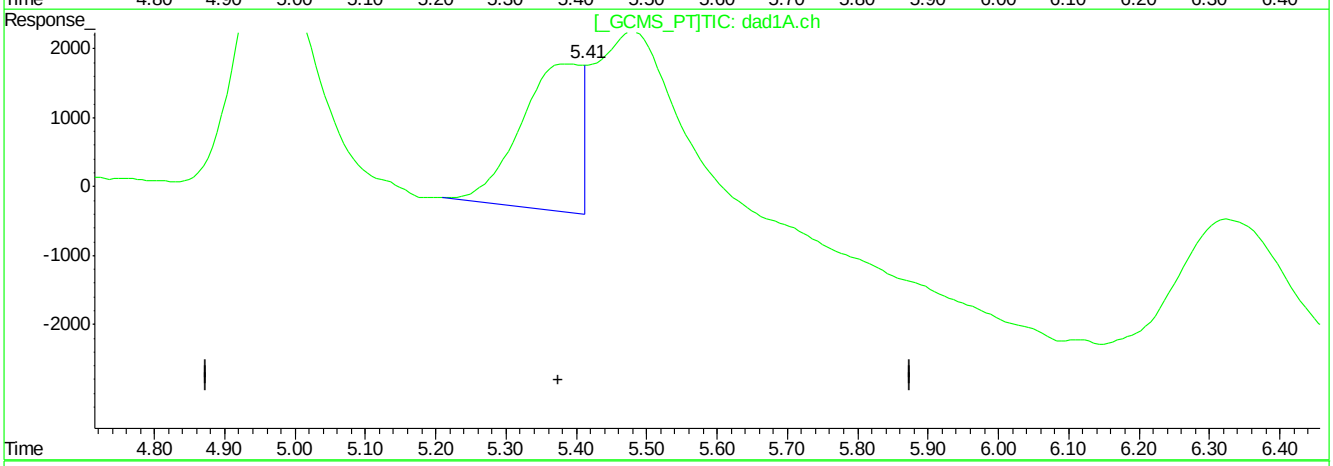
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:18:44 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.41min 33.819ppb m

response 124790

(2) HMX #2

5.41min 35.307ppb m

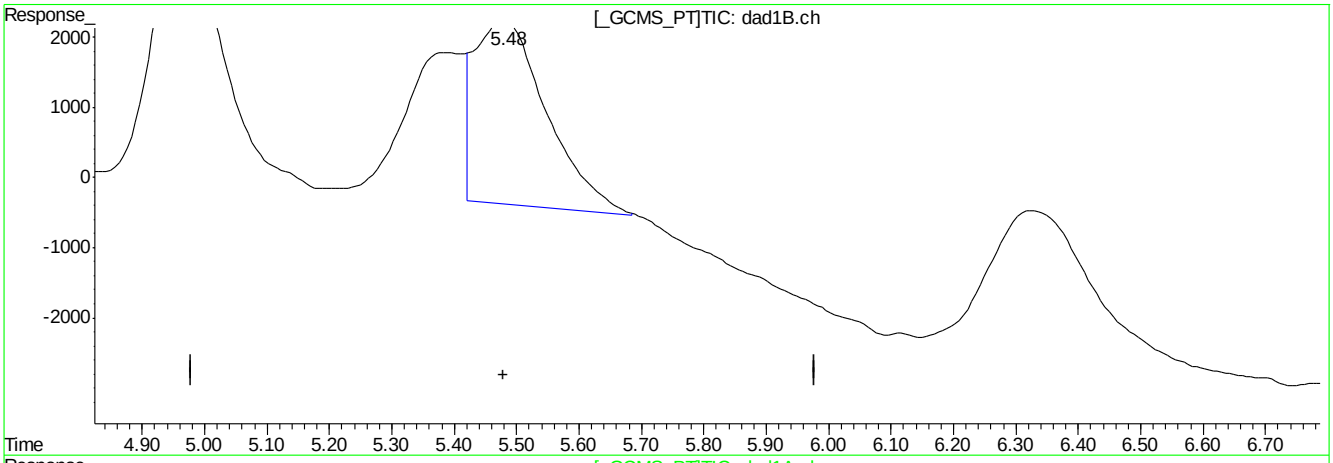
response 130111

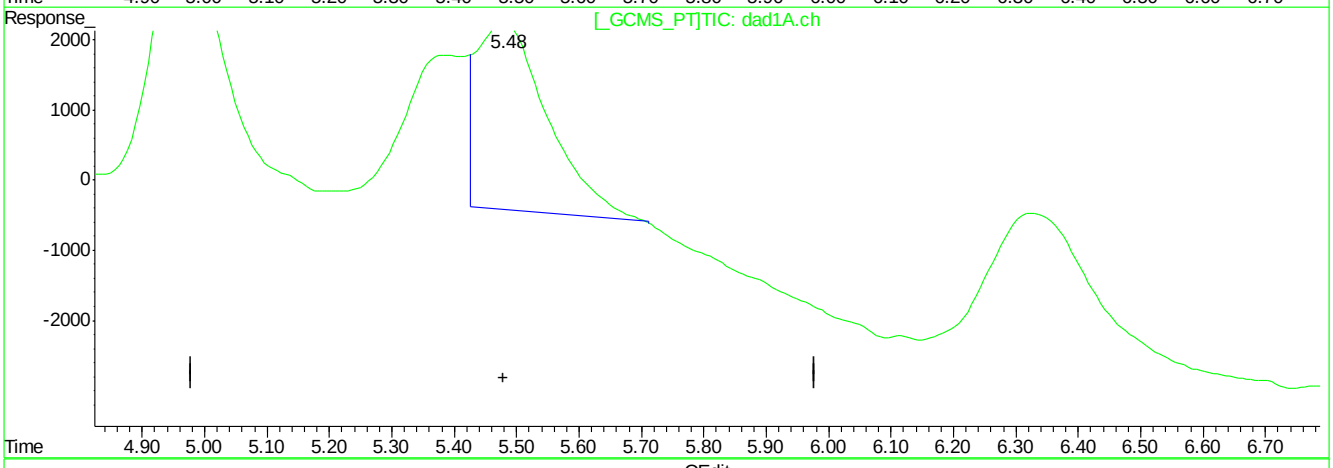
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:18:54 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(3) DNX

5.48min 38.829ppb m

response 210608

(3) DNX #2

5.48min 39.007ppb m

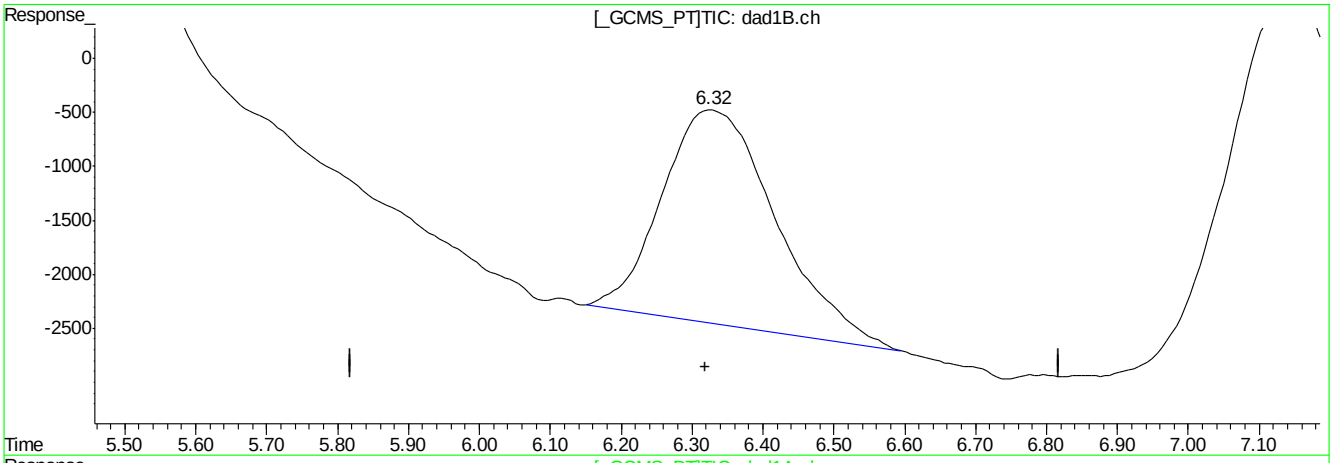
response 209215

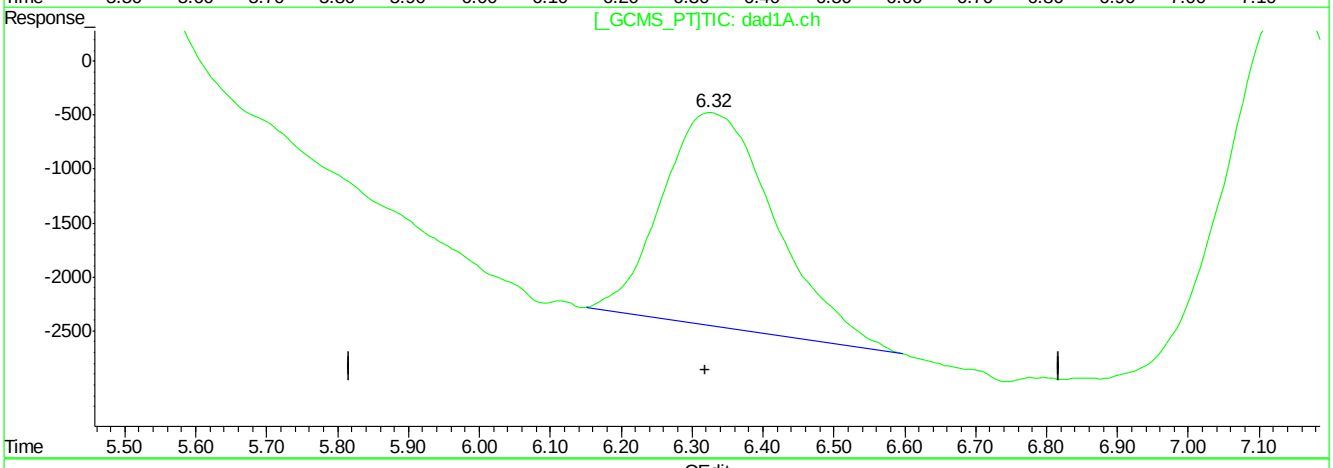
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:19:05 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(4) MNX

6.32min 37.947ppb m

response 221441

(4) MNX #2

6.32min 37.875ppb m

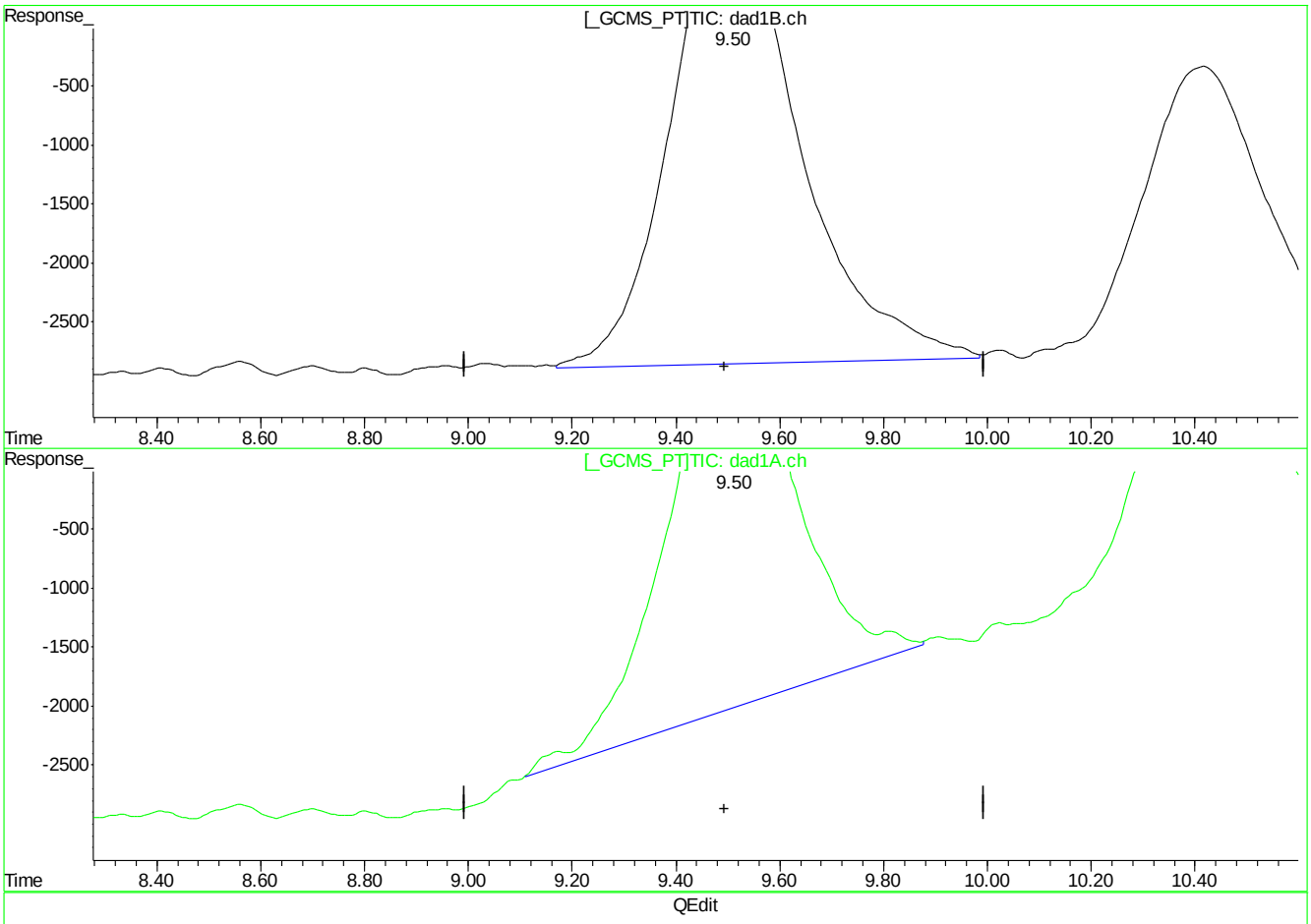
response 221012

(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:19:14 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(7) 1,3-Dinitrobenzene

9.50min 50.061ppb m

response 670221

(7) 1,3-Dinitrobenzene #2

9.50min 54.739ppb m

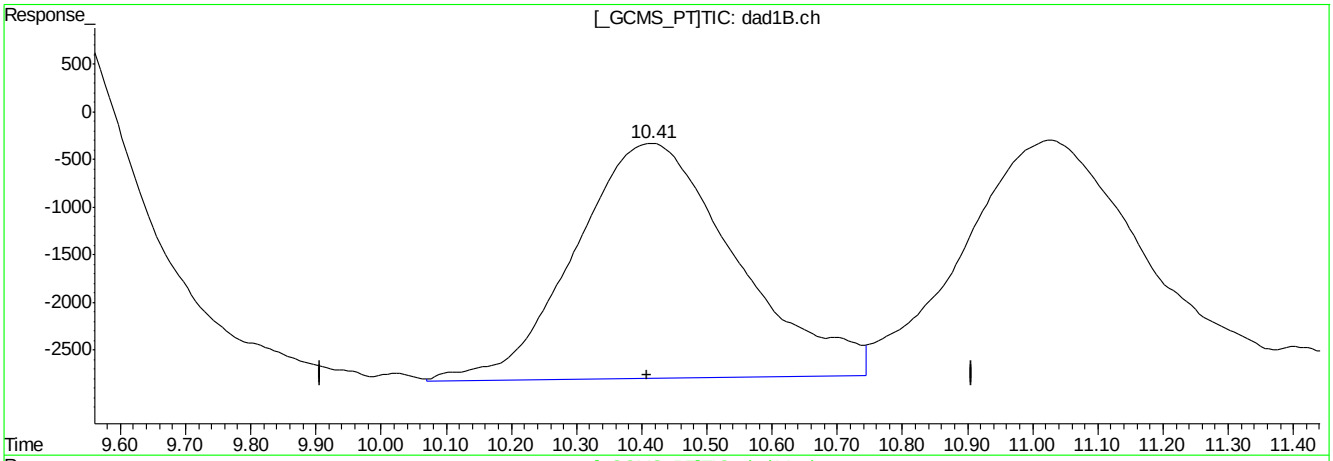
response 555145

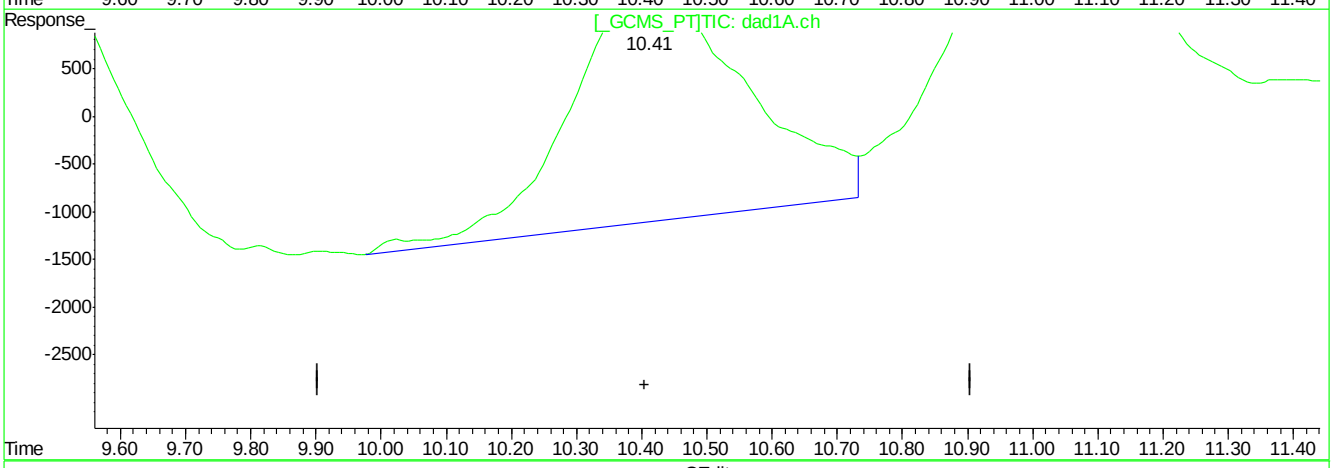
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:19:32 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(8) Nitrobenzene

10.42min 50.067ppb

response 424717

(8) Nitrobenzene #2

10.41min 55.327ppb m

response 468190

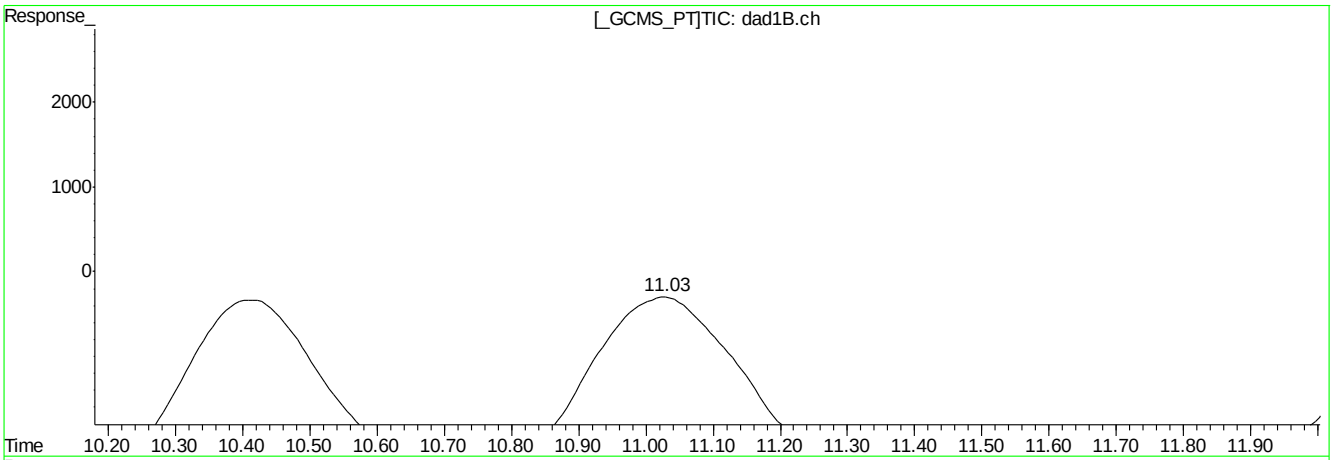
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:19:43 2019

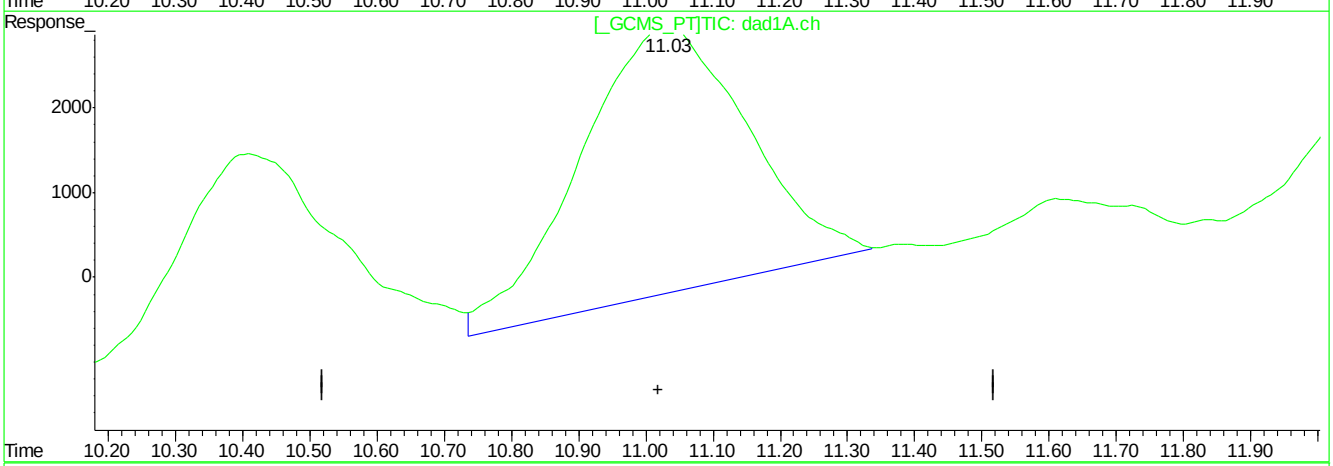
GG617748.D edits: Nitrobenzene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.03min 50.186ppb

response 466855

(9) 2,4,6-Trinitrotoluene #2

11.03min 45.774ppb m

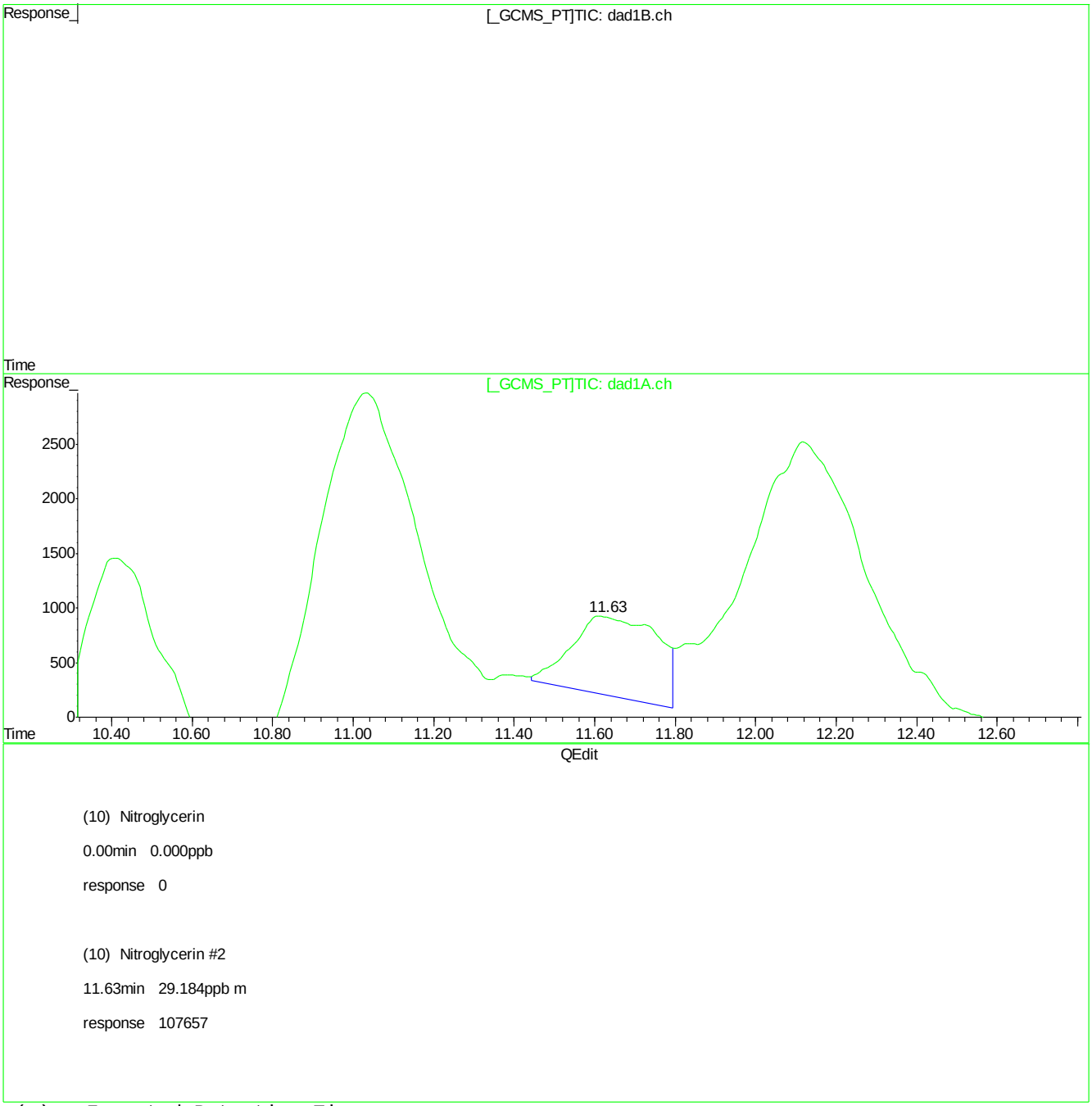
response 545525

(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:19:51 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration

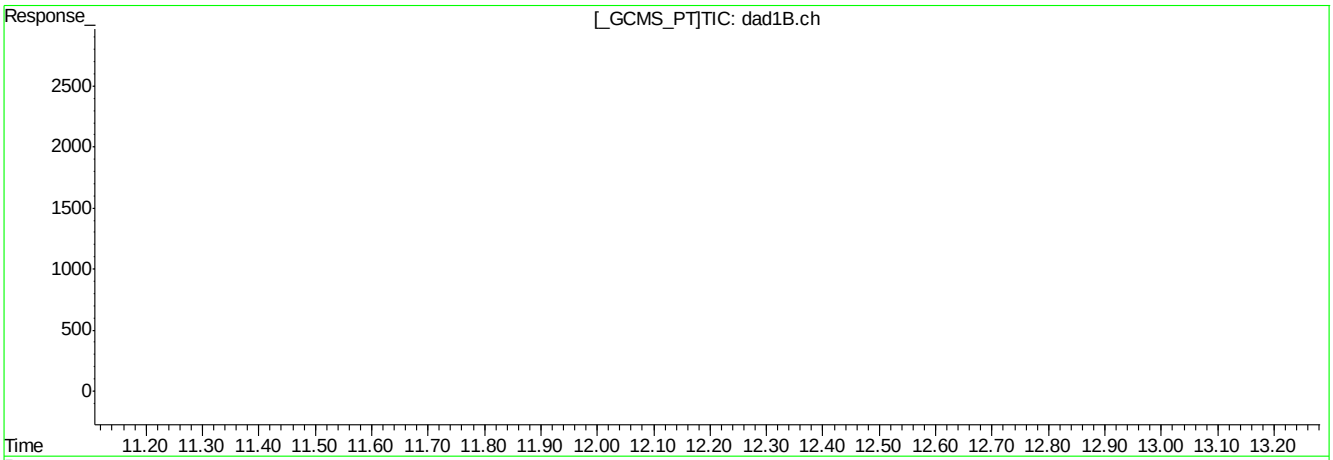


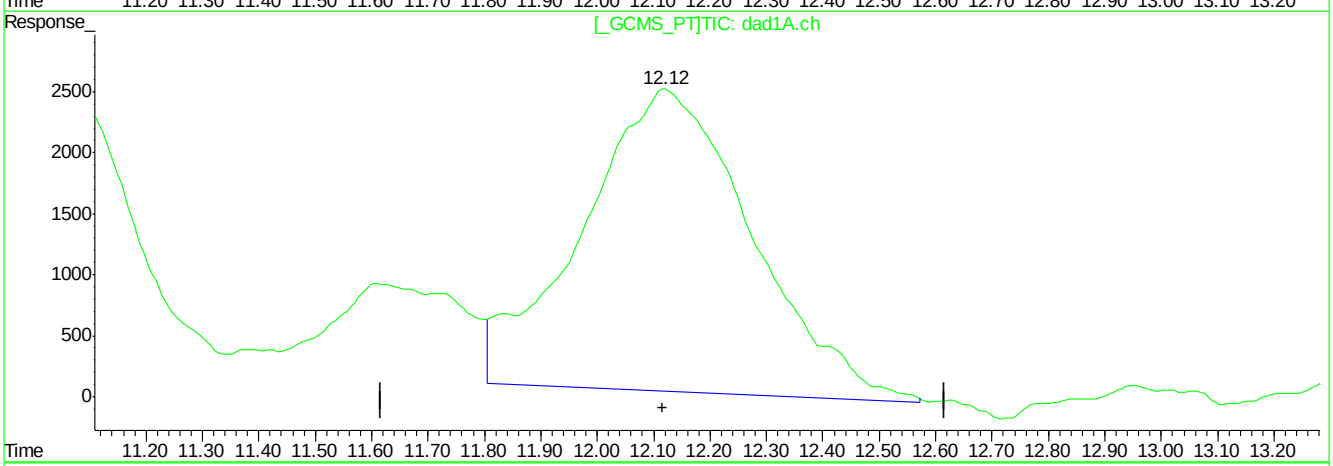
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:20:00 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(11) Tetryl

12.13min 49.699ppb

response 342824

(11) Tetryl #2

12.12min 39.278ppb m

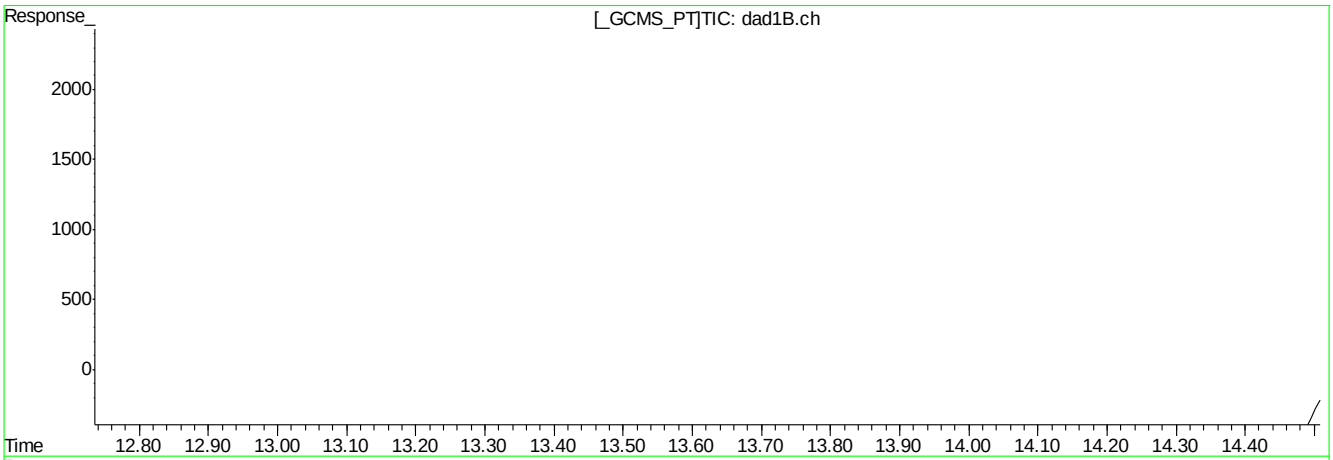
response 517408

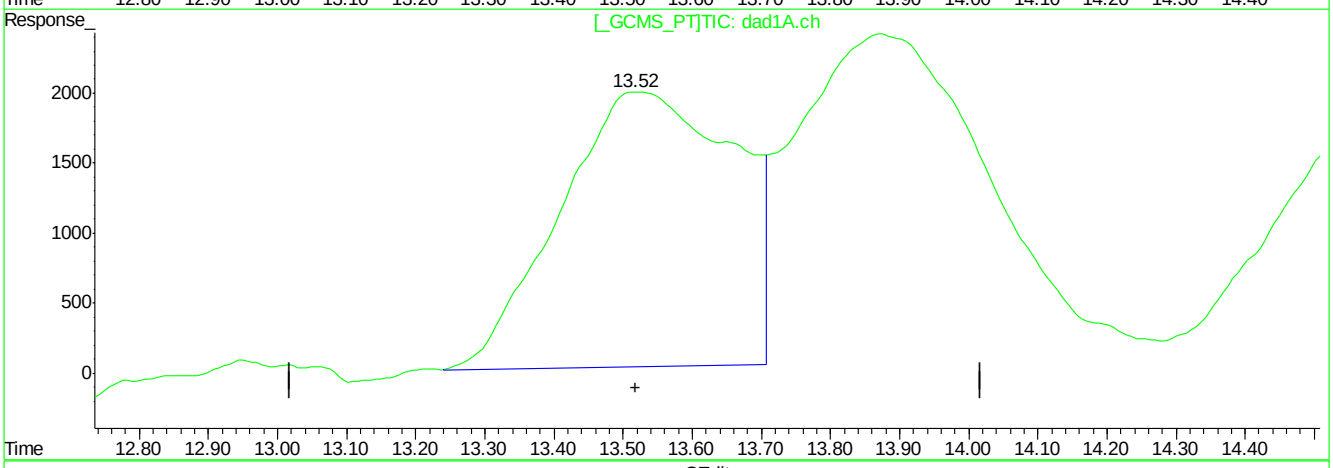
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:20:10 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(12) 3,4-Dinitrotoluene (S)

13.55min 41.601ppb

response 216587

(12) 3,4-Dinitrotoluene #2 (S)

13.52min 33.928ppb m

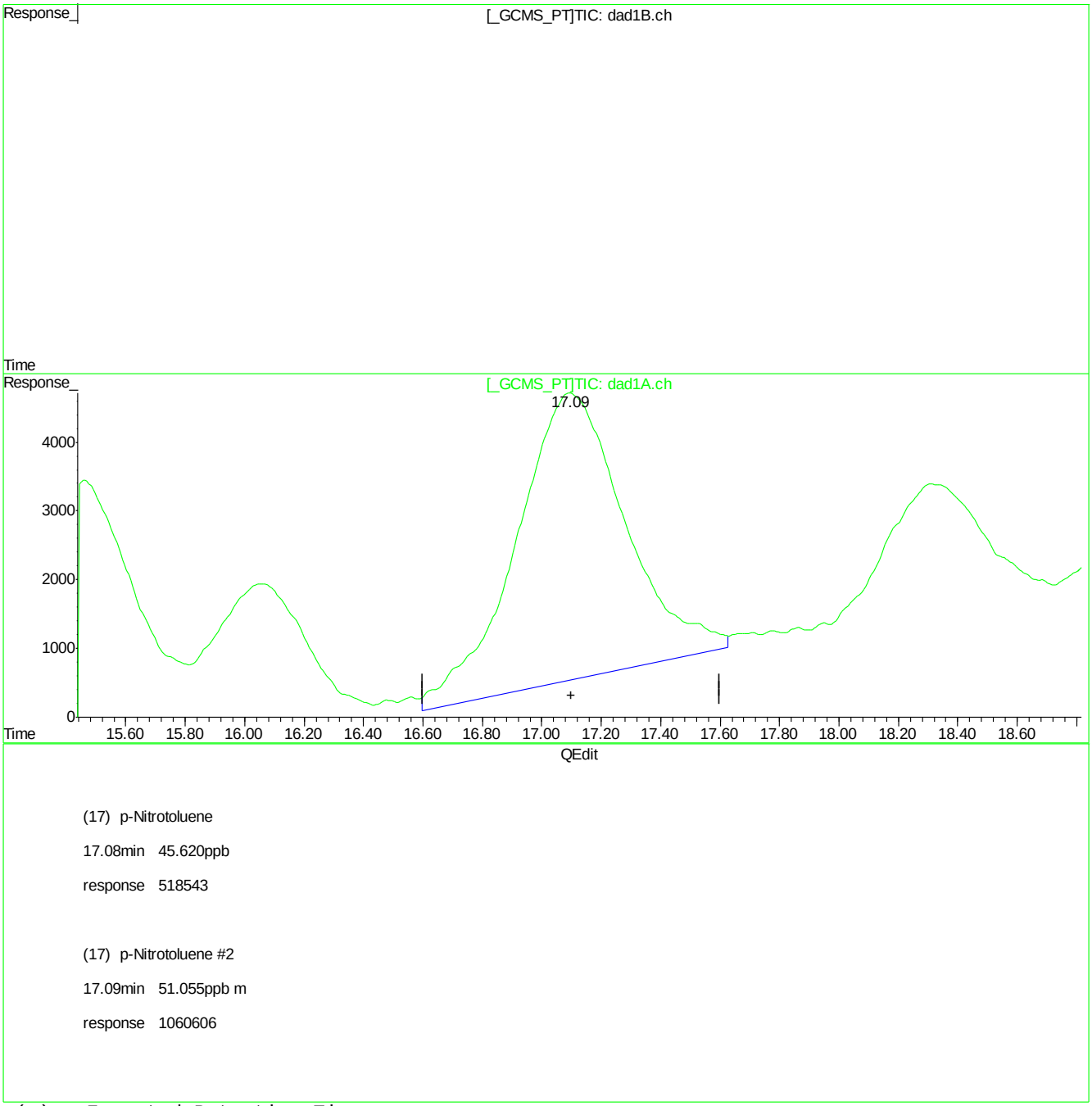
response 343039

(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:20:19 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(17) p-Nitrotoluene

17.08min 45.620ppb

response 518543

(17) p-Nitrotoluene #2

17.09min 51.055ppb m

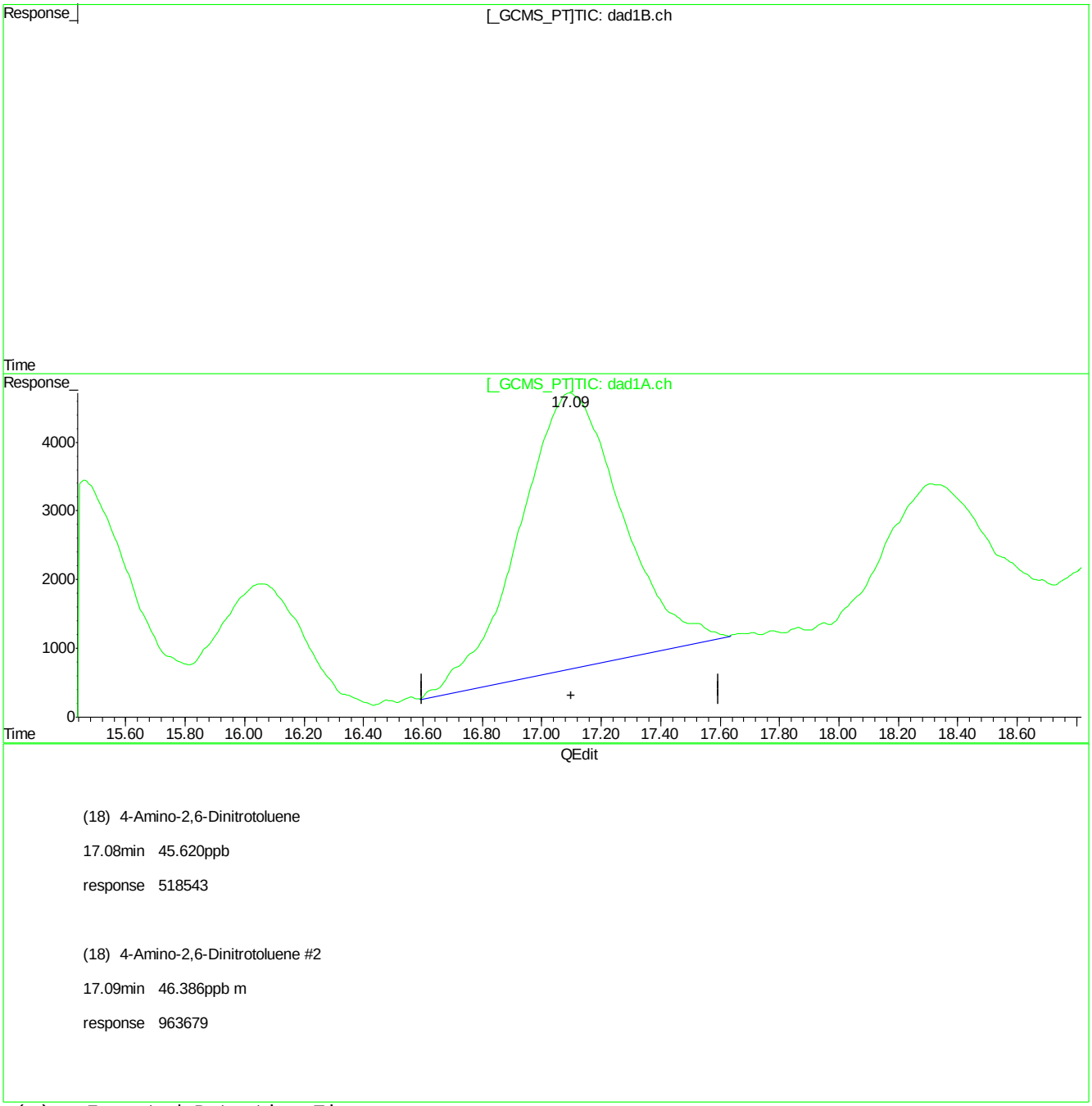
response 1060606

(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:20:39 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(18) 4-Amino-2,6-Dinitrotoluene

17.08min 45.620ppb

response 518543

(18) 4-Amino-2,6-Dinitrotoluene #2

17.09min 46.386ppb m

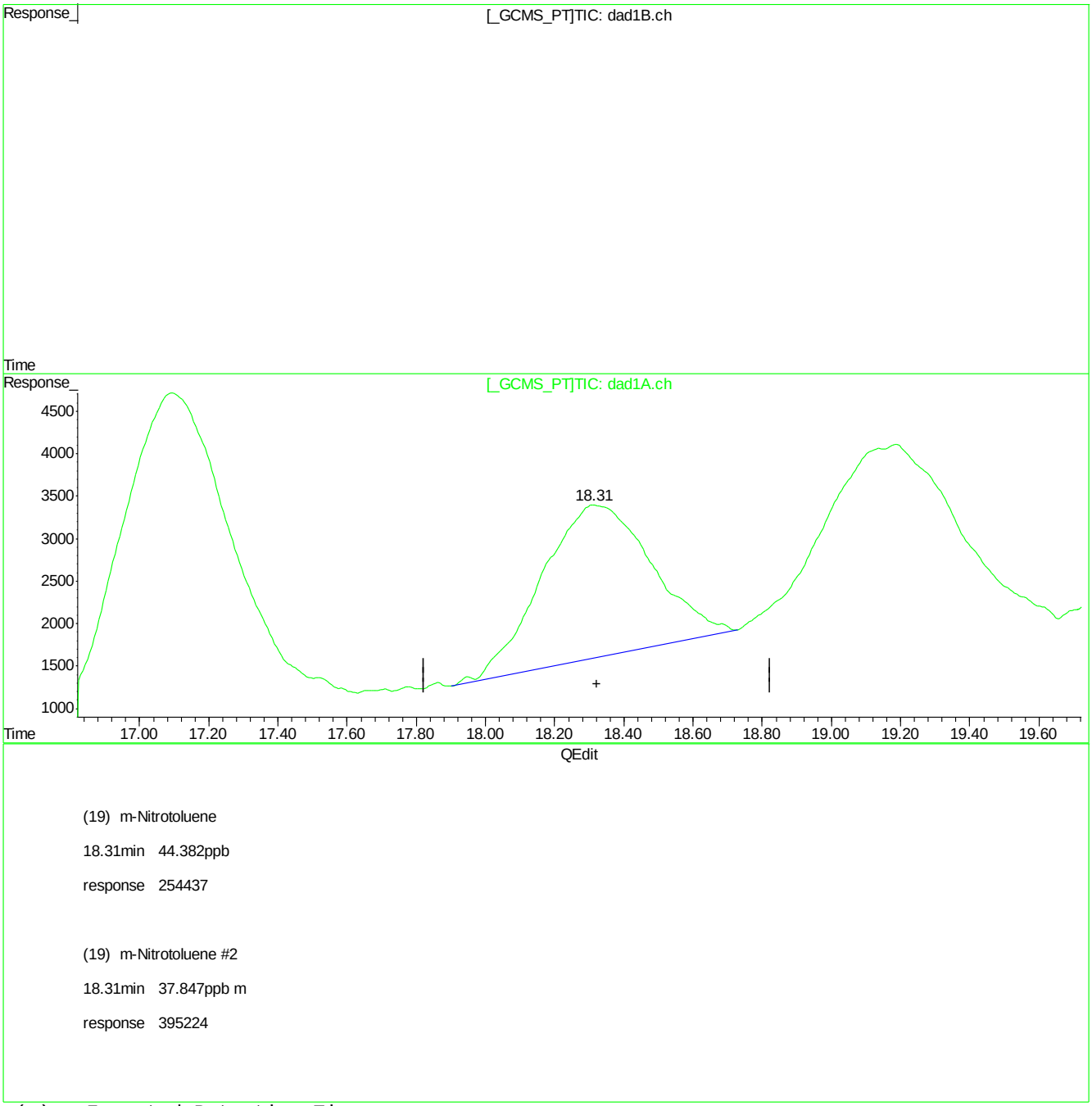
response 963679

(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:20:51 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(19) m-Nitrotoluene

18.31min 44.382ppb

response 254437

(19) m-Nitrotoluene #2

18.31min 37.847ppb m

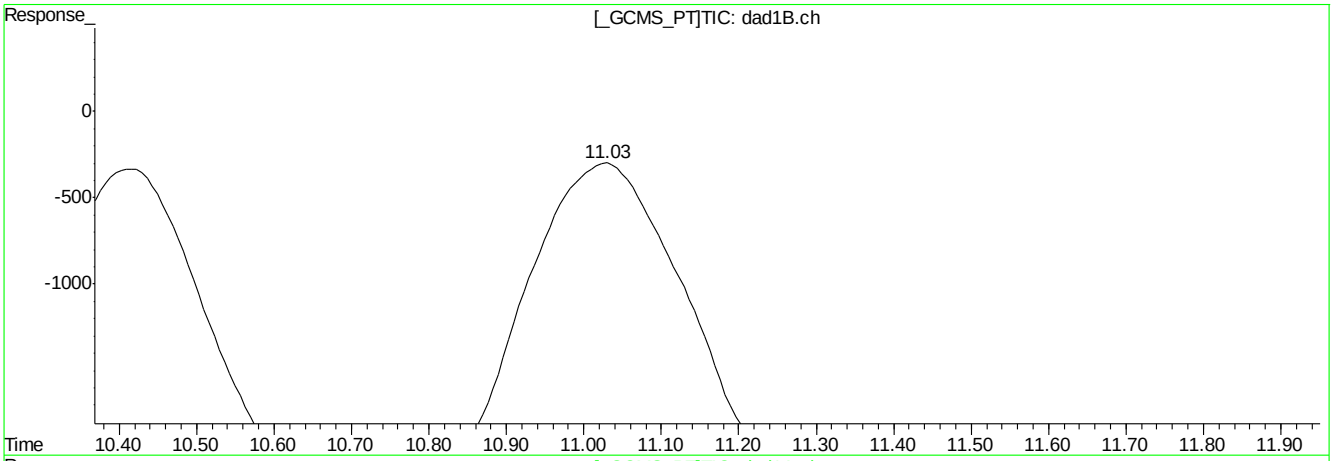
response 395224

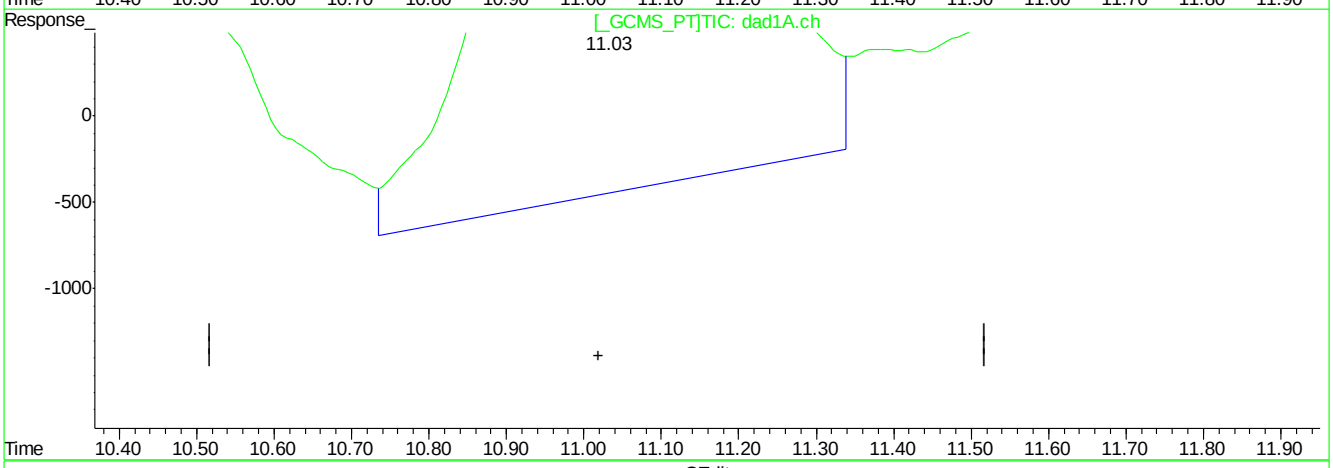
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:20:58 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:20 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.03min 50.186ppb

response 466855

(9) 2,4,6-Trinitrotoluene #2

11.03min 53.838ppb m

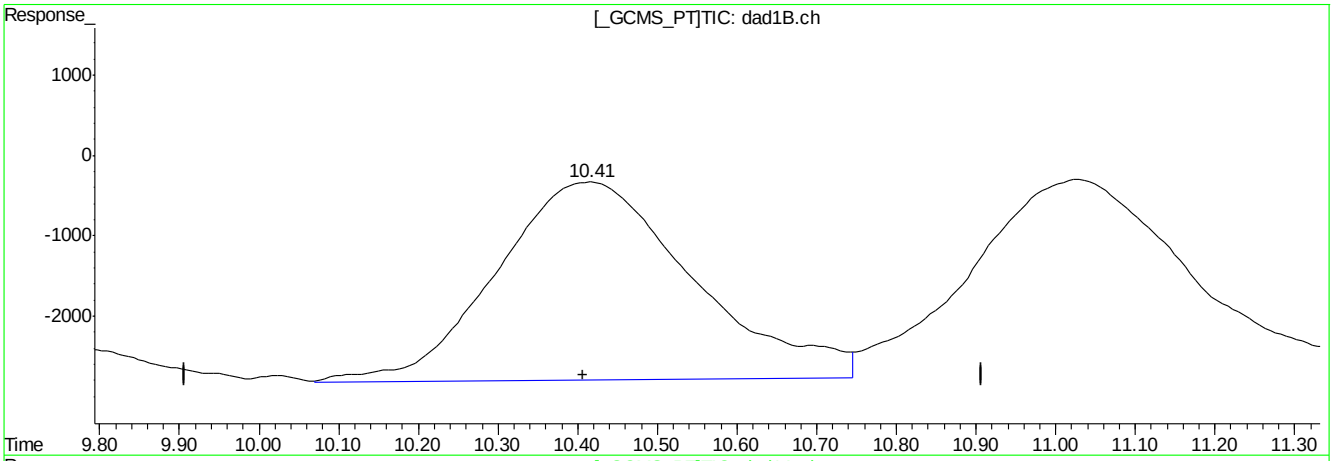
response 641631

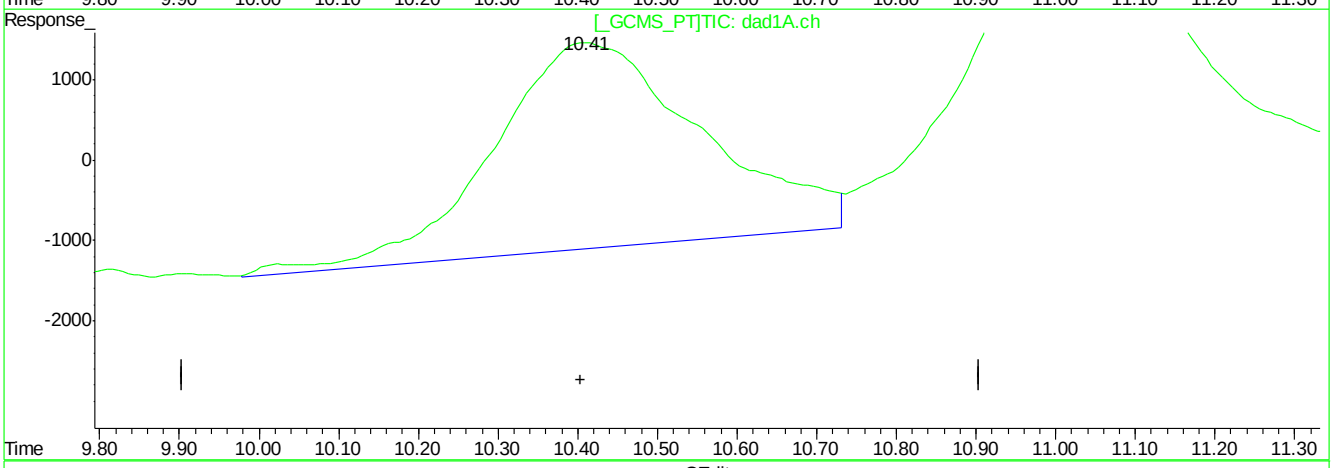
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:35:48 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:20 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(8) Nitrobenzene

