Commonwealth of Virginia

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

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Stefanie K. Taillon
Secretary of Natural and Historic Resources

Michael S. Rolband, PE, PWD, PWS Emeritus
Director

June 23, 2025

Mr. Matt Alberts
Radford Army Ammunition Plant
Route 114, P.O. Box 1
Radford, Virginia 24143-0100

VIA ELECTRONIC MAIL

Re: Draft Final SWMU 49 Monitored Natural Attenuation Sampling Year Nine Report
Radford Army Ammunitions Plant
Route 114, Radford, Virginia 24141
EPA ID#: VA1210020730

Dear Mr. Alberts:

This letter acknowledges the receipt and review of the Draft Final SWMU 49 Monitored Natural Attenuation Sampling Year Nine Report (Report) submitted to the Virginia Department of Environmental Quality, Office of Remediation Programs (Department) by Radford Army Ammunitions Plant (RFAAP).

The Department has no comments on the submittal and concurs with the recommendation to continue monitoring in accordance with the current groundwater monitoring program. If you have any questions regarding this correspondence, you may contact me at the email address or phone number listed below.

Sincerely,

Kurt Kochan, Remediation Project Manager
Virginia Department of Environmental Quality
Central Office
1111 E. Main Street, Suite 1400
Richmond, VA 23219
kurt.kochan@deq.virginia.gov
703-232-4200

cc: RFAAP Correspondence File
Melissa Lincoln, BAE
Tara Mason, DEQ-CO
Nikki Herschler, DEQ-BRRO

FINAL

SWMU 49 MONITORED NATURAL ATTENUATION SAMPLING YEAR NINE REPORT

RADFORD ARMY AMMUNITION PLANT
RADFORD, VIRGINIA

Contract No. W912DR-19-D-0004
Delivery Order No. W912DR-24-F-0222

Prepared For:

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

and

RADFORD ARMY AMMUNITION PLANT
Radford, VA

Prepared By:

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

and

CAPE ENVIRONMENTAL MANAGEMENT INC.
500 Pinnacle Court, Suite 100, Norcross, GA 30071

MAY 2025

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ACRONYMS AND ABBREVIATIONS

>	greater than
%	percent
°C	degree(s) Celsius
µg/L	microgram(s) per liter
µS/cm	microsiemen(s) per centimeter
1,1,1-TCA	1,1,1-trichloroethane
1,1-DCA	1,1-dichloroethane
A	sampled annually
amsl	above mean sea level
bgs	below ground surface
BTOC	below top of casing
CAPE	Cape Environmental Management, Inc.
CB&I	CB&I Federal Services LLC
CCV	continuing calibration verification
CD	compact disk
cis-1,2-DCE	cis-1,2-dichloroethene
CMO	corrective measures objective
CoC	chain-of-custody
COC	contaminant of concern
COD	chemical oxygen demand
CT	carbon tetrachloride
DO	dissolved oxygen
DoD	U.S. Department of Defense
DTW	depth to water
ELAP	Environmental Laboratory Accreditation Program
Esri	Environmental Systems Research Institute
FD	field duplicate
Fe	iron
Fe^{2+}	ferrous iron
ft	foot/feet
GW	groundwater
HHRA	human health risk assessment
ICV	initial calibration verification
ID	identification
IDW	investigation-derived waste
IT	IT Corporation
Lab Q	laboratory data qualifiers
LCS	laboratory control sample
LOD	limit of detection
LOQ	limit of quantitation
LTM	long-term monitoring
MCL	maximum contaminant level
MDL	method detection limit
mg/L	milligram(s) per liter
Mn	manganese

ACRONYMS AND ABBREVIATIONS (CONTINUED)

MNA	monitored natural attenuation
MRL	method reporting limit
MS	matrix spike
MSD	matrix spike duplicate
mV	millivolt(s)
MWP	Master Work Plan
NA	not applicable
ND	not detected/non-detect
No.	Number
NT	not tested
NTU	nephelometric turbidity unit(s)
ORP	oxidation-reduction potential
Parsons	Parsons Engineering Science, Inc.
PDS	post-digestion spike
pH	corrosivity/hydrogen ion concentration
PID	photoionization detector
POC	point of compliance
ppm	part(s) per million
QA	quality assurance
QAPP	Quality Assurance Project Plan
QC	quality control
RCRA	Resource Conservation and Recovery Act
RFAAP	Radford Army Ammunition Plant
RFI	RCRA Facility Investigation
RG	remedial goal
RPD	relative percent difference
RSL	regional screening level
SU	standard unit(s)
SWMU	Solid Waste Management Unit
TCE	trichloroethene
TCL	target compound list
TOC	total organic carbon
U.S.	United States
URS	URS Corporation
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
Val Q	validation data qualifier
VDEQ	Virginia Department of Environmental Quality
VI	verification investigation
VOC	volatile organic compound
WESTON®	Weston Solutions, Inc.
YSI	Yellow Springs Instrument

1. INTRODUCTION

Cape Environmental Management, Inc. (CAPE) with subcontractor Weston Solutions, Inc. (WESTON®) has been contracted by the United States (U.S.) Army Corps of Engineers (USACE), Baltimore District, to perform long-term monitoring (LTM) and monitored natural attenuation (MNA) at Solid Waste Management Unit (SWMU) 49 (RAAP-013), Propellant Burning Ash Disposal Area, at Radford Army Ammunition Plant (RFAAP), Radford, VA. This report provides a description of the groundwater sampling activities completed and an analysis of results from the twenty-ninth and thirtieth semiannual rounds conducted in 2024 (August and December). Further, this report provides a summary of Year Nine monitoring, consisting of those two sampling events.

This work was performed under Contract Number (No.) W912DR-19-D-0004, Delivery Order No. W912DR-24-F-0222, in accordance with the *Final Master Work Plan, Quality Assurance Plan, Health and Safety Plan* (RFAAP Final MWP) (URS Corporation [URS], 2003) and with Part II (D)(11-21) Interim Measures of the RFAAP Resource Conservation and Recovery Act (RCRA) Corrective Action Permit (U.S. Environmental Protection Agency [USEPA], 2000). Based on the consistency of the data and the fact that quarterly monitoring had been conducted for a full 6 years, groundwater monitoring starting with Year Seven was reduced to a semiannual basis at the 15 monitoring well locations. The Virginia Department of Environmental Quality (VDEQ) approved this recommendation, which was presented in the Year Five report. In October 2021, VDEQ concurred with RFAAP's Class 1 Modification request for the permit, which recommended removal of references to the sampling frequency specified in the Monitored Natural Attenuation Groundwater Monitoring Plan for SWMU 49 contained in Attachment C of the permit.

Groundwater at the SWMU 49 study area has been investigated from the mid-1990s through 2020 and has been fully characterized and delineated. Based on the contamination assessment and human health risk assessment (HHRA) performed and presented in the Draft *SWMU 48/49 RCRA Facility Investigation Report* (Draft SWMU 48/49 RCRA Facility Investigation [RFI] Report) (CB&I Federal Services LLC [CB&I], 2014a), carbon tetrachloride (CT) and trichloroethene (TCE) were identified as the primary contaminants of concern (COCs). Note that SWMU 49 used to be a combined study area with SWMU 48; however, previous investigations and sample data have determined that suspected contaminants reportedly disposed of at SWMU 48 were, in fact,

likely disposed at SWMU 49. Therefore, this report concerns only contamination associated with SWMU 49. CT and TCE were identified as the COCs that are contributing to potential future industrial and residential risk at the study area. Based on the MNA results presented in the SWMU 49 MNA Sampling Baseline Report (CB&I, 2015), MNA processes, including biodegradation, sorption, dilution, dispersion, and chemical stabilization, are occurring in groundwater at the SWMU 49 study area.

The Year Nine monitoring program was developed and conducted in accordance with the USEPA- and VDEQ-approved Draft SWMU 48/49 RFI Report (CB&I, 2014a) and the Draft Final SWMU 49 MNA Groundwater Monitoring Work Plan (CB&I, 2014b). The corrective measures objectives (CMOs) and remedial goals (RGs) were developed and presented in the Draft SWMU 48/49 RFI Report (CB&I, 2014a). The site-specific CMO for SWMU 49 is to reduce COC (i.e., CT and TCE) concentrations to below the RGs/maximum contaminant levels (MCLs) to avoid adversely impacting future beneficial use of groundwater and, to the extent practicable, to achieve the goal of restoring site groundwater to beneficial use.

The objectives of the MNA program are as follows:

- To measure and track the reduction of CT and TCE to levels below the RGs as defined in **Table 1-1**.
- To monitor and evaluate the daughter products of the COCs to determine the progress (effectiveness and timeliness) of the degradation process.

1.1 SITE DESCRIPTION AND BACKGROUND

SWMU 49 is located in the southeastern portion of the RFAAP Horseshoe Area, east of the main bridge over the New River. As shown in **Figure 1-1**, the study area is situated on a bluff approximately 120 feet (ft) above and overlooking SWMU 13 and the New River. The SWMU 49 study area is approximately 75 ft long by 83 ft wide and is situated adjacent to SWMUs 48, 50, and 59. Previously, SWMU 49 was combined with these three adjacent areas.

As presented in previous reports (CB&I, 2014a and 2014b), SWMU 49 reportedly received 10 tons of red water ash during its active period. However, the results of environmental sampling to date indicate that the red water ash was likely disposed of in the disposal trenches associated with

neighboring SWMU 48. Conversely, sampling indicates that the only wastewater associated with SWMU 48 was disposed of in the SWMU 49 area.

Table 1-1 SWMUs 48 and 49 Groundwater Remedial Goals

Chemical of Interest	Groundwater RG (µg/L)	Groundwater RG Source[*1]
Carbon Tetrachloride	5.0	MCL
Trichloroethene	5.0	MCL

Notes:
[*] RGs are also the MCLs listed in the USEPA *2018 Edition of the Drinking Water Standards and Health Advisories Tables* (USEPA, 2018).

[1] RGs developed and presented in Draft SWMU 48/49 RFI Report (CB&I, 2014a).

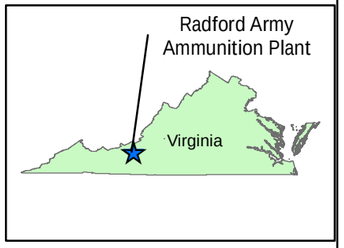
µg/L = microgram(s) per liter
MCL = maximum contaminant level
RCRA = Resource Conservation and Recovery Act
RFI = RCRA Facility Investigation
RG = remedial goal
SWMU = Solid Waste Management Unit
USEPA = U.S. Environmental Protection Agency



Legend

SWMU 49 Boundary

Other SWMU Boundary



Aerial Source:
ESRI Imagery Mapping Service, 2019

N

0 150 300 600 Feet

Prepared For:

Baltimore District

FIGURE 1-1
SWMU 49 SITE LOCATION MAP
RADFORD, VIRGINIA

File: Y:\Radford\MXD\SWMU\SWMU_48_49_Site_Location_Map.mxd, 4/23/2025 2:35:42 PM, ricksc

2. PHYSICAL CHARACTERISTICS

2.1 TOPOGRAPHY

The land surface at SWMU 49 slopes gently from 1,830 ft above mean sea level (amsl) on the north side of the site to approximately 1,816 ft amsl on the southeast side of the site. The southeast side ends abruptly at a bluff that rises approximately 120 ft above the Burning Grounds (SWMU 13) and the New River. In general, the topography is uneven and hummocky with several small draws and topographic highs.

2.2 SURFACE WATER

SWMU 49 is located on a bluff approximately 120 ft above the New River. Based on topography, surface water runoff is expected to flow approximately 700 ft south to the New River.

2.3 GEOLOGY

2.3.1 Regional Geology

SWMU 49 is located in the New River Valley, which crosses the Valley and Ridge Province approximately perpendicular to the regional strike of bedrock, and cross cuts Cambrian and Ordovician limestone or dolostone. Deep clay-rich residuum is prevalent in areas underlain by carbonate rocks. The valley is covered by river floodplain and terrace deposits; karst topography is dominant throughout the area. A more detailed description of the regional geology is presented in the RFAAP Final MWP (URS, 2003).

2.3.2 Site-Specific Geology

The lithology of the SWMU 49 subsurface was characterized during the advancement of soil borings and monitoring well borings at the site. One soil boring (48SB05) was advanced within SWMU 49 to 37 ft in depth. In addition to soil boring 48SB05, two monitoring wells were installed directly north and south of the target study area: 48MW1 and 48MW2, respectively. Plan views of lines A-A' and B-B' that run through the adjacent sites of SWMU 48, SWMU 50, and SWMU 59 are presented in **Figure 2-1**, with geologic cross sections of A-A' and B-B' presented in **Figures 2-2** and **2-3**, respectively. Based on the borings, the subsurface geology consists of alluvium and residual deposits comprising clay and silt with some sand and gravel overlying

bedrock. Monitoring well 48MW1 was advanced to 154 ft below ground surface (bgs), with the bedrock elevation encountered at 72 ft bgs. Monitoring well 48MW2 was advanced to 133.7 ft bgs, with the bedrock elevation encountered at approximately 41 ft bgs. Depths to bedrock were directly measured at the monitoring well borings. Bedrock elevations ranged from approximately 1,745 to 1,776 ft amsl, with the bedrock surface sloping to the north.

Depth to competent bedrock at the site ranges from approximately 41 to 72 ft bgs. A saprolitic layer, formed from in situ weathering of the carbonate bedrock, immediately overlies the competent bedrock. The saprolite is up to 10 ft in thickness.

Bedrock consists of highly fractured interbedded siltstone, limestone, and dolostone of the Elbrook Formation. The Max Meadows Breccia is evident in outcrops along the slope leading to the river. In the outcrop along the slope, the tectonic breccias and the limestone and dolostone are highly weathered with many solution cavities. The unconsolidated sediment immediately overlying the saprolite consists of alluvial deposits.

Alluvial deposits, consisting primarily of silty sand, overlie channel deposits of fine- to coarse-grained sand and gravel (river jack). These Paleo-channel deposits rest directly on the saprolite. Portions of the disposal areas contain fill material to depths of 9 to 10 ft bgs. A more detailed discussion of the geology and soil at RFAAP is presented in Sections 3.4 through 3.7 of the RFAAP Final MWP (URS, 2003) and in the *Facility-Wide Background Study* (IT Corporation [IT], 2001).

2.4 HYDROGEOLOGY

2.4.1 Regional Hydrogeology

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

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

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

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

2.4.2 Site-Specific Hydrogeology

Monitoring wells installed at SWMU 49 were screened in both the surficial unconsolidated deposits and the underlying bedrock. Boring logs and well construction diagrams for the SWMU 49 study area wells are presented in the SWMU 49 MNA Sampling Baseline Report (CB&I, 2015). Water levels were measured in the wells to determine the groundwater flow direction at the site. A groundwater contour map prepared from the baseline MNA monitoring completed in January 2015 is provided in **Figure 2-4**. A steep bluff separates SWMU 49 and SWMU 13; therefore, no monitoring wells are positioned between these sites. Contour lines shown in the figure represent lines of equal elevation of the water table; consequently, groundwater flow direction is always perpendicular to the contour lines and feeds into the New River, which generally runs a south-to-north course, but west-to-east at this location. Groundwater at the site tends to flow south toward SWMU 13 and appears to discharge to the New River, south of the study area. Groundwater elevations at SWMU 49 vary minimally from each of the four sampling quarters, suggesting little seasonal impact on groundwater elevations. Based on the Year Nine groundwater elevations recorded, the flow direction did not change appreciably from semiannual event to semiannual event (see discussion in Sections 4.1.1 and 4.2.1).



Legend

- Well
- Cross Section
- SWMU 49 Boundary

Aerial Source:
Near Map Imagery, February 2020

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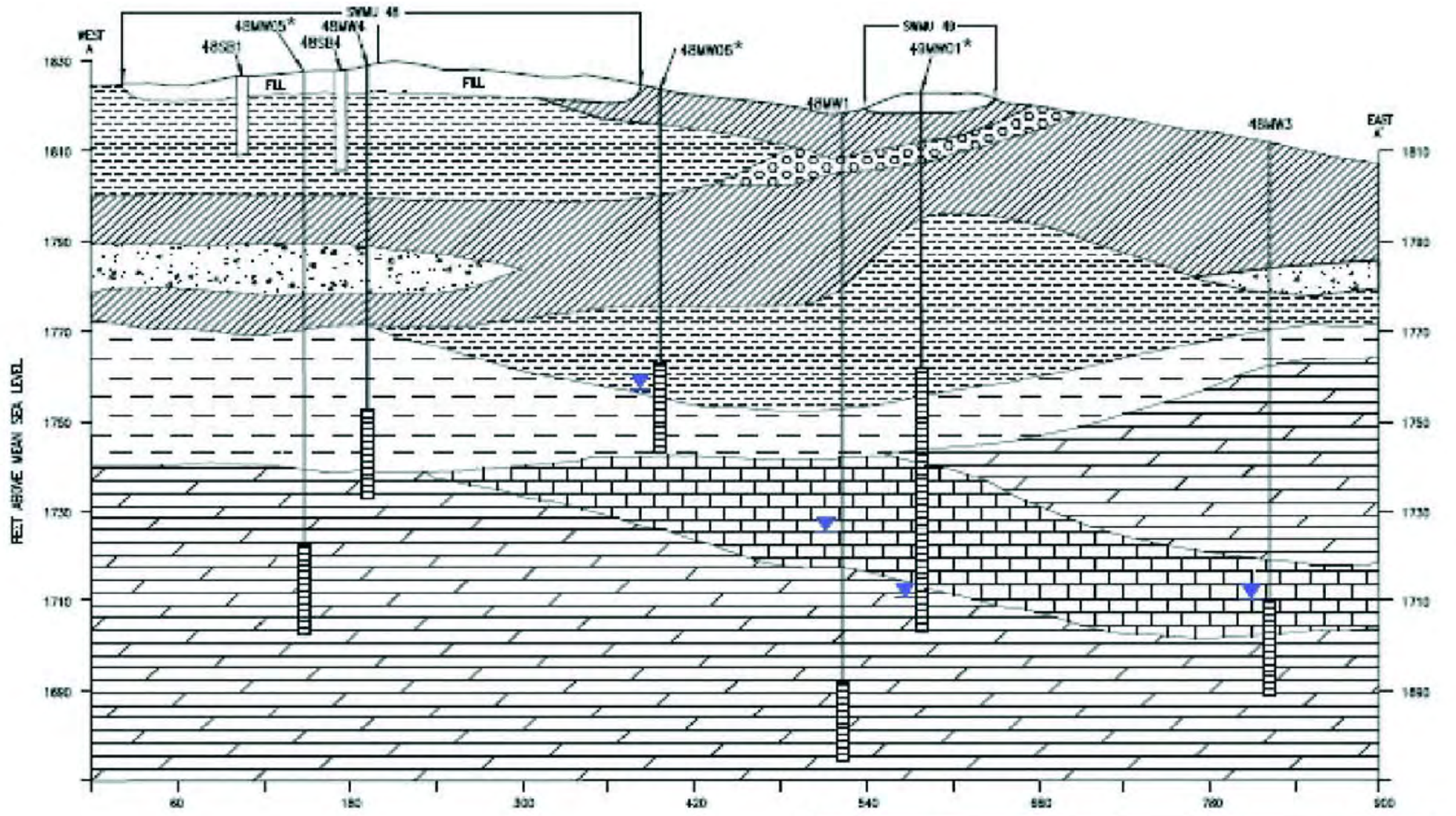
0 50 100 200 Feet

Prepared For:

Baltimore District

FIGURE 2-1
SWMU 49
CROSS SECTION
RADFORD, VIRGINIA

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LEGEND

- CLAY AND SILT, LITTLE SAND, RED-BROWN (CL)
- SILT, SOME SAND, SOME CLAY ORANGE-BROWN (ML)
- SILT, AND SAND, GRAVEL ORANGE-BROWN (CM/SM)
- SILT, SAND, AND GRAVEL ORANGE-BROWN (GM)
- SILTSTONE,WEATHERED RED, GREEN BROWN, INTERBEDDED DOLOMITE (SLSN)
- DOLOMITE, WEATHERED, CLAY, ARGLLACEOUS (DLMT)
- LIMESTONE, GREY-BROWN, ARGLLACEOUS (LMSM)
- STATIC GROUNDWATER LEVEL (MEASURED MAY 2013)
- ★ PROTECTED LOCATION

SOURCE; PARSONS ENGINEERING SCIENCE, INC.

NOTES

1) SOME DATA POINTS ARE PROJECTED ONTO PROFILE.
2) 48581 AND 48582 LITHOLOGY FROM DAMES AND MOORE.
3) LITHOLOGY PATTERENS DO NOT MATCH DRILL LOG PATTERNS BECAUSE OF DIFFERING GRAPHICS SYSTEMS.
4) CONTACT LINES DASHED WHERE INFERRED.
5) LITHOLOGY IS A COMPLATION FROM SWMUs 48 AND 49.

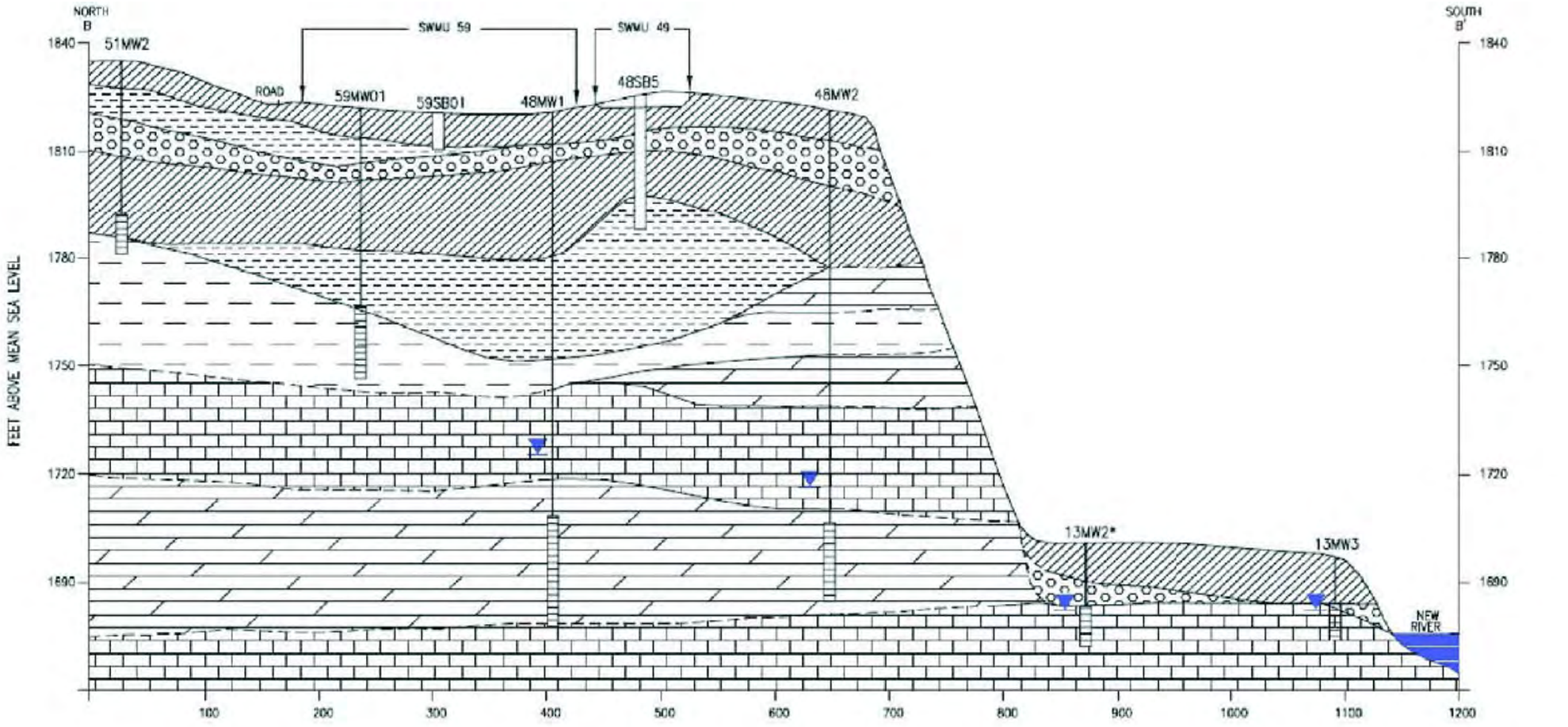
Legend

Prepared For:

Baltimore District

FIGURE 2-2
SWMU 49
CROSS SECTION A-A'
RADFORD, VIRGINIA

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HORIZ. SCALE: 0 100 200 VERT. SCALE: 0 30 60

LEGEND

- CLAY AND SILT, LITTLE SAND, RED-BROWN (CL)
- SILT, SOME SAND, SOME CLAY ORANGE-BROWN (ML)
- SILT, AND SAND, GRAVEL ORANGE-BROWN (CM/SM)
- SILT, SAND, AND GRAVEL ORANGE-BROWN (GM)
- SILTSTONE,WEATHERED RED, GREEN BROWN, INTERBEDDED DOLOMITE (SLSN)
- DOLOMITE, WEATHERED, CLAY, ARGLLACEOUS (DLMT)
- LIMESTONE, GREY-BROWN, ARGLLACEOUS (LMSM)
- STATIC GROUNDWATER LEVEL (MEASURED MAY 2013)

NOTES

1) SOME DATA POINTS ARE PROJECTED ONTO PROFILE.
2) 51MW2 AND 13MW2 LITHOLOGY FROM DAMES AND MOORE.
3) LITHOLOGY PATTERENS DO NOT MATCH DRILL LOG PATTERNS BECAUSE OF DIFFERING GRAPHICS SYSTEMS.
4) CONTACT LINES DASHED WHERE INFERRED.
5) ADDITIONAL WELLS SHOWN TO AID IN CROSS-SECTION ACCURACY.

SOURCE; PARSONS ENGINEERING SCIENCE, INC.

Legend

Prepared For:
Baltimore District

FIGURE 2-3
SWMU 49
CROSS SECTION B-B'
RADFORD, VIRGINIA

File: Y:\Radford\MXD\SWMU\SWMU49_Cross_Section_B_B_Template.mxd, 4/23/2025 2:35:14 PM, ricksc



Legend

- Well
- Groundwater Contour
- SWMU 49 Boundary
- Groundwater Flow Direction

Aerial Source:
Near Map Imagery, February 2020

N

0 55 110 220 Feet

Prepared For:

Baltimore District

FIGURE 2-4
SWMU 49 JANUARY 2015
POTENTIOMETRIC SURFACE MAP
RADFORD, VIRGINIA

File: Y:\Radford\MXD\SWMU\SWMU49_Potentiometric_Surface_Map_Jan2015.mxd, 4/23/2025 2:34:49 PM, ricksc

3. PREVIOUS INVESTIGATIONS

Seven prior investigations have been conducted at the previously combined study area including SWMUs 48 and 49. In 1987, a RCRA Facility Assessment was conducted to evaluate potentially hazardous waste or hazardous constituent releases and to implement corrective actions, as necessary (U.S. Army Toxic and Hazardous Materials Agency, 1987). In 1992, Dames and Moore performed a verification investigation (VI), which included surface and subsurface soil sampling and a soil gas survey to characterize the nature and extent of contamination (Dames and Moore, 1992). In 1996, Parsons conducted an RFI to further delineate the extent of contamination identified during the 1992 VI sampling (Parsons, 1996). ICF Kaiser Engineers also performed an RFI in 1999 to further refine the understanding of the nature and extent of contamination identified during the previous investigations (ICF Kaiser, 1999). Additional RFI sampling was conducted by IT/Shaw Environmental, Inc. in 2002, 2006, 2007, and 2013 to collect sufficient data to complete HHRAs and ecological risk assessments (CB&I, 2014a).

In 2014, USEPA and VDEQ approved the Draft SWMU 48/49 RFI Report (CB&I, 2014a), which developed the CMOs and RGs for the MNA program as well as conducting a human health risk assessment (HHRA) for a number of potential exposed populations including industrial workers, maintenance workers, excavation workers, and child/adult residents. Direct-push soil borings and the installation and sampling of new and existing monitoring wells were used to characterize the nature and extent of constituents in soil and groundwater at the SWMU 48/49 combined study area, to identify the lateral and vertical extent of impacted soil and chlorinated solvents in groundwater, and to characterize soil lithology and depth to groundwater and bedrock. Details of these investigations are described in Section 3.0 (Field Investigation Program) of the approved Draft SWMU 48/49 RFI Report (CB&I, 2014a). Historical data presenting the SWMU 49 volatile organic compound (VOC) concentrations for CT and TCE in the study area wells can be found in **Tables 3-1** through **3-5**.

WESTON and CAPE have performed the LTM and MNA at SWMU 49 since October 2019 through the present, including the seventeenth through twentieth quarterly sampling rounds for Year Five, twenty-first through twenty-fourth quarterly sampling rounds for Year Six, twenty-fifth and twenty-sixth semiannual sampling rounds for Year Seven, twenty-seventh and twenty-eighth

semiannual sampling rounds for Year Eight, and twenty-ninth and thirtieth semiannual sampling rounds for Year Nine. The nature and extent assessment identified several VOCs and metals in groundwater as elevated and contributing to potential future risks. Two of the VOCs associated with potential future industrial and residential risk in the HHRA (CT and TCE) were present above USEPA's MCLs (USEPA, 2018) during the multiple groundwater sampling events at the study area. The current land use is industrial for the areas surrounding SWMU-49, and this is not likely to change in the near future. A comparison of concentrations from the mid-1990s to 2019 indicates that the majority of the VOCs are no longer present in these sampled areas and have broken down through natural processes. Analysis of the groundwater data during this roughly 20-year period shows that concentrations of the CT and TCE plume have changed as follows: (1) decreased overall, (2) decreased to 1 microgram per liter (µg/L) surrounding the center of the plume, and (3) decreased at least by one-half in the center of the plume. The presence of daughter products (i.e., chloroform associated with CT and cis-1,2-dichloroethene [cis-1,2-DCE], vinyl chloride, and ethane associated with TCE) in groundwater at the study area indicates that limited biological degradation of the chlorinated solvents is occurring.

The HHRA determined that CT and TCE are the primary COCs in groundwater that are contributing potential future industrial and residential risk at the SWMU 49 study area. Because the RFI demonstrated that groundwater contamination is present at concentrations associated with unacceptable human health concerns, CMOs and RGs were developed to address the concerns.

The site-specific CMOs for SWMU 49 are: to reduce COC concentrations to below RGs/MCLs to avoid adversely impacting future beneficial use of groundwater, and, to the extent practicable, to achieve a goal of restoring site groundwater to beneficial use. The SWMU 49 groundwater COCs have been identified as CT and TCE. The groundwater RGs (presented in **Table 1-1** of this report) will be used to compare results from groundwater monitoring wells to assess the progress of the MNA.

Table 3-6 provides the analytical results presented in the SWMU 49 MNA Sampling Baseline Report (CB&I, 2015). In the initial 2012 sampling, the highest concentrations of CT and TCE were observed in monitoring wells 48MW2 and 48MW3. The plumes are small, appear to be isolated, and have not changed in dimension since 2013. Recommendations provided in the SWMU 49

MNA Sampling Baseline Report called for further monitoring of CT, TCE, and daughter products of these VOCs within the SWMU. The rationale of continued monitoring is to evaluate the effectiveness of the MNA processes.

Table 3-1 COCs Detected in SWMUs 48 and 49 Groundwater Samples – 1996 RFI

Analyte	Sample ID Sample Date	48MW1 1/20/95		48MW1 7/20/95		48MW2 1/19/95		48MW2 7/19/95		48MW3 1/20/95		48MW3 7/21/95		48MW4 7/27/95	
	RG	Result	Lab Q	Result	Lab Q	Result	Lab Q	Result	Lab Q	Result	Lab Q	Result	Lab Q	Result	Lab Q
VOCs (µg/L)															
Carbon Tetrachloride	5	NT		1	U	NT		92		NT		100		1	U
Trichloroethene	5	NT		17		NT		11		NT		37		1	U

Notes:

Bold outline indicates an RG exceedance.

µg/L = microgram(s) per liter (part[s] per billion)
ID = identification
NT = analyte not tested
RG = remedial goal
VOC = volatile organic compound

Lab Q = laboratory data qualifiers
U = Analyte not detected at the method reporting limit.

Table 3-2 COCs Detected in SWMU 49 Groundwater Samples – 1998 RFI

Analyte	Sample ID Sample Date	48MW1-2 4/8/98					48MW2-2 4/2/98					48MW3-2 4/2/98					48MW4-2 4/8/98				
	RG	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL
VOCs (µg/L)																					
Carbon Tetrachloride	5	5	U	U	5	5	140			5	5	180			5	5	5	U	U	5	5
Trichloroethene	5	8 J			5	5	18 J			5	5	33 J			5	5	5	U	U	5	5

Notes:

Bold outline indicates an RG exceedance.

Shading in the MDL/MRL columns indicates the MDL/MRL is equal to or exceeds a criterion.

-2 = Sample code signifies the second round of sampling conducted at these four wells. Original samples were collected during the 1999 RFI performed by ICF Kaiser.

µg/L = microgram(s) per liter (part[s] per billion)
ID = identification
MDL = method detection limit
MRL = method reporting limit
RCRA = Resource Conservation and Recovery Act
RFI = RCRA Facility Investigation
RG = remedial goal
VOC = volatile organic compound

Lab Q = laboratory data qualifiers
J = Value less than MRL and greater than MDL and is considered estimated.
U = Analyte not detected at the method reporting limit.

Val Q = validation data qualifiers
J = Estimated concentration.
U = Analyte not detected.

Table 3-3 COCs Detected in SWMU 49 Groundwater Samples – 2006 Groundwater Data Report

Analyte	Sample ID Sample Date	48MW1 4/13/06					48MW2 4/13/06					48MW3 4/13/06					48MW4 4/11/06				
	RG	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL
VOCs (µg/L)																					
Carbon Tetrachloride	5	1	U		0.5	1	29.2			0.5	1	51.2			0.5	1	1	U		0.5	1
Trichloroethene	5	5.5			0.5	1	3			0.5	1	7.4			0.5	1	1	U		0.5	1

Notes:

Bold outline indicates an RG exceedance.

µg/L = microgram(s) per liter (part[s] per billion)
ID = identification
MDL = method detection limit
MRL = method reporting limit
RCRA = Resource Conservation and Recovery Act
RFI = RCRA Facility Investigation
RG = remedial goal
VOC = volatile organic compound

Lab Q = laboratory data qualifiers
U = Analyte not detected at the method reporting limit.
Val Q = validation data qualifiers

Table 3-4 COCs Detected in SWMU 49 Study Area Groundwater Samples – 2007 RFI

Analyte	Sample ID Sample Date	48MW1 8/29/07					48MW2 8/29/07					48MW3 8/29/07					48MW4 8/29/07					48MW05 8/30/07					48MW6 8/30/07				
	RG	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL
VOCs (µg/L)																														
Carbon Tetrachloride	5	1	U		0.29	1	94.6			0.29	1	60.3			0.29	1	1	U		0.29	1	1	U		0.29	1	1	U		0.29	1
Trichloroethene	5	1.6			0.38	1	11.2			0.38	1	10.1			0.38	1	1	U		0.38	1	1	U		0.38	1	3.7			0.38	1

Analyte	Sample ID Sample Date	48MW7 8/30/07					49MW01 8/29/07					50MW01 8/30/07					50MW2 8/30/07					59MW01 8/29/07				
	RG	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL
VOCs (µg/L)																										
Carbon Tetrachloride	5	1	U		0.29	1	3.8			0.29	1	1	U		0.29	1	2.7			0.29	1	1	U		0.29	1
Trichloroethene	5	1	U		0.38	1	1	U		0.38	1	1	U		0.38	1	3.4			0.38	1	1	U		0.38	1

Notes:

Bold outline indicates an RG exceedance.

µg/L = microgram(s) per liter (part[s] per billion)
ID = identification
MDL = method detection limit
MRL = method reporting limit
RCRA = Resource Conservation and Recovery Act
RFI = RCRA Facility Investigation
RG = remedial goal
VOC = volatile organic compound

Lab Q = laboratory data qualifiers
U = Analyte not detected at the method reporting limit.
Val Q = validation data qualifiers

Table 3-5 VOCs Detected in SWMU 49 Study Area Groundwater Samples – 2013 Supplemental RFI

Analyte	Sample ID Sample Date	13MW2 5/6/13					13MW3 5/6/13					13MW4 5/6/13					13MW5 5/6/13					48MW1 5/8/13					48MW2 5/9/13					48MW3 5/9/13				
	RG	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL
VOCs (µg/L)																																			
1,1,1-Trichloroethane	NA	0.2	U		0.123	0.2	0.2	U		0.123	0.2	0.2	U		0.123	0.2	0.2	U		0.123	0.2	0.432	J	J	0.123	0.2	0.2	U		0.123	0.2	0.2	U		0.123	0.2
1,1-Dichloroethane	NA	0.2	U		0.171	0.2	0.2	U		0.171	0.2	0.2	U		0.171	0.2	0.2	U		0.171	0.2	1.03			0.171	0.2	0.2	U		0.171	0.2	0.2	U		0.171	0.2
1,1-Dichloroethene	NA	0.5	U		0.2	0.5	0.5	U		0.2	0.5	0.5	U		0.2	0.5	0.5	U		0.2	0.5	0.5	U		0.2	0.5	0.5	U		0.2	0.5	0.5	U		0.2	0.5
Acetone	NA	1	U		0.193	1	1	U		0.193	1	1	U		0.193	1	1	U		0.193	1	1	U		0.193	1	1	U		0.193	1	1	U		0.193	1
Carbon Tetrachloride	5	0.5	U		0.248	0.5	5.63			0.248	0.5	0.5	U		0.248	0.5	0.5	U		0.248	0.5	0.5	U		0.248	0.5	82.7			0.248	0.5	73.1			0.248	0.5
Chloroform	NA	0.2	U		0.155	0.2	0.453	J	J	0.155	0.2	0.2	U		0.155	0.2	0.2	U		0.155	0.2	0.2	U		0.155	0.2	5.97			0.155	0.2	7.89			0.155	0.2
cis-1,2-Dichloroethene	NA	0.2	U		0.103	0.2	0.2	U		0.103	0.2	0.2	U		0.103	0.2	0.2	U		0.103	0.2	0.817	J	J	0.103	0.2	0.2	U		0.103	0.2	0.2	U		0.103	0.2
Methylene Chloride	NA	0.5	U		0.149	0.5	0.5	U		0.149	0.5	0.5	U		0.149	0.5	0.5	U		0.149	0.5	0.5	U		0.149	0.5	0.5	U		0.149	0.5	0.5	U		0.149	0.5
Tetrachloroethene	NA	0.5	U		0.193	0.5	0.5	U		0.193	0.5	0.5	U		0.193	0.5	0.5	U		0.193	0.5	0.5	U		0.193	0.5	0.5	U		0.193	0.5	0.5	U		0.193	0.5
Toluene	NA	0.2	U		0.122	0.2	0.2	U		0.122	0.2	0.2	U		0.122	0.2	0.2	U		0.122	0.2	2.1			0.122	0.2	1.18			0.122	0.2	0.291	J	J	0.122	0.2
Trichloroethene	5	0.2	U		0.161	0.2	1.08			0.161	0.2	1.08			0.161	0.2	0.2	U		0.161	0.2	1.9			0.161	0.2	9.75			0.161	0.2	10.7			0.161	0.2

Analyte	Sample ID Sample Date	48MW6 5/7/13					49MW01 5/8/13					49MW02 5/9/13					49MW03 5/7/13					49MW04 5/6/13					49MW05 5/6/13					50MW2 5/8/13				
	RG	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL
VOCs (µg/L)																																			
1,1,1-Trichloroethane	NA	1.66			0.123	0.2	0.2	U		0.123	0.2	0.2	U		0.123	0.2	0.2	U	UL	0.123	0.2	0.2	U		0.123	0.2	0.2	U		0.123	0.2	0.251	J	J	0.123	0.2
1,1-Dichloroethane	NA	5.86			0.171	0.2	0.2	U		0.171	0.2	0.2	U		0.171	0.2	0.2	U	UL	0.171	0.2	0.2	U		0.171	0.2	0.2	U		0.171	0.2	0.344	J	J	0.171	0.2
1,1-Dichloroethene	NA	0.301	J	J	0.2	0.5	0.5	U		0.2	0.5	0.5	U		0.2	0.5	0.5	U	UL	0.2	0.5	0.5	U		0.2	0.5	0.5	U		0.2	0.5	0.5	U		0.2	0.5
Acetone	NA	1	U		0.193	1	1	U		0.193	1	2.41	J	B	0.193	1	1	U	UL	0.193	1	1	U		0.193	1	1	U		0.193	1	1	U		0.193	1
Carbon Tetrachloride	5	0.5	U		0.248	0.5	4.61			0.248	0.5	5.36			0.248	0.5	0.5	U	UL	0.248	0.5	0.664	J	J	0.248	0.5	0.5	U		0.248	0.5	0.919	J	J	0.248	0.5
Chloroform	NA	0.2	U		0.155	0.2	0.193	J	J	0.155	0.2	7.79			0.155	0.2	0.2	U	UL	0.155	0.2	1.25			0.155	0.2	0.2	U		0.155	0.2	0.2	U		0.155	0.2
cis-1,2-Dichloroethene	NA	9.21			0.103	0.2	0.2	U		0.103	0.2	0.2	U		0.103	0.2	0.2	U	UL	0.103	0.2	0.2	U		0.103	0.2	0.2	U		0.103	0.2	0.373	J	J	0.103	0.2
Methylene Chloride	NA	0.5	U		0.149	0.5	0.5	U		0.149	0.5	0.5	U		0.149	0.5	2.3	J	L	0.149	0.5	0.5	U		0.149	0.5	0.5	U		0.149	0.5	0.5	U		0.149	0.5
Tetrachloroethene	NA	0.801	J	J	0.193	0.5	0.5	U		0.193	0.5	0.5	U		0.193	0.5	0.5	U	UL	0.193	0.5	0.5	U		0.193	0.5	0.5	U		0.193	0.5	0.255	J	J	0.193	0.5
Toluene	NA	0.2	U		0.122	0.2	0.765	J	J	0.122	0.2	1.52			0.122	0.2	0.2	U	UL	0.122	0.2	0.2	U		0.122	0.2	0.2	U		0.122	0.2	0.726	J	J	0.122	0.2
Trichloroethene	5	6.25			0.161	0.2	0.2	U		0.161	0.2	0.934	J	J	0.161	0.2	0.2	U	UL	0.161	0.2	0.2	U		0.161	0.2	0.2	U		0.161	0.2	2.31			0.161	0.2

Notes:

Bold outline indicates an RG exceedance.
µg/L = microgram(s) per liter (part[s] per billion)
ID = identification
MDL = method detection limit
MRL = method reporting limit
NA = not applicable
RCRA = Resource Conservation and Recovery Act
RFI = RCRA Facility Investigation
RG = remedial goal
VOC = volatile organic compound

Lab Q = laboratory data qualifiers
J = Value less than MRL and greater than MDL and is considered estimated.
U = Analyte not detected at the method reporting limit.

Val Q = validation data qualifiers
B = Blank contamination. Value detected in sample and associated blank.
J = Estimated concentration.
L = Estimated concentration bias low.
UL = Estimated concentration non-detect bias low.

Table 3-6 Analytes Detected in Baseline Monitoring

Analyte	Sample ID Sample Date	13MW2 1/26/15					13MW3 1/26/15					13MW4 1/26/15					13MW5 1/26/15					48MW1 1/28/15					48MW2 1/28/15					48MW3 1/27/15					48MW6 1/29/15				
	RG	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL
VOCs (µg/L)																																								
1,1,1-Trichloroethane	NA	0.5	U		0.25	0.5	0.5	U		0.25	0.5	0.5	U		0.25	0.5	0.5	U		0.25	0.5	0.454	J	J	0.25	0.5	0.5	U		0.25	0.5	0.5	U		0.25	0.5	0.691	DJ	J	0.5	1
1,1-Dichloroethane	NA	0.5	U		0.25	0.5	0.5	U		0.25	0.5	0.5	U		0.25	0.5	0.5	U		0.25	0.5	0.908	J	J	0.25	0.5	0.5	U		0.25	0.5	0.5	U		0.25	0.5	4.28	D		0.5	1
Acetone	NA	5	U		2.5	5	5	U		2.5	5	5	U		2.5	5	5	U		2.5	5	5	U		2.5	5	5	U		2.5	5	5	XU		2.5	5	27.8	D	B	5	10
Bromoform	NA	0.5	U		0.25	0.5	0.5	U		0.25	0.5	0.5	U		0.25	0.5	0.5	U		0.25	0.5	0.5	U		0.25	0.5	0.5	U		0.25	0.5	0.5	U		0.25	0.5	1	XU		0.5	1
Bromomethane	NA	1	U		0.5	1	1	U		0.5	1	1	U		0.5	1	1	U		0.5	1	1	U		0.5	1	1	U		0.5	1	1	NU		0.5	1	2	U		1	2
Carbon Tetrachloride	5	0.5	U		0.25	0.5	4.62			0.25	0.5	0.592	J	J	0.25	0.5	0.5	U		0.25	0.5	0.5	XU		0.25	0.5	118	X	J	0.25	0.5	77.4			0.25	0.5	1	XU		0.5	1
Chloroform	NA	0.5	U		0.25	0.5	0.47	J	J	0.25	0.5	0.5	U		0.25	0.5	0.5	U		0.25	0.5	0.5	U		0.25	0.5	7.46			0.25	0.5	8.37			0.25	0.5	1	U		0.5	1
cis-1,2-Dichloroethene	NA	0.5	U		0.25	0.5	0.5	U		0.25	0.5	0.5	U		0.25	0.5	0.5	U		0.25	0.5	0.914	J	J	0.25	0.5	0.5	U		0.25	0.5	0.5	U		0.25	0.5	4.86	D		0.5	1
Dibromochloromethane	NA	0.5	U		0.25	0.5	0.5	U		0.25	0.5	0.5	U		0.25	0.5	0.5	U		0.25	0.5	0.5	U		0.25	0.5	0.5	U		0.25	0.5	0.5	XU		0.25	0.5	1	U		0.5	1
Ethylbenzene	NA	0.5	U		0.25	0.5	0.5	U		0.25	0.5	0.5	U		0.25	0.5	0.5	U		0.25	0.5	0.5	U		0.25	0.5	0.469	J	J	0.25	0.5	0.5	U		0.25	0.5	1	U		0.5	1
m- & p-Xylene	NA	1	U		0.5	1	1	U		0.5	1	1	U		0.5	1	1	U		0.5	1	0.535	J	J	0.5	1	1.32	J	J	0.5	1	0.736	J	J	0.5	1	2	U		1	2
o-Xylene	NA	0.5	U		0.25	0.5	0.5	U		0.25	0.5	0.5	U		0.25	0.5	0.5	U		0.25	0.5	0.285	J	J	0.25	0.5	0.919	J	J	0.25	0.5	0.495	J	J	0.25	0.5	1	U		0.5	1
Tetrachloroethene	NA	0.5	U		0.25	0.5	0.5	U		0.25	0.5	0.5	U		0.25	0.5	0.5	U		0.25	0.5	0.5	U		0.25	0.5	0.5	U		0.25	0.5	0.5	U		0.25	0.5	0.709	DJ	J	0.5	1
Trichloroethene	5	0.5	U		0.25	0.5	0.883	J	J	0.25	0.5	0.5	U		0.25	0.5	1.42			0.25	0.5	1.91			0.25	0.5	10.5			0.25	0.5	12.4			0.25	0.5	3.29	D		0.5	1
Miscellaneous (µg/L)																																								
Total Organic Carbon	NA	2500	U		1250	2500	2500	U		1250	2500	2500	U		1250	2500	NT					2500	U		1250	2500	2500	U		1250	2500	2500	U		1250	2500	1640	J	J	1250	2500
Chloride	NA	2750			170	330	3880			170	330	11500			170	330	NT					3100			170	330	2650			170	330	2220			170	330	9360	D		340	660
Nitrate (as N)	NA	71.5	J	J	33	100	1660			33	100	100	U		33	100	NT					1350			33	100	754			33	100	6400			33	100	5880			33	100
Sulfate	NA	45900			330	1000	126000			330	1000	23800			330	1000	NT					58000			330	1000	16800			330	1000	29800			330	1000	275000	D		660	2000
Methane	NA	2	U		1	2	2	U		1	2	2	U		1	2	NT					2	U		1	2	2	U		1	2	2	U		1	2	2	U		1	2
Ethene	NA	2	U		1	2	2	U		1	2	2	U		1	2	NT					2	U		1	2	2	U		1	2	2	U		1	2	2	U		1	2

Table 3-6 Analytes Detected in Baseline Monitoring (Continued)

Analyte	Sample ID Sample Date	48MW7 1/29/15					49MW01 1/28/15					49MW02 1/27/15					49MW03 1/28/15					49MW04 1/26/15					49MW05 1/26/15					50MW2 1/27/15				
	RG	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL
VOCs (µg/L)																																			
1,1,1-Trichloroethane	NA	0.5	U		0.25	0.5	0.262	J	J	0.25	0.5	1	U		0.5	1	0.5	U		0.25	0.5	0.5	U		0.25	0.5	1	U		0.5	1	0.5	U		0.25	0.5
1,1-Dichloroethane	NA	0.5	U		0.25	0.5	0.5	U		0.25	0.5	1	U		0.5	1	0.5	U		0.25	0.5	0.5	U		0.25	0.5	1	U		0.5	1	0.313	J	J	0.25	0.5
Acetone	NA	5	U		2.5	5	5	U		2.5	5	14	XDJ	B	5	10	5	U		2.5	5	5	U		2.5	5	18.6	DJ	B	5	10	5	XU		2.5	5
Bromoform	NA	0.5	XU		0.25	0.5	0.5	U		0.25	0.5	1	U		0.5	1	0.5	U		0.25	0.5	0.5	U		0.25	0.5	1	U		0.5	1	0.5	U		0.25	0.5
Bromomethane	NA	1	U		0.5	1	1	U		0.5	1	2	U		1	2	1	U		0.5	1	1	U		0.5	1	2	U		1	2	1	U		0.5	1
Carbon Tetrachloride	5	0.5	XU		0.25	0.5	4.97	X	J	0.25	0.5	5.05	D		0.5	1	0.5	XU		0.25	0.5	0.662	J	J	0.25	0.5	1	U		0.5	1	1.62			0.25	0.5
Chloroform	NA	0.5	U		0.25	0.5	0.404	J	J	0.25	0.5	1.55	DJ	J	0.5	1	0.5	U		0.25	0.5	1.46			0.25	0.5	1	U		0.5	1	0.5	U		0.25	0.5
cis-1,2-Dichloroethene	NA	0.5	U		0.25	0.5	0.5	U		0.25	0.5	1	U		0.5	1	0.5	U		0.25	0.5	0.5	U		0.25	0.5	1	U		0.5	1	0.384	J	J	0.25	0.5
Dibromochloromethane	NA	0.5	U		0.25	0.5	0.5	U		0.25	0.5	1	XU		0.5	1	0.5	U		0.25	0.5	0.5	U		0.25	0.5	1	U		0.5	1	0.5	XU		0.25	0.5
Ethylbenzene	NA	0.5	U		0.25	0.5	0.262	J	J	0.25	0.5	1.13	DJ	J	0.5	1	0.5	U		0.25	0.5	0.5	U		0.25	0.5	1	U		0.5	1	0.5	U		0.25	0.5
m- & p-Xylene	NA	1	U		0.5	1	0.69	J	J	0.5	1	4.06	D		1	2	1	U		0.5	1	1	U		0.5	1	2	U		1	2	0.804	J	J	0.5	1
o-Xylene	NA	0.5	U		0.25	0.5	0.544	J	J	0.25	0.5	2.91	D		0.5	1	0.296	J	J	0.25	0.5	0.5	U		0.25	0.5	1	U		0.5	1	0.542	J	J	0.25	0.5
Tetrachloroethene	NA	0.5	U		0.25	0.5	0.5	U		0.25	0.5	1	U		0.5	1	0.5	U		0.25	0.5	0.5	U		0.25	0.5	1	U		0.5	1	0.311	J	J	0.25	0.5
Trichloroethene	5	0.5	U		0.25	0.5	0.5	U		0.25	0.5	.0501	DJ	J	0.5	1	0.5	U		0.25	0.5	0.5	U		0.25	0.5	1	U		0.5	1	2.08			0.25	0.5
Miscellaneous (µg/L)																																			
Total Organic Carbon	NA	NT					2500	U		1250	2500	2500	U		1250	2500	NT					2500	U		1250	2500	NT					2500	U		1250	2500
Chloride	NA	NT					6030			170	330	3450			170	330	NT					5160			170	330	NT					7270			170	330
Nitrate (as N)	NA	NT					303			33	100	47.6	J	J	33	100	NT					249	J	J	33	100	NT					2060			33	100
Sulfate	NA	NT					1000	U		330	1000	26600			330	1000	NT					53600			330	1000	NT					73200			330	1000
Methane	NA	NT					2	U		1	2	1.54	J	J	1	2	NT					2	U		1	2	NT					2	U		1	2
Ethene	NA	NT					2	U		1	2	1.4	J	J	1	2	NT					2	U		1	2	NT					2	U		1	2

Notes:

Bold outline indicates an RG exceedance.
µg/L = microgram(s) per liter (part[s] per billion)
CCV = continuing calibration verification
ICV = initial calibration verification
ID = identification
MDL = method detection limit
MRL = method reporting limit
NA = not applicable
NT = Analyte not tested
RCRA = Resource Conservation and Recovery Act
RFI = RCRA Facility Investigation
RG = remedial goal
VOC = volatile organic compound

Lab Q = laboratory data qualifiers
D = Sample was run at a dilution.
J = Value less than MRL and greater than MDL and is considered estimated.
N = Matrix spike/matrix spike duplicate accuracy and/or precision were outside criteria.
U = Analyte not detected at the method reporting limit.
X = The associated ICV/CCV exceeded the upper control limit.

Val Q = validation data qualifiers
B = Blank contamination. Value detected in sample and associated blank.
J = Estimated concentration.

4. FIELD ACTIVITIES

This section provides a discussion of field activities conducted by WESTON and CAPE during Year Nine monitoring at SWMU 49.

Year Nine monitoring consisted of two sampling events conducted in August 2024 (twenty-ninth event) and December 2024 (thirtieth event). Fifteen monitoring wells were included in the monitoring well network, 11 of which were sampled on a semiannual basis and 4 on an annual basis in 2024. The Year Nine monitoring consisted of a synoptic water level measurement and sampling of the 15 point of compliance (POC) monitoring wells for target compound list (TCL) VOCs and dissolved gases (methane, ethane, and ethene). In addition, the following indicator parameters were collected: total organic carbon (TOC), dissolved ferrous iron (Fe^{2+}), and the anions chloride, nitrate, and sulfate. Water quality parameters collected during low-flow sampling included corrosivity/hydrogen ion concentration (pH), temperature, specific conductivity, dissolved oxygen (DO), oxidation-reduction potential (ORP), and turbidity using a daily calibrated Yellow Springs Instrument (YSI) water quality meter. The list of monitoring wells and sample frequency is provided in **Table 4-1**. Groundwater samples were submitted to a U.S. Department of Defense (DoD) Environmental Laboratory Accreditation Program (ELAP) accredited laboratory (CT Laboratories, LLC). Field activities were conducted in accordance with the Draft Final SWMU 49 MNA Groundwater Monitoring Work Plan (CB&I, 2014b). Copies of the groundwater sampling logs and field notes are presented in **Appendices A-1** and **A-2**, respectively.

4.1 TWENTY-NINTH GROUNDWATER SAMPLING

The twenty-ninth event of groundwater sampling was conducted on August 19 to 22, 2024. Groundwater elevation measurements and samples were collected from 15 POC monitoring wells. Groundwater elevation measurements were collected prior to sampling activities. The locations of monitoring wells sampled during this semiannual event are provided in **Figure 4-1**.

4.1.1 Groundwater Elevation Measurements

Water level elevations were collected during each Year Nine event from 15 monitoring wells at SWMU 49 prior to the collection of groundwater samples. **Table 4-2** provides the measured depth-to-water (DTW) levels (from the top of the casing) and groundwater elevations amsl

collected on August 19 to 22, 2024. **Figure 4-2** presents a groundwater elevation contour map developed from the elevation data collected during this semiannual monitoring event. Groundwater contours were derived using the Environmental Systems Research Institute (Esri) ArcGIS Desktop Spatial Analyst 10.7.1 software and creating a spline interpolated continuous surface based on limited groundwater data collected in the field. The surface model was executed using default values in most cases and was forced to cover an area inclusive of all wells using the extent polygon to define the area of interest. Contour lines were then constructed from the output splined surface at 10-ft and 2-ft intervals, depending on the site, with zero base contour. The results of the automated processing were then reviewed by subject knowledge experts and manually adjusted to accurately represent ground conditions. Groundwater elevations in site wells vary by approximately 1 ft during various events and years, but groundwater contours have been consistent in shape since 2019 with general flow toward the New River.

4.1.2 Groundwater Sampling

Groundwater samples were collected from 11 POC monitoring wells between August 19 and 22, 2024 and analyzed for TCL VOCs and dissolved gases (methane, ethane, and ethene). In addition, the following indicator parameters were collected: TOC, dissolved Fe^{2+}, dissolved manganese, chloride, nitrate, and sulfate. Water quality parameters collected during low-flow sampling included pH, temperature, specific conductivity, DO, ORP, and turbidity. These parameters are discussed in Section 6.2 regarding the potential for biodegradation in the groundwater at SWMU 49. **Table 4-1** presents the suite of analytes sampled during the twenty-ninth monitoring event.

Groundwater samples were collected by low-flow peristaltic pump for shallow wells and a bladder pump for deeper wells to obtain representative groundwater samples. The following procedures were followed during both semiannual groundwater monitoring events:

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

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

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

4. Monitoring wells were pumped at a rate of approximately 200 milliliters per minute. Flow rate was determined by gauging the time it took to fill a 200-milliliter vial. Water quality parameters were recorded continuously including temperature, pH, DO, ORP, turbidity, and specific conductivity. Turbidity was measured using a Hach 2100Q turbidity meter, whereas concentrations of dissolved Fe^{2+} and manganese were measured in the field using a Hach DR900 test kit by Methods 8146 and 8149, respectively.

5. The groundwater flow rate was maintained during sample collection. Samples were collected, labeled, and packed on ice until shipment to the laboratory. Chain-of-custody (CoC) forms were filled out and shipped with the samples. Copies of sampling forms, synoptic water level measurement forms, waste inventory summary forms, and field record book notes are provided in **Appendices A-1 and A-2**. Copies of the CoC forms are provided in **Appendix B-1**, along with the raw analytical data packages.

Table 4-3 presents a summary of the final (stabilized) water quality readings for each well from the twenty-ninth event. Based on the twenty-ninth event DO data, slightly aerobic groundwater conditions are prominent in 9 of 11 monitoring wells at SWMU 49 (i.e., DO greater than 1 part per million [ppm]). The DO levels ranged from a low of 0.41 milligram per liter (mg/L) at monitoring well 13MW4 to a high of 10.05 mg/L at monitoring well 49MW02. ORP measurements ranged from a low of 59.2 millivolts (mV) at monitoring well 13MW3 to a high of 233.0 mV at monitoring well 50MW2. Measurements of pH ranged from a low of 6.94 standard units (SU) at monitoring well 50MW2 to a high of 8.33 SU at monitoring well 48MW6. As evidenced in **Table 4-3**, 10 of 11 pH measurements were below 8.0, which is within the range conducive to microbial activity.

4.1.3 Quality Control Samples

Quality control (QC) samples, including two duplicate samples, three trip blanks, two equipment blanks, and one matrix spike/matrix spike duplicate (MS/MSD), were collected during the twenty-ninth monitoring event.

The duplicate samples (13MW2/13TW2 and 48MW1/48TW1) and MS/MSD were analyzed for the same full suite of compounds as the parent samples. Equipment blanks were also analyzed for the full suite of compounds designated for monitoring wells. The trip blanks were analyzed for VOCs only.

One investigation-derived waste (IDW) purge water sample (49IDW) was collected and analyzed for pH, chemical oxygen demand (COD), and total Target Analyte List metals. All collected purge water for all events was taken to the ACD area for storage and deposited in a 55-gallon drum labeled 48/49, with RFAAP providing subsequent disposal. The waste inventory sheet is provided in **Appendix A-1**.

Results of the quality assurance (QA)/QC samples are presented in the raw analytical data package provided in **Appendix B-1**.

4.2 THIRTIETH SEMIANNUAL GROUNDWATER SAMPLING

The thirtieth groundwater sampling event was conducted from December 9 to 13, 2024. Groundwater elevation measurements and samples were collected from all 15 POC monitoring wells. Groundwater elevation measurements were collected prior to sampling activities. The locations of monitoring wells sampled during this event are provided in **Figure 4-1**.

4.2.1 Groundwater Elevation Measurements

Water level elevations were collected during the thirtieth semiannual sampling event at SWMU 49 prior to the collection of groundwater samples as discussed in Section 4.1.1. **Table 4-4** provides the measured DTW levels (from the top of the casing) and groundwater elevations amsl as collected from December 9 to 13, 2024. **Figure 4-3** presents a groundwater elevation contour map developed from the elevation data collected during this monitoring event as discussed in Section 4.1.1. Groundwater elevations in site wells vary by approximately 1 ft during various

events and years, but groundwater contours have been consistent in shape since 2019 with general flow toward the New River.

4.2.2 Groundwater Sampling

Groundwater samples were collected from all 15 POC monitoring wells between December 9 and 13, 2024, and analyzed for TCL VOCs and dissolved gases (methane, ethane, and ethene). In addition, the following indicator parameters were collected: TOC, dissolved Fe^{2+}, dissolved manganese, chloride, nitrate, and sulfate. Water quality parameters collected during low-flow sampling included pH, temperature, specific conductivity, DO, ORP, and turbidity. The thirtieth semiannual monitoring samples were tested for the same analytes as the twenty-ninth event, which are presented in **Table 4-1**. In addition, the same MNA indicator parameters were collected in the thirtieth event as were collected in the twenty-ninth event: TOC, dissolved Fe^{2+}, dissolved manganese, chloride, nitrate, and sulfate. Water quality parameters collected during low-flow sampling included pH, temperature, specific conductivity, DO, ORP, and turbidity. These parameters are discussed in Section 6.2 regarding the potential for biodegradation in the groundwater at SWMU 49.

Groundwater samples were collected applying the same method and approach used during the twenty-ninth semiannual monitoring event: specifically, by low-flow peristaltic and bladder pumps. Copies of the CoC forms are provided in **Appendix B-1**, along with the raw analytical data packages.

Table 4-5 presents a summary of the final (stabilized) water quality readings for each well from the thirtieth event. Based on the thirtieth event DO data, aerobic groundwater conditions exist at 13 of 15 monitoring well locations at SWMU 49 (i.e., DO greater than 1 ppm). The DO levels ranged from a low of 0.29 mg/L at monitoring well 13MW4 to a high of 12.08 mg/L at monitoring well 49MW02. ORP measurements ranged from a low of 18.5 mV at monitoring well 49MW04 to a high of 151.1 mV at monitoring well 48MW7. Measurements of pH ranged from a low of 6.57 SU at monitoring well 50MW2 to a high of 8.28 SU at monitoring well 48MW7. Measurements of specific conductivity ranged from a low of 190 microsiemens per centimeter (µS/cm) at monitoring well 48MW7 to a high of 786 µS/cm at monitoring well 50MW2. Equipment calibration and groundwater sampling logs are included in **Appendix A-1**.

4.2.3 Quality Control Samples

QC samples, including two duplicate samples, four trip blanks, three equipment blanks, and one MS/MSD, were collected during the thirtieth semiannual monitoring event.

The duplicate samples (13MW3/13TW3 and 48MW01/48TW01) and MS/MSD were analyzed for the same full suite of compounds as the parent samples. The trip blanks were analyzed for VOCs only.

One IDW purge water sample (49IDW) was collected and analyzed for pH, COD, and total metals pending disposal as discussed in Section 4.1.3. The waste inventory sheet is provided in **Appendix A-1**.

Table 4-1 SWMU 49 Year Nine Monitoring Analytical Suite

Well ID	Frequency	TCL VOCs	Dissolved Gases (Methane, Ethane, Ethene)	MNA Indicator Parameters	Water Quality Parameters
13MW2	Semiannual	X	X	X	X
13MW3	Semiannual	X	X	X	X
13MW4	Semiannual	X	X	X	X
13MW5	Annual	X	X	X	X
48MW1	Semiannual	X	X	X	X
48MW2	Semiannual	X	X	X	X
48MW3	Semiannual	X	X	X	X
48MW6	Semiannual	X	X	X	X
48MW7	Annual	X	X	X	X
49MW01	Semiannual	X	X	X	X
49MW02	Semiannual	X	X	X	X
49MW03	Annual	X	X	X	X
49MW04	Semiannual	X	X	X	X
49MW05	Annual	X	X	X	X
50MW2	Semiannual	X	X	X	X

Notes:
ID = identification
MNA = monitored natural attenuation
TCL = target compound list
VOC = volatile organic compound

Table 4-2 SWMU 49 Twenty-Ninth Semiannual Groundwater Elevations

Well ID	Screen Interval (ft bgs)	Screen Length (ft)	Total Depth (ft)	Water Level (ft BTOC)	Elevation (top of casing) (ft amsl)	Water Level (ft amsl)	PID Readings (ppm)
48MW7	62 – 82	20	83.82	50.26	1,833.69	1,783.43	PID = 0.0
13MW5	14 – 25	11	25.34	17.27	1,696.40	1,679.13	PID = 0.0
49MW03	77 – 117	40	119.70	105.34	1,811.82	1,706.48	PID = 0.1
49MW05	16 – 37	21	39.49	20.39	1,699.74	1,679.35	PID = 0.0
48MW6	58 – 78	20	79.75	66.62	1,822.85	1,756.23	PID = 0.0
48MW1	110 – 140	30	147.76	109.83	1,816.42	1,706.59	PID = 0.0
48MW2	113 – 134	20	133.36	125.32	1,816.27	1,690.95	PID = 0.0
48MW3	100 – 120	20	124.63	97.96	1,808.56	1,710.60	PID = 0.0
49MW01	90 – 121	31	124.17	115.95	1,826.42	1,710.47	PID = 0.0
49MW02	103 – 133	30	134.68	94.87	1,806.29	1,711.42	PID = 0.0
50MW2	89 – 119	30	120.42	116.80	1,809.63	1,692.83	PID = 0.0
13MW2	19 – 29	10	30.45	21.96	1,702.62	1,680.66	PID = 0.0
13MW3	9 – 19	10	22.46	15.47	1,694.47	1,679.00	PID = 0.0
13MW4	14 – 24	10	25.35	17.36	1,696.40	1,679.04	PID = 0.0
49MW04	50 – 70	20	72.82	21.19	1,703.00	1,681.81	PID = 0.0

Notes:
amsl = above mean sea level
bgs = below ground surface
BTOC = below top of casing
ft = foot/feet
ID = identification
PID = photoionization detector
ppm = part(s) per million

Table 4-3 SWMU 49 Twenty-Ninth Semiannual Water Quality Parameters

Well ID	Temperature (°C)	Specific Conductivity (µS/cm)	pH	Dissolved Oxygen (mg/L)[1]	ORP (mV)	Turbidity (NTU)
48MW6	15.1	572	8.33	9.70	175.0	173.1
48MW1	18.4	453	7.91	8.23	133.1	184.9
48MW2	14.4	434	7.95	8.33	198.0	> 1,100
48MW3	12.5	625	7.19	6.09	206.2	9.85
49MW01	14.3	382	7.82	7.98	116.3	> 1,100
49MW02	12.9	490	7.45	10.05	201.4	510.0
50MW2	12.6	641	6.94	6.04	233.0	7.51
13MW2	14.5	639	7.15	4.06	136.0	0.67
13MW3	16.3	549	7.05	3.68	59.2	1.63
13MW4	15.0	523	7.28	0.41	194.6	0.98
49MW04	14.3	611	7.31	0.69	79.8	2.47

Notes:
[1] Despite appropriate calibration, DO levels were significantly above the saturation value for unknown reasons and consequently are questionable.
> = greater than
°C = degree(s) Celsius
µS/cm = microsiemen(s) per centimeter
DO = dissolved oxygen
ID = identification
mg/L = milligram(s) per liter
mV = millivolt(s)
NTU = nephelometric turbidity unit(s)
ORP = oxidation-reduction potential
pH = corrosivity/hydrogen ion concentration

Table 4-4 SWMU 49 Thirtieth Semiannual Groundwater Elevations

Well ID	Screen Interval (ft bgs)	Screen Length (ft)	Total Depth (ft)	Water Level (ft BTOC)	Elevation (top of casing) (ft amsl)	Water Level (ft amsl)	PID Readings (ppm)
48MW7	62 – 82	20	84.33	51.00	1,833.69	1,782.69	PID = 0.1
13MW5	14 – 25	11	25.30	17.91	1,696.40	1,678.49	PID = 0.0
49MW03	77 – 117	40	120.91	105.40	1,811.82	1,706.42	PID = 0.0
49MW05	16 – 37	21	39.42	20.20	1,699.74	1,679.54	PID = 0.0
48MW6	58 – 78	20	79.86	66.65	1,822.85	1,756.20	PID = 0.0
48MW1	110 – 140	30	147.62	114.17	1,816.42	1,702.25	PID = 0.1
48MW2	113 – 134	21	137.03	125.99	1,816.27	1,690.28	PID = 0.0
48MW3	100 – 120	20	126.22	98.47	1,808.56	1,710.09	PID = 0.0
49MW01	90 – 121	31	124.59	115.91	1,826.42	1,710.51	PID = 0.0
49MW02	103 – 133	30	135.66	95.67	1,806.29	1,710.62	PID = 0.0
50MW2	89 – 119	30	121.37	118.09	1,809.63	1,691.54	PID = 0.0
13MW2	19 – 29	10	30.43	21.84	1,702.62	1,680.78	PID = 0.0
13MW3	9 – 19	10	22.38	15.69	1,694.47	1,678.78	PID = 0.0
13MW4	14 – 24	10	26.30	17.56	1,696.40	1,678.84	PID = 0.0
49MW04	50 – 70	20	72.79	21.48	1,703.00	1,681.52	PID = 0.0

Notes:
amsl = above mean sea level
bgs = below ground surface
BTOC = below top of casing
ft = feet
ID = identification
PID = photoionization detector
ppm = part(s) per million

Table 4-5 SWMU 49 Thirtieth Semiannual Water Quality Parameters

Well ID	Temperature (°C)	Specific Conductivity (µS/cm)	pH	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)
48MW7	12.9	190	8.28	11.38	151.1	261.7
13MW5	14.8	715	7.14	2.47	69.7	0.00
49MW03	9.1	340	7.44	10.87	81.0	244.4
49MW05	14.5	694	7.01	5.70	62.2	1.70
48MW6	11.0	684	7.23	7.92	82.4	132.4
48MW1	9.7	467	7.52	4.00	60.4	17.3
48MW2	11.1	460	7.04	7.02	69.7	119.4
48MW3	11.2	647	6.70	4.40	64.9	1.81
49MW01	11.0	402	7.48	8.73	64.3	261.9
49MW02	11.8	507	7.29	12.08	62.2	738
50MW2	11.4	786	6.57	4.58	75.2	49.9
13MW2	15.1	697	7.07	6.35	69.1	0.00
13MW3	15.8	521	6.88	4.34	55.0	0.00
13MW4	15.4	557	7.23	0.29	36.1	8.87
49MW04	14.6	658	7.17	0.85	18.5	7.48

Notes:
°C = degree(s) Celsius
µS/cm = microsiemen(s) per centimeter
ID = identification
mg/L = milligram(s) per liter
mV = millivolt(s)
NTU = nephelometric turbidity unit(s)
ORP = oxidation-reduction potential
pH = corrosivity/hydrogen ion concentration



Legend

- Monitoring Well Locations
- SWMU 49 Boundary

Aerial Source:
Near Map Imagery, February 2020

N

0 55 110 220 Feet

Prepared For:

Baltimore District

FIGURE 4-1
SWMU 49 MONITORING
WELL LOCATIONS
RADFORD, VIRGINIA

File: Y:\Radford\MXD\SWMU\SWMU49_Monitoring_Well_Sample_Locations.mxd, 4/23/2025 2:40:45 PM, ricksc



Legend

- Monitoring Well Sampled Annually
- Monitoring Well Sampled Semi-Annually
- Well not included in MNA Program
- Groundwater Contour
- SWMU 49 Boundary

Notes:
Contours are in feet above mean sea level (amsl).
MNA - Monitored Natural Attenuation

Aerial Source:
Near Map Imagery, June 2023

N

0 50 100 200 Feet

Prepared For:

Baltimore District

FIGURE 4-2
SWMU 49 AUGUST 2024
GROUNDWATER CONTOUR MAP
RADFORD, VIRGINIA

File: Y:\Radford\MXD\SWMU\SWMU49\SWMU49_Aug2024_Groundwater_ Contour_Map.mxd, 4/23/2025 2:42:03 PM, ricksc



Legend

- Monitoring Well Sampled Annually
- Monitoring Well Sampled Semi-Annually
- Well not included in MNA Program
- Groundwater Contour
- SWMU 49 Boundary

Notes:
Contours are in feet above mean sea level (amsl).
MNA - Monitored Natural Attenuation

Aerial Source:
Near Map Imagery, June 2023

N

0 50 100 200 Feet

Prepared For:

Baltimore District

FIGURE 4-3
SWMU 49 DECEMBER 2024
GROUNDWATER CONTOUR MAP
RADFORD, VIRGINIA

File: Y:\Radford\MXD\SWMU\SWMU49\SWMU49_Dec2024_Groundwater_ Contour_Map.mxd, 4/23/2025 2:41:54 PM, ricksc

5. CHEMICAL ANALYTICAL RESULTS

5.1 SELECTION OF COMPARISON CRITERIA

The chemical data collected during the Year Nine monitoring activities were compared to RGs selected in the approved Draft SWMU 48/49 RFI Report (CB&I, 2014a). **Tables 5-1** through **5-4** present the analytical results and summaries of the twenty-ninth and thirtieth semiannual event monitoring data, including number of results that exceeded the RGs, the frequency of detection, the minimum and maximum detected concentrations, and the location of the maximum concentration.

5.2 TWENTY-NINTH SEMIANNUAL GROUNDWATER RESULTS

The twenty-ninth semiannual monitoring event served as a semiannual event for the Year Nine monitoring. In accordance with the sampling schedule presented in **Table 4-1**, 11 POC monitoring wells were sampled: 13MW2, 13MW3 and duplicate 13TW3, 13MW4, 48MW1 and duplicate 48TW1, 48MW2, 48MW3, 48MW6, 49MW01, 49MW02, 49MW04, and 50MW2. Sample locations are provided in **Figure 4-1**.

Samples were submitted for TCL VOCs and MNA indicator parameter analyses, including dissolved gases (methane, ethane, and ethene), dissolved iron (Fe), and dissolved manganese. A summary of detected constituents is provided in **Table 5-1**, and a subset of the results, consistent with the reporting in previous SWMU 49 LTM reports, is presented in **Table 5-2**. The CT plume is shown in **Figure 5-1**, and the TCE plume is shown in **Figure 5-2**. The potential for biodegradation in the groundwater at SWMU 49 is discussed in Section 6.2.

TCL VOCs

Five VOCs were detected in groundwater samples: 1,1-dichloroethane (1,1-DCA), CT, chloroform, cis-1,2-DCE, and TCE. Eight (13MW3, 13MW4, 48MW1, 48MW2, 48MW3, 49MW01, 49MW04, and 50MW2) of the 11 monitoring wells had one or more detections of the VOCs listed above; monitoring wells 13MW2, 48MW6, and 49MW02 did not have any detections of VOCs.

The VOC 1,1,1-trichloroethane (1,1,1-TCA) was not detected at any monitoring wells. An RG for 1,1,1-TCA has not been established for SWMU 49; however, the USEPA MCL for 1,1,1-TCA is 200 µg/L (USEPA, 2024a).

The VOC 1,1-DCA was detected in one monitoring well, 48MW1, at estimated concentrations of 0.51 µg/L (sample 48MW1) and 0.45 µg/L (duplicate sample 48TW1). An RG for 1,1-DCA has not been established for SWMU 49. There is no USEPA MCL for 1,1-DCA (USEPA, 2018); however, the tap water regional screening level (RSL) is 2.8 µg/L (USEPA, 2024b).

The VOC CT was detected at six monitoring wells: 48MW2, 48MW3, 49MW01, 50MW2, 13MW3, and 49MW04. Two monitoring wells contained CT concentrations that exceeded the RG of 5 µg/L: 48MW2 (10 µg/L) and 48MW3 (86 µg/L). The range of concentration detected during this semiannual event went from a low of an estimated value of 0.64 µg/L (50MW2) to a high of 86 µg/L (48MW3). The CT plume is shown in **Figure 5-1**; the size of the area still exceeding the RG of 5 µg/L is estimated at approximately 3 acres. The RG exceedance area presented in **Figure 5-1** was estimated based on triangulation of CT concentrations in the wells to establish the area above the RG of 5 µg/L. This methodology was used to estimate the RG exceedance area for all COCs for each semiannual event.

The VOC chloroform was detected in two monitoring wells: 48MW2 and 48MW3. Concentrations ranged from an estimated low of 2.3 µg/L (48MW2) to a high of 12 µg/L (48MW3). An RG for chloroform has not been established for SWMU 49; however, the USEPA MCL for chloroform is 80 µg/L (USEPA, 2024a).

The VOC cis-1,2-DCE was detected in one monitoring well, 48MW1, at concentrations of 0.64 (sample 48MW1) and 0.60 µg/L (duplicate sample 48TW1). An RG for cis-1,2-DCE has not been established for SWMU 49; however, the USEPA MCL for cis-1,2-DCE is 70 µg/L (USEPA, 2024a).

The VOC TCE was detected at six monitoring wells: 13MW3, 13MW4, 48MW1, 48MW2, 48MW3, and 50MW2. Monitoring well 48MW3 contained a concentration of TCE that exceeded the RG of 5 µg/L. The range of concentrations detected during this semiannual event went from an estimated low of 0.63 µg/L (13MW3) to a high of 16.0 µg/L (48MW3). The TCE plume is

shown in **Figure 5-2**; the size of the area still exceeding the RG of 5 µg/L is estimated at approximately 1 acre.

Miscellaneous Analytes

Groundwater samples were also analyzed for MNA indicators (TOC, dissolved Fe^{2+} and manganese, dissolved gases, chloride, nitrate, and sulfate) for the purposes of evaluating the effectiveness of the MNA process.

TOC was detected in two monitoring wells at a concentration range of 0.43 µg/L (13MW3) to 0.47 µg/L (49MW04). Concentrations of dissolved manganese ranged from a low of 0.2 mg/L (48MW3) to a high of 8.1 mg/L (49MW01), whereas dissolved Fe^{2+} levels ranged from a low of 0.03 mg/L (13MW2) to a high of 0.91 mg/L (48MW2). Chloride concentrations ranged from an estimated low of 1.5 mg/L (48MW2) to an estimated high of 11 mg/L (48MW6). Detected concentrations of nitrate ranged from an estimated low of 0.17 mg/L (13MW2 and 13MW4) to a high of 5.9 mg/L (48MW3). Sulfate concentrations ranged from an estimated low of 1.3 mg/L (49MW01) to a high of 96 mg/L (13MW3 and duplicate sample 13TW3). Methane concentrations ranged from an estimated low of non-detect in numerous wells to an estimated high of 1.4 mg/L (48MW2). Ethane and ethene went undetected during this semiannual monitoring event. **Table 5-2** presents the MNA indicator parameter sample results.

5.3 THIRTIETH SEMIANNUAL GROUNDWATER RESULTS

The thirtieth semiannual monitoring event served as the annual event for the Year Nine monitoring. As such, 15 POC monitoring wells were sampled: 13MW2, 13MW3, 13MW4, 13MW5, 48MW1, 48MW2, 48MW3, 48MW6, 48MW7, 49MW01, 49MW02, 49MW3, 49MW04, 49MW5, and 50MW2.

Two duplicate samples were collected from monitoring wells 13MW3 (duplicate as 13TW3) and 48MW1 (duplicate as 48TW1). Sample locations are provided in **Figure 4-1**.

Samples were submitted for TCL VOCs, dissolved gases (methane, ethane, and ethene), and MNA indicator parameter analyses. A summary of detected constituents is provided in **Table 5-3**, and a subset of the results, consistent with the reporting in previous SWMU 49 LTM reports, is presented

in **Table 5-4**. The CT plume is shown in **Figure 5-3**, and the TCE plume is shown in **Figure 5-4**. The potential for biodegradation in the groundwater at SWMU 49 is discussed in Section 6.2.

TCL VOCs

Five VOCs were detected in groundwater samples: 1,1-DCA, CT, chloroform, cis-1,2-DCE, and TCE. Eight monitoring wells (48MW6, 48MW1, 48MW2, 48MW3, 49MW01, 50MW2, 13MW3, and 49MW04) had one or more detected concentrations of the VOCs listed above. Monitoring wells 48MW7, 49MW02, 49MW03, 13MW2, 13MW4, 13MW5, and 49MW05 did not have detected concentrations of VOCs.

The VOC 1,1-DCA was detected at two monitoring wells, 48MW6 at a concentration of 1.3 µg/L and 48MW1 at estimated concentrations of 0.46 (sample 49MW1) and 0.45 µg/L (duplicate sample 48TW1). An RG for 1,1-DCA has not been established for SWMU 49. There is no USEPA MCL for 1,1-DCA (USEPA, 2024a); however, the tap water RSL is 2.8 µg/L (USEPA, 2024b).

The VOC CT was detected at six monitoring wells: 48MW2, 48MW3, 49MW01, 50MW2, 13MW3 and associated duplicate 13TW3, and 49MW04. Two monitoring wells contained CT concentrations that exceeded the RG of 5 µg/L: 48MW2 (36 µg/L) and 48MW3 (76 µg/L). These results are similar to those from the previous monitoring events. The size of the area still exceeding the RG of 5 µg/L is the same as the twenty-ninth event and is estimated at approximately 3 acres. The range of concentrations detected during this sampling event went from a low of an estimated value of 0.48 µg/L (50MW2 and 49MW04) to a high of 76 µg/L (48MW3).

Chloroform was detected in three monitoring wells, 48MW2, 48MW3, and 49MW01, at concentrations ranging from a low of 0.32 µg/L (49MW01) to a high of 11 µg/L (48MW3). Compared to the twenty-ninth event monitoring results for August 2024, the detected concentration of chloroform in monitoring well 48MW3 for the thirtieth event in December 2024 was similar: 12 µg/L in August 2024 and 11 µg/L in December 2024. Chloroform concentrations in 48MW3 were slightly higher in Year 9 (11 and 12 µg/L) than Year 8 (8.7 and 9.9 µg/L). An RG for chloroform has not been established for SWMU 49; however, the USEPA MCL for chloroform is 80 µg/L (USEPA, 2024a).

The VOC cis-1,2-DCE was detected in two monitoring wells at a concentration of 3.3 µg/L in 48MW6 and estimated concentrations of 0.47 (sample 48MW1) and 0.44 µg/L (duplicate sample 48TW1) in 48MW1. When compared to the twenty-ninth event monitoring results for 48MW1, concentrations were similar; however, cis-1,2-DCE was not detected in 48MW6 in the twenty-ninth event. An RG for cis-1,2-DCE has not been established for SWMU 49; however, the USEPA MCL for cis-1,2-DCE is 70 µg/L (USEPA, 2024a).

The VOC TCE was detected at six monitoring wells: 48MW6, 48MW1, 48MW2, 48MW3, 50MW2, and 13MW4. Monitoring well 48MW3 contained a concentration of TCE that exceeded the RG of 5 µg/L (14 µg/L). The size of the area still exceeding the RG of 5 µg/L is estimated at approximately 1 acre, which is consistent with the twenty-ninth event. The range of concentrations detected during this event went from an estimated low of 0.66 µg/L (13MW4) to a high of 14.0 µg/L (48MW3) (**Figure 5-4**). When compared to the previous event sampling results, concentrations in most wells were similar.

Miscellaneous Analytes

Groundwater samples were also analyzed for MNA indicators (TOC, dissolved Fe^{2+} and manganese, dissolved gases, chloride, nitrate, and sulfate) for the purposes of evaluating the effectiveness of the MNA process.

TOC was detected in 4 of the 15 monitoring wells at estimated values of 0.50 mg/L (48MW6), 0.49 mg/L (48MW2), 0.97 mg/L (48MW3), and 0.59 mg/L (49MW02). Concentrations of dissolved Fe^{2+} ranged from a low of 0.05 mg/L to a high of 1.08 mg/L (49MW02). Dissolved manganese levels ranged from a low of 0.1 mg/L to a high of 4.9 mg/L (48MW6). Chloride concentrations ranged from an estimated low of 1.4 mg/L to a high of 13 mg/L (48MW6). Concentrations of nitrate ranged from non-detect to a high of 6.5 mg/L (48MW3). Sulfate concentrations ranged from non-detect to a high of 140 mg/L (13MW5). Methane was detected in three monitoring wells at a concentration range from a low of 0.49 µg/L to a high of 7.9 µg/L (49MW03). Ethane and ethene went undetected during this semiannual monitoring event. **Table 5-4** presents the MNA indicator parameter sample results.

5.4 YEAR NINE SAMPLE RESULTS

This section discusses the results from the Year Nine monitoring. Samples collected were analyzed for the full suite of analytical parameters described in **Table 4-1** (TCL VOCs and MNA indicator parameters including dissolved gases [methane, ethane, and ethene] and dissolved Fe^{2+} and manganese).

5.4.1 Carbon Tetrachloride

CT was detected in six monitoring wells during the twenty-ninth and thirtieth semiannual monitoring events. CT was detected in monitoring wells 48MW2, 48MW3, 49MW01, 49MW04, 50MW2, and 13MW3 in both semiannual events.

The highest concentrations were consistently detected at monitoring wells 48MW2 and 48MW3 with the highest levels (86 and 76 µg/L) observed in both events at 48MW3. CT concentrations detected in these two wells exceeded the RG of 5 µg/L in each semiannual event. CT concentrations in monitoring well 13MW3 exceeded the RG in both Year Eight sampling events (5.4 and 5.2 µg/L) but were below the RG in both Year Nine monitoring events (3.4 and 2 µg/L).

In general, the concentrations detected at these two wells were slightly variable between Year Nine events with no clear increasing or decreasing trend, consistent with Years Two through Eight MNA sampling results. The remaining wells with observed detections were below the RG and, in general, had concentrations that were relatively steady, with minor fluctuations, throughout the MNA sampling. **Figures 5-5** and **5-6** depict the concentrations at these sampling locations throughout Year Nine monitoring. **Figure 5-7** provides a time series plot of CT concentrations dating back to samples collected in 1995.

5.4.2 Trichloroethene

TCE was detected in seven monitoring wells during the twenty-ninth and thirtieth semiannual monitoring events: 48MW6 (thirtieth event only), 48MW1, 48MW2, 48MW3, 50MW2, 13MW3 (twenty-ninth event only), and 13MW4. The highest concentrations were consistently detected at monitoring well 48MW3. Concentrations detected in monitoring well 48MW3 exceeded the RG of 5 µg/L in both semiannual events (16.0 µg/L and 11.0 µg/L), with no other sample concentrations at other wells exceeding the RG. In general, the concentrations detected in all seven

monitoring wells were variable from event to event with no clear increasing or decreasing trend. **Figures 5-5** and **5-6** depict the concentrations at these sampling locations throughout Year Nine monitoring. **Figure 5-8** provides a time series plot of TCE concentrations dating back to samples collected in 1995.

5.5 LABORATORY ANALYSIS, DATA VALIDATION, AND REPORTING

The Year Nine monitoring for SWMU 49 was collected semiannually in August and December 2024. Groundwater samples were collected in accordance with the Quality Assurance Project Plan (QAPP), revised August 2015. Documentation pertaining to CoC and sample condition was filed in field and laboratory records. A summary of samples and analyses is included in **Table 5-5**. Analytical methods are provided in **Table 5-6**.

The samples were placed into coolers with ice at the time of collection. The CoC forms were completed as the samples were packaged into coolers for transport. Trip blanks, temperature blanks, and ice were added as required. All coolers were shipped to the main laboratory, CT Laboratories in Baraboo, WI. The trip blanks were packed in the coolers with the VOC and methane/ethane/ethene samples.

The analytical data were reviewed for consistency with the test methods as noted in **Table 5-6** and the project QAPP to ensure that the data set met project data quality objectives and was usable for the purposes of the project. Validation was performed following the National Functional Guidelines for Inorganic Superfund Data Review (USEPA, 2014a), National Functional Guidelines for Superfund Organic Methods Data Review (USEPA, 2014b), and professional judgment. Any anomalies to the requirements for precision, accuracy, representativeness, completeness, comparability, and sensitivity are discussed below, and the data were flagged where appropriate.

Application of Data Flags

General data quality flagging conventions in **Table 5-7** were used to indicate QC anomalies. Data were flagged, where appropriate, in accordance with the National Functional Guidelines and the project QAPP.

Preservation, Temperature, and Hold Time

For the August 2024 sampling event, the case narrative indicated that sample 48MW6 was not properly preserved for analysis of VOCs and gases (methane, ethane, and ethene). The narrative also stated that samples 48MW2 and 49MW02 were not properly preserved for analysis of gases. No qualifiers were applied. For the December 2024 sampling event, the case narrative indicated that samples 48MW7 and 49MW02 were not properly preserved for analysis of VOCs and gases.

All sample analyses were within the holding time for the August 2024 event. For the December 2024 event, the analysis of 48MW7 and 49MW02 was performed after the 7-day hold time for unpreserved samples. All positive results were qualified as estimated with a negative bias and all non-detect results were qualified as estimated at the limit of detection. Samples 13MW4, 13MW5, and 49MW01 were analyzed outside the 48-hour hold time for nitrates due to shipping discrepancies by FedEx. Nitrate results were qualified as estimated.

Refer to **Table 5-8** for holding time exceedances.

5.5.1 Precision

Precision was measured from the relative percent difference (RPD) between the parent sample/field duplicate (FD), laboratory duplicates, laboratory control sample (LCS), and the MS/MSD pairs. MS/MSD sample collection and analysis were performed at a frequency of 5 percent (%) of field samples.

Field Duplicates

FDs were collected at a frequency of 10% of field samples. As summarized in **Table 5-9**, no FD RPD results exceeded the RPD control limits.

Matrix Spike/Matrix Spike Duplicate Relative Percent Difference

Four VOCs (1,2,3-trichlorobenzene, 1,2,4-trichlorobenzene, 1,2-dibromo-3-chloropropane, and methylene chloride) exceeded their MS/MSD RPD control limits, but no qualifiers were required because the results were non-detect in the parent sample. **Table 5-10** lists MS/MSD RPD limit exceedances.

5.5.2 Accuracy

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

Laboratory Control Sample/Matrix Spike/Matrix Spike Duplicate Recovery

One LCS was analyzed for each batch of 20 samples or fewer. All LCS recoveries were within control limits. As shown in **Table 5-11**, no LCS exceedances were noted.

MS/MSD analysis was performed at a frequency of 5% of field samples. Most recoveries were within control limits except for anions in three groundwater samples collected in the twenty-ninth sampling event and in one groundwater sample collected in the thirtieth sampling event. **Table 5-12** presents MS/MSD recoveries outside control limits. The data for the parent sample were flagged as indicated in the table. If no flag was indicated, the data were not flagged. Data were not flagged in cases where the parent sample concentration was greater than four times the spike concentration. Parent samples only were qualified.

Post-Digestion Spike Recovery Exceedances

Most recoveries were within control limits. There were no post-digestion spike (PDS) recovery exceedances.

Serial Dilution Percent Difference

All recoveries were within control limits as summarized in **Table 5-13**.

Surrogates

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

Internal Standards

There were no internal standards outside control limits.

Calibration Verification

Some calibration results were outside control limits for compounds not identified as COCs. **Table 5-14** summarizes calibration control limit exceedances.

5.5.3 Representativeness

The samples were collected from locations specified in the approved *SWMU 49 Monitored Natural Attenuation Groundwater Monitoring Work Plan* (Shaw, 2014) and from the recommendations in subsequent monitoring reports. Representativeness of the data is considered acceptable.

5.5.4 Comparability

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

5.5.5 Completeness

Completeness was measured as the number of usable results versus the total number of results. The data set was 100% complete with no omissions or rejections with respect to analysis. The information fulfilled the data quality objectives of this investigation.

5.5.6 Sensitivity

Sensitivity was measured by evaluating whether the LOQ was less than RGs for constituents with RGs and less than the regulatory criteria for those constituents without RGs. All nominal LOQs were below the regulatory criteria.

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

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

Calibration blanks were analyzed throughout analytical runs.

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

One trip blank was included with each cooler for samples to be analyzed for VOCs and dissolved gases (methane, ethane, and ethene).

Table 5-15 presents samples flagged for blank results; none required qualification. Data quality and usability were not affected.

Reporting Limits

Nominal reporting limits, before adjustments for dilutions, were below the regulatory criteria noted in the project QAPP.

5.5.7 Data Usability Summary

In summary, all data were considered usable with the qualifications discussed above. The completeness goals for the project were met. The data were considered of good quality for the project goals, and no J-flagged results affected the overall conclusions as to whether MNA is occurring.

Low MS/MSD (**Table 5-12**) and PDS percent recoveries indicate that the associated anion results may be biased low for the associated samples.

The RPDs for laboratory duplicate and FD exceedance indicate that the associated results were estimated or non-detected estimated for the associated samples.

This data quality assessment was prepared by Neptune and Company. Data verification and validation reports (unique report for each sampling event, August 2024 and December 2024) are presented in **Appendix B-2**.

Table 5-1 SWMU 49 Summary of Detected Constituents in Twenty-Ninth Semiannual Groundwater Samples

Analyte	Units	RG	EPA RSL	EPA MCL	No. of RG Exceedances	No. of Detections	No. of Samples[1]	Minimum Concentration	Maximum Concentration	Location of Maximum
VOCs										
1,1,1-Trichloroethane	µg/L	NA	8,000	200	NA	0	13	ND	ND	NA
1,1-Dichloroethane	µg/L	NA	2.8	NA	NA	2	13	ND	0.51	48MW1 (both detects)
Carbon Tetrachloride	µg/L	5	0.46	5	2	7	13	ND	86	48MW3
Chloroform	µg/L	NA	0.22	80	NA	2	13	ND	12	48MW3
Cis-1,2-Dichloroethene	µg/L	NA	2.5	70	NA	2	13	ND	0.64	48MW1 (both detects)
Tetrachloroethene	µg/L	NA	11	5	NA	0	13	ND	ND	NA
Trichloroethene	µg/L	5	0.49	5	1	8	13	ND	16	48MW3
Miscellaneous										
Chloride	mg/L	NA	NA	NA	NA	13	13	1.5	11	48MW6
Ethane	µg/L	NA	NA	NA	NA	0	13	ND	ND	NA
Ethene	µg/L	NA	NA	NA	NA	0	13	ND	ND	NA
Methane	µg/L	NA	NA	NA	NA	2	13	ND	1.4	48MW2
Nitrate (as N)	mg/L	NA	NA	NA	NA	13	13	0.17	5.9	48MW3
Sulfate	mg/L	NA	NA	NA	NA	13	13	1.3	96	13MW3
Total Organic Carbon	mg/L	NA	NA	NA	NA	2	13	ND	0.47	49MW04

Notes:
[1] Includes two duplicate samples.
µg/L = microgram(s) per liter
EPA = U.S. Environmental Protection Agency
MCL = EPA maximum contaminant level
mg/L = milligram(s) per liter
NA = not applicable
ND = non-detect
No. = number
RG = remedial goal
RSL = EPA regional screening level
VOC = volatile organic compound

Table 5-2 SWMU 49 Detected Analytes in Twenty-Ninth Semiannual Event Groundwater Samples

Sample ID			48MW6				48MW1 / 48TW1 (duplicate)				48MW2				48MW3				49MW01			
Date Collected			8/21/2024				8/21/2024				8/22/2024				8/22/2024				8/21/2024			
Analyte	Units	Remedial Goals[1]	Result	Lab Q	LOQ	LOD	Result	Lab Q	LOQ	LOD	Result	Lab Q	LOQ	LOD	Result	Lab Q	LOQ	LOD	Result	Lab Q	LOQ	LOD
VOCs																						
1,1,1-Trichloroethane	µg/L	NA	1	U	1.2	1	1/1	U/U	1.2	1	1	U	1.2	1	1	U	1.2	1	1	U	1.2	1
1,1-Dichloroethane	µg/L	NA	1	U	1.1	1	0.51/0.45	J/J	1.1	1	1	U	1.1	1	1	U	1.1	1	1	U	1.1	1
Carbon Tetrachloride	µg/L	5	1	U	1.2	1	1/1	U/U	1.2	1	**10**		1.2	1	**86**		1.2	1	1.8		1.2	1
Chloroform	µg/L	NA	1	U	1.4	1	1/1	U/U	1.4	1	2.3		1.4	1	12		1.4	1	1	U	1.4	1
cis-1,2-Dichloroethene	µg/L	NA	1	U	1.3	1	0.60/0.64	J/J	1.3	1	1	U	1.3	1	1	U	1.3	1	1	U	1.3	1
Tetrachloroethene	µg/L	NA	1	U	2	1	1/1	U/U	2	1	1	U	2	1	1	U	2	1	1	U	2	1
Trichloroethene	µg/L	5	1	U	1.2	1	0.85/0.86	J/J	1.2	1	1.2		1.2	1	**16**		1.2	1	1	U	1.2	1
Miscellaneous																						
Ethane	µg/L	NA	0.8	U	1	0.80	0.8/0.8	U/U	1	0.80	0.8	U	1	0.80	0.8	U	1	0.80	0.8	U	1	0.80
Ethene	µg/L	NA	1.2	U	1.4	1.2	1.2/1.2	U/U	1.4	1.2	1.2	U	1.4	1.2	1.2	U	1.4	1.2	1.2	U	1.4	1.2
Methane	µg/L	NA	0.9	U	1	0.90	0.9/0.9	U/U	1	0.90	1.4		1	0.90	0.9	U	1	0.90	0.9	U	1	0.90
Chloride	mg/L	NA	11		3	1.5	4.3/4.4		3	1.5	1.5	J	3	1.5	2.2	J	3	1.5	4.3		3	1.5
Nitrate (as N)	mg/L	NA	1.7		0.4	0.2	1.5/1.5		0.4	0.2	0.64		0.4	0.2	5.9		0.4	0.2	0.31	J	0.4	0.2
Sulfate	mg/L	NA	89		3	1.5	50/48		3	1.5	3.7		3	1.5	30		3	1.5	1.3	J	3	1.5
Total Organic Carbon	mg/L	NA	1.5	U	3	1.5	1.5/1.5	U/U	3	1.5	1.5	U	3	1.5	1.5	U	3	1.5	1.5	U	3	1.5
MNA																						
Dissolved Mn	mg/L	NA	NA				0.60				6.9				0.2				8.1			
Dissolved Fe^{2+}	mg/L	NA	NA				0.44				0.91				0.16				0.90			

Table 5-2 SWMU 49 Detected Analytes in Twenty-Ninth Semiannual Groundwater Samples (Continued)

Sample ID			49MW02				50MW2				13MW2				13MW3 / 13TW3 (duplicate)				13MW4			
Date Collected			8/22/2024				8/22/2024				8/19/2024				8/19/2024				8/19/2024			
Analyte	Units	Remedial Goals[1]	Result	Lab Q	LOQ	LOD	Result	Lab Q	LOQ	LOD	Result	Lab Q	LOQ	LOD	Result	Lab Q	LOQ	LOD	Result	Lab Q	LOQ	LOD
VOCs																						
1,1,1-Trichloroethane	µg/L	NA	1	U	1.2	1	1	U	1.2	1	1	U	1.2	1	1 / 1	U	1.2	1	1	U	1.2	1
1,1-Dichloroethane	µg/L	NA	1	U	1.1	1	1	U	1.1	1	1	U	1.1	1	1 / 1	U	1.1	1	1	U	1.1	1
Carbon Tetrachloride	µg/L	5	1	U	1.2	1	0.64	J	1.2	1	1	U	1.2	1	3.4 / 3.4		1.2	1	1	U	1.2	1
Chloroform	µg/L	NA	1	U	1.4	1	1	U	1.4	1	1	U	1.4	1	1 / 1	U	1.4	1	1	U	1.4	1
cis-1,2-Dichloroethene	µg/L	NA	1	U	1.3	1	1	U	1.3	1	1	U	1.3	1	1 / 1	U	1.3	1	1	U	1.3	1
Tetrachloroethene	µg/L	NA	1	U	2	1	1	U	2	1	1	U	2	1	1 / 1	U	2	1	1	U	2	1
Trichloroethene	µg/L	5	1	U	1.2	1	0.98	J	1.2	1	1	U	1.2	1	0.63 / 0.57	J	1.2	1	0.83	J	1.2	1
Miscellaneous																						
Ethane	µg/L	NA	0.8	U	1	0.80	0.80	U	1	0.80	0.8	U	1	0.80	0.8 / 0.8	U / U	1	0.80	0.8	U	1	0.80
Ethene	µg/L	NA	1.2	U	1.4	1.2	1.2	U	1.4	1.2	1.2	U	1.4	1.2	1.2 / 1.2	U / U	1.4	1.2	1.2	U	1.4	1.2
Methane	µg/L	NA	1.1		1	0.90	0.9	U	1	0.90	0.9	U	1	0.90	0.9 / 0.9	U / U	1	0.90	0.9	U	1	0.90
Chloride	mg/L	NA	1.6	J	3	1.5	6.0		3	1.5	2.3	J	3	1.5	3.2 / 3.2		3	1.5	3.4		3	1.5
Nitrate (as N)	mg/L	NA	0.21	J	0.4	0.2	1.8		0.4	0.2	0.17	J	0.4	0.2	1.4 / 1.4		0.4	0.2	0.17	J	0.4	0.2
Sulfate	mg/L	NA	16		3	1.5	64		3	1.5	31		3	1.5	96 / 96		3	1.5	67		3	1.5
Total Organic Carbon	mg/L	NA	1.5	U	3	1.5	1.5	U	3	1.5	1.5	U	3	1.5	0.43 / 1.5	J / U	3	1.5	1.5	U	3	1.5
MNA																						
Dissolved Mn	mg/L	NA	4.4				0.6				1.0				0.9				1.4			
Dissolved Fe^{2+}	mg/L	NA	0.52				0.07				0.03				0.06				0.07			

Table 5-2 SWMU 49 Detected Analytes in Twenty-Ninth Semiannual Groundwater Samples (Continued)

Sample ID			49MW04			
Date Collected			8/19/2024			
Analyte	Units	Remedial Goals[1]	Result	Lab Q	LOQ	LOD
VOCs						
1,1,1-Trichloroethane	µg/L	NA	1	U	1.2	1
1,1-Dichloroethane	µg/L	NA	1	U	1.1	1
Carbon Tetrachloride	µg/L	5	0.60	J	1.2	1
Chloroform	µg/L	NA	1	U	1.4	1
cis-1,2-Dichloroethene	µg/L	NA	1	U	1.3	1
Tetrachloroethene	µg/L	NA	1	U	2	1
Trichloroethene	µg/L	5	1	U	1.2	1
Miscellaneous						
Ethane	µg/L	NA	0.8	U	1	0.80
Ethene	µg/L	NA	1.2	U	1.4	1.2
Methane	µg/L	NA	0.9	U	1	0.90
Chloride	mg/L	NA	5.8		3	1.5
Nitrate (as N)	mg/L	NA	0.29	J	0.4	0.2
Sulfate	mg/L	NA	62		3	1.5
Total Organic Carbon	mg/L	NA	0.47	J	3	1.5
MNA						
Dissolved Mn	mg/L	NA	2.0			
Dissolved Fe^{2+}	mg/L	NA	0.06			

Notes:
[1] Remedial goals developed in Draft SWMU 48/49 RFI Report (CB&I, 2014a).
Exceedances denoted by **bold font.**
µg/L = microgram(s) per liter (part[s] per billion)
Fe^{2+} = ferrous iron
ID = identification
LOD = limit of detection
LOQ = limit of quantitation
mg/L = milligram(s) per liter (part[s] per million)
Mn = manganese
MNA = monitored natural attenuation
NA = not applicable; remedial goal not established for analyte at SWMU 49
RFI = RCRA Facility Investigation
SWMU = Solid Waste Management Unit
RCRA = Resource Conservation and Recovery Act
VOC = volatile organic compound
Lab Q = laboratory data qualifiers
Val Q = validation data qualifiers
J = Estimated value.
U = Analyte concentration was not above the detection level.

Table 5-3 SWMU 49 Summary of Detected Constituents in Thirtieth Semiannual Groundwater Samples

Analyte	Units	RG	EPA RSL	EPA MCL	No. of RG Exceedances	No. of Detections	No. of Samples[1]	Minimum Concentration	Maximum Concentration	Location of Maximum
VOCs										
1,1,1-Trichloroethane	µg/L	NA	8,000	200	NA	1	17	ND	1	48MW6
1,1-Dichloroethane	µg/L	NA	2.8	NA	NA	3	17	ND	1.3	48MW6
Carbon Tetrachloride	µg/L	5	0.46	5	2	7	17	ND	76	48MW3
Chloroform	µg/L	NA	0.22	80	NA	3	17	ND	11	48MW3
cis-1,2-Dichloroethene	µg/L	NA	83	70	NA	3	17	ND	3.3	48MW6
Tetrachloroethene	µg/L	NA	11	5	NA	0	17	ND	ND	NA
Trichloroethene	µg/L	5	0.49	5	1	7	17	ND	14	48MW3
Miscellaneous										
Chloride	mg/L	NA	NA	NA	NA	17	17	1.4	13	48MW6
Ethane	µg/L	NA	NA	NA	NA	0	17	ND	ND	NA
Ethene	µg/L	NA	NA	NA	NA	0	17	ND	ND	NA
Methane	µg/L	NA	NA	NA	NA	4	17	ND	7.9	49MW03
Nitrate (as N)	mg/L	NA	NA	NA	NA	15	17	ND	6.5	48MW3
Sulfate	mg/L	NA	NA	NA	NA	16	17	ND	140	13MW5
Total Organic Carbon	mg/L	NA	NA	NA	NA	4	17	ND	0.97	48MW3

Notes:
[1] Includes two duplicate samples.
µg/L = microgram(s) per liter
EPA = U.S. Environmental Protection Agency
MCL = EPA maximum contaminant level
mg/L = milligram(s) per liter
NA = not applicable
ND = non-detect
No. = number
RG = remedial goal
RSL = EPA regional screening level
VOC = volatile organic compound

Table 5-4 SWMU 49 Detected Analytes in Thirtieth Semiannual Groundwater Samples

Sample ID			48MW6				48MW1 / 48TW1 (duplicate)				48MW2				48MW3				48MW7			
Date Collected			12/11/2024				12/12/2024				12/13/2024				12/13/2024				12/11/2024			
Analyte	Units	Remedial Goals[1]	Result	Lab Q	LOQ	LOD	Result	Lab Q	LOQ	LOD	Result	Lab Q	LOQ	LOD	Result	Lab Q	LOQ	LOD	Result	Lab Q	LOQ	LOD
VOCs																						
1,1,1-Trichloroethane	µg/L	NA	1	J	1.2	1	1/1	U/U	1.2	1	1	U	1.2	1	1	U	1.2	1	1	U	1.2	1
1,1-Dichloroethane	µg/L	NA	1.3		1.1	1	0.46/0.45	J/J	1.1	1	1	U	1.1	1	1	U	1.1	1	1	U	1.1	1
Carbon Tetrachloride	µg/L	5	1	U	1.2	1	1/1	U/U	1.2	1	**36**		1.2	1	**76**		1.2	1	1	U	1.2	1
Chloroform	µg/L	NA	1	U	1.4	1	1/1	U/U	1.4	1	3.9		1.4	1	11		1.4	1	1	U	1.4	1
cis-1,2-Dichloroethene	µg/L	NA	3.3		1.3	1	0.47/0.44	J/J	1.3	1	1	U	1.3	1	1	U	1.3	1	1	U	1.3	1
Tetrachloroethene	µg/L	NA	1	U	2	1	1/1	U/U	2	1	1	U	2	1	1	U	2	1	1	U	2	1
Trichloroethene	µg/L	5	1.4		1.2	1	0.83/0.85	J/J	1.2	1	3.4		1.2	1	**14**		1.2	1	1	U	1.2	1
Miscellaneous																						
Ethane	µg/L	NA	0.8	U	1	0.8	0.38/0.8	J/U	1	0.8	0.8	U	1	0.8	0.8	U	1	0.8	0.41	J	1	0.8
Ethene	µg/L	NA	1.2	U	1.4	1.2	1.2/1.2	U/U	1.4	1.2	1.2	U	1.4	1.2	1.2	U	1.4	1.2	1.2	U	1.4	1.2
Methane	µg/L	NA	0.9	U	1	0.9	0.9/0.9	U/U	1	0.9	0.49	J	1	0.9	0.9	U	1	0.9	0.73	J	1	0.9
Chloride	mg/L	NA	13		3	1.5	4.7/4.7		3	1.5	1.9	J	3	1.5	2.8	J	3	1.5	1.4	J	3	1.5
Nitrate (as N)	mg/L	NA	2.3		0.4	0.2	1.3/1.5		0.4	0.2	0.84		0.4	0.2	6.5		0.4	0.2	1.2		0.4	0.2
Sulfate	mg/L	NA	100		3	1.5	47/47		3	1.5	3.4		3	1.5	31		3	1.5	1.3	J	3	1.5
Total Organic Carbon	mg/L	NA	0.5	J	3	1.5	1.5/1.5	U/U	3	1.5	0.49	J	3	1.5	0.97	J	3	1.5	1.5	U	3	1.5
MNA																						
Dissolved Mn	mg/L	NA	4.9				NS				NS				0.1				NS			
Dissolved Fe^{2+}	mg/L	NA	NS				0.23				0.08				0.1				NS			

Table 5-4 SWMU 49 Detected Analytes in Thirtieth Semiannual Event Groundwater Samples (Continued)

Sample ID			49MW01				49MW02				49MW03				50MW2				13MW2				13MW3 / 13TW3 (duplicate)			
Date Collected			12/12/2024				12/13/2024				12/12/2024				12/12/2024				12/09/2024				12/09/2024			
Analyte	Units	Remedial Goals[1]	Result	Lab Q	LOQ	LOD	Result	Lab Q	LOQ	LOD	Result	Lab Q	LOQ	LOD	Result	Lab Q	LOQ	LOD	Result	Lab Q	LOQ	LOD	Result	Lab Q	LOQ	LOD
VOCs																										
1,1,1-Trichloroethane	µg/L	NA	1	U	1.2	1	1	U	1.2	1	1	U	1.2	1	1	U	1.2	1	1	U	1.2	1	1/1	U/U	1.2	1
1,1-Dichloroethane	µg/L	NA	1	U	1.1	1	1	U	1.1	1	1	U	1.1	1	1	U	1.1	1	1	U	1.1	1	1/1	U/U	1.1	1
Carbon Tetrachloride	µg/L	5	1.9		1.2	1	1	U	1.2	1	1	U	1.2	1	0.48		1.2	1	1	U	1.2	1	2/2		1.2	1
Chloroform	µg/L	NA	0.32	J	1.4	1	1	U	1.4	1	1	U	1.4	1	1	U	1.4	1	1	U	1.4	1	1/1	U/U	1.4	1
cis-1,2-Dichloroethene	µg/L	NA	1	U	1.3	1	1	U	1.3	1	1	U	1.3	1	1	U	1.3	1	1	U	1.3	1	1/1	U/U	1.3	1
Tetrachloroethene	µg/L	NA	1	U	2	1	1	U	2	1	1	U	2	1	1	U	2	1	1	U	2	1	1/1	U/U	2	1
Trichloroethene	µg/L	5	1	U	1.2	1	1	U	1.2	1	1	U	1.2	1	0.93	J	1.2	1	1	U	1.2	1	1/1	U/U	1.2	1
Miscellaneous																										
Ethane	µg/L	NA	0.8	U	1	0.8	0.8	U	1	0.8	3.8		1	0.8	0.8	U	1	0.8	0.8	U	1	0.8	0.39/0.8	J/U	1	0.8
Ethene	µg/L	NA	1.2	U	1.4	1.2	1.2	U	1.4	1.2	1.7	J	1.4	1.2	1.2	U	1.4	1.2	1.2	U	1.4	1.2	1.2/1.2	U/U	1.4	1.2
Methane	µg/L	NA	0.9	U	1	0.9	0.9	U	1	0.9	7.9		1	0.9	0.90	U	1	0.9	0.9	U	1	0.9	0.9/0.9	U/U	1	0.9
Chloride	mg/L	NA	5.3		3	1.5	1.9	J	3	1.5	5.7		3	1.5	6.0	J-	3	1.5	4.9		3	1.5	3.1/3.1		3	1.5
Nitrate (as N)	mg/L	NA	0.37	J	0.4	0.2	0.25	J	0.4	0.2	0.87		0.4	0.2	1.8		0.4	0.2	0.45		0.4	0.2	1.2/1/3	J/J	0.4	0.2
Sulfate	mg/L	NA	1.5	U	3	1.5	17		3	1.5	2.7	J	3	1.5	64		3	1.5	25		3	1.5	66/65		3	1.5
Total Organic Carbon	mg/L	NA	1.5	U	3	1.5	0.59	J	3	1.5	1.5	U	3	1.5	1.5	U	3	1.5	1.5	U	3	1.5	1.5/1.5	U/U	3	1.5
MNA																										
Dissolved Mn	mg/L	NA	0.90				3.3				NS				0.0				0.4				0.1			
Dissolved Fe^{2+}	mg/L	NA	0.33				1.08				0.25				0.11				0.1				0.12			

Table 5-4 SWMU 49 Detected Analytes in Thirtieth Semiannual Event Groundwater Samples (Continued)

Sample ID			13MW4				13MW5				49MW04				49MW05			
Date Collected			12/09/2024				12/09/2024				12/09/2024				12/09/2024			
Analyte	Units	Remedial Goals[1]	Result	Lab Q	LOQ	LOD	Result	Lab Q	LOQ	LOD	Result	Lab Q	LOQ	LOD	Result	Lab Q	LOQ	LOD
VOCs																		
1,1,1-Trichloroethane	µg/L	NA	1	U	1.2	1	1	U	1.2	1	1	U	1.2	1	1	U	1.2	1
1,1-Dichloroethane	µg/L	NA	1	U	1.1	1	1	U	1.1	1	1	U	1.1	1	1	U	1.1	1
Carbon Tetrachloride	µg/L	5	1	U	1.2	1	1	U	1.2	1	0.48	J	1.2	1	1	U	1.2	1
Chloroform	µg/L	NA	1	U	1.4	1	1	U	1.4	1	1	U	1.4	1	1	U	1.4	1
cis-1,2-Dichloroethene	µg/L	NA	1	U	1.3	1	1	U	1.3	1	1	U	1.3	1	1	U	1.3	1
Tetrachloroethene	µg/L	NA	1	U	2	1	1	U	2	1	1	U	2	1	1	U	2	1
Trichloroethene	µg/L	5	0.66	J	1.2	1	1	U	1.2	1	1	U	1.2	1	1	U	1.2	1
Miscellaneous																		
Ethane	µg/L	NA	0.80	U	1	0.8	0.8	U	1	0.8	0.8	U	1	0.8	0.8	U	1	0.8
Ethene	µg/L	NA	1.2	U	1.4	1.2	1.2	U	1.4	1.2	1.2	U	1.4	1.2	1.2	U	1.4	1.2
Methane	µg/L	NA	0.59	J	1	0.9	0.9	U	1	0.9	0.9	U	1	0.9	0.9	U	1	0.9
Chloride	mg/L	NA	3.3		3	1.5	3.4		3	1.5	6.5		3	1.5	3.5		3	1.5
Nitrate (as N)	mg/L	NA	0.2	U	0.4	0.2	0.56		0.4	0.2	0.26	J	0.4	0.2	0.2	U	0.4	0.2
Sulfate	mg/L	NA	79		3	1.5	140		3	1.5	68		3	1.5	55		3	1.5
Total Organic Carbon	mg/L	NA	1.5	U	3	1.5	1.5	U	3	1.5	1.5	U	3	1.5	1.5	U	3	1.5
MNA																		
Dissolved Mn	mg/L	NA	0.30				0.10				0.3				0.1			
Dissolved Fe^{2+}	mg/L	NA	0.05				0.11				0.08				0.15			

Notes:
[1] Remedial goals developed in Draft SWMU 48/49 RFI Report (CB&I, 2014a).
Exceedances denoted by **bold font.**
µg/L = microgram(s) per liter (part[s] per billion)
Fe^{2+} = ferrous iron
ID = identification
LOD = limit of detection
LOQ = limit of quantitation
mg/L = milligram(s) per liter (part[s] per million)
Mn = manganese
MNA = monitored natural attenuation
NA = not applicable; remedial goal not established for analyte at SWMU 49
RFI = RCRA Facility Investigation
SWMU = Solid Waste Management Unit
RCRA = Resource Conservation and Recovery Act
VOC = volatile organic compound

Lab Q = laboratory data qualifiers
Val Q = validation data qualifiers
J = Estimated value.
U = Analyte concentration was not above the detection level.
UJ = Non-detected estimated.

