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FINAL

RFI Addendum

SWMU-31 (RAAP-026): Coal Ash Settling Lagoons

Prepared for:
Radford Army Ammunition Plant

October 2009

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

December 14, 2009

Commander,
Radford Army Ammunition Plant
Attn: SJMRF-OP-EQ (Jim McKenna)
P.O. Box 2
Radford, VA 24141-0099

P.W. Holt
Environmental Manager
Alliant Techsystems, Inc.
Radford Army Ammunition Plant
P.O. Box 1
Radford, VA 24141-0100

Re: Radford Army Ammunition Plant, Va.
Review of Army's Final RCRA Facility Investigation (RFI) Addendum Report for Solid Waste Management Units (SWMU) 31 (RAAP-026)

Dear Mr. McKenna and Ms. Holt:

The U.S. Environmental Protection Agency (EPA) and Virginia Department of Environmental Quality (VDEQ) have reviewed the U.S. Army's (Army's) October 2009 Final RFI Addendum Report for SWMU 31, located at the Radford Army Ammunition Plant (RFAAP) in Radford, Virginia. Based upon our review, the report is approved, and in accordance with Part II. (E) (5) of RFAAP's Corrective Action Permit, it can now be considered final.

If you have any questions, please call me at 215-814-3413. Thanks.

Sincerely,

William Geiger
RCRA Project Manager
Office of Remediation (3LC20)

cc: James Cutler, VDEQ

ATK Armament Systems
Energetic Systems
Radford Army Ammunition Plant
Route 114, P.O. Box 1
Radford, VA 24143-0100

www.atk.com

October 29, 2009

Mr. William Geiger
RCRA General Operations Branch, Mail Code: 3WC23
Waste and Chemicals Management Division
U. S. Environmental Protection Agency, Region III
1650 Arch Street
Philadelphia, PA 19103-2029

Mr. James L. Cutler, Jr.
Virginia Department of Environmental Quality
629 East Main Street
Richmond, VA 24143-0100

Subject: With Certification, Final RFI Addendum SWMU 31(RAAP-026) Coal Ash Settling Lagoons, October 2009
EPA ID# VA1 210020730

Dear Mr. Geiger and Mr. Cutler:

Enclosed is the certification for the subject document that was sent to you on October 28, 2009. Also enclosed is the 28 October 2009 transmittal email.

This document was discussed during the October 28, 2008 and June 23, 2009 partnering meetings and we anticipate approval.

Please coordinate with and provide any questions or comments to myself at (540) 639-8658, Jerry Redder ATK staff (540) 639-7536 or Jim McKenna, ACO Staff (540) 731-5782.

Sincerely,

P.W. Holt, Environmental Manager
Alliant Techsystems Inc.

c: Karen Sismour
Virginia Department of Environmental Quality
P. O. Box 10009
Richmond, VA 23240-0009

E. A. Lohman
Virginia Department of Environmental Quality
Blue Ridge Regional Office
3019 Peters Creek Road
Roanoke, VA 24019

09-815-174
JMcKenna

Kip Foster
Virginia Department of Environmental Quality
Blue Ridge Regional Office
3019 Peters Creek Road
Roanoke, VA 24019

Rich Mendoza
U.S. Army Environmental Command
1 Rock Island Arsenal
Bldg 90, 3rd Floor, Room 30A
IMAE-CDN
Rock Island, Illinois 61299

Tom Meyer
Corps of Engineers, Baltimore District
ATTN: CENAB-EN-HM
10 South Howard Street
Baltimore, MD 21201

bc: Administrative File
J. McKenna, ACO Staff
Rob Davie-ACO Staff
P.W. Holt
J. J. Redder
Env. File

Coordination: J. McKenna M. A. Miano

09-815-174
JMcKenna

Concerning the following:

Radford Army Ammunition Plant
Final RFI Addendum
SWMU31 (RAAP-026): Coal Ash Settling Lagoons
October 2009

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

SIGNATURE:
PRINTED NAME: Antonio Munera
TITLE: LTC, CM
Commanding

SIGNATURE:
PRINTED NAME: Kent Holiday
TITLE: Vice President and General Manager
ATK Energetics Systems

09-815-174
JMcKenna

Greene, Anne

From: McKenna, Jim
Sent: Wednesday, October 28, 2009 1:49 PM
To: Greene, Anne; ealohman@deq.virginia.gov; Druck, Dennis E Mr CIV USA MEDCOM CHPPM; diane.wisbeck@arcadis-us.com; durwood willis2; Geiger.William@epamail.epa.gov; Redder, Jerome; jim spencer; jlcutler@deq.virginia.gov; kjsismour@deq.virginia.gov; Llewellyn, Tim; Mendoza, Richard R Mr CIV USA IMCOM; Meyer, Tom NAB02; Parks, Jeffrey N; Timothy.Leahy@shawgrp.com; Tina_Devine@URSCorp.com
Cc: kdfoster@deq.virginia.gov
Subject: SWMU 31 (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: FOUO

All:

Note the contractor will ship the subject document with a copy of this email to the POCs and tracking numbers below.

Certification letter will follow from Radford AAP under separate cover.
As this document discusses the Building 4330 potable water filter backwash, a copy is also being provided to Mr. Kip Foster.

Immediately below are the POCs with tracking numbers.

Thank you for your support of the Radford AAP IRP.

POCs and Fed Ex tracking numbers:

Mr. James McKenna	Already Sent	2 Copies and 2 CDs
Mr. Richard Mendoza	797057785661	1 Copy and 1 CD
Ms. Susan Ryan	797057790330	1 CD
Mr. Tom Meyer	797057793832	1 Copy and 1 CD
Mr. Dennis Druck	797057797301	1 Copy
Mr. James Cutler	796070363120	1 Copy
Ms. Karen Sismour	797057805185	1 Copy
Ms. Elizabeth Lohman	796070386955	1 CD
Mr. William Geiger	797057829344	1 Copy
Mr. Mark Bowen	797057835096	1 Copy
Mr. Kip Foster	797057840625	1 Copy and 1 CD

Classification: UNCLASSIFIED
Caveats: FOUO

RE SWMU-31 (UNCLASSIFIED)

From: Geiger.William@epamail.epa.gov
Sent: Wednesday, May 06, 2009 10:46 AM
To: McKenna, Jim J Mr CIV USA AMC
Cc: diane.wisbeck@arcadis-us.com; jerome.redder@atk.com; jlcutler@deq.virginia.gov; Mendoza, Richard R Mr CIV USA IMCOM; Llewellyn, Tim; Meyer, Tom NAB02
Subject: RE: SWMU-31 (UNCLASSIFIED)
Attachments: SWMU 31 Benzo a Pyrene.xlsx

Jim, we are ok with your response below, but I would hold off on revising and resubmitting the report, as Jim C. is still in discussions with the regional office regarding the need for any groundwater monitoring requirements. Thanks

William A. Geiger
USEPA Region III
1650 Arch Street, 3LC20
Philadelphia, PA 19103
(215)814-3413

"McKenna, Jim J Mr CIV USA AMC" <jim.mckenna@us.army.mil>

04/16/2009 08:22 AM

To <diane.wisbeck@arcadis-us.com>, William Geiger/R3/USEPA/US@EPA, <jerome.redder@atk.com>, <jlcutler@deq.virginia.gov>, "Llewellyn, Tim" <Tim.Llewellyn@arcadis-us.com>, "Mendoza, Richard R Mr CIV USA IMCOM" <richard.r.mendoza@us.army.mil>, "Meyer, Tom NAB02" <Tom.Meyer@nab02.usace.army.mil>

cc

Subject RE: SWMU-31 (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: FOUO

Will G. and Jim C.

Are you ok with our response below? We would like to revise and resubmit the report per our Feb 18, 2009 partnering meeting.

Thanks, Jim

-----Original Message-----
From: McKenna, Jim J Mr CIV USA AMC
Sent: Friday, March 20, 2009 1:44 PM
To: 'Anne Greene (anne.greene@atk.com)'; 'diane.wisbeck@arcadis-us.com';

RE SWMU-31 (UNCLASSIFIED)
'Geiger.William@epamail.epa.gov'; 'jerome.redder@atk.com'; 'jim spencer'; 'jlcutler@deq.virginia.gov'; 'Llewellyn, Tim'; Mendoza, Richard R Mr CIV USA IMCOM; 'Meyer, Tom NAB02'; 'Parks, Jeffrey N'; 'Timothy.Leahy@shawgrp.com'; 'Tina_Devine@URSCorp.com'; 'Jeremy Flint (jeremy.flint@atk.com)'
Subject: FW: SWMU-31 (UNCLASSIFIED)
Importance: High

Classification: UNCLASSIFIED
Caveats: FOUO

Will and Jim,

Responses to EPA/Betty Ann's questions during our Feb 18, 2009 Partnering Meeting held in Baltimore, MD. Please forward to others in your organization. I apologize for the delay. Let us know if this is ok.

Thanks,
Jim

1) Betty Ann (USEPA) indicated there might be a discrepancy in the benzo(a)pyrene results presented in the RFI Addendum. ARCADIS was unable to identify the discrepancy, however the following summary of B(a)P concentrations detected in groundwater has been provided to clarify groundwater conditions:

In 1998, benzo(a)pyrene (B(a)P) was detected in groundwater samples collected at two wells: 31MW2 (0.022 ug/L) and 31MW3 (0.061 ug/L). The concentration reported in the RFI Addendum for 31MW2 of 0.022 ug/L is correct. When the wells were resampled in 2002, B(a)P was not detected in 31MW3, but a sample could not be collected from 31MW2, thus is presence/absence at this location could not be confirmed. The RFI concluded that "The low frequency of exceendances [sic] in sediment and the lack of reproducibility in the groundwater samples suggest that PAHs are not a concern at this site." It should be noted for both this discussion and the one below regarding the reporting limit (RL), that B(a)P was not detected in the duplicate sample collected at 31MW2 in 1998. A summary of B(a)P concentrations reported in groundwater samples collected in 1998, 2002, and 2008 for all monitoring wells is provided in the attached table.

2) Betty Ann (USEPA) questioned the magnitude of the reporting limit with respect to the previously reported B(a)P results in groundwater. In accordance with the QAPA submitted for this project, if detected, B(a)P would be have reported between the MDL (0.015 ug/L) and the RL (0.046 ug/L). This is consistent with previous practices including 1998 when the detected concentration (0.022 ug/L) was less than the RL (0.05 ug/L). In addition, the samples collected in 1998 were analyzed using USEPA SW-846 Method 8310, which at the low-levels reported, is prone to false positives. As noted above B(a)P was not detected in the duplicate sample collected from 31MW2 in 1998. The samples collected in both 2002 and 2008 were analyzed using Method 8270 (GC/MS).

In summary, B(a)P was detected at low levels in 1998 in the groundwater sample collected at 31MW3 and in the primary sample collected from 31MW2, but not in the duplicate sample. Samples were analyzed using a method (8310) that is prone to false positives at low-levels. B(a)P was not detected in the groundwater sample collected at 31MW3 in 2002 and it was not detected in either the primary or duplicate sample collected from 31MW2 in 2008. Samples collected in 2002 and 2008 were analyzed using Method 8270 and the MDLs for were both lower than the concentrations reported in 1998.

The lines of evidence presented here make a strong case that the detection of B(a)P in groundwater samples collected in 1998 were anomalous and that B(a)P is not a concern in groundwater.

Classification: UNCLASSIFIED
Caveats: FOUO

Classification: UNCLASSIFIED
Caveats: FOUO

(See attached file: SWMU 31 Benzo a Pyrene.xlsx)

Summary of Benzo(a)Pyrene Analytical Data for Groundwater
SWMU-031 (RAAP-026) Coal Ash Settling Lagoons, Radford Army Ammunition Plant, Virginia

Sample Name	Location ID	Date Collected	Method	Analyte	Result Value	Result Qualifiers	Result Units	Reporting Limit	MDL
31MW1-2_19980407	31MW1	4/7/1998	8310	Benzo(a)pyrene	0.05	U	ug/L	0.05	
31MW1-2D_19980407	31MW1	4/7/1998	8310	Benzo(a)pyrene	0.05	U	ug/L	0.05	
31MW2-2	31MW2	4/1/1998	8310	Benzo(a)pyrene	0.022	J	ug/L	0.05	
31MW3-2	31MW3	4/1/1998	8310	Benzo(a)pyrene	0.061	J	ug/L	0.05	
31MW4-2	31MW4	4/6/1998	8310	Benzo(a)pyrene	0.05	U	ug/L	0.05	
31MW01	31MW1	7/11/2002	8270C	Benzo(a)pyrene	5	U	ug/L	5	0.2
31MW01	31MW1	7/11/2002	8270C SIM	Benzo(a)pyrene	0.05	U	ug/L	0.05	0.0172
31MW04	31MW4	7/11/2002	8270C	Benzo(a)pyrene	5	U	ug/L	5	0.2
31MW04	31MW4	7/11/2002	8270C SIM	Benzo(a)pyrene	0.05	U	ug/L	0.05	0.0172
31MW3	31MW3	7/11/2002	8270C	Benzo(a)pyrene	5	U	ug/L	5	0.2
31MW3	31MW3	7/11/2002	8270C SIM	Benzo(a)pyrene	0.05	U	ug/L	0.05	0.0172
31MW002(061808)	31MW2	6/18/2008	SW8270C-PAHs	Benzo(a)pyrene	0.046	U	ug/L	0.046	0.015
31MWDUP001(061808)	31MW2	6/18/2008	SW8270C-PAHs	Benzo(a)pyrene	0.046	U	ug/L	0.046	0.015

ATK Ammunition Systems
Energetic Systems
Radford Army Ammunition Plant
Route 114, P.O. Box 1
Radford, VA 24143-0100

www.atk.com

December 12, 2008

Mr. William Geiger
RCRA General Operations Branch, Mail Code: 3WC23
Waste and Chemicals Management Division
U. S. Environmental Protection Agency, Region III
1650 Arch Street
Philadelphia, PA 19103-2029

Mr. James L. Cutler, Jr.
Virginia Department of Environmental Quality
629 East Main Street
Richmond, VA 24143-0100

Subject: With Certification, Radford Army Ammunition Plant,
Draft SWMU 31 RFI Addendum (RAAP-026): Coal Ash Settling Lagoons November 2008
EPA ID# VA1 210020730

Dear Mr. Geiger and Mr. Cutler:

Enclosed is the certification for the subject document that was sent to you on November 3, 2008. In the final copy we will clarify Section 3.3.3.5 by adding the following sentence: The potential risk contributed by dioxin/furans is 1x10-6, which is at the low end of the USEPA target risk range of 1x10-6 to 1x10-4.

In addition, we will clarify Section 3.4 by including the following: The potential risks for adult and child resident exposure to soil, surface water, and sediment were within the USEPA target risk range and the HI was less than or equal to the benchmark hazard index threshold of 1. Therefore, no chemicals of concern were identified in these media. Potential risks associated with hypothetical resident exposures to groundwater are discussed in the following section.

Please coordinate with and provide any questions or comments to myself at (540) 639-8658, Jerry Redder ATK staff (540) 639-7536 or Jim McKenna, ACO Staff (540) 731-5782.

Sincerely,

P.W. Holt, Environmental Manager
Alliant Techsystems Inc.

c: Karen Sismour
Virginia Department of Environmental Quality
P. O. Box 10009
Richmond, VA 23240-0009

08-815-162
JMcKenna

E. A. Lohman
Virginia Department of Environmental Quality
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Roanoke, VA 24019

Rich Mendoza
U.S. Army Environmental Command
1 Rock Island Arsenal
Bldg. 90, 3rd Floor, Room 30A
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Rock Island, Illinois 61299

Tom Meyer
Corps of Engineers, Baltimore District
ATTN: CENAB-EN-HM
10 South Howard Street
Baltimore, MD 21201

bc: Administrative File
J. McKenna, ACO Staff
M.A. Miano
P.W. Holt
J. J. Redder
Env. File

Coordination: J. McKenna M. A. Miano

08-815-162
JMcKenna

Concerning the following:

Radford Army Ammunition Plant
Draft RFI Addendum SWMU31 (RAAP-026): Coal Ash Settling Lagoons
November 2008

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

SIGNATURE:
PRINTED NAME: Jon R. Drushal
TITLE: Lieutenant Colonel (P), US Army
Commanding

SIGNATURE:
PRINTED NAME: Kent Holiday
TITLE: Vice President and General Manager
ATK Energetics Systems

08-815-162
JMcKenna

Greene, Anne

From: McKenna, Jim
Sent: Monday, November 03, 2008 11:17 AM
To: Greene, Anne; ealohman@deq.virginia.gov; dennis.druck@us.army.mil; diane.wisbeck@arcadis-us.com; durwood willis2; Geiger.William@epamail.epa.gov; Redder, Jerome; jim spencer; jlcutler@deq.virginia.gov; Llewellyn, Tim; Mendoza, Richard R Mr CIV USA IMCOM; Parks, Jeffrey N; Timothy.Leahy@shawgrp.com; Tina_Devine@URSCorp.com; Tom.Meyer@nab02.usace.army.mil
Subject: Draft RFI Addendum SWMU 31 (RAAP-026): Coal Ash Settling Lagoons (UNCLASSIFIED)

Importance: High

Classification: UNCLASSIFIED
Caveats: NONE

All:

Note the contractor will ship the subject document with a copy of this email to the POCs and tracking numbers below.

A certification letter will follow.

Thank you for your support of the Radford Army Ammunition Plant Installation Restoration Program.

Jim McKenna

POCs and tracking numbers:

James McKenna 7980 5398 9284

Richard Mendoza 7906 1884 2232

Tom Meyer 7927 8183 7675

Dennis Druck 7994 0582 3272

James Cutler 7921 3819 6186

Durwood Willis 7980 5399 9447

Elizabeth Lohman 7906 1885 2531

William Geiger 7994 0582 6238

Classification: UNCLASSIFIED
Caveats: NONE

DEPARTMENT OF THE ARMY
US ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE
5158 BLACKHAWK ROAD
ABERDEEN PROVING GROUND MD 21010-5403

MCHB-TS-REH

21 NOV 2008

MEMORANDUM FOR Office of Environmental Quality, Radford Army Ammunition Plant (SJMRF-OP-EQ/Mr. Jim McKenna), P.O. Box 2, Radford, VA 24143-0002

SUBJECT: Document Titled: "Draft RFI Addendum, SWMU-31 (RAAP-026), Coal Ash Settling Lagoons, Radford Army Ammunition Plant, Virginia, November 2008"

1. The U.S. Army Center for Health Promotion and Preventive Medicine reviewed, without comment, the subject document on behalf of the Office of The Surgeon General pursuant to Army Regulation 200-1 (Environmental Protection and Enhancement). We appreciate the opportunity to review this addendum. Our previous comment has been addressed and we concur with the No Further Action recommendation as being protective of human health and the environment.

2. The document was reviewed by Mr. Dennis Druck, Environmental Health Risk Assessment Program. He can be reached at DSN 584-2953, commercial (410) 436-2953 or electronic mail "dennis.druck@us.army.mil".

FOR THE COMMANDER:

JEFFREY S. KIRKPATRICK
Director, Health Risk Management

CF:
HQDA (DASG-PPM-NC)
IMCOM-NE (IMNE-PWD-E)
USACE (CEHNC-CX-ES)
USAEC (IMAE-CD/Mr. Rich Mendoza)

RFI Addendum
SWMU-31 (RAAP-026): Coal Ash Settling Lagoons

Radford Army Ammunition Plant

Diane D. Wisbeck
Deputy Project Manager

Tim Llewellyn
Project Manager

Prepared for:
Radford Army Ammunition Plant

Prepared by:
ARCADIS
1114 Benfield Boulevard
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Millersville
Maryland 21108
Tel 410.987.0032
Fax 410.987.4392

Our Ref.:
GP08RAAP.0026

Date:
October, 2009

Table of Contents

Table of Contents

Acronyms and Abbreviations

AEC	United States Army Environmental Command
bgs	Below Ground Surface
CERCLA	Comprehensive Environmental Response and Compensation Liability Act
COC	Chemical of Concern
COPECs	chemicals of potential ecological concern
COPCs	chemicals of potential concern
CSF	cancer slope factor
ELCR	excess lifetime cancer risk
ERA	Ecological Risk Assessment
ft	Feet
HHRA	Human Health Risk Assessment
HI	hazard index
HQ	hazard quotient
HSA	Horseshoe area
IRP	Installation Restoration Program
MCL	Maximum Contaminant Level
MMA	Main Manufacturing Area
MWP	Master Work Plan
NFA	No Further Action
PAHs	Polynuclear Aromatic Hydrocarbons
PBC	Performance Based Contract
RBC	Risk-Based Concentration
RCRA	Resource Conservation and Recovery Act
RFAAP	Radford Army Ammunition Plant
RfC	Reference Concentration
RfD	Reference Dose
SLERA	Screening Level Ecological Risk Assessment
TCDD	2,3,7,8-tetrachlorodibenzo-p-dioxin
TEQ	Toxic Equivalent
TRVs	toxicity reference values
URF	Unit Risk Factor
USEPA	United States Environmental Protection Agency
UTL	Upper Tolerance Limit
VDEQ	Virginia Department of Environmental Quality
VPDES	Virginia Pollution Discharge

Executive Summary

ARCADIS U.S, Inc. (ARCADIS) has been retained by the United States Army Environmental Command (AEC) to perform Installation Restoration Program (IRP) activities at Radford Army Ammunition Plant (RFAAP), located in Radford Virginia.

A Final Resource Conservation and Recovery Act (RCRA) Facility Investigation Report (RFI) for SMWU-31, also identified as RAAP-26, located within the installation's Main Manufacturing Area (MMA) was submitted in July 2007. The RFI was approved by U.S. Environmental Protection Agency (USEPA) and Virginia Department of Environmental Quality (VDEQ) in September 2007 under the condition that one supplemental groundwater sample be collected from 31MW2 and analyzed for polynuclear aromatic hydrocarbons (PAHs).

The supplemental groundwater sample was collected in duplicate from Well 31MW2 on 16 June 2008 via low flow sampling protocol and submitted for analysis for PAHs by USEPA method 8270. No compounds were detected in either the primary sample or the duplicate. Therefore, the confirmation sample collected in June 2008 indicates that the previous benzo(a)pyrene detection in the groundwater sample collected from 31MW2 was anomalous. Its detection was most likely related to sample turbidity, and therefore, was not indicative of the groundwater quality at this location.

Based on the data collected as part of this and previous investigations, and the results of the Human Health Risk Assessment (HHRA) and Ecological Risk Assessment (ERA), No Further Action (NFA) is required for SWMU-31. Data collected as part of the RFI and RFI addendum investigation indicate that the observed levels of site-related constituents in the soil, sediment and surface water of the lagoons do not pose an unacceptable risk to either human or ecological receptors under current industrial or future residential land uses. Although PAHs were detected in previous groundwater samples, their presence was not verified during subsequent sampling events. Potential risks associated with the use of groundwater as a drinking water source are primarily driven by the presence of chloroform and arsenic. Chloroform is associated with backwash discharged to the lagoons by the current drinking water plant operation and is present in the groundwater at concentrations less than its Maximum Contaminant Level (MCL). The levels of arsenic are also less than the MCL. Therefore, no further action is recommended at SWMU-31.

1. Introduction

ARCADIS U.S, Inc. (ARCADIS) has been retained by the United States AEC to perform IRP activities at RFAAP, located in Radford Virginia (Figure 1). This work in being conducted under a Performance Based Contract (PBC) that encompasses the New River Unit (NRU), two Solid Waste Management Units (SWMUs), and one Hazardous Waste Management Unit (HWMU) currently under RCRA Part II Permit.

A Final RCRA Facility Investigation Report (RFI) for SMWU-31, also identified as RAAP-26, located within the installation's MMA was submitted in July 2007 (Figure 2). The RFI was approved by USEPA and VDEQ under the condition that one supplemental groundwater sample be collected from 31MW2 and analyzed for PAHs. This RFI Addendum transmits this additional data point to fulfill USEPA requirements and presents a summary of the risk assessment which incorporates the results of the supplemental groundwater data.

1.1 Objective

The objective of this report is to transmit data collected in accordance with the Master Work Plan (MWP) (URS, 2003) to demonstrate that the data gap at well 31MW2 identified in the SWMU-31 RFI Report (Shaw, 2003) by USEPA in an email dated April 11, 2007, has been filled and to provide USEPA and Virginia Department of Environmental Quality (VDEQ) with the Army's selected risk assessment approach/conclusions for SWMU-31. This path has been selected to expedite the path to corrective action decision for SWMU-31 by providing a means to gain agreement on the risk profile.

1.2 Site History

SWMU-31 is composed of three unlined surface water impoundments presently used to control backwash water for potable water treatment. As such the lagoons are an actively operated industrial unit receiving approximately 40,000 gallons of combined backwash and overflow water each day. Historically, prior to the mid 1980s, the lagoons were used to control water effluent from the power house. The water reportedly may have included fly ash and bottom ash from the combustion of low sulfur coal (Shaw, 2007) for the purpose of steam production. The lagoons were periodically dredged and coal ash from the former operations was removed and transported to the fly ash landfill number 2 (SWMU 29) for disposal. Total surface area of the three lagoons is approximately 72,500 square feet (ft^2). The primary lagoon is one sixth of

the size of the secondary lagoon and less than a seventh of the size of the tertiary lagoon. The Final VI Report recommended that a groundwater investigation be conducted at SWMU-31 (Dames & Moore, 1992). Parsons conducted an RFI and published the draft results in 1996 indicating that groundwater ingestion by site workers at SWMU-31 was the risk driver. The Final RFI (Shaw, 2007) identified benzo(a)pyrene as a risk driver. ARCADIS conducted a groundwater sampling event in June 2008 to fill the data gap at SWMU-31. The data was used in conjunction with preexisting data to reevaluate the potential health risks associated with SWMU-31. The results are presented herein.

2. Recent Groundwater Summary

On June 16, 2008 ARCADIS personnel collected a groundwater sample from Well 31MW2 via low flow sampling protocol and submitted it for extraction/analysis for PAHs by EPA method 3541/8270C. The analytical results for the sample are included in Table 1. For comparison, the historical results for PAHs in 31MW2 are also presented in Table 1.

No compounds were detected within the target range of the analytical method in either the primary sample or the duplicate. Therefore, the confirmation sample collected in June 2008 indicates that the previous benzo(a)pyrene exceedance in well 31MW2 was anomalous, and most likely related to a turbid PAH sample and is therefore not indicative of the groundwater quality at this location.

3. Human Health Risk Assessment Summary

The following sections present a summary of the HHRA that was prepared for SWMU-31 (Coal Ash Settling Lagoons) as part of the RCRA Facility Investigation Report (Shaw, 2007). The purpose of the HHRA was to evaluate the potential exposure to site-related constituents at SWMU-31.

The HHRA for the SWMU-31 was prepared following the RFAAP Final MWP (URS, 2003) and the RFAAP Site Screening Process (USEPA, 2001). The HHRA was consistent with USEPA (1989) guidance.

3.1 Data Evaluation

Analytical data obtained in 1992, 1996, 1998, and 2002 were collected from surface soil, total soil, sediment, surface water, and groundwater. Two surface and two subsurface soil samples were collected and used in the analysis. Six surface water and sediment samples were collected for use in the risk assessment. Finally, five groundwater samples were used in the evaluation.

Constituents of potential concern (COPCs) were identified to focus the HHRA on those constituents present as a result of past activities at the site and to be of potential concern to human health. The maximum detected concentration of a constituent to the USEPA Region 3 risk based concentration (RBC) and to background levels for the inorganic constituents. Residential soil RBCs were used as a point of comparison for the soil and sediment samples. Tap water RBCs were used as a point of comparison for the groundwater and surface water samples. Constituents that were not detected in any medium were not selected as COPCs. Aluminum and cobalt were detected at concentrations within the background range. The COPCs by medium are:

- Surface soil – 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD)-toxicity equivalents, aluminum, arsenic, chromium, cobalt, iron, manganese, and vanadium.

- Total soil – TCDD-toxicity equivalents, aluminum, arsenic, chromium, cobalt, iron, manganese, and vanadium.

- Sediment – dibenzofuran, aluminum, arsenic, cobalt, and iron.

- Surface water – bromodichloromenthane, chloroform, and aluminum.

- Groundwater – benzo(a)pyrene, chloroform, aluminum, arsenic, cobalt, iron, manganese, and vanadium.

3.2 Exposure Assessment

Exposure pathways have been identified based on an evaluation of the site characterization information and the fate and transport properties of the constituents of interest. The exposure pathways evaluated identify likely points where human receptors may contact affected media under current or potential future conditions at the site. The principal pathways by which exposure could occur are identified and presented in this section.

An exposure pathway is defined by the following four elements: (1) a source and mechanism of constituent release to the environment; (2) an environmental transport medium for the released constituent; (3) a point of potential contact with the contaminated medium (the exposure point); and (4) an exposure route at the exposure point. The purpose of the exposure assessment is to estimate the ways a population may potentially be exposed to constituents at a site. This typically involves projecting concentrations along potential pathways between sources and receptors. The projection usually is accomplished using site-specific data and, when necessary, mathematical modeling. Exposure can occur only when the potential exists for a receptor to directly contact released constituents or when there is a mechanism for released constituents to be transported to a receptor. Without exposure there is no risk; therefore, the exposure assessment is a critical component of the risk assessment.

SWMU-31 is located within the Horseshoe area (HSA) of RAAP. This area of RFAAP is mostly rural with areas that were used primarily for agriculture. Currently, the HSA is an industrial area and there are no plans to change existing land use. Residential and recreational areas are found adjacent to RFAAP.

Due to the industrial land-use of SWMU-31, current potential receptors are maintenance and industrial workers. Workers are found in the area of the water treatment plant, but not typically in the area around the lagoons. If SWMU-31 were redeveloped, it is unlikely that the area would be used for non-industrial purposes. Nonetheless, a hypothetical future residential exposure scenario was evaluated.

The installation is fenced, has guard towers, and security at entry gates. Therefore, it is unlikely that trespassers could gain access to the facility. The high level of security at RAAP makes it very difficult for an older child or adolescent to trespass onto the installation on a regular basis. The risks assessment did not evaluate exposure of a trespasser quantitatively. Rather, it was assumed that this potential receptor's exposure would be less than a hypothetical future resident and approximately equal to that of a maintenance worker.

Under current conditions, maintenance and industrial workers were assumed to contact surface soil, sediment, and surface water. Through this contact, they could be exposed through incidental ingestion, dermal contact, and inhalation of vapors or dust. Inhalation of vapors migrating from groundwater to ambient air also was evaluated for these two potential receptors. Direct ingestion of groundwater was not evaluated since groundwater is not used as a potable water supply.

Hypothetical future exposure scenarios were evaluated for the maintenance workers, industrial workers and excavation workers potentially exposed to surface soil, combined surface and subsurface soil, surface water, sediment, and groundwater. Additionally, hypothetical future residential exposure to combined surface and subsurface soil, sediment surface water, and groundwater.

3.3 Risk Characterization

Potential risks to human health are evaluated quantitatively by combining calculated exposure levels and toxicity data. A distinction is made between non-carcinogenic and carcinogenic endpoints, and two general criteria are used to describe the hazard quotient (HQ) for non-carcinogenic effects and excess lifetime cancer risk (ELCR) for constituents evaluated as human carcinogens.

3.3.1 Hazard Quotient for Non-cancer Hazard

Exposure doses are averaged over the expected exposure period to evaluate non-carcinogenic effects. The HQ is the ratio of the estimated exposure dose and the Reference Dose (RfD). Thus, an HQ greater than 1 indicates that the estimated exposure level for that constituent exceeds the RfD or Reference Concentration (RfC). This ratio does not provide the probability of an adverse effect. Although an HQ less than 1 indicates that health effects should not occur, an HQ that exceeds 1 does not imply that health effects will occur, but that health effects are potentially possible.

The sum of the HQs is the hazard index (HI). A limitation with the HI approach is that the assumption of dose additivity is applied to compounds that may induce different effects by different mechanisms of action. Consequently, the summing of HIs for a number of compounds that are not expected to induce the same type of effects or that do not act by the same mechanism may overestimate the potential for toxic effects. Consistent with USEPA risk assessment guidelines for chemical mixtures, in the event that the total HI for an exposure scenario exceeds 1, it is incumbent on a risk assessor to segregate HQs by target organ/critical effect (USEPA, 1989). Therefore, if the calculated HI exceeds 1 as a consequence of summing several HQs for constituents not expected to induce the same type of effects or that do not act by the same mechanism, the HIs may be segregated by effect and mechanism of action to derive separate HIs for each target-organ/critical-effect group (USEPA, 1989).

3.3.2 Excess Lifetime Cancer Risk

The ELCR is an estimate of the potential increased risk of cancer that results from lifetime exposure, at specified average daily dosages, to constituents detected in media at a site. Estimated doses or intakes for each constituent are averaged over the hypothesized lifetime of 70 years. It is assumed that a large dose received over a short period is equivalent to a smaller dose received over a longer period, as long as the total doses are equal. The ELCR is calculated as the product of the exposure dose and the cancer slope factor (CSF) or unit risk factor (URF). The risk values provided in this report indicate the potential increased risk, above that applying to the general population, which may result from the exposure scenarios described in the Exposure Assessment. The risk estimate is considered to be an upper-bound estimate; therefore, it is likely that the true risk is far less than that predicted by the model.

3.3.3 Receptor-Specific Excess Lifetime Risk and Hazard Evaluation

The results of the human health risk assessment are summarized below. For this evaluation, the USEPA target risk range of 1×10^{-6} to 1×10^{-4} is appropriate for characterizing potential risk and a hazard index of 1 is the appropriate benchmark for non-cancer endpoints. A summary of the calculated potential risks and HIs are presented in Table 2.

3.3.3.1 Maintenance Workers

Current and future maintenance workers were assumed to contact surface (current) and total (future) soil, sediment, surface water and groundwater. The calculated ELCR

for soil exposure was 8.5×10^{-7} below the risk range, and the calculated HI was 0.07, well below the benchmark of 1. Exposure to sediment was evaluated and the calculated ELCR and HI were 2×10^{-6} and 0.03, respectively. The ELCR was at the low end of the target risk range and the HI was well below the benchmark of 1. Exposure of the maintenance worker to surface water was evaluated. The calculated ELCR and HI were 6×10^{-9} and 0.0003, respectively, well below the benchmarks. The maintenance worker was assumed to inhale constituents migrating from groundwater to ambient air. The calculated ELCR was calculated 2×10^{-8} and the HI was 0.00005, well below the benchmarks.

The total risk from exposure to all media was 3×10^{-6} which is at the low end of the target risk range and the hazard index was 0.1, well below the benchmark of 1. Exposure to arsenic in sediments was the risk driver. The maximum concentration of arsenic is within the background range for soil; sediment background levels were not determined.

3.3.3.2 Industrial Workers

Industrial workers were assumed to contact surface (current) and total (future) soil, sediment, surface water and groundwater. The calculated ELCR for surface soil exposure was 4×10^{-6} within the risk range, and the calculated HI was 0.3, well below the benchmark of 1. Exposure to total soil resulted in a calculated ELCR of 4×10^{-6} at the low end of the risk range, and the calculated HI was 0.3, below the benchmark of 1. Exposure to sediment was evaluated and the calculated ELCR and HI were 9×10^{-6} and 0.2, respectively. The ELCR was within the target risk range and the HI was well below the benchmark of 1. Exposure of the industrial worker to surface water was evaluated. The calculated ELCR and HI were 3×10^{-8} and 0.001, respectively, well below the benchmarks. The industrial worker was assumed to inhale constituents migrating from groundwater to ambient air. The calculated ELCR was calculated 8×10^{-8} and the HI was 0.0002, well below the benchmarks. The hypothetical industrial worker was assumed to ingest groundwater and the ELCR was calculated to be 5×10^{-5} and the HI was 0.7, within and below the benchmarks.

The total risk from exposure to all media was 6×10^{-5} which is within the target risk range and the hazard index was 1, approximately equal to the benchmark of 1 for the current worker. The total risk from exposure to groundwater was 5×10^{-5} within the target risk range and the hazard index was 0.7, below the benchmark of 1 for the future worker. Arsenic was the risk driver but it was determined to be at background levels.

3.3.3.3 Excavation Worker

Hypothetical future excavation workers were assumed to contact combined surface and subsurface soil, sediment, surface water and groundwater. Exposure to total soil resulted in a calculated ELCR of 5×10^{-7} below the risk range, and the calculated HI was 5, above the benchmark of 1 and due to the presence of manganese. Exposure to sediment was evaluated and the calculated ELCR and HI were 1×10^{-6} and 0.4, respectively. The ELCR was equal to the low end of the target risk range and the HI was below the benchmark of 1. Exposure of the excavation worker to surface water was evaluated. The calculated ELCR and HI were 1×10^{-9} and 0.001, respectively, well below the benchmarks. The excavation worker was assumed to inhale constituents migrating from groundwater to ambient air. The calculated ELCR was calculated 1×10^{-7} and the HI was 0.008, well below the benchmarks.

The total risk was calculated to be 2×10^{-6} which is at the low end of the target risk range and the hazard index was 5, above the benchmark of 1. Exposure to arsenic in sediments was the risk driver. The maximum concentration of arsenic is within the background range. Manganese in soil was the non-cancer hazard driver. However, like arsenic, manganese was found within the background range.

3.3.3.4 Adult Residents

Hypothetical future adult residents were assumed to contact combined surface and subsurface soil, sediment, surface water, and groundwater. Exposure to soil and sediments could result in excess lifetime cancer risks of 3×10^{-6} and 3×10^{-6}, respectively, due to the presence of arsenic at background levels. The non-cancer hazards for soil and sediment exposures were below 1. Exposure to surface water resulted in excess lifetime cancer risks and non-cancer hazards below the benchmarks. Groundwater was assumed to be used as a potable water supply and exposure was evaluated based on ingestion, dermal contact, and inhalation exposures. The risks were calculated to be 4×10^{-4} which is above the target risk range. The risk drivers were benzo(a)pyrene, arsenic and chloroform. The non-cancer hazards were less than 1.

3.3.3.5 Child Residents

Exposure of hypothetical future child residents was evaluated assuming contact with combined surface and subsurface soil, sediment, surface water, and groundwater. The excess lifetime cancer risk and hazard index 2×10^{-4} and 9, both are above their

respective benchmarks. Exposure to soil resulted in an excess lifetime cancer risk of 1×10^{-5} due to the presence of arsenic at background levels and dioxins/furans. The potential risk contributed by dioxins/furans was $1x10^{-6}$ which is at the low end of the USEPA target risk range of $1x10^{-6}$ to $1x10^{-4}$. The non-cancer hazard exceeded 1 due to the presence of iron and vanadium. The vanadium was found to be at background levels. The hazard due to iron exposure was approximately equal to 1 and was less than the recommended daily allowance for iron in the diet. Therefore, the soil exposures are acceptable. Exposure to sediment was dominated by arsenic present at background levels. Children were assumed to contact surface water while wading and swimming. The risks and hazards were all less than benchmarks. Groundwater exposures resulted in the greatest risks. The excess lifetime cancer risk as calculated to be 1×10^{-4} due to the presence of benzo(a)pyrene, arsenic and chloroform. The non-cancer hazard was calculated to be 8 due to arsenic, iron and vanadium. The presence of iron was reevaluated and found to be at levels less than the recommended daily allowance for iron in the diet.

Finally, the HHRA proposed that off-site resident exposure to groundwater was the same as the on-site resident exposure to groundwater. However, the New River, is directly downgradient of the lagoons and acts as the regional discharge boundary for groundwater. Therefore, off-site migration of groundwater beyond this boundary is not considered to be a realistic exposure scenario.

3.4 Summary

The SWMU-31 HHRA evaluated current and future exposure to soil, sediment and surface water under current/future industrial and future hypothetical residential land-uses. Soil, sediment and surface water exposure pathways evaluated included incidental ingestion, dermal contact, and inhalation of vapors and dust. Groundwater exposure pathways evaluated included inhalation of volatiles migrating from groundwater to ambient air and ingestion of groundwater.

Under current land-use conditions, maintenance worker and industrial worker exposure to soil, sediment, and surface water were evaluated quantitatively. Trespasser exposure to environmental media at SWMU-31 was considered to be highly unlikely, and thus this exposure scenario was evaluated qualitatively.

Under future industrial land-use conditions, maintenance, industrial, and excavation worker exposure to combined surface and subsurface soil, sediment, surface water, and groundwater were evaluated. Under future hypothetical residential land-use

conditions, adult and child residential exposure to combined surface and subsurface soil, sediment, surface water, and groundwater were evaluated. In addition, future off-site residential exposure to groundwater was evaluated.

Under current and future land-use scenarios, the potential risks and hazards for the maintenance worker and industrial worker were all within or below the USEPA target risk range ($1x10^{-4}$ to $1x10^{-6}$) or less than or equal to the benchmark hazard index threshold of 1. The potential risk for the future excavation worker was at the low end of the USEPA target risk range. The total HI was greater than 1 due to manganese in soil. However, manganese is naturally occurring and is present in soil at the site at levels that are within background. Therefore, following USEPA (2002) guidance, it was not identified as a Chemical of Concern (COC). The potential risks for adult and child residential exposure to soil, sediment and surface water were within the USEPA target risk range and the HI was less than or equal to the benchmark hazard index of 1. Therefore, no COCs were identified in these media. Potential risks associated with hypothetical resident exposure to groundwater are discussed in the following section.

3.5 Reassessment of Potential Risks Excluding Benzo(a)Pyrene

Potential risks were reevaluated considering the most recent groundwater data collected in June 2008. Only potential risks for the hypothetical future residential land-use scenario were re-assessed to incorporate the recent groundwater data (i.e., potential risks were recalculated excluding benzo(a)pyrene which was not detected during the most recent sampling event). Constituents contributing to a risk greater than 10^{-6} or the HI greater than 1 were identified as risk drivers. Excluding benzo(a)pyrene, the excess lifetime cancer risks were recalculated to be 2×10^{-4} (adult) and $1x10^{-4}$ (child) (Table 3). The primary risk drivers were arsenic, iron, vanadium, and chloroform in groundwater. Although potential risks and hazards associated with residential exposure to groundwater exceeded the USEPA target risk range and hazard index, there are a number attenuating factors. Each of the factors along with its impact on the HHRA results are discussed below.

1) The HHRA relied on the use of maximum detected concentrations rather than the recommended central tendency concentration, resulting in a conservative estimate of potential risk.

2) Iron is an essential nutrient and was reevaluated and determined to be within the recommended daily allowance (i.e., the intake amount recommended by the Surgeon General to maintain a healthy diet).

3) The presence of chloroform in groundwater at SWMU-31 is associated with drinking water disinfection process at the adjacent Drinking Water Plant (Figure 2), and is not related to historical site-activities. In addition, the concentration of chloroform in groundwater is less than the Federal MCL.

4) Arsenic is a naturally occurring metal in groundwater, and although, site-specific background levels are unavailable, detected concentrations are less than the Federal MCL.

5) Vanadium is a naturally occurring metal present groundwater in this area. Vanadium concentrations in background groundwater at HWMU-5 and HWMU-7 range from 17 to 40 ug/L (Draper Aden, 2007). The maximum detected concentration of vanadium in groundwater at SWMU-31 is 17 ug/L, which is at the low end of the naturally occurring range.

3.6 Conclusions

Based on the consideration of these factors, the hazards and risks calculated in the risk assessment result from constituents at or below associated backgrounds or Federal Standards accordingly. Accordingly, no COCs in groundwater were identified and no further evaluation of human health is recommended.

4. Screening Level Ecological Risk Assessment Summary

The following sections present a summary of the Screening Level Ecological Risk Assessment (SLERA) that was prepared for SWMU-31 (Coal Ash Settling Lagoons) as part of the RCRA Facility Investigation Report (Shaw, 2007).

The SLERA for the SWMU-31 was prepared following the RFAAP Final MWP (URS, 2003), the RFAAP Site Screening Process (USEPA, 2001), the Tri-Service Procedural Guidelines for Ecological Risk Assessments (Wentsel et al., 1996) and USEPA guidance (USEPA, 1997). Steps 1, 2 and 3 of the USEPA guidance were completed as part of the SLERA.

The primary objective of the SLERA was to assess whether enough information exists at SWMU-31 to state there is a potential for unacceptable risks to ecological receptors as a result of potential hazardous substance releases. To that end, the SLERA evaluated potential hazards associated with chemicals of potential ecological concern (COPECs) in surface soil, lagoon sediment and lagoon surface water at SWMU-31.

4.1 Background

The former coal ash settling lagoons (the lagoons) are located on the floodplain of the New River. The primary, secondary and tertiary lagoons are connected and have surface areas of approximately 0.11, 0.68, and 0.86 acre, respectively. The effluent of the secondary and tertiary settling lagoons are designed to discharge to the New River through Outfall 024 which is regulated under a Virginia Pollution Discharge (VPDES) permit issued in 1986. The SLERA indicates that there have only been two discharge events through Outfall 024 during the past 22 years, one in 1992 and one in 2005.

The lagoons are unlined settling ponds that were constructed in the 1950s and designed to receive effluent from Power House No. 2 and the water treatment plant. The primary lagoon received water carrying fly ash and bottom ash from Power House No. 2 and filter backwash from the water treatment plant. The secondary and tertiary lagoons were designed to receive discharge from the primary lagoon, if necessary. The Power House ceased discharging to the lagoons in the late 1980s. The water treatment plant is currently discharging to the lagoons; water flowing into the primary lagoon consists of overflow or filter backwash from the drinking water settling tanks at Water Plant 4330. The lagoons have not been used for any other activities.

An installation-wide biological survey was conducted by the Virginia Department of Game and Inland Fisheries in 1999. Survey results are discussed in the SLERA.

4.2 Identification of Exposure Pathways and Potential Receptors

The following exposure pathways were evaluated in the food chain assessment:

- the incidental ingestion of soil and sediment; and
- the ingestion of water and food.

Five terrestrial receptor species that could potentially occur at SWMU-31 were selected as representative indicator species for the potential effects of COPECs. Species included the meadow vole (*Microtus pennsylvanicus*), short-tailed shrew (*Blarina brevicauda*), American robin (*Turdus migratorius*), red-tailed hawk (*Buteo jamaicensis*) and red fox (*Vulpes vulpes*). In addition, the potential impacts to terrestrial plants were considered by the presence or absence of vegetative stress, assessed during site inspections.

Two aquatic habitat dwelling receptor species that could potentially occur in the area of SWMU-31 were selected as representative indicator species for the potential effects of COPECs. Species included the great blue heron (*Ardea herodias*) and the mink (*Mustela vison*). Potential impacts to aquatic plants and other aquatic biota were assessed by comparing measured surface water and sediment COPEC concentrations with available direct contact screening levels as discussed later in this summary. In addition, an amphibian assessment was also conducted as part of the SLERA.

The measurement endpoints for the food chain portion of the SLERA were based on toxicity values from available literature. The selected assessment endpoint for SWMU-31 is the protection of long-term survival and reproductive capabilities for populations of receptors.

4.3 Effects Characterization

The ecological effects characterization presents the selection of literature benchmarks, the development of toxicity reference values (TRVs) and the approach for evaluating direct contact toxicity. Several sources for literature benchmarks and TRVs were used in the SLERA and are discussed at length in the SLERA report.

4.4 Summary of COPEC Selection for the Direct Toxicity Evaluation

Chemical concentrations in soil, lagoon sediment and lagoon surface water were compared to applicable screening levels to evaluate direct toxicity to soil invertebrates and aquatic biota at SWMU-31. Chemicals with concentrations that exceeded screening levels were identified as Direct Toxicity COPECs.

4.4.1 Surface Soil

Impacts to soil at SWMU-31 were expected to originate from the lagoons, and therefore soil samples were collected at the permitted outfall. Two samples from one boring (31SB05A and 31SB05B) were used for the soil evaluation in the SLERA. Samples were collected between 0 and 4 feet below ground surface (bgs). As noted in the SLERA, the samples were collected to address chemical parameter data gaps. Maximum metal concentrations in soil were less than their respective background upper tolerance limits (UTLs). No organics were detected at concentrations exceeding their soil screening levels.

4.4.2 Sediment

Six sediment samples were collected from the lagoons at depth intervals ranging from 0 to 6 inches bgs. One additional sample (31SE11B) collected from 1 to 3 feet bgs was also included in the sediment evaluation. Twenty-four COPECs were detected at concentrations above sediment screening levels. COPECs include tetrachlorodibenzo-dioxin Toxic Equivalent (TCDD-TEQ), several PAHs, and 11 metals.

4.4.3 Surface Water

Six surface water samples were collected from the lagoons (2 from each lagoon). Pyrene, endosulfan II, endrin, barium, aluminum, lead and iron exceeded their surface water screening levels and were identified as COPECs.

4.5 Risk Characterization

Potential hazards were characterized for terrestrial and aquatic habitat dwelling wildlife receptors at SWMU-31 based on HQs (direct contact and food web modeling), with emphasis on the weight-of-evidence, such as background levels relative to site-related concentrations, the representativeness of the soil data, and the quality of the available habitat. An HQ less than or equal to a value of 1 indicates that adverse impacts to

wildlife are considered unlikely (USEPA, 2000a). However, there is no clear guidance for interpreting the HQs that exceed a value of 1, except that this point of departure indicates that adverse effects of some kind may have occurred in the past or may occur in the future. The conclusions drawn based on the HQs and analysis of supporting information are summarized below.

In the SLERA food chain evaluation, HQs calculated for the American robin and short-tailed shrew exceeded 1.0, indicating a potential risk to these receptors if exposure to soil and prey (e.g., earthworms) were to occur. The primary exposure pathway was the ingestion of soil invertebrates. The primary COPECs contributing to the estimated risks in soil are 2,3,7,8-TCDD and DDT.

Twenty-four COPECs were detected at concentrations above sediment screening levels indicating potential hazards to aquatic biota via direct toxicity if exposure were to occur. COPECs include TCDD-TEQ, several PAHs and 11 metals. It is important to note that 7 of the 11 metals (arsenic, chromium, copper, iron, manganese, nickel and zinc) had maximum concentrations below the background UTLs calculated for soil.

Pyrene, endosulfan II, endrin, barium, aluminum, lead and iron exceeded their surface water screening levels indicating potential hazards to aquatic biota via direct toxicity if exposure were to occur. A summary of the spatial extent of these COPECs in surface water is as follows: pyrene was only detected in the primary lagoon; endosulfan II and endrin were only detected in the tertiary lagoon; lead and iron exceeded screening levels in the primary lagoon while barium and aluminum exceeded screening levels in all three lagoons.

4.5.1 Groundwater Evaluation

Potential impacts to surface water via groundwater discharge were evaluated by modeling the groundwater at SWMU-31 discharging to the New River. After factoring in assimilation (New River 7Q10), results indicate that groundwater COPEC concentrations discharging to surface water would not adversely impact biota residing in the New River. Groundwater COPECs were determined based on constituents specified in the RCRA permit for SWMU-31.

4.5.2 Amphibian Evaluation

Two qualitative amphibian surveys were performed at SWMU-31. Results of the surveys demonstrate the presence of amphibians at the secondary and tertiary

lagoons. No amphibians were observed in the primary lagoon during the surveys. The SLERA suggests that the surveys may not provide a complete assessment because they did not include an evening observation period. However, the SLERA concludes that local populations of amphibians are not being significantly impacted by surface water or sediment COPECs based on the presence of amphibians in the secondary and tertiary lagoons.

4.6 Summary and Conclusions

The SLERA concludes the following: 1) HQs calculated for the American robin and short-tailed shrew exceeded 1.0, 2) twenty-four COPECs were detected at concentrations above sediment screening levels, and 3) pyrene, endosulfan II, endrin, barium, aluminum, lead and iron exceeded their surface water screening levels. The SLERA is based on comparisons of representative media concentrations to conservative screening levels and toxicity reference values for terrestrial and aquatic organisms. Based on an evaluation of the data, the majority of the screening level exceedances at SWMU-31 are associated with the primary lagoon.

However, it is important to realize that the size or space of an impacted area is directly related to the potential for ecological exposure if ecological habitat is present. Spatial scale can be useful as a screening criterion if used in conjunction with other considerations, such as the valued ecological resources that may be present, current and future land use, the likelihood for COPEC migration from the site, and the proximity to a valued or sensitive ecological habitat. Spatial scale screening criteria are used widely in ERA guidance.

Although no information on spatial scale screening could be found in the Virginia DEQ guidance, several states' guidance address the importance of spatial scale in ecological assessments, as does the *ASTM Standard Guide for Risk-Based Corrective Action for Protection of Ecological Resources*, E 2205-02 (ASTM [American Society for Testing and Materials], 2002). The following spatial scale screening criteria are used by the following states: 1 to 2 acres for Minnesota (the smaller scale for bioaccumulative compounds); 1 acre for Texas, Louisiana, and Mississippi; 2 acres for Pennsylvania; and 2 acres or 1,000 square feet of sediments for Massachusetts (MPCA, 1998; TCEQ, 2001; MDEQ, 1997; LDEQ, 2003; PADEP, 1998; MADEP, 1996). This spatial scale criterion has often been referred to as *de minimis* because it is not expected to cause adverse impacts to the population, community, or ecosystem, providing certain conditions are met (Suter, 1995; Henning and Shear, 1998). These conditions include similar but unimpacted habitat be available adjacent to the impacted

area, that sensitive habitat not be present within ¼ mile if the COPECs will migrate off site, and COPEC fate and transport must be unlikely to increase the spatial extent to greater than the current spatial extent. Based on available information, which is discussed below, it is believed that these other conditions are met for SWMU-31.

In terms of similar but unaffected habitat being present adjacent to SWMU-31, the New River represents a valuable and significant aquatic and riparian (terrestrial) habitat that likely represents a more attractive area for potential ecological receptors than the three industrial settling lagoons at SWMU-31. The lagoons at SWMU-31 are man-made and designed to contain effluent from the water treatment plant. Based on their design, potential impacts within those lagoons are not expected to increase in spatial extent. The Virginia Department of Game and Inland Fisheries conducted the most recent Installation-wide biological survey at RFAAP in 1999. Results indicated that no threatened, rare or endangered species were found at or near SWMU-31.

Based on the small size of the lagoons (primary lagoon is approximately 0.11 acre, secondary lagoon is approximately 0.68 acre, and tertiary lagoon is approximately 0.86 acre), the fact that the lagoons are man-made containment structures that were designed to receive treated water, the likelihood that the spatial extent of impacts within each lagoon is limited (particularly in the secondary and tertiary lagoons), and the low potential that the spatial extent will increase, adverse population-level impacts are not expected for ecological receptors exposed to surface water and sediment at SWMU-31. The same situation applies for soil conditions in the outfall area. This assumption is reasonable considering that the outfall area is limited to a small channelized ditch that runs approximately 50 feet from the outfall pipe to the New River, and is approximately 3 to 5 feet wide. This outfall channel corresponds to a very small area (approximately 250 square feet) and thus does not represent a significant habitat nor an ecological concern. Based on these considerations, it is believed that the conditions discussed above for the *de minimis* spatial scale criteria (i.e., unimpacted habitat available adjacent to the impacted area, sensitive habitat not present within ¼ mile, and COPEC fate and transport unlikely to increase the spatial extent) are met for SWMU-31.

In summary, although the SLERA indicated some exceedances of surface water, sediment, and soil screening levels in limited areas of SWMU-31, when evaluated in the context of ecosystem health based on site reconnaissance, the small spatial extent, and availability of similar and unimpacted habitat adjacent to SWMU-31, there is adequate information to conclude that adverse impacts to ecological receptors exposed to surface soil, surface water and sediment are unlikely or are not ecologically

significant. Therefore, no further ecological evaluation of SWMU-31 is considered necessary.

5. Recommendations

Based on the data collected as part of this and previous investigations, and the results of the HHRA and ERA, NFA is required for SWMU-31. Data collected as part of the RFI and RFI addendum investigation indicate that the observed levels of site-related constituents in the lagoons and underlying groundwater do not pose an unacceptable risk to either human or ecological receptors.

Future development plans at RAAP may include ongoing use of the lagoons for the adjacent Drinking Water Plant. Therefore the HHRA and ERA evaluated current (i.e., pond remains) exposure scenarios. Based upon the results of the risk assessments, there are presently no chemical constituents present in the pond or surrounding media that would limit current or future activities at the site.

Based on the data presented, no evidence exists of a release from this site. Several constituents are present at the site at levels that exceed risk-based screening criteria. However, the site-specific risk assessments conclude that the site does not pose an unacceptable risk to human or ecological receptors. Although PAHs were detected in one previous groundwater sample, their presence was not verified during the most recent sampling event. Chloroform in the groundwater is associated backwash discharged to the lagoons by the drinking water plant operation managed via the current VPDES permit. The levels of metals present in groundwater are either consistent with naturally-occurring levels in groundwater, or are less than Federal MCLs. Therefore, no further action is recommended at SWMU-31.

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Tables

Table 1
Summary of Groundwater Sample Analytical Results for 31MW2
SWMU-31 (RAAP-026): Coal Ash Settling Lagoons
Radford Army Ammunition Plan, Virginia

Location ID: / Date Collected:	Units	31MW2 04/01/98	31MW2 06/18/08
PAHs			
1-Methylnaphthalene	ug/L	NA	<0.046 [<0.046]
2-Methylnaphthalene	ug/L	NA	<0.046 [<0.046]
Acenaphthene	ug/L	<0.1	<0.046 [<0.046]
Acenaphthylene	ug/L	<1	<0.046 [<0.046]
Anthracene	ug/L	<0.1	<0.046 [<0.046]
Benzo(a)anthracene	ug/L	0.022 J	<0.046 [<0.046]
Benzo(a)pyrene	ug/L	0.022 J	<0.046 [<0.046]
Benzo(b)fluoranthene	ug/L	0.027 J	<0.046 [<0.046]
Benzo(g,h,i)perylene	ug/L	<0.1	<0.046 [<0.046]
Benzo(k)fluoranthene	ug/L	<0.05	<0.046 [<0.046]
Chrysene	ug/L	<0.05	<0.046 [<0.046]
Dibenzo(a,h)anthracene	ug/L	<0.1	<0.046 [<0.046]
Fluoranthene	ug/L	<0.1	<0.046 [<0.046]
Fluorene	ug/L	<0.1	<0.046 [<0.046]
Indeno(1,2,3-cd)pyrene	ug/L	<0.05	<0.046 J [<0.046 UJ]
Naphthalene	ug/L	<0.1 L	<0.046 [<0.046]
Phenanthrene	ug/L	<0.05	<0.046 [<0.046]
Pyrene	ug/L	<0.05	<0.046 [<0.046]

Duplicate sample results are provided in brackets.

Table 2
Summary of Potential Human Health Risks and Hazards
SWMU-31 (RAAP-026): Coal Ash Settling Lagoons
Radford Army Ammunition Plan, Virginia

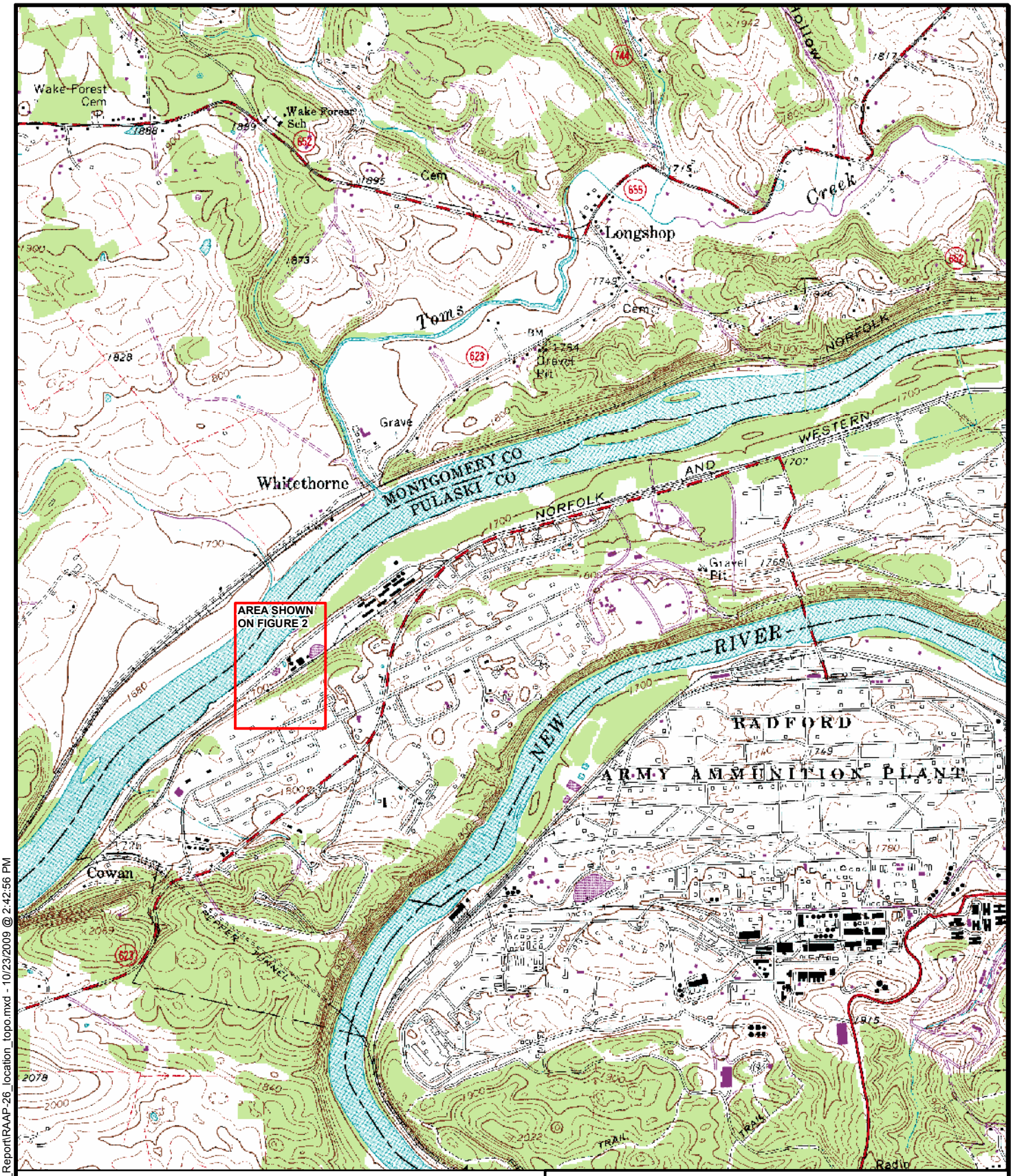
Receptor	Media	Cumulative Risk	Hazard Index	Risk Driver
Maintenance worker	soil, sediment, surface water, groundwater	3×10^{-6}	0.1	Not Applicable (a)
Industrial worker	soil, sediment, groundwater	6×10^{-5}	1	Not Applicable
Excavation worker	soil, sediment, surface water, groundwater	2×10^{-6}	5	arsenic in sediment manganese in soil (b)
Adult residents	soil, sediment, surface water, groundwater	4×10^{-4}	2 (c)	benzo(a)pyrene, chloroform
Child resident	soil, sediment, surface water, groundwater	2×10^{-4}	9	benzo(a)pyrene, arsenic, chloroform, iron, vanadium

(a) NA Not Applicable. No risk drivers were identified because the potential cancer risk and HI was less than the USEPA target risk range and/or benchmark for non-cancer effects.

(b) Manganese and arsenic concentrations are less than background levels, and thus, were not identified as COCs.|

(c) Although the cumulative HI was greater than one, the target organ/critical effect HIs were less than one. Therefore, no risk drivers were identified based on the non-cancer endpoint.