10.42min 50.067ppb

response 424717

(8) Nitrobenzene #2

10.41min 55.327ppb m

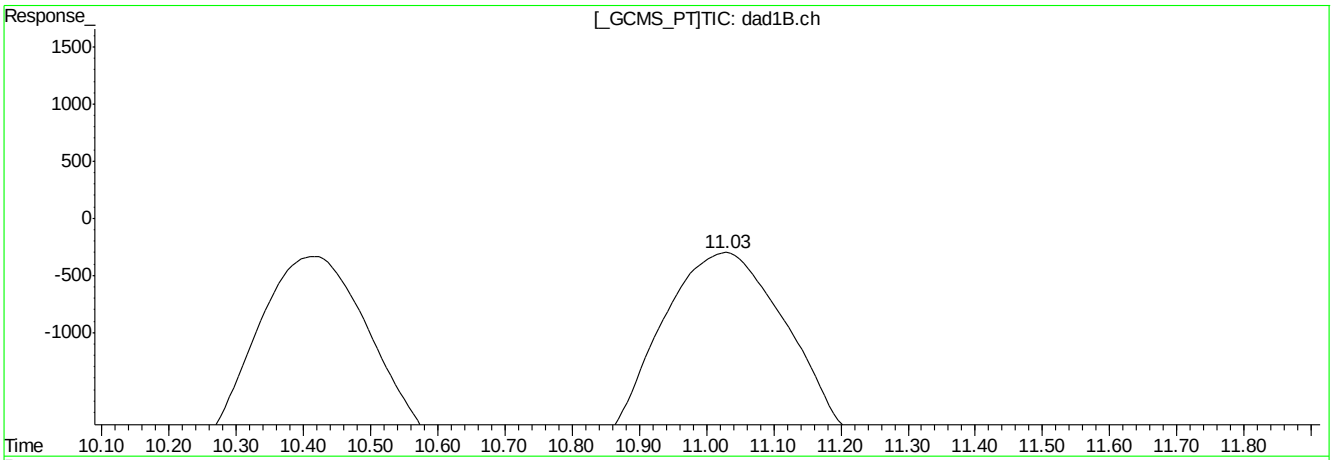
response 468190

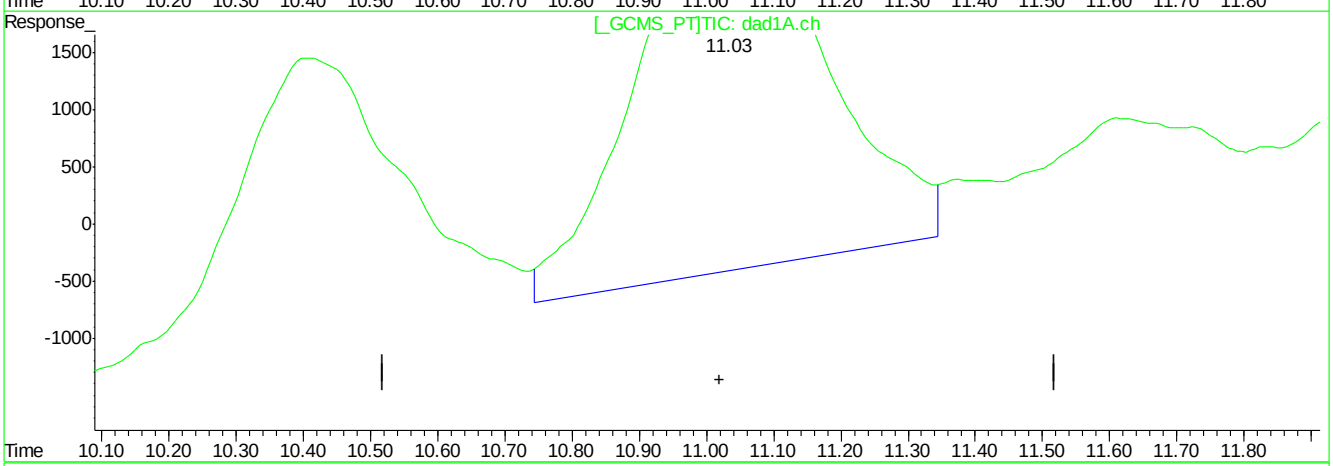
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:35:52 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:20 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.03min 50.186ppb

response 466855

(9) 2,4,6-Trinitrotoluene #2

11.03min 52.723ppb m

response 628341

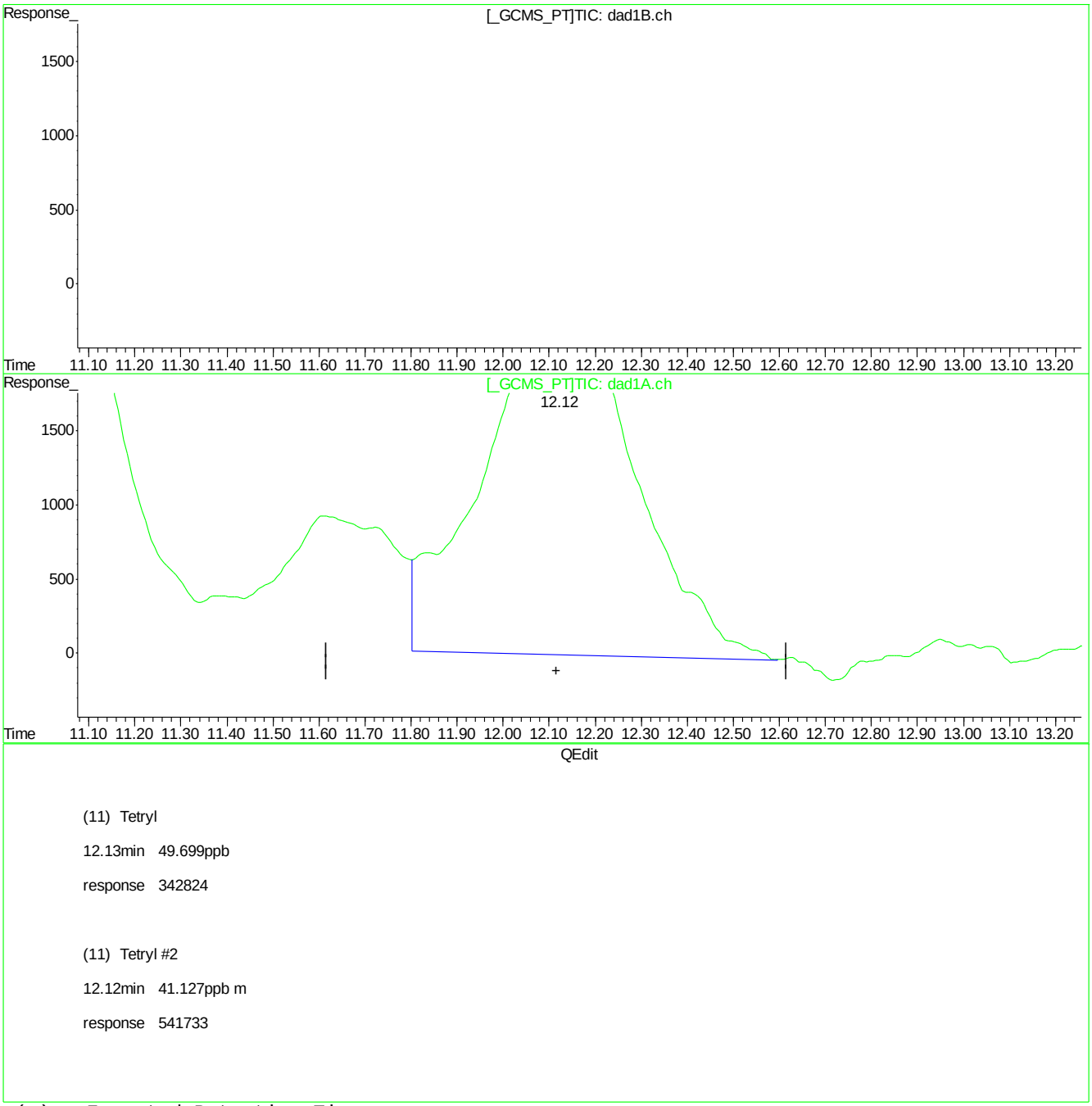
(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:36:06 2019

GG617748.D edits: 2,4,6-Trinitrotoluene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1B.ch Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617748.D\dad1A.ch
Acq On : 25-Sep-2019, 20:59:57 Operator: williamh
Sample : ic2769-50 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:20 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(11) Tetryl

12.13min 49.699ppb

response 342824

(11) Tetryl #2

12.12min 41.127ppb m

response 541733

(+) = Expected Retention Time
GG617748.D 8330RPB.M_092519.M Thu Sep 26 11:36:14 2019

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
09/26/19 16:28

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12:35 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.54	13.54	480959	868537	92.381	85.881
	Spiked Amount 500.000	Range 70 - 136		Recovery =		18.48%#	17.18%#
	Target Compounds						
1)	TNX	4.96	4.96	627331	626725	110.436m	110.096m
2)	HMX	5.39	5.39	303509	306772	82.387m	83.377m
3)	DNX	5.48	5.48	478533	488896	88.393m	91.309m
4)	MNX	6.34	6.34	549848	549848	94.250	94.253
5)	1,3,5-Trinitrobe	7.14	7.14	1068826	1068826	112.334	112.669
6)	RDX	7.55	7.55	513642	513642	111.124	111.941
7)	1,3-Dinitrobenze	9.51	9.51	1496695	1034767	111.794	102.032m
8)	Nitrobenzene	10.42	10.42	939534	842434	110.754	99.633m
9)	2,4,6-Trinitroto	11.03	11.02	1095538	1275868	117.768	107.055m
10)	Nitroglycerin	0.00	11.66	0	376622	N.D.	102.113m#
11)	Tetryl	12.13	12.11	864235	1444030	125.289	109.804m
13)	2,6-Dinitrotolue	13.89	13.88	767928	1205926	122.774	126.901
14)	2,4-Dinitrotolue	14.58	14.56	1329488	796655	109.499	90.696
15)	o-Nitrotoluene	16.05	16.05	641941	843998	114.731	83.704
16)	3,5-Dinitroanili	15.44	15.45	1099231	1615264	101.063	85.482
17)	p-Nitrotoluene	17.09	17.09	1221156	2192222	107.434	105.529
18)	4-Amino-2,6-Dini	17.09	17.09	1221156	2192222	107.434	105.521
19)	m-Nitrotoluene	18.30	18.31	632999	1070219	110.414	102.486
20)	2-Amino-4,6-Dini	19.13	19.14	1024160	1389255	118.711	111.911
21)	PETN	0.00	20.29	0	233935	N.D.	93.016 #

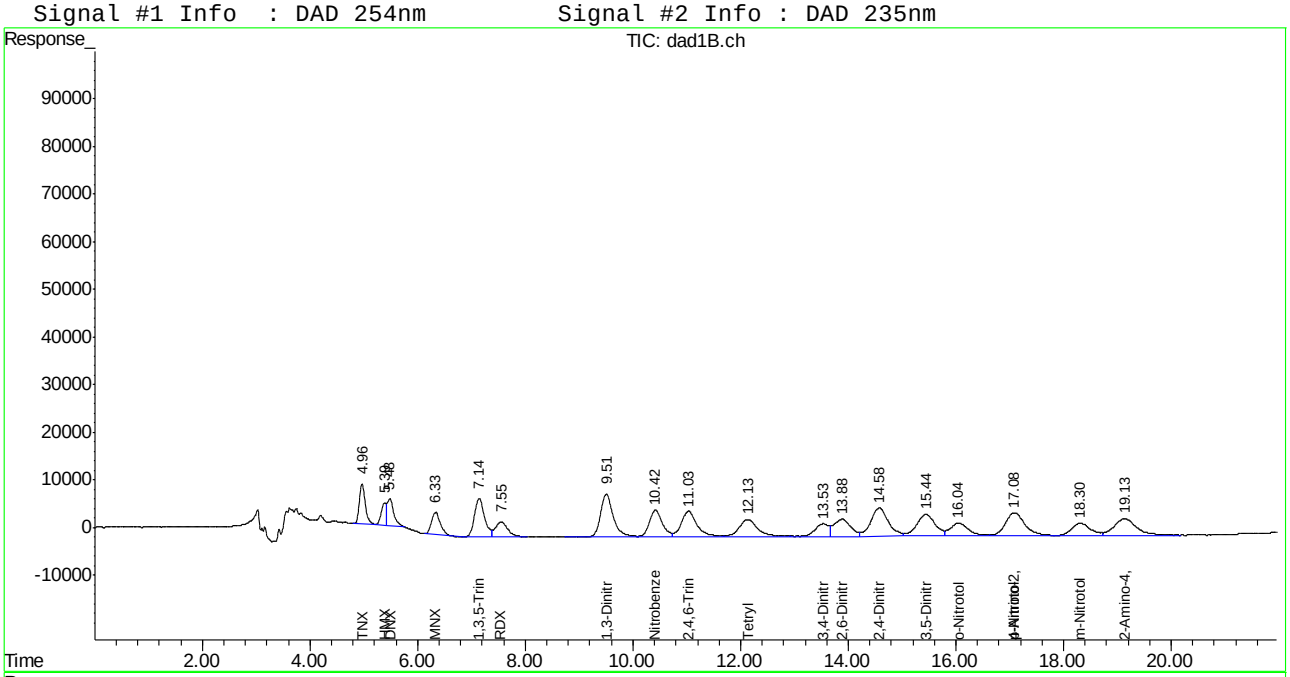
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

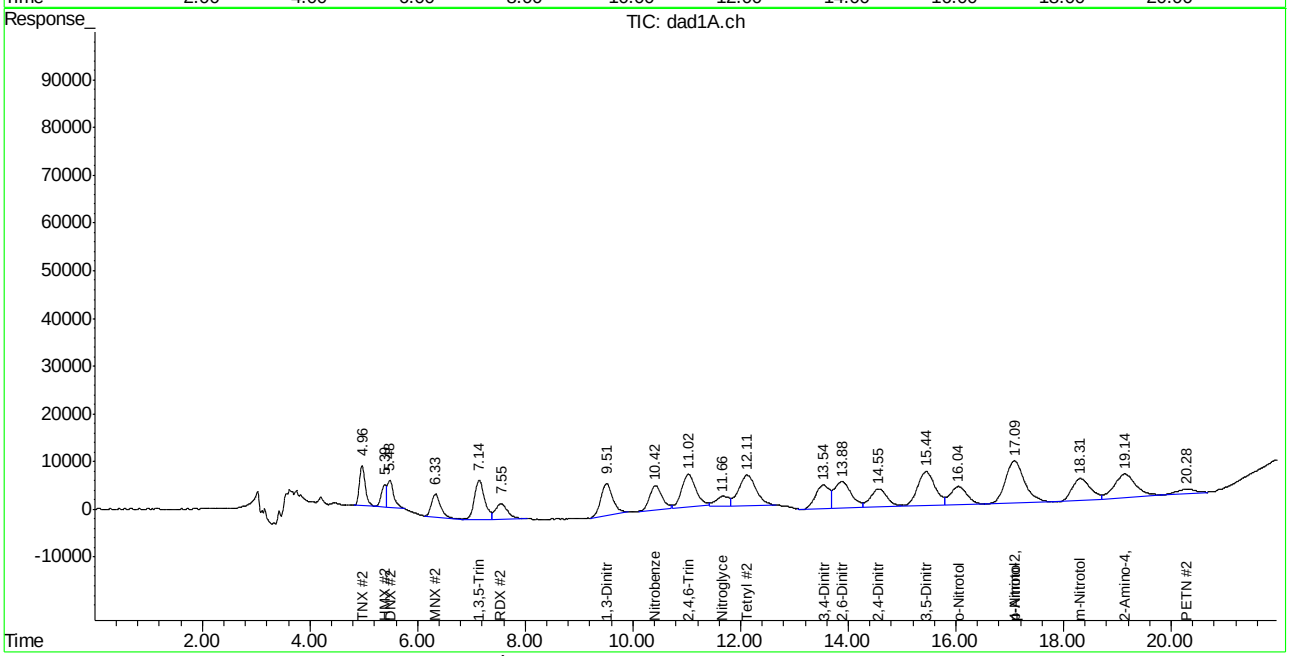
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:35 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

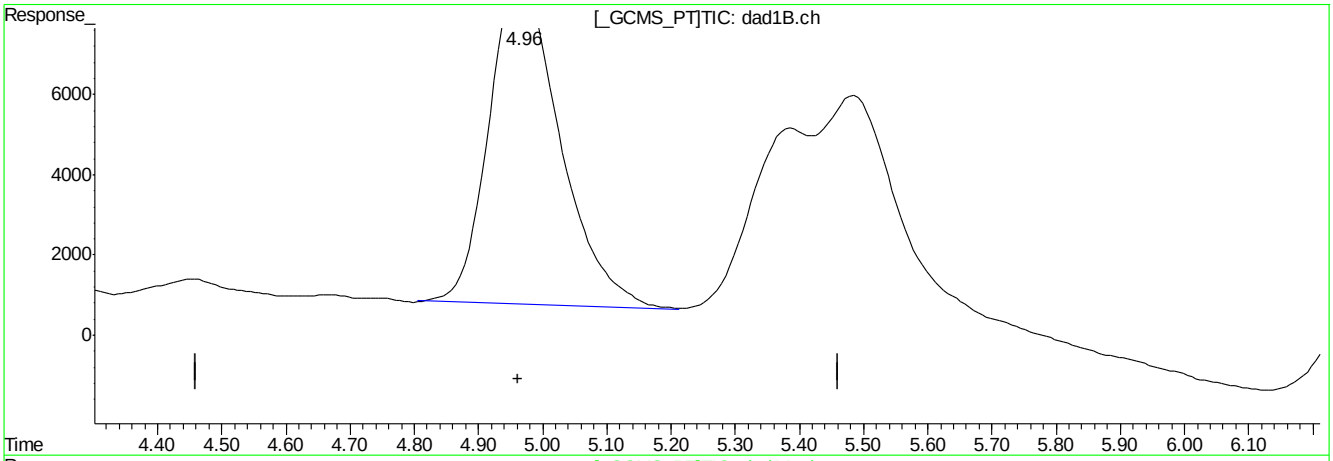
Sample Number: GGG2769-IC2769
Lab FileID: GG617749.D
Injection Time: 09/25/19 21:29
Method: SW846 8330B
Analyst approved: 09/26/19 16:07 William Hustedde
Supervisor approved: 09/26/19 16:28 Naresh Jiawan

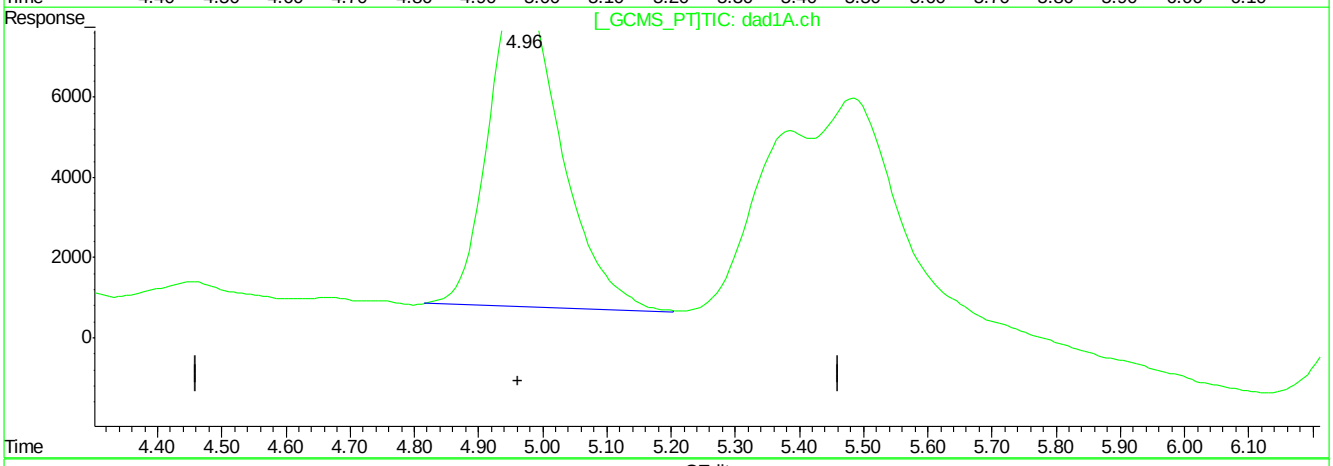
Parameter	CAS	Sig#	R.T. (min.)	Reason
TNX		1	4.96	Poor instrument integration
TNX		2	4.96	Poor instrument integration
HMX	2691-41-0	1	5.39	Poor instrument integration
HMX	2691-41-0	2	5.39	Poor instrument integration
DNX		1	5.48	Poor instrument integration
DNX		2	5.48	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	9.51	Poor instrument integration
Nitrobenzene	98-95-3	2	10.42	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	2	11.02	Poor instrument integration
Nitroglycerine	55-63-0	2	11.66	Poor instrument integration
Tetryl	479-45-8	2	12.11	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(1) TNX

4.96min 110.436ppb m

response 627331

(1) TNX #2

4.96min 110.096ppb m

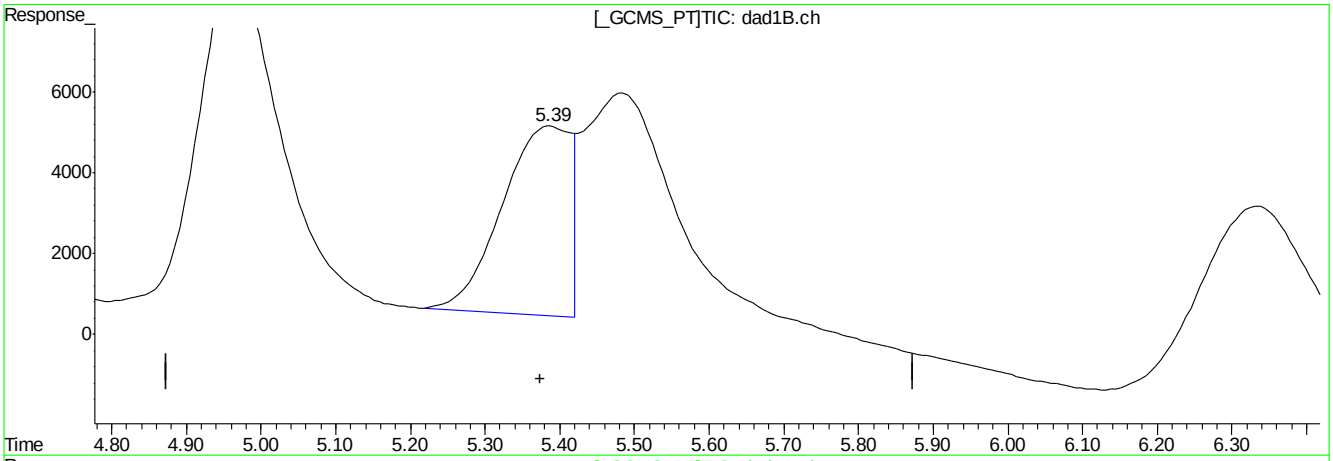
response 626725

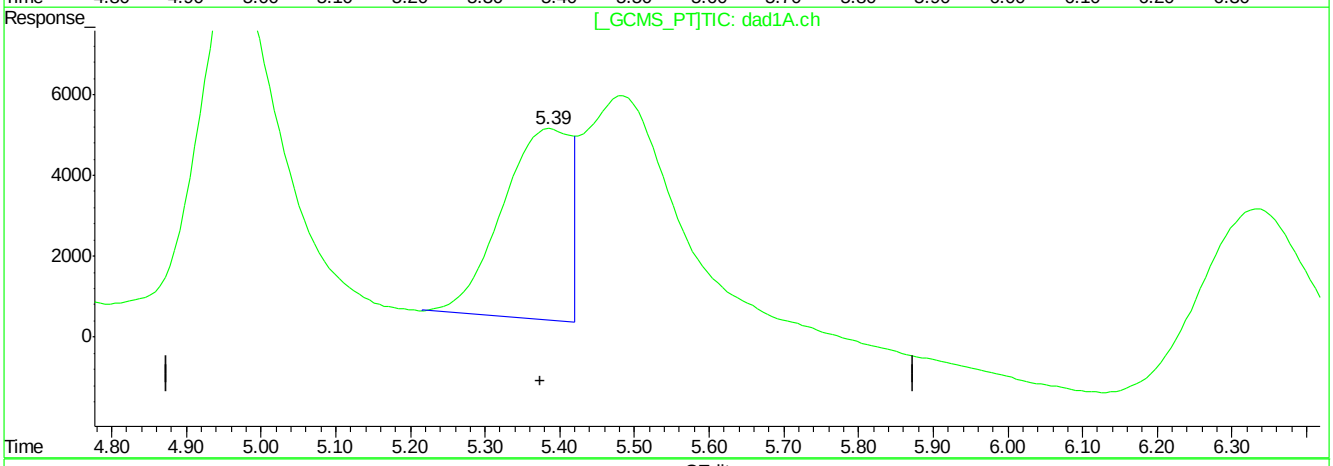
(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:22:45 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.39min 82.387ppb m

response 303509

(2) HMX #2

5.39min 83.377ppb m

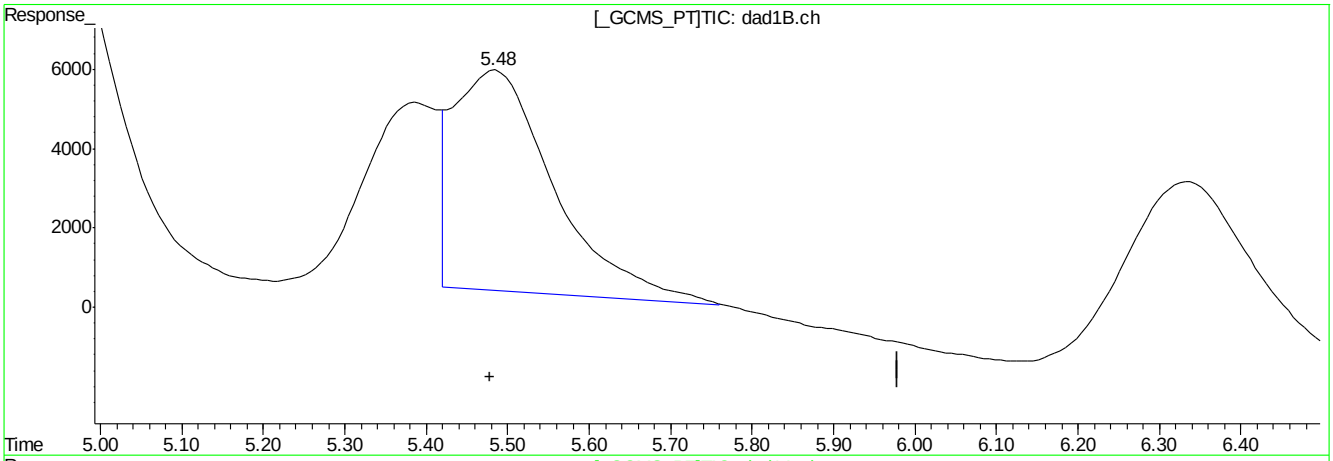
response 306772

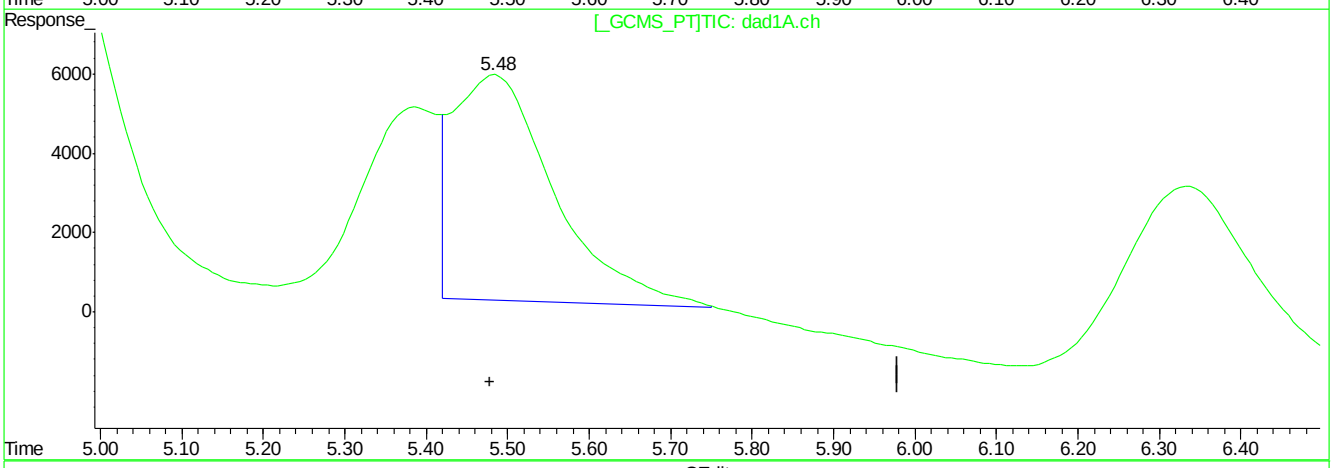
(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:22:54 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(3) DNX

5.48min 88.393ppb m

response 478533

(3) DNX #2

5.48min 91.309ppb m

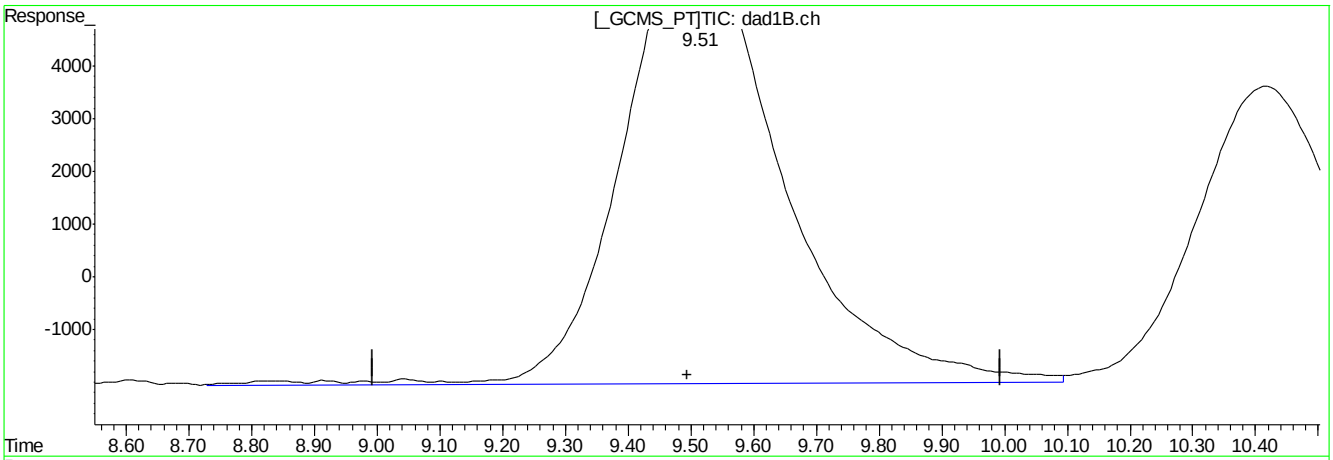
response 488896

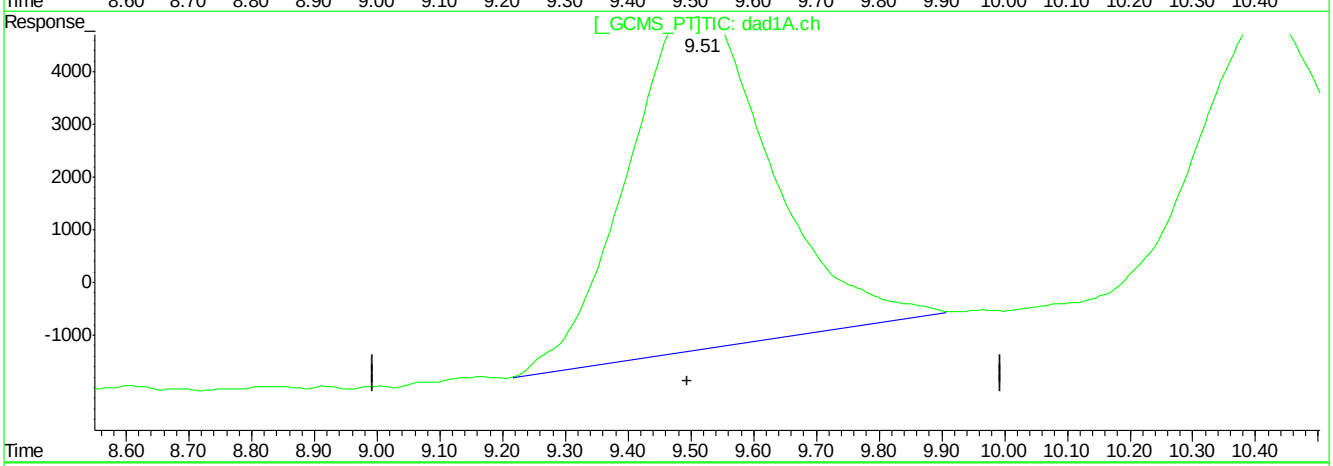
(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:23:04 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

9.51min 111.794ppb

response 1496695

(7) 1,3-Dinitrobenzene #2

9.51min 102.032ppb m

response 1034767

(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:23:17 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
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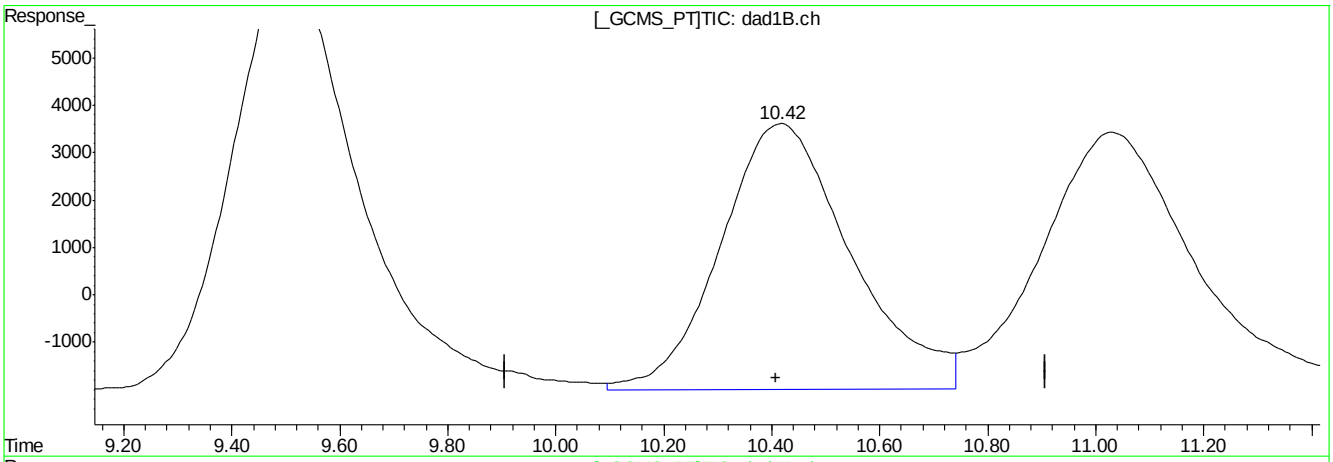
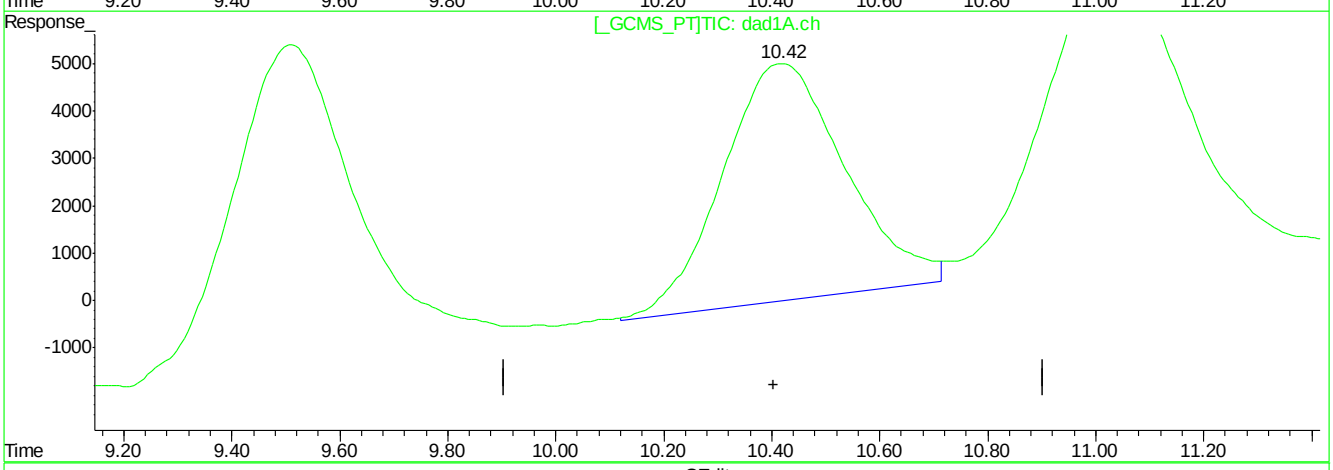
Response via : Multiple Level Calibration





QEdit

(8) Nitrobenzene

10.42min 110.754ppb

response 939534

(8) Nitrobenzene #2

10.42min 93.724ppb m

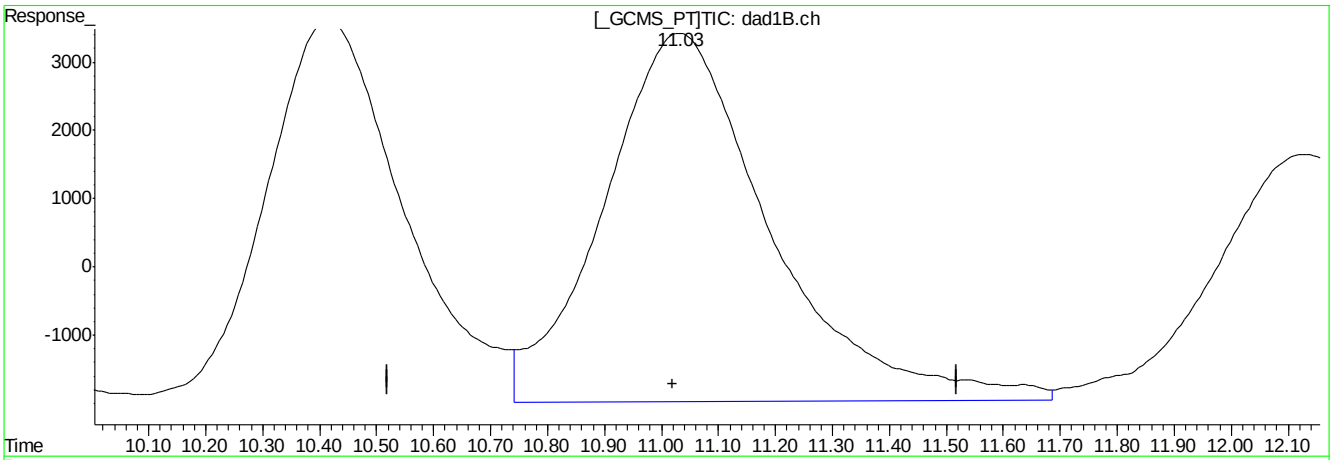
response 792550

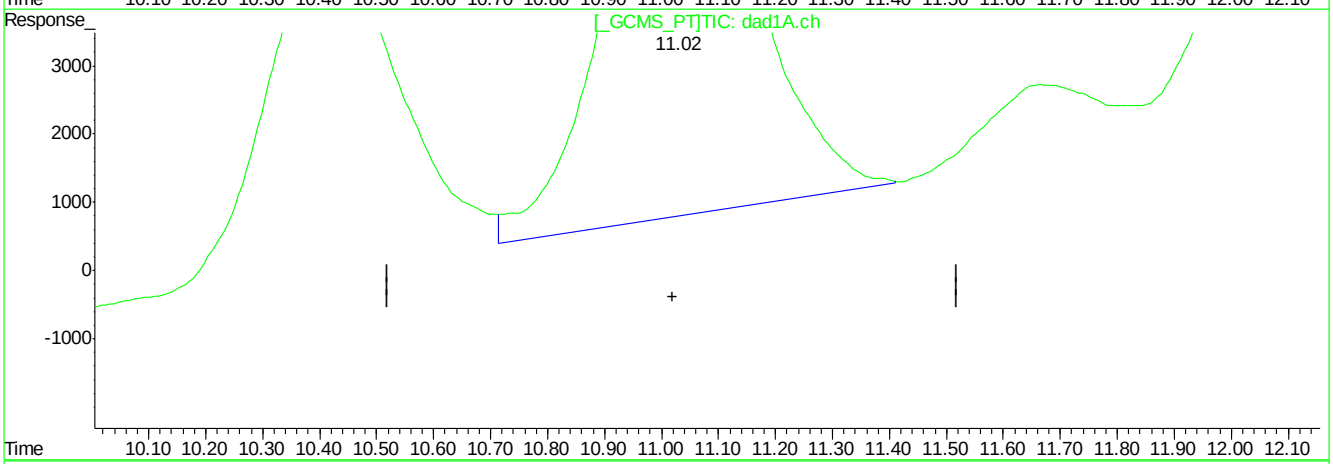
(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:23:25 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.03min 117.768ppb

response 1095538

(9) 2,4,6-Trinitrotoluene #2

11.02min 95.144ppb m

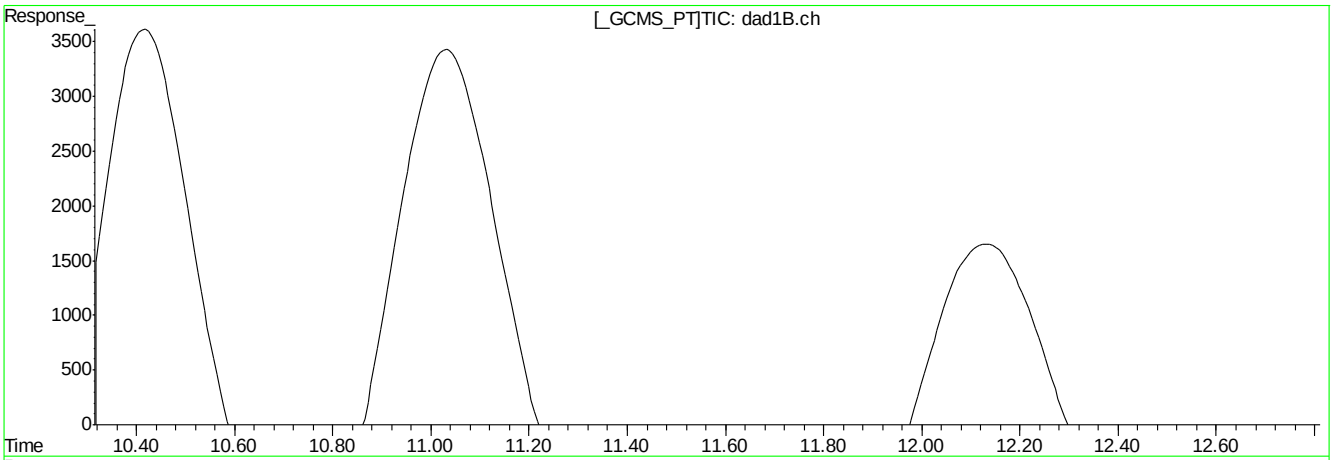
response 1133915

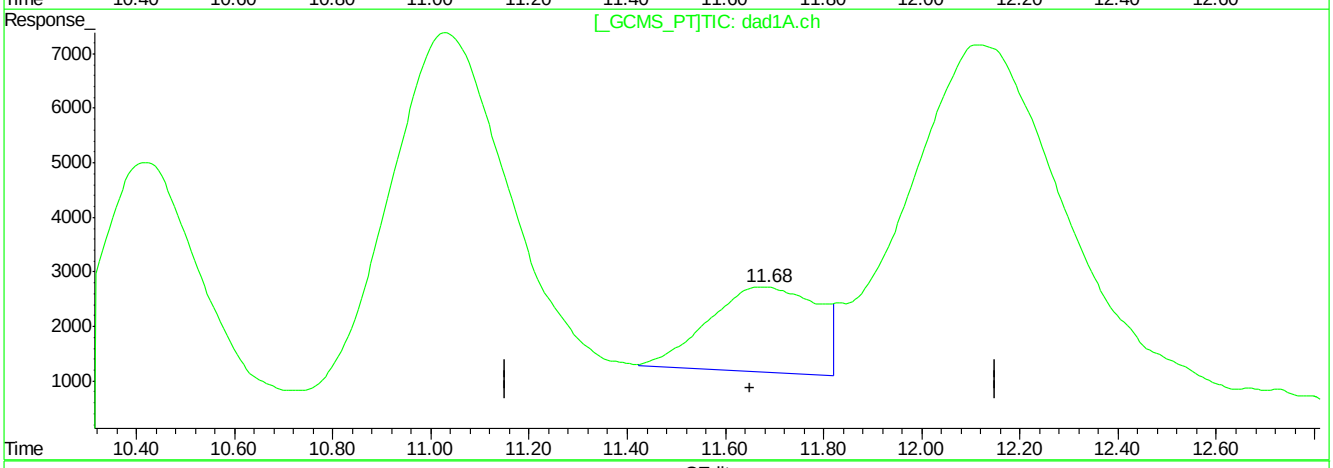
(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:23:32 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(10) Nitroglycerin