Table 5-5 Summary of Samples and Analyses

Sampling Event ID	Data Packages	Matrix	TCL VOCs	Methane Ethane Ethene	Chloride Nitrate Sulfate	Metals	TOC	pH	COD
August 2024	188736, 188808, and 188855	GW	X	X	X	X	X	X	X
December 2024	191577, 191647, 191706, and 191720	GW	X	X	X	X	X	X	X

Notes:
Ferrous iron and manganese were analyzed in the field for groundwater samples. Total metals, COD, and pH were only analyzed for IDW samples.
COD = chemical oxygen demand
GW = groundwater
ID = identification
IDW = investigation-derived waste
pH = corrosivity/hydrogen ion concentration
TCL = target compound list
TOC = total organic carbon
VOC = volatile organic compound

Table 5-6 Analytical Methods

Analysis	Analytes	Method
VOCs	Numerous	USEPA SW-846 Method 8260C
Dissolved Gases	Methane, Ethane, Ethene	USEPA SW-846 Method 8015/RSK-175
Anions	Chloride, Nitrate, Sulfate	USEPA SW-846 Method 9056A
TOC	TOC	USEPA SW-846 Method 9060A

Notes:
TOC = total organic carbon
USEPA = U.S. Environmental Protection Agency
VOC = volatile organic compound

Table 5-7 Typical Data Qualifiers

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

Table 5-8 Holding Time Exceedances

Sampling Event	Analysis[1]	Analytes	Result	Samples	Qualifiers
August 2024	---	---	---	---	---
December 2024	Anions	Nitrate	---	13MW4, 13MW5, 49MW01	J

Notes:

[1] The holding time for pH analysis is only minutes; therefore, this is expected and exceedances are not presented in the table. The data are still usable for their intended purpose.
J = estimated
pH = corrosivity/hydrogen ion concentration

Table 5-9 Field Duplicate Precision Exceedances

Sampling Event	Analyte	Flag	RPD
August 2024	No QC limit exceedances		
December 2024	No QC limit exceedances		

Notes:
J = estimated
QC = quality control
RPD = relative percent difference

Table 5-10 MS/MSD RPD Exceedances

Sampling Event	Location (Analyte)	Flag	RPD
August 2024	No exceedances		
December 2024	49MW02 (1,2,3-trichlorobenzene, 1,2,4-trichlorobenzene, 1,2-dibromo-3-chloropropane, and methylene chloride)	None	---

Notes:
MS = matrix spike
MSD = matrix spike duplicate
RPD = relative percent difference

Table 5-11 LCS Recovery Exceedances

Sampling Event	Analyte	Flag	Recovery
August 2024	All LCS recovery criteria were met.		
December 2024	All LCS recovery criteria were met.		

Notes:
LCS = laboratory control sample

Table 5-12 MS/MSD Recovery Exceedances

Sampling Event	Sample ID/Analyte	Recovery	Parent Flag
August 2024	13MW4/all anions 48MW2/chloride and sulfate 48MW6/chloride and sulfate	Low Low Low	All "J" Flags
December 2024	48MW6/chloride and sulfate	Low	All "J" Flags

Notes:
MS = matrix spike
MSD = matrix spike duplicate
ID = identification

Table 5-13 Serial Dilution

Sampling Event	Sample ID/Analyte	Recovery	Parent Flag
August 2024	All serial dilution control criteria were met.		
December 2024	All serial dilution control criteria were met.		

Notes:
ID = identification

Table 5-14 Calibration Exceedances

Sampling Event	Analysis	Analytes	Result	Samples	Qualifiers
August 2024	VOCs	Bromomethane Trichlorofluoromethane Trichlorofluoroethane Cyclohexane 1,2-Dibromo-3-chloropropane	CCV – high recovery CCV – high recovery CCV – high recovery CCV – high recovery CCV – low recovery	Lab standards (applies to all samples)	No qualifier No qualifier No qualifier No qualifier UJ
December 2024	VOCs	Methylene chloride	CCV – low recovery	Lab standards (applies to all samples)	UJ or J

Notes:
J = estimated
UJ = non-detected estimated
CCV = continuing calibration verification
VOC = volatile organic compound

Table 5-15 Blank Flags

Sampling Event	Type of Blank	Analyte	Samples Qualified	Flag
August 2024	Equipment Blank	Bromodichloromethane, chloroform, dibromochloromethane	None	No qualifiers
December 2024	Equipment Blank Equipment Blank Equipment Blank Trip Blank	Bromodichloromethane, chloroform toluene, chloroform Chloroform Acetone and methylene chloride	None	No qualifiers



Legend

- Monitoring Well Sampled Annually
- Monitoring Well Sampled Semi-Annually
- Well not included in MNA Program
- SWMU 49 Boundary

Carbon Tetrachloride Isopleths (ug/L)

- 5 Remedial Goal

Notes:
MNA - Monitored Natural Attenuation
ug/L - Micrograms per Liter
ND - Non Detect
NS - Not Sampled
Qualifier: J = Estimated concentration

Aerial Source:
Near Map Imagery, June 2023

N

0 50 100 200 Feet

Prepared For:

Baltimore District

FIGURE 5-1
SWMU 49 AUGUST 2024
CARBON TETRACHLORIDE ISOPLETHS
RADFORD, VIRGINIA

File: Y:\Radford\MXD\SWMU\SWMU49\SWMU49_Carbon_Tetrachloride_Aug2024.mxd, 4/23/2025 2:46:57 PM, ricksc



Legend

- Monitoring Well Sampled Annually
- Monitoring Well Sampled Semi-Annually
- Well not included in MNA Program
- SWMU 49 Boundary

Trichloroethene Isopleths (ug/L)

- 5 Remedial Goal

Notes:
MNA - Monitored Natural Attenuation
ug/L - Micrograms per Liter
ND - Non Detect
NS - Not Sampled
Qualifier: J = Estimated concentration

Aerial Source:
Near Map Imagery, June 2023

N

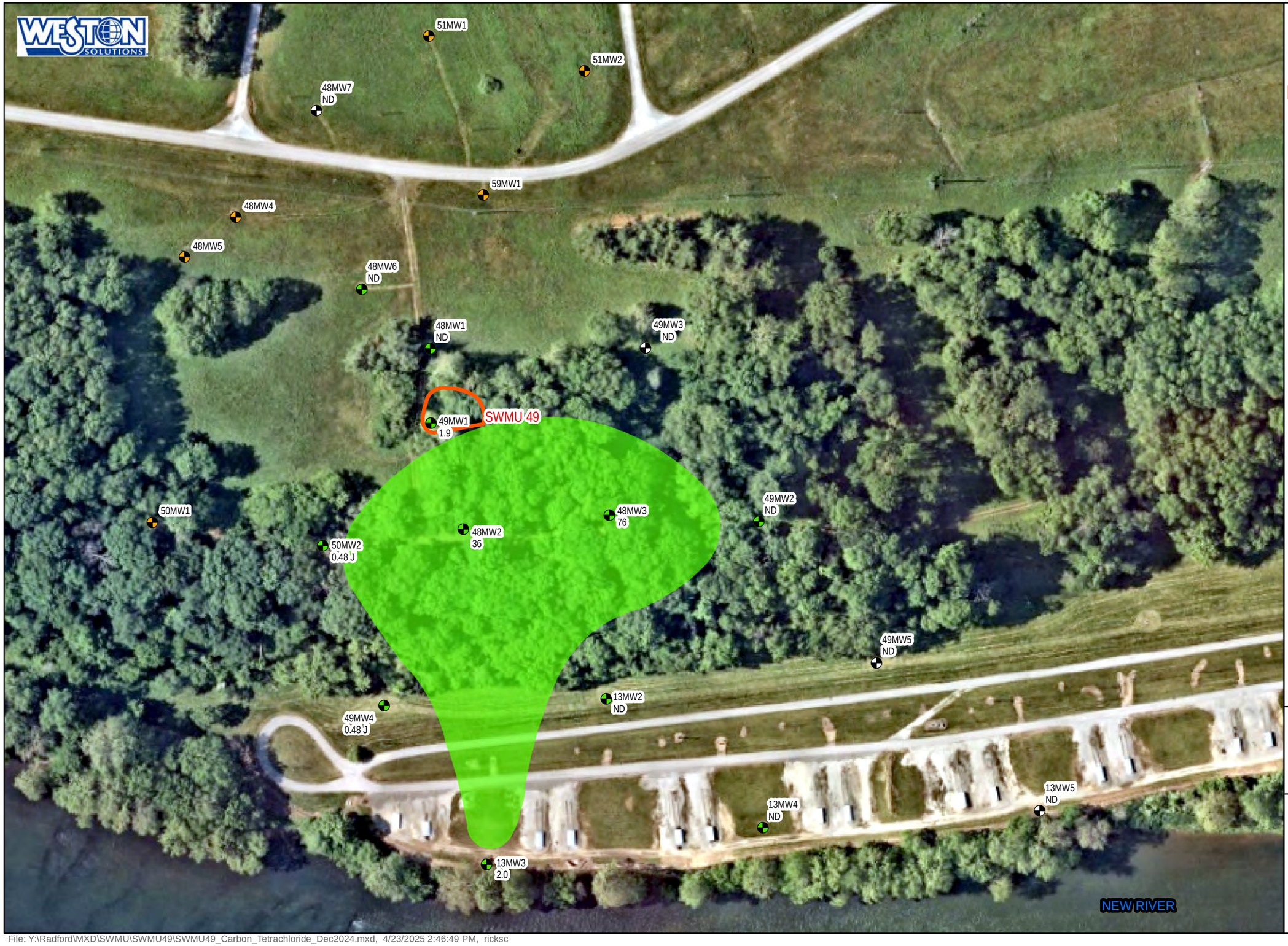
0 50 100 200 Feet

Prepared For:

Baltimore District

FIGURE 5-2
SWMU 49 AUGUST 2024
TRICHLOROETHENE ISOPLETHS
RADFORD, VIRGINIA

File: Y:\Radford\MXD\SWMU\SWMU49\SWMU49_Carbon_Trichloroethene_Aug2024.mxd, 4/23/2025 2:47:05 PM, ricksc



Legend

- Monitoring Well Sampled Annually
- Monitoring Well Sampled Semi-Annually
- Well not included in MNA Program
- SWMU 49 Boundary

Carbon Tetrachloride Isopleths (ug/L)

- 5 Remedial Goal

Notes:
MNA - Monitored Natural Attenuation
ug/L - Micrograms per Liter
ND - Non Detect
Qualifier: J = Estimated concentration

Aerial Source:
Near Map Imagery, June 2023

N

0 50 100 200 Feet

Prepared For:

Baltimore District

FIGURE 5-3
SWMU 49 DECEMBER 2024
CARBON TETRACHLORIDE ISOPLETHS
RADFORD, VIRGINIA

File: Y:\Radford\MXD\SWMU\SWMU49\SWMU49_Carbon_Tetrachloride_Dec2024.mxd, 4/23/2025 2:46:49 PM, ricksc



Legend

- Monitoring Well Sampled Annually
- Monitoring Well Sampled Semi-Annually
- Well not included in MNA Program
- SWMU 49 Boundary

Trichloroethene Isopleths (ug/L)

- 5 Remedial Goal

Notes:
MNA - Monitored Natural Attenuation
ug/L - Micrograms per Liter
ND - Non Detect
Qualifier: J = Estimated concentration

Aerial Source:
Near Map Imagery, June 2023

N

0 50 100 200 Feet

Prepared For:

Baltimore District

FIGURE 5-4
SWMU 49 DECEMBER 2024
TRICHLOROETHENE ISOPLETHS
RADFORD, VIRGINIA

File: Y:\Radford\MXD\SWMU\SWMU49\SWMU49_Carbon_Trichloroethene_Dec2024.mxd, 4/23/2025 2:48:08 PM, ricksc

Figure 5-5 SWMU 49 Twenty-Ninth Event CT and TCE Concentrations

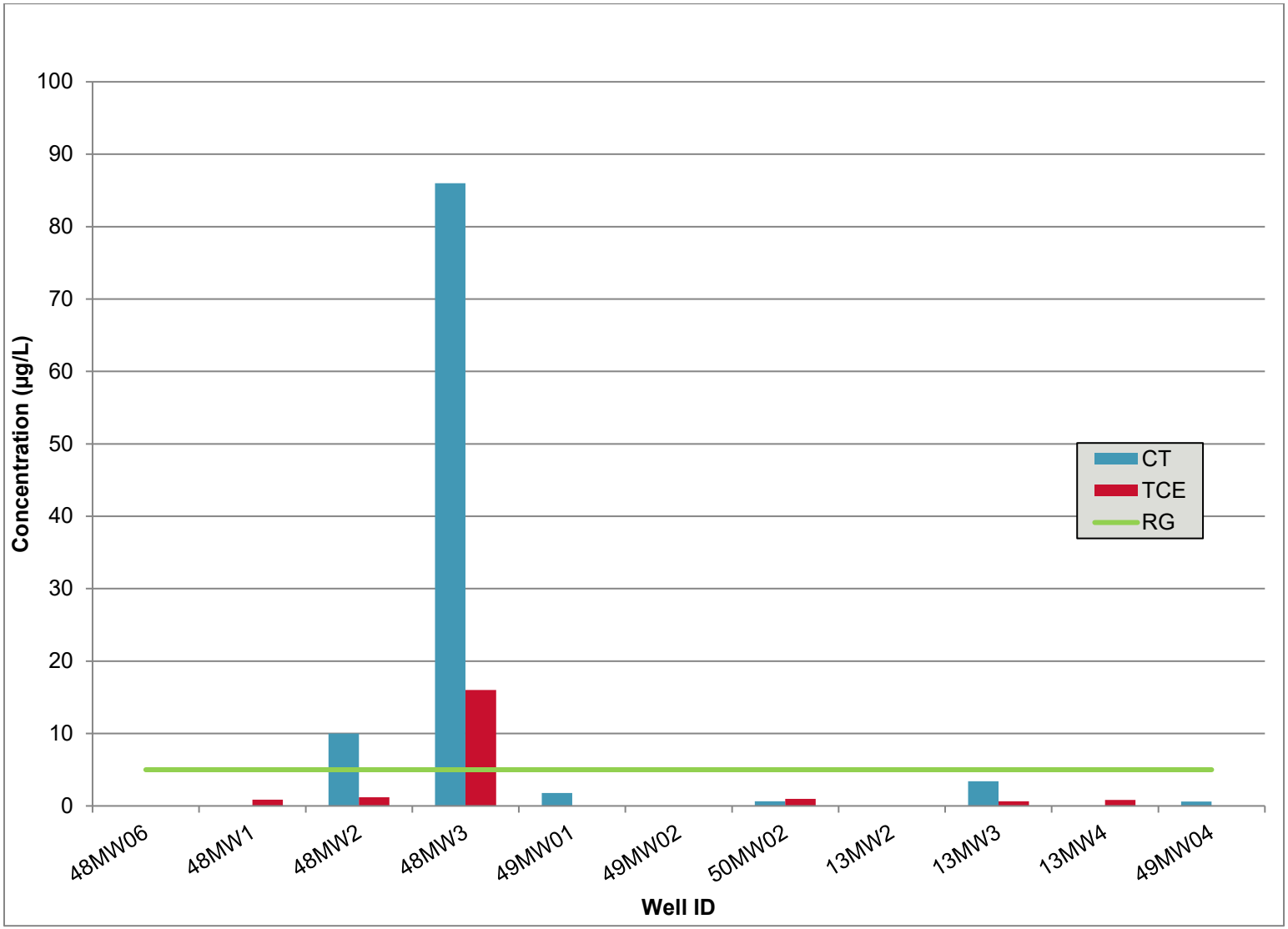


Figure 5-6 SWMU 49 Thirtieth Event CT and TCE Concentrations

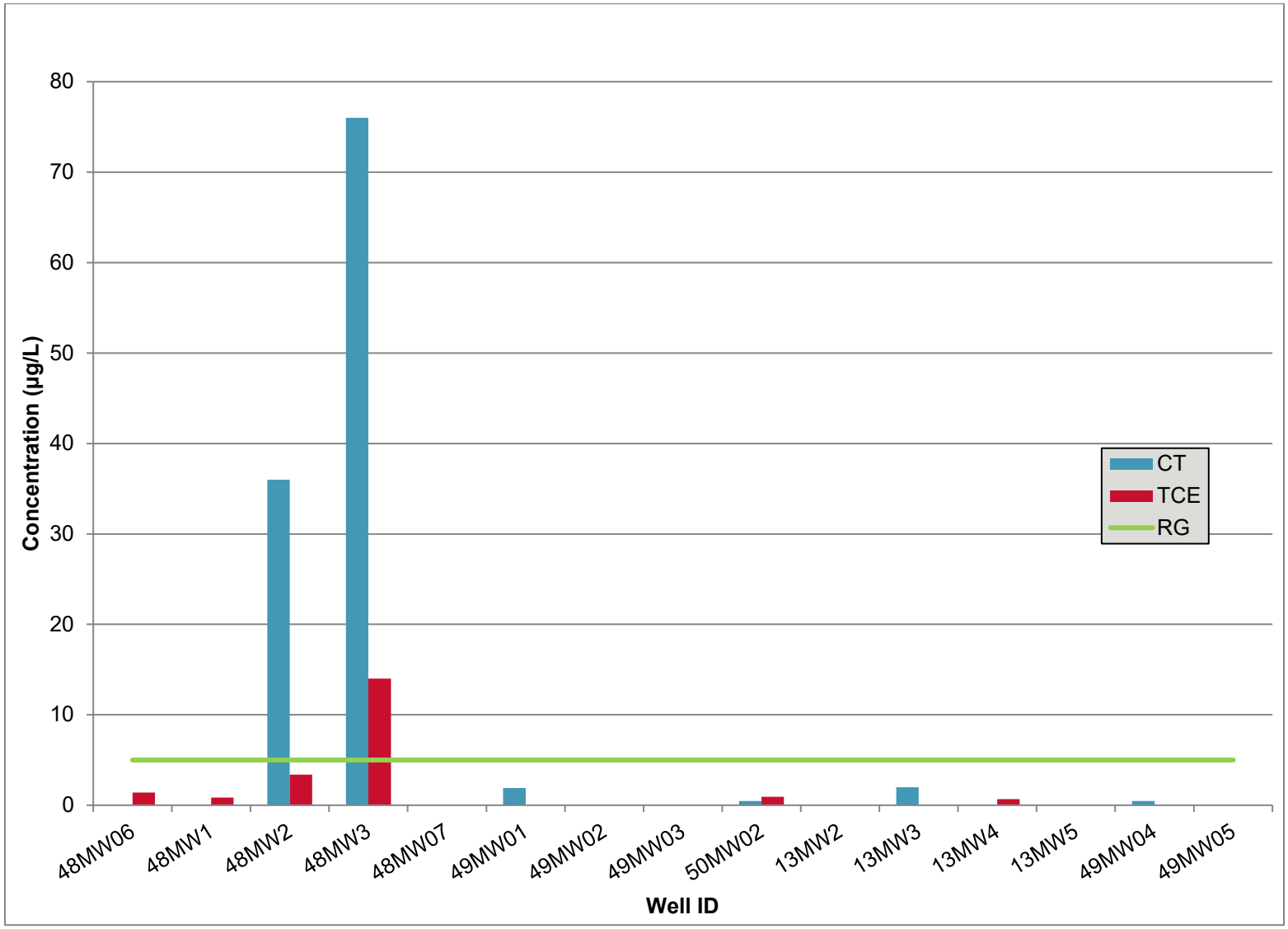
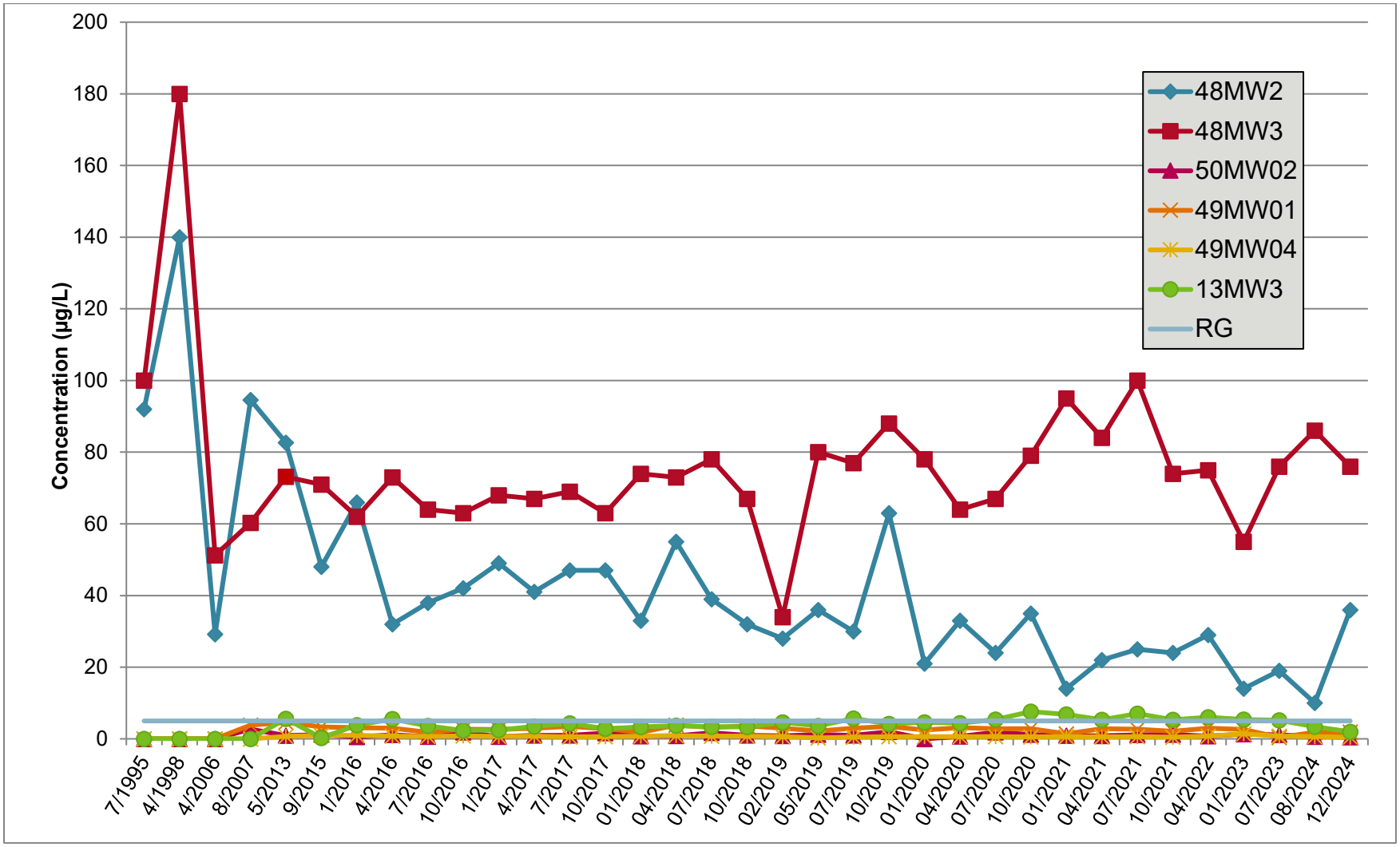
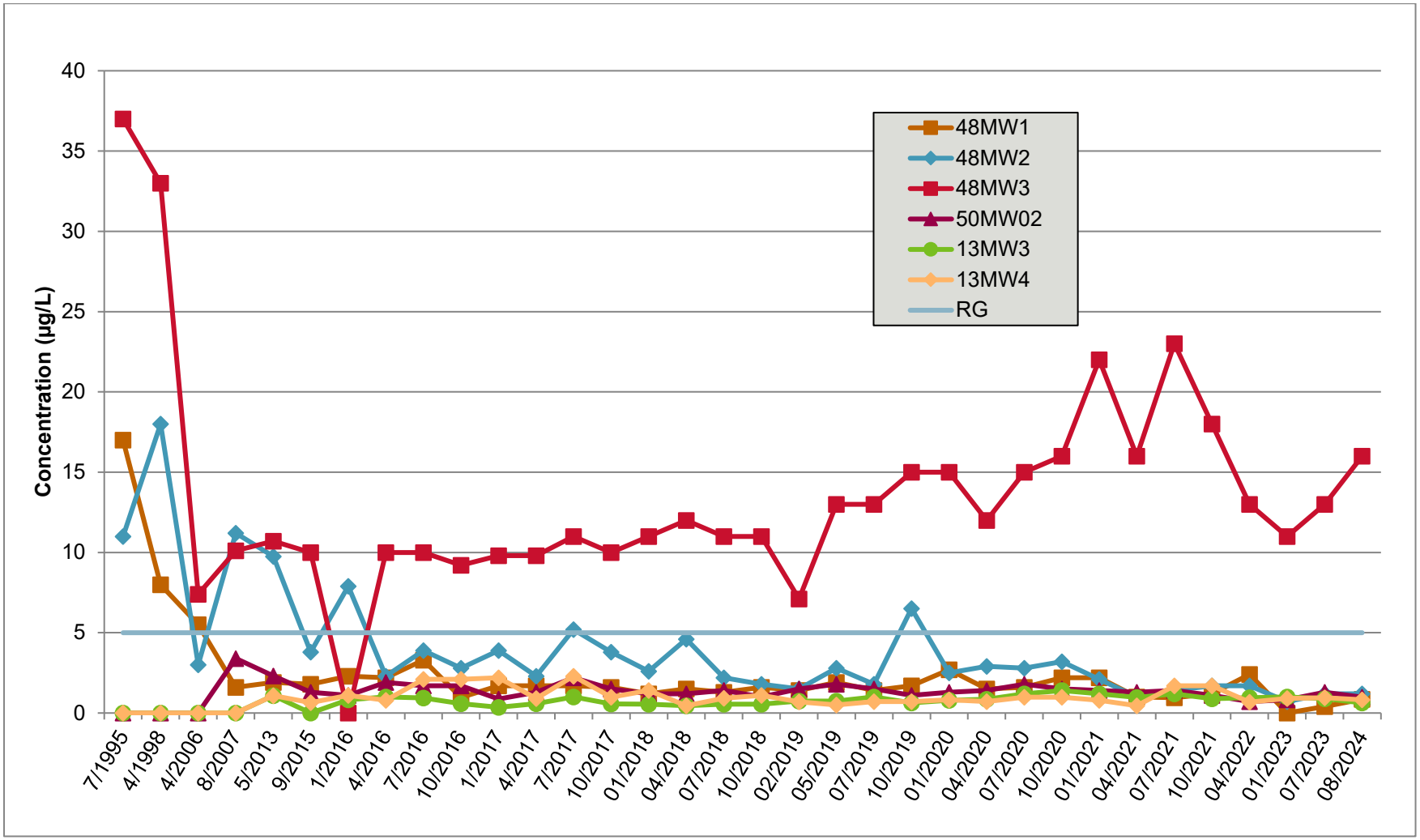


Figure 5-7 SWMU 49 CT Concentration Trends



Note: In order to fit all data on one page, x-axis time intervals do not reflect actual period of time between events.

Figure 5-8 SWMU 49 TCE Concentration Trends



Note: In order to fit all data on one page, x-axis time intervals do not reflect actual period of time between events.

6. MNA EVALUATION OF SWMU 49

This section presents and summarizes the results for the Year Nine monitoring. Eleven monitoring wells were sampled in the SWMU 49 study area on a semiannual basis (August 2024 and December 2024), and four wells were sampled on an annual basis (December 2024 event). Sample results were evaluated to determine whether MNA is continuing to occur at the site.

Consistent with the TCL VOC results from the sampling event in May 2013 and the baseline sampling conducted in January 2015, the highest concentrations of CT were observed in monitoring wells 48MW2 and 48MW3, where the center of the plume is located. Although CT concentrations were above the RG at monitoring well 13MW3 in Year Eight, there were no exceedances at monitoring well 13MW3 during Year Nine. CT concentrations have hovered around the RG since 2013.

TCE concentrations detected at monitoring well 48MW2, where historically high concentrations had been detected, were below the RG of 5 µg/L in both events. During Year Nine monitoring, all concentrations of TCE at monitoring well 48MW2 (1.2 and 3.4 µg/L) were below the RG of 5 µg/L. Conversely, TCE concentrations in 48MW3 (16 and 14 µg/L) were above the RG in both events of Year Nine.

Based on the Year Nine monitoring results, the CT and TCE plumes changed only slightly from sampling event to sampling event (seasonally) (**Figures 5-1** through **5-4**). There were modest changes in the two events with a minor increase in TCE concentration at monitoring well 48MW3 in Year Nine (16 and 14 µg/L) from Year Eight (10 and 13 µg/L). There was also a minor increase of TCE at monitoring well 48MW2 in Year Nine (1.2 and 3.4 µg/L) from Year Eight (0.71 and 1.2 µg/L). Both Year Eight and Year Nine TCE concentrations at monitoring wells 48MW2 and 48MW3 were slightly lower than Year Seven.

In general, the CT and TCE plumes were centered on monitoring wells 48MW3/48MW2 and 48MW6/48MW3, respectively. These trends continued throughout the year. The TCE trend continued since Year Two and generally remained undetected at monitoring well 13MW2, except for the nineteenth quarter (0.33 µg/L). In both events during the Year Nine monitoring, detections of CT were found downgradient at monitoring well 13MW3 (3.4 µg/L and 2.0 µg/L), which is

next to the New River. These concentrations are less than the RG and were slightly lower than the results from Year Eight data (5.4 µg/L and 5.2 µg/L). As has been the trend in recent years, TCE was detected downgradient at monitoring wells 13MW3 and 13MW4 at concentrations less than 1 µg/L, which is well below the RG of 5 µg/L.

6.1 FIRST LINE OF EVIDENCE: OCCURRENCE OF CONTAMINANTS

The first line of evidence consists of evaluating contaminant and daughter product concentrations in monitoring wells over time. The VOC CT reduces to form chloroform, and TCE will be reduced to form cis-1,2-DCE, among other by-products. Both CT and TCE attenuate more favorably under anaerobic conditions. Fifteen monitoring wells were included in the MNA monitoring program at SWMU 49, which targeted areas with CT and TCE contamination. Historical trends and the results of the Year Nine monitoring are discussed below, and the CT and TCE data are provided in **Table 6-1**.

6.1.1 Carbon Tetrachloride

There is moderate correlation of chloroform to CT concentrations for Year Nine monitoring periods. Based on the Year Nine data, four wells (48MW2 [both events], 48MW3 [both events], 50MW2 [August 2024 event], and 49MW01 [December 2024 event]) had detected concentrations of CT and chloroform, whereas two monitoring wells (13MW3 and 49MW04) had detected concentrations of CT but no chloroform detections. Based on available data, the presence of chloroform suggests the degradation of CT is occurring at SWMU 49. **Figures 6-1** through **6-4** provide correlation data from the Year Nine monitoring.

6.1.2 Trichloroethene

There is evidence that some correlation exists; however, in wells that contained the highest observed concentrations of TCE (48MW2 and 48MW3), cis-1,2-DCE went undetected in both semiannual events in Year Nine. For both events in Year Seven and Year Eight and one event in Year Nine, MNA cis-1,2-DCE concentrations were above TCE concentrations in monitoring well 48MW6. Based on the available data, a strong correlation of TCE degradation to cis-1,2-DCE cannot yet be determined. **Figures 6-1** through **6-4** provide correlation data from the Year Nine monitoring.

6.1.3 Statistical Trends

Mann-Kendall tests were run using the USEPA software package ProUCL (USEPA, 2020). The Mann-Kendall graphs are included as **Appendix C**. Monitoring wells 48MW2 and 48MW3 both displayed high and low outliers for the CT and TCE concentration trends over the past 5 years. Time series plots were created with and without those initial and/or final sampling data points to compare how the concentration trends would be affected by the varying results. A summary of the time series trends for each monitoring well is presented in the following:

- At monitoring well 48MW2, both CT and TCE exhibited decreasing trends, regardless of outlying results or recent concentration variability.
- At monitoring well 48MW3, CT has a slight decreasing trend with the outlier data from the initial sampling removed and a steeply decreasing trend with the outlier data from the initial sampling included. At monitoring well 48MW3, TCE has a slightly decreasing trend with all data.
- At monitoring well 13MW3, CT and TCE have an increasing trend because this well is located downgradient of the SWMU 49 boundary and contaminants continue to migrate toward the New River.
- At monitoring wells 13MW4, 48MW1, and 50MW02, TCE has a decreasing trend with all data, and 50MW2 also has decreasing trends with CT.
- At monitoring well 49MW01, CT has a decreasing trend with all data.

Overall, there is a decreasing trend for CT and TCE across the site except for monitoring well 13MW3 (CT and TCE), which is directly downgradient from the highest concentrations in the contaminant plume; therefore, there is CT and TCE migration from the center of the plume to this downgradient location with an overall increasing trend noted.

6.2 SECOND LINE OF EVIDENCE: GEOCHEMICAL CONDITIONS

Geochemical data are available for both semiannual groundwater monitoring events at SWMU 49. Field parameters (DO, ORP, pH, temperature, and specific conductivity) were collected for both events as part of the low-flow sampling procedures. Laboratory analysis for nitrate, sulfate, and TOC were conducted for both groundwater monitoring events at SWMU 49. These geochemical data are discussed regarding the potential for biodegradation in the groundwater at SWMU 49.

The degradation of CT primarily occurs under anaerobic conditions, either through denitrification, iron reduction, sulfate reduction, or methanogenesis. The environmental degradation of TCE primarily occurs under anaerobic conditions that facilitate reductive chlorination, whereas natural degradation under aerobic oxidizing conditions has been documented but is much less likely to occur. Historical trends and the results of the Year Nine monitoring are discussed below, and the data are provided in Section 4 tables.

Much of the discussion that follows uses the comparison values provided by USEPA in its *Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Ground Water* (USEPA, 1998).

6.2.1 Dissolved Oxygen

The preferred terminal electron acceptor during aerobic microbial respiration is oxygen, and DO is measured to determine whether the groundwater is under aerobic or anaerobic conditions. Average DO values less than 1 mg/L support anaerobic microbial activities. DO levels during the two semiannual monitoring events (August and December 2024) of Year Nine ranged between 0.41 mg/L and 10.05 mg/L for the August 2024 event and between 0.29 mg/L and 12.08 mg/L for the December 2024 event, indicating aerobic conditions generally present at the site.

6.2.2 Oxidation-Reduction Potential

ORP values indicate the groundwater's reductive potential and are used to confirm the DO measurements in groundwater. ORP values less than +50 mV typically correspond to mildly reducing anaerobic conditions, whereas ORP values less than -200 mV correspond to highly reducing anaerobic conditions.

ORP levels recorded during the Year Nine monitoring ranged from 59.2 mV to 233 mV for the August 2024 event and from 18.5 mV to 151.1 mV for the December 2024 event, indicating aerobic conditions remain prevalent at the site. Further, with a few minor exceptions, the ORP values and DO readings for both events showed a clear correlation whereby ORP values demonstrating aerobic conditions were confirmed with DO readings.

6.2.3 pH

The pH for optimum microbial activity ranges from 5 SU to 9 SU. Microbial activity may decrease at lower pH values. All pH measurements during Year Nine ranged between 6.57 SU and 8.33 SU, within this optimal pH range. In general, the pH environment at SWMU 49 is suitable for microbial activity.

6.2.4 Nitrate

Following oxygen, microorganisms preferentially use nitrate as a terminal electron acceptor. Depressed nitrate concentrations may indicate nitrate-reducing conditions that promote the degradation of CT forming breakdown by-products. Nitrate levels during Year Nine of groundwater monitoring were generally low (a calculated average of all measurements is less than 1 mg/L), with concentrations ranging from non-detect to 6.5 mg/L, very similar to Years One through Eight of MNA sampling. The highest levels of nitrate were observed at monitoring well 48MW3 with concentrations of 5.9 mg/L (August 2024 event) and 6.5 mg/L (December 2024 event). Low nitrate concentrations in the groundwater indicate that conditions exist in groundwater for the promotion of CT degradation.

6.2.5 Ferrous Iron

Ferric iron is reduced to soluble Fe^{2+} (ferrous iron) in the groundwater where iron-reducing bacteria facilitate activity. An increase in Fe^{2+} concentrations is indicative of iron-reducing conditions and can be used to determine the potential for contaminant precipitation or coprecipitation and for geochemical modeling. Biological reduction of CT is favored in iron-reducing conditions; therefore, elevated levels of Fe^{2+} above the typical range of 0.5 to 10 mg/L are an indicator of favorable groundwater conditions. Fe^{2+} concentrations for all wells during Year Nine of monitoring ranged between 0.03 mg/L and 0.91 mg/L for August 2024 and between 0.05 mg/L and 1.08 mg/L for December 2024, indicating that iron-reducing conditions remain low and were similar to Year Eight.

6.2.6 Manganese

Manganese-reducing bacteria can use manganese oxides as a terminal electron receptor for respiration. They can also couple manganese reduction to the oxidation of organic and inorganic

electron donors. Biological reduction of CT is favored in manganese-reducing conditions; therefore, elevated levels of manganese above the typical range of 0.05 to 5.6 mg/L are an indicator of favorable groundwater conditions. Manganese concentrations for all wells during Year Nine of monitoring ranged between 0.20 mg/L and 8.1 mg/L for August 2024 and between 0.10 mg/L and 4.9 mg/L for December 2024, indicating that manganese-reducing conditions remain low and were similar to Year Eight.

6.2.7 Sulfate

After DO and nitrate have been depleted in the microbiological treatment zone, sulfate may be used as a terminal electron acceptor for anaerobic biodegradation. This process is termed "sulfate reduction" and results in the production of sulfide. At higher concentrations, sulfate (and nitrate) may compete with the reductive pathway. Relative amounts of sulfate provide additional lines of evidence of reducing conditions in the aquifer and provide data on changing aquifer conditions. Concentrations of sulfate greater than 20 mg/L may cause competitive exclusion of dechlorination. However, reductive dechlorination still occurs in plumes with high concentrations of sulfate (USEPA, 1998). Sulfate concentrations were measured in the groundwater during each of the Year Nine monitoring events and were found to range between non-detect and 140 mg/L, very similar to the monitoring results from Years Two through Eight. Some of these concentrations are greater than 20 mg/L, but sulfate reduction could still take place.

6.2.8 Total Organic Carbon

TOC concentrations greater than 20 mg/L are considered adequate to support microbial activity. For the Year Nine monitoring, TOC concentrations ranged from 0.00 mg/L (non-detect) to 0.97 mg/L, suggesting a still unfavorable environment. TOC concentrations in Year Eight ranged from 0.00 mg/L (non-detect) to 1.2 mg/L.

6.2.9 Specific Conductivity

Specific conductivity is the indirect measure of the presence of dissolved solids such as chloride, nitrate, sulfate, and Fe, all degradation by-products. **Figure 6-5** provides a time series plot of CT and chloroform concentrations relative to specific conductivity readings for monitoring wells 48MW2 and 48MW3 for Years One through Nine. **Figure 6-6** provides a time series plot of TCE and cis-1,2-DCE concentrations relative to specific conductivity readings for monitoring wells

48MW2 and 48MW3 for Years One through Nine. As with MNA Year Two through Year Nine results, data suggest that TCE and CT contaminants are biodegrading, and more dissolved inorganic ions (such as chlorides, nitrates, sulfates, and Fe) are creating the electrical current witnessed in the specific conductivity readings. Data also suggest that organic compounds do not carry current and, therefore, have almost no conductivity (USACE, 1999). No direct trend in specific conductivity from Years One through Nine is evident.

6.3 MNA DATA TRENDS

Figures 6-7 and **6-8** provide time series plots of MNA indicators sulfate, nitrate, chloride, TOC, ethene, and methane in source monitoring wells 48MW2 and 48MW3 for Years One through Nine. Sulfate concentrations are rather consistent in monitoring well 48MW2 but had a large increase in monitoring well 48MW3 in Year Eight as compared to the previous 2 years and Year 9. Nitrate concentrations remain relatively stable in both monitoring wells 48MW2 and 48MW3. Chloride concentrations in both monitoring wells appear to have had only minor fluctuations over time, whereas TOC concentrations continue to fluctuate slightly. Methane concentrations have shown wide fluctuations in monitoring well 48MW2 over the past 5 years.

Figure 6-9 provides a time series plot of water quality parameters (DO, Fe, and ORP) in monitoring wells 48MW2 and 48MW3 for Years One through Nine. The time series plot shows that the individual trends for DO, Fe, and ORP are relatively consistent in monitoring wells 48MW2 and 48MW3 except for one event in 2020 due to a large increase in DO in monitoring well 48MW2.

Monitoring wells 48MW3, 48MW6, 13MW2, and 50MW2 appear to carry more of the dissolved solids, with high conductivity readings ranging from 625 to 647 µS/cm, 572 to 684 µS/cm, 639 to 697 µS/cm, and 641 to 786 µS/cm, respectively. Biodegradation consumes sulfate and nitrate and produces alkalinity. Chloride is the ion that is formed during dechlorination that takes place in an anaerobic reduction zone. Chloride concentrations are fluctuating among all wells. Chloride concentrations are impacted by more aerobic conditions and would be increasing; however, chloride concentrations are generally stable. Nitrate concentrations appear to be stable at monitoring well 48MW2. Ethane and ethene went undetected in both events at monitoring well 48MW2.

Table 6-1 SWMU 49 CT and TCE Semiannual Concentrations

Parameter	Units	RG	August 2024 (Event 29)	December 2024 (Event 30)
13MW2				
Carbon Tetrachloride	µg/L	5	ND	ND
Trichloroethene	µg/L	5	ND	ND
13MW3				
Carbon Tetrachloride	µg/L	5	3.4	2.0
Trichloroethene	µg/L	5	0.63	ND
13MW4				
Carbon Tetrachloride	µg/L	5	ND	ND
Trichloroethene	µg/L	5	0.83	ND
13MW5				
Carbon Tetrachloride	µg/L	5	A	ND
Trichloroethene	µg/L	5	A	ND
48MW6				
Carbon Tetrachloride	µg/L	5	ND	ND
Trichloroethene	µg/L	5	ND	1.4
48MW7				
Carbon Tetrachloride	µg/L	5	A	ND
Trichloroethene	µg/L	5	A	ND
48MW1				
Carbon Tetrachloride	µg/L	5	ND	ND
Trichloroethene	µg/L	5	0.86	0.85
48MW2				
Carbon Tetrachloride	µg/L	5	**10**	**36**
Trichloroethene	µg/L	5	1.2	3.4
48MW3				
Carbon Tetrachloride	µg/L	5	**86**	**76**
Trichloroethene	µg/L	5	**16**	**14**
49MW01				
Carbon Tetrachloride	µg/L	5	1.3	1.9
Trichloroethene	µg/L	5	ND	ND
49MW02				
Carbon Tetrachloride	µg/L	5	ND	ND
Trichloroethene	µg/L	5	ND	ND
49MW03				
Carbon Tetrachloride	µg/L	5	A	ND
Trichloroethene	µg/L	5	A	ND
49MW04				
Carbon Tetrachloride	µg/L	5	0.60	0.48
Trichloroethene	µg/L	5	ND	ND
49MW05				
Carbon Tetrachloride	µg/L	5	A	ND
Trichloroethene	µg/L	5	A	ND
50MW2				
Carbon Tetrachloride	µg/L	5	0.64	0.48
Trichloroethene	µg/L	5	0.98	0.93

Notes:
bold values = above remedial goals
µg/L = microgram(s) per liter A = sampled annually ND = non-detect RG = remedial goal

Figure 6-1 SWMU 49 Twenty-Ninth Event CT to Chloroform Correlation

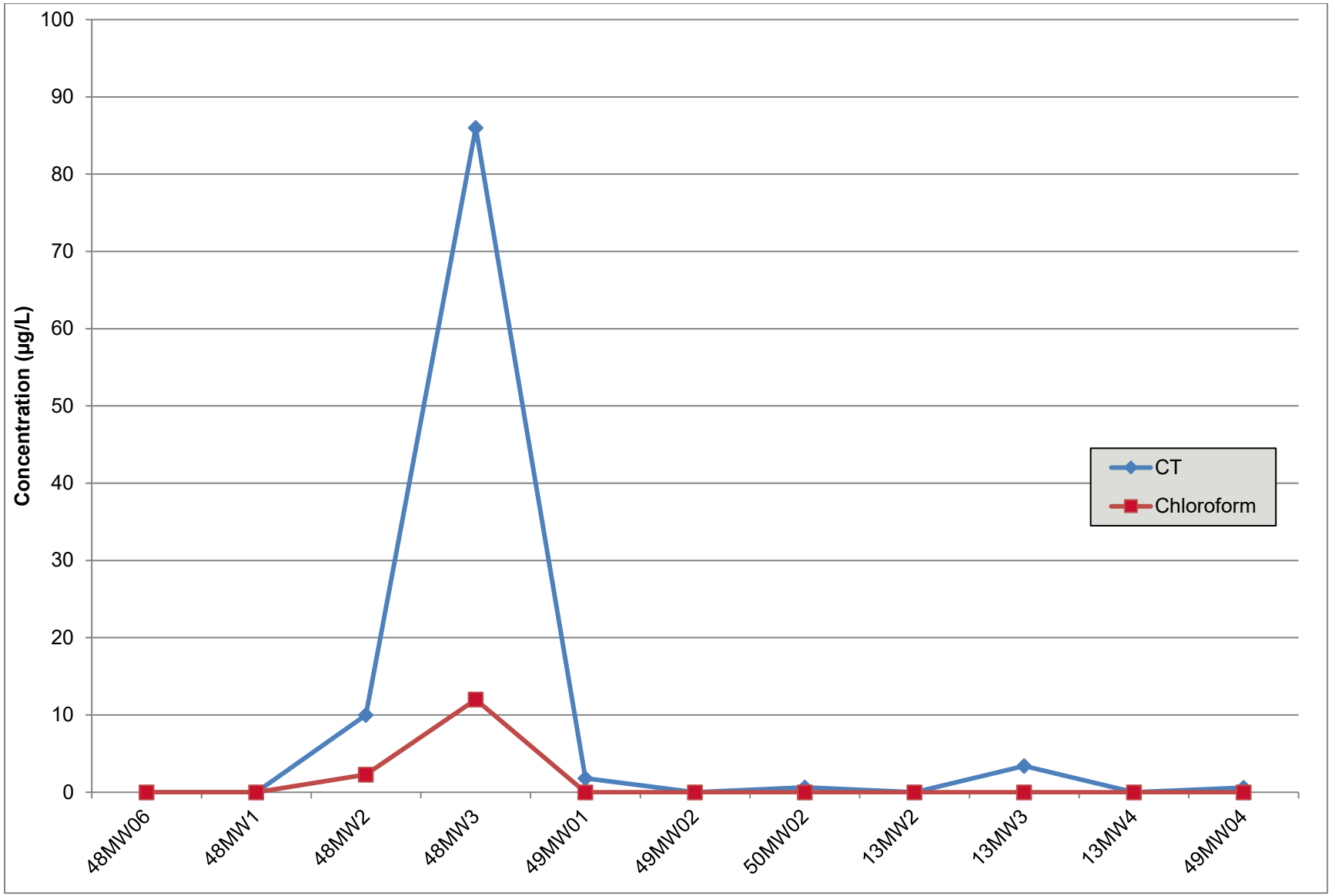


Figure 6-2 SWMU 49 Twenty-Ninth Event TCE to cis-1,2-DCE Correlation

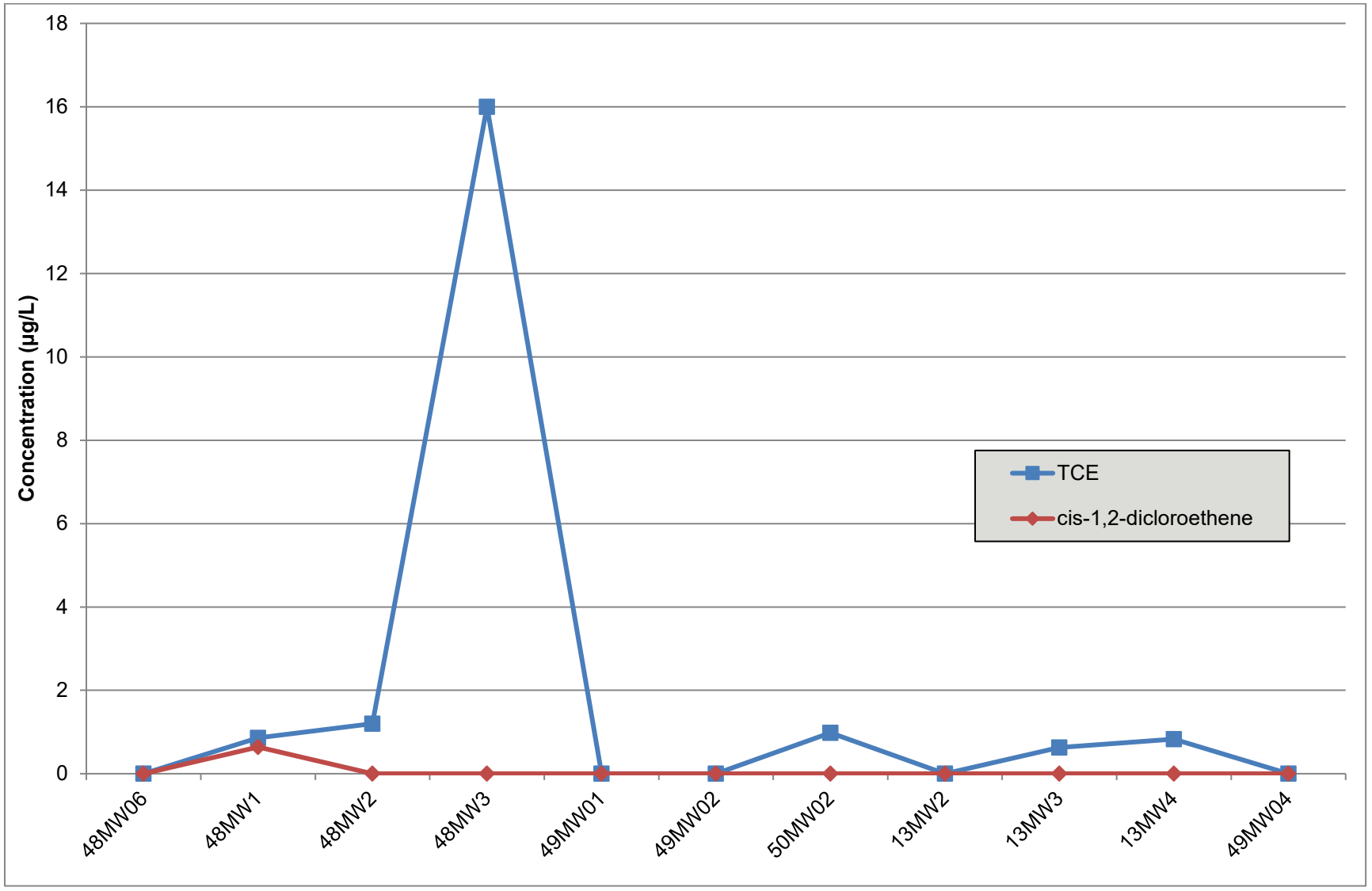


Figure 6-3 SWMU 49 Thirtieth Event CT to Chloroform Correlation

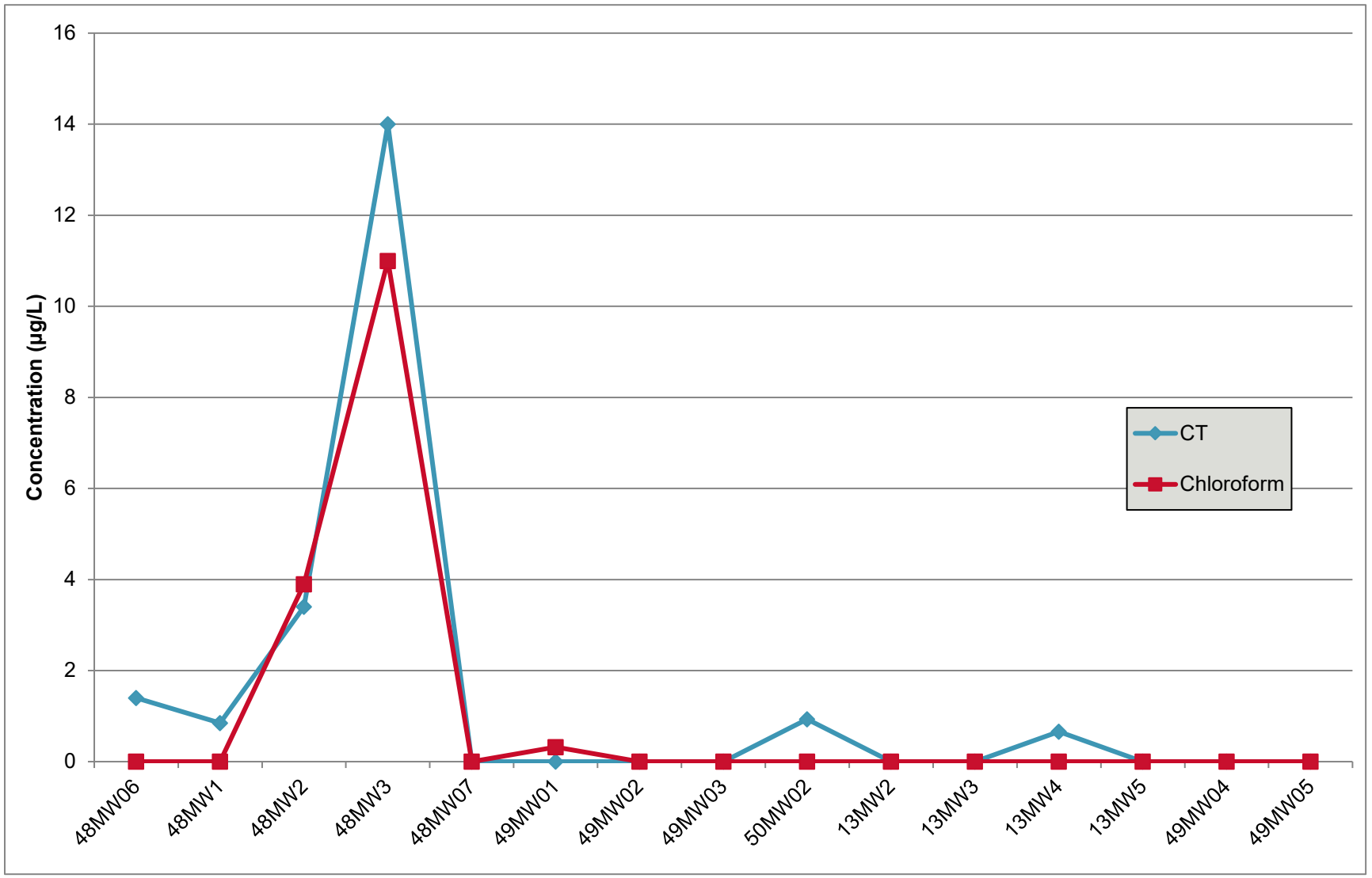


Figure 6-4 SWMU 49 Thirtieth Event TCE to cis-1,2-DCE Correlation

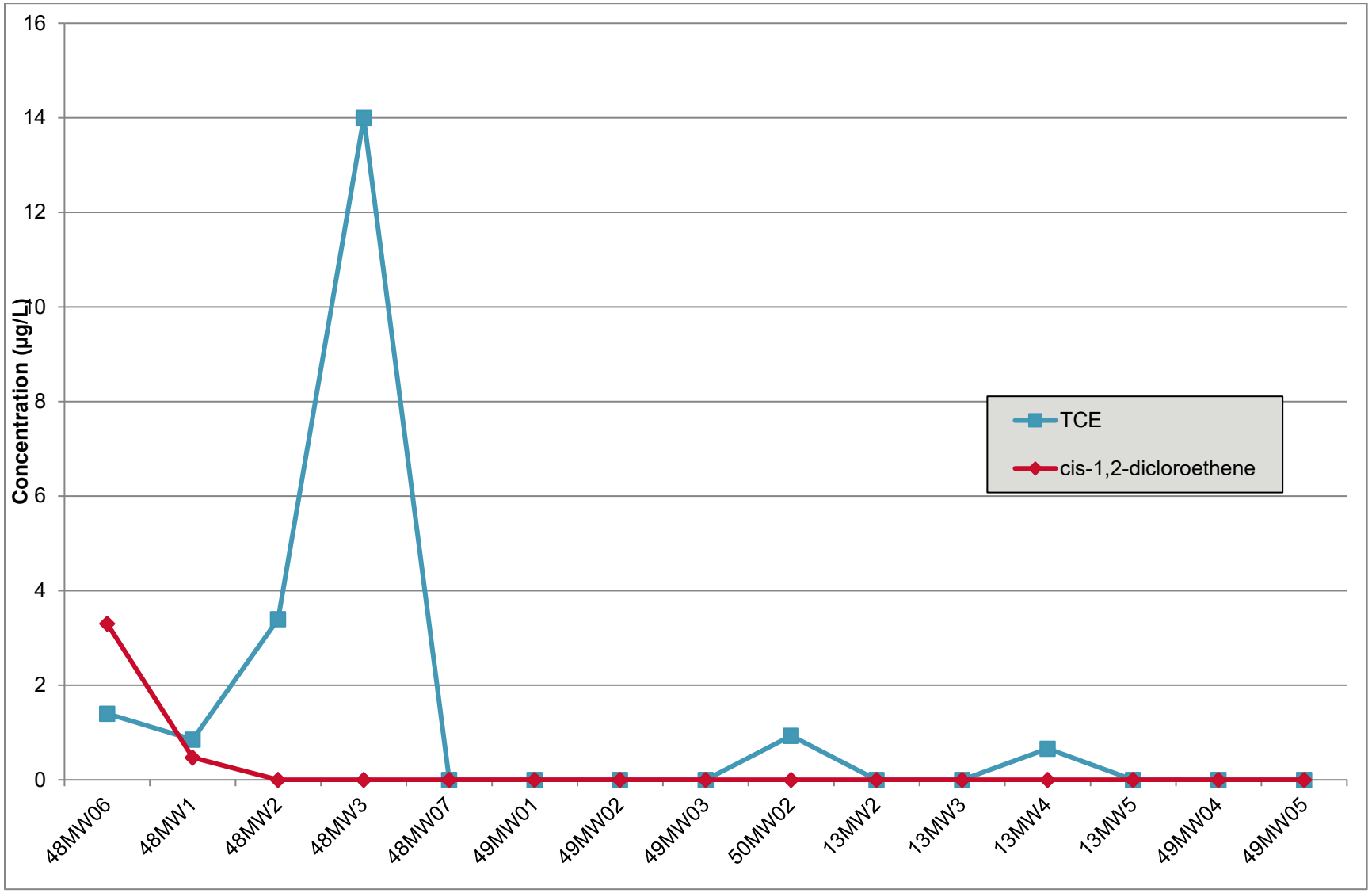


Figure 6-5 CT and Chloroform Concentration Trends Relative to Specific Conductivity 48MW2 and 48MW3

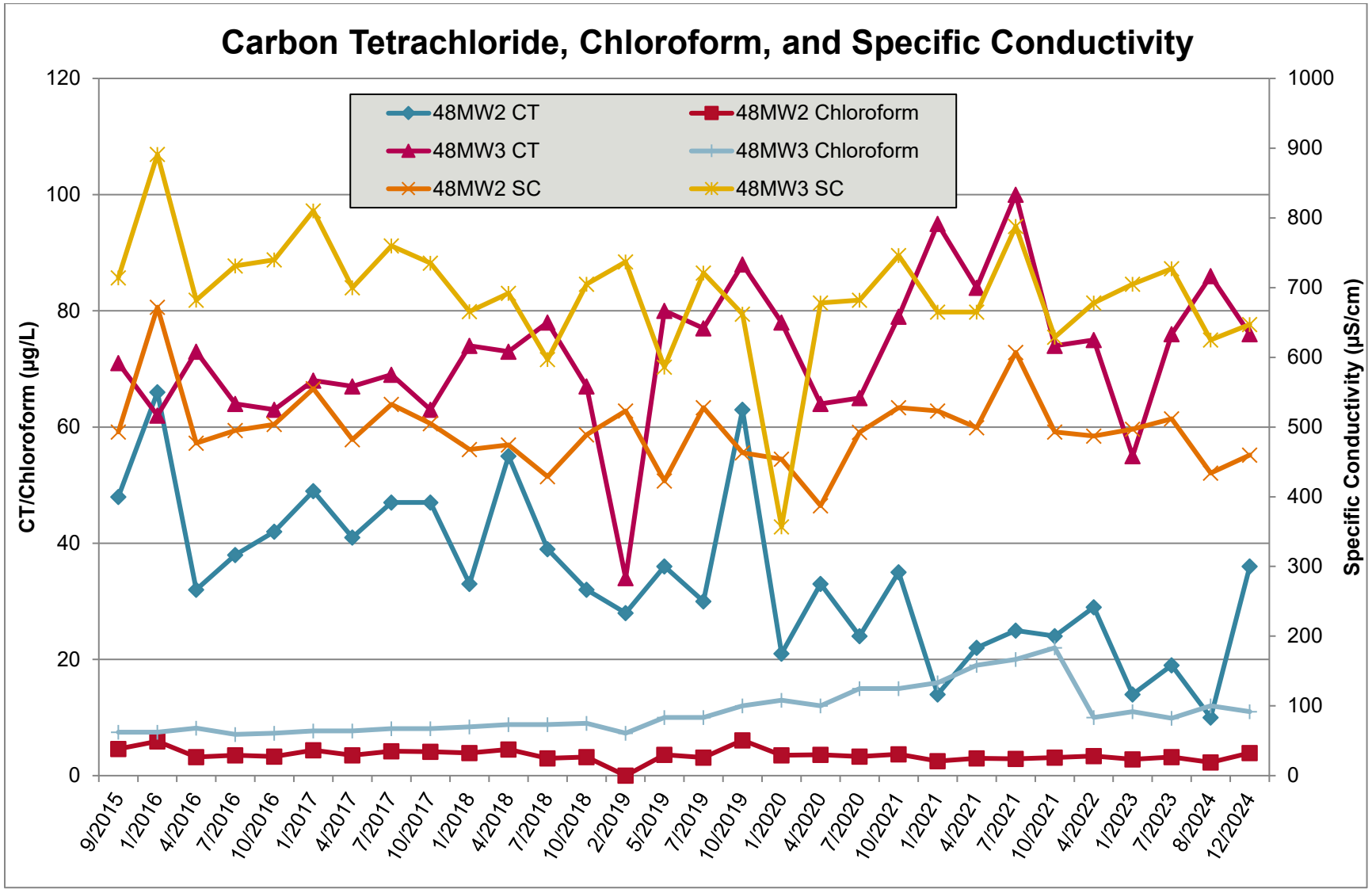


Figure 6-6 TCE and cis-1,2-DCE Concentration Trends Relative to Specific Conductivity 48MW2 and 48MW3

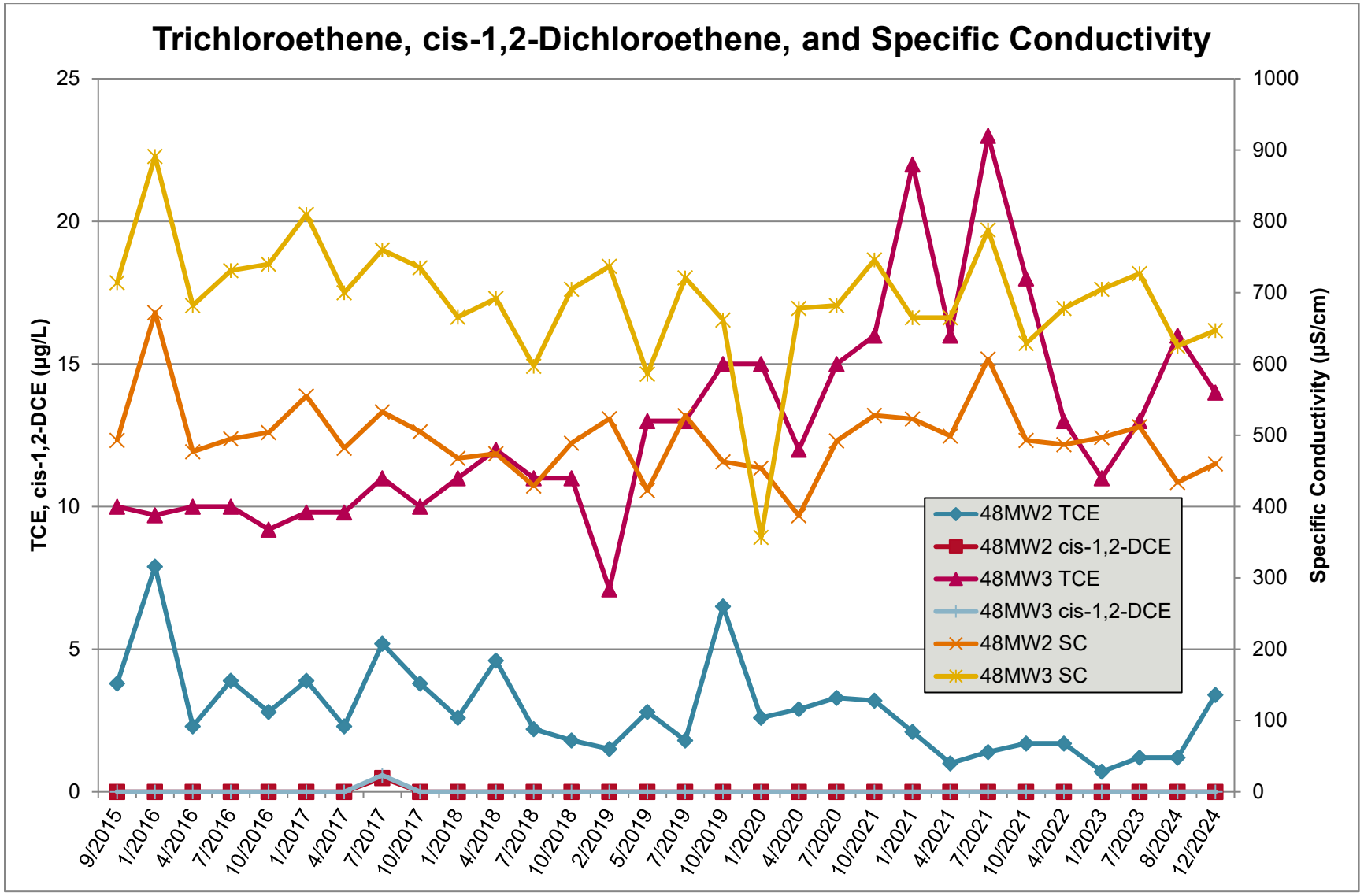


Figure 6-7 48MW2 MNA Indicators Years One through Nine

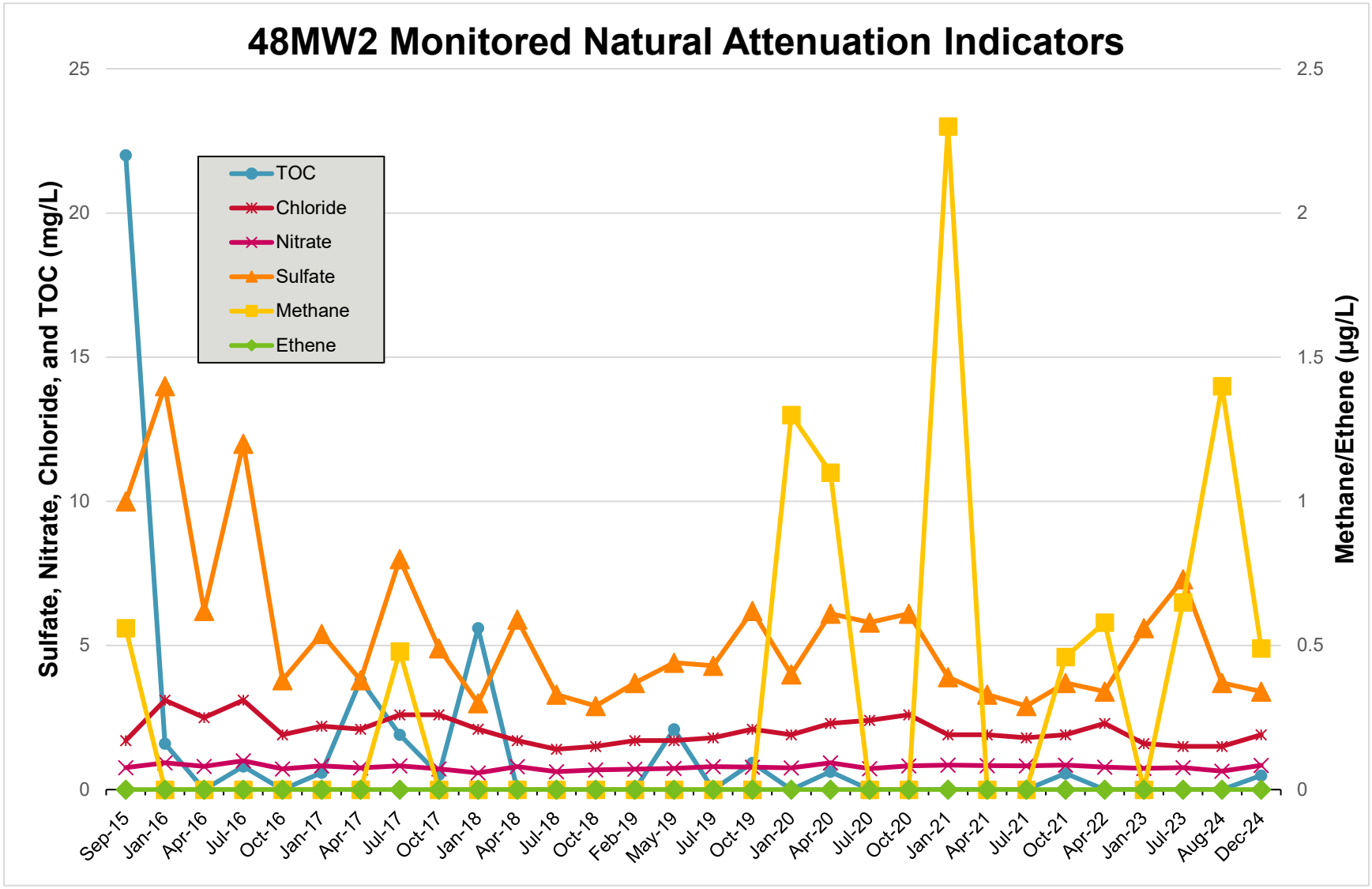


Figure 6-8 48MW3 MNA Indicators Years One through Nine

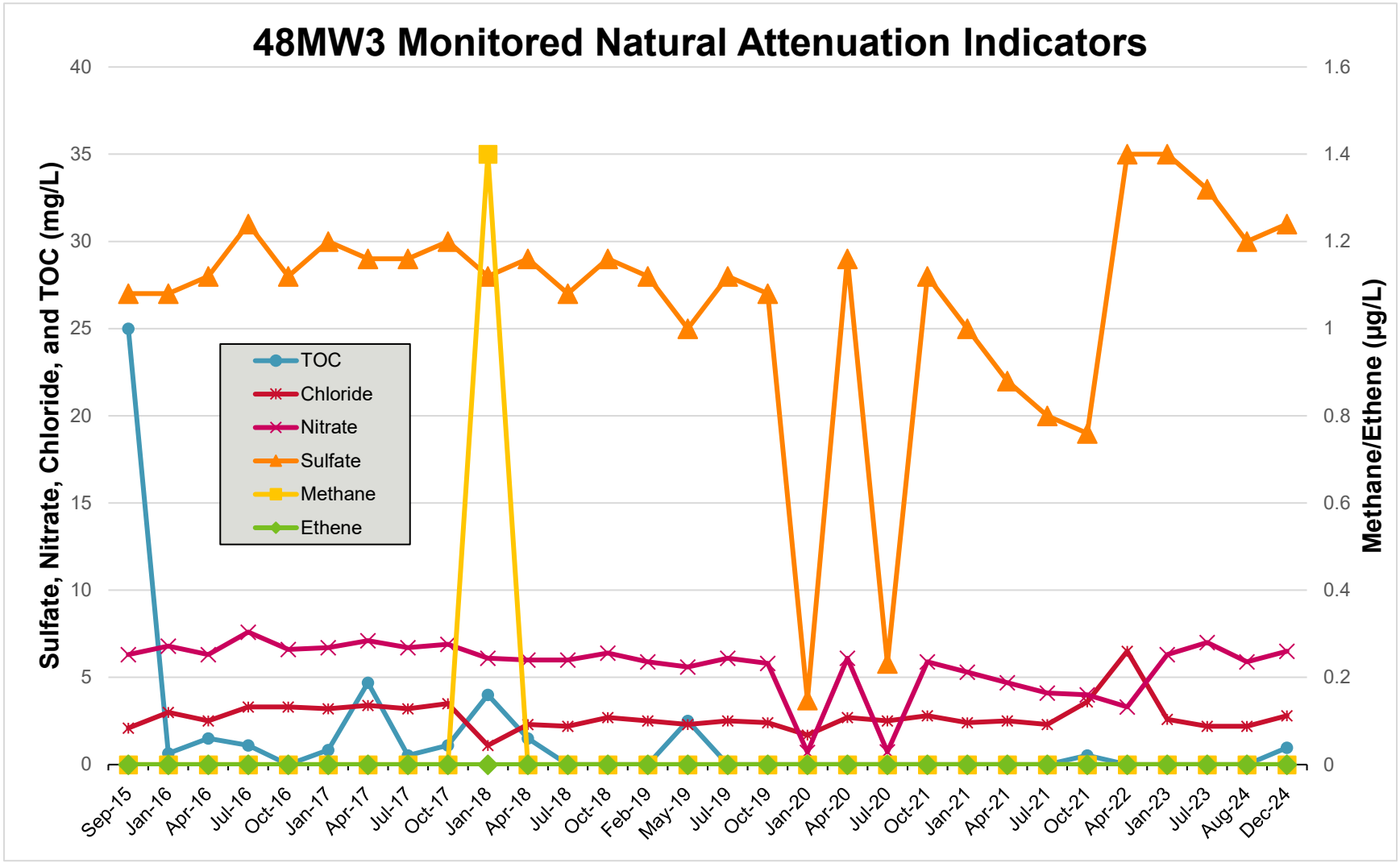
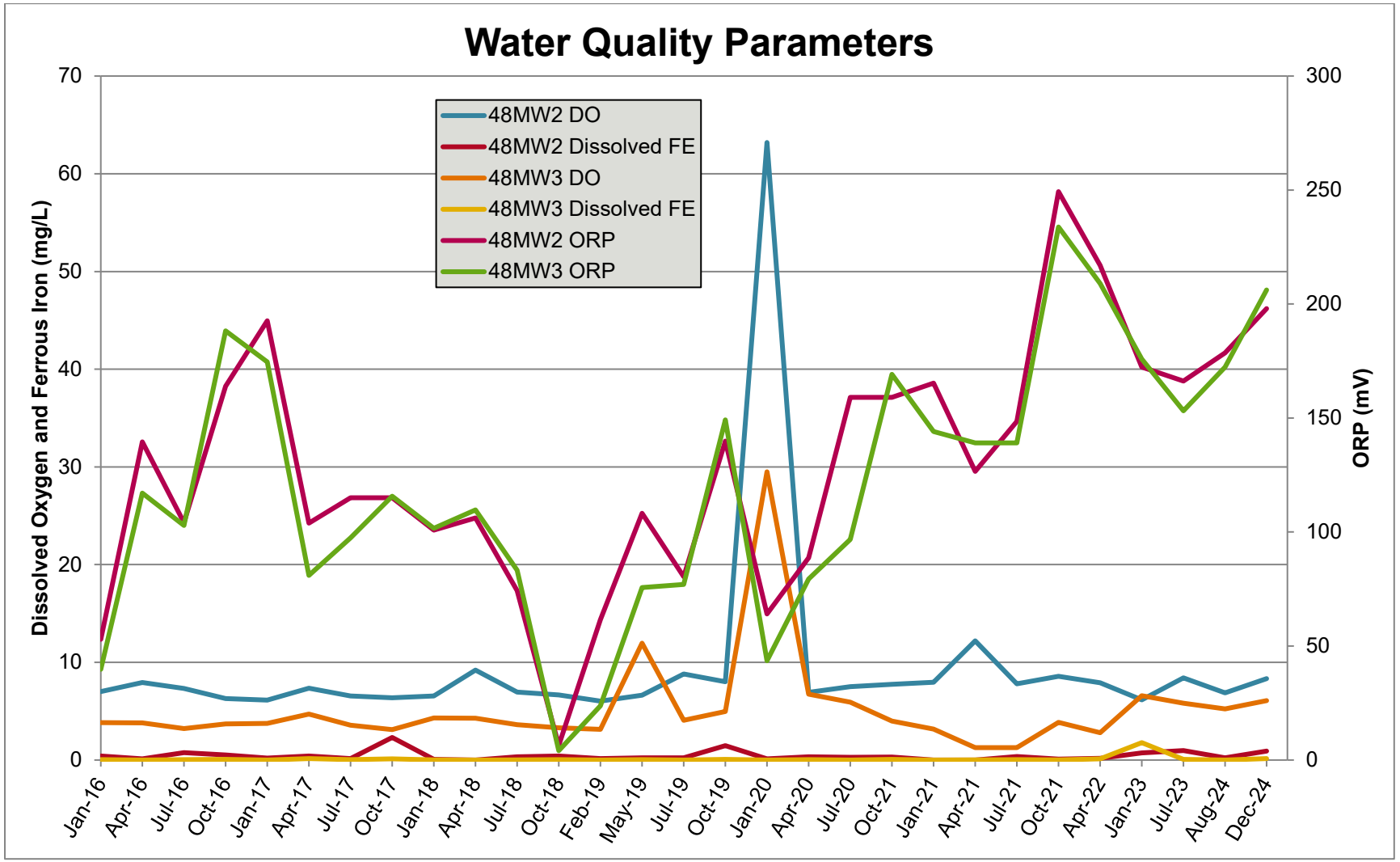


Figure 6-9 Water Quality Parameters 48MW2 and 48MW3 Years One through Nine



7. SUMMARY AND CONCLUSIONS

Eleven groundwater monitoring wells were sampled on a semiannual (August and December 2024 events) basis during the Year Nine monitoring at SWMU 49, and four more were sampled on an annual basis (December 2024 event). The two semiannual events of sample data suggest that CT and TCE concentrations are increasing in some wells and decreasing in others, as has been shown historically. CT and TCE remain in exceedance of the RGs. The CT contaminant plume remains centered around monitoring wells 48MW2 and 48MW3, although detections were observed downgradient along the New River at monitoring well 13MW3 during both events.

TCE was detected in both events at monitoring wells 48MW1, 48MW2, 48MW3, and 50MW2, with both detections at 48MW3 above the RG. Further, TCE was detected at monitoring wells 13MW3 and 13MW4, which are located downgradient and adjacent to the New River. Concentrations at these two downgradient wells were below the RG for TCE.

Based on the presence of chloroform in about half of the wells where CT was observed, it appears that CT is continuing to degrade. The data suggest that MNA processes may still be decreasing mass; however, CT concentrations have been variable but generally stable for the past 4 years in monitoring wells 48MW3 and 48MW2. The data suggest that the correlation of cis-1,2-DCE to TCE is not as prevalent as an indicator of degradation. TCE concentrations have been slightly variable but stable in most wells over the last 4 years.

In summary, the following conclusions and recommendations are made regarding the potential for MNA in contaminated groundwater at SWMU 49:

- The presence of chloroform suggests that degradation is occurring, which may be aiding in removing CT mass in the groundwater.
- The breakdown product, cis-1,2-DCE, is present at the site, although no substantive correlation continues to exist with TCE. TCE concentrations have increased at monitoring well 48MW2 from Year Eight to Year Nine but remained relatively stable at monitoring well 48MW3.
- Geochemical parameters also indicate that groundwater conditions are currently aerobic (based on DO and ORP levels) and that pH and TOC levels are adequate to promote microbial degradation. Although geochemical conditions are generally unfavorable for anaerobic degradation of VOCs, it appears that some limited microbial activity is present.

- Based on the MNA results presented in the SWMU 49 MNA Sampling Baseline Report (CB&I, 2015), other MNA processes including sorption, dilution, dispersion, and chemical stabilization are likely occurring in groundwater at the SWMU 49 study area. Conditions appear favorable that these processes will not significantly change or diminish and will continue to contribute to attenuation of the contaminants at SWMU 49.

- Because the groundwater flow pattern is consistent with the historical pattern, the monitoring well network appears adequate to monitor MNA at SWMU 49.

- Based on the consistency of the data indicating low level VOC concentrations and primarily decreasing concentrations based on statistical trends, it is recommended that sampling continue on a semiannual basis at the 11 monitoring well locations and on an annual basis for 4 additional monitoring well locations.

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APPENDIX A-1
FIELD SAMPLING LOGS

WELL EVACUATION/SAMPLING FORM

GENERAL INFORMATION

Radford Army Ammunition Plant SWMUs 49 & 54	Date: 8/19/24
Well ID: 13MW4	Weather: 74° Sunny
Sampling Team: Paul Taylor, Yoko Miyazawa	Sampler's Signature:

WELL INSPECTION

Protective Casing: (Intact)/Damaged	Well ID Tag Condition: Good
Locked: (YES) NO	Measuring Point Marked: (YES) / NO
Concrete Base: (Intact)/Damaged	Comments:
Casing Diameter: ½ in., ¾ in., 1 in., 1 ½, 2 in., 3 in., (4 in.), 6 in., 8 in.	

WELL EVACUATION INFORMATION

Total Depth (feet Below Top of Casing = ft. BTOC): 25.35	Well Evacuation Method (peristaltic, bladder pump, other):
Depth to Water (ft. BTOC): 17.36	Screen Interval (ft. BGS): 20-25
Begin Well Evacuation (Time): 0933	Evacuation Rate (Lpm): 0.2 Lpm
Stop Evacuation (Time/Reason): ~~1025~~ 4m	Restart Time:
	Headspace (ppm): 0.0

INDICATOR PARAMETERS

Time: (5-minute intervals)	Volume Purged (L):	Depth to Water (ft. BTOC):	Temperature (°C): (3%)	Specific Conductivity (µS/cm): (3%)	D.O. (mg/L): (10%)	pH: (±0.1)	ORP (mV): (±10 mV)	Turbidity (NTU): (10%)
0938	1.0 ~~0.7~~ 4m	17.33	15.1	523.9	0.42	7.25	220.7	1.89
0943	2.0	17.33	15.0	523.9	0.33	7.26	218.3	1.95
0948	3.0	17.34	15.1	523.1	0.32	7.26	213.6	0.89
0953	4.0	17.34	15.2	523.7	0.32	7.27	206.9	1.37
0958	5.0	17.34	15.3	523.5	0.37	7.28	200.5	1.69
1003	6.0	17.35	15.0	523.0	0.41	7.28	194.6	0.98

Red font indicates stabilization criteria to be achieved over three consecutive readings.

Final Depth to Water (ft. BTOC): 17.35	Drawdown Observed (ft): 0.01
Odor: YES / (NO)	Well Pumped Dry: YES / (NO)
End Well Evacuation (Time): 1025	Total Volume Purged (L): 6.0

SAMPLE COLLECTION INFORMATION

Sample ID: 13MW4	PARAMETERS (Circle all applicable):
Sample Date & Time: 8/19/24 1008	(SWMU 49): VOCs, MEE, Chloride/Nitrate/Sulfate, TOC, Ferrous Fe, & Mn
Duplicate Sample ID: —	SWMU 54: Explosives, Perchlorate, Chlorate/Chlorite, Chloride/Nitrate/Sulfate, TIC, TOC, Ferrous Fe, & Mn
Manganese (mg/L): 1.4	Sample Collection Method: (Low Flow) Other:
Ferrous Iron (mg/L): 0.07	Sample Collection Depth (ft. BTOC): 25.0

COMMENTS

MS/MSD collected

WELL EVACUATION/SAMPLING FORM

GENERAL INFORMATION

Radford Army Ammunition Plant SWMUs 49 & 54	Date 8/19/24
Well ID 13 MW3	Weather 76° Sunny
Sampling Team Paul Taylor, Yoko Miyakawa	Sampler's Signature

WELL INSPECTION

Protective Casing (Intact)/Damaged	Well ID Tag Condition Good
Locked (YES) / NO	Measuring Point Marked (YES) NO
Concrete Base (Intact)/Damaged	Comments
Casing Diameter ½ in , ¾ in , 1 in , 1 ½, 2 in , 3 in (4 in), 6 in , 8 in	

WELL EVACUATION INFORMATION

Total Depth (feet Below Top of Casing = ft BTOC) 22.96	Well Evacuation Method (peristaltic, bladder pump, other)
Depth to Water (ft BTOC) 15.47	Screen Interval (ft BGS) 15 - 20
Begin Well Evacuation (Time) 1100	Evacuation Rate (Lpm) 0.25 Lpm
Stop Evacuation (Time/Reason)	Restart Time
	Headspace (ppm) 0.0

INDICATOR PARAMETERS

Time: (5-minute intervals)	Volume Purged (L):	Depth to Water (ft. BTOC):	Temperature (°C): (3%)	Specific Conductivity (µS/cm): (3%)	D.O. (mg/L): (10%)	pH: (±0.1)	ORP (mV): (±10 mV)	Turbidity (NTU): (10%)
1105	1.25	15.48	16.4	552.0	3.51	7.03	102.5	1.33
1110	2.50	15.51	16.2	552.3	3.57	7.03	94.1	0.73
1115	3.75	15.50	16.3	551.4	3.62	7.03	79.2	0.10
1120	5.0	15.48	16.4	549.0	3.69	7.04	64.3	0.01
1125	6.25	15.48	16.2	549.9	3.70	7.04	57.6	0.45
1130	7.5	15.48	16.3	549.0	3.68	7.05	59.2	1.63

Red font indicates stabilization criteria to be achieved over three consecutive readings

Final Depth to Water (ft BTOC) 15.48	Drawdown Observed (ft) None
Odor (YES) / NO Slight Sulfur odor	Well Pumped Dry YES / (NO)
End Well Evacuation (Time) 1145	Total Volume Purged (L) 7.5 L

SAMPLE COLLECTION INFORMATION

Sample ID 13MW3	PARAMETERS (Circle all applicable)
Sample Date & Time 8/19/24 1135	(SWMU 49) VOCs, MEE, Chloride/Nitrate/Sulfate, TOC, Ferrous Fe, & Mn
Duplicate Sample ID 13TW3	SWMU 54 Explosives, Perchlorate, Chlorate/Chlorite, Chloride/Nitrate/Sulfate, TIC, TOC, Ferrous Fe, & Mn
Manganese (mg/L) 0.9	Sample Collection Method (Low Flow) Other
Ferrous Iron (mg/L) 0.06	Sample Collection Depth (ft BTOC) 21.96

COMMENTS

FD collected

WELL EVACUATION/SAMPLING FORM

GENERAL INFORMATION

Radford Army Ammunition Plant SWMUs 49 & 54	Date 8/19/24
Well ID 49MW04	Weather 82°, Sunny, rainy around 1225
Sampling Team Paul Taylor, Yoko Miyakawa	Sampler's Signature

WELL INSPECTION

Protective Casing (Intact) Damaged	Well ID Tag Condition OK
Locked (YES) NO	Measuring Point Marked (YES) NO
Concrete Base (Intact) Damaged	Comments only labeled on casing
Casing Diameter ¼ in, ½ in, 1 in, 1¼ in, (2 in), 3 in, 4 in, 6 in, 8 in	

WELL EVACUATION INFORMATION

Total Depth (Feet Below Top of Casing - ft BTOC) 72.82	Well Evacuation Method (peristaltic) bladder pump, other)
Depth to Water (ft BTOC) 21.19	Screen Interval (ft BGS) 65-70
Begin Well Evacuation (Time) 1215	Evacuation Rate (Lpm) 0.200 Lpm
Stop Evacuation (Time/Reason)	Restart Time
	Headspace (ppm) 0.0

INDICATOR PARAMETERS

Time: (5-minute intervals)	Volume Purged (L):	Depth to Water (ft. BTOC):	Temperature (°C): (3%)	Specific Conductivity (µS/cm): (3%)	D.O. (mg/L): (10%)	pH: (±0.1)	ORP (mV): (±10 mV)	Turbidity (NTU): (10%)
1220	1L	23.00	14.2	617.0	0.60	7.32	68.5	3.42
1225	2L	23.75	14.3	614.0	0.60	7.32	72.8	5.97
1230	3L	24.45	13.9	618.4	0.66	7.32	76.8	4.70
1235	4L	25.48	13.8	613.0	0.63	7.32	78.8	3.44
1240	5L	26.12	14.3	610.7	0.69	7.31	79.8	2.47

Red font indicates stabilization criteria to be achieved over three consecutive readings

Final Depth to Water (ft BTOC) 26.12	Drawdown Observed (ft) 4.93
Odor YES (NO)	Well Pumped Dry YES (NO)
End Well Evacuation (Time) ~~1250~~ 1255	Total Volume Purged (L) 5L

SAMPLE COLLECTION INFORMATION

Sample ID 49MW04	PARAMETERS (Circle all applicable)
Sample Date & Time 8/19/24 1245	(SWMU 49) VOCs, MEE, Chloride/Nitrate/Sulfate, TOC, Ferrous Fe, & Mn
Duplicate Sample ID —	SWMU 54 Explosives, Perchlorate, Chlorate, Chlorite, Chloride/Nitrate Sulfate, TIC, TOC, Ferrous Fe, & Mn
Manganese (mg/L) 2.0	Sample Collection Method (Low Flow) Other
Ferrous Iron (mg/L) 0.06	Sample Collection Depth (ft BTOC) 72.3

COMMENTS

WELL EVACUATION/SAMPLING FORM

GENERAL INFORMATION

Radford Army Ammunition Plant SWMUs 49 & 54	Date 8/19/24
Well ID 13 MW2	Weather 84° mostly sunny
Sampling Team Paul Taylor, Yoko Miyakawa	Sampler's Signature

WELL INSPECTION

Protective Casing (Intact) Damaged	Well ID Tag Condition Good
Locked (YES) NO	Measuring Point Marked (YES) NO
Concrete Base (Intact) Damaged	Comments
Casing Diameter ¼ in, ½ in, 1 in, 1½, 2 in, 3 in (4 in) 6 in, 8 in	

WELL EVACUATION INFORMATION

Total Depth (feet Below Top of Casing - ft BTOC) 30.45	Well Evacuation Method (peristaltic) bladder pump other)
Depth to Water (ft BTOC) 21.96	Screen Interval (ft BGS) 25-30
Begin Well Evacuation (Time) 1330	Evacuation Rate (Lpm) 0.2
Stop Evacuation (Time/Reason)	Restart Time
	Headspace (ppm) 0.0

INDICATOR PARAMETERS

Time: (5-minute intervals)	Volume Purged (L):	Depth to Water (ft. BTOC):	Temperature (°C): (3%)	Specific Conductivity (µS/cm): (3%)	D.O. (mg/L): (10%)	pH: (±0.1)	ORP (mV): (±10 mV)	Turbidity (NTU): (10%)
1335	1L	22.26	14.6	642	3.81	7.15	133.6	0.80
1340	2L	22.44	14.4	642	3.89	7.15	134.8	0.55
1345	3L	22.62	14.5	639	4.06	7.15	136.0	0.67

Red font indicates stabilization criteria to be achieved over three consecutive readings

Final Depth to Water (ft BTOC) 22.62	Drawdown Observed (ft) 0.66
Odor YES (NO)	Well Pumped Dry YES (NO)
End Well Evacuation (Time) 1400	Total Volume Purged (L) 3L

SAMPLE COLLECTION INFORMATION

Sample ID 13 MW2	PARAMETERS (Circle all applicable)
Sample Date & Time 8/19/24 1350	(SWMU 49) VOCs, MEE, Chloride/Nitrate/Sulfate, TOC, Ferrous Fe, & Mn
Duplicate Sample ID —	SWMU 54 Explosives, Perchlorate, Chlorate/Chlorite, Chloride/Nitrate/Sulfate, TIC, TOC, Ferrous Fe & Mn
Manganese (mg/L) 1.0	Sample Collection Method (Low Flow) Other
Ferrous Iron (mg/L) 0.03	Sample Collection Depth (ft BTOC)

COMMENTS

Synoptic Water Level Measurements

Radford Army Ammunition Plant SWMUs 49 & 54

Radford AAP, Virginia

Well Identification	Date	Time	Headspace Reading (ppm)	Depth to Water (ft BTOC)	Total Well Depth (ft BTOC)	Notes/Field Observations
SWMU 49						
13MW2	8/19/24	1320	0.0	21.96	30.45	Soft bottom
13MW3	8/19/24	0942	0.0	15.47	22.46	buildup/root mass over pump inside well, + slight sulfur smell
13MW4	8/19/24	0918	0.0	17.36	25.35	
13MW5	8/19/24	0905	0.0	17.27	25.34	Soft bottom
49MW04	8/19/24	~~1205~~ ~~0918~~	~~0.0~~ ~~0.0~~	~~21.19~~ ~~17.36~~	~~72.82~~ ~~25.35~~	Soft bottom
49MW05	8/19/24	1420 ~~0905~~	0.0 ~~0.0~~	20.39 ~~17.27~~	39.49 ~~25.34~~	Soft bottom ~~Soft bottom~~
48MW1						
48MW2						
48MW3						
48MW6						
48MW7						
49MW01						
49MW02						
49MW03						
50MW2						
SWMU 54						
54MW1						
54MW10						
54MW12						
54MW13						

Key: ppm = parts per million ft = feet TOC = top of casing BTOC = below top of casing

CAPE

320-16 WASTE INVENTORY SUMMARY

Contract Number	W912DR19D0004	DO/TO No:	W912DR24F0222	CAPE Project #	10409-0222-002-003	Project Location	RAAP, Radford, VA

Process Generating Waste	*Groundwater produced through purging and sampling the monitoring wells. IDW water from SWMU 48/49 is captured and maintained separately from SWMU 54 IDW water throughout the handling process.*

Load Number	Date	Description	Quantity (TNS or GAL)	Waste Classification	Receiving Disposal Facility	Method of Disposal	Date of Disposal or Destruction
1	8/19/24	IDW waste from SWMU 49	7 gal	Pending Analysis			
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							

TOTAL QUANTITY:	Page 1 of 1	0.00

WELL EVACUATION/SAMPLING FORM

GENERAL INFORMATION

Radford Army Ammunition Plant SWMUs 49 & 54	Date 8/21/24
Well ID 48MW6	Weather 55° Sunny/HAZY
Sampling Team P. Taylor, Y. Miyakawa	Sampler's Signature

WELL INSPECTION

Protective Casing (Intact)/Damaged	Well ID Tag Condition ~~Good~~ Not labeled
Locked (YES) NO	Measuring Point Marked ~~(YES)~~ (NO)
Concrete Base (Intact)/Damaged	Comments Needs Redeveloped.
Casing Diameter ½ in, ¾ in, 1 in, 1 ½, (2 in), 3 in, 4 in, 6 in, 8 in	

WELL EVACUATION INFORMATION

Total Depth (feet Below Top of Casing = ft BTOC) 79.75	Well Evacuation Method (peristaltic, (bladder pump), other)
Depth to Water (ft BTOC) 66.62	Screen Interval (ft BGS) 75-80
Begin Well Evacuation (Time) 0920	Evacuation Rate (Lpm) 0.04 L/m
Stop Evacuation (Time/Reason)	Restart Time
	Headspace (ppm) 0.0

INDICATOR PARAMETERS

Time: (5-minute intervals)	Volume Purged (L):	Depth to Water (ft. BTOC):	Temperature (°C): (3%)	Specific Conductivity (µS/cm): (3%)	D.O. (mg/L): (10%)	pH: (±0.1)	ORP (mV): (±10 mV)	Turbidity (NTU): (10%)
0930	0.4	65.98	14.5	541.4	8.24	7.60	236.6	137.3
0935	0.6	66.95	14.0	531.2	9.16	8.14	223.8	123.5
0940	0.8	67.10	13.9	541.1	9.39	8.24	216.7	75.76
0945	1.0	66.82	13.8	551.6	9.35	8.28	210.1	41.19
0950	1.2	67.03	14.0	555.4	9.29	8.29	205.1	187.0
0955	1.4	67.01	14.2	559.0	9.21	8.29	201.0	70.51
1000	1.6	67.28	14.1	392.8	9.37	8.23	201.5	213.5
1005	1.8	67.15	14.3	562.1	16.12	8.32	193.3	57.49
1010	2.0	66.84	14.2	567.3	9.83	8.32	189.2	61.55
1015	2.2	67.54	14.2	568.7	9.95	8.32	187.1	89.76
1020	2.4	66.51	14.3	568.1	9.60	8.33	184.6	68.31
1025	2.6	67.43	14.4	570.1	10.36	8.33	181.8	82.33

Red font indicates stabilization criteria to be achieved over three consecutive readings

Final Depth to Water (ft BTOC) 67.41	Drawdown Observed (ft) 0.79
Odor YES (NO)	Well Pumped Dry YES (NO)
End Well Evacuation (Time) 1107	Total Volume Purged (L) 3.2

SAMPLE COLLECTION INFORMATION

Sample ID 48MW6	PARAMETERS (Circle all applicable)
Sample Date & Time 8/21/24 1045	(SWMU 49) VOCs, MEE, Chloride/Nitrate/Sulfate, TOC, Ferrous Fe, & Mn
Duplicate Sample ID —	SWMU 54 Explosives, Perchlorate, Chlorate/Chlorite, Chloride/Nitrate/Sulfate, TIC, TOC, Ferrous Fe, & Mn
Manganese (mg/L) over range - too turbid	Sample Collection Method (Low Flow) Other
Ferrous Iron (mg/L) over range - too turbid	Sample Collection Depth (ft BTOC) 77.75

COMMENTS

Pump set 2' off the bottom, Water level surging w/ pump operation (needed better seal on pump)
Well is not stabilizing, taking the sample.
Needs Redeveloped. - bladder pump packed w/ mud.
Equipment Rinsate Blank collected at 1120 → 48MW6-EQB

WELL EVACUATION/SAMPLING FORM

GENERAL INFORMATION

Radford Army Ammunition Plant SWMUs 49 & 54	Date 8/21/24
Well ID 48MW6 continued	Weather
Sampling Team	Sampler's Signature

WELL INSPECTION

Protective Casing Intact Damaged	Well ID Tag Condition
Locked YES / NO	Measuring Point Marked YES / NO
Concrete Base Intact Damaged	Comments
Casing Diameter ½ in , ¾ in , 1 in , 1 ¼ , 2 in , 3 in , 4 in , 6 in , 8 in	

WELL EVACUATION INFORMATION

Total Depth (feet Below Top of Casing = ft BTOC)	Well Evacuation Method (peristaltic, bladder pump, other)
Depth to Water (ft BTOC)	Screen Interval (ft BGS)
Begin Well Evacuation (Time)	Evacuation Rate (Lpm)
Stop Evacuation (Time/Reason)	Restart Time
	Headspace (ppm)

INDICATOR PARAMETERS

Time: (5-minute intervals)	Volume Purged (L):	Depth to Water (ft. BTOC):	Temperature (°C): (3%)	Specific Conductivity (µS/cm): (3%)	D.O. (mg/L): (10%)	pH: (±0.1)	ORP (mV): (±10 mV)	Turbidity (NTU): (10%)
1030	2.8	67.18	14.4	568.9	9.19	8.33	179.8	145.3
1035	3.0	67.54	15.1	571.2	9.21	8.32	177.6	108.5
1040	3.2	67.41	15.1	571.6	9.70	8.33	175.0	173.1
~~1045~~	~~3.4~~							
~~1050~~	~~3.6~~							

Red font indicates stabilization criteria to be achieved over three consecutive readings

Final Depth to Water (ft BTOC)	Drawdown Observed (ft)
Odor YES / NO	Well Pumped Dry YES / NO
End Well Evacuation (Time)	Total Volume Purged (L)

SAMPLE COLLECTION INFORMATION

Sample ID	PARAMETERS (Circle all applicable)
Sample Date & Time	(SWMU 49) VOCs, MEE, Chloride/Nitrate/Sulfate, TOC, Ferrous Fe, & Mn
Duplicate Sample ID	SWMU 54 Explosives, Perchlorate, Chlorate/Chlorite, Chloride Nitrate Sulfate, TIC TOC, Ferrous Fe, & Mn
Manganese (mg L)	Sample Collection Method Low Flow Other
Ferrous Iron (mg L)	Sample Collection Depth (ft BTOC)

COMMENTS

WELL EVACUATION/SAMPLING FORM

GENERAL INFORMATION

Radford Army Ammunition Plant SWMUs 49 & 54	Date 8/21/24
Well ID 48MW1	Weather 64° Sunny
Sampling Team P. Taylor, Y. Miyazawa	Sampler's Signature

WELL INSPECTION

Protective Casing (Intact) Damaged	Well ID Tag Condition Good
Locked (YES) NO	Measuring Point Marked (YES) NO
Concrete Base (Intact) Damaged	Comments labeled on cap
Casing Diameter ½ in, ¾ in, 1 in, 1 ¼, 2 in, 3 in, (4 in) 6 in, 8 in	

WELL EVACUATION INFORMATION

Total Depth (feet Below Top of Casing = ft BTOC) 147.76	Well Evacuation Method (peristaltic, (bladder pump), other)
Depth to Water (ft BTOC) 109.83	Screen Interval (ft BGS) 135 - 145
Begin Well Evacuation (Time) 1327	Evacuation Rate (Lpm) 0.05 Lpm
Stop Evacuation (Time/Reason)	Restart Time
	Headspace (ppm) 0.0

INDICATOR PARAMETERS

Time: (5-minute intervals)	Volume Purged (L):	Depth to Water (ft. BTOC):	Temperature (°C): (3%)	Specific Conductivity (µS/cm): (3%)	D.O. (mg/L): (10%)	pH: (±0.1)	ORP (mV): (±10 mV)	Turbidity (NTU): (10%)
1332	0.25	109.76	18.6	484.0	21.45	7.62	143.9	294.6
1337	0.5	109.76	19.3	474.0	8.21	7.76	139.9	168.8
1342	0.75	109.88	18.4	461.4	8.39	7.88	136.1	173.0
1347	1.0	109.83	18.1	458.3	8.37	7.90	134.0	187.2
1352	1.25	109.87	18.4	453.4	8.23	7.91	133.1	184.9

Red font indicates stabilization criteria to be achieved over three consecutive readings

Final Depth to Water (ft BTOC) 109.87	Drawdown Observed (ft) 0.04
Odor YES (NO)	Well Pumped Dry YES (NO)
End Well Evacuation (Time) 1445	Total Volume Purged (L) 1.25 L

SAMPLE COLLECTION INFORMATION

Sample ID 48MW1	PARAMETERS (Circle all applicable)
Sample Date & Time 8/21/24 1357	(SWMU 49) VOCs, MEE, Chloride/Nitrate/Sulfate, TOC, Ferrous Fe, & Mn
Duplicate Sample ID 48TW1	SWMU 54 Explosives, Perchlorate, Chlorate/Chlorite, Chloride/Nitrate/Sulfate, TIC, TOC, Ferrous Fe, & Mn
Manganese (mg/L) 0.6	Sample Collection Method (Low Flow) Other
Ferrous Iron (mg/L) 0.44	Sample Collection Depth (ft BTOC) 145.76

COMMENTS

field duplicate collected

seal in pump fine after rubber collar installed

WELL EVACUATION/SAMPLING FORM

GENERAL INFORMATION

Radford Army Ammunition Plant SWMUs 49 & 54	Date 8/21/24
Well ID 49MW01	Weather 72° Sunny
Sampling Team P. Taylor, Y. Miyakawa	Sampler's Signature

WELL INSPECTION

Protective Casing (Intact) Damaged	Well ID Tag Condition Good
Locked (YES) NO	Measuring Point Marked (YES) NO
Concrete Base (Intact) Damaged	Comments
Casing Diameter ½ in, ¾ in, 1 in, 1 ¼ in, (2 in), 3 in, 4 in, 6 in, 8 in	

WELL EVACUATION INFORMATION

Total Depth (feet Below Top of Casing = ft BTOC) 124.17	Well Evacuation Method (peristaltic (bladder pump) other)
Depth to Water (ft BTOC) 115.95	Screen Interval (ft BGS) 120-125
Begin Well Evacuation (Time) 1525	Evacuation Rate (l pm) 0.1
Stop Evacuation (Time/Reason)	Restart Time
	Headspace (ppm) 0.0

INDICATOR PARAMETERS

Time: (5-minute intervals)	Volume Purged (L):	Depth to Water (ft. BTOC):	Temperature (°C): (3%)	Specific Conductivity (µS/cm): (3%)	D.O. (mg/L): (10%)	pH: (±0.1)	ORP (mV): (±10 mV)	Turbidity (NTU): (10%)
1540	1.5	116.14	13.6	384.0	16.55	7.83	114.0	>1100
1545	2.0	116.13	14.7	384.9	7.76	7.78	115.1	>1100
1550	2.5	116.04	14.0	383.8	7.62	7.77	116.8	>1100
1555	3.0	116.10	13.9	383.2	7.88	7.79	117.0	>1100
1600	3.5	115.93	14.3	381.6	7.98	7.82	116.3	>1100

Red font indicates stabilization criteria to be achieved over three consecutive readings

Final Depth to Water (ft BTOC) 115.93	Drawdown Observed (ft) none
Odor YES (NO)	Well Pumped Dry YES (NO)
End Well Evacuation (Time) 1615	Total Volume Purged (L) 3.5

SAMPLE COLLECTION INFORMATION

Sample ID 49MW01	PARAMETERS (Circle all applicable)
Sample Date & Time 8/21/24 1605	(SWMU 49) VOCs, MEE, Chloride/Nitrate/Sulfate, TOC, Ferrous Fe, & Mn
Duplicate Sample ID	SWMU 54 Explosives, Perchlorate, Chlorate/Chlorite, Chloride/Nitrate/Sulfate, TIC, TOC, Ferrous Fe, & Mn
Manganese (mg/L) 8.1	Sample Collection Method (Low Flow) Other
Ferrous Iron (mg/L) 0.90	Sample Collection Depth (ft BTOC) 122.17

COMMENTS

Synoptic Water Level Measurements

Radford Army Ammunition Plant SWMUs 49 & 54

Radford AAP, Virginia

Well Identification	Date	Time	Headspace Reading (ppm)	Depth to Water (ft BTOC)	Total Well Depth (ft BTOC)	Notes/Field Observations
SWMU 49						
13MW2	8/19/24	1320	0.0	21.96	30.45	Soft bottom
13MW3	8/19/24	0942	0.0	15.47	22.46	buildup/root mass over pump inside well, slight sulfur smell
13MW4	8/19/24	0918	0.0	17.36	25.35	soft bottom
13MW5	8/19/24	0905	0.0	17.27	25.34	soft bottom
49MW04	8/19/24	~~1205~~ ~~0918~~	~~0.0~~ ~~0.0~~	~~21.19~~ ~~17.36~~	~~72.82~~ ~~25.35~~	Soft bottom
49MW05	8/19/24	1420 ~~0905~~	0.0 ~~0.0~~	20.39 ~~17.27~~	39.49 ~~25.34~~	soft bottom ~~soft bottom~~
48MW1	8/21/24	1138	0.0	109.83	147.76	soft bottom
48MW2	8/21/24	1524	0.0	125.32	~~91.96~~	
48MW3	8/21/24	1529	0.0	97.96		
48MW6	8/21/24	0850	0.0	66.62	79.75	brown/silty water, packed w/ mud. NEEDS REDEVELOPED
48MW7	8/21/24	0815	0.0	50.26	83.82	soft bottom, silty/gray material ~~on probe~~ at bottom
49MW01	8/21/24	1501	0.0	115.95	124.17	
49MW02	8/21/24	1532	0.0	94.87		
49MW03	8/21/24	0822	0.1	105.34	119.70	mud@bottom
50MW2	8/21/24	1516	0.0	116.80		
SWMU 54						
54MW1	8/20/24	1421	0.0	20.69	57.42	v.soft bottom
54MW10	8/20/24	1053	0.0	16.74	30.13	hard bottom
54MW12	8/20/24	1240	0.0	25.90	33.00	cloudy/tan colored
54MW13	8/20/24	0815	0.0	22.41	25.32	Soft bottom

Key: ppm = parts per million ft = feet TOC = top of casing BTOC = below top of casing

CAPE

320-16 WASTE INVENTORY SUMMARY

Contract Number	W912DR19D0004	DO/TO No:	W912DR24F0222	CAPE Project #	10409-0222-002-003	Project Location	RAAP, Radford, VA

Process Generating Waste	*Groundwater produced through purging and sampling the monitoring wells. IDW water from SWMU 48/49 is captured and maintained separately from SWMU 54 IDW water throughout the handling process.*

Load Number	Date	Description	Quantity (TNS or GAL)	Waste Classification	Receiving Disposal Facility	Method of Disposal	Date of Disposal or Destruction
1	8/19/24	IDW waste from SWMU 49	7 gal	Pending Analysis	——		
2	8/20/24	IDW + decon water from SWMU 54	8 gal	Pending Analysis	——		
3	8/21/24	IDW + decon water from SWMU 49	4 gal	Pending Analysis	——		
4							
5							
6							
7							
8							
9							
10							
11							
12							
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27							
28							
29							
30							
31							
32							
CAPE Form 320-16, Revised May 2022		**TOTAL QUANTITY:**	Page 1 of 10.00				

WELL EVACUATION/SAMPLING FORM

GENERAL INFORMATION

Radford Army Ammunition Plant SWMUs 49 & 54	Date 8/22/24
Well ID 50MW2	Weather 53° Partly Sunny, foggy
Sampling Team P.Taylor, Y.Miyamoto	Sampler's Signature

WELL INSPECTION

Protective Casing: Intact / Damaged	Well ID Tag Condition: Good
Locked: YES / NO	Measuring Point Marked: YES / NO
Concrete Base: Intact / Damaged	Comments: ID on casing
Casing Diameter: ½ in, ¾ in, 1 in, 1 ¼, 2 in, 3 in, 4 in, 6 in, 8 in	

WELL EVACUATION INFORMATION

Total Depth (feet Below Top of Casing = ft BTOC): 120.42	Well Evacuation Method (peristaltic, bladder pump, other)
Depth to Water (ft BTOC): 116.64	Screen Interval (ft BGS): 115-120
Begin Well Evacuation (Time): 0935	Evacuation Rate (Lpm): 0.1
Stop Evacuation (Time/Reason)	Restart Time:
	Headspace (ppm): 0.0

INDICATOR PARAMETERS

Time: (5-minute intervals)	Volume Purged (L):	Depth to Water (ft. BTOC):	Temperature (°C): (3%)	Specific Conductivity (µS/cm): (3%)	D.O. (mg/L): (10%)	pH: (±0.1)	ORP (mV): (±10 mV)	Turbidity (NTU): (10%)
0940	0.5	116.65	13.0	678	7.91	7.00	245.9	711.00
0945	1.0	116.65	12.7	665	8.50	7.07	245.9	782.4
0950	1.5	116.65	12.5	659	7.26	7.09	242.4	324.6
0955	2.0	116.65	12.4	655.7	7.08	7.08	239.9	167.5
1000	2.5	116.65	12.4	654.2	6.87	7.07	238.3	99.29
1005	3.0	116.65	12.4	652.5	7.10	7.06	237.1	62.24
1010	3.5	116.65	12.4	651.3	6.87	7.05	236.3	40.89
1015	4.0	116.65	12.4	649.5	6.86	7.03	235.7	30.78
1020	4.5	116.65	12.4	648.5	7.07	7.02	235.0	27.18
1025	5.0	116.65	12.4	648.0	6.96	7.01	234.6	18.81
1030	5.5	116.65	12.4	646.6	6.70	6.99	234.3	16.83
1035	6.0	116.65	12.4	644.8	6.75	6.98	234.0	14.22

Red font indicates stabilization criteria to be achieved over three consecutive readings

Final Depth to Water (ft BTOC): 116.65	Drawdown Observed (ft): 0.01
Odor: YES / NO	Well Pumped Dry: YES / NO
End Well Evacuation (Time): 1125	Total Volume Purged (L): 8.5

SAMPLE COLLECTION INFORMATION

Sample ID: 50MW2	PARAMETERS (Circle all applicable)
Sample Date & Time: 8/22/24 1105	SWMU 49: VOCs, MEE, Chloride/Nitrate/Sulfate, TOC, Ferrous Fe, & Mn
Duplicate Sample ID:	SWMU 54: Explosives, Perchlorate, Chlorate/Chlorite, Chloride/Nitrate/Sulfate, TIC, TOC, Ferrous Fe, & Mn
Manganese (mg/L): 0.6	Sample Collection Method: Low Flow / Other
Ferrous Iron (mg/L): 0.07	Sample Collection Depth (ft BTOC): 118.42

COMMENTS

Equipment blank taken @ 1135 → 50MW2-EQB

WELL EVACUATION/SAMPLING FORM

GENERAL INFORMATION

Radford Army Ammunition Plant SWMUs 49 & 54	Date
Well ID 50MW2 continued	Weather
Sampling Team	Sampler's Signature

WELL INSPECTION

Protective Casing Intact/Damaged	Well ID Tag Condition
Locked YES / NO	Measuring Point Marked YES / NO
Concrete Base Intact/Damaged	Comments
Casing Diameter ½ in , ¾ in , 1 in , 1 ½, 2 in , 3 in , 4 in , 6 in , 8 in	

WELL EVACUATION INFORMATION

Total Depth (feet Below Top of Casing = ft BTOC)	Well Evacuation Method (peristaltic, bladder pump, other)
Depth to Water (ft BTOC)	Screen Interval (ft BGS)
Begin Well Evacuation (Time)	Evacuation Rate (Lpm)
Stop Evacuation (Time/Reason)	Restart Time
	Headspace (ppm)

INDICATOR PARAMETERS

Time: (5-minute intervals)	Volume Purged (L):	Depth to Water (ft. BTOC):	Temperature (°C): (3%)	Specific Conductivity (µS/cm): (3%)	D.O. (mg/L): (10%)	pH: (±0.1)	ORP (mV): (±10 mV)	Turbidity (NTU): (10%)
1040	6.5	116.65	12.5	644.1	6.54	6.97	233.8	12.45
1045	7.0	116.65	12.4	643.6	6.49	6.96	233.7	11.01
1050	7.5	116.65	12.5	642.6	6.93	6.95	233.6	9.16
1055	8.0	116.65	12.5	641.4	6.25	6.94	233.4	9.13
1100	8.5	116.65	12.6	640.7	6.04	6.94	233.0	7.51

Red font indicates stabilization criteria to be achieved over three consecutive readings.