Figures



N

0 1,000 2,000 4,000

Scale in Feet

Source: USGS Radford North 7.5 Minute Topographic Map

RADFORD ARMY AMMUNITION PLANT
RADFORD, VIRGINIA

SITE LOCATION
MAIN MANUFACTURING AREA

ARCADIS

FIGURE
1

I:\Radford\GIS\ArcMap_MXD\102309_Report\RAAP-26_location_topo.mxd - 10/23/2009 @ 2:42:56 PM

N

0 85 170 340

Scale in Feet

NOTE: ALL LOCATIONS ARE APPROXIMATE.

RADFORD ARMY AMMUNITION PLANT
RADFORD, VIRGINIA

RAAP-26 LAYOUT AND MONITORING WELL LOCATIONS

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FIGURE 2

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Appendix A

Groundwater Sample Log

Site Activities Tailgate Safety Briefing - Sign-in Log

Date: 6/18/08		Time: 1415
Briefing Conducted by: Sandra Grabowski	**Signature:**	**Company:** ARCADIS

This sign-in log documents the tailgate briefing conducted in accordance with the HASP. Personnel who perform work operations on Site are required to attend each briefing and to acknowledge receipt of each briefing, daily.

TOPICS COVERED (check all those covered):

- [x] General PPE Usage
- [ ] Hearing Conservation
- [ ] Respiratory Protection
- [x] Personal Hygiene
- [ ] Exposure Guidelines
- [x] Decon Procedures
- [x] Emergency Procedures; include route to hospital
- [x] Smoking, Eating, Drinking, Chewing Prohibitions
- [x] Slips, Trips, Falls
- [x] Heat Stress
- [ ] Cold Stress
- [ ] Site Control
- [ ] Work Zones
- [ ] Lockout/Tagout
- [ ] Excavation Safety
- [ ] Confined Space
- [x] Traffic Safety
- [ ] Changes to the HASP
- [ ] Initial Review of Hazard Evaluation (from Work Plan)
- [ ] Other (specify):

Personnel Sign-in List

Printed Name	Signature	Company Name
Sandra Grabowski		ARCADIS

ARCADIS

DAILY LOG

Project Name and No. RAAP 47 / 26 GPOERAAP.0026.DG000 GPOERAAP 0047.NF000

Site Location Radford, VA

Prepared by Sandra Grabowski

Date/Time	Description of Activities
6/18/08	
0530	arrive at office, gather supplies, pack truck
0600	leave office for site
1100	arrive onsite, meet with Matt A and Jerry R (ATK)
1130	check in at NRE to tour AOC A area
1230	obtain area entry permit for AOC A area, to begin June 30th and end July 5th. Hot work permit must not be obtained before start date. Matt (ATIC) will help w/ that on the 30th
1300	obtain camera cell phone pass for SG. Good for 2 years
1345	SG to area 26 (SWMU 31) to sample 31MW2
1500	start pump at 31MW2
1625	sample 31MW2 for SVOCs (PAHs); dupiate sample collected
1700	EB sample collected
1710	clean up area, pack samples, leave site for FedEx
1750	drop samples off at FedEx; Ship equipment back to PINE
1830	arrive at hotel
	END DAY

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Instrument Calibration Log

Project Name: GP08RAAP.0026.DG00

Project Number: RAAP area 31

Date: 6/18/09

Calibrating Personnel: SG

Time of Calibration: 1430

Weather Conditions: 75°F clear

Barometric Pressure: 760.1 mm Hg

CALIBRANT	INSTRUMENT	INITIAL READING	VALUE ENTERED	FINAL READING	TIME	TEMP
pH 7.00	YSI 600	6.97	7.00	7.00	1425	26.44
pH 4.01	YSI 600	3.80	4.00	4.00	1428	25.78
Conductivity (___SpCond___)	YSI 600	1.381	1.413	1.413	1432	25.75
Turbidity (1.0 NTU)	Lamotte	0.95	1.0	1.1	1430	—
Turbidity (10.0 NTU)	Lamotte	10	10.0	10	1431	—
DO%	YSI 600	101.7	100	100.3	1434	21.89
ORP (mV)	YSI 600	260.2	240	239.9	1436	25.81

Notes: YSI pH SN: G5K2341AC

Mantech SN: 05F1259AB

La Motte SN: 3146-1602

40-834-9685

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Groundwater Sampling Form

Project No. GPO8RAAP.0026.0600 Well ID 31MW002 Date 6/18/08

Project Name/Location RAAP / Radford, VA Weather 75°F, clear

Measuring Pt. Description TOC Screen Setting (ft-bmp) — Casing Diameter (in.) 4" Well Material X PVC ___ SS ___ Other

Total Depth (ft-bmp) 30.35 Static Water Level (ft-bmp) 26.38 Water Column in Well 3.97 Gallons in Well 2.58

Calc. Gallons Purged — Pump Intake (ft-bmp) just above Screen Purge Method: Centrifugal ___ Submersible ___ Disp. Bailer ___ Other ___ Sample Method low flow

Gallons Purged ~1.5 MP Elevation — Pump On/Off 15:40

Sample Time: Label 16:25 Replicate/ Code No. 31MWDUP001 Sampled by ___

Time	Minutes Elapsed	Rate (mL/min)	Depth to Water (ft) TOC	Gallons Purged	pH	Cond. (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C)	Redox (mV)	Appearance Color	Appearance Odor
5:25												
15:25	20	150	26.84		6.87	0.519	6.90	6.82	16.35	167.3	clear	no
15:30	25	150	26.84		6.90	0.508	5.5	5.98	16.45	152.3	clear	no
15:35	30	150	26.88		6.93	0.501	6.7	5.86	16.13	160.4	clear	no
15:40	35	150	26.90		6.91	0.500	7.7	6.45	16.71	167.2	clear	no
15:45	40	150	26.91		6.94	0.501	6.1	6.53	16.55	177.5	clear	no
15:55	45	150	26.91		6.99	0.511	17	6.39	16.78	162.1	clear	no
16:00	50	150	26.98		6.98	0.503	23	6.04	15.42	175.5	clear	no
16:05	55	150	27.07		6.92	0.503	16	5.91	14.90	191.9	clear	no
16:10	60	150	27.15		6.80	0.503	14	5.84	14.79	202.0	clear	no
16:15	65	150	27.25	↓	6.79	0.503	14	5.68	14.74	205.7	clear	no
16:20	70	150	27.31	1.5	6.80	0.502	13	5.59	14.63	210.4	clear	no

Constituents Sampled	Container	Number	Preservative
SVOCs (PAHs)	1L Amber	2	none

Well Information

Well Location: down grad of parking lot

Condition of Well: fair

Well Completion: Flush Mount / Stick Up

Well Locked at Arrival: Yes / No

Well Locked at Departure: Yes / No

Key Number To Well:

NOTES:

pull up pump to fix air flow gasket and replaced

Well Casing Volumes

Gallons/Foot: 1" = 0.04; 1.25" = 0.06; 1.5" = 0.09; 2" = 0.16; 2.5" = 0.26; 3" = 0.37; 3.5" = 0.50; 4" = 0.65; 6" = 1.47

TD-3 0.75

ARCADIS

Laboratory Task Order No./P.O. No. ______

CHAIN-OF-CUSTODY RECORD

Project Number/Name GP08RAAD.0026 (XG.OW) RAAP

Project Location Radford, VA

Laboratory [illegible]

Project Manager Dave [illegible]

Sampler(s)/Affiliation SG / ARCADIS

ANALYSIS / METHOD / SIZE

Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	SVOCs (8270) (PAH)						Remarks	Total
31MW002 (061808)	GW	6/18/08 / 11:25		X							2
31MW002Dup (061808)	GW	6/18/08 / 11:25		X							2
FB001 (061808)	L	6/18/08 / 17:00		X							2

Sample Matrix: L = Liquid; S = Solid; A = Air GW = groundwater

Total No. of Bottles/Containers 6

Relinquished by: [illegible]	Organization: ARCADIS	Date 6 / 18 / 08	Time 18:00	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A
Relinquished by:	Organization:	Date / /	Time	Seal Intact?
Received by:	Organization:	Date / /	Time	Yes No N/A

Special Instructions/Remarks: 1) [illegible] (279-994-8061)

2) [illegible]

Delivery Method: ☐ In Person ☒ Common Carrier FedEx (SPECIFY) ☐ Lab Courier ☐ Other ______ (SPECIFY)

AG 05-12/01

Appendix B

Laboratory Data Report

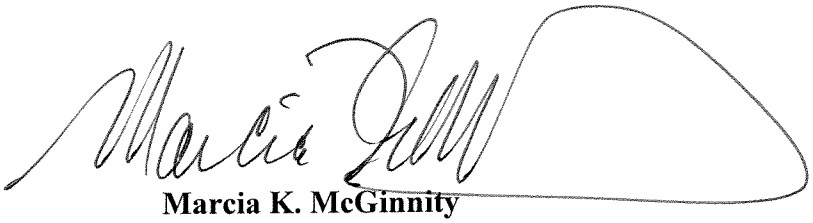
Analytical Report

Main Data Package – Semi-Volatiles

Arcadis
Project # GP08RAAP.0026/RAAP

WO #0806207

Empirical Laboratories, LLC



Marcia K. McGinnity
Senior Project Manager

June 20, 2008

TABLE OF CONTENTS

WO #0806207

ORGANIC CASE NARRATIVE – Low-level PAHs
Arcadis – Radford
Workorder: 0806207

Date Sampled	Date Received	Lab ID	Client ID
18-Jun-2008	19-Jun-2008	0806207-01	31MW002(061808)
18-Jun-2008	19-Jun-2008	0806207-02	31MWDUP001(061808)
18-Jun-2008	19-Jun-2008	0806207-03	EB001(061808)

Method: The samples were extracted/analyzed by USEPA SW-846 Methods 3541/8270C (separatory funnel extraction followed by capillary column GC/MS) for water upon receipt to the laboratory in satisfactory condition.

Comments: The analyses for these samples were satisfactorily completed within sample holding times and met the corresponding specifications with the following notes/exceptions:

- Note: These samples were analyzed for full-scan, low-concentration PAHs by employing a combination of sensitivity enhancing techniques in the extraction and analysis processes.
- DFTPP Tuning: All method tuning criteria were met.
- Calibration Criteria: All method calibration criteria were met for the target analytes. Radford criteria were exceeded for indeno(1,2,3-cd)pyrene in the initial calibration verification where the percent difference of 20% was exceeded at 22.3% with a negative bias. Results for indeno(1,2,3-cd)pyrene are qualified with a "Y" to indicate a potential negative bias.
- Blank Results: No target analytes were detected in the method blank. Equipment blank EB001 (061808) reported a concentration of 2-methylnaphthalene but was not detected in the associated samples.
- Surrogate Recoveries: All surrogate recoveries were within limits.
- SBLK0623BW1LCS/LCSD results: All recoveries and relative percent differences were within limits.
- MS/MSD Results: Not applicable.
- Internal Standard Area Counts: All area counts were within limits.
- Dilutions: All samples were analyzed without dilution.

I certify that, to the best of my knowledge and based upon my inquiry of those individuals immediately responsible for obtaining the information, the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, with the exception of the conditions detailed in the case narrative, as verified by the following signature.

Marcia K. McGinnity
Senior Project Manager

ANALYTICAL REPORT TERMS AND QUALIFIERS (ORGANIC)

MDL: The method detection limit (MDL) is defined as the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero. The MDL is determined from analysis of a sample containing the analyte in a given matrix.

EQL: The estimated quantitation limit (EQL) is defined as the estimated concentration above which quantitative results can be obtained with a specific degree of confidence. Empirical Laboratories defines the EQL to be at or near the lowest standard of the calibration curve.

U: The presence of a "U" indicates that the analyte was analyzed for but was not detected or the concentration of the analyte quantitated below the MDL.

B: The presence of a "B" to the right of an analytical value indicates that this compound was also detected in the method blank and the data should be interpreted with caution. One should consider the possibility that the correct sample result might be less than the reported result and, perhaps, zero.

D: When a sample (or sample extract) is rerun diluted because one of the compound concentrations exceeded the highest concentration range for the standard curve, all of the values obtained in the dilution run will be flagged with a "D".

E: The concentration for any compound found which exceeds the highest concentration level on the standard curve for that compound will be flagged with an "E". Usually the sample will be rerun at a dilution to quantitate the flagged compound.

J: The presence of a "J" to the right of an analytical result indicates that the reported result is estimated. The data pass the identification criteria indicating that the compound is present, but the calculated result is less than the EQL.

ARCADIS

Laboratory Task Order No./P.O. No. _____

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Project Number/Name GP08RAAP.0026.DG006/ RAAP

Project Location Radford, VA

Laboratory Empirical Labs

Project Manager Diane Wisbeck

Sampler(s)/Affiliation SG / ARCADIS

0806207

	Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: SVOC (8270) (PAHs)						Remarks	Total
-01	3IMW002 (061808)	GW	6/18/08 1625		X							2
-02	3IMWDUP001 (061808)	GW	6/18/08 1625		X							2
-03	EB001 (061808)	L	6/18/08 1700		X						* - container labels marked as EB001 (061808) ws 6/19/08	2
	6/19/08 EB001 CG											

Sample Matrix: L = Liquid; S = Solid; A = Air GW = groundwater

1.5°C

Total No. of Bottles/ Containers: 6

Relinquished by: Sandra Grabowski	Organization: ARCADIS	Date 6/18/08	Time 18:00	Seal Intact?		
Received by:	Organization:	Date / /	Time	Yes	No	N/A
Relinquished by:	Organization:	Date / /	Time	Seal Intact?		
Received by:	Organization: Empirical Labs	Date 6/19/08	Time 9:00	(Yes)	No	N/A

Special Instructions/Remarks: (1) please confirm analysis w/ Chris Sharpe (279-994-8061)

(2) if any sediment settled out in samples, please do not disturb

Delivery Method: ☐ In Person ☒ Common Carrier FedEx (SPECIFY) ☐ Lab Courier ☐ Other _____ (SPECIFY)

3

Empirical Reports

From: Powell, Jace'que [Jaceque.Powell@arcadis-us.com]
Sent: Friday, June 20, 2008 11:32 AM
To: ReportProduction@EmpirLabs.com; Kennedy, Jane
Cc: renee; MMcGinnity@EmpirLabs.com
Subject: RE: SRC for WO #0806207

Hi Renee and Marcia,

FB001 should be EB001 as labeled on the sample containers.

Thanks,

Jace'que

From: Empirical Reports [mailto:ReportProduction@EmpirLabs.com]
Sent: Friday, June 20, 2008 11:29 AM
To: Powell, Jace'que; Kennedy, Jane
Cc: renee
Subject: SRC for WO #0806207
Importance: High

Christine Gramada
Administrative Assistant
Empirical Laboratories, LLC
227 French Landing Drive, Suite 550 I Nashville, TN 37228 I www.empirlabs.com
Main: 615.345.1115 ext. 244 I Toll free: 877.345.1113 I Fax: 615.846.5426

Recipient of the 2008 Region IV (Southeastern US) Subcontractor of the Year from the Small Business Administration.
Celebrating over 40 years of excellence, Empirical Laboratories is certified as a HUBZone Business, a Woman-Owned Small Business, and a Small Disadvantaged Business by the Small Business Administration. Come visit our website at www.empirlabs.com today.

EMPIRICAL LABORATORIES
COOLER RECEIPT FORM

LIMS Number: 0806207 COC ID(s): —

Client Arcadis Project Radford, VA

Sample Custodian WS Today's Date 6/19/08

Date/Time Samples Received 6/19/08 09:00
Airbill Number Fedex
Cooler Opened: Date 6/19/08

Chain of custody seal intact?	(Yes)	No
Chain of custody provided?	(Yes)	No
Sample labels present?	(Yes)	No
Bottle labels correspond w/COC	(Yes)	No

Number of Custody Seals on Cooler(s): 1 Seal Date(s): 6/18/08

Type of coolant used Ice

Coolant condition : Melted _____ Partially melted/frozen ✓
Frozen _____

# of Coolers 1 Temp. of Coolers 1.5°C

Condition of Bottles in Shipment: Broken Leaking Intact Missing

If broken or leaking list sample ID#s and bottle types affected:

Comments:
Sample FB001 had container labels as sample: EB001!

FORM 2
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: EMPIRICAL LABS Contract: ARCADIS

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: ARC.B06207

	CLIENT SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	SBLK0623BW1	83	71	73						0
02	SBLK0623BW1L	104	92	95						0
03	SBLK0623BW1L	103	88	88						0
04	31MW002(0618	76	75	81						0
05	31MWDUP001(0	82	74	71						0
06	EB001(061808	89	80	80						0
07										
08										
09										
10										
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30										

	EL QC LIMITS	SPIKE CONC (UG/L)
S1 (NBZ) = Nitrobenzene-d5	(30-110)	1.0
S2 (FBP) = 2-Fluorobiphenyl	(35-110)	1.0
S3 (TPH) = Terphenyl-d14	(55-125)	1.0

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate results reported from a diluted analysis

FORM 3
WATER SEMIVOLATILE LAB CONTROL SAMPLE

Lab Name: EMPIRICAL LABS Contract: ARCADIS

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: ARC.B06207

Matrix Spike - Client Sample No.: SBLK0623BW1

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Acenaphthene	1.000	0.0000	0.9953	100	35-120
Acenaphthylene	1.000	0.0000	0.9181	92	40-115
Anthracene	1.000	0.0000	0.9796	98	45-120
Benzo(a)anthracene	1.000	0.0000	0.9661	97	45-120
Benzo(b)fluoranthene	1.000	0.0000	0.8464	85	35-130
Benzo(k)fluoranthene	1.000	0.0000	0.9320	93	30-135
Benzo(g,h,i)perylene	1.000	0.0000	0.7923	79	25-135
Benzo(a)pyrene	1.000	0.0000	0.7921	79	45-120
Chrysene	1.000	0.0000	0.9174	92	45-120
Dibenz(a,h)anthracene	1.000	0.0000	0.7890	79	30-140
Fluoranthene	1.000	0.0000	1.091	109	45-125
Fluorene	1.000	0.0000	1.034	103	40-120
Indeno(1,2,3-cd)pyrene	1.000	0.0000	0.7708	77	30-140
2-Methylnaphthalene	1.000	0.0000	1.040	104	35-115
1-Methylnaphthalene	1.000	0.0000	0.9326	93	35-115
Naphthalene	1.000	0.0000	0.9298	93	30-115
Phenanthrene	1.000	0.0000	0.9819	98	40-130
Pyrene	1.000	0.0000	1.047	105	35-140

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

COMMENTS: _____

FORM 3
WATER SEMIVOLATILE LAB CONTROL SAMPLE

Lab Name: EMPIRICAL LABS Contract: ARCADIS

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: ARC.B06207

Matrix Spike - Client Sample No.: SBLK0623BW1

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Acenaphthene	1.000	0.9279	93	7	40	35-120
Acenaphthylene	1.000	0.8488	85	8	40	40-115
Anthracene	1.000	0.9048	90	8	40	45-120
Benzo(a)anthracene	1.000	0.9212	92	5	40	45-120
Benzo(b)fluoranthene	1.000	0.8022	80	5	40	35-130
Benzo(k)fluoranthene	1.000	0.8765	88	6	40	30-135
Benzo(g,h,i)perylene	1.000	0.7486	75	6	40	25-135
Benzo(a)pyrene	1.000	0.7447	74	6	40	45-120
Chrysene	1.000	0.9024	90	2	40	45-120
Dibenz(a,h)anthracene	1.000	0.7289	73	8	40	30-140
Fluoranthene	1.000	1.048	105	4	40	45-125
Fluorene	1.000	0.9782	98	6	40	40-120
Indeno(1,2,3-cd)pyrene	1.000	0.7566	76	2	40	30-140
2-Methylnaphthalene	1.000	0.9970	100	4	40	35-115
1-Methylnaphthalene	1.000	0.9264	93	1	40	35-115
Naphthalene	1.000	0.9148	91	2	40	30-115
Phenanthrene	1.000	0.9406	94	4	40	40-130
Pyrene	1.000	0.9752	98	7	40	35-140

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 18 outside limits
Spike Recovery: 0 out of 36 outside limits

COMMENTS: _____

FORM 4
SEMIVOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

SBLK0623BW1

Lab Name: EMPIRICAL LABS Contract: ARCADIS

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: ARC.B06207

Lab File ID: S1BW0623 Lab Sample ID: SBLK0623BW1

Instrument ID: BNA3 Date Extracted: 06/23/08

Matrix: (soil/water) WATER Date Analyzed: 06/25/08

Level:(low/med) LOW GPC Cleanup: (Y/N) N Time Analyzed: 1114

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	SBLK0623BW1L	SBLK0623BW1LCS	S1LW0623	06/25/08
02	SBLK0623BW1L	SBLK0623BW1LCS	S1DW0623	06/25/08
03	31MW002(0618	0806207-01	0620701	06/26/08
04	31MWDUP001(0	0806207-02	0620702	06/26/08
05	EB001(061808	0806207-03	0620703	06/26/08
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COMMENTS:

FORM 5
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: EMPIRICAL LABS Contract:

Lab Code: Case No.: SAS No.: NA SDG No.: SDGA92299

Lab File ID: DF0114B2 DFTPP Injection Date: 01/14/08

Instrument ID: BNA3 DFTPP Injection Time: 1734

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	42.1
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	47.3
70	Less than 2.0% of mass 69	0.2 (0.5)1
127	40.0 - 60.0% of mass 198	55.2
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	7.2
275	10.0 - 30.0% of mass 198	26.6
365	Greater than 1.0% of mass 198	3.08
441	Present, but less than mass 443	9.6
442	Greater than 40.0% of mass 198	55.7
443	17.0 - 23.0% of mass 442	11.2 (20.1)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	LPAHCAL30PPM	LPAHCAL30PPM	LPAHCAL8	01/14/08	1754
02	LPAHCAL20PPM	LPAHCAL20PPM	LPAHCAL7	01/14/08	1834
03	LPAHCAL10PPM	LPAHCAL10PPM	LPAHCAL6	01/14/08	1914
04	LPAHCAL5PPM	LPAHCAL5PPM	LPAHCAL5	01/14/08	1953
05	LPAHCAL1PPM	LPAHCAL1PPM	LPAHCAL4	01/14/08	2033
06	LPAHCAL0.4PP	LPAHCAL0.4PPM	LPAHCAL3	01/14/08	2113
07	LPAHCAL0.2PP	LPAHCAL0.2PPM	LPAHCAL2	01/14/08	2152
08	LPAHCAL0.1PP	LPAHCAL0.1PPM	LPAHCAL1	01/14/08	2232
09	LPAHICV5PPM	LPAHICV5PPM	LPAHICV	01/14/08	2311
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FORM 5
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: EMPIRICAL LABS Contract: ARCADIS

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: ARC.B06207

Lab File ID: DF0625B1 DFTPP Injection Date: 06/25/08

Instrument ID: BNA3 DFTPP Injection Time: 0900

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	46.7
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	52.3
70	Less than 2.0% of mass 69	0.3 (0.5)1
127	40.0 - 60.0% of mass 198	56.9
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.9
275	10.0 - 30.0% of mass 198	24.5
365	Greater than 1.0% of mass 198	2.80
441	Present, but less than mass 443	8.2
442	Greater than 40.0% of mass 198	51.1
443	17.0 - 23.0% of mass 442	10.4 (20.4)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	LOWPAH5PPM	LOWPAH5PPM	LPAHCCV	06/25/08	0919
02	SBLK0623BW1	SBLK0623BW1	S1BW0623	06/25/08	1114
03	SBLK0623BW1L	SBLK0623BW1LCS	S1LW0623	06/25/08	1153
04	SBLK0623BW1L	SBLK0623BW1LCS	S1DW0623	06/25/08	1231
05					
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FORM 5
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: EMPIRICAL LABS Contract: ARCADIS

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: ARC.B06207

Lab File ID: DF0626B1 DFTPP Injection Date: 06/26/08

Instrument ID: BNA3 DFTPP Injection Time: 0932

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	52.2
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	54.6
70	Less than 2.0% of mass 69	0.3 (0.5)1
127	40.0 - 60.0% of mass 198	57.4
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.7
275	10.0 - 30.0% of mass 198	26.0
365	Greater than 1.0% of mass 198	2.98
441	Present, but less than mass 443	7.9
442	Greater than 40.0% of mass 198	49.8
443	17.0 - 23.0% of mass 442	9.7 (19.4)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	LOWPAH5PPM	LOWPAH5PPM	LPAHCCV	06/26/08	0951
02	31MW002(0618	0806207-01	0620701	06/26/08	1108
03	31MWDUP001(0	0806207-02	0620702	06/26/08	1147
04	EB001(061808	0806207-03	0620703	06/26/08	1225
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FORM 8
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: EMPIRICAL LABS Contract: ARCADIS

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: ARC.B06207

Lab File ID (Standard): LPAHCCV Date Analyzed: 06/25/08

Instrument ID: BNA3 Time Analyzed: 0919

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	41299	3.38	155161	6.33	79018	10.46
	UPPER LIMIT	82598	3.88	310322	6.83	158036	10.96
	LOWER LIMIT	20650	2.88	77581	5.83	39509	9.96
	CLIENT SAMPLE NO.						
01	SBLK0623BW1	33195	3.37	128167	6.33	64530	10.46
02	SBLK0623BW1L	39318	3.37	144504	6.33	72112	10.46
03	SBLK0623BW1L	37853	3.38	135950	6.34	70476	10.45
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IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

FORM 8
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: EMPIRICAL LABS Contract: ARCADIS

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: ARC.B06207

Lab File ID (Standard): LPAHCCV Date Analyzed: 06/25/08

Instrument ID: BNA3 Time Analyzed: 0919

		IS4 (PHN) AREA	#	RT	#	IS5 (CRY) AREA	#	RT	#	IS6 (PRY) AREA	#	RT	#
	12 HOUR STD	127833		13.82		124574		19.98		99762		23.04	
	UPPER LIMIT	255666		14.32		249148		20.48		199524		23.54	
	LOWER LIMIT	63917		13.32		62287		19.48		49881		22.54	
	CLIENT SAMPLE NO.												
01	SBLK0623BW1	104632		13.82		100450		19.98		75435		23.05	
02	SBLK0623BW1L	118682		13.82		116066		19.98		89156		23.04	
03	SBLK0623BW1L	112594		13.82		111137		19.98		85965		23.05	
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IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

FORM 8
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: EMPIRICAL LABS Contract: ARCADIS

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: ARC.B06207

Lab File ID (Standard): LPAHCCV Date Analyzed: 06/26/08

Instrument ID: BNA3 Time Analyzed: 0951

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	35632	3.36	137087	6.31	68600	10.43
	UPPER LIMIT	71264	3.86	274174	6.81	137200	10.93
	LOWER LIMIT	17816	2.86	68544	5.81	34300	9.93
	CLIENT SAMPLE NO.						
01	31MW002(0618	33560	3.35	123062	6.32	60646	10.43
02	31MWDUP001(0	33959	3.34	128090	6.31	62908	10.44
03	EB001(061808	33432	3.34	121417	6.31	61044	10.44
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IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

FORM 8
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: EMPIRICAL LABS Contract: ARCADIS

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: ARC.B06207

Lab File ID (Standard): LPAHCCV Date Analyzed: 06/26/08

Instrument ID: BNA3 Time Analyzed: 0951

		IS4(PHN) AREA	#	RT	#	IS5(CRY) AREA	#	RT	#	IS6(PRY) AREA	#	RT	#
	12 HOUR STD	105384		13.80		102897		19.95		74514		23.03	
	UPPER LIMIT	210768		14.30		205794		20.45		149028		23.53	
	LOWER LIMIT	52692		13.30		51449		19.45		37257		22.53	
	CLIENT SAMPLE NO.												
01	31MW002(0618	101187		13.80		104176		19.96		85002		23.03	
02	31MWDUP001(0	100271		13.80		95803		19.96		70041		23.03	
03	EB001(061808	95886		13.80		89592		19.96		69408		23.03	
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22													

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

31MW002(061808)

Lab Name: EMPIRICAL LABS Contract: ARCADIS

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: ARC.B06207

Matrix: (soil/water) WATER Lab Sample ID: 0806207-01

Sample wt/vol: 1080 (g/mL) ML Lab File ID: 0620701

% Moisture: _____ decanted: (Y/N)___ Date Sampled: 06/18/08 16:25

Extraction: (SepF/Cont/Sonc/Soxh) SEPF Date Extracted:06/23/08

Concentrated Extract Volume: 500.0(uL) Date Analyzed: 06/26/08 11:08

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: NA

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	MDL	RL	CONC	Q
83-32-9	Acenaphthene	0.015	0.046		U
208-96-8	Acenaphthylene	0.015	0.046		U
120-12-7	Anthracene	0.015	0.046		U
56-55-3	Benzo(a)anthracene	0.015	0.046		U
205-99-2	Benzo(b)fluoranthene	0.015	0.046		U
207-08-9	Benzo(k)fluoranthene	0.015	0.046		U
191-24-2	Benzo(g,h,i)perylene	0.015	0.046		U
50-32-8	Benzo(a)pyrene	0.015	0.046		U
218-01-9	Chrysene	0.015	0.046		U
53-70-3	Dibenz(a,h)anthracene	0.015	0.046		U
206-44-0	Fluoranthene	0.015	0.046		U
86-73-7	Fluorene	0.015	0.046		U
193-39-5	Indeno(1,2,3-cd)pyrene	0.017	0.046		U
91-57-6	2-Methylnaphthalene	0.018	0.046		U
90-12-0	1-Methylnaphthalene	0.017	0.046		U
91-20-3	Naphthalene	0.018	0.046		U
85-01-8	Phenanthrene	0.015	0.046		U
129-00-0	Pyrene	0.015	0.046		U

7/9/08

Data File: \\ELABNSH05\TARGET\chem\bna3.i\062608b3.b\0620701.D
Report Date: 26-Jun-2008 12:12

Empirical Laboratories, LLC

Data file : \\ELABNSH05\TARGET\chem\bna3.i\062608b3.b\0620701.D
Lab Smp Id: 0806207-01 Client Smp ID: 31MW002(061808)
Inj Date : 26-JUN-2008 11:08 MS Autotune Date: 01-NOV-2007 04:29
Operator : ADM Inst ID: bna3.i
Smp Info : 0806207-01;1;1080;500;1;UG/L;23-JUN-2008
Misc Info : arc.b06207;0;;;;062308BW1;pahsurr.sub;4432
Comment :
Method : \\ELABNSH05\TARGET\chem\bna3.i\062608b3.b\PAHLOW1.m
Meth Date : 26-Jun-2008 12:11 tmonteiro Quant Type: ISTD
Cal Date : 14-JAN-2008 22:32 Cal File: LPAHCAL1.D
Als bottle: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pahsurr.sub
Target Version: 4.04
Processing Host: TARGET02_VM

Concentration Formula: Amt * DF * Uf * Vt*Vi/(Amt * Vi)

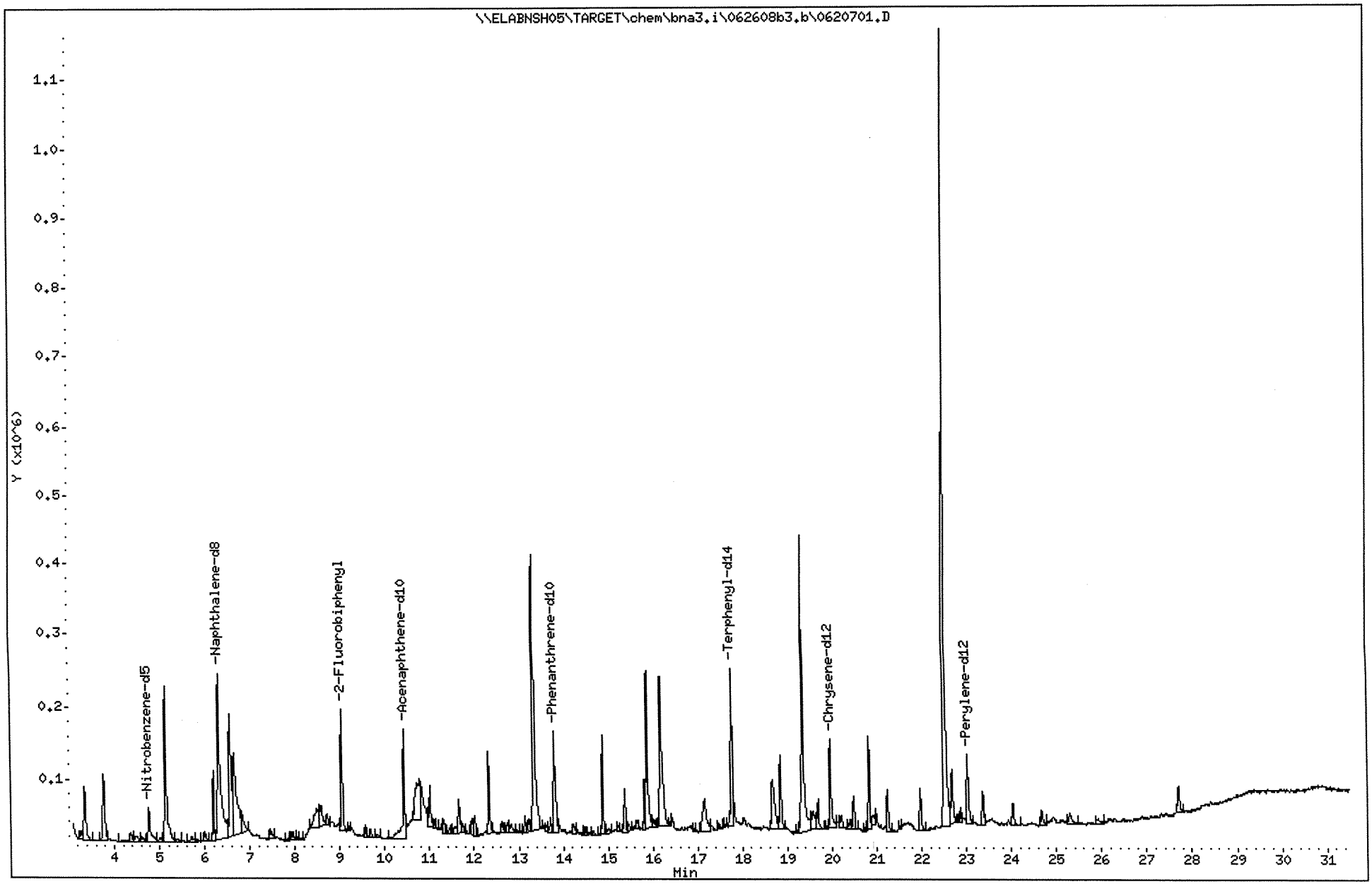
Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	500.000	Volume of final extract (uL)
Vi	2.000	Volume injected (uL)
Amt	1080.000	Volume of initial extraction

m 6/26/08

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ng/ul)	CONCENTRATIONS FINAL (UG/L)
* 1 1,4-Dichlorobenzene-d4	152	3.345	3.355	(1.000)	33560	1.00000	
* 3 Naphthalene-d8	136	6.316	6.307	(1.000)	123062	1.00000	
$ 4 Nitrobenzene-d5	82	4.766	4.748	(0.755)	45360	1.52912	0.7079
* 8 Acenaphthene-d10	164	10.428	10.429	(1.000)	60646	1.00000	
$ 11 2-Fluorobiphenyl	172	9.045	9.055	(0.867)	112900	1.49856	0.6938
* 17 Phenanthrene-d10	188	13.798	13.799	(1.000)	101187	1.00000	
* 21 Chrysene-d12	240	19.963	19.954	(1.000)	104176	1.00000	
$ 23 Terphenyl-d14	244	17.762	17.763	(0.890)	143455	1.62964	0.7545
* 26 Perylene-d12	264	23.026	23.027	(1.000)	85002	1.00000	

6-27-08

Data File: \\ELABNSH05\TARGET\chem\bna3.i\062608b3.b\0620701.D
Date : 26-JUN-2008 11:08
Client ID: 31MW002(061808)
Instrument: bna3.i
Sample Info: 0806207-01;1;1080;500;1;UG/L;23-JUN-2008
Volume Injected (uL): 2.0
Operator: ADM
Column phase: fused silica
Column diameter: 0.25



FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.
31MWDUP00
1(061808)

Lab Name: EMPIRICAL LABS Contract: ARCADIS

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: ARC.B06207

Matrix: (soil/water) WATER Lab Sample ID: 0806207-02

Sample wt/vol: 1080 (g/mL) ML Lab File ID: 0620702

% Moisture: _____ decanted: (Y/N)___ Date Sampled: 06/18/08 16:25

Extraction: (SepF/Cont/Sonc/Soxh) SEPF Date Extracted:06/23/08

Concentrated Extract Volume: 500.0(uL) Date Analyzed: 06/26/08 11:47

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: NA

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	MDL	RL	CONC	Q
83-32-9	Acenaphthene	0.015	0.046		U
208-96-8	Acenaphthylene	0.015	0.046		U
120-12-7	Anthracene	0.015	0.046		U
56-55-3	Benzo(a)anthracene	0.015	0.046		U
205-99-2	Benzo(b)fluoranthene	0.015	0.046		U
207-08-9	Benzo(k)fluoranthene	0.015	0.046		U
191-24-2	Benzo(g,h,i)perylene	0.015	0.046		U
50-32-8	Benzo(a)pyrene	0.015	0.046		U
218-01-9	Chrysene	0.015	0.046		U
53-70-3	Dibenz(a,h)anthracene	0.015	0.046		U
206-44-0	Fluoranthene	0.015	0.046		U
86-73-7	Fluorene	0.015	0.046		U
193-39-5	Indeno(1,2,3-cd)pyrene	0.017	0.046		U
91-57-6	2-Methylnaphthalene	0.018	0.046		U
90-12-0	1-Methylnaphthalene	0.017	0.046		U
91-20-3	Naphthalene	0.018	0.046		U
85-01-8	Phenanthrene	0.015	0.046		U
129-00-0	Pyrene	0.015	0.046		U

7/9/08

Data File: \\ELABNSH05\TARGET\chem\bna3.i\062608b3.b\0620702.D
Report Date: 26-Jun-2008 12:51

Empirical Laboratories, LLC

Data file : \\ELABNSH05\TARGET\chem\bna3.i\062608b3.b\0620702.D
Lab Smp Id: 0806207-02 Client Smp ID: 31MWDUP001(061808)
Inj Date : 26-JUN-2008 11:47 MS Autotune Date: 01-NOV-2007 04:29
Operator : ADM Inst ID: bna3.i
Smp Info : 0806207-02;1;1080;500;1;UG/L;23-JUN-2008
Misc Info : arc.b06207;0;;;;062308BW1;pahsurr.sub;4432
Comment :
Method : \\ELABNSH05\TARGET\chem\bna3.i\062608b3.b\PAHLOW1.m
Meth Date : 26-Jun-2008 12:11 tmonteiro Quant Type: ISTD
Cal Date : 14-JAN-2008 22:32 Cal File: LPAHCAL1.D
Als bottle: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pahsurr.sub
Target Version: 4.04
Processing Host: TARGET02_VM

Concentration Formula: Amt * DF * Uf * Vt*Vi/(Amt * Vi)

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	500.000	Volume of final extract (uL)
Vi	2.000	Volume injected (uL)
Amt	1080.000	Volume of initial extraction

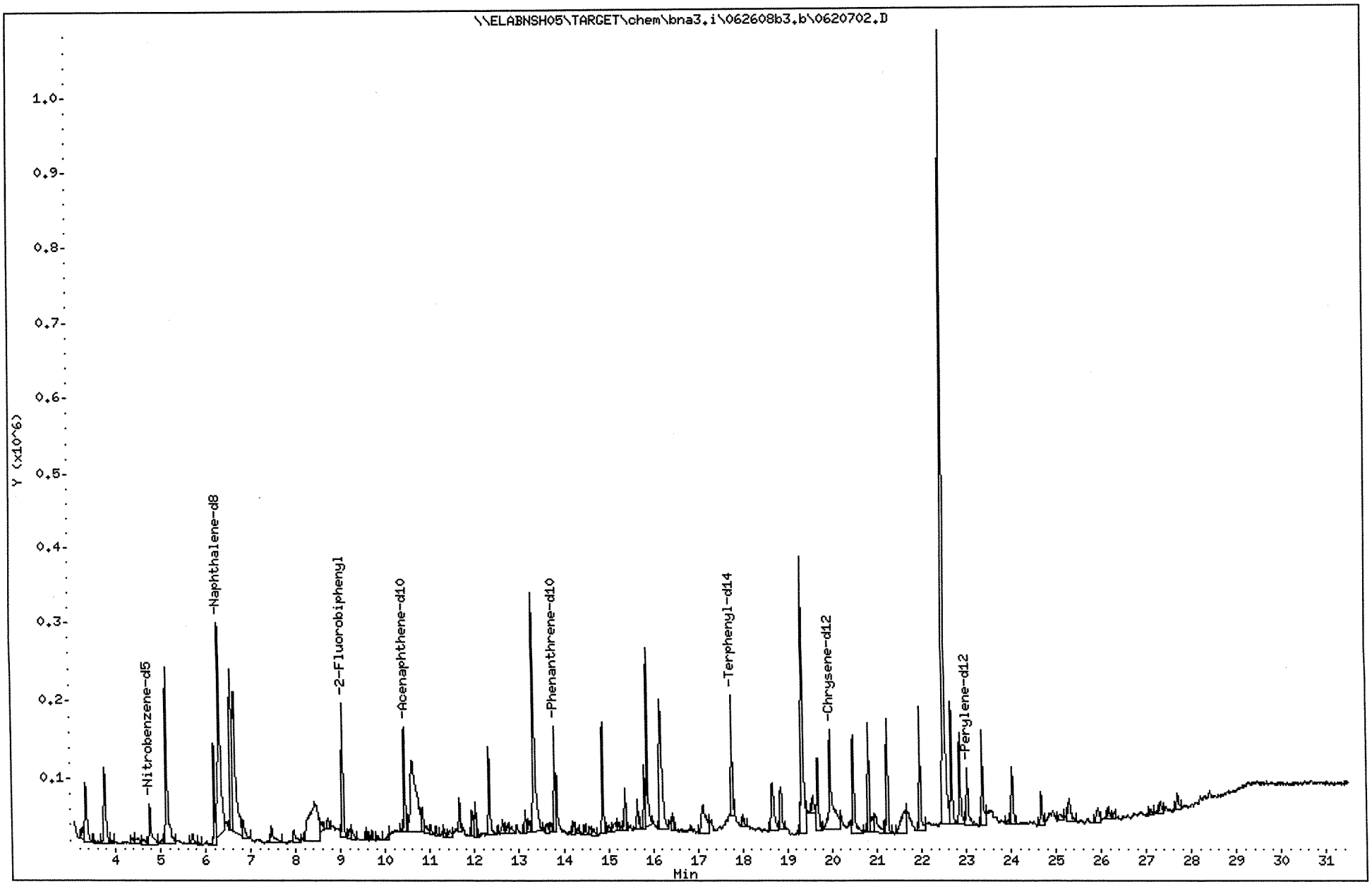
M 6/26/08

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ng/ul)	CONCENTRATIONS FINAL (ug/L)
*	1 1,4-Dichlorobenzene-d4	152	3.343	3.355	(1.000)	33959	1.00000	
*	3 Naphthalene-d8	136	6.313	6.307	(1.000)	128090	1.00000	
$	4 Nitrobenzene-d5	82	4.763	4.748	(0.754)	51390	1.64630	0.7622
*	8 Acenaphthene-d10	164	10.435	10.429	(1.000)	62908	1.00000	
$	11 2-Fluorobiphenyl	172	9.052	9.055	(0.867)	115479	1.47769	0.6841
*	17 Phenanthrene-d10	188	13.796	13.799	(1.000)	100271	1.00000	
*	21 Chrysene-d12	240	19.960	19.954	(1.000)	95803	1.00000	
$	23 Terphenyl-d14	244	17.769	17.763	(0.890)	115133	1.42221	0.6584
*	26 Perylene-d12	264	23.033	23.027	(1.000)	70041	1.00000	

6-27-08

Data File: \\ELABNSH05\TARGET\chem\bna3.i\062608b3.b\0620702.D
Date : 26-JUN-2008 11:47
Client ID: 31MWDUP001(061808)
Sample Info: 0806207-02;1;1080;500;1;UG/L;23-JUN-2008
Volume Injected (uL): 2.0
Column phase: fused silica

Instrument: bna3.i
Operator: ADM
Column diameter: 0.25



FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EB001(061808)

Lab Name: EMPIRICAL LABS Contract: ARCADIS

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: ARC.B06207

Matrix: (soil/water) WATER Lab Sample ID: 0806207-03

Sample wt/vol: 1080 (g/mL) ML Lab File ID: 0620703

% Moisture: _____ decanted: (Y/N)___ Date Sampled: 06/18/08 17:00

Extraction: (SepF/Cont/Sonc/Soxh) SEPF Date Extracted:06/23/08

Concentrated Extract Volume: 500.0(uL) Date Analyzed: 06/26/08 12:25

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: NA

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	MDL	RL	CONC	Q
83-32-9	Acenaphthene	0.015	0.046		U
208-96-8	Acenaphthylene	0.015	0.046		U
120-12-7	Anthracene	0.015	0.046		U
56-55-3	Benzo(a)anthracene	0.015	0.046		U
205-99-2	Benzo(b)fluoranthene	0.015	0.046		U
207-08-9	Benzo(k)fluoranthene	0.015	0.046		U
191-24-2	Benzo(g,h,i)perylene	0.015	0.046		U
50-32-8	Benzo(a)pyrene	0.015	0.046		U
218-01-9	Chrysene	0.015	0.046		U
53-70-3	Dibenz(a,h)anthracene	0.015	0.046		U
206-44-0	Fluoranthene	0.015	0.046		U
86-73-7	Fluorene	0.015	0.046		U
193-39-5	Indeno(1,2,3-cd)pyrene	0.017	0.046		U Y
91-57-6	2-Methylnaphthalene	0.018	0.046	0.094	
90-12-0	1-Methylnaphthalene	0.017	0.046		U
91-20-3	Naphthalene	0.018	0.046		U
85-01-8	Phenanthrene	0.015	0.046		U
129-00-0	Pyrene	0.015	0.046		U

7/9/08

FORM I SV

Data File: \\ELABNSH05\TARGET\chem\bna3.i\062608b3.b\0620703.D
Report Date: 26-Jun-2008 13:20

Empirical Laboratories, LLC

Data file : \\ELABNSH05\TARGET\chem\bna3.i\062608b3.b\0620703.D
Lab Smp Id: 0806207-03 Client Smp ID: EB001(061808)
Inj Date : 26-JUN-2008 12:25 MS Autotune Date: 01-NOV-2007 04:29
Operator : ADM Inst ID: bna3.i
Smp Info : 0806207-03;1;1080;500;1;UG/L;23-JUN-2008
Misc Info : arc.b06207;0;;;;062308BW1;pahsurr.sub;4432
Comment :
Method : \\ELABNSH05\TARGET\chem\bna3.i\062608b3.b\PAHLOW1.m
Meth Date : 26-Jun-2008 12:11 tmonteiro Quant Type: ISTD
Cal Date : 14-JAN-2008 22:32 Cal File: LPAHCAL1.D
Als bottle: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pahsurr.sub
Target Version: 4.04
Processing Host: TARGET02_VM

Concentration Formula: Amt * DF * Uf * Vt*Vi/(Amt * Vi)

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	500.000	Volume of final extract (uL)
Vi	2.000	Volume injected (uL)
Amt	1080.000	Volume of initial extraction

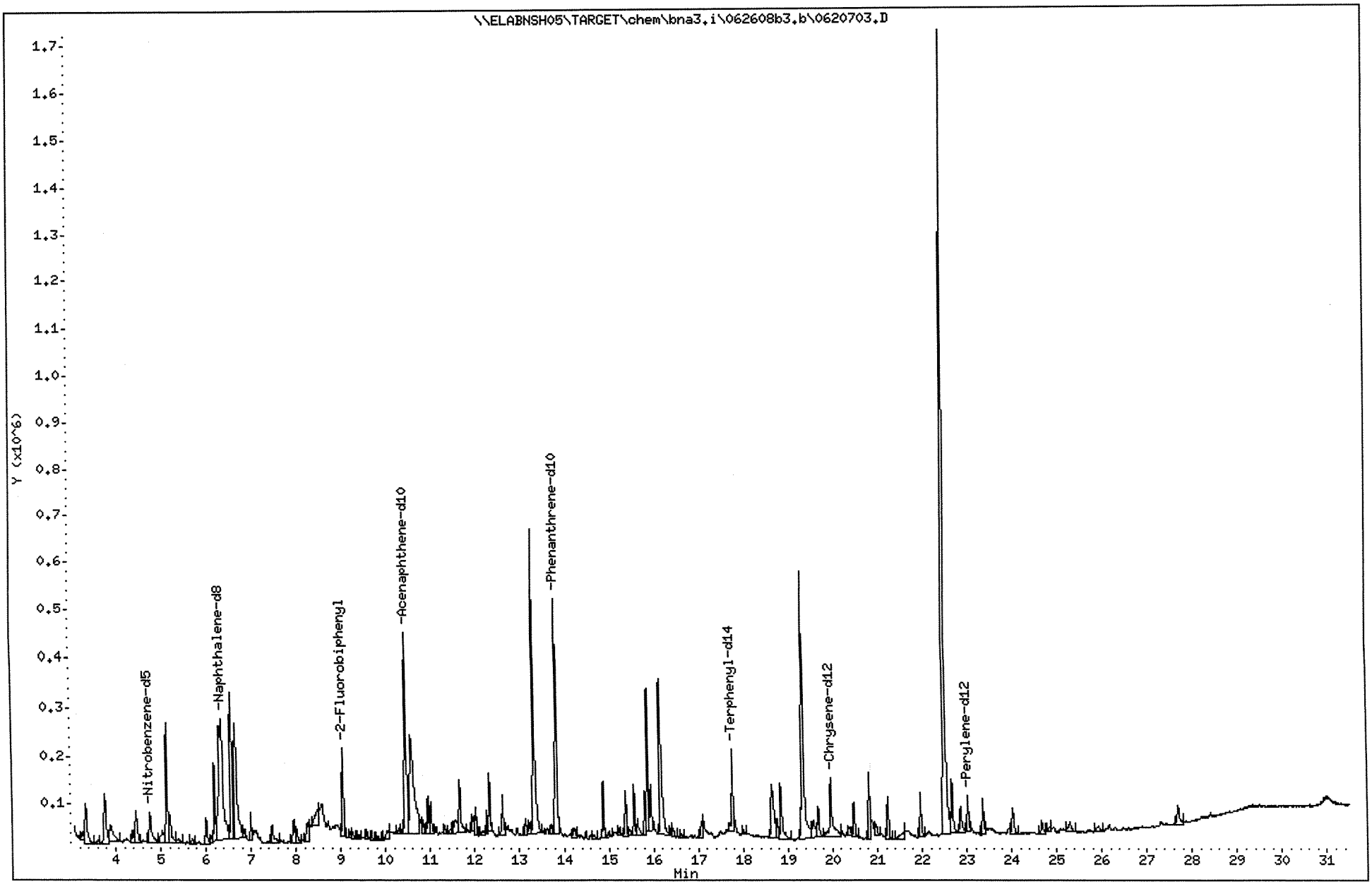
M 6/26/08

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ng/ul)	CONCENTRATIONS FINAL (UG/L)
*	1 1,4-Dichlorobenzene-d4	152	3.343	3.355	(1.000)	33432	1.00000	
*	3 Naphthalene-d8	136	6.314	6.307	(1.000)	121417	1.00000	
$	4 Nitrobenzene-d5	82	4.754	4.748	(0.753)	53179	1.77849	0.8234
	6 2-Methylnaphthalene	141	8.022	8.015	(1.271)	10808	0.20218	0.09360
*	8 Acenaphthene-d10	164	10.436	10.429	(1.000)	61044	1.00000	
$	11 2-Fluorobiphenyl	172	9.053	9.055	(0.867)	120814	1.59316	0.7376
*	17 Phenanthrene-d10	188	13.796	13.799	(1.000)	95886	1.00000	
*	21 Chrysene-d12	240	19.961	19.954	(1.000)	89592	1.00000	
$	23 Terphenyl-d14	244	17.770	17.763	(0.890)	121206	1.60103	0.7412
*	26 Perylene-d12	264	23.034	23.027	(1.000)	69408	1.00000	

RW 6-27-08

Data File: \\ELABNSH05\TARGET\chem\bna3.i\062608b3.b\0620703.D
Date : 26-JUN-2008 12:25
Client ID: EB001(061808)
Sample Info: 0806207-03;1;1080;500;1;UG/L;23-JUN-2008
Volume Injected (uL): 2.0
Column phase: fused silica

Instrument: bna3.i
Operator: ADM
Column diameter: 0.25



Data File: \\ELABNSH05\TARGET\chem\bna3.i\062608b3.b\0620703.D

Date : 26-JUN-2008 12:25

Client ID: EB001(061808)

Instrument: bna3.i

Sample Info: 0806207-03;1;1080;500;1;UG/L;23-JUN-2008

Volume Injected (uL): 2.0

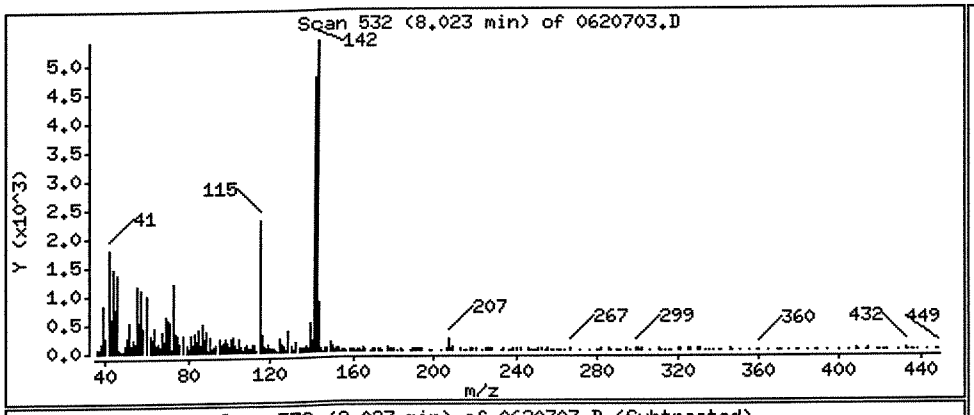
Operator: ADM

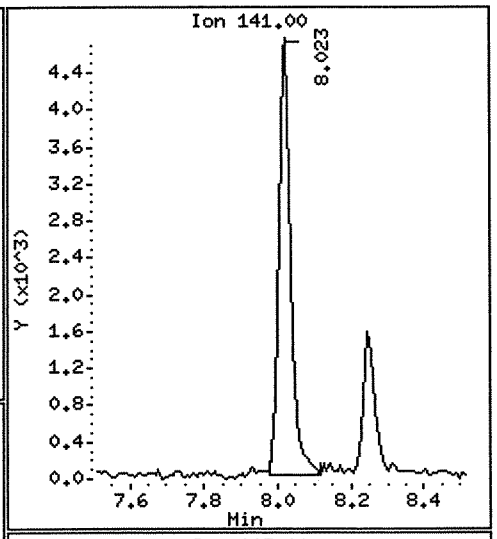
Column phase: fused silica

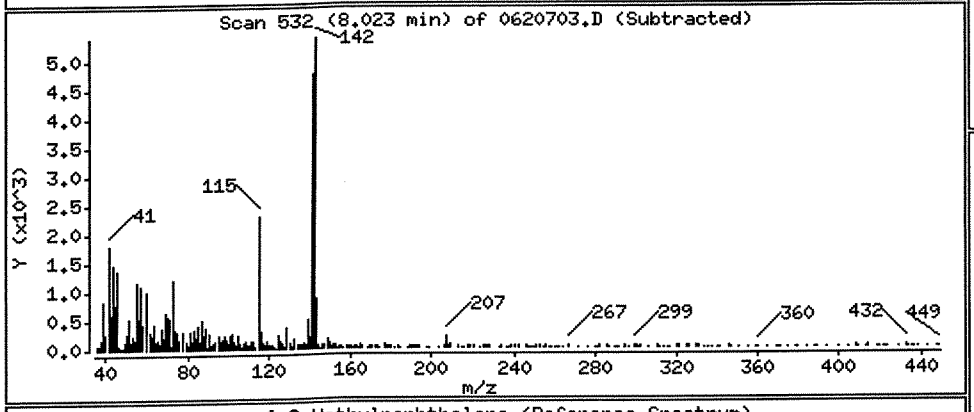
Column diameter: 0.25

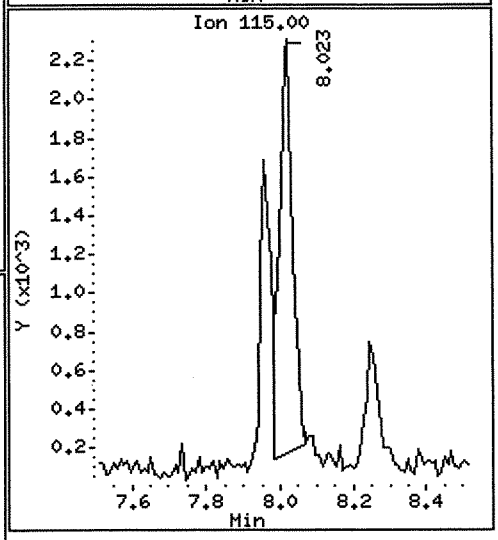
6 2-Methylnaphthalene

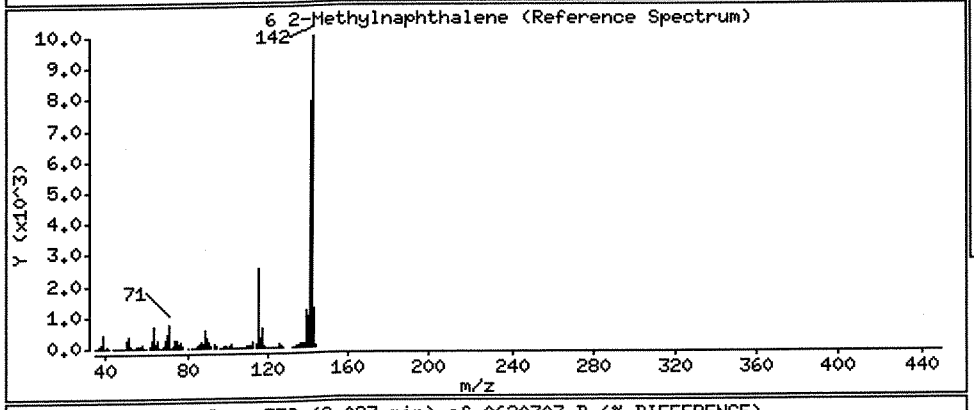
Concentration: 0.09360 UG/L

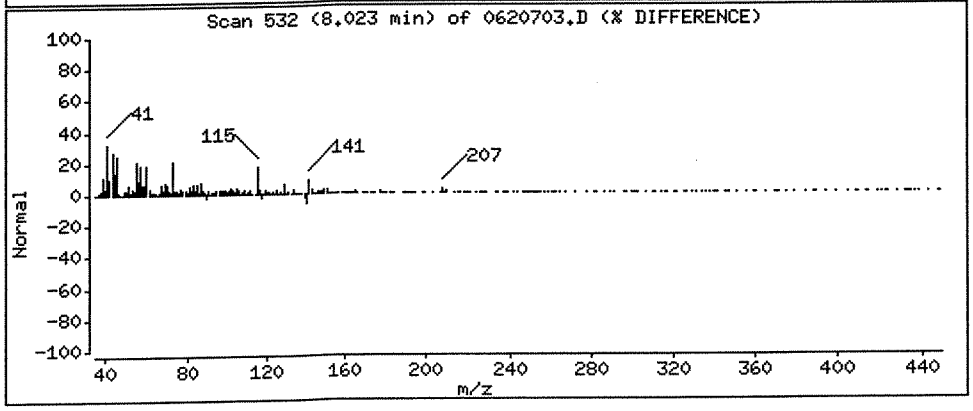












FORM 6
SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: EMPIRICAL LABS Contract:

Lab Code: Case No.: SAS No.: NA SDG No.: SDGA70651

Instrument ID: BNA3 Calibration Date(s): 01/14/08 01/14/08

Column: FUSED SILICA ID: 0.25 (mm) Calibration Time(s): 1754 2232

LAB FILE ID: RF0.1: LPAHCAL1 RF0.2: LPAHCAL2 RF0.4: LPAHCAL3
RF1: LPAHCAL4 RF5: LPAHCAL5

COMPOUND	RF0.1	RF0.2	RF0.4	RF1	RF5
Acenaphthene	1.038	1.001	0.977	1.052	1.058
Acenaphthylene	0.936	1.010	1.049	1.338	1.582
Anthracene	0.581	0.641	0.684	0.938	1.051
Benzo(a)anthracene	0.455	0.466	0.525	0.704	0.915
Benzo(b)fluoranthene	0.706	0.790	0.792	0.965	1.151
Benzo(k)fluoranthene	1.043	0.912	1.043	1.395	1.532
Benzo(g,h,i)perylene	0.616	0.629	0.685	0.862	1.047
Benzo(a)pyrene	0.568	0.490	0.509	0.764	1.099
Chrysene	1.082	1.122	1.078	1.177	1.080
Dibenz(a,h)anthracene	0.376	0.377	0.446	0.601	0.886
Fluoranthene	0.563	0.642	0.700	0.903	1.073
Fluorene	0.708	0.756	0.846	1.003	1.137
Indeno(1,2,3-cd)pyrene	0.338	0.318	0.513	0.450	0.755
2-Methylnaphthalene	0.380	0.371	0.400	0.447	0.493
1-Methylnaphthalene	0.469	0.445	0.451	0.498	0.509
Naphthalene	0.918	0.853	0.860	0.888	0.874
Phenanthrene	1.108	1.066	1.049	1.132	1.122
Pyrene	1.117	1.015	1.073	1.215	1.223
Nitrobenzene-d5	0.140	0.153	0.170	0.208	0.262
2-Fluorobiphenyl	1.245	1.225	1.203	1.308	1.277
Terphenyl-d14	0.832	0.730	0.766	0.862	0.866

FORM 6
SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: EMPIRICAL LABS Contract:

Lab Code: Case No.: SAS No.: NA SDG No.: SDGA70651

Instrument ID: BNA3 Calibration Date(s): 01/14/08 01/14/08

Column: FUSED SILICA ID: 0.25 (mm) Calibration Time(s): 1754 2232

LAB FILE ID: RF10: LPAHCAL6 RF20: LPAHCAL7 RF30: LPAHCAL8

COMPOUND	RF10	RF20	RF30
Acenaphthene	1.067	1.049	0.993
Acenaphthylene	1.618	1.659	1.557
Anthracene	1.070	1.051	1.008
Benzo(a)anthracene	0.977	1.049	1.051
Benzo(b)fluoranthene	1.287	1.379	1.325
Benzo(k)fluoranthene	1.530	1.408	1.409
Benzo(g,h,i)perylene	1.020	0.903	0.964
Benzo(a)pyrene	1.171	1.201	1.197
Chrysene	1.068	1.062	1.041
Dibenz(a,h)anthracene	0.888	0.888	0.904
Fluoranthene	1.093	1.076	1.037
Fluorene	1.138	1.161	1.102
Indeno(1,2,3-cd)pyrene	0.797	0.816	0.890
2-Methylnaphthalene	0.484	0.478	0.468
1-Methylnaphthalene	0.500	0.489	0.480
Naphthalene	0.858	0.838	0.807
Phenanthrene	1.122	1.059	1.028
Pyrene	1.315	1.238	1.226
Nitrobenzene-d5	0.263	0.277	0.277
2-Fluorobiphenyl	1.261	1.254	1.166
Terphenyl-d14	0.913	0.894	0.898

FORM 6
SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: EMPIRICAL LABS Contract:

Lab Code: Case No.: SAS No.: NA SDG No.: SDGA70651

Instrument ID: BNA3 Calibration Date(s): 01/14/08 01/14/08

Column: FUSED SILICA ID: 0.25 (mm) Calibration Time(s): 1754 2232

COMPOUND	CURVE	COEFFICENTS A0	COEFFICENTS A1	%RSD OR R^2
Acenaphthene	AVRG		1.02950848	3.3
Acenaphthylene	LINR	0.00000000	1.59123098	0.998
Anthracene	LINR	0.00000000	1.02541699	0.999
Benzo(a)anthracene	LINR	0.00000000	1.04339882	0.999
Benzo(b)fluoranthene	LINR	0.00000000	1.33538156	0.999
Benzo(k)fluoranthene	LINR	0.00000000	1.42019837	0.999
Benzo(g,h,i)perylene	LINR	0.00000000	0.95332202	0.998
Benzo(a)pyrene	LINR	0.00000000	1.19454344	1.000
Chrysene	AVRG		1.08898009	3.9
Dibenz(a,h)anthracene	LINR	0.00000000	0.89793055	1.000
Fluoranthene	LINR	0.00000000	1.05271841	0.999
Fluorene	LINR	0.00000000	1.12226395	0.999
Indeno(1,2,3-cd)pyrene	LINR	0.00000000	0.86214757	0.996
2-Methylnaphthalene	AVRG		0.44026924	11.2
1-Methylnaphthalene	AVRG		0.48037708	4.9
Naphthalene	AVRG		0.86201971	3.8
Phenanthrene	AVRG		1.08579490	3.6
Pyrene	AVRG		1.17792752	8.4
Nitrobenzene-d5	LINR	0.20450048	0.27826515	1.000
2-Fluorobiphenyl	AVRG		1.24226628	3.5
Terphenyl-d14	AVRG		0.84499758	7.8

Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL8.D
Report Date: 15-Jan-2008 06:39

Empirical Laboratories, LLC

Data file : \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL8.D
Lab Smp Id: LPAHCAL30PPM Client Smp ID: LPAHCAL30PPM
Inj Date : 14-JAN-2008 17:54 MS Autotune Date: 01-NOV-2007 04:29
Operator : ADM Inst ID: bna3.i
Smp Info : LPAHCAL30PPM;;;;;SV4285-8
Misc Info : ;;;;;;pahsurr.sub;4277
Comment :
Method : \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\PAHLOW.m
Meth Date : 15-Jan-2008 06:39 tmonteiro Quant Type: ISTD
Cal Date : 14-JAN-2008 22:32 Cal File: LPAHCAL1.D
Als bottle: 17 Calibration Sample, Level: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pahsurr.sub
Target Version: 4.04
Processing Host: TARGET02_VM

Concentration Formula: Amt * DF * Uf * Vt*Vi/(Amt * Vi)

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	500.000	Volume of final extract (uL)
Vi	2.000	Volume injected (uL)
Amt	1000.000	Volume of initial extraction

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1-15-08

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ng/ul)	ON-COL (ng/ul)
*	1 1,4-Dichlorobenzene-d4	152	5.636	5.636	(1.000)	89756	1.00000	
*	3 Naphthalene-d8	136	8.523	8.523	(1.000)	351399	1.00000	
$	4 Nitrobenzene-d5	82	6.954	6.954	(0.816)	2919252	30.0000	30.06(A)
	5 Naphthalene	128	8.569	8.569	(1.005)	8511242	30.0000	28.10
	6 2-Methylnaphthalene	141	10.231	10.231	(1.200)	4939025	30.0000	31.92(A)
	7 1-Methylnaphthalene	141	10.482	10.482	(1.230)	5063810	30.0000	30.00
*	8 Acenaphthene-d10	164	12.719	12.719	(1.000)	189923	1.00000	
$	11 2-Fluorobiphenyl	172	11.243	11.243	(0.884)	6642116	30.0000	28.15
	12 Acenaphthylene	152	12.348	12.348	(0.971)	8869408	30.0000	29.35
	13 Acenaphthene	153	12.802	12.802	(1.007)	5656909	30.0000	28.93
	16 Fluorene	166	14.019	14.019	(1.102)	6278134	30.0000	29.45
*	17 Phenanthrene-d10	188	16.200	16.200	(1.000)	295282	1.00000	
	18 Phenanthrene	178	16.265	16.265	(1.004)	9108666	30.0000	28.41
	19 Anthracene	178	16.377	16.377	(1.011)	8925357	30.0000	29.48

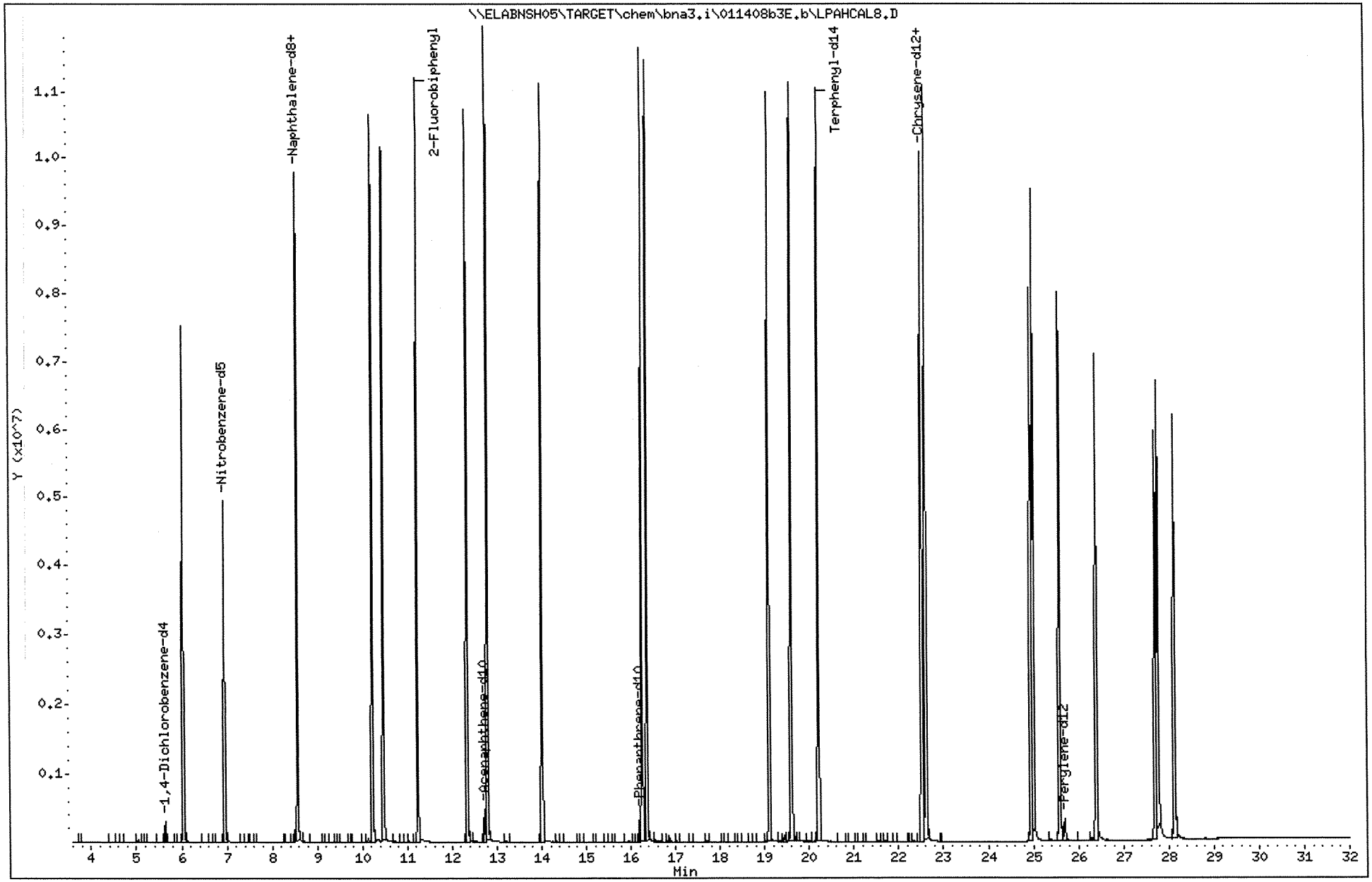
Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL8.D
Report Date: 15-Jan-2008 06:39

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ng/ul)	AMOUNTS ON-COL (ng/ul)
	20 Fluoranthene	202	19.115	19.115	(1.180)	9184791	30.0000	29.55
*	21 Chrysene-d12	240	22.559	22.559	(1.000)	267102	1.00000	
	22 Pyrene	202	19.617	19.617	(0.870)	9822486	30.0000	31.22(A)
$	23 Terphenyl-d14	244	20.220	20.220	(0.896)	7198021	30.0000	31.89(A)
	24 Benzo(a)anthracene	228	22.532	22.532	(0.999)	8423586	30.0000	30.10(A)
	25 Chrysene	228	22.624	22.624	(1.003)	8344123	30.0000	28.69
*	26 Perylene-d12	264	25.697	25.697	(1.000)	188322	1.00000	
	27 Benzo(b)fluoranthene	252	24.964	24.964	(0.971)	7488071	30.0000	29.78
	28 Benzo(k)fluoranthene	252	25.020	25.020	(0.974)	7961065	30.0000	29.77
	29 Benzo(a)pyrene	252	25.595	25.595	(0.996)	6763457	30.0000	30.06(A)
	30 Indeno(1,2,3-cd)pyrene	276	27.712	27.712	(1.078)	5028621	30.0000	30.97(A)
	31 Dibenz(a,h)anthracene	278	27.777	27.777	(1.081)	5106286	30.0000	30.20(A)
	32 Benzo(g,h,i)perylene	276	28.139	28.139	(1.095)	5443789	30.0000	30.32(A)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.

Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL8.D
Date : 14-JAN-2008 17:54
Client ID: LPAHCAL30PPM
Instrument: bna3.i
Sample Info: LPAHCAL30PPM;;;;;SV4285-8
Volume Injected (uL): 2.0
Operator: ADM
Column phase: fused silica
Column diameter: 0.25



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Report Date: 15-Jan-2008 06:39

Empirical Laboratories, LLC

Data file : \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL7.D
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Operator : ADM Inst ID: bna3.i
Smp Info : LPAHCAL20PPM;;;;;SV4285-7
Misc Info : ;;;;;;pahsurr.sub;4277
Comment :
Method : \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\PAHLOW.m
Meth Date : 15-Jan-2008 06:39 tmonteiro Quant Type: ISTD
Cal Date : 14-JAN-2008 22:32 Cal File: LPAHCAL1.D
Als bottle: 18 Calibration Sample, Level: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pahsurr.sub
Target Version: 4.04
Processing Host: TARGET02_VM

Concentration Formula: Amt * DF * Uf * Vt*Vi/(Amt * Vi)

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	500.000	Volume of final extract (uL)
Vi	2.000	Volume injected (uL)
Amt	1000.000	Volume of initial extraction

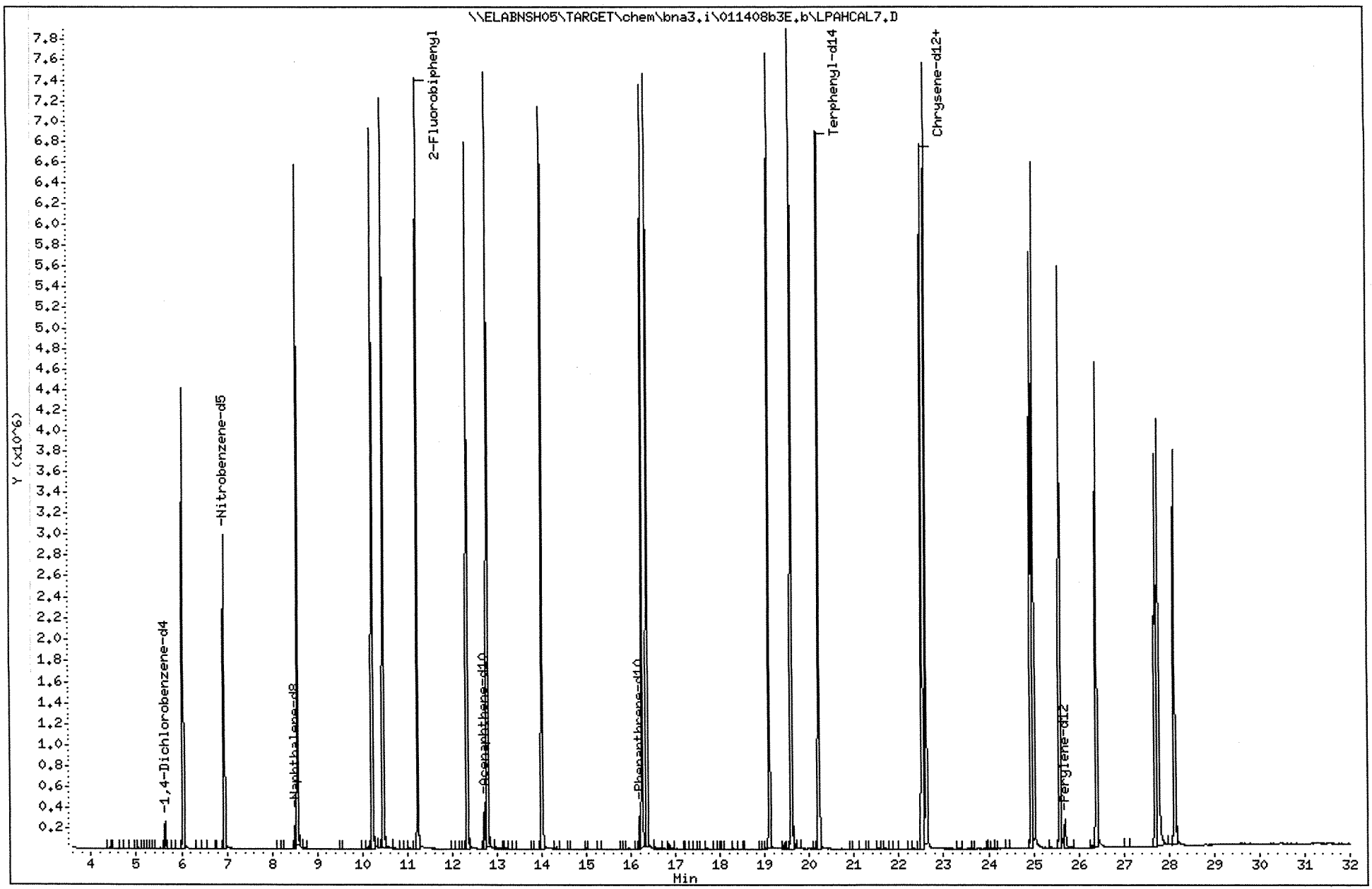
M111578
1-15-08

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ng/ul)	AMOUNTS ON-COL (ng/ul)
*	1 1,4-Dichlorobenzene-d4	152	5.635	5.635	(1.000)	83543	1.00000	
*	3 Naphthalene-d8	136	8.523	8.523	(1.000)	333311	1.00000	
$	4 Nitrobenzene-d5	82	6.944	6.944	(0.815)	1844589	20.0000	20.09
	5 Naphthalene	128	8.569	8.569	(1.005)	5589174	20.0000	19.45
	6 2-Methylnaphthalene	141	10.231	10.231	(1.200)	3186955	20.0000	21.72
	7 1-Methylnaphthalene	141	10.472	10.472	(1.229)	3261578	20.0000	20.37
*	8 Acenaphthene-d10	164	12.719	12.719	(1.000)	173631	1.00000	
$	11 2-Fluorobiphenyl	172	11.233	11.233	(0.883)	4354007	20.0000	20.18
	12 Acenaphthylene	152	12.338	12.338	(0.970)	5760892	20.0000	20.85
	13 Acenaphthene	153	12.802	12.802	(1.007)	3644167	20.0000	20.39
	16 Fluorene	166	14.009	14.009	(1.101)	4032571	20.0000	20.69
*	17 Phenanthrene-d10	188	16.200	16.200	(1.000)	276741	1.00000	
	18 Phenanthrene	178	16.256	16.256	(1.003)	5861745	20.0000	19.51
	19 Anthracene	178	16.367	16.367	(1.010)	5818848	20.0000	20.50

Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL7.D
Report Date: 15-Jan-2008 06:39

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ng/ul)	AMOUNTS ON-COL (ng/ul)
	20 Fluoranthene	202	19.106	19.106	(1.179)	5956558	20.0000	20.45
*	21 Chrysene-d12	240	22.550	22.550	(1.000)	255576	1.00000	
	22 Pyrene	202	19.607	19.607	(0.869)	6329482	20.0000	21.02
$	23 Terphenyl-d14	244	20.220	20.220	(0.897)	4570104	20.0000	21.16
	24 Benzo(a)anthracene	228	22.522	22.522	(0.999)	5361424	20.0000	20.13
	25 Chrysene	228	22.615	22.615	(1.003)	5431075	20.0000	19.51
*	26 Perylene-d12	264	25.697	25.697	(1.000)	179215	1.00000	
	27 Benzo(b)fluoranthene	252	24.954	24.954	(0.971)	4941343	20.0000	20.65
	28 Benzo(k)fluoranthene	252	25.010	25.010	(0.973)	5046449	20.0000	19.83
	29 Benzo(a)pyrene	252	25.586	25.586	(0.996)	4303600	20.0000	20.10
	30 Indeno(1,2,3-cd)pyrene	276	27.702	27.702	(1.078)	2926097	20.0000	18.94
	31 Dibenz(a,h)anthracene	278	27.767	27.767	(1.081)	3183828	20.0000	19.78
	32 Benzo(g,h,i)perylene	276	28.129	28.129	(1.095)	3238228	20.0000	18.95

Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL7.D
Date : 14-JAN-2008 18:34
Client ID: LPAHCAL20PPM
Instrument: bna3.i
Sample Info: LPAHCAL20PPM;;;;;SV4285-7
Volume Injected (uL): 2.0
Operator: ADM
Column phase: fused silica
Column diameter: 0.25



Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL6.D
Report Date: 15-Jan-2008 06:39

Empirical Laboratories, LLC

Data file : \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL6.D
Lab Smp Id: LPAHCAL10PPM Client Smp ID: LPAHCAL10PPM
Inj Date : 14-JAN-2008 19:14 MS Autotune Date: 01-NOV-2007 04:29
Operator : ADM Inst ID: bna3.i
Smp Info : LPAHCAL10PPM;;;;;SV4285-6
Misc Info : ;;;;;;pahsurr.sub;4277
Comment :
Method : \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\PAHLOW.m
Meth Date : 15-Jan-2008 06:39 tmonteiro Quant Type: ISTD
Cal Date : 14-JAN-2008 22:32 Cal File: LPAHCAL1.D
Als bottle: 19 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pahsurr.sub
Target Version: 4.04
Processing Host: TARGET02_VM

Concentration Formula: Amt * DF * Uf * Vt*Vi/(Amt * Vi)

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	500.000	Volume of final extract (uL)
Vi	2.000	Volume injected (uL)
Amt	1000.000	Volume of initial extraction

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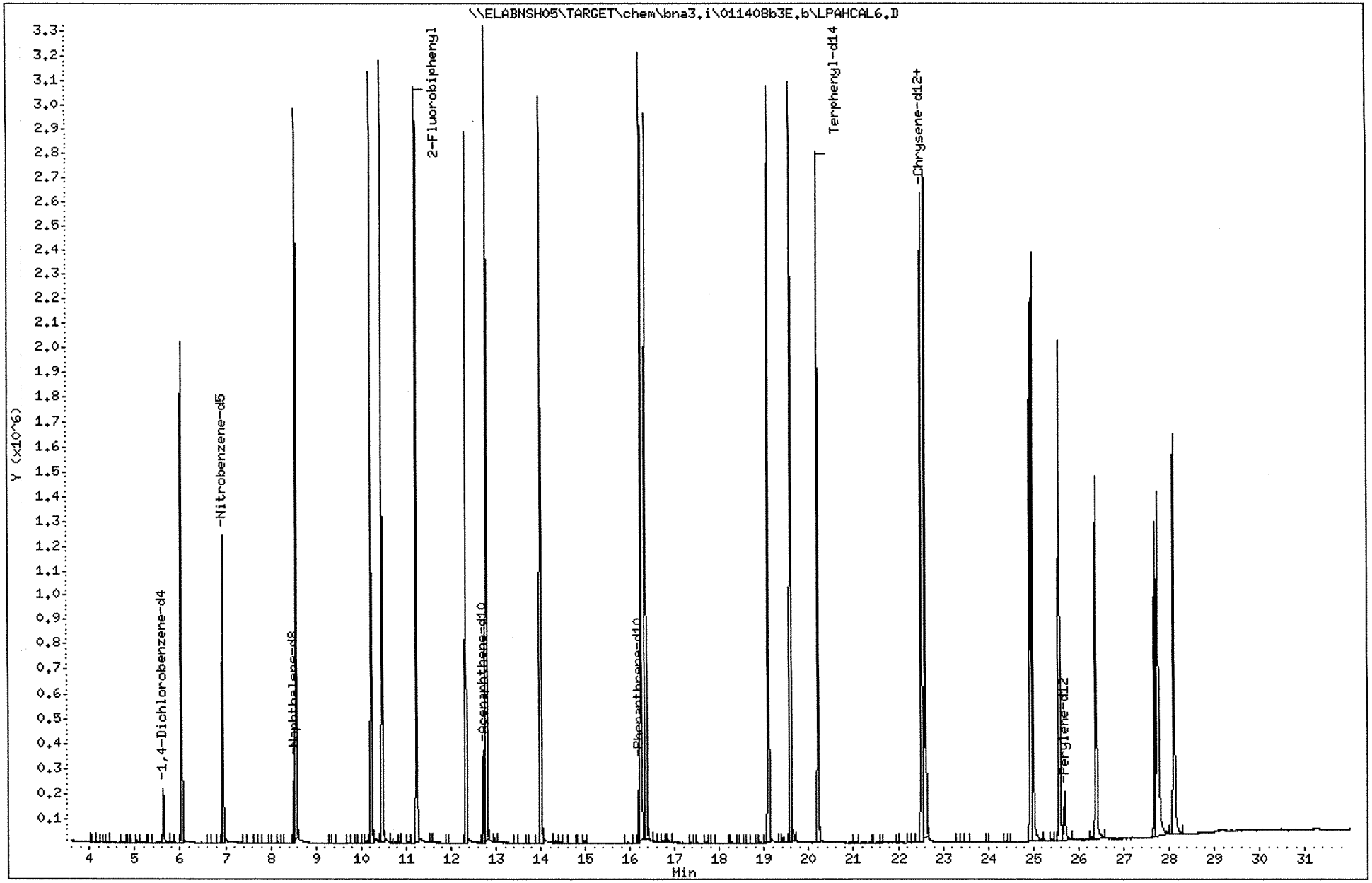
1-15-08

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ng/ul)	AMOUNTS ON-COL (ng/ul)
*	1 1,4-Dichlorobenzene-d4	152	5.629	5.629	(1.000)	71150	1.00000	
*	3 Naphthalene-d8	136	8.516	8.516	(1.000)	282085	1.00000	
$	4 Nitrobenzene-d5	82	6.947	6.947	(0.816)	742327	10.0000	9.662
	5 Naphthalene	128	8.562	8.562	(1.005)	2421935	10.0000	9.960
	6 2-Methylnaphthalene	141	10.224	10.224	(1.201)	1364809	10.0000	10.99
	7 1-Methylnaphthalene	141	10.466	10.466	(1.229)	1412113	10.0000	10.42
*	8 Acenaphthene-d10	164	12.721	12.721	(1.000)	146032	1.00000	
$	11 2-Fluorobiphenyl	172	11.227	11.227	(0.883)	1841135	10.0000	10.15
	12 Acenaphthylene	152	12.331	12.331	(0.969)	2362746	10.0000	10.17
	13 Acenaphthene	153	12.796	12.796	(1.006)	1557881	10.0000	10.36
	16 Fluorene	166	14.003	14.003	(1.101)	1662703	10.0000	10.14
*	17 Phenanthrene-d10	188	16.203	16.203	(1.000)	216925	1.00000	
	18 Phenanthrene	178	16.249	16.249	(1.003)	2434030	10.0000	10.33
	19 Anthracene	178	16.361	16.361	(1.010)	2320885	10.0000	10.43

Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL6.D
Report Date: 15-Jan-2008 06:39

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ng/ul)	AMOUNTS ON-COL (ng/ul)
	20 Fluoranthene	202	19.099	19.099	(1.179)	2370193	10.0000	10.38
*	21 Chrysene-d12	240	22.543	22.543	(1.000)	196456	1.00000	
	22 Pyrene	202	19.600	19.600	(0.869)	2583728	10.0000	11.16
$	23 Terphenyl-d14	244	20.204	20.204	(0.896)	1793052	10.0000	10.80
	24 Benzo(a)anthracene	228	22.515	22.515	(0.999)	1919603	10.0000	9.548
	25 Chrysene	228	22.608	22.608	(1.003)	2098684	10.0000	9.810
*	26 Perylene-d12	264	25.700	25.700	(1.000)	128699	1.00000	
	27 Benzo(b)fluoranthene	252	24.938	24.938	(0.970)	1656920	10.0000	9.641
	28 Benzo(k)fluoranthene	252	24.994	24.994	(0.973)	1969142	10.0000	10.77
	29 Benzo(a)pyrene	252	25.579	25.579	(0.995)	1507512	10.0000	9.806
	30 Indeno(1,2,3-cd)pyrene	276	27.696	27.696	(1.078)	1025952	10.0000	9.246
	31 Dibenz(a,h)anthracene	278	27.761	27.761	(1.080)	1143049	10.0000	9.891
	32 Benzo(g,h,i)perylene	276	28.113	28.113	(1.094)	1312761	10.0000	10.70

Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL6.D
Date : 14-JAN-2008 19:14
Client ID: LPAHCAL10PPM
Instrument: bna3.i
Sample Info: LPAHCAL10PPM;;;;;SV4285-6
Volume Injected (uL): 2.0
Operator: ADM
Column phase: fused silica
Column diameter: 0.25



Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL5.D
Report Date: 15-Jan-2008 06:39

Empirical Laboratories, LLC

Data file : \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL5.D
Lab Smp Id: LPAHCAL5PPM Client Smp ID: LPAHCAL5PPM
Inj Date : 14-JAN-2008 19:53 MS Autotune Date: 01-NOV-2007 04:29
Operator : ADM Inst ID: bna3.i
Smp Info : LPAHCAL5PPM;;;;;SV4285-5
Misc Info : ;;;;;;pahsurr.sub;4277
Comment :
Method : \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\PAHLOW.m
Meth Date : 15-Jan-2008 06:39 tmonteiro Quant Type: ISTD
Cal Date : 14-JAN-2008 22:32 Cal File: LPAHCAL1.D
Als bottle: 20 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pahsurr.sub
Target Version: 4.04
Processing Host: TARGET02_VM

Concentration Formula: Amt * DF * Uf * Vt*Vi/(Amt * Vi)

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	500.000	Volume of final extract (uL)
Vi	2.000	Volume injected (uL)
Amt	1000.000	Volume of initial extraction

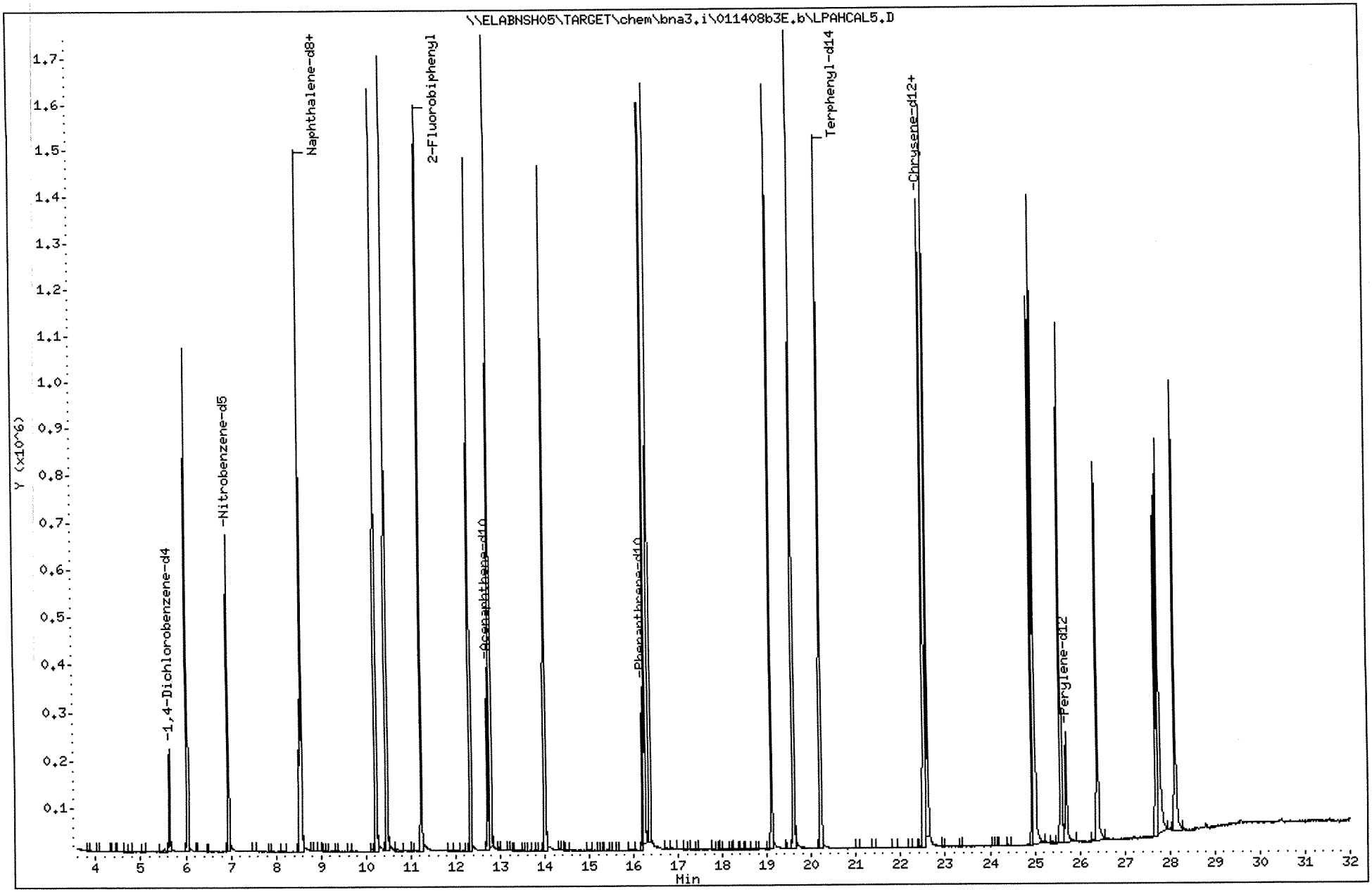
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ng/ul)	AMOUNTS ON-COL (ng/ul)
*	1 1,4-Dichlorobenzene-d4	152	5.635	5.635	(1.000)	73284	1.00000	
*	3 Naphthalene-d8	136	8.522	8.522	(1.000)	289503	1.00000	
$	4 Nitrobenzene-d5	82	6.944	6.944	(0.815)	379421	5.00000	4.914
	5 Naphthalene	128	8.560	8.560	(1.004)	1264667	5.00000	5.068
	6 2-Methylnaphthalene	141	10.221	10.221	(1.199)	713854	5.00000	5.601
	7 1-Methylnaphthalene	141	10.463	10.463	(1.228)	736596	5.00000	5.296
*	8 Acenaphthene-d10	164	12.719	12.719	(1.000)	151461	1.00000	
$	11 2-Fluorobiphenyl	172	11.233	11.233	(0.883)	966792	5.00000	5.138
	12 Acenaphthylene	152	12.338	12.338	(0.970)	1197815	5.00000	4.970
	13 Acenaphthene	153	12.793	12.793	(1.006)	801482	5.00000	5.140
	16 Fluorene	166	14.009	14.009	(1.101)	861235	5.00000	5.067
*	17 Phenanthrene-d10	188	16.200	16.200	(1.000)	229716	1.00000	
	18 Phenanthrene	178	16.256	16.256	(1.003)	1288760	5.00000	5.167
	19 Anthracene	178	16.358	16.358	(1.010)	1207535	5.00000	5.126

Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL5.D
Report Date: 15-Jan-2008 06:39

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ng/ul)	AMOUNTS ON-COL (ng/ul)
	20 Fluoranthene	202	19.096	19.096	(1.179)	1232182	5.00000	5.095
*	21 Chrysene-d12	240	22.550	22.550	(1.000)	221153	1.00000	
	22 Pyrene	202	19.598	19.598	(0.869)	1352228	5.00000	5.191
$	23 Terphenyl-d14	244	20.210	20.210	(0.896)	957443	5.00000	5.123
	24 Benzo(a)anthracene	228	22.513	22.513	(0.998)	1011465	5.00000	4.640
	25 Chrysene	228	22.605	22.605	(1.002)	1194368	5.00000	4.959
*	26 Perylene-d12	264	25.697	25.697	(1.000)	154582	1.00000	
	27 Benzo(b)fluoranthene	252	24.936	24.936	(0.970)	889404	5.00000	4.308
	28 Benzo(k)fluoranthene	252	24.991	24.991	(0.973)	1183863	5.00000	5.392
	29 Benzo(a)pyrene	252	25.576	25.576	(0.995)	849269	5.00000	4.599
	30 Indeno(1,2,3-cd)pyrene	276	27.693	27.693	(1.078)	583705	5.00000	4.380
	31 Dibenz(a,h)anthracene	278	27.758	27.758	(1.080)	684552	5.00000	4.932
	32 Benzo(g,h,i)perylene	276	28.111	28.111	(1.094)	809435	5.00000	5.493

Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL5.D
Date : 14-JAN-2008 19:53
Client ID: LPAHCAL5PPM
Sample Info: LPAHCAL5PPM;;;;;SV4285-5
Volume Injected (uL): 2.0
Column phase: fused silica

Instrument: bna3.i
Operator: ADM
Column diameter: 0.25



Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL4.D
Report Date: 15-Jan-2008 06:39

Empirical Laboratories, LLC

Data file : \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL4.D
Lab Smp Id: LPAHCAL1PPM Client Smp ID: LPAHCAL1PPM
Inj Date : 14-JAN-2008 20:33 MS Autotune Date: 01-NOV-2007 04:29
Operator : ADM Inst ID: bna3.i
Smp Info : LPAHCAL1PPM;;;;;SV4285-4
Misc Info : ;;;;;;pahsurr.sub;4277
Comment :
Method : \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\PAHLOW.m
Meth Date : 15-Jan-2008 06:39 tmonteiro Quant Type: ISTD
Cal Date : 14-JAN-2008 22:32 Cal File: LPAHCAL1.D
Als bottle: 21 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pahsurr.sub
Target Version: 4.04
Processing Host: TARGET02_VM

Concentration Formula: Amt * DF * Uf * Vt*Vi/(Amt * Vi)

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	500.000	Volume of final extract (uL)
Vi	2.000	Volume injected (uL)
Amt	1000.000	Volume of initial extraction

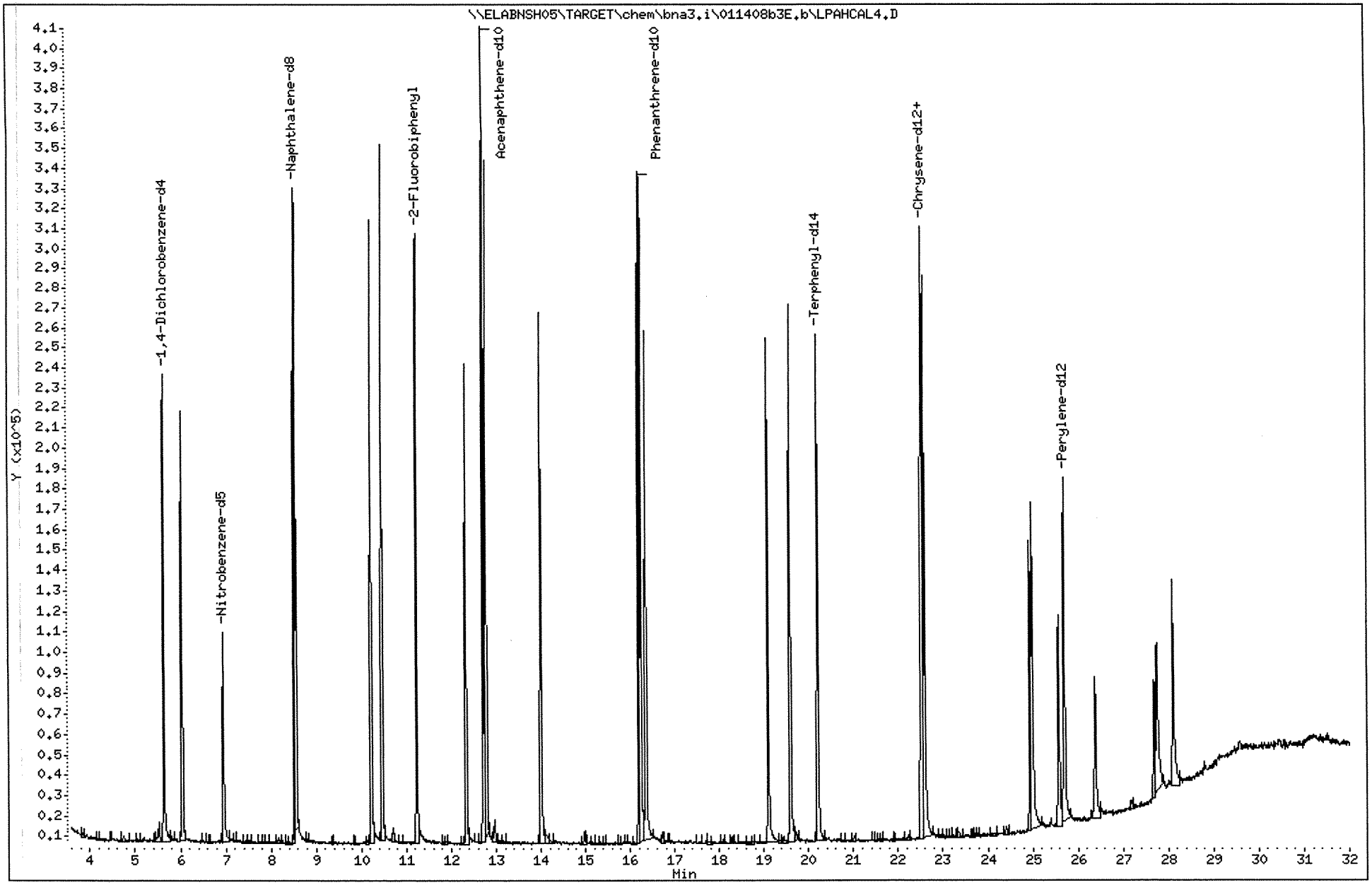
MJ 1-15-08

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ng/ul)	AMOUNTS ON-COL (ng/ul)
*	1 1,4-Dichlorobenzene-d4	152	5.636	5.636	(1.000)	79950	1.00000	
*	3 Naphthalene-d8	136	8.523	8.523	(1.000)	305350	1.00000	
$	4 Nitrobenzene-d5	82	6.945	6.945	(0.815)	63649	1.00000	0.9536
	5 Naphthalene	128	8.560	8.560	(1.004)	271110	1.00000	1.030
	6 2-Methylnaphthalene	141	10.222	10.222	(1.199)	136573	1.00000	1.016
	7 1-Methylnaphthalene	141	10.463	10.463	(1.228)	152243	1.00000	1.038
*	8 Acenaphthene-d10	164	12.719	12.719	(1.000)	156261	1.00000	
$	11 2-Fluorobiphenyl	172	11.234	11.234	(0.883)	204319	1.00000	1.052
	12 Acenaphthylene	152	12.339	12.339	(0.970)	209149	1.00000	0.8411
	13 Acenaphthene	153	12.794	12.794	(1.006)	164450	1.00000	1.022
	16 Fluorene	166	14.000	14.000	(1.101)	156696	1.00000	0.8935
*	17 Phenanthrene-d10	188	16.201	16.201	(1.000)	229278	1.00000	
	18 Phenanthrene	178	16.247	16.247	(1.003)	259544	1.00000	1.042
	19 Anthracene	178	16.358	16.358	(1.010)	215047	1.00000	0.9147

Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL4.D
Report Date: 15-Jan-2008 06:39

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ng/ul)	AMOUNTS ON-COL (ng/ul)
	20 Fluoranthene	202	19.097	19.097	(1.179)	207041	1.00000	0.8578
*	21 Chrysene-d12	240	22.541	22.541	(1.000)	193473	1.00000	
	22 Pyrene	202	19.598	19.598	(0.869)	235148	1.00000	1.032
$	23 Terphenyl-d14	244	20.211	20.211	(0.897)	166774	1.00000	1.020
	24 Benzo(a)anthracene	228	22.513	22.513	(0.999)	136211	1.00000	0.9856
	25 Chrysene	228	22.597	22.597	(1.002)	227759	1.00000	1.081
*	26 Perylene-d12	264	25.698	25.698	(1.000)	123381	1.00000	
	27 Benzo(b)fluoranthene	252	24.936	24.936	(0.970)	119098	1.00000	0.7228
	28 Benzo(k)fluoranthene	252	24.992	24.992	(0.973)	172098	1.00000	0.9822
	29 Benzo(a)pyrene	252	25.577	25.577	(0.995)	94214	1.00000	0.6392
	30 Indeno(1,2,3-cd)pyrene	276	27.684	27.684	(1.077)	55482	1.00000	0.5216
	31 Dibenz(a,h)anthracene	278	27.759	27.759	(1.080)	74109	1.00000	0.6689
	32 Benzo(g,h,i)perylene	276	28.111	28.111	(1.094)	106341	1.00000	0.9041

Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL4.D
Date : 14-JAN-2008 20:33
Client ID: LPAHCAL1PPM
Instrument: bna3.i
Sample Info: LPAHCAL1PPM;;;;;SV4285-4
Volume Injected (uL): 2.0
Operator: ADM
Column phase: fused silica
Column diameter: 0.25



Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL3.D
Report Date: 15-Jan-2008 06:39

Empirical Laboratories, LLC

Data file : \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL3.D
Lab Smp Id: LPAHCAL0.4PPM Client Smp ID: LPAHCAL0.4PPM
Inj Date : 14-JAN-2008 21:13 MS Autotune Date: 01-NOV-2007 04:29
Operator : ADM Inst ID: bna3.i
Smp Info : LPAHCAL0.4PPM;;;;;SV4285-3
Misc Info : ;;;;;;pahsurr.sub;4277
Comment :
Method : \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\PAHLOW.m
Meth Date : 15-Jan-2008 06:39 tmonteiro Quant Type: ISTD
Cal Date : 14-JAN-2008 22:32 Cal File: LPAHCAL1.D
Als bottle: 22 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pahsurr.sub
Target Version: 4.04
Processing Host: TARGET02_VM

Concentration Formula: Amt * DF * Uf * Vt*Vi/(Amt * Vi)

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	500.000	Volume of final extract (uL)
Vi	2.000	Volume injected (uL)
Amt	1000.000	Volume of initial extraction

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ng/ul)	AMOUNTS ON-COL (ng/ul)
* 1 1,4-Dichlorobenzene-d4	152	5.638	5.638	(1.000)	76360	1.00000	
* 3 Naphthalene-d8	136	8.516	8.516	(1.000)	295934	1.00000	
$ 4 Nitrobenzene-d5	82	6.947	6.947	(0.816)	20175	0.40000	0.4495
5 Naphthalene	128	8.562	8.562	(1.005)	101793	0.40000	0.3990
6 2-Methylnaphthalene	141	10.224	10.224	(1.201)	47378	0.40000	0.3636
7 1-Methylnaphthalene	141	10.465	10.465	(1.229)	53371	0.40000	0.3754
* 8 Acenaphthene-d10	164	12.721	12.721	(1.000)	148428	1.00000	
$ 11 2-Fluorobiphenyl	172	11.227	11.227	(0.883)	71433	0.40000	0.3874
12 Acenaphthylene	152	12.341	12.341	(0.970)	62304	0.40000	0.2638
13 Acenaphthene	153	12.786	12.786	(1.005)	58001	0.40000	0.3796
16 Fluorene	166	14.002	14.002	(1.101)	50201	0.40000	0.3014
* 17 Phenanthrene-d10	188	16.203	16.203	(1.000)	221165	1.00000	
18 Phenanthrene	178	16.249	16.249	(1.003)	92806	0.40000	0.3865
19 Anthracene	178	16.360	16.360	(1.010)	60541	0.40000	0.2670

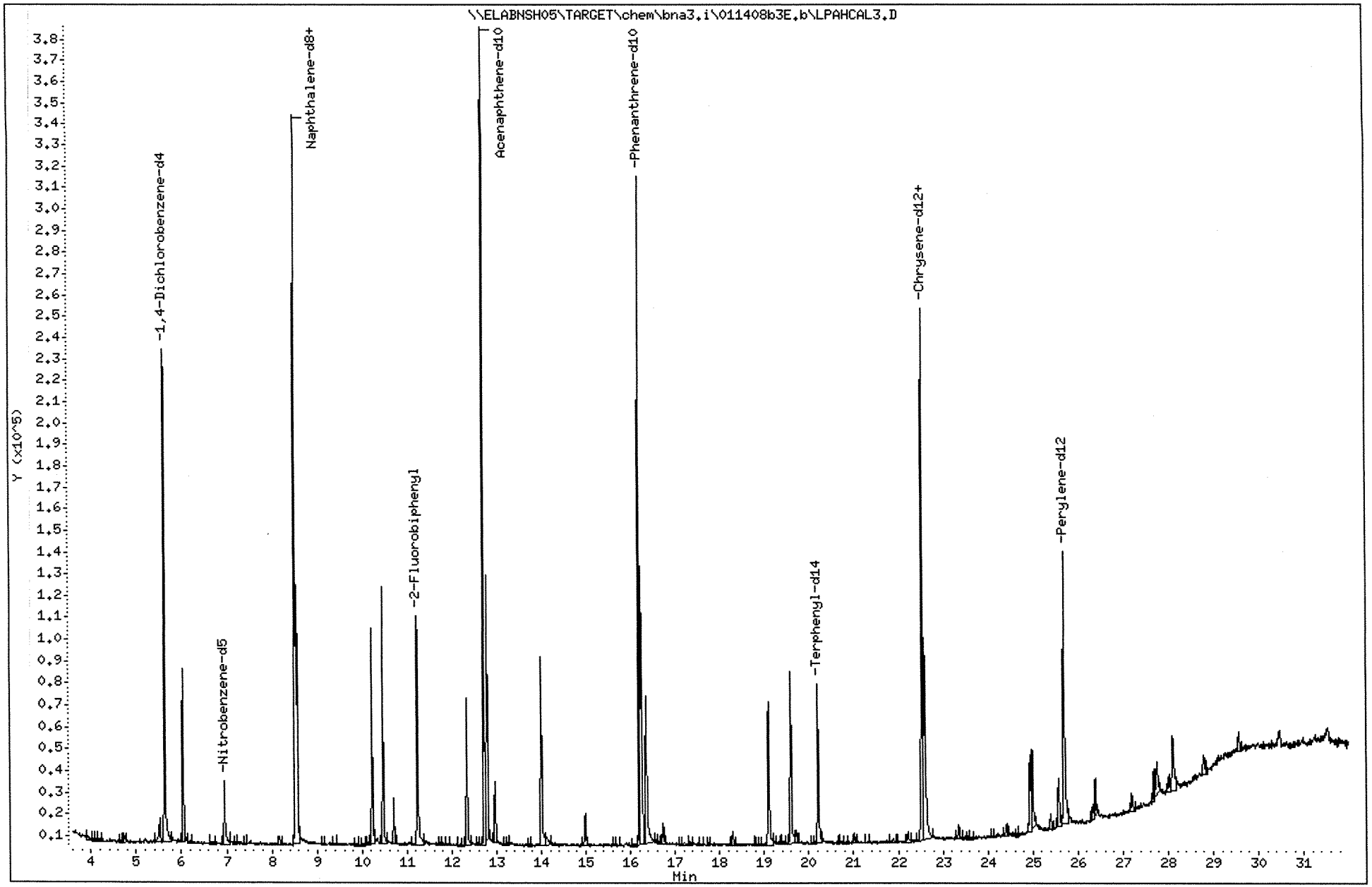
Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL3.D
Report Date: 15-Jan-2008 06:39

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ng/ul)	AMOUNTS ON-COL (ng/ul)
	20 Fluoranthene	202	19.099	19.099	(1.179)	61960	0.40000	0.2661
*	21 Chrysene-d12	240	22.543	22.543	(1.000)	165881	1.00000	
	22 Pyrene	202	19.591	19.591	(0.869)	71214	0.40000	0.3645
$	23 Terphenyl-d14	244	20.204	20.204	(0.896)	50802	0.40000	0.3624
	24 Benzo(a)anthracene	228	22.515	22.515	(0.999)	34833	0.40000	0.5190
	25 Chrysene	228	22.599	22.599	(1.002)	71515	0.40000	0.3959
*	26 Perylene-d12	264	25.700	25.700	(1.000)	97327	1.00000	
	27 Benzo(b)fluoranthene	252	24.938	24.938	(0.970)	30841	0.40000	0.2373
	28 Benzo(k)fluoranthene	252	24.994	24.994	(0.973)	40622	0.40000	0.2939
	29 Benzo(a)pyrene	252	25.579	25.579	(0.995)	19824	0.40000	0.1705
	30 Indeno(1,2,3-cd)pyrene	276	27.686	27.686	(1.077)	19976	0.40000	0.2381(M)
	31 Dibenz(a,h)anthracene	278	27.761	27.761	(1.080)	17355	0.40000	0.1986(M)
	32 Benzo(g,h,i)perylene	276	28.113	28.113	(1.094)	26668	0.40000	0.2874

QC Flag Legend

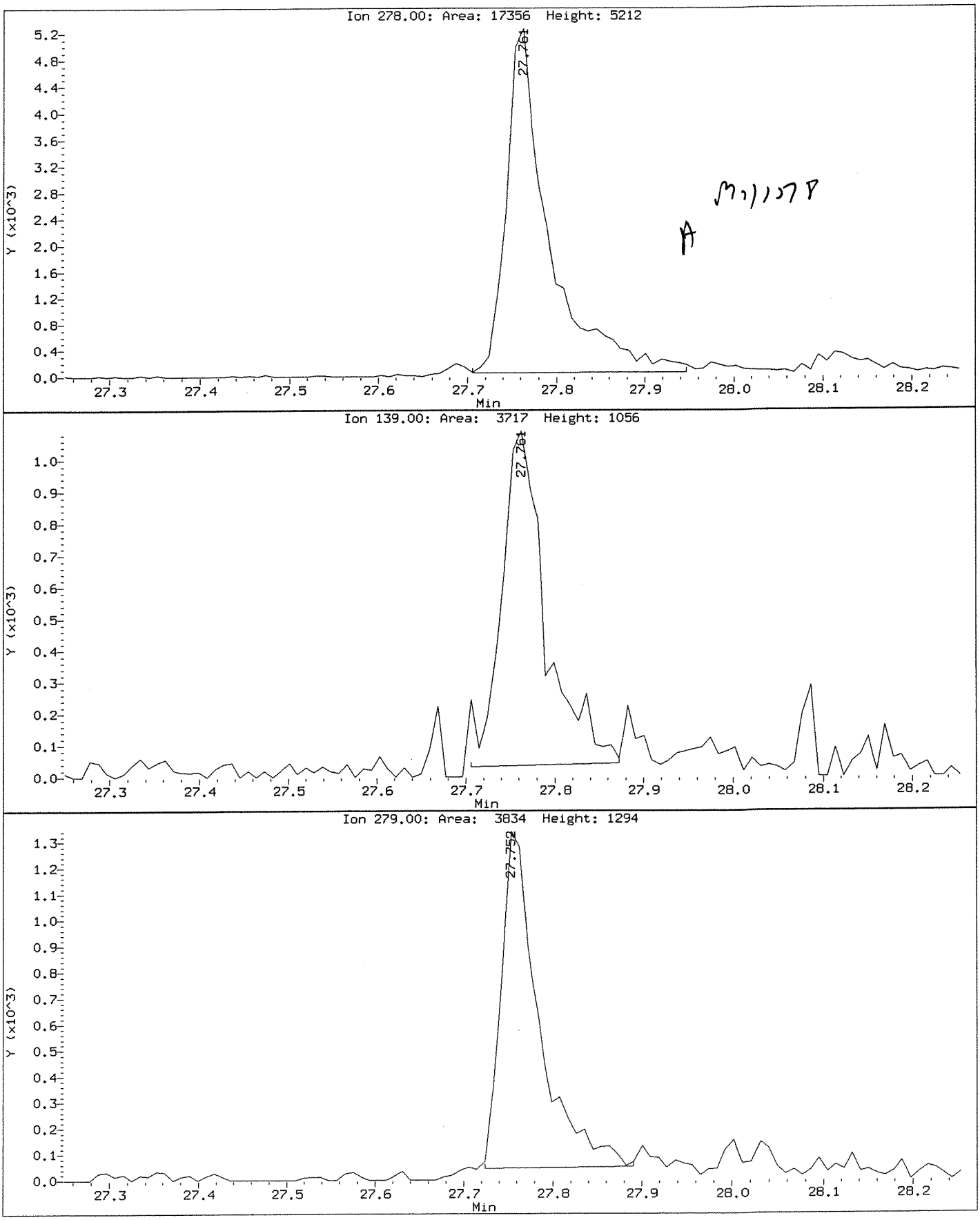
M - Compound response manually integrated.

Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL3.D
Date : 14-JAN-2008 21:13
Client ID: LPAHCAL0.4PPM
Instrument: bna3.i
Sample Info: LPAHCAL0.4PPM;;;;;SV4285-3
Volume Injected (uL): 2.0
Operator: ADM
Column phase: fused silica
Column diameter: 0.25



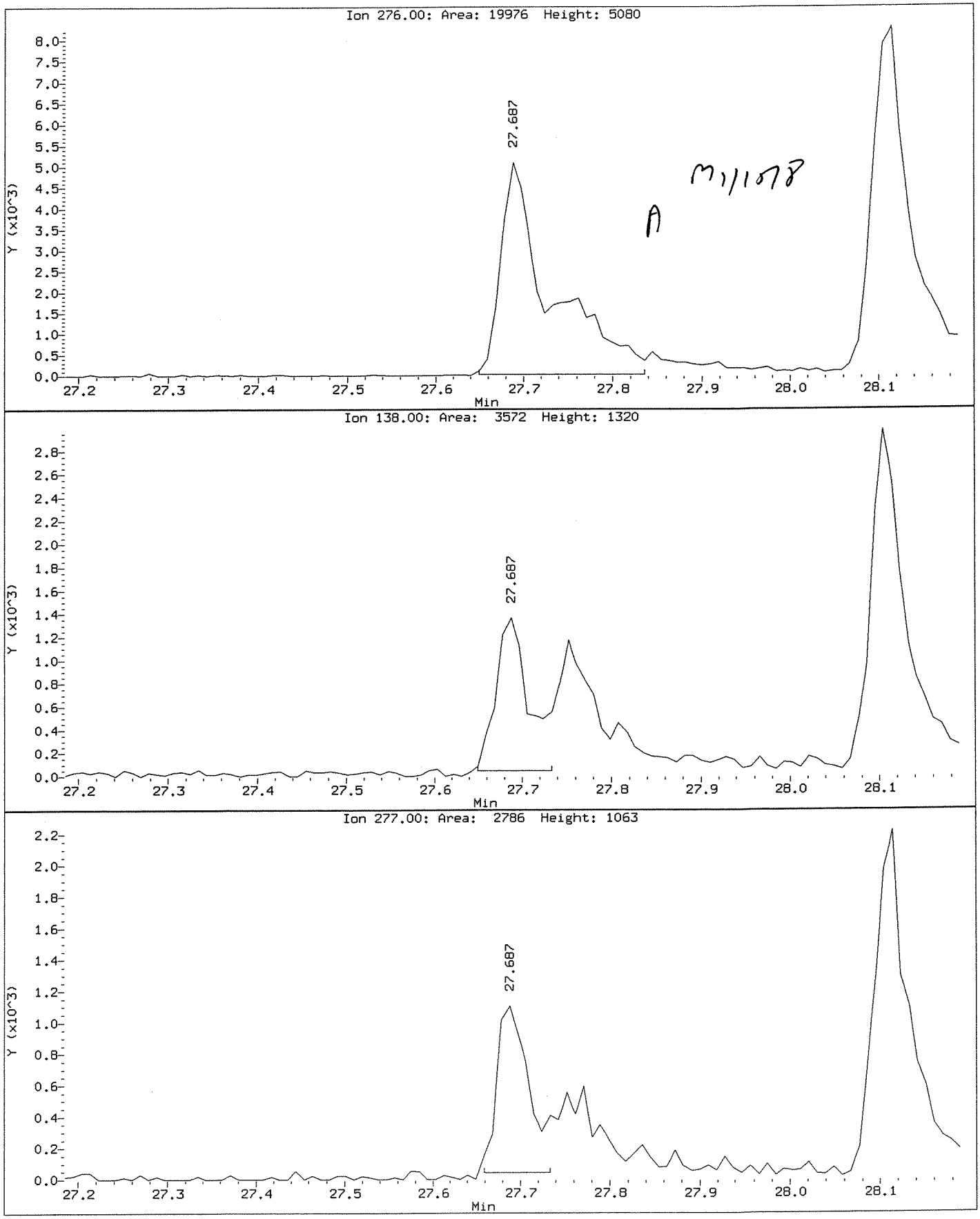
Data File: \\ELABNSHO5\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL3.D
Injection Date: 14-JAN-2008 21:13
Instrument: bna3.i
Client Sample ID: LPAHCALO.4PPM

Compound: Dibenz(a,h)anthracene
CAS Number: 53-70-3



Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL3.D
Injection Date: 14-JAN-2008 21:13
Instrument: bna3.i
Client Sample ID: LPAHCALO.4PPM

Compound: Indeno(1,2,3-cd)pyrene
CAS Number: 193-39-5



Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL2.D
Report Date: 15-Jan-2008 06:39

Empirical Laboratories, LLC

Data file : \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL2.D
Lab Smp Id: LPAHCAL0.2PPM Client Smp ID: LPAHCAL0.2PPM
Inj Date : 14-JAN-2008 21:52 MS Autotune Date: 01-NOV-2007 04:2
Operator : ADM Inst ID: bna3.i
Smp Info : LPAHCAL0.2PPM;;;;;SV4285-2
Misc Info : ;;;;;;pahsurr.sub;4277
Comment :
Method : \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\PAHLOW.m
Meth Date : 15-Jan-2008 06:39 tmonteiro Quant Type: ISTD
Cal Date : 14-JAN-2008 22:32 Cal File: LPAHCAL1.D
Als bottle: 23 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pahsurr.sub
Target Version: 4.04
Processing Host: TARGET02_VM

Concentration Formula: Amt * DF * Uf * Vt*Vi/(Amt * Vi)

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	500.000	Volume of final extract (uL)
Vi	2.000	Volume injected (uL)
Amt	1000.000	Volume of initial extraction

1-15-08

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ng/ul)	ON-COL (ng/ul)
*	1 1,4-Dichlorobenzene-d4	152	5.637	5.637	(1.000)	72529	1.00000	
*	3 Naphthalene-d8	136	8.524	8.524	(1.000)	277983	1.00000	
$	4 Nitrobenzene-d5	82	6.955	6.955	(0.816)	8499	0.20000	0.3144
	5 Naphthalene	128	8.561	8.561	(1.004)	47409	0.20000	0.1978
	6 2-Methylnaphthalene	141	10.223	10.223	(1.199)	20626	0.20000	0.1685
	7 1-Methylnaphthalene	141	10.464	10.464	(1.228)	24747	0.20000	0.1853
*	8 Acenaphthene-d10	164	12.720	12.720	(1.000)	136425	1.00000	
$	11 2-Fluorobiphenyl	172	11.235	11.235	(0.883)	33432	0.20000	0.1973
	12 Acenaphthylene	152	12.339	12.339	(0.970)	27552	0.20000	0.1269
	13 Acenaphthene	153	12.785	12.785	(1.005)	27308	0.20000	0.1944
	16 Fluorene	166	14.001	14.001	(1.101)	20631	0.20000	0.1348 (M)
*	17 Phenanthrene-d10	188	16.201	16.201	(1.000)	200936	1.00000	
	18 Phenanthrene	178	16.248	16.248	(1.003)	42852	0.20000	0.1964
	19 Anthracene	178	16.359	16.359	(1.010)	25755	0.20000	0.1250

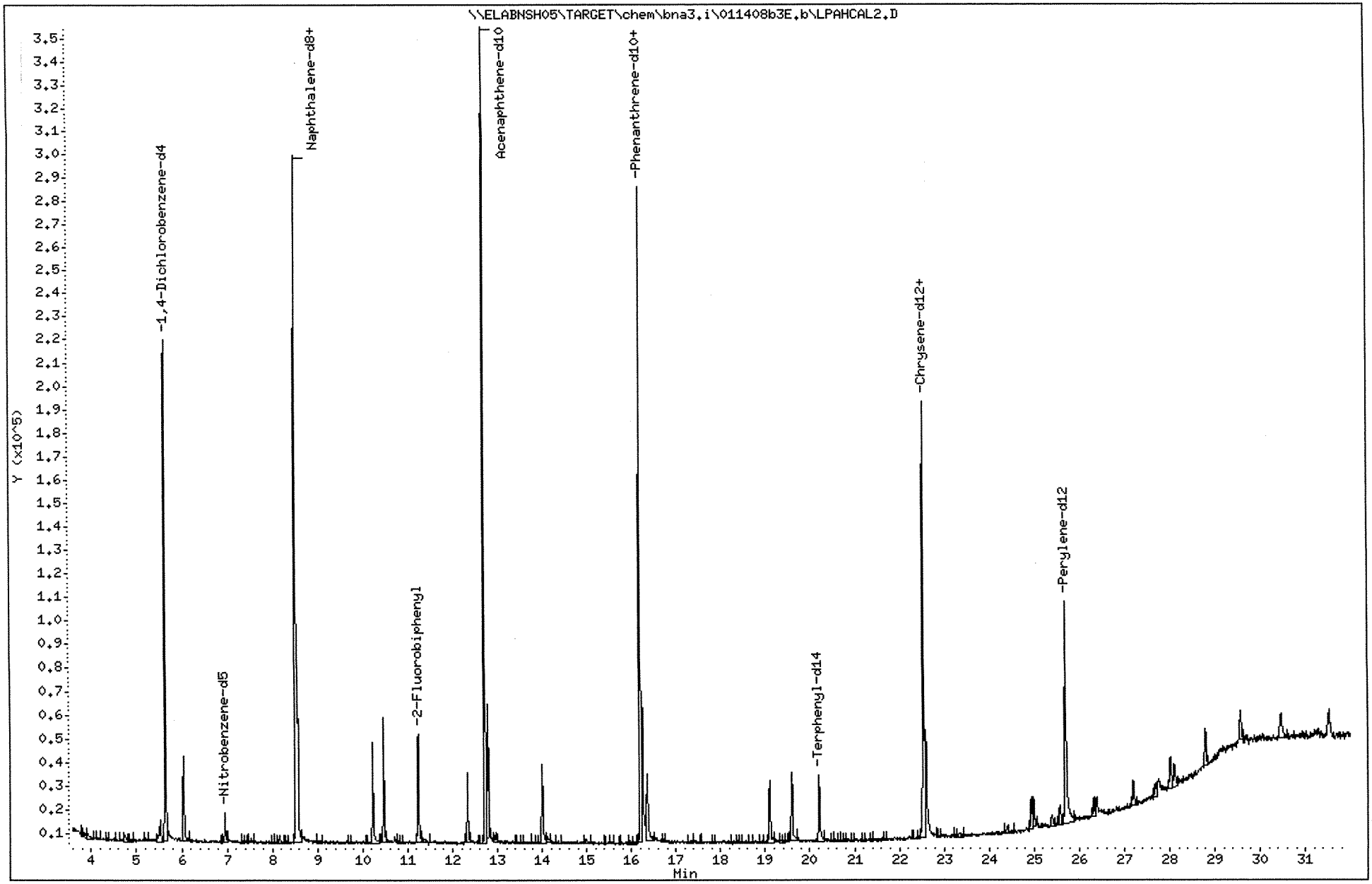
Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL2.D
Report Date: 15-Jan-2008 06:39