0.00min 0.000ppb

response 0

(10) Nitroglycerin #2

11.68min 65.833ppb m

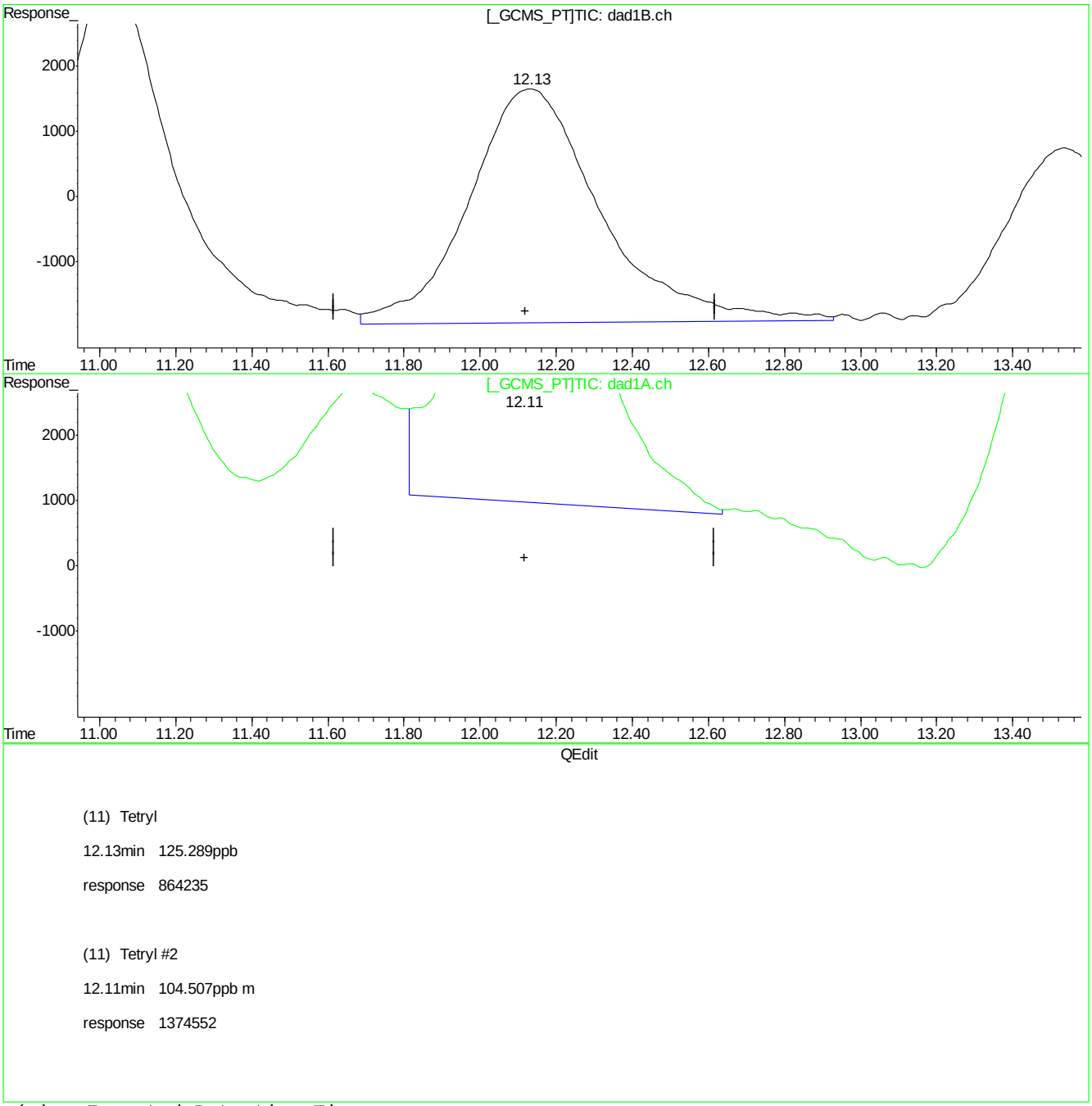
response 242831

(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:23:43 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(11) Tetryl

12.13min 125.289ppb

response 864235

(11) Tetryl #2

12.11min 104.507ppb m

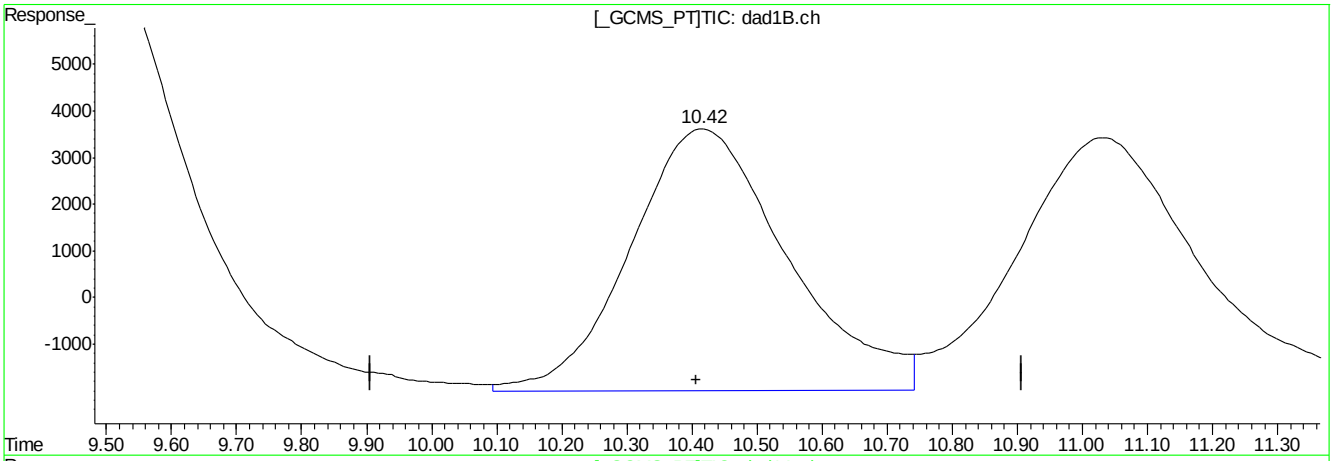
response 1374552

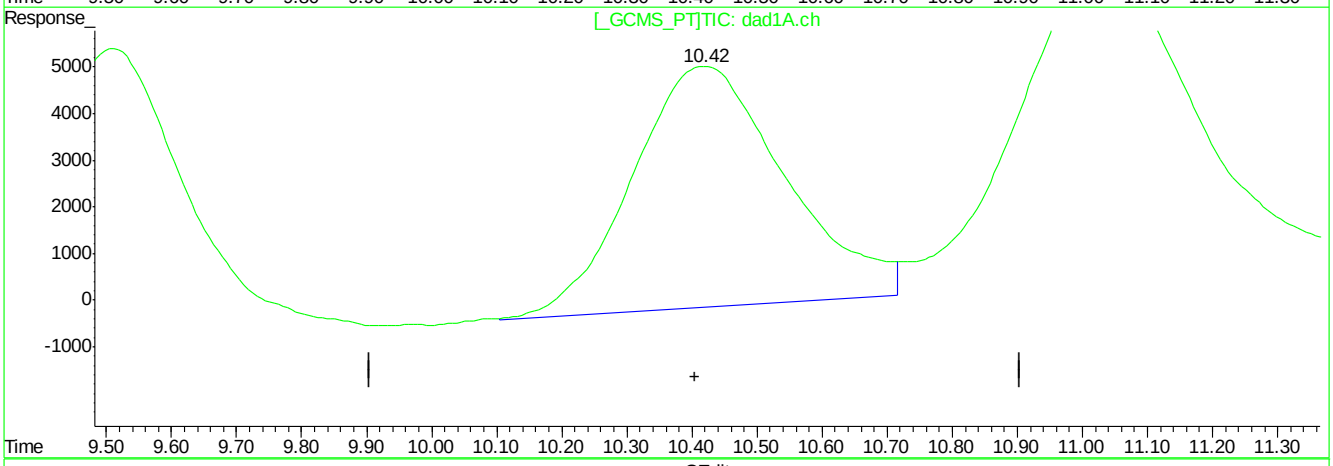
(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:23:50 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:23 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(8) Nitrobenzene

10.42min 110.754ppb

response 939534

(8) Nitrobenzene #2

10.42min 99.633ppb m

response 842434

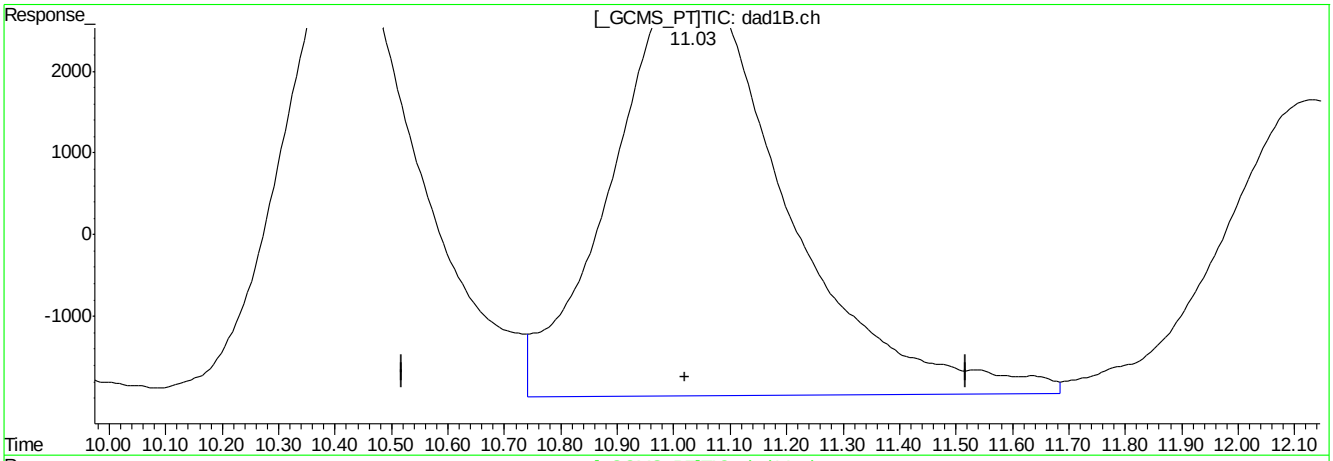
(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:35:00 2019

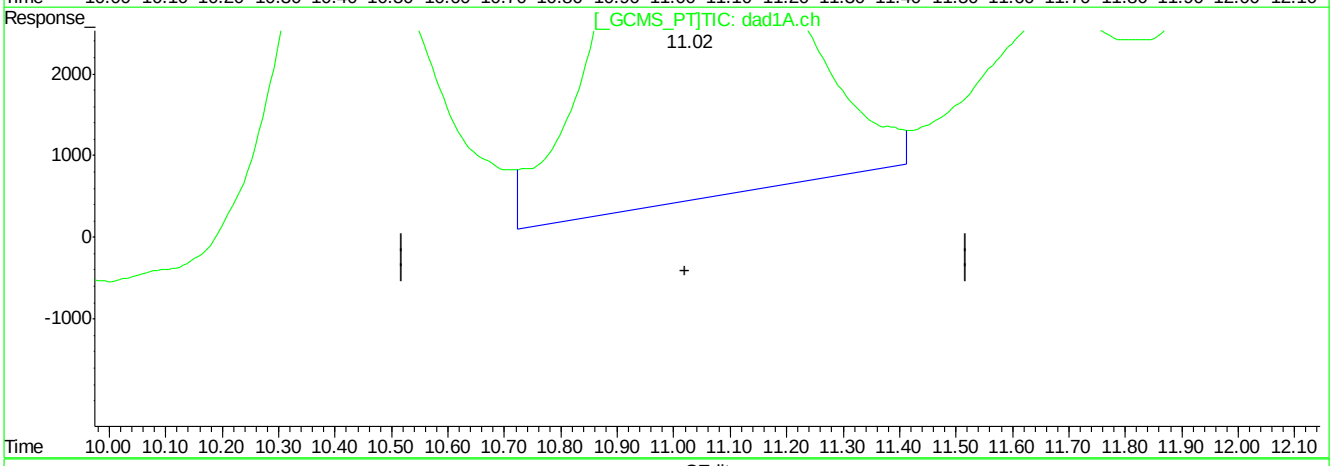
GG617749.D edits: Nitrobenzene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:23 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.03min 117.768ppb

response 1095538

(9) 2,4,6-Trinitrotoluene #2

11.02min 107.055ppb m

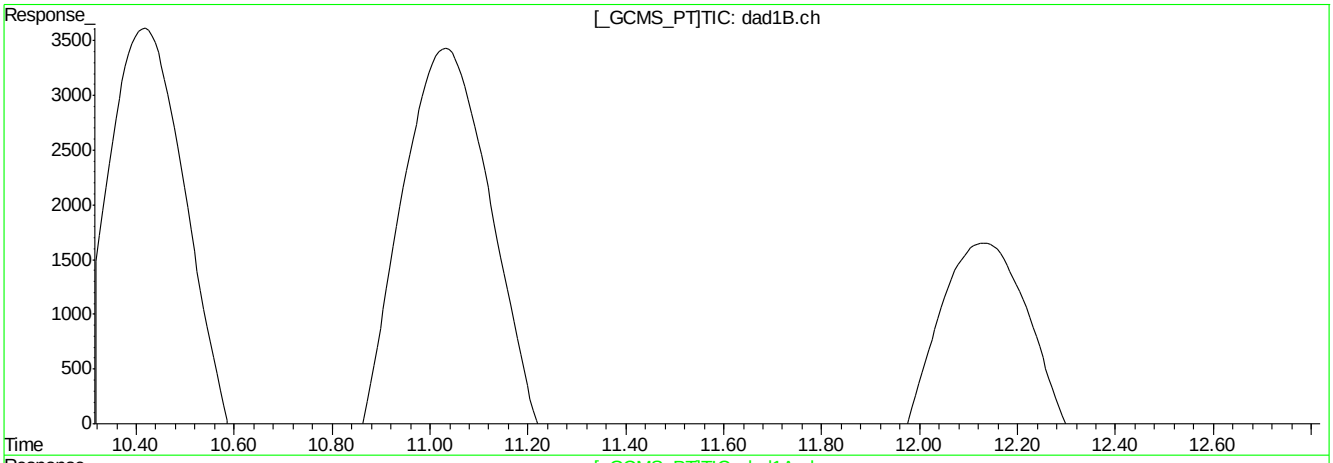
response 1275868

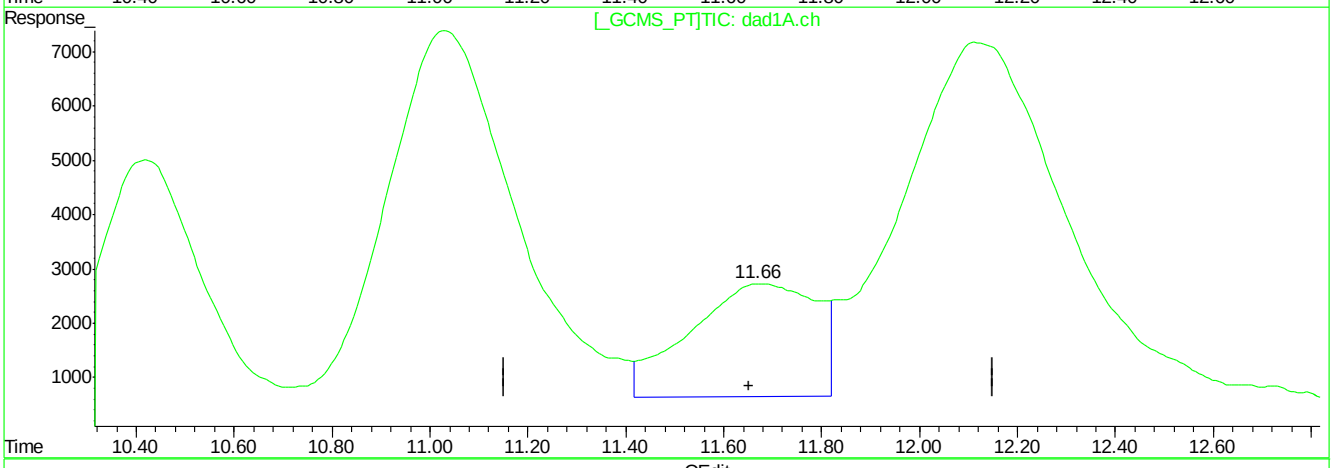
(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:35:07 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:23 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(10) Nitroglycerin

0.00min 0.000ppb

response 0

(10) Nitroglycerin #2

11.66min 102.113ppb m

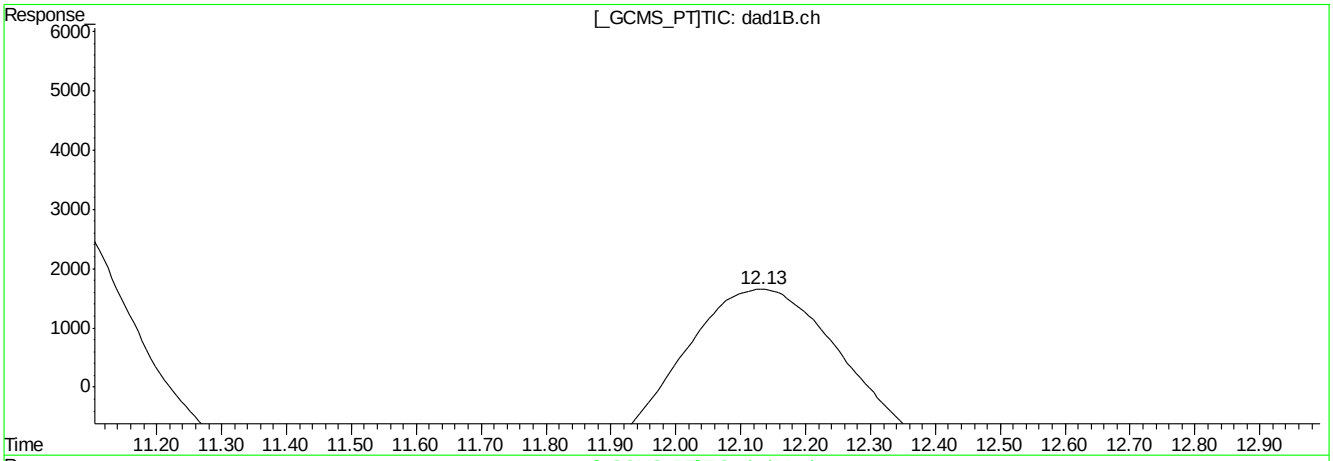
response 376622

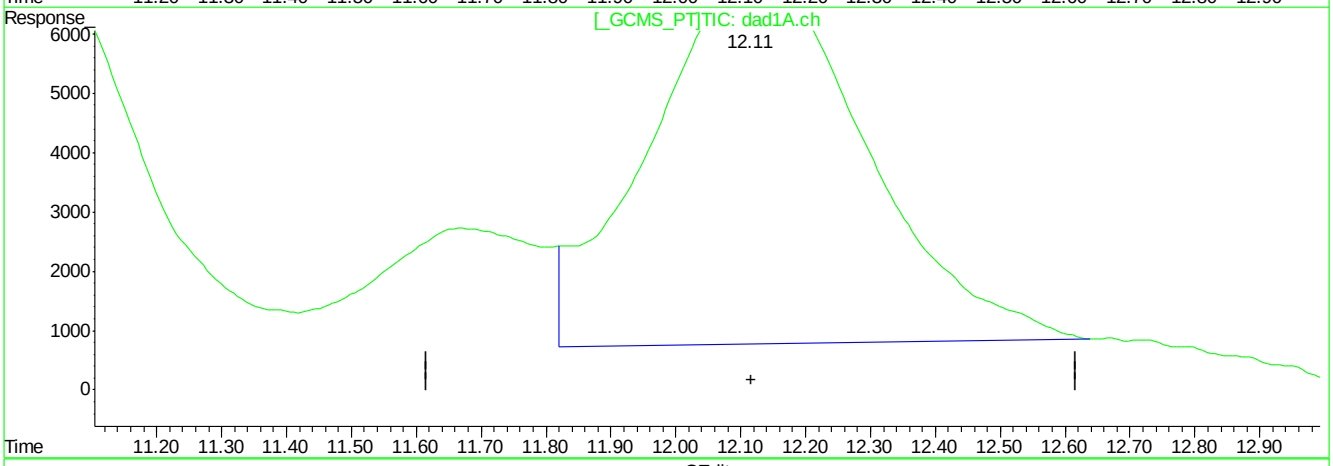
(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:35:14 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1B.ch Vial: 4
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617749.D\dad1A.ch
Acq On : 25-Sep-2019, 21:29:22 Operator: williamh
Sample : ic2769-100 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:23 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(11) Tetryl

12.13min 125.289ppb

response 864235

(11) Tetryl #2

12.11min 109.804ppb m

response 1444030

(+) = Expected Retention Time
GG617749.D 8330RPB.M_092519.M Thu Sep 26 11:35:24 2019

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 09/26/19 16:28

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12:36 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.53	13.53	897500	1733597	172.389	171.349
	Spiked Amount 500.000	Range 70 - 136		Recovery =		34.48%#	34.27%#
	Target Compounds						
1)	TNX	4.96	4.96	1189698	1193239	209.435m	209.615m
2)	HMX	5.38	5.38	561213	570787	152.702m	155.505m
3)	DNX	5.48	5.48	842819	862360	156.087m	161.429m
4)	MNX	6.33	6.33	1110475	1110475	190.435	190.441
5)	1,3,5-Trinitrobe	7.14	7.14	2073386	2073386	217.913	218.564
6)	RDX	7.55	7.55	1053536	1053536	227.927	229.604
7)	1,3-Dinitrobenze	9.50	9.50	2799974	2087611	209.140	205.849m
8)	Nitrobenzene	10.41	10.41	1760848	1617927	207.572	191.675m
9)	2,4,6-Trinitroto	11.03	11.03	2043556	2919500	219.678	244.968m
10)	Nitroglycerin	0.00	11.66	0	743814	N.D.	201.718m#
11)	Tetryl	12.13	12.13	1553902	3011692	225.270	229.656m
13)	2,6-Dinitrotolue	13.88	13.88	1457065	2249189	232.952	236.804
14)	2,4-Dinitrotolue	14.57	14.58	2571728	1683225	211.811	191.628
15)	o-Nitrotoluene	16.05	16.05	1234213	1761233	220.585	174.672
16)	3,5-Dinitroanili	15.43	15.44	2092859	3231411	192.417	171.010
17)	p-Nitrotoluene	17.09	17.09	2347007	3980941	206.483	191.635
18)	4-Amino-2,6-Dini	17.09	17.09	2347007	3980941	206.483	191.620
19)	m-Nitrotoluene	18.32	18.32	1188880	1919756	207.376	183.839
20)	2-Amino-4,6-Dini	19.14	19.14	2006480	2598000	232.572	209.281
21)	PETN	0.00	20.30	0	519437	N.D.	206.419 #

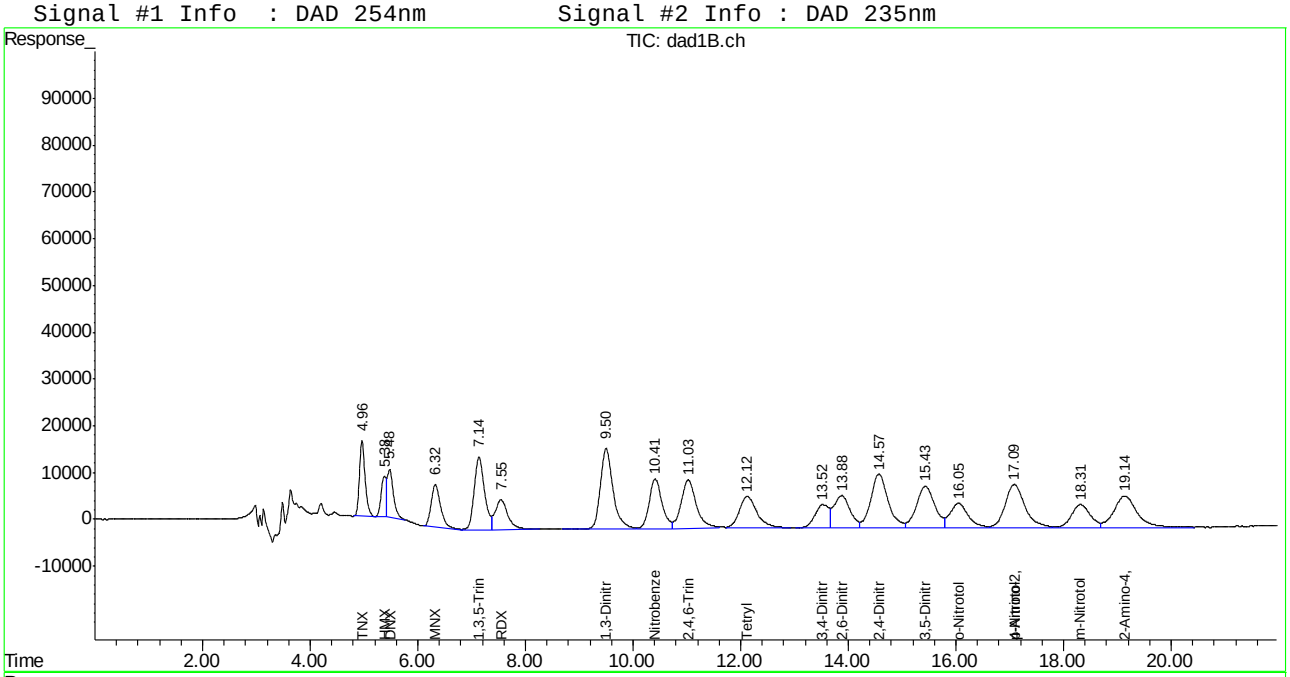
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

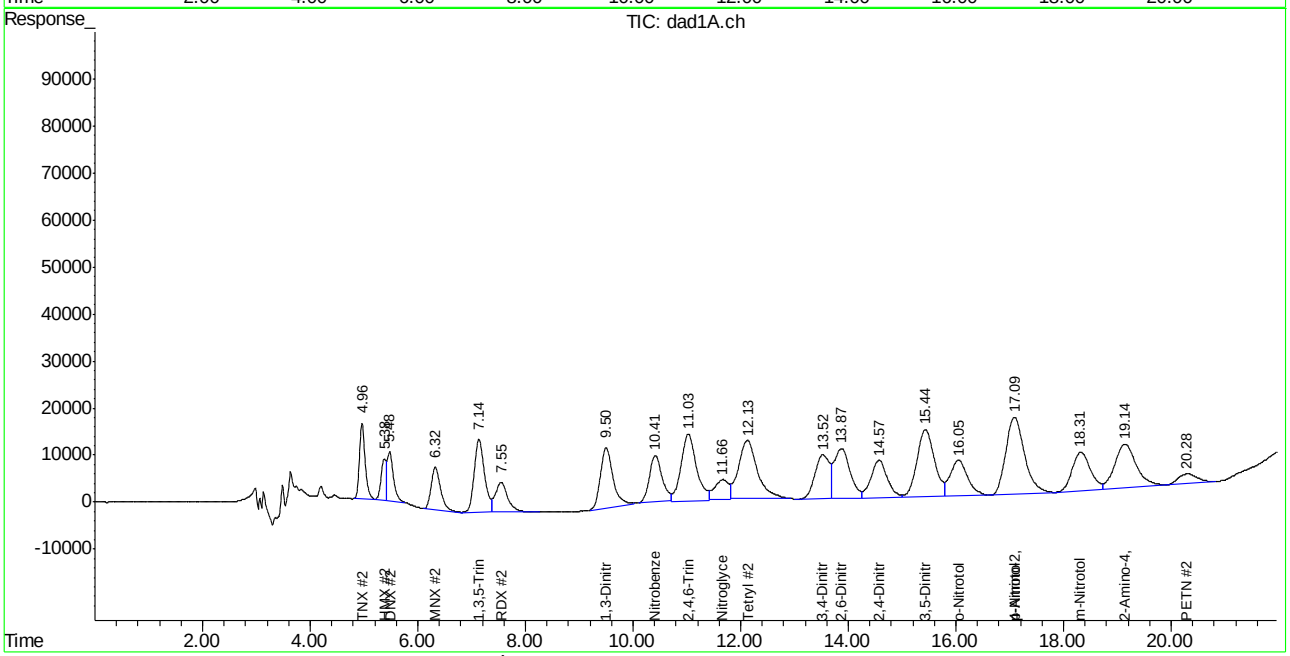
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:34 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

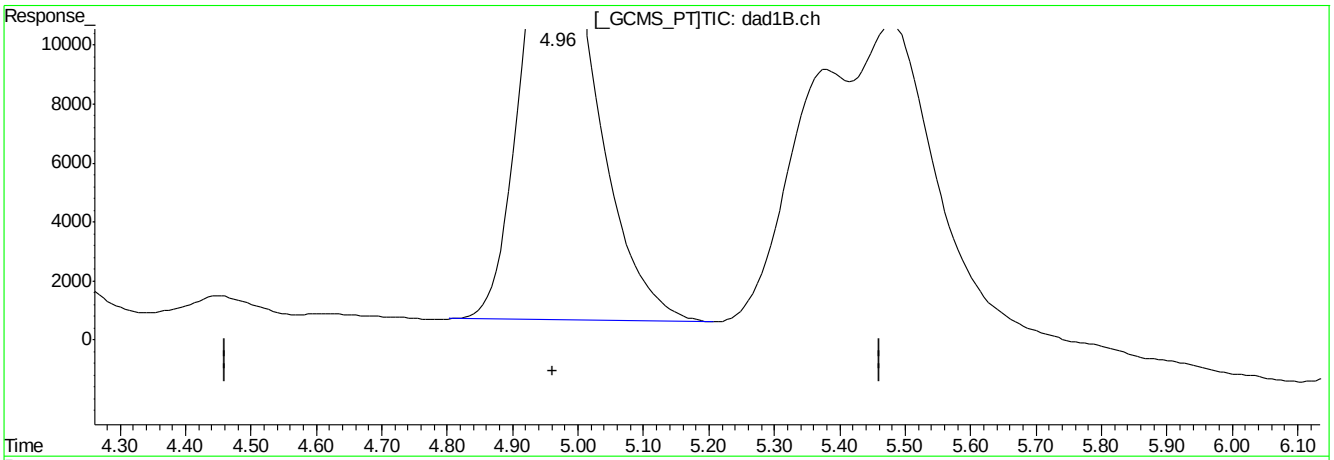
Sample Number: GGG2769-IC2769
Lab FileID: GG617750.D
Injection Time: 09/25/19 21:58
Method: SW846 8330B
Analyst approved: 09/26/19 16:07 William Hustedde
Supervisor approved: 09/26/19 16:28 Naresh Jiawan

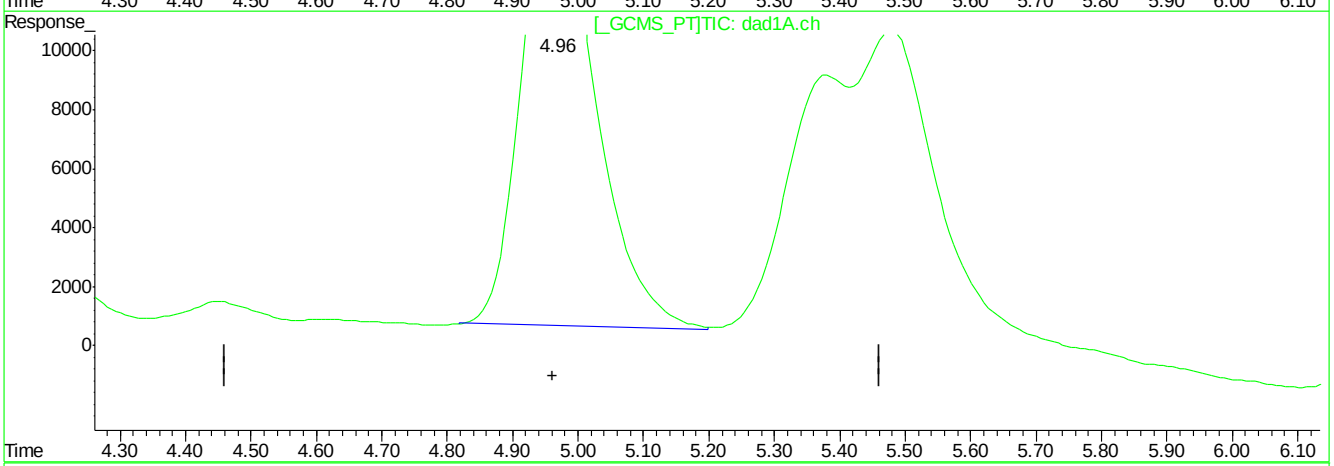
Parameter	CAS	Sig#	R.T. (min.)	Reason
TNX		1	4.96	Poor instrument integration
TNX		2	4.96	Poor instrument integration
HMX	2691-41-0	1	5.38	Poor instrument integration
HMX	2691-41-0	2	5.38	Poor instrument integration
DNX		1	5.48	Poor instrument integration
DNX		2	5.48	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	9.50	Poor instrument integration
Nitrobenzene	98-95-3	2	10.41	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	2	11.03	Poor instrument integration
Nitroglycerine	55-63-0	2	11.66	Poor instrument integration
Tetryl	479-45-8	2	12.13	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(1) TNX

4.96min 209.435ppb m

response 1189698

(1) TNX #2

4.96min 209.615ppb m

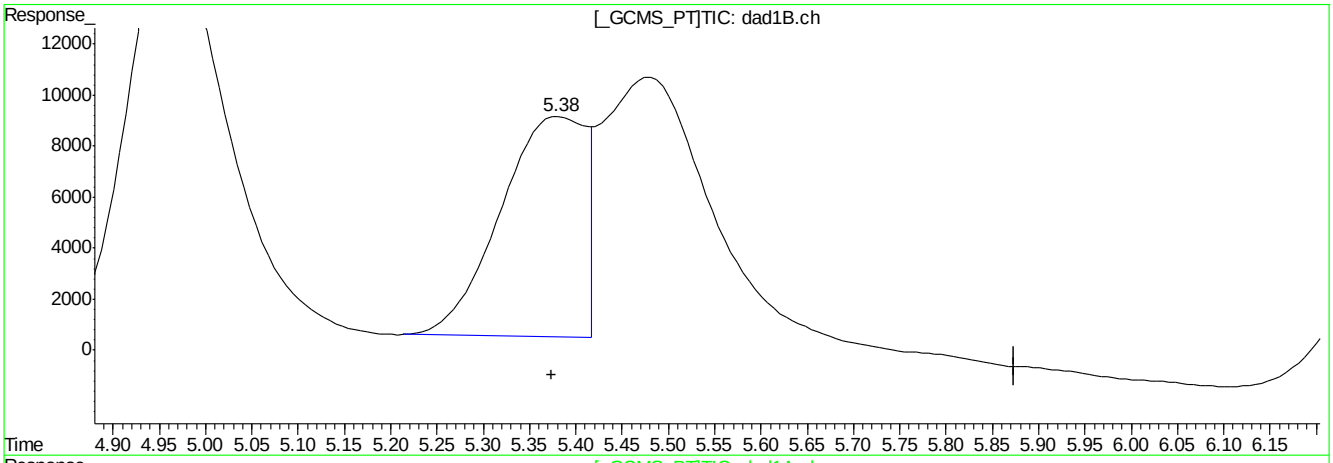
response 1193239

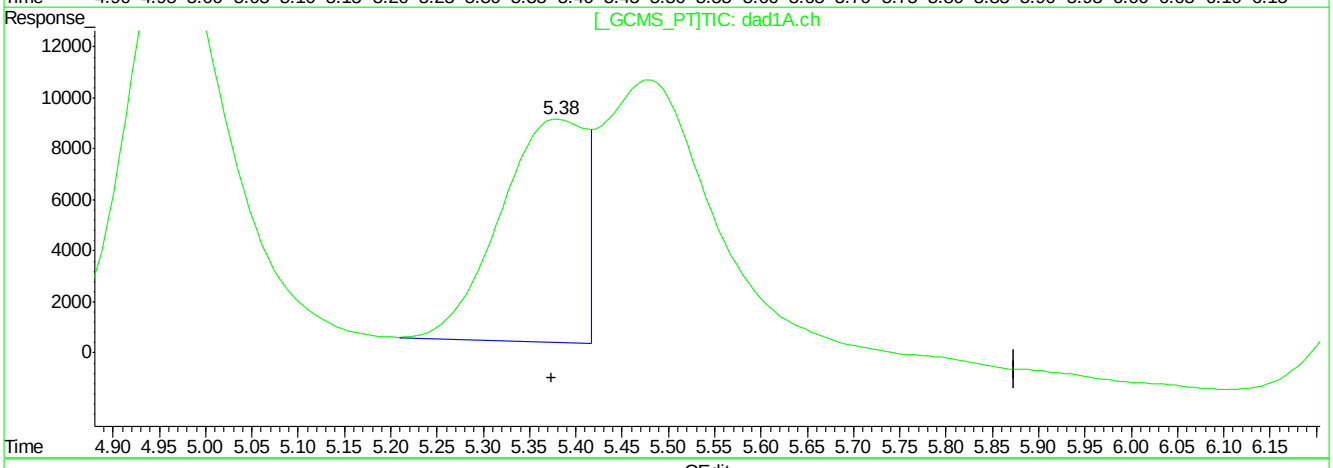
(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:24:22 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.38min 152.702ppb m

response 561213

(2) HMX #2

5.38min 155.505ppb m

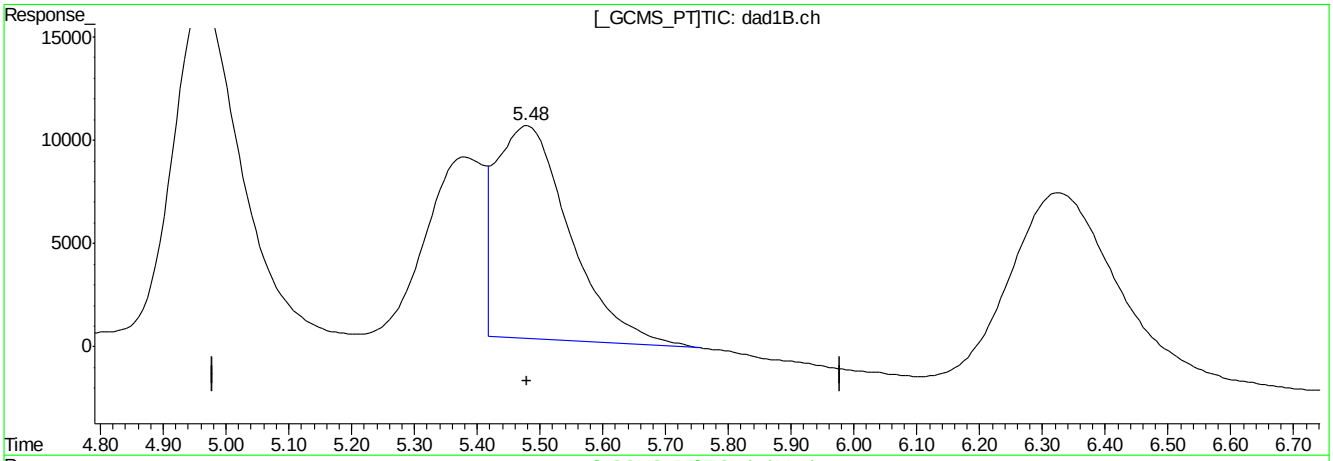
response 570787

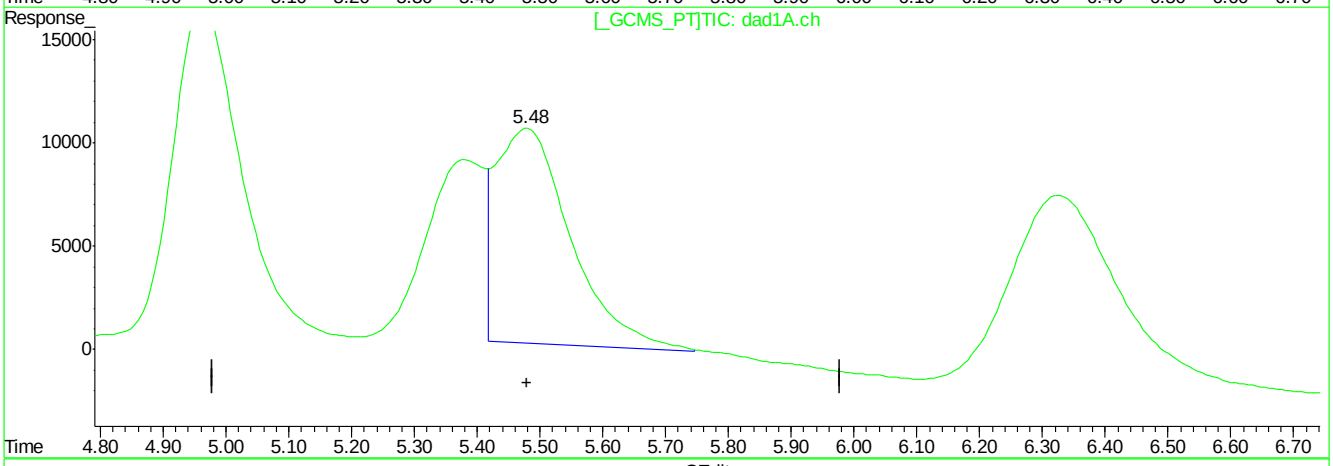
(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:24:32 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(3) DNX

5.48min 156.087ppb m

response 842819

(3) DNX #2

5.48min 161.429ppb m

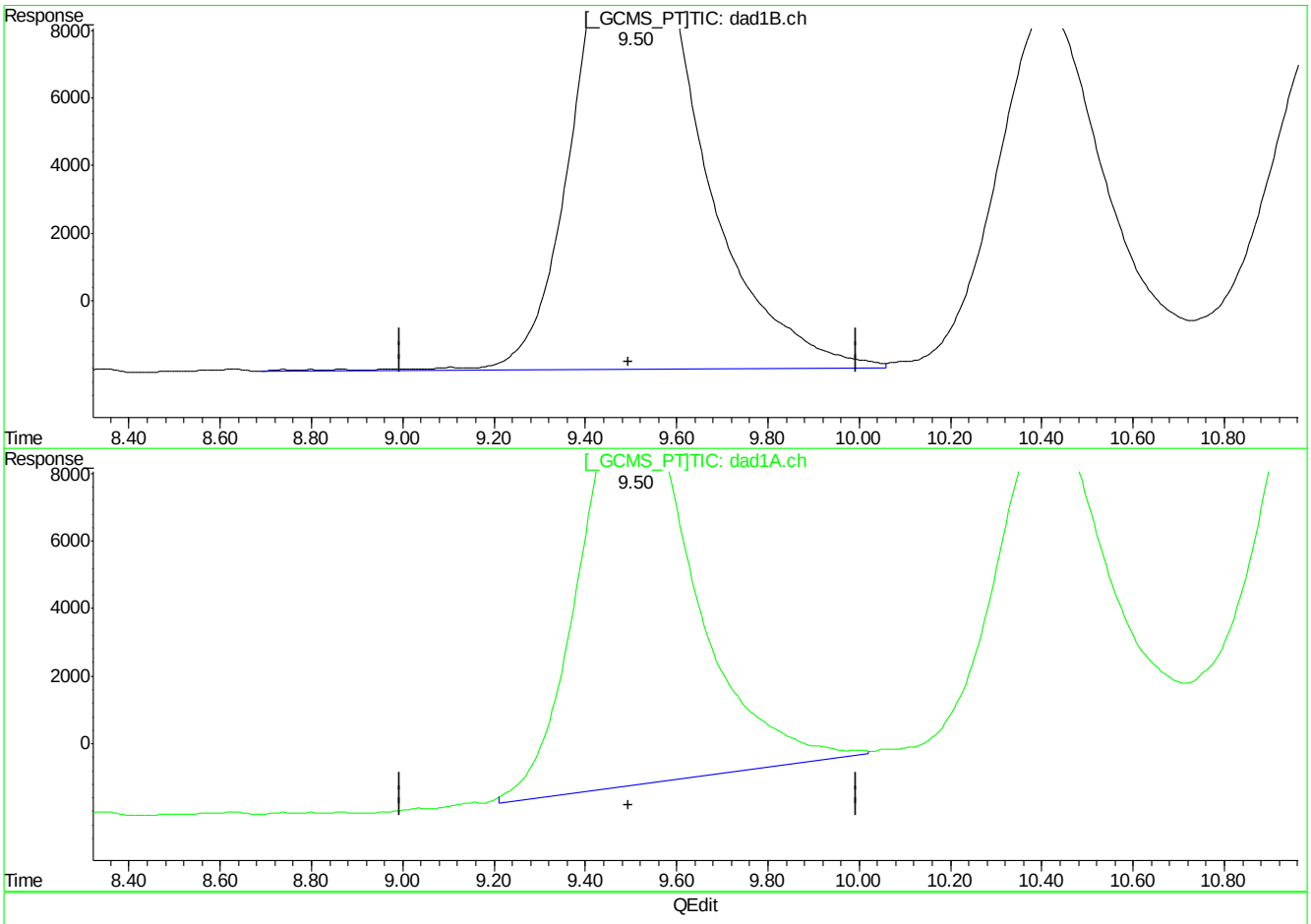
response 862360

(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:24:42 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration



(7) 1,3-Dinitrobenzene

9.50min 209.140ppb

response 2799974

(7) 1,3-Dinitrobenzene #2

9.50min 205.849ppb m

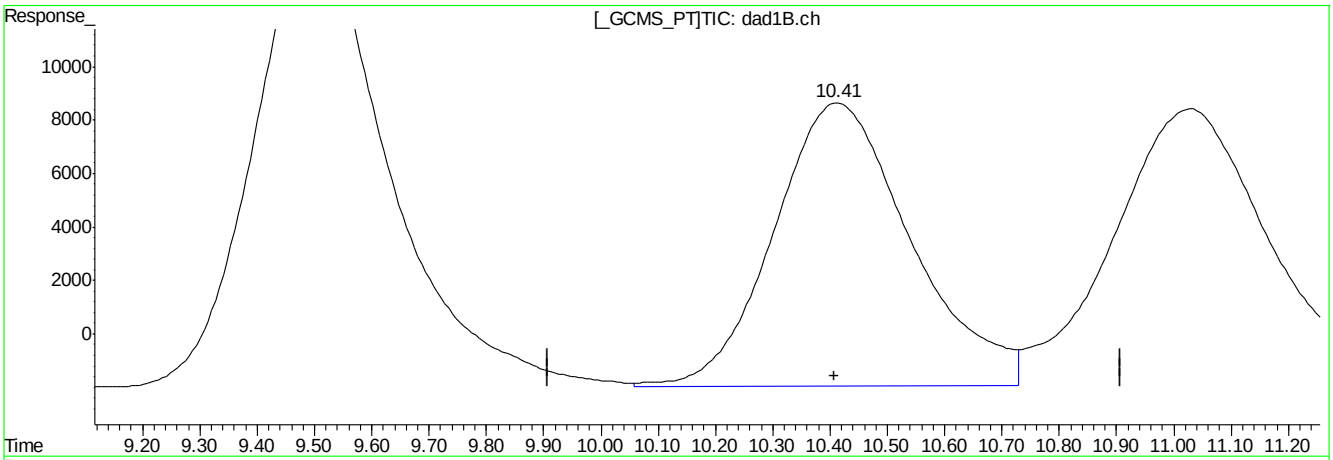
response 2087611

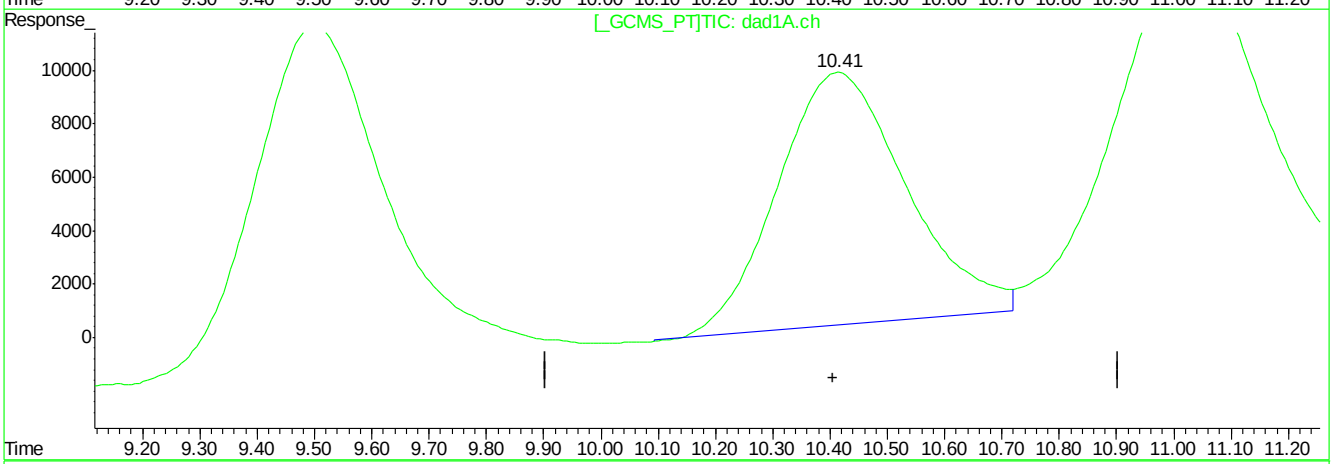
(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:29:27 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(8) Nitrobenzene