Final Depth to Water (ft BTOC)	Drawdown Observed (ft)
Odor YES / NO	Well Pumped Dry YES / NO
End Well Evacuation (Time)	Total Volume Purged (L)

SAMPLE COLLECTION INFORMATION

Sample ID	PARAMETERS (Circle all applicable)
Sample Date & Time	SWMU 49 VOCs, MEE, Chloride/Nitrate/Sulfate, TOC, Ferrous Fe, & Mn
Duplicate Sample ID	SWMU 54 Explosives, Perchlorate, Chlorate/Chlorite, Chloride/Nitrate/Sulfate, TIC, TOC, Ferrous Fe, & Mn
Manganese (mg/L)	Sample Collection Method Low Flow Other
Ferrous Iron (mg/L)	Sample Collection Depth (ft BTOC)

COMMENTS

WELL EVACUATION/SAMPLING FORM

GENERAL INFORMATION

Radford Army Ammunition Plant SWMUs 49 & 54	Date 8/22/24
Well ID 48MW2	Weather 70° Mostly Sunny
Sampling Team P. Taylor, Y. Miyakawa	Sampler's Signature

WELL INSPECTION

Protective Casing (Intact) Damaged	Well ID Tag Condition Good
Locked (YES) NO	Measuring Point Marked (YES) NO
Concrete Base (Intact) Damaged	Comments ID on cap
Casing Diameter ½ in, ¾ in, 1 in, 1 ¼ in, (2 in) 3 in, 4 in, 6 in, 8 in	

WELL EVACUATION INFORMATION

Total Depth (feet Below Top of Casing = ft BTOC) 136.36	Well Evacuation Method (peristaltic (bladder pump) other)
Depth to Water (ft BTOC) 125.33	Screen Interval (ft BGS) 125-135
Begin Well Evacuation (Time) 1220	Evacuation Rate (Lpm) 0.04
Stop Evacuation (Time Reason)	Restart Time
	Headspace (ppm) 0.0

INDICATOR PARAMETERS

Time: (5-minute intervals)	Volume Purged (L):	Depth to Water (ft. BTOC):	Temperature (°C): (3%)	Specific Conductivity (µS/cm): (3%)	D.O. (mg/L): (10%)	pH: (±0.1)	ORP (mV): (±10 mV)	Turbidity (NTU): (10%)
1225	0.2	125.65	15.2	445.9	8.45	7.46	204.1	787.6
1230	0.4	125.70	14.4	444.6	8.30	7.60	203.0	1011
1235	0.6	125.78	14.7	438.7	8.25	7.79	201.0	>1100
1240	0.8	125.74	14.4	436.9	8.54	7.88	199.8	>1100
1245	1.0	125.78	14.4	434.5	8.68	7.92	198.9	>1100
1250	1.2	125.78	14.4	434.3	8.33	7.95	198.0	>1100

Red font indicates stabilization criteria to be achieved over three consecutive readings

Final Depth to Water (ft BTOC) 125.78	Drawdown Observed (ft) 0.45
Odor YES (NO)	Well Pumped Dry YES (NO)
End Well Evacuation (Time) 1310	Total Volume Purged (L) 1.2

SAMPLE COLLECTION INFORMATION

Sample ID 48MW2	PARAMETERS (Circle all applicable)
Sample Date & Time 8/22/24 1255	(SWMU 49) VOCs, MEE, Chloride/Nitrate/Sulfate, TOC, Ferrous Fe, & Mn
Duplicate Sample ID	SWMU 54 Explosives, Perchlorate, Chlorate/Chlorite, Chloride/Nitrate/Sulfate, TIC, TOC, Ferrous Fe, & Mn
Manganese (mg/L) 6.9	Sample Collection Method (Low Flow) Other
Ferrous Iron (mg/L) 0.91	Sample Collection Depth (ft BTOC) 134.36

COMMENTS

WELL EVACUATION/SAMPLING FORM

GENERAL INFORMATION

Radford Army Ammunition Plant SWMUs 49 & 54	Date 8/22/24
Well ID 48MW3	Weather 72° Mostly Sunny
Sampling Team P. Taylor, Y. Miyakawa	Sampler's Signature

WELL INSPECTION

Protective Casing (Intact) Damaged	Well ID Tag Condition Good
Locked (YES) NO	Measuring Point Marked (YES) / NO
Concrete Base (Intact) Damaged	Comments ID of Cap
Casing Diameter ½ in , ¾ in , 1 in , 1 ½, 2 in , 3 in (4 in) 6 in , 8 in	

WELL EVACUATION INFORMATION

Total Depth (feet Below Top of Casing = ft BTOC) 124.63	Well Evacuation Method (peristaltic (bladder pump) other)
Depth to Water (ft BTOC) 97.97	Screen Interval (ft BGS) 115-125
Begin Well Evacuation (Time) 1348	Evacuation Rate (l pm) 0.1
Stop Evacuation (Time/Reason)	Restart Time
	Headspace (ppm) 0.0

INDICATOR PARAMETERS

Time: (5-minute intervals)	Volume Purged (L):	Depth to Water (ft. BTOC):	Temperature (°C): (3%)	Specific Conductivity (µS/cm): (3%)	D.O. (mg/L): (10%)	pH: (±0.1)	ORP (mV): (±10 mV)	Turbidity (NTU): (10%)
1353	0.5	98.21	13.4	628.6	6.85	7.18	195.1	164.5
1358	1.0	98.30	13.1	627.6	5.67	7.20	197.5	35.89
1403	1.5	98.47	12.8	626.1	5.76	7.20	199.3	24.62
1408	2.0	98.50	12.5	628.4	5.97	7.20	200.7	20.85
1413	2.5	98.58	12.6	626.6	5.73	7.19	201.9	26.95
1418	3.0	98.65	12.4	627.8	5.74	7.20	202.9	21.60
1423	3.5	98.71	12.4	626.4	5.88	7.20	203.5	18.24
1428	4.0	98.78	12.4	628.1	6.03	7.20	204.2	15.56
1433	4.5	98.85	12.6	625.4	6.13	7.20	204.6	14.58
1438	5.0	98.92	12.4	626.1	6.06	7.20	205.0	12.54
1443	5.5	99.01	12.5	627.6	6.24	7.20	205.3	11.44
1448	6.0	99.09	12.5	625.5	6.13	7.19	205.9	11.35

Red font indicates stabilization criteria to be achieved over three consecutive readings

Final Depth to Water (ft BTOC) 99.13	Drawdown Observed (ft) 1.16
Odor YES (NO)	Well Pumped Dry YES (NO)
End Well Evacuation (Time) 1508	Total Volume Purged (L) 6.5

SAMPLE COLLECTION INFORMATION

Sample ID 48MW3	PARAMETERS (Circle all applicable)
Sample Date & Time 8/22/24 1458	(SWMU 49 VOCs, MEE, Chloride/Nitrate/Sulfate, TOC, Ferrous Fe, & Mn)
Duplicate Sample ID —	SWMU 54 Explosives, Perchlorate, Chlorate/Chlorite, Chloride/Nitrate/Sulfate, TIC, TOC, Ferrous Fe, & Mn
Manganese (mg/L) 0.2	Sample Collection Method (Low Flow) Other
Ferrous Iron (mg/L) 0.16	Sample Collection Depth (ft BTOC) 123.63

COMMENTS

3 Water Q readings got below 10 NTUs, took sample.

WELL EVACUATION/SAMPLING FORM

GENERAL INFORMATION

Radford Army Ammunition Plant SWMUs 49 & 54	Date:
Well ID: 48MW3 continued	Weather:
Sampling Team:	Sampler's Signature:

WELL INSPECTION

Protective Casing: Intact/Damaged	Well ID Tag Condition:
Locked: YES / NO	Measuring Point Marked: YES / NO
Concrete Base: Intact/Damaged	Comments:
Casing Diameter: ½ in., ¾ in., 1 in., 1 ½, 2 in , 3 in., 4 in., 6 in., 8 in.	

WELL EVACUATION INFORMATION

Total Depth (feet Below Top of Casing = ft. BTOC):	Well Evacuation Method (peristaltic, bladder pump, other):
Depth to Water (ft. BTOC):	Screen Interval (ft. BGS):
Begin Well Evacuation (Time):	Evacuation Rate (Lpm) :
Stop Evacuation (Time/Reason):	Restart Time:
	Headspace (ppm):

INDICATOR PARAMETERS

Time: (5-minute intervals)	Volume Purged (L):	Depth to Water (ft. BTOC):	Temperature (°C): (3%)	Specific Conductivity (µS/cm): (3%)	D.O. (mg/L): (10%)	pH: (±0.1)	ORP (mV): (±10 mV)	Turbidity (NTU): (10%)
1453	6.5	99.13	12.5	624.8	6.09	7.19	206.2	9.85

Red font indicates stabilization criteria to be achieved over three consecutive readings.

Final Depth to Water (ft. BTOC):	Drawdown Observed (ft):
Odor: YES / NO	Well Pumped Dry: YES / NO
End Well Evacuation (Time):	Total Volume Purged (L):

SAMPLE COLLECTION INFORMATION

Sample ID:	PARAMETERS (Circle all applicable):
Sample Date & Time:	SWMU 49: VOCs, MEE, Chloride/Nitrate/Sulfate, TOC, Ferrous Fe, & Mn
Duplicate Sample ID:	SWMU 54: Explosives, Perchlorate, Chlorate/Chlorite, Chloride/Nitrate/Sulfate, TIC, TOC, Ferrous Fe, & Mn
Manganese (mg/L):	Sample Collection Method: Low Flow Other:
Ferrous Iron (mg/L):	Sample Collection Depth (ft. BTOC):

COMMENTS

WELL EVACUATION/SAMPLING FORM

GENERAL INFORMATION

Radford Army Ammunition Plant SWMUs 49 & 54	Date: 8/22/24
Well ID: 49MW02	Weather: 76° Mostly Sunny
Sampling Team: P. Taylor, Y. Miyakawa	Sampler's Signature:

WELL INSPECTION

Protective Casing: (Intact) Damaged	Well ID Tag Condition: Good
Locked: (YES) / NO	Measuring Point Marked: (YES) NO
Concrete Base: (Intact) Damaged	Comments: ID on casing
Casing Diameter: ½ in., ¾ in., 1 in., 1 ½ in., (2 in.), 3 in., 4 in., 6 in., 8 in.	

WELL EVACUATION INFORMATION

Total Depth (feet Below Top of Casing = ft. BTOC): 134.60	Well Evacuation Method (peristaltic, (bladder pump) other):
Depth to Water (ft. BTOC): 94.93	Screen Interval (ft. BGS): 125-135
Begin Well Evacuation (Time): 1536	Evacuation Rate (Lpm): 0.1 Lpm
Stop Evacuation (Time/Reason):	Restart Time:
	Headspace (ppm): 0.0

INDICATOR PARAMETERS

Time: (5-minute intervals)	Volume Purged (L):	Depth to Water (ft. BTOC):	Temperature (°C): (3%)	Specific Conductivity (µS/cm): (3%)	D.O. (mg/L): (10%)	pH: (±0.1)	ORP (mV): (±10 mV)	Turbidity (NTU): (10%)
1541	0.5	94.79	13.7	492.6	6.32	7.37	195.5	371.8
1546	1.0	95.61	13.2	493.0	8.42	7.40	196.6	413.4
1551	1.5	95.85	12.9	491.5	9.07	7.41	198.4	549.2
1556	2.0	96.39	13.0	490.6	9.76	7.43	199.7	404.1
1601	2.5	96.76	12.9	489.6	10.05	7.45	201.4	510.0

Red font indicates stabilization criteria to be achieved over three consecutive readings.

Final Depth to Water (ft. BTOC): 96.76	Drawdown Observed (ft): 1.83
Odor: YES / (NO)	Well Pumped Dry: YES (NO)
End Well Evacuation (Time): 1615	Total Volume Purged (L): 2.5

SAMPLE COLLECTION INFORMATION

Sample ID: 49MW02	PARAMETERS (Circle all applicable):
Sample Date & Time: 8/22/24 1606	SWMU 49: VOCs, MEE, Chloride/Nitrate/Sulfate, TOC, Ferrous Fe, & Mn
Duplicate Sample ID:	SWMU 54: Explosives, Perchlorate, Chlorate/Chlorite, Chloride/Nitrate/Sulfate, TIC, TOC, Ferrous Fe, & Mn
Manganese (mg/L): 4.4	Sample Collection Method: (Low Flow) Other:
Ferrous Iron (mg/L): 0.52	Sample Collection Depth (ft. BTOC): 132.68

COMMENTS

No turbidity trend, taking sample.

Synoptic Water Level Measurements

Radford Army Ammunition Plant SWMUs 49 & 54

Radford AAP, Virginia

Well Identification	Date	Time	Headspace Reading (ppm)	Depth to Water (ft BTOC)	Total Well Depth (ft BTOC)	Notes/Field Observations
SWMU 49						
13MW2	8/19/24	1320	0.0	21.96	30.45	Soft bottom
13MW3	8/19/24	0942	0.0	15.47	22.46	buildup/root mass over pump inside well, + slight sulfur smell
13MW4	8/19/24	0918	0.0	17.36	25.35	soft bottom
13MW5	8/19/24	0905	0.0	17.27	25.34	soft bottom
49MW04	8/19/24	~~1205~~ ~~0918~~	~~0.0~~ ~~0.0~~	~~21.19~~ ~~17.36~~	~~72.82~~ ~~25.35~~	Soft bottom
49MW05	8/19/24	1420 ~~0905~~	0.0 ~~0.0~~	20.39 ~~17.27~~	39.49 ~~25.34~~	Soft bottom ~~Soft bottom~~
48MW1	8/21/24	1138	0.0	109.83	147.76	soft bottom
48MW2	8/21/24	1524	0.0	125.32	~~147.76~~ 136.36TD	
48MW3	8/21/24	1529	0.0	97.96	129.63	Soft bottom
48MW6	8/21/24	0850	0.0	66.62	79.75	brown/silty water, packed w/ mud. NEEDS REDEVELOPED
48MW7	8/21/24	0815	0.0	50.26	83.82	soft bottom, silty/gray ~~meterial~~ material at bottom ~~on probe~~
49MW01	8/21/24	1501	0.0	115.95	124.17	
49MW02	8/21/24	1532	0.0	94.87	134.68	
49MW03	8/21/24	0822	0.1	105.34	119.70	mud@bottom
50MW2	8/21/24	1516	0.0	116.80	120.42	
SWMU 54						
54MW1	8/20/24	1421	0.0	20.69	57.42	v.soft bottom
54MW10	8/20/24	1053	0.0	16.74	30.13	hard bottom
54MW12	8/20/24	1240	0.0	25.90	33.00	cloudy/tan colored
54MW13	8/20/24	0815	0.0	22.41	25.32	Soft bottom

Key: ppm = parts per million ft = feet TOC = top of casing BTOC = below top of casing

CAPE

320-16 WASTE INVENTORY SUMMARY

Contract Number	W912DR19D0004	DO/TO No:	W912DR24F0222	CAPE Project #	10409-0222-002-003	Project Location	RAAP, Radford, VA

Process Generating Waste	*Groundwater produced through purging and sampling the monitoring wells. IDW water from SWMU 48/49 is captured and maintained separately from SWMU 54 IDW water throughout the handling process.*

Load Number	Date	Description	Quantity (TNS or GAL)	Waste Classification	Receiving Disposal Facility	Method of Disposal	Date of Disposal or Destruction
1	8/19/24	IDW waste from SWMU 49	7 gal	Pending Analysis	—		
2	8/20/24	IDW + decon water from SWMU 54	8 gal	Pending Analysis	—		
3	8/21/24	IDW + decon water from SWMU 49	4 gal	Pending Analysis	—		
4	8/22/24	IDW + decon water from SWMU 49	6 gal	Pending Analysis	—		
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							

TOTAL QUANTITY: 25.00

WELL EVACUATION/SAMPLING FORM

GENERAL INFORMATION

Radford Army Ammunition Plant SWMUs 49 & 54	Date 12/9/24
Well ID 13MW5	Weather 46°F Cloudy
Sampling Team P. Taylor, Y. Miyakawa	Sampler's Signature

WELL INSPECTION

Protective Casing Intact/Damaged	Well ID Tag Condition Good
Locked YES / NO	Measuring Point Marked YES / NO
Concrete Base Intact/Damaged	Comments:
Casing Diameter ½ in, ¾ in, 1 in, 1 ½, 2 in, 3 in, 4 in, 6 in, 8 in	

WELL EVACUATION INFORMATION

Total Depth (feet Below Top of Casing = ft BTOC) 25.30	Well Evacuation Method (peristaltic, bladder pump, other)
Depth to Water (ft BTOC) 17.91	Screen Interval (ft BGS)
Begin Well Evacuation (Time) 0835	Evacuation Rate (Lpm) 0.150
Stop Evacuation (Time/Reason)	Restart Time
	Headspace (ppm) 0.0

INDICATOR PARAMETERS

Time: (5-minute intervals)	Volume Purged (L):	Depth to Water (ft. BTOC):	Temperature (°C): (3%)	Specific Conductivity (µS/cm): (3%)	D.O. (mg/L): (10%)	pH: (±0.1)	ORP (mV): (±10 mV)	Turbidity (NTU): (10%)
0840	0.75	17.94	14.7	783	0.57	7.31	126.8	22.98
0845	1.5	17.92	14.7	781	0.55	7.33	117.4	10.88
0850	2.25	17.92	14.7	781	0.58	7.33	111.4	4.43
0855	3.0	17.92	14.9	780	0.65	7.32	104.1	0.00
0900	3.75	17.92	14.8	778	0.71	7.31	97.7	0.00
0905	4.5	17.92	14.8	775	0.83	7.30	91.4	0.00
0910	5.25	17.92	14.8	772	0.97	7.29	84.8	0.00
0915	6.0	17.92	14.9	761	1.28	7.27	79.6	0.00
0920	6.75	1792	14.9	752	1.57	7.25	76.2	0.00
0925	7.5	17.92	14.9	736	2.06	7.22	72.5	0.00
0930	8.25	17.92	14.9	727	2.25	7.19	70.8	0.00
0935	9.0	17.92	14.8	715	2.47	7.14	69.7	0.00

Red font indicates stabilization criteria to be achieved over three consecutive readings

Final Depth to Water (ft BTOC) 17.92	Drawdown Observed (ft) 0.01
Odor YES / NO	Well Pumped Dry: YES / NO
End Well Evacuation (Time) 0949	Total Volume Purged (L) 9.0

SAMPLE COLLECTION INFORMATION

Sample ID 13MW5	PARAMETERS (Circle all applicable):
Sample Date & Time 12/9/24 0940	SWMU 49: VOCs, MEE, Chloride/Nitrate/Sulfate, TOC, Ferrous Fe, & Mn
Duplicate Sample ID: —	SWMU 54: Explosives, Perchlorate, Chlorate/Chlorite, Chloride/Nitrate/Sulfate, TIC, TOC, Ferrous Fe, & Mn
Manganese (mg/L) 0.1	Sample Collection Method: Low Flow Other
Ferrous Iron (mg/L) 0.11	Sample Collection Depth (ft. BTOC) ~~25.30~~ 24.80

COMMENTS

D.O. not stabilizing but all other parameters stable. Taking Sample @ 0940

WELL EVACUATION/SAMPLING FORM

GENERAL INFORMATION

Radford Army Ammunition Plant SWMUs 49 & 54	Date: 12/9/24
Well ID: 13MW4	Weather: 50°F, Cloudy
Sampling Team: P. Taylor, Y. Miyakawa	Sampler's Signature:

WELL INSPECTION

Protective Casing: (Intact)/Damaged	Well ID Tag Condition: OK, little bent
Locked: (YES) / NO	Measuring Point Marked: (YES) / NO
Concrete Base: (Intact)/Damaged	Comments:
Casing Diameter: ½ in., ¾ in., 1 in., 1 ½, 2 in., 3 in., (4 in.), 6 in., 8 in.	

WELL EVACUATION INFORMATION

Total Depth (feet Below Top of Casing = ft. BTOC): 26.30	Well Evacuation Method: (peristaltic), bladder pump, other):
Depth to Water (ft. BTOC): 17.56	Screen Interval (ft. BGS): 20-25
Begin Well Evacuation (Time): 1040	Evacuation Rate (Lpm): .100
Stop Evacuation (Time/Reason):	Restart Time:
	Headspace (ppm): 0.0

INDICATOR PARAMETERS

Time: (5-minute intervals)	Volume Purged (L):	Depth to Water (ft. BTOC):	Temperature (°C): (3%)	Specific Conductivity (µS/cm): (3%)	D.O. (mg/L): (10%)	pH: (±0.1)	ORP (mV): (±10 mV)	Turbidity (NTU): (10%)
1045	0.5	17.79	15.1	553.4	0.47	7.19	64.4	27.64
1050	1.0	17.86	15.2	557.2	0.40	7.20	56.2	25.06
1055	1.5	17.93	15.1	557.3	0.34	7.23	48.8	12.88
1100	2.0	18.04	15.2	557.2	0.36	7.24	44.8	9.11
1105	2.5	18.08	15.3	556.6	0.34	7.24	40.6	7.37
1110	3.0	18.13	15.4	556.8	0.29	7.23	36.1	8.87

Red font indicates stabilization criteria to be achieved over three consecutive readings.

Final Depth to Water (ft. BTOC): 18.13	Drawdown Observed (ft): 0.57
Odor: YES (NO)	Well Pumped Dry: YES (NO)
End Well Evacuation (Time): 1128	Total Volume Purged (L): 3.0

SAMPLE COLLECTION INFORMATION

Sample ID: 13MW4	PARAMETERS (Circle all applicable):
Sample Date & Time: 12/9/24 1115	(SWMU 49) VOCs, MEE, Chloride/Nitrate/Sulfate, TOC, Ferrous Fe, & Mn
Duplicate Sample ID: —	SWMU 54: Explosives, Perchlorate, Chlorate/Chlorite, Chloride/Nitrate/Sulfate, TIC, TOC, Ferrous Fe, & Mn
Manganese (mg/L): 0.3	Sample Collection Method: (Low Flow) Other:
Ferrous Iron (mg/L): 0.05	Sample Collection Depth (ft. BTOC): 25.80

COMMENTS

MS/MSDs collected

WELL EVACUATION/SAMPLING FORM

GENERAL INFORMATION

Radford Army Ammunition Plant SWMUs 49 & 54	Date: 12/9/24
Well ID: 13MW3	Weather: 54° F mostly Cloudy
Sampling Team: P. Taylor, Y. Miyakawa	Sampler's Signature:

WELL INSPECTION

Protective Casing: (Intact)/Damaged	Well ID Tag Condition: Good
Locked: (YES) / NO	Measuring Point Marked: (YES) / NO
Concrete Base: (Intact)/Damaged	Comments:
Casing Diameter: ½ in., ¾ in., 1 in., 1 ½, 2 in., 3 in., (4 in.) 6 in., 8 in.	

WELL EVACUATION INFORMATION

Total Depth (feet Below Top of Casing = ft. BTOC): 22.58	Well Evacuation Method (peristaltic, bladder pump, other):
Depth to Water (ft. BTOC): 15.69	Screen Interval (ft. BGS): 15-20
Begin Well Evacuation (Time): 1210	Evacuation Rate (Lpm): 0.2
Stop Evacuation (Time/Reason):	Restart Time:
	Headspace (ppm): 0.0

INDICATOR PARAMETERS

Time: (5-minute intervals)	Volume Purged (L):	Depth to Water (ft. BTOC):	Temperature (°C): (3%)	Specific Conductivity (µS/cm): (3%)	D.O. (mg/L): (10%)	pH: (±0.1)	ORP (mV): (±10 mV)	Turbidity (NTU): (10%)
1215	1.0	8.92	15.8	694	1.25	6.97	-51.7	36.04
1220	2.0	8.83	15.8	668	2.05	6.99	-28.0	22.69
1225	3.0	15.77	15.8	653	2.20	6.97	-12.6	18.71
1230	4.0	15.76	15.8	626	2.84	6.95	5.8	13.62
1235	5.0	15.76	15.8	605.6	3.08	6.95	17.3	13.93
1240	6.0	15.76	15.8	587.2	3.62	6.95	28.8	12.90
1245	7.0	15.76	15.9	561.1	3.80	6.90	39.3	6.49
1250	8.0	15.75	15.9	540.4	3.84	6.87	42.2	6.14
1255	9.0	15.75	15.9	530.1	4.92	6.87	46.6	2.76
1300	10.0	15.75	15.9	526.4	4.05	6.89	49.6	1.62
1305	11.0	15.75	15.9	522.8	4.17	6.86	52.0	0.00
1310	12.0	15.75	15.8	520.6	4.34	6.88	55.0	0.00

Red font indicates stabilization criteria to be achieved over three consecutive readings.

Final Depth to Water (ft. BTOC): 15.75	Drawdown Observed (ft): 0.06
Odor: YES / (NO) slight Sulfur Smell	Well Pumped Dry: YES (NO)
End Well Evacuation (Time): 1328	Total Volume Purged (L): 12.0

SAMPLE COLLECTION INFORMATION

Sample ID: 13MW3	PARAMETERS (Circle all applicable):
Sample Date & Time: 12/9/24 1315	(SWMU 49): VOCs, MEE, Chloride/Nitrate/Sulfate, TOC, Ferrous Fe, & Mn
Duplicate Sample ID: 13TW3 @1315	SWMU 54: Explosives, Perchlorate, Chlorate/Chlorite, Chloride/Nitrate/Sulfate, TIC, TOC, Ferrous Fe, & Mn
Manganese (mg/L): 0.1	Sample Collection Method: (Low Flow) Other:
Ferrous Iron (mg/L): 0.12	Sample Collection Depth (ft BTOC): 21.80

COMMENTS

Water level reader affected by silt/dirt or conductivity @ beginning.

WELL EVACUATION/SAMPLING FORM

GENERAL INFORMATION

Radford Army Ammunition Plant SWMUs 49 & 54	Date: 12/9/24
Well ID: 49MW04	Weather: 57°F, Mostly Cloudy
Sampling Team: P. Taylor, H. Miyakawa	Sampler's Signature:

WELL INSPECTION

Protective Casing: (Intact) / Damaged	Well ID Tag Condition: OK – ID on inside
Locked: (YES) / NO	Measuring Point Marked: (YES) / NO
Concrete Base: (Intact) / Damaged	Comments:
Casing Diameter: ½ in., ¾ in., 1 in., 1 ½ in., (2 in.), 3 in., 4 in., 6 in., 8 in.	

WELL EVACUATION INFORMATION

Total Depth (feet Below Top of Casing = ft. BTOC): 72.77	Well Evacuation Method: (peristaltic, bladder pump, other):
Depth to Water (ft. BTOC): 21.48	Screen Interval (ft. BGS): 65-70
Begin Well Evacuation (Time): 1405	Evacuation Rate (Lpm): .1
Stop Evacuation (Time/Reason):	Restart Time:
	Headspace (ppm): 0.0

INDICATOR PARAMETERS

Time: (5-minute intervals)	Volume Purged (L):	Depth to Water (ft. BTOC):	Temperature (°C): (3%)	Specific Conductivity (µS/cm): (3%)	D.O. (mg/L): (10%)	pH: (±0.1)	ORP (mV): (±10 mV)	Turbidity (NTU): (10%)
1410	0.5	23.52	14.7	661	0.99	7.17	12.1	8.56
1415	1.0	24.38	14.7	658	0.91	7.16	17.1	8.23
1420	1.5	24.86	14.6	658	0.85	7.17	18.5	7.48

Red font indicates stabilization criteria to be achieved over three consecutive readings.

Final Depth to Water (ft. BTOC): 24.86	Drawdown Observed (ft): 3.38
Odor: (YES) / NO Slight sulfur smell	Well Pumped Dry: YES (NO)
End Well Evacuation (Time): 1430	Total Volume Purged (L): 1.5

SAMPLE COLLECTION INFORMATION

Sample ID: 49MW04	PARAMETERS (Circle all applicable):
Sample Date & Time: 12/9/24 1425	(SWMU 49: VOCs, MEE, Chloride/Nitrate/Sulfate, TOC, Ferrous Fe, & Mn
Duplicate Sample ID:	SWMU 54: Explosives, Perchlorate, Chlorate/Chlorite, Chloride/Nitrate/Sulfate, TIC, TOC, Ferrous Fe, & Mn)
Manganese (mg/L): 0.3	Sample Collection Method: (Low Flow) Other:
Ferrous Iron (mg/L): 0.08	Sample Collection Depth (ft. BTOC): 72.2

COMMENTS

WELL EVACUATION/SAMPLING FORM

GENERAL INFORMATION

Radford Army Ammunition Plant SWMUs 49 & 54	Date: 12/9/24
Well ID: 13MW2	Weather: 57°F, Cloudy
Sampling Team: P. Taylor, Y. Miyakawa	Sampler's Signature:

WELL INSPECTION

Protective Casing: Intact/Damaged	Well ID Tag Condition: Good
Locked: YES / NO	Measuring Point Marked: YES / NO
Concrete Base: Intact/Damaged	Comments:
Casing Diameter: ½ in., ¾ in., 1 in., 1 ½, 2 in., 3 in., 4 in., 6 in., 8 in.	

WELL EVACUATION INFORMATION

Total Depth (feet Below Top of Casing = ft. BTOC): 30.43	Well Evacuation Method (peristaltic, bladder pump, other):
Depth to Water (ft. BTOC): 21.84	Screen Interval (ft. BGS): 25-30
Begin Well Evacuation (Time): 1455	Evacuation Rate (Lpm): 0.2
Stop Evacuation (Time/Reason):	Restart Time:
	Headspace (ppm): 0.0

INDICATOR PARAMETERS

Time: (5-minute intervals)	Volume Purged (L):	Depth to Water (ft. BTOC):	Temperature (°C): (3%)	Specific Conductivity (µS/cm): (3%)	D.O. (mg/L): (10%)	pH: (±0.1)	ORP (mV): (±10 mV)	Turbidity (NTU): (10%)
1500	1.0	22.10	15.1	703	6.43	7.06	65.7	0.00
1505	1.5	22.28	15.1	699	6.31	6.98	67.8	0.00
1510	2.0	22.43	15.1	697	6.35	7.07	69.1	0.00

Red font indicates stabilization criteria to be achieved over three consecutive readings.

Final Depth to Water (ft. BTOC): 22.43	Drawdown Observed (ft): 0.59
Odor: YES / NO	Well Pumped Dry: YES / NO
End Well Evacuation (Time): 1520	Total Volume Purged (L): 2.0

SAMPLE COLLECTION INFORMATION

Sample ID: 13MW2	PARAMETERS (Circle all applicable):
Sample Date & Time: 12/9/24 1515	SWMU 49: VOCs, MEE, Chloride/Nitrate/Sulfate, TOC, Ferrous Fe, & Mn
Duplicate Sample ID: ———	SWMU 54: Explosives, Perchlorate, Chlorate/Chlorite, Chloride/Nitrate/Sulfate, TIC, TOC, Ferrous Fe, & Mn
Manganese (mg/L): 0.4	Sample Collection Method: Low Flow Other:
Ferrous Iron (mg/L): 0.10	Sample Collection Depth (ft. BTOC): 29.9

COMMENTS

WELL EVACUATION/SAMPLING FORM

GENERAL INFORMATION

Radford Army Ammunition Plant SWMUs 49 & 54	Date: 12/9/24
Well ID: 49MW05	Weather: 57°F Cloudy
Sampling Team: P. Taylor, Y. Miyakawa	Sampler's Signature:

WELL INSPECTION

Protective Casing: Intact/Damaged	Well ID Tag Condition: OK - ID on casing
Locked: YES / NO	Measuring Point Marked: YES / NO
Concrete Base: Intact/Damaged	Comments:
Casing Diameter: ½ in., ¾ in., 1 in., 1 ¼ in., 2 in., 3 in., 4 in., 6 in., 8 in.	

WELL EVACUATION INFORMATION

Total Depth (feet Below Top of Casing = ft. BTOC): 39.42	Well Evacuation Method (peristaltic/bladder pump, other):
Depth to Water (ft. BTOC): 20.20	Screen Interval (ft. BGS):
Begin Well Evacuation (Time): 1535	Evacuation Rate (Lpm): 0.25
Stop Evacuation (Time/Reason):	Restart Time:
	Headspace (ppm): 0.0

INDICATOR PARAMETERS

Time: (5-minute intervals)	Volume Purged (L):	Depth to Water (ft. BTOC):	Temperature (°C): (3%)	Specific Conductivity (µS/cm): (3%)	D.O. (mg/L): (10%)	pH: (±0.1)	ORP (mV): (±10 mV)	Turbidity (NTU): (10%)
1540	1.25	21.06	14.7	700	5.93	7.07	39.1	47.72
1545	2.5	21.34	14.6	700	5.32	7.06	46.8	34.12
1550	3.75	21.74	14.6	700	5.12	7.02	53.1	14.50
1555	5.0	21.92	14.6	700	5.89	7.00	57.6	7.53
1600	6.25	22.13	14.6	698	5.87	7.03	61.4	1.84
1605	7.5	22.21	14.5	694	5.70	7.01	62.2	1.70

Red font indicates stabilization criteria to be achieved over three consecutive readings

Final Depth to Water (ft. BTOC): 22.21	Drawdown Observed (ft): 2.01
Odor: YES / NO	Well Pumped Dry: YES / NO
End Well Evacuation (Time): 1615	Total Volume Purged (L): 7.5

SAMPLE COLLECTION INFORMATION

Sample ID: 49MW05	PARAMETERS (Circle all applicable):
Sample Date & Time: 12/9/24 1610	SWMU 49: VOCs, MEE, Chloride/Nitrate/Sulfate, TOC, Ferrous Fe, & Mn
Duplicate Sample ID:	SWMU 54: Explosives, Perchlorate, Chlorate/Chlorite, Chloride/Nitrate/Sulfate, TIC, TOC, Ferrous Fe, & Mn
Manganese (mg/L): 0.1	Sample Collection Method: Low Flow Other:
Ferrous Iron (mg/L): 0.15	Sample Collection Depth (ft. BTOC): 38.9

COMMENTS

Synoptic Water Level Measurements

Radford Army Ammunition Plant SWMUs 49 & 54

Radford AAP, Virginia

Well Identification	Date	Time	Headspace Reading (ppm)	Depth to Water (ft BTOC)	Total Well Depth (ft BTOC)	Notes/Field Observations
SWMU 49						
13MW2	12/9/24	14.48	0.0	21.84	30.43	
13MW3	12/9/24	1150	0.0	15.69	22.38	slight sulfur smell, hard bottom
13MW4	12/9/24	1022	0.0	17.56	26.30	hard bottom
13MW5	12/9/24	0815	0.0	17.91	25.30	hard bottom
49MW04	12/9/24	1350 ~~1008~~ JM	0.0	~~21.48~~ ~~17.51~~ YM	~~32.32~~ ~~26.30~~ YM	hard bottom
49MW05	12/9/24	1530	0.0	20.20	39.42	
48MW1						
48MW2						
48MW3						
48MW6						
48MW7						
49MW01						
49MW02						
49MW03						
50MW2						
SWMU 54						
54MW1						
54MW10						
54MW12						
54MW13						

Key: ppm = parts per million ft = feet TOC = top of casing BTOC = below top of casing

WELL EVACUATION/SAMPLING FORM

GENERAL INFORMATION

Radford Army Ammunition Plant SWMUs 49 & 54	Date: 12/11/24
Well ID: 48MW7	Weather: 52° Rain
Sampling Team: P. Taylor, Y. Miyakawa	Sampler's Signature:

WELL INSPECTION

Protective Casing: (Intact)/Damaged	Well ID Tag Condition: Good - lasered on casing
Locked: (YES) / NO	Measuring Point Marked: (YES) / NO
Concrete Base: (Intact)/Damaged	Comments: likely needs redeveloped.
Casing Diameter: ½ in., ¾ in., 1 in., 1 ½, (2) in., 3 in., 4 in., 6 in., 8 in	

WELL EVACUATION INFORMATION

Total Depth (feet Below Top of Casing = ft. BTOC): 87.37	Well Evacuation Method (peristaltic, bladder pump, other):
Depth to Water (ft. BTOC): 51.00	Screen Interval (ft. BGS):
Begin Well Evacuation (Time): 1015	Evacuation Rate (Lpm): 0.15
Stop Evacuation (Time/Reason):	Restart Time:
	Headspace (ppm): 0.1

INDICATOR PARAMETERS

Time: (5-minute intervals)	Volume Purged (L):	Depth to Water (ft. BTOC):	Temperature (°C): (3%)	Specific Conductivity (µS/cm): (3%)	D.O. (mg/L): (10%)	pH: (±0.1)	ORP (mV): (±10 mV)	Turbidity (NTU): (10%)
1020	1.25	51.52	12.9	197.0	12.48	8.27	172.1	65.11
1025	2.5	52.63	12.8	192.5	12.38	8.27	165.4	68.71
1030	3.75	54.37	12.9	190.8	12.13	8.28	159.4	136.4
1035	5.0	54.18	12.9	190.5	11.97	8.29	154.3	209.7
1040	6.25	53.62	12.9	189.5	11.88	8.28	151.1	260.7

Red font indicates stabilization criteria to be achieved over three consecutive readings.

Final Depth to Water (ft. BTOC): 53.62	Drawdown Observed (ft): 2.62
Odor: YES (NO)	Well Pumped Dry: YES (NO)
End Well Evacuation (Time): 1056	Total Volume Purged (L): 6.25

SAMPLE COLLECTION INFORMATION

Sample ID: 48MW7	PARAMETERS (Circle all applicable)
Sample Date & Time: 12/11/24 1045	(SWMU 49) VOCs, MEE, Chloride/Nitrate/Sulfate, TOC, Ferrous Fe, & Mn
Duplicate Sample ID:	SWMU 54: Explosives, Perchlorate, Chlorate/Chlorite, Chloride/Nitrate/Sulfate, TIC, TOC, Ferrous Fe, & Mn
Manganese (mg/L): Lamp out *	Sample Collection Method: (Low Flow) Other
Ferrous Iron (mg/L): Lamp out *	Sample Collection Depth (ft. BTOC): 82.0

COMMENTS

Turbidity increasing. Every thing yellow tissue. SAMPLING.
Eq Blank taken. → 48MW7-EQB @ 1105

* Sample too dark for spectrophotometer during zeroing

WELL EVACUATION/SAMPLING FORM

GENERAL INFORMATION

Radford Army Ammunition Plant SWMUs 49 & 54	Date: 12/11/24
Well ID: 48MW6	Weather: 38° Cloudy + windy + rain
Sampling Team: P. Taylor, Y. Miyakawa	Sampler's Signature:

WELL INSPECTION

Protective Casing: Intact/Damaged	Well ID Tag Condition: on cap
Locked: (YES) / NO	Measuring Point Marked: (YES) / NO
Concrete Base: Intact/Damaged	Comments:
Casing Diameter: ½ in., ¾ in., 1 in., 1 ½, (2 in.), 3 in., 4 in., 6 in., 8 in.	

WELL EVACUATION INFORMATION

Total Depth (feet Below Top of Casing = ft. BTOC): 79.86	Well Evacuation Method (peristaltic, bladder pump, other):
Depth to Water (ft. BTOC): 66.65	Screen Interval (ft. BGS): 75-80
Begin Well Evacuation (Time): 1320	Evacuation Rate (Lpm): 0.07 Lpm
Stop Evacuation (Time/Reason):	Restart Time:
	Headspace (ppm): 0.0

INDICATOR PARAMETERS

Time: (5-minute intervals)	Volume Purged (L):	Depth to Water (ft. BTOC):	Temperature (°C): (3%)	Specific Conductivity (µS/cm): (3%)	D.O. (mg/L): (10%)	pH: (±0.1)	ORP (mV): (±10 mV)	Turbidity (NTU): (10%)
1325	0.35	66.67	10.9	573.9	5.60	7.02	95.7	840.2
1330	0.7	66.76	11.1	582.9	5.69	7.11	86.1	505.9
1335	1.05	66.83	11.0	593.8	6.45	7.15	83.6	344.5
1340	1.4	66.76	11.1	608.5	6.80	7.18	82.6	309.6
1345	1.75	66.83	11.1	620.3	7.22	7.19	82.4	266.6
1350	2.1	66.85	11.1	633.4	8.35	7.20	81.9	242.1
1355	2.45	66.83	11.2	649.1	7.89	7.22	82.2	216.8
1400	2.8	66.85	11.1	659.7	7.86	7.22	81.8	194.0
1405	3.15	66.85	11.1	671.4	7.90	7.23	82.0	159.7
1410	3.5	66.85	11.0	684	7.92	7.23	82.4	132.4
~~1415~~	~~3.85~~							

Red font indicates stabilization criteria to be achieved over three consecutive readings.

Final Depth to Water (ft. BTOC): 66.85	Drawdown Observed (ft): 0.2
Odor: YES / (NO)	Well Pumped Dry: YES / (NO)
End Well Evacuation (Time): 1425	Total Volume Purged (L): 3.5

SAMPLE COLLECTION INFORMATION

Sample ID: 48MW6	PARAMETERS (Circle all applicable):
Sample Date & Time: 12/11/24 1415	(SWMU 49): VOCs, MEE, Chloride/Nitrate/Sulfate, TOC, Ferrous Fe, & Mn
Duplicate Sample ID: —	SWMU 54: Explosives, Perchlorate, Chlorate/Chlorite, Chloride/Nitrate/Sulfate, TIC, TOC, Ferrous Fe, & Mn
Manganese (mg/L): 4.9	Sample Collection Method: (Low Flow) Other:
Ferrous Iron (mg/L): -0.02 under range	Sample Collection Depth (ft. BTOC): 77.0

COMMENTS

Turbidity not stable but everything else is, TAKING SAMPLE.

Synoptic Water Level Measurements

Radford Army Ammunition Plant SWMUs 49 & 54

Radford AAP, Virginia

Well Identification	Date	Time	Headspace Reading (ppm)	Depth to Water (ft BTOC)	Total Well Depth (ft BTOC)	Notes/Field Observations
SWMU 49						
13MW2	12/9/24	14.48	0.0	21.84	30.43	
13MW3	12/9/24	1150	0.0	15.69	22.38	slight sulfur smell, hard bottom
13MW4	12/9/24	1022	0.0	17.56	26.30	hard bottom
13MW5	12/9/24	0815	0.0	17.91	25.30	hard bottom
49MW04	12/9/24	~~1350~~ YM	0.0	~~21.48~~ ~~21.51~~ YM	~~72.77~~ ~~72.70~~ YM	hard bottom
49MW05	12/9/24	1530	0.0	20.20	39.42	
48MW1						
48MW2						
48MW3						
48MW6	12/11/24	1300	0.0	66.65	79.86	Soft bottom - Mud/sediment came up w/sounder, needs redeveloped
48MW7	12/11/24	0737	0.1	51.00	84.33	Soft bottom - needs redeveloped
49MW01						
49MW02						
49MW03						
50MW2						
SWMU 54						
54MW1	12/10/24	1312	0.0	20.75	57.33	hard bottom
54MW10	12/10/24	1008	0.0	16.82	30.28	Soft bottom
54MW12	12/10/24	1120	0.0	25.98	32.92	hard bottom
54MW13	12/10/24	0840	0.1	22.52	25.28	hard bottom

Key: ppm = parts per million ft = feet TOC = top of casing BTOC = below top of casing

WELL EVACUATION/SAMPLING FORM

GENERAL INFORMATION

Radford Army Ammunition Plant SWMUs 49 & 54	Date 12/12/24
Well ID [redacted] 49MW03	Weather 26° Sunny & windy
Sampling Team T. Taylor, T. Mynhardt	Sampler's Signature

WELL INSPECTION

Protective Casing Intact/Damaged	Well ID Tag Condition Ok, big, good
Locked YES / NO	Measuring Point Marked YES / NO
Concrete Base Intact/Damaged	Comments
Casing Diameter ½ in , ¾ in , 1 in , 1 ½ (2 in) 3 in , 4 in , 6 in , 8 in	

WELL EVACUATION INFORMATION

Total Depth (feet Below Top of Casing = ft BTOC) 120.91	Well Evacuation Method (peristaltic, bladder pump, other)
Depth to Water (ft BTOC) 105.40	Screen Interval (ft BGS)
Begin Well Evacuation (Time) 0855	Evacuation Rate (Lpm) 0.05
Stop Evacuation (Time/Reason)	Restart Time
	Headspace (ppm)

INDICATOR PARAMETERS

Time: (5-minute intervals)	Volume Purged (L):	Depth to Water (ft. BTOC):	Temperature (°C): (3%)	Specific Conductivity (µS/cm): (3%)	D.O. (mg/L): (10%)	pH: (±0.1)	ORP (mV): (±10 mV)	Turbidity (NTU): (10%)
0900	0.25	105.78	7.9	337.5	19.47	7.61	168.1	790.1
0905	0.50	105.64	8.2	339.7	10.42	7.73	131.0	71100
0910	0.75	105.64	8.1	339.5	10.44	7.64	108.9	> 1100
0915	1.0	105.68	8.8	339.0	9.67	7.55	96.4	734.1
0920	1.25	105.62	9.1	338.2	9.98	7.51	88.5	494.6
0925	1.5	105.76	9.4	337.3	9.88	7.45	84.0	308.7
0930	1.75	105.77	9.1	339.7	10.17	7.44	81.0	244.4

Red font indicates stabilization criteria to be achieved over three consecutive readings

Final Depth to Water (ft BTOC) 105.77	Drawdown Observed (ft)
Odor YES (NO)	Well Pumped Dry YES (NO)
End Well Evacuation (Time)	Total Volume Purged (L) 1.75

SAMPLE COLLECTION INFORMATION

Sample ID [redacted] 49MW03	PARAMETERS (Circle all applicable)
Sample Date & Time 12/12/24 0935	(SWMU 49) VOCs, MEE, Chloride/Nitrate/Sulfate, TOC, Ferrous Fe, & Mn
Duplicate Sample ID	SWMU 54 Explosives, Perchlorate, Chlorate/Chlorite, Chloride/Nitrate/Sulfate, TIC, TOC, Ferrous Fe, & Mn
Manganese (mg/L) - 3.4 under range	Sample Collection Method (Low Flow) Other
Ferrous Iron (mg/L) 0.25	Sample Collection Depth (ft BTOC) 119.9

COMMENTS

Equipment Blank taken here @ 0955
Everything but Turbidity stable - TAKING SAMPLE

WELL EVACUATION/SAMPLING FORM

GENERAL INFORMATION

Radford Army Ammunition Plant SWMUs 49 & 54	Date 12/12/24
Well ID 48MW1	Weather 31° Sunny, Windy
Sampling Team P. Taylor, Y. Miyakawa	Sampler's Signature

WELL INSPECTION

Protective Casing Intact/Damaged	Well ID Tag Condition (Good, on cap)
Locked YES / NO	Measuring Point Marked YES / NO
Concrete Base Intact/Damaged	Comments
Casing Diameter ½ in , ¾ in , 1 in , 1 ½, 2 in , 3 in (4 in), 6 in , 8 in	

WELL EVACUATION INFORMATION

Total Depth (feet Below Top of Casing = ft BTOC) 147.62	Well Evacuation Method (peristaltic, bladder pump, other)
Depth to Water (ft BTOC) 114.17	Screen Interval (ft BGS) 135-145
Begin Well Evacuation (Time) 1055	Evacuation Rate (Lpm) 0.025
Stop Evacuation (Time/Reason)	Restart Time
	Headspace (ppm)

INDICATOR PARAMETERS

Time: (5-minute intervals)	Volume Purged (L):	Depth to Water (ft. BTOC):	Temperature (°C): (3%)	Specific Conductivity (µS/cm): (3%)	D.O. (mg/L): (10%)	pH: (±0.1)	ORP (mV): (±10 mV)	Turbidity (NTU): (10%)
1100	0.125	114.29	9.0	465	9.41	7.49	66.5	35.35
1105	0.250	114.37	9.2	467.0	4.82	7.51	62.4	25.60
1110	0.375	114.38	9.4	468.4	4.39	7.55	61.4	19.65
1115	0.5	114.45	9.4	468.2	4.12	7.48	60.9	19.05
1120	0.625	114.67	9.7	467.2	4.00	7.52	60.4	17.31

Red font indicates stabilization criteria to be achieved over three consecutive readings

Final Depth to Water (ft BTOC) 114.67	Drawdown Observed (ft) 0.5
Odor YES (NO)	Well Pumped Dry YES (NO)
End Well Evacuation (Time) 1154	Total Volume Purged (L) 0.625

SAMPLE COLLECTION INFORMATION

Sample ID 48MW1	PARAMETERS (Circle all applicable)
Sample Date & Time 12/12/24 1125	(SWMU 49) VOCs, MEE, Chloride/Nitrate/Sulfate, TOC, Ferrous Fe, & Mn
Duplicate Sample ID 48DW1	SWMU 54 Explosives, Perchlorate, Chlorate/Chlorite, Chloride/Nitrate/Sulfate, TIC, TOC, Ferrous Fe, & Mn
* Manganese (mg/L) -2.5 under range	Sample Collection Method (Low Flow) Other
* Ferrous Iron (mg/L) 0.23	Sample Collection Depth (ft BTOC) 145.6

COMMENTS

Everything but Turbidity is out — TAKING SAMPLE

*Spectrophotometer not working well, wants to operate in cold weather. HACH test done after getting batteries in 12/12/24 @ 1145

WELL EVACUATION/SAMPLING FORM

GENERAL INFORMATION

Radford Army Ammunition Plant SWMUs 49 & 54	Date 12/12/24
Well ID 49MW01	Weather 36° Sunny + Windy
Sampling Team L. Taylor, J. Nuckolls	Sampler's Signature

WELL INSPECTION

Protective Casing (Intact) Damaged	Well ID Tag Condition Good, water on cap
Locked YES / NO	Measuring Point Marked YES NO
Concrete Base (Intact) Damaged	Comments
Casing Diameter ¼ in, ½ in, 1 in, 1¼, 2 in, 3 in, 4 in, 6 in, 8 in	

WELL EVACUATION INFORMATION

Total Depth (feet Below Top of Casing ft BTOC) 124.59	Well Evacuation Method (peristaltic, bladder, pump, other)
Depth to Water (ft BTOC) 115.91	Screen Interval (ft BGS) 120-125
Begin Well Evacuation (Time) 1245	Evacuation Rate (Lpm) 0.08
Stop Evacuation (Time/Reason)	Restart Time
	Headspace (ppm)

INDICATOR PARAMETERS

Time: (5-minute intervals)	Volume Purged (L):	Depth to Water (ft. BTOC):	Temperature (°C): (3%)	Specific Conductivity (µS/cm): (3%)	D.O. (mg/L): (10%)	pH: (±0.1)	ORP (mV): (±10 mV)	Turbidity (NTU): (10%)
1245	0.4	116.14	10.6	401.0	13.03	7.45	61.6	>1100
1250	0.8	116.14	10.8	401.3	9.21	8.06	61.9	889.2
1255	1.2	116.16	10.9	401.3	9.00	7.44	63.1	696.5
1300	1.6	116.16	11.0	400.8	8.77	7.47	63.4	527.2
1305	2.0	116.16	11.1	401.6	8.65	7.45	63.8	409.2
1310	2.4	116.16	11.1	402.2	8.34	7.51	64.2	344.7
1315	2.8	116.17	11.2	401.7	9.35	7.52	64.5	304.8
1320	3.2	116.17	11.0	401.9	8.73	7.48	64.3	261.9
~~1325~~	~~3.6~~ M							

Red font indicates stabilization criteria to be achieved over three consecutive readings

Final Depth to Water (ft BTOC) 116.17	Drawdown Observed (ft) 0.26
Odor YES NO	Well Pumped Dry YES NO
End Well Evacuation (Time) 1333	Total Volume Purged (L) 3.2

SAMPLE COLLECTION INFORMATION

Sample ID ~~MW12-12-24~~ 49MW01	PARAMETERS (Circle all applicable)
Sample Date & Time 12/12/24 1325	SWMU 49 VOCs, MEE, Chloride/Nitrate/Sulfate, TOC, Ferrous Fe. & Mn
Duplicate Sample ID	SWMU 54 Explosives, Perchlorate, Chlorate/Chlorite, Chloride/Nitrate/Sulfate, TIC, TOC, Ferrous Fe. & Mn
Manganese (mg/L) 0.9	Sample Collection Method Low Flow Other
Ferrous Iron (mg/L) 0.33	Sample Collection Depth (ft BTOC) 122.5

COMMENTS

Everything stable except Turbidity, D.O. jumped after YSI powered off but stabilized again. Taking sample
Spectrophotometer for Mn powering on
HACH test done after getting blotteries on 12/12/24 @ 1355

WELL EVACUATION/SAMPLING FORM

GENERAL INFORMATION

Radford Army Ammunition Plant SWMUs 49 & 54	Date 12/12/24
Well ID 50MW2	Weather 39°, Sunny + some wind
Sampling Team P Taylor, M Miyakawa	Sampler's Signature

WELL INSPECTION

Protective Casing Intact/Damaged	Well ID Tag Condition Degrading
Locked YES NO	Measuring Point Marked YES NO
Concrete Base Intact/Damaged	Comments
Casing Diameter ½ in, ¾ in, 1 in, 1 ¼ in, 2 in, 3 in, 4 in, 6 in, 8 in	

WELL EVACUATION INFORMATION

Total Depth (feet Below Top of Casing = ft BTOC) 121.37	Well Evacuation Method (peristaltic, bladder pump, other)
Depth to Water (ft BTOC) 118.09	Screen Interval (ft BGS) 115-120
Begin Well Evacuation (Time) 1425	Evacuation Rate (Lpm) 0.075
Stop Evacuation (Time/Reason)	Restart Time
	Headspace (ppm)

INDICATOR PARAMETERS

Time: (5-minute intervals)	Volume Purged (L):	Depth to Water (ft. BTOC):	Temperature (°C): (3%)	Specific Conductivity (µS/cm): (3%)	D.O. (mg/L): (10%)	pH: (±0.1)	ORP (mV): (±10 mV)	Turbidity (NTU): (10%)
1430	0.375	118.18	11.1	793	4.57	6.47	80.5	78.97
1435	0.75	118.17	11.1	796	4.98	6.67	77.2	372.5
1440	1.125	118.21	11.3	796	4.90	6.43	76.8	>1100
1445	1.5	118.21	11.3	792	4.94	6.48	76.6	943.3
1450	1.875	118.24	11.3	792	4.75	6.58	76.1	471.0
1455	2.250	118.15	11.4	789	4.95	6.58	75.9	309.9
1500	2.625	118.17	11.4	789	4.77	6.54	75.8	178.2
1505	3.000	118.15	11.3	789	4.80	6.60	75.6	122.4
1510	3.375	118.18	11.4	788	4.84	6.58	75.5	76.35
1515	3.75	118.16	11.4	787	4.60	6.57	75.4	61.63
1520	4.125	118.15	11.5	786	4.62	6.57	75.3	60.66
1525	4.5	118.18	11.4	786	4.58	6.57	75.2	49.98

Red font indicates stabilization criteria to be achieved over three consecutive readings

Final Depth to Water (ft BTOC) 118.18	Drawdown Observed (ft) 0.09
Odor YES NO	Well Pumped Dry YES NO
End Well Evacuation (Time) 1542	Total Volume Purged (L) 4.5

SAMPLE COLLECTION INFORMATION

Sample ID 50MW2	PARAMETERS (Circle all applicable)
Sample Date & Time 12/12/24 1530	SWMU 49 VOCs, MEE, Chloride/Nitrate/Sulfate, TOC, Ferrous Fe, & Mn
Duplicate Sample ID	SWMU 54 Explosives, Perchlorate, Chlorate/Chlorite, Chloride/Nitrate/Sulfate, TIC, TOC, Ferrous Fe, & Mn
Manganese (mg/L) 0.0	Sample Collection Method Low Flow Other
Ferrous Iron (mg/L) 0.11	Sample Collection Depth (ft BTOC) ~~120~~ 119

COMMENTS

Everything but Turbidity stable taking sample.
Spectrophotometer not powering on
HACH test done after getting batteries on 12/12/24 @ 1805

Synoptic Water Level Measurements

Radford Army Ammunition Plant SWMUs 49 & 54

Radford AAP, Virginia

Well Identification	Date	Time	Headspace Reading (ppm)	Depth to Water (ft BTOC)	Total Well Depth (ft BTOC)	Notes/Field Observations
SWMU 49						
13MW2	12/9/24	14.48	0.0	21.84	30.43	
13MW3	12/9/24	1150	0.0	15.69	22.38	slight sulfur smell, hard bottom
13MW4	12/9/24	1022	0.0	17.56	26.30	hard bottom
13MW5	12/9/24	0815	0.0	17.91	25.30	hard bottom
49MW04	12/9/24	~~1022~~ 1350 YM	0.0	~~17.91~~ 21.48 YM	~~25.30~~ 32.77 YM	hard bottom
49MW05	12/9/24	1530	0.0	20.20	39.42	
48MW1	12/12/24	1135		114.17	147.62	Soft bottom
48MW2	12/13/24					
48MW3	12/13/24	YM [redacted]		Y [redacted] YM		
48MW6	12/11/24	1300	0.0	66.65	79.86	Soft bottom – Mud/sediment came up w/ bailer, needs redeveloped
48MW7	12/11/24	0777	0.1	51.00	84.33	Soft bottom - needs redeveloped
49MW01	12/12/24	1235		115.91	124.57	soft bottom + mud/sediment came up, redevelop
49MW02	12/13/24					
49MW03	12/12/24	0752		105.46	120.91	Soft bottom
50MW2	12/12/24	1352		118.09	121.37	soft bottom - needs redeveloped
SWMU 54						
54MW1	12/10/24	1312	0.0	20.75	57.33	hard bottom
54MW10	12/10/24	1008	0.0	16.82	30.28	Soft bottom
54MW12	12/10/24	1120	0.0	25.98	32.92	hard bottom
54MW13	12/10/24	0840	0.1	22.52	25.28	hard bottom

Key: ppm = parts per million ft = feet TOC = top of casing BTOC = below top of casing

* PID readings taken on 12/13/24.

CAPE

320-16 WASTE INVENTORY SUMMARY

Contract Number	W912DR19D0004	DO/TO No:	W912DR24F0222	CAPE Project #	10409-0222-002-003	Project Location	RAAP Radford, VA

Process Generating Waste	Groundwater produced through purging and sampling the monitoring wells. IDW water from SWMU 48/49 is captured and maintained separately from SWMU 54 IDW water throughout the handling process.

Load Number	Date	Description	Quantity (TNS or GAL)	Waste Classification	Receiving Disposal Facility	Method of Disposal	Date of Disposal or Destruction
1	8/19/24	IDW waste from SWMU 49	7 gal	Pending Analysis	—		
2	8/20/24	IDW + decon water from SWMU 54	8 gal	Pending Analysis	—		
3	8/21/24	IDW + decon water from SWMU 49	4 gal	Pending Analysis	—		
4	8/22/24	IDW + decon water from SWMU 49	6 gal	Pending Analysis	—		
5							
6	12/9/24	IDW from SWMU 49	15 gal	Pending Analysis	—		
7	12/10/24	IDW + decon water SWMU 54	10 gal	Pending Analysis	—		
8	12/11/24	IDW + decon water SWMU 49	5 gal	Pending Analysis	—		
9	12/12/24	IDW + decon water SWMU 49	6 gal	Pending Analysis	—		
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							

TOTAL QUANTITY:

0.00

WELL EVACUATION/SAMPLING FORM

GENERAL INFORMATION

Radford Army Ammunition Plant SWMUs 49 & 54	Date: 12/13/24
Well ID: 48MW2	Weather: 30° Mostly Sunny
Sampling Team: P. Taylor, Y. Miyakawa	Sampler's Signature:

WELL INSPECTION

Protective Casing: Intact/Damaged	Well ID Tag Condition: on cap
Locked: YES / NO	Measuring Point Marked: YES / NO
Concrete Base: Intact/Damaged	Comments:
Casing Diameter: ½ in., ¾ in., 1 in., 1 ½, 2 in., 3 in., 4 in., 6 in., 8 in.	

WELL EVACUATION INFORMATION

Total Depth (feet Below Top of Casing = ft. BTOC): 137.03	Well Evacuation Method (peristaltic, bladder pump, other):
Depth to Water (ft. BTOC): 125.99	Screen Interval (ft. BGS): 125-135
Begin Well Evacuation (Time): 0950	Evacuation Rate (Lpm): 0.075
Stop Evacuation (Time/Reason):	Restart Time:
	Headspace (ppm): 0.0

INDICATOR PARAMETERS

Time: (5-minute intervals)	Volume Purged (L):	Depth to Water (ft. BTOC):	Temperature (°C): (3%)	Specific Conductivity (µS/cm): (3%)	D.O. (mg/L): (10%)	pH: (±0.1)	ORP (mV): (±10 mV)	Turbidity (NTU): (10%)
0955	0.375	126.28	10.8	460.6	6.73	6.90	111.9	285.7
1000	0.75	126.39	10.8	458.2	6.79	6.98	86.4	243.2
1005	1.125	126.47	11.0	458.7	6.77	7.00	78.2	194.4
1010	1.5	126.47	11.1	458.9	6.89	7.01	74.2	166.3
1015	1.875	126.48	11.1	458.7	6.85	7.02	72.2	138.9
1020	2.25	126.54	11.3	458.4	6.94	7.03	70.6	144.9
1025	2.625	126.54	11.1	459.8	7.02	7.04	69.7	119.4

Red font indicates stabilization criteria to be achieved over three consecutive readings.

Final Depth to Water (ft. BTOC): 126.54	Drawdown Observed (ft): 0.55
Odor: YES / NO	Well Pumped Dry: YES / NO
End Well Evacuation (Time): 1040	Total Volume Purged (L): 2.625

SAMPLE COLLECTION INFORMATION

Sample ID: 48MW2	PARAMETERS (Circle all applicable):
Sample Date & Time: 12/13/24 1030	SWMU 49: VOCs, MEE, Chloride/Nitrate/Sulfate, TOC, Ferrous Fe, & Mn
Duplicate Sample ID: ———	SWMU 54: Explosives, Perchlorate, Chlorate/Chlorite, Chloride/Nitrate/Sulfate, TIC, TOC, Ferrous Fe, & Mn
Manganese (mg/L): -0.3 Under range	Sample Collection Method: Low Flow Other:
Ferrous Iron (mg/L): 0.08	Sample Collection Depth (ft. BTOC): ~~135~~ 134

COMMENTS

Equipment blank taken → 48MW2-EQB @ 1052

everything stable except Turbidity, taking sample

WELL EVACUATION/SAMPLING FORM

GENERAL INFORMATION

Radford Army Ammunition Plant SWMUs 49 & 54	Date 12/13/24
Well ID 48MW3	Weather 40' Cloudy
Sampling Team T. Taylor, Y. Myra Kawa	Sampler's Signature

WELL INSPECTION

Protective Casing Intact / Damaged	Well ID Tag Condition Good, on cap
Locked YES / NO	Measuring Point Marked YES / NO
Concrete Base Intact / Damaged	Comments
Casing Diameter ½ in, ¾ in, 1 in, 1 ½, 2 in, 3 in, 4 in, 6 in, 8 in	

WELL EVACUATION INFORMATION

Total Depth (feet Below Top of Casing = ft BTOC) 126.22	Well Evacuation Method (peristaltic, bladder pump, other)
Depth to Water (ft BTOC) 98.47	Screen Interval (ft BGS) 115-125
Begin Well Evacuation (Time) 1130	Evacuation Rate (Lpm) 0.075
Stop Evacuation (Time/Reason)	Restart Time
	Headspace (ppm) 0.0

INDICATOR PARAMETERS

Time: (5-minute intervals)	Volume Purged (L):	Depth to Water (ft. BTOC):	Temperature (°C): (3%)	Specific Conductivity (µS/cm): (3%)	D.O. (mg/L): (10%)	pH: (±0.1)	ORP (mV): (±10 mV)	Turbidity (NTU): (10%)
1135	0.375	98.66	10.9	641.7	4.59	6.75	67.0	13.56
1140	0.75	98.74	11.1	646.9	4.34	6.73	64.9	3.69
1145	1.125	98.86	11.3	644.8	4.39	6.62	64.9	1.99
1150	1.5	98.94	11.2	646.1	4.37	6.73	64.8	3.67
1155	1.875	99.03	11.1	647.0	4.38	6.71	64.8	13.90
1200	2.25	99.11	11.2	646.8	4.48	6.70	64.9	1.87

Red font indicates stabilization criteria to be achieved over three consecutive readings

Final Depth to Water (ft BTOC) 99.11	Drawdown Observed (ft) 0.64
Odor YES / NO	Well Pumped Dry YES / NO
End Well Evacuation (Time) 1213	Total Volume Purged (L) 2.25

SAMPLE COLLECTION INFORMATION

Sample ID 48MW3	PARAMETERS (Circle all applicable)
Sample Date & Time 12/13/24 1205	SWMU 49: VOCs, MEE, Chloride/Nitrate/Sulfate, TOC, Ferrous Fe, & Mn
Duplicate Sample ID —	SWMU 54: Explosives, Perchlorate, Chlorate/Chlorite, Chloride/Nitrate/Sulfate, TIC, TOC, Ferrous Fe, & Mn
Manganese (mg/L) 0.1	Sample Collection Method: Low Flow / Other
Ferrous Iron (mg/L) 0.10	Sample Collection Depth (ft BTOC) 124

COMMENTS

WELL EVACUATION/SAMPLING FORM

GENERAL INFORMATION

Radford Army Ammunition Plant SWMUs 49 & 54	Date 12/13/24
Well ID 49MW02	Weather 44° Cloudy.
Sampling Team P. Taylor, Y. Miyakawa	Sampler's Signature

WELL INSPECTION

Protective Casing: Intact/Damaged	Well ID Tag Condition: on casing
Locked: YES / NO	Measuring Point Marked: YES / NO
Concrete Base: Intact/Damaged	Comments:
Casing Diameter: ½ in., ¾ in., 1 in., 1 ½ in., 2 in., 3 in., 4 in., 6 in., 8 in.	

WELL EVACUATION INFORMATION

Total Depth (feet Below Top of Casing = ft. BTOC) 135.66	Well Evacuation Method (peristaltic, bladder pump, other)
Depth to Water (ft. BTOC) 95.67	Screen Interval (ft. BGS) 125-135
Begin Well Evacuation (Time) 1305	Evacuation Rate (Lpm) 0.08
Stop Evacuation (Time/Reason):	Restart Time:
	Headspace (ppm) 0.0

INDICATOR PARAMETERS

Time: (5-minute intervals)	Volume Purged (L):	Depth to Water (ft. BTOC):	Temperature (°C): (3%)	Specific Conductivity (µS/cm): (3%)	D.O. (mg/L): (10%)	pH: (±0.1)	ORP (mV): (±10 mV)	Turbidity (NTU): (10%)
1310	0.4	94.98	11.8	510.5	9.89	6.98	44.8	529.3
1315	0.8	95.51	11.9	511.2	9.08	7.02	47.6	497.6
1320	1.2	95.61	11.9	510.2	11.75	7.23	55.2	623.8
1325	1.6	97.24	11.8	508.9	11.81	7.24	59.1	734.7
1330	2.0	97.38	11.9	507.9	11.97	7.28	61.3	691.7
1335	2.4	97.54	11.8	507.3	12.08	7.29	62.2	738.0
~~1340~~	~~2.8~~ YM							

Red font indicates stabilization criteria to be achieved over three consecutive readings.

Final Depth to Water (ft. BTOC) 97.54	Drawdown Observed (ft) 1.87
Odor: YES / NO	Well Pumped Dry: YES / NO
End Well Evacuation (Time) 1350	Total Volume Purged (L) 2.4

SAMPLE COLLECTION INFORMATION

Sample ID: 49MW02	PARAMETERS (Circle all applicable)
Sample Date & Time: 12/13/24 1340	SWMU 49: VOCs, MEE, Chloride/Nitrate/Sulfate, TOC, Ferrous Fe, & Mn
Duplicate Sample ID:	SWMU 54: Explosives, Perchlorate, Chlorate/Chlorite, Chloride/Nitrate/Sulfate, TIC, TOC, Ferrous Fe, & Mn
Manganese (mg/L): 3.3	Sample Collection Method: Low Flow / Other
Ferrous Iron (mg/L): 1.08	Sample Collection Depth (ft. BTOC): 133

COMMENTS

Everything stabilized, Turbidity has no trend - taking sample

IDW sample taken: 49IDW @ 1425

Synoptic Water Level Measurements

Radford Army Ammunition Plant SWMUs 49 & 54

Radford AAP, Virginia

Well Identification	Date	Time	Headspace Reading (ppm)	Depth to Water (ft BTOC)	Total Well Depth (ft BTOC)	Notes/Field Observations
SWMU 49						
13MW2	12/9/24	14.48	0.0	21.84	30.43	
13MW3	12/9/24	1159	0.0	15.69	22.38	slight sulfur smell, hard bottom
13MW4	12/9/24	1022	0.0	17.56	26.30	hard bottom
13MW5	12/9/24	0815	0.0	17.91	25.30	hard bottom
49MW04	12/9/24	~~1350~~ YM	0.0	~~21.40~~ ~~17.51~~ YM	~~27.77~~ ~~26.70~~ YM	hard bottom
49MW05	12/9/24	1530	0.0	20.20	39.42	
48MW1	12/12/24	1155	0.1	114.17	147.62	Soft bottom
48MW2	12/13/24	0855	0.0	125.99	137.03	Soft bottom, mud/sediment came up, needs redeveloped.
48MW3	12/13/24 1105 → YM	[redacted]	0.0	[redacted] 98.17 YM	126.22	soft bottom
[illegible]MW6	12/11/24	1300	0.0	66.65	79.86	Soft bottom - Mud/sediment came up w/sounder, needs redeveloped
48MW7	12/11/24	0777	0.1	51.00	84.33	Soft bottom - needs redeveloped
49MW01 *	12/12/24	1235	0.0	115.91	124.57	soft bottom + mud/sediment came up, redevelop
49MW02	12/13/24	1245	0.0	95.67	135.66	soft bottom
49MW03 *	12/12/24	0752	0.0	105.40	120.91	soft bottom
50MW2 *	12/12/24	1352	0.0	118.09	121.37	soft bottom - needs redeveloped
SWMU 54						
54MW1	12/10/24	1312	0.0	20.75	57.33	hard bottom
54MW10	12/10/24	1008	0.0	16.82	30.28	Soft bottom
54MW12	12/10/24	1120	0.0	25.98	32.92	hard bottom
54MW13	12/10/24	0840	0.1	22.52	25.28	hard bottom

Key: ppm = parts per million ft = feet TOC = top of casing BTOC = below top of casing

* PID readings taken on 12/13/24.

CAPE

320-16 WASTE INVENTORY SUMMARY

Contract Number	W912DR19D0004	DO/TO No:	W912DR24F0222	CAPE Project #	10409-0222-002-003	Project Location	RAAP, Radford, VA

Process Generating Waste	*Groundwater produced through purging and sampling the monitoring wells. IDW water from SWMU 48/49 is captured and maintained separately from SWMU 54 IDW water throughout the handling process.*

Load Number	Date	Description	Quantity (TNS or GAL)	Waste Classification	Receiving Disposal Facility	Method of Disposal	Date of Disposal or Destruction
1	8/19/24	IDW waste from SWMU 49	7 gal	Pending Analysis	—		
2	8/20/24	IDW + decon water from SWMU 54	8 gal	Pending Analysis	—		
3	8/21/24	IDW + decon water from SWMU 49	4 gal	Pending Analysis	—		
4	8/22/24	IDW + decon water from SWMU 49	6 gal	Pending Analysis	—		
5							
6	12/9/24	IDW from SWMU 49	15 gal	Pending Analysis	—		
7	12/10/24	IDW + decon water SWMU 54	10 gal	Pending Analysis	—		
8	12/11/24	IDW + decon water SWMU 49	5 gal	Pending Analysis	—		
9	12/12/24	IDW + decon water SWMU 49	6 gal	Pending Analysis	—		
10	12/13/24	IDW + decon water SWMU 49	4 gal	Pending Analysis	—		
11							
12	IDW drum	SWMU 49 has ~45 gallons total					
13	IDW drum	SWMU 54 has ~20 gallons total					
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							

TOTAL QUANTITY:	Page 1 of 1	0.00

APPENDIX A-2
FIELD NOTES

Radford, VA

Radford Army Ammunition Plant

8/19/24

~~0730~~ Personnel: Paul Taylor (Weston),
Yoko Miyakawa (COPC)

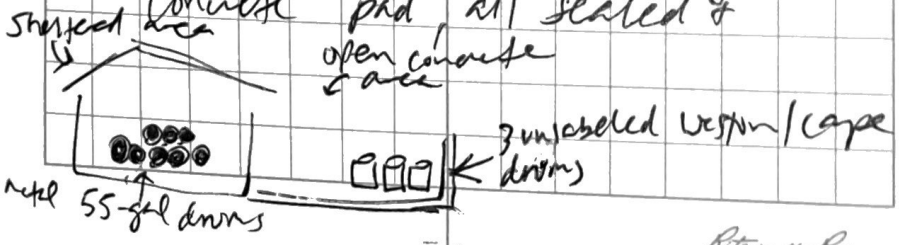
Weather: 70° Sunny

Objective: GW sampling @ SWMU 49 + 54

0730 @ registration office for badges
0830 meet Matt Alberts to show us facilities
0845 Calibrate YSI-Pro Quatro + MicroTPW Turbidity meter + PID

SpC -	1413 µS/cm	→	1414
~~pH4~~ -	pH 4	→	3.97
pH7 -	pH 7	→	6.99
pH10 -	pH 10	→	10.03
ORP -	240 mV	→	240.2
Turb. 0.02 -	0.02 NTU	→	0.04
100 -	100.0 NTU	→	100.20
1010 -	1000 NTU	→	996.1
PID -	Isobutylene 100 ppm	→	100.4 ppm

0905 gauged 13MW5 - see gauging sheet. + PID reading.
0917 post up @ 13MW4 - PID + DTW
setting up pump for sampling - threaded rod affixed to tubing w/ about 4" stick out to keep tubing off bottom of well, car battery to pump (peristaltic), through YSI flowcell, then into purge bucket
0933 took water parameter readings + sampled + MS/MSDs @ 1003 (see sample collection sheet)
1037 setup @ 13MW3 - PID + DTW
see gauging + sampling sheets.
FD @ this location
1205 setup @ 49MW04 - PID + DTW
see gauging + sampling sheets.
1320 setup @ 13MW2 - PID + DTW
see gauge + sample sheets
1420 gauged 49MW05
1430 packing up + leaving site to ~~BAE~~ BAE
1445 BAE storage area
3 blue poly drums empty on concrete pad, all sealed & labeled



Rite in the Rain

1452 7 gallons dumped into 48/49 designated drum + closed/bonded drums had few scratches + little rust lid but good condition.
Using a non-haz waste label w/ "pending analysis" written on it

Info on label:
Matthew Fentis 724-622-3625
Koop Redford, VA
Purge Water

Staging area 7-3pm for trash for tomorrow per Matt Albeas.

1520 P. Taylor + Y. Miyakawa offsite

8/19/24

RAAP
Radford, VA

8/21/24

Personnel: P. Taylor (Weston), Y. Miyakawa

Weather - 51°, foggy

Objective: GW gauge + sampling @ SWMU 49 + 54

0730 PT + YM onsite
0745 M. Alberts showing location of MWF Waste area
0805 setting up decon for gauging
Safety Tailgate conducted
calibrations performed

PID mini Rae 3000
Iso butylene 100 ppm → 100.2 ppm

YSI Pro Plus
SpC 1413 µS/cm → 1415
pH 4 → 3.98
pH 7 → 7.00
pH 10 → 10.01
ORP 240 mV → 240.1

Micro TPW Turbidity meter
0.02 ppm → 0.00
10.0 ppm → 9.83
1000 ppm → 1006

0815 gauging 1st well (not sampled) 48MW7
0822 gauged 2nd well (not sampled) 49MW03
0860 setup @ 48MW6, PID + gauging
see gauging + sample sheets
using bladder pump for today's deeper wells, starting w/ 4 cycles per minute (10 s fill, 5 second pump)
0915 changed to 2 cycles per minute (20 s/10 s) water struggling to move forward (check valve could be having trouble)
0920 Well likely needs to be redeveloped, brown, silty water ~20 mL/min going to change to 1 cycle per minute (40 s/20 s)
0925 water is less brown, very cloudy ~40 mL/min, no odor will keep this flow rate/cycle.
see gauging + sample sheets
1120 - 48MW6-EQB equipment blank sampled using bladder pump
1148 setup @ 48MW1
starting @ 1 cycle per minute (40 s/20 s)
1152 bubbling - trouble starting... possibly broken air line, came up fine w/ clear water.
Putting bladder pump back into well

Rite in the Rain

1213 Pump still not working
pulled it out of well to inspect
has busted o-ring. need to replace
1219 restarting pump, pulled again
replaced all O-Rings &
inspected assembly of tubing
@ pump
1245 restarted pump @ 1245
tried turning down pressure
not bubbling anymore but
seeing no movement
stopped pump
1300 calling M. Feits
local Pipe Rentals nearby?
M. Feits to also look into
other rental options
1318 P. Taylor reached out to material
group who suggested the collar
to seal the openings of the
pump
1327 pump works & producing water.
1457 see ganging + sampling sheets.
~~SOTHY~~ pump @ 49MW01
see ganging + sampling sheets
1516 ganged 49MW2, 49MW3, 49MW02,
and 50MW2 (not TD, will get
after sampling tomorrow)

1635 heading to ACD laydown/
BAE storage to drop off
IDW from SWMU 49
1645 IDW + decon water ~4 gal
dumped in SWMU 49 designated
drum
1650 P. Taylor + Y. Miyakawa offsite

Samples will be shipped to CT labs
in WI.

6/21/24

Rite in the Rain

RAAP
Radford, VA

8/22/24

Personnel: P. Taylor (Weston), Y Miyakawa

Weather: 50° Sunny

Objective: GW gauging & sampling @ SWMU 49-54

0740 PT + YM onsite
0750 At waste disposal site for Tv + Tb
0806 setup @ 50MW2 for calibration
safety tailgate conducted

YSI Pro Plus
SpC 1413 µS/cm → 1414
pH 4 → 3.96
pH 7 → 6.98
pH 10 → 10.02
ORP 240 mV → 240.2

MicroTPW Turbidity meter
0.02 ppm → 0.00 NTU
10.0 ppm → 9.80 NTU
1000 ppm → 1005 NTU

0843 starting pump @ 4 cycles/min (10s fill, 5s pump)
0847 changed to 2 cycles/min (20s/10s)
0849 changed to 1 cycle/min (40s/20s)
pulled pump to troubleshoot
water not reaching surface, not seeing any mud, collar is on
0920 pulling pump again to check. not much sediment cleared some sediment off ball valve + connectors & tubing. reinstalled into well.
0930 restarting pump — producing water
see sample/gauging sheets
1135 50MW2-EQB 0 sample taken from bladder pump
decon procedure later
1148 setup @ 48MW2
1205 starting pump @ 1 cycle/min
1220 producing water
see sample/gauging sheets
1323 setup @ 48MW3
1332 starting pump @ 1 cycle/min
pump is bubbling, going to pull it up & investigate.
1343 cleaned O-rings & checked connections. Restarting. No bubbling.

Rite in the Rain

1348 producing water
see sample / gauging sheets
1528 setup on 49MW02
1536 producing water
see sample / gauging sheets
1628 Heading to ACD pump area
1648 6 gal of IDW purge water + Acton water going into SWMU 49 designated drum
49IDW sample collected for waste characterization @ 1640
1650 P. Taylor + Y. Miyakawa offsite

Samples will be shipped to CT Labs in WI.

8/22/24

42 Radford, VA

12/9/24

Radford Army Ammunition Plant

Personnel: Paul Taylor (WESTON)
Yoko Miyakawa (CAPE)

Weather: 45°F, Rain

Objective: GW Sampling @ SWMU 49 + 54

0630 P. Taylor + Y. Miyakawa on site to sign in for visitor pass + vehicle pass
0725 arrived to burning grounds to meet w/ Matt Alberts to sign/receive permits

YSI Pro Plus Calibration

Sp C	1413 µS/cm →	1413
pH 4	→	3.99
pH 7	→	6.99
pH 10	→	10.05
ORP	240 mV →	239.8 mV

Micro TPW Turb. Meter

0.02	NTU →	0.02	0.00
10.0	NTU →	10.0	11.10
1000.0	NTU →	1000	1007

PID Honeywell miniRae 3000
100. Isobutylene → 100.6

0807 starting in SWMU 49 @ 13MW5
0835 started well purging (13MW5) w/ peristaltic pump
1012 setting up @ 13MW4 - MS/MSDs see gauging + sampling forms.
1150 setting up @ 13MW3 trying FD here (13TW3)
1342 setting up @ 49MW04
1447 setting up on 13MW2
1530 setting up on 49MW05
1620 leaving burning grounds area
1637 arrive @ BAE gate guard to dump IDW (~15gal) in SWMU 49 designated drum
1645 P. Taylor + Y. Miyakawa offsite

Samples will be shipped to CT labs in WI.

12/9/24

Rite in the Rain

Radford, VA
RAAP

12/11/24

Personnel: Paul Taylor (Weston),
Yoko Miyakawa (CAPE)

Weather: 53° Heavy Rain

Objective: GW Sampling @ SWMU 49 + 54

0700 P. Taylor + Y. Miyakawa onsite

YSI ProPlus calibration.
SpC 1413 µS/cm → 1413
pH 4 → 3.98
pH 7 → 7.00
pH 10 → 10.04
ORP → 240.3

Micro Turbidity meter
1000 → 1010
120 → 94.3
0.02 → 0.00
MiniRae 3000 PID
100 ISO but → 99.3

0734 setting up @ 48MW07
see gauging/sample sheet

0800 can't find power cable to pump controller, called hotel to see if anyone turned in, located alligator clip/cable leaving site to retrieve cable.
0915 Back onsite w/ cable + extra pump. Starting back up @ 48MW7.
0948 Pump not working very well, stopped after short operation, started noticing steam production coming out of well. Pulled pump out bladder is full of sediment/silty - opaque light tan/w water pump is set about 2 feet off bottom tried removing collar
0951 placing pump back into well. well utility needs retrieved/used
1105 equipment blank taken @ 48MW07 - COB
1145 offsite to get long YSI cable delivered to hotel.
1220 Calibrating new YSI
see next page ...

YSI Pro plus

Spcond. → 1414

pH 4 → 3.97

pH 7 → 6.99

pH 10 → 10.00

ORP → 240.1

1255 Brek onsite sentry pc @ 48MW6

1444 Done sampling + heading to restroom

1500 Dropping off/dumping IDW water @ BAE storage yard in SWMU 49 designated drum.

1505 dumping ~5gal decon + purge water

1520 Both parties offsite

Samples will ship to CT Labs.

12/11/24

Radford, VA 12/12/24 49

RAAP

Personnel: Paul Taylor (Weston), Yoko Miyakawa (CAPE)

Weather: 26°, Clear

Objective: GW sampling at SWMU 49/54

0700 P. Taylor + Y. Miyakawa onsite
0715 Heading to trash drop off location-closed.
0723 Stopping at truck parking pad for calibration. PID was left at hotel & headspace readings will not be taken today

YSI Pro Plus
Sp Cond. ⟶ 1412
pH 4 ⟶ 3.99
pH 7 ⟶ 7.03
pH 10 ⟶ 10.05
ORP ⟶ 240.1

Micro Turbidimeter
1000 NTU ⟶ 980.8
100.0 NTU ⟶ 9.38
0.02 NTU ⟶ 0.00

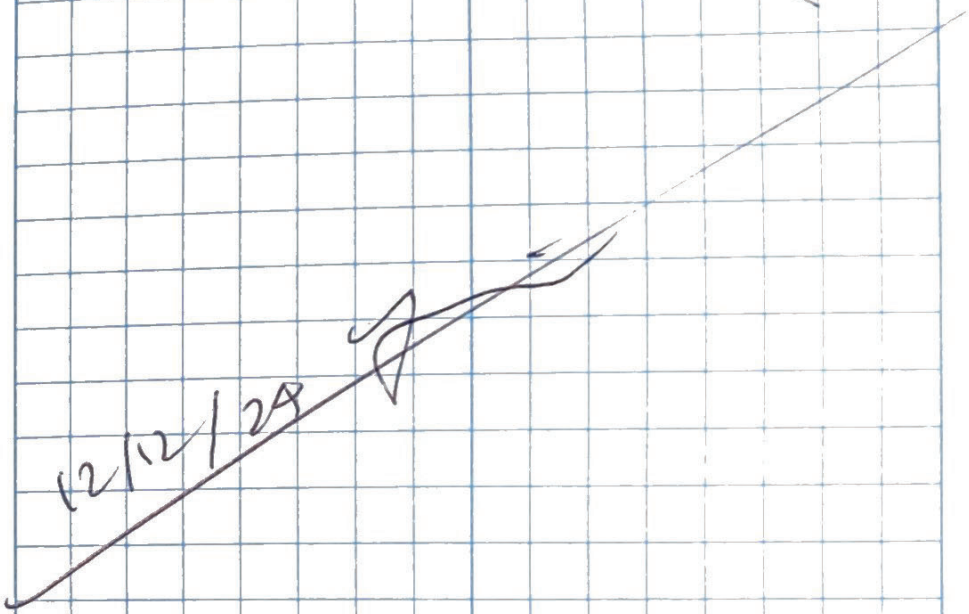
Equipment not working as accurately in freezing temperatures

Rite in the Rain.

0752 Starting setup at well 49MW03
0822 Well not pumping any water pulling up tubing to inspect it. No break in tubing, cleaned out ball valve (little bit of grit), + water in bladder + tubing - going to leave it to run a few cycles
0852 pump not pulling water up, increased the pressure, replaced an O-Ring.
0955 Equipment Blank taken → 49MW03-EQB
1035 ~~Setting up at~~ 48MW1
1140 Spectrophotometer for HACH tgt not powering on due to cold temp — batteries were just replaced on Monday (12/9)
Saving water from 48MW1 in unpreserved poly to test later
Taking field duplicate @ 48MW1 sample 48DUP1
1209 Setting up at 49MW01
1352 Setting up at 50MW2
1555 heading to ADI BASE staging yard to drop off IDW water
1610 Dumping ~6 gal of purge + decon IDW water in to designated drum for SWMU 49

1623 Both plates offsite

Samples will be shipped to CT Labs in WI.



Rite in the Rain

Radford, VA
RAAP

12/13/24

Personnel: P. Tayler (Weston),
Y. Miyakawa (CAPES)

Weather: 24° | sunny

Objective: GW Sampling @ SWMU 49/54

0745 P. Tayler + Y. Miyakawa onsite

YSI Pro Plus Calibration
SpC - 1411
pH 4 — 3.92
pH 7 — 6.99
pH 10 — 9.94
ORP 240.2
Turbidity Meter
1000 NTU — 985.4
10.0 NTU — 9.95
0.02 NTU — 0.04
MiniRae 3000 PID
100 Isobutylene — 99.3

Cold temp affecting Turbidity meter's ability to calibrate 0.02 NTU; will use during and

PID manual is present w/ unit
Recalibrated prior to use per MSDS
Time | Activity
0855 Getting setup at 48MW2
see sampler ranging sheets
0930 pump not working & water not coming out, stopped to pull up & inspect pump & tubing had been smashed — water tank
0938 replaced tubing (blue = air, clear = water) & restarting pump
1050 Equipment blank taken next
48MW2-EQB
1100 setting up @ 48MW3
1240 49MW02 is setting up
1407 Heading to ACD/RSE storage to dump IDW water & take samples
1422 Dumping IDW ~ 4 gallons
1425 Taking IDW sample: 49IDW
1555 Dropped off TBSL
1450 Back to ACD storage area to inventory & leave bin for equipment.
See next page for inventory list
1540 Both pastes possible

Samples will be shipped to CT labs in WI

12/13/24

Rite in the Rain

Inventory List

Partial box of M Gloves
Partial box of XL Gloves
~200ft bonded bladder pump Tubing
~400 ft peristaltic pump tubing
~25 ft flex Silicone Tubing
2 rolls paper towels
(1) threaded rod
small zip ties (plenty)
3 full rolls shipping tape
(8-10) lg contractor trash bags
(1) broom handle with string
Isobutylene calibration gas exp. Nov '27
@ 330 psi (~~100~~ ppm)
>half box lg KIM WIPE BOX
~800 ft nylon rope
~50mL liquinox detergent
(1) bladder
Lg ziploc bags
(1) Fire extinguisher
(1) BBP (responder) kit
(1) First Aid Kit
1 sm can WD-40
ultra fine sharpies
Ballpoint Pens
Sharpies

Bladder pump repair items
YSI calibration fluid (Cond, pH4,7,10, ORP)
Spectrophotometer reagent pretests (approx 40 each)
(2) Rubbermaid tubs - 1.5 G and 2.5 Gal
(2) Spray bottles - empty
(4) Trip Blanks
(5) extra VOA holder sponges
(8) Unpreserved 250mL polys
(12) H_2SO_4 preserved 250mL polys
(1) HNO_3 preserved 500mL poly
(1) Temp Blank
sm drink cooler
(3) buckets

Rite in the Rain

APPENDIX B-1
LABORATORY ANALYTICAL REPORTS

CT LABORATORIES
delivering more than data from your environmental analyses

1230 Lange Court • Baraboo, WI 53913 • 608-356-2760

www.ctlaboratories.com

ANALYTICAL SUMMARY REPORT

This report at a minimum contains the following information:

Analytical Report of Test Results
Description of QC Qualifiers
Chain of Custody (copy)
Quality Control Summary (if applicable)
Case Narrative (if applicable)
Correspondence with Client (if applicable)

This report has been specifically prepared to satisfy project or program requirements. These results are in compliance with NELAC requirements for parameters where accreditation is required or available, unless otherwise noted in the case narrative.