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ng/ul)	AMOUNTS ON-COL (ng/ul)
	20 Fluoranthene	202	19.098	19.098	(1.179)	25807	0.20000	0.1220
*	21 Chrysene-d12	240	22.542	22.542	(1.000)	140959	1.00000	
	22 Pyrene	202	19.599	19.599	(0.869)	28620	0.20000	0.1724
$	23 Terphenyl-d14	244	20.212	20.212	(0.897)	20569	0.20000	0.1727
	24 Benzo(a)anthracene	228	22.514	22.514	(0.999)	13148	0.20000	0.4088(M)
	25 Chrysene	228	22.598	22.598	(1.002)	31645	0.20000	0.2062
*	26 Perylene-d12	264	25.698	25.698	(1.000)	72067	1.00000	
	27 Benzo(b)fluoranthene	252	24.937	24.937	(0.970)	11391	0.20000	0.1184(M)
	28 Benzo(k)fluoranthene	252	24.984	24.984	(0.972)	13139	0.20000	0.1284(M)
	29 Benzo(a)pyrene	252	25.568	25.568	(0.995)	7064	0.20000	0.08206(aM)
	30 Indeno(1,2,3-cd)pyrene	276	27.685	27.685	(1.077)	4581	0.20000	0.07373(aM)
	31 Dibenz(a,h)anthracene	278	27.750	27.750	(1.080)	5439	0.20000	0.08405(aM)
	32 Benzo(g,h,i)perylene	276	28.103	28.103	(1.094)	9061	0.20000	0.1319

QC Flag Legend

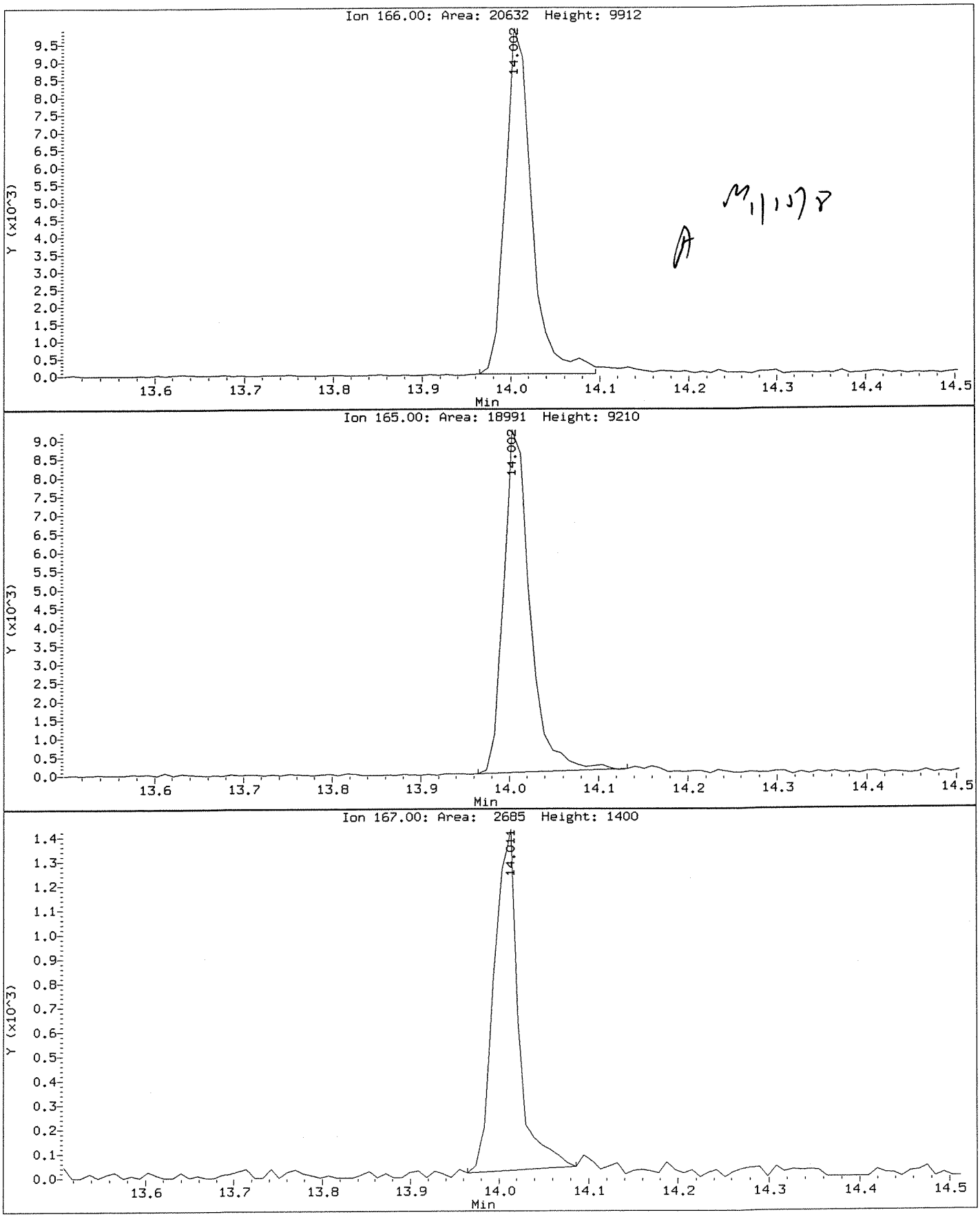
a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL2.D
Date : 14-JAN-2008 21:52
Client ID: LPAHCAL0.2PPM
Instrument: bna3.i
Sample Info: LPAHCAL0.2PPM;;;;;SV4285-2
Volume Injected (uL): 2.0
Operator: ADM
Column phase: fused silica
Column diameter: 0.25



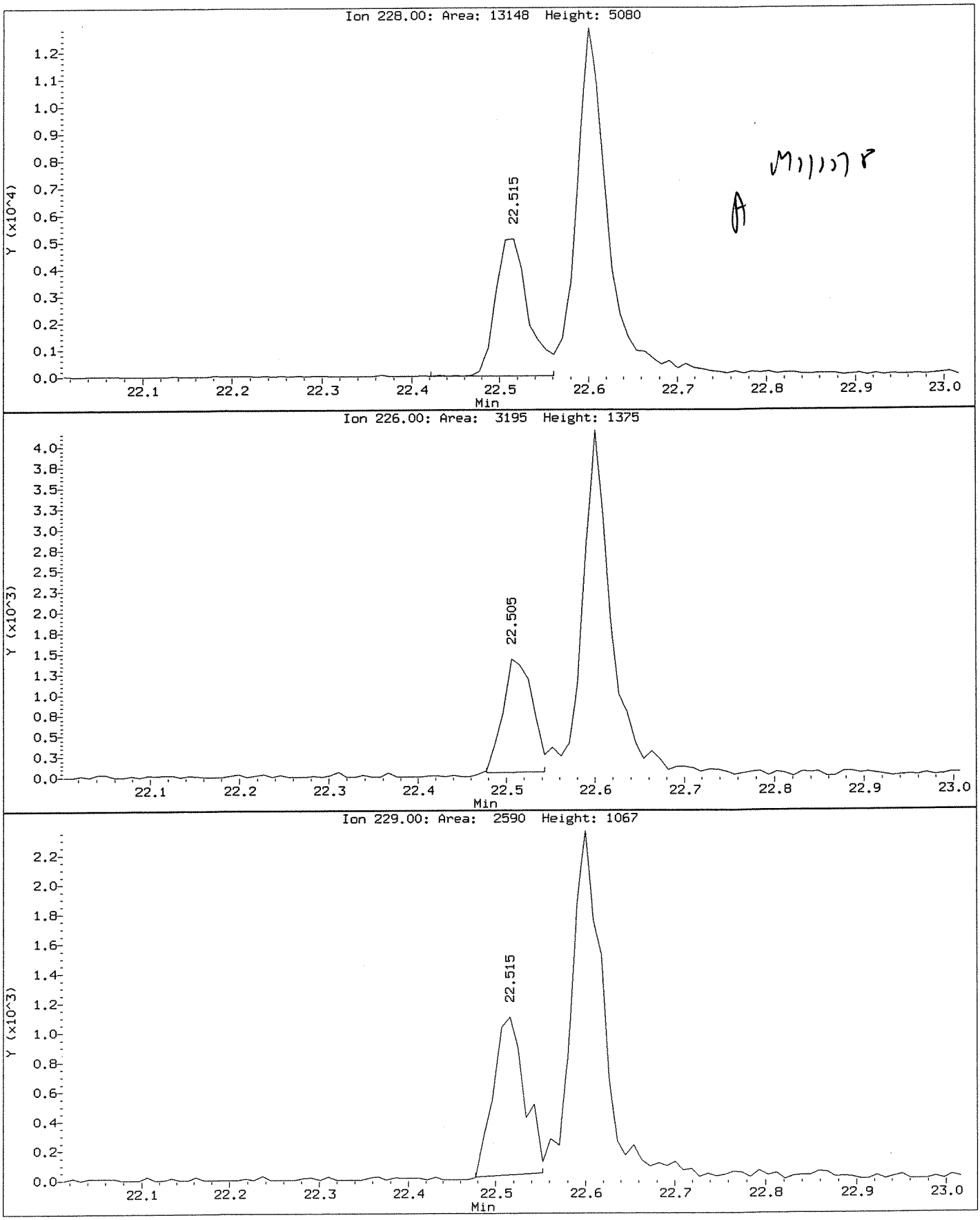
Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL2.D
Injection Date: 14-JAN-2008 21:52
Instrument: bna3.i
Client Sample ID: LPAHCAL0.2PPM

Compound: Fluorene
CAS Number: 86-73-7



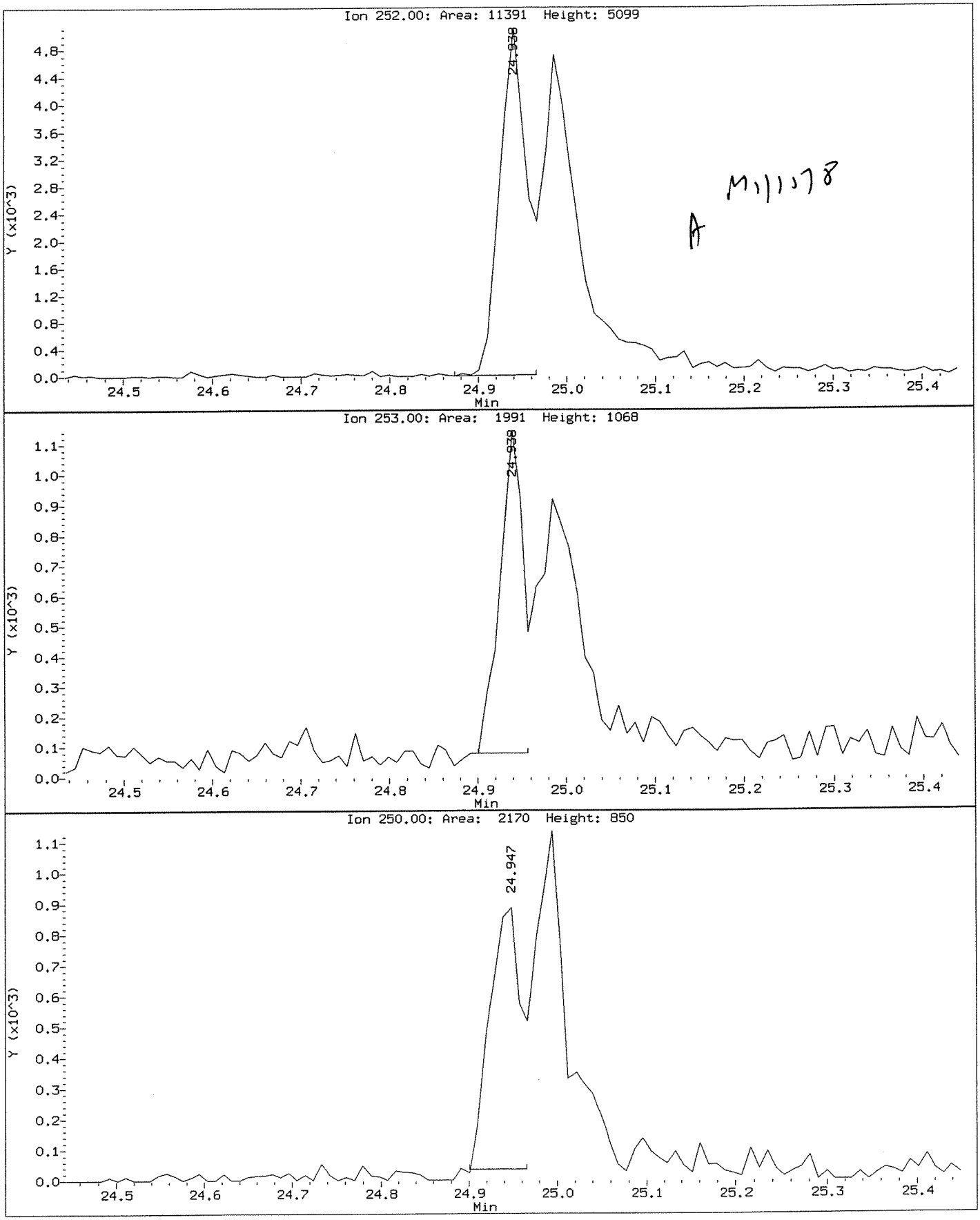
Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL2.D
Injection Date: 14-JAN-2008 21:52
Instrument: bna3.i
Client Sample ID: LPAHCAL0.2PPM

Compound: Benzo(a)anthracene
CAS Number: 56-55-3



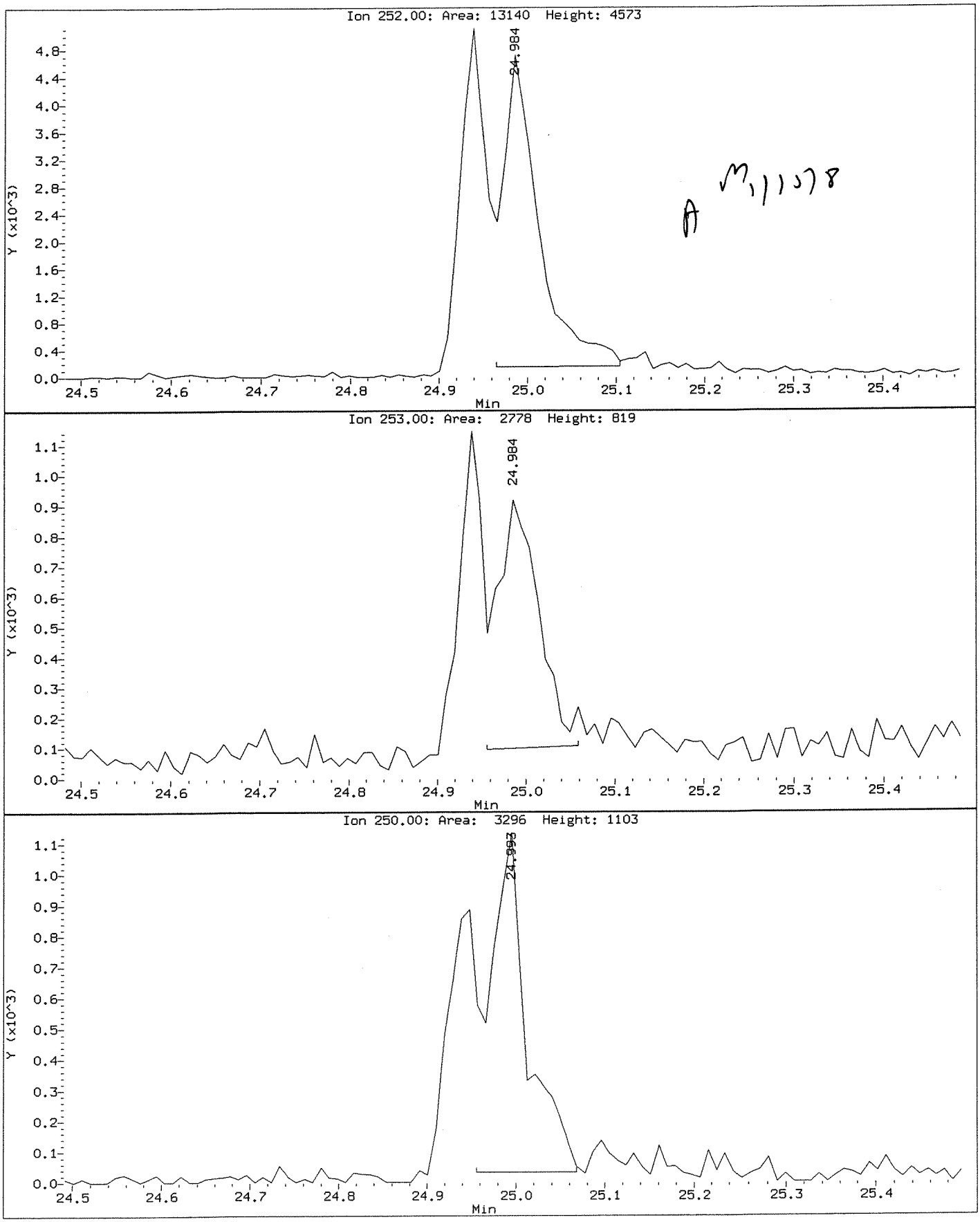
Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL2.D
Injection Date: 14-JAN-2008 21:52
Instrument: bna3.i
Client Sample ID: LPAHCAL0.2PPM

Compound: Benzo(b)fluoranthene
CAS Number: 205-99-2



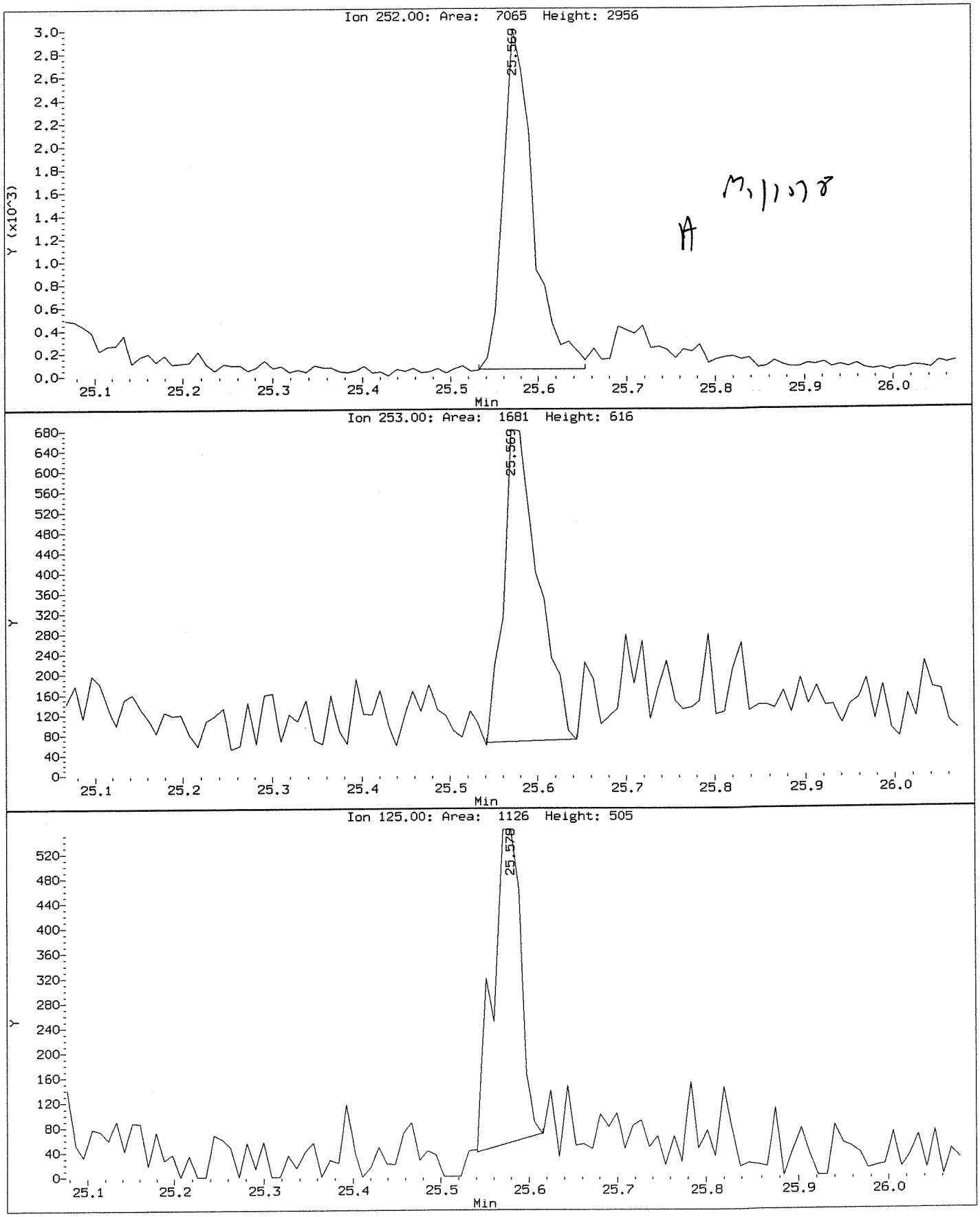
Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL2.D
Injection Date: 14-JAN-2008 21:52
Instrument: bna3.i
Client Sample ID: LPAHCAL0.2PPM

Compound: Benzo(k)fluoranthene
CAS Number: 207-08-9



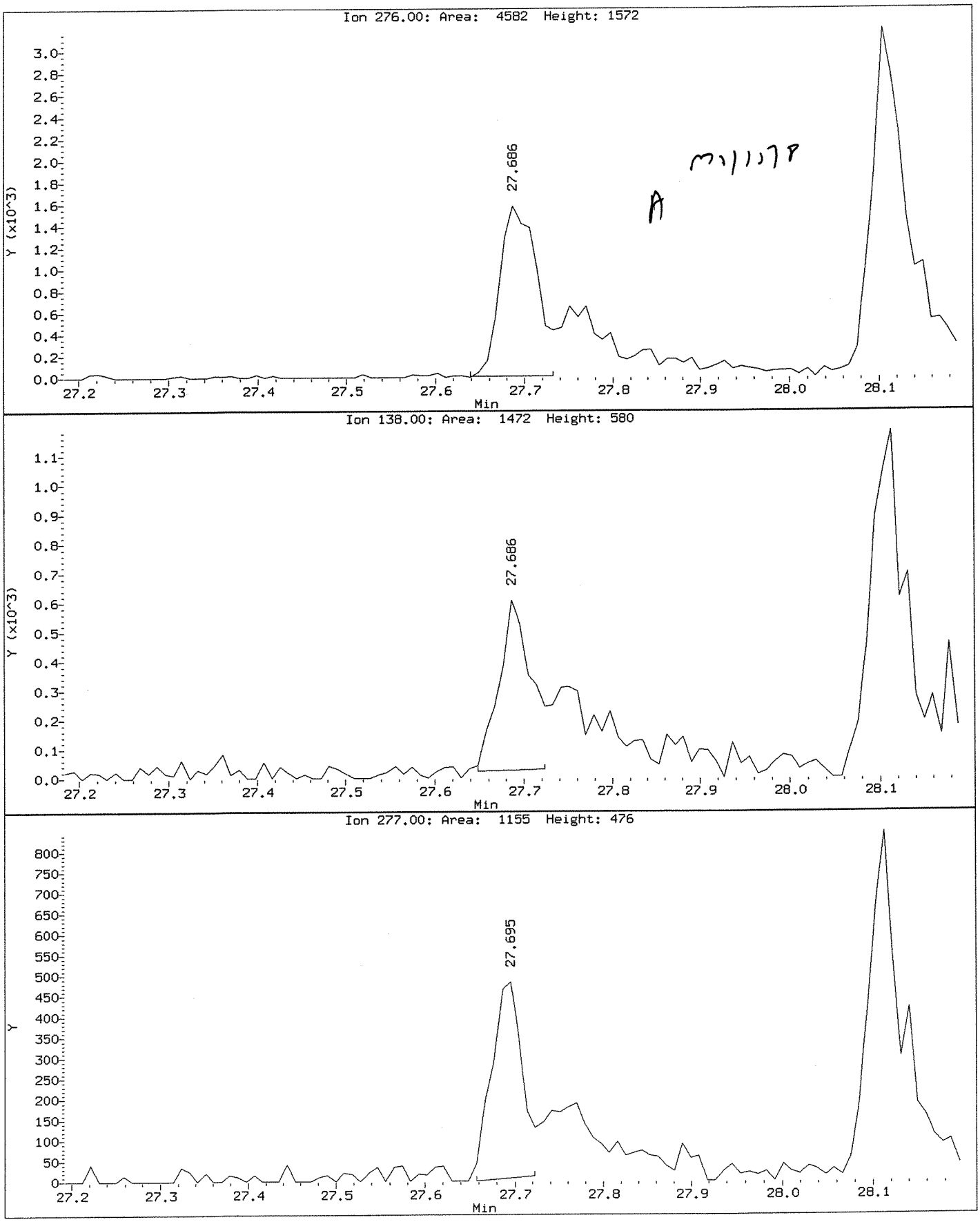
Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL2.D
Injection Date: 14-JAN-2008 21:52
Instrument: bna3.i
Client Sample ID: LPAHCALO.2PPM

Compound: Benzo(a)pyrene
CAS Number: 50-32-8



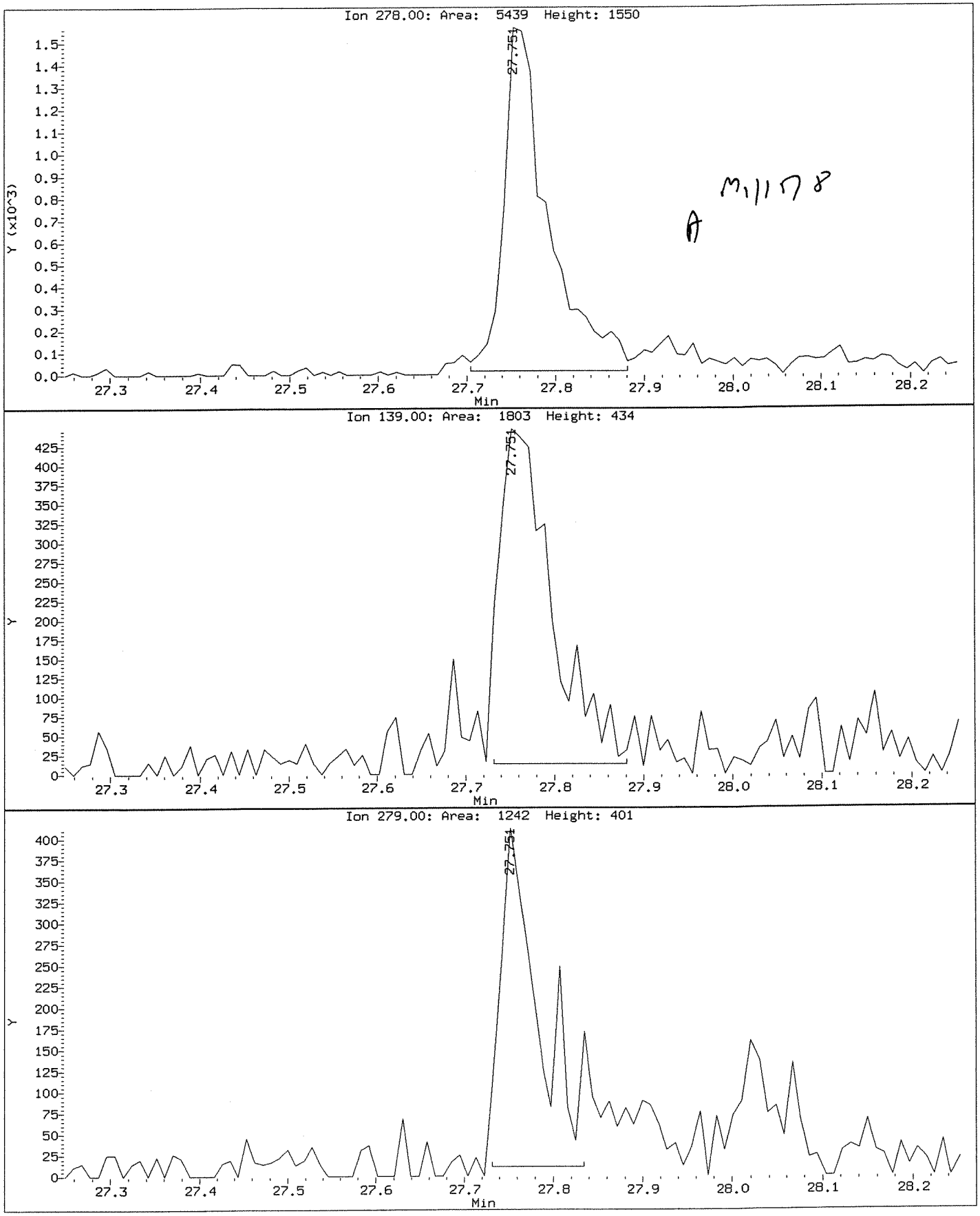
Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL2.D
Injection Date: 14-JAN-2008 21:52
Instrument: bna3.i
Client Sample ID: LPAHCAL0.2PPM

Compound: Indeno(1,2,3-cd)pyrene
CAS Number: 193-39-5



Data File: \\ELABNSHO5\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL2.D
Injection Date: 14-JAN-2008 21:52
Instrument: bna3.i
Client Sample ID: LPAHCALO.2PPM

Compound: Dibenz(a,h)anthracene
CAS Number: 53-70-3



Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL1.D
Report Date: 15-Jan-2008 06:39

Empirical Laboratories, LLC

Data file : \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL1.D
Lab Smp Id: LPAHCAL0.1PPM Client Smp ID: LPAHCAL0.1PPM
Inj Date : 14-JAN-2008 22:32 MS Autotune Date: 01-NOV-2007 04:29
Operator : ADM Inst ID: bna3.i
Smp Info : LPAHCAL0.1PPM;;;;;SV4285-1
Misc Info : ;;;;;;pahsurr.sub;4277
Comment :
Method : \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\PAHLOW.m
Meth Date : 15-Jan-2008 06:39 tmonteiro Quant Type: ISTD
Cal Date : 14-JAN-2008 22:32 Cal File: LPAHCAL1.D
Als bottle: 24 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pahsurr.sub
Target Version: 4.04
Processing Host: TARGET02_VM

Concentration Formula: Amt * DF * Uf * Vt*Vi/(Amt * Vi)

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	500.000	Volume of final extract (uL)
Vi	2.000	Volume injected (uL)
Amt	1000.000	Volume of initial extraction

1/11078

1-15-08 (JH)

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ng/ul)	AMOUNTS ON-COL (ng/ul)
*	1 1,4-Dichlorobenzene-d4	152	5.629	5.629	(1.000)	61123	1.00000	
*	3 Naphthalene-d8	136	8.516	8.516	(1.000)	233978	1.00000	
$	4 Nitrobenzene-d5	82	6.956	6.956	(0.817)	3283	0.10000	0.2549(M)
	5 Naphthalene	128	8.562	8.562	(1.005)	21469	0.10000	0.1064(M)
	6 2-Methylnaphthalene	141	10.224	10.224	(1.201)	8893	0.10000	0.08633(a)
	7 1-Methylnaphthalene	141	10.465	10.465	(1.229)	10982	0.10000	0.09771(a)
*	8 Acenaphthene-d10	164	12.721	12.721	(1.000)	116715	1.00000	
$	11 2-Fluorobiphenyl	172	11.236	11.236	(0.883)	14533	0.10000	0.1002
	12 Acenaphthylene	152	12.331	12.331	(0.969)	10928	0.10000	0.05884(aM)
	13 Acenaphthene	153	12.786	12.786	(1.005)	12121	0.10000	0.1009
	16 Fluorene	166	14.012	14.012	(1.101)	8266	0.10000	0.06311(aM)
*	17 Phenanthrene-d10	188	16.203	16.203	(1.000)	165516	1.00000	
	18 Phenanthrene	178	16.249	16.249	(1.003)	18332	0.10000	0.1020(M)
	19 Anthracene	178	16.360	16.360	(1.010)	9621	0.10000	0.05669(aM)

Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL1.D
Report Date: 15-Jan-2008 06:39

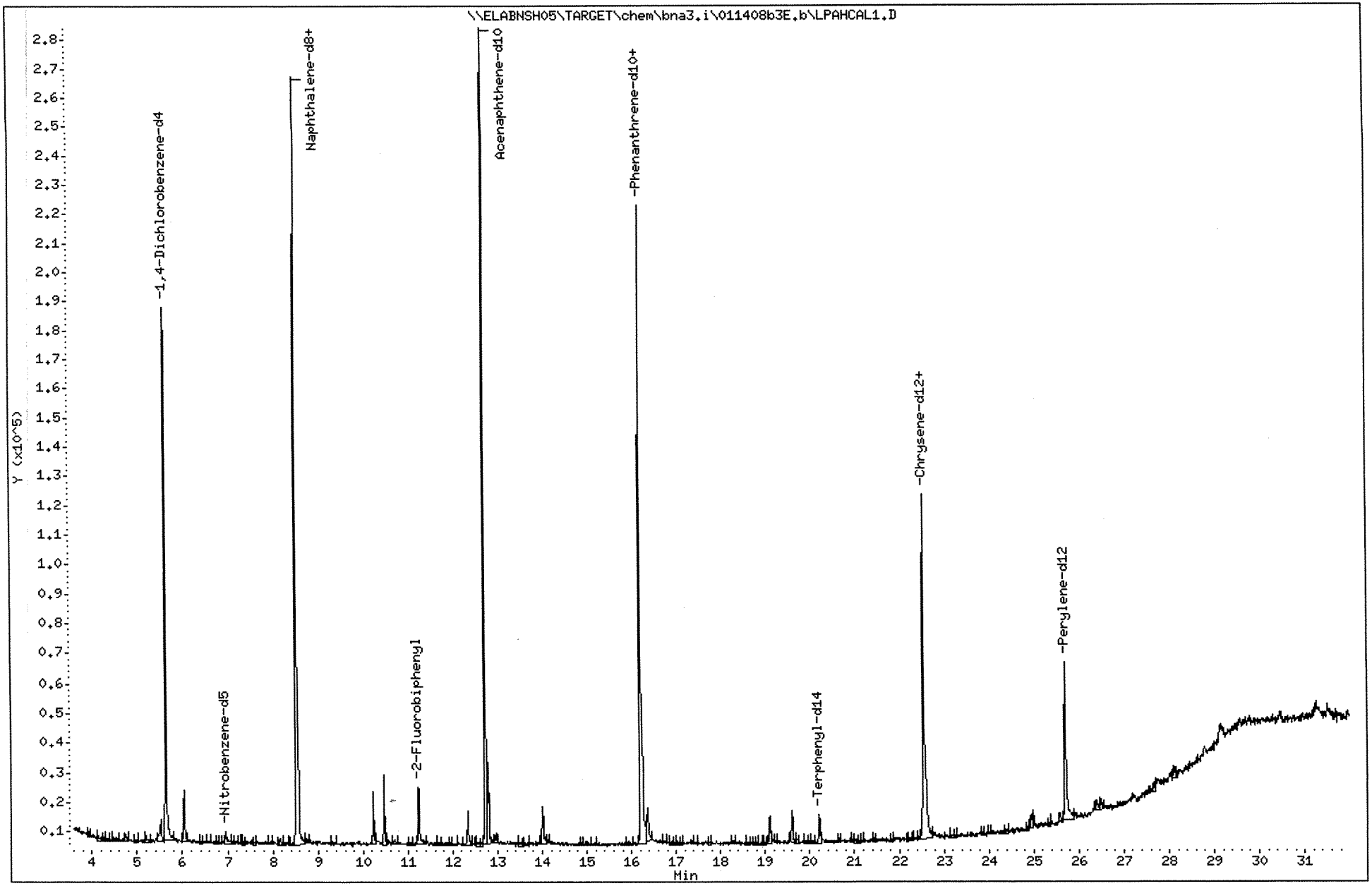
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ng/ul)	AMOUNTS ON-COL (ng/ul)
	20 Fluoranthene	202	19.099	19.099	(1.179)	9314	0.10000	0.05345 (aM)
*	21 Chrysene-d12	240	22.543	22.543	(1.000)	96285	1.00000	
	22 Pyrene	202	19.591	19.591	(0.869)	10759	0.10000	0.09486 (aM)
$	23 Terphenyl-d14	244	20.213	20.213	(0.897)	8009	0.10000	0.09844 (aM)
	24 Benzo(a)anthracene	228	22.515	22.515	(0.999)	4378	0.10000	0.3637 (M)
	25 Chrysene	228	22.599	22.599	(1.002)	10419	0.10000	0.09937 (aM)
*	26 Perylene-d12	264	25.700	25.700	(1.000)	44738	1.00000	
	27 Benzo(b)fluoranthene	252	24.938	24.938	(0.970)	3159	0.10000	0.05288 (aM)
	28 Benzo(k)fluoranthene	252	24.976	24.976	(0.972)	4665	0.10000	0.07342 (aM)
	29 Benzo(a)pyrene	252	25.579	25.579	(0.995)	2542	0.10000	0.04757 (aM)
	30 Indeno(1,2,3-cd)pyrene	276	27.696	27.696	(1.078)	1511	0.10000	0.03917 (aM)
	31 Dibenz(a,h)anthracene	278	27.751	27.751	(1.080)	1684	0.10000	0.04192 (aM)
	32 Benzo(g,h,i)perylene	276	28.095	28.095	(1.093)	2756	0.10000	0.06462 (aM)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

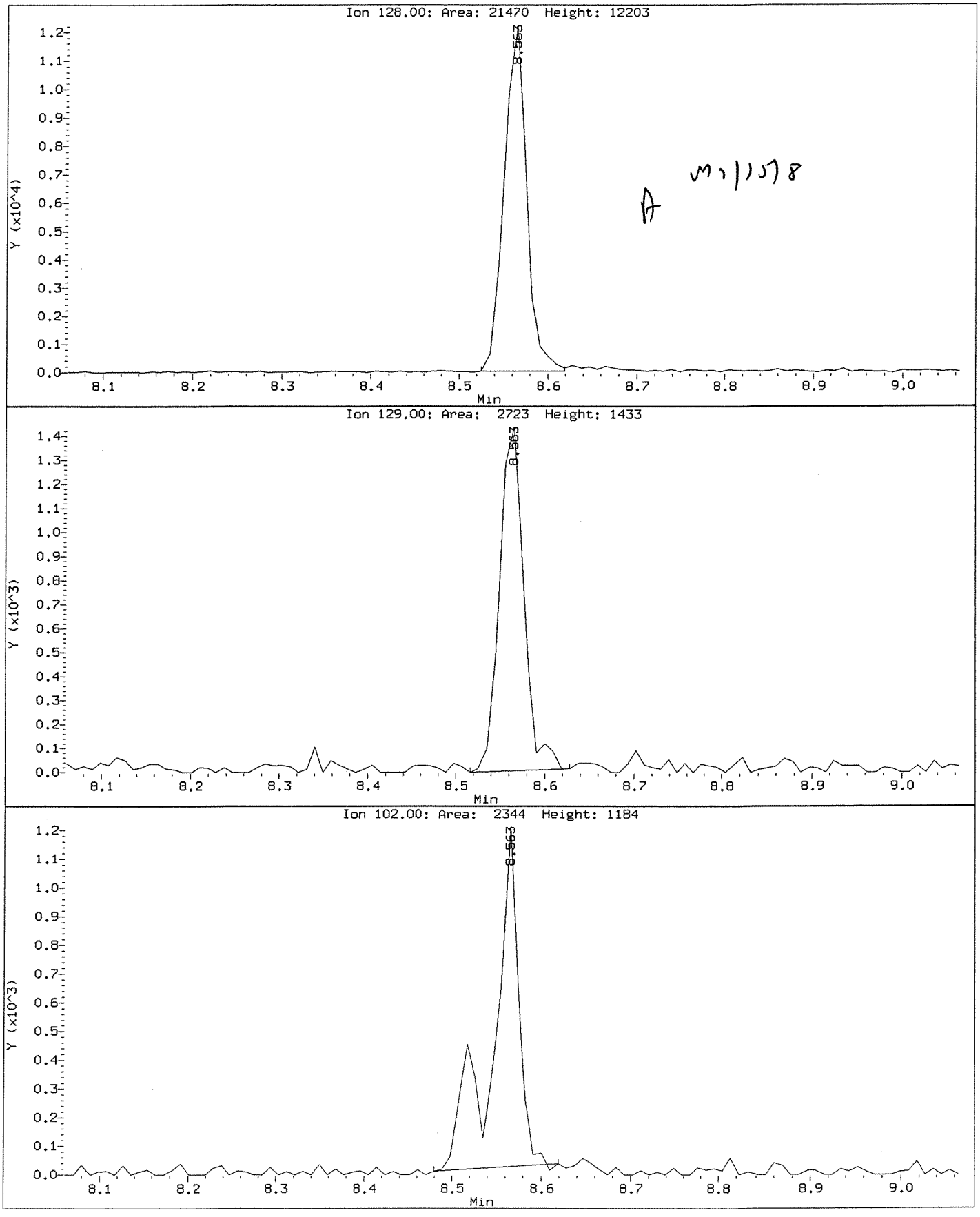
Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL1.D
Date : 14-JAN-2008 22:32
Client ID: LPAHCAL0.1PPM
Sample Info: LPAHCAL0.1PPM;;;;;SV4285-1
Volume Injected (uL): 2.0
Column phase: fused silica

Instrument: bna3.i
Operator: ADM
Column diameter: 0.25



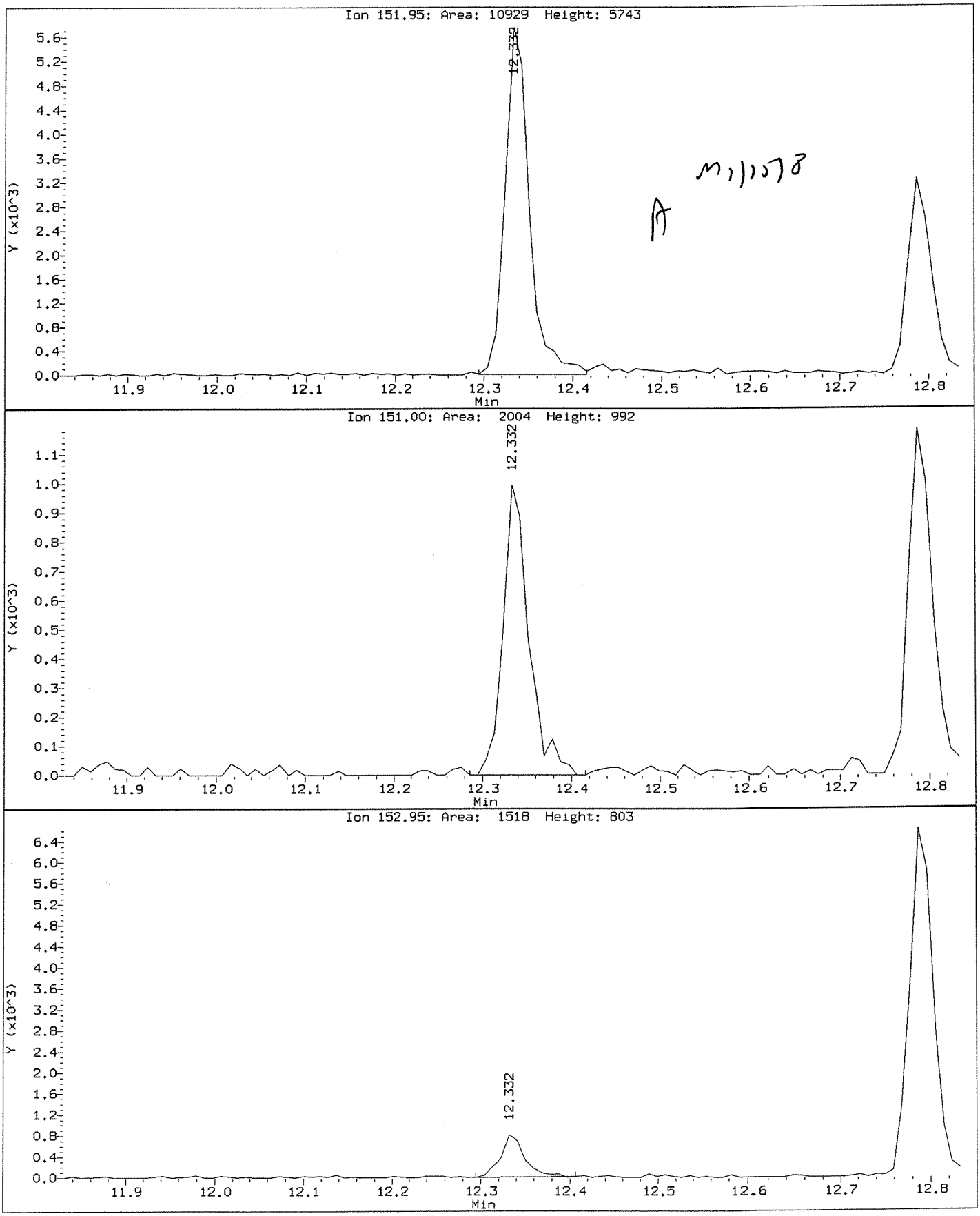
Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL1.D
Injection Date: 14-JAN-2008 22:32
Instrument: bna3.i
Client Sample ID: LPAHCAL0.1PPM

Compound: Naphthalene
CAS Number: 91-20-3



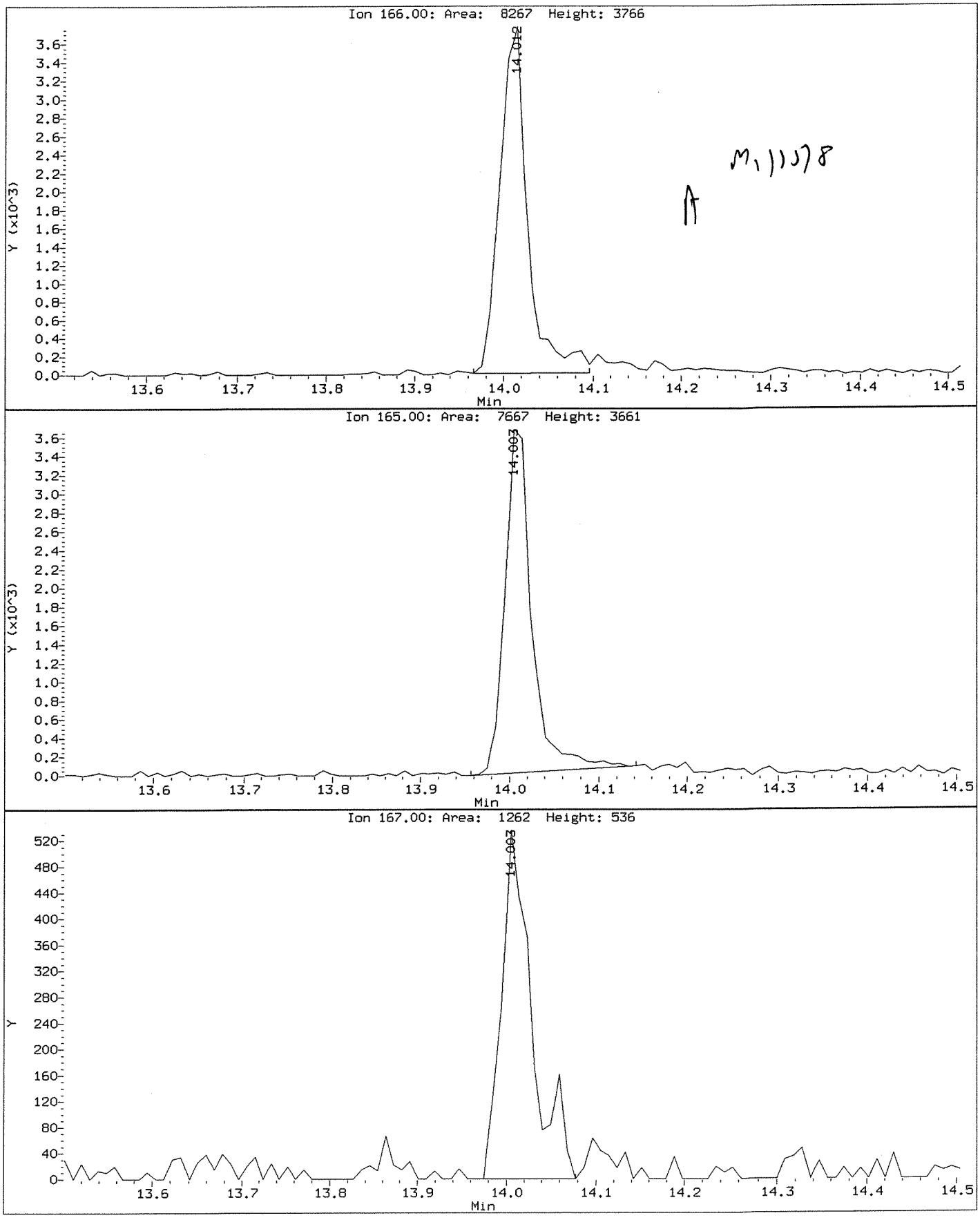
Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL1.D
Injection Date: 14-JAN-2008 22:32
Instrument: bna3.i
Client Sample ID: LPAHCAL0.1PPM

Compound: Acenaphthylene
CAS Number: 208-96-8



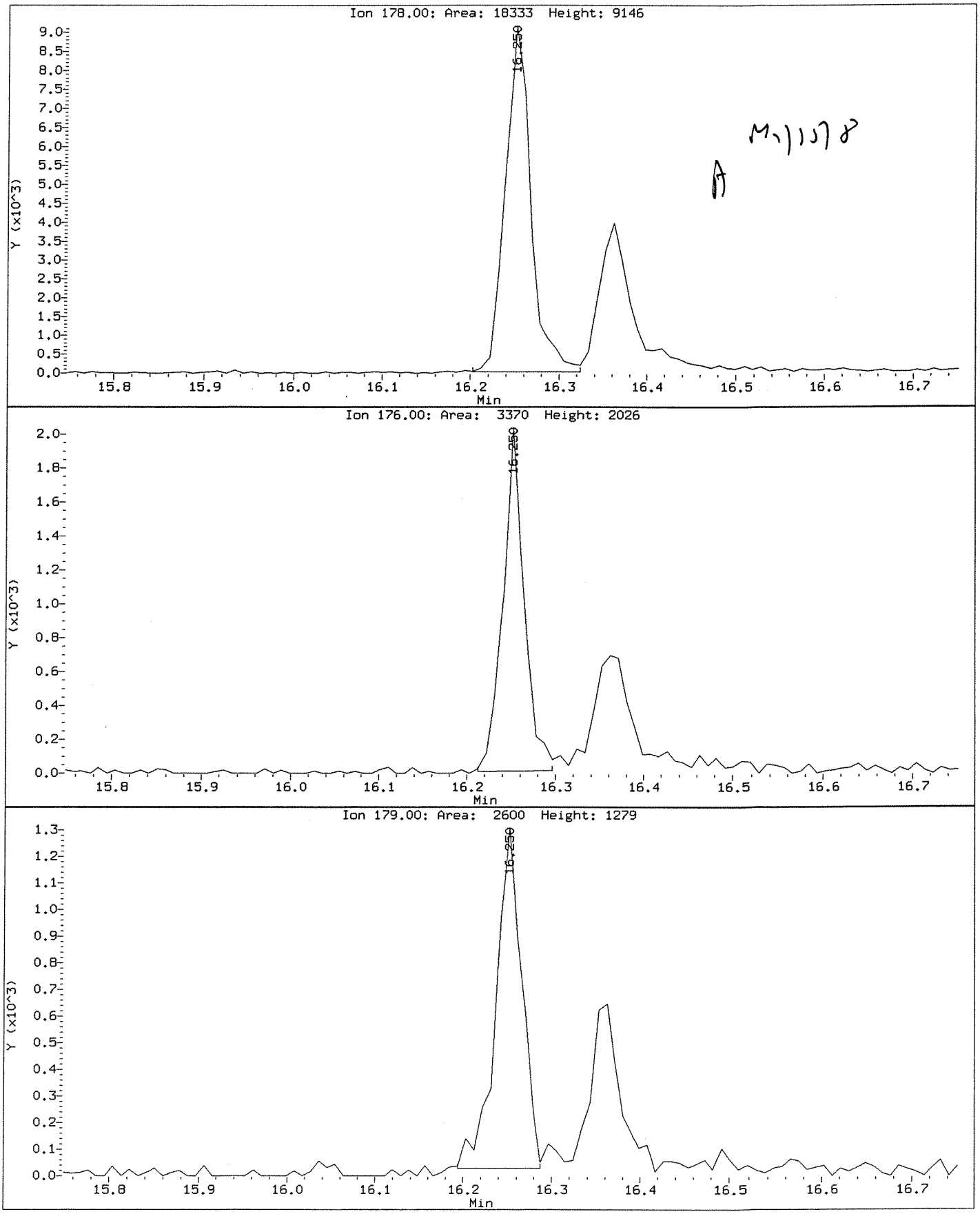
Data File: \\ELABNSHO5\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL1.D
Injection Date: 14-JAN-2008 22:32
Instrument: bna3.i
Client Sample ID: LPAHCALO.1PPM

Compound: Fluorene
CAS Number: 86-73-7



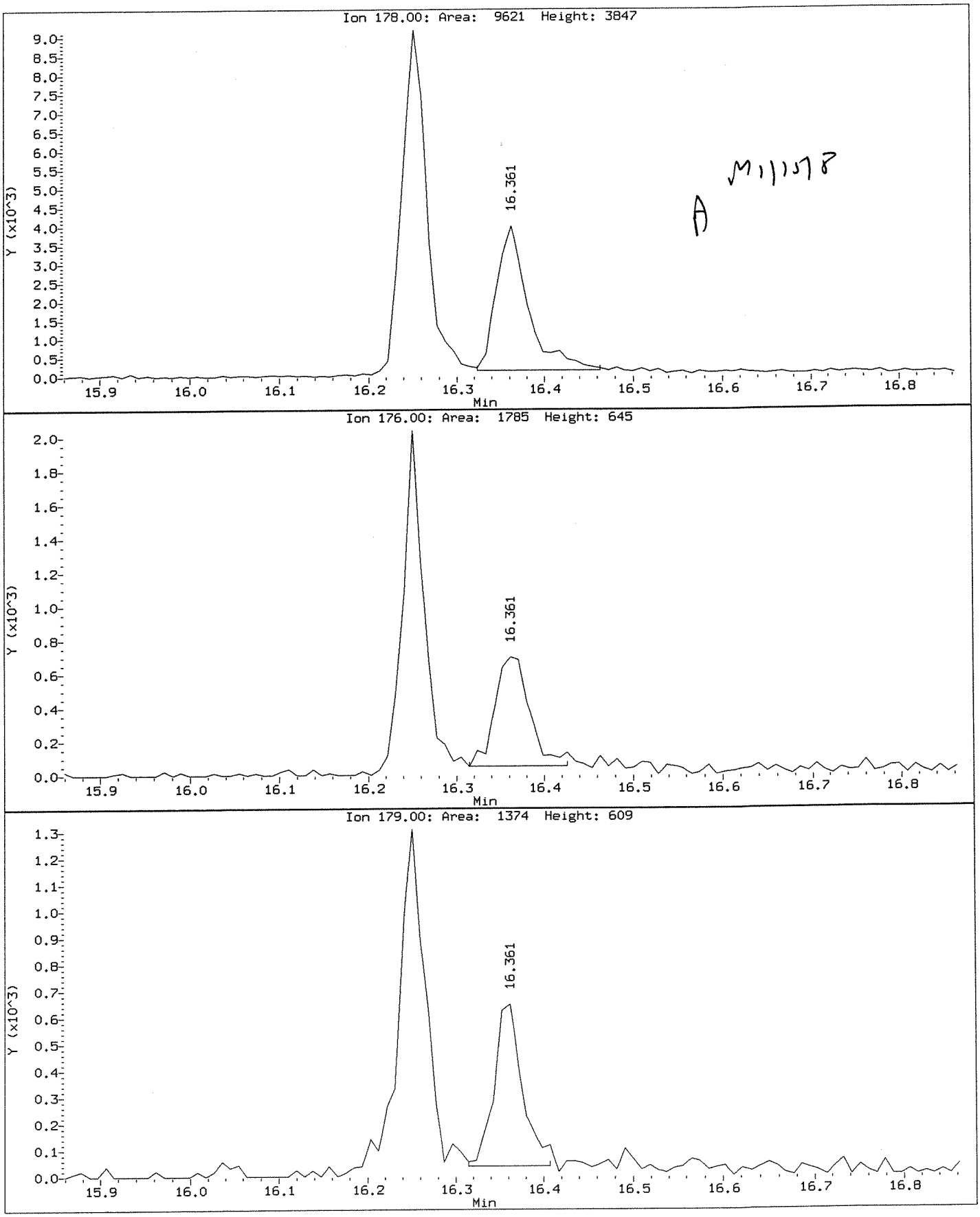
Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL1.D
Injection Date: 14-JAN-2008 22:32
Instrument: bna3.i
Client Sample ID: LPAHCAL0.1PPM

Compound: Phenanthrene
CAS Number: 85-01-8



Data File: \\ELABNSHO5\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL1.D
Injection Date: 14-JAN-2008 22:32
Instrument: bna3.i
Client Sample ID: LPAHCAL0.1PPM

Compound: Anthracene
CAS Number: 120-12-7



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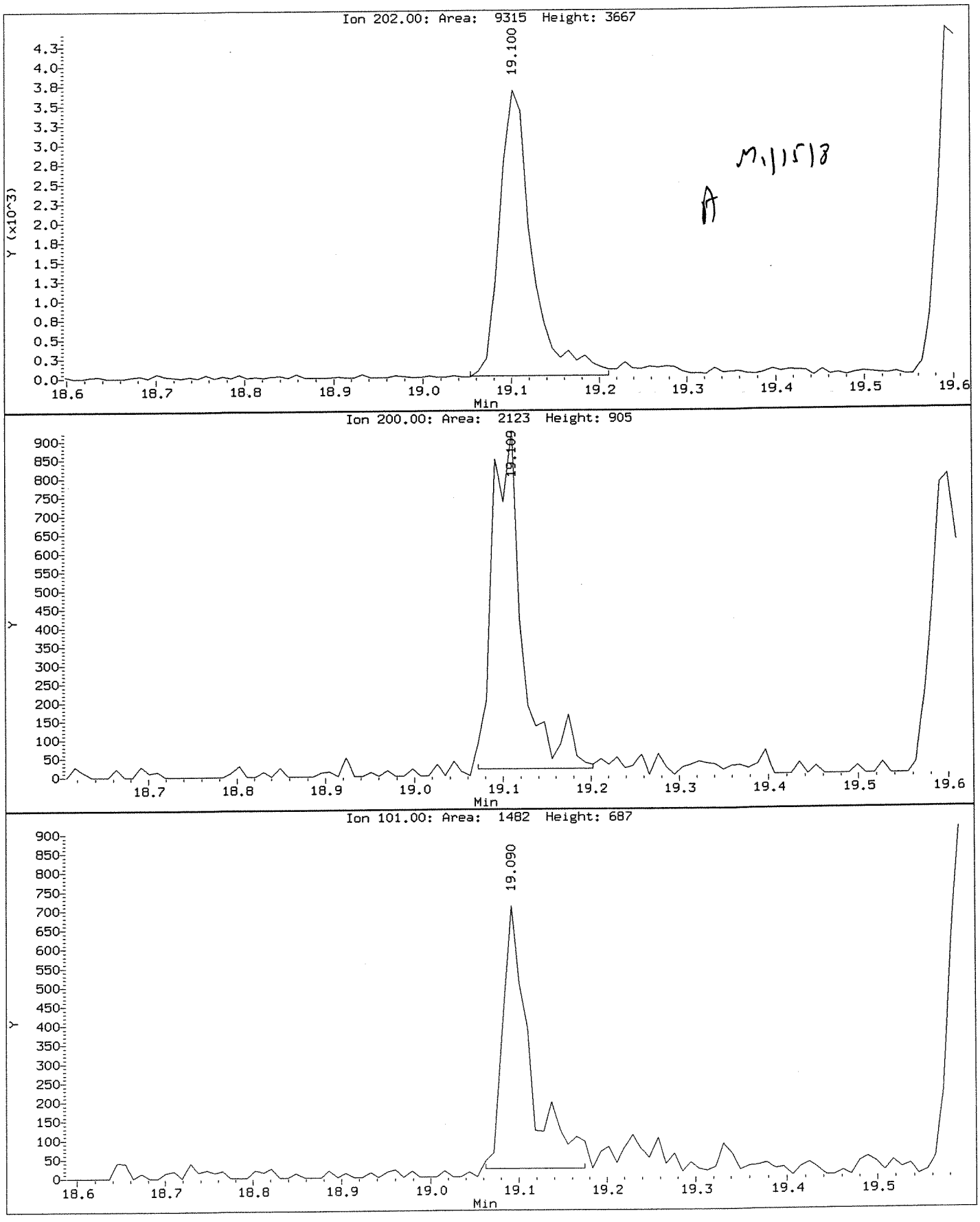
Injection Date: 14-JAN-2008 22:32
Instrument: bna3.i
Client Sample ID: LPAHCAL0.1PPM