10.41min 207.572ppb

response 1760848

(8) Nitrobenzene #2

10.41min 174.329ppb m

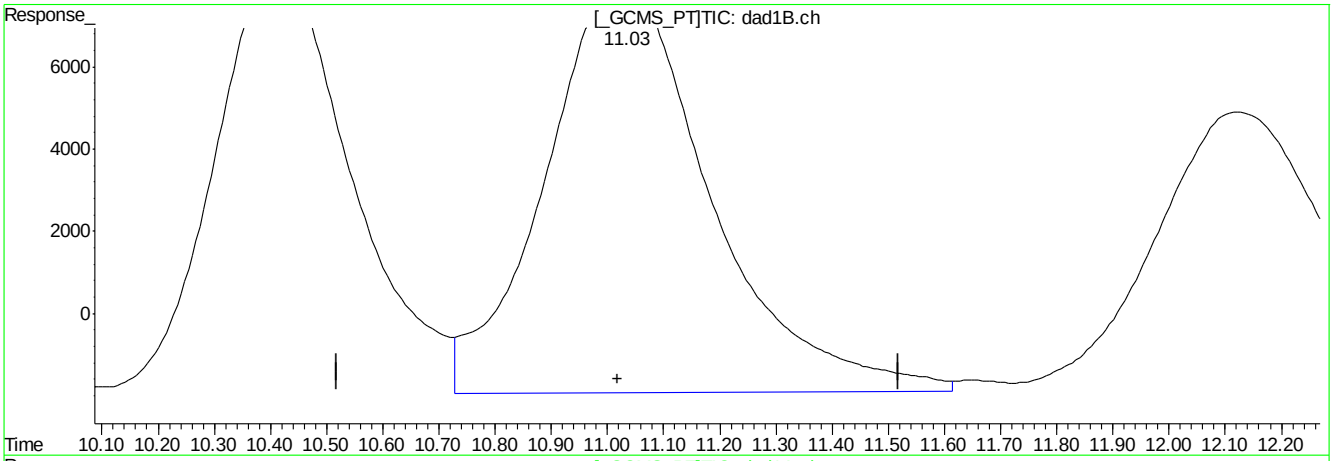
response 1471983

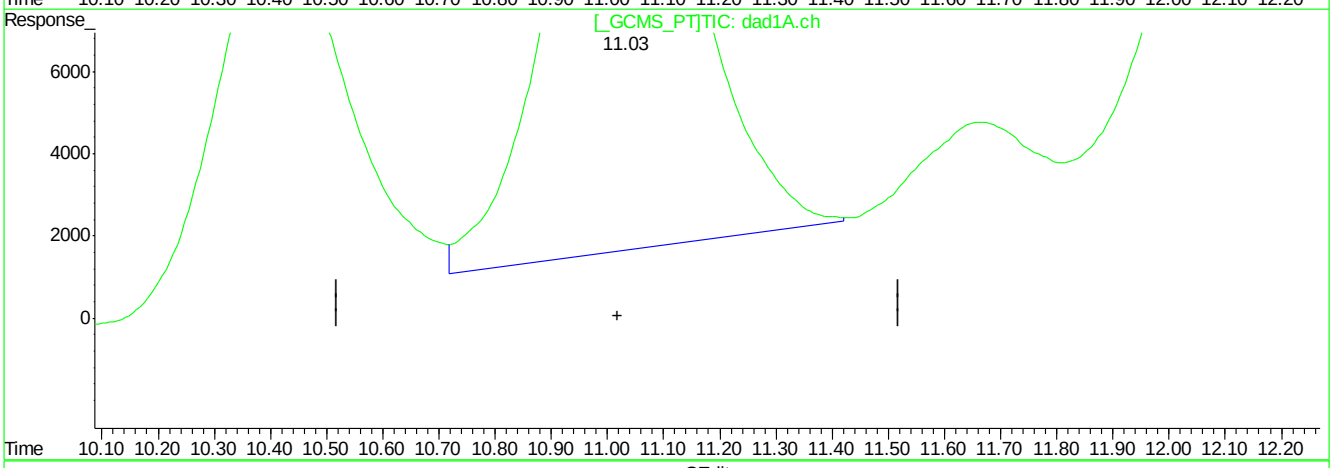
(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:29:34 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.03min 219.678ppb

response 2043556

(9) 2,4,6-Trinitrotoluene #2

11.03min 188.705ppb m

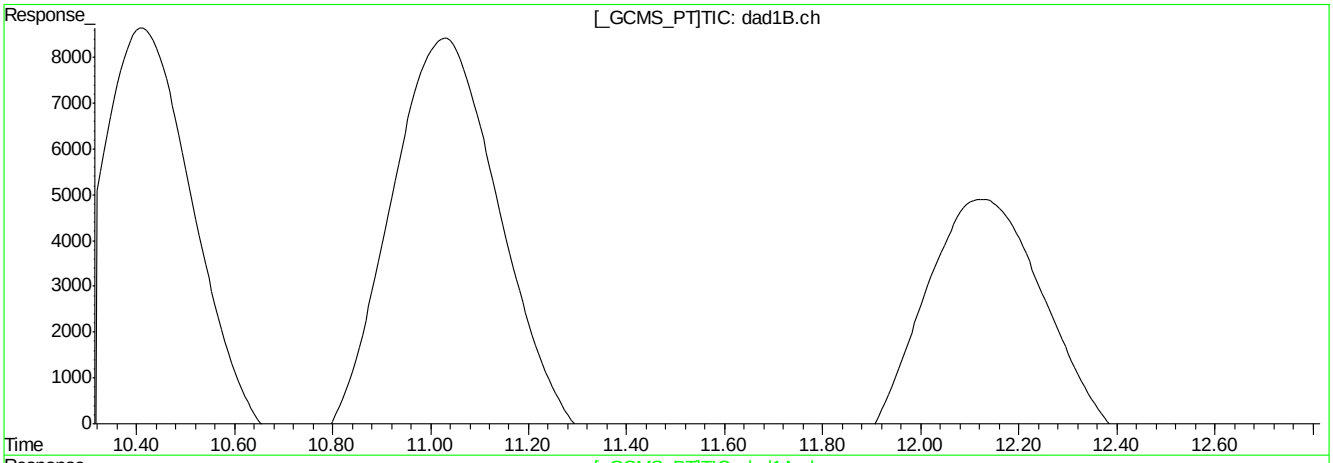
response 2248961

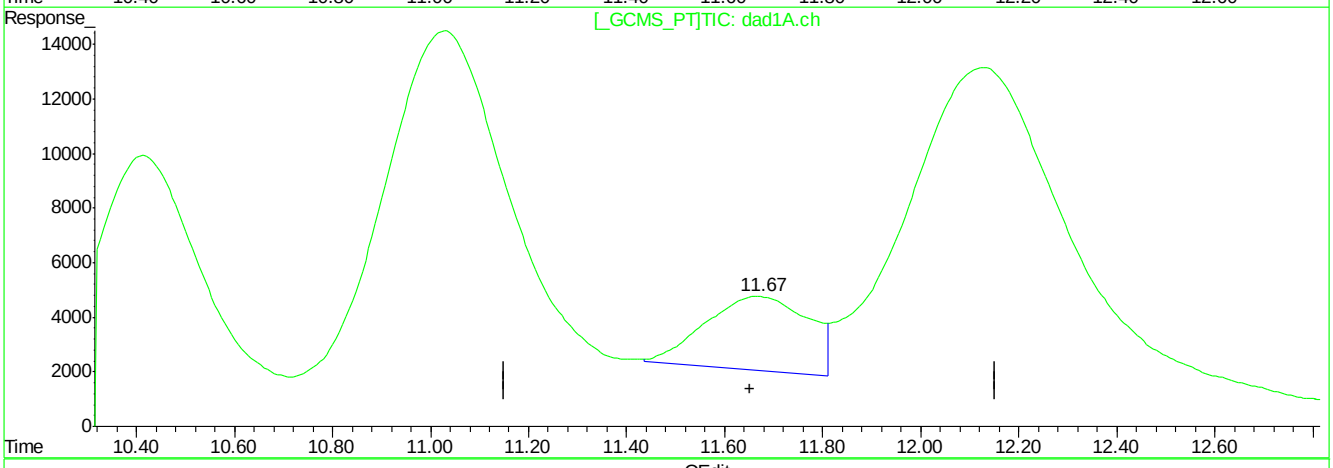
(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:29:40 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(10) Nitroglycerin

0.00min 0.000ppb

response 0

(10) Nitroglycerin #2

11.67min 107.156ppb m

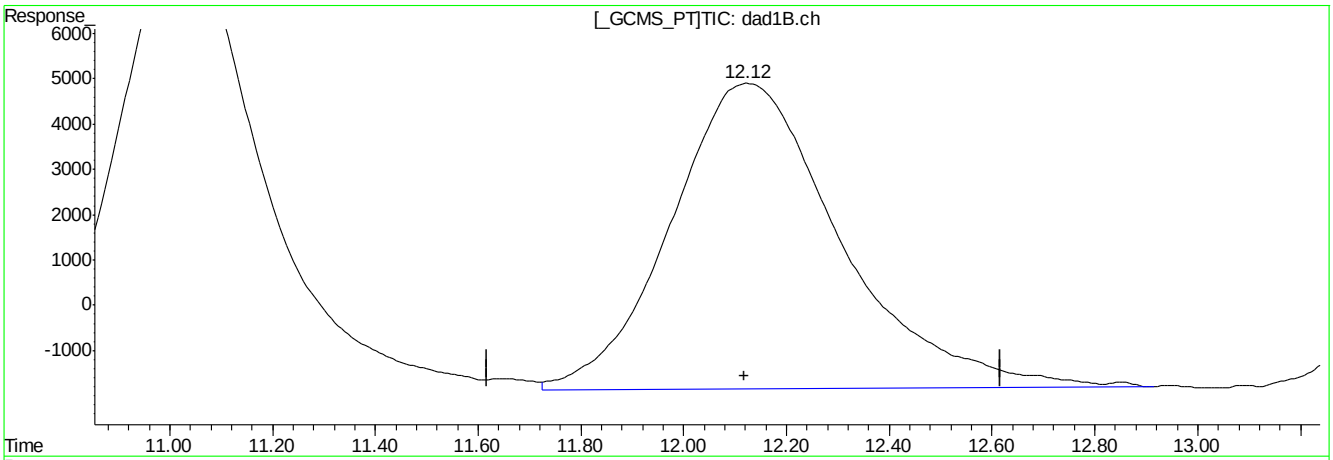
response 395218

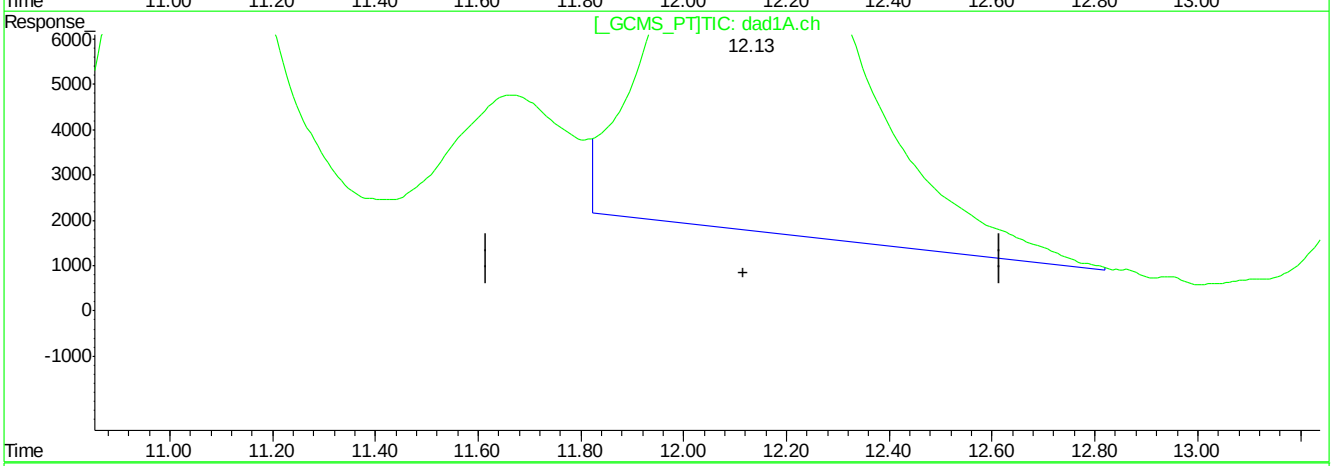
(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:29:47 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(11) Tetryl

12.13min 225.270ppb

response 1553902

(11) Tetryl #2

12.13min 194.190ppb m

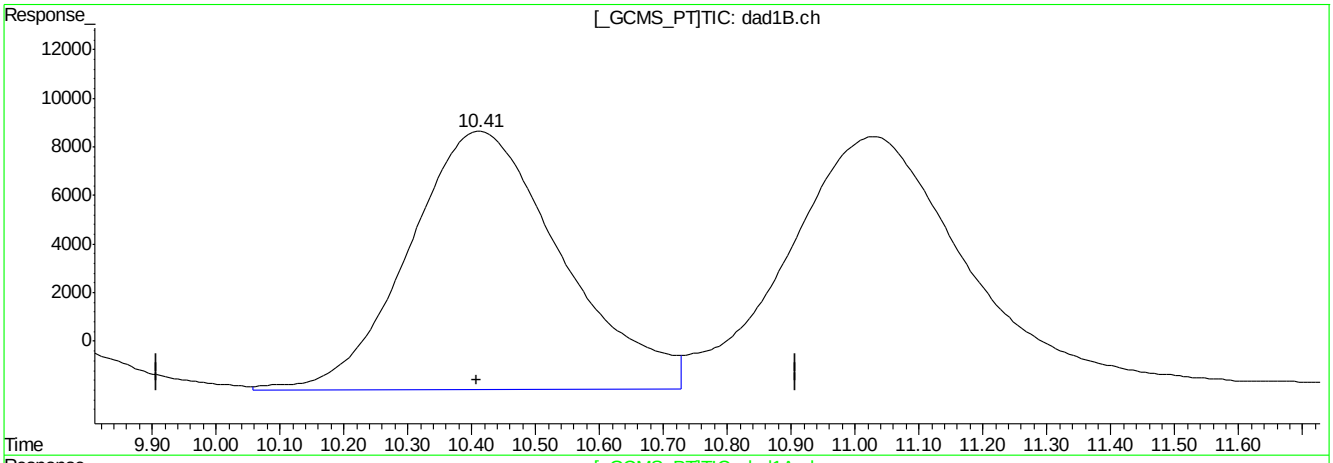
response 2548720

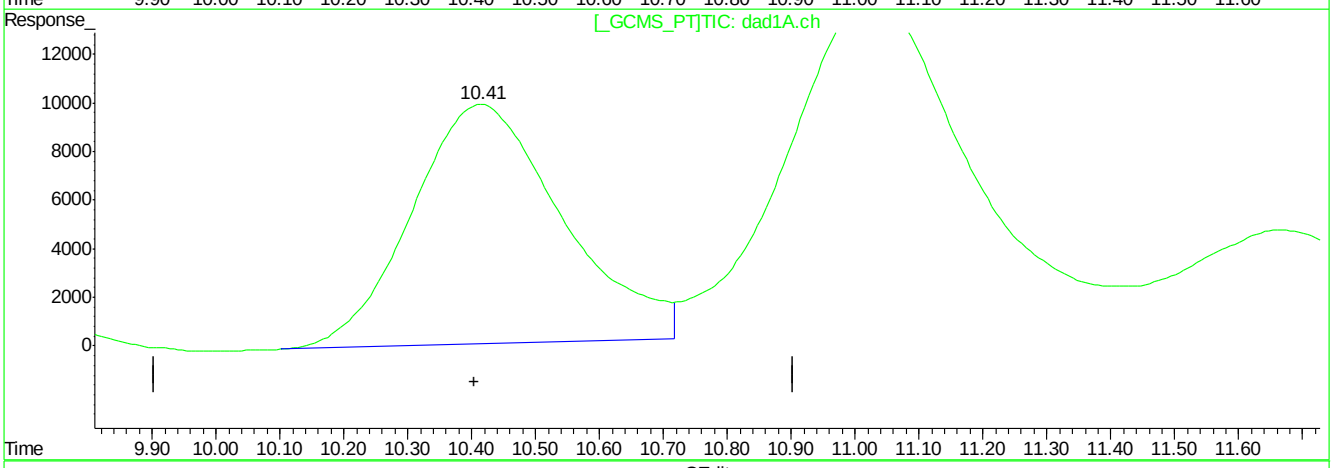
(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:29:53 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:29 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(8) Nitrobenzene

10.41min 207.572ppb

response 1760848

(8) Nitrobenzene #2

10.41min 191.675ppb m

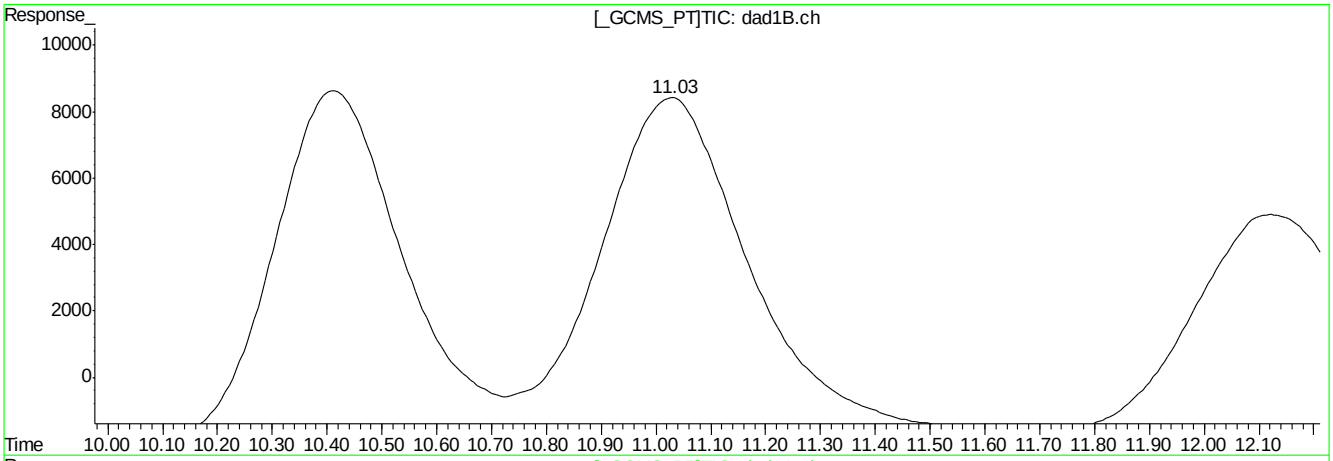
response 1617927

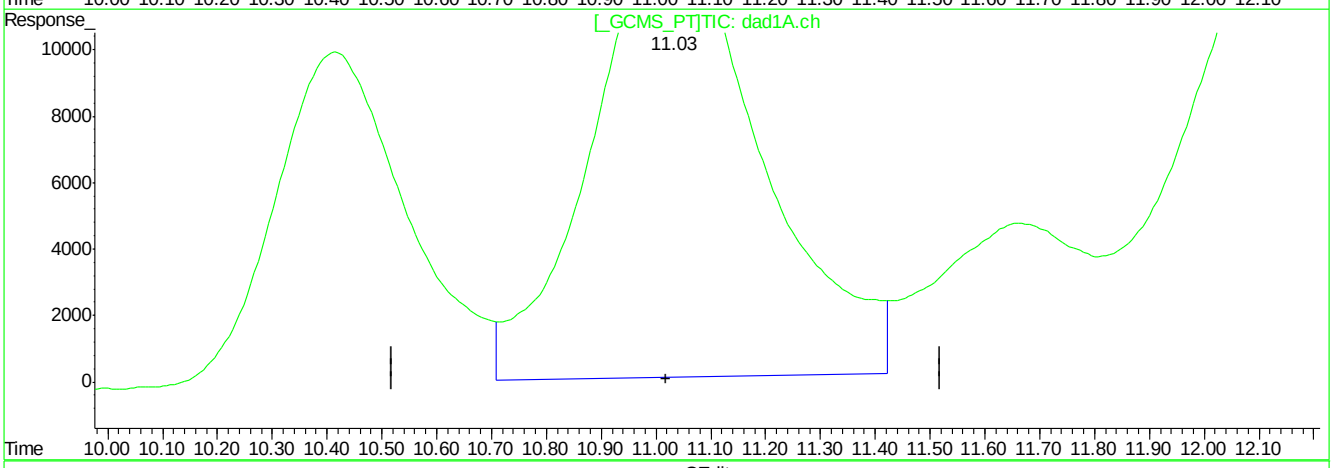
(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:33:44 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:29 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.03min 219.678ppb

response 2043556

(9) 2,4,6-Trinitrotoluene #2

11.03min 244.968ppb m

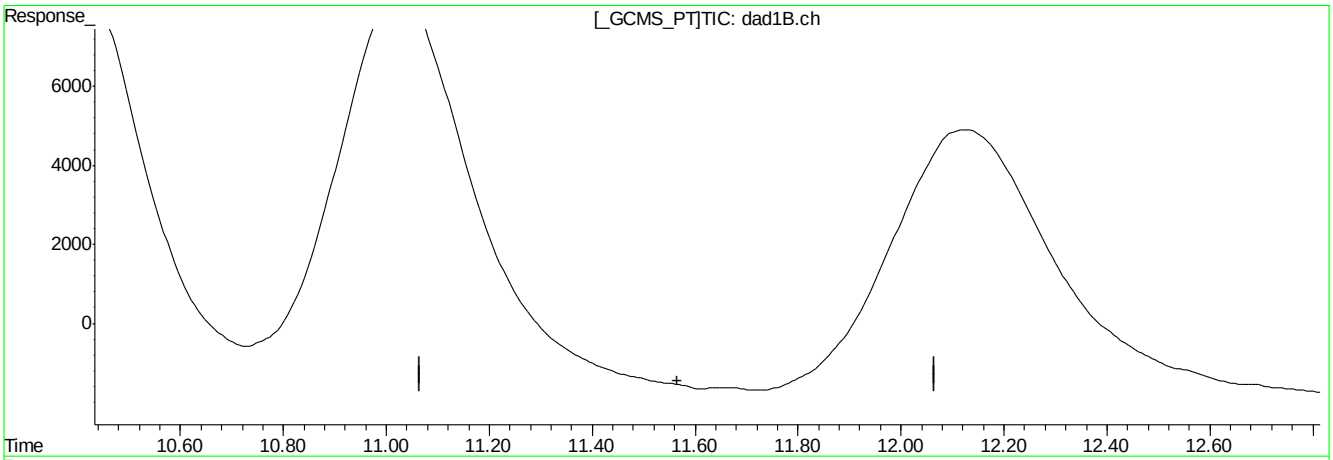
response 2919500

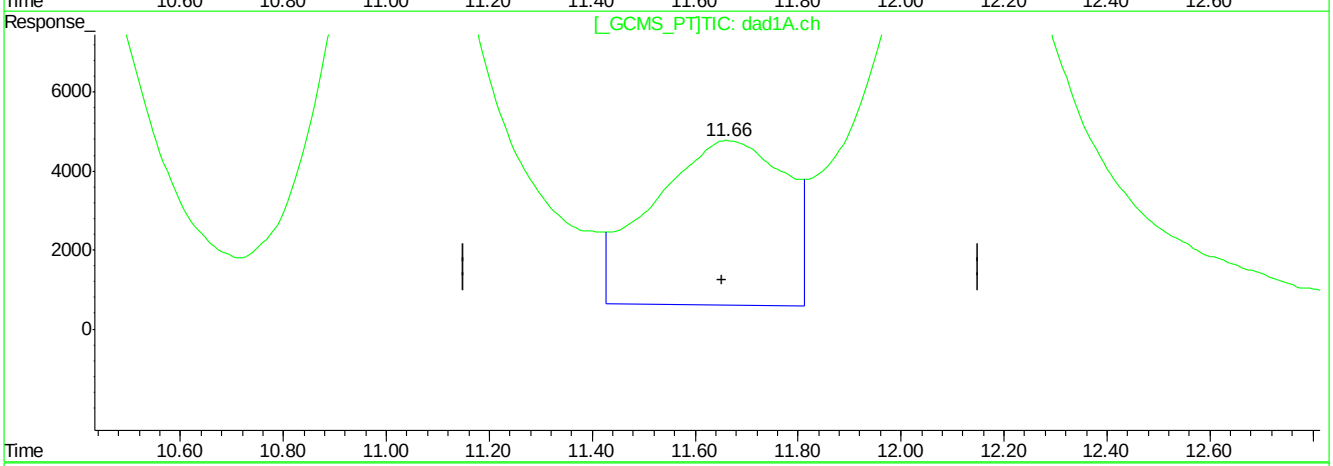
(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:33:54 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:29 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(10) Nitroglycerin

0.00min 0.000ppb

response 0

(10) Nitroglycerin #2

11.66min 201.718ppb m

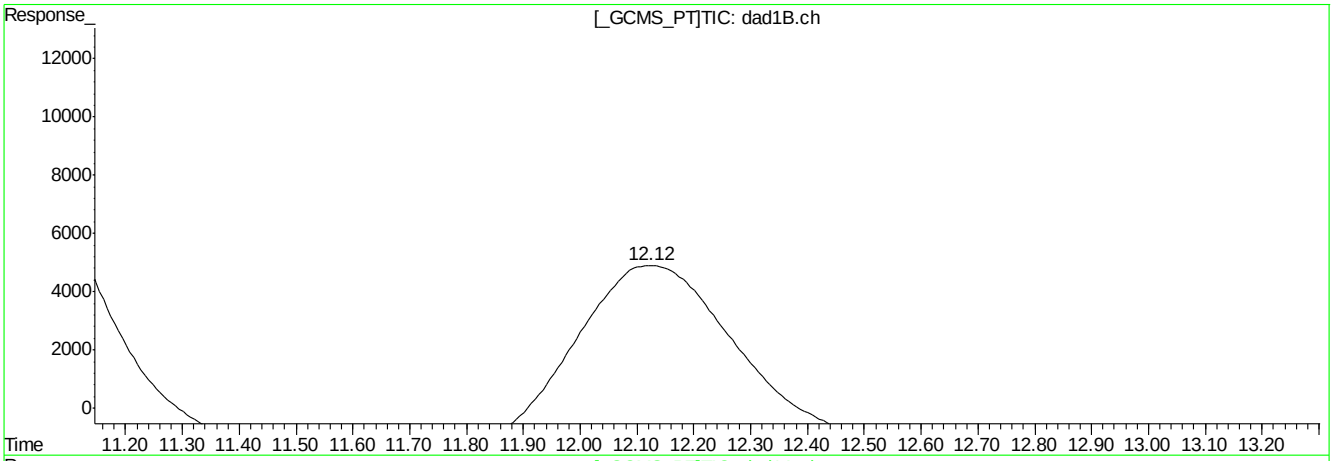
response 743814

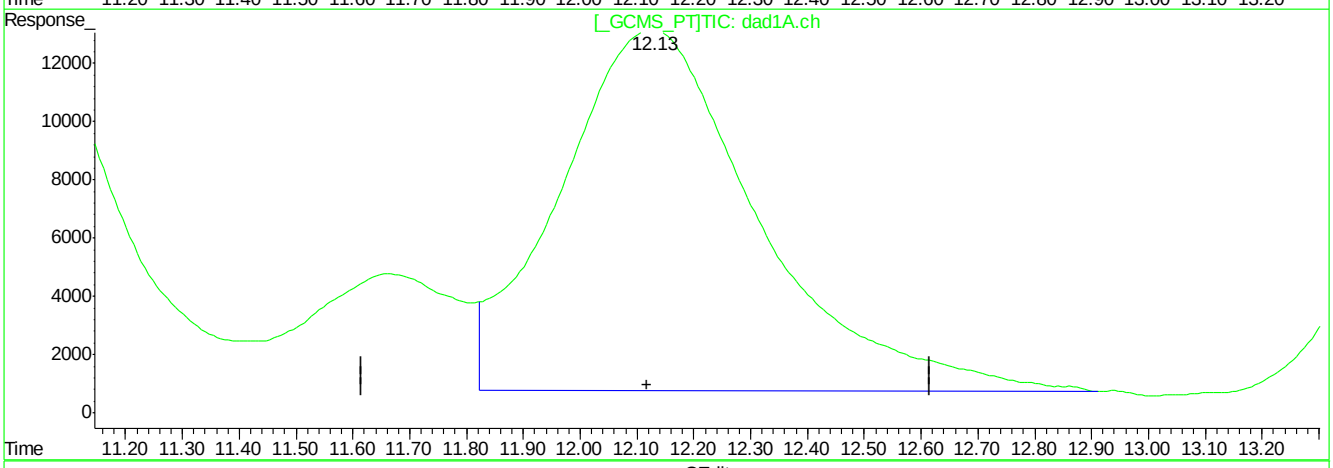
(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:34:01 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1B.ch Vial: 5
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617750.D\dad1A.ch
Acq On : 25-Sep-2019, 21:58:47 Operator: williamh
Sample : ic2769-200 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:29 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(11) Tetryl

12.13min 225.270ppb

response 1553902

(11) Tetryl #2

12.13min 229.656ppb m

response 3011692

(+) = Expected Retention Time
GG617750.D 8330RPB.M_092519.M Thu Sep 26 11:34:09 2019

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
09/26/19 16:28

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12:37 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.54	13.54	2281383	4445619	438.201	438.853
	Spiked Amount 500.000	Range 70 - 136		Recovery =		87.64%	87.77%
	Target Compounds						
1)	TNX	4.96	4.96	2989613	2973307	526.293m	522.317m
2)	HMX	5.38	5.38	1359298	1413019	372.621m	387.947m
3)	DNX	5.48	5.48	2092027	2139504	390.961m	403.713m
4)	MNX	6.33	6.33	2811687	2811687	482.843	482.856
5)	1,3,5-Trinitrobe	7.14	7.14	5164931	5164931	542.835	544.455
6)	RDX	7.55	7.55	2572902	2572902	556.633	560.729
7)	1,3-Dinitrobenze	9.51	9.51	6927186	5479726	517.417	540.348
8)	Nitrobenzene	10.42	10.42	4368356	3949762	514.950	470.342m
9)	2,4,6-Trinitroto	11.03	11.03	5090539	6753482	547.221	566.668m
10)	Nitroglycerin	0.00	11.67	0	1771692	N.D.	480.799m#
11)	Tetryl	12.14	12.13	3952625	6761754	573.014	519.169m
13)	2,6-Dinitrotolue	13.89	13.89	3620560	5255653	578.846	554.142
14)	2,4-Dinitrotolue	14.59	14.59	6366215	4136576	524.331	470.931
15)	o-Nitrotoluene	16.08	16.08	3051584	4173518	545.395	413.912
16)	3,5-Dinitroanili	15.47	15.47	5247298	8209950	482.434	434.481
17)	p-Nitrotoluene	17.12	17.12	5877803	10268368	517.113	494.299
18)	4-Amino-2,6-Dini	17.12	17.12	5877803	10268368	517.113	494.261
19)	m-Nitrotoluene	18.35	18.35	2941670	4567874	513.116	437.428
20)	2-Amino-4,6-Dini	19.20	19.20	4936073	6454657	572.143	519.952
21)	PETN	0.00	20.31	0	1231074	N.D.	488.527 #

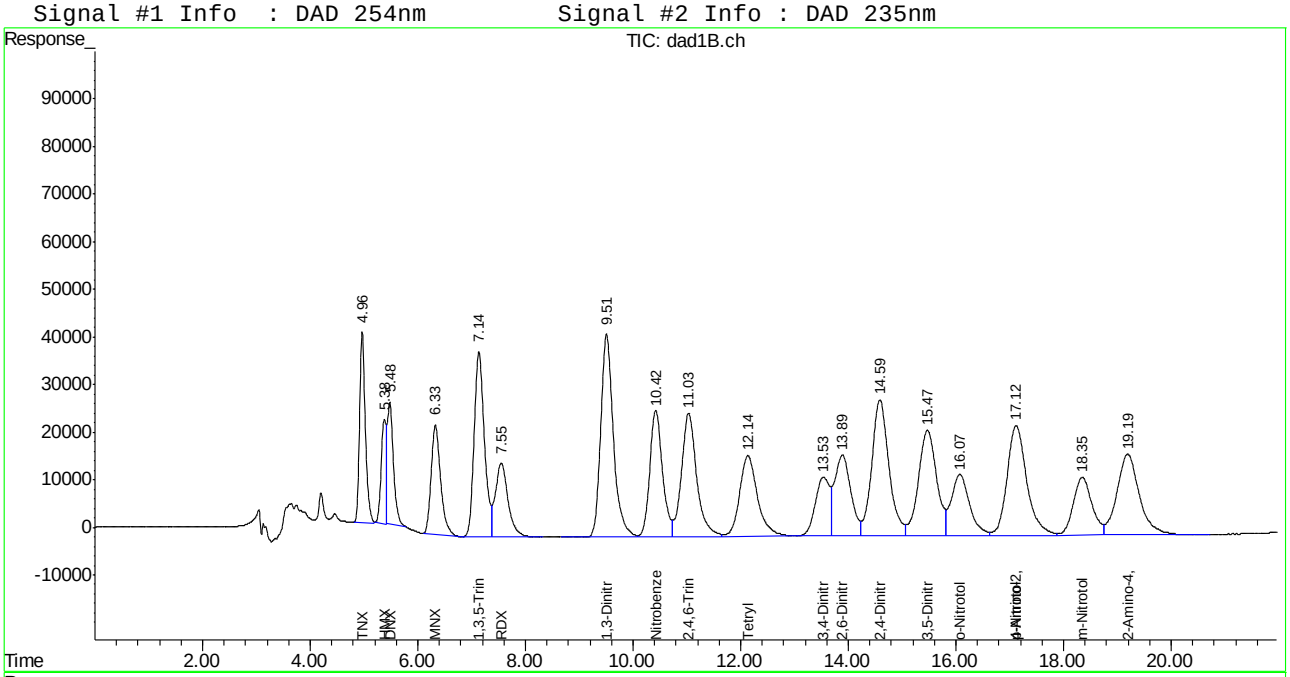
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

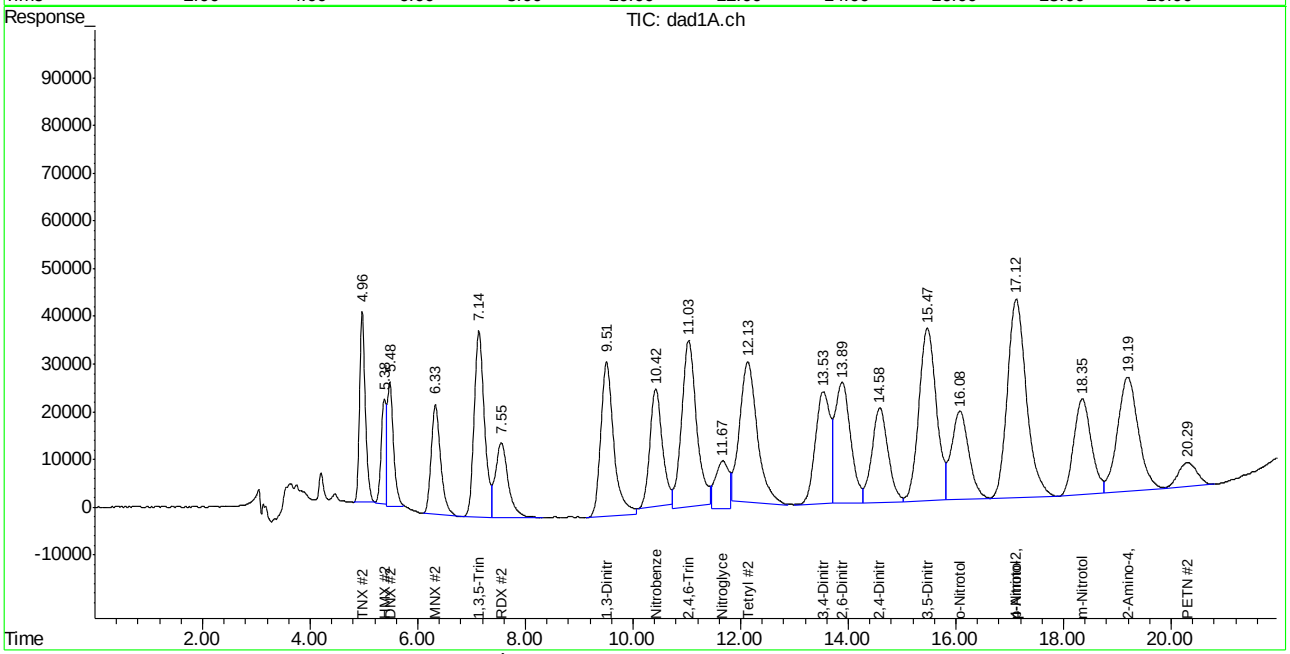
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:33 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

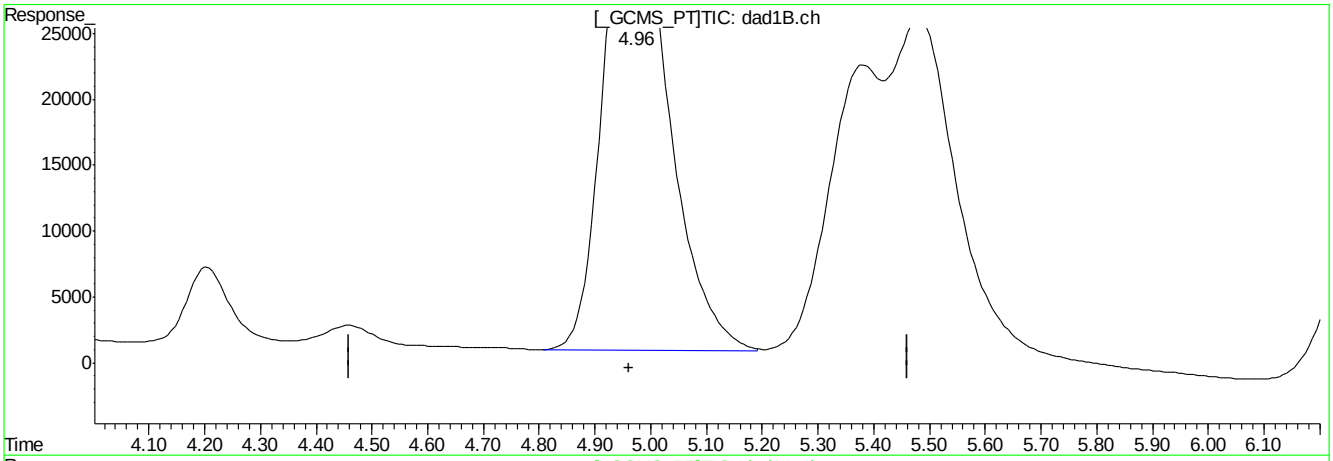
Sample Number: GGG2769-IC2769
Lab FileID: GG617751.D
Injection Time: 09/25/19 22:28
Method: SW846 8330B
Analyst approved: 09/26/19 16:07 William Hustedde
Supervisor approved: 09/26/19 16:28 Naresh Jiawan

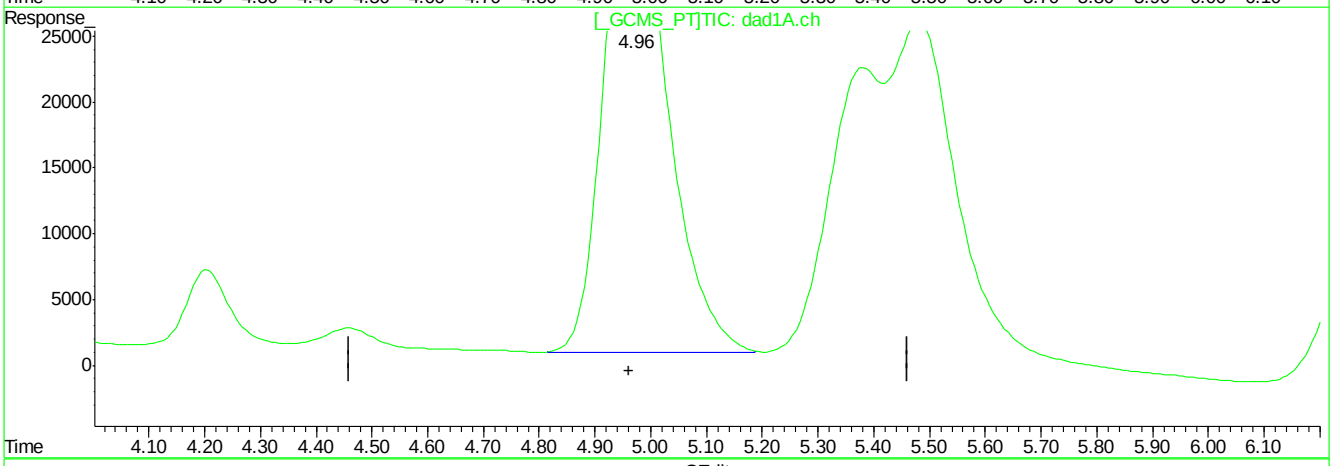
Parameter	CAS	Sig#	R.T. (min.)	Reason
TNX		1	4.96	Poor instrument integration
TNX		2	4.96	Poor instrument integration
HMX	2691-41-0	1	5.38	Poor instrument integration
HMX	2691-41-0	2	5.38	Poor instrument integration
DNX		1	5.48	Poor instrument integration
DNX		2	5.48	Poor instrument integration
Nitrobenzene	98-95-3	2	10.42	Poor instrument integration
2,4,6-Trinitrotoluene	118-96-7	2	11.03	Poor instrument integration
Nitroglycerine	55-63-0	2	11.67	Poor instrument integration
Tetryl	479-45-8	2	12.13	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(1) TNX

4.96min 526.293ppb m

response 2989613

(1) TNX #2

4.96min 522.317ppb m

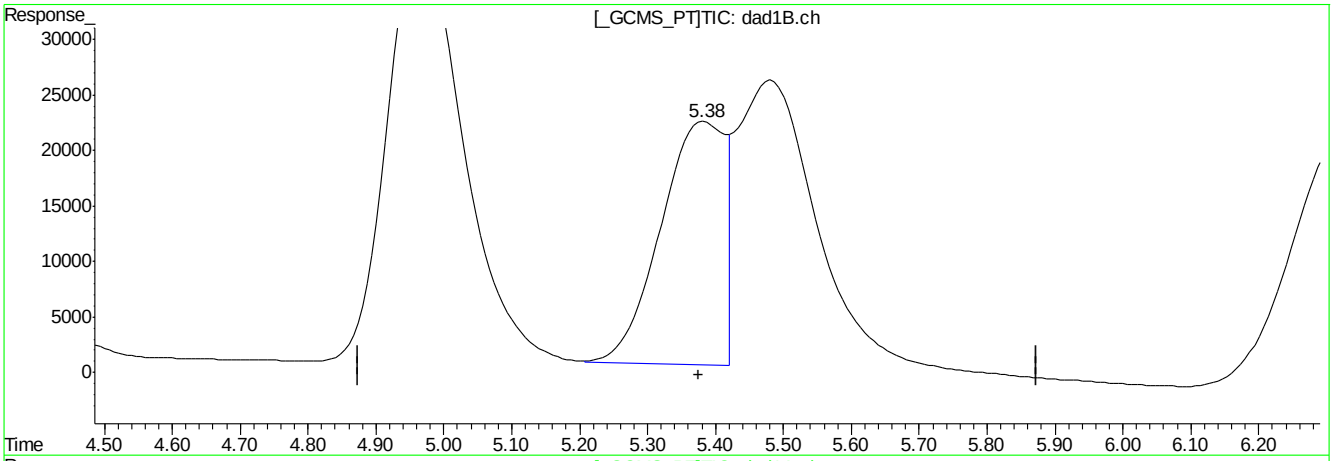
response 2973307

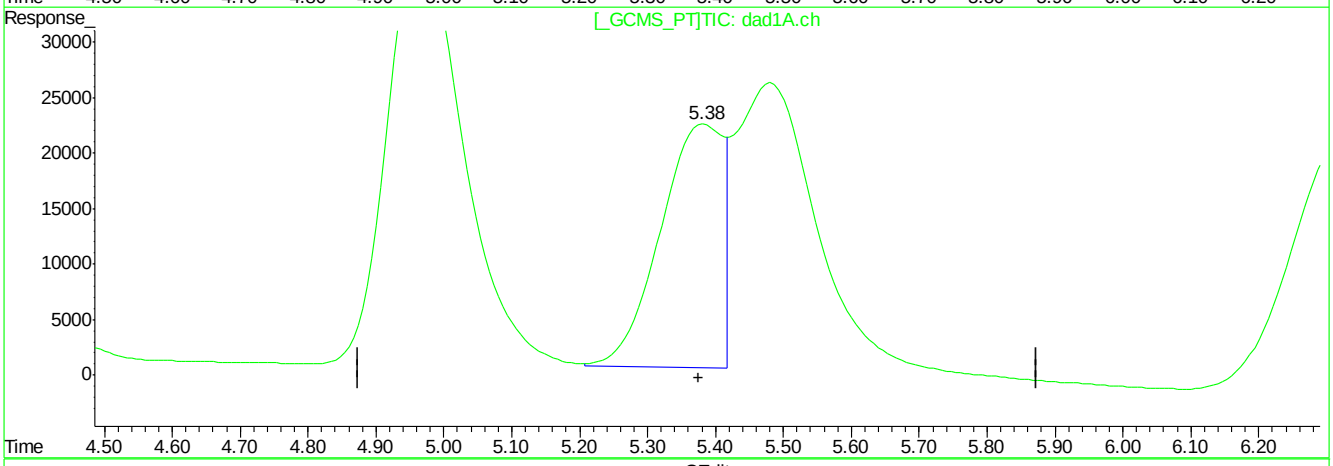
(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:30:29 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.38min 372.621ppb m

response 1359298

(2) HMX #2

5.38min 387.947ppb m

response 1413019

(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:30:37 2019

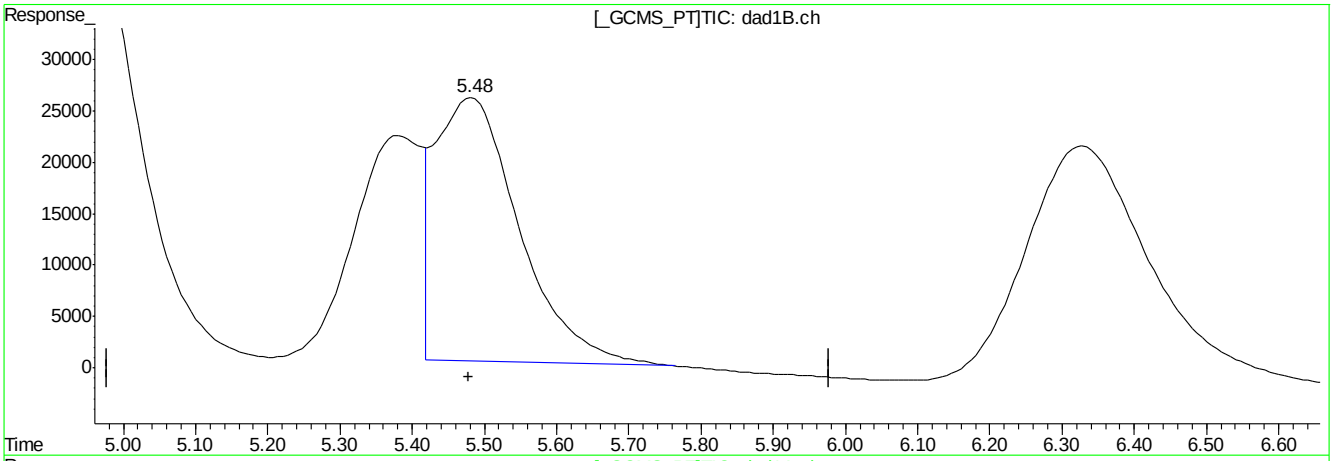
9.5.22.3

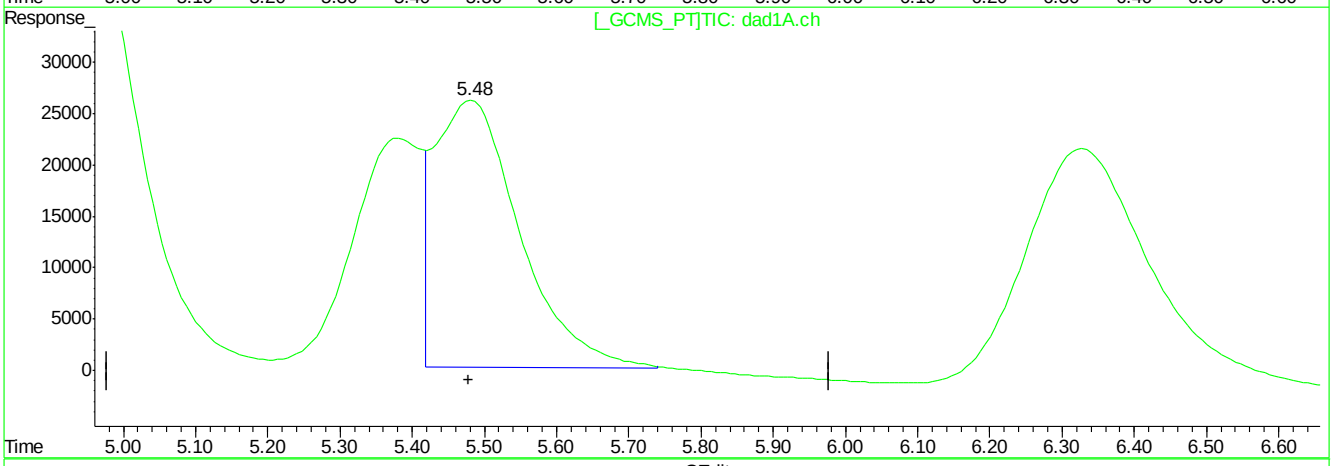
9

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(3) DNX

5.48min 390.961ppb m

response 2092027

(3) DNX #2

5.48min 403.713ppb m

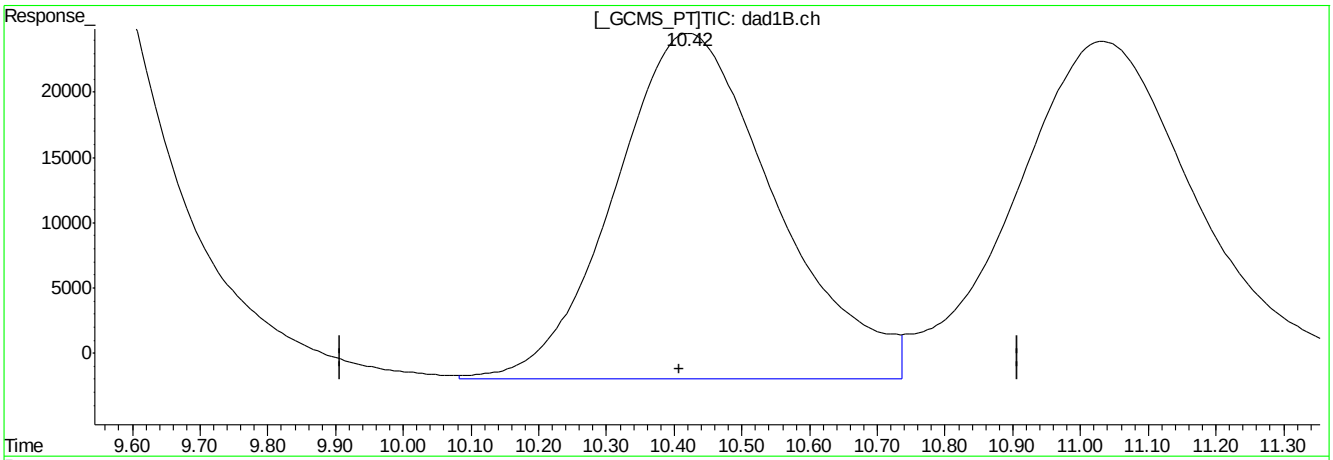
response 2139504

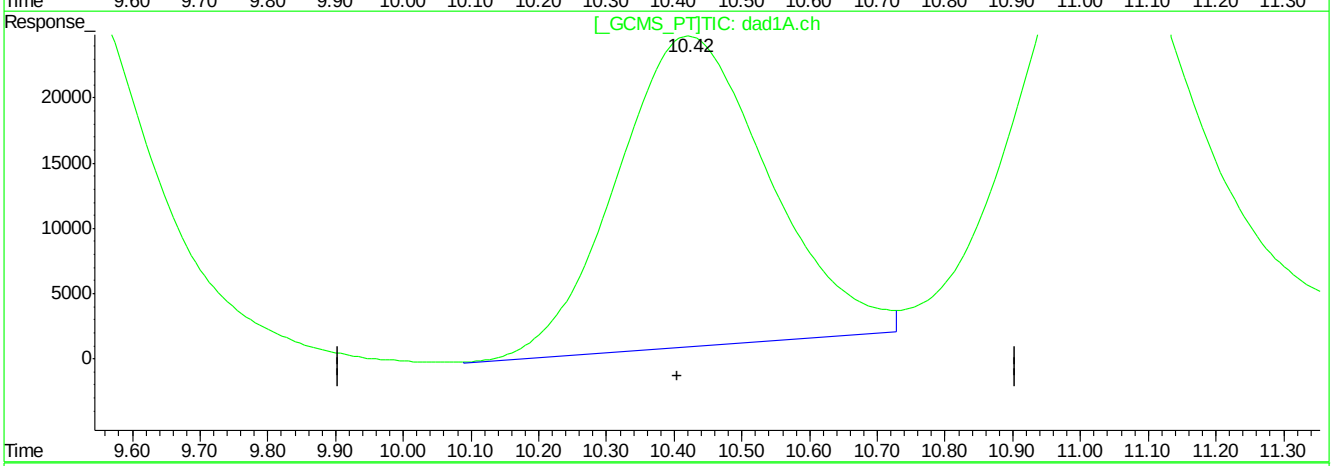
(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:30:46 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(8) Nitrobenzene