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

ANALYTICAL SAMPLE DATA

CAPE ENVIRONMENTAL MANAGEMENT
MATT FEITS
500 PINNACLE COURT
SUITE 100
NORCROSS, GA 30071

Project Name: RADFORD AAP
Project Phase: SWMU 49
Project #: 10409-0222
Folder #: 188736
Purchase Order #: SC013781
Contract #: 3648

Arrival Temperature: 1.6
Report Date: 9/5/2024
Date Received: 8/20/2024
Reprint Date: 9/5/2024

Copy: chemistrysvcs@cape-inc.com

CT LAB#: 1493228 Sample Description: TB-1 Client Sample #: Sampled: 8/19/2024 00:00

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Organic Results													
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			8/26/24 21:26	DGS	EPA 8260C
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			8/26/24 21:26	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			8/26/24 21:26	DGS	EPA 8260C
1,1-Dichloroethane	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			8/26/24 21:26	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			8/26/24 21:26	DGS	EPA 8260C
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			8/26/24 21:26	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			8/26/24 21:26	DGS	EPA 8260C
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.35	1.0	2.0	2.0	1.00	U Z			8/26/24 21:26	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/26/24 21:26	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/26/24 21:26	DGS	EPA 8260C
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			8/26/24 21:26	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/26/24 21:26	DGS	EPA 8260C
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			8/26/24 21:26	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/26/24 21:26	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			8/26/24 21:26	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U Z			8/26/24 21:26	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1493228 Sample Description: TB-1 Client Sample #: Sampled: 8/19/2024 00:00

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			8/26/24 21:26	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			8/26/24 21:26	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			8/26/24 21:26	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			8/26/24 21:26	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			8/26/24 21:26	DGS	EPA 8260C
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			8/26/24 21:26	DGS	EPA 8260C
Bromodichloromethane	<0.25	ug/L	0.080	0.25	0.50	0.50	1.00	U			8/26/24 21:26	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			8/26/24 21:26	DGS	EPA 8260C
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U Z			8/26/24 21:26	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			8/26/24 21:26	DGS	EPA 8260C
Carbon tetrachloride	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/26/24 21:26	DGS	EPA 8260C
Chlorobenzene	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/26/24 21:26	DGS	EPA 8260C
Chloroethane	<1.0	ug/L	0.36	1.0	2.0	2.0	1.00	U			8/26/24 21:26	DGS	EPA 8260C
Chloroform	<1.0	ug/L	0.46	1.0	1.4	1.4	1.00	U			8/26/24 21:26	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			8/26/24 21:26	DGS	EPA 8260C
cis-1,2-Dichloroethene	<1.0	ug/L	0.41	1.0	1.3	1.3	1.00	U			8/26/24 21:26	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.34	1.0	1.1	1.1	1.00	U			8/26/24 21:26	DGS	EPA 8260C
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U Z			8/26/24 21:26	DGS	EPA 8260C
Dibromochloromethane	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/26/24 21:26	DGS	EPA 8260C
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			8/26/24 21:26	DGS	EPA 8260C
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			8/26/24 21:26	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			8/26/24 21:26	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			8/26/24 21:26	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			8/26/24 21:26	DGS	EPA 8260C
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			8/26/24 21:26	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			8/26/24 21:26	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U			8/26/24 21:26	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.72	2.0	2.2	2.2	1.00	U			8/26/24 21:26	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1493228 Sample Description: TB-1 Client Sample #: Sampled: 8/19/2024 00:00

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/26/24 21:26	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.54	1.0	2.0	2.0	1.00	U			8/26/24 21:26	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			8/26/24 21:26	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/26/24 21:26	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			8/26/24 21:26	DGS	EPA 8260C
Trichloroethene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			8/26/24 21:26	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U Z			8/26/24 21:26	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			8/26/24 21:26	DGS	EPA 8260C
1,2 Dichloroethane-d4	101	% Recovery	81			118	1.00				8/26/24 21:26	DGS	EPA 8260C
Bromofluorobenzene	99.0	% Recovery	85			114	1.00				8/26/24 21:26	DGS	EPA 8260C
d8-Toluene	104	% Recovery	89			112	1.00				8/26/24 21:26	DGS	EPA 8260C
Dibromofluoromethane	102	% Recovery	80			119	1.00				8/26/24 21:26	DGS	EPA 8260C

CT LAB#: 1493229 Sample Description: 13MW4 Client Sample #: Sampled: 8/19/2024 10:08

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results													
Chloride	***3.4***	mg/L	1.0	1.5	3.0	3.0	1.00	M			8/20/24 11:54	TMG	EPA 9056A
Nitrate Nitrogen	***0.17***	mg/L	0.12	0.20	0.40	0.40	1.00	J M			8/20/24 11:54	TMG	EPA 9056A
Sulfate	***67***	mg/L	0.80	1.5	3.0	3.0	1.00	M			8/20/24 11:54	TMG	EPA 9056A
Total Organic Carbon	<1.5	mg/L	0.4	1.5	3.0	3.0	1.00	U			8/21/24 10:47	TMG	EPA 9060A
Organic Results													
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			8/26/24 23:46	DGS	EPA 8260C
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			8/26/24 23:46	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			8/26/24 23:46	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1493229 Sample Description: 13MW4 Client Sample #: Sampled: 8/19/2024 10:08

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
1,1-Dichloroethane	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			8/26/24 23:46	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			8/26/24 23:46	DGS	EPA 8260C
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			8/26/24 23:46	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			8/26/24 23:46	DGS	EPA 8260C
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.35	1.0	2.0	2.0	1.00	U Z			8/26/24 23:46	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/26/24 23:46	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/26/24 23:46	DGS	EPA 8260C
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			8/26/24 23:46	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/26/24 23:46	DGS	EPA 8260C
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			8/26/24 23:46	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/26/24 23:46	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			8/26/24 23:46	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U Z			8/26/24 23:46	DGS	EPA 8260C
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			8/26/24 23:46	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			8/26/24 23:46	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			8/26/24 23:46	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			8/26/24 23:46	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			8/26/24 23:46	DGS	EPA 8260C
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			8/26/24 23:46	DGS	EPA 8260C
Bromodichloromethane	<0.25	ug/L	0.080	0.25	0.50	0.50	1.00	U			8/26/24 23:46	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			8/26/24 23:46	DGS	EPA 8260C
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U Z			8/26/24 23:46	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			8/26/24 23:46	DGS	EPA 8260C
Carbon tetrachloride	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/26/24 23:46	DGS	EPA 8260C
Chlorobenzene	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/26/24 23:46	DGS	EPA 8260C
Chloroethane	<1.0	ug/L	0.36	1.0	2.0	2.0	1.00	U			8/26/24 23:46	DGS	EPA 8260C
Chloroform	<1.0	ug/L	0.46	1.0	1.4	1.4	1.00	U			8/26/24 23:46	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			8/26/24 23:46	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1493229 Sample Description: 13MW4 Client Sample #: Sampled: 8/19/2024 10:08

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
cis-1,2-Dichloroethene	<1.0	ug/L	0.41	1.0	1.3	1.3	1.00	U			8/26/24 23:46	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.34	1.0	1.1	1.1	1.00	U			8/26/24 23:46	DGS	EPA 8260C
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U Z			8/26/24 23:46	DGS	EPA 8260C
Dibromochloromethane	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/26/24 23:46	DGS	EPA 8260C
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			8/26/24 23:46	DGS	EPA 8260C
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			8/26/24 23:46	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			8/26/24 23:46	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			8/26/24 23:46	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			8/26/24 23:46	DGS	EPA 8260C
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			8/26/24 23:46	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			8/26/24 23:46	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U			8/26/24 23:46	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.72	2.0	2.2	2.2	1.00	U			8/26/24 23:46	DGS	EPA 8260C
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/26/24 23:46	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.54	1.0	2.0	2.0	1.00	U			8/26/24 23:46	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			8/26/24 23:46	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/26/24 23:46	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			8/26/24 23:46	DGS	EPA 8260C
Trichloroethene	***0.83***	ug/L	0.39	1.0	1.2	1.2	1.00	J			8/26/24 23:46	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U Z			8/26/24 23:46	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			8/26/24 23:46	DGS	EPA 8260C
1,2 Dichloroethane-d4	103	% Recovery	81			118	1.00				8/26/24 23:46	DGS	EPA 8260C
Bromofluorobenzene	99.0	% Recovery	85			114	1.00				8/26/24 23:46	DGS	EPA 8260C
d8-Toluene	106	% Recovery	89			112	1.00				8/26/24 23:46	DGS	EPA 8260C
Dibromofluoromethane	103	% Recovery	80			119	1.00				8/26/24 23:46	DGS	EPA 8260C
Ethane	<0.80	ug/L	0.38	0.80	1.0	1.0	1.00	U		8/21/24 11:05	8/21/24 11:49	SRW	RSK 175
Ethene	<1.2	ug/L	0.59	1.2	1.4	1.4	1.00	U		8/21/24 11:05	8/21/24 11:49	SRW	RSK 175
Methane	<0.90	ug/L	0.45	0.90	1.0	1.0	1.00	U		8/21/24 11:05	8/21/24 11:49	SRW	RSK 175

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1493229 Sample Description: 13MW4 Client Sample #: Sampled: 8/19/2024 10:08

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method

CT LAB#: 1493230 Sample Description: 13MW3 Client Sample #: Sampled: 8/19/2024 11:35

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results													
Chloride	***3.2***	mg/L	1.0	1.5	3.0	3.0	1.00				8/20/24 12:17	TMG	EPA 9056A
Nitrate Nitrogen	***1.4***	mg/L	0.12	0.20	0.40	0.40	1.00				8/20/24 12:17	TMG	EPA 9056A
Sulfate	***96***	mg/L	4.0	7.5	15	15	5.00				8/20/24 17:15	TMG	EPA 9056A
Total Organic Carbon	***0.43***	mg/L	0.4	1.5	3.0	3.0	1.00	J			8/21/24 11:39	TMG	EPA 9060A
Organic Results													
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			8/27/24 00:14	DGS	EPA 8260C
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			8/27/24 00:14	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			8/27/24 00:14	DGS	EPA 8260C
1,1-Dichloroethane	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			8/27/24 00:14	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			8/27/24 00:14	DGS	EPA 8260C
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			8/27/24 00:14	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			8/27/24 00:14	DGS	EPA 8260C
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.35	1.0	2.0	2.0	1.00	U Z			8/27/24 00:14	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/27/24 00:14	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/27/24 00:14	DGS	EPA 8260C
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			8/27/24 00:14	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/27/24 00:14	DGS	EPA 8260C
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			8/27/24 00:14	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/27/24 00:14	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			8/27/24 00:14	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U Z			8/27/24 00:14	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1493230 Sample Description: 13MW3 Client Sample #: Sampled: 8/19/2024 11:35

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			8/27/24 00:14	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			8/27/24 00:14	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			8/27/24 00:14	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			8/27/24 00:14	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			8/27/24 00:14	DGS	EPA 8260C
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			8/27/24 00:14	DGS	EPA 8260C
Bromodichloromethane	<0.25	ug/L	0.080	0.25	0.50	0.50	1.00	U			8/27/24 00:14	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			8/27/24 00:14	DGS	EPA 8260C
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U Z			8/27/24 00:14	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			8/27/24 00:14	DGS	EPA 8260C
Carbon tetrachloride	***3.4***	ug/L	0.37	1.0	1.2	1.2	1.00				8/27/24 00:14	DGS	EPA 8260C
Chlorobenzene	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/27/24 00:14	DGS	EPA 8260C
Chloroethane	<1.0	ug/L	0.36	1.0	2.0	2.0	1.00	U			8/27/24 00:14	DGS	EPA 8260C
Chloroform	<1.0	ug/L	0.46	1.0	1.4	1.4	1.00	U			8/27/24 00:14	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			8/27/24 00:14	DGS	EPA 8260C
cis-1,2-Dichloroethene	<1.0	ug/L	0.41	1.0	1.3	1.3	1.00	U			8/27/24 00:14	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.34	1.0	1.1	1.1	1.00	U			8/27/24 00:14	DGS	EPA 8260C
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U Z			8/27/24 00:14	DGS	EPA 8260C
Dibromochloromethane	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/27/24 00:14	DGS	EPA 8260C
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			8/27/24 00:14	DGS	EPA 8260C
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			8/27/24 00:14	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			8/27/24 00:14	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			8/27/24 00:14	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			8/27/24 00:14	DGS	EPA 8260C
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			8/27/24 00:14	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			8/27/24 00:14	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U			8/27/24 00:14	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.72	2.0	2.2	2.2	1.00	U			8/27/24 00:14	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1493230 Sample Description: 13MW3 Client Sample #: Sampled: 8/19/2024 11:35

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/27/24 00:14	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.54	1.0	2.0	2.0	1.00	U			8/27/24 00:14	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			8/27/24 00:14	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/27/24 00:14	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			8/27/24 00:14	DGS	EPA 8260C
Trichloroethene	***0.63***	ug/L	0.39	1.0	1.2	1.2	1.00	J			8/27/24 00:14	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U Z			8/27/24 00:14	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			8/27/24 00:14	DGS	EPA 8260C
1,2 Dichloroethane-d4	105	% Recovery	81			118	1.00				8/27/24 00:14	DGS	EPA 8260C
Bromofluorobenzene	98.0	% Recovery	85			114	1.00				8/27/24 00:14	DGS	EPA 8260C
d8-Toluene	104	% Recovery	89			112	1.00				8/27/24 00:14	DGS	EPA 8260C
Dibromofluoromethane	102	% Recovery	80			119	1.00				8/27/24 00:14	DGS	EPA 8260C
Ethane	<0.80	ug/L	0.38	0.80	1.0	1.0	1.00	U		8/21/24 11:05	8/21/24 12:01	SRW	RSK 175
Ethene	<1.2	ug/L	0.59	1.2	1.4	1.4	1.00	U		8/21/24 11:05	8/21/24 12:01	SRW	RSK 175
Methane	<0.90	ug/L	0.45	0.90	1.0	1.0	1.00	U		8/21/24 11:05	8/21/24 12:01	SRW	RSK 175

CT LAB#: 1493231 Sample Description: 49MW04 Client Sample #: Sampled: 8/19/2024 12:45

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results													
Chloride	***5.8***	mg/L	1.0	1.5	3.0	3.0	1.00				8/20/24 12:40	TMG	EPA 9056A
Nitrate Nitrogen	***0.29***	mg/L	0.12	0.20	0.40	0.40	1.00	J			8/20/24 12:40	TMG	EPA 9056A
Sulfate	***62***	mg/L	0.80	1.5	3.0	3.0	1.00				8/20/24 12:40	TMG	EPA 9056A
Total Organic Carbon	***0.47***	mg/L	0.4	1.5	3.0	3.0	1.00	J			8/21/24 11:52	TMG	EPA 9060A
Organic Results													

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1493231 Sample Description: 49MW04 Client Sample #: Sampled: 8/19/2024 12:45

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			8/27/24 00:42	DGS	EPA 8260C
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			8/27/24 00:42	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			8/27/24 00:42	DGS	EPA 8260C
1,1-Dichloroethane	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			8/27/24 00:42	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			8/27/24 00:42	DGS	EPA 8260C
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			8/27/24 00:42	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			8/27/24 00:42	DGS	EPA 8260C
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.35	1.0	2.0	2.0	1.00	U Z			8/27/24 00:42	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/27/24 00:42	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/27/24 00:42	DGS	EPA 8260C
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			8/27/24 00:42	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/27/24 00:42	DGS	EPA 8260C
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			8/27/24 00:42	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/27/24 00:42	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			8/27/24 00:42	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U Z			8/27/24 00:42	DGS	EPA 8260C
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			8/27/24 00:42	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			8/27/24 00:42	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			8/27/24 00:42	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			8/27/24 00:42	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			8/27/24 00:42	DGS	EPA 8260C
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			8/27/24 00:42	DGS	EPA 8260C
Bromodichloromethane	<0.25	ug/L	0.080	0.25	0.50	0.50	1.00	U			8/27/24 00:42	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			8/27/24 00:42	DGS	EPA 8260C
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U Z			8/27/24 00:42	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			8/27/24 00:42	DGS	EPA 8260C
Carbon tetrachloride	***0.60***	ug/L	0.37	1.0	1.2	1.2	1.00	J			8/27/24 00:42	DGS	EPA 8260C
Chlorobenzene	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/27/24 00:42	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1493231 Sample Description: 49MW04 Client Sample #: Sampled: 8/19/2024 12:45

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Chloroethane	<1.0	ug/L	0.36	1.0	2.0	2.0	1.00	U			8/27/24 00:42	DGS	EPA 8260C
Chloroform	<1.0	ug/L	0.46	1.0	1.4	1.4	1.00	U			8/27/24 00:42	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			8/27/24 00:42	DGS	EPA 8260C
cis-1,2-Dichloroethene	<1.0	ug/L	0.41	1.0	1.3	1.3	1.00	U			8/27/24 00:42	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.34	1.0	1.1	1.1	1.00	U			8/27/24 00:42	DGS	EPA 8260C
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U Z			8/27/24 00:42	DGS	EPA 8260C
Dibromochloromethane	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/27/24 00:42	DGS	EPA 8260C
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			8/27/24 00:42	DGS	EPA 8260C
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			8/27/24 00:42	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			8/27/24 00:42	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			8/27/24 00:42	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			8/27/24 00:42	DGS	EPA 8260C
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			8/27/24 00:42	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			8/27/24 00:42	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U			8/27/24 00:42	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.72	2.0	2.2	2.2	1.00	U			8/27/24 00:42	DGS	EPA 8260C
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/27/24 00:42	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.54	1.0	2.0	2.0	1.00	U			8/27/24 00:42	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			8/27/24 00:42	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/27/24 00:42	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			8/27/24 00:42	DGS	EPA 8260C
Trichloroethene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			8/27/24 00:42	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U Z			8/27/24 00:42	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			8/27/24 00:42	DGS	EPA 8260C
1,2 Dichloroethane-d4	103	% Recovery	81			118	1.00				8/27/24 00:42	DGS	EPA 8260C
Bromofluorobenzene	98.0	% Recovery	85			114	1.00				8/27/24 00:42	DGS	EPA 8260C
d8-Toluene	105	% Recovery	89			112	1.00				8/27/24 00:42	DGS	EPA 8260C
Dibromofluoromethane	103	% Recovery	80			119	1.00				8/27/24 00:42	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1493231 Sample Description: 49MW04 Client Sample #: Sampled: 8/19/2024 12:45

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Ethane	<0.80	ug/L	0.38	0.80	1.0	1.0	1.00	U		8/21/24 11:05	8/21/24 12:05	SRW	RSK 175
Ethene	<1.2	ug/L	0.59	1.2	1.4	1.4	1.00	U		8/21/24 11:05	8/21/24 12:05	SRW	RSK 175
Methane	<0.90	ug/L	0.45	0.90	1.0	1.0	1.00	U		8/21/24 11:05	8/21/24 12:05	SRW	RSK 175

CT LAB#: 1493232 Sample Description: 13MW2 Client Sample #: Sampled: 8/19/2024 13:50

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results													
Chloride	***2.3***	mg/L	1.0	1.5	3.0	3.0	1.00	J			8/20/24 13:03	TMG	EPA 9056A
Nitrate Nitrogen	***0.17***	mg/L	0.12	0.20	0.40	0.40	1.00	J			8/20/24 13:03	TMG	EPA 9056A
Sulfate	***31***	mg/L	0.80	1.5	3.0	3.0	1.00				8/20/24 13:03	TMG	EPA 9056A
Total Organic Carbon	<1.5	mg/L	0.4	1.5	3.0	3.0	1.00	U			8/21/24 12:03	TMG	EPA 9060A
Organic Results													
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			8/27/24 01:10	DGS	EPA 8260C
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			8/27/24 01:10	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			8/27/24 01:10	DGS	EPA 8260C
1,1-Dichloroethane	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			8/27/24 01:10	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			8/27/24 01:10	DGS	EPA 8260C
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			8/27/24 01:10	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			8/27/24 01:10	DGS	EPA 8260C
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.35	1.0	2.0	2.0	1.00	U Z			8/27/24 01:10	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/27/24 01:10	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/27/24 01:10	DGS	EPA 8260C
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			8/27/24 01:10	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/27/24 01:10	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1493232 Sample Description: 13MW2 Client Sample #: Sampled: 8/19/2024 13:50

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			8/27/24 01:10	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/27/24 01:10	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			8/27/24 01:10	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U Z			8/27/24 01:10	DGS	EPA 8260C
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			8/27/24 01:10	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			8/27/24 01:10	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			8/27/24 01:10	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			8/27/24 01:10	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			8/27/24 01:10	DGS	EPA 8260C
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			8/27/24 01:10	DGS	EPA 8260C
Bromodichloromethane	<0.25	ug/L	0.080	0.25	0.50	0.50	1.00	U			8/27/24 01:10	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			8/27/24 01:10	DGS	EPA 8260C
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U Z			8/27/24 01:10	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			8/27/24 01:10	DGS	EPA 8260C
Carbon tetrachloride	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/27/24 01:10	DGS	EPA 8260C
Chlorobenzene	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/27/24 01:10	DGS	EPA 8260C
Chloroethane	<1.0	ug/L	0.36	1.0	2.0	2.0	1.00	U			8/27/24 01:10	DGS	EPA 8260C
Chloroform	<1.0	ug/L	0.46	1.0	1.4	1.4	1.00	U			8/27/24 01:10	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			8/27/24 01:10	DGS	EPA 8260C
cis-1,2-Dichloroethene	<1.0	ug/L	0.41	1.0	1.3	1.3	1.00	U			8/27/24 01:10	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.34	1.0	1.1	1.1	1.00	U			8/27/24 01:10	DGS	EPA 8260C
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U Z			8/27/24 01:10	DGS	EPA 8260C
Dibromochloromethane	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/27/24 01:10	DGS	EPA 8260C
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			8/27/24 01:10	DGS	EPA 8260C
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			8/27/24 01:10	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			8/27/24 01:10	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			8/27/24 01:10	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			8/27/24 01:10	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1493232 Sample Description: 13MW2 Client Sample #: Sampled: 8/19/2024 13:50

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			8/27/24 01:10	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			8/27/24 01:10	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U			8/27/24 01:10	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.72	2.0	2.2	2.2	1.00	U			8/27/24 01:10	DGS	EPA 8260C
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/27/24 01:10	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.54	1.0	2.0	2.0	1.00	U			8/27/24 01:10	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			8/27/24 01:10	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/27/24 01:10	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			8/27/24 01:10	DGS	EPA 8260C
Trichloroethene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			8/27/24 01:10	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U Z			8/27/24 01:10	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			8/27/24 01:10	DGS	EPA 8260C
1,2 Dichloroethane-d4	102	% Recovery	81			118	1.00				8/27/24 01:10	DGS	EPA 8260C
Bromofluorobenzene	99.0	% Recovery	85			114	1.00				8/27/24 01:10	DGS	EPA 8260C
d8-Toluene	104	% Recovery	89			112	1.00				8/27/24 01:10	DGS	EPA 8260C
Dibromofluoromethane	102	% Recovery	80			119	1.00				8/27/24 01:10	DGS	EPA 8260C
Ethane	<0.80	ug/L	0.38	0.80	1.0	1.0	1.00	U		8/21/24 11:05	8/21/24 12:09	SRW	RSK 175
Ethene	<1.2	ug/L	0.59	1.2	1.4	1.4	1.00	U		8/21/24 11:05	8/21/24 12:09	SRW	RSK 175
Methane	<0.90	ug/L	0.45	0.90	1.0	1.0	1.00	U		8/21/24 11:05	8/21/24 12:09	SRW	RSK 175

CT LAB#: 1493233 Sample Description: 13TW3 Client Sample #: Sampled: 8/19/2024 11:35

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results													
Chloride	***3.2***	mg/L	1.0	1.5	3.0	3.0	1.00				8/20/24 13:26	TMG	EPA 9056A
Nitrate Nitrogen	***1.4***	mg/L	0.12	0.20	0.40	0.40	1.00				8/20/24 13:26	TMG	EPA 9056A

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1493233 Sample Description: 13TW3 Client Sample #: Sampled: 8/19/2024 11:35

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Sulfate	***96***	mg/L	4.0	7.5	15	15	5.00				8/20/24 22:35	TMG	EPA 9056A
Total Organic Carbon	<1.5	mg/L	0.4	1.5	3.0	3.0	1.00	U			8/21/24 12:17	TMG	EPA 9060A
Organic Results													
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			8/27/24 01:38	DGS	EPA 8260C
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			8/27/24 01:38	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			8/27/24 01:38	DGS	EPA 8260C
1,1-Dichloroethane	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			8/27/24 01:38	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			8/27/24 01:38	DGS	EPA 8260C
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			8/27/24 01:38	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			8/27/24 01:38	DGS	EPA 8260C
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.35	1.0	2.0	2.0	1.00	U Z			8/27/24 01:38	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/27/24 01:38	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/27/24 01:38	DGS	EPA 8260C
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			8/27/24 01:38	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/27/24 01:38	DGS	EPA 8260C
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			8/27/24 01:38	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/27/24 01:38	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			8/27/24 01:38	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U Z			8/27/24 01:38	DGS	EPA 8260C
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			8/27/24 01:38	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			8/27/24 01:38	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			8/27/24 01:38	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			8/27/24 01:38	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			8/27/24 01:38	DGS	EPA 8260C
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			8/27/24 01:38	DGS	EPA 8260C
Bromodichloromethane	<0.25	ug/L	0.080	0.25	0.50	0.50	1.00	U			8/27/24 01:38	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			8/27/24 01:38	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1493233 Sample Description: 13TW3 Client Sample #: Sampled: 8/19/2024 11:35

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U Z			8/27/24 01:38	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			8/27/24 01:38	DGS	EPA 8260C
Carbon tetrachloride	***3.4***	ug/L	0.37	1.0	1.2	1.2	1.00				8/27/24 01:38	DGS	EPA 8260C
Chlorobenzene	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/27/24 01:38	DGS	EPA 8260C
Chloroethane	<1.0	ug/L	0.36	1.0	2.0	2.0	1.00	U			8/27/24 01:38	DGS	EPA 8260C
Chloroform	<1.0	ug/L	0.46	1.0	1.4	1.4	1.00	U			8/27/24 01:38	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			8/27/24 01:38	DGS	EPA 8260C
cis-1,2-Dichloroethene	<1.0	ug/L	0.41	1.0	1.3	1.3	1.00	U			8/27/24 01:38	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.34	1.0	1.1	1.1	1.00	U			8/27/24 01:38	DGS	EPA 8260C
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U Z			8/27/24 01:38	DGS	EPA 8260C
Dibromochloromethane	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/27/24 01:38	DGS	EPA 8260C
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			8/27/24 01:38	DGS	EPA 8260C
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			8/27/24 01:38	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			8/27/24 01:38	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			8/27/24 01:38	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			8/27/24 01:38	DGS	EPA 8260C
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			8/27/24 01:38	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			8/27/24 01:38	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U			8/27/24 01:38	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.72	2.0	2.2	2.2	1.00	U			8/27/24 01:38	DGS	EPA 8260C
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/27/24 01:38	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.54	1.0	2.0	2.0	1.00	U			8/27/24 01:38	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			8/27/24 01:38	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/27/24 01:38	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			8/27/24 01:38	DGS	EPA 8260C
Trichloroethene	***0.57***	ug/L	0.39	1.0	1.2	1.2	1.00	J			8/27/24 01:38	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U Z			8/27/24 01:38	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			8/27/24 01:38	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1493233 Sample Description: 13TW3 Client Sample #: Sampled: 8/19/2024 11:35

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
1,2 Dichloroethane-d4	100	% Recovery	81			118	1.00				8/27/24 01:38	DGS	EPA 8260C
Bromofluorobenzene	101	% Recovery	85			114	1.00				8/27/24 01:38	DGS	EPA 8260C
d8-Toluene	105	% Recovery	89			112	1.00				8/27/24 01:38	DGS	EPA 8260C
Dibromofluoromethane	102	% Recovery	80			119	1.00				8/27/24 01:38	DGS	EPA 8260C
Ethane	<0.80	ug/L	0.38	0.80	1.0	1.0	1.00	U		8/21/24 11:05	8/21/24 12:12	SRW	RSK 175
Ethene	<1.2	ug/L	0.59	1.2	1.4	1.4	1.00	U		8/21/24 11:05	8/21/24 12:12	SRW	RSK 175
Methane	<0.90	ug/L	0.45	0.90	1.0	1.0	1.00	U		8/21/24 11:05	8/21/24 12:12	SRW	RSK 175

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

Notes:

^ Indicates the laboratory is NELAP accredited for this analyte by the indicated matrix and method . DL (detection limit), LOD (limit of detection), loq (limit of quantitation) as defined by most recent DOD QSM version.

All samples were received intact and properly preserved unless otherwise noted . The results reported relate only to the samples tested. This report shall not be reproduced, except in full, without written approval of this laboratory. The Chain of Custody is attached.

This report has been specifically prepared to satisfy project or program requirements. These results are in compliance with NELAC requirements for the parameters where accreditation is required or available, unless noted in the case narrative.

Submitted by: Brett M. Szymanski
Project Manager
608-356-2760

QC Qualifiers

Code	Description
B	Analyte detected in the associated Method Blank.
C	Toxicity present in BOD sample.
D	Diluted Out.
E	Safe, No Total Coliform detected.
F	Unsafe, Total Coliform detected, no E. Coli detected.
G	Unsafe, Total Coliform detected and E. Coli detected.
H	Holding time exceeded.
I	Incubator temperature was outside acceptance limits during test period.
J	Estimated value.
L	Significant peaks were detected outside the chromatographic window.
M	Matrix spike and/or Matrix Spike Duplicate recovery outside acceptance limits.
N	Insufficient BOD oxygen depletion.
O	Complete BOD oxygen depletion.
P	Concentration of analyte differs more than 40% between primary and confirmation analysis.
Q	Laboratory Control Sample outside acceptance limits.
R	See Narrative at end of report.
S	Surrogate standard recovery outside acceptance limits due to apparent matrix effects.
T	Sample received with improper preservation or temperature.
U	Analyte concentration was below detection limit.
V	Raised Quantitation or Reporting Limit due to limited sample amount or dilution for matrix background interference.
W	Sample amount received was below program minimum.
X	Analyte exceeded calibration range.
Y	Replicate/Duplicate precision outside acceptance limits.
Z	Specified calibration criteria was not met.

Current CT Laboratories Certifications

Wisconsin (WDNR) Chemistry ID# 157066030
Wisconsin (DATCP) Bacteriology ID# 289
Louisiana NELAP (primary) ID# ACC20190002
Illinois NELAP Lab ID# 200073
Kansas NELAP Lab ID# E-10368
Virginia NELAP Lab ID# 460203
ISO/IEC 17025-2005 A2LA Cert # 3806.01
DoD-ELAP A2LA 3806.01
GA EPD Stipulation ID ACC20190002

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QC Summary Report

CAPE ENVIRONMENTAL MANAGEMENT **Project Name: RADFORD AAP**

SDG #: 0 **Folder #: 188736** **Project #: 10409-0222**

Duplicate

Analytical Run #:	284727	Analysis Date:	8/20/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1494527	Analysis Time:	14:35	Prep Date/Time:		Method:	SW9056A
Parent Sample #:	1493229	Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Chloride	3.37	mg/L	3.4				3.0	1	10
Nitrate Nitrogen	0.179	mg/L	0.17				0.40	5	10
Sulfate	67.0	mg/L	67				3.0	0	10

Lab Control Spike Water

Analytical Run #:	284727	Analysis Date:	8/20/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1494525	Analysis Time:	10:23	Prep Date/Time:		Method:	SW9056A
Parent Sample #:		Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits			RPD	RPD Limit
Chloride	13.87	mg/L			15.00	92	87	---	111		
Nitrate Nitrogen	3.277	mg/L			3.500	94	88	---	111		
Sulfate	24.49	mg/L			25.00	98	87	---	112		

Method Blank Water

Analytical Run #:	284727	Analysis Date:	8/20/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1494526	Analysis Time:	10:46	Prep Date/Time:		Method:	SW9056A
Parent Sample #:		Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Chloride	1.0	mg/L		U	0		1.5		
Nitrate Nitrogen	0.12	mg/L		U	0		0.20		
Sulfate	0.8	mg/L		U	0		1.5		

Matrix Spike Duplicate Water

Analytical Run #:	284727	Analysis Date:	8/20/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1494538	Analysis Time:	16:06	Prep Date/Time:		Method:	SW9056A
Parent Sample #:	1494530	Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits			RPD	RPD Limit
Chloride	10.2	mg/L	3.4		8.00	85	87	---	111	1	15
Nitrate Nitrogen	1.93	mg/L	0.17		2.00	88	88	---	111	1	15
Sulfate	93.4	mg/L	67		40.0	66	87	---	112	4	15

Matrix Spike Water

Analytical Run #:	284727	Analysis Date:	8/20/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1494530	Analysis Time:	15:43	Prep Date/Time:		Method:	SW9056A
Parent Sample #:	1493229	Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Chloride	10.1	mg/L	3.4		8.00	84	87 --- 111		15
Nitrate Nitrogen	1.91	mg/L	0.17		2.00	87	88 --- 111		15
Sulfate	97.3	mg/L	67		40.0	76	87 --- 112		15

Duplicate

Analytical Run #:	284751	Analysis Date:	8/21/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1494064	Analysis Time:	11:00	Prep Date/Time:		Method:	SW9060
Parent Sample #:	1493229	Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Organic Carbon	0.4	mg/L	<DL	U			1.5	0	20

Lab Control Spike Water

Analytical Run #:	284751	Analysis Date:	8/21/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1494062	Analysis Time:	10:19	Prep Date/Time:		Method:	SW9060
Parent Sample #:		Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Organic Carbon	54.91	mg/L			50.0	110	85 --- 111		20

Method Blank Water

Analytical Run #:	284751	Analysis Date:	8/21/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1494063	Analysis Time:	10:34	Prep Date/Time:		Method:	SW9060
Parent Sample #:		Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Organic Carbon	0.40	mg/L		U	0		1.5		

Matrix Spike Duplicate Water

Analytical Run #:	284751	Analysis Date:	8/21/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1494066	Analysis Time:	11:26	Prep Date/Time:		Method:	SW9060
Parent Sample #:	1494065	Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Organic Carbon	54.5	mg/L	<DL		50.0	109	85 --- 111	1	20

Matrix Spike Water

Analytical Run #:	284751	Analysis Date:	8/21/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1494065	Analysis Time:	11:13	Prep Date/Time:		Method:	SW9060
Parent Sample #:	1493229	Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Organic Carbon	54.1	mg/L	<DL		50.0	108	85 --- 111		20

Lab Control Spike Water

Analytical Run #:	284750	Analysis Date:	8/26/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1496219	Analysis Time:	20:02	Prep Date/Time:		Method:	SW8260C
Parent Sample #:		Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits			RPD	RPD Limit
1,1,1-Trichloroethane	11.2	ug/L			10.0	112	74	---	131		20
1,1,2,2-Tetrachloroethane	9.31	ug/L			10.0	93	71	---	121		20
1,1,2-Trichloroethane	10.8	ug/L			10.0	108	80	---	119		20
1,1-Dichloroethane	11.0	ug/L			10.0	110	77	---	125		20
1,1-Dichloroethene	11.6	ug/L			10.0	116	71	---	131		20
1,2,3-Trichlorobenzene	8.70	ug/L			10.0	87	69	---	129		20
1,2,4-Trichlorobenzene	8.62	ug/L			10.0	86	69	---	130		20
1,2-Dibromo-3-chloropropane	7.91	ug/L			10.0	79	62	---	128		20
1,2-Dibromoethane	9.40	ug/L			10.0	94	77	---	121		20
1,2-Dichlorobenzene	9.06	ug/L			10.0	91	80	---	119		20
1,2-Dichloroethane	10.6	ug/L			10.0	106	73	---	128		20
1,2-Dichloropropane	10.7	ug/L			10.0	107	78	---	122		20
1,3-Dichlorobenzene	9.12	ug/L			10.0	91	80	---	119		20
1,4-Dichlorobenzene	9.06	ug/L			10.0	91	79	---	118		20
1,4-Dioxane	575	ug/L			500	115	59	---	139		20
112Trichloro122trifluoroethane	24.7	ug/L			20.0	124	70	---	136		20
2-Butanone	101	ug/L			100	101	56	---	143		20
2-Hexanone	85.7	ug/L			100	86	57	---	139		20
4-Methyl-2-pentanone	101	ug/L			100	101	67	---	130		20
Acetone	101	ug/L			100	101	39	---	160		20
Benzene	11.3	ug/L			10.0	113	79	---	120		20
Bromochloromethane	11.4	ug/L			10.0	114	78	---	123		20
Bromodichloromethane	10.3	ug/L			10.0	103	79	---	125		20
Bromoform	8.82	ug/L			10.0	88	66	---	130		20
Bromomethane	12.1	ug/L			10.0	121	53	---	141		20
Carbon disulfide	23.1	ug/L			20.0	116	64	---	133		20
Carbon tetrachloride	11.3	ug/L			10.0	113	72	---	136		20
Chlorobenzene	9.86	ug/L			10.0	99	82	---	118		20
Chloroethane	10.8	ug/L			10.0	108	60	---	138		20
Chloroform	10.9	ug/L			10.0	109	79	---	124		20
Chloromethane	10.8	ug/L			10.0	108	50	---	139		20
cis-1,2-Dichloroethene	11.1	ug/L			10.0	111	78	---	123		20
cis-1,3-Dichloropropene	10.7	ug/L			10.0	107	75	---	124		20
Cyclohexane	12.1	ug/L			10.0	121	71	---	130		20
Dibromochloromethane	9.44	ug/L			10.0	94	74	---	126		20
Dichlorodifluoromethane	11.9	ug/L			10.0	119	32	---	152		20
Ethylbenzene	10.1	ug/L			10.0	101	79	---	121		20
Isopropylbenzene	10.3	ug/L			10.0	103	72	---	131		20
m & p-Xylene	20.0	ug/L			20.0	100	80	---	121		20
Methyl acetate	10.3	ug/L			10.0	103	56	---	136		20
Methyl tert-butyl ether	10.7	ug/L			10.0	107	71	---	124		20
Methylcyclohexane	10.5	ug/L			10.0	105	72	---	132		20

Lab Control Spike Water

Analytical Run #:	284750	Analysis Date:	8/26/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1496219	Analysis Time:	20:02	Prep Date/Time:		Method:	SW8260C
Parent Sample #:		Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits			RPD	RPD Limit
Methylene chloride	10.7	ug/L			10.0	107	74	---	124		20
o-Xylene	10.1	ug/L			10.0	101	78	---	122		20
Styrene	9.92	ug/L			10.0	99	78	---	123		20
Tetrachloroethene	11.4	ug/L			10.0	114	74	---	129		20
Toluene	11.3	ug/L			10.0	113	80	---	121		20
trans-1,2-Dichloroethene	11.2	ug/L			10.0	112	75	---	124		20
trans-1,3-Dichloropropene	10.3	ug/L			10.0	103	73	---	127		20
Trichloroethene	10.6	ug/L			10.0	106	79	---	123		20
Trichlorofluoromethane	12.3	ug/L			10.0	123	65	---	141		20
Vinyl chloride	11.5	ug/L			10.0	115	58	---	137		20

Method Blank Water

Analytical Run #:	284750	Analysis Date:	8/26/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1496222	Analysis Time:	20:59	Prep Date/Time:		Method:	SW8260C
Parent Sample #:		Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
1,1,1-Trichloroethane	0.38	ug/L		U	0		0.60		
1,1,2,2-Tetrachloroethane	0.36	ug/L		U	0		0.55		
1,1,2-Trichloroethane	0.27	ug/L		U	0		0.55		
1,1-Dichloroethane	0.28	ug/L		U	0		0.55		
1,1-Dichloroethene	0.49	ug/L		U	0		1.0		
1,2,3-Trichlorobenzene	0.43	ug/L		U	0		1.0		
1,2,4-Trichlorobenzene	0.50	ug/L		U	0		1.0		
1,2-Dibromo-3-chloropropane	0.35	ug/L		U	0		1.0		
1,2-Dibromoethane	0.33	ug/L		U	0		0.55		
1,2-Dichlorobenzene	0.35	ug/L		U	0		0.55		
1,2-Dichloroethane	0.69	ug/L		U	0		1.05		
1,2-Dichloropropane	0.37	ug/L		U	0		0.60		
1,3-Dichlorobenzene	0.30	ug/L		U	0		0.55		
1,4-Dichlorobenzene	0.33	ug/L		U	0		0.55		
1,4-Dioxane	34	ug/L		U	0		50		
112Trichloro122trifluoroethane	1.5	ug/L		U	0		2.25		
2-Butanone	2.9	ug/L		U	0		5.5		
2-Hexanone	3.3	ug/L		U	0		5.5		
4-Methyl-2-pentanone	3.7	ug/L		U	0		6.0		
Acetone	4.1	ug/L		U	0		10		
Benzene	0.40	ug/L		U	0		1.0		
Bromochloromethane	0.26	ug/L		U	0		0.55		
Bromodichloromethane	0.080	ug/L		U	0		0.25		
Bromoform	0.50	ug/L		U	0		1.0		
Bromomethane	0.49	ug/L		U	0		1.0		
Carbon disulfide	0.83	ug/L		U	0		2.0		
Carbon tetrachloride	0.37	ug/L		U	0		0.60		
Chlorobenzene	0.37	ug/L		U	0		0.60		
Chloroethane	0.36	ug/L		U	0		1.0		
Chloroform	0.46	ug/L		U	0		0.70		
Chloromethane	0.39	ug/L		U	0		1.0		
cis-1,2-Dichloroethene	0.41	ug/L		U	0		0.65		
cis-1,3-Dichloropropene	0.34	ug/L		U	0		0.55		
Cyclohexane	0.71	ug/L		U	0		1.1		
Dibromochloromethane	0.35	ug/L		U	0		0.55		
Dichlorodifluoromethane	0.63	ug/L		U	0		1.05		
Ethylbenzene	0.42	ug/L		U	0		0.65		
Isopropylbenzene	0.39	ug/L		U	0		0.60		
m & p-Xylene	0.74	ug/L		U	0		1.15		
Methyl acetate	0.34	ug/L		U	0		1.0		
Methyl tert-butyl ether	0.28	ug/L		U	0		0.55		
Methylcyclohexane	0.78	ug/L		U	0		1.2		

Method Blank Water

Analytical Run #:	284750	Analysis Date:	8/26/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1496222	Analysis Time:	20:59	Prep Date/Time:		Method:	SW8260C
Parent Sample #:		Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Methylene chloride	1.2	ug/L		U	0		2.05		
o-Xylene	0.72	ug/L		U	0		1.1		
Styrene	0.33	ug/L		U	0		0.55		
Tetrachloroethene	0.54	ug/L		U	0		1.0		
Toluene	0.27	ug/L		U	0		0.55		
trans-1,2-Dichloroethene	0.35	ug/L		U	0		0.55		
trans-1,3-Dichloropropene	0.56	ug/L		U	0		1.05		
Trichloroethene	0.39	ug/L		U	0		0.60		
Trichlorofluoromethane	0.41	ug/L		U	0		1.0		
Vinyl chloride	0.12	ug/L		U	0		0.25		

Matrix Spike Duplicate Water

Analytical Run #:	284750	Analysis Date:	8/27/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1496215	Analysis Time:	06:17	Prep Date/Time:		Method:	SW8260C
Parent Sample #:	1496214	Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits			RPD	RPD Limit
1,1,1-Trichloroethane	11.6	ug/L	<DL		10.0	116	74	---	131	3	20
1,1,2,2-Tetrachloroethane	9.12	ug/L	<DL		10.0	91	71	---	121	6	20
1,1,2-Trichloroethane	10.6	ug/L	<DL		10.0	106	80	---	119	1	20
1,1-Dichloroethane	11.5	ug/L	<DL		10.0	115	77	---	125	1	20
1,1-Dichloroethene	12.1	ug/L	<DL		10.0	121	71	---	131	2	20
1,2 Dichloroethane-d4	100	% Recovery	BDL		100	100	81	---	118	0	
1,2,3-Trichlorobenzene	8.86	ug/L	<DL		10.0	89	69	---	129	10	20
1,2,4-Trichlorobenzene	8.85	ug/L	<DL		10.0	88	69	---	130	7	20
1,2-Dibromo-3-chloropropane	7.15	ug/L	<DL		10.0	72	62	---	128	2	20
1,2-Dibromoethane	9.65	ug/L	<DL		10.0	96	77	---	121	7	20
1,2-Dichlorobenzene	9.15	ug/L	<DL		10.0	92	80	---	119	4	20
1,2-Dichloroethane	10.8	ug/L	<DL		10.0	108	73	---	128	2	20
1,2-Dichloropropane	11.3	ug/L	<DL		10.0	113	78	---	122	6	20
1,3-Dichlorobenzene	9.48	ug/L	<DL		10.0	95	80	---	119	6	20
1,4-Dichlorobenzene	9.28	ug/L	<DL		10.0	93	79	---	118	6	20
1,4-Dioxane	624	ug/L	<DL		500	125	59	---	139	14	20
112Trichloro122trifluoroethane	23.7	ug/L	<DL		20.0	118	70	---	136	3	20
2-Butanone	89.7	ug/L	<DL		100	90	56	---	143	3	20
2-Hexanone	80.9	ug/L	<DL		100	81	57	---	139	3	20
4-Methyl-2-pentanone	98.9	ug/L	<DL		100	99	67	---	130	4	20
Acetone	75.2	ug/L	<DL		100	75	39	---	160	3	20
Benzene	11.8	ug/L	<DL		10.0	118	79	---	120	3	20
Bromochloromethane	11.3	ug/L	<DL		10.0	113	78	---	123	6	20
Bromodichloromethane	10.7	ug/L	<DL		10.0	107	79	---	125	5	20
Bromofluorobenzene	96.0	% Recovery	BDL		100	96.0	85	---	114	0	
Bromoform	8.30	ug/L	<DL		10.0	83	66	---	130	2	20
Bromomethane	12.3	ug/L	<DL		10.0	123	53	---	141	6	20
Carbon disulfide	24.2	ug/L	<DL		20.0	121	64	---	133	6	20
Carbon tetrachloride	11.8	ug/L	<DL		10.0	118	72	---	136	4	20
Chlorobenzene	9.93	ug/L	<DL		10.0	99	82	---	118	2	20
Chloroethane	11.2	ug/L	<DL		10.0	112	60	---	138	4	20
Chloroform	11.4	ug/L	<DL		10.0	114	79	---	124	5	20
Chloromethane	11.3	ug/L	<DL		10.0	113	50	---	139	3	20
cis-1,2-Dichloroethene	11.4	ug/L	<DL		10.0	114	78	---	123	4	20
cis-1,3-Dichloropropene	10.6	ug/L	<DL		10.0	106	75	---	124	5	20
Cyclohexane	11.7	ug/L	<DL		10.0	117	71	---	130	1	20
d8-Toluene	104	% Recovery	BDL		100	104	89	---	112	0	
Dibromochloromethane	8.99	ug/L	<DL		10.0	90	74	---	126	4	20
Dibromofluoromethane	101	% Recovery	BDL		100	101	80	---	119	0	
Dichlorodifluoromethane	11.0	ug/L	<DL		10.0	110	32	---	152	3	20
Ethylbenzene	10.4	ug/L	<DL		10.0	104	79	---	121	3	20
Isopropylbenzene	10.6	ug/L	<DL		10.0	106	72	---	131	2	20

Matrix Spike Duplicate Water

Analytical Run #:	284750	Analysis Date:	8/27/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1496215	Analysis Time:	06:17	Prep Date/Time:		Method:	SW8260C
Parent Sample #:	1496214	Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
m & p-Xylene	20.5	ug/L	<DL		20.0	102	80 --- 121	2	20
Methyl acetate	9.46	ug/L	<DL		10.0	95	56 --- 136	10	20
Methyl tert-butyl ether	10.7	ug/L	<DL		10.0	107	71 --- 124	6	20
Methylcyclohexane	10.6	ug/L	<DL		10.0	106	72 --- 132	4	20
Methylene chloride	10.8	ug/L	<DL		10.0	108	74 --- 124	2	20
o-Xylene	10.3	ug/L	<DL		10.0	103	78 --- 122	2	20
Styrene	10.2	ug/L	<DL		10.0	102	78 --- 123	4	20
Tetrachloroethene	12.1	ug/L	<DL		10.0	121	74 --- 129	1	20
Toluene	11.5	ug/L	<DL		10.0	115	80 --- 121	2	20
trans-1,2-Dichloroethene	11.6	ug/L	<DL		10.0	116	75 --- 124	0	20
trans-1,3-Dichloropropene	10.2	ug/L	<DL		10.0	102	73 --- 127	6	20
Trichloroethene	12.4	ug/L	0.83		10.0	116	79 --- 123	8	20
Trichlorofluoromethane	12.2	ug/L	<DL		10.0	122	65 --- 141	4	20
Vinyl chloride	12.2	ug/L	<DL		10.0	122	58 --- 137	4	20

Matrix Spike Water

Analytical Run #:	284750	Analysis Date:	8/27/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1496214	Analysis Time:	05:48	Prep Date/Time:		Method:	SW8260C
Parent Sample #:	1493229	Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits			RPD	RPD Limit
1,1,1-Trichloroethane	11.3	ug/L	<DL		10.0	113	74	---	131		20
1,1,2,2-Tetrachloroethane	8.56	ug/L	<DL		10.0	86	71	---	121		20
1,1,2-Trichloroethane	10.5	ug/L	<DL		10.0	105	80	---	119		20
1,1-Dichloroethane	11.3	ug/L	<DL		10.0	113	77	---	125		20
1,1-Dichloroethene	11.8	ug/L	<DL		10.0	118	71	---	131		20
1,2 Dichloroethane-d4	100	% Recovery	BDL		100	100	81	---	118		
1,2,3-Trichlorobenzene	7.98	ug/L	<DL		10.0	80	69	---	129		20
1,2,4-Trichlorobenzene	8.21	ug/L	<DL		10.0	82	69	---	130		20
1,2-Dibromo-3-chloropropane	6.99	ug/L	<DL		10.0	70	62	---	128		20
1,2-Dibromoethane	8.97	ug/L	<DL		10.0	90	77	---	121		20
1,2-Dichlorobenzene	8.75	ug/L	<DL		10.0	88	80	---	119		20
1,2-Dichloroethane	10.6	ug/L	<DL		10.0	106	73	---	128		20
1,2-Dichloropropane	10.7	ug/L	<DL		10.0	107	78	---	122		20
1,3-Dichlorobenzene	8.97	ug/L	<DL		10.0	90	80	---	119		20
1,4-Dichlorobenzene	8.78	ug/L	<DL		10.0	88	79	---	118		20
1,4-Dioxane	543	ug/L	<DL		500	109	59	---	139		20
112Trichloro122trifluoroethane	23.1	ug/L	<DL		20.0	116	70	---	136		20
2-Butanone	87.2	ug/L	<DL		100	87	56	---	143		20
2-Hexanone	78.3	ug/L	<DL		100	78	57	---	139		20
4-Methyl-2-pentanone	95.3	ug/L	<DL		100	95	67	---	130		20
Acetone	73.0	ug/L	<DL		100	73	39	---	160		20
Benzene	11.4	ug/L	<DL		10.0	114	79	---	120		20
Bromochloromethane	10.6	ug/L	<DL		10.0	106	78	---	123		20
Bromodichloromethane	10.2	ug/L	<DL		10.0	102	79	---	125		20
Bromofluorobenzene	96.0	% Recovery	BDL		100	96.0	85	---	114		
Bromoform	8.10	ug/L	<DL		10.0	81	66	---	130		20
Bromomethane	11.6	ug/L	<DL		10.0	116	53	---	141		20
Carbon disulfide	22.9	ug/L	<DL		20.0	114	64	---	133		20
Carbon tetrachloride	11.4	ug/L	<DL		10.0	114	72	---	136		20
Chlorobenzene	9.71	ug/L	<DL		10.0	97	82	---	118		20
Chloroethane	10.8	ug/L	<DL		10.0	108	60	---	138		20
Chloroform	10.9	ug/L	<DL		10.0	109	79	---	124		20
Chloromethane	10.9	ug/L	<DL		10.0	109	50	---	139		20
cis-1,2-Dichloroethene	10.9	ug/L	<DL		10.0	109	78	---	123		20
cis-1,3-Dichloropropene	10.1	ug/L	<DL		10.0	101	75	---	124		20
Cyclohexane	11.6	ug/L	<DL		10.0	116	71	---	130		20
d8-Toluene	105	% Recovery	BDL		100	105	89	---	112		
Dibromochloromethane	8.61	ug/L	<DL		10.0	86	74	---	126		20
Dibromofluoromethane	102	% Recovery	BDL		100	102	80	---	119		
Dichlorodifluoromethane	10.7	ug/L	<DL		10.0	107	32	---	152		20
Ethylbenzene	10.1	ug/L	<DL		10.0	101	79	---	121		20
Isopropylbenzene	10.4	ug/L	<DL		10.0	104	72	---	131		20

Matrix Spike Water

Analytical Run #:	284750	Analysis Date:	8/27/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1496214	Analysis Time:	05:48	Prep Date/Time:		Method:	SW8260C
Parent Sample #:	1493229	Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
m & p-Xylene	20.2	ug/L	<DL		20.0	101	80 --- 121		20
Methyl acetate	8.55	ug/L	<DL		10.0	86	56 --- 136		20
Methyl tert-butyl ether	10.1	ug/L	<DL		10.0	101	71 --- 124		20
Methylcyclohexane	10.1	ug/L	<DL		10.0	101	72 --- 132		20
Methylene chloride	10.5	ug/L	<DL		10.0	105	74 --- 124		20
o-Xylene	10.1	ug/L	<DL		10.0	101	78 --- 122		20
Styrene	9.76	ug/L	<DL		10.0	98	78 --- 123		20
Tetrachloroethene	11.9	ug/L	<DL		10.0	119	74 --- 129		20
Toluene	11.2	ug/L	<DL		10.0	112	80 --- 121		20
trans-1,2-Dichloroethene	11.6	ug/L	<DL		10.0	116	75 --- 124		20
trans-1,3-Dichloropropene	9.64	ug/L	<DL		10.0	96	73 --- 127		20
Trichloroethene	11.5	ug/L	0.83		10.0	107	79 --- 123		20
Trichlorofluoromethane	11.8	ug/L	<DL		10.0	118	65 --- 141		20
Vinyl chloride	11.7	ug/L	<DL		10.0	117	58 --- 137		20

Lab Control Spike Water

Analytical Run #:	284763	Analysis Date:	8/21/2024	Prep Batch #:	135527	Matrix:	LIQUID
CTLab #:	1493629	Analysis Time:	11:32	Prep Date/Time:	08/21/2024 11:05	Method:	RSK175
Parent Sample #:		Analyst:	SRW	Prep Analyst:	SRW		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Ethane	4.53	ug/L			4.63	98	74 --- 131		20
Ethene	6.15	ug/L			6.36	97	72 --- 133		20
Methane	2.27	ug/L			2.23	102	73 --- 125		20

Method Blank Water

Analytical Run #:	284763	Analysis Date:	8/21/2024	Prep Batch #:	135527	Matrix:	LIQUID
CTLab #:	1493628	Analysis Time:	11:36	Prep Date/Time:	08/21/2024 11:05	Method:	RSK175
Parent Sample #:		Analyst:	SRW	Prep Analyst:	SRW		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Ethane	0.38	ug/L		U	0		0.5		
Ethene	0.59	ug/L		U	0		0.7		
Methane	0.45	ug/L		U	0		0.5		

Matrix Spike Duplicate Water

Analytical Run #:	284763	Analysis Date:	8/21/2024	Prep Batch #:	135527	Matrix:	GROUND WATER
CTLab #:	1493632	Analysis Time:	11:57	Prep Date/Time:	08/21/2024 11:05	Method:	RSK175
Parent Sample #:	1493631	Analyst:	SRW	Prep Analyst:	SRW		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Ethane	4.33	ug/L	<DL		4.63	94	74 --- 131	0	30
Ethene	5.97	ug/L	<DL		6.36	94	72 --- 133	0	30
Methane	2.07	ug/L	<DL		2.23	93	73 --- 125	2	30

Matrix Spike Water

Analytical Run #:	284763	Analysis Date:	8/21/2024	Prep Batch #:	135527	Matrix:	GROUND WATER
CTLab #:	1493631	Analysis Time:	11:53	Prep Date/Time:	08/21/2024 11:05	Method:	RSK175
Parent Sample #:	1493229	Analyst:	SRW	Prep Analyst:	SRW		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Ethane	4.31	ug/L	<DL		4.63	93	74 --- 131		30
Ethene	5.94	ug/L	<DL		6.36	93	72 --- 133		30
Methane	2.11	ug/L	<DL		2.23	95	73 --- 125		30

CT LABORATORIES
delivering more than data from your environmental analyses

Sample Condition Report

Folder #: 188736
Print Date / Time: 08/20/2024 11:16
Client: CAPE ENVIRONMENTAL MANAGEMENT
Received Date / Time / By: 08/20/2024 11:00 DJL
Project Name: RADFORD AAP
Log-In Date / Time / By: 08/20/2024 11:16 erc
Project Phase: SWMU 48/49
Project #: 10409-0222
PM: BMS
Coolers: 5454
Temperature: 1.6 C
On Ice: **Y**
Custody Seals Present : **Y**
COC Present:? **Y**
Complete? **Y**
Seal Intact? **Y**
Numbers: DATED AND SIGNED
Ship Method: FEDEX EXPRESS
Tracking Number: 778055440832
Adequate Packaging: **Y**
Temp Blank Enclosed? **Y**

Notes: THE SAMPLES WERE RECEIVED IN GOOD CONDITION ON ICE.

THE SAMPLE ID FOR 13TW2 (COLLECTED 08/19/2024 @ 11:35) WAS UPDATED TO 13TW3, PER THE CLIENT'S REQUEST.

ONE (1) CUSTODY SEAL WAS PRESENT AND INTACT ON THE COOLER UPON RECEIPT (DATED 8/19/2024 AND SIGNED).

Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
1493228 TB-1				
	VOA HCL	1	/	VOC
	VOA HCL	1	/	VOC
	Total # of Containers of Type (*VOA HCL*) = 2			

Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
1493229 13MW4				
	UNPRES PL	1	/	Anions
	UNPRES PL	1 N	/ N	ANIONS
	UNPRES PL	1 N	/ N	ANIONS
	Total # of Containers of Type (*UNPRES PL*) = 3			

Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
1493229 13MW4				
	VOA HCL	1	/	GAS,VOC
	VOA HCL	1	/	GAS,VOC
	VOA HCL	1	/	GAS,VOC
	VOA HCL	1 N	/ N	GAS,VOC
	VOA HCL	1	/	GAS,VOC
	VOA HCL	1	/	GAS,VOC
	VOA HCL	1 N	/ N	GAS,VOC
	VOA HCL	1 N	/ N	GAS,VOC
	VOA HCL	1 N	/ N	GAS,VOC
	VOA HCL	1 N	/ N	GAS,VOC
	VOA HCL	1 N	/ N	GAS,VOC
	VOA HCL	1 N	/ N	GAS,VOC
	VOA HCL	1 N	/ N	GAS,VOC

		VOA HCL	1	N	/ N	GAS,VOC
		Total # of Containers of Type	**(*VOA HCL*) =**	**14**		
1493229	13MW4					
		H2SO4 PL	1	Y	/ N	TOC
		H2SO4 PL	1	Y	/ N	TOC
		H2SO4 PL	1	Y	/ N	TOC
		Total # of Containers of Type	**(*H2SO4 PL*) =**	**3**		
1493229	13MW4					
		VOA HCL	1	N	/ N	VOC
		Total # of Containers of Type	**(*VOA HCL*) =**	**1**		

Sample ID /	Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
1493230	13MW3				
		UNPRES PL	1	/	Anions
		Total # of Containers of Type	**(*UNPRES PL*) =**	**1**	
1493230	13MW3				
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		Total # of Containers of Type	**(*VOA HCL*) =**	**5**	
1493230	13MW3				
		H2SO4 PL	1	Y / N	TOC
		Total # of Containers of Type	**(*H2SO4 PL*) =**	**1**	

Sample ID /	Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
1493231	49MW04				
		UNPRES PL	1	/	Anions
		Total # of Containers of Type	**(*UNPRES PL*) =**	**1**	
1493231	49MW04				
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		Total # of Containers of Type	**(*VOA HCL*) =**	**5**	
1493231	49MW04				
		H2SO4 PL	1	Y / N	TOC
		Total # of Containers of Type	**(*H2SO4 PL*) =**	**1**	

Sample ID /	Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
1493232	13MW2				
		UNPRES PL	1	/	Anions
		Total # of Containers of Type	**(*UNPRES PL*) =**	**1**	

1493232	13MW2					
		VOA HCL	1		/	GAS,VOC
		VOA HCL	1		/	GAS,VOC
		VOA HCL	1		/	GAS,VOC
		VOA HCL	1		/	GAS,VOC
		VOA HCL	1		/	GAS,VOC
		Total # of Containers of Type	**(*VOA HCL*) = 5**			
1493232	13MW2					
		H2SO4 PL	1	Y	/ N	TOC
		Total # of Containers of Type	**(*H2SO4 PL*) = 1**			

Sample ID /	Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
1493233	13TW3				
		UNPRES PL	1	/	Anions
		Total # of Containers of Type	**(*UNPRES PL*) = 1**		
1493233	13TW3				
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		Total # of Containers of Type	**(*VOA HCL*) = 5**		
1493233	13TW3				
		H2SO4 PL	1	Y	/ N	TOC
		Total # of Containers of Type	**(*H2SO4 PL*) = 1**		

Condition Code *Condition Description*

1 Sample Received OK

Rev. 02/2017

CHAIN OF CUSTODY

Page 1 of 1

Company: CAPE Environmental
Project Contact: Matt Feits
Telephone: (724) 622-3625
Project Name: Radford AAP SWMU 48/49
Project #:
Location: Radford, VA
Sampled By: Y. Miyakawa, P. Taylor

Order #: 188736
Company: CAPE ENVIRONMENTAL MAN
Project: RADFORD AAP SWMU 48/49
Logged By: erc PM: BMS

1230 Lange Court, Baraboo, WI 53913
608-356-2760 Fax 608-356-2766
www.ctlaboratories.com

Program:
QSM RCRA SDWA NPDES
Solid Waste Other _____

PO #

Report To: chemistrysvcs@cape-inc.com
EMAIL: mfeits@cape-inc.com cc
Company: CAPE Environmental Management, Inc.
Address: 500 Pinnacle Court #100 Norcross, GA 30071

Invoice To:* same
EMAIL:
Company:
Address:

*Party listed is responsible for payment of invoice as per CT Laboratories' terms and conditions

Client Special Instructions

Matrix:
GW – groundwater SW - surface water WW - wastewater DW - drinking water
S - soil/sediment SL - sludge A - air M - misc/waste

2024 Collection Date	Time	Matrix	Grab/ Comp	Sample #	Sample ID Description	Filtered? Y/N	VOC 8260C	MEE RSK-175	TOC 9060A	Anions 9056											Total # Containers	Designated MS/MSD	CT Lab ID # (Lab use only)
						Fill in Spaces with Bottles per Test																	
8/19	0000	GW	G		TB-1	N	2										Trip Blank				2		1493228
8/19	1008	GW	G		13MW4	N	9	6	3	3											21	X	29
8/19	1135	GW	G		13MW3	N	3	2	1	1											7		30
8/19	1245	GW	G		49MW04	N	3	2	1	1											7		31
8/19	1350	GW	G		13MW2	N	3	2	1	1											7		32
8/19	1135	GW	G		13TW2	N	3	2	1	1											7		33

Turnaround Time
Normal RUSH*
Date Needed: _____
Rush analysis requires prior CT Laboratories' approval
Surcharges:
24 hr 200%
2-3 days 100%
4-9 days 50%

Relinquished By: Paul I. Taylor
Date/Time: 8/19/2024 1700
Received by:
Date/Time

Received By: Fedex
Date/Time: 8/19/2024 1700
Received for Laboratory by:
Date/Time: 8/20/24 1100

Lab Use Only
Ice Present Yes No
Temp 1.6 IR Gun #3
Cooler # 5454



After printing this label:
CONSIGNEE COPY - PLEASE PLACE IN FRONT OF POUCH
1. Fold the printed page along the horizontal line.
2. Place label in shipping pouch and affix it to your shipment.

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our Service Guide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

Ice Present (Yes) No
Temperature 1.4
Initials
Date 8/20/24 Time 11:00
Cooler # 5454

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ANALYTICAL SUMMARY REPORT

This report at a minimum contains the following information:

Analytical Report of Test Results
Description of QC Qualifiers
Chain of Custody (copy)
Quality Control Summary (if applicable)
Case Narrative (if applicable)
Correspondence with Client (if applicable)

This report has been specifically prepared to satisfy project or program requirements. These results are in compliance with NELAC requirements for parameters where accreditation is required or available, unless otherwise noted in the case narrative.

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

ANALYTICAL SAMPLE DATA

CAPE ENVIRONMENTAL MANAGEMENT
MATT FEITS
500 PINNACLE COURT
SUITE 100
NORCROSS, GA 30071

Project Name: RADFORD AAP
Project Phase: SWMU 49
Project #: 10409-0222
Folder #: 188808
Purchase Order #: SC013781
Contract #: 3648

Arrival Temperature: 3.3
Report Date: 9/5/2024
Date Received: 8/22/2024
Reprint Date: 9/5/2024

Copy: chemistrysvcs@cape-inc.com

CT LAB#: 1494081 Sample Description: TB-2 Client Sample #: Sampled: 8/21/2024 00:00

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Organic Results													
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			8/26/24 21:54	DGS	EPA 8260C
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			8/26/24 21:54	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			8/26/24 21:54	DGS	EPA 8260C
1,1-Dichloroethane	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			8/26/24 21:54	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			8/26/24 21:54	DGS	EPA 8260C
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			8/26/24 21:54	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			8/26/24 21:54	DGS	EPA 8260C
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.35	1.0	2.0	2.0	1.00	U Z			8/26/24 21:54	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/26/24 21:54	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/26/24 21:54	DGS	EPA 8260C
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			8/26/24 21:54	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/26/24 21:54	DGS	EPA 8260C
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			8/26/24 21:54	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/26/24 21:54	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			8/26/24 21:54	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U Z			8/26/24 21:54	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1494081 Sample Description: TB-2 Client Sample #: Sampled: 8/21/2024 00:00

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			8/26/24 21:54	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			8/26/24 21:54	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			8/26/24 21:54	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			8/26/24 21:54	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			8/26/24 21:54	DGS	EPA 8260C
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			8/26/24 21:54	DGS	EPA 8260C
Bromodichloromethane	<0.25	ug/L	0.080	0.25	0.50	0.50	1.00	U			8/26/24 21:54	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			8/26/24 21:54	DGS	EPA 8260C
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U Z			8/26/24 21:54	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			8/26/24 21:54	DGS	EPA 8260C
Carbon tetrachloride	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/26/24 21:54	DGS	EPA 8260C
Chlorobenzene	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/26/24 21:54	DGS	EPA 8260C
Chloroethane	<1.0	ug/L	0.36	1.0	2.0	2.0	1.00	U			8/26/24 21:54	DGS	EPA 8260C
Chloroform	<1.0	ug/L	0.46	1.0	1.4	1.4	1.00	U			8/26/24 21:54	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			8/26/24 21:54	DGS	EPA 8260C
cis-1,2-Dichloroethene	<1.0	ug/L	0.41	1.0	1.3	1.3	1.00	U			8/26/24 21:54	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.34	1.0	1.1	1.1	1.00	U			8/26/24 21:54	DGS	EPA 8260C
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U Z			8/26/24 21:54	DGS	EPA 8260C
Dibromochloromethane	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/26/24 21:54	DGS	EPA 8260C
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			8/26/24 21:54	DGS	EPA 8260C
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			8/26/24 21:54	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			8/26/24 21:54	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			8/26/24 21:54	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			8/26/24 21:54	DGS	EPA 8260C
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			8/26/24 21:54	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			8/26/24 21:54	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U			8/26/24 21:54	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.72	2.0	2.2	2.2	1.00	U			8/26/24 21:54	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1494081 Sample Description: TB-2 Client Sample #: Sampled: 8/21/2024 00:00

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/26/24 21:54	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.54	1.0	2.0	2.0	1.00	U			8/26/24 21:54	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			8/26/24 21:54	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/26/24 21:54	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			8/26/24 21:54	DGS	EPA 8260C
Trichloroethene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			8/26/24 21:54	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U Z			8/26/24 21:54	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			8/26/24 21:54	DGS	EPA 8260C
1,2 Dichloroethane-d4	103	% Recovery	81			118	1.00				8/26/24 21:54	DGS	EPA 8260C
Bromofluorobenzene	97.0	% Recovery	85			114	1.00				8/26/24 21:54	DGS	EPA 8260C
d8-Toluene	104	% Recovery	89			112	1.00				8/26/24 21:54	DGS	EPA 8260C
Dibromofluoromethane	103	% Recovery	80			119	1.00				8/26/24 21:54	DGS	EPA 8260C

CT LAB#: 1494082 Sample Description: 48MW6 Client Sample #: Sampled: 8/21/2024 10:45

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results													
Chloride	***11***	mg/L	1.0	1.5	3.0	3.0	1.00	M			8/22/24 14:32	TMG	EPA 9056A
Nitrate Nitrogen	***1.7***	mg/L	0.12	0.20	0.40	0.40	1.00				8/22/24 14:32	TMG	EPA 9056A
Sulfate	***89***	mg/L	4.0	7.5	15	15	5.00	M			8/23/24 08:15	TMG	EPA 9056A
Total Organic Carbon	<1.5	mg/L	0.4	1.5	3.0	3.0	1.00	U			8/26/24 16:23	TMG	EPA 9060A
Organic Results													
Qualifiers applying to all Analytes of Method EPA 8260C: T													
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			8/27/24 02:06	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1494082 Sample Description: 48MW6 Client Sample #: Sampled: 8/21/2024 10:45

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Qualifiers applying to all Analytes of Method EPA 8260C: T													
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			8/27/24 02:06	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			8/27/24 02:06	DGS	EPA 8260C
1,1-Dichloroethane	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			8/27/24 02:06	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			8/27/24 02:06	DGS	EPA 8260C
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			8/27/24 02:06	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			8/27/24 02:06	DGS	EPA 8260C
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.35	1.0	2.0	2.0	1.00	U Z			8/27/24 02:06	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/27/24 02:06	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/27/24 02:06	DGS	EPA 8260C
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			8/27/24 02:06	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/27/24 02:06	DGS	EPA 8260C
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			8/27/24 02:06	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/27/24 02:06	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			8/27/24 02:06	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U Z			8/27/24 02:06	DGS	EPA 8260C
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			8/27/24 02:06	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			8/27/24 02:06	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			8/27/24 02:06	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			8/27/24 02:06	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			8/27/24 02:06	DGS	EPA 8260C
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			8/27/24 02:06	DGS	EPA 8260C
Bromodichloromethane	<0.25	ug/L	0.080	0.25	0.50	0.50	1.00	U			8/27/24 02:06	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			8/27/24 02:06	DGS	EPA 8260C
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U Z			8/27/24 02:06	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			8/27/24 02:06	DGS	EPA 8260C
Carbon tetrachloride	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/27/24 02:06	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1494082 Sample Description: 48MW6 Client Sample #: Sampled: 8/21/2024 10:45

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Qualifiers applying to all Analytes of Method EPA 8260C: T													
Chlorobenzene	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/27/24 02:06	DGS	EPA 8260C
Chloroethane	<1.0	ug/L	0.36	1.0	2.0	2.0	1.00	U			8/27/24 02:06	DGS	EPA 8260C
Chloroform	<1.0	ug/L	0.46	1.0	1.4	1.4	1.00	U			8/27/24 02:06	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			8/27/24 02:06	DGS	EPA 8260C
cis-1,2-Dichloroethene	<1.0	ug/L	0.41	1.0	1.3	1.3	1.00	U			8/27/24 02:06	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.34	1.0	1.1	1.1	1.00	U			8/27/24 02:06	DGS	EPA 8260C
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U Z			8/27/24 02:06	DGS	EPA 8260C
Dibromochloromethane	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/27/24 02:06	DGS	EPA 8260C
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			8/27/24 02:06	DGS	EPA 8260C
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			8/27/24 02:06	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			8/27/24 02:06	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			8/27/24 02:06	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			8/27/24 02:06	DGS	EPA 8260C
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			8/27/24 02:06	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			8/27/24 02:06	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U			8/27/24 02:06	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.72	2.0	2.2	2.2	1.00	U			8/27/24 02:06	DGS	EPA 8260C
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/27/24 02:06	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.54	1.0	2.0	2.0	1.00	U			8/27/24 02:06	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			8/27/24 02:06	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/27/24 02:06	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			8/27/24 02:06	DGS	EPA 8260C
Trichloroethene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			8/27/24 02:06	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U Z			8/27/24 02:06	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			8/27/24 02:06	DGS	EPA 8260C
1,2 Dichloroethane-d4	103	% Recovery	81			118	1.00				8/27/24 02:06	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1494082 Sample Description: 48MW6 Client Sample #: Sampled: 8/21/2024 10:45

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Qualifiers applying to all Analytes of Method EPA 8260C: T													
Bromofluorobenzene	98.0	% Recovery	85			114	1.00				8/27/24 02:06	DGS	EPA 8260C
d8-Toluene	105	% Recovery	89			112	1.00				8/27/24 02:06	DGS	EPA 8260C
Dibromofluoromethane	104	% Recovery	80			119	1.00				8/27/24 02:06	DGS	EPA 8260C
Qualifiers applying to all Analytes of Method RSK 175: T													
Ethane	<0.80	ug/L	0.38	0.80	1.0	1.0	1.00	U		8/23/24 11:21	8/23/24 12:04	SRW	RSK 175
Ethene	<1.2	ug/L	0.59	1.2	1.4	1.4	1.00	U		8/23/24 11:21	8/23/24 12:04	SRW	RSK 175
Methane	<0.90	ug/L	0.45	0.90	1.0	1.0	1.00	U		8/23/24 11:21	8/23/24 12:04	SRW	RSK 175

CT LAB#: 1494083 Sample Description: 48MW6-EQB Client Sample #: Sampled: 8/21/2024 11:20

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results													
Chloride	<1.5	mg/L	1.0	1.5	3.0	3.0	1.00	U			8/22/24 14:55	TMG	EPA 9056A
Nitrate Nitrogen	<0.20	mg/L	0.12	0.20	0.40	0.40	1.00	U			8/22/24 14:55	TMG	EPA 9056A
Sulfate	<1.5	mg/L	0.80	1.5	3.0	3.0	1.00	U			8/22/24 14:55	TMG	EPA 9056A
Total Organic Carbon	<1.5	mg/L	0.4	1.5	3.0	3.0	1.00	U			8/26/24 16:34	TMG	EPA 9060A
Organic Results													
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			8/26/24 22:22	DGS	EPA 8260C
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			8/26/24 22:22	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			8/26/24 22:22	DGS	EPA 8260C
1,1-Dichloroethane	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			8/26/24 22:22	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			8/26/24 22:22	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1494083 Sample Description: 48MW6-EQB Client Sample #: Sampled: 8/21/2024 11:20

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			8/26/24 22:22	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			8/26/24 22:22	DGS	EPA 8260C
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.35	1.0	2.0	2.0	1.00	U Z			8/26/24 22:22	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/26/24 22:22	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/26/24 22:22	DGS	EPA 8260C
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			8/26/24 22:22	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/26/24 22:22	DGS	EPA 8260C
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			8/26/24 22:22	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/26/24 22:22	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			8/26/24 22:22	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U Z			8/26/24 22:22	DGS	EPA 8260C
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			8/26/24 22:22	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			8/26/24 22:22	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			8/26/24 22:22	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			8/26/24 22:22	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			8/26/24 22:22	DGS	EPA 8260C
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			8/26/24 22:22	DGS	EPA 8260C
Bromodichloromethane	***3.1***	ug/L	0.080	0.25	0.50	0.50	1.00				8/26/24 22:22	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			8/26/24 22:22	DGS	EPA 8260C
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U Z			8/26/24 22:22	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			8/26/24 22:22	DGS	EPA 8260C
Carbon tetrachloride	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/26/24 22:22	DGS	EPA 8260C
Chlorobenzene	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/26/24 22:22	DGS	EPA 8260C
Chloroethane	<1.0	ug/L	0.36	1.0	2.0	2.0	1.00	U			8/26/24 22:22	DGS	EPA 8260C
Chloroform	***14***	ug/L	0.46	1.0	1.4	1.4	1.00				8/26/24 22:22	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			8/26/24 22:22	DGS	EPA 8260C
cis-1,2-Dichloroethene	<1.0	ug/L	0.41	1.0	1.3	1.3	1.00	U			8/26/24 22:22	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.34	1.0	1.1	1.1	1.00	U			8/26/24 22:22	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1494083 Sample Description: 48MW6-EQB Client Sample #: Sampled: 8/21/2024 11:20

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U Z			8/26/24 22:22	DGS	EPA 8260C
Dibromochloromethane	***0.65***	ug/L	0.35	1.0	1.1	1.1	1.00	J			8/26/24 22:22	DGS	EPA 8260C
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			8/26/24 22:22	DGS	EPA 8260C
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			8/26/24 22:22	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			8/26/24 22:22	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			8/26/24 22:22	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			8/26/24 22:22	DGS	EPA 8260C
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			8/26/24 22:22	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			8/26/24 22:22	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U			8/26/24 22:22	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.72	2.0	2.2	2.2	1.00	U			8/26/24 22:22	DGS	EPA 8260C
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/26/24 22:22	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.54	1.0	2.0	2.0	1.00	U			8/26/24 22:22	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			8/26/24 22:22	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/26/24 22:22	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			8/26/24 22:22	DGS	EPA 8260C
Trichloroethene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			8/26/24 22:22	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U Z			8/26/24 22:22	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			8/26/24 22:22	DGS	EPA 8260C
1,2 Dichloroethane-d4	103	% Recovery	81			118	1.00				8/26/24 22:22	DGS	EPA 8260C
Bromofluorobenzene	98.0	% Recovery	85			114	1.00				8/26/24 22:22	DGS	EPA 8260C
d8-Toluene	105	% Recovery	89			112	1.00				8/26/24 22:22	DGS	EPA 8260C
Dibromofluoromethane	104	% Recovery	80			119	1.00				8/26/24 22:22	DGS	EPA 8260C
Ethane	<0.80	ug/L	0.38	0.80	1.0	1.0	1.00	U		8/23/24 11:21	8/23/24 12:08	SRW	RSK 175
Ethene	<1.2	ug/L	0.59	1.2	1.4	1.4	1.00	U		8/23/24 11:21	8/23/24 12:08	SRW	RSK 175
Methane	<0.90	ug/L	0.45	0.90	1.0	1.0	1.00	U		8/23/24 11:21	8/23/24 12:08	SRW	RSK 175

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1494084 Sample Description: 48MW1 Client Sample #: Sampled: 8/21/2024 13:57

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results													
Chloride	***4.3***	mg/L	1.0	1.5	3.0	3.0	1.00				8/22/24 15:18	TMG	EPA 9056A
Nitrate Nitrogen	***1.5***	mg/L	0.12	0.20	0.40	0.40	1.00				8/22/24 15:18	TMG	EPA 9056A
Sulfate	***50***	mg/L	0.80	1.5	3.0	3.0	1.00				8/22/24 15:18	TMG	EPA 9056A
Total Organic Carbon	<1.5	mg/L	0.4	1.5	3.0	3.0	1.00	U			8/26/24 16:51	TMG	EPA 9060A
Organic Results													
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			8/27/24 02:34	DGS	EPA 8260C
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			8/27/24 02:34	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			8/27/24 02:34	DGS	EPA 8260C
1,1-Dichloroethane	***0.51***	ug/L	0.28	1.0	1.1	1.1	1.00	J			8/27/24 02:34	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			8/27/24 02:34	DGS	EPA 8260C
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			8/27/24 02:34	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			8/27/24 02:34	DGS	EPA 8260C
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.35	1.0	2.0	2.0	1.00	U Z			8/27/24 02:34	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/27/24 02:34	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/27/24 02:34	DGS	EPA 8260C
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			8/27/24 02:34	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/27/24 02:34	DGS	EPA 8260C
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			8/27/24 02:34	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/27/24 02:34	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			8/27/24 02:34	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U Z			8/27/24 02:34	DGS	EPA 8260C
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			8/27/24 02:34	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			8/27/24 02:34	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			8/27/24 02:34	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			8/27/24 02:34	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			8/27/24 02:34	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1494084 Sample Description: 48MW1 Client Sample #: Sampled: 8/21/2024 13:57

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			8/27/24 02:34	DGS	EPA 8260C
Bromodichloromethane	<0.25	ug/L	0.080	0.25	0.50	0.50	1.00	U			8/27/24 02:34	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			8/27/24 02:34	DGS	EPA 8260C
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U Z			8/27/24 02:34	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			8/27/24 02:34	DGS	EPA 8260C
Carbon tetrachloride	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/27/24 02:34	DGS	EPA 8260C
Chlorobenzene	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/27/24 02:34	DGS	EPA 8260C
Chloroethane	<1.0	ug/L	0.36	1.0	2.0	2.0	1.00	U			8/27/24 02:34	DGS	EPA 8260C
Chloroform	<1.0	ug/L	0.46	1.0	1.4	1.4	1.00	U			8/27/24 02:34	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			8/27/24 02:34	DGS	EPA 8260C
cis-1,2-Dichloroethene	***0.60***	ug/L	0.41	1.0	1.3	1.3	1.00	J			8/27/24 02:34	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.34	1.0	1.1	1.1	1.00	U			8/27/24 02:34	DGS	EPA 8260C
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U Z			8/27/24 02:34	DGS	EPA 8260C
Dibromochloromethane	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/27/24 02:34	DGS	EPA 8260C
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			8/27/24 02:34	DGS	EPA 8260C
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			8/27/24 02:34	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			8/27/24 02:34	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			8/27/24 02:34	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			8/27/24 02:34	DGS	EPA 8260C
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			8/27/24 02:34	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			8/27/24 02:34	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U			8/27/24 02:34	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.72	2.0	2.2	2.2	1.00	U			8/27/24 02:34	DGS	EPA 8260C
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/27/24 02:34	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.54	1.0	2.0	2.0	1.00	U			8/27/24 02:34	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			8/27/24 02:34	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/27/24 02:34	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			8/27/24 02:34	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1494084 Sample Description: 48MW1 Client Sample #: Sampled: 8/21/2024 13:57

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Trichloroethene	***0.85***	ug/L	0.39	1.0	1.2	1.2	1.00	J			8/27/24 02:34	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U Z			8/27/24 02:34	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			8/27/24 02:34	DGS	EPA 8260C
1,2 Dichloroethane-d4	102	% Recovery	81			118	1.00				8/27/24 02:34	DGS	EPA 8260C
Bromofluorobenzene	97.0	% Recovery	85			114	1.00				8/27/24 02:34	DGS	EPA 8260C
d8-Toluene	106	% Recovery	89			112	1.00				8/27/24 02:34	DGS	EPA 8260C
Dibromofluoromethane	102	% Recovery	80			119	1.00				8/27/24 02:34	DGS	EPA 8260C
Ethane	<0.80	ug/L	0.38	0.80	1.0	1.0	1.00	U		8/23/24 11:21	8/23/24 12:11	SRW	RSK 175
Ethene	<1.2	ug/L	0.59	1.2	1.4	1.4	1.00	U		8/23/24 11:21	8/23/24 12:11	SRW	RSK 175
Methane	<0.90	ug/L	0.45	0.90	1.0	1.0	1.00	U		8/23/24 11:21	8/23/24 12:11	SRW	RSK 175

CT LAB#: 1494085 Sample Description: 48TW1 Client Sample #: Sampled: 8/21/2024 13:57

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results													
Chloride	***4.4***	mg/L	1.0	1.5	3.0	3.0	1.00				8/22/24 15:41	TMG	EPA 9056A
Nitrate Nitrogen	***1.5***	mg/L	0.12	0.20	0.40	0.40	1.00				8/22/24 15:41	TMG	EPA 9056A
Sulfate	***48***	mg/L	0.80	1.5	3.0	3.0	1.00				8/22/24 15:41	TMG	EPA 9056A
Total Organic Carbon	<1.5	mg/L	0.4	1.5	3.0	3.0	1.00	U			8/26/24 17:49	TMG	EPA 9060A
Organic Results													
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			8/27/24 03:02	DGS	EPA 8260C
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			8/27/24 03:02	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			8/27/24 03:02	DGS	EPA 8260C
1,1-Dichloroethane	***0.45***	ug/L	0.28	1.0	1.1	1.1	1.00	J			8/27/24 03:02	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			8/27/24 03:02	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1494085 Sample Description: 48TW1 Client Sample #: Sampled: 8/21/2024 13:57

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			8/27/24 03:02	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			8/27/24 03:02	DGS	EPA 8260C
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.35	1.0	2.0	2.0	1.00	U Z			8/27/24 03:02	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/27/24 03:02	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/27/24 03:02	DGS	EPA 8260C
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			8/27/24 03:02	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/27/24 03:02	DGS	EPA 8260C
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			8/27/24 03:02	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/27/24 03:02	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			8/27/24 03:02	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U Z			8/27/24 03:02	DGS	EPA 8260C
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			8/27/24 03:02	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			8/27/24 03:02	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			8/27/24 03:02	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			8/27/24 03:02	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			8/27/24 03:02	DGS	EPA 8260C
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			8/27/24 03:02	DGS	EPA 8260C
Bromodichloromethane	<0.25	ug/L	0.080	0.25	0.50	0.50	1.00	U			8/27/24 03:02	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			8/27/24 03:02	DGS	EPA 8260C
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U Z			8/27/24 03:02	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			8/27/24 03:02	DGS	EPA 8260C
Carbon tetrachloride	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/27/24 03:02	DGS	EPA 8260C
Chlorobenzene	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/27/24 03:02	DGS	EPA 8260C
Chloroethane	<1.0	ug/L	0.36	1.0	2.0	2.0	1.00	U			8/27/24 03:02	DGS	EPA 8260C
Chloroform	<1.0	ug/L	0.46	1.0	1.4	1.4	1.00	U			8/27/24 03:02	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			8/27/24 03:02	DGS	EPA 8260C
cis-1,2-Dichloroethene	***0.64***	ug/L	0.41	1.0	1.3	1.3	1.00	J			8/27/24 03:02	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.34	1.0	1.1	1.1	1.00	U			8/27/24 03:02	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1494085 Sample Description: 48TW1 Client Sample #: Sampled: 8/21/2024 13:57

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U Z			8/27/24 03:02	DGS	EPA 8260C
Dibromochloromethane	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/27/24 03:02	DGS	EPA 8260C
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			8/27/24 03:02	DGS	EPA 8260C
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			8/27/24 03:02	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			8/27/24 03:02	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			8/27/24 03:02	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			8/27/24 03:02	DGS	EPA 8260C
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			8/27/24 03:02	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			8/27/24 03:02	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U			8/27/24 03:02	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.72	2.0	2.2	2.2	1.00	U			8/27/24 03:02	DGS	EPA 8260C
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/27/24 03:02	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.54	1.0	2.0	2.0	1.00	U			8/27/24 03:02	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			8/27/24 03:02	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/27/24 03:02	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			8/27/24 03:02	DGS	EPA 8260C
Trichloroethene	***0.86***	ug/L	0.39	1.0	1.2	1.2	1.00	J			8/27/24 03:02	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U Z			8/27/24 03:02	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			8/27/24 03:02	DGS	EPA 8260C
1,2 Dichloroethane-d4	99.0	% Recovery	81			118	1.00				8/27/24 03:02	DGS	EPA 8260C
Bromofluorobenzene	99.0	% Recovery	85			114	1.00				8/27/24 03:02	DGS	EPA 8260C
d8-Toluene	103	% Recovery	89			112	1.00				8/27/24 03:02	DGS	EPA 8260C
Dibromofluoromethane	102	% Recovery	80			119	1.00				8/27/24 03:02	DGS	EPA 8260C
Ethane	<0.80	ug/L	0.38	0.80	1.0	1.0	1.00	U		8/23/24 11:21	8/23/24 12:15	SRW	RSK 175
Ethene	<1.2	ug/L	0.59	1.2	1.4	1.4	1.00	U		8/23/24 11:21	8/23/24 12:15	SRW	RSK 175
Methane	<0.90	ug/L	0.45	0.90	1.0	1.0	1.00	U		8/23/24 11:21	8/23/24 12:15	SRW	RSK 175

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1494086 Sample Description: 49MW01 Client Sample #: Sampled: 8/21/2024 16:05

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results													
Chloride	***4.3***	mg/L	1.0	1.5	3.0	3.0	1.00				8/22/24 16:04	TMG	EPA 9056A
Nitrate Nitrogen	***0.31***	mg/L	0.12	0.20	0.40	0.40	1.00	J			8/22/24 16:04	TMG	EPA 9056A
Sulfate	***1.3***	mg/L	0.80	1.5	3.0	3.0	1.00	J			8/22/24 16:04	TMG	EPA 9056A
Total Organic Carbon	<1.5	mg/L	0.4	1.5	3.0	3.0	1.00	U			8/26/24 18:37	TMG	EPA 9060A
Organic Results													
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			8/27/24 03:30	DGS	EPA 8260C
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			8/27/24 03:30	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			8/27/24 03:30	DGS	EPA 8260C
1,1-Dichloroethane	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			8/27/24 03:30	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			8/27/24 03:30	DGS	EPA 8260C
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			8/27/24 03:30	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			8/27/24 03:30	DGS	EPA 8260C
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.35	1.0	2.0	2.0	1.00	U Z			8/27/24 03:30	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/27/24 03:30	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/27/24 03:30	DGS	EPA 8260C
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			8/27/24 03:30	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/27/24 03:30	DGS	EPA 8260C
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			8/27/24 03:30	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/27/24 03:30	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			8/27/24 03:30	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U Z			8/27/24 03:30	DGS	EPA 8260C
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			8/27/24 03:30	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			8/27/24 03:30	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			8/27/24 03:30	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			8/27/24 03:30	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			8/27/24 03:30	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1494086 Sample Description: 49MW01 Client Sample #: Sampled: 8/21/2024 16:05

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			8/27/24 03:30	DGS	EPA 8260C
Bromodichloromethane	<0.25	ug/L	0.080	0.25	0.50	0.50	1.00	U			8/27/24 03:30	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			8/27/24 03:30	DGS	EPA 8260C
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U Z			8/27/24 03:30	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			8/27/24 03:30	DGS	EPA 8260C
Carbon tetrachloride	***1.8***	ug/L	0.37	1.0	1.2	1.2	1.00				8/27/24 03:30	DGS	EPA 8260C
Chlorobenzene	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/27/24 03:30	DGS	EPA 8260C
Chloroethane	<1.0	ug/L	0.36	1.0	2.0	2.0	1.00	U			8/27/24 03:30	DGS	EPA 8260C
Chloroform	<1.0	ug/L	0.46	1.0	1.4	1.4	1.00	U			8/27/24 03:30	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			8/27/24 03:30	DGS	EPA 8260C
cis-1,2-Dichloroethene	<1.0	ug/L	0.41	1.0	1.3	1.3	1.00	U			8/27/24 03:30	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.34	1.0	1.1	1.1	1.00	U			8/27/24 03:30	DGS	EPA 8260C
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U Z			8/27/24 03:30	DGS	EPA 8260C
Dibromochloromethane	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/27/24 03:30	DGS	EPA 8260C
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			8/27/24 03:30	DGS	EPA 8260C
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			8/27/24 03:30	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			8/27/24 03:30	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			8/27/24 03:30	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			8/27/24 03:30	DGS	EPA 8260C
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			8/27/24 03:30	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			8/27/24 03:30	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U			8/27/24 03:30	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.72	2.0	2.2	2.2	1.00	U			8/27/24 03:30	DGS	EPA 8260C
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/27/24 03:30	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.54	1.0	2.0	2.0	1.00	U			8/27/24 03:30	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			8/27/24 03:30	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/27/24 03:30	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			8/27/24 03:30	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1494086 Sample Description: 49MW01 Client Sample #: Sampled: 8/21/2024 16:05

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Trichloroethene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			8/27/24 03:30	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U Z			8/27/24 03:30	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			8/27/24 03:30	DGS	EPA 8260C
1,2 Dichloroethane-d4	102	% Recovery	81			118	1.00				8/27/24 03:30	DGS	EPA 8260C
Bromofluorobenzene	98.0	% Recovery	85			114	1.00				8/27/24 03:30	DGS	EPA 8260C
d8-Toluene	104	% Recovery	89			112	1.00				8/27/24 03:30	DGS	EPA 8260C
Dibromofluoromethane	104	% Recovery	80			119	1.00				8/27/24 03:30	DGS	EPA 8260C
Ethane	<0.80	ug/L	0.38	0.80	1.0	1.0	1.00	U		8/23/24 11:21	8/23/24 12:18	SRW	RSK 175
Ethene	<1.2	ug/L	0.59	1.2	1.4	1.4	1.00	U		8/23/24 11:21	8/23/24 12:18	SRW	RSK 175
Methane	<0.90	ug/L	0.45	0.90	1.0	1.0	1.00	U		8/23/24 11:21	8/23/24 12:18	SRW	RSK 175

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

Notes:

^ Indicates the laboratory is NELAP accredited for this analyte by the indicated matrix and method . DL (detection limit), LOD (limit of detection), loq (limit of quantitation) as defined by most recent DOD QSM version.

All samples were received intact and properly preserved unless otherwise noted . The results reported relate only to the samples tested. This report shall not be reproduced, except in full, without written approval of this laboratory. The Chain of Custody is attached.

This report has been specifically prepared to satisfy project or program requirements. These results are in compliance with NELAC requirements for the parameters where accreditation is required or available, unless noted in the case narrative.

Submitted by: Brett M. Szymanski
Project Manager
608-356-2760

QC Qualifiers

Code	Description
B	Analyte detected in the associated Method Blank.
C	Toxicity present in BOD sample.
D	Diluted Out.
E	Safe, No Total Coliform detected.
F	Unsafe, Total Coliform detected, no E. Coli detected.
G	Unsafe, Total Coliform detected and E. Coli detected.
H	Holding time exceeded.
I	Incubator temperature was outside acceptance limits during test period.
J	Estimated value.
L	Significant peaks were detected outside the chromatographic window.
M	Matrix spike and/or Matrix Spike Duplicate recovery outside acceptance limits.
N	Insufficient BOD oxygen depletion.
O	Complete BOD oxygen depletion.
P	Concentration of analyte differs more than 40% between primary and confirmation analysis.
Q	Laboratory Control Sample outside acceptance limits.
R	See Narrative at end of report.
S	Surrogate standard recovery outside acceptance limits due to apparent matrix effects.
T	Sample received with improper preservation or temperature.
U	Analyte concentration was below detection limit.
V	Raised Quantitation or Reporting Limit due to limited sample amount or dilution for matrix background interference.
W	Sample amount received was below program minimum.
X	Analyte exceeded calibration range.
Y	Replicate/Duplicate precision outside acceptance limits.
Z	Specified calibration criteria was not met.

Current CT Laboratories Certifications

Wisconsin (WDNR) Chemistry ID# 157066030
Wisconsin (DATCP) Bacteriology ID# 289
Louisiana NELAP (primary) ID# ACC20190002
Illinois NELAP Lab ID# 200073
Kansas NELAP Lab ID# E-10368
Virginia NELAP Lab ID# 460203
ISO/IEC 17025-2005 A2LA Cert # 3806.01
DoD-ELAP A2LA 3806.01
GA EPD Stipulation ID ACC20190002

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QC Summary Report

CAPE ENVIRONMENTAL MANAGEMENT **Project Name: RADFORD AAP**

SDG #: 0 **Folder #: 188808** **Project #: 10409-0222**

Duplicate

Analytical Run #:	284811	Analysis Date:	8/22/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1495227	Analysis Time:	16:27	Prep Date/Time:		Method:	SW9056A
Parent Sample #:	1494082	Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Chloride	10.8	mg/L	11				3.0	2	10
Nitrate Nitrogen	1.71	mg/L	1.7				0.40	1	10
Sulfate	85.9	mg/L	89				3.0	4	10

Lab Control Spike Water

Analytical Run #:	284811	Analysis Date:	8/22/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1495220	Analysis Time:	13:47	Prep Date/Time:		Method:	SW9056A
Parent Sample #:		Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits			RPD	RPD Limit
Chloride	13.73	mg/L			15.00	92	87	---	111		
Nitrate Nitrogen	3.287	mg/L			3.500	94	88	---	111		
Sulfate	23.97	mg/L			25.00	96	87	---	112		

Method Blank Water

Analytical Run #:	284811	Analysis Date:	8/22/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1495221	Analysis Time:	14:10	Prep Date/Time:		Method:	SW9056A
Parent Sample #:		Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Chloride	1.0	mg/L		U	0		1.5		
Nitrate Nitrogen	0.12	mg/L		U	0		0.20		
Sulfate	0.8	mg/L		U	0		1.5		

Matrix Spike Duplicate Water

Analytical Run #:	284811	Analysis Date:	8/22/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1495229	Analysis Time:	17:12	Prep Date/Time:		Method:	SW9056A
Parent Sample #:	1495228	Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits			RPD	RPD Limit
Chloride	18.0	mg/L	11		8.00	88	87	---	111	0	15
Nitrate Nitrogen	3.63	mg/L	1.7		2.00	96	88	---	111	0	15
Sulfate	120	mg/L	89		40.0	78	87	---	112	0	15

Matrix Spike Water

Analytical Run #:	284811	Analysis Date:	8/22/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1495228	Analysis Time:	16:50	Prep Date/Time:		Method:	SW9056A
Parent Sample #:	1494082	Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits			RPD	RPD Limit
Chloride	17.9	mg/L	11		8.00	86	87	---	111		15
Nitrate Nitrogen	3.62	mg/L	1.7		2.00	96	88	---	111		15
Sulfate	120	mg/L	89		40.0	78	87	---	112		15

Duplicate

Analytical Run #:	284877	Analysis Date:	8/26/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1495659	Analysis Time:	17:05	Prep Date/Time:		Method:	SW9060
Parent Sample #:	1494084	Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Organic Carbon	0.4	mg/L	<DL	U			1.5	0	20

Lab Control Spike Water

Analytical Run #:	284877	Analysis Date:	8/26/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1495657	Analysis Time:	15:14	Prep Date/Time:		Method:	SW9060
Parent Sample #:		Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Organic Carbon	50.90	mg/L			50.0	102	85 --- 111		20

Method Blank Water

Analytical Run #:	284877	Analysis Date:	8/26/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1495658	Analysis Time:	15:28	Prep Date/Time:		Method:	SW9060
Parent Sample #:		Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Organic Carbon	0.40	mg/L		U	0		1.5		

Matrix Spike Duplicate Water

Analytical Run #:	284877	Analysis Date:	8/26/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1495661	Analysis Time:	17:36	Prep Date/Time:		Method:	SW9060
Parent Sample #:	1495660	Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Organic Carbon	52.5	mg/L	<DL		50.0	105	85 --- 111	1	20

Matrix Spike Water

Analytical Run #:	284877	Analysis Date:	8/26/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1495660	Analysis Time:	17:23	Prep Date/Time:		Method:	SW9060
Parent Sample #:	1494084	Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Organic Carbon	52.0	mg/L	<DL		50.0	104	85 --- 111		20

Lab Control Spike Water

Analytical Run #:	284750	Analysis Date:	8/26/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1496219	Analysis Time:	20:02	Prep Date/Time:		Method:	SW8260C
Parent Sample #:		Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits			RPD	RPD Limit
1,1,1-Trichloroethane	11.2	ug/L			10.0	112	74	---	131		20
1,1,2,2-Tetrachloroethane	9.31	ug/L			10.0	93	71	---	121		20
1,1,2-Trichloroethane	10.8	ug/L			10.0	108	80	---	119		20
1,1-Dichloroethane	11.0	ug/L			10.0	110	77	---	125		20
1,1-Dichloroethene	11.6	ug/L			10.0	116	71	---	131		20
1,2,3-Trichlorobenzene	8.70	ug/L			10.0	87	69	---	129		20
1,2,4-Trichlorobenzene	8.62	ug/L			10.0	86	69	---	130		20
1,2-Dibromo-3-chloropropane	7.91	ug/L			10.0	79	62	---	128		20
1,2-Dibromoethane	9.40	ug/L			10.0	94	77	---	121		20
1,2-Dichlorobenzene	9.06	ug/L			10.0	91	80	---	119		20
1,2-Dichloroethane	10.6	ug/L			10.0	106	73	---	128		20
1,2-Dichloropropane	10.7	ug/L			10.0	107	78	---	122		20
1,3-Dichlorobenzene	9.12	ug/L			10.0	91	80	---	119		20
1,4-Dichlorobenzene	9.06	ug/L			10.0	91	79	---	118		20
1,4-Dioxane	575	ug/L			500	115	59	---	139		20
112Trichloro122trifluoroethane	24.7	ug/L			20.0	124	70	---	136		20
2-Butanone	101	ug/L			100	101	56	---	143		20
2-Hexanone	85.7	ug/L			100	86	57	---	139		20
4-Methyl-2-pentanone	101	ug/L			100	101	67	---	130		20
Acetone	101	ug/L			100	101	39	---	160		20
Benzene	11.3	ug/L			10.0	113	79	---	120		20
Bromochloromethane	11.4	ug/L			10.0	114	78	---	123		20
Bromodichloromethane	10.3	ug/L			10.0	103	79	---	125		20
Bromoform	8.82	ug/L			10.0	88	66	---	130		20
Bromomethane	12.1	ug/L			10.0	121	53	---	141		20
Carbon disulfide	23.1	ug/L			20.0	116	64	---	133		20
Carbon tetrachloride	11.3	ug/L			10.0	113	72	---	136		20
Chlorobenzene	9.86	ug/L			10.0	99	82	---	118		20
Chloroethane	10.8	ug/L			10.0	108	60	---	138		20
Chloroform	10.9	ug/L			10.0	109	79	---	124		20
Chloromethane	10.8	ug/L			10.0	108	50	---	139		20
cis-1,2-Dichloroethene	11.1	ug/L			10.0	111	78	---	123		20
cis-1,3-Dichloropropene	10.7	ug/L			10.0	107	75	---	124		20
Cyclohexane	12.1	ug/L			10.0	121	71	---	130		20
Dibromochloromethane	9.44	ug/L			10.0	94	74	---	126		20
Dichlorodifluoromethane	11.9	ug/L			10.0	119	32	---	152		20
Ethylbenzene	10.1	ug/L			10.0	101	79	---	121		20
Isopropylbenzene	10.3	ug/L			10.0	103	72	---	131		20
m & p-Xylene	20.0	ug/L			20.0	100	80	---	121		20
Methyl acetate	10.3	ug/L			10.0	103	56	---	136		20
Methyl tert-butyl ether	10.7	ug/L			10.0	107	71	---	124		20
Methylcyclohexane	10.5	ug/L			10.0	105	72	---	132		20

Lab Control Spike Water

Analytical Run #:	284750	Analysis Date:	8/26/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1496219	Analysis Time:	20:02	Prep Date/Time:		Method:	SW8260C
Parent Sample #:		Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits			RPD	RPD Limit
Methylene chloride	10.7	ug/L			10.0	107	74	---	124		20
o-Xylene	10.1	ug/L			10.0	101	78	---	122		20
Styrene	9.92	ug/L			10.0	99	78	---	123		20
Tetrachloroethene	11.4	ug/L			10.0	114	74	---	129		20
Toluene	11.3	ug/L			10.0	113	80	---	121		20
trans-1,2-Dichloroethene	11.2	ug/L			10.0	112	75	---	124		20
trans-1,3-Dichloropropene	10.3	ug/L			10.0	103	73	---	127		20
Trichloroethene	10.6	ug/L			10.0	106	79	---	123		20
Trichlorofluoromethane	12.3	ug/L			10.0	123	65	---	141		20
Vinyl chloride	11.5	ug/L			10.0	115	58	---	137		20

Method Blank Water

Analytical Run #:	284750	Analysis Date:	8/26/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1496222	Analysis Time:	20:59	Prep Date/Time:		Method:	SW8260C
Parent Sample #:		Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
1,1,1-Trichloroethane	0.38	ug/L		U	0		0.60		
1,1,2,2-Tetrachloroethane	0.36	ug/L		U	0		0.55		
1,1,2-Trichloroethane	0.27	ug/L		U	0		0.55		
1,1-Dichloroethane	0.28	ug/L		U	0		0.55		
1,1-Dichloroethene	0.49	ug/L		U	0		1.0		
1,2,3-Trichlorobenzene	0.43	ug/L		U	0		1.0		
1,2,4-Trichlorobenzene	0.50	ug/L		U	0		1.0		
1,2-Dibromo-3-chloropropane	0.35	ug/L		U	0		1.0		
1,2-Dibromoethane	0.33	ug/L		U	0		0.55		
1,2-Dichlorobenzene	0.35	ug/L		U	0		0.55		
1,2-Dichloroethane	0.69	ug/L		U	0		1.05		
1,2-Dichloropropane	0.37	ug/L		U	0		0.60		
1,3-Dichlorobenzene	0.30	ug/L		U	0		0.55		
1,4-Dichlorobenzene	0.33	ug/L		U	0		0.55		
1,4-Dioxane	34	ug/L		U	0		50		
112Trichloro122trifluoroethane	1.5	ug/L		U	0		2.25		
2-Butanone	2.9	ug/L		U	0		5.5		
2-Hexanone	3.3	ug/L		U	0		5.5		
4-Methyl-2-pentanone	3.7	ug/L		U	0		6.0		
Acetone	4.1	ug/L		U	0		10		
Benzene	0.40	ug/L		U	0		1.0		
Bromochloromethane	0.26	ug/L		U	0		0.55		
Bromodichloromethane	0.080	ug/L		U	0		0.25		
Bromoform	0.50	ug/L		U	0		1.0		
Bromomethane	0.49	ug/L		U	0		1.0		
Carbon disulfide	0.83	ug/L		U	0		2.0		
Carbon tetrachloride	0.37	ug/L		U	0		0.60		
Chlorobenzene	0.37	ug/L		U	0		0.60		
Chloroethane	0.36	ug/L		U	0		1.0		
Chloroform	0.46	ug/L		U	0		0.70		
Chloromethane	0.39	ug/L		U	0		1.0		
cis-1,2-Dichloroethene	0.41	ug/L		U	0		0.65		
cis-1,3-Dichloropropene	0.34	ug/L		U	0		0.55		
Cyclohexane	0.71	ug/L		U	0		1.1		
Dibromochloromethane	0.35	ug/L		U	0		0.55		
Dichlorodifluoromethane	0.63	ug/L		U	0		1.05		
Ethylbenzene	0.42	ug/L		U	0		0.65		
Isopropylbenzene	0.39	ug/L		U	0		0.60		
m & p-Xylene	0.74	ug/L		U	0		1.15		
Methyl acetate	0.34	ug/L		U	0		1.0		
Methyl tert-butyl ether	0.28	ug/L		U	0		0.55		
Methylcyclohexane	0.78	ug/L		U	0		1.2		

Method Blank Water

Analytical Run #:	284750	Analysis Date:	8/26/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1496222	Analysis Time:	20:59	Prep Date/Time:		Method:	SW8260C
Parent Sample #:		Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Methylene chloride	1.2	ug/L		U	0		2.05		
o-Xylene	0.72	ug/L		U	0		1.1		
Styrene	0.33	ug/L		U	0		0.55		
Tetrachloroethene	0.54	ug/L		U	0		1.0		
Toluene	0.27	ug/L		U	0		0.55		
trans-1,2-Dichloroethene	0.35	ug/L		U	0		0.55		
trans-1,3-Dichloropropene	0.56	ug/L		U	0		1.05		
Trichloroethene	0.39	ug/L		U	0		0.60		
Trichlorofluoromethane	0.41	ug/L		U	0		1.0		
Vinyl chloride	0.12	ug/L		U	0		0.25		

Lab Control Spike Duplicate Water

Analytical Run #:	284859	Analysis Date:	8/23/2024	Prep Batch #:	135561	Matrix:	LIQUID
CTLab #:	1494673	Analysis Time:	12:01	Prep Date/Time:	08/23/2024 11:21	Method:	RSK175
Parent Sample #:	1494672	Analyst:	SRW	Prep Analyst:	SRW		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Ethane	4.70	ug/L	4.99		4.75	99	74 --- 131	6	20
Ethene	6.55	ug/L	7.01		6.77	97	72 --- 133	7	20
Methane	2.33	ug/L	2.38		2.28	102	73 --- 125	2	20

Lab Control Spike Water

Analytical Run #:	284859	Analysis Date:	8/23/2024	Prep Batch #:	135561	Matrix:	LIQUID
CTLab #:	1494672	Analysis Time:	11:54	Prep Date/Time:	08/23/2024 11:21	Method:	RSK175
Parent Sample #:		Analyst:	SRW	Prep Analyst:	SRW		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Ethane	4.99	ug/L			4.75	105	74 --- 131		20
Ethene	7.01	ug/L			6.77	104	72 --- 133		20
Methane	2.38	ug/L			2.28	104	73 --- 125		20

Method Blank Water

Analytical Run #:	284859	Analysis Date:	8/23/2024	Prep Batch #:	135561	Matrix:	LIQUID
CTLab #:	1494671	Analysis Time:	11:57	Prep Date/Time:	08/23/2024 11:21	Method:	RSK175
Parent Sample #:		Analyst:	SRW	Prep Analyst:	SRW		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Ethane	0.38	ug/L		U	0		0.5		
Ethene	0.59	ug/L		U	0		0.7		
Methane	0.45	ug/L		U	0		0.5		

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Sample Condition Report

Folder #:	188808	Print Date / Time:	08/22/2024 10:03
Client:	CAPE ENVIRONMENTAL MANAGEMENT	Received Date / Time / By:	08/22/2024 09:58 erc
Project Name:	RADFORD AAP	Log-In Date / Time / By:	08/22/2024 10:03 erc
Project Phase:	SWMU 49	Project #:	10409-0222 PM: BMS
Coolers:	6206	Temperature:	3.3 C On Ice: **Y**
Custody Seals Present :	**Y**	COC Present:?	**Y** Complete? **Y**
Seal Intact?	**Y**	Numbers:	DATED AND SIGNED
Ship Method:	FEDEX EXPRESS	Tracking Number:	778055692721
Adequate Packaging:	**Y**	Temp Blank Enclosed?	**Y**

Notes: THE SAMPLES WERE RECEIVED IN GOOD CONDITION ON ICE.

TWO (2) CUSTODY SEALS WERE PRESENT AND INTACT ON THE COOLER UPON RECEIPT (BOTH WERE DATED 8/21/24 AND SIGNED).

Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
1494081 TB-2				
	VOA HCL	1	/	VOC
	VOA HCL	1	/	VOC
	Total # of Containers of Type	(***VOA HCL***) = **2**		
Sample ID / Description	**Container Type**	**Cond. Code**	**pH OK?/Filtered?**	**Tests**
1494082 48MW6				
	UNPRES PL	1	/	Anions
	Total # of Containers of Type	(***UNPRES PL***) = **1**		
1494082 48MW6				
	VOA HCL	1	/	GAS,VOC
	VOA HCL	1	/	GAS,VOC
	VOA HCL	1	/	GAS,VOC
	VOA HCL	1	/	GAS,VOC
	VOA HCL	1	/	GAS,VOC
	Total # of Containers of Type	(***VOA HCL***) = **5**		
1494082 48MW6				
	H2SO4 PL	1	Y / N	TOC
	Total # of Containers of Type	(***H2SO4 PL***) = **1**		
Sample ID / Description	**Container Type**	**Cond. Code**	**pH OK?/Filtered?**	**Tests**
1494083 48MW6-EQB				
	UNPRES PL	1	/	Anions
	Total # of Containers of Type	(***UNPRES PL***) = **1**		

1494083	48MW6-EQB					
		VOA HCL	1		/	GAS,VOC
		VOA HCL	1		/	GAS,VOC
		VOA HCL	1		/	GAS,VOC
		VOA HCL	1		/	GAS,VOC
		VOA HCL	1		/	GAS,VOC
		Total # of Containers of Type	**(*VOA HCL*) = 5**			
1494083	48MW6-EQB					
		H2SO4 PL	1	Y	/ N	TOC
		Total # of Containers of Type	**(*H2SO4 PL*) = 1**			

Sample ID /	Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
1494084	48MW1				
		UNPRES PL	1	/	Anions
		Total # of Containers of Type	**(*UNPRES PL*) = 1**		
1494084	48MW1				
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		Total # of Containers of Type	**(*VOA HCL*) = 5**		
1494084	48MW1				
		H2SO4 PL	1	Y / N	TOC
		Total # of Containers of Type	**(*H2SO4 PL*) = 1**		

Sample ID /	Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
1494085	48TW1				
		UNPRES PL	1	/	Anions
		Total # of Containers of Type	**(*UNPRES PL*) = 1**		
1494085	48TW1				
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		Total # of Containers of Type	**(*VOA HCL*) = 5**		
1494085	48TW1				
		H2SO4 PL	1	Y / N	TOC
		Total # of Containers of Type	**(*H2SO4 PL*) = 1**		

Sample ID /	Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
1494086	49MW01				
		UNPRES PL	1	/	Anions
		Total # of Containers of Type	**(*UNPRES PL*) = 1**		

1494086 49MW01

VOA HCL	1	/		GAS,VOC
VOA HCL	1	/		GAS,VOC
VOA HCL	1	/		GAS,VOC
VOA HCL	1	/		GAS,VOC
VOA HCL	1	/		GAS,VOC

Total # of Containers of Type (*VOA HCL*) = 5

1494086 49MW01

H2SO4 PL	1	Y	/	N	TOC

Total # of Containers of Type (*H2SO4 PL*) = 1

Condition Code	*Condition Description*
1	Sample Received OK

Rev. 02/2017

CHAIN OF CUSTODY

Page 1 of 1

Company: CAPE Environmental
Project Contact: Matt Feits
Telephone: (724) 622-3625
Project Name: Radford AAP SWMU 49
Project #:
Location: Radford, VA
Sampled By: Y. Miyakawa, P. Taylor

CT LABORATORIES
1230 Lange Court, Baraboo, WI 53913
608-356-2760 Fax 608-356-2766
www.ctlaboratories.com

Folder #: 188808
Company: CAPE ENVIRONMENTAL MA
Project: RADFORD AAP SWMU 49
Logged By: erc PM: BMS

Program:
SM RCRA SDWA NPDES
Solid Waste Other _____
PO #

Report To: chemistrysvcs@cape-inc.com
EMAIL: mfeits@cape-inc.com
Company: Cape Environmental Management
Address: 500 Pinnacle Court #100 Norcross, GA 30071

Invoice To:*
EMAIL: Same
Company:
Address:

*Party listed is responsible for payment of invoice as per CT Laboratories' terms and conditions

Client Special Instructions

Matrix:
GW – groundwater SW - surface water WW - wastewater DW - drinking water
S - soil/sediment SL - sludge A - air M - misc/waste

ANALYSES REQUESTED

Turnaround Time
Normal RUSH*
Date Needed: _____
Rush analysis requires prior CT Laboratories' approval
Surcharges:
24 hr 200%
2-3 days 100%
4-9 days 50%

2024 Collection Date	Time	Matrix	Grab/ Comp	Sample #	Sample ID Description	Filtered? Y/N	VOC 8260C	MEE RSK-175	TOC 9060A	Anions 9056											Total # Containers	Designated MS/MSD	CT Lab ID # (Lab use only)
							Fill in Spaces with Bottles per Test																
8/21	0000	GW	G		TB-2	N	2							Trip Blank							2		179408
8/21	1045	GW	G		48MW6	N	3	2	1	1											7		82
8/21	1120	GW	G		48MW6-EQB	N	3	2	1	1											7		83
8/21	1357	GW	G		48MW1	N	3	2	1	1											7		84
8/21	1357	GW	G		48TW1	N	3	2	1	1											7		85
8/21	1605	GW	G		49MW01	N	3	2	1	1											7		86

Relinquished By: Paul I. Taylor — Date/Time: 8/21/2024 1800
Received by: — Date/Time

Received By: Fedex — Date/Time: 8/21/2024 1800
Received for Laboratory by: — Date/Time: 8/22/24 958

8/22/24 1006

Lab Use Only
Ice Present (Yes) No
Temp 3.3 IR Gun 3.3
Cooler # 6206

ORIGIN ID:LIYA (724) 822-3625
CAPE ENVIRONMENTAL MANAGEMENT
CAPE
500 PINNACLE COURT
SUITE 100
NORCROSS, GA 30071
UNITED STATES US

SHIP DATE: 21AUG24
ACTWGT: 45.00 LB
CAD: 100980732/INET4535

BILL SENDER

TO **SAMPLE RECEIVING**
CT LABS
1230 LANGE COURT

BARABOO WI 53913
(608) 355-2761
REF: 10409-0002-002-003
DEPT:
PO:

FedEx Express

5953/A12D/BAE3

1 of 2

TRK# 7780 5569 2721
0201
MASTER

XS LNRA

THU - 22 AUG 10:30A
PRIORITY OVERNIGHT

53913

WI-US MSN

CUSTODY SEAL
DATE 8/21/24
SIGNATURE

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800-255-3850 • www.qecusa.com

After printing this label:
CONSIGNEE COPY - PLEASE PLACE IN FRONT OF POUCH
1. Fold the printed page along the horizontal line.
2. Place label in shipping pouch and affix it to your shipment.

CUSTODY SEAL
DATE 8/21/24
SIGNATURE

QEC
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Ice Present Yes No
Temperature 3.8 3.2
Initials Eve
Date 8/22/24 Time 958
Order # 6206

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ANALYTICAL SUMMARY REPORT

This report at a minimum contains the following information:

Analytical Report of Test Results
Description of QC Qualifiers
Chain of Custody (copy)
Quality Control Summary (if applicable)
Case Narrative (if applicable)
Correspondence with Client (if applicable)

This report has been specifically prepared to satisfy project or program requirements. These results are in compliance with NELAC requirements for parameters where accreditation is required or available, unless otherwise noted in the case narrative.