Compound: Fluoranthene
CAS Number: 206-44-0



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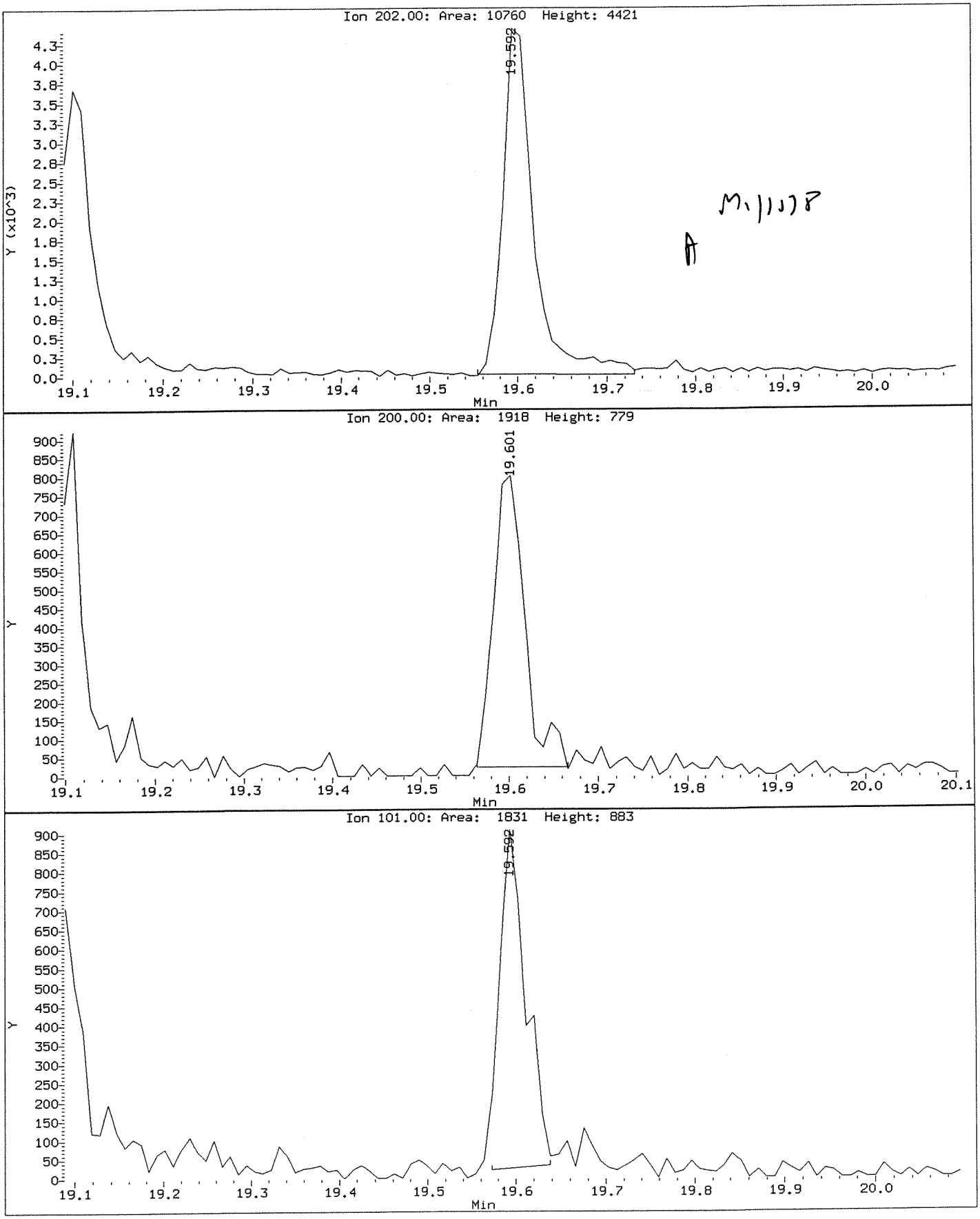
Injection Date: 14-JAN-2008 22:32
Instrument: bna3.i
Client Sample ID: LPAHCALO.1PPM

Compound: Pyrene
CAS Number: 129-00-0



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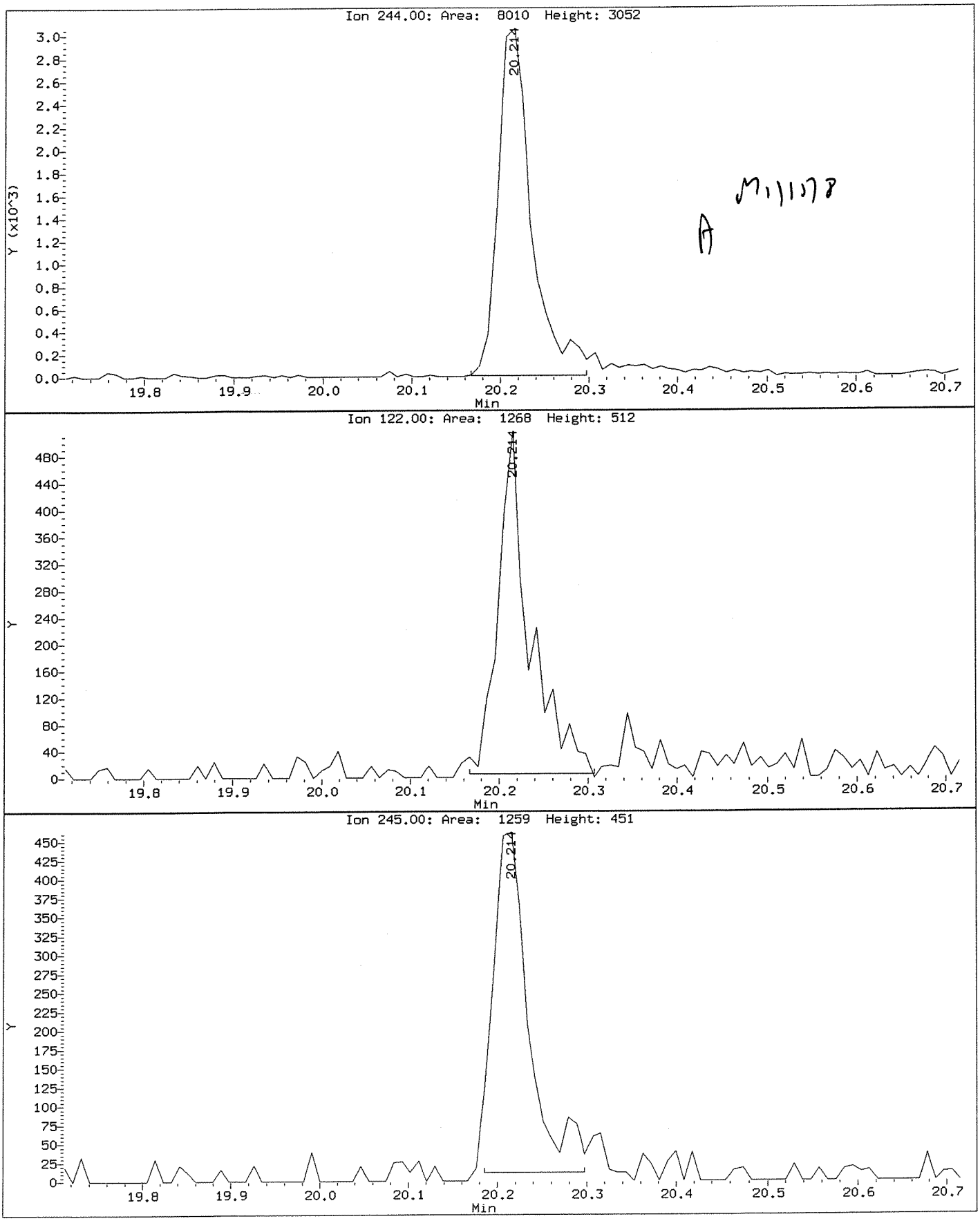
Injection Date: 14-JAN-2008 22:32
Instrument: bna3.i
Client Sample ID: LPAHCALO.1PPM

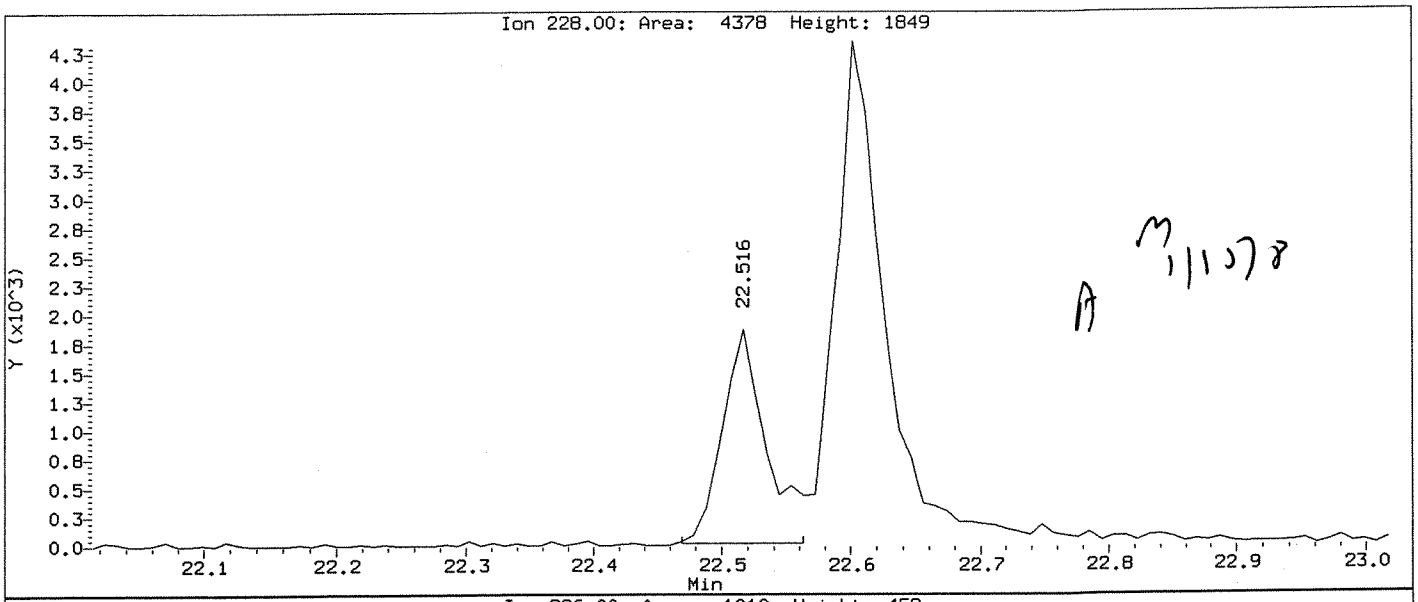
Compound: Terphenyl-d14
CAS Number: 1718-51-0

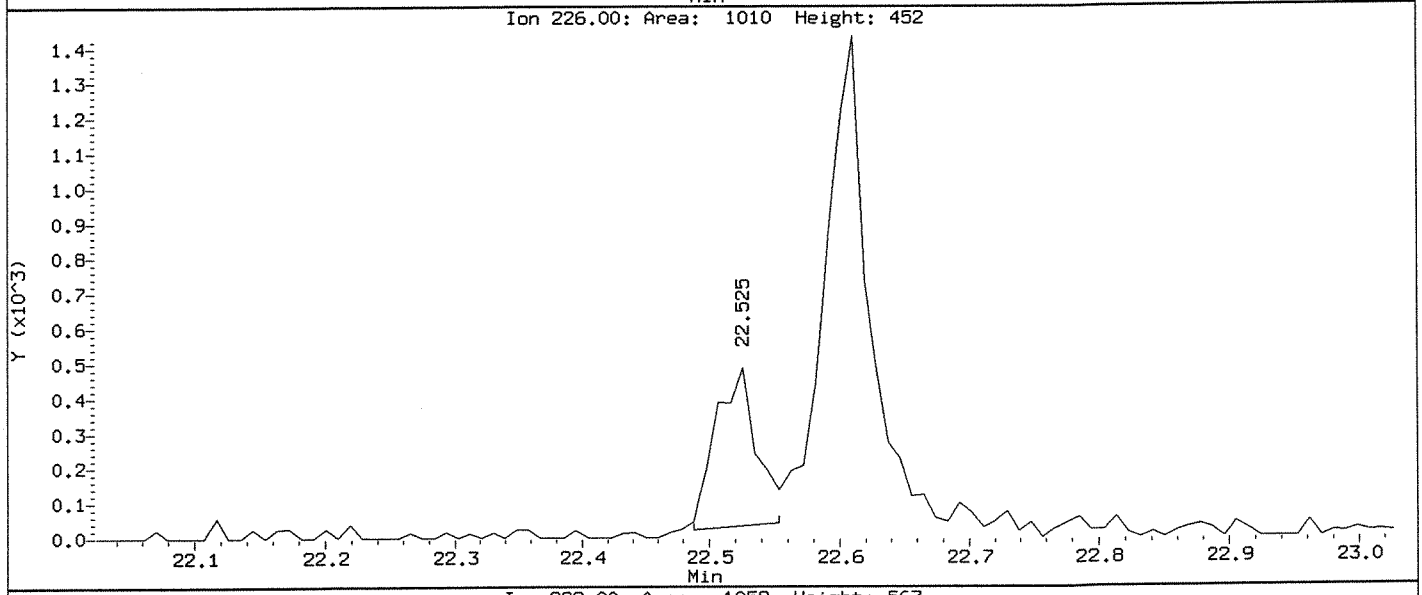


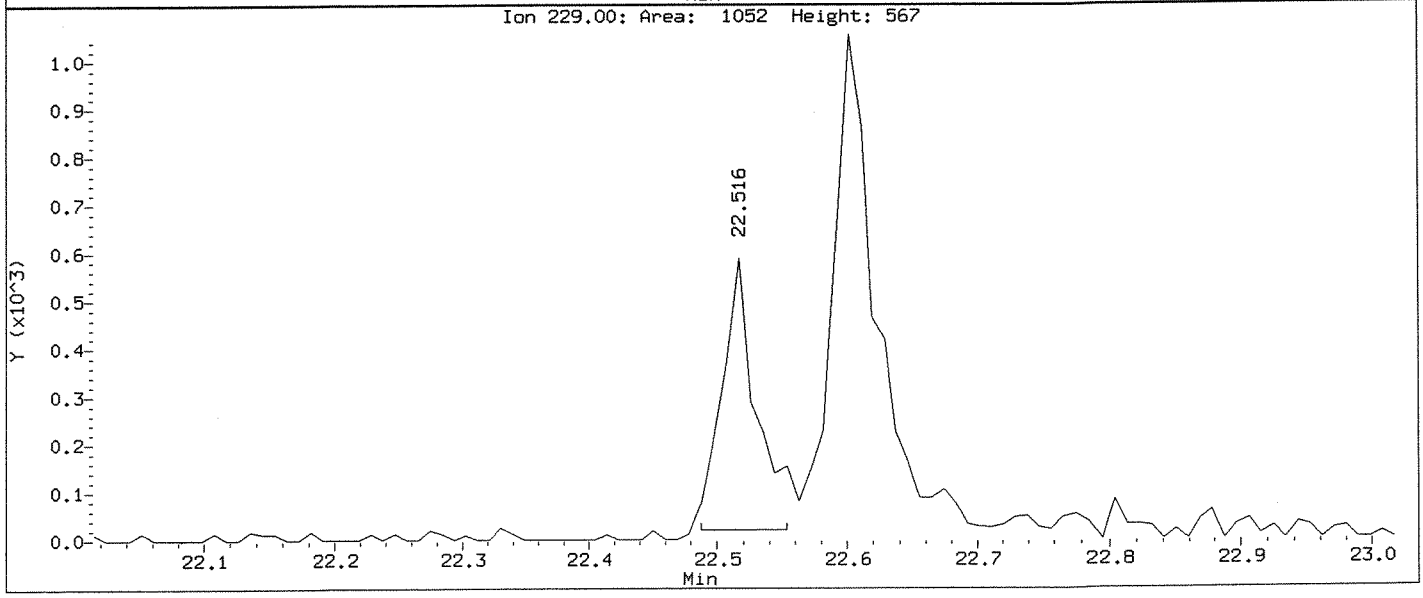
M11178
A

Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL1.D
Injection Date: 14-JAN-2008 22:32
Instrument: bna3.i
Client Sample ID: LPAHCALO.1PPM

Compound: Benzo(a)anthracene
CAS Number: 56-55-3







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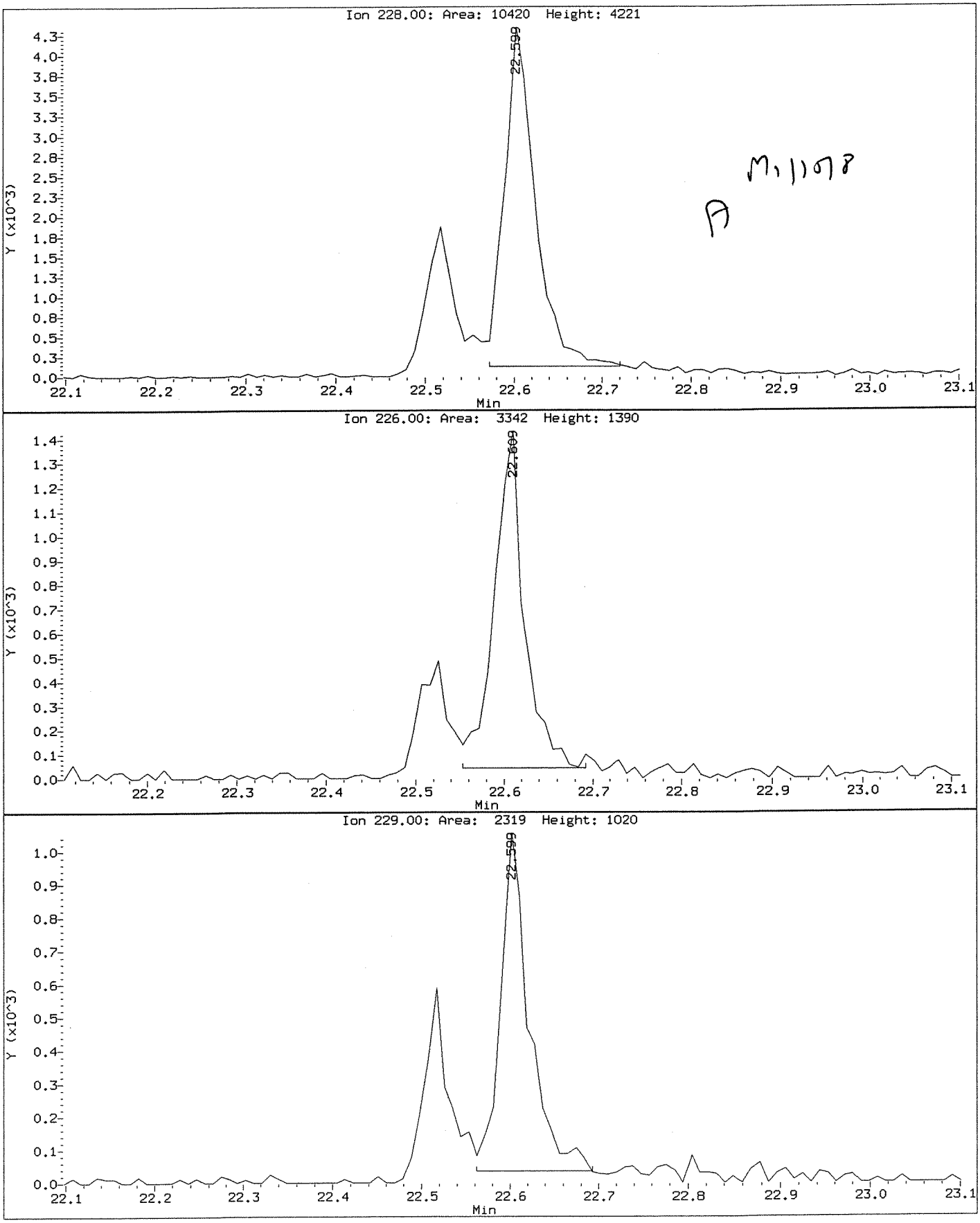
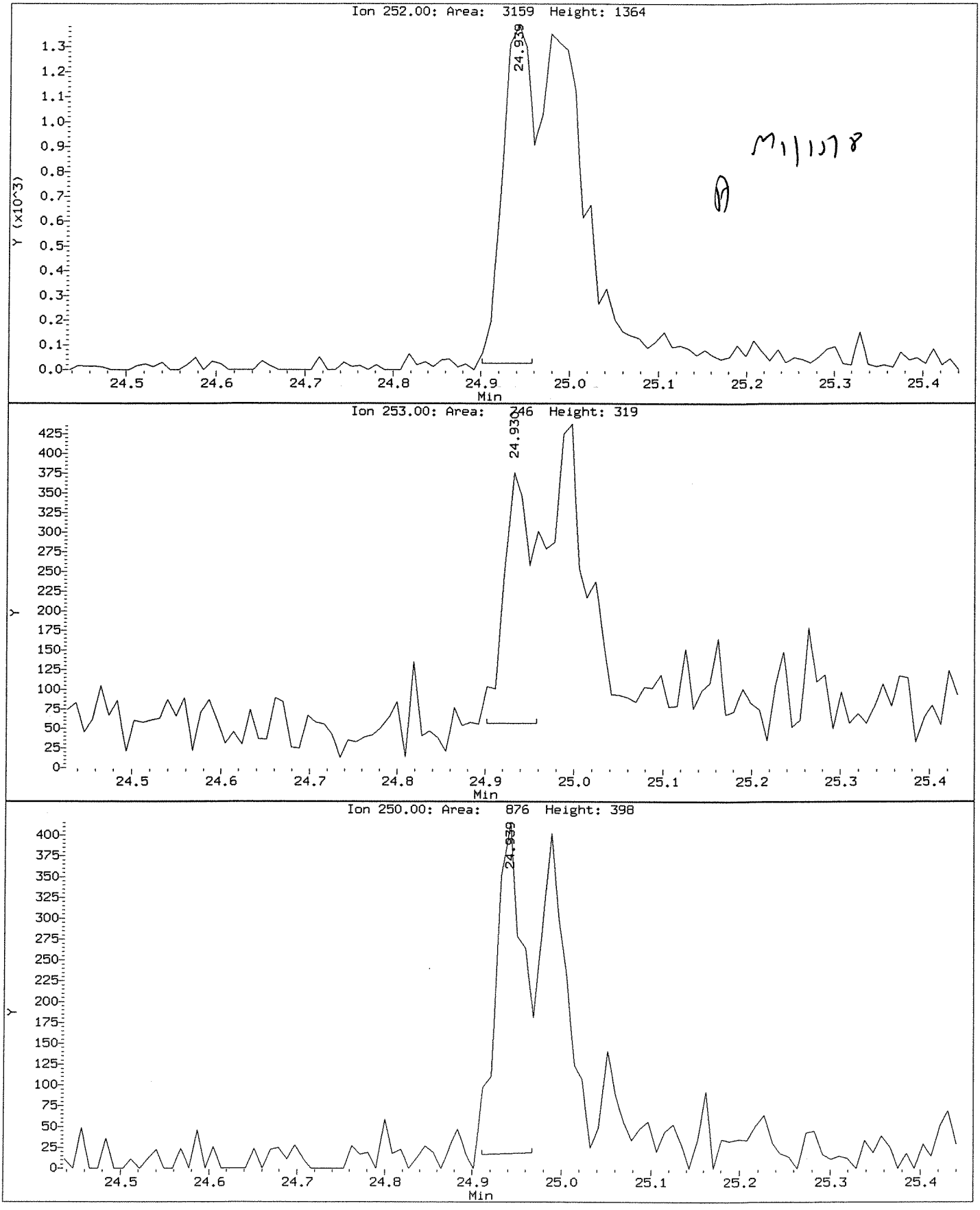
Injection Date: 14-JAN-2008 22:32
Instrument: bna3.i
Client Sample ID: LPAHCALO.1PPM

Compound: Chrysene
CAS Number: 218-01-9



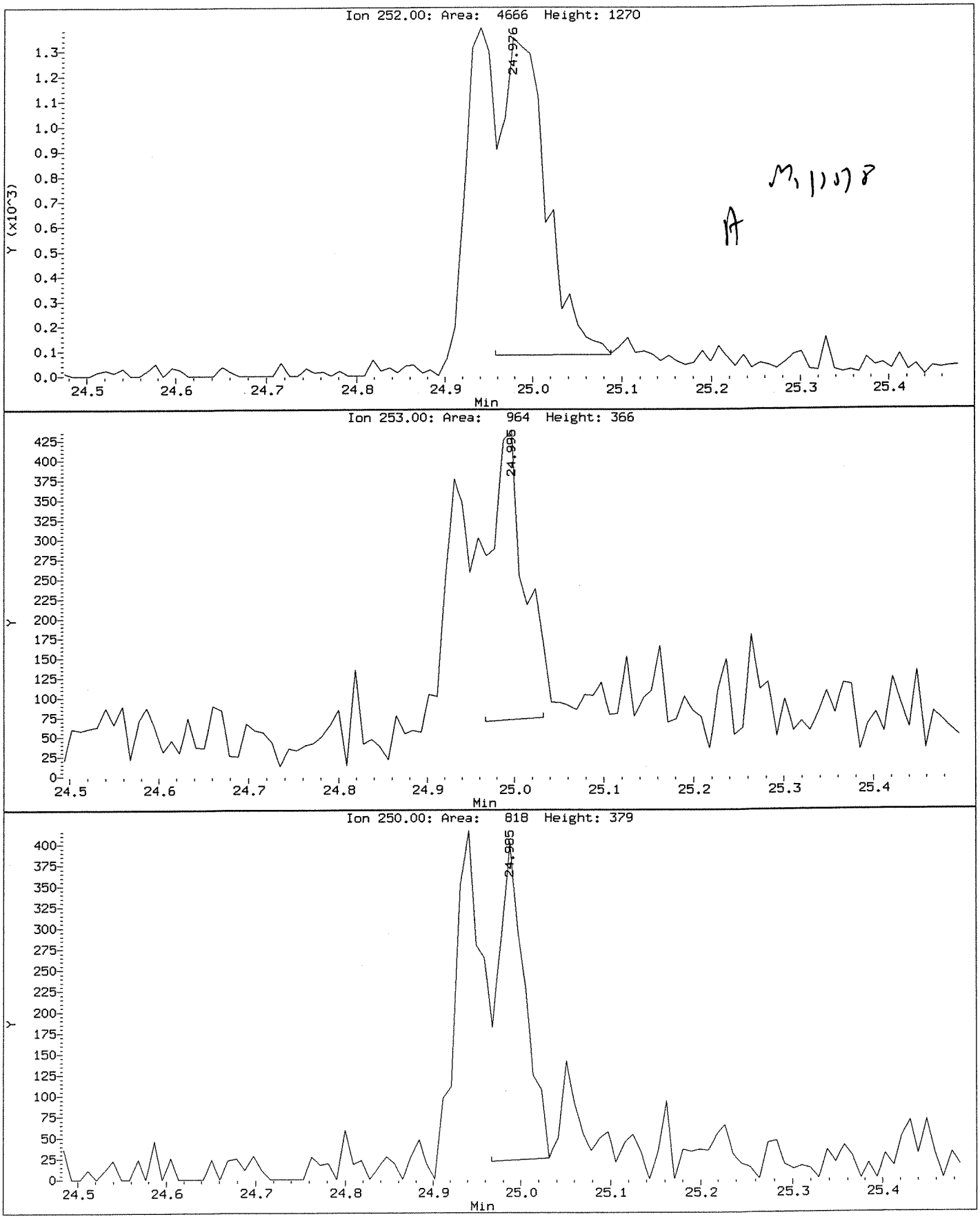
Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL1.D
Injection Date: 14-JAN-2008 22:32
Instrument: bna3.i
Client Sample ID: LPAHCAL0.1PPM

Compound: Benzo(b)fluoranthene
CAS Number: 205-99-2



Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL1.D
Injection Date: 14-JAN-2008 22:32
Instrument: bna3.i
Client Sample ID: LPAHCAL0.1PPM

Compound: Benzo(k)fluoranthene
CAS Number: 207-08-9



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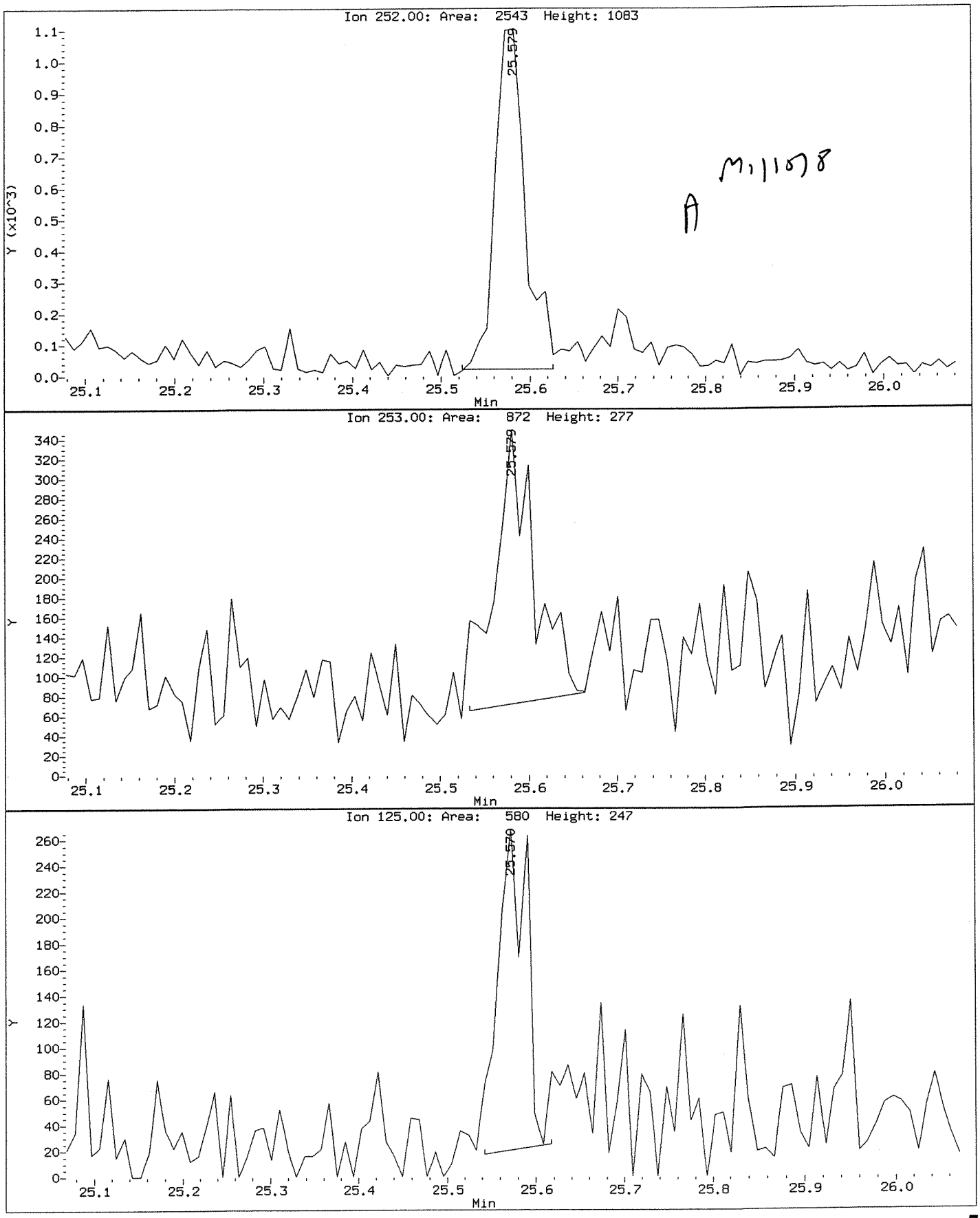
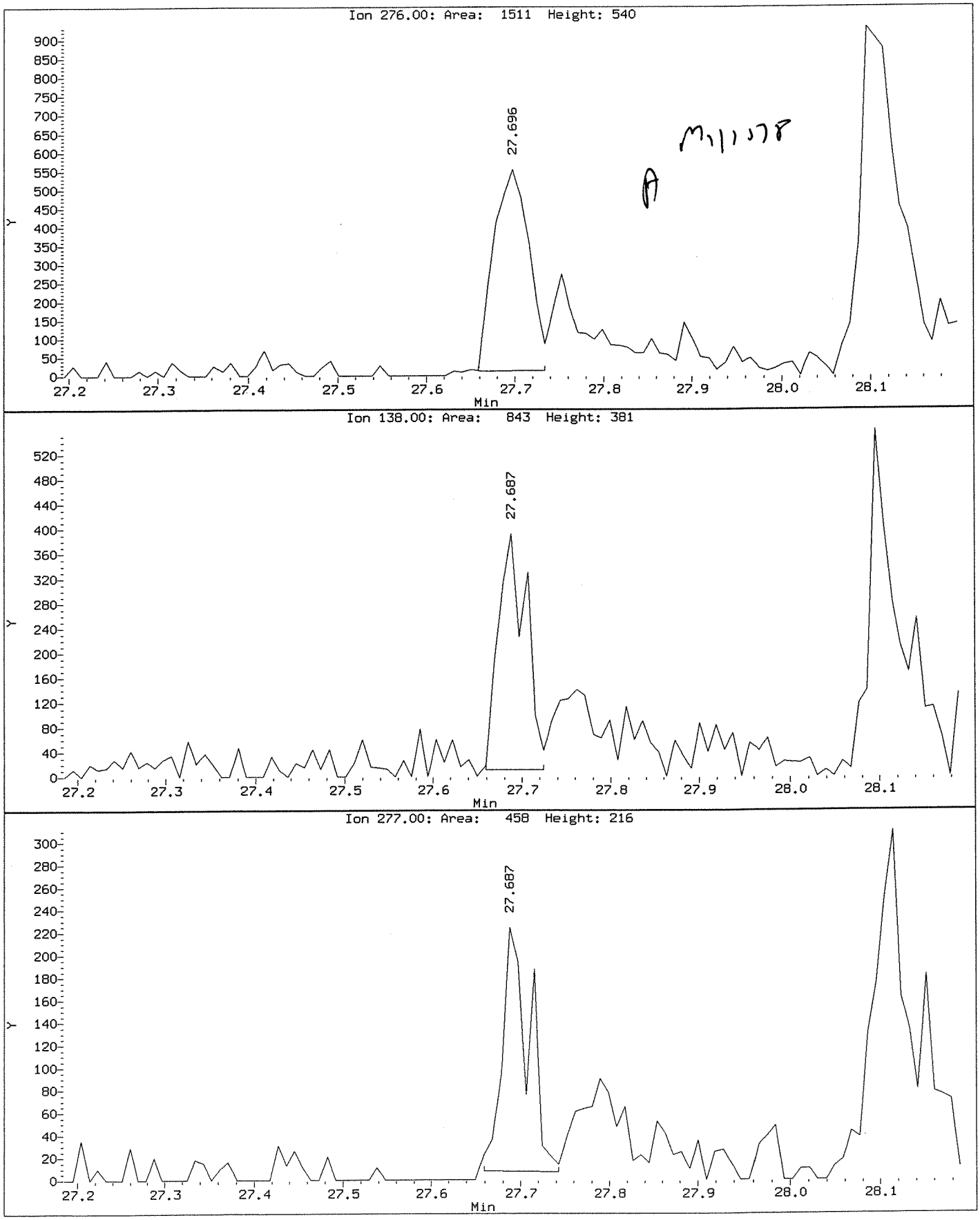
Injection Date: 14-JAN-2008 22:32
Instrument: bna3.i
Client Sample ID: LPAHCAL0.1PPM

Compound: Benzo(a)pyrene
CAS Number: 50-32-8



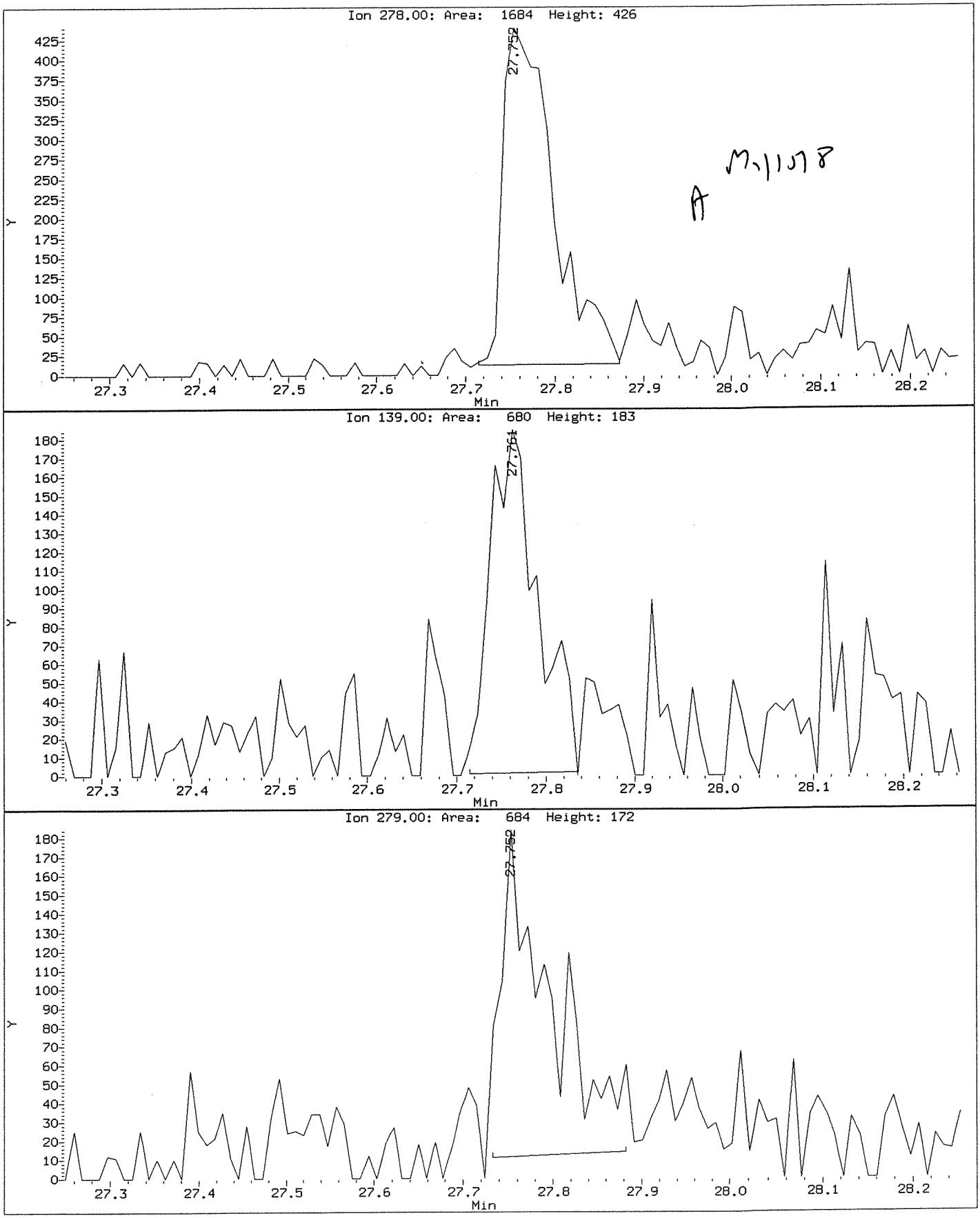
Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL1.D
Injection Date: 14-JAN-2008 22:32
Instrument: bna3.i
Client Sample ID: LPAHCAL0.1PPM

Compound: Indeno(1,2,3-cd)pyrene
CAS Number: 193-39-5



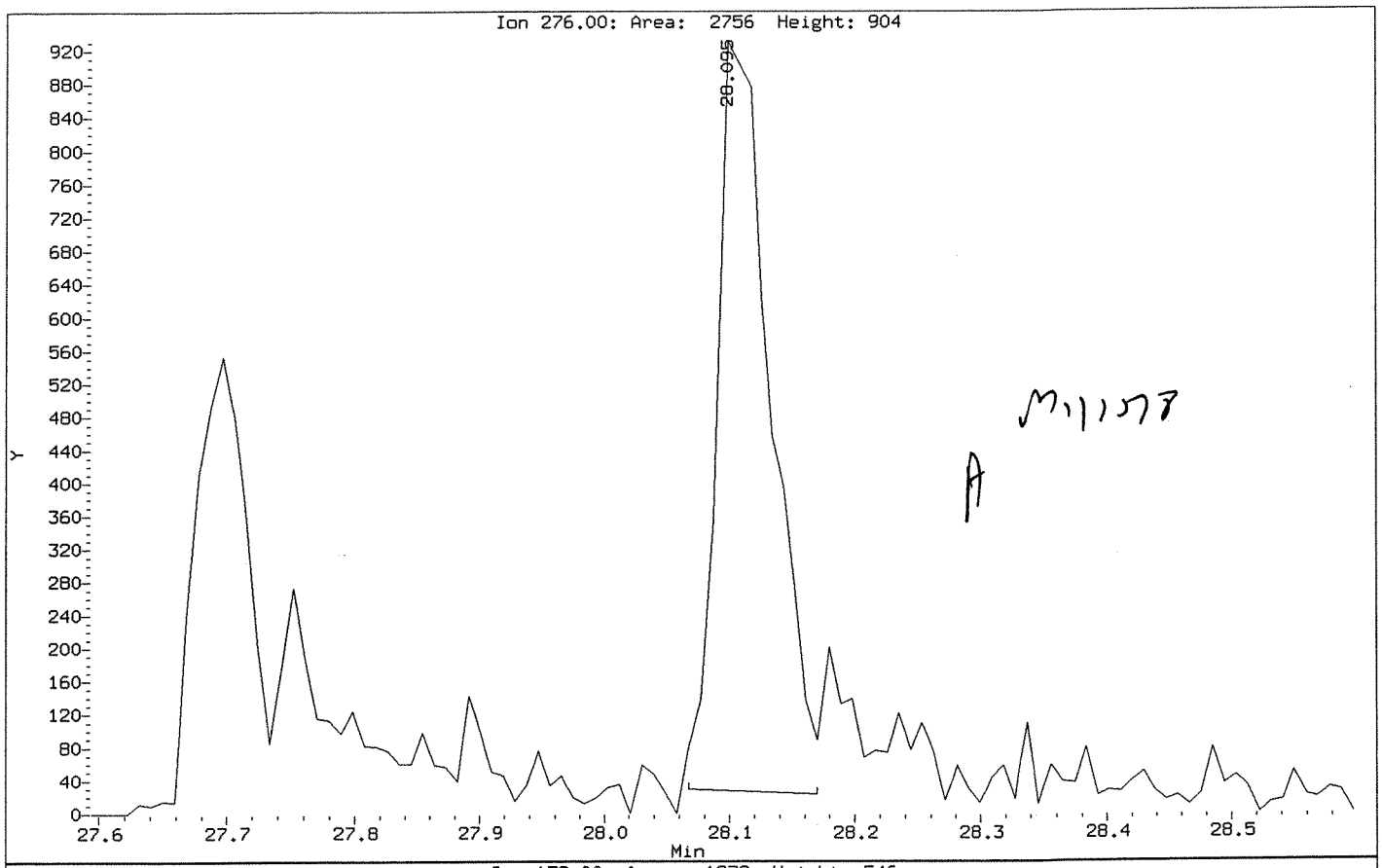
Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL1.D
Injection Date: 14-JAN-2008 22:32
Instrument: bna3.i
Client Sample ID: LPAHCAL0.1PPM

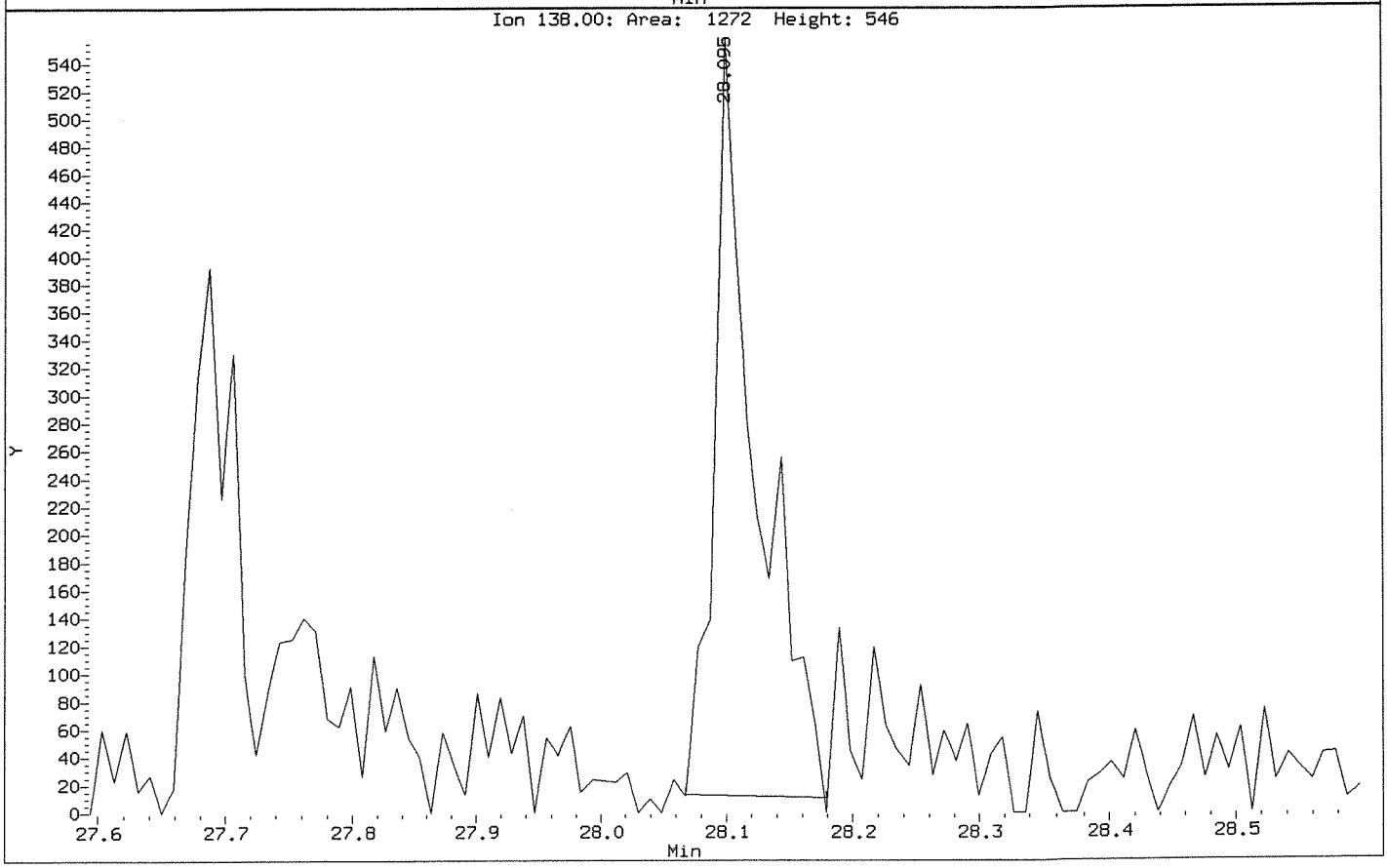
Compound: Dibenz(a,h)anthracene
CAS Number: 53-70-3



Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHCAL1.D
Injection Date: 14-JAN-2008 22:32
Instrument: bna3.i
Client Sample ID: LPAHCALO.1PPM

Compound: Benzo(g,h,i)perylene
CAS Number: 191-24-2





SEMIVOLATILE INITIAL CALIBRATION VERIFICATION

Lab Name: EMPIRICAL LABS Contract:

Lab Code: Case No.: SAS No.: NA SDG No.: SDGA70651

Instrument ID: BNA3 Calibration Date: 01/14/08 Time: 2311

Lab File ID: LPAHICV Init. Calib. Date(s): 01/14/08 01/14/08

Init. Calib. Times: 1754 2232

COMPOUND	$\overline{RRF}$	RRF5	CURVE AMOUNT	CCAL AMOUNT	MIN RRF	CURVE	%D	MAX %D	
Acenaphthene	1.029	1.102	5.000	5.351		AVRG	7.0	25.0	
Acenaphthylene	1.344	1.589	5.000	4.994		LINR	-0.1	25.0	
Anthracene	0.878	1.071	5.000	5.224		LINR	4.5	25.0	
Benzo(a)anthracene	0.768	1.037	5.000	4.970		LINR	-0.6	25.0	
Benzo(b)fluoranthene	1.049	1.381	5.000	5.171		LINR	3.4	25.0	
Benzo(k)fluoranthene	1.284	1.652	5.000	5.816		LINR	16.3	25.0	
Benzo(g,h,i)perylene	0.841	0.945	5.000	4.956		LINR	-0.9	25.0	
Benzo(a)pyrene	0.875	1.145	5.000	4.793		LINR	-4.1	25.0	
Chrysene	1.089	1.135	5.000	5.212		AVRG	4.2	25.0	
Dibenz(a,h)anthracene	0.671	0.799	5.000	4.449		LINR	-11.0	25.0	
Fluoranthene	0.886	1.115	5.000	5.296		LINR	5.9	25.0	
Fluorene	0.981	1.196	5.000	5.329		LINR	6.6	25.0	
Indeno(1,2,3-cd)pyrene	0.610	0.670	5.000	3.887		LINR	-22.3	25.0	●
2-Methylnaphthalene	0.440	0.523	5.000	5.938		AVRG	18.8	25.0	
1-Methylnaphthalene	0.480	0.496	5.000	5.168		AVRG	3.4	25.0	
Naphthalene	0.862	0.915	5.000	5.308		AVRG	6.2	25.0	
Phenanthrene	1.086	1.106	5.000	5.093		AVRG	1.8	25.0	
Pyrene	1.178	1.395	5.000	5.920		AVRG	18.4	25.0	
Nitrobenzene-d5	0.219	0.262	5.000	0.0000		LINR	-99.9	25.0	<
2-Fluorobiphenyl	1.242	1.277	5.000	0.0000		AVRG	2.8	25.0	
Terphenyl-d14	0.845	0.866	5.000	0.0000		AVRG	2.5	25.0	

ICV SV

Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHICV.D
Report Date: 28-Apr-2008 10:56

Empirical Laboratories, LLC

Data file : \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHICV.D
Lab Smp Id: LPAHICV5PPM Client Smp ID: LPAHICV5PPM
Inj Date : 14-JAN-2008 23:11 MS Autotune Date: 01-NOV-2007 04:29
Operator : ADM Inst ID: bna3.i
Smp Info : LPAHICV5PPM;;;;;SV4286
Misc Info : ;;;;;;pahsurr.sub;4277
Comment :
Method : \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\PAHLOW1.m
Meth Date : 28-Apr-2008 10:56 tmonteiro Quant Type: ISTD
Cal Date : 14-JAN-2008 22:32 Cal File: LPAHCAL1.D
Als bottle: 25 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pahsurr.sub
Target Version: 4.04
Processing Host: TARGET02_VM

Concentration Formula: Amt * DF * Uf * Vt*Vi/(Amt * Vi)

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	500.000	Volume of final extract (uL)
Vi	2.000	Volume injected (uL)
Amt	1000.000	Volume of initial extraction

amb 04/28/08
m 4/28/08

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ng/ul)	ON-COL (ng/ul)	
*	1 1,4-Dichlorobenzene-d4	152	5.635	5.635	(1.000)	73808	1.00000		(M)
*	3 Naphthalene-d8	136	8.522	8.522	(1.000)	293971	1.00000		
	5 Naphthalene	128	8.559	8.559	(1.004)	1345206	5.00000	5.308	
	6 2-Methylnaphthalene	141	10.221	10.221	(1.199)	768485	5.00000	5.938	
	7 1-Methylnaphthalene	141	10.462	10.462	(1.228)	729745	5.00000	5.168	
*	8 Acenaphthene-d10	164	12.718	12.718	(1.000)	154683	1.00000		
	12 Acenaphthylene	152	12.337	12.337	(0.970)	1229085	5.00000	4.994	
	13 Acenaphthene	153	12.792	12.792	(1.006)	852164	5.00000	5.351	
	16 Fluorene	166	14.008	14.008	(1.101)	925170	5.00000	5.329	
*	17 Phenanthrene-d10	188	16.199	16.199	(1.000)	243100	1.00000		
	18 Phenanthrene	178	16.255	16.255	(1.003)	1344274	5.00000	5.093	
	19 Anthracene	178	16.357	16.357	(1.010)	1302112	5.00000	5.224	
	20 Fluoranthene	202	19.096	19.096	(1.179)	1355399	5.00000	5.296	
*	21 Chrysene d12	240	22.549	22.549	(1.000)	200307	1.00000		

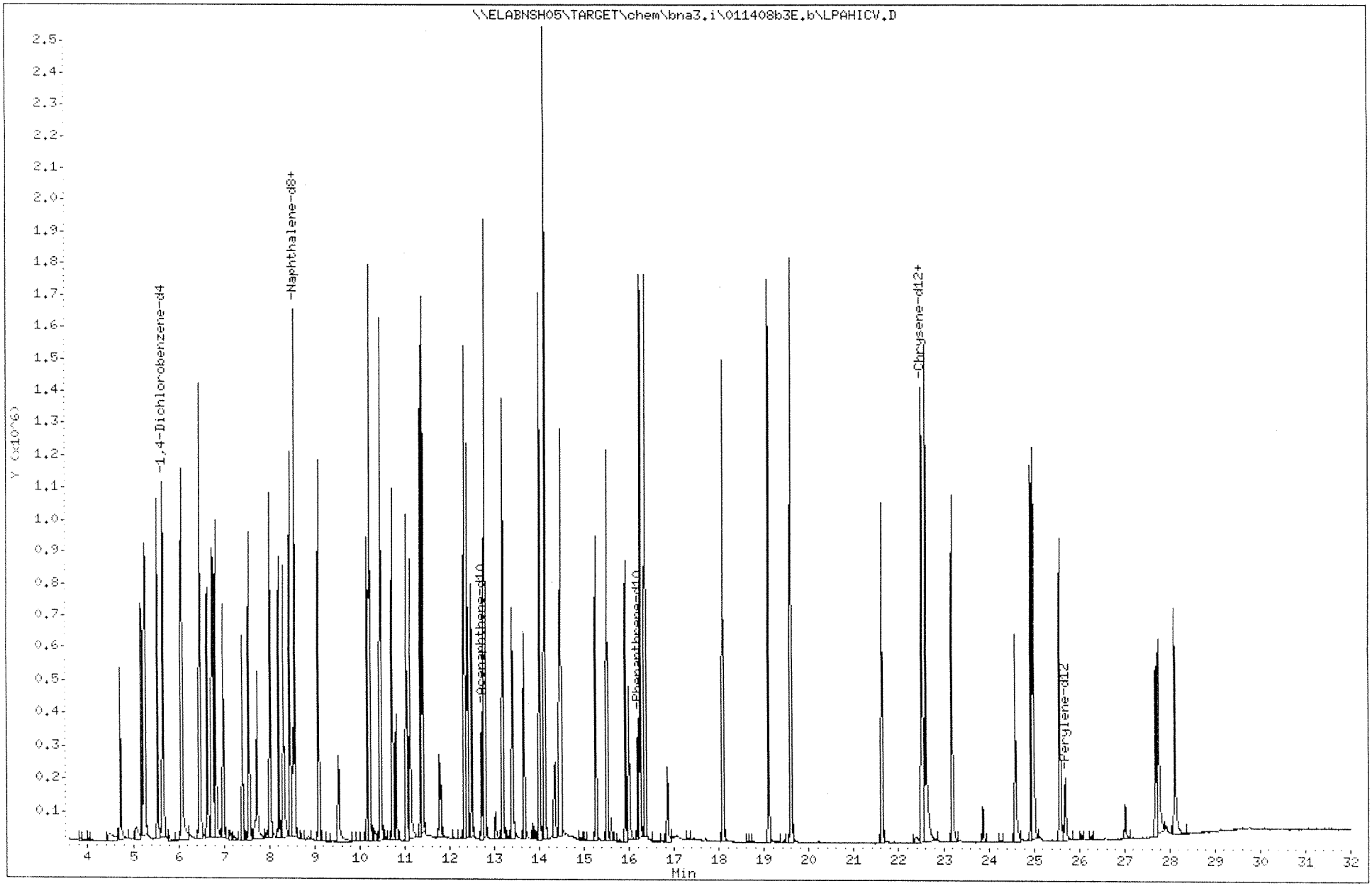
Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHICV.D
Report Date: 28-Apr-2008 10:56

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ng/ul)	AMOUNTS ON-COL (ng/ul)
	22 Pyrene	202	19.597	19.597	(0.869)	1396875	5.00000	5.920
	24 Benzo(a)anthracene	228	22.512	22.512	(0.998)	1038669	5.00000	4.970
	25 Chrysene	228	22.605	22.605	(1.002)	1136927	5.00000	5.212
*	26 Perylene-d12	264	25.696	25.696	(1.000)	130813	1.00000	
	27 Benzo(b)fluoranthene	252	24.935	24.935	(0.970)	903365	5.00000	5.171
	28 Benzo(k)fluoranthene	252	24.991	24.991	(0.973)	1080465	5.00000	5.816
	29 Benzo(a)pyrene	252	25.575	25.575	(0.995)	749026	5.00000	4.793
	30 Indeno(1,2,3-cd)pyrene	276	27.692	27.692	(1.078)	438336	5.00000	3.887
	31 Dibenz(a,h)anthracene	278	27.757	27.757	(1.080)	522547	5.00000	4.449
	32 Benzo(g,h,i)perylene	276	28.110	28.110	(1.094)	618053	5.00000	4.956

QC Flag Legend

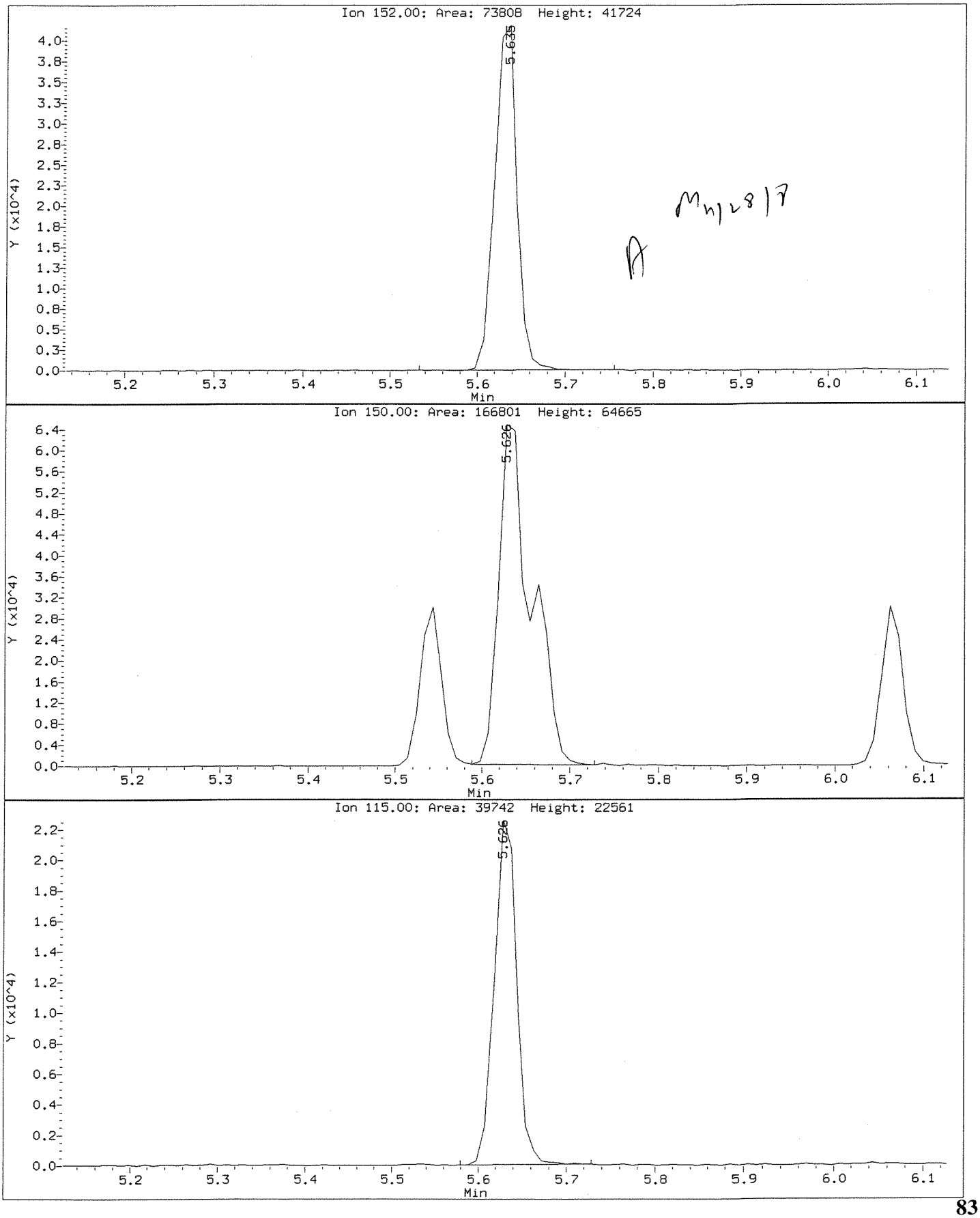
M - Compound response manually integrated.

Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHICV.D
Date : 14-JAN-2008 23:11
Client ID: LPAHICV5PPM
Instrument: bna3.i
Sample Info: LPAHICV5PPM;;;;;SV4286
Volume Injected (uL): 2.0
Operator: ADM
Column phase: fused silica
Column diameter: 0.25



Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\LPAHICV.D
Injection Date: 14-JAN-2008 23:11
Instrument: bna3.i
Client Sample ID: LPAHICV5PPM

Compound: 1,4-Dichlorobenzene-d4
CAS Number: 3855-82-1



FORM 7
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: EMPIRICAL LABS Contract: ARCADIS

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: ARC.B06207

Instrument ID: BNA3 Calibration Date: 06/25/08 Time: 0919

Lab File ID: LPAHCCV Init. Calib. Date(s): 01/14/08 01/14/08

Init. Calib. Times: 1754 2232

COMPOUND	$\overline{RRF}$	RRF5	CURVE AMOUNT	CCAL AMOUNT	MIN RRF	CURVE	%D	MAX %D
Acenaphthene	1.029	1.111	5.000	5.395		AVRG	7.9	20.0
Acenaphthylene	1.344	1.703	5.000	5.352		LINR	7.0	20.0
Anthracene	0.878	1.050	5.000	5.120		LINR	2.4	20.0
Benzo(a)anthracene	0.768	0.985	5.000	4.721		LINR	-5.6	20.0
Benzo(b)fluoranthene	1.049	1.135	5.000	4.248		LINR	-15.0	20.0
Benzo(k)fluoranthene	1.284	1.358	5.000	4.782		LINR	-4.4	20.0
Benzo(g,h,i)perylene	0.841	1.016	5.000	5.327		LINR	6.5	20.0
Benzo(a)pyrene	0.875	1.028	5.000	4.305		LINR	-13.9	20.0
Chrysene	1.089	1.067	5.000	4.897		AVRG	-2.0	20.0
Dibenz(a,h)anthracene	0.671	0.899	5.000	5.004		LINR	0.1	20.0
Fluoranthene	0.886	1.056	5.000	5.018		LINR	0.4	20.0
Fluorene	0.981	1.147	5.000	5.111		LINR	2.2	20.0
Indeno(1,2,3-cd)pyrene	0.610	0.855	5.000	4.957		LINR	-0.9	20.0
2-Methylnaphthalene	0.440	0.502	5.000	5.703		AVRG	14.1	20.0
1-Methylnaphthalene	0.480	0.530	5.000	5.522		AVRG	10.4	20.0
Naphthalene	0.862	0.891	5.000	5.170		AVRG	3.4	20.0
Phenanthrene	1.086	1.074	5.000	4.948		AVRG	-1.0	20.0
Pyrene	1.178	1.170	5.000	4.968		AVRG	-0.6	20.0
Nitrobenzene-d5	0.219	0.292	5.000	5.462		LINR	9.2	
2-Fluorobiphenyl	1.242	1.325	5.000	5.334		AVRG	6.7	
Terphenyl-d14	0.845	0.822	5.000	4.866		AVRG	-2.7	

Data File: \\ELABNSH05\TARGET\chem\bna3.i\062508b3.b\LPAHCCV.D
Report Date: 25-Jun-2008 09:52

Empirical Laboratories, LLC

Data file : \\ELABNSH05\TARGET\chem\bna3.i\062508b3.b\LPAHCCV.D
Lab Smp Id: LOWPAH5PPM
Client Smp ID: LOWPAH5PPM
Inj Date : 25-JUN-2008 09:19
MS Autotune Date: 01-NOV-2007 04:29
Operator : ADM
Inst ID: bna3.i
Smp Info : LOWPAH5PPM;;;;; SV4420B
Misc Info : ;2;;;;;pahsurr.sub;4352
Comment :
Method : \\ELABNSH05\TARGET\chem\bna3.i\062508b3.b\PAHLOW1.m
Meth Date : 25-Jun-2008 09:52 tmonteiro
Quant Type: ISTD
Cal Date : 14-JAN-2008 22:32
Cal File: LPAHCAL1.D
Als bottle: 2
Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE
Compound Sublist: pahsurr.sub
Target Version: 4.04
Processing Host: TARGET02_VM

M 6/25/08

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ng/ul)	AMOUNTS ON-COL (ng/ul)
*	1 1,4-Dichlorobenzene-d4	152	3.381	3.381	(1.000)	41299	1.00000	
*	3 Naphthalene-d8	136	6.333	6.333	(1.000)	155161	1.00000	
$	4 Nitrobenzene-d5	82	4.773	4.773	(0.754)	226976	5.00000	5.461
	5 Naphthalene	128	6.370	6.370	(1.006)	691536	5.00000	5.170
	6 2-Methylnaphthalene	141	8.032	8.032	(1.268)	389597	5.00000	5.703
	7 1-Methylnaphthalene	141	8.255	8.255	(1.303)	411596	5.00000	5.522
*	8 Acenaphthene-d10	164	10.455	10.455	(1.000)	79018	1.00000	
$	11 2-Fluorobiphenyl	172	9.071	9.071	(0.868)	523615	5.00000	5.334
	12 Acenaphthylene	152	10.074	10.074	(0.964)	673009	5.00000	5.352
	13 Acenaphthene	153	10.520	10.520	(1.006)	438882	5.00000	5.395
	16 Fluorene	166	11.708	11.708	(1.120)	453257	5.00000	5.111
*	17 Phenanthrene-d10	188	13.815	13.815	(1.000)	127833	1.00000	
	18 Phenanthrene	178	13.862	13.862	(1.003)	686819	5.00000	4.948
	19 Anthracene	178	13.973	13.973	(1.011)	671201	5.00000	5.120
	20 Fluoranthene	202	16.619	16.619	(1.203)	675229	5.00000	5.018
*	21 Chrysene-d12	240	19.980	19.980	(1.000)	124574	1.00000	
	22 Pyrene	202	17.083	17.083	(0.855)	728973	5.00000	4.968
$	23 Terphenyl-d14	244	17.789	17.789	(0.890)	512264	5.00000	4.866
	24 Benzo(a)anthracene	228	19.952	19.952	(0.999)	613595	5.00000	4.721
	25 Chrysene	228	20.035	20.035	(1.003)	664369	5.00000	4.897
*	26 Perylene-d12	264	23.043	23.043	(1.000)	99762	1.00000	
	27 Benzo(b)fluoranthene	252	22.319	22.319	(0.969)	565983	5.00000	4.248
	28 Benzo(k)fluoranthene	252	22.365	22.365	(0.971)	677554	5.00000	4.782
	29 Benzo(a)pyrene	252	22.922	22.922	(0.995)	512985	5.00000	4.305
	30 Indeno(1,2,3-cd)pyrene	276	24.993	24.993	(1.085)	426317	5.00000	4.957
	31 Dibenz(a,h)anthracene	278	25.076	25.076	(1.088)	448279	5.00000	5.004

6-25-08

Data File: \\ELABNSH05\TARGET\chem\bna3.i\062508b3.b\LPAHCCV.D
Report Date: 25-Jun-2008 09:52

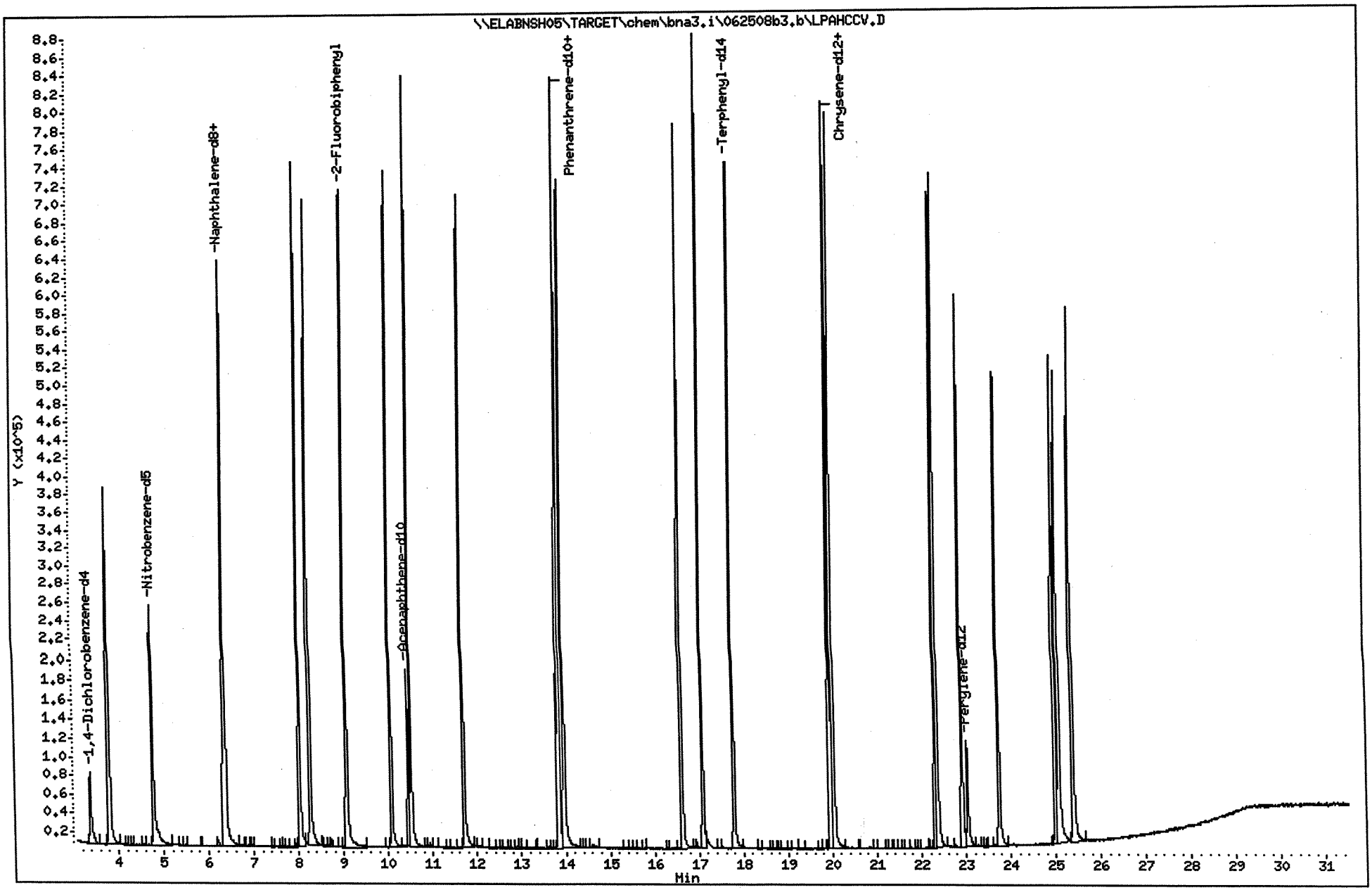
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ng/ul)	AMOUNTS ON-COL (ng/ul)
32 Benzo(g,h,i)perylene	276	25.392	25.392	(1.102)	506628	5.00000	5.327

Data File: \\ELABNSH05\TARGET\chem\bna3.i\062508b3.b\LPAHCCV.D
Date : 25-JUN-2008 09:19
Client ID: LOWPAH5PPM
Sample Info: LOWPAH5PPM;;;;; SV4420B

Instrument: bna3.i

Operator: ADM
Column diameter: 0.25

Column phase: fused silica



FORM 7
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: EMPIRICAL LABS Contract: ARCADIS

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: ARC.B06207

Instrument ID: BNA3 Calibration Date: 06/26/08 Time: 0951

Lab File ID: LPAHCCV Init. Calib. Date(s): 01/14/08 01/14/08

Init. Calib. Times: 1754 2232

COMPOUND	$\overline{RRF}$	RRF5	CURVE AMOUNT	CCAL AMOUNT	MIN RRF	CURVE	%D	MAX %D
Acenaphthene	1.029	1.119	5.000	5.436		AVRG	8.7	20.0
Acenaphthylene	1.344	1.668	5.000	5.242		LINR	4.8	20.0
Anthracene	0.878	1.087	5.000	5.301		LINR	6.0	20.0
Benzo(a)anthracene	0.768	0.917	5.000	4.395		LINR	-12.1	20.0
Benzo(b)fluoranthene	1.049	1.206	5.000	4.516		LINR	-9.7	20.0
Benzo(k)fluoranthene	1.284	1.397	5.000	4.919		LINR	-1.6	20.0
Benzo(g,h,i)perylene	0.841	0.851	5.000	4.464		LINR	-10.7	20.0
Benzo(a)pyrene	0.875	1.054	5.000	4.414		LINR	-11.7	20.0
Chrysene	1.089	1.084	5.000	4.979		AVRG	-0.4	20.0
Dibenz(a,h)anthracene	0.671	0.783	5.000	4.358		LINR	-12.8	20.0
Fluoranthene	0.886	1.073	5.000	5.096		LINR	1.9	20.0
Fluorene	0.981	1.159	5.000	5.166		LINR	3.3	20.0
Indeno(1,2,3-cd)pyrene	0.610	0.692	5.000	4.014		LINR	-19.7	20.0
2-Methylnaphthalene	0.440	0.486	5.000	5.516		AVRG	10.3	20.0
1-Methylnaphthalene	0.480	0.512	5.000	5.333		AVRG	6.6	20.0
Naphthalene	0.862	0.885	5.000	5.135		AVRG	2.7	20.0
Phenanthrene	1.086	1.090	5.000	5.017		AVRG	0.3	20.0
Pyrene	1.178	1.196	5.000	5.077		AVRG	1.5	20.0
Nitrobenzene-d5	0.219	0.273	5.000	5.118		LINR	2.4	
2-Fluorobiphenyl	1.242	1.327	5.000	5.340		AVRG	6.8	
Terphenyl-d14	0.845	0.832	5.000	4.922		AVRG	-1.6	

Data File: \\ELABNSH05\TARGET\chem\bna3.i\062608b3.b\LPAHCCV.D
Report Date: 26-Jun-2008 10:47

Empirical Laboratories, LLC

Data file : \\ELABNSH05\TARGET\chem\bna3.i\062608b3.b\LPAHCCV.D
Lab Smp Id: LOWPAH5PPM Client Smp ID: LOWPAH5PPM
Inj Date : 26-JUN-2008 09:51 MS Autotune Date: 01-NOV-2007 04:29
Operator : ADM Inst ID: bna3.i
Smp Info : LOWPAH5PPM;;;;; SV4420B
Misc Info : ;2;;;;;pahsurr.sub;4352
Comment :
Method : \\ELABNSH05\TARGET\chem\bna3.i\062608b3.b\PAHLOW1.m
Meth Date : 26-Jun-2008 10:46 tmonteiro Quant Type: ISTD
Cal Date : 14-JAN-2008 22:32 Cal File: LPAHCAL1.D
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pahsurr.sub
Target Version: 4.04
Processing Host: TARGET02_VM

6/26/8

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ng/ul)	AMOUNTS ON-COL (ng/ul)
*	1 1,4-Dichlorobenzene-d4	152	3.355	3.355	(1.000)	35632	1.00000	
*	3 Naphthalene-d8	136	6.307	6.307	(1.000)	137087	1.00000	
$	4 Nitrobenzene-d5	82	4.748	4.748	(0.753)	187437	5.00000	5.118
	5 Naphthalene	128	6.354	6.354	(1.007)	606769	5.00000	5.135
	6 2-Methylnaphthalene	141	8.015	8.015	(1.271)	332947	5.00000	5.516
	7 1-Methylnaphthalene	141	8.238	8.238	(1.306)	351192	5.00000	5.333
*	8 Acenaphthene-d10	164	10.429	10.429	(1.000)	68600	1.00000	
$	11 2-Fluorobiphenyl	172	9.055	9.055	(0.868)	455121	5.00000	5.340
	12 Acenaphthylene	152	10.058	10.058	(0.964)	572188	5.00000	5.242
	13 Acenaphthene	153	10.503	10.503	(1.007)	383942	5.00000	5.436
	16 Fluorene	166	11.682	11.682	(1.120)	397700	5.00000	5.166
*	17 Phenanthrene-d10	188	13.799	13.799	(1.000)	105384	1.00000	
	18 Phenanthrene	178	13.845	13.845	(1.003)	574105	5.00000	5.017
	19 Anthracene	178	13.947	13.947	(1.011)	572861	5.00000	5.301
	20 Fluoranthene	202	16.603	16.603	(1.203)	565332	5.00000	5.096
*	21 Chrysene-d12	240	19.954	19.954	(1.000)	102897	1.00000	
	22 Pyrene	202	17.067	17.067	(0.855)	615409	5.00000	5.077
$	23 Terphenyl-d14	244	17.763	17.763	(0.890)	427985	5.00000	4.922
	24 Benzo(a)anthracene	228	19.935	19.935	(0.999)	471817	5.00000	4.394
	25 Chrysene	228	20.019	20.019	(1.003)	557900	5.00000	4.979
*	26 Perylene-d12	264	23.027	23.027	(1.000)	74514	1.00000	
	27 Benzo(b)fluoranthene	252	22.293	22.293	(0.968)	449403	5.00000	4.516
	28 Benzo(k)fluoranthene	252	22.340	22.340	(0.970)	520588	5.00000	4.919
	29 Benzo(a)pyrene	252	22.906	22.906	(0.995)	392867	5.00000	4.414
	30 Indeno(1,2,3-cd)pyrene	276	24.976	24.976	(1.085)	257892	5.00000	4.014
	31 Dibenz(a,h)anthracene	278	25.060	25.060	(1.088)	291613	5.00000	4.358

RPW 6-27-08

Data File: \\ELABNSH05\TARGET\chem\bna3.i\062608b3.b\LPAHCCV.D
Report Date: 26-Jun-2008 10:47

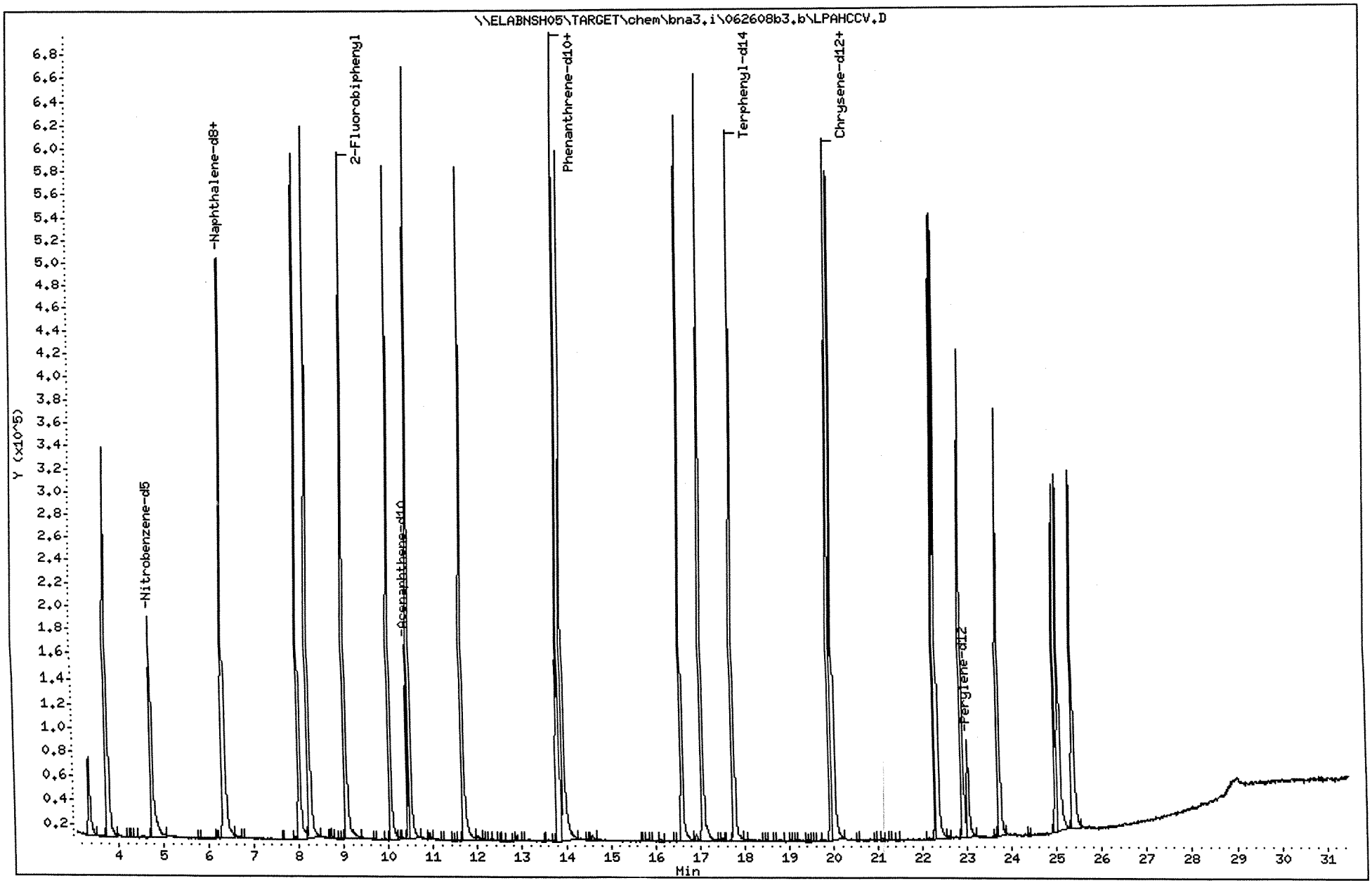
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ng/ul)	AMOUNTS ON-COL (ng/ul)
32 Benzo(g,h,i)perylene	276	25.366	25.366	(1.102)	317128	5.00000	4.464

Data File: \\ELABNSH05\TARGET\chem\bna3.i\062608b3.b\LPAHCCV.D
Date : 26-JUN-2008 09:51
Client ID: LOWPAH5PPM
Sample Info: LOWPAH5PPM;;;;; SV4420B

Instrument: bna3.i

Operator: ADM
Column diameter: 0.25

Column phase: fused silica



Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\DF0114B2.D

Date : 14-JAN-2008 17:34

Client ID: 10ppm DFTPP

Instrument: bna3.i

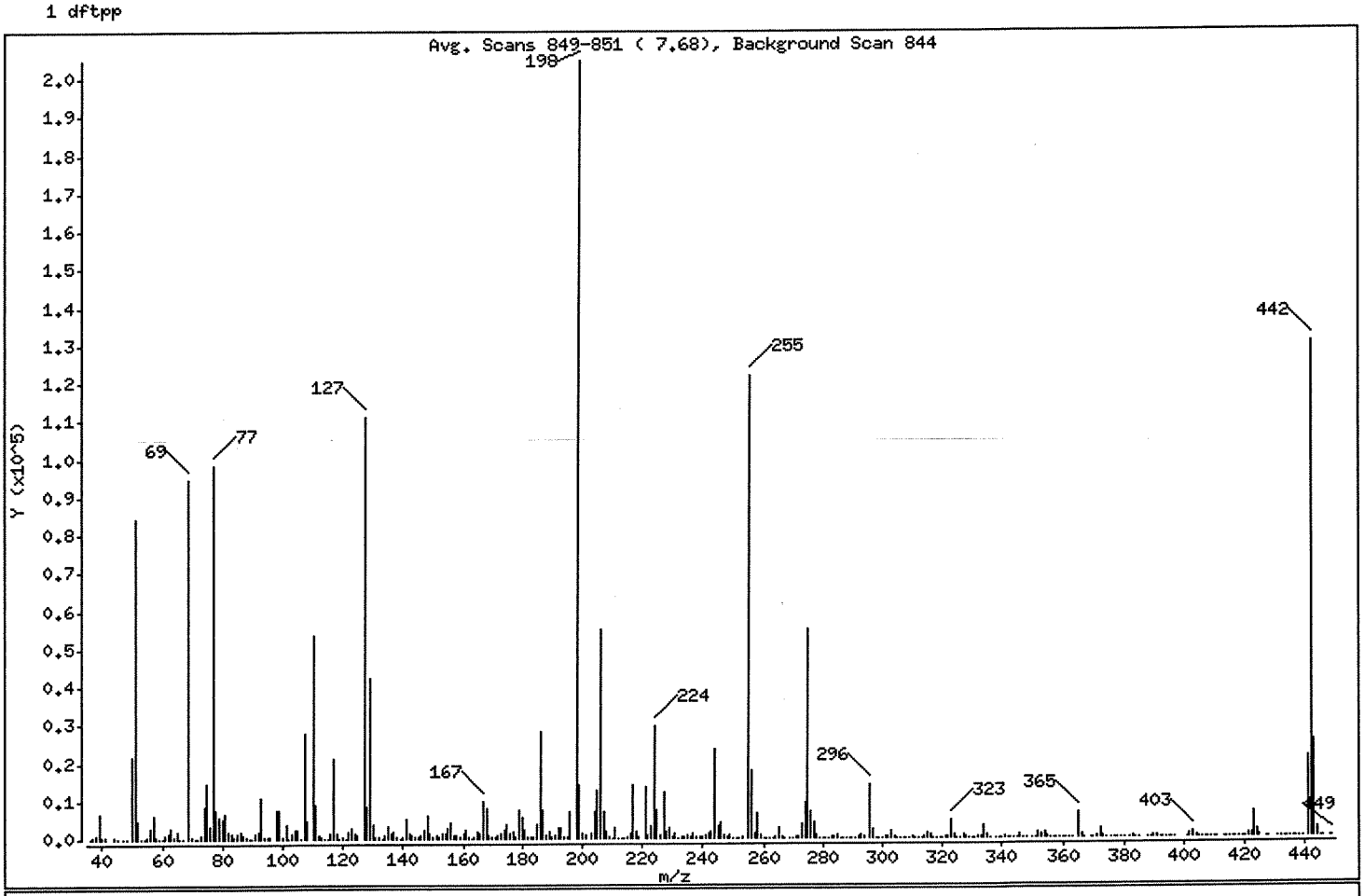
Sample Info: DF0114B2;;;;;SV4283

Operator: ADM

Column phase: DB5-MS

Column diameter: 0.25

1 dftpp



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	30.00 - 60.00% of mass 198	41.10
68	Less than 2.00% of mass 69	0.00 (0.00)
69	Mass 69 relative abundance	46.23
70	Less than 2.00% of mass 69	0.18 (0.39)
127	40.00 - 60.00% of mass 198	54.31
197	Less than 1.00% of mass 198	0.00
199	5.00 - 9.00% of mass 198	6.97
275	10.00 - 30.00% of mass 198	26.85
365	Greater than 1.00% of mass 198	3.12
441	Present, but less than mass 443	10.29
442	Greater than 40.00% of mass 198	63.65
443	17.00 - 23.00% of mass 442	12.38 (19.45)

M111578

1-15-08

Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\DF0114B2.D

Date : 14-JAN-2008 17:34

Client ID: 10ppm DFTPP

Instrument: bna3.i

Sample Info: DF0114B2;;;;;SV4283

Operator: ADM

Column phase: DB5-MS

Column diameter: 0.25

Data File: DF0114B2.D

Spectrum: Avg. Scans 849-851 (7.68), Background Scan 844

Location of Maximum: 198.00

Number of points: 383

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.00	41	140.00	433	239.00	447	339.00	60
37.00	318	141.00	5122	240.00	348	340.00	34
38.00	1114	142.00	1611	241.00	835	341.00	511
39.00	6648	143.00	886	242.00	1532	342.00	155
40.00	330	144.00	350	243.00	1686	343.00	48
41.00	359	145.00	270	244.00	23640	344.00	37
44.00	279	146.00	945	245.00	3086	345.00	30
45.00	172	147.00	2519	246.00	4203	346.00	993
47.00	86	148.00	5902	247.00	854	347.00	150
48.00	133	149.00	1522	248.00	294	348.00	54
50.00	21880	150.00	434	249.00	975	350.00	52
51.00	84152	151.00	839	250.00	203	351.00	107
52.00	4515	152.00	379	251.00	215	352.00	1422
53.00	91	153.00	1565	252.00	152	353.00	865
54.00	48	154.00	1315	253.00	455	354.00	1470
55.00	626	155.00	2929	255.00	122080	355.00	260
56.00	2648	156.00	4172	256.00	17712	356.00	51
57.00	6143	157.00	903	257.00	1619	357.00	25
58.00	303	158.00	945	258.00	6768	358.00	10
59.00	50	159.00	550	259.00	1079	359.00	97
60.00	164	160.00	1524	260.00	223	360.00	49
61.00	1052	161.00	2231	261.00	199	361.00	35
62.00	1189	162.00	506	262.00	46	362.00	33
63.00	3023	163.00	230	263.00	37	363.00	25
64.00	488	164.00	294	264.00	250	365.00	6396
65.00	1683	165.00	1901	265.00	2640	366.00	765
66.00	181	166.00	1589	266.00	451	367.00	66
67.00	100	167.00	10090	267.00	90	369.00	67
69.00	94656	168.00	7899	269.00	55	370.00	116
70.00	365	169.00	1112	270.00	148	371.00	355
71.00	7	170.00	304	271.00	280	372.00	2315
72.00	91	171.00	500	272.00	367	373.00	609
73.00	778	172.00	709	273.00	3759	374.00	119
74.00	8654	173.00	1187	274.00	9228	376.00	13
75.00	14678	174.00	2152	275.00	54968	377.00	118

Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\DF0114B2.D

Date : 14-JAN-2008 17:34

Client ID: 10ppm DFTPP

Instrument: bna3.i

Sample Info: DF0114B2;;;;;SV4283

Operator: ADM

Column phase: DB5-MS

Column diameter: 0.25

Data File: DF0114B2.D

Spectrum: Avg. Scans 849-851 (7.68), Background Scan 844

Location of Maximum: 198.00

Number of points: 383

m/z	Y	m/z	Y	m/z	Y	m/z	Y
76.00	3476	175.00	3736	276.00	7181	378.00	31
77.00	98208	176.00	1279	277.00	4233	379.00	24
78.00	7503	177.00	1839	278.00	774	380.00	4
79.00	5818	178.00	530	279.00	174	382.00	4
80.00	5224	179.00	7382	280.00	24	383.00	680
81.00	6696	180.00	5621	281.00	55	384.00	157
82.00	1902	181.00	2454	282.00	66	385.00	45
83.00	1550	182.00	353	283.00	343	388.00	10
84.00	290	183.00	292	284.00	290	389.00	14
85.00	1568	184.00	563	285.00	784	390.00	362
86.00	1721	185.00	3611	286.00	205	391.00	256
87.00	830	186.00	28344	287.00	44	392.00	161
88.00	482	187.00	7743	288.00	83	393.00	53
89.00	91	188.00	1022	289.00	229	394.00	16
90.00	32	189.00	1910	290.00	134	395.00	7
91.00	1556	190.00	390	291.00	88	396.00	27
92.00	1774	191.00	867	292.00	316	397.00	25
93.00	10601	192.00	2762	293.00	1100	401.00	137
94.00	652	193.00	2717	294.00	303	402.00	800
95.00	246	194.00	582	296.00	13967	403.00	1348
96.00	508	195.00	366	297.00	2196	404.00	427
98.00	7512	196.00	7115	298.00	184	405.00	73
99.00	7554	198.00	204736	299.00	91	406.00	61
100.00	582	199.00	14275	300.00	9	407.00	7
101.00	3915	200.00	1205	301.00	241	408.00	26
102.00	211	201.00	967	302.00	267	409.00	35
103.00	1256	203.00	1412	303.00	1649	410.00	54
104.00	2470	204.00	6979	304.00	516	411.00	13
105.00	2222	205.00	12907	305.00	39	413.00	4
106.00	227	206.00	55096	306.00	8	414.00	18
107.00	27832	207.00	6995	307.00	25	415.00	57
108.00	4871	208.00	1976	308.00	202	416.00	13
110.00	53880	209.00	608	309.00	154	417.00	35
111.00	8851	210.00	133	310.00	242	418.00	20
112.00	930	211.00	2633	311.00	28	419.00	25

Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\DF0114B2.D

Date : 14-JAN-2008 17:34

Client ID: 10ppm DFTPP

Instrument: bna3.i

Sample Info: DF0114B2;;;;;SV4283

Operator: ADM

Column phase: DB5-MS

Column diameter: 0.25

Data File: DF0114B2.D

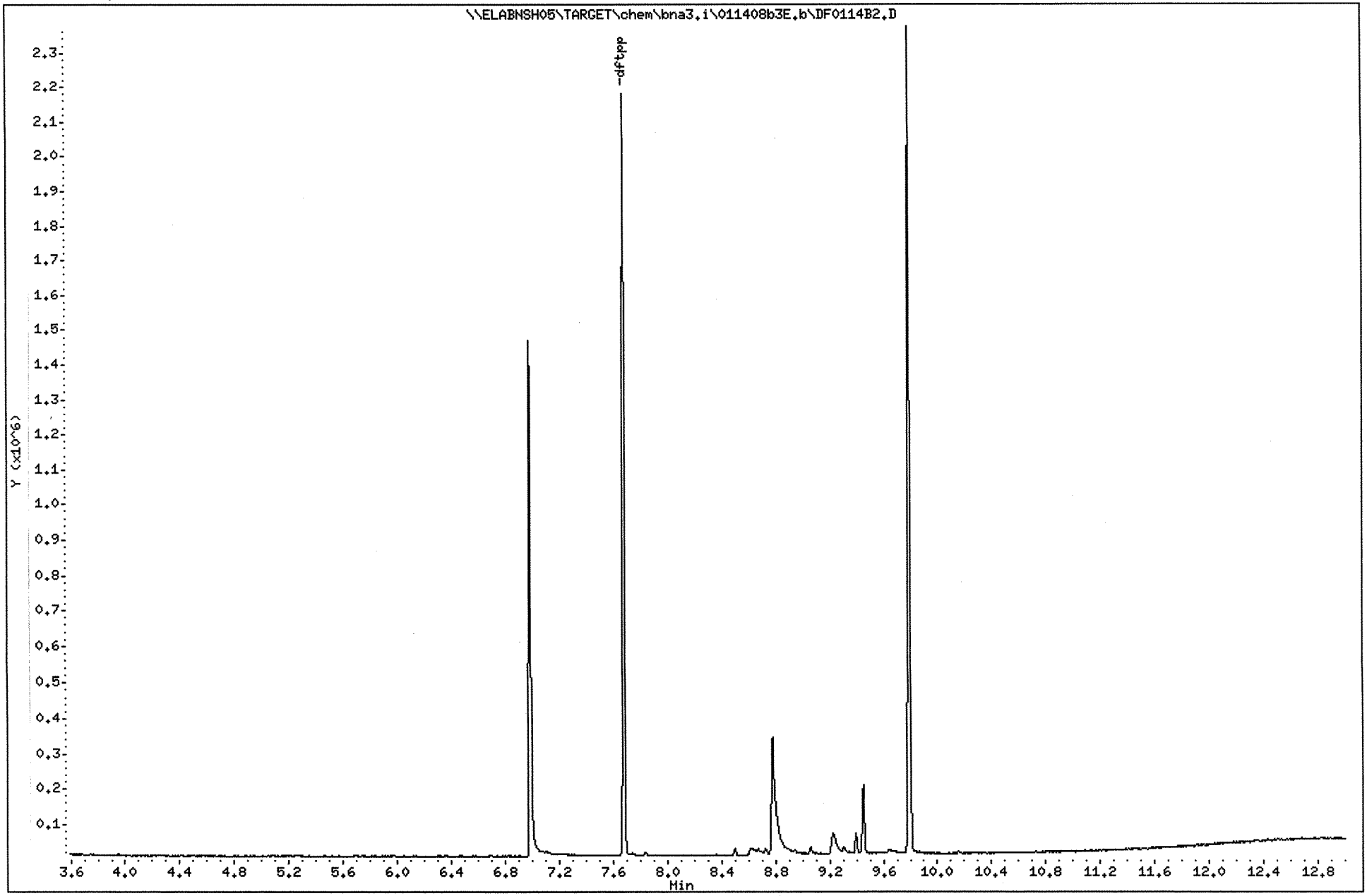
Spectrum: Avg. Scans 849-851 (7.68), Background Scan 844

Location of Maximum: 198.00

Number of points: 383

m/z	Y	m/z	Y	m/z	Y	m/z	Y
113.00	424	212.00	104	312.00	33	420.00	26
114.00	91	213.00	216	313.00	170	421.00	1007
115.00	53	214.00	63	314.00	624	422.00	985
116.00	1546	215.00	523	315.00	1566	423.00	6566
117.00	21128	216.00	1382	316.00	964	424.00	1863
118.00	1580	217.00	14003	317.00	198	425.00	323
119.00	192	218.00	1966	318.00	6	427.00	10
120.00	350	219.00	272	319.00	33	428.00	46
121.00	14	221.00	13730	320.00	17	431.00	9
122.00	1889	222.00	822	321.00	567	432.00	41
123.00	2871	223.00	3415	322.00	349	433.00	11
124.00	1378	224.00	29792	323.00	4633	434.00	28
125.00	1156	225.00	7718	324.00	907	435.00	26
127.00	111208	226.00	953	325.00	64	436.00	25
128.00	8586	227.00	12215	326.00	72	437.00	96
129.00	42328	228.00	1688	327.00	788	438.00	132
130.00	3647	229.00	2831	328.00	369	439.00	214
131.00	594	230.00	377	329.00	115	441.00	21072
132.00	420	231.00	1184	330.00	12	442.00	130328
133.00	142	232.00	213	331.00	13	443.00	25344
134.00	1084	233.00	286	332.00	339	444.00	2586
135.00	3091	234.00	667	333.00	419	445.00	131
136.00	1184	235.00	777	334.00	3144	446.00	10
137.00	2055	236.00	604	335.00	843	448.00	18
138.00	306	237.00	1193	336.00	53	449.00	4
139.00	211	238.00	246	338.00	41		

Data File: \\ELABNSH05\TARGET\chem\bna3.i\011408b3E.b\DF0114B2.D
Date : 14-JAN-2008 17:34
Client ID: 10ppm DFTPP
Instrument: bna3.i
Sample Info: DF0114B2;;;;;SV4283
Operator: ADM
Column phase: DB5-MS
Column diameter: 0.25



Data File: \\ELABNSH05\TARGET\chem\bna3.i\062508b3.b\DF0625B1.D

Date : 25-JUN-2008 09:00

Client ID: 10ppm DFTPP

Instrument: bna3.i

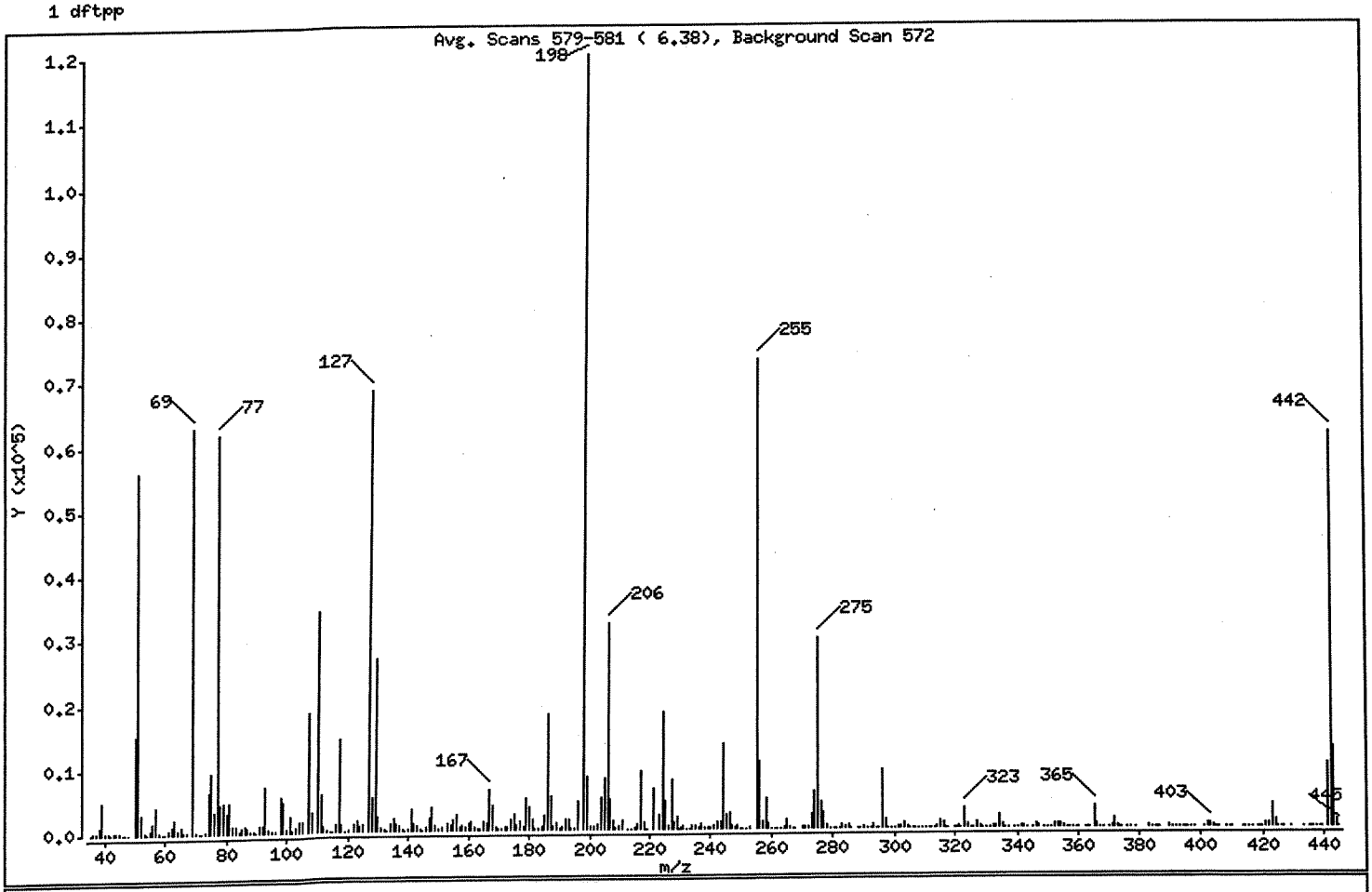
Sample Info: DF0625B1;;;;;SV4411

Operator: ADM

Column phase: DB5-MS

Column diameter: 0.25

1 dftpp



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	30.00 - 60.00% of mass 198	46.67
68	Less than 2.00% of mass 69	0.00 (0.00)
69	Mass 69 relative abundance	52.33
70	Less than 2.00% of mass 69	0.27 (0.52)
127	40.00 - 60.00% of mass 198	56.90
197	Less than 1.00% of mass 198	0.00
199	5.00 - 9.00% of mass 198	6.94
275	10.00 - 30.00% of mass 198	24.50
365	Greater than 1.00% of mass 198	2.80
441	Present, but less than mass 443	8.18
442	Greater than 40.00% of mass 198	51.08
443	17.00 - 23.00% of mass 442	10.42 (20.41)

M 6/25/08

RSW 6-25-08

Data File: \\ELABNSH05\TARGET\chem\bna3.i\062508b3.b\DF0625B1.D

Date : 25-JUN-2008 09:00

Client ID: 10ppm DFTPP

Instrument: bna3.i

Sample Info: DF0625B1;;;;;SV4411

Operator: ADM

Column phase: DB5-MS

Column diameter: 0.25

Data File: DF0625B1.D

Spectrum: Avg. Scans 579-581 (6.38), Background Scan 572

Location of Maximum: 198.00

Number of points: 378

m/z	Y	m/z	Y	m/z	Y	m/z	Y
35.20	33	137.00	939	235.90	220	332.90	277
36.00	247	138.00	195	237.00	763	334.00	2060
37.10	287	138.80	107	237.90	234	335.00	515
38.10	1026	140.00	339	238.90	289	335.80	67
39.10	5090	141.00	3430	240.00	259	336.90	23
40.00	205	142.00	1080	240.90	433	339.00	76
41.10	299	143.00	870	242.00	1128	340.00	24
41.90	29	144.10	243	243.00	1075	341.00	305
43.10	150	145.00	129	244.00	13105	342.00	153
44.00	227	145.90	642	245.00	2113	343.00	88
45.00	179	147.00	1859	246.00	2522	344.60	46
46.10	27	148.00	3521	247.00	600	345.90	487
47.00	47	149.00	808	248.00	145	346.90	166
48.10	29	150.00	285	248.90	585	348.20	42
50.10	15069	151.10	477	250.00	109	349.90	27
51.10	56000	153.00	1059	250.70	118	351.00	38
52.10	3141	154.10	846	251.80	99	351.90	503
53.20	139	155.00	1769	252.90	353	353.00	568
54.00	53	156.00	2474	255.00	72744	354.00	569
55.10	419	157.10	655	256.00	10610	355.00	200
56.00	1600	157.90	867	257.00	983	355.90	13
57.00	4150	159.00	421	258.00	4562	356.60	30
58.00	223	160.00	1006	259.00	735	358.10	36
59.20	34	161.00	1363	260.00	75	359.00	31
60.10	107	162.10	502	261.10	63	359.80	26
61.00	655	163.10	144	261.60	11	362.10	16
62.10	1071	163.80	255	262.10	27	362.80	13
63.10	2340	165.00	1342	263.00	36	363.40	19
64.10	470	166.00	1010	264.00	147	365.00	3362
65.10	999	167.00	6292	265.00	1406	366.00	461
66.10	151	168.00	3734	265.90	247	366.70	44
67.00	140	169.00	574	267.00	49	367.20	24
69.00	62792	170.00	190	267.90	106	368.10	12
70.00	324	170.80	239	270.00	143	369.90	117
71.10	45	172.00	503	271.00	218	371.00	199

Data File: \\ELABNSH05\TARGET\chem\bna3.i\062508b3.b\DF0625B1.D

Date : 25-JUN-2008 09:00

Client ID: 10ppm DFTPP

Instrument: bna3.i

Sample Info: DF0625B1;;;;;SV4411

Operator: ADM

Column phase: DB5-MS

Column diameter: 0.25

Data File: DF0625B1.D

Spectrum: Avg. Scans 579-581 (6.38), Background Scan 572

Location of Maximum: 198.00

Number of points: 378

m/z	Y	m/z	Y	m/z	Y	m/z	Y
72.00	43	173.00	637	271.90	273	372.00	1281
73.00	387	174.00	1533	273.00	2073	372.90	250
74.00	6323	175.00	2447	274.00	5818	373.80	21
75.00	9281	176.00	865	275.00	29400	374.40	11
76.10	3284	177.00	1261	276.00	4177	376.20	45
77.10	61832	178.10	487	277.00	2423	377.10	34
78.10	4526	179.00	4850	278.00	562	378.90	35
79.00	4648	180.00	3473	279.00	109	382.90	304
80.00	3117	181.00	1688	280.20	24	384.20	40
81.00	4654	181.90	239	281.10	48	385.20	20
82.00	997	183.10	242	282.10	62	385.90	44
83.00	999	184.00	461	283.00	438	386.70	14
84.10	225	185.00	2221	284.00	262	389.70	141
85.00	792	186.00	17824	285.00	495	390.70	80
86.00	1099	187.00	5238	285.90	95	392.10	128
87.00	718	187.90	642	287.90	55	393.00	59
88.00	365	189.00	1133	288.80	71	394.20	11
89.00	193	190.00	211	289.90	150	394.80	30
90.00	54	190.90	468	290.80	63	395.80	48
91.00	1028	192.00	1541	292.10	133	397.00	15
92.00	1151	193.00	1765	292.90	508	398.10	36
93.00	7267	194.00	317	293.80	129	400.90	68
94.00	674	195.00	321	294.70	133	402.00	444
95.00	246	196.00	4463	296.00	9014	402.90	542
96.10	406	198.00	120000	296.90	1369	404.00	271
98.00	5478	198.90	8326	297.80	96	404.80	52
99.00	4729	200.00	662	299.10	60	405.30	47
100.10	488	201.50	619	299.90	53	405.80	28
101.00	2388	202.90	801	301.10	224	408.30	14
102.00	172	204.00	4856	301.90	396	409.10	38
103.00	946	205.00	7965	303.00	962	409.80	53
104.00	1623	206.00	31904	304.00	298	413.80	14
105.00	1543	207.00	4587	305.00	118	414.40	16
107.00	18600	208.00	1292	306.00	38	415.40	27
108.00	3030	208.90	318	306.60	58	416.80	11

Data File: \\ELABNSH05\TARGET\chem\bna3.i\062508b3.b\DF0625B1.D

Date : 25-JUN-2008 09:00

Client ID: 10ppm DFTPP

Instrument: bna3.i

Sample Info: DF0625B1;;;;;SV4411

Operator: ADM

Column phase: DB5-MS

Column diameter: 0.25

Data File: DF0625B1.D
Spectrum: Avg. Scans 579-581 (6.38), Background Scan 572
Location of Maximum: 198.00
Number of points: 378

m/z	Y	m/z	Y	m/z	Y	m/z	Y
110.00	34104	209.90	439	307.90	122	418.20	25
111.00	5848	211.00	1468	308.90	137	419.20	32
112.00	765	212.90	73	309.90	98	419.70	41
113.00	251	214.20	60	311.10	60	421.00	518
114.10	43	215.00	378	311.90	47	422.00	504
114.90	133	216.00	821	313.00	24	423.00	3579
116.00	1107	217.00	9039	313.90	371	424.00	1150
117.00	14469	217.90	1220	315.00	1014	425.10	88
118.00	1203	218.80	53	316.00	748	426.00	32
119.00	76	219.40	101	316.80	73	426.80	22
120.00	312	221.00	6237	317.20	64	429.20	19
122.00	1198	223.00	2240	319.50	15	433.20	78
123.00	1712	224.00	18168	320.10	31	434.90	25
124.00	942	225.00	4396	320.90	373	435.80	28
125.00	974	226.00	469	321.80	79	436.40	43
127.00	68280	227.00	7837	323.00	2903	437.20	51
128.00	5356	227.90	1037	324.00	612	438.60	75
129.00	26816	229.00	1842	325.20	83	439.30	103
130.00	2313	229.70	126	325.80	38	441.00	9818
131.00	494	230.10	152	326.90	758	442.00	61296
131.90	223	231.00	644	328.00	320	443.00	12509
133.00	130	231.90	92	329.00	36	444.00	994
134.00	980	233.10	133	329.70	24	444.80	61
135.00	2027	233.90	487	330.90	28		
136.00	1096	234.90	507	332.10	206		

Data File: \\ELABNSH05\TARGET\chem\bna3.i\062508b3.b\DF0625B1.D

Date : 25-JUN-2008 09:00

Client ID: 10ppm DFTPP

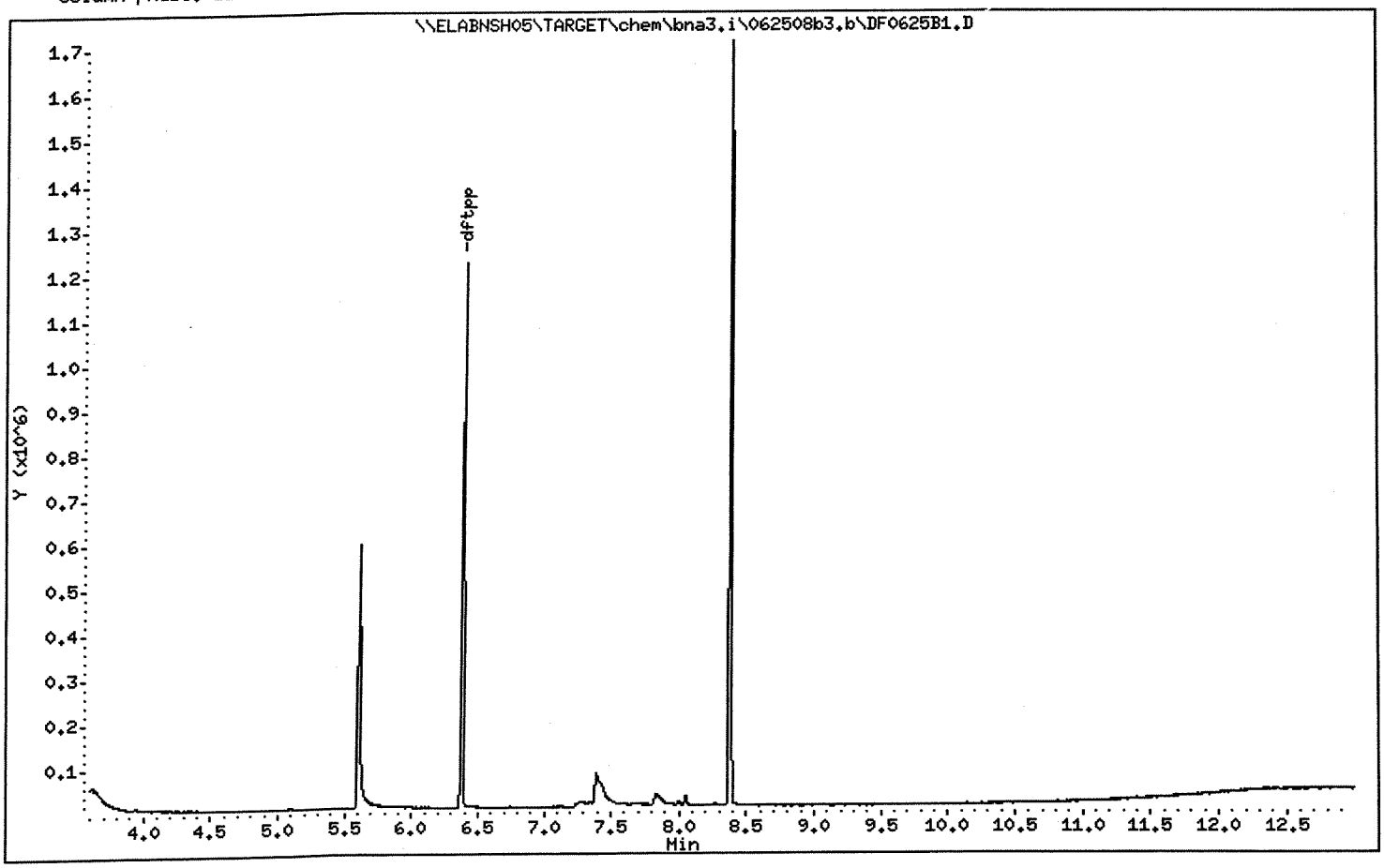
Instrument: bna3.i

Sample Info: DF0625B1;;;;;SV4411

Operator: ADM

Column phase: DB5-MS

Column diameter: 0.25



Data File: \\ELABNSH05\TARGET\chem\bna3.i\062608b3.b\DF0626B1.D

Date : 26-JUN-2008 09:32

Client ID: 10ppm DFTPP

Instrument: bna3.i

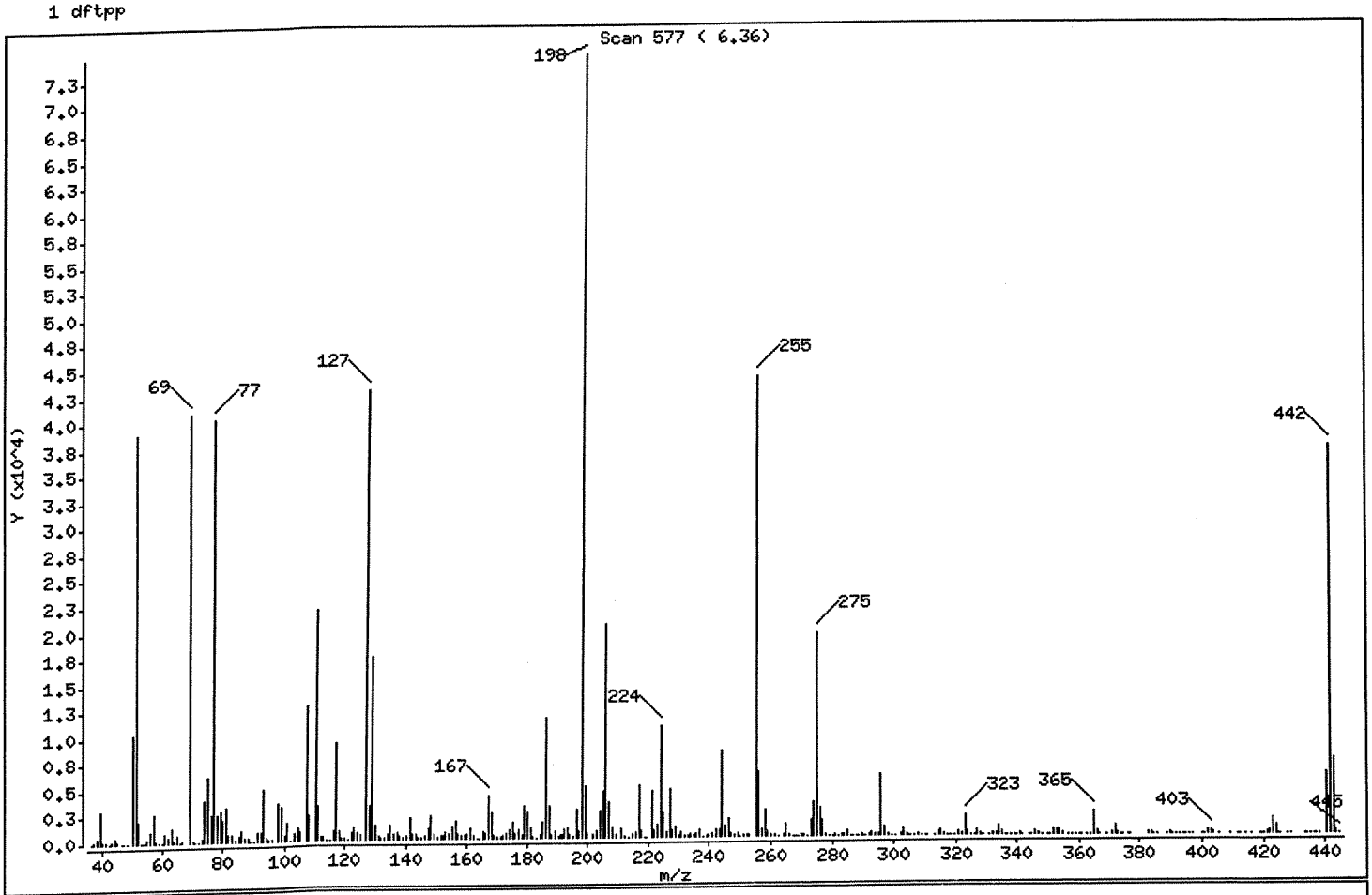
Sample Info: DF0626B1;;;;;SV4411

Operator: ADM

Column phase: DB5-MS

Column diameter: 0.25

1 dftpp



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	30.00 - 60.00% of mass 198	52.20
68	Less than 2.00% of mass 69	0.00 (0.00)
69	Mass 69 relative abundance	54.62
70	Less than 2.00% of mass 69	0.29 (0.53)
127	40.00 - 60.00% of mass 198	57.45
197	Less than 1.00% of mass 198	0.00
199	5.00 - 9.00% of mass 198	6.72
275	10.00 - 30.00% of mass 198	25.98
365	Greater than 1.00% of mass 198	2.98
441	Present, but less than mass 443	7.87
442	Greater than 40.00% of mass 198	49.77
443	17.00 - 23.00% of mass 442	9.66 (19.42)

6/26/08

6-27-08

Data File: \\ELABNSHO5\TARGET\chem\bna3.i\062608b3.b\DF0626B1.D

Date : 26-JUN-2008 09:32

Client ID: 10ppm DFTPP

Instrument: bna3.i

Sample Info: DF0626B1;;;;;SV4411

Operator: ADM

Column phase: DB5-MS

Column diameter: 0.25

Data File: DF0626B1.D
Spectrum: Scan 577 (6.36)
Location of Maximum: 198.00
Number of points: 376

m/z	Y	m/z	Y	m/z	Y	m/z	Y
36.10	62	135.00	1447	232.00	248	327.80	124
37.00	204	136.00	510	232.90	90	328.80	25
38.00	520	137.10	681	234.00	349	329.40	13
39.00	3160	137.70	258	234.90	243	330.70	17
40.00	210	139.00	90	235.80	258	332.10	160
41.00	158	139.90	292	237.00	714	333.10	121
42.20	62	141.00	2139	237.70	54	334.00	862
43.00	117	141.90	562	238.20	80	335.00	288
44.00	527	142.90	580	239.00	215	336.10	30
44.90	91	143.90	131	240.00	148	337.20	33
46.20	22	145.00	165	240.90	304	338.00	19
46.80	17	145.90	338	242.00	667	339.10	39
48.10	18	147.00	1058	243.10	709	340.10	43
50.00	10352	147.90	2292	244.00	8295	340.90	124
51.10	39000	149.00	519	245.00	978	342.00	55
52.00	2035	150.00	205	246.00	1679	343.80	28
53.20	40	151.20	303	246.90	339	344.40	11
53.80	51	151.90	273	248.00	131	345.80	338
54.10	38	152.90	739	249.00	266	347.00	151
55.00	323	154.00	464	249.90	76	348.00	23
56.00	950	155.00	1225	251.00	160	350.10	33
57.00	2732	156.00	1693	252.10	96	350.80	29
58.00	139	157.00	569	253.00	189	352.00	508
59.00	63	157.90	404	255.00	43888	352.90	457
59.90	45	158.90	362	256.00	6177	353.90	479
61.00	792	160.00	566	257.00	685	355.00	156
62.00	522	161.00	1026	258.00	2661	356.80	24
63.00	1458	162.00	267	258.90	573	357.80	27
64.00	238	163.10	80	259.90	117	359.00	28
65.00	669	163.90	38	261.00	86	360.20	19
66.30	59	165.00	693	262.60	18	361.00	26
67.00	241	166.00	444	264.00	149	362.70	15
69.00	40808	167.00	4148	265.00	1190	363.70	29
70.00	216	168.00	2582	266.00	225	364.90	2228
70.90	56	169.00	365	266.90	53	366.00	273

Data File: \\ELABNSH05\TARGET\chem\bna3.i\062608b3.b\DF0626B1.D

Date : 26-JUN-2008 09:32

Client ID: 10ppm DFTPP

Instrument: bna3.i

Sample Info: DF0626B1;;;;;SV4411

Operator: ADM

Column phase: DB5-MS

Column diameter: 0.25

Data File: DF0626B1.D
Spectrum: Scan 577 (6.36)
Location of Maximum: 198.00
Number of points: 376

m/z	Y	m/z	Y	m/z	Y	m/z	Y
72.00	59	170.00	250	267.70	37	366.80	62
73.10	350	171.00	244	268.10	33	369.40	28
74.00	3913	172.00	349	268.80	64	371.00	187
75.00	6237	173.00	505	269.90	87	372.00	905
76.10	2557	174.00	848	271.00	136	373.00	224
77.00	40416	175.00	1575	271.90	80	373.90	25
78.10	2506	176.00	503	272.90	1519	374.80	20
79.00	2855	177.00	888	274.00	3336	376.20	21
80.00	2143	178.00	366	275.00	19408	376.90	42
81.00	3264	179.00	3132	275.90	2732	382.90	164
81.90	742	180.00	2538	276.90	1587	383.90	107
83.00	748	181.00	956	277.90	248	384.90	28
83.90	117	182.10	145	278.80	67	386.10	24
85.00	560	183.10	13	280.20	17	389.10	38
86.00	1116	184.00	295	281.00	91	390.00	109
87.00	410	185.00	1496	282.20	78	390.90	53
87.90	270	186.00	11586	283.00	212	391.90	25
89.00	78	187.00	3142	283.90	118	392.90	19
89.80	56	188.00	317	285.00	441	394.30	16
91.00	943	188.90	654	286.20	24	394.80	27
92.10	789	190.00	101	287.10	26	395.90	47
93.00	4982	190.90	354	288.30	22	397.00	50
93.90	423	191.20	334	288.90	69	400.40	63
94.80	112	191.90	793	289.80	139	400.90	77
96.10	184	193.00	1001	290.50	13	401.90	262
98.00	3665	194.00	377	291.20	53	402.90	419
99.00	3191	194.90	183	292.10	112	404.00	135
100.10	442	196.00	2707	293.00	356	405.70	50
101.00	1788	196.60	635	293.90	206	409.10	31
101.80	35	198.00	74712	295.00	153	411.40	28
103.00	711	198.90	5019	296.00	5907	411.90	28
104.00	1215	200.00	458	296.90	836	413.70	26
105.00	825	201.60	426	297.90	116	415.40	22
107.00	12807	203.00	629	299.20	31	418.60	20
108.00	2327	204.00	2614	300.80	66	419.10	14

Data File: \\ELABNSHO5\TARGET\chem\bna3.i\062608b3.b\DF0626B1.D

Date : 26-JUN-2008 09:32

Client ID: 10ppm DFTPP

Instrument: bna3.i

Sample Info: DF0626B1;;;;;SV4411

Operator: ADM

Column phase: DB5-MS

Column diameter: 0.25

Data File: DF0626B1.D
Spectrum: Scan 577 (6.36)
Location of Maximum: 198.00
Number of points: 376

m/z	Y	m/z	Y	m/z	Y	m/z	Y
110.00	21920	205.00	4503	302.10	129	419.70	21
111.00	3203	206.00	20488	303.00	732	421.00	212
111.90	339	207.00	3454	304.00	122	421.90	293
112.90	312	208.00	1012	304.70	50	423.00	1616
113.70	39	209.00	336	305.50	26	423.90	774
114.10	65	210.90	929	306.40	13	424.80	49
115.10	83	212.10	169	307.80	95	425.10	50
116.00	875	213.20	76	309.00	25	427.80	14
117.00	9249	214.90	311	309.90	75	428.90	51
117.90	836	215.90	441	310.90	18	433.60	13
118.90	158	217.00	5017	312.90	24	433.90	21
119.90	183	217.90	656	314.00	387	435.10	25
120.90	83	218.70	25	314.90	584	436.40	12
122.00	750	219.20	33	315.90	224	436.80	12
123.00	1136	221.00	4466	317.00	66	437.30	21
123.90	636	222.00	725	317.90	41	438.40	73
125.00	494	223.00	1240	318.50	21	441.00	5882
127.00	42920	224.00	10608	319.70	41	442.00	37184
128.00	3279	225.00	2461	320.90	296	443.00	7220
129.00	17560	226.00	499	322.10	136	443.90	397
130.00	1291	227.00	4557	323.00	1812	445.10	64
130.90	326	227.90	700	324.00	290		
132.00	216	229.00	1079	324.80	37		
133.00	108	229.90	145	326.10	51		
133.90	504	231.00	599	326.90	465		