10.42min 514.950ppb

response 4368356

(8) Nitrobenzene #2

10.42min 445.545ppb m

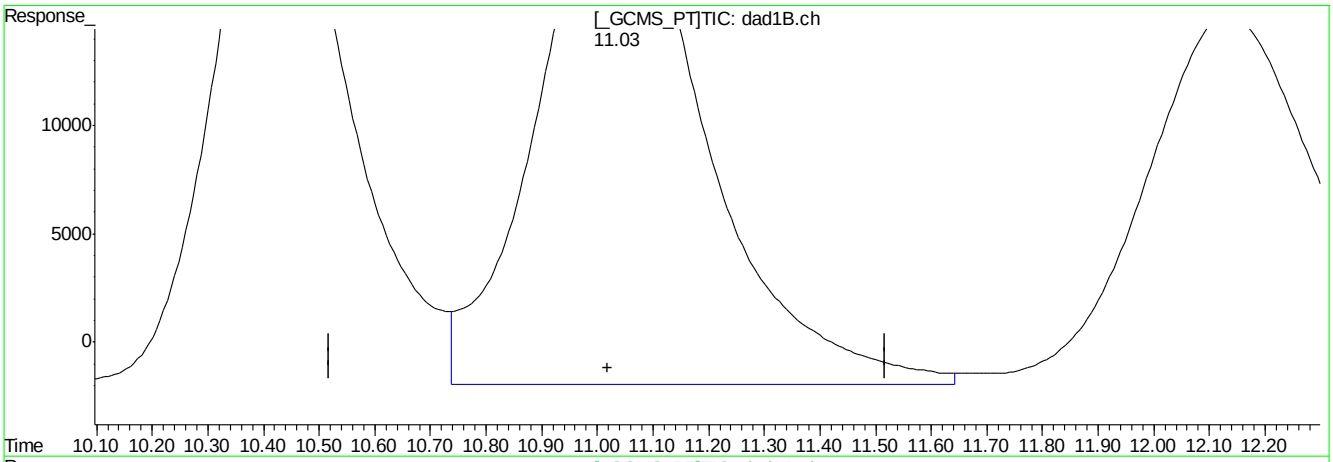
response 3743241

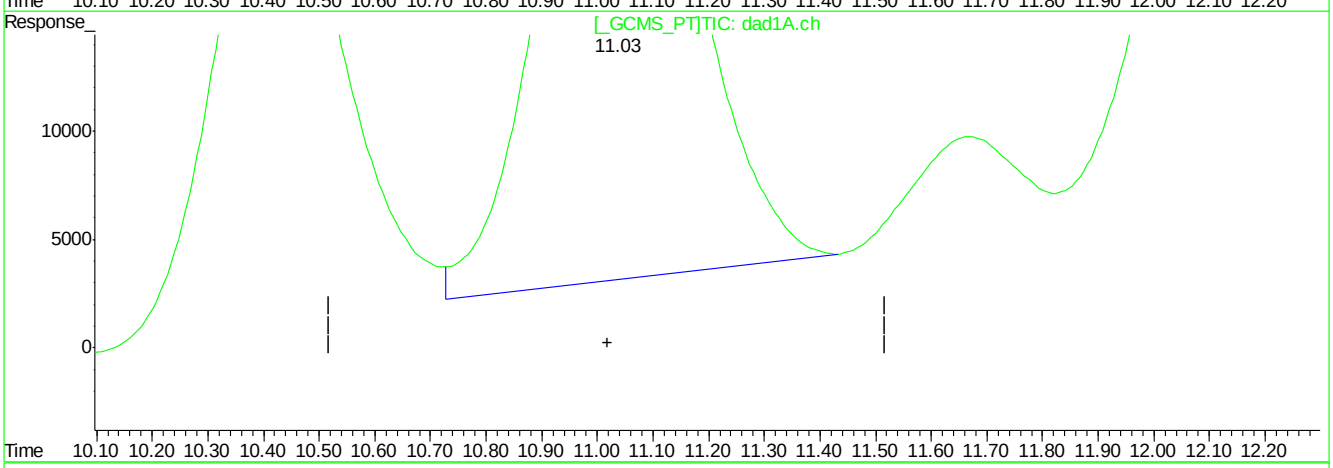
(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:31:04 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.03min 547.221ppb

response 5090539

(9) 2,4,6-Trinitrotoluene #2

11.03min 456.956ppb m

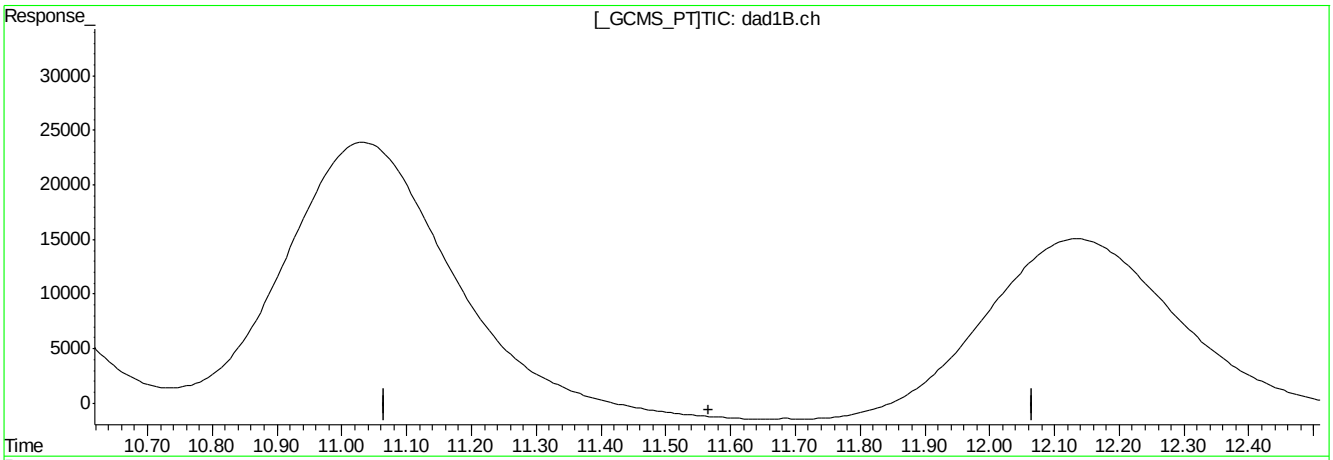
response 5445943

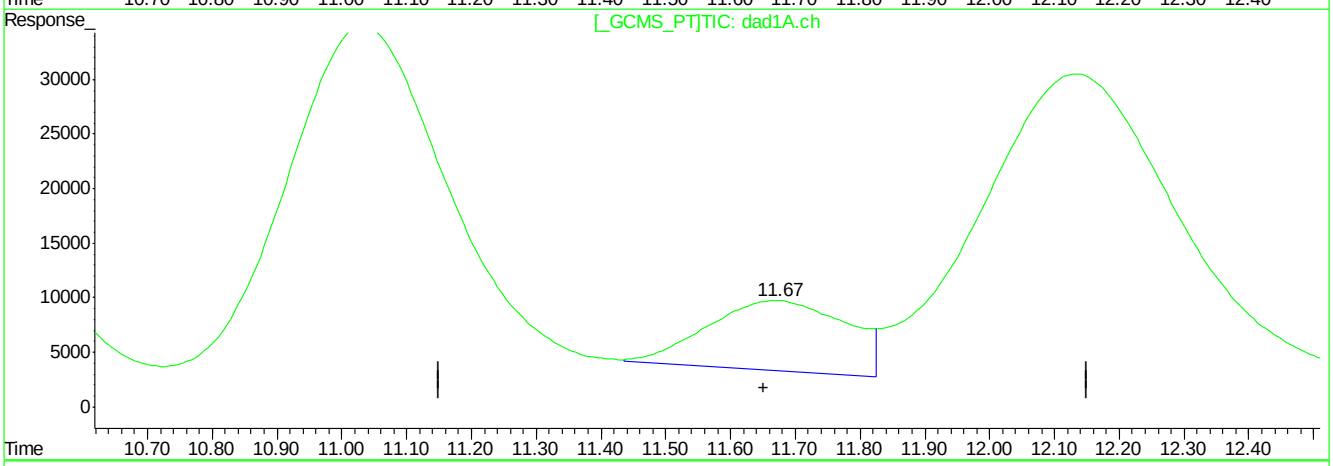
(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:31:10 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(10) Nitroglycerin

0.00min 0.000ppb

response 0

(10) Nitroglycerin #2

11.67min 257.891ppb m

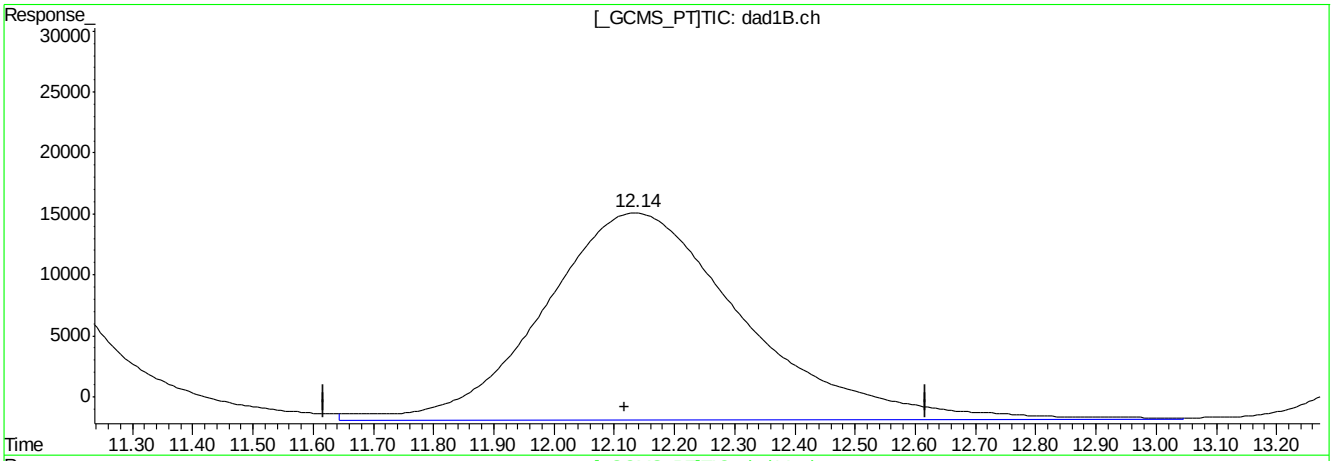
response 950817

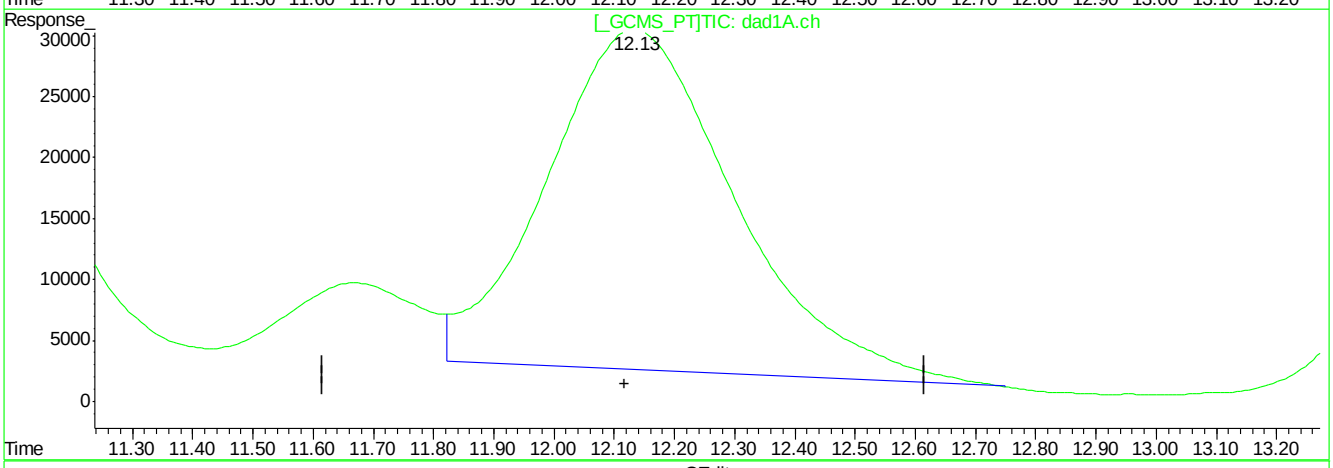
(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:31:19 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(11) Tetryl

12.14min 573.014ppb

response 3952625

(11) Tetryl #2

12.13min 464.205ppb m

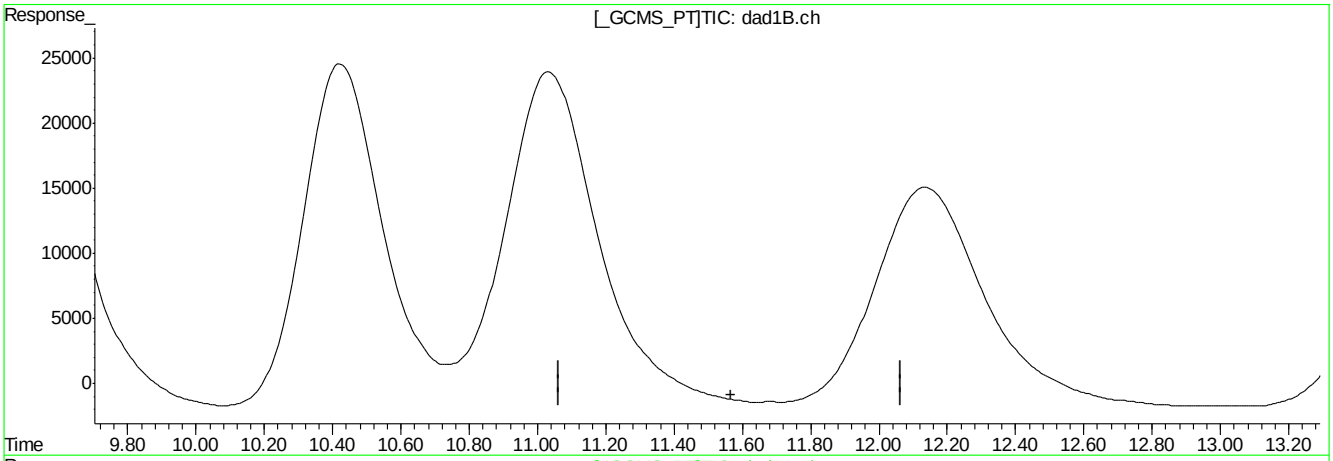
response 6053797

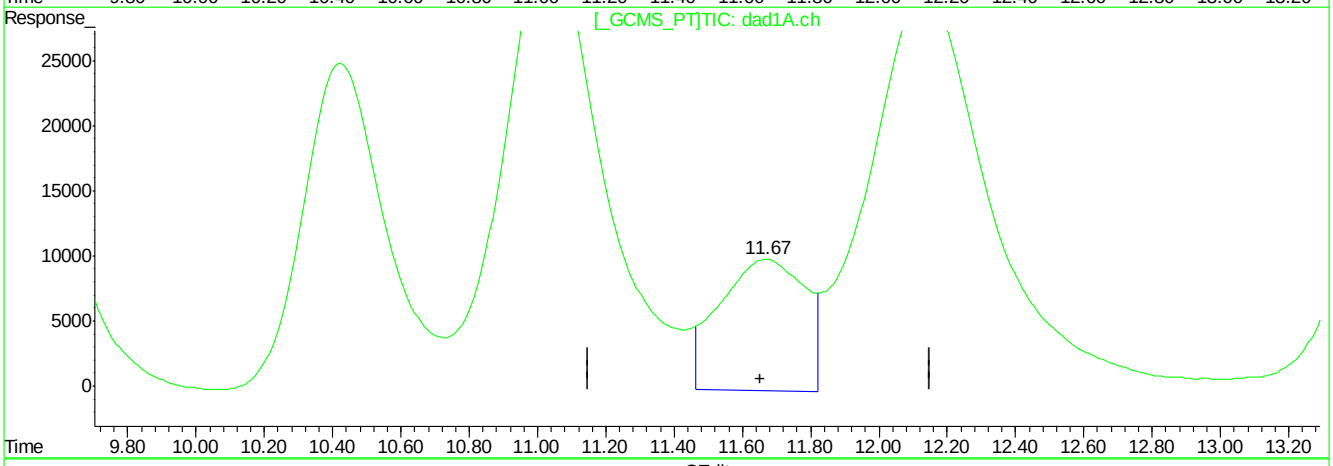
(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:31:24 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:31 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(10) Nitroglycerin

0.00min 0.000ppb

response 0

(10) Nitroglycerin #2

11.67min 480.799ppb m

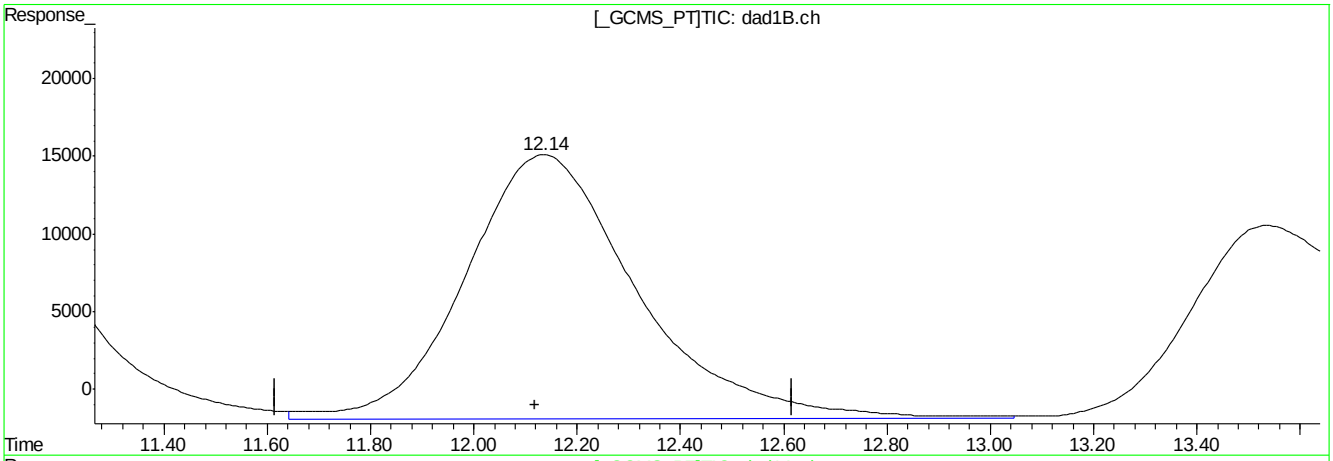
response 1771692

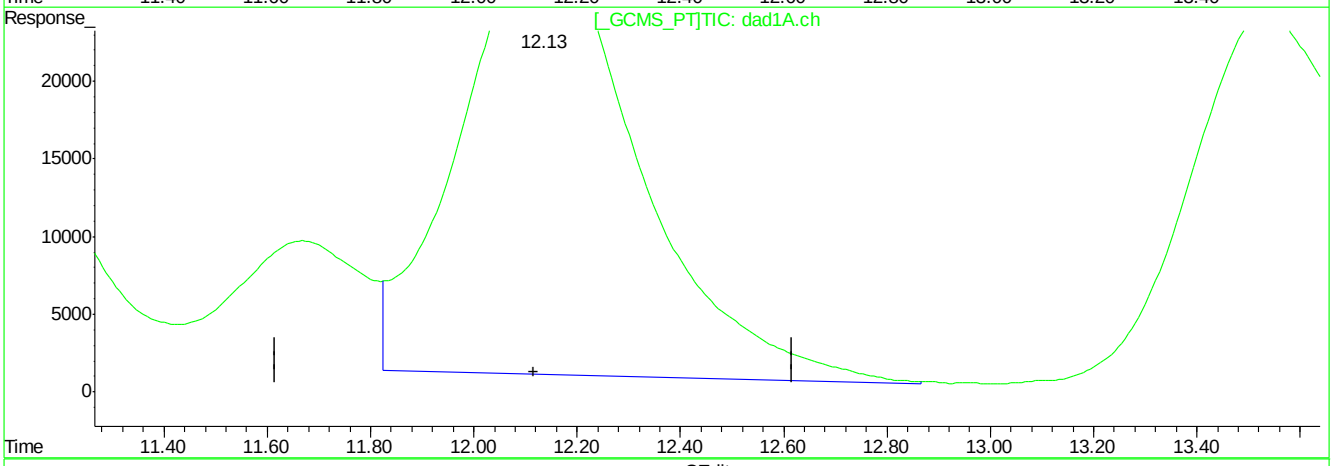
(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:33:01 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:31 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(11) Tetryl

12.14min 573.014ppb

response 3952625

(11) Tetryl #2

12.13min 519.169ppb m

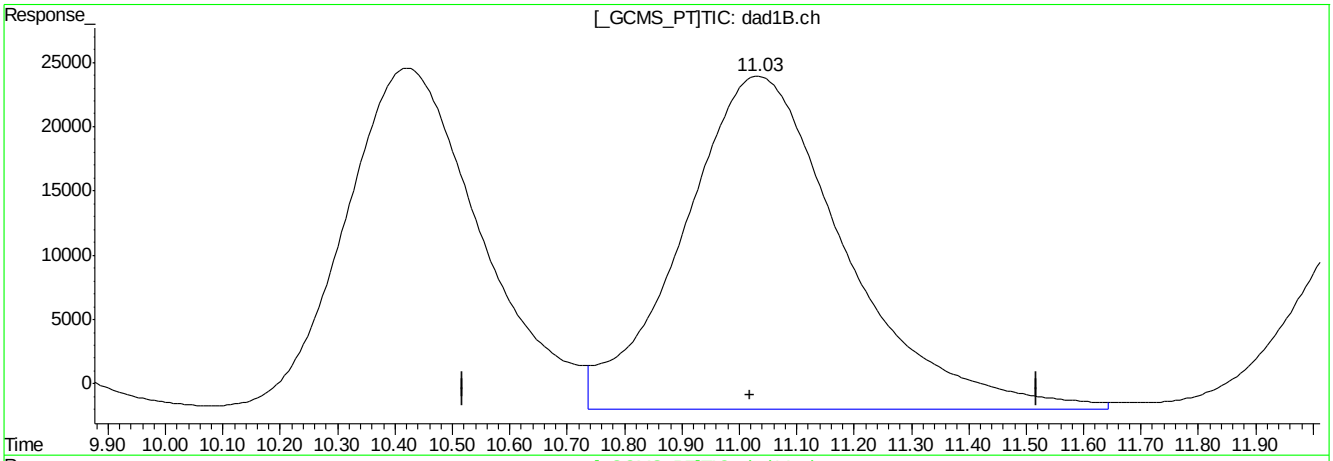
response 6761754

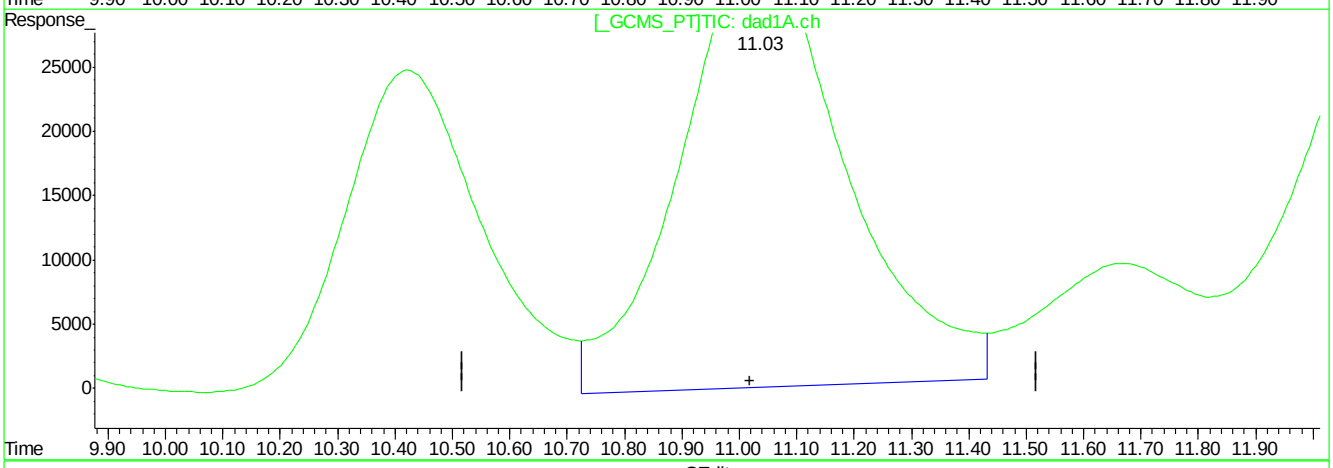
(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:33:10 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:31 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(9) 2,4,6-Trinitrotoluene

11.03min 547.221ppb

response 5090539

(9) 2,4,6-Trinitrotoluene #2

11.03min 566.668ppb m

response 6753482

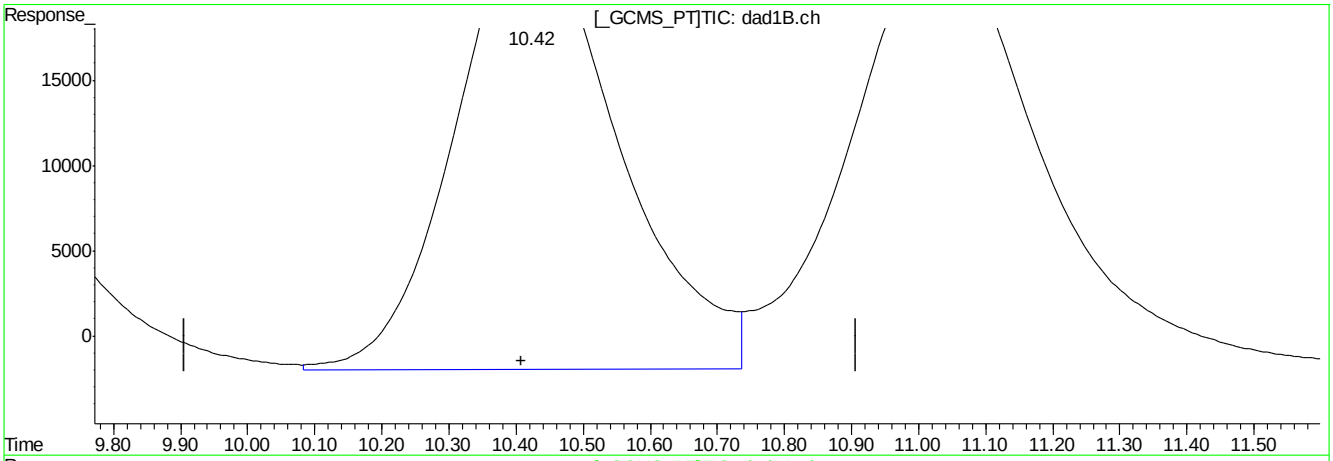
(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:33:18 2019

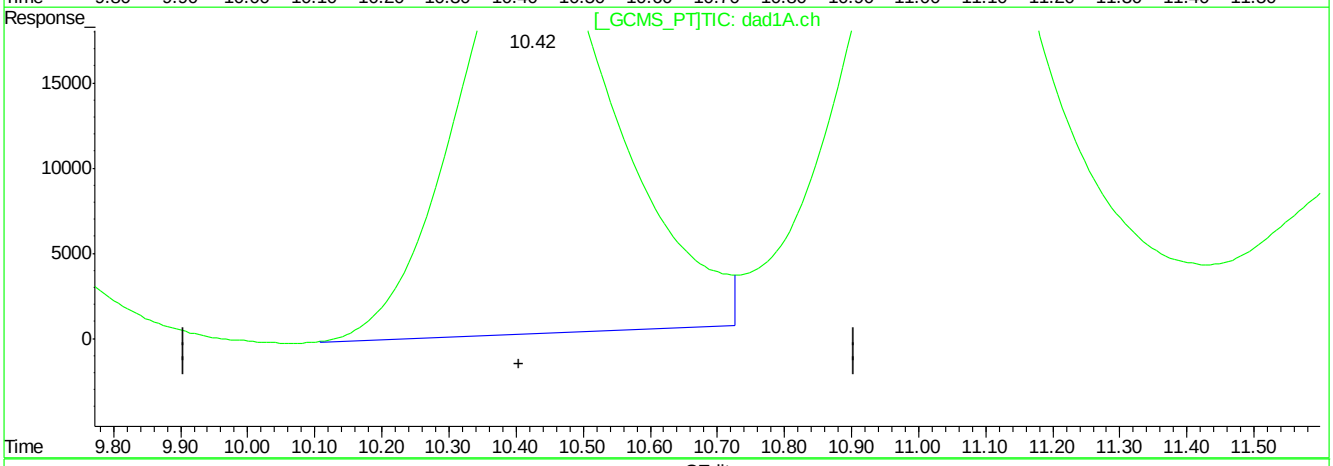
GG617751.D edits: 2,4,6-Trinitrotoluene

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1B.ch Vial: 6
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617751.D\dad1A.ch
Acq On : 25-Sep-2019, 22:28:13 Operator: williamh
Sample : ic2769-500 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:31 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(8) Nitrobenzene

10.42min 514.950ppb

response 4368356

(8) Nitrobenzene #2

10.42min 470.342ppb m

response 3949762

(+) = Expected Retention Time
GG617751.D 8330RPB.M_092519.M Thu Sep 26 11:33:24 2019

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 09/26/19 16:28

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617752.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617752.D\dad1A.ch
Acq On : 25-Sep-2019, 22:57:38 Operator: williamh
Sample : icc2769-1000 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12:38 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.53	13.52	4591322	9055692	881.888	892.036
	Spiked Amount 500.000	Range 70 - 136		Recovery =		176.38%#	178.41%#
	Target Compounds						
1)	TNX	4.96	4.96	6018347	6004425	1059.473m	1054.789m
2)	HMX	5.37	5.37	3026166	3027841	843.036m	844.146m
3)	DNX	5.48	5.48	4046919	4062739	767.488m	776.175m
4)	MNX	6.32	6.32	5734990	5734990	987.214	987.231
5)	1,3,5-Trinitrobe	7.13	7.13	10428175	10428175	1096.003	1099.274
6)	RDX	7.55	7.55	5159657	5159657	1116.264	1124.476
7)	1,3-Dinitrobenze	9.50	9.50	13991520	10641112	1045.078	1049.362
8)	Nitrobenzene	10.41	10.41	8835617	8512375	1041.560	1024.176
9)	2,4,6-Trinitroto	11.02	11.02	10246321	13648582	1101.456	1145.220
10)	Nitroglycerin	0.00	11.65	0	3332958	N.D.	905.425 #
11)	Tetryl	12.12	12.12	7927404	14234017	1149.239	1108.429
13)	2,6-Dinitrotolue	13.88	13.88	7351863	10767621	1175.396	1138.354
14)	2,4-Dinitrotolue	14.58	14.58	12909220	8826775	1063.222	1004.890
15)	o-Nitrotoluene	16.06	16.06	6201909	8738054	1108.438	866.604
16)	3,5-Dinitroanili	15.46	15.46	10530684	16811687	968.187	889.696
17)	p-Nitrotoluene	17.10	17.10	11894457	20829522	1046.442	1002.692
18)	4-Amino-2,6-Dini	17.10	17.10	11894457	20829522	1046.442	1002.615
19)	m-Nitrotoluene	18.33	18.33	5955214	9462873	1038.768	906.183
20)	2-Amino-4,6-Dini	19.16	19.16	9999547	13435173	1159.054	1082.265
21)	PETN	0.00	20.28	0	3078917	N.D.	1217.374 #

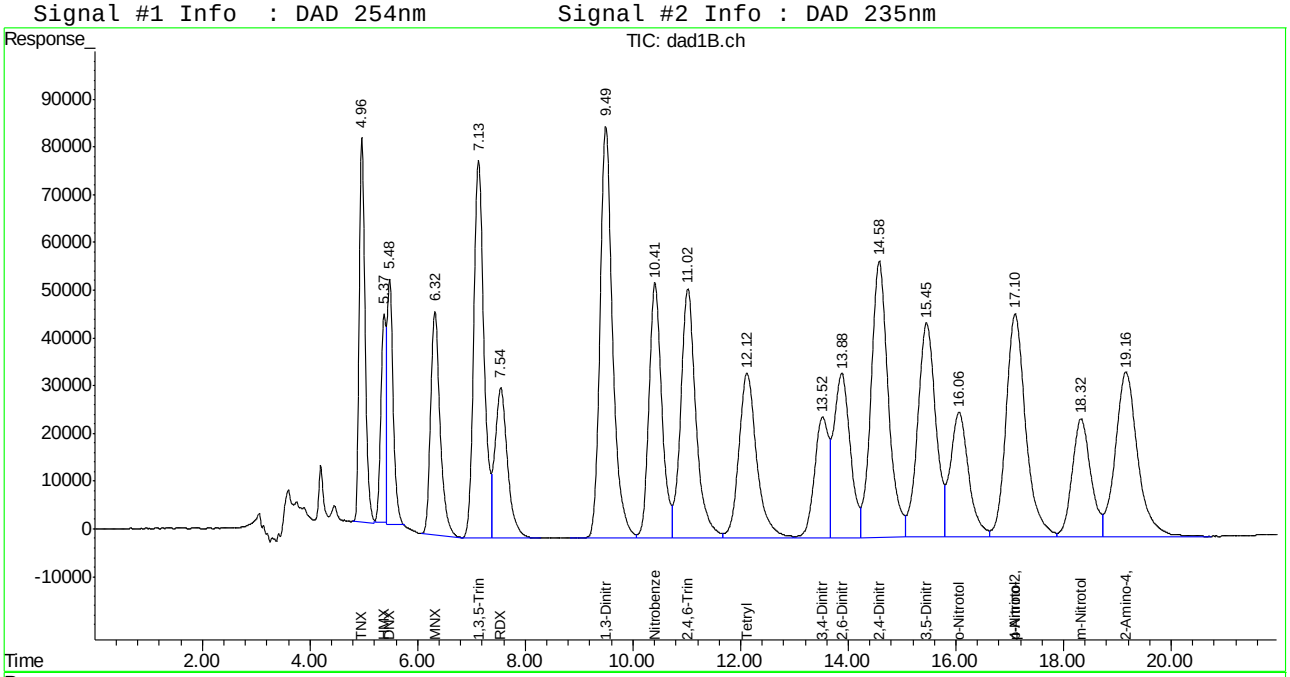
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

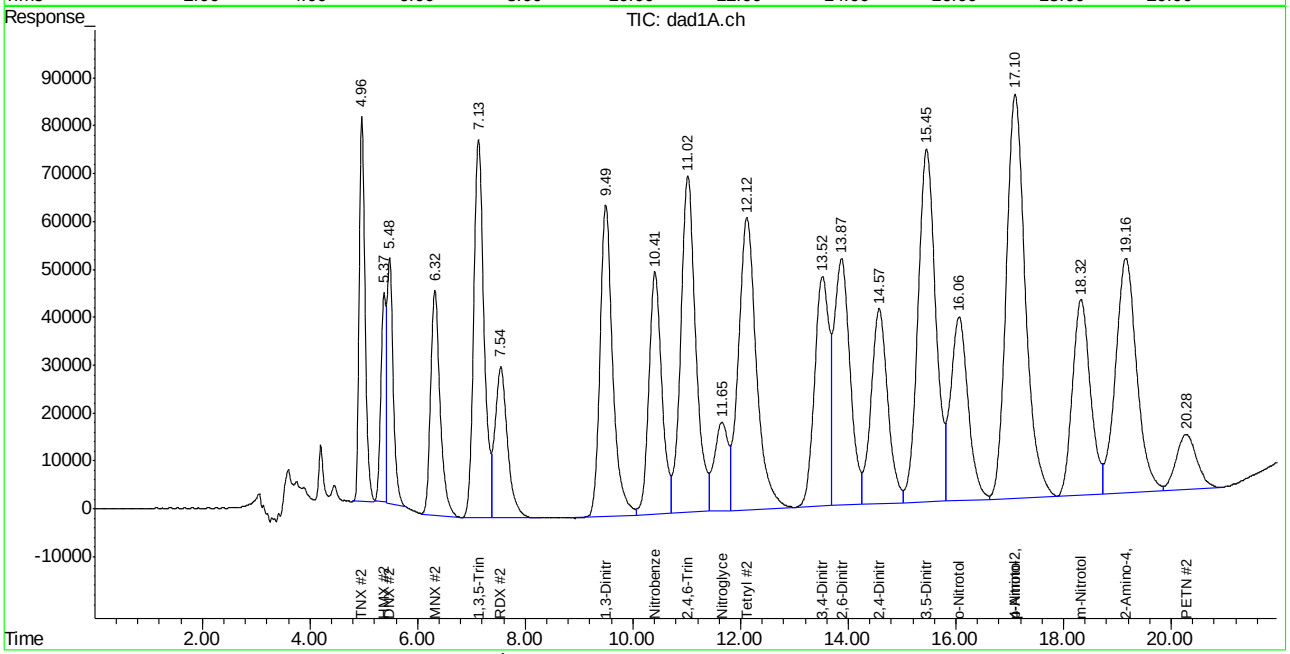
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617752.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617752.D\dad1A.ch
Acq On : 25-Sep-2019, 22:57:38 Operator: williamh
Sample : icc2769-1000 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:32 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

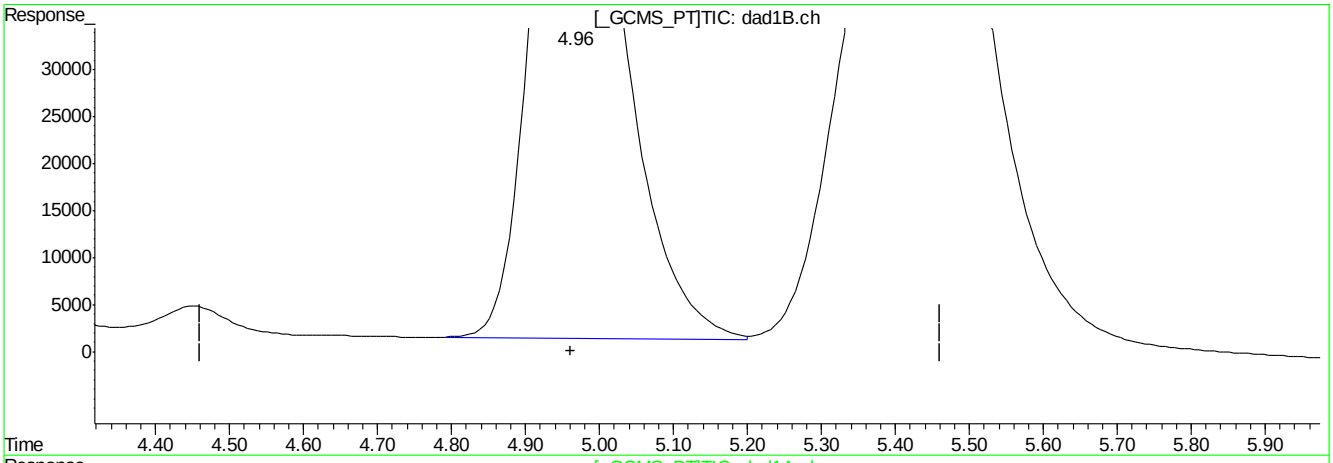
Sample Number: GGG2769-ICC2769
Lab FileID: GG617752.D
Injection Time: 09/25/19 22:57
Method: SW846 8330B
Analyst approved: 09/26/19 16:07 William Hustedde
Supervisor approved: 09/26/19 16:28 Naresh Jiawan

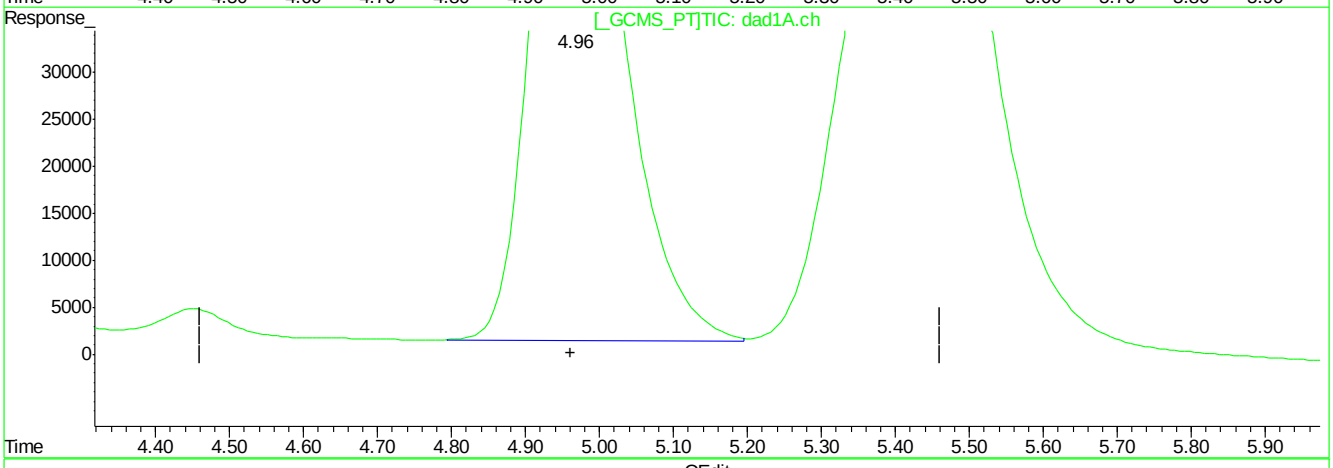
Parameter	CAS	Sig#	R.T. (min.)	Reason
TNX		1	4.96	Poor instrument integration
TNX		2	4.96	Poor instrument integration
HMX	2691-41-0	1	5.37	Poor instrument integration
HMX	2691-41-0	2	5.37	Poor instrument integration
DNX		1	5.48	Poor instrument integration
DNX		2	5.48	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617752.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617752.D\dad1A.ch
Acq On : 25-Sep-2019, 22:57:38 Operator: williamh
Sample : icc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(1) TNX

4.96min 1059.473ppb m

response 6018347

(1) TNX #2

4.96min 1054.789ppb m

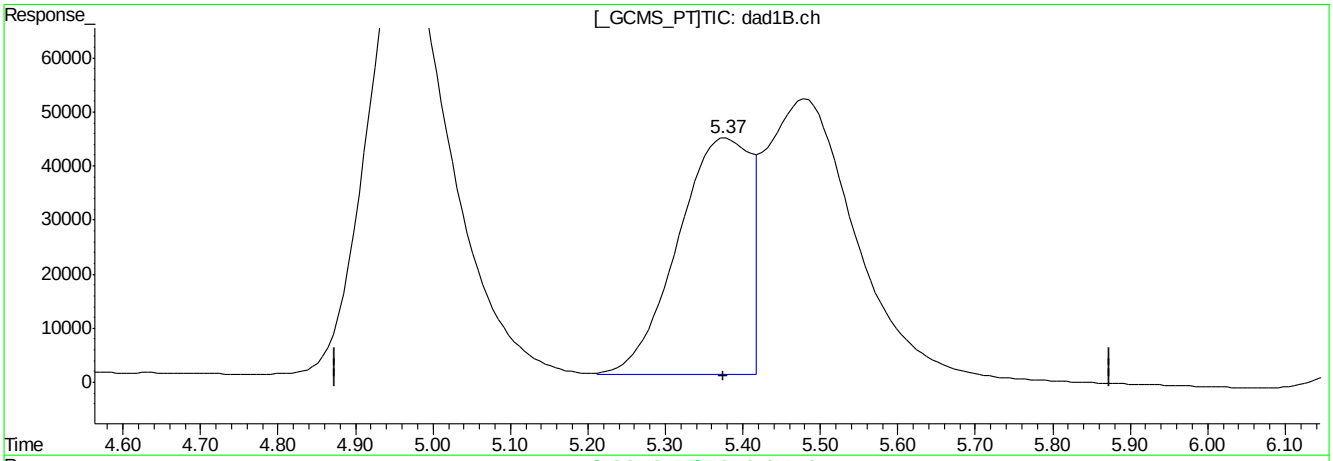
response 6004425

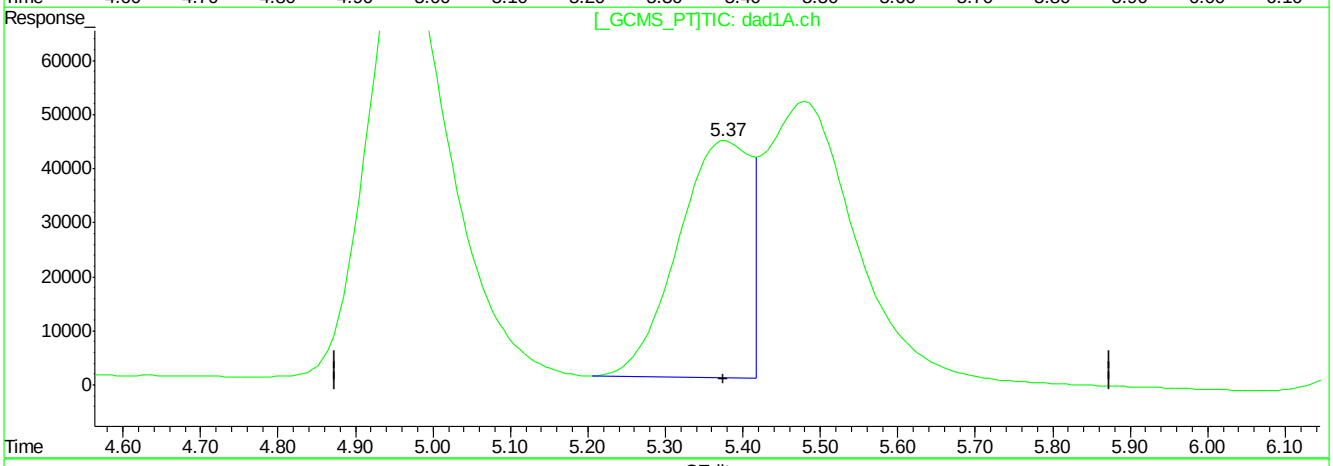
(+) = Expected Retention Time
GG617752.D 8330RPB.M_092519.M Thu Sep 26 11:31:47 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617752.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617752.D\dad1A.ch
Acq On : 25-Sep-2019, 22:57:38 Operator: williamh
Sample : icc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.37min 843.036ppb m

response 3026166

(2) HMX #2

5.37min 844.146ppb m

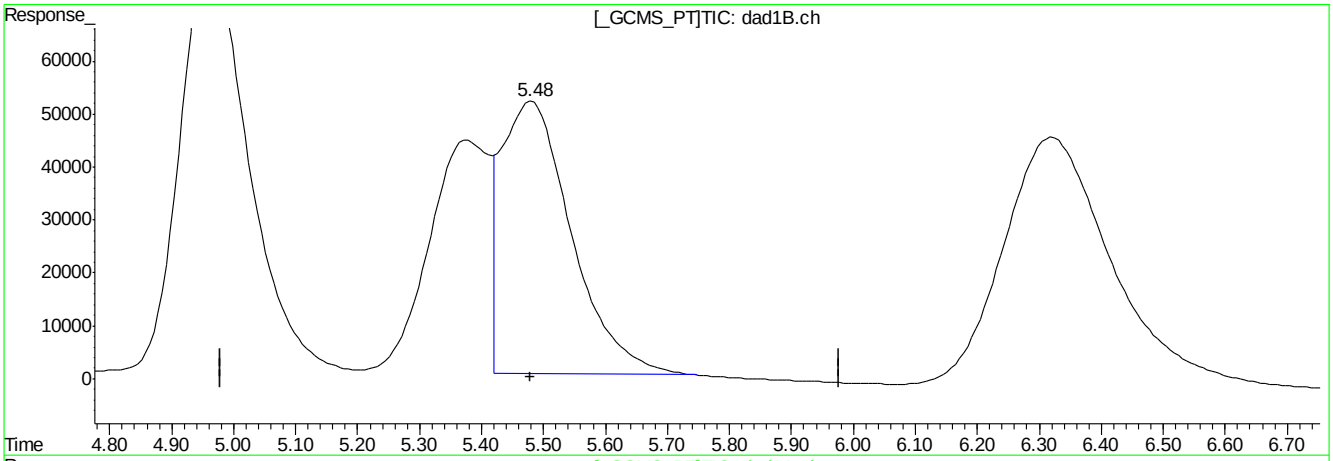
response 3027841

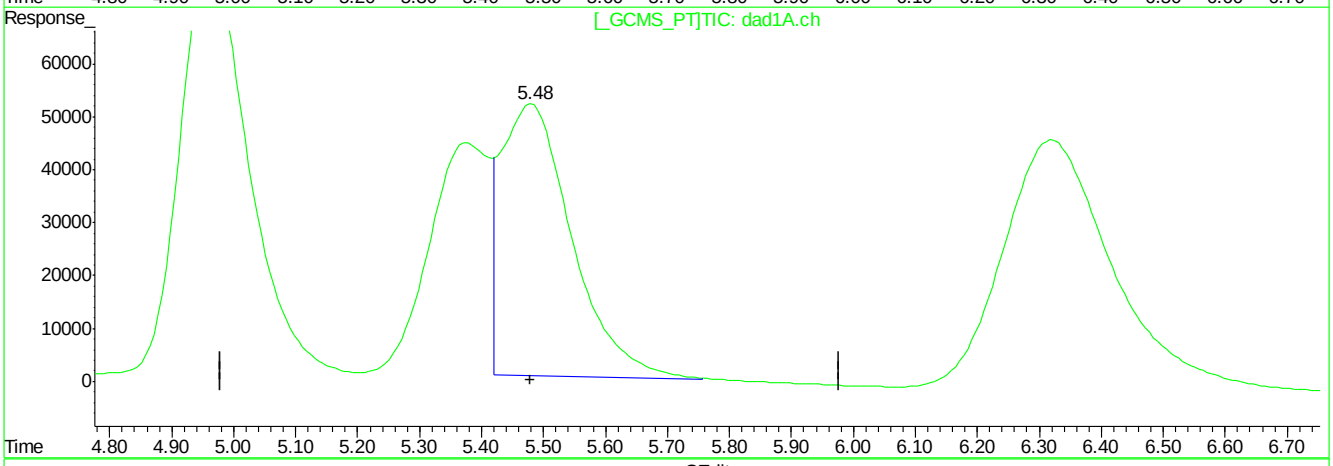
(+) = Expected Retention Time
GG617752.D 8330RPB.M_092519.M Thu Sep 26 11:31:55 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617752.D\dad1B.ch Vial: 7
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617752.D\dad1A.ch
Acq On : 25-Sep-2019, 22:57:38 Operator: williamh
Sample : icc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration