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

ANALYTICAL SAMPLE DATA

CAPE ENVIRONMENTAL MANAGEMENT
MATT FEITS
500 PINNACLE COURT
SUITE 100
NORCROSS, GA 30071

Project Name: RADFORD AAP
Project Phase: SWMU 49
Project #: 10409-0222
Folder #: 188855
Purchase Order #: SC013781
Contract #: 3648

Arrival Temperature: 2.2
Report Date: 9/5/2024
Date Received: 8/23/2024
Reprint Date: 9/5/2024

Copy: chemistrysvcs@cape-inc.com

CT LAB#: 1494660 Sample Description: TB-3 Client Sample #: Sampled: 8/22/2024 00:00

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Organic Results													
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			8/26/24 22:50	DGS	EPA 8260C
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			8/26/24 22:50	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			8/26/24 22:50	DGS	EPA 8260C
1,1-Dichloroethane	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			8/26/24 22:50	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			8/26/24 22:50	DGS	EPA 8260C
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			8/26/24 22:50	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			8/26/24 22:50	DGS	EPA 8260C
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.35	1.0	2.0	2.0	1.00	U Z			8/26/24 22:50	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/26/24 22:50	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/26/24 22:50	DGS	EPA 8260C
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			8/26/24 22:50	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/26/24 22:50	DGS	EPA 8260C
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			8/26/24 22:50	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/26/24 22:50	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			8/26/24 22:50	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U Z			8/26/24 22:50	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1494660 Sample Description: TB-3 Client Sample #: Sampled: 8/22/2024 00:00

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			8/26/24 22:50	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			8/26/24 22:50	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			8/26/24 22:50	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			8/26/24 22:50	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			8/26/24 22:50	DGS	EPA 8260C
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			8/26/24 22:50	DGS	EPA 8260C
Bromodichloromethane	<0.25	ug/L	0.080	0.25	0.50	0.50	1.00	U			8/26/24 22:50	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			8/26/24 22:50	DGS	EPA 8260C
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U Z			8/26/24 22:50	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			8/26/24 22:50	DGS	EPA 8260C
Carbon tetrachloride	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/26/24 22:50	DGS	EPA 8260C
Chlorobenzene	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/26/24 22:50	DGS	EPA 8260C
Chloroethane	<1.0	ug/L	0.36	1.0	2.0	2.0	1.00	U			8/26/24 22:50	DGS	EPA 8260C
Chloroform	<1.0	ug/L	0.46	1.0	1.4	1.4	1.00	U			8/26/24 22:50	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			8/26/24 22:50	DGS	EPA 8260C
cis-1,2-Dichloroethene	<1.0	ug/L	0.41	1.0	1.3	1.3	1.00	U			8/26/24 22:50	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.34	1.0	1.1	1.1	1.00	U			8/26/24 22:50	DGS	EPA 8260C
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U Z			8/26/24 22:50	DGS	EPA 8260C
Dibromochloromethane	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/26/24 22:50	DGS	EPA 8260C
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			8/26/24 22:50	DGS	EPA 8260C
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			8/26/24 22:50	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			8/26/24 22:50	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			8/26/24 22:50	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			8/26/24 22:50	DGS	EPA 8260C
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			8/26/24 22:50	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			8/26/24 22:50	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U			8/26/24 22:50	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.72	2.0	2.2	2.2	1.00	U			8/26/24 22:50	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1494660 Sample Description: TB-3 Client Sample #: Sampled: 8/22/2024 00:00

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/26/24 22:50	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.54	1.0	2.0	2.0	1.00	U			8/26/24 22:50	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			8/26/24 22:50	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/26/24 22:50	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			8/26/24 22:50	DGS	EPA 8260C
Trichloroethene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			8/26/24 22:50	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U Z			8/26/24 22:50	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			8/26/24 22:50	DGS	EPA 8260C
1,2 Dichloroethane-d4	100	% Recovery	81			118	1.00				8/26/24 22:50	DGS	EPA 8260C
Bromofluorobenzene	100	% Recovery	85			114	1.00				8/26/24 22:50	DGS	EPA 8260C
d8-Toluene	104	% Recovery	89			112	1.00				8/26/24 22:50	DGS	EPA 8260C
Dibromofluoromethane	102	% Recovery	80			119	1.00				8/26/24 22:50	DGS	EPA 8260C

CT LAB#: 1494661 Sample Description: 50MW2 Client Sample #: Sampled: 8/22/2024 11:05

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results													
Chloride	***6.0***	mg/L	1.0	1.5	3.0	3.0	1.00				8/26/24 10:47	TMG	EPA 9056A
Nitrate Nitrogen	***1.8***	mg/L	0.12	0.20	0.40	0.40	1.00				8/23/24 12:10	TMG	EPA 9056A
Sulfate	***64***	mg/L	4.0	7.5	15	15	5.00				9/3/24 17:26	TMG	EPA 9056A
Total Organic Carbon	<1.5	mg/L	0.4	1.5	3.0	3.0	1.00	U			8/27/24 12:38	TMG	EPA 9060A
Organic Results													
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			8/27/24 03:58	DGS	EPA 8260C
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			8/27/24 03:58	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			8/27/24 03:58	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1494661 Sample Description: 50MW2 Client Sample #: Sampled: 8/22/2024 11:05

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
1,1-Dichloroethane	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			8/27/24 03:58	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			8/27/24 03:58	DGS	EPA 8260C
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			8/27/24 03:58	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			8/27/24 03:58	DGS	EPA 8260C
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.35	1.0	2.0	2.0	1.00	U Z			8/27/24 03:58	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/27/24 03:58	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/27/24 03:58	DGS	EPA 8260C
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			8/27/24 03:58	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/27/24 03:58	DGS	EPA 8260C
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			8/27/24 03:58	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/27/24 03:58	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			8/27/24 03:58	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U Z			8/27/24 03:58	DGS	EPA 8260C
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			8/27/24 03:58	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			8/27/24 03:58	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			8/27/24 03:58	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			8/27/24 03:58	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			8/27/24 03:58	DGS	EPA 8260C
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			8/27/24 03:58	DGS	EPA 8260C
Bromodichloromethane	<0.25	ug/L	0.080	0.25	0.50	0.50	1.00	U			8/27/24 03:58	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			8/27/24 03:58	DGS	EPA 8260C
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U Z			8/27/24 03:58	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			8/27/24 03:58	DGS	EPA 8260C
Carbon tetrachloride	***0.64***	ug/L	0.37	1.0	1.2	1.2	1.00	J			8/27/24 03:58	DGS	EPA 8260C
Chlorobenzene	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/27/24 03:58	DGS	EPA 8260C
Chloroethane	<1.0	ug/L	0.36	1.0	2.0	2.0	1.00	U			8/27/24 03:58	DGS	EPA 8260C
Chloroform	<1.0	ug/L	0.46	1.0	1.4	1.4	1.00	U			8/27/24 03:58	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			8/27/24 03:58	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1494661 Sample Description: 50MW2 Client Sample #: Sampled: 8/22/2024 11:05

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
cis-1,2-Dichloroethene	<1.0	ug/L	0.41	1.0	1.3	1.3	1.00	U			8/27/24 03:58	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.34	1.0	1.1	1.1	1.00	U			8/27/24 03:58	DGS	EPA 8260C
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U Z			8/27/24 03:58	DGS	EPA 8260C
Dibromochloromethane	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/27/24 03:58	DGS	EPA 8260C
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			8/27/24 03:58	DGS	EPA 8260C
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			8/27/24 03:58	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			8/27/24 03:58	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			8/27/24 03:58	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			8/27/24 03:58	DGS	EPA 8260C
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			8/27/24 03:58	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			8/27/24 03:58	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U			8/27/24 03:58	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.72	2.0	2.2	2.2	1.00	U			8/27/24 03:58	DGS	EPA 8260C
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/27/24 03:58	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.54	1.0	2.0	2.0	1.00	U			8/27/24 03:58	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			8/27/24 03:58	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/27/24 03:58	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			8/27/24 03:58	DGS	EPA 8260C
Trichloroethene	***0.98***	ug/L	0.39	1.0	1.2	1.2	1.00	J			8/27/24 03:58	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U Z			8/27/24 03:58	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			8/27/24 03:58	DGS	EPA 8260C
1,2 Dichloroethane-d4	102	% Recovery	81			118	1.00				8/27/24 03:58	DGS	EPA 8260C
Bromofluorobenzene	96.0	% Recovery	85			114	1.00				8/27/24 03:58	DGS	EPA 8260C
d8-Toluene	107	% Recovery	89			112	1.00				8/27/24 03:58	DGS	EPA 8260C
Dibromofluoromethane	102	% Recovery	80			119	1.00				8/27/24 03:58	DGS	EPA 8260C
Ethane	<0.80	ug/L	0.38	0.80	1.0	1.0	1.00	U		8/23/24 11:21	8/23/24 12:21	SRW	RSK 175
Ethene	<1.2	ug/L	0.59	1.2	1.4	1.4	1.00	U		8/23/24 11:21	8/23/24 12:21	SRW	RSK 175
Methane	<0.90	ug/L	0.45	0.90	1.0	1.0	1.00	U		8/23/24 11:21	8/23/24 12:21	SRW	RSK 175

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1494661 Sample Description: 50MW2 Client Sample #: Sampled: 8/22/2024 11:05

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method

CT LAB#: 1494662 Sample Description: 50MW2-EQB Client Sample #: Sampled: 8/22/2024 11:35

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results													
Chloride	<1.5	mg/L	1.0	1.5	3.0	3.0	1.00	U			8/26/24 11:11	TMG	EPA 9056A
Nitrate Nitrogen	<0.20	mg/L	0.12	0.20	0.40	0.40	1.00	U			8/23/24 12:33	TMG	EPA 9056A
Sulfate	<1.5	mg/L	0.80	1.5	3.0	3.0	1.00	U			8/26/24 11:11	TMG	EPA 9056A
Total Organic Carbon	<1.5	mg/L	0.4	1.5	3.0	3.0	1.00	U			8/27/24 12:52	TMG	EPA 9060A
Organic Results													
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			8/26/24 23:18	DGS	EPA 8260C
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			8/26/24 23:18	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			8/26/24 23:18	DGS	EPA 8260C
1,1-Dichloroethane	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			8/26/24 23:18	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			8/26/24 23:18	DGS	EPA 8260C
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			8/26/24 23:18	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			8/26/24 23:18	DGS	EPA 8260C
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.35	1.0	2.0	2.0	1.00	U Z			8/26/24 23:18	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/26/24 23:18	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/26/24 23:18	DGS	EPA 8260C
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			8/26/24 23:18	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/26/24 23:18	DGS	EPA 8260C
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			8/26/24 23:18	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/26/24 23:18	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			8/26/24 23:18	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U Z			8/26/24 23:18	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1494662 Sample Description: 50MW2-EQB Client Sample #: Sampled: 8/22/2024 11:35

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			8/26/24 23:18	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			8/26/24 23:18	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			8/26/24 23:18	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			8/26/24 23:18	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			8/26/24 23:18	DGS	EPA 8260C
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			8/26/24 23:18	DGS	EPA 8260C
Bromodichloromethane	***3.1***	ug/L	0.080	0.25	0.50	0.50	1.00				8/26/24 23:18	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			8/26/24 23:18	DGS	EPA 8260C
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U Z			8/26/24 23:18	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			8/26/24 23:18	DGS	EPA 8260C
Carbon tetrachloride	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/26/24 23:18	DGS	EPA 8260C
Chlorobenzene	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/26/24 23:18	DGS	EPA 8260C
Chloroethane	<1.0	ug/L	0.36	1.0	2.0	2.0	1.00	U			8/26/24 23:18	DGS	EPA 8260C
Chloroform	***14***	ug/L	0.46	1.0	1.4	1.4	1.00				8/26/24 23:18	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			8/26/24 23:18	DGS	EPA 8260C
cis-1,2-Dichloroethene	<1.0	ug/L	0.41	1.0	1.3	1.3	1.00	U			8/26/24 23:18	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.34	1.0	1.1	1.1	1.00	U			8/26/24 23:18	DGS	EPA 8260C
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U Z			8/26/24 23:18	DGS	EPA 8260C
Dibromochloromethane	***0.65***	ug/L	0.35	1.0	1.1	1.1	1.00	J			8/26/24 23:18	DGS	EPA 8260C
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			8/26/24 23:18	DGS	EPA 8260C
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			8/26/24 23:18	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			8/26/24 23:18	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			8/26/24 23:18	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			8/26/24 23:18	DGS	EPA 8260C
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			8/26/24 23:18	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			8/26/24 23:18	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U			8/26/24 23:18	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.72	2.0	2.2	2.2	1.00	U			8/26/24 23:18	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1494662 Sample Description: 50MW2-EQB Client Sample #: Sampled: 8/22/2024 11:35

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/26/24 23:18	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.54	1.0	2.0	2.0	1.00	U			8/26/24 23:18	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			8/26/24 23:18	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/26/24 23:18	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			8/26/24 23:18	DGS	EPA 8260C
Trichloroethene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			8/26/24 23:18	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U Z			8/26/24 23:18	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			8/26/24 23:18	DGS	EPA 8260C
1,2 Dichloroethane-d4	104	% Recovery	81			118	1.00				8/26/24 23:18	DGS	EPA 8260C
Bromofluorobenzene	98.0	% Recovery	85			114	1.00				8/26/24 23:18	DGS	EPA 8260C
d8-Toluene	103	% Recovery	89			112	1.00				8/26/24 23:18	DGS	EPA 8260C
Dibromofluoromethane	103	% Recovery	80			119	1.00				8/26/24 23:18	DGS	EPA 8260C
Ethane	<0.80	ug/L	0.38	0.80	1.0	1.0	1.00	U		8/23/24 11:21	8/23/24 12:25	SRW	RSK 175
Ethene	<1.2	ug/L	0.59	1.2	1.4	1.4	1.00	U		8/23/24 11:21	8/23/24 12:25	SRW	RSK 175
Methane	<0.90	ug/L	0.45	0.90	1.0	1.0	1.00	U		8/23/24 11:21	8/23/24 12:25	SRW	RSK 175

CT LAB#: 1494663 Sample Description: 48MW2 Client Sample #: Sampled: 8/22/2024 12:55

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results													
Chloride	***1.5***	mg/L	1.0	1.5	3.0	3.0	1.00	J M			8/26/24 11:35	TMG	EPA 9056A
Nitrate Nitrogen	***0.64***	mg/L	0.12	0.20	0.40	0.40	1.00				8/23/24 12:56	TMG	EPA 9056A
Sulfate	***3.7***	mg/L	0.80	1.5	3.0	3.0	1.00	M			8/26/24 11:35	TMG	EPA 9056A
Total Organic Carbon	<1.5	mg/L	0.4	1.5	3.0	3.0	1.00	U			8/27/24 13:04	TMG	EPA 9060A
Organic Results													

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1494663 Sample Description: 48MW2 Client Sample #: Sampled: 8/22/2024 12:55

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			8/27/24 04:26	DGS	EPA 8260C
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			8/27/24 04:26	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			8/27/24 04:26	DGS	EPA 8260C
1,1-Dichloroethane	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			8/27/24 04:26	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			8/27/24 04:26	DGS	EPA 8260C
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			8/27/24 04:26	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			8/27/24 04:26	DGS	EPA 8260C
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.35	1.0	2.0	2.0	1.00	U Z			8/27/24 04:26	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/27/24 04:26	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/27/24 04:26	DGS	EPA 8260C
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			8/27/24 04:26	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/27/24 04:26	DGS	EPA 8260C
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			8/27/24 04:26	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/27/24 04:26	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			8/27/24 04:26	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U Z			8/27/24 04:26	DGS	EPA 8260C
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			8/27/24 04:26	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			8/27/24 04:26	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			8/27/24 04:26	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			8/27/24 04:26	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			8/27/24 04:26	DGS	EPA 8260C
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			8/27/24 04:26	DGS	EPA 8260C
Bromodichloromethane	<0.25	ug/L	0.080	0.25	0.50	0.50	1.00	U			8/27/24 04:26	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			8/27/24 04:26	DGS	EPA 8260C
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U Z			8/27/24 04:26	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			8/27/24 04:26	DGS	EPA 8260C
Carbon tetrachloride	***10***	ug/L	0.37	1.0	1.2	1.2	1.00				8/27/24 04:26	DGS	EPA 8260C
Chlorobenzene	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/27/24 04:26	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1494663 Sample Description: 48MW2 Client Sample #: Sampled: 8/22/2024 12:55

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Chloroethane	<1.0	ug/L	0.36	1.0	2.0	2.0	1.00	U			8/27/24 04:26	DGS	EPA 8260C
Chloroform	***2.3***	ug/L	0.46	1.0	1.4	1.4	1.00				8/27/24 04:26	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			8/27/24 04:26	DGS	EPA 8260C
cis-1,2-Dichloroethene	<1.0	ug/L	0.41	1.0	1.3	1.3	1.00	U			8/27/24 04:26	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.34	1.0	1.1	1.1	1.00	U			8/27/24 04:26	DGS	EPA 8260C
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U Z			8/27/24 04:26	DGS	EPA 8260C
Dibromochloromethane	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/27/24 04:26	DGS	EPA 8260C
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			8/27/24 04:26	DGS	EPA 8260C
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			8/27/24 04:26	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			8/27/24 04:26	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			8/27/24 04:26	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			8/27/24 04:26	DGS	EPA 8260C
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			8/27/24 04:26	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			8/27/24 04:26	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U			8/27/24 04:26	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.72	2.0	2.2	2.2	1.00	U			8/27/24 04:26	DGS	EPA 8260C
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/27/24 04:26	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.54	1.0	2.0	2.0	1.00	U			8/27/24 04:26	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			8/27/24 04:26	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/27/24 04:26	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			8/27/24 04:26	DGS	EPA 8260C
Trichloroethene	***1.2***	ug/L	0.39	1.0	1.2	1.2	1.00				8/27/24 04:26	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U Z			8/27/24 04:26	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			8/27/24 04:26	DGS	EPA 8260C
1,2 Dichloroethane-d4	101	% Recovery	81			118	1.00				8/27/24 04:26	DGS	EPA 8260C
Bromofluorobenzene	99.0	% Recovery	85			114	1.00				8/27/24 04:26	DGS	EPA 8260C
d8-Toluene	106	% Recovery	89			112	1.00				8/27/24 04:26	DGS	EPA 8260C
Dibromofluoromethane	101	% Recovery	80			119	1.00				8/27/24 04:26	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1494663 Sample Description: 48MW2 Client Sample #: Sampled: 8/22/2024 12:55

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Qualifiers applying to all Analytes of Method RSK 175: T													
Ethane	<0.80	ug/L	0.38	0.80	1.0	1.0	1.00	U		8/23/24 11:21	8/23/24 13:29	SRW	RSK 175
Ethene	<1.2	ug/L	0.59	1.2	1.4	1.4	1.00	U		8/23/24 11:21	8/23/24 13:29	SRW	RSK 175
Methane	***1.4***	ug/L	0.45	0.90	1.0	1.0	1.00			8/23/24 11:21	8/23/24 13:29	SRW	RSK 175

CT LAB#: 1494664 Sample Description: 48MW3 Client Sample #: Sampled: 8/22/2024 14:58

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results													
Chloride	***2.2***	mg/L	1.0	1.5	3.0	3.0	1.00	J			8/26/24 13:11	TMG	EPA 9056A
Nitrate Nitrogen	***5.9***	mg/L	0.12	0.20	0.40	0.40	1.00				8/23/24 13:18	TMG	EPA 9056A
Sulfate	***30***	mg/L	0.80	1.5	3.0	3.0	1.00				8/26/24 13:11	TMG	EPA 9056A
Total Organic Carbon	<1.5	mg/L	0.4	1.5	3.0	3.0	1.00	U			8/27/24 13:19	TMG	EPA 9060A
Organic Results													
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			8/27/24 04:54	DGS	EPA 8260C
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			8/27/24 04:54	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			8/27/24 04:54	DGS	EPA 8260C
1,1-Dichloroethane	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			8/27/24 04:54	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			8/27/24 04:54	DGS	EPA 8260C
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			8/27/24 04:54	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			8/27/24 04:54	DGS	EPA 8260C
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.35	1.0	2.0	2.0	1.00	U Z			8/27/24 04:54	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/27/24 04:54	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/27/24 04:54	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1494664 Sample Description: 48MW3 Client Sample #: Sampled: 8/22/2024 14:58

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			8/27/24 04:54	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/27/24 04:54	DGS	EPA 8260C
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			8/27/24 04:54	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/27/24 04:54	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			8/27/24 04:54	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U Z			8/27/24 04:54	DGS	EPA 8260C
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			8/27/24 04:54	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			8/27/24 04:54	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			8/27/24 04:54	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			8/27/24 04:54	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			8/27/24 04:54	DGS	EPA 8260C
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			8/27/24 04:54	DGS	EPA 8260C
Bromodichloromethane	<0.25	ug/L	0.080	0.25	0.50	0.50	1.00	U			8/27/24 04:54	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			8/27/24 04:54	DGS	EPA 8260C
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U Z			8/27/24 04:54	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			8/27/24 04:54	DGS	EPA 8260C
Carbon tetrachloride	***86***	ug/L	1.9	5.0	6.0	6.0	5.00				8/27/24 09:33	DGS	EPA 8260C
Chlorobenzene	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/27/24 04:54	DGS	EPA 8260C
Chloroethane	<1.0	ug/L	0.36	1.0	2.0	2.0	1.00	U			8/27/24 04:54	DGS	EPA 8260C
Chloroform	***12***	ug/L	0.46	1.0	1.4	1.4	1.00				8/27/24 04:54	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			8/27/24 04:54	DGS	EPA 8260C
cis-1,2-Dichloroethene	<1.0	ug/L	0.41	1.0	1.3	1.3	1.00	U			8/27/24 04:54	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.34	1.0	1.1	1.1	1.00	U			8/27/24 04:54	DGS	EPA 8260C
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U Z			8/27/24 04:54	DGS	EPA 8260C
Dibromochloromethane	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/27/24 04:54	DGS	EPA 8260C
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			8/27/24 04:54	DGS	EPA 8260C
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			8/27/24 04:54	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			8/27/24 04:54	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1494664 Sample Description: 48MW3 Client Sample #: Sampled: 8/22/2024 14:58

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			8/27/24 04:54	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			8/27/24 04:54	DGS	EPA 8260C
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			8/27/24 04:54	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			8/27/24 04:54	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U			8/27/24 04:54	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.72	2.0	2.2	2.2	1.00	U			8/27/24 04:54	DGS	EPA 8260C
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/27/24 04:54	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.54	1.0	2.0	2.0	1.00	U			8/27/24 04:54	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			8/27/24 04:54	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/27/24 04:54	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			8/27/24 04:54	DGS	EPA 8260C
Trichloroethene	***16***	ug/L	0.39	1.0	1.2	1.2	1.00				8/27/24 04:54	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U Z			8/27/24 04:54	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			8/27/24 04:54	DGS	EPA 8260C
1,2 Dichloroethane-d4	101	% Recovery	81			118	1.00				8/27/24 04:54	DGS	EPA 8260C
Bromofluorobenzene	100	% Recovery	85			114	1.00				8/27/24 04:54	DGS	EPA 8260C
d8-Toluene	105	% Recovery	89			112	1.00				8/27/24 04:54	DGS	EPA 8260C
Dibromofluoromethane	103	% Recovery	80			119	1.00				8/27/24 04:54	DGS	EPA 8260C
Ethane	<0.80	ug/L	0.38	0.80	1.0	1.0	1.00	U		8/23/24 11:21	8/23/24 13:33	SRW	RSK 175
Ethene	<1.2	ug/L	0.59	1.2	1.4	1.4	1.00	U		8/23/24 11:21	8/23/24 13:33	SRW	RSK 175
Methane	<0.90	ug/L	0.45	0.90	1.0	1.0	1.00	U		8/23/24 11:21	8/23/24 13:33	SRW	RSK 175

CT LAB#: 1494665 Sample Description: 49MW02 Client Sample #: Sampled: 8/22/2024 16:06

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method

Inorganic Results

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1494665 Sample Description: 49MW02 Client Sample #: Sampled: 8/22/2024 16:06

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Chloride	***1.6***	mg/L	1.0	1.5	3.0	3.0	1.00	J			8/26/24 13:35	TMG	EPA 9056A
Nitrate Nitrogen	***0.21***	mg/L	0.12	0.20	0.40	0.40	1.00	J			8/23/24 13:41	TMG	EPA 9056A
Sulfate	***16***	mg/L	0.80	1.5	3.0	3.0	1.00				8/26/24 13:35	TMG	EPA 9056A
Total Organic Carbon	<1.5	mg/L	0.4	1.5	3.0	3.0	1.00	U			8/27/24 14:13	TMG	EPA 9060A
Organic Results													
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			8/27/24 05:21	DGS	EPA 8260C
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			8/27/24 05:21	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			8/27/24 05:21	DGS	EPA 8260C
1,1-Dichloroethane	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			8/27/24 05:21	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			8/27/24 05:21	DGS	EPA 8260C
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			8/27/24 05:21	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			8/27/24 05:21	DGS	EPA 8260C
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.35	1.0	2.0	2.0	1.00	U Z			8/27/24 05:21	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/27/24 05:21	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/27/24 05:21	DGS	EPA 8260C
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			8/27/24 05:21	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/27/24 05:21	DGS	EPA 8260C
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			8/27/24 05:21	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/27/24 05:21	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			8/27/24 05:21	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U Z			8/27/24 05:21	DGS	EPA 8260C
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			8/27/24 05:21	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			8/27/24 05:21	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			8/27/24 05:21	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			8/27/24 05:21	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			8/27/24 05:21	DGS	EPA 8260C
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			8/27/24 05:21	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1494665 Sample Description: 49MW02 Client Sample #: Sampled: 8/22/2024 16:06

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Bromodichloromethane	<0.25	ug/L	0.080	0.25	0.50	0.50	1.00	U			8/27/24 05:21	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			8/27/24 05:21	DGS	EPA 8260C
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U Z			8/27/24 05:21	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			8/27/24 05:21	DGS	EPA 8260C
Carbon tetrachloride	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/27/24 05:21	DGS	EPA 8260C
Chlorobenzene	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			8/27/24 05:21	DGS	EPA 8260C
Chloroethane	<1.0	ug/L	0.36	1.0	2.0	2.0	1.00	U			8/27/24 05:21	DGS	EPA 8260C
Chloroform	<1.0	ug/L	0.46	1.0	1.4	1.4	1.00	U			8/27/24 05:21	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			8/27/24 05:21	DGS	EPA 8260C
cis-1,2-Dichloroethene	<1.0	ug/L	0.41	1.0	1.3	1.3	1.00	U			8/27/24 05:21	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.34	1.0	1.1	1.1	1.00	U			8/27/24 05:21	DGS	EPA 8260C
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U Z			8/27/24 05:21	DGS	EPA 8260C
Dibromochloromethane	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/27/24 05:21	DGS	EPA 8260C
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			8/27/24 05:21	DGS	EPA 8260C
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			8/27/24 05:21	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			8/27/24 05:21	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			8/27/24 05:21	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			8/27/24 05:21	DGS	EPA 8260C
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			8/27/24 05:21	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			8/27/24 05:21	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U			8/27/24 05:21	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.72	2.0	2.2	2.2	1.00	U			8/27/24 05:21	DGS	EPA 8260C
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			8/27/24 05:21	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.54	1.0	2.0	2.0	1.00	U			8/27/24 05:21	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			8/27/24 05:21	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			8/27/24 05:21	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			8/27/24 05:21	DGS	EPA 8260C
Trichloroethene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			8/27/24 05:21	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1494665 Sample Description: 49MW02 Client Sample #: Sampled: 8/22/2024 16:06

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U Z			8/27/24 05:21	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			8/27/24 05:21	DGS	EPA 8260C
1,2 Dichloroethane-d4	101	% Recovery	81			118	1.00				8/27/24 05:21	DGS	EPA 8260C
Bromofluorobenzene	100	% Recovery	85			114	1.00				8/27/24 05:21	DGS	EPA 8260C
d8-Toluene	105	% Recovery	89			112	1.00				8/27/24 05:21	DGS	EPA 8260C
Dibromofluoromethane	101	% Recovery	80			119	1.00				8/27/24 05:21	DGS	EPA 8260C
Qualifiers applying to all Analytes of Method RSK 175: T													
Ethane	<0.80	ug/L	0.38	0.80	1.0	1.0	1.00	U		8/23/24 11:21	8/23/24 13:36	SRW	RSK 175
Ethene	<1.2	ug/L	0.59	1.2	1.4	1.4	1.00	U		8/23/24 11:21	8/23/24 13:36	SRW	RSK 175
Methane	***1.1***	ug/L	0.45	0.90	1.0	1.0	1.00			8/23/24 11:21	8/23/24 13:36	SRW	RSK 175

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

Notes:

^ Indicates the laboratory is NELAP accredited for this analyte by the indicated matrix and method . DL (detection limit), LOD (limit of detection), loq (limit of quantitation) as defined by most recent DOD QSM version.

All samples were received intact and properly preserved unless otherwise noted . The results reported relate only to the samples tested. This report shall not be reproduced, except in full, without written approval of this laboratory. The Chain of Custody is attached.

This report has been specifically prepared to satisfy project or program requirements. These results are in compliance with NELAC requirements for the parameters where accreditation is required or available, unless noted in the case narrative.

Submitted by: Brett M. Szymanski
Project Manager
608-356-2760

QC Qualifiers

Code	Description
B	Analyte detected in the associated Method Blank.
C	Toxicity present in BOD sample.
D	Diluted Out.
E	Safe, No Total Coliform detected.
F	Unsafe, Total Coliform detected, no E. Coli detected.
G	Unsafe, Total Coliform detected and E. Coli detected.
H	Holding time exceeded.
I	Incubator temperature was outside acceptance limits during test period.
J	Estimated value.
L	Significant peaks were detected outside the chromatographic window.
M	Matrix spike and/or Matrix Spike Duplicate recovery outside acceptance limits.
N	Insufficient BOD oxygen depletion.
O	Complete BOD oxygen depletion.
P	Concentration of analyte differs more than 40% between primary and confirmation analysis.
Q	Laboratory Control Sample outside acceptance limits.
R	See Narrative at end of report.
S	Surrogate standard recovery outside acceptance limits due to apparent matrix effects.
T	Sample received with improper preservation or temperature.
U	Analyte concentration was below detection limit.
V	Raised Quantitation or Reporting Limit due to limited sample amount or dilution for matrix background interference.
W	Sample amount received was below program minimum.
X	Analyte exceeded calibration range.
Y	Replicate/Duplicate precision outside acceptance limits.
Z	Specified calibration criteria was not met.

Current CT Laboratories Certifications

Wisconsin (WDNR) Chemistry ID# 157066030
Wisconsin (DATCP) Bacteriology ID# 289
Louisiana NELAP (primary) ID# ACC20190002
Illinois NELAP Lab ID# 200073
Kansas NELAP Lab ID# E-10368
Virginia NELAP Lab ID# 460203
ISO/IEC 17025-2005 A2LA Cert # 3806.01
DoD-ELAP A2LA 3806.01
GA EPD Stipulation ID ACC20190002

QC Summary Report

CAPE ENVIRONMENTAL MANAGEMENT **Project Name: RADFORD AAP**

SDG #: 0 **Folder #: 188855** **Project #: 10409-0222**

Duplicate

Analytical Run #:	284851	Analysis Date:	8/26/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1495890	Analysis Time:	11:59	Prep Date/Time:		Method:	SW9056A
Parent Sample #:	1494663	Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Chloride	1.50	mg/L	1.5				3.0	0	10
Nitrate Nitrogen	0.632	mg/L	0.64				0.40	1	10
Sulfate	3.69	mg/L	3.7				3.0	0	10

Lab Control Spike Water

Analytical Run #:	284851	Analysis Date:	8/23/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1495888	Analysis Time:	11:24	Prep Date/Time:		Method:	SW9056A
Parent Sample #:		Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits			RPD	RPD Limit
Chloride	13.70	mg/L			15.00	91	87	---	111		
Nitrate Nitrogen	3.191	mg/L			3.500	91	88	---	111		
Sulfate	23.99	mg/L			25.00	96	87	---	112		

Method Blank Water

Analytical Run #:	284851	Analysis Date:	8/23/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1495889	Analysis Time:	11:47	Prep Date/Time:		Method:	SW9056A
Parent Sample #:		Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Chloride	1.0	mg/L		U	0		1.5		
Nitrate Nitrogen	0.12	mg/L		U	0		0.20		
Sulfate	0.8	mg/L		U	0		1.5		

Matrix Spike Duplicate Water

Analytical Run #:	284851	Analysis Date:	8/26/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1495892	Analysis Time:	12:47	Prep Date/Time:		Method:	SW9056A
Parent Sample #:	1495891	Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits			RPD	RPD Limit
Chloride	8.08	mg/L	1.5		8.00	82	87	---	111	1	15
Nitrate Nitrogen	2.52	mg/L	0.64		2.00	94	88	---	111	1	15
Sulfate	10.7	mg/L	3.7		8.00	88	87	---	112	1	15

Matrix Spike Water

Analytical Run #:	284851	Analysis Date:	8/26/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1495891	Analysis Time:	12:23	Prep Date/Time:		Method:	SW9056A
Parent Sample #:	1494663	Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Chloride	8.02	mg/L	1.5		8.00	82	87 --- 111		15
Nitrate Nitrogen	2.50	mg/L	0.64		2.00	93	88 --- 111		15
Sulfate	10.6	mg/L	3.7		8.00	86	87 --- 112		15

Duplicate

Analytical Run #:	284925	Analysis Date:	8/27/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1495812	Analysis Time:	13:34	Prep Date/Time:		Method:	SW9060
Parent Sample #:	1494664	Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Organic Carbon	0.4	mg/L	<DL	U			1.5	0	20

Lab Control Spike Water

Analytical Run #:	284925	Analysis Date:	8/27/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1495810	Analysis Time:	12:04	Prep Date/Time:		Method:	SW9060
Parent Sample #:		Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Organic Carbon	52.06	mg/L			50.0	104	85 --- 111		20

Method Blank Water

Analytical Run #:	284925	Analysis Date:	8/27/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1495811	Analysis Time:	12:18	Prep Date/Time:		Method:	SW9060
Parent Sample #:		Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Organic Carbon	0.40	mg/L		U	0		1.5		

Matrix Spike Duplicate Water

Analytical Run #:	284925	Analysis Date:	8/27/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1495814	Analysis Time:	14:00	Prep Date/Time:		Method:	SW9060
Parent Sample #:	1495813	Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Organic Carbon	53.8	mg/L	<DL		50.0	108	85 --- 111	1	20

Matrix Spike Water

Analytical Run #:	284925	Analysis Date:	8/27/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1495813	Analysis Time:	13:47	Prep Date/Time:		Method:	SW9060
Parent Sample #:	1494664	Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Organic Carbon	54.1	mg/L	<DL		50.0	108	85 --- 111		20

Lab Control Spike Water

Analytical Run #:	284750	Analysis Date:	8/26/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1496219	Analysis Time:	20:02	Prep Date/Time:		Method:	SW8260C
Parent Sample #:		Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits			RPD	RPD Limit
1,1,1-Trichloroethane	11.2	ug/L			10.0	112	74	---	131		20
1,1,2,2-Tetrachloroethane	9.31	ug/L			10.0	93	71	---	121		20
1,1,2-Trichloroethane	10.8	ug/L			10.0	108	80	---	119		20
1,1-Dichloroethane	11.0	ug/L			10.0	110	77	---	125		20
1,1-Dichloroethene	11.6	ug/L			10.0	116	71	---	131		20
1,2,3-Trichlorobenzene	8.70	ug/L			10.0	87	69	---	129		20
1,2,4-Trichlorobenzene	8.62	ug/L			10.0	86	69	---	130		20
1,2-Dibromo-3-chloropropane	7.91	ug/L			10.0	79	62	---	128		20
1,2-Dibromoethane	9.40	ug/L			10.0	94	77	---	121		20
1,2-Dichlorobenzene	9.06	ug/L			10.0	91	80	---	119		20
1,2-Dichloroethane	10.6	ug/L			10.0	106	73	---	128		20
1,2-Dichloropropane	10.7	ug/L			10.0	107	78	---	122		20
1,3-Dichlorobenzene	9.12	ug/L			10.0	91	80	---	119		20
1,4-Dichlorobenzene	9.06	ug/L			10.0	91	79	---	118		20
1,4-Dioxane	575	ug/L			500	115	59	---	139		20
112Trichloro122trifluoroethane	24.7	ug/L			20.0	124	70	---	136		20
2-Butanone	101	ug/L			100	101	56	---	143		20
2-Hexanone	85.7	ug/L			100	86	57	---	139		20
4-Methyl-2-pentanone	101	ug/L			100	101	67	---	130		20
Acetone	101	ug/L			100	101	39	---	160		20
Benzene	11.3	ug/L			10.0	113	79	---	120		20
Bromochloromethane	11.4	ug/L			10.0	114	78	---	123		20
Bromodichloromethane	10.3	ug/L			10.0	103	79	---	125		20
Bromoform	8.82	ug/L			10.0	88	66	---	130		20
Bromomethane	12.1	ug/L			10.0	121	53	---	141		20
Carbon disulfide	23.1	ug/L			20.0	116	64	---	133		20
Carbon tetrachloride	11.3	ug/L			10.0	113	72	---	136		20
Chlorobenzene	9.86	ug/L			10.0	99	82	---	118		20
Chloroethane	10.8	ug/L			10.0	108	60	---	138		20
Chloroform	10.9	ug/L			10.0	109	79	---	124		20
Chloromethane	10.8	ug/L			10.0	108	50	---	139		20
cis-1,2-Dichloroethene	11.1	ug/L			10.0	111	78	---	123		20
cis-1,3-Dichloropropene	10.7	ug/L			10.0	107	75	---	124		20
Cyclohexane	12.1	ug/L			10.0	121	71	---	130		20
Dibromochloromethane	9.44	ug/L			10.0	94	74	---	126		20
Dichlorodifluoromethane	11.9	ug/L			10.0	119	32	---	152		20
Ethylbenzene	10.1	ug/L			10.0	101	79	---	121		20
Isopropylbenzene	10.3	ug/L			10.0	103	72	---	131		20
m & p-Xylene	20.0	ug/L			20.0	100	80	---	121		20
Methyl acetate	10.3	ug/L			10.0	103	56	---	136		20
Methyl tert-butyl ether	10.7	ug/L			10.0	107	71	---	124		20
Methylcyclohexane	10.5	ug/L			10.0	105	72	---	132		20

Lab Control Spike Water

Analytical Run #:	284750	Analysis Date:	8/26/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1496219	Analysis Time:	20:02	Prep Date/Time:		Method:	SW8260C
Parent Sample #:		Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits			RPD	RPD Limit
Methylene chloride	10.7	ug/L			10.0	107	74	---	124		20
o-Xylene	10.1	ug/L			10.0	101	78	---	122		20
Styrene	9.92	ug/L			10.0	99	78	---	123		20
Tetrachloroethene	11.4	ug/L			10.0	114	74	---	129		20
Toluene	11.3	ug/L			10.0	113	80	---	121		20
trans-1,2-Dichloroethene	11.2	ug/L			10.0	112	75	---	124		20
trans-1,3-Dichloropropene	10.3	ug/L			10.0	103	73	---	127		20
Trichloroethene	10.6	ug/L			10.0	106	79	---	123		20
Trichlorofluoromethane	12.3	ug/L			10.0	123	65	---	141		20
Vinyl chloride	11.5	ug/L			10.0	115	58	---	137		20

Method Blank Water

Analytical Run #:	284750	Analysis Date:	8/26/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1496222	Analysis Time:	20:59	Prep Date/Time:		Method:	SW8260C
Parent Sample #:		Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
1,1,1-Trichloroethane	0.38	ug/L		U	0		0.60		
1,1,2,2-Tetrachloroethane	0.36	ug/L		U	0		0.55		
1,1,2-Trichloroethane	0.27	ug/L		U	0		0.55		
1,1-Dichloroethane	0.28	ug/L		U	0		0.55		
1,1-Dichloroethene	0.49	ug/L		U	0		1.0		
1,2,3-Trichlorobenzene	0.43	ug/L		U	0		1.0		
1,2,4-Trichlorobenzene	0.50	ug/L		U	0		1.0		
1,2-Dibromo-3-chloropropane	0.35	ug/L		U	0		1.0		
1,2-Dibromoethane	0.33	ug/L		U	0		0.55		
1,2-Dichlorobenzene	0.35	ug/L		U	0		0.55		
1,2-Dichloroethane	0.69	ug/L		U	0		1.05		
1,2-Dichloropropane	0.37	ug/L		U	0		0.60		
1,3-Dichlorobenzene	0.30	ug/L		U	0		0.55		
1,4-Dichlorobenzene	0.33	ug/L		U	0		0.55		
1,4-Dioxane	34	ug/L		U	0		50		
112Trichloro122trifluoroethane	1.5	ug/L		U	0		2.25		
2-Butanone	2.9	ug/L		U	0		5.5		
2-Hexanone	3.3	ug/L		U	0		5.5		
4-Methyl-2-pentanone	3.7	ug/L		U	0		6.0		
Acetone	4.1	ug/L		U	0		10		
Benzene	0.40	ug/L		U	0		1.0		
Bromochloromethane	0.26	ug/L		U	0		0.55		
Bromodichloromethane	0.080	ug/L		U	0		0.25		
Bromoform	0.50	ug/L		U	0		1.0		
Bromomethane	0.49	ug/L		U	0		1.0		
Carbon disulfide	0.83	ug/L		U	0		2.0		
Carbon tetrachloride	0.37	ug/L		U	0		0.60		
Chlorobenzene	0.37	ug/L		U	0		0.60		
Chloroethane	0.36	ug/L		U	0		1.0		
Chloroform	0.46	ug/L		U	0		0.70		
Chloromethane	0.39	ug/L		U	0		1.0		
cis-1,2-Dichloroethene	0.41	ug/L		U	0		0.65		
cis-1,3-Dichloropropene	0.34	ug/L		U	0		0.55		
Cyclohexane	0.71	ug/L		U	0		1.1		
Dibromochloromethane	0.35	ug/L		U	0		0.55		
Dichlorodifluoromethane	0.63	ug/L		U	0		1.05		
Ethylbenzene	0.42	ug/L		U	0		0.65		
Isopropylbenzene	0.39	ug/L		U	0		0.60		
m & p-Xylene	0.74	ug/L		U	0		1.15		
Methyl acetate	0.34	ug/L		U	0		1.0		
Methyl tert-butyl ether	0.28	ug/L		U	0		0.55		
Methylcyclohexane	0.78	ug/L		U	0		1.2		

Method Blank Water

Analytical Run #:	284750	Analysis Date:	8/26/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1496222	Analysis Time:	20:59	Prep Date/Time:		Method:	SW8260C
Parent Sample #:		Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Methylene chloride	1.2	ug/L		U	0		2.05		
o-Xylene	0.72	ug/L		U	0		1.1		
Styrene	0.33	ug/L		U	0		0.55		
Tetrachloroethene	0.54	ug/L		U	0		1.0		
Toluene	0.27	ug/L		U	0		0.55		
trans-1,2-Dichloroethene	0.35	ug/L		U	0		0.55		
trans-1,3-Dichloropropene	0.56	ug/L		U	0		1.05		
Trichloroethene	0.39	ug/L		U	0		0.60		
Trichlorofluoromethane	0.41	ug/L		U	0		1.0		
Vinyl chloride	0.12	ug/L		U	0		0.25		

Lab Control Spike Duplicate Water

Analytical Run #:	284859	Analysis Date:	8/23/2024	Prep Batch #:	135561	Matrix:	LIQUID
CTLab #:	1494673	Analysis Time:	12:01	Prep Date/Time:	08/23/2024 11:21	Method:	RSK175
Parent Sample #:	1494672	Analyst:	SRW	Prep Analyst:	SRW		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Ethane	4.70	ug/L	4.99		4.75	99	74 --- 131	6	20
Ethene	6.55	ug/L	7.01		6.77	97	72 --- 133	7	20
Methane	2.33	ug/L	2.38		2.28	102	73 --- 125	2	20

Lab Control Spike Water

Analytical Run #:	284859	Analysis Date:	8/23/2024	Prep Batch #:	135561	Matrix:	LIQUID
CTLab #:	1494672	Analysis Time:	11:54	Prep Date/Time:	08/23/2024 11:21	Method:	RSK175
Parent Sample #:		Analyst:	SRW	Prep Analyst:	SRW		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Ethane	4.99	ug/L			4.75	105	74 --- 131		20
Ethene	7.01	ug/L			6.77	104	72 --- 133		20
Methane	2.38	ug/L			2.28	104	73 --- 125		20

Method Blank Water

Analytical Run #:	284859	Analysis Date:	8/23/2024	Prep Batch #:	135561	Matrix:	LIQUID
CTLab #:	1494671	Analysis Time:	11:57	Prep Date/Time:	08/23/2024 11:21	Method:	RSK175
Parent Sample #:		Analyst:	SRW	Prep Analyst:	SRW		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Ethane	0.38	ug/L		U	0		0.5		
Ethene	0.59	ug/L		U	0		0.7		
Methane	0.45	ug/L		U	0		0.5		

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Sample Condition Report

Folder #:	188855	Print Date / Time:	08/23/2024 10:40
Client:	CAPE ENVIRONMENTAL MANAGEMENT	Received Date / Time / By:	08/23/2024 10:29 erc
Project Name:	RADFORD AAP	Log-In Date / Time / By:	08/23/2024 10:40 erc
Project Phase:	SWMU 49	Project #:	10409-0222 PM: BMS
Coolers:	6576	Temperature:	2.2 C On Ice: **Y**
Custody Seals Present :	**Y**	COC Present:?	**Y** Complete? **Y**
Seal Intact?	**Y**	Numbers:	DATED AND SIGNED
Ship Method:	FEDEX EXPRESS	Tracking Number:	778055762206
Adequate Packaging:	**Y**	Temp Blank Enclosed?	**Y**

Notes: THE SAMPLES WERE RECEIVED IN GOOD CONDITION ON ICE.

TWO (2) CUSTODY SEALS WERE PRESENT AND INTACT ON THE COOLER UPON RECEIPT (BOTH WERE DATED 8/22/2024 AND SIGNED).

Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
1494660 TB-3				
	VOA HCL	1	/	VOC
	VOA HCL	1	/	VOC
	Total # of Containers of Type	(***VOA HCL***) = **2**		
Sample ID / Description	**Container Type**	**Cond. Code**	**pH OK?/Filtered?**	**Tests**
1494661 50MW2				
	UNPRES PL	1	/	Anions
	Total # of Containers of Type	(***UNPRES PL***) = **1**		
1494661 50MW2				
	VOA HCL	1	/	GAS,VOC
	VOA HCL	1	/	GAS,VOC
	VOA HCL	1	/	GAS,VOC
	VOA HCL	1	/	GAS,VOC
	VOA HCL	1	/	GAS,VOC
	Total # of Containers of Type	(***VOA HCL***) = **5**		
1494661 50MW2				
	H2SO4 PL	1	Y / N	TOC
	Total # of Containers of Type	(***H2SO4 PL***) = **1**		
Sample ID / Description	**Container Type**	**Cond. Code**	**pH OK?/Filtered?**	**Tests**
1494662 50MW2-EQB				
	UNPRES PL	1	/	Anions
	Total # of Containers of Type	(***UNPRES PL***) = **1**		

1494662	50MW2-EQB					
		VOA HCL	1		/	GAS,VOC
		VOA HCL	1		/	GAS,VOC
		VOA HCL	1		/	GAS,VOC
		VOA HCL	1		/	GAS,VOC
		VOA HCL	1		/	GAS,VOC
		Total # of Containers of Type	**(*VOA HCL*) = 5**			
1494662	50MW2-EQB					
		H2SO4 PL	1	Y	/ N	TOC
		Total # of Containers of Type	**(*H2SO4 PL*) = 1**			

Sample ID /	Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
1494663	48MW2				
		UNPRES PL	1	/	Anions
		Total # of Containers of Type	**(*UNPRES PL*) = 1**		
1494663	48MW2				
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		Total # of Containers of Type	**(*VOA HCL*) = 5**		
1494663	48MW2				
		H2SO4 PL	1	Y / N	TOC
		Total # of Containers of Type	**(*H2SO4 PL*) = 1**		

Sample ID /	Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
1494664	48MW3				
		UNPRES PL	1	/	Anions
		Total # of Containers of Type	**(*UNPRES PL*) = 1**		
1494664	48MW3				
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		Total # of Containers of Type	**(*VOA HCL*) = 5**		
1494664	48MW3				
		H2SO4 PL	1	Y / N	TOC
		Total # of Containers of Type	**(*H2SO4 PL*) = 1**		

Sample ID /	Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
1494665	49MW02				
		UNPRES PL	1	/	Anions
		Total # of Containers of Type	**(*UNPRES PL*) = 1**		

1494665 49MW02

VOA HCL	1	/		GAS,VOC
VOA HCL	1	/		GAS,VOC
VOA HCL	1	/		GAS,VOC
VOA HCL	1	/		GAS,VOC
VOA HCL	1	/		GAS,VOC

Total # of Containers of Type (*VOA HCL*) = 5

1494665 49MW02

H2SO4 PL	1	Y	/	N	TOC

Total # of Containers of Type (*H2SO4 PL*) = 1

Condition Code	*Condition Description*
1	Sample Received OK

Rev. 02/2017

CHAIN OF CUSTODY

Page 1 of 1

Company: Cape Environmental
Project Contact: Matt Feits
Telephone: (724) 622-3625
Project Name: Radford AAP SWMU 49
Project #:
Location: Radford, VA
Sampled By: Y. Miyakawa, P. Taylor

CT Laboratories
1230 Lange Court, Baraboo, WI 53913
608-356-2760 Fax 608-356-2766
laboratories.com

Folder #: 188855
Company: CAPE ENV
Project: RADFORD
Logged By: erc

Order #: 188856
Company: CAPE ENVIRONMENTAL MAN
Project: RADFORD AAP SWMU 49
Logged By: erc PM: BMS

NPDES

Report To: chemistrysvcs@cape-inc.com
EMAIL: mFeits@cape-inc.com
Company: Cape Environmental Management
Address: 500 Pinnacle Court #100 Norcross, GA 30071
Invoice To:*
EMAIL:
Company: Same
Address:

*Party listed is responsible for payment of invoice as per CT Laboratories' terms and conditions

Client Special Instructions

Matrix:
GW – groundwater SW - surface water WW - wastewater DW - drinking water
S - soil/sediment SL - sludge A - air M - misc/waste

Turnaround Time
Normal RUSH*
Date Needed: _____
Rush analysis requires prior CT Laboratories' approval
Surcharges:
24 hr 200%
2-3 days 100%
4-9 days 50%

2024 Collection Date	Time	Matrix	Grab/ Comp	Sample #	Sample ID Description	Filtered? Y/N	VOC 8260C	MEE RSK-175	TOC 9060A	Anions 9056	COD 410.4	pH 9040C	TAL Metals	Total # Containers	Designated MS/MSD	CT Lab ID # (Lab use only)
					Fill in Spaces with Bottles per Test											
~~8/22~~	~~0000~~	~~GW~~	~~G~~		~~TB-3~~	N	3	2	1	1				~~7~~		~~1794662~~
8/22	0000	GW	G		TB-3	N	2				Trip Blank			2		1794660
8/22	1105	GW	G		50MW2	N	3	2	1	1				7		61
8/22	1135	GW	G		50MW2-EQB	N	3	2	1	1				7		62
8/22	1255	GW	G		48MW2	N	3	2	1	1				7		63
8/22	1458	GW	G		48MW3	N	3	2	1	1				7		64
8/22	1606	GW	G		49MW02	N	3	2	1	1				7		65
8/22	1640	GW	G		49IDW	N					1	1	1			66

Relinquished By: Paul I. Taylor
Date/Time: 8/22/2024 1800
Received by:
Date/Time

Received By: Fedex
Date/Time: 8/22/2024 1850
Received for Laboratory by:
Date/Time: 8/23/24 1079

Lab Use Only
Ice Present Yes No
Temp 22 IR Gun
Cooler # 6576

EK 8/23/24 1079

ORIGIN ID:LIYA (724) 622-3625
CAPE ENVIRONMENTAL MANAGEMENT
CAPE
500 PINNACLE COURT
SUITE 100
NORCROSS, GA 30071
UNITED STATES US

SHIP DATE: 22AUG24
ACTWGT: 45.00 LB
CAD: 100980732/INET4535

BILL SENDER

TO **SAMPLE RECEIVING**
CT LABS
1230 LANGE COURT

BARABOO WI 53913
(608) 356-2760
REF: 1010-0222-022-053
INV:
PO:
DEPT:

583J6/A12D/9AE3

FedEx Express

J24324071301uv

FedEx
TRK# 0201 7780 5576 2206

XS LNRA

FRI – 23 AUG AA
PRIORITY OVERNIGHT

53913
WI-US MSN

CUSTODY SEAL
DATE 8/22/2024
SIGNATURE

QEC
Quality Environmental Containers
800255-39[illegible] • www.qecusa.com

CONSIGNEE COPY - PLEASE PLACE IN FRONT OF POUCH
1. Fold the printed page along the horizontal line.
2. Place label in shipping pouch and affix it to your shipment.

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, availab[illegible]on fedex.com. FedEx will not be respon[illegible]

CUSTODY SEAL
DATE 8/22/2024
SIGNATURE

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[illegible] and other items listed in our Service Guide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

Ice Present Yes No
Temperature 22 ~32
Initials EW
Date 8/22/24 Time 1029
Cooler # 6576

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www.ctlaboratories.com

ANALYTICAL SUMMARY REPORT

This report at a minimum contains the following information:

Analytical Report of Test Results
Description of QC Qualifiers
Chain of Custody (copy)
Quality Control Summary (if applicable)
Case Narrative (if applicable)
Correspondence with Client (if applicable)

This report has been specifically prepared to satisfy project or program requirements. These results are in compliance with NELAC requirements for parameters where accreditation is required or available, unless otherwise noted in the case narrative.

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

ANALYTICAL SAMPLE DATA

CAPE ENVIRONMENTAL MANAGEMENT
MATT FEITS
500 PINNACLE COURT
SUITE 100
NORCROSS, GA 30071

Project Name: RADFORD AAP SWMU 49
Project Phase: RADFORD, VA
Project #: 10409-0222
Folder #: 191577
Purchase Order #: SC013781
Contract #: 3648

Arrival Temperature: 2.7
Report Date: 1/9/2025
Date Received: 12/11/2024
Reprint Date: 1/9/2025

Copy: chemistrysvcs@cape-inc.com

CT LAB#: 1537077 Sample Description: TB-1 Client Sample #: Sampled: 12/9/2024 00:00

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Organic Results													
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			12/21/24 13:28	DGS	EPA 8260C
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			12/21/24 13:28	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/21/24 13:28	DGS	EPA 8260C
1,1-Dichloroethane	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/21/24 13:28	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/21/24 13:28	DGS	EPA 8260C
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			12/21/24 13:28	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 13:28	DGS	EPA 8260C
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 13:28	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 13:28	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/21/24 13:28	DGS	EPA 8260C
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			12/21/24 13:28	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 13:28	DGS	EPA 8260C
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			12/21/24 13:28	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 13:28	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			12/21/24 13:28	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U			12/21/24 13:28	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1537077 Sample Description: TB-1 Client Sample #: Sampled: 12/9/2024 00:00

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			12/21/24 13:28	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			12/21/24 13:28	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			12/21/24 13:28	DGS	EPA 8260C
Acetone	***7.1***	ug/L	4.1	10	20	20	1.00	J			12/21/24 13:28	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			12/21/24 13:28	DGS	EPA 8260C
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			12/21/24 13:28	DGS	EPA 8260C
Bromodichloromethane	<0.25	ug/L	0.080	0.25	0.50	0.50	1.00	U			12/21/24 13:28	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 13:28	DGS	EPA 8260C
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/21/24 13:28	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			12/21/24 13:28	DGS	EPA 8260C
Carbon tetrachloride	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			12/21/24 13:28	DGS	EPA 8260C
Chlorobenzene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 13:28	DGS	EPA 8260C
Chloroethane	<2.0	ug/L	1.0	2.0	3.0	3.0	1.00	U			12/21/24 13:28	DGS	EPA 8260C
Chloroform	<1.0	ug/L	0.30	1.0	1.4	1.4	1.00	U			12/21/24 13:28	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			12/21/24 13:28	DGS	EPA 8260C
cis-1,2-Dichloroethene	<1.0	ug/L	0.41	1.0	1.3	1.3	1.00	U			12/21/24 13:28	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/21/24 13:28	DGS	EPA 8260C
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U			12/21/24 13:28	DGS	EPA 8260C
Dibromochloromethane	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/21/24 13:28	DGS	EPA 8260C
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			12/21/24 13:28	DGS	EPA 8260C
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			12/21/24 13:28	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			12/21/24 13:28	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			12/21/24 13:28	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			12/21/24 13:28	DGS	EPA 8260C
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/21/24 13:28	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			12/21/24 13:28	DGS	EPA 8260C
Methylene chloride	***1.3***	ug/L	1.2	4.0	4.1	4.1	1.00	J			12/21/24 13:28	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.50	2.0	2.2	2.2	1.00	U			12/21/24 13:28	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1537077 Sample Description: TB-1 Client Sample #: Sampled: 12/9/2024 00:00

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 13:28	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.25	1.0	2.0	2.0	1.00	U			12/21/24 13:28	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/21/24 13:28	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/21/24 13:28	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			12/21/24 13:28	DGS	EPA 8260C
Trichloroethene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 13:28	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U			12/21/24 13:28	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			12/21/24 13:28	DGS	EPA 8260C
1,2 Dichloroethane-d4	104	% Recovery	81			118	1.00				12/21/24 13:28	DGS	EPA 8260C
Bromofluorobenzene	103	% Recovery	85			114	1.00				12/21/24 13:28	DGS	EPA 8260C
d8-Toluene	100	% Recovery	89			112	1.00				12/21/24 13:28	DGS	EPA 8260C
Dibromofluoromethane	97.0	% Recovery	80			119	1.00				12/21/24 13:28	DGS	EPA 8260C

CT LAB#: 1537078 Sample Description: 13MW5 Client Sample #: Sampled: 12/9/2024 09:40

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results													
Chloride	***3.4***	mg/L	1.0	1.5	3.0	3.0	1.00				12/11/24 15:45	TMG	EPA 9056A
Nitrate Nitrogen	***0.56***	mg/L	0.12	0.20	0.40	0.40	1.00	H			12/11/24 15:45	TMG	EPA 9056A
Sulfate	***140***	mg/L	4.0	7.5	15	15	5.00				12/16/24 23:20	TMG	EPA 9056A
Total Organic Carbon	<1.5	mg/L	0.4	1.5	3.0	3.0	1.00	U			12/27/24 15:22	TMG	EPA 9060A
Organic Results													
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			12/21/24 15:51	DGS	EPA 8260C
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			12/21/24 15:51	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/21/24 15:51	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1537078 Sample Description: 13MW5 Client Sample #: Sampled: 12/9/2024 09:40

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
1,1-Dichloroethane	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/21/24 15:51	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/21/24 15:51	DGS	EPA 8260C
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			12/21/24 15:51	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 15:51	DGS	EPA 8260C
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 15:51	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 15:51	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/21/24 15:51	DGS	EPA 8260C
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			12/21/24 15:51	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 15:51	DGS	EPA 8260C
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			12/21/24 15:51	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 15:51	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			12/21/24 15:51	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U			12/21/24 15:51	DGS	EPA 8260C
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			12/21/24 15:51	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			12/21/24 15:51	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			12/21/24 15:51	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			12/21/24 15:51	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			12/21/24 15:51	DGS	EPA 8260C
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			12/21/24 15:51	DGS	EPA 8260C
Bromodichloromethane	<0.25	ug/L	0.080	0.25	0.50	0.50	1.00	U			12/21/24 15:51	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 15:51	DGS	EPA 8260C
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/21/24 15:51	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			12/21/24 15:51	DGS	EPA 8260C
Carbon tetrachloride	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			12/21/24 15:51	DGS	EPA 8260C
Chlorobenzene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 15:51	DGS	EPA 8260C
Chloroethane	<2.0	ug/L	1.0	2.0	3.0	3.0	1.00	U			12/21/24 15:51	DGS	EPA 8260C
Chloroform	<1.0	ug/L	0.30	1.0	1.4	1.4	1.00	U			12/21/24 15:51	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			12/21/24 15:51	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1537078 Sample Description: 13MW5 Client Sample #: Sampled: 12/9/2024 09:40

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
cis-1,2-Dichloroethene	<1.0	ug/L	0.41	1.0	1.3	1.3	1.00	U			12/21/24 15:51	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/21/24 15:51	DGS	EPA 8260C
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U			12/21/24 15:51	DGS	EPA 8260C
Dibromochloromethane	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/21/24 15:51	DGS	EPA 8260C
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			12/21/24 15:51	DGS	EPA 8260C
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			12/21/24 15:51	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			12/21/24 15:51	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			12/21/24 15:51	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			12/21/24 15:51	DGS	EPA 8260C
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/21/24 15:51	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			12/21/24 15:51	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U			12/21/24 15:51	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.50	2.0	2.2	2.2	1.00	U			12/21/24 15:51	DGS	EPA 8260C
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 15:51	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.25	1.0	2.0	2.0	1.00	U			12/21/24 15:51	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/21/24 15:51	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/21/24 15:51	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			12/21/24 15:51	DGS	EPA 8260C
Trichloroethene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 15:51	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U			12/21/24 15:51	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			12/21/24 15:51	DGS	EPA 8260C
1,2 Dichloroethane-d4	102	% Recovery	81			118	1.00				12/21/24 15:51	DGS	EPA 8260C
Bromofluorobenzene	101	% Recovery	85			114	1.00				12/21/24 15:51	DGS	EPA 8260C
d8-Toluene	100	% Recovery	89			112	1.00				12/21/24 15:51	DGS	EPA 8260C
Dibromofluoromethane	97.0	% Recovery	80			119	1.00				12/21/24 15:51	DGS	EPA 8260C
Ethane	<0.80	ug/L	0.38	0.80	1.0	1.0	1.00	U		12/17/24 13:39	12/19/24 10:21	SRW	RSK 175
Ethene	<1.2	ug/L	0.59	1.2	1.4	1.4	1.00	U		12/17/24 13:39	12/19/24 10:21	SRW	RSK 175
Methane	<0.90	ug/L	0.45	0.90	1.0	1.0	1.00	U		12/17/24 13:39	12/19/24 10:21	SRW	RSK 175

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1537078 Sample Description: 13MW5 Client Sample #: Sampled: 12/9/2024 09:40

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method

CT LAB#: 1537079 Sample Description: 13MW4 Client Sample #: Sampled: 12/9/2024 11:15

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results													
Chloride	***3.3***	mg/L	1.0	1.5	3.0	3.0	1.00				12/17/24 01:44	TMG	EPA 9056A
Nitrate Nitrogen	<0.20	mg/L	0.12	0.20	0.40	0.40	1.00	U H			12/11/24 16:13	TMG	EPA 9056A
Sulfate	***79***	mg/L	4.0	7.5	15	15	5.00				12/16/24 23:49	TMG	EPA 9056A
Total Organic Carbon	<1.5	mg/L	0.4	1.5	3.0	3.0	1.00	U			12/27/24 16:01	TMG	EPA 9060A
Organic Results													
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			12/21/24 16:19	DGS	EPA 8260C
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			12/21/24 16:19	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/21/24 16:19	DGS	EPA 8260C
1,1-Dichloroethane	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/21/24 16:19	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/21/24 16:19	DGS	EPA 8260C
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			12/21/24 16:19	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 16:19	DGS	EPA 8260C
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 16:19	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 16:19	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/21/24 16:19	DGS	EPA 8260C
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			12/21/24 16:19	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 16:19	DGS	EPA 8260C
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			12/21/24 16:19	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 16:19	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			12/21/24 16:19	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U			12/21/24 16:19	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1537079 Sample Description: 13MW4 Client Sample #: Sampled: 12/9/2024 11:15

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			12/21/24 16:19	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			12/21/24 16:19	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			12/21/24 16:19	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			12/21/24 16:19	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			12/21/24 16:19	DGS	EPA 8260C
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			12/21/24 16:19	DGS	EPA 8260C
Bromodichloromethane	<0.25	ug/L	0.080	0.25	0.50	0.50	1.00	U			12/21/24 16:19	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 16:19	DGS	EPA 8260C
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/21/24 16:19	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			12/21/24 16:19	DGS	EPA 8260C
Carbon tetrachloride	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			12/21/24 16:19	DGS	EPA 8260C
Chlorobenzene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 16:19	DGS	EPA 8260C
Chloroethane	<2.0	ug/L	1.0	2.0	3.0	3.0	1.00	U			12/21/24 16:19	DGS	EPA 8260C
Chloroform	<1.0	ug/L	0.30	1.0	1.4	1.4	1.00	U			12/21/24 16:19	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			12/21/24 16:19	DGS	EPA 8260C
cis-1,2-Dichloroethene	<1.0	ug/L	0.41	1.0	1.3	1.3	1.00	U			12/21/24 16:19	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/21/24 16:19	DGS	EPA 8260C
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U			12/21/24 16:19	DGS	EPA 8260C
Dibromochloromethane	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/21/24 16:19	DGS	EPA 8260C
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			12/21/24 16:19	DGS	EPA 8260C
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			12/21/24 16:19	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			12/21/24 16:19	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			12/21/24 16:19	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			12/21/24 16:19	DGS	EPA 8260C
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/21/24 16:19	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			12/21/24 16:19	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U			12/21/24 16:19	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.50	2.0	2.2	2.2	1.00	U			12/21/24 16:19	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1537079 Sample Description: 13MW4 Client Sample #: Sampled: 12/9/2024 11:15

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 16:19	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.25	1.0	2.0	2.0	1.00	U			12/21/24 16:19	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/21/24 16:19	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/21/24 16:19	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			12/21/24 16:19	DGS	EPA 8260C
Trichloroethene	***0.66***	ug/L	0.25	1.0	1.2	1.2	1.00	J			12/21/24 16:19	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U			12/21/24 16:19	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			12/21/24 16:19	DGS	EPA 8260C
1,2 Dichloroethane-d4	103	% Recovery	81			118	1.00				12/21/24 16:19	DGS	EPA 8260C
Bromofluorobenzene	104	% Recovery	85			114	1.00				12/21/24 16:19	DGS	EPA 8260C
d8-Toluene	101	% Recovery	89			112	1.00				12/21/24 16:19	DGS	EPA 8260C
Dibromofluoromethane	97.0	% Recovery	80			119	1.00				12/21/24 16:19	DGS	EPA 8260C
Ethane	<0.80	ug/L	0.38	0.80	1.0	1.0	1.00	U		12/17/24 13:39	12/19/24 10:29	SRW	RSK 175
Ethene	<1.2	ug/L	0.59	1.2	1.4	1.4	1.00	U		12/17/24 13:39	12/19/24 10:29	SRW	RSK 175
Methane	***0.59***	ug/L	0.45	0.90	1.0	1.0	1.00	J		12/17/24 13:39	12/19/24 10:29	SRW	RSK 175

CT LAB#: 1537080 Sample Description: 13MW3 Client Sample #: Sampled: 12/9/2024 13:15

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results													
Chloride	***3.1***	mg/L	1.0	1.5	3.0	3.0	1.00				12/11/24 12:34	TMG	EPA 9056A
Nitrate Nitrogen	***1.2***	mg/L	0.12	0.20	0.40	0.40	1.00				12/11/24 12:34	TMG	EPA 9056A
Sulfate	***66***	mg/L	4.0	7.5	15	15	5.00				12/12/24 05:56	TMG	EPA 9056A
Total Organic Carbon	<1.5	mg/L	0.4	1.5	3.0	3.0	1.00	U			12/27/24 16:50	TMG	EPA 9060A
Organic Results													

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1537080 Sample Description: 13MW3 Client Sample #: Sampled: 12/9/2024 13:15

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			12/21/24 16:48	DGS	EPA 8260C
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			12/21/24 16:48	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/21/24 16:48	DGS	EPA 8260C
1,1-Dichloroethane	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/21/24 16:48	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/21/24 16:48	DGS	EPA 8260C
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			12/21/24 16:48	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 16:48	DGS	EPA 8260C
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 16:48	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 16:48	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/21/24 16:48	DGS	EPA 8260C
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			12/21/24 16:48	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 16:48	DGS	EPA 8260C
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			12/21/24 16:48	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 16:48	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			12/21/24 16:48	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U			12/21/24 16:48	DGS	EPA 8260C
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			12/21/24 16:48	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			12/21/24 16:48	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			12/21/24 16:48	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			12/21/24 16:48	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			12/21/24 16:48	DGS	EPA 8260C
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			12/21/24 16:48	DGS	EPA 8260C
Bromodichloromethane	<0.25	ug/L	0.080	0.25	0.50	0.50	1.00	U			12/21/24 16:48	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 16:48	DGS	EPA 8260C
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/21/24 16:48	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			12/21/24 16:48	DGS	EPA 8260C
Carbon tetrachloride	***2.0***	ug/L	0.37	1.0	1.2	1.2	1.00				12/21/24 16:48	DGS	EPA 8260C
Chlorobenzene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 16:48	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1537080 Sample Description: 13MW3 Client Sample #: Sampled: 12/9/2024 13:15

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Chloroethane	<2.0	ug/L	1.0	2.0	3.0	3.0	1.00	U			12/21/24 16:48	DGS	EPA 8260C
Chloroform	<1.0	ug/L	0.30	1.0	1.4	1.4	1.00	U			12/21/24 16:48	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			12/21/24 16:48	DGS	EPA 8260C
cis-1,2-Dichloroethene	<1.0	ug/L	0.41	1.0	1.3	1.3	1.00	U			12/21/24 16:48	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/21/24 16:48	DGS	EPA 8260C
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U			12/21/24 16:48	DGS	EPA 8260C
Dibromochloromethane	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/21/24 16:48	DGS	EPA 8260C
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			12/21/24 16:48	DGS	EPA 8260C
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			12/21/24 16:48	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			12/21/24 16:48	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			12/21/24 16:48	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			12/21/24 16:48	DGS	EPA 8260C
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/21/24 16:48	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			12/21/24 16:48	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U			12/21/24 16:48	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.50	2.0	2.2	2.2	1.00	U			12/21/24 16:48	DGS	EPA 8260C
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 16:48	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.25	1.0	2.0	2.0	1.00	U			12/21/24 16:48	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/21/24 16:48	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/21/24 16:48	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			12/21/24 16:48	DGS	EPA 8260C
Trichloroethene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 16:48	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U			12/21/24 16:48	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			12/21/24 16:48	DGS	EPA 8260C
1,2 Dichloroethane-d4	101	% Recovery	81			118	1.00				12/21/24 16:48	DGS	EPA 8260C
Bromofluorobenzene	103	% Recovery	85			114	1.00				12/21/24 16:48	DGS	EPA 8260C
d8-Toluene	100	% Recovery	89			112	1.00				12/21/24 16:48	DGS	EPA 8260C
Dibromofluoromethane	96.0	% Recovery	80			119	1.00				12/21/24 16:48	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1537080 Sample Description: 13MW3 Client Sample #: Sampled: 12/9/2024 13:15

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Ethane	***0.39***	ug/L	0.38	0.80	1.0	1.0	1.00	J		12/17/24 13:39	12/19/24 10:48	SRW	RSK 175
Ethene	<1.2	ug/L	0.59	1.2	1.4	1.4	1.00	U		12/17/24 13:39	12/19/24 10:48	SRW	RSK 175
Methane	<0.90	ug/L	0.45	0.90	1.0	1.0	1.00	U		12/17/24 13:39	12/19/24 10:48	SRW	RSK 175

CT LAB#: 1537081 Sample Description: 13TW3 Client Sample #: Sampled: 12/9/2024 13:15

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results													
Chloride	***3.1***	mg/L	1.0	1.5	3.0	3.0	1.00				12/11/24 13:01	TMG	EPA 9056A
Nitrate Nitrogen	***1.3***	mg/L	0.12	0.20	0.40	0.40	1.00				12/11/24 13:01	TMG	EPA 9056A
Sulfate	***65***	mg/L	4.0	7.5	15	15	5.00				12/12/24 06:23	TMG	EPA 9056A
Total Organic Carbon	<1.5	mg/L	0.4	1.5	3.0	3.0	1.00	U			12/27/24 17:04	TMG	EPA 9060A
Organic Results													
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			12/21/24 17:17	DGS	EPA 8260C
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			12/21/24 17:17	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/21/24 17:17	DGS	EPA 8260C
1,1-Dichloroethane	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/21/24 17:17	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/21/24 17:17	DGS	EPA 8260C
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			12/21/24 17:17	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 17:17	DGS	EPA 8260C
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 17:17	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 17:17	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/21/24 17:17	DGS	EPA 8260C
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			12/21/24 17:17	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 17:17	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1537081 Sample Description: 13TW3 Client Sample #: Sampled: 12/9/2024 13:15

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			12/21/24 17:17	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 17:17	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			12/21/24 17:17	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U			12/21/24 17:17	DGS	EPA 8260C
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			12/21/24 17:17	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			12/21/24 17:17	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			12/21/24 17:17	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			12/21/24 17:17	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			12/21/24 17:17	DGS	EPA 8260C
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			12/21/24 17:17	DGS	EPA 8260C
Bromodichloromethane	<0.25	ug/L	0.080	0.25	0.50	0.50	1.00	U			12/21/24 17:17	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 17:17	DGS	EPA 8260C
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/21/24 17:17	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			12/21/24 17:17	DGS	EPA 8260C
Carbon tetrachloride	***2.0***	ug/L	0.37	1.0	1.2	1.2	1.00				12/21/24 17:17	DGS	EPA 8260C
Chlorobenzene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 17:17	DGS	EPA 8260C
Chloroethane	<2.0	ug/L	1.0	2.0	3.0	3.0	1.00	U			12/21/24 17:17	DGS	EPA 8260C
Chloroform	***0.32***	ug/L	0.30	1.0	1.4	1.4	1.00	J			12/21/24 17:17	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			12/21/24 17:17	DGS	EPA 8260C
cis-1,2-Dichloroethene	<1.0	ug/L	0.41	1.0	1.3	1.3	1.00	U			12/21/24 17:17	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/21/24 17:17	DGS	EPA 8260C
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U			12/21/24 17:17	DGS	EPA 8260C
Dibromochloromethane	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/21/24 17:17	DGS	EPA 8260C
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			12/21/24 17:17	DGS	EPA 8260C
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			12/21/24 17:17	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			12/21/24 17:17	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			12/21/24 17:17	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			12/21/24 17:17	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1537081 Sample Description: 13TW3 Client Sample #: Sampled: 12/9/2024 13:15

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/21/24 17:17	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			12/21/24 17:17	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U			12/21/24 17:17	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.50	2.0	2.2	2.2	1.00	U			12/21/24 17:17	DGS	EPA 8260C
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 17:17	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.25	1.0	2.0	2.0	1.00	U			12/21/24 17:17	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/21/24 17:17	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/21/24 17:17	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			12/21/24 17:17	DGS	EPA 8260C
Trichloroethene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 17:17	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U			12/21/24 17:17	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			12/21/24 17:17	DGS	EPA 8260C
1,2 Dichloroethane-d4	99.0	% Recovery	81			118	1.00				12/21/24 17:17	DGS	EPA 8260C
Bromofluorobenzene	107	% Recovery	85			114	1.00				12/21/24 17:17	DGS	EPA 8260C
d8-Toluene	100	% Recovery	89			112	1.00				12/21/24 17:17	DGS	EPA 8260C
Dibromofluoromethane	97.0	% Recovery	80			119	1.00				12/21/24 17:17	DGS	EPA 8260C
Ethane	<0.80	ug/L	0.38	0.80	1.0	1.0	1.00	U		12/17/24 13:39	12/19/24 10:51	SRW	RSK 175
Ethene	<1.2	ug/L	0.59	1.2	1.4	1.4	1.00	U		12/17/24 13:39	12/19/24 10:51	SRW	RSK 175
Methane	<0.90	ug/L	0.45	0.90	1.0	1.0	1.00	U		12/17/24 13:39	12/19/24 10:51	SRW	RSK 175

CT LAB#: 1537082 Sample Description: 49MW04 Client Sample #: Sampled: 12/9/2024 14:25

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results													
Chloride	***6.5***	mg/L	1.0	1.5	3.0	3.0	1.00				12/11/24 13:28	TMG	EPA 9056A
Nitrate Nitrogen	***0.26***	mg/L	0.12	0.20	0.40	0.40	1.00	J			12/11/24 13:28	TMG	EPA 9056A

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1537082 Sample Description: 49MW04 Client Sample #: Sampled: 12/9/2024 14:25

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Sulfate	***68***	mg/L	0.80	1.5	3.0	3.0	1.00				12/11/24 13:28	TMG	EPA 9056A
Total Organic Carbon	<1.5	mg/L	0.4	1.5	3.0	3.0	1.00	U			12/27/24 17:16	TMG	EPA 9060A
Organic Results													
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			12/21/24 17:45	DGS	EPA 8260C
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			12/21/24 17:45	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/21/24 17:45	DGS	EPA 8260C
1,1-Dichloroethane	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/21/24 17:45	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/21/24 17:45	DGS	EPA 8260C
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			12/21/24 17:45	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 17:45	DGS	EPA 8260C
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 17:45	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 17:45	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/21/24 17:45	DGS	EPA 8260C
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			12/21/24 17:45	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 17:45	DGS	EPA 8260C
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			12/21/24 17:45	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 17:45	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			12/21/24 17:45	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U			12/21/24 17:45	DGS	EPA 8260C
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			12/21/24 17:45	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			12/21/24 17:45	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			12/21/24 17:45	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			12/21/24 17:45	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			12/21/24 17:45	DGS	EPA 8260C
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			12/21/24 17:45	DGS	EPA 8260C
Bromodichloromethane	<0.25	ug/L	0.080	0.25	0.50	0.50	1.00	U			12/21/24 17:45	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 17:45	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1537082 Sample Description: 49MW04 Client Sample #: Sampled: 12/9/2024 14:25

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/21/24 17:45	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			12/21/24 17:45	DGS	EPA 8260C
Carbon tetrachloride	***0.48***	ug/L	0.37	1.0	1.2	1.2	1.00	J			12/21/24 17:45	DGS	EPA 8260C
Chlorobenzene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 17:45	DGS	EPA 8260C
Chloroethane	<2.0	ug/L	1.0	2.0	3.0	3.0	1.00	U			12/21/24 17:45	DGS	EPA 8260C
Chloroform	<1.0	ug/L	0.30	1.0	1.4	1.4	1.00	U			12/21/24 17:45	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			12/21/24 17:45	DGS	EPA 8260C
cis-1,2-Dichloroethene	<1.0	ug/L	0.41	1.0	1.3	1.3	1.00	U			12/21/24 17:45	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/21/24 17:45	DGS	EPA 8260C
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U			12/21/24 17:45	DGS	EPA 8260C
Dibromochloromethane	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/21/24 17:45	DGS	EPA 8260C
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			12/21/24 17:45	DGS	EPA 8260C
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			12/21/24 17:45	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			12/21/24 17:45	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			12/21/24 17:45	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			12/21/24 17:45	DGS	EPA 8260C
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/21/24 17:45	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			12/21/24 17:45	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U			12/21/24 17:45	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.50	2.0	2.2	2.2	1.00	U			12/21/24 17:45	DGS	EPA 8260C
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 17:45	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.25	1.0	2.0	2.0	1.00	U			12/21/24 17:45	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/21/24 17:45	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/21/24 17:45	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			12/21/24 17:45	DGS	EPA 8260C
Trichloroethene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 17:45	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U			12/21/24 17:45	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			12/21/24 17:45	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1537082 Sample Description: 49MW04 Client Sample #: Sampled: 12/9/2024 14:25

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
1,2 Dichloroethane-d4	101	% Recovery	81			118	1.00				12/21/24 17:45	DGS	EPA 8260C
Bromofluorobenzene	104	% Recovery	85			114	1.00				12/21/24 17:45	DGS	EPA 8260C
d8-Toluene	100	% Recovery	89			112	1.00				12/21/24 17:45	DGS	EPA 8260C
Dibromofluoromethane	97.0	% Recovery	80			119	1.00				12/21/24 17:45	DGS	EPA 8260C
Ethane	<0.80	ug/L	0.38	0.80	1.0	1.0	1.00	U		12/17/24 13:39	12/19/24 10:55	SRW	RSK 175
Ethene	<1.2	ug/L	0.59	1.2	1.4	1.4	1.00	U		12/17/24 13:39	12/19/24 10:55	SRW	RSK 175
Methane	<0.90	ug/L	0.45	0.90	1.0	1.0	1.00	U		12/17/24 13:39	12/19/24 10:55	SRW	RSK 175

CT LAB#: 1537083 Sample Description: 13MW2 Client Sample #: Sampled: 12/9/2024 15:15

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results													
Chloride	***4.9***	mg/L	1.0	1.5	3.0	3.0	1.00				12/11/24 14:23	TMG	EPA 9056A
Nitrate Nitrogen	***0.45***	mg/L	0.12	0.20	0.40	0.40	1.00				12/11/24 14:23	TMG	EPA 9056A
Sulfate	***25***	mg/L	0.80	1.5	3.0	3.0	1.00				12/11/24 14:23	TMG	EPA 9056A
Total Organic Carbon	<1.5	mg/L	0.4	1.5	3.0	3.0	1.00	U			12/27/24 17:27	TMG	EPA 9060A
Organic Results													
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			12/21/24 18:13	DGS	EPA 8260C
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			12/21/24 18:13	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/21/24 18:13	DGS	EPA 8260C
1,1-Dichloroethane	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/21/24 18:13	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/21/24 18:13	DGS	EPA 8260C
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			12/21/24 18:13	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 18:13	DGS	EPA 8260C
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 18:13	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1537083 Sample Description: 13MW2 Client Sample #: Sampled: 12/9/2024 15:15

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 18:13	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/21/24 18:13	DGS	EPA 8260C
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			12/21/24 18:13	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 18:13	DGS	EPA 8260C
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			12/21/24 18:13	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 18:13	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			12/21/24 18:13	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U			12/21/24 18:13	DGS	EPA 8260C
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			12/21/24 18:13	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			12/21/24 18:13	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			12/21/24 18:13	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			12/21/24 18:13	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			12/21/24 18:13	DGS	EPA 8260C
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			12/21/24 18:13	DGS	EPA 8260C
Bromodichloromethane	<0.25	ug/L	0.080	0.25	0.50	0.50	1.00	U			12/21/24 18:13	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 18:13	DGS	EPA 8260C
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/21/24 18:13	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			12/21/24 18:13	DGS	EPA 8260C
Carbon tetrachloride	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			12/21/24 18:13	DGS	EPA 8260C
Chlorobenzene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 18:13	DGS	EPA 8260C
Chloroethane	<2.0	ug/L	1.0	2.0	3.0	3.0	1.00	U			12/21/24 18:13	DGS	EPA 8260C
Chloroform	<1.0	ug/L	0.30	1.0	1.4	1.4	1.00	U			12/21/24 18:13	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			12/21/24 18:13	DGS	EPA 8260C
cis-1,2-Dichloroethene	<1.0	ug/L	0.41	1.0	1.3	1.3	1.00	U			12/21/24 18:13	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/21/24 18:13	DGS	EPA 8260C
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U			12/21/24 18:13	DGS	EPA 8260C
Dibromochloromethane	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/21/24 18:13	DGS	EPA 8260C
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			12/21/24 18:13	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1537083 Sample Description: 13MW2 Client Sample #: Sampled: 12/9/2024 15:15

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			12/21/24 18:13	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			12/21/24 18:13	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			12/21/24 18:13	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			12/21/24 18:13	DGS	EPA 8260C
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/21/24 18:13	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			12/21/24 18:13	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U			12/21/24 18:13	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.50	2.0	2.2	2.2	1.00	U			12/21/24 18:13	DGS	EPA 8260C
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 18:13	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.25	1.0	2.0	2.0	1.00	U			12/21/24 18:13	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/21/24 18:13	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/21/24 18:13	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			12/21/24 18:13	DGS	EPA 8260C
Trichloroethene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 18:13	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U			12/21/24 18:13	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			12/21/24 18:13	DGS	EPA 8260C
1,2 Dichloroethane-d4	100	% Recovery	81			118	1.00				12/21/24 18:13	DGS	EPA 8260C
Bromofluorobenzene	102	% Recovery	85			114	1.00				12/21/24 18:13	DGS	EPA 8260C
d8-Toluene	100	% Recovery	89			112	1.00				12/21/24 18:13	DGS	EPA 8260C
Dibromofluoromethane	97.0	% Recovery	80			119	1.00				12/21/24 18:13	DGS	EPA 8260C
Ethane	<0.80	ug/L	0.38	0.80	1.0	1.0	1.00	U		12/17/24 13:39	12/19/24 10:58	SRW	RSK 175
Ethene	<1.2	ug/L	0.59	1.2	1.4	1.4	1.00	U		12/17/24 13:39	12/19/24 10:58	SRW	RSK 175
Methane	<0.90	ug/L	0.45	0.90	1.0	1.0	1.00	U		12/17/24 13:39	12/19/24 10:58	SRW	RSK 175

CT LAB#: 1537084 Sample Description: 49MW05 Client Sample #: Sampled: 12/9/2024 16:10

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1537084 Sample Description: 49MW05 Client Sample #: Sampled: 12/9/2024 16:10

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results													
Chloride	***3.5***	mg/L	1.0	1.5	3.0	3.0	1.00				12/11/24 14:50	TMG	EPA 9056A
Nitrate Nitrogen	<0.20	mg/L	0.12	0.20	0.40	0.40	1.00	U			12/11/24 14:50	TMG	EPA 9056A
Sulfate	***55***	mg/L	0.80	1.5	3.0	3.0	1.00				12/11/24 14:50	TMG	EPA 9056A
Total Organic Carbon	<1.5	mg/L	0.4	1.5	3.0	3.0	1.00	U			12/27/24 17:41	TMG	EPA 9060A
Organic Results													
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			12/21/24 18:42	DGS	EPA 8260C
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			12/21/24 18:42	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/21/24 18:42	DGS	EPA 8260C
1,1-Dichloroethane	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/21/24 18:42	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/21/24 18:42	DGS	EPA 8260C
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			12/21/24 18:42	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 18:42	DGS	EPA 8260C
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 18:42	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 18:42	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/21/24 18:42	DGS	EPA 8260C
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			12/21/24 18:42	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 18:42	DGS	EPA 8260C
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			12/21/24 18:42	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 18:42	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			12/21/24 18:42	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U			12/21/24 18:42	DGS	EPA 8260C
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			12/21/24 18:42	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			12/21/24 18:42	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			12/21/24 18:42	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			12/21/24 18:42	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			12/21/24 18:42	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1537084 Sample Description: 49MW05 Client Sample #: Sampled: 12/9/2024 16:10

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			12/21/24 18:42	DGS	EPA 8260C
Bromodichloromethane	<0.25	ug/L	0.080	0.25	0.50	0.50	1.00	U			12/21/24 18:42	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 18:42	DGS	EPA 8260C
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/21/24 18:42	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			12/21/24 18:42	DGS	EPA 8260C
Carbon tetrachloride	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			12/21/24 18:42	DGS	EPA 8260C
Chlorobenzene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 18:42	DGS	EPA 8260C
Chloroethane	<2.0	ug/L	1.0	2.0	3.0	3.0	1.00	U			12/21/24 18:42	DGS	EPA 8260C
Chloroform	<1.0	ug/L	0.30	1.0	1.4	1.4	1.00	U			12/21/24 18:42	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			12/21/24 18:42	DGS	EPA 8260C
cis-1,2-Dichloroethene	<1.0	ug/L	0.41	1.0	1.3	1.3	1.00	U			12/21/24 18:42	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/21/24 18:42	DGS	EPA 8260C
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U			12/21/24 18:42	DGS	EPA 8260C
Dibromochloromethane	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/21/24 18:42	DGS	EPA 8260C
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			12/21/24 18:42	DGS	EPA 8260C
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			12/21/24 18:42	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			12/21/24 18:42	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			12/21/24 18:42	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			12/21/24 18:42	DGS	EPA 8260C
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/21/24 18:42	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			12/21/24 18:42	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U			12/21/24 18:42	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.50	2.0	2.2	2.2	1.00	U			12/21/24 18:42	DGS	EPA 8260C
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 18:42	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.25	1.0	2.0	2.0	1.00	U			12/21/24 18:42	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/21/24 18:42	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/21/24 18:42	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			12/21/24 18:42	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1537084 Sample Description: 49MW05 Client Sample #: Sampled: 12/9/2024 16:10

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Trichloroethene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 18:42	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U			12/21/24 18:42	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			12/21/24 18:42	DGS	EPA 8260C
1,2 Dichloroethane-d4	101	% Recovery	81			118	1.00				12/21/24 18:42	DGS	EPA 8260C
Bromofluorobenzene	101	% Recovery	85			114	1.00				12/21/24 18:42	DGS	EPA 8260C
d8-Toluene	100	% Recovery	89			112	1.00				12/21/24 18:42	DGS	EPA 8260C
Dibromofluoromethane	98.0	% Recovery	80			119	1.00				12/21/24 18:42	DGS	EPA 8260C
Ethane	<0.80	ug/L	0.38	0.80	1.0	1.0	1.00	U		12/17/24 13:39	12/19/24 11:07	SRW	RSK 175
Ethene	<1.2	ug/L	0.59	1.2	1.4	1.4	1.00	U		12/17/24 13:39	12/19/24 11:07	SRW	RSK 175
Methane	<0.90	ug/L	0.45	0.90	1.0	1.0	1.00	U		12/17/24 13:39	12/19/24 11:07	SRW	RSK 175

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

Notes:

^ Indicates the laboratory is NELAP accredited for this analyte by the indicated matrix and method . DL (detection limit), LOD (limit of detection), loq (limit of quantitation) as defined by most recent DOD QSM version.

All samples were received intact and properly preserved unless otherwise noted . The results reported relate only to the samples tested. This report shall not be reproduced, except in full, without written approval of this laboratory. The Chain of Custody is attached.

This report has been specifically prepared to satisfy project or program requirements. These results are in compliance with NELAC requirements for the parameters where accreditation is required or available, unless noted in the case narrative.

Submitted by: Brett M. Szymanski
Project Manager
608-356-2760

QC Qualifiers

Code	Description
B	Analyte detected in the associated Method Blank.
C	Toxicity present in BOD sample.
D	Diluted Out.
E	Safe, No Total Coliform detected.
F	Unsafe, Total Coliform detected, no E. Coli detected.
G	Unsafe, Total Coliform detected and E. Coli detected.
H	Holding time exceeded.
I	Incubator temperature was outside acceptance limits during test period.
J	Estimated value.
L	Significant peaks were detected outside the chromatographic window.
M	Matrix spike and/or Matrix Spike Duplicate recovery outside acceptance limits.
N	Insufficient BOD oxygen depletion.
O	Complete BOD oxygen depletion.
P	Concentration of analyte differs more than 40% between primary and confirmation analysis.
Q	Laboratory Control Sample outside acceptance limits.
R	See Narrative at end of report.
S	Surrogate standard recovery outside acceptance limits due to apparent matrix effects.
T	Sample received with improper preservation or temperature.
U	Analyte concentration was below detection limit.
V	Raised Quantitation or Reporting Limit due to limited sample amount or dilution for matrix background interference.
W	Sample amount received was below program minimum.
X	Analyte exceeded calibration range.
Y	Replicate/Duplicate precision outside acceptance limits.
Z	Specified calibration criteria was not met.

Current CT Laboratories Certifications

Wisconsin (WDNR) Chemistry ID# 157066030
Wisconsin (DATCP) Bacteriology ID# 289
Louisiana NELAP (primary) ID# 115843
Illinois NELAP Lab ID# 200073
Kansas NELAP Lab ID# E-10368
Virginia NELAP Lab ID# 460203
ISO/IEC 17025-2005 PJLA Cert # L24-913
DoD-ELAP PJLA L24-913
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QC Summary Report

CAPE ENVIRONMENTAL MANAGEMENT **Project Name: RADFORD AAP SWMU 49**

SDG #: 0 **Folder #: 191577** **Project #: 10409-0222**

Duplicate

Analytical Run #:	288029	Analysis Date:	12/17/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1539237	Analysis Time:	03:10	Prep Date/Time:		Method:	SW9056A
Parent Sample #:	1537079	Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Chloride	3.34	mg/L	3.3				3.0	1	10
Nitrate Nitrogen	0.120	mg/L	<DL	U			0.40	0	10
Sulfate	77.6	mg/L	79				3.0	2	10

Lab Control Spike Water

Analytical Run #:	288029	Analysis Date:	12/11/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1539235	Analysis Time:	17:35	Prep Date/Time:		Method:	SW9056A
Parent Sample #:		Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits			RPD	RPD Limit
Chloride	13.62	mg/L			15.00	91	87	---	111		
Nitrate Nitrogen	3.495	mg/L			3.500	100	88	---	111		
Sulfate	27.21	mg/L			25.00	109	87	---	112		

Lab Control Spike Water

Analytical Run #:	288029	Analysis Date:	12/16/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1540047	Analysis Time:	20:28	Prep Date/Time:		Method:	SW9056A
Parent Sample #:		Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits			RPD	RPD Limit
Chloride	15.56	mg/L			15.00	104	87	---	111		
Sulfate	26.86	mg/L			25.00	107	87	---	112		

Method Blank Water

Analytical Run #:	288029	Analysis Date:	12/11/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1539236	Analysis Time:	18:03	Prep Date/Time:		Method:	SW9056A
Parent Sample #:		Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Chloride	1.0	mg/L		U	0		1.5		
Nitrate Nitrogen	0.12	mg/L		U	0		0.20		
Sulfate	0.8	mg/L		U	0		1.5		

Method Blank Water

Analytical Run #:	288029	Analysis Date:	12/16/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1540048	Analysis Time:	20:57	Prep Date/Time:		Method:	SW9056A
Parent Sample #:		Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Chloride	1.0	mg/L		U	0		1.5		
Sulfate	0.8	mg/L		U	0		1.5		

Matrix Spike Duplicate Water

Analytical Run #:	288029	Analysis Date:	12/17/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1539239	Analysis Time:	04:07	Prep Date/Time:		Method:	SW9056A
Parent Sample #:	1539238	Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Chloride	10.8	mg/L	3.3		8.00	94	87 --- 111	3	15
Nitrate Nitrogen	2.02	mg/L	<DL		2.00	101	88 --- 111	2	15
Sulfate	120	mg/L	79		40.0	102	87 --- 112	1	15

Matrix Spike Water

Analytical Run #:	288029	Analysis Date:	12/17/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1539238	Analysis Time:	03:38	Prep Date/Time:		Method:	SW9056A
Parent Sample #:	1537079	Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Chloride	10.5	mg/L	3.3		8.00	90	87 --- 111		15
Nitrate Nitrogen	2.05	mg/L	<DL		2.00	102	88 --- 111		15
Sulfate	119	mg/L	79		40.0	100	87 --- 112		15

Duplicate

Analytical Run #:	288395	Analysis Date:	12/27/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1542520	Analysis Time:	16:14	Prep Date/Time:		Method:	SW9060
Parent Sample #:	1537079	Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Organic Carbon	0.4	mg/L	<DL	U			1.5	0	20

Lab Control Spike Water

Analytical Run #:	288395	Analysis Date:	12/27/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1542516	Analysis Time:	12:59	Prep Date/Time:		Method:	SW9060
Parent Sample #:		Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Organic Carbon	48.42	mg/L			50.0	97	85 --- 111		20

Method Blank Water

Analytical Run #:	288395	Analysis Date:	12/27/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1542517	Analysis Time:	13:13	Prep Date/Time:		Method:	SW9060
Parent Sample #:		Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Organic Carbon	0.40	mg/L		U	0		1.5		

Matrix Spike Duplicate Water

Analytical Run #:	288395	Analysis Date:	12/27/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1542522	Analysis Time:	16:38	Prep Date/Time:		Method:	SW9060
Parent Sample #:	1542521	Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Organic Carbon	49.0	mg/L	<DL		50.0	98	85 --- 111	1	20

Matrix Spike Water

Analytical Run #:	288395	Analysis Date:	12/27/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1542521	Analysis Time:	16:25	Prep Date/Time:		Method:	SW9060
Parent Sample #:	1537079	Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Organic Carbon	49.8	mg/L	<DL		50.0	100	85 --- 111		20

Lab Control Spike Water

Analytical Run #:	288101	Analysis Date:	12/19/2024	Prep Batch #:	137089	Matrix:	LIQUID
CTLab #:	1538099	Analysis Time:	10:08	Prep Date/Time:	12/17/2024 13:39	Method:	RSK175
Parent Sample #:		Analyst:	SRW	Prep Analyst:	SRW		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits			RPD	RPD Limit
Ethane	4.91	ug/L			4.79	103	74	---	131		20
Ethene	6.91	ug/L			6.80	102	72	---	133		20
Methane	2.23	ug/L			2.30	97	73	---	125		20

Method Blank Water

Analytical Run #:	288101	Analysis Date:	12/19/2024	Prep Batch #:	137089	Matrix:	LIQUID
CTLab #:	1538098	Analysis Time:	10:17	Prep Date/Time:	12/17/2024 13:39	Method:	RSK175
Parent Sample #:		Analyst:	SRW	Prep Analyst:	SRW		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Ethane	0.38	ug/L		U	0		0.5		
Ethene	0.59	ug/L		U	0		0.7		
Methane	0.45	ug/L		U	0		0.5		

Matrix Spike Duplicate Water

Analytical Run #:	288101	Analysis Date:	12/19/2024	Prep Batch #:	137089	Matrix:	GROUND WATER
CTLab #:	1538102	Analysis Time:	10:37	Prep Date/Time:	12/17/2024 13:39	Method:	RSK175
Parent Sample #:	1538101	Analyst:	SRW	Prep Analyst:	SRW		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Ethane	4.69	ug/L	<DL		4.79	98	74 --- 131	10	30
Ethene	6.57	ug/L	<DL		6.80	97	72 --- 133	10	30
Methane	2.65	ug/L	0.59		2.30	90	73 --- 125	7	30

Matrix Spike Water

Analytical Run #:	288101	Analysis Date:	12/19/2024	Prep Batch #:	137089	Matrix:	GROUND WATER
CTLab #:	1538101	Analysis Time:	10:33	Prep Date/Time:	12/17/2024 13:39	Method:	RSK175
Parent Sample #:	1537079	Analyst:	SRW	Prep Analyst:	SRW		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Ethane	4.25	ug/L	<DL		4.79	89	74 --- 131		30
Ethene	5.96	ug/L	<DL		6.80	88	72 --- 133		30
Methane	2.47	ug/L	0.59		2.30	82	73 --- 125		30

Lab Control Spike Water

Analytical Run #:	288213	Analysis Date:	12/21/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1541145	Analysis Time:	11:35	Prep Date/Time:		Method:	SW8260C
Parent Sample #:		Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits			RPD	RPD Limit
1,1,1-Trichloroethane	10.1	ug/L			10.0	101	74	---	131		20
1,1,2,2-Tetrachloroethane	9.63	ug/L			10.0	96	71	---	121		20
1,1,2-Trichloroethane	9.67	ug/L			10.0	97	80	---	119		20
1,1-Dichloroethane	9.54	ug/L			10.0	95	77	---	125		20
1,1-Dichloroethene	9.30	ug/L			10.0	93	71	---	131		20
1,2,3-Trichlorobenzene	9.68	ug/L			10.0	97	69	---	129		20
1,2,4-Trichlorobenzene	8.07	ug/L			10.0	81	69	---	130		20
1,2-Dibromo-3-chloropropane	9.24	ug/L			10.0	92	62	---	128		20
1,2-Dibromoethane	9.72	ug/L			10.0	97	77	---	121		20
1,2-Dichlorobenzene	9.79	ug/L			10.0	98	80	---	119		20
1,2-Dichloroethane	9.17	ug/L			10.0	92	73	---	128		20
1,2-Dichloropropane	9.78	ug/L			10.0	98	78	---	122		20
1,3-Dichlorobenzene	9.76	ug/L			10.0	98	80	---	119		20
1,4-Dichlorobenzene	9.72	ug/L			10.0	97	79	---	118		20
1,4-Dioxane	489	ug/L			500	98	59	---	139		20
112Trichloro122trifluoroethane	19.5	ug/L			20.0	98	70	---	136		20
2-Butanone	107	ug/L			100	107	56	---	143		20
2-Hexanone	103	ug/L			100	103	57	---	139		20
4-Methyl-2-pentanone	103	ug/L			100	103	67	---	130		20
Acetone	104	ug/L			100	104	39	---	160		20
Benzene	9.42	ug/L			10.0	94	79	---	120		20
Bromochloromethane	9.57	ug/L			10.0	96	78	---	123		20
Bromodichloromethane	9.77	ug/L			10.0	98	79	---	125		20
Bromoform	9.37	ug/L			10.0	94	66	---	130		20
Bromomethane	9.20	ug/L			10.0	92	53	---	141		20
Carbon disulfide	20.7	ug/L			20.0	104	64	---	133		20
Carbon tetrachloride	10.2	ug/L			10.0	102	72	---	136		20
Chlorobenzene	9.70	ug/L			10.0	97	82	---	118		20
Chloroethane	9.77	ug/L			10.0	98	60	---	138		20
Chloroform	9.52	ug/L			10.0	95	79	---	124		20
Chloromethane	9.19	ug/L			10.0	92	50	---	139		20
cis-1,2-Dichloroethene	9.63	ug/L			10.0	96	78	---	123		20
cis-1,3-Dichloropropene	10.0	ug/L			10.0	100	75	---	124		20
Cyclohexane	11.4	ug/L			10.0	114	71	---	130		20
Dibromochloromethane	9.59	ug/L			10.0	96	74	---	126		20
Dichlorodifluoromethane	10.8	ug/L			10.0	108	32	---	152		20
Ethylbenzene	10.2	ug/L			10.0	102	79	---	121		20
Isopropylbenzene	9.95	ug/L			10.0	100	72	---	131		20
m & p-Xylene	20.3	ug/L			20.0	102	80	---	121		20
Methyl acetate	9.69	ug/L			10.0	97	56	---	136		20
Methyl tert-butyl ether	9.37	ug/L			10.0	94	71	---	124		20
Methylcyclohexane	11.2	ug/L			10.0	112	72	---	132		20

Lab Control Spike Water

Analytical Run #:	288213	Analysis Date:	12/21/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1541145	Analysis Time:	11:35	Prep Date/Time:		Method:	SW8260C
Parent Sample #:		Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Methylene chloride	9.42	ug/L			10.0	94	74 --- 124		20
o-Xylene	9.77	ug/L			10.0	98	78 --- 122		20
Styrene	9.89	ug/L			10.0	99	78 --- 123		20
Tetrachloroethene	9.99	ug/L			10.0	100	74 --- 129		20
Toluene	9.96	ug/L			10.0	100	80 --- 121		20
trans-1,2-Dichloroethene	9.56	ug/L			10.0	96	75 --- 124		20
trans-1,3-Dichloropropene	10.1	ug/L			10.0	101	73 --- 127		20
Trichloroethene	9.86	ug/L			10.0	99	79 --- 123		20
Trichlorofluoromethane	8.98	ug/L			10.0	90	65 --- 141		20
Vinyl chloride	9.91	ug/L			10.0	99	58 --- 137		20

Method Blank Water

Analytical Run #:	288213	Analysis Date:	12/21/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1541194	Analysis Time:	13:00	Prep Date/Time:		Method:	SW8260C
Parent Sample #:		Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
1,1,1-Trichloroethane	0.38	ug/L		U	0		0.60		
1,1,2,2-Tetrachloroethane	0.36	ug/L		U	0		0.55		
1,1,2-Trichloroethane	0.27	ug/L		U	0		0.55		
1,1-Dichloroethane	0.28	ug/L		U	0		0.55		
1,1-Dichloroethene	0.49	ug/L		U	0		1.0		
1,2,3-Trichlorobenzene	0.43	ug/L		U	0		1.0		
1,2,4-Trichlorobenzene	0.50	ug/L		U	0		1.0		
1,2-Dibromo-3-chloropropane	0.50	ug/L		U	0		1.0		
1,2-Dibromoethane	0.33	ug/L		U	0		0.55		
1,2-Dichlorobenzene	0.35	ug/L		U	0		0.55		
1,2-Dichloroethane	0.69	ug/L		U	0		1.05		
1,2-Dichloropropane	0.25	ug/L		U	0		0.60		
1,3-Dichlorobenzene	0.30	ug/L		U	0		0.55		
1,4-Dichlorobenzene	0.33	ug/L		U	0		0.55		
1,4-Dioxane	34	ug/L		U	0		50		
112Trichloro122trifluoroethane	1.5	ug/L		U	0		2.25		
2-Butanone	2.9	ug/L		U	0		5.5		
2-Hexanone	3.3	ug/L		U	0		5.5		
4-Methyl-2-pentanone	3.7	ug/L		U	0		6.0		
Acetone	4.1	ug/L		U	0		10		
Benzene	0.40	ug/L		U	0		1.0		
Bromochloromethane	0.26	ug/L		U	0		0.55		
Bromodichloromethane	0.080	ug/L		U	0		0.25		
Bromoform	0.50	ug/L		U	0		1.0		
Bromomethane	0.49	ug/L		U	0		1.0		
Carbon disulfide	0.83	ug/L		U	0		2.0		
Carbon tetrachloride	0.37	ug/L		U	0		0.60		
Chlorobenzene	0.25	ug/L		U	0		0.60		
Chloroethane	1.0	ug/L		U	0		1.5		
Chloroform	0.30	ug/L		U	0		0.70		
Chloromethane	0.39	ug/L		U	0		1.0		
cis-1,2-Dichloroethene	0.41	ug/L		U	0		0.65		
cis-1,3-Dichloropropene	0.25	ug/L		U	0		0.55		
Cyclohexane	0.71	ug/L		U	0		1.1		
Dibromochloromethane	0.25	ug/L		U	0		0.55		
Dichlorodifluoromethane	0.63	ug/L		U	0		1.05		
Ethylbenzene	0.42	ug/L		U	0		0.65		
Isopropylbenzene	0.39	ug/L		U	0		0.60		
m & p-Xylene	0.74	ug/L		U	0		1.15		
Methyl acetate	0.34	ug/L		U	0		1.0		
Methyl tert-butyl ether	0.28	ug/L		U	0		0.55		
Methylcyclohexane	0.78	ug/L		U	0		1.2		

Method Blank Water

Analytical Run #:	288213	Analysis Date:	12/21/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1541194	Analysis Time:	13:00	Prep Date/Time:		Method:	SW8260C
Parent Sample #:		Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Methylene chloride	1.2	ug/L		U	0		2.05		
o-Xylene	0.50	ug/L		U	0		1.1		
Styrene	0.33	ug/L		U	0		0.55		
Tetrachloroethene	0.25	ug/L		U	0		1.0		
Toluene	0.27	ug/L		U	0		0.55		
trans-1,2-Dichloroethene	0.35	ug/L		U	0		0.55		
trans-1,3-Dichloropropene	0.56	ug/L		U	0		1.05		
Trichloroethene	0.25	ug/L		U	0		0.60		
Trichlorofluoromethane	0.41	ug/L		U	0		1.0		
Vinyl chloride	0.12	ug/L		U	0		0.25		

Matrix Spike Duplicate Water

Analytical Run #:	288213	Analysis Date:	12/21/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1541215	Analysis Time:	22:02	Prep Date/Time:		Method:	SW8260C
Parent Sample #:	1541214	Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits			RPD	RPD Limit
1,1,1-Trichloroethane	10.8	ug/L	<DL		10.0	108	74	---	131	5	20
1,1,2,2-Tetrachloroethane	10.3	ug/L	<DL		10.0	103	71	---	121	4	20
1,1,2-Trichloroethane	10.7	ug/L	<DL		10.0	107	80	---	119	2	20
1,1-Dichloroethane	10.4	ug/L	<DL		10.0	104	77	---	125	3	20
1,1-Dichloroethene	10.5	ug/L	<DL		10.0	105	71	---	131	11	20
1,2 Dichloroethane-d4	100	% Recovery	BDL		100	100	81	---	118	0	
1,2,3-Trichlorobenzene	10.8	ug/L	<DL		10.0	108	69	---	129	0	20
1,2,4-Trichlorobenzene	10.3	ug/L	<DL		10.0	103	69	---	130	8	20
1,2-Dibromo-3-chloropropane	9.75	ug/L	<DL		10.0	98	62	---	128	12	20
1,2-Dibromoethane	9.96	ug/L	<DL		10.0	100	77	---	121	1	20
1,2-Dichlorobenzene	10.3	ug/L	<DL		10.0	103	80	---	119	0	20
1,2-Dichloroethane	9.65	ug/L	<DL		10.0	96	73	---	128	7	20
1,2-Dichloropropane	10.5	ug/L	<DL		10.0	105	78	---	122	5	20
1,3-Dichlorobenzene	10.4	ug/L	<DL		10.0	104	80	---	119	2	20
1,4-Dichlorobenzene	10.2	ug/L	<DL		10.0	102	79	---	118	1	20
1,4-Dioxane	519	ug/L	<DL		500	104	59	---	139	16	20
112Trichloro122trifluoroethane	20.2	ug/L	<DL		20.0	101	70	---	136	8	20
2-Butanone	88.1	ug/L	<DL		100	88	56	---	143	3	20
2-Hexanone	95.9	ug/L	<DL		100	96	57	---	139	4	20
4-Methyl-2-pentanone	111	ug/L	<DL		100	111	67	---	130	1	20
Acetone	60.6	ug/L	<DL		100	61	39	---	160	0	20
Benzene	10.3	ug/L	<DL		10.0	103	79	---	120	5	20
Bromochloromethane	10.2	ug/L	<DL		10.0	102	78	---	123	3	20
Bromodichloromethane	10.2	ug/L	<DL		10.0	102	79	---	125	3	20
Bromofluorobenzene	100	% Recovery	BDL		100	100	85	---	114	0	
Bromoform	9.61	ug/L	<DL		10.0	96	66	---	130	5	20
Bromomethane	10.3	ug/L	<DL		10.0	103	53	---	141	10	20
Carbon disulfide	22.8	ug/L	<DL		20.0	114	64	---	133	3	20
Carbon tetrachloride	11.1	ug/L	<DL		10.0	111	72	---	136	1	20
Chlorobenzene	10.6	ug/L	<DL		10.0	106	82	---	118	1	20
Chloroethane	10.7	ug/L	<DL		10.0	107	60	---	138	6	20
Chloroform	10.3	ug/L	<DL		10.0	103	79	---	124	4	20
Chloromethane	10.5	ug/L	<DL		10.0	105	50	---	139	5	20
cis-1,2-Dichloroethene	10.4	ug/L	<DL		10.0	104	78	---	123	3	20
cis-1,3-Dichloropropene	10.2	ug/L	<DL		10.0	102	75	---	124	3	20
Cyclohexane	10.9	ug/L	<DL		10.0	109	71	---	130	7	20
d8-Toluene	101	% Recovery	BDL		100	101	89	---	112	0	
Dibromochloromethane	9.89	ug/L	<DL		10.0	99	74	---	126	4	20
Dibromofluoromethane	99.0	% Recovery	BDL		100	99.0	80	---	119	0	
Dichlorodifluoromethane	10.7	ug/L	<DL		10.0	107	32	---	152	8	20
Ethylbenzene	11.2	ug/L	<DL		10.0	112	79	---	121	1	20
Isopropylbenzene	10.8	ug/L	<DL		10.0	108	72	---	131	1	20

Matrix Spike Duplicate Water

Analytical Run #:	288213	Analysis Date:	12/21/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1541215	Analysis Time:	22:02	Prep Date/Time:		Method:	SW8260C
Parent Sample #:	1541214	Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
m & p-Xylene	21.9	ug/L	<DL		20.0	110	80 --- 121	0	20
Methyl acetate	10.0	ug/L	<DL		10.0	100	56 --- 136	2	20
Methyl tert-butyl ether	9.86	ug/L	<DL		10.0	99	71 --- 124	3	20
Methylcyclohexane	10.6	ug/L	<DL		10.0	106	72 --- 132	0	20
Methylene chloride	10.1	ug/L	<DL		10.0	101	74 --- 124	5	20
o-Xylene	10.7	ug/L	<DL		10.0	107	78 --- 122	2	20
Styrene	10.6	ug/L	<DL		10.0	106	78 --- 123	2	20
Tetrachloroethene	11.1	ug/L	<DL		10.0	111	74 --- 129	4	20
Toluene	11.1	ug/L	<DL		10.0	111	80 --- 121	3	20
trans-1,2-Dichloroethene	10.1	ug/L	<DL		10.0	101	75 --- 124	5	20
trans-1,3-Dichloropropene	10.2	ug/L	<DL		10.0	102	73 --- 127	2	20
Trichloroethene	11.2	ug/L	0.66		10.0	105	79 --- 123	1	20
Trichlorofluoromethane	9.70	ug/L	<DL		10.0	97	65 --- 141	18	20
Vinyl chloride	11.0	ug/L	<DL		10.0	110	58 --- 137	6	20

Matrix Spike Water

Analytical Run #:	288213	Analysis Date:	12/21/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1541214	Analysis Time:	21:34	Prep Date/Time:		Method:	SW8260C
Parent Sample #:	1537079	Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits			RPD	RPD Limit
1,1,1-Trichloroethane	11.4	ug/L	<DL		10.0	114	74	---	131		20
1,1,2,2-Tetrachloroethane	9.97	ug/L	<DL		10.0	100	71	---	121		20
1,1,2-Trichloroethane	10.9	ug/L	<DL		10.0	109	80	---	119		20
1,1-Dichloroethane	10.8	ug/L	<DL		10.0	108	77	---	125		20
1,1-Dichloroethene	11.7	ug/L	<DL		10.0	117	71	---	131		20
1,2 Dichloroethane-d4	108	% Recovery	BDL		100	108	81	---	118		
1,2,3-Trichlorobenzene	10.9	ug/L	<DL		10.0	109	69	---	129		20
1,2,4-Trichlorobenzene	9.52	ug/L	<DL		10.0	95	69	---	130		20
1,2-Dibromo-3-chloropropane	8.62	ug/L	<DL		10.0	86	62	---	128		20
1,2-Dibromoethane	10.1	ug/L	<DL		10.0	101	77	---	121		20
1,2-Dichlorobenzene	10.3	ug/L	<DL		10.0	103	80	---	119		20
1,2-Dichloroethane	10.4	ug/L	<DL		10.0	104	73	---	128		20
1,2-Dichloropropane	10.0	ug/L	<DL		10.0	100	78	---	122		20
1,3-Dichlorobenzene	10.1	ug/L	<DL		10.0	101	80	---	119		20
1,4-Dichlorobenzene	10.1	ug/L	<DL		10.0	101	79	---	118		20
1,4-Dioxane	440	ug/L	<DL		500	88	59	---	139		20
112Trichloro122trifluoroethane	21.9	ug/L	<DL		20.0	110	70	---	136		20
2-Butanone	85.6	ug/L	<DL		100	86	56	---	143		20
2-Hexanone	92.1	ug/L	<DL		100	92	57	---	139		20
4-Methyl-2-pentanone	112	ug/L	<DL		100	112	67	---	130		20
Acetone	60.5	ug/L	<DL		100	60	39	---	160		20
Benzene	10.8	ug/L	<DL		10.0	108	79	---	120		20
Bromochloromethane	10.5	ug/L	<DL		10.0	105	78	---	123		20
Bromodichloromethane	9.82	ug/L	<DL		10.0	98	79	---	125		20
Bromofluorobenzene	103	% Recovery	BDL		100	103	85	---	114		
Bromoform	9.15	ug/L	<DL		10.0	92	66	---	130		20
Bromomethane	11.4	ug/L	<DL		10.0	114	53	---	141		20
Carbon disulfide	23.6	ug/L	<DL		20.0	118	64	---	133		20
Carbon tetrachloride	11.2	ug/L	<DL		10.0	112	72	---	136		20
Chlorobenzene	10.5	ug/L	<DL		10.0	105	82	---	118		20
Chloroethane	11.4	ug/L	<DL		10.0	114	60	---	138		20
Chloroform	10.8	ug/L	<DL		10.0	108	79	---	124		20
Chloromethane	11.1	ug/L	<DL		10.0	111	50	---	139		20
cis-1,2-Dichloroethene	10.7	ug/L	<DL		10.0	107	78	---	123		20
cis-1,3-Dichloropropene	10.5	ug/L	<DL		10.0	105	75	---	124		20
Cyclohexane	11.7	ug/L	<DL		10.0	117	71	---	130		20
d8-Toluene	108	% Recovery	BDL		100	108	89	---	112		
Dibromochloromethane	9.55	ug/L	<DL		10.0	96	74	---	126		20
Dibromofluoromethane	103	% Recovery	BDL		100	103	80	---	119		
Dichlorodifluoromethane	11.6	ug/L	<DL		10.0	116	32	---	152		20
Ethylbenzene	11.1	ug/L	<DL		10.0	111	79	---	121		20
Isopropylbenzene	10.6	ug/L	<DL		10.0	106	72	---	131		20

Matrix Spike Water

Analytical Run #:	288213	Analysis Date:	12/21/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1541214	Analysis Time:	21:34	Prep Date/Time:		Method:	SW8260C
Parent Sample #:	1537079	Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
m & p-Xylene	21.8	ug/L	<DL		20.0	109	80 --- 121		20
Methyl acetate	10.2	ug/L	<DL		10.0	102	56 --- 136		20
Methyl tert-butyl ether	10.1	ug/L	<DL		10.0	101	71 --- 124		20
Methylcyclohexane	10.6	ug/L	<DL		10.0	106	72 --- 132		20
Methylene chloride	10.7	ug/L	<DL		10.0	107	74 --- 124		20
o-Xylene	10.5	ug/L	<DL		10.0	105	78 --- 122		20
Styrene	10.4	ug/L	<DL		10.0	104	78 --- 123		20
Tetrachloroethene	11.6	ug/L	<DL		10.0	116	74 --- 129		20
Toluene	11.4	ug/L	<DL		10.0	114	80 --- 121		20
trans-1,2-Dichloroethene	10.6	ug/L	<DL		10.0	106	75 --- 124		20
trans-1,3-Dichloropropene	10.5	ug/L	<DL		10.0	105	73 --- 127		20
Trichloroethene	11.1	ug/L	0.66		10.0	104	79 --- 123		20
Trichlorofluoromethane	11.6	ug/L	<DL		10.0	116	65 --- 141		20
Vinyl chloride	11.7	ug/L	<DL		10.0	117	58 --- 137		20

CT LABORATORIES
delivering more than data from your environmental analyses

Sample Condition Report

Folder #:	191577	Print Date / Time:	12/11/2024	09:39	
Client:	CAPE ENVIRONMENTAL MANAGEMENT	Received Date / Time / By:	12/11/2024	11:55	DJL
Project Name:	RADFORD AAP SWMU 49	Log-In Date / Time / By:	12/11/2024	12:21	erc
Project Phase:	RADFORD, VA	Project #:	10409-0222	PM:	BMS
Coolers:	1-UNMARKED	Temperature:	2.7 C	On Ice:	**Y**
Custody Seals Present :	**Y**	COC Present:?	**Y**	Complete?	**Y**
Seal Intact?	**Y**	Numbers:	DATED AND SIGNED		
Ship Method:	FEDEX EXPRESS	Tracking Number:	770448693027		
Adequate Packaging:	**Y**	Temp Blank Enclosed?	**Y**		

Notes: THE SAMPLES WERE RECEIVED IN GOOD CONDITION ON ICE.