Data File: \\ELABNSH05\TARGET\chem\bna3.i\062608b3.b\DF0626B1.D

Date : 26-JUN-2008 09:32

Client ID: 10ppm DFTPP

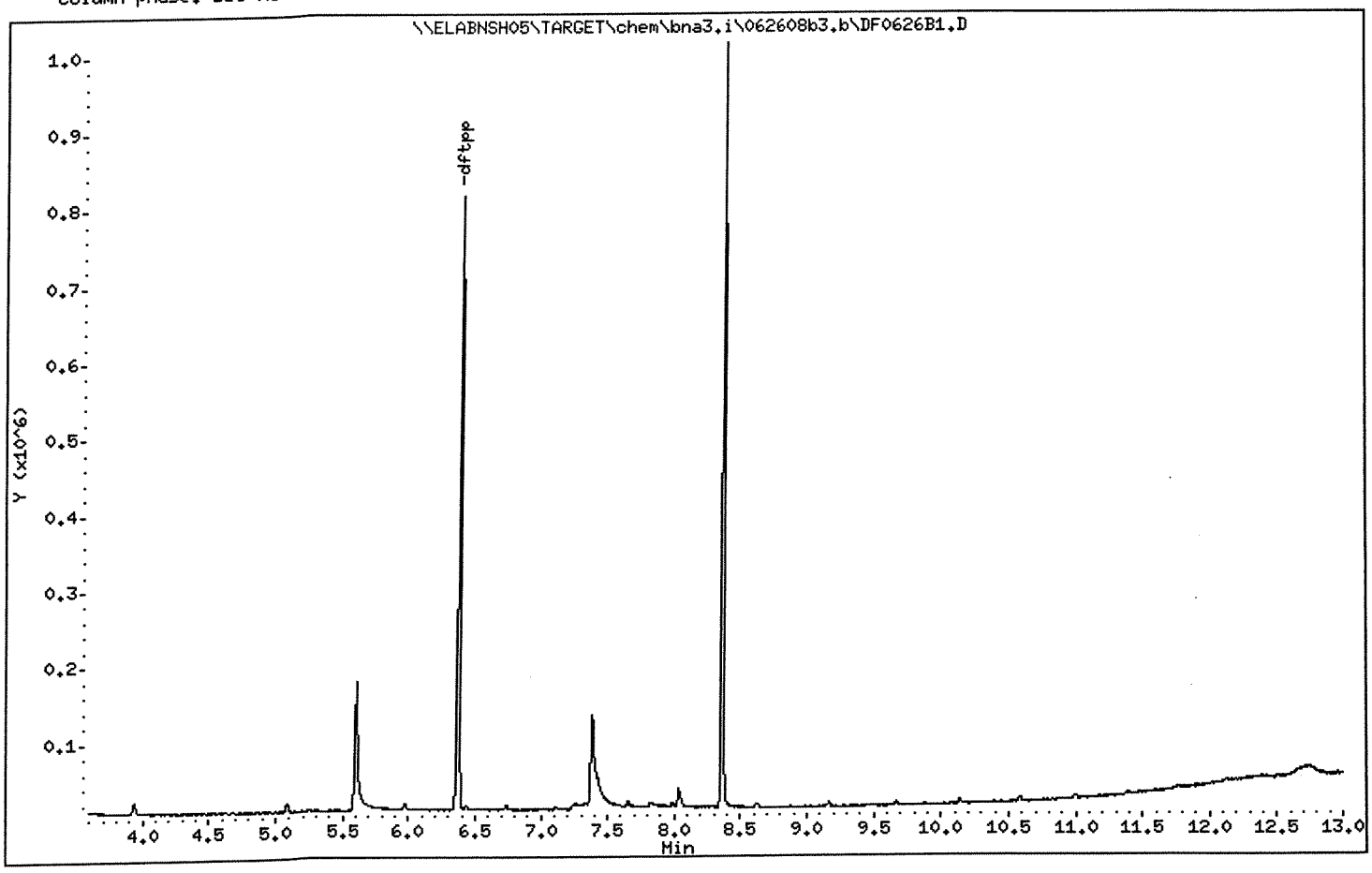
Instrument: bna3.i

Sample Info: DF0626B1;;;;;SV4411

Operator: ADM

Column phase: DB5-MS

Column diameter: 0.25



FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

SBLK0623BW1

Lab Name: EMPIRICAL LABS Contract: ARCADIS

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: ARC.B06207

Matrix: (soil/water) WATER Lab Sample ID: SBLK0623BW1

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S1BW0623

% Moisture: _____ decanted: (Y/N)___ Date Sampled: _____

Extraction: (SepF/Cont/Sonc/Soxh) SEPF Date Extracted:06/23/08

Concentrated Extract Volume: 500.0(uL) Date Analyzed: 06/25/08 11:14

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: NA

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	MDL	RL	CONC	Q
83-32-9	Acenaphthene	0.016	0.050		U
208-96-8	Acenaphthylene	0.016	0.050		U
120-12-7	Anthracene	0.016	0.050		U
56-55-3	Benzo(a)anthracene	0.016	0.050		U
205-99-2	Benzo(b)fluoranthene	0.016	0.050		U
207-08-9	Benzo(k)fluoranthene	0.016	0.050		U
191-24-2	Benzo(g,h,i)perylene	0.016	0.050		U
50-32-8	Benzo(a)pyrene	0.016	0.050		U
218-01-9	Chrysene	0.016	0.050		U
53-70-3	Dibenz(a,h)anthracene	0.016	0.050		U
206-44-0	Fluoranthene	0.016	0.050		U
86-73-7	Fluorene	0.016	0.050		U
193-39-5	Indeno(1,2,3-cd)pyrene	0.018	0.050		U
91-57-6	2-Methylnaphthalene	0.019	0.050		U
90-12-0	1-Methylnaphthalene	0.018	0.050		U
91-20-3	Naphthalene	0.020	0.050		U
85-01-8	Phenanthrene	0.016	0.050		U
129-00-0	Pyrene	0.016	0.050		U

7/9/08

Data File: \\ELABNSH05\TARGET\chem\bna3.i\062508b3.b\S1BW0623.D
Report Date: 25-Jun-2008 12:00

Empirical Laboratories, LLC

Data file : \\ELABNSH05\TARGET\chem\bna3.i\062508b3.b\S1BW0623.D
Lab Smp Id: SBLK0623BW1 Client Smp ID: SBLK0623BW1
Inj Date : 25-JUN-2008 11:14 MS Autotune Date: 01-NOV-2007 04:29
Operator : ADM Inst ID: bna3.i
Smp Info : SBLK0623BW1;1;1000;500;1;UG/L;23-JUN-2008
Misc Info : ;3;BLANK;;;062308BW1;pahsurr.sub;4432
Comment :
Method : \\ELABNSH05\TARGET\chem\bna3.i\062508b3.b\PAHLOW1.m
Meth Date : 25-Jun-2008 11:29 tmonteiro Quant Type: ISTD
Cal Date : 14-JAN-2008 22:32 Cal File: LPAHCAL1.D
Als bottle: 5 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pahsurr.sub
Target Version: 4.04
Processing Host: TARGET02_VM

Concentration Formula: Amt * DF * Uf * Vt*Vi/(Amt * Vi)

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	500.000	Volume of final extract (uL)
Vi	2.000	Volume injected (uL)
Amt	1000.000	Volume of initial extraction

M 6/27/08

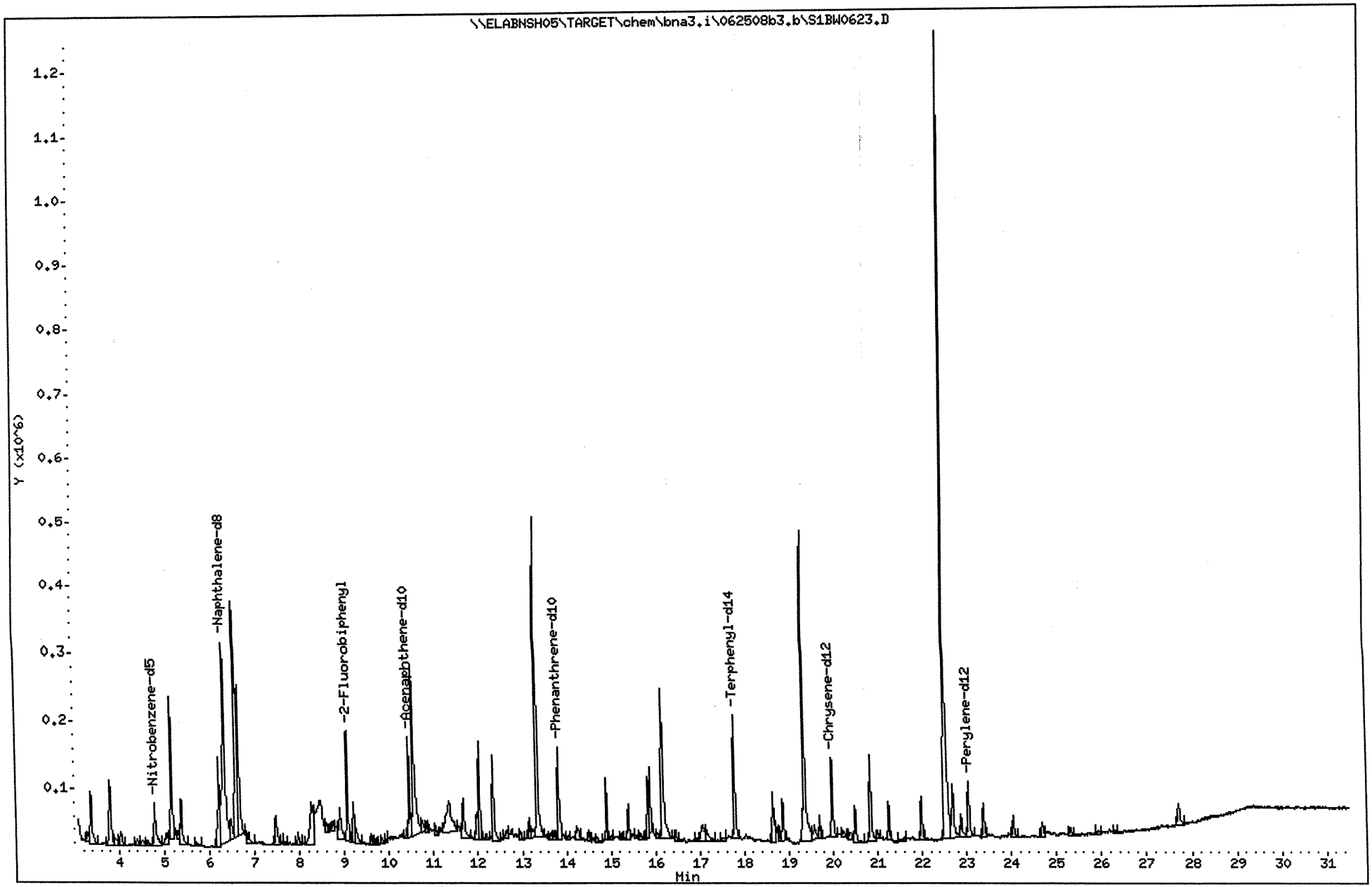
	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ng/ul)	CONCENTRATIONS FINAL (ug/L)
*	1 1,4-Dichlorobenzene-d4	152	3.372	3.381	(1.000)	33195	1.00000	
*	3 Naphthalene-d8	136	6.334	6.333	(1.000)	128167	1.00000	
$	4 Nitrobenzene-d5	82	4.783	4.773	(0.755)	51726	1.65488	0.8274
*	8 Acenaphthene-d10	164	10.455	10.455	(1.000)	64530	1.00000	
$	11 2-Fluorobiphenyl	172	9.072	9.071	(0.868)	113562	1.41663	0.7083
*	17 Phenanthrene-d10	188	13.816	13.815	(1.000)	104632	1.00000	
*	21 Chrysene-d12	240	19.980	19.980	(1.000)	100450	1.00000	
$	23 Terphenyl-d14	244	17.780	17.789	(0.890)	123444	1.45433	0.7272
*	26 Perylene-d12	264	23.053	23.043	(1.000)	75435	1.00000	

6-26-08

Data File: \\ELABNSH05\TARGET\chem\bna3.i\062508b3.b\S1BW0623.D
Date : 25-JUN-2008 11:14
Client ID: SBLK0623BW1
Sample Info: SBLK0623BW1;1;1000;500;1;UG/L;23-JUN-2008
Volume Injected (uL): 2.0
Column phase: fused silica

Instrument: bna3.i

Operator: ADM
Column diameter: 0.25



FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

SBLK0623BW1LCS

Lab Name: EMPIRICAL LABS Contract: ARCADIS

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: ARC.B06207

Matrix: (soil/water) WATER Lab Sample ID: SBLK0623BW1LCS

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S1LW0623

% Moisture: _____ decanted: (Y/N)___ Date Sampled: _____

Extraction: (SepF/Cont/Sonc/Soxh) SEPF Date Extracted:06/23/08

Concentrated Extract Volume: 500.0(uL) Date Analyzed: 06/25/08 11:53

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: NA

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	MDL	RL	CONC	Q
83-32-9	Acenaphthene	0.016	0.050	1.00	
208-96-8	Acenaphthylene	0.016	0.050	0.92	
120-12-7	Anthracene	0.016	0.050	0.98	
56-55-3	Benzo(a)anthracene	0.016	0.050	0.97	
205-99-2	Benzo(b)fluoranthene	0.016	0.050	0.85	
207-08-9	Benzo(k)fluoranthene	0.016	0.050	0.93	
191-24-2	Benzo(g,h,i)perylene	0.016	0.050	0.79	
50-32-8	Benzo(a)pyrene	0.016	0.050	0.79	
218-01-9	Chrysene	0.016	0.050	0.92	
53-70-3	Dibenz(a,h)anthracene	0.016	0.050	0.79	
206-44-0	Fluoranthene	0.016	0.050	1.1	
86-73-7	Fluorene	0.016	0.050	1.0	
193-39-5	Indeno(1,2,3-cd)pyrene	0.018	0.050	0.77	
91-57-6	2-Methylnaphthalene	0.019	0.050	1.0	
90-12-0	1-Methylnaphthalene	0.018	0.050	0.93	
91-20-3	Naphthalene	0.020	0.050	0.93	
85-01-8	Phenanthrene	0.016	0.050	0.98	
129-00-0	Pyrene	0.016	0.050	1.0	

Data File: \\ELABNSH05\TARGET\chem\bna3.i\062508b3.b\S1LW0623.D
Report Date: 25-Jun-2008 12:49

Empirical Laboratories, LLC

Data file : \\ELABNSH05\TARGET\chem\bna3.i\062508b3.b\S1LW0623.D
Lab Smp Id: SBLK0623BW1LCS Client Smp ID: SBLK0623BW1LCS
Inj Date : 25-JUN-2008 11:53 MS Autotune Date: 01-NOV-2007 04:29
Operator : ADM Inst ID: bna3.i
Smp Info : SBLK0623BW1LCS;1;1000;500;1;UG/L;23-JUN-2008
Misc Info : ;3;LCS;;;062308BW1;pahsurr.sub;4432
Comment :
Method : \\ELABNSH05\TARGET\chem\bna3.i\062508b3.b\PAHLOW1.m
Meth Date : 25-Jun-2008 11:29 tmonteiro Quant Type: ISTD
Cal Date : 14-JAN-2008 22:32 Cal File: LPAHCAL1.D
Als bottle: 6 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pahsurr.sub
Target Version: 4.04
Processing Host: TARGET02_VM

Concentration Formula: Amt * DF * Uf * Vt*Vi/(Amt * Vi)

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	500.000	Volume of final extract (uL)
Vi	2.000	Volume injected (uL)
Amt	1000.000	Volume of initial extraction

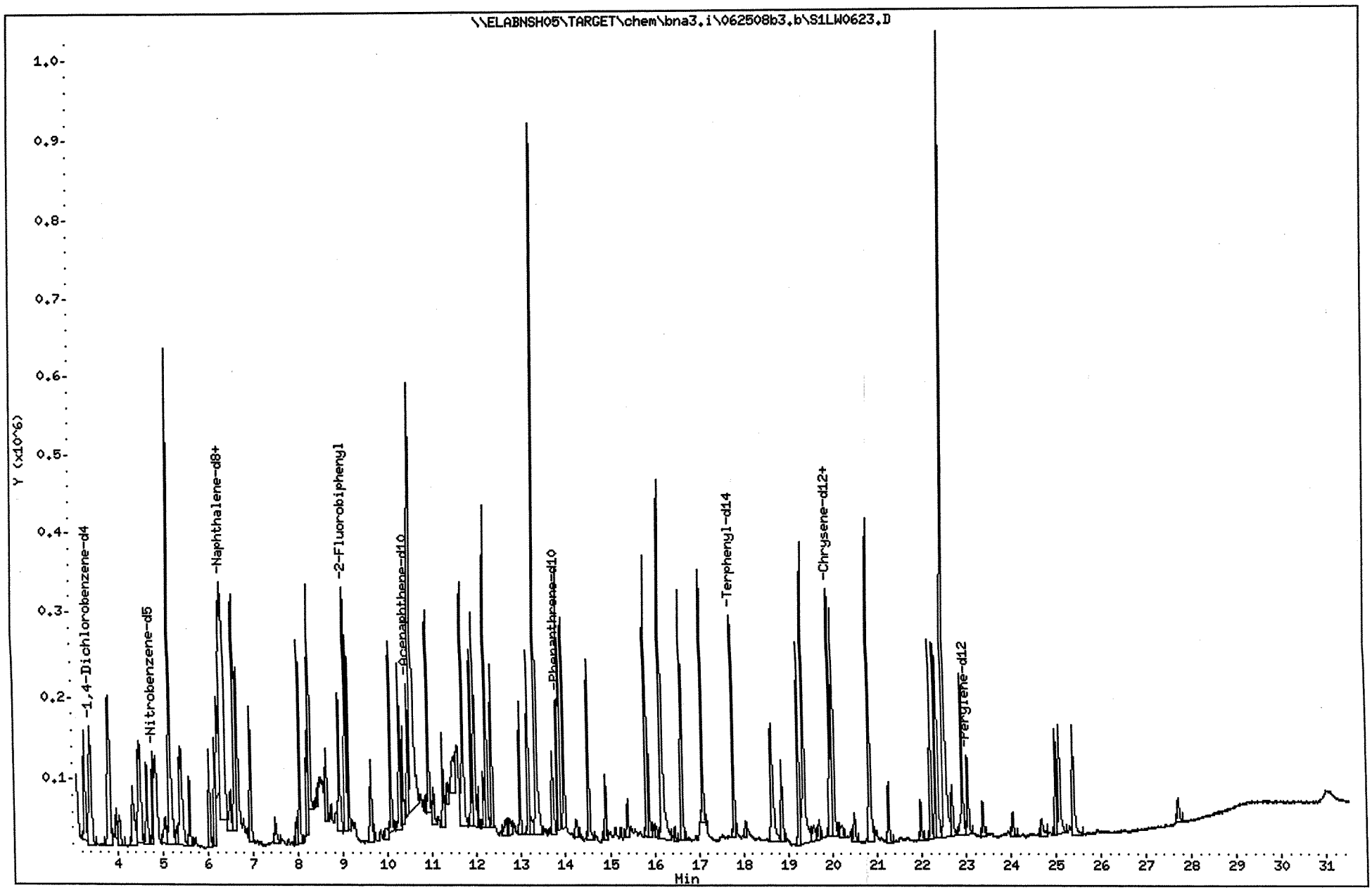
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ng/ul)	CONCENTRATIONS FINAL (ug/L)
* 1 1,4-Dichlorobenzene-d4	152	3.372	3.381	(1.000)	39318	1.00000	
* 3 Naphthalene-d8	136	6.334	6.333	(1.000)	144504	1.00000	
$ 4 Nitrobenzene-d5	82	4.774	4.773	(0.754)	75109	2.07241	1.036
5 Naphthalene	128	6.371	6.370	(1.006)	231633	1.85952	0.9298
6 2-Methylnaphthalene	141	8.032	8.032	(1.268)	132370	2.08061	1.040
7 1-Methylnaphthalene	141	8.264	8.255	(1.305)	129483	1.86530	0.9326
* 8 Acenaphthene-d10	164	10.455	10.455	(1.000)	72112	1.00000	
$ 11 2-Fluorobiphenyl	172	9.063	9.071	(0.867)	165706	1.84975	0.9249
12 Acenaphthylene	152	10.075	10.074	(0.964)	210695	1.83617	0.9181
13 Acenaphthene	153	10.520	10.520	(1.006)	147779	1.99056	0.9953
16 Fluorene	166	11.709	11.708	(1.120)	167391	2.06836	1.034
* 17 Phenanthrene-d10	188	13.816	13.815	(1.000)	118682	1.00000	
18 Phenanthrene	178	13.872	13.862	(1.004)	253060	1.96376	0.9819
19 Anthracene	178	13.974	13.973	(1.011)	238423	1.95912	0.9796

Data File: \\ELABNSH05\TARGET\chem\bna3.i\062508b3.b\S1LW0623.D
Report Date: 25-Jun-2008 12:49

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ng/ul)	CONCENTRATIONS FINAL (ug/L)
	20 Fluoranthene	202	16.620	16.619	(1.203)	272611	2.18195	1.091
*	21 Chrysene-d12	240	19.980	19.980	(1.000)	116066	1.00000	
	22 Pyrene	202	17.084	17.083	(0.855)	286273	2.09390	1.047
$	23 Terphenyl-d14	244	17.780	17.789	(0.890)	186099	1.89750	0.9488
	24 Benzo(a)anthracene	228	19.952	19.952	(0.999)	234000	1.93223	0.9661
	25 Chrysene	228	20.036	20.035	(1.003)	231915	1.83486	0.9174
*	26 Perylene-d12	264	23.044	23.043	(1.000)	89156	1.00000	
	27 Benzo(b)fluoranthene	252	22.320	22.319	(0.969)	201543	1.69283	0.8464
	28 Benzo(k)fluoranthene	252	22.366	22.365	(0.971)	236017	1.86399	0.9320
	29 Benzo(a)pyrene	252	22.923	22.922	(0.995)	168712	1.58414	0.7921
	30 Indeno(1,2,3-cd)pyrene	276	25.003	24.993	(1.085)	118492	1.54155	0.7708
	31 Dibenz(a,h)anthracene	278	25.086	25.076	(1.089)	126332	1.57805	0.7890
	32 Benzo(g,h,i)perylene	276	25.392	25.392	(1.102)	134688	1.58467	0.7923

Data File: \\ELABNSH05\TARGET\chem\bna3.i\062508b3.b\S1LW0623.D
Date : 25-JUN-2008 11:53
Client ID: SBLK0623BW1LCS
Sample Info: SBLK0623BW1LCS;1;1000;500;1;UG/L;23-JUN-2008
Volume Injected (uL): 2.0
Column phase: fused silica

Instrument: bna3.i
Operator: ADM
Column diameter: 0.25



FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

SBLK0623BW1LCSD

Lab Name: EMPIRICAL LABS Contract: ARCADIS

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: ARC.B06207

Matrix: (soil/water) WATER Lab Sample ID: SBLK0623BW1LCSD

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S1DW0623

% Moisture: _____ decanted: (Y/N)___ Date Sampled: _____

Extraction: (SepF/Cont/Sonc/Soxh) SEPF Date Extracted:06/23/08

Concentrated Extract Volume: 500.0(uL) Date Analyzed: 06/25/08 12:31

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: NA

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	MDL	RL	CONC	Q
83-32-9	Acenaphthene	0.016	0.050	0.93	
208-96-8	Acenaphthylene	0.016	0.050	0.85	
120-12-7	Anthracene	0.016	0.050	0.90	
56-55-3	Benzo(a)anthracene	0.016	0.050	0.92	
205-99-2	Benzo(b)fluoranthene	0.016	0.050	0.80	
207-08-9	Benzo(k)fluoranthene	0.016	0.050	0.88	
191-24-2	Benzo(g,h,i)perylene	0.016	0.050	0.75	
50-32-8	Benzo(a)pyrene	0.016	0.050	0.74	
218-01-9	Chrysene	0.016	0.050	0.90	
53-70-3	Dibenz(a,h)anthracene	0.016	0.050	0.73	
206-44-0	Fluoranthene	0.016	0.050	1.0	
86-73-7	Fluorene	0.016	0.050	0.98	
193-39-5	Indeno(1,2,3-cd)pyrene	0.018	0.050	0.76	
91-57-6	2-Methylnaphthalene	0.019	0.050	1.00	
90-12-0	1-Methylnaphthalene	0.018	0.050	0.93	
91-20-3	Naphthalene	0.020	0.050	0.91	
85-01-8	Phenanthrene	0.016	0.050	0.94	
129-00-0	Pyrene	0.016	0.050	0.98	

Data File: \\ELABNSH05\TARGET\chem\bna3.i\062508b3.b\S1DW0623.D
Report Date: 25-Jun-2008 14:48

Empirical Laboratories, LLC

Data file : \\ELABNSH05\TARGET\chem\bna3.i\062508b3.b\S1DW0623.D
Lab Smp Id: SBLK0623BW1LCSD Client Smp ID: SBLK0623BW1LCSD
Inj Date : 25-JUN-2008 12:31 MS Autotune Date: 01-NOV-2007 04:29
Operator : ADM Inst ID: bna3.i
Smp Info : SBLK0623BW1LCD;1;1000;500;1;UG/L;23-JUN-2008
Misc Info : ;3;LCSD;;;062308BW1;pahsurr.sub;4432
Comment :
Method : \\ELABNSH05\TARGET\chem\bna3.i\062508b3.b\PAHLOW1.m
Meth Date : 25-Jun-2008 11:29 tmonteiro Quant Type: ISTD
Cal Date : 14-JAN-2008 22:32 Cal File: LPAHCAL1.D
Als bottle: 7 QC Sample: LCSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pahsurr.sub
Target Version: 4.04
Processing Host: TARGET02_VM

Concentration Formula: Amt * DF * Uf * Vt*Vi/(Amt * Vi)

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	ng unit correction factor
Vt	500.000	Volume of final extract (uL)
Vi	2.000	Volume injected (uL)
Amt	1000.000	Volume of initial extraction

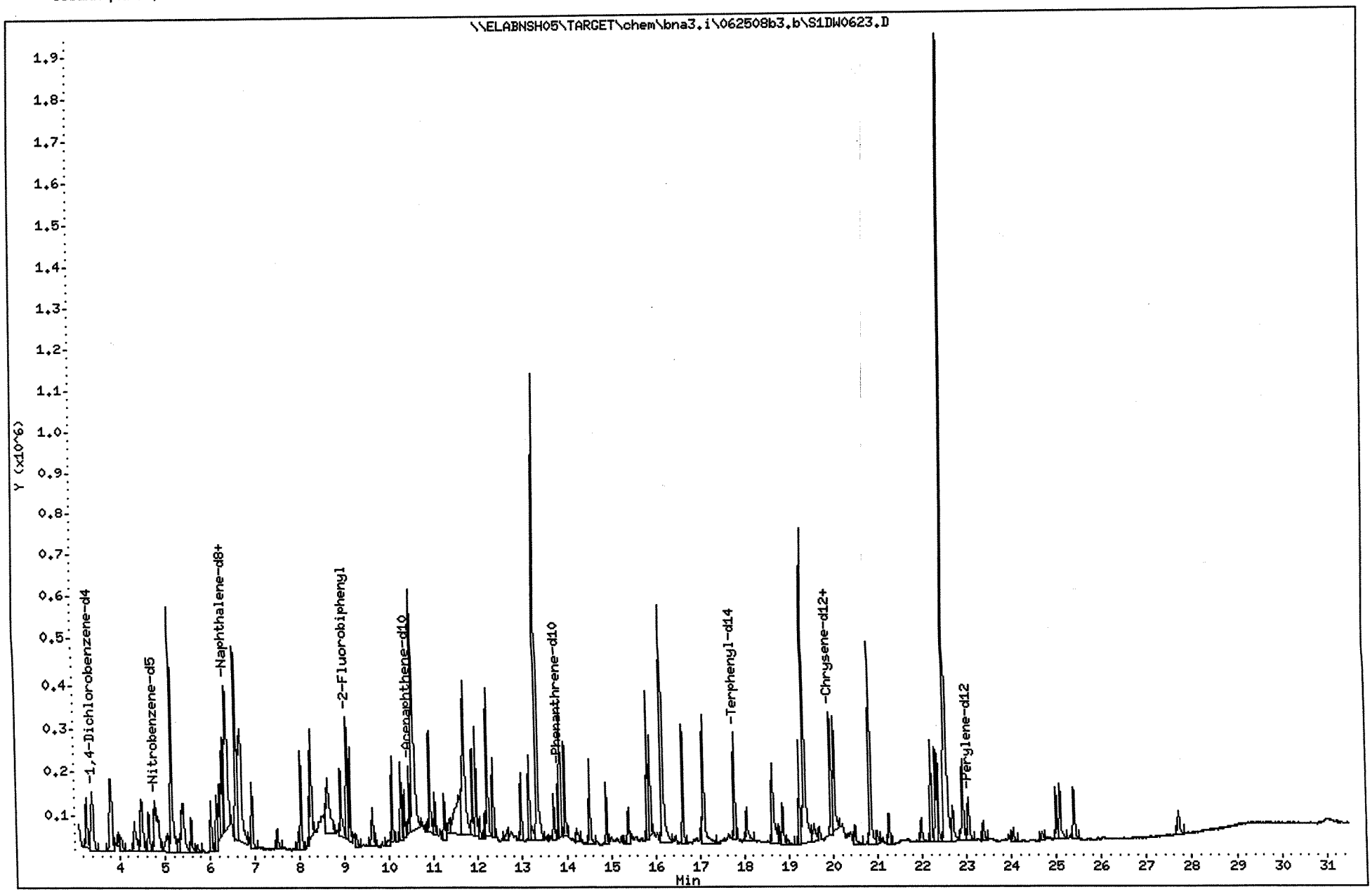
Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ng/ul)	CONCENTRATIONS FINAL (ug/L)
* 1 1,4-Dichlorobenzene-d4	152	3.375	3.381	(1.000)	37853	1.00000	
* 3 Naphthalene-d8	136	6.336	6.333	(1.000)	135950	1.00000	
$ 4 Nitrobenzene-d5	82	4.776	4.773	(0.754)	70217	2.06061	1.030
5 Naphthalene	128	6.373	6.370	(1.006)	214410	1.82957	0.9148
6 2-Methylnaphthalene	141	8.035	8.032	(1.268)	119347	1.99395	0.9970
7 1-Methylnaphthalene	141	8.258	8.255	(1.303)	121003	1.85283	0.9264
* 8 Acenaphthene-d10	164	10.449	10.455	(1.000)	70476	1.00000	
$ 11 2-Fluorobiphenyl	172	9.065	9.071	(0.868)	153782	1.75651	0.8782
12 Acenaphthylene	152	10.077	10.074	(0.964)	190366	1.69752	0.8488
13 Acenaphthene	153	10.523	10.520	(1.007)	134648	1.85579	0.9279
16 Fluorene	166	11.711	11.708	(1.121)	154741	1.95645	0.9782
* 17 Phenanthrene-d10	188	13.818	13.815	(1.000)	112594	1.00000	
18 Phenanthrene	178	13.865	13.862	(1.003)	229980	1.88117	0.9406
19 Anthracene	178	13.967	13.973	(1.011)	208937	1.80967	0.9048

Data File: \\ELABNSH05\TARGET\chem\bna3.i\062508b3.b\S1DW0623.D
Report Date: 25-Jun-2008 14:48

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ng/ul)	CONCENTRATIONS FINAL (ug/L)
20 Fluoranthene	202	16.622	16.619	(1.203)	248377	2.09548	1.048
* 21 Chrysene-d12	240	19.983	19.980	(1.000)	111137	1.00000	
22 Pyrene	202	17.086	17.083	(0.855)	255329	1.95040	0.9752
$ 23 Terphenyl-d14	244	17.782	17.789	(0.890)	166184	1.76960	0.8848
24 Benzo(a)anthracene	228	19.955	19.952	(0.999)	213644	1.84239	0.9212
25 Chrysene	228	20.038	20.035	(1.003)	218435	1.80486	0.9024
* 26 Perylene-d12	264	23.046	23.043	(1.000)	85965	1.00000	
27 Benzo(b)fluoranthene	252	22.322	22.319	(0.969)	184184	1.60445	0.8022
28 Benzo(k)fluoranthene	252	22.368	22.365	(0.971)	214021	1.75302	0.8765
29 Benzo(a)pyrene	252	22.926	22.922	(0.995)	152945	1.48940	0.7447
30 Indeno(1,2,3-cd)pyrene	276	25.005	24.993	(1.085)	112158	1.51331	0.7566
31 Dibenz(a,h)anthracene	278	25.089	25.076	(1.089)	112536	1.45790	0.7289
32 Benzo(g,h,i)perylene	276	25.395	25.392	(1.102)	122703	1.49725	0.7486

Data File: \\ELABNSH05\TARGET\chem\bna3.i\062508b3.b\S1DW0623.D
Date : 25-JUN-2008 12:31
Client ID: SBLK0623BW1LCSD
Sample Info: SBLK0623BW1LCD;1;1000;500;1;UG/L;23-JUN-2008
Volume Injected (uL): 2.0
Column phase: fused silica

Instrument: bna3.i
Operator: ADM
Column diameter: 0.25



Sequence Name: C:\HPCHEM\1\SEQUENCE\011408B3.S
Comment: SW846-8270C/625
Operator: ADM
Data Path: F:\HPCHEM\1\DATA\011408b3\
Pre-Seq Cmd:
Post-Seq Cmd:

3rd 1/14/08

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

Line	Type	Vial	DataFile	Method	Sample Name
1	Blank	100	BLANK	DFTPPBN3	
2	DailyCal	2	PRIMER	IXBN3	BNACCV50PPM;;;;;SV4270
3	DFTPP	1	DF0114B1	DFTPPBN3	DF0114B1;;;;;SV4242 8:09, 1/14
4	DailyCal	2	CCV050	IXBN3	BNACCV50PPM;;;;;SV4270
5	Sample	3	MDLCKW1	IXBN3	mdlchk-1ppm;1;1000;1000;1;UG/
6	Sample	4	MDLCKW2	IXBN3	mdlchk-2ppm;1;1000;1000;1;UG/
7	Sample	5	MDLCKW10	IXBN3	mdlchk-10ppm;1;1000;1000;1;UG
8	Sample	6	MDLCKS10	IXBN3	mdlchk-10ppm;1;15;1000;1;UG/K
9	Sample	7	MDLCKS2	IXBN3	mdlchk-2ppm;1;15;1000;1;UG/KG
10	Sample	8	MDLCKS1	IXBN3	mdlchk-1ppm;1;15;1000;1;UG/KG
11	Sample	9	0101902D	IXBN3	0801019-02;5;1060;1000;1;UG/L
12	Sample	10	0104005	IXBN3	0801040-05;1;1080;1000;1;UG/L
13	Sample	11	0104006	IXBN3	0801040-06;1;1080;1000;1;UG/L
14	Sample	12	0104007	IXBN3	0801040-07;1;1080;1000;1;UG/L
15	Sample	13	0104008	IXBN3	0801040-08;1;1070;1000;1;UG/L
16	Sample	14	0103208	IXBN3	0801032-08;1;1000;1000;1;UG/L
17	Sample	35	0103208D	IXBN3	0801032-08;5;1000;1000;1;UG/L
18	Sample	15	0103209	IXBN3	0801032-09;1;1020;1000;1;UG/L 15:42, 1/14
19	Blank	100	BLANK	DFTPPLOW	
20	Blank	100	BLANK	DFTPPLOW	
21	Blank	100	BLANK	DFTPPLOW	
22	DailyCal	99	PRIMER1	PAHLOW	LPAHCCV5PPM;;;;;SV4282
23	Sample	16	DF0114B2	DFTPPLOW	DF0114B2;;;;;SV4283 17:36, 1/14
24	Sample	17	LPAHCAL8	PAHLOW	LPAHCAL30PPM;;;;;SV4285-8
25	Sample	18	LPAHCAL7	PAHLOW	LPAHCAL20PPM;;;;;SV4285-7
26	Sample	19	LPAHCAL6	PAHLOW	LPAHCAL10PPM;;;;;SV4285-6
27	Sample	20	LPAHCAL5	PAHLOW	LPAHCAL5PPM;;;;;SV4285-5
28	Sample	21	LPAHCAL4	PAHLOW	LPAHCAL1PPM;;;;;SV4285-4
29	Sample	22	LPAHCAL3	PAHLOW	LPAHCAL0.4PPM;;;;;SV4285-3
30	Sample	23	LPAHCAL2	PAHLOW	LPAHCAL0.2PPM;;;;;SV4285-2
31	Sample	24	LPAHCAL1	PAHLOW	LPAHCAL0.1PPM;;;;;SV4285-1
32	Sample	25	LPAHICV	PAHLOW	LPAHICV5PPM;;;;;SV4286
33	DailyCal	99	LPAHCCV1	PAHLOW	LPAHCCV5PPM;;;;;SV4282
34	Spike	26	MDLLPHS1	PAHLOW	mdlchkslpah;1;15;500;1;UG/KG;
35	Spike	27	MDLLPHW1	PAHLOW	mdlchkwlpah;1;1000;500;1;UG/L
36	Spike	28	S1LW1220	PAHLOW	SBLK1220BW1LCS;1;1000;500;1;U
37	Blank	29	S1BW1220	PAHLOW	SBLK1220BW1;1;1000;500;1;UG/L
38	Spike	30	S1LW1226	PAHLOW	SBLK1226BW1LCS;1;1000;500;1;U
39	Spike	31	S1DW1226	PAHLOW	SBLK1226BW1LCSD;1;1000;500;1;
40	Blank	32	S1BW1226	PAHLOW	SBLK1226BW1;1;1000;500;1;UG/L 4:27, 1/15

MDL chks H2O/soil

LL PAH's

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      Comment: SW846-8270C/625
     Operator: ADM
    Data Path: F:\HPCHEM\1\DATA\011408b3\
  Pre-Seq Cmd:
 Post-Seq Cmd:

Method Sections To Run      On A Barcode Mismatch
 (X) Full Method              (X) Inject Anyway
 ( ) Reprocessing Only        ( ) Don't Inject
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3217

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	Vial: 100		
	Meth: DFTPPBN3.M	Barcode:	
	Data: BLANK.D	Samp Amt: 0	Multiplr: 1
	Area% Report :per Method	Lib. Search Rep :per Method	
	Quant Report :per Method	Post-Quant Macro:per Method	
	CR Database :per Method	CR Spreadsheet :per Method	
2	Type: DailyCal	BNACCV50PPM;;;;;SV4270	
	Vial: 2	;2;;;;;all.sub;4269	
	Meth: IXBN3.M	Barcode:	
	Data: PRIMER.D	Samp Amt: 0	Multiplr: 1
	Area% Report :per Method	Lib. Search Rep :per Method	
	Quant Report :per Method	Post-Quant Macro:per Method	
	CR Database :per Method	CR Spreadsheet :per Method	
3	Type: DFTPP	DF0114B1;;;;;SV4242	
	Vial: 1	;3;DFTPP;;;;;	
	Meth: DFTPPBN3.M	Barcode:	
	Data: DF0114B1.D	Samp Amt: 0	Multiplr: 1
	Area% Report :per Method	Lib. Search Rep :per Method	
	Quant Report :per Method	Post-Quant Macro:per Method	
	CR Database :per Method	CR Spreadsheet :per Method	
4	Type: DailyCal	BNACCV50PPM;;;;;SV4270	
	Vial: 2	;2;;;;;all.sub;4269	
	Meth: IXBN3.M	Barcode:	
	Data: CCV050.D	Samp Amt: 0	Multiplr: 1
	Area% Report :per Method	Lib. Search Rep :per Method	
	Quant Report :per Method	Post-Quant Macro:per Method	
	CR Database :per Method	CR Spreadsheet :per Method	
5	Type: Sample	mdlchk-1ppm;1;1000;1000;1;UG/L;10-JAN-2008	
	Vial: 3	;3;;;;011008BW1;ppbna.sub;4276	
	Meth: IXBN3.M	Barcode:	
	Data: MDLCKW1.D	Samp Amt: 0	Multiplr: 1
	Area% Report :per Method	Lib. Search Rep :per Method	
	Quant Report :per Method	Post-Quant Macro:per Method	
	CR Database :per Method	CR Spreadsheet :per Method	
6	Type: Sample	mdlchk-2ppm;1;1000;1000;1;UG/L;10-JAN-2008	
	Vial: 4	;3;;;;011008BW1;ppbna.sub;4276	
	Meth: IXBN3.M	Barcode:	
	Data: MDLCKW2.D	Samp Amt: 0	Multiplr: 1
	Area% Report :per Method	Lib. Search Rep :per Method	
	Quant Report :per Method	Post-Quant Macro:per Method	
	CR Database :per Method	CR Spreadsheet :per Method	
7	Type: Sample	mdlchk-10ppm;1;1000;1000;1;UG/L;10-JAN-2008	
	Vial: 5	;3;;;;011008BW1;ppbna.sub;4276	
	Meth: IXBN3.M	Barcode:	
	Data: MDLCKW10.D	Samp Amt: 0	Multiplr: 1
	Area% Report :per Method	Lib. Search Rep :per Method	
	Quant Report :per Method	Post-Quant Macro:per Method	
	CR Database :per Method	CR Spreadsheet :per Method	

```
8   Type: Sample       mdlchk-10ppm;1;15;1000;1;UG/KG;10-JAN-2008
    Vial: 6            ;3;;;;011008BS1;ppbna.sub;4276
    Meth: IXBN3.M      Barcode:
    Data: MDLCKS10.D   Samp Amt: 0          Multiplr: 1
    Area% Report     :per Method       Lib. Search Rep :per Method
    Quant Report     :per Method       Post-Quant Macro:per Method
    CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
9   Type: Sample       mdlchk-2ppm;1;15;1000;1;UG/KG;10-JAN-2008
    Vial: 7            ;3;;;;011008BS1;ppbna.sub;4276
    Meth: IXBN3.M      Barcode:
    Data: MDLCKS2.D    Samp Amt: 0          Multiplr: 1
    Area% Report     :per Method       Lib. Search Rep :per Method
    Quant Report     :per Method       Post-Quant Macro:per Method
    CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
10  Type: Sample       mdlchk-1ppm;1;15;1000;1;UG/KG;10-JAN-2008
    Vial: 8            ;3;;;;011008BS1;ppbna.sub;4276
    Meth: IXBN3.M      Barcode:
    Data: MDLCKS1.D    Samp Amt: 0          Multiplr: 1
    Area% Report     :per Method       Lib. Search Rep :per Method
    Quant Report     :per Method       Post-Quant Macro:per Method
    CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
11  Type: Sample       0801019-02;5;1060;1000;1;UG/L;09-JAN-2008
    Vial: 9            ch2.b01019;0;;;;010908BW1;ppbna.sub;4276
    Meth: IXBN3.M      Barcode:
    Data: 0101902D.D   Samp Amt: 0          Multiplr: 5
    Area% Report     :per Method       Lib. Search Rep :per Method
    Quant Report     :per Method       Post-Quant Macro:per Method
    CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
12  Type: Sample       0801040-05;1;1080;1000;1;UG/L;09-JAN-2008
    Vial: 10           ch2.b01040;0;;;;010908BW1;ppbna.sub;4276
    Meth: IXBN3.M      Barcode:
    Data: 0104005.D    Samp Amt: 0          Multiplr: 1
    Area% Report     :per Method       Lib. Search Rep :per Method
    Quant Report     :per Method       Post-Quant Macro:per Method
    CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
13  Type: Sample       0801040-06;1;1080;1000;1;UG/L;09-JAN-2008
    Vial: 11           ch2.b01040;0;;;;010908BW1;ppbna.sub;4276
    Meth: IXBN3.M      Barcode:
    Data: 0104006.D    Samp Amt: 0          Multiplr: 1
    Area% Report     :per Method       Lib. Search Rep :per Method
    Quant Report     :per Method       Post-Quant Macro:per Method
    CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
14  Type: Sample       0801040-07;1;1080;1000;1;UG/L;09-JAN-2008
    Vial: 12           ch2.b01040;0;;;;010908BW1;ppbna.sub;4276
    Meth: IXBN3.M      Barcode:
    Data: 0104007.D    Samp Amt: 0          Multiplr: 1
    Area% Report     :per Method       Lib. Search Rep :per Method
    Quant Report     :per Method       Post-Quant Macro:per Method
    CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
15  Type: Sample       0801040-08;1;1070;1000;1;UG/L;09-JAN-2008
    Vial: 13           ch2.b01040;0;;;;010908BW1;ppbna.sub;4276
    Meth: IXBN3.M      Barcode:
    Data: 0104008.D    Samp Amt: 0          Multiplr: 1
    Area% Report     :per Method       Lib. Search Rep :per Method
    Quant Report     :per Method       Post-Quant Macro:per Method
    CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
16  Type: Sample       0801032-08;1;1000;1000;1;UG/L;09-JAN-2008
    Vial: 14           ch2.b01032;0;;;;010908BW1;ppbna.sub;4276
    Meth: IXBN3.M      Barcode:
    Data: 0103208.D    Samp Amt: 0          Multiplr: 1
```

3218

```
    Area% Report     :per Method       Lib. Search Rep :per Method
    Quant Report     :per Method       Post-Quant Macro:per Method
    CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
17  Type: Sample      0801032-08;5;1000;1000;1;UG/L;09-JAN-2008
    Vial: 35          ch2.b01032;0;;;;010908BW1;ppbna.sub;4276
    Meth: IXBN3.M     Barcode:
    Data: 0103208D.D  Samp Amt: 0          Multiplr: 5
    Area% Report     :per Method       Lib. Search Rep :per Method
    Quant Report     :per Method       Post-Quant Macro:per Method
    CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
18  Type: Sample      0801032-09;1;1020;1000;1;UG/L;09-JAN-2008
    Vial: 15          ch2.b01032;0;;;;010908BW1;ppbna.sub;4276
    Meth: IXBN3.M     Barcode:
    Data: 0103209.D   Samp Amt: 0          Multiplr: 1
    Area% Report     :per Method       Lib. Search Rep :per Method
    Quant Report     :per Method       Post-Quant Macro:per Method
    CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
19  Type: Blank
    Vial: 100
    Meth: DFTPPLOW.M  Barcode:
    Data: BLANK.D     Samp Amt: 0          Multiplr: 1
    Area% Report     :per Method       Lib. Search Rep :per Method
    Quant Report     :per Method       Post-Quant Macro:per Method
    CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
20  Type: Blank
    Vial: 100
    Meth: DFTPPLOW.M  Barcode:
    Data: BLANK.D     Samp Amt: 0          Multiplr: 1
    Area% Report     :per Method       Lib. Search Rep :per Method
    Quant Report     :per Method       Post-Quant Macro:per Method
    CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
21  Type: Blank
    Vial: 100
    Meth: DFTPPLOW.M  Barcode:
    Data: BLANK.D     Samp Amt: 0          Multiplr: 1
    Area% Report     :per Method       Lib. Search Rep :per Method
    Quant Report     :per Method       Post-Quant Macro:per Method
    CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
22  Type: DailyCal    LPAHCCV5PPM;;;;;SV4282
    Vial: 99          ;2;;;;;pahsurr.sub;4277
    Meth: PAHLOW.M    Barcode:
    Data: PRIMER1.D   Samp Amt: 0          Multiplr: 1
    Area% Report     :per Method       Lib. Search Rep :per Method
    Quant Report     :per Method       Post-Quant Macro:per Method
    CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
23  Type: Sample      DF0114B2;;;;;SV4283
    Vial: 16          ;;DFTPP;;;;;
    Meth: DFTPPLOW.M  Barcode:
    Data: DF0114B2.D  Samp Amt: 0          Multiplr: 1
    Area% Report     :per Method       Lib. Search Rep :per Method
    Quant Report     :per Method       Post-Quant Macro:per Method
    CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
24  Type: Sample      LPAHCAL30PPM;;;;;SV4285-8
    Vial: 17          ;;;;;;pahsurr.sub;4277
    Meth: PAHLOW.M    Barcode:
    Data: LPAHCAL8.D  Samp Amt: 0          Multiplr: 1
    Area% Report     :per Method       Lib. Search Rep :per Method
    Quant Report     :per Method       Post-Quant Macro:per Method
    CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
25  Type: Sample      LPAHCAL20PPM;;;;;SV4285-7
```

3219

```
    Vial: 18          ;;;;;;pahsurr.sub;4277
    Meth: PAHLOW.M    Barcode:
    Data: LPAHCAL7.D  Samp Amt: 0          Multiplr: 1
    Area% Report    :per Method       Lib. Search Rep :per Method
    Quant Report    :per Method       Post-Quant Macro:per Method
    CR Database     :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------
26  Type: Sample      LPAHCAL10PPM;;;;;SV4285-6
    Vial: 19          ;;;;;;pahsurr.sub;4277
    Meth: PAHLOW.M    Barcode:
    Data: LPAHCAL6.D  Samp Amt: 0          Multiplr: 1
    Area% Report    :per Method       Lib. Search Rep :per Method
    Quant Report    :per Method       Post-Quant Macro:per Method
    CR Database     :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------
27  Type: Sample      LPAHCAL5PPM;;;;;SV4285-5
    Vial: 20          ;;;;;;pahsurr.sub;4277
    Meth: PAHLOW.M    Barcode:
    Data: LPAHCAL5.D  Samp Amt: 0          Multiplr: 1
    Area% Report    :per Method       Lib. Search Rep :per Method
    Quant Report    :per Method       Post-Quant Macro:per Method
    CR Database     :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------
28  Type: Sample      LPAHCAL1PPM;;;;;SV4285-4
    Vial: 21          ;;;;;;pahsurr.sub;4277
    Meth: PAHLOW.M    Barcode:
    Data: LPAHCAL4.D  Samp Amt: 0          Multiplr: 1
    Area% Report    :per Method       Lib. Search Rep :per Method
    Quant Report    :per Method       Post-Quant Macro:per Method
    CR Database     :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------
29  Type: Sample      LPAHCAL0.4PPM;;;;;SV4285-3
    Vial: 22          ;;;;;;pahsurr.sub;4277
    Meth: PAHLOW.M    Barcode:
    Data: LPAHCAL3.D  Samp Amt: 0          Multiplr: 1
    Area% Report    :per Method       Lib. Search Rep :per Method
    Quant Report    :per Method       Post-Quant Macro:per Method
    CR Database     :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------
30  Type: Sample      LPAHCAL0.2PPM;;;;;SV4285-2
    Vial: 23          ;;;;;;pahsurr.sub;4277
    Meth: PAHLOW.M    Barcode:
    Data: LPAHCAL2.D  Samp Amt: 0          Multiplr: 1
    Area% Report    :per Method       Lib. Search Rep :per Method
    Quant Report    :per Method       Post-Quant Macro:per Method
    CR Database     :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------
31  Type: Sample      LPAHCAL0.1PPM;;;;;SV4285-1
    Vial: 24          ;;;;;;pahsurr.sub;4277
    Meth: PAHLOW.M    Barcode:
    Data: LPAHCAL1.D  Samp Amt: 0          Multiplr: 1
    Area% Report    :per Method       Lib. Search Rep :per Method
    Quant Report    :per Method       Post-Quant Macro:per Method
    CR Database     :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------
32  Type: Sample      LPAHICV5PPM;;;;;SV4286
    Vial: 25          ;;;;;;pahsurr.sub;4277
    Meth: PAHLOW.M    Barcode:
    Data: LPAHICV.D   Samp Amt: 0          Multiplr: 1
    Area% Report    :per Method       Lib. Search Rep :per Method
    Quant Report    :per Method       Post-Quant Macro:per Method
    CR Database     :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------
33  Type: DailyCal    LPAHCCV5PPM;;;;;SV4282
    Vial: 99          ;2;;;;;pahsurr.sub;4277
    Meth: PAHLOW.M    Barcode:
    Data: LPAHCCV1.D  Samp Amt: 0          Multiplr: 1
    Area% Report    :per Method       Lib. Search Rep :per Method
    Quant Report    :per Method       Post-Quant Macro:per Method
```

3220

```
    CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
34  Type: Spike        mdlchkslpah;1;15;500;1;UG/KG;04-JAN-2008
    Vial: 26           ;3;;;;010408BS2;pahsurr.sub;4277
    Meth: PAHLOW.M     Barcode:
    Data: MDLLPHS1.D   Samp Amt: 0          Multiplr: 1
    Area% Report     :per Method       Lib. Search Rep :per Method
    Quant Report     :per Method       Post-Quant Macro:per Method
    CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
35  Type: Spike        mdlchkwlpah;1;1000;500;1;UG/L;04-JAN-2008
    Vial: 27           ;3;;;;010408BW2;pahsurr.sub;4277
    Meth: PAHLOW.M     Barcode:
    Data: MDLLPHW1.D   Samp Amt: 0          Multiplr: 1
    Area% Report     :per Method       Lib. Search Rep :per Method
    Quant Report     :per Method       Post-Quant Macro:per Method
    CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
36  Type: Spike        SBLK1220BW1LCS;1;1000;500;1;UG/L;20-DEC-2007
    Vial: 28           ;3;LCS;;;122007BW1;pahsurr.sub;4277
    Meth: PAHLOW.M     Barcode:
    Data: S1LW1220.D   Samp Amt: 0          Multiplr: 1
    Area% Report     :per Method       Lib. Search Rep :per Method
    Quant Report     :per Method       Post-Quant Macro:per Method
    CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
37  Type: Blank        SBLK1220BW1;1;1000;500;1;UG/L;20-DEC-2007
    Vial: 29           ;3;BLANK;;;122007BW1;pahsurr.sub;4277
    Meth: PAHLOW.M     Barcode:
    Data: S1BW1220.D   Samp Amt: 0          Multiplr: 1
    Area% Report     :per Method       Lib. Search Rep :per Method
    Quant Report     :per Method       Post-Quant Macro:per Method
    CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
38  Type: Spike        SBLK1226BW1LCS;1;1000;500;1;UG/L;26-DEC-2007
    Vial: 30           ;3;LCS;;;122607BW1;pahsurr.sub;4277
    Meth: PAHLOW.M     Barcode:
    Data: S1LW1226.D   Samp Amt: 0          Multiplr: 1
    Area% Report     :per Method       Lib. Search Rep :per Method
    Quant Report     :per Method       Post-Quant Macro:per Method
    CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
39  Type: Spike        SBLK1226BW1LCSD;1;1000;500;1;UG/L;26-DEC-2007
    Vial: 31           ;3;LCSD;;;122607BW1;pahsurr.sub;4277
    Meth: PAHLOW.M     Barcode:
    Data: S1DW1226.D   Samp Amt: 0          Multiplr: 1
    Area% Report     :per Method       Lib. Search Rep :per Method
    Quant Report     :per Method       Post-Quant Macro:per Method
    CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
40  Type: Blank        SBLK1226BW1;1;1000;500;1;UG/L;26-DEC-2007
    Vial: 32           ;3;BLANK;;;122607BW1;pahsurr.sub;4277
    Meth: PAHLOW.M     Barcode:
    Data: S1BW1226.D   Samp Amt: 0          Multiplr: 1
    Area% Report     :per Method       Lib. Search Rep :per Method
    Quant Report     :per Method       Post-Quant Macro:per Method
    CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
```

324

Sequence Name: C:\HPCHEM\1\SEQUENCE\062508B3.S
Comment: SW846-8270C/625
Operator: ADM
Data Path: F:\HPCHEM\1\DATA\062508b3\
Pre-Seq Cmd:
Post-Seq Cmd:

3557

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

M 6/25/08

LL PAH's

Line	Type	Vial	DataFile	Method	Sample Name
1	Sample	100	BLANK	DFTPPLOW	BLANK;;;;;
2	DailyCal	2	PRIMER	PAHLOW1	LOWPAH5PPM;;;;; SV4420B
3	Sample	1	DF0625B1	DFTPPLOW	DF0625B1;;;;;SV4411 9:00, 6/25
4	DailyCal	2	LPAHCCV	PAHLOW1	LOWPAH5PPM;;;;; SV4420B
5	DailyCal	3	SPCCV	PAHLOW1	spcc30PPM;;;;; SV4420A
6	Sample	4	0605305R	PAHLOW1	0806053-05;1;1000;500;1;UG/L;
7	Blank	5	S1BW0623	PAHLOW1	SBLK0623BW1;1;1000;500;1;UG/L
8	Spike	6	S1LW0623	PAHLOW1	SBLK0623BW1LCS;1;1000;500;1;U
9	Spike	7	S1DW0623	PAHLOW1	SBLK0623BW1LCD;1;1000;500;1;U
10	Blank	8	S1BS0623	PAHLOW1	SBLK0623BS1;1;15;500;1;UG/KG;
11	Spike	9	S1LS0623	PAHLOW1	SBLK0623BS1LCS;1;15;500;1;UG/
12	Spike	10	S1DS0623	PAHLOW1	SBLK0623BS1LCD;1;15;500;1;UG/
13	Sample	11	0622508	PAHLOW1	0806225-08;1;1080;500;1;UG/L;
14	Sample	12	0622509	PAHLOW1	0806225-09;1;1080;500;1;UG/L;
15	Sample	13	0622501	PAHLOW1	0806225-01;1;15;500;1;UG/KG;2 RR10X
16	Sample	14	0622502	PAHLOW1	0806225-02;1;15;500;1;UG/KG;2
17	Sample	15	0622503	PAHLOW1	0806225-03;1;15;500;1;UG/KG;2
18	Sample	16	0622504	PAHLOW1	0806225-04;1;15;500;1;UG/KG;2
19	Sample	17	0622505	PAHLOW1	0806225-05;1;15;500;1;UG/KG;2
20	Sample	18	0622506	PAHLOW1	0806225-06;1;15;500;1;UG/KG;2
21	Sample	19	0622507	PAHLOW1	0806225-07;1;15;500;1;UG/KG;2 20:12, 6/25
22	Sample	99	PRIMER	PAHLOW1	LOWPAH5PPM;;;;;
23	Sample	2	PRIMER1	PAHLOW1	LOWPAH5PPM;;;;; SV4420B
24	Sample	1	DF0625B2	DFTPPLOW	DF0625B2;;;;;SV4411
25	Sample	2	LPAHCCVE	PAHLOW1	LOWPAH5PPM;;;;; SV4420B ~ccv failed (310W)
26	Sample	3	SPCCVE	PAHLOW1	spcc30PPM;;;;; SV4420A
27	Sample	20	0620701	PAHLOW1	0806207-01;1;1080;500;1;UG/L; > RR 1X
28	Sample	21	0620702	PAHLOW1	0806207-02;1;1080;500;1;UG/L;
29	Sample	22	0620703	PAHLOW1	0806207-03;1;1080;500;1;UG/L;

Sequence Name: C:\HPCHEM\1\SEQUENCE\062508B3.S
Comment: SW846-8270C/625
Operator: ADM
Data Path: F:\HPCHEM\1\DATA\062508b3\
Pre-Seq Cmd:
Post-Seq Cmd:

3558

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

Line	Sample Name/Misc Info
1 Type: Sample Vial: 100 Meth: DFTPPLOW.M Data: BLANK.D Area% Report :per Method Quant Report :per Method CR Database :per Method	BLANK;;;;; ;;;;;;pahsurr.sub; Barcode: Samp Amt: 0 Multiplr: 1 Lib. Search Rep :per Method Post-Quant Macro:per Method CR Spreadsheet :per Method
2 Type: DailyCal Vial: 2 Meth: PAHLOW1.M Data: PRIMER.D Area% Report :per Method Quant Report :per Method CR Database :per Method	LOWPAH5PPM;;;;; SV4420B ;2;;;;;pahsurr.sub;4352 Barcode: Samp Amt: 0 Multiplr: 1 Lib. Search Rep :per Method Post-Quant Macro:per Method CR Spreadsheet :per Method
3 Type: Sample Vial: 1 Meth: DFTPPLOW.M Data: DF0625B1.D Area% Report :per Method Quant Report :per Method CR Database :per Method	DF0625B1;;;;;SV4411 ;3;DFTPP;;;;; Barcode: Samp Amt: 0 Multiplr: 1 Lib. Search Rep :per Method Post-Quant Macro:per Method CR Spreadsheet :per Method
4 Type: DailyCal Vial: 2 Meth: PAHLOW1.M Data: LPAHCCV.D Area% Report :per Method Quant Report :per Method CR Database :per Method	LOWPAH5PPM;;;;; SV4420B ;2;;;;;pahsurr.sub;4352 Barcode: Samp Amt: 0 Multiplr: 1 Lib. Search Rep :per Method Post-Quant Macro:per Method CR Spreadsheet :per Method
5 Type: DailyCal Vial: 3 Meth: PAHLOW1.M Data: SPCCV.D Area% Report :per Method Quant Report :per Method CR Database :per Method	spcc30PPM;;;;; SV4420A ;2;;;;;spcc.sub;4352 Barcode: Samp Amt: 0 Multiplr: 1 Lib. Search Rep :per Method Post-Quant Macro:per Method CR Spreadsheet :per Method
6 Type: Sample Vial: 4 Meth: PAHLOW1.M Data: 0605305R.D Area% Report :per Method Quant Report :per Method CR Database :per Method	0806053-05;1;1000;500;1;UG/L;09-JUN-2008 sha.b06053;0;;;;060908BW1;pahsurr.sub;4352 Barcode: Samp Amt: 0 Multiplr: 1 Lib. Search Rep :per Method Post-Quant Macro:per Method CR Spreadsheet :per Method
7 Type: Blank Vial: 5 Meth: PAHLOW1.M Data: S1BW0623.D Area% Report :per Method Quant Report :per Method CR Database :per Method	SBLK0623BW1;1;1000;500;1;UG/L;23-JUN-2008 ;3;BLANK;;;062308BW1;pahsurr.sub;4432 Barcode: Samp Amt: 0 Multiplr: 1 Lib. Search Rep :per Method Post-Quant Macro:per Method CR Spreadsheet :per Method

```
 8   Type: Spike        SBLK0623BW1LCS;1;1000;500;1;UG/L;23-JUN-2008
     Vial: 6            ;3;LCS;;;062308BW1;pahsurr.sub;4432
     Meth: PAHLOW1.M    Barcode:
     Data: S1LW0623.D   Samp Amt: 0          Multiplr: 1
     Area% Report     :per Method       Lib. Search Rep :per Method
     Quant Report     :per Method       Post-Quant Macro:per Method
     CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
 9   Type: Spike        SBLK0623BW1LCD;1;1000;500;1;UG/L;23-JUN-2008
     Vial: 7            ;3;LCSD;;;062308BW1;pahsurr.sub;4432
     Meth: PAHLOW1.M    Barcode:
     Data: S1DW0623.D   Samp Amt: 0          Multiplr: 1
     Area% Report     :per Method       Lib. Search Rep :per Method
     Quant Report     :per Method       Post-Quant Macro:per Method
     CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
10   Type: Blank        SBLK0623BS1;1;15;500;1;UG/KG;23-JUN-2008
     Vial: 8            ;3;BLANK;;;062308BW1;pahsurr.sub;4432
     Meth: PAHLOW1.M    Barcode:
     Data: S1BS0623.D   Samp Amt: 0          Multiplr: 1
     Area% Report     :per Method       Lib. Search Rep :per Method
     Quant Report     :per Method       Post-Quant Macro:per Method
     CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
11   Type: Spike        SBLK0623BS1LCS;1;15;500;1;UG/KG;23-JUN-2008
     Vial: 9            ;3;LCS;;;062308BW1;pahsurr.sub;4432
     Meth: PAHLOW1.M    Barcode:
     Data: S1LS0623.D   Samp Amt: 0          Multiplr: 1
     Area% Report     :per Method       Lib. Search Rep :per Method
     Quant Report     :per Method       Post-Quant Macro:per Method
     CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
12   Type: Spike        SBLK0623BS1LCD;1;15;500;1;UG/KG;23-JUN-2008
     Vial: 10           ;3;LCSD;;;062308BW1;pahsurr.sub;4432
     Meth: PAHLOW1.M    Barcode:
     Data: S1DS0623.D   Samp Amt: 0          Multiplr: 1
     Area% Report     :per Method       Lib. Search Rep :per Method
     Quant Report     :per Method       Post-Quant Macro:per Method
     CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
13   Type: Sample       0806225-08;1;1080;500;1;UG/L;23-JUN-2008
     Vial: 11           ch2.b06225;0;;;;062308BW1;pahsurr.sub;4432
     Meth: PAHLOW1.M    Barcode:
     Data: 0622508.D    Samp Amt: 0          Multiplr: 1
     Area% Report     :per Method       Lib. Search Rep :per Method
     Quant Report     :per Method       Post-Quant Macro:per Method
     CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
14   Type: Sample       0806225-09;1;1080;500;1;UG/L;23-JUN-2008
     Vial: 12           ch2.b06225;0;;;;062308BW1;pahsurr.sub;4432
     Meth: PAHLOW1.M    Barcode:
     Data: 0622509.D    Samp Amt: 0          Multiplr: 1
     Area% Report     :per Method       Lib. Search Rep :per Method
     Quant Report     :per Method       Post-Quant Macro:per Method
     CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
15   Type: Sample       0806225-01;1;15;500;1;UG/KG;23-JUN-2008
     Vial: 13           ch2.b06225;0;;;;062308BW1;pahsurr.sub;4432
     Meth: PAHLOW1.M    Barcode:
     Data: 0622501.D    Samp Amt: 0          Multiplr: 1
     Area% Report     :per Method       Lib. Search Rep :per Method
     Quant Report     :per Method       Post-Quant Macro:per Method
     CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
16   Type: Sample       0806225-02;1;15;500;1;UG/KG;23-JUN-2008
     Vial: 14           ch2.b06225;0;;;;062308BW1;pahsurr.sub;4432
     Meth: PAHLOW1.M    Barcode:
     Data: 0622502.D    Samp Amt: 0          Multiplr: 1
```

```
    Quant Report     :per Method       Post-Quant Macro:per Method
    CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
17  Type: Sample       0806225-03;1;15;500;1;UG/KG;23-JUN-2008
    Vial: 15           ch2.b06225;0;;;;062308BW1;pahsurr.sub;4432
    Meth: PAHLOW1.M    Barcode:
    Data: 0622503.D    Samp Amt: 0          Multiplr: 1
    Area% Report     :per Method       Lib. Search Rep :per Method
    Quant Report     :per Method       Post-Quant Macro:per Method
    CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
18  Type: Sample       0806225-04;1;15;500;1;UG/KG;23-JUN-2008
    Vial: 16           ch2.b06225;0;;;;062308BW1;pahsurr.sub;4432
    Meth: PAHLOW1.M    Barcode:
    Data: 0622504.D    Samp Amt: 0          Multiplr: 1
    Area% Report     :per Method       Lib. Search Rep :per Method
    Quant Report     :per Method       Post-Quant Macro:per Method
    CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
19  Type: Sample       0806225-05;1;15;500;1;UG/KG;23-JUN-2008
    Vial: 17           ch2.b06225;0;;;;062308BW1;pahsurr.sub;4432
    Meth: PAHLOW1.M    Barcode:
    Data: 0622505.D    Samp Amt: 0          Multiplr: 1
    Area% Report     :per Method       Lib. Search Rep :per Method
    Quant Report     :per Method       Post-Quant Macro:per Method
    CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
20  Type: Sample       0806225-06;1;15;500;1;UG/KG;23-JUN-2008
    Vial: 18           ch2.b06225;0;;;;062308BW1;pahsurr.sub;4432
    Meth: PAHLOW1.M    Barcode:
    Data: 0622506.D    Samp Amt: 0          Multiplr: 1
    Area% Report     :per Method       Lib. Search Rep :per Method
    Quant Report     :per Method       Post-Quant Macro:per Method
    CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
21  Type: Sample       0806225-07;1;15;500;1;UG/KG;23-JUN-2008
    Vial: 19           ch2.b06225;0;;;;062308BW1;pahsurr.sub;4432
    Meth: PAHLOW1.M    Barcode:
    Data: 0622507.D    Samp Amt: 0          Multiplr: 1
    Area% Report     :per Method       Lib. Search Rep :per Method
    Quant Report     :per Method       Post-Quant Macro:per Method
    CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
22  Type: Sample       LOWPAH5PPM;;;;;
    Vial: 99           ;;;;;;pahsurr.sub;
    Meth: PAHLOW1.M    Barcode:
    Data: PRIMER.D     Samp Amt: 0          Multiplr: 1
    Area% Report     :per Method       Lib. Search Rep :per Method
    Quant Report     :per Method       Post-Quant Macro:per Method
    CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
23  Type: Sample       LOWPAH5PPM;;;;; SV4420B
    Vial: 2            ;;;;;;pahsurr.sub;4352
    Meth: PAHLOW1.M    Barcode:
    Data: PRIMER1.D    Samp Amt: 0          Multiplr: 1
    Area% Report     :per Method       Lib. Search Rep :per Method
    Quant Report     :per Method       Post-Quant Macro:per Method
    CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
24  Type: Sample       DF0625B2;;;;;SV4411
    Vial: 1            ;3;DFTPP;;;;;
    Meth: DFTPPLOW.M   Barcode:
    Data: DF0625B2.D   Samp Amt: 0          Multiplr: 1
    Area% Report     :per Method       Lib. Search Rep :per Method
    Quant Report     :per Method       Post-Quant Macro:per Method
    CR Database      :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
25  Type: Sample       LOWPAH5PPM;;;;; SV4420B
```

```
     Vial: 2                 ;;;;;;
     Meth: PAHLOW1.M    Barcode:
     Data: LPAHCCVE.D   Samp Amt: 0          Multiplr: 1
     Area% Report      :per Method       Lib. Search Rep :per Method
     Quant Report      :per Method       Post-Quant Macro:per Method
     CR Database       :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
26   Type: Sample        spcc30PPM;;;;; SV4420A
     Vial: 3             ;;;;;;spcc.sub;4352
     Meth: PAHLOW1.M    Barcode:
     Data: SPCCVE.D     Samp Amt: 0          Multiplr: 1
     Area% Report      :per Method       Lib. Search Rep :per Method
     Quant Report      :per Method       Post-Quant Macro:per Method
     CR Database       :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
27   Type: Sample        0806207-01;1;1080;500;1;UG/L;23-JUN-2008
     Vial: 20            arc.b06207;0;;;;062308BW1;pahsurr.sub;4432
     Meth: PAHLOW1.M    Barcode:
     Data: 0620701.D    Samp Amt: 0          Multiplr: 1
     Area% Report      :per Method       Lib. Search Rep :per Method
     Quant Report      :per Method       Post-Quant Macro:per Method
     CR Database       :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
28   Type: Sample        0806207-02;1;1080;500;1;UG/L;23-JUN-2008
     Vial: 21            arc.b06207;0;;;;062308BW1;pahsurr.sub;4432
     Meth: PAHLOW1.M    Barcode:
     Data: 0620702.D    Samp Amt: 0          Multiplr: 1
     Area% Report      :per Method       Lib. Search Rep :per Method
     Quant Report      :per Method       Post-Quant Macro:per Method
     CR Database       :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
29   Type: Sample        0806207-03;1;1080;500;1;UG/L;23-JUN-2008
     Vial: 22            arc.b06207;0;;;;062308BW1;pahsurr.sub;4432
     Meth: PAHLOW1.M    Barcode:
     Data: 0620703.D    Samp Amt: 0          Multiplr: 1
     Area% Report      :per Method       Lib. Search Rep :per Method
     Quant Report      :per Method       Post-Quant Macro:per Method
     CR Database       :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
```