QEdit

(3) DNX

5.48min 767.488ppb m

response 4046919

(3) DNX #2

5.48min 776.175ppb m

response 4062739

(+) = Expected Retention Time
GG617752.D 8330RPB.M_092519.M Thu Sep 26 11:32:03 2019

GG617752.D edits: DNX

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617753.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617753.D\dad1A.ch
Acq On : 25-Sep-2019, 23:27:05 Operator: williamh
Sample : ic2769-2500 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12:39 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb	
	System Monitoring Compounds							
12) S	3,4-Dinitrotolue	13.53	13.53	11427135	22622399	2194.891	2214.666	
	Spiked Amount 500.000	Range 70 - 136		Recovery =		438.98%#	442.93%#	
	Target Compounds							
1)	TNX	4.96	4.96	15449035	15449035	2719.657	2713.910	
2)	HMX	5.38	5.38	7476194	7476194	2183.897	2183.383	
3)	DNX	5.48	5.48	10801869	10801869	2167.878	2164.227	
4)	MNX	6.33	6.33	14634680	14634680	2537.898	2537.865	
5)	1,3,5-Trinitrobe	7.14	7.14	26458043	26458043	2780.744	2789.044	
6)	RDX	7.55	7.55	12973470	12973470	2806.739	2827.390	
7)	1,3-Dinitrobenze	9.50	9.50	35336094	26792304	2639.382	2642.540	
8)	Nitrobenzene	10.41	10.41	22261102	20994018	2624.182	2602.867	
9)	2,4,6-Trinitroto	11.02	11.03	25828110	34018225	2776.463	2854.388	
10)	Nitroglycerin	0.00	11.66	0	8168741	N.D.	2226.244	#
11)	Tetryl	12.12	12.12	20146483	36422079	2920.645	2969.609	
13)	2,6-Dinitrotolue	13.88	13.88	18676188	27322720	2985.900	2912.280	
14)	2,4-Dinitrotolue	14.57	14.57	32684148	22848017	2691.914	2601.146	
15)	o-Nitrotoluene	16.06	16.06	15582462	22472561	2784.979	2228.736	
16)	3,5-Dinitroanili	15.43	15.43	26850786	43410142	2468.650	2297.320	
17)	p-Nitrotoluene	17.09	17.09	30163703	53830444	2653.720	2591.290	
18)	4-Amino-2,6-Dini	17.09	17.09	30163703	53830444	2653.720	2591.091	
19)	m-Nitrotoluene	18.32	18.32	15094613	24955421	2632.955	2389.778	
20)	2-Amino-4,6-Dini	19.13	19.13	25378119	35158532	2941.594	2832.181	
21)	PETN	0.00	20.28	0	8634754	N.D.	3377.775	#

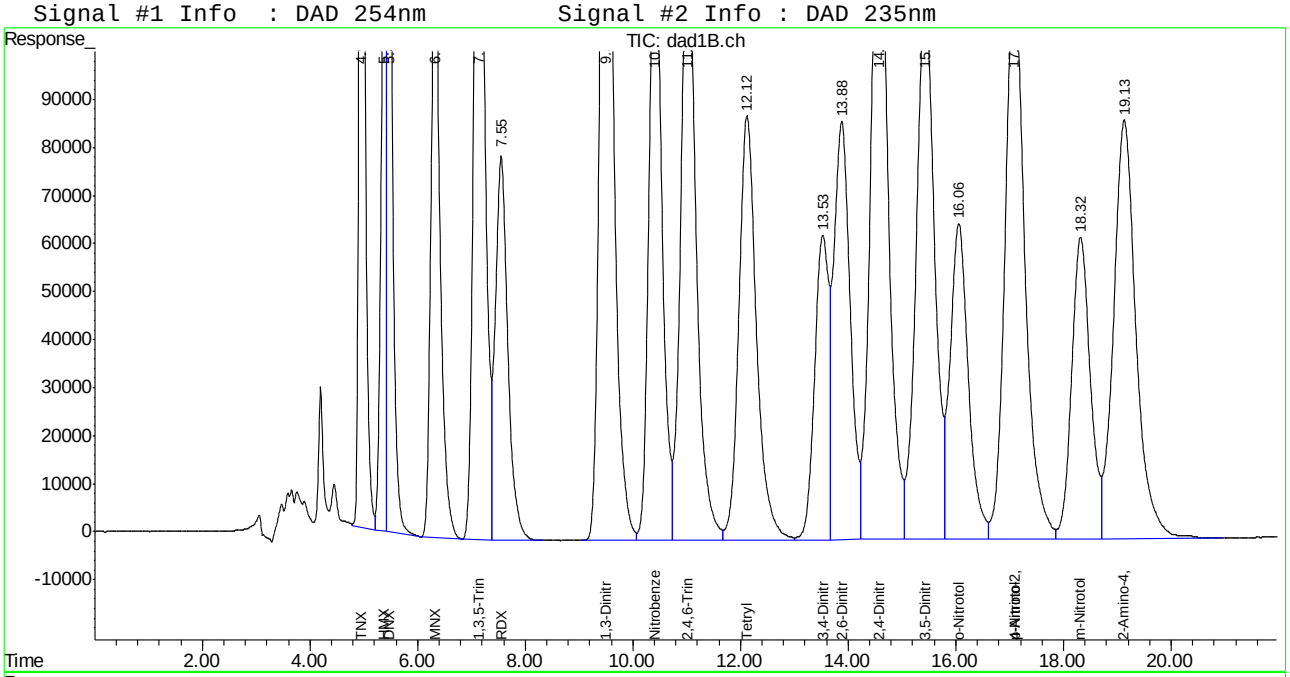
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

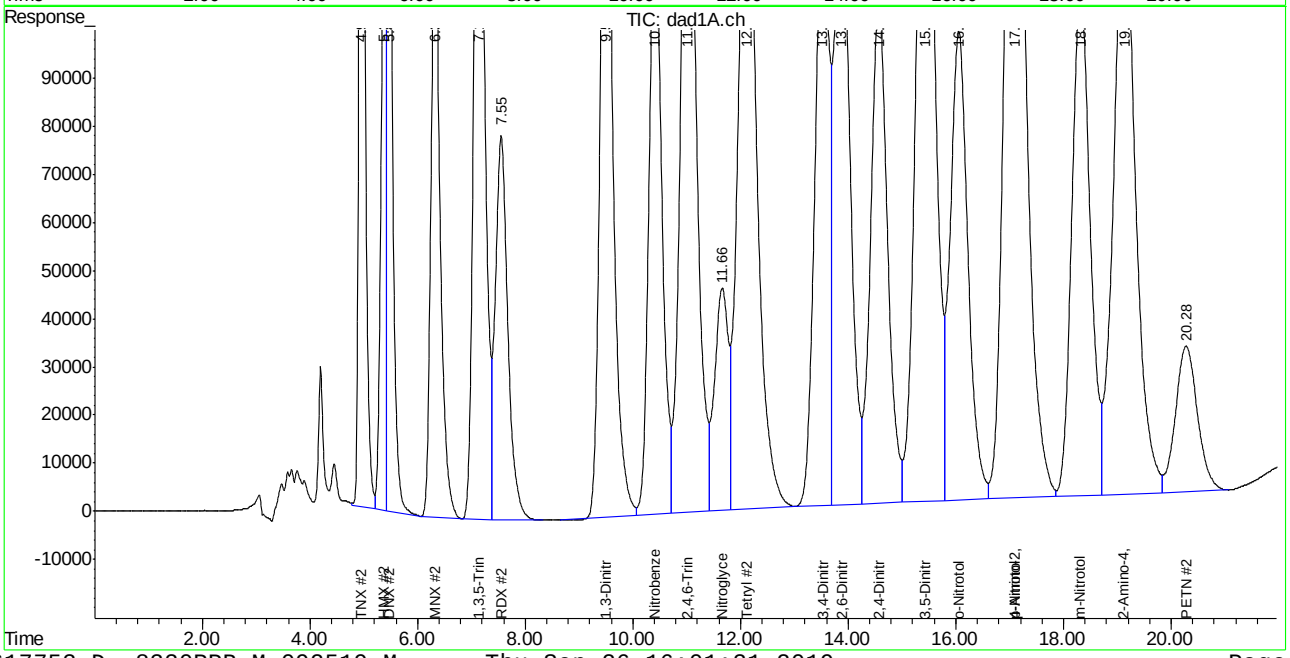
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617753.D\dad1B.ch Vial: 8
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617753.D\dad1A.ch
Acq On : 25-Sep-2019, 23:27:05 Operator: williamh
Sample : ic2769-2500 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617754.D\dad1B.ch Vial: 9
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617754.D\dad1A.ch
Acq On : 25-Sep-2019, 23:56:32 Operator: williamh
Sample : ic2769-5000 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12:40 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb	
	System Monitoring Compounds							
12) S	3,4-Dinitrotolue	13.61	13.61	22694012	45704871	4359.001	4428.579	
	Spiked Amount 500.000	Range 70 - 136		Recovery =		871.80%#	885.72%#	
	Target Compounds							
1)	TNX	4.96	4.96	30192410	30192410	5315.089	5303.858	
2)	HMX	5.38	5.38	14655794	14655794	4712.906	4699.865	
3)	DNX	5.48	5.48	20767103	20767103	4647.092	4539.317	
4)	MNX	6.33	6.33	28899678	28899678	5073.270	5072.941	
5)	1,3,5-Trinitrobe	7.15	7.15	52314501	52314501	5498.262	5514.673	
6)	RDX	7.56	7.56	25422911	25422911	5500.108	5540.575	
7)	1,3-Dinitrobenze	9.53	9.53	69786310	52489977	5212.594	5178.510	
8)	Nitrobenzene	10.45	10.45	44157450	41298399	5205.366	5413.898	
9)	2,4,6-Trinitroto	11.08	11.08	50532038	66013038	5432.079	5538.996	
10)	Nitroglycerin	0.00	11.72	0	15575975	N.D.	4266.154	#
11)	Tetryl	12.19	12.19	39181731	69694565	5680.193	6184.772	
13)	2,6-Dinitrotolue	13.95	13.95	36695921	53863518	5866.847	5819.536	
14)	2,4-Dinitrotolue	14.65	14.65	64169582	45461253	5285.100	5175.564	
15)	o-Nitrotoluene	16.15	16.15	30022716	44417557	5365.816	4405.150	
16)	3,5-Dinitroanili	15.50	15.50	52983074	87170322	4871.242	4613.165	
17)	p-Nitrotoluene	17.19	17.19	58898663	107.5E6	5181.743	5174.583	
18)	4-Amino-2,6-Dini	17.19	17.19	58898663	107.5E6	5181.743	5174.185	
19)	m-Nitrotoluene	18.42	18.42	29482656	50105401	5142.662	4798.188	
20)	2-Amino-4,6-Dini	19.24	19.24	48866600	70054734	5664.160	5643.230	
21)	PETN	0.00	20.41	0	17398593	N.D.	6696.595	#

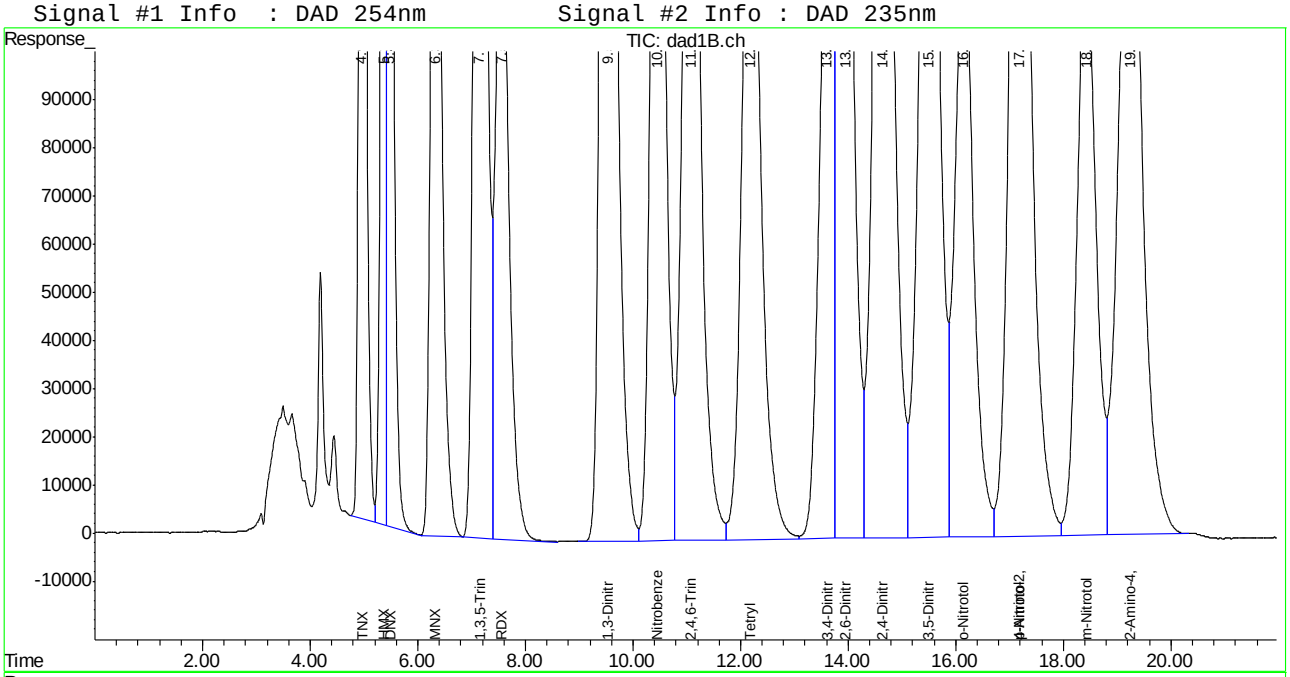
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.
GG617754.D 8330RPB.M_092519.M Thu Sep 26 16:01:32 2019 Page 1

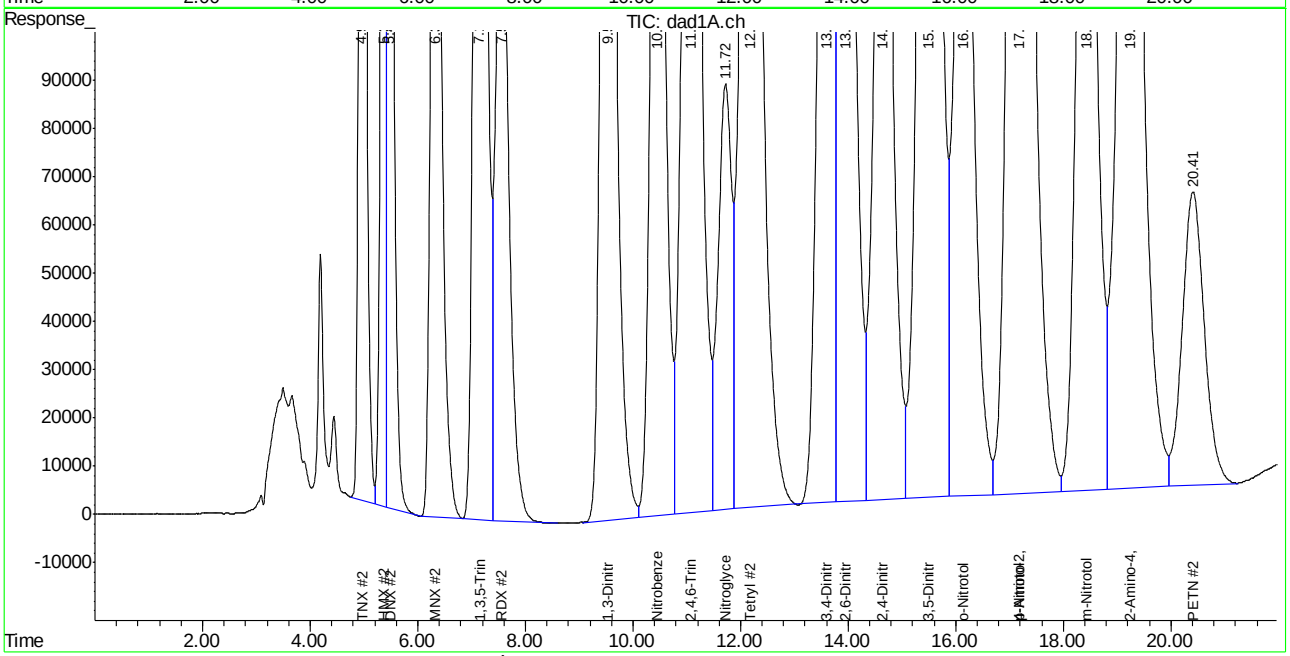
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617754.D\dad1B.ch Vial: 9
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617754.D\dad1A.ch
Acq On : 25-Sep-2019, 23:56:32 Operator: williamh
Sample : ic2769-5000 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:12 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:12:16 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
09/26/19 16:28

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617755.D\dad1B.ch Vial: 10
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617755.D\dad1A.ch
Acq On : 26-Sep-2019, 00:25:58 Operator: williamh
Sample : icv2769-1000 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:43:39 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:43:32 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	0.00	0.00	0	0	N.D.	N.D.
	Spiked Amount 500.000	Range 70 - 136		Recovery =		0.00%#	0.00%#
	Target Compounds						
1)	TNX	4.98	4.98	6146461	6146461	996.081	997.042
2)	HMX	5.40	5.40	2921780	2921780	980.590	974.217
3)	DNX	5.50	5.50	4119701	4119701	957.975	955.041
4)	MNX	6.36	6.36	5345176	5345176	1010.883	1008.886
5)	1,3,5-Trinitrobe	7.17	7.17	9498559	9498559	918.511	918.511
6)	RDX	7.59	7.59	4947804	4947804	975.924	975.924
7)	1,3-Dinitrobenze	9.55	9.55	13337178	10299301	954.196	986.349
8)	Nitrobenzene	10.47	10.47	8620445	8272061	968.207	977.336
9)	2,4,6-Trinitroto	11.09	11.09	10154932	13570285	995.903	1026.613
10)	Nitroglycerin	0.00	11.74	0	3455123	N.D.	999.345 #
11)	Tetryl	12.22	12.22	7535068	13687564	984.241	971.517
13)	2,6-Dinitrotolue	14.00	14.00	6309481	9116954	873.993	844.042
14)	2,4-Dinitrotolue	14.69	14.69	12383125	8606538	979.272	965.106
15)	o-Nitrotoluene	16.19	16.19	6129850	8377033	1054.033	1006.127
16)	3,5-Dinitroanili	15.55	15.55	10629658	17093123	1041.817	1029.620
17)	p-Nitrotoluene	17.24	17.24	11414366	19636916	984.309	894.241
18)	4-Amino-2,6-Dini	17.24	17.24	11414366	19636916	987.195	904.219
19)	m-Nitrotoluene	18.47	18.47	5938830	9298354	1018.222	934.998
20)	2-Amino-4,6-Dini	19.30	19.30	9221128	12186345	960.966	868.472
21)	PETN	0.00	20.47	0	2646792	N.D.	815.859m#

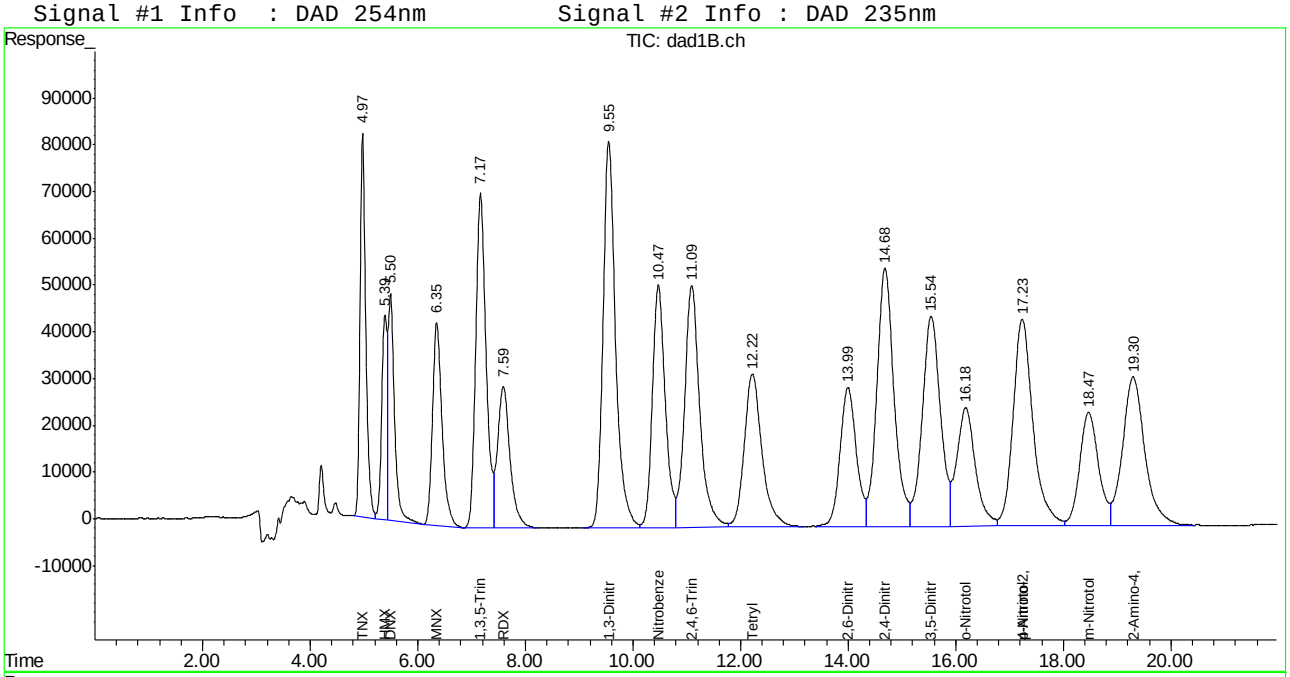
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

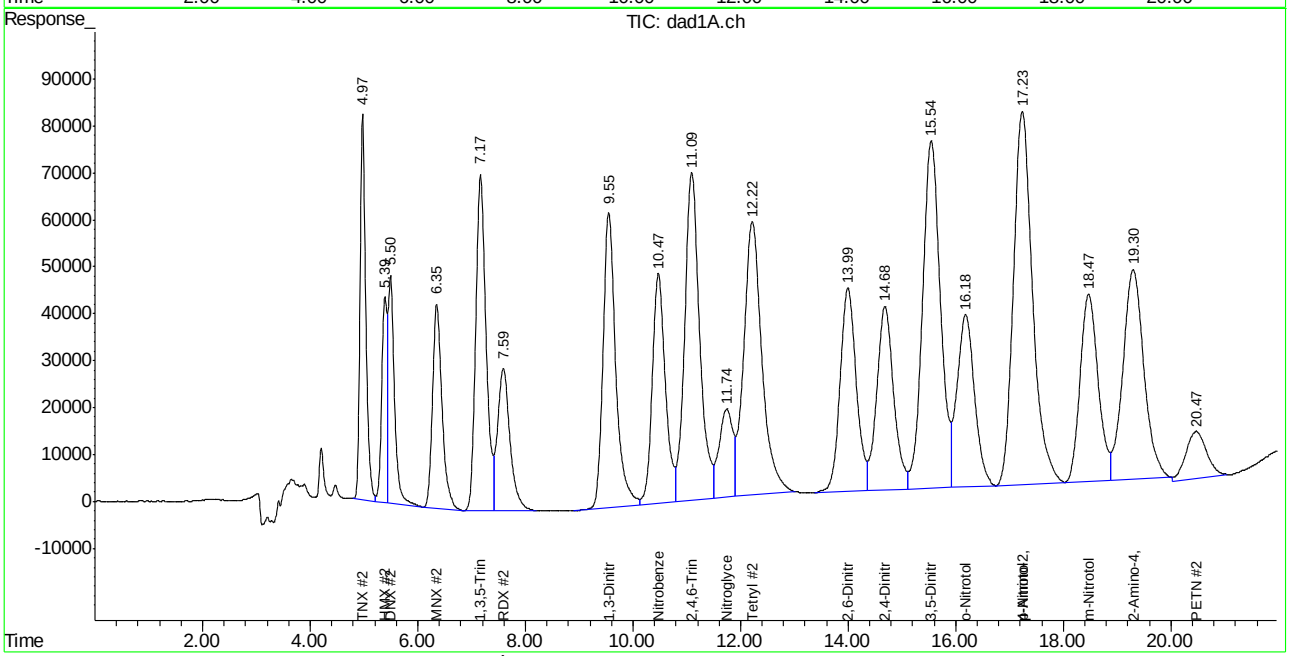
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2768\GG617755.D\dad1B.ch Vial: 10
Signal #2 : C:\HPCHEM\1\DATA\GGG2768\GG617755.D\dad1A.ch
Acq On : 26-Sep-2019, 00:25:58 Operator: williamh
Sample : icv2769-1000 Inst : G1315B
Misc : op76627,ggg2769,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Sep 26 11:43 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Sep 26 11:43:32 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

Sample Number: GGG2769-ICV2769
Lab FileID: GG617755.D
Injection Time: 09/26/19 00:25
Method: SW846 8330B
Analyst approved: 09/26/19 16:07 William Hustedde
Supervisor approved: 09/26/19 16:28 Naresh Jiawan

Parameter	CAS	Sig#	R.T. (min.)	Reason
PETN	78-11-5	2	20.47	Poor instrument integration

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan
10/29/19 16:47

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2778\GG617955.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2778\GG617955.D\dad1A.ch
Acq On : 28-Oct-2019, 23:54:40 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : op77416,ggg2778,1040,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Oct 29 10:08:51 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Oct 24 10:07:48 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.51	13.51	4012504	8073328	888.628	897.668
	Spiked Amount 500.000	Range 70 - 136		Recovery =		177.73%#	179.53%#
	Target Compounds						
1)	TNX	4.96	4.96	6830807	6830807	1107.617	1108.655
2)	HMX	5.38	5.38	2652889	2584252	890.346m	861.674m
3)	DNX	5.48	5.48	4849541	4423129	1129.245m	1026.026m
4)	MNX	6.32	6.32	5513198	5513198	1042.659	1040.600
5)	1,3,5-Trinitrobe	7.12	7.12	9636231	9636231	931.824	931.824
6)	RDX	7.53	7.53	4863151	4863151	959.226	959.226
7)	1,3-Dinitrobenze	9.48	9.48	13124615	10031275	938.988	960.680
8)	Nitrobenzene	10.38	10.38	8254016	7958974	927.052	940.346
9)	2,4,6-Trinitroto	11.00	11.00	9553376	12820974	936.908	969.927
10)	Nitroglycerin	0.00	11.64	0	3115422	N.D.	901.091 #
11)	Tetryl	12.10	12.10	7185234	13303762	938.545	944.276
13)	2,6-Dinitrotolue	13.84	13.83	7184850	10241998	995.250	938.430
14)	2,4-Dinitrotolue	14.54	14.54	12106517	8019121	957.398	899.235
15)	o-Nitrotoluene	16.00	15.99	5915196	7992844	1017.123	959.984
16)	3,5-Dinitroanili	15.40	15.40	9861556	15498273	966.535	933.553
17)	p-Nitrotoluene	17.05	17.05	11178882	19070984	964.002	868.469
18)	4-Amino-2,6-Dini	17.05	17.05	11178882	19070984	966.829	878.160
19)	m-Nitrotoluene	18.26	18.26	5592529	8710852	958.848	875.922
20)	2-Amino-4,6-Dini	19.11	19.11	9348556	12424732	974.246	885.461
21)	PETN	0.00	20.23	0	2872043	N.D.	884.192 #

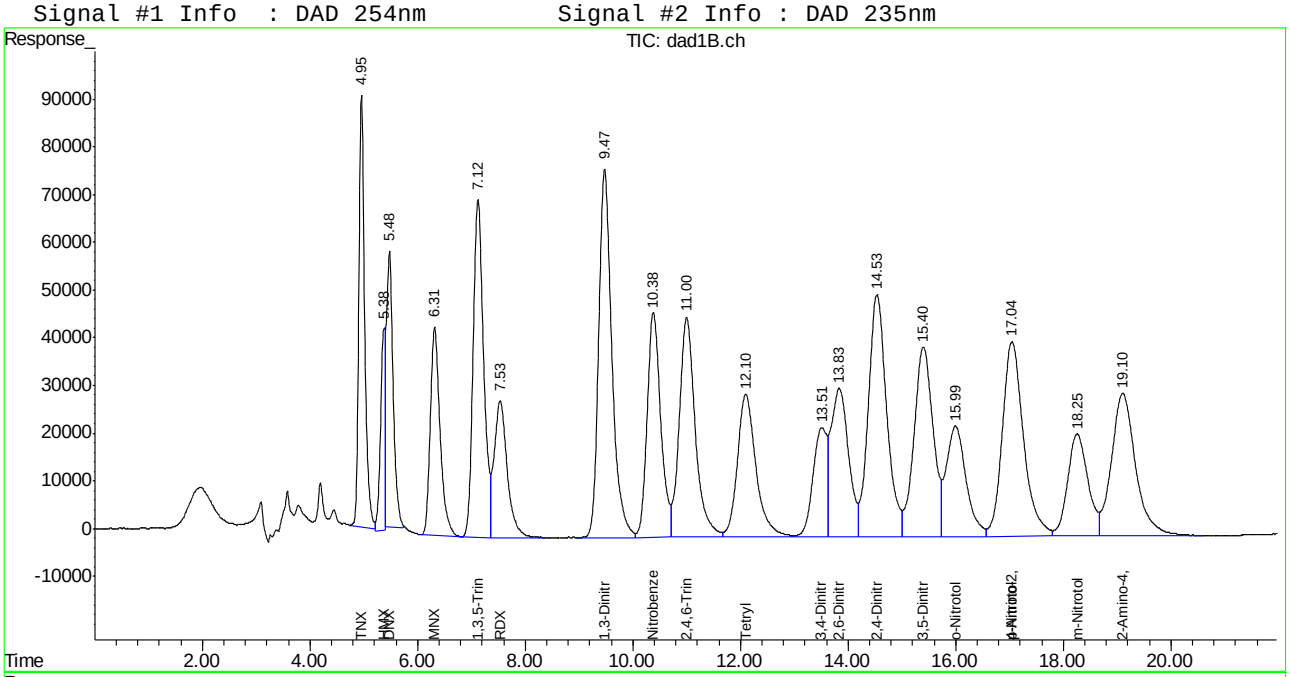
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

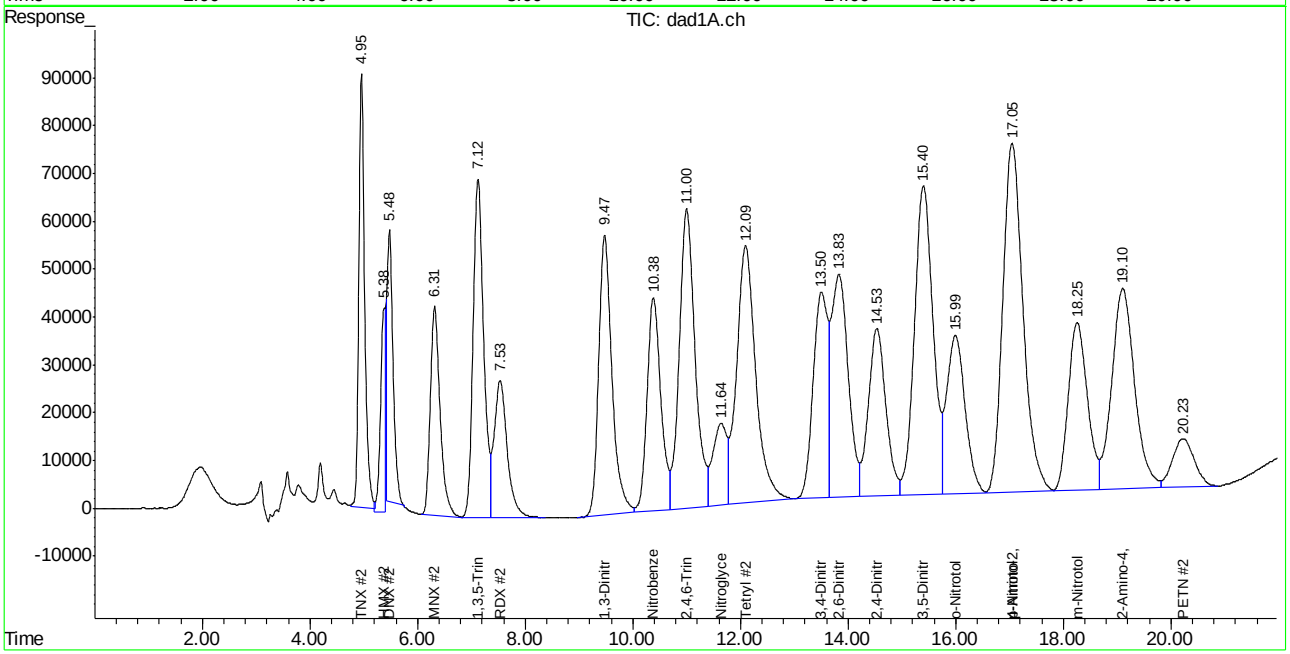
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2778\GG617955.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2778\GG617955.D\dad1A.ch
Acq On : 28-Oct-2019, 23:54:40 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : op77416,ggg2778,1040,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Oct 29 10:49 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Oct 24 10:07:48 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

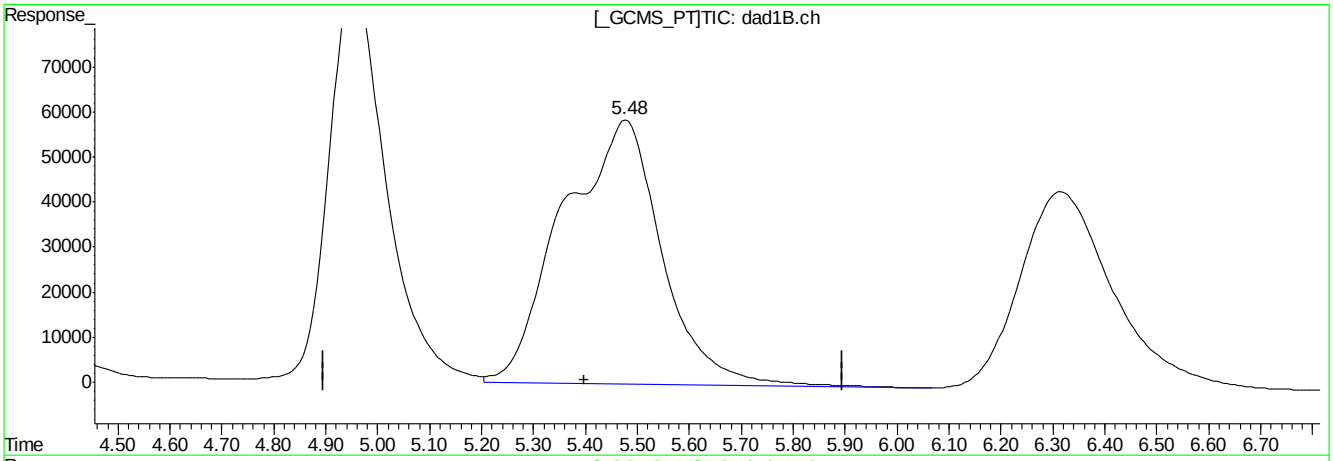
Sample Number: GGG2778-CC2769 **Method:** SW846 8330A
Lab FileID: GG617955.D **Analyst approved:** 10/29/19 14:20 William Hustedde
Injection Time: 10/28/19 23:54 **Supervisor approved:** 10/29/19 16:47 Naresh Jiawan

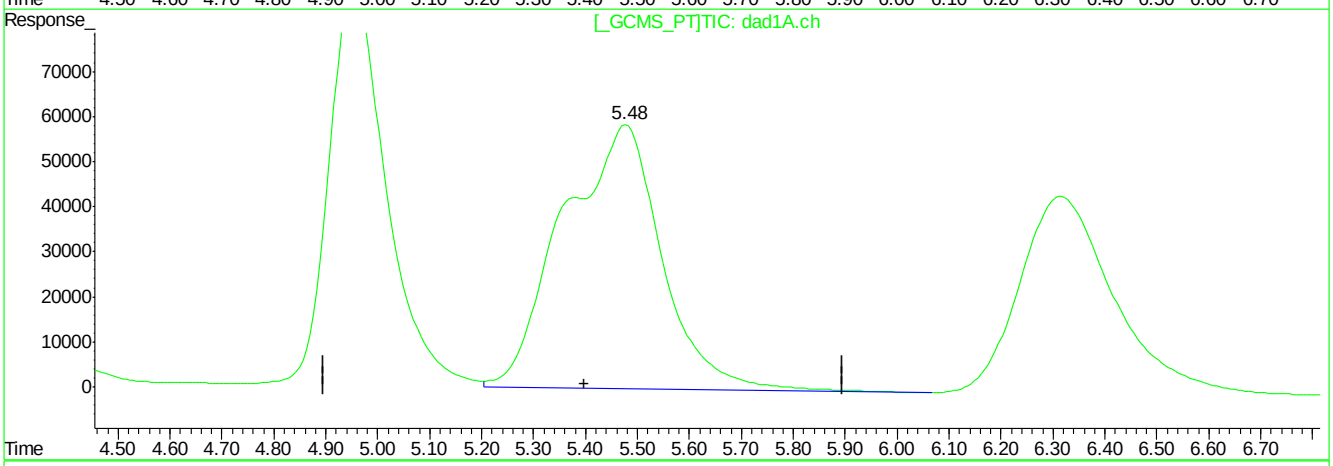
Parameter	CAS	Sig#	R.T. (min.)	Reason
HMX	2691-41-0	1	5.38	Poor instrument integration
HMX	2691-41-0	2	5.38	Poor instrument integration
DNX		1	5.48	Poor instrument integration
DNX		2	5.48	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2778\GG617955.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2778\GG617955.D\dad1A.ch
Acq On : 28-Oct-2019, 23:54:40 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Oct 29 10:08 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Oct 24 10:07:48 2019
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.48min 2619.832ppb

response 7806088

(2) HMX #2

5.48min 2602.806ppb

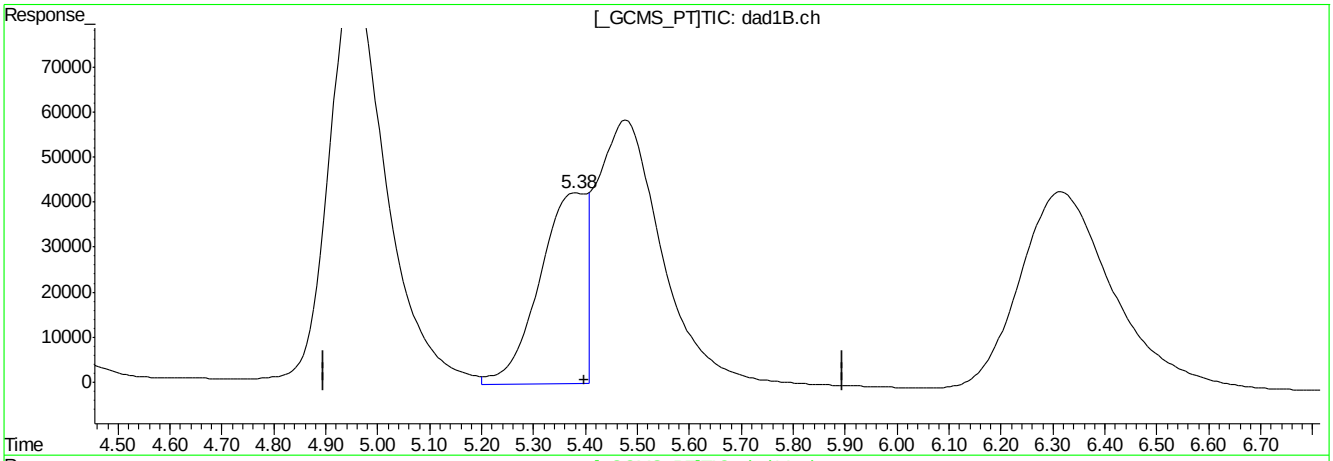
response 7806088

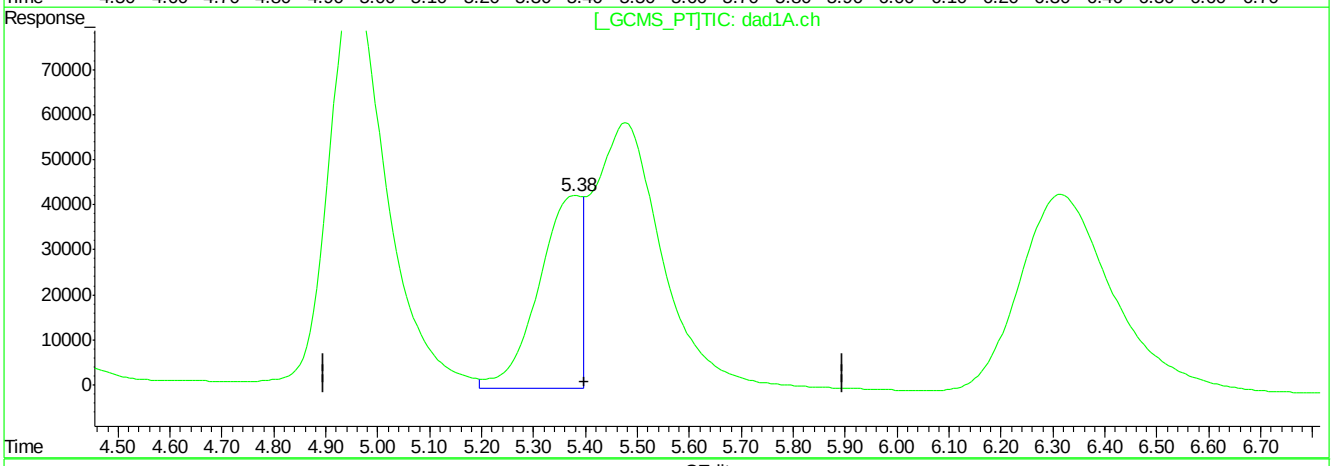
(+) = Expected Retention Time
GG617955.D 8330RPB.M_092519.M Tue Oct 29 10:48:53 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2778\GG617955.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2778\GG617955.D\dad1A.ch
Acq On : 28-Oct-2019, 23:54:40 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Oct 29 10:08 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Oct 24 10:07:48 2019
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.38min 890.346ppb m

response 2652889

(2) HMX #2

5.38min 861.674ppb m

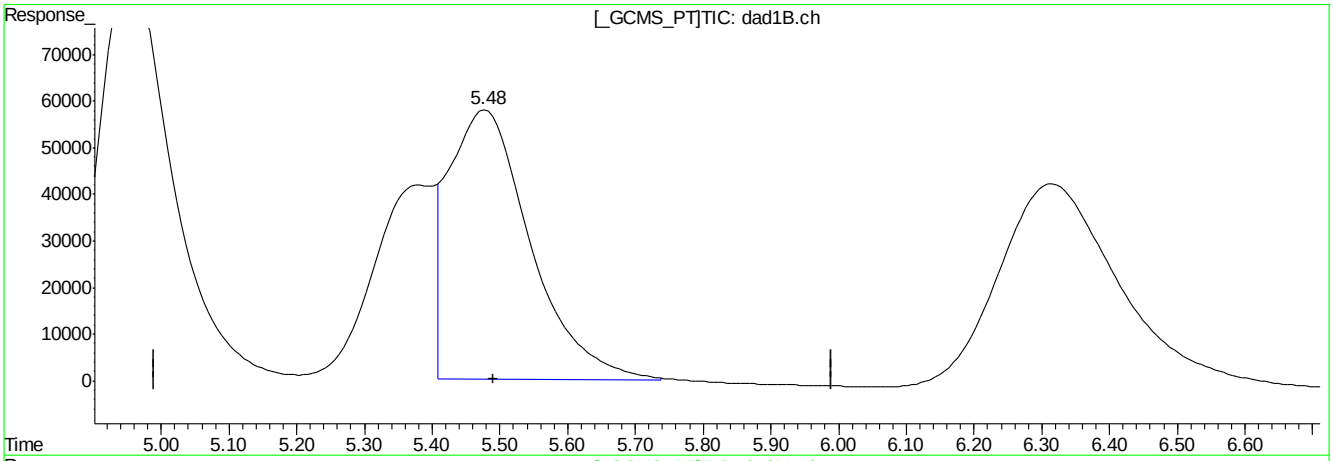
response 2584252

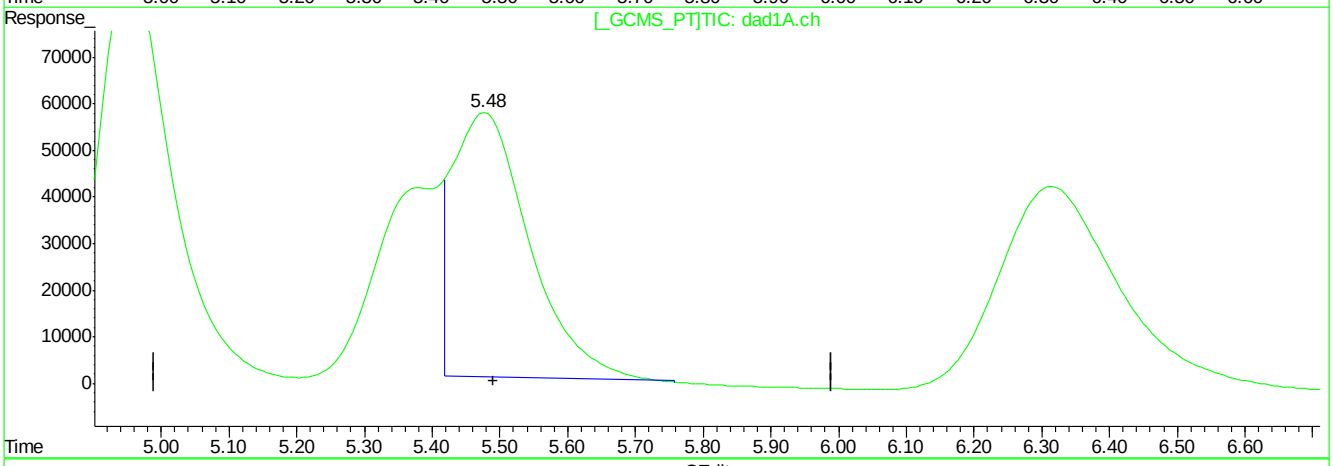
(+) = Expected Retention Time
GG617955.D 8330RPB.M_092519.M Tue Oct 29 10:49:13 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2778\GG617955.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2778\GG617955.D\dad1A.ch
Acq On : 28-Oct-2019, 23:54:40 Operator: williamh
Sample : cc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Oct 29 10:08 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Oct 24 10:07:48 2019
Response via : Multiple Level Calibration





QEdit

(3) DNX

5.48min 1129.245ppb m

response 4849541

(3) DNX #2

5.48min 1026.026ppb m

response 4423129

(+) = Expected Retention Time
GG617955.D 8330RPB.M_092519.M Tue Oct 29 10:49:23 2019

Manual Integrations APPROVED (compounds with "m" flag)
Naresh Jiawan 10/29/19 16:47

Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2778\GG617963.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2778\GG617963.D\dad1A.ch
Acq On : 29-Oct-2019, 03:50:13 Operator: williamh
Sample : ecc2769-1000 Inst : G1315B
Misc : op77415,ggg2778,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Oct 29 10:08:59 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Oct 24 10:07:48 2019
Response via : Initial Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm

	Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
	System Monitoring Compounds						
12) S	3,4-Dinitrotolue	13.56	13.55	4020041	7839014	890.297	871.705
Spiked Amount	500.000	Range	70 - 136	Recovery	=	178.06%#	174.34%#
	Target Compounds						
1)	TNX	4.96	4.96	6821703	6821703	1106.132	1107.169
2)	HMX	5.41	5.39	2873908	2611936	964.523m	870.905m
3)	DNX	5.48	5.48	5026795	5105947	1170.913m	1186.095m
4)	MNX	6.33	6.33	5462107	5462107	1032.997	1030.957
5)	1,3,5-Trinitrobe	7.14	7.14	9647778	9647778	932.940	932.940
6)	RDX	7.56	7.56	4828270	4828270	952.346	952.346
7)	1,3-Dinitrobenze	9.51	9.51	13130565	9694677	939.414	928.445m
8)	Nitrobenzene	10.42	10.42	8202168	8047867	921.228	950.848
9)	2,4,6-Trinitroto	11.04	11.04	9508647	12717050	932.521	962.065
10)	Nitroglycerin	0.00	11.68	0	3101894	N.D.	897.178 #
11)	Tetryl	12.15	12.15	7141642	13065027	932.851	927.331
13)	2,6-Dinitrotolue	13.88	13.88	7102487	10279532	983.841	941.869
14)	2,4-Dinitrotolue	14.58	14.57	12072349	8076208	954.696	905.636
15)	o-Nitrotoluene	16.04	16.04	5748735	7714384	988.500	926.539
16)	3,5-Dinitroanili	15.45	15.45	9798590	15346382	960.363	924.404
17)	p-Nitrotoluene	17.10	17.10	11074775	19102006	955.025	869.882
18)	4-Amino-2,6-Dini	17.10	17.10	11074775	19102006	957.825	879.588
19)	m-Nitrotoluene	18.31	18.31	5532302	8692496	948.522	874.076
20)	2-Amino-4,6-Dini	19.16	19.16	9245375	12507903	963.493	891.388
21)	PETN	0.00	20.28	0	2819290	N.D.	868.203 #