SEVERAL SAMPLES WERE RECEIVED PAST THE 48-HOUR HOLD TIME FOR NITRATE DUE TO A FEDEX SHIPPING DELAY. THE CLIENT INSTRUCTED THE LAB TO PROCEED WITH THE ANALYSIS OF THESE SAMPLES.

TWO (2) CUSTODY SEALS WERE PRESENT AND INTACT ON THE COOLER UPON RECEIPT (BOTH WERE DATED 12/9/24 AND SIGNED).

Sample ID /	Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
1537077	TB-1				
		VOA HCL	1	/	VOC
		VOA HCL	1	/	VOC
		Total # of Containers of Type	(***VOA HCL***) = **2**		
Sample ID /	**Description**	**Container Type**	**Cond. Code**	**pH OK?/Filtered?**	**Tests**
1537078	13MW5				
		UNPRES PL	1	/	Anions
		Total # of Containers of Type	(***UNPRES PL***) = **1**		
1537078	13MW5				
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		Total # of Containers of Type	(***VOA HCL***) = **5**		
1537078	13MW5				
		H2SO4 PL	1	Y / N	TOC
		Total # of Containers of Type	(***H2SO4 PL***) = **1**		
Sample ID /	**Description**	**Container Type**	**Cond. Code**	**pH OK?/Filtered?**	**Tests**
1537079	13MW4				

		UNPRES PL	1		/	Anions
		UNPRES PL	1	N	/ N	ANIONS
		UNPRES PL	1	N	/ N	ANIONS
		Total # of Containers of Type	**(*UNPRES PL*) = 3**			
1537079	13MW4					
		VOA HCL	1	N	/ N	GAS,VOC
		VOA HCL	1	N	/ N	GAS,VOC
		VOA HCL	1	N	/ N	GAS,VOC
		VOA HCL	1	N	/ N	GAS,VOC
		VOA HCL	1	N	/ N	GAS,VOC
		VOA HCL	1	N	/ N	GAS,VOC
		VOA HCL	1	N	/ N	GAS,VOC
		VOA HCL	1	N	/ N	GAS,VOC
		VOA HCL	1	N	/ N	GAS,VOC
		VOA HCL	1		/	GAS,VOC
		VOA HCL	1	N	/ N	GAS,VOC
		VOA HCL	1		/	GAS,VOC
		VOA HCL	1		/	GAS,VOC
		VOA HCL	1		/	GAS,VOC
		VOA HCL	1		/	GAS,VOC
		Total # of Containers of Type	**(*VOA HCL*) = 15**			
1537079	13MW4					
		H2SO4 PL	1	Y	/ N	TOC
		H2SO4 PL	1	Y	/ N	TOC
		H2SO4 PL	1	Y	/ N	TOC
		Total # of Containers of Type	**(*H2SO4 PL*) = 3**			

Sample ID /	Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
1537080	13MW3				
		UNPRES PL	1	/	Anions
		Total # of Containers of Type	**(*UNPRES PL*) = 1**		
1537080	13MW3				
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		Total # of Containers of Type	**(*VOA HCL*) = 5**		
1537080	13MW3				
		H2SO4 PL	1	Y / N	TOC
		Total # of Containers of Type	**(*H2SO4 PL*) = 1**		

Sample ID /	Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
1537081	13TW3				
		UNPRES PL	1	/	Anions
		Total # of Containers of Type	**(*UNPRES PL*) = 1**		
1537081	13TW3				

	VOA HCL	1		/	GAS,VOC
	VOA HCL	1		/	GAS,VOC
	VOA HCL	1		/	GAS,VOC
	VOA HCL	1		/	GAS,VOC
	VOA HCL	1		/	GAS,VOC
	Total # of Containers of Type	**(*VOA HCL*) = 5**			

1537081	13TW3				
	H2SO4 PL	1	Y	/ N	TOC
	Total # of Containers of Type	**(*H2SO4 PL*) = 1**			

Sample ID /	Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
1537082	49MW04				
		UNPRES PL	1	/	Anions
		Total # of Containers of Type	**(*UNPRES PL*) = 1**		
1537082	49MW04				
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		Total # of Containers of Type	**(*VOA HCL*) = 5**		
1537082	49MW04				
		H2SO4 PL	1	Y / N	TOC
		Total # of Containers of Type	**(*H2SO4 PL*) = 1**		

Sample ID /	Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
1537083	13MW2				
		UNPRES PL	1	/	Anions
		Total # of Containers of Type	**(*UNPRES PL*) = 1**		
1537083	13MW2				
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		Total # of Containers of Type	**(*VOA HCL*) = 5**		
1537083	13MW2				
		H2SO4 PL	1	Y / N	TOC
		Total # of Containers of Type	**(*H2SO4 PL*) = 1**		

Sample ID /	Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
1537084	49MW05				
		UNPRES PL	1	/	Anions
		Total # of Containers of Type	**(*UNPRES PL*) = 1**		
1537084	49MW05				

VOA HCL	1		/		GAS,VOC
VOA HCL	1		/		GAS,VOC
VOA HCL	1		/		GAS,VOC
VOA HCL	1		/		GAS,VOC
VOA HCL	1		/		GAS,VOC

Total # of Containers of Type (*VOA HCL*) = 5

1537084 49MW05

H2SO4 PL	1	Y	/	N	TOC

Total # of Containers of Type (*H2SO4 PL*) = 1

Condition Code *Condition Description*

1 Sample Received OK

Rev. 02/2017

CHAIN OF CUSTODY

Page 1 of 1

Company: Cape Environmental
Project Contact: Matt Feits
Telephone: (724) 622-3625
Project Name: Radford AAP SWMU 48/49
Project #:
Location: Radford, VA
Sampled By: Y. Miyakawa, P. Taylor

CT LA

1230 Lange Court, Baraboo, WI 53913
608-356-2760 Fax 608-356-2766
www.ctlaboratories.com

Folder #: 191577
Company: CAPE ENVIRONMENTAL MA
Project: RADFORD AAP SWMU 48/49
Logged By: erc PM: BMS

Report To: chemistry SVCS @ Cape-inc.com
EMAIL: mfeits@Cape-inc.com
Company: CAPE Environmental Mgt.
Address: 500 Pinnacle Court
Invoice To:* Norcross, GA #100 30071
EMAIL:
Company: Same
Address:

RCRA SDWA NPDES
Waste Other

*Party listed is responsible for payment of invoice as per CT Laboratories' terms and conditions

Client Special Instructions

Matrix:
GW – groundwater SW - surface water WW - wastewater DW - drinking water
S - soil/sediment SL - sludge A - air M - misc/waste

Turnaround Time
Normal RUSH*
Date Needed: _____
Rush analysis requires prior CT Laboratories' approval
Surcharges:
24 hr 200%
2-3 days 100%
4-9 days 50%

2024 Collection Date	Time	Matrix	Grab/ Comp	Sample #	Sample ID Description	Filtered? Y/N	ANALYSES REQUESTED: VOC 8260C	MEE RSK-175	TOC 9060A	Anions 9056A	Total # Containers	Designated MS/MSD	CT Lab ID # (Lab use only)
							Fill in Spaces with Bottles per Test						
12/9	0000	GW	G		TB-1	N	2				2		1537077
12/9	0940	GW	G		13MW5	N	3	2	1	1	7		78
12/9	1115	GW	G		13MW4	N	9	6	3	3	21	X	79
12/9	1315	GW	G		13MW3	N	3	2	1	1	7		80
12/9	1315	GW	G		13TW3	N	3	2	1	1	7		81
12/9	1425	GW	G		49MW04	N	3	2	1	1	7		82
12/9	1515	GW	G		13MW2	N	3	2	1	1	7		83
12/9	1610	GW	G		49MW05	N	3	2	1	1	7		84

Trip Blank

Relinquished By:	Date/Time	Received By:	Date/Time
	12/9/2024 1800	Fedex	12/9/2024 1800
Received by:	Date/Time	Received for Laboratory by:	Date/Time
			12/10/24 1155

191577 - Page 52 of 56

Lab Use Only
Ice Present Yes No
Temp 27 IR Gun 33
Cooler # XXX



After printing this label:
CONSIGNEE COPY - PLEASE PLACE IN FRONT OF POUCH
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2. Place label in shipping pouch and affix it to your shipment.

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Ice Present Yes No
Temperature 2.1
Initials
Date 12/11/24 Time 11:55
Cooler #

Szymanski, Brett M

From: Alexis Johnson <ajohnson@cape-inc.com>
Sent: 12/11/2024 12:10
To: Szymanski, Brett M; Nisreen Saikaly
Subject: RE: Radford Army Ammunition Plant - SWMU 49 and 54 Sampling Event - 12/10/24

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Hi Brett,

Yes please go ahead with the nitrate analysis. I'm told this has been a common issue with this site and we'll document in our annual report.

Thanks,

Alexis I. Johnson, P.E.
Senior Project Engineer
Cape Environmental Management Inc
609-658-0914
ajohnson@cape-inc.com



OUTSTANDING PEOPLE WORKING TOGETHER TO DELIVER OUTSTANDING RESULTS

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From: Szymanski, Brett M <BSzymanski@ctlaboratories.com>
Sent: Wednesday, December 11, 2024 12:55 PM
To: Nisreen Saikaly <nsaikaly@cape-inc.com>
Cc: Alexis Johnson <ajohnson@cape-inc.com>
Subject: RE: Radford Army Ammunition Plant - SWMU 49 and 54 Sampling Event - 12/10/24

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Hello Nisreen,

Yes, we will log the IDW sample under a separate Folder/SDG.

On another note, there was a FedEx shipping delay on the SWMU 49 samples that were collected on Monday. I'm assuming that we can go ahead and proceed with the Nitrate analysis on these as long as it is performed within 2X the hold time, correct? Looking at the COC, samples 13MW5 and 13MW4 arrived past the 48-hour hold time.

Thanks!

Brett Szymanski
Lab Director/Project Manager
CT Laboratories LLC
a woman-owned small business
1230 Lange Court
Baraboo, WI 53913
608-356-2760 office
608-356-2766 fax
www.ctlaboratories.com

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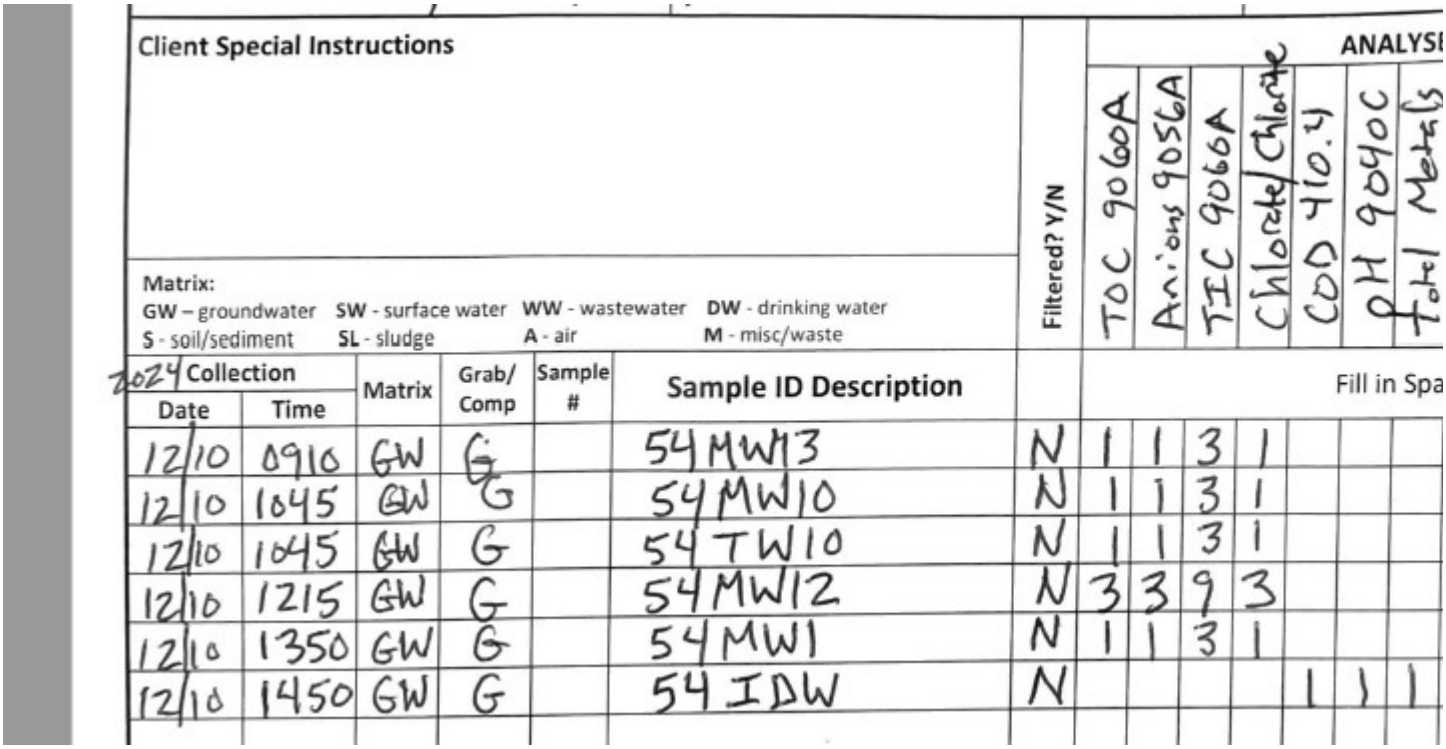
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From: Nisreen Saikaly <nsaikaly@cape-inc.com>
Sent: 12/11/2024 11:28 AM
To: Szymanski, Brett M <BSzymanski@ctlaboratories.com>
Cc: Alexis Johnson <ajohnson@cape-inc.com>
Subject: Radford Army Ammunition Plant - SWMU 49 and 54 Sampling Event - 12/10/24

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Brett,

You should be receiving samples today for Radford Army Ammunition Plant - SWMU 49 and 54. There is one IDW sample listed on the COC that needs to be in a report by itself please. Can you please make sure the lab does this for us?



Client Special Instructions						Filtered? Y/N	TOC 9060A	Anions 9056A	TIC 9066A	Chloride/Chlorate	COD 410.4	pH 9040C	Total Metals
Matrix: GW – groundwater SW - surface water WW - wastewater DW - drinking water; S - soil/sediment SL - sludge A - air M - misc/waste													
2024 Collection Date	Time	Matrix	Grab/ Comp	Sample #	Sample ID Description		Fill in Spa						
12/10	0910	GW	G		54MW13	N	1	1	3	1			
12/10	1045	GW	G		54MW10	N	1	1	3	1			
12/10	1045	GW	G		54TW10	N	1	1	3	1			
12/10	1215	GW	G		54MW12	N	3	3	9	3			
12/10	1350	GW	G		54MW1	N	1	1	3	1			
12/10	1450	GW	G		54IDW	N					1	1	1

Thanks,

Nisreen Saikaly, PMP, ASQ CQA
Project Chemist II
Cape Environmental Management Inc
(803) 553-9844
Columbia, SC

CAPE

OUTSTANDING PEOPLE WORKING TOGETHER TO DELIVER OUTSTANDING RESULTS

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ANALYTICAL SUMMARY REPORT

This report at a minimum contains the following information:

Analytical Report of Test Results
Description of QC Qualifiers
Chain of Custody (copy)
Quality Control Summary (if applicable)
Case Narrative (if applicable)
Correspondence with Client (if applicable)

This report has been specifically prepared to satisfy project or program requirements. These results are in compliance with NELAC requirements for parameters where accreditation is required or available, unless otherwise noted in the case narrative.

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

ANALYTICAL SAMPLE DATA

CAPE ENVIRONMENTAL MANAGEMENT
MATT FEITS
500 PINNACLE COURT
SUITE 100
NORCROSS, GA 30071

Project Name: RADFORD AAP SWMU 49
Project Phase: RADFORD, VA
Project #: 10409-0222
Folder #: 191647
Purchase Order #: SC013781
Contract #: 3648

Arrival Temperature: 2.7
Report Date: 1/9/2025
Date Received: 12/12/2024
Reprint Date: 1/9/2025

Copy: chemistrysvcs@cape-inc.com

CT LAB#: 1537549 Sample Description: TB-2 Client Sample #: Sampled: 12/11/2024 00:00

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Organic Results													
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			12/21/24 13:57	DGS	EPA 8260C
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			12/21/24 13:57	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/21/24 13:57	DGS	EPA 8260C
1,1-Dichloroethane	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/21/24 13:57	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/21/24 13:57	DGS	EPA 8260C
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			12/21/24 13:57	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 13:57	DGS	EPA 8260C
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 13:57	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 13:57	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/21/24 13:57	DGS	EPA 8260C
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			12/21/24 13:57	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 13:57	DGS	EPA 8260C
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			12/21/24 13:57	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 13:57	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			12/21/24 13:57	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U			12/21/24 13:57	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1537549 Sample Description: TB-2 Client Sample #: Sampled: 12/11/2024 00:00

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			12/21/24 13:57	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			12/21/24 13:57	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			12/21/24 13:57	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			12/21/24 13:57	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			12/21/24 13:57	DGS	EPA 8260C
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			12/21/24 13:57	DGS	EPA 8260C
Bromodichloromethane	<0.25	ug/L	0.080	0.25	0.50	0.50	1.00	U			12/21/24 13:57	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 13:57	DGS	EPA 8260C
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/21/24 13:57	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			12/21/24 13:57	DGS	EPA 8260C
Carbon tetrachloride	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			12/21/24 13:57	DGS	EPA 8260C
Chlorobenzene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 13:57	DGS	EPA 8260C
Chloroethane	<2.0	ug/L	1.0	2.0	3.0	3.0	1.00	U			12/21/24 13:57	DGS	EPA 8260C
Chloroform	<1.0	ug/L	0.30	1.0	1.4	1.4	1.00	U			12/21/24 13:57	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			12/21/24 13:57	DGS	EPA 8260C
cis-1,2-Dichloroethene	<1.0	ug/L	0.41	1.0	1.3	1.3	1.00	U			12/21/24 13:57	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/21/24 13:57	DGS	EPA 8260C
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U			12/21/24 13:57	DGS	EPA 8260C
Dibromochloromethane	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/21/24 13:57	DGS	EPA 8260C
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			12/21/24 13:57	DGS	EPA 8260C
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			12/21/24 13:57	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			12/21/24 13:57	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			12/21/24 13:57	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			12/21/24 13:57	DGS	EPA 8260C
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/21/24 13:57	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			12/21/24 13:57	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U			12/21/24 13:57	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.50	2.0	2.2	2.2	1.00	U			12/21/24 13:57	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1537549 Sample Description: TB-2 Client Sample #: Sampled: 12/11/2024 00:00

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 13:57	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.25	1.0	2.0	2.0	1.00	U			12/21/24 13:57	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/21/24 13:57	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/21/24 13:57	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			12/21/24 13:57	DGS	EPA 8260C
Trichloroethene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 13:57	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U			12/21/24 13:57	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			12/21/24 13:57	DGS	EPA 8260C
1,2 Dichloroethane-d4	102	% Recovery	81			118	1.00				12/21/24 13:57	DGS	EPA 8260C
Bromofluorobenzene	100	% Recovery	85			114	1.00				12/21/24 13:57	DGS	EPA 8260C
d8-Toluene	100	% Recovery	89			112	1.00				12/21/24 13:57	DGS	EPA 8260C
Dibromofluoromethane	97.0	% Recovery	80			119	1.00				12/21/24 13:57	DGS	EPA 8260C

CT LAB#: 1537550 Sample Description: 48MW7 Client Sample #: Sampled: 12/11/2024 10:45

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results													
Chloride	***1.4***	mg/L	1.0	1.5	3.0	3.0	1.00	J			12/12/24 13:40	TMG	EPA 9056A
Nitrate Nitrogen	***1.2***	mg/L	0.12	0.20	0.40	0.40	1.00				12/12/24 13:40	TMG	EPA 9056A
Sulfate	***1.3***	mg/L	0.80	1.5	3.0	3.0	1.00	J			12/12/24 13:40	TMG	EPA 9056A
Total Organic Carbon	<1.5	mg/L	0.4	1.5	3.0	3.0	1.00	U			12/30/24 14:51	TMG	EPA 9060A
Organic Results													
Qualifiers applying to all Analytes of Method EPA 8260C: T													
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			12/21/24 19:10	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1537550 Sample Description: 48MW7 Client Sample #: Sampled: 12/11/2024 10:45

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Qualifiers applying to all Analytes of Method EPA 8260C: T													
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			12/21/24 19:10	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/21/24 19:10	DGS	EPA 8260C
1,1-Dichloroethane	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/21/24 19:10	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/21/24 19:10	DGS	EPA 8260C
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			12/21/24 19:10	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 19:10	DGS	EPA 8260C
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 19:10	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 19:10	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/21/24 19:10	DGS	EPA 8260C
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			12/21/24 19:10	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 19:10	DGS	EPA 8260C
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			12/21/24 19:10	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 19:10	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			12/21/24 19:10	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U			12/21/24 19:10	DGS	EPA 8260C
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			12/21/24 19:10	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			12/21/24 19:10	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			12/21/24 19:10	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			12/21/24 19:10	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			12/21/24 19:10	DGS	EPA 8260C
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			12/21/24 19:10	DGS	EPA 8260C
Bromodichloromethane	<0.25	ug/L	0.080	0.25	0.50	0.50	1.00	U			12/21/24 19:10	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 19:10	DGS	EPA 8260C
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/21/24 19:10	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			12/21/24 19:10	DGS	EPA 8260C
Carbon tetrachloride	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			12/21/24 19:10	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1537550 Sample Description: 48MW7 Client Sample #: Sampled: 12/11/2024 10:45

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Qualifiers applying to all Analytes of Method EPA 8260C: T													
Chlorobenzene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 19:10	DGS	EPA 8260C
Chloroethane	<2.0	ug/L	1.0	2.0	3.0	3.0	1.00	U			12/21/24 19:10	DGS	EPA 8260C
Chloroform	<1.0	ug/L	0.30	1.0	1.4	1.4	1.00	U			12/21/24 19:10	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			12/21/24 19:10	DGS	EPA 8260C
cis-1,2-Dichloroethene	<1.0	ug/L	0.41	1.0	1.3	1.3	1.00	U			12/21/24 19:10	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/21/24 19:10	DGS	EPA 8260C
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U			12/21/24 19:10	DGS	EPA 8260C
Dibromochloromethane	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/21/24 19:10	DGS	EPA 8260C
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			12/21/24 19:10	DGS	EPA 8260C
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			12/21/24 19:10	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			12/21/24 19:10	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			12/21/24 19:10	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			12/21/24 19:10	DGS	EPA 8260C
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/21/24 19:10	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			12/21/24 19:10	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U			12/21/24 19:10	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.50	2.0	2.2	2.2	1.00	U			12/21/24 19:10	DGS	EPA 8260C
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 19:10	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.25	1.0	2.0	2.0	1.00	U			12/21/24 19:10	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/21/24 19:10	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/21/24 19:10	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			12/21/24 19:10	DGS	EPA 8260C
Trichloroethene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 19:10	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U			12/21/24 19:10	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			12/21/24 19:10	DGS	EPA 8260C
1,2 Dichloroethane-d4	102	% Recovery	81			118	1.00				12/21/24 19:10	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1537550 Sample Description: 48MW7 Client Sample #: Sampled: 12/11/2024 10:45

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Qualifiers applying to all Analytes of Method EPA 8260C: T													
Bromofluorobenzene	102	% Recovery	85			114	1.00				12/21/24 19:10	DGS	EPA 8260C
d8-Toluene	100	% Recovery	89			112	1.00				12/21/24 19:10	DGS	EPA 8260C
Dibromofluoromethane	98.0	% Recovery	80			119	1.00				12/21/24 19:10	DGS	EPA 8260C
Ethane	***0.41***	ug/L	0.38	0.80	1.0	1.0	1.00	J Y,T		12/20/24 08:19	12/20/24 09:17	SRW	RSK 175
Ethene	<1.2	ug/L	0.59	1.2	1.4	1.4	1.00	U Y,T		12/20/24 08:19	12/20/24 09:17	SRW	RSK 175
Methane	***0.73***	ug/L	0.45	0.90	1.0	1.0	1.00	J T		12/20/24 08:19	12/20/24 09:17	SRW	RSK 175

CT LAB#: 1537551 Sample Description: 48MW7-EQB Client Sample #: Sampled: 12/11/2024 11:05

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results													
Chloride	<1.5	mg/L	1.0	1.5	3.0	3.0	1.00	U			12/12/24 14:13	TMG	EPA 9056A
Nitrate Nitrogen	<0.20	mg/L	0.12	0.20	0.40	0.40	1.00	U			12/12/24 14:13	TMG	EPA 9056A
Sulfate	<1.5	mg/L	0.80	1.5	3.0	3.0	1.00	U			12/12/24 14:13	TMG	EPA 9056A
Total Organic Carbon	<1.5	mg/L	0.4	1.5	3.0	3.0	1.00	U			12/30/24 15:06	TMG	EPA 9060A
Organic Results													
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			12/21/24 14:54	DGS	EPA 8260C
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			12/21/24 14:54	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/21/24 14:54	DGS	EPA 8260C
1,1-Dichloroethane	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/21/24 14:54	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/21/24 14:54	DGS	EPA 8260C
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			12/21/24 14:54	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 14:54	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1537551 Sample Description: 48MW7-EQB Client Sample #: Sampled: 12/11/2024 11:05

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 14:54	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 14:54	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/21/24 14:54	DGS	EPA 8260C
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			12/21/24 14:54	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 14:54	DGS	EPA 8260C
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			12/21/24 14:54	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 14:54	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			12/21/24 14:54	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U			12/21/24 14:54	DGS	EPA 8260C
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			12/21/24 14:54	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			12/21/24 14:54	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			12/21/24 14:54	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			12/21/24 14:54	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			12/21/24 14:54	DGS	EPA 8260C
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			12/21/24 14:54	DGS	EPA 8260C
Bromodichloromethane	<0.25	ug/L	0.080	0.25	0.50	0.50	1.00	U			12/21/24 14:54	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 14:54	DGS	EPA 8260C
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/21/24 14:54	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			12/21/24 14:54	DGS	EPA 8260C
Carbon tetrachloride	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			12/21/24 14:54	DGS	EPA 8260C
Chlorobenzene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 14:54	DGS	EPA 8260C
Chloroethane	<2.0	ug/L	1.0	2.0	3.0	3.0	1.00	U			12/21/24 14:54	DGS	EPA 8260C
Chloroform	***0.53***	ug/L	0.30	1.0	1.4	1.4	1.00	J			12/21/24 14:54	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			12/21/24 14:54	DGS	EPA 8260C
cis-1,2-Dichloroethene	<1.0	ug/L	0.41	1.0	1.3	1.3	1.00	U			12/21/24 14:54	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/21/24 14:54	DGS	EPA 8260C
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U			12/21/24 14:54	DGS	EPA 8260C
Dibromochloromethane	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/21/24 14:54	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1537551 Sample Description: 48MW7-EQB Client Sample #: Sampled: 12/11/2024 11:05

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			12/21/24 14:54	DGS	EPA 8260C
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			12/21/24 14:54	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			12/21/24 14:54	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			12/21/24 14:54	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			12/21/24 14:54	DGS	EPA 8260C
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/21/24 14:54	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			12/21/24 14:54	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U			12/21/24 14:54	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.50	2.0	2.2	2.2	1.00	U			12/21/24 14:54	DGS	EPA 8260C
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 14:54	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.25	1.0	2.0	2.0	1.00	U			12/21/24 14:54	DGS	EPA 8260C
Toluene	***0.39***	ug/L	0.27	1.0	1.1	1.1	1.00	J			12/21/24 14:54	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/21/24 14:54	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			12/21/24 14:54	DGS	EPA 8260C
Trichloroethene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 14:54	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U			12/21/24 14:54	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			12/21/24 14:54	DGS	EPA 8260C
1,2 Dichloroethane-d4	100	% Recovery	81			118	1.00				12/21/24 14:54	DGS	EPA 8260C
Bromofluorobenzene	113	% Recovery	85			114	1.00				12/21/24 14:54	DGS	EPA 8260C
d8-Toluene	101	% Recovery	89			112	1.00				12/21/24 14:54	DGS	EPA 8260C
Dibromofluoromethane	98.0	% Recovery	80			119	1.00				12/21/24 14:54	DGS	EPA 8260C
Ethane	<0.80	ug/L	0.38	0.80	1.0	1.0	1.00	U Y		12/20/24 08:19	12/20/24 09:24	SRW	RSK 175
Ethene	<1.2	ug/L	0.59	1.2	1.4	1.4	1.00	U Y		12/20/24 08:19	12/20/24 09:24	SRW	RSK 175
Methane	<0.90	ug/L	0.45	0.90	1.0	1.0	1.00	U		12/20/24 08:19	12/20/24 09:24	SRW	RSK 175

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1537552 Sample Description: 48MW6 Client Sample #: Sampled: 12/11/2024 14:15

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results													
Chloride	***13***	mg/L	1.0	1.5	3.0	3.0	1.00	M			12/12/24 15:51	TMG	EPA 9056A
Nitrate Nitrogen	***2.3***	mg/L	0.12	0.20	0.40	0.40	1.00				12/12/24 15:51	TMG	EPA 9056A
Sulfate	***100***	mg/L	4.0	7.5	15	15	5.00	M			12/14/24 01:00	TMG	EPA 9056A
Total Organic Carbon	***1.5***	mg/L	0.4	1.5	3.0	3.0	1.00	J			12/30/24 15:28	TMG	EPA 9060A
Organic Results													
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			12/21/24 19:39	DGS	EPA 8260C
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			12/21/24 19:39	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/21/24 19:39	DGS	EPA 8260C
1,1-Dichloroethane	***1.3***	ug/L	0.28	1.0	1.1	1.1	1.00				12/21/24 19:39	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/21/24 19:39	DGS	EPA 8260C
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			12/21/24 19:39	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 19:39	DGS	EPA 8260C
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 19:39	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 19:39	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/21/24 19:39	DGS	EPA 8260C
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			12/21/24 19:39	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 19:39	DGS	EPA 8260C
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			12/21/24 19:39	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 19:39	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			12/21/24 19:39	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U			12/21/24 19:39	DGS	EPA 8260C
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			12/21/24 19:39	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			12/21/24 19:39	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			12/21/24 19:39	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			12/21/24 19:39	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			12/21/24 19:39	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1537552 Sample Description: 48MW6 Client Sample #: Sampled: 12/11/2024 14:15

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			12/21/24 19:39	DGS	EPA 8260C
Bromodichloromethane	<0.25	ug/L	0.080	0.25	0.50	0.50	1.00	U			12/21/24 19:39	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 19:39	DGS	EPA 8260C
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/21/24 19:39	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			12/21/24 19:39	DGS	EPA 8260C
Carbon tetrachloride	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			12/21/24 19:39	DGS	EPA 8260C
Chlorobenzene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 19:39	DGS	EPA 8260C
Chloroethane	<2.0	ug/L	1.0	2.0	3.0	3.0	1.00	U			12/21/24 19:39	DGS	EPA 8260C
Chloroform	<1.0	ug/L	0.30	1.0	1.4	1.4	1.00	U			12/21/24 19:39	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			12/21/24 19:39	DGS	EPA 8260C
cis-1,2-Dichloroethene	***3.3***	ug/L	0.41	1.0	1.3	1.3	1.00				12/21/24 19:39	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/21/24 19:39	DGS	EPA 8260C
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U			12/21/24 19:39	DGS	EPA 8260C
Dibromochloromethane	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/21/24 19:39	DGS	EPA 8260C
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			12/21/24 19:39	DGS	EPA 8260C
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			12/21/24 19:39	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			12/21/24 19:39	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			12/21/24 19:39	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			12/21/24 19:39	DGS	EPA 8260C
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/21/24 19:39	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			12/21/24 19:39	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U			12/21/24 19:39	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.50	2.0	2.2	2.2	1.00	U			12/21/24 19:39	DGS	EPA 8260C
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 19:39	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.25	1.0	2.0	2.0	1.00	U			12/21/24 19:39	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/21/24 19:39	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/21/24 19:39	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			12/21/24 19:39	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1537552 Sample Description: 48MW6 Client Sample #: Sampled: 12/11/2024 14:15

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Trichloroethene	***1.4***	ug/L	0.25	1.0	1.2	1.2	1.00				12/21/24 19:39	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U			12/21/24 19:39	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			12/21/24 19:39	DGS	EPA 8260C
1,2 Dichloroethane-d4	99.0	% Recovery	81			118	1.00				12/21/24 19:39	DGS	EPA 8260C
Bromofluorobenzene	101	% Recovery	85			114	1.00				12/21/24 19:39	DGS	EPA 8260C
d8-Toluene	100	% Recovery	89			112	1.00				12/21/24 19:39	DGS	EPA 8260C
Dibromofluoromethane	97.0	% Recovery	80			119	1.00				12/21/24 19:39	DGS	EPA 8260C
Ethane	<0.80	ug/L	0.38	0.80	1.0	1.0	1.00	U Y		12/20/24 08:19	12/20/24 09:28	SRW	RSK 175
Ethene	<1.2	ug/L	0.59	1.2	1.4	1.4	1.00	U Y		12/20/24 08:19	12/20/24 09:28	SRW	RSK 175
Methane	<0.90	ug/L	0.45	0.90	1.0	1.0	1.00	U		12/20/24 08:19	12/20/24 09:28	SRW	RSK 175

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

Notes:

^ Indicates the laboratory is NELAP accredited for this analyte by the indicated matrix and method . DL (detection limit), LOD (limit of detection), loq (limit of quantitation) as defined by most recent DOD QSM version.

All samples were received intact and properly preserved unless otherwise noted . The results reported relate only to the samples tested. This report shall not be reproduced, except in full, without written approval of this laboratory. The Chain of Custody is attached.

This report has been specifically prepared to satisfy project or program requirements. These results are in compliance with NELAC requirements for the parameters where accreditation is required or available, unless noted in the case narrative.

Submitted by: Brett M. Szymanski
Project Manager
608-356-2760

QC Qualifiers

Code	Description
B	Analyte detected in the associated Method Blank.
C	Toxicity present in BOD sample.
D	Diluted Out.
E	Safe, No Total Coliform detected.
F	Unsafe, Total Coliform detected, no E. Coli detected.
G	Unsafe, Total Coliform detected and E. Coli detected.
H	Holding time exceeded.
I	Incubator temperature was outside acceptance limits during test period.
J	Estimated value.
L	Significant peaks were detected outside the chromatographic window.
M	Matrix spike and/or Matrix Spike Duplicate recovery outside acceptance limits.
N	Insufficient BOD oxygen depletion.
O	Complete BOD oxygen depletion.
P	Concentration of analyte differs more than 40% between primary and confirmation analysis.
Q	Laboratory Control Sample outside acceptance limits.
R	See Narrative at end of report.
S	Surrogate standard recovery outside acceptance limits due to apparent matrix effects.
T	Sample received with improper preservation or temperature.
U	Analyte concentration was below detection limit.
V	Raised Quantitation or Reporting Limit due to limited sample amount or dilution for matrix background interference.
W	Sample amount received was below program minimum.
X	Analyte exceeded calibration range.
Y	Replicate/Duplicate precision outside acceptance limits.
Z	Specified calibration criteria was not met.

Current CT Laboratories Certifications

Wisconsin (WDNR) Chemistry ID# 157066030
Wisconsin (DATCP) Bacteriology ID# 289
Louisiana NELAP (primary) ID# 115843
Illinois NELAP Lab ID# 200073
Kansas NELAP Lab ID# E-10368
Virginia NELAP Lab ID# 460203
ISO/IEC 17025-2005 PJLA Cert # L24-913
DoD-ELAP PJLA L24-913
Florida NELAP Lab ID# E871111

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QC Summary Report

CAPE ENVIRONMENTAL MANAGEMENT **Project Name: RADFORD AAP SWMU 49**

SDG #: 0 **Folder #: 191647** **Project #: 10409-0222**

Duplicate

Analytical Run #:	288079	Analysis Date:	12/12/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1539145	Analysis Time:	16:23	Prep Date/Time:		Method:	SW9056A
Parent Sample #:	1537552	Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Chloride	12.9	mg/L	13				3.0	1	10
Nitrate Nitrogen	2.26	mg/L	2.3				0.40	2	10
Sulfate	97.8	mg/L	100				3.0	2	10

Lab Control Spike Water

Analytical Run #:	288079	Analysis Date:	12/12/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1539141	Analysis Time:	08:13	Prep Date/Time:		Method:	SW9056A
Parent Sample #:		Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits			RPD	RPD Limit
Chloride	14.97	mg/L			15.00	100	87	---	111		
Nitrate Nitrogen	3.831	mg/L			3.500	109	88	---	111		
Sulfate	27.51	mg/L			25.00	110	87	---	112		

Method Blank Water

Analytical Run #:	288079	Analysis Date:	12/12/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1539142	Analysis Time:	08:46	Prep Date/Time:		Method:	SW9056A
Parent Sample #:		Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Chloride	1.0	mg/L		U	0		1.5		
Nitrate Nitrogen	0.12	mg/L		U	0		0.20		
Sulfate	0.8	mg/L		U	0		1.5		

Matrix Spike Duplicate Water

Analytical Run #:	288079	Analysis Date:	12/12/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1539147	Analysis Time:	17:29	Prep Date/Time:		Method:	SW9056A
Parent Sample #:	1539146	Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits			RPD	RPD Limit
Chloride	19.6	mg/L	13		8.00	82	87	---	111	1	15
Nitrate Nitrogen	4.39	mg/L	2.3		2.00	104	88	---	111	1	15
Sulfate	134	mg/L	100		40.0	85	87	---	112	5	15

Matrix Spike Water

Analytical Run #:	288079	Analysis Date:	12/12/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1539146	Analysis Time:	16:56	Prep Date/Time:		Method:	SW9056A
Parent Sample #:	1537552	Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits			RPD	RPD Limit
Chloride	19.8	mg/L	13		8.00	85	87	---	111		15
Nitrate Nitrogen	4.42	mg/L	2.3		2.00	106	88	---	111		15
Sulfate	128	mg/L	100		40.0	70	87	---	112		15

Lab Control Spike Water

Analytical Run #:	288413	Analysis Date:	12/30/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1542974	Analysis Time:	20:28	Prep Date/Time:		Method:	SW9060
Parent Sample #:		Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Organic Carbon	48.35	mg/L			50.0	97	85 --- 111		20

Method Blank Water

Analytical Run #:	288413	Analysis Date:	12/30/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1542975	Analysis Time:	20:45	Prep Date/Time:		Method:	SW9060
Parent Sample #:		Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Organic Carbon	0.40	mg/L		U	0		1.5		

Lab Control Spike Water

Analytical Run #:	288213	Analysis Date:	12/21/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1541145	Analysis Time:	11:35	Prep Date/Time:		Method:	SW8260C
Parent Sample #:		Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits			RPD	RPD Limit
1,1,1-Trichloroethane	10.1	ug/L			10.0	101	74	---	131		20
1,1,2,2-Tetrachloroethane	9.63	ug/L			10.0	96	71	---	121		20
1,1,2-Trichloroethane	9.67	ug/L			10.0	97	80	---	119		20
1,1-Dichloroethane	9.54	ug/L			10.0	95	77	---	125		20
1,1-Dichloroethene	9.30	ug/L			10.0	93	71	---	131		20
1,2,3-Trichlorobenzene	9.68	ug/L			10.0	97	69	---	129		20
1,2,4-Trichlorobenzene	8.07	ug/L			10.0	81	69	---	130		20
1,2-Dibromo-3-chloropropane	9.24	ug/L			10.0	92	62	---	128		20
1,2-Dibromoethane	9.72	ug/L			10.0	97	77	---	121		20
1,2-Dichlorobenzene	9.79	ug/L			10.0	98	80	---	119		20
1,2-Dichloroethane	9.17	ug/L			10.0	92	73	---	128		20
1,2-Dichloropropane	9.78	ug/L			10.0	98	78	---	122		20
1,3-Dichlorobenzene	9.76	ug/L			10.0	98	80	---	119		20
1,4-Dichlorobenzene	9.72	ug/L			10.0	97	79	---	118		20
1,4-Dioxane	489	ug/L			500	98	59	---	139		20
112Trichloro122trifluoroethane	19.5	ug/L			20.0	98	70	---	136		20
2-Butanone	107	ug/L			100	107	56	---	143		20
2-Hexanone	103	ug/L			100	103	57	---	139		20
4-Methyl-2-pentanone	103	ug/L			100	103	67	---	130		20
Acetone	104	ug/L			100	104	39	---	160		20
Benzene	9.42	ug/L			10.0	94	79	---	120		20
Bromochloromethane	9.57	ug/L			10.0	96	78	---	123		20
Bromodichloromethane	9.77	ug/L			10.0	98	79	---	125		20
Bromoform	9.37	ug/L			10.0	94	66	---	130		20
Bromomethane	9.20	ug/L			10.0	92	53	---	141		20
Carbon disulfide	20.7	ug/L			20.0	104	64	---	133		20
Carbon tetrachloride	10.2	ug/L			10.0	102	72	---	136		20
Chlorobenzene	9.70	ug/L			10.0	97	82	---	118		20
Chloroethane	9.77	ug/L			10.0	98	60	---	138		20
Chloroform	9.52	ug/L			10.0	95	79	---	124		20
Chloromethane	9.19	ug/L			10.0	92	50	---	139		20
cis-1,2-Dichloroethene	9.63	ug/L			10.0	96	78	---	123		20
cis-1,3-Dichloropropene	10.0	ug/L			10.0	100	75	---	124		20
Cyclohexane	11.4	ug/L			10.0	114	71	---	130		20
Dibromochloromethane	9.59	ug/L			10.0	96	74	---	126		20
Dichlorodifluoromethane	10.8	ug/L			10.0	108	32	---	152		20
Ethylbenzene	10.2	ug/L			10.0	102	79	---	121		20
Isopropylbenzene	9.95	ug/L			10.0	100	72	---	131		20
m & p-Xylene	20.3	ug/L			20.0	102	80	---	121		20
Methyl acetate	9.69	ug/L			10.0	97	56	---	136		20
Methyl tert-butyl ether	9.37	ug/L			10.0	94	71	---	124		20
Methylcyclohexane	11.2	ug/L			10.0	112	72	---	132		20

Lab Control Spike Water

Analytical Run #:	288213	Analysis Date:	12/21/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1541145	Analysis Time:	11:35	Prep Date/Time:		Method:	SW8260C
Parent Sample #:		Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Methylene chloride	9.42	ug/L			10.0	94	74 --- 124		20
o-Xylene	9.77	ug/L			10.0	98	78 --- 122		20
Styrene	9.89	ug/L			10.0	99	78 --- 123		20
Tetrachloroethene	9.99	ug/L			10.0	100	74 --- 129		20
Toluene	9.96	ug/L			10.0	100	80 --- 121		20
trans-1,2-Dichloroethene	9.56	ug/L			10.0	96	75 --- 124		20
trans-1,3-Dichloropropene	10.1	ug/L			10.0	101	73 --- 127		20
Trichloroethene	9.86	ug/L			10.0	99	79 --- 123		20
Trichlorofluoromethane	8.98	ug/L			10.0	90	65 --- 141		20
Vinyl chloride	9.91	ug/L			10.0	99	58 --- 137		20

Method Blank Water

Analytical Run #:	288213	Analysis Date:	12/21/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1541194	Analysis Time:	13:00	Prep Date/Time:		Method:	SW8260C
Parent Sample #:		Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
1,1,1-Trichloroethane	0.38	ug/L		U	0		0.60		
1,1,2,2-Tetrachloroethane	0.36	ug/L		U	0		0.55		
1,1,2-Trichloroethane	0.27	ug/L		U	0		0.55		
1,1-Dichloroethane	0.28	ug/L		U	0		0.55		
1,1-Dichloroethene	0.49	ug/L		U	0		1.0		
1,2,3-Trichlorobenzene	0.43	ug/L		U	0		1.0		
1,2,4-Trichlorobenzene	0.50	ug/L		U	0		1.0		
1,2-Dibromo-3-chloropropane	0.50	ug/L		U	0		1.0		
1,2-Dibromoethane	0.33	ug/L		U	0		0.55		
1,2-Dichlorobenzene	0.35	ug/L		U	0		0.55		
1,2-Dichloroethane	0.69	ug/L		U	0		1.05		
1,2-Dichloropropane	0.25	ug/L		U	0		0.60		
1,3-Dichlorobenzene	0.30	ug/L		U	0		0.55		
1,4-Dichlorobenzene	0.33	ug/L		U	0		0.55		
1,4-Dioxane	34	ug/L		U	0		50		
112Trichloro122trifluoroethane	1.5	ug/L		U	0		2.25		
2-Butanone	2.9	ug/L		U	0		5.5		
2-Hexanone	3.3	ug/L		U	0		5.5		
4-Methyl-2-pentanone	3.7	ug/L		U	0		6.0		
Acetone	4.1	ug/L		U	0		10		
Benzene	0.40	ug/L		U	0		1.0		
Bromochloromethane	0.26	ug/L		U	0		0.55		
Bromodichloromethane	0.080	ug/L		U	0		0.25		
Bromoform	0.50	ug/L		U	0		1.0		
Bromomethane	0.49	ug/L		U	0		1.0		
Carbon disulfide	0.83	ug/L		U	0		2.0		
Carbon tetrachloride	0.37	ug/L		U	0		0.60		
Chlorobenzene	0.25	ug/L		U	0		0.60		
Chloroethane	1.0	ug/L		U	0		1.5		
Chloroform	0.30	ug/L		U	0		0.70		
Chloromethane	0.39	ug/L		U	0		1.0		
cis-1,2-Dichloroethene	0.41	ug/L		U	0		0.65		
cis-1,3-Dichloropropene	0.25	ug/L		U	0		0.55		
Cyclohexane	0.71	ug/L		U	0		1.1		
Dibromochloromethane	0.25	ug/L		U	0		0.55		
Dichlorodifluoromethane	0.63	ug/L		U	0		1.05		
Ethylbenzene	0.42	ug/L		U	0		0.65		
Isopropylbenzene	0.39	ug/L		U	0		0.60		
m & p-Xylene	0.74	ug/L		U	0		1.15		
Methyl acetate	0.34	ug/L		U	0		1.0		
Methyl tert-butyl ether	0.28	ug/L		U	0		0.55		
Methylcyclohexane	0.78	ug/L		U	0		1.2		

Method Blank Water

Analytical Run #:	288213	Analysis Date:	12/21/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1541194	Analysis Time:	13:00	Prep Date/Time:		Method:	SW8260C
Parent Sample #:		Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Methylene chloride	1.2	ug/L		U	0		2.05		
o-Xylene	0.50	ug/L		U	0		1.1		
Styrene	0.33	ug/L		U	0		0.55		
Tetrachloroethene	0.25	ug/L		U	0		1.0		
Toluene	0.27	ug/L		U	0		0.55		
trans-1,2-Dichloroethene	0.35	ug/L		U	0		0.55		
trans-1,3-Dichloropropene	0.56	ug/L		U	0		1.05		
Trichloroethene	0.25	ug/L		U	0		0.60		
Trichlorofluoromethane	0.41	ug/L		U	0		1.0		
Vinyl chloride	0.12	ug/L		U	0		0.25		

Duplicate

Analytical Run #:	288301	Analysis Date:	12/20/2024	Prep Batch #:	137162	Matrix:	GROUND WATER
CTLab #:	1540847	Analysis Time:	09:21	Prep Date/Time:	12/20/2024 08:19	Method:	RSK175
Parent Sample #:	1537550	Analyst:	SRW	Prep Analyst:	SRW		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Ethane	0.476	ug/L	0.41				1.0	15	20
Ethene	0.59	ug/L	<DL	U			1.4	0	20
Methane	0.460	ug/L	0.73				1.0	45	20

Lab Control Spike Duplicate Water

Analytical Run #:	288301	Analysis Date:	12/20/2024	Prep Batch #:	137162	Matrix:	LIQUID
CTLab #:	1540803	Analysis Time:	09:13	Prep Date/Time:	12/20/2024 08:19	Method:	RSK175
Parent Sample #:	1540802	Analyst:	SRW	Prep Analyst:	SRW		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Ethane	4.52	ug/L	5.76		4.79	94	74 --- 131	24	20
Ethene	6.32	ug/L	8.06		6.80	93	72 --- 133	24	20
Methane	2.25	ug/L	2.57		2.30	98	73 --- 125	13	20

Lab Control Spike Water

Analytical Run #:	288301	Analysis Date:	12/20/2024	Prep Batch #:	137162	Matrix:	LIQUID
CTLab #:	1540802	Analysis Time:	08:55	Prep Date/Time:	12/20/2024 08:19	Method:	RSK175
Parent Sample #:		Analyst:	SRW	Prep Analyst:	SRW		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Ethane	5.76	ug/L			4.79	120	74 --- 131		20
Ethene	8.06	ug/L			6.80	119	72 --- 133		20
Methane	2.57	ug/L			2.30	112	73 --- 125		20

Method Blank Water

Analytical Run #:	288301	Analysis Date:	12/20/2024	Prep Batch #:	137162	Matrix:	LIQUID
CTLab #:	1540801	Analysis Time:	09:10	Prep Date/Time:	12/20/2024 08:19	Method:	RSK175
Parent Sample #:		Analyst:	SRW	Prep Analyst:	SRW		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Ethane	0.38	ug/L		U	0		0.5		
Ethene	0.59	ug/L		U	0		0.7		
Methane	0.45	ug/L		U	0		0.5		

CT LABORATORIES
delivering more than data from your environmental analyses

Sample Condition Report

Folder #:	191647	Print Date / Time:	12/12/2024	11:40	
Client:	CAPE ENVIRONMENTAL MANAGEMENT	Received Date / Time / By:	12/12/2024	11:40	DJL
Project Name:	RADFORD AAP SWMU 49	Log-In Date / Time / By:	12/12/2024	11:42	erc
Project Phase:	RADFORD, VA	Project #:	10409-0222	PM:	BMS
Coolers:	6587	Temperature:	2.7 C	On Ice:	**Y**
Custody Seals Present :	**Y**	COC Present:?	**Y**	Complete?	**Y**
Seal Intact?	**Y**	Numbers:	DATED ANFD SIGNED		
Ship Method:	FEDEX EXPRESS	Tracking Number:	770448932115		
Adequate Packaging:	**Y**	Temp Blank Enclosed?	**Y**		

Notes: THE SAMPLES WERE RECEIVED IN GOOD CONDITION ON ICE.

TWO (2) CUSTODY SEALS WERE PRESENT AND INTACT ON THE COOLER UPON RECEIPT (BOTH WERE DATED 12/11/2024 AND SIGNED).

Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
1537549 TB-2				
	VOA HCL	1	/	VOC
	VOA HCL	1	/	VOC
	Total # of Containers of Type	(***VOA HCL***) = **2**		
Sample ID / Description	**Container Type**	**Cond. Code**	**pH OK?/Filtered?**	**Tests**
1537550 48MW7				
	UNPRES PL	1	/	Anions
	Total # of Containers of Type	(***UNPRES PL***) = **1**		
1537550 48MW7				
	VOA HCL	1	/	GAS,VOC
	VOA HCL	1	/	GAS,VOC
	VOA HCL	1	/	GAS,VOC
	VOA HCL	1	/	GAS,VOC
	VOA HCL	1	/	GAS,VOC
	Total # of Containers of Type	(***VOA HCL***) = **5**		
1537550 48MW7				
	H2SO4 PL	1	Y / N	TOC
	Total # of Containers of Type	(***H2SO4 PL***) = **1**		
Sample ID / Description	**Container Type**	**Cond. Code**	**pH OK?/Filtered?**	**Tests**
1537551 48MW7-EQB				
	UNPRES PL	1	/	Anions
	Total # of Containers of Type	(***UNPRES PL***) = **1**		

1537551	48MW7-EQB					
		VOA HCL	1		/	GAS,VOC
		VOA HCL	1		/	GAS,VOC
		VOA HCL	1		/	GAS,VOC
		VOA HCL	1		/	GAS,VOC
		VOA HCL	1		/	GAS,VOC
		Total # of Containers of Type	**(*VOA HCL*) = 5**			
1537551	48MW7-EQB					
		H2SO4 PL	1	Y	/ N	TOC
		Total # of Containers of Type	**(*H2SO4 PL*) = 1**			

Sample ID /	Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
1537552	48MW6				
		UNPRES PL	1	/	Anions
		Total # of Containers of Type	**(*UNPRES PL*) = 1**		
1537552	48MW6				
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		Total # of Containers of Type	**(*VOA HCL*) = 5**		
1537552	48MW6				
		H2SO4 PL	1	Y / N	TOC
		Total # of Containers of Type	**(*H2SO4 PL*) = 1**		

Condition Code *Condition Description*

1 Sample Received OK

Rev. 02/2017

CHAIN OF CUSTODY

Page 1 of 1

Company: CAPE Environmental
Project Contact: Matt Feits
Telephone: (724) 622-3625
Project Name: Radford AAP SWMU 48/49
Project #:
Location: Radford, VA
Sampled By: Y. Miyakawa, P. Taylor

CT Laboratories
1230 Lange Court, Baraboo, WI 53913
608-356-2760 Fax 608-356-2766
www.ctlaboratories.com

Folder #: 191647
Company: CAPE ENVIRONMENTAL MAI
Project: RADFORD AAP SWMU 48/49
Logged By: erc PM: BMS

Program: RCRA SDWA NPDES Waste Other

Report To: Chemistry SVCS@Cape-inc.com
EMAIL: mfeits@cape-inc.com
Company: CAPE Environmental Mgt.
Address: 500 Pinnacle Ct. #100 Norcross, GA 30071

Invoice To:* Same
EMAIL:
Company:
Address:

*Party listed is responsible for payment of invoice as per CT Laboratories' terms and conditions

Client Special Instructions

Matrix:
GW – groundwater SW - surface water WW - wastewater DW - drinking water
S - soil/sediment SL - sludge A - air M - misc/waste

Collection Date	Collection Time	Matrix	Grab/ Comp	Sample #	Sample ID Description	Filtered? Y/N	VOC 8260C	MEE RSK-175	TOC 9060A	Anions 9056A										Total # Containers	Designated MS/MSD
							Fill in Spaces with Bottles per Test														
12/11	0000	GW	G		TB-2	N	2						Trip Blank							2	
12/11	1045	GW	G		48MW7	N	3	2	1	1										7	
12/11	1105	GW	G		48MW7-EQB	N	3	2	1	1										7	
12/11	1415	GW	G		48MW6	N	3	2	1	1										7	

CT Lab ID # (Lab use only)
1537549
50
57
52

Turnaround Time
Normal RUSH*
Date Needed: _____
Rush analysis requires prior CT Laboratories' approval
Surcharges:
24 hr 200%
2-3 days 100%
4-9 days 50%

Relinquished By:	Date/Time	Received By:	Date/Time
	12/11/2024 1630	Fedex	12/11/2024 1630
Received by:	Date/Time	Received for Laboratory by:	Date/Time
			12/11/24 1140

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Lab Use Only
Ice Present (Yes) No
Temp 27 IR Gun 33
Cooler # 6587

Cooler Receipt Form

Ice Present (YES) NO

Observed Temperature 2.7

Actual Temperature _____

IR Gun # 33

Initials DL

Date 12/12/24 Time 11:40

Cooler #: 6587

ORIGIN ID:LIYA (724) 622-3625
MATTHEW FEITS
CAPE ENVIRONMENTAL MANAGEMENT INC.
500 PINNACLE COURT
SUITE 100
NORCROSS, GA 30071
UNITED STATES US

SHIP DATE: 11DEC24
ACTWGT: 45.00 LB
CAD: 100980732/INET4535

BILL SENDER

TO SAMPLE RECEIVING
CT LABS
1230 LANGE COURT

BARABOO WI 53913
(608) 356-2760
INV:
PO:
REF: 10409-0222-002-003
DEPT:

58CJ4/EB78/C6C4

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ANALYTICAL SUMMARY REPORT

This report at a minimum contains the following information:

Analytical Report of Test Results
Description of QC Qualifiers
Chain of Custody (copy)
Quality Control Summary (if applicable)
Case Narrative (if applicable)
Correspondence with Client (if applicable)

This report has been specifically prepared to satisfy project or program requirements. These results are in compliance with NELAC requirements for parameters where accreditation is required or available, unless otherwise noted in the case narrative.

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

ANALYTICAL SAMPLE DATA

CAPE ENVIRONMENTAL MANAGEMENT
MATT FEITS
500 PINNACLE COURT
SUITE 100
NORCROSS, GA 30071

Project Name: RADFORD AAP SWMU 49
Project Phase: RADFORD, VA
Project #: 10409-0222
Folder #: 191706
Purchase Order #: SC013781
Contract #: 3648

Arrival Temperature: 4.1
Report Date: 1/10/2025
Date Received: 12/13/2024
Reprint Date: 1/10/2025

Copy: chemistrysvcs@cape-inc.com

CT LAB#: 1538324 Sample Description: TB-3 Client Sample #: Sampled: 12/12/2024 00:00

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Organic Results													
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			12/21/24 14:25	DGS	EPA 8260C
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			12/21/24 14:25	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/21/24 14:25	DGS	EPA 8260C
1,1-Dichloroethane	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/21/24 14:25	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/21/24 14:25	DGS	EPA 8260C
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			12/21/24 14:25	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 14:25	DGS	EPA 8260C
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 14:25	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 14:25	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/21/24 14:25	DGS	EPA 8260C
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			12/21/24 14:25	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 14:25	DGS	EPA 8260C
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			12/21/24 14:25	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 14:25	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			12/21/24 14:25	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U			12/21/24 14:25	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1538324 Sample Description: TB-3 Client Sample #: Sampled: 12/12/2024 00:00

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			12/21/24 14:25	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			12/21/24 14:25	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			12/21/24 14:25	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			12/21/24 14:25	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			12/21/24 14:25	DGS	EPA 8260C
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			12/21/24 14:25	DGS	EPA 8260C
Bromodichloromethane	<0.25	ug/L	0.080	0.25	0.50	0.50	1.00	U			12/21/24 14:25	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 14:25	DGS	EPA 8260C
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/21/24 14:25	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			12/21/24 14:25	DGS	EPA 8260C
Carbon tetrachloride	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			12/21/24 14:25	DGS	EPA 8260C
Chlorobenzene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 14:25	DGS	EPA 8260C
Chloroethane	<2.0	ug/L	1.0	2.0	3.0	3.0	1.00	U			12/21/24 14:25	DGS	EPA 8260C
Chloroform	<1.0	ug/L	0.30	1.0	1.4	1.4	1.00	U			12/21/24 14:25	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			12/21/24 14:25	DGS	EPA 8260C
cis-1,2-Dichloroethene	<1.0	ug/L	0.41	1.0	1.3	1.3	1.00	U			12/21/24 14:25	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/21/24 14:25	DGS	EPA 8260C
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U			12/21/24 14:25	DGS	EPA 8260C
Dibromochloromethane	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/21/24 14:25	DGS	EPA 8260C
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			12/21/24 14:25	DGS	EPA 8260C
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			12/21/24 14:25	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			12/21/24 14:25	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			12/21/24 14:25	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			12/21/24 14:25	DGS	EPA 8260C
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/21/24 14:25	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			12/21/24 14:25	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U			12/21/24 14:25	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.50	2.0	2.2	2.2	1.00	U			12/21/24 14:25	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1538324 Sample Description: TB-3 Client Sample #: Sampled: 12/12/2024 00:00

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 14:25	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.25	1.0	2.0	2.0	1.00	U			12/21/24 14:25	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/21/24 14:25	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/21/24 14:25	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			12/21/24 14:25	DGS	EPA 8260C
Trichloroethene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 14:25	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U			12/21/24 14:25	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			12/21/24 14:25	DGS	EPA 8260C
1,2 Dichloroethane-d4	100	% Recovery	81			118	1.00				12/21/24 14:25	DGS	EPA 8260C
Bromofluorobenzene	103	% Recovery	85			114	1.00				12/21/24 14:25	DGS	EPA 8260C
d8-Toluene	100	% Recovery	89			112	1.00				12/21/24 14:25	DGS	EPA 8260C
Dibromofluoromethane	97.0	% Recovery	80			119	1.00				12/21/24 14:25	DGS	EPA 8260C

CT LAB#: 1538327 Sample Description: 49MW03 Client Sample #: Sampled: 12/12/2024 09:35

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results													
Chloride	***5.7***	mg/L	1.0	1.5	3.0	3.0	1.00				12/13/24 17:21	TMG	EPA 9056A
Nitrate Nitrogen	***0.87***	mg/L	0.12	0.20	0.40	0.40	1.00				12/13/24 17:21	TMG	EPA 9056A
Sulfate	***2.7***	mg/L	0.80	1.5	3.0	3.0	1.00	J			12/13/24 17:21	TMG	EPA 9056A
Total Organic Carbon	<1.5	mg/L	0.4	1.5	3.0	3.0	1.00	U			12/30/24 15:45	TMG	EPA 9060A
Organic Results													
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			12/21/24 20:08	DGS	EPA 8260C
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			12/21/24 20:08	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/21/24 20:08	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1538327 Sample Description: 49MW03 Client Sample #: Sampled: 12/12/2024 09:35

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
1,1-Dichloroethane	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/21/24 20:08	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/21/24 20:08	DGS	EPA 8260C
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			12/21/24 20:08	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 20:08	DGS	EPA 8260C
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 20:08	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 20:08	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/21/24 20:08	DGS	EPA 8260C
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			12/21/24 20:08	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 20:08	DGS	EPA 8260C
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			12/21/24 20:08	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 20:08	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			12/21/24 20:08	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U			12/21/24 20:08	DGS	EPA 8260C
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			12/21/24 20:08	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			12/21/24 20:08	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			12/21/24 20:08	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			12/21/24 20:08	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			12/21/24 20:08	DGS	EPA 8260C
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			12/21/24 20:08	DGS	EPA 8260C
Bromodichloromethane	<0.25	ug/L	0.080	0.25	0.50	0.50	1.00	U			12/21/24 20:08	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 20:08	DGS	EPA 8260C
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/21/24 20:08	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			12/21/24 20:08	DGS	EPA 8260C
Carbon tetrachloride	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			12/21/24 20:08	DGS	EPA 8260C
Chlorobenzene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 20:08	DGS	EPA 8260C
Chloroethane	<2.0	ug/L	1.0	2.0	3.0	3.0	1.00	U			12/21/24 20:08	DGS	EPA 8260C
Chloroform	<1.0	ug/L	0.30	1.0	1.4	1.4	1.00	U			12/21/24 20:08	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			12/21/24 20:08	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1538327 Sample Description: 49MW03 Client Sample #: Sampled: 12/12/2024 09:35

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
cis-1,2-Dichloroethene	<1.0	ug/L	0.41	1.0	1.3	1.3	1.00	U			12/21/24 20:08	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/21/24 20:08	DGS	EPA 8260C
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U			12/21/24 20:08	DGS	EPA 8260C
Dibromochloromethane	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/21/24 20:08	DGS	EPA 8260C
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			12/21/24 20:08	DGS	EPA 8260C
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			12/21/24 20:08	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			12/21/24 20:08	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			12/21/24 20:08	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			12/21/24 20:08	DGS	EPA 8260C
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/21/24 20:08	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			12/21/24 20:08	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U			12/21/24 20:08	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.50	2.0	2.2	2.2	1.00	U			12/21/24 20:08	DGS	EPA 8260C
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 20:08	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.25	1.0	2.0	2.0	1.00	U			12/21/24 20:08	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/21/24 20:08	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/21/24 20:08	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			12/21/24 20:08	DGS	EPA 8260C
Trichloroethene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 20:08	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U			12/21/24 20:08	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			12/21/24 20:08	DGS	EPA 8260C
1,2 Dichloroethane-d4	102	% Recovery	81			118	1.00				12/21/24 20:08	DGS	EPA 8260C
Bromofluorobenzene	100	% Recovery	85			114	1.00				12/21/24 20:08	DGS	EPA 8260C
d8-Toluene	101	% Recovery	89			112	1.00				12/21/24 20:08	DGS	EPA 8260C
Dibromofluoromethane	97.0	% Recovery	80			119	1.00				12/21/24 20:08	DGS	EPA 8260C

Dissolved Gases QSM 5.0 Comments: Suspected carryover contamination.

Ethane	***3.8***	ug/L	0.76	1.6	2.0	2.0	2.00	Y		12/20/24 08:19	12/20/24 10:43	SRW	RSK 175

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1538327 Sample Description: 49MW03 Client Sample #: Sampled: 12/12/2024 09:35

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Dissolved Gases QSM 5.0 Comments: Suspected carryover contamination.													
Ethene	***1.7***	ug/L	1.2	2.4	2.8	2.8	2.00	J Y		12/20/24 08:19	12/20/24 10:43	SRW	RSK 175
Methane	***7.9***	ug/L	0.90	1.8	2.0	2.0	2.00			12/20/24 08:19	12/20/24 10:43	SRW	RSK 175

CT LAB#: 1538328 Sample Description: 49MW03-EQB Client Sample #: Sampled: 12/12/2024 09:55

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results													
Chloride	<1.5	mg/L	1.0	1.5	3.0	3.0	1.00	U			12/13/24 17:50	TMG	EPA 9056A
Nitrate Nitrogen	<0.20	mg/L	0.12	0.20	0.40	0.40	1.00	U			12/13/24 17:50	TMG	EPA 9056A
Sulfate	<1.5	mg/L	0.80	1.5	3.0	3.0	1.00	U			12/13/24 17:50	TMG	EPA 9056A
Total Organic Carbon	<1.5	mg/L	0.4	1.5	3.0	3.0	1.00	U			12/30/24 16:46	TMG	EPA 9060A
Organic Results													
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			12/21/24 15:22	DGS	EPA 8260C
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			12/21/24 15:22	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/21/24 15:22	DGS	EPA 8260C
1,1-Dichloroethane	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/21/24 15:22	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/21/24 15:22	DGS	EPA 8260C
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			12/21/24 15:22	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 15:22	DGS	EPA 8260C
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 15:22	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 15:22	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/21/24 15:22	DGS	EPA 8260C
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			12/21/24 15:22	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1538328 Sample Description: 49MW03-EQB Client Sample #: Sampled: 12/12/2024 09:55

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
1,2-Dichloropropane	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 15:22	DGS	EPA 8260C
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			12/21/24 15:22	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 15:22	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			12/21/24 15:22	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U			12/21/24 15:22	DGS	EPA 8260C
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			12/21/24 15:22	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			12/21/24 15:22	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			12/21/24 15:22	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			12/21/24 15:22	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			12/21/24 15:22	DGS	EPA 8260C
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			12/21/24 15:22	DGS	EPA 8260C
Bromodichloromethane	***1.4***	ug/L	0.080	0.25	0.50	0.50	1.00				12/21/24 15:22	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 15:22	DGS	EPA 8260C
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/21/24 15:22	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			12/21/24 15:22	DGS	EPA 8260C
Carbon tetrachloride	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			12/21/24 15:22	DGS	EPA 8260C
Chlorobenzene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 15:22	DGS	EPA 8260C
Chloroethane	<2.0	ug/L	1.0	2.0	3.0	3.0	1.00	U			12/21/24 15:22	DGS	EPA 8260C
Chloroform	***6.5***	ug/L	0.30	1.0	1.4	1.4	1.00				12/21/24 15:22	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			12/21/24 15:22	DGS	EPA 8260C
cis-1,2-Dichloroethene	<1.0	ug/L	0.41	1.0	1.3	1.3	1.00	U			12/21/24 15:22	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/21/24 15:22	DGS	EPA 8260C
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U			12/21/24 15:22	DGS	EPA 8260C
Dibromochloromethane	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/21/24 15:22	DGS	EPA 8260C
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			12/21/24 15:22	DGS	EPA 8260C
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			12/21/24 15:22	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			12/21/24 15:22	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			12/21/24 15:22	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1538328 Sample Description: 49MW03-EQB Client Sample #: Sampled: 12/12/2024 09:55

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			12/21/24 15:22	DGS	EPA 8260C
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/21/24 15:22	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			12/21/24 15:22	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U			12/21/24 15:22	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.50	2.0	2.2	2.2	1.00	U			12/21/24 15:22	DGS	EPA 8260C
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 15:22	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.25	1.0	2.0	2.0	1.00	U			12/21/24 15:22	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/21/24 15:22	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/21/24 15:22	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			12/21/24 15:22	DGS	EPA 8260C
Trichloroethene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 15:22	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U			12/21/24 15:22	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			12/21/24 15:22	DGS	EPA 8260C
1,2 Dichloroethane-d4	102	% Recovery	81			118	1.00				12/21/24 15:22	DGS	EPA 8260C
Bromofluorobenzene	102	% Recovery	85			114	1.00				12/21/24 15:22	DGS	EPA 8260C
d8-Toluene	101	% Recovery	89			112	1.00				12/21/24 15:22	DGS	EPA 8260C
Dibromofluoromethane	97.0	% Recovery	80			119	1.00				12/21/24 15:22	DGS	EPA 8260C
Ethane	***0.51***	ug/L	0.38	0.80	1.0	1.0	1.00	J Y		12/20/24 08:19	12/20/24 10:59	SRW	RSK 175
Ethene	<1.2	ug/L	0.59	1.2	1.4	1.4	1.00	U Y		12/20/24 08:19	12/20/24 10:59	SRW	RSK 175
Methane	***0.57***	ug/L	0.45	0.90	1.0	1.0	1.00	J		12/20/24 08:19	12/20/24 10:59	SRW	RSK 175

CT LAB#: 1538329 Sample Description: 48MW1 Client Sample #: Sampled: 12/12/2024 11:25

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results													
Chloride	***4.7***	mg/L	1.0	1.5	3.0	3.0	1.00				12/13/24 18:18	TMG	EPA 9056A

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1538329 Sample Description: 48MW1 Client Sample #: Sampled: 12/12/2024 11:25

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Nitrate Nitrogen	***1.3***	mg/L	0.12	0.20	0.40	0.40	1.00				12/13/24 18:18	TMG	EPA 9056A
Sulfate	***47***	mg/L	0.80	1.5	3.0	3.0	1.00				12/13/24 18:18	TMG	EPA 9056A
Total Organic Carbon	<1.5	mg/L	0.4	1.5	3.0	3.0	1.00	U			12/30/24 17:04	TMG	EPA 9060A
Organic Results													
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			12/21/24 20:36	DGS	EPA 8260C
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			12/21/24 20:36	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/21/24 20:36	DGS	EPA 8260C
1,1-Dichloroethane	***0.46***	ug/L	0.28	1.0	1.1	1.1	1.00	J			12/21/24 20:36	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/21/24 20:36	DGS	EPA 8260C
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			12/21/24 20:36	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 20:36	DGS	EPA 8260C
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 20:36	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 20:36	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/21/24 20:36	DGS	EPA 8260C
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			12/21/24 20:36	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 20:36	DGS	EPA 8260C
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			12/21/24 20:36	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 20:36	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			12/21/24 20:36	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U			12/21/24 20:36	DGS	EPA 8260C
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			12/21/24 20:36	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			12/21/24 20:36	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			12/21/24 20:36	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			12/21/24 20:36	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			12/21/24 20:36	DGS	EPA 8260C
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			12/21/24 20:36	DGS	EPA 8260C
Bromodichloromethane	<0.25	ug/L	0.080	0.25	0.50	0.50	1.00	U			12/21/24 20:36	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1538329 Sample Description: 48MW1 Client Sample #: Sampled: 12/12/2024 11:25

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 20:36	DGS	EPA 8260C
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/21/24 20:36	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			12/21/24 20:36	DGS	EPA 8260C
Carbon tetrachloride	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			12/21/24 20:36	DGS	EPA 8260C
Chlorobenzene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 20:36	DGS	EPA 8260C
Chloroethane	<2.0	ug/L	1.0	2.0	3.0	3.0	1.00	U			12/21/24 20:36	DGS	EPA 8260C
Chloroform	<1.0	ug/L	0.30	1.0	1.4	1.4	1.00	U			12/21/24 20:36	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			12/21/24 20:36	DGS	EPA 8260C
cis-1,2-Dichloroethene	***0.47***	ug/L	0.41	1.0	1.3	1.3	1.00	J			12/21/24 20:36	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/21/24 20:36	DGS	EPA 8260C
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U			12/21/24 20:36	DGS	EPA 8260C
Dibromochloromethane	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/21/24 20:36	DGS	EPA 8260C
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			12/21/24 20:36	DGS	EPA 8260C
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			12/21/24 20:36	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			12/21/24 20:36	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			12/21/24 20:36	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			12/21/24 20:36	DGS	EPA 8260C
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/21/24 20:36	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			12/21/24 20:36	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U			12/21/24 20:36	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.50	2.0	2.2	2.2	1.00	U			12/21/24 20:36	DGS	EPA 8260C
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 20:36	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.25	1.0	2.0	2.0	1.00	U			12/21/24 20:36	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/21/24 20:36	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/21/24 20:36	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			12/21/24 20:36	DGS	EPA 8260C
Trichloroethene	***0.83***	ug/L	0.25	1.0	1.2	1.2	1.00	J			12/21/24 20:36	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U			12/21/24 20:36	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1538329 Sample Description: 48MW1 Client Sample #: Sampled: 12/12/2024 11:25

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			12/21/24 20:36	DGS	EPA 8260C
1,2 Dichloroethane-d4	101	% Recovery	81			118	1.00				12/21/24 20:36	DGS	EPA 8260C
Bromofluorobenzene	98.0	% Recovery	85			114	1.00				12/21/24 20:36	DGS	EPA 8260C
d8-Toluene	100	% Recovery	89			112	1.00				12/21/24 20:36	DGS	EPA 8260C
Dibromofluoromethane	97.0	% Recovery	80			119	1.00				12/21/24 20:36	DGS	EPA 8260C
Ethane	***0.38***	ug/L	0.38	0.80	1.0	1.0	1.00	J Y		12/20/24 08:19	12/20/24 11:07	SRW	RSK 175
Ethene	<1.2	ug/L	0.59	1.2	1.4	1.4	1.00	U Y		12/20/24 08:19	12/20/24 11:07	SRW	RSK 175
Methane	<0.90	ug/L	0.45	0.90	1.0	1.0	1.00	U		12/20/24 08:19	12/20/24 11:07	SRW	RSK 175

CT LAB#: 1538330 Sample Description: 48TW1 Client Sample #: Sampled: 12/12/2024 11:25

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results													
Chloride	***4.7***	mg/L	1.0	1.5	3.0	3.0	1.00				12/13/24 18:47	TMG	EPA 9056A
Nitrate Nitrogen	***1.5***	mg/L	0.12	0.20	0.40	0.40	1.00				12/13/24 18:47	TMG	EPA 9056A
Sulfate	***47***	mg/L	0.80	1.5	3.0	3.0	1.00				12/13/24 18:47	TMG	EPA 9056A
Total Organic Carbon	<1.5	mg/L	0.4	1.5	3.0	3.0	1.00	U			12/30/24 18:22	TMG	EPA 9060A
Organic Results													
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			12/21/24 21:05	DGS	EPA 8260C
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			12/21/24 21:05	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/21/24 21:05	DGS	EPA 8260C
1,1-Dichloroethane	***0.45***	ug/L	0.28	1.0	1.1	1.1	1.00	J			12/21/24 21:05	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/21/24 21:05	DGS	EPA 8260C
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			12/21/24 21:05	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 21:05	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1538330 Sample Description: 48TW1 Client Sample #: Sampled: 12/12/2024 11:25

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 21:05	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 21:05	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/21/24 21:05	DGS	EPA 8260C
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			12/21/24 21:05	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 21:05	DGS	EPA 8260C
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			12/21/24 21:05	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 21:05	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			12/21/24 21:05	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U			12/21/24 21:05	DGS	EPA 8260C
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			12/21/24 21:05	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			12/21/24 21:05	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			12/21/24 21:05	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			12/21/24 21:05	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			12/21/24 21:05	DGS	EPA 8260C
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			12/21/24 21:05	DGS	EPA 8260C
Bromodichloromethane	<0.25	ug/L	0.080	0.25	0.50	0.50	1.00	U			12/21/24 21:05	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/21/24 21:05	DGS	EPA 8260C
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/21/24 21:05	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			12/21/24 21:05	DGS	EPA 8260C
Carbon tetrachloride	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			12/21/24 21:05	DGS	EPA 8260C
Chlorobenzene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/21/24 21:05	DGS	EPA 8260C
Chloroethane	<2.0	ug/L	1.0	2.0	3.0	3.0	1.00	U			12/21/24 21:05	DGS	EPA 8260C
Chloroform	<1.0	ug/L	0.30	1.0	1.4	1.4	1.00	U			12/21/24 21:05	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			12/21/24 21:05	DGS	EPA 8260C
cis-1,2-Dichloroethene	***0.44***	ug/L	0.41	1.0	1.3	1.3	1.00	J			12/21/24 21:05	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/21/24 21:05	DGS	EPA 8260C
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U			12/21/24 21:05	DGS	EPA 8260C
Dibromochloromethane	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/21/24 21:05	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1538330 Sample Description: 48TW1 Client Sample #: Sampled: 12/12/2024 11:25

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			12/21/24 21:05	DGS	EPA 8260C
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			12/21/24 21:05	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			12/21/24 21:05	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			12/21/24 21:05	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			12/21/24 21:05	DGS	EPA 8260C
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/21/24 21:05	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			12/21/24 21:05	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U			12/21/24 21:05	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.50	2.0	2.2	2.2	1.00	U			12/21/24 21:05	DGS	EPA 8260C
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/21/24 21:05	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.25	1.0	2.0	2.0	1.00	U			12/21/24 21:05	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/21/24 21:05	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/21/24 21:05	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			12/21/24 21:05	DGS	EPA 8260C
Trichloroethene	***0.85***	ug/L	0.25	1.0	1.2	1.2	1.00	J			12/21/24 21:05	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U			12/21/24 21:05	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			12/21/24 21:05	DGS	EPA 8260C
1,2 Dichloroethane-d4	103	% Recovery	81			118	1.00				12/21/24 21:05	DGS	EPA 8260C
Bromofluorobenzene	103	% Recovery	85			114	1.00				12/21/24 21:05	DGS	EPA 8260C
d8-Toluene	100	% Recovery	89			112	1.00				12/21/24 21:05	DGS	EPA 8260C
Dibromofluoromethane	98.0	% Recovery	80			119	1.00				12/21/24 21:05	DGS	EPA 8260C
Ethane	<0.80	ug/L	0.38	0.80	1.0	1.0	1.00	U Y		12/20/24 08:19	12/20/24 12:37	SRW	RSK 175
Ethene	<1.2	ug/L	0.59	1.2	1.4	1.4	1.00	U Y		12/20/24 08:19	12/20/24 12:37	SRW	RSK 175
Methane	<0.90	ug/L	0.45	0.90	1.0	1.0	1.00	U		12/20/24 08:19	12/20/24 12:37	SRW	RSK 175

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1538331 Sample Description: 49MW01 Client Sample #: Sampled: 12/12/2024 13:25

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results													
Chloride	***5.3***	mg/L	1.0	1.5	3.0	3.0	1.00				12/13/24 20:42	TMG	EPA 9056A
Nitrate Nitrogen	***0.37***	mg/L	0.12	0.20	0.40	0.40	1.00	J H			12/14/24 14:06	TMG	EPA 9056A
Sulfate	<1.5	mg/L	0.80	1.5	3.0	3.0	1.00	U			12/13/24 20:42	TMG	EPA 9056A
Total Organic Carbon	<1.5	mg/L	0.4	1.5	3.0	3.0	1.00	U			12/30/24 18:44	TMG	EPA 9060A
Organic Results													
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			12/23/24 12:50	DGS	EPA 8260C
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			12/23/24 12:50	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/23/24 12:50	DGS	EPA 8260C
1,1-Dichloroethane	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/23/24 12:50	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/23/24 12:50	DGS	EPA 8260C
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			12/23/24 12:50	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/23/24 12:50	DGS	EPA 8260C
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/23/24 12:50	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/23/24 12:50	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/23/24 12:50	DGS	EPA 8260C
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			12/23/24 12:50	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/23/24 12:50	DGS	EPA 8260C
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			12/23/24 12:50	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/23/24 12:50	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			12/23/24 12:50	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U			12/23/24 12:50	DGS	EPA 8260C
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			12/23/24 12:50	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			12/23/24 12:50	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			12/23/24 12:50	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			12/23/24 12:50	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			12/23/24 12:50	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1538331 Sample Description: 49MW01 Client Sample #: Sampled: 12/12/2024 13:25

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			12/23/24 12:50	DGS	EPA 8260C
Bromodichloromethane	<0.25	ug/L	0.080	0.25	0.50	0.50	1.00	U			12/23/24 12:50	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/23/24 12:50	DGS	EPA 8260C
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/23/24 12:50	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			12/23/24 12:50	DGS	EPA 8260C
Carbon tetrachloride	***1.9***	ug/L	0.37	1.0	1.2	1.2	1.00				12/23/24 12:50	DGS	EPA 8260C
Chlorobenzene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/23/24 12:50	DGS	EPA 8260C
Chloroethane	<2.0	ug/L	1.0	2.0	3.0	3.0	1.00	U			12/23/24 12:50	DGS	EPA 8260C
Chloroform	***0.32***	ug/L	0.30	1.0	1.4	1.4	1.00	J			12/23/24 12:50	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			12/23/24 12:50	DGS	EPA 8260C
cis-1,2-Dichloroethene	<1.0	ug/L	0.41	1.0	1.3	1.3	1.00	U			12/23/24 12:50	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/23/24 12:50	DGS	EPA 8260C
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U			12/23/24 12:50	DGS	EPA 8260C
Dibromochloromethane	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/23/24 12:50	DGS	EPA 8260C
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			12/23/24 12:50	DGS	EPA 8260C
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			12/23/24 12:50	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			12/23/24 12:50	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			12/23/24 12:50	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			12/23/24 12:50	DGS	EPA 8260C
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/23/24 12:50	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			12/23/24 12:50	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U			12/23/24 12:50	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.50	2.0	2.2	2.2	1.00	U			12/23/24 12:50	DGS	EPA 8260C
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/23/24 12:50	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.25	1.0	2.0	2.0	1.00	U			12/23/24 12:50	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/23/24 12:50	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/23/24 12:50	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			12/23/24 12:50	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1538331 Sample Description: 49MW01 Client Sample #: Sampled: 12/12/2024 13:25

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Trichloroethene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/23/24 12:50	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U			12/23/24 12:50	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			12/23/24 12:50	DGS	EPA 8260C
1,2 Dichloroethane-d4	102	% Recovery	81			118	1.00				12/23/24 12:50	DGS	EPA 8260C
Bromofluorobenzene	104	% Recovery	85			114	1.00				12/23/24 12:50	DGS	EPA 8260C
d8-Toluene	101	% Recovery	89			112	1.00				12/23/24 12:50	DGS	EPA 8260C
Dibromofluoromethane	97.0	% Recovery	80			119	1.00				12/23/24 12:50	DGS	EPA 8260C
Ethane	<0.80	ug/L	0.38	0.80	1.0	1.0	1.00	U Y		12/20/24 08:19	12/20/24 12:41	SRW	RSK 175
Ethene	<1.2	ug/L	0.59	1.2	1.4	1.4	1.00	U Y		12/20/24 08:19	12/20/24 12:41	SRW	RSK 175
Methane	<0.90	ug/L	0.45	0.90	1.0	1.0	1.00	U		12/20/24 08:19	12/20/24 12:41	SRW	RSK 175

CT LAB#: 1538332 Sample Description: 50MW2 Client Sample #: Sampled: 12/12/2024 15:30

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results													
Chloride	***7.2***	mg/L	1.0	1.5	3.0	3.0	1.00				12/13/24 21:11	TMG	EPA 9056A
Nitrate Nitrogen	***2.3***	mg/L	0.12	0.20	0.40	0.40	1.00				12/14/24 14:33	TMG	EPA 9056A
Sulfate	***77***	mg/L	4.0	7.5	15	15	5.00				12/16/24 17:36	TMG	EPA 9056A
Total Organic Carbon	<1.5	mg/L	0.4	1.5	3.0	3.0	1.00	U			12/30/24 19:05	TMG	EPA 9060A
Organic Results													
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			12/23/24 13:19	DGS	EPA 8260C
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			12/23/24 13:19	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/23/24 13:19	DGS	EPA 8260C
1,1-Dichloroethane	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/23/24 13:19	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/23/24 13:19	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1538332 Sample Description: 50MW2 Client Sample #: Sampled: 12/12/2024 15:30

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			12/23/24 13:19	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/23/24 13:19	DGS	EPA 8260C
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/23/24 13:19	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/23/24 13:19	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/23/24 13:19	DGS	EPA 8260C
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			12/23/24 13:19	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/23/24 13:19	DGS	EPA 8260C
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			12/23/24 13:19	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/23/24 13:19	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			12/23/24 13:19	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U			12/23/24 13:19	DGS	EPA 8260C
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			12/23/24 13:19	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			12/23/24 13:19	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			12/23/24 13:19	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			12/23/24 13:19	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			12/23/24 13:19	DGS	EPA 8260C
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			12/23/24 13:19	DGS	EPA 8260C
Bromodichloromethane	<0.25	ug/L	0.080	0.25	0.50	0.50	1.00	U			12/23/24 13:19	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/23/24 13:19	DGS	EPA 8260C
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/23/24 13:19	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			12/23/24 13:19	DGS	EPA 8260C
Carbon tetrachloride	***0.48***	ug/L	0.37	1.0	1.2	1.2	1.00	J			12/23/24 13:19	DGS	EPA 8260C
Chlorobenzene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/23/24 13:19	DGS	EPA 8260C
Chloroethane	<2.0	ug/L	1.0	2.0	3.0	3.0	1.00	U			12/23/24 13:19	DGS	EPA 8260C
Chloroform	<1.0	ug/L	0.30	1.0	1.4	1.4	1.00	U			12/23/24 13:19	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			12/23/24 13:19	DGS	EPA 8260C
cis-1,2-Dichloroethene	<1.0	ug/L	0.41	1.0	1.3	1.3	1.00	U			12/23/24 13:19	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/23/24 13:19	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1538332 Sample Description: 50MW2 Client Sample #: Sampled: 12/12/2024 15:30

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U			12/23/24 13:19	DGS	EPA 8260C
Dibromochloromethane	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/23/24 13:19	DGS	EPA 8260C
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			12/23/24 13:19	DGS	EPA 8260C
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			12/23/24 13:19	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			12/23/24 13:19	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			12/23/24 13:19	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			12/23/24 13:19	DGS	EPA 8260C
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/23/24 13:19	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			12/23/24 13:19	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U			12/23/24 13:19	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.50	2.0	2.2	2.2	1.00	U			12/23/24 13:19	DGS	EPA 8260C
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/23/24 13:19	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.25	1.0	2.0	2.0	1.00	U			12/23/24 13:19	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/23/24 13:19	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/23/24 13:19	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			12/23/24 13:19	DGS	EPA 8260C
Trichloroethene	***0.93***	ug/L	0.25	1.0	1.2	1.2	1.00	J			12/23/24 13:19	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U			12/23/24 13:19	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			12/23/24 13:19	DGS	EPA 8260C
1,2 Dichloroethane-d4	98.0	% Recovery	81			118	1.00				12/23/24 13:19	DGS	EPA 8260C
Bromofluorobenzene	103	% Recovery	85			114	1.00				12/23/24 13:19	DGS	EPA 8260C
d8-Toluene	100	% Recovery	89			112	1.00				12/23/24 13:19	DGS	EPA 8260C
Dibromofluoromethane	97.0	% Recovery	80			119	1.00				12/23/24 13:19	DGS	EPA 8260C
Ethane	<0.80	ug/L	0.38	0.80	1.0	1.0	1.00	U Y		12/20/24 08:19	12/20/24 12:44	SRW	RSK 175
Ethene	<1.2	ug/L	0.59	1.2	1.4	1.4	1.00	U Y		12/20/24 08:19	12/20/24 12:44	SRW	RSK 175
Methane	<0.90	ug/L	0.45	0.90	1.0	1.0	1.00	U		12/20/24 08:19	12/20/24 12:44	SRW	RSK 175

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

Notes:

^ Indicates the laboratory is NELAP accredited for this analyte by the indicated matrix and method . DL (detection limit), LOD (limit of detection), loq (limit of quantitation) as defined by most recent DOD QSM version.

All samples were received intact and properly preserved unless otherwise noted . The results reported relate only to the samples tested. This report shall not be reproduced, except in full, without written approval of this laboratory. The Chain of Custody is attached.

This report has been specifically prepared to satisfy project or program requirements. These results are in compliance with NELAC requirements for the parameters where accreditation is required or available, unless noted in the case narrative.

Submitted by: Brett M. Szymanski
Project Manager
608-356-2760

QC Qualifiers

Code	Description
B	Analyte detected in the associated Method Blank.
C	Toxicity present in BOD sample.
D	Diluted Out.
E	Safe, No Total Coliform detected.
F	Unsafe, Total Coliform detected, no E. Coli detected.
G	Unsafe, Total Coliform detected and E. Coli detected.
H	Holding time exceeded.
I	Incubator temperature was outside acceptance limits during test period.
J	Estimated value.
L	Significant peaks were detected outside the chromatographic window.
M	Matrix spike and/or Matrix Spike Duplicate recovery outside acceptance limits.
N	Insufficient BOD oxygen depletion.
O	Complete BOD oxygen depletion.
P	Concentration of analyte differs more than 40% between primary and confirmation analysis.
Q	Laboratory Control Sample outside acceptance limits.
R	See Narrative at end of report.
S	Surrogate standard recovery outside acceptance limits due to apparent matrix effects.
T	Sample received with improper preservation or temperature.
U	Analyte concentration was below detection limit.
V	Raised Quantitation or Reporting Limit due to limited sample amount or dilution for matrix background interference.
W	Sample amount received was below program minimum.
X	Analyte exceeded calibration range.
Y	Replicate/Duplicate precision outside acceptance limits.
Z	Specified calibration criteria was not met.

Current CT Laboratories Certifications

Wisconsin (WDNR) Chemistry ID# 157066030
Wisconsin (DATCP) Bacteriology ID# 289
Louisiana NELAP (primary) ID# 115843
Illinois NELAP Lab ID# 200073
Kansas NELAP Lab ID# E-10368
Virginia NELAP Lab ID# 460203
ISO/IEC 17025-2005 PJLA Cert # L24-913
DoD-ELAP PJLA L24-913
Florida NELAP Lab ID# E871111

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QC Summary Report

CAPE ENVIRONMENTAL MANAGEMENT **Project Name: RADFORD AAP SWMU 49**

SDG #: 0 **Folder #: 191706** **Project #: 10409-0222**

Duplicate

Analytical Run #:	288113	Analysis Date:	12/13/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1539179	Analysis Time:	21:39	Prep Date/Time:		Method:	SW9056A
Parent Sample #:	1538332	Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Chloride	7.34	mg/L	7.2				3.0	2	10
Nitrate Nitrogen	2.35	mg/L	2.3				0.40	2	10
Sulfate	75.3	mg/L	77				3.0	2	10

Lab Control Spike Water

Analytical Run #:	288113	Analysis Date:	12/13/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1539177	Analysis Time:	19:44	Prep Date/Time:		Method:	SW9056A
Parent Sample #:		Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits			RPD	RPD Limit
Chloride	14.92	mg/L			15.00	99	87	---	111		
Nitrate Nitrogen	3.208	mg/L			3.500	92	88	---	111		
Sulfate	26.93	mg/L			25.00	108	87	---	112		

Lab Control Spike Water

Analytical Run #:	288113	Analysis Date:	12/14/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1539735	Analysis Time:	13:13	Prep Date/Time:		Method:	SW9056A
Parent Sample #:		Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Nitrate Nitrogen	3.624	mg/L			3.50	104	88 --- 111		

Method Blank Water

Analytical Run #:	288113	Analysis Date:	12/13/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1539178	Analysis Time:	20:13	Prep Date/Time:		Method:	SW9056A
Parent Sample #:		Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Chloride	1.0	mg/L		U	0		1.5		
Nitrate Nitrogen	0.12	mg/L		U	0		0.20		
Sulfate	0.8	mg/L		U	0		1.5		

Method Blank Water

Analytical Run #:	288113	Analysis Date:	12/14/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1539736	Analysis Time:	13:40	Prep Date/Time:		Method:	SW9056A
Parent Sample #:		Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Nitrate Nitrogen	0.12	mg/L		U	0		0.20		

Matrix Spike Duplicate Water

Analytical Run #:	288113	Analysis Date:	12/13/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1539181	Analysis Time:	22:37	Prep Date/Time:		Method:	SW9056A
Parent Sample #:	1539180	Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits			RPD	RPD Limit
Chloride	14.4	mg/L	7.2		8.00	90	87	---	111	1	15
Nitrate Nitrogen	4.13	mg/L	2.3		2.00	92	88	---	111	1	15
Sulfate	118	mg/L	77		40.0	102	87	---	112	2	15

Matrix Spike Water

Analytical Run #:	288113	Analysis Date:	12/13/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1539180	Analysis Time:	22:08	Prep Date/Time:		Method:	SW9056A
Parent Sample #:	1538332	Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Chloride	14.3	mg/L	7.2		8.00	89	87 --- 111		15
Nitrate Nitrogen	4.10	mg/L	2.3		2.00	90	88 --- 111		15
Sulfate	116	mg/L	77		40.0	98	87 --- 112		15

Duplicate

Analytical Run #:	288413	Analysis Date:	12/30/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1542970	Analysis Time:	17:25	Prep Date/Time:		Method:	SW9060
Parent Sample #:	1538329	Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Organic Carbon	0.4	mg/L	<DL	U			1.5	0	20

Lab Control Spike Water

Analytical Run #:	288413	Analysis Date:	12/30/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1542974	Analysis Time:	20:28	Prep Date/Time:		Method:	SW9060
Parent Sample #:		Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Organic Carbon	48.35	mg/L			50.0	97	85 --- 111		20

Method Blank Water

Analytical Run #:	288413	Analysis Date:	12/30/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1542975	Analysis Time:	20:45	Prep Date/Time:		Method:	SW9060
Parent Sample #:		Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Organic Carbon	0.40	mg/L		U	0		1.5		

Matrix Spike Duplicate Water

Analytical Run #:	288413	Analysis Date:	12/30/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1542972	Analysis Time:	18:04	Prep Date/Time:		Method:	SW9060
Parent Sample #:	1542971	Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Organic Carbon	49.1	mg/L	<DL		50.0	98	85 --- 111	0	20

Matrix Spike Water

Analytical Run #:	288413	Analysis Date:	12/30/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1542971	Analysis Time:	17:47	Prep Date/Time:		Method:	SW9060
Parent Sample #:	1538329	Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Organic Carbon	48.9	mg/L	<DL		50.0	98	85 --- 111		20

Lab Control Spike Water

Analytical Run #:	288213	Analysis Date:	12/21/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1541145	Analysis Time:	11:35	Prep Date/Time:		Method:	SW8260C
Parent Sample #:		Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits			RPD	RPD Limit
1,1,1-Trichloroethane	10.1	ug/L			10.0	101	74	---	131		20
1,1,2,2-Tetrachloroethane	9.63	ug/L			10.0	96	71	---	121		20
1,1,2-Trichloroethane	9.67	ug/L			10.0	97	80	---	119		20
1,1-Dichloroethane	9.54	ug/L			10.0	95	77	---	125		20
1,1-Dichloroethene	9.30	ug/L			10.0	93	71	---	131		20
1,2,3-Trichlorobenzene	9.68	ug/L			10.0	97	69	---	129		20
1,2,4-Trichlorobenzene	8.07	ug/L			10.0	81	69	---	130		20
1,2-Dibromo-3-chloropropane	9.24	ug/L			10.0	92	62	---	128		20
1,2-Dibromoethane	9.72	ug/L			10.0	97	77	---	121		20
1,2-Dichlorobenzene	9.79	ug/L			10.0	98	80	---	119		20
1,2-Dichloroethane	9.17	ug/L			10.0	92	73	---	128		20
1,2-Dichloropropane	9.78	ug/L			10.0	98	78	---	122		20
1,3-Dichlorobenzene	9.76	ug/L			10.0	98	80	---	119		20
1,4-Dichlorobenzene	9.72	ug/L			10.0	97	79	---	118		20
1,4-Dioxane	489	ug/L			500	98	59	---	139		20
112Trichloro122trifluoroethane	19.5	ug/L			20.0	98	70	---	136		20
2-Butanone	107	ug/L			100	107	56	---	143		20
2-Hexanone	103	ug/L			100	103	57	---	139		20
4-Methyl-2-pentanone	103	ug/L			100	103	67	---	130		20
Acetone	104	ug/L			100	104	39	---	160		20
Benzene	9.42	ug/L			10.0	94	79	---	120		20
Bromochloromethane	9.57	ug/L			10.0	96	78	---	123		20
Bromodichloromethane	9.77	ug/L			10.0	98	79	---	125		20
Bromoform	9.37	ug/L			10.0	94	66	---	130		20
Bromomethane	9.20	ug/L			10.0	92	53	---	141		20
Carbon disulfide	20.7	ug/L			20.0	104	64	---	133		20
Carbon tetrachloride	10.2	ug/L			10.0	102	72	---	136		20
Chlorobenzene	9.70	ug/L			10.0	97	82	---	118		20
Chloroethane	9.77	ug/L			10.0	98	60	---	138		20
Chloroform	9.52	ug/L			10.0	95	79	---	124		20
Chloromethane	9.19	ug/L			10.0	92	50	---	139		20
cis-1,2-Dichloroethene	9.63	ug/L			10.0	96	78	---	123		20
cis-1,3-Dichloropropene	10.0	ug/L			10.0	100	75	---	124		20
Cyclohexane	11.4	ug/L			10.0	114	71	---	130		20
Dibromochloromethane	9.59	ug/L			10.0	96	74	---	126		20
Dichlorodifluoromethane	10.8	ug/L			10.0	108	32	---	152		20
Ethylbenzene	10.2	ug/L			10.0	102	79	---	121		20
Isopropylbenzene	9.95	ug/L			10.0	100	72	---	131		20
m & p-Xylene	20.3	ug/L			20.0	102	80	---	121		20
Methyl acetate	9.69	ug/L			10.0	97	56	---	136		20
Methyl tert-butyl ether	9.37	ug/L			10.0	94	71	---	124		20
Methylcyclohexane	11.2	ug/L			10.0	112	72	---	132		20

Lab Control Spike Water

Analytical Run #:	288213	Analysis Date:	12/21/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1541145	Analysis Time:	11:35	Prep Date/Time:		Method:	SW8260C
Parent Sample #:		Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits			RPD	RPD Limit
Methylene chloride	9.42	ug/L			10.0	94	74	---	124		20
o-Xylene	9.77	ug/L			10.0	98	78	---	122		20
Styrene	9.89	ug/L			10.0	99	78	---	123		20
Tetrachloroethene	9.99	ug/L			10.0	100	74	---	129		20
Toluene	9.96	ug/L			10.0	100	80	---	121		20
trans-1,2-Dichloroethene	9.56	ug/L			10.0	96	75	---	124		20
trans-1,3-Dichloropropene	10.1	ug/L			10.0	101	73	---	127		20
Trichloroethene	9.86	ug/L			10.0	99	79	---	123		20
Trichlorofluoromethane	8.98	ug/L			10.0	90	65	---	141		20
Vinyl chloride	9.91	ug/L			10.0	99	58	---	137		20

Method Blank Water

Analytical Run #:	288213	Analysis Date:	12/21/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1541194	Analysis Time:	13:00	Prep Date/Time:		Method:	SW8260C
Parent Sample #:		Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
1,1,1-Trichloroethane	0.38	ug/L		U	0		0.60		
1,1,2,2-Tetrachloroethane	0.36	ug/L		U	0		0.55		
1,1,2-Trichloroethane	0.27	ug/L		U	0		0.55		
1,1-Dichloroethane	0.28	ug/L		U	0		0.55		
1,1-Dichloroethene	0.49	ug/L		U	0		1.0		
1,2,3-Trichlorobenzene	0.43	ug/L		U	0		1.0		
1,2,4-Trichlorobenzene	0.50	ug/L		U	0		1.0		
1,2-Dibromo-3-chloropropane	0.50	ug/L		U	0		1.0		
1,2-Dibromoethane	0.33	ug/L		U	0		0.55		
1,2-Dichlorobenzene	0.35	ug/L		U	0		0.55		
1,2-Dichloroethane	0.69	ug/L		U	0		1.05		
1,2-Dichloropropane	0.25	ug/L		U	0		0.60		
1,3-Dichlorobenzene	0.30	ug/L		U	0		0.55		
1,4-Dichlorobenzene	0.33	ug/L		U	0		0.55		
1,4-Dioxane	34	ug/L		U	0		50		
112Trichloro122trifluoroethane	1.5	ug/L		U	0		2.25		
2-Butanone	2.9	ug/L		U	0		5.5		
2-Hexanone	3.3	ug/L		U	0		5.5		
4-Methyl-2-pentanone	3.7	ug/L		U	0		6.0		
Acetone	4.1	ug/L		U	0		10		
Benzene	0.40	ug/L		U	0		1.0		
Bromochloromethane	0.26	ug/L		U	0		0.55		
Bromodichloromethane	0.080	ug/L		U	0		0.25		
Bromoform	0.50	ug/L		U	0		1.0		
Bromomethane	0.49	ug/L		U	0		1.0		
Carbon disulfide	0.83	ug/L		U	0		2.0		
Carbon tetrachloride	0.37	ug/L		U	0		0.60		
Chlorobenzene	0.25	ug/L		U	0		0.60		
Chloroethane	1.0	ug/L		U	0		1.5		
Chloroform	0.30	ug/L		U	0		0.70		
Chloromethane	0.39	ug/L		U	0		1.0		
cis-1,2-Dichloroethene	0.41	ug/L		U	0		0.65		
cis-1,3-Dichloropropene	0.25	ug/L		U	0		0.55		
Cyclohexane	0.71	ug/L		U	0		1.1		
Dibromochloromethane	0.25	ug/L		U	0		0.55		
Dichlorodifluoromethane	0.63	ug/L		U	0		1.05		
Ethylbenzene	0.42	ug/L		U	0		0.65		
Isopropylbenzene	0.39	ug/L		U	0		0.60		
m & p-Xylene	0.74	ug/L		U	0		1.15		
Methyl acetate	0.34	ug/L		U	0		1.0		
Methyl tert-butyl ether	0.28	ug/L		U	0		0.55		
Methylcyclohexane	0.78	ug/L		U	0		1.2		

Method Blank Water

Analytical Run #:	288213	Analysis Date:	12/21/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1541194	Analysis Time:	13:00	Prep Date/Time:		Method:	SW8260C
Parent Sample #:		Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Methylene chloride	1.2	ug/L		U	0		2.05		
o-Xylene	0.50	ug/L		U	0		1.1		
Styrene	0.33	ug/L		U	0		0.55		
Tetrachloroethene	0.25	ug/L		U	0		1.0		
Toluene	0.27	ug/L		U	0		0.55		
trans-1,2-Dichloroethene	0.35	ug/L		U	0		0.55		
trans-1,3-Dichloropropene	0.56	ug/L		U	0		1.05		
Trichloroethene	0.25	ug/L		U	0		0.60		
Trichlorofluoromethane	0.41	ug/L		U	0		1.0		
Vinyl chloride	0.12	ug/L		U	0		0.25		

Lab Control Spike Water

Analytical Run #:	288214	Analysis Date:	12/23/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1541312	Analysis Time:	09:57	Prep Date/Time:		Method:	SW8260C
Parent Sample #:		Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits			RPD	RPD Limit
1,1,1-Trichloroethane	10.2	ug/L			10.0	102	74	---	131		20
1,1,2,2-Tetrachloroethane	9.80	ug/L			10.0	98	71	---	121		20
1,1,2-Trichloroethane	9.98	ug/L			10.0	100	80	---	119		20
1,1-Dichloroethane	9.54	ug/L			10.0	95	77	---	125		20
1,1-Dichloroethene	10.1	ug/L			10.0	101	71	---	131		20
1,2,3-Trichlorobenzene	9.90	ug/L			10.0	99	69	---	129		20
1,2,4-Trichlorobenzene	9.68	ug/L			10.0	97	69	---	130		20
1,2-Dibromo-3-chloropropane	8.83	ug/L			10.0	88	62	---	128		20
1,2-Dibromoethane	9.56	ug/L			10.0	96	77	---	121		20
1,2-Dichlorobenzene	9.99	ug/L			10.0	100	80	---	119		20
1,2-Dichloroethane	9.25	ug/L			10.0	92	73	---	128		20
1,2-Dichloropropane	9.92	ug/L			10.0	99	78	---	122		20
1,3-Dichlorobenzene	9.84	ug/L			10.0	98	80	---	119		20
1,4-Dichlorobenzene	9.53	ug/L			10.0	95	79	---	118		20
1,4-Dioxane	461	ug/L			500	92	59	---	139		20
112Trichloro122trifluoroethane	21.0	ug/L			20.0	105	70	---	136		20
2-Butanone	98.4	ug/L			100	98	56	---	143		20
2-Hexanone	99.1	ug/L			100	99	57	---	139		20
4-Methyl-2-pentanone	103	ug/L			100	103	67	---	130		20
Acetone	102	ug/L			100	102	39	---	160		20
Benzene	9.50	ug/L			10.0	95	79	---	120		20
Bromochloromethane	9.80	ug/L			10.0	98	78	---	123		20
Bromodichloromethane	9.52	ug/L			10.0	95	79	---	125		20
Bromoform	8.64	ug/L			10.0	86	66	---	130		20
Bromomethane	9.39	ug/L			10.0	94	53	---	141		20
Carbon disulfide	21.1	ug/L			20.0	106	64	---	133		20
Carbon tetrachloride	9.78	ug/L			10.0	98	72	---	136		20
Chlorobenzene	9.90	ug/L			10.0	99	82	---	118		20
Chloroethane	9.69	ug/L			10.0	97	60	---	138		20
Chloroform	9.46	ug/L			10.0	95	79	---	124		20
Chloromethane	9.69	ug/L			10.0	97	50	---	139		20
cis-1,2-Dichloroethene	9.56	ug/L			10.0	96	78	---	123		20
cis-1,3-Dichloropropene	9.80	ug/L			10.0	98	75	---	124		20
Cyclohexane	11.2	ug/L			10.0	112	71	---	130		20
Dibromochloromethane	9.37	ug/L			10.0	94	74	---	126		20
Dichlorodifluoromethane	11.1	ug/L			10.0	111	32	---	152		20
Ethylbenzene	10.3	ug/L			10.0	103	79	---	121		20
Isopropylbenzene	10.0	ug/L			10.0	100	72	---	131		20
m & p-Xylene	20.4	ug/L			20.0	102	80	---	121		20
Methyl acetate	9.54	ug/L			10.0	95	56	---	136		20
Methyl tert-butyl ether	9.43	ug/L			10.0	94	71	---	124		20
Methylcyclohexane	11.0	ug/L			10.0	110	72	---	132		20

Lab Control Spike Water

Analytical Run #:	288214	Analysis Date:	12/23/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1541312	Analysis Time:	09:57	Prep Date/Time:		Method:	SW8260C
Parent Sample #:		Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Methylene chloride	9.65	ug/L			10.0	96	74 --- 124		20
o-Xylene	9.74	ug/L			10.0	97	78 --- 122		20
Styrene	9.87	ug/L			10.0	99	78 --- 123		20
Tetrachloroethene	9.77	ug/L			10.0	98	74 --- 129		20
Toluene	10.0	ug/L			10.0	100	80 --- 121		20
trans-1,2-Dichloroethene	9.37	ug/L			10.0	94	75 --- 124		20
trans-1,3-Dichloropropene	10.1	ug/L			10.0	101	73 --- 127		20
Trichloroethene	10.2	ug/L			10.0	102	79 --- 123		20
Trichlorofluoromethane	8.43	ug/L			10.0	84	65 --- 141		20
Vinyl chloride	10.2	ug/L			10.0	102	58 --- 137		20

Method Blank Water

Analytical Run #:	288214	Analysis Date:	12/23/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1541514	Analysis Time:	11:24	Prep Date/Time:		Method:	SW8260C
Parent Sample #:		Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
1,1,1-Trichloroethane	0.38	ug/L		U	0		0.60		
1,1,2,2-Tetrachloroethane	0.36	ug/L		U	0		0.55		
1,1,2-Trichloroethane	0.27	ug/L		U	0		0.55		
1,1-Dichloroethane	0.28	ug/L		U	0		0.55		
1,1-Dichloroethene	0.49	ug/L		U	0		1.0		
1,2,3-Trichlorobenzene	0.43	ug/L		U	0		1.0		
1,2,4-Trichlorobenzene	0.50	ug/L		U	0		1.0		
1,2-Dibromo-3-chloropropane	0.50	ug/L		U	0		1.0		
1,2-Dibromoethane	0.33	ug/L		U	0		0.55		
1,2-Dichlorobenzene	0.35	ug/L		U	0		0.55		
1,2-Dichloroethane	0.69	ug/L		U	0		1.05		
1,2-Dichloropropane	0.25	ug/L		U	0		0.60		
1,3-Dichlorobenzene	0.30	ug/L		U	0		0.55		
1,4-Dichlorobenzene	0.33	ug/L		U	0		0.55		
1,4-Dioxane	34	ug/L		U	0		50		
112Trichloro122trifluoroethane	1.5	ug/L		U	0		2.25		
2-Butanone	2.9	ug/L		U	0		5.5		
2-Hexanone	3.3	ug/L		U	0		5.5		
4-Methyl-2-pentanone	3.7	ug/L		U	0		6.0		
Acetone	4.1	ug/L		U	0		10		
Benzene	0.40	ug/L		U	0		1.0		
Bromochloromethane	0.26	ug/L		U	0		0.55		
Bromodichloromethane	0.080	ug/L		U	0		0.25		
Bromoform	0.50	ug/L		U	0		1.0		
Bromomethane	0.49	ug/L		U	0		1.0		
Carbon disulfide	0.83	ug/L		U	0		2.0		
Carbon tetrachloride	0.37	ug/L		U	0		0.60		
Chlorobenzene	0.25	ug/L		U	0		0.60		
Chloroethane	1.0	ug/L		U	0		1.5		
Chloroform	0.30	ug/L		U	0		0.70		
Chloromethane	0.39	ug/L		U	0		1.0		
cis-1,2-Dichloroethene	0.41	ug/L		U	0		0.65		
cis-1,3-Dichloropropene	0.25	ug/L		U	0		0.55		
Cyclohexane	0.71	ug/L		U	0		1.1		
Dibromochloromethane	0.25	ug/L		U	0		0.55		
Dichlorodifluoromethane	0.63	ug/L		U	0		1.05		
Ethylbenzene	0.42	ug/L		U	0		0.65		
Isopropylbenzene	0.39	ug/L		U	0		0.60		
m & p-Xylene	0.74	ug/L		U	0		1.15		
Methyl acetate	0.34	ug/L		U	0		1.0		
Methyl tert-butyl ether	0.28	ug/L		U	0		0.55		
Methylcyclohexane	0.78	ug/L		U	0		1.2		

Method Blank Water

Analytical Run #:	288214	Analysis Date:	12/23/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1541514	Analysis Time:	11:24	Prep Date/Time:		Method:	SW8260C
Parent Sample #:		Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Methylene chloride	1.2	ug/L		U	0		2.05		
o-Xylene	0.50	ug/L		U	0		1.1		
Styrene	0.33	ug/L		U	0		0.55		
Tetrachloroethene	0.25	ug/L		U	0		1.0		
Toluene	0.27	ug/L		U	0		0.55		
trans-1,2-Dichloroethene	0.35	ug/L		U	0		0.55		
trans-1,3-Dichloropropene	0.56	ug/L		U	0		1.05		
Trichloroethene	0.25	ug/L		U	0		0.60		
Trichlorofluoromethane	0.41	ug/L		U	0		1.0		
Vinyl chloride	0.12	ug/L		U	0		0.25		

Lab Control Spike Duplicate Water

Analytical Run #:	288301	Analysis Date:	12/20/2024	Prep Batch #:	137162	Matrix:	LIQUID
CTLab #:	1540803	Analysis Time:	09:13	Prep Date/Time:	12/20/2024 08:19	Method:	RSK175
Parent Sample #:	1540802	Analyst:	SRW	Prep Analyst:	SRW		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits			RPD	RPD Limit
Ethane	4.52	ug/L	5.76		4.79	94	74	---	131	24	20
Ethene	6.32	ug/L	8.06		6.80	93	72	---	133	24	20
Methane	2.25	ug/L	2.57		2.30	98	73	---	125	13	20

Lab Control Spike Water

Analytical Run #:	288301	Analysis Date:	12/20/2024	Prep Batch #:	137162	Matrix:	LIQUID
CTLab #:	1540802	Analysis Time:	08:55	Prep Date/Time:	12/20/2024 08:19	Method:	RSK175
Parent Sample #:		Analyst:	SRW	Prep Analyst:	SRW		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Ethane	5.76	ug/L			4.79	120	74 --- 131		20
Ethene	8.06	ug/L			6.80	119	72 --- 133		20
Methane	2.57	ug/L			2.30	112	73 --- 125		20

Method Blank Water

Analytical Run #:	288301	Analysis Date:	12/20/2024	Prep Batch #:	137162	Matrix:	LIQUID
CTLab #:	1540801	Analysis Time:	09:10	Prep Date/Time:	12/20/2024 08:19	Method:	RSK175
Parent Sample #:		Analyst:	SRW	Prep Analyst:	SRW		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Ethane	0.38	ug/L		U	0		0.5		
Ethene	0.59	ug/L		U	0		0.7		
Methane	0.45	ug/L		U	0		0.5		

CT LABORATORIES
delivering more than data from your environmental analyses

Sample Condition Report

Folder #:	191706	Print Date / Time:	12/13/2024	11:58	
Client:	CAPE ENVIRONMENTAL MANAGEMENT	Received Date / Time / By:	12/13/2024	11:45	DJL
Project Name:	RADFORD AAP SWMU 49	Log-In Date / Time / By:	12/13/2024	11:58	BMS
Project Phase:	RADFORD, VA	Project #:	10409-0222	PM:	BMS
Coolers:	6520	Temperature:	4.1 C	On Ice:	**Y**
Custody Seals Present :	**Y**	COC Present:?	**Y**	Complete?	**Y**
Seal Intact?	**Y**	Numbers:	SIGNED & DATED		
Ship Method:	FEDEX EXPRESS	Tracking Number:	770448932126		
Adequate Packaging:	**Y**	Temp Blank Enclosed?	**Y**		

Notes: THE SAMPLES WERE RECEIVED IN GOOD CONDITION ON ICE.