3561

Comment: SW846 8270C/625

Operator: ADM
Data Path: F:\HPCHEM\1\DATA\062608b3\
Pre-Seq Cmd:
Post-Seq Cmd:

6/26/08

3562

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

LC Mnts

Line	Type	Vial	DataFile	Method	Sample Name
1	Sample	100	BLANK	DFTPPLOW	BLANK;;;;;
2	DailyCal	2	PRIMER	PAHLOW1	LOWPAH5PPM;;;;; SV4420B
3	Sample	1	DF0626B1	DFTPPLOW	DF0626B1;;;;;SV4411 9:32, 6/26
4	DailyCal	2	LPAHCCV	PAHLOW1	LOWPAH5PPM;;;;; SV4420B
5	DailyCal	3	SPCCV	PAHLOW1	spcc30PPM;;;;; SV4420A
6	Sample	4	0620701	PAHLOW1	0806207-01;1;1080;500;1;UG/L;
7	Sample	5	0620702	PAHLOW1	0806207-02;1;1080;500;1;UG/L;
8	Sample	6	0620703	PAHLOW1	0806207-03;1;1080;500;1;UG/L;
9	Sample	7	0622501D	PAHLOW1	0806225-01;10;15;500;1;UG/KG;
10	Spike	8	LCS01	PAHLOW1	LCS1;1;30;500;1;UG/KG;13-JUN-
11	Spike	9	LCS02	PAHLOW1	LCS2;1;30;500;1;UG/KG;13-JUN-
12	Spike	10	LCS03	PAHLOW1	LCS3;1;30;500;1;UG/KG;13-JUN-
13	Spike	11	LCS04	PAHLOW1	LCS4;1;30;500;1;UG/KG;13-JUN-
14	Blank	12	RB27	PAHLOW1	RB27;1;15;500;1;UG/KG;04-JUN-
15	Blank	13	RB33	PAHLOW1	RB33;1;15;500;1;UG/KG;04-JUN-
16	Blank	14	RB23	PAHLOW1	RB23;1;15;500;1;UG/KG;04-JUN-
17	Blank	15	RB37	PAHLOW1	RB37;1;15;500;1;UG/KG;04-JUN-
18	Blank	16	DRG	PAHLOW1	DRG;1;15;500;1;UG/KG;04-JUN-2
19	Blank	17	RB01	PAHLOW1	RB01;1;15;500;1;UG/KG;04-JUN-
20	Blank	18	RB40	PAHLOW1	RB40;1;15;500;1;UG/KG;04-JUN-
21	Blank	19	RB34	PAHLOW1	RB34;1;15;500;1;UG/KG;04-JUN-
22	Blank	20	RB28	PAHLOW1	RB28;1;15;500;1;UG/KG;04-JUN-
23	Blank	21	RB30	PAHLOW1	RB30;1;15;500;1;UG/KG;04-JUN-

Comment: [illegible]
Operator: ADM
Data Path: F:\HPCHEM\1\DATA\062608b3\
Pre-Seq Cmd:
Post-Seq Cmd:

3,163

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

Line	Sample Name/Misc Info
1	Type: Sample Vial: 100 Meth: DFTPPLOW.M Data: BLANK.D Area% Report :per Method Quant Report :per Method CR Database :per Method
	BLANK;;;;; ;;;;;;pahsurr.sub; Barcode: Samp Amt: 0 Multiplr: 1 Lib. Search Rep :per Method Post-Quant Macro:per Method CR Spreadsheet :per Method
2	Type: DailyCal Vial: 2 Meth: PAHLOW1.M Data: PRIMER.D Area% Report :per Method Quant Report :per Method CR Database :per Method
	LOWPAH5PPM;;;;; SV4420B ;2;;;;;pahsurr.sub;4352 Barcode: Samp Amt: 0 Multiplr: 1 Lib. Search Rep :per Method Post-Quant Macro:per Method CR Spreadsheet :per Method
3	Type: Sample Vial: 1 Meth: DFTPPLOW.M Data: DF0626B1.D Area% Report :per Method Quant Report :per Method CR Database :per Method
	DF0626B1;;;;;SV4411 ;3;DFTPP;;;;; Barcode: Samp Amt: 0 Multiplr: 1 Lib. Search Rep :per Method Post-Quant Macro:per Method CR Spreadsheet :per Method
4	Type: DailyCal Vial: 2 Meth: PAHLOW1.M Data: LPAHCCV.D Area% Report :per Method Quant Report :per Method CR Database :per Method
	LOWPAH5PPM;;;;; SV4420B ;2;;;;;pahsurr.sub;4352 Barcode: Samp Amt: 0 Multiplr: 1 Lib. Search Rep :per Method Post-Quant Macro:per Method CR Spreadsheet :per Method
5	Type: DailyCal Vial: 3 Meth: PAHLOW1.M Data: SPCCV.D Area% Report :per Method Quant Report :per Method CR Database :per Method
	spcc30PPM;;;;; SV4420A ;2;;;;;spcc.sub;4352 Barcode: Samp Amt: 0 Multiplr: 1 Lib. Search Rep :per Method Post-Quant Macro:per Method CR Spreadsheet :per Method
6	Type: Sample Vial: 4 Meth: PAHLOW1.M Data: 0620701.D Area% Report :per Method Quant Report :per Method CR Database :per Method
	0806207-01;1;1080;500;1;UG/L;23-JUN-2008 arc.b06207;0;;;;062308BW1;pahsurr.sub;4432 Barcode: Samp Amt: 0 Multiplr: 1 Lib. Search Rep :per Method Post-Quant Macro:per Method CR Spreadsheet :per Method
7	Type: Sample Vial: 5 Meth: PAHLOW1.M Data: 0620702.D Area% Report :per Method Quant Report :per Method CR Database :per Method
	0806207-02;1;1080;500;1;UG/L;23-JUN-2008 arc.b06207;0;;;;062308BW1;pahsurr.sub;4432 Barcode: Samp Amt: 0 Multiplr: 1 Lib. Search Rep :per Method Post-Quant Macro:per Method CR Spreadsheet :per Method

```
8   Type: Sample          arc.b06207;0;;;;062308BW1;pahsurr.sub;4432
    Vial: 6               Barcode:
    Meth: PAHLOW1.M       Samp Amt: 0          Multiplr: 1
    Data: 0620703.D     :per Method       Lib. Search Rep :per Method
    Area% Report        :per Method       Post-Quant Macro:per Method
    Quant Report        :per Method       CR Spreadsheet  :per Method
    CR Database
-------------------------------------------------------------------------
9   Type: Sample          0806225-01;10;15;500;1;UG/KG;23-JUN-2008
    Vial: 7               ch2.b06225;0;;;;062308BW1;pahsurr.sub;4432
    Meth: PAHLOW1.M       Barcode:
    Data: 0622501D.D      Samp Amt: 0          Multiplr: 10
    Area% Report        :per Method       Lib. Search Rep :per Method
    Quant Report        :per Method       Post-Quant Macro:per Method
    CR Database         :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
10  Type: Spike           LCS1;1;30;500;1;UG/KG;13-JUN-2008
    Vial: 8               ;3;LCS;;;061308BS1;pahsurr.sub;4432
    Meth: PAHLOW1.M       Barcode:
    Data: LCS01.D         Samp Amt: 0          Multiplr: 1
    Area% Report        :per Method       Lib. Search Rep :per Method
    Quant Report        :per Method       Post-Quant Macro:per Method
    CR Database         :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
11  Type: Spike           LCS2;1;30;500;1;UG/KG;13-JUN-2008
    Vial: 9               ;3;LCS;;;061308BS1;pahsurr.sub;4432
    Meth: PAHLOW1.M       Barcode:
    Data: LCS02.D         Samp Amt: 0          Multiplr: 1
    Area% Report        :per Method       Lib. Search Rep :per Method
    Quant Report        :per Method       Post-Quant Macro:per Method
    CR Database         :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
12  Type: Spike           LCS3;1;30;500;1;UG/KG;13-JUN-2008
    Vial: 10              ;3;LCS;;;061308BS1;pahsurr.sub;4432
    Meth: PAHLOW1.M       Barcode:
    Data: LCS03.D         Samp Amt: 0          Multiplr: 1
    Area% Report        :per Method       Lib. Search Rep :per Method
    Quant Report        :per Method       Post-Quant Macro:per Method
    CR Database         :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
13  Type: Spike           LCS4;1;30;500;1;UG/KG;13-JUN-2008
    Vial: 11              ;3;LCS;;;061308BS1;pahsurr.sub;4432
    Meth: PAHLOW1.M       Barcode:
    Data: LCS04.D         Samp Amt: 0          Multiplr: 1
    Area% Report        :per Method       Lib. Search Rep :per Method
    Quant Report        :per Method       Post-Quant Macro:per Method
    CR Database         :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
14  Type: Blank           RB27;1;15;500;1;UG/KG;04-JUN-2008
    Vial: 12              ;3;BLANK;;;060408BS1;pahsurr.sub;4432
    Meth: PAHLOW1.M       Barcode:
    Data: RB27.D          Samp Amt: 0          Multiplr: 1
    Area% Report        :per Method       Lib. Search Rep :per Method
    Quant Report        :per Method       Post-Quant Macro:per Method
    CR Database         :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
15  Type: Blank           RB33;1;15;500;1;UG/KG;04-JUN-2008
    Vial: 13              ;3;BLANK;;;060408BS1;pahsurr.sub;4432
    Meth: PAHLOW1.M       Barcode:
    Data: RB33.D          Samp Amt: 0          Multiplr: 1
    Area% Report        :per Method       Lib. Search Rep :per Method
    Quant Report        :per Method       Post-Quant Macro:per Method
    CR Database         :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
16  Type: Blank           RB23;1;15;500;1;UG/KG;04-JUN-2008
    Vial: 14              ;3;BLANK;;;060408BS1;pahsurr.sub;4432
    Meth: PAHLOW1.M       Barcode:
    Data: RB23.D          Samp Amt: 0          Multiplr: 1
```

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   Quant Report      :per Method       CR Spreadsheet  :per Method
   CR Database       :per Method
-------------------------------------------------------------------------
17 Type: Blank        RB37;1;15;500;1;UG/KG;04-JUN-2008
   Vial: 15           ;3;BLANK;;;060408BS1;pahsurr.sub;4432
   Meth: PAHLOW1.M    Barcode:
   Data: RB37.D       Samp Amt: 0          Multiplr: 1
   Area% Report      :per Method       Lib. Search Rep :per Method
   Quant Report      :per Method       Post-Quant Macro:per Method
   CR Database       :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
18 Type: Blank        DRG;1;15;500;1;UG/KG;04-JUN-2008
   Vial: 16           ;3;BLANK;;;060408BS1;pahsurr.sub;4432
   Meth: PAHLOW1.M    Barcode:
   Data: DRG.D        Samp Amt: 0          Multiplr: 1
   Area% Report      :per Method       Lib. Search Rep :per Method
   Quant Report      :per Method       Post-Quant Macro:per Method
   CR Database       :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
19 Type: Blank        RB01;1;15;500;1;UG/KG;04-JUN-2008
   Vial: 17           ;3;BLANK;;;060408BS1;pahsurr.sub;4432
   Meth: PAHLOW1.M    Barcode:
   Data: RB01.D       Samp Amt: 0          Multiplr: 1
   Area% Report      :per Method       Lib. Search Rep :per Method
   Quant Report      :per Method       Post-Quant Macro:per Method
   CR Database       :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
20 Type: Blank        RB40;1;15;500;1;UG/KG;04-JUN-2008
   Vial: 18           ;3;BLANK;;;060408BS1;pahsurr.sub;4432
   Meth: PAHLOW1.M    Barcode:
   Data: RB40.D       Samp Amt: 0          Multiplr: 1
   Area% Report      :per Method       Lib. Search Rep :per Method
   Quant Report      :per Method       Post-Quant Macro:per Method
   CR Database       :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
21 Type: Blank        RB34;1;15;500;1;UG/KG;04-JUN-2008
   Vial: 19           ;3;BLANK;;;060408BS1;pahsurr.sub;4432
   Meth: PAHLOW1.M    Barcode:
   Data: RB34.D       Samp Amt: 0          Multiplr: 1
   Area% Report      :per Method       Lib. Search Rep :per Method
   Quant Report      :per Method       Post-Quant Macro:per Method
   CR Database       :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
22 Type: Blank        RB28;1;15;500;1;UG/KG;04-JUN-2008
   Vial: 20           ;3;BLANK;;;060408BS1;pahsurr.sub;4432
   Meth: PAHLOW1.M    Barcode:
   Data: RB28.D       Samp Amt: 0          Multiplr: 1
   Area% Report      :per Method       Lib. Search Rep :per Method
   Quant Report      :per Method       Post-Quant Macro:per Method
   CR Database       :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
23 Type: Blank        RB30;1;15;500;1;UG/KG;04-JUN-2008
   Vial: 21           ;3;BLANK;;;060408BS1;pahsurr.sub;4432
   Meth: PAHLOW1.M    Barcode:
   Data: RB30.D       Samp Amt: 0          Multiplr: 1
   Area% Report      :per Method       Lib. Search Rep :per Method
   Quant Report      :per Method       Post-Quant Macro:per Method
   CR Database       :per Method       CR Spreadsheet  :per Method
-------------------------------------------------------------------------
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Empirical Laboratories

EMPIRICAL LABORATORIES, LLC
LABORATORY SAMPLE CUSTODY FORM
WALK-IN REFRIGERATOR

Sample Log # (s)	Time/Date/Initials Removed	Time/Date/Initials Returned (Note if all Sample Used)	Notes/ Comments	Task Performed
6216-01→14	From login 6/20/08	16:45 6/20/08 KBG		NO_3
6083-01→55 6032-43-94	RS 6/21/08 11:03	RS 6/21/08 16:30		%Solid
6033-01→04	↓	↓		↓
6082-04→08 6084-01→10	↓	↓		NH_3
6203-01→04 6017-74	RS 6/21/08 16:15	RS 6/21/08 16:40		TSS
6153-01,02 6170-01,02 6175-01	AH 6/23/08 7:35	AH 6/23/08 11:15		NO_2-NO_3
6140-01,02 6196-01→14 6198-01 6210-01	↓			↓
6183-01→03 6184-01,03→14	0908 KBG 6/23/08	6/23/08 11:55 Cat		ClO_4^-
6202-01→17	↓	↓		↓
6202-01-17 6216-02-12	KH 6/23/08 9:45	KH 6/23/08 11:50		TOC
6216-01	KH 6/23/08 11:50	KH 6/23/08 12:50		TOC
6131-01 6191-01,02 6205-01 6218-01	13:40 KBG 6/23/08	14:52 KBG 6/23/08		H_2
6219-03,04 6225-08,09	↓	↓		↓
6220-02-05 6224-01-16	(1) 9:05 6/23/08	USE all		extraction
6209-01-03 6225-08-09	(1) 2.11 6/23/08	USE all		↓
6032-32,35,38 6217-01→04	RS 6/23/08 18:42	RS 6/23/08 19:22		~~%Sol. ds~~ TSS
6216-01 6191-01,02	AH 6/24/08 7:20	AH 6/24 9:00		CN^-
6172-01 6181-02 6198-01-03	↓	AH 6/24/08 10:00	used all except 6198-03	O_2 G
6199-05 6221-08 6214-01 6226-01	↓	↓		↓

HOBART SAMPLE EXTRACT CUSTODY FORM

Sample Number	Fraction	Time/Date/Initials Inserted	Time/Date/Initials Removed	Reason for Insertion/Removal: Sequence Changed	Re-Analysis	Analysis	Dilution	Extract Inserted in Process	Extract Inserted Complete
6151 (1-2) 6193-01 6205-01	BNA	6-23-08 12:05PM (08)	6-23-08 11:46AM	X					
6207 (1,3)	↓	↓	↓						
6051-01,02 6052-07	EXP	15:15 6/23/08 BTA	06/23/08 14:50 6/23/08			X			
6225-1-7	PCB	6/23/08 15:40 AF							X
6225-01-07	PCB	14 6/23/08 1650	6/23/08 1505			X			
6225-1-7	ECPA1+	6/23/08 15:15 AF							X
6220-02-05 6224-01-16	EXP	6/23/08 21:39 (L)							
6207-01-03 6227-08-09	ECPA11	6/23/08 4:39 (L)							
5257-7,11,16,19 5266-4,8,10	TRA EPH KRO, AL	14 6/23/08 1640							
5272-01, 6193-01 6151(1-2), 6205-01	BNA	6-24-08 3:05PM (08)	6-24-08 6:29AM (08)			X			
6207(1,3) 6195(1-3)	↓	↓	↓			↓			
6131(3-4)	↓	↓	↓			↓			
6220-02-05 6224-01-16	EXP	13:45 6/24/08 BTA	06-24-08 BTA 08:30			X			
5074-06,12 6035 6137-03	EXP	↓	↓			X			
6223-1-3	EXP	↓	9:50 6/24/08 AF			X			

taken to analyst

tion: BNA/PAH/LLPAHs Matrix: Water EX083 Empirical Laboratories Supervisor [signature] 6-24-08

Client	Lab No.	Initial Volume(ml)	Date Extracted	Setup Initials	pH	Final Volume(ml)	Surrogate Added	Surr Initials	Spike Added	Spk Initials	KD	10ml Conc.	15ml Cent.	Conc. Initials	Solvent Lot/Vendor Methylene Chloride	Notes/Comments	#
rradis	0806807-01	1030	062308BWI	JC	6	0.5ml	1.0ml	JC	NA	NA	R839	NA	NA	JC	080335	(2)	1
	02						SI 4424		NA	NA	D725					(2)	2
	03		14:10						NA	NA	R833					(2)	3
[redacted]	0806835-08								NA	NA	R824					(2)	4
	09	↓	↓	↓	↓	↓	↓	↓	NA	NA	R841	↓	↓	↓	↓	(2)	5
									NA	NA							6
									NA	NA							7
									NA	NA							8
									NA	NA							9
									NA	NA							10
									NA	NA							11
									NA	NA							12
									NA	NA							13
									NA	NA							14
									NA	NA							15
									NA	NA							16
									NA	NA							17
									NA	NA							18
									NA	NA							19
									NA	NA							20
MB	~~[illegible]~~5	1000	SAS	JC	6	0.5ml	SAS	SAS	—	—	R840	NA	NA	JC	SAS		
LCS							SAS	SAS	1.0ml	JC	R830				SAS		
LCSD	↓	↓	↓	↓	↓	↓	SAS	SAS	SI 4423	↓	R834	↓	↓	↓	SAS		
							SAS	SAS							SAS		
							SAS	SAS							SAS		
							SAS	SAS							SAS		
							SAS	SAS							SAS		
							SAS	SAS							SAS		
							SAS	SAS							SAS		
							SAS	SAS							SAS		
							SAS	SAS							SAS		
							SAS	SAS							SAS		
							SAS	SAS							SAS		
							SAS	SAS							SAS		
							SAS	SAS							SAS		
							SAS	SAS							SAS		
							SAS	SAS							SAS		
							SAS	SAS							SAS		
							SAS	SAS							SAS		

ORGANIC CASE NARRATIVE – Low-level PAHs
Arcadis – Radford
Workorder: 0806207

Date Sampled	Date Received	Lab ID	Client ID
18-Jun-2008	19-Jun-2008	0806207-01	31MW002(061808)
18-Jun-2008	19-Jun-2008	0806207-02	31MWDUP001(061808)
18-Jun-2008	19-Jun-2008	0806207-03	EB001(061808)

Method: The samples were extracted/analyzed by USEPA SW-846 Methods 3541/8270C (separatory funnel extraction followed by capillary column GC/MS) for water upon receipt to the laboratory in satisfactory condition.

Comments: The analyses for these samples were satisfactorily completed within sample holding times and met the corresponding specifications with the following notes/exceptions:

- Note: These samples were analyzed for full-scan, low-concentration PAHs by employing a combination of sensitivity enhancing techniques in the extraction and analysis processes.
- DFTPP Tuning: All method tuning criteria were met.
- Calibration Criteria: All method calibration criteria were met for the target analytes. Radford criteria were exceeded for indeno(1,2,3-cd)pyrene in the initial calibration verification where the percent difference of 20% was exceeded at 22.3% with a negative bias. Results for indeno(1,2,3-cd)pyrene are qualified with a "Y" to indicate a potential negative bias.
- Blank Results: No target analytes were detected in the method blank. Equipment blank EB001 (061808) reported a concentration of 2-methylnaphthalene but was not detected in the associated samples.
- Surrogate Recoveries: All surrogate recoveries were within limits.
- SBLK0623BW1LCS/LCSD results: All recoveries and relative percent differences were within limits.
- MS/MSD Results: Not applicable.
- Internal Standard Area Counts: All area counts were within limits.
- Dilutions: All samples were analyzed without dilution.

I certify that, to the best of my knowledge and based upon my inquiry of those individuals immediately responsible for obtaining the information, the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, with the exception of the conditions detailed in the case narrative, as verified by the following signature.

Marcia K. McGinnity
Senior Project Manager

ANALYTICAL REPORT TERMS AND QUALIFIERS (ORGANIC)

MDL: The method detection limit (MDL) is defined as the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero. The MDL is determined from analysis of a sample containing the analyte in a given matrix.

EQL: The estimated quantitation limit (EQL) is defined as the estimated concentration above which quantitative results can be obtained with a specific degree of confidence. Empirical Laboratories defines the EQL to be at or near the lowest standard of the calibration curve.

U: The presence of a "U" indicates that the analyte was analyzed for but was not detected or the concentration of the analyte quantitated below the MDL.

B: The presence of a "B" to the right of an analytical value indicates that this compound was also detected in the method blank and the data should be interpreted with caution. One should consider the possibility that the correct sample result might be less than the reported result and, perhaps, zero.

D: When a sample (or sample extract) is rerun diluted because one of the compound concentrations exceeded the highest concentration range for the standard curve, all of the values obtained in the dilution run will be flagged with a "D".

E: The concentration for any compound found which exceeds the highest concentration level on the standard curve for that compound will be flagged with an "E". Usually the sample will be rerun at a dilution to quantitate the flagged compound.

J: The presence of a "J" to the right of an analytical result indicates that the reported result is estimated. The data pass the identification criteria indicating that the compound is present, but the calculated result is less than the EQL.

ARCADIS

Laboratory Task Order No./P.O. No. _____ **CHAIN-OF-CUSTODY RECORD** Page 1 of 1

Project Number/Name GP08RAAP.0026.DG006/ RAAP

Project Location Radford, VA

Laboratory Empirical Laboratories

Project Manager Diane Wisbeck

Sampler(s)/Affiliation SG / ARCADIS

0806207

	Sample ID/Location	Matrix	Date/Time Sampled	Lab ID	ANALYSIS / METHOD / SIZE: SVOCs (8270) (PAHs)						Remarks	Total
-01	3IMW002 (061808)	GW	6/18/08 1625		X							2
-02	3IMWDUP001 (061808)	GW	6/18/08 1625		X							2
-03	EB001 (061808)	L	6/18/08 17:00		X						* - container labels marked as EB001 (061808) WS 6/19/08	2
	6/19/08 EB001 CG											

Sample Matrix: L = Liquid; S = Solid; A = Air GW = groundwater 1.5°C Total No. of Bottles/ Containers 6

					Seal Intact?
Relinquished by: Sandra Gabrielski	Organization: ARCADIS	Date 6/18/08	Time 18:00		
Received by:	Organization:	Date / /	Time		Yes No N/A
Relinquished by:	Organization:	Date / /	Time		Seal Intact?
Received by:	Organization: Empirical Labs	Date 6/19/08	Time 9:00		Yes No N/A

Special Instructions/Remarks (1) please confirm analysis w/ Chris Sharpe (279-994-8061)

(2) if any sediment settled out in samples, please do not disturb

Delivery Method: ☐ In Person ☒ Common Carrier FedEx (SPECIFY) ☐ Lab Courier ☐ Other _____ (SPECIFY)

AG 05 12/01

Empirical Reports

From: Powell, Jace'que [Jaceque.Powell@arcadis-us.com]
Sent: Friday, June 20, 2008 11:32 AM
To: ReportProduction@EmpirLabs.com; Kennedy, Jane
Cc: renee; MMcGinnity@EmpirLabs.com
Subject: RE: SRC for WO #0806207

Hi Renee and Marcia,

FB001 should be EB001 as labeled on the sample containers.

Thanks,

Jace'que

From: Empirical Reports [mailto:ReportProduction@EmpirLabs.com]
Sent: Friday, June 20, 2008 11:29 AM
To: Powell, Jace'que; Kennedy, Jane
Cc: renee
Subject: SRC for WO #0806207
Importance: High

Christine Gramada
Administrative Assistant
Empirical Laboratories, LLC
227 French Landing Drive, Suite 550 I Nashville, TN 37228 I www.empirlabs.com
Main: 615.345.1115 ext. 244 I Toll free: 877.345.1113 I Fax: 615.846.5426

Recipient of the 2008 Region IV (Southeastern US) Subcontractor of the Year from the Small Business Administration.
Celebrating over 40 years of excellence, Empirical Laboratories is certified as a HUBZone Business, a Woman-Owned Small Business, and a Small Disadvantaged Business by the Small Business Administration. Come visit our website at www.empirlabs.com today.

EMPIRICAL LABORATORIES
COOLER RECEIPT FORM

LIMS Number: 0806207 COC ID(s): —

Client Arcadis Project Radford, VA

Sample Custodian WS Today's Date 6/19/08

Date/Time Samples Received 6/19/08 09:00
Airbill Number Fedex
Cooler Opened: Date 6/19/08

Chain of custody seal intact?	Yes	No
Chain of custody provided?	Yes	No
Sample labels present?	Yes	No
Bottle labels correspond w/COC	Yes	No

Number of Custody Seals on Cooler(s): 1 Seal Date(s): 6/18/08

Type of coolant used Ice

Coolant condition : Melted _____ Partially melted/frozen ✓
Frozen _____

# of Coolers 1 Temp. of Coolers 1-5°C

Condition of Bottles in Shipment: Broken Leaking Intact Missing

If broken or leaking list sample ID#s and bottle types affected:

Comments:
Sample FB001 had container labels as sample: EB001!

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

31MW002(061808)

Lab Name: EMPIRICAL LABS Contract: ARCADIS

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: ARC.B06207

Matrix: (soil/water) WATER Lab Sample ID: 0806207-01

Sample wt/vol: 1080 (g/mL) ML Lab File ID: 0620701

% Moisture: _____ decanted: (Y/N)___ Date Sampled: 06/18/08 16:25

Extraction: (SepF/Cont/Sonc/Soxh) SEPF Date Extracted:06/23/08

Concentrated Extract Volume: 500.0(uL) Date Analyzed: 06/26/08 11:08

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: NA

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	MDL	RL	CONC	Q
83-32-9	Acenaphthene	0.015	0.046		U
208-96-8	Acenaphthylene	0.015	0.046		U
120-12-7	Anthracene	0.015	0.046		U
56-55-3	Benzo(a)anthracene	0.015	0.046		U
205-99-2	Benzo(b)fluoranthene	0.015	0.046		U
207-08-9	Benzo(k)fluoranthene	0.015	0.046		U
191-24-2	Benzo(g,h,i)perylene	0.015	0.046		U
50-32-8	Benzo(a)pyrene	0.015	0.046		U
218-01-9	Chrysene	0.015	0.046		U
53-70-3	Dibenz(a,h)anthracene	0.015	0.046		U
206-44-0	Fluoranthene	0.015	0.046		U
86-73-7	Fluorene	0.015	0.046		U
193-39-5	Indeno(1,2,3-cd)pyrene	0.017	0.046		U
91-57-6	2-Methylnaphthalene	0.018	0.046		U
90-12-0	1-Methylnaphthalene	0.017	0.046		U
91-20-3	Naphthalene	0.018	0.046		U
85-01-8	Phenanthrene	0.015	0.046		U
129-00-0	Pyrene	0.015	0.046		U

7/9/08

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.
31MWDUP00
1(061808)

Lab Name: EMPIRICAL LABS Contract: ARCADIS

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: ARC.B06207

Matrix: (soil/water) WATER Lab Sample ID: 0806207-02

Sample wt/vol: 1080 (g/mL) ML Lab File ID: 0620702

% Moisture: _____ decanted: (Y/N)___ Date Sampled: 06/18/08 16:25

Extraction: (SepF/Cont/Sonc/Soxh) SEPF Date Extracted:06/23/08

Concentrated Extract Volume: 500.0(uL) Date Analyzed: 06/26/08 11:47

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: NA

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	MDL	RL	CONC	Q
83-32-9	Acenaphthene	0.015	0.046		U
208-96-8	Acenaphthylene	0.015	0.046		U
120-12-7	Anthracene	0.015	0.046		U
56-55-3	Benzo(a)anthracene	0.015	0.046		U
205-99-2	Benzo(b)fluoranthene	0.015	0.046		U
207-08-9	Benzo(k)fluoranthene	0.015	0.046		U
191-24-2	Benzo(g,h,i)perylene	0.015	0.046		U
50-32-8	Benzo(a)pyrene	0.015	0.046		U
218-01-9	Chrysene	0.015	0.046		U
53-70-3	Dibenz(a,h)anthracene	0.015	0.046		U
206-44-0	Fluoranthene	0.015	0.046		U
86-73-7	Fluorene	0.015	0.046		U
193-39-5	Indeno(1,2,3-cd)pyrene	0.017	0.046		U
91-57-6	2-Methylnaphthalene	0.018	0.046		U
90-12-0	1-Methylnaphthalene	0.017	0.046		U
91-20-3	Naphthalene	0.018	0.046		U
85-01-8	Phenanthrene	0.015	0.046		U
129-00-0	Pyrene	0.015	0.046		U

7/9/08

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EB001(061808)

Lab Name: EMPIRICAL LABS Contract: ARCADIS

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: ARC.B06207

Matrix: (soil/water) WATER Lab Sample ID: 0806207-03

Sample wt/vol: 1080 (g/mL) ML Lab File ID: 0620703

% Moisture: _____ decanted: (Y/N)___ Date Sampled: 06/18/08 17:00

Extraction: (SepF/Cont/Sonc/Soxh) SEPF Date Extracted:06/23/08

Concentrated Extract Volume: 500.0(uL) Date Analyzed: 06/26/08 12:25

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: NA

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	MDL	RL	CONC	Q
83-32-9	Acenaphthene	0.015	0.046		U
208-96-8	Acenaphthylene	0.015	0.046		U
120-12-7	Anthracene	0.015	0.046		U
56-55-3	Benzo(a)anthracene	0.015	0.046		U
205-99-2	Benzo(b)fluoranthene	0.015	0.046		U
207-08-9	Benzo(k)fluoranthene	0.015	0.046		U
191-24-2	Benzo(g,h,i)perylene	0.015	0.046		U
50-32-8	Benzo(a)pyrene	0.015	0.046		U
218-01-9	Chrysene	0.015	0.046		U
53-70-3	Dibenz(a,h)anthracene	0.015	0.046		U
206-44-0	Fluoranthene	0.015	0.046		U
86-73-7	Fluorene	0.015	0.046		U
193-39-5	Indeno(1,2,3-cd)pyrene	0.017	0.046		U Y
91-57-6	2-Methylnaphthalene	0.018	0.046	0.094	
90-12-0	1-Methylnaphthalene	0.017	0.046		U
91-20-3	Naphthalene	0.018	0.046		U
85-01-8	Phenanthrene	0.015	0.046		U
129-00-0	Pyrene	0.015	0.046		U

7/9/08

FORM 2
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: EMPIRICAL LABS Contract: ARCADIS

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: ARC.B06207

	CLIENT SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	SBLK0623BW1	83	71	73						0
02	SBLK0623BW1L	104	92	95						0
03	SBLK0623BW1L	103	88	88						0
04	31MW002(0618	76	75	81						0
05	31MWDUP001(0	82	74	71						0
06	EB001(061808	89	80	80						0
07										
08										
09										
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	EL QC LIMITS	SPIKE CONC (UG/L)
S1 (NBZ) = Nitrobenzene-d5	(30-110)	1.0
S2 (FBP) = 2-Fluorobiphenyl	(35-110)	1.0
S3 (TPH) = Terphenyl-d14	(55-125)	1.0

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate results reported from a diluted analysis

FORM 3
WATER SEMIVOLATILE LAB CONTROL SAMPLE

Lab Name: EMPIRICAL LABS Contract: ARCADIS

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: ARC.B06207

Matrix Spike - Client Sample No.: SBLK0623BW1

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Acenaphthene	1.000	0.0000	0.9953	100	35-120
Acenaphthylene	1.000	0.0000	0.9181	92	40-115
Anthracene	1.000	0.0000	0.9796	98	45-120
Benzo(a)anthracene	1.000	0.0000	0.9661	97	45-120
Benzo(b)fluoranthene	1.000	0.0000	0.8464	85	35-130
Benzo(k)fluoranthene	1.000	0.0000	0.9320	93	30-135
Benzo(g,h,i)perylene	1.000	0.0000	0.7923	79	25-135
Benzo(a)pyrene	1.000	0.0000	0.7921	79	45-120
Chrysene	1.000	0.0000	0.9174	92	45-120
Dibenz(a,h)anthracene	1.000	0.0000	0.7890	79	30-140
Fluoranthene	1.000	0.0000	1.091	109	45-125
Fluorene	1.000	0.0000	1.034	103	40-120
Indeno(1,2,3-cd)pyrene	1.000	0.0000	0.7708	77	30-140
2-Methylnaphthalene	1.000	0.0000	1.040	104	35-115
1-Methylnaphthalene	1.000	0.0000	0.9326	93	35-115
Naphthalene	1.000	0.0000	0.9298	93	30-115
Phenanthrene	1.000	0.0000	0.9819	98	40-130
Pyrene	1.000	0.0000	1.047	105	35-140

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

COMMENTS: _____

FORM 3
WATER SEMIVOLATILE LAB CONTROL SAMPLE

Lab Name: EMPIRICAL LABS Contract: ARCADIS

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: ARC.B06207

Matrix Spike - Client Sample No.: SBLK0623BW1

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Acenaphthene	1.000	0.9279	93	7	40	35-120
Acenaphthylene	1.000	0.8488	85	8	40	40-115
Anthracene	1.000	0.9048	90	8	40	45-120
Benzo(a)anthracene	1.000	0.9212	92	5	40	45-120
Benzo(b)fluoranthene	1.000	0.8022	80	5	40	35-130
Benzo(k)fluoranthene	1.000	0.8765	88	6	40	30-135
Benzo(g,h,i)perylene	1.000	0.7486	75	6	40	25-135
Benzo(a)pyrene	1.000	0.7447	74	6	40	45-120
Chrysene	1.000	0.9024	90	2	40	45-120
Dibenz(a,h)anthracene	1.000	0.7289	73	8	40	30-140
Fluoranthene	1.000	1.048	105	4	40	45-125
Fluorene	1.000	0.9782	98	6	40	40-120
Indeno(1,2,3-cd)pyrene	1.000	0.7566	76	2	40	30-140
2-Methylnaphthalene	1.000	0.9970	100	4	40	35-115
1-Methylnaphthalene	1.000	0.9264	93	1	40	35-115
Naphthalene	1.000	0.9148	91	2	40	30-115
Phenanthrene	1.000	0.9406	94	4	40	40-130
Pyrene	1.000	0.9752	98	7	40	35-140

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 18 outside limits
Spike Recovery: 0 out of 36 outside limits

COMMENTS: _____

FORM 4
SEMIVOLATILE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

SBLK0623BW1

Lab Name: EMPIRICAL LABS Contract: ARCADIS

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: ARC.B06207

Lab File ID: S1BW0623 Lab Sample ID: SBLK0623BW1

Instrument ID: BNA3 Date Extracted: 06/23/08

Matrix: (soil/water) WATER Date Analyzed: 06/25/08

Level: (low/med) LOW GPC Cleanup: (Y/N) N Time Analyzed: 1114

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	SBLK0623BW1L	SBLK0623BW1LCS	S1LW0623	06/25/08
02	SBLK0623BW1L	SBLK0623BW1LCS	S1DW0623	06/25/08
03	31MW002(0618	0806207-01	0620701	06/26/08
04	31MWDUP001(0	0806207-02	0620702	06/26/08
05	EB001(061808	0806207-03	0620703	06/26/08
06				
07				
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13				
14				
15				
16				
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29				
30				

COMMENTS:

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

SBLK0623BW1

Lab Name: EMPIRICAL LABS Contract: ARCADIS

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: ARC.B06207

Matrix: (soil/water) WATER Lab Sample ID: SBLK0623BW1

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S1BW0623

% Moisture: _____ decanted: (Y/N)___ Date Sampled: _____

Extraction: (SepF/Cont/Sonc/Soxh) SEPF Date Extracted:06/23/08

Concentrated Extract Volume: 500.0(uL) Date Analyzed: 06/25/08 11:14

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: NA

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	MDL	RL	CONC	Q
83-32-9	Acenaphthene	0.016	0.050		U
208-96-8	Acenaphthylene	0.016	0.050		U
120-12-7	Anthracene	0.016	0.050		U
56-55-3	Benzo(a)anthracene	0.016	0.050		U
205-99-2	Benzo(b)fluoranthene	0.016	0.050		U
207-08-9	Benzo(k)fluoranthene	0.016	0.050		U
191-24-2	Benzo(g,h,i)perylene	0.016	0.050		U
50-32-8	Benzo(a)pyrene	0.016	0.050		U
218-01-9	Chrysene	0.016	0.050		U
53-70-3	Dibenz(a,h)anthracene	0.016	0.050		U
206-44-0	Fluoranthene	0.016	0.050		U
86-73-7	Fluorene	0.016	0.050		U
193-39-5	Indeno(1,2,3-cd)pyrene	0.018	0.050		U
91-57-6	2-Methylnaphthalene	0.019	0.050		U
90-12-0	1-Methylnaphthalene	0.018	0.050		U
91-20-3	Naphthalene	0.020	0.050		U
85-01-8	Phenanthrene	0.016	0.050		U
129-00-0	Pyrene	0.016	0.050		U

7/8/08

FORM 5
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: EMPIRICAL LABS Contract:

Lab Code: Case No.: SAS No.: NA SDG No.: SDGA92299

Lab File ID: DF0114B2 DFTPP Injection Date: 01/14/08

Instrument ID: BNA3 DFTPP Injection Time: 1734

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	42.1
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	47.3
70	Less than 2.0% of mass 69	0.2 (0.5)1
127	40.0 - 60.0% of mass 198	55.2
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	7.2
275	10.0 - 30.0% of mass 198	26.6
365	Greater than 1.0% of mass 198	3.08
441	Present, but less than mass 443	9.6
442	Greater than 40.0% of mass 198	55.7
443	17.0 - 23.0% of mass 442	11.2 (20.1)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	LPAHCAL30PPM	LPAHCAL30PPM	LPAHCAL8	01/14/08	1754
02	LPAHCAL20PPM	LPAHCAL20PPM	LPAHCAL7	01/14/08	1834
03	LPAHCAL10PPM	LPAHCAL10PPM	LPAHCAL6	01/14/08	1914
04	LPAHCAL5PPM	LPAHCAL5PPM	LPAHCAL5	01/14/08	1953
05	LPAHCAL1PPM	LPAHCAL1PPM	LPAHCAL4	01/14/08	2033
06	LPAHCAL0.4PP	LPAHCAL0.4PPM	LPAHCAL3	01/14/08	2113
07	LPAHCAL0.2PP	LPAHCAL0.2PPM	LPAHCAL2	01/14/08	2152
08	LPAHCAL0.1PP	LPAHCAL0.1PPM	LPAHCAL1	01/14/08	2232
09	LPAHICV5PPM	LPAHICV5PPM	LPAHICV	01/14/08	2311
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FORM 5
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: EMPIRICAL LABS Contract: ARCADIS

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: ARC.B06207

Lab File ID: DF0625B1 DFTPP Injection Date: 06/25/08

Instrument ID: BNA3 DFTPP Injection Time: 0900

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	46.7
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	52.3
70	Less than 2.0% of mass 69	0.3 (0.5)1
127	40.0 - 60.0% of mass 198	56.9
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.9
275	10.0 - 30.0% of mass 198	24.5
365	Greater than 1.0% of mass 198	2.80
441	Present, but less than mass 443	8.2
442	Greater than 40.0% of mass 198	51.1
443	17.0 - 23.0% of mass 442	10.4 (20.4)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	LOWPAH5PPM	LOWPAH5PPM	LPAHCCV	06/25/08	0919
02	SBLK0623BW1	SBLK0623BW1	S1BW0623	06/25/08	1114
03	SBLK0623BW1L	SBLK0623BW1LCS	S1LW0623	06/25/08	1153
04	SBLK0623BW1L	SBLK0623BW1LCS	S1DW0623	06/25/08	1231
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FORM 5
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: EMPIRICAL LABS Contract: ARCADIS

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: ARC.B06207

Lab File ID: DF0626B1 DFTPP Injection Date: 06/26/08

Instrument ID: BNA3 DFTPP Injection Time: 0932

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	52.2
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	54.6
70	Less than 2.0% of mass 69	0.3 (0.5)1
127	40.0 - 60.0% of mass 198	57.4
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.7
275	10.0 - 30.0% of mass 198	26.0
365	Greater than 1.0% of mass 198	2.98
441	Present, but less than mass 443	7.9
442	Greater than 40.0% of mass 198	49.8
443	17.0 - 23.0% of mass 442	9.7 (19.4)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	LOWPAH5PPM	LOWPAH5PPM	LPAHCCV	06/26/08	0951
02	31MW002(0618	0806207-01	0620701	06/26/08	1108
03	31MWDUP001(0	0806207-02	0620702	06/26/08	1147
04	EB001(061808	0806207-03	0620703	06/26/08	1225
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FORM 8
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: EMPIRICAL LABS Contract: ARCADIS

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: ARC.B06207

Lab File ID (Standard): LPAHCCV Date Analyzed: 06/25/08

Instrument ID: BNA3 Time Analyzed: 0919

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	41299	3.38	155161	6.33	79018	10.46
	UPPER LIMIT	82598	3.88	310322	6.83	158036	10.96
	LOWER LIMIT	20650	2.88	77581	5.83	39509	9.96
	CLIENT SAMPLE NO.						
01	SBLK0623BW1	33195	3.37	128167	6.33	64530	10.46
02	SBLK0623BW1L	39318	3.37	144504	6.33	72112	10.46
03	SBLK0623BW1L	37853	3.38	135950	6.34	70476	10.45
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IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

FORM 8
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: EMPIRICAL LABS Contract: ARCADIS

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: ARC.B06207

Lab File ID (Standard): LPAHCCV Date Analyzed: 06/25/08

Instrument ID: BNA3 Time Analyzed: 0919

		IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
	12 HOUR STD	127833	13.82	124574	19.98	99762	23.04
	UPPER LIMIT	255666	14.32	249148	20.48	199524	23.54
	LOWER LIMIT	63917	13.32	62287	19.48	49881	22.54
	CLIENT SAMPLE NO.						
01	SBLK0623BW1	104632	13.82	100450	19.98	75435	23.05
02	SBLK0623BW1L	118682	13.82	116066	19.98	89156	23.04
03	SBLK0623BW1L	112594	13.82	111137	19.98	85965	23.05
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IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

FORM 8
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: EMPIRICAL LABS Contract: ARCADIS

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: ARC.B06207

Lab File ID (Standard): LPAHCCV Date Analyzed: 06/26/08

Instrument ID: BNA3 Time Analyzed: 0951

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	35632	3.36	137087	6.31	68600	10.43
	UPPER LIMIT	71264	3.86	274174	6.81	137200	10.93
	LOWER LIMIT	17816	2.86	68544	5.81	34300	9.93
	CLIENT SAMPLE NO.						
01	31MW002(0618	33560	3.35	123062	6.32	60646	10.43
02	31MWDUP001(0	33959	3.34	128090	6.31	62908	10.44
03	EB001(061808	33432	3.34	121417	6.31	61044	10.44
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IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

FORM 8
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: EMPIRICAL LABS Contract: ARCADIS

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: ARC.B06207

Lab File ID (Standard): LPAHCCV Date Analyzed: 06/26/08

Instrument ID: BNA3 Time Analyzed: 0951

		IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
	12 HOUR STD	105384	13.80	102897	19.95	74514	23.03
	UPPER LIMIT	210768	14.30	205794	20.45	149028	23.53
	LOWER LIMIT	52692	13.30	51449	19.45	37257	22.53
	CLIENT SAMPLE NO.						
01	31MW002(0618	101187	13.80	104176	19.96	85002	23.03
02	31MWDUP001(0	100271	13.80	95803	19.96	70041	23.03
03	EB001(061808	95886	13.80	89592	19.96	69408	23.03
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IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

FORM 6
SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: EMPIRICAL LABS Contract:

Lab Code: Case No.: SAS No.: NA SDG No.: SDGA70651

Instrument ID: BNA3 Calibration Date(s): 01/14/08 01/14/08

Column: FUSED SILICA ID: 0.25 (mm) Calibration Time(s): 1754 2232

LAB FILE ID: RF0.1: LPAHCAL1 RF0.2: LPAHCAL2 RF0.4: LPAHCAL3
RF1: LPAHCAL4 RF5: LPAHCAL5

COMPOUND	RF0.1	RF0.2	RF0.4	RF1	RF5
Acenaphthene	1.038	1.001	0.977	1.052	1.058
Acenaphthylene	0.936	1.010	1.049	1.338	1.582
Anthracene	0.581	0.641	0.684	0.938	1.051
Benzo(a)anthracene	0.455	0.466	0.525	0.704	0.915
Benzo(b)fluoranthene	0.706	0.790	0.792	0.965	1.151
Benzo(k)fluoranthene	1.043	0.912	1.043	1.395	1.532
Benzo(g,h,i)perylene	0.616	0.629	0.685	0.862	1.047
Benzo(a)pyrene	0.568	0.490	0.509	0.764	1.099
Chrysene	1.082	1.122	1.078	1.177	1.080
Dibenz(a,h)anthracene	0.376	0.377	0.446	0.601	0.886
Fluoranthene	0.563	0.642	0.700	0.903	1.073
Fluorene	0.708	0.756	0.846	1.003	1.137
Indeno(1,2,3-cd)pyrene	0.338	0.318	0.513	0.450	0.755
2-Methylnaphthalene	0.380	0.371	0.400	0.447	0.493
1-Methylnaphthalene	0.469	0.445	0.451	0.498	0.509
Naphthalene	0.918	0.853	0.860	0.888	0.874
Phenanthrene	1.108	1.066	1.049	1.132	1.122
Pyrene	1.117	1.015	1.073	1.215	1.223
Nitrobenzene-d5	0.140	0.153	0.170	0.208	0.262
2-Fluorobiphenyl	1.245	1.225	1.203	1.308	1.277
Terphenyl-d14	0.832	0.730	0.766	0.862	0.866

FORM 6
SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: EMPIRICAL LABS Contract:

Lab Code: Case No.: SAS No.: NA SDG No.: SDGA70651

Instrument ID: BNA3 Calibration Date(s): 01/14/08 01/14/08

Column: FUSED SILICA ID: 0.25 (mm) Calibration Time(s): 1754 2232

LAB FILE ID: RF10: LPAHCAL6 RF20: LPAHCAL7 RF30: LPAHCAL8

COMPOUND	RF10	RF20	RF30
Acenaphthene	1.067	1.049	0.993
Acenaphthylene	1.618	1.659	1.557
Anthracene	1.070	1.051	1.008
Benzo(a)anthracene	0.977	1.049	1.051
Benzo(b)fluoranthene	1.287	1.379	1.325
Benzo(k)fluoranthene	1.530	1.408	1.409
Benzo(g,h,i)perylene	1.020	0.903	0.964
Benzo(a)pyrene	1.171	1.201	1.197
Chrysene	1.068	1.062	1.041
Dibenz(a,h)anthracene	0.888	0.888	0.904
Fluoranthene	1.093	1.076	1.037
Fluorene	1.138	1.161	1.102
Indeno(1,2,3-cd)pyrene	0.797	0.816	0.890
2-Methylnaphthalene	0.484	0.478	0.468
1-Methylnaphthalene	0.500	0.489	0.480
Naphthalene	0.858	0.838	0.807
Phenanthrene	1.122	1.059	1.028
Pyrene	1.315	1.238	1.226
Nitrobenzene-d5	0.263	0.277	0.277
2-Fluorobiphenyl	1.261	1.254	1.166
Terphenyl-d14	0.913	0.894	0.898

FORM 6
SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: EMPIRICAL LABS Contract:

Lab Code: Case No.: SAS No.: NA SDG No.: SDGA70651

Instrument ID: BNA3 Calibration Date(s): 01/14/08 01/14/08

Column: FUSED SILICA ID: 0.25 (mm) Calibration Time(s): 1754 2232

COMPOUND	CURVE	COEFFICENTS A0	COEFFICENTS A1	%RSD OR R^2
Acenaphthene	AVRG		1.02950848	3.3
Acenaphthylene	LINR	0.00000000	1.59123098	0.998
Anthracene	LINR	0.00000000	1.02541699	0.999
Benzo(a)anthracene	LINR	0.00000000	1.04339882	0.999
Benzo(b)fluoranthene	LINR	0.00000000	1.33538156	0.999
Benzo(k)fluoranthene	LINR	0.00000000	1.42019837	0.999
Benzo(g,h,i)perylene	LINR	0.00000000	0.95332202	0.998
Benzo(a)pyrene	LINR	0.00000000	1.19454344	1.000
Chrysene	AVRG		1.08898009	3.9
Dibenz(a,h)anthracene	LINR	0.00000000	0.89793055	1.000
Fluoranthene	LINR	0.00000000	1.05271841	0.999
Fluorene	LINR	0.00000000	1.12226395	0.999
Indeno(1,2,3-cd)pyrene	LINR	0.00000000	0.86214757	0.996
2-Methylnaphthalene	AVRG		0.44026924	11.2
1-Methylnaphthalene	AVRG		0.48037708	4.9
Naphthalene	AVRG		0.86201971	3.8
Phenanthrene	AVRG		1.08579490	3.6
Pyrene	AVRG		1.17792752	8.4
Nitrobenzene-d5	LINR	0.20450048	0.27826515	1.000
2-Fluorobiphenyl	AVRG		1.24226628	3.5
Terphenyl-d14	AVRG		0.84499758	7.8

SEMIVOLATILE INITIAL CALIBRATION VERIFICATION

Lab Name: EMPIRICAL LABS Contract:

Lab Code: Case No.: SAS No.: NA SDG No.: SDGA70651

Instrument ID: BNA3 Calibration Date: 01/14/08 Time: 2311

Lab File ID: LPAHICV Init. Calib. Date(s): 01/14/08 01/14/08

Init. Calib. Times: 1754 2232

COMPOUND	$\overline{RRF}$	RRF5	CURVE AMOUNT	CCAL AMOUNT	MIN RRF	CURVE	%D	MAX %D	
Acenaphthene	1.029	1.102	5.000	5.351		AVRG	7.0	25.0	
Acenaphthylene	1.344	1.589	5.000	4.994		LINR	-0.1	25.0	
Anthracene	0.878	1.071	5.000	5.224		LINR	4.5	25.0	
Benzo(a)anthracene	0.768	1.037	5.000	4.970		LINR	-0.6	25.0	
Benzo(b)fluoranthene	1.049	1.381	5.000	5.171		LINR	3.4	25.0	
Benzo(k)fluoranthene	1.284	1.652	5.000	5.816		LINR	16.3	25.0	
Benzo(g,h,i)perylene	0.841	0.945	5.000	4.956		LINR	-0.9	25.0	
Benzo(a)pyrene	0.875	1.145	5.000	4.793		LINR	-4.1	25.0	
Chrysene	1.089	1.135	5.000	5.212		AVRG	4.2	25.0	
Dibenz(a,h)anthracene	0.671	0.799	5.000	4.449		LINR	-11.0	25.0	
Fluoranthene	0.886	1.115	5.000	5.296		LINR	5.9	25.0	
Fluorene	0.981	1.196	5.000	5.329		LINR	6.6	25.0	
Indeno(1,2,3-cd)pyrene	0.610	0.670	5.000	3.887		LINR	-22.3	25.0	
2-Methylnaphthalene	0.440	0.523	5.000	5.938		AVRG	18.8	25.0	
1-Methylnaphthalene	0.480	0.496	5.000	5.168		AVRG	3.4	25.0	
Naphthalene	0.862	0.915	5.000	5.308		AVRG	6.2	25.0	
Phenanthrene	1.086	1.106	5.000	5.093		AVRG	1.8	25.0	
Pyrene	1.178	1.395	5.000	5.920		AVRG	18.4	25.0	
Nitrobenzene-d5	0.219	0.262	5.000	0.0000		LINR	-99.9	25.0	<
2-Fluorobiphenyl	1.242	1.277	5.000	0.0000		AVRG	2.8	25.0	
Terphenyl-d14	0.845	0.866	5.000	0.0000		AVRG	2.5	25.0	

FORM 7
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: EMPIRICAL LABS Contract: ARCADIS

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: ARC.B06207

Instrument ID: BNA3 Calibration Date: 06/25/08 Time: 0919

Lab File ID: LPAHCCV Init. Calib. Date(s): 01/14/08 01/14/08

Init. Calib. Times: 1754 2232

COMPOUND	$\overline{RRF}$	RRF5	CURVE AMOUNT	CCAL AMOUNT	MIN RRF	CURVE	%D	MAX %D
Acenaphthene	1.029	1.111	5.000	5.395		AVRG	7.9	20.0
Acenaphthylene	1.344	1.703	5.000	5.352		LINR	7.0	20.0
Anthracene	0.878	1.050	5.000	5.120		LINR	2.4	20.0
Benzo(a)anthracene	0.768	0.985	5.000	4.721		LINR	-5.6	20.0
Benzo(b)fluoranthene	1.049	1.135	5.000	4.248		LINR	-15.0	20.0
Benzo(k)fluoranthene	1.284	1.358	5.000	4.782		LINR	-4.4	20.0
Benzo(g,h,i)perylene	0.841	1.016	5.000	5.327		LINR	6.5	20.0
Benzo(a)pyrene	0.875	1.028	5.000	4.305		LINR	-13.9	20.0
Chrysene	1.089	1.067	5.000	4.897		AVRG	-2.0	20.0
Dibenz(a,h)anthracene	0.671	0.899	5.000	5.004		LINR	0.1	20.0
Fluoranthene	0.886	1.056	5.000	5.018		LINR	0.4	20.0
Fluorene	0.981	1.147	5.000	5.111		LINR	2.2	20.0
Indeno(1,2,3-cd)pyrene	0.610	0.855	5.000	4.957		LINR	-0.9	20.0
2-Methylnaphthalene	0.440	0.502	5.000	5.703		AVRG	14.1	20.0
1-Methylnaphthalene	0.480	0.530	5.000	5.522		AVRG	10.4	20.0
Naphthalene	0.862	0.891	5.000	5.170		AVRG	3.4	20.0
Phenanthrene	1.086	1.074	5.000	4.948		AVRG	-1.0	20.0
Pyrene	1.178	1.170	5.000	4.968		AVRG	-0.6	20.0
Nitrobenzene-d5	0.219	0.292	5.000	5.462		LINR	9.2	
2-Fluorobiphenyl	1.242	1.325	5.000	5.334		AVRG	6.7	
Terphenyl-d14	0.845	0.822	5.000	4.866		AVRG	-2.7	

FORM 7
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: EMPIRICAL LABS Contract: ARCADIS

Lab Code: NA Case No.: NA SAS No.: NA SDG No.: ARC.B06207

Instrument ID: BNA3 Calibration Date: 06/26/08 Time: 0951

Lab File ID: LPAHCCV Init. Calib. Date(s): 01/14/08 01/14/08

Init. Calib. Times: 1754 2232

COMPOUND	$\overline{RRF}$	RRF5	CURVE AMOUNT	CCAL AMOUNT	MIN RRF	CURVE	%D	MAX %D
Acenaphthene	1.029	1.119	5.000	5.436		AVRG	8.7	20.0
Acenaphthylene	1.344	1.668	5.000	5.242		LINR	4.8	20.0
Anthracene	0.878	1.087	5.000	5.301		LINR	6.0	20.0
Benzo(a)anthracene	0.768	0.917	5.000	4.395		LINR	-12.1	20.0
Benzo(b)fluoranthene	1.049	1.206	5.000	4.516		LINR	-9.7	20.0
Benzo(k)fluoranthene	1.284	1.397	5.000	4.919		LINR	-1.6	20.0
Benzo(g,h,i)perylene	0.841	0.851	5.000	4.464		LINR	-10.7	20.0
Benzo(a)pyrene	0.875	1.054	5.000	4.414		LINR	-11.7	20.0
Chrysene	1.089	1.084	5.000	4.979		AVRG	-0.4	20.0
Dibenz(a,h)anthracene	0.671	0.783	5.000	4.358		LINR	-12.8	20.0
Fluoranthene	0.886	1.073	5.000	5.096		LINR	1.9	20.0
Fluorene	0.981	1.159	5.000	5.166		LINR	3.3	20.0
Indeno(1,2,3-cd)pyrene	0.610	0.692	5.000	4.014		LINR	-19.7	20.0
2-Methylnaphthalene	0.440	0.486	5.000	5.516		AVRG	10.3	20.0
1-Methylnaphthalene	0.480	0.512	5.000	5.333		AVRG	6.6	20.0
Naphthalene	0.862	0.885	5.000	5.135		AVRG	2.7	20.0
Phenanthrene	1.086	1.090	5.000	5.017		AVRG	0.3	20.0
Pyrene	1.178	1.196	5.000	5.077		AVRG	1.5	20.0
Nitrobenzene-d5	0.219	0.273	5.000	5.118		LINR	2.4	
2-Fluorobiphenyl	1.242	1.327	5.000	5.340		AVRG	6.8	
Terphenyl-d14	0.845	0.832	5.000	4.922		AVRG	-1.6	