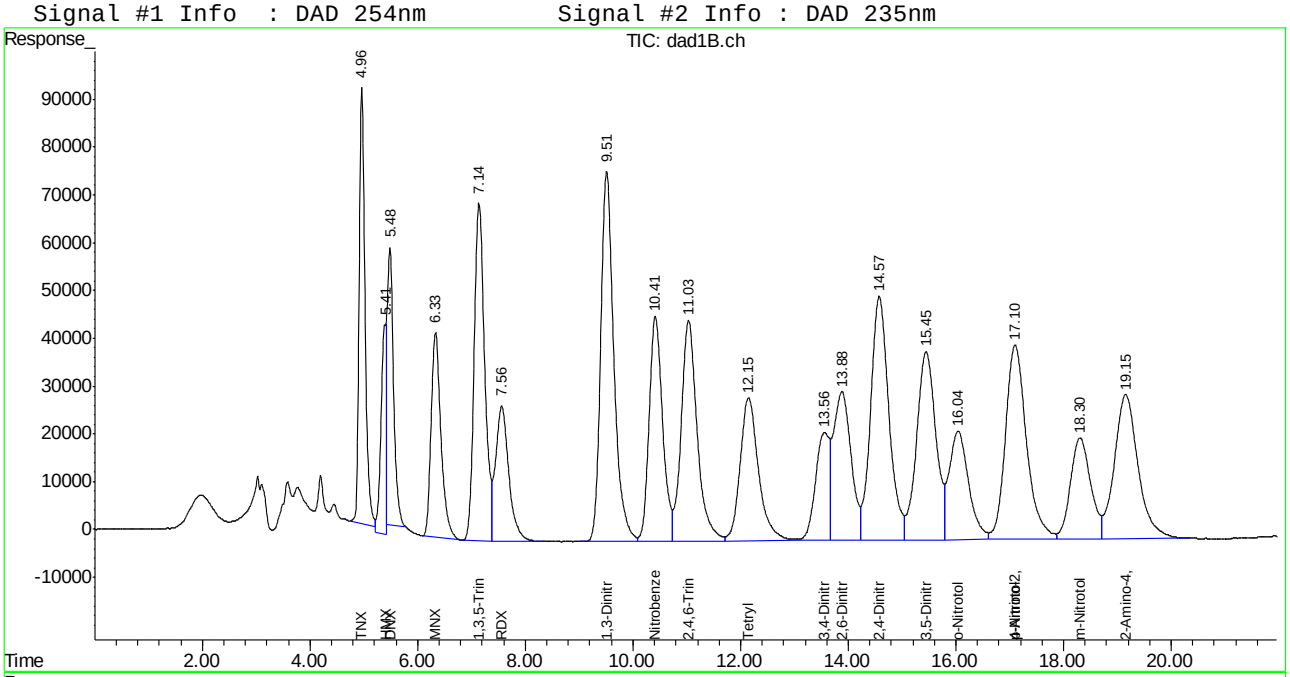
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

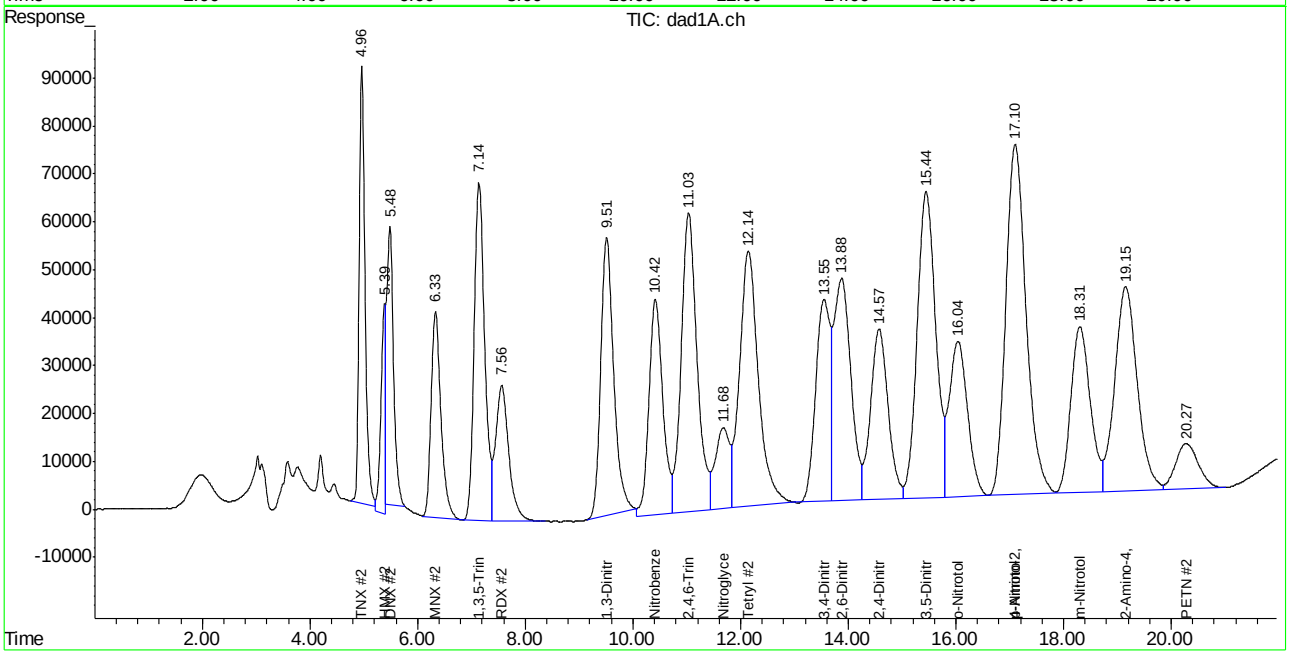
Quantitation Report (QT Reviewed)

Signal #1 : C:\HPCHEM\1\DATA\GGG2778\GG617963.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2778\GG617963.D\dad1A.ch
Acq On : 29-Oct-2019, 03:50:13 Operator: williamh
Sample : ecc2769-1000 Inst : G1315B
Misc : op77415,ggg2778,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Oct 29 11:00 2019 Quant Results File: 8330RPB.M_092519.RES

Quant Method : C:\MSDCHEM\1...\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Oct 24 10:07:48 2019
Response via : Multiple Level Calibration
DataAcq Meth : 8330RPB3.M

Volume Inj. : 100ul
Signal #1 Phase : Bonus RP Signal #2 Phase: Bonus RP
Signal #1 Info : DAD 254nm Signal #2 Info : DAD 235nm





Manual Integration Approval Summary

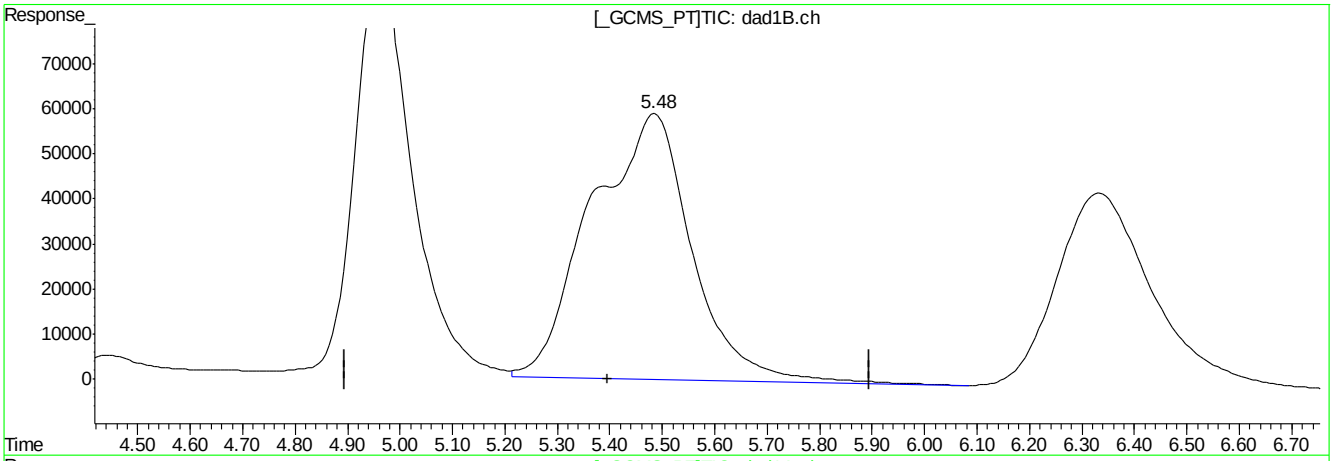
Sample Number: GGG2778-ECC2769 **Method:** SW846 8330B
Lab FileID: GG617963.D **Analyst approved:** 10/29/19 14:20 William Hustedde
Injection Time: 10/29/19 03:50 **Supervisor approved:** 10/29/19 16:47 Naresh Jiawan

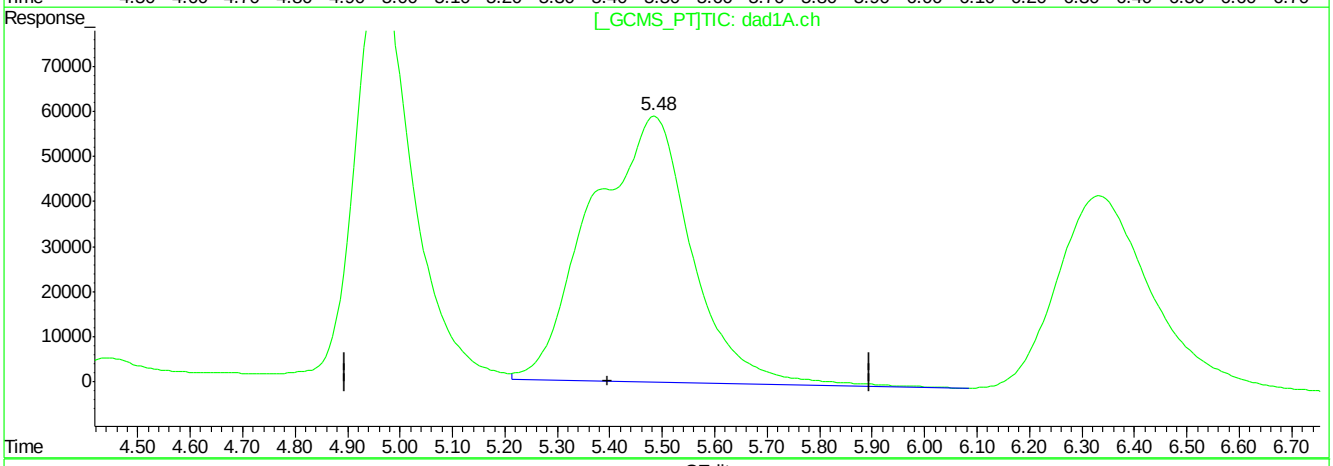
Parameter	CAS	Sig#	R.T. (min.)	Reason
HMX	2691-41-0	2	5.39	Poor instrument integration
HMX	2691-41-0	1	5.41	Poor instrument integration
DNX		1	5.48	Poor instrument integration
DNX		2	5.48	Poor instrument integration
1,3-Dinitrobenzene	99-65-0	2	9.51	Poor instrument integration

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2778\GG617963.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2778\GG617963.D\dad1A.ch
Acq On : 29-Oct-2019, 03:50:13 Operator: williamh
Sample : ecc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Oct 29 10:08 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Oct 24 10:07:48 2019
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.49min 2639.894ppb

response 7865865

(2) HMX #2

5.49min 2622.737ppb

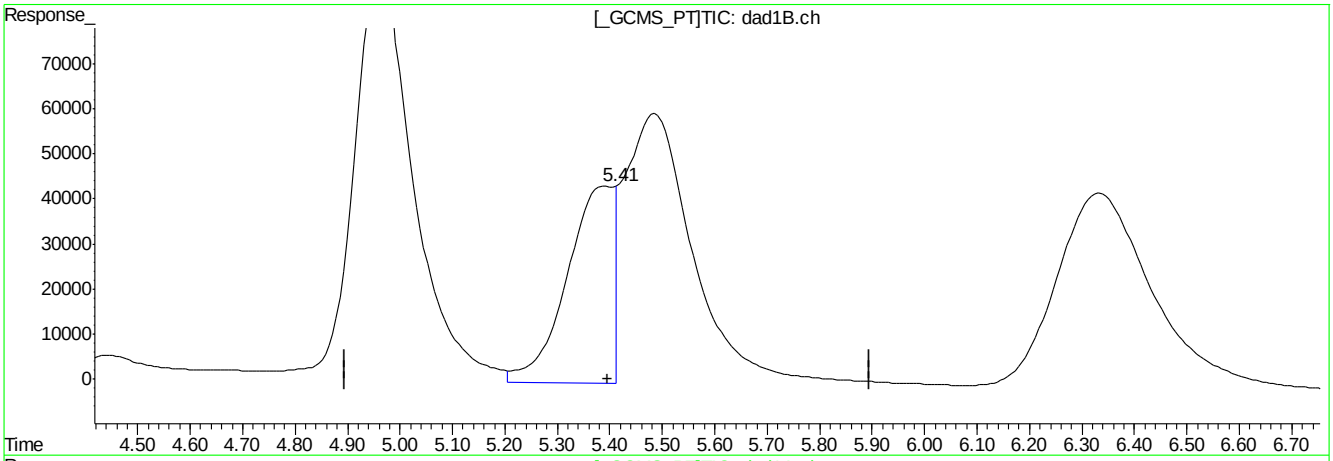
response 7865865

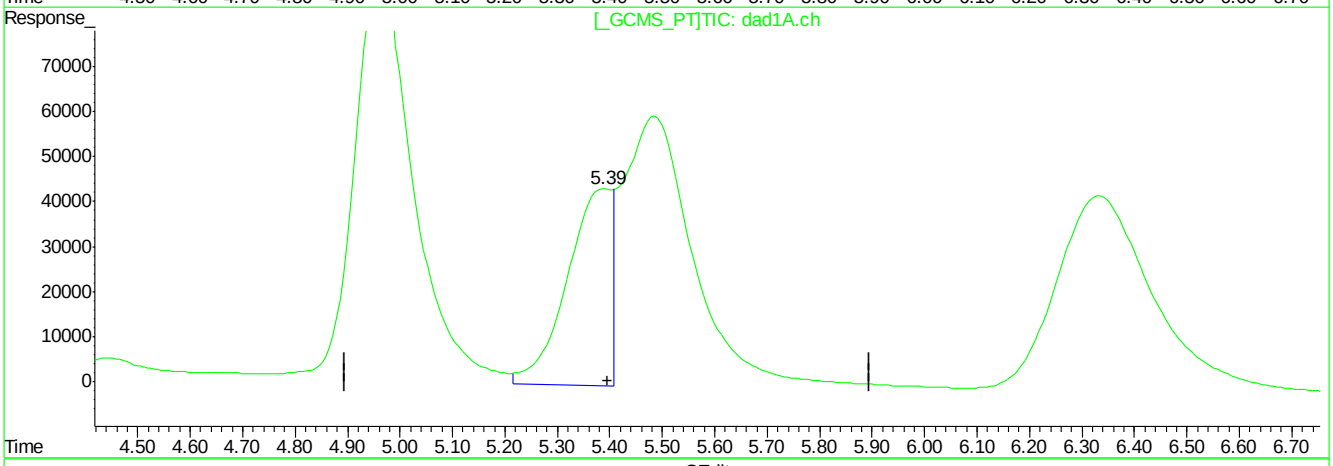
(+) = Expected Retention Time
GG617963.D 8330RPB.M_092519.M Tue Oct 29 10:59:52 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2778\GG617963.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2778\GG617963.D\dad1A.ch
Acq On : 29-Oct-2019, 03:50:13 Operator: williamh
Sample : ecc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Oct 29 10:08 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Oct 24 10:07:48 2019
Response via : Multiple Level Calibration





QEdit

(2) HMX

5.41min 964.523ppb m

response 2873908

(2) HMX #2

5.39min 870.905ppb m

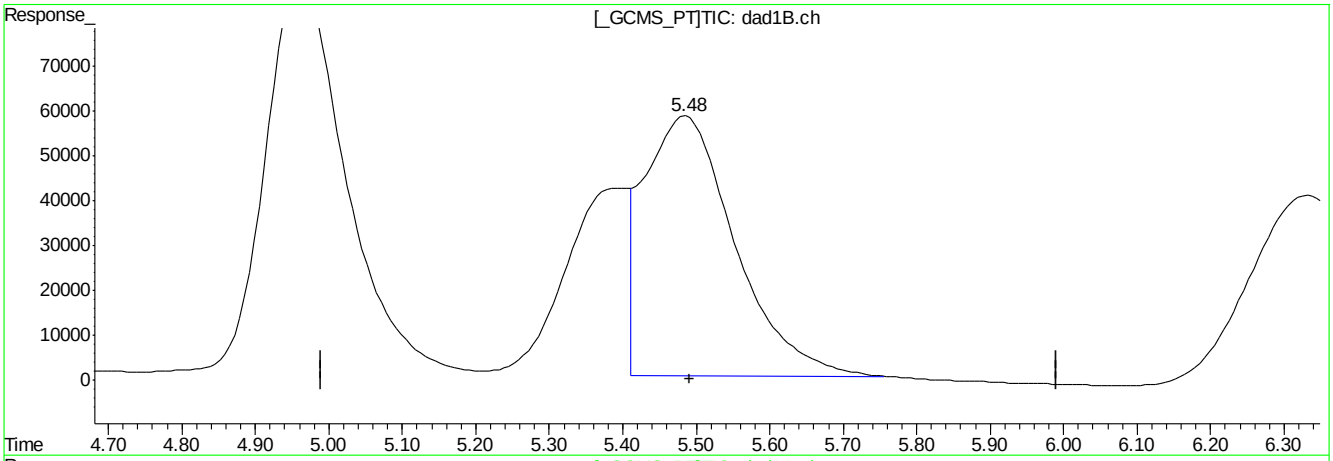
response 2611936

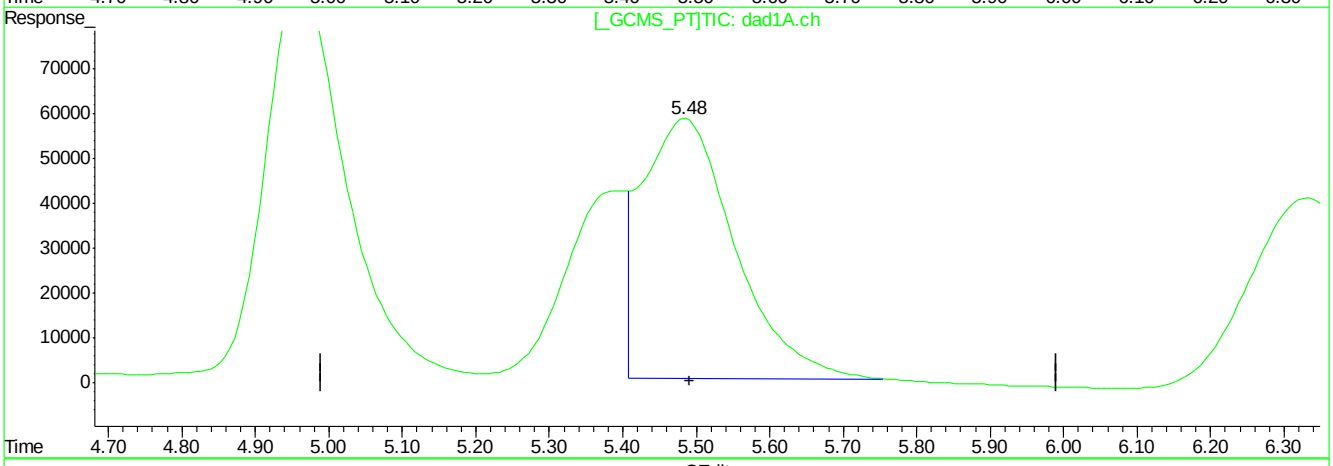
(+) = Expected Retention Time
GG617963.D 8330RPB.M_092519.M Tue Oct 29 11:00:10 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2778\GG617963.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2778\GG617963.D\dad1A.ch
Acq On : 29-Oct-2019, 03:50:13 Operator: williamh
Sample : ecc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Oct 29 10:08 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Oct 24 10:07:48 2019
Response via : Multiple Level Calibration





QEdit

(3) DNX

5.48min 1170.913ppb m

response 5026795

(3) DNX #2

5.48min 1186.095ppb m

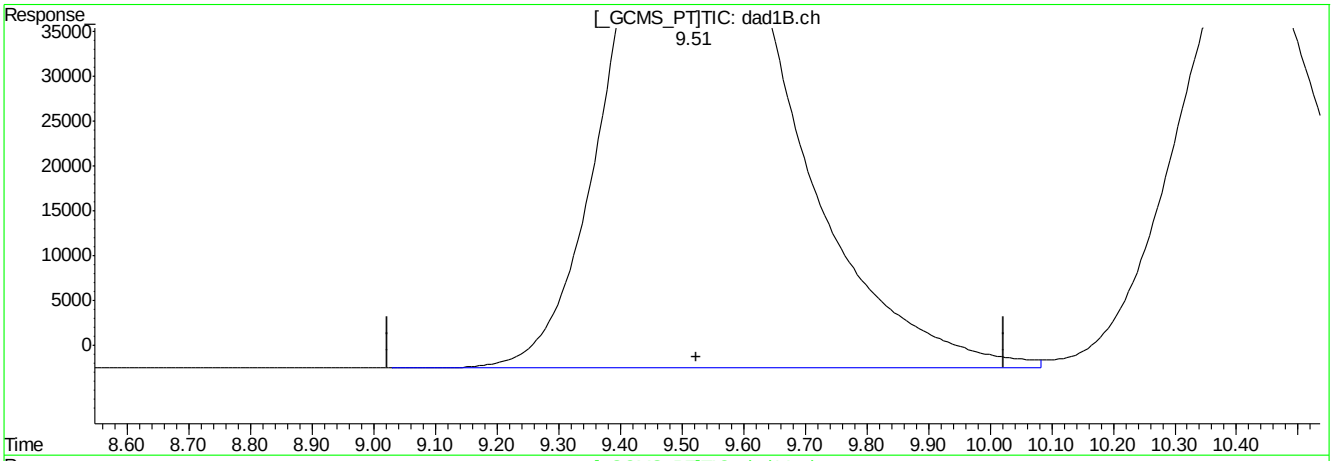
response 5105947

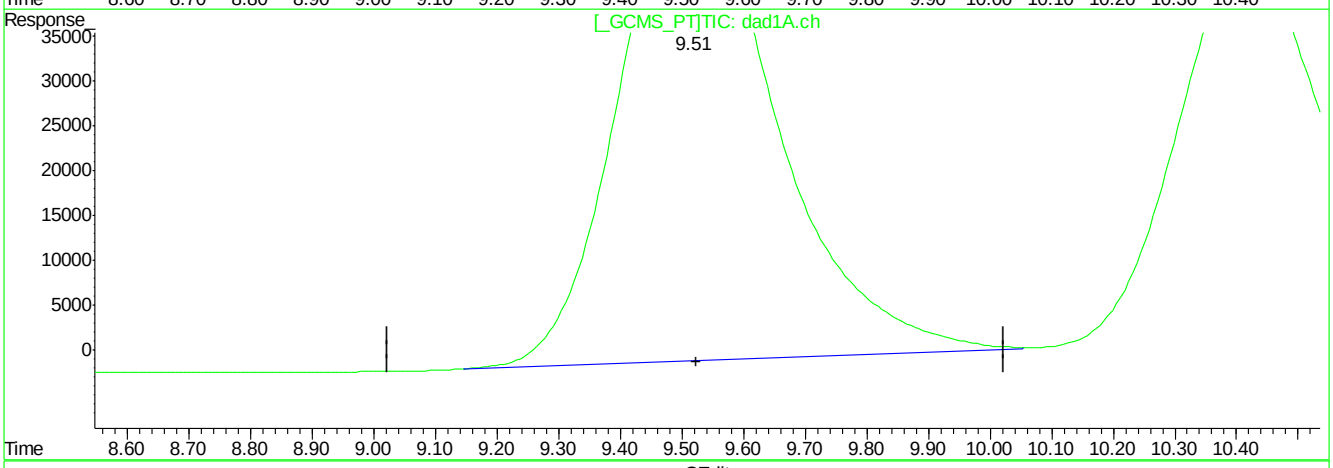
(+) = Expected Retention Time
GG617963.D 8330RPB.M_092519.M Tue Oct 29 11:00:22 2019

Quantitation Report (Qedit)

Signal #1 : C:\HPCHEM\1\DATA\GGG2778\GG617963.D\dad1B.ch Vial: 2
Signal #2 : C:\HPCHEM\1\DATA\GGG2778\GG617963.D\dad1A.ch
Acq On : 29-Oct-2019, 03:50:13 Operator: williamh
Sample : ecc2769-1000 Inst : G1315B
Misc : Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: events2.e
Quant Time: Oct 29 10:08 2019 Quant Results File: 8330RPB.M_092519.RES

Method : C:\MSDCHEM\1\METHODS\8330RPB.M_092519.M (Chemstation Integrator)
Title : Explosives by 8330A,8330B,8332
Last Update : Thu Oct 24 10:07:48 2019
Response via : Multiple Level Calibration





QEdit

(7) 1,3-Dinitrobenzene

9.51min 939.414ppb

response 13130565

(7) 1,3-Dinitrobenzene #2

9.51min 928.445ppb m

response 9694677

(+) = Expected Retention Time
GG617963.D 8330RPB.M_092519.M Tue Oct 29 11:00:38 2019

SGS ACCUTEST-ORLANDO

DATE:	10/11/19
COLUMN TYPE:	Extend C18
AMOUNT INJECTED:	100ul
INSTRUMENT: HPLC5-BB	

HPLC5-BB ANALYSIS LOG

METHODS:	8330
ACQ. METHOD:	8330B
PROC. METHOD:	8330 B_101119_PLUS.M
CALIB. DATE:	10/11/19
RUN BATCH: GBB	1929

ANALYST:	WFL
ACETONITRILE LOT #:	
MEOH LOT #:	
HEAD PRESSURE:	

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	MANUALLY INTEGRATED PEAKS RATIONALE, PEAK #	COMMENTS
BB 066558	1		8330				
BB 59	2	ic 1929-20		LC1308	2/500		/
BB 60	3	-50			5/500		/
BB 61	4	-100			10/500		/
BB 62	5	-200			20/500		/
BB 63	6	-500			50/500		/
BB 64	7	icc -1000			100/500		/
BB 65	8	-2500			250/500		/
BB 66	9	-5000			500/500		/
BB 67	10	icv -1000				PLUS/NG/350NAV	reprep rerun
BB 68	10	icv -1000		LC1309	1x		pass
BB 69	35	op 77138-MB		op 77138	1		/ NG/PETN only
BB 70	36	FA67939-6			1		/
BB 71	37	-7			1		/
BB 72	38	op 77139-MB		op 77139	1		/
BB 73	39	FA67941-6			1		/
BB 74	40	-7			1		/
BB 75	41	op 77140-MB		op 77140	1		/
BB 76	42	FA67943-6			1		/
BB 77	43	-7			1		/

Manual Integration Rationale SOP QA029: **MP** Missed Peak, **OP** Overlapping Peak, **SP** Split Peak, **PDB** Poorly Defined Baseline, **BR** Baseline Ripple, **PII** Poor Instrument Integration
All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

hplc5_bb_log.xls NF rev. 06/16

Analyst's Signature: _____

SGS ACCUTEST-ORLANDO

DATE:	10/11/19
COLUMN TYPE:	Extend C18
AMOUNT INJECTED:	100 ul
INSTRUMENT: HPLC5-BB	

HPLC5-BB ANALYSIS LOG

METHODS:	8330
ACQ. METHOD:	8330B
PROC. METHOD:	8330B_101119_BLAS.M
CALIB. DATE:	10/11/19
RUN BATCH: GBB	1929

ANALYST:	WFH
ACETONITRILE LOT #:	
MEOH LOT #:	
HEAD PRESSURE:	

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	MANUALLY INTEGRATED PEAKS RATIONALE, PEAK #	COMMENTS
BB066578	11	ccc1924-1000	8330 (WFH 10/14)	LC1308	200/1000		pass TIV ✗↑
BB 79	1	ccb	"	"	"		
BB 80			"	"	"		
BB 81			—				Power Failure
BB							
BB							
BB							
BB							
BB							
BB							
BB							
BB							
BB							
BB							
BB							
BB							
BB							
BB							
BB							
BB							
BB							
BB							

Manual Integration Rationale SOP QA029: **MP** Missed Peak, **OP** Overlapping Peak, **SP** Split Peak, **PDB** Poorly Defined Baseline, **BR** Baseline Ripple, **PII** Poor Instrument Integration
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Analyst's Signature: _____

SGS ACCUTEST-ORLANDO

DATE:	10/23/19
COLUMN TYPE:	Extend C18
AMOUNT INJECTED:	100 ul
INSTRUMENT: HPLC5-BB	

HPLC5-BB ANALYSIS LOG

METHODS:	8330
ACQ. METHOD:	8330B
PROC. METHOD:	8330B_101119_PLUS.m
CALIB. DATE:	10/11/19
RUN BATCH: GBB	1935

ANALYST:	WFH
ACETONITRILE LOT #:	
MEOH LOT #:	
HEAD PRESSURE:	

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	MANUALLY INTEGRATED PEAKS RATIONALE, PEAK #	COMMENTS
BB 066714	23	cc6	8330B				
BB 15	24	cc 1929-1000					pass
BB 16	34	op 77364-BS		op 77364	1		↓ PETN
BB wfh 10/24 1817	35	MB			1		
BB 18	36	FA69146-1			1		cf HMX TNB TNT RDX DNA 2AM Red$_O$
BB 19	37	-2			1		
BB 20	38	-3			1		NB 2- +2426 p-
BB 21	39	-4			1		+ DNB
BB 22	40	-5			1		
BB 23	41	FA69059-10			1		
BB 24	42	op 77364-MS			1		RR
BB 25	43	MSD			1		
BB 26	24	ecc1929-1000					pass
BB 27	23						Mobile phase out PD
BB 28							
BB 29							
BB 30	47	FA69110-1				10x RDX	cf all-X DNA 2A TNT 4A
BB 31	48	-2					cf all-X 2A 4A
BB 32	49	-3					cf HMX RDX
BB 066732 → BB066736		-4				10x/25x 25x RDX TNT 4A 10x HMX	cf TNB 2A DNB DNA Surr OBL

Manual Integration Rationale SOP QA029: **MP** Missed Peak, **OP** Overlapping Peak, **SP** Split Peak, **PDB** Poorly Defined Baseline, **BR** Baseline Ripple, **PII** Poor Instrument Integration
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hplc5_bb_log.xls NF rev. 06/16

Analyst's Signature:

SGS ACCUTEST-ORLANDO

DATE:	10/24/19
COLUMN TYPE:	Extend C18
AMOUNT INJECTED:	100ul
INSTRUMENT:	HPLC5-BB

HPLC5-BB ANALYSIS LOG

METHODS:	8330
ACQ. METHOD:	B33013
PROC. METHOD:	8330B_101119_PLUS.M
CALIB. DATE:	10/11/19
RUN BATCH:	GBB 1936

ANALYST:	WPH
ACETONITRILE LOT #:	
MEOH LOT #:	
HEAD PRESSURE:	

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	MANUALLY INTEGRATED PEAKS RATIONALE, PEAK #	COMMENTS
BB 066737	1	ccb	8330				
BB 38	2	cc1929 - 1000					↓ reprep
BB 39	2	cc1924 - 1000					DNX↑ S1 TNX↓ S2
BB 40	3	op 77364-MS		op 77364	1		/
BB 41	4	MSD		⊥	1		/
BB 42	5	op 77370-BS		op 77370	1		/
BB 43	6	MB			1		/
BB 44	7	FA69110-1			1		cf all-X DNA 2A 24 TNT 4A
BB 45	8	1 10			10		cf RDX
BB 46	9	2			1		cf HMX 2A RDX 4A
BB 47	10	3		⊥	1		cf TNX HMX MNX RDX
BB 48	21	FA68887-13 10		op 77279	10		cf RDX
BB 49	22	FA 69018-4		op 77335	1		cf HMX TNB TNT MNX DNA 2A4A 4ARDX
BB 50	2	cc1929-1000					TNX↓ S2
BB 51	1	ccb					
BB 52	11	op 77370-MS		op 77370	1		/
BB 53	12	MSD			1		/
BB 54	13	FA69110-4 10			10		RR
BB 55	14	4 25			25		⊥
BB 56	15	FA69110-5	⊥	⊥	1	10x RDX TNT	c HMX DNB 2A4A TNB DNA 24 2A

Manual Integration Rationale SOP QA029: **MP** Missed Peak, **OP** Overlapping Peak, **SP** Split Peak, **PDB** Poorly Defined Baseline, **BR** Baseline Ripple, **PII** Poor Instrument Integration
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hplc5_bb_log.xls NF rev. 06/16

Analyst's Signature:

SGS ACCUTEST-ORLANDO

DATE:	10/24/19
COLUMN TYPE:	Extend C18
AMOUNT INJECTED:	100 ul
INSTRUMENT:	HPLC5-BB

HPLC5-BB ANALYSIS LOG

METHODS:	8330
ACQ. METHOD:	8330B
PROC. METHOD:	8330B_101119_PLUS.M
CALIB. DATE:	10/11/19
RUN BATCH:	GBB 1936

ANALYST:	WFH
ACETONITRILE LOT #:	
MEOH LOT #:	
HEAD PRESSURE:	

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	MANUALLY INTEGRATED PEAKS RATIONALE, PEAK #	COMMENTS
BB 066757	16	FA69110-6	8330	op 77370	1	10x RDX TNT	cf All-x DNB 2A4A TNB DNA 2A2A
BB 58	17	7	"	"	1	~~10x~~	cf All-x DNA 2A4A TNB TNT
BB 59	18	8	"	"	1		/
BB 60	19	9	"	"	1	10x RDX	cf All-x TNT TNB 2A4A
BB 61	20	10	"	"	1	10x RDX	cf All-x TNB 2A4A DNA TNT 24
BB 62	2	ecc1929-1000	"		200/1000		DNX↑ S1 TNX↓ S2
BB							
BB							
BB							
BB							
BB							
BB							
BB							
BB							
BB							
BB							
BB							
BB							
BB							
BB							
BB							

Manual Integration Rationale SOP QA029: **MP** Missed Peak, **OP** Overlapping Peak, **SP** Split Peak, **PDB** Poorly Defined Baseline, **BR** Baseline Ripple, **PII** Poor Instrument Integration
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Analyst's Signature: _____

SGS ACCUTEST-ORLANDO

DATE:	10/25/19
COLUMN TYPE:	Ez-Tech C18
AMOUNT INJECTED:	100ul
INSTRUMENT: HPLC5-BB	

HPLC5-BB ANALYSIS LOG

METHODS:	8330
ACQ. METHOD:	833013
PROC. METHOD:	8330_101119_PDS.m
CALIB. DATE:	10/4/19
RUN BATCH:	GBB 1937

ANALYST:	WFM
ACETONITRILE LOT #:	
MEOH LOT #:	
HEAD PRESSURE:	

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	MANUALLY INTEGRATED PEAKS RATIONALE, PEAK #	COMMENTS
BB 066763	1	ccb	8330				
BB 64	2	cc1929-1000					VAR
BB 65	2	cc1929-1000		LC1315	20%/1000		pass
BB 66	3	FA69110-4		op77376	1		RR 10x/25x
BB 67	4	-5 ,10			10		cf RDX TNT
BB 68	5	-6 ,10					RDX TNT
BB 69	6	-9 ,10					RDX
BB 70	7	-10 ,10					RDX
BB 71	34	-4 10				25x RDX TNT	cf HMX MNX TNB DNB 2426 TNX ~~RDX~~ DNA 2A4A
BB 72	35	-4 25			25		cf RDX TNT
BB 73	35	-1 ,10			10		RR misseqnace
BB 74	2	cc1924-1000		LC1315	20%/1000		DNX↑ 51
BB 75	1	ccb					
BB 76	8	op77416-BS		op77416	1		/
BB 77	9	MB			1		/
BB 78	10	FA64206-1			1		/
BB 79	11	207-1			1		cf RDX
BB 80	12	op77416-MS			1		/
BB 81	13	MSD			1		/
BB 82	14	FA64231-1			1		cf HMX TNT RDX 2A4A

wfm 10/28

Manual Integration Rationale SOP QA029: **MP** Missed Peak, **OP** Overlapping Peak, **SP** Split Peak, **PDB** Poorly Defined Baseline, **BR** Baseline Ripple, **PII** Poor Instrument Integration
All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

SGS ACCUTEST-ORLANDO

DATE:	10/25/19
COLUMN TYPE:	Ext.2 CB
AMOUNT INJECTED:	100 ul
INSTRUMENT: HPLC5-BB	

HPLC5-BB ANALYSIS LOG

METHODS:	8336
ACQ. METHOD:	8330B
PROC. METHOD:	8330B_101119_PLUS,1
CALIB. DATE:	10/11/19
RUN BATCH: GBB	1137

ANALYST:	WPH
ACETONITRILE LOT #:	
MEOH LOT #:	
HEAD PRESSURE:	

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	MANUALLY INTEGRATED PEAKS RATIONALE, PEAK #	COMMENTS
BB 066783	15	FA69231-2	8336	op77416	1		cf HMX RDX TNT 2A4A
BB 84	16	-3	"	"	1	10x RDX	cf HMX Surr OBL
BB 85	17	-4	"	"	1		cf HMX RDX TNB DNA TNT 2A4A
BB 86	2	ccl929-1000	"	LC1315	20%/1000		pass
BB 87	1	ccb	"				
BB 88	18	FA69232-1	"	op77416	1		cf RDX TNB
BB 89	19	-2	"	"	1		cf RDX
BB 90	20	op77415-~~MS2~~ BS	"	op77415	1		/
BB 91	21	WPH 10/25 ~~FA507~~ MB	"	"	1		/
BB 92	22 WPH 10/25	FA LA55707-1	"	"	1		cf RDX 4- PETN
BB 93	23	LA58708-1	"	"	1		/
BB 94	24	op77415-MS2	"	"	1		RR
BB 95	25	MSD2	"	"	1		"
BB 96	26	FA69059-10	"	"	1		/
BB 97	27	FA69146-1	"	"	1		cf HMX TNB TNT RDX DNA 2A4A
BB 98	2	ecc1929-1000	"	LC1315	20%/1000		pass
BB 99							
BB 066800							
BB 01							
BB							

Manual Integration Rationale SOP QA029: **MP** Missed Peak, **OP** Overlapping Peak, **SP** Split Peak, **PDB** Poorly Defined Baseline, **BR** Baseline Ripple, **PII** Poor Instrument Integration
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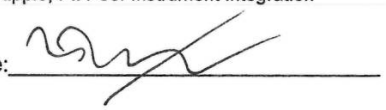
hplc5_bb_log.xls NF rev. 06/16

Analyst's Signature: 

SGS ACCUTEST-ORLANDO

DATE:	10/28/19
COLUMN TYPE:	Ext Rtx CLB
AMOUNT INJECTED:	100 ul
INSTRUMENT: HPLC5-BB	

HPLC5-BB ANALYSIS LOG

METHODS:	8330
ACQ. METHOD:	8330B
PROC. METHOD:	8330B_101119_PLM1.M
CALIB. DATE:	10/11/19
RUN BATCH:	GBB 1938

ANALYST:	WFH
ACETONITRILE LOT #:	
MEOH LOT #:	
HEAD PRESSURE:	

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	MANUALLY INTEGRATED PEAKS RATIONALE, PEAK #	COMMENTS
BB 066802	1	ccb	8330				
BB 03	2	cc1929-1000		LC1315	200/1000		pass
BB 04	36	FA69110-1,10		op77370	10	WFH 10/29	~~ct RDX~~ RR
BB 05	28	FA69146-2		op77415	1		ct HMX TNB TNT RDX DNA 2A4A
BB 06	29	-3			1		ct 1
BB 07	30	op 77415-MS2			1		/
BB 08	31	op77415-MS			1		/
BB 09	32	MSD			1		/
BB 10	21	FA69146-4 ~~MS2~~ WFH 10/28			1		ct HMX TNB TNT RDX DNA 2A4A
BB 11	22	MSD2			1		/
BB 12	33	FA69146-5			1		/
BB 13	37	FA69231-3,10		op77416			RR
BB 14	2	cc1929-1000		LC1315	200/1000		pass
BB 15	1	ccb					
BB 16	35	op77440-BS		op77440	1		/
BB 17	36	MB			1		/
BB 18	37	P7			1		/
BB 19	38	FA69059-1			1		/
BB 20	39	-2			1		/
BB 21	40	-3			1		/

Manual Integration Rationale SOP QA029: **MP** Missed Peak, **OP** Overlapping Peak, **SP** Split Peak, **PDB** Poorly Defined Baseline, **BR** Baseline Ripple, **PII** Poor Instrument Integration
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Analyst's Signature:

SGS ACCUTEST-ORLANDO

DATE:	10/28/19
COLUMN TYPE:	Extend c18
AMOUNT INJECTED:	100 ul
INSTRUMENT: HPLC5-BB	

HPLC5-BB ANALYSIS LOG

METHODS:	8330
ACQ. METHOD:	8330B
PROC. METHOD:	8330_101119.PLWS.M
CALIB. DATE:	10/11/19
RUN BATCH: GBB	1938

ANALYST:	WPM
ACETONITRILE LOT #:	
MEOH LOT #:	
HEAD PRESSURE:	

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	MANUALLY INTEGRATED PEAKS RATIONALE, PEAK #	COMMENTS
BB 066822	41	FA69054-4	8330	op 77415	1		✓
BB 23	42	-5			1		✓
BB 24	43	-6			1		✓
BB 25	44	-7			1		✓
BB 26	2	cc1929-1000		LC1315	200/1000		pass
BB 27	1	ccb					
BB 28	45	FA69054-8		op 77415	1		✓
BB 29	46	-9			1		✓
BB 30	47	op7440-MS			1		✓
BB 31	48	MSD			1		✓
BB 32	49	Dup			1		✓
BB 33	50	Dup2			1		✓
BB 34	51	GB1			1		✓
BB 35	52	GB2			1		✓
BB 36	53	GB3			1		✓
BB 37	54						
BB 38	2	ecc1929-1000		LC1315	200/1000		Tetryl ↓ S1
BB							
BB							
BB							

Manual Integration Rationale SOP QA029: **MP** Missed Peak, **OP** Overlapping Peak, **SP** Split Peak, **PDB** Poorly Defined Baseline, **BR** Baseline Ripple, **PII** Poor Instrument Integration
All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

Analyst's Signature:

SGS ACCUTEST-ORLANDO

DATE:	9/25/19
COLUMN TYPE:	Bonus-RP
AMOUNT INJECTED:	100 ul
INSTRUMENT: HPLC3-GG	

HPLC3-GG ANALYSIS LOG

METHODS:	8330
ACQ. METHOD:	8330 KPB3
PROC. METHOD:	8330 RPB, M_092519.M
CALIB. DATE:	9/25/19
RUN BATCH: GGG	2769

ANALYST:	WTH
ACETONITRILE LOT #:	
MEOH LOT #:	
HEAD PRESSURE:	

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	MANUALLY INTEGRATED PEAKS RATIONALE, PEAK #	COMMENTS
GG 617743	1	ccb	8330				
GG 44	1	"	"				
GG 45	1	"	"				
GG 46	1	"	"				
GG 47	2	lc 2769-20	"	LC1300	2/500		✓
GG 48	3	-50	"	"	5/500		✓
GG 49	4	-100	"	"	"		✓
GG 50	5	-200	"	"	"		✓
GG 51	6	-500	"	"	"		✓
GG 52	7	lcc -1000	"	"	"		✓
GG 53	8	-2500	"	"	"		✓
GG 54	9	-5000	"	"	"		✓
GG 55	10	lcv -1000	"	"	"	RETN	26.52 8330A
GG 56	11	op 71947-MB	"	op 76947	1		✓
GG 57	12	FA68129-1	"	"	1		✓
GG 58	13	-2	"	"	1		✓
GG 59	14	FA68182-2	"	"	1		✓
GG 60	15	FA68238-1	"	"	1		✓
GG 61	16	-1,10	"	"	10		✓
GG 62	17	-2	"	"	1		✓

Manual Integration Rationale SOP QA029: **MP** Missed Peak, **OP** Overlapping Peak, **SP** Split Peak, **PDB** Poorly Defined Baseline, **BR** Baseline Ripple, **PII** Poor Instrument Integration
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hplc3_gg_log.xls NF rev. 06/16

Analyst's Signature:

SGS ACCUTEST-ORLANDO

DATE:	9/25/19
COLUMN TYPE:	Bonus-rp
AMOUNT INJECTED:	100 ul
INSTRUMENT: HPLC3-GG	

HPLC3-GG ANALYSIS LOG

METHODS:	8330
ACQ. METHOD:	8330RPB3
PROC. METHOD:	8330RPB_M_092519
CALIB. DATE:	9/25/19
RUN BATCH: GGG	2769

ANALYST:	WFY
ACETONITRILE LOT #:	
MEOH LOT #:	
HEAD PRESSURE:	

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	MANUALLY INTEGRATED PEAKS RATIONALE, PEAK #	COMMENTS
GG 617763	18	FA68238-2 10	8330	op76947	10		⌐
GG 64	19	-3	"	"	1		⌐
GG 65	20	FA68275-6	"	"	1		/
GG 66	7	ccc 2769-1000	"	LC1200	100/500		poles
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							
GG							

Manual Integration Rationale SOP QA029: **MP** Missed Peak, **OP** Overlapping Peak, **SP** Split Peak, **PDB** Poorly Defined Baseline, **BR** Baseline Ripple, **PII** Poor Instrument Integration
All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

hplc3_gg_log.xls NF rev. 06/16

Analyst's Signature: WFY

SGS ACCUTEST-ORLANDO

DATE:	10/28/19
COLUMN TYPE:	Bonus-rp
AMOUNT INJECTED:	100 ul
INSTRUMENT: HPLC3-GG	

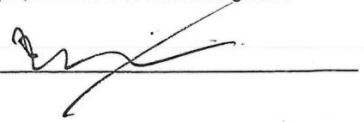
HPLC3-GG ANALYSIS LOG

METHODS:	8330
ACQ. METHOD:	8330RPB3
PROC. METHOD:	8330RPB.m_092519
CALIB. DATE:	9/25/19
RUN BATCH: GGG	2778

ANALYST:	WFH
ACETONITRILE LOT #:	
MEOH LOT #:	
HEAD PRESSURE:	

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	MANUALLY INTEGRATED PEAKS RATIONALE, PEAK #	COMMENTS
GG 617929	1	ccb	8330				
GG 80	2	cc 2769-1000		LC1315	200/1000		DNX↑ HMX↓ S1 PETN↓
GG 81	31	FA 69110-1cf,10		op 77370			RR
GG 32	34	FA69110-4cf,10			10		✓
GG 33	35	4cf,25			25		✓
GG 34	36	5cf			1		✓
GG 35	37	5cf,10			10		✓
GG 36	38	6cf			1		✓
GG 37	39	6cf,10			10		✓
GG 38	40	FA 69110-7cf				Instrument stopped	
GG 39	1	ccb					✓
GG 40	40	FA 69110-7cf			1		✓
GG 41	41	-9cf			1		✓
GG 42	42	9cf,10			10		✓
GG 43	2	cc 2769-1000		LC1315	200/1000		DNX↑ m-, 2A↓ S2 PETN↓
GG 44	1	ccb					
GG 45	43	FA69110-10cf		op 77370	1		✓
GG 46	44	10cf,10		⊥	10		✓
GG 47	45	op 77416-MB		op 77416	1		✓
GG 48	46	FA69207-1cf	⊥	⊥	1		✓

Manual Integration Rationale SOP QA029: **MP** Missed Peak, **OP** Overlapping Peak, **SP** Split Peak, **PDB** Poorly Defined Baseline, **BR** Baseline Ripple, **PII** Poor Instrument Integration
All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

Analyst's Signature: 

SGS ACCUTEST-ORLANDO

DATE:	10/28/19
COLUMN TYPE:	Bonus-RP
AMOUNT INJECTED:	100 ul
INSTRUMENT: HPLC3-GG	

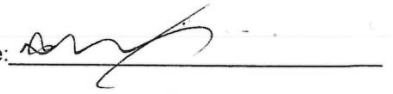
HPLC3-GG ANALYSIS LOG

METHODS:	8330
ACQ. METHOD:	8330RPB3
PROC. METHOD:	8330RPB.m_092519.m
CALIB. DATE:	9/25/19
RUN BATCH: GGG	2778

ANALYST:	WFH
ACETONITRILE LOT #:	
MEOH LOT #:	
HEAD PRESSURE:	

DATA FILE	ALS #	SAMPLE ID	SAMPLE METHOD	OP BATCH	DF	MANUALLY INTEGRATED PEAKS RATIONALE, PEAK #	COMMENTS
GG 617944	47	FA69231-1cf	8330	op77416	1		/
GG 50	48	2cf	"	"	1		/
GG 51	49	3cf,10	"	"	10		/
GG 52	50	4	"	"	1		/
GG 53	51	FA69232-1	"	"	1		/
GG 54	52	-2	"	"	1		/
GG 55	2	cc2769-1000	"	LC1315	200/1000		pass
GG 56	1	ccb	"				
GG 57	53	op77415-MB	"	op77415	1		/
GG 58	54	LAS8707-1	"	"	1		NC
GG 59	55	FA69141-1	"	"	1		/
GG 60	56	-2	"	"	1		/
GG 61	57	-3	"	"	1		/
GG 62	58	-4	"	"	1		/
GG 63	2	ecc2769-1000	"	LC1315	200/1000		ONX ↑
GG							
GG							
GG							
GG							
GG							

Manual Integration Rationale SOP QA029: **MP** Missed Peak, **OP** Overlapping Peak, **SP** Split Peak, **PDB** Poorly Defined Baseline, **BR** Baseline Ripple, **PII** Poor Instrument Integration
All strikeouts must be initialed and dated. If correction was not due to a transcription error, then list the reason for correction.