TWO (2) CUSTODY SEALS WERE PRESENT AND INTACT ON THE COOLER UPON RECEIPT (BOTH WERE DATED 12/12/2024 AND SIGNED).

Sample ID /	Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
1538324	TB-3				
		VOA HCL	1	/	VOC
		VOA HCL	1	/	VOC
		Total # of Containers of Type	(***VOA HCL***) = **2**		
Sample ID /	**Description**	**Container Type**	**Cond. Code**	**pH OK?/Filtered?**	**Tests**
1538327	49MW03				
		UNPRES PL	1	/	Anions
		Total # of Containers of Type	(***UNPRES PL***) = **1**		
1538327	49MW03				
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		Total # of Containers of Type	(***VOA HCL***) = **5**		
1538327	49MW03				
		H2SO4 PL	1	/	TOC
		Total # of Containers of Type	(***H2SO4 PL***) = **1**		
Sample ID /	**Description**	**Container Type**	**Cond. Code**	**pH OK?/Filtered?**	**Tests**
1538328	49MW03-EQB				
		UNPRES PL	1	/	Anions
		Total # of Containers of Type	(***UNPRES PL***) = **1**		

1538328	49MW03-EQB				
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		Total # of Containers of Type	**(*VOA HCL*) = 5**		
1538328	49MW03-EQB				
		H2SO4 PL	1	/	TOC
		Total # of Containers of Type	**(*H2SO4 PL*) = 1**		

Sample ID /	Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
1538329	48MW1				
		UNPRES PL	1	/	Anions
		Total # of Containers of Type	**(*UNPRES PL*) = 1**		
1538329	48MW1				
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		Total # of Containers of Type	**(*VOA HCL*) = 5**		
1538329	48MW1				
		H2SO4 PL	1	/	TOC
		Total # of Containers of Type	**(*H2SO4 PL*) = 1**		

Sample ID /	Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
1538330	48TW1				
		UNPRES PL	1	/	Anions
		Total # of Containers of Type	**(*UNPRES PL*) = 1**		
1538330	48TW1				
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		Total # of Containers of Type	**(*VOA HCL*) = 5**		
1538330	48TW1				
		H2SO4 PL	1	/	TOC
		Total # of Containers of Type	**(*H2SO4 PL*) = 1**		

Sample ID /	Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
1538331	49MW01				
		UNPRES PL	1	/	Anions
		Total # of Containers of Type	**(*UNPRES PL*) = 1**		

1538331	49MW01				
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		Total # of Containers of Type	(***VOA HCL***) = **5**		
1538331	49MW01				
		H2SO4 PL	1	/	TOC
		Total # of Containers of Type	(***H2SO4 PL***) = **1**		

Sample ID /	Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
1538332	50MW2				
		UNPRES PL	1	/	Anions
		Total # of Containers of Type	(***UNPRES PL***) = **1**		
1538332	50MW2				
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		Total # of Containers of Type	(***VOA HCL***) = **5**		
1538332	50MW2				
		H2SO4 PL	1	/	TOC
		Total # of Containers of Type	(***H2SO4 PL***) = **1**		

Condition Code *Condition Description*

1 Sample Received OK

Rev. 02/2017

CHAIN OF CUSTODY

Page 1 of 1

Company: CAPE Environmental
Project Contact: Matt Feits
Telephone: (724) 622-3625
Project Name: Radford AAP SWMU 48/49
Project #:
Location: Radford, VA
Sampled By: Y. Miyakawa, P. Taylor

CT LABORATORIES
1230 Lange Court, Baraboo, WI 53913
608-356-2760 Fax 608-356-2766
www.ctlaboratories.com

Folder #: 191706
Company: CAPE ENVIRONMENTAL MA
Project: RADFORD AAP SWMU 49
Logged By: BMS PM: BMS

Program: M RCRA SDWA NPDES
Solid Waste Other _____
PO #

Report To: chemistrySVCS@cape-inc.com
EMAIL: mfeits@cape-inc.com
Company: CAPE Environmental Mgt.
Address: 500 Pinnacle Ct. #700 Norcross, GA 30071

Invoice To:*
EMAIL:
Company: Same
Address:

*Party listed is responsible for payment of invoice as per CT Laboratories' terms and conditions

Client Special Instructions

Matrix:
GW – groundwater SW - surface water WW - wastewater DW - drinking water
S - soil/sediment SL - sludge A - air M - misc/waste

2024 Collection Date	Time	Matrix	Grab/ Comp	Sample #	Sample ID Description	Filtered? Y/N	VOC 8260C	MEE RSK-175	TOC 9060A	Anions 9056A										Total # Containers	Designated MS/MSD	CT Lab ID # (Lab use only)
						Fill in Spaces with Bottles per Test																
12/12	0000	GW	G		TB-3	N	2				Trip Blank									2		1538324
12/12	0935	GW	G		49MW03	N	3	2	1	1										7		1538327
12/12	0955	GW	G		49MW03-EQB	N	3	2	1	1										7		1538328
12/12	1125	GW	G		48MW1	N	3	2	1	1										7		1538329
12/12	1125	GW	G		48TW1	N	3	2	1	1										7		1538330
12/12	1325	GW	G		49MW01	N	3	2	1	1										7		1538331
12/12	1530	GW	G		50MW2	N	3	2	1	1										7		1538332

Turnaround Time
Normal RUSH*
Date Needed: _____
Rush analysis requires prior CT Laboratories' approval
Surcharges:
24 hr 200%
2-3 days 100%
4-9 days 50%

Relinquished By:	Date/Time	Received By:	Date/Time
	12/12/2024 1800	Fedex	12/12/2024 1800
Received by:	Date/Time	Received for Laboratory by:	Date/Time
		Brett Szymanski	12/13/2024 11:58

Lab Use Only
Ice Present (Yes) No
Temp 4.1°C IR Gun SRT33
Cooler # 6520

Cooler Receipt Form

Ice Present (YES) NO

Observed Temperature 4.1

Actual Temperature _____

IR Gun # 33

Initials DL

Date 12/13/24 Time 11:45

Cooler #: 6520



CT LABORATORIES
delivering more than data from your environmental analyses

1230 Lange Court • Baraboo, WI 53913 • 608-356-2760

www.ctlaboratories.com

ANALYTICAL SUMMARY REPORT

This report at a minimum contains the following information:

Analytical Report of Test Results
Description of QC Qualifiers
Chain of Custody (copy)
Quality Control Summary (if applicable)
Case Narrative (if applicable)
Correspondence with Client (if applicable)

This report has been specifically prepared to satisfy project or program requirements. These results are in compliance with NELAC requirements for parameters where accreditation is required or available, unless otherwise noted in the case narrative.

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

ANALYTICAL SAMPLE DATA

CAPE ENVIRONMENTAL MANAGEMENT
MATT FEITS
500 PINNACLE COURT
SUITE 100
NORCROSS, GA 30071

Project Name: RADFORD AAP SWMU 49
Project Phase: RADFORD, VA
Project #: 10409-0222
Folder #: 191720
Purchase Order #: SC013781
Contract #: 3648

Arrival Temperature: 1.3
Report Date: 1/10/2025
Date Received: 12/14/2024
Reprint Date: 1/10/2025

Copy: chemistrysvcs@cape-inc.com

CT LAB#: 1538659 Sample Description: TB-4 Client Sample #: Sampled: 12/13/2024 00:00

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Organic Results													
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			12/23/24 11:53	DGS	EPA 8260C
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			12/23/24 11:53	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/23/24 11:53	DGS	EPA 8260C
1,1-Dichloroethane	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/23/24 11:53	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/23/24 11:53	DGS	EPA 8260C
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			12/23/24 11:53	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/23/24 11:53	DGS	EPA 8260C
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/23/24 11:53	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/23/24 11:53	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/23/24 11:53	DGS	EPA 8260C
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			12/23/24 11:53	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/23/24 11:53	DGS	EPA 8260C
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			12/23/24 11:53	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/23/24 11:53	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			12/23/24 11:53	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U			12/23/24 11:53	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1538659 Sample Description: TB-4 Client Sample #: Sampled: 12/13/2024 00:00

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			12/23/24 11:53	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			12/23/24 11:53	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			12/23/24 11:53	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			12/23/24 11:53	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			12/23/24 11:53	DGS	EPA 8260C
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			12/23/24 11:53	DGS	EPA 8260C
Bromodichloromethane	<0.25	ug/L	0.080	0.25	0.50	0.50	1.00	U			12/23/24 11:53	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/23/24 11:53	DGS	EPA 8260C
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/23/24 11:53	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			12/23/24 11:53	DGS	EPA 8260C
Carbon tetrachloride	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			12/23/24 11:53	DGS	EPA 8260C
Chlorobenzene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/23/24 11:53	DGS	EPA 8260C
Chloroethane	<2.0	ug/L	1.0	2.0	3.0	3.0	1.00	U			12/23/24 11:53	DGS	EPA 8260C
Chloroform	<1.0	ug/L	0.30	1.0	1.4	1.4	1.00	U			12/23/24 11:53	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			12/23/24 11:53	DGS	EPA 8260C
cis-1,2-Dichloroethene	<1.0	ug/L	0.41	1.0	1.3	1.3	1.00	U			12/23/24 11:53	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/23/24 11:53	DGS	EPA 8260C
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U			12/23/24 11:53	DGS	EPA 8260C
Dibromochloromethane	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/23/24 11:53	DGS	EPA 8260C
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			12/23/24 11:53	DGS	EPA 8260C
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			12/23/24 11:53	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			12/23/24 11:53	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			12/23/24 11:53	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			12/23/24 11:53	DGS	EPA 8260C
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/23/24 11:53	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			12/23/24 11:53	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U			12/23/24 11:53	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.50	2.0	2.2	2.2	1.00	U			12/23/24 11:53	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1538659 Sample Description: TB-4 Client Sample #: Sampled: 12/13/2024 00:00

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/23/24 11:53	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.25	1.0	2.0	2.0	1.00	U			12/23/24 11:53	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/23/24 11:53	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/23/24 11:53	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			12/23/24 11:53	DGS	EPA 8260C
Trichloroethene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/23/24 11:53	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U			12/23/24 11:53	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			12/23/24 11:53	DGS	EPA 8260C
1,2 Dichloroethane-d4	104	% Recovery	81			118	1.00				12/23/24 11:53	DGS	EPA 8260C
Bromofluorobenzene	94.0	% Recovery	85			114	1.00				12/23/24 11:53	DGS	EPA 8260C
d8-Toluene	100	% Recovery	89			112	1.00				12/23/24 11:53	DGS	EPA 8260C
Dibromofluoromethane	98.0	% Recovery	80			119	1.00				12/23/24 11:53	DGS	EPA 8260C

CT LAB#: 1538660 Sample Description: 48MW2 Client Sample #: Sampled: 12/13/2024 10:30

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results													
Chloride	***1.9***	mg/L	1.0	1.5	3.0	3.0	1.00	J			12/14/24 15:41	TMG	EPA 9056A
Nitrate Nitrogen	***0.84***	mg/L	0.12	0.20	0.40	0.40	1.00				12/14/24 15:27	TMG	EPA 9056A
Sulfate	***3.4***	mg/L	0.80	1.5	3.0	3.0	1.00				12/14/24 15:41	TMG	EPA 9056A
Total Organic Carbon	***0.49***	mg/L	0.4	1.5	3.0	3.0	1.00	J			12/30/24 19:27	TMG	EPA 9060A
Organic Results													
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			12/23/24 13:48	DGS	EPA 8260C
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			12/23/24 13:48	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/23/24 13:48	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1538660 Sample Description: 48MW2 Client Sample #: Sampled: 12/13/2024 10:30

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
1,1-Dichloroethane	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/23/24 13:48	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/23/24 13:48	DGS	EPA 8260C
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			12/23/24 13:48	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/23/24 13:48	DGS	EPA 8260C
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/23/24 13:48	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/23/24 13:48	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/23/24 13:48	DGS	EPA 8260C
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			12/23/24 13:48	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/23/24 13:48	DGS	EPA 8260C
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			12/23/24 13:48	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/23/24 13:48	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			12/23/24 13:48	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U			12/23/24 13:48	DGS	EPA 8260C
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			12/23/24 13:48	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			12/23/24 13:48	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			12/23/24 13:48	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			12/23/24 13:48	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			12/23/24 13:48	DGS	EPA 8260C
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			12/23/24 13:48	DGS	EPA 8260C
Bromodichloromethane	<0.25	ug/L	0.080	0.25	0.50	0.50	1.00	U			12/23/24 13:48	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/23/24 13:48	DGS	EPA 8260C
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/23/24 13:48	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			12/23/24 13:48	DGS	EPA 8260C
Carbon tetrachloride	***36***	ug/L	0.37	1.0	1.2	1.2	1.00				12/23/24 13:48	DGS	EPA 8260C
Chlorobenzene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/23/24 13:48	DGS	EPA 8260C
Chloroethane	<2.0	ug/L	1.0	2.0	3.0	3.0	1.00	U			12/23/24 13:48	DGS	EPA 8260C
Chloroform	***3.9***	ug/L	0.30	1.0	1.4	1.4	1.00				12/23/24 13:48	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			12/23/24 13:48	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1538660 Sample Description: 48MW2 Client Sample #: Sampled: 12/13/2024 10:30

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
cis-1,2-Dichloroethene	<1.0	ug/L	0.41	1.0	1.3	1.3	1.00	U			12/23/24 13:48	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/23/24 13:48	DGS	EPA 8260C
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U			12/23/24 13:48	DGS	EPA 8260C
Dibromochloromethane	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/23/24 13:48	DGS	EPA 8260C
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			12/23/24 13:48	DGS	EPA 8260C
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			12/23/24 13:48	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			12/23/24 13:48	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			12/23/24 13:48	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			12/23/24 13:48	DGS	EPA 8260C
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/23/24 13:48	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			12/23/24 13:48	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U			12/23/24 13:48	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.50	2.0	2.2	2.2	1.00	U			12/23/24 13:48	DGS	EPA 8260C
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/23/24 13:48	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.25	1.0	2.0	2.0	1.00	U			12/23/24 13:48	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/23/24 13:48	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/23/24 13:48	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			12/23/24 13:48	DGS	EPA 8260C
Trichloroethene	***3.4***	ug/L	0.25	1.0	1.2	1.2	1.00				12/23/24 13:48	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U			12/23/24 13:48	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			12/23/24 13:48	DGS	EPA 8260C
1,2 Dichloroethane-d4	99.0	% Recovery	81			118	1.00				12/23/24 13:48	DGS	EPA 8260C
Bromofluorobenzene	103	% Recovery	85			114	1.00				12/23/24 13:48	DGS	EPA 8260C
d8-Toluene	101	% Recovery	89			112	1.00				12/23/24 13:48	DGS	EPA 8260C
Dibromofluoromethane	97.0	% Recovery	80			119	1.00				12/23/24 13:48	DGS	EPA 8260C
Ethane	<0.80	ug/L	0.38	0.80	1.0	1.0	1.00	U Y		12/20/24 08:19	12/20/24 12:47	SRW	RSK 175
Ethene	<1.2	ug/L	0.59	1.2	1.4	1.4	1.00	U Y		12/20/24 08:19	12/20/24 12:47	SRW	RSK 175
Methane	***0.49***	ug/L	0.45	0.90	1.0	1.0	1.00	J		12/20/24 08:19	12/20/24 12:47	SRW	RSK 175

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1538660 Sample Description: 48MW2 Client Sample #: Sampled: 12/13/2024 10:30

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method

CT LAB#: 1538661 Sample Description: 48MW2-EQB Client Sample #: Sampled: 12/13/2024 10:50

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results													
Chloride	<1.5	mg/L	1.0	1.5	3.0	3.0	1.00	U			12/14/24 16:10	TMG	EPA 9056A
Nitrate Nitrogen	<0.20	mg/L	0.12	0.20	0.40	0.40	1.00	U			12/14/24 15:54	TMG	EPA 9056A
Sulfate	<1.5	mg/L	0.80	1.5	3.0	3.0	1.00	U			12/14/24 16:10	TMG	EPA 9056A
Total Organic Carbon	<1.5	mg/L	0.4	1.5	3.0	3.0	1.00	U			12/30/24 19:48	TMG	EPA 9060A
Organic Results													
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			12/23/24 12:21	DGS	EPA 8260C
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			12/23/24 12:21	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/23/24 12:21	DGS	EPA 8260C
1,1-Dichloroethane	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/23/24 12:21	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/23/24 12:21	DGS	EPA 8260C
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			12/23/24 12:21	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/23/24 12:21	DGS	EPA 8260C
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/23/24 12:21	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/23/24 12:21	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/23/24 12:21	DGS	EPA 8260C
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			12/23/24 12:21	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/23/24 12:21	DGS	EPA 8260C
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			12/23/24 12:21	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/23/24 12:21	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			12/23/24 12:21	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U			12/23/24 12:21	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1538661 Sample Description: 48MW2-EQB Client Sample #: Sampled: 12/13/2024 10:50

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			12/23/24 12:21	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			12/23/24 12:21	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			12/23/24 12:21	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			12/23/24 12:21	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			12/23/24 12:21	DGS	EPA 8260C
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			12/23/24 12:21	DGS	EPA 8260C
Bromodichloromethane	***1.4***	ug/L	0.080	0.25	0.50	0.50	1.00				12/23/24 12:21	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/23/24 12:21	DGS	EPA 8260C
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/23/24 12:21	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			12/23/24 12:21	DGS	EPA 8260C
Carbon tetrachloride	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			12/23/24 12:21	DGS	EPA 8260C
Chlorobenzene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/23/24 12:21	DGS	EPA 8260C
Chloroethane	<2.0	ug/L	1.0	2.0	3.0	3.0	1.00	U			12/23/24 12:21	DGS	EPA 8260C
Chloroform	***6.8***	ug/L	0.30	1.0	1.4	1.4	1.00				12/23/24 12:21	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			12/23/24 12:21	DGS	EPA 8260C
cis-1,2-Dichloroethene	<1.0	ug/L	0.41	1.0	1.3	1.3	1.00	U			12/23/24 12:21	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/23/24 12:21	DGS	EPA 8260C
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U			12/23/24 12:21	DGS	EPA 8260C
Dibromochloromethane	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/23/24 12:21	DGS	EPA 8260C
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			12/23/24 12:21	DGS	EPA 8260C
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			12/23/24 12:21	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			12/23/24 12:21	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			12/23/24 12:21	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			12/23/24 12:21	DGS	EPA 8260C
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/23/24 12:21	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			12/23/24 12:21	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U			12/23/24 12:21	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.50	2.0	2.2	2.2	1.00	U			12/23/24 12:21	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1538661 Sample Description: 48MW2-EQB Client Sample #: Sampled: 12/13/2024 10:50

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/23/24 12:21	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.25	1.0	2.0	2.0	1.00	U			12/23/24 12:21	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/23/24 12:21	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/23/24 12:21	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			12/23/24 12:21	DGS	EPA 8260C
Trichloroethene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/23/24 12:21	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U			12/23/24 12:21	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			12/23/24 12:21	DGS	EPA 8260C
1,2 Dichloroethane-d4	98.0	% Recovery	81			118	1.00				12/23/24 12:21	DGS	EPA 8260C
Bromofluorobenzene	104	% Recovery	85			114	1.00				12/23/24 12:21	DGS	EPA 8260C
d8-Toluene	100	% Recovery	89			112	1.00				12/23/24 12:21	DGS	EPA 8260C
Dibromofluoromethane	97.0	% Recovery	80			119	1.00				12/23/24 12:21	DGS	EPA 8260C
Ethane	<0.80	ug/L	0.38	0.80	1.0	1.0	1.00	U Y		12/20/24 08:19	12/20/24 12:51	SRW	RSK 175
Ethene	<1.2	ug/L	0.59	1.2	1.4	1.4	1.00	U Y		12/20/24 08:19	12/20/24 12:51	SRW	RSK 175
Methane	<0.90	ug/L	0.45	0.90	1.0	1.0	1.00	U		12/20/24 08:19	12/20/24 12:51	SRW	RSK 175

CT LAB#: 1538662 Sample Description: 48MW3 Client Sample #: Sampled: 12/13/2024 12:05

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results													
Chloride	***2.8***	mg/L	1.0	1.5	3.0	3.0	1.00	J			12/14/24 16:39	TMG	EPA 9056A
Nitrate Nitrogen	***6.5***	mg/L	0.12	0.20	0.40	0.40	1.00				12/14/24 16:22	TMG	EPA 9056A
Sulfate	***31***	mg/L	0.80	1.5	3.0	3.0	1.00				12/14/24 16:39	TMG	EPA 9056A
Total Organic Carbon	***0.97***	mg/L	0.4	1.5	3.0	3.0	1.00	J			12/30/24 21:07	TMG	EPA 9060A
Organic Results													

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1538662 Sample Description: 48MW3 Client Sample #: Sampled: 12/13/2024 12:05

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			12/23/24 14:18	DGS	EPA 8260C
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			12/23/24 14:18	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/23/24 14:18	DGS	EPA 8260C
1,1-Dichloroethane	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/23/24 14:18	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/23/24 14:18	DGS	EPA 8260C
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U			12/23/24 14:18	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/23/24 14:18	DGS	EPA 8260C
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/23/24 14:18	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/23/24 14:18	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/23/24 14:18	DGS	EPA 8260C
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			12/23/24 14:18	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/23/24 14:18	DGS	EPA 8260C
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			12/23/24 14:18	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/23/24 14:18	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			12/23/24 14:18	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U			12/23/24 14:18	DGS	EPA 8260C
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			12/23/24 14:18	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			12/23/24 14:18	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			12/23/24 14:18	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			12/23/24 14:18	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			12/23/24 14:18	DGS	EPA 8260C
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			12/23/24 14:18	DGS	EPA 8260C
Bromodichloromethane	<0.25	ug/L	0.080	0.25	0.50	0.50	1.00	U			12/23/24 14:18	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/23/24 14:18	DGS	EPA 8260C
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/23/24 14:18	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			12/23/24 14:18	DGS	EPA 8260C
Carbon tetrachloride	***76***	ug/L	0.37	1.0	1.2	1.2	1.00				12/23/24 14:18	DGS	EPA 8260C
Chlorobenzene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/23/24 14:18	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1538662 Sample Description: 48MW3 Client Sample #: Sampled: 12/13/2024 12:05

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Chloroethane	<2.0	ug/L	1.0	2.0	3.0	3.0	1.00	U			12/23/24 14:18	DGS	EPA 8260C
Chloroform	***11***	ug/L	0.30	1.0	1.4	1.4	1.00				12/23/24 14:18	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			12/23/24 14:18	DGS	EPA 8260C
cis-1,2-Dichloroethene	<1.0	ug/L	0.41	1.0	1.3	1.3	1.00	U			12/23/24 14:18	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/23/24 14:18	DGS	EPA 8260C
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U			12/23/24 14:18	DGS	EPA 8260C
Dibromochloromethane	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/23/24 14:18	DGS	EPA 8260C
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			12/23/24 14:18	DGS	EPA 8260C
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			12/23/24 14:18	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			12/23/24 14:18	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			12/23/24 14:18	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			12/23/24 14:18	DGS	EPA 8260C
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/23/24 14:18	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			12/23/24 14:18	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U			12/23/24 14:18	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.50	2.0	2.2	2.2	1.00	U			12/23/24 14:18	DGS	EPA 8260C
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/23/24 14:18	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.25	1.0	2.0	2.0	1.00	U			12/23/24 14:18	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/23/24 14:18	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/23/24 14:18	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			12/23/24 14:18	DGS	EPA 8260C
Trichloroethene	***14***	ug/L	0.25	1.0	1.2	1.2	1.00				12/23/24 14:18	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U			12/23/24 14:18	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			12/23/24 14:18	DGS	EPA 8260C
1,2 Dichloroethane-d4	102	% Recovery	81			118	1.00				12/23/24 14:18	DGS	EPA 8260C
Bromofluorobenzene	113	% Recovery	85			114	1.00				12/23/24 14:18	DGS	EPA 8260C
d8-Toluene	101	% Recovery	89			112	1.00				12/23/24 14:18	DGS	EPA 8260C
Dibromofluoromethane	98.0	% Recovery	80			119	1.00				12/23/24 14:18	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1538662 Sample Description: 48MW3 Client Sample #: Sampled: 12/13/2024 12:05

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Ethane	<0.80	ug/L	0.38	0.80	1.0	1.0	1.00	U Y		12/20/24 08:19	12/20/24 12:54	SRW	RSK 175
Ethene	<1.2	ug/L	0.59	1.2	1.4	1.4	1.00	U Y		12/20/24 08:19	12/20/24 12:54	SRW	RSK 175
Methane	<0.90	ug/L	0.45	0.90	1.0	1.0	1.00	U		12/20/24 08:19	12/20/24 12:54	SRW	RSK 175

CT LAB#: 1538663 Sample Description: 49MW02 Client Sample #: Sampled: 12/13/2024 13:40

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results													
Chloride	***1.9***	mg/L	1.0	1.5	3.0	3.0	1.00	J			12/14/24 17:07	TMG	EPA 9056A
Nitrate Nitrogen	***0.25***	mg/L	0.12	0.20	0.40	0.40	1.00	J			12/14/24 16:49	TMG	EPA 9056A
Sulfate	***17***	mg/L	0.80	1.5	3.0	3.0	1.00				12/14/24 17:07	TMG	EPA 9056A
Total Organic Carbon	***0.59***	mg/L	0.4	1.5	3.0	3.0	1.00	J			12/30/24 21:28	TMG	EPA 9060A
Organic Results													
Qualifiers applying to all Analytes of Method EPA 8260C: T													
1,1,1-Trichloroethane	<1.0	ug/L	0.38	1.0	1.2	1.2	1.00	U			12/23/24 14:47	DGS	EPA 8260C
1,1,2,2-Tetrachloroethane	<1.0	ug/L	0.36	1.0	1.1	1.1	1.00	U			12/23/24 14:47	DGS	EPA 8260C
1,1,2-Trichloroethane	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/23/24 14:47	DGS	EPA 8260C
1,1-Dichloroethane	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/23/24 14:47	DGS	EPA 8260C
1,1-Dichloroethene	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/23/24 14:47	DGS	EPA 8260C
1,2,3-Trichlorobenzene	<1.0	ug/L	0.43	1.0	2.0	2.0	1.00	U Y			12/23/24 14:47	DGS	EPA 8260C
1,2,4-Trichlorobenzene	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U Y			12/23/24 14:47	DGS	EPA 8260C
1,2-Dibromo-3-chloropropane	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U Y			12/23/24 14:47	DGS	EPA 8260C
1,2-Dibromoethane	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/23/24 14:47	DGS	EPA 8260C
1,2-Dichlorobenzene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/23/24 14:47	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1538663 Sample Description: 49MW02 Client Sample #: Sampled: 12/13/2024 13:40

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Qualifiers applying to all Analytes of Method EPA 8260C: T													
1,2-Dichloroethane	<2.0	ug/L	0.69	2.0	2.1	2.1	1.00	U			12/23/24 14:47	DGS	EPA 8260C
1,2-Dichloropropane	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/23/24 14:47	DGS	EPA 8260C
1,3-Dichlorobenzene	<1.0	ug/L	0.30	1.0	1.1	1.1	1.00	U			12/23/24 14:47	DGS	EPA 8260C
1,4-Dichlorobenzene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/23/24 14:47	DGS	EPA 8260C
1,4-Dioxane	<50	ug/L	34	50	100	100	1.00	U			12/23/24 14:47	DGS	EPA 8260C
112Trichloro122trifluoroethane	<4.0	ug/L	1.5	4.0	4.5	4.5	1.00	U			12/23/24 14:47	DGS	EPA 8260C
2-Butanone	<10	ug/L	2.9	10	11	11	1.00	U			12/23/24 14:47	DGS	EPA 8260C
2-Hexanone	<10	ug/L	3.3	10	11	11	1.00	U			12/23/24 14:47	DGS	EPA 8260C
4-Methyl-2-pentanone	<10	ug/L	3.7	10	12	12	1.00	U			12/23/24 14:47	DGS	EPA 8260C
Acetone	<10	ug/L	4.1	10	20	20	1.00	U			12/23/24 14:47	DGS	EPA 8260C
Benzene	<1.0	ug/L	0.40	1.0	2.0	2.0	1.00	U			12/23/24 14:47	DGS	EPA 8260C
Bromochloromethane	<1.0	ug/L	0.26	1.0	1.1	1.1	1.00	U			12/23/24 14:47	DGS	EPA 8260C
Bromodichloromethane	<0.25	ug/L	0.080	0.25	0.50	0.50	1.00	U			12/23/24 14:47	DGS	EPA 8260C
Bromoform	<1.0	ug/L	0.50	1.0	2.0	2.0	1.00	U			12/23/24 14:47	DGS	EPA 8260C
Bromomethane	<1.0	ug/L	0.49	1.0	2.0	2.0	1.00	U			12/23/24 14:47	DGS	EPA 8260C
Carbon disulfide	<2.0	ug/L	0.83	2.0	4.0	4.0	1.00	U			12/23/24 14:47	DGS	EPA 8260C
Carbon tetrachloride	<1.0	ug/L	0.37	1.0	1.2	1.2	1.00	U			12/23/24 14:47	DGS	EPA 8260C
Chlorobenzene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/23/24 14:47	DGS	EPA 8260C
Chloroethane	<2.0	ug/L	1.0	2.0	3.0	3.0	1.00	U			12/23/24 14:47	DGS	EPA 8260C
Chloroform	<1.0	ug/L	0.30	1.0	1.4	1.4	1.00	U			12/23/24 14:47	DGS	EPA 8260C
Chloromethane	<1.0	ug/L	0.39	1.0	2.0	2.0	1.00	U			12/23/24 14:47	DGS	EPA 8260C
cis-1,2-Dichloroethene	<1.0	ug/L	0.41	1.0	1.3	1.3	1.00	U			12/23/24 14:47	DGS	EPA 8260C
cis-1,3-Dichloropropene	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/23/24 14:47	DGS	EPA 8260C
Cyclohexane	<2.0	ug/L	0.71	2.0	2.2	2.2	1.00	U			12/23/24 14:47	DGS	EPA 8260C
Dibromochloromethane	<1.0	ug/L	0.25	1.0	1.1	1.1	1.00	U			12/23/24 14:47	DGS	EPA 8260C
Dichlorodifluoromethane	<2.0	ug/L	0.63	2.0	2.1	2.1	1.00	U			12/23/24 14:47	DGS	EPA 8260C

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 1538663 Sample Description: 49MW02 Client Sample #: Sampled: 12/13/2024 13:40

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Leach Date	Prep Date/Time	Analysis Date/Time	Analyst	Method
Qualifiers applying to all Analytes of Method EPA 8260C: T													
Ethylbenzene	<1.0	ug/L	0.42	1.0	1.3	1.3	1.00	U			12/23/24 14:47	DGS	EPA 8260C
Isopropylbenzene	<1.0	ug/L	0.39	1.0	1.2	1.2	1.00	U			12/23/24 14:47	DGS	EPA 8260C
m & p-Xylene	<2.0	ug/L	0.74	2.0	2.3	2.3	1.00	U			12/23/24 14:47	DGS	EPA 8260C
Methyl acetate	<1.0	ug/L	0.34	1.0	2.0	2.0	1.00	U			12/23/24 14:47	DGS	EPA 8260C
Methyl tert-butyl ether	<1.0	ug/L	0.28	1.0	1.1	1.1	1.00	U			12/23/24 14:47	DGS	EPA 8260C
Methylcyclohexane	<2.0	ug/L	0.78	2.0	2.4	2.4	1.00	U			12/23/24 14:47	DGS	EPA 8260C
Methylene chloride	<4.0	ug/L	1.2	4.0	4.1	4.1	1.00	U Y			12/23/24 14:47	DGS	EPA 8260C
o-Xylene	<2.0	ug/L	0.50	2.0	2.2	2.2	1.00	U			12/23/24 14:47	DGS	EPA 8260C
Styrene	<1.0	ug/L	0.33	1.0	1.1	1.1	1.00	U			12/23/24 14:47	DGS	EPA 8260C
Tetrachloroethene	<1.0	ug/L	0.25	1.0	2.0	2.0	1.00	U			12/23/24 14:47	DGS	EPA 8260C
Toluene	<1.0	ug/L	0.27	1.0	1.1	1.1	1.00	U			12/23/24 14:47	DGS	EPA 8260C
trans-1,2-Dichloroethene	<1.0	ug/L	0.35	1.0	1.1	1.1	1.00	U			12/23/24 14:47	DGS	EPA 8260C
trans-1,3-Dichloropropene	<2.0	ug/L	0.56	2.0	2.1	2.1	1.00	U			12/23/24 14:47	DGS	EPA 8260C
Trichloroethene	<1.0	ug/L	0.25	1.0	1.2	1.2	1.00	U			12/23/24 14:47	DGS	EPA 8260C
Trichlorofluoromethane	<1.0	ug/L	0.41	1.0	2.0	2.0	1.00	U			12/23/24 14:47	DGS	EPA 8260C
Vinyl chloride	<0.25	ug/L	0.12	0.25	0.50	0.50	1.00	U			12/23/24 14:47	DGS	EPA 8260C
1,2 Dichloroethane-d4	97.0	% Recovery	81			118	1.00				12/23/24 14:47	DGS	EPA 8260C
Bromofluorobenzene	93.0	% Recovery	85			114	1.00				12/23/24 14:47	DGS	EPA 8260C
d8-Toluene	101	% Recovery	89			112	1.00				12/23/24 14:47	DGS	EPA 8260C
Dibromofluoromethane	96.0	% Recovery	80			119	1.00				12/23/24 14:47	DGS	EPA 8260C
Ethane	<0.80	ug/L	0.38	0.80	1.0	1.0	1.00	U Y,T		12/20/24 08:19	12/20/24 13:22	SRW	RSK 175
Ethene	<1.2	ug/L	0.59	1.2	1.4	1.4	1.00	U Y,T		12/20/24 08:19	12/20/24 13:22	SRW	RSK 175
Methane	***1.9***	ug/L	0.45	0.90	1.0	1.0	1.00	T		12/20/24 08:19	12/20/24 13:22	SRW	RSK 175

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

Notes:

^ Indicates the laboratory is NELAP accredited for this analyte by the indicated matrix and method . DL (detection limit), LOD (limit of detection), loq (limit of quantitation) as defined by most recent DOD QSM version.

All samples were received intact and properly preserved unless otherwise noted . The results reported relate only to the samples tested. This report shall not be reproduced, except in full, without written approval of this laboratory. The Chain of Custody is attached.

This report has been specifically prepared to satisfy project or program requirements. These results are in compliance with NELAC requirements for the parameters where accreditation is required or available, unless noted in the case narrative.

Submitted by: Brett M. Szymanski
Project Manager
608-356-2760

QC Qualifiers

Code	Description
B	Analyte detected in the associated Method Blank.
C	Toxicity present in BOD sample.
D	Diluted Out.
E	Safe, No Total Coliform detected.
F	Unsafe, Total Coliform detected, no E. Coli detected.
G	Unsafe, Total Coliform detected and E. Coli detected.
H	Holding time exceeded.
I	Incubator temperature was outside acceptance limits during test period.
J	Estimated value.
L	Significant peaks were detected outside the chromatographic window.
M	Matrix spike and/or Matrix Spike Duplicate recovery outside acceptance limits.
N	Insufficient BOD oxygen depletion.
O	Complete BOD oxygen depletion.
P	Concentration of analyte differs more than 40% between primary and confirmation analysis.
Q	Laboratory Control Sample outside acceptance limits.
R	See Narrative at end of report.
S	Surrogate standard recovery outside acceptance limits due to apparent matrix effects.
T	Sample received with improper preservation or temperature.
U	Analyte concentration was below detection limit.
V	Raised Quantitation or Reporting Limit due to limited sample amount or dilution for matrix background interference.
W	Sample amount received was below program minimum.
X	Analyte exceeded calibration range.
Y	Replicate/Duplicate precision outside acceptance limits.
Z	Specified calibration criteria was not met.

Current CT Laboratories Certifications

Wisconsin (WDNR) Chemistry ID# 157066030
Wisconsin (DATCP) Bacteriology ID# 289
Louisiana NELAP (primary) ID# 115843
Illinois NELAP Lab ID# 200073
Kansas NELAP Lab ID# E-10368
Virginia NELAP Lab ID# 460203
ISO/IEC 17025-2005 PJLA Cert # L24-913
DoD-ELAP PJLA L24-913
Florida NELAP Lab ID# E871111

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QC Summary Report

CAPE ENVIRONMENTAL MANAGEMENT **Project Name: RADFORD AAP SWMU 49**

SDG #: 0 **Folder #: 191720** **Project #: 10409-0222**

Duplicate

Analytical Run #:	288130	Analysis Date:	12/14/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1539714	Analysis Time:	19:59	Prep Date/Time:		Method:	SW9056A
Parent Sample #:	1538660	Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Chloride	1.84	mg/L	1.9				3.0	3	10
Nitrate Nitrogen	0.865	mg/L	0.84				0.40	3	10
Sulfate	3.39	mg/L	3.4				3.0	0	10

Lab Control Spike Water

Analytical Run #:	288130	Analysis Date:	12/14/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1539705	Analysis Time:	13:18	Prep Date/Time:		Method:	SW9056A
Parent Sample #:		Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits			RPD	RPD Limit
Chloride	14.73	mg/L			15.00	98	87	---	111		
Nitrate Nitrogen	3.624	mg/L			3.500	104	88	---	111		
Sulfate	25.64	mg/L			25.00	103	87	---	112		

Method Blank Water

Analytical Run #:	288130	Analysis Date:	12/14/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1539706	Analysis Time:	13:46	Prep Date/Time:		Method:	SW9056A
Parent Sample #:		Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Chloride	1.0	mg/L		U	0		1.5		
Nitrate Nitrogen	0.12	mg/L		U	0		0.20		
Sulfate	0.8	mg/L		U	0		1.5		

Matrix Spike Duplicate Water

Analytical Run #:	288130	Analysis Date:	12/14/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1539716	Analysis Time:	20:57	Prep Date/Time:		Method:	SW9056A
Parent Sample #:	1539715	Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits			RPD	RPD Limit
Chloride	9.31	mg/L	1.9		8.00	93	87	---	111	1	15
Nitrate Nitrogen	2.85	mg/L	0.84		2.00	100	88	---	111	6	15
Sulfate	11.7	mg/L	3.4		8.00	104	87	---	112	1	15

Matrix Spike Water

Analytical Run #:	288130	Analysis Date:	12/14/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1539715	Analysis Time:	20:28	Prep Date/Time:		Method:	SW9056A
Parent Sample #:	1538660	Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Chloride	9.23	mg/L	1.9		8.00	92	87 --- 111		15
Nitrate Nitrogen	2.68	mg/L	0.84		2.00	92	88 --- 111		15
Sulfate	11.6	mg/L	3.4		8.00	102	87 --- 112		15

Lab Control Spike Water

Analytical Run #:	288413	Analysis Date:	12/30/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1542974	Analysis Time:	20:28	Prep Date/Time:		Method:	SW9060
Parent Sample #:		Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Organic Carbon	48.35	mg/L			50.0	97	85 --- 111		20

Method Blank Water

Analytical Run #:	288413	Analysis Date:	12/30/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1542975	Analysis Time:	20:45	Prep Date/Time:		Method:	SW9060
Parent Sample #:		Analyst:	TMG	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Total Organic Carbon	0.40	mg/L		U	0		1.5		

Lab Control Spike Water

Analytical Run #:	288214	Analysis Date:	12/23/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1541312	Analysis Time:	09:57	Prep Date/Time:		Method:	SW8260C
Parent Sample #:		Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits			RPD	RPD Limit
1,1,1-Trichloroethane	10.2	ug/L			10.0	102	74	---	131		20
1,1,2,2-Tetrachloroethane	9.80	ug/L			10.0	98	71	---	121		20
1,1,2-Trichloroethane	9.98	ug/L			10.0	100	80	---	119		20
1,1-Dichloroethane	9.54	ug/L			10.0	95	77	---	125		20
1,1-Dichloroethene	10.1	ug/L			10.0	101	71	---	131		20
1,2,3-Trichlorobenzene	9.90	ug/L			10.0	99	69	---	129		20
1,2,4-Trichlorobenzene	9.68	ug/L			10.0	97	69	---	130		20
1,2-Dibromo-3-chloropropane	8.83	ug/L			10.0	88	62	---	128		20
1,2-Dibromoethane	9.56	ug/L			10.0	96	77	---	121		20
1,2-Dichlorobenzene	9.99	ug/L			10.0	100	80	---	119		20
1,2-Dichloroethane	9.25	ug/L			10.0	92	73	---	128		20
1,2-Dichloropropane	9.92	ug/L			10.0	99	78	---	122		20
1,3-Dichlorobenzene	9.84	ug/L			10.0	98	80	---	119		20
1,4-Dichlorobenzene	9.53	ug/L			10.0	95	79	---	118		20
1,4-Dioxane	461	ug/L			500	92	59	---	139		20
112Trichloro122trifluoroethane	21.0	ug/L			20.0	105	70	---	136		20
2-Butanone	98.4	ug/L			100	98	56	---	143		20
2-Hexanone	99.1	ug/L			100	99	57	---	139		20
4-Methyl-2-pentanone	103	ug/L			100	103	67	---	130		20
Acetone	102	ug/L			100	102	39	---	160		20
Benzene	9.50	ug/L			10.0	95	79	---	120		20
Bromochloromethane	9.80	ug/L			10.0	98	78	---	123		20
Bromodichloromethane	9.52	ug/L			10.0	95	79	---	125		20
Bromoform	8.64	ug/L			10.0	86	66	---	130		20
Bromomethane	9.39	ug/L			10.0	94	53	---	141		20
Carbon disulfide	21.1	ug/L			20.0	106	64	---	133		20
Carbon tetrachloride	9.78	ug/L			10.0	98	72	---	136		20
Chlorobenzene	9.90	ug/L			10.0	99	82	---	118		20
Chloroethane	9.69	ug/L			10.0	97	60	---	138		20
Chloroform	9.46	ug/L			10.0	95	79	---	124		20
Chloromethane	9.69	ug/L			10.0	97	50	---	139		20
cis-1,2-Dichloroethene	9.56	ug/L			10.0	96	78	---	123		20
cis-1,3-Dichloropropene	9.80	ug/L			10.0	98	75	---	124		20
Cyclohexane	11.2	ug/L			10.0	112	71	---	130		20
Dibromochloromethane	9.37	ug/L			10.0	94	74	---	126		20
Dichlorodifluoromethane	11.1	ug/L			10.0	111	32	---	152		20
Ethylbenzene	10.3	ug/L			10.0	103	79	---	121		20
Isopropylbenzene	10.0	ug/L			10.0	100	72	---	131		20
m & p-Xylene	20.4	ug/L			20.0	102	80	---	121		20
Methyl acetate	9.54	ug/L			10.0	95	56	---	136		20
Methyl tert-butyl ether	9.43	ug/L			10.0	94	71	---	124		20
Methylcyclohexane	11.0	ug/L			10.0	110	72	---	132		20

Lab Control Spike Water

Analytical Run #:	288214	Analysis Date:	12/23/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1541312	Analysis Time:	09:57	Prep Date/Time:		Method:	SW8260C
Parent Sample #:		Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Methylene chloride	9.65	ug/L			10.0	96	74 --- 124		20
o-Xylene	9.74	ug/L			10.0	97	78 --- 122		20
Styrene	9.87	ug/L			10.0	99	78 --- 123		20
Tetrachloroethene	9.77	ug/L			10.0	98	74 --- 129		20
Toluene	10.0	ug/L			10.0	100	80 --- 121		20
trans-1,2-Dichloroethene	9.37	ug/L			10.0	94	75 --- 124		20
trans-1,3-Dichloropropene	10.1	ug/L			10.0	101	73 --- 127		20
Trichloroethene	10.2	ug/L			10.0	102	79 --- 123		20
Trichlorofluoromethane	8.43	ug/L			10.0	84	65 --- 141		20
Vinyl chloride	10.2	ug/L			10.0	102	58 --- 137		20

Method Blank Water

Analytical Run #:	288214	Analysis Date:	12/23/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1541514	Analysis Time:	11:24	Prep Date/Time:		Method:	SW8260C
Parent Sample #:		Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
1,1,1-Trichloroethane	0.38	ug/L		U	0		0.60		
1,1,2,2-Tetrachloroethane	0.36	ug/L		U	0		0.55		
1,1,2-Trichloroethane	0.27	ug/L		U	0		0.55		
1,1-Dichloroethane	0.28	ug/L		U	0		0.55		
1,1-Dichloroethene	0.49	ug/L		U	0		1.0		
1,2,3-Trichlorobenzene	0.43	ug/L		U	0		1.0		
1,2,4-Trichlorobenzene	0.50	ug/L		U	0		1.0		
1,2-Dibromo-3-chloropropane	0.50	ug/L		U	0		1.0		
1,2-Dibromoethane	0.33	ug/L		U	0		0.55		
1,2-Dichlorobenzene	0.35	ug/L		U	0		0.55		
1,2-Dichloroethane	0.69	ug/L		U	0		1.05		
1,2-Dichloropropane	0.25	ug/L		U	0		0.60		
1,3-Dichlorobenzene	0.30	ug/L		U	0		0.55		
1,4-Dichlorobenzene	0.33	ug/L		U	0		0.55		
1,4-Dioxane	34	ug/L		U	0		50		
112Trichloro122trifluoroethane	1.5	ug/L		U	0		2.25		
2-Butanone	2.9	ug/L		U	0		5.5		
2-Hexanone	3.3	ug/L		U	0		5.5		
4-Methyl-2-pentanone	3.7	ug/L		U	0		6.0		
Acetone	4.1	ug/L		U	0		10		
Benzene	0.40	ug/L		U	0		1.0		
Bromochloromethane	0.26	ug/L		U	0		0.55		
Bromodichloromethane	0.080	ug/L		U	0		0.25		
Bromoform	0.50	ug/L		U	0		1.0		
Bromomethane	0.49	ug/L		U	0		1.0		
Carbon disulfide	0.83	ug/L		U	0		2.0		
Carbon tetrachloride	0.37	ug/L		U	0		0.60		
Chlorobenzene	0.25	ug/L		U	0		0.60		
Chloroethane	1.0	ug/L		U	0		1.5		
Chloroform	0.30	ug/L		U	0		0.70		
Chloromethane	0.39	ug/L		U	0		1.0		
cis-1,2-Dichloroethene	0.41	ug/L		U	0		0.65		
cis-1,3-Dichloropropene	0.25	ug/L		U	0		0.55		
Cyclohexane	0.71	ug/L		U	0		1.1		
Dibromochloromethane	0.25	ug/L		U	0		0.55		
Dichlorodifluoromethane	0.63	ug/L		U	0		1.05		
Ethylbenzene	0.42	ug/L		U	0		0.65		
Isopropylbenzene	0.39	ug/L		U	0		0.60		
m & p-Xylene	0.74	ug/L		U	0		1.15		
Methyl acetate	0.34	ug/L		U	0		1.0		
Methyl tert-butyl ether	0.28	ug/L		U	0		0.55		
Methylcyclohexane	0.78	ug/L		U	0		1.2		

Method Blank Water

Analytical Run #:	288214	Analysis Date:	12/23/2024	Prep Batch #:		Matrix:	LIQUID
CTLab #:	1541514	Analysis Time:	11:24	Prep Date/Time:		Method:	SW8260C
Parent Sample #:		Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Methylene chloride	1.2	ug/L		U	0		2.05		
o-Xylene	0.50	ug/L		U	0		1.1		
Styrene	0.33	ug/L		U	0		0.55		
Tetrachloroethene	0.25	ug/L		U	0		1.0		
Toluene	0.27	ug/L		U	0		0.55		
trans-1,2-Dichloroethene	0.35	ug/L		U	0		0.55		
trans-1,3-Dichloropropene	0.56	ug/L		U	0		1.05		
Trichloroethene	0.25	ug/L		U	0		0.60		
Trichlorofluoromethane	0.41	ug/L		U	0		1.0		
Vinyl chloride	0.12	ug/L		U	0		0.25		

Matrix Spike Duplicate Water

Analytical Run #:	288214	Analysis Date:	12/23/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1541782	Analysis Time:	15:44	Prep Date/Time:		Method:	SW8260C
Parent Sample #:	1541781	Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits			RPD	RPD Limit
1,1,1-Trichloroethane	10.6	ug/L	<DL		10.0	106	74	---	131	8	20
1,1,2,2-Tetrachloroethane	10.3	ug/L	<DL		10.0	103	71	---	121	8	20
1,1,2-Trichloroethane	9.79	ug/L	<DL		10.0	98	80	---	119	2	20
1,1-Dichloroethane	9.91	ug/L	<DL		10.0	99	77	---	125	10	20
1,1-Dichloroethene	10.8	ug/L	<DL		10.0	108	71	---	131	14	20
1,2 Dichloroethane-d4	103	% Recovery	BDL		100	103	81	---	118	0	
1,2,3-Trichlorobenzene	11.0	ug/L	<DL		10.0	110	69	---	129	24	20
1,2,4-Trichlorobenzene	11.0	ug/L	<DL		10.0	110	69	---	130	28	20
1,2-Dibromo-3-chloropropane	9.63	ug/L	<DL		10.0	96	62	---	128	21	20
1,2-Dibromoethane	10.1	ug/L	<DL		10.0	101	77	---	121	7	20
1,2-Dichlorobenzene	9.84	ug/L	<DL		10.0	98	80	---	119	18	20
1,2-Dichloroethane	9.67	ug/L	<DL		10.0	97	73	---	128	1	20
1,2-Dichloropropane	10.1	ug/L	<DL		10.0	101	78	---	122	12	20
1,3-Dichlorobenzene	10.1	ug/L	<DL		10.0	101	80	---	119	9	20
1,4-Dichlorobenzene	9.88	ug/L	<DL		10.0	99	79	---	118	7	20
1,4-Dioxane	474	ug/L	<DL		500	95	59	---	139	10	20
112Trichloro122trifluoroethane	20.8	ug/L	<DL		20.0	104	70	---	136	6	20
2-Butanone	80.6	ug/L	<DL		100	81	56	---	143	7	20
2-Hexanone	88.0	ug/L	<DL		100	88	57	---	139	1	20
4-Methyl-2-pentanone	96.1	ug/L	<DL		100	96	67	---	130	4	20
Acetone	58.2	ug/L	<DL		100	58	39	---	160	6	20
Benzene	9.89	ug/L	<DL		10.0	99	79	---	120	7	20
Bromochloromethane	9.92	ug/L	<DL		10.0	99	78	---	123	9	20
Bromodichloromethane	9.65	ug/L	<DL		10.0	96	79	---	125	3	20
Bromofluorobenzene	104	% Recovery	BDL		100	104	85	---	114	0	
Bromoform	8.53	ug/L	<DL		10.0	85	66	---	130	1	20
Bromomethane	10.2	ug/L	<DL		10.0	102	53	---	141	4	20
Carbon disulfide	22.1	ug/L	<DL		20.0	110	64	---	133	10	20
Carbon tetrachloride	10.5	ug/L	<DL		10.0	105	72	---	136	8	20
Chlorobenzene	10.1	ug/L	<DL		10.0	101	82	---	118	9	20
Chloroethane	10.6	ug/L	<DL		10.0	106	60	---	138	4	20
Chloroform	10.1	ug/L	<DL		10.0	101	79	---	124	6	20
Chloromethane	10.8	ug/L	<DL		10.0	108	50	---	139	7	20
cis-1,2-Dichloroethene	10.2	ug/L	<DL		10.0	102	78	---	123	9	20
cis-1,3-Dichloropropene	10.0	ug/L	<DL		10.0	100	75	---	124	4	20
Cyclohexane	10.9	ug/L	<DL		10.0	109	71	---	130	11	20
d8-Toluene	95.0	% Recovery	BDL		100	95.0	89	---	112	0	
Dibromochloromethane	9.32	ug/L	<DL		10.0	93	74	---	126	3	20
Dibromofluoromethane	98.0	% Recovery	BDL		100	98.0	80	---	119	0	
Dichlorodifluoromethane	11.2	ug/L	<DL		10.0	112	32	---	152	0	20
Ethylbenzene	10.6	ug/L	<DL		10.0	106	79	---	121	5	20
Isopropylbenzene	9.90	ug/L	<DL		10.0	99	72	---	131	0	20

Matrix Spike Duplicate Water

Analytical Run #:	288214	Analysis Date:	12/23/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1541782	Analysis Time:	15:44	Prep Date/Time:		Method:	SW8260C
Parent Sample #:	1541781	Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits			RPD	RPD Limit
m & p-Xylene	20.1	ug/L	<DL		20.0	100	80	---	121	3	20
Methyl acetate	9.96	ug/L	<DL		10.0	100	56	---	136	14	20
Methyl tert-butyl ether	9.44	ug/L	<DL		10.0	94	71	---	124	18	20
Methylcyclohexane	10.5	ug/L	<DL		10.0	105	72	---	132	5	20
Methylene chloride	9.91	ug/L	<DL		10.0	99	74	---	124	21	20
o-Xylene	9.37	ug/L	<DL		10.0	94	78	---	122	3	20
Styrene	9.62	ug/L	<DL		10.0	96	78	---	123	2	20
Tetrachloroethene	9.47	ug/L	<DL		10.0	95	74	---	129	7	20
Toluene	9.91	ug/L	<DL		10.0	99	80	---	121	2	20
trans-1,2-Dichloroethene	9.86	ug/L	<DL		10.0	99	75	---	124	19	20
trans-1,3-Dichloropropene	9.52	ug/L	<DL		10.0	95	73	---	127	3	20
Trichloroethene	10.3	ug/L	<DL		10.0	103	79	---	123	9	20
Trichlorofluoromethane	10.7	ug/L	<DL		10.0	107	65	---	141	10	20
Vinyl chloride	10.8	ug/L	<DL		10.0	108	58	---	137	3	20

Matrix Spike Water

Analytical Run #:	288214	Analysis Date:	12/23/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1541781	Analysis Time:	15:15	Prep Date/Time:		Method:	SW8260C
Parent Sample #:	1538663	Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits			RPD	RPD Limit
1,1,1-Trichloroethane	9.81	ug/L	<DL		10.0	98	74	---	131		20
1,1,2,2-Tetrachloroethane	9.54	ug/L	<DL		10.0	95	71	---	121		20
1,1,2-Trichloroethane	9.98	ug/L	<DL		10.0	100	80	---	119		20
1,1-Dichloroethane	8.93	ug/L	<DL		10.0	89	77	---	125		20
1,1-Dichloroethene	9.41	ug/L	<DL		10.0	94	71	---	131		20
1,2 Dichloroethane-d4	103	% Recovery	BDL		100	103	81	---	118		
1,2,3-Trichlorobenzene	8.62	ug/L	<DL		10.0	86	69	---	129		20
1,2,4-Trichlorobenzene	8.22	ug/L	<DL		10.0	82	69	---	130		20
1,2-Dibromo-3-chloropropane	7.78	ug/L	<DL		10.0	78	62	---	128		20
1,2-Dibromoethane	9.46	ug/L	<DL		10.0	95	77	---	121		20
1,2-Dichlorobenzene	8.23	ug/L	<DL		10.0	82	80	---	119		20
1,2-Dichloroethane	9.59	ug/L	<DL		10.0	96	73	---	128		20
1,2-Dichloropropane	8.96	ug/L	<DL		10.0	90	78	---	122		20
1,3-Dichlorobenzene	9.22	ug/L	<DL		10.0	92	80	---	119		20
1,4-Dichlorobenzene	9.18	ug/L	<DL		10.0	92	79	---	118		20
1,4-Dioxane	427	ug/L	<DL		500	85	59	---	139		20
112Trichloro122trifluoroethane	19.5	ug/L	<DL		20.0	98	70	---	136		20
2-Butanone	75.3	ug/L	<DL		100	75	56	---	143		20
2-Hexanone	88.8	ug/L	<DL		100	89	57	---	139		20
4-Methyl-2-pentanone	100	ug/L	<DL		100	100	67	---	130		20
Acetone	54.7	ug/L	<DL		100	55	39	---	160		20
Benzene	9.20	ug/L	<DL		10.0	92	79	---	120		20
Bromochloromethane	9.05	ug/L	<DL		10.0	90	78	---	123		20
Bromodichloromethane	9.37	ug/L	<DL		10.0	94	79	---	125		20
Bromofluorobenzene	105	% Recovery	BDL		100	105	85	---	114		
Bromoform	8.48	ug/L	<DL		10.0	85	66	---	130		20
Bromomethane	9.88	ug/L	<DL		10.0	99	53	---	141		20
Carbon disulfide	20.0	ug/L	<DL		20.0	100	64	---	133		20
Carbon tetrachloride	9.70	ug/L	<DL		10.0	97	72	---	136		20
Chlorobenzene	9.29	ug/L	<DL		10.0	93	82	---	118		20
Chloroethane	10.2	ug/L	<DL		10.0	102	60	---	138		20
Chloroform	9.49	ug/L	<DL		10.0	95	79	---	124		20
Chloromethane	10.1	ug/L	<DL		10.0	101	50	---	139		20
cis-1,2-Dichloroethene	9.23	ug/L	<DL		10.0	92	78	---	123		20
cis-1,3-Dichloropropene	9.64	ug/L	<DL		10.0	96	75	---	124		20
Cyclohexane	9.76	ug/L	<DL		10.0	98	71	---	130		20
d8-Toluene	104	% Recovery	BDL		100	104	89	---	112		
Dibromochloromethane	9.08	ug/L	<DL		10.0	91	74	---	126		20
Dibromofluoromethane	97.0	% Recovery	BDL		100	97.0	80	---	119		
Dichlorodifluoromethane	11.2	ug/L	<DL		10.0	112	32	---	152		20
Ethylbenzene	10.1	ug/L	<DL		10.0	101	79	---	121		20
Isopropylbenzene	9.90	ug/L	<DL		10.0	99	72	---	131		20

Matrix Spike Water

Analytical Run #:	288214	Analysis Date:	12/23/2024	Prep Batch #:		Matrix:	GROUND WATER
CTLab #:	1541781	Analysis Time:	15:15	Prep Date/Time:		Method:	SW8260C
Parent Sample #:	1538663	Analyst:	DGS	Prep Analyst:			

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits			RPD	RPD Limit
m & p-Xylene	20.7	ug/L	<DL		20.0	104	80	---	121		20
Methyl acetate	8.64	ug/L	<DL		10.0	86	56	---	136		20
Methyl tert-butyl ether	7.87	ug/L	<DL		10.0	79	71	---	124		20
Methylcyclohexane	9.93	ug/L	<DL		10.0	99	72	---	132		20
Methylene chloride	7.99	ug/L	<DL		10.0	80	74	---	124		20
o-Xylene	9.65	ug/L	<DL		10.0	96	78	---	122		20
Styrene	9.80	ug/L	<DL		10.0	98	78	---	123		20
Tetrachloroethene	10.1	ug/L	<DL		10.0	101	74	---	129		20
Toluene	10.1	ug/L	<DL		10.0	101	80	---	121		20
trans-1,2-Dichloroethene	8.13	ug/L	<DL		10.0	81	75	---	124		20
trans-1,3-Dichloropropene	9.79	ug/L	<DL		10.0	98	73	---	127		20
Trichloroethene	9.42	ug/L	<DL		10.0	94	79	---	123		20
Trichlorofluoromethane	9.72	ug/L	<DL		10.0	97	65	---	141		20
Vinyl chloride	10.5	ug/L	<DL		10.0	105	58	---	137		20

Lab Control Spike Duplicate Water

Analytical Run #:	288301	Analysis Date:	12/20/2024	Prep Batch #:	137162	Matrix:	LIQUID
CTLab #:	1540803	Analysis Time:	09:13	Prep Date/Time:	12/20/2024 08:19	Method:	RSK175
Parent Sample #:	1540802	Analyst:	SRW	Prep Analyst:	SRW		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Ethane	4.52	ug/L	5.76		4.79	94	74 --- 131	24	20
Ethene	6.32	ug/L	8.06		6.80	93	72 --- 133	24	20
Methane	2.25	ug/L	2.57		2.30	98	73 --- 125	13	20

Lab Control Spike Water

Analytical Run #:	288301	Analysis Date:	12/20/2024	Prep Batch #:	137162	Matrix:	LIQUID
CTLab #:	1540802	Analysis Time:	08:55	Prep Date/Time:	12/20/2024 08:19	Method:	RSK175
Parent Sample #:		Analyst:	SRW	Prep Analyst:	SRW		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Ethane	5.76	ug/L			4.79	120	74 --- 131		20
Ethene	8.06	ug/L			6.80	119	72 --- 133		20
Methane	2.57	ug/L			2.30	112	73 --- 125		20

Method Blank Water

Analytical Run #:	288301	Analysis Date:	12/20/2024	Prep Batch #:	137162	Matrix:	LIQUID
CTLab #:	1540801	Analysis Time:	09:10	Prep Date/Time:	12/20/2024 08:19	Method:	RSK175
Parent Sample #:		Analyst:	SRW	Prep Analyst:	SRW		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Ethane	0.38	ug/L		U	0		0.5		
Ethene	0.59	ug/L		U	0		0.7		
Methane	0.45	ug/L		U	0		0.5		

CT LABORATORIES
delivering more than data from your environmental analyses

Sample Condition Report

Folder #:	191720	Print Date / Time:	12/14/2024	09:58	
Client:	CAPE ENVIRONMENTAL MANAGEMENT	Received Date / Time / By:	12/14/2024	10:50	ETK
Project Name:	RADFORD AAP SWMU 49	Log-In Date / Time / By:	12/14/2024	11:00	ETK
Project Phase:	RADFORD, VA	Project #:	10409-0222	PM:	BMS
Coolers:	5846	Temperature:	1.3 C	On Ice:	**Y**
Custody Seals Present :	**Y**	COC Present:?	**Y**	Complete?	**Y**
Seal Intact?	**Y**	Numbers:	SIGNED & DATED		
Ship Method:	FEDEX EXPRESS	Tracking Number:	770456465280		
Adequate Packaging:	**Y**	Temp Blank Enclosed?	**Y**		

Notes: THE SAMPLES WERE RECEIVED IN GOOD CONDITION ON ICE.

TWO (2) CUSTODY SEALS WERE PRESENT AND INTACT ON THE COOLER UPON RECEIPT (BOTH WERE DATED 12/13/2024 AND SIGNED).

Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
1538659 TB-4				
	VOA HCL	1	/	VOC
	VOA HCL	1	/	VOC
	Total # of Containers of Type	(***VOA HCL***) = **2**		
Sample ID / Description	**Container Type**	**Cond. Code**	**pH OK?/Filtered?**	**Tests**
1538660 48MW2				
	UNPRES PL	1	/	Anions
	Total # of Containers of Type	(***UNPRES PL***) = **1**		
1538660 48MW2				
	VOA HCL	1	/	GAS,VOC
	VOA HCL	1	/	GAS,VOC
	VOA HCL	1	/	GAS,VOC
	VOA HCL	1	/	GAS,VOC
	VOA HCL	1	/	GAS,VOC
	Total # of Containers of Type	(***VOA HCL***) = **5**		
1538660 48MW2				
	H2SO4 PL	1	/	TOC
	Total # of Containers of Type	(***H2SO4 PL***) = **1**		
Sample ID / Description	**Container Type**	**Cond. Code**	**pH OK?/Filtered?**	**Tests**
1538661 48MW2-EQB				
	UNPRES PL	1	/	Anions
	Total # of Containers of Type	(***UNPRES PL***) = **1**		

Sample ID /	Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
1538661	48MW2-EQB				
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		Total # of Containers of Type	(***VOA HCL***) = **5**		
1538661	48MW2-EQB				
		H2SO4 PL	1	/	TOC
		Total # of Containers of Type	(***H2SO4 PL***) = **1**		
Sample ID /	**Description**	**Container Type**	**Cond. Code**	**pH OK?/Filtered?**	**Tests**
1538662	48MW3				
		UNPRES PL	1	/	Anions
		Total # of Containers of Type	(***UNPRES PL***) = **1**		
1538662	48MW3				
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		Total # of Containers of Type	(***VOA HCL***) = **5**		
1538662	48MW3				
		H2SO4 PL	1	/	TOC
		Total # of Containers of Type	(***H2SO4 PL***) = **1**		
Sample ID /	**Description**	**Container Type**	**Cond. Code**	**pH OK?/Filtered?**	**Tests**
1538663	49MW02				
		UNPRES PL	1	/	Anions
		Total # of Containers of Type	(***UNPRES PL***) = **1**		
1538663	49MW02				
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		VOA HCL	1	/	GAS,VOC
		Total # of Containers of Type	(***VOA HCL***) = **5**		
1538663	49MW02				
		H2SO4 PL	1	/	TOC
		Total # of Containers of Type	(***H2SO4 PL***) = **1**		

Condition Code *Condition Description*

1 Sample Received OK

Rev. 02/2017

CHAIN OF CUSTODY

Page 1 of 1

Company: CAPE Environmental
Project Contact: Matt Feits
Telephone: (724) 622-3625
Project Name: Radford APP
Project #: SWMU 48/49
Location: Radford, VA
Sampled By: Y. Miyakawa, P. Taylor

Folder #: 191720
Company: CAPE ENVIRONMENTAL MAI
Project: RADFORD AAP
Logged By: ETK PM: BMS

1230 Lange Court, Baraboo, WI 53913
608-356-2760 Fax 608-356-2766
www.ctlaboratories.com

Program:
QSM RCRA SDWA NPDES
Solid Waste Other _____

PO #

Report To: Chemistry SUCS@Cape-inc.
EMAIL: mfeits@cape-inc.com
Company: CAPE Environmental Mgmt.
Address: 500 Pinnacle Ct. #100 Norcross, GA 30071

Invoice To:* Same
EMAIL:
Company:
Address:

*Party listed is responsible for payment of invoice as per CT Laboratories' terms and conditions

Client Special Instructions

Matrix:
GW – groundwater SW - surface water WW - wastewater DW - drinking water
S - soil/sediment SL - sludge A - air M - misc/waste

Turnaround Time
Normal RUSH*
Date Needed: _____
Rush analysis requires prior CT Laboratories' approval
Surcharges:
24 hr 200%
2-3 days 100%
4-9 days 50%

2024 Collection Date	Time	Matrix	Grab/ Comp	Sample #	Sample ID Description	Filtered? Y/N	VOC 8260C	MEE RSK-175	TOC 9060A	Anions 9056A											Total # Containers	Designated MS/MSD	CT Lab ID # (Lab use only)
							Fill in Spaces with Bottles per Test																
12/13	0000	GW	G		TB-4	N	2					Trip Blank									2		1538659
12/13	1030	GW	G		48MW2	N	3	2	1	1											7		1538660
12/13	1050	GW	G		48MW2-EQB	N	3	2	1	1											7		1538661
12/13	1205	GW	G		48MW3	N	3	2	1	1											7		1538662
12/13	1340	GW	G		49MW02	N	3	2	1	1											7		1538663

Relinquished By: [signature] Date/Time 12/13/2024 1700
Received By: FedEx Date/Time 12/13/2024 1700
Received by: [signature] Date/Time 12-14-24 1050
Received for Laboratory by: [signature] Date/Time 12-14-24 1100

Lab Use Only
Ice Present (Yes) No
Temp 1.3 IR Gun 32
Cooler # 5846

Cooler Receipt Form

Ice Present (YES) NO

Observed Temperature 1.3

Actual Temperature _____

IR Gun # CRT52

Initials CTK

Date 12-14-24 Time 1050

Cooler #: 5846

CUSTODY SEAL
DATE 12/13/2024
SIGNATURE

QEC
Quality Environmental Containers
800-265-3950 • www.qecusa.com

ORIGIN ID:LIYA (724) 622-3625
MATTHEW FEITS
CAPE ENVIRONMENTAL MANAGEMENT INC
500 PINNACLE COURT
SUITE 100
NORCROSS, GA 30071
UNITED STATES US

SHIP DATE: 13DEC24
ACTWGT: 45.00 LB
CAD: 100980732/INET4760

BILL SENDER

TO SAMPLE RECEIVING
CT LABS
1230 LANGE COURT

BARABOO WI 53913
(608) 356-2760
INV
PO
REF 10409-0222-002-003
DEPT

58CJ4/EB78/C6C4

FedEx Express

1 of 3

TRK# 0201 7704 5646 5280

MASTER

SATURDAY 12:00P
PRIORITY OVERNIGHT

X0 LNRA

53913
WI-US MSN

CUSTODY SEAL
DATE 12/13/2024
SIGNATURE

QEC
Quality Environmental Containers
800-265-3950 • www.qecusa.com

APPENDIX B-2
DATA VALIDATION REPORTS



DATA VERIFICATION/VALIDATION REPORT
Solid Waste Management Unit (SWMU) 49
Radford Army Ammunition Plant (RFAAP), Radford, VA
SDG 188736

U.S. ARMY CORPS OF ENGINEERS, Baltimore District

SWMU 49 Natural Attenuation Groundwater Monitoring

October 09, 2024

Prepared for:

Cape Environmental Management Inc.

500 Pinnacle Ct, Ste 100

Norcross, GA 30071

Prepared by:

Neptune and Company, Inc

1435 Garrison Street, Suite 201

Lakewood CO, 80215

Signature Page

Data validator: Phil Conley	
Reviewer: Polona Carson	

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Acronyms and Abbreviations

°C	degrees Celsius
%D	percent difference
%R	percent recovery
%RSD	percent relative standard deviation
CCV	continuing calibration verification
COC	chains-of-custody
CTL	CT Laboratories, LLC
DL	detection limit
ICV	initial calibration verification
IS	internal standard
LCS	laboratory control sample
LOD	limit of detection
LOQ	limit of quantitation
MS	matrix spike
MSD	matrix spike duplicate
QAPP	quality assurance project plan
QC	quality control
QSM	Quality Systems Manual
RPD	relative percent difference
SEDD	Staged Electronic Data Deliverable
SWMU	Solid Waste Management Unit
USEPA	U.S. Environmental Protection Agency
USACE	U.S. Army Corps of Engineers

Introduction

This data verification/validation report is for groundwater samples collected from Solid Waste Management Unit (SWMU) 49, the Red Water Ash Burial #2 site, at the Radford Army Ammunition Plant, located in Radford, VA. The data analyses are for 13 groundwater samples, 2 equipment blanks and 3 trip blanks collected on August 19, 21, and 22, 2024, and were received at the primary laboratory on August 20, 22, and 23, 2024 at the Baraboo, WI location. The attributes of the samples collected, including calendar dates and identification numbers, are summarized in Table 1.

Table 1: Samples Collected from Clearfield Naval Supply Depot Historical Landfill Site

Lab ID	Client Sample ID	Matrix	Date Sampled	Date Received	Validation Stage
1493228	TB-1	Trip Blank	08/19/2024	08/20/2024	S4VEM
1493229	13MW4	Groundwater	08/19/2024	08/20/2024	S4VEM
1493230	13MW3	Groundwater	08/19/2024	08/20/2024	S4VEM
1493231	49MW04	Groundwater	08/19/2024	08/20/2024	S4VEM
1493232	13MW2	Groundwater	08/19/2024	08/20/2024	S4VEM
1493233	13TW3	Groundwater	08/19/2024	08/22/2024	S4VEM
1494081	TB-2	Trip Blank	08/21/2024	08/22/2024	S4VEM
1494082	48MW6	Groundwater	08/21/2024	08/22/2024	S4VEM
1494083	48MW6-EQB	Equipment Blank	08/21/2024	08/22/2024	S4VEM
1494084	48MW1	Groundwater	08/21/2024	08/22/2024	S4VEM
1494085	48TW1	Groundwater	08/21/2024	08/22/2024	S4VEM
1494086	49MW01	Groundwater	08/21/2024	08/22/2024	S4VEM
1494660	TB-3	Trip Blank	08/22/2024	08/23/2024	S4VEM
1494661	50MW2	Groundwater	08/22/2024	08/23/2024	S4VEM
1494662	50MW2-EQB	Equipment Blank	08/22/2024	08/23/2024	S4VEM
1494663	48MW2	Groundwater	08/22/2024	08/23/2024	S4VEM
1494664	48MW3	Groundwater	08/22/2024	08/23/2024	S4VEM
1494665	49MW02	Groundwater	08/22/2024	08/23/2024	S4VEM

Site samples were collected in accordance with the SWMU 49 Monitored Natural Attenuation Groundwater Monitoring Work Plan, Section 4 Quality Assurance Project Plan (QAPP). The samples were shipped to CT Laboratories, LLC (CTL) located in Baraboo, WI for analysis of VOC (SW8260C), TOC (SW9060A), Anions (SW9056A), and volatile gases (RSK-175).

Analytical results were reviewed in accordance with the project QAPP, the Department of Defense (DoD) Quality Systems Manual (QSM), DoD General Data Validation Guidelines, and DoD Data Validation Guidelines Module 1.

CTL provided Level IV data package, which included the required elements to perform the USEPA Region III level M3, Stage 4 electronic and manual validation (S4VEM) defined in the QAPP. The data were validated to S4VEM by the Neptune and Company, Incorporated (Neptune) data validator.

Data qualifier definitions are listed in Table 2 below.

Table 2: Final Validation Flags Definitions

Qualifier	Definition
U	Not detected. The associated number indicates the compound reporting limit for the sample.
J	Indicates an estimated value for 1) estimated value due to QC non-conformance. Reported value may not be accurate or precise, 2) estimating a concentration as a tentatively identified compound as indicated by the mass spectral and retention time data, or 3) estimating a concentration >=MDL and <MRL or <3*MRL, whichever is greater
B	The analyte has been detected in the sample and the associated laboratory or field blank.
K	Analyte present. Reported value may be biased high (estimated) due to QC non-conformance.
L	Analyte present. Reported value may be biased low (estimated) due to QC non-conformance.
UL	Value is estimated bias low and not detected due to QC non-conformance. Reporting limit may be inaccurate or imprecise. QL is probably higher
UJ	The analyte was analyzed for, but was not detected above the reported sample QL. The reported QL is approximate and may be inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meeting the QC criteria. The analyte may or may not be present in the sample.

Sample Receipt

All samples were received at CTL Baraboo, WI facility on August 20, 22, and 23, 2024. The coolers were received at temperatures of 1.6°C, 3.3°C, and 2.2°C. The sample ID for 13TW2 was updated to 13TW3 per the client's request. The samples were received intact and in good condition.

Preservation and Holding Times

The sample receipt form indicates that the samples were received intact and in good condition. Cooler temperatures met criteria. The case narrative indicates that sample 48MW6 was not properly preserved for analysis of VOCs and gases (methane, ethane, and ethene). The case narrative also states that samples 48MW2 and 49MW02 were not properly preserved for the analysis of gases. The sample receipt forms do not clearly indicate that the pH was greater than pH 2. Unpreserved samples for VOC analysis have a hold time of 7 days. The QAPP does not indicate preservation is required for gases and the hold time is listed at 7 days. The analysis of 48MW6, 48MW2 and 49MW02 were within the 7 day

hold time for unpreserved samples. No qualifiers were applied. The case narrative indicates all remaining samples were extracted and analyzed within the preparation and analytical hold times. This was verified by reviewing the sample summaries containing sample collection, receipt, preparation and analytical dates.

Validation

VOCs by Method 8260

Calibration

Prior to analyzing the calibration standards, the instrument was properly tuned. The initial calibration consisted of a minimum of five and up to nine calibration standards. The lab employed the average relative response factor with the %RSD within acceptance limit (<15%). Where the %RSD acceptance criterion was not met, linear regression was employed with coefficient of determination, r^2, >0.99. The second source calibration verification was performed following the initial calibration and was within control limits (+/-20%). The continuing calibrations checks performed prior to analysis of samples were within control limits (+/-20%), except for bromomethane (high), trichlorofluoromethane (high), trichlorotrifluoroethane (high), cyclohexane (high) and 1,2-dibromo-3-chloropropane (low). All results for these analytes were non-detected. No qualifiers were applied for the non-detected results with high recoveries. All sample results for 1,2-dibromo-3-chloropropane are qualified as estimated at the reporting limit, UJ.

Blanks

A method blank was prepared and analyzed with the batch of samples. There were no detects in the method blank. No qualifiers were necessary. There are two equipment blanks (50MW2-EQB and 48MW6-EQB) associated with this data package. Bromodichloromethane, chloroform and dibromochloromethane were detected in both equipment blanks. These analytes were non-detected in the associated samples (50MW2 and 48MW6). No qualifiers were applied.

Laboratory Control Sample

A laboratory control sample (LCS) was prepared and analyzed with the batch of samples. All analyte recoveries were within control limits. No qualifiers were applied.

Matrix Spike / Matrix Spike Duplicate

MS/MSD analyses were performed on sample 13MW4. The MS/MSD recoveries were within control limits for all analytes. No qualifiers were necessary.

Surrogates

All Surrogate recoveries were within the control limits for soil analysis and QC water samples. No qualifiers were necessary.

Internal Standards

The recoveries of all internal standards were within control limits.

Target Compound Quantitation

Target compound quantitation's were reviewed for analytes acetone, carbon tetrachloride, trichloroethene, chloroform, bromodichloromethane, and 1,2-dichlorobenzene-d4 (surr). Results were re-calculated from instrument responses. Slight differences in recalculations can be attributed to rounding.

Dissolved Gases by Method RSK175

Calibration

The initial calibration consisted of eight (8) calibration standards. The lab employed the linear regression with the correlation coefficient within acceptance limits. The second source calibration verification was performed following the initial calibration and was within control limits. The initial calibration and second source verifications were verified by manual calculation for methane.

The calibration was verified through the analysis of a CCV standard. The opening and ending CCV results were within 20% drift. The continuing calibration verifications results were manually calculated from the raw data for methane.

Blanks

A method blank was prepared and analyzed with the batch of samples. There were no detects in the method blank. Raw data were reviewed for the QC blank. There are two equipment blanks (50MW2-EQB and 48MW6-EQB) associated with this data package. All analytes were non-detected in the associated samples (50MW2 and 48MW6). No qualifiers were applied.

Laboratory Control Sample

A laboratory control sample (LCS) and LCS duplicate (LCSD) were prepared and analyzed with the batch of samples. All analyte recoveries were within control limits. The results and recoveries for methane were verified from the raw data.

Matrix Spike and Matrix Spike Duplicate

MS/MSD analysis was performed on sample 13MW4. The MS/MSD recoveries were within control limits. The MS/MSD result and recovery for methane was verified from the raw data.

Target Compound Identification and Quantitation

Target compound identification and retention times were reviewed for all samples. No anomalies were identified. Methane results were re-calculated manually from the raw data. The final results were derived from the instrument result. The equation that the laboratory used to convert the instrument result to a final result was not provided. The final result takes into account certain variable such as, temperature, pressures, and gas constants.

TOC by Method SW9060A

Calibration

The initial calibration consisted of seven (7) points for TOC and the correlation coefficient, r, was >0.995. A second source calibration verification was performed following the initial calibration and was within control limits. The initial calibration and second source verifications were verified by manual calculation for TOC.

Analysis of samples proceeded immediately following the initial calibration. The calibration was verified throughout the analysis with CCV standards. All CCVs were within acceptance limits. The continuing calibration verifications results were manually calculated from the raw data for TOC.

Blanks

A method blank was prepared and analyzed with each analytical batch from each lab. There were no detects for TOC in the method blanks. Raw data was reviewed for the QC blanks. There are two equipment blanks (50MW2-EQB and 48MW6-EQB) associated with this data package. All analytes were non-detected in the associated samples (50MW2 and 48MW6). No qualifiers were applied.

Laboratory Control Sample

A laboratory control sample (LCS) was prepared and analyzed with each analytical batch. The TOC recoveries were within the control limits. The result and recovery for TOC were verified from the raw data.

Matrix Spike / Matrix Spike Duplicate

MS/MSD analyses were performed on sample 13MW4, 48MW3 and 48MW1 for the analytical batches. The MS/MSD recoveries and percent RPD were within control limits. No qualifiers were necessary. The MS/MSD results and recoveries were verified from the raw data.

Target Compound Identification and Quantitation

Target compound identification was reviewed for all samples. No anomalies were identified. TOC sample results were calculated manually from the raw data.

Anions by Method SW9056A

Calibration

The initial calibration consisted of nine (9) points for all anions (chloride, nitrate, and sulfate) using linear regression. The correlation of determination, (r^2), was above 0.995. A second source calibration verification was performed following the initial calibration and was within control limits. The initial calibration and second source verifications were verified by manual calculation for sulfate.

The calibration was verified throughout the analysis with CCV standards. All CCVs were within acceptance limits except for the CCV for chloride analyzed on August 23, 2024 at 15:58. The recovery for chloride was below control limits. The chloride results for 50MW2, 50MW2-EQB, 48MW2, 48MW3, and 49MW02 are qualified as estimated with a low bias. The continuing calibration verifications results were manually calculated from the raw data for sulfate.

Blanks

A method blank was prepared and analyzed with the analytical batch. There were no detects in the method blank. The raw data were reviewed for all QC blank. There are two equipment blanks (50MW2-EQB and 48MW6-EQB) associated with this data package. All analytes were non-detected in the associated samples (50MW2 and 48MW6). No qualifiers were applied.

Laboratory Control Sample

A laboratory control sample (LCS) was prepared and analyzed with the analytical batch. The recoveries for all anions were within the control limits. The result and recovery for sulfate were verified from the raw data.

Matrix Spike / Matrix Spike Duplicate

MS/MSD analyses were performed on samples 13MW4, 48MW6, and 48MW2. The MS or MSD recovery for all anions were below control limit for sample 13MW4. The MS or MSD recovery for chloride and sulfate were below control limits for 48MW6 and 48MW2. The percent RPD was within control limits demonstrating acceptable precision. The parent samples are qualified as estimated with a low bias for the respective analytes. The MS/MSD results, recoveries, and RPD for sulfate were verified from the raw data.

Target Compound Identification and Quantitation

Target compound identification was reviewed for all samples. No anomalies were identified. Sulfate sample results were calculated manually from the raw data.

Overall Assessment

All data are deemed usable as no results were considered for exclusion. All sample results were manually calculated and verified for analytes acetone, carbon tetrachloride, trichloroethene, chloroform, bromodichloromethane, and 1,2-dichloroethane-d4 (surrogate), methane, TOC, and sulfate. All results may be utilized for project decision-making processes noting the qualifications described within this review.

Table 4: Qualified Sample Results

Client Sample ID	Analyte	Result	Qualifier	Reason
TB-1	1,2-dibromo-3-chloropropane	1.0 ug/L	UJ	V2
13MW4	1,2-dibromo-3-chloropropane	1.0 ug/L	UJ	V2
13MW4	Chloride	3.4 mg/L	J-	M
13MW4	Sulfate	67 mg/L	J-	M
13MW4	Nitrate	0.17 mg/L	J-	M
13MW3	1,2-dibromo-3-chloropropane	1.0 ug/L	UJ	V2
49MW04	1,2-dibromo-3-chloropropane	1.0 ug/L	UJ	V2
13MW2	1,2-dibromo-3-chloropropane	1.0 ug/L	UJ	V2
13TW3	1,2-dibromo-3-chloropropane	1.0 ug/L	UJ	V2
TB-2	1,2-dibromo-3-chloropropane	1.0 ug/L	UJ	V2
48MW6	1,2-dibromo-3-chloropropane	1.0 ug/L	UJ	V2
48MW6	Chloride	11 mg/L	J-	M
48MW6	Sulfate	89 mg/L	J-	M
48MW6-EQB	1,2-dibromo-3-chloropropane	1.0 ug/L	UJ	V2
48MW1	1,2-dibromo-3-chloropropane	1.0 ug/L	UJ	V2
48TW1	1,2-dibromo-3-chloropropane	1.0 ug/L	UJ	V2
49MW01	1,2-dibromo-3-chloropropane	1.0 ug/L	UJ	V2
TB-3	1,2-dibromo-3-chloropropane	1.0 ug/L	UJ	V2
50MW2	1,2-dibromo-3-chloropropane	1.0 ug/L	UJ	V2
50MW2	Chloride	6.0 mg/L	J-	V2
50MW2-EQB	1,2-dibromo-3-chloropropane	1.0 ug/L	UJ	V2
50MW2-EQB	Chloride	1.5 mg/L	UJ	V2
48MW2	1,2-dibromo-3-chloropropane	1.0 ug/L	UJ	V2
48MW2	Chloride	1.5 mg/L	J-	V2, M
48MW2	Sulfate	3.7 mg/L	J-	M
48MW3	1,2-dibromo-3-chloropropane	1.0 ug/L	UJ	V2
48MW3	Chloride	2.2 mg/L	J-	V2
49MW02	1,2-dibromo-3-chloropropane	1.0 ug/L	UJ	V2
49MW02	Chloride	1.6 mg/L	J-	V2

M – MS and/or MSD recovery outside project limits
V2 – Continuing calibration verification outside control limits

Internal Standard Initial Calibration and Calculation Worksheet - Acetone							
Compound Area, Ax	ISTD Area, Ais	Compound Conc, Cx	ISTD Conc, Cis	Y-Values Ax/Ais	X-Values Cx/Cis		RF (Ax*Cis)/(Ais*Cx)
40361	1287108	5	20	0.031357897	0.25		0.125
75001	1272680	10	20	0.058931546	0.5		0.118
157067	1272364	20	20	0.12344502	1		0.123
406188	1308637	50	20	0.310390123	2.5		0.124
723947	1290069	100	20	0.561169209	5		0.112
1474303	1322666	200	20	1.114644967	10		0.111
2005756	1352105	300	20	1.48343213	15		0.099
2558982	1371421	400	20	1.865934677	20		0.093
4445499	1425638	800	20	3.118252319	40		0.078

CALIBRATION MODEL:

Average Response Factor:

Cx = Ax*Cis/Ais/RF

		Lab Reported
Average RF	0.109	0.109
RSD	14.86%	14.86%

Sample Concentration Calculations										
Lab ID	Spike Concentration	Compound Area, Ax	ISTD Area, Ais	ISTD Conc, Cis	Ave RF On-column Conc	Dilution	Calculated Result	Lab Result Reported Result	Rec., RPD, Drift, %Deviation	Lab Result Reported RPD, Drift, %Deviation
Level 1	5	40361	1287108	20	5.732	1.000	5.73	NA	-14.6%	
Level 2	10	75001	1272680	20	10.772	1.000	10.77	NA	-7.7%	
Level 3	20	157067	1272364	20	22.564	1.000	22.56	NA	-12.8%	
Level 4	50	406188	1308637	20	56.736	1.000	56.74	NA	-13.5%	
Level 5	100	723947	1290069	20	102.575	1.000	102.58	NA	-2.6%	
Level 6	200	1474303	1322666	20	203.745	1.000	203.74	NA	-1.9%	
Level 7	300	2005756	1352105	20	271.155	1.000	271.15	NA	9.6%	
Level 8	400	2558982	1371421	20	341.072	1.000	341.07	NA	14.7%	
Level 9	800	4445499	1425638	20	569.982	1.000	569.98	NA	28.8%	-0.7%
ICV	100	709197	1379308	20	93.984	1.000	93.98	93.98	6.02%	6.02%
ICV	300	2087737	1400165	20	272.550	1.000	272.55	272.55	9.15%	9.15%
LCS	100	713258	1286471	20	101.344	1.000	101.34	101.34	101%	
MB		3359	1233258	20	0.498	1.000	0.50	< 5.0	#DIV/0!	ND
MS	100	511468	1281125	20	72.975	1.000	72.98	72.98	73%	73%
MSD	100	531309	1291234	20	75.213	1.000	75.21	75.21	75%, -3%	75%, 3%
TB-1			1249070	20	0.000	1.000	0.00	< 10		ND
TB-2			1254635	20	0.000	1.000	0.00	< 10		ND
48MW6-EQB		2996	1268092	20	0.432	1.000	0.43	< 10		ND
TB-3			1252355	20	0.000	1.000	0.00	< 10		ND
50MW2-EQB		3040	1262605	20	0.440	1.000	0.44	< 10		ND
13MW4		2823	1222582	20	0.422	1.000	0.42	< 10		ND
13MW3			1238542	20	0.000	1.000	0.00	< 10		ND
49MW02		2814	1250421	20	0.411	1.000	0.41	< 10		ND
13MW2		2628	1237592	20	0.388	1.000	0.39	< 10		ND
13MW3			1245085	20	0.000	1.000	0.00	< 10		ND
48MW6		7130	1251742	20	1.041	1.000	1.04	< 10		ND
48MW1		9183	1235113	20	1.359	1.000	1.36	< 10		ND
48TW1		6814	1257890	20	0.990	1.000	0.99	< 10		ND
49MW01		2733	1241890	20	0.402	1.000	0.40	< 10		ND
50MW2		2755	1233643	20	0.408	1.000	0.41	< 10		ND
48MW2		2930	1245394	20	0.430	1.000	0.43	< 10		ND
48MW3		2609	1253599	20	0.380	1.000	0.38	< 10		ND
49MW02		4109	1267958	20	0.592	1.000	0.59	< 10		ND

Internal Standard Initial Calibration and Calculation Worksheet - Chloroform							
Compound Area, Ax	ISTD Area, Ais	Compound Conc, Cx	ISTD Conc, Cis	Y-Values Ax/Ais	X-Values Cx/Cis		RF (Ax*Cis)/(Ais*Cx)
7249	1287108	0.5	20	0.005632006	0.025		0.225
14337	1272680	1	20	0.011265204	0.05		0.225
27803	1272364	2	20	0.021851451	0.1		0.219
84689	1308637	5	20	0.064715425	0.25		0.259
183996	1290069	10	20	0.142624929	0.5		0.285
387792	1322666	20	20	0.293189664	1		0.293
592225	1352105	30	20	0.438002226	1.5		0.292
811358	1371421	40	20	0.591618475	2		0.296
1636758	1425638	80	20	1.148088084	4		0.287

CALIBRATION MODEL:

Average Response Factor:

Cx = Ax*Cis/Ais/RF

	Calculated	Lab Reported
Average RF	0.265	0.265
RSD	12.48%	12.48%

Sample Concentration Calculations										
Lab ID	Spike Concentration	Compound Area, Ax	ISTD Area, Ais	ISTD Conc, Cis	Ave RF On-column Conc	Dilution	Calculated Result	Lab Result Reported Result	Rec., RPD, Drift, %Deviation	Lab Result Reported RPD, Drift, %Deviation
Level 1	5	7249	1287108	20	0.426	1.000	0.43	NA	91.5%	
Level 2	10	14337	1272680	20	0.852	1.000	0.85	NA	91.5%	
Level 3	20	27803	1272364	20	1.652	1.000	1.65	NA	91.7%	
Level 4	50	84689	1308637	20	4.892	1.000	4.89	NA	90.2%	
Level 5	100	183996	1290069	20	10.781	1.000	10.78	NA	89.2%	
Level 6	200	387792	1322666	20	22.163	1.000	22.16	NA	88.9%	
Level 7	300	592225	1352105	20	33.109	1.000	33.11	NA	89.0%	
Level 8	400	811358	1371421	20	44.721	1.000	44.72	NA	88.8%	
Level 9	800	1636758	1425638	20	86.785	1.000	86.79	NA	89.2%	
ICV	10	204742	1379308	20	11.221	1.000	11.22	11.22	-12.21%	-12.21%
ICV	30	611206	1400165	20	32.997	1.000	33.00	33.00	-9.99%	-9.99%
LCS	10	191512	1286471	20	11.253	1.000	11.25	11.25	113%	113%
MB		0	1233258	20	0.000	1.000	0.00	< 5.0		ND
MS	10	193032	1281125	20	11.390	1.000	11.39	11.39	114%	114%
MSD	10	201539	1291234	20	11.798	1.000	11.80	11.80	118%, 4%	118%, 4%
TB-1			1249070	20	0.000	1.000	0.00	< 1		ND
TB-2			1254635	20	0.000	1.000	0.00	< 1		ND
48MW6-EQB			1268092	20	0.000	1.000	0.00	< 1		ND
TB-3			1252355	20	0.000	1.000	0.00	< 1		ND
50MW2-EQB			1262605	20	0.000	1.000	0.00	< 1		ND
13MW4			1222582	20	0.000	1.000	0.00	< 1		ND
13MW3		55423	1238542	20	3.383	1.000	3.38	3.40		3.4
49MW02		9936	1250421	20	0.601	1.000	0.60	0.60		0.60
13MW2			1237592	20	0.000	1.000	0.00	< 1		ND
13TW3		56091	1245085	20	3.405	1.000	3.41	3.40		3.4
48MW6			1251742	20	0.000	1.000	0.00	< 1		ND
48MW1			1235113	20	0.000	1.000	0.00	< 1		ND
48TW1			1257890	20	0.000	1.000	0.00	< 1		ND
49MW01		30251	1241890	20	1.841	1.000	1.84	1.80		1.8
50MW2		10396	1233643	20	0.637	1.000	0.64	0.64		0.64
48MW2		171922	1245394	20	10.435	1.000	10.44	10.00		10.0
48MW3		278866	1223965	20	17.223	5.000	86.11	80.00		80.0
49MW02			1267958	20	0.000	1.000	0.00	< 1		ND

Internal Standard Initial Calibration and Calculation Worksheet - Trichloroethene							
Compound Area, Ax	ISTD Area, Ais	Compound Conc, Cx	ISTD Conc, Cis	Y-Values Ax/Ais	X-Values Cx/Cis		RF (Ax*Cis)/(Ais*Cx)
8328	1287108	0.5	20	0.00647032	0.025		0.259
16779	1272680	1	20	0.01318399	0.05		0.264
34127	1272364	2	20	0.026821727	0.1		0.268
91722	1308637	5	20	0.070089719	0.25		0.280
189739	1290069	10	20	0.147076629	0.5		0.294
378739	1322666	20	20	0.286345154	1		0.286
563048	1352105	30	20	0.416423281	1.5		0.278
756631	1371421	40	20	0.55171315	2		0.276
1489099	1425638	80	20	1.044514105	4		0.261

CALIBRATION MODEL:

Average Response Factor:

Cx = Ax*Cis/Ais/RF

		Lab Reported
Average RF	**0.274**	**0.274**
RSD	**4.38%**	**4.38%**

Sample Concentration Calculations										
Lab ID	Spike Concentration	Compound Area, Ax	ISTD Area, Ais	ISTD Conc, Cis	Ave RF On-column Conc	Dilution	Calculated Result	Lab Result Reported Result	Rec., RPD, Drift, %Deviation	Lab Result Reported RPD, Drift, %Deviation
Level 1	0.5	14812	1287108	20	0.840	1.000	0.84	NA	-68.0%	
Level 2	1	26471	1272680	20	1.518	1.000	1.52	NA	-51.8%	
Level 3	2	56722	1272364	20	3.254	1.000	3.25	NA	-62.7%	
Level 4	5	151122	1308637	20	8.429	1.000	8.43	NA	-68.6%	
Level 5	10	298681	1290069	20	16.898	1.000	16.90	NA	-69.0%	
Level 6	20	593972	1322666	20	32.777	1.000	32.78	NA	-63.9%	
Level 7	30	862626	1352105	20	46.565	1.000	46.57	NA	-55.2%	
Level 8	40	1138845	1371421	20	60.610	1.000	60.61	NA	-51.5%	
Level 9	80	2174601	1425638	20	111.332	1.000	111.33	NA	-39.2%	
ICV	10	206743	1379308	20	10.940	1.000	10.94	10.94	-9.40%	-9.42%
ICV	30	600083	1400165	20	31.281	1.000	31.28	31.28	-4.27%	-4.27%
LCS	10	187613	1286471	20	10.644	1.000	10.64	10.64	106%	106%
MB		0	1233258	20	0.000	1.000	0.00	< 5.0		ND
MS	10	201999	1281125	20	11.508	1.000	11.51	11.51	107%	107%
MSD	10	220089	1291234	20	12.441	1.000	12.44	12.44	116%, 8%	116%, 8%
TB-1		0	1249070	20	0.000	1.000	0.00	< 1		ND
TB-2		0	1254635	20	0.000	1.000	0.00	< 1		ND
48MW6-EQB		0	1268092	20	0.000	1.000	0.00	< 1		ND
TB-3		0	1252355	20	0.000	1.000	0.00	< 1		ND
50MW2-EQB		0	1262605	20	0.000	1.000	0.00	< 1		ND
13MW4		13974	1222582	20	0.834	1.000	0.83	0.83		0.83 J
13MW3		10609	1238542	20	0.625	1.000	0.63	0.63		0.63 J
49MW02		0	1250421	20	0.000	1.000	0.00	< 1		ND
13MW2		0	1237592	20	0.000	1.000	0.00	< 1		ND
13TW3		9736	1245085	20	0.571	1.000	0.57	0.57		0.57 J
48MW6		0	1251742	20	0.000	1.000	0.00	< 1		ND
48MW1		14427	1235113	20	0.853	1.000	0.85	0.85		0.85 J
48TW1		14796	1257890	20	0.859	1.000	0.86	0.86		0.86 J
49MW01		0	1241890	20	0.000	1.000	0.00	< 1		ND
50MW2		16510	1233643	20	0.977	1.000	0.98	0.98		0.98 J
48MW2		20132	1245394	20	1.180	1.000	1.18	1.18		1.2
48MW3		276485	1253599	20	16.098	1.000	16.10	16.10		16
49MW02		0	1267958	20	0.000	1.000	0.00	< 1		ND

Internal Standard Initial Calibration and Calculation Worksheet - Chloroform							
Compound Area, Ax	ISTD Area, Ais	Compound Conc, Cx	ISTD Conc, Cis	Y-Values Ax/Ais	X-Values Cx/Cis		RF (Ax*Cis)/(Ais*Cx)
14812	1287108	0.5	20	0.01150797	0.025		0.460
26471	1272680	1	20	0.020799415	0.05		0.416
56722	1272364	2	20	0.04458001	0.1		0.446
151122	1308637	5	20	0.115480458	0.25		0.462
298681	1290069	10	20	0.231523275	0.5		0.463
593972	1322666	20	20	0.449071799	1		0.449
862626	1352105	30	20	0.637987434	1.5		0.425
1138845	1371421	40	20	0.830412397	2		0.415
2174601	1425638	80	20	1.52535286	4		0.381

CALIBRATION MODEL:

Average Response Factor:

Cx = Ax*Cis/Ais/RF

		Lab Reported
Average RF	**0.435**	**0.435**
RSD	**6.39%**	**6.39%**

Sample Concentration Calculations										
Lab ID	Spike Concentration	Compound Area, Ax	ISTD Area, Ais	ISTD Conc, Cis	Ave RF On-column Conc	Dilution	Calculated Result	Lab Result Reported Result	Rec., RPD, Drift, %Deviation	Lab Result Reported RPD, Drift, %Deviation
Level 1	0.5	14812	1287108	20	0.529	1.000	0.53	NA	-5.7%	
Level 2	1	26471	1272680	20	0.956	1.000	0.96	NA	4.4%	
Level 3	2	56722	1272364	20	2.048	1.000	2.05	NA	-2.4%	
Level 4	5	151122	1308637	20	5.305	1.000	5.31	NA	-6.1%	
Level 5	10	298681	1290069	20	10.637	1.000	10.64	NA	-6.4%	
Level 6	20	593972	1322666	20	20.631	1.000	20.63	NA	-3.2%	
Level 7	30	862626	1352105	20	29.310	1.000	29.31	NA	2.3%	
Level 8	40	1138845	1371421	20	38.150	1.000	38.15	NA	4.6%	
Level 9	80	2174601	1425638	20	70.077	1.000	70.08	NA	12.4%	
ICV	10	318708	1379308	20	10.615	1.000	10.62	10.62	-6.15%	-6.16%
ICV	30	888810	1400165	20	29.163	1.000	29.16	29.16	2.79%	2.79%
LCS	10	305402	1286471	20	10.906	1.000	10.91	10.91	109%	109%
MB		0	1233258	20	0.000	1.000	0.00	< 5.0		ND
MS	10	303823	1281125	20	10.895	1.000	10.90	10.90	109%	109%
MSD	10	321142	1291234	20	11.426	1.000	11.43	11.43	114%, 5%	114%, 5%
TB-1			1249070	20	0.000	1.000	0.00	< 1		ND
TB-2			1254635	20	0.000	1.000	0.00	< 1		ND
48MW6-EQB		374001	1268092	20	13.550	1.000	13.55	13.55		14.000
TB-3			1252355	20	0.000	1.000	0.00	< 1		ND
50MW2-EQB		398045	1262605	20	14.483	1.000	14.48	14.48		14.000
13MW4			1222582	20	0.000	1.000	0.00	< 1		ND
13MW3		11845	1238542	20	0.439	1.000	0.44	0.44		ND
49MW02			1250421	20	0.000	1.000	0.00	< 1		ND
13MW2			1237592	20	0.000	1.000	0.00	< 1		ND
13TW3		11014	1245085	20	0.406	1.000	0.41	0.41		ND
48MW6			1251742	20	0.000	1.000	0.00	< 1		ND
48MW1			1235113	20	0.000	1.000	0.00	< 1		ND
48TW1			1257890	20	0.000	1.000	0.00	< 1		ND
49MW01		9873	1241890	20	0.365	1.000	0.37	0.37		ND
50MW2		3231	1233643	20	0.120	1.000	0.12	< 1		ND
48MW2		61926	1245394	20	2.284	1.000	2.28	2.28		2.3
48MW3		340782	1253599	20	12.489	1.000	12.49	12.49		12.0
49MW02			1267958	20	0.000	1.000	0.00	< 1		ND

Internal Standard Initial Calibration and Calculation Worksheet - Bromodichloromethane							
Compound Area, Ax	ISTD Area, Ais	Compound Conc, Cx	ISTD Conc, Cis	Y-Values Ax/Ais	X-Values Cx/Cis		RF (Ax*Cis)/(Ais*Cx)
9585	1287108	0.5	20	0.007446928	0.025		0.298
18773	1272680	1	20	0.014750762	0.05		0.295
37128	1272364	2	20	0.029180329	0.1		0.292
112245	1308637	5	20	0.085772449	0.25		0.343
211953	1290069	10	20	0.164295863	0.5		0.329
439999	1322666	20	20	0.332660702	1		0.333
640322	1352105	30	20	0.473574168	1.5		0.316
851991	1371421	40	20	0.621246867	2		0.311
1680165	1425638	80	20	1.178535505	4		0.295

CALIBRATION MODEL:

Average Response Factor:

Cx = Ax*Cis/Ais/RF

		Lab Reported
Average RF	**0.312**	**0.312**
RSD	**6.08%**	**6.08%**

Sample Concentration Calculations										
Lab ID	Spike Concentration	Compound Area, Ax	ISTD Area, Ais	ISTD Conc, Cis	Ave RF On-column Conc	Dilution	Calculated Result	Lab Result Reported Result	Rec., RPD, Drift, %Deviation	Lab Result Reported RPD, Drift, %Deviation
Level 1	0.5	14812	1287108	20	0.737	1.000	0.74	NA	-47.4%	
Level 2	1	26471	1272680	20	1.332	1.000	1.33	NA	-33.2%	
Level 3	2	56722	1272364	20	2.856	1.000	2.86	NA	-42.8%	
Level 4	5	151122	1308637	20	7.397	1.000	7.40	NA	-47.9%	
Level 5	10	298681	1290069	20	14.831	1.000	14.83	NA	-48.3%	
Level 6	20	593972	1322666	20	28.766	1.000	28.77	NA	-43.8%	
Level 7	30	862626	1352105	20	40.867	1.000	40.87	NA	-36.2%	
Level 8	40	1138845	1371421	20	53.193	1.000	53.19	NA	-33.0%	
Level 9	80	2174601	1425638	20	97.709	1.000	97.71	NA	-22.1%	
ICV	10	221398	1379308	20	10.282	1.000	10.28	10.28	-2.82%	-2.82%
ICV	30	660781	1400165	20	30.230	1.000	30.23	30.23	-0.77%	-0.77%
LCS	10	207563	1286471	20	10.335	1.000	10.34	10.34	103%	103%
MB		0	1233258	20	0.000	1.000	0.00	< 5.0		ND
MS	10	203873	1281125	20	10.194	1.000	10.19	10.19	102%	102%
MSD	10	214989	1291234	20	10.665	1.000	10.67	10.67	107%, 5%	107%, 5%
TB-1		0	1249070	20	0.000	1.000	0.00	< 1		ND
TB-2		0	1254635	20	0.000	1.000	0.00	< 1		ND
48MW6-EQB		60700	1268092	20	3.066	1.000	3.07	3.10		3.10
TB-3		0	1252355	20	0.000	1.000	0.00	< 1		ND
50MW2-EQB		60985	1262605	20	3.094	1.000	3.09	3.10		3.10
13MW4		0	1222582	20	0.000	1.000	0.00	< 1		ND
13MW3		0	1238542	20	0.000	1.000	0.00	< 1		ND
49MW02		0	1250421	20	0.000	1.000	0.00	< 1		ND
13MW2		0	1237592	20	0.000	1.000	0.00	< 1		ND
13TW3		0	1245085	20	0.000	1.000	0.00	< 1		ND
48MW6		0	1251742	20	0.000	1.000	0.00	< 1		ND
48MW1		0	1235113	20	0.000	1.000	0.00	< 1		ND
48TW1		0	1257890	20	0.000	1.000	0.00	< 1		ND
49MW01		0	1241890	20	0.000	1.000	0.00	< 1		ND
50MW2		0	1233643	20	0.000	1.000	0.00	< 1		ND
48MW2		0	1245394	20	0.000	1.000	0.00	< 1		ND
48MW3		0	1253599	20	0.000	1.000	0.00	< 1		ND
49MW02		0	1267958	20	0.000	1.000	0.00	< 1		ND

Internal Standard Initial Calibration and Calculation Worksheet - 1,2-dichloroethane-d4 (surrogate)							
Compound Area, Ax	ISTD Area, Ais	Compound Conc, Cx	ISTD Conc, Cis	Y-Values Ax/Ais	X-Values Cx/Cis		RF (Ax*Cis)/(Ais*Cx)
91451	1287108	20	20	0.071051536	1		0.071
92010	1272680	20	20	0.072296257	1		0.072
92833	1272364	20	20	0.072961039	1		0.073
93474	1308637	20	20	0.071428517	1		0.071
93975	1290069	20	20	0.072844941	1		0.073
94350	1322666	20	20	0.071333201	1		0.071
94430	1352105	20	20	0.069839251	1		0.070
99316	1371421	20	20	0.072418316	1		0.072
106563	1425638	20	20	0.074747587	1		0.075

CALIBRATION MODEL:

Average Response Factor:

Cx = Ax*Cis/Ais/RF

		Lab Reported
Average RF	0.072	0.072
RSD	1.94%	1.94%

Sample Concentration Calculations										
Lab ID	Spike Concentration	Compound Area Ax	ISTD Area Ais	ISTD Conc Cis	Ave RF On-column Conc	Dilution	Calculated Result	Lab Result Reported Result	Rec., RPD, Drift, %Deviation	Lab Result Reported RPD, Drift, %Deviation
Level 1	20	91451	1287108	20	19.709	1.000	19.71	NA	1.5%	
Level 2	20	92010	1272680	20	20.054	1.000	20.05	NA	-0.3%	
Level 3	20	92833	1272364	20	20.238	1.000	20.24	NA	-1.2%	
Level 4	20	93474	1308637	20	19.813	1.000	19.81	NA	0.9%	
Level 5	20	93975	1290069	20	20.206	1.000	20.21	NA	-1.0%	
Level 6	20	94350	1322666	20	19.787	1.000	19.79	NA	1.1%	
Level 7	20	94430	1352105	20	19.372	1.000	19.37	NA	3.1%	
Level 8	20	99316	1371421	20	20.088	1.000	20.09	NA	-0.4%	
Level 9	20	106563	1425638	20	20.734	1.000	20.73	NA	-3.7%	
ICV	20	97694	1379308	20	19.647	1.000	19.647	19.647	98%	98%
ICV	20	101019	1400165	20	20.013	1.000	20.013	20.013	100%	100%
LCS	20	93642	1286471	20	20.191	1.000	20.191	20.191	101%	101%
MB	20	88167	1233258	20	19.830	1.000	19.830	19.830	99%	99%
MS	20	92403	1281125	20	20.007	1.000	20.007	20.007	100%	100%
MSD	20	93027	1291234	20	19.984	1.000	19.984	19.984	100%	100%
TB-1	20	90850	1249070	20	20.175	1.000	20.175	20.175	101%	101%
TB-2	20	92738	1254635	20	20.503	1.000	20.503	20.503	103%	103%
48MW6-EQB	20	94191	1268092	20	20.603	1.000	20.603	20.603	103%	103%
TB-3	20	90723	1252355	20	20.094	1.000	20.094	20.094	100%	100%
50MW2-EQB	20	94533	1262605	20	20.768	1.000	20.768	20.768	104%	104%
13MW4	20	90640	1222582	20	20.565	1.000	20.565	20.565	103%	103%
13MW3	20	93493	1238542	20	20.939	1.000	20.939	20.939	105%	105%
49MW02	20	92748	1250421	20	20.574	1.000	20.574	20.574	103%	103%
13MW2	20	90873	1237592	20	20.368	1.000	20.368	20.368	102%	102%
13MW3	20	90005	1245085	20	20.052	1.000	20.052	20.052	100%	100%
48MW6	20	93315	1251742	20	20.678	1.000	20.678	20.678	103%	103%
48MW1	20	90395	1235113	20	20.301	1.000	20.301	20.301	102%	102%
48TW1	20	89927	1257890	20	19.830	1.000	19.830	19.832	99%	99%
49MW01	20	91464	1241890	20	20.429	1.000	20.429	20.429	102%	102%
50MW2	20	91108	1233643	20	20.486	1.000	20.486	20.486	102%	102%
48MW2	20	90775	1245394	20	20.218	1.000	20.218	20.202	101%	101%
48MW3	20	88897	1223965	20	20.146	1.000	20.146	20.146	101%	101%
49MW02	20	92161	1267958	20	20.162	1.000	20.162	20.162	101%	101%

Initial Calibration Model Worksheet - Sulfate					
Y-Values, Compound Area, Ax	X-Values, Compound Conc, Cx/Vs	X^2	RF	Y^2	XY
		$(Cx)^2$	Ax/Cx	$(Ax)^2$	(Cx*Ax)
0.1270	0.5	0.250	0	1.61E-02	0.1
0.1870	0.75	0.563	0	3.50E-02	0.1
0.2400	1	1.000	0	5.76E-02	0.2
1.2620	5	25.000	0	1.59E+00	6.3
2.6170	10	100.000	0	6.85E+00	26.2
9.1530	30	900.000	0	8.38E+01	274.6
16.2040	50	2500.000	0	2.63E+02	810.2
23.7340	70	4900.000	0	5.63E+02	1661.4
53.524	**167.25**	**8426.8125**	**8**	**918.199812**	**2779.1**

CALIBRATION MODELS:

Linear Regression:

y = mx + b
Cx = (Ax-b)/m

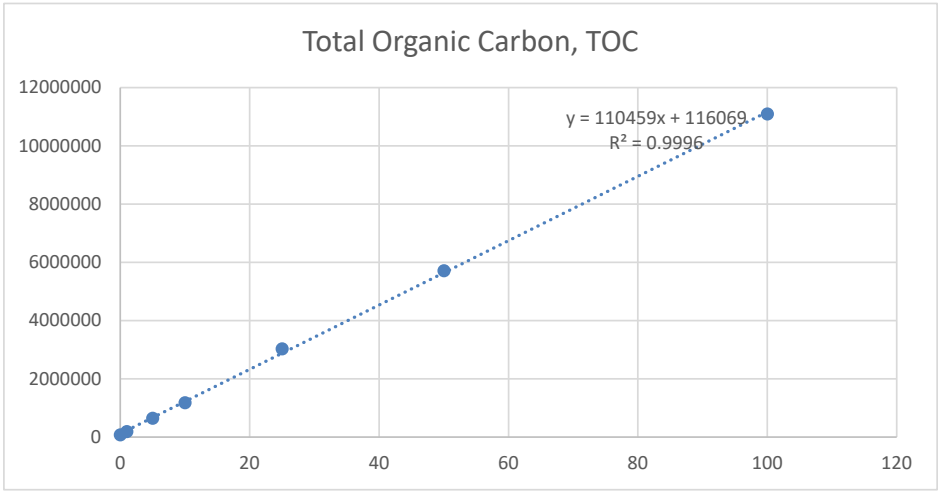
Weighting		Equal	Reported
Slope (m)		0.3367	0.3367
Intercept (b)		-0.3490	-0.3490
CC (R) (≥0.99)		0.9990	NR
COD (R^2) (≥0.98)		0.99802	0.99802
Note			

Sample Concentration Calculations								
Sample ID	Spike Concentration	Compound Area Ax	Linear Cal On-column Conc	Dilution	Calculated Result	Laboratory Reported	% Recovery	Lab Reported
ICV	25.000	7.588	23.572	1	23.572	23.573	94.3%	94%
LCS	25.000	7.896	24.486	1	24.486	24.4860	97.9%	98%
MB			1.037	1	1.037	1.5 U		
MS	40	6.202	19.455	5	97.277	97.278	76.2%	76%
MSD	40	5.943	18.686	5	93.431	93.433	66.5%	66%
LCS	25	7.722	23.970	1	23.970	23.969	95.9%	96%
MB			1.037	1	1.037	1.5 U		
48MW6-EQB		0	1.037	1	1.037	1,5 U		
50MW2-EQB		0	1.037	1	1.037	1.5 U		
13MW4		22.149	66.815	1	66.815	66.815		
13MW3		6.149	19.298	5	96.490	96.493		
49MW02		20.651	62.367	1	62.367	62.364		
13MW2		10.165	31.225	1	31.225	31.226		
13TW3		6.147	19.292	5	96.461	96.453		
48MW6		5.666	17.864	5	89.318	89.314		
48MW6-MS	40	7.729	23.990	5	119.952	119.950	76.6%	78
48ME6-MSD	40	7.739	24.020	5	120.101	120.102	77.0%	78
48MW1		16.524	50.110	1	50.110	50.110		
48TW1		15.758	47.835	1	47.835	47.833		
49MW01		0.081	1.277	1	1.277	1.3 J		
LCS	25	7.727	23.984	1	23.984	23.985	95.9%	96%
MB		0	1.037	1	1.037	1.5 U		
50MW2		3.957	12.788	5	63.941	63.936		
48MW2		0.889	3.677	1	3.677	3.677		
48ME2-MS	8	3.225	10.614	1	10.614	10.613	86.7%	86
48MW2-MSD	8	3.246	10.677	1	10.677	10.677	87.5%	88
48MW3		9.529	29.336	1	29.336	29.335		
49MW02		4.89	15.559	1	15.559	15.559		

Slight differences in percent recovery calculations are due to lab rounding prior to determing percent recoveries.

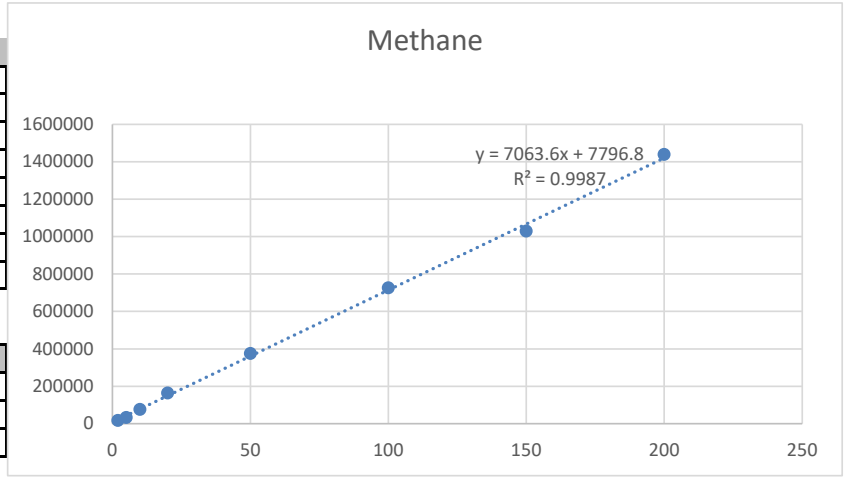
Area1	Area 2	Area 1	Area 2	X-Values, Compound Conc, Cx	Average Area
92436	71353	82635	47243	0	73416.75
196772	184321	174346	180252	1	183922.75
684567	643092	647828	616265	5	647938
1226071	1182734	1140556	1144944	10	1173576.25
3087508	2989571	3000783	3029640	25	3026875.5
5762859	5709511	5693224	5667589	50	5708295.75
11250887	10979593	11093393	11060976	100	11096212.25

	Calculated	Lab Reported
Slope	110459.443	110459
intercept	116069.092	116069
COD	0.99962	0.99973



Sample Concentration Calculations												
Lab ID	Spike Conc.	Area 1	Area 2	Area 3	Area 4	Average Area	Instrument Result	Dilution	Calculated Result	Lab Instrument Reported Result	Rec., RPD, Drift, %Deviation	Lab Result Reported RPD, Drift, %Deviation
Level 1	0	92436	71353	82635	47243	73416.750	-0.386	1.000	-0.39			
Level 2	1	196772	184321	174346	180252	183922.750	0.614	1.000	0.61			
Level 3	5	684567	643092	647828	616265	647938.000	4.815	1.000	15.50			
Level 4	10	1226071	1182734	1140556	1144944	1173576.250	9.57371	1.000	9.57371			
Level 5	25	3087508	2989571	3000783	3029640	3026875.500	26.352	1.000	26.35			
Level 6	50	5762859	5709511	5693224	5667589	5708295.750	50.627	1.000	50.627			
Level 7	100	11250887	10979593	11093393	11060976	11096212.250	99.404	1.000	99.40			
ICV	50	5631270	5510939	5478458	5533060	5538431.750	49.089	1.000	49.09	49.09	98.2%	98.0%
LCS	50	6273779	6172287	6158618	6122518	6181800.500	54.914	1.000	54.91	54.91	109.8%	110.0%
MB		167299	134144	149560	220434	150387.600	0.311	1.000	0.31	1.5 U	< 0.4 DL	
MS	50	6084152	6097167	6072868	6111363	6091387.500	54.095	1.000	54.10	54.1	108.2%	108%
MSD	50	6171667	6138103	6105084	6132130	6136746.000	54.5057692	1.000	54.51	54.51	109.0%	109%
48MW6-EQB		0	0	0	0	0.000	-1.0507847	1.000	-1.05	1.5 U		
50MW2-EQB		83987	91124	62791	102877	85194.750	-0.2795084	1.000	-0.28	1.5 U		
13MW4		188534	133177	99390	148658	142439.750	0.23873611	1.000	0.24	1.5 U	< 0.4 DL	
13MW3		185107	159360	131588	180290	164086.250	0.43470397	1.000	0.43	0.43 J		
49MW04		186713	146501	173001	166944	168289.750	0.47275866	1.000	0.47	0.47 J		
13MW2		154586	127444	153206	114639	137468.750	0.19373317	1.000	0.19	1.5 U	< 0.4 DL	
13TW3		129401	130658	114296	155504	132464.750	0.14843147	1.000	0.15	1.5 U	< 0.4 DL	
48MW6		149932	128875	119798	136691	133824.000	0.1607369	1.000	0.16	1.5 U	< 0.4 DL	
48MW1		71215	67054	82347	55686	69075.5	-0.4254375	1.000	-0.43	1.5 U		
48TW1		79184	121067	65625	76688	85641	-0.2754685	1.000	-0.28	1.5 U		
49MW01		54060	235654	0	72533	90561.75	-0.2309204	1.000	-0.23	1.5 U		
50MW2		160339	131962	179945	143133	153844.75	0.34198668	1.000	0.34	1.5 U	< 0.4 DL	
48MW2		81732	104015	108456	59200	88350.75	-0.2509368	1.000	-0.25	1.5 U		
48MW3		121962	126407	83959	84543	104217.75	-0.1072913	1.000	-0.11	1.5 U		
49MW02		81504	83419	71546	88402	81217.75	-0.3155126	1.000	-0.32	1.5 U		
DL detection limit												

Conc, Cx	Area, Ax
2	16217
5	32023
10	75505
20	163492
50	374462
100	725589
150	1029106
200	1439158



Calc	Lab Report
7063.64	7063.64
7796.83	7796.83
0.998736	0.998736

Sample Concentration Calculations						
Lab ID	Spike Conc.	Compound Area, Ax	Ave RF, On-column Conc	Dilution	Calculated Result	Lab Instrument Reported Result
ICV	50	350417	48.505	1.000	48.505	48.505
ICV	50	370673	51.372	1.000	51.372	51.372
ICV	50	336326	46.510	1.000	46.510	46.510
ICV	50	373198	51.730	1.000	51.730	51.730
ICV	50	382626	53.065	1.000	53.065	53.065
ICB		14868	1.001	1.000	1.001	1.001
LCS	50	187809	25.484	1.000	25.484	25.484
MB		5443	-0.333	1.000	-0.333	0.000
13MW4-MS	50	175453	23.735	1.000	23.735	23.735
13MW4-MSD	50	171804	23.218	1.000	23.218	23.457
LCS	50	192075	26.088	1.000	26.088	26.088
MB		18126	1.462	1.000	1.462	1.462
LCSD	50	188084	25.523	1.000	25.523	25.523
48MW6-EQB		15837	1.138	1.000	1.138	1.138
50MW2-EQB		12725	0.698	1.000	0.698	0.698
13MW4		0	-1.104	1.000	-1.104	0.0
13MW3		0	-1.104	1.000	-1.104	0.0
49MW04		9459	0.235	1.000	0.235	0.235
13MW2		6476	-0.187	1.000	-0.187	0
13TW3		6311	-0.210	1.000	-0.210	0
48MW6		38527	4.350	1.000	4.350	4.35
48MW1		19758	1.693	1.000	1.693	1.693
48TW1		17953	1.438	1.000	1.438	1.438
49MW01		24507	2.366	1.000	2.366	2.366
50MW2		11859	0.575	1.000	0.575	0.575
48MW2		113381	14.948	1.000	14.948	14.948
48MW3		17927	1.434	1.000	1.434	1.434
49MW02		90946	11.771	1.000	11.771	11.771



DATA VERIFICATION/VALIDATION REPORT
Solid Waste Management Unit (SWMU) 49
Radford Army Ammunition Plant (RFAAP), Radford, VA
SDG 191577, 191657, 191706, and 191720

U.S. ARMY CORPS OF ENGINEERS, Baltimore District

SWMU 49 Natural Attenuation Groundwater Monitoring

January 31, 2025

Prepared for:

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Prepared by:

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Signature Page

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Acronyms and Abbreviations

°C	degrees Celsius
%D	percent difference
%R	percent recovery
%RSD	percent relative standard deviation
CCV	continuing calibration verification
COC	chains-of-custody
CTL	CT Laboratories, LLC
DL	detection limit
ICV	initial calibration verification
IS	internal standard
LCS	laboratory control sample
LOD	limit of detection
LOQ	limit of quantitation
MS	matrix spike
MSD	matrix spike duplicate
QAPP	quality assurance project plan
QC	quality control
QSM	Quality Systems Manual
RPD	relative percent difference
SEDD	Staged Electronic Data Deliverable
SWMU	Solid Waste Management Unit
USEPA	U.S. Environmental Protection Agency
USACE	U.S. Army Corps of Engineers

Introduction

This data verification/validation report is for groundwater samples collected from Solid Waste Management Unit (SWMU) 49, the Red Water Ash Burial #2 site, at the Radford Army Ammunition Plant, located in Radford, VA. The data analyses are for 17 groundwater samples, 3 equipment blanks and 4 trip blanks collected on December 9, 11, 12, and 13, 2024, and were received at the primary laboratory on December 11, 12, 13, and 14, 2024 at the Baraboo, WI location. The attributes of the samples collected, including calendar dates and identification numbers, are summarized in Table 1.

Table 1: Samples Collected from Clearfield Naval Supply Depot Historical Landfill Site

Lab ID	Client Sample ID	Matrix	Date Sampled	Date Received	Validation Stage
1537077	TB-1	Trip Blank	12/09/2024	12/11/2024	S4VEM
1537078	13MW5	Groundwater	12/09/2024	12/11/2024	S4VEM
1537079	13MW4	Groundwater	12/09/2024	12/11/2024	S4VEM
1537080	13MW3	Groundwater	12/09/2024	12/11/2024	S4VEM
1537081	13TW3	Groundwater	12/09/2024	12/11/2024	S4VEM
1537082	49MW04	Groundwater	12/09/2024	12/11/2024	S4VEM
1537083	13MW2	Groundwater	12/09/2024	12/11/2024	S4VEM
1537084	49MW05	Groundwater	12/09/2024	12/11/2024	S4VEM
1537549	TB-2	Trip Blank	12/11/2024	12/12/2024	S4VEM
1537550	48MW7	Groundwater	12/11/2024	12/12/2024	S4VEM
1537551	48MW7-EQB	Equipment Blank	12/11/2024	12/12/2024	S4VEM
1537552	48MW6	Groundwater	12/11/2024	12/12/2024	S4VEM
1538324	TB-3	Trip Blank	12/12/2024	12/13/2024	S4VEM
1538327	49MW03	Groundwater	12/12/2024	12/13/2024	S4VEM
1538328	49MW03-EQB	Equipment Blank	12/12/2024	12/13/2024	S4VEM
1538329	48MW1	Groundwater	12/12/2024	12/13/2024	S4VEM
1538330	48TW1	Groundwater	12/12/2024	12/13/2024	S4VEM
1538331	49MW01	Groundwater	12/12/2024	12/13/2024	S4VEM
1538332	50MW2	Groundwater	12/12/2024	12/13/2024	S4VEM
1538659	TB-4	Trip Blank	12/13/2024	12/14/2024	S4VEM
1538660	48MW2	Groundwater	12/13/2024	12/14/2024	S4VEM
1538661	48MW2-EQB	Equipment Blank	12/13/2024	12/14/2024	S4VEM
1538662	48MW3	Groundwater	12/13/2024	12/14/2024	S4VEM
1538663	49MW02	Groundwater	12/13/2024	12/14/2024	S4VEM

Site samples were collected in accordance with the SWMU 49 Monitored Natural Attenuation Groundwater Monitoring Work Plan, Section 4 Quality Assurance Project Plan (QAPP). The samples were shipped to CT Laboratories, LLC (CTL) located in Baraboo, WI for analysis of VOC (SW8260C), TOC (SW9060A), Anions (SW9056A), and volatile gases (RSK-175).

Analytical results were reviewed in accordance with the project QAPP, the Department of Defense (DoD) Quality Systems Manual (QSM), DoD General Data Validation Guidelines, and DoD Data Validation Guidelines Module 1.

CTL provided Level IV data package, which included the required elements to perform the USEPA Region III level M3, Stage 4 electronic and manual validation (S4VEM) defined in the QAPP. The data were validated to S4VEM by the Neptune and Company, Incorporated (Neptune) data validator.

Data qualifier definitions are listed in Table 2 below.

Table 2: Final Validation Flags Definitions

Qualifier	Definition
U	Not detected. The associated number indicates the compound reporting limit for the sample.
J	Indicates an estimated value for 1) estimated value due to QC non-conformance. Reported value may not be accurate or precise, 2) estimating a concentration as a tentatively identified compound as indicated by the mass spectral and retention time data, or 3) estimating a concentration >=MDL and <MRL or <3*MRL, whichever is greater
B	The analyte has been detected in the sample and the associated laboratory or field blank.
K	Analyte present. Reported value may be biased high (estimated) due to QC non-conformance.
L	Analyte present. Reported value may be biased low (estimated) due to QC non-conformance.
UL	Value is estimated bias low and not detected due to QC non-conformance. Reporting limit may be inaccurate or imprecise. QL is probably higher
UJ	The analyte was analyzed for, but was not detected above the reported sample QL. The reported QL is approximate and may be inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meeting the QC criteria. The analyte may or may not be present in the sample.

Sample Receipt

All samples were received at CTL Baraboo, WI facility on December 11, 12, 13, and 14, 2024. The coolers were received at temperatures of 2.7°C, 2.7°C , 4.1°C, and 1.3°C. The samples were received intact and in good condition.

Preservation and Holding Times

The sample receipt form indicates that the samples were received intact and in good condition. Cooler temperatures met the acceptance range. The case narrative indicates that sample 48MW7 and 49MW02 were not properly preserved for analysis of VOCs and gases (methane, ethane, and ethene).

Unpreserved samples for VOC analysis have a hold time of 7 days. The QAPP does not indicate preservation is required for gases and the hold time is listed at 7 days. The analysis of 48MW7 and 49MW02 was performed after the 7-day hold time for unpreserved samples. All positive results are qualified as estimated with a negative bias and all non-detect results are qualified as estimated at the limit of detection (LOD). Samples 13MW4, 13MW5, and 49MW01 were analyzed outside the 48-hour hold time for analysis of nitrate. Nitrate results for these samples are qualified as estimated with a negative bias. The case narrative indicates all remaining samples were extracted and analyzed within the preparation and analytical hold times. This was verified by reviewing the sample summaries containing sample collection, receipt, preparation and analytical dates.

Validation

VOCs by Method 8260

Calibration

Prior to analyzing the calibration standards, the instrument was properly tuned. The initial calibration consisted of a minimum of five and up to nine calibration standards. The lab employed the average relative response factor with the %RSD within acceptance limit (<15%). Where the %RSD acceptance criterion was not met, quadratic regression was employed with coefficient of determination, r^2, >0.99. The second source calibration verification was performed following the initial calibration and was within control limits (+/-20%). The continuing calibrations checks performed prior to analysis of samples were within control limits (+/-20%), except for methylene chloride (low). Samples 13MW2 ND, 13MW3 ND, 13MW4 ND, 13MW5 ND, 13TW3 ND, 48MW1 NS, 48MW6 ND, 48MW7 ND, 48MW7-EQB ND, 48TW1 ND, 49MW03 ND, 49MW03-EQB ND, 49MW04 ND, 49MW05 ND, TB-1 J, TB-2 ND, and TB-3 ND are associated with this continuing calibration verification. Non-detect results are qualified as estimated at the LOD. Positive results are qualified as estimated with a negative bias.

Blanks

A method blank was prepared and analyzed with each batch of samples. There were no detects in the method blanks. No qualifiers were necessary. There are three equipment blanks (48MW2-EQB, 48MW7-EQB, and 49MW03-EQB) associated with this data package. Bromodichloromethane and chloroform were detected in 48MW2-EQB and 49MW03-EQB. Toluene and chloroform were detected in 48MW7-EQB. Samples 48MW2, 48MW3 and 49MW02 are associated with 48MW2-EQB. Chloroform was detected in 48MW2 and 48MW3. The chloroform result is qualified as estimated with a high bias. There are four trip blanks (TB-1, TB-2, TB-3, and TB-4) collected with this sampling event. Acetone and Methylene chloride were detected in TB-1. Samples 13MW2, 13MW3, 13TW3, 13MW4, 13MW5, 49MW04, and 49MW05 are associated with TB-1. All samples were non-detect for acetone and methylene chloride. No qualifiers were applied for the trip blank contamination.

Laboratory Control Sample

A laboratory control sample (LCS) was prepared and analyzed with each batch of samples. All analyte recoveries were within control limits. No qualifiers were applied.

Matrix Spike / Matrix Spike Duplicate

MS/MSD analyses were performed on sample 13MW4 and 49MW02. The MS/MSD recoveries and RPD were within control limits for 13MW4. The MS/MSD recoveries were within control limits for 49MW02, however, the RPDs were outside control limits for 1,2,3-Trichlorobenzene, 1,2,4-Trichlorobenzene, 1,2-Dibromo-3-chloropropane, and Methylene chloride. Results were non-detect in the parent sample. No qualifiers were necessary.

Surrogates

All Surrogate recoveries were within the control limits for soil analysis and QC water samples. No qualifiers were necessary.

Internal Standards

The recoveries of all internal standards were within control limits.

Target Compound Quantitation

Target compound quantitation's were reviewed for all detected analytes in samples 13MW4 and 49MW02. Results were re-calculated from instrument responses. Slight differences in recalculations can be attributed to rounding.

Dissolved Gases by Method RSK175

Calibration

The initial calibration consisted of eight (8) calibration standards. The lab employed the linear regression with the correlation coefficient within acceptance limits. The second source calibration verification was performed following the initial calibration and was within control limits.

The calibration was verified through the analysis of a CCV standard. The opening and ending CCV results were within 20% drift.

Blanks

A method blank was prepared and analyzed with each batch of samples. There were no detects in the method blanks. Raw data were reviewed for the QC blank. There are three equipment blanks (48MW2-EQB, 48MW7-EQB, and 49MW03-EQB) associated with this data package. Ethane and Methane were detected in 49MW03-EQB. Samples 48MW1, 48TW1, 49MW01, 49MW03, and 50MW2 are associated

with the equipment blank. The Ethane results in 48MW1 and 49MW03 were less than 10x the equipment blank contamination. The result is qualified as estimated with a high bias. The Methane result for sample 49MW03 is greater than 10x the equipment blank contamination. No qualifier is applied.

Laboratory Control Sample

A laboratory control sample (LCS) was prepared for batch 288101 and a LCS and LCS duplicate (LCSD) were prepared for batch 288301 and analyzed. All analyte recoveries were within control limits for batch 288101. Recoveries for the LCS/LCSD are within control limits, however, the RPD results were above the control limit for Ethane and Ethene. Non-detect results are not qualified, positive results are qualified as estimated. The following samples are associated with the LCS/LCSD pair: 48MW1, 48MW2, 48MW2-EQB, 48MW3, 48MW6, 48MW7, 48MW7-EQB, 48TW1, 49MW01, 49MW02, 49MW03, 49MW03-EQB, and 50MW2.

Matrix Spike and Matrix Spike Duplicate

MS/MSD analysis was performed on sample 13MW4. The MS/MSD recoveries and the RPD were within control limits. No qualifiers were necessary.

Target Compound Identification and Quantitation

Target compound identification and retention times were reviewed for all samples. No anomalies were identified. All detected results for samples 13MW4 and 13MW3 were re-calculated manually from the raw data. The final results were derived from the instrument result. The equation that the laboratory used to convert the instrument result to a final result was not provided. The final result takes into account certain variables such as, temperature, pressures, and gas constants.

TOC by Method SW9060A

Calibration

The initial calibration consisted of nine (7) points for TOC and the correlation coefficient, r, was >0.995. A second source calibration verification was performed following the initial calibration and was within control limits.

Analysis of samples proceeded immediately following the initial calibration. The calibration was verified throughout the analysis with CCV standards. All CCVs were within acceptance limits. The continuing calibration verifications results were manually calculated from the raw data for TOC.

Blanks

A method blank was prepared and analyzed with each analytical batch from each lab. There were no detects for TOC in the method blanks. There are three equipment blanks (48MW2-EQB, 48MW7-EQB, and 49MW03-EQB) associated with this data package. All results were non-detect. No qualifiers were necessary. Raw data was reviewed for the QC blanks.

Laboratory Control Sample

A laboratory control sample (LCS) was prepared and analyzed with each analytical batch. The TOC recoveries were within the control limits. The result and recovery for TOC were verified from the raw data.

Matrix Spike / Matrix Spike Duplicate

MS/MSD analyses were performed on sample 13MW4 and 48MW1 for the analytical batches. The MS/MSD recoveries and percent RPD were within control limits. No qualifiers were necessary.

Target Compound Identification and Quantitation

Target compound identification was reviewed for all samples. No anomalies were identified.

Anions by Method SW9056A

Calibration

The initial calibration consisted of nine (9) points for all anions (chloride, nitrate, and sulfate) using linear regression. The correlation of determination, (r^2), was above 0.995. A second source calibration verification was performed following the initial calibration and was within control limits.

The calibration was verified throughout the analysis with CCV standards. All CCVs were within acceptance limits. No qualifiers were necessary.

Blanks

A method blank was prepared and analyzed with the analytical batch. There were no detects in the method blank. The raw data were reviewed for all QC blank. There are three equipment blanks (48MW2-EQB, 48MW7-EQB, and 49MW03-EQB) associated with this data package. All analytes were non-detected in the associated samples. No qualifiers were applied.

Laboratory Control Sample

A laboratory control sample (LCS) was prepared and analyzed with each analytical batch. The recoveries for all anions were within the control limits. The result and recovery for sulfate were verified from the raw data.

Matrix Spike / Matrix Spike Duplicate

MS/MSD analyses were performed on samples 13MW4, 48MW1, 48MW6, 48MW2, and 50MW2. The MS or MSD recovery for chloride and sulfate were below control limits for sample 48MW6. The MS/MSD recoveries for the other samples were within control limits. The percent RPD was within control limits demonstrating acceptable precision. The parent sample 48MW6 is qualified as estimated with a low bias for chloride and sulfate.

Target Compound Identification and Quantitation

Target compound identification was reviewed for all samples. No anomalies were identified. Sulfate sample results were calculated manually from the raw data.

Field Duplicate Comparison

Table 3 below lists the field duplicate comparison. Only detected analytes are listed. The RPD or "<2xLOQ" factor for each analyte was determined. Where the result is less than 2 times the sample-specific LOQ, the difference between the results should be less than 2 times the LOQ value. Precision has been demonstrated for the detected analytes.

Table 3: Field Duplicate Comparison

Analyte	Sample ID	Field Duplicate ID	RPD or <2xLOQ
	13MW3	**13TW3**	
Ethane	0.39 J ug/L	0.80 U ug/L	<2XLOQ
Carbon tetrachloride	2.0 ug/L	2.0 ug/L	0.0%
Chloroform	1.0 U mg/L	0.32 ug/L	<2XLOQ
Sulfate	66 mg/L	65 mg/L	1.5%
Chloride	3.1 mg/L	3.1 mg/L	0.0%
Nitrate	1.2 mg/L	1.3 mg/L	8.0%
	48MW1	**48TW1**	
Ethane	0.38 J ug/L	0.80 U ug/L	<2XLOQ
1,1-Dichloroethane	0.46 J ug/L	0.45 J ug/L	<2XLOQ
cis-1,2-Dichloroethene	0.47 J mg/L	0.44 J ug/L	<2XLOQ
Trichloroethene	0.83 J mg/L	0.85 J ug/L	<2XLOQ
Sulfate	47 mg/L	47 mg/L	0.0%
Chloride	4.7 mg/L	4.7 mg/L	0.0%
Nitrate	1.3 mg/L	1.5 mg/L	14.3%

Overall Assessment

All data are deemed usable as no results were considered for exclusion. All sample results were manually calculated and verified for analytes acetone, carbon tetrachloride, trichloroethene, chloroform, bromodichloromethane, and 1,2-dichloroethane-d4 (surrogate), methane, TOC, and sulfate.

All results may be utilized for project decision-making processes noting the qualifications described within this review.

Table 4: Qualified Sample Results

Client Sample ID	Analyte	Result	Qualifier	Reason
48MW7	Ethane	0.41	J-	P
48MW7	Ethene	1.2	UJ	P
48MW7	Methane	0.73	J-	P
48MW7	Bromodichloromethane	0.25	UJ	P
48MW7	Vinyl chloride	0.25	UJ	P
48MW7	cis-1,3-Dichloropropene	1	UJ	P
48MW7	Dibromochloromethane	1	UJ	P
48MW7	1,2-Dichloropropane	1	UJ	P
48MW7	Chlorobenzene	1	UJ	P
48MW7	Trichloroethene	1	UJ	P
48MW7	Tetrachloroethene	1	UJ	P
48MW7	Bromochloromethane	1	UJ	P
48MW7	1,1,2-Trichloroethane	1	UJ	P
48MW7	Toluene	1	UJ	P
48MW7	1,1-Dichloroethane	1	UJ	P
48MW7	Methyl tert-butyl ether	1	UJ	P
48MW7	1,3-Dichlorobenzene	1	UJ	P
48MW7	Chloroform	1	UJ	P
48MW7	1,2-Dibromoethane	1	UJ	P
48MW7	1,4-Dichlorobenzene	1	UJ	P
48MW7	Styrene	1	UJ	P
48MW7	Methyl Acetate	1	UJ	P
48MW7	1,2-Dichlorobenzene	1	UJ	P
48MW7	trans-1,2-Dichloroethene	1	UJ	P
48MW7	1,1,2,2-Tetrachloroethane	1	UJ	P
48MW7	Carbon tetrachloride	1	UJ	P
48MW7	1,1,1-Trichloroethane	1	UJ	P
48MW7	Isopropylbenzene	1	UJ	P
48MW7	Chloromethane	1	UJ	P
48MW7	Benzene	1	UJ	P
48MW7	cis-1,2-Dichloroethene	1	UJ	P
48MW7	Trichlorofluoromethane	1	UJ	P
48MW7	Ethylbenzene	1	UJ	P
48MW7	1,2,3-Trichlorobenzene	1	UJ	P
48MW7	1,1-Dichloroethene	1	UJ	P
48MW7	Bromomethane	1	UJ	P
48MW7	1,2,4-Trichlorobenzene	1	UJ	P
48MW7	1,2-Dibromo-3-chloropropane	1	UJ	P
48MW7	Bromoform	1	UJ	P
48MW7	o-Xylene	2	UJ	P
48MW7	trans-1,3-Dichloropropene	2	UJ	P
48MW7	Dichlorodifluoromethane	2	UJ	P
48MW7	1,2-Dichloroethane	2	UJ	P
48MW7	Cyclohexane	2	UJ	P
48MW7	m,p-Xylenes	2	UJ	P
48MW7	Methylcyclohexane	2	UJ	P
48MW7	Carbon disulfide	2	UJ	P
48MW7	Chloroethane	2	UJ	P

Client Sample ID	Analyte	Result	Qualifier	Reason
48MW7	Methylene chloride	4	UJ	P
48MW7	Freon 113	4	UJ	P
48MW7	2-Butanone	10	UJ	P
48MW7	2-Hexanone	10	UJ	P
48MW7	4-Methyl-2-pentanone	10	UJ	P
48MW7	1,4-Dioxane	50	UJ	P
48MW7	Acetone	10	UJ	P
49MW02	Ethane	0.8	UJ	P
49MW02	Ethene	1.2	UJ	P
49MW02	Methane	1.9	UJ	P
49MW02	Bromodichloromethane	0.25	UJ	P
49MW02	Vinyl chloride	0.25	UJ	P
49MW02	cis-1,3-Dichloropropene	1	UJ	P
49MW02	Dibromochloromethane	1	UJ	P
49MW02	1,2-Dichloropropane	1	UJ	P
49MW02	Chlorobenzene	1	UJ	P
49MW02	Trichloroethene	1	UJ	P
49MW02	Tetrachloroethene	1	UJ	P
49MW02	Bromochloromethane	1	UJ	P
49MW02	1,1,2-Trichloroethane	1	UJ	P
49MW02	Toluene	1	UJ	P
49MW02	1,1-Dichloroethane	1	UJ	P
49MW02	Methyl tert-butyl ether	1	UJ	P
49MW02	1,3-Dichlorobenzene	1	UJ	P
49MW02	Chloroform	1	UJ	P
49MW02	1,2-Dibromoethane	1	UJ	P
49MW02	1,4-Dichlorobenzene	1	UJ	P
49MW02	Styrene	1	UJ	P
49MW02	Methyl Acetate	1	UJ	P
49MW02	1,2-Dichlorobenzene	1	UJ	P
49MW02	trans-1,2-Dichloroethene	1	UJ	P
49MW02	1,1,2,2-Tetrachloroethane	1	UJ	P
49MW02	Carbon tetrachloride	1	UJ	P
49MW02	1,1,1-Trichloroethane	1	UJ	P
49MW02	Isopropylbenzene	1	UJ	P
49MW02	Chloromethane	1	UJ	P
49MW02	Benzene	1	UJ	P
49MW02	cis-1,2-Dichloroethene	1	UJ	P
49MW02	Trichlorofluoromethane	1	UJ	P
49MW02	Ethylbenzene	1	UJ	P
49MW02	1,2,3-Trichlorobenzene	1	UJ	P
49MW02	1,1-Dichloroethene	1	UJ	P
49MW02	Bromomethane	1	UJ	P
49MW02	Bromoform	1	UJ	P
49MW02	1,2,4-Trichlorobenzene	1	UJ	P
49MW02	1,2-Dibromo-3-chloropropane	1	UJ	P
49MW02	o-Xylene	2	UJ	P
49MW02	trans-1,3-Dichloropropene	2	UJ	P
49MW02	Dichlorodifluoromethane	2	UJ	P
49MW02	1,2-Dichloroethane	2	UJ	P
49MW02	Cyclohexane	2	UJ	P
49MW02	m,p-Xylenes	2	UJ	P
49MW02	Methylcyclohexane	2	UJ	P
49MW02	Carbon disulfide	2	UJ	P

Client Sample ID	Analyte	Result	Qualifier	Reason
49MW02	Chloroethane	2	UJ	P
49MW02	Methylene chloride	4	UJ	P
49MW02	Freon 113	4	UJ	P
49MW02	2-Butanone	10	UJ	P
49MW02	2-Hexanone	10	UJ	P
49MW02	4-Methyl-2-pentanone	10	UJ	P
49MW02	1,4-Dioxane	50	UJ	P
49MW02	Acetone	10	UJ	P
13MW4	Nitrate	0.2	UJ	H1
13MW5	Nitrate	0.56	J-	H1
49MW01	Nitrate	0.37	J-	H1
13MW2	Methylene chloride	4	UJ	V2
13MW3	Methylene chloride	4	UJ	V2
13MW4	Methylene chloride	4	UJ	V2
13MW5	Methylene chloride	4	UJ	V2
13TW3	Methylene chloride	4	UJ	V2
49MW04	Methylene chloride	4	UJ	V2
49MW05	Methylene chloride	4	UJ	V2
48MW6	Methylene chloride	4	UJ	V2
48MW7	Methylene chloride	4	UJ	V2
48MW7-EQB	Methylene chloride	4	UJ	V2
48MW1	Methylene chloride	4	UJ	V2
48TW1	Methylene chloride	4	UJ	V2
49MW03	Methylene chloride	4	UJ	V2
49MW03-EQB	Methylene chloride	4	UJ	V2
TB-1	Methylene chloride	4	UJ	V2
TB-2	Methylene chloride	4	UJ	V2
TB-3	Methylene chloride	4	UJ	V2
48MW2	Chloroform	3.9	J+	V
48MW3	Chloroform	11	J+	V
48MW7	Ethane	0.41	J	Z
48MW1	Ethane	0.38	J	Z
49MW03	Ethene	1.7	J	Z
49MW03	Ethane	3.8	J	Z
49MW03-EQB	Ethane	0.51	J	Z
48MW6	Chloride	13	J-	M
48MW6	Sulfate	100	J-	M

P – Sample preservation requirement not met
M – MS and/or MSD recovery outside project limits
V2 – Continuing calibration verification outside control limits
V – Equipment Blank contamination
Z – LCS RPD outside criteria

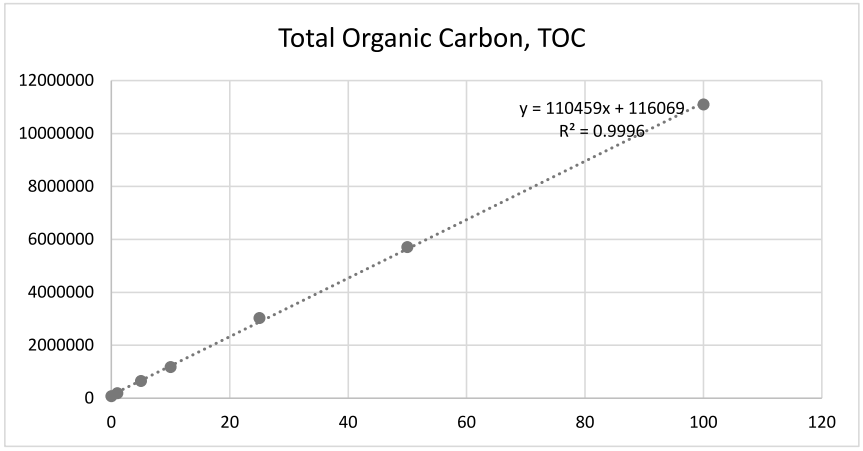
Initial Calibration Model Worksheet						
	Sulfate - AQUION 5		Chloride - AQUION 5		Nitrate - AQUION 4	
	Area, µs*min	Conc., mg/L	Area, µs*min	Conc., mg/L	Area, µs*min	Conc., mg/L
	0.006	0	NA	NA	NA	NA
	0.2490	0.5	0.17300	0.5	0.088	0.1
	0.3410	0.75	0.28000	0.75	0.243	0.3
	0.3050	1	0.34000	1	0.422	0.5
	1.4010	5	1.83100	5	0.936	1
	2.6840	10	3.79800	10	1.861	2
	8.8780	30	9.05400	20	4.715	5
	15.1390	50	13.58800	30	7.401	7
	21.9710	70	18.46300	40	NA	NA
Weighting	**Calculated**	**Reported**	**Calculated**	**Reported**	**Calculated**	**Reported**
Slope (m)	**0.3099**	**0.3099**	**0.4644**	**0.4644**	**1.0350**	**1.0350**
Intercept (b)	**-0.0960**	**0.0961**	**-0.2844**	**-0.2842**	**-0.1130**	**-0.1127**
CC (R) (≥0.99)	**0.9995**	**NR**	**0.9992**	**NR**	**0.9977**	**NR**
COD (R^2) (≥0.98)	**0.99900**	**0.99900**	**0.99849**	**0.99900**	**0.99540**	**0.99540**
Note						

Sample Concentration Calculations										
Sample ID	**Analyte**	**Instrument**	**Spike Concentration**	**Area, µs*min**	**Calc. Conc., mg/L**	**Dilution**	**Calc. Result**	**Laboratory Reported**	**% Recovery**	**Lab Reported**
ICV	Chloride	AQUION - 5	15.000	6.092	13.732	1	13.732	13.732	91.5%	92%
	Nitrate	AQUION - 5	3.500	3.512	3.502	1	3.502	3.5025	100.1%	100%
	Sulfate	AQUION - 5								NR
ICB	Chloride	AQUION - 5		0.000	0.612	1	0.612	ND	1.5 U	
	Nitrate	AQUION - 4		0.000	0.109	1	0.109	ND	1.5 U	
	Sulfate	AQUION - 5		0.080	0.568	1	0.568	0.569	1.5 U	
ICV	Chloride	AQUION - 5								NR
	Nitrate	AQUION - 4	3.500	3.623	3.610	1	3.610	3.6098	103.1%	103%
	Sulfate	AQUION - 5	25	7.153	23.388	1	23.388	23.390	93.6%	94%
CCV	Chloride	AQUION - 5	15.000	6.58	14.783	1	14.783	14.783	98.6%	99%
	Nitrate	AQUION - 4	3.500	3.623	3.610	1	3.610	3.6098	103.1%	103%
	Sulfate	AQUION - 5	25	7.081	23.156	1	23.156	23.156	92.6%	93%
LCSW - 288130, 288131	Chloride	AQUION - 5	15.000	6.943	15.564	1	15.564	15.565	103.8%	104%
	Nitrate	AQUION - 4	3.500	3.504	3.495	1	3.495	3.4951	99.8%	100%
	Sulfate	AQUION - 5	25	8.229	26.860	1	26.860	26.861	107.4%	107%
MBW-CCB	Chloride	AQUION - 5		0.041	0.701	1	0.701	1.5 U		
	Nitrate	AQUION - 4		0.000	0.000	1	0.000	0.2 U		
	Sulfate	AQUION - 5		0.000	0.310	1	0.310	1.5 U		
13MW4	Chloride	AQUION - 5						NR		
	Nitrate	AQUION - 4						NR		
	Sulfate	AQUION - 5		4.774	15.713	5	78.563	79		
Duplicate - 13MW4	Chloride	AQUION - 5						NR		
	Nitrate	AQUION - 4						NR		
	Sulfate	AQUION - 5		4.717	15.529	5	77.643	78	2%	2%
MSW - 13MW4	Chloride	AQUION - 5						NR		
	Nitrate	AQUION - 4						NR		
	Sulfate	AQUION - 5	25	7.281	23.801	5	119.005	119	101.1%	100%
MSDW - 13MW4	Chloride	AQUION - 5						NR		
	Nitrate	AQUION - 4						NR		
	Sulfate	AQUION - 5	40	7.319	23.924	5	119.618	120	103%, 1%	102%, 1%
13MW4	Chloride	AQUION - 5		1.259	3.324	1	3.324	3.300		
	Nitrate	AQUION - 4		0.000	0.000	1	0.000	0.2 U		
	Sulfate	AQUION - 5						NR		
CCV	Chloride	AQUION - 5	15.000	6.666	14.968	1	14.968	14.967	99.8%	100%
	Nitrate	AQUION - 4	3.500	3.538	3.558	1	3.558	3.5278	101.7%	101%
	Sulfate	AQUION - 5	25	8.174	26.682	1	26.682	26.683	106.7%	107%
CCB	Chloride	AQUION - 5		0.000	0.612	1	0.612	ND	1.5 U	
	Nitrate	AQUION - 4		0.000	0.109	1	0.109	ND	0.2 U	
	Sulfate	AQUION - 5		0.000	0.310	1	0.310	ND	1.5 U	
Duplicate - 13MW4	Chloride	AQUION - 5		1.268	3.343	1	3.343	3.340	1%	1%
	Nitrate	AQUION - 4		0.000	0.000	1	0.000	0.2 U	NC	NC
	Sulfate	AQUION - 5						NR		
MSW - 13MW4	Chloride	AQUION - 5	8.000	4.595	10.508	1	10.508	10.508	89.8%	90%
	Nitrate	AQUION - 4	2.000	2.010	2.051	1	2.051	2.0514	102.6%	102%
	Sulfate	AQUION - 5						NR		
MSDW - 13MW4	Chloride	AQUION - 5	8.000	4.719	10.775	1	10.775	10.774	93%, 3%	94%, 3%
	Nitrate	AQUION - 4	2.000	1.974	2.016	1	2.016	2.0162	101%, 2%	101%, 2%
	Sulfate	AQUION - 5						NR		
CCV	Chloride	AQUION - 5	15.000	6.263	14.100	1	14.100	14.100	94.0%	94%
	Nitrate	AQUION - 4	3.500	3.390	3.384	1	3.384	3.3842	96.7%	97%
	Sulfate	AQUION - 5	25	8.015	26.169	1	26.169	26.170	104.7%	105%
CCB	Chloride	AQUION - 5		0.000		1	0.000	ND	1.5 U	
	Nitrate	AQUION - 4		0.000		1	0.000	ND	0.2 U	
	Sulfate	AQUION - 5		0.000		1	0.000	ND	1.5 U	

Slight differences in percent recovery calculations are due to lab rounding prior to determing percent recoveries.

APPENDINX: Manual Calculations - TOC

Area1	Area 2	Area 3	Area 4	X-Values, Compound Conc, Cx	Average Area
92436	71353	82635	47243	0	73416.75
196772	184321	174346	180252	1	183922.75
684567	643092	647828	616265	5	647938
1226071	1182734	1140556	1144944	10	1173576.25
3087508	2989571	3000783	3029640	25	3026875.5
5762859	5709511	5693224	5667589	50	5708295.75
11250887	10979593	11093393	11060976	100	11096212.25



	Calculated	Lab Reported
Slope	110459.443	110459.443
intercept	116069.0921	116069.0921
COD	0.99962	0.99973

Sample Concentration Calculations												
Lab ID	Spike Conc.	Area 1	Area 2	Area 3	Area 4	Average Area	Instrument Result	Dilution	Calculated Result	Lab Instrument Reported Result	Rec., RPD, Drift, %Deviation	Lab Result Reported RPD, Drift, %Deviation
Level 1	0	92436	71353	82635	47243	73416.750	-0.386	1.000	-0.39			
Level 2	1	196772	184321	174346	180252	183922.750	0.614	1.000	0.61			
Level 3	5	684567	643092	647828	616265	647938.000	4.815	1.000	15.50			
Level 4	10	1226071	1182734	1140556	1144944	1173576.250	9.57371	1.000	9.57371			
Level 5	25	3087508	2989571	3000783	3029640	3026875.500	26.352	1.000	26.35			
Level 6	50	5762859	5709511	5693224	5667589	5708295.750	50.627	1.000	50.627			
Level 7	100	11250887	10979593	11093393	11060976	11096212.250	99.404	1.000	99.40			
ICV	50	5631270	5510939	5478458	5533060	5538431.750	49.089	1.000	49.09	49.09	98%	98%
ICB		241599	74230	87496	127840	132791.250	0.151	1.000	0.15	0.4 U		
CCV	50	5479522	5516549	5468237	5430393	5473675.250	48.503	1.000	48.50	48.50	97%	97%
LCSW	50	5483473	5503963	5420470	5448761	5464166.750	48.417	1.000	48.42	48.42	97%	97%
MBW-CCB		121633	96537	99343	78074	98896.750	-0.155	1.000	-0.16	0.4 U	0.4 U	
CCV	50	5304909	5331591	5314064	5267872	5304609.000	46.9723526	1.000	46.97	46.97	94%	94%
CCB		104333	122808	66136	86390	94916.750	-0.1914942	1.000	-0.19	0.4 U		
13MW4		120769	105514	94383	110202	107717.000	-0.0756123	1.000	-0.08	0.4 U		
13MW4 Dup		73637	68379	52249	64031	64574.000	-0.46619	1.000	-0.47	0.4 U	RPD NC	RPD NC
13MW4 MS	50	5593946	5599010	5602648	5653745	5612337.250	49.7582462	1.000	49.76	49.76	100%	100%
13MW14 MSD	50	5530695	5506529	5538190	5547576	5530747.500	49.0196063	1.000	49.02	49.02	98%, 1%	98%. 1%
CCV	50	5453474	5448022	5443342	5462791	5451907.25	48.3058579	1.000	48.31	48.30	97%	97%
CCB		103657	63593	72123	0	59843.25	-0.509018	1.000	-0.51	0.4 U		
DL detection limit												

SDG 191577
Instrument - VOCMS41

STD Level	ISTD Fluorobenzene	ISTD Chlorobenzene-d5	ISTD 1,4-Dichlorobenzene-d4	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene	Acetone	Methylene chloride	1,1-Dichloroethane	cis-1,2-Dichloroethene	Chloroform	Carbon tetrachloride	Trichloroethene	Bromodichloromethane	Toluene
Analyte#	1	68	82	41	45	61	83	15	20	26	32	39	43	49	56	62
0.5	1091969	984571	519813	277092	72188	1276820	499885	33884	14513	14223	7486	13129	6681	7590	8675	23702
1	1285983	823212	432522	337970	89021	1106385	397561	74167	21923	29113	18157	27390	15318	17665	17292	37019
2	1272466	863013	526887	341101	92347	1099797	495457	139729	39817	56255	33698	55254	33355	35079	33550	67897
5	1214111	886358	541576	343751	91507	1127888	516330	392194	83584	144205	87111	145586	90636	71566	83666	178188
10	1316810	100187	544527	341120	91334	1327225	523620	676337	156018	274371	168739	271665	186240	167598	190923	411641
20	1344851	1026156	554737	354652	92376	1336391	533596	1266510	315480	563538	353236	535637	406245	342282	398782	812282
30	1351968	1028463	545746	354721	93668	1351311	542744	1718536	459631	820349	502733	793776	609842	510803	590862	1179975
40	1353908	977312	579088	356639	92531	1339714	453980	1954964	603461	1071109	667944	1045154	799337	654865	760011	1516053
60	1327311	1062152	590423	366552	90311	1406507	552294	3513001	1181763	2030358	1292003	1964956	1488974	1270198	1529803	2762384

STD Level	ISTD Concentration			Surrogate Response Factors				Analyte Response Factors								
STD 1	20	20	20	0.253754	0.068108	1.172030	0.961663	0.124121	0.537627	0.521004	0.274220	0.460929	0.244732	0.278030	0.317775	0.868230
STD 2	20	20	20	0.262811	0.069924	0.860342	0.919863	0.115331	0.340953	0.452774	0.282383	0.425978	0.238230	0.274731	0.269930	0.575731
STD 3	20	20	20	0.268563	0.072573	0.864304	0.861194	0.109810	0.303482	0.442096	0.264746	0.434228	0.282129	0.230384	0.263661	0.533586
STD 4	20	20	20	0.283130	0.075370	0.928983	0.953384	0.099561	0.275375	0.475097	0.289995	0.479581	0.309492	0.235781	0.279545	0.587057
STD 5	20	20	20	0.259090	0.069363	1.008062	0.962156	0.067549	0.241344	0.416784	0.256323	0.412673	0.282999	0.254590	0.269521	0.625304
STD 6	20	20	20	0.263711	0.069690	0.995196	0.961890	0.069713	0.234091	0.419034	0.225479	0.396287	0.302074	0.254520	0.296525	0.603894
STD 7	20	20	20	0.262393	0.069288	0.999588	0.994499	0.064749	0.226665	0.404551	0.247920	0.391447	0.300740	0.251900	0.291381	0.581899
STD 8	20	20	20	0.263492	0.068364	0.889070	0.786888	0.072218	0.222925	0.395879	0.246745	0.386091	0.295283	0.241840	0.291838	0.560046
STD 9	20	20	20	0.276161	0.068041	1.059665	0.905421	0.066168	0.222586	0.382419	0.243350	0.370101	0.282333	0.239243	0.288159	0.520297
Average RF				0.266	0.070	0.986	0.927	0.094	0.289	0.434	0.259	0.420	0.280	0.252	0.287	0.606
%RSD				3.35%	3.90%	9.79%	6.87%	20.65%	34.59%	10.03%	7.78%	9.41%	9.19%	6.25%	5.63%	17.07%
Lab Avg RF				0.266	0.070	0.986	0.927	Regression	Regression	0.434	0.259	0.420	0.280	0.252	0.287	Regression
Lab %RSD				5.34%	3.87%	9.79%	6.87%	Fit	Fit	10.03%	7.78%	9.41%	9.21%	6.26%	5.63%	Fit

Note 1: The surrogate concentration increases from 16 to 22 for standard levels 1-7.

191577 - Sample Concentration Calculations, VOC Water

Sample ID		ISTD Fluorobenzene	ISTD Chlorobenzene-d5	ISTD 1,4-Dichlorobenzene-d4	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene	Acetone	Methylene chloride	1,1-Dichloroethane	cis-1,2-Dichloroethene	Chloroform	Carbon tetrachloride	Trichloroethene	Bromodichloromethane	Toluene
VOLpurge, ml	5																
VOLextract, ml	5																
ICV	Instrument response	1135841	868796		450081	298951	77265	1130575	428097	597138	136656	230071	143516	240921	170948.00	146806	172247	347024
	Final result					19.667	19.504	20.188	20.531	119.548	9.972	9.690	9.768	10.101	10.762	10.261	10.565	10.104
	Lab Reported					19.678	19.510	20.181	20.532	119.518	9.968	9.690	9.768	10.101	10.760	10.2631	10.565	10.1042
	Calc %Rec					98%	98%	101%	103%	-19.55%	-0.28%	3.10%	2.32%	-1.01%	-7.62%	-2.61%	-5.65%	-1.04%
	Lab Reported %Rec					98%	98%	101%	103%	-19.52%	0.32%	3.10%	2.32%	-1.01%	-7.60%	-2.63%	-5.65%	-1.04%
CCV/LCS - 288213	Instrument response	1337698	1011556	545531	347879	925453	1313407	620346	1516945	2770500	1666994	2674766	1910599.00	1661220	1876564	4031132	
	Final result					19.565	19.838	19.916	20.537	104.177	9.422	9.536	9.634	9.523	10.216	9.860	9.774	9.964
	Lab Reported					19.576	19.843	19.908	20.537	104.156	9.419	9.536	9.634	9.523	10.21	9.8618	9.7741	9.9642
	Calc %Rec					98%	99%	100%	103%	-4.16%	5.78%	4.64%	3.86%	4.77%	-2.16%	1.40%	-2.26%	0.36%
	Lab Reported %Rec					98.0%	99%	100%	103%	-4.16%	5.81%	4.64%	3.86%	4.77%	-214.00%	138.00%	226.00%	36.00%
Method Blank - 288213	Instrument response	1290397	973834	511543	330587	92444	1269438	486994	0	0	0	0	0	0.00	0	0	0	0
	Final result					19.274	20.543	19.954	20.634	-125.117	-16.972	0.000	0.000	0.000	0.000	0.000	0.000	-0.847
	Lab Reported					19.285	20.549	19.947	20.634	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Calc %Rec					96%	103%	100%	103%									
	Lab Reported %Rec					96%	103%	100%	103%									
LCSW	Instrument response	1358699	1030083	545330	359195	94730	1346735	532302	615979	157445	281569	167974	269779	185875.00	174947	185821	412482	
	Final result					19.887	19.993	20.105	21.070	-20.688	-6.477	9.542	9.558	9.457	9.783	10.224	9.519	10.040
	Lab Reported					19.90	19.988	20.098	21.070	101.5962	9.65	9.5416	9.56	9.4568	9.78	10.2253	9.5197	10.0395
	Calc %Rec					99%	100%	101%	102%	-20.69%	-64.77%	4.58%	4.42%	5.43%	2.17%	-2.24%	4.81%	-0.40%
	Lab Reported %Rec					99%	100%	101%	102%	85.8%	88.6%	101%	102%	85.2%				
CCVF		1343436	1030826	558102	356043	93535	1354774	529816	621138	147363	256396	169630	270442	193887	183727	197081	418021	
						19.882	19.965	20.455	20.368	103.634	9.090	8.787	9.774	9.588	10.321	10.859	10.221	10.296
						19.89	19.970	20.448	20.368	103.8128	9.09	8.7972	9.77	9.5877	10.32	10.8604	10.2212	10.2962
						99%	100%	102%	102%	-3.83%	9.10%	12.13%	2.26%	4.12%	-3.21%	-8.59%	-2.21%	-2.96%
						99%	100%	102%	102%	-3.81%	9.14%	12.13%	2.26%	4.12%	-3.19%	-8.60%	-2.21%	-2.96%
13MW4	Instrument response	1291808	986406	516534	352409	93097	1280532	497155	0	0	0	0	0	0	10799	0	0	0
	Final result					19.359	20.665	20.107	20.776	-6.256	-0.849	0.000	0.000	0.000	0.664	0.000	0.000	-0.847
	Lab Reported					20.67	21.654	21.591	20.644	ND	ND	ND	ND	ND	0.6639	ND	ND	ND
	Calc %Rec					97%	103%	101%	104%									
	Lab Reported %Rec					103%	108%	108%	103%									
Matrix Spike - 288213	Instrument response	1235411	991843	534401	339153	93266	1315526	511083	350961	157293	288555	171400	279261	193878	173009	174170	424369	
	Final result					20.653	21.648	21.599	20.644	60.457	10.685	10.754	10.727	10.766	11.222	11.119	9.823	11.398
	Lab Reported					20.67	21.654	21.591	20.644	60.4543	10.683	10.754	10.727	10.7661	11.22	11.1211	9.8228	11.3958
	Calc %Rec					103%	108%	108%	103%	60%	107%	108%	107%	108%	112%	100%	98%	114%
	Lab Reported %Rec					103%	108%	108%	103%	61%	107%	108%	107%	108%	112%	104%	98%	114%
Matrix Spike Duplicate - 288213	Instrument response	1322756	1012622	550552	348417	91903	1318913	509258	376651	160339	298817	178777	289675	205541	186494	193074	441487	
	Final result					19.816	19.923	20.225	19.966	60.616	10.134	10.401	10.449	10.322	11.112	11.104	10.170	11.064
	Lab Reported					19.83	19.929	20.218	19.967	60.6121	10.130	10.401	10.449	10.3221	11.11	11.1963	10.17	11.004
	Calc %Rec					99%, 4%	100%	101%	100%	61%, 0%	101%, 5%	104%, 3%	104%, 3%	103%, 4%	111%, 1%	105%, 1%	102%, 3%	111%, 3%
	Lab Reported %Rec					99%	100%	101%	100%	61%, 0%	101%, 5%	104%, 3%	104%, 3%	103%, 4%	111%, 1%	105%, 1%	102%, 3%	111%, 3%
CCVF - 288213	Instrument response	1338819	962033	547257	344347	92522	1317848	522444	621882	150086	269803	164331	269271	189638	180635	191814	394994	
	Final result					19.350	19.817	19.966	20.607	104.752	9.350	9.279	9.490	9.223	9.916	10.725	9.982	9.750
	Lab Reported					19.361	19.822	19.959	20.607	104.721	9.346	9.279	9.490	9.223	9.91	10.7265	9.9824	9.7499
	Calc %Rec					97%	99%	100%	103%	-4.75%	6.50%	7.21%	5.10%	7.77%	0.84%	-7.25%	0.18%	2.50%
	Lab Reported %Rec					97%	99%	100%	103%	-4.73%	6.54%	7.21%	5.10%	7.77%	0.86%	-7.26%	0.18%	2.50%
CCV/LCSW - 288214	Instrument response	1358699	1030083	545330	359195	94730	1346735	532302	615979	157445	281569	167974	269779	185875.00	174947	185821	412482	
	Final result					19.887	19.993	20.105	21.070	101.616	9.650	9.542	9.558	9.457	9.783	10.224	9.519	10.040
	Lab Reported					19.90	19.988	20.098	21.070	101.5962	9.65	9.5416	9.56	9.4568	9.78	10.2253	9.5197	10.0395
	Calc %Rec					99%	100%	101%	100%	101.62%	96.50%	4.58%	4.42%	5.43%	2.17%	-2.24%	4.81%	-0.40%
	Lab Reported %Rec					99%	100%	100%	100%	85.8%	88.6%	101%	102%	85.2%				
Method Blank - 288214	Instrument response	1319953	1003194	477888	344050	91061	1294639	502483	2775	0	0	0	0	0.00	0	0	0	0
	Final result					19.609	19.782	19.895	22.696	-5.772	-0.849	0.000	0.000	0.000	0.000	0.000	0.000	-0.847
	Lab Reported					19.285	20.549	19.947	20.634	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Calc %Rec					98%	99%	99%	113%									
	Lab Reported %Rec					98%	99%	99%	113%									
40MW02	Instrument response	1289862	971055	521156	327642	1290002	1290002	448687	3563	0	0	0	0	0	0	0	5386	
	Final result					19.122	286.783	20.286	18.584	-5.620	-0.849	0.000	0.000	0.000	0.000	0.000	0.000	-0.711
	Lab Reported					20.67	21.654	21.591	20.644	ND	ND	ND	ND	ND	ND	0.6639	ND	ND
	Calc %Rec					96%	1434%	101%	93%									
	Lab Reported %Rec					103%	108%	108%	103%									
Matrix Spike - 288214	Instrument response	1399776	1040311	558979	349634	97235	1392910	546034	353990	132688	263692	162408	270983	184537.00	161269	182793	416256	
	Final result					19.344	20.505	20.778	21.086	54.745	7.992	8.929	9.234	9.491	9.705	9.417	9.366	10.125
	Lab Reported					19.38	20.511	20.771	21.086	54.7434	7.99	8.9287	9.23	9.4915	9.70	9.4183	9.3663	10.1254
	Calc %Rec					97%	103%	104%	106%	55%	80%	89%	92%	95%	97%	94%	94%	101%
	Lab Reported %Rec					97%	103%	104%	106%	55%	80%	89%	92%	95%	97%	94%	94%	101%
Matrix Spike Duplicate-288214	Instrument response	1389680	1007306	502787	362336	99893	1307599	486048	381711	165039	299181	182557	293572	204313	180416	192511	416777	
	Final result					19.613	20.699	19.083	20.867	58.192	9.910	9.911	10.155	10.060	10.513	10.307	9.651	9.913
	Lab Reported					19.624	20.615	19.076	20.867	60.464	10.883	10.754	10.727	10.080	10.510	10.308	9.651	9.914
	Calc %Rec					98%	103%	95%	104%	58%, 6%	99%, 21%	99%, 10%	102%, 9%	101%, 6%	105%, 8%	103%, 9%	97%, 3%	99%, 2%
	Lab Reported %Rec					98%	103%	95%	104%	58%, 6%	99%, 21%	99%, 10%	102%, 9%	101%, 6%	105%, 8%	103%, 9%	96%, 3%	99%, 2%
CCVF - 288214		1343436	1030826	558102	356043	93535	1354774	529816	621138	147363	256396	169630	270442	193887	183727	197081	418021	
						19.882	19.965	20.455	20.368	103.634	9.090	8.787	9.774	9.588	10.321	10.859	10.221	10.296
						19.89	19.970	20.448	20.368	103.8128	9.09	8.7972	9.77	9.5877	10.32	10.8604	10.2212	10.2962
						99%	100%	102%	102%	-3.83%	9.10%	12.13%	2.26%	4.12%	-3.21%	-8.59%	-2.21%	-2.96%
						99%	100%	102%	102%	-3.81%	9.14%	12.13%	2.26%	4.12%	-3.19%	-8.60%	-2.21%	-2.96%

	Target Mass	Relative to Mass	Lower Limit	Upper Limit	Raw Abundance	Relative Abundance %	Lab Reported
Initial Calibration	50	95	15	40.000%	22861.00	22.9%	22.9%
	95	95	-	-	100000		
12/21/2024	50	95	15	40.000%	18513.00	18.5%	18.5%
	95	95	-	-	100000		
12/23/2024	50	95	15	40.000%	18587.00	18.6%	18.6%
	95	95	-	-	100000		

TOLUENE

Quadratic regression fit: a = -0.001183, b = 0.61407, c = 0.026

Regression Equation = 0.026 + 0.61407 C2 - 0.001183 C2^C2

Coefficients

Term	Coef	SE Coef	T-Value	P-Value	VIF
Constant	0.026	0.11	0.24	0.821	
C2	0.61407	0.00917	66.93	0	10.67
C2*C2	-0.00118	0.000118	-10.25	0	10.67

Model Summary

S	R-sq	R-sq(adj)	R-sq(pred)
0.206497	99.98%	99.98%	99.95%

Analysis of Variance

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Regression	2	1513.18	756.589	17404.47	0
C2	1	194.76	194.756	4480.14	0
C2*C2	1	4.57	4.567	105.06	0
Error	6	0.26	0.043		
Total	8	1513.44			

Methylene chloride

Quadratic regression fit: a = -0.00001, b = 0.22083, c = 0.1874

Regression Equation = 0.1874 + 0.22083 C2 - 0.00001 C2^C2

Coefficients

Term	Coef	SE Coef	T-Value	P-Value	VIF
Constant	0.1874	0.0374	5	0.002	
C2	0.22083	0.00312	70.83	0	10.67
C2*C2	-0.00001	0.000039	-0.25	0.811	10.67

Model Summary

S	R-sq	R-sq(adj)	R-sq(pred)
0.0708495	99.99%	99.98%	99.32%

Analysis of Variance

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Regression	2	265.547	132.773	26450.88	0
C2	1	25.185	25.185	5017.39	0
C2*C2	1	0	0	0.06	0.811
Error	6	0.03	0.005		
Total	8	265.577			

Acetone

Quadratic regression fit: a = -0.000027, b = 0.08883, c = 0.543

Regression Equation = 0.543 + 0.08883 C2 - 0.000027 C2^C2

Coefficients

Term	Coef	SE Coef	T-Value	P-Value	VIF
Constant	0.543	0.587	0.93	0.391	
C2	0.08883	0.00469	17.72	0	10.61
C2*C2	-0.000027	0.000006	-4.36	0.005	10.61

Model Summary

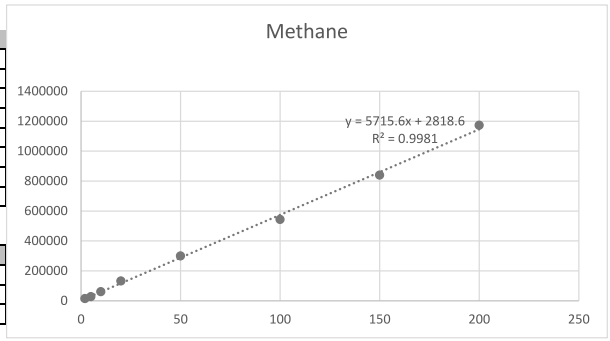
S	R-sq	R-sq(adj)	R-sq(pred)
1.11115	99.70%	99.60%	81.78%

Analysis of Variance

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Regression	2	2436.74	1218.37	986.81	0
C2	1	387.62	387.62	313.95	0
C2*C2	1	23.46	23.46	19	0.005
Error	6	7.41	1.23		
Total	8	2444.14			

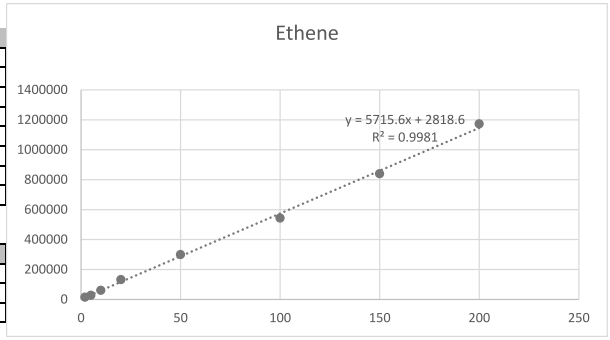
Conc, Cx	Area, Ax
2	15335
5	27478
10	60460
20	132902
50	300071
100	543500
150	839870
200	1172217

Calc	Lab Report
5715.61	5715.61
2818.56	2818.56
0.998102	0.998102



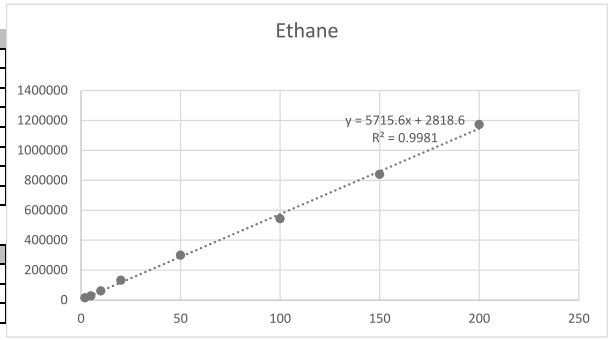
Conc, Cx	Area, Ax
2	11761
5	42712
10	104535
20	225969
50	535121
100	961002
150	1523560
200	2118898

Calc	Lab Report
10389.39	10389.4
-6942.79	-6942.79
0.997816	0.997816



Conc, Cx	Area, Ax
2	12423
5	44335
10	105823
20	226868
50	538987
100	970600
150	1539510
200	2144557

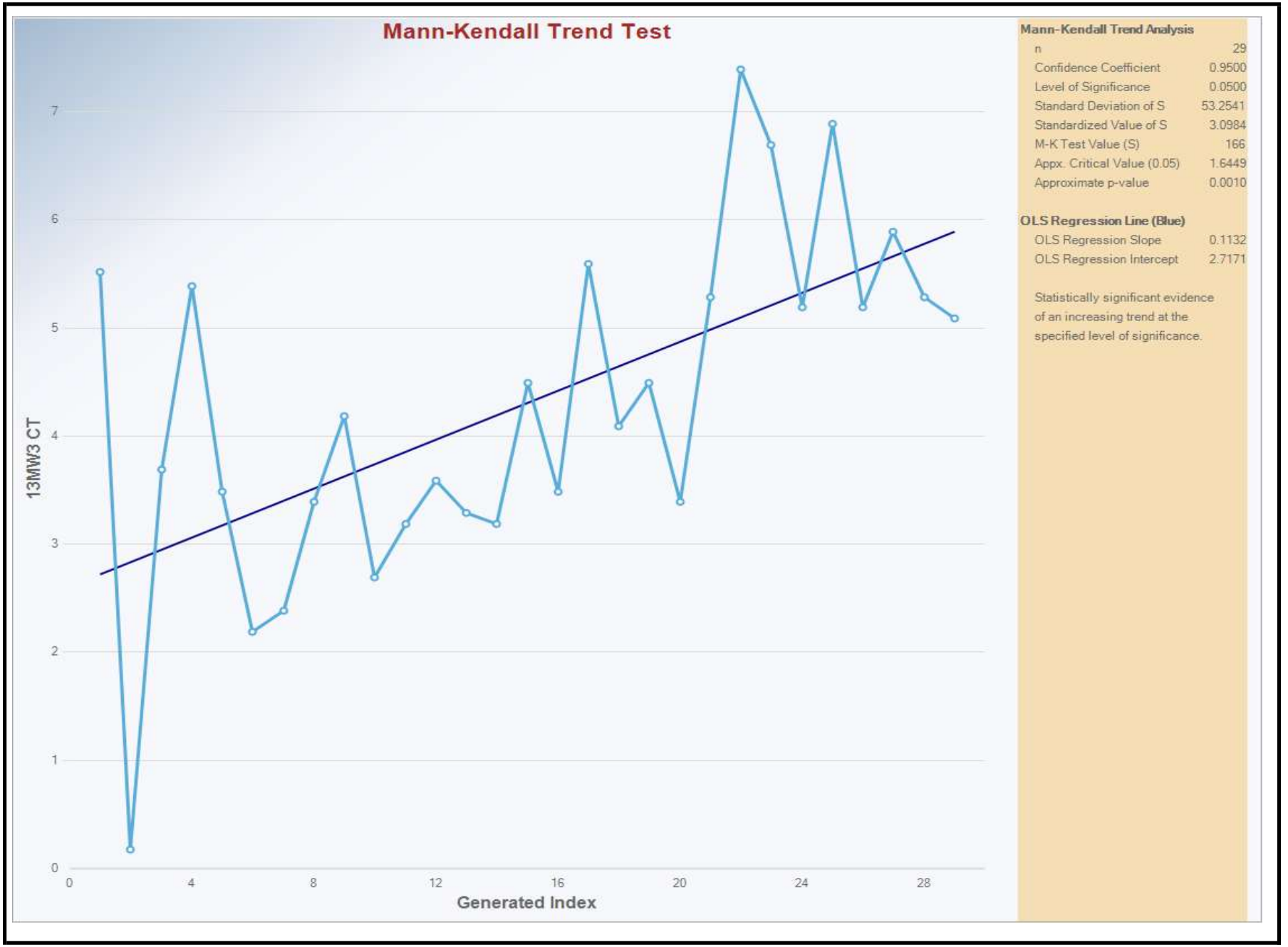
Calc	Lab Report
10508.95	10509
-7525.42	-7525.42
0.997761	0.997761



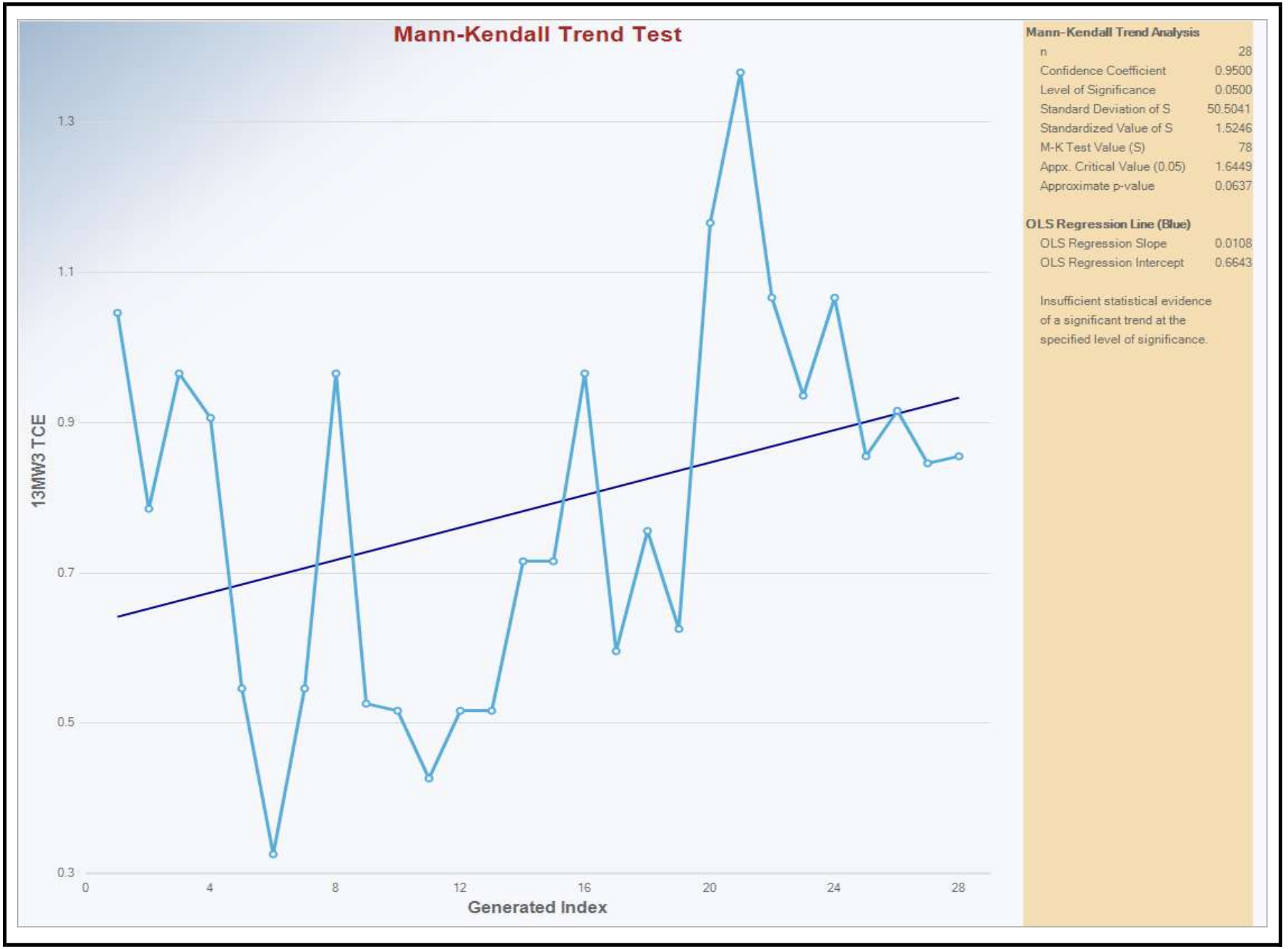
Sample Concentration Calculations							
Lab ID	Analyte	Spike Conc.	Compound Area, Ax	Ave RF, On-column Conc, ppmv	Dilution	Calculated Result, ppmv	Lab Instrument Reported Result
ICV	Methane	50	296553	51.392	1.000	51.392	51.392
	Ethene	50	545614	53.185	1.000	53.185	53.185
	Ethane	50	549660	53.020	1.000	53.020	53.020
ICV	Methane	150	801841	139.796	1.000	139.796	139.796
	Ethene	150	1512088	146.210	1.000	146.210	146.210
	Ethane	150	1534031	146.690	1.000	146.690	146.690
ICB	Methane		0	-0.493	1.000	-0.493	ND
	Ethene		0	0.668	1.000	0.668	ND
	Ethane		0	0.716	1.000	0.716	ND
LCSW - 288101	Methane	25	141385	24.243	1.000	24.243	24.243
	Ethene	25	256935	25.399	1.000	25.399	25.399
	Ethane	25	262167	25.663	1.000	25.663	25.663
MBW - 288101	Methane		9474	1.164	1.000	1.164	1.164
	Ethene		0	0.668	1.000	0.668	ND
	Ethane		0	0.716	1.000	0.716	ND
13MW4	Methane		39589	6.433	1.000	6.433	6.433
	Ethene		0	0.668	1.000	0.668	ND
	Ethane		0	0.716	1.000	0.716	ND
MSW - 13MW4	Methane	25	156095	26.817	1.000	26.817	26.817
	Ethene	25	220581	21.900	1.000	21.900	21.900
	Ethane	25	225892	22.211	1.000	22.211	22.211
MSDW - 13MW4	Methane	25	167523	28.817	1.000	28.817	28.817
	Ethene	25	244126	24.166	1.000	24.166	24.166
	Ethane	25	249992	24.505	1.000	24.505	24.505
13MW3	Methane		20845	3.154	1.000	3.154	3.154
	Ethene		10952	1.722	1.000	1.722	1.722
	Ethane		13836	2.033	1.000	2.033	2.033
13TW3	Methane		17688	2.602	1.000	2.602	2.602
	Ethene		0	0.668	1.000	0.668	ND
	Ethane		8069	1.484	1.000	1.484	1.484
MBW - 288301	Methane		19494	2.918	1.000	2.918	2.918
	Ethene		0	0.668	1.000	0.668	ND
	Ethane		0	0.716	1.000	0.716	ND
LCSDW - 288301	Methane	25	142557	24.449	1.000	24.449	24.449
	Ethene	25	234508	23.240	1.000	23.240	23.240
	Ethane	25	240532	23.604	1.000	23.604	23.604

APPENDIX C
MANN-KENDALL ANALYSIS

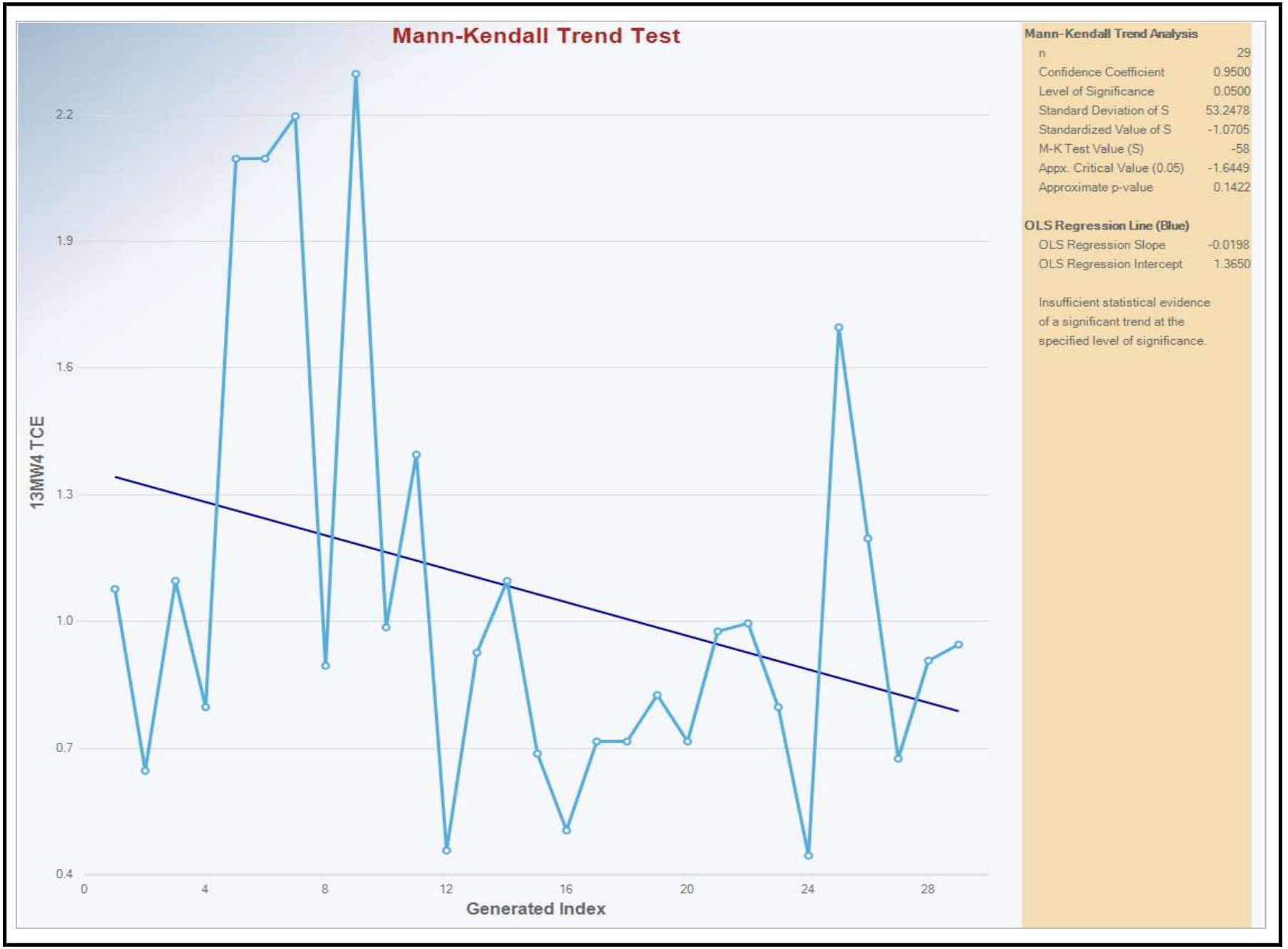
13MW3 CT Graph



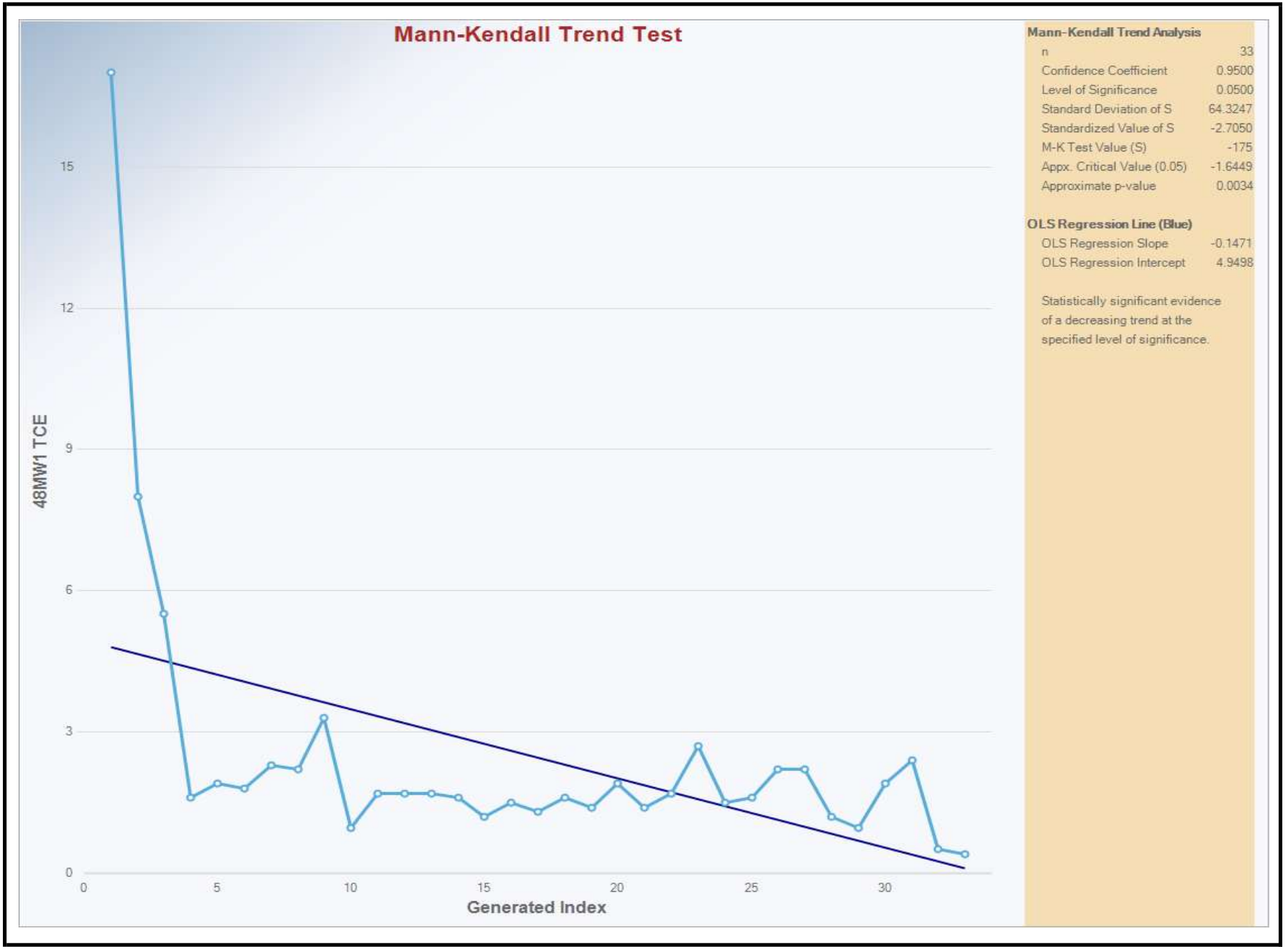
13MW3 TCE Graph



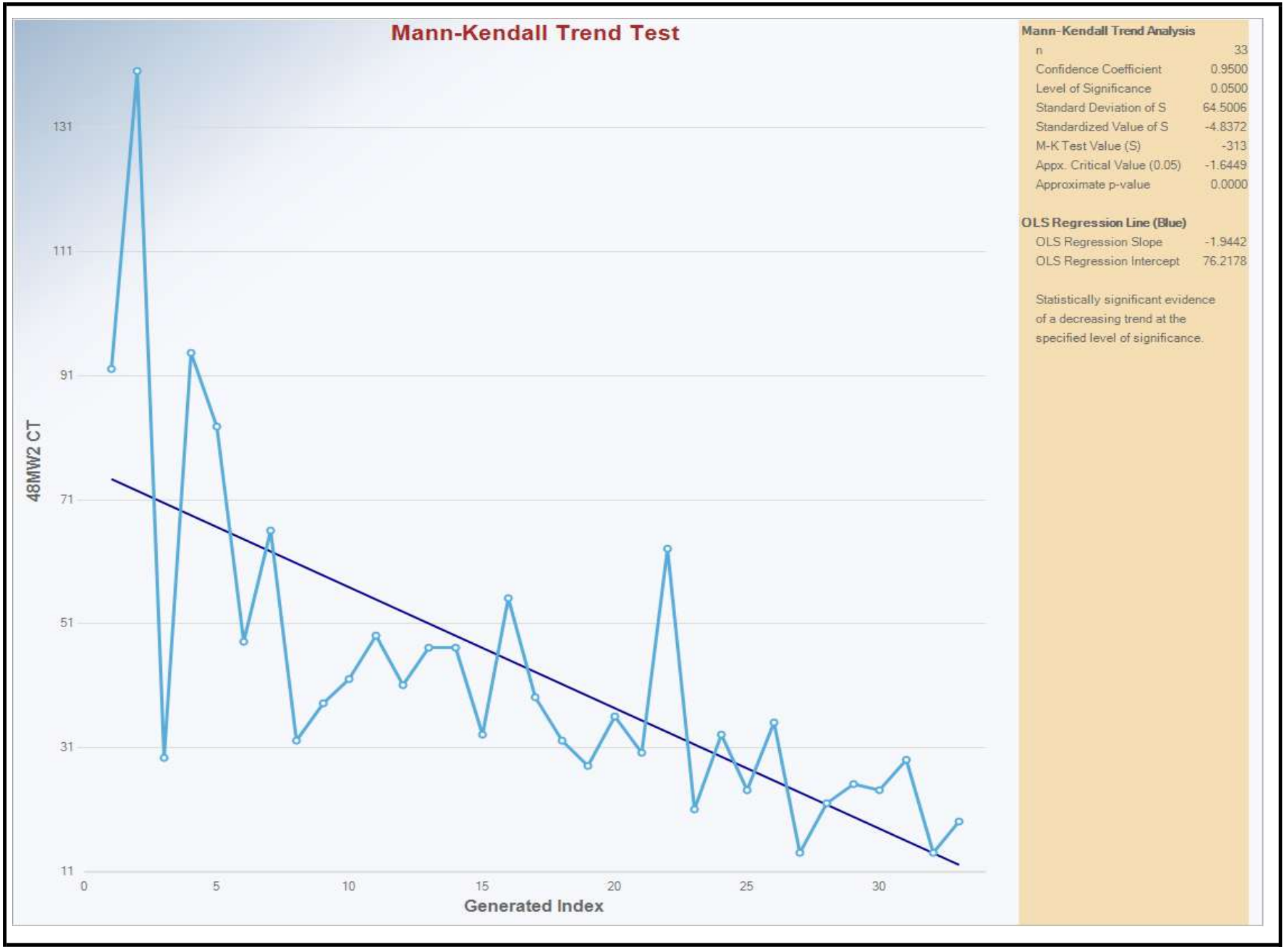
13MW4 TCE Graph



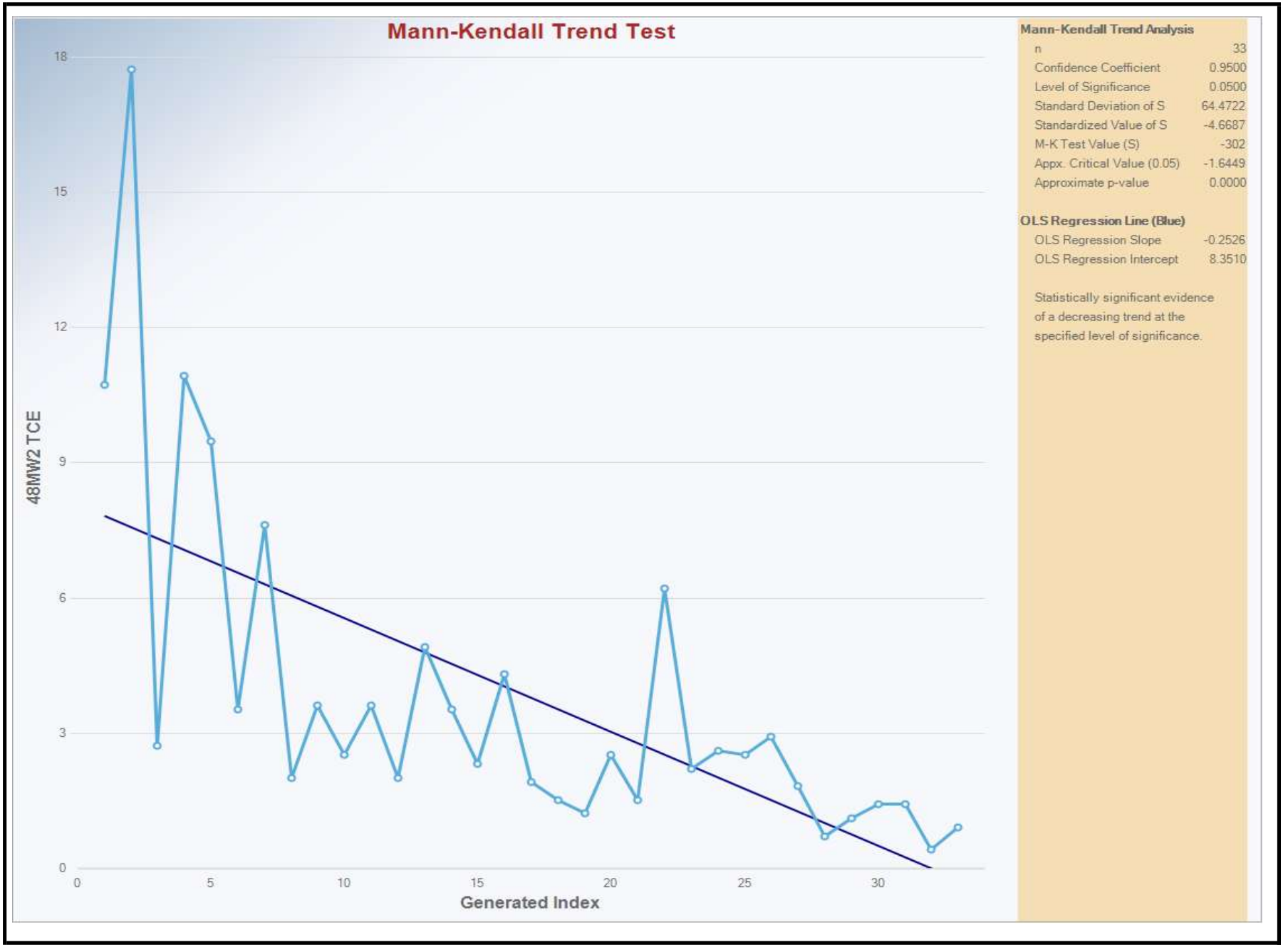
48MW1 TCE Graph



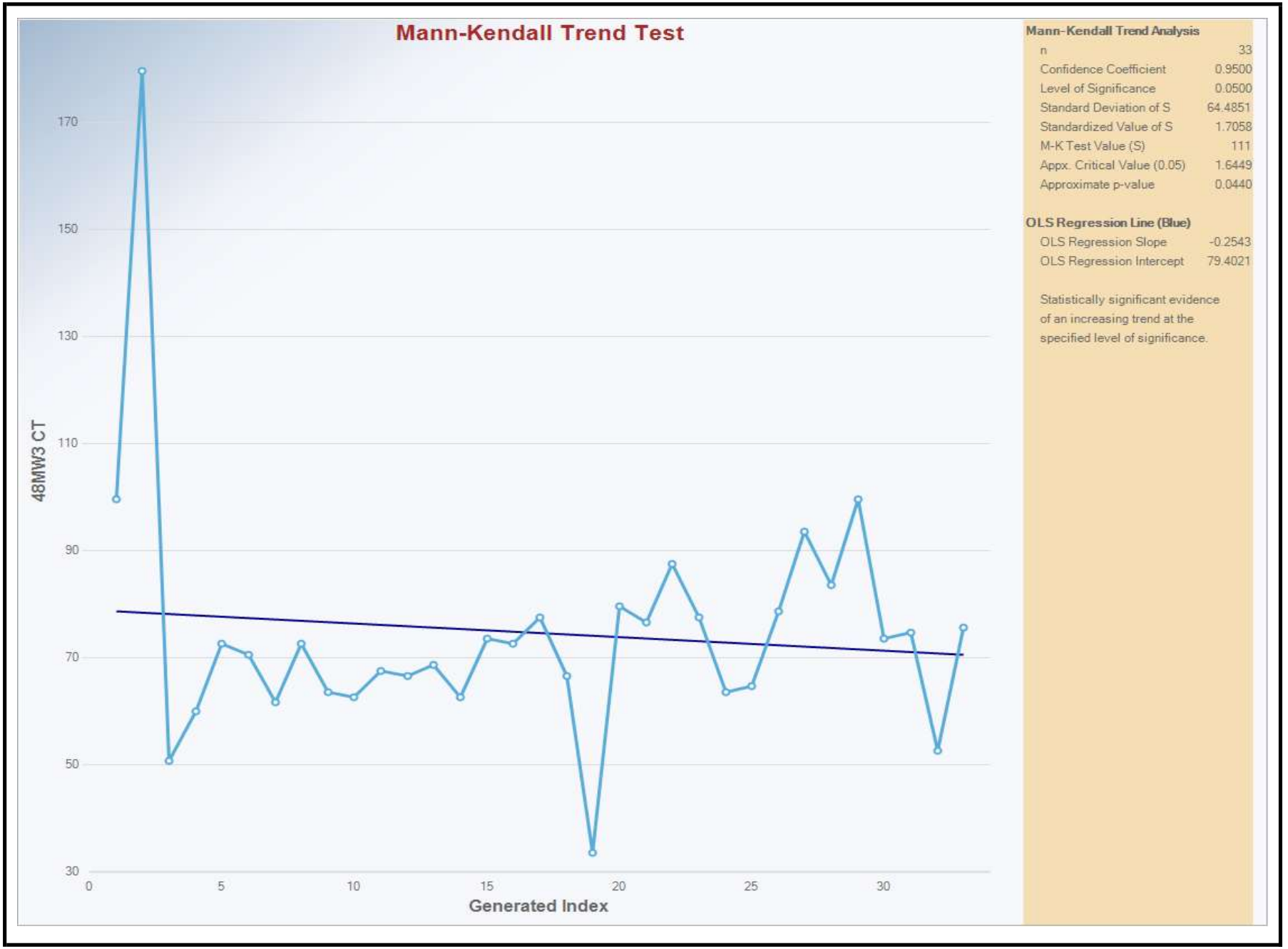
48MW2 CT Graph



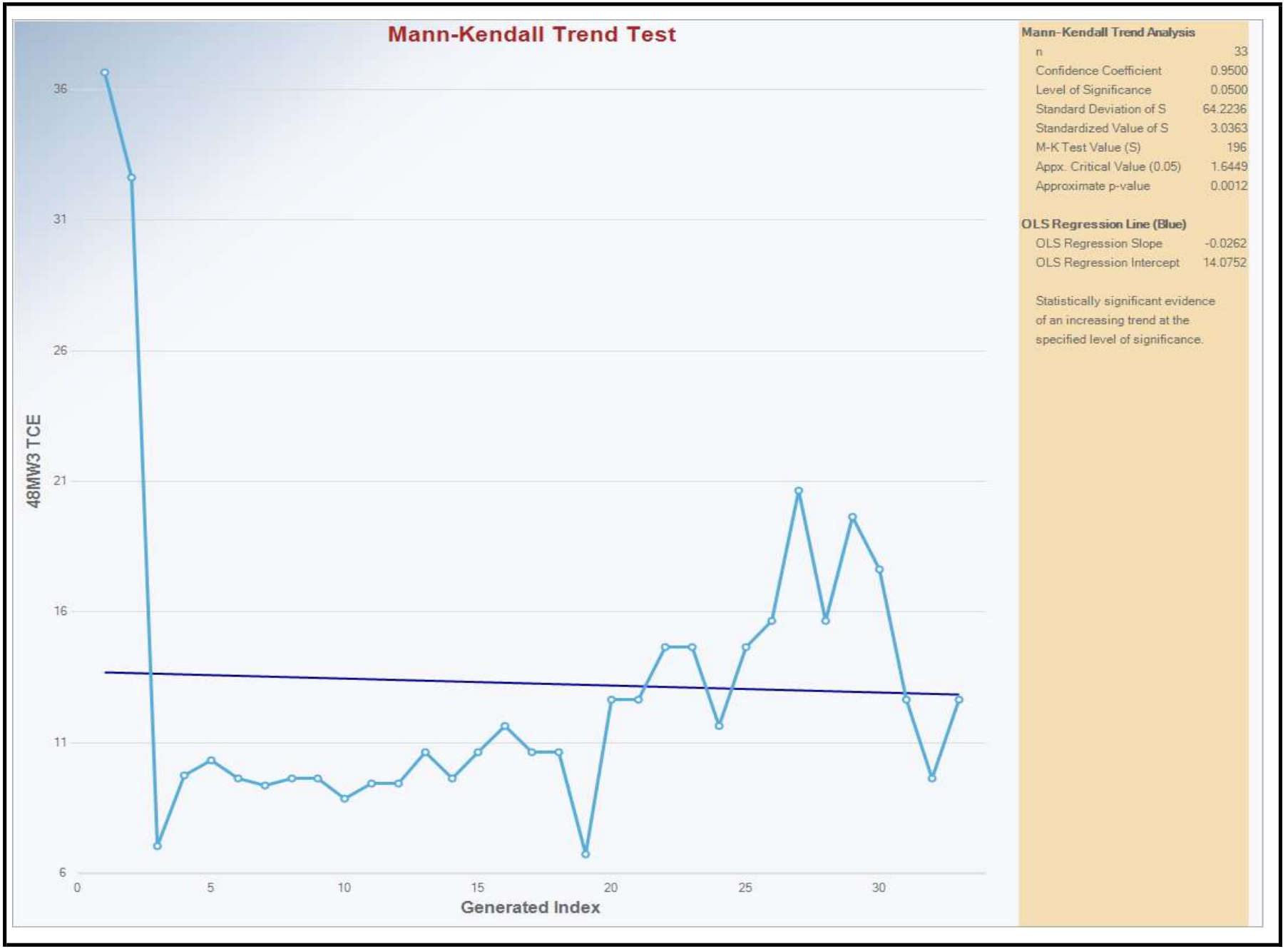
48MW2 TCE Graph



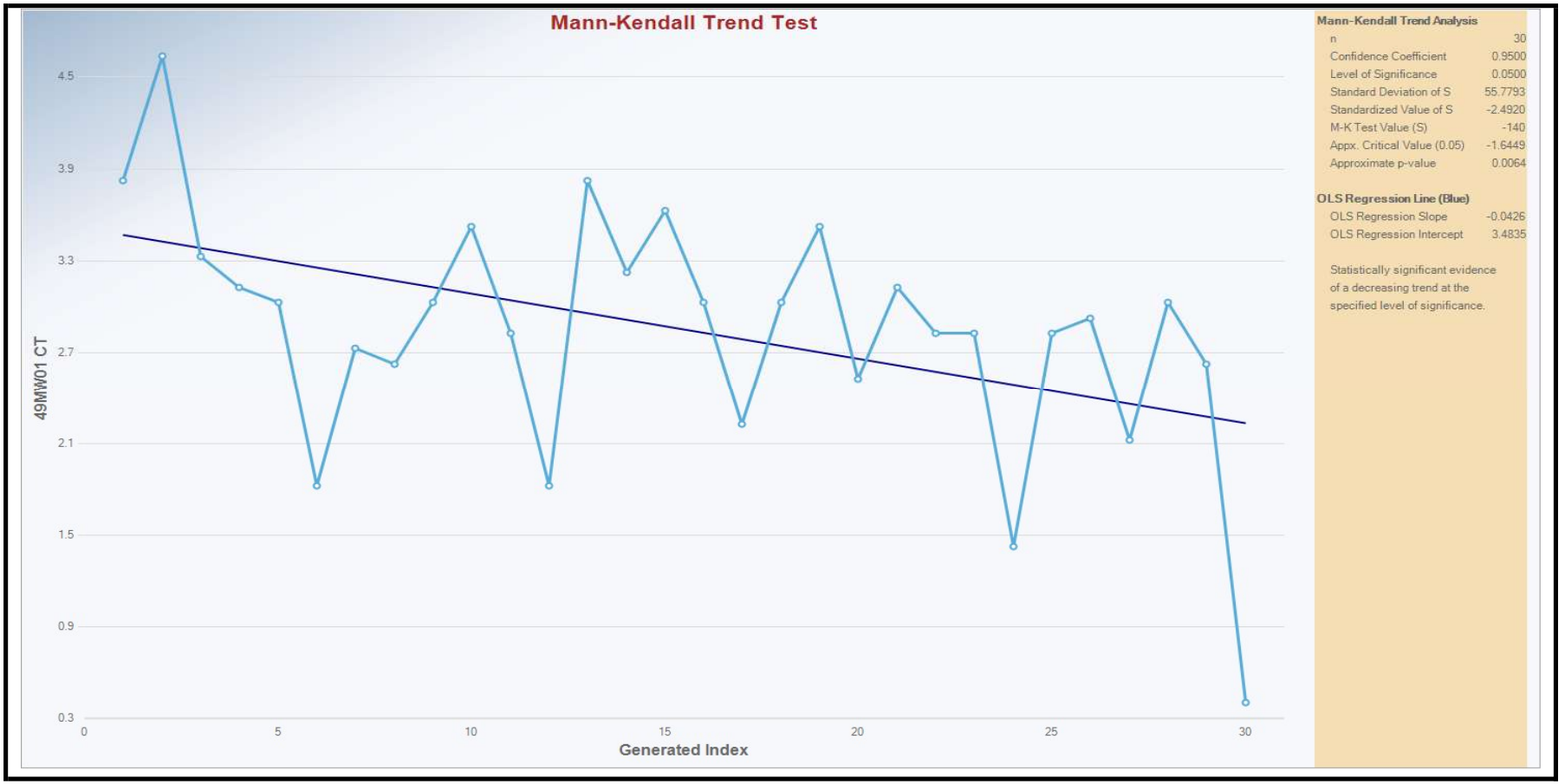
48MW3 CT Graph



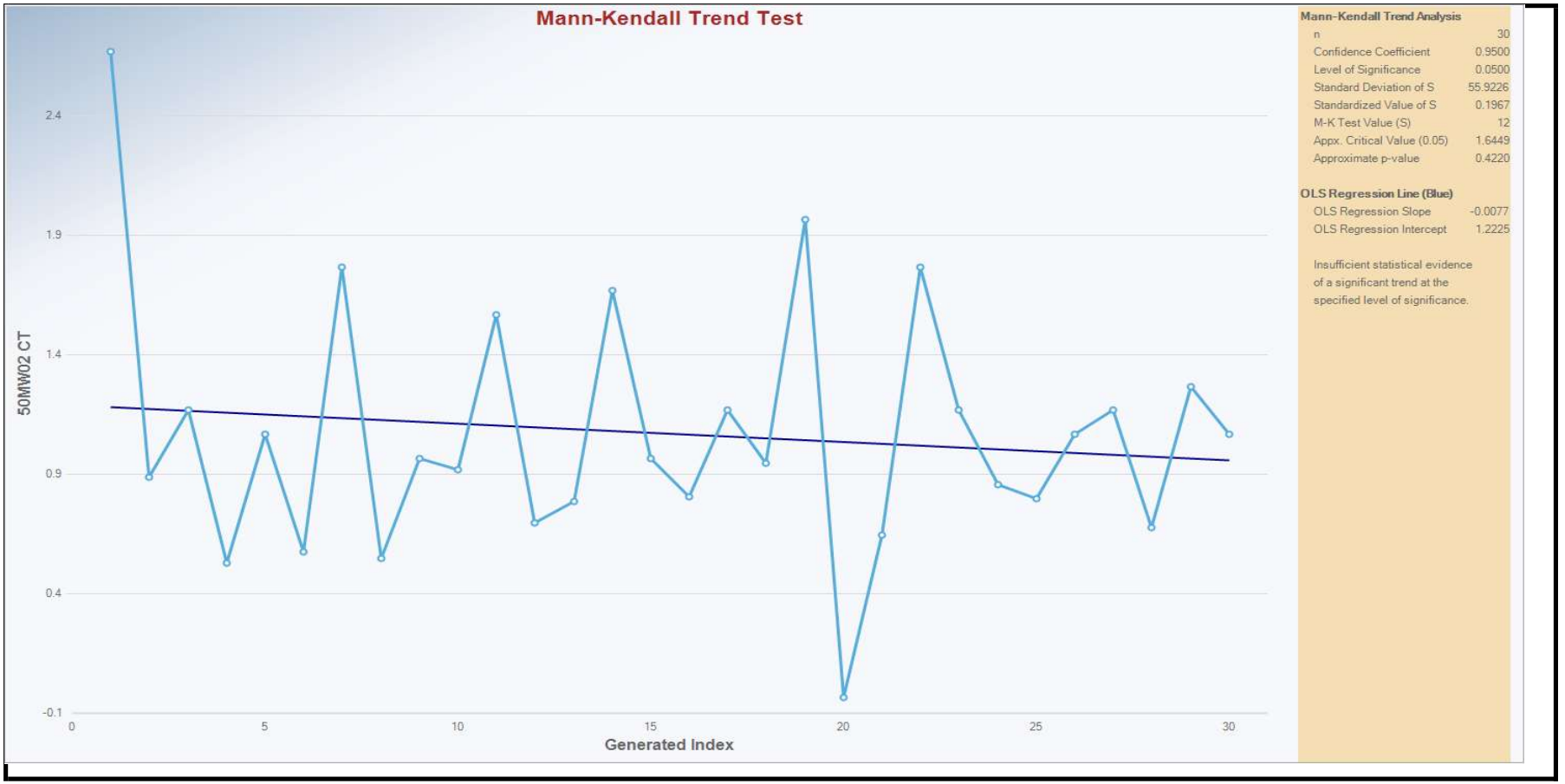
48MW3 TCE Graph



49MW1 CT Graph



50MW2 CT Graph



50MW2 TCE Graph