Analyst's Signature: 

SGS - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time: Started 10/21/19 0900 {mm/dd/yy 24:00}

Date/Time: Finished 10/21/19 1500 {mm/dd/yy 24:00}

Prep Method: (3535A) or 537 or 537MOD (circle)

Analytical Method: 8330B

Batch#: OP77364 Ext. By: MB Conc. By: — Vialed By: MB

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Surrogate Amount	Spike Amount	Final Volume (ml)	Manifold ID	Comments
OP 77364 MB	X	1000	6	N/A	250ul		10ml	AT-1	
OP 77364 BS	X	1000				200 + 250ul			
FA69146-1	3	1000						AT-2	MS volatile
-2	2	1000						AT-2	
-3	3	990							
-4	4	1000						AT-1	
-5	3	980						AT-2	
FA69059-10	2	990	6	N/A	250ul				
FA69146-4 MS	7	500	6	N/A	250ul	200 + 250ul	10ml	AT-1	
-4 MSD	7	500							
DUP									

Comments:

Surr.1 ID: LC1301 Conc: 20ppm Exp. Date: 03/17/20 Inj. By: MB Ver. By MB

Spk.1 ID: LC1299 Conc: 20ppm Exp. Date: 03/11/20 Inj. By: MB Ver. By MB

Spk.2 ID: LC1289 Conc: 25ppm Exp. Date: 02/20/20 Inj. By: MB Ver. By MB

Spk.3 ID: — Conc: — Exp. Date: — Inj. By: — Ver. By —

TurboVap Temp (Therm ID): — Observed Temp °C: — Corr. Temp °C: —

N-Evap Temp (Therm ID): — Observed Temp °C: — Corr. Temp °C: —

Methanol Lot # —

Acetonitrile Lot # 193368

Water Lot# DI H_2O

Solvent# —

SPE Lot # S214-0088

Syringe filter Lot # —

Pre-filter Lot# —

Carbon Lot# —

pH Paper # 207519

Reagent # —

Reagent # —

Other —

Relinquished By: Date: 10/21/19

Accepted By: Date: 10/22/19

ORLD-EXT-0001-3-08-FORM-extwater_spe.xls 032718

SGS - ORLANDO

SPE LIQUID SAMPLE PREP REPORT

Date/Time: 10/24/19 0730 Started {mm/dd/yy 24:00}

Date/Time: 10/24/19 1400 Finished {mm/dd/yy 24:00}

Prep Method: (3535A) or 537 or 537MOD (circle)

Analytical Method: 8330B

Batch#: 77415 Ext. By: MB Conc. By: — Vialed By: MB

Sample ID	Bottle Number	Amount Extracted (ml)	Initial pH	Adjusted pH	Surrogate Amount	Spike Amount	Final Volume (ml)	Manifold ID	Comments
OP 77415 MB	X	1000	6	N/A	250ul		10ml	AT-1	
OP 77415 BS	X	1000	↓	↓	↓	250ul	↓	↓	
LAS8707-1	2	1000	↓	↓	↓	↓	↓	↓	
LAS8708-1	2	1000	↓	↓	↓	↓	↓	↓	
FA69059-10	4	1000	6	N/A	250ul		↓	AT-1	
FA69146-1	2	980	↓	↓	↓		↓	↓	
-2	3	990	↓	↓	↓		↓	↓	
-3	3	990	↓	↓	↓		↓	↓	
-4	8	1000	↓	↓	↓		↓	AT-2	
-5	2	1000	↓	↓	↓		↓	↓	
					10/24 MB				
				MB					
FA69146 MS2	6	500	6	N/A	250ul	250ul	10ml	AT-1	
-4 MSD2	6	500	↓	↓	↓	↓	↓	↓	
LAS8708-1 MS	3	500	6	N/A	250ul	250ul	↓	AT-1	
-1 MSD	3	500	↓	↓	↓	↓	↓	↓	
DUP									

Comments:

Surr.1 ID: LC1301 Conc: 20ppm Exp. Date: 03/17/20 Inj. By: MB Ver. By MB

Spk.1 ID: LC1312 Conc: 20ppm Exp. Date: 04/21/20 Inj. By: MB Ver. By MB

Spk.2 ID: — Conc: — Exp. Date: — Inj. By: — Ver. By —

Spk.3 ID: — Conc: — Exp. Date: — Inj. By: — Ver. By —

TurboVap Temp (Therm ID): — Observed Temp °C: — Corr. Temp °C: —

N-Evap Temp (Therm ID): — Observed Temp °C: — Corr. Temp °C: —

Methanol Lot #: —

Acetonitrile Lot #: 192368

Water Lot#: DI H2O

Solvent#: —

SPE Lot #: 521-0088

Syringe filter Lot #: —

Pre-filter Lot#: —

Carbon Lot#: —

pH Paper #: 2016/9

Reagent #: —

Reagent #: —

Other —

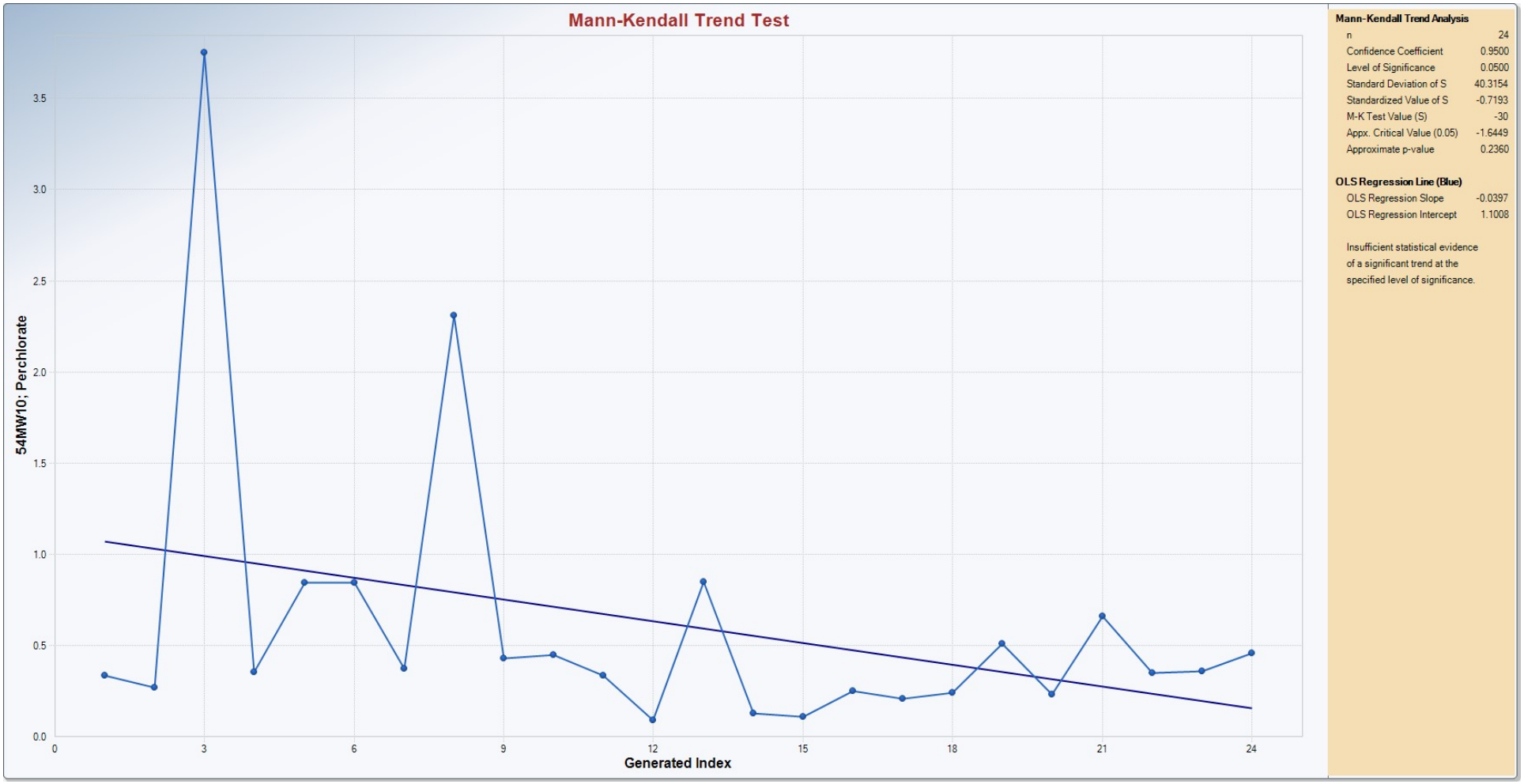
Relinquished By: Date: 10/24/19

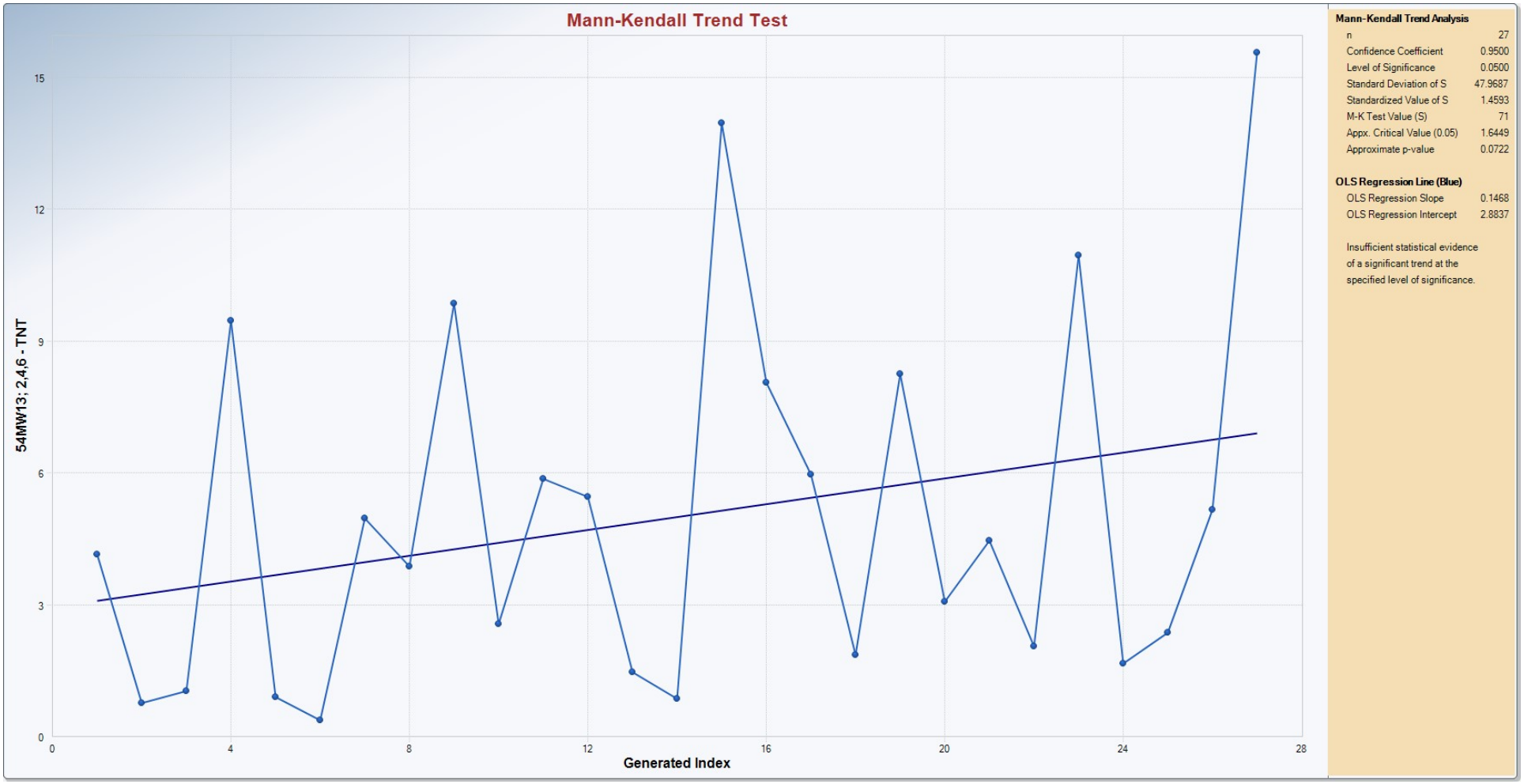
Accepted By: Date: 10/24/19

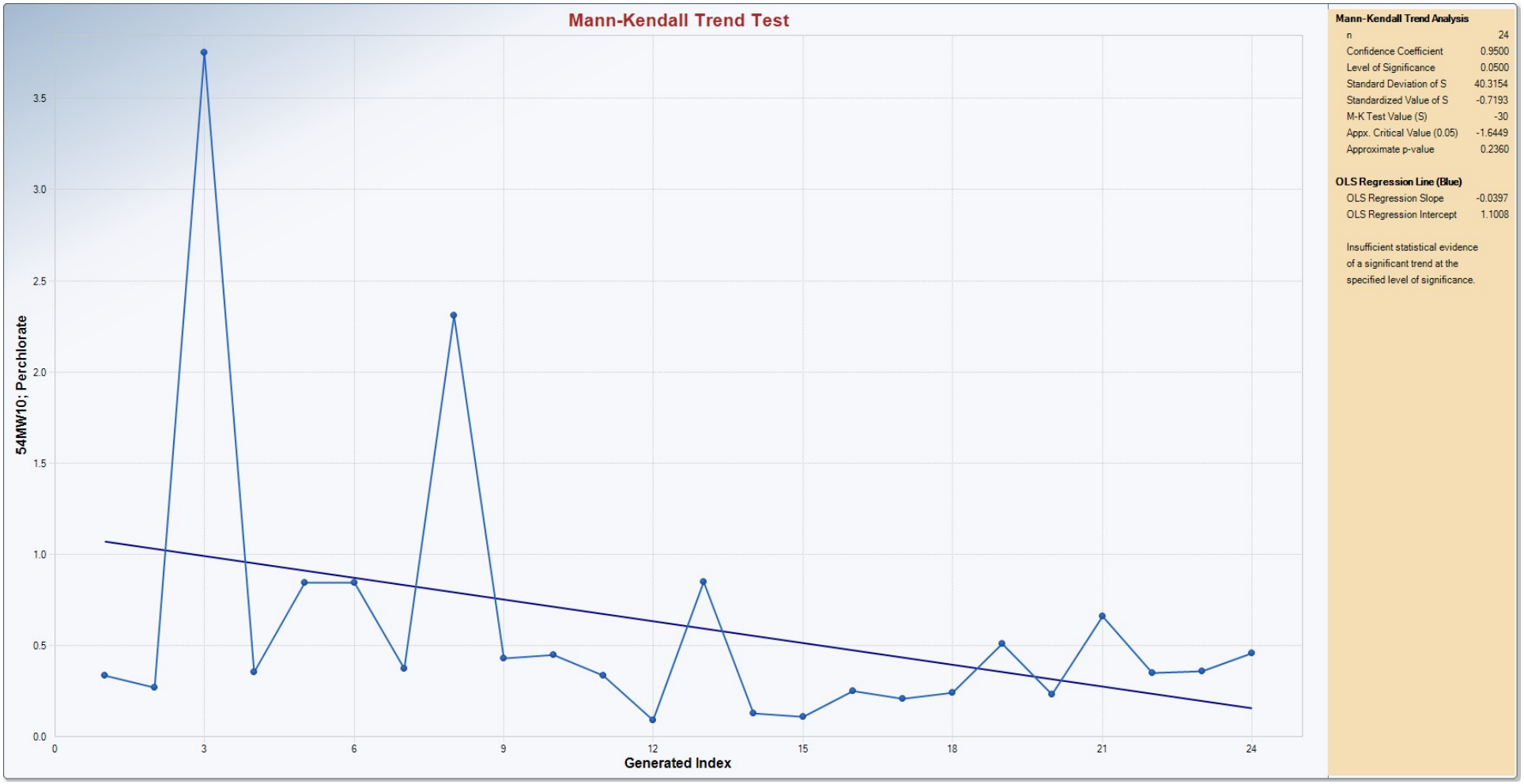
ORLD-EXT-0001-3-08-FORM-extwater_spe.xls 032718

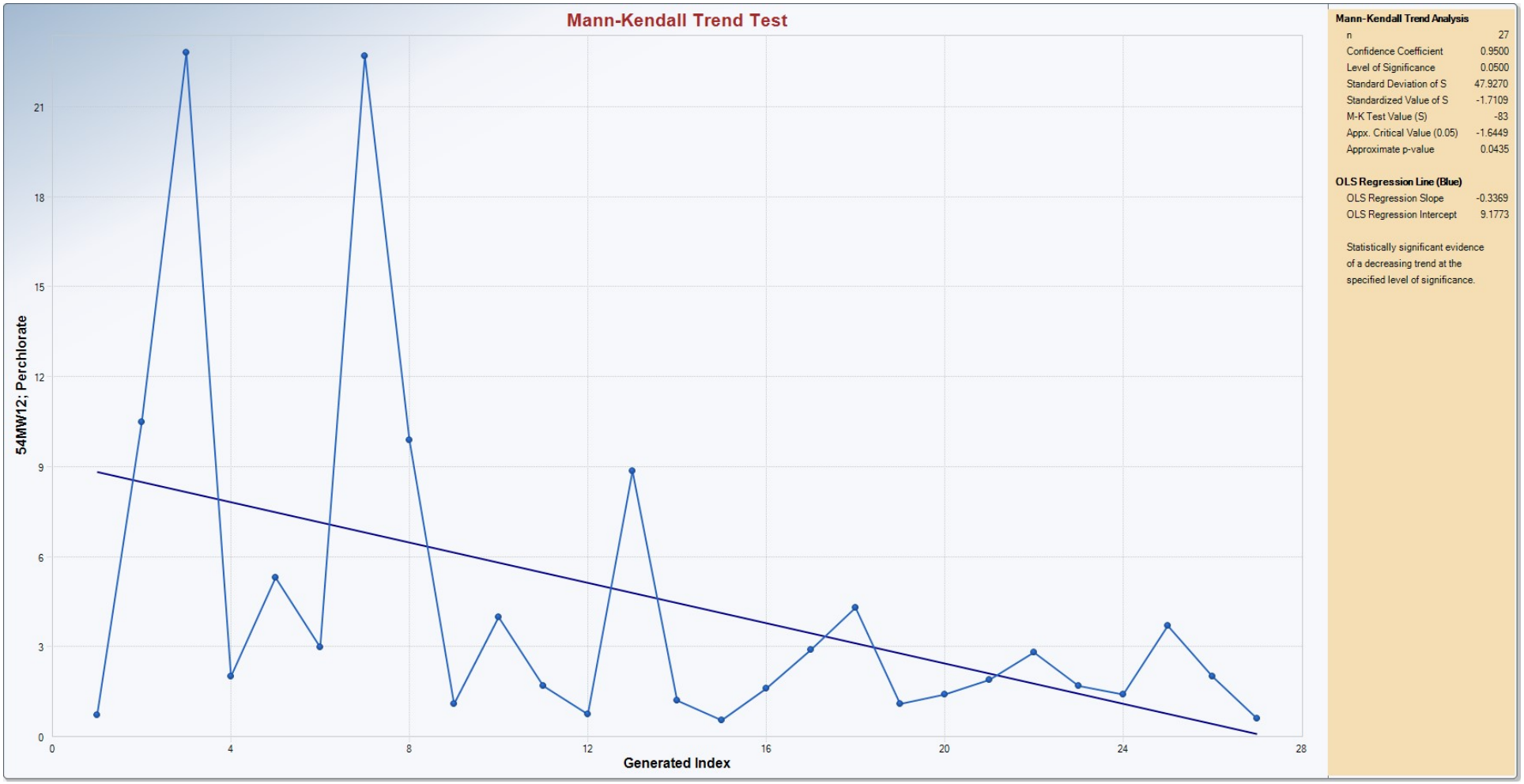
APPENDIX C
MANN-KENDALL TEST RESULTS

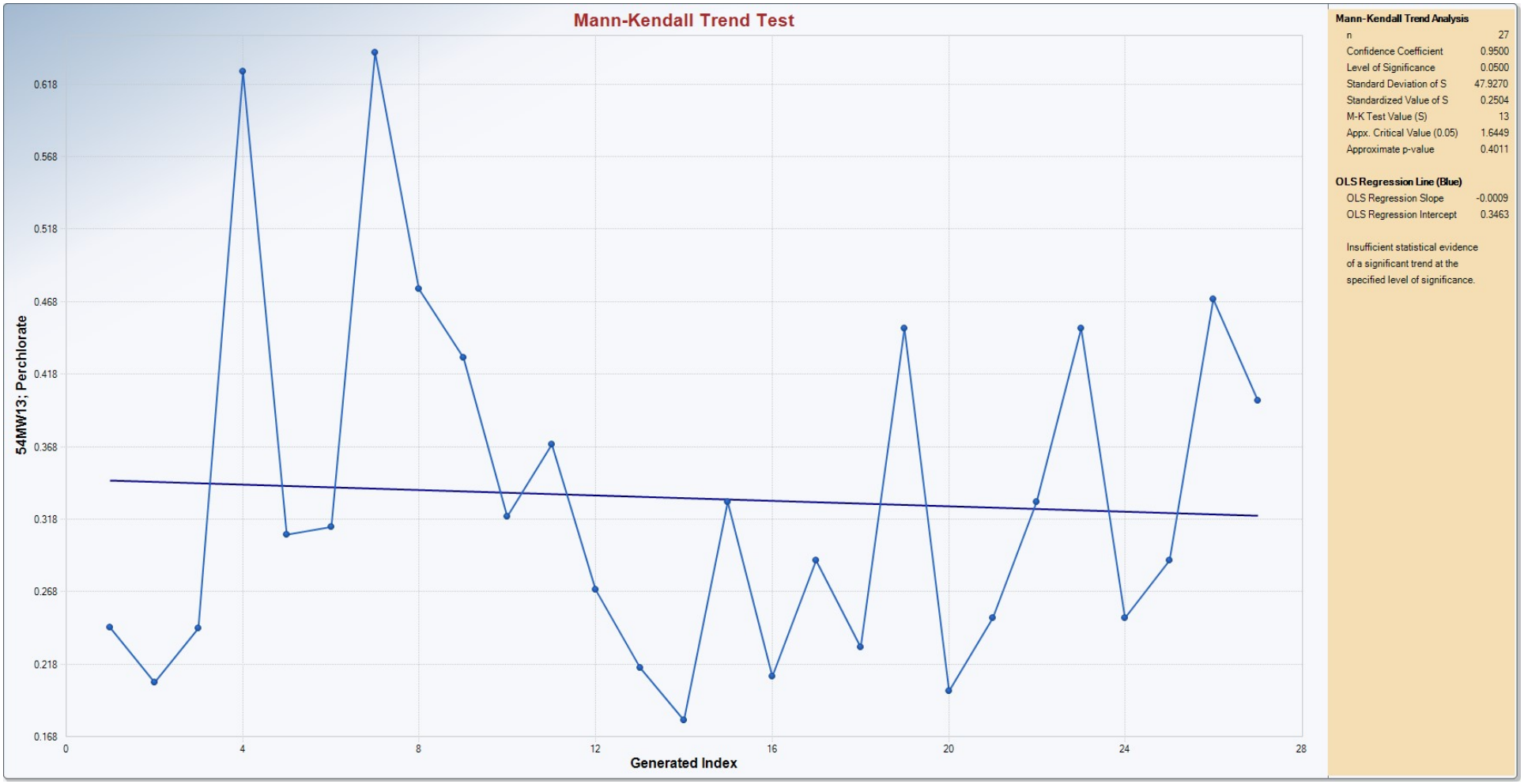
Appendix C
Mann-Kendall Test Results
2019


Mann-Kendall Trend Test
54MW10; Perchlorate
Generated Index
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
0
3
6
9
12
15
18
21
24
Mann-Kendall Trend Analysis
n 24
Confidence Coefficient 0.9500
Level of Significance 0.0500
Standard Deviation of S 40.3154
Standardized Value of S -0.7193
M-K Test Value (S) -30
Appx. Critical Value (0.05) -1.6449
Approximate p-value 0.2360
OLS Regression Line (Blue)
OLS Regression Slope -0.0397
OLS Regression Intercept 1.1008
Insufficient statistical evidence of a significant trend at the specified level of significance.

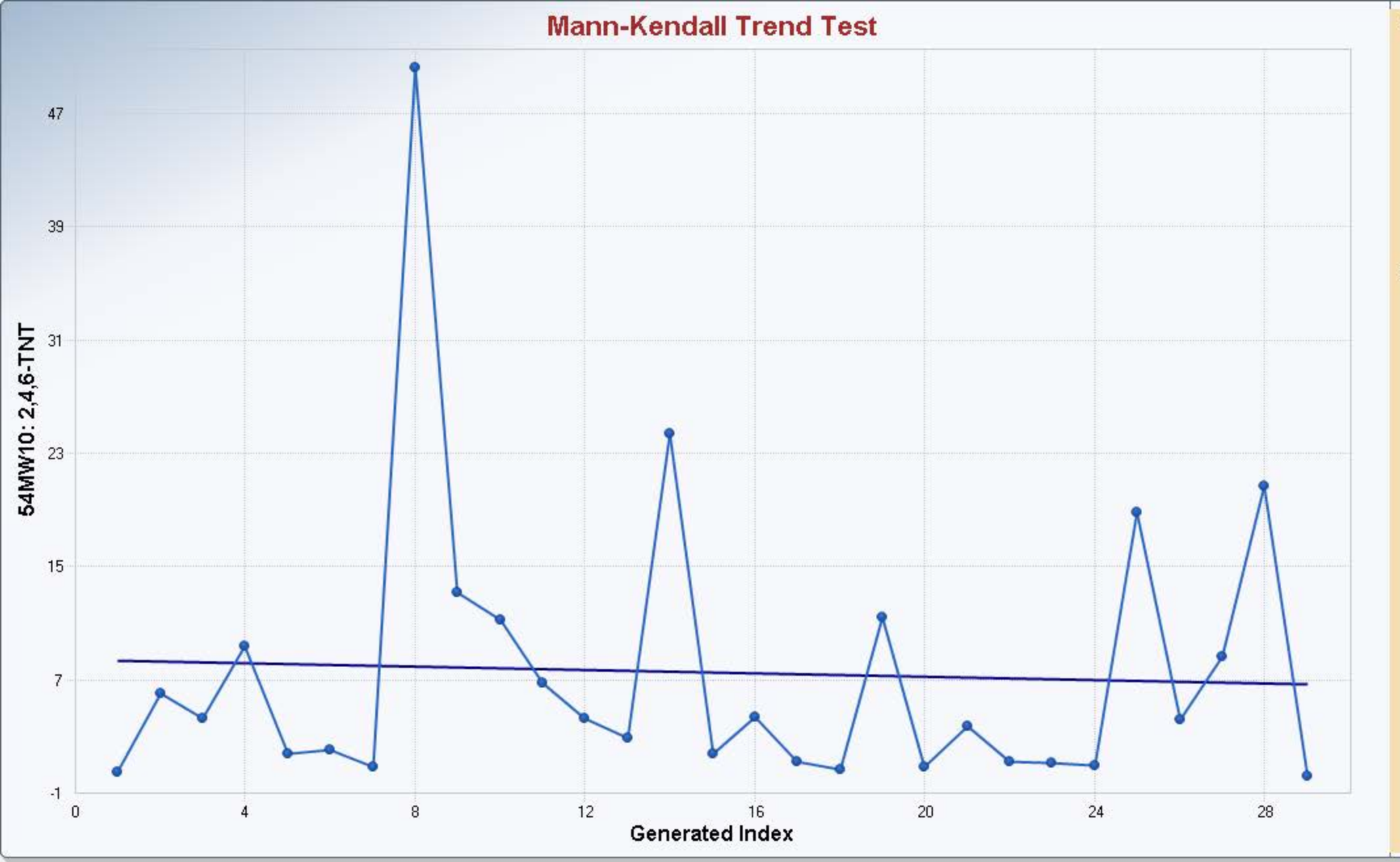

Mann-Kendall Trend Test
54MW13; 2,4,6 - TNT
Generated Index
0
3
6
9
12
15
0
4
8
12
16
20
24
28
Mann-Kendall Trend Analysis
n 27
Confidence Coefficient 0.9500
Level of Significance 0.0500
Standard Deviation of S 47.9687
Standardized Value of S 1.4593
M-K Test Value (S) 71
Appx. Critical Value (0.05) 1.6449
Approximate p-value 0.0722
OLS Regression Line (Blue)
OLS Regression Slope 0.1468
OLS Regression Intercept 2.8837
Insufficient statistical evidence of a significant trend at the specified level of significance.


Mann-Kendall Trend Test
54MW10; Perchlorate
Generated Index
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
0
3
6
9
12
15
18
21
24
Mann-Kendall Trend Analysis
n 24
Confidence Coefficient 0.9500
Level of Significance 0.0500
Standard Deviation of S 40.3154
Standardized Value of S -0.7193
M-K Test Value (S) -30
Appx. Critical Value (0.05) -1.6449
Approximate p-value 0.2360
OLS Regression Line (Blue)
OLS Regression Slope -0.0397
OLS Regression Intercept 1.1008
Insufficient statistical evidence of a significant trend at the specified level of significance.


Mann-Kendall Trend Test
54MW12; Perchlorate
Generated Index
0
3
6
9
12
15
18
21
0
4
8
12
16
20
24
28
Mann-Kendall Trend Analysis
n 27
Confidence Coefficient 0.9500
Level of Significance 0.0500
Standard Deviation of S 47.9270
Standardized Value of S -1.7109
M-K Test Value (S) -83
Appx. Critical Value (0.05) -1.6449
Approximate p-value 0.0435
OLS Regression Line (Blue)
OLS Regression Slope -0.3369
OLS Regression Intercept 9.1773
Statistically significant evidence of a decreasing trend at the specified level of significance.


Mann-Kendall Trend Test
54MW13; Perchlorate
0.618
0.568
0.518
0.468
0.418
0.368
0.318
0.268
0.218
0.168
0
4
8
12
16
20
24
28
Generated Index
Mann-Kendall Trend Analysis
n 27
Confidence Coefficient 0.9500
Level of Significance 0.0500
Standard Deviation of S 47.9270
Standardized Value of S 0.2504
M-K Test Value (S) 13
Appx. Critical Value (0.05) 1.6449
Approximate p-value 0.4011
OLS Regression Line (Blue)
OLS Regression Slope -0.0009
OLS Regression Intercept 0.3463
Insufficient statistical evidence of a significant trend at the specified level of significance.

Appendix C
Mann-Kendall Test Results
2020



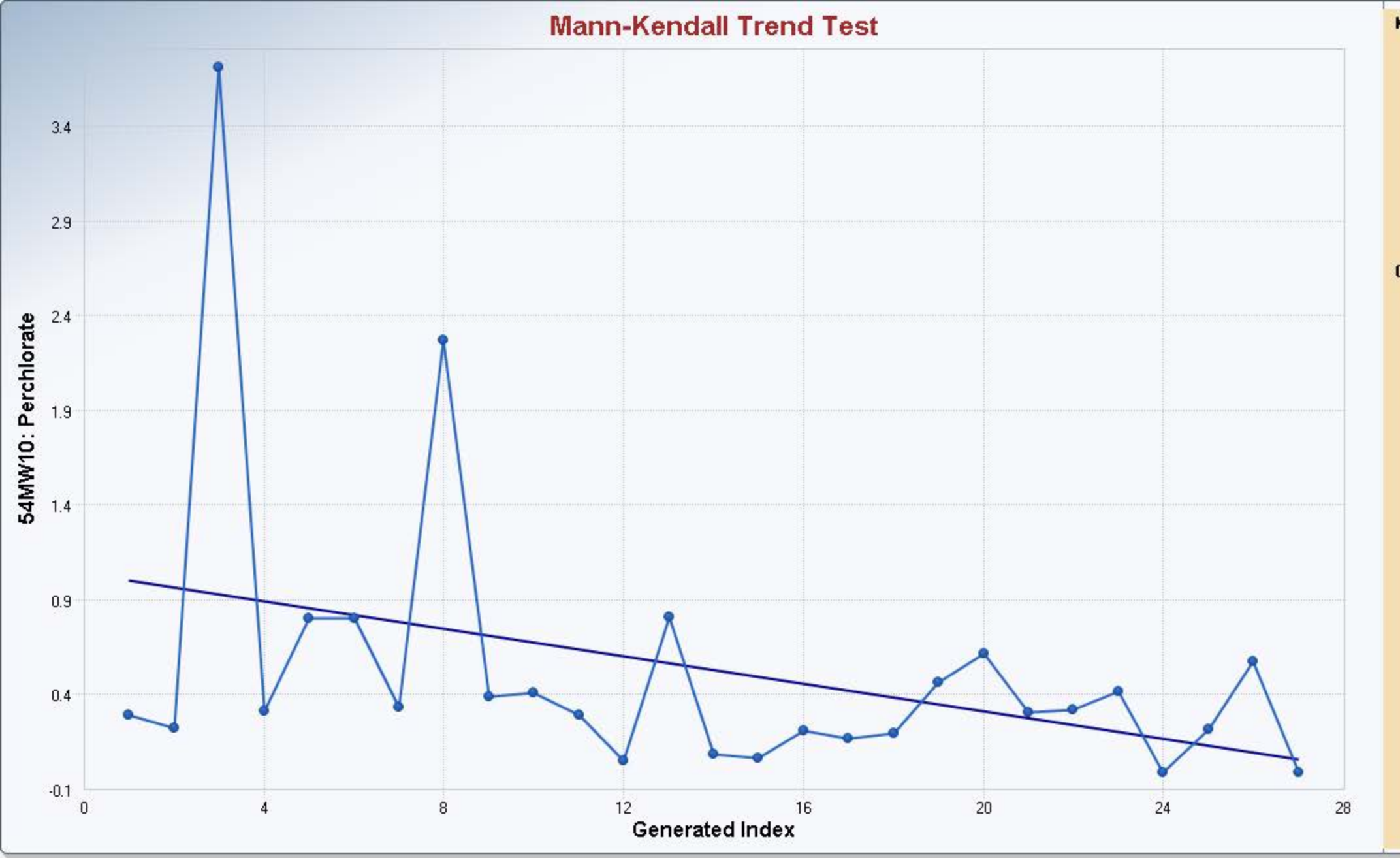
Mann-Kendall Trend Analysis

n	29
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	53.3010
Standardized Value of S	-0.4878
M-K Test Value (S)	-27
Appx. Critical Value (0.05)	-1.6449
Approximate p-value	0.3128

OLS Regression Line (Blue)

OLS Regression Slope	-0.0609
OLS Regression Intercept	8.2185

Insufficient statistical evidence of a significant trend at the specified level of significance.



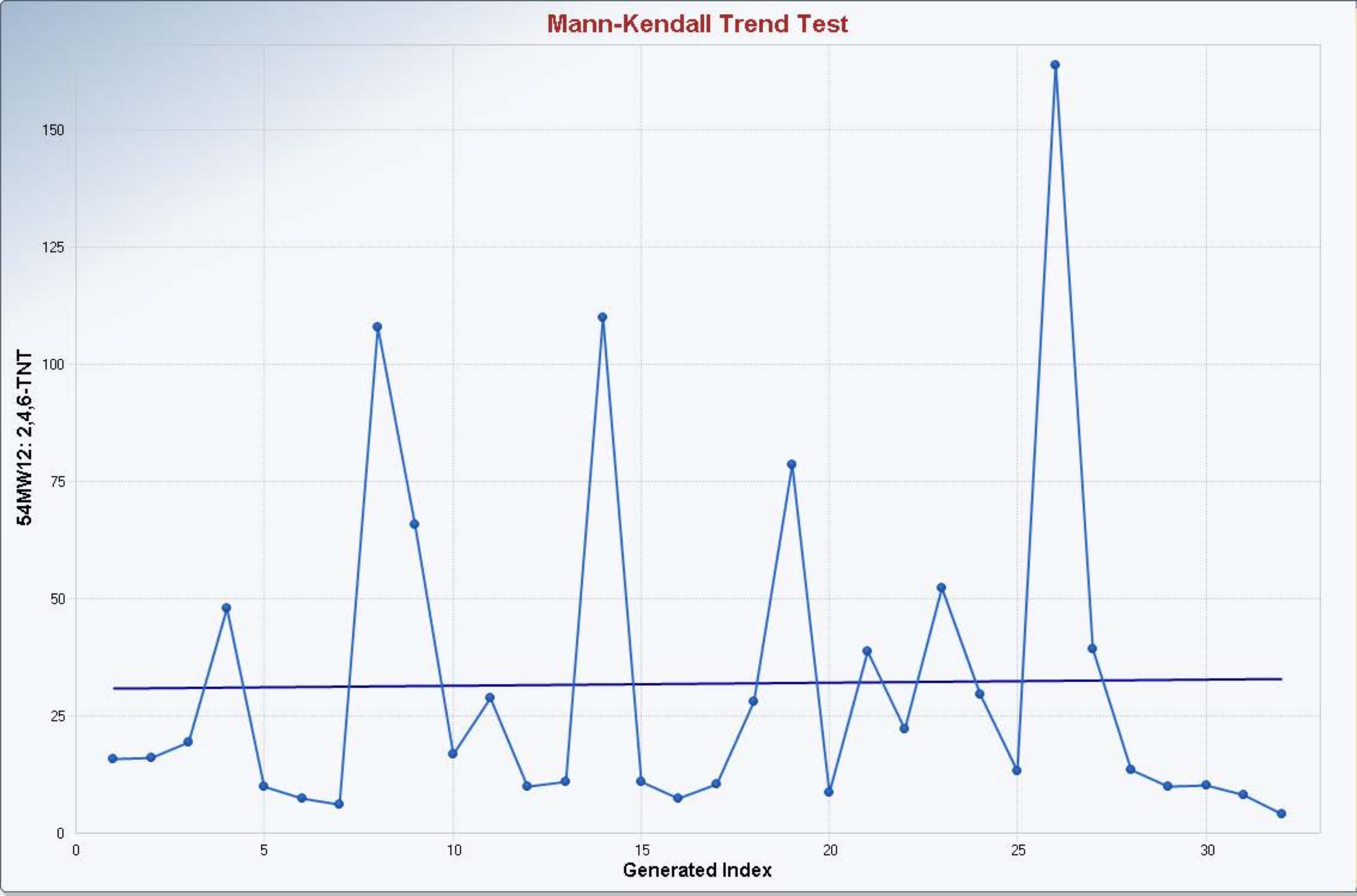
Mann-Kendall Trend Analysis

n	27
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	47.9583
Standardized Value of S	-1.3970
M-K Test Value (S)	-68
Appx. Critical Value (0.05)	-1.6449
Approximate p-value	0.0812

OLS Regression Line (Blue)

OLS Regression Slope	-0.0366
OLS Regression Intercept	1.0747

Insufficient statistical evidence of a significant trend at the specified level of significance.



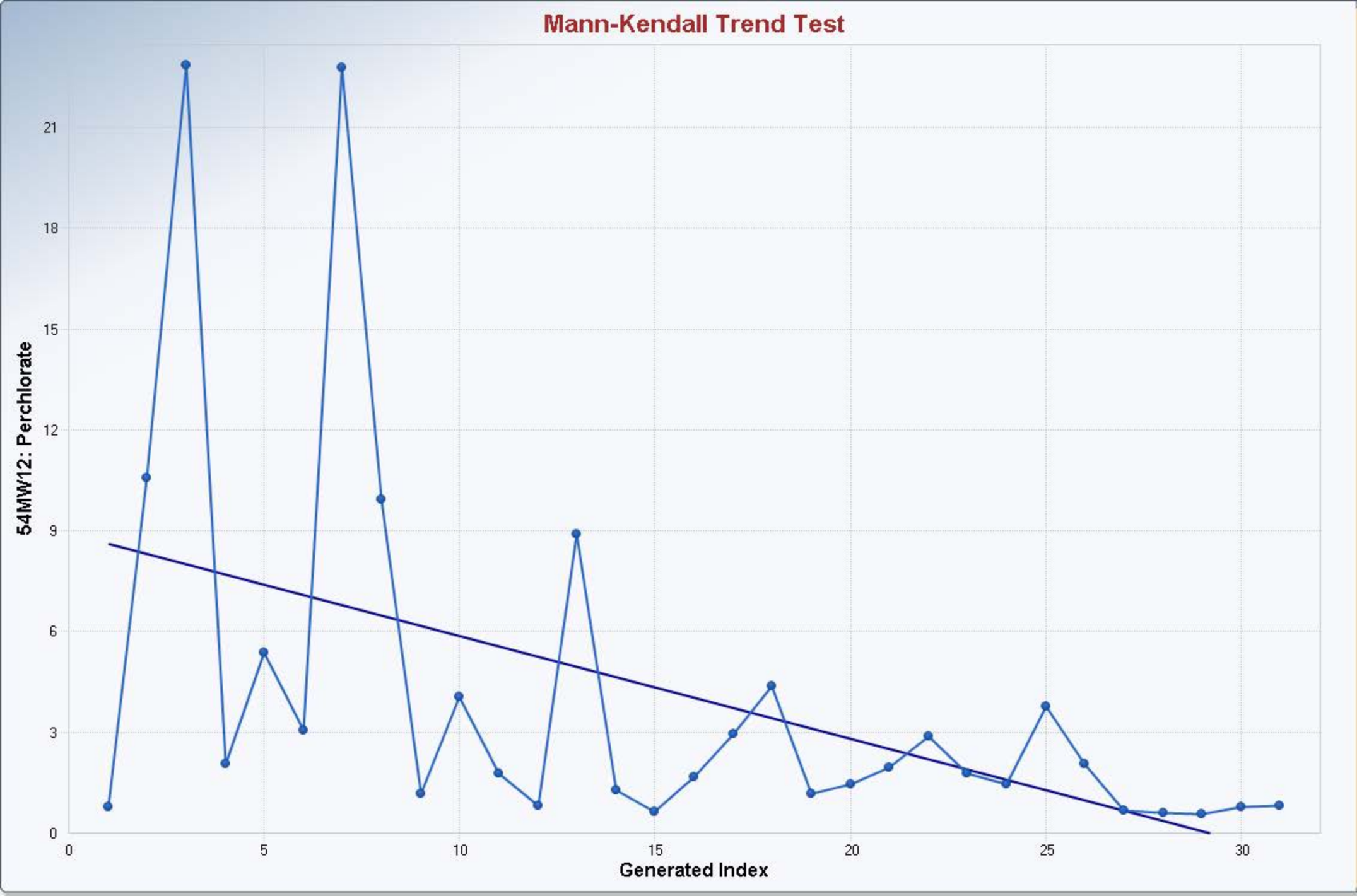
Mann-Kendall Trend Analysis

n	32
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	61.6495
Standardized Value of S	-0.4704
M-K Test Value (S)	-30
Appx. Critical Value (0.05)	-1.6449
Approximate p-value	0.3190

OLS Regression Line (Blue)

OLS Regression Slope	0.0611
OLS Regression Intercept	31.0268

Insufficient statistical evidence of a significant trend at the specified level of significance.



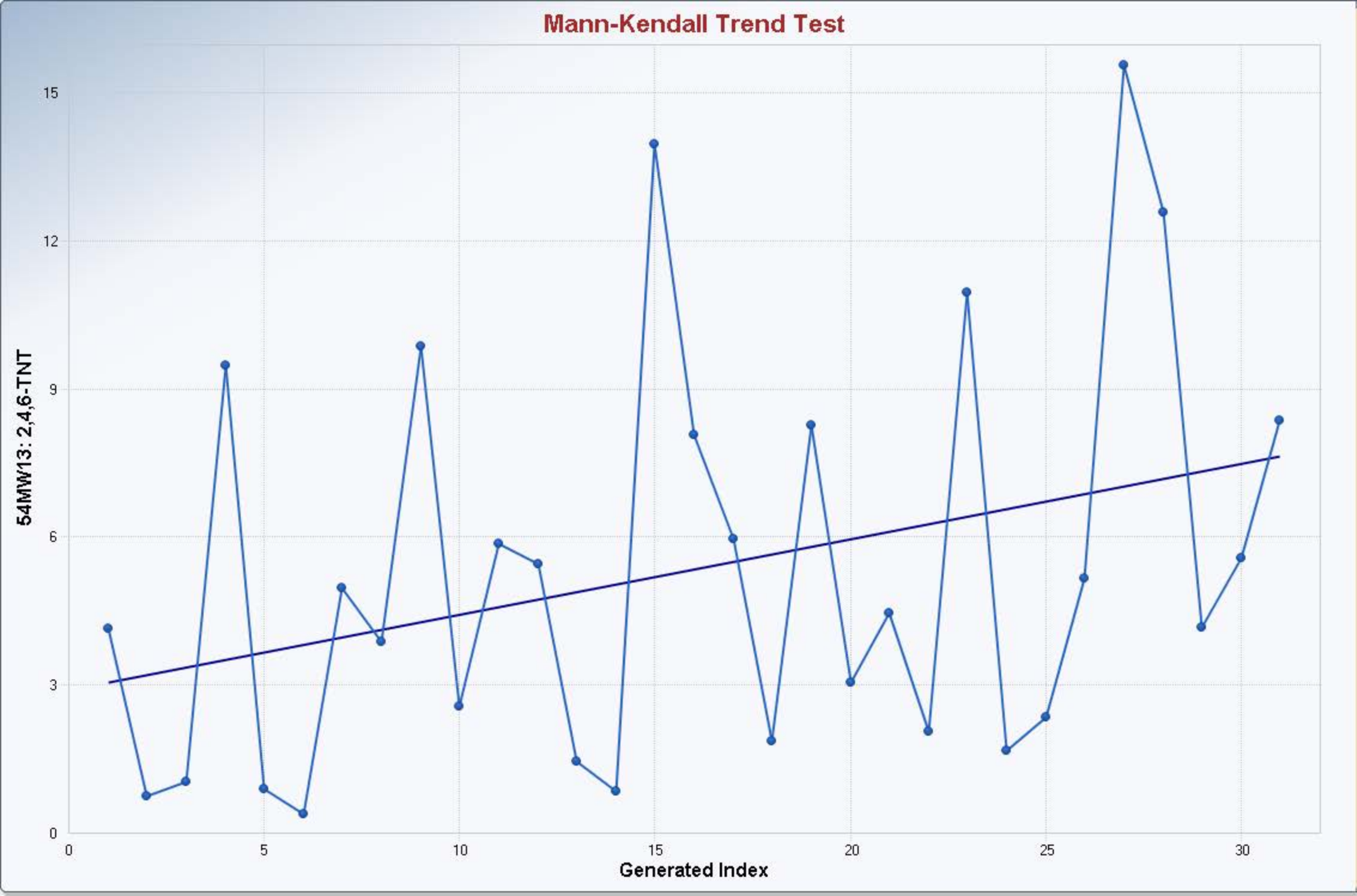
Mann-Kendall Trend Analysis

n	31
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	58.8019
Standardized Value of S	-2.9251
M-K Test Value (S)	-173
Appx. Critical Value (0.05)	-1.6449
Approximate p-value	0.0017

OLS Regression Line (Blue)

OLS Regression Slope	-0.3058
OLS Regression Intercept	8.8597

Statistically significant evidence of a decreasing trend at the specified level of significance.



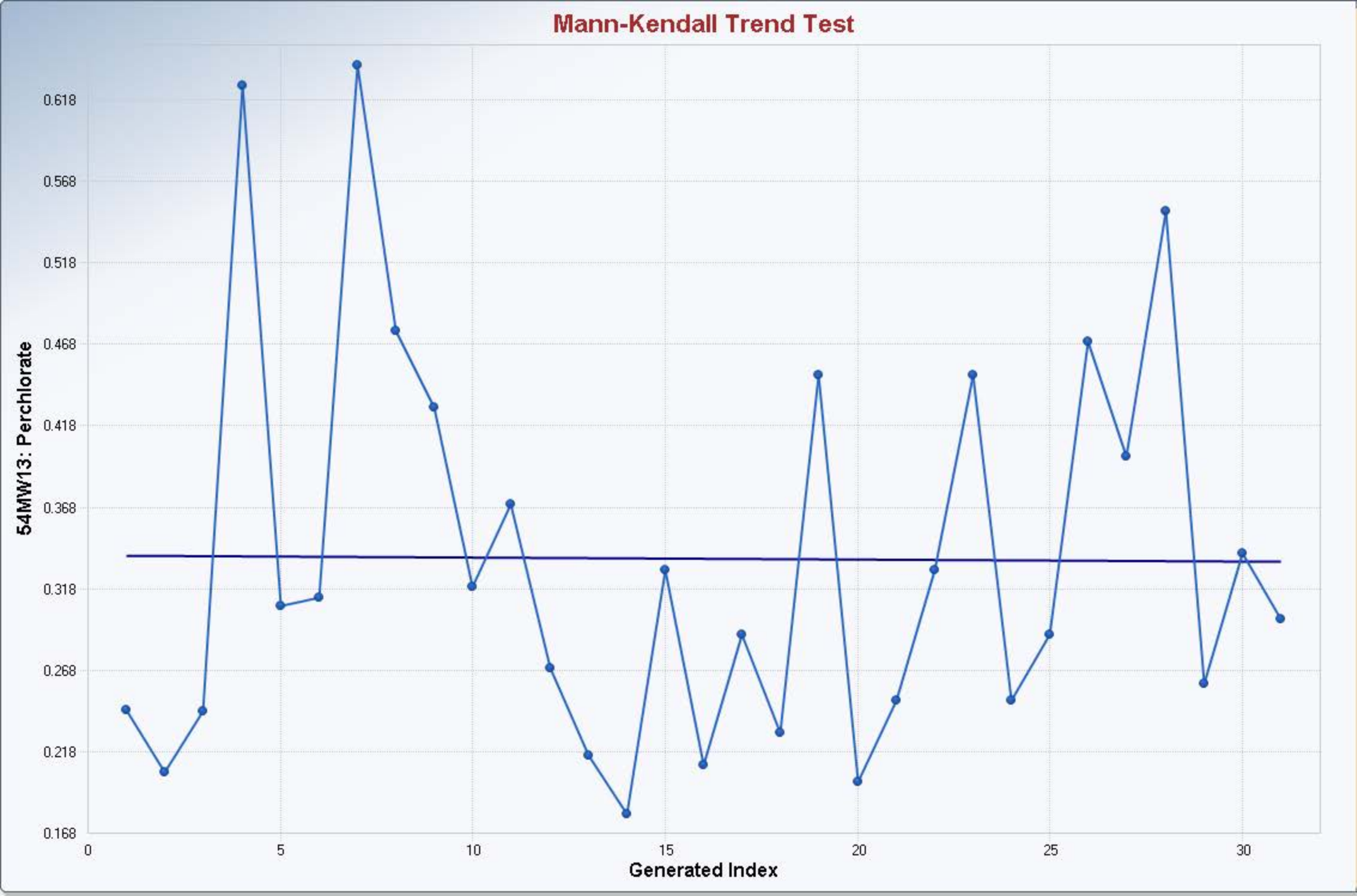
Mann-Kendall Trend Analysis

n	31
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	58.8359
Standardized Value of S	2.0396
M-K Test Value (S)	121
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.0207

OLS Regression Line (Blue)

OLS Regression Slope	0.1526
OLS Regression Intercept	2.8397

Statistically significant evidence of an increasing trend at the specified level of significance.



Mann-Kendall Trend Analysis

n	31
Confidence Coefficient	0.9500
Level of Significance	0.0500
Standard Deviation of S	58.8019
Standardized Value of S	0.5782
M-K Test Value (S)	35
Appx. Critical Value (0.05)	1.6449
Approximate p-value	0.2816

OLS Regression Line (Blue)

OLS Regression Slope	-0.0001
OLS Regression Intercept	0.3388

Insufficient statistical evidence of a significant trend at the specified level of significance